Dolphin-C2 (Machine Code: B188) SERVICE MANUAL

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Conventions Used in this Manual

This manual uses several symbols.

Symbol	What it means
•	Refer to section number
CT	See Core Tech Manual for details
Î	Screw
E)	Connector
S	E-ring
$\langle n \rangle$	Clip ring
	Clamp



*

SEF (Short Edge Feed) (Lengthwise)



LEF (Long Edge Feed) (Sideways)

1. SAFETY INSTRUCTIONS

For your safety, please read this manual carefully before you use this product. Keep this manual handy for future reference.

Safety Information

Always obey the following safety precautions when using this product.

Safety During Operation

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

The following headings provide special information:

FAILURE TO OBEY WARNING INFORMATION COULD RESULT IN SERIOUS INJURY OR DEATH.

Obey these guidelines to ensure safe operation and prevent minor injuries.

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.

Switches and Symbols

Where symbols are used on or near switches on machines for Europe and other areas, the meaning of each symbol conforms with IEC60417.



SAFE-SYM.WMF

1.1 RESPONSIBILITIES OF THE SERVICE TECHNICIAN

1.1.1 SERVICE TECHNICIAN

Maintenance shall be done only by trained Service Technicians who have completed service training for the machine and all optional devices designed for use with the machine.

1.1.2 REFERENCE MATERIAL FOR MAINTENANCE

Maintenance shall be done using the special tools and procedures prescribed for maintenance of the machine described in the reference materials (service manuals, technical bulletins, operating instructions, and safety guidelines for Service Technicians).

Use only consumable supplies and replacement parts designed for use of the machine.

1.2 BEFORE INSTALLATION, MAINTENANCE

1.2.1 SHIPPING AND MOVING THE MACHINE

- 1. Work carefully when lifting or moving the machine. If the machine is heavy, two or more Service Technicians may be required to prevent injuries (muscle strains, spinal injuries, etc.) or damage to the machine if it is dropped or tipped over.
- 2. Personnel moving or working around the machine should always wear proper clothing and footwear. Never wear loose fitting clothing or accessories (neckties, loose sweaters, bracelets, etc.) or casual footwear (slippers, sandals, etc.) when lifting or moving the machine.
- 3. Always unplug the power cord from the power source before you move the product. Before you move the product, arrange the power cord so it will not fall under the product.
- 4. The wall outlet should be near the copier and easily accessible.

1.2.2 **POWER**

AWarning

- 1. Always disconnect the power plug before doing any maintenance procedure. After switching off the machine, power is still supplied to the main machine and other devices. To prevent electrical shock, switch the machine off, wait for a few seconds, then unplug the machine from the power source.
- 2. Before you do any checks or adjustments after turning the machine off, work carefully to avoid injury. After removing covers or opening the machine to do checks or adjustments, never touch electrical components or moving parts (gears, timing belts, etc.).
- 3. After turning the machine on with any cover removed, keep your hands away from electrical components and moving parts. Never touch the cover of the fusing unit, gears, timing belts, etc.

1.2.3 INSTALLATION, DISASSEMBLY, AND ADJUSTMENTS

- 1. After installation, maintenance, or adjustment, always check the operation of the machine to make sure that it is operating normally. This ensures that all shipping materials, protective materials, wires and tags, metal brackets, etc., removed for installation, have been removed and that no tools remain inside the machine. This also ensures that all release interlock switches have been restored to normal operation.
- 2. Never use your fingers to check moving parts causing spurious noise. Never use your fingers to lubricate moving parts while the machine is operating.

1.2.4 SPECIAL TOOLS

- 1. Use only standard tools approved for machine maintenance.
- 2. For special adjustments, use only the special tools and lubricants described in the service manual. Using tools incorrectly, or using tools that could damage parts, could damage the machine or cause injuries.

1.3 DURING MAINTENANCE

1.3.1 GENERAL

- 1. Before you begin a maintenance procedure:
 - Switch the machine off.
 - Disconnect the power plug from the power source.
 - Allow the machine to cool for at least 10 minutes.
- 2. Avoid touching the components inside the machine that are labeled as hot surfaces.
- 3. The wall outlet should be near the copier and easily accessible.

1.3.2 SAFETY DEVICES

- 1. Never remove any safety device unless it requires replacement. Always replace safety devices immediately.
- 2. Never do any procedure that defeats the function of any safety device. Modification or removal of a safety device (fuse, switch, etc.) could lead to a fire and personal injury. Always test the operation of the machine to ensure that it is operating normally and safely after removal and replacement of any safety device.
- 3. For replacements use only the correct fuses or circuit breakers rated for use with the machine. Using replacement devices not designed for use with the machine could lead to a fire and personal injuries.

▲ CAUTION: DOUBLE POLE/NEUTRAL FUSING

The machine power cord must be disconnected from the power source before replacement of FU002.

1.3.3 ORGANIC CLEANERS

- 1. During preventive maintenance, never use any organic cleaners (alcohol, etc.) other than those described in the service manual.
- 2. Make sure the room is well ventilated before using any organic cleaner. Use organic solvents in small amounts to avoid breathing the fumes and becoming nauseous.
- 3. Switch the machine off, unplug it, and allow it to cool before doing preventive maintenance. To avoid fire or explosion, never use an organic cleaner near any part that generates heat.
- 4. Wash your hands thoroughly after cleaning parts with an organic cleaner to contamination of food, drinks, etc. which could cause illness.
- 5. Clean the floor completely after accidental spillage of silicone oil or other materials to prevent slippery surfaces that could cause accidents leading to hand or leg injuries. Use "My Ace" Silicone Oil Remover (or dry rags) to soak up spills. For more details, please refer to Technical Bulletin "Silicone Oil Removal" (A024-50).

1.3.4 LITHIUM BATTERIES

- 1. Always replace a lithium battery on a PCB with the same type of battery prescribed for use on that board. Replacing a lithium battery with any type other than the one prescribed for use on the board could lead to an explosion or damage to the PCB.
- 2. Never discard used batteries by mixing them with other trash. Remove them from the work site and dispose of them in accordance with local laws and regulations regarding the disposal of such items.

1.3.5 OZONE FILTERS

- 1. Always replace ozone filters as soon as their service life expires (as described in the service manual). An excessive amount of ozone can build up around machines that use ozone filters if they are not replaced at the prescribed time. Excessive ozone could cause personnel working around the machine to feel unwell.
- 2. Never operate the copier without the ozone filters installed.

1.3.6 POWER PLUG AND POWER CORD

- 1. Before serving the machine (especially when responding to a service call), always make sure that the power plug has been inserted completely into the power source. A partially inserted plug could lead to heat generation (due to a power surge caused by high resistance) and cause a fire or other problems.
- 2. Always check the power plug and make sure that it is free of dust and lint. Clean it if necessary. A dirty plug can generate heat which could cause a fire.
- 3. Inspect the length of the power cord for cuts or other damage. Replace the power cord if necessary. A frayed or otherwise damaged power cord can cause a short circuit which could lead to a fire or personal injury from electrical shock.
- 4. Check the length of the power cord between the machine and power supply. Make sure the power cord is not coiled or wrapped around any object such as a table leg. Coiling the power cord can cause excessive heat to build up and could cause a fire.
- 5. Make sure that the area around the power source is free of obstacles so the power cord can be removed quickly in case of an emergency.
- 6. Make sure that the power cord is grounded (earthed) at the power source with the ground wire on the plug.
- 7. Connect the power cord directly into the power source. Never use an extension cord.
- 8. When you disconnect the power plug from the power source, always pull on the plug, not the cable.

1.4 AFTER INSTALLATION, SERVICING

1.4.1 DISPOSAL OF USED ITEMS

Never incinerate used toner or toner cartridges. Toner or toner cartridges thrown into a fire can ignite or explode and cause serious injury. At the work site always carefully wrap used toner and toner cartridges with plastic bags to avoid spillage before disposal or removal.

- 1. Always dispose of used items (developer, toner, toner cartridges, OPC drums, etc.) in accordance with the local laws and regulations regarding the disposal of such items.
- 2. To protect the environment, never dispose of this product or any kind of waste from consumables at a household waste collection point. Dispose of these items at one of our dealers or at an authorized collection site.
- 3. Return used selenium drums to the service center for handling in accordance with company policy regarding the recycling or disposal of such items.

1.4.2 MOVING THE COPIER



B010I521.WMF

- 1. Open the upper unit [A]
- 2. Push the pressure lever [B] to the left. This separates the cleaning the blade from the drum so the blade does not damage the drum during shipping.
- 3. After setting up the printer in its new location, repeat this procedure and push the pressure lever to the right to bring the cleaning blade in contact with the drum.

1.4.3 POINTS TO CONFIRM WITH OPERATORS

At the end of installation or a service call, instruct the user about use of the machine. Emphasize the following points.

- Show operators how to remove jammed paper and troubleshoot other minor problems by following the procedures described in the operating instructions.
- Point out the parts inside the machine that they should never touch or attempt to remove.
- Confirm that operators know how to store and dispose of consumables.
- Make sure that all operators have access to an operating instruction manual for the machine.
- Confirm that operators have read and understand all the safety instructions described in the operating instructions.
- Demonstrate how to turn off the power and disconnect the power plug (by pulling the plug, not the cord) if any of the following events occur:
 - 1) Something has spilled into the product.
 - 2) Service or repair of the product is necessary.
 - 3) The product cover has been damaged.
- Caution operators about removing paper fasteners around the machine. They should never allow paper clips, staples, or any other small metallic objects to fall into the machine.
- Caution operators about storing extra toner cartridges. To prevent clumping on one end of the toner cartridge, it should always be stored horizontally on a flat service. A toner cartridge should never be stored on its end vertically.

2. SPECIAL SAFETY INSTRUCTIONS FOR TONER

This section describes information for users in regard to the use of toner.

2.1 ACCIDENTAL PHYSICAL EXPOSURE

- 1. Work carefully when removing paper jams or replacing toner bottles or cartridges to avoid spilling toner on clothing or the hands.
- 2. If toner is inhaled, immediately gargle with large amounts of cold water and move to a well ventilated location. If there are signs of irritation or other problems, seek medical attention.
- 3. If toner gets on the skin, wash immediately with soap and cold running water.
- 4. If toner gets into the eyes, flush the eyes with cold running water or eye wash. If there are signs of irritation or other problems, seek medical attention.
- 5. If toner is swallowed, drink a large amount of cold water to dilute the ingested toner. If there are signs of any problem, seek medical attention.
- 6. If toner spills on clothing, wash the affected area immediately with soap and cold water. Never use hot water! Hot water can cause toner to set and permanently stain fabric.

2.2 HANDLING AND STORING TONER

Toner, used toner, and developer are extremely flammable. Never store toner, developer, toner cartridges, or toner bottles (including empty toner bottles or cartridges) in a location where they will be exposed to high temperature or an open flame.

- 1. Always store toner and developer supplies such as toner and developer packages, cartridges, and bottles (including used toner and empty bottles and cartridges) out of the reach of children.
- 2. Always store fresh toner supplies or empty bottles or cartridges in a cool, dry location that is not exposed to direct sunlight.
- 3. Always store extra toner cartridges horizontally on a flat surface. To prevent toner clumping, never set a toner cartridge on one and allow it to stand vertically.

2.3 TONER DISPOSAL

- 1. Never attempt to incinerate toner, used toner, or empty toner containers (bottles or cartridges). Burning toner can explode and scatter, causing serious burns.
- 2. Always wrap used toner and empty toner bottles and cartridges in plastic bags to avoid spillage. Follow the local laws and regulations regarding the disposal of such items.
- 3. Dispose of used toner and toner cartridges at one of our dealers or at an authorized collection site. Always dispose of used toner cartridges and toner bottles in accordance with the local laws and regulations regarding the disposal of such items.

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1. INSTALLATION PROCEDURE

1.1 PREPARATION

1.1.1 ENVIRONMENT

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

- 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 to direct sunlight).
- 4. Ventilation: Minimum space 20 m³ (approx. 700 cubic ft.) Room air should turn over at least 3 times per hour.
- 5. Ambient Dust: Less than 0.075 mg/m³
- 6. If the installation place is air-conditioned or heated, place the machine as follows:
 - a)Where it will not be subjected to sudden temperature changes from low to high, or vice versa.
 - b)Where it will not be directly exposed to cool air from an air conditioner in the summer.
 - c) Where it will not be directly exposed to reflected heat from a space heater in the winter.
- 7. Avoid placing the machine in an area filled with corrosive gases.
- 8. Avoid any area higher than 2,000 m (6,500 ft) above sea level.
- 9. Place the machine on a strong and level base.
- 10. Avoid any area where the machine may be subjected to frequent strong vibration.



1.1.2 MINIMUM SPACE REQUIREMENTS

- 1. Front: 1,000 mm (39")
- 2. Back: 450 mm (18")
- 3. Right: 450 mm (18")
- 4. Left: 400 mm (16")
- 5. Height: 450 mm (18")

1.1.3 MACHINE LEVEL

- 1. Front to back: Within 0.15 mm/1000 mm (0.006"/39.4") of level
- 2. Right to left: Within 0.15 mm/1000 mm (0.006"/39.4") of level Make sure that the machine is level using a carpenter's level.

1.1.4 POWER SOURCE

The machine must be installed in a building /facility equipped with a protective device such as a circuit breaker, as the machine relies on such devices for protection against over-current and short circuits

- 1. Input Voltage Level: 120V, 60Hz More than 20 A (for the U.S.A. version) 220 ~ 240V, 50/60Hz More than 10 A (for the Europe/China version)
- 2. Permissible Voltage ± 10% Fluctuation:
- 3. Do not set anything on the power cord.
- **NOTE:** 1) Make sure the plug is firmly inserted in the outlet. 2) Avoid multi-wiring.

1.2 COPIER (B188)

1.2.1 ACCESSORY CHECK

Check the accessories and their quantities against the following list:



Installation

Description	Q'ty
1. Rear Copy Tray Holder	3
2. Rear Copy Tray	3
3. Rear Copy Tray Guide - Small	2
4. Rear Copy Tray Guide - Large	1
5. Panel Emblem (B188-17, -27 Only)	1
6. Tapping Screw – M4 x 8	6
7. Screw with Washer – M4 x 10	2
8. Upper Original Exit Guide	3
9. Rear Original Tray	3
10. Guide Mylar - Large	1
11. Guide Mylar - Small	3
12. Leveling Shoes	4
13. Front Copy Tray	1
14. Paper Holder	4
15. Cloth – Exposure Glass	1
16. Operating Instructions Holder	1
17. Interface Cable	1
18. Original Guide Tray Hinges – Left, Right	2
19. Original Guide Tray	1
20. Operating Instructions (Copy) (B188-17, -21 Only)	1
21. Operating Instructions (General) (B188-17, -21 Only)	1

NOTE: Since the installation procedure is not packed with the copier as an accessory, always bring this manual with you.

1.2.2 INSTALLATION PROCEDURE

Installing the Copier



1. Unpack the machine box and place the copier onto a flat floor with lifting equipment (a fork lift).

The machine weighs approximately 230 kg (507 lb). If a fork lift is not available, at least 4 people, one on each corner of the machine, are needed to lift it from the pallet.



▲ CAUTION Before you start this procedure, make sure the machine is unplugged.

- 2. Remove the upper original tray pack [A] from inside the upper unit.
- 3. Remove all tape from the locations shown in the above diagram.

Important

• Keep the shipping retainers after installing the machine. They will be reused if the machine is moved to another location in the future.



- 4. Pull out the upper tray [A] and remove strips of tape.
- 5. Take out the four paper holders [B]. Remove the tapes (x2 each).
- 6. At the rear, remove two shipping blocks [C] from the original junction gate.
- 7. Release the lock lever [D]. Open the original feed unit [E] and remove the cushions and bubble pack [F].

COPIER (B188)



- 8. At the front, remove the tapes [A], and then from the rear remove the shipping blocks [B] and tape [C].
- 9. Open the exit cover [D] and junction gate unit [E], then pull the red ribbon [F] to remove the protection sheet [G].
- 10. Close the junction gate unit and exit cover.



- 11. Open the upper unit [A] and remove two strips of tape [B] from the transfer corona unit.
- 12. At the front, peel off three strips of tape, and take out the drum protection sheet [C] by pulling out the red tape.

Pull the red tape out slowly and carefully, to prevent damage to the cleaning unit entrance seal.

13. Close the upper unit.



- 14. Open the toner hopper cover.
- 15. Remove the left exit tray [A].
- 16. Remove the strip of tape [B] from the corona wire cleaner, then reinstall the exit tray ($\hat{\beta}^2 \ge 2$).

The tape is looped around the corona wire drive screw. To avoid damaging the drive screw, gently peel the tape from the mylar or cut it with scissors.

- 17. Close the toner hopper cover and open the upper unit.
- 18. Place a level [C] in the middle of the guide plate as shown in the illustration. Make the machine level by turning the bolts [D] on the machine's four feet.
 NOTE: The gap [E] must be less than 2 mm for the bolt to clear the roll feeder (option) when the feeder is opened and closed.



- 19. Open the toner hopper cover [A].
- 20. Remove the sheet [B] covering the developer entrance.

Important

- The Lot No. of each package is embossed on the top flap of each package.
- You must input the lot number when you initialize the developer. Keep these flaps. Write down the number, so you can input it later.
- 21. Pour one pack of developer [C] (1.2 kg) into the development unit evenly across the width of the unit.
- 22. Turn the knob [D] clockwise several times as shown.
- 23. Pour in the second pack of developer.



- 24. Prepare the toner cartridge for installation.
 - Shake the cartridge several times and make sure that the toner is moving inside.
 - Push the cartridge cap [A]. At the same time, tap the bottom of the toner cartridge 4 or 5 times.
 - Hold the cartridge horizontally and shake it quickly from side to side 4 or 5 times.
 - Hold the joint [B] of the toner cartridge with two fingers, and turn the joint. If the joint does not turn, do the procedure again.

Important!

- Tell the customer how to prepare a toner cartridge for installation.
- If toner is not loosened before the toner cartridge is installed, the customer may hear a rattling noise. The agitators inside the toner cartridge will disengage if compacted toner does not let them turn easily. This is the source of the rattling noise.
- To prevent this problem, instruct the customer to store extra toner cartridges horizontally on a flat surface. A toner cartridge should never be put on its end or stored vertically.



- 25. Install the toner cartridge [A]. Refer to the decal attached on the left side of the machine.
 - 1) Peel off the green tape [B] from right to left to expose the clear tape and toner supply holes.
 - 2) Rotate the knob [C] of the cartridge clockwise until it stops.
- 26. Close the toner hopper cover and upper unit.
Testing the Breaker Operation

- 1. Make sure that the main power switch is off.
- 2. Check the power cord of the copier and make sure that it is connected to the power source.

Before you test the breaker, always make sure that the main power switch is off. Do not attempt to test the breaker switch with the copier power turned on.

- 3. Remove the right rear cover ($\hat{\mathscr{F}} \times 6$).
- 4. Remove the right front cover ($\hat{\not}$ x4).
- 5. Remove the waste toner bottle (x 1).
- 6. Test the operation of the breaker [A].
 - Insert the tip of a screwdriver through the hole in front of the breaker.
 - ② Push in the breaker test button with the tip of the screwdriver, until the breaker snaps to the 'Trip' position.
- 7. Check that the breaker switch is at the '**Trip**' position.

Important! If the breaker switch does not drop to the "**Trip**" position:

- Make sure that the power cord is securely connected to the power supply.
- Push the test button again. If the breaker switch does not snap down to the '**Trip**' position, the breaker switch must be replaced.
- 8. Reset the breaker switch to the 'ON' position.

③ Push the breaker switch down fully until it stops at the "OFF" position.

④ Raise the breaker switch to the '**ON**' position.



B188I700.WMF





Initializing the Developer

- 1. Turn on the main switch.
- Load some roll paper in the machine.
 NOTE: For loading instructions, see the decals on the top edge of the roll feeder front cover.
- 3. Wait for the machine to warm up.
- 4. Enter SP mode.
 - Press the [Clear Modes] key (^C/_☉).
 - Enter **107**.
 - Hold down [Clear/Stop] (^(Co)) for more than 3 seconds.
 - Touch "Copy SP".
- 5. Enter **2801 001** and press [#].
- 6. Use the 10-key pad to enter the Lot No. embossed on the top seal of the developer package, then push [#].
- 7. When the message prompts you to proceed, touch "Yes".
- 8. Push [Execute]. Wait for about 2 min.
- 9. When the message tells you that the operation is finished, touch "Exit".
- 10. Touch "SP Direct", then use the 10-key pad to enter 2923 001 and push [#].
- 11. Push [Execute]. The machine enters the drum set mode and dusts the drum with toner.
- 12. When the message prompts you that the operation is finished, touch "Exit".

Installation

- 13. Open the upper unit [A] and confirm that the drum is covered with toner.
- 14. Push the pressure lever [B] to the right to push the cleaning blade against the drum, then close the upper unit.
- 15. To initialize the ID sensor, touch "SP Direct", push [#], enter SP3001 002 then touch [Execute].
 Wait about 12 seconds for initialization to complete.
- 16. When the message prompts you that the operation is finished, touch "Exit".
- 17. Exit the SP mode and make copy samples.



B010I521.WMF

NOTE: Ask the customer about their copy volume. If the average copy volume is high (2.5 km/month, 200 m/day, or more), then you must change SP 2201 004 to High Duty Mode to prevent toner scattering.

[A]

Emblem Panel (B188-17, -27 Only)



Attach the emblem [A] and panel [B] to the toner hopper cover [C].
 NOTE: Push the panel in until the emblem and panel move into their positions with an audible click.

Front Copy Tray

1. Attach the front copy tray [A].



B010I208.WMF

Stacker Installation



B010I105.WMF



Important

- Install these guides and guide trays after you install the Roll Feeder (B758) or the Cassette Tray (B759)
- 1. Install the original guide tray [A] by using the original guide tray hinges [B] (x 1 each).
- 2. Install the upper original exit guides [C], and the rear original trays [D].

Trays and Mylars



1. Install the rear copy tray holders [A] (Â X 2 each), and insert the rear copy trays [B].

NOTE: The rear copy tray holders must be installed to cover the holes and the bare section of the frame.

- 2. Attach the large rear copy tray guide [C] in the center. Then attach the two small rear copy tray guides on the two sides of the large guide.
- 3. Attach the small guide mylars [D]. The guide mylars must be on the rear copy tray guide.
- 4. Hook the large guide mylar [E] on the rear center copy tray.

1.3 ROLL FEEDER (B758)

1.3.1 ACCESSORY CHECK



Installation

Check the accessories and their quantities against the following list: Description Q'tv

escription	Qity
1. Left Slide Rail	1
2. Right Slide Rail	1
3. Paper Holder	4
4. Positioning Pin	2
5. Connector Unit	1
6. Harness Clamp – LWS-0511Z	2
7. Harness Clamp – LWS-2111Z	1
8. Edging	1
9. Tapping Bind Screw M3x6	4
10. Decal – Tray 3/4	1
11. Harness Clamp – FCW52	2
12. Screw – M4 x 6	16
13. Stepped Screw – M4	4
14. Screw with Spring Washer – M4 x 6	1
15. Screw – M4x6	4

1.3.2 INSTALLATION PROCEDURE



- 1. Unplug the main machine power cord before starting the following procedure.
- 2. Before starting the installation, insert the leveling shoes under the leveling feet, and level the machine.
- 3. The machine is very heavy. To avoid serious injury, make sure that you have a sufficient number of people to assist, and use proper lifting equipment for lifting or moving.
- 4. The feed tray is weighs 32 kg (70.5 lb.) and requires at least two people to lift and install.
- **NOTE:** Keep the shipping retainers after installing the machine. They will be reused if the machine is moved to another location in the future.
- 1. Turn off the copier main switch.
- 2. Remove these covers:
 - [A]: Right lower cover (²ℓ x4)
 - [B]: Right rear cover (ℱ x6)
 - [C]: Left front cover (k x4)
 - [D]: Left rear cover (x6)
 - [E]: Rear covers (x10)
- 3. Remove the lower cover [F] and two brackets [G] (²/_F x2 ea.)
- 4. Remove the toner collection bottle [H].



- 5. Remove the PSU shield cover [A] ($\hat{\mathscr{F}} x4$, $\stackrel{\frown}{\hookrightarrow} x2$).
- 6. Use a marker to mark the Line and Neutral bayonet connectors [B] before you disconnect them from the PSU,
 - Mark them "L" and "N" to prevent reversing their positions when they are reattached.
 - "L" (Line) is on the right, and "N" (Neutral) is on the left.
- 7. Remove the PSU [C] (ℰ x4, ⊑ 16).



- 8. Install the right [A] and left [B] rails ($\hat{\mathscr{F}}$ x2 stepped, $\hat{\mathscr{F}}$ x5 ea. M4x6).
- 9. Install the positioning pins [C] ($\hat{\mathscr{F}}$ x2 ea. tapping M4x6).
- 10. Adjust the bolt [D] to lower the bolt until it level is with the base plate.
- 11. Install two harness clamps [E] (x2 ea. tapping M3x6).



- 12. Install the harness clamp [A] and edging [B].
- 13. Remove the cover [C] ($\hat{\mathscr{F}}$ x2)
- 14. Install the connector [D] (\mathscr{F} x4, M4 x 8).



- 15. Loosen the three screws that secure the drawer connector [A].
- 16. Remove the shipping material from the flat cable [B].
- 17. Install the roll feeder [C] on the slide rails, and fit it over the positioning pins [D].
- 18. Use the four screws [E] (\hat{F} x2 ea. M4 x 6) to attach the tray to the side rails [F].



- 19. Draw out the lower roll feeder and route the flat cable [A] as shown.
- 20. Loosen the positioning brackets [B] (at the left and at the right) of the lower roll feeder (2 screws each).
- 21. Remove the plastic bags from the lock levers and push in the lower roll feeder slowly.
- 22. Align the left positioning bracket and the drawer connector [C]. Then attach the drawer connector (3 screws) and positioning brackets (2 screws each).

ROLL FEEDER (B758)

nstallation



23. Install the harness clamp [A] and connect the cables [B], [C], [D], and [E]. **NOTE:** Be sure to clamp cable [C, E] as shown with the pre-installed clamp [F].

- 24. Secure the ground (earth) wire [G] (1 screw M4x6 with spring washer).
- 25. Reinstall the lower front cover [H] and attach the decal [I] (2 hex. tapping screws M4x8 with flat washer).
- 26. Reinstall the power supply unit, toner collection bottle, and covers.NOTE: Connect the "N" (Neutral) connector on the left and connect the "L" (Line) connector on the right.

When you position the power supply unit for re-installation, make sure that the flat ribbon cable is not pinched at the top right.

Roll Heater Switch



- 1. The heater switch [A] for the roll feeder is at the rear left corner of the roll feeder.
- 2. Switch on the roll heater if the humidity at the installation site is very high.

1.4 CASSETTE TRAY B759

1.4.1 ACCESSORY CHECK

Check the accessories and their quantities against this list:

Description

Qty

1. Interface Harness......1 2. Heater Harness.....1 3. Decals (Paper Size)1 4. Decals (Temperature Cautions).....1 6. Tapping Screws (M4 x 8).....6 7. Tapping Screws (M3 x8).....1 9. Harness Clamps - Long2 10. Harness Clamp - Long1 11. Grommet - Small......1 12. Grommet - Large.....1 14. Cover Plate - Right......1 15. Cover Plate - Left1 16. Left End Cover......1 17. Right End Cover.....1 18. Decal (Cassette) (-27 only)1



1.4.2 INSTALLATION



- [A]: Unpack the cassette tray
- [B]: Remove all tape and packing material

- Always turn the machine off and unplug the machine before you do any of the following procedures.
- The cassette tray weighs 60 kg (132 lb.). At least two people are needed to lift and install it.

Removing the Covers



B7591004.WMF



Guide Screws, Caution Decal, Heater Harness

- 1. Put the guide screws [A] ($\hat{\mathscr{F}} x2$) in the holes.
- 2. Attach the temperature caution decal [B].
- 3. Attach the small harness clamps (x4) [C] to the holes (**①**, **②**, **③**, **④**) on the left side of the frame inside the drawer.
- 4. Attach the small grommet [D] to the hole.
- 5. Insert the small end of the heater harness [E] through the grommet and pull it to the front.
- 6. Close the harness clamps [C] on the harness.



- 7. At the left rear corner, attach the small harness clamp [A] ($\stackrel{\frown}{\bowtie}$ x1).
- 8. Open the harness clamps **\mathbf{02}** ($\mathbf{\textcircled{2}}$ x2).
- 9. Connect the heater harness [B] (≅^{JJ} x2).
- 10. Push the heater harness through the hole [C] to remove slack.
- 11. Close the harness clamps $\mathbf{0}\mathbf{2}\mathbf{3}$ (\mathbf{x} x3).



B759I009.WMF

- 1. At the right rear corner, attach the large grommet [A].
- 2. Thread one end of the interface harness [B] through the hole. **NOTE:** The white/gray connector pair [C] is at the front end of the cable.
- 3. Attach one large harness clamp [D] to the right frame inside the drawer, then close the clamp around the cable.
- 4. At the rear, release the four harness clamps [E].
- 5. Attach the long harness clamps [F].
- 6. Connect the harness [G] (⊑^{IJ} x2).



- 1. Set the cassette tray [A] in front of the copier.
- 2. Connect the cassette tray interface connector [B] (x2).
- 3. With one person on each side of the tray, lift the tray and slide it between the guide pin on the left [C] and on the right [D].
- 4. Push the tray in until it stops.



- At the front left corner of the copier, connect the heater cable [A] to the tray (
 x2)
- 6. Attach the left lock pin [B] and right lock pin [C] in the order that is shown by the numbers (x2 each).
 - Insert the stud of each lock pin first on the left 1 then on the right 2.
 - Check that all 6 holes are aligned correctly before you attach the screws.
 - You may need to move the cassette tray slightly to the right or to the left to align the holes.
 - Screws ③ and ④ are M3 size.
 - Screws (5) and (6) are M4 size



Installation

- 7. Pull out the roll feeder drawer [A].
- Install the left cover plate [B] (𝔅³ x1).
- Install the right cover plate [C]
 (𝔅 x1).
- 10. Close the roller feeder drawer.
- 11. Open the cassette drawer.
- 12. Attach the left end cover [D] ($\hat{\mathscr{F}} x2$).
- 13. Attach the right end cover [E] (
- 14. Attach the paper size decals [F].



Tray Cassette Heater Switch



- 1. Turn on the tray cassette heater switch [A] if the humidity at the installation site is very high.
- 2. To turn the cassette tray heater on:
 - Open the top drawer until you can see the heater switch.
 - Push the switch to the 'on' position.

1.5 ORIGINAL TRAY (B341)

1.5.1 ACCESSORY CHECK

Check the accessories and their quantities against the following list:

Description Q'ty
1. Base Frame 2
2. Base Stay 2
3. Middle Frame 2
4. Original Tray Stay 2
5. Original Tray 1
6. Size Decal Sheet 1
7. Original Stopper 2
8. Original Guide 2
9. Cap – Base Frame 2
10. Cap – Original Tray Stay 2
11. Hexagonal Bolt – M8 x 4012
12. Washer – 8 mm20
13. Tapping Screw – M4 x 8 6
14. Hex Nut – M8 8
15. Caster –
16. Caster –



- 1. Snap the casters [A, B] onto the base frames [C]. [A]: Caster – ϕ 40 Stopper [B]: Caster – ϕ 40
- 2. Install the base stays [D] on the base frames (4 bolts, 4 washers).
- 3. Install the caps [E] on the base frame.
- 4. Install the middle frames [F] (4 bolts, 8 washers, 4 nuts).
- 5. Install the original tray stays [G] (4 bolts, 8 washers, 4 nuts).
- 6. Install the caps [H] on the original tray stays.







- 7. Install the original tray [A] on the original tray stays ($\hat{\mathscr{F}} \ge 6$).
- 8. Attach the size decals (A1쉽, A0쉽, 34"쉽, 36"쉽, 44"쉽, 48"쉽).
- 9. Attach the original stoppers [B] and original guides [C].

1.6 MFP OPTIONS



Here is a list of options that can be installed in the slots.

I/F Card Slots

A	Combination Card. Ethernet and USB 2.0 combined on 1 SD I/F card.
В	Not used.
С	IEEE1394 I/F Board Type B (FireWire) IEEE802.11b I/F Board Type H (Wireless LAN)

SD Card Slots

1	Service slot for firmware version updates, and for merging applications on 1 SD card.
2	Data Overwrite Security (DOS Unit) Type C
3	Scanner Option Type 480

1.6.1 SCANNER UNIT OPTION (B765)

Accessories

Description	Q'ty
1. Ethernet/USB Combination Board	1
2. SC Card	1
3. Keytop Cover	1
4. Keytop – Scanner	1
5. Keytop – Dummy	1
6. Keytop – Printer (Not Used)	1
7. Ferrite Core (RFC –10)	1
8. Ferrite Core (SFC – 10)	2

Installation

Installation

- Remove the cover [A] of I/F card Slot A (𝔅³ x2).
 NOTE: You can discard the cover.
- Insert the Ethernet/USB combination board [B] in Slot A and attach it (𝔅 x2).
- 3. Wrap the ferrite core [C] around the cable and connect the cable.



Remove the SD card slot cover [D] (²/_ℓ x1).

5. Insert the Scanner SD card [E] into **Slot 3**.

Important: Make sure that you insert the SC card into the SD card slot. Do not put the SD card in the gap between the slot and the frame.

Reattach the cover of the SD card slot (
 ^β x1).



B188I304.WMF

Installation



B1001101.00101

- 7. Remove the key top cover [A] on the left side of the operation panel.
- 8. Remove the key tops [B] and attach them with the key top cover [C].
- 9. Attach the Scanner keytop [D] and dummy keytop [E].
- 10. Push the [User Tools] key.
- 11. Confirm that "Scanner Features" is displayed. This indicates that the machine can detect the scanner option.
- 12. Set the IP address and do the other network settings with the User Tools.

1.6.2 IEEE1394 I/F BOARD (B581-01)

Accessories

 Description
 Q'ty

 1. IEEE1394 Interface Board
 1

 2. IEEE1394 Cable 2M 4-Pin
 1

 3. IEEE1394 Cable 2M 6-Pin
 1

Important

Only one interface slot is available for one of these options. As a result, only one of these options can be installed at the same time:

- IEEE802.11b Interface Unit G813 (Wireless LAN) 0
- IEEE1394 Interface Board B581 (FireWire) ❷

Installation

- Insert the IEEE1394 board I/F board [B] and attach it (ℰ x2).
- 3. Take the cable from the accessories, and connect it to the computer and the board.
- 4. Print a list of system settings to check that the machine can detect the IEEE1394 option.



1.6.3 IEEE802.11B I/F UNIT (G813-04, -05)

Accessories

Description

1. IEEE802.11b Interface Board1 2. LAN Card......1 3. Card Cover1

Important

Only one interface slot is available for one of these options. As a result, only one of these options can be installed at the same time:

- IEEE802.11b Interface Unit G813 (Wireless LAN) 1
- IEEE1394 Interface Board B581 (FireWire) ❷

Installation

- 1. Remove the cover [A] of I/F Slot **C** (இ x2). NOTE: You can discard the cover.
- 2. Insert the IEEE802.11b board [B] and attach it (\hat{F} x2).
- 3. Install the card [C] and cover [D].
- 4. Print a list of system settings to check that the machine can detect the IEEE802.11b option.

[B] [C] [D]

B188I303.WMF



Q'ty

Q'ty

1.6.4 DATA OVERWRITE SECURITY UNIT (B735-18)

Accessory Check

Check the accessories and their quantities against this list:

Description

1.	SD Card
	02 04 4

Seal Check And Removal



Before you start the installation, you must check the box seals to make sure that they were not removed after the items were sealed in the box at the factory.

- 1. Check the box seals [A] on each corner of the box.
 - Make sure that a tape is attached to each corner.
 - The surfaces of the tapes must be blank. If you see "VOID" on the tapes, do not install the components in the box.
- 2. If the surfaces of the tapes do not show "VOID", remove them from the corners of the box.
- 3. When you remove each seal, the "VOID" marks [B] can be seen. In this condition, they cannot be attached to the box again.

The machine should always be turned off and its power cord disconnected before you do this procedure.

- 1. If the machine is on, turn off the main power switch.
- 2. Disconnect the network cable (if the machine is connected to a network).
- Remove the SD card slot cover [A] (^A x1).
- 4. Insert the SD card [B] into Slot 2.
- Reattach the SD card slot cover (ℰ x1).
- 6. Print a list of system settings to check that the machine can detect this option.
- 7. Connect the network cable (if the machine is connected to a network).
- 8. Turn the main power switch on.
- 9. Go into the SP mode and do SP5878.
- 10. Go out of the SP mode, turn the operation switch off, then turn the main power switch off.



B188I304.WMF

- 11. Turn the machine power on.
- 12. Go into the User Tools mode, and select System Settings> Administrator> Auto Erase Memory Setting> On.
- 13. Go out of the User Tools mode.



- 14. Check the display and make sure that the overwrite erase icon [A] is displayed.
- 15. Make a Sample Copy.
- 16. Check the overwrite erase icon.
 - The bottom of the icon becomes thicker [B].
 - "Next Copy" is shown for a short interval below the icon.
 - The icon goes back to its usual shape [C].
- 17. Remove the Document Server and Scanner key-tops, and replace them with the blank key-tops that are supplied with the kit.

MFP OPTIONS

1.6.5 KEY COUNTER



- 1. Remove the right front cover [A] ($\hat{\beta}^{2}$ x5).
- 2. Remove the small cover [B] ($\beta x1$).
- 3. Install the key counter holder [C] ($\hat{\beta} x2$, $\forall x1$).
- 4. Reinstall the right rear cover.
- 5. Instruct the operator on how to enable the Key Counter from inside User Tools: User Tools> System Setting> Administrator Tools> Key Counter Access
- 6. Instruct the key operator to set the Key Operator Access code so that only the authorized key operator can change the system settings.

7. Do **SP5045 002** (Accounting Counter) and select the counter type to set the units for the electrical counter.

NOTE: Nine selections are available for this SP, but you must select either "7" (meters) or "8" (yards).

8. Do SP5120 (Mode Clear Option Counter Removal)

This SP determines what happens to the copy job settings (magnification, density, etc.) when the Key Counter is removed or the paper supply runs during a print job.

0:	Yes (default):	Job settings and job are cleared
1:	Stand-by:	Job settings are cleared after the job is completed
2:	No:	Job settings remain even after job is completed

2. PREVENTIVE MAINTENANCE

2.1 PM TABLE

Key for the PM Table

Letter	Action						
Α	Adjust						
С	Clean						
I	Inspect						
L	Lubricate						
R	Replace						

θ	ü
>	C
	5
	C
e	Ð
>	÷
e	-
5	50

NOTE: Units of measure in the PM Interval column: 1 m = 3.28 ft.

2.1.1 COPIER B188

Description		PM Interval		РМ	Comments
Original Feed		m	ft.		
Original Feed / Exit Rollers		10K	32.8K	С	Alcohol or water, dry cloth
Original Sensors		60K	196.8K	С	Blower brush
Original Table		10K	32.8K	С	Water, dry cloth
Optics					
White Platen Roller		10K	32.8K	С	Alcohol or water, dry cloth
Exposure Glass		10K	32.8K	С	Water, glass cleaner
Development					
Developer	2	40K	131.2K	R	Replace if necessary.
Development Filter	1	20K	65.6K	R	Replace if necessary.
Development Roller Gear*1	1	200K	656K	R	Replace if necessary
Cartridge Holder		10K	32.8K	С	Blower brush, dry cloth.
Registration Upper Guide Plate		10K	32.8K	С	Damp cloth, then dry cloth.
Side Seals		10K	32.8K	I/C	Dry cloth
Development Unit Gears ^{*1}		10K	32.8K	L	Silicone Grease G501.
Development Lower Casing		10K	32.8K	С	Damp cloth, then dry cloth.
Used Toner Bottle		10K	32.8K	I	Empty used toner.
Cleaning					
Cleaning Blade	1	30K	98.4K	R	Replace if necessary.
Cleaning Entrance Seal		20K	65.6K	С	Dry cloth.
Side Seals		20K	65.6K	С	Dry cloth.
Pick-off Pawl		20K	65.6K	С	Dry cloth.

Description	Q'ty	PM Interval		РМ	Comments
Around the Drum		m	ft.		
Charge Corona Wire	1	10K	32.8K	C/R	Replace if necessary.
Corona Wire Cleaner Pad	1	10K	32.8K	R	Replace.
Charge Corona Casing		10K	32.8K	С	Damp cloth, then dry cloth.
Grid Wire		10K	32.8K	С	Damp cloth, then dry cloth.
Transfer Corona Wire	1	10K	32.8K	C/R	Clean with dry cloth.
					Replace if necessary.
Separation Corona Wire	1	10K	32.8K	C/R	Clean with dry cloth.
					Replace if necessary.
T&S Corona Casing / Guide		10K	32.8K	С	Damp cloth, then dry cloth.
Quenching Lamp		20K	65.6K	С	Dry cloth
ID Sensor		20K	65.6K	С	Blower brush.
LPH (LED Print Heads)		10K	32.8K	С	Dry cloth. No chemical cleaners.
					After wiping, touch to discharge
					static.

^{*1}: See 2.2 Lubrication points.

Description	Q'ty	Inf	PM	РМ	Comments
Paper Feed		m	ft.		
Cutter Unit	1	10K	32.8K	С	Replace if necessary (approx. service life: 12K cuts)
Paper Feed / Exit Rollers		10K	32.8K	С	Alcohol, dry cloth
Cutting Sensor		20K	65.6K	С	Blower brush
Registration Rollers		10K	32.8K	С	Alcohol, dry cloth
Registration Sensor		20K	65.6K	С	Blower brush
Transport Belt		10K	32.8K	С	Alcohol, dry cloth
Timing Belt		10K	32.8K	Ι	Adjust tension if necessary.
Fusing Unit					
Hot Roller	1	30K	91.4K	R	Replace if necessary.
Fusing Cleaning Roller	1	30K	91.4K	R	Always replace these parts
Bushing – Hot Roller	2	30K	91.4K	R	together.
Pressure Roller	1	30K	91.4K	R	Replace if necessary.
Hot Roller Stripper		10K	32.8K	С	Dry cloth.
Pressure Roller Stripper	Γ	10K	32.8K	С	Dry cloth.
Thermistor		30K	91.4K	С	Dry cloth.
Fusing Exit Guide Plate		10K	32.8K	С	Alcohol, dry cloth.
Fusing Unit Gears* ²		120K	393.6K	L	Barrieta JFE 55/2
Fusing Pressure Screw Shaft* ²		40K	130.2K	L	Barrieta JFE 55/2
Fusing Drive Gears		10K	32.8K	L	Silicone Grease G501
Exit Turn Guide		10K	32.8K	С	Damp cloth, then dry cloth.
Paper Exit Sensor		10K	32.8K	С	Blower brush
Exit Rollers		20K	65.6K	С	Alcohol, dry cloth
Others					
Ozone Filter	1	20K	65.6K	R	Replace.
Breaker switch	1			С	Check the operation one time each year.

*2: See 2.2 Lubrication points.

2.1.2 ROLL FEEDER (B758)

Description	Q'ty	F Inte	PM erval	РМ	Comments
Paper Feed		m	ft.		
Cutter Unit 1		10K	32.8K	С	Replace if necessary. Approx. service life: 12K cuts

2.1.3 PAPER CASSETTE (B759)

Description	Q'ty	PM Interval		PM Interval		РМ	Comments
		m	ft.				
Pick-up Roller	2	10K	32.8K	R	Replace		
Paper Feed Roller	2	10K	32.8K	R	Replace		
Separation Roller	2	10K	32.8K	R	Replace		

2.2 LUBRICATION POINTS

2.2.1 FUSING SECTION



B188P903.WMF

- [A]: Fusing Gears (Barrieta JFE 55/2)
- [B]: Fusing Drive Gears (Silicone Grease G501)[C]: Fusing Pressure Screw Shaft (Barrieta JFE 55/2)

2.2.2 DEVELOPMENT SECTION



B188P904.WMF

- [A]: Development Unit Gear 1 (Silicone Grease G501)
- [B]: Development Unit Gear 2 (Silicone Grease G501)
- **NOTE:** Development roller gear 1 [A] should be checked every 200 km and replaced if necessary.

3. REPLACEMENT AND ADJUSTMENT

- Before you attempt any procedure described in this section, always switch off the main power switch on the machine and disconnect the machine from the power source.
- Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the hard disk or memory, press the operation power switch on the operation panel to turn the power off, wait for the power LED to go off, then turn the main power switch off.

3.1 OPENING AND CLOSING THE MACHINE



- [A]: Operation panel release
 Important: To close the operation panel, always press down evenly on both sides.
- [B]: Upper unit releases **Important:** To avoid bending the catch and release mechanisms, always release and raise the right and left sides together.
- [C]: Hopper cover
- [D]: Roll tray release
- [E]: Paper exit cover
- [F]: Paper exit guide plate

3.2 EXTERNAL COVERS

3.2.1 FRONT VIEW



- [A]: Right rear cover ($\hat{\beta}^2 \times 6$)
- [B]: Right front cover $(\hat{\beta} \times 4)$
- [C]: Left rear cover ($\hat{\mathscr{F}} \times 6$)
- [D]: Left front cover ($\hat{\beta} \times 4$) [E]: Left inner cover ($\hat{\beta} \times 1$)

- [F]: Right inner cover (2 x 2)
- [G]: By-pass feed table ($\hat{\beta} \times 4$)
- [H]: Left upper unit cover ($\hat{\mathscr{F}} \times 2$)
- [I]: Right upper unit cover ($\beta \times 2$)
- NOTE: Always remove the left and right covers together, the rear cover first and then the front cover. To avoid scratching the paint on the covers, always re-attach the front cover first and then the back cover.

