Model AP-C1
Machine Code: B222/B224

SERVICE MANUAL

June 23rd, 2006
Subject to change

Important Safety Notices

Prevention of Physical Injury

1. Before disassembling or assembling parts of the copier and peripherals, make sure that the copier power cord is unplugged.
2. The wall outlet should be near the copier and easily accessible.
3. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
4. The copier drives some of its components when it completes the warm-up period. Be careful to keep hands away from the mechanical and electrical components as the copier starts operation.
5. The inside and the metal parts of the fusing unit become extremely hot while the copier is operating. Be careful to avoid touching those components with your bare hands.

Health Safety Conditions

1. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Immediately wash eyes with plenty of water. If unsuccessful, get medical attention.
2. The copier, which use high voltage power source, can generate ozone gas. High ozone density is harmful to human health. Therefore, the machine must be installed in a well-ventilated room.

Observance of Electrical Safety Standards

The copier and its peripherals must be serviced by a customer service representative who has completed the training course on those models.

⚠WARNING

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

⚠CAUTION

- The Controller board on this machine contains a lithium battery. The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard batteries in accordance with the manufacturer's instructions and local regulations.
- The optional fax and memory expansion units contain lithium batteries, which can explode if replaced incorrectly. Replace only with the same or an equivalent type recommended by the manufacturer. Do

not recharge or burn the batteries. Used batteries must be handled in accordance with local regulations.

Safety and Ecological Notes for Disposal

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, the maintenance unit which includes developer or the organic photoconductor in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

Laser Safety

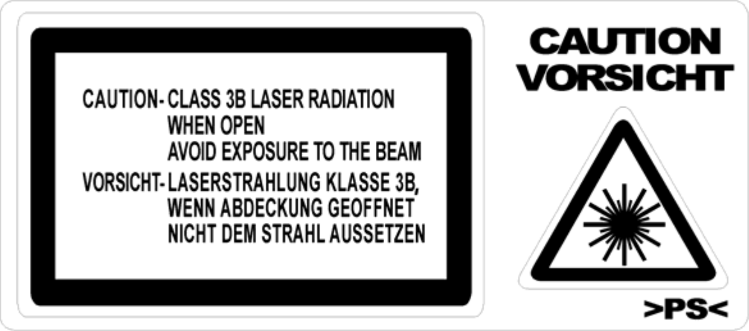
The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer.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

⚠ **WARNING**

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

⚠ **WARNING**

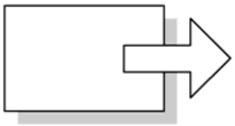
- WARNING: Turn off the main switch before attempting any of the procedures in the Laser Optics Housing Unit section. Laser beams can seriously damage your eyes.
- CAUTION MARKING:


CAUTION-CLASS 3B LASER RADIATION
WHEN OPEN
AVOID EXPOSURE TO THE BEAM
VORSICHT-LASERSTRAHLUNG KLASSE 3B,
WENN ABDECKUNG GEOFFNET
NICHT DEM STRAHL AUSSETZEN
CAUTION
VORSICHT
>PS<

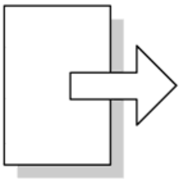
Symbols, Abbreviations and Trademarks

This manual uses several symbols and abbreviations. The meaning of those symbols and abbreviations are as follows:

☛	See or Refer to
	Clip ring
	Screw
	Connector
	Clamp
	E-ring
SEF	Short Edge Feed
LEF	Long Edge Feed



Short Edge Feed (SEF)



Long Edge Feed (LEF)

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PCL® is a registered trademark of Hewlett-Packard Company.

Ethernet® is a registered trademark of Xerox Corporation.

PowerPC® is a registered trademark of International Business Machines Corporation.

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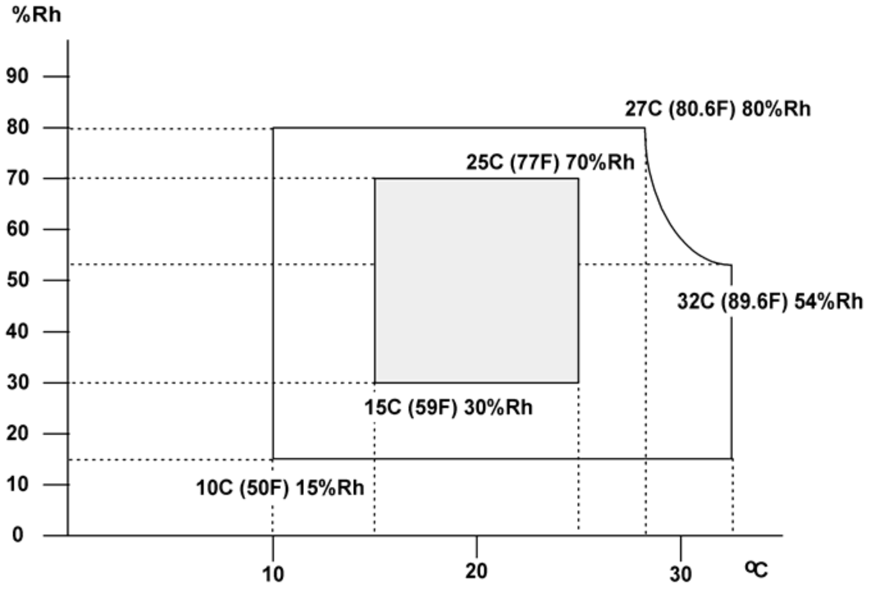
1. Installation

Installation Requirements

Environment



1. Temperature Range: 10°C to 32°C (50°F to 89.6°F)
2. Humidity Range: 15% to 80% RH
3. Ambient Illumination: Less than 1500 lux (do not expose to direct sunlight)
4. Ventilation: 3 times/hr/person or more
5. Do not let the machine get exposed to the following:
   1) Cool air from an air conditioner
   2) Heat from a heater
6. Do not install the machine in areas that are exposed to corrosive gas.
7. Install the machine at locations lower than 2,500 m (8,200 ft.) above sea level.
8. Install the machine on a strong, level base. (Inclination on any side must be no more than 5 mm.)
9. Do not install the machine in areas that get strong vibrations.

Machine Level

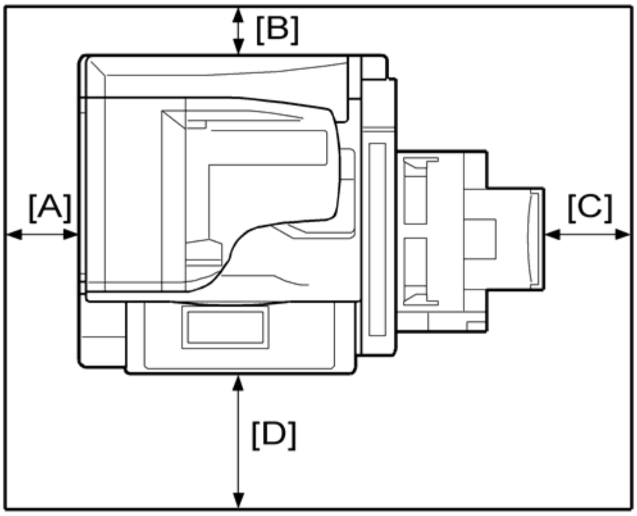
Front to back: Within 5 mm (0.2")

Right to left: Within 5 mm (0.2")

Machine Space Requirements

⚠CAUTION

- This machine, which uses high voltage power sources, can generate ozone gas. High ozone density is harmful to human health. Therefore, the machine must be installed in a well-ventilated room.



A: Over 100 mm (3.9")

B: Over 100 mm (3.9")

C: Over 550 mm (21.7")

D: Over 750 mm (29.5")

Put the machine near the power source with the clearance shown above.

Power Requirements

⚠CAUTION

- Insert the plug firmly in the outlet.
- Do not use an outlet extension plug or cord.
- Ground the machine.

1. Input voltage level:
   120 V, 60 Hz: More than 12 A
   220 V to 240 V, 50 Hz/60 Hz: More than 8 A
2. Permissible voltage fluctuation: ±10 %
3. Do not put things on the power cord.

Optional Unit Combinations

Machine Options

No.	Options	Remarks
1	2-tray paper feed unit	One from No.1 or No.2
2	Large capacity tray	
3	Platen cover	One from No.3 or No.4
4	ARDF	
5	1-bin tray unit	-
6	Bridge unit	
7	2000-sheet booklet finisher	One from No.7, No.8 or No.10; Requires No.6 and one from No.1 and No.2.
8	3000-sheet finisher	One from No.7, No.8 or No.10; Requires No.6 and one from No.1 and No.2.
9	*Punch kit (3 types)	No.7 or 8 required; One of the three types
10	1000-sheet finisher	One from No.7, No.8 or No.10; Requires No.6 and one from No.1 and No.2.
11	Scanner Accessibility Option	

*: Child options (Child options require a parent option.)

Controller Options

No.	Options	Remarks
1	IEEE 1394	One from the four (I/F Slot A)
2	Bluetooth	
3	IEEE 802.11b	

4	IEEE 1284	
5	USB Host Interface Unit	I/F Slot B
6	File Format Converter	I/F Slot D
7	PostScript 3	One from the three (SD card slot 2)
8	PictBridge Option	
9	Data Overwrite Security Unit Type D	
11	Browser Unit	SD card slot 3 (during installation only)
12	Copy Data Security Unit	-
13	VM Card Type C	SD card slot 3 (during installation only)

Fax Options

No.	Options	Remarks
1	Fax Option Type C4500	-
2	*Memory Unit Type B 32MB	Requires No.1.
3	*Hand Set Type 1018	Requires No.1. (NA Only)
4	G3 Interface Unit Type C4500	-

*: Child options (Child options require a parent option.)

Other Options

No.	Options	Remarks
1	Copy Data Security Unit Type A	-
2	Optional Counter Interface Unit Type A	-

Copier Installation

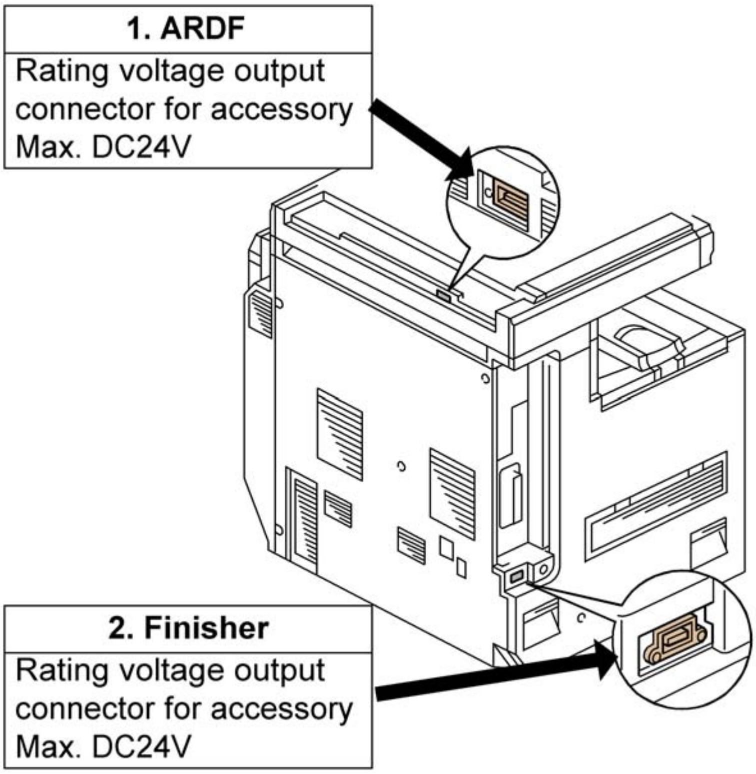
⚠CAUTION

- Make sure that the image transfer belt is in its correct position before you move the machine. Otherwise, the image transfer belt and the black PCU can be damaged.

Power Sockets for Peripherals

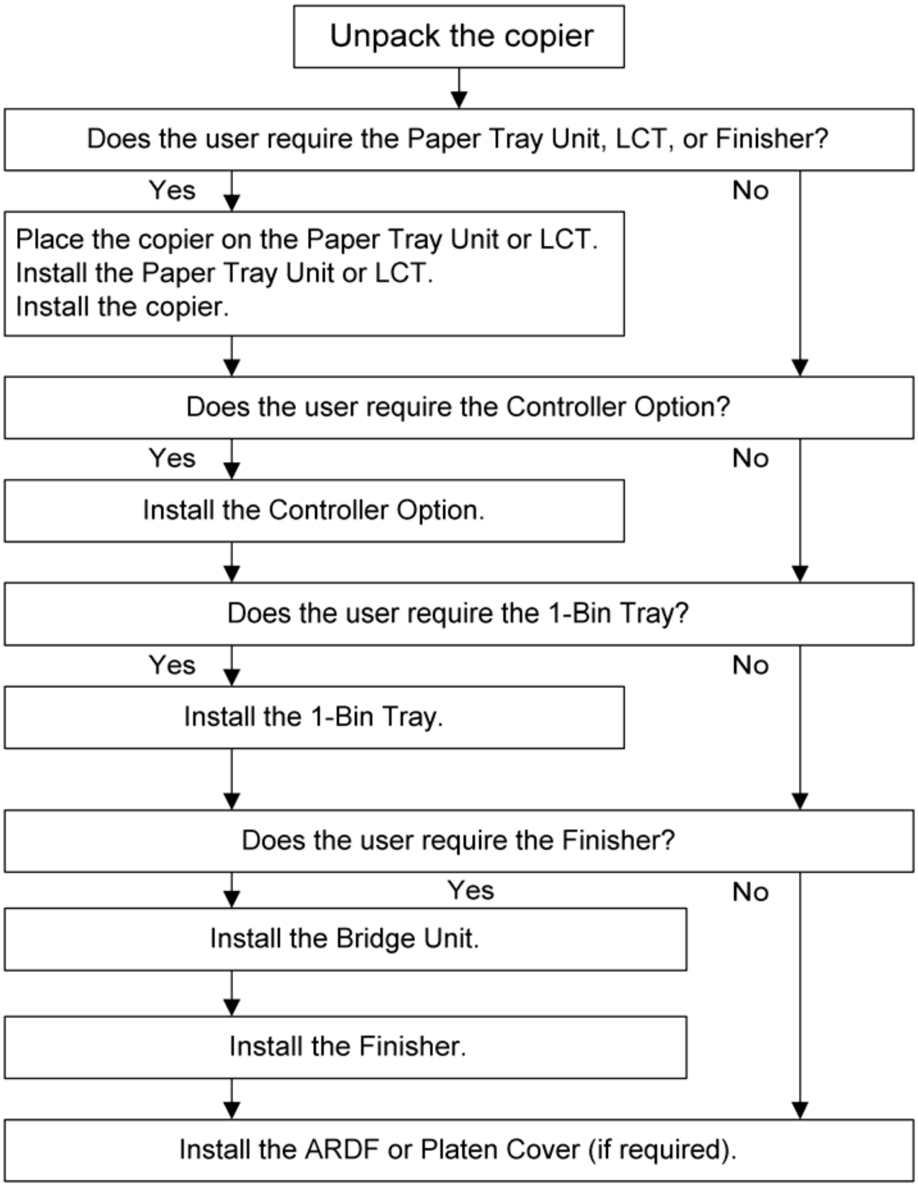
⚠CAUTION

- Rating voltage for peripherals.
- Make sure to plug the cables into the correct sockets.


1. ARDF
Rating voltage output connector for accessory Max. DC24V
2. Finisher
Rating voltage output connector for accessory Max. DC24V

Installation Flow Chart

This flow chart shows the best procedure for installation.


Unpack the copier
Does the user require the Paper Tray Unit, LCT, or Finisher?
Yes
No
Place the copier on the Paper Tray Unit or LCT.
Install the Paper Tray Unit or LCT.
Install the copier.
Does the user require the Controller Option?
Yes
No
Install the Controller Option.
Does the user require the 1-Bin Tray?
Yes
No
Install the 1-Bin Tray.
Does the user require the Finisher?
Yes
No
Install the Bridge Unit.
Install the Finisher.
Install the ARDF or Platen Cover (if required).

You need the optional paper tray unit or the LCT if you want to install the finisher (B408, B804 or B805).

The punch unit is for 2000-sheet booklet finisher (B804) and 3000-sheet finisher (B805).

Accessory Check

Check the quantity and condition of these accessories.

	Description	Q'ty	Destination
1.	Operating Instruction - Troubleshooting	1	-29 -21 -19 -17
2.	Operating Instruction - About This Machine	1	-29 -21 -19 -17
3.	Operating Instruction - Security	1	-29 -21 -19 -17
4.	Operation Instruction - Quick Reference Guide	1	-29 -21 -19
5.	Operation Instruction - Printer Quick Reference	1	-29 -21 -19
6.	Operation Instruction - Scanner Quick Reference	1	-29 -21 -19
7.	CD-ROM - Instruction - RIC	1	-29 -17
8.	CD-ROM - Instruction - SAV	1	-17
9.	CD-ROM - Instruction - GES	1	-17
10.	CD-ROM - Instruction - LAN	1	-17
11.	CD-ROM - Printer Instruction - RIC	1	-67 -29 -17
12.	CD-ROM - Printer Instruction - SAV	1	-17
13.	CD-ROM - Printer Instruction - GES	1	-17
14.	CD-ROM - Printer Instruction - NRG	1	-67
15	CD-ROM - Printer Instruction - LAN	1	-67 -17
16	CD-ROM - Printer Instruction - INF	1	-26
17	CD-ROM - Scanner Instruction - RIC	1	-67 -29 -17
18	CD-ROM - Scanner Instruction - SAV	1	-17
19	CD-ROM - Scanner Instruction - GES	1	-17
20	CD-ROM - Scanner Instruction - NRG	1	-67
21	CD-ROM - Scanner Instruction - LAN	1	-67 -17
22	Model Name Decal	1	-67 -29 -17
23	Stamp	1	-29 -28 -19 -17
24	Cloth Holder	1	-29 -28 -21 -19 -17
25	Exposure Glass Cleaning Cloth	1	-29 -28 -21 -19 -17

	Description	Q'ty	Destination
26	Rivet	2	-29 -28 -21 -19 -17
27	Operating Instructions Holder	1	-29 -28 -21 -19 -17
28	Ferrite Core	1	-29 -28 -21 -19 -17
29	Power Supply Cord	1	-29 -28 -21 -19 -17
30	Cover	1	-29 -28 -21 -19 -17
31	Decal - Paper Size	1	-29 -28 -21 -19 -17
32	Emblem Cover	1	-29 -17
33	Sheet - Eula: 16 Languages	1	-67 -29 -26 -17
34	Sheet - Caution 16 Languages	1	-67 -29 -26 -17
35	Decal - Caution - Original	1	-29 -28 -17
36	Sheet Data	1	-29 -28 -21
37	Warranty Sheet (Chinese)	1	-21
38	Sheet - Name - Tel	1	-21

Installation Procedure

⚠CAUTION

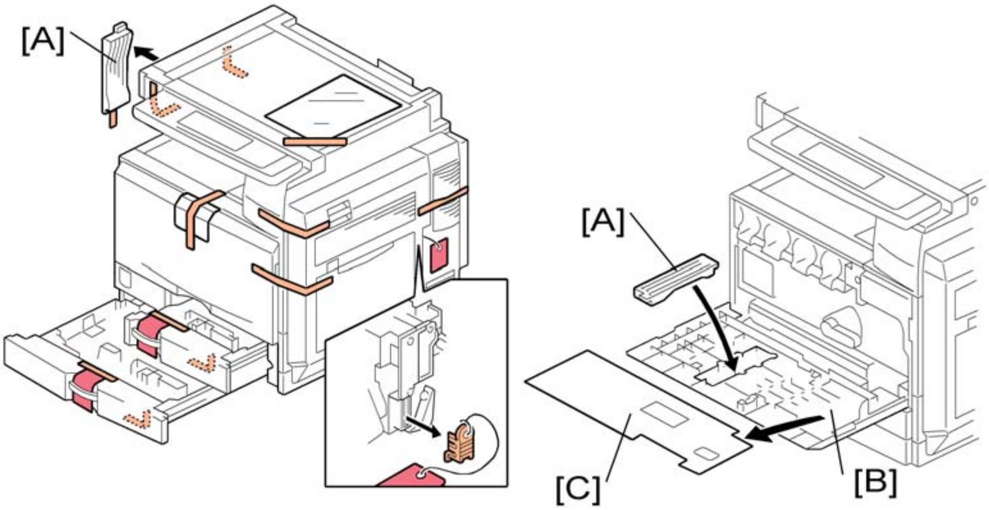
- **Remove the tape from the development units before you turn the main switch on. The development units can be severely damaged if you do not remove the tape.**

Put the machine on the paper tray unit or the LCT first if you install an optional paper tray unit or the optional LCT at the same time. Then install the machine and other options.

Note

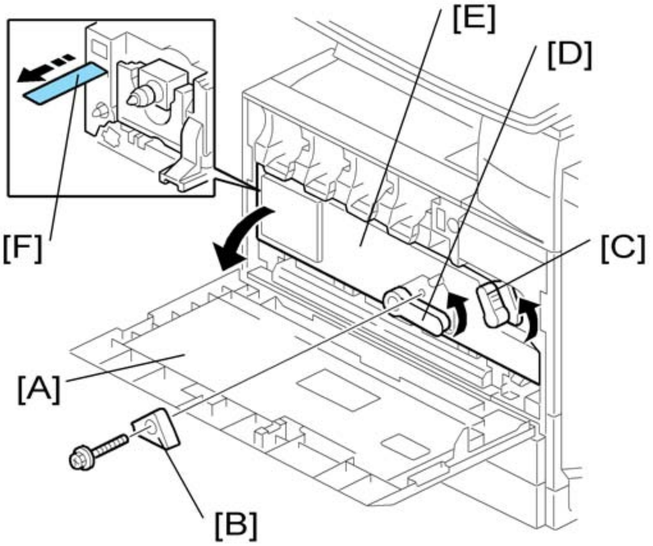
- Keep the shipping retainers after you install the machine. You may need them in the future if you transport the machine to another location.

Tapes and Retainers



1. Remove all the tapes and retainers on the machine.
2. Remove all the tapes and retainers in trays 1 and 2, and then take out the power cord from tray 1 (if applicable).
3. Remove the scanner unit stay [A].
4. Open the front door [B], and then remove the jam location sheet [C].
5. Keep the scanner unit stay [A] inside the front door [B].
6. Reattach the jam location sheet.
7. Close the front door.

Developer and Toner Bottles



1. **Open the front door [A].**

   GSA model (-58) and EU models (-67/-26) **do not** require steps from 2 to 7. Skip to step 8 if you install these models.

2. **Remove the stopper [B] (🔩 x 1).**

   Note

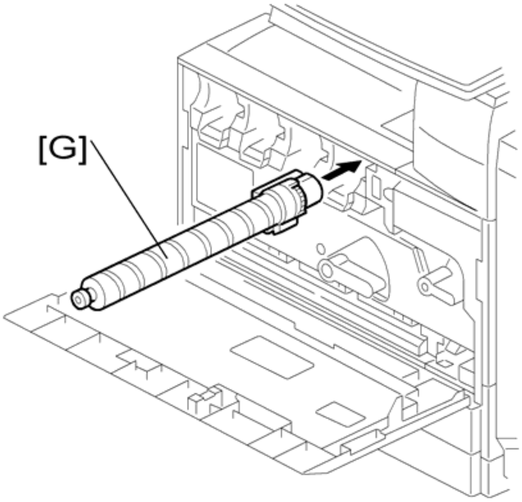
   - This stopper locks the drum positioning plate lever.

3. **Release the image transfer unit lock lever [C], and turn the drum positioning plate lever [D] counterclockwise.**
4. **Open the drum positioning plate [E].**
5. **Remove all tapes [F] from the four development units.**

   Note

   - When you remove the tape from the development unit, hold the development unit with your hand, and then pull the tape.

6. **Close the drum positioning plate. Then lock the image transfer unit lock and turn the drum positioning plate lever clockwise.**
7. **Lock the drum positioning plate lever with the stopper [B] (🔩 x 1).**
8. **Shake each toner bottle five or six times.**



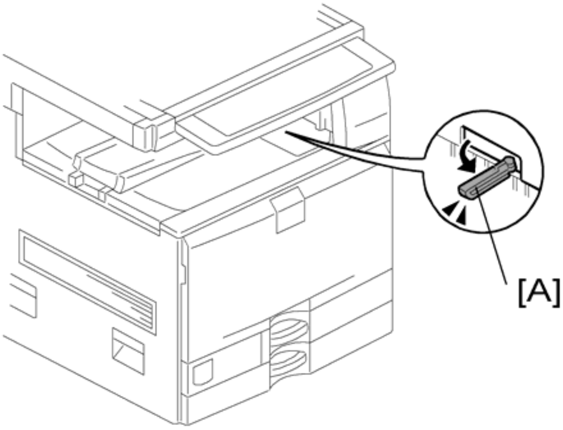
9. **Install each toner bottle [G] in the machine.**
10. **Close the front door.**

Paper Trays

1. **Pull each paper tray out. Then adjust the side guides and end guide to match the paper size.**

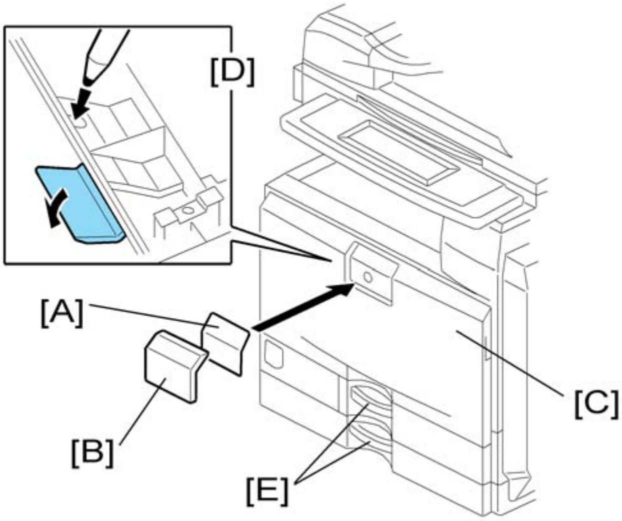
Note

- To move the side guides, first pull out the tray fully. Then push down the green lock at the rear inside the tray.



2. **Pull out the feeler [A] for the output tray full detection mechanism.**

Emblem and Decals



1. **Attach the correct emblem [A] and the cover [B] to the front door [C] of the machine, if the emblem is not attached.**

   Note

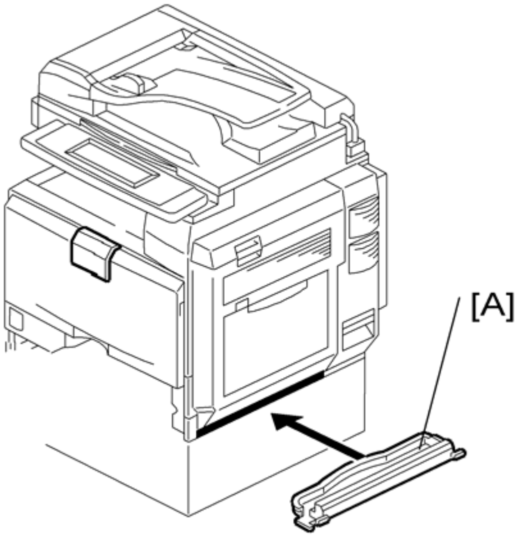
   - If you want to change the emblem that has been already attached, remove the panel with an object (not a sharp object) as shown [D], and then install the correct emblem.

2. **Attach the correct paper tray number and size decals to the paper trays [E].**

   Note

   - Paper tray number and size decals are also used for the optional paper tray or the optional LCT. Keep these decals for use with these optional units.

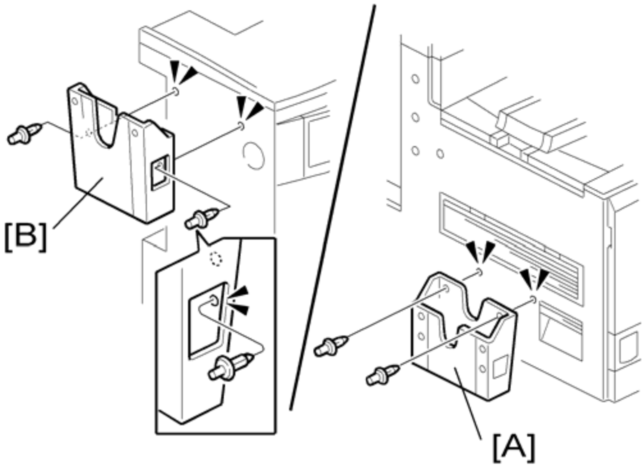
Fire Prevention Cover



When the copier is installed on the floor without the optional paper tray unit or a table, the cover [A] must be attached to the copier.

Install the cover [A] at the right side of the copier.

Manual Pocket Attachment



1. **Attach the manual pocket [A] to the left side of the copier (snap rivet x 2).**
2. **If a finisher has been installed, attach the manual pocket [B] to the rear side of the finisher (snap rivet x 2).**

Initialize the Developer

1. **Plug in the machine.**
2. **Make sure that the platen or ARDF is closed and the main power is turned off.**
3. **Turn the main power switch on. The machine automatically starts the initialization procedure. The Start button LED (⊙) turns green when this procedure has finished.**
4. **Make copies of image samples (text, photo, and text/photo modes).**
5. **Do the Automatic Color Calibration process (ACC) as follows:**
    1. Print the ACC test pattern (User tools > Maintenance > ACC > Start).
    2. Put the printout on the exposure glass.
    3. Put 10 sheets of white paper on top of the test chart.
    4. Close the ARDF or the platen cover.
    5. Press “Start Scanning” on the LCD panel. The machine starts the ACC.
6. **Check that the sample image has been copied normally.**

Settings Relevant to the Service Contract

Change the necessary settings for the following SP modes if the customer has made a service contract.

Note

- You must select one of the counter methods (developments/prints) in accordance with the contract (☛ SP5-045-001).

Item	SP No.	Function	Default
Counting method	SP5-045-001	Specifies if the counting method used in meter charge mode is based on developments or prints. NOTE: You can set this one time only. You cannot change the setting after you have set it for the first time.	“0”: Developments
A3/11" x 17" double counting	SP5-104-001	Specifies whether the counter is doubled for A3/11" x 17" paper. When you have to change this setting, contact your supervisor.	“No”: Single counting
Service Tel. No. Setting	SP5-812-001 through 004	5812-002 programs the service station fax number. The number is printed on the counter list when the meter charge mode is selected. This lets the user fax the counter data to the service station.	

Moving the Machine

This section shows you how to manually move the machine from one floor to another floor. See the section “Transporting the Machine” if you have to pack the machine and move it a longer distance.

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

Transporting the Machine

Main Frame

1. **Do SP 4806-001 to move the scanner carriage from the home position. This prevents dust from falling into the machine during transportation.**
2. **Remove the toner cartridges. This prevents toner flow into the toner supply tube, which is caused by vibration during transport. This can also cause the tube to be clogged with toner.**
3. **Make sure there is no paper left in the paper trays. Then fix down the bottom plates with a sheet of paper and tape.**
4. **Empty the toner collection bottle. Then attach securing tape to stop the toner bottle from coming out.**
5. **Do one of the following:**
    - Attach shipping tape to the covers and doors.
    - Shrink-wrap the machine tightly.

Note

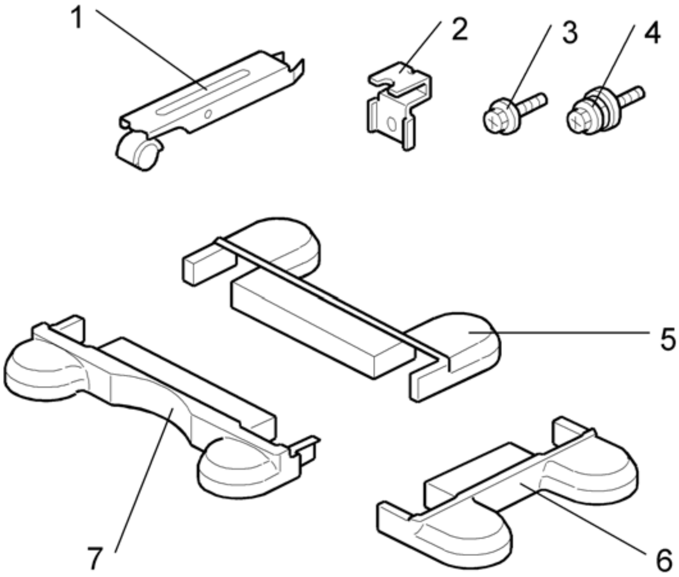
- After you move the machine, make sure you do the "Auto Color Registration" as follows. This optimizes color registration.
    1. Do the "Forced Line Position Adj. Mode c" (SP2-111-3).
    2. Then do the "Forced Line Position Adj. Mode a" (SP2-111-1).
       To check if SP 2-111-1 was successful, watch the screen during the process. A message is displayed at the end. Also, you can check the result with SP 2-194-10 to -12.
- Make sure that the side fences in the trays are correctly positioned to prevent color registration errors.

Paper Feed Unit (B800)

Accessory Check

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

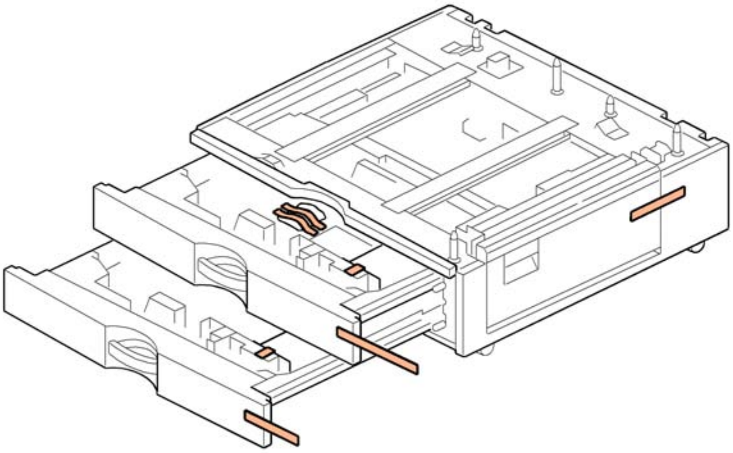
No.	Description	Q'ty
1	Caster stand	6
2	Securing bracket	2
3	Screw (M3x6 x 6, M4x10 x 2)	8
4	Spring Washer Screw	1
5	Rear stand cover	1
6	Left stand cover	1
7	Front stand cover	1



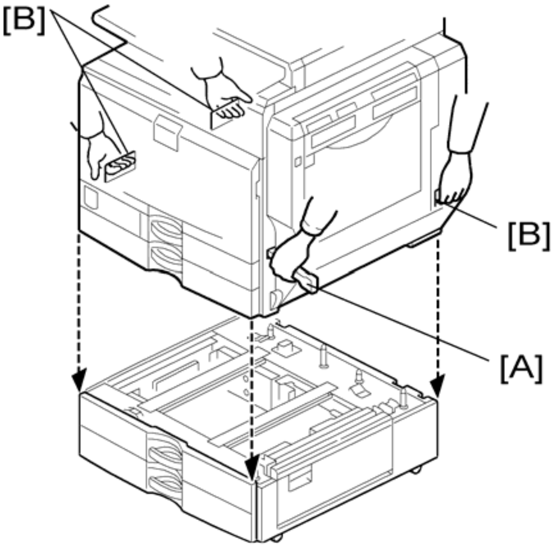
Installation Procedure

⚠CAUTION

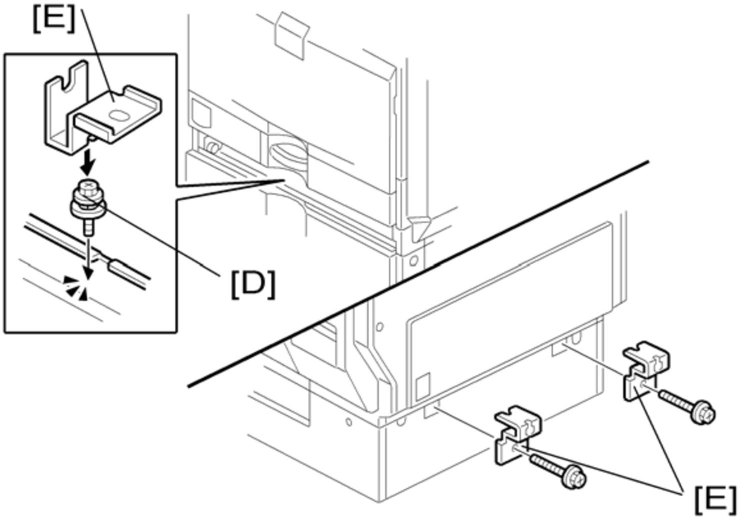
- Turn off the main switch of the copier and unplug the power cord before you start the installation procedure.
- You need two or more persons to lift the copier. The copier is highly unstable when lifted by one person, and may cause human injury or property damage.
- Do not lift the copier with the paper feed unit installed. Otherwise, the handle and grips may be damaged.



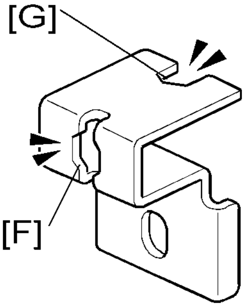
1. **Remove all tape on the paper feed unit.**
2. **Remove the paper trays and remove all tape and padding.**



3. **Grasp the handle [A] and grips [B] of the machine.**
4. **Lift the copier and install it on the paper feed unit [C].**

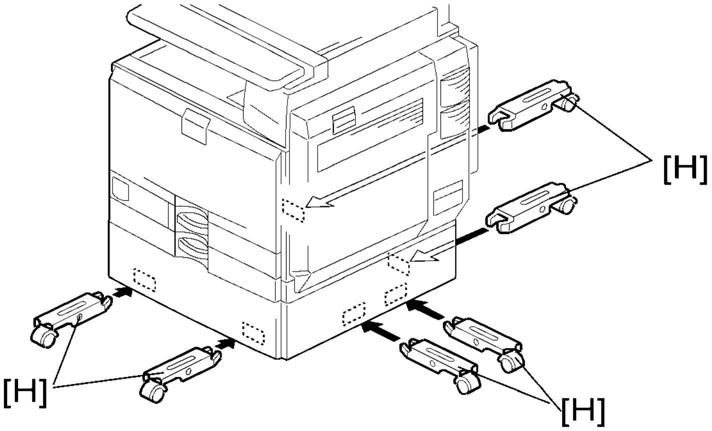


5. **Remove tray 2 of the machine.**
6. **Fasten the spring washer screw [D], using the cutout in the securing bracket [E] as a tool.**
7. **Reinstall tray 2.**
8. **Attach the securing brackets [E] (M4x10 🔩 x 1 each).**

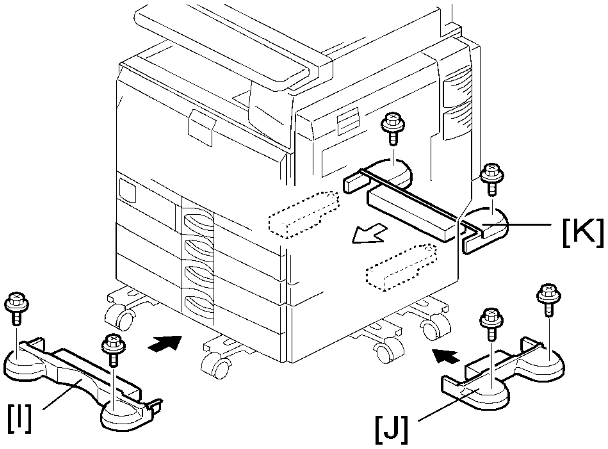


Note

- One of the securing brackets is used as a securing tool (the cutout [F] is used in step 6). But the cutout [G] is for attaching the tray heater. Therefore, attach the securing brackets [E] after installing the tray heater if you will install the tray heater.



9. Attach the two caster stands [H] to front, left, and rear sides of the machine.



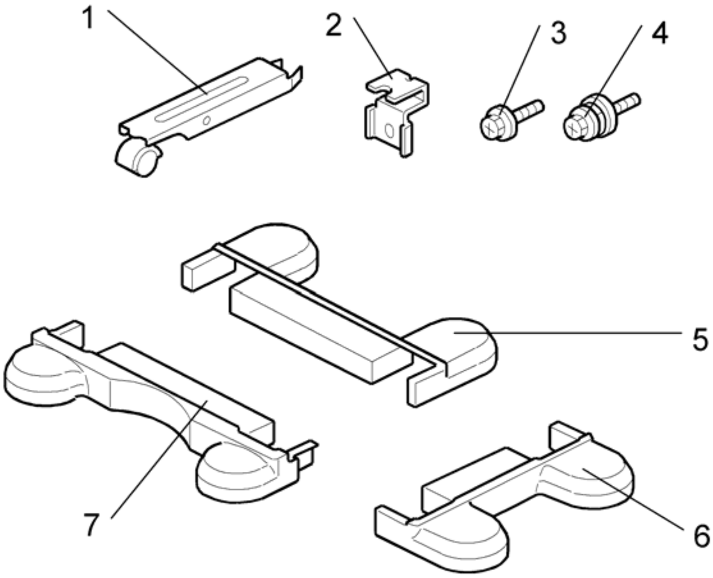
10. Attach the front stand cover [I], right stand cover [J] and rear stand cover [K] to the correct sides of the machine (M3x6 x 2: each).
11. Load paper into the paper feed unit.
12. Turn on the main power switch of the machine.
13. Check the paper feed unit operation and copy quality.

LCT (B801)

Accessory Check

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

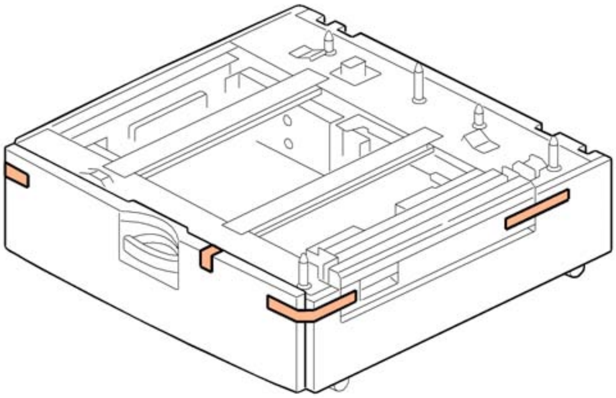
No.	Description	Q'ty
1	Caster stand	6
2	Securing bracket	2
3	Screw (M3x6 x 6, M4x10 x 2)	8
4	Spring washer screw	1
5	Rear stand cover	1
6	Right stand cover	1
7	Front stand cover	1



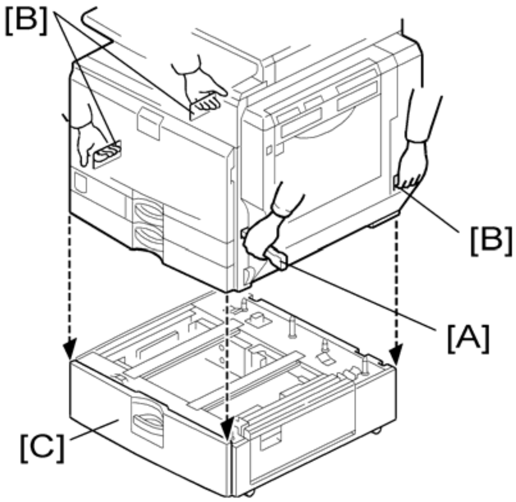
Installation Procedure

⚠CAUTION

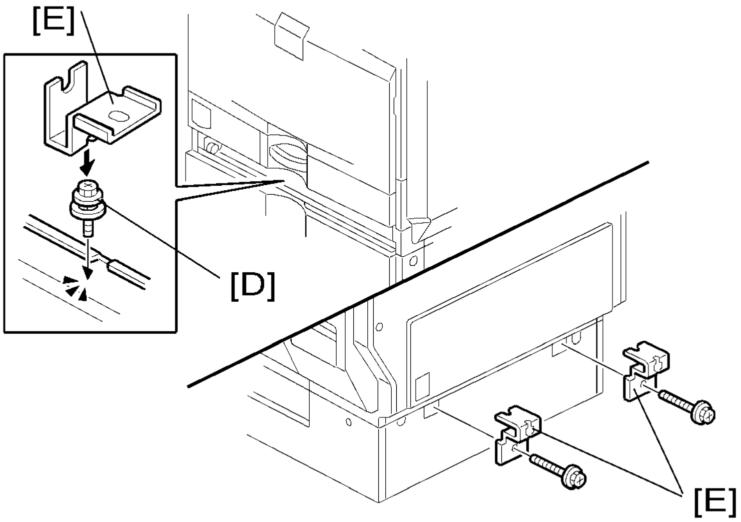
- Turn off the main switch of the copier and unplug the power cord before you start the installation procedure.
- You need two or more persons to lift the copier. The copier is highly unstable when lifted by one person, and may cause human injury or property damage.
- Do not lift the copier with the paper feed unit installed. Otherwise, the handle and grips may be damaged.



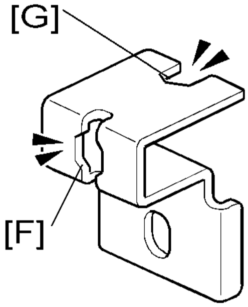
1. **Remove all tapes and retainers in the LCT.**



2. **Grasp the handle [A] and grips [B] of the machine.**
3. **Lift the copier and install it on the LCT [C].**

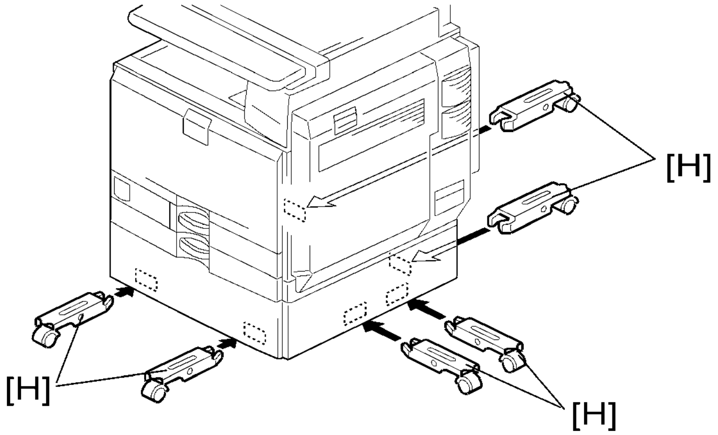


4. **Remove tray 2 of the machine.**
5. **Fasten the spring washer screw [D], using the cutout in the securing bracket [E] as a tool.**
6. **Reinstall tray 2.**
7. **Attach the securing brackets [E] (M4x10 x 1each).**

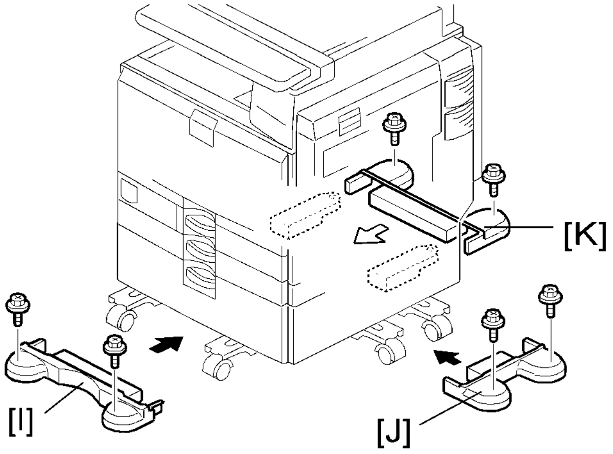


Note

- One of the securing brackets is used as a securing tool (the cutout [F] is used in step 6). But the cutout [G] is for attaching the tray heater. Therefore, attach the securing brackets [E] after installing the tray heater if you will install the tray heater.



8. Attach the two caster stands [H] to the front, right, and rear sides of the machine.



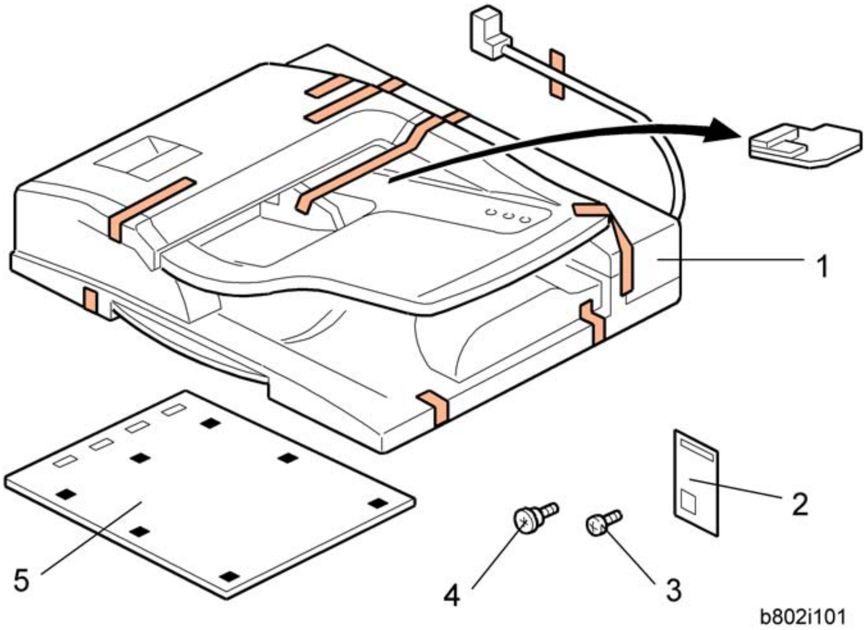
9. Attach the front stand cover [I], right stand cover [J] and rear stand cover [K] to the correct sides of the machine (M3x6 x 2 each).
10. Load paper into the LCT.
11. Turn on the main power switch of the machine.
12. Check the LCT operation and copy quality.

Auto Reverse Document Feeder (B802)

Component Check

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

No.	Description	Q'ty
1	ARDF	1
2	Decal	1
3	Knob Screw	2
4	Stud Screw	2
5	Platen Plate	1

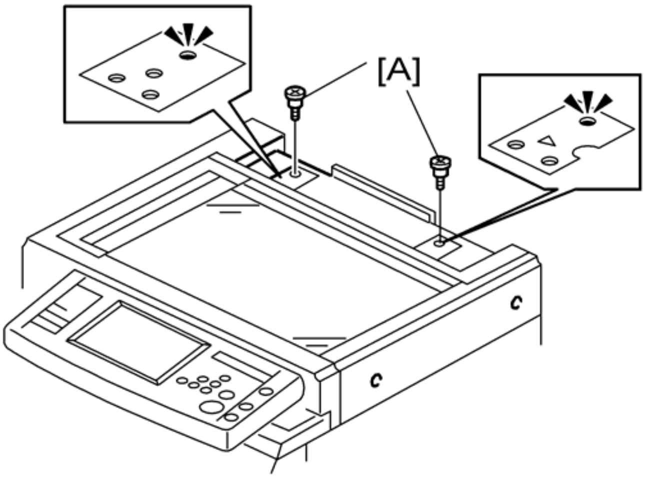


Installation Procedure

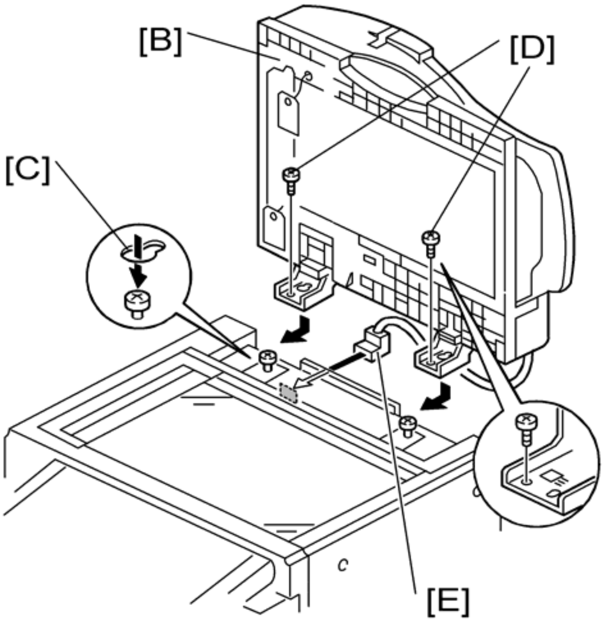
⚠CAUTION

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

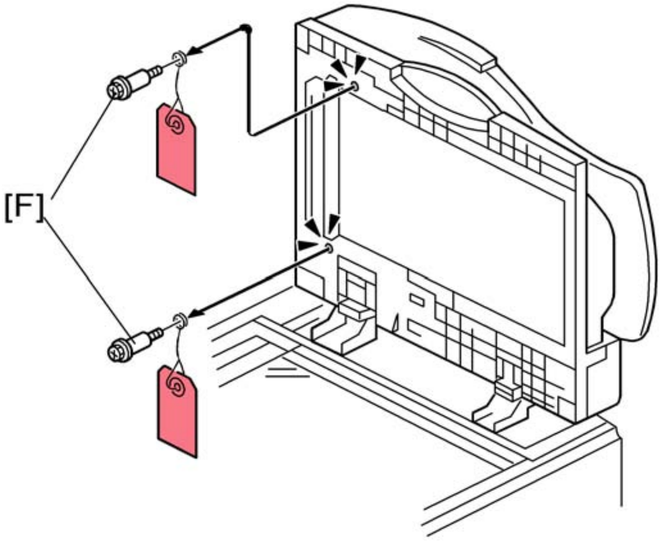
1. Remove all tapes and shipping retainers.
2. Remove the two screws already installed at the top rear of the machine.



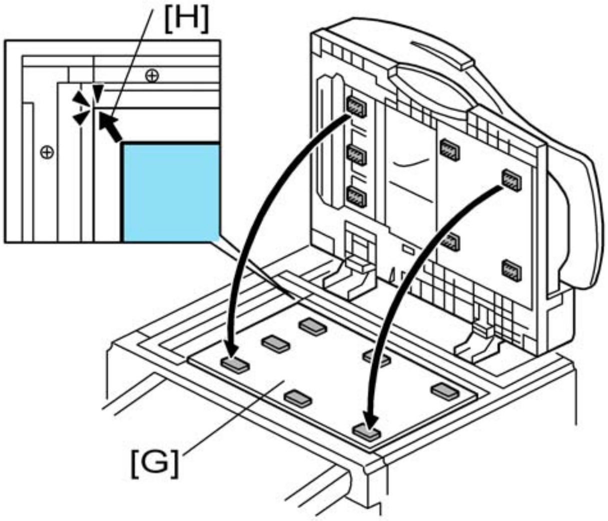
3. Insert the two stud screws [A] on the top of the machine.



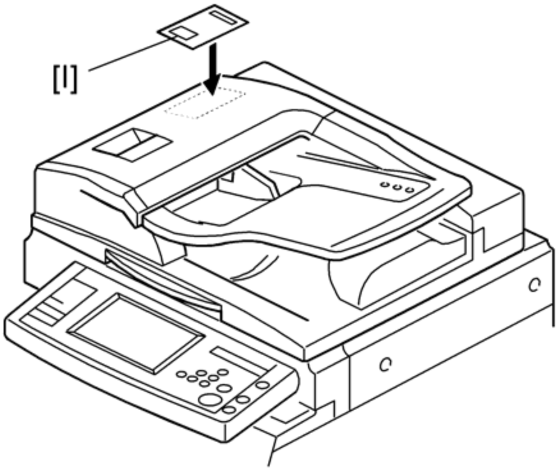
4. Mount the ARDF [B] by aligning the screw keyholes [C] in the ARDF support plate over the stud screws.
5. Slide the ARDF toward the front of the machine.
6. Secure the ARDF with the two knob screws [D].
7. Connect the ARDF interface cable [E] to the machine.



8. Remove two screws [F] from the bottom of the ARDF.



9. Peel off the platen plate [G] and place it on the exposure glass.
10. Align the rear left corner of the platen plate with the corner [H] on the exposure glass.
11. Close the ARDF.
12. Open the ARDF and check that the platen plate is correctly attached.



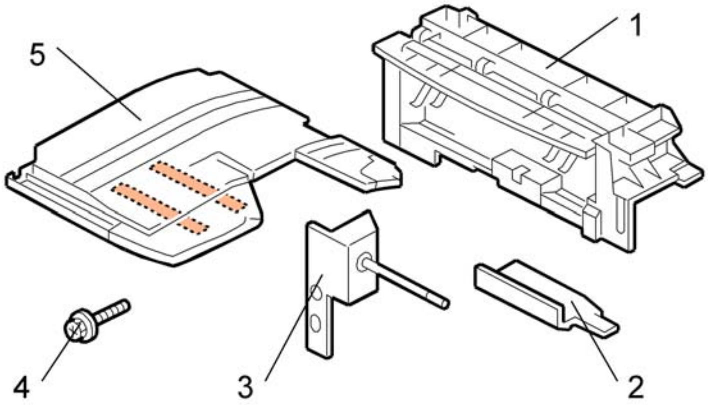
13. Attach the decal [I] to the top cover as shown. Choose the language you want.
14. Plug in and turn on the main power switch of the machine, and then check the ARDF operation.
15. Make a full size copy. Check that the registrations (side-to-side and leading edge) and image skew are correct. If they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

1-Bin Tray Unit (B803)

Component Check

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

No.	Description	Q'ty
1	1-Bin Tray Unit	1
2	End-fence	1
3	Tray Support Bar	1
4	Screws (M3 x 16)	2
5	Tray	1



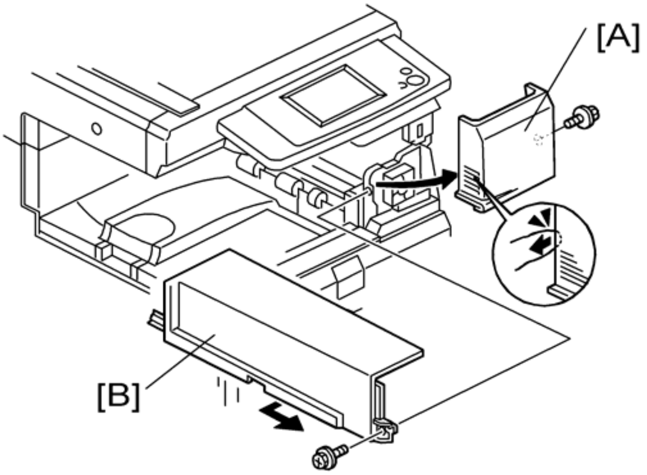
Installation Procedure

CAUTION

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

If the bridge unit (B227) has already been installed in the machine, remove it before installing 1-bin tray unit (B803). This will make it easier for you to do the following procedure.

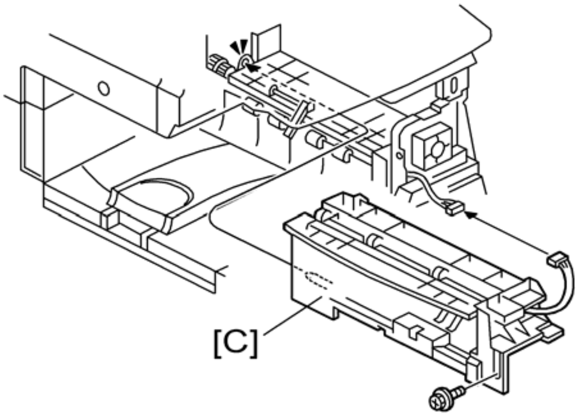
1. **Remove all tapes.**
2. **Open the right door of the machine.**



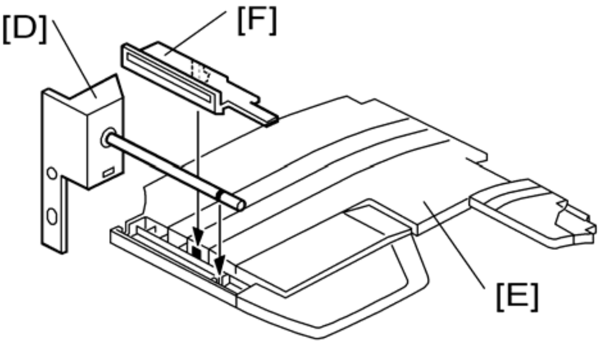
3. Remove the front right cover [A] (x 1).
4. Remove the inner cover [B] (x 1).

Note

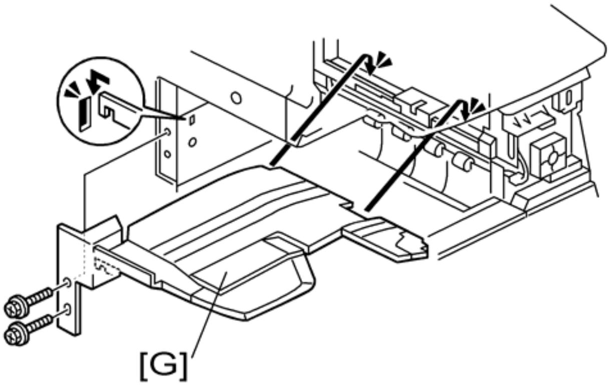
- Keep this screw for step 5.



5. Install the 1-bin tray unit [C] (x 1, x 1, x 1 [This screw was removed in step 4]).



6. Attach the tray support bar [D] to the tray [E] as shown, and then attach the end-fence [F].



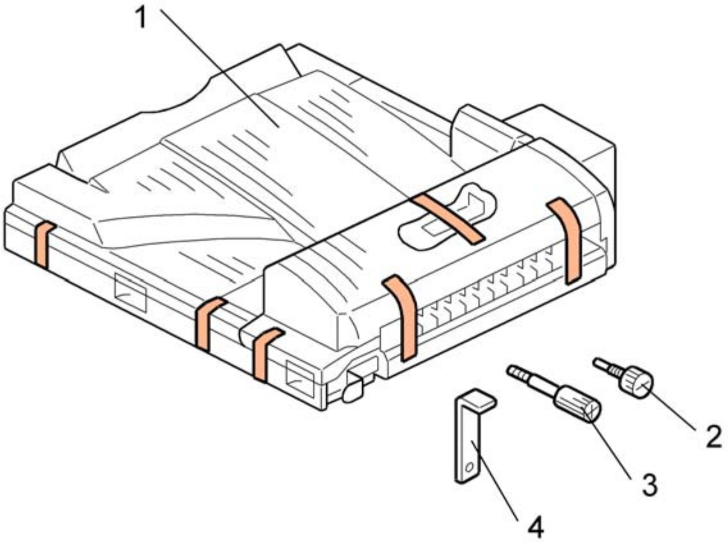
7. Install the tray [G] (with the tray support bar) in the machine (M3 x 16: x 2).
8. Reinstall the front right cover in the machine, and then close the right door of the machine.
9. Turn on the main power switch of the machine.
10. Check the 1-bin tray unit operation.

Bridge Unit (B227)

Component Check

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

No.	Description	Q'ty
1	Bridge Unit	1
2	Screw	1
3	Knob screw	1
4	Holder bracket	1



Installation Procedure

⚠CAUTION

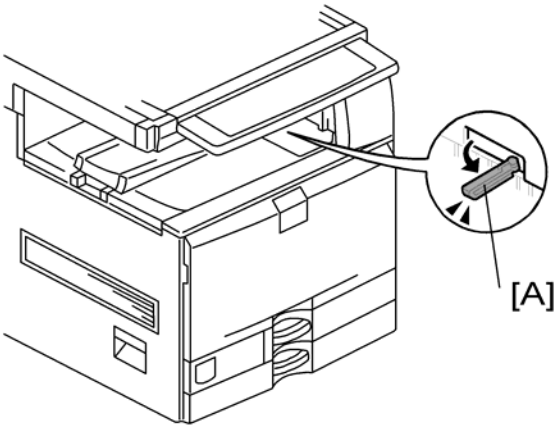
- **Unplug the copier power cord before starting the following procedure.**

Note

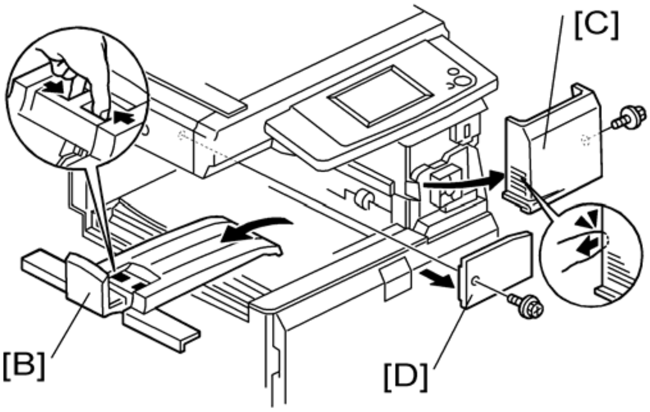
- 1. If you will install the 1-bin tray (B803) in the machine, install the 1-bin tray before you install the bridge unit (B227). This will make it easier for you to do the following procedure.

- 2. If you will install a finisher (B408, B804, or B805) in the machine, install the finisher after you install the bridge unit (B227).

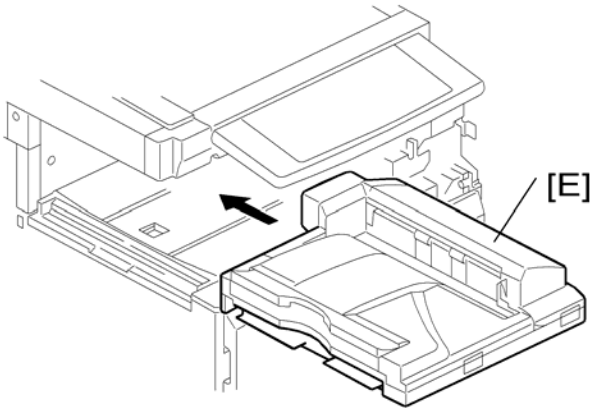
1. **Remove all tapes.**



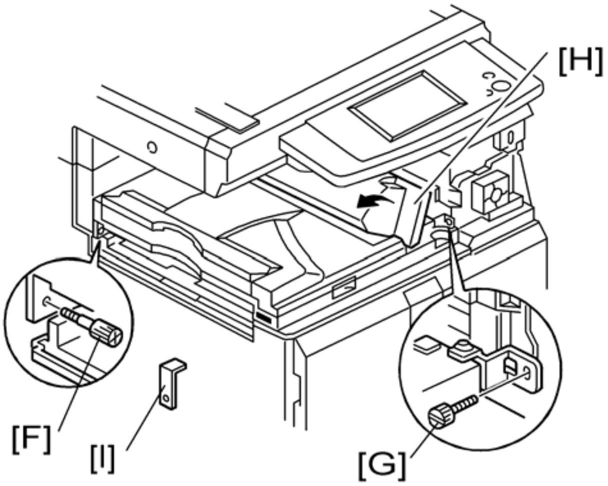
2. **If the sensor feeler [A] is out, fold it into the machine.**
3. **Open the right door of the machine.**



4. **Remove the inner tray [B].**
5. **Remove the front right cover [C] (🔩 x 1).**
6. **Remove the connector cover [D] (🔩 x 1).**



7. **Install the bridge unit [E] in the machine.**



8. **Secure the bridge unit with the knob screw [F] and screw [G].**
9. **Reinstall the front right cover in the machine. Then close the right door of the machine.**

Note

- Open the bridge unit cover [H] when installing the front right cover. Otherwise, the bridge unit cover is an obstacle for attaching the front right cover.

10. **Install the optional finisher (refer to the finisher installation procedure).**

Note

- If you will not install the finisher at this time, install the holder bracket [I]. Otherwise, the customer will damage the bridge unit if they pull up the bridge unit tray. When you install the finisher, you will need this bracket during the installation procedure.

11. **Turn on the main power switch of the machine.**
12. **Check the bridge unit operation.**

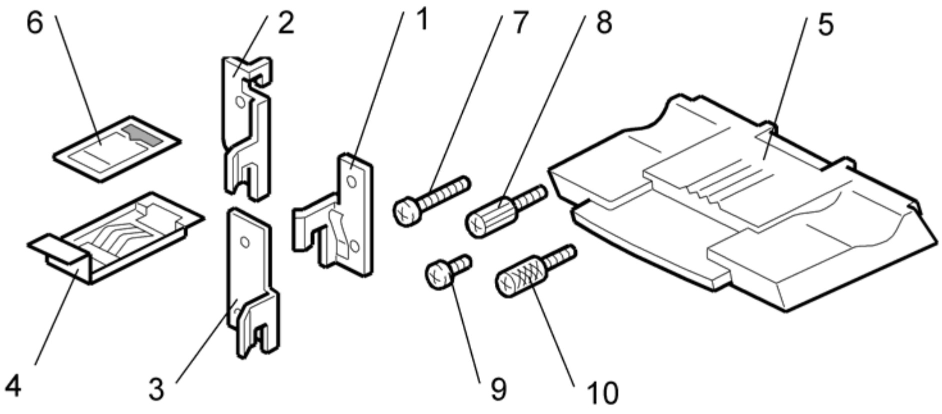
1000-Sheet Finisher (B408)

Accessory Check

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

No.	Description	Q'ty	B222/B224
1	Front Joint Bracket	1	O
2	Rear Joint Bracket	1	---
3	Rear Joint Bracket	1	O
4	Grounding Plate	1	O
5	Copy Tray	1	O
6	Staple Position Decal	1	O
7	Screw - M4 x 14	4	O
8	Knob Screw - M4 x 10	1	O
9	Screw - M3 x 8	1	O
10	Knob Screw - M3 x 8	1	O

O = Necessary, --- = Not necessary



Installation Procedure

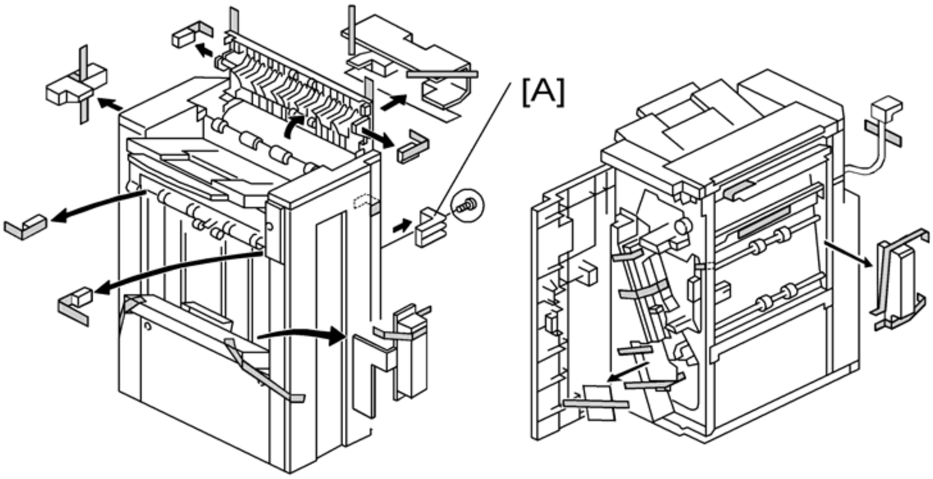
⚠CAUTION

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

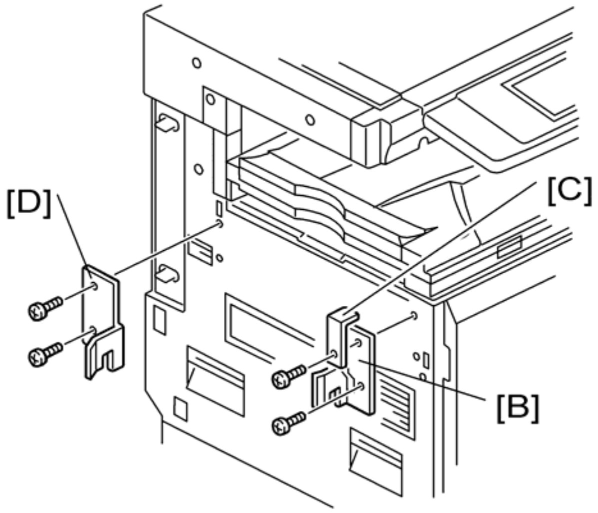
If this finisher will be installed on the B222 or B224 copier, the following options must be installed before installing this finisher.

- Bridge Unit (B227)

- Paper Feed Unit (B800) or LCT (B801)



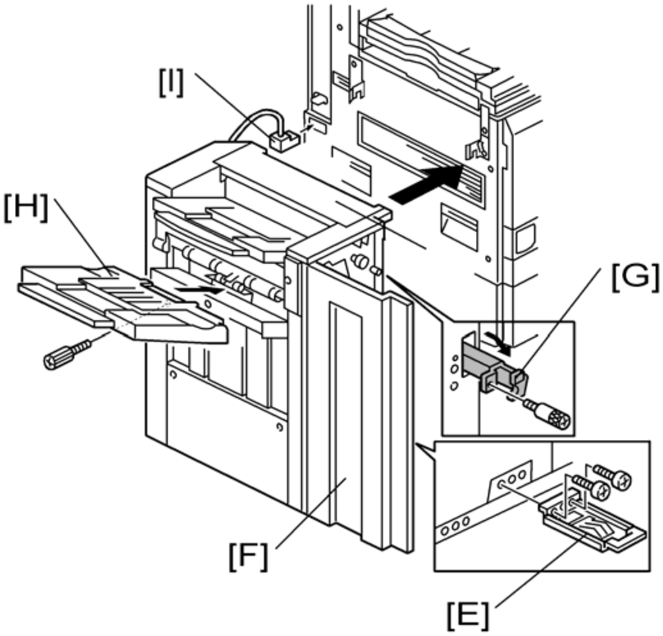
1. **Unpack the finisher, and then remove the stopper [A] and tapes (🔩 x 1).**



2. **Install the front joint bracket [B], holder bracket [C] (🔩 x 2 - M4 x 14), and rear joint bracket [D] (🔩 x 2 - M4 x 14).**

Note

- The holder bracket [C] must be placed outside the front joint bracket [B]. The holder bracket is provided with the bridge unit (B227).

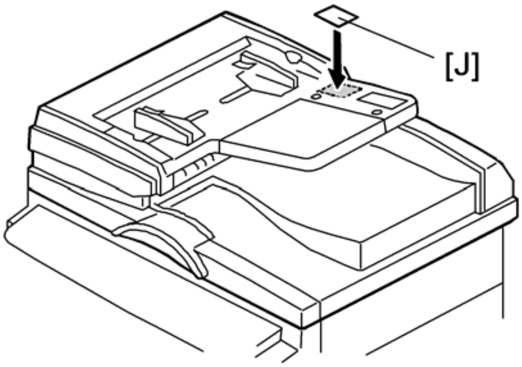


3. **Install the grounding plate [E] on the finisher (🔩 x 2 - M3 x 8).**

Note

- Use the screw removed in step 1 and the screw from the accessory box.

4. **Open the front door [F] of the finisher, and then pull the locking lever [G] (1 knob screw - M3 x 8).**
5. **Align the finisher on the joint brackets, and lock it in place by pushing the locking lever.**
6. **Secure the locking lever (1 knob screw - M3 x 8).**
7. **Close the front door.**
8. **Install the copy tray [H] (1 knob screw - M4 x 10).**
9. **Connect the finisher cable [I] to the main machine below the right rear handle.**



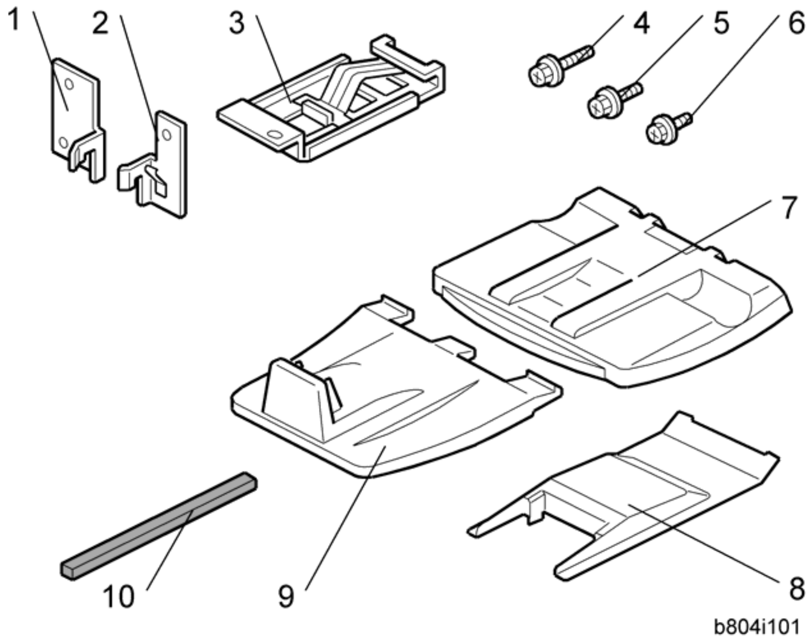
10. Attach the staple position decal [J] to the ARDF as shown.
11. Turn on the main power switch and check the finisher operation.

2000/3000-Sheet (Booklet) Finisher (B804/B805)

Accessory Check

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

No.	Description	Q'ty
1	Rear Joint Bracket	1
2	Front Joint Bracket	1
3	Ground Plate	1
4	Tapping screws - M4 x14	4
5	Tapping screws - M3 x 8	1
6	Tapping screws - M3 x 6	6
7	Upper output tray	1
8	Support Tray	1
9	Lower output tray (B804 Only)	1
10	Cushion (with double-sided tape)	1

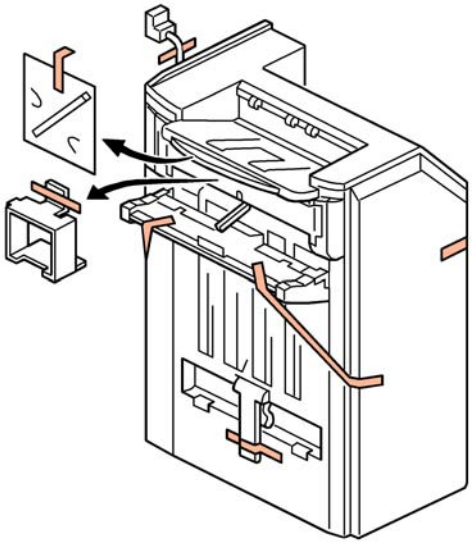


Installation Procedure

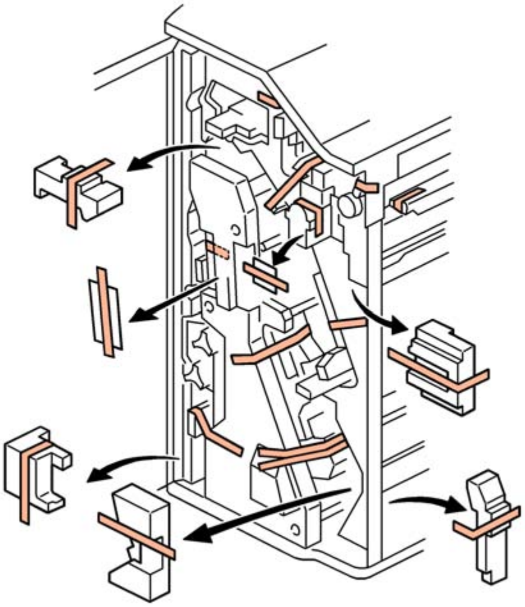
⚠CAUTION

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

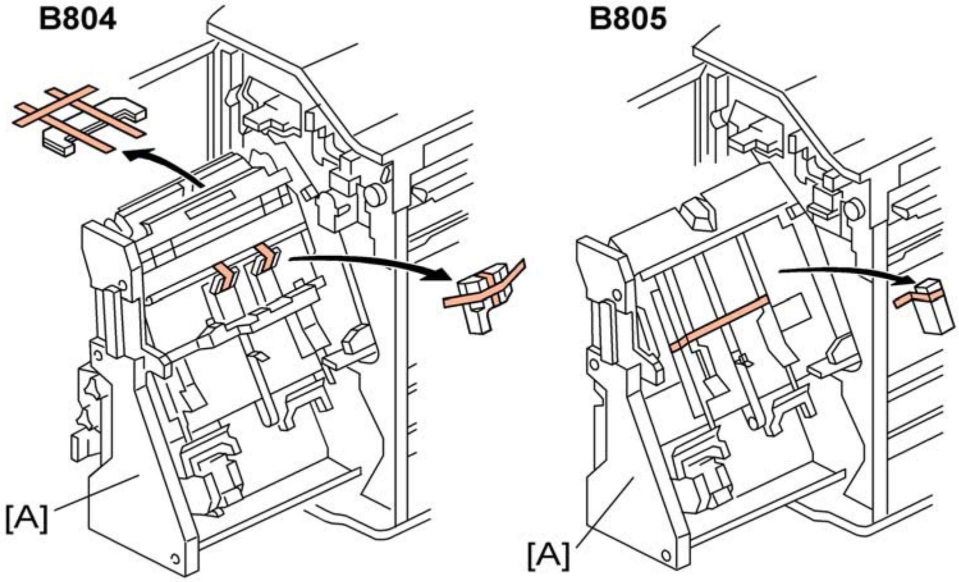
The bridge unit (B227) and optional paper feed unit (B800 or B801) must be installed before installing this finisher (B804/B805).



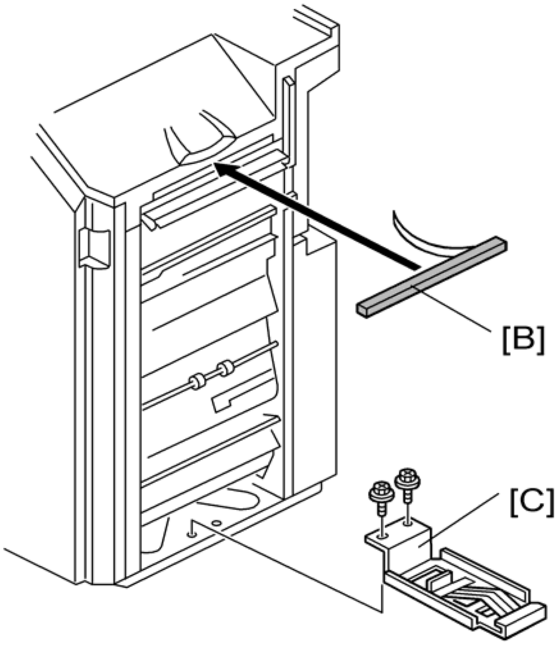
1. Unpack the finisher and remove all tapes and packing materials from the finisher.



2. Open the front door, and then remove all tapes and packing materials from the inside of the finisher.



3. Pull out the jogger unit [A], and then remove all tapes and retainers.

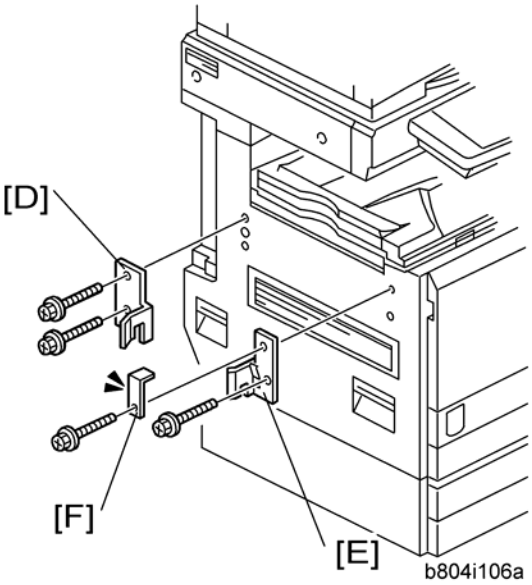


4. **Attach the cushions [B] to the finisher.**

Note

- Make sure that the cushion is placed within 0 to 1 mm from the edge of the cover.

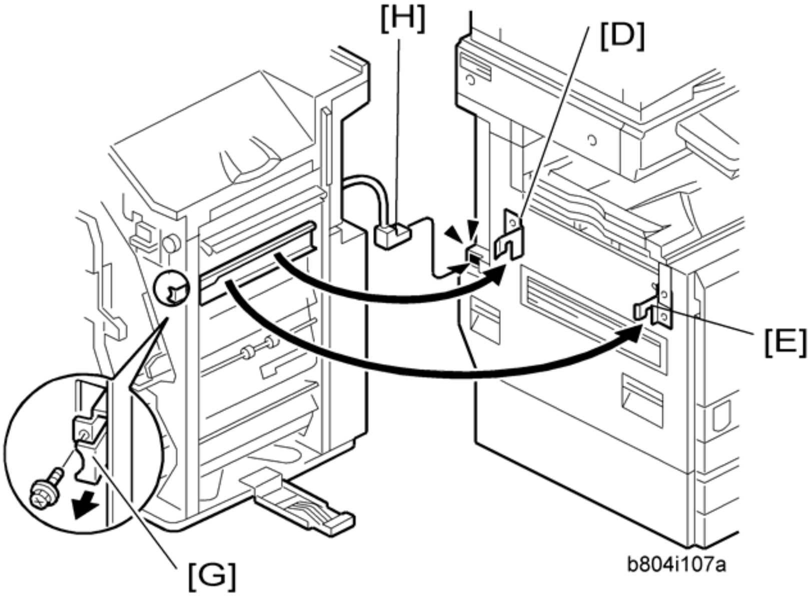
5. **Install the ground plate [C] on the finisher (🔩 x 2; M3x6).**



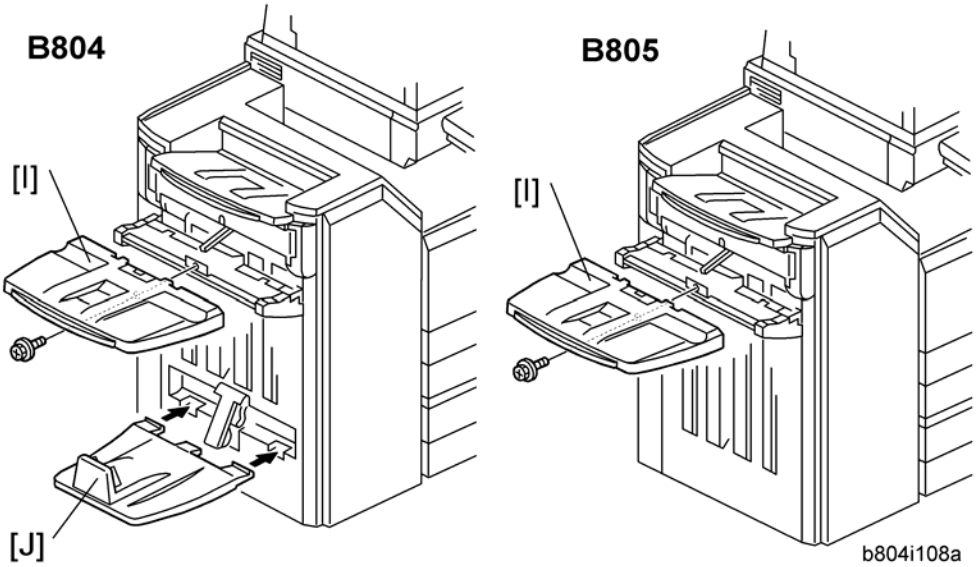
6. **Attach the rear joint bracket [D] (🔩 x 2; M4x4).**
7. **Attach the front joint bracket [E] and the holder bracket [F] (🔩 x 2; M4x14).**

Note

- The holder bracket [F] must be placed outside the front joint bracket [E]. The holder bracket is provided with the bridge unit (B227).

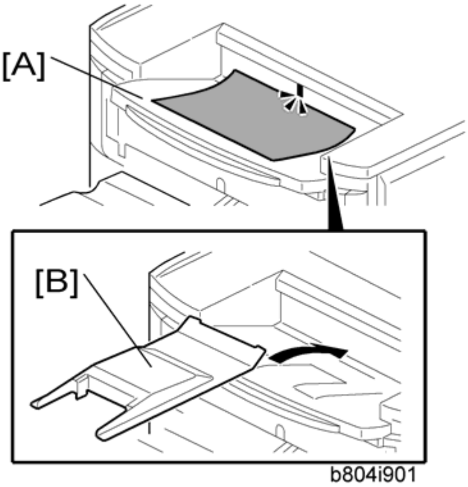


8. **Pull the lock lever [G] (Long knob screw x 1).**
9. **Slowly push the finisher to the left side of the machine, keeping its front door open until the brackets [D] [E] go into their slots.**
10. **Push the lock lever [G], and then secure it (Long knob screw x 1).**
11. **Close the front door of the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



13. Install the upper output tray [I] (🔩 x 1; M3x8).
14. Only for B804, install the lower output tray [J].
15. Turn on the main power switch of the machine.
16. Check the finisher operation.

Support Tray Installation



If a stacking problem occurs several times on the upper output tray [A], put the support tray [B] on the tray as shown.

Note

- Keep this tray in the manual pocket if this tray does not need to be installed.

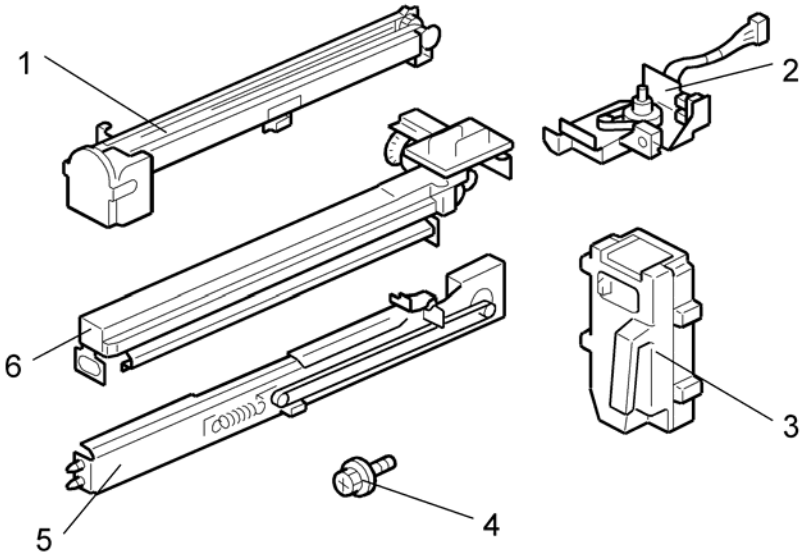
Punch Unit

The Punch Unit B702 is installed in the 2000/3000 Sheet (Booklet) Finisher B804/B805.

Component Check

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

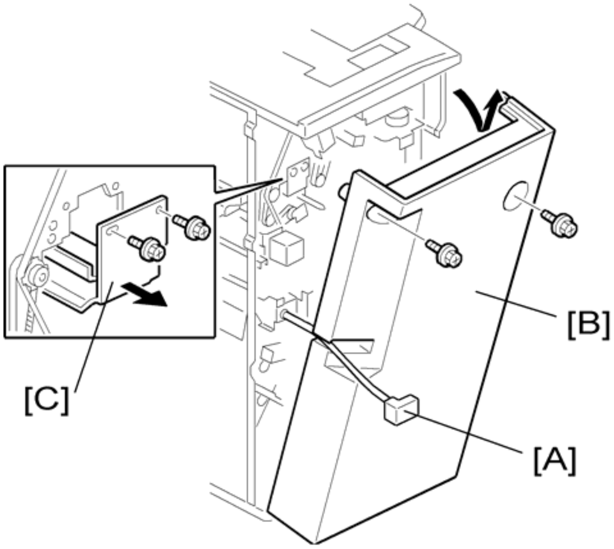
No.	Description	Q'ty
1	Punchout Waste Unit	1
2	Slide Drive Unit	1
3	Punch Waste Hopper	1
4	Screws (M3 x 6)	5
5	Side-to-Side Detection Unit	1
6	Punching Unit	1



Installation Procedure

⚠CAUTION

- Unplug the main machine power cord before starting the following procedure. If the 2000/3000-sheet booklet finisher has been installed, disconnect it and pull it away from the machine.

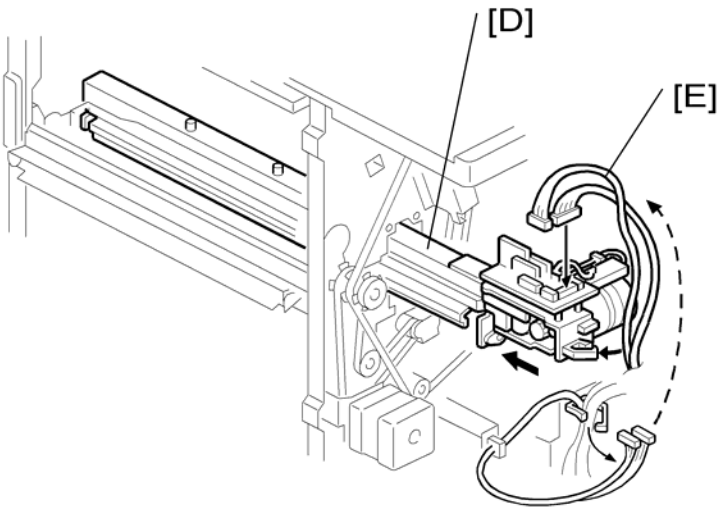


1. **If the finisher is connected to the copier, disconnect the power connector [A] and move the finisher away from the copier.**
2. **Remove the rear cover [B] (🔩 x 2) and open the front door.**

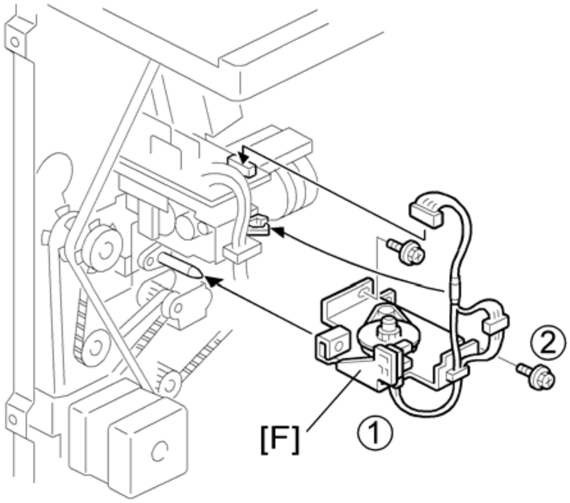
   Note

   - At the bottom of the rear cover, make sure to disconnect the tabs that attach the cover to the frame.

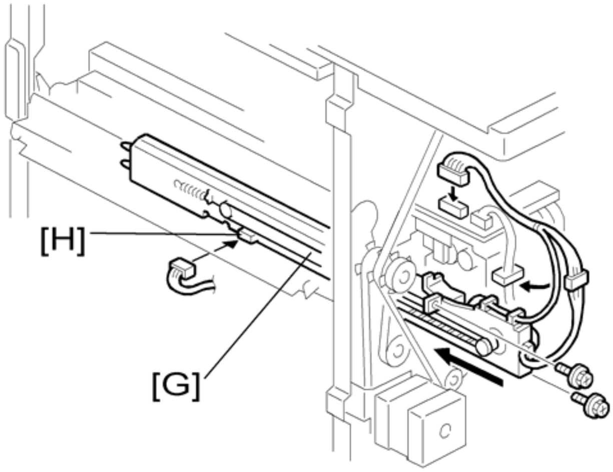
3. **Remove the guide plate [C] (🔩 x 2).**



4. **Move the punch unit [D] along its rails into the finisher. Make sure that the pin engages correctly at the front and rear.**
5. **Connect the cables [E] of the finisher to the connectors (CN601 and CN602) on the punch unit board (🔌 x 2, 🗜 x 1).**
    - The cables [E] are coiled and attached to the PCB.



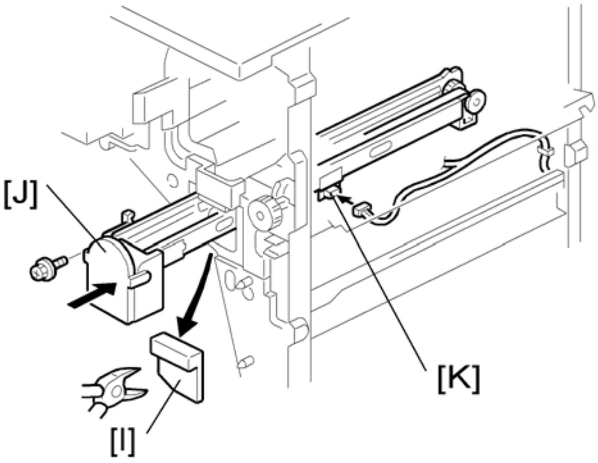
6. **Attach the slide drive unit [F] to the finisher and connect it to the punch unit (🔩 x 2, 🔌 x 1). Push in the slide drive unit at ① when you attach the screw ②.**
7. **Make sure that the punch unit moves freely and is not blocked by the screws.**



8. Put the side-to-side detection unit [G] in the machine. Make sure that the two pins are engaged correctly at the front.
9. Make sure that the side-to-side detection unit moves smoothly on its rails. If it does not, make sure that the rails are aligned with their grooves.
10. Attach the side-to-side detection unit and connect it at the rear (🔩 x 2, 🗜 x 1, 🔌 x 1).
11. Pull the short connector out of the connector [H] then connect the cable of the finisher (🔌 x 1).

Note

- This is the 3-pin connector.



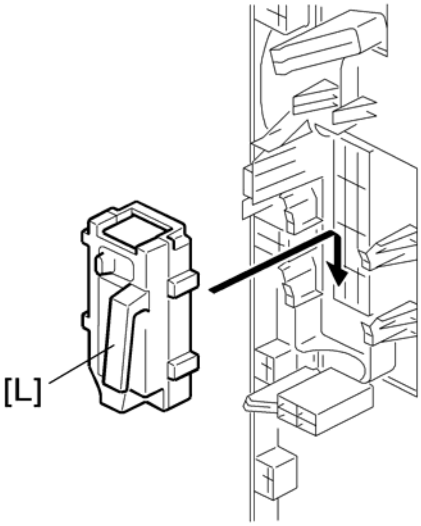
12. At the front, use a pair of wire cutters to remove the part [I] of the cover.
13. Install the punch-waste transport unit [J] in the finisher.
14. Make sure that the punch-waste transport unit moves smoothly on its rails. If it does not, make sure that the rails are aligned with the grooves.

15. **Remove the short connector from the connector [K].**

Note

- This is the 4-pin connector.

16. **Connect the cable and attach the punch-waste transport unit (🔌x 1, ⊐x 1, 🔩 x 1).**

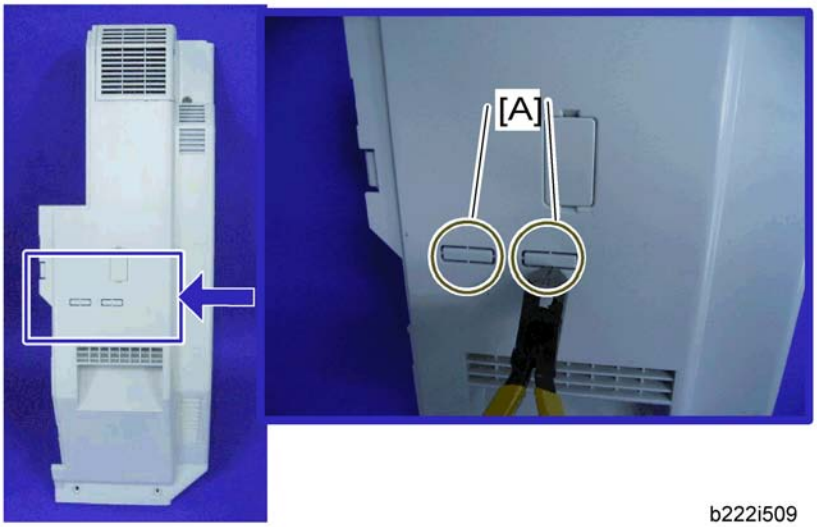


17. **Set the hopper [L] in its holder.**
18. **Reassemble the finisher, and then install it on the main machine.**
19. **Connect the power cord to the outlet, and then turn the main power switch on.**
20. **Check the punch unit operation.**

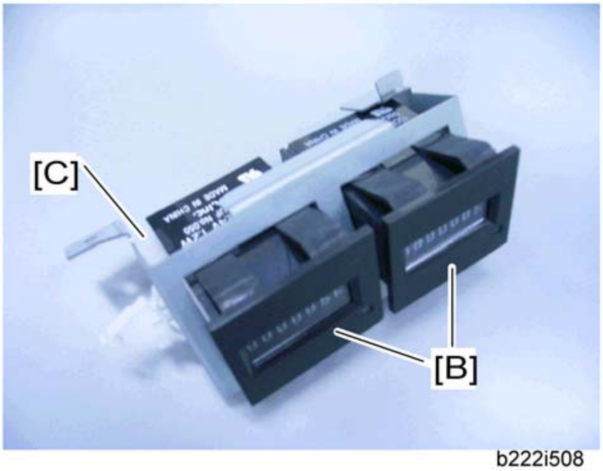
Mechanical Counter (NA Only)

Installation Procedure

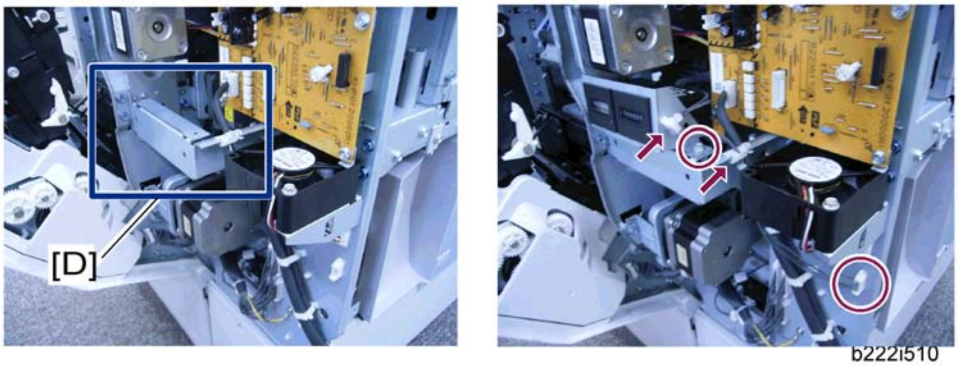
1. Rear cover (see "Rear Cover" in the "Replacement and Adjustment" section)
2. Right rear cover (see "Right Rear Cover" in the "Replacement and Adjustment" section)



3. Remove the cutouts [A] on the right rear cover with nippers.



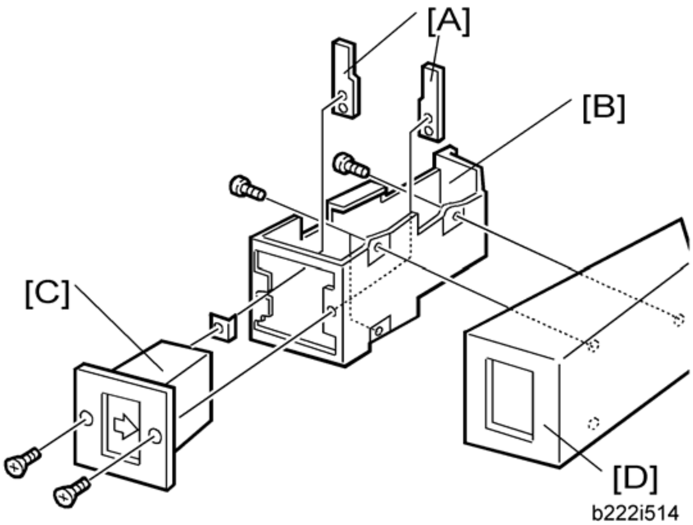
4. Attach the mechanical counters [B] to the bracket [C] and connect the harness to each mechanical counter.



5. Attach the mechanical counter bracket to the frame [D] (x 1, x 2, x 1).
6. Reassemble the machine.
7. Plug in the machine and turn on the main power switch.
8. Enter the SP mode.
9. Set SP5987-001 to "1: ON".
10. Exit the SP mode, and then turn the machine off and on.

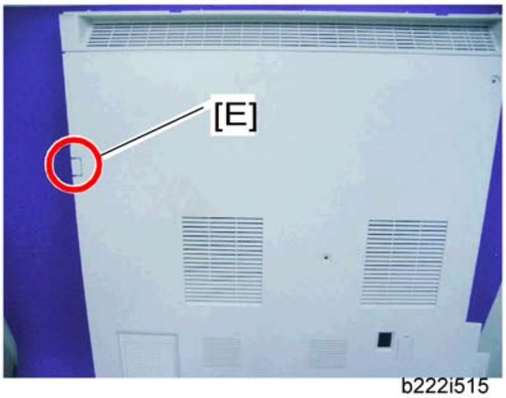
Key Counter Bracket

Installation Procedure



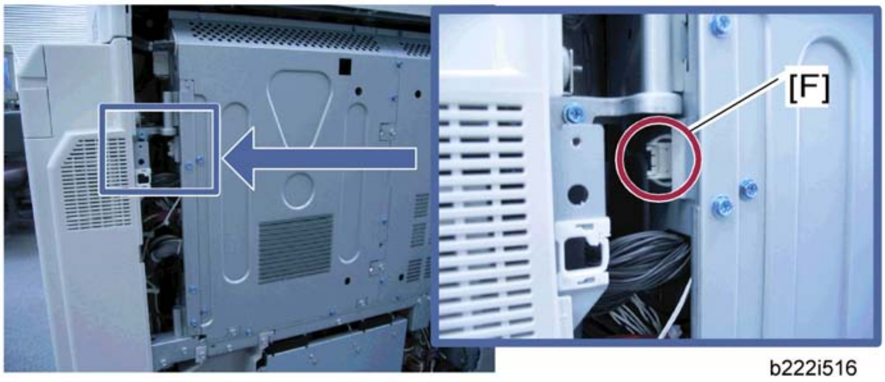
b222i514

1. Hold the key counter plate nuts [A] on the inside of the key counter bracket [B] and insert the key counter holder [C].
2. Secure the key counter holder to the bracket (🔩x 2).
3. Install the key counter cover [D] (🔩 x 2).
4. Rear cover ("Rear Cover" in the Replacement and Adjustment section)

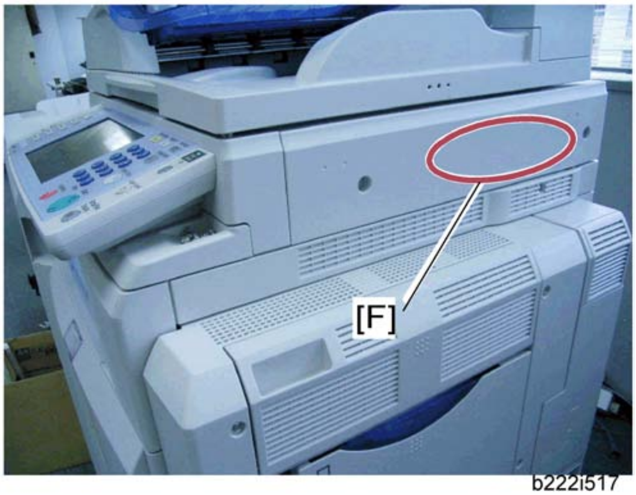


b222i515

5. Cut off the part [E] of the rear cover.



6. Connect the harness to the connector [F] inside the machine.

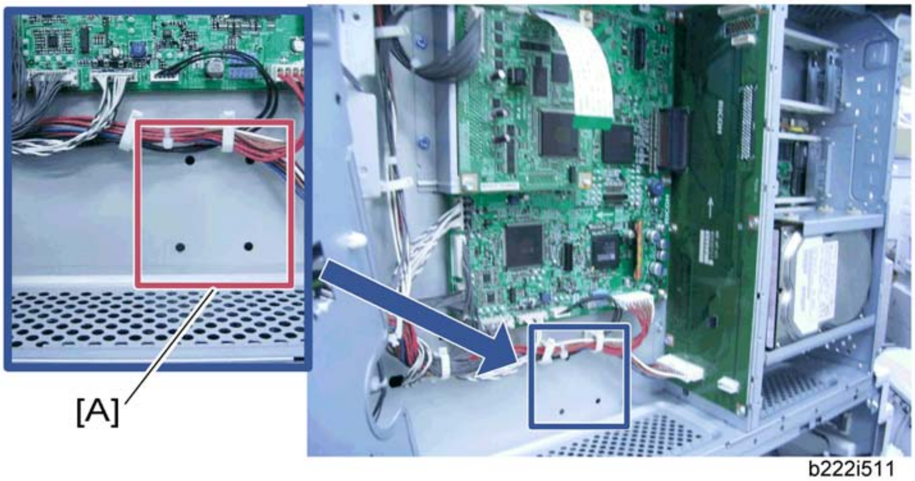


7. Peel off double sided tape on the key counter bracket and attach the key counter to the scanner right cover [F].
8. Reassemble the machine.

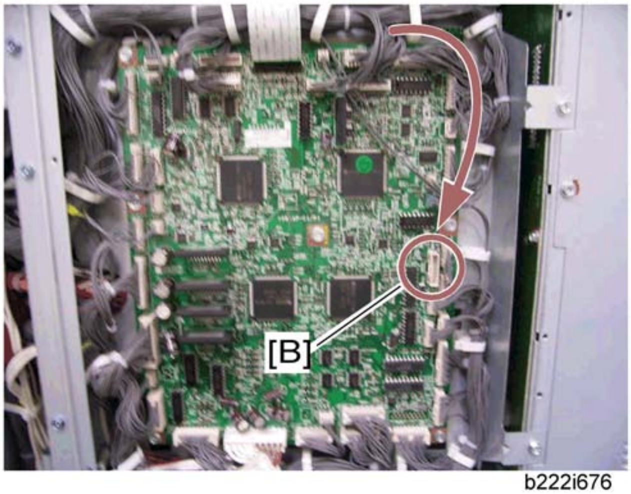
Key Counter Interface Unit

Installation Procedure

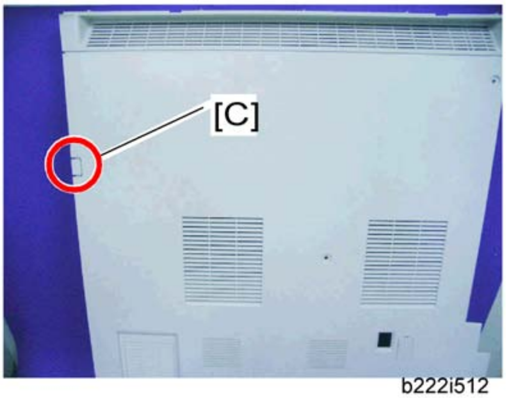
1. Rear cover (see "Rear Cover" in the "Replacement and Adjustment" section)
2. IOB bracket (see "Controller Box" in the "Replacement and Adjustment" section)



3. Install the four stud stays in the location [A] in the controller box.
4. Install the key counter interface board on the four stud stays in the controller box.
5. Connect the harness to CN3 on the key counter interface board.

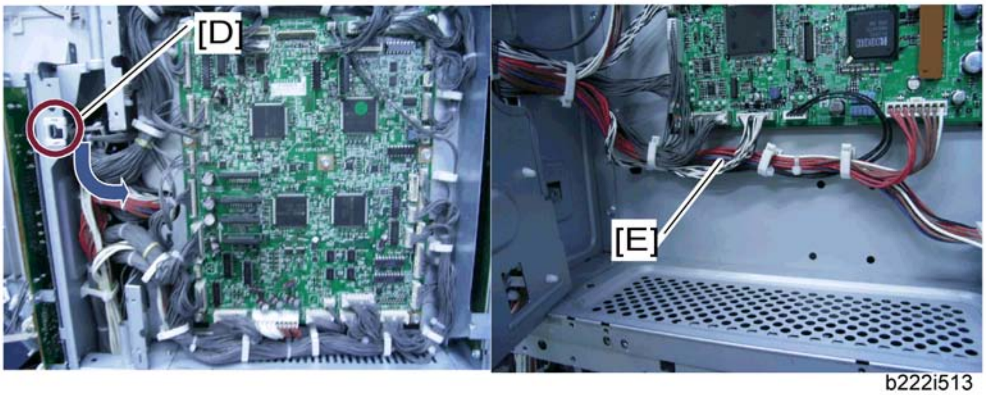


6. Close the IOB bracket and connect the other terminal to CN238 [B] on the IOB.



b222i512

7. Cut off the part [C] of the rear cover.



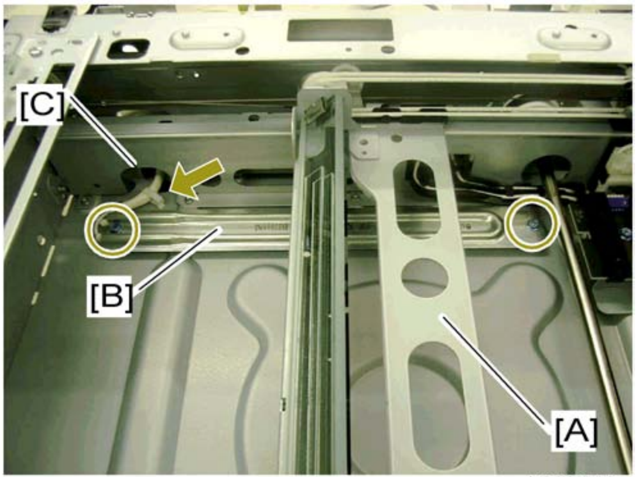
b222i513

8. Clamp the harness from the counter device with the clamp [D] and put it as shown by the blue arrow (x 1).
9. Route the harness from the counter device in the same way as the other harnesses [E] (x 3).
10. Connect the harness from the counter device to CN4 on the key counter interface board.
11. Reattach the IOB bracket (see "Controller Box" in the "Replacement and Adjustment" section)
12. Reassemble the machine.

Anti-Condensation Heater (Scanner)

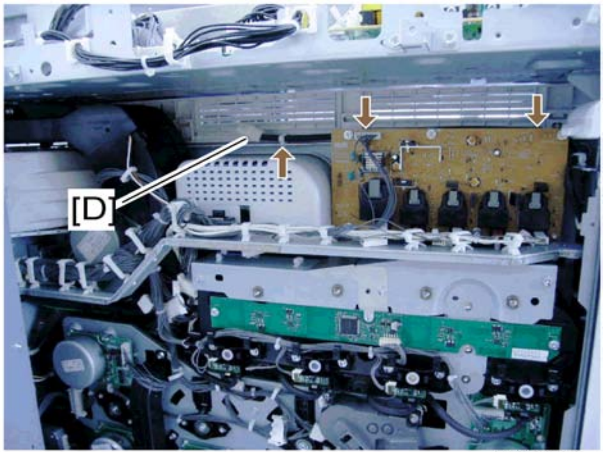
Installation Procedure

1. Remove the ARDF or platen cover (see "ARDF" or "Platen Cover" in the "Installation" section.)
2. Rear cover (see "Rear Cover" in the "Replacement and Adjustment" section.)
3. ARDF exposure glass and exposure glass with left scale (see "Exposure Glass" in the "Replacement and Adjustment" section.)
4. Scanner rear frame (see "Scanner Motor" in the "Replacement and Adjustment" section.)



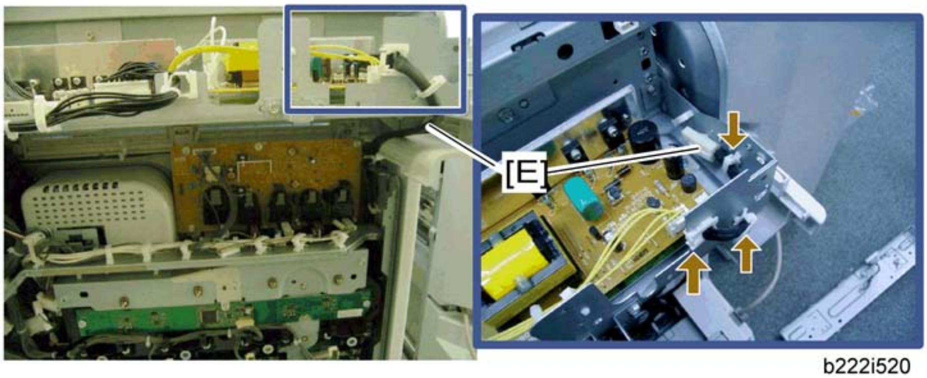
b222i518

5. Move the scanner carriage [A] to the right side by rotating the scanner motor.
6. Install the heater [B] in the scanner unit (🔩 x 2, 🔌 x 1)
7. Put the cable through the cutout [C].



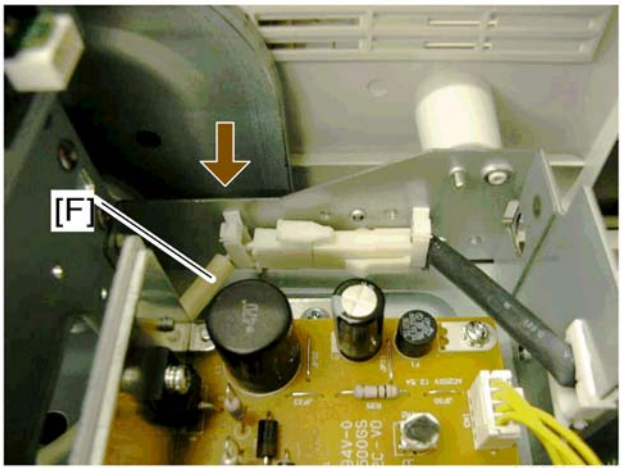
b222i519

8. Release the heater relay cable [D] (x 3).



b222i520

9. Route the heater relay cable [E] as shown (x 3).

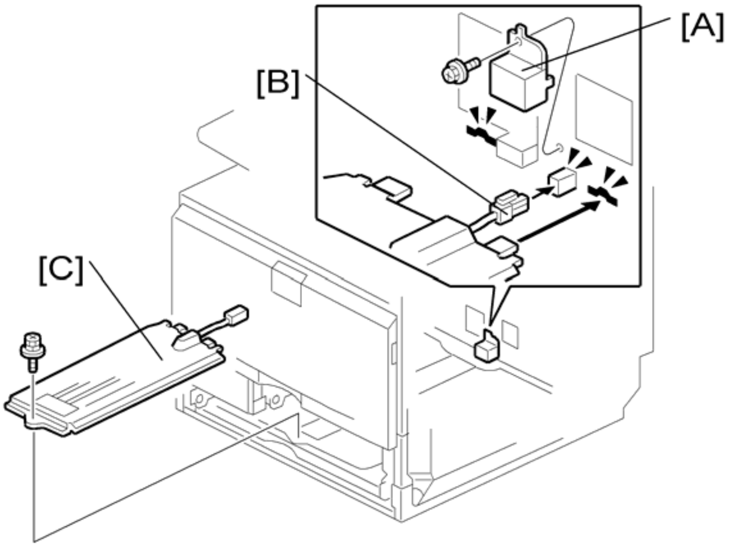


b222i521

10. **Connect the heater cable [F] to the heater relay cable (🔌 x 1).**
11. **Reassemble the machine.**

Tray Heater

Installation Procedure



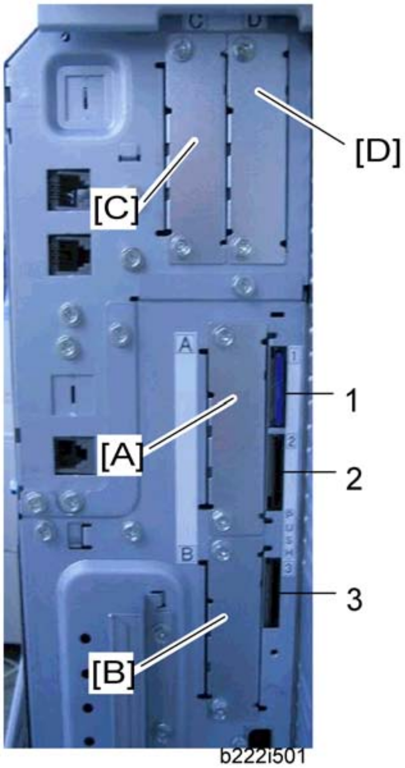
1. Remove trays 1 and 2 from the machine.
2. Remove the connector cover [A] (🔩 x 1).
3. Connect the connector [B] of the heater to the connector of the main machine.
4. Install the heater [C] inside the machine (🔩 x 1)
5. Reassemble the machine.

Controller Options

Overview

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

After you install an option, check that the machine can recognize it (see “Check All Connections” at the end of this section).



I/F Card Slots

- Slot A is used for one of the optional I/F connections (only one can be installed): IEEE1284, IEEE1394 (FireWire), IEEE802.11 (Wireless LAN), Bluetooth, or Remote Communication Gate.
- Slot B is used for the USB Host only.
- Slot C is not used in this machine.
- Slot D is used for the File Format Converter only.

SD Card Slots

- Slot 1 is used for the standard printer/scanner application only.
- Slot 2 is used for one of the optional applications:
  PostScript 3, Data Overwrite Security Unit, PictBridge
- Slot 3 is used for installing the Browser Unit, or for service only (for example, updating the firmware).

SD Card Appli Move

Overview

The service program "SD Card Appli Move" (SP5-873) lets you copy application programs from one SD card to another SD card.

Slot 1 and Slot 2 are used to store application programs. But there are 3 possible applications (PostScript 3, DOS unit, PictBridge). You cannot run application programs from Slot 3. However you can move application programs from Slot 3 to either Slot 1 or Slot 2 with the following procedure (if there are cards in slots 1 and 2, Slot 1 will be used.)

For this model, the printer/scanner card in slot 1 has enough space for the PictBridge and the DOS applications. Use the card that is already in slot 1 (printer/scanner card). Do not remove the printer/scanner card from slot 1.

The procedures in this section will assume that you use slot 1.

If you want to use slot 2, you must first turn the machine power off, remove the SD card from slot 1, and turn the power on again. You can then do the following procedure, and the application will go to the card in slot 2.

Make sure that the target SD card has enough space.

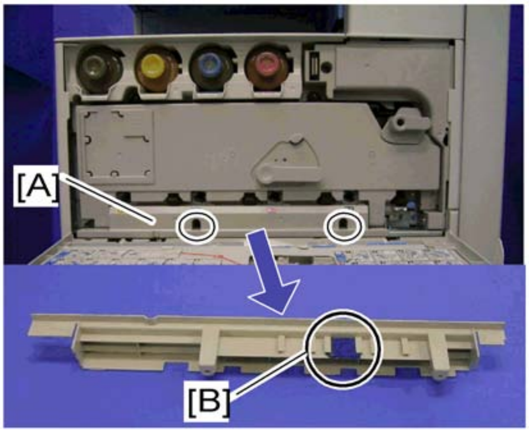
1. Enter SP5873 "SD Card Appli Move".
2. Then move the application from the SD Card in Slot 3 to the card in slot 1.

   Note

   - Do steps 1-2 again if you want to move another application program.
3. Exit the SP mode.

Be very careful when you do the SD Card Appli Move procedure:

- The data necessary for authentication is transferred with the application program from an SD card to another SD card. Authentication fails if you try to use the SD card after you copy the application program from one card to another card.
- Do not use the SD card if it has been used before for other purposes. Normal operation is not guaranteed when such an SD card is used.



- Remove the cover [A] (🔧 x 2), and then keep the SD card in the place [B] after you copy the application program from one card to another card. This is done for the following reasons:
  1. The SD card can be the only proof that the user is licensed to use the application program.
  2. You may need to check the SD card and its data to solve a problem in the future.
- You cannot copy PostScript application to another SD card. You have to copy the other application (PictBridge, DOS Unit) to the SD card that stores the PostScript application.

Move Exec

The menu "Move Exec" (SP5-873-001) lets you copy application programs from the original SD card to another SD card.

Important

- Do not turn ON the write protect switch of the system SD card or application SD card on the machine. If the write protect switch is ON, a download error (e.g. Error Code 44) occurs during a firmware upgrade or application merge.

1. **Turn the main switch off.**
2. **Make sure that an SD card is in SD Card Slot 1. The application program is copied to this SD card.**
3. **Insert the SD card with the application program in SD Card Slot 3. The application program is copied from this SD card.**
4. **Turn the main switch on.**
5. **Start the SP mode.**
6. **Select SP5-873-001 "Move Exec."**
7. **Follow the messages shown on the operation panel.**
8. **Turn the main switch off.**

9. **Remove the SD card from SD Card Slot 3.**
10. **Turn the main switch on.**
11. **Check that the application programs run normally.**

Undo Exec

"Undo Exec" (SP5-873-002) lets you copy back application programs from an SD card to the original SD card. You can use this program when, for example, you have mistakenly copied some programs by using Move Exec (SP5-873-001).

Important

- Do not turn ON the write protect switch of the system SD card or application SD card on the machine. If the write protect switch is ON, a download error (e.g. Error Code 44) occurs during a firmware upgrade or application merge.

1. **Turn the main switch off.**
2. **Insert the original SD card in SD Card Slot 3. The application program is copied back into this card.**
3. **Insert the SD card with the application program in SD Card Slot 1. The application program is copied back from this SD card.**
4. **Turn the main switch on.**
5. **Start the SP mode.**
6. **Select SP5-873-002 "Undo Exec."**
7. **Follow the messages shown on the operation panel.**
8. **Turn the main switch off.**
9. **Remove the SD card from SD Card Slot 3.**

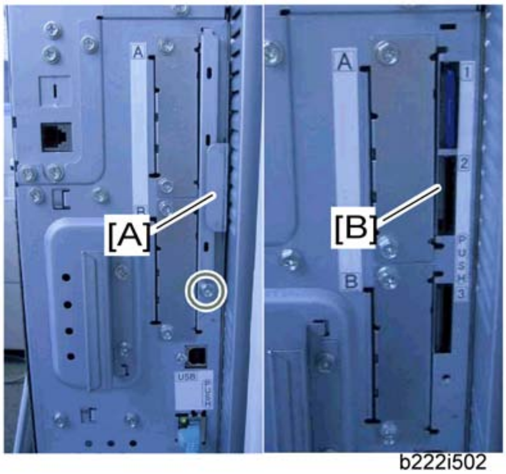
   Note

   - This step assumes that the application programs in the SD card are used by the machine.
10. **Turn the main switch on.**
11. **Check that the application programs run normally.**
12. **Make sure that the machine can recognize the option (see 'Check All Connections' at the end of this section).**

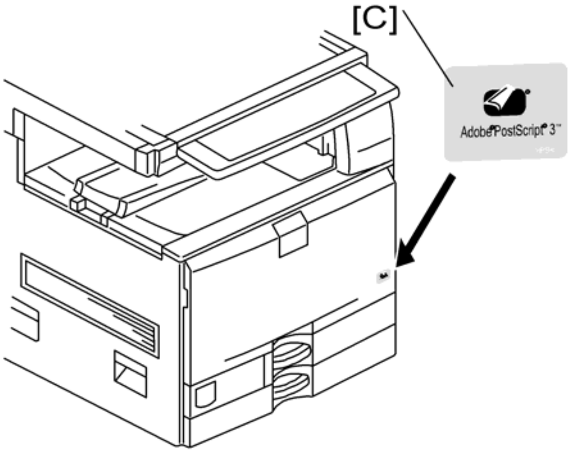
PostScript 3

CAUTION

- Unplug the main machine power cord before you do the following procedure.



1. Remove the slot cover [A] from SD card slot 2 (🔩 x 1).
2. Turn the SD-card label face to the rear of the machine. Then push it slowly into slot 2 [B] until you hear a click.
3. Attach the slot cover [A] (🔩 x 1).

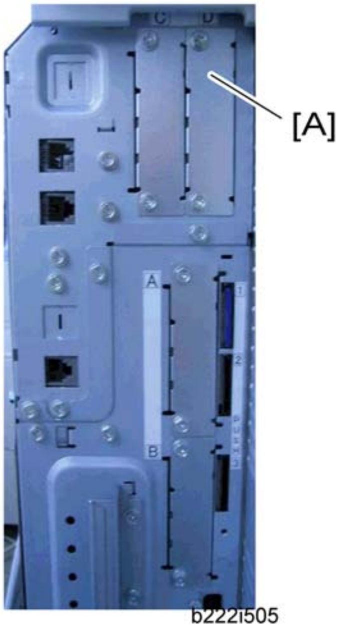


4. Attach the “Adobe PostScript 3” decal [C] to the front door.
5. Make sure that the machine can recognize the option (see ‘Check All Connections’ at the end of this section).

File Format Converter

⚠CAUTION

- Unplug the main machine power cord before you do the following procedure.



1. **Remove the slot cover [A] from I/F card slot D (🔩 x 2).**
2. **Install the file format converter into I/F card slot D and then fasten it with screws.**
3. **Plug in and turn on the main power switch.**
4. **Check or set the following SP codes with the values shown below.**

SP No.	Title	Setting
SP5-836-001	Capture Function (0:Off 1:On)	"1"
SP5-836-002	Panel Setting	"0"

5. **Check the operation.**
6. **Make sure that the machine can recognize the option (see ‘Check All Connections’ at the end of this section).**

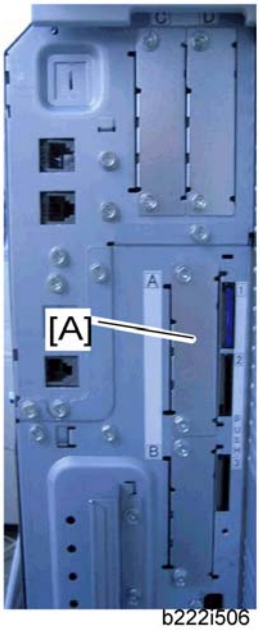
IEEE1394 (FireWire)

Installation Procedure

You can only install one of the following network interfaces at a time: (IEEE 802.11b (Wireless LAN), IEEE1284, IEEE1394, Bluetooth).

⚠CAUTION

- Unplug the main machine power cord before you do the following procedure.



1. **Remove the slot cover [A] from I/F Card Slot A (🔩 x 2).**
2. **Install the FireWire board (Knob-screw x 2) into I/F card slot A.**
3. **Make sure that the machine can recognize the option (see ‘Check All Connections’ at the end of this section).**

UP Mode Settings for IEEE 1394

Enter the UP mode. Then do the procedure below to perform the initial interface settings for IEEE 1394. These settings take effect every time the machine is powered on.

1. **Press the “User Tools/Counter” key.**
2. **On the touch panel, press “System Settings”.**
3. **Press “Interface Settings”.**
4. **Press “IEEE1394”.**
5. **Press the following soft keys on the touch panel. Then set up the following settings:**
    - “IP Address”: Set the IP Address and Subnet Mask.
    - “IP over 1394”: Enable or disable this setting as required. This setting enables IP over 1394 as the default setting for the printing method.

- "SCSI Print": Enable or disable this setting as required. This setting enables SCSI Print as the default setting for the printing method.
- "Bi-directional SCSI Print": Switch bi-directional printing on or off for SCSI print.

SP Mode Settings for IEEE 1394

The following SP commands can be set for IEEE 1394.

SP No.	Name	Function
5839 007	Cycle Master	Enables or disables cycle master function of the IEEE 1394 standard bus.
5839 008	BCR Mode	Sets the BCR (Broadcast Channel Register) setting for the Auto Node operation for the standard IEEE1394 bus for when IRM is not in use. The following three settings are available: "Standard," "IRM Color Copy," and "Always Effective."
5839 009	IRM 1394a Check	Determines whether an IRM check for IEEE 1394a is conducted for the Auto Node when IRM is not used.
5839 010	Unique ID	Enables the "Node_Unique_Id" setting for enumeration on the standard IEEE 1394 bus.
5839 011	Logout	Determines how successive initiator login requests are handled during login in for SBP-2.
5839 012	Login	Enables or disables exclusive login for SBP-2.
5839 013	Login MAX	Sets the limit for the number of logins for SBP-2. Range: 1 to 62.

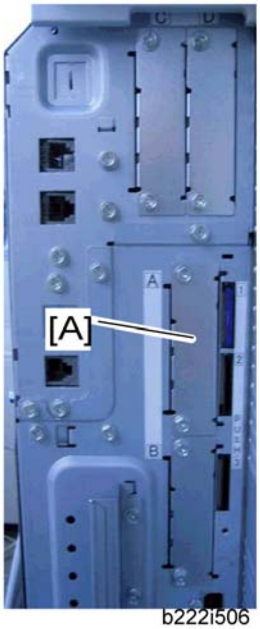
IEEE1284

Installation Procedure

⚠CAUTION

- **Unplug the main machine power cord before you do the following procedure.**

You can only install one of the following network interfaces at a time: (IEEE 802.11b (Wireless LAN), IEEE1284, IEEE1394, Bluetooth).



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1. **Remove the slot cover [A] from I/F Card Slot A (🔩 x 2).**
2. **Install the interface board (Knob-screw x 2) into I/F card slot A.**
3. **Make sure that the machine can recognize the option (see 'Check All Connections' at the end of this section).**

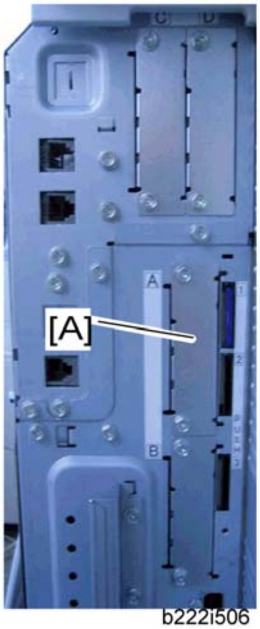
IEEE 802.11b (Wireless LAN)

Installation Procedure

⚠CAUTION

- Unplug the main machine power cord before you do the following procedure.

You can only install one of the following network interfaces at a time: (IEEE 802.11b (Wireless LAN), IEEE1284, IEEE1394, Bluetooth).



1. **Remove the slot cover [A] from I/F Card Slot A (x 2).**
2. **Install the wireless LAN board (Knob-screw x 2) into I/F card slot A.**
3. **Install the wireless LAN card in the wireless LAN board. Make sure the card label faces to the front of the machine.**
4. **Attach the cover to the wireless LAN card.**
5. **Make sure that the machine can recognize the option (see 'Check All Connections' at the end of this section).**

You may have to move the machine if the reception is not clear.

1. Make sure that the machine is not located near an appliance or any type of equipment that generates strong magnetic fields.
2. Put the machine as close as possible to the access point.

UP Mode Settings for Wireless LAN

Enter the UP mode. Then do the procedure below to perform the initial interface settings for IEEE 802.11b. These settings take effect every time the machine is powered on.

Note

- You cannot use the wireless LAN if you use Ethernet.

1. **Press the "User Tools/Counter" key.**
2. **On the touch panel, press "System Settings".**

Note

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

3. **Select "Interface Settings" → "Network" (tab) → "Network I/F Setting"**
4. **Press "IEEE 802.11b". Only the wireless LAN options show.**
5. **Communication Mode. Select either "802.11 Ad hoc", "Ad hoc" or "Infrastructure".**
6. **SSID Setting. Enter the SSID setting. (The setting is case sensitive.)**
7. **Channel. You need this setting when Ad Hoc Mode is selected.**
   Range: 1 to 14 (default: 11)

   Note

   - The allowed range for the channel settings may vary for different countries.

8. **WEP (Encryption) Setting. The WEP (Wired Equivalent Privacy) setting is designed to protect wireless data transmission. The same WEP key is required on the receiving side in order to unlock encoded data. There are 64 bit and 128 bit WEP keys.**

   WEP:

   Selects "Active" or "Inactive". ("Inactive" is default.)

   Range of Allowed Settings:

   64 bit 10 characters

   128 bit26 characters

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

   Note

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

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

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

    - Transmission mode
    - Channel
    - Transmission Speed
    - WEP

- SSID
- WEP Key

SP Mode Settings for IEEE 802.11b Wireless LAN

The following SP commands and UP modes can be set for IEEE 802.11b

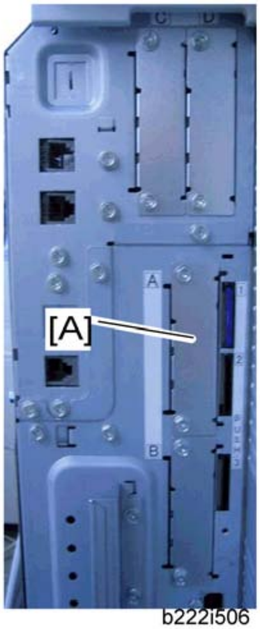
SP No.	Name	Function
5840 006	Channel MAX	Sets the maximum range of the channel settings for the country.
5840 007	Channel MIN	Sets the minimum range of the channels settings allowed for your country.
5840 011	WEP Key Select	Used to select the WEP key (Default: 00).
UP mode	Name	Function
	SSID	Used to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

Bluetooth

⚠CAUTION

- **Unplug the main machine power cord before you do the following procedure.**

You can only install one of the following network interfaces at a time: (IEEE 802.11b (Wireless LAN), IEEE1284, IEEE1394, Bluetooth).



1. **Remove the slot cover [A] from I/F Card Slot A (🔩 x 2).**
2. **Install the Bluetooth board (Knob-screw x 2) into I/F card slot A.**
3. **Insert the Bluetooth card into the Bluetooth card adaptor.**
4. **Attach the antenna cap to the Bluetooth card.**
5. **Install the Bluetooth card adaptor into Bluetooth board.**
6. **Make sure that the machine can recognize the option (see 'Check All Connections' at the end of this section).**

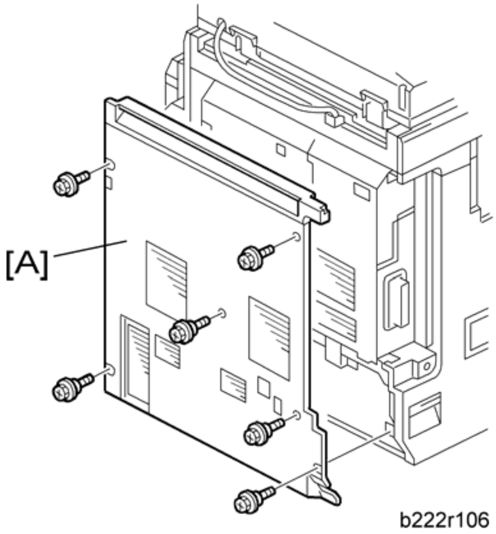
Copy Data Security Unit

⚠CAUTION

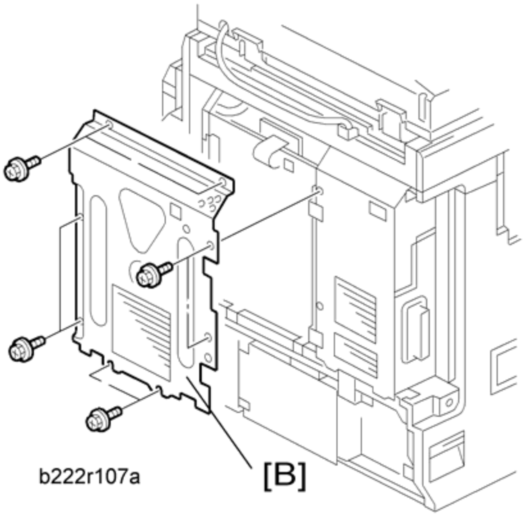
- Unplug the main machine power cord before you do the following procedure.

Note

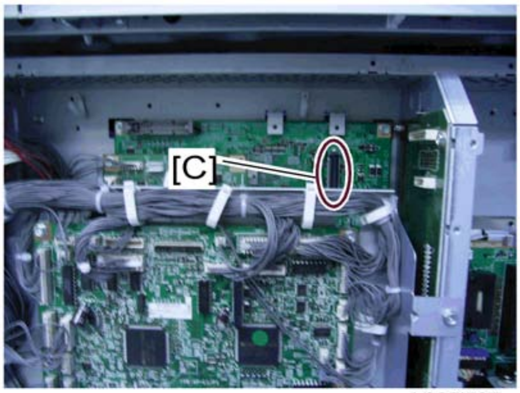
- If you install this option, you cannot use scanner or fax functions.
- When you store originals to the document server after installing this option, you can not select the 50 % or less reduction mode on the LCD panel.



1. Remove the rear cover [A] of the machine (🔩 x 5).



2. Controller box right cover [B] (🔩 x 8)



b222i507

3. **Attach the ICIB-1 (copy data security board) to CN 508 [C] on the IPU (🔩 x 2).**
4. **Reassemble the machine.**

User Tool Setting

1. **Plug in and turn on the main power switch.**
2. **Go into the User Tools mode, and select System Settings > Administrator Tools > Copy Data Security Option > "On".**
3. **Exit the User Tools.**
4. **Check the operation.**

   Note

   - The machine will issue an SC165 error if the machine is powered on with the ICIB-1 removed and the "Data Security for Copying" feature set to "ON".
   - When you remove this option from the machine, first set the setting to "OFF" with the user tool before removing this board. If you forget to do this, "Data Security for Copying" feature cannot appear in the user tool setting. And then SC165 will appear every time the machine is switched on, and the machine cannot be used.

5. **Make sure that the machine can recognize the option (see 'Check All Connections' at the end of this section).**

Data Overwrite Security Unit Type D (B735)

Before You Begin the Procedure

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

- Administrator login name
- Administrator login password

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

2. **Make sure that "Admin. Authentication" is ON.**

   [System Settings] – [Administrator Tools] – [Administrator Authentication Management] - [Admin. Authentication]

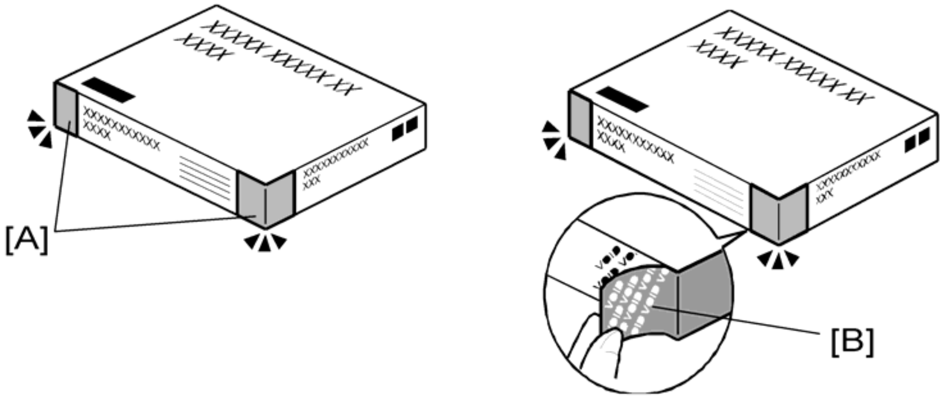
   If this setting is OFF, tell the customer this setting must be ON before you do the installation procedure.

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

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

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

Seal Check and Removal



⚠CAUTION

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

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

Installation Procedure

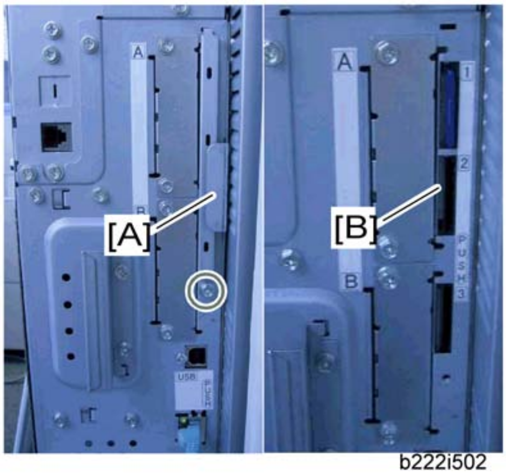
⚠CAUTION

- Unplug the main machine power cord before you do the following procedure.

Note

- You must install the data overwrite security unit in SD Card slot 2. However, the Postscript option and the PictBridge option are also installed in SD Card slot 2. You must do the SD Card Appli move procedure first if you have the postscript or PictBridge option installed and you want to install the data overwrite security unit.

1. **Turn off the main power switch if the machine is turned on.**
2. **Disconnect the network cable if the NIB is installed.**



b222i502

3. **Remove the slot cover [A] for SD cards (🔩 x 1).**
4. **Turn the SD-card label face to the rear of the machine. Then push it slowly into slot 2 [B] until you hear a click.**
5. **Connect the network cable if the NIB option is installed.**
6. **Turn on the main power switch.**
7. **Go into the SP mode and push "EXECUTE" with SP5-878.**
8. **Exit the SP mode and turn off the operation switch. Then turn off the main power switch.**
9. **Turn on the machine power.**
10. **Do SP5990-005 (SP print mode Diagnostic Report).**
11. **Make sure the ROM number and firmware version in area [a] of the diagnostic report are the same as those in area [b].**
    - [a]: "ROM Number/Firmware Version" – "HDD Format Option"
    - [b]: "Loading Program" – "GW2a_zoffy"

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

Important

- **The ROM number and firmware version number change when the firmware is upgraded. However, the important thing is to make sure the numbers in [a] are the same as the numbers in [b].**
- If the ROM numbers are not the same, or the version numbers are not the same, this means the unit was not installed correctly.

  If this happens:

  Make sure of the unit type (must be Type D).

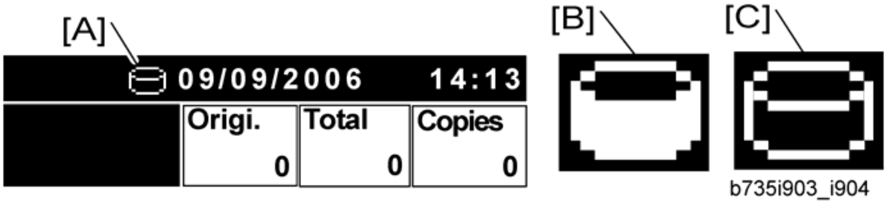
  If they do not match:

  1) Replace the NV-RAM on the controller.

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

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

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

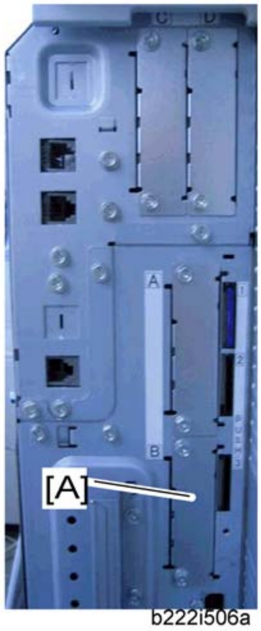


14. **Check the display and make sure that the overwrite erase icon [A] shows.**
15. **Make a Sample Copy.**
16. **Check the overwrite erase icon.**
    - The icon [A] changes to [B] when job data is stored in the HDD.
    - The icon goes back to its usual shape [C] after this function has completed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

USB Host Interface

⚠CAUTION

- Unplug the main machine power cord before you do the following procedure.



1. **Remove the slot cover [A] from I/F Card Slot B (🔩 x 2).**
2. **Install the USB Host Interface (Knob-screw x 2) into I/F card slot B.**
3. **Make sure that the machine can recognize the option (see 'Check All Connections' at the end of this section).**

PictBridge

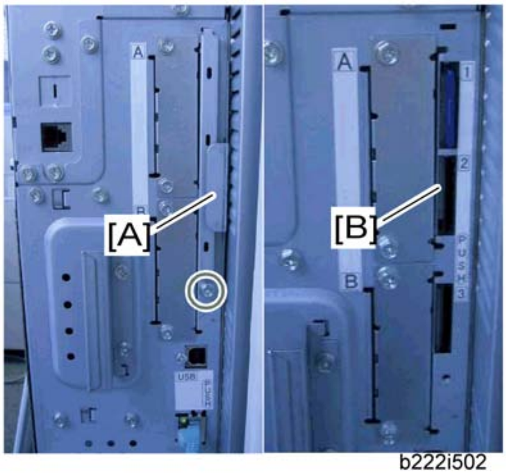
⚠CAUTION

- Unplug the main machine power cord before you do the following procedure.

Note

- You must install the PictBridge option in SD Card slot 2. However, the Postscript option and the data overwrite security unit option are also installed in SD Card slot 2. You must do the SD Card Appli move procedure first if you have the postscript or data overwrite security unit option installed and you want to install the PictBridge unit.

You must install the USB Host Interface when using the PictBridge unit.



b222i502

1. Remove the slot cover [A] for SD cards (🔩 x 1).
2. Turn the SD-card label face to the rear of the machine. Then push it slowly into slot 2 [B] until you hear a click.
3. Attach the slot cover [A] (🔩 x 1).
4. Make sure that the machine can recognize the option (see ‘Check All Connections’ at the end of this section).

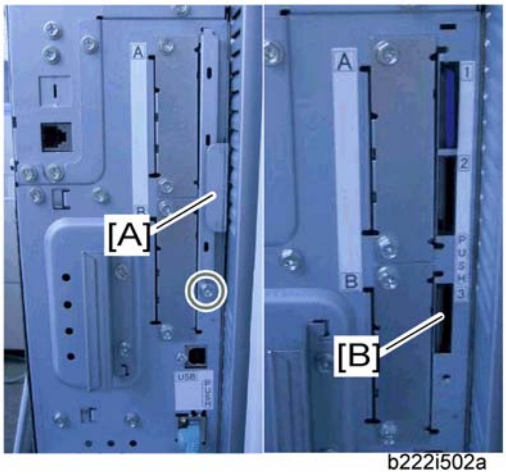
Browser Unit Type B

Installation Procedure

⚠CAUTION

- Unplug the main machine power cord before you do the following procedure.

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



1. Remove the slot cover [A] for SD cards (🪛 x 1).
2. Turn the SD-card label face to the rear of the machine. Then push it slowly into slot 3 until you hear a click.
3. Plug in and turn on the main power switch.
4. Push the "User Tools" key.

   If an administrator setting is registered for the machine, step 5 and 6 are required. Otherwise, skip to the step 7
5. Push the "Login/ Logout" key.
6. Login with the administrator user name and password.
7. Touch "Extended Feature Settings" twice on the LCD.
8. Touch "Install" on the LCD.
9. Touch "SD Card".
10. Touch the "Browser" line.
11. Under "Install to" touch "Machine HDD" and touch "Next".
12. When you see "Ready to Install", check the information on the screen to confirm your previous selection.
13. Touch "OK". You will see "Installing the extended feature... Please wait.", and then "Completed".
14. Touch "Exit" to go back to the setting screen.
15. Touch "Change Allocation".
16. Touch the "Browser" line.
17. Press one of the hard keys, which you want to use for the Browser Unit. In default, this function is assigned to the "Other Functions" key (bottom key of function keys).

18. Touch "OK".
19. Touch "Exit" twice to go back to the copy screen.
20. Turn off the main power switch.
21. Install the key for "Browser Unit" to the place, where you want.
22. Remove the SD card from slot 3.
23. Attach the slot cover [A] (🔩 x 1).
24. Keep the SD card in the place (☛ "SD Card Appli Move" in section of "Installation") after you install the application program from the card to HDD. This is because: ¬ The SD card can be the only proof that the user is licensed to use the application program. You may need to check the SD card and its data to solve a problem in the future.

Update Procedure

1. Remove the slot cover [A] for SD cards (🔩 x 1).
2. Turn the SD-card label face to the rear of the machine. Then push it slowly into slot 3 until you hear a click.
3. Plug in and turn on the main power switch.
4. Push the "User Tools" key.

   If an administrator setting is registered for the machine, step 5 and 6 are required. Otherwise, skip to the step 7

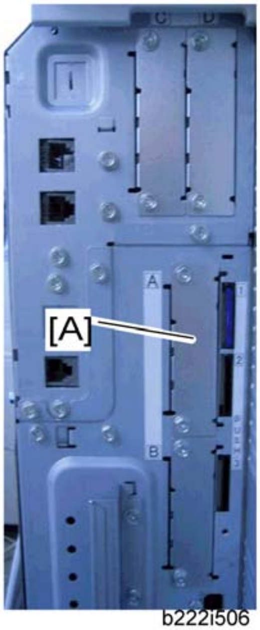
5. Push the "Login/ Logout" key.
6. Login with the administrator user name and password.
7. Touch "Extended Feature Settings" twice on the LCD.
8. Touch "Uninstall" on the LCD.
9. Touch the "Browser" line
10. Confirmation message appears on the LCD.
11. Touch "Yes" to proceed.
12. Reconfirmation message appears on the LCD.
13. Touch "Yes" to uninstall the browser unit.
14. You will see "Uninstalling the extended feature... Please wait.", and then "Completed".
15. Touch "Exit" to go back to the setting screen.
16. Exit "User/Tools" setting, and then turn off the main power switch.
17. Remove the SD card from the SD card slot 3.
18. Overwrite the updated program in the "sdk" folder of the browser unit application with PC.
19. Do the "Installation Procedure" to install the browser unit.

Remote Communication Gate Installation

Component Check

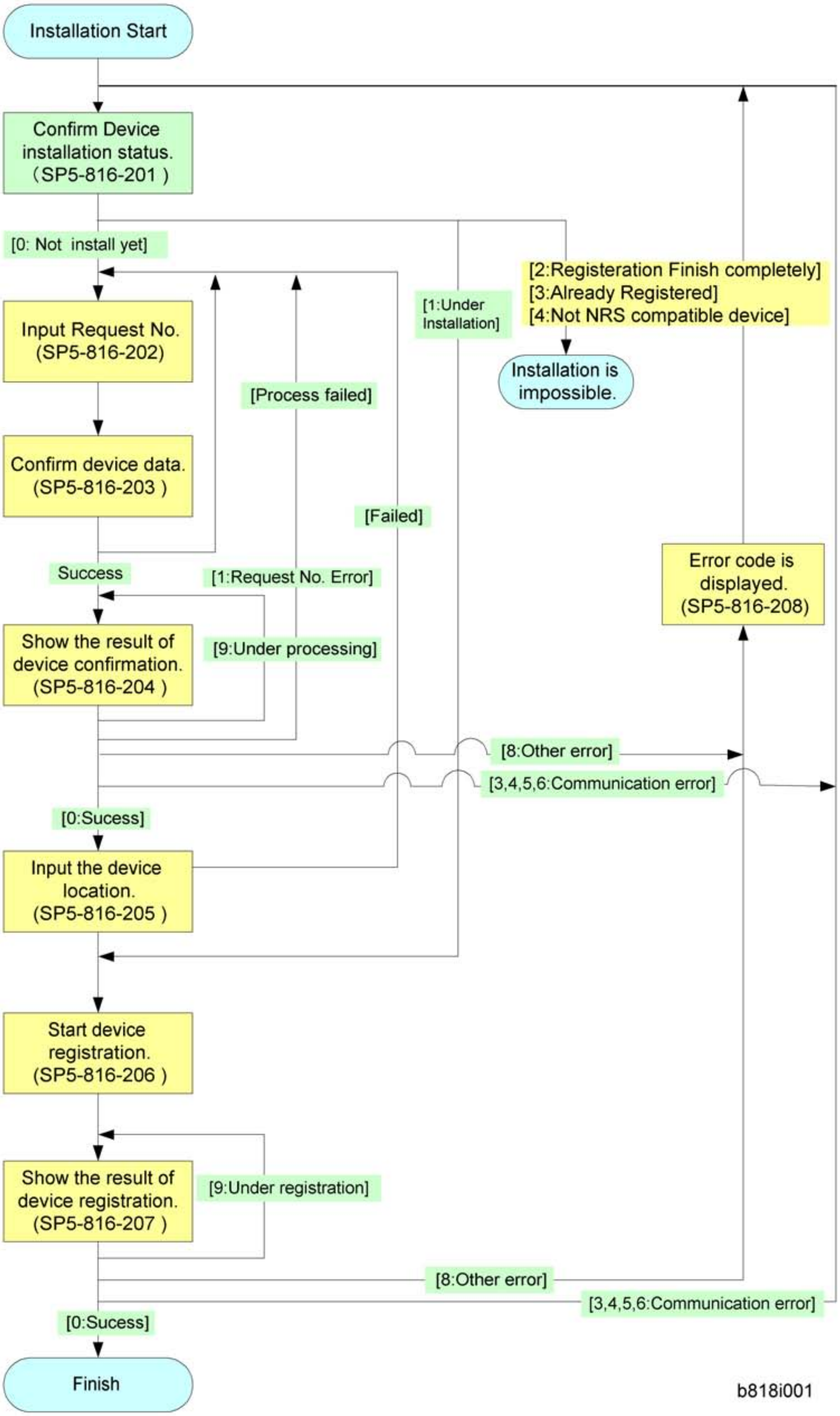
No.	Description	Q'ty
1	Remote Comm. Gate Interface	1
2	Cover	1
3	Screw	3

Installation Procedure



b222i506

1. **Remove one cover bracket [A] from I/F Card Slot A (🔩 x 2)**
2. **Install the modem board into the card slot for the device (🔩 x 2).**
3. **Check the following SP settings before starting the installation flow chart**
   - SP5-816-150 (To Select the country)
   - SP5-816-154 (To set the telephone number for outside connection)
   - SP5-816-161 (To set the telephone number)
4. **Follow the Installation flow chart as shown below with SP mode.**


Installation Start
Confirm Device installation status. （SP5-816-201)
[0: Not install yet]
[1:Under Installation]
[2:Registeration Finish completely]
[3:Already Registered]
[4:Not NRS compatible device]
Installation is impossible.
Input Request No. (SP5-816-202)
[Process failed]
Confirm device data. (SP5-816-203)
[Failed]
Success
[1:Request No. Error]
Error code is displayed. (SP5-816-208)
Show the result of device confirmation. (SP5-816-204)
[9:Under processing]
[8:Other error]
[3,4,5,6:Communication error]
[0:Sucess]
Input the device location. (SP5-816-205)
Start device registration. (SP5-816-206)
Show the result of device registration. (SP5-816-207)
[9:Under registration]
[8:Other error]
[3,4,5,6:Communication error]
[0:Sucess]
Finish

b818i001

Check All Connections

1. **Plug in the power cord. Then turn on the main switch.**
2. **Enter the printer user mode. Then print the configuration page.**

   User Tools > Printer Settings > List Test Print > Config. Page

All installed options are shown in the “System Reference” column.

2. Preventive Maintenance

Settings

Before removing the old PM parts

1. **Enter the SP mode.**
2. **Output the SMC logging data with SP5-990-004.**
3. **Set the following SPs to "1" before you turn the power off. Then, the machine will reset the PM counters automatically. In the case of developer, the developer initialization will also be done automatically.**
4. **Exit the SP mode.**

Item	SP
Developer	Black: 3902-005 Yellow: 3902-006 Cyan: 3902-007 Magenta: 3902-008
Drum Unit	Black: 3902-009 Yellow: 3902-010 Cyan: 3902-011 Magenta: 3902-012
Fusing Unit Parts (not necessary for complete fusing units; see below)	3902-014
Image Transfer Belt Cleaning Unit	3902-015
Paper Transfer Unit	3902-016
Toner Collection Bottle (if not full or near-full)	3902-017

For the following units, there is a new unit detection mechanism. It is not necessary to reset PM counters.

- PCU
- Development unit
- Complete fusing unit
- Toner Collection Bottle (if full or near-full)

After installing the new PM parts

1. **Turn on the main power switch.**
2. **Output the SMC logging data with SP5-990-004 and check the counter values.**
3. **Make sure that the PM counters for the replaced units are "0" with SP7-803. If the PM counter for a unit was not reset, then reset that counter with SP 7-804.**
4. **Make sure that the exchange counter counts up with SP7-853.**
5. **Make sure that the counters for the previous units (SP7-906) on the new SMC logging data list (from step 2 above) are equal to the counters (SP7-803) for these units on the previous SMC logging data list (the list that was output in the "Before removing the old parts" section).**
6. **Make sure that the unit replacement date is updated with SP7-950.**

Preparation before operation check

1. **Clean the exposure glasses (for DF and book scanning).**
2. **Enter the user tools mode.**
3. **Do the "Automatic Color Calibration "(ACC) for the copier mode & printer mode as follows:**
    1. Print the ACC test pattern (User Tools > Maintenance > ACC > Start).
    2. Put the printout on the exposure glass.
    3. Put 10 sheets of white paper on the test chart. This ensures the precise ACC adjustment.
    4. Close the ARDF or the platen cover.
    5. Press "Start Scanning" on the LCD. Then, the machine starts the ACC.
4. **Exit the User Tools mode, and then enter the SP mode.**
5. **Do the "Forced line position adjustment" as follows.**
    1. First do SP2-111-3 (Mode c).
    2. Then do SP2-111-1 (Mode a).
    3. To check if SP 2-111-1 was successful, watch the screen during the process. A message is displayed at the end. Also, you can check the result with SP 2-194-10 to -12.
6. **Exit the SP mode.**

Operation check

Check if the sample image has been copied normally.

Maintenance Tables

Preventive Maintenance Tables

Chart: A4 (LT)/5%
Mode: 2 copies/original (prints/job)
Environment: Normal temperature and humidity
Yield may change depending on circumstances and print conditions.

Symbol keys: C: Clean, R: Replace, L: Lubricant, I: Inspect

Mainframe

Item	80K	160K	240K	320K	EM	Remarks
Scanner						
Reflector		C				Optics cloth
1st/2nd/3rd mirrors		C				Optics cloth
Front and Rear Rails		C				Dry cloth
Exposure Glass		C			C	Dry cloth; alcohol
ADF Exposure Glass		C			C	Dry cloth; alcohol
Exposure Lamp					R	
APS Sensor		C				Dry cloth
PCU						
Dev. Unit–K				R		
Drum Unit-K, C, M, Y	R					
Developer-K, C, M, Y		R				
Dev. Unit Entrance Mylar-K, C, M, Y	C					Vacuum
Transfer						

Item	80K	160K	240K	320K	EM	Remarks
Image transfer belt-cleaning unit		R				
Paper transfer roller unit			R			
Toner Collection Bottle		R				
ID Sensor				C		Dry cloth
Fusing						
Fusing unit					R	
Fusing Belt		R				
Pressure Roller		R/L				S552R
-Bearing		R				
Fusing Roller		R/L				S552R
-Bearing		R				
Heating Roller		R				
-Insulating Bushing		R				
Tension Roller		R				
-Bushing		R				
Lubricant Roller		R				
-Bearing-Front		R				
-Bearing-Rear		R				
Cleaning Roller		R				
Ferrite Roller Gear		R				
Idle Gear		R				
One-way Clutch Gear		R				
Thermopile			C			Dry cloth
Themistor (Fusing Roller)		C				Dry cloth*[1]

Item	80K	160K	240K	320K	EM	Remarks
Themistor (Pressure Roller)		C				Dry cloth
Guide Plate (Entrance)		C				Dry cloth; alcohol
Guide Plate (Exit)		C				Dry cloth; alcohol
Stripper Plate		C				Dry cloth; alcohol
Paper Path						
Registration Roller					C	Damp cloth
Registration Sensor					C	Dry cloth
Vertical Transport Roller					C	Damp cloth
Vertical Transport Sensor					C	Dry cloth
Paper Feed Sensor					C	Dry cloth
Pick-up Roller					C	Dry cloth
Feed Roller					C	Dry cloth
Separation Roller					C	Dry cloth
Fusing Entrance Sensor					C	Dry cloth
Fusing Exit Sensor					C	Dry cloth
Paper Dust Container					C	
Duplex Unit						
Inverter Roller					C	Dry cloth
Transport Roller					C	Dry cloth
Inverter Sensor					C	Blower brush
Duplex Exit Sensor					C	
Miscellaneous						
Dust Filter		R				

Item	80K	160K	240K	320K	EM	Remarks
Ozone Filter		R				

*1: Clean this thermistor only when it gets paper dust.