3.2.2 REAR VIEW

- [A]: Rear copy trays[B]: Copy tray holders (^𝔅 x2 each)



B188R913.WMF

- [C]: Rear right cover ($\hat{\beta} \times 5$) [D]: Rear left cover ($\hat{\beta} \times 5$)



3.3 SCANNER

3.3.1 OPERATION PANEL

[A]: Original roll take-up (2 x 2, bracket x 2)



B188R915.WMF

- Open the operation panel unit.
 [B]: Left original guide plate (Â x 1)
 [C]: Right original guide plate (Â x 1)
 [D]: Operation panel front plate (Â x 4)



- [A]: Operation panel (x 4, x 3, Rivet x1)
- [B]: Upper scanner cover (²/₈ x 6)





- [C]: Scanner stop switch ($\hat{\beta} \times 2$, $\exists 2 \times 1$) [D]: Operation switch ($\hat{\beta} \times 2$, $\exists 2 \times 1$)



3.3.2 ORIGINAL SIZE SENSORS, ORIGINAL SET SENSOR, ORIGINAL REGISTRATION SENSOR

- Raise the operation panel unit.
- [A]: Operation panel lower cover ($\hat{\mathscr{F}} \times 4$)
- [B]: Original path upper bracket ($\hat{\mathscr{F}} \times 2$)



B188R918.WMF



[C]: Clamp

EU

- 1 Original Size Sensor B1T
- 2 Original Size Sensor B2T
- 3 Original Size Sensor B3T
- 4 Original Size Sensor B4T
- 5 Original Set Sensor A4
- 6 Original Size Sensor A3T
- 7 Original Size Sensor A2T
- 8 Original Size Sensor A1T9 Original Size Sensor 660
- 10 Original Size Sensor 600
- 11 Original Size Sensor 914

NA

- 1 Original Size Sensor 36"
- 2 Original Size Sensor 30"
- 3 Original Size Sensor 24"
- 4 Original Size Sensor 18"
- 5 Original Size Sensor 12"
- 6 Original Size Sensor 9"
- 7 Original Set Sensor 8.5"
- 8 Original Size Sensor 11"
- 9 Original Size Sensor 17"
- 10 Original Size Sensor 22"
- 11 Original Size Sensor 34"

3.3.3 WHITE PLATEN ROLLER

- [A]: Raise the operation panel unit
- [B]: Left operation panel unit cover (x 2)
- [C]: Right operation panel unit cover (X 2)
- [D]: Original table ($\hat{F} \times 4$)



[E]: Door switch bracket ($\hat{\beta}$ x 1) [F]: Original transport guide ($\hat{\beta}$ x 4)

B188R004.WMF



- 1. Loosen solenoid [A].
- 2. Pull bracket [B] into the hole.
- 3. To remove the guide plate [C] (𝔅 x7) without removing gasket [D]:
 Push the guide plate down at **①**.

 - Lift the guide plate slightly **2**.
 - Pull out the guide plate **③**.



- [A]: Screw (M40 x 20)
- [B]: Stopper (Step screw)
- [C]: White platen roller
 - Push the white platen roller out to the *left* to remove it.
 - Hold it horizontally when you lift it. If not, the stopper or gear will fall off at either end.
 - Before re-installation, make sure the stopper on the left end of the white platen roller is tight, inside the roller.
 - Make sure the spring [D] is installed correctly at reinstallation.
 - At reinstallation, attach screw [B] then attach screw [A].

Reinstallation



When you reinstall the lower guide:

- 1. Insert 5 sheets of A3/DLT paper [A] to push down the feeler [B].
- 2. Install the lower guide plate [C] over the paper.
- 3. Check that the lower guide plate is in the correct position, and remove the paper.

NOTE: When re-installing the white platen roller, set the right end first.

SP Adjustment After Replacement

SP4705	Scanner Adjustment (See section 3.10.1)
01 4705	

3.3.4 ORIGINAL UPPER TRANSPORT UNIT AND EXIT SENSOR

Original roll take-up, operation panel, upper scanner cover, lower sensor cover (see Section 3.3.1)

- Lower the operation panel frame.
- [A]: Upper original transport unit ($\hat{\mathscr{F}} \times 2$, ⊑≝ x 1)
- [B]: CIS cover (3 x 7)
- [C]: Original exit unit cover ($\hat{P} \times 2$)
- [D]: Original exit sensor ($\hat{\mathscr{F}} \times 1$)

Important: When you re-install the upper original transport unit, make sure that the paper turn guide is below the pin of the unit below [A].

B188R920.WMF [C]

B188R926.WMF

[A]

0

B188R927.WMF





3.3.5 ORIGINAL EXIT SENSOR, EXIT ROLLER THERMISTOR

- 1. Remove the lower guide plate (x7). (Pg. 3-8)
- 2. Exit sensor [A] (²/_ℓ x1, ⊑¹/_ℓ x1).

Reinstallation

Before you reinstall the guide plate, insert 5 sheets of A3/DLT paper to push the actuator down. (Pg. 3-10).

3.3.6 ORIGINAL TRANSPORT ROLLER

- Upper original transport unit (•3.3.4)
- [A]: Original transport roller ($\mathbb{C} \times 4$)

Image: All of the second se

teplacemer Adjustmen

3.3.7 CIS (CONTACT IMAGE SENSOR)

- Upper original transport unit (•3.3.4)
- CIS cover (\$x 2) (3.3.4)
- [A]: CIS unit (곍 x 2, 🗊 x 3)

SP Adjustment After Replacement

SP4705 002	Scanner Adjustment (see section 3.10.1)
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B188R929.WMF

3.3.8 EXPOSURE GLASS



- Upper original transport unit (•3.3.4)
- [A]: Mark the position of the screws.
 - Before removing the fixing plate screws, you need to draw circles around the screw heads to guide you when you reinsert the screw heads.
- [B]: Bracket (∦ x2)
- [C]: Exposure glass

Important

- The CIS unit is assembled in a dust-free environment.
- When replacing the CIS unit, prevent dust particles from entering the unit.
- To avoid prevent leaving fingerprints on the exposure glass, never touch it.
- Place the exposure glass carefully inside the CIS guide groove. Make sure that the glass does not scrape against the groove. Scraping the glass could create glass shavings that will get inside the CIS unit and cause image problems.

3.4 AROUND THE DRUM3.4.1 VDB (VIDEO DRIVE BOARD)



- Raise the upper unit, and remove the exit tray if it is attached.
- Remove the left and right upper unit cover. (#3.2.1)
- Close the upper unit.
- Open the toner hopper cover.
- [A]: Left copy tray ($\hat{\beta} \times 2$)
- [B]: Right copy tray ($\beta \times 2$)

CAUTION: To avoid damaging the pawls on the bottom of the covers, hold the cover level as you pull it straight out.

[C]: VDB (ℰ x 6, ⊑╝ x 7)

3.4.2 LPH (LED PRINT HEAD)





- [A]: LPH connectors **①**,**②**,**③**,**④** on VDB (⊑^{IJ} x 4)
- [B]: LPH (lift as shown)
- [C]: Three ROMs

Important

- If you intend to replace the LPH, you must replace the ROMS on the VDB with the three ROMs provided with the new LPH kit.
- Reading top to bottom on the board, the ROMs are marked LPH-L (left), LPH-C (center), and LPH-R (right).
- To confirm that each new ROM is installed in the correct position, match the numbers of the new ROMs with the numbers printed on the labels of the LPH unit.
- Before replacing the right copy tray, read the LPH settings from the labels attached to the LPH.
- After replacing the LPH, print an IPU Test Pattern to confirm that the joints of the LPH are aligned correctly and then adjust if necessary. (#3.10.2)



3.4.3 CHARGE CORONA WIRE, GRID WIRE, WIRE CLEANER

- LPH (3.4.2)
- [A]: Power pack harnesses (⊑[⊥] x2)
- [B]: Wire cleaner drive motor ($\hat{\mathscr{F}} \times 2$)
- [C]: Remove the white plastic coupling from the drive screw.

CAUTION: To avoid losing this coupling, always remove it before removing the charge corona unit.

- [D]: Left, right grounding plate ($\hat{\mathscr{F}} \times 2$)
- [E]: Charge corona unit

NOTE: When you remove the charge corona unit, first move the unit to the right $\mathbf{0}$ and then lift the left end \mathbf{Q} .

AROUND THE DRUM

- [A]: Grid wire
- [B]: Right cover
- [C]: Left cover
- [D]: Charge corona wire
- [E]: Shock absorbers



Reinstallation

• Make sure that the grounding plate edge is securely set in the holes. SP Adjustment After Charge Corona Unit Replacement

SP2803 Charge Corona Wire Cleaning

[A]: Charge corona wire cleaner

SP Adjustment Required After Replacement

SP2803 Charge Corona Wire Cleaning

When replacing wires:

- Make sure the grid wires are correctly positioned in the correct slots and not crossed.
- If replacing wires, hold them by the ends. Oil from hands could cause uneven charge on the drum.



B188R934.WMF

• Handle wires carefully. Never bend or stretch them.

3.4.4 QUENCHING LAMPS



B188R933.WMF

- Charge corona unit (●3.4.3)
 [A]: Lamp bracket, left (Â x 2, I → x 1)
 [B]: Lamp bracket, right (Â x 1, I → x 1)
 [C]: Quenching lamp arrays x 2

3.5 DRUM AND DEVELOPMENT UNIT

3.5.1 BY-PASS FEED SENSOR, REGISTRATION SENSOR



- Lift the upper unit.
- [A]: Left upper unit cover ($\hat{\beta}^2 \times 2$)
- [B]: Right upper unit cover $(\hat{F} \times 2)$
- [C]: Toner hopper cover ($\hat{F} \times 2$)
- [D]: Lower toner hopper cover. (You can slide it out. It is not necessary to remove screws.)



- [A]: Registration bracket (Â x 2, I x1)
 [B]: Registration guide (Â x 2)
 [C]: By-pass feed sensors
 [D]: Support Plate (Â x 6)
 [E]: Registration sensor

3.5.2 DEVELOPMENT UNIT



Remove (•3.5.1):

- Left, right upper unit covers
- Toner hopper cover
- Lower toner hopper cover
- Registration bracket

CAUTION: The development unit weighs 10.4 kg (22.9 lb.) with the toner cartridge installed.

[A]: Development bias connector ([□] x 1)

Important: Make sure the upper unit is open. Do not attempt to remove the development unit with the unit closed.

[B]: Development unit (²/_ℓ x 6, ⊑^{III} x 1)

Important: To avoid damaging the fragile wings on either end of the development unit, never attempt to remove or install the development unit in the machine with the upper unit closed.

3.5.3 DEVELOPER

Remove the toner cartridge (follow the instructions on the decal on the front left side of the machine.



3.5.4 TONER SUPPLY CLUTCH

- [A]: Development unit (3.5.2)
- [B]: Toner supply clutch (x 1, x 1, x 1, bushing x1, bracket x 1)
- [C]: Impeller

NOTE: After re-installing the toner supply clutch, make sure that the clutch pin is inserted correctly in the hopper slot [D] of the hopper. If not inserted correctly, the rotating clutch could damage the clutch cable.



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3.5.5 DRUM DRIVE MOTOR



3.5.6 DRUM UNIT, ID SENSOR, AND CLEANING BLADE

Development unit (3.5.2)

To the right of the drum drive gear, loosen the screw to relieve the tension on the drive belt.

- [A]: Drum drive gear and belt ($\hat{\mathscr{F}}$ x1, use a hex wrench)
- [B]: ID sensor connector (⊑ x 1)
- [C]: Left drum bracket (x 2)
- [D]: Right drum bracket ($\hat{F} \times 2$)
- [E]: OPC drum assembly

NOTE: Cover the OPC with a sheet of paper to protect it from light.

Important: Never touch the surface of the drum.



- [A]: Drum unit left side ($\hat{\beta}$ x 1, spring x 1, bushing x 1) [B]: Drum unit right side ($\hat{\beta}$ x 1, spring x 1, bushing x 1)
- [C]: OPC drum
- [D]: Rubber plates

When installing a new drum, remove both rubber plates inside the old drum and install them in the new drum. (These plates reduce the noise caused by inertia when the drum starts and stops.)

- [E]: ID Sensor (ℰ x 2, 🖼 x 2)
- [F]: Pick-off pawl solenoid (𝑘 x 1, 🗊 x 1)

Reinstallation

SP Adjustment After Drum Replacement

SP2923	Drum Set Mode. Applies toner to the drum and blade to reduce friction between the drum and cleaning blade. As a result of this, the blade will not bend and will not scratch the surface of the drum.
SP3001 002	ID Sensor Setting – Initial Setting. Initializes the ID sensor.

[A]: Cleaning blade (2 x 2)

Reinstallation

SP Adjustment

SP2923

Drum Set Mode – Execute. Applies toner to the drum and blade to reduce friction between the drum and cleaning blade. As a result of this, the blade will not bend and will not scratch the surface of the drum.



B188R941.WMF



Drum Set Mode

Make sure that the drum protection sheet is removed.

- 1. Set the pressure lever [A] to the left.
- 2. Plug in the power cable and switch the main power switch on.
- 3. Press **c**/♥.
- 4. Enter **107**
- 5. Hold down 💮 for more than 3 seconds.
- 6. On the touch panel, touch "Copy SP".
- 7. Enter **2923**, press [#], then push [Start] to execute Drum Set Mode.
- 8. After it has finished, set the pressure lever [A] to the right.
- 9. If you have replaced the OPC drum, enter 3001 002, press [#], then press Start to initialize the ID sensor.



B188R942.WMF
3.6 PAPER FEED

3.6.1 CUTTER UNIT

- [A]: Roll tray cover ($\hat{\mathscr{F}} \times 2$) [B]: Loosen side plate ($\hat{\mathscr{F}} \times 2$).
- [C]: Guide plate (pressure release).



[D]: Left cutter HP switch connector (⊑́́́ , x 1)

- [E]: Left spring, hook (²/_ℓ x 1)
- [F]: Side plate (X 2)
- [G]: Right cutter HP switch
- connector (⊑[™] x 1)

[H]: Cutter motor connector (⊑ x 1, clamps x 2)

[I]: Cutter unit (x 2). (Slide out to the left.)



3.6.2 CUTTER MOTOR, CUTTER HP SWITCHES



- Remove the cutter unit (☞ 3.6.1)
 [A]: Cutter motor (斧 x2, ≅ x1)

- [B]: Right cutter HP switch ($\hat{p} \times 2, \exists \forall x1$) [C]: Right cutter HP switch ($\hat{p} \times 2, \exists \forall x1$)

3.6.3 CUTTING SENSOR AND FEED EXIT ROLLER

- [A]: Lock plate (²/_ℓ x 2)
- [B]: Sensor bracket
- [C]: Cutting sensor (🖾 x 1, 🖗 x 1)



Left inner cover. (
 3.6.4)

- [D]: Bushings (C x 2)
- [E]: Guide plate (x 4)
- [F]: Feed exit roller
 - **NOTE:** Re-install the left end first (viewed from the front.)



3.6.4 ROLL TRAY

The roll tray weighs 36 kg (80 lb.) At least two technicians are needed to remove it and re-install lit.

Before removing the roll tray, prepare a clean flat surface to set the unit on after removal. As the paper feed motor is mounted *under* the roll tray, a strong table, or four blocks, to raise the roll tray slightly, is ideal and will make it easier to service.

- Right covers, rear covers (3.2.1)
- [A]: Open the harness clamps (B x6)
- [B]: Connectors (⊑^{IJ} x 2)
- [C]: PSU (3.9.1)



- [D]: Left inner cover ($\hat{\mathscr{F}} \times 3$)
- [E]: Right inner cover ($\hat{\beta} \times 2$)
- [F]: Harness clamp at the corner of the right inner cover.



B188R947.WMF

PAPER FEED



- [B]: Roll tray (β x 4 with washers)
- [C]: Pull the connector from the back to the front of the machine. Coil it and then place it inside the roll tray.

With a technician on each side of the roll tray, lift it off the rail and set it down on a clean flat surface. The roll tray weighs about 32 kg (70.5 lb.)

3.6.5 PAPER FEED DRIVE MOTOR

The paper feed drive motor is located *under* the front left corner of the roll tray.



Roll tray (•3.6.4) •

- [A]: Paper feed drive cover, left rear corner ($\mathscr{F} \times 1$)
- [B]: Loosen adjustment screw.
- [C]: Remove pressure spring [D]: Motor assembly (x 1, x 2 top, x 2 side)
- [E]: Paper feed motor ($\hat{\beta} \times 2$)

3.6.6 1ST/3RD FEED ROLLER AND CLUTCH



- Roll tray (•3.6.4)
- [A]: Bushings (C x 2)
- [B]: First feed roller ($(() \times 1)$)
- [C]: Paper feed clutch (1, clamps x 2)

SP Adjustments After Replacement

Adjust the cut length.

SP1920-001 ~ 088	Cut Length Adjustment
SP1921-001 ~ 054	Cut Length Adjustment

3.6.7 2ND/4TH FEED ROLLER AND CLUTCH

- Roll tray (3.6.4)
- [A]: Bushings (C x 2)
- [B]: Second feed roller (0 x 1)
- [C]: Paper feed clutch (x 1, clamps x 2)



After Replacement

Adjust the cut length.

SP1920-001 ~ 088	Cut Length Adjustment
SP1921-001 ~ 054	Cut Length Adjustment

3.6.8 REGISTRATION MOTOR

- Machine left covers, left inner cover (3.2.1)
- [A]: Open clamps
- [C]: Registration motor ($\hat{P} \times 4$)



3.6.9 REGISTRATION CLUTCH

- Registration motor bracket (3.6.8)
- [A]: Stopper bracket (x 1)
- [B]: Registration clutch
- **NOTE:** Use the flat head of a small screwdriver to release the lock on [A] the clutch.



3.6.10 REGISTRATION ROLLER

- Left and right covers, By-pass feed table (3.2.1)
- Registration motor (
 3.6.8)
- Registration clutch (3.6.9)
- [A]: Cover plate (²/_ℓ x 2)
- [B]: T&S power pack (곍 x 2, ☞ x 3, ⅔ x4)
- [C]: Torque limiter bracket (2 x 2)
- [D]: Torque limiter ($\hat{\mathscr{F}} \times 1$)



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- [E]: Guide plate ($\hat{F} \times 4$)
- [F]: Aluminum guide plate ($\hat{\beta} \times 4$)
- **NOTE:** Hold the plate level as you pull it out so the plastic flaps do not fall from either end.
- [G]: Registration roller ($\mathbb{C} \times 2$, bushings x 2)



3.7 TRANSFER UNIT

3.7.1 TRANSFER AND SEPARATION CORONA WIRES

- Left, right upper unit covers (3.2.1)
- Left inner cover plate (3.2.1)
- Right inner cover plate (3.2.1)
- [A]: Loosen (do not remove) (x 2)
- [B]: T&S corona unit connectors (x2)
- [C]: T&S corona unit. (Press down on the covers on both ends to prevent them from falling.)

CAUTION: Remove the T&S corona unit carefully to avoid touching or scratching the OPC drum above.

[D]: Paper Guide

[E]: End block covers

[F]: Insulator plates (x 4)

[G]: Transfer and separation wires **NOTE:** The single wire at the front and

double wire at the back are both

spring loaded on the left.



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Reinstallation

- Make sure the wires are correctly positioned in the correct slots and not crossed.
- If replacing wires, hold them by the ends. Oil from hands could cause uneven charge on the drum.
- Handle wires carefully. Never bend or stretch them.

3.7.2 TRANSPORT UNIT



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- Drum drive motor (🖝 3.5.5)
- Fusing drive motor (•3.8.10)
- Fusing unit (3.8.1)
- [A]: Duct vent (x 2)
- [B]: Internal duct. Push left and then right to disconnect.
- [C]: Transport unit (ℰ x 4, 🗐 x 2)

When disconnecting the connectors from the transport unit, avoid touching or hitting the sharp stripping pawls above the transport unit.

3.7.3 TRANSPORT BELTS

- [A]: Guide plate (🖗 x 2)
- [B]: Left transport fan motor (²/₈ x 2)
- [C]: Right transport fan motor ($\hat{F} \times 2$)



[D]

₿

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- [G]: Drive gear
- [H]: Drive shaft
- [I]: Transport belts

[E]

[F]

[1]

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3.8 FUSING SECTION

3.8.1 FUSING UNIT

To avoid serious personal injury, before removing the fusing unit, switch off the main power, unplug the machine from its power source, and allow the fusing unit to cool.

- [A]: Fusing lower cover ($\mathscr{F} \times 2$) [B]: Connector ($\mathfrak{P} \times 1$, $\mathfrak{P} \times 2$)
- [C]: Grounding wire ($\beta x 1$)
- [D]: Paper exit cover (hinges x 2)



[F]

[E]

- [E]: Paper exit guide plate (hinges x 2)
- [F]: Grounding wire $(\hat{F} \times 1)$



Replacement Adjustment

- [A]: Left connectors (☞ x 4, 🛱 x1)
- [B]: Right connectors (I x x, i = x, i)
 NOTE: Mark the large bayonet connectors before you disconnect them so you can re-connect them in the correct order.
- [C]: Fusing unit (𝑘 x 2)

CAUTION: The fusing unit is heavy, about 14 kg (31 lb.) Grasp it carefully at both ends when you remove it from the machine, and place it on a flat clean surface.

Important: Re-install the fusing unit carefully to avoid hitting the PCBs as the fusing unit passes over them.

3.8.2 PAPER JUNCTION GATE SOLENOID/EXIT SENSOR

- [A]: Grounding wire ($\hat{\beta}^2 \times 1$)
- [B]: Spring
- [C]: Solenoid arm
- [D]: Guide plate (倉 x 4, 🗟 x4)
- [E]: Solenoid ($\hat{\mathscr{F}} \times 2$, $\mathbb{P} \times 1$) [F]: Exit sensor ($\hat{\mathscr{F}} \times 1$, $\mathbb{P} \times 1$)



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3.8.3 FPDB (FUSING PRESSURE DRIVE BOARD)

- [A]: Right FPDB
- (ﷺ x 2, standoffs x 3, ⅔ x2)
- [B]: Left FPDB (☞ x 2, standoffs x 3, 🛱 x2)



3.8.4 PRESSURE ROLLER STRIPPERS/PRESSURE MOTORS

Pressure roller strippers

- [A]: Hot roller stripper bracket ($\hat{\mathscr{F}} \times 4$)
- [B]: Hot roller strippers

Right motor

- [C]: Pressure spring
- [D]: Pressure motor/bracket assembly (𝔅 x 2)

Left motor

Repeat [C], [D], [E] for the left motor.



3.8.5 PRESSURE ROLLER THERMISTOR

- [A]: Thermistor bracket (²/₄ x 1)
- [B]: Open clamp
- [C]: Thermistor (²/_ℓ x 1)



3.8.6 HOT ROLLER THERMISTOR, THERMOSTATS



- [A]: Thermistor (곍 x1, ☞ x1)
- [B]: Three thermostats ($\mathscr{F} \times 2$ each)
 - End thermostats: 199°C
 - Center Thermostat: 200°C

Reinstallation

- 1. Set the thermostat harness [C]. It must be aligned as shown ("Correct" in the diagram).
- 2. Tighten the screw [D] as tightly as possible, but do not strip the hole threads.

NOTE: If the harness is not aligned correctly ("Incorrect" in the diagram) this will cause an SC thermistor disconnection error.







3.8.7 FUSING CLEANING ROLLER

- [A]: Cleaning roller unit (𝑘 x 4)
 [B]: Bushings (𝑘 x 2)
 [C]: Fusing cleaning roller



3.8.8 FUSING LAMPS



Right end

- [D]: Open clamps x 4
- [E]: Fusing lamp cover ($\hat{\mathscr{F}} \times 1$)
- [F]: Fusing lamp bracket ($\hat{F} \times 1$)
- [G]: Turn the rubber cushion until the cutout faces down, then remove the harnesses from the bracket.
- [H]: Fusing lamps
- **NOTE:** After the lamps are re-installed, make sure that the rubber cushions are rotated so the slits are facing up to prevent the lamps from slipping out.

3.8.9 HOT ROLLER, PRESSURE ROLLER

- Fusing cleaning roller unit (#3.8.7)
- Fusing lamps (•3.8.8)
- [A]: Wire clamp
- [B]: Gear
- [C]: Hot roller bushings
- [D]: Hot roller





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- Fusing cleaning roller unit (
 3.8.7)
- Pressure roller strippers (#3.8.4)
- [E]: Fusing entrance guide
- [F]: Pressure plate



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[G]: Bushings **0**, **⊘** [H]: Pressure roller

After Replacing Hot Roller or Pressure Roller

Rough Adjustment

- 1. Execute SP1914 001 (set to On) to ensure that the pressure motors [A] are at the home position.
- 2. Measure the length of the spring [B] with calipers.

Correct spring length:

Outside 28.8± 0.3 mm

 If the spring length is longer or shorter than the correct measurement, adjust the position of the home position sensor [C].



Move sensor:	To make the spring:
Toward the motor	Longer
Away from the motor	Shorter

4. Measure the spring length again with calipers to confirm that it is correct.

Fine Adjustment

During normal operation the spring, bracket, and sensor move out of the home position to the correct position determined by automatic software calculations for the paper type, fusing mode setting, and fusing roller temperature.

The following SP codes can be used to select the pressure control correction settings if skewing occurs after changing the paper length selection.

SP1914 002	Right Pressure Adjustment
SP1914 003	Left Pressure Adjustment

Changing these SP codes does not change the position of the bracket and sensor immediately after adjustment. The position is adjusted only during copying.

If these SP codes are adjusted, the settings must be the same size but of opposite sign. **Example**: Right Pressure +1 / Left Pressure –1

3.8.10 FUSING DRIVE MOTOR



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Main unit left covers (•3.2) Left inner cover (•3.2)

[A]: Fusing drive motor (²/₂ x 4, ⊑¹¹/₂ x1)

3.9 BOARDS

3.9.1 PSU (POWER SUPPLY UNIT)



• Left covers (☞3.2.1) [A]: Shield cover (곍 x4, ⊉ x2)

[B]: PSU (ℱ x4, ⊑ 16)

NOTE:

• Before removing the Neutral and Line bayonet connectors [C], mark them "N" and "L" before you remove them so you can match them with the N (left) and L (right) notations on the board when you re-connect them.

3.9.2 BCU, IOB



- Rear covers (3.2.2)
 [A]: Connectors (1 x3)
 [B]: Shield cover (3 x4)
 [C]: BCU
 [D]: IOB (3 x6, 1 x20, x6)

3.9.3 VLB





Remove:

- Left rear cover (-3.2.1)
- Rear left cover (•3.2.2)
- [A]: Cover $(\widehat{\beta} x2)$ [B]: SD card slot cover $(\widehat{\beta} x2)$ [C]: MFP option board $(\widehat{\beta} x2)$
- [D]: VLB. Slide out to disconnect. Do not attempt to pull it out.



- [A]: MFP option bracket, VLB (\$\$ x9)[B]: VLB. Remove it from the MFP option bracket.



3.9.4 MB, FILE FORMAT CONVERTER (MLB), CNB1, CNB2

- [A]: VLB. Slide out to disconnect it. Do not attempt to pull it out.
 [B]: Mother board bracket (²/₈ x5, E^I^J x1)

Disassemble the following parts ($\hat{\beta}^2 x 11$):

After removing all the screws, separate each board.

Next, disconnect the connectors from each board.

- [C]: MB
- [D]: File Format Converter (MLB)
- [E]: CNB1
- [F]: CNB2

3.9.5 GW CONTROLLER, IPU



- Remove the VLB ((-3.9.3)
- [A]: Mother board bracket (²/_x x5, ⊑^{IJ} x1)
- [B]: GW controller board (È x6, 🗐 x2).
 - **Important:** If you install a new GW controller, remove the NVRAM from the old board and install it on the new board.
- [C]: IPU (倉 x5, ⊑╝ x7)

3.9.6 HDD REPLACEMENT

Before Replacement

Explain to the customer that the following information stored on the HDD is lost when the HDD is replaced:

- Document server documents
- Document server address book
- Document stamps created by the user

The address book and document server documents (if needed) must be input again. However, before replacing the HDD, you can try to recover the address book by uploading it to an SD Card.

To Upload the Address Book to an SD Card

Do this procedure before replacing the HDD.

Important: This procedure may not execute successfully if the HDD is damaged.

- 1. Turn the main power switch off.
- 2. Insert an SD card in SD card **Slot 1**.
- 3. Do SP5846 051 to upload the address book to the SD card in Slot 1.
- 4. Turn the main power switch on.
- 5. Remove the SD card from **Slot 1**.

To Download the Address Book from an SD Card

Do this procedure after replacing the HDD.

- 1. Turn the main power switch off.
- 2. Insert the SD card with the directory information in SD card **Slot 1**.
- 3. Do **SP5846 052** to download the information from the SD card in **Slot 1**.
- 4. Turn the main power switch on.
- 5. Remove the SD card from **Slot 1**.

HDD Replacement



Reinstallation

- Follow the directions provided on the decal.
- Do **SP5853** to copy the <u>preset stamp</u> data from the firmware to the hard disk. Then turn the main power switch off/on.
- If you successfully uploaded the address book to an SD card, download the information by following the procedure described on the previous page.

Important Notes About HDD Replacement

- Never remove an HDD unit from the work site without the consent of the client.
- If the customer has concerns about the security of information on the HDD, the HDD must remain with the customer for disposal or safe keeping.
- The HDD may contain proprietary or classified (Confidential, Secret) information. Specifically, the HDD contains document server documents and data stored in temporary files created automatically during copy job sorting and jam recovery. Such data is stored on the HDD in a special format, so it cannot normally be read but can be recovered with illegal methods.
- If the customer is using the Data Overwrite Security feature, the DOS function must be set up again. (~1.6.4)

3.9.7 NVRAM

To Upload NVRAM to an SD Card

- 1. Enter the SP mode and do SP5990 002 to print an SMC report.
- 2. Turn the machine off.
- 3. Insert the SD card in **Slot 1** (the top slot).
- 4. Turn the machine on.
- 5. Enter the SP mode and do **SP5824**.
- 6. Touch [OK] on the operation panel to start the upload. Data uploaded from NVRAM is stored in the NVRAM folder on the card.

To Replace the NVRAM



- Turn the machine off and disconnect it from the power supply.
- Disconnect the VLB [A] and remove the mother board bracket [B]. (#3.9.3)
- 1. Use a flat-head screwdriver to loosen the brackets on both sides of the NVRAM [C].
- 2. Remove the NVRAM.
- 3. Install the new NVRAM P/N B1889650.

After Replacement

- 1. Turn the machine main power on.
- 2. Do SP5801 001 (All Clear) to reset all of the NVRAM memory to the defaults.
- 3. Make sure that the counter is zero (see the User Tools main menu).
- 4. Input the serial number with **SP5811 001** (contact the technical supervisor). **NOTE:** The machine serial number must be re-entered manually.

To Download NVRAM Data from the SD Card

- 1. Turn the machine off.
- 2. Insert the SD card to hold the NVRAM data in **Slot 1** (the top slot).
- 3. Turn the machine on.
- 4. Enter the SP mode and do SP5825.
- 5. Print an SMC report with **SP5990 002**.
- 6. Compare the information in this SMC report with the one you printed before NVRAM removal.
 - If the content of the SMC reports do not match, this means that the content of the old NVRAM could not be uploaded to the SD card.
 - In this case, do **SP5801 001** again and do the settings recommended for the machine.

Important: The recommended settings are printed on a sheet of paper taped on the inside of the rear cover.

3.10 ADJUSTMENTS

3.10.1 CIS AND WHITE PLATEN ROLLER ADJUSTMENT

Perform this adjustment after replacing the CIS (Contact Image Sensor) or the white platen roller.

This adjustment achieves even image density, even if the image density of the white platen roller is uneven. The *standard original* used for this adjustment is one-sheet of plain paper (cut sheet or roll) paper with a horizontal main scan and vertical sub scan (945 W x 210 L mm \pm 5mm).

NOTE: The width of the main scan direction must be 926 mm or more.

- 1. On the operation panel, press .
- 2. Enter 107
- 3. Hold down ^(*) for more than 3 seconds.
- 4. On the touch panel, press Copy SP.
- 5. Enter 4705 002, press (#), and then press [Start] to execute the image scan adjustment.
- 6. Insert the original.
- 7. Enter 4705 001, press (#) and then press [Start] to confirm that the previous SP executed correctly.

Important

• If a jam occurred during the procedure above, the machine is defective. Check the CIS harnesses and the following connectors.

Power Supply Unit CN129	\rightarrow	CIS CN341
IOB CN213	\rightarrow	CIS CN342
IPU CN427	\rightarrow	CIS CN343

3.10.2 LPH ADJUSTMENT

Summary

Remove the LPH, replace the three ROMs on the VDB, and then install the new LPH. (See section 3.4.2.)

Before replacing the right copy tray, read the LPH settings from the labels attached to the LPH.

	SP2952 001 (ML) aaa	SP2952 002 (MR) bbb	SP2952 011 (SL) ccc	SP2952 012 (SR) d
--	---------------------	---------------------	---------------------	-------------------

Write down the four numbers on the right side of each label (aaa, bbb, ccc, d). These are the recommended factory settings for each SP.

After replacing the LPH (LED Print Head) and inputting the above settings, execute a test print in the IPU Test Pattern mode to make sure that the LPH joints are aligned correctly.

Entering the LPH Factory Adjustments

- 1. Press 🔊 🔊.
- 3. On the touch panel, touch "Copy SP".
- 4. Enter 2952 001, enter the recommended setting for the first SP, and then press (₱).
- 5. Enter the settings for 002, 011, 012. (Just press **Next** to move to the next SP.) Make sure that you press **(#)** after you enter each setting
- 6. Touch "Exit", enter 2902 002, and then press (#).
- 7. Select 02 for IPU Test Pattern 2, push ^(#). The machine is now in the IPU Test Pattern mode.
- 8. At the top of the screen touch "Copy Mode" to return to the main operation screen.

Printing and Checking the Test Pattern

- 1. Feed any wide original 914 mm (36") wide and at least 297 mm (11") long. (A blank sheet cut from the roll is sufficient.) After a few seconds, the IPU Test Pattern prints.
- 2. Fold the printed pattern and measure 150 mm (about 6") to the left and right from the center fold

The LPH has three sections: LPH1 on the left, LPH2 in the center, and LPH 3 on the right.

The LEDs overlap slightly where the segments are joined at LPH1, LPH2 [A], and at LPH2, LPH3 [B].



If the lines are faint and appear neither white nor black, the LPH is adjusted correctly.



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If black or white lines are clearly visible (see the diagram below), the LPH joints are out of adjustment.

At LPH1, LPH2 [A] too many LEDs are switched off and the result is a white line. At LPH2, LPH3 [B], too many LEDs are switched on, and the result is a black line.



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- 3. If the left line is black, adjust SP2952 001 up, and if it is white, adjust it down.
- 4. If the right line is black adjust SP2952 002 up, and if it is white, adjust it down.
 - Insert the wide original between each adjustment to print another pattern and check the effect of each adjustment.
 - Adjusting these SPs up in intervals of 10 (410, 420, etc.) switches off one LED for every interval, and adjusting down 10 switches on one LED.
 - Adjusting these SPs up less than 10 (411, 412, etc.) decreases the light intensity of the LED, and adjusting down less than 10 increases the light intensity.
 - Adjust the lines until they are faint; the lines cannot be completely erased.
- 5. Broken lines across the IPU Test Pattern indicate that the sub scan timing between LPH1, and LPH2 [A], or between LPH2 and LPH3 [B] is incorrect.



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6. To adjust the timing at the joints:

SP2952 011 (SL)	Adjusts the timing at LPH1, LPH2 [A]
SP2952 012 (SR)	Adjusts the timing at LPH2, LPH3 [B]

- a) First adjust 2952 011, and make a test print.
- b) If the timing at joint [A] is incorrect, adjust **2952 011** again.
- c) When the timing at joint [A] is correct, adjust **2952 012** until the timing at joint [B] is correct.

3.10.3 IMAGE POSITION, MAGNIFICATION, MARGIN ADJUSTMENTS

Do these adjustments if the customer is unhappy about the above properties of the output. Before you do any measurements, allow the test print output to cool for three minutes.

NOTE: Always do these adjustments in the order prescribed below.



1. Skew adjustment for long printouts

- 1. Set normal weight plain paper (841 mm wide/E size, from roll 1) and print an IPU dot pattern with **SP2902-002** (IPU Print Test Pattern Pattern 8), of length 6 m, and output to the rear exit.
- 2. At the rear paper exit, measure the amount of skew on the output. Make sure it is within the standards below.

Allowed skew < 1 mm per meter

3. If the amount of measured shift is not within standards, adjust the right and left fusing pressure from the pressure roller with the following SP codes.

SP1914 002Fusing Pressure Roller Motor – Right Pressure AdjustmentSP1914 003Fusing Pressure Roller Motor – Left Pressure Adjustment

If the paper is skewed to the right, weaken the pressure on the right roller, then increase the pressure on the left roller.

To determine if there is skew, look at the trailing edge.

The SP values must be the same size, but of opposite sign (for example, if SP 1914 002 is -10, SP 1914 003 must be + 10). The difference between the two SP values must be less than 30.

If roller pressure adjustment is not successful, return the SP settings to their previous values. Then do the next procedure to adjust the line speed, and then try again to adjust roller pressure.

2. Printer sub-scan magnification adjustment

- Set normal weight plain paper (841 mm wide/E size, from roll 1) and print an IPU dot pattern with SP2902-002 (IPU Print Pattern – Pattern 8), of length 6 m, and output to the rear exit.
- 2. Within one A0 length (1189 mm) of the leading edge, measure the lengths of six strips of 20 squares on the test pattern, as shown on the drawing.
- 3. Also, within 500 mm of the trailing edge, measure the length of one strip of 20 squares on the test pattern.



Standard Ave. length of the 7 patterns = $81.28 \text{ mm} \pm 0.3\%$

- If the measurements are not within standard, execute SP1915-001 (Magnification Adj. by Fusing Motor Speed). Setting a larger value stretches the image.
- If skew could not be adjusted in the previous procedure, set a smaller value for **SP1915-001** that is within the above standard.
- If horizontal lines are blurred at the trailing edge, set a smaller value for **SP1915-001** that is within the above standard.

3. To set the scanner mask for the adjustments

- 1. Execute **SP5990 002** to print the SMC Copy List (a list of the SPs).
- 2. Set the following SPs to zero to make measurement easier.

SP4012-005	Scanner Erase Margin – Leading Edge
SP4012-006	Scanner Erase Margin – Trailing Edge
SP4012-007	Scanner Erase Margin – Left
SP4012-008	Scanner Erase Margin – Right

4. To set the erase margin

Set the following SPs to 5 mm to make measurement easier.

SP2101-001	Printing Erase Margin – Leading Edge
SP2101-002	Printing Erase Margin – Trailing Edge
SP2101-003	Printing Erase Margin – Left
SP2101-004	Printing Erase Margin – Right

5. To adjust leading edge registration for the printer

- Set normal weight plain paper (841 mm wide/E size, from roll 1) and print an IPU dot pattern with SP2902-002 (IPU Print Pattern – Pattern 8).
- 2. Measure the leading edge registration.

Standard 5±0.5 mm

3. Adjust SP1001 (Leading Edge Registration) if necessary.



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6. To adjust side-to-side registration for the printer

- Set normal weight plain paper (841 mm wide/E size, from roll 1) and print an IPU Print Pattern with SP2902-002 (IPU Print Pattern – Pattern 8).
- 2. Measure the side-to-side registration.

Standard 5 ± 0.5 mm

3. Adjust SP1002 (Side-to-Side Registration) if necessary.



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7. To adjust cut length

- 1. Using the Preset Cut feature, make standard cuts of plain paper for A4 sideways, A3 sideways, A1 lengthways, and A0, A sideways, B sideways, D lengthways, and E.
- 2. Measure the cuts and check them against the standards in the table.

Up to 297 mm	Less than ± 2 mm
298 - 800 mm	Less than \pm 3 mm
801 - 1189 mm	Less than \pm 4 mm
1190 - 2500 mm	Less than \pm 7.5 mm
2501 - 3600 mm	Less than \pm 11 mm
3601 - 6000 mm	Less than \pm 20 mm
6001 - 15000 mm	Less than –32 mm to +200 mm

3. If a measurement does not meet the standard, then adjust the following SPs for each roller and paper type.

SP1920-001~088	Cut Length Adjustment
SP1921-001~054	Cut Length Adjustment

8. To adjust printer/scanner magnification

- 1. Copy an OS-A-1 Test Chart with plain paper (cut sheet or roll).
- 2. Measure the length and width of the images on the original and the copy.

Standard Less than ± 0.5 %

3. If the measurements do not meet the standard, adjust the following SP codes.

SP4101 001	Scanner Main Scan Magnification
SP4008 001	Scanner Sub Scan Magnification

9. To adjust printer/scanner leading edge registration

- Copy an OS-A-1 Test Chart with plain paper (cut sheet or roll).
 NOTE: Make sure that you execute the copy with manual density set at the operation panel.
- 2. Measure the leading edge registration.

Standard	Within \pm 2.0 mm
----------	---------------------

3. If the measurement does not meet the standard, adjust the following SP code.

SP4010 001 Scanner Sub Scan Registration: Leading Edge

10. To adjust printer/scanner side-to-side registration

- Copy an OS-A-1 Test Chart with plain paper (cut sheet or roll).
 NOTE: Make sure that you execute the copy with manual density set at the operation panel.
- 2. Measure the side-to-side registration, within 50 mm from the leading edge of the copy .

Standard	Within ±3.8 mm
----------	----------------

3. If the measurement does not meet the standard, adjust the following SP code.

SP4011 001 Scanner Main Scan Registration

11. Printer/scanner trailing edge registration (synchro-cut)

- 1. Prepare two originals. One must have length 210 mm, and the other must have length 1000 mm.
- 2. Make a copy of each original with plain paper in the synchro cut mode.
- 3. Compare the original and cut copy paper lengths.
- 4. If the measurements do not meet the standards (see the table below), adjust the following SP settings.

SP4961 001	Original Adjustment – Synchro Cut Adjustment 210 mm
	Standard: 210 mm ±0.5 mm
SP4961 002	Original Adjustment – Synchro Cut Adjustment 1000 mm

SP4961 002 Original Adjustment – Synchro Cut Adjustment 1000 mm Standard: 1000 mm ±1 mm

12. To reset the scanner mask

Reset **SP4012 005~008** (Scanner Erase Margins – Leading, Trailing, Left, Right) to the previous settings (see the SMC list printed earlier).

13. To reset the print erase margin

Reset the print erase margins to the previous settings (see the SMC list printed earlier).

- SP2101 001 Printing Erase Margin Leading Edge
- SP2101 002 Printing Erase Margin Trailing Edge
- SP2101 003 Printing Erase Margin Left
- SP2101 004 Printing Erase Margin Right

4. TROUBLESHOOTING

4.1 SERVICE CALL CONDITIONS

4.1.1 SUMMARY

There are 4 levels of service call conditions.

Level	Definition	Reset Procedure	
A	To prevent the machine from being damaged, the SC can only be reset by a service representative (see the note below). The copier cannot be operated at all.	Enter SP mode, then turn the main power switch off and on.	
В	The SC can be reset by turning the main power switch off and on if the SC was caused by incorrect sensor detection.	Turn the operation switch or main power switch off and on. A level B' SC can only be reset by turning the main power switch off and on.	
С	The copier can be operated as usual except for the unit related to the service call.	Turn the operation switch off and on.	
D	The SC history is updated. The machine can be operated as usual.	The SC will not be displayed. All that happens is that the SC history is updated.	

Trouble[.] shooting

- **NOTE:** 1) If the problem concerns electrical circuit boards, first disconnect then reconnect the connectors before replacing the PCBs.
 - 2) If the problem concerns a motor lock, first check the mechanical load before replacing motors or sensors.
 - 3) When a Level A or B SC occurs while in an SP mode, the display does not indicate the SC number. If this occurs, check the SC number after leaving the SP mode. This does not apply to Level B' codes.
 - Some of these SC codes contain more than one level (SC303-1, SC303-2, SC303-3, etc.); however, some SCs may display a "-1" even if there is no second or third level (-2, -3).

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

4.1.2 SC CODE DESCRIPTIONS

SC143	С	Scanner automatic adjustment	error
		At power on the automatic adjustment of the CIS failed after two attempts.	 White platen roller dirty or installed incorrectly. CIS LED malfunction. CIS ← > PSU harness disconnected, broken. CIS ← > IOB harness disconnected, broken. CIS ← > IPU harness disconnected, broken. CIS ← > BCU harness disconnected, broken. CIS ← > BCU harness disconnected, broken. CIS defective. IPU defective. IOB defective. BCU defective.

SC191	С	Scanner thermistor detection error		
		 The detected temperature reading is below 0°C (32°F) or above 100°C (212°F). Thermistor disconnected, connection broken. Thermistor has short-circuited. 		

SC300	C300 D Charge corona output error		
		Charge corona feedback voltage of less than 1V was detected for more than 200 s.	 CBG power pack is defective. High voltage cable is defective. Poor connection of the power pack connector. Dirty charge corona unit caused leakage.

SC303	D	Charge grid output error	error	
		Control PWM duty value is higher than 1% (FB less than 1V) for more than 200 ms (a grid current leak).	 CBG power pack is defective. High voltage cable is defective. Poor connection of the power pack connector. Dirty charge corona unit causing leakage 	

SC305	D	Charge corona wire cleaner error	
		Wire cleaner motor feedback voltage of less than 0.1 V was detected for more than 1s.	Wire cleaner motor connector disconnected.
		Corona wire cleaning did not complete within 80 s.	 Wire cleaner motor connector disconnected. Wire cleaner motor is operating without load.
		Charge wire cleaner did not return to the home position.	Wire cleaner stops due to an overload.
		Cleaner does not move from the home position.	Wire cleaner motor drive circuit malfunction.
		Temporary Solution	
		Do SP2804 to switch off the charg	e corona cleaner function.

SC345	D	Development bias error A development bias feedback voltage of less than 0.25V was detected for more than 200 ms while the PWM duty value was more than 1% (development	 Possible Cause CBG power pack defective Bias cable defective Poor bias cable connection Bias leak 	Trouble-
		bias leak).	Bias leak	

SC347	D	Development drive motor lock	
		Development drive motor lock signal is high longer than 5 s when the development motor rotates.	Drive mechanism overload Motor defective Motor disconnected

SC350	D	ID sensor error 1 - Vsp	
		Vsp is 0V or more than 2.5 V. During the copy cycle, this SC is displayed after the copy is executed.	 ID sensor defective ID sensor connector defective IOB malfunction CBG power pack defective Dirty ID sensor VDB defective LPH defective

SC351	D	ID sensor error 2 - Vsg	
		Vsg is 0V or more than 2.5 V. During the copy cycle, this SC is displayed after the copy is executed.	 ID sensor defective ID sensor connector defective IOB malfunction CBG power pack defective Dirty ID sensor VDB defective LPH defective

SC352	D	ID sensor error 3 - Pattern	
		Pattern voltage less was less than 2.5 V and cannot be detected. During the copy cycle, this SC is displayed after the copy is executed.	 Possible Cause ID sensor defective ID sensor connector defective IOB malfunction CBG power pack defective Dirty ID sensor VDB defective LPH defective

SC353	D	ID sensor error 4 - LED	
		LED drive current (PWM value)	Possible Cause
		is 255 or 0. This SC could occur	 ID sensor defective
		while the ID sensor is initializing.	 ID sensor connector defective
			 IOB malfunction
			 CBG power pack defective
			Dirty ID sensor
			VDB defective
			LPH defective

SC354	D	ID sensor error 5 - Timeout	
00004		Vsg cannot be adjusted to 4 \pm 0.2V within 20 s. This SC could occur while the ID sensor is initializing.	 ID sensor defective ID sensor connector defective IOB malfunction CBG power pack defective Dirty ID sensor
			VDB defectiveLPH defective

SC401	D	Transfer corona leak error		
		A transfer corona feedback voltage of less than 0.25V was detected for more than 200 ms.	 T&S power pack defective. Transfer corona cable defective. Poor transfer corona cable connection. Dirty T&S corona unit caused leak 	

SC411	D	DC separation corona current leak		
		A dc separation feedback voltage of less than 0.5V was detected after more than 200 ms while the PWM duty value was more than 17%.	 T&S power pack defective. Transfer corona cable defective. Paper separation current cable defective. Poor paper separation current cable connection. 	

SC440	D	Drum drive motor lock		
		The motor lock signal is on longer than 5 s while the drum drive motor is on.	Drive mechanism overload.Motor defective.	uble-

SC503	В	Cassette Tray 1 3 feed error		
		After the tray was closed, the lift sensor in Tray 3 (**) did not switch on within 20 s after the tray lift motor switched on. -or- The lift sensor did not switch off within 1 s four times after the tray started to descend.	 Lift motor connector loose, disconnected, broken. Paper or other foreign object has jammed the tray lift motor. Pickup solenoid connector is loose, disconnected, damaged. An obstruction in the mechanical operation of the pickup solenoid Replace the tray lift sensor. 	

SC504	В	Cassette Tray 4 feed error	
		After the tray was closed, the lift sensor in Tray 4 (**) did not switch on within 20 s after the tray lift motor switched on. -or- The lift sensor did not switch off within 1 s four times after the tray started to descend.	 Lift motor connector loose, disconnected, broken. Paper or other foreign object has jammed the tray lift motor. Pickup solenoid connector is loose, disconnected, damage. An obstruction in the mechanical operation of the pickup solenoid Replace the tray lift sensor.

SC506	В	Cassette feed motor error		
		The cassette feed motor lock signal remains HIGH longer than 2 sec. during operation. Note: When this SC occurs, paper feed from the cassette is not possible. However, feed can continue from Trays 1, 2.	Drive mechanism overload.Motor driver defective	

SC507	D	Registration motor lock		
		The registration motor lock signal is high longer than 5 s during operation.	Drive mechanism overload.Motor defective.	

SC531	D	Fusing drive motor error		
		The fusing drive motor lock signal remained HIGH for 5 sec.	Fusing motor drive mechanism overloaded.Motor defective.	

SC532	D	Left fusing pressure motor home position error 1		
		The left pressure motor did not return to home position 9 s after the left pressure motor started.	 Motor drive mechanism overload. Motor defective. Pressure home position sensor defective. 	

SC533	D	Left fusing pressure motor home position error 2	
		The left pressure motor was still at the home position 1.5 s after the start signal turned on.	 Possible Cause Motor drive mechanism overloaded. Motor defective. Pressure home position sensor defective or disconnected.

SC534	D	Right fusing pressure motor home position error 1		
		The right pressure motor did not return to home position 9 s after the right pressure motor started.	 Motor drive mechanism overloaded. Motor defective. Pressure home position sensor defective. 	

SC535	D	Right fusing pressure motor home position error 2		
		The right pressure motor was still at the home position 1.5 s after the start signal turned on.	 Motor drive mechanism overloaded. Motor defective. Pressure home position sensor defective or disconnected. 	

SC541	Α	Fusing thermistor open		
		The fusing temperature detected by the thermistor was below 13°C (55.4°F) 60 times within one 1 s.	Fusing thermistor defectiveThermistor cable disconnected, broken	

SC542	A	Fusing temperature warm-up error After switching on the machine, or after opening and closing the machine, during warmup the hot roller did not attain the ready temperature within 5 minutes (the temperature was detected	 Fusing lamp defective Fusing thermistor defective Thermistor floating, out of position Thermistor cable disconnected, broken
		below 2°C 5 times within 5 s).	

SC543	Α	Fusing overheat error 1 (software)		
		A fusing temperature of over 215	IOB board defective	10
		°C (419°F) was detected for 5 s	 BCU board defective 	ble
			PSU defective	rou
			TRIAC short	тş

SC544	Α	Fusing overheat error 2 (hardware)	
		The BCU backup circuit detects an overheat error even if the software overheat protection does not work.	 TRIAC short IOB board defective BCU board defective PSU board defective

SC545	Α	Fusing lamp overheat error 3	
		After reaching the ready temperature, the hot roller does not start to rotate and the fusing lamp stays on at full power for 60 s.	 Hot roller thermistor not positioned correctly Fusing lamp defective Thermostat defective

SC546	Α	Unstable fusing temperature		
		Fusing temperature is rapidly fluctuating	 Poor thermistor connection 	
		more than 20°C (68°F) at 1 s intervals.		
		-or-		
		Fusing temperature fluctuating over a long		
		period. It fluctuates 20°C (68°F) more than		
		3 times during 60 s interval.		

SC547	D	Zero-cross signal malfunction			
		One of the following conditions has occurred:	• Electrical noise on the power line.		
		 Abnormal mains frequency was detected more than 10 times. No zero-cross signal detected for 3 s while the relay is on. No zero-cross signal detected for 3.5 s 	PSU defective.		
		after the main switch is turned on.			

SC549	Α	Pressure roller thermistor abnormal		
		During fusing motor rotation, pressure roller temperature detected lower than 7°C (44.6°F) for 5 s.	 Thermistor shorted, disconnected, or its connector is damaged. 	

SC591	В	Cutter 1 home position error 1		
		Both left and right home position switches of the upper cutter were on just after the main switch was turned on, or just after the upper feed tray was opened and closed.	 Right or left home position switch defective. 	

SC592	В	Cutter 1 home position error 2		
		The left home position switch stays on 300 ms after the cutter motor turns on.	 Cutter motor cable disconnected Cutter motor overload Motor defective 	

SC593	В	Cutter 1 home position error 3		
		The home position switch stays off 1 s after the cutter motor turns on.	 Cutter motor cable disconnected Cutter motor overload Motor defective 	

SC594	В	Cutter 2 home position error 1		
		Both left and right home position switches of the lower cutter were on just after the main switch was turned on, or just after the lower feed tray was opened and closed.	 Right or left home position switch defective. 	

SC595	В	Cutter 2 home position error 2		
		The left home position switch stays on 300 ms after the cutter motor turns on.	 Cutter motor cable disconnected Cutter motor overload Motor defective 	

SC596	В	Cutter 2 home position error 3		
		The home position switch stays off 1 s after the cutter motor turns on.	 Cutter motor cable disconnected Cutter motor overload Motor defective 	

SC630	С	RSS communication error					
		An error was detected in communication via RSS between the machine and the RSS center. Error occurred on a public line at the RSS terminal.	 No action required 				

SC632	В	Key/card counter device error 1				
		After 1 data frame is sent to the device, an ACK signal is not received within 100 ms, and is not received after 3 retries.	• The serial line from the device to the copier is unstable, disconnected, or defective.			

				-əl
SC633	В	Key/card counter device error 2		
		During communication with the device, the BCU received a break (Low) signal.	 The serial line from the device to the copier is unstable, disconnected, or defective. 	Tre

SC634	В	Key/card counter device error 3	
		The backup battery of the counter device RAM is low.	Replace the RAM backup battery.

SC635	В	Key/card counter device error 4				
		After installation of the device a message alerts user to a battery voltage abnormal error.	 Device control board defective Device control board backup battery defective 			

SC670	D	Engine startup error			
		The BCU failed to respond with the prescribed time when the machine was turned on.	 Connections between BCU and controller board are loose, disconnected, or damaged Replace the BCU Replace the controller board 		

SC672	С	Controller startup error			
		 After power on, the line between the controller and the operation panel did not open for normal operation. After normal startup, communication with the controller stopped. 	 Controller stalled Controller installed incorrectly Controller board defective Operation panel harness disconnected or defective 		

SC818	С	Watchdog error				
		While the system program is running, a bus hold or interrupt program goes into an endless loop, preventing any other programs from executing.	 System program defective; switch off/on, or change the controller firmware if the problem cannot be solved Controller board defective Replace peripheral device 			

SC819	С	Fatal kerr	nel error	
	Due to a control error, a RAM overflow occurred during system processing. One of the following messages was displayed on the operation panel.		control error, a RAM occurred during system ig. One of the following s was displayed on the panel.	 System program defective Controller board defective Optional board defective Replace controller firmware
		0x766d vm pageout: VM is full		
		4361 Cache Error		
		Other		

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

SC820	С	Sellf-diagnostic error 1: CPU		
		An unexpected error occurred, or the boot monitor program or self-diagnostic program generated an interrupt. In either case, this is a fatal error.	 Replace the controller board Update (upload again) all firmware modules to restore the boot program and the self-diagnostics. 	
		Note : This SC displays up to approximately 50 number codes. These codes are used to find design problems and have no meaning for service technicians. The procedure for solving the problem is the same in every case.		

Troubleshooting

SC821	С	Self-dia	gnostic error 2: ASIC			
		The ASIC provides the central point for the control of bus arbitration for CPU access, for option bus and SDRAM access, for SDRAM refresh, and for				
		manage	ement of the internal bus gate.			
		0B00	Error code 0xffff ffff is returned when the register Write & Verify check is executed on the ASIC mounted on the controller board. The ASIC controls the ROM and buses for other devices.	ASIC defective, replace the controller board		
		0D05	The interrupts of the ASIC and CPU are not timed correctly.	 ASCI timing device defective, or CPU defective. Replace the controller board. 		

SC822	С	Self-dia	ignostic error 3: HDD	gnostic error 3: HDD				
		3003	 Check performed when HDD is installed: HDD device busy for over 31 s. After a diagnostic command is set for the HDD, but the device remains busy for over 6 s. A diagnostic command is issued to the HDD device but the result is an erro 	 HDD defective HDD harness disconnected, defective Controller board defective 				
		3004	No response to the self-diagnostic command from the ASIC to the HDDs	HDD defective				

in				
SC823	С	Self-di	agnostic error 4: NIC	
		6101	A sum check failure occurred between the SEEP ROM and the MAC address. The ROM is defective or the 12C bus is disconnected.	 If the optional NIC is detected, replace it. Replace the controller board.
		6104	The PHY chip is defective, or ASIC is defective.	
		6105	The PHY board or ASIC is not operating normally.	 Check the interface connection between the NIC and the controller board. Replace the NIC board. Replace the controller board.

SC824	С	Self-diagnostic error 5: NVRAM				
		NVRAM device does not exist, NVRAM device is damaged, NVRAM socket damaged	 NVRAM defective Controller board defective NVRAM backup battery exhausted NVRAM socket damaged 			

SC826	С	Self-dia	Self-diagnostic error 6: NVRAM (RTC/option NVRAM)		
		1501	The RTC 1 second check routine detected a problem with the RTC device or the NVRAM installation.	 NVRAM defective NVRAM installed incorrectly Replace RTC device 	
		15FF	The NVRAM mounted in the RTC device is not set correctly, or the RTC backup battery is low.	 Check the NVRAM and make sure that it is connected correctly. Replace the RTC device. 	

SC827	С	Self-di	Self-diagnostic error 7: RAM		
		0201	An error was detected after a routine write/verify check executed on the RAM.	 Replace the RAM DIMM. Replace the controller board 	
		0202	The system cannot read the values in RAM Possible causes: • RAM type is incorrect • SPD ROM on the RAM is defective • 12C bus is defective	Replace the RAM DIMM.	

SC828	С	Self-di	agnostic error 8: ROM	
		0101	Bootstrap code error. The CPU or flash ROM device has malfunctioned.	 Update (upload again) all firmware modules to restore the boot program and the self-diagnostics. Replace the controller board.
		0104	Measuring the CRC for the boot monitor and operating system program results in an error. -or- A check of the CRC value for ROMFS of the entire ROM area results in an error.	Software defectiveController board defectiveROM defective

SC829	С	Self-dia	Self-diagnostic error 9: Optional RAM		
		• Change the controller board or the optional RAM DIMM			
		0401			
		0402			

SC838	С	Self-diagnostic error 10: Clock Generator		
		 The clock generator settings read from the I2C bus were not correct. Possible cause are: Clock generator defective I2C bus defective I2C board of CPU defective 	Replace the controller board	

shooting

SC850	В	Net I/F error			
		 Duplicate IP addresses. Illegal IP address. Driver unstable and cannot be used on the network. 	 IP address setting incorrect NIB (PHY) board defective Controller board defective 		

SC851	В	IEEE 1394 I/F error		
		Driver setting incorrect and cannot be used by the 1394 I/F.	 NIB (PHY), LINK module defective; change the Interface Board Controller board defective 	

SC853	В	Wireless LAN Error 1: Startup		
		During machine start-up, the machine can get access to the board that holds the wireless LAN, but not to the wireless LAN card (802.11b or Bluetooth).	 Wireless LAN card missing (was removed) 	

SC854	В	Wireless LAN Error 2: Operation	
		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)

SC855	В	Wireless LAN Error 3: Board Error			
		During machine operation of the wireless connection (802.11b or Bluetooth), an error occurred on the wireless LAN board.	 Wireless LAN card not installed properly Wireless LAN card defective 		

SC856	В	Wireless LAN error 5: Board Error	
		An error was detected on the wireless LAN board (802.11b or Bluetooth).	 Wireless LAN board defective PCI connector (to the mother board) loose

SC857	В	USB I/F Error		
		The USB driver is not stable and	 Bad USB board connection 	
		caused an error.	 Replace the controller board 	

SERVICE CALL CONDITIONS

SC860	В	HDD startup error at main power on	
		 HDD is connected but a driver error is detected. The driver does not respond with the status of the HDD within 30 s. 	HDD is not initializedLevel data is corruptedHDD is defective

SC861	D	HDD re-try failure		
		At power on with the HDD detected, power supply to the HDD is interrupted, after the HDD is awakened from the sleep mode, the HDD is not ready within 30 s.	 Harness between HDD and board disconnected, defective HDD power connector disconnected HDD defective Controller board defective 	

SC863	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, and the next time the HDD is accessed, these bad sectors will not be accessed for read/write operation.

SC864	D	HDD data CRC error		
		During HDD operation, the HDD cannot respond to an CRC error query. Data transfer did not execute normally while data was being written to the HDD.	HDD defective	

SC865	D	HDD access error		
		HDD responded to an error during operation for a condition other than those for SC863, 864.	HDD defective.	

SC866	В	SD card error 1: Recognition error	
		The SD card mounted in the slot contains illegal program data.	 Use only SD cards that contain the correct data.

SC867	D	SD card error 2: SD card removed	
		The SD card in the boot slot when the machine was turned on was removed while the machine was on.	 Insert the SD card, then turn the machine off and on.

SC868	D	SD card error 3: SC card access	
		An error occurred while an SD card was used.	 SD card not inserted correctly SD card defective Controller board defective Note: If you want to try to reformat the SC card, use SD Formatter Ver 1.1.

SC870	В	Address book data error		
		Address book data on the hard disk was detected as abnormal when it was accessed from either the operation panel or the network. The address book data cannot be read from the HDD or SD card where it is stored, or the data read from the media is defective.	 Software defective. Turn the machine off/on. If this is not the solution for the problem, then replace the controller firmware. HDD defective. 	
		 More Details Do SP5846 050 (UCS Settings – address book data. Reset the user information with S Information). Replace the HDDs. 	Initialize all Directory Info.) to reset all P5832 006 (HDD Formatting– User	Trouble- shooting
		 Boot the machine from the SD ca 	rd.	

SC873	В	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 SP5832-007 (Format HDD – Mail TX Data) to initialize the HDD. Replace the HDD 	

SC874	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 B660 running from an SD card.	 Turn the main switch off/on and try the operation again. Install the Data Overwrite Security Unit again. For more, see section "1. Installation". HDD defective 	

SC875	D	Delete All error 2: Data area		
		An error occurred while the machine deleted data from the HDD. Note : The source of this error is the Data Overwrite Security Unit B660 running from an SD card.	 Turn the main switch off/on and try the operation again. 	

SERVICE CALL CONDITIONS



SC900	D	Electrical total counter error		
		The total counter contains something that is not a number.	 NVRAM incorrect type NVRAM defective NVRAM data scrambled Unexpected error from external source 	

SC901	D	Mechanical counter error		
		At the beginning of a count, the machine detected that the mechanical was not connected. Note : This function is provided only in EXP machines.	 Mechanical counter connector loose, disconnected, or broken. 	

SC910	В	External controller error 1		
SC911		External controller error 2		
SC912		External controller error 3		
SC913		External controller error 4		
SC914		External controller error 5		
		An external application sends an error notice.	VLB defective	
			I/F cable defective	

SC919	D	External controller down		
		The EAC received an interrupt signall from the FLUTE serial driver during print jobs in progress and the connection between the copier and external controller was broken. Note: The EAC is the External Api Converter.	 Turn the machine off. Check the I/F cable to determine if it became disconnected during operation. Turn the machine on. 	

SC920	В	Printer error 1		
		An internal application error was detected and operation cannot continue.	 Software defective; turn the machine off/on, or change the controller firmware Insufficient memory 	

SC921	В	Printer error 2		
		When the application started, the necessary font was not on the SD card.	 Font not on the SC card 	

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SC925	В	Net File function error	
		The NetFile file management on the HDD cannot be used, or a NetFile management file is corrupted and operation cannot continue. The HDDs are defective and they cannot be debugged or partitioned, so the Scan Router functions (delivery of received faxes, document capture, etc.), Web services, and other network functions cannot be used. HDD status codes are displayed below the SC code:	 Refer to the four procedures below (Recovery from SC925).

SC954	D	Printer Image Setting Error		
		The IPU did not issue the signal required to start image processing for the printing mode within 60 s after the paper stops for registration.	 Software defective Replace the software (all firmware modules). IPU defective 	

SC955	D	Memory Setting Error		
		Settings required for memory to start image processing are not sent from the IPU within 60 s after the paper stops for paper stops for registration.	 Software defective. Replace the software (all firmware modules). IPU defective 	Troub

SC964	D	Scanner start signal error 1		
		The scanner receives another start signal after scanning has already started.	Software defective.Replace the software (all firmware modules).	

SC965	D	Print start signal error 2	
		The printer received another print start signal after print job has already started.	Software defective.Replace the software (all firmware modules).

SC967	D	Print start signal error 3	
		The printer received another print start signal after print job has already started.	 Software defective. Replace the software (all firmware modules). BCU defective

=	SC990	D	Software error 1		
			The software performs an unexpected function and the program cannot continue.	 Software defective, re-boot^{*1} 	
=	SC991	С	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: In order to get more details about SC990 and SC991:

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

SC992	С	Software error 3: Undefined	
		An error not controlled by the system occurred (the error does not come under any other SC code).	 Software defective Turn the machine power off and on. The machine cannot be used until this error is corrected.

SC997	В	Software Error 4: Cannot select application function	
		 Software Error 4: Cannot select application function An application does not start after the user pushed the correct key on the operation panel. Software bug A RAM or DIMM option necessary for the application is not installed or not installed correctly. 	

SC998	D	Software Error 5: 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 necessary for the application is not installed or not installed correctly. 	

shooting

4.2 JAM CODE TABLE

Printer Unit

Code	Jam Detection Condition	Location* ¹	Remarks
1	At power on	Not specified	
3	Paper did not reach roll lead edge sensor 1.	A2	These are jams
4	Paper did not reach roll lead edge sensor 2.	A2	when paper does
5	Paper did not reach roll lead edge sensor 3.	A1	not activate the
6	Paper did not reach leading edge sensor 4, or paper feed sensor 1 (cassette)	A1	sensor.
8	Paper did not reach cutting sensor 1.	A2	
9	Paper did not reach cutting sensor 2.	A1	
10	Paper did not reach paper feed sensor 2 (cassette	A1	
13	Paper did not reach registration sensor.	В	
14	Paper did not reach exit sensor.	С	
16	Paper did not reach upper exit sensor.	С	
34	Paper did not reach by-pass feed sensor.	A3	
53	Paper stayed at roll lead edge sensor 1.	A2	These are jams
54	Paper stayed at roll lead edge sensor 2.	A2	when paper stays
55	Paper stayed at roll lead edge sensor 3.	A1	at the sensor.
56	Paper stayed at roll lead edge sensor 4, or paper feed sensor 1 (cassette).		
58	Paper stayed at cutting sensor 1.	A2	
59	Paper stayed at cutting sensor 2.	A1	
60	Paper stayed at paper feed sensor 2 (cassette).		
63	Paper stayed at registration sensor.	В	
64	Paper stayed at exit sensor.	С	
66	Paper stayed at upper exit sensor.	С	

*1 A1,A2, B, C and P refer to the area of the jam in the illustration that is displayed on the touch panel when an error occurs.

Scanner Unit

Code	Jam Detection Condition	Location* ¹	Remarks
1	At power on.	Р	
2	Original does not reach the registration	Р	
2	sensor.	•	
3	Original registration sensor does not	Р	
4	Ovicinal stays at the registration concer		
4	Original stays at the registration sensor.	P	
5	Original stays in scanner unit, but does not reach the registration sensor.	Р	
6	Scanner stop switch is pressed	Р	
7	Original does not reach the original exit	Р	
	sensor.	•	

*1 A1,A2, B, C and P refer to the area of the jam in the illustration that is displayed on the touch panel when an error occurs.

4.3 COVER OPEN

Location	Shut off line	
Original feed Unit Safety Switch	Original feed motor, original exit gate solenoid (DC 24V line)	
Toner Hopper Cover Open Switch	Development drive motor (DC 24V line)	
Upper Unit Safety Switch	Development drive motor, CGB power pack, T&S power pack, registration motor, fusing lamps, drum motor, left fusing pressure motor, right fusing pressure motor, paper junction gate solenoid, pick- off pawl solenoid (DC24V lines)	
Exit Cover Switch	Registration motor, fusing lamps, drum motor, left fusing pressure motor, right fusing pressure motor, paper junction gate solenoid, pick-off pawl solenoid (DC24V lines)	
Upper Roll Tray Safety Switch	Roll feed motor (DC 24V line), anti-condensation heaters (AC line)	
Cutter Safety Switch 1 (Upper)	Cutter motor (DC 24V line)	
Lower Roll Tray Safety Switch (Option)	Roll feed motor (DC 24V line), anti-condensation heaters (AC line)	
Cutter Safety Switch 2 (Lower)	Cutter motor (DC 24V line)	
Original feed Unit Safety Sensor	Originall feed motor, original junction gate solenoid (DC 24V line)	
Upper Unit Open Sensor	Development drive motor, CGB power pack, T&S power pack, registration motor (DC 24V line)	
Paper Exit Guide Open SW	Fusing lamps, drum motor, left fusing pressure motor, right fusing pressure motor, paper junction gate solenoid, pick-off pawl solenoid (DC24V lines)	
Cassette Open SW 1 (Upper)	Feed motor, sensors (5V line)	
Cassette Open SW 2 (Lower)		
Cassette Detection SW 1(Upper)	Feed motor, transport clutch, pick-up solenoids	
Cassette Detection SW 2 (Lower)	(DC24V lines)	

4.4 IMAGE PROBLEM TROUBLESHOOTING

4.4.1 FLOW CHART



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shooting

NOTE: For the VDB/IPU test patterns, use SP2902.

4.4.2 SCANNING

1. No image (blank copy/print, or no image with only vertical black lines on the output)

Possible causes:

- 1) Connection problem between CIS and IPU.
- 2) CIS defective

2. No image (solid black copy/print, or no image with only vertical white lines on the output)

Possible causes:

- 1) Connection problem between CIS and IPU.
- 2) CIS defective

3. Light image

Possible causes:

- 1) Low CIS output
- 2) IPU board defective

4. Vertical black lines

Possible causes:

- 1) Dirty exposure glass
- 2) CIS defective

5. Vertical white lines

Possible causes:

- 1) Dirty exposure glass
- 2) Dirty or scratched white platen roller
- 3) CIS defective

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6. Black or white bands with no image-width 1/8 A0 (E) size

Possible causes:

- 1) Connection problem between CIS and IPU
- 2) CIS output error
- 3) IPU board adjustment error



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7. White lines every 1mm pitch in halftone areas

Possible causes:

CIS defective

8. Bands/lines every 8mm pitch in halftone areas

Possible causes:

LPH defective



4.4.3 PRINTING

1. No Image (blank copy/print)

Possible causes:

- 1) VDB board defective
- 2) IPU board defective
- 3) LPH (LED head) defective

2. Band with no image-width 1/3 of image

Possible causes:

Connection problem between VDB and LPH



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3. Bands with no image-width 1/8 A0 (E) size

Possible causes:

VDB board defective



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4. Vertical white and black line at 150 mm from center.

Possible causes:

LPH Joints adjustment error

(3.10.2)



5. Horizontal line broken at 150 mm from center.

Possible causes:

LPH subscan timing error at joint position

(3.10.2)



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5. SERVICE TABLES

5.1 SPECIAL PROCEDURES WITH SD CARDS

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

5.1.1 GENERAL PRECAUTIONS FOR USING SD CARDS

SD cards are held in position by a small spring-lock mechanism.

- 1. To install an SD card, push it into the slot until it stops, then release it.
- 2. To remove an SD card, push the SD card in carefully to release it, and then remove it from the slot.

Important:

- To prevent damage to the SD card or the slot lock, always push the card in to release it before you try to remove it.
- When you insert the SD card, carefully align it with the slot before you push it in. Make sure that you do not wedge the SD card in the gap between the slot and the frame.
- The performance of any SD card in merge or undo procedures cannot be guaranteed if has been previously used on a computer or any other device.
- Once an SD card has been used to hold merged applications, it can no longer be used for any other purpose.
- The SD card itself is proof of purchase of the MFP option. If the card fails, use it to procure a replacement.
- Save the original empty SD cards that have been merged with other cards. Tape them to the machine near the SD card slots.
- SD cards are precision items. Store them in a location where they will not be exposed to direct sunlight, high temperature, or high humidity.
- Handle SD cards carefully. Never bend a card, scratch it, or expose it to strong shock or vibration.

Service Tables

5.1.2 UPDATING THE FIRMWARE

To upgrade the firmware for this machine, you need the most recent version of the firmware downloaded onto an SD card. The SD card is then inserted into the service slot (**Slot 1**) of the controller so the firmware can be downloaded from the card to the machine.

Important

- Never insert or remove the SD card with the main power switch turned on.
- Never turn the machine off while the firmware is being updated.

To update the firmware

- 1. Prepare the SD card.
 - Create a **romdata** folder on the SD card.
 - Below the romdata folder, create a B188 folder.
 - Download the firmware and store it in the **B188** folder.
- 2. Turn the main power switch off.
- 3. Remove the SD slot cover ($\hat{\mathscr{F}} x1$).
- 4. Insert the SD card with the firmware into **Slot 1** (the top slot).

Important: Insert the SD card carefully into the slot. Make sure that you do not wedge the SD card in the gap between the slot and the frame.

- 5. Turn the copier on and wait for the initial screen of the program installer to appear.
- 6. Touch [Onboard Sys] on the operation panel display. to reverse the black and white display.
- 7. Touch [Update (#)].
- 8. Wait for the "ROM Update Completed!" message to appear.
- 9. Turn the copier off and remove the SD card from Slot 1.
- 10. Turn the copier on, wait for the machine to warm up, then confirm that it is operating normally.

5.1.3 NVRAM UPLOAD AND DOWNLOAD

An SD card is used to upload and download NVRAM data.

Uploading NVRAM Data to an SD Card

Important:

- Data upload from NVRAM to SD card will fail if the machine serial number of the machine is not registered with **SP5811**. The machine serial number should be set at the factory before shipping.
- NVRAM data can be uploaded from several machines and stored on the same SD card. A unique filename is created automatically for each machine.

To upload data from NVRAM to an SD card

- Enter the SP mode and do SP5990 002 to print an SMC report.
 NOTE: Always print an SMC report before uploading NVRAM data, just in case the download of the NVRAM data fails. If the download fails you can use the report to re-enter the SP and UP settings manually.
- 2. Turn the machine off.
- 3. Insert the SD card in **Slot 1** (the top slot).
- 4. Turn the machine on.
- 5. Enter the SP mode and do SP5824.
- Touch [OK] on the operation panel to start the uploade.
 Data uploaded from NVRAM is stored in the NVRAM folder on the card:

NVRAM\<Machine No.>.nv

Important: The upload automatically overwrites any file of the same name without warning.

Service Tables
Downloading NVRAM Data from an SD Card

Important

- Downloading NVRAM data from an SD card may fail if the SD card is defective or if there is poor connection between the controller and the BCU.
- If downloading NVRAM data from an SD card fails, just repeat the procedure.
- If the second attempt to download from the SD card fails, then you must enter the SP and UP settings manually from the SMC report your printed before uploading the NVRAM data to the SD card.

To download data from an SD card to NVRAM

- 1. Turn the machine off.
- 2. Insert the SD card to hold the NVRAM data in **Slot 1** (the top slot).
- 3. Turn the machine on.
- 4. Enter the SP mode and do **SP5825**.

The download executes, provided the SD card contains the NVRAM data for the machine. (The machine serial number in the file name of the NVRAM data must match the registered number of the machine.)

-or-

The download will not proceed if the correct NVRAM data is not on the SD card.

5.1.4 APPLICATION MERGE AND UNDO

Overview

Only two slots (**Slot 2**, **Slot 3**) are available for software applications. **Slot 1** cannot hold software applications while the machine is operating.

If the customer needs to run three or more applications, then one or more applications must be merged onto one card. This must be done with an SP code on the copier with the SD cards inserted into the slots of the controller. Licensing restrictions prohibit copying these applications on a computer or any other device.

Two SD cards are sufficient to hold all the data for the optional applications that are available for this machine.

Please remember that once a software application has been taken from the original card and merged with one or more applications on another SD card, the original SD card can no longer be used with any other MFP device. This is a condition of the licensing agreement.

Once these original SD cards are disabled, they should be stored carefully for two reasons:

- They serve as proof of purchase for the customer.
- The can be restored to full use with the Undo feature by copying the software application back to its original SD card.

The Undo feature allows you to take an application copied to another SD card and restore it to its original card. However, the application can be restored only to its original SD card, not just any blank SD card.

After the undo is executed and the software application has been copied to its original SD card, the original SD card is restored to full use.

The original SD cards that hold the applications are also protected against illegal copying with a computer or any device other than the copier.

Important

- The SD card for the Data Overwrite Security application (B735) must always be inserted in Slot 2.
- The SD card for the printer application GW Scanner B765) must always be inserted in Slot 3

Application Merge

- 1. Turn the machine off.
- 2. Insert the *source* SD card in **Slot 1**. This is the card that holds the application that you want to move.
- 3. Insert the *target* SD card in **Slot 3**. This is the card that will receive the application moved from **Slot 1** and be used with the machine for daily operation.
- 4. Turn the machine on.
- 5. Enter the SP mode, do SP5873 001 and touch [Execute].
- When the message prompts you to continue, touch [Execute].
 A message appears and informs you that the merge is finished and prompts you to switch off the machine.
- 7. Touch [Close] in the message box.
- 8. Turn the machine off.
- 9. Remove the SD cards and confirm the following:
 - The DOS SD card must be in **Slot 2**.
 - The GW Scanner SD card must be in **Slot 3**.
- 10. Turn the machine on.
- 11. Enter the User Tools mode and confirm that the machine recognizes the options.

Important!

- Instruct the customer to save the original SD cards.
- Although the original SD cards are disabled after merging, they serve as proof of purchase for the customer.
- They can also be restored to full use with the Undo feature (see next section).

Merge Undo

Follow this procedure to undo a merge if you mistakenly copy the wrong application.

- 1. Turn the machine off.
- 2. Insert the SD card with the merged applications in **Slot 1**.
- 3. Insert the empty original SD card in Slot 3.
- 4. Switch the machine on.
- 5. Enter the SP mode, do SP5873 002 and touch [Execute].
- When the message prompts you to continue, touch [Execute].
 A message appears and informs you that the undo is finished and prompts you to switch off the machine.
- 7. Touch [Close] in the message box.
- 8. Turn the machine off.
- 9. Remove the SD card from **Slot 1.**
- 10. Turn the machine on.
- 11. Enter the User Tools mode and confirm that the application restored to its original card is no longer on the SD card in **Slot 2**.

5.2 USING THE DEBUG LOG

This machine provides a Save Debug Log feature that allows the Customer Engineer to save and retrieve error information for analysis.

Every time an error occurs, debug information is recorded in volatile memory but this information is lost when the machine is switched off and on.

The Save Debug Log feature provides two main features:

- Switching on the debug feature so error information is saved directly to the HDD for later retrieval.
- Copying the error information from the HDD to an SD card.

When a user is experiencing problems with the machine, follow the procedure below to set up the machine so the error information is saved automatically to the HDD.

5.2.1 SWITCHING ON AND SETTING UP SAVE DEBUG LOG

The debug information cannot be saved the until the "Save Debug Log" function has been switched on and a target has been selected.

- 1. Enter the SP mode and switch the Save Debug Log feature on.
 - Press I then use the 10-key pad to enter ① ② ⑦.
 - Press and hold down **C** for more than 3 seconds.
 - Touch "Copy SP".
 - On the LCD panel, open SP5857.
- 2. Under "5857 Save Debug Log", touch "1 On/Off".



3. On the control panel keypad, press "1" then press (#). This switches the Save Debug Log feature on.

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

 Next, select the target destination where the debug information will be saved. Under "5857 Save Debug Log", touch "2 Target", enter "2" with the operation panel key to select the hard disk as the target destination, then press ^(#).



NOTE: Select "3 SD Card" to save the debug information directly to the SD card if it is inserted in the service slot.

5. Now touch "5858" and specify the events that you want to record in the debug log. SP5858 (Debug Save When) provides the following items for selection.

1	Engine SC Error	Saves data when an engine-related SC code is generated.
2	Controller SC Error	Saves debug data when a controller- related SC Code is generated.
3	Any SC Error	Saves data only for the SC code that you specify by entering code number.
4	Jam	Saves data for jams.

NOTE: More than one event can be selected.

Example 1: To Select Items 1, 2, 4

Touch the appropriate items(s). Press "ON" for each selection. This example shows "Engine SC Error" selected.



Example 2: To Specify an SC Code

Touch "3 Any SC Error", enter the 3-digit SC code number with the control panel number keys, then press (#). This example shows an entry for SC670.



NOTE: For details about SC code numbers, please refer to the SC tables in Section "4. Troubleshooting".

6. Next, select the one or more memory modules for reading and recording debug information. Touch "5859".

Under "5859" press the appropriate key item for the module that you want to record.

Enter the appropriate 4-digit number, then press (#).

NOTE: Refer to the two tables below for the 4-digit numbers to enter for each key.

The example below shows "Key 1" with "2222" entered.

COPY :	SP-5-	-859-	-001	
Debug	Save	Key	No.	
Key 1				
			_2222	

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

4-Digit Entries for Keys 1 to 10

KEY NO.	COPY	PRINTER	SCANNER	WEB
1		2222 (SC	S)	
2		2223 (SRI	M)	
3		256 (IMH	l)	
4		1000 (EC	S)	
5		1025 (MC	S)	
6	4848 (COPY)	4400 (GPS)	5375 (Scan)	5682 (NFA)
7	2224 (BCU)	4500 (PDL)	5682 (NFA)	6600 (WebDB)
8		4600 (GPS-PM)	3000 (NCS)	3300 (PTS)
9		2000 (NCS)	2000 (NCS)	6666 (WebSys)
10		2224 (BCU)		2000 (NCS)

NOTE: The default settings for Keys 1 to 10 are all zero ("0").

Key to Acronyms

Acronym	Meaning	Acronym	Meaning
ECS	Engine Control Service	NFA	Net File Application
GPS	GW Print Service	PDL	Printer Design Language
GSP-PM	GW Print Service – Print Module	PTS	Print Server
IMH	Image Memory Handler	SCS	System Control Service
MCS	Memory Control Service	SRM	System Resource
			Management
NCS	Network Control Service	WebDB	Web Document Box
			(Document Server)

The machine is now set to record the debugging information automatically on the HDD (the target selected with SP5857-002) for the events that you selected SP5858 and the memory modules selected with SP5859.

Please keep the following important points in mind when you are doing this setting:

- Note that the number entries for Keys 1 to 5 are the same for the Copy, Printer, Scanner, and Web memory modules.
- The initial settings are all zero.
- These settings remain in effect until you change them. Be sure to check all the settings, especially the settings for Keys 6 to 10. To switch off a key setting, enter a zero for that key.
- You can select any number of keys from 1 to 10 (or all) by entering the corresponding 4-digit numbers from the table.
- You cannot mix settings for the groups (COPY, PRINTER, etc.) for 006~010. For example, if you want to create a PRINTER debug log you must select the settings from the 9 available selections for the "PRINTER" column only.
- One area of the disk is reserved to store the debug log. The size of this area is limited to 4 MB.

5.2.2 RETRIEVING THE DEBUG LOG FROM THE HDD

Retrieve the debug log by copying it from the hard disk to an SD card.

- 1. Insert the SD card into the service slot of the copier.
- 2. Enter the SP mode and execute SP5857-009 (Copy HDD to SD Card (Latest 4 MB)) to write the debugging data to the SD card.
- 3. After you return to the service center, use a card reader to copy the file and send it for analysis to Ricoh by email, or just send the SD card by mail.

5.2.3 RECORDING ERRORS MANUALLY

Since only SC errors and jams are recorded to the debug log automatically, for any other errors that occur while the customer engineer is not on site, please instruct customers to perform the following immediately after occurrence to save the debug data. Such problems would include a controller or panel freeze.

- **NOTE:** In order to use this feature, the customer engineer must have previously switched on the Save Debug Feature (SP5857-001) and selected the hard disk as the save destination (SP5857-002).
- 1. When the error occurs, on the operation panel, press 3 (Clear Modes).
- 2. On the control panel, enter "01" then hold down C/℗ for at least 3 sec. until the machine beeps then release. This saves the debug log to the hard disk for later retrieval with an SD card by the service representatives.
- 3. Switch the machine off and on to resume operation.

The debug information for the error is saved on the hard disk so the service representatives can retrieve it on their next visit by copying it from the HDD to an SD card.

5.2.4 NEW DEBUG LOG CODES

SP5857-015: Copy SD Card-to-SD Card: Any Desired Key

This SP copies the log on an SD card (the file that contains the information written directly from shared memory) to a log specified by key number. The copy operation is executed in the log directory of the SD card inserted in the same slot. (This function does not copy from one slot to another.) Each SD card can hold up to 4 MB of file data. Unique file names are created for the data during the copy operation to prevent overwriting files of the same name. This means that log data from more than one machine can be copied onto the same SC card. This command does not execute if there is no log on the HDD for the name of the specified key.

SP5857-016: Create a File on HDD to Store a Log

This SP creates a 32 MB file to store a log on the HDD. However, this is not a completely empty file. The created file will hold the number "2225" as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the HDD when the first log is stored on the HDD, but this operation takes time. This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the HDD. With the file already created on the HDD for the log file, the data only needs to be recorded; a new log file does not require creation. To create a new log file, execute SP5857-011 to delete the debug log data from the HDD and then execute this SP (SP5857-016).

SP5857-017 Create a File on SD Card to Store a Log

This SP creates a 4 MB file to store a log on an SD card. However, this is not a completely empty file. The created file will hold the number "2225" as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the SD card when the first log is stored on the SD card, but this operation takes time. This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the SD card. With the file already created on the SD card for the log file, the data only needs to be recorded; a new log file does not require creation. To create a new log file, execute SP5857-012 to delete the debug log data from the SD card and then execute this SP (SP5857-017).

5.3 USER TOOLS

This is a simple map of the User Tools settings provided for quick reference. For more details about these functions and their settings, please refer to the Operating Instructions.