ARDF

Item	120K	EM	Remarks
Pick-up Roller	R		Damp cloth; alcohol
Feed Belt	R		Damp cloth; alcohol
Separation Roller	R		Damp cloth; alcohol
Sensors		C	Blower brush
Platen Sheet Cover		C	Damp cloth; alcohol (Replace if required.)
White Plate		C	Dry or damp cloth
Drive Gear		L	Grease G501
Transport Roller		C	Damp cloth; alcohol
Exit Roller		C	Damp cloth; alcohol
Inverter Roller		C	Damp cloth; alcohol
Idle Rollers		C	Damp cloth; alcohol

Two-tray Paper Feed Unit

Item	EM	Remarks
Relay Roller	C	Damp cloth
Bottom Plate Pad	C	Damp cloth

LCT

Item	EM	Remarks
Relay Roller	C	Damp cloth
Bottom Plate Pad	C	Damp cloth

2000/3000-Sheet (Booklet) Finisher

Items	EM	Remarks
Rollers	C	Damp cloth
Discharge Brush	C	Dry cloth
Sensors	C	Blower brush

2000/3000-Sheet (Booklet) Finisher Punch Kit

Items	EM	Remarks
Punch Chads	C	Discard chads.

1000-Sheet Finisher

Items	EM	Remarks
Rollers	C	Damp cloth
Discharge Brush	C	Dry cloth
Sensors	C	Blower brush

Others in Mainframe

Item	320K	360K	Remarks
Dev. Unit–C, M, Y	R		☛*1
Image Transfer Belt Unit		R	☛*2

*1: The color development units are considered EM parts because the actual life time of the color development units depends on the usage of color ratio.

*2: The image transfer belt unit is considered an EM part because its expected lifetime is relatively long.

3. Replacement and Adjustment

Beforehand

⚠CAUTION

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

Special Tools

Part Number	Description	Q'ty
B645 5010	SD Card	1
B645 6705	PCMCIA Card Adapter	1
B645 6820	USB Reader/Writer	1
VSSM9000	Digital Multimeter – FLUKE87	1
G021 9350	Loop-back Connector – Parallel *NOTE	1
C401 9503	20X Magnification Scope	1
A257 9300	Grease Barrierta – S552R	1
5203 9502	Silicone Grease G-501	1
A092 9503	C4 Color Test Chart (3 pcs/set)	1
A006 9104	Scanner Positioning Pin (4 pcs/set)	1
B679 5100	Plug - IEEE1284 Type C	1
B132 9700	Lubricant Powder	1

Note

- The "Loop-back Connector–Parallel" requires the "Plug-IEEE1284 Type C", and the optional IEEE1284 interface option must also be installed.

Image Adjustment

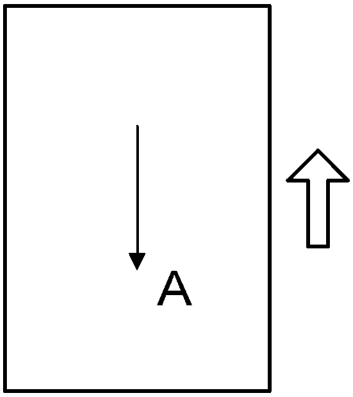
Scanning

Check the printing registration/side-to-side adjustment and the blank margin adjustment before you do the following scanner adjustments.

Note

- Use S-2-1 test chart to do the following adjustments.

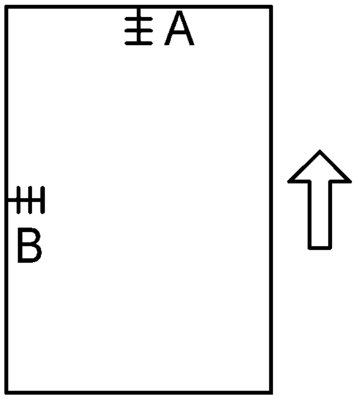
Scanner sub-scan magnification



A: Sub-scan magnification

1. **Put the test chart on the exposure glass. Then make a copy from one of the feed stations.**
2. **Check the magnification ratio. Adjust with SP4-008 if necessary.**
   Standard: ±1.0%.

Scanner leading edge and side-to-side registration



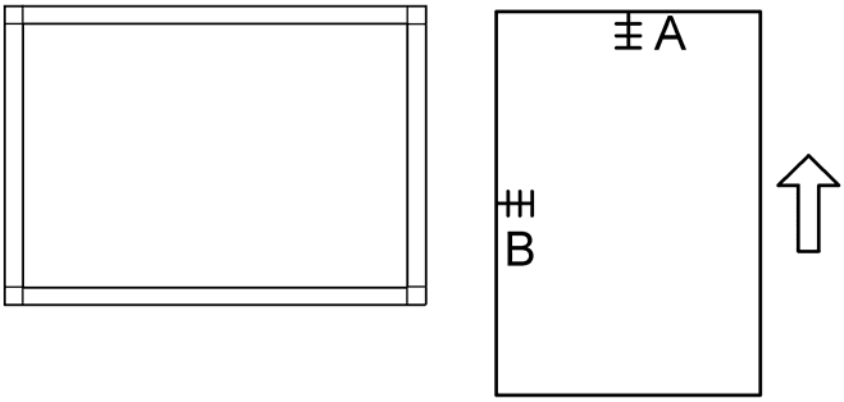
A: Leading Edge Registration

1. **Put the test chart on the exposure glass. Then make a copy from one of the feed stations.**
2. **Check the leading edge and side-to-side registration. Adjust the following SP modes if necessary. Standard: 0 ± 2mm for the leading edge registration, 0 ± 2.5mm for the side-to-side registration.**

	SP mode
Leading Edge Registration	SP4-010-001
Side-to-Side Registration	SP4-011-001

ARDF

ARDF side-to-side, leading edge registration and trailing edge



A: Leading edge registration

Use A3/DLT paper to make a temporary test chart as shown above.

1. **Put the temporary test chart on the ARDF. Then make a copy from one of the feed stations.**
2. **Check the registration. Check the leading edge and side-to-side registration. Adjust the following SP modes if necessary. Standard: 4.2 ± 2 mm for the leading edge registration, 2 ± 1 mm for the side-to-side registration. Use the following SP modes to adjust if necessary.**

SP Code	What It Does	Adjustment Range
SP6-006-001	Side-to-Side Registration	± 3.0 mm
SP6-006-003	Leading Edge Registration	± 5.0 mm
SP6-006-005	Buckle: Duplex Front	± 3.0 mm
SP6-006-006	Buckle: Duplex Rear	± 2.5 mm
SP6-006-007	Rear Edge Erase (Trailing Edge)	± 10.0 mm

ARDF sub-scan magnification

1. **Put the temporary test chart on the ARDF. Then make a copy from one of the feed stations.**
2. **Check the magnification ratio. Adjust with SP6-017-001 if necessary.**

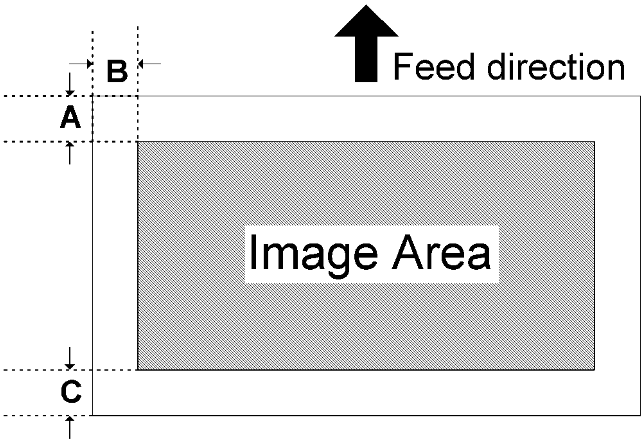
   Standard: ±1.0%

   Reduction mode: ±1.0%

Enlargement mode: ±1.0%

Registration

Image Area



A = C = 4.2mm (1.6"), B = 2.0mm

Make sure that the registration is adjusted within the adjustment standard range as shown below.

Leading Edge

Adjusts the leading edge registration for each paper type and process line speed.

Side to Side

Adjusts the side-to-side registration for each paper feed station. Use SP mode (SP1-002) to adjust the side-to-side registration for the optional paper feed unit, LCT, and duplex unit.

Adjustment Standard

- Leading edge (sub-scan direction): 4.2 ± 2 mm
- Side to side (main-scan direction): 2 ± 1 mm

Paper Registration Standard

The registration in both main- and sub-scan directions can change within the following tolerance.

- Sub-scan direction: 0 ± 9 mm
- Main-scan direction: 0 ± 4 mm

Adjustment Procedure

1. **Enter SP2-109-003.**
2. **Print out the test pattern (14: 1-dot trimming pattern) with SP2-109-003.**

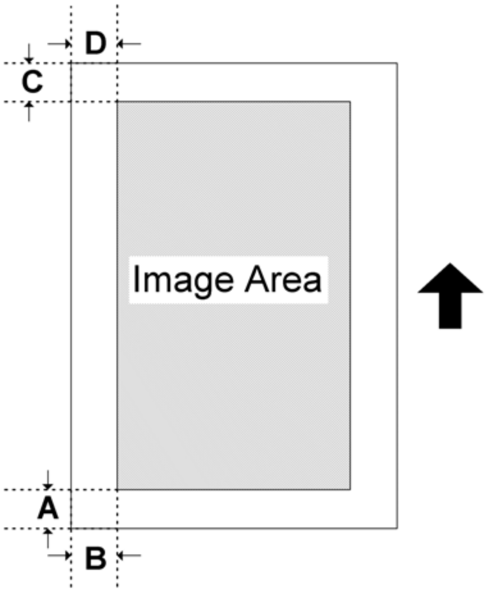
   Note

   - Registration can change slightly as shown on the previous page. Print some pages of the 1-dot trimming pattern for step 3 and 4. Then average the leading edge and side-to-side registration values, and adjust each SP mode.
3. **Do the leading edge registration adjustment.**
   1. Check the leading edge registration and adjust it with SP1-001.
   2. Select the adjustment conditions (paper type and process line speed).
   3. Input the value. Then press the # key.
   4. Generate a trim pattern to check the leading edge adjustment.
4. **Do the side-to-side registration adjustment.**
   1. Check the side-to-side registration and adjust it with SP1-002.
   2. Select the adjustment conditions (paper feed station).
   3. Input the value. Then press the # key.
   4. Generate a trim pattern to check the leading edge adjustment.

Erase Margin Adjustment

Note

- Adjust the erase margin C and D only if the registration (main scan and sub scan) cannot be adjusted within the standard values. Do the registration adjustment after adjusting the erase margin C and D, and then adjust the erase margin A and B.



1. **Enter SP2-109-003.**
2. **Print out the test pattern (14: 1-dot trimming pattern) with SP2-109-003.**
3. **Check the erase margin A and B. Adjust them with SP2-103-001 to -010 if necessary.**

   Leading edge: 1.5 to 5.0 mm,

   Side-to-side: 0.5 to 4.0 mm,

   Trailing edge: 0.5 to 0.6 mm

Color Registration

Line Position Adjustment

The automatic line position adjustment usually is done for a specified condition to get the best color prints.

Do the following if color registration shifts:

- Do “Auto Color Registration” as follows to do the forced line position adjustment.
  1. First do SP2-111-3.
  2. Then do SP2-111-1.

     To check if SP 2-111-1 was successful, watch the screen during the process. A message is displayed at the end. Also, you can check the result with SP 2-194-10 to -12.
- You should also do the line position adjustment at these times:

- After you transport or move the machine (you should do the forced line position adjustment if you install the machine at the user location.) if the machine is pre-installed at the workshop and moved to the user location,
- When you open the drum positioning plate
- When you remove or replace the motors, clutches, and/or gears related to the drum/development/transfer sections
- When you remove or replace the image transfer belt, image transfer belt unit or laser optical housing unit

Printer Gamma Correction

Note

- The ACC is usually sufficient to adjust the color balance to get the best print output. You only need the printer gamma correction to fine-tune to meet user requirements.

Use SP modes if you want to modify the printer gamma curve created with ACC. You can adjust the gamma data for the following:

- Highlight
- Middle
- Shadow areas
- IDmax.

The adjustable range is from 0 to 30 (31 steps).

Copy Mode

- KCMY Color Balance Adjustment -

The adjustment uses only “Offset” values.

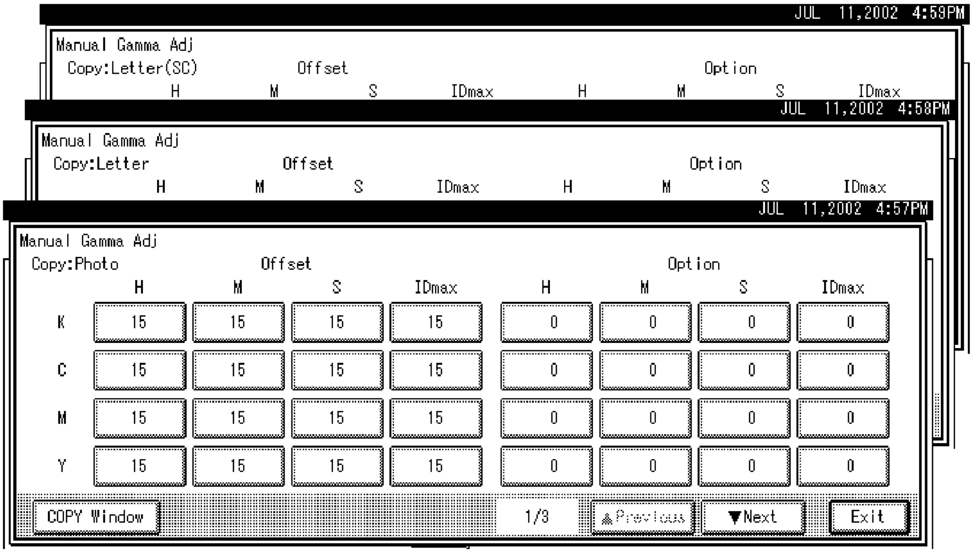
Note

- Never change “Option” values (default value is 0).

Highlight (Low ID)	Levels 2 through 5 in the C4 chart 10-level scale
Middle (Middle ID)	Levels 3 through 7 in the C4 chart 10-level scale
Shadow (High ID)	Levels 6 through 9 in the C4 chart 10-level scale
ID max	Level 10 in the C4 chart 10-level scale (affects the entire image density.)
Offset	The higher the number in the range associated with the low ID, middle ID, high ID, and ID max, the greater the density.

There are four adjustable modes (can be adjusted with SP4-918-009):

- Copy Photo mode
- Copy Letter mode
- Copy Letter (Single Color) mode
- Copy Photo (Single Color) mode



JUL 11,2002 4:59PM

Manual Gamma Adj

Copy:Letter(SC) Offset Option

H M S IDmax H M S IDmax

JUL 11,2002 4:58PM

Manual Gamma Adj

Copy:Letter Offset Option

H M S IDmax H M S IDmax

JUL 11,2002 4:57PM

Manual Gamma Adj

Copy:Photo

	Offset				Option			
	H	M	S	IDmax	H	M	S	IDmax
K	15	15	15	15	0	0	0	0
C	15	15	15	15	0	0	0	0
M	15	15	15	15	0	0	0	0
Y	15	15	15	15	0	0	0	0

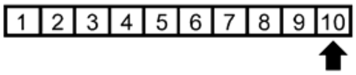
- Adjustment Procedure -

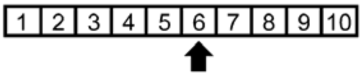
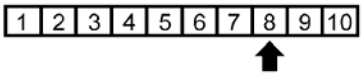
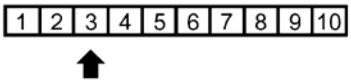
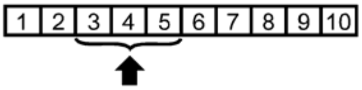
1. **Copy the C-4 chart in the mode that you want to adjust.**
2. **Enter the SP mode.**
3. **Select "Copy SP."**
4. **Select SP4-918-009.**
5. **Adjust the offset values until the copy quality conforms to the standard (☛ the table below).**

Note

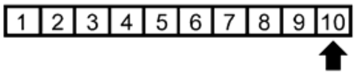
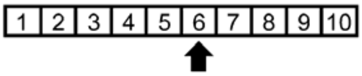
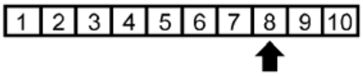
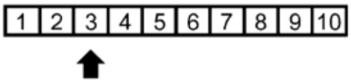
- 1. Never change "Option" value (default value is "0").
- 2. Adjust the density in this order: "ID Max," "Middle," "Shadow," "Highlight."

- Photo Mode, Full Color -

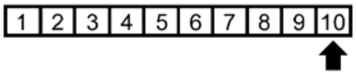
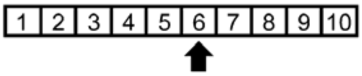
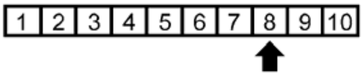
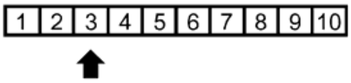
	Item to Adjust	Level on the C-4 chart	Adjustment Standard
1	ID max: (K, C, M, and Y)		Adjust the offset value so that the density of level 10 matches that of level 10 on the C-4 chart.

2	Middle (Middle ID) (K, C, M, and Y)		Adjust the offset value so that the density of level 6 matches that of level 6 on the C-4 chart.
3	Shadow (High ID) (K, C, M, and Y)		Adjust the offset value so that the density of level 8 matches that of level 8 on the C-4 chart.
4	Highlight (Low ID) (K, C, M, and Y)		Adjust the offset value so that dirty background does not show on the copy and the density of level 3 is slightly lighter than that of level 3 on the C-4 chart.
5	K Highlight (Low ID) (C,M, and Y) <on the full color copy>		Adjust the offset value so that the color balance of black scale levels 3 through 5 in the copy is seen as gray (no C, M, or Y should be visible). If the black scale contains C, M, or Y, do steps 1 to 4 again.

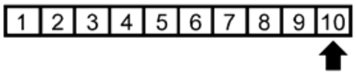
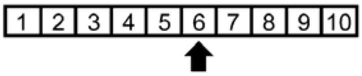
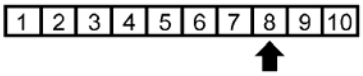
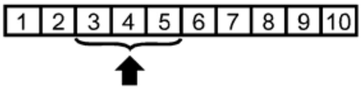
- Photo Mode, Single Color -

	Item to Adjust	Level on the C-4 chart	Adjustment Standard
1	ID max: (K)		Adjust the offset value so that the density of level 10 matches that of level 10 on the C-4 chart.
2	Middle (Middle ID) (K)		Adjust the offset value so that the density of level 6 matches that of level 6 on the C-4 chart.
3	Shadow (High ID) (K)		Adjust the offset value so that the density of level 8 matches that of level 8 on the C-4 chart.
4	Highlight (Low ID) (K)		Adjust the offset value so that dirty background does not show on the copy and the density of level 3 is slightly lighter than that of level 3 on the C-4 chart.

- Text (Letter) Mode, Full Color -

	Item to Adjust	Level on the C-4 chart (K)	Adjustment Standard
1	ID max: (K, C, M, and Y)		Adjust the offset value so that the density of level 10 matches that of level 10 on the C-4 chart.
2	Middle (Middle ID) (K, C, M, and Y)		Adjust the offset value so that the density of level 6 matches that of level 6 on the C-4 chart.
3	Shadow (High ID) (K, C, M, and Y)		Adjust the offset value so that the density of level 8 matches that of level 8 on the C-4 chart.
4	Highlight (Low ID) (K, C, M, and Y)		Adjust the offset value so that dirty background does not show on the copy and the density of level 3 is slightly lighter than that of level 3 on the C-4 chart.

- Text (Letter) Mode, Single Color -

	Item to Adjust	Level on the C-4 chart (K)	Adjustment Standard
1	ID max: (K)		Adjust the offset value so that the density of level 10 matches that of level 10 on the C-4 chart.
2	Middle (Middle ID) (K)		Adjust the offset value so that the density of level 6 matches that of level 6 on the C-4 chart.
3	Shadow (High ID) (K)		Adjust the offset value so that the density of level 8 matches that of level 8 on the C-4 chart.
4	Highlight (Low ID) (K)		Adjust the offset value so that dirty background does not show on the copy and the density of level 3 is slightly lighter than that of level 3 on the C-4 chart.

Note

- Text parts of the test pattern cannot be printed clearly after you adjust “shadow” as shown above. At this time, check if the 5 line/mm pattern at each corner is printed clearly. If it is not, adjust the offset value of “shadow” again until it is.

Printer Mode

There are six adjustable modes (select these modes with printer SP1-102-001):

- 2400 x 600 photo mode
- 2400 x 600 text mode
- 1800 x 600 photo mode
- 1800 x 600 text mode
- 600 x 600 photo mode
- 600 x 600 text mode

	K	C	M	Y
Highlight Shadow Middle IDmax	SP1-104-1 SP1-104-2 SP1-104-3 SP1-104-4	SP1-104-21 SP1-104-22 SP1-104-23 SP1-104-24	SP1-104-41 SP1-104-42 SP1-104-43 SP1-104-44	SP1-104-61 SP1-104-62 SP1-104-63 SP1-104-64

- Adjustment Procedure -

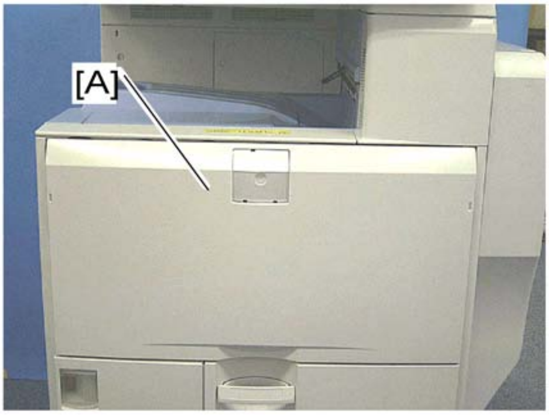
1. **Do ACC for the printer mode.**
2. **Turn the main power off and on.**
3. **Enter SP mode.**
4. **Select “Printer SP”.**
5. **Select SP1-102-001. Then select the necessary print mode to adjust.**
6. **Choose SP1-103-1 to print out a tone control test sheet if you want to examine the image quality for these settings.**
7. **Adjust the color density with SP1-104. Compare the tone control test sheet with the C4 test chart.**

   Note

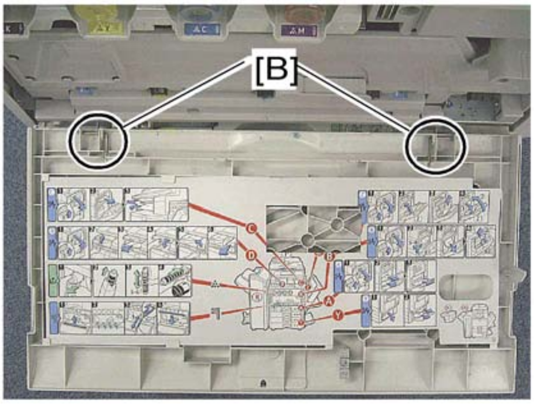
   - Adjust the density in this order: “ID Max”, “Shadow”, “Middle”, “Highlight”.
8. **Use SP1-105-001 to keep the adjusted settings.**

Exterior Covers

Front Door

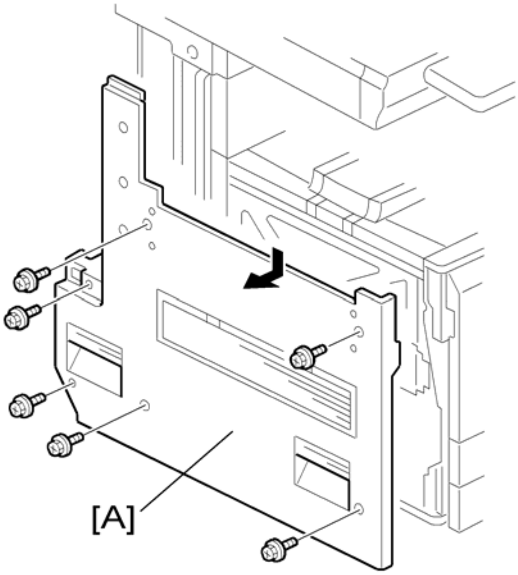


1. Open the front door [A].



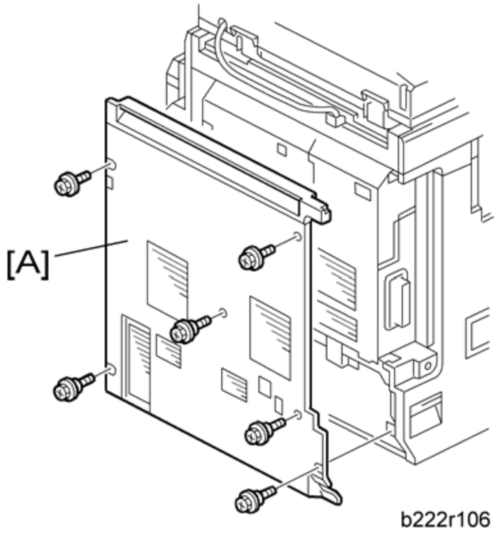
2. Remove the two pins [B], and then remove the front cover.

Left Cover



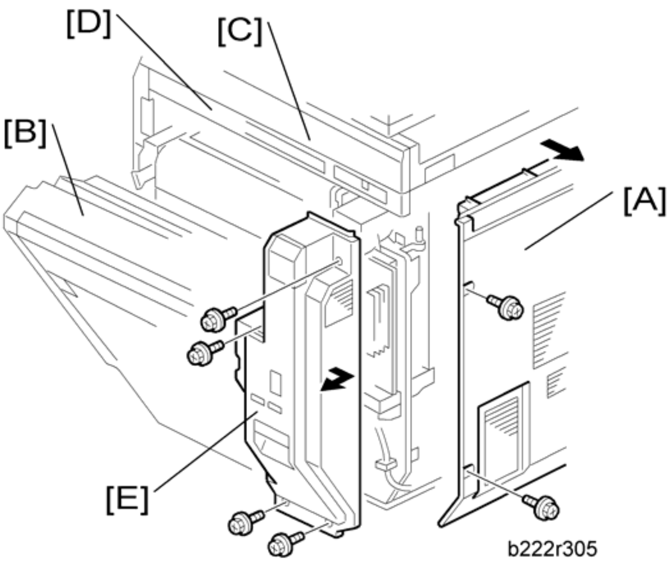
1. Left cover [A] (🔩 x 6)

Rear Cover



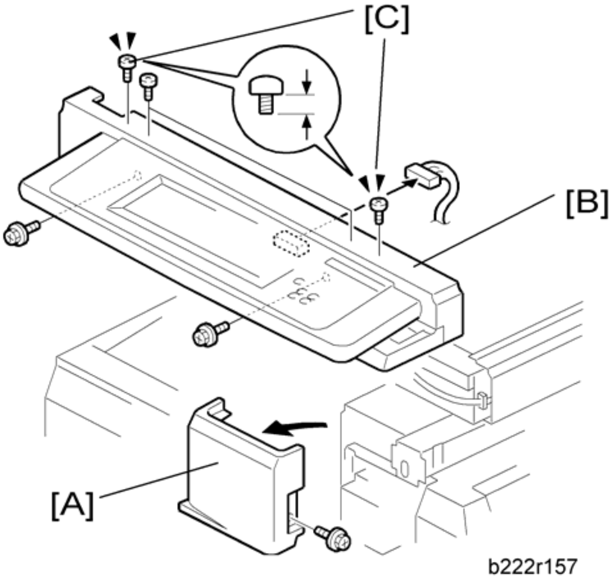
1. Rear cover [A] (🔩 x 6)

Right Rear Cover



1. Rear cover [A] (🔩 x 6)
2. Open the right door [B].
3. Scanner right cover [C] (🔩 x 2)
4. Right top cover [D] (🔩 x 1)
5. Right rear cover [E] (🔩 x 4)

Operation Panel

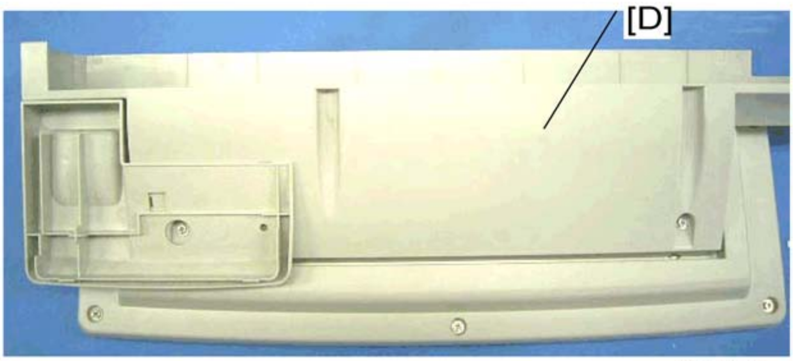


b222r157

1. Open the right door.
2. Front right cover [A] (🔩 x 1)
3. Operation panel with the scanner front cover [B] (🔩 x 6, 🔌 x 1)

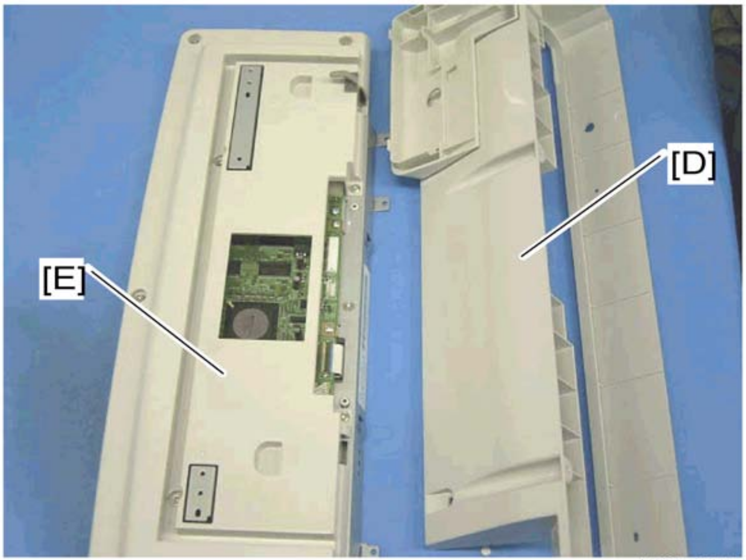
Note

- The two screws [C] are shorter than the other screws installed in the inner two screw holes. Make sure that the two screws [C] are installed in the outer screw holes on the scanner front cover.



b222r514

4. Scanner front cover [D] (🔩 x 2)

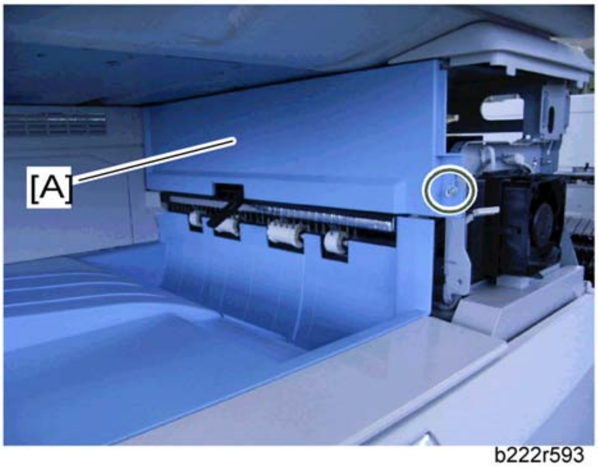


b222r515

5. Operation panel [E]

Paper Exit Cover

1. Front right cover (☛ "p.127 "Operation Panel"")



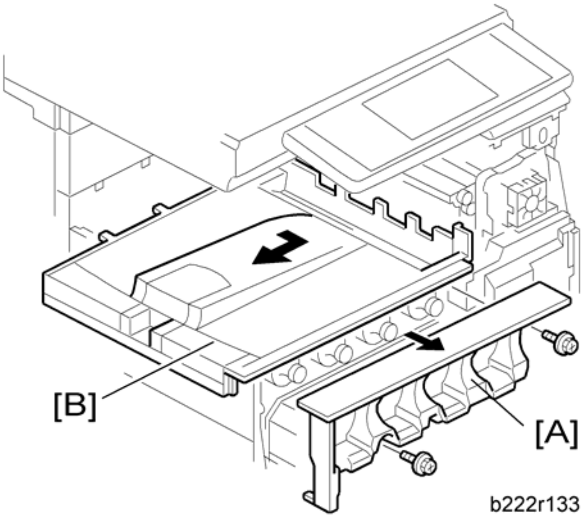
b222r593

2. Paper exit cover [A] (🔩 x 1)

Inner Tray

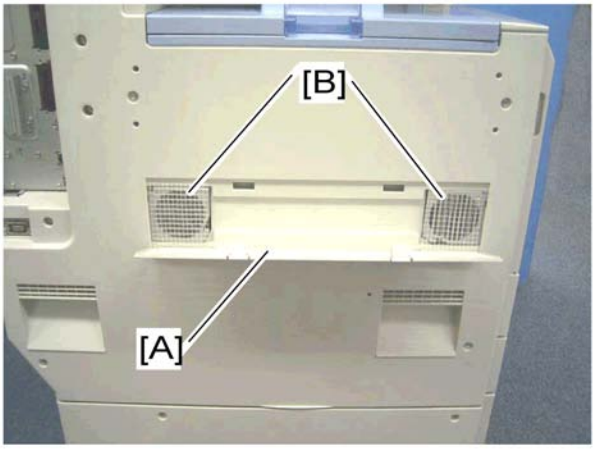
1. Remove the image transfer belt unit.

2. Paper exit cover ("p.128 "Paper Exit Cover"")
3. Left cover ("p.125 "Left Cover"")



4. Toner cartridge cover [A] (🔩 x 2)
5. Inner tray [B].

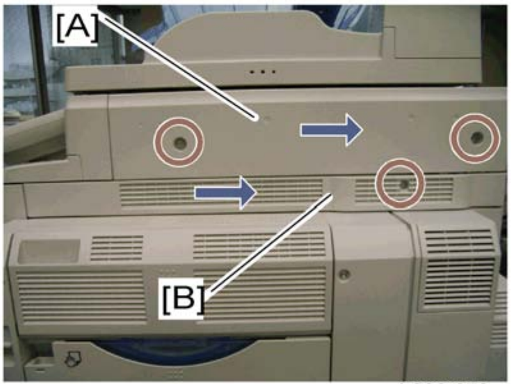
Dust Filter



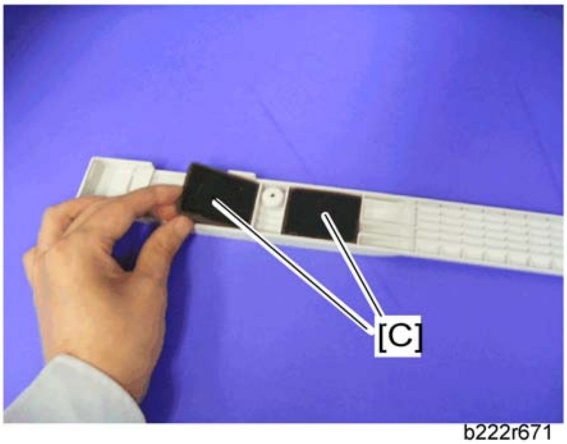
1. Dust filter cover [A]
2. Two dust filters [B]

Ozone Filter

Ozone filters for scanner unit

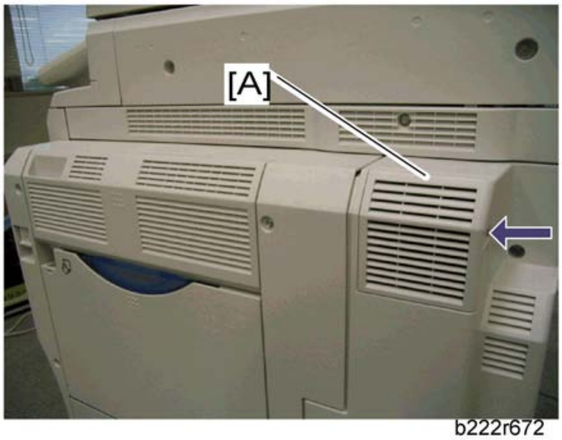


1. Scanner right cover [A] (🔩 x 2)
2. Right top cover [B] (🔩 x 1)

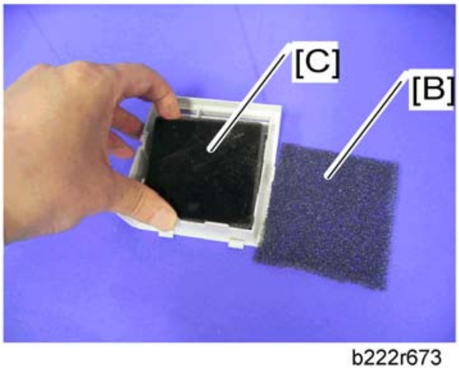


3. Ozone filters [C] in the right top cover.

Ozone filter for IH inverter



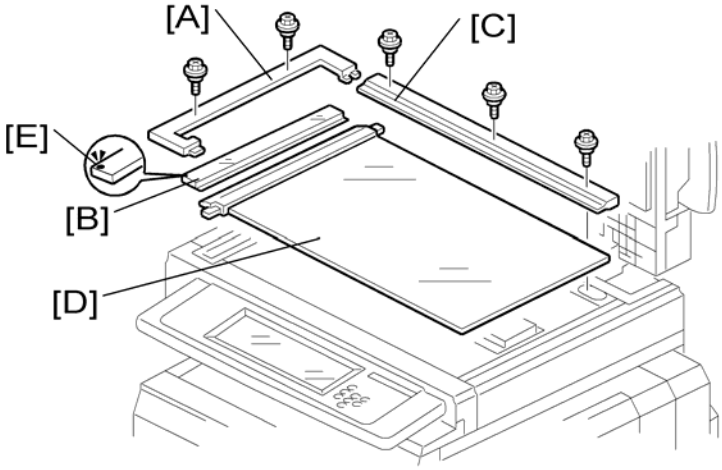
1. IH inverter fan cover [A] (hook)



2. Filter [B]
3. Ozone filter [C]

Scanner Unit

Exposure Glass

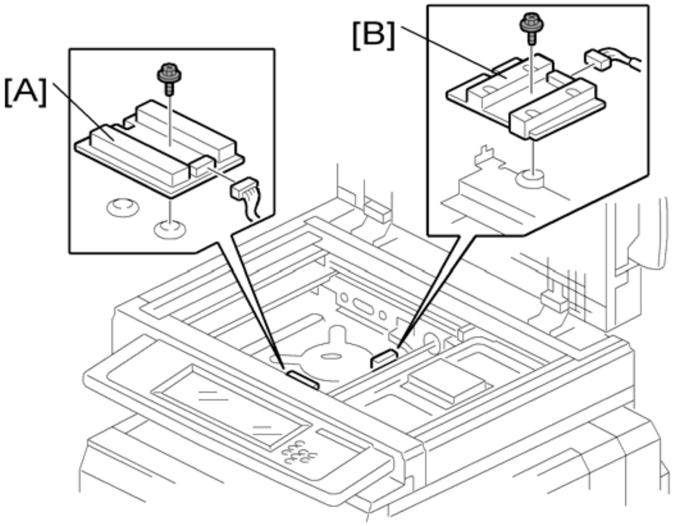


1. **Glass cover [A] (🔩x 2)**
2. **ARDF exposure glass [B]**
3. **Rear scale [C] (🔩 x 3)**
4. **Exposure glass with left scale [D]**

    Note

    - Position the black marker [E] at the front-left corner when you reattach the ARDF exposure glass.

Original Length/Width Sensors



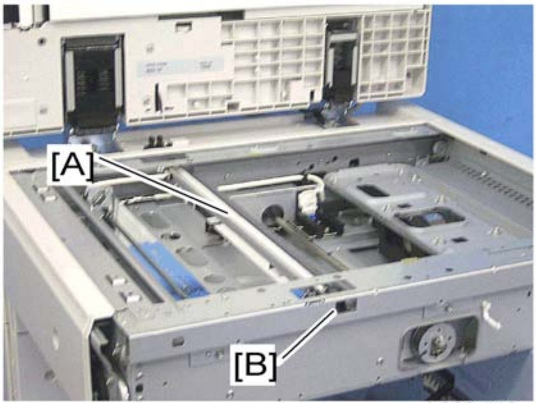
1. Exposure glass with left scale (☛ "p.132 "Exposure Glass"")
2. Original width sensors [A] (🔩 x 1, 🔌 x1)
3. Original length sensors [B] (🔩 x 1, 🔌 x1)

Note

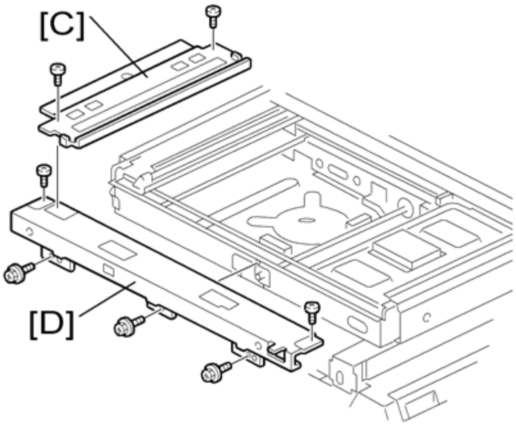
- The number of the original length sensors depends on the model; 3 for EU, 2 for others.

Exposure Lamp

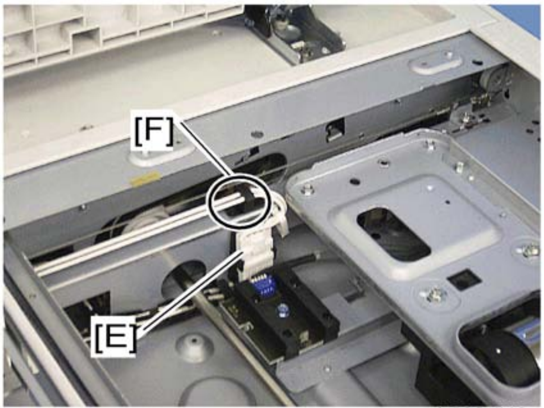
1. Operation panel with scanner front cover (☛ "p.127 "Operation Panel"")
2. Exposure glass (☛ "p.132 "Exposure Glass"")



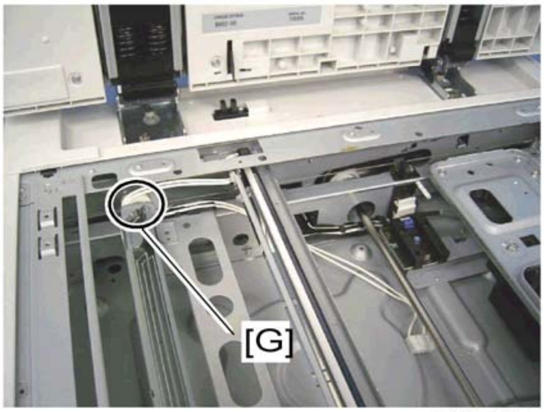
3. Move the 1st scanner carriage [A] to the cutout [B] in the front frame.



4. Scanner left stay [C] (🔩 x 2)
5. Scanner front frame [D] (🔩 x 5)

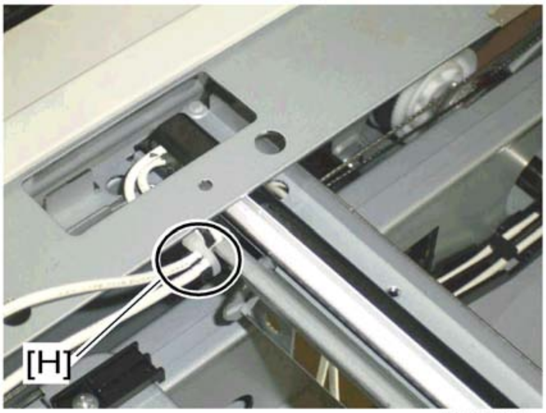


6. Disconnect the connector [E] (x 1).
7. Remove the clamp [F] (x 1)



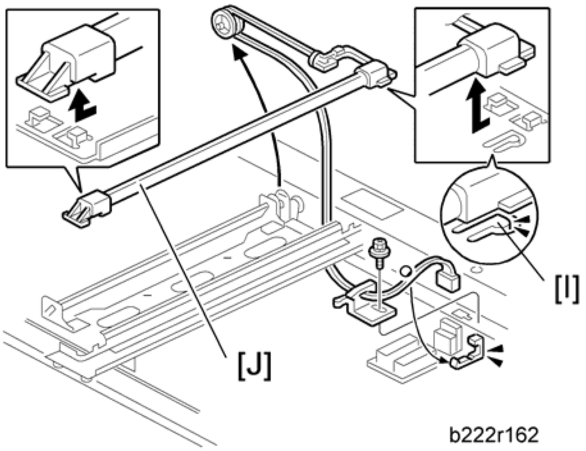
b222r520

8. Remove the pulley [G].



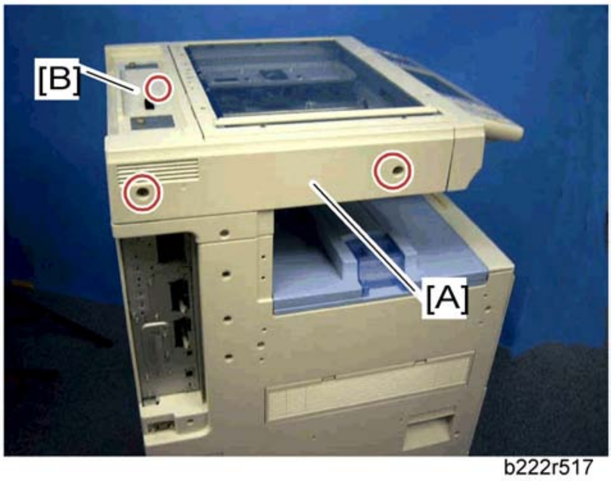
b222r521

9. Release the cable clamp [H].

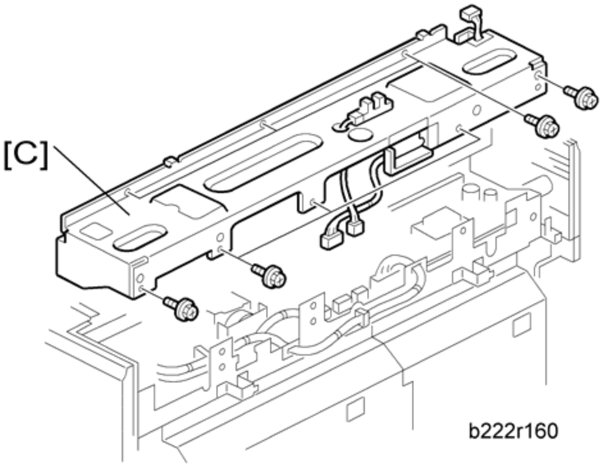


10. Hold down the snap [I], and then slide the exposure lamp [J] to the front side.
11. Exposure lamp [J]

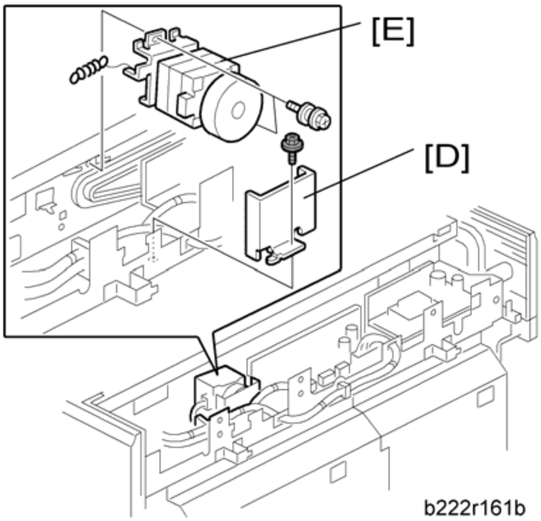
Scanner Motor



1. Rear cover (☛ "p.125 "Rear Cover"")
2. Scanner left cover [A] (🔩 x 2)
3. Scanner top rear cover [B] (🔩 x 1)



4. **Scanner rear frame [C] (🔩 x 8, 🔌 x 3, ⊂ x 2)**



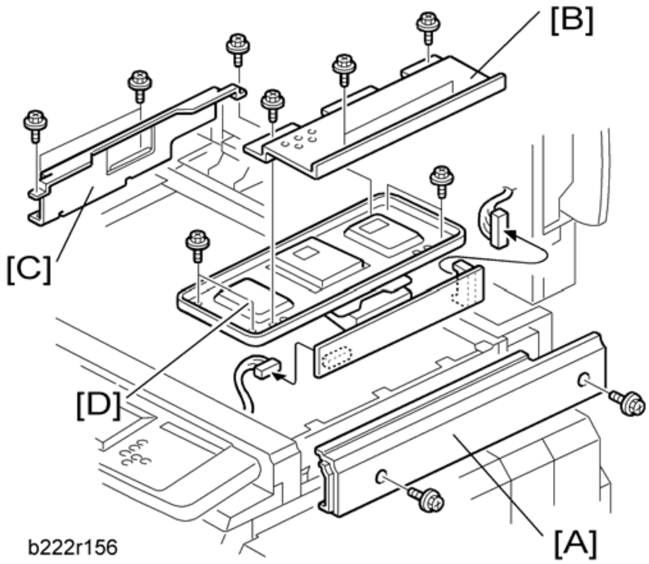
5. **Scanner motor bracket [D] (🔩 x 1)**
6. **Scanner motor [E] (🔩 x 2, spring x 1)**

Note

- After replacing the scanner motor, do the image adjustments in the following section of the manual (☛ "p.113 "Scanning"").

Sensor Board Unit (SBU)

1. **Exposure glass (☛ "p.132 "Exposure Glass"")**



2. **Scanner right cover [A] (🔩 x 2)**
3. **SBU cover bracket [B] (🔩 x 4)**
4. **Ground plate [C] (🔩 x 4)**
5. **Sensor board unit [D] (🔩 x 4, 🔌 x 3, ⊓ x 1)**

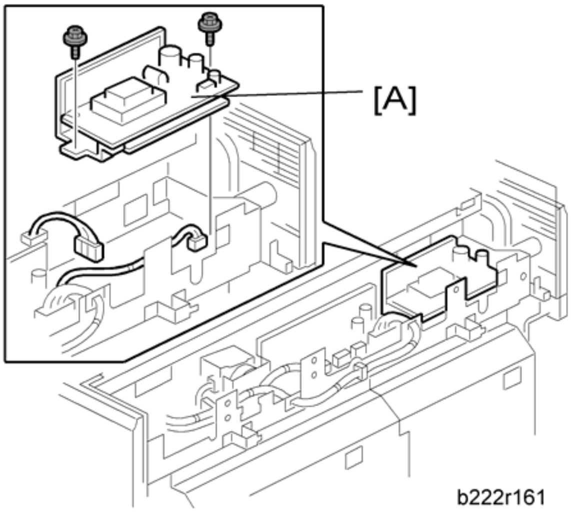
When reassembling

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

- SP4–008 (Sub Scan Mag): See "Image Adjustment: Scanning".
- SP4–010 (Sub Mag Reg.): See "Image Adjustment: Scanning".
- SP4–011 (Main Scan Reg): See "Image Adjustment: Scanning".
- SP4–688 (DF: Density Adjustment): Use this to adjust the density level if the ID of outputs made in the DF and Platen mode is different.

Exposure Lamp Stabilizer

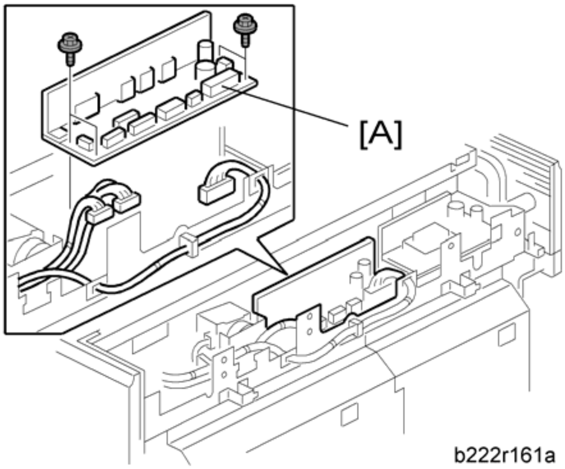
1. **Rear cover (☛ "p.125 "Rear Cover"")**
2. **Scanner rear frame (☛ "p.136 "Scanner Motor"")**



3. Exposure lamp stabilizer [A] (🔩 x 2, 🔌 x 2)

SIO (Scanner In/Out) Board

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Scanner rear frame (☛ "p.136 "Scanner Motor"")

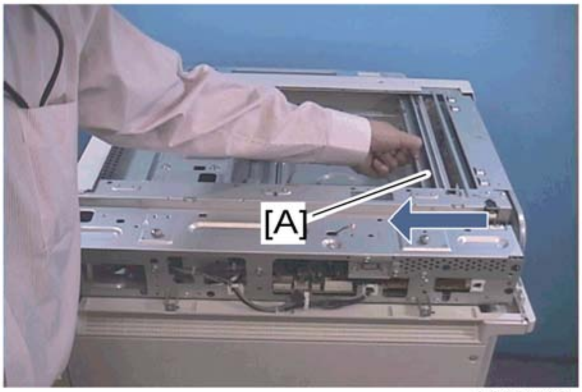


3. SIO board with bracket [A] (🔩 x 4, All 🔌s)

Scanner HP Sensor

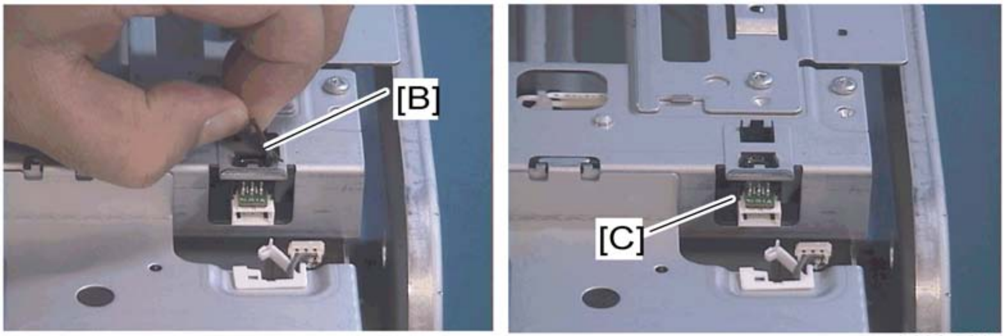
1. Rear cover (☛ "p.125 "Rear Cover"")

2. Scanner left cover and Scanner top rear cover (☛ "p.136 "Scanner Motor"")
3. Exposure glass (☛ "p.132 "Exposure Glass"")



b222r523

4. Move the 1st scanner carriage [A] to the right side.

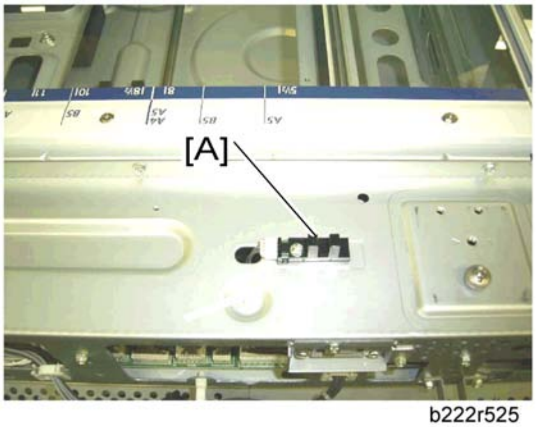


b222r524

5. Remove the mylar [B]
6. Remove the scanner HP sensor [C] (🔌 x 1, 🗜 x 1, two snaps)

Platen Cover Sensor

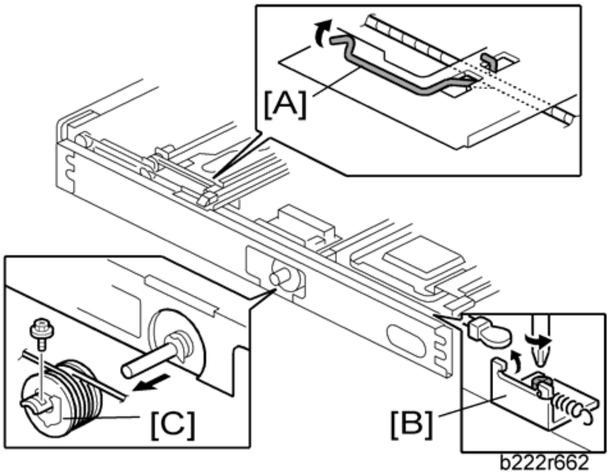
1. Rear cover (☛ "p.125 "Rear Cover"")
2. Scanner left cover and Scanner top rear cover (☛ "p.136 "Scanner Motor"")



3. Platen cover sensor [A] (🔩 x 1, 🔌 x 1)

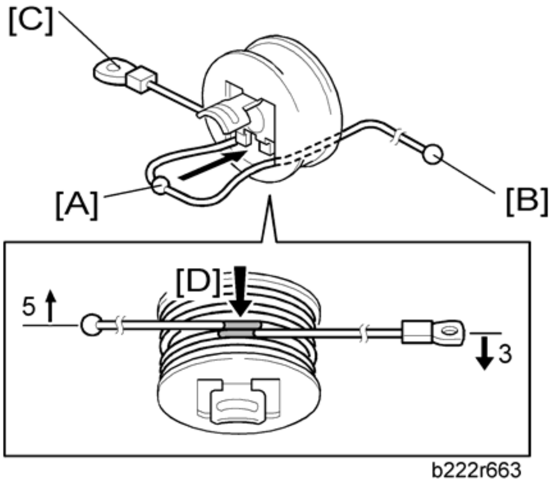
Front Scanner Wire

1. Operation panel with the scanner front cover (☛ "p.127 "Operation Panel"")
2. Front frame (☛ "p.133 "Exposure Lamp"")
3. To make reassembly easy, slide the first scanner to the right.



4. Front scanner wire clamp [A]
5. Front scanner wire bracket [B] (🔩 x 1)
6. Front scanner wire and scanner drive pulley [C] (🔩 x 1)

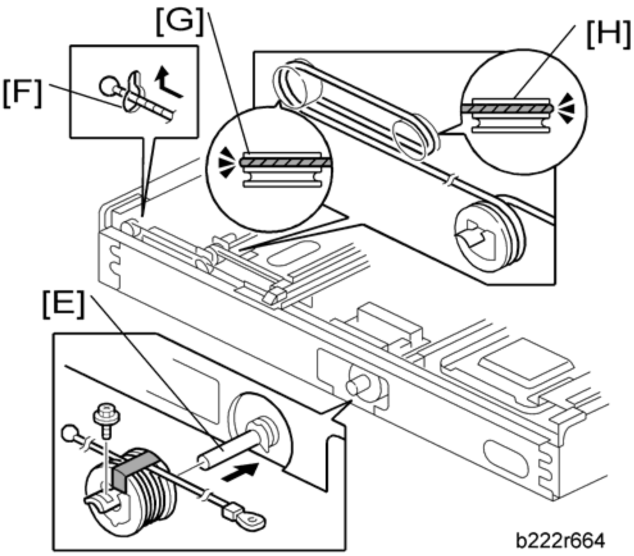
Reassembling the Front Scanner Wire



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

Note

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

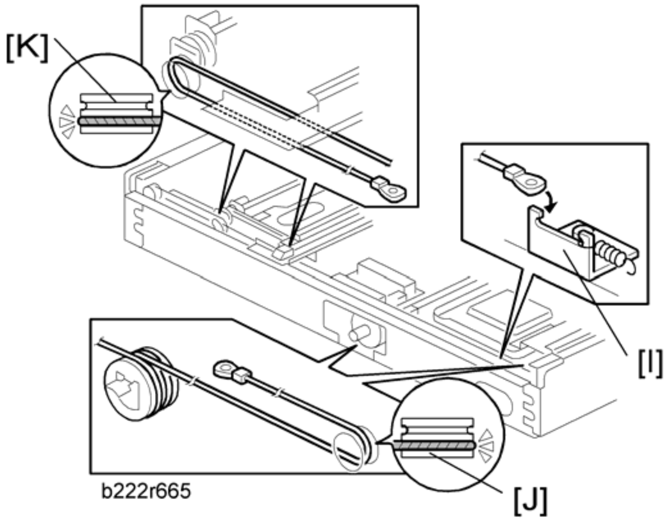


4. **Install the drive pulley on the shaft [E].**

Note

- Do not attach the pulley to the shaft with the screw at this time.

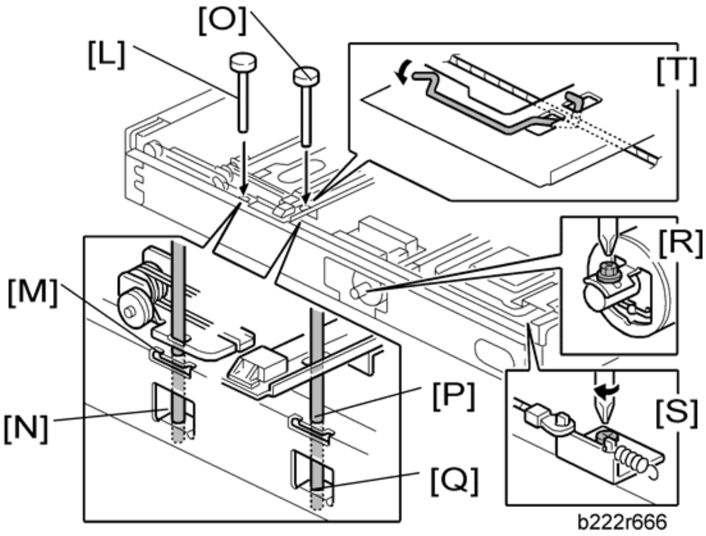
5. **Insert the left end into the slit [F]. The end should go via the rear track of the left pulley [G] and the rear track of the movable pulley [H].**



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

Note

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



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

    Note

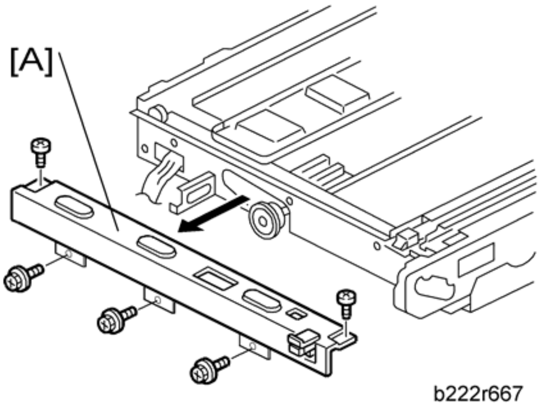
    - Make sure the 1st and 2nd carriages move smoothly after you remove the
    - positioning pins. Do steps 8 through 13 again if they do not.

Note

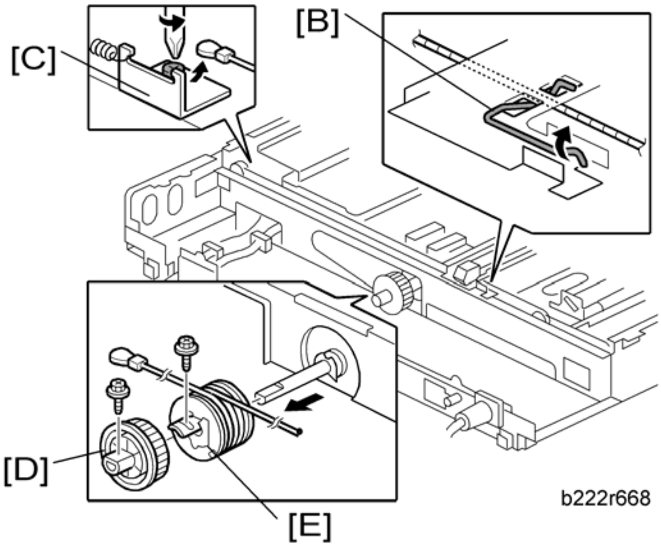
- After replacing the scanner wire, do the image adjustments in the following section of the manual (☛ "p.113 "Scanning"").

Rear Scanner Wire

1. **Exposure glass (☛ "p.132 "Exposure Glass"")**
2. **Scanner rear frame (☛ "p.136 "Scanner Motor"")**
3. **Scanner motor (☛ "p.136 "Scanner Motor"")**
4. **IOB with bracket (☛ "p.257 "IOB (In/Out Board)"")**

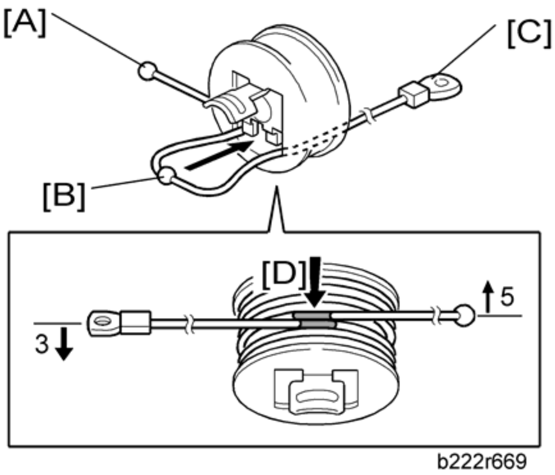


5. **Rail frame [A]**



6. To make reassembly easy, slide the first scanner to the center.
7. Rear scanner wire clamp [B]
8. Rear scanner wire bracket [C] (🔩 x 1)
9. Scanner motor gear [D] (🔩 x 1)
10. Rear scanner wire and scanner drive pulley [E] (🔩 x 1)

Reassembling the Rear Scanner Wire



1. Position the center ball [B] in the middle of the forked holder.
2. Pass the end with the ball [A] through the right square hole from the front.

3. **Position the center ball [B] in the middle of the notch, as shown by the arrow.**
4. **Pass the ball end [A] through the drive pulley notch.**
5. **Wind the end with the ring [C] clockwise (shown from the machine's front) three times from ; wind the ball end [A] clockwise (shown from the machine's front) five times.**

   Note

   - The two red marks [D] should meet when you have done this.

6. **Stick the wire to the pulley with tape, so you can easily handle the pulley and wire during installation.**
7. **Install the drive pulley on the shaft.**

   Note

   - Do not screw the pulley onto the shaft yet.

8. **Install the wire.**

   Note

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

9. **Perform steps 8 through 13 in "Reassembling the Front Scanner Wire".**

Note

- After replacing the scanner wire, do the image adjustments in the following section of the manual (☛ "p.113 "Scanning"Image" in the "Image Adjustment").

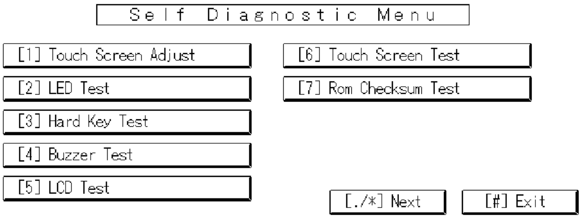
Touch Panel Position Adjustment

Note

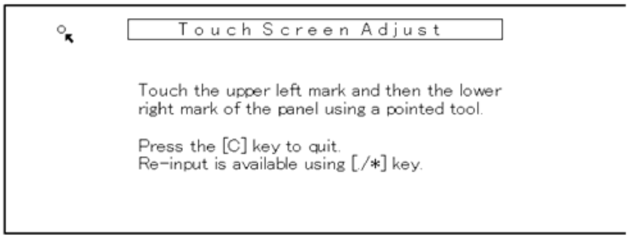
- It is necessary to calibrate touch panel at the following times:
- When you replace the operation panel.
- When you replace the controller board.
- When the touch panel detection function does not operate correctly

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

1. **Press ▭, press ①⑨⑨③, press C/⊘ 5 times to open the Self-Diagnostics menu.**



2. On the touch screen press "Touch Screen Adjust" (or press ①).
3. Use a pointed (not sharp) tool to press the upper left mark ↖.



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

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

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

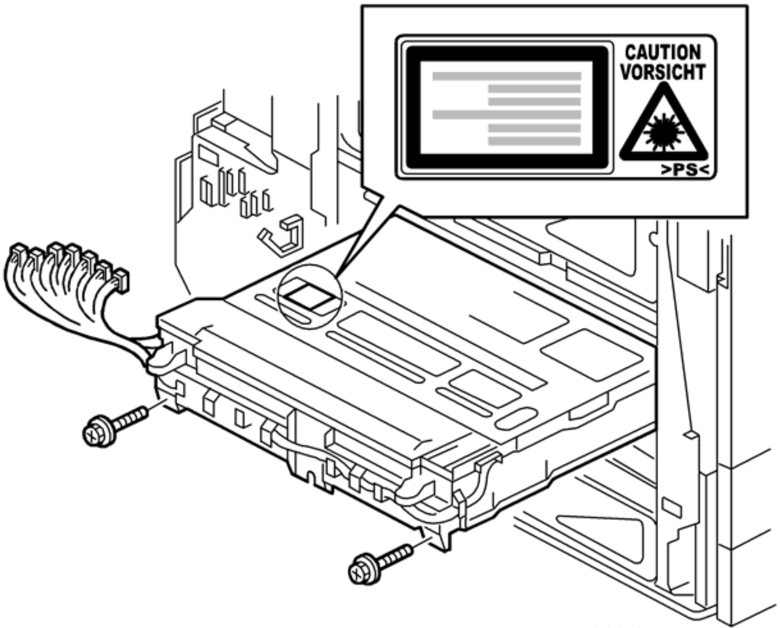
Laser Optics

⚠WARNING

- Turn off the main switch and unplug the machine before beginning any of the procedures in this section. Laser beams can cause serious eye injury.

Caution Decal Location

Caution decals are placed as shown below.



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⚠WARNING

- Be sure to turn off the main switch and disconnect the power plug from the power outlet before beginning any disassembly or adjustment of the laser unit. This copier uses a class IIIb laser beam with a wavelength of 655 nm and an output of 7 mW. The laser can cause serious eye injury.

Laser Optics Housing Unit

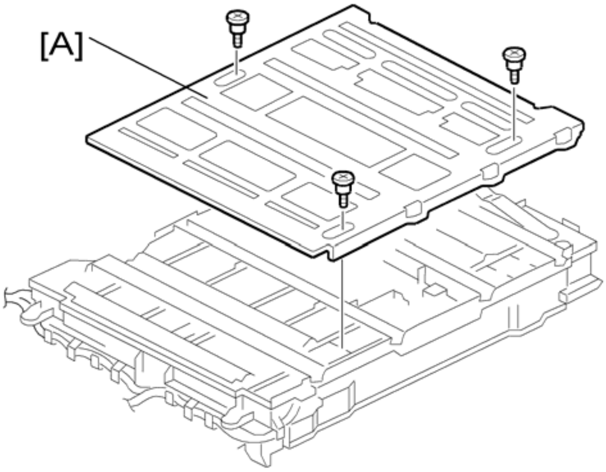
⚠CAUTION

- Before installing a new laser optics housing unit, remove the sponge padding and the tag from the new unit.

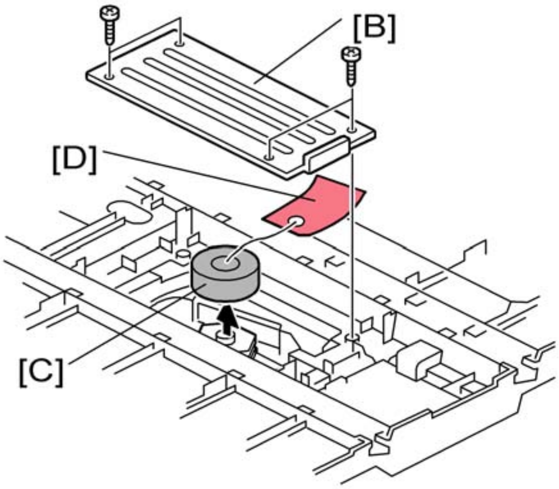
Note

- A new laser optics housing unit has a bracket to protect the LD units. When you install the new unit, do not remove the bracket until near the end of the installation procedure (the correct time is stated in the manual).
- This bracket protects a capacitor on the unit. If the bracket is removed too early, you could break the capacitor on the corner of the main frame when you install the new unit.

Preparing the new laser optics housing unit



1. **Shutter [A] of the laser optics housing unit (🔩 x 3)**



2. **Polygon motor cover [B] of the laser optics housing unit (🔩 x 4)**
3. **Sponge padding [C]**

4. **Tag [D]**
5. **Reinstall the polygon motor cover [B].**

Before removing the old laser optics housing unit

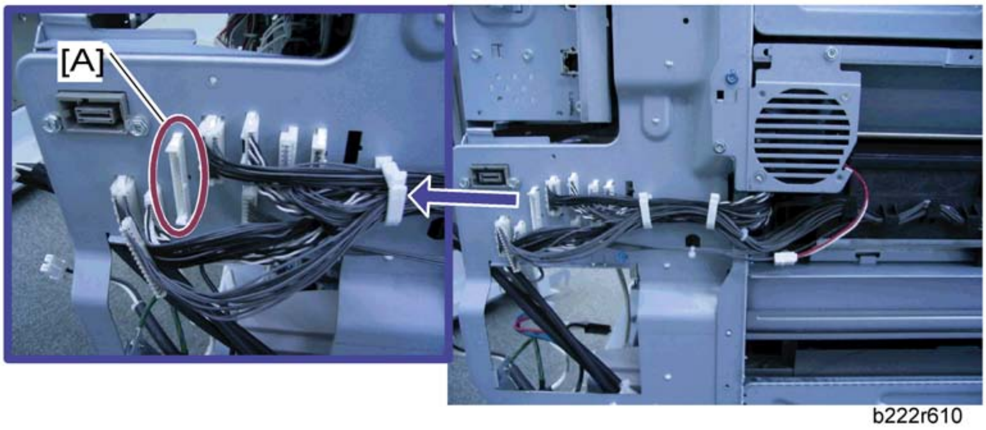
Do the following settings before removing the laser optics housing unit. These are adjustments for skew adjustment motors in the laser optics housing unit.

1. Plug in and turn on the main power switch of the copier.
2. Enter the SP mode.
3. Execute SP9511-001 to clear the L2 lens positioning motor setting for Magenta.
4. Execute SP9511-002 to clear the L2 lens positioning motor setting for Cyan.
5. Execute SP9511-003 to clear the L2 lens positioning motor setting for Yellow.
6. Exit the SP mode.
7. Turn off the main power switch and disconnect the power cord of the copier.

Recovery procedure for no replacement preparation of laser optics housing unit

If you did not do the procedure in 'Before removing the old laser optics housing' before removing the old laser optics housing unit, you must do the following.

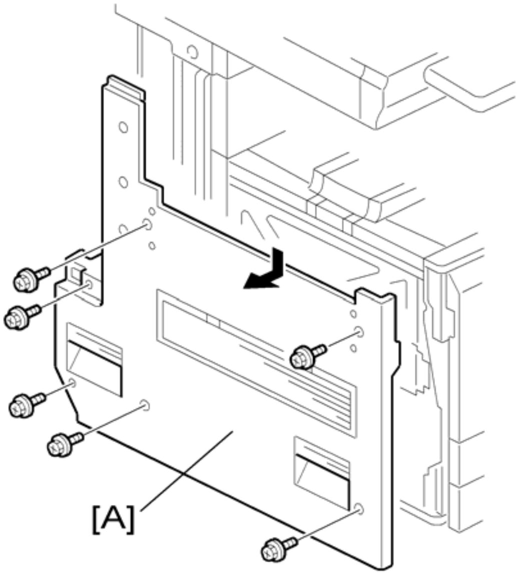
1. Turn off the main power switch and disconnect the power cord of the copier.
2. Remove the left cover and harness cover bracket (see the following "Removing the old laser optics housing unit")



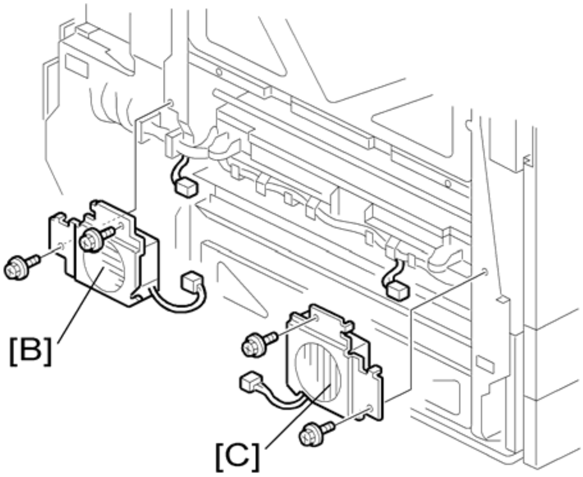
3. Disconnect the harness [A] of the skew correction motor.
4. Do steps 1 to 7 of "Before removing the old laser optics housing unit".
5. Connect the harness [A] and reinstall the harness bracket and left cover.

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

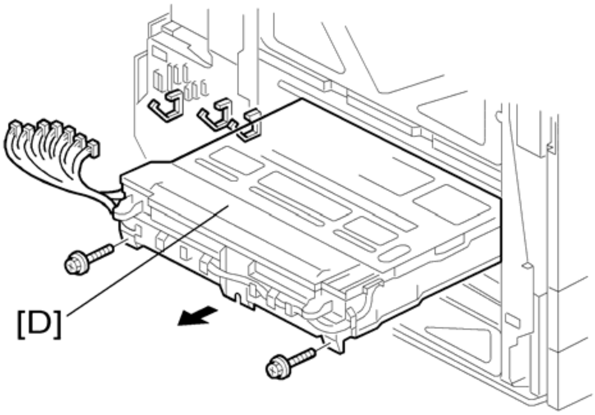
Removing the old laser optics housing unit



1. **Left cover [A] (🔩 x 6)**



2. **Rear fan bracket [B] for the laser housing optics unit (🔩 x 2, 🔌 x 1)**
3. **Front fan bracket [C] for the laser housing optics unit (🔩 x 2, 🔌 x 1)**

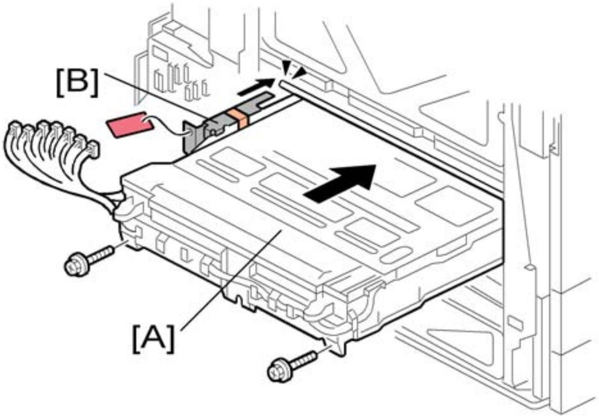


4. **Remove the old laser optics housing unit [D] (🔩 x 2, All 🔌's, 🗜 x 3)**

Installing a new Laser Optics Housing Unit

Note

- A new laser optics housing unit has a bracket to protect the LD units. When you install the new unit, do not remove the bracket until near the end of the installation procedure (the correct time is stated in the manual).
- This bracket protects a capacitor on the unit. If the bracket is removed too early, you could break the capacitor on the corner of the main frame when you install the new unit.

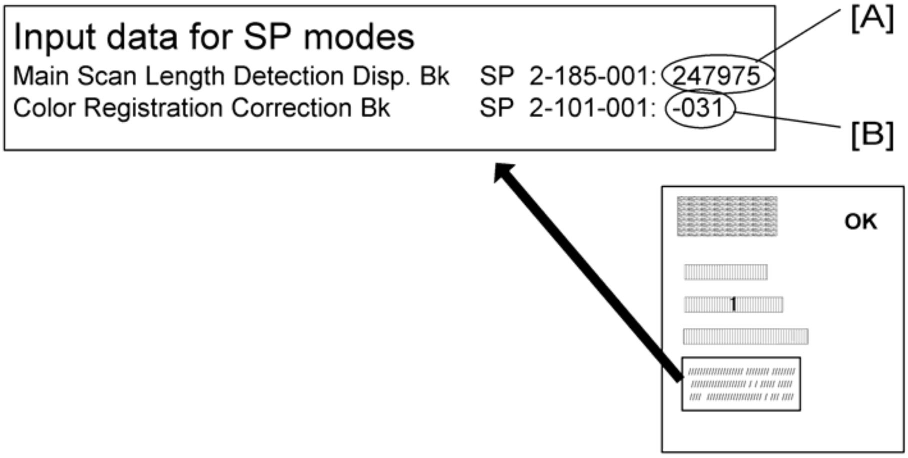


1. **Push the new laser optics housing unit [A] slowly into the copier until the bracket [B] bumps against the frame of the copier.**
2. **Remove the bracket [B], and then push the new laser optics housing unit fully into the copier (🔩 x 2, All 🔌's, 🗜 x 3).**
3. **Reassemble the machine.**

After installing the new laser optics housing unit

Do the following adjustment after installing the new laser optics housing unit.

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



Input data for SP modes

Main Scan Length Detection Disp. Bk SP 2-185-001: 247975

Color Registration Correction Bk SP 2-101-001: -031

2. **Adjust the main scan magnification only for black (Bk).**
    1. Input the standard value [A] provided with a new laser optics housing unit for the main scan magnification adjustment with SP2-185-001.

        Note

        - The value [A] is different for each laser optics housing unit.
    2. Print the test pattern (14: 1-dot trimming pattern in the SP2-109-003).
    3. Check that the left and right trim margin is within 4 ± 1 mm. If not, change the standard value for the main scan magnification adjustment.
3. **Adjust the main scan registration only for black (Bk).**
    1. Input the registration value [B] provided with a new laser optics housing unit for the main scan registration adjustment with SP2101-001.