5.3.1 SYSTEM SETTINGS

Key press: [User Tools]> "System Settings"

General Features
Panel On
Warm Up Notice
Copy Count Display
Function Priority
Print Priority
Function Reset Timer
Interleave Print
Original Feed Delay 1
Original Feed Delay 2
Feed Start Method
Original Output Exit
Paper Thickness: Paper Tray
Paper Thickness: Bypass Tray
Paper Volume
Fine Ratio Adjustment: Copier
Fine Ratio Adjustment: Printer
Output Copier
Output: Document Server
Job List Display Time
Paper Volume
Tray Paper Settings
Paper Tray Priority: Copier
Paper Tray Size: Tray 1
Paper Tray Size: Tray 2
Paper Tray Size: Tray 3
Paper Tray Size: Tray 4
Paper Type: Bypass Tray
Paper Type: Tray 1
Paper Type: Tray 2
Paper Type: Tray 3
Paper Type: Tray 4

System Settings Map

System Settings Map (Continued)

Timer Settings
Auto Off Timer
Energy Saver Timer
Panel Off Timer
System Auto Reset Timer
Copier/Document Server Auto Reset Timer
Scanner Auto Reset Timer
Set Date
Set Time
Auto Logout Timer
Interface Settings
IP Address
Gateway Address
DNS Configuration
DDNS Configuration
Domain Name
WINS Configuration
Network
Effective Protocol
NW Frame Type
SMB Computer Name
SMB Work Group
Ethernet Speed
Ping Command
Permit SNMP V3 Communication
Permit SSL/TLS Communication
Host Name
Machine Name

System Settings Map (Continued)

File Transfer
Delivery Option
SMTP Server
SMTP Authentication
POP Before SMTP
POP3 Setting
Administrator's E-Mail Address
E-Mail Communication Port
Default User Name/Password (Send)
Program/Change/Delete E-Mail Message
Program/Change/Delete Subject
Scanner Recall Interval Time
Number of Scanner Recalls
Auto Specify Sender Name
Administrator Tools
User Authentication Management
Administrator Authentication Management
Key Counter Management
Extended Security
Display/Print Counter
Display/Clear/Print/Counter per User
Address Book Management
Address Book: Program/Change/Delete Group
Address Book: Change Order
Print Address Book: Destination List
Address Book: Edit Title
Address Book: Select Title
Auto Delete File
Delete All Files
Program/Change/Delete LDAP Server
Use LDAP Server
AOF (Always On)
Firmware Version



5.3.2 COPIER/DOCUMENT SERVER FEATURES

Key press: [User Tools]> "Copier/Document Server Features"

Copier/Document Server Features Map

General Feataures
Auto Paper Select Priority
Auto Tray Switching
Original Type Priority
Auto Image Density Priority
Copy Quality
Image Density
Change Initial Mode
Max. Copy Quality
Job End Call
Reproduction Ratio
Custom Magnification Settings 1
Custom Magnification Settings 2
Custom Magnification Settings 3
Enlarge 1
Enlarge 2
Enlarge 3
Enlarge 4
Reduce 1
Reduce 2
Reduce 3
Reduce 4
Priority Reduce/Enlarge
User Auto R/E: A0
User Auto R/E: A1
User Auto R/E: A2
User Auto R/E: A3
User Auto R/E: A4
User Auto R/E: B1 JIS
User Auto R/E: B2 JIS
User Auto R/E: B3 JIS
User Auto R/E: B4 JIS
Edit
Adjust Position
Erase Border Width
Erase Original Shadow in Combine
Image Repeat Separation Line
Double Copies Separation Line
Separation Line in Combine
Copy Order in Combine
Program/Delete Format
Margin Adjust Priority
Partial Copy Priority

Copier/Document	Server	Features	Map	(Continued))
-----------------	--------	----------	-----	-------------	---

Stamp
Background Numbering
Size
Density
Preset Stamp
Stamp Priority
Stamp Language
Stamp Position: COPY
Stamp Position: URGENT
Stamp Position: PRIORITY
Stamp Position: For Your Info.
Stamp Position: PRELIMINARY
Stamp Position: For Internal Use Only
Stamp Position: CONFIDENTIAL
Stamp Position: DRAFT
Stamp Format: COPY
Stamp Format: URGENT
Stamp Format: PRIORITY
Stamp Format: For Your Info.
Stamp Format: PRELIMINARY
Stamp Format: For Internal Use Only
Stamp Format: CONFIDENTIAL
Stamp Format: DRAFT
User Stamp
Program/Delete Stamp
Stamp Position : 1 *Not Programmed
Stamp Position : 2 *Not Programmed
Stamp Position : 3 *Not Programmed
Stamp Position : 4 *Not Programmed
Stamp Format: 1 *Not Programmed
Stamp Format: 2 *Not Programmed
Stamp Format: 3 *Not Programmed
Stamp Format: 4 *Not Programmed
Date Stamp
Format
Font
Stamp Position
Stamp Setting
Size
Superimpose

Copier/Document Server Features Map (Continued)

Page Numbering
Stamp Format
Font
Size
Page Numbering in Combine
Stamp Position: P1, P2
Stamp Position: 1/5, 2/5,
Stamp Position: -1-, -2-,
Stamp Position: P.1, P.2,
Stamp Position: 1, 2,
Stamp Position: 1-1, 1-2,
Superimpose
Page Numbering Initial Letter
Input/Output
Rotate Sort
Administrator Tools

5.3.3 SCANNER FEATURES

Key press: [User Tools]> "Scanner Features"

Scan Settings
Default Scan Settings
Next Original Wait
Original Orientation Priority
Change Initial Mode
Destination List Settings
Destination List Priority
Select Title
Send Settings
TWAIN Standby Time
File Type Priority
Compression (Black & White)
Print & Delete Scanner Journal
Print Scanner Journal
Delete Scanner Journal
Max. E-Mail Size
Divide & Send E-Mail
E-Mail Information Language
Store File Priority
Administrator Tools

5.3.4 INQUIRY

Key press: [User Tools]> "Inquiry" Machine Maintenance/Repair Telephone No. Serial No. of Machine Sales Representative Telephone No.

123-4564	
B188-00137	

123-4564 [Print Inquiry List]

To print the Inquiry List, touch "Print Inquiry List", read the displayed message then press [Start] on the operation panel.

5.3.5 COUNTER

Key press: [User Tools]> "Counter"Total Counter0000 002[Print Counter List]

To print the Counter List, touch "Print Counter List", read the displayed message then press [Start] on the operation panel.

5.4 SERVICE PROGRAM (SP) MODES

5.4.1 SERVICE MODE LOCK/UNLOCK

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

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

5.4.2 ENTERING SP MODE

To enter and leave SP Mode

- 1. On the operation panel, press **S**/**S**.
- 2. On the key pad, press (10)
- 3. Hold down $\textcircled{\baselinetwidth}$ for 3 seconds.
- 4. On the touch panel, press Copy SP. -or-
- 5. If the machine has a printer controller, press Copy SP/Printer SP.

SP Mode (Service)	Copy Mode Prev. Menu Exit
SP Mode Select	xxxx-xxx
SP-1XXX Feed	SP-6XXX Periphs.
SP-2XXX Drum	SP-7XXX Data Log
SP-3XXX Process	SP-8XXX Data Log2
SP-4XXX Scanner	SP-9XXX Etc.
SP-5XXX Mode	▲ Prev. ▼Next
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6. To leave the SP Mode, press the Exit button in the upper right corner.

Switching between SP Mode and Copy Mode

Use the Copy Mode and SP Mode buttons on the touch panel to toggle between the Copy Mode screen and the SP Mode screen.

- 1. Enter the copy SP mode. (5.4.2)
- 2. On the touch panel, press Copy Mode [A] to return to the initial screen.

	_[A]
SP Mode (Service)	Copy Mode Prev. Menu Exit
SP Mode Select	XXXX-XXX
SP-1XXX Feed	SP-6XXX Periphs.
SP-2XXX Drum	SP-7XXX Data Log
SP-3XXX Process	SP-8XXX Data Log2
SP-4XXX Scanner	SP-9XXX Etc.
SP-5XXX Mode	▲ Prev. ▼Next
1	

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- 3. Select the paper size and print mode.
- 4. Press SP Mode [B] to return to the SP Mode screen.



- 5. Set up the print job (feed source, paper size, etc.)
- 6. Press the SP mode button to return to the SP mode, and then select the SP code for the report that you want to print (SP5902-002 for example).

5.4.3 USING THE SP MODE

SP mode level

The SP (Service Program) are assigned three-level coded numbers. For example, SP2101-002 (Printing Erase Margin – Trailing Edge) where:



NOTE: For a detailed listing of all SP codes see, refer to the tables later in this chapter.

When you open the SP mode, you will see the SP codes listed with the first 4 numbers. Press the appropriate button on the touch panel to access the SP function.

- An asterisk (*) at the end of a number means that sublevels exist for that SP code.
- SP codes without the asterisk are accessed immediately and have no sublevels.

Important points to remember about entering settings for SP codes

- In some cases, the screen is not large enough to present all the SP codes at once. If you do not see the SP code that you want, press the Next and Prev buttons in the lower right corner of the screen to browse the lists.
- After entering a number for a setting, *always* press (#).
- To toggle between a +/- press the 🔭.
- After you press the button of an SP code that requires a setting, a box opens so you can enter a number, press a Yes or No button, etc. After entering the number setting, *always* press (#), and then press Exit to close the entry box.

To open select SP codes for setting

Use one of the following methods to find the entry level of any SP code.

Direct Entry. Use this method if you know all the numbers or at least the first four digits.

- 1. Use the number pad on the operation panel to enter the number.
 - If you know the complete number, make sure that you always enter 3 digits for the last number. For example, to access SP2102-2, you must enter 2102 002
 - If you enter only the first 4 digits, the entry box for that SP code (or *first* option) will open automatically. For example, if you enter only 2102, then the entry box for SP2102-1 will open. To scroll to the next setting, press the Next button.
- 2. Press (#).

Browsing. You can browse the lists if you do not know the number of the SP code that you need.

- 1. Press the appropriate button to display the next level.
- 2. If you do not see the number of the SP you are seeking, use the Next and Prev button to display more SPs.

To print an SMC report

The SP mode settings are adjusted before shipment, and are listed in the copy of the SMC print provided on the original table. Keep this SMC print in the used-toner-bottle cabinet as a record of the default settings.

Follow this procedure if you want to print another copy of the SMC list.

- 1. Enter the SP Mode. (5.4.2)
- 2. Press Copy Mode to return to the initial screen and select the feed source and other settings for the print job, and then press SP Mode to return to the SP Mode.
- 3. Enter 5990 002 and then press (#).
- 4. Press Start.

To initialize the SP settings

Follow this procedure to initialize the SP settings and restore them to their factory default settings.

- 1. Enter the SP Mode. (5.4.2)
- 2. Print an SMC list (see the procedure above).
- 3. To initialize the SP settings, enter 5801, press (#), and then press Start. **NOTE:** The total counter is not cleared when RAM is cleared.
- 4. After initializing the SP settings, use SP5811 to re-enter the serial number of the machine.

5.5 CALIBRATING THE TOUCH PANEL

Follow this procedure to calibrate the touch panel.

- 1. On the operation panel, press $(1)^{(9)}$
- 2. Press and release \bigcirc 5 times to open the menu.
- 3. Without touching the touch panel, press (#). After a few moments, two circles will appear, one in the upper left corner and one in the lower right corner.
- 4. With a blunt instrument, press the circle in the upper left corner. **CAUTION: Never press the touch panel with a sharp object**.
- 5. Touch the center of the circle in the lower right corner.
- 6. Touch any location on the touch panel, and make sure that the a circle appears at the point you touched.
- 7. Repeat 6 several times to confirm that the touch panel is correctly calibrated.
- 8. To leave the touch panel calibration mode, press OK, press q:EXIT, then press EXECUTE.
- 9. Wait for the panel to go off, then turn the machine off and on.

5.6 SOFTWARE RESET

To reset the software, hold down \bigcirc and P together for 10 seconds. This software reset is the same as turning the machine off on and with the main power switch.

You cannot use this procedure to reset the software when the operation panel has stalled or if a fusing-related SC code has appeared.

5.7 TEST PATTERNS

Print an IPU Test Pattern if you experience problems with image processing (poor halftones, line widths, etc.)

- 1. Enter the SP mode.
- Do SP2902 and select either 001 or 002 to select either an "IPU Scanning Test Pattern" or an "IPU Printing Test Pattern".
 NOTE: SP2902 003 allows you to select the standard printing test patterns.
- 3. Select a pattern, then press (#).

SP2902	2 001 IPU Scanning Test Pattern		
0:	None	9:	Grayscale Vertical (16-Level)
1:	Vertical Line (1-dot)	10:	Grayscale Vertical-Horizontal (16-Level)
2:	Vertical Line (2-dot)	11:	Cross Pattern
3:	Horizontal Line (1-dot)	12:	Argyle Pattern
4:	Horizontal Line (2-dot)	13:	Density Patch (256-Level)
5:	Independent Dot (1-dot)	14:	Density Patch (64-Level)
6:	Grid Pattern (1-dot)	15:	Trimming Area
7:	Vertical Stripes	16:	Bandwidth Vertical
8:	Grayscale Horizontal (16-Level)	17:	Bandwidth Horizontal
SP2902	2 002 IPU Printing Test Pattern		
0:	None		5: Density Patch (256-Level)
1:	Independent Dot and Solid		6: Density Patch (64-Level)
2:	Grayscale Horizontal (16-Level)		7: Cross Pattern
3:	Grayscale Vertical (16-Level)		8: Grid Pattern
4:	Grayscale Vertical-Horizontal (16-	Level)	9: Argyle Pattern
SP2902	2 003 Printing Test Pattern		
SP2902 0:	2 003 Printing Test Pattern None	15:	Horizontal Line (1-dot)
SP2902 0: 1:	2 003 Printing Test Pattern None Grid Pattern (1-dot)	15: 16:	Horizontal Line (1-dot) Horizontal Line (2-dot)
SP2902 0: 1: 2:	2 003 Printing Test Pattern None Grid Pattern (1-dot) Grid Pattern (2-dot)	15: 16: 17:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag
SP2902 0: 1: 2: 3:	2 003 Printing Test Pattern None Grid Pattern (1-dot) Grid Pattern (2-dot) Grid Pattern (3-dot)	15: 16: 17: 18:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot)
SP2902 0: 1: 2: 3: 4:	2 003 Printing Test Pattern None Grid Pattern (1-dot) Grid Pattern (2-dot) Grid Pattern (3-dot) Grid Pattern (4-dot)	15: 16: 17: 18: 19:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot)
SP2902 0: 1: 2: 3: 4: 5:	2 003 Printing Test Pattern None Grid Pattern (1-dot) Grid Pattern (2-dot) Grid Pattern (3-dot) Grid Pattern (4-dot) Grid Pattern (5-dot)	15: 16: 17: 18: 19: 20:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot) Alternating Dot Patter (4-dot)
SP2902 0: 1: 2: 3: 4: 5: 6:	2 003 Printing Test Pattern None Grid Pattern (1-dot) Grid Pattern (2-dot) Grid Pattern (3-dot) Grid Pattern (4-dot) Grid Pattern (5-dot) Grid Pattern (6-dot)	15: 16: 17: 18: 19: 20: 21:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot) Alternating Dot Patter (4-dot) Trimming Area
SP2902 0: 1: 2: 3: 4: 5: 6: 7:	2 003 Printing Test Pattern None Grid Pattern (1-dot) Grid Pattern (2-dot) Grid Pattern (3-dot) Grid Pattern (4-dot) Grid Pattern (5-dot) Grid Pattern (6-dot) Argyle Pattern (1-dot)	15: 16: 17: 18: 19: 20: 21: 22:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot) Alternating Dot Patter (4-dot) Trimming Area Full Dot Pattern
SP2902 0: 1: 2: 3: 4: 5: 6: 7: 8:	2 003 Printing Test PatternNoneGrid Pattern (1-dot)Grid Pattern (2-dot)Grid Pattern (3-dot)Grid Pattern (4-dot)Grid Pattern (5-dot)Grid Pattern (6-dot)Argyle Pattern (1-dot)Argyle Pattern (2-dot)	15: 16: 17: 18: 19: 20: 21: 22: 23:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot) Alternating Dot Patter (4-dot) Trimming Area Full Dot Pattern Black Band (Vertical)
SP2902 0: 1: 2: 3: 4: 5: 6: 7: 8: 9:	2 003 Printing Test PatternNoneGrid Pattern (1-dot)Grid Pattern (2-dot)Grid Pattern (3-dot)Grid Pattern (4-dot)Grid Pattern (5-dot)Grid Pattern (6-dot)Argyle Pattern (1-dot)Argyle Pattern (2-dot)Argyle Pattern (3-dot)	15: 16: 17: 18: 19: 20: 21: 22: 23: 24:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot) Alternating Dot Patter (4-dot) Trimming Area Full Dot Pattern Black Band (Vertical) Black Band (Horizontal)
SP2902 0: 1: 2: 3: 4: 5: 6: 7: 8: 9: 10:	2 003 Printing Test PatternNoneGrid Pattern (1-dot)Grid Pattern (2-dot)Grid Pattern (3-dot)Grid Pattern (4-dot)Grid Pattern (5-dot)Grid Pattern (6-dot)Argyle Pattern (1-dot)Argyle Pattern (2-dot)Argyle Pattern (3-dot)Argyle Pattern (3-dot)Argyle Pattern (4-dot)	15: 16: 17: 18: 19: 20: 21: 22: 23: 24: 25:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot) Alternating Dot Patter (4-dot) Trimming Area Full Dot Pattern Black Band (Vertical) Black Band (Horizontal) Grayscale (16-Level)
SP2902 0: 1: 2: 3: 4: 5: 6: 7: 8: 9: 10: 11:	2 003 Printing Test PatternNoneGrid Pattern (1-dot)Grid Pattern (2-dot)Grid Pattern (3-dot)Grid Pattern (4-dot)Grid Pattern (5-dot)Grid Pattern (6-dot)Argyle Pattern (1-dot)Argyle Pattern (2-dot)Argyle Pattern (3-dot)Argyle Pattern (4-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)	15: 16: 17: 18: 19: 20: 21: 22: 23: 24: 25: 26:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot) Alternating Dot Patter (4-dot) Trimming Area Full Dot Pattern Black Band (Vertical) Black Band (Horizontal) Grayscale (16-Level) Vertical Grayscale (32-Level)
SP2902 0: 1: 2: 3: 4: 5: 6: 7: 8: 9: 10: 11: 12:	2 003 Printing Test PatternNoneGrid Pattern (1-dot)Grid Pattern (2-dot)Grid Pattern (3-dot)Grid Pattern (4-dot)Grid Pattern (5-dot)Grid Pattern (6-dot)Argyle Pattern (1-dot)Argyle Pattern (2-dot)Argyle Pattern (3-dot)Argyle Pattern (4-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (6-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (6-dot)	15: 16: 17: 18: 19: 20: 21: 22: 23: 24: 25: 26: 27:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot) Alternating Dot Patter (4-dot) Trimming Area Full Dot Pattern Black Band (Vertical) Black Band (Vertical) Black Band (Horizontal) Grayscale (16-Level) Vertical Grayscale (32-Level) Horizontal Grayscale (32-Level)
SP2902 0: 1: 2: 3: 4: 5: 6: 7: 8: 9: 10: 11: 12: 13:	2 003 Printing Test PatternNoneGrid Pattern (1-dot)Grid Pattern (2-dot)Grid Pattern (3-dot)Grid Pattern (4-dot)Grid Pattern (5-dot)Grid Pattern (6-dot)Argyle Pattern (1-dot)Argyle Pattern (2-dot)Argyle Pattern (3-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (5-dot)Argyle Pattern (6-dot)Vertical Line (1-dot)	15: 16: 17: 18: 19: 20: 21: 22: 23: 24: 25: 26: 27: 28:	Horizontal Line (1-dot) Horizontal Line (2-dot) Checkered Flag Alternating Dot Patter (1-dot) Alternating Dot Patter (2-dot) Alternating Dot Patter (4-dot) Trimming Area Full Dot Pattern Black Band (Vertical) Black Band (Horizontal) Grayscale (16-Level) Vertical Grayscale (32-Level) Horizontal Grayscale (32-Level) Blank Image

5.8 INPUT CHECK

You can check the sensors and switches with SP5803.

- Select one of the modes in the tables.
- Each mode displays an 8-digit number, numbered 7~0 reading from left to right.
- Each bit indicates the current status of the corresponding sensor or switch by displaying a 0 or 1. For example:

 Display
 1
 1
 0
 0
 0
 1
 0

 Bit
 7
 6
 5
 4
 3
 2
 1
 0

001 Roll Trays

Bit	Part/Component	Status			
7	Lower Cutter HP Sensor – Left	0:	Off	1:	On
6	Lower Cutter HP Sensor – Right	0:	Off	1:	On
5	Lower Cutter Cover Open	0:	Closed	1:	Open
4	Lower Roll Tray Open	0:	Closed	1:	Open
3	Upper Cutter HP Sensor – Left	0:	Off	1:	On
2	Upper Cutter HP Sensor – Right	0:	Off	1:	On
1	Upper Cutter Cover Open	0:	Closed	1:	Open
0	Upper Roll Tray Open	0:	Closed	1:	Open

002 1st & 2nd Roll

Bit	Part/Component	Status			
7	Roll 2 Roll End Sensor	0:	Paper	1:	No Paper
6	Roll 2 Paper End Sensor	0:	Paper	1:	No Paper
5	Roll 2 Pre-Feed Switch	0:	Off	1:	On
4	Roll 2 Entrance Sensor	0:	Off	1:	On
3	Roll 1 Roll End Sensor	0:	Paper	1:	No Paper
2	Roll 1 Paper End Sensor	0:	Paper	1:	No Paper
1	Roll 1 Pre-Feed Switch	0:	Off	1:	On
0	Roll 1 Entrance Sensor	0:	Off	1:	On

003 3rd & 4th Roll

Bit	Part/Component	Status			
7	Roll 4 Roll End Sensor	0:	Paper	1:	No Paper
6	Roll 4 Paper End Sensor	0:	Paper	1:	No Paper
5	Roll 4 Pre-Feed Switch	0:	Off	1:	On
4	Roll 4 Entrance Sensor	0:	Off	1:	On
3	Roll 3 Roll End Sensor	0:	Paper	1:	No Paper
2	Roll 3 Paper End Sensor	0:	Paper	1:	No Paper
1	Roll 3 Pre-Feed Switch	0:	Off	1:	On
0	Roll 3 Entrance Sensor	0:	Off	1:	On

004 Cassette Trays

Bit	Part/Component	Status			
7	- Not Used -				
6	Cassette 2 Paper Near End Sensor 1	0:	Off	1:	On
5	Cassette 2 Feed Sensor	0:	Off	1:	On
4	Cassette 2 Open Switch	0:	Not Set	1:	Set
3	- Not Used -				
2	Cassette 1 Paper Near End Sensor 1	0:	Off	1:	On
1	Cassette 1 Feed Sensor	0:	Off	1:	On
0	Cassette 1 Open Switch	0:	Not Set	1:	Set

005 1st Cassette

Bit	Part/Component	Sta	itus
7	Cassette 1 Paper End Sensor	0: Paper	1: No Paper
6	Cassette 1 Tray Lift Sensor	0: Off	1: On
5	Cassette 1 Length Sensor 2	0: Off	1: On
4	Cassette 1 Length Sensor 1	0: Off	1: On
3	Cassette 1 Width Sensor 4* ¹	0: Off	1: On
2	Cassette 1 Width Sensor 3	0: Off	1: On
1	Cassette 1 Width Sensor 2	0: Off	1: On
0	Cassette 1 Width Sensor 1	0: Off	1: On

*¹ Cassette Width Sensors 4, 3, 2, 1 are in the rotary dial of the cassette paper width detection mechanism.

006 2nd Cassette

Bit	Part/Component	Status		
7	Cassette 2 Paper End Sensor	0: Paper	1: No Paper	
6	Cassette 2 Tray Lift Sensor	0: Off	1: On	
5	Cassette 2 Length Sensor 2	0: Off	1: On	
4	Cassette 2 Length Sensor 1	0: Off	1: On	
3	Cassette 2 Width Sensor 4*1	0: Off	1: On	
2	Cassette 2 Width Sensor 3	0: Off	1: On	
1	Cassette 2 Width Sensor 2	0: Off	1: On	
0	Cassette 2 Width Sensor 1	0: Off	1: On	

*¹ Cassette Width Sensors 4, 3, 2, 1 are in the rotary dial of the cassette paper width detection mechanism.

007 Paper Path Sensors

Bit	Part/Component	Status		
7	Not Used			
6	Not Used			
5	Not Used			
4	Feed Sensor	0: Off	1: On	
3	Registration Sensor	0: Off	1: On	
2	Bypass Entrance Sensor	0: Off	1: On	
1	Upper Roll Tray Feed Sensor	0: Off	1: On	
0	Upper Roll Tray Feed Sensor	0: Off	1: On	

008 Unit Set Detection

Bit	Part/Component	Status		
7	Reserved for Option	0: Not Set	1: Set	
6		0: Not Set	1: Set	
5		0: Not Set	1: Set	
4		0: Not Set	1: Set	
3	Not Used			
2	Not Used			
1		0: Not Set	1: Set	
0		0: Not Set	1: Set	

009 Door/Motor Lock

Bit	Part/Component	Status		itus
7	Exit Motor	0:	Rotating	Not Rotating
6	Development Motor	0:	Rotating	Not Rotating
5	Drum Motor	0:	Rotating	Not Rotating
4	Registration Motor	0:	Rotating	Not Rotating
3	Exit Door	0:	Closed	Open
2	Development Unit	0:	Closed	Open
1	Upper Unit Open Sensor – Left	0:	Closed	Open
0	Upper Unit Open Sensor – Right	0:	Closed	Open

010 Others

Bit	Part/Component	Status	
7	Not Used		
6	Fusing Cover Open	0: Closed	1: Open
5	PSU Door Open	0: Closed	1: Open
4	Waste Toner Bottle Full Sensor	0: Not Full	1: Full
3	Left Fusing Motor HP Sensor	0: Off	1: On
2	Right Fusing Motor HP Sensor	0: Off	1: On
1	Fusing High Temperature Latch	0: Off	1: On
0	Zero Cross Signal	0: Off	1: On

011 DIP Switch 1

Bit	Part/Component	Sta	tus
7	DIPSW1-8	0: Off	1: On
6	DIPSW1-7	0: Off	1: On
5	DIPSW1-6	0: Off	1: On
4	DIPSW1-5	0: Off	1: On
3	DIPSW1-4	0: Off	1: On
2	DIPSW1-3	0: Off	1: On
1	DIPSW1-2	0: Off	1: On
0	DIPSW1-1	0: Off	1: On

012 Original Size Sensors 1

Europe/Asia

Bit	Part/Component	Status			
7	Original Size Sensor 660	0:	Off	1:	On
6	Original Size Sensor A1	0:	Off	1:	On
5	Original Size Sensor B2	0:	Off	1:	On
4	Original Size Sensor A2	0:	Off	1:	On
3	Original Size Sensor B3	0:	Off	1:	On
2	Original Size Sensor A3	0:	Off	1:	On
1	Original Size Sensor B4	0:	Off	1:	On
0	Original Entrance Sensor (A4)	0:	Off	1:	On

North America

Bit	Part/Component		Sta	tus	
7	Original Size Sensor 24"	0:	Off	1:	On
6	Original Size Sensor 18"		Off	1:	On
5	Original Size Sensor 22"	0:	Off	1:	On
4	Original Size Sensor 12"	0:	Off	1:	On
3	Original Size Sensor 17"		Off	1:	On
2	Original Size Sensor 9"	0:	Off	1:	On
1	Original Size Sensor 11"	0:	Off	1:	On
0	Original Entrance Sensor (LT)	0:	Off	1:	On

013 Original Size Sensors 2

Europe/Asia

Bit	Part/Component	Status			
7	Not Used				
6	Not Used				
5	Not Used				
4	Not Used				
3	Not Used				
2	Original Size Sensor 914	0:	Off	1:	On
1	Original Size Sensor A0	0:	Off	1:	On
0	Original Size Sensor B1	0:	Off	1:	On

North America

Bit	Part/Component	Status			
7	Not Used				
6	Not Used				
5	Not Used				
4	Not Used				
3	Not Used				
2	Original Size Sensor 36"	0:	Off	1:	On
1	Original Size Sensor 30"	0:	Off	1:	On
0	Original Size Sensor 34"	0:	Off	1:	On

014 Original Feed Unit

Bit	Part/Component	Status	
7	Not Used		
6	Not Used		
5	Original Registration Sensor	0: Off	1: On
4	Original Lag Detection	0: Off	1: On
3	Original Rear Exit Sensor	0: Off	1: On
2	Original Stop Key	0: Off	1: On
1	Scanner Open Sensor – Left	0: Closed	1: Open
0	Scanner Open Sensor – Right	0: Closed	1: Open

5.9 OUTPUT CHECK

You can check the listed parts with SP5804.

ltem	Parts			
1	Original Feed Motor			
2	Original Feed Clutch			
3	Original Junction Gate Solenoid			
4	CIS LED			
5-10	Not Used			
11	Roll Feed Motor 1: Forward			
12	Roll Feed Motor 1: Reverse			
13	Roll Feed Motor 2: Forward			
14	Roll Feed Motor 2: Reverse			
15	1st Roll Feed Clutch			
16	2nd Roll Feed Clutch			
17	3rd Roll Feed Clutch			
18	4th Roll Feed Clutch			
19	Cutter 1 (On Only)			
20	Cutter 2 (On Only)			
21	Cassette Feed Motor			
22	Cassette Transport Clutch			
23	1st Cassette Pickup Solenoid			
24	2nd Cassette Pickup Solenoid			
25	1st Cassette Feed Clutch			
26	2nd Cassette Feed Clutch			
27-30	Not Used			
31	Registration Motor			
32	Main Motor (Drum Drive)			
33	Fusing/Exit Motor			
34	Registration Clutch			
35	Original Junction Gate Solenoid			
36-40	Not Used			
41	Charge Corona			
42	Charge Grid: Image Area			
43	Charge Grid: ID Sensor Pattern			
44	Charge Corona/Grid: Image Area			
45	Development Bias: Image Area			
46	Development Bias: ID Sensor Pattern			
47	Transfer Corona: Leading Edge			
48	Transfer Corona (Not Leading Edge)			
49	Separation Corona: Leading Edge			
50	Separation Corona (Not Leading Edge)			
51	Development Motor			
52	Toner Supply Clutch			
53	Quenching Lamp			
54	Pickoff Pawl Solenoid			
55	ID Sensor LED (PWM)			

ltem	Parts	
56	Potential Measuring Mode (Drum)	
57-60	Not Used	
61	Right Fusing Pressure Motor: Home	
62	Right Fusing Pressure Motor: Release	
63	Left Fusing Pressure Motor: Home	
64	Left Fusing Pressure Motor: Release	
65	Transport Fan Motor	
66	Charge Corona Wire Cleaner Motor	
67	Recycle Counter (Mechanical Counter)	
68	Dehumidfiers (Tray Heaters)	

5.10 SP (SERVICE PROGRAM) MODE TABLES

SP Table Key		
Notation	What it means	
[range/step]	Example: $[-9 \rightarrow +9/0.1 \text{ mm}]$. Setting can be adjusted in the range ± 9 , and the value can be changed in 0.1 mms with each key press. The initial settings are recorded in the SMC report and displayed on the operation panel in the "Initial" box of each SP setting display.	
italics	Comments.	
DFU Denotes "Design or Factory Use". Do not change this value		
Japan only	Feature or item is for Japan only. Do not change this value.	

Important

- As a general rule, cycle the machine off and on with the main power switch every time you enter numbers for a new SP code settings. Switching the machine off and on enables the new settings.
- After you reset any SP code in Groups 1000 to 4000, a message on the operation panel will prompt you to cycle the machine off and on.
- The machine must be cycled off and on after changing any SP code in Group 5000 as well. However, a message does not appear to prompt you to cycle the machine off and on.

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

SP1000 Feed

1001	Leading Edge Registration						
	001	1st Roll	Adjusts the printing leading edge registration.				
	002	2nd Roll	[+10.0~-10.0/0.1 mm]				
	003	3rd Roll/1st Cassette	To delay the starting position of the image, increase				
	004	4th Roll/2nd Cassette	the value.				
	005	By-pass feed					

1002 Side-to-Side Registration

	o olde riegiolialion	
001	1st Roll	Adjusts the printing side-to-side registration.
002	2nd Roll	[+10.0~-10.0/0.1 mm]
003	3rd Roll/1st Cassette	To shift the starting position to the right, increase the
004	4th Roll/2nd Cassette	value.
005	By-pass feed	

1003	Regis	Registration Buckle Adj		
	Remo	Removes skew from sheets feed from the cassettes or paper rolls.		
001 Cassette Feed		Cassette Feed	When the registration sensor detects the leading edge of a cut sheet paper at the nip of the registration roller, the registration roller motor stops briefly and then starts again. This buckles the paper slightly (about 5 mm) to correct skew. Use this SP to adjust the amount of time that the roller stops.	
			• Too much buckle can cause wrinkling and lead to poor images. Lower this setting to shorten the time the registration motor remains off.	
			 Not enough buckle can cause a jam at the registration roller (lag error). Raise this setting to lengthen the time registration motor remains off. [-5 ~ +15/1 mm] 	
	002	Roll Feed: Longer Size	When the registration roller detects the leading edge of a roll sheet at the nip of the registration roller, the registration motor stops briefly and then starts again. This feature is enabled only for:	
			 Sheet length longer than 460 mm from the upper roll. Sheet lengths longer than 690 mm from the bottom roll. The registration roller motor and roll feed motor stop at the same time. Even with the paper stretched there may be too much buckle. After the registration roller motor and roll feed motor restart together, the roller feed motor is stops briefly while the registration roller continues to turn, and then the paper is cut. [-12.0 ~ 0.0/0.1 mm] 	

1103 Fusing Idling	Selects the fusing idling time.
	[0~5/1 min.]
	If the fusing temperature is below 100°C when the machine is turned on, idling starts as soon as the hot roller reaches the target temperature. However, if the fusing temperature is below 15°C the hot roller will idle for at least 1 minute, even with this SP set to "0" (OFF: No idling).

h-			
1104	Fusing Temperature	Sets the fusing temperature control.	
	Control	0: On/Off Control (Pressure Roller Temp. Feedback)	
		1: Phase Control (Pressure Roller Temp. Feedback)	
		If the power supply to the machine is unstable, select 1.	

1105	Fusin	g Temp. Adj.	
	001 Copy Ready Temperature		Sets the copy ready fusing temperature.
			[130~160/1°C]
			Copying can begin at this temperature, before the hot
			roller reaches the control temperature.
	003	Low Power Mode	Sets the fusing temperature for low power mode.
			[90~125/1°C]
	005	Fusing Temperature	Calibrates the scale for the fusing temperature
		Calibration	settings. DFU
			[-10~+10/1°C]
	006	Pressure Temp.	Calibrates the scale for the pressure temperature
		Calibration	control. DFU
			[-10~+10/1°C]

1106	Fusing Temperature Display		Displays the hot roller and pressure roller temperatures.
	001	Hot Roller Temperature	
	002	Pressure Roller	
		Temperature	

1801	Feed Motor Speed Correction DFU		
	001	Feed Motor: 1st Roll	Adjusts the feed motor speed.
	002	Feed Motor: 2nd Roll	[-15~+15/1%]
	003	Feed Motor: 3rd Roll	
	004	Feed Motor: 4th Roll	
	005	Feed Motor: Cut Paper	[-50~+50/1]
		Tray	
	006	Registration Motor	Adjusts the registration motor speed.
			[-20~+20]
	007	Fusing Motor	Adjusts the fusing motor speed.
			[-100~+100/1]

1911	By-pass Feed Start Timing Adj.	Adjusts the waiting time for the by-pass paper feed.
		[0.5~8.0/0.1 sec.]

1912 Registration Motor Speed-Up Adj

Due to the occurrence of jitter with A0 SEF and other paper, at the trailing edge of the speed of the registration roller motor is increased. The increased speed creates slight buckling between the registration roller and the drum.

While using Cut Pattern 3 with a copy longer than 460 mm from the upper roll tray and longer than 690 mm from the lower roll tray, when the trailing edge of the paper feeds 50 mm past the registration sensor, the speed of the registration motor is increased 20 pulses. This has the same effect as adjusting the feed motor speed with SP1801. [0~50/1].

1913	Fusin	Fusing Motor Speed-Up Control DFU	
	001	Adjustment	Adjusts the machine for the fusing motor speed control.
		Ratio	[0.0~+18/1%]
	002	Off Timing	After the registration roller starts turning to feed paper, just before the paper reaches the nip of the fusing roller, the speed of the fusing motor is increased slightly while the paper is still in the paper separation path. This raises the speed of the paper separation belt and prevents skew. This SP adjusts the length of time from when the speed of the fusing motor is increased to when it returns to normal speed (Normally, 2.05 sec.) [1.8~2.30/0.5 sec.)

1914	Fusing	⁻ using Pressure Motor		
	001	Home Position Stop Mode	Resets the fusing pressure roller motor to the home	
			position.	
			[1 = ON, 0 = OFF]	
	002	Pressure Adjustment:	Adjusts the pressure.	
		Right	[-25~+25/1]	
	003	Pressure Adjustment: Left		

1915	Magnification Adj. by Fusing Motor Speed		The fusing motor of this machine rotates faster than the paper feed motor to stretch the paper slightly and prevent wrinkles between the registration roller and the fusing unit. Stretching the paper excessively could cause distortion of the image.
	001	Plain Paper	Adjusts the printer line speed.
	002	Translucent Paper	[0.0~1.0/0.1%]
	003	Film	

1917	Side-to	o-Side Registration Offset				
	The ce	enter of the paper cassette	is the reference point for the alignment of all paper			
	sizes il	izes in the paper cassettes. However, the amount of skew can be different for some				
	the na	Sizes due lo lhe positions c	the machine corrects skew in the main scan			
	directio	on (side-to-side) based on t	the size of the paper. Based on the settings of SP1002			
	003, 00	04, this SP sets the amoun	t of offset for the paper sizes.			
	This is	a mechanical adjustment t	hat is stored before execution. This adjustment is			
	done fo	or paper wider than 400 mr	m (in the main scan direction) after the adjustments of			
	SP100	2 003, 004 have been don	е.			
	001	Cassette 1: 230 mm	[-5.0 ~ +5.0/0.1 mm]			
	002	Cassette 1: 310 mm				
	003	Cassette 1: 400 mm				
	004	Cassette 2: 230 mm				
	005	Cassette 2: 310 mm				
	006	Cassette 2: 400 mm				

1918 Drum Cleaning Time Adjustment

Low temperature can increase the amount of toner that adheres to the drum. This SP lengthens the time between copies, allowing more free rotations of the drum past the drum cleaning blade.

This setting takes effect while the machine is not in CPM down mode.

If the machine enters CPM down, mode then the time interval is determined by either the CPM down mode or this SP setting, whichever is longer. [0~60/1 s]

1920	320 Cut Length Adjustment		
	001	1st Roll: 210 mm/8.5" or	Adjusts the 210-mm cut length.
		9", Plain Paper	[-10.0~+10.0/0.1 mm]
	002	1st Roll: 297 mm/11" or	Adjusts the 297-mm cut length.
		12", Plain Paper	[-10.0~+10.0/0.1 mm]
	003	1st Roll: 420 mm/17" or	Adjusts the 420-mm cut length.
		18", Plain Paper	[-10.0~+10.0/0.1 mm]
	004	1st Roll: 594 mm/22" or	Adjusts the 594-mm cut length.
		24", Plain Paper	[-10.0~+10.0/0.1 mm]
	005	1st Roll: 841 mm/32" or	Adjusts the 841-mm cut length.
		34", Plain Paper	[-10.0~+10.0/0.1 mm]
	006	1st Roll: 1189 mm/44" or	Adjusts the 1189-mm cut length.
		48", Plain Paper	[-10.0~+10.0/0.1 mm]
	007	1st Roll: 2000 mm/78",	Adjusts the 2000-mm cut length.
		Plain Paper	[-15.0~+15.0/0.1 mm]
	008	2nd Roll: 210 mm/8.5" or	Adjusts the 210-mm cut length.
		9", Plain Paper	[-10.0~+10.0/0.1 mm]
	009	2nd Roll: 297 mm/11" or	Adjusts the 297-mm cut length.
		12", Plain Paper	[-10.0~+10.0/0.1 mm]
	010	2nd Roll: 420 mm/17" or	Adjusts the 420-mm cut length.
		18", Plain Paper	[-10.0~+10.0/0.1 mm]
	011	2nd Roll: 594 mm/22" or	Adjusts the 594-mm cut length.
		24", Plain Paper	[-10.0~+10.0/0.1 mm]
0)12	2nd Roll: 841 mm/32" or	Adjusts the 841-mm cut length.
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		34", Plain Paper	[-10.0~+10.0/0.1 mm]
0)13	2nd Roll: 1189 mm/44" or	Adjusts the 1189-mm cut length.
		48", Plain Paper	[-10.0~+10.0/0.1 mm]
0)14	2nd Roll: 2000 mm/78",	Adjusts the 2000-mm cut length.
		Plain Paper	[-15.0~+15.0/0.1 mm]
0)15	3rd Roll: 210 mm/8.5" or	Adjusts the 210-mm cut length.
		9", Plain Paper	[-10.0~+10.0/0.1 mm]
0)16	3rd Roll: 297 mm/11" or	Adjusts the 297-mm cut length.
	47	12, Fiairi Faper	[-10.0~+10.0/0.1 mm]
U)17	310 KOII: 420 IIIIII/17 UI 18" Diain Danar	Adjusts the 420-mm cut length. $[1.40, 0.01, 0.00, 1.00, 0.01, 0.00]$
	10	10, Fiaili i apei	[-10.0~+10.0/0.1 mm out longth
	10	24" Plain Paner	Adjusts the 594-initial cut length. If 10.0_{-1} 10.0/0.1 mm]
	10	24, ridin rupor 3rd Doll: $8/1$ mm/ 32 " or	L-10.0~+10.0/0.1 mm
	19	34" Plain Paper	$I_{-10} \cap + 10 \cap / 0 1 \text{ mm}$
	120	3rd Roll: 1189 mm/44" or	Adjusts the 1189-mm cut length
	20	48". Plain Paper	$I_{-10} \cap -+10 \cap (0.1 \text{ mm})$
0	121	3rd Roll: 2000 mm/78".	Adjusts the 2000-mm cut length
	· <u> </u>	Plain Paper	I-15.0~+15.0/0.1 mm]
0)22	4th Roll: 210 mm/8.5" or	Adjusts the 210-mm cut length.
		9", Plain Paper	[-10.0~+10.0/0.1 mm]
0)23	4th Roll: 297 mm/11" or	Adjusts the 297-mm cut length.
		12", Plain Paper	[-10.0~+10.0/0.1 mm]
0)24	4th Roll: 420 mm/17" or	Adjusts the 420-mm cut length.
		18", Plain Paper	[-10.0~+10.0/0.1 mm]
0)25	4th Roll: 594 mm/22" or	Adjusts the 594-mm cut length.
		24", Plain Paper	[-10.0~+10.0/0.1 mm]
0)26	4th Roll: 841 mm/32" or	Adjusts the 841-mm cut length.
		34", Plain Paper	[-10.0~+10.0/0.1 mm]
0)27	4th Roll: 1189 mm/44" or	Adjusts the 1189-mm cut length.
		48°, Plain Paper	[-10.0~+10.0/0.1 mm]
0)28	4th Roll: 2000 mm/78", Plain Banar	Adjusts the 2000-mm cut length.
	101	Fiaili Fapel	[-15.0~+15.0/0.1 mm]
	131	9" Translucent	Adjusts the 210-mm cut length. $[10.0_{+}10.0/0.1 \text{ mm}]$
	132	1 st Poll: 297 mm/11" or	Adjusts the 297-mm cut length
	52	12". Translucent	1-10 0 - 10 0/0 1 mm
0)33	1st Roll: 420 mm/17" or	Adjusts the 420-mm cut length
	.00	18", Translucent	I-10.0~+10.0/0.1 mm]
0)34	1st Roll: 594 mm/22" or	Adjusts the 594-mm cut length.
	-	24", Translucent	[-10.0~+10.0/0.1 mm]
0)35	1st Roll: 841 mm/32" or	Adjusts the 841-mm cut length.
		34", Translucent	[-10.0~+10.0/0.1 mm]
0)36	1st Roll: 1189 mm/44" or	Adjusts the 1189-mm cut length.
		48", Translucent	[-10.0~+10.0/0.1 mm]
0)37	1st Roll: 2000 mm/78",	Adjusts the 2000-mm cut length.
		Translucent	[-15.0~+15.0/0.1 mm]
0)38	2nd Roll: 210 mm/8.5" or	Adjusts the 210-mm cut length.
		9", Translucent	[[-10.0~+10.0/0.1 mm]

	039	2nd Roll: 297 mm/11" or	Adjusts the 297-mm cut length.
		12", Translucent	[-10.0~+10.0/0.1 mm]
	040	2nd Roll: 420 mm/17" or	Adjusts the 420-mm cut length.
		18", Translucent	[-10.0~+10.0/0.1 mm]
	041	2nd Roll: 594 mm/22" or	Adjusts the 594-mm cut length.
		24", Translucent	[-10.0~+10.0/0.1 mm]
	042	2nd Roll: 841 mm/32" or	Adjusts the 841-mm cut length.
		34", Translucent	[-10.0~+10.0/0.1 mm]
	043	2nd Roll: 1189 mm/44" or	Adjusts the 1189-mm cut length.
		48", Translucent	[-10.0~+10.0/0.1 mm]
	044	2nd Roll: 2000 mm/78",	Adjusts the 2000-mm cut length.
		Translucent	[-15.0~+15.0/0.1 mm]
	045	3rd Roll: 210 mm/8.5" or	Adjusts the 210-mm cut length.
		9", Iranslucent	[-10.0~+10.0/0.1 mm]
	046	3rd Roll: 297 mm/11" or	Adjusts the 297-mm cut length.
		12", Iranslucent	[-10.0~+10.0/0.1 mm]
	047	3rd Roll: 420 mm/17" or	Adjusts the 420-mm cut length.
_		18", Iranslucent	[-10.0~+10.0/0.1 mm]
	048	3rd Roll: 594 mm/22" or	Adjusts the 594-mm cut length.
		24", Iranslucent	[-10.0~+10.0/0.1 mm]
	049	3rd Roll: 841 mm/32" or	Adjusts the 841-mm cut length.
		34", Translucent	[-10.0~+10.0/0.1 mm]
	050	3rd Roll: 1189 mm/44" or	Adjusts the 1189-mm cut length.
_		48", I ranslucent	[-10.0~+10.0/0.1 mm]
	051	3rd Roll: 2000 mm/78",	Adjusts the 2000-mm cut length.
		l ranslucent	[-15.0~+15.0/0.1 mm]
	052	4th Roll: 210 mm/8.5" or	Adjusts the 210-mm cut length.
	0.50		[-10.0~+10.0/0.1 mm]
	053	4th Roll: 297 mm/11" or	Adjusts the 297-mm cut length.
	054		$[-10.0 \sim +10.0/0.1 \text{ mm}]$
	054	4th Roll: 420 mm/17" or	Adjusts the 420-mm cut length.
	055		$[-10.0 \sim + 10.0/0.1 \text{ mm}]$
	055	4th Roll: 594 mm/22" or	Adjusts the 594-mm cut length.
L	050		$[-10.0 \sim + 10.0/0.1 \text{ mm}]$
	056	4th Roll: 841 mm/32" of 24" Translucent	
	057		$[-10.0^{+}10.0/0.1 \text{ mm}]$
	057	4(11 R011. 1 169 11111/44 01 48" Translucent	Adjusts the 1.109 -mm cut length.
-	050	4th Doll: 2000 mm/78"	[-10.0~+10.0/0.111111]
	000	Translucent	Adjusts the 2000-min cut length. $[15.0.115, 0/0, 1.000]$
┝	061	1 at Doll: 210 mm/9 5" or	I-15.0~+15.0/0.1 IIIIII
	001	9" Film	[10.0 + 10.0/0.1 mm]
┝	062	1 of Doll: 207 mm/11" or	$\begin{bmatrix} -10.0^{-7} & 10.0/0 & 1 & 11111 \end{bmatrix}$
	002	12" Film	Aujusts the 297 -mm cut length.
┢	062	1 of Doll: 120 mm/17" or	$\begin{bmatrix} -10.0^{-7} & 10.0/0 & 1 & 11111 \end{bmatrix}$
	003	18" Film	[10.0 + 10.0/0.1 mm]
╞	064	1et Doll: 504 mm/22" or	Adjusts the 504 mm out length
	004	24" Film	r_{0} us the 554-mm cut length.
F	065	1 of Doll: 9/1 mm/20" or	Adjuste the 941 mm out length
	005	131 TOUL 041 11111/32 01 34" Film	100 m + 1000 m
		J-T , I IIIII	[[-10.0~+10.0/0.111111]

	066	1st Roll: 1189 mm/44" or	Adjusts the 1189-mm cut length.
_		48", Film	[-10.0~+10.0/0.1 mm]
	067	1st Roll: 2000 mm/78",	Adjusts the 2000-mm cut length.
-			[-15.0~+15.0/0.1 mm]
	068	2nd Roll: 210 mm/8.5" or	Adjusts the 210-mm cut length.
-		9", FIIM	[-10.0~+10.0/0.1 mm]
	069	2nd Roll: 297 mm/11" or	Adjusts the 297-mm cut length.
-	070	12", FIIM	[-10.0~+10.0/0.1 mm]
	070	2nd Roll: 420 mm/17" or	Adjusts the 420-mm cut length.
-	074		[-10.0~+10.0/0.1 mm]
	071	2nd Roll: 594 mm/22" or 24" Film	Adjusts the 594-mm cut length.
-	070	24, 1 1111 2nd Doll: 941 mm/22" or	[-10.0~+10.0/0.1 mm]
	072	2110 R011. 64 1 11111/32 01 34" Film	Adjusts the 641-mm cut length. $[10, 0.0, 100]$
-	072	2nd Doll: 1180 mm/44" or	[-10.0~+10.0/0.111111] Adjusts the 1190 mm out length
	075	2110 R011. 1109 11111/44 01 48" Film	A u u u s s u u e + 109 - 1111 cut u e u u u u u u u u u u u u u u u u u
-	074	2nd Poll: 2000 mm/78"	Adjusts the 2000-mm cut length
	074	Film	$-15 \ 0 - +15 \ 0/0 \ 1 \ mm]$
-	075	3rd Roll: 210 mm/8 5" or	Adjusts the 210-mm cut length
	010	9". Film	$I-10.0 \sim +10.0/0.1 \text{ mm}$
-	076	3rd Roll [.] 297 mm/11" or	Adjusts the 297-mm cut length
	010	12", Film	[-10.0~+10.0/0.1 mm]
-	077	3rd Roll: 420 mm/17" or	Adjusts the 420-mm cut length.
		18", Film	[-10.0~+10.0/0.1 mm]
-	078	3rd Roll: 594 mm/22" or	Adjusts the 594-mm cut length.
		24", Film	[-10.0~+10.0/0.1 mm]
-	079	3rd Roll: 841 mm/32" or	Adjusts the 841-mm cut length.
		34", Film	[-10.0~+10.0/0.1 mm]
	080	3rd Roll: 1189 mm/44" or	Adjusts the 1189-mm cut length.
		48", Film	[-10.0~+10.0/0.1 mm]
	081	3rd Roll: 2000 mm/78",	Adjusts the 2000-mm cut length.
		Film	[-15.0~+15.0/0.1 mm]
	082	4th Roll: 210 mm/8.5" or	Adjusts the 210-mm cut length.
		9", Film	[-10.0~+10.0/0.1 mm]
	083	4th Roll: 297 mm/11" or	Adjusts the 297-mm cut length.
_		12", Film	[-10.0~+10.0/0.1 mm]
	084	4th Roll: 420 mm/17" or	Adjusts the 420-mm cut length.
-		18", Flim	[-10.0~+10.0/0.1 mm]
	085	4th Roll: 594 mm/22" or	Adjusts the 594-mm cut length.
-			[-10.0~+10.0/0.1 mm]
	086	4th Roll: 841 mm/32" or	Adjusts the 841-mm cut length.
-	007		[-10.0~+10.0/0.1 mm]
	087	401 KOII: 1189 MM/44" Or 48" Film	Adjusts the 1189 -mm cut length.
-	000	4th Doll: 2000 mm/70"	[-10.0~+10.0/0.1 [[][1]]
	088	401 KOII: 2000 MM/78°,	Adjusts the 2000-mm cut length. $[10, 0.0, 10, 0.0]$
		1 1111	[-10.0~+10.0/0.1 mm]

1921	21 Cut Length Adjustment		
	001	1st Roll: 3600 mm/141",	Adjusts the 3600-mm cut length.
		Plain Paper	[-30.0~+30.0/0.1 mm]
	002	1st Roll: 6000 mm/236",	Adjusts the 6000-mm cut length.
		Plain Paper	[-50.0~+50.0/0.1 mm]
	003	2nd Roll: 3600 mm/141",	Adjusts the 3600-mm cut length.
		Plain Paper	[-20.0~+20.0/0.1 mm]
	004	2nd Roll: 6000 mm/236",	Adjusts the 6000-mm cut length.
		Plain Paper	[-30.0~+30.0/0.1 mm]
	005	3rd Roll: 3600 mm/141",	Adjusts the 3600-mm cut length.
		Plain Paper	[-20.0~+20.0/0.1 mm]
	006	3rd Roll: 6000 mm/236",	Adjusts the 6000-mm cut length.
		Plain Paper	[-30.0~+30.0/0.1 mm]
	007	4th Roll: 3600 mm/141",	Adjusts the 3600-mm cut length.
		Plain Paper	[-20.0~+20.0/0.1 mm]
	800	4th Roll: 6000 mm/236",	Adjusts the 6000-mm cut length.
		Plain Paper	[-30.0~+30.0/0.1 mm]
	011	1st Roll: 3600 mm/141",	Adjusts the 3600-mm cut length.
			[-20.0~+20.0/0.1 mm]
	012	1st Roll: 6000 mm/236",	Adjusts the 6000-mm cut length.
	0.1.0		[-30.0~+30.0/0.1 mm]
	013	Znd Roll: 3600 mm/141",	Adjusts the 3600-mm cut length.
	014		[-20.0~+20.0/0.1 mm]
	014	Znd Roll: 6000 mm/236, Translucent	Adjusts the 6000-mm cut length. $[20.0 \times 10^{-1} \text{ mm}]$
	015	2rd Poll: 2600 mm/141"	[-50.0~+50.0/0.1 mm]
	015	Translucent	Adjusts the 5000-min cut length. [-20.0-+20.0/0.1 mm]
	016	3rd Roll: 6000 mm/236"	Adjusts the 6000-mm cut length
	010	Translucent	[-30.0 - +30.0/0.1 mm]
	017	4th Roll: 3600 mm/141"	Adjusts the 3600-mm cut length
	017	Translucent	$I-20 0 \sim +20 0/0.1 \text{ mm}^3$
	018	4th Roll: 6000 mm/236".	Adjusts the 6000-mm cut length.
	••••	Translucent	[-30.0~+30.0/0.1 mm]
	021	1st Roll: 3600 mm/141".	Adjusts the 3600-mm cut length.
		Film	[-20.0~+20.0/0.1 mm]
	022	1st Roll: 6000 mm/236",	Adjusts the 6000-mm cut length.
		Film	[-30.0~+30.0/0.1 mm]
	023	2nd Roll: 3600 mm/141",	Adjusts the 3600-mm cut length.
		Film	[-20.0~+20.0/0.1 mm]
	024	2nd Roll: 6000 mm/236",	Adjusts the 6000-mm cut length.
		Film	[-30.0~+30.0/0.1 mm]
	025	3rd Roll: 3600 mm/141",	Adjusts the 3600-mm cut length.
		Film	[-20.0~+20.0/0.1 mm]
[026	3rd Roll: 6000 mm/236",	Adjusts the 6000-mm cut length.
		Film	[-30.0~+30.0/0.1 mm]
	027	4th Roll: 3600 mm/141",	Adjusts the 3600-mm cut length.
		Film	[-30.0~+30.0/0.1 mm]
	028	4th Roll: 6000 mm/236",	Adjusts the 6000-mm cut length.
		Film	[-50.0~+50.0/0.1 mm]

Plain Paper [-100 ~ +100/0.1 mm] 032 2nd Roll: 15000 mm/591", Plain Paper 033 3rd Roll: 15000 mm/591", Plain Paper 034 4th Roll: 15000 mm/591", Plain Paper 041 1st Roll: 15000 mm/591", Tracing Paper 042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film	031	1st Roll: 15000 mm/591",	Adjusts the 15000-mm cut length
032 2nd Roll: 15000 mm/591", Plain Paper 033 3rd Roll: 15000 mm/591", Plain Paper 034 4th Roll: 15000 mm/591", Plain Paper 041 1st Roll: 15000 mm/591", Tracing Paper 042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film		Plain Paper	[-100 ~ +100/0.1 mm]
Plain Paper 033 3rd Roll: 15000 mm/591", Plain Paper 034 4th Roll: 15000 mm/591", Plain Paper 041 1st Roll: 15000 mm/591", Tracing Paper 042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film	032	2nd Roll: 15000 mm/591",	
033 3rd Roll: 15000 mm/591", Plain Paper 034 4th Roll: 15000 mm/591", Plain Paper 041 1st Roll: 15000 mm/591", Tracing Paper 042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film		Plain Paper	
Plain Paper 034 4th Roll: 15000 mm/591", Plain Paper 041 1st Roll: 15000 mm/591", Tracing Paper 042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film	033	3rd Roll: 15000 mm/591",	
034 4th Roll: 15000 mm/591", Plain Paper 041 1st Roll: 15000 mm/591", Tracing Paper 042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film		Plain Paper	
Plain Paper 041 1st Roll: 15000 mm/591", Tracing Paper 042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film	034	4th Roll: 15000 mm/591",	
041 1st Roll: 15000 mm/591", Tracing Paper 042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film		Plain Paper	
Iracing Paper 042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film	041	1st Roll: 15000 mm/591",	
042 2nd Roll: 15000 mm/591", Tracing Paper 043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film		Tracing Paper	
043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film	042	2nd Roll: 15000 mm/591",	
043 3rd Roll: 15000 mm/591", Tracing Paper 044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film		Tracing Paper	
044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film	043	3rd Roll: 15000 mm/591",	
044 4th Roll: 15000 mm/591", Tracing Paper 051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film		Tracing Paper	
051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film	044	4th Roll: 15000 mm/591",	
051 1st Roll: 15000 mm/591", Film 052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591", Film	054	Tracing Paper	
052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591",	051	1st Roll: 15000 mm/591",	
052 2nd Roll: 15000 mm/591", Film 053 3rd Roll: 15000 mm/591",	050		
053 3rd Roll: 15000 mm/591",	052	2nd Roll: 15000 mm/591",	
1053 [3rd Roll: 15000 mm/591",	050		
	053	13rd Roll: 15000 mm/591",	
	054		
U04 4[I] KOII: 10000 [I][I]/091 ,	054	4th Roll: 15000 mm/591",	
		ГШП	

1925 Cut Length Offset Correction	This setting corrects for factors that affect paper slippage during feed, such as paper surface characteristics. DFU
	 D: Japanese paper (Factory standard) 1: Other countries paper

1926 Lift Motor Off Timing DFU

- When a loaded paper cassette tray is closed:
- 1. The tray lift motor lifts the tray until the lift sensor switches on.
- 2. The tray lowers until the sensor switches off.
- 3. Then, the tray lift motor switches the prescribed time (20 ms) to lift the tray to the correct feed position.

This SP adjusts the length of time for the prescribed lift.

001	1st Cassette	[20~200/20 ms]
002	2nd Cassette	

1927	Pickup	Pickup Solenoid On Time DFU				
	This SP adjusts the length of time the pickup solenoid remains on (500 ms) when a					
	sheet of paper is feed from a cassette tray.					
	001	1st Cassette	[200~1000/20 ms]			
	002	2nd Cassette				

1950 Paper Exit Control

Adjusts the amount of paper grabbed at the edge for feeding.

[-50~+50/1 mm]

The friction from grabbing the paper 14 mm from the edge of the paper could cause poor image quality where the paper was grabbed. If the image is very close to the edge of the paper (less than 14 mm for example), adjust this setting for less than -14.

1955	Trans	Transport Fan Rotation	
	001	Very Thin Paper	Selects the transport fan rotation speed for Japanese chemical paper. Japan Only 0:Off, 1:100%, 2:20%] <i>The suction created by the transport motor below the paper</i> <i>feed path keeps the paper straight. The force of this suction</i> <i>could be too great for extremely thin paper.</i>
	002	Stand-by Condition	Selects the transport fan rotation speed for stand-by mode. 0:8%, 1:100%, 2:70%, 3:60%, 4:50%, 5:40%, 6:30%

SP2000 Drum

2001	Charg	Charge Corona Adjustment DFU		
	001	Total Corona Current	Adjusts the charge corona output.	
			[900~1500/ 10μA]	
	002	Grid Voltage for Image	Adjusts the charge grid output.	
		Area	[500~1000/10V]	
	003	Grid Voltage for ID Sensor	Adjusts the charge grid output for the ID sensor	
		Pattern	pattern.	
			[500~1000/10V]	

2101	Printing Erase Margin		SP2946 must be "On", or these settings will be ignored.
	001	Leading Edge	Adjusts the printing margin.
	002	Trailing Edge	[0~10/0.1 mm]
	003	Left	
	004	Right	

2114	Binar	Binary Edge Processing Parameter		
	This S	This SP sets the parameters for digital edge processing when this feature is selected		
	with a	eprinter application. Adjust t	his SP when the results of edge processing are not	
	satisf	actory.		
	001	Leading Pixel Level	The adjustment is done in the main scan direction.	
	002	Trailing Pixel Level	[0~31/ 23 /1]	
	003	Continues Pixel Level		
	004	Independent Dot Pixel		
		Level		

Definitions



B188S900.WMF

Example



B188S901.WMF

2201	Deve	opment Bias Adjustment	
	001	Image Area	Sets the development bias voltage to adjust the toner
			amount for the image area.
			[100 ~ 1000/10V]
	002	ID Sensor Pattern - Low	Sets the development bias to adjust the toner amount
		Duty Copy Jobs	for the ID sensor pattern.
			[-100~-1000/10V]
	003	ID Sensor Pattern - High	Sets the development bias to adjust the toner amount
		Duty Copy Jobs	for the ID sensor pattern.
			[-100 ~-1000/10V]
	004	Copy Jobs	Determines the mode used for generating the ID
			sensor pattern. See Section 6.6.3 for details.
			0: Low, 1:High

2207 Forced Toner Supply
 Press [Execute] to execute a forced toner supply.
 If this switched on, this SP supplies more toner to darken light copies. For every execution, toner is supplied one time. After doing this SP, make a copy and check the copy density.

2208	Toner	⁻ Supply Setting	
	001	Gain	Adjusts the toner supply for ordinary operations by adjusting the GAIN *(Vsp/Vsg). DFU [0~9/1] This setting may require adjustment for a customer with special needs, e.g. continuous copy jobs of photographs.
	002	Supply Capacity	Selects the toner supply capacity for the job load. [0.1~2.5/0.1] The 1 setting is good for up to about 20% coverage, but can be set to 2 for long copy jobs up to 100 copies. However, if the image coverage is greater than 50%, even the 2 setting may not be sufficient.
	003	Toner Supply Mode	Selects toner supply mode and switches off the ID sensor. 0: Detect Mode 1: Fixed Mode (3%) 2: Fixed Mode (6%) If the ID sensor is damaged and cannot be replaced immediately, set to 1 or 2 so the customer can continue to use the machine until a new ID sensor is available for replacement. After installing a new ID sensor, reset to 0.

2301	Transfer Corona Output DFU		
	These SPs adjust the transfer output power and the transfer output coefficients for the		
	leading edges, central images, and trailing edges. Adjustments can be done for each		
	type of paper.		
	 The leading edge, image area, and trailing edge 	adjustments are done in the range:	
	[150~1000/1µA]		
	 The coefficient adjustments are done in the range 	e:	
	[0.5~2.5/0.1]		
	001 Roll Paper: Plain Paper: Leading Edge		
	003 Roll Paper: Plain Paper: Trailing Edge		
	005 Roll Paper: Translucent: Leading Edge		
	006 Roll Paper: Translucent: Image Aread		
	007 Roll Paper: Translucent: Trailing Edge		
	008 Roll Paper: Translucent: Coefficient		
	009 Roll Paper: Film: Leading Edge		
	010 Roll Paper: Film: Image Aread		
	011 Roll Paper: Film: Trailing Edge		
	012 Roll Paper: Film: Coefficient		
	013 Roll Paper: Recycled Paper: Leading Edge		
	014 Roll Paper: Recycled Paper: Image Aread		
	015 Roll Paper: Recycled Paper: Trailing Edge		
	016 Roll Paper: Recycled Paper: Coefficient		
	021 Cut Paper: Plain Paper: Leading Edge		
	022 Cut Paper: Plain Paper: Image Aread		
	023 Cut Paper: Plain Paper: Trailing Edge		
	024 Cut Paper: Plain Paper: Coefficient		
	025 Cut Paper: Translucent: Leading Edge		
	026 Cut Paper: Translucent: Image Aread		
027 Cut Paper: Translucent: Trailing Edge			
028 Cut Paper: Translucent: Coefficient			
029 Cut Paper: Film: Leading Edge			
030 Cut Paper: Film: Image Aread			
	031 Cut Paper: Film: Trailing Edge		
	032 Cut Paper: Film: Coefficient		
	033 Cut Paper: Recycled Paper: Leading Edge		
	034 Cut Paper: Recycled Paper: Image Aread		
	035 Cut Paper: Recycled Paper: Trailing Edge		
	036 Cut Paper: Recycled Paper: Coefficient		

2401	Separation DC Timing Adj.	Adjusts the separation [-100~0/1 mm]	on dc timing. DFU
2402	Separation AC Current Setting:	Adjusts the separation	on ac voltage setting. DFU
	001 Roll Paper	[2600~6200/1µA]	
	002 Cut Paper		
2403	Separation DC Voltage Setting	DFU	
	001 Roll Paper: Plain Paper: L	eading Edge	Adjusts the separation dc
	002 Roll Paper: Plain Paper: In	002 Roll Paper: Plain Paper: Image Area	
	003 Roll Paper: Translucent: L	eading Edge	[0~300/1µA]
	004 Roll Paper: Translucent: Image Area		If this is too high, toner will be
	005 Roll Paper: Film: Leading	005 Roll Paper: Film: Leading Edge	
	006 Roll Paper: Film: Image Ar	rea	the drum after transfer.
	007 Roll Paper: Recycled Pape	er: Leading Edge	1

008Roll Paper: Recycled Paper: Image Area011Cut Paper: Plain Paper: Leading Edge012Cut Paper: Plain Paper: Image Area013Cut Paper: Translucent: Leading Edge014Cut Paper: Translucent: Image Area015Cut Paper: Film: Leading Edge016Cut Paper: Film: Image Area

017 Cut Paper: Recycled Paper: Leading Edge

018 Cut Paper: Recycled Paper: Image Area

2801	Developer Initial Setting	Execute this SP only after replacing the developer.
		Press Start to initialize.
		Executing this SP raises the chargeability of the developer
		in the development unit.

2803 Charge Corona Wire	Press Start to clean the charge corona wire. Executing this
Cleaning	SP also ensures that the cleaning pad is set at the home
	position.
	Cleaning requires about 60 seconds.

2804	Corona Wire Cleaning Interval	Selects the interval.
		0: None (no cleaning)
		1: Immediately after the main power switch is turned on, if the hot roller temperature is less than
		90 °C
		2: After 300 m copies
		3: After 600 m copies
		4: After 900 m copies
		5: After 1200 m copies
		6: After 1500 m copies

2812 Drum Cleaning Interval	The drum reverses after this number of jobs, to clean the tip of the cleaning blade. Set to 0 to disable this feature
	[0~5/1Job]

2902 Test Pattern

_			
	Select the test pattern number, touch [Copy Screen], then push [Start].		
	001	IPU Scanning Test Pattern	17 Patterns
	002	IPU Printing Test Pattern	9 Patterns
	003	Printing Test Pattern	28 Patterns

2909 Main Scan Magnification

Fine adjusts magnification of the image data in the main scan direction. This adjustment may be required after replacement of the laser unit. For more, see 5.7. [-1.0 ~ +1.0/0.1%]

2923 Drum Set Mode

Do this SP after replacing the drum or cleaning blade After drum or cleaning blade replacement, this SP dusts the drum and blade with toner to reduce friction between the new drum and/or new blade, reducing the chance of scouring the drum or bending the blade.

2924 Developer Mixing DFU

Enables developer mixing when the power is switched on and the fusing temperature is less than 50°C (122°F).

0: OFF (No Mixing) 1:ON (Mixing at power on).

2925 Transfer Corona Timing DFU

Adjusts the timing of voltage on timing for paper separation at the leading/trailing edges for different paper. Enter a minus setting for the voltage to apply earlier, enter a plus setting for the voltage to apply later.

002	Leading Edge	[0~30/1 mm]
003	Trailing Edge	[-30~0/1 mm]
011	ON Timing: Roll Paper: Plain Paper	[-10.0~+10.0/0.1 mm]
012	ON Timing: Roll Paper: Translucent	
013	ON Timing: Roll Paper: Film	
014	ON Timing: Roll Paper: Recycled Paper	
015	ON Timing: Cut Paper: Plain Paper	
016	ON Timing: Cut Paper: Translucent	
017	ON Timing: Cut Paper: Film	
018	ON Timing: Cut Paper: Recycled Paper	

2926	Used Toner Overflow Detection	Enables/disables the used toner full detection.
		0: Disable, 1: Enable

2927	Toner	(Near) End Detection	
	001	Near End Level	Selects the near end level (Vsp/Vsg). DFU
			[0.150~0.275/0.025]
			Higher settings thin toner, lower settings thicken
			toner.
	002	Toner End Level	Selects the toner end level until the add toner lamp lights, based on copy length (not the number of copies). See section 6.6.7 for more details. [1000~3000/10 cm]
			The numbers above are centimeters.

2928	Toner	Toner End Recovery DFU		
	001	Recovery Level	Selects the recovery level (Vsp/Vsg).	
			[0.075~0.200/0.25]	
	002	Recovery Detection	Sets how many times the judgement is aborted when the toner end detection is not nullified. [1~25/1]	

2943	LED [LED Duty Adj DFU		
	Adjus	ts the LED duty level for eac	ch LPH.	l
	001	LPH1	[8~15.0/0.5%]	
	002	LPH2		
	003	LPH3		

2952	LPH 、	loint Adjustment	
	001	LPH-2 Main Scan	Adjusts the LPH joint between LPH1 and LPH2.
			[0~999/1]
			Adjust only after replacing the LPH.
	002	LPH-3 Main Scan	Adjusts the LPH joint between LPH2 and LPH3.
			[0~999/1]
			Adjust only after replacing the LPH.
	011	LPH-2 Sub Scan	Adjusts the data delay (due to misalignments of the LPH 1-2
			joint).
[102~			[102~267/1]
			Adjust only after replacing the LPH.
	012	LPH-3: Sub Scan	Adjusts the data delay (due to misalignments of the LPH 2-3
			joint).
			[2~100/1]
			Adjust only after replacing the LPH.

2959	VDB ID Display		
	Reads and displays the FPGA version 8-bit data of the VDB.		
	Note: The VDB (Video Drive Board) controls the LPH. It processes the image		
	information sent from the IPU and sends it to the LPH.		

SP3000 Process Control

3001	ID Sensor Initial Setting		
	001	PWM Setting	Adjusts PWM. DFU
			[0~1000/1]
	002	Initialization	Automatically adjusts the output to $4.0 \pm 0.2V$. During auto adjustment, the voltage applied to the ID Sensor LED depends on the PWM value. Press the Start button to initialize the ID sensor LED with the value entered for the PWM. Initialization requires about 4 seconds. Note : Do this SP cleaning the ID sensor and after replacement of the drum, ID sensor, NVRAM and BCU.

3103	ID Se	D Sensor Output Display (Vsp, Vsg)			
	Displa	ays the	e values for Vsp/Vsg (0.0V~5.0V)		
	001 Vsg Measured reflection of bare drum surface.				
	002 Vsp Measured reflection from ID sensor pattern.				

3910	Devel	Development Bias Timing	
	001	On Timing	Adjusts the development bias on timing.
			[-222~+222/1 ms]
	002	Off Timing	Adjusts the development bias off timing.
			[-222~+222/1 ms]

3920 ID Sensor Timing

Determines the intervals between ID sensor checks. An ID sensor pattern is made after printing a page, if the print length since the last ID sensor check has reached the specified value. The numbers below are centimeters. [20~1000/1 cm]

SP4000 Scanner

4008	Scanner Sub Scan	Adjusts the magnification by changing the scanning
	Magnification	speed.
		[-0.9~+0.9/0.1 %]

4010	Scan	ner Sub Scan Registration	
	001	Leading Edge	Fine adjusts the time between the sensor-on position and the leading edge of the image.
			[-10~+10/0.1 mm]
	002	Trailing Edge	Fine adjusts the time between the sensor-off position and the trailing edge of the image. This determines the timing for the CIS to stop reading the image after the original has passed the registration sensor. [-10~+10/0.1 mm]

4011	Scanner Main Scan	Adjusts the scan registration.
	Registration	[-4~+4/0.1 mm]

4012	Scan	Scanner Erase Margin			
	005	DF: Leading Edge	Adjusts the non-scanning area.		
	006	DF: Trailing Edge	[0.0~+9.0/0.1 mm]		
	007	DF: Left			
	008	DF: Right			

4013	Scan	Scanner Free Run	
	001	Start	To start the free run, touch [On].
			To end the free run, touch [Off].
			The free run simulates scanning pages of length determined by SP4013 003, with the interval between each page determined by SP4013 002.
	002	Page Interval Setting	Adjusts the scanner free run (see the description for 4013 001). [0~25/0.1 s]
	003	Original Length Setting	Adjusts the scanner free run (the description for 4013 001). [0.1~15/0.1 m]

4020	Scan Glass Dust Check				
	These SP codes adjust the dust check operation at the CIS and white platen roller.				
	Note	: Dust that triggers a	warning could be removed from the glass by the original in		
	the feed path. If the dust is removed by passing originals, this is not detected				
	the w	varning remains on.			
	001	Check On/Off	Switches the dust warning on and off. When this SP is on, a warning is issued if the check detects dust at the CIS or on the white platen roller. Always clean the CIS and white platen roller before turning this SP on. 0:Off, 1:On		
	002	Detect Level	Adjusts the sensitivity of the check. If you see black streaks in copies when no warning has been issued, raise the setting to increase the level of sensitivity. If warnings are issued when you see no black streaks in copies, lower the setting. [0~8/1]		
	003	Rejection Level	Sets the level for vertical line correction caused by dust. A high setting can eliminate unwanted vertical lines caused by dust but it can also reproduce vertically lines thinner than those of the original. [0~7/1]		

4101	Scanner Main Scan	Adjusts the side-to-side scan magnification.
	Magnification	[-0.9~+0.9/0.1 %]

4550	Scan	ner: Text: Print				
	Sets the MTF (Modulation Transfer Function) level. When the CCD converts the original image to electrical signals, the contrast is reduced due to the influence that adjacent white and black pixels have on one another as a result of lens properties. Typically, you will see very narrow width and spacing between black and white areas.					
	 For each adjustment below: Weak: Low end of the range (0) Medium: Center of the range (default) Strong: High end of the range 					
	001 MTF Filter Level: Main Screen [0~15/1]					
	002 MTF Filter Level: Sub Scan					
	003	MTF Filter Strength: Main Scan	[0~7/1]			
	004 MTF Filter Strength: Sub Scan					
	005 Smoothing Filter					
	006 Brightness [1~255/1]					
	007 Contrast					
	008	Isolated Dot Removal	[0~7/1]			

4551	Scan	Scanner: Text: OCR				
	Adjusts the MTF level in the main scan direction for the Text (OCR) mode of the					
	scan	ner application.				
	For e	ach adjustment below:				
	• W	eak: Low end of the range (0)				
	• Me	edium: Center of the range (default)				
	• Sti	rong: High end of the range.				
	001 MTF Filter Level: Main Screen [0~15/1					
	002 MTF Filter Level: Sub Scan					
	003 MTF Filter Strength: Main Scan [0~7/1					
	004 MTF Filter Strength: Sub Scan					
	005 Smoothing Filter [0~7/1					
	006	Brightness	[1~255/1]			
	007 Contrast					
	008	Isolated Dot Removal	[0~7/1]			

4552	Scan	Scanner: Text/Photo					
	Adjus	Adjusts the MTF level in the main scan direction for the Text/Photo mode of the					
	scanner application.						
	For e	ach adjustment below:					
	• We	eak: Low end of the range (0)					
	● IVI€	rong: High and of the range (default)					
	001 MTF Filter Level: Main Screen [0~15/1]						
	002	MTF Filter Level: Sub Scan					
	002	MTE Filter Strength: Main Scan	I0~7/11				
	004 MITE Fliter Strength: Sub Scan						
	005 Smoothing Filter [0~7/1]						
	006	Brightness	[1~255/1]				
	007 Contrast						
	008	Isolated Dot Removal	[0~7/1]				

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4553	Scanner: Photo				
Adjusts the MTF level in the main scan direction for the Photo mode of the					
	appli	cation.			
	For e	each adjustment below:			
	• W	eak: Low end of the range (0)			
	• Me	edium: Center of the range (default)			
	• St	rong: High end of the range.			
	001	MTF Filter Level: Main Screen	[0~15/1]		
	002	MTF Filter Level: Sub Scan			
	003	MTF Filter Strength: Main Scan	[0~7/1]		
	004	MTF Filter Strength: Sub Scan			
	005	Smoothing Filter	[0~7/1]		
	006	Brightness	[1~255/1]		
	007 Contrast				
	008	Isolated Dot Removal	[0~7/1]		

4554	Scan	Scanner: Drawing					
	Adjus	Adjusts the MTF level in the main scan direction for the Drawing mode of the scanner					
	appli	cation.					
	For e	ach adjustment below:					
	• We	eak: Low end of the range (0)					
	• Me	edium: Center of the range (default)					
	• Str	ong: High end of the range.					
	001 MTF Filter Level: Main Screen [0~15/1]						
	002 MTF Filter Level: Sub Scan						
	003 MTF Filter Strength: Main Scan [0~7/1]						
	004 MTF Filter Strength: Sub Scan						
	005 Smoothing Filter [0~7/1]						
	006 Brightness [1~255/1]						
	007 Contrast						
	008	Isolated Dot Removal	[0~7/1]				

 4705
 CIS Adjustment:

 Adjusts the density level of white peak adjustment. This sets the PGA reference voltage of the CIS unit

 001
 Flag Display

 002
 Start

 Touch "Start" to adjust the standard white level.

 After adjustment, check the result with SP4713.

4713CIS White Level Adjustment: White Roller DFUDisplays the value of the reference point for white level correction after the CIS has
scanned the white platen roller after execution of SP4705 002. Normal: 240±2

4716 CIS White Level Adjustment: Factory: White Roller Displays the value of the setting done at the factory to adjust the white peak level before the machine was shipped.

4732 CIS Gain Adjustment **DFU** Displays the gain data (CIS AGC_CONT) immediately after the white level is adjusted after the machine is turned on. If an error occurs during white level adjustment, the gain adjustment value set for SP4762 001 is used. However, the gain can be adjusted with this SP but the setting remains in effect only while the machine remains on and is

lost when the machine is switched off.

4735	CIS F	IS Read White Level			
	Displ	Displays the peak value of the EVEN/ODD shading data when the peak level was			
	adjusted immediately after the machine was switched on.				
	Norm	Normal Reading: 240±2			
	001	Ech	EVEN shading data display.		
	002	Och	ODD shading data display.		

4741	1741 CIS White Adjust Loop					
	Displays the number of loops executed during white peak level adjustment for AGC (Automatic Gain Control). This SP is for display only and the value cannot be adjusted					

4745	CIS A	CIS Adjustment Error Flag		
	Displ	Displays the error flag if an error occurred during the last CIS white level check, black		
	level	check,	white level peak adjustment when the machine was switched on. Displays	
	"0000	<u>) 000" f</u>	or normal. Displays a "1" for an error at the bit position.	
	Bit	Error	Description	
	0	-	Not used	
	1	1	White level adjustment timeout. Could not adjust white level after 20	
			attempts.	
	2	1	White level last check error. Value read for white peak was invalid.	
	3	1	Density adjustment timeout. Value was still out of range after 20 attempts.	
	4	1	White platen roller density adjustment interrupted due to paper jam, etc.	
	5	1	White platen roller density adjustment timeout interrupted due to original	
			feed.	
	6	-	Not used	
	7	-	Not used	

4747	CIS H	CIS Hard Error Flag			
	Displa	Displays a code for the error if any occurs as a result of the communication check with			
	the C	he CIS done immediately after the machine is switched on. Displays "0000 000" for			
	norm	al. Displa	ays a "1" for an error at the bit position.		
	Bit	Bit Error Description			
	0	1	Serial output board defective.		
	1	1	Failed to read CIS version information.		
	2	1	Mismatch between version data read and data stored in the CIS register.		

4762 CIS Gain Adjustment Normally **DFU**

Displays the gain adjustment setting as a result of white level peak adjustment with no errors after the machine was switched on. Normal: 240±2.

If an error occurs during white level adjustment, the adjustment value set for SP4732 001 is used. The value can be set with this SP, but the setting remains in effect only while the machine remains on and is lost when the machine is switched off. [0~255/1]

4765 CIS Standard White Level Adjustment Normally: White Roller **DFU** Displays the density adjustment done for the reading of the white platen roller. [0~255/1]

4781 CIS Gain Adjustment at Factory

Displays the value of gain adjustment value stored in NVRAM at the factory by executing SP4705 002 with SP4705 001 set to "0". For display only. This SP cannot be adjusted in the field.

4901	Scan Correction: Shading Correction:			
	Adjus	sts the AEREF (Automatic E	xposure Reference) setting used for shading	
	correction processing during image scanning and shading data output.			
	001	Shading Correction:	[0~63/1]	
		AEREF Setting	Set a low value for weak background erase, a high	
			value for stronger background erase.	
	002	Shading Correction:	Outputs the data that was used during shading data	
		Shading Data Output	correction for the data of the scanned image.	
			0: Outputs the data of the scanned image	
			1: Outputs the shading data	
			Note:	
			 This SP is incompatible with SP2902 001 (Test Pattern) Pattern 1 and SP4909 (Image Processing Through: IPU Scan Image Module). Of these three SP codes, SP4901 has lowest priority and is disabled if either SP2902 or SP4909 is enabled. 	
	003	Digital AE: AEREF Setting	Changes the level for background erase (AEREF	
			value) that is used in the digital A/E processing of the	
			5 carl uala.	
	004	Digital AF: Low Limit	[-03~+03/1] Defines the lower limit of the bookground erose lovel	
	004	Digital AE. LOW LIMIT	that is used in the digital A/E processing of the	
			scanned data	
			IO~255/11	
	005	Digital AE: Start Position	Changes the starting point for digital A/E processing	
	005		of the scanning data	
			$[0.5 \sim 10.0/0.1 \text{ mm}]$	
			Note : The starting position specified with the scanning	
			application takes priority over this setting.	

4903	Image	Quality Adj.					
	These	Inese SP codes set the IVITE levels for the operation modes.					
	Note: I	Note: For these settings to take effect, SP5106 (Auto Density Level) must be set to "3"					
	Text Mode						
	Adjusts the sharpness and texture of images processed in Text mode						
		Tort (25.0.55%)					
	001	Text $(25.0-55\%)$	$\begin{bmatrix} 0 \sim 10/1 \end{bmatrix}$				
	002	Text (55.1-75%)	0. Sollest				
	003	lext (75.1-160%)	5. Norman				
	004	Text (160.1-400%)	TU: Sharpest				
	Photo	Mode Dithering					
	Adjust ditherii	s the sharpness and texture of images processed ir ng	Photo mode with				
	005	Photo Dithering (25.0-55%)	[0~6/1]				
	006	Photo Dithering (55.1-75%)	0: Softest				
	007	Photo Dithering (75 1-160%)	3: Print Original				
	008	Photo Dithering (160 1-400%)	Mode				
	000	1 110to Dittering (100.1-400 %)	6: Sharpest				
	Photo	Mode Error Diffusion	l I				
	Adjust	s the sharpness and texture of images processed ir	Photo mode with error				
	diffusio	on.					
	009	Photo Error Diffusion (25.0-55%)	[0~6/1]				
	010	Photo Error Diffusion (55.1-75%)	0: Softest				
	011	Photo Error Diffusion (75.1-160%)	1: Normal (Default)				
	012	Photo Error Diffusion (160 1-400%)	6: Sharpest				
	Text/Photo Mode						
	Adjusts the sharphose and texture of images processed in Text/Phote mode						
	Aujust	Tout/Dhote (25.0.550/)					
	013	Text/Photo (25.0-55%)	$[0 \sim 10/1]$				
	014	Text/Photo (55.1-75%)	0. Sollesi				
	015	Text/Photo (75.1-160%)	T. Photo Phonty				
	016	Text/Photo (160.1-400%)	5: Normal (Default)				
			9. Text Phonty				
	Description		10: Snarpest				
	Drawing						
	Sets th	he level for Drawing mode. The higher the setting, the	he stronger the effect.				
	025	Drawing (25.0-55%)	[0~10/1]				
	026	Drawing (55.1-75%)	0: Softest				
	027	Drawing (75.1-160%)	5: Normal				
	028	Drawing (160.1-400%)	10: Sharpest				
	Patch	Patched Original					
	Sets the ffect.	ne level for Patched Original mode. The higher the s	etting, the stronger the				
	029	Patched Original (25.0-55%)	[0~10/1]				
	030	Patched Original (55 1-75%)	0 [°] Softest				
	031	Patched Original (75.1-160%)	5. Normal				
	031	Patabad Original (160.1.400%)	10 [°] Sharnest				
	032	r atolieu Oligiliai (100.1-400%)					

Divel			
Blue	Blue Line Sate the level for Plue Line mode. The higher the eatting, the stronger the offerst		
Sets ti	he level for Blue Line mode. The higher the setting,	the stronger the effect.	
033	Blue Line (25.0-55%)	[0~10/1]	
034	Blue Line (55.1-75%)	U: Sottest	
035	Blue Line (75.1-160%)	5. Normal	
036	Blue Line (160.1-400%)	10. Sharpest	
Indep	endent Dot Erase		
Sets the eff	ne level for independent dot erasure. The higher the fect.	e setting, the stronger	
060	Independent Dot Erase: Text	[0~14/1]	
061	Independent Dot Erase: Photo	[0~14/1]	
062	Independent Dot Erase: Text/Photo		
063	Independent Dot Erase: Pale		
064	Independent Dot: Generation	[0~14/1]	
065	Independent Dot: Drawing		
066	Independent Dot: Patched Original		
067	Independent Dot: Blue Line		
Backg	ground Erase		
Sets t	ne level for background erase. The higher the settin	g, the stronger the	
effect.			
070	Background Erase: Text	[0~255/1]	
071	Background Erase: Photo		
072	Background Erase: Text/Photo		
075	Background Erase: Drawing		
076	Background Erase: Patched Original		
077	Background Erase: Blue Line		
Line V	Vidth Correction		
Select	s the level of line width correction for the copy mod	e and direction of	
scanning. Where a range of settings is possible, [0~8] for example, the higher the setting, the thicker the lines.			
080	Line Width Correction: Text Mode Select	[0~8/1]	
081	Line Width Correction: Text Mode: Main Scan	[0~1/1]	
		0: Off, 1: On	
082	Line Width Correction: Text: Sub Scan	[0~1/1]	
		0: Off, 1: On	
083	Line Width Correction: Photo Mode Select	[0~8/1]	
084	Line Width Correction: Photo Mode: Main Scan	[0~1/1]	
		0: Off, 1: On	
085	Line Width Correction: Photo Mode: Sub Scan	[0~1/1]	
		0: Off, 1: On	
086	Line Width Correction: Text/Photo Mode Select	[0~8/1]	
087	Line Width Correction: Text/Photo: Main Scan	[0~1/1]	
		0: Off, 1: On	
088	Line Width Correction: Text/Photo: Sub Scan	[0~1/1]	
		U: Ott, 1: On	
095	Line Width Correction: Drawing Mode Select	[0~8/1]	
096	Line Width Correction: Drawing: Main Scan	[U~1/1]	
		υ: Oπ, 1: On	

097	Line Width Correction: Drawing: Sub Scan	[0~1/1]
		0: Off, 1: On
098	Line Width Correction: Patched Original Mode	[0~8/1]
	Select	
099	Line Width Correction: Patched Original: Main	[0~1/1]
	Scan	0: Off, 1: On
100	Line Width Correction: Patched Original: Sub	[0~1/1]
	Scan	0: Off, 1: On
101	Line Width Correction: Blue Line Mode Select	[0~8/1]
102	Line Width Correction: Blue Line: Main Scan	[0~1/1]
		0: Off, 1: On
103	Line Width Correction: Blue Line: Sub Scan	[0~1/1]
		0: Off, 1: On

4904	Image Processing Setting			
	llows selection of a setting for image quality processing for Photo mode.			
	Note: These settings apply to the Photo mo	ode only.		
	002 Processing Select: Photo	0: Dithering 8x8		
	003 Density Level: Patched Original	1: Dithering 6x6		
	010 Smoothing Filter Level: Text	2: Dithering 4x4		
	011 Smoothing Filter Level: Photo	3: Error Diffusion		
	012 Smoothing Filter Level: Text/Photo			
	014 Smoothing Filter Level: Generation			
	015 Smoothing Filter Level: Drawing			
	016 Smoothing Filter Level: Patched			
	Original			
	017 Smoothing Filter Level: Blue Line			
	020 Line Width Correction: Text	Two settings are available for line		
	021 Line Width Correction: Photo	correction:		
	022 Line Width Correction: Text/Photo	0: Line correction OFF (Default)		
	024 Line Width Correction: Generation	1: Line correction ON		
	025 Line Width Correction: Drawing			
	026 Line Width Correction: Patched			
	Original			
	027 Line Width Correction: Blue Line			

4909	Image Processing Through DF	U	
	These SPs select the image pr	ocessi	ng modules for the CIS and SBU. The selections
	are done by setting the appropriate bit to "1" in the display '(7) 00000000 (1).		
	Press the corresponding key on the operation panel to toggle the setting between "0"		
	and "1". To toggle the first digit	on the	right, press [0], press [1] to toggle the 2nd
	position from the left, and so o	<u>ı.</u>	
	001 IPU Scan Module	Selec	ts the image processing module for scanning
		relate	d to the CIS (Contact Image Sensor).
		Bit	Module
		0	Shading Correction
		1	Scanner γ
		2	Filter
		3	Thin/Thick Line Correction
		4	Independent Dot Erase
		5	γ (for scanner path)
		6	Gradation Processing (for scanner)
		7	Scanner Mask
	002 IPU Plotter Image Module	Selec	ts image processing module for scanning related
		to the	SBU (Scanning Board Unit).
		Bit	Module
		0	Printer Magnification
		1	Printer γ
		2	Gradation Processing
		3	Printer Mask
		4	Not used
		5	Not used
		6	Not used
		7	Not used

4961	Oriai	nal Adiustment	
	001	Synchro-cut Adjustment 210 mm	Adjusts the synchro-cut position. [-9.9~+9.9/0.1 mm] Use the 210-mm position in the sample to check the difference. This difference is used to calculate the motor clock count for adjusting the difference.
	002	Synchro-cut Adjustment 1000 mm	Adjusts the synchro-cut position. [-9.9~+9.9/0.1 mm] Use the 1000-mm position in the sample to check the difference. This difference is used to calculate the motor clock count for adjusting the difference.
	003	Original Length Display	Display the original length.

4962 Original Speed Calibration by Temperature Displays the temperature of the original exit roller.

Note: There are two abnormal readings. The thermistor requires servicing if you see either of these readings:

• A 100°C reading means the thermistor is disconnected.

A 0°C reading means the thermistor has shorted.