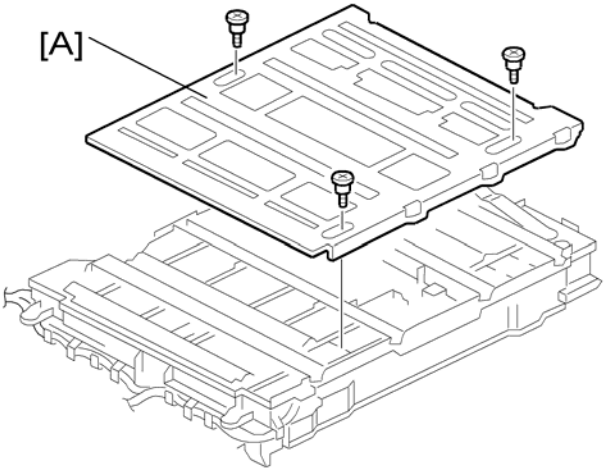
        Note

        - The value [B] is different for each laser optics housing unit.
    2. Print the test pattern (14: 1-dot trimming pattern in the SP2-109-003).
    3. Check that the left trim margin is within 2 ± 1 mm. If not, change the registration value for the main scan registration adjustment.
4. **Select "0" with SP2-109-003 after printing the "1-dot trimming pattern.**
5. **Do the line position adjustment.**
    1. First do SP2-111-3.
    2. Then do SP2-111-1.

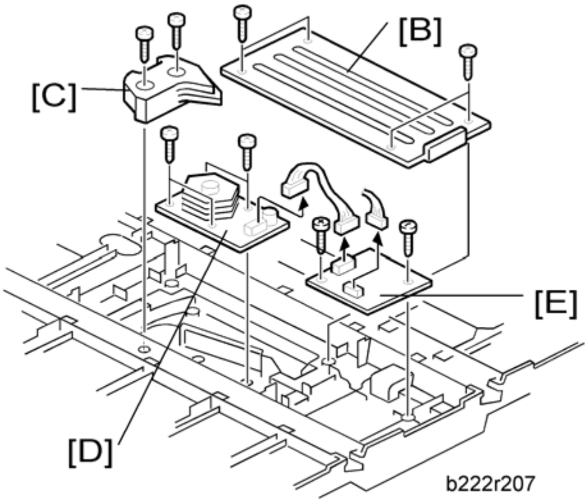
To check if SP 2-111-1 was successful, watch the screen during the process. A message is displayed at the end. Also, you can check the result with SP 2-194-10 to -12.

6. **Exit the SP mode.**
7. **After you replace the housing unit, do the adjustments in the following section of the manual: Image Adjustment – Registration.**

Polygon Mirror Motor and Drive Board



1. **Laser optics housing unit (☛ "p.148 "Laser Optics Housing Unit"")**
2. **Shutter [A] of the laser housing optics unit (🔩 x 3)**



3. **Polygon mirror motor cover [B] of the laser optics housing unit (🔩 x 4)**

4. **Polygon mirror motor holder [C] (🔩 x 2)**
5. **Polygon mirror motor [D] (🔩 x 4, 🔌 x 1)**
6. **Polygon mirror motor drive board [E] (🔩 x 2, 🔌 x 2)**

After installing the polygon mirror motor:

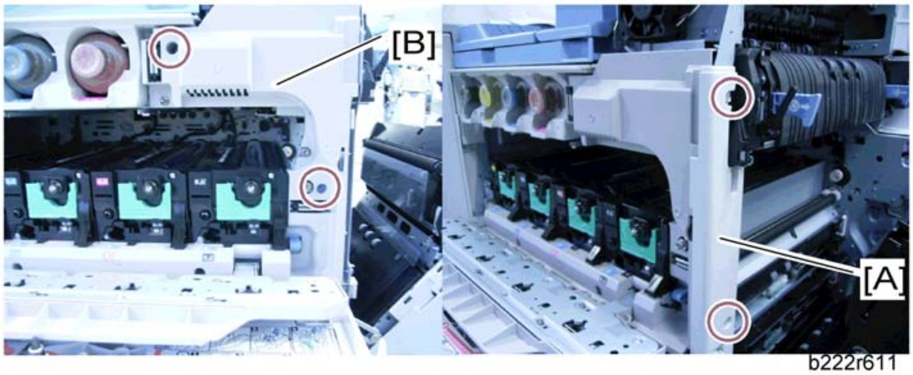
1. Do the "Forced Line Position Adj. Mode c" (SP2-111-3).
2. Then do the "Forced Line Position Adj. Mode a" (SP2-111-1).

To check if SP 2-111-1 was successful, watch the screen during the process. A message is displayed at the end. Also, you can check the result with SP 2-194-10 to -12.

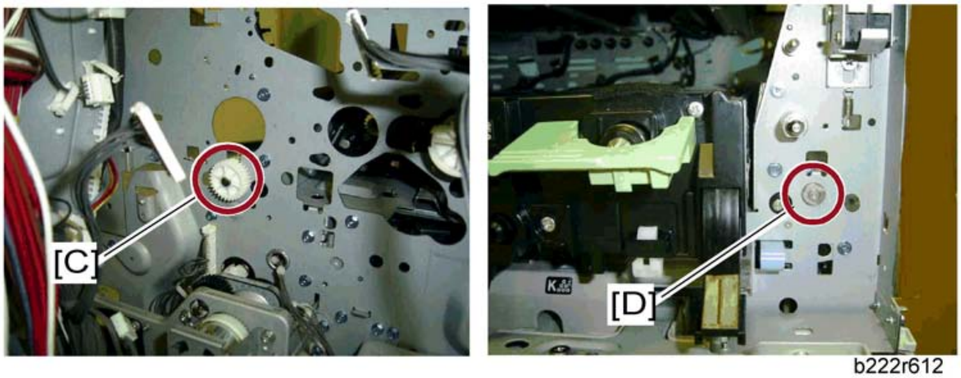
After you replace the motor, do the adjustments in the following section of the manual: Image Adjustment – Registration.

Shutter Motor

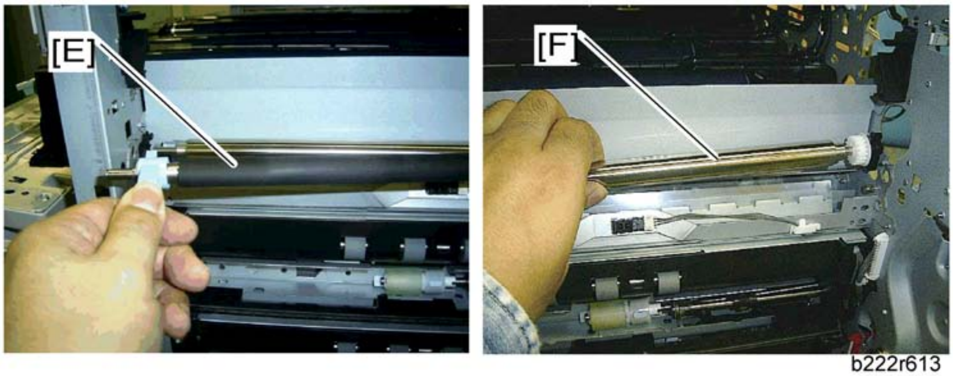
1. **All PCUs (☛ "p.159 "PCU"")**
2. **Image transfer belt unit (☛ "p.174 "Image Transfer Belt Unit"")**
3. **Rear cover (☛ "p.125 "Rear Cover"")**
4. **Right rear cover (☛ "p.126 "Right Rear Cover"")**
5. **Controller box (☛ "p.254 "Controller Box"")**
6. **Third duct (☛ "p.166 "Third Duct Fan"")**
7. **Left cover (☛ "p.125 "Left Cover"")**
8. **PSU bracket (☛ "p.259 "PSU"")**
9. **Gear unit (☛ "p.189 "Gear Unit"")**
10. **Image transfer belt contact motor (☛ "p.199 "Image Transfer Belt Contact Motor")**
11. **Registration motor (☛ "Registration Motor")**
12. **Duplex unit (☛ "Duplex Unit")**
13. **Paper guide plate 1 and 2 (☛ "Registration Sensor")**
14. **Front right cover (☛ "Operation Panel")**



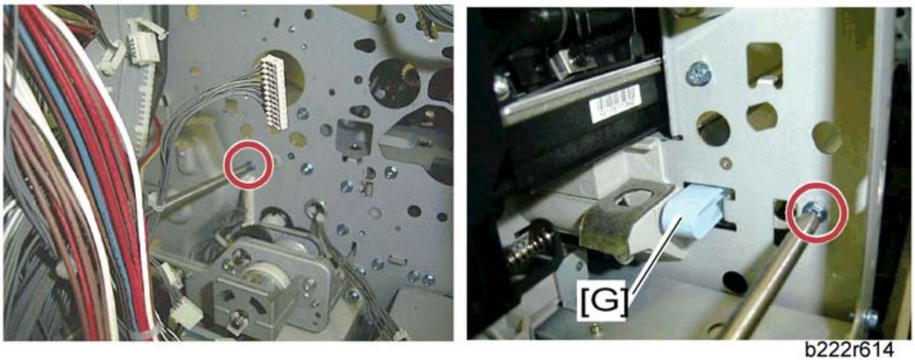
15. Pull out the tray 1 and 2, and image transfer belt unit.
16. Right front cover [A] (🔩 x 2)
17. Front inner cover [B] (🔩 x 2)



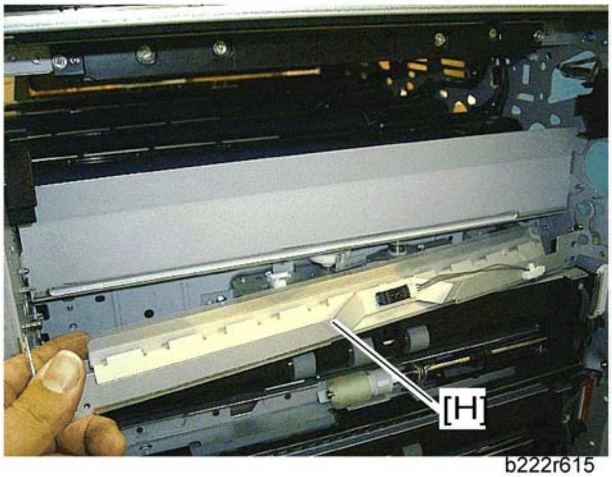
18. Remove the gear and bushing [C] from the rear frame (ℂ x 1).
19. Remove the bushing [D] from the front frame (ℂ x 1).



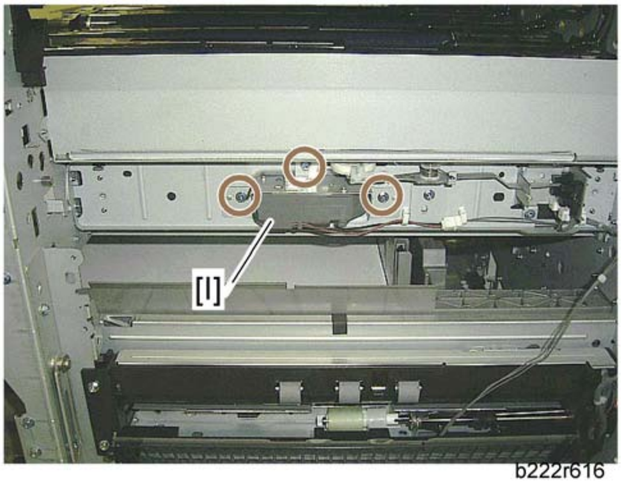
20. Registration rollers [E] and [F]



21. Remove the paper dust case [G] and two screws (at the front and rear frame each).



22. Registration sensor bracket [H] (🔌 x 1, 📎 x 2)
23. Paper feed unit (☛ "p.237 **"Paper Feed Unit""**)



24. **Shutter motor [I] (x 3, x 1, x 1)**

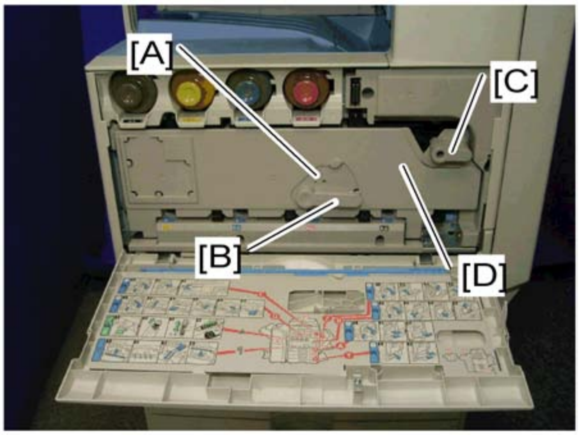
Image Creation

PCU

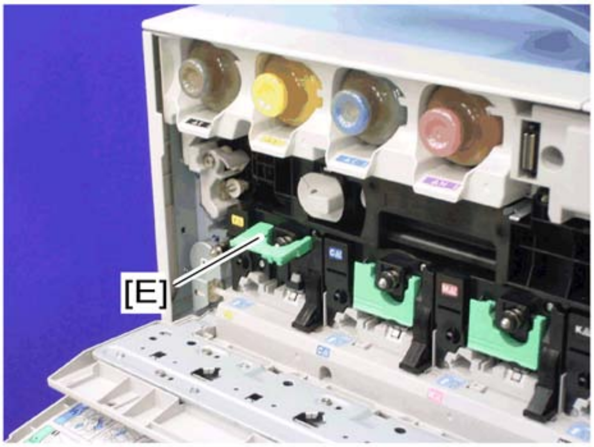
Note

- Do not touch the OPC drum. Do not let metal objects touch the development sleeve.

1. **Open the front door.**



2. **Lever lock [A] (🔩 x 1)**
3. **Turn the drum positioning plate lever [B] and the image transfer unit lock lever [C] counter-clockwise.**
4. **Open the drum positioning plate [D].**



5. **Pull out the PCU (hold the grip while you pull it out) [E].**

Drum Unit and Development Unit

The new drum unit has a front cover and a front joint. When you attach the new drum unit to the development unit, remove a front cover and a front joint at first.

And use them for reassembling the new drum unit and development unit.

1. **If you install a new drum unit, set SP 3902-xxx to "1".**

   Black: 3902-009

   Yellow: 3902-010

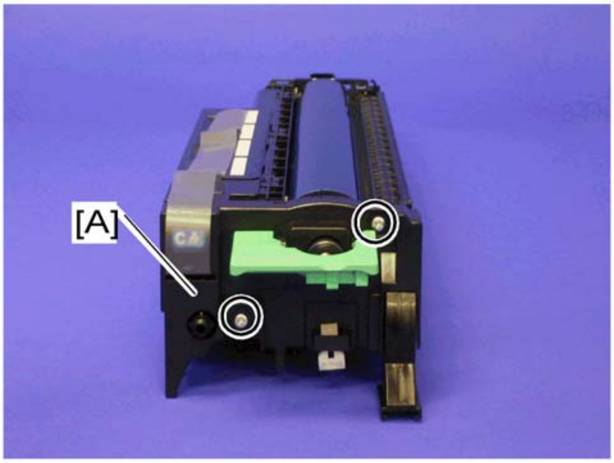
   Cyan: 3902-011

   Magenta: 3902-012

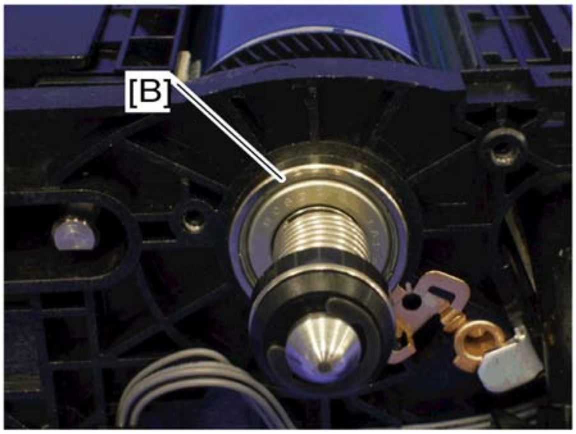
   Note

   - If you do this, then the machine will reset the PM counter for the drum unit automatically, after you turn the power on again.

2. **Turn the machine power off.**
3. **PCU (☛ "p.159 "PCU"")**

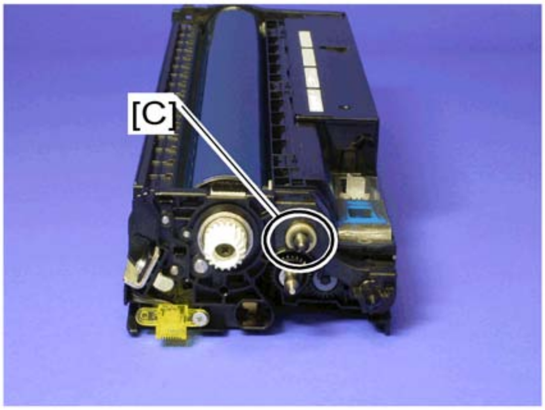


4. **Front cover [A] (🔩 x 2)**

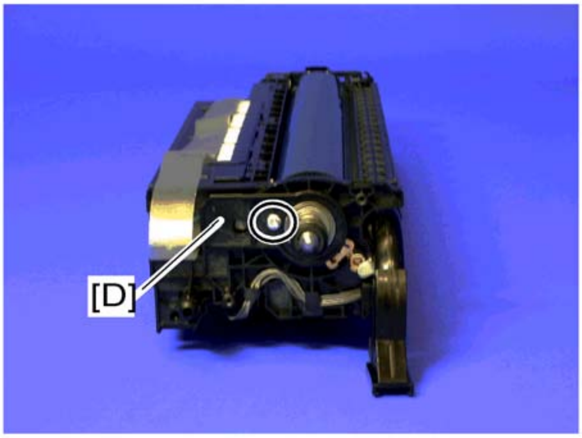


Note

- Do not touch the bearing [B] after removing the front cover. The bearing is properly applied with lubricant.



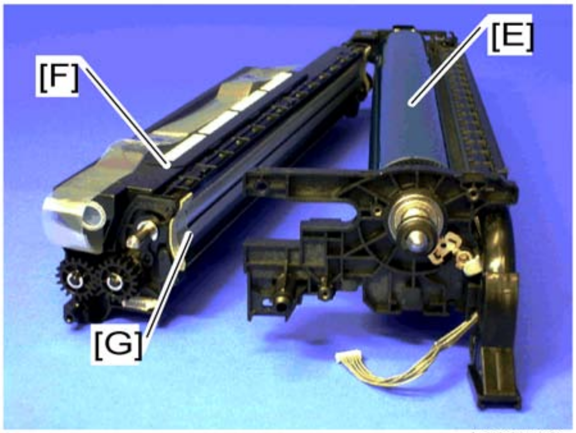
5. **Remove the bushing [C] of the development roller at the rear of the PCU (ℂ x 1).**



6. **Remove the front joint [D] (🔩 x 1, 🔌 x 1).**

Note

- The front joint [D] is firmly set. Remove it with a watchmaker's or jeweller's screwdriver.



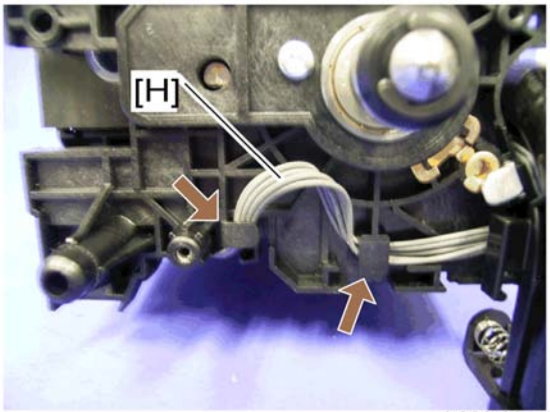
7. **Drum unit [E] and Development Unit [F]**

Note

- When the development unit is removed from the drum unit, clean the entrance mylar [G] with a vacuum.

8. **If you change the development unit, do the ACC procedure.**

When reassembling the PCU



Make sure that the harness [H] is hooked as shown.

Developer

1. **Set SP 3902-xxx to "1".**

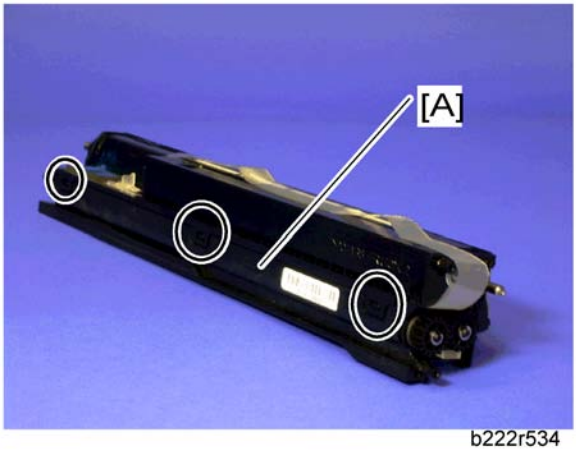
   Black: 3902-005

   Yellow: 3902-006

   Cyan: 3902-007

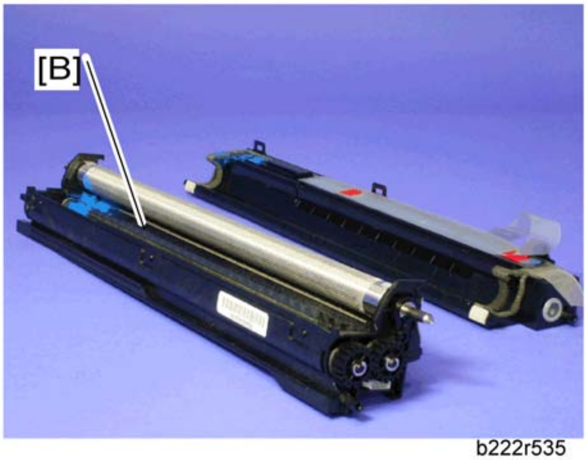
   Magenta: 3902-008

2. **Turn the machine power off.**
3. **Development unit (☛ "p.160 "Drum Unit and Development Unit"")**



b222r534

4. **Hopper cover [A] (hook x 3)**



b222r535

5. **Shake a bag of developer and pour it into the development hopper [B].**
6. **Reattach the hopper cover (hook x 3)**

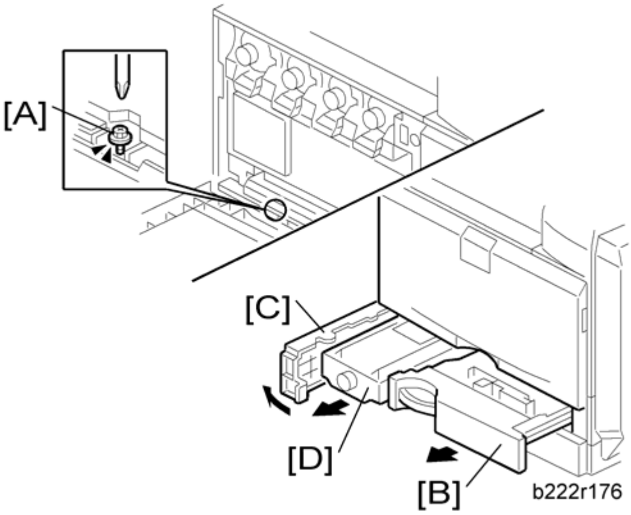
7. **Turn the machine power on. The machine initializes the developer and resets the PM counter for the developer. (For details of the developer initialization result, see "Developer Initialization Result" in the "Troubleshooting" chapter.**
8. **Do the ACC procedure.**

Toner Collection Bottle

If you will install a new bottle, and the old bottle is not in a full or near-full condition, then set SP 3902-017 to 1.

Note

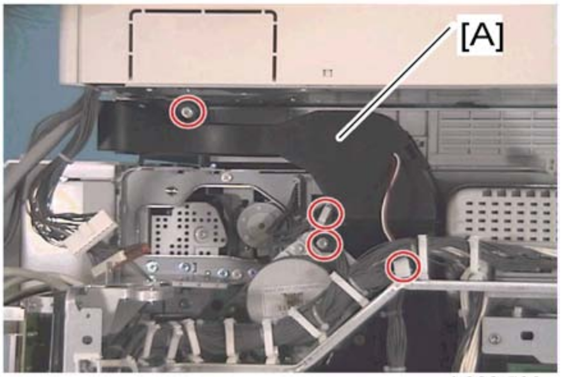
- If you do this, then the machine will reset the PM counter for the bottle automatically, after you turn the power on again.
- If the bottle is in a full or near-full condition, it is not necessary to do this.



1. **Turn off the main power switch.**
2. **Open the front door and remove the screw [A].**
3. **Close the front door.**
4. **Pull out tray 1 [B].**
5. **Open the toner collection bottle door [C].**
6. **Pull out the toner collection bottle [D].**

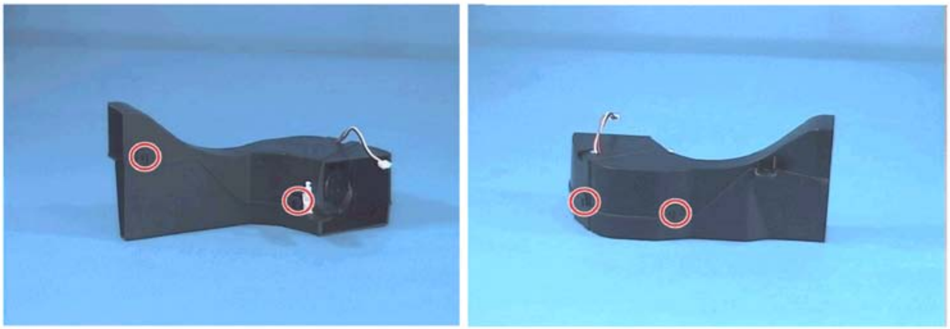
Second Duct Fan

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Right rear cover (☛ "p.126 "Right Rear Cover"")
3. Open the controller box (☛ "p.254 "Controller Box"")



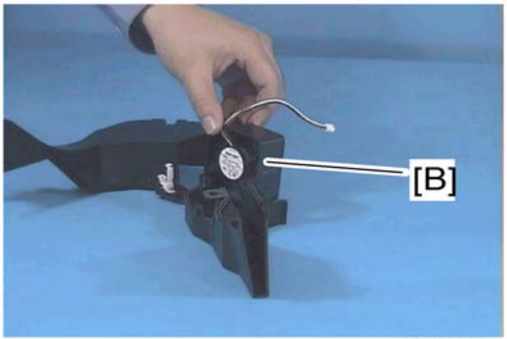
b222r536

4. Second duct [A] (🔩 x 2, 🔌 x 1, 🗜 x 1)



b222r537

5. Split the second duct (4 hooks).



b222r538

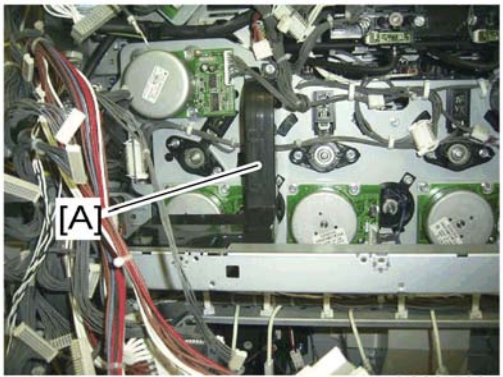
6. Second duct fan [B]

When reinstalling the second duct fan

Make sure that the second duct fan is installed with its decal facing to the front of the machine.

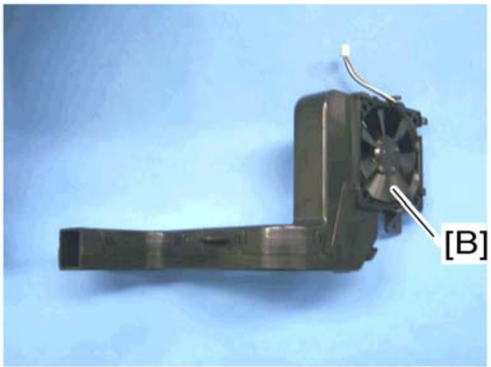
Third Duct Fan

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Right rear cover (☛ "p.126 "Right Rear Cover"")
3. Controller box (☛ "p.254 "Controller Box"")



b222r539

4. Third duct [A] (🔩 x 2, 🔌 x 1)



b222r540

5. Third duct fan [B] (7 hooks)

When reinstalling the third duct fan

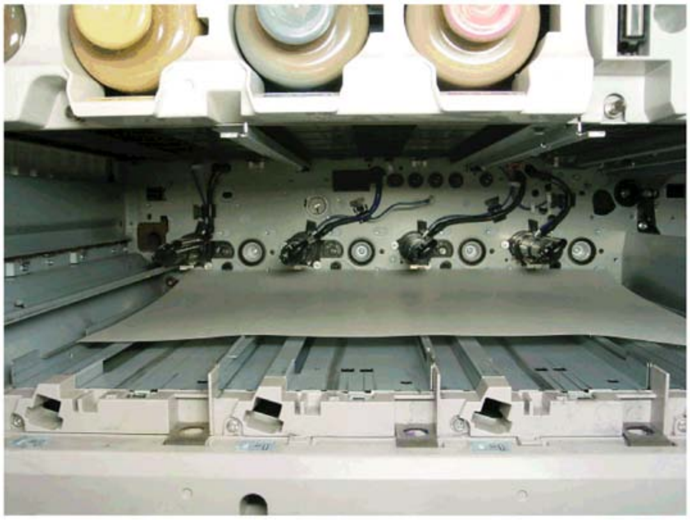
Make sure that the third duct fan is installed with its decal facing to the upper side of the machine.

Toner Pump Unit

There are four pump units inside the machine. This procedure describes the replacement procedure only for one unit. If you need to replace another unit, do the same as this procedure.

Note

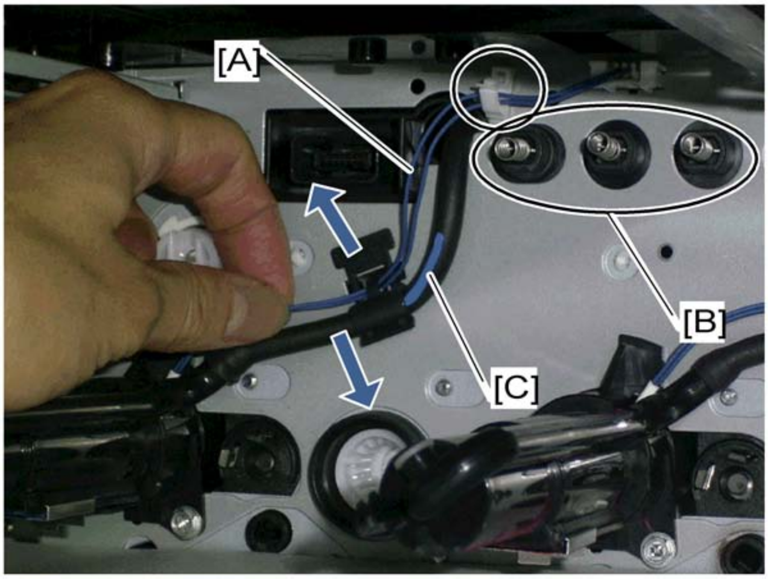
- Put some sheets of paper on the floor before doing this procedure. Toner may fall on the floor.



1. Front door (☛ **"p.125 "Rear Cover""**)
2. Image transfer belt unit (☛ **"p.174 "Image Transfer Belt Unit""**)
3. All PCUs (☛ **"p.159 "PCU""**)
4. **Put a sheet of paper (A3/DLT) inside the machine as shown and on the floor.**

   Note

   - The sheet of paper on the floor is used in a later step.

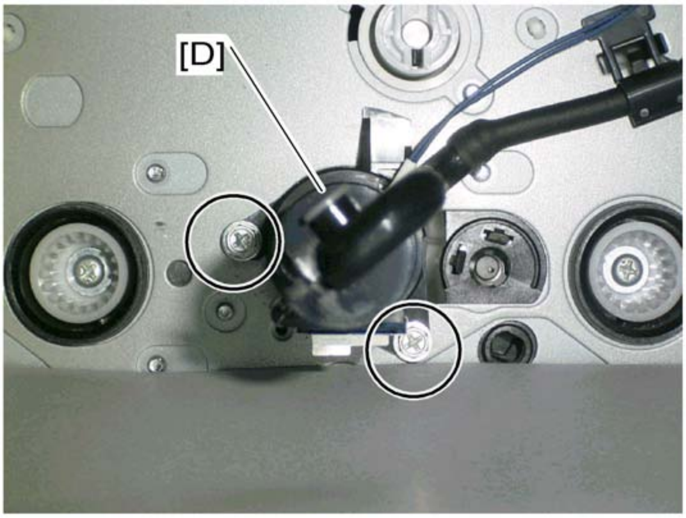


5. Release the harness [A] from the clamp (🗜 x 1 for YCM, 🗜 x 3 for K) and hook, and then disconnect the harness.

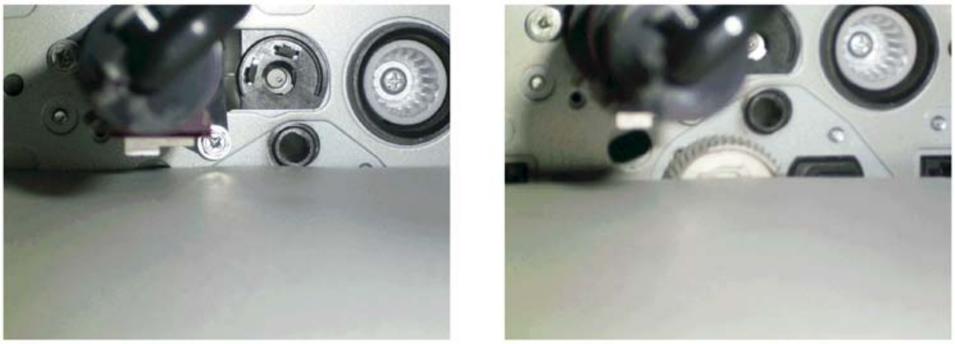
Note

- Avoid touching these spring terminals [B].

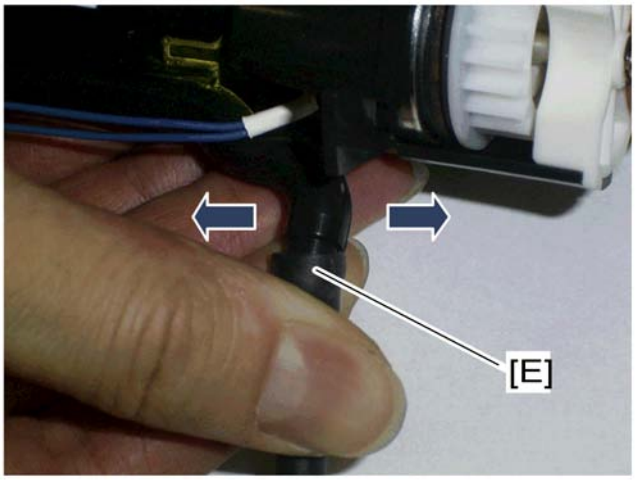
6. Release the toner supply tube [C].



7. Remove the toner pump unit [D] (🔩 x 2)



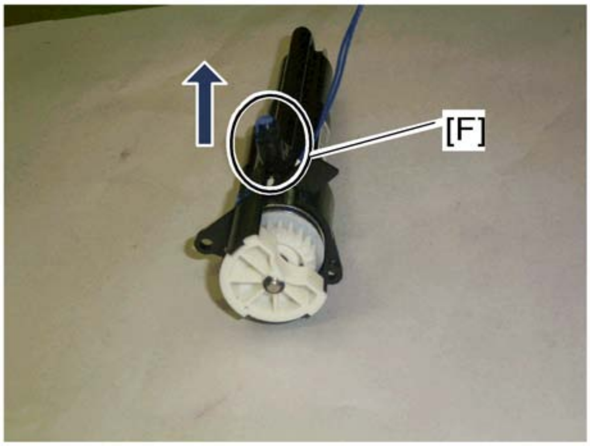
Make sure that a sheet of paper is attached to the frame of the rear side and covers the four gears. The picture on the left shows a sheet of paper that is correctly set, but the picture on the right shows a sheet of paper that is not correctly set. This sheet of paper prevents toner and screws from falling into the laser optics housing unit through cutouts.



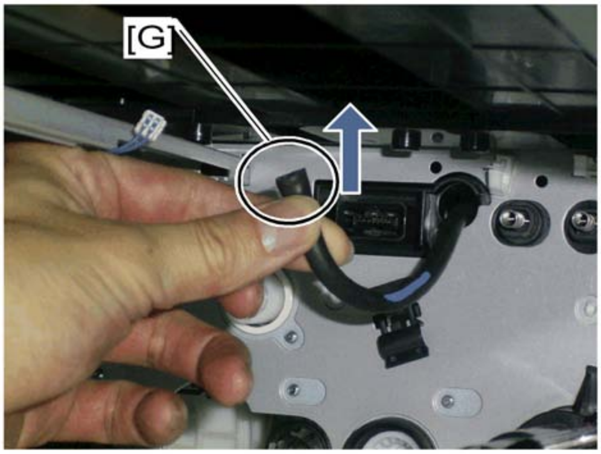
8. **Slowly remove the toner supply tube [E] from the toner pump unit by pulling the tube right and left.**
9. **Turn up the openings of the toner pump unit and toner supply tube just after removing the tube.**

Note

- If not, the toner may scatter away and fall down.



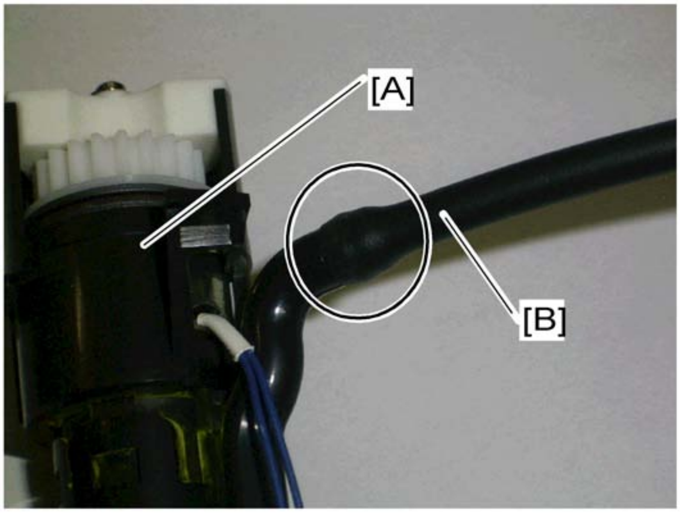
10. Put the toner pump unit on the sheet of paper, which has been put in step 4, with its opening [F] up.



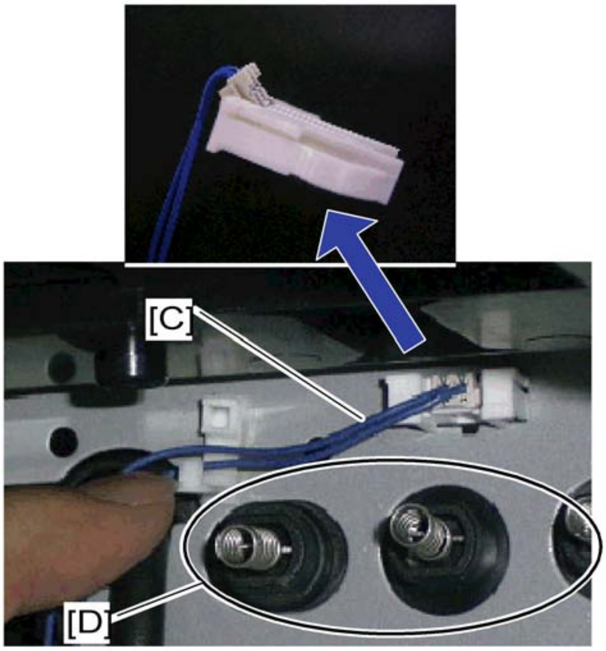
11. Keep the opening [G] of the toner supply tube up, and then clip the opening of the toner supply.

When you install the new toner pump unit

Before installing the new toner pump unit, mask the opening of the old toner pump unit with tape. Dispose of it following local rules.



1. Put a sheet of paper (A3/DLT) inside the machine.
2. Turn up the opening of the toner supply tube, and then remove the object that was used to clip the opening of the toner supply tube.
3. Insert the opening of the toner pump unit [A] into the opening of the toner supply tube [B] as far as possible.



4. Connect the harness [C] to the connector of the machine.

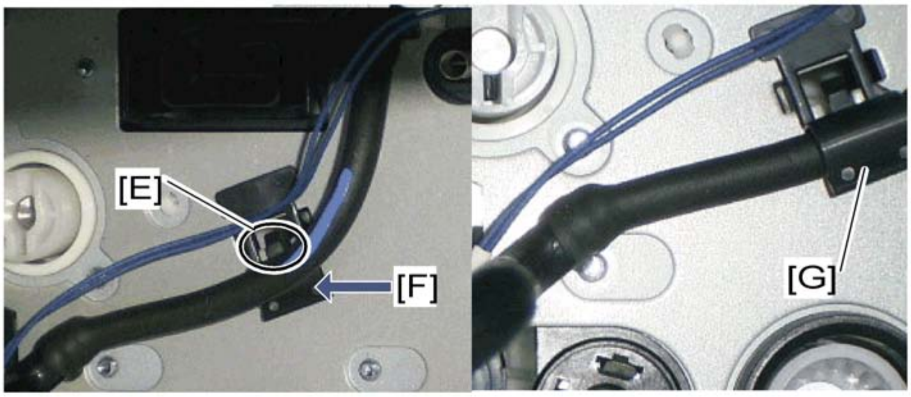
Note

- On the above picture, the magnified picture of the connector shows the easiest way to connect it.

5. **Clamp the harness [C] (x 1 for YCM, x 3 for K).**

Note

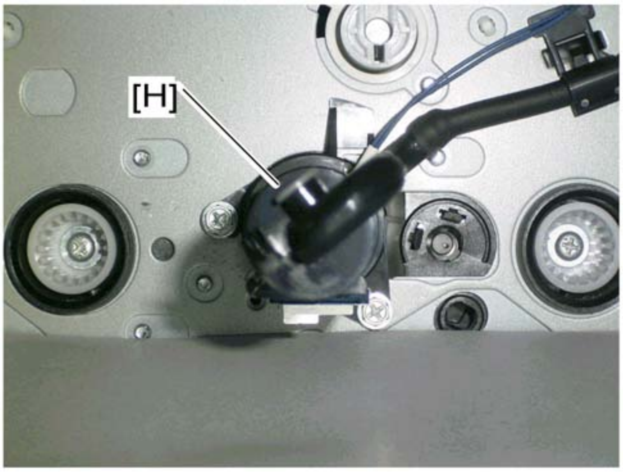
- Avoid touching these spring terminals [D].



6. **Pass the harness of the toner pump unit behind the hook [E], while pressing at [F].**
7. **Secure the toner supply tube with the holder [G], lifting up the edge of the holder "very gently".**

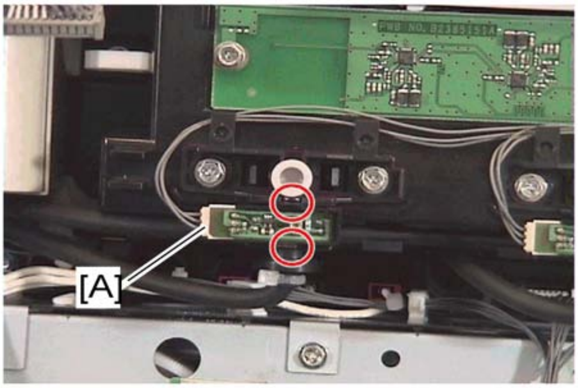
Note

- Be careful when you lift the edge of the holder, because the holder is easily broken.



8. **Insert the toner pump unit [H] into the rear frame of the machine (x 2).**

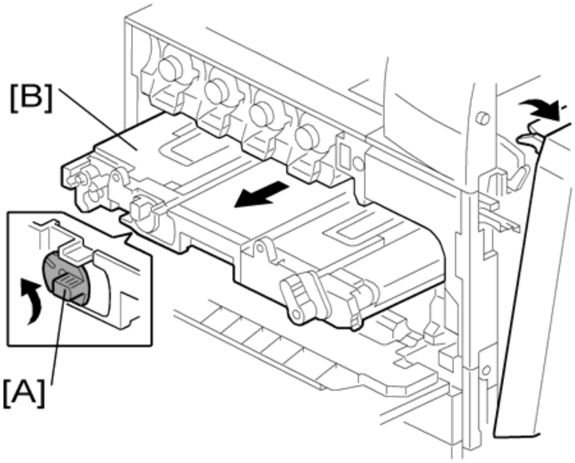
Toner End Sensor



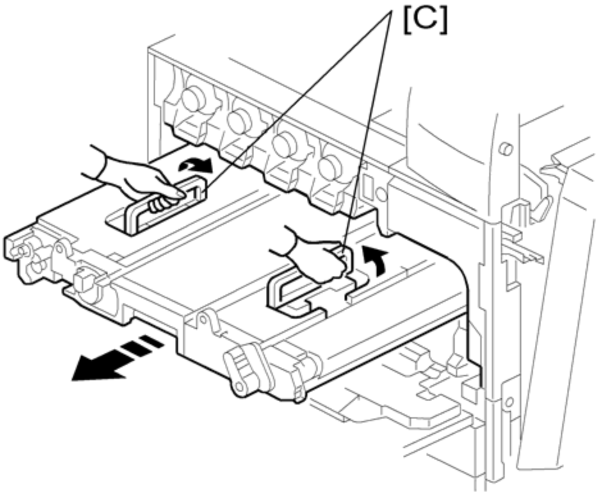
1. Rear cover (☛ **"p.125 "Rear Cover""**)
2. Open the controller box (☛ **"p.254 "Controller Box""**)
3. Toner end sensor [A] (🔌 x 1, 2 hooks each)

Image Transfer

Image Transfer Belt Unit



1. Open the right door.
2. Open the front door
3. Open the drum positioning plate. (☛ "p.159 "PCU"")
4. Turn the image transfer belt unit lock lever [A] counterclockwise.
5. Pull out the image transfer belt unit [B] halfway.



6. Grasp the handles [C], and then pull out the image transfer belt unit fully.

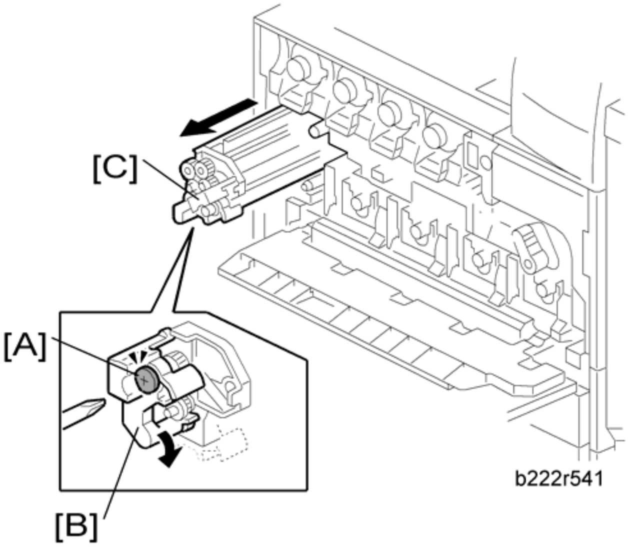
Image Transfer Belt Cleaning Unit

1. **If you will install a new belt cleaning unit, then set SP 3902-015 to 1.**

   Note

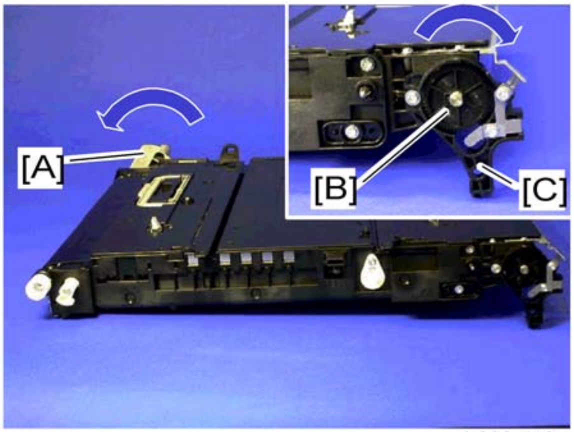
   - If you do this, then the machine will reset the PM counter for the belt cleaning unit automatically, after you turn the power on again.
     Do not use SP3902-015 or 013 if you replace the complete ITB unit.

2. **Turn off the main power switch.**
3. **Open the right door.**
4. **Open the front door**
5. **Open the drum positioning plate. (☛ "p.159 "PCU"")**

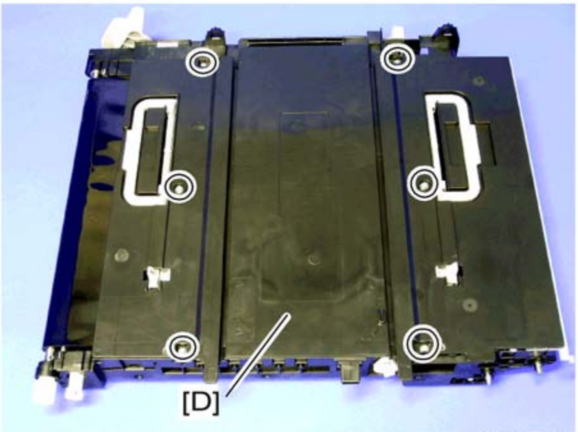


6. **Loosen the screw [A].**
7. **Turn the lock lever [B] clockwise**
8. **Pull out the image transfer belt cleaning unit [C].**

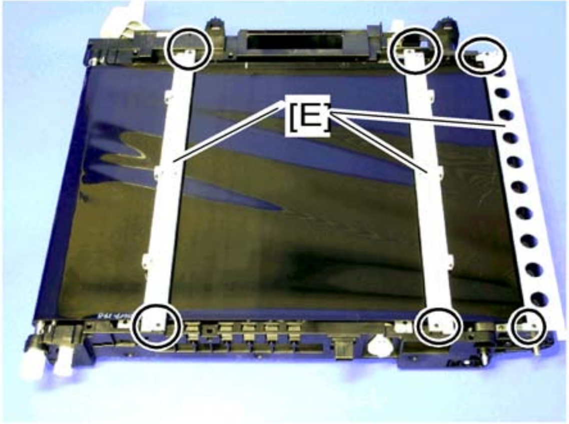
Image Transfer Belt



1. Image transfer belt cleaning unit (☛ "p.175 "Image Transfer Belt Cleaning Unit"")
2. Image transfer belt unit (☛ "p.159 "PCU"")
3. Turn the image transfer unit contact lover [A] counterclockwise (as seen from the rear).
4. Gear [B] (hook x 1)
5. Turn the gear cover [C] clockwise (as seen from the rear) (🔩 x 1).



6. Image transfer belt unit top cover [D] (🔩 x 6).



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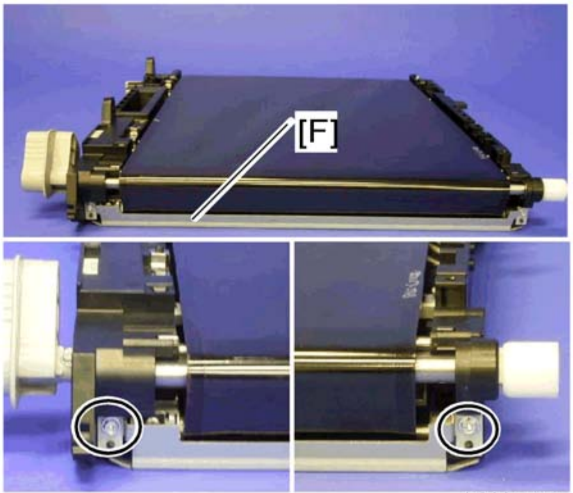
7. Three stays [E] (🔩 x 6)



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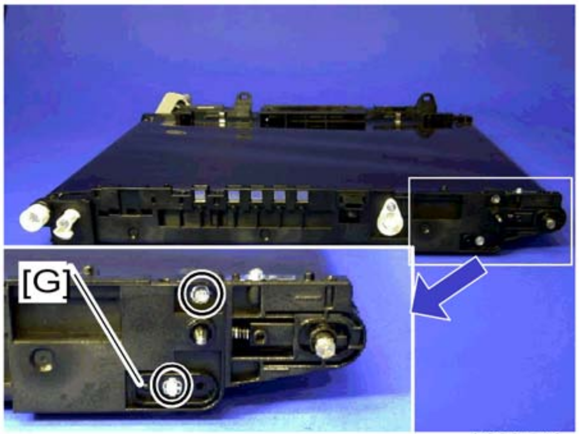
8. Guide plate [F] (as seen from the right side of the machine) (🔩 x 2)



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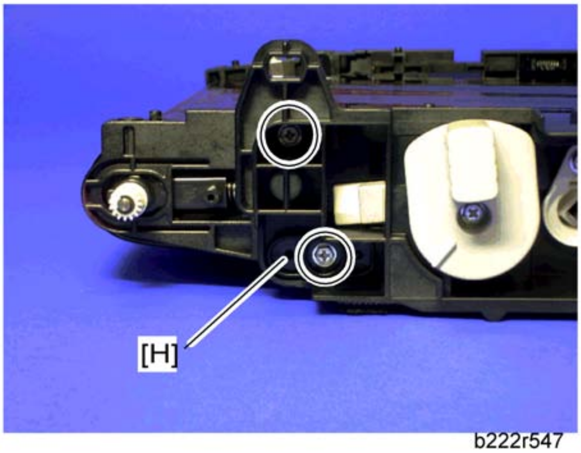
9. Remove the two screws and then rear hold bracket [G] (as seen from the rear).

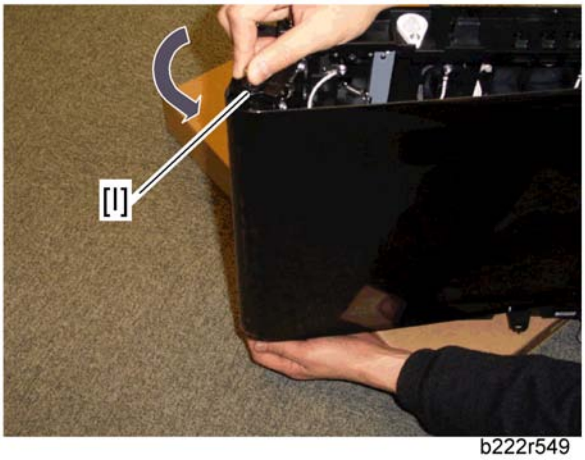


b222r547

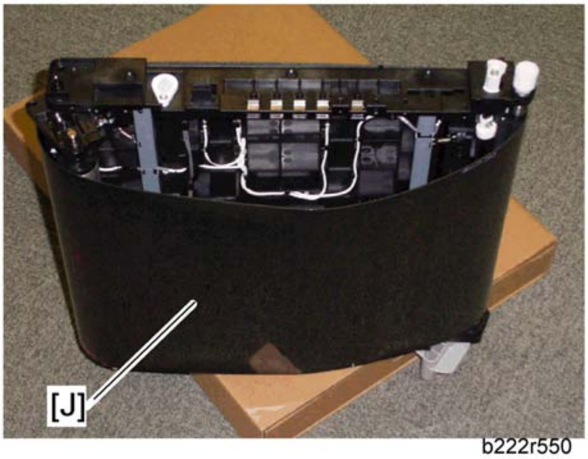
10. Remove the two screws and then front hold bracket [H] (as seen from the front).

b222r548

11. Put the front side of the image transfer belt unit on a corner of the table or a box as shown.



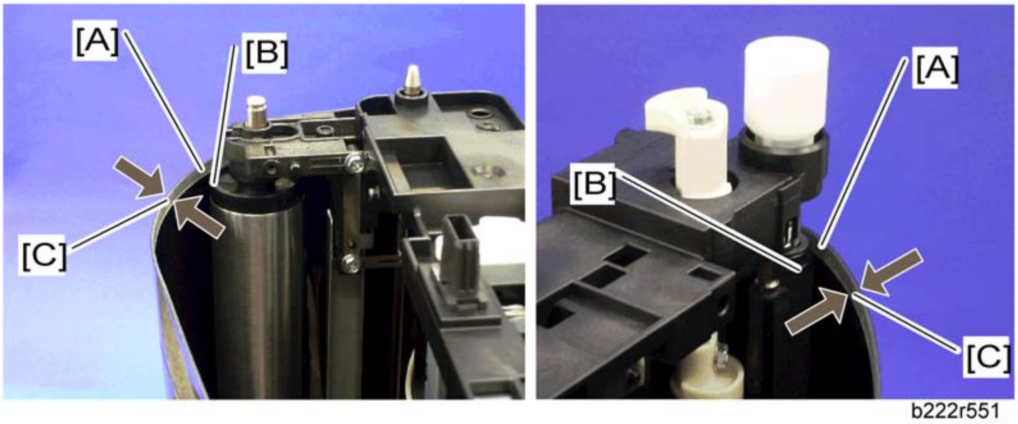
12. Pull the tension roller [I] as shown.



13. Image transfer belt [J]

When reinstalling the image transfer belt

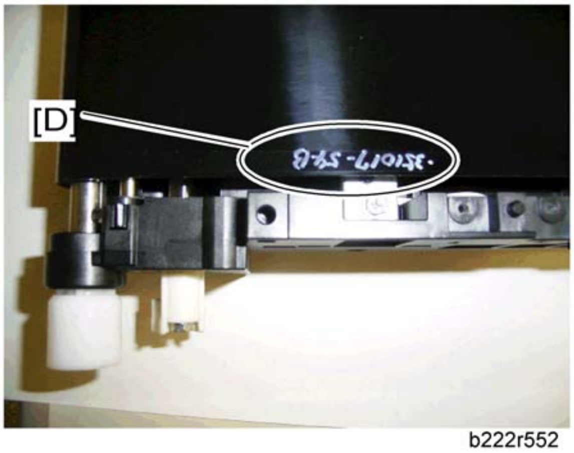
- Clean all rollers with dry cloth before installing the image transfer belt.



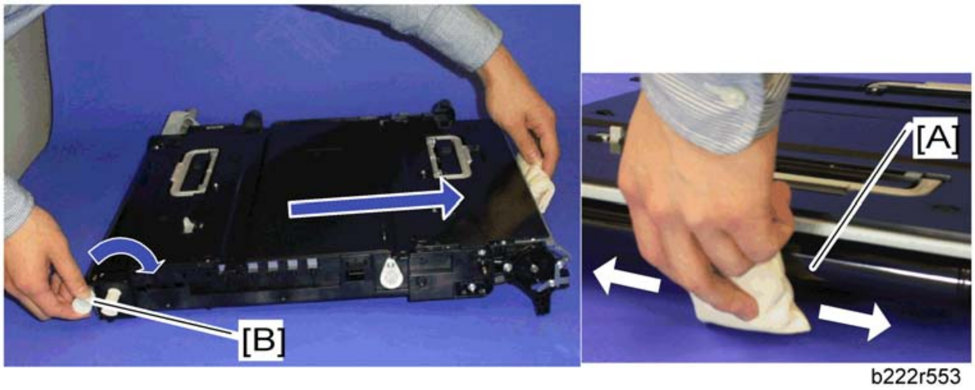
- There is a rim [A] at each edge of the transfer belt. The ends of all the rollers ([B] for example) in the transfer belt unit must be between the two rims.

Note

  - There are two rims (width [C]: about 5 mm) on the underside of the front and rear edges of the image transfer belt.



- This belt must be installed the correct way around. When you reinstall the image transfer belt unit, install it with the painted number [D] on the belt at the rear side of the unit.



- Put "Lubricant Powder" (B132 9700) on the surface of the image transfer belt [A], while you turn the drive gear [B] at a constant speed, as shown. (The straight arrow in the picture shows belt movement direction.) Lubricant powder prevents the image transfer cleaning blade from turning up.

Note

- Do not put the lubricant powder at the right side of the image transfer belt unit (the above picture is taken from the rear). Otherwise, lubricant powder may damage the encoder sensor.

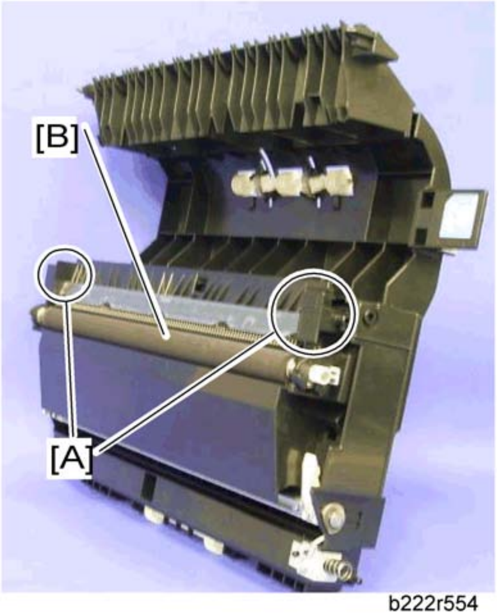
Paper Transfer

Paper Transfer Roller Unit

If you will install a new paper transfer unit, then set SP 3902-016 to 1.

Note

- If you do this, then the machine will reset the PM counter for the paper transfer unit automatically, after you turn the power on again.



1. **Open the right door.**
2. **Release the two locks [A].**
3. **Paper transfer roller unit [B]**

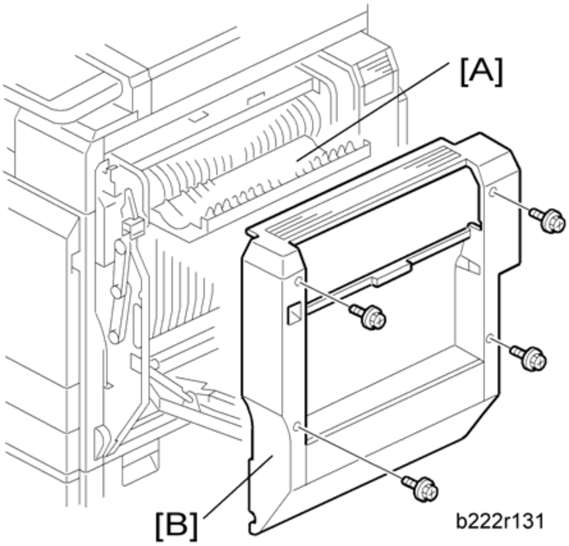
Paper Transfer Unit

If you will install a new paper transfer unit, then set SP3-902-016 to 1.

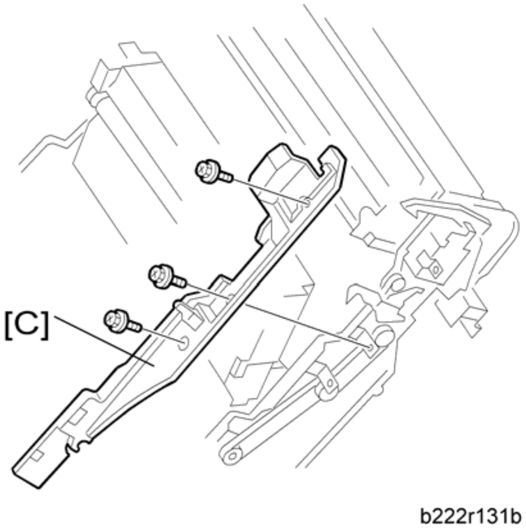
Note

- If you do this, then the machine will reset the PM counter for the paper transfer unit automatically, after you turn the power on again.

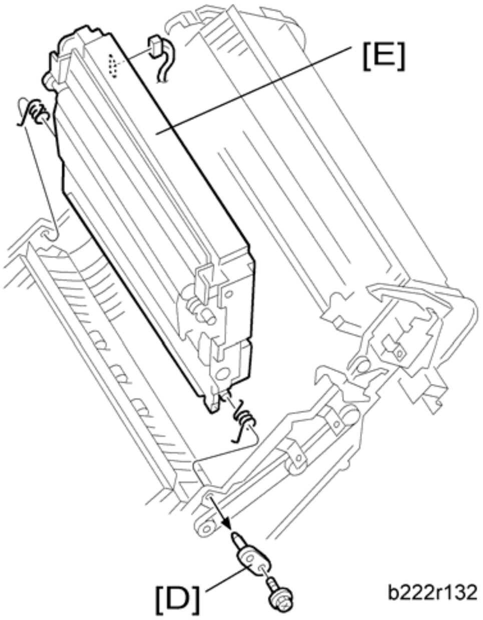
1. **Turn off the main power switch.**



2. Open the duplex door [A].
3. Right door cover [B] (🔩 x 4)
4. Open the right door.



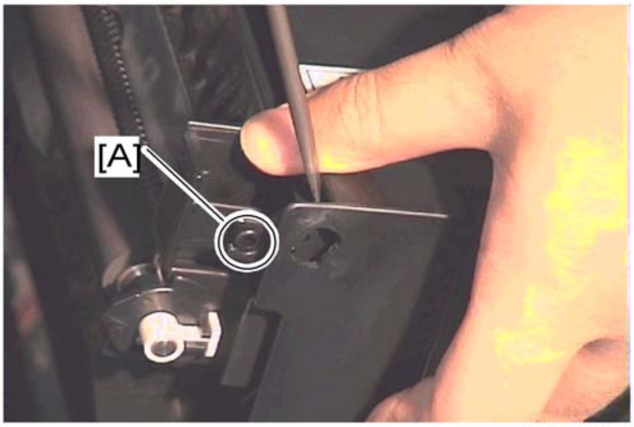
5. Right door inner cover [C] (🔩 x 3)



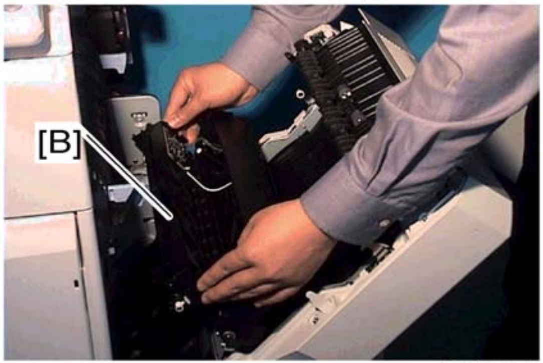
6. Pivot bracket [D] (🔩 x 1)
7. Paper transfer unit [E] (🔌 x 1, 2 springs)

High Voltage Supply Board - Discharge Plate

1. Open the right door.



2. Release the front [A] and rear pivots of the paper transfer roller case.



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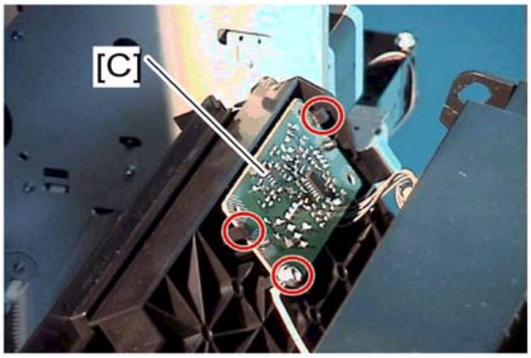
3. Paper transfer roller case [B]

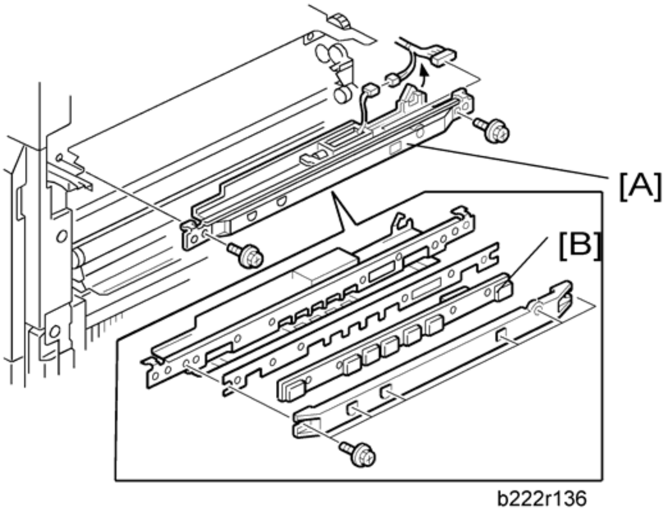


b222r558

4. High voltage supply board [C] (🔩 x 3, 🔌 x 1, ground cable x 1)

ID Sensor Board

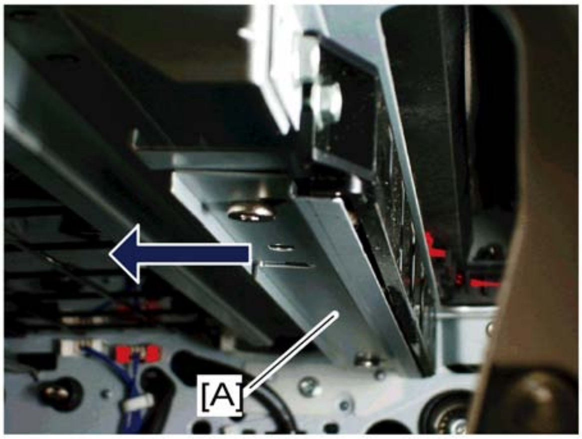
1. K PCU (☛ "p.159 "PCU"")
2. Open the right door.
3. Fusing unit (☛ "p.212 "Fusing Unit"")
4. Image transfer belt unit (☛ "p.174 "Image Transfer Belt Unit"")



5. ID sensor unit [A] (🔩 x 2, 🔌 x 2, 📎 x 1)
6. ID sensor board [B] (🔩 x 6)

Cleaning for ID sensors

ID sensors require a cleaning procedure every 320K. Do the following steps for ID sensor cleaning.



1. K PCU (☛ "p.159 "PCU"")
2. Fusing unit (☛ "p.212 "Fusing Unit"")
3. Image transfer belt unit (☛ "p.174 "Image Transfer Belt Unit"")
4. Slide the ID sensor shutter [A] to the left side.
5. Clean the ID sensors keeping the ID sensor shutter to the left.

After installing a new ID sensor unit/board

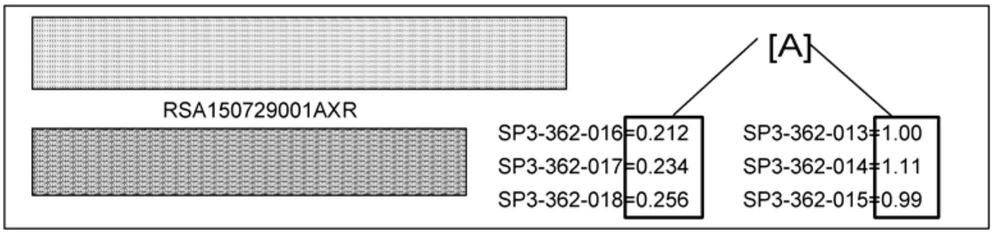
Do the following adjustment after installing a new ID sensor unit/board.

1. **Plug in and turn on the main power switch of the copier.**
2. **Enter the SP mode.**
3. **Input all correction coefficients [A] for the ID sensor with the SP modes referring to the bar-code sheet provided with the new ID sensor unit/board.**

   Note

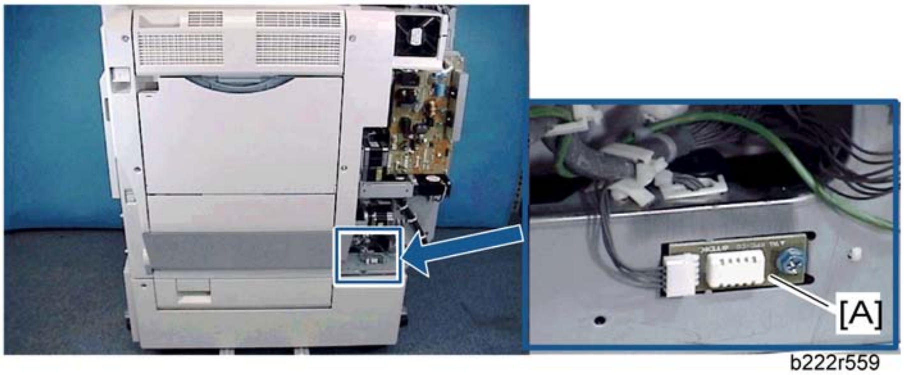
   - For example, input "1.00" with SP3-362-013.

4. **Exit the SP mode.**



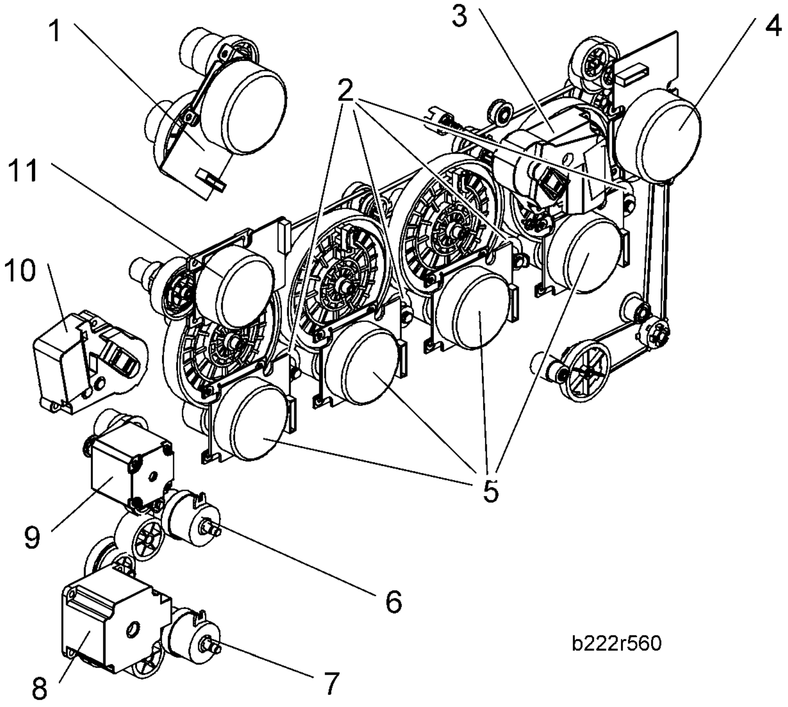
Temperature and Humidity Sensor

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Right rear cover (☛ "p.126 "Right Rear Cover"")



3. **Temperature and humidity sensor [A] (🔩 x 1, ⊟ x 1)**

Drive Unit



The drawing above shows the drive unit layout.

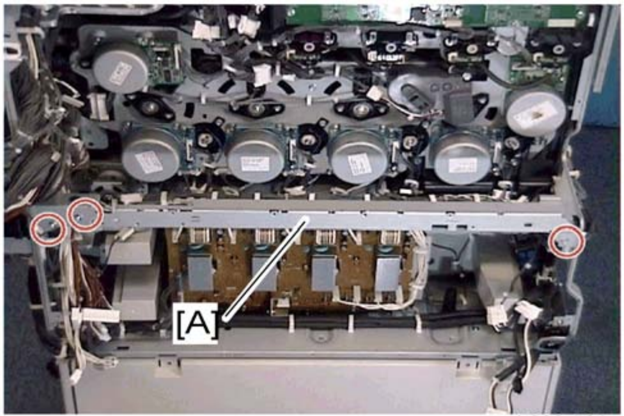
1. Fusing/paper exit motor 2. Development clutches 3. Image transfer belt contact motor 4. Toner transport motor 5. Drum/Development drive motors 6. Paper feed clutch – Tray 1	7. Paper feed clutch – Tray 2 8. Paper feed motor 9. Registration motor 10. Paper transfer contact motor 11. ITB drive motor

There are some motors and clutches that are not shown in the above drawing:

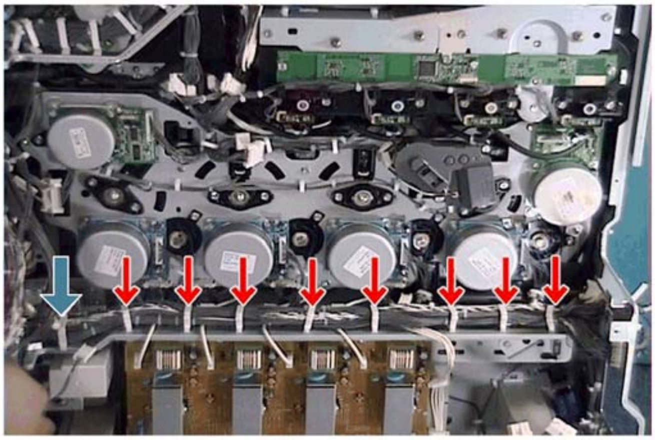
• Tray lift motor 1 and 2 • Duplex inverter motor • Duplex/By-pass Motor	• Junction gate 1 motor • Shutter motor • By-pass clutch

Gear Unit

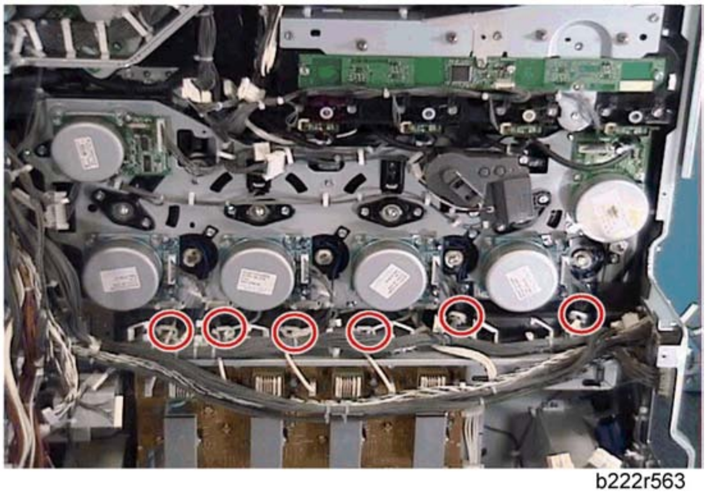
1. All PCU's
2. Image transfer belt unit
3. Rear cover (☛ "p.125 "Rear Cover"")
4. Controller box (☛ "p.254 "Controller Box"")
5. Third duct (☛ "p.166 "Third Duct Fan"")
6. Left cover (☛ "p.125 "Left Cover"")
7. PSU bracket (☛ "p.259 "PSU"")



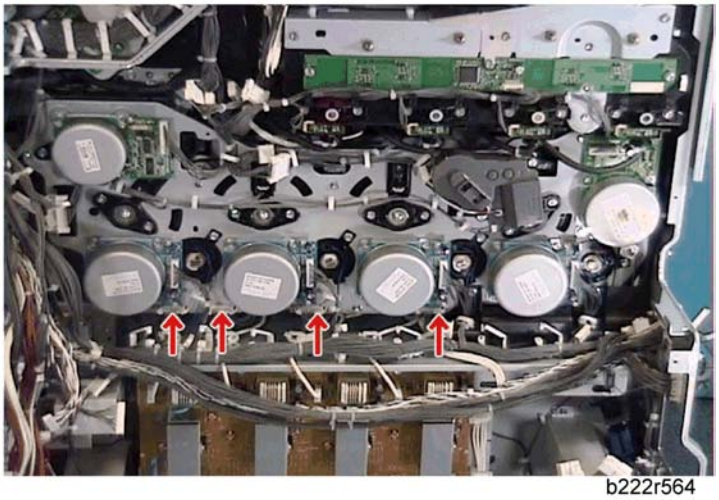
8. Remove the rear stay [A] (🔩 x 3).



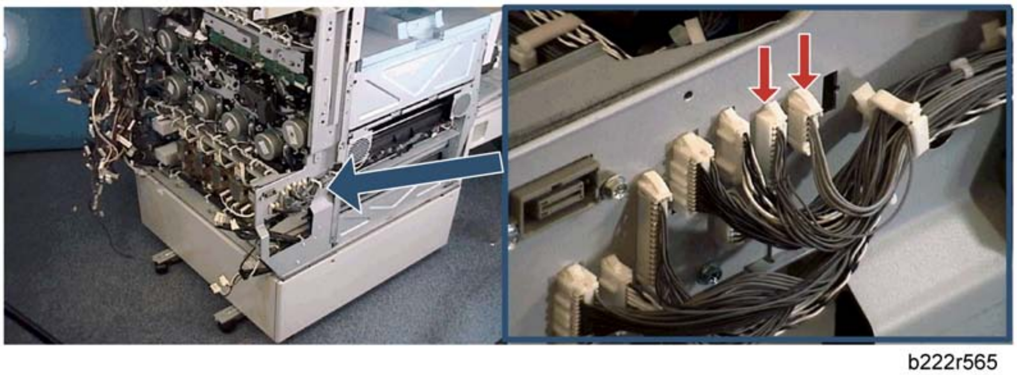
9. Remove eight clamps (red arrows) and release one clamp (blue arrow).



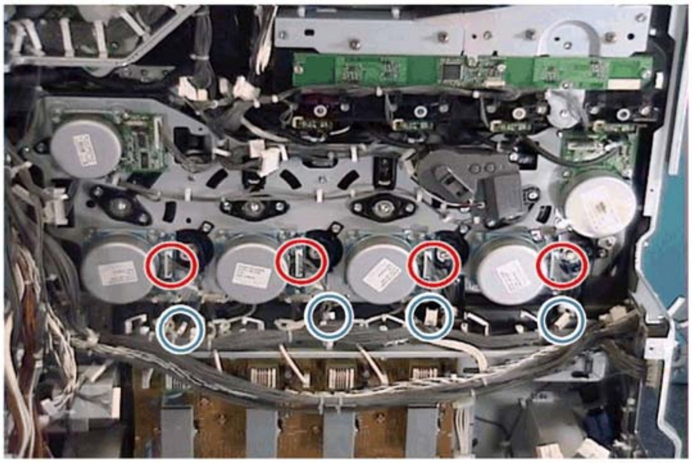
10. Release seven clamps and turn each harness aside.