001 Feed Roller Temperature Display

002 Calibration Value Display

003 Calibration Value Setting DFU

4963 Wide Scan

This SP prevents partial loss of the image when the original width is set to a custom size with the User Tools. GW specifications allow the user to input the width and length of a non-standard size originals. This setting is for users who:

- Frequently use the roll paper to copy originals of non-standard widths
- Do not want to or cannot enter the width and length of the non-standard size before copying.
- 0: Uses a larger paper size in the same series
- 1: Uses a larger paper size in mixed series

One-Size Up Table for Main Scan Magnification

	No One-Size Up		After O	ne-Size Up	
	Detected Width	Normal Size	Determined Size (Same Series)	Determined Size (Other Series)	
A Series	210	A4 SEF	A3 SEF	B4 SEF	
	297	A3 SEF	A2 SEF	B3 SEF	
	420	A2 SEF	A1 SEF	B2 SEF	
	594	A1 SEF	A0 SEF	B1 SEF	
	841	A0 SEF	36 x 48 SEF	36 x 48 SEF	
B Series	257	B4 SEF	B4 SEF	A3 SEF	
	364	B3 SEF	B3 SEF	A2 SEF	
	515	B2 SEF	B2 SEF	A1 SEF	
	728	B1 SEF	B1 SEF	A0 SEF	
	914	36 x 48 SEF	36 x 48 SEF	36 x 48 SEF	
Engineering	81/2	8½ x 14 SEF	11 x 17 SEF	9 x 12 SEF	
	11	11 x 17 SEF	17 x 22 SEF	12 x 18 SEF	
	17	17 x 22 SEF	22 x 34 SEF	18 x 24 SEF	
	22	22 x 34 SEF	34 x 44 SEF	24 x 36 SEF	
	34	34 x 44 SEF	36 x 48 SEF	36 x 48 SEF	
Architecture	9	9 x 12 SEF	12 x 18 SEF	11 x 17 SEF	
	12	12 x 18 SEF	18 x 24 SEF	17 x 22 SEF	
	18	18 x 24 SEF	24 x 36 SEF	22 x 34 SEF	
	24	24 x 36 SEF	36 x 48 SEF	34 x 44 SEF	1
	36	36 x 48 SEF	36 x 48 SEF	36 x 48 SEF	
	30	30 x 42 SEF	36 x 48 SEF	36 x 48 SEF	

4991	Read	Shadin	g DFU
	These SP codes are debugging tools. If the peaking shading data (RI110) read at		
	power on is less than 64 digits, this information is stored in NVRAM.		
	001 Ech Reads EVEN shading data and stores it if an error occurs.		
	002	Och	Reads ODD shading data and stores it if an error occurs.

SP5000 Mode

5024	mm/inch Display Selection
	Selects the unit. Press mm or inch.
	0: Metric, 1: Inch

5045	Accounting Counter		
	Sets the method of accounting for machine usage.		
	001 Japan Only		
	002	Selects the unit for the counter (m, ft, yards, m ² , ft ² , or yd ²)	
		0: metres	
		1: yards	
		2: feet	
		3: m ²	
		4: yards ²	
		5: feet ²	
		6: A3 area = 1 unit	
		7: 0.1 metre (key counter only)	
		8: 0.1 yard (key counter only)	

5101	Panel Off Level
	Sets the level of the panel off mode according to the hot roller temperature control:
	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)

5106	ADS Level Selection
	Selects the image density level that is used by ADS in the text and photo mode.
	1: Dark (Rightmost) $\leftarrow \rightarrow$ 4: Normal (Middle) $\leftarrow \rightarrow$ 7: Light (Leftmost)

5113	Optiona	I Counter Type
	This SP	is used for the key counter only.
	001	Default Optional Counter Type
		Selects the type of counter:
		0: None
		1: Key card (RK3, 4) Japan only
		2: Key card down Japan only
		3: Pre-paid card Japan only
		4: Coin Lock Japan only
		5: MF key card Japan only
		11: Exp Key Card (Add) (used key counter connector)
		12: Exp Key Card (Deduct) (used key counter connector)
	002	External Optional Counter Type
		Enables the SDK application. This lets you select a number for the
		external device for user access control.
		Note : "SDK" refers to software on an SD card.
		[0~3/1]
		0: None
		1: Expansion Device 1
		2: Expansion Device 2
		3: Expansion Device 3

5118	Disable Copying
	Temporarily denies access to the machine.
	0: Release for normal operation
	1: Prohibit access to machine

5120	Mode Clear Opt. Counter Removal
	Do not change.
	0: Yes. Normal reset
	1: Standby. Resets before job start/after completion
	2: No. Normally no reset

5121	Counter Up Timing
	Determines whether the optional counter counts up at paper feed-in or at paper
	exit.
	0: Feed count
	1: No feed count

5127	APS OFF Mode
	This SP can be used to switch APS (Auto Paper Select) off when a coin lock or pre-paid key card device is connected to the machine.0: On1: Off

5150	Bypass Length Setting DFU
	Determines whether long paper can be fed from the bypass tray. Normally, only paper up to 600 ms can be fed from the bypass tray. With this SP switched on, however, the bypass tray can feed paper up to 1260 mm long. However, this may not be possible if the printer driver does not allow printing on paper longer than 432 mm. 0: Off. Length limited to 600 mm 1: On. Length up to 1260 mm possible

5162	App. Switch Method
	Controls if the application screen is changed with a hardware switch or a software
	switch.
	0: Soft Key Set
	1: Hard Key Set

5169	CE Login
	To change the printer bit switches, you must log into service mode with this SP
	before you go into the printer SP mode.
	0: Off. Printer bit switches cannot be adjusted.
	1: On. Printer bit switches can be adjusted.

5180	Charge Count Method Japan Only

5212	Page Numbering DFU	
	Do the page numbering settings with the User Tools menus.	

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.
	[–1440~1440/1 min.]
	JA: +540 (Tokyo)
	NA: -300 (NY)
	EU: +60 (Paris)
	CH: +480 (Peking)
	TW: +480 (Taipei)
	AS: +480 (Hong Kong)

5307	Summer T	ïme		
	Lets you s	et the machine to a	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:			
	- Da	ly and time to go fo	prward automatically in April.	
	- Da	ly and time to go b	ack automatically in October.	
	- Se	t the length of time	e to go forward and back automatically.	
	The setting	gs for 002 and 003	are done with 8-digit numbers:	
	Digits	Meaning		
	1st, 2nd	Month. 4: April, 1 cannot be input, s seven-digit settin	0: October (for months 1 to 9, the first digit of 0 so the eight-digit setting for 002 or 003 becomes a g)	
3rd Day of the week. 0: Sunday, 1: Monday			0: Sunday, 1: Monday	
	4th The number of the week for the day selected at the 3rd digit. If "0" selected for "Sunday", for example, and the selected Sunday is the start of the 2nd week then input a "2" for this digit			
	5th, 6th	The time when th Example: 00:00 (he change occurs (24-hour as hex code). [Midnight) = 00, 01:00 (1 a.m.) = 01, and so on.	
	7th	The number of he	ours to change the time. 1 hour: 1	
	8th	If the time change 8 should be 3 (30	e is not a whole number (1.5 hours for example), digit) minutes).	
	001	Setting	Enables/disables the settings for 002 and 003. [0~1/1]	
			0: Disable	
			1: Enable	
	003	Rule Set (Start)	The start of summer time.	
	004	Rule Set (End)	The end of summer time.	

5401	Acces	Access Control		
	This S	This SP stores the settings that limit uses access to SDK (Software Development		
	Kit) a	oplication data.		
	200	200 SDK1 Unique ID This data can be converted from SAS		
	201	SDK1 Recognition	(VAS) when installed or uninstalled.	
	210	SDK2 Unique ID		
	211	SDK2 Recognition		
	220	SDK3 Unique ID		
	221	SDK3 Recognition		

5404	User Code Count Clear		
	001	User Code Counter Clear	Clears all user code counters.
			Press [#] to execute.

5501	PM AI	PM Alarm		
	001	PM Alarm Level Sets the count level for the PM alarm.		
		[0~9999/1] 0: Alarm disabled Note : The PM alarm goes off when the print count reaches this value (multiplied by 1,000).		
	002	Original Count DFU		

5504	Jam Alarm	
5505	Error Alarm	Japan Only
5507	Supply Alarm	

5508	CC C	Call Japan Only	
	001	Jam Remains	Enables/disables initiating a call.
	002	Continuous	[0~1/1]
		Jams	0: Disable
	003	Continuous	1: Enable
	004	Door Open	
	004	Low Call Mode	Enables/disables the new call specifications designed to
			reduce the number of calls. $[0 \sim 1/1]$
			0: Normal mode
			1: Reduced mode
	011	Jam Detection:	Sets the length of time to determine the length of an
	• • •	Time Length	unattended paper jam.
		-	[03~30/1]
			This setting is enabled only when SP5508-004 is
			enabled (set to 1).
	012	Jam Detection	Sets the number of continuous paper jams required to
		Continuous	
		Count	[U2~10/1] This setting is enabled enhywhen SDEE08,004 is
			nis setting is enabled only when SP5508-004 is
	013	Door Open:	Sets the length of time the remains opens to determine
	010	Time Length	when to initiate a call.
		5	[03~30/1]
			This setting is enabled only when SP5508-004 is
			enabled (set to 1).
	021	Jam Operation:	Determines what happens when a paper jam is left
		Time Length	unattended.
			[U~1/1] Or Automotic Coll
			U: Automatic Call
			1. Audible warning at Wachine

022	Jam Operation: Continuous Count	Determines what happens when continuous paper jams occur. [0~1/1]
		0: Automatic Call 1: Audible Warning at Machine
023	Door Operation: Time Length	Determines what happens when the front door remains open. [0~1/1] 0: Automatic Call 1: Audible Warning at Machine

5801	Memory Clear		
	Clears	all data from NV	(RAM. Before executing this SP, print an SMC Report.
	001	All Clear	Initializes items 2 ~ 15 below. Note: This SP does not clear the information stored for the following SP codes: • SP8381 to SP83878 (counter information) • SP5811 001 (Serial Number) • SP5907 (Plug & Play)
	002	Engine Clear	Initializes all registration settings for the engine and copy process settings.
	003	SCS	Initializes default system settings, SCS (System Control Service) settings, operation display coordinates, and ROM update information.
	004	IMH Memory Clear	Initializes the image file system. (IMH: Image Memory Handler)
	005	MCS	Initializes the automatic delete time setting for stored documents. (MCS: Memory Control Service)
	006	Copier application	Initializes all copier application settings.
	007	Not used.	
	008	Printer application	Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter.
	009	Scanner application	Initializes the defaults for the scanner and all the scanner SP modes.
	010	Web Service/ Network application	Deletes the Netfile (NFA) management files and thumbnails, and initializes the Job login ID. Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software
	011	NCS	Initializes the system defaults and interface settings (IP addresses also), the SmartNetMonitor for Admin settings, WebStatusMonitor settings, and the TELNET settings. (NCS: Network Control Service)
	014	Clear DCS Setting	Initializes the DCS (Delivery Control Service) settings.
	015	Clear UCS Setting	Initializes the UCS (User Information Control Service) settings.
	016	MIRS Setting	Initializes the MIRS (Machine Information Report Service) settings.
	017	CCS	Initializes the CCS (Certification and Charge-control Service) settings.

5802	Engine Free Run	Copier Engine Free Run
	Makes a base engine free	e run.
	Note: The machine auton	natically leaves free run mode after the machine leaves the
	SP mode or after the mad	chine is cycled off and on.
	[0~1/1]	
	0: Disable: Release free r	run mode
	1: Enable: Enable free rui	n mode

5803Input CheckAllows you to test component input (~5.8)

5804 O	Output Check	Allows you to test component output (-5.9)
5811 M	lachine Serial Number	The serial number is set with this code before shipping.

5812	Service Tel. No. Setting		
	001	Service	Inputs the telephone number of the CE (displayed when a
			service call condition occurs.)
	002	Facsimile	Input the fax number of the CE.
	003	Supply	These SP codes allow you to enter the telephone numbers to
	004	Operation	be displayed for the supply and operation support centers in the User Tools mode.

5816	Rem	ote Service	
	001	I/F Setting	Turns the remote diagnostics off and on. [0~2/1]
			0: Remote diagnostics off.
			1: Serial (CSS or NRS) remote diagnostics on.
			2: Network remote diagnostics.
	002	CE Call	Lets the customer engineer start or end the remote machine check with CSS or NRS; to do this, push the center report key.
	003	Function Flag	Enables and disables remote diagnosis over the NRS network.
			0: Disables remote diagnosis over the network. 1: Enables remote diagnosis over the network.
	006	Device Information Call Display	Controls if the item for initial setting of the screen for the NRS device-information notification-call is shown. [0~1/1]
			0: Enabled. Item initial setting not shown.
			1: Disable. Item for initial setting shown.
	007	SSL Disable	Controls if RCG (Remote Communication Gate)
			confirmation is done by SSL during an RCG send for the
			NRS over a network interface.
			[0~1/1]
			U. TES. SOL HULUSEU. 1: No. SSL used
			1. NO. OOL USEU.

008	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 NRS network. [1~90/1 sec.]
009	RCG Write to Timeout	Sets the length of time (seconds) for the time-out when sent data is written to the RCG during a call over the NRS network. [0~100/1 sec.]
010	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 NRS network. [0~100/1 sec.]
011	Port 80 Enable	Controls if permission is given to get access to the SOAP method over Port 80 on the NRS network. [0~1/1] 0: No. Access denied 1: Yes. Access granted.

5821	Remote Service Address Japan Only		
	001	CSS PI	Sets the PI device code. After you change this setting, you
		Device Code	must turn the machine off and on.
	002	RCG IP	Sets the IP address of the RCG (Remote Communication
		Address	Gate) destination for call processing at the remote service
			center.
			[00000000h~FFFFFFFh/1]

Ì	5824	NVRAM Data Upload
		Uploads the NVRAM data to an SD card. Push Execute.
		Note: When uploading in this SP mode data, the front door must be open.

5825	NVRAM Data Download
	Downloads data from an SD card to the NVRAM in the machine. After downloading is completed, remove the card and turn the machine power off and
	on. Note : The pages-printed data stored by SP8381 to SP8387 are not downloaded.

5828	Netw	ork Setting					
	050	1284 Compatibility (Centro)	Enables and disables bi-directional communication on the parallel connection between the machine and				
			аc	omputer.			
			0: 0	Off			
			1: (On			
	052	ECP (Centro)	Dis for	ables and enables t data transfer.	he E	CP feature (1284 Mode)	
			0: [Disabled			
			1: 6	Enabled			
	065	Job Spool Setting	Sw	itches job spooling s	spoo	ling on and off.	
			1 : 0	No spooling 1: Spoo	oling	enabled	
	066	Job Spool Clear:	Thi	is SP determines wh	ethe	er the job interrupted at	
		Start Time	po\	wer oπ is resumed a	t the	next power on. This SP	
			0000	Pacumes printing or	202		
			1: Resumes printing spooled jog.				
	069	Joh Spool	Thi	is SP detemines wh	temines whether job spooling is enabled		
	000	(Protocol)	or	dispabled for each p	roto	col. This is a 8-bit setting.	
		、	0	LPR	4	BMLinks (Japan Only)	
			1	FTP (Not Used)	5		
			2	IPP	6	Reserved (Not Used)	
			3	SMB	7	Reserved (Not Used)	
	084	Print Settings List	Prints a list of the NCS parameter settings.				
	090	TELNET (0:OFF	Dis	ables or enables Te	elnet	operation. If this SP is	
		1:ON)	dis	abled, the Telnet po	rt is	closed.	
			0: [Disable			
			1: 6	Enable			
	091	Web (0:OFF 1:ON)	Dis	ables or enables the	e We	eb operation.	
			0:[Disable			
			1: I	-nable			

5831	Initial Settings Clear DFU
	This SP code clears all initial settings with the exception of the time setting and user code settings, and returns them to the factory defaults.

5832	HDD Formatting		
	Enter the SP number for the partition to initialize, then press #. When the execution		
	ends,	cycle the machine off and on.	
	001	HDD Formatting (All)	
	002	HDD Formatting (IMH)	
	003	HDD Formatting (Thumbnail)	
	004	HDD Formatting (Job Log)	
	005 HDD Formatting (Printer Fonts)		
	006 HDD Formatting (User Info.)		
	007 Mail RX Data		
	008	Mail TX Log	
	009	HDD Formatting (Log)	
	010	HDD Formatting Log	
	011	HDD Formatting (Ridoc DiskTopBinder)	

5833	e-Cabinet Enable			
	013	Enables the e-Cabinet function. Then, the user names in the cabinet are enabled for use with the POP server. 0: Disabled 1: Enabled		

5836	Capture					
	001 Capture Function (0:Off 1:On)					
		With this function disabled, the settings related to the capture feature cannot				
		be initialized, displayed, or se	elected.			
		0: Disable				
		1: Enable	1: Enable			
	002	Panel Setting				
		Determines whether each ca	pture related setting can be selected or updated			
		from the initial system screen	1.			
		The setting for SP5836 001	as priority			
	003	Print Backup Eupetion (0:Off				
	003	Turne the print backup fosture on and off. Default: 0 (Off)				
		When this feature is on the	\mathbf{v} of and on. Default. \mathbf{v} (Off)			
		system settings Enabled on	when optional File Format Converter (MLB) is			
		installed.				
		0: Disable				
		1: Enable				
	071	Reduction for Copy 0:1	1:1/2 2:1/3 3:1/4			
		Color DFU				
	072	Reduction for Copy 0:1	1:1/2 2:1/3 3:1/4 6:2/3			
		B&W Text				
	073	Reduction for Copy 0:1 B&W Other	1:1/2 2:1/3 3:1/4 6:2/3			

07	4 Reduction for Printer Color DFU	0:1 1:1/2 2:1/3 3:1/4		
07	5 Reduction for Printer B&W DFU	0 1 1:1/2 2:1/3 3:1/4 6:2/3		
07	6 Reduction for Printer B&W HQ DFU	1:1/2 3:1/4 4:1/6 5:1/8		
80	1 Format for Copy Color DFU	0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR		
80	2 Format for Copy B&W Text	0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR		
80	3 Format Copy B&W Other	0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR		
80	4 Format for Printer Color DFU	0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR		
80	5 Format for Printer B&W DFU	0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR		
80	6 Format for Printer B&W HQ DFU	0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR		
90	1 Default for JPEG	Sets the JPEG format default for documents sent to the document management server with the MLB, with JPEG selected as the format. <i>Enabled</i> <i>only when optional File Format Converter (MLB:</i> <i>Media Link Board) is installed.</i> [5~95/1]		
09	2 High Quality for JPEG	Sets the quality level of JPEG images for high quality sent to the Document Server with the MLB (Media Link Board). [5~95/1]		
90	3 Low Quality for JPEG	Sets the quality level of JPEG images for low quality sent to the Document Server with the MLB (Media Link Board). [5~95/1]		
90	4 Default Format for Backup Files DFU	Sets the format of the backup files. 0: TIFF 1: JPEG 2: For printing This feature can be selected only if SP5836-3 is set to "1".		
90	5 Default Resolution for Backup Files DFU	Sets the resolution conversion ratio for the backup files. 0: 1x 1: 1/2x 2: 1/3 x 3: 1/4x		
90	7 Default Compression for Backup Files DFU	Sets the rate of compression for the backup files. [0~2/1] 0: Standard 1: Low 2: High		
09	8 Back Projection Removal	Removes the ghost images that are copied from the back sides of two-sided originals. 0: Disable 1: Enable		
5839	IEEE 1394			
---	--	---	--	--
	This S	P is displayed only when an IEEE 1394 (firewire) card is installed.		
	004	004 Host Name		
	Enter the name of the device used on the network. Example:			
		RNP000000000		
	007	Cycle Master		
	Enables or disables the cycle master function for the 1394 bus			
		0: Disable (Off)		
		1: Enable (On)		
	008	BCR Mode		
		Determines how BCR (Broadcast Channel Register) operates on the 1394		
		(NVPAM: 2-bite)		
		[Always Effective]		
	009	IRM 1394a Check		
	000	Conducts a 1394a check of IRM when the independent node is in any mode		
other than IRM. 0: Checks whether IRM conforms to 1394a 1: After IRM is checked, if IRM does not conform then indep switches to IRM.		other than IRM.		
		0: Checks whether IRM conforms to 1394a		
		1: After IRM is checked, if IRM does not conform then independent node		
		switches to IRM.		
010 Unique ID Lists the ID (Node_Unique_ID) assigned to the device b administrator. Bit0: Off		Unique ID		
		Lists the ID (Node_Unique_ID) assigned to the device by the system		
		administrator.		
		Bitu: Off		
		BILL ON OFF: Dees not list the Nede, Unique, ID assigned by the system		
		administrator Instead the Source ID of the GASP header in the ARP		
		is used.		
		ON: The Node Unique ID assigned by the system administrator is used,		
		and the Source_ID of the GASP header in the ARP is ignored. Also,		
		when the serial bus is reset, extra bus transactions are opened for the		
		enumeration.		

	011	Logout	
	Handles the login request of the login initiator for SBP-2. (1-bit)		
		Bit1: On	
	OFF: Disable (refuse login). Initiator retry during login. Login refusal on arrival of login request (standard operation)		
	ON: Enable (force logout). Initiator retry during login. Login refusal on arrival of login request, and the initiator forces the login.		
012 Login		Login	
		Enables or disables the exclusive login feature (SBP-2 related).	
		Bit0: Off	
		Bit1: On	
		OFF: Disables. The exclusive login (LOGIN ORB xclusive it) is ignored.	
		ON: Enables. Exclusive login is in effect.	
	013	Login MAX	
		Sets the maximum number of logins from the initiator (6-bits)	
		[0~63/1]	
		0: Reserved	
		63: Reserved	

5840	IEEE 802.11b		
	006	Channel MAX	
		Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries.	
		NA/CHN: [1~11/1]	
	EU: [1~13/1]		
	007	Channel MIN	
		Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries.	
		NA/CHN: [1~11/1]	
		EU: [1~13/1]	
	011	WEP Key Select	
		Determines how the initiator (SBP-2) handles subsequent login requests.	
		00: If the initiator receives another login request while logging in, the request is refused.	
		01: If the initiator receives another login request while logging in, the request is refused and the initiator logs out.	
		10: Not used	
		11: Not used	
		Note: Displayed only when the wireless LAN card is installed.	

5841 Supply Name S	Supply Name Setting
	This SP allows you to enter the names of the supplies that will appear when you push [User Tools] and then touch "Inquiry" on the operation panel display. After you open this SP, touch the "Soft Key Board" button then use the keyboard to enter the names of the supplies.

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

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

5845	Delive	ry Server			
	These	are delivery server settings.			
	001	FTP Port No.			
		[0~65535/1]			
	002	IP Address			
		Use this SP to set the Scan Router Server address. The IP address und the transfer tab can be used with the initial system setting. [0~FFFFFFF/1]			
	006	Delivery Error Display Time			
		Use this setting to set the length of time that the message is shown when a test error occurs during document transfer with the NetFile application and an external device. [0~999/1 sec.]			
	008	IP Address (Secondary)			
		Sets the IP address that is given to the computer that is the secondary delivery server for Scan Router. This SP lets you set only the IP address, and does not refer to the DNS setting.			
	009	Delivery Server Model			
		Lets you change the model of the delivery server that is registered by the I/O device. 0: Unknown 1: SG1 Provided			
		2: SG1 Package			
		3: SG2 Provided			
		4: SG2 Package			
	010	Delivery Svr. Capability			
		Changes the functions that the registered I/O device can do. [0~255/1] Bit7 = 1 Comment information exits			
	Bit6 = 1 Direct specification of mail address possible				
	Bit5 = 1 Mail RX confirmation setting possible				
		Bit4 = 1 Address book automatic update function exists			
		Bit3 = 1 Fax RX delivery function exists			
		Bit2 = 1 Sender password function exists			
		Bit1 = 1 Function to link MK-1 user and Sender exists			
		Bit0 = 1 Sender specification required (if set to 1, Bit6 is set to "0")			
	011	Delivery Svr.Capability (Ext)			
		These settings are for future use. They will let you increase the number of registered devices (in addition to those registered for SP5845 010). There are eight bits (Bit 0 to Bit 7). All are unused at this time.			

5846	UCS S	Setting		
	001	Machine ID (Delivery Server)		
		Displays the unique device ID in use by the delivery server directory. The value is only displayed and cannot be changed.		
		This ID is created from the NIC MAC or IEEE 1394 EUI.		
		The ID is displayed as either 6-byle or 8-byte binary.		
		6-byte		
		%02X.%02X.%02X.%02X.%02X		
		8-byte		
		%02X.%02X.%02X.%02X.%02X.%02X.%02X.%02X		
	002	Machine ID Clear (Delivery Server)		
		clears the unique ID of the device used as the name in the file transfer directory. Execute this SP if the connection of the device to the delivery server is unstable. After clearing the ID, the ID will be established again automatically by cycling the machine off and on.		
	003	Maximum Entries		
		Changes the maximum number of entries that UCS can handle. [2000~20000/1]		
		If a value smaller than the present value is set, the UCS managed data is cleared, and the data (excluding user code information) is displayed.		
	006	Delivery Server Retry Timer		
		Sets the interval for retry attempts when the delivery server fails to acquire		
		$10 \sim 255/1$ s		
		0 [°] No retries		
	007	Delivery Server Retry Times		
		Sets the number of retry attempts when the delivery server fails to acquire		
		the delivery server address book.		
		[0~255/1]		
	008	Delivery Server Maximum Entries		
		Lets you set the maximum number of account entries and information		
		about the users of the delivery server controlled by UCS.		
		[20000~50000/1]		
	010	LDAP Search Timeout		
		Sets the length of the time-out for the search of the LDAP server. [1~255/1]		
	047	Initialize Local Address Book		
		Clears all the information in the local address book. This SP also clears all		
		the user codes.		
	048	Initialize Delivery Info.		
		Push [Execute] to delete all items (this does not include user codes) in the delivery address book that is controlled by LICS		
	040	Initialize LDAP Info		
	043	Push [Execute] to delete all items (this does not include user codes) in the		
		LDAP address book that is controlled by UCS.		
	050	Initialize Local Info.		
		Clears everything (including users codes) in the directory information		
		managed by UCS. However, the accounts and passwords of the system administrators are not deleted.		

051	Lipload All Directory Info
051	Upload All Directory into.
	Uploads all directory information to the SD card.
052	Download All Directory Info.
	Downloads all directory information from the SD card.
053	Update Info Clear
	Deletes the address book uploaded from the SD card in the slot. Deletes
	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.
090	Plain Data Forbidden
	Lets you to prevent the address from transmission as plain data. This is a security function that prevents unauthorized access to address book data. [0~1/1]
	0: No check. Address book data not protected.
	1: Check. Enables operation of UCS without data from HDD or SC card and without creating address book information with plain data.
091	FTP Auth. Port Settings
	Sets the FTP port to get the delivery server address book that is used in
	the individual authorization mode.
	[0~65535/1]
094	Encryption Status
	Shows the status of the encryption function of the address book on the
	LDAP server.
	[0~255/1] No default

5847	Net File Resolution Reduction			
	5847 1 through 5847 6 changes the default settings of image data sent externally by			
	the Net File page reference function. [0~2/1]			
	5847 21 sets the default for JPEG image quality of image files controlled by NetFile.			
	"NetFile" refers to jobs to be printed from the document server with a PC and the			
	DeskTopBinder software.			
	002 Rate for Copy B&W Text [0~6/1]			
	003	Rate for Copy B&W Other		
	005	005 Rate for Printer B&W		
	006 Rate for Printer B&W HQ			
	021 Network Quality Default for JPEG			
	Sets the default value for the quality of JPEG images sent as NetFile pages.			
	This function is available only with the MLB (Media Link Board) option			
	installed.			
		[5~95/1]		

5848	Web Service				
	5847	2 sets the 4-bit switch assignment for	the access control setting. Setting of		
	0001 has no effect on access and delivery from Scan Router.				
	5847 100 sets the maximum size of images that can be downloaded. The				
	equal to 1 gigabyte.				
	001	Access Control. : NetFile (Lower 4 Bits Only)			
		Bit switch settings.			
		0000: No access control			
		0001: Denies access to Desk I op Bin	der. Access and deliveries from Scan		
	000	Router have no effect on capture.			
	002	Access Control. : Repository	0000: No access control		
		(Lower 4 Bits)	0001: Denies access to Desk Top Binder		
	002	Access Control : Dec. Sur. Drint	Dilider.		
	003	Access Control Doc. Svr. Print			
	004	Access Control : User Directory	0000.011		
	001	(Lower 4 Bits)			
	005	Access Control. : Delivery Input			
		(Lower 4 Bits)			
	009	Access Control. : Job Control			
		(Lower 4 Bits)			
	011	Access Control: Device			
		Management (Lower 4 Bits)			
	021	Access Control: Delivery (Lower 4			
	000	Bits)			
	022	Access Control: User			
	044	Administration (Lower 4 Bits)			
	041	Access Control: Security Setting			
	100	(Lower 4 Bits)	[1~1024/1 K]		
	100	Size	[1~1024/1 K]		
		0120			

5849	Installation Date Displays or prints the installation date of the machine.		
	001	Display	The "Counter Clear Day" has been changed to "Installation Date" or "Inst. Date".
	002	Switch to Print	Determines whether the installation date is printed on the printout for the total counter. 0: No Print 1: Print

5853	Stamp Data Download
	Push [Execute] to download the fixed stamp data from the machine ROM onto the
	hard disk. Then these stamps can be used by the system. If this is not done, the user
	will not have access to the fixed stamps ("Confidential", "Secret", etc.).
	You must always execute this SP after replacing the HDD or after formatting the
	HDD. Always switch the machine off and on after executing this SP.

5856	Remote ROM Update DFU
	When set to "1" allows reception of firmware data via the local port (IEEE 1284) during a remote ROM update. This setting is reset to zero after the machine is cycled off and on. Allows the technician to upgrade the firmware using a parallel cable 0: Not allowed 1: Allowed

Switches on the debug log feature. The debug log cannot	be captured until
this feature is switched on.	
0: OFF	
1: ON	
002 Target (2: HDD 3: SD Card)	
Selects the destination where the debugging information g	enerated by the
event selected by SP5858 will be stored if an error is gene	erated
2: HDD 2: SD Cord	
Specifies the desimal key number of the leg to be written t	o tho hard dick
	o the hard disk.
Save to SD Calu	a tha SD Card
Specifies the decimal key number of the log to be written t	o the SD Card.
UU9 Copy HDD to SD Card (Latest 4 MB)	Pala and an alter
Takes the most recent 4 MB of the log written to the hard of	disk and copies
A unique file name is generated to avoid overwriting existing	na file names on the
SD Card In to 4MB can be conied to an SD Card 4 MB	segments can be
copied one by one to each SD Card.	ognionic oun so
010 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	ng 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 exe	ecute if there is no
log on the HDD with no key specified.	
Erases all debug logs on the HDD	
012 Erase SD Card Debug Data	
Erases all debug logs on the SD Card. If the card contains	only debugging
files generated by an event specified by SP5858, the files	are erased when
To enable this SP the machine must be cycled off and on	
013 Free Space on SD Card	
Displays the amount of space available on the SD card	

01	4 Copy SD to SD (Latest 4MB)
	Copies the last 4MB of the log (written directly to the card from shared memory) onto an SD card.
01	5 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.
01	6 Make HDD Debug
	This SP creates a 32 MB file to store a log on the HDD.
01	7 Make SD Debug
	This SP creates a 4 MB file to store a log on an SD card.

5858	Debu	ig Save When	
	Thes	e SPs select the content of nation selected by SP585	of the debugging information to be saved to the
	Refer to Section 4 for a list of SC error codes.		
	001	Engine SC Error	Stores SC codes generated by copier engine errors.
			0: OFF
			1: ON
	002	Controller SC Error	Stores SC codes generated by GW controller errors.
			0: OFF
			1: ON
	003	Any SC Error	[0~65535/1]
	004	Jam	Stores jam errors.
			0: OFF
			1: ON

5859	Debu	ig Log Save	Function
	001	Key 1	These SPs allow you to set up to 10 keys for log files for functions
	002	Key 2	that use common memory on the controller board. (5.3.1)
	003	Key 3	[-9999999~9999999/1]
	004	Key 4	
	005	Key 5	
	006	Key 6	
	007	Key 7	
	008	Key 8	
	009	Key 9	
	010	Key 10	

5860	SMTP	/IMAP4
	020	Partial Mail Receive Timeout
		[1~168/1]
		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.
	021	MDN Response RFC2298 Compliance
		Determines whether RFC2298 compliance is switched on for MDN reply
		mail.
		0: No
		1: Yes
	022	SMTP Auth. From Field Replacement
		Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated.
		0: No. "From" item not switched.
		1: Yes. "From" item switched.
	025	SMTP Auth Direct Sending
		Occasionally SMTP fails to be recognized. If this occurs use this SP to force manual recognition.

5866	E-Mail Alert	
	001	Notice of E-mail
		0: Enable, 1: Disable

5870	Commo	Common Key Info Writing		
	Writes t	Writes to flash ROM the common proof for validating the device for NRS		
	specifications.			
	Note: This SP is for future use and currently not used.			
	001 Writing			
	003	Initialize		

5871	HDD Function Disable
	Disables the HDD functions by suppressing all functions that write data to the HDD. After this SP is executed, the machine must be switched off and on to enable the setting. [0~1/1] 0: OFF 1: ON

5873	SD Ca	SD Card Apli.		
	Allows	you to "integra	te" (copy) applications from SD cards onto other SD cards.	
	(• 5.1.4)			
	001	Move Exec	Executes the move from one SD card to another.	
	002	Undo Exec	This is an undo function. It cancels the previous execution.	

5875	SC Auto Reboot
	Determines whether the machine reboots automatically when an SC error
	OCCURS.
	0: The machine reboots automatically when the machine issues an SC error and logs the SC error code. If the same SC occurs again, the machine does not reboot.
	1: The machine does not reboot when an SC error occurs.
	The reboot does not occur for Type A SC codes.

5878	Option Setup
	Data Overwrite Security (DOS) Setup
	This SP enables the DOS function after it has been installed. For more, see
Section "1. Installation" of the Service Manual.	

3907 Più	Plug & Play Maker/Model Name	
Sel	lects the brand name and the production name for Windows Plug & Play. This	
info	ormation is stored in the NVRAM. If the NVRAM is defective, these names	
sho	ould be registered again.	
Aft	er selecting, press the "Original Type" key and "#" key at the same time. When	
the	e setting is completed, the beeper sounds five times.	

5913	Switchover Permission Time		
	002	Print Application Timer	
		Sets the length of time to elapse before allowing another application to take control of the display when the application currently controlling the display is not operating because a key has not been pressed. [3~30/1 s]	
102 Print Application Set		Print Application Set	
		This SP prescribes the time interval to expire before the machine shifts to another application when another application currently holds access control for the standby mode while there is no key input. $[0~1/1/1]$	

5915	Mechanical Counter Detection		
	This SP checks the mechanical counter to confirm whether it is connected.		
	0: Disconnected 1: Connected 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 maching switched on. 		

5967	Copy Server: Set Function
	Enables and disables the document server. This is a security measure that prevents image data from being left in the temporary area of the HDD. After changing this setting, you must switch the main switch off and on to enable the new setting.0: ON 1: OFF

5974	Cherry Server	Do not change. Japan Only

5990	SP Pri	nt Mode (SMC Print)			
	In the SP mode, press Copy Window to move to the copy screen, select the paper size, then press Start. Select A4/LT (Sideways) or larger to ensure that all the information prints. Press SP Window to return to the SP mode, select the desired				
	print, and press Execute.				
	001 All (Data List)				
	002 SP (Mode Data List)				
	003 User Program Data				
	004 Logging Data				
	005 Self-Diagnostic Report				
	006 Non-Default (Prints only SPs set to values other than defaults.)				
	007	NIB Summary			
	008	Capture Log			
	021 Copier User Program				
	022	Scanner SP			
	023	Scanner User Program			

SP7000 Data Log

7001	Drum Drive Motor Operation	Displays the drum drive motor operation time (for
	Time	checking the print count and drum operation time.)

7003 SC History

Displays recent SC error codes.					
001	Latest	006	Latest 5		
002	Latest 1	007	Latest 6		
003	Latest 2	800	Latest 7		
004	Latest 3	009	Latest 8		
005	Latest 4	010	Latest 9		

7403 SC History

1405				
	001	Latest	Displays the latest 10 SC codes.	
	002	Latest 1st		
	003	Latest 2nd		
	004	Latest 3rd		
	005	Latest 4th		
	006	Latest 5th		
	007	Latest 6th		
	008	Latest 7th		
	009	Latest 8th		
	010	Latest 9th		
7502	Total	Paper Jam Counter	Displays the total paper jam count (copy paper) as a 4-digit number.	
7503	Total	Original Jam Counter	Displays the total paper jam count (original) as a 4- digit number.	

7504	Paper Jam Counter by Location		
	Displays the jam count for each location. For 001~034: Paper fails to activate the		
	sensor (non-feed).		
	001	At Power On	At power on
	003	Tray 1: ON	Paper did not reach roll lead edge sensor 1.
	004	Tray 2: ON	Paper did not reach roll lead edge sensor 2.
	005	Tray 3: ON	Paper did not reach roll lead edge sensor 3.
	006	Tray 4: ON	Paper did not reach leading edge sensor 4, or paper
			feed sensor 1 (cassette)
	008	Registration 1: ON	Paper did not reach cutting sensor 1.
	009	Registration 2: ON	Paper did not reach cutting sensor 2.
	010	Registration 3: ON	Paper did not reach paper feed sensor 2 (cassette
	013	Registration: ON	Paper did not reach registration sensor.
	016	Catch Tray: ON	Paper did not reach exit sensor.
	034	Bypass	Paper did not reach upper exit sensor.
	053	Registration 1: ON	Paper did not reach by-pass feed sensor.
	054	Registration 2: ON	Paper stayed at roll lead edge sensor 1.
	055	Registration 3: ON	Paper stayed at roll lead edge sensor 2.
	056	Registration 4: ON	Paper stayed at roll lead edge sensor 3.
	058		Paper stayed at roll lead edge sensor 4, or paper feed
sensor 1 (cassette).		sensor 1 (cassette).	
	059		Paper stayed at cutting sensor 1.
	060		Paper stayed at cutting sensor 2.
	063		Paper stayed at paper feed sensor 2 (cassette).
	066		Paper stayed at registration sensor.

7505	Original Jam Detection				
	001	At Power On	Displays the jam count for each location.		
	032	Registration Sensor: Not On			
	033	Registration Sensor: Not Detect Off			
	034	Registration Sensor: Not Off			
	038 Stays Original/Paper				
	040	Emergency Stop Original Feed			
	041	Exit Sensor: Not On			

7506	Copy Jam Counter by Paper Width			
	In the	In the table below, T=SEF (Short Edge Feed)		
	096	914 mm	Displays the jam count for each paper width.	
	097	A0T/A1		
	098	A1T/A2		
	099	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	9x12T		
	234	34x44T/22x34		
	235	22x34T/17x22		
	236	17x22T/11x17		
	237	11x17T/8.5x11		
	238	8.5x11T		
	255	Other		

7507	Plotte	er Jam History	
	001	Latest	Displays the following items for the last 10 copy paper jams: 1)
	002	Latest 1	Jam code, 2) Paper size, 3) Total count when jam occurred, 4)
	003	Latest 2	Date of jam.
	004	Latest 3	The "jam codes" are listed in the SMC report under SP7504.
	005	Latest 4	
	006	Latest 5	
	007	Latest 6	
	008	Latest 7	
	009	Latest 8	
	010	Latest 9	

7508	Original Jam History			
001	Original Latest	Displays the following items for the Latest 10 original jams: 1)		
002	Latest 1	Jam code, 2) Paper size, 3) Total count when jam occurred, 4) Date of jam. The "jam codes" are listed in the SMC report under SP7504.		
003	Latest 2			
004	Latest 3			
005	Latest 4			
006	Latest 5			
007	Latest 6			
008	Latest 7			
009	Latest 8			
010	Latest 9			

7801	ROM Ver
	Displays the ROM version numbers of the main machine and connected peripheral devices.

7803	PM Counter Display	Displays the PM counter.
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7804	PM Counter Clear
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To clear the PM counter, press Start (SP7803).

7807* SC/Jam Counter Reset Push [Start] to reset the SC and jam counters.

7826	MF Error Counter Japan Only		
	Displays the number of counts requested of the card/key counter.		
	001 Error Total A request for the count total failed at power on. This error will occur if the device is installed but disconnected.		
	002	Error Staple	The request for a staple count failed at power on. This error will occur if the device is installed but disconnected.

7827	MF Error Counter Clear
	Press Execute to reset to 0 the values of SP7826. Japan Only

7832	Self-Diagnostic Report Details	
	Press # to display a list of error codes. Nothing is displayed if no errors have	
	occurred.	

7834	Coverage Clear		
	001	Total Average	SP8831, SP8841
	002	Toner	SP8781
	003	Sheets & Toner	SP8901, SP8911
	004	Dot:0%-100%	SP8851, SP8861, SP8871, SP8881
	255	All Counts	Sum of all counts for 001~004.

Π

7836	Total Memory Size Displays the contents of the me	mory on the controller board.
<u> </u>	· · ·	
7852	ADF Scan Glass	ADF Scan Glass
		• · · · · · · · · · · · ·

Displays the count for the number of times the machine has detected dust on the				
ARDF scanning glass at the beginning of copy jobs. This SP operates only afte				
SP4020 001 has been turned on.				
001	Dust Counter			

7901	Assert Info DFU		
	001	Filename	Used for debugging.
	002	Line No.	
	003	Value	

1999 Engine Debug Log Switch . DFO	7999	Engine Debug Log Switch . DFU	
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SP8000: Data Log2

Many of these counters are provided for features that are currently not available, such as sending color faxes, and so on. However, here are some Group 8 codes that when used in combination with others, can provide useful information.

SP Numbers	What They Do
SP8211~SP8216	The number of pages scanned to the document server.
SP8401~SP8406	The number of pages printed from the document server
SP8691~SP8696	The number of pages sent from the document server

Specifically, the following questions can be answered:

- How is the document server actually being used?
- What application is using the document server most frequently?
- What data in the document server is being reused?

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

PREFIXES		WHAT IT MEANS
T:	Total: (Grand Total).	Grand total of the items counted for all applications (C, F, P, etc.)
C:	Copy application.	Totals (pages, jobs, etc.) executed for each
P:	Print application.	application when the job was not stored on the
S:	Scan application.	document server.
L:	Local storage (document server)	Totals (jobs, pages, etc.) for the document server. The L: counters work differently case by case. Sometimes, they count jobs/pages stored on the document server; this can be in document server mode (from the document server window), or from another mode, such as from a printer driver or by pressing the Store File button in the Copy mode window. Sometimes, they include occasions when the user uses a file that is already on the document server. Each counter will be discussed case by case.
0:	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 8xxx SP codes are limited to 17 characters, forced by the necessity of displaying them on the small LCDs of other machines that use these SP codes. 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.

Rey for Appreviations	Key	for	Abbreviations
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ABBREVIATION	WHAT IT MEANS
/	"By", e.g. "T:Jobs/Apl" = Total Jobs "by" Application
>	More (2> "2 or more", 4> "4 or more"
AddBook	Address Book
Apl	Application
B/W	Black & White
Bk	Black
С	Cyan
ColCr	Color Create
ColMode	Color Mode
Comb	Combine
Comp	Compression
Deliv	Delivery
DesApl	Designated Application. The application (Copy, Fax, Scan, Print) used to store the job on the document server, for example.
Dev Counter	Development Count, no. of pages developed.
Dup, Duplex	Duplex, printing on both sides
Emul	Emulation
FC	Full Color
FIN	Post-print processing, i.e. finishing (punching, stapling, etc.)
Full Bleed	No Margins
GenCopy	Generation Copy Mode
GPC	Get Print Counter. For jobs 10 pages or less, this counter does not count up. For jobs larger than 10 pages, this counter counts up by the number that is in excess of 10 (e.g., for an 11-page job, the counter counts up 11-10 =1)
IFax	Internet Fax
ImgEdt	Image Edit performed on the original with the copier GUI, e.g. border removal, adding stamps, page numbers, etc.
К	Black (YMCK)
LS	Local Storage. Refers to the document server.
LSize	Large (paper) Size
Mag	Magnification
MC	One color (monochrome)
NRS	New Remote Service, which allows a service center to monitor machines remotely. "NRS" is used overseas, "CSS" is used in Japan.
Org	Original for scanning
OrgJam	Original Jam
Palm 2	Print Job Manager/Desk Top Editor: A pair of utilities that allows print jobs to be distributed evenly among the printers on the network, and allows files to moved around, combined, and converted to different formats.
PC	Personal Computer

ABBREVIATION	WHAT IT MEANS
PGS	Pages. A page is the total scanned surface of the original. Duplex
	pages count as two pages, and A3 simplex count as two pages if
	the A3/DLT counter SP is switched ON.
PJob	Print Jobs
Ppr	Paper
PrtJam	Printer (plotter) Jam
PrtPGS	Print Pages
R	Red (Toner Remaining). Applies to the wide format model A2 only.
	This machine is under development and currently not available.
Rez	Resolution
SC	Service Code (Error SC code displayed)
Scn	Scan
Sim, Simplex	Simplex, printing on 1 side.
S-to-Email	Scan-to-E-mail
SMC	SMC report printed with SP5990. All of the Group 8 counters are
	recorded in the SMC report.
Svr	Server
TonEnd	Toner End
TonSave	Toner Save
TXJob	Send, Transmission
YMC	Yellow, Magenta, Cyan
YMCK	Yellow, Magenta, Cyan, BlacK

NOTE: All of the Group 8xxx SPs are reset with SP5801-001 Memory All Clear, or the Counter Reset SP7808.

8001 8002	T:Total Jobs	These SPs count the number of times each application is used to do a job.
8004	P:Total Jobs	[0~99999999/1]
8005	S:Total Jobs	Note: The L: counter is the total number of times the
8006	L:Total Jobs	other applications are used to send a job to the document server, plus the number of times a file already on the document server is used.

- These SPs reveal the number of times an application is used, not the number of pages processed.
- When an application is opened for image input or output, this counts as one job.
- Interrupted jobs (paper jams, etc.) are counted, even though they do not finish.
- Only jobs executed by the customer are counted. Jobs executed by the customer engineer using the SP modes are not counted.
- When using secure printing (when a password is required to start the print job), the job is counted at the time when either "Delete Data" or "Specify Output" is specified.
- When a copy job on the document server is printed, SP8022 also increments, and when a print job stored on the document server is printed, SP8024 also increments.
- When an original is both copied and stored on the document server, the C: and L: counters both increment.
- When a print job is stored on the document server, only the L: counter increments.
- When the user presses the Document Server button to store the job on the document server, only the L: counter increments.
- When the user enters document server mode and prints data stored on the document server, only the L: counter increments.
- When an image received from Palm 2 is received and stored, the L: counter increments.
- When the customer prints a report (user code list, for example), the O: counter increments

8011	T:Jobs/LS	These SPs count the number of jobs stored to the
8012	C:Jobs/LS	document server by each application, to reveal how
8014	P:Jobs/LS	local storage is being used for input.
8015	S:Jobs/LS	[0~9999999/1]
8016	L:Jobs/LS	The L: counter counts the number of jobs stored from
8017	O:Jobs/LS	operation panel.

- When a scan job is sent to the document server, the S: counter increments. When you enter document server mode and then scan an original, the L: counter increments.
- When a print job is sent to the document server, the P: counter increments.
- When a network application sends data to the document server, the O: counter increments.
- When an image from Palm 2 is stored on the document server, the O: counter increments.

8021	T:Pjob/LS	These SPs reveal how files printed from the
8022	C:Pjob/LS	document server were stored on the document server
8024	P:Pjob/LS	originally.
8025	S:Pjob/LS	[0~9999999/1]
8026	L:Pjob/LS	The L: counter counts the number of jobs stored from
8027	O:Pjob/LS	operation panel.

- When a copy job stored on the document server is printed with another application, the C: counter increments.
- When an application like DeskTopBinder merges a copy job that was stored on the document server with a print job that was stored on the document server, the C: and P: counters both increment.
- When a job already on the document server is printed with another application, the L: counter increments.
- When a scanner job stored on the document server is printed with another application, the S: counter increments. If the original was scanned from within document server mode, then the L: counter increments.
- When images stored on the document server by a network application (including Palm 2), are printed with another application, the O: counter increments.
- When a copy job stored on the document server is printed with a network application (Web Image Monitor, for example), the C: counter increments.

8031	T:Pjob/DesApl	These SPs reveal what applications were used to
8032	C:Pjob/DesApl	output documents from the document server.
8034	P:Pjob/DesApl	[0~9999999/1]
8035	S:Pjob/DesApl	The L: counter counts the number of jobs printed from
8036	L:Pjob/DesApl	within the document server mode screen at the
8037	O:Pjob/DesApl	operation panel.

- When documents already stored on the document server are printed, the count for the application that started the print job is incremented.
- When the print job is started from a network application (Desk Top Binder, Web Image Monitor, etc.) the L: counter increments.

8041	T:TX Jobs/LS	These SPs count the applications that stored files on
8042	C:TX Jobs/LS	the document server that were later accessed for
8044	P:TX Jobs/LS	transmission over the telephone line or over a network (attached to an e-mail). [0~99999999/1]
8045	S:TX Jobs/LS	
8046	L:TX Jobs/LS	
8047	O:TX Jobs/LS	Note : Jobs merged for sending are counted separately. The L: counter counts the number of jobs scanned from within the document server mode screen at the operation panel.

- When a stored copy job is sent from the document server, the C: counter increments.
- When images stored on the document server by a network application or Palm2 are sent as an e-mail, the O: counter increments.

8051	T:TX Jobs/DesApl	These SPs count the applications used to send
8052	C:TX Jobs/DesApl	files from the document server over the telephone
8054	P:TX Jobs/DesApl	line or over a network (attached to an e-mail). Jobs
8055	S:TX Jobs/DesApl	merged for sending are counted separately.
8056	L:TX Jobs/DesApl	$\begin{bmatrix} 1 \\ -999999999/1 \end{bmatrix}$
8057	O:TX Jobs/DesApl	from within the document server mode screen at the operation panel.

• If the send is started from Desk Top Binder or Web Image Monitor, for example, then the O: counter increments.

8061	T:FI	N Jobs		[0~9999999/1]	
	These SPs total the finishing methods. The finishing method is specified by the application.			s. The finishing method is specified by the	
8062	C:FIN Jobs			[0~9999999/1]	
	Thes spec	e SPs total finish ified by the appli	ning methods fo cation.	r copy jobs only. The finishing method is	
8064	P:FII	N Jobs		[0~9999999/1]	
	Thes spec	e SPs total finish	ning methods fo cation.	r print jobs only. The finishing method is	
8065	S:FII	N Jobs		[0~9999999/1]	
	Thes spec Note	se SPs total finish ified by the appli :: Finishing featur	ning methods fo cation. res for scan jobs	r scan jobs only. The finishing method is s are not available at this time.	
8066	L:FIN	N Jobs		[0~9999999/1]	
	These SPs total finishing methods for server mode screen at the operation from the print window within docume		ning methods fo at the operation within docume	r jobs output from within the document panel. The finishing method is specified nt server mode.	
8067	O:FI	N Jobs		[0~9999999/1]	
	These SPs total finishing methods for jobs executed by an external application, over the network. The finishing method is specified by the application.			r jobs executed by an external application, od is specified by the application.	
	001 Sort Number of j job is set for the L: count			os started in Sort mode. When a stored copy Sort and then stored on the document server, increments. (See SP8066)	
	002	Stack	Number of job	s started out of Sort mode.	
	003	Staple	Number of job	os started in Staple mode.	
	004 Booklet Number of jo			es started in Booklet mode. If the machine is e, the Staple counter also increments.	
	005	Z-Fold	Number of job mode and set	s started In any mode other than the Booklet for folding (Z-fold).	
	006	Punch	Number of job for a print job,	s started in Punch mode. When Punch is set the P: counter increments. (See SP8064)	
	007	Other	Reserved. No	t used.	

8071	T:Jobs	s/PGS	[0~9999999/1]		
	These	SPs count the number of jobs b	roken down by the number of pages in the		
	job, re	gardless of which application was used.			
8072	C:Jobs	s/PGS	[0~9999999/1]		
	These	SPs count and calculate the nu	mber of copy jobs by size based on the		
	numbe	er of pages in the job.			
8074	P:Jobs	s/PGS	[0~9999999/1]		
	These	SPs count and calculate the nu	mber of print jobs by size based on the		
	numbe	er of pages in the job.			
8075	S:Jobs	s/PGS	[0~9999999/1]		
	These	SPs count and calculate the nu	mber of scan jobs by size based on the		
	numbe	er of pages in the job.			
8076	L:Jobs	s/PGS	[0~9999999/1]		
	These	SPs count and calculate the nu	mber of jobs printed from within the		
	document server mode window at the operation panel, by the number of p				
	the job.				
8077	O:Jobs/PGS		[0~9999999/1]		
	These	ese SPs count and calculate the number of "Other" application jobs (Web			
	Image	Monitor, Palm 2, etc.) by size ba	ased on the number of pages in the job.		
	001	1 Page			
	002	2 Pages			
	003	3 Pages			
	004	4 Pages			
	005	5 Pages			
	006 6~10 Pages				
	007	11~20 Pages			
	008	21~50 Pages			
	009	51~100 Pages			
	010	101~300 Pages			
	011	301~500 Pages			
	012	501~700 Pages			
	013	701~1000 Pages			
	014 1001~ Pages				

- For example: When a copy job stored on the document server is printed in document server mode, the appropriate L: counter (SP8076-0xx) increments.
- Interrupted jobs (paper jam, etc.) are counted, even though they do not finish.
- If a job is paused and re-started, it counts as one job.
- If the finisher runs out of staples during a print and staple job, then the job is counted at the time the error occurs.
- For copy jobs (SP8072) and scan jobs (SP8075), the total is calculated by multiplying the number of sets of copies by the number of pages scanned. (One duplex page counts as 2.)
- The first test print and subsequent test prints to adjust settings are added to the number of pages of the copy job (SP8072).
- When printing the first page of a job from within the document server screen, the page is counted.

8131	T:S-to-Email Jobs	[0~9999999/1]	
	These SPs count the total n regardless of whether the de	umber of jobs scanned and attached to an e-mail, ocument server was used or not.	
8135	S:S-to-Email Jobs		
	These SPs count the number storing the original on the do	er of jobs scanned and attached to an e-mail, without ocument server.	

- These counters count jobs, not pages.
- If the job is stored on the document server, after the job is stored it is determined to be color or black-and-white then counted.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- If several jobs are combined for sending to the Scan Router, Scan-to-Email, or Scan-to-PC, or if one job is sent to more than one destination. each send is counted separately. For example, if the same document is sent by Scan-to-Email as well as Scan-to-PC, then it is counted twice (once for Scan-to-Email and once for Scan-to-PC).

8141	T:Deliv Jobs/Svr	[0~9999999/1]	
	These SPs count the total number of jobs scanned and sent to a Scan Router		
	server.		e)

8145	S:Deliv Jobs/Svr
	These SPs count the number of jobs scanned in scanner mode and sent to a Scan Router server.

- These counters count jobs, not pages.
- The jobs are counted even though the arrival and reception of the jobs at the Scan Router server cannot be confirmed.
- If even one color image is mixed with black-and-white images, then the job is counted as a "Color" job.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be delivered, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

8151	T:Deliv Jobs/PC	[0~9999999/1]	
	These SPs count the total number of jobs scanned and sent to a folder on a PC		
	(Scan-to-PC).		
	Note. At the present time, S	Porsi and SPorss perform identical counts.	

8155	S:Deliv Jobs/PC
	These SPs count the total number of jobs scanned and sent with Scan-to-PC.

- These counters count jobs, not pages.
- If the job is cancelled during scanning, it is not counted.
- If the job is cancelled while it is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

8191	T:Total Scan PGS	These SPs count the pages scanned by each
8192	C:Total Scan PGS	application that uses the scanner to scan images.
8195	S:Total Scan PGS	[0~9999999/1]
8196	L:Total Scan PGS	

- SP8191 to 8196 count the number of scanned sides of pages, not the number of physical pages.
- These counters do not count reading user stamp data, or reading color charts to adjust color.
- Previews done with a scanner driver are not counted.
- A count is done only after all images of a job have been scanned.
- Scans made in SP mode are not counted.

Examples

- If 3 B5 pages and 1 A3 page are scanned with the scanner application but not stored, the S: count is 4.
- If both sides of 3 A4 sheets are copied and stored to the document server using the Store File button in the Copy mode window, the C: count is 6 and the L: count is 6.
- If both sides of 3 A4 sheets are copied but not stored, the C: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.

8211	T:Scan PGS/LS	These SPs count the number of pages scanned into
8212	C:Scan PGS/LS	the document server .
8215	S:Scan PGS/LS	[0~9999999/1]
8216	L:Scan PGS/LS	The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen

- Reading user stamp data is not counted.
- If a job is cancelled, the pages output as far as the cancellation are counted.
- If the scanner application scans and stores 3 B5 sheets and 1 A4 sheet, the S: count is 4.
- If pages are copied but not stored on the document server, these counters do not change.
- If both sides of 3 A4 sheets are copied and stored to the document server, the C: count is 6 and the L: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.



8221	ADF	Org Feed	ds	[0~9999999/1]
	These SPs count the number of pages fed through the ADF for front and back			
	side scanning.			
	001	Front	Number of fr	ont sides fed for scanning:
			With an ADF that can scan both sides simultaneously, the l side count is the same as the number of pages fed for either simplex or duplex scanning.	
Wit Fro dup		With an ADF Front side co duplex front	that cannot scan both sides simultaneously, the bunt is the same as the number of pages fed for side scanning. (The front side is determined by which	
			side the use	r loads face up.)
	002	Back	Number of re	ear sides fed for scanning:
			With an ADF count is the s scanning.	⁻ that can scan both sides simultaneously, the Back same as the number of pages fed for duplex
			With an ADF Back count i rear-side sca	⁵ that cannot scan both sides simultaneously, the s the same as the number of pages fed for duplex anning.

- When 1 sheet is fed for duplex scanning the Front count is 1 and the Back count is 1.
- If a jam occurs during the job, recovery processing is not counted to avoid double counting. Also, the pages are not counted if the jam occurs before the first sheet is output.

8231	Scan PGS/Mode		[0~9999999/1]
	Thes	e SPs count the n	umber of pages scanned by each ADF mode to determine
	the v	vork load on the Al	DF.
	001 Large Volume		Selectable. Large copy jobs that cannot be loaded in the ADF at one time.
	002	SADF	Selectable. Feeding pages one by one through the ADF.
	003	Mixed Size	Selectable. Select "Mixed Sizes" on the operation panel.
	004	Custom Size	Selectable. Originals of non-standard size.
	005	Platen	Book mode. Raising the ADF and placing the original directly on the platen.

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.
- If the user selects "Mixed Sizes" for copying in the platen mode, the Mixed Size count is enabled.
- In the SADF mode if the user copies 1 page in platen mode and then copies 2 pages with SADF, the Platen count is 1 and the SADF count is 3.

8241	T:Scan PGS/Org		[0~9999999/1]				
	These SPs count the total number of scanned pages by original type for all jobs,						all jobs,
	regardless of which application was used.						
8242	C:Scan PGS/Org		[0~999999	9/1]			
	These SPs count t	he number	of pages s	scanned by	v original ty	pe for Cop	y jobs.
8245	S:Scan PGS/Org		[0~999999	9/1]			
	These SPs count t	he number	of pages s	scanned by	v original ty	pe for Scai	n jobs.
8246	L:Scan PGS/Org		[0~999999	9/1]			
	These SPs count t	he number	of pages s	scanned ar	nd stored fr	om within t	he
	document server n	node scree	n at the op	eration par	nel, and wit	th the Store	e File
	button from within the Copy mode screen						
8241 8242 8243 8245 8246 8247						8247	
001: T	ext	Yes	Yes	Yes	Yes	Yes	Yes
002: T	ext/Photo	Yes	Yes	Yes	Yes	Yes	Yes
003: Photo		Yes	Yes	Yes	Yes	Yes	Yes
004: GenCopy, Pale Yes		Yes	Yes	No	Yes	Yes	Yes
005: Map Ye		Yes	Yes	No	Yes	Yes	Yes
006: N	lormal/Detail	Yes	No	Yes	No	No	No
007: Fine/Super Fine		Yes	No	Yes	No	No	No
008: B	Binary	Yes	No	No	Yes	No	No
009: 0	Grayscale	Yes	No	No	Yes	No	No
011 Other		Yes	No	Yes	No	Yes	Yes

• If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.

8251	T:Scan PGS/ImgEdt	These SPs show how many times Image Edit
8252	C:Scan PGS/ImgEdt	features have been selected at the operation panel
8254	P:Scan PGS/ImgEdt	for each application. Some examples of these
8256	L:Scan PGS/ImgEdt	editing features are:
8257	O:Scan PGS/ImgEdt	Erase> Border
		Erase> Center
		Image Repeat
		Centering
		Positive/Negative
		[0~9999999/1]
		Note: The count totals the number of times the edit
		features have been used. A detailed breakdown of
		exactly which features have been used is not given.

The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen.

8281	T:Scan PGS/TWAIN	These SPs count the number of pages scanned
8285	S:Scan PGS/TWAIN	using a TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions. [0~9999999/1] Note : At the present time, these counters perform identical counts.

8291 8295	T:Scan PGS/Stamp S:Scan PGS/Stamp	These SPs count the number of pages stamped with the stamp in the ADF unit.
8296	L:Scan PGS/Stamp	[0~99999999/1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen

8311	T:Scar	n PGS/Rez	[0~9999999/1]		
	These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings.				
8315	S:Sca	n PGS/Rez	[0~9999999/1]		
	These	SPs count by resolut	tion setting the total number of pages scanned by		
	applications that can specify resolution settings.				
	Note: At the present time, SP8311 and SP8315 perform identical counts.				
	001 1200dpi ~				
	002	600dpi~1199dpi			
	003 400dpi~599dpi 004 200dpi~399dpi				
	005	~199dpi			

• Copy resolution settings are fixed so they are not counted.

8381	T:Total PrtPGS	These SPs count the number of pages printed by
8382	C:Total PrtPGS	the customer. The counter for the application used
8384	P:Total PrtPGS	for storing the pages increments.
8385	S:Total PrtPGS	[0~9999999/1]
8386	L:Total PrtPGS	I ne L: counter counts the number of pages stored
8387	O:Total PrtPGS	the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter.

- When the A3/DLT double count function is switched on with SP5104, 1 A3/DLT page is counted as 2.
- When several documents are merged for a print job, the number of pages stored are counted for the application that stored them.
- These counters are used primarily to calculate charges on use of the machine, so the following pages are not counted as printed pages:
 - Blank pages in a duplex printing job.
 - Blank pages inserted as document covers, chapter title sheets, and slip sheets.
 - Reports printed to confirm counts.
 - All reports done in the service mode (service summaries, engine maintenance reports, etc.)
 - Test prints for machine image adjustment.
 - Error notification reports.
 - Partially printed pages as the result of a copier jam.

8401	T:PrtPGS/LS	These SPs count the number of pages printed
8402	C:PrtPGS/LS	from the document server. The counter for the
8404	P:PrtPGS/LS	application used to print the pages is incremented.
8405	S:PrtPGS/LS	I he L: counter counts the number of jobs stored
8406	L:PrtPGS/LS	the operation panel. [0~99999999/1]

• Print jobs done with Web Image Monitor and Desk Top Binder are added to the L: count.

8411	Prints/Duplex	This SP counts the amount of paper (front/back counted as 1 page) used for duplex printing. Last pages printed only on one side are not counted. [0~9999999/1]
------	---------------	--

8421	T:PrtPGS/Dup Comb	[0	~9999999	99/1]				
	These SPs count by binding and combine, and n-Up settings the number of					of		
	pages processed for printing. This is the total for all applications.							
8422	C:PrtPGS/Dup Comb	[0	~999999	99/1]				
	These SPs count by bind	ling and	combine	e, and n-	Up settir	ngs the n	number c	of
	pages processed for prin	ting by t	he copie	r applica	ation.			
8424	P:PrtPGS/Dup Comb [0~9999999/1]							
	These SPs count by bind	ling and	combine	e, and n-	Up settir	ngs the n	umber c	of
	pages processed for prin	ting by t	he printe	er applica	ation.			
8425	S:PrtPGS/Dup Comb	[0	~9999999	99/1]				
	These SPs count by bind	ling and	combine	e, and n-	Up settir	ngs the n	umber c	of
	pages processed for prin	ting by t	he scani	ner appli	cation.			
8426	L:PrtPGS/Dup Comb	[0	~999999	99/1]				_
	These SPs count by bind	ling and	combine	e, and n-	Up settir	ngs the n	umber c	of
	pages processed for prin	ting from	n within t	he docu	ment se	rver mod	le windo	w at
0.407	the operation panel.							
8427	UPriPG5/Dup Comb [U~9999999/1]					<u>د</u>		
	I nese SPS count by binding and combine, and n-Up settings the number of					DT		
		8421	8422	8423	5 8424	8425	8426	8427
001	Simpley> Dupley	Ves	Ves	Ves	Ves	Ves	Ves	Ves
007		Ves	Ves	No	No	No	No	Ves
002	Book> Duplex	Yes	Yes	No	No	No	No	Yes
000	Simplex Combine	Yes	Yes	Yes	Yes	Yes	Yes	Yes
005	Duplex Combine	Yes	Yes	Yes	Yes	Yes	Yes	Yes
006	2 > (2 up 1 side)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
007	4 > (4 up 1 side)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
008	6 > (6 up 1 side)	Yes	No	No	Yes	No	No	Yes
009	8> (8 up, 1 side)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
012	Booklet	Yes	Yes	Yes	Yes	Yes	Yes	Yes
013	Magazine	Yes	Yes	Yes	Yes	Yes	Yes	Yes
010	magazine	103	103	103	103	100	100	103

- These counts (SP8421 to SP8427) are especially useful for customers who need to improve their compliance with ISO standards for the reduction of paper consumption.
- Pages that are only partially printed with the n-Up functions are counted as 1 page.

Here is a summary of how the counters work for Booklet and Magazine modes:

Booklet		
Original Pages	Count	
1	1	
2	2	
3	2	
4	2	
5	3	
6	4	
7	4	
8	4	

Magazine				
Original Pages	Count			
1	1			
2	2			
3	2			
4	2			
5	4			
6	4			
7	4			
8	4			

8431	T:PrtP	GS/ImgEdt	[0~9999999/1]			
	These	SPs count the total nu	mber of pages output with the three features below,			
	regardless of which application was used.					
8432	C:PrtPGS/ImgEdt [0~9999999/1]					
	These	SPs count the total nu	mber of pages output with the three features below			
8434	P:PrtP	GS/ImgEdt	[0~9999999/1]			
	These with th	SPs count the total nule print application.	mber of pages output with the three features below			
8436	L:PrtPGS/ImgEdt [0~9999999/1]					
	These SPs count the total number of pages output from within the document server mode window at the operation panel with the three features below.					
8437	O:PrtF	PGS/ImgEdt	[0~9999999/1]			
	These SPs count the total number of pages output with the three features with Other applications.					
	001	Cover/Slip Sheet	Total number of covers or slip sheets inserted. The count for a cover printed on both sides counts 2.			
	002	Series/Book	The number of pages printed in series (one side) or printed as a book with booklet right/left pagination.			
	003	User Stamp	The number of pages printed where stamps were applied, including page numbering and date stamping.			

8451	PrtPGS/Ppr Tray		[0~9999999/1]
	Thes	e SPs count the number	of sheets fed from each paper feed station.
	001	Bypass	Bypass Tray
	002	Tray 1	Copier
	003	Tray 2	Copier
	004	Tray 3	Paper Tray Unit (Option)
	005	Tray 4	Paper Tray Unit (Option)
	006	Tray 5	LCT (Option)
	007	Tray 6	Currently not used.
	008	Tray 7	Currently not used.
	009	Tray 8	Currently not used.
	010	Tray 9	Currently not used.

8461	T:PrtP	GS/Ppr Type [0~9999999/1]		
	These	SPs count by paper type the number pages printed by all applications.		
	 The on f How 	se counters are not the same as the PM counter. The PM counter is based eed timing to accurately measure the service life of the feed rollers. vever, these counts are based on output timing.		
	• Blar	nk sneets (covers, chapter covers, slip sneets) are also counted.		
	 Duri prin 	ing duplex printing, pages printed on both sides count as 1, and a page ted on one side counts as 1.		
8462	C:PrtP	PGS/Ppr Type [0~9999999/1]		
	These application	SPs count by paper type the number pages printed by the copy ation.		
8464	P:PrtP	GS/Ppr Type [0~9999999/1]		
	These SPs count by paper type the number pages printed by the printer			
	applica	ation.		
8466	L:PrtP	GS/Ppr Type [0~9999999/1]		
	These SPs count by paper type the number pages printed from within the document server mode window at the operation panel.			
	001	Normal		
	002	Recycled		
	003	Special		
	004	Thick		
	005	Normal (Back)		
	006	Thick (Back)		
	007	OHP		
	008	Other		
8471	PrtPG	S/Mag [0~9999999/1]		
------	--	---------------------		
	These SPs count by magnification rate the number of pages printed.			
	001 ~49%			
	002 50%~99%			
	003	100%		
	004	101%~200%		
	005	201% ~		

- Counts are done for magnification adjusted for pages, not only on the operation panel but performed remotely with an external network application capable of performing magnification adjustment as well.
- Magnification adjustments done with printer drivers with PC applications such as Excel are also counted.
- Magnification adjustments done for adjustments after they have been stored on the document server are not counted.
- Magnification adjustments performed automatically during Auto Reduce/Enlarge copying are counted.
- The magnification rates of blank cover sheets, slip sheets, etc. are automatically assigned a rate of 100%.

8481	T:PrtPGS/TonSave
8484	P:PrtPGS/TonSave
	These SPs count the number of pages printed with the Toner Save feature switched on. [0~9999999/1] Note : These SPs return the same results as this SP is limited to the Print application.

8511	T:PrtP	GS/Emul	[0~9999999/1]
	These	SPs count by p	printer emulation mode the total number of pages printed.
8514	P:PrtP	GS/Emul	[0~9999999/1]
	These	SPs count by p	printer emulation mode the total number of pages printed.
	001	RPCS	
	002	RPDL	
	003	PS3	
	004	R98	
	005	R16	
	006	GL/GL2	
	007	R55	
	008	RTIFF	
	009	PDF	
	010	PCL5e/5c	
	011	PCL XL	
	012	IPDL-C	
	013	BM-Links	Japan Only
	014	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.

Service Tables

8521	T:PrtPG	S/FIN	[0~9999999/1]	
	These SPs count by finishing mode the total number of pages printed by all			
	applicat	ions.		
8522	C:PrtPC	S/FIN	[0~9999999/1]	
	These S	SPs count by finishing mode the tota	al number of pages printed by the	
	Copy ap	oplication.		
8524	P:PrtPG	S/FIN	[0~9999999/1]	
	These SPs count by finishing mode the total number of pages printed by t application.			
8525	S:PrtPG	S/FIN	[0~9999999/1]	
	These SPs count by finishing mode the total number of pages printed by the			
	Scanne	r application.		
8526	L:PrtPGS/FIN [0~9999999/1] These SPs count by finishing mode the total number of pages printed from			
	the docu	ument server mode window at the c	peration panel.	
	001	Sort		
	002	Stack		
	003	Staple		
	004	Booklet		
	005	Z-Fold		
	006	Punch		
	007	Other		

- **NOTE:** 1) If stapling is selected for finishing and the stack is too large for stapling, the unstapled pages are still counted.
 - 2) 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.
	[0~9999999/1]

8581	T:Counter	[0~9999999/1]
	These SPs count the total output broke application used. In addition to being d counters are also displayed in the Use Note: This SP is expanded for color M machine, the count is done for black or	en down by color output, regardless of the isplayed in the SMC Report, these r Tools display on the copy machine. FP and color LP machines. For this hly.

8591	O:Co	ounter	[0~9999999/1]	
	These SPs count the totals for A3/DLT paper use, number of duplex pages			
	printe	printed, and the number of staples used. These totals are for Other (O:)		
	appli	applications only.		
	001	001 A3/DLT		
	002	Duplex		
	003	Staple		

8651	T:S-to-Email PGS	[0~9999999/1]	
	These SPs count by color mode the total	number of pages attached to an e-mail	
	for both the Scan and document server a	pplications.	
	Note: This SP is expanded for color MFP	and color LP machines. For this	
	machine, the count is done for black only.		
8655	S:S-to-Email PGS	[0~9999999/1]	
	These SPs count by color mode the total number of pages attached to an e-mai		
	for the Scan application only.		
	Note: This SP is expanded for color MFP and color LP machines. For this		
	machine, the count is done for black only		

- **NOTE:** 1) The count for B/W and Color pages is done after the document is stored on the HDD. If the job is cancelled before it is stored, the pages are not counted.
 - 2) If Scan-to-Email is used to send a 10-page document to 5 addresses, the count is 10 (the pages are sent to the same SMTP server together).
 - 3) If Scan-to-PC is used to send a 10-page document to 5 folders, the count is 50 (the document is sent to each destination of the SMB/FTP server).
 - 4) Due to restrictions on some devices, if Scan-to-Email is used to send a 10-page document to a large number of destinations, the count may be divided and counted separately. For example, if a 10-page document is sent to 200 addresses, the count is 10 for the first 100 destinations and the count is also 10 for the second 100 destinations, for a total of 20.).

8661	T:Deliv PGS/Svr	[0~9999999/1]	
	These SPs count by color mode the total number of pages sent to a Scan Router		
	server by both Scan and LS applications.		
	Note: This SP is expanded for color M	FP and color LP machines. For this	
	machine, the count is done for black only.		
8665	S:Deliv PGS/Svr [0~9999999/1]		
	These SPs count by color mode the total number of pages sent to a Scan Router		
	server by the Scan application.		
	Note: This SP is expanded for color MFP and color LP machines. For this		
	machine, the count is done for black or	nly.	

- **NOTE:** 1) The B/W and Color counts are done after the document is stored on the HDD of the Scan Router server.
 - 2) If the job is canceled before storage on the Scan Router server finishes, the counts are not done.
 - 3) The count is executed even if regardless of confirmation of the arrival at the Scan Router server.

8671	T:Deliv PGS/PC	[0~9999999/1]	
	These SPs count by color mode the to	tal number of pages sent to a folder on a	
	PC (Scan-to-PC) with the Scan and LS	S applications.	
	Note: This SP is expanded for color M	FP and color LP machines. For this	
	machine, the count is done for black only.		
8675	S:Deliv PGS/PC [0~9999999/1]		
	These SPs count by color mode the total number of pages sent with Scan-to-PC with the Scan application.		
	Note: This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.		

İr		
8691	T:TX PGS/LS	These SPs count the number of pages sent from the
8692	C:TX PGS/LS	document server. The counter for the application that was
8694	P:TX PGS/LS	used to store the pages is incremented.
8695	S:TX PGS/LS	[0~9999999/1]
8696	L:TX PGS/LS withi pane the C	within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter.

- **NOTE:** 1) Print jobs done with Web Image Monitor and Desk Top Binder are added to the count.
 - 2) If several documents are merged for sending, the number of pages stored are counted for the application that stored them.

8701	TX PG	TX PGS/Port		
	These SPs count the number of pages sent by the physical port used to send			
	them. For example, if a 3-page original is sent to 4 destinations via ISDN G4, the			
	count	count for ISDN (G3, G4) is 12.		
	001	001 PSTN-1		
	002	PSTN-2		
	003	PSTN-3		
	004	ISDN (G3,G4)		
	005	Network		

8711	T:Scan PG	T:Scan PGS/Comp			
	These SPs	These SPs count the number of compressed pages scanned into the document			
	server, counted by the formats slisted below.				
	8 711 1 JPEG/JPEG2000				
	8 711 2	TIFF (Multi/Single)			
	8 711 3	PDF			
	8 711 4	Other			

8715	S:Scan P	GS/Comp	[0~9999999/ 1]	
	These SF	Ps count the number of compresse	ed pages scanned by the scan	
	application, counted by the formats slisted below.			
	001 JPEG/JPEG2000			
	002	TIFF (Multi/Single)		
	003 PDF			
	004	Other		

8741	RX PGS/Port				
	These SPs count the number of pages received by the physical port used				
	to receive them.				
	001 PSTN-1				
	002	PSTN-2			
	003	PSTN-3			
	004 ISDN (G3,G4)				
	005	Network			

8771	Dev Counter	[0~9999999/1]
	These SPs count the frequency of use rollers) for black and other color toners Note: For machines that do not support as the Total count.	(number of rotations of the development rt color, the Black toner count is the same

8781	Pixel Coverage	Total number of toner cartridges used, determined by toner end to toner end.
8791	LS Memory Remain	This SP displays the percent of space available on the document server for storing documents.

	[0~100/1]					
8801	Toner Remain [0~100/1]					
	This SP displays the percent of toner remaining for each color. This SP allows the user to check the toner supply at any time. Note:					
	• This precise method of measuring remaining toner supply (1%s) is better than other machines in the market that can only measure in increments of 10 (10%s).					
	 This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only. 					

8831	Pixel Cover Ave.		Average Pixel Coverage		
	These	SPs return info	rmation about average pixel coverage per page. Only 001 is		
	used for this machine.				
	001	Accum. Ave. k	<		
	002	Accum. Ave. N	M		
	003	Accum. Ave. (
	004	Accum. Ave.	(

8841	Pixel (Cover Last	Average Pixel Coverage	
	These	SPs return info	rmation about average pixel coverage per previous page.	
	Only 001 is used for this machine.			
	001	Last Page K		
	002	Last Page M		
	003	Last Page C		
	004	Last Page Y		

8 851	Toner	Toner Coverage 0-10%				
	These SPs count the percentage of dot coverage for black other color toners.					
	001	001 K Black toner				
	002 M Magenta toner 003 C Cyan toner					
	004	004 Y Yellow toner				

8 861	Toner	Toner Coverage 11-20%					
	These SPs count the percentage of dot coverage for black other color toners.						
	001	001 K Black toner					
	002 M Magenta toner 003 C Cyan toner						
	004	Y	Yellow toner				

8 871	Toner	Toner Coverage 21-30%				
	These	These SPs count the percentage of dot coverage for black other color toners.				
	001	001 K Black toner				
	002 M Magenta toner					
	003 C Cyan toner					
	004	Y	Yellow toner			

8 881	Toner	Toner Coverage 31 -%				
	These SPs count the percentage of dot coverage for black other color toners.					
	001	001 K Black toner				
	002 M Magenta toner					
	003 C Cyan toner					
	004 Y Yellow toner					

8 901	Pixel Coverage: Page Count: Previous Toner Bottle
	Displays in meters the amount of use for the previous toner cartridge.

8 911	Pixel Coverage: Toner Bottle Before Previous	
	Displays in meters the amount of use for the toner bottle used before the previous toner cartridge.	

8941	Machine Status [0~9999999/1]		
	These SPs count the amount of time the machine spends in each operation mode. These SPs are useful for customers who need to investigate machine operation for improvement in their compliance with ISO Standards.		
001 Operation Time Engine operation time. Does not inc controller is saving data to HDD (will operating).			Engine operation time. Does not include time while controller is saving data to HDD (while engine is not operating).
	002	Standby Time	Engine not operating. Includes time while controller saves data to HDD. Does not include time spent in Energy Save, Low Power, or Off modes.
	003	Energy Save Time	Includes time while the machine is performing background printing.
	004	Low Power Time	Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing.
	005	Off Mode Time	Includes time while machine is performing background printing. Does not include time machine remains powered off with the power switches.
	006	Down Time/SC	Total down time due to SC errors.
	007	Down Time/PrtJam	Total down time due to paper jams during printing.
	008	Down Time/OrgJam	Total down time due to original jams during scanning.
	009	Down Time/TonEnd	Total down time due to toner end.

8951	AddBook Register			
	These SPs count the number of events when the machine mana			ges data
	registration.			
	001	User Code	User code registrations.	[0~9999999/1]
	002	Mail Address	Mail address registrations.	
	004	Group	Group destination registrations.	
	005	Transfer Request	Fax relay destination registrations for relay TX.	
	007	Copy Program	Copy application registrations with the Program (job settings) feature.	[0~255/1]
	009	Printer Program	Printer application registrations with the Program (job settings) feature.	
	010	Scanner Program	Scanner application registrations with the Program (job settings) feature.	

6. DETAILED DESCRIPTIONS

6.1 OVERVIEW

6.1.1 MACHINE LAYOUT



- **1** Image Writing Unit
- 2 Scanner Unit
- 3 Cleaning Unit4 Fusing Unit
- 5 OPC Drum and Surrounding Units
- 6 Roll Trays (2nd Tray optional)
- 7 By-pass Tray
- 8 Development Unit

Uses an LPH (LED Print Head) capable of 32-level gradation to write 2-bit image data. Uses a CIS for 256-level scanning. To minimize black lines caused by dust or other particles, the original is scanned from above.

The drum is cleaned with a counter blade. Fusing is done using a hot roller containing two halogen lamps. For

the given paper type/size selected by the user, the machine chooses the most suitable fusing temperature and nip band width. The units located around the OPC drum do the charging, image writing, development, transfer, separation, cleaning, and quenching. Paper is supplied from continuous rolls.

The by-pass tray can be used to feed individual sheets of copy paper.

Toner is attracted from a single magnetic roller to the low charge areas on the OPC drum. The ID sensor inside the unit is used to control the toner concentration.



6.1.2 MECHANICAL COMPONENT LAYOUT

- 1. Front Copy Tray
- 2. OPC Drum
- 3. Original Table
- 4. Charge Corona Unit
- 5. Cleaning Unit
- 6. Original Feed Rollers
- 7. Upper Original Exit Guide
- 8. Original Exit Rollers
- 9. Upper Original Exit Rollers
- 10. Rolled-up Original Exit Tray
- 11. Original Exit Junction Gate
- 12. Rear Original Tray
- 13. White Platen Roller
- 14. Upper Exit Rollers
- 15. Fusing Cleaning Roller
- 16. Paper Exit Junction Gate
- 17. Exit Rollers
- 18. Hot Roller
- 19. Copy Tray Guide

- 20. Pressure Roller
- 21. Rear Copy Tray
- 22. Transfer & Separation Corona Unit
- 23. Roll Holder
- 24. 2nd Feed Rollers
- 25. 4th Feed Rollers
- 26. Roll Holders
- 27. 3rd Feed Rollers
- 28. 2nd Roll Tray (option)
- 29. Cutter Unit 2
- 30. 3rd/4th Feed Exit Roller
- 31. 1st Feed Rollers
- 32. 1st Roll Tray
- 33. Cutter Unit 1
- 34. 1st/2nd Feed Exit Roller
- 35. Registration Rollers
- 36. Development Unit
- 37. Toner Cartridge

6.1.3 DRIVE LAYOUT (WITH OPTIONAL ROLL FEEDER)



B188D905.WMFF

- 1. Original Feed Motor
- 2. Drum Drive Motor
- 3. Registration Motor
- 4. Roll Feed Motor 2
- 5. Roll Feed Motor 1
- 6. Development Motor
- 7. Fusing Drive Motor

6.1.4 ORIGINAL/COPY PAPER PATHS



B188D909.WMFF

- A Paper path from the by-pass feed table
- **B** Paper path from the 1st/2nd roll tray
- **C** Paper path from the 1st/2nd paper tray (option)
- **D** Original paths

6.2 SCANNER



B188D901.WMFF

Only one original can be placed in the feeder at once.

The original size sensors and original set sensor detect paper size.

The original feed roller [A] feeds the original to the white platen roller and CIS area [B].

The CIS scans the original.

While the scanned image is being processed, the exit roller [C] feeds the original out of the machine at either the rear exit [D] or upper exit [E], depending on which exit the user has selected.



B188D910.WMFF

6.2.2 ORIGINAL SIZE DETECTION

11 sensors detect the original width; 10 original size sensors and 1 original set sensor.

The original set sensor detects A4 or 8¹/₂" SEF A size originals. The original size sensors detect larger sizes.



B188D902.WMFF

Important

- In the diagram above, "T" denotes "Tall" (SEF).
- The EU and NA machines contain the same number of sensors. However, note that the positions of these sensors are different.

6.2.3 ORIGINAL FEED MECHANISM

The original feed motor [A] (stepper motor) and timing belt [B] drive all the rollers in the original feed path, including the white platen roller [C].

The original feed clutch [D] controls the original feed roller (on/off timing is based on the output from the original set sensor).



6.2.4 ORIGINAL FEED SPEED

The speed of the original as it passes through the original path increases as the rate of reduction is lowered.



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An original exit roller thermistor [A] monitors the temperature at the exit roller.

When this thermistor starts to output a high reading (above 25°C), the machine very slightly reduces the speed of the original feed motor.

This compensates for the very slight increase in speed that is caused the heat expansion of the original exit roller. This prevents distortion of the image in the sub scan direction.



6.2.5 ORIGINAL TEMPORARY DELAY

Inserting the leading edge of the original [A] into the feed slot switches on the original set sensor [B], and brings it into contact with the edge of the original feed roller [C].

The interval between the time the original set sensor switches on until the feed roller starts turning is called Delay 1. It can be set from 1 to 5 seconds with the "Original Feed Delay 1" user tool. This delay allows the user to manually shift the original from side to side to correct the alignment of the original.



After Delay 1 expires, the original is fed at 105 mm/s to the registration sensor [D], where the original pauses again for 1 to 5 seconds. This is called Delay 2 and this delay allows time for the user to pull the original out if it has fed incorrectly. The length of Delay 2 can be set with the "Original Feed Delay 2" user tool.



6.2.6 SCANNING MECHANISM

In this machine, the scanning unit [A] is above the original feed path [B]. This eliminates copy quality problems caused by foreign objects falling into the scanner.



This machine also uses a contact image sensor [A] (CIS System **Con**), which scans black and white originals up to 926 mm (361/2") wide at 600 dpi.

The original moves past the scanning unit. So, to increase the scanning speed of this machine, the CIS consists of 16 blocks of self-focusing lenses [B] arrayed in a straight line.



6.2.7 AUTO IMAGE DENSITY CORRECTION



Auto Image Density Correction corrects the background density.

The CIS reads the surface of the white platen roller and uses this reading (white point =0) as a reference point for density correction.

Next, the CIS starts 5 mm from the leading edge and reads 70 mm to the left and right of center to perform image density correction line by line.

Detailed Descriptions



6.2.8 ORIGINAL EXIT SWITCHING MECHANISM

An operation panel setting determines whether the original exits the upper exit [A] or rear exit [B]. When the upper exit is selected, the solenoid stays off, and the original exits at the upper exit. This is the default setting.

When the rear exit key is selected, the solenoid switches on when the registration sensor detects the leading edge of the original, and the original exits at the rear [B].

6.3 IMAGE PROCESSING

6.3.1 GENERAL IMAGE PROCESSING FLOW CHART

The IPU processes images. Seven modes are available for selection from the operation panel: Text, Photo, Text/Photo, Generation, Patched Original, and Background Line.



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6.3.2 ORIGINAL MODES

Overview

Here is a brief summary of the original modes that the user can select for this machine at the operation panel.

NOTE: The condition of the auto image density (ADS) feature is selected automatically after the original mode is selected:

- ADS ON: Drawing, Text, Text/Photo, Background Lines, Generation
- ADS OFF: Photo, Patched Original

	Mode	Function
1	Drawing	Best reproduction of fine lines. This is the default selection.
2	Text	Best reproduction of text.
3	Text/Photo	Achieves the best reproduction for originals with text and photos on the same page.
4	Photo	Conducts dither processing for photo originals to remove jagged edges. Achieves the best reproduction for copied photographs.
5	Background Lines	Ignores only the blue or green lines of section (graph) paper on the originals. Dark blue and sepia lines will not drop out.
6	Patched Original	Prevents background from appearing in copies of originals where the textures of the backgrounds differ. For example, this mode will even out the backgrounds and eliminate the shadows and lines on page or boards pasted up for design layout.
7	Generation	Similar to the Text mode, but attempts to reduce the thickness of thick characters, restore the thin or broken lines of originals, ignore the background texture, and erase independent dots that tend to appear in copies of originals which are 2nd, 3rd, etc. generation copies

Tables on the following pages show which SP modes can be used for each original mode: SP4903 or SP4904.

The SP settings are only valid if the following user tool is set to "Custom Setting": Copier/Document Server – General Features – Copy Quality. Also, SP5106 must be set to "3".

1. Drawing Mode

Drawing mode is used to copy drawings, or architectural and design plans with a variety of fine lines.

Shading Correction	
\downarrow	
Background Erase	SP4903-075. Allows adjustment of background erase.
\downarrow	
Main Scan Magnification Processing	
\downarrow	
MTF Filtering Independent Dot Erasure Line Width Correction	SP4903-025, 026, 027, 028 Allow selections for adjustment between soft and sharp images. SP4903-065
	Allows independent dot erase settings. SP4903-095, 096, 097 Line width correction settings.
\downarrow	
γ Correction	
<u>↓</u>	
4-Value Error Diffusion	
	\downarrow Background Erase \downarrow Main Scan Magnification Processing \downarrow MTF Filtering Independent Dot Erasure Line Width Correction \downarrow 4-Value Error Diffusion

Detailed Description

2. Text Mode

Text mode does not distinguish between areas of the page that contain text, graphics, or photographs; the entire page is processed as a text original. However, straight lines appear sharp in the copies.



3. Text/Photo Mode

Text/Photo mode achieves excellent reproduction of originals with text and photos on the same page. Grayscales are more accurate than those obtained with Text mode.



4. Photo Mode

Photo mode achieves the best possible copies of photo originals.

	Image Processing Flow	Related SP Modes
	-	
Scanner Image Correction	Shading Correction	
	\downarrow	_
Pre-Input	Background	SP4903-071. Allows adjustment
Processing	Erase	of background erase.
Manuification		-
Processing	Main Scan Magnification Processing	
liteocoung]
Filtering	MTF Filtering Independent Dot Erasure Line Width Correction	Allows adjustment of dither processing selection. SP4904 002 Adjusts the quality of the dithering
		 natifix, of allows selection of error diffusion. 0: Dithering 8x8 1: Dithering 6x6 2: Dithering 4x4 3: Error Diffusion SP4903-005, 006, 007, 008 Allow adjustment of dither processing to improve image quality. SP4903-009, 010, 011, 012 Allow adjustment of error diffusion to improve image quality SP4903-061 Allows adjustment of independent dot erase. SP4903-083, 084, 085 Allows adjustment of line width correction.
	↓ 	7
Density Control	γ Correction ↓	J
Quality Processing	4-Value Error Diffusion]

5. Background Line Mode

Background line mode processing ignores blue and green lines and markings on originals. For example, blue or green grid squares of graph paper or markings with a dropout blue pencils do not appear in copies. However, dark blue and sepia lines will not drop out.