11. Disconnect four connectors (red arrows).

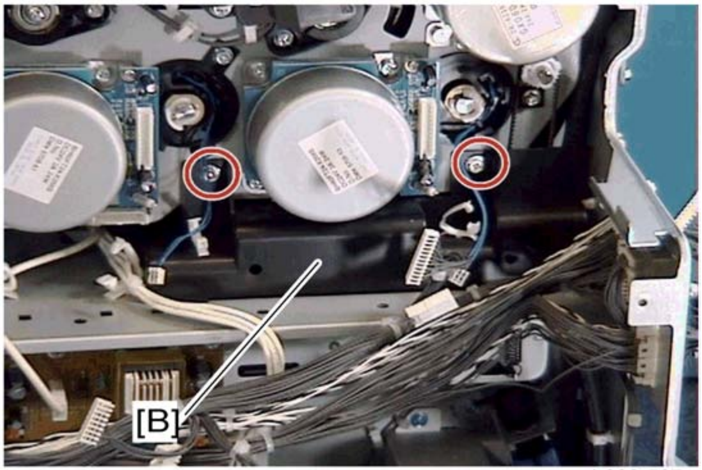


12. Disconnect two connectors (red arrows) and put these harnesses inside the machine.



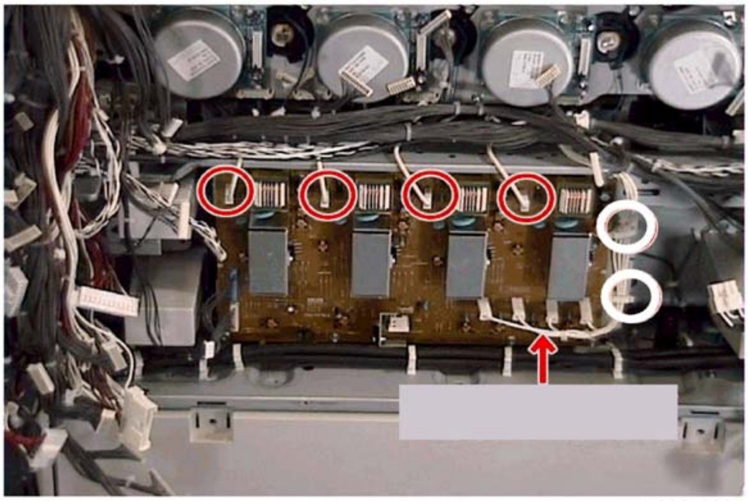
b222r566

13. Disconnect each connector (red circles) from the drum/development drive motors (🔌 x 1, 📎 x 1 each).
14. Disconnect each connector (blue circles) from the development clutches (🔌 x 1, 📎 x 1 each).



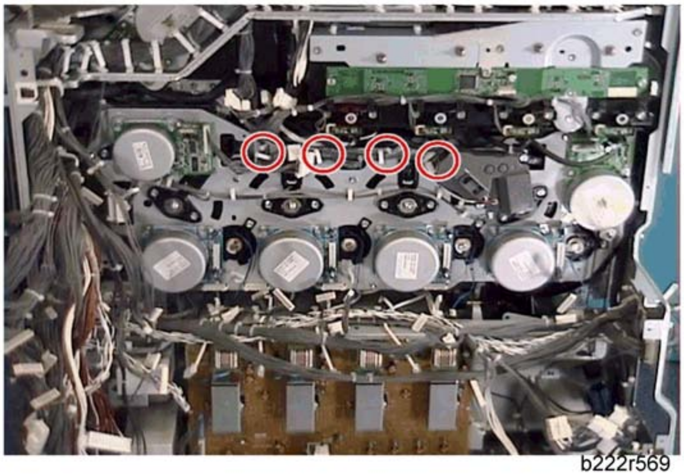
b222r567

15. Cover [B] (🔩 x 2)



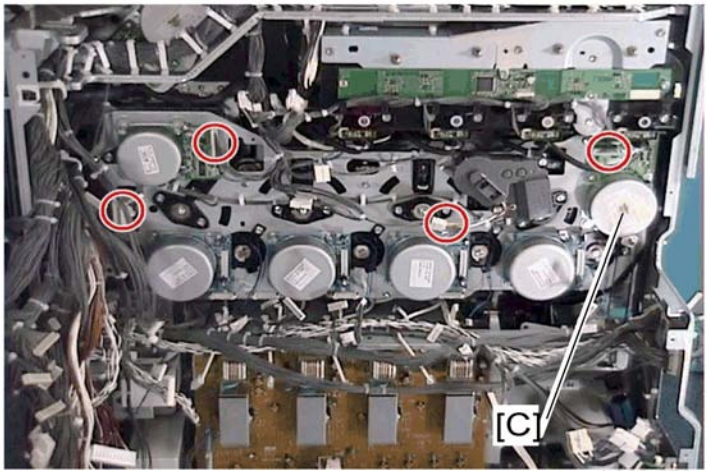
b222r568

16. Disconnect eight connectors from the high voltage supply board (🔌 x 8, 📎 x 2).



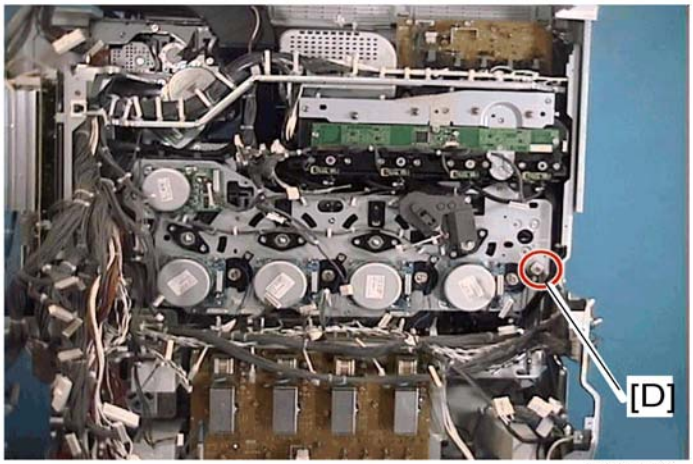
b222r569

17. Release four clamps (red circles) and turn the harnesses aside.



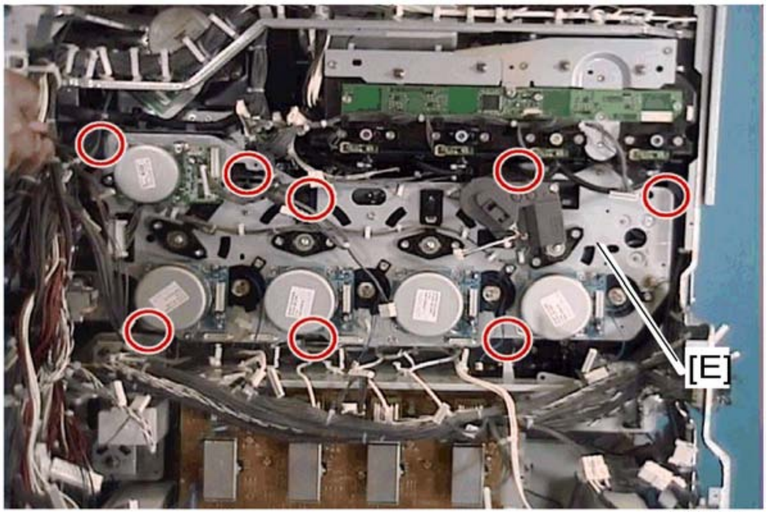
b222r570

18. Disconnect four connectors (red circles) (🔌 x 4).
19. Toner transport motor [C] (🔩 x 3)



b222r571

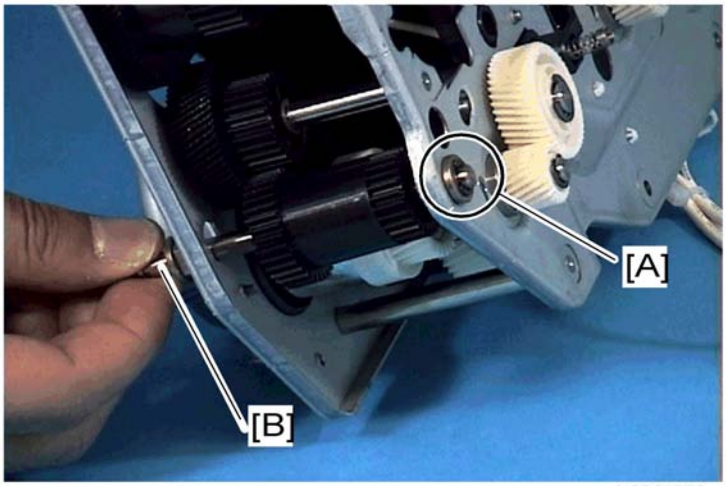
20. Pulley [D] (timing belt)



b222r572

21. **Gear unit [E] (🔩 x 8)**

When installing the drive unit



b222r573

Make sure that the bushing [A] is fully set in the frame of the gear unit before installing the timing belt and pulley to the shaft [B].

Adjustment after replacing the gear unit

Do the following procedures after replacing the gear unit.

1. Turn on the main power switch.

2. Enter "Copy SP" in the SP mode.
3. Do the "Drum Phase Adjustment" with SP1-902-001.
4. Check the result of the drum phase adjustment with SP1-902-002.

   0: Success, 1: Failure due to no sampling data,

   2: Failure due to insufficient number of pattern detections

   When the result of this adjustment is "1" or "2":

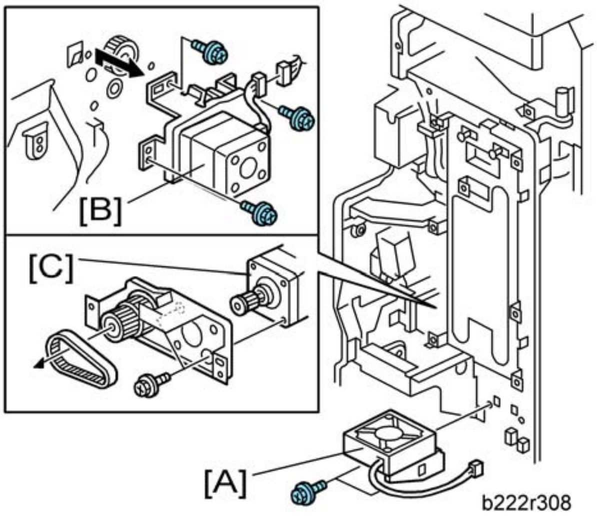
   - Check that all the PCUs are correctly set and that the image transfer belt unit is correctly set.
   - Do the "Drum Phase Adjustment" again after checking the PCUs and image transfer belt unit.

   When the result is still "1" or "2" after checking the PCUs and image transfer belt unit:

   - Check that the gear unit is installed correctly.
5. Exit the SP mode.

Registration Motor

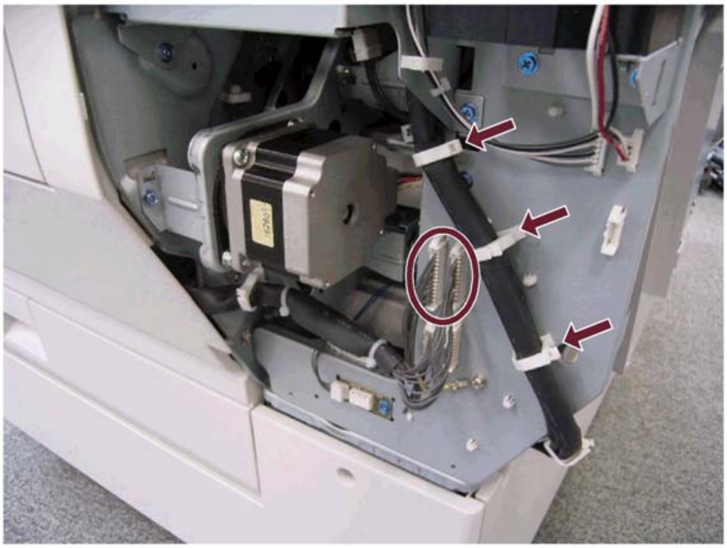
1. **Rear cover (☛ "p.125 "Rear Cover"")**
2. **Right rear cover (☛ "p.126 "Right Rear Cover"")**
3. **Ventilation duct (☛ "p.259 "PSU"")**
4. **Turn the harnesses aside (🗜 x 5)**



5. **Fusing power supply board fan bracket [A] (🔩 x 2, 🔌 x 1)**
6. **Registration motor assembly [B] (🔩 x 3, 🔌 x 1)**
7. **Registration motor [C] (🔩 x 2, timing belt)**

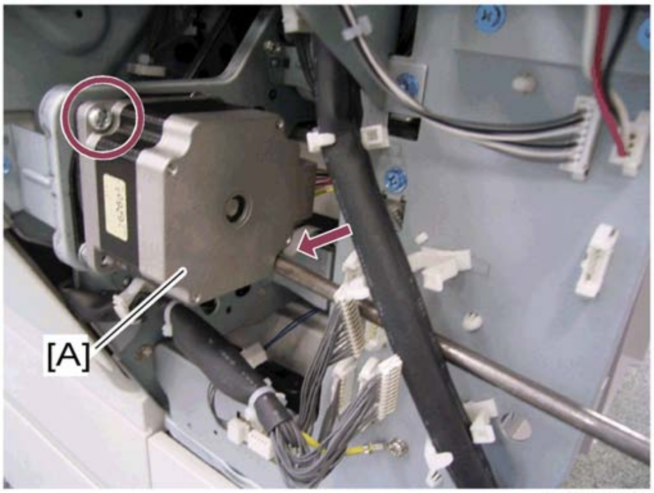
Paper Feed Motor

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Right rear cover (☛ "p.126 "Right Rear Cover"")



b222r679

3. Disconnect two harnesses and release the three clamps (x 2, x 3).

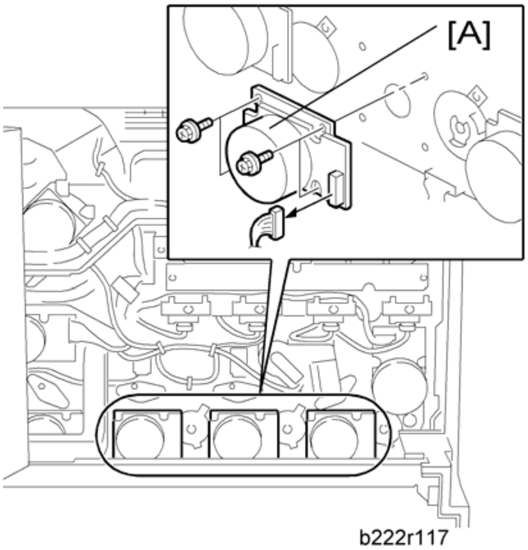


b222r680

4. Paper feed motor [A] (x 1, x 2, timing belt)

Drum/Development Motors for M, C, and Y

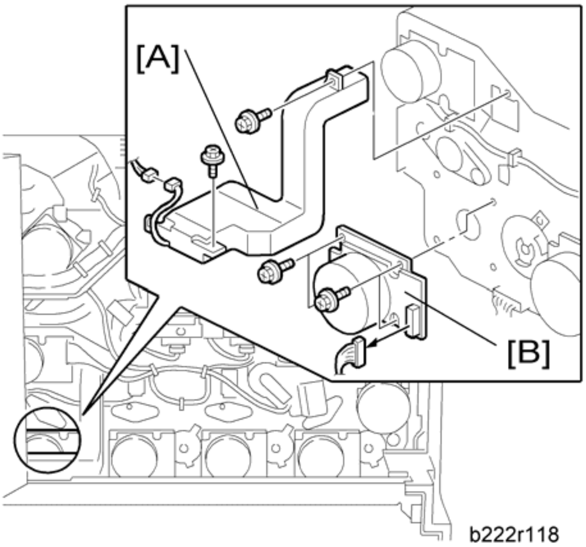
1. Rear cover (☛ "p.125 "Rear Cover"")
2. PSU bracket (☛ "p.259 "PSU"")
3. Open the controller box.



4. Drum/Development motors (three motors, one each for MCY) [A] (🔩 x 4, 🔌 x 1 each)

Drum/Development Motor-K

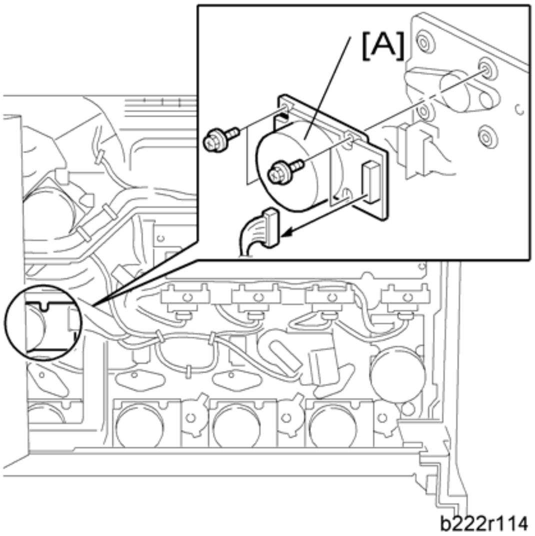
1. Rear cover (☛ "p.125 "Rear Cover"")
2. PSU bracket (☛ "p.259 "PSU"")
3. Controller box (☛ "p.254 "Controller Box"")



4. Third duct [A] (🔩 x 2, 🔌 x 1)
5. Drum/Development motor-K [B] (🔩 x 4, 🔌 x 1)

ITB Drive Motor

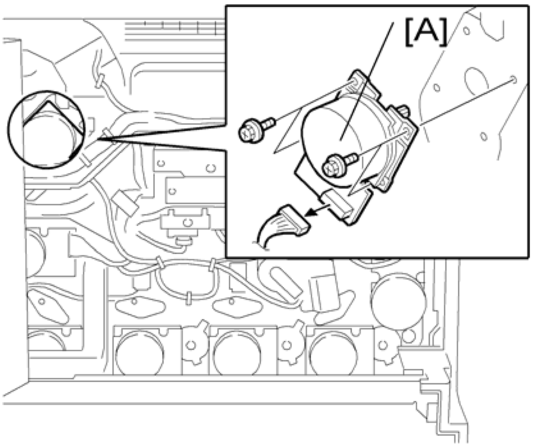
1. Rear cover (☛ "p.125 "Rear Cover"")
2. Controller box (☛ "p.254 "Controller Box"")



3. ITB drive motor [A] (🔩 x 4, 🔌 x 1)

Fusing/Paper Exit Motor

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Controller box (☛ "p.254 "Controller Box"")

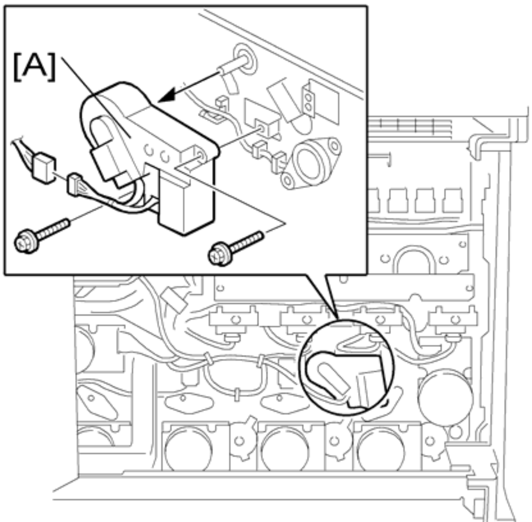


b222r115

3. Fusing/paper exit motor [A] (🔩 x 4, 🔌 x 1, 🗜 x 1)

Image Transfer Belt Contact Motor

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Open the controller box. (☛ "p.254 "Controller Box"")

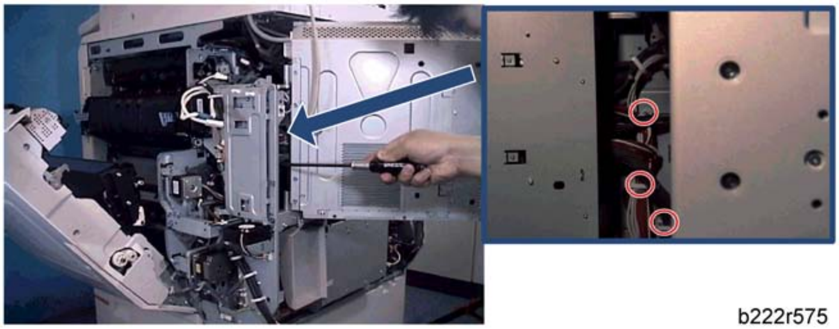


b222r116

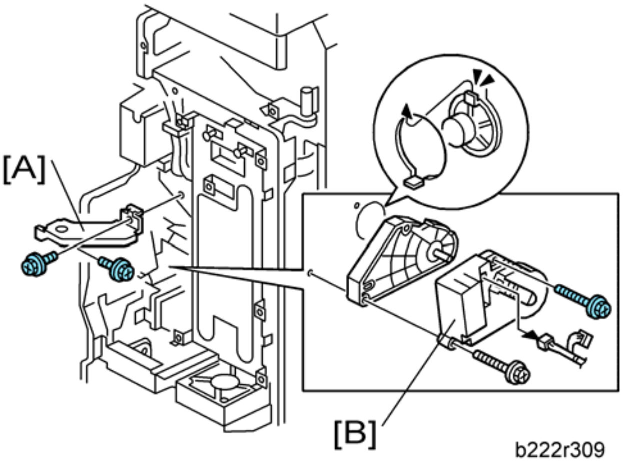
3. Transfer belt contact motor [A] (🔩 x 2, 🔌 x 2, 📎 x 1)

Paper Transfer Contact Motor

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Right rear cover (☛ "p.126 "Right Rear Cover"")



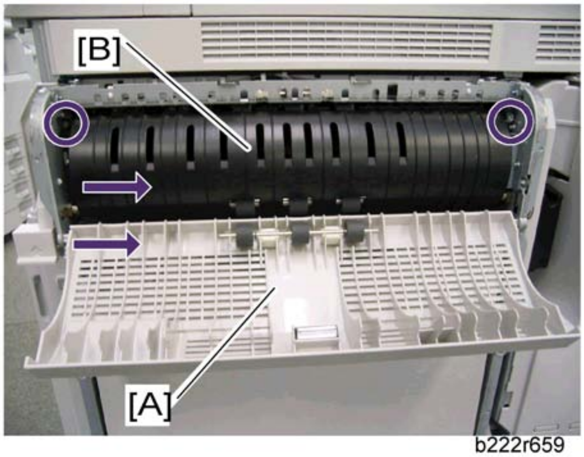
3. Release three clamps (red circles) (📎 x 3).



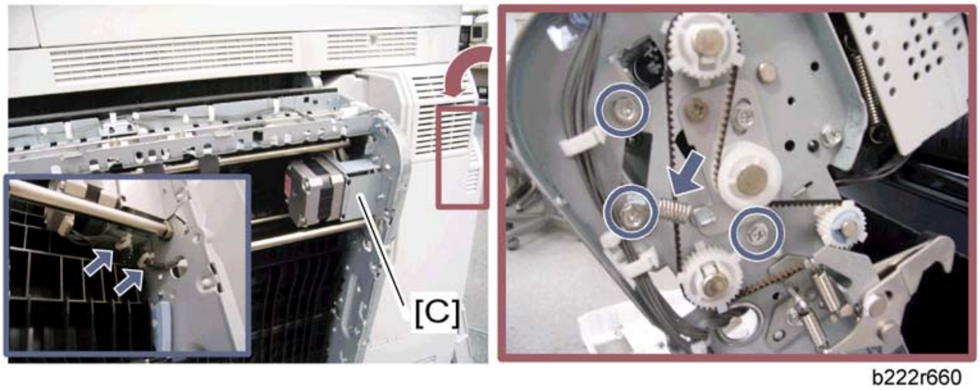
4. Stay [A] (🔩 x 2)
5. Paper transfer contact motor [B] (🔩 x 2, 🔌 x 2)

Duplex Inverter Motor

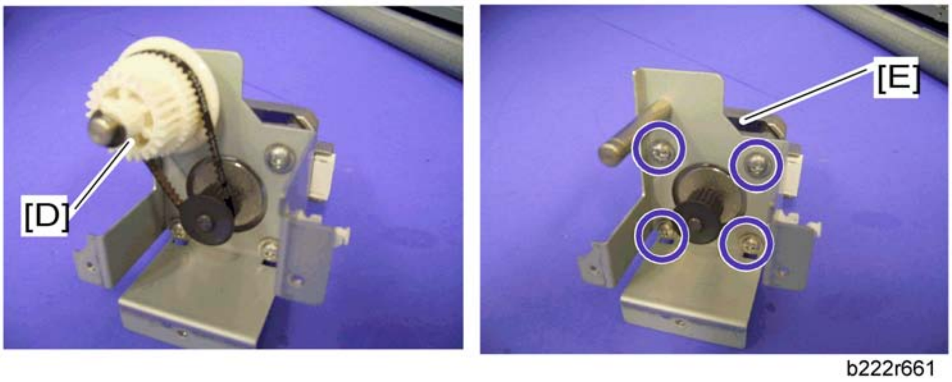
1. Open the right door.
2. Right door cover (☛ "p.241 "By-pass Bottom Tray"")



3. Duplex door [A] (2 hooks)
4. Duplex guide plate [B] (🔩 x 1, stepped screw x 1; front side, 2 hooks)
5. Right door rear cover (☛ "p.241 "By-pass Bottom Tray"")



6. Duplex inverter motor bracket [C] (🔩 x 3, 🔌 x 1, ⊐ x 2, spring x 1)

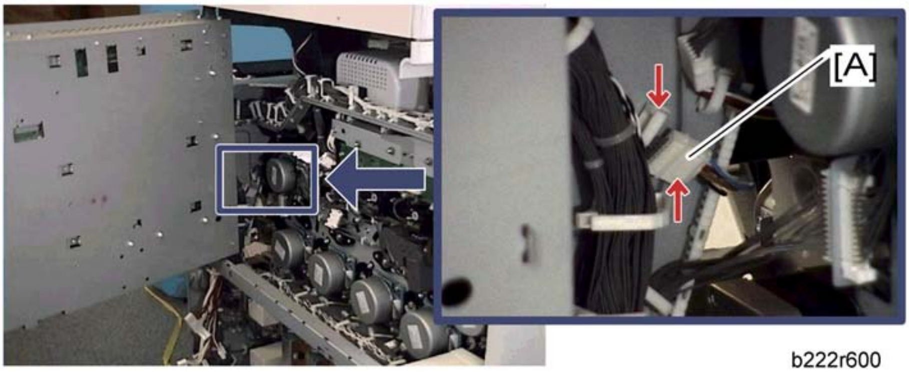


7. Gear [D] (ℂ x 1, belt x 1)

8. Duplex inverter motor [E] (🔩 x 4)

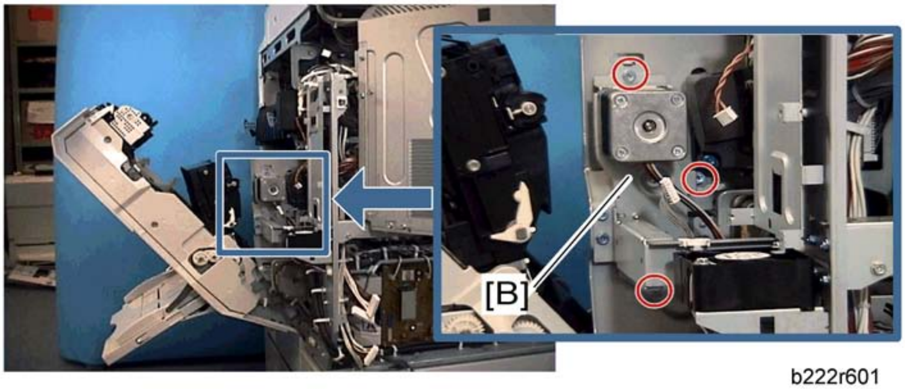
Duplex/By-pass Motor

1. Rear cover (☛ "**p.125 "Rear Cover""**)
2. Right rear cover (☛ "**p.126 "Right Rear Cover""**)
3. Open the controller box (☛ "**p.254 "Controller Box""**).



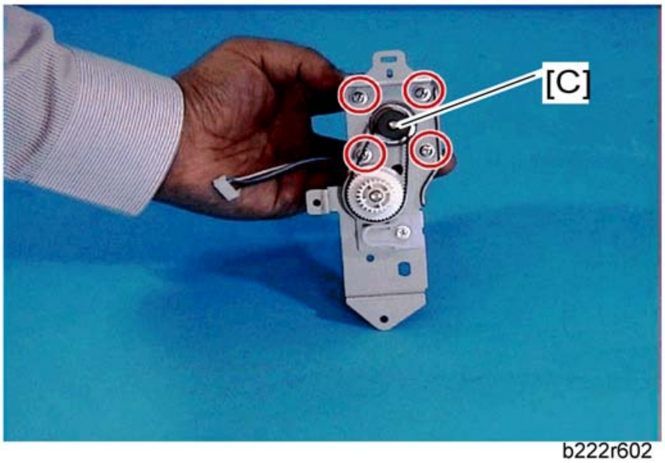
b222r600

4. Disconnect the connector [A] (🔌 x 1)



b222r601

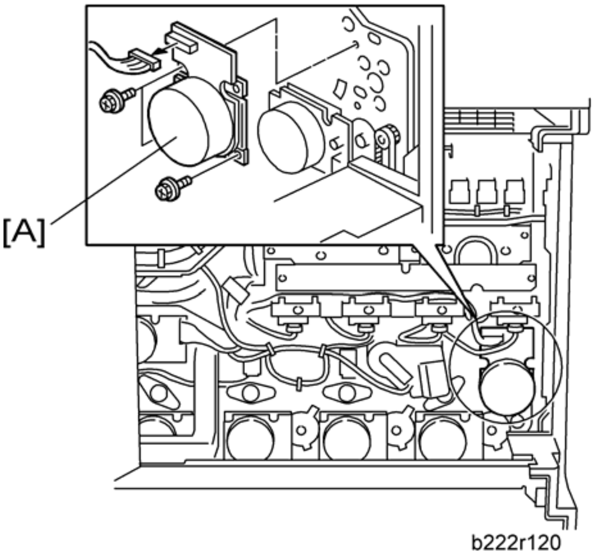
5. Duplex/by-pass motor bracket [B] (🔩 x 3)



6. Duplex/by-pass motor [C] (🔩 x 4)

Toner Transport Motor

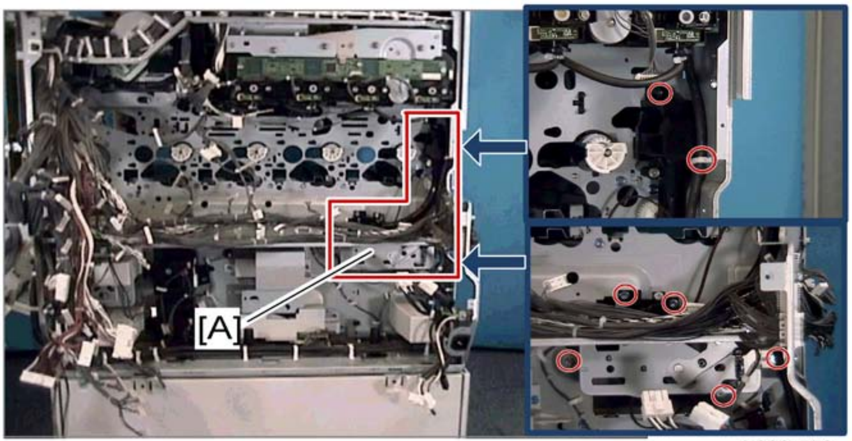
1. Rear cover (☛ "p.125 "Rear Cover"")
2. Open the controller box (☛ "p.254 "Controller Box"")

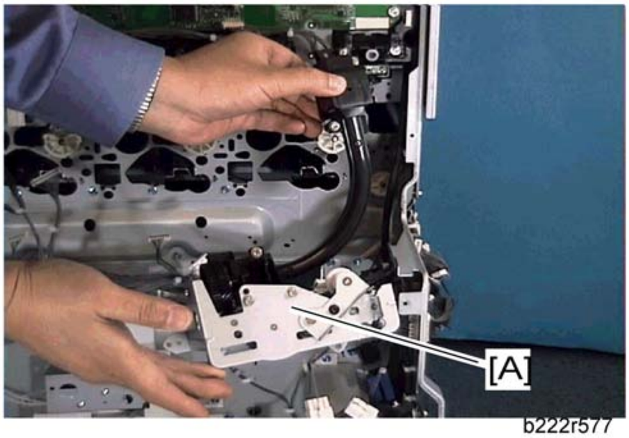


3. Toner transport motor [A] (🔩 x 3, 🔌 x 1)

Toner Collection Unit

1. Remove all PCUs (☛ "p.189 "Gear Unit"").
2. Remove the image transfer belt unit (☛ "p.174 "Image Transfer Belt Unit"").
3. Rear cover (☛ "p.125 "Rear Cover"")
4. Controller box (☛ "p.254 "Controller Box"")
5. Third duct (☛ "p.166 "Third Duct Fan"")
6. Left cover (☛ "p.125 "Left Cover"")
7. PSU bracket (☛ "p.259 "PSU"")
8. High voltage power supply board bracket

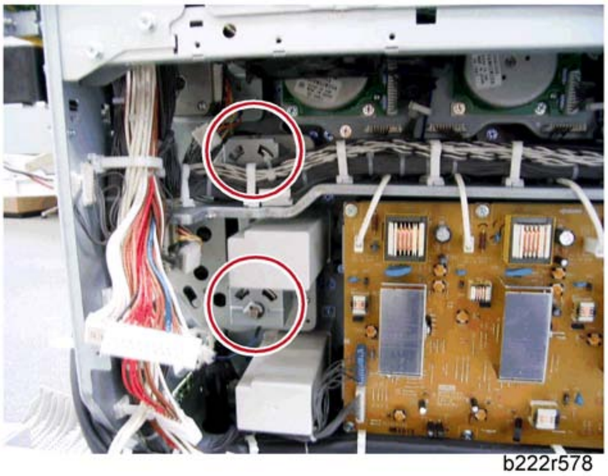


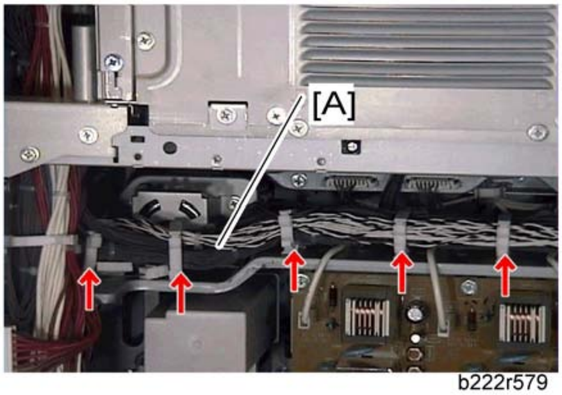


9. Toner collection unit [A] (🔩 x 6, 🔌 x 1)

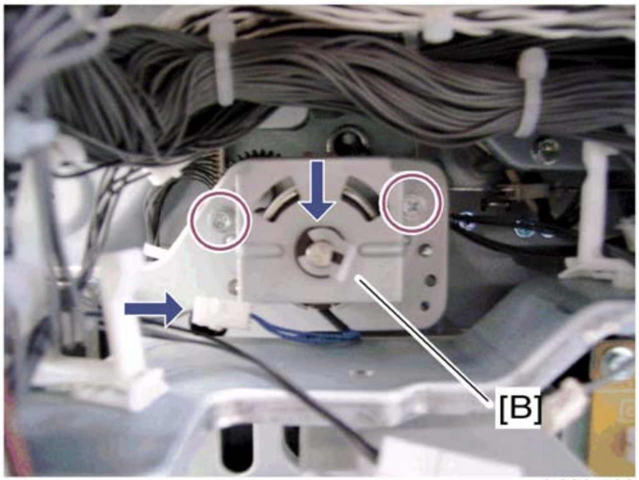
Paper Feed Clutches

1. Rear cover (☛ "p.125 "Rear Cover"")
2. PSU bracket (☛ "p.259 "PSU"")

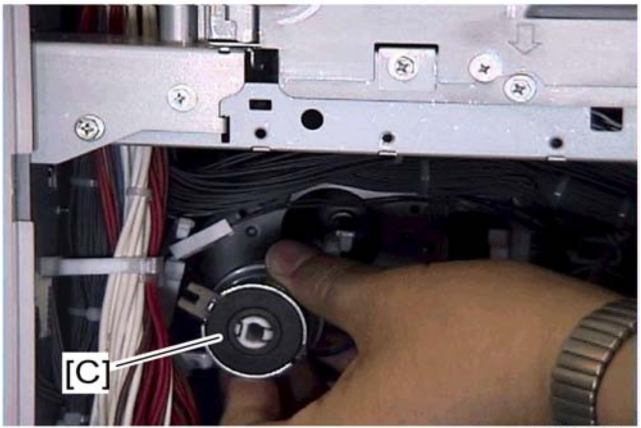




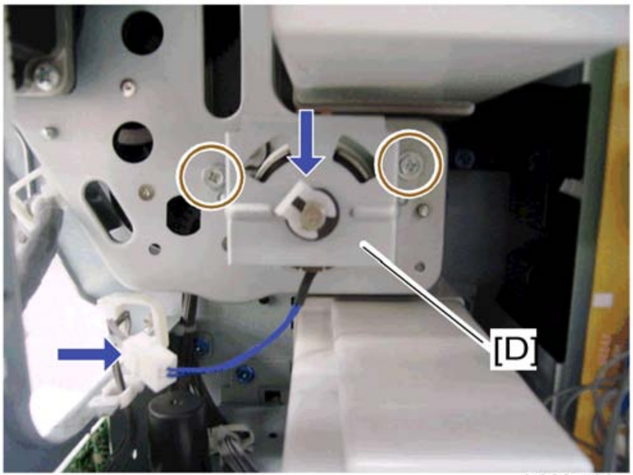
3. Release five clamps, and then turn the harness [A] aside.



4. **Paper feed clutch 1 bracket [B] (🔩 x 2, 🗜 x 1, 🔌x 1)**

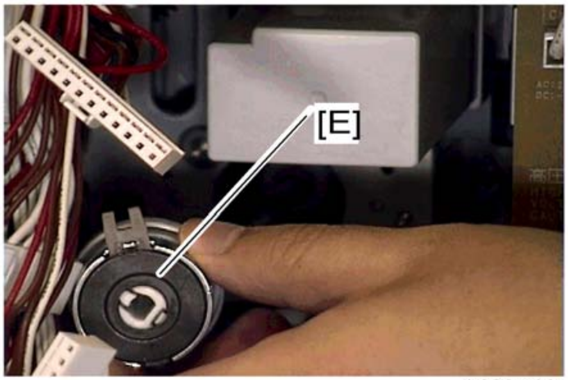


5. **Paper feed clutch 1 [C]**



b222r582

6. Paper feed clutch 2 bracket [D] (🔩 x 2, 🗜 x 1, 🔌 x 1)

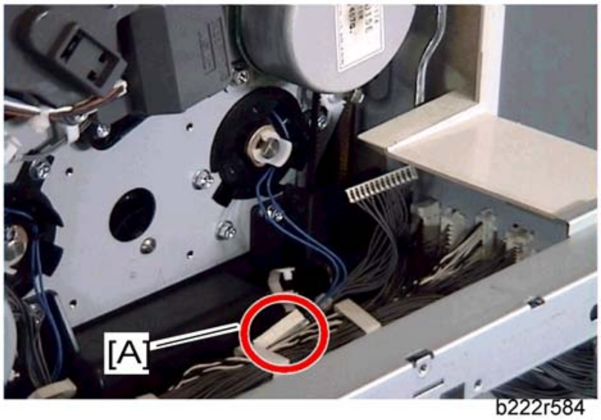


b222r583

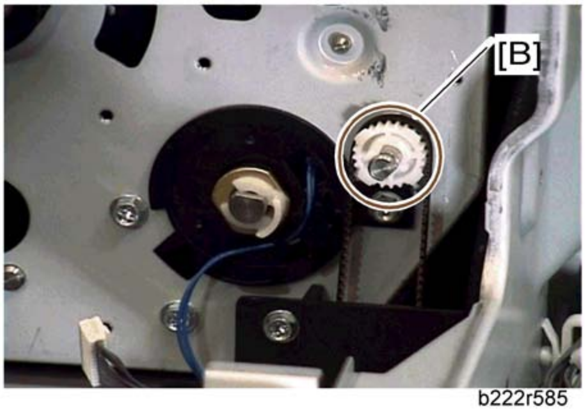
7. Paper feed clutch 2 [E]

Development Clutch-Y

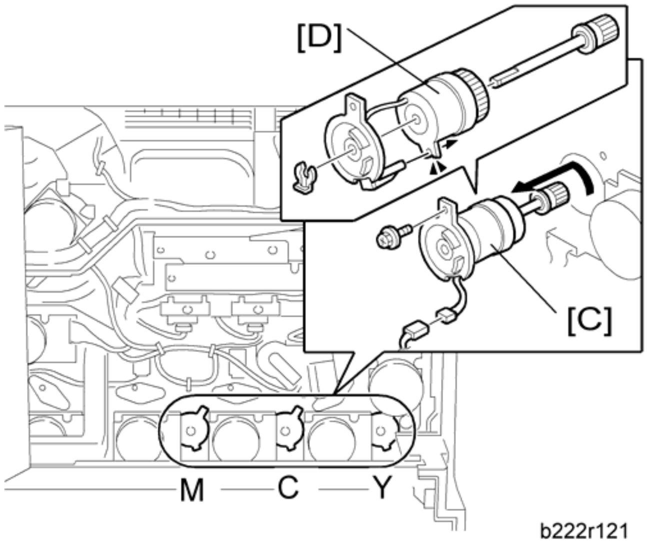
1. Rear cover (☛ "p.125 "Rear Cover"")
2. PSU bracket (☛ "p.259 "PSU"")
3. Open the controller box. (☛ "p.254 "Controller Box"").
4. Drum/development motor-Y (☛ "p.197 ")



5. Disconnect the connector [A] (🔌 x 1).



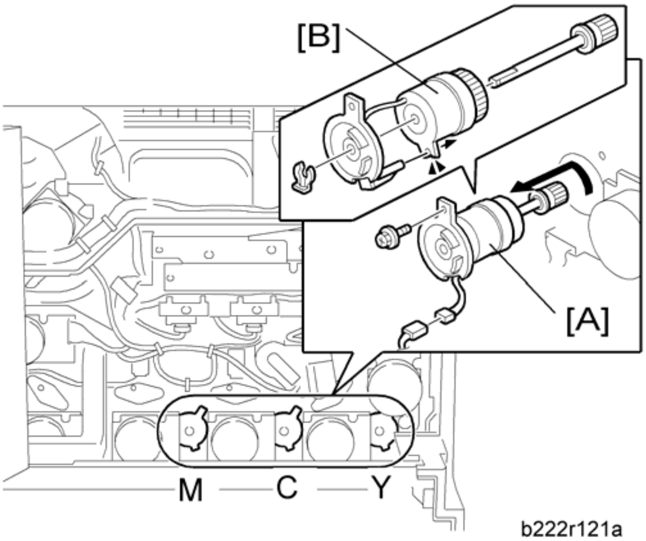
6. Remove the pulley and bushing [B].



7. Turn the development clutch unit [C] counter-clockwise and then pull it out (🔩 x 1).
8. Development clutch-Y [D] (⊂⊃ x 1)

Development Clutches for M and C

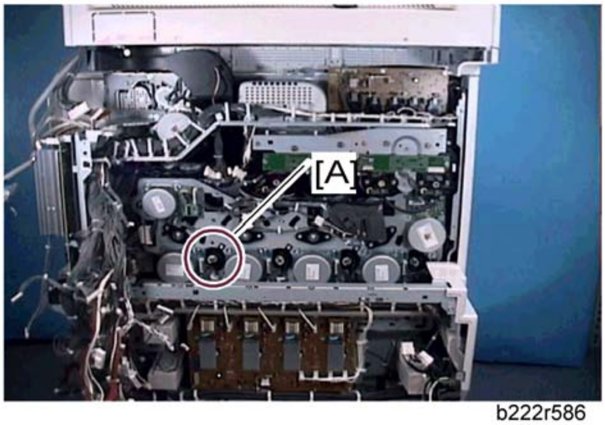
1. Rear cover (☛ "p.125 "Rear Cover"")
2. PSU bracket (☛ "p.259 "PSU"")
3. Open the controller box. (☛ "p.254 "Controller Box"").
4. Drum/development motors for M and C (☛ "p.197 "Drum/Development Motors for M, C, and Y"")
5. Disconnect the connector for each development clutch (⧉ x 1).



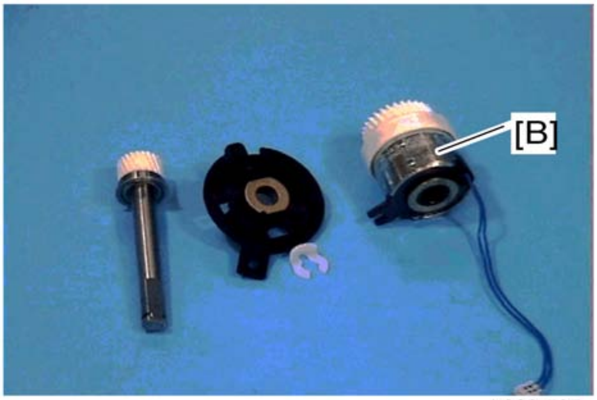
6. Turn the development clutch unit [A] counter-clockwise and then pull it out (🔩 x 1).
7. Development clutches for M and C [B] (Ω x 1)

Development Clutch-K

1. Rear cover (☛ "p.125 "Rear Cover"")
2. PSU bracket (☛ "p.259 "PSU"")
3. Controller box. (☛ "p.254 "Controller Box"")
4. Drum/development motor-K (☛ "p.197 "Drum/Development Motor-K"")



5. Turn the development clutch unit [A] counter-clockwise and then pull it out (🔩 x 1).



b222r587

6. **Development clutch-K [B] (🔌 x 1)**

Fusing

Fusing Unit

⚠CAUTION

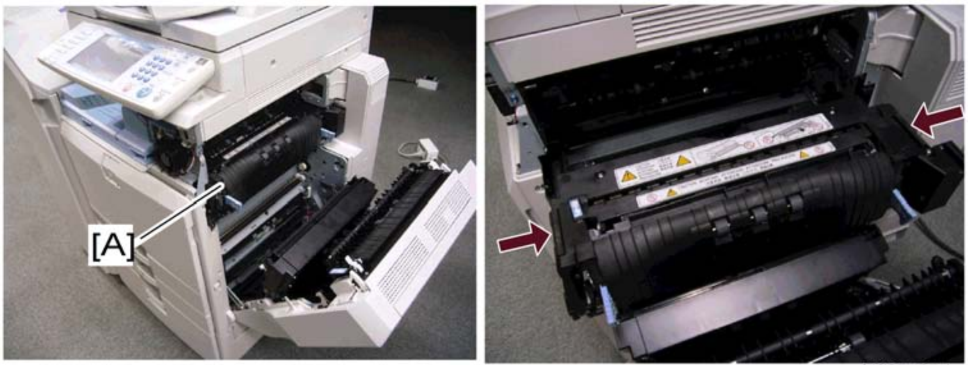
- Turn off the main switch and wait until the fusing unit cools down before beginning any of the procedures in this section. The fusing unit can cause serious burns.

1. **If you will install a lot of new parts in the fusing unit (at PM for example), then set SP 3902-014 to "1".**

   Note

   - If you do this, then the machine will reset the PM counter for the fusing unit automatically, after you turn the power on again.
     Do not do this if you replace the complete fusing unit. This is because the fusing unit has a new detection mechanism.

2. **Turn off the main power switch.**
3. **Open the right door.**

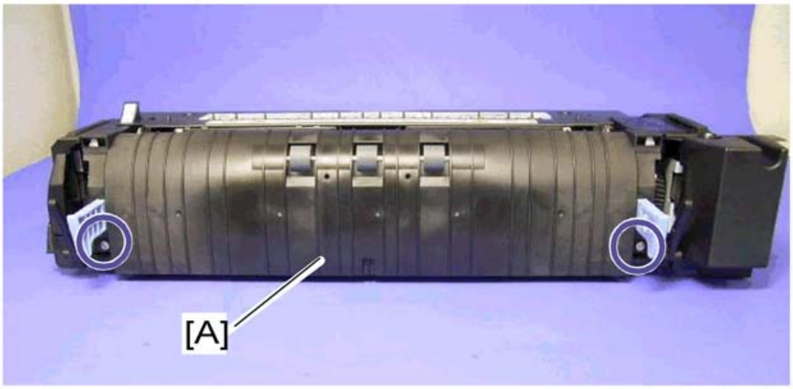


b222r624

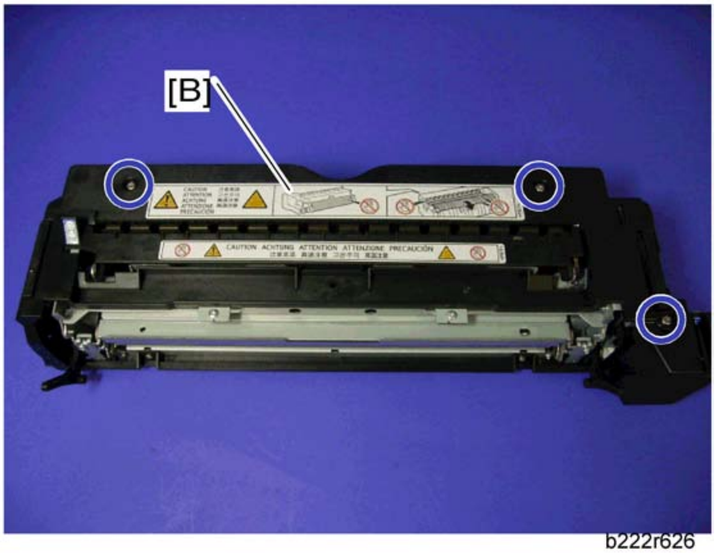
4. **Pull out the fusing unit [A].**

Fusing Lamp

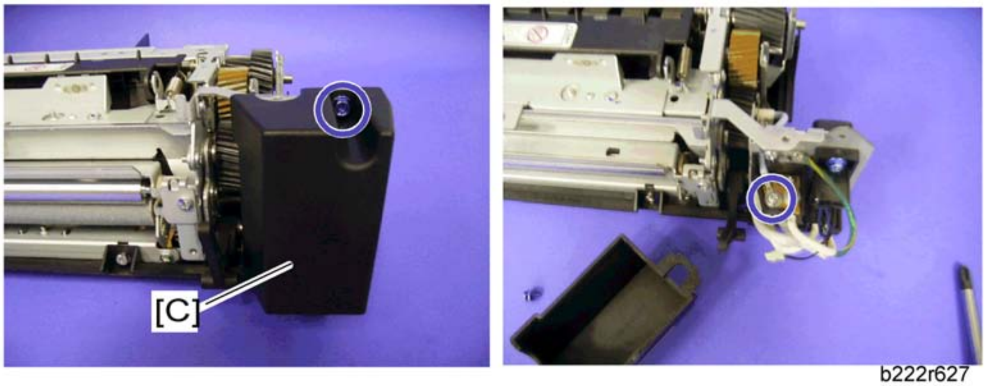
1. **Fusing unit (☛ "p.212 "Fusing Unit"")**



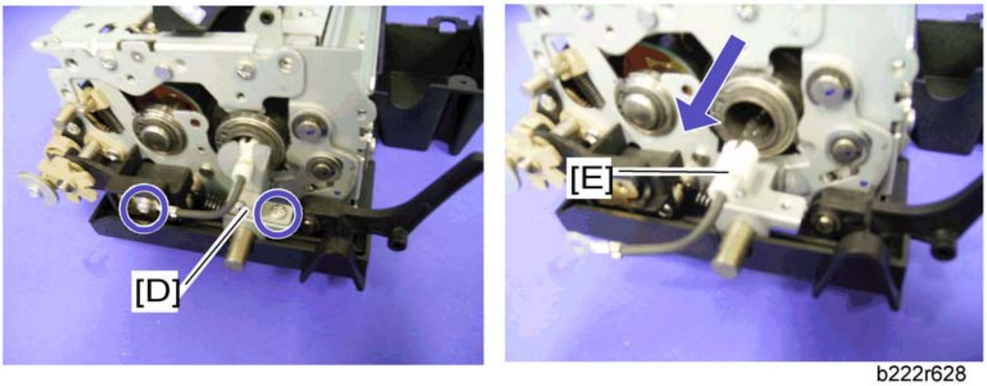
2. **Fusing right cover [A] (🔩 x 2; Stepped screws)**



3. **Fusing upper cover [B] (🔩 x 3; Stepped screws)**



4. Connector cover [C] (🔩 x 1)
5. Remove the rear terminal of the fusing lamp (🔩 x 1)

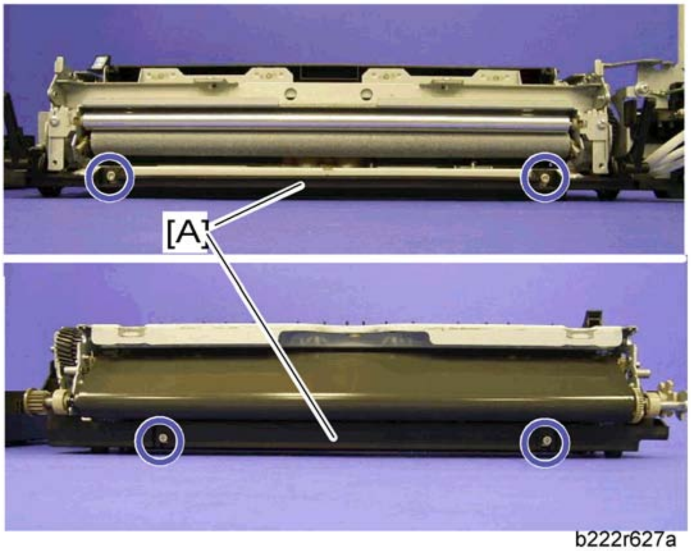


b222r628

6. Fusing lamp front bracket [D] (🔩 x 1)
7. Remove the front terminal of the fusing lamp (🔩 x 1)
8. Fusing lamp [E]

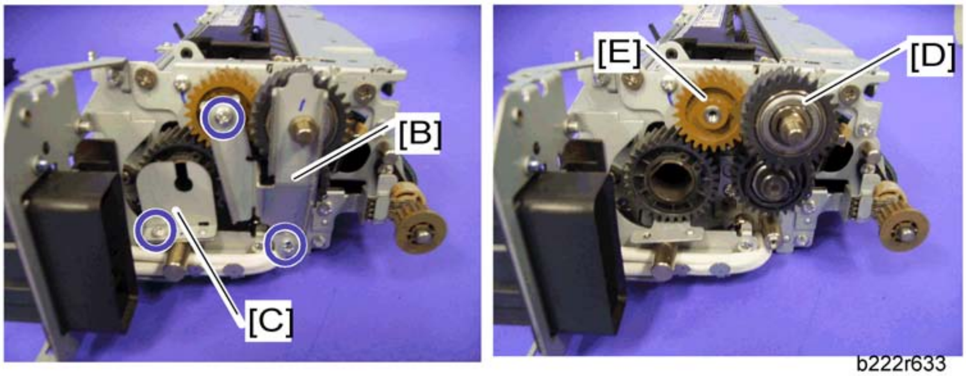
Pressure Roller and Pressure Roller Bearing

1. Fusing unit (☛ "**p.212** ")
2. Fusing right cover, fusing upper cover (☛ "**p.212 "Fusing Lamp""**)

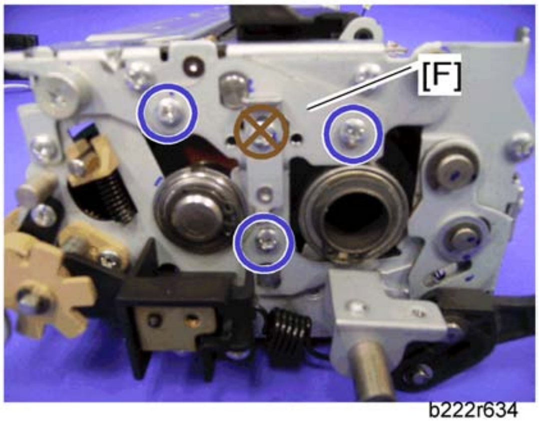


b222r627a

3. Fusing bottom cover [A] (🔩 x 4)
4. Fusing lamp (☛ "**p.212** ")



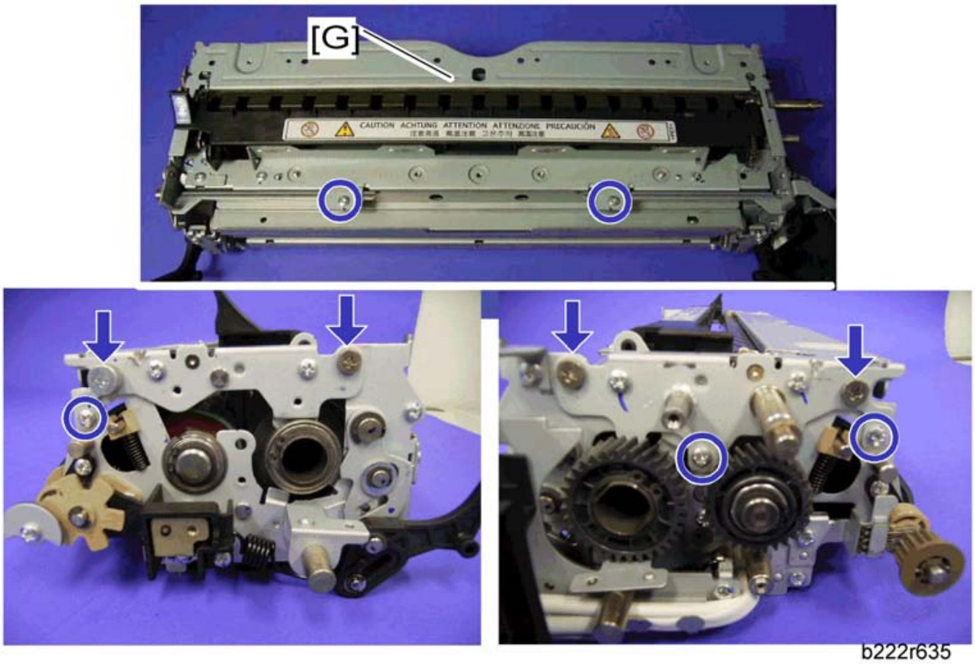
5. Gear holder bracket [B] (🔩 x 2)
6. Fusing lamp rear bracket [C] (🔩 x 1)
7. One-way clutch gear [D] (ℂ x 1) and idle gear [E]



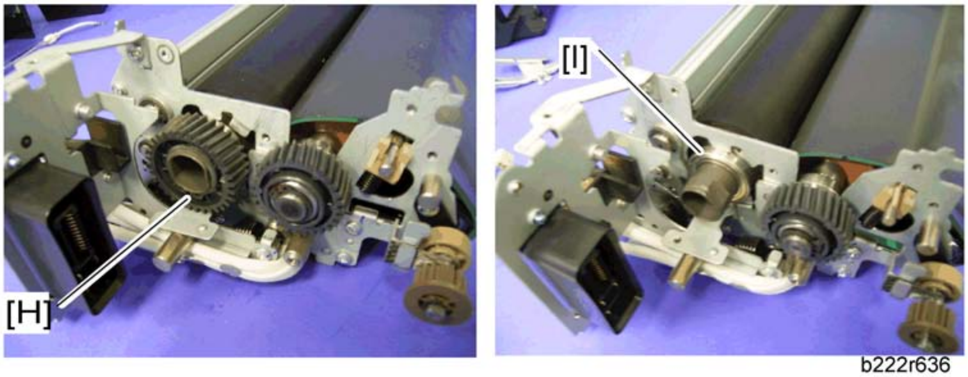
8. Pressure adjustment bracket [F] at the front side (🔩 x 3)

★ Important

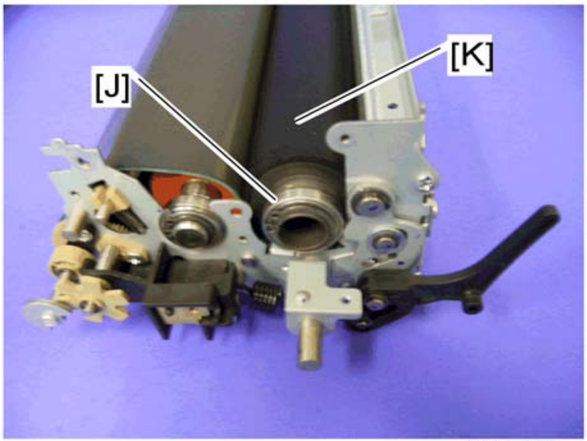
- Never remove the screw that is covered by the crossed-circle in the above photo.



9. Upper frame [G] (🔩 x 5, stepped screw x 3, stud screw x 1)

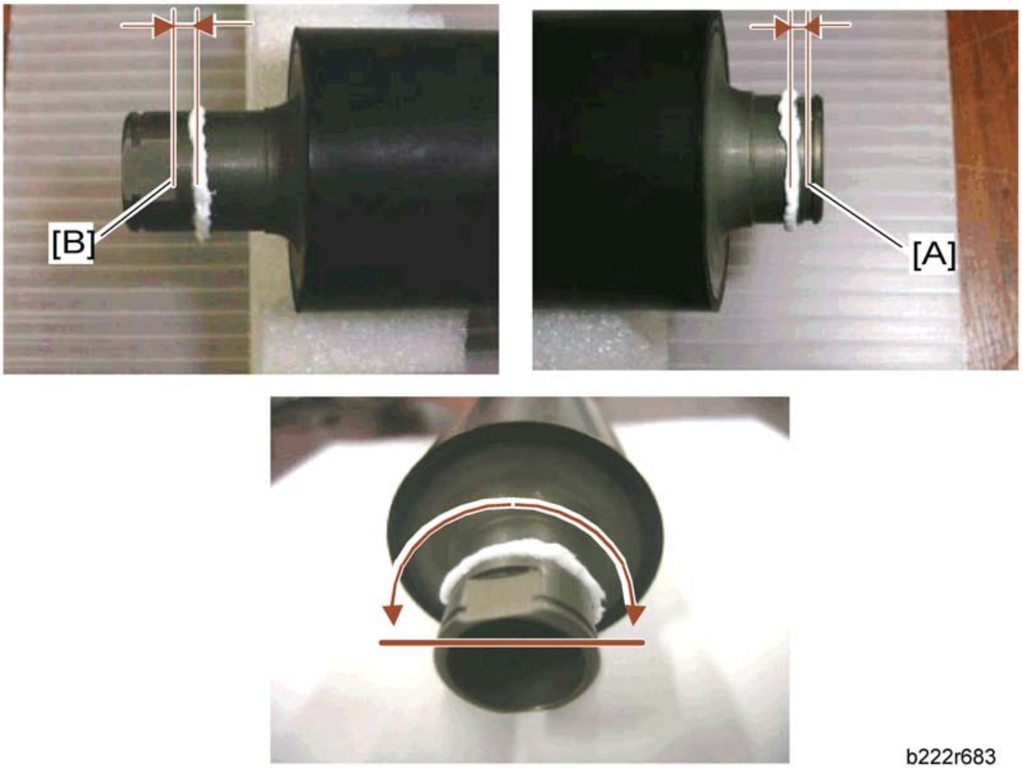


10. Pressure roller gear [H] (C-ring x 1)
11. Pressure roller bushing [I] at the rear side

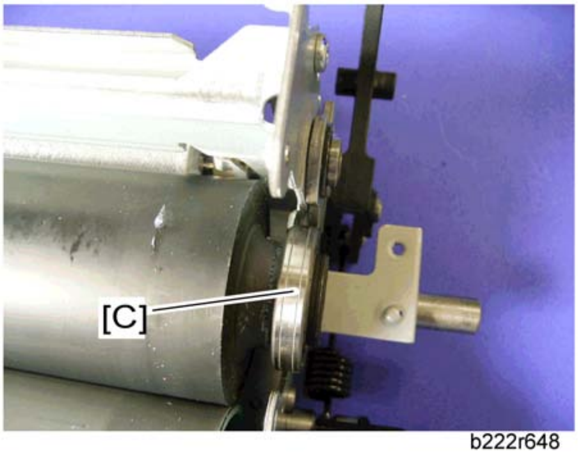


12. Pressure roller bushing [J] at the front side
13. Pressure roller [K]

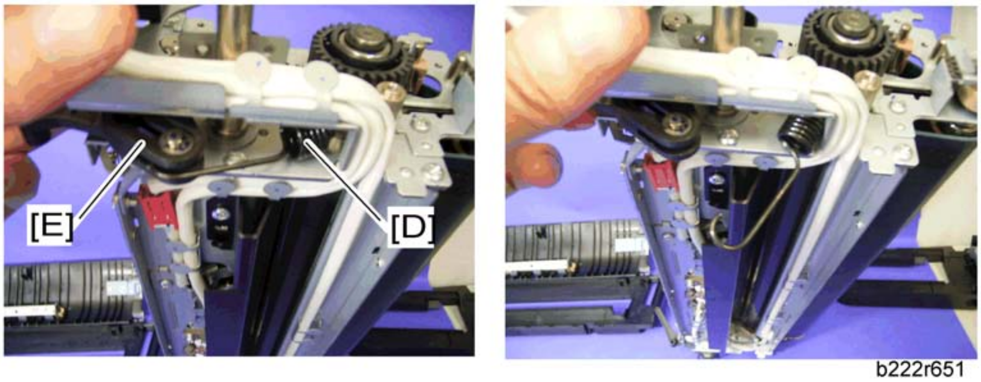
When re-installing the pressure roller



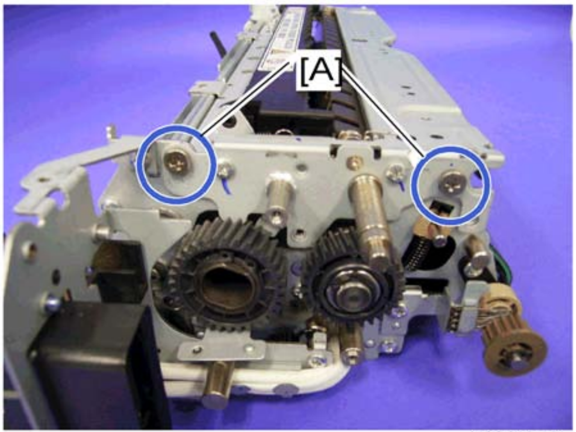
1. Apply "Barrierta S552R" to the front shaft of the pressure roller at 2 mm from the notch [A], and to the rear shaft of the pressure roller at 2 mm from the edge [B]. (Apply the lubricant to half of the circumference of the pressure roller, as shown in the lower of the three above diagrams.)



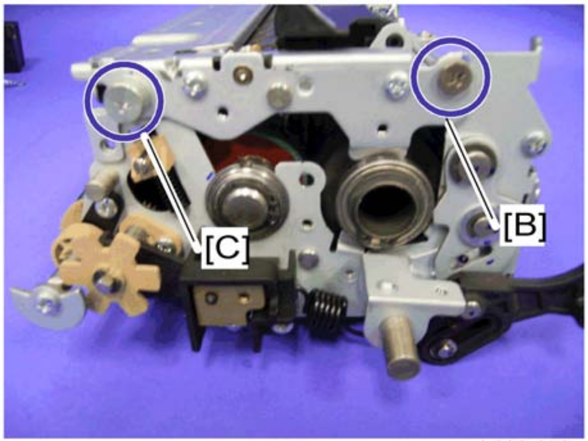
2. Make sure that pressure roller bushing [C] at the front side is set as shown below.



3. Make sure that the spring [D] is correctly hooked on the pressure lever [E] before installing the upper frame. (The picture above on the right side shows an example of how to do it wrong.)
4. Follow the correct order when installing the upper frame.



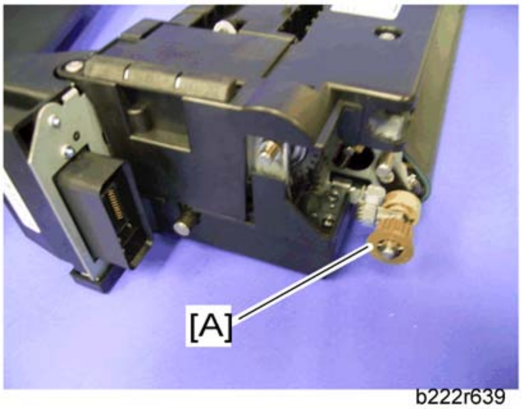
1. Secure the stepped screws [A] at the rear side first (at this time, do not fully tighten these screws).



2. Secure the stepped screw [B] and stud screw [C] at the front side tightly.
3. Secure the stepped screws [A] at the rear side tightly after securing the stepped screw [B] and stud screw [C] at the front side.
4. Install the pressure adjustment bracket, and then secure the other screws.

Ferrite Roller Gear

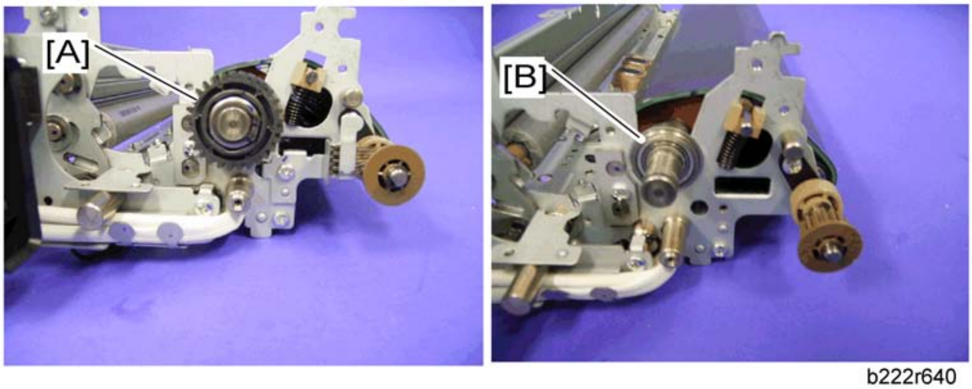
1. Fusing unit (☛ "p.212 ")



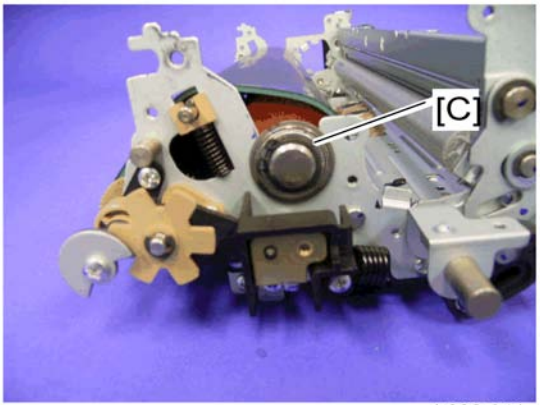
2. Ferrite roller gear [A] (ℂ x 1)

Fusing Roller Bushing and Tension Roller Bushing

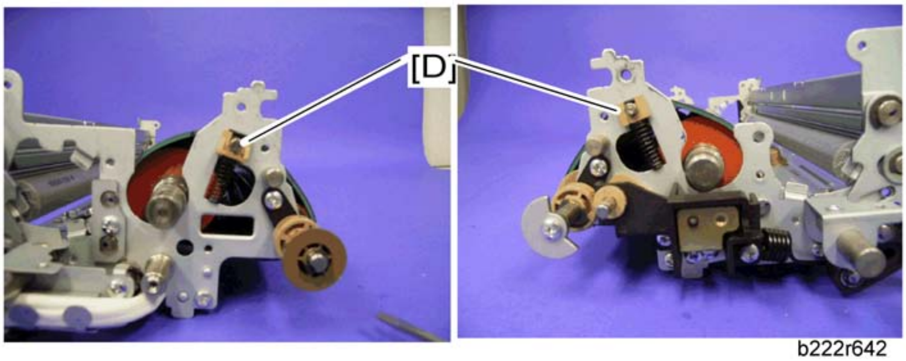
1. Fusing unit (☛ "p.212 "Fusing Unit"")
2. Fusing right cover, fusing upper cover (☛ "p.212 ")
3. Pressure Roller (☛ "p.214 ")



4. Fusing roller gear [A] (C-ring x 1)
5. Fusing roller bushing [B] (C-ring x 1) at the rear side



6. Fusing roller bushing [C] (C-ring x 1) at the front side



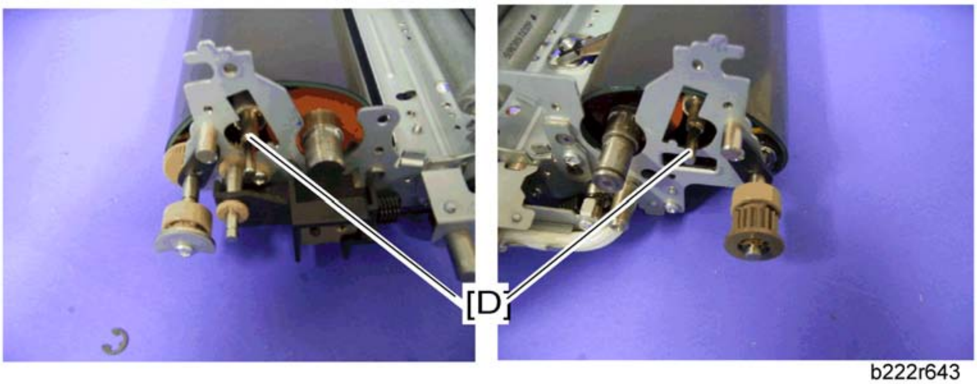
7. Tension roller bushings [D] (spring x 1 each)

When re-installing the fusing roller bushing and tension roller bushing

Follow points 3 and 4 explained in "When re-installing the pressure roller" (☛ "p.214 ")

Tension Roller

1. Fusing unit (☛ "p.212 ")
2. Fusing right cover, fusing upper cover (☛ "p.212 ")
3. Pressure Roller (☛ "p.214 ")
4. Tension roller bushings (☛ "p.220 ")



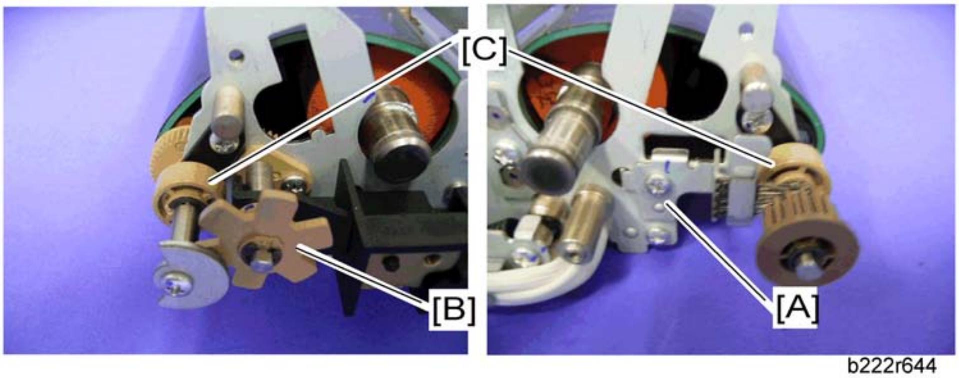
5. Tension roller [D]

When re-installing the tension roller

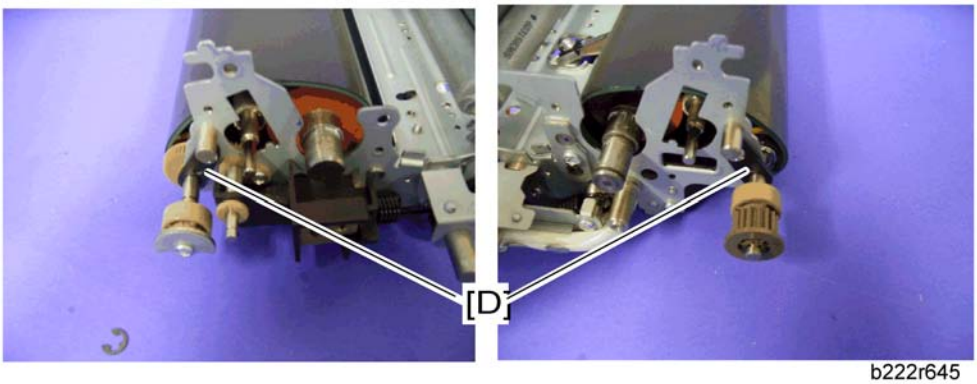
Follow points 3 and 4 explained in "When re-installing the pressure roller" (☛ "p.214 ")

Fusing Belt, Heating Roller, Heating Roller Bushing and Fusing Roller

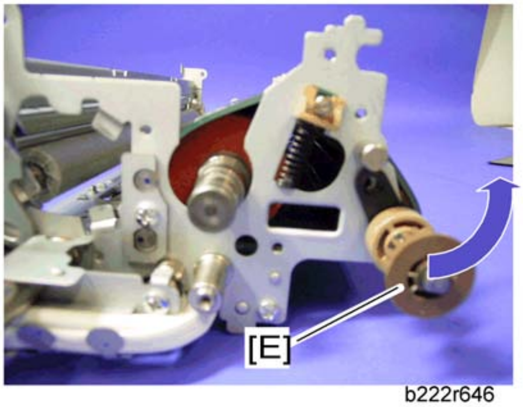
1. Fusing unit (☛ "p.212 ")
2. Fusing right cover, fusing upper cover (☛ "p.212 "Fusing Lamp"")
3. Pressure Roller (☛ "p.214 "Pressure Roller and Pressure Roller Bearing" ")
4. Tension roller (☛ "p.220 "Fusing Roller Bushing and Tension Roller Bushing" ")



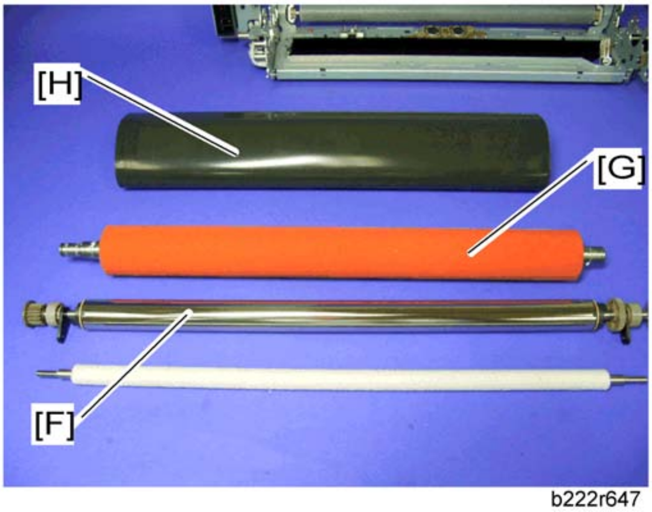
5. Discharge brush bracket [A] (🔩 x 1)
6. Fusing belt sensor actuator [B] (ℭ x 1)
7. Slide the holder rollers [C] to the front and rear sides (ℭ x 1 each).



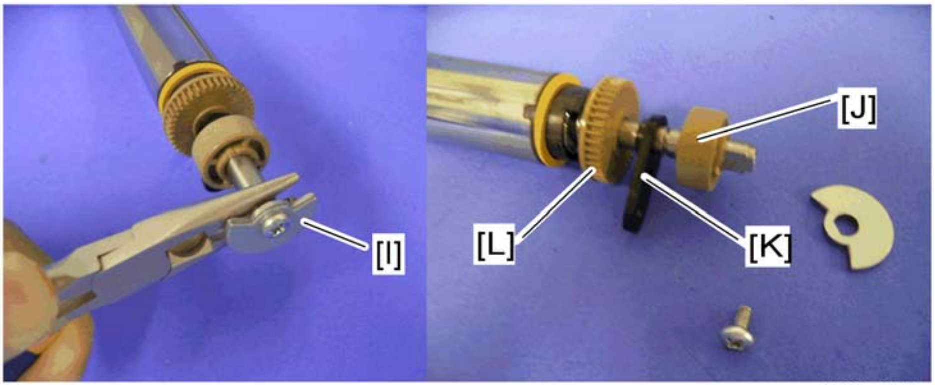
8. Slide the heating roller bushings [D] (⚿ x 1 each).



9. Hold both edges of the heating roller [E] and lift it in the arrow direction.

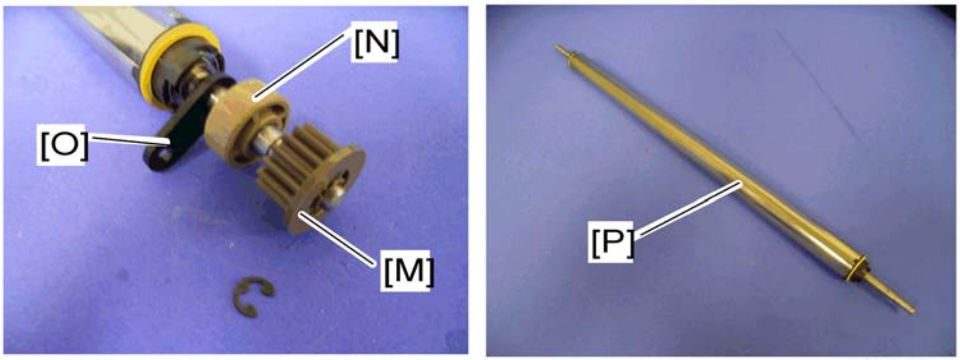


10. Heating roller unit [F], fusing roller [G] and fusing belt [H]



b222r674

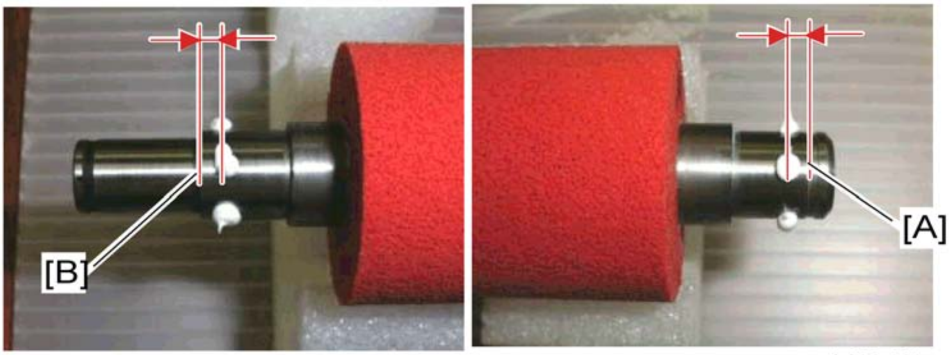
11. Remove the ferrite roller actuator [I] (🔩 x 1), while holding the shaft with the pliers.
12. Bushing holder [J], heating roller bushing [K], gear [L]



b222r675

13. Gear [M] (ℭ x 1), bushing holder [N] and heating roller bushing [O]
14. Heating roller [P]

When re-installing the fusing belt, heating roller, fusing roller and heating roller bushing



b222r682

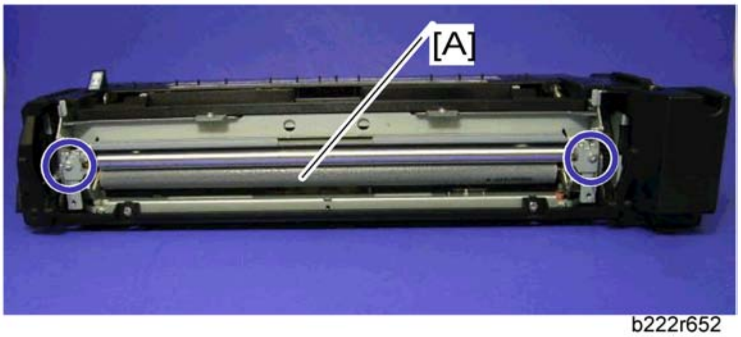
1. Apply three spots of "Barrierta S552R" (the diameter of each spot must be about 3 mm in diameter, and approximately 0.1 g in weight) to the front shaft of the fusing roller at 2 - 3 mm from the notch [A].
2. Apply three spots of "Barrierta S552R" (the diameter of each spot must be about 3 mm in diameter, and approximately 0.1 g in weight) to the rear shaft of the fusing roller at 2 - 3 mm from the edge [B] (rear side of the fusing roller).

And:

Follow the points 3 and 4 explained in "When re-installing the pressure roller" (☛ "p.214 "Pressure Roller and Pressure Roller Bearing"")

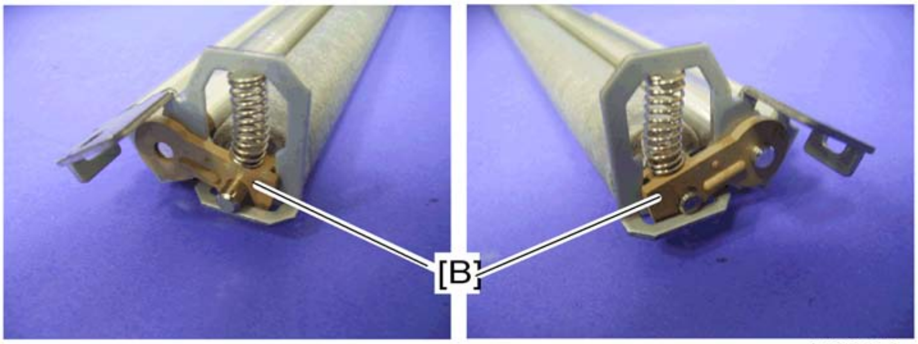
Lubricant Roller Bushing

1. **Fusing unit (☛ "p.212 "Fusing Unit"")**
2. **Fusing right cover (☛ "p.212 "Fusing Lamp"")**



b222r652

3. **Lubricant roller unit [A] (🔩 x 2)**

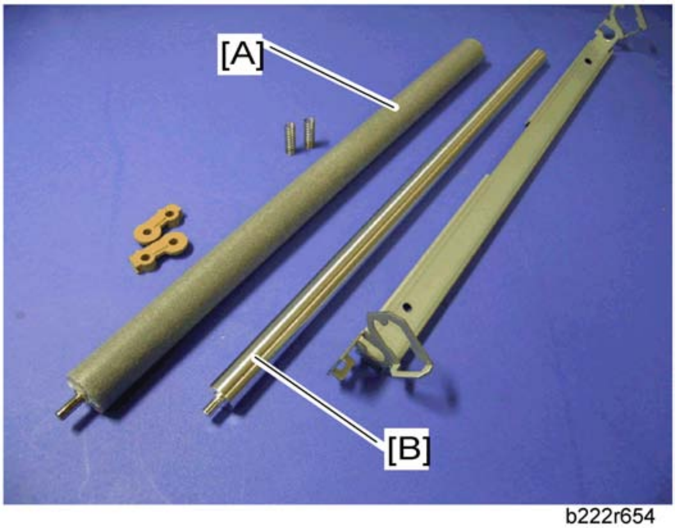


b222r653

4. **Lubricant roller bushings [B] (spring x 1 each)**

Lubricant Roller and Cleaning Roller

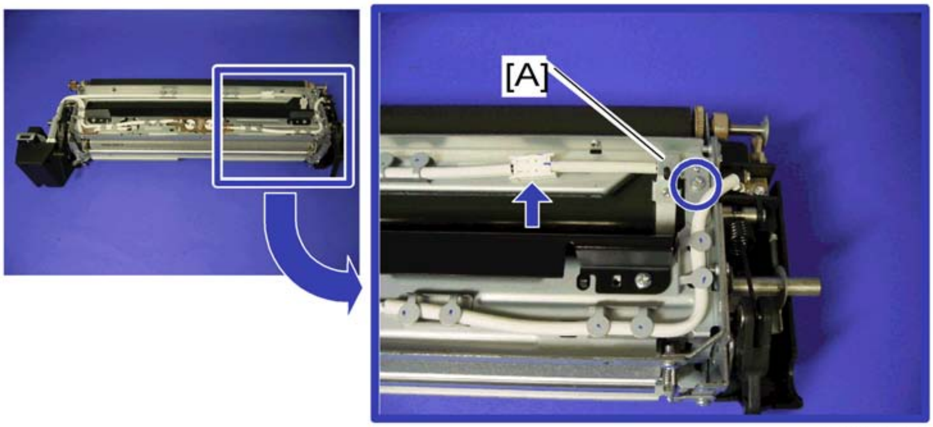
1. Fusing unit (☛ "p.212 "Fusing Unit"")
2. Fusing right cover (☛ "p.212 "Fusing Lamp"")
3. Lubricant roller bushings (☛ "p.225 "Lubricant Roller Bushing"")



4. Lubricant roller [A] and cleaning roller [B]

Heating Roller Thermistor

1. Fusing unit (☛ "p.212 "Fusing Unit"")
2. Fusing right cover (☛ "p.212 "Fusing Lamp"")
3. Fusing bottom cover (☛ "p.212 "Fusing Lamp"")

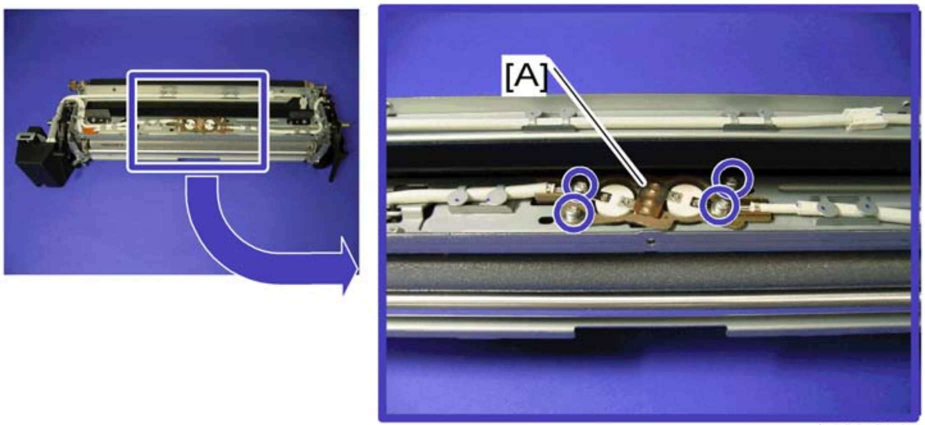


b222r655

4. Heating roller thermistor with bracket [A] (🔩 x 1, 🔌 x 1)

Pressure Roller Thermostat

1. Fusing unit (☛ "p.212 "Fusing Unit"")
2. Fusing right cover (☛ "p.212 "Fusing Lamp"")
3. Fusing bottom cover (☛ "p.212 "Fusing Lamp"")



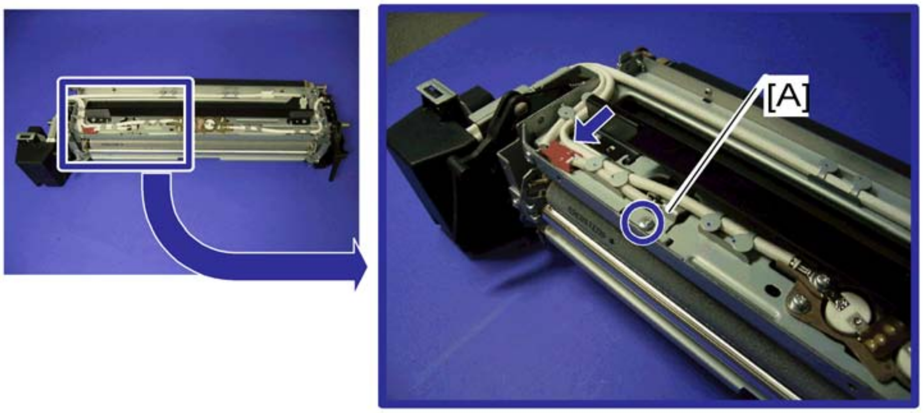
b222r656

4. Pressure roller thermostat [A] (🔩 x 4)

Pressure Roller Thermistor

1. Fusing unit (☛ "p.212 "Fusing Unit"")
2. Fusing right cover (☛ "p.212 "Fusing Lamp"")

3. Fusing bottom cover (☛ "p.212 "Fusing Lamp"")

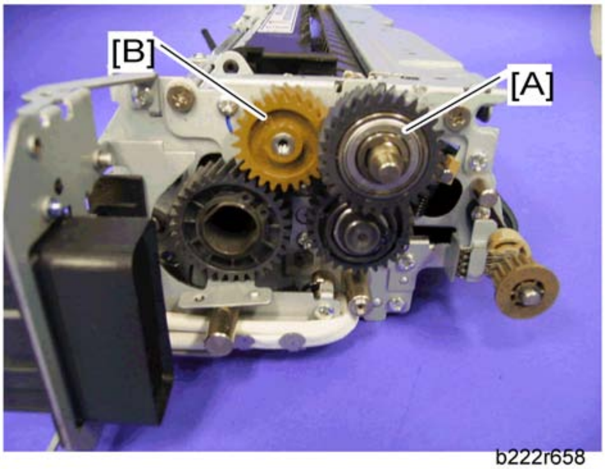


b222r657

4. Pressure roller thermistor [A] (🔩 x 1)

Fusing Roller One-way Clutch and Idle Gear

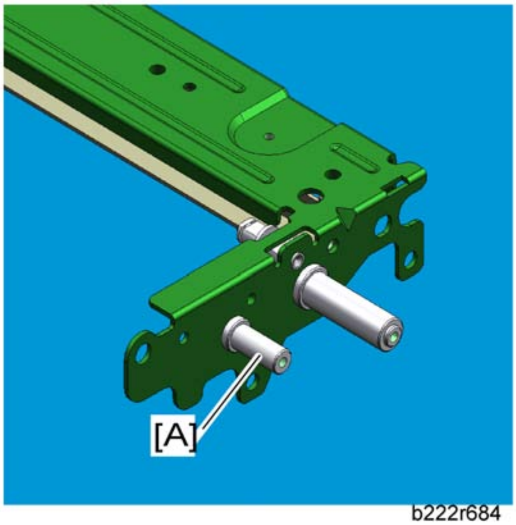
1. Fusing unit (☛ "p.212 "Fusing Unit"")
2. Fusing upper cover (☛ " p.212 "Fusing Lamp"")
3. Fusing bottom cover (☛ "p.214 "Pressure Roller and Pressure Roller Bearing"")
4. Gear holder bracket (☛ "p.214 "Pressure Roller and Pressure Roller Bearing"")



b222r658

5. One-way clutch gear [A] (C-ring x 1)
6. Idle gear [B]

When re-installing the idle gear

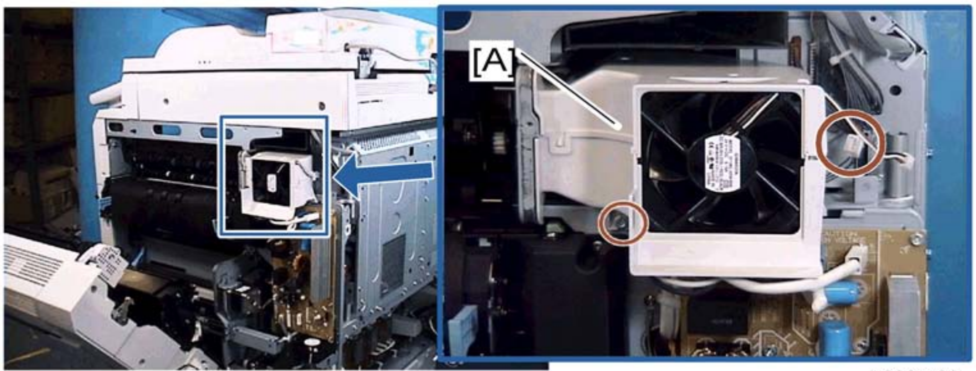


b222r684

1. Apply one spot of "Barrierta S552R" (the diameter of the spot must be about 3 mm in diameter, and approximately 0.1 g in weight) to the idle gear shaft [A].

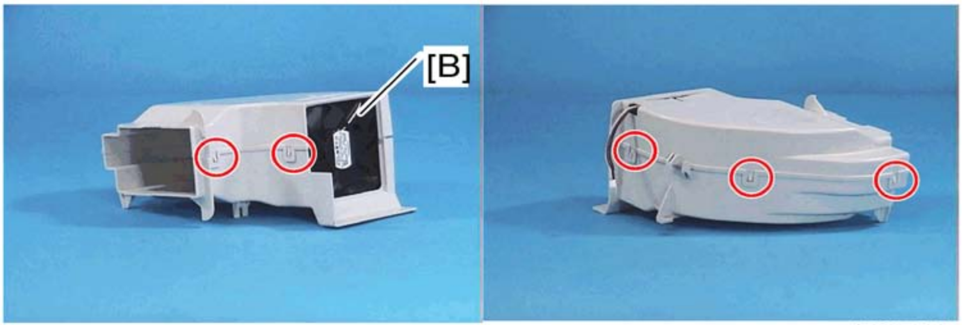
Fusing Fan

1. **Rear cover (☛ "p.125 "Rear Cover"")**
2. **Right rear cover (☛ "p.126 "Right Rear Cover"")**



b222r588

3. **Fusing duct [A] (🔩 x 1, ⊏ x 1)**



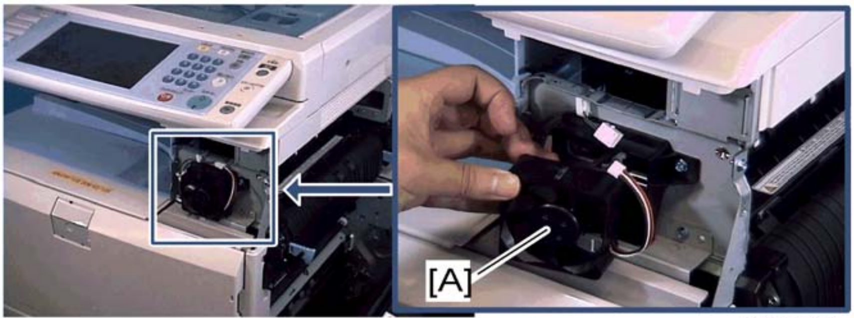
4. Fusing fan [B] (hook x 5)

When installing the fusing fan

Make sure that the fusing fan is installed with its decal facing the right side of the machine.

Paper Exit Fan

1. Open the right door.
2. Front right cover (☛ "p.127 "Operation Panel"")



3. Paper exit fan [A] (⊏⊐ x 1, hook x 2)

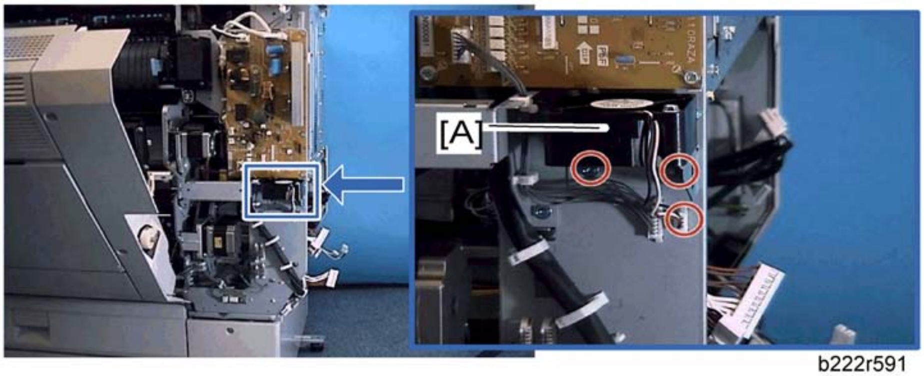
When installing the paper exit fan

Make sure that the paper exit fan is installed with its decal facing the rear of the machine.

IH (Induction Heating) Inverter Fan

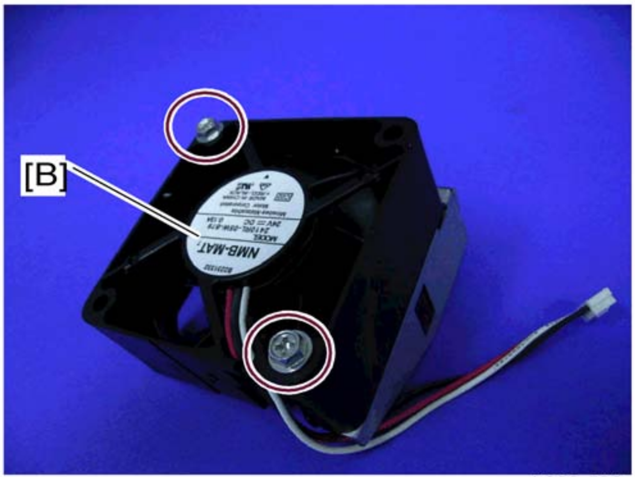
1. Rear cover (☛ "p.125 "Rear Cover"")

2. Right rear cover (☛ "p.126 "Right Rear Cover"")



b222r591

3. IH inverter fan bracket [A] (🔩 x 2, 🔌 x 1)



b222r592

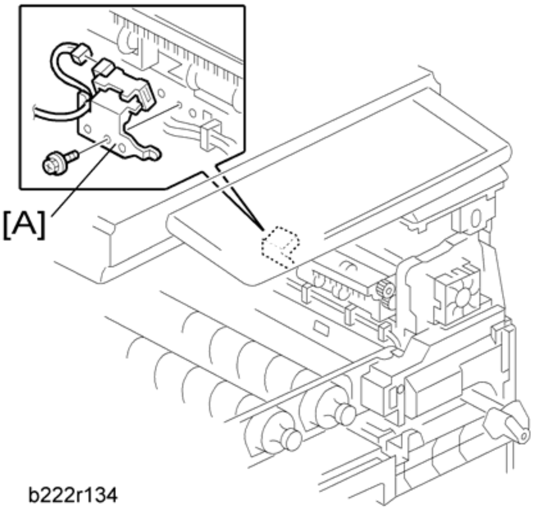
4. IH inverter fan [B] (🔩 x 2)

When installing the IH inverter fan

Make sure that the IH inverter fan is installed with its decal facing the upper side of the machine.

Thermopile

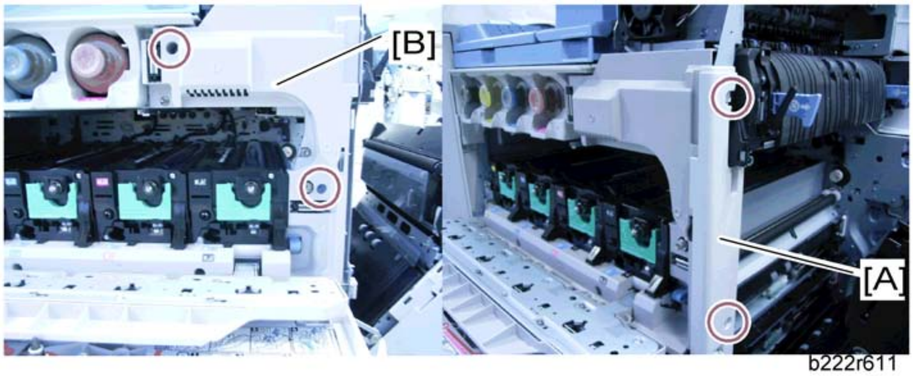
1. Remove the image transfer belt unit.
2. Left cover (☛ "p.125 "Left Cover"")
3. Paper exit cover (☛ "p.128 "Paper Exit Cover"")
4. Inner Tray (☛ "p.128 "Inner Tray"")



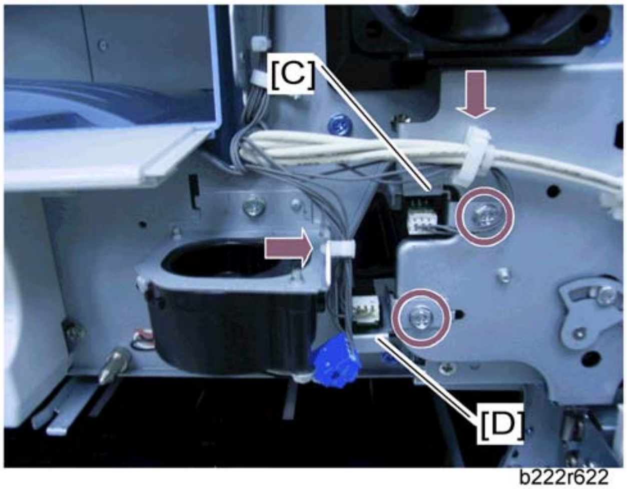
5. Thermopile bracket [A] (🔩 x 1, 🔌 x 1)

Fusing Belt Sensor and Ferrite Roller HP Sensor

1. Open the right door.
2. Front right cover (☛ "p.127 "Operation Panel"")
3. Pull out tray 1 and 2, and the image transfer belt unit.



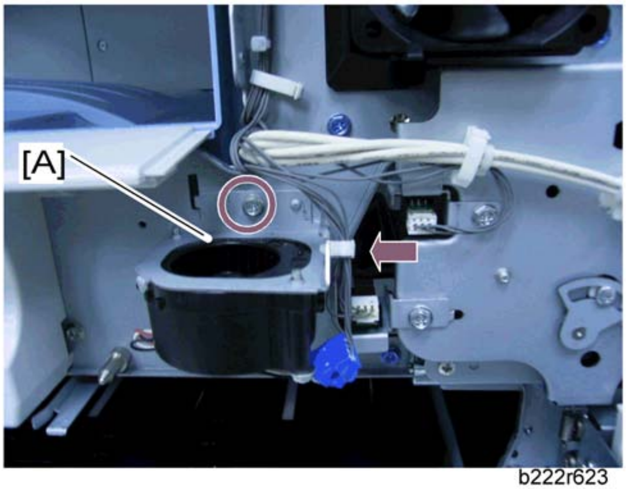
4. Right front cover [A] (🔩 x 2)
5. Front inner cover [B] (🔩 x 2)



6. Fusing belt sensor bracket [C] (🔩 x 1, 📎 x 1, 🔌 x 1)
7. Fusing belt sensor (1 hook)
8. Ferrite roller HP sensor bracket [D] (🔩 x 1, 📎 x 1, 🔌 x 1)
9. Ferrite roller HP sensor (1 hook)

IH Coil Fan

1. Open the right door.
2. Front right cover (☛ **"p.127 "Operation Panel""**)
3. Pull out trays 1 and 2, and the image transfer belt unit.
4. Right front cover and front inner cover (☛ **"p.232 "Fusing Belt Sensor and Ferrite Roller HP Sensor""**)



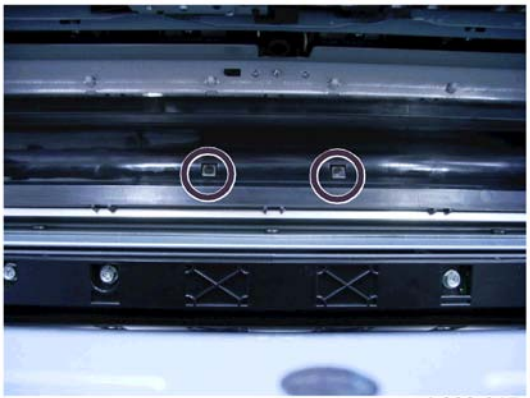
b222r623

5. IH coil fan bracket [A]
6. IH coil fan (🔩 x 2)

IH Coil Unit

⚠CAUTION

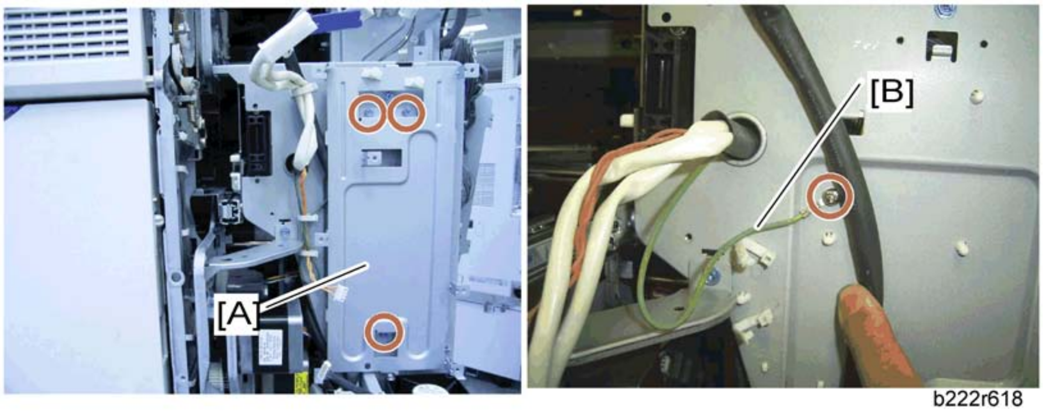
- Do not push the thermostats on the IH coil unit. If you do, the thermostats will be opened. In that case, the IH coil unit must be replaced.



b222r617

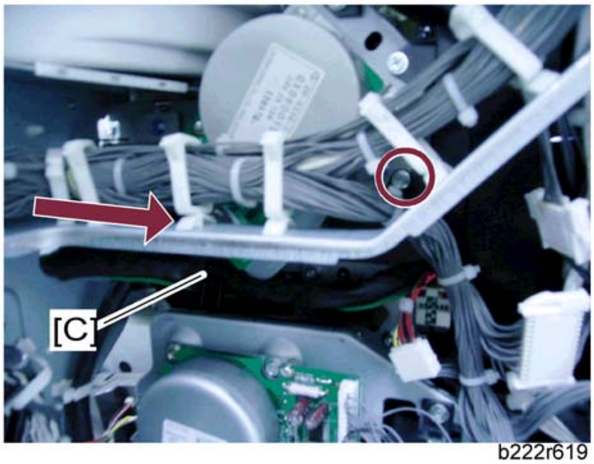
1. Fusing unit (☛ "p.212 "Fusing Unit"")
2. Front right cover (☛ "p.127 "Operation Panel"")
3. Image transfer belt unit (☛ "p.174 "Image Transfer Belt Unit"")
4. Paper exit cover (☛ "p.128 "Paper Exit Cover"")
5. Inner Tray (☛ "p.128 "Inner Tray"")

6. All PCUs (☛ "p.159 "PCU"")
7. Rear cover (☛ "p.125 "Rear Cover"")
8. Right rear cover (☛ "p.126 "Right Rear Cover"")
9. Open the controller box (☛"p.254 "Controller Box"").
10. Second duct (☛ "p.165 "Second Duct Fan"")
11. Fusing duct (☛ "p.229 "Fusing Fan"")
12. IH inverter (☛ "p.261 "IH Inverter"")



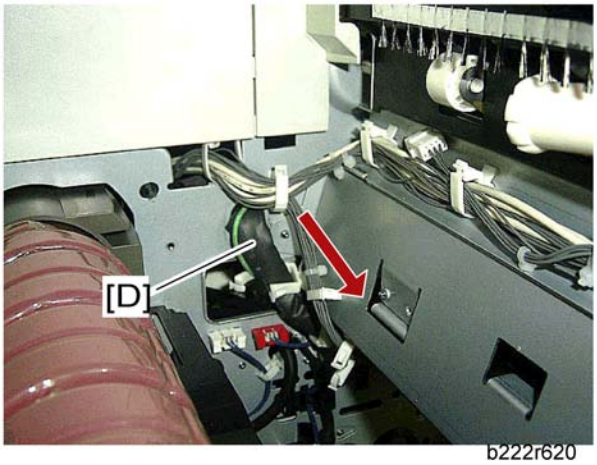
b222r618

13. IH inverter bracket [A] (🔩 x 3)
14. Remove the ground cable [B] (🔩 x 1)

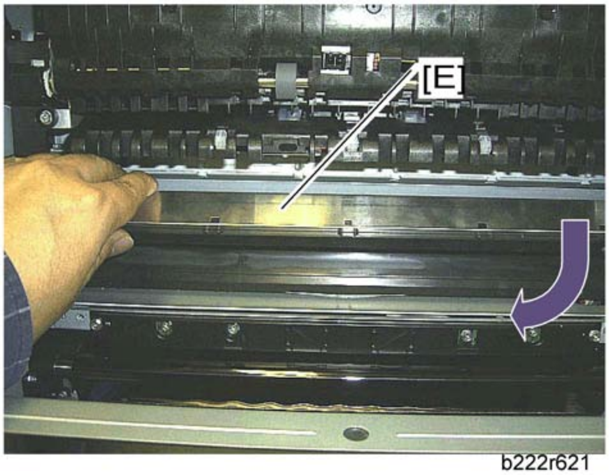


b222r619

15. Pull the IH harness [C] in the arrow direction.
16. Remove the second duct screw (circle).



17. Pull the IH harness [D] in the arrow direction.

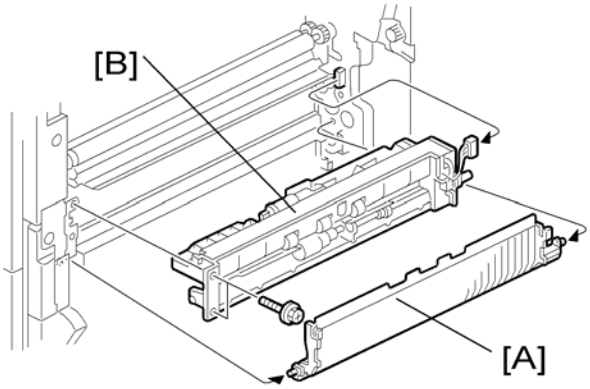


18. IH coil unit [E] (First release the rear side of the IH coil unit.)

Paper Feed

Paper Feed Unit

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Right rear cover (☛ "p.126 "Right Rear Cover"")
3. Duplex unit (☛ "p.249 "Duplex Unit"")
4. Pull out tray 1 and tray 2.

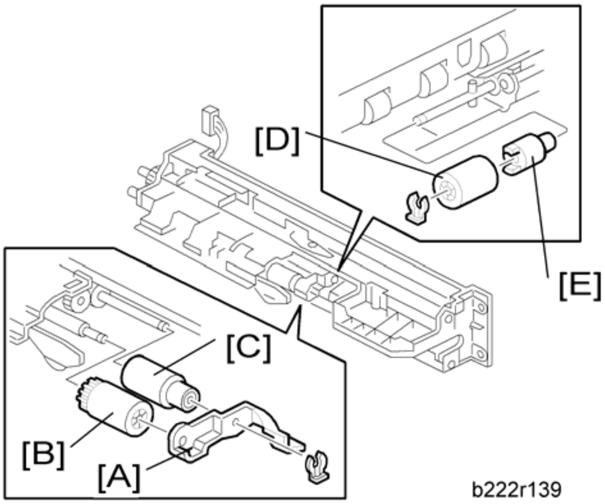


5. Paper guide plate [A] (hook x 2)
6. Paper feed unit [B] (🔩 x 2, 🔌 x 1)

Pick-Up, Feed and Separation Rollers

Tray 1 and Tray 2

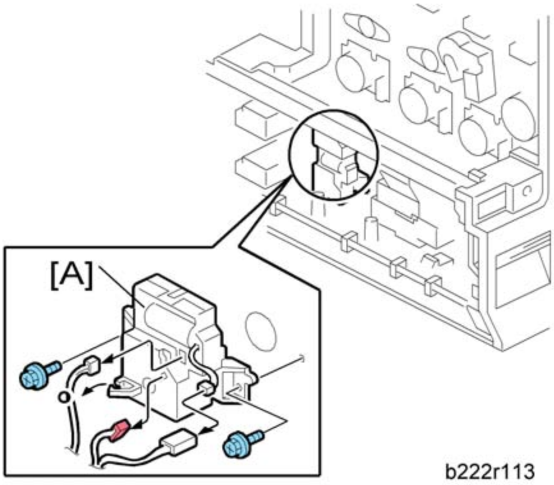
1. Paper feed unit (☛ "p.237 "Paper Feed Unit"")



2. Roller holder [A] (x 1)
3. Pick-up roller [B]
4. Feed roller [C]
5. Separation roller [D] and torque limiter [E] (x 1)

Tray Lift Motor

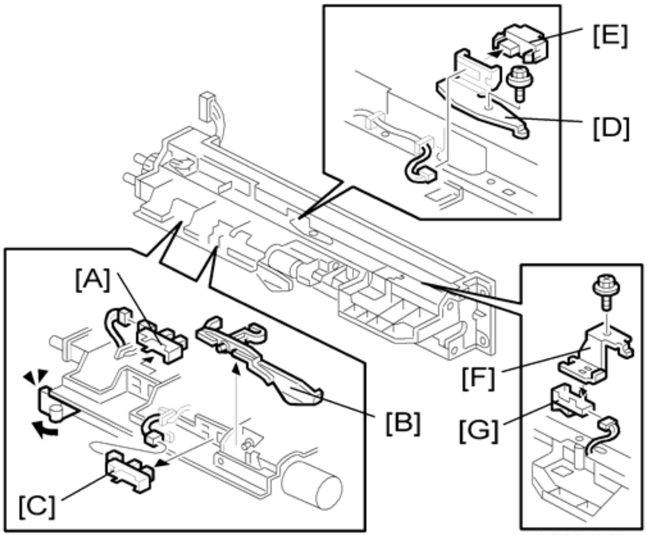
1. Rear cover (☞ "p.125 "Rear Cover"")
2. PSU bracket (☞ "p.259 "PSU"")
3. High voltage supply board bracket (☞ "p.261 "High Voltage Supply Board Bracket"")



4. Tray lift motor 1 or 2 [A] (x 2, x 3, x 1 each)

Vertical Transport, Paper Overflow, Paper End and Paper Feed Sensor

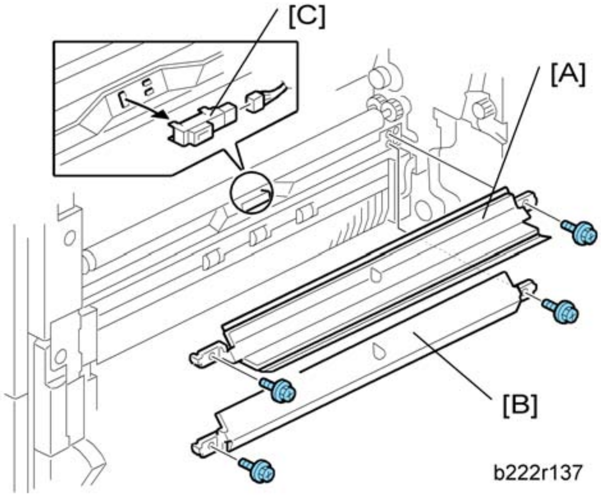
1. Rear cover (☛ "p.125 "Rear Cover"")
2. Right rear cover (☛ "p.126 "Right Rear Cover"")
3. Paper feed unit (☛ "p.237 "Paper Feed Unit"")



4. Paper overflow sensor [A]
5. Paper end feeler [B] and paper end sensor [C] (hook, x 1 each)
6. Vertical transport sensor bracket [D] (x 1, x 1)
7. Vertical transport sensor [E] (x 1, hook)
8. Paper feed sensor bracket [F] (x 1)
9. Paper feed sensor [G] (x 1, hook)

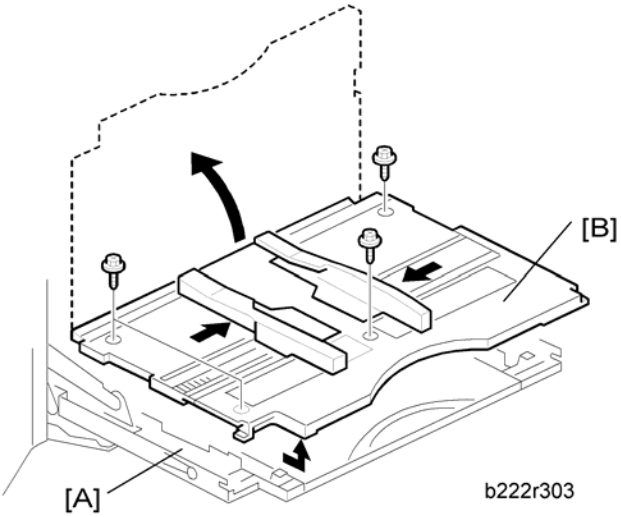
Registration Sensor

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Right rear cover (☛ "p.126 "Right Rear Cover"")

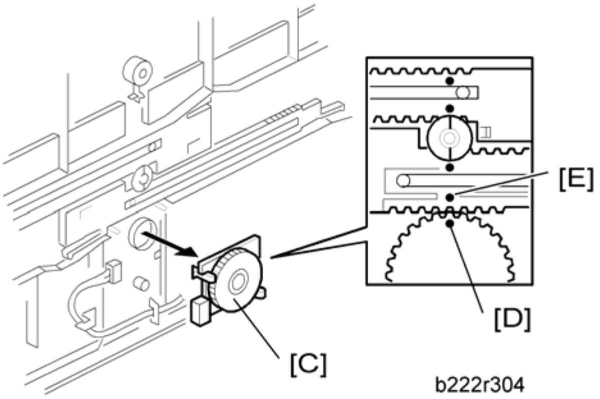


3. Paper guide plate 1 [A] and 2 [B] (🔩 x 2 each)
4. Registration sensor [C] (⊏ x 1, hook)

By-pass Paper Size Sensor Switch



1. Open the by-pass tray [A].
2. Move the side fences to the center.
3. By-pass tray cover [B] (🔩 x 4)



4. By-pass paper size sensor [C] (x 1)

When reinstalling this switch

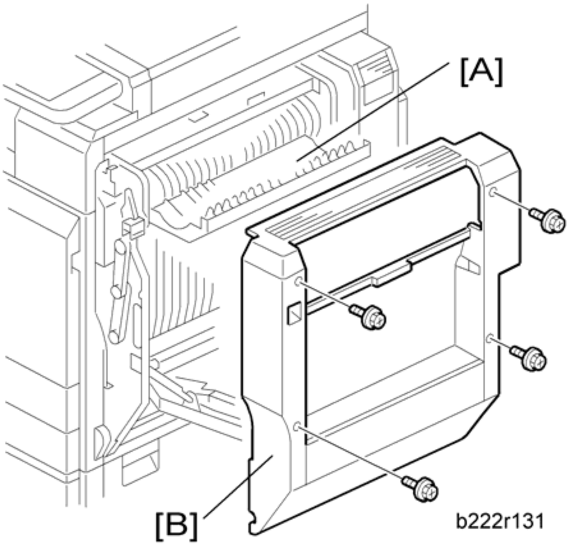
1. Adjust the projection [E] of the left side fence bar (it must be centered).
2. Install the by-pass paper size detection switch so that the hole [D] in this switch faces the projection [E] of the left side fence bar.
3. Reassemble the copier.
4. Plug in and turn on the main power switch.
5. Check this switch operation with SP5803-071 (By-pass paper size < Input Check).

- Display on the LCD -

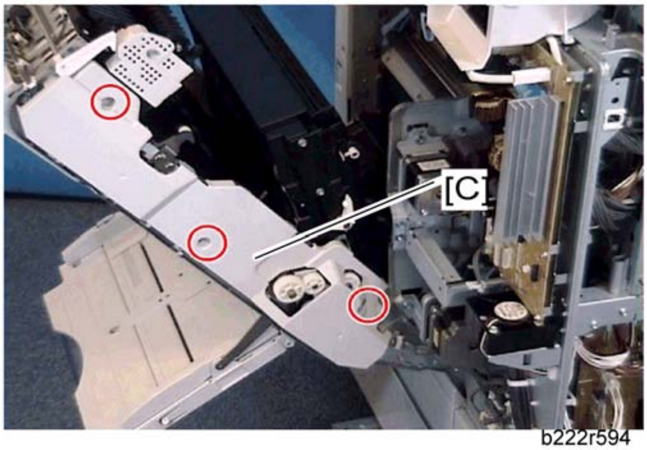
Paper Size	Display	Paper Size	Display
A3 SEF	00001110	A5 SEF	00001011
B4 SEF	00001100	B6 SEF	00000011
A4 SEF	00001101	A6 SEF	00000111
B5 SEF	00001001	Smaller A6 SEF	00001111

By-pass Bottom Tray

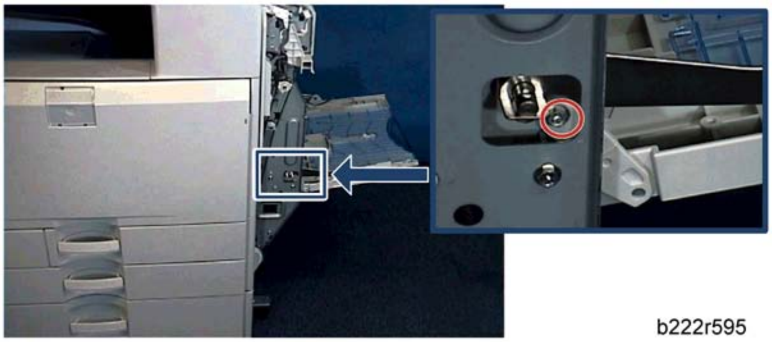
1. Open the right door.
2. By-pass tray cover (☛ "p.240 "By-pass Paper Size Sensor Switch"")



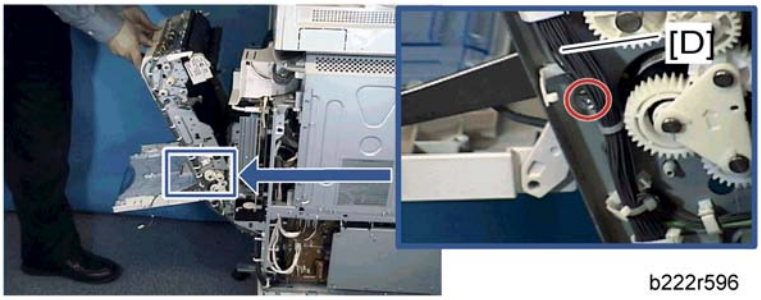
3. Open the duplex door [A].
4. Right door cover [B] (🔩 x 4)



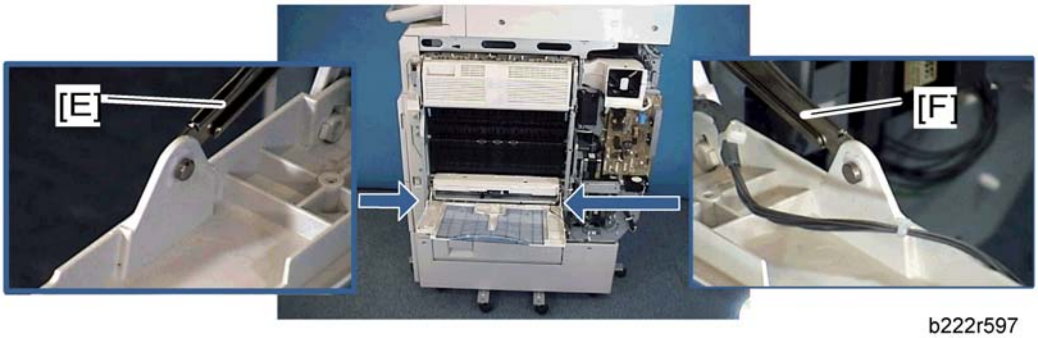
5. Right door rear cover [C] (🔩 x 3)



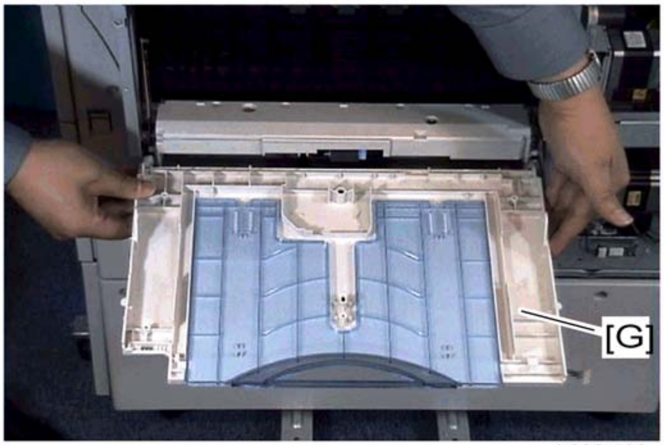
6. Remove the screw at the front side (x 1).



7. Turn the harness [D] aside (x 1), and then remove the screw at the rear side (x 1).



8. Release the front [E] and rear [F] arms (x 1 each).

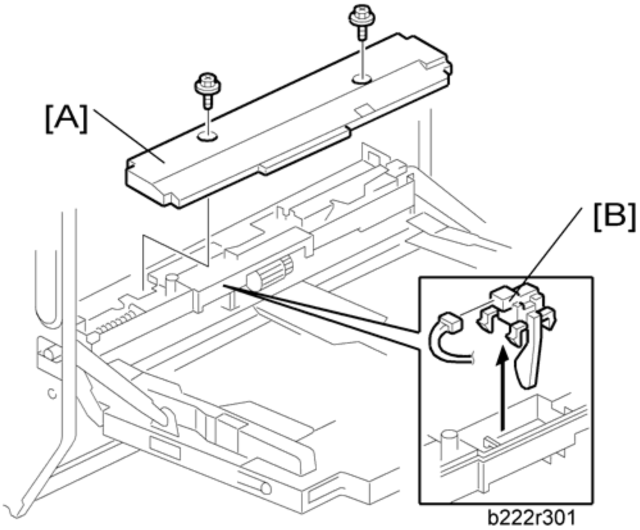


b222r598

9. By-pass Bottom Tray [G]

By-pass Paper End Sensor

1. Right door cover (☛ "p.241 "By-pass Bottom Tray"")



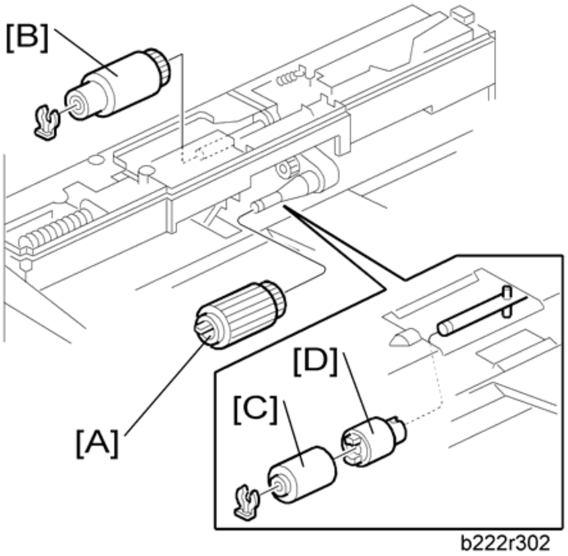
b222r301

2. By-pass feed unit cover [A] (🔩 x 2).
3. By-pass paper end sensor [B] (⧉ x 1, hook)

By-pass Pick-up, Feed and Separation Roller, Torque Limiter

1. Right door cover (☛ "p.241 "By-pass Bottom Tray"")

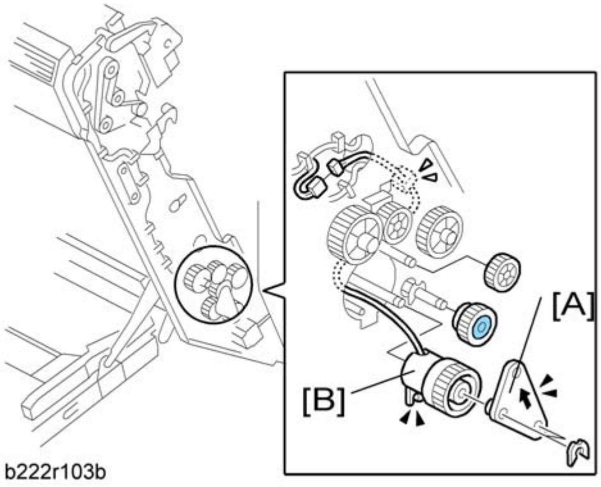
2. By-pass feed unit cover (☛ "p.244 "By-pass Paper End Sensor"")



3. By-pass pick-up roller [A] (hook)
4. By-pass feed roller [B] (Ⓒ x 1)
5. By-pass separation roller [C] (Ⓒ x 1)
6. Torque limiter [D]

By-pass Feed Clutch

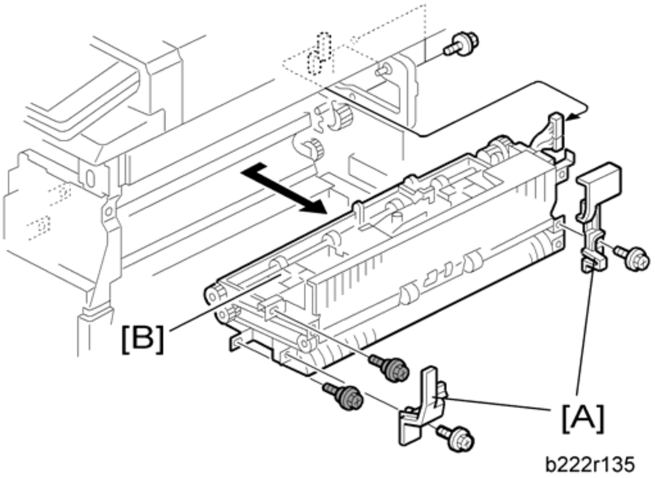
1. Open the right door.
2. Right door rear cover (☛ "p.241 "By-pass Bottom Tray"")



3. By-pass feed clutch holder [A] (x 2)
4. By-pass feed clutch [B] (x 1, x 1)

Paper Exit Unit

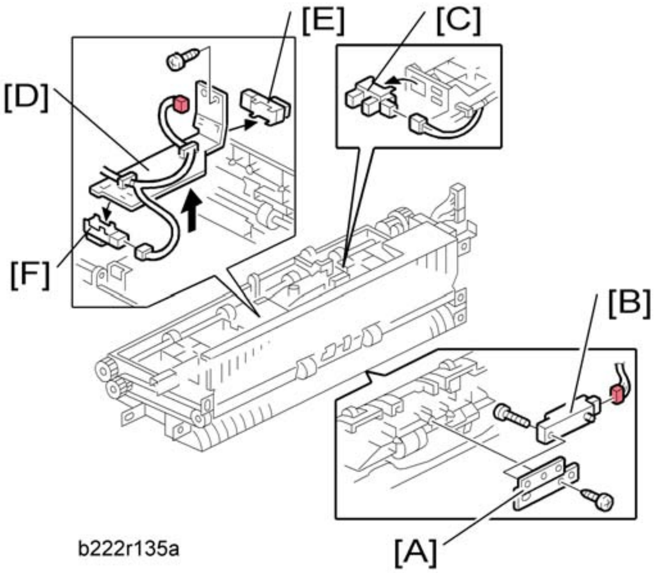
1. Fusing Unit (☛ "p.212 "Fusing Unit"")
2. Front right cover (☛ "p.127 "Operation Panel"")
3. Image transfer belt unit (☛ "p.174 ")
4. Inner Tray (☛ "p.128 "Inner Tray"")
5. Thermopile (☛ "p.231 "Thermopile"")
6. Rear cover (☛ "p.125 "Rear Cover"")
7. Right rear cover (☛ "p.126 "Right Rear Cover"")
8. Fusing duct (☛ "p.229 "Fusing Fan"")
9. Open the controller box (☛ "p.254 "Controller Box"").



10. Gear cover [A] (x 1 each)
11. Paper exit unit [B] (x 4, x 2)

Fusing Exit, Paper Overflow, Junction Paper Jam and Paper Exit Sensor

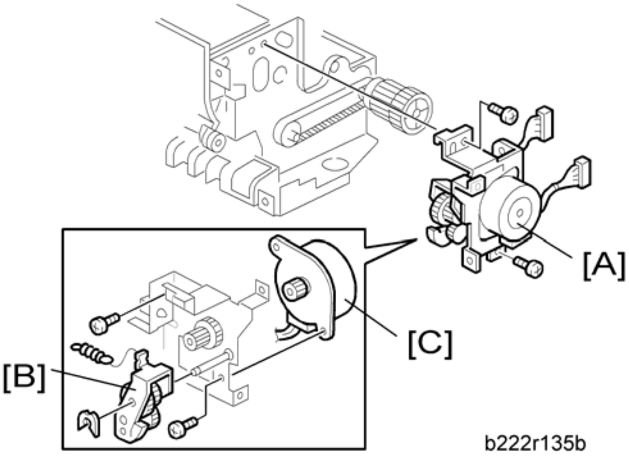
1. Paper exit unit (☛ "p.246 "Paper Exit Unit"")



2. Fusing exit sensor bracket [A] (🔩 x 1, 🔌 x 1)
3. Fusing exit sensor [B] (🔩 x 1)
4. Paper overflow sensor [C] (🔌 x 1, hook)
5. Sensor bracket [D] (🔩x 1)
6. Junction paper jam sensor [E] (🔌 x 1, hook)
7. Paper exit sensor [F] (🔌 x 1, hook)

Junction Gate 1 Motor

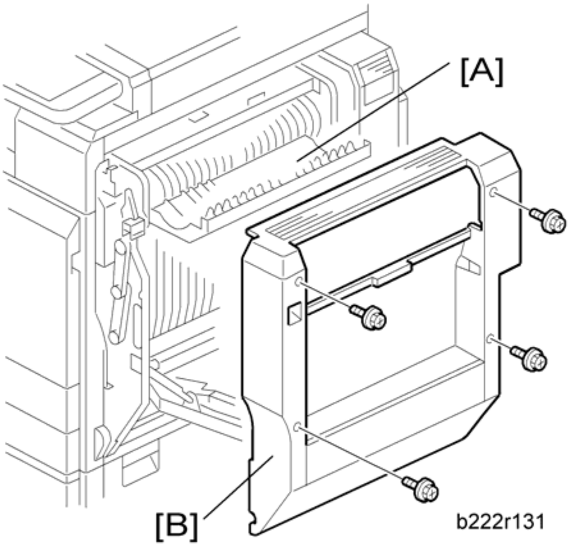
1. Paper exit unit (☛ "p.246 "Paper Exit Unit"")



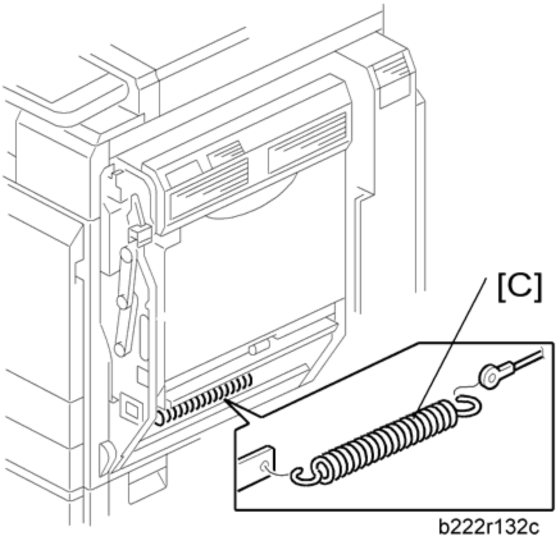
2. **Junction gate 1 motor bracket [A] (🔩 x 2)**
3. **Gear bracket [B] (🗜 x 1, spring x 1)**
4. **Junction gate 1 motor [C] (🔩 x 2)**

Duplex Unit

Duplex Unit

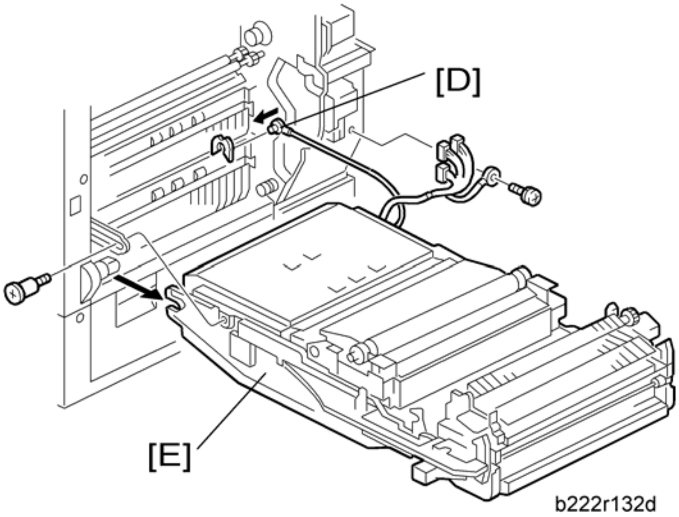


1. Open the duplex door [A] and by-pass tray.
2. Right door cover [B] (🔩 x 4)



3. Remove the spring [C].
4. Rear cover (☛ "p.125 "Rear Cover"")

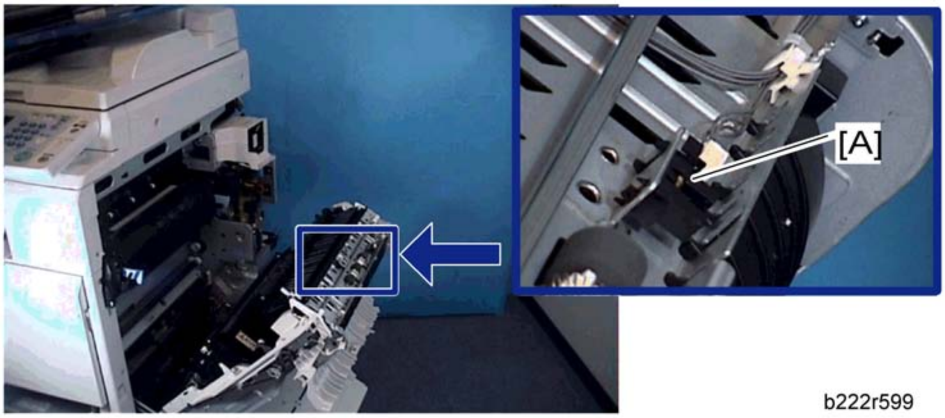
5. Right rear cover (☛ "p.126 "Right Rear Cover"")



6. Wire [D] (x 1)
7. Duplex unit [E] (x 1, Stud screw x 1, x 1, x 3, ground cable x 1)

Duplex Door Sensor

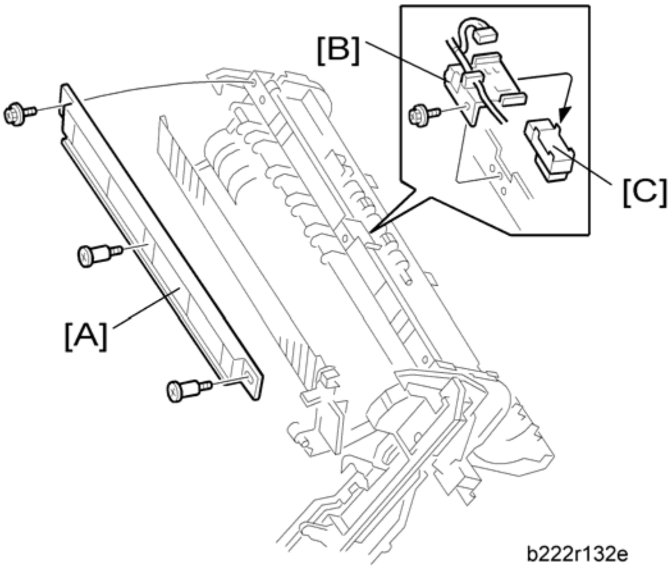
1. Right door cover (☛ "p.249 "Duplex Unit"")
2. Open the right door.



3. Duplex door sensor [A] (x 1, hook)

Duplex Entrance Sensor

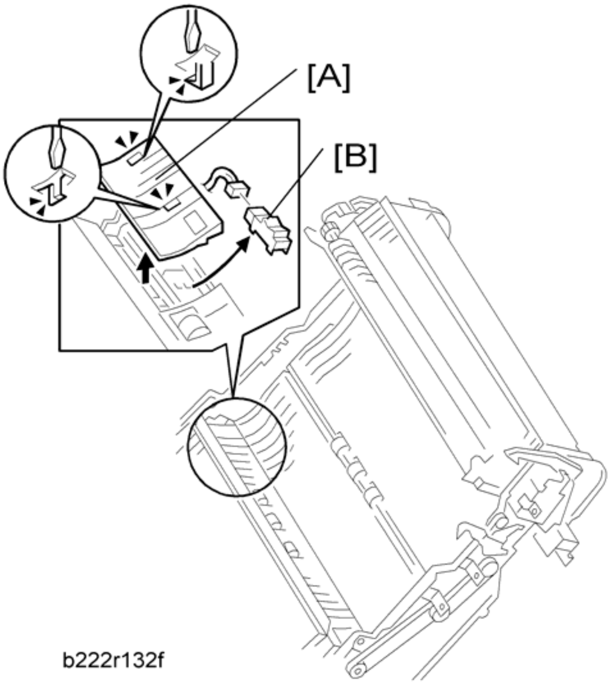
1. Right door cover (☛ "p.249 "Duplex Unit"")
2. Open the right door.



3. Duplex entrance guide [A] (🔩 x1, stepped screw x 2)
4. Duplex entrance sensor bracket [B] (🔩 x 1, 🔌 x 1)
5. Duplex entrance sensor [C] (hook)

Duplex Exit Sensor

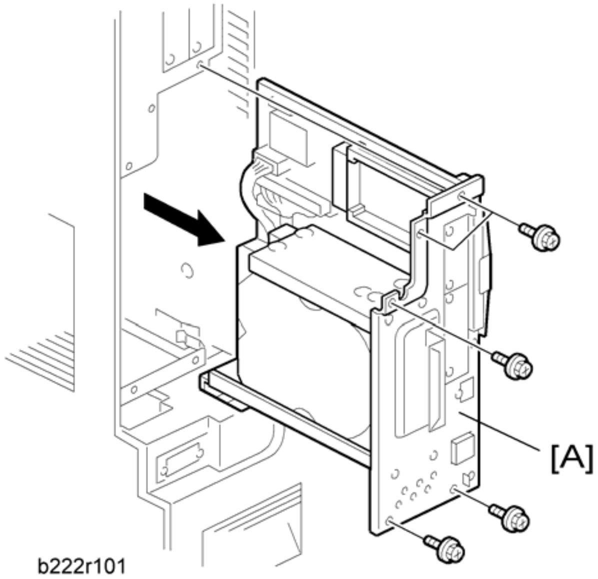
1. Paper transfer unit (☛ "p.182 "Paper Transfer Unit"")



2. Guide plate [A] (two hooks)
3. Duplex exit sensor [B] (🔌 x 1, hook)

Electrical Components

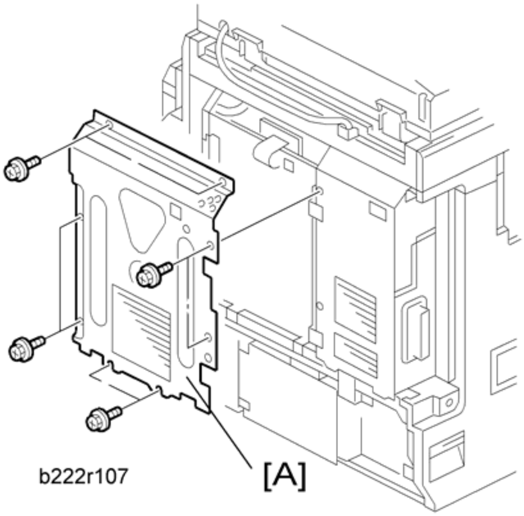
Controller Unit



1. Controller unit [A] (🔩 x 5)

Controller Box Right Cover

1. Rear cover (☛ "p.125 "Rear Cover"")

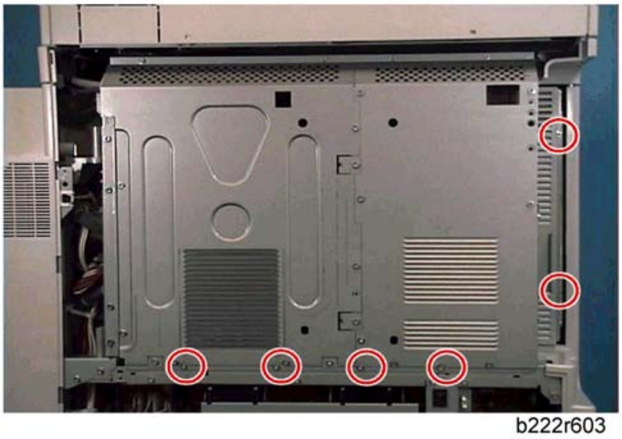


2. Controller box right cover [A] (🔩 x 8)

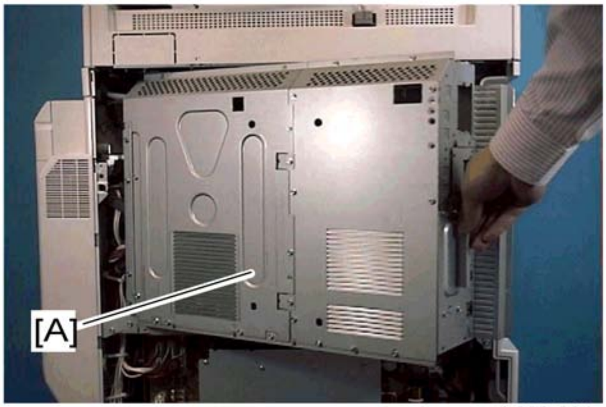
Controller Box

When opening the controller box

1. Rear cover (☛ "p.125 "Rear Cover"")



2. Remove six screws (red circles).

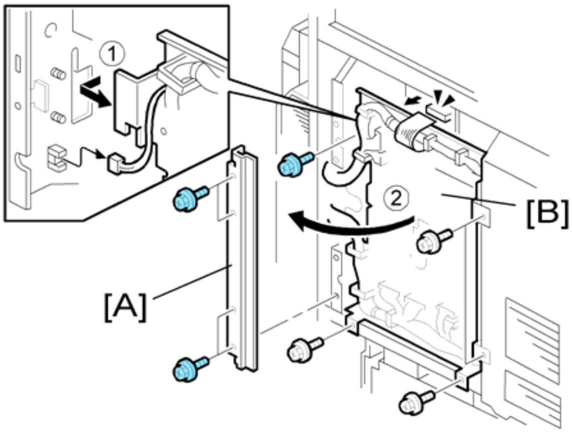


b222r604

3. Open the controller box [A].

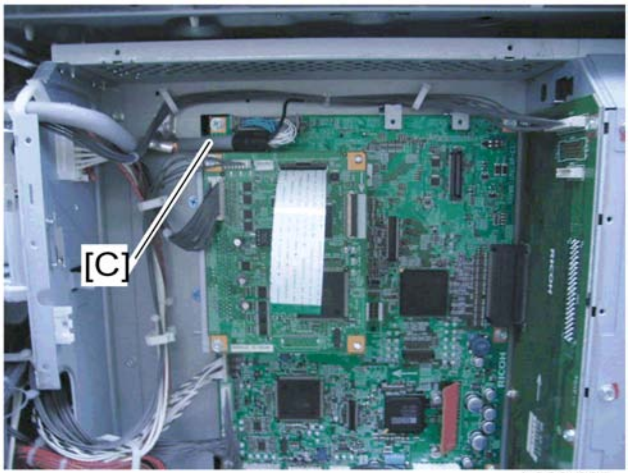
When removing the controller box

1. Rear cover ("Rear Cover")
2. Right rear cover ("Right Rear Cover")
3. Controller box right cover (☛ "p.253 "Controller Box Right Cover "")

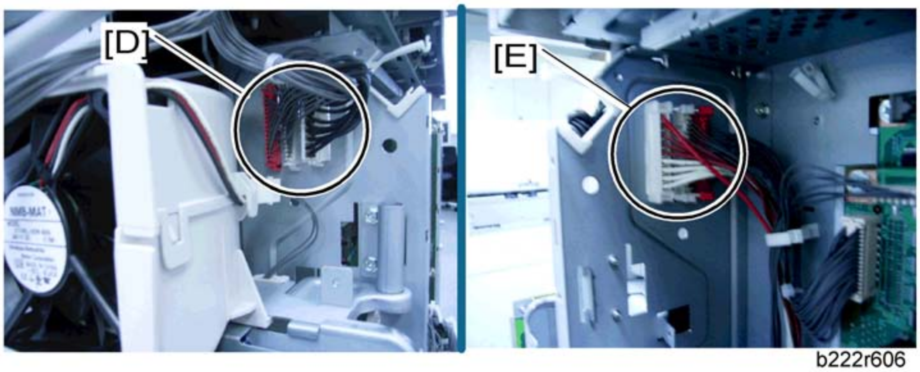


b222r109

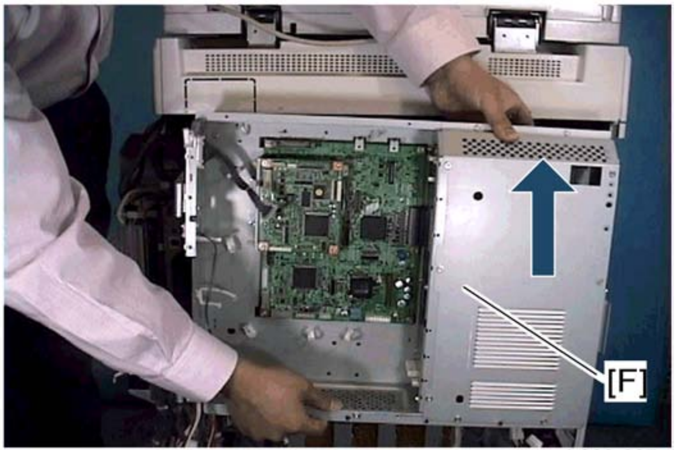
4. Remove the controller box stay [A] (🔩 x 4)
5. Take the IOB bracket [B] aside (🔩 x 4, 🔌 x 1).



6. Disconnect the scanner interface cable [C] (🔩 x 2, ground cable).
7. Release all clamps on the controller box frame.
8. Disconnect all connectors on the BCU, IPU and mother board.



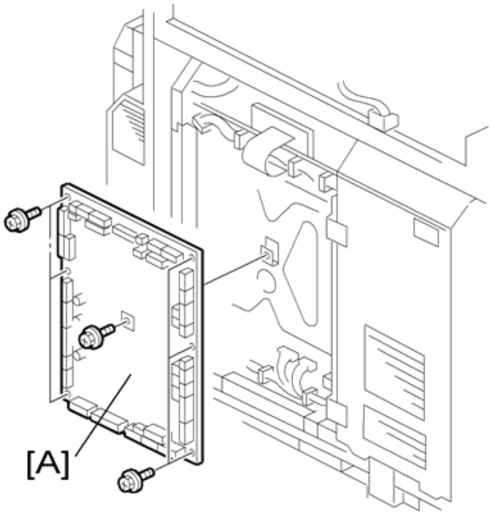
9. Disconnect three connectors [D] at the outer controller box and three connectors [E] at the inner controller box.



10. Lift up the controller box [D], and then remove it.

IOB (In/Out Board)

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Controller box right cover (☛ "p.253 "Controller Box Right Cover "")

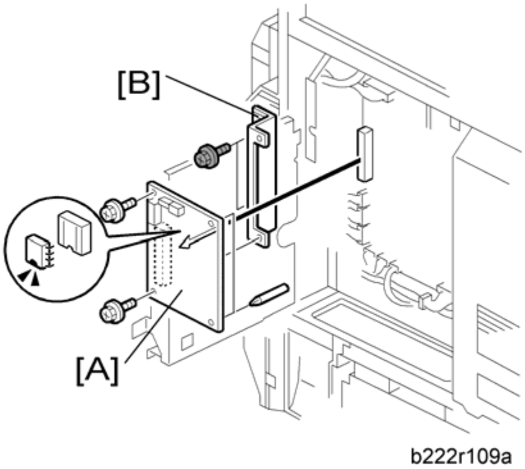


3. IOB [A] (🔩 x 7, All 🔌s, flat cable x 1)

BCU

1. Rear cover (☛ "p.125 "Rear Cover"")

2. **Controller box right cover (☛ "p.253 "Controller Box Right Cover "")**
3. **Take the IOB bracket aside (☛ "p.254 "Controller Box"")**



4. **BCU board [A] (x 2, flat cable x 1, two stays)**
5. **BCU bracket [B] (x2)**

When installing the new BCU

Remove the NVRAM from the old BCU. Then install it on the new BCU after you replace the BCU. Replace the NVRAM (☛ "p.267 "NVRAM Replacement Procedure"") if the NVRAM on the old BCU is defective.

Note

- Make sure you print out the SMC reports (“SP Mode Data” and “Logging Data”) before you replace the NVRAM.

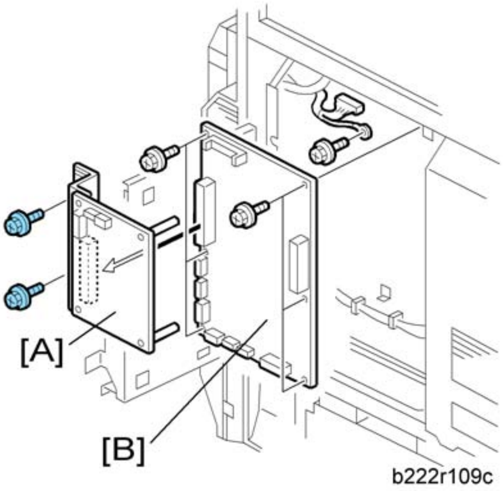
⚠CAUTION

- Keep NVRAMs away from any objects that can cause static electricity. Static electricity can damage NVRAM data.
- Make sure the NVRAM is correctly installed on the BCU. Insert the NVRAM in the NVRAM slot with the "half-moon" [C] pointing to the downward side.
- Make sure that the DIP-switch settings on the old BCU are the same for the new BCU when. Do not change the DIP switches on the BCU in the field.

IPU

1. **Rear cover (☛ "p.125 "Rear Cover"")**
2. **Controller box right cover (☛ "p.253 "Controller Box Right Cover "")**

3. Take the IOB bracket aside (☛ "p.254 "Controller Box"")

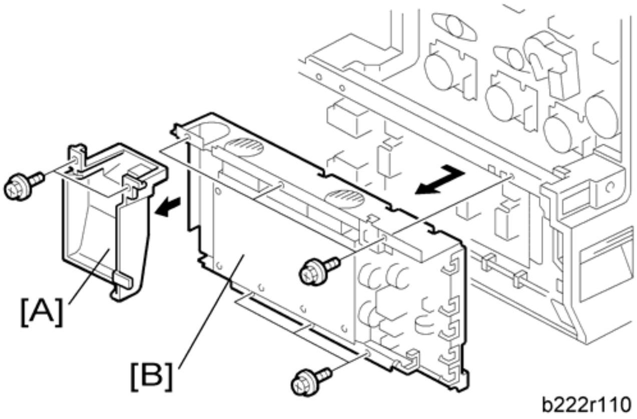


4. BCU bracket [A] (🔩 x 2)
5. IPU board [B] (🔩 x 6, all 🔌s)

PSU

PSU bracket

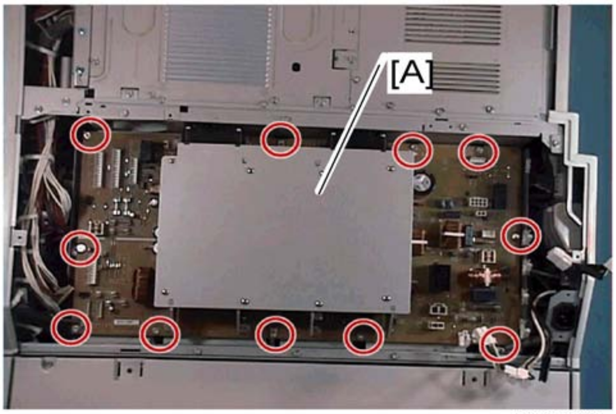
1. Rear cover (☛ "p.125 "Rear Cover"")



2. Ventilation duct [A] (🔩 x 2)
3. PSU bracket [B] (🔩 x 6, all ⛓s, all 🔌s)

PSU board

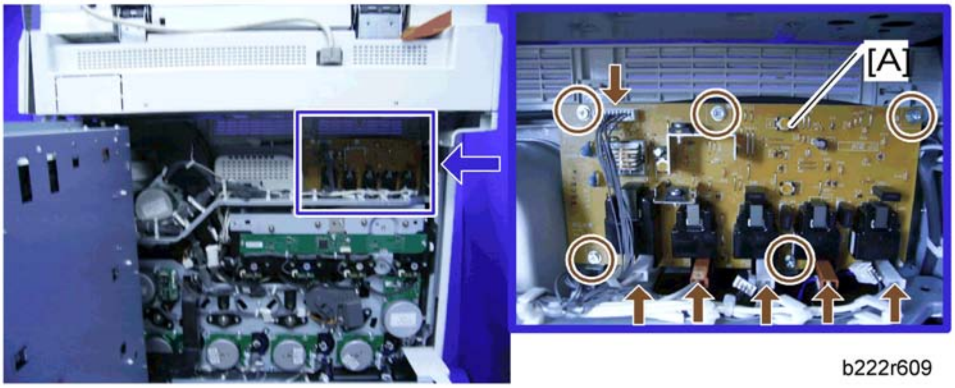
1. Rear cover (☛ "p.125 "Rear Cover"")
2. Ventilation duct (see "PSU bracket")



3. PSU board [A] (🔩 x 11, all 🔌s, all 📎s)

ITB Power Supply Board

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Open the controller box (☛ "p.254 "Controller Box"")

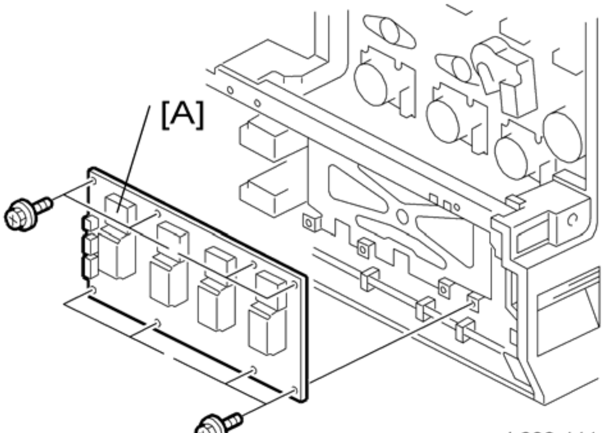


3. ITB power supply board [A] (🔩 x 5, 🔌 x 6)

High Voltage Supply Board

1. Rear cover (☛ "p.125 "Rear Cover"")

2. PSU bracket (☛ "p.259 "PSU"")

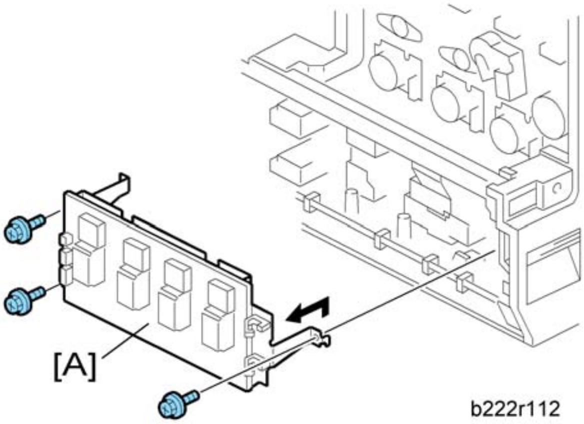


b222r111

3. High voltage supply board [A] (🔩 x 8, All 🔌 s, 🗜 x 2)

High Voltage Supply Board Bracket

1. Rear cover (☛ "p.125 "Rear Cover"")
2. PSU bracket (☛ "p.259 "PSU"")



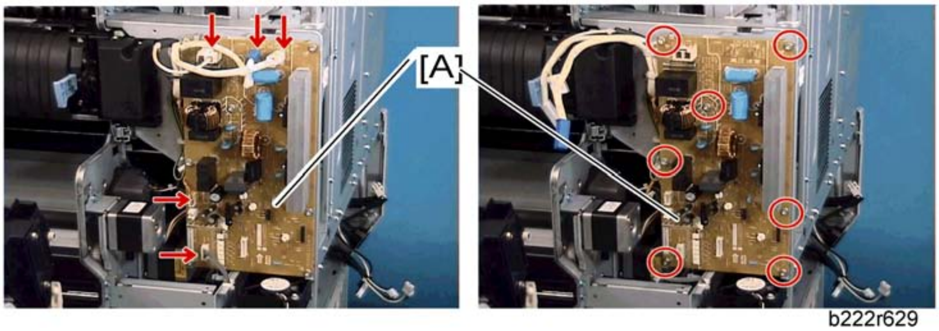
b222r112

3. High voltage supply board bracket [A] (🔩 x 3, All 🔌 s, 🗜 x 2)

IH Inverter

1. Rear cover (☛ "p.125 "Rear Cover"")
2. Right rear cover (☛ "p.126 "Right Rear Cover"")

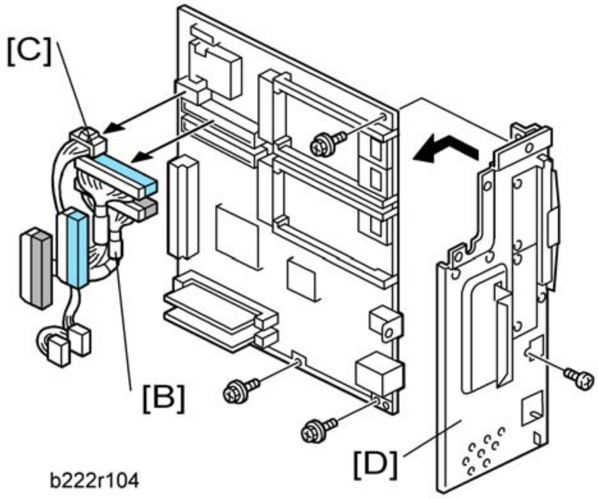
3. Fusing duct (☛ "p.229 "Fusing Fan"")



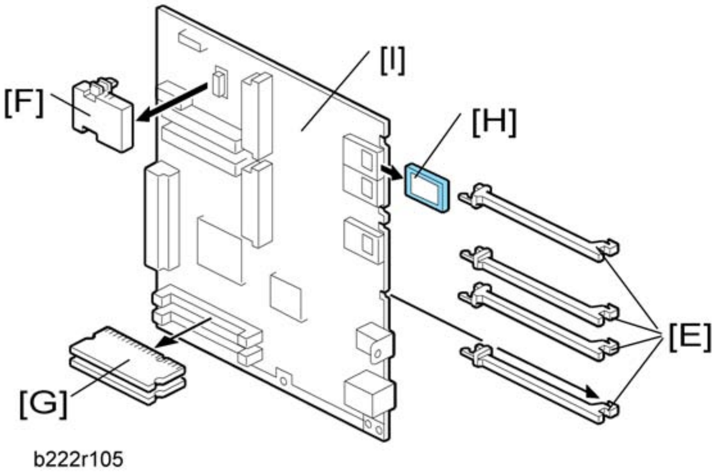
4. IH inverter [A] (🔩 x 7, 🔌 x 5)

Controller Board

1. Controller unit (☛ "p.253 "Controller Unit"")
2. HDD fan bracket (☛ "p.265 "HDD Fan"")
3. HDD unit (☛ "p.266 "HDD"")



4. Two HDD interface cables [B] and harness [C]
5. Controller slot bracket [D] (🔩 x 4)



6. **Interface rails [E], NV-RAM [F], RAM-DIMM(s) [G], SD card [H]**
7. **Controller board [I]**

When installing the new controller board

Remove the NVRAM from the old controller board. Then install it on the new controller board after you replace the controller board. Replace the NVRAM (☛ "p.267 "NVRAM Replacement Procedure"") if the NVRAM on the old controller board is defective.

Note

- Make sure you print out the SMC reports ("SP Mode Data" and "Logging Data") before you replace the NVRAM.

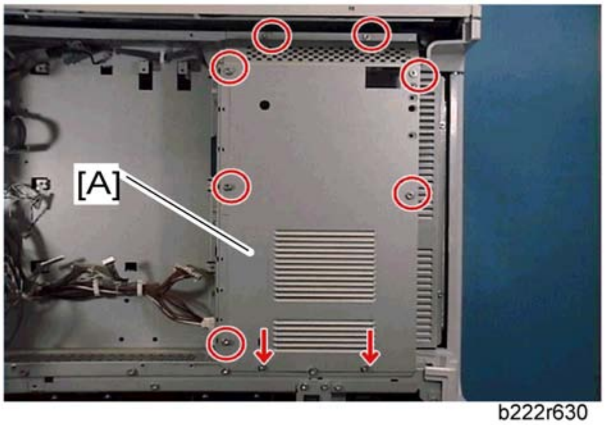
⚠CAUTION

- Keep NVRAMs away from any objects that can cause static electricity. Static electricity can damage NVRAM data.
- Make sure the NVRAM is correctly installed on the controller board.
- Make sure that the DIP-switch settings on the old controller board are the same for the new controller board. Do not change the DIP switches on the controller board in the field.

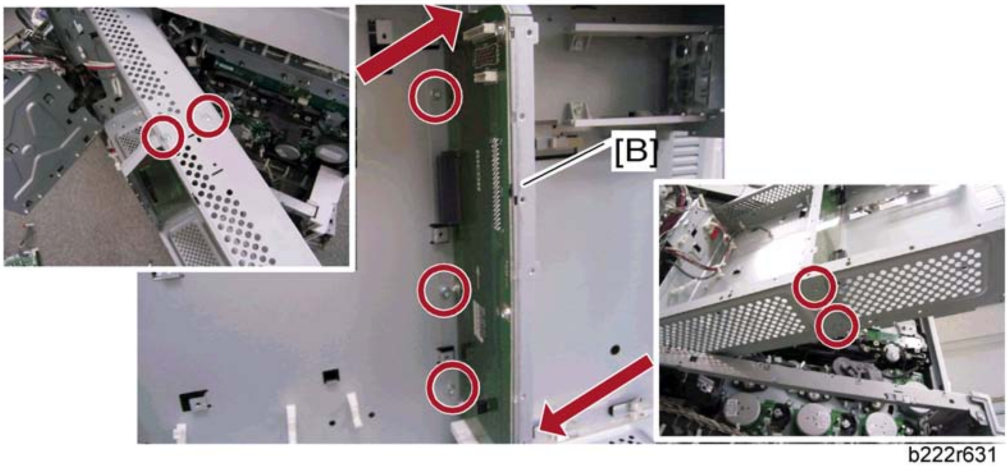
Mother Board

1. **Controller unit (☛ "p.253 "Controller Unit"")**
2. **Rear cover (☛ "p.125 "Rear Cover"")**
3. **Controller box right cover (☛ "p.253 "Controller Box Right Cover "")**
4. **IOB bracket (☛ "p.254 "Controller Box"")**

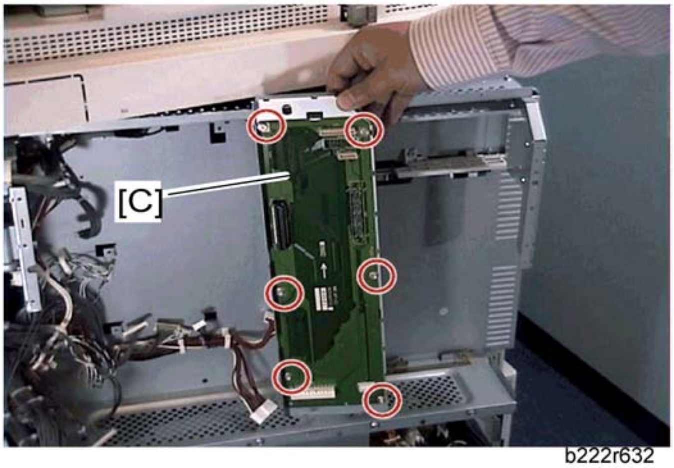
5. IPU (☛ "p.258 "IPU"")



6. Controller box left cover [A] (🔩 x 9; red arrow screws do not need to be removed, just loosen them.)
7. Open the controller box (☛ "p.254 "Controller Box"").



8. Mother board bracket [B] (🔩 x 7, all 🔌s)

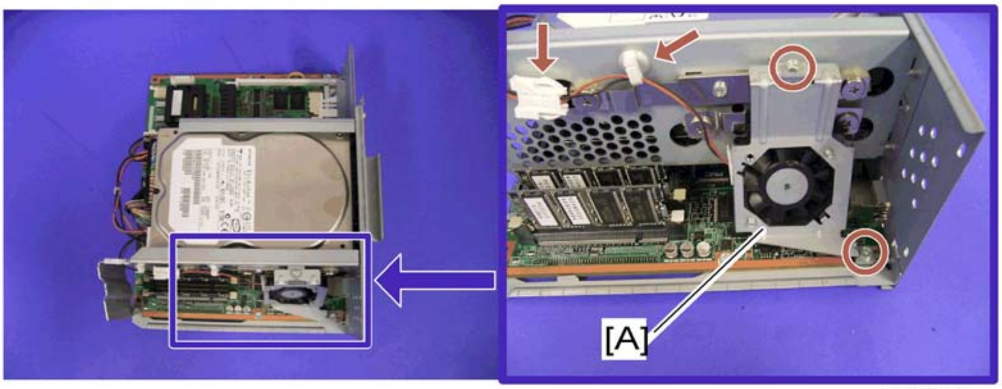


b222r632

9. Mother board [C] (🔩 x 6)

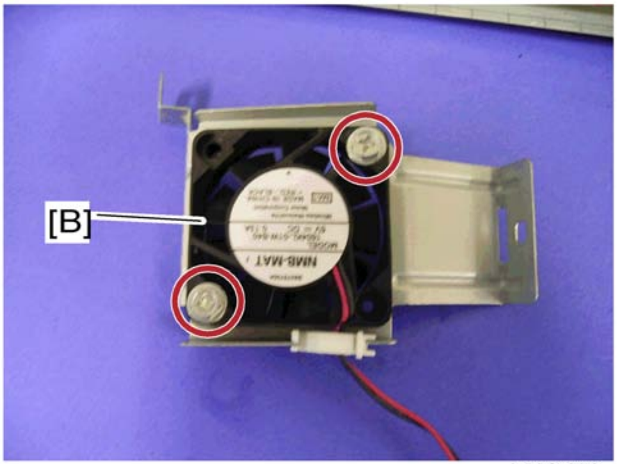
HDD Fan

1. Controller unit (☛ "p.253 "Controller Unit"")



b222r677

2. HDD fan bracket [A] (🔩 x 2, 🔌 x 1, 🗜 x 1)

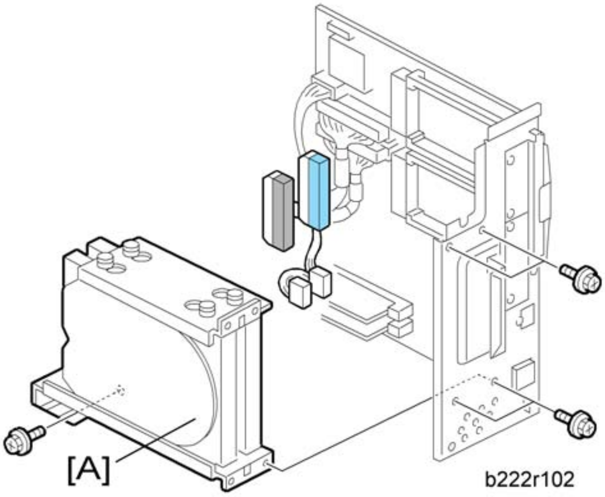


b222r678

3. HDD fan [B] (🔩 x 2)

HDD

1. Controller unit (☛ "p.253 "Controller Unit"")
2. HDD fan bracket (☛ "p.265 "HDD Fan"")



b222r102

3. HDD unit [A] (🔩 x 5, 🔌 x 4)

When installing a new HDD unit

1. Turn the main power switch on. The disk is automatically formatted.
2. Install the stamp data using "SP5853".

3. Switch the machine off and on to enable the fixed stamps for use.

Disposal of HDD Units

- Never remove an HDD unit from the work site without the consent of the client.
- If the customer has any concerns about the security of any 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.

Reinstallation

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

- Document server documents
- Custom-made stamps
- Document server address book

The address book and document server documents (if needed) must be input again.

If you previously backed up the address book to an SD card with SP5846 051, you can use SP 5846 052 to copy the data from the SD card to the hard disk.

If the customer is using the Data Overwrite Security feature, the DOS function must be set up again. For more, see Section 1 (Installation).

If the customer is using the optional Browser Unit, this unit must be installed again. For more, see Section 1 (Installation).

NVRAM Replacement Procedure

NVRAM on the BCU

1. **Make sure that you have the SMC report (factory settings). This report comes with the machine.**
2. **Output the SMC data (☛ SP5-990-001) if possible.**
3. **Turn the main switch off.**
4. **Install an SD card into SD card slot 3. Then turn the main power on.**
5. **Copy the NVRAM data to an SD card (☛ SP5-824-001) if possible.**
6. **Turn off the main switch. Then unplug the power cord.**

7. **Replace the NVRAM on the BCU and reassemble the machine.**
8. **Plug in the power cord. Then turn the main switch on.**
9. **Select a paper-size type (☛ SP5-131-001).**
10. **Specify the device number and destination code of the machine.**

    Note

    - Contact your supervisor for details on how to enter the device number and destination code.
    - SC 999 or "Fusing Unit Setting Error" can be shown until the device number and destination code are correctly programmed.

11. **Turn the main switch off and on.**
12. **Copy the data from the SD card to the NVRAM (☛ SP5-825-001) if you have successfully copied them to the SD card.**
13. **Turn the main switch off. Then remove the SD card from SD card slot 3.**
14. **Turn the main switch on.**
15. **Specify the SP and UP mode settings.**
16. **Do the process control self-check.**
17. **Do ACC for the copier application program.**
18. **Do ACC for the printer application program.**

NVRAM on the Controller

⚠CAUTION

- If you change the NVRAM in the controller, and the Data Overwrite Security unit is installed, this Data Overwrite Security unit must be replaced with a new one.

1. **Make sure that you have the SMC report (factory settings). This report comes with the machine.**
2. **Output the SMC data (☛ SP5-990-001) if possible.**
3. **Turn the main switch off. Then put a blank formatted SD card into SD card slot 3.**
4. **Turn the main switch on.**
5. **Copy the NVRAM data (☛ SP5-824-001) and the address book data in the HDD (SP5846-051) to an SD card if possible.**

    Note

    - An error message shows if local user information cannot be stored in an SD card because the capacity is not enough.
    - You cannot do this procedure if the SD card is write-protected.

6. **Enter SP mode. Then print out the SMC reports (☛ SP5-990-001) if possible.**

7. **Turn off the main switch. Then unplug the power cord.**
8. **Replace the NVRAM on the controller. Then reassemble the machine.**
9. **Check if the serial number shows on the operation panel. (SP5-811-002). Input the serial number if it does not show. (Contact your supervisor about this setting.)**
10. **Plug in the power cord. Then turn the main switch on.**
11. **Copy the data from the SD card to the NVRAM (☛ SP5-825-001) and HDD (SP5-846-52) if you have successfully copied them to the SD card.**

    Note

    - The counter data in the user code information clears even if step 11 is done correctly.
    - An error message shows if the download is incomplete. However, you can still use the part of the address book data that has already been downloaded in step 11.
    - An error message shows when the download data does not exist in the SD card, or, if it is already deleted.
    - You cannot do this procedure if the SD card is write-protected.

12. **Go out of SP mode. Then turn the main switch off. Then remove the SD card from SD card slot 3.**
13. **Turn the main switch on.**
14. **Specify the SP and UP mode settings.**
15. **Do ACC for the copier application program.**
16. **Do ACC for the printer application program.**

4. Troubleshooting

Process Control Error Conditions

Developer Initialization Result

SP-3-014-001 (Developer Initialization Result)

No.	Result	Description	Possible Causes	Action
1	Successfully completed	Developer initialization is successfully completed.	-	-
2	Forced termination	Developer initialization was forcibly terminated.	A cover was opened or the main switch was turned off during the initialization.	When done in SP mode, do the developer initialization again. Reinstall the engine main firmware if the result is the same. Turn the main switch off and on when done at unit replacement.
6	Vt error	Vt is more than 0.7V when Vcnt is 4.3V.	1. Make sure that the heat seal on the development unit is not removed. 2. Defective TD sensor	
7	Vcnt error 1	Vcnt is less than 4.7V when Vcnt is Vt target ± 0.2V.	1. Defective TD sensor 2. Vt target settings are not correct. 3. Toner density error	
8	Vcnt error 2	Vt is more than 0.7V when Vcnt is 4.3V and Vcnt is less than 4.7V when Vcnt is Vt target ± 0.2V.	1. Make sure that the heat seal on the development unit is not removed. 2. Defective TD sensor	
9	Vcnt error 3	Vcnt is less than 4.7V.	1. Make sure that the heat seal on the development unit is not removed 2. Defective TD sensor 3. Vt target settings are not correct.	

No.	Result	Description	Possible Causes	Action
			4. Toner density error	

Note

- The machine starts developer initialization after you set “Enable” in SP3-902-005, 006, 007, or 008. Developer initialization automatically resumes when you open and close the front door or turn the main switch off and on if an error other than Error 8 occurs.

Process Control Self-Check Result

Displayed number shows results of each color sensor check.

00000000 = YYCCMMKK

SP3-012-001 to -010 (Process Control Self-check Result)

No.	Result	Description	Possible Causes	Action
11	Successfully completed	Process control self-check successfully completed.	-	Check the Vsg adjustment. See the " Vsg Adjustment Result" following this table.
41	Vt error	Vt maximum or minimum error is detected.	1. Defective development unit	Vt maximum error and an image is faint: • Replace the toner supply pump unit. Vt maximum error and an image is O.K: • Replace the development unit. • Replace the IOB board. Vt minimum error: • Replace the development unit. • Replace the IOB board.
53	ID sensor coefficient (K5) detection error	Not enough data can be sampled.	-	Solid image is not sufficient density:

No.	Result	Description	Possible Causes	Action
				• Retry the process control. • Replace the ID sensors. • Replace the IOB board. Solid image is O.K. • Replace the ID sensors. • Replace the IOB board. ID sensor is dirty: • Clean the ID sensors. • Retry the process control.
54	ID sensor coefficient (K5) maximum/ minimum error	When the K5 is more than the value of SP3-362-003 or less than the value of SP3-362-004, the error 54 is displayed.	1. ID sensor pattern density is too high or low. 2. ID sensor or shutter is defective.	Same as 53
55	Gamma error: Maximum	Gamma is out of range. 5.0 < Gamma	1. ID sensor pattern density is too high. 2. Hardware defective.	Same as 53
56	Gamma error: Minimum	Gamma is out of range. Gamma < 0.15	1. ID sensor pattern density is too low. 2. Hardware defective.	Same as 53 • Replace the toner supply pump unit.
57	Vk error: Maximum	Vk is out of range. 150 < Vk	1. ID sensor pattern density is too low. 2. Hardware defective.	Same as 53
58	Vk error: Minimum	Vk is out of range. Vk < –150	1. ID sensor pattern density is too high. 2. Background dirty	Same as 53

No.	Result	Description	Possible Causes	Action
			3. Hardware defective	
59	Sampling data error during gamma correction	Not enough data can be sampled during the gamma correction.	1. ID sensor pattern density is too high or low. 2. Hardware defective	Same as 53
99	Unexpected error	Process control fails.	1. Power Failure	Check the power source.

Vsg Adjustment Result

SP3-325-001 to -010 (Vsg Adjustment Result)

No.	Result	Description	Possible Causes	Action
1	O.K	Vsg adjustment is correctly done.	-	-
2	ID sensor adjustment error	Vsg cannot be adjusted within 4.0 ± 0.5V.	1. Dirty ID sensor (toner, dust, or foreign material) 2. Dirty transfer belt 3. Scratched image transfer belt 4. Defective ID sensor 5. Poor connection 6. Defective IOB	• Clean the ID sensor. • Check the belt cleaning. Clean or replace the transfer belt. • Replace the image transfer belt. • Replace the ID sensor. • Check the connection. • Replace the IOB board.
3	ID sensor output error	ID sensor output is more than "Voffset Threshold" (SP3-324-004)	1. Defective ID sensor 2. Poor connection 3. Defective IOB	• Replace the ID sensor. • Check the connection. • Replace the IOB board.

No.	Result	Description	Possible Causes	Action
9	Vsg Adjustment error	Vsg adjustment has not been completed.	Other cases	- Retry the SP3-321-010.

Line Position Adjustment Result

SP2-194-010 to -012 (Line Position Adjustment Result: M, C, Y)

This SP shows the number as a line position adjustment result on the LCD. It shows which color has an error (M, Y or C).

No.	Result	Description	Note
0	Not done	Line position adjustment has not been done.	-
1	Completed successfully	Line position adjustment has correctly been done,	-
2	Cannot detect patterns	ID sensors have not detected the patterns for line position adjustment.	See Note
3	Fewer lines on the pattern than the target	The patterns, which ID sensors has detected, are not enough for line position adjustment.	See Note
4	More lines on the pattern than the target	Not used in this machine.	-
5	Out of the adjustment range	ID sensors has correctly detected the patterns for line position adjustment, but a shift of patterns is out of adjustable range.	See Note
6-9	Not used	-	-

Note

- For details, see the "Troubleshooting Guide - Line Position Adjustment" section.

Scanner Test Mode

VPU Test Mode

Output the VPU test pattern with SP4-907-001 to make sure the scanner VPU control operates correctly. The VPU test pattern prints out after you have set the SP mode settings and pressed the start key.

- The CCD on the SBU board may be defective if the copy is abnormal and the VPU test pattern is normal.
- The following can be the cause if the copy is normal and the VPU test pattern is abnormal:
  - The harness may not be correctly connected between the SBU and the IPU.
  - The IPU or SBU board may be defective.

IPU Test Mode

You can check the IPU board with the SP mode menu, SP4-904-1.

If no error is detected, the test ends. Then the completion code shows in the operation panel display. If an error is detected, the test is interrupted. Then an error code shows. The table below lists the completion and error codes.

SP4-904-1 Register Access

There are 16 bits switches in this SP. Each bit indicates each CPU as followings. The error result is displayed on the operation panel in decimal number.

0: Normal, 1: Error

Bit 0: TAURUS register Bit 1: ORION register Bit 2: LUPUS register	Bit 3 to 11: Not used Bit 12: Ri20 register Bit 13 to 15: Not used

SP4-904-2 Image Path

There are 16 bits switches in this SP. Each bit indicates each CPU path as followings. The error result is displayed on the operation panel in decimal number.

0: Normal, 1: Error

Bit 0: Image path from SBU to TAURUS	Bit 4 to 11: Not used

Bit 1: Image path from TAURUS to ORION	Bit 12: Image path from LUPUS to Ri20
Bit 2: Image path from ORION to TAURUS	Bit 13: Image path from Ri20 to GAVD
Bit 3: Image path from TAURUS to LUPUS	Bit 14 and 15: Not used

Errors may be caused by the following problems:

1. Short circuit on the signal lines
    - When the IPU board is installed, a pin or two on the ASIC is damaged.
    - Some conductive matter or object is trapped among the pins.
    - Condensation
2. Destruction of circuit elements
    - Over current or a defective element breaks the circuit.
3. Abnormal power supply
    - The required voltage is not supplied to the devices.
4. Overheat/overcooling
    - The environment is inappropriate for the board (the scanner unit).
5. Static electricity
    - Static electricity of a high voltage occurs during the test.
6. Others
    - The scanner and IPU are incorrectly connected.

When you have completed a check, turn the main switch off and on before you do another check. When you have completed all necessary checks, turn the main switch off and on.

Service Call Conditions

Summary

The ‘SC Table’ section shows the SC codes for controller errors and other errors. The latter (not controller errors) are put into four types. The type is determined by their reset procedures. The table shows the classification of the SC codes.

	Key	Definition	Reset Procedure
Controller errors	CTL	The error has occurred in the controller.	See “Troubleshooting Procedure” in the table.
Other errors	A	The error involves the fusing unit. The machine operation is disabled. The user cannot reset the error.	Turn the main switch off and on. Reset the SC (set SP5-810-1). Turn the main switch off and on.
	B	The error involves one or some specific units. The machine operates as usual, excluding the related units.	Turn the operation switch off and on.
	C	The error is logged. The SC-code history is updated. The machine operates as usual.	The SC will not show. Only the SC history is updated.
	D	The machine operation is disabled. You can reset the machine by turning the operation switch or main switch off and on. If the error occurs again, the same SC code is displayed.	Turn the operation switch or main power switch off and on.

After you turn the main power switch off, wait for one second or more before you turn the main power switch on (☛ SC 672). All SCs are logged. The print log data (SP5-990-004) in SP mode can check the latest 10 SC codes detected and total counters when the SC code is detected.

Note

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

SC Code Classification

The table shows the classification of the SC codes:

Class 1	Section	SC Code	Detailed section
1XX	Scanning	100 -	Scanner
		190 -	Unique for a specific model
2XX	Laser exposure	200 -	Polygon motor
		220 -	Synchronization control
		230 -	FGATE signal related
		240 -	LD control
		280 -	Unique for a specific model
		290 -	Shutter
3XX	Image development 1	300 -	Charge
		330 -	Drum potential
		350 -	Development
		380 -	Unique for a specific model
4XX	Image development 2	400 -	Image transfer
		420 -	Paper separation
		430 -	Cleaning
		440 -	Around drum
		460 -	Unit
		480 -	Others
5XX	Paper feed / Fusing	500 -	Paper feed
		515 -	Duplex
		520 -	Paper transport
5XX	Paper feed / Fusing	530 -	Fan motor
		540 -	Fusing

Class 1	Section	SC Code	Detailed section
		560 -	Others
		570 -	Unique for a specific model
6XX	Communication	600 -	Electrical counters
		620 -	Mechanical counters
		630 -	Account control
		640 -	CSS
		650 -	Network
		670 -	Internal data processing
		680 -	Unique for a specific model
7XX	Peripherals	700 -	Original handling
		720 -	Two-tray finisher
		740 -	Booklet finisher
8XX	Controller	800 -	Error after ready condition
		820 -	Diagnostics error
		860 -	Hard disk
		880 -	Unique for a specific model
9XX	Others	900 -	Counter
		920 -	Memory
		990 -	Others

SC Table

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
101	D	Exposure lamp error -001: Shading at AGC -002: Shading at scanning
		The peak white level is less than 64/255 digits (8 bits) when scanning the shading plate. (The shading data peak does not reach the specified threshold)
		• Exposure lamp defective • Lamp stabilizer defective • Exposure lamp connector defective • Standard white plate dirty • Scanner mirror or scanner lens out of position or dirty • SBU defective
		1. Check and clean the scanner mirror(s) and scanner lens. 2. Check and clean the shading plate. 3. Replace the exposure lamp. 4. Replace the lamp stabilizer. 5. Replace the scanner mirror(s) or scanner lens. 6. Replace the SBU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
120	D	Scanner home position error 1
		The scanner home position sensor does not detect the “OFF” condition during operation.
		• Scanner motor driver defective • Scanner motor defective • Harness between SIO board and scanner motor disconnected • Scanner HP sensor defective • Harness between SBU and HP sensor disconnected
		1. Check the cable connection between the SIO board and scanner motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Check the cable connection between the SBU and HP sensor. 3. Replace the scanner motor. 4. Replace the HP sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
121	D	Scanner home position error 2
		The scanner home position sensor does not detect the "ON" condition during operation.
		• Scanner motor driver defective • Scanner motor defective • Harness between SIO board and scanner motor disconnected • Scanner HP sensor defective • Harness between SBU and HP sensor disconnected
		1. Check the cable connection between the SIO board and scanner motor. 2. Check the cable connection between the SBU and HP sensor. 3. Replace the scanner motor. 4. Replace the HP sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
141	D	Black level detection error
		The black level cannot be adjusted within the target value during the zero clamp.
		• Defective SBU
		Replace the SBU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
142	D	White level detection error
		The white level cannot be adjusted within the target during auto gain control.
		• Dirty exposure glass or optics section • SBU board defective

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Exposure lamp defective • Lamp stabilizer defective
		1. Clean the exposure glass, white plate, mirrors, and lens. 2. Check if the exposure lamp is lit during initialization. 3. Check the harness connection between SBU and IPU. 4. Replace the exposure lamp. 5. Replace the SBU board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
144		SBU communication error
-001	D	SBU connection error
		The SBU connection cannot be detected at power on or recovery from the energy save mode.
		• Insufficient power supply for SBU • Defective SBU • Defective harness • Defective detection port on the BCU
		1. Replace the harness. 2. Replace the SBU. 3. Replace the BCU.
-002	D	SBU serial communication error
		The power ON of the SBU is not detected.
		• Defective SIO • Defective harness • Defective detection port on the BCU
		1. Replace the harness. 2. Replace the SIO. 3. Replace the BCU.
-003	D	GASBU reset error

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		The serial communication does not work.
		- Defective SBU - Defective detection circuit on the BCU - Defective harness
		1. Replace the SBU. 2. Replace the BCU. 3. Replace the harness.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
161	D	IPU error
		The error result of self-diagnostic by the Taurus (ASIC on the IPU) is detected.
		- Defective IPU - Defective connection between IPU and SBU
		1. Check the connection between IPU and SBU. 2. Replace the IPU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
165	D	Copy Data Security Unit error
		- The copy data security board is not detected when the copy data security function is set "ON" with the initial setting. - A device check error occurs when the copy data security function is set "ON" with the initial setting.
		- Incorrect installation of the copy data security board - Defective copy data security board
		1. Reinstall the copy data security board. 2. Replace the copy data security board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
195	D	Serial Number Mismatch

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Serial number stored in the memory does not have the correct code.
		• NVRAM defective • BCU replaced without original NVRAM
		1. Check the serial number with SP5-811-002. 2. If the stored serial number is incorrect, contact your supervisor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
202	D	Polygon motor error 1: ON timeout
		The polygon mirror motor does not reach the targeted operating speed within the specified time after turning on or changing speed
		• Defective or disconnected harness to polygon motor driver board • Defective polygon motor driver board • Defective polygon motor.
		1. Replace the polygon motor. 2. Replace the laser optics housing unit. 3. Replace the harness. 4. Replace the IPU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
203	D	Polygon motor error 2: OFF timeout
		The polygon mirror motor does leave the READY status within 3 seconds after the polygon motor switches off.
		• Disconnected or defective harness to polygon motor driver board • Defective polygon motor driver board • Defective polygon motor
		1. Check or replace the harness. 2. Replace the polygon motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
204	D	Polygon motor error 3: XSCRDY signal error
		The SCRDY_N signal goes HIGH (inactive) while the laser diode is firing.
		• Disconnected or defective harness to polygon motor driver board • Defective polygon motor • Defective polygon motor driver board
		1. Check or replace the harness. 2. Replace the polygon motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
210	C	Laser synchronizing detection error: end position [K]
211	C	Laser synchronizing detection error: end position [Y]
212	C	Laser synchronizing detection error: end position [M]
213	C	Laser synchronizing detection error: end position [C]
-	-	The laser synchronizing detection signal for the end position of LDB [K], [Y], [M], [C] is not detected for one second after the LDB unit turned on when detecting the main scan magnification.
		• Disconnected or defective harness to synchronizing detector for end position • Defective synchronizing detector board • Defective LD board or driver • Defective IPU
		1. Replace the harness of the LD board. 2. Replace the laser optics housing unit. 3. Replace the IPU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
220	D	Laser synchronizing detection error: start position [K]: LD0
221	D	Laser synchronizing detection error: start position [K]: LD1
222	D	Laser synchronizing detection error: start position [Y]: LD0

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
223	D	Laser synchronizing detection error: start position [Y]: LD1
224	D	Laser synchronizing detection error: start position [M]: LD0
225	D	Laser synchronizing detection error: start position [M]: LD1
226	D	Laser synchronizing detection error: start position [C]: LD0
227	D	Laser synchronizing detection error: start position [C]: LD1
-	-	The laser synchronizing detection signal for the start position of the LDB [K], [Y], [M], [C] is not output for two seconds after LDB unit turns on while the polygon motor is rotating normally.
		• Disconnected cable from the laser synchronizing detection unit or defective connection • Defective laser synchronizing detector • Defective LDB • Defective IPU
		1. Check the connectors. 2. Replace the laser-synchronizing detector. 3. Replace the LDB. 4. Replace the IPU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
230	D	FGATE ON error: Bk
		The PFGATE ON signal does not assert within 5 seconds after processing the image in normal job or MUSIC for start position [K].
		• Defective ASIC (Lupus) • Poor connection between controller and IPU. • Defective IPU
		1. Check the connection between the controller board and the IPU. 2. Replace the IPU. 3. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
231	D	FGATE OFF error: Bk
		- The PFGATE ON signal still asserts within 5 seconds after processing the image in normal job or MUSIC for end position [K]. - The PFGATE ON signal still asserts when the next job starts.
		See SC 230 for troubleshooting details.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
232	D	FGATE ON error: Y
		The PFGATE ON signal does not assert within 5 seconds after processing the image in normal job or MUSIC for start position [Y].
		See SC 230 for troubleshooting details.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
233	D	FGATE OFF error: Y
		- The PFGATE ON signal still asserts within 5 seconds after processing the image in normal job or MUSIC for end position [Y]. - The PFGATE ON signal still asserts when the next job starts.
		See SC 230 for troubleshooting details.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
234	D	FGATE ON error: M
		The PFGATE ON signal does not assert within 5 seconds after processing the image in normal job or MUSIC for start position [M].
		See SC 230 for troubleshooting details.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
235	D	FGATE OFF error: M
		- The PFGATE ON signal still asserts within 5 seconds after processing the image in normal job or MUSIC for end position [M].

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• The PFGATE ON signal still asserts when the next job starts.
		See SC 230 for troubleshooting details.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
236	D	FGATE ON error: C
		The PFGATE ON signal does not assert within 5 seconds after processing the image in normal job or MUSIC for start position [C].
		See SC 230 for troubleshooting details.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
237	D	FGATE OFF error: C
		• The PFGATE ON signal still asserts within 5 seconds after processing the image in normal job or MUSIC for end position [C]. • The PFGATE ON signal still asserts when the next job starts.
		See SC 230 for troubleshooting details.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
240	C	LD error: Bk
241	C	LD error: Y
242	C	LD error: M
243	C	LD error: C
-	-	The IPU detects LDB error a few times consecutively when LDB unit turns on after LDB initialization.
		• Worn-out LD • Disconnected or broken harness of the LD
		1. Replace the harness of the LD. 2. Replace the laser optics housing unit. 3. Replace the IPU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
285	D	Line position adjustment (MUSIC) error
		Line position adjustment fails four consecutive times.
		• Pattern sampling error (insufficient image density) • Defective ID sensors for the line position adjustment • Defective image transfer belt unit • Defective PCU(s) • Defective laser optics housing unit
		1. Check and reinstall the image transfer belt unit and PCUs. 2. Check if each toner bottle has enough toner. 3. Replace the ID sensor. 4. Replace the image transfer belt unit. 5. Replace the PCU(s). 6. Replace the laser optics housing unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
290	D	Shutter sensor time over error: Close
		The shutter close sensor does not detect "ON" for 2000 msec after the shutter motor turns on.
		• Defective shutter close sensor • Disconnected or broken harness • Defective shutter motor • Defective shutter • Shutter motor overload • Defective IOB
		1. Check or replace the harness. 2. Replace the shutter on the laser optics housing unit. 3. Replace the shutter motor. 4. Replace the shutter close sensor. 5. Replace the IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
291	C	Shutter overrun error 1: Close
		The shutter close sensor loses the "ON" signal after the shutter was closed.
		• Defective motor • Change of load to shutter motor
		Replace the shutter on the laser optics housing unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
292	D	Shutter overrun error 2: Close
		The shutter close sensor detects "ON" after SC 291 has occurred.
		• Defective motor • Change of load to shutter motor
		Replace the shutter on the laser optics housing unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
293	D	Shutter sensor time over error: Open
		The shutter open sensor does not detect "ON" for 2000 msec after the shutter motor turns on.
		• Defective shutter close sensor • Disconnected or broken harness • Defective shutter motor • Defective shutter • Shutter motor overload • Defective IOB
		1. Check or replace the harness. 2. Replace the shutter on the laser optics housing unit. 3. Replace the shutter motor. 4. Replace the shutter close sensor. 5. Replace the IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
294	C	Shutter overrun error 1: Open
		The shutter open sensor loses the "ON" signal after the shutter was closed.
		• Defective motor • Change of load to shutter motor
		1. Replace the shutter on the laser optics housing unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
295	D	Shutter overrun error 2: Open
		The shutter open sensor detects "ON" after SC 291 has occurred.
		• Defective motor • Change of load to shutter motor
		1. Replace the shutter on the laser optics housing unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
296	D	Shutter open/close sensor error
		Both shutter open sensor and close sensor detect "ON" at the same time.
		• Broken harness(es) of the shutter open/close sensors
		Replace the shutter on the laser optics housing unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
300	D	AC charge output error [K]
301	D	AC charge output error [M]
302	D	AC charge output error [C]
303	D	AC charge output error [Y]
-	-	The measured voltage is not proper when IOB measures the charge output for each color.
		• Disconnected or broken high voltage cable

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Defective or not installed PCU • Defective high voltage power supply
		1. Check or replace the connectors. 2. Replace the PCU for the affected colour. 3. Replace the high voltage power supply.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
360	D	TD sensor (Vt high) error 1: K
361	D	TD sensor (Vt high) error 1: M
362	D	TD sensor (Vt high) error 1: C
363	D	TD sensor (Vt high) error 1: Y
-	-	• The Vt value of the black, magenta, cyan, or yellow TD sensor exceeds the specified value (default: 4.7V) with SP3020-002 for twenty counts. • The [Vt - Vtref] value of the black, magenta, cyan, or yellow TD sensor exceeds the specified value (default: 5.0V) with SP3020-001.
		• Black, magenta, cyan, or yellow TD sensor disconnected • Harness between TD sensor and PCU defective • Defective TD sensor.
		1. Check the black, magenta, cyan, or yellow TD sensor connector and harness between the TD sensor and PCU for damage. 2. Check the drawer connector. 3. Replace the defective PCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
364	D	TD sensor (Vt high) error 2: K
365	D	TD sensor (Vt high) error 2: M
366	D	TD sensor (Vt high) error 2: C
367	D	TD sensor (Vt high) error 2: Y

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
-	-	The Vt value of the black, magenta, cyan, or yellow TD sensor is below the specified value with SP3020-004 (default: 0.5V) for 10 counts.
		• TD sensor harness disconnected, loose, defective • A drawer connector disconnected, loose, defective • TD sensor defective
		1. Check the black, magenta, cyan, or yellow TD sensor connector and harness between the TD sensor and PCU for damage. 2. Check the drawer connector. 3. Replace the defective PCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
372	D	TD sensor adjustment error: K
373	D	TD sensor adjustment error: M
374	D	TD sensor adjustment error: C
375	D	TD sensor adjustment error: Y
-	-	During TD sensor initialization, the output value of the black, magenta, cyan, or yellow TD sensor is not within the range of the specified value with SP3238-001 to -004 (default: 2.7V) ± 0.2V
		• Heat seal not removed from a new developer pack • TD harness sensor disconnected, loose or defective • TD sensor defective • Harness between TD sensor and drawer disconnected, defective
		1. Remove the heat seal from each PCU. 2. Replace the defective PCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
380	C	Drum gear position sensor error
		The machine does not detect the drum position signal for 3 seconds at the drum phase adjustment.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Dirty or defective drum gear position sensor
		1. Replace the drum gear position sensor. 2. Replace the PCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
396	D	Drum/Development motor error: K
397	D	Drum/Development motor error: M
398	D	Drum/Development motor error: C
399	D	Drum/Development motor error: Y
-	-	The machine detects a High signal from the drum/development motor for 2 seconds after the drum/development motor turned on.
		• Overload on the drum/development motor • Defective drum/development motor • Defective harness • Shorted 24 V fuse on the PSU • Defective interlock system
		1. Check or replace the harness. 2. Replace the drum/development motor. 3. Replace the 24V fuse on the PSU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
400	D	ID sensor adjustment error
		When the Vsg error counter reaches "3", the machine detects "SC400". The Vsg error counter counts "1" when the Vsg detected by ID sensor is more than the value (default: 4.5V) specified with SP3234-005 or less than the value (default: 3.5V) specified with SP SP3234-006.
		• Dirty or defective ID sensor • Defective ID sensor shutter
		1. Check the harness of the ID sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Clean or replace the ID sensor. **Note** • After replacing the ID sensor, input the ID sensor correction coefficient with SP3362-013 to -018. For details, refer to "ID sensor board" in the Replacement and Adjustment section. 3. Replace the IOB. 4. Replace the image transfer belt unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
441	D	Image transfer unit motor error
		The motor LOCK signal is not detected for more than two seconds while the motor START signal is on.
		• Motor overload • Defective image transfer unit motor
		1. Replace the image transfer belt unit. 2. Replace the IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
442	D	Image transfer belt contact motor error
		The image transfer belt contact sensor does not detect the movement of actuator at the sensor while the polygon motor rotates.
		• Dirty image transfer belt contact sensor • Defective image transfer belt contact motor • Disconnected connector of image transfer belt contact sensor or motor • Disconnected cable
		1. Replace the image transfer belt contact sensor. 2. Replace the image transfer belt contact motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
443	D	Image transfer unit error

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		The machine detects the encoder sensor error.
		- Defective encoder sensor - Image transfer unit installation error - Defective image transfer unit motor
		1. Check if the image transfer unit is correctly set. 2. Replace the image transfer unit motor. 3. Replace the image transfer unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
452	D	Paper transfer unit contact error
		The paper transfer unit contact sensor does not detect the movement of actuator at the sensor while the polygon motor rotates.
		- Defective paper transfer unit contact sensor - Defective paper transfer unit contact motor - Broken +24V fuse on PSU - Defective IOB
		1. Check the connection between the paper transfer unit and PSU. 2. Replace the paper transfer unit contact sensor. 3. Replace the paper transfer unit contact motor. 4. Replace the +24V fuse on the PSU. 5. Replace the IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
460	D	Separation power pack output error
		An interrupt checks the status of the power pack every 20 ms. This SC is issued if the BCU detects a short in the power pack 10 times at D(ac).
		- Damaged insulation on the high-voltage supply cable - Damaged insulation around the high-voltage power supply.
		1. Replace the high-voltage supply cable.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Replace the high-voltage power supply unit. 3. Replace the IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
490	D	Toner transport motor error
		The LOCK signal is not detected for 2 seconds when the transport motor turns on.
		• Toner transport motor overload • Disconnected or broken harness • Defective toner transport motor • Opened +24V fuse on the PSU • Defective interlock switch
		1. Check or replace the harness. 2. Replace the toner transport motor. 3. Replace the +24V fuse on the PSU. 4. Replace the interlock switch.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
491	D	High voltage power: Drum/ development bias output error
		An error signal is detected for 0.2 seconds when charging the drum or development.
		• High voltage leak • Broken harness • Defective drum unit or development unit • Defective high voltage supply unit
		1. Check or replace the harness. 2. Replace the drum unit or paper transfer unit. 3. Replace the high voltage supply unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
492	D	High voltage power: Image transfer/ paper transfer bias output error

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		An error signal is detected for 0.2 seconds when charging the separation, image transfer bet or paper transfer roller.
		• High voltage leak • Broken harness • Defective image transfer belt unit or paper transfer unit • Defective high voltage supply unit
		1. Check or replace the harness. 2. Replace the image transfer belt unit or paper transfer unit. 3. Replace the high voltage supply unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
498	C	Temperature and humidity sensor error 2
		• The thermistor output of the temperature sensor was not within the prescribed range (0.5V to 4.2V). • The thermistor output of the humidity sensor was not within the prescribed range (0.01V to 2.4V).
		• Temperature and humidity sensor harness disconnected, loose, defective • Temperature and humidity sensor defective
		1. Check the connector and harness. 2. Replace the temperature/humidity sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
501	B	Paper Tray 1 error
502	B	Paper Tray 2 error
-	-	• When the tray lift motor rotates counterclockwise, (if the upper limit is not detected within 10 seconds), the machine asks the user to reset the tray. • When the tray lift motor rotates clockwise, (if the upper limit is not detected within 1.5 seconds), the machine asks the user to reset the tray. If one of these conditions occurs three consecutive times, the SC is generated.
		• Disconnected or defective paper lift sensor

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		- Disconnected or defective tray lift motor - Defective bottom plate lift mechanism - Too much paper in the tray - Defective IOB
		1. Check if the paper is not loaded too much. 2. Check if the bottom plate smoothly moves up and down manually. 3. Check and/or replace the tray lift motor. 4. Replace the IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
503-01	B	Tray 3 error (Paper Feed Unit or LCT)
		For the paper feed unit: - When the tray lift motor is turned on, the upper limit is not detected within 10 seconds For the LCT: - SC 503-01 occurs if the upper or lower limit is not detected within 8 seconds when the tray lift motor is turned on to lift or lower the tray.
		For the paper feed unit: - Defective tray lift motor or connector disconnection - Defective lift sensor or connector disconnection For the LCT: - Defective stack transport clutch or connector disconnection - Defective tray motor or connector disconnection - Defective end fence home position sensor or connector disconnection - Defective upper limit sensor or connector disconnection - Defective tray lift motor or connector disconnection
		1. Check the cable connections. 2. Check and/or replace the defective component.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
503-02	B	Tray 3 error (Paper Feed Unit or LCT)
		This SC is generated if the following condition occurs 3 consecutive times. **For the paper feed unit:** • When the tray lowers, the tray lift sensor does not go off within 1.5 sec. **For the LCT:** • When the main switch is turned on or when the LCT is set, if the end fence is not in the home position (home position sensor ON), the tray lift motor stops. • If the upper limit does not go off for 1.5 seconds even the tray lift motor turns on to lower the tray after the upper limit has been detected at power on.
		For the paper feed unit: • Defective tray lift motor or connector disconnection • Defective lift sensor or connector disconnection **For the LCT:** • Defective stack transport clutch or connector disconnection • Defective tray motor or connector disconnection • Defective end fence home position sensor or connector disconnection
		1. Check the cable connections. 2. Check and/or replace the defective component.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
504-01	B	Tray 4 error (Paper Feed Unit or LCT)
		For the two-tray paper feed unit When the tray lift motor is turned on, the upper limit is not detected within 10 seconds. If this condition occurs three consecutive times, the SC is generated. **For the LCT** If the upper or lower limit is not detected within 8 seconds when the tray lift motor is turned on to lift up or lower the tray
		• Defective tray lift motor or connector disconnection • Defective lift sensor or connector disconnection
		1. Check the cable connections.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Check and/or replace the defective component.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
504-02	B	Tray 4 error (3 Tray Paper Feed Unit)
		This SC is generated if the following condition occurs 3 consecutive times. **For the two-tray paper feed unit** • When the tray lowers, the tray lift sensor does not go off within 1.5 sec. **For the LCT** • If the upper limit does not go off for 1.5 seconds even the tray lift motor turns on to lower the tray after the upper limit has been detected at power on.
		• Defective tray lift motor or connector disconnection • Defective lift sensor or connector disconnection
		1. Check the cable connections. 2. Check and/or replace the defective component.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
529	D	Junction gate 1 motor error
		The junction gate 1 HP sensor does not detect the home position of junction gate 1 for 0.15 seconds when the machine starts to detect its home position. The junction gate 1 HP sensor does not turn off for 0.1 seconds after the machine has detected its home position.
		• Disconnected or defective junction gate 1 motor • Disconnected or defective junction gate 1 HP sensor • Mechanical problem (such as paper jam etc.) • Shorted 24 V fuse on the PSU • Defective IOB
		1. Remove any objects that obstruct junction gate 1. 2. Replace the junction gate 1 HP sensor. 3. Replace the junction gate 1 motor. 4. Replace the 24 V fuse on the PSU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		5. Replace the IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
530	D	Fusing fan error
		The IOB does not receive the lock signal 10 seconds after turning on the fusing fan.
		• Defective fusing fan motor or connector disconnection • Defective IOB
		Check the connector and/or replace the fusing fan motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
531	D	Ventilation fan (at the left side of the machine) motor-front/rear error
		The IOB does not receive the lock signal for 2 seconds after turning on the ventilation fan motor-front/rear.
		• Defective ventilation fan motor-front or rear
		Replace the ventilation fan (at the left side of the machine) motor-front or rear.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
532	D	IH coil fan error
		The machine does not detect the fan motor lock signal for 2 seconds while the IH coil fan turns on.
		• Disconnected harness • Overload on the IH coil fan motor • Defective IH coil fan motor • Defective IOB
		1. Check or replace the harness. 2. Replace the IH coil fan. 3. Replace the IOB

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
533	D	IH inverter fan error
		The machine does not detect the fan motor lock signal for 2 seconds while the IH inverter fan turns on.
		• Disconnected harness • Overload on the IH inverter fan motor • Defective IH inverter fan motor • Defective IOB
		1. Check or replace the harness. 2. Replace the IH inverter fan. 3. Replace the IOB

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
534	D	Second duct fan error
		The machine does not detect the fan motor lock signal for 2 seconds while the second duct fan turns on.
		• Disconnected harness • Overload on the second duct fan motor • Defective second duct motor • Defective IOB
		1. Check or replace the harness. 2. Replace the second duct fan. 3. Replace the IOB

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
535	D	Paper exit fan error
		The machine does not detect the fan motor lock signal for 2 seconds while the paper exit fan turns on.
		• Disconnected harness • Overload on the paper exit fan motor

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Defective paper exit motor • Defective IOB
		1. Check or replace the harness. 2. Replace the paper exit fan. 3. Replace the IOB

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
540	D	Fusing/Paper exit motor error
		The IOB does not receive the lock signal 10 seconds after turning on the fusing/paper exit motor.
		• Motor overload • Defective fusing/paper exit motor
		Replace the fusing/paper exit motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
541	A	Heating roller thermopile error
		The temperature measured by the heating roller thermopile does not reach 0°C for 6 seconds.
		• Loose connection of the heating roller thermopile • Defective heating roller thermopile • Defective thermopile
		1. Check if the heating roller thermopile is firmly connected. 2. Replace the heating roller thermopile.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
542	A	Heating roller warm-up error 1
		• The heating roller temperature does not reach the ready temperature for 190 seconds after the heating lamp on. • The heating roller temperature does not reach 80°C for 18 seconds after the IH inverter on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		- Dirty or defective thermopile - Defective IH coil unit
		1. Check if the heating roller thermopile is firmly connected. 2. Replace the thermopile. 3. Replace the IH coil unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
543	A	Heating roller overheat 1 (software error)
		The detected fusing temperature stays at 215°C for 1 second.
		- Defective PSU - Defective IOB - Defective BCU
		Related SC code: SC 553
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
544	A	Heating roller overheat 1 (hardware error)
		During stand-by mode or a print job, the detected heating roller temperature reaches 220 °C.
		- Defective PSU - Defective IOB - Defective BCU - Defective fusing control system
		Related SC code: SC 543
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
547	D	Zero cross error
		• The zero cross signal is detected three times even though the heater relay is off when turning on the main power. • The zero cross signal is not detected for 3 seconds even though the heater relay is on after turning on the main power or closing the front door. • The detection error occurs twice or more in the 11 zero cross signal detections. This error is defined when the detected zero cross signal is less than 39.
		• Defective fusing relay • Defective fusing relay circuit • Shorted +24V fuse on the PSU • Unstable power supply
		1. Check the power supply source. 2. Replace the +24V fuse on the PSU. 3. Replace the PSU

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
548	A	Fusing unit rotation error
		The fusing belt sensor does not detect change in the actuator for 0.5 seconds after the fusing/paper exit motor has turned on.
		• Defective fusing/paper exit motor • Deformed actuator for the fusing belt sensor • Defective fusing belt sensor • Broken connection between IH inverter and IOB • Incorrectly set fusing unit
		1. Check if the fusing unit is correctly set. 2. Check or replace the actuator for fusing belt sensor. 3. Replace the fusing belt sensor. 4. Replace the IH inverter. 5. Check the connection between IH inverter and IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
549	A	Ferrite core rotation error
		The ferrite roller HP sensor does not detect the ferrite roller home position for 4 seconds after the fusing/paper exit motor has turned on.
		• Deformed actuator for the ferrite roller HP sensor • Defective ferrite roller HP sensor • Defective ferrite roller motor • Shorted +24V fuse on the PSU • Defective IOB
		1. Replace the heating roller. 2. Replace the ferrite roller HP sensor. 3. Replace the ferrite roller motor. 4. Replace the +24V fuse on the PSU. 5. Replace the IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
551	A	Heating roller thermistor error
		The temperature measured by the pressure roller thermistor does not reach 0 °C for 7 seconds.
		• Loose connection of pressure roller thermistor • Defective pressure roller thermistor
		Related SC code: SC 541
		1. Check that the pressure roller thermistor is firmly connected. 2. Replace the pressure roller thermistor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
552	A	Heating roller warm-up error 2
		• The heating roller temperature does not reach the ready temperature for 90 seconds after the heating lamp on. • The heating roller temperature does not reach 80°C for 13 seconds after the IH inverter on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Defective thermistor • Defective IH inverter
		Related SC code: SC 542
		1. Check if the heating roller thermistor is firmly connected. 2. Replace the IH inverter.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
553	A	Heating roller overheat (software error)
		The detected heating roller temperature stays at 230°C or more for 1 second.
		• Defective PSU • Defective IOB • Defective BCU
		Related SC code: SC 543
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
554	A	Heating roller overheat (hardware error)
		The heating roller thermistor detects 240°C or more.
		• Defective PSU • Defective IOB • Defective BCU • Defective fusing control system
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
557	C	Zero cross frequency error
		When the zero cross signal is 66 or more and it is detected 10 times or more in 11 detections, the machine determines that input 60 Hz and SC557 occurs.
		• Noise (High frequency)
		1. Check the power supply source.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
559	A	Consecutive fusing jam
		The paper jam counter for the fusing unit reaches 3 times. The paper jam counter is cleared if the paper is fed correctly. This SC is activated only when SP1159-001 is set to "1" (default "0").
		• Paper jam in the fusing unit.
		Remove the paper that is jammed in the fusing unit. Then make sure that the fusing unit is clean and has no obstacles in the paper feed path.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
561	A	Pressure roller thermistor error
		The temperature measured by the thermistor does not reach 0 °C for 37 seconds.
		• Loose connection of the thermopile • Defective thermopile
		1. Check if the thermistor is firmly connected. 2. Replace the thermistor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
562	A	Pressure roller temperature error
		The temperature of the pressure roller does not reach the ready temperature for 120 seconds after the fusing lamp has turned on.
		• Defective thermistor

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		- Defective fusing lamp
		1. Replace the thermistor for the pressure roller. 2. Replace the fusing lamp.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
563	A	Pressure roller overheat 3 (software error)
		The detected pressure roller temperature stays at 215°C or more for 1 second.
		- Defective PSU - Defective IOB - Defective BCU
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
564	A	Pressure roller overheat 3 (hardware error)
		The thermistor detects 220°C or more.
		- Defective PSU - Defective IOB - Defective BCU - Defective fusing control system
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
565	A	Pressure roller fusing lamp consecutive full power 3
		When the fusing unit is not running in the ready condition, the pressure roller fusing lamp keeps ON full power for 180 seconds or more.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		- Broken pressure roller fusing lamp
		1. Replace the pressure roller lamp. 2. Replace the PSU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
580	D	IH inverter zero cross frequency error
		The zero cross signal is not detected for 1 second or more after the IH inverter has turned on.
		- Disconnected CN983 on the IH inverter - Defective IH inverter - Defective IH coil unit
		1. Check CN983 on the IH inverter. 2. Replace the IH inverter. 3. Replace the IH coil unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
581	D	IH inverter input voltage error
		The IH inverter detects 70V or less/140V or more for 10 seconds.
		- Unusual input voltage - Disconnected CN981 on the IH inverter - Defective IH inverter
		1. Check CN981 on the IH inverter. 2. Replace the IH inverter.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
582	D	IH inverter current error at power on
		The output current from the IH inverter does not reach the proper value when the IH inverter turns on.
		- Disconnected power input terminal 1 and 2

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Defective IH inverter • Defective IH coil unit • Defective fusing unit
		1. Check the power input terminals 1 and 2. 2. Replace the IH inverter. 3. Replace the IH coil unit. 4. Replace the fusing unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
583	D	IH inverter communication error
		The IH inverter does not get the communication signal from the IOB.
		• Broken connection between IH inverter and IOB • Defective IH inverter • Defective IOB • Defective BCU
		1. Check the connection between IH inverter and IOB 2. Replace the IH inverter. 3. Replace the IOB. 4. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
584	A	Fusing unit rotation error
		The fusing belt sensor does not detect a change in the fusing unit actuator for 0.5 seconds.
		• Defective fusing/paper exit motor • Deformed actuator for the fusing belt sensor • Defective fusing belt sensor • Broken connection between IH inverter and IOB • Incorrectly set fusing unit

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Check if the fusing unit is correctly set. 1. Check or replace the actuator for fusing belt sensor. 2. Replace the fusing belt sensor. 3. Replace the IH inverter. 4. Check the connection between IH inverter and IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
585	A	IH coil unit full power (1250W) error
		The IH coil unit full power (1250W) continues for 220 seconds or more.
		• Defective IH inverter • Defective BCU • Defective IOB • Broken connection between IH inverter and IOB • Defective thermopile
		1. Replace the IH inverter. 2. Replace the BCU. 3. Replace the IOB. 4. Check the connection between IH inverter and IOB. 5. Replace the thermopile.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
586	D	IH coil unit rare short error
		The IH inverter detects an unusual current (high current) in the IH coil unit.
		• Defective IH coil unit • Defective IH inverter
		1. Replace the IH coil unit. 2. Replace the IH inverter.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
587	D	IH inverter high temperature error
		The IH inverter detects a high temperature near Q5 (power control circuit on the IH inverter).
		• Defective IH inverter • Defective IH inverter fan • Clogged IH inverter fan intake at the right rear cover • Incorrect input paper type to the machine
		1. Check or clean the IH inverter fan intake. 2. Set the correct paper type on the operation panel. 3. Replace the IH inverter. 4. Replace the IH inverter fan.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
610	D	Mechanical counter error: Bk
611	D	Mechanical counter error: FC
-	-	This SC is only for NA models. The machine detects the mechanical counter error when SP5987-001 is set to "1".
		• Disconnected mechanical counter • Defective mechanical counter
		1. Check or replace the mechanical counter.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
620	D	ARDF communication error
		After the ARDF is detected, the break signal occurs or communication timeout occurs.
		• Incorrect installation of ARDF • ARDF defective • IPU board defective • External noise

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Check the cable connection of the ARDF. 2. Shut out the external noise. 3. Replace the ARDF. 4. Replace the IPU board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
621	D	Finisher communication error
622	D	Paper tray unit communication error
-	-	While the IOB communicates with an optional unit, an SC code is displayed if one of following conditions occurs. • The IOB receives the break signal which is generated by the peripherals only just after the main switch is turned on. • When the IOB does not receive an OK signal from a peripheral 100ms after sending a command to it. The IOB resends the command. The IOB does not receive an OK signal after sending the command 3 times.
		• Cable problems • IOB problems • BCU problems • PSU problems in the machine • Main board problems in the peripherals
		1. Check if the cables of peripherals are correctly connected. 2. Replace the PSU if no power is supplied to peripherals. 3. Replace the IOB or main board of peripherals. 4. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
630	CTL C	CSS communication error
		A communication error occurred during communication with the CSS.
		• Communication line error
		Logging only.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
632	CTL B	MF accounting device error 1
		The controller sends data to the accounting device, but the device does not respond. This occurs three times.
		• Loose connection between the controller and the accounting device
		1. Check the connection.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
633	CTL B	MF accounting device error 2
		After communication is established, the controller receives the brake signal from the accounting device.
		• Loose connection between the controller and the accounting device
		1. Check the connection.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
634	CTL B	MF accounting device error 3
		The accounting device sends the controller the report that indicates a backup RAM error has occurred.
		• Defective controller of the MF accounting device • Battery error
		1. Turn the main switch off and on. 2. Replace the controller board of the accounting device. 3. Replace the battery.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
635	CTL B	MF accounting device error 4
		The accounting device sends the controller the report that indicates the battery voltage error has occurred.
		• Defective controller of the MF accounting device

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Battery error
		1. Turn the main switch off and on. 2. Replace the controller board of the accounting device. 3. Replace the battery.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
650	CTL B	Communication error of the remote service modem (Cumin-M)
-001	-	Authentication error
		The authentication for the Cumin-M fails at a dial up connection.
		• Incorrect SP settings • Disconnected telephone line • Disconnected modem board
		1. Check and set the correct user name (SP5816-156) and password (SP5816-157).
-004	-	Incorrect modem setting
		Dial up fails due to the incorrect modem setting.
		Same as -001
		1. Check and set the correct AT command (SP5819-160).
-005	-	Communication line error
		The supplied voltage is not sufficient due to the defective communication line or defective connection.
		Same as -001
		1. Consult with the user's local telephone company.
-011	-	Incorrect network setting
		Both the NIC and Cumin-M are activated at the same time.
		Same as -001

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Disable the NIC with SP5985-1.
-012	-	Modem board error
		The modem board does not work properly even though the setting of the modem board is installed with a dial up connection.
		Same as -001
		1. Install the modem board. 2. Check and reset the modem board setting with SP5816. 3. Replace the modem board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
651	CTL C	Incorrect dial up connection
		-001: Program parameter error
		-002: Program execution error
		An unexpected error occurs when the modem (Cumin-M) tries to call the center with a dial up connection.
		• Caused by a software bug
		No action required because this SC does not interfere with operation of the machine.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
669	D	EEPROM error
		Retry of EEPROM communication fails three times after the machine has detected the EEPROM error.
		• Caused by noise
		Turn the main power switch off and on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
670	CTL D	No response from controller at power on

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		When the main power is turned on or the machine starts warming up from energy-saving mode, the controller does not receive a command signal from the controller.
		• Loose connection • Defective controller • Defective controller board
		1. Check the connection between the BCU and controller. 2. Replace the controller. 3. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
672	CTL D	Controller-to-operation panel communication error at startup • After the machine is powered on, the communication between the controller and the operation panel is not established, or communication with controller is interrupted after a normal startup. • After startup reset of the operation panel, the attention code or the attention acknowledge code is not sent from the controller within 15 seconds. • After the controller issues a command to check the communication line with the controller at 30-second intervals, the controller fails to respond twice.
		• Controller stalled • Controller board installed incorrectly • Controller board defective • Operation panel connector loose or defective • The controller is not completely shutdown when you turn the main switch off.
		1. Check the setting of SP5875-001. If the setting is set to "1 (OFF)", change it to "0 (OFF)". 2. Check the condition of the controller board. 3. Check the condition of the operation panel. 4. Replace the controller board. 5. Replace the operation panel. 6. Turn the main switch off, wait for one second or more, and turn the main switch on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
681	D	RFID: Communication error • Communication error occurs when the RFID starts to communicate with the RFID receptor. • Retry of RFID communication fails three times after the machine has detected the RFID communication error.
		• Defective RFID reader and writer • Disconnected ASAP I/F • No memory chip on the toner cartridge • Noise
		1. Replace the RFID controller board. 2. Replace the toner cartridge.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
682	D	Memory chip at TD sensor: Communication error
		Retry of memory chip communication fails three times after the machine has detected the memory chip communication error.
		• Damaged memory chip data • Disconnected inter face • No memory chip on the development unit • Noise
		1. Replace the PCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
683	B	RFID: Unit check error
		The machine gets RFID communication error even the toner cartridges have not been installed in the machine.
		Caused by noise
		1. Turn the main power switch off and on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
687	D	Memory address command error
		The BCU does not receive a memory address command from the controller 120 seconds after paper is in the position for registration.
		• Loose connection • Defective controller • Defective BCU
		1. Check if the controller is firmly connected to the BCU. 2. Replace the controller. 3. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
689	D	IH inverter communication error
		• When the machine turns on, recovers from the energy save mode or front and right doors are opened and closed, a time out error for communicating with the IOB occurs. • The IOB detects the break signal from the IH inverter after a communication between the IOB and IH inverter has already been detected. • The IOB fails to communicate with IH inverter three times after the IOB has detected the break signal from the IH inverter.
		• Defective IOB • Defective IH inverter.
		1. Turn the main power switch off and on. 2. If the error occurs again, replace the IOB and/or the IH inverter

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
690	D	GAVD communication error
		• The I2C bus device ID is not identified during initialization. • A device-status error occurs during I2C bus communication. • The I2C bus communication is not established due to an error other than a buffer shortage.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		- Loose connection - Defective IPU - Defective LD controller board
		1. Turn the main switch off and on. 2. Check the cable connection. 3. Replace the laser optics-housing unit. 4. Replace the IPU board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
700	D	Original stopper HP error
		When the pick-up motor turns on clockwise, the original stopper HP sensor does not detect the home position of the original stopper.
		- Defective original stopper HP sensor - Defective pick-up motor - Defective DF drive board
		1. Replace the DF drive board if the pick-up motor does not work correctly. 2. Replace the pick-up motor. 3. Replace the original stopper HP sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
701	D	Pick-up roller HP error
		When the pick-up motor turns on counterclockwise, the pick-up roller HP sensor does not detect the home position of the pick-up roller.
		- Defective pick-up roller HP sensor - Defective pick-up motor - Defective DF drive board
		1. Replace the DF drive board if the pick-up motor does not work correctly. 2. Replace the pick-up motor. 3. Replace the pick-up roller HP sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
725	B	Finisher exit guide plate motor error
		After moving away from the guide plate position sensor, the exit guide is not detected at the home position within the prescribed time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		• Guide plate motor disconnected, defective • Guide plate motor overloaded due to obstruction • Guide plate position sensor disconnected, defective
		1. Check the connections and cables for the components mentioned above. 2. Check for blockages in the guide plate motor mechanism. 3. Replace the guide plate position sensor and/or guide plate motor 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
730	B	Finisher Tray 1 shift motor error
		The shift roller HP sensor of the upper tray does not activate within the prescribed time after the shift tray starts to move toward or away from the home position. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		• Shift tray HP sensor of the upper tray disconnected, defective • Shift tray motor of the upper tray is disconnected, defective • Shift tray motor of the upper tray overloaded due to obstruction
		1. Check the connections and cables for the components mentioned above. 2. Check for blockages in shift motor mechanism. 3. Replace the shift tray HP sensor and/or shift motor 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
740	B	Finisher corner stapler motor error
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. **For the 2000/3000-sheet (booklet) finisher** • Staple movement is not finished after a certain time.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		For the 1000-sheet finisher • The stapler motor does not switch off within the prescribed time after operating. • The HP sensor of the staple unit does not detect the home position after the staple unit moves to its home position. • The HP sensor of the staple unit detects the home position after the staple unit moves from its home position.
		• Staple jam • Motor overload • Defective stapler motor
		1. Check the connections and cables for the components mentioned above. 2. Replace the HP sensor and/or stapler motor 3. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
741	B	Finisher corner stapler rotation motor error
		The stapler does not return to its home position within the specified time after stapling. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		• Defective stapler rotation motor • Overload to the stapler rotation motor • Defective stapler rotation HP sensor
		1. Replace the stapler rotation motor. 2. Replace the stapler rotation HP sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
742	B	Finisher stapler movement motor error
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. **For the 2000/3000-sheet (booklet) finisher** • Staple movement is not finished for a certain time. **For the 1000-sheet finisher**

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		- The stapler HP sensor is not activated within the specified time after the stapler motor turned on. (first detection: jam error, consecutive twice detection SC code).
		- Motor overload - Loose connection of the stapler home position sensor - Loose connection of the stapler movement motor - Defective stapler home position sensor - Defective stapler movement motor
		1. Check the connection of the stapler movement motor. 2. Check the connection of the stapler home position sensor. 3. Replace the stapler home position sensor. 4. Replace the stapler movement motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
743	B	Booklet stapler motor error 1
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. **For the 2000/3000-sheet (booklet) finisher** The front stapler unit saddle-stitch motor does not start operation within the specified time.
		- Motor overload - Loose connection of the front stapler motor - Defective front stapler motor
		Replace the front stapler motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
744	B	Booklet staple motor error 2
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. **For the 2000/3000-sheet (booklet) finisher** The rear stapler unit saddle-stitch motor does not start operation within the specified time.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Motor overload • Loose connection of the rear stapler motor • Defective rear stapler motor
		Replace the front stapler motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
746	B	1000-sheet booklet finisher: Stack feed motor error
		• **This SC is not used in this machine.**

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
750	B	1000/2000/3000-sheet (booklet) finisher: Tray lift motor error
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. The upper tray paper height sensor does not change its status with the specified time after the tray raises or lowers.
		1. Check the connections to the shift tray motor. 2. Defective shift tray motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
760	B	Finisher punch motor error
		The punch HP sensor is not activated within the specified time after the punch motor turned on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		• Punch HP sensor disconnected, defective • Punch motor disconnected or defective • Punch motor overload due to obstruction
		1. Check the connections and cables for the punch motor and HP sensor. 2. Check for blockages in the punch motor mechanism. 3. Replace the punch HP sensor and/or punch motor 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
761	B	Finisher folder plate motor error
		The folder plate moves but is not detected at the home position within the specified time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		• Folder plate HP sensor disconnected, defective • Folder plate motor disconnected, defective • Folder plate motor overloaded due to obstruction.
		1. Check the connections and cables for the folder plate motor and HP sensor. 2. Check for blockages in the folder plate motor mechanism. 3. Replace the folder plate HP sensor and/or folder plate motor 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
763	B	Punch movement motor error
		The punch unit moves but is not detected at the home position within the specified time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		• Motor harness disconnected, loose, defective • Defective motor
		1. Check the connections to the punch movement motor. 2. Defective punch movement motor

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
764	B	Paper position sensor slide motor error
		The paper position sensor moves but is not detected at the home position within the specified time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		• Motor harness disconnected, loose, defective • Defective motor
		1. Check the connections to the paper position sensor slide motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Defective paper position sensor slide motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
791	D	Bridge unit error
		The machine recognizes the finisher, but does not recognize the bridge unit.
		• Defective connector • Broken harness
		1. Check the connections between the bridge unit and the machine. 2. Install a new bridge unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
792	B	Finisher error
		The machine does not recognize the finisher, but recognizes the bridge unit.
		• Defective connector • Defective harness • Incorrect installation
		1. Check the connections between the finisher and the machine. 2. Install a new finisher.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
818	CTL B	Watch-dog error
		While the system program is running, other processes do not operate at all.
		• Defective controller • Software error
		1. Replace the controller.
		Note • See Note 1 at the end of the SC table

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
819	CTL D	Fatal error
[696E]		Process error
		System completely down
		• Defective RAM DIMM • Defective ROM DIMM • Defective controller • Software error
		1. Check and/or replace the RAM DIMM. 2. Check and/or replace the ROM DIMM. 3. Replace the controller.
		Note • See Note 1 at the end of the SC table
[766D]		Memory error
		Unexpected system memory size
		• Defective RAM DIMM • Defective ROM DIMM • Defective controller • Software error
		1. Check and/or replace the RAM DIMM. 2. Check and/or replace the ROM DIMM. 3. Replace the controller.
[4361]		Kernel stop error
		The cache error trap occurs in the CPU.
		• CPU cache error
		1. Replace the controller.
-		Kernel stop error

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		An error in the operation system (An error message is output.)
		• Defective CPU • Defective memory • Defective flash memory • Incorrect software
		1. Replace the memory. 2. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
820	CTL D	Self-diagnostics error: CPU [XXXX]: Detailed error code
[0001] to [06FF] [0801] to [4005]		CPU error During the self-diagnostic, the controller CPU detects an error. There are 47 types of error code (0001 to 4005) depending on the cause of the error. The CPU detects an error and displays the specific error code with the program address where the error occurs.
		• System firmware problem • Defective controller
		1. Turn the main switch off and on. 2. Reinstall the controller system firmware. 3. Replace the controller. When the problem cannot be fixed with the above procedure, the following information displayed on the screen needs to be fed back to a technical support center. • SC code • Detailed error code • Program address
[0702] [0709] [070A]		CPU/Memory Error
		• System firmware problem • Defective RAM-DIMM • Defective controller

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Reinstall the controller system software. 2. Replace the RAM-DIMM. 3. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
821	CTL D	Self-diagnostics error: ASIC [XXXX]: Detailed error code
[0B00]		ASIC error
		The write-&-verify check error has occurred in the ASIC.
		• Defective ASIC device
		1. Replace the controller.
[0B06]		ASIC detection error
		The I/O ASIC for system control is not detected.
		• Defective ASIC • Defective North Bridge and PCI I/F
		1. Replace the controller board.
[0B10]		SHM register error • The initialization of bus connection or read for SHM fails. • The register of SHM is different from specified value.
		• Defective connection bus • Defective SHM
		1. Replace the controller board
[0D05]		Self-diagnosis error: ASIC
		The CPU checks if the ASIC timer works correctly compared with the CPU timer. If the ASIC timer does not function in the specified range, this SC code is displayed.
		• System firmware problem • Defective RAM-DIMM

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Defective controller
		1. Reinstall the controller system firmware. 2. Replace the RAM-DIMM. 3. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
822	CTL B	Self-diagnostic error: HDD (Hard Disk Drive) [XXXX]: Detailed error code
[3003]		Timeout error
[3004]		Command error
-	-	When the main switch is turned on or starting the self-diagnostic, the HDD stays busy for the specified time or more.
-	-	• Loose connection • Defective HDD • Defective controller
-	-	1. Check that the HDD is correctly connected to the controller. 2. Replace the HDD. 3. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
823	CTL B	Self-diagnostic error: NIB [XXXX]: Detailed error code
[6101]		MAC address check sum error The result of the MAC address check sum does not match the check sum stored in ROM.
[6104]		PHY IC error The PHY IC on the controller cannot be correctly recognized.
[6105]		PHY IC loop-back error An error occurred during the loop-back test for the PHY IC on the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
-		1. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
824	CTL D	[1401] Self-diagnosis error: Standard NVRAM The controller cannot recognize the standard NVRAM installed or detects that the NVRAM is defective.
		• Loose connection • Defective standard NVRAM • Defective controller
		1. Check the standard NVRAM is firmly inserted into the socket. 2. Replace the NVRAM. 3. Replace the controller

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
826	CTL D	[15FF] Self-diagnostic Error: RTC/optional NVRAM The RTC device is not detected.
		• RTC defective • NVRAM without RTC installed • Backup battery discharged
		1. Replace the NVRAM with another NVRAM with an RTC device.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
827	CTL D	Self-diagnostic error: Standard SDRAM DIMM [XXXX]: Detailed error code
[0201]		Verification error
		Error detected during a write/verify check for the standard RAM (SDRAM DIMM).
		• Loose connection

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Defective SDRAM DIMM • Defective controller
		1. Turn the main switch off and on. 2. Replace the SDRAM DIMM. 3. Replace the controller.
[0202]		Resident memory error
		The SPD values in all RAM DIMM are incorrect or unreadable.
		• Defective RAM DIMM • Defective SPD ROM on RAM DIMM • Defective 12C bus
		1. Replace the RAM DIMM.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
828	CTL D	Self-diagnostic error: ROM [XXXX]: Detailed error code
[0101]		Check sum error 1 • The boot monitor and OS program stored in the ROM DIMM is checked. If the check sum of the program is incorrect, this SC code is displayed.
[0104]		Check sum error 2 All areas of the ROM DIMM are checked. If the check sum of all programs stored in the ROM DIMM is incorrect, this SC code is displayed.
-	-	• Defective ROM DIMM • Defective controller
-	-	1. Turn the main switch on and off. 2. Replace the ROM DIMM 3. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
829	CTL	Self-diagnosis error: optional RAM

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
	B	[XXXX]: Detailed error code
[0401]		Verification error (Slot 1) The data stored in the optional RAM in Slot 1 does not match the data when reading.
[0402]		Composition error (Slot 1) The result of checking the composition data of the optional RAM in Slot 1 on the controller is incorrect.
-	-	• Not specified RAM DIMM installed • Defective RAM DIMM
-	-	1. Turn the main switch off and on. 2. Replace the RAM DIMM. 3. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
851	CTL B	IEEE1394 interface error
		The 1394 interface is unusable.
		• Defective IEEE1394 • Defective controller.
		1. Turn the main switch off and on. 2. Replace the IEEE1394 interface board. 3. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
853	CTL B	Wireless LAN card not detected
		The wireless LAN card is not detected before communication is established, though the wireless LAN board is detected.
		• Loose connection
		1. Check the connection.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
854	CTL B	Wireless LAN/Bluetooth card not detected
		The wireless LAN/Bluetooth card is not detected after communication is established, but the wireless LAN board is detected.
		• Loose connection
		1. Check the connection.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
855 856	CTL B	Wireless LAN/Bluetooth card error
		An error is detected in the wireless LAN/Bluetooth card.
		• Loose connection • Defective wireless LAN/Bluetooth card
		1. Check the connection. 2. Replace the wireless LAN/Bluetooth card.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
857	CTL B	USB interface error
		The USB interface cannot be used due to a driver error.
		• Defective USB driver • Loose connection
		1. Check the connection. 2. Replace the USB board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
860	CTL B	HDD: Initialization error
		The controller detects that the hard disk fails.
		• HDD not initialized • Defective HDD

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Reformat the HDD. 2. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
861	CTL D	HDD: Reboot error
		The HDD does not become ready within 30 seconds after the power is supplied to the HDD.
		• Loose connection • Defective cables • Defective HDD • Defective controller
		1. Check the connection between the HDD and controller. 2. Check and replace the cables. 3. Replace the HDD. 4. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
863	CTL D	HDD: Read error
		The data stored in the HDD cannot be read correctly.
		• Defective HDD • Defective controller
		1. Replace the HDD. 2. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
864	CTL D	HDD: CRC error
		While reading data from the HDD or storing data in the HDD, data transmission fails.
		• Defective HDD

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
865	CTL D	HDD: Access error
		An error is detected while operating the HDD.
		Defective HDD
		Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
866	CTL B	SD card authentication error
		A correct license is not found in the SD card.
		• SD-card data is corrupted.
		1. Store correct data in the SD card.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
867	CTL D	SD card error
		The SD card is ejected from the slot.
		1. Install the SD card. 2. Turn the main switch off and on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
868	CTL D	SD card access error • -13 to -3: File system error • Other number: Device error
		An error report is sent from the SD card reader. • An error is detected in the SD card.
		1. For a file system error, format the SD card on your PC. 2. For a device error, turn the mains switch off and on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		3. Replace the SD card. 4. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
870	CTL B	Address book error
		An error is detected in the data copied to the address book over a network.
		• Defective software program • Defective HDD • Incorrect path to the server
		1. Initialize the address book data (SP5-846-050). 2. Initialize the user information (SP5-832-006). 3. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
872	CTL B	HDD mail data error
		An error is detected in the HDD at machine initialization.
		• Defective HDD • Power failure during an access to the HDD
		1. Turn the main switch off and on. 2. Initialize the HDD partition (SP5-832-007). 3. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
873	CTL B	HDD mail transfer error
		An error is detected in the HDD at machine initialization.
		• Defective HDD • Power failure during an access to the HDD
		1. Initialize the HDD partition (SP5-832-008).

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
874	CTL D	Delete All error 1: HDD
		An error is detected while all of the HDD or NVRAM are formatted physically by the Data Overwrite Security Unit (B735).
		• Data Overwrite Security Unit (SD card) not installed • Defective HDD
		1. Install the Data Overwrite Security Unit (B735). 2. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
875	CTL D	Delete All error 2: Data area
		An error is detected while all of the HDD or NVRAM are formatted logically by the Data Overwrite Security Unit (B735).
		• The logical format for the HDD fails.
		1. Turn the main switch off/on and try the operation again

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
876	CTL D	Log Data Error An error was detected in the handling of the log data at power on or during machine operation. This can be caused by switching the machine off while it is operating.
-001		Log Data Error 1
		• Damaged log data file in the HDD
		1. Initialize the HDD with SP5832-004.
-002		Log Data Error 2
		• An encryption module not installed
		1. Disable the log encryption setting with SP9730-004 ("0" is off.)

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Install the DESS module.
-003		Log Data Error 3
		• Invalid log encryption key due to defective NVRAM data
		1. Initialize the HDD with SP5832-004. 2. Disable the log encryption setting with SP9730-004 ("0" is off.)
-004		Log Data Error 4
		• Unusual log encryption function due to defective NVRAM data
		1. Initialize the HDD with SP5832-004.
-005		Log Data Error 5
		• Installed NVRAM or HDD which is used in another machine
		1. Reinstall the previous NVRAM or HDD. 2. Initialize the HDD with SP5832-004.
-099		Log Data Error 99
		• Other than the above causes
		1. Ask your supervisor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
877	CTL D	HDD Data Overwrite Security SD card error
		The 'all delete' function cannot be executed but the Data Overwrite Security Unit (B735) is installed and activated.
		• Defective SD card (B735) • SD card (B735) not installed
		1. Replace the NVRAM and then install the new SD card (B735). 2. Check and reinstall the SD card (B735).

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
880	CTL	File format converter error

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
	D	The file format converter does not respond.
		• Defective file format converter
		1. Replace the file format converter.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
900	CTL D	Electric counter error
		Abnormal data in the counters.
		• Defective NVRAM • Defective controller
		1. Check the connection between the NVRAM and controller. 2. Replace the NVRAM. 3. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
910	CTL D	External Controller Error 1
911		External Controller Error 2
912		External Controller Error 3
913		External Controller Error 4
914		External Controller Error 5
-	-	The external controller alerted the machine about an error.
-	-	• Please refer to the instructions for the external controller (application).

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
919	CTL D	External Controller Error 6
		While EAC (External Application Converter), the conversion module, was operating normally, the receipt of a power line interrupt signal from the FLUTE serial driver was detected, or BREAK signal from the other station was detected.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		- Power outage at the EFI controller - EFI controller was rebooted - Connection to EFI controller loose

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
920	CTL D	Printer application error
		An error is detected in the printer application program.
		- Defective software - Unexpected hardware resource (e.g., memory shortage)
		1. Software defective; switch off/on, or change the controller firmware if the problem is not solved 2. Insufficient memory

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
921	CTL D	Printer font error
		A necessary font is not found in the SD card.
		- A necessary font is not found in the SD card. - The SD card data is corrupted.
		1. Check that the SD card has the correct data.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
925	CTL D	Netfile function error
		The management area or management file on the HDD is corrupted.
		- Defective HDD - Data inconsistency (e.g., caused by power failure)
		When SC 860-865 keep occurring: 1. Follow the troubleshooting procedures. **In other cases:**

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Initialize the netfile partition. 2. Initialize the hard disk. 3. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
990	CTL D	Software performance error
		The software makes an unexpected operation.
		• Defective software • Defective controller • Software error
		1. Turn the main switch off and on. 2. Reinstall the controller and/or engine main firmware.
		Note • See Note 1 at the end of the SC table.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
991	CTL C	Software continuity error
		The software has attempted to perform an unexpected operation. However, unlike SC 990, the object of the error is continuity of the software.
		• Software program error • Internal parameter incorrect, insufficient working memory.
		1. This SC is not displayed on the LCD (logging only).

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
992	CTL D	Undefined error
		Defective software program
		• An error undetectable by any other SC code occurred

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
994	CTL C	Operation panel management records exceeded
		An error occurred because the number of records exceeded the limit for images managed in the service layer of the firmware. This can occur if there if there are too many application screens open on the operation panel.
		• No action required because this SC does not interfere with operation of the machine.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
995	CTL D	Controller Board Mismatch
		The information on the controller board does not match that of the machine
		• Wrong controller board installed
		Reinstall the correct controller board for this machine.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
997	CTL B	Application function selection error • The application selected by the operation panel key does not start or ends abnormally.
		• Software (including the software configuration) defective • An option required by the application (RAM, DIMM, board) is not installed • Nesting of the fax group addresses is too complicated
		1. Check the devices necessary for the application program. If necessary devices have not been installed, install them. 2. Check that application programs are correctly configured. 3. For a fax operation problem, simplify the nesting of the fax group addresses. 4. Take necessary countermeasures specific to the application program. If the logs can be displayed on the operation panel, see the logs.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
998	CTL D	Application start error
		No applications start within 60 seconds after the power is turned on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• Loose connection of RAM-DIMM, ROM-DIMM • Defective controller • Software problem
		1. Check the setting of SP5875-001. If the setting is set to "1 (OFF)", change it to "0 (OFF)". 2. Check if the RAM-DIMM and ROM-DIMM are correctly connected. 3. Reinstall the controller system firmware. 4. Replace the controller.

Note 1

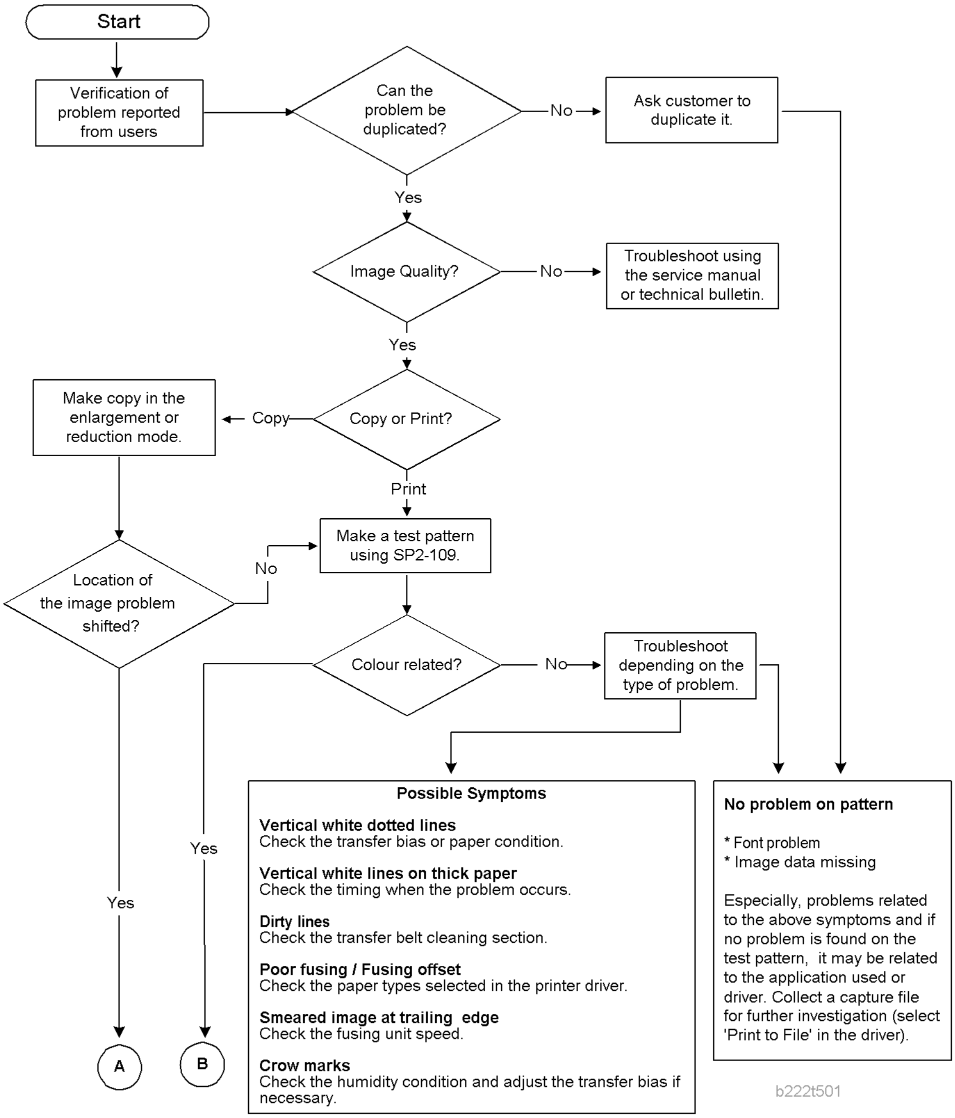
If a problem always occurs in a specific condition (for example. printer driver setting, image file), the problem may be caused by a software error. In this case, the following data and information needs to be sent back to your product specialist. Please understand that it may take some time to get a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

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

Troubleshooting Guide

Image Quality

The following work-flow shows the basic troubleshooting steps for the image quality problems on this product.


Start
Verification of problem reported from users
Can the problem be duplicated?
No
Ask customer to duplicate it.
Yes
Image Quality?
No
Troubleshoot using the service manual or technical bulletin.
Yes
Copy or Print?
Copy
Make copy in the enlargement or reduction mode.
Print
Make a test pattern using SP2-109.
Location of the image problem shifted?
No
Colour related?
No
Troubleshoot depending on the type of problem.
Yes
Yes
A
B
b222t501

Possible Symptoms

Vertical white dotted lines
Check the transfer bias or paper condition.

Vertical white lines on thick paper
Check the timing when the problem occurs.

Dirty lines
Check the transfer belt cleaning section.

Poor fusing / Fusing offset
Check the paper types selected in the printer driver.

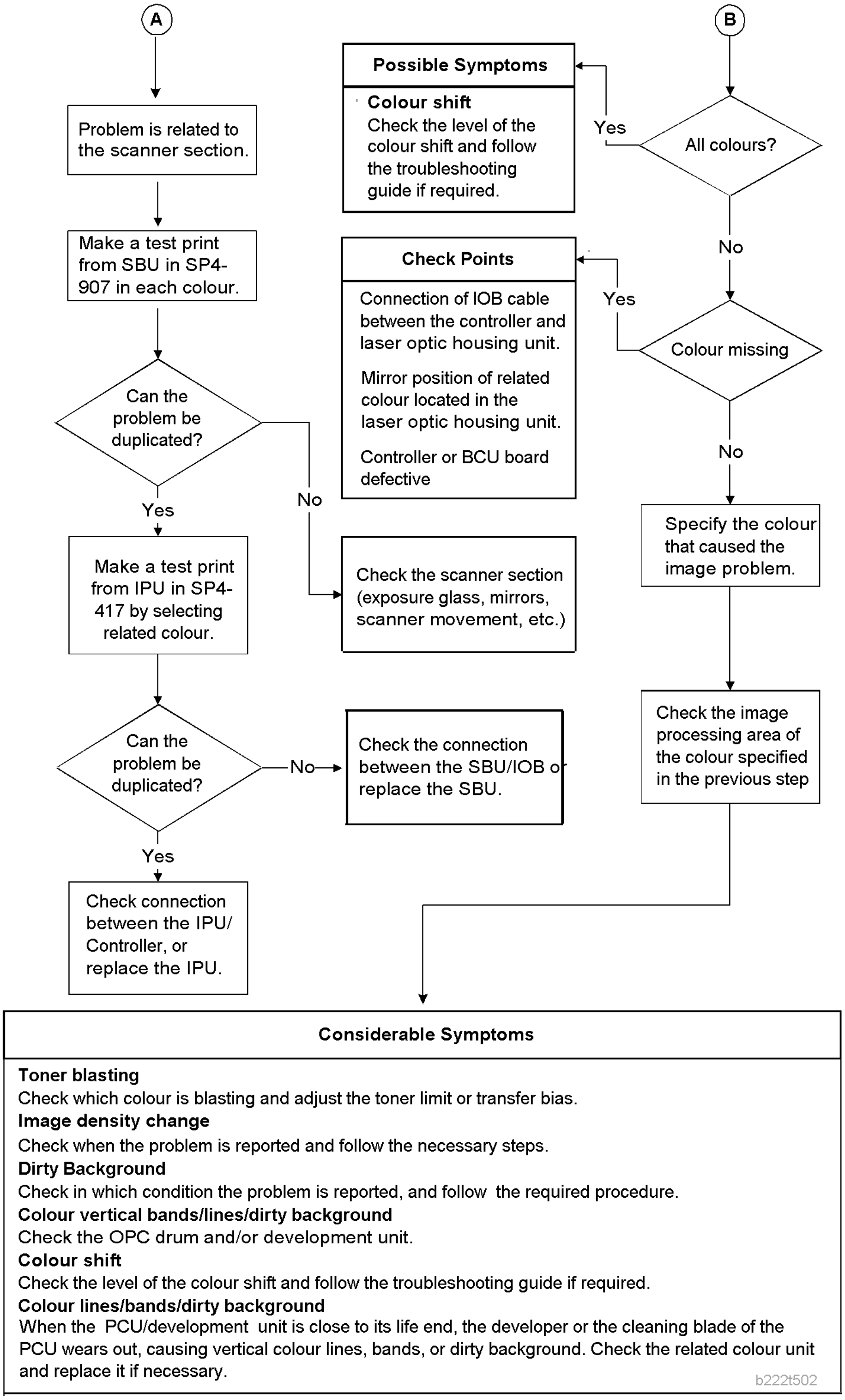
Smeared image at trailing edge
Check the fusing unit speed.

Crow marks
Check the humidity condition and adjust the transfer bias if necessary.

No problem on pattern

- Font problem
- Image data missing

Especially, problems related to the above symptoms and if no problem is found on the test pattern, it may be related to the application used or driver. Collect a capture file for further investigation (select 'Print to File' in the driver).


A
Problem is related to the scanner section.
Make a test print from SBU in SP4-907 in each colour.
Can the problem be duplicated?
Yes
No
Make a test print from IPU in SP4-417 by selecting related colour.
Can the problem be duplicated?
No
Check the connection between the SBU/IOB or replace the SBU.
Yes
Check connection between the IPU/ Controller, or replace the IPU.
Check the scanner section (exposure glass, mirrors, scanner movement, etc.)
B
All colours?
Yes
Possible Symptoms
Colour shift
Check the level of the colour shift and follow the troubleshooting guide if required.
No
Colour missing
Yes
Check Points
Connection of IOB cable between the controller and laser optic housing unit.
Mirror position of related colour located in the laser optic housing unit.
Controller or BCU board defective
No
Specify the colour that caused the image problem.
Check the image processing area of the colour specified in the previous step
b222t502

Considerable Symptoms

Toner blasting
Check which colour is blasting and adjust the toner limit or transfer bias.

Image density change
Check when the problem is reported and follow the necessary steps.

Dirty Background
Check in which condition the problem is reported, and follow the required procedure.

Colour vertical bands/lines/dirty background
Check the OPC drum and/or development unit.

Colour shift
Check the level of the colour shift and follow the troubleshooting guide if required.

Colour lines/bands/dirty background
When the PCU/development unit is close to its life end, the developer or the cleaning blade of the PCU wears out, causing vertical colour lines, bands, or dirty background. Check the related colour unit and replace it if necessary.

Line Position Adjustment

When there are color registration errors on the output, do the line position adjustment as follows.

Note

- Use A3/DLT size paper for this adjustment.

Test

1. **Do SP2-111-003 (Mode c: rough adjustment).**
2. **Use SP2-194-007 to check if the result of the line position adjustment is correct (0: Completed successfully, 1: Not completed). If the result is "1", refer to 'Countermeasure list for color registration errors'.**
3. **Do SP2-111-001 (Mode a: fine adjustment twice).**
4. **Use SP2-194-007 to check if the result of the line position adjustment is correct (0: Completed successfully, 1: Not completed). If the result is "1", refer to 'Countermeasure list for color registration errors'.**
5. **Put some A3/DLT paper on the by-pass tray.**

   Note

   - When you print a test pattern, use the by-pass tray to feed the paper.
6. **Print out test pattern "7" with SP2-109-003.**
7. **Check the printed output with a loupe.**
8. **If there are no color registration errors on the output, the line position adjustment is correctly done. If not, refer to the countermeasure list for color registration errors.**

Countermeasure list for color registration errors

After Executing SP2-111-003			
Result (SP2-194)		Test pattern check	Possible cause/Countermeasure
-007	-010, -011, -012		
Result: "1"	Result: "2" or "3" (Line pattern detection failure)	White image, Abnormal image, Low density	• Defective laser optics housing unit shutter • Defective image processing unit • Low density of test pattern • Defective BCU 1. Replace the shutter motor.

After Executing SP2-111-003			
			2. Replace the high voltage power supply unit. 3. Do the forced process control (SP3-011-001) or supply some toner (SP3-015-xxx). 4. Replace the BCU.
		Normal image, but with color registration errors	• Defective ID sensor shutter • Defective ID sensor • Defective BCU 1. Replace the ID sensor shutter solenoid. 2. Replace the ID sensor. 3. Replace the BCU.
	One of results (-010, -011, -012): "5" (Out of adjustable range)	The main scan registrations of M, C, Y are shifted by more than ± 15 mm from the main scan registration of Bk.	• Defective laser optics housing unit • Defective BCU 1. Replace the laser optics housing unit. 2. Replace the BCU.
		The sub scan registrations of M, C, Y are shifted by more than ± 20 mm from the sub scan registration of Bk.	• Defective image transfer belt • Defective drive units • Defective BCU 1. Replace the image transfer belt. 2. Replace the drum motor. 3. Replace the BCU.
		The main scan registration is shifted by more than ± 0.66 mm, but only at the central area of the image on the output.	• Defective ID sensor at center • Deformed center area on the image transfer belt • Defective BCU 1. Replace the ID sensor. 2. Replace the image transfer belt. 3. Replace the BCU.
		The skew for M, C, Y is more than ± 0.75 mm	• Defective PCU • Defective laser optics housing unit

After Executing SP2-111-003			
		from the main scan registration of Bk	• Defective BCU 1. Reinstall or replace the PCU. 2. Replace the laser optics housing unit. 3. Replace the BCU.
		Others	• Skew correction upper limit error • Defective BCU • Defective laser optics housing unit 1. Replace the BCU. 2. Replace the laser optics housing unit.
Result: "0"	-	-	Do SP2-111-001 or -002.

After Executing SP2-111-001			
Result (SP2-194)		**Test pattern check**	**Possible cause/Countermeasure**
-007	-010, -011, -012		
Result: "1"	Result: "2" or "3" (Line pattern detection failure)	White image, Abnormal image, Low density	• Defective laser optics housing unit shutter • Defective image processing unit • Low density of test pattern • Defective BCU 1. Replace the shutter motor. 2. Replace the high voltage power supply unit. 3. Do the forced process control (SP3-011-001) or supply some toner (SP3-015-xxx). 4. Replace the BCU.
		Normal image, but with color registration errors	• Defective ID sensor shutter • Defective ID sensor • Defective BCU 1. Replace the ID sensor shutter solenoid.

After Executing SP2-111-001			
			2. Replace the ID sensor. 3. Replace the BCU.
	Result: "5" (Out of adjustable range)	Low image density on the output	• Low pattern density 1. Do the forced process control (SP3-011-001) or supply some toner (SP3-015-xxx).
		The main scan registrations of M, C, Y are shifted by more than ± 1.4 mm from the main scan registration of Bk.	• No defective component • Defective laser optics housing unit • Defective BCU 1. Do SP2-111-003 again. 2. Replace the laser optics housing unit. 3. Replace the BCU.
		The sub scan registrations of M, C, Y are shifted by more than ± 1.4 mm from the sub scan registration of Bk.	• No defective component • Defective image transfer belt • Defective drive units • Defective BCU 1. Do SP2-111-003 again. 2. Replace the image transfer belt. 3. Replace the drum motor. 4. Replace the BCU.
		The main scan registration is shifted by more than ± 0.66 mm, but only at the central area of the image on the output.	• Defective ID sensor at center • Deformed center area on the image transfer belt • Defective BCU 1. Replace the ID sensor. 2. Replace the image transfer belt. 3. Replace the BCU.
		The skew for M, C, Y is more than ± 0.75 mm from the main scan registration of Bk. – at the end of the scan line?	• Defective PCU • Defective laser optics housing unit • Defective BCU 1. Reinstall or replace the PCU.

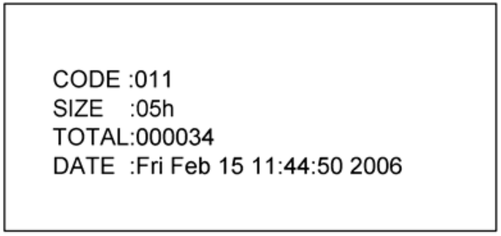
After Executing SP2-111-001			
			2. Replace the laser optics housing unit. 3. Replace the BCU.
		Others	• Skew correction upper limit error • Defective BCU • Defective laser optics housing unit 1. Replace the BCU. 2. Replace the laser optics housing unit.
Result: "0"	No color registration errors	The main scan registration of Bk is shifted.	• Abnormal SP setting value of main scan: Bk 1. Adjust the value with SP2-101-001.
		The main scan length of Bk is shifted.	• Abnormal SP setting value of main scan length detection: Bk 1. Adjust the value with SP2-185-001.
	Color registration errors	Low image density on the output	• Low pattern density 1. Do the forced process control (SP3-011-001) or supply some toner (SP3-015-xxx).
		The main scan registration is shifted, but only at the central area of the image on the output.	• Defective ID sensor at center • Deformed center area on the image transfer belt • Defective BCU 1. Replace the ID sensor. 2. Replace the image transfer belt. 3. Replace the BCU.
		The main scan registrations of M, C, Y are shifted.	• Defective laser optics housing unit • Defective ID sensor • Defective BCU • Incorrect SP value 1. Replace the laser optics housing unit. 2. Replace the ID sensor. 3. Replace the BCU.

After Executing SP2-111-001			
			4. Adjust the value with SP2-182-004 to -021.
		The sub scan registrations of M, C, Y are shifted.	• Defective image transfer belt • Defective drive units • Defective ID sensor • Defective BCU • Incorrect SP value 1. Replace the image transfer belt. 2. Replace the ID sensor. 3. Replace the drum motor. 4. Replace the BCU. 5. Adjust the value with SP2-182-022 to -039.
		The skew of M, C, Y is different.	• Defective PCU • Defective laser optics housing unit • Defective IOB 1. Reinstall or replace the PCU. 2. Replace the laser optics housing unit. 3. Replace the IOB.
		The sub scan lines are shifted. Shifted lines appear cyclically.	• Defective PCU • Defective drive unit • Drum phase adjustment error 1. Do SP1-902-001 (Drum phase adjustment); see Replacement and Adjustment – Drive Unit – Gear Unit for details. 2. Reinstall or replace the PCU. 3. Check or replace the drive unit.

Jam Detection

Paper Jam Display

SP7-504 shows the paper jam history.



```
CODE :011
SIZE   :05h
TOTAL:000034
DATE  :Fri Feb 15 11:44:50 2006
```

CODE: indicates the jam code.

SIZE: indicates the paper Size Code.

Total: Indicates the total counter (SP7-502-001).

DATE: indicates the date when the jam occurred.

Jam Codes and Display Codes

Jam Code SP	Display	Description	LCD Display
7504 1	At Power On	Paper is not fed at power on.	-
7504 3	Tray 1: ON	Paper is not fed from tray 1.	A
7504 4	Tray 2: ON	Paper is not fed from tray 2.	A
7504 5	Tray 3: ON	Paper is not fed from tray 3 (LCT).	Y
7504 6	Tray 4: ON	Paper is not fed from tray 4.	Y
7504 8	Bypass: ON	Paper is not fed from the by-pass tray.	A
7504 9	Duplex: ON	Paper is jammed at the duplex unit.	Z
7504 11	Vertical Transport 1: ON	Vertical transport sensor 1 does not detect paper from tray 1.	A
7504 12	Vertical Transport 2: ON	Vertical transport sensor 2 does not detect paper from tray 2.	A

Jam Code SP	Display	Description	LCD Display
7504 13	Bank Transport 1	Vertical transport sensor 1 or relay sensor does not detect paper from tray 3 (LCT).	Y
7504 17	Registration: ON	Registration sensor does not detect paper.	B
7504 18	Fusing Entrance: ON	Fusing entrance sensor does not detect paper.	B
7504 19	Fusing Exit: ON	Fusing exit sensor does not detect paper.	B
7504 20	Paper Exit: ON	Paper exit sensor does not detect paper.	C
7504 21	Relay Exit: ON	Tray exit sensor (bridge unit) does not detect paper.	D
7504 22	Relay Transport: ON	Relay sensor (bridge unit) does not detect paper.	D
7504 24	Junction Gate Feed: ON	Junction gate jam sensor does not detect paper.	C
7504 25	Duplex Exit: ON	Duplex exit sensor does not detect paper.	Z
7504 26	Duplex Entrance: ON (In)	Duplex entrance sensor does not detect paper.	Z
7504 27	Duplex Entrance: ON (Out)	Duplex entrance sensor does not detect paper again after paper has passed this sensor.	Z
7504 28	1-Bin Exit Sensor	1-bin tray exit sensor does not detect paper.	C
7504 51	SEF Sensor 1	Vertical transport sensor 1 does not turn off.	A
7504 52	SEF Sensor 2	Vertical transport sensor 2 does not turn off.	A
7504 53	Bank SEF Sensor 1	Vertical transport sensor or relay sensor 1 does not turn off.	Y
7504 54	Bank SEF Sensor 2	Vertical transport sensor 2 does not turn off.	Y
7504 57	Regist Sensor	Registration sensor does not turn off.	B
7504 60	Exit Sensor	Paper exit sensor does not turn off.	C
7504 61	Relay Exit Sensor	Tray exit sensor (bridge unit) does not turn off.	D
7504 62	Relay Sensor	Relay sensor (bridge unit) does not turn off.	D
7504 64	Junction Gate Feed: OFF	Junction gate jam sensor does not turn off.	C

Jam Code SP	Display	Description	LCD Display
7504 65	Duplex Exit Sensor	Duplex exit sensor does not turn off.	Z
7504 66	Duplex Entrance: OFF (In)	Duplex entrance sensor does not turn off.	Z
7504 67	Duplex Entrance: OFF (Out)	Duplex entrance sensor does not turn off after paper has passed this sensor.	Z
7504 68	1-Bin Exit: ON	1-bin tray exit sensor does not turn off.	C
7504 100	Finisher Entrance (B408)	Paper does not reach to the entrance sensor or stay at the entrance sensor.	R1-R2
7504 101	Finisher Shift Tray Exit (B408)	Paper does not reach to the lower tray exit sensor or stay at the lower tray exit sensor.	R1-R2
7504 102	Finisher Staple (B408)	Paper does not reach to the staple tray entrance sensor or stay at the staple tray entrance sensor.	R3-R5
7504 103	Finisher Exit (B408)	• Lower tray exit sensor does not detect paper after the stack feed-out belt has fed paper. • Lower tray exit sensor still detects paper after the stack feed-out belt has returned to the home position.	R3-R5
7504 104	Finisher Drive Motor (B408)	Exit guide plate HP sensor does not turn on or off for specified time.	
7504 105	Finisher Tray Lift Motor (B408)	• Stack height sensor does not detect paper after the lower tray has lifted up. • Stack height sensor still detects paper after the lower tray has lifted down.	R1-R2
7504 106	Finisher Jogger Motor (B408)	• Jogger fence HP sensor does not turn off after the jogger fence has moved from its home position. • Jogger fence HP sensor does not turn on after the jogger fence has returned to its home position.	R3-R5

Jam Code SP	Display	Description	LCD Display
7504 107	Finisher Shift Motor (B408)	• Shift roller HP sensor does not turn off after the shift roller has moved from its home position. • Shift roller HP sensor does not turn on after the shift roller has returned to its home position.	R1-R2
7504 108	Finisher Staple Motor (B408)	• Stapler HP sensor does not turn off after the stapler has moved from its home position. • Stapler HP sensor does not turn on after the stapler has returned to its home position.	R3-R5
7504 109	Finisher Exit Motor (B408)	• Stack feed-out belt HP sensor does not turn off after the stack feed-out belt has moved from its home position. • Stack feed-out belt HP sensor does not turn on after the stack feed-out belt has returned to its home position.	R3-R5
7504 191	Finisher Entrance: EUP (B804/B805)	Paper does not reach the finisher entrance sensor or stays at the finisher entrance sensor.	R1-R4
7504 192	Finisher Proof Exit: EUP (B804/B805)	Paper does not reach the proof tray exit sensor or stays at the proof tray exit sensor.	R1-R4
7504 193	Finisher Shift Tray Exit: EUP (B804/B805)	Paper does not reach the upper tray exit sensor or stays at the upper tray exit sensor.	R1-R4
7504 194	Finisher Stapler Exit: EUP (B804/B805)	• Stapling tray paper sensor does not turn on after the finisher entrance sensor has turned on. • Stapling tray paper sensor does not turn off after it has turned on.	[B804]: R5-R7 [B805]: R5-R8
7504 195	Finisher Exit: EUP (B804/B805)	• Upper tray exit sensor does not turn on while the stack feed-out belt is turned on.	[B804]: R1-R4/R8-R12

Jam Code SP	Display	Description	LCD Display
		• Upper tray exit sensor does not turn off after the stack feed-out belt has returned to its home position.	[B805]: R8-R12
7504 196	Finisher Staple: EUP (B804/B805)	Not used	-
7504 197	Finisher Saddle Stitch Staple: EUP (B804/B805)	Not used	-
7504 198	Finisher Folder: EUP (B804 only)	• Fold bottom fence HP sensor does not turn on after the fold roller motor has stopped. • Fold unit exit sensor does not turn on after the fold rollers have stopped. • Fold unit exit sensor does not turn off after the fold rollers have stopped.	R8-R12
7504 199	Finisher Tray Motor: EUP (B804/B805)	• Upper tray limit sensor does not turn on after the upper tray has lifted up. • Upper tray limit sensor does not turn off after the upper tray has moved down.	[B804]: R1-R4/ R5-R7 [B805]: R1-R4/ R5-R8
7504 200	Finisher Jogger Motor: EUP (B804/B805)	• Jogger fence HP sensor does not turn on/ off after the jogger motor has turned on. • Stack feed out belt HP sensor does not turn on/off after the feed out belt motor has turned on.	[B804]: R5-R7/ R8-R12 [B805]: R5-R8
7504 201	Finisher Shift Motor: EUP (B804/B805)	• Shift roller HP sensor does not turn on/off after the shift roller motor has turned on. • Exit guide plate HP sensor does not turn on/off after the exit guide plate motor has turned on. • Stacking roller HP sensor does not turn on/off after the stacking sponge roller motor has turned on.	[B804]: R1-R4/ R5-R7 [B805]: R1-R4/ R5-R8

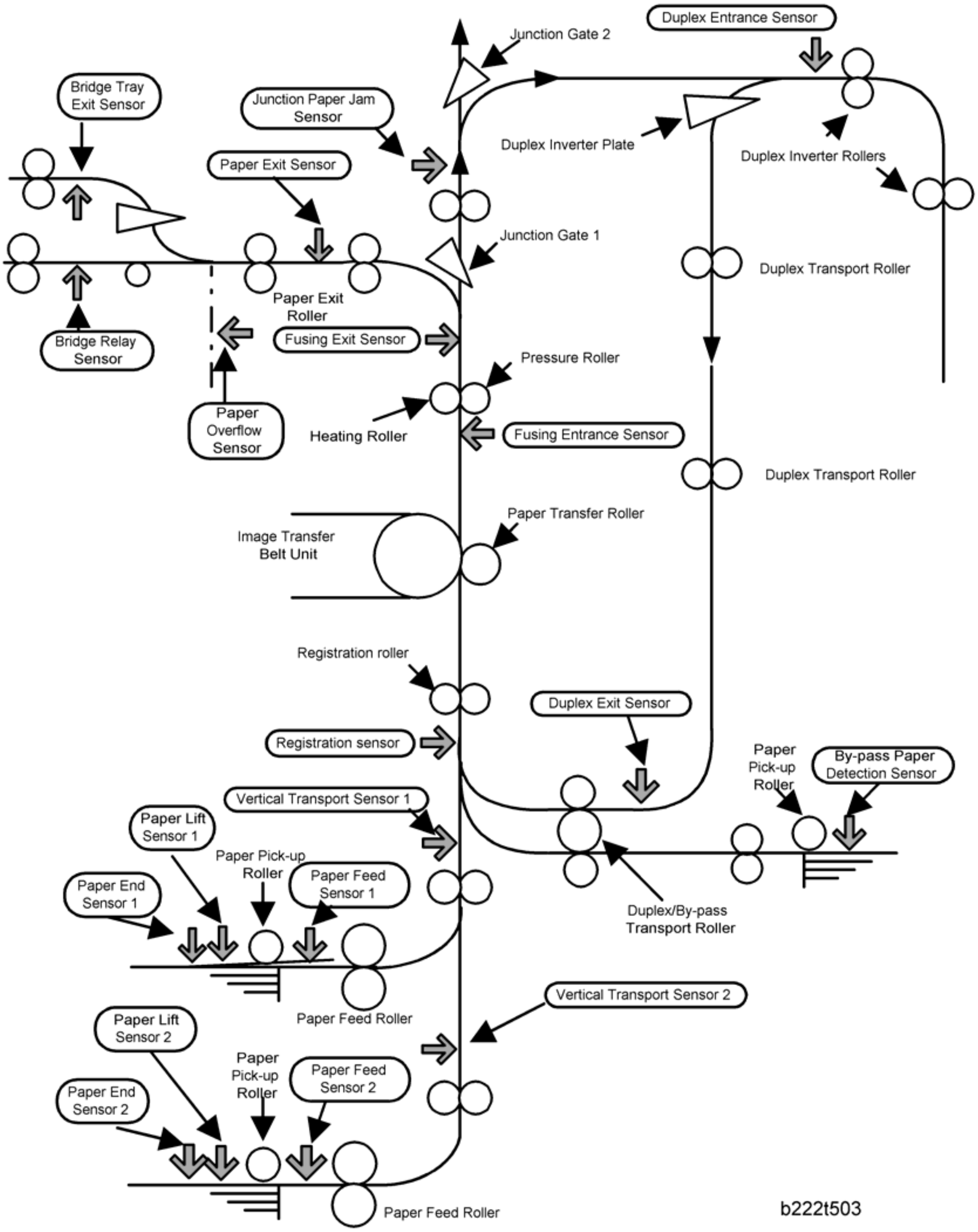
Jam Code SP	Display	Description	LCD Display
7504 202	Finisher Staple Moving Motor: EUP (B804/B805)	• Corner stapler HP sensor does not turn on/off after the corner stapler movement motor has turned on. • Stapler rotation HP sensor does not turn on/off after the corner stapler rotation motor has turned on.	[B804]: R5-R7/R8-R12 [B805]: R5-R8
7504 203	Finisher Staple Motor: EUP (B804/B805)	• Corner stapler does not finish stapling after a specified time. • Booklet stapler does not finish stapling after a specified time.	[B804]: R5-R7/R8-R12 [B805]: R5-R8
7504 204	Finisher Folder Motor: EUP (B804 only)	• Fold plate HP sensor does not turn on/off after the fold plate motor has turned on. • Clamp roller HP sensor does not turn on/off after the clamp roller retraction motor has turned on. • Fold bottom fence HP sensor does not turn on/off after the fold unit bottom fence lift motor has turned on. • Stack junction gate HP sensor does not turn on/off after the stack junction gate motor has turned on.	R8-R12
7504 205	Finisher Exit Motor: EUP (B804/B805)	Not used	-
7504 206	Finisher Punch Motor: EUP (B804/B805)	• Punch encoder sensor does not turn on/off after the punch drive motor has turned on. • Punch movement HP sensor does not turn on/off after the punch movement motor has turned on. • Paper position slide HP sensor does not turn on/off after the paper position sensor slide motor has turned on.	R1-R4

Jam Code SP	Display	Description	LCD Display
7504 230	Finisher Exit No Response	The machine does not get a paper exit signal from the finisher.	-
7504 231	Finisher Communication Error	The machine does not detect the finisher.	-

Paper Size Code

Size Code	Paper Size	Size Code	Paper Size
05	A4 LEF	141	B4 SEF
06	A5 LEF	142	B5 SEF
14	B5 LEF	160	DLT SEF
38	LT LEF	164	LG SEF
44	HLT LEF	166	LT SEF
132	A3 SEF	172	HLT SEF
133	A4 SEF	255	Others
134	A5 SEF	-	-

Sensor Locations



Electrical Component Defects

Sensors

Note

- The CN numbers in the following table are the connector numbers on the IOB.

No.	Sensor Name/ Sensor Board Name	Active	CN	Condition	Symptom
S13	Duplex Door	L	CN215/B9	Open	"Open Cover" is displayed
				Shorted	"Open cover" cannot be detected.
S44	ID Sensor (K, M, C, Y)	A	CN239	Open/ Shrted	SC285
	ID Sensor (Front, Center, Rear)	A	CN107 on BCU	Open/ Shorted	SC400
S17	Registration Sensor	L	CN209/A2	Open	Jam A (Jam8, 17)
				Shorted	Jam A, B (Jam1)
S35	Drum Gear Position Sensor-K	H	CN244/10	Open/ Shorted	SC380/SC396
S36	Drum Gear Position Sensor-M	H	CN244/13	Open/ Shorted	SC380/SC397
S37	Drum Gear Position Sensor-C	H	CN244/16	Open/ Shorted	SC380/SC398
S38	Drum Gear Position Sensor-Y	H	CN244/19	Open/ Shorted	SC380/SC399
S1	Shutter Positioning Sensor - Open	H	CN266/4	Open	SC294/295
				Shorted	SC293
S2	Shutter Positioning Sensor - Close	H	CN266/7	Open	SC291/292

No.	Sensor Name/ Sensor Board Name	Ac-tive	CN	Condition	Symptom
				Shorted	SC290
S31 S32 S33 S34	Toner End Sensor - Y Toner End Sensor - C Toner End Sensor - M Toner End Sensor - K	L	CN236/B3 CN236/B6 CN236/B9 CN236/B12	Open	Toner end cannot be detected.
				Shorted	Toner end is detected when there is enough toner.
S52	Image Transfer Belt Rotation Sensor	H/L	CN223/1	Open/ Shorted	SC443
S24	Vertical Transport Sensor 1	L	CN212/A7	Open	Jam A (Jam3, 11)
				Shorted	Jam A, B (Jam1)
S25 S29	Paper End Sensor 1, 2	L	CN212/ A10, B10	Open	Paper end is not detected when there is no paper in the paper tray.
				Shorted	Paper end is detected when there is paper in the paper tray.
S26 S30	Paper Lift Sensor 1, 2	H	CN212/ A13, B13	Open/ Shorted	SC501, SC502
S28	Vertical Transport Sensor 2	L	CN212/B7	Open	Jam A (Jam4, 12)
				Shorted	Jam A, B (Jam1)
S19 S20	Tray 1 Paper Height Sensor 1, 2	L	CN209/ B2, B5	Open/ Shorted	Remaining paper volume on the LCD is wrong.
S21 S22	Tray 2 Paper Height Sensor 1, 2	L	CN209/ B10, B13	Open/ Shorted	Remaining paper volume on the LCD is wrong.
S23	Tray 1 Paper Feed Sensor	L	CN212/A4	Open/ Shorted	Jam A, B (Jam1)
S27	Tray 2 Paper Feed Sensor	L	CN212/A4	Open/ Shorted	Jam A, B (Jam1)

No.	Sensor Name/ Sensor Board Name	Active	CN	Condition	Symptom
SW5	Tray 1 Set Switch	L	CN209/A9	Open	Tray 1 is not detected when tray 1 is set.
				Shorted	Tray 1 is detected when tray 1 is not set.
S15	By-pass Paper Size Sensor	L	CN215/ B16, B17, B19, B20	Open/ Shorted	Paper size error
S11	By-pass Paper Detection Sensor	L	CN215/ A17	Open	Paper on the by-pass tray is not detected when paper is set.
				Shorted	Paper on the by-pass tray is detected when paper is not set.
S12	Fusing Entrance Sensor	L	CN215/B6	Open	Jam C (Jam 18)
				Shorted	Jam C (Jam 1)
S9	Duplex Entrance Sensor	L	CN215/A8	Open	Jam Z (Jam 26/27)
				Shorted	Jam Z (Jam 1)
S10	Duplex Exit Sensor	L	CN215/ A11	Open	Jam Z (Jam 25)
				Shorted	Jam Z (Jam 1)
S48	TD Sensor - K	A	CN219/A7	Open/ Shorted	SC372
S49	TD Sensor - M	A	CN219/ A15	Open/ Shorted	SC373
S50	TD Sensor - C	A	CN219/B7	Open/ Shorted	SC374
S51	TD Sensor - Y	A	CN219/ B15	Open/ Shorted	SC375
S5	Fusing Exit Sensor	L	CN232/13	Open	Jam C (Jam 19)

No.	Sensor Name/ Sensor Board Name	Active	CN	Condition	Symptom
				Shorted	Jam C (Jam 1)
S18	Waste Toner Sensor	H	CN209/A5	Open	Waste toner near full indicated when it is not near full.
				Shorted	Waste toner near full cannot be detected when the waste toner bottle is nearly full.
SW4	Waste Toner Bottle Set Switch	L	CN209/A7	Open	Waste toner bottle is not detected when the waste toner bottle is set.
				Shorted	Waste toner bottle is detected when the waste toner bottle is not set.
SW6	Tray 2 Paper Size Switch	L	CN209/ A11, A12, A13, A14	Open/ Shorted	Paper size error
S16	Temperature/ Humidity Sensor	A	CN205/1, 3	Open/ Shorted	SC498 Printed image has some problems such as rough image, dirty background, weak image or poor fusing.
S47	Thermopile	A	CN218/3	Open/ Shorted	SC541
TH2	Thermistor - Heating Roller	A	CN217/5	Open/ Shorted	SC551
TH1	Thermistor - Pressure Roller	A	CN217/3	Open/ Shorted	SC561
S4	Paper Exit Sensor	L	CN231/10	Open	Jam C (Jam 20)
				Shorted	Jam C (Jam 1)

No.	Sensor Name/ Sensor Board Name	Active	CN	Condition	Symptom
S6	Paper Overflow Sensor	L	CN232/16	Open	Paper overflow message is not displayed when the paper overflow condition still remains.
				Shorted	Paper overflow message is displayed when the paper overflow condition does not remain.
S41	Original Width Sensor 1	A	CN313/4 SIO	Open/ Shorted	Original paper size cannot be detected.
	Original Width Sensor 2	A	CN313/3 SIO		
S42	Original Length Sensor 1	A	CN313/8 SIO	Open/ Shorted	Original paper size cannot be detected.
	Original Length Sensor 2	A	CN313/9 SIO		
S43	Original Length Sensor 3	A	CN313/13 SIO		
S39	Scanner HP Sensor	H	CN318/2 SIO	Open	SC120
				Shorted	SC121
S40	Platen Cover Sensor	L	CN318/5 SIO	Open/ Shorted	Platen cover open cannot be detected.
S45	Paper Transfer Contact Sensor	L	CN225/11	Open/ Shorted	SC452
S46	Image Transfer Belt Contact Sensor	L	CN225/17	Open/ Shorted	SC442
S8	Ferrite Roller HP Sensor	L	CN224/7	Open/ Shorted	SC549

No.	Sensor Name/ Sensor Board Name	Active	CN	Condition	Symptom
S7	Fusing Belt Sensor	H/L	CN225/2	Open/ Shorted	SC584
S14	Junction Gate 1 HP Sensor	L	C215/B12	Open/ Shorted	SC529
S3	Junction Paper Jam	L	C232/7	Open/ Shorted	Jam C (Jam 24/64)

Blown Fuse Conditions

Power Supply Unit

Fuse	Rating		Symptom when turning on the main switch
	115V	220V - 240V	
FU1	15A/125V	8A/250V	No response. (5V power to the PSU is not supplied.)
FU2	10A/125V	6.3A/250V	No response. (5V power to the BCU and controller is not supplied.)
FU3	2A/250V	1A/250V	5V power to the scanner heater and tray heater is not supplied.
FU4	1A/250V	1A/250V	5V power to the SIO and heater is not supplied.
FU5	5A/250V	5A/250V	5V power to the IOB not supplied.
FU6	2A/250V	2A/125V	5VS power to the IPU not supplied.
FU7	10A/125V	10A/125V	24VS power to the IOB not supplied.
FU8	10A/125V	10A/125V	24VS power to the IOB not supplied.
FU9	6.3A/125V	6.3A/125V	24V power to the IOB not supplied.
FU10	6.3A/125V	6.3A/125V	24V power to the SIO not supplied.
FU11	6.3A/125V	6.3A/125V	24V power to the IPU and MB not supplied.

Fuse	Rating		Symptom when turning on the main switch
	115V	220V - 240V	
FU12	6.3A/125V	6.3A/125V	24V power to the PFU or LCT not supplied.
FU13	6.3A/125V	6.3A/125V	24V power to the finisher not supplied.
FU14	5A/250V	5A/250V	5V power to the IPU not supplied.

IH Inverter

Fuse	Rating		Symptom when turning on the main switch
	115V	220V - 240V	
FU1	15A/125V	8A/250V	15V power to the IH coil unit is not supplied. SC689 occurs.
FU2	115°C		No response
FU3	115°C		No response
FU4	1A/250V		15V power to the IH coil unit is not supplied. SC689 occurs.

⚠CAUTION

- For continued protection against risk of fire, replace only with same type and rating of fuse.

5. Service Tables

Service Program Mode

⚠CAUTION

- Make sure that the data-in LED (⇨) is not on before you go into the SP mode. This LED indicates that some data is coming to the machine. When the LED is on, wait for the copier to process the data.

Enabling and Disabling Service Program Mode

Note

- The Service Program Mode is for use by service representatives only. If this mode is used by anyone other than service representatives for any reason, data might be deleted or settings might be changed. In such case, product quality cannot be guaranteed any more.

Entering SP Mode

1. Press the "Clear Mode" key (C/⊘).
2. Use keypad to enter "107" (①⓪⑦).
3. Hold down "Clear/Stop" (C/⊘) for 3 seconds at least.
4. Enter the Service Mode.

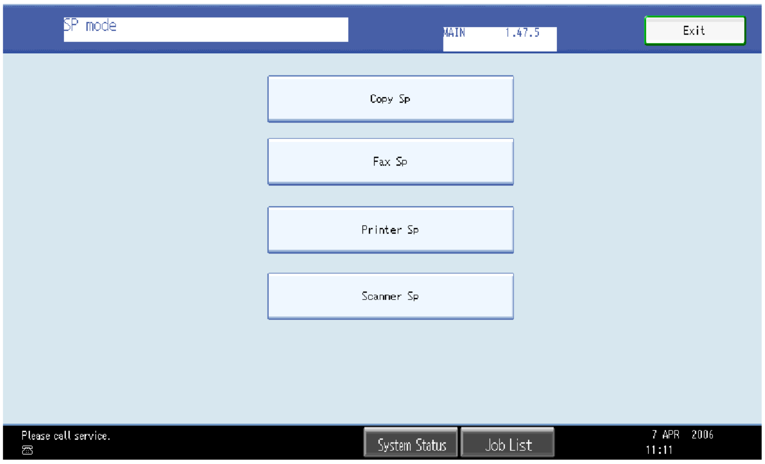
Exiting SP Mode

1. Press "Exit" on the LCD twice to return to the copy window.

Types of SP Modes

- Copy SP: SP modes related to the engine functions
- Printer SP: SP modes related to the controller functions
- Scanner SP: SP modes related to the scanner functions
- Fax SP: SP modes related to the fax functions

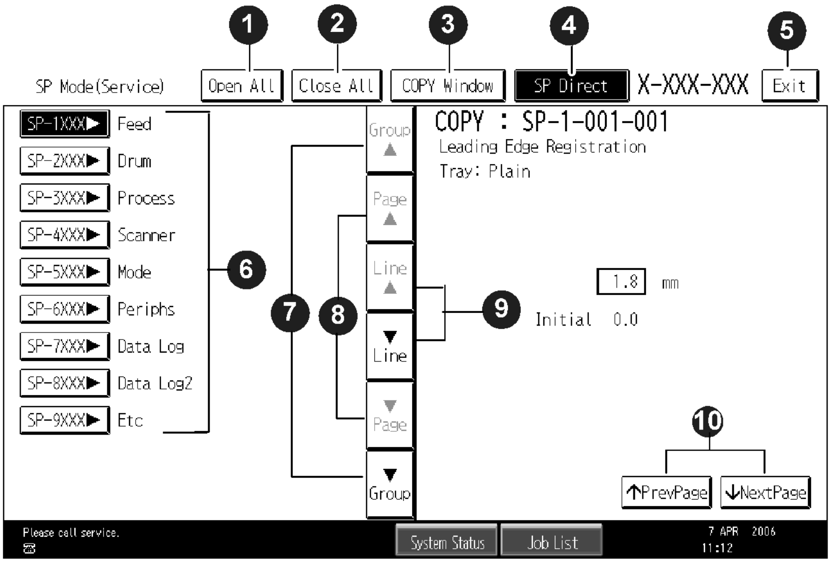
Select one of the Service Program modes (Copy, Printer, Scanner, or Fax) from the touch panel as shown in the diagram below after you access the SP mode. This section explains the functions of the Printer/Copy/Scanner SP modes. Refer to the Fax service manual for the Fax SP modes.



Please call service.

SP Mode Button Summary

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



COPY : SP-1-001-001
Leading Edge Registration
Tray: Plain

1.8 mm
Initial 0.0

Please call service.

❶	Opens all SP groups and sublevels.
❷	Closes all open groups and sublevels and restores the initial SP mode display.
❸	Opens the copy window (copy mode) so you can make test copies. Press SP Mode (highlighted) in the copy window to return to the SP mode screen,

❹	Enter the SP code directly with the number keys if you know the SP number. Then press ⌗. (The required SP Mode number will be highlighted when pressing ⌗. If not, just press the required SP Mode number.)
❺	Press two times to leave the SP mode and return to the copy window to resume normal operation.
❻	Press any Class 1 number to open a list of Class 2 SP modes.
❼	Press to scroll the show to the previous or next group.
❽	Press to scroll to the previous or next display in segments the size of the screen display (page).
❾	Press to scroll the show the previous or next line (line by line).
❿	Press to move the highlight on the left to the previous or next selection in the list.

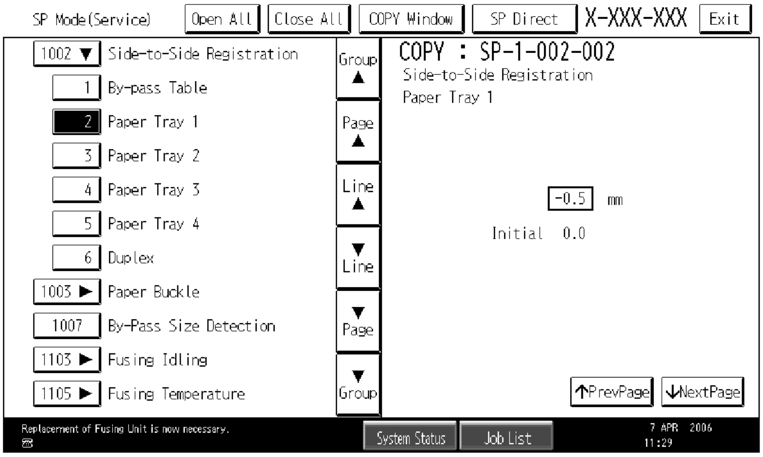
Switching Between SP Mode and Copy Mode for Test Printing

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

Selecting the Program Number

Program numbers have two or three levels.

1. Refer to the Service Tables to find the SP that you want to adjust before you begin.
2. Press the Group number on the left side SP Mode window that contains the SP that you want to adjust.
3. Use the scrolling buttons in the center of the SP mode window to show the SP number that you want to open. Then press that number to expand the list.
4. Use the center touch-panel buttons to scroll to the number and title of the item that you want to set and press it. The small entry box on the right activates and shows the below default or the current settings.



COPY : SP-1-002-002
Side-to-Side Registration
Paper Tray 1

-0.5 mm

Initial 0.0

Replacement of Fusing Unit is now necessary.

Note

- Refer to the Service Tables for the range of allowed settings.

1. Do this procedure to enter a setting:
    - Press •/* to toggle between plus and minus and use the keypad to enter the appropriate number. The number you enter writes over the previous setting.
    - Press # to enter the setting. (The value is not registered if you enter a number that is out of range.)
    - Press “Yes” when you are prompted to complete the selection.
2. If you need to perform a test print, press Copy Window to open the copy window and select the settings for the test print. Press Start ◇ and then press SP Mode (highlighted) in the copy window to return to the SP mode display.
3. Press Exit two times to return to the copy window when you are finished.

Exiting Service Mode

Press the Exit key on the touch-panel.

Service Mode Lock/Unlock

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

1. If you cannot go into the SP mode, ask the Administrator to log in with the User Tool and then set “Service Mode Lock” to OFF after he or she logs in:

    User Tools > System Settings > Administrator Tools > Service Mode Lock > OFF

    - This unlocks the machine and lets you get access to all the SP codes.

- The CE can service 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. Go into the SP mode and set SP5169 to “1” if you must use the printer bit switches.
3. After machine servicing is completed:
   - Change SP5169 from “1” to “0”.
   - Turn the machine off and on. Tell the administrator that you have completed servicing the machine.
   - The Administrator will then set the “Service Mode Lock” to ON.

Remarks

Display on the Control Panel Screen

The maximum number of characters which can show on the control panel screen is limited to 30 characters. For this reason, some of the SP modes shown on the screen need to be abbreviated. The following are abbreviations used for the SP modes for which the full description is over 20 characters.

<table>
<tr><td colspan="2">Paper Weight
Thin paper: 52-59 g/m^2
Plain Paper: 60-81g/m2, 16-22lb.
Middle Thick: 82-105g/m2, 22-28lb.
Thick Paper 1: 106-169g/m2, 28.5-44.9lb.
Thick Paper 2: 170-219g/m2, 45-58lb.</td></tr>
<tr><td>Paper Type
N: Normal paper
MTH: Middle thick paper
TH: Thick paper</td><td>Paper Feed Station
P: Paper tray
B: By-pass table</td></tr>
<tr><td colspan="2">Color Mode [Color]
[K]: Black in B&W mode
[Y], [M], or [C]: Yellow, Magenta, or Cyan in Full Color mode
[YMC]: Only for Yellow, Magenta, and Cyan
[FC]: Full Color mode
[FC, K], [FC, Y], [FC, M], or [FC, C]: Black, Yellow, Magenta, or Cyan in full color mode</td></tr>
<tr><td>Print Mode</td><td>Process Speed</td></tr>
</table>

S: Simplex D: Duplex	L: Low speed (77 mm/s) M: Middle speed (115 mm/s) H: High speed (C1d: 205, C1c 154 mm/s)

Others

The following symbols are used in the SP mode tables.

FA: Factory setting
(Data may be adjusted from the default setting at the factory. Refer to the factory setting sheets enclosed. You can find it under the jammed paper removal decal.)

DFU: Design/Factory Use only

Do not touch these SP modes in the field.

A sharp (#) to the right hand side of the mode number column means that the main switch must be turned off and on to effect the setting change.

An asterisk (*) to the right hand side of the mode number column means that this mode is stored in the NVRAM. If you do a RAM clear, this SP mode will be reset to the default value. “ENG” and “CTL” show which NVRAM contains the data.

- ENG: NVRAM on the BCU board
- CTL: NVRAM on the controller board

The settings of each SP mode are explained in the right-hand column of the SP table in the following way.

[Adjustable range / **Default setting** / Step] Alphanumeric

Note

- If “Alphanumeric” is written to the right of the bracket as shown above, the setting of the SP mode shows on the screen using alphanumeric characters instead of only numbers. However, the settings in the bracket in the SP mode table are explained by using only the numbers.

SSP: This denotes a “Special Service Program” mode setting.

Copy Service Mode

Service Mode Table

SP1-XXX (Feed)

1001	**[Leading Edge Registration]** Leading Edge Registration Adjustment (Tray Location, Paper Type, Color Mode), Paper Type -> Plain, Thick 1or Thick 2		
	Adjusts the leading edge registration by changing the registration clutch operation timing for each mode.		
001	Tray: Plain	*ENG	[–9 to 9 / **0.0** / 0.1 mm/step]
002	Tray: Thick 1	*ENG	
003	Tray: Thick 2	*ENG	
004	By-pass Table: Plain	*ENG	
005	By-pass Table: Thick 1	*ENG	
006	By-pass Table: Thick 2	*ENG	
007	Duplex: Plain	*ENG	
008	Duplex: Thick 1	*ENG	
009	Tray: Thin	*ENG	
010	Tray: Middle Thick	*ENG	
011	By-pass: Thin	*ENG	
012	By-pass: Middle Thick	*ENG	
013	By-pass: Thick 3	*ENG	
014	Duplex: Thin	*ENG	
015	Duplex: Middle Thick	*ENG	

1002	**[Side to Side Reg.]** Side-to-Side Registration Adjustment

	Adjusts the side-to-side registration by changing the laser main scan start position for each mode.		
001	By-pass Table	*ENG	[–4 to 4 / **0.0** / 0.1 mm/step]
002	Paper Tray 1	*ENG	
003	Paper Tray 2	*ENG	
004	Paper Tray 3	*ENG	
005	Paper Tray 4	*ENG	
006	Duplex	*ENG	

1003	**[Paper Buckle]** Paper Buckle Adjustment (Tray Location, Paper Type), Paper Type: N: Normal, TH: Thick		
	Adjusts the amount of paper buckle at the registration roller by changing the paper feed timing.		
001	Paper Tray1: Plain	*ENG	[–5 to 5 / **0** / 1 mm/step]
002	Paper Tray1: Thick1	*ENG	
003	Paper Tray1: Thick2	*ENG	
004	Paper Tray2/3/4/5: Plain	*ENG	
005	Paper Tray2/3/4/5: Thick 1	*ENG	
006	Paper Tray2/3/4/5: Thick 2	*ENG	
007	By-pass: Plain	*ENG	
008	By-pass: Thick1	*ENG	
009	By-pass: Thick2	*ENG	
010	Duplex: Plain	*ENG	
011	Duplex: Thick1	*ENG	
012	Tray 1: Thin	*ENG	
013	Tray 1: Middle Thick	*ENG	
014	Tray 2/3/4/5: Thin	*ENG	

015	Tray 2/3/4/5: Middle Thick	*ENG	
016	By-pass: Thin	*ENG	
017	By-pass: Middle Thick	*ENG	
018	By-pass: Thick 3	*ENG	
019	Duplex: Thin	*ENG	
020	Duplex: Middle Thick	*ENG	

1007	**[By-Pass Size Detection]** By-Pass Size Detection Display		
001	LG	*ENG	[0 or 1 / **0** / –] 0: Disable, 1: Enable
	Enables or disables the automatic paper size detection function of the by-pass tray. This SP determines what paper size the machine detects if the detected size is less than 8.5". 0: OFF (Letter/SEF), 1: ON (Legal/SEF)		

1103	**[Fusing Idling]** Fusing Idling Adjustment		
001	Extra Idling Time	*ENG	[0 to 60 / **0** / 1 sec/step] **Not used**
	Specifies how long the extra idling operation is executed.		
016	Extra Idling Time (L)	*ENG	Specifies how long the extra idling operation is executed for each environment. [0 to 250 / **60** / 1 sec/step] Each environment is determined with SP1112-001 and 002.
017	Extra Idling Time (H)	*ENG	[0 to 250 / **C1c: 10, C1d: 25** / 1 sec/step]
018	Extra Idling Time (M)	*ENG	

1105	**[Fusing Temperature]** Fusing Temperature Adjustment		
	(Printing Mode, Roller Type, [Color], Simplex/Duplex) Roller Type –> Center and Ends: Heating roller, Pressure –> Pressure roller Paper Type -> Plain, Thin, Thick, OHP, Middle Thick, Special		
001	Fusing Ready Temp.	*ENG	[100 to 200 / **138** / 1°C/step]

	Specifies the heating roller target temperature for the ready condition.		
002	Fusing Ready: Offset	*ENG	[0 to 100 / **0** / 1°C/step]
	Sets the heating roller offset temperature for the printing ready condition. Ready temperature = (Target temperature specified in SP1-105-1) – Temperature specified in this SP mode		
003	Ends Ready: Offset	*ENG	[70 to 180 / **70** / 1°C/step]
	Sets the heating roller offset temperature at the end of the heating roller. This value is one of the thresholds to determine if the machine is at the heating roller target temperature during warm-up.		
004	Ends Ready: Upper Limit	*ENG	[0 to 200 / **200** / 1°C/step]
	Sets the upper limit temperature of the heating roller at the end of the heating roller. This value is one of the thresholds to determine if the machine is at the heating roller target temperature during warm-up.		
005	Pressure Ready: Offset.	* ENG	[40 to 180 / **C1c: 70, C1d: 90**/ 1°C/step]
	Sets the pressure roller offset temperature. This value is one of the thresholds to determine if the machine is at the heating roller target temperature during warm-up.		
006	Pressure Ready: Upper Limit.	* ENG	[0 to 180 / **180** / 1°C/step]
	Sets the limit temperature of the pressure roller. This value is one of the thresholds to determine if the machine is at the heating roller target temperature during the warm-up.		
012	Stand-By: Pressure	* ENG	[90 to 150 / **150** / 1°C/step]
	Specifies the stand-by temperature for the pressure roller.		
016	Pressure Target Energy Saver	* ENG	[90 to 150 / **C1c: 100, C1d: 140** / 1°C/step]
	Specifies the temperature during the panel-off mode for the pressure roller.		
	The following SPs except SP1105-085 set the target operating temperatures of the heating roller in various modes.		
030	Plain: FC: Simplex	*ENG	[100 to 200 / **C1c: 155, C1d: 160** / 1°C/step]
032	Plain: FC: Duplex	*ENG	
034	Plain: BW: Simplex	*ENG	
036	Plain: BW: Duplex	*ENG	

038	Thin: FC: Simplex	*ENG	[100 to 200 / **150** / 1°C/step]
040	Thin: FC: Duplex	*ENG	
042	Thin: BW: Simplex	*ENG	
044	Thin: BW: Duplex	*ENG	
046	Thick 1: FC: Simplex	*ENG	[100 to 200 / **170** / 1°C/step]
048	Thick 1: FC: Duplex	*ENG	
050	Thick 1: BW: Simplex	*ENG	
052	Thick 1: BW: Duplex	*ENG	
054	Thick 2: FC: Simplex	*ENG	[100 to 200 / **170** / 1°C/step]
055	Thick 2: BW: Simplex	*ENG	
056	OHP: FC	*ENG	[100 to 180 / **165** / 1°C/step]
057	OHP: BW	*ENG	[100 to 180 / **160** / 1°C/step]
058	Special 1: FC: Simplex	*ENG	[100 to 200 / **160** / 1°C/step]
060	Special 1: FC: Duplex	*ENG	
062	Special 1: BW: Simplex	*ENG	
064	Special 1: BW: Duplex	*ENG	
066	Special 2: FC: Simplex	*ENG	[100 to 200 / **160** / 1°C/step]
068	Special 2: FC: Duplex	*ENG	
070	Special 2: BW: Simplex	*ENG	
072	Special 2: BW: Duplex	*ENG	
074	Special 3: FC: Simplex	*ENG	[100 to 200 / **160** / 1°C/step]
076	Special 3: FC: Duplex	*ENG	
078	Special 3: BW: Simplex	*ENG	
080	Special 3: BW: Duplex	*ENG	
082	Target Temp. After Ready	*ENG	[100 to 200 / **160** / 1°C/step]

	Specifies the target temperature for the maintain mode after the machine has reached the target temperature in warm-up mode.		
083	Recovery Target Temp.	*ENG	[100 to 200 / **170** / 1°C/step]
	Specifies the target temperature for the print mode without printing/copying job after the machine's recovery.		
085	Print Start: Offset	*ENG	[0 to 100 / **5** / 1°C/step]
	Specifies the paper feed start temperature. This value is the offset temperature in relation to the target temperature for the print ready mode.		
086	Feed Start: Offset	*ENG	[0 to 100 / **5** / 1°C/step]
	Specifies the image processing start temperature. This value is the offset temperature in relation to the target temperature for the print ready mode.		
089	Thick 3: FC: Simplex	*ENG	[100 to 200 / **175** / 1°C/step]
091	Thick 3: BW: Simplex	*ENG	
093	Envelop: FC	*ENG	[100 to 180 / **160** / 1°C/step]
094	Envelop: BW	*ENG	
095	Middle Thick: Middle Speed: FC: Simplex	*ENG	[100 to 160 / **145** / 1°C/step]
097	Middle Thick: Middle Speed: FC: Duplex	*ENG	
097	Middle Thick: Middle Speed: BW: Simplex	*ENG	
101	Middle Thick: Middle Speed: BW: Duplex	*ENG	
103	Middle Thick: Constant Speed: Offset	*ENG	[0 to 55 / **C1c: 15, C1d: 20** / 1°C/step]
104	Feed Start: Extra: Offset	*ENG	[0 to 100 / **100** / 1°C/step]
	Specifies the paper feed start offset temperature. This value is the offset temperature in relation to the target temperature for the print ready mode.		
105	Print Start: Extra: Offset	*ENG	[0 to 100 / **100** / 1°C/step]

	Specifies the image processing start offset temperature. This value is the offset temperature in relation to the target temperature for the print ready mode.		
106	Extra Rotation Temp.: L	*ENG	[100 to 200 / **165** / 1°C/step]
	Specifies the target temperature for extra idling mode in a low temperature environment. The low temperature threshold can be adjusted with SP1112-003.		
107	Extra Rotation Temp.: M	*ENG	[100 to 200 / **160** / 1°C/step]
	Specifies the target temperature for extra idling mode in a medium temperature environment. The medium temperature is between the low temperature threshold (SP1112-003) and the high temperature threshold (SP1112-004).		
108	Extra Rotation Temp.: H	*ENG	[100 to 200 / **160** / 1°C/step]
	Specifies the target temperature for extra idling mode in a high temperature environment. The high temperature threshold can be adjusted with SP1112-004.		
111	Thick: Small Size	*ENG	[100 to 170 / **155** / 1°C/step]
119	PF/PS Temp.: Extend: O/V: Plain: FC Prn	*ENG	[0 to 100 / **C1c: 20, C1d: 10** / 1°C/step]
120	PF/PS Temp.: Extend: O/V: M-Thick	*ENG	[0 to 100 / **5** / 1°C/step]
121	PF/PS Temp.: O/V: Stand-By: Mid-Thick	*ENG	[0 to 100 / **5** / 1°C/step]
122	PF Temp: Pressure: Plain	*ENG	[10 to 150 / **20** / 1°C/step]
123	PF Temp: Pressure: Plain: FC Prn.	*ENG	[10 to 150 / **C1c: 65, C1d: 90** / 1°C/step]
124	PF Temp: Pressure: M-Thick: BK	*ENG	[10 to 150 / **C1c: 85, C1d: 115** / 1°C/step]
125	PF Temp: Pressure: M-Thick: FC	*ENG	
126	Reload Correction Temp.: Plain: Reload	*ENG	[0 to 20 / **10** / 1°C/step]
127	Reload Correction Temp.: M-Thick: Reload	*ENG	[0 to 20 / **15** / 1°C/step]

128	Reload Correction Temp.: M-Thick: Standby	*ENG	[0 to 20 / **10** / 1°C/step]
129	PF/PS Temp: Offset Value: Color: M	*ENG	[0 to 100 / **30** / 1°C/step]
130	PF/Print: Offset Value: Color: M: M-Thick	*ENG	[0 to 100 / **5** / 1°C/step]

1106	**[Fusing Temperature Display]** Fusing Temperature Display (Heating or Pressure)		
	Displays the current temperature of the heating and pressure rollers.		
001	Fusing: Center	-	[–20 to 250 / - / 1°C/step] The heating roller has two lamps. One heats the center of the heating roller and the other heats both ends of the heating roller.
002	Fusing: Ends	-	
003	Pressure	-	

1108	**[Forced Ready Setting]**		
	Japan use only		
001	ON/OFF	*ENG	[0 or 1 / **0** / -] 0: OFF, 1: ON
002	Target Voltage Ratio	*ENG	[85 to 100 / **92** / 1%/step]
003	Measured Voltage Ratio	*ENG	[70 to 120 / **100** / 1%/step]
004	Target Temperature	*ENG	[110 to 155 / **155** / 1 deg/step]

1109	**[Fusing Nip Band Check]**		
001	Execute	-	Executes the nip band measurement between fusing belt and pressure roller. If the nip band width is not 8 mm, and fusing is not good, replace the pressure roller or install a new fusing unit.
002	Pre-Idling Time	*ENG	[0 to 120 / **240** / 1 sec/step]
	Specifies the fusing rotation time before executing SP1109-001.		
003	Stop Time	* ENG	[5 to 30 / **10** / 1 sec/step]

	Specifies the time for measuring the nip.

1112	[Environmental Correction: Fusing]		
001	Temp.: Threshold: Low	*ENG	[10 to 23 / **17** / 1°C/step]
	Specifies the threshold temperature for low temperature condition.		
002	Temp.: Threshold: High	*ENG	[24 to 40 / **30** / 1°C/step]
	Specifies the threshold temperature for high temperature condition.		
003	Low Temp. Correction	*ENG	[0 to 15 / **5** / 1°C/step]
	Specifies the temperature correction for the heating roller. When the low temperature condition (specified with SP1112-001) is detected, the value of this SP is added to the heating roller temperature.		
004	High Temp. Correction	*ENG	[0 to 15 / **0** / 1°C/step]
	Specifies the temperature correction for the heating roller. When the high temperature condition (specified with SP1112-002) is detected, the value of this SP is subtracted from the heating roller temperature.		

1113	[Stand-by Time]		
001	Shift Time	*ENG	[0 to 180 / **60** / 1 sec/step]
	Specifies the interval from the ready mode to the stand-by mode. If the machine does not do any printing job for the time specified with this SP after the heating roller has reached the ready temperature, the machine returns to the stand-by mode.		
002	Recovery Target Temp.	*ENG	[0 to 180 / **10** / 1 sec/step]
	Specifies the time for keeping the target temperature after recovery (SP1105-083) without any jobs.		

1115	[Stand-by Idling]		
001	Interval	*ENG	[1 to 240 / **60** / 1 min/step]
	Specifies the interval between idling during stand-by mode. This idling during the stand-by mode prevents the roller deformation.		
002	Idling Time	*ENG	[0 to 60 / **0.7** / 0.1 sec/step]

	Specifies the length of each idling operation during stand-by mode.

1116	[Ends Temp. Correction] Not used		
001	Mode: X1	*ENG	[0 to 999 / **40** / 1 sheet/step]
002	Mode: X2	*ENG	[0 to 999 / **70** / 1 sheet /step]
003	Mode: X3	*ENG	[0 to 999 / **100** / 1 sheet /step]
004	Detection Hysteresis	*ENG	[1 to 20 / **5** / 1deg/step]
005	Saturation Temp.	*ENG	[180 to 230 / **210** / defe/step]
006	Saturation Temp.: Margin	*ENG	[30 to 130 / **130** / 1deg/step]

1159	[Fusing Jam Detection]		
001	SC Display	*ENG	[0 or 1 / **0** / 1 /step] 0: Disable, 1: Enable
	Enables or disables the fusing consecutive jam detection. If this SP is set to "1" (default: 0), SC559 occurs when the machine detects the paper jam three times consecutively at the fusing unit.		

1801	[Motor Speed Adj.] FA		
001	Registration: 77: Plain	*ENG	[–2 to 2 / **–0.5** / 0.05 %/step]
002	Registration: 115: Plain	*ENG	
003	Registration: 154: Plain	*ENG	
004	Registration: 205: Plain	*ENG	
006	BkOpcDevMot: 205	*ENG	[–4 to 4 / **–0.4** / 0.01 %/step]
007	BkOpcDevMot: 154	*ENG	
008	BkOpcDevMot: 115	*ENG	
009	BkOpcDevMot: 77	*ENG	
010	MOpcDevMot: 205	*ENG	[–10 to 10 / **0** / 1 /step]

011	MOpcDevMot: 154	*ENG	[–7 to 7 / **0** / 1 /step]
012	MOpcDevMot: 115	*ENG	[–9 to 9 / **0** / 1 /step]
013	MOpcDevMot: 77	*ENG	[–13 to 13 / **0** / 1 /step]
014	COpcDevMot: 205	*ENG	[–10 to 10 / **0** / 1 /step]
015	COpcDevMot: 154	*ENG	[–7 to 7 / **0** / 1 /step]
016	COpcDevMot: 115	*ENG	[–9 to 9 / **0** / 1 /step]
017	COpcDevMot: 77	*ENG	[–13 to 13 / **0** / 1 /step]
018	YOpcDevMot: 205	*ENG	[–10 to 10 / **0** / 1 /step]
019	YOpcDevMot: 154	*ENG	[–7 to 7 / **0** / 1 /step]
020	YOpcDevMot: 115	*ENG	[–9 to 9 / **0** / 1 /step]
021	YOpcDevMot: 77	*ENG	[–13 to 13 / **0** / 1 /step]
022	Fusing: 205	*ENG	[–4 to 4 / **–0.6** / 0.01%/step]
023	Fusing: 154	*ENG	[–4 to 4 / **–0.9** / 0.01%/step]
024	Fusing: 115	*ENG	[–4 to 4 / **–1.4** / 0.01%/step]
025	Fusing: 77	*ENG	[–4 to 4 / **–1** / 0.01%/step]
026	Image Transfer: 205	*ENG	[–4 to 4 / **0.4** / 0.01%/step]
027	Image Transfer: 154	*ENG	
028	Image Transfer: 115	*ENG	
029	Image Transfer: 77	*ENG	
030	Drum Drive Fine Adj. Control	*ENG	[0 or 1 / **1** / -]
031	Offset: 205: M	*ENG	[–10 to 10 / **0** / 1 /step]
032	Offset: 205: C	*ENG	
033	Offset: 205: Y	*ENG	
034	Offset: 154: M	*ENG	[–7 to 7 / **0** / 1 /step]
035	Offset: 154: C	*ENG	
036	Offset: 154: Y	*ENG	

037	Offset: 115: M	*ENG	[–9 to 9 / **0** / 1 /step]
038	Offset: 115: C	*ENG	
039	Offset: 115: Y	*ENG	
040	Offset: 77: M	*ENG	[–13 to 13 / **0** / 1 /step]
041	Offset: 77: C	*ENG	
042	Offset: 77: Y	*ENG	
043	Registration: 77: Thin	*ENG	[–2 to 2 / **–0.5** / 0.05 %/step]
044	Registration: 77: Thick 1	*ENG	
045	Registration: 77: Thick 2	*ENG	
046	Registration: 77: Thick 3	*ENG	
047	Registration: 115: Middle Thick	*ENG	[–2 to 2 / **0** / 0.05 %/step]
048	Registration: 154: Middle Thick	*ENG	
049	Registration: 205: Thin	*ENG	[–2 to 2 / **–0.5** / 0.05 %/step]
050	Registration: 205: Middle Thick	*ENG	[–2 to 2 / **0** / 0.05 %/step]
051	Registration: 154: Thin	*ENG	[–2 to 2 / **–0.5** / 0.05 %/step]
052	Registration: 115: Thick1	*ENG	[–2 to 2 / **–1** / 0.05 %/step]
054	Duplex CW: 77	*ENG	[–4 to 4 / **0** / 0.1 %/step]
055	Duplex CW: 115: Thick1	*ENG	[–4 to 4 / **0.6** / 0.1 %/step]
056	Duplex CW: 115: Middle Thick	*ENG	[–4 to 4 / **1** / 0.1 %/step]
057	Duplex CW: 154: Normal	*ENG	[–4 to 4 / **0.5** / 0.1 %/step]
058	Duplex CW: 154: Middle Thick	*ENG	[–4 to 4 / **1** / 0.1 %/step]
059	Duplex CW: 205: Normal	*ENG	[–4 to 4 / **0.5** / 0.1 %/step]

060	Duplex CW: 205: Middle Thick	*ENG	[–4 to 4 / **1** / 0.1 %/step]
061	Duplex CCW: 115: Thick1	*ENG	[–4 to 4 / **0** / 0.1 %/step]
062	Duplex CCW: 115: Middle Thick	*ENG	[–4 to 4 / **0.2** / 0.1 %/step]
063	Duplex CCW: 154: Normal	*ENG	[–4 to 4 / **–0.3** / 0.1 %/step]
064	Duplex CCW: 154: Middle Thick	*ENG	[–4 to 4 / **0.2** / 0.1 %/step]
065	Duplex CCW: 205: Normal	*ENG	[–4 to 4 / **–0.3** / 0.1 %/step]
066	Duplex CCW: 205: Middle Thick	*ENG	[–4 to 4 / **0.2** / 0.1 %/step]
067	Reverse CW: 115: Thick1	*ENG	[–4 to 4 / **0** / 0.1 %/step]
068	Reverse CW: 115: Middle Thick	*ENG	[–4 to 4 / **0** / 0.1 %/step]
069	Reverse CW: 154: Normal	*ENG	
070	Reverse CW: 154: Middle Thick	*ENG	
071	Reverse CW: 205: Normal	*ENG	
072	Reverse CW: 205: Middle Thick	*ENG	
073	Reverse CCW: 115: Thick1	*ENG	[–4 to 4 / **0** / 0.1 %/step]
074	Reverse CCW: 115: Middle Thick	*ENG	[–4 to 4 / **0.2** / 0.1 %/step]
075	Reverse CCW: 154: Normal	*ENG	[–4 to 4 / **–0.3** / 0.1 %/step]
076	Reverse CCW: 154: Middle Thick	*ENG	[–4 to 4 / **0.2** / 0.1 %/step]
077	Reverse CCW: 205: Normal	*ENG	[–4 to 4 / **–0.3** / 0.1 %/step]
078	Reverse CCW: 205: Middle Thick	*ENG	[–4 to 4 / **0.2** / 0.1 %/step]

1901	[Recovery Temp. Ope. Time]		
004	-	*ENG	[0 to 60 / **10** / 1 sec/step] **Not used**

1902	[Drum Phase Adj.]		
001	Execute	-	Execute drum phase adjustment.
002	Result	*ENG	Displays the result of drum phase adjustment. 0: Successfully done 2: Sampling failure 3: Insufficient detection number
003	Auto Execution	*ENG	Turns the automatic drum phase adjustment on or off. 0: Off, 1: On

1907	[Paper Feed Timing Adj.] DFU		
001	Pre-Feed	*ENG	[0 or 1 / **0** / -]
002	Feed Solenoid ON: Plain	*ENG	[–10 to 40 / **0** / 2.5 mm/step]
003	Feed Clutch OFF: Plain	*ENG	[–10 to 10 / **0** / 1 mm/step]
004	Feed Clutch ON: Plain	*ENG	[–10 to 10 / **0** / 1 mm/step]
005	Inverter Stop Position	*ENG	[–10 to 10 / **0** / 1 mm/step]
006	Re-Feed Stop Position	*ENG	[–10 to 10 / **0** / 1 mm/step]
007	By-pass Solenoid OFF	*ENG	[0 to 40 / **0** / 1 mm/step]
008	By-pass Solenoid Re-ON	*ENG	[0 or 1 / **1** / -]
010	By-pass Feed Clutch ON	*ENG	[–10 to 10 / **0** / 1 mm/step]
012	Feed Solenoid ON: Thick	*ENG	[–10 to 40 / **0** / 2.5 mm/step]
013	Feed Clutch OFF: Thick	*ENG	[–10 to 10 / **0** / 1 mm/step]
014	Feed Clutch ON: Thick	*ENG	[–10 to 10 / **0** / 1 mm/step]

1908	[Paper Bank Feed Timing Adj.] DFU

006	Feed Clutch ON: Plain	*ENG	[–10 to 10 / **0** / 1 mm/step]
007	Feed Clutch ON: Thick	*ENG	

1910	[Fusing Feed Start Time]		
	Specifies the waiting time for feeding paper after the machine has entered the print ready mode.		
001	Plain: Normal Temp	*ENG	[0 to 250 / **0** / 1 sec/step]
002	Thick: Normal Temp.	*ENG	
003	Middle Thick Constant Speed: Normal Temp.	*ENG	[0 to 250 / **5** / 1 sec/step]
007	Plain: Low Temp.	*ENG	[0 to 250 / **0** / 1 sec/step]
008	Thick: Low Temp.	*ENG	
009	Middle Thick Constant Speed: Low Temp.	*ENG	[0 to 250 / **5** / 1 sec/step]

1911	[Stand-by Recovery Rotation Speed]		
	Selects the line speed for increasing the fusing temperature after recovery.		
001	Low Temp. Setting	*ENG	[0 or 1 / **0** / -] 0: 77 mm/sec 1: 154 mm/sec (C1c)/205 mm/sec (C1d)
002	Normal temp. Setting	*ENG	

1912	[Capacitor Condition Display] Not used		
001	Latest Capacity	*ENG	[0 to 150 / **45** / 1 F/step]
002	Current Voltage	*ENG	[0 to 50 / **0** / 0.01 V/step]
003	Charge Time	*ENG	[0 to 50000 / **0** / 10 ms/step]
004	Deterioration Counter	*ENG	[0 to 1000 / **0** / 1 /step]
005	Charge Current	*ENG	[5 to 15 / **10** / 0.1 A/step]

1913	[Capacitor Discharge Stop Voltage Setting] Not used

001		*ENG	[10 to 25 / **20** / 1 V/step]

1914	**[Capacitor Deterioration Detection Condition] Not used**		
001	AC Input Voltage Display	*ENG	[0 to 150 / **100** / 1 V/step]
002	Deterioration Counter	*ENG	[10 to 250 / **30** / 1 /step]
003	AC Input Voltage	*ENG	[80 to 100 / **0** / 1 V/step]
004	Capacitor Capacity	*ENG	[20 to 130 / **35** / 1 F/step]

1915	**[After Ready Setting]**		
001	Correction Temp.: Plain: Reload	*ENG	[0 to 50 / **10** / 1 deg/step]
	Specifies the additional temperature for the target temperature of the plain paper for the first print mode. This temperature is added for the time specified with SP1915-002.		
002	Correction Time: Plain: Reload	*ENG	[0 to 60 / **20** / 1 sec/step]
	Specifies the time for adding the correction temperature (SP1915-001) for the first print mode.		
003	Correction Temp.: M-Thick: Reload	*ENG	[0 to 50 / **20** / 1 deg/step]
	Specifies the additional temperature for the target temperature of the middle thick paper for the first print mode. This temperature is added for the time specified with SP1915-004.		
004	Correction Time: M-Thick: Reload	*ENG	[0 to 60 / **20** / 1 sec/step]
	Specifies the time for adding the correction temperature (SP1915-003) for the first print mode.		
005	Correction Temp.: M-Thick: Normal	*ENG	[0 to 50 / **10** / 1 deg/step]
	Specifies the additional temperature for the target temperature of the middle thick paper at recovery from the stand-by mode. This temperature is added for the time specified with SP1915-006.		
006	Correction Time: M-Thick: Normal	*ENG	[0 to 60 / **20** / 1 sec/step]

	Specifies the time for adding the correction temperature (SP1915-005) at recovery from the stand-by mode.

1916	[CPM Down Setting]		
001	Temp.: BW: M	*ENG	[100 to 200 / **C1c: 135, C1d: 140** / 1 deg/step]
	Not used		
002	Temp.: BW: L	*ENG	[100 to 200 / **C1c: 140, C1d: 145** / 1 deg