6. Patched Original Mode

The patched original mode processing prevents the background of an original from appearing in a copy.

	Image Processing Flow	Related SP Modes
Scapper Image		1
Correction	Shading Correction	
	↓ ↓	
Pre-Input	Background	SP4903-076. Allows adjustment
Processing	Erase	of background erase.
	\downarrow	
Magnification	Main Scan	
Processing	Magnification Processing	
	\downarrow	
Filtering	MTF Filtering	SP4903-029, 030, 031, 032
	Independent Dot Erasure	Allow selections for adjustment
	Line Width Correction	SP4903-066
		Allows adjustment of independent
		dot erase.
		SP4903-098, 099, 100
		Allows adjustment of line width
	I	conection.
Donaity Control	↓ Correction	
Density Control	γCorrection	
	↓	1
Quality	4-Value Error Diffusion	
i iocessiliy		1

7. Generation

Processing similar to that of the Text mode, but attempts to reduce the thick characters, restore the thin or broken lines of originals, ignore the background texture, and erase independent dots that tend to appear in copies of originals which are themselves 2nd, 3rd, etc. generation copies.



6.4 AROUND THE DRUM

6.4.1 OVERVIEW



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- 1. LPH (LED Print Head)
- 2. Charge Corona Unit
- 3. Quenching Lamp (LED Array)
- 4. Charge Corona Grid Wires
- 5. Cleaning Blade

- 6. Pick-off Pawl
- 7. Separation Corona Unit
- 8. Transfer Corona Unit
- 9. Registration Rollers
- 10. Development Roller

Drum diameter	φ80 mm (3.2")
Drum speed	100 mm/s
LPH	3 arrays, each array the same width as one A3 sheet
Corona wire	Gold-plated to facilitate cleaning and minimize charge leak.

6.4.2 DRUM DRIVE

The drum drive motor [A] drives the OPC drum [B] through gears, a timing belt, and the drum drive pulley [C].

The drum drive motor only drives the drum.

6.4.3 CHARGE CORONA UNIT

The charge corona unit [A] comprises one gold-plated charge wire (ϕ 80 µm) and 10 grid wires, and employs the Scorotron (Negative) Charge Method **Con**.

About -5.0 kV are applied to the charge wire, to achieve a -910V charge on the grid wires. Charge passing between the grid wires brings the charge on the surface of the drum to -900V.

6.4.4 CORONA WIRE CLEANING

The charge corona wire has an automatic cleaning device. After 600 m of paper has passed though the machine or the current copy job ends, the wire cleaner [A] cleans the wire.

The wire cleaner motor [B] drives the cleaner.

The interval between automatic charge wire cleanings can be adjusted with SP2804.

6-23



6.4.5 CLEANING THE DRUM

This machine uses a counter blade system to clean toner from the photoconductive surface of the drum.

In a counter blade system, the cleaning blade [A] is mounted opposed to the direction of drum rotation.



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The counter blade has a pressure release lever which can be moved easily between the opened [A] and closed [B] position to release it from the drum. The blade must be released before the drum is removed from the machine.



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6.4.6 COLLECTING USED TONER

The toner collection coil [A], driven by the registration motor, collects the used toner from the drum and sends it through a tube [B] to the used toner tank.

The toner overflow sensor [C] monitors the level of the toner in the used toner tank [D], and triggers a warning message on the operation panel when the used toner tank is almost full.

The capacity of the used toner tank is 4600 cc (about 25.3 k copies/A1 sideways [LEF] or 15 km at 6% coverage)

- After the near overflow warning, the machine can continue to operate and will copy up to 20 m.
- After the 20 m copies are completed, the overflow warning is issued and copying can no longer be done. If the 20 m limit is exceeded during a copy job, the copy job is terminated and a message will be displayed on the operation panel.
- To release the machine from the overflow shutdown, first turn the main power switch off/on. If the message does not appear after 1 second, you can continue to use the machine. However, if the message appears again, the used bottle must be emptied.



6.4.7 QUENCHING

This machine uses an LED array [A] for quenching **Q**.

This LED uses red light to reduce drum fatigue.



6.4.8 ANTI-CONDENSATION HEATERS

There are two anti-condensation heaters [A] below the transfer and separation corona units [B]. They prevent the formation of condensation in areas around the OPC drum [C].

The anti-condensation heaters turn on when the main power switch is turned off.



6.5 IMAGE WRITING

6.5.1 LED HEADS

This machine uses LED heads [A] that shine light directly onto the OPC to form a latent image with 32 levels of gradation.



The A0-size 600-dpi print head is an array of connected self-focusing lenses [A] above an LED array [B] and drive board [C], and mounted in a heat sink [D].

NOTE: The maximum operational width of the print head is 930 mm (36.6").

The unit is called the LPH (LED Print Head).



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6.6 **DEVELOPMENT**

6.6.1 OVERVIEW



- 1. Development Filter
- 2. Auger
- 3. Doctor Blade
- 4. Development Entrance Seal
- 5. OPC Drum
- 6. Development Roller (with sleeve)

- 7. Paddle Roller
- 8. Development Agitator
- 9. Toner Agitator
- 10. Toner Cartridge
- 11. Separator

This machine uses the dual component development method with toner concentration control **G**.

The paddle roller picks up developer in its paddles and transports it to the development roller. Internal permanent magnets in the development roller attract the developer to the development roller sleeve.

The rotation of the sleeve carries developer toward the OPC drum. Developer back spill from the doctor blade goes either to the separator then the agitator, or to the augur then the paddle roller.

A filter relieves the pressure that tends to build up in the development unit.

The toner density is constantly monitored by an ID sensor (there is no TD sensor).
6.6.2 DEVELOPER CROSS-MIXING

The doctor blade [A] trims the developer to the specified thickness. The developer then passes to the separator [B]. The separator guides the developer at an angle, so that it cross mixes from left to right.

Toner falls through a hole [C] at the right end of the separator. The auger [D] transports this toner in the opposite direction of the separator, from right to left, to achieve cross-mixing.

Together with toner density control, this method of cross-mixing prevents fluctuations in toner density, which can cause uneven printing.

The rotation of the toner agitator [A] sends new toner to the developer agitator [B], where it is mixed with developer back spill from the separator [C] and sent to the paddle roller [D].



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B188D931.WMFF

6.6.3 DEVELOPMENT BIAS

Copying

The CBG (Charge, Bias, Grid) power pack applies [A] a negative bias (-680V) to the development roller, slightly higher than the residual charge on the drum.

The development bias during copying depends on SP 2201 001.

Making ID Sensor Patterns

The machine has two ways of making the ID sensor patterns. These are Low Duty Mode and High Duty Mode. The mode used depends on SP 2201 004.



However, if the machine is in High Duty Mode and the average copy volume becomes low again, image density may become lower. If this happens, switch back to Low Duty Mode.

The ID sensor pattern development bias voltages for high and low duty modes can be adjusted with SP 2201 002 and 003, as shown in the following table.

2201 002	Development bias for the ID sensor pattern (Low Duty Mode)	Default setting: -390 V
2201 003	Development bias for the ID sensor pattern (High Duty Mode)	Default setting: -460 V
2201 004	Selects Low Duty Mode or High Duty Mode	Default setting: Low Duty Mode



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6.6.4 DEVELOPMENT DRIVE MECHANISM

The development motor [A] drives the development unit through a timing belt [B].



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6.6.5 TONER SUPPLY MECHANISM

The toner agitator [A] rotates inside the toner cartridge to move toner to the development unit agitator [B].

The amount of toner supplied to the development unit is controlled by switching the toner supply clutch on and off. Clutch on/off timing is based on readings from the ID sensor.



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6.6.6 ID SENSOR

The ID sensor [A] checks the density of a temporary image (known as the ID sensor pattern), projected onto the drum with the LED print head.

The density is used to determine whether more toner is needed.

The ID sensor pattern is made after each copy, if 100 cm (4 in.) of copies have been made since the last ID sensor pattern check. This interval can be changed with SP3920 (ID Sensor Timing).



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6.6.7 TONER END/NEAR-END CONTROL

Near-end Detection

Near-end occurs if the ID sensor reads Vsp/Vsg values three times in succession that are larger than the Vend value specified with SP2927 001 (Toner Near End Level),.

End Detection/Recovery from Near-end

After the machine enters the near-end status, the ID sensor pattern check accelerates from 100 cm to 20 cm intervals.

Then, the machine changes status in accordance with the following conditions:

- **Toner End:** Toner end occurs if Vsp/Vsg stays continuously more than Vend while a certain length of paper is printed. Then the toner end message is displayed, and machine operation halts. The length of paper depends on SP 2927 002 (default setting: 1500 cm). If Vsp/Vsg drops below Vend, the distance count stops. But, if the next Vsp/Vsg reading exceeds Vend again, the count begins again from the previously accumulated total.
- **Recovery from Near-end:** If Vsp/Vsg drops below Vend three times in succession, then the following happens:
 - The machine is released from the near-end status
 - The distance counter is reset to zero
 - The ID sensor pattern check interval is restored to its original value (this interval depends on SP3920; the default is 100 cm intervals).

6.6.8 TONER END RECOVERY

The flowchart below illustrates the toner end recovery cycle.

Toner end recovery entails opening the toner hopper cover when the near toner or toner end messages are displayed, then closing the cover after replacing the toner cartridge.

If the toner cartridge is replaced during a long print job, the job can be restarted by pressing the restart key.



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6.6.9 TONER DENSITY CONTROL

Overview

The machine controls toner density by switching the toner supply clutch on/off, with on/off timing determined by the ID sensor readings from the sensor pattern on the drum.

Toner Supply Modes

This machine has three toner supply modes. These are detect mode, fixed mode (3%), and fixed mode (6%).

The mode that is used depends on the setting of SP 2208 003. The default is detect mode.

In detect mode, the machine uses the ID sensor to control toner supply.

If the ID sensor breaks, an SC code (SC350 to SC354) is generated. The machine does not automatically switch over to fixed supply mode.

If a spare sensor is not available, SP 2208 003 must be set to fixed mode. For example, select fixed mode (3%) if the user's copies are generally 3% black coverage.

Then, after installing a new ID sensor, set SP 2208 003 back to detect mode.



6.6.10 DEVELOPMENT TIMING CHART

Tray 1 A1 (LEF), one original, two copies, drum speed: 100 mm/s



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B188D911.BMPP

6.7 PAPER FEED AND REGISTRATION

6.7.1 OVERVIEW



- 1. Registration Roller
- 2. By-pass Feed table
- 3. Cutting Sensor 1
- 4. Feed Exit Roller 1
- 5. Cutter 1 (Upper Tray)
- 6. 1st Roll Lead Edge Sensor
- 7. 2nd Roll Lead Edge Sensor
- 8. 1st Feed Roller
- 9. Cutting Sensor 2
- 10. 2nd Feed Exit Roller
- 11. Cutter 2 (Lower Tray)
- 12. 3rd Roll Lead Edge Sensor
- 13. 4th Roll Leading Edge Sensor

- 14. 3rd Feed Roller
- 15. 3rd Paper End Sensor
- 16. 3rd Roll End Sensor
- 17. 1st Paper End Sensor
- 18.4th Paper End Sensor
- 19. 4th Roll End Sensor
- 20. Roll Tray 2 Safety Switch
- 21. 2nd Feed Roller
- 22. 2nd Paper End Sensor
- 23. Roll Tray 1 Safety Switch
- 24. 2nd Roll End Sensor
- 25. 1st Roll End Sensor

The paper feed section consists of two roll trays and the by-pass feed table. Each paper source can be selected from the operation panel. The first roll tray contains two rolls (roll 1 is at the front of the machine, and roll 2 is towards the rear). The second roll tray (optional) contains two rolls (Roll 3 - Front, Roll 4 - Rear).

Inserting the original starts the feed motor and the registration motor, and paper feed begins. The paper is fed from the paper supply source, passes the feed exit roller and is fed into the machine by the registration rollers.

The registration rollers halt temporarily to allow paper skew correction, and then start again to feed the paper to the drum.

Next, the cutter cuts the paper after the specified paper length has been fed (monitored by the cutting sensor). The starting time of the cutter depends on the cutting mode selected at the operation panel (preset cut, synchro cut, or variable cut).

After the last cut of a job, the feed roller reverses and returns the edge of the paper to its home position away from the vertical part of the feed path. This ensures that the paper path is not obstructed when paper feed starts for the next job.



6.7.2 PAPER HOLDER

The racks [A] where the paper rolls are mounted in the paper tray units are adjustable to allow loading paper rolls of different width.



To load a paper roll, release the lever [A] on the paper holder [B] then insert the holder into the end of the paper roll [C]. Once the holder is in place, move the lever to the lock position [D].



6.7.3 PAPER WIDTH AND MEDIA TYPE SETTINGS

After a roll has been installed, the width and media type must be selected on the operation panel screen, and special settings input with user tools, before printing from that roll. These settings determine machine parameters, such as toner supply and temperature and pressure in the fusing unit (- 6.10.4).

To do the paper selection settings for the rolls and the cassettes, push [User Tools]> "System Settings", then touch the "Tray Paper Settings" tab.

NOTE:

- "Tray 1" and "Tray 2" selections refer to "Roll 1" and "Roll 2".
- "Auto" for automatic paper size detection can be selected for either paper cassette to detect standard paper sizes.

For more, please refer to the Operating Instructions.

6.7.4 ROLL TRAY FEED MECHANISM

Each tray has an independent motor that drives the feed rollers and exit rollers for the tray.

The feed motor [A] and feed clutches [B] are on the left side of the tray.

There are two knobs [C] attached to the timing belts on the right side of the tray to allow removal of paper jams manually.

6.7.5 BY-PASS FEED MECHANISM

Inserting a cut sheet from the by-pass feed table into the machine switches on the bypass feed sensor [A].

The by-pass feed sensor switches on the drum motor, registration motor [B] and the registration clutch [C], and the paper starts to move.

The registration clutch switches off temporarily so the user can adjust the position of the paper. This delay time can be adjusted with SP1911 (By-Pass Feed Start Timing Adj.).



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6.7.6 REGISTRATION

The registration motor [A] and registration clutch [B] drive the registration roller [C].

When the paper arrives at the registration roller, the registration clutch switches off temporarily in order to remove any skew, and then switches on again to resume feed.

6.7.7 CUTTING MECHANISM

There is a cutter unit on each roll tray.

The rotary disk cutter [A] can cut in either direction. When it comes to rest at the home position [B] on either end of the cutting unit, a cam opens the paper holder for the next paper feed.

Before cutting, the registration roller continues to rotate at normal speed, but the roll feed motor speed increases slightly. This causes the paper to buckle slightly between the registration roller and the top of the cutter.

When the cutter motor switches on, the cutter starts to move. This closes the paper clamp to hold the paper at the cutting position. The cutter disk pushes the paper against a horizontal blade behind the paper, and moves across the paper, cutting as it moves.

The registration roller continues to turn during cutting. At this time, the slack generated between registration roller and cutter is taken up. This allows paper feed past the drum to continue at the same speed during cutting.

To cut a sheet from a roll of freshly loaded paper, press the auto feed key for the each roll to feed paper, then release the key to cut. Paper will continue to feed for as long as the auto feed key is pressed.

The paper can also be cut by pushing the handle on the cutter to the left or right.





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6.7.8 ROLL END DETECTION

Roll end is detected with reflective photosensors that detect the exposed, black core of an empty roll.

In the 1st roll tray unit, the photosensors [A] are mounted above the two paper rolls.

In the optional 2nd roll tray unit, the photosensors [B] are at the front and rear of the paper rolls.

In addition to the photosensors, two paper end sensors [C] are mounted in the 1st roll tray, and two paper end sensors [D] are mounted in the optional 2nd roll tray. These paper sensors detect the end of the paper roll if the core of the paper roll is any other color than black and cannot be detected by the photosensors.



6.7.9 CONDENSATION PREVENTION

There are two anti-condensation heaters [A] for each paper roll, and a heater switch [B] for each tray.



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Normally the switch is set to OFF.

OFF	The anti-condensation heaters are turned off when the main power switch is powered off.		
	Main Power SW OFF:	The anti-condensation heaters turn on.	
ON	Main Power SW ON:	The anti-condensation heaters turn on after the main power switch is powered off. In standby mode and during copying, the anti- condensation heaters are always on, but when <u>both of</u> the fusing lamps are on, the anti-condensation heaters turn off.	

6.7.10 PAPER FEED TIMING CHART

Feed timing is controlled by the copy signal (original at the original registration sensor, or when Start is pressed for a multi-copy job).

Feed Gate Signal	Paper Roll Reverse	↑
		After 7.82 s OFF
	Acceleration Before Cutting	After 1.24 s OFF
		-
		D400D045 14/45
	Feed Gate Signal	Feed Gate Signal Paper Roll Reverse Acceleration Before Cutting

Detailed Descriptions

6.8 IMAGE TRANSFER AND PAPER SEPARATION

6.8.1 OVERVIEW

The transfer corona unit [A] uses a tungsten wire (ϕ 80 μ m) which at transfer applies about **+5.0** kV to transfer toner from the drum to the paper.

The separation corona [B] applies about ac 4.5 kV and dc -350 V to separate the paper from the drum.



6.8.2 TRANSFER AND SEPARATION TIMING CONTROL

SP2925 002 determines when the machine switches the transfer current over from the current for the leading edge (relatively weak) to the current for the image (relatively strong).

If there is insufficient toner transfer at the leading edge of the image, adjust this SP so that the switchover point is earlier. However, this can cause paper separation at the leading edge to be less effective.

Also, if paper separation at the leading edge is poor, adjust the SP so that the switchover point is earlier. However, this can cause insufficient toner transfer at the leading edge of the image.

6.8.3 PICK-OFF PAWL OPERATION

The pick-off pawls separate paper from the drum when the separation corona fails.

The pick-off pawl solenoid brings the pick-off pawls into contact with the drum.

When the leading edge of the paper on the drum enters the separation corona unit with about 198 mm (7.8") of the paper in contact with the drum, the solenoid [A] switches on. The pick-off pawl shaft starts to rotate, and the pawls [B] attached to the shaft are held against the drum by a spring.





6.9 PAPER TRANSPORT

6.9.1 OVERVIEW

The paper separated from the drum by the separation corona unit goes to the transport belt [A].

Suction from the transport fans [B] below the separation transport tank [C] hold the paper on the belt. Then, the belt transports the paper to the fusing unit.

NOTE: The transport fans [B] also cool the fusing unit, even when the machine is in standby mode.

The fusing motor drives the transport unit and the fusing unit.

An ozone filter [D] at the exhaust port reduces the amount of ozone that is released from the machine.



6.10 FUSING UNIT

6.10.1 OVERVIEW



- 1. Hot Roller
- 2. Fusing Cleaning Roller
- 3. Hot Roller Strippers
- 4. Pressure Roller Strippers
- 5. Pressure Roller Thermistor
- 6. Fusing Pressure Motor

- 7. Pressure Release Lever
- 8. Pressure Roller
- 9. Fusing Lamps
- 10. Thermostat
- 11. Hot Roller Thermistor

Detailed Descriptions B188D950.WMF

Hot roller: 195°C (383°F) 155°C (311°F)

	120V Ver.	220 ~ 240V Ver.
Main	1300W	700W
Sub	300W	700W
Warm-up Time	110 sec.	125 sec.

120V Version: Both Main (1300W) and Sub (300W) fusing lamps light to attain the ready temperature of $155^{\circ}C$ ($311^{\circ}F$) within 110 s. Then, the sub fusing lamp switches off. The sub lamp is used only during warmup. To maintain the control temperature, only the main lamp is used.

220 ~ 240V Version: Both lamps switch on until the ready temperature is attained. Then, both lamps switch on and off to maintain the control temperature.

Pressure roller thermistor. Contacts the pressure roller to monitor pressure roller temperature.

Cleaning roller. Mounted above the hot roller to clean the hot roller and prevent offset.

Pressure roller. After the ready temperature is attained, more pressure is applied to compensate for low temperatures until the control temperature is reached.

CPM Down Control. The basic fusing motor speed depends on paper size and type. However, to maintain the control fusing temperature, the CPU reduces the copy speed if the fusing temperature falls too far during copying.

Cold Start. If these conditions occur immediately after the main switch is done, a cold start is done:

- Original exit roller thermistor is less than 18°C (64.4°F)
- Hot roller thermistor is less than 100°C (212°F)

For a cold start, the ready temperature changes from 155° C to 190° C, and the hot roller idles for 1 minute.

Energy Save Mode

Energy Saver	Hot Roller Control Temp.	Ready Temp.	Recovery Time 23°C 63% RH
Panel Off	155°C	155°C	0 s
Low Power	90°C	155°C	Within 60 s
Auto Off	Fusing Lamp Off (Room Temp.)	155°C	

Hot roller Extremely thin (1.6 mm) with two fusing lamps.

6.10.2 FUSING PRESSURE CONTROL MECHANISM

The spring loaded pressure levers [A] mounted on the pressure roller shaft [B] force the pressure roller [C], a silicone rubber roller, against the hot roller [D] above.

The pressure of this spring can be adjusted. For details, see "Hot Roller and Pressure Roller" in Section 3.

The fusing temperature and amount of pressure applied by the pressure roller is adjusted for the paper in use. Two stepper motors [E] are provided on either end of the pressure roller. The fusing pressure motors are controlled with SP settings that determine the amount of pressure applied by the pressure roller on the hot roller above.



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SP1914 002	Right Pressure Adjustment
SP1914 003	Left Pressure Adjustment

If a jam occurs, the left and right fusing pressure stepper motors reverse to release the pressure on the rollers and the gears in the fusing unit. The fusing unit powers down when the paper exit cover or the upper unit are opened to ensure safe removal of the jammed sheet.

Detailed Descriptions

6.10.3 TEMPERATURE AND PRESSURE CONTROL

The fusing pressure is automatically adjusted, so nip-band width is not required.

During warmup and during printing, the pressure roller thermistor [A] monitors the temperature of the pressure roller to determine the target control hot roller temperature. (Table 6-1)

The hot roller thermistor [B] monitors the actual temperature of the hot roller, and the CPU determines the difference between the actual temperature and the target control temperature. Based on this data, the pressure on the hot roller [C] is increased or decreased, until the leading edge of the paper reaches the fusing unit. (
Table 6-2)

If the hot roller temperature drops below a certain level during printing, the CPU uses CPM Down Control to reduce the hot roller speed. (
Table 6-3)



PLAIN PAPER/FILM				
	Pressure Roller Temp.	Target Hot Roller Temp.		
Temp. Control 1	Below 117.5°C	195°C		
	168°C ~ 117.5°C	-0.6667X + 273.33°C		
	Above 168.5°C	161°C		
Temp. Control 2	Below 96.5°C	195°C		
	96.5°C ~ 156.5°C	-0.6667X + 259.33°C		
	Above 156.5°C	155°⁰C		
Temp. Control 3	Below 70°C	194.5°C		
	70°C ~ 128°C	-0.0048X ² + 0.3086X + 196.42°C		
	Above 128°C	157°C		
Temp. Control 4	Below 63.5°C	195°C		
	96.5°C ~ 115.5°C	-0.6667X + 237.33°C		
	Above 111.5°C	163°C		

Table 6-1 Pressure Roller and Hot Roller Temperature

X: Pressure roller temperature

	TRACING PAPER				
	Pressure Roller Temp.	Target Hot Roller Temp.	Comments		
Temp. Control 1			Idling: Control		
Above 841 mm (W)	Entire area	205°C	temp for pressure		
Below 840 mm (W)	Below 160°C	205°C	roller is 145°C ~		
	160°C~185°C	-0.0243X ² +7729X -256.73°C	180°C**		
	185°C	165°C			
Temp. Control 2					
Above 841 mm (W)	Entire area	195°C	Idling: Control		
Below 840 mm (W)	Below 150°C	195°C	temp for pressure roller is 130°C ~		
	150°C~175°C	-0.179X ² +4.6607 ² –102.86°C			
	Above 175°C	165°C	145°C"		
Temp. Control 3					
Above 841 mm (W)	Entire area	195°C	Idlilng control		
Below 840 mm (W)	Below 150°C	195°C	temperature for		
	150°C~175°C	-0.0179X ² +4.6607X-102.86°C	- pressure roller is $-$ 60~75°C* ³ .		
	Above 175°C	165°C			
Temp. Control 4					
	Entire area	165°C			

Table 6-1 (cont.)

X: Pressure roller temperature

*1 When copying starts with tracing paper with Temperature Control 1, the target hot roller temperature is 205°C and the target pressure roller temperature is above 145°C.

*2 When copying starts with tracing paper with Temperature Control 2, the target hot roller temperature is 195°C and the target pressure roller temperature is above 130°C.

*3 When copying starts with tracing paper with Temperature Control 3, the target hot roller temperature is 195°C and the target pressure roller temperature is above 60°C. Detailed Descriptions

Table 6-2 Adjustment for Actual/Target Temperature Difference

If the temperature difference is above 15°C, the machine must make an adjustment to the benchmark pressure settings in Table 6.10.4. The following table showss the required adjustment.

Temp. Difference	Plain Paper	Tracing Paper	Film
Above 30°C	+55N	+20N	+55N
15°C~30°C	+15N	+10N	+15N
Below 15°C	0N ¹	0N	0N

"N" means "Newton"

• The temperature difference is monitored every 2 sec. and the pressure is continuously adjusted.

Table 6-3 CPM Down

When the fusing temperature drops, the CPU reduces the copy speed. This ensures that the fusing temperature is high enough to fuse the toner properly, especially for long print jobs.

PLAIN PAPER, FILM (During Copying Up to 20 Copies, All Widths)								
	CPM Down 1 CPM Down 2 CPM Down 3,4,5 CPM							
Hot	Above 160°C	Above 155°C	Above 150°C	Base CPM				
Roller Temp.	150°C~160°C	145°C~155°C	142°C~150°C	Base CPM*0.67				
	Below 150°C	Below 145°C	Below 142°C	Base CPM*0.34				

PLAIN PAPER, FILM (During Copying 21 Copies or More, Less than 840 mm Widths)						
	CPM Down 1 CPM Down 2 CPM Down 3 CPM Down 4, 5 CPM					
Hot	Above 166°C	Above 160°C	Above 155°C	Above 150°C	Base CPM	
Roller	155°C~166°C	150°C~160°C	145°C~155°C	142°C~150°C	Base CPM*0.67	
Temp.	Below 155°C	Below 150°C	Below 145°C	Below 142°C	Base CPM*0.34	

TRACING PAPER						
	CPM Down 1 CPM Down 2 CPM Down 3,4 CPM Down 5 CPM					
Hot	Above 175°C	Above 170°C	Above 166°C	Above 155°C	Base CPM	
Roller Temp.	165°C~175°C	160°C~170°C	155°C~166°C	145°C~155°C	Base CPM*0.67	
	Below 165°C	Below 160°C	Below 155°C	Below 145°C	Base CPM*0.34	

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6.10.4 FUSING CONTROL SETTING TABLE

This is a summary of the user tool settings (System Settings> General Feature> Paper Thickness: Paper Tray).

Table 1: Plain Paper (Roll Paper, By-pass Feed)					
	Mode 1 (Thick)	Mode 2 (Default)	Mode 3	Mode 4	Mode 5 (Thin)
Fusing line speed	Plain paper speed 1	Plain paper speed 1	Plain paper speed 1	Plain paper speed 2	Plain paper speed2
Fusing pressure	115N (122 steps)	105N (185 steps)	95N (248 steps)	85N (311 steps)	70N (405 steps)
Fusing temperature	Plain paper: Temp. Control 1	Plain paper: Temp. Control 2	Plain paper: Temp. Control 3	Plain paper: Temp. Control 3	Plain paper: Temp. Control 4
CPM Down Control	Plain paper: CPM Down 1	Plain paper: CPM Down 2	Plain paper: CPM Down 3	Plain paper: CPM Down 3	Plain paper: CPM Down 3
Media	110g/m ²	90g/m ²	70g/m ²	60g/m ²	50g/m ²
Table 2: Tracing Pap	er (With the exception	of line speed, same co	onditions as for as roll	paper, by-pass feed)	-
	Mode 1 (Thick)	Mode 2 (Default)	Mode 3	Mode 4	Mode 5 (Thin)
Fusing line speed (roll paper)	Tracing paper spd 1	Tracing paper spd 1	Tracing paper spd 1	Tracing paper spd 2	Tracing paper speed 2
Fusing line speed (by-pass feed)	Tracing paper spd 1	Tracing paper spd 1	Tracing paper spd 1	Tracing paper spd 2	Tracing paper speed 3
Fusing pressure	130N (28 steps)	130N (28 steps)	130N (28 steps)	95N (248 steps)	75N (374 steps)
Fusing temperature	Tracing paper: Temp. Control 1	Tracing paper: Temp. Control 2	Tracing paper: Temp. Control 3	Tracing paper: Temp. Control 3	Tracing paper: Temp. Control 4
CPM Down Control	Tracing paper: CPM Down 1	Tracing paper: CPM Down 2	Tracing paper: CPM Down 3	Tracing paper: CPM Down 3	Tracing paper: CPM Down 5
Media	70~90g/m ²	70~80g/m ²	70~80g/m ²	50~70g/m ²	Very Thin
Table 3: Film (Roll Paper, By-pass Feed)					
	Mode 1 (Thick)	Mode 2	Mode 3 (Default)	Mode 4	Mode 5 (Thin)
Fusing line speed	Film speed 1	Film speed 1	Film speed 1	Film speed 2	Tracing paper speed2
Fusing pressure	115N (122 steps)	100N (216 steps)	85N (311 steps)	85N (311 steps)	75N (374 steps)
Fusing temperature	Plain paper: Temp. Control 1	Plain paper: Temp. Control 2	Plain paper: Temp. Control 3	Plain paper: Temp. Control 3	Plain paper: Temp. Control 4
CPM Down Control	Plain paper: CPM Down 1	Plain paper: CPM Down 2	Plain paper: CPM Down 3	Plain paper: CPM Down 3	Plain papger: CPM Down 3
Media	Thickness: 0.07mm ~ 0.095 mm		Thin	Very Thin	

6.10.5 HOT ROLLER CLEANING

The cleaning roller [A] is diagonally above the hot roller, and presses slightly against the hot roller [B] to maintain constant contact. It is coated with material saturated with silicone oil.

To prevent the oil from streaking, at the start of rotation, the hot roller reverses briefly to wipe its surface against the cleaning roller.

The hot roller and pressure roller [C] both have stripping pawls.



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6.10.6 HOT ROLLER THERMOSTATS

Three thermostats:

- [A]: Left (199°C)
- [B]: Center (200°C)
- [C]: Right (199°C)

near the hot roller [D] prevent accidental overheating which could cause a fire hazard.



6.10.7 FUSING UNIT DRIVE MECHANISM

The fusing motor (a stepper motor) [A] drives the fusing unit, the transport belt, and the paper exit unit via one gear train [B] and two timing belts [C].



6.10.8 WRINKLE PREVENTION



The speed of the paper at the fusing rollers [A] is slightly faster than at the registration rollers [B] to ensure that the correct amount of tension is maintained on the paper [C] between the registration and fusing rollers. This prevents wrinkling in the fusing unit.

However, after the paper leading edge is grabbed by the fusing unit, the paper moves past the drum faster than previously, which could enlarge the image slightly in the sub scan direction. To prevent this, both the registration and fusing motors slow down slightly (by the same amount) when the leading edge of the paper reaches the exit sensor.

The distance between the registration roller and exit sensor is about 360 mm (14.2"), so this motor speed correction is only used when paper is longer than 360 mm.

Detailed Descriptions

6.11 PAPER EXIT

6.11.1 OVERVIEW

After the paper passes through the fusing unit, it is fed to the paper exit. The paper exit section contains a jam sensor (the exit sensor).

6.11.2 PAPER EXIT DRIVE

The paper exit section is driven by the fusing motor [A], gear train [B], and timing belts [C].



6.11.3 PAPER EXIT ACCESS

The paper exit cover [A] and the paper exit guide plate [B] can be opened to make it easier to remove jammed paper from the fusing and exit sections.



6.11.4 SWITCHING EXITS

Paper longer than A1 sideways paper must exit at the rear, because the front paper exit does not have a large tray.

Selecting the paper exit on the operation panel switches the paper junction gate solenoid [A] on and off to open and close the junction gate [B], which selects the paper exit path.

The machine does not automatically select the correct exit if the paper is longer than A1 LEF. Change the exit selection on the operation panel.



6.11.5 EXIT JAM DETECTION

The exit sensor [A] in front of the rear exit rollers [B] detects paper jams.



Detailed Description

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6.12 BOARDS AND BREAKER SWITCH



6.12.1 BCU

The BCU (Base Control Unit) is the main board. It controls the printer engine and all system processing.



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LED	Color	Normal Status
LED1	GREEN	Flashing
LED2	ORANGE	Off



6.12.2 IPU

The IPU (Image Processing Unit) conducts image processing.

It processes image data from the CIS (Contact Image Sensors), sends it to the VDB (Video Drive Board), and then to the LPH (LED Print Heads).



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LED	Color	Normal Status
LED1	GREEN	Flashing
LED2	GREEN	Flashing
LED3	GREEN	Flashing
LED4	GREEN	Flashing
LED5	RED	Flashing

Note: Each LED stops flashing and lights in order from 1 to 5 at each step of image processing.

6.12.3 FILE FORMAT CONVERTER (MLB)

The file format converter (also called the "Media Link Board") provides the following functions.

LED	Color	Normal Status
LED1	GREEN	Lights
LED2	GREEN	Lights
LED3	YELLOW	Flashes
LED4	YELLOW	Flashes
LED5	YELLOW	Flashes

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6.12.4 IOB

The IOB (Input/Output Board) controls each sensor, motor, solenoid, and high voltage supply board. It also contains the drive circuits for these components. It also performs process control, transfers serial data between the machine and peripherals, and controls the fusing unit.

NOTE

- The paper cassette sensors and motors are controlled by the RFDB (Roll Feeder Drive Board).
- The pressure motors are controlled by the FPDB (Fusing Pressure Drive Board).

Important

• The DIP switch settings are provided for your reference only. They should always be set OFF (default) and they should never be changed in the field.



DIP SW Address: SW1

No.	Function	Default	Comment		
1	North America	OFF	ON	Enables North American	
				Specifications	
2	Europe	OFF	ON	Enables European	
				Specifications	
3	Jam Detection OFF	OFF	ON	No jam detection	
4	SC Detection OFF	OFF	ON	No SC display	
5	Not connected	OFF			
	Not connected	OFF			
6	Not connected	OFF			
7	Not connected	OFF			
8	Not connected	OFF			



6.12.5 PSU

The PSU (Power Supply Unit) supplies dc for every electrical component in the machine, and controls ac input to the fusing lamps and anticondensation heaters.



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Namo	Connector	Rat	ting	v	beol
Name	Connector	120 V	220 - 240 V	•	Load
FU002	CN101, 102, CN103, 104	5 A 125 V	5 A 250 V	AC	Fusing lamps, anti- condensation heaters. See Caution below.
FU101	CN100	8 A 125 V	5 A 250 V	AC	AC power
FU301	CN126-1	6.3 A 125 V	6.3 A 250 V	24 V (1) safety	IOB and 24 V system via safety switch: development motor, CGB and TS power packs
FU302	CN126-2	6.3 A 125 V	6.3 A 250 V	24 V (2) safety	IOB and 24 V system via safety switch: drum motor, fusing motor, registration motor, FPDB, fusing pressure motor
FU303	CN126-3	6.3 A 125 V	6.3 A 250 V	24 V(3)	IOB, pick-off pawl solenoid, quenching lamp, toner supply clutch, registration clutch, total counter, key counter
FU304	CN126-4	6.3 A 125 V	6.3 A 250 V	24 V(4)	IOB, SDB, original feed motor, original feed clutch, original junction gate solenoid.
FU305	CN126-5	6.3 A 125 V	6.3 A 250 V	24 V(5)	IOB, RFDB, 24 V for the roller feeder and cassette trays
	CN126-6			24 V(6)	IPU, operation panel
FU306	CN129-1	6.3 A 125 V	6.3 A 250 V	24 V(7)	CIS

▲ CAUTION: DOUBLE POLE/NEUTRAL FUSING

The machine power cord must be disconnected from the power source before replacement of FU002.

Fuses

6.12.6 GW CONTROLLER

GW (Ground Works) controller architecture allows a basic 600-dpi copier to be upgraded to a full multifunctional product, including printing, Internet, scanning, scan-to-email, and scan-tofolder with ScanRouter.

LED	Color	Normal Status
LED1		Off
LED11		Flashing



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6.12.7 VDB

The VDB (Video Drive Board) controls the LPH. It processes the image information sent from the IPU and sends it to the LPH.

6.12.8 RFDB

The RFDB (Roll Feed Drive Board) controls the motors, solenoids, and clutches inside the roll paper trays.

6.12.9 FPDB

The FPDB (Fusing Pressure Drive Board) controls the two pressure roller motors mounted on each side of the pressure roller.

6.12.10VLB

This is the interface board that connects the Printer/Scanner Controller RW480.

6.12.11 BREAKER SWITCH UNIT



Key to Acronyms

- TR Transformer
- TC Trip Coil
- ZCT Zero Cross Terminal
- R Resistance Test Switch
- M Load Device
- Ig Current Leakage

The breaker switch mechanism consists of a ZCT (Zero Cross Terminal), a sensor inside the breaker switch unit checks the amplified signals from a detection device.

The main power supply line runs through the ZCT. The ZCT generates a signal if it detects any fluctuation in the power supply caused by a short circuit.

Normally, the current phase is zero and the breaker does not operate.

When a short circuit occurs:

- The current leakage (la + lb lc = lg) flows.
- Voltage is generated at the secondary winding.
- The amplitude of the detection device increases
- The magnetic trip coil operates and opens the breaker circuit to cut the power supply to the machine.

SPECIFICATIONS

1. COPIER ENGINE

Console		
Dry electrostatic transfer system		
Sheet		
Maximum: 914 x 15,000 mm (362" x 600") Max. through-put width: 950 mm (37") Minimum: 210 x 182 mm (81/2" x 9")		
950 mm (37.4")		
Rear Straight: Upper : Document Roll:	20.0 ~ 157 g/m ² (5.32 ~ 41.7 lb.), 30 μ m ~ 1.1 mm 20.0 ~ 104.7 g/m ² (5.3 ~ 27.8 lb.) 52.3 ~ 104.7 g/m ² (13.9 ~ 27.9 lb.)	
Maximum: Roll Feed: 914 x 15,000 mm (36" x 600") Bypass feed: 914 x 2,000 mm (36" x 78")		
Minimum: Roll Feed: 210 x 210 mm (81/2" x 81/2") Bypass Feed: 210 x 182 mm (81/2" x 9") 52.3 ~ 104.7 g/m² (13.9 ~ 27.9 lb.)		
4.5 cpm (A0/E SEF) 8 cpm (A1/D LEF)		
Organic photoconductor drum		
	Console Dry electrostatic tra Sheet Maximum: 914 x Max. through-put w Minimum: 210 x 950 mm (37.4") Rear Straight: Upper : Document Roll: Maximum: Roll Feed: 914 x 1 Bypass feed: 914 Minimum: Roll Feed: 210 x 21 Bypass Feed: 210 x 52.3 ~ 104.7 g/m ² (4.5 cpm (A0/E SEF 8 cpm (A1/D LEF) Organic photocond	

Reduction/Enlargement:

		Inch Version		Metric Version
		Engineering	Arch.	
	Reduction	25, 32.4,50, 64.7 %	25,33.3,50,66.7%	25, 35.4, 50, 70.7%
	100%	100 %	100 %	100%
	Enlargement	129.4,200,258.8,400 %	133.3,200,266.7,400 %	141, 200, 282.8, 400%
Zoom:		25 ~ 400% (0.1%/s	25 ~ 400% (0.1%/step)	
Resolution:		Scanning 600 dpi, Printing 600 dpi		
Gradation:		Scanning: 256 levels Printing: 4 levels		

Warm-up Time:

120V Ver.: 110 sec. 220V Ver.: 125 sec. (Room temperature 23°C, 120V: US, 230V: EU)

First Copy Time:

	Preset Cut	A1/D LEF	A0/E SEF
	1st Feed 2nd Feed 3rd Feed 4th Feed	15.5 s 15.5 s 18 s 18 s	21 s 21 s 24 s 24 s
Copy Number Input:	Ten-key pad, 1 to 99 (sta	andard sizes only)	
Copy Paper Capacity:	Roll Feed: Max. Diam Max. Leng Roll Core Bypass Feed: 1 sheet	neter: 175 mm (6.9") th: 150 m (16.4 yds) Diameter: 76.4 ± 0.25	5 mm (about 3")
Output Tray Capacity:	Front 99 sheets: A1/D LEF 10 sheets: A1/D, A2/ 99 sheets: A2/C or si 10 sheets: A1/D LEF	(Plain paper) C (Plain paper, 10°C/ maller (Plain paper, 1 (Application paper)	′15%, 30°C/90%) 0°C/15%, 30°C/90%)
	Rear 10 sheets: A0/E SEF 1 sheet: A0/E SEF (A	· (Plain paper) Application paper)	
Original Stack Capacity	Rear Straight 1 sheet Upper 50 sheets: A1 LEF (P 20 sheets: A1 LEF (A Document Roll 1 sheet	Plain paper) Application paper)	
	Application paper: Anyth or tracing paper)	ing other than plain p	aper (for example, film
Memory Capacity:	RAM: 1 GB HDD: 40 GB x 2 = 80 GB		
Toner Replenishment:	Cartridge exchange (800 g/cartridge)		
Toner Yield:	2,200 copies (A1 LEF, 6% full black, 1 to 99 copying, Text mode)		
Power Source:	North America: 120 V, 6 Europe/Asia/China: 220	0 Hz, 20A ∼ 240 V, 50/60 Hz, 1	0 A

Power Consumption

120V version

	Full System *1
Warm-up	1.8 kW
Ready *2	1.2 kW
During Copying	1.7 kWh
Maximum	1.85 kW

220 ~ 240V version

operator position
Sound Power Level

	Full System *1
Warm-up	1.7 kW
Ready *2	1.6 kW
During Copying	1.8 kWh
Maximum	1.85 kW

*¹Full System: Mainframe with 2nd Roll Tray, or Cassette Tray *² Ready: The anti-condensation heaters are turned off.

The measurements were made in accordance with ISO 7779 at the

Noise Emission:

	Copier Only	Full System	With Cassette
Stand-by	51 dB	51 dB	51
Copying	67 dB	67 dB	67
Copying (from memory)	67 dB	67 dB	67

Dimensions (W x D x H):

Weight:

Optional Equipment:

Less than 230 kg (506 lb)

- 2nd Roll Tray (B758)
- Cassette Tray (B759)
- Original Tray (B341)
- Roll Holder Unit (B394)
- Printer Controller (B808)
- GW Scanner (B765)
- IEEE1394 I/F Board (B581)
- IEEE802.11b I/F Unit (G813)
- Data Overwrite Security Unit (B735)

1,250 x 740 x 1,200 mm (49.2" x 29.4" x 47.2")

2. 2ND ROLL TRAY (OPTION)

Copy Paper Size: (W x L)	Maximum: 914 x 6,000 mm (36" x 236")		
	Minimum: 210 x 250 m	וm (81/2" x 10")	
Copy Paper Weight	52.3 ~ 104.7g/m² (13.9	9~27 lb.)	
Copy Number Input:	Ten-key pad, 1 to 99 (standard sizes only)	
Copy Paper Capacity:	Roll Feed: Max. Diameter: Max. Length: Roll Core Diameter:	75 mm (6.9") 150 m (137.6") 76.4 ± 0.25 mm (about 3")	
Power Source:	From main frame		
Weight:	32 kg (70.5 lb.)		

3. CASSETTE TRAY

Copy Paper Size (W x L):	A2/C LEF (Max.) to A4/A LEF (Min.)
Copy Speed:	10.3 cpm (A2/C LEF) 13.4 cpm (A3/B LEF)
Copy Paper Weight:	64 to 110 g/m ²
Copy Number Input:	Ten-key pad, 1 to 99 (standard sizes only)
Copy Paper Capacity:	Plain paper: 250 sheets (or less than 27 mm stack thickness) Translucent paper: 100 sheets (or less than 7 mm)
Power Source:	From mainframe
Weight:	Less than 60 kg (132 lb.)

4. MACHINE CONFIGURATION



B188V500.WMF

No.	Item	Machine Code
1	Main Frame	B188-17, -21, -27
2	2nd Roll Tray	B758-17, -21, -27
3	Cassette Tray	B759-17, -21, -27
4	Original Tray	B341-17
5	IEEE802.11b I/F Unit	G813-04, -05
6	IEEE1394 I/F Board	B581-01
7	GW Scanner	B765-17, -21, -27
8	Roll Holder	B394-17
9	Printer Controller	B808-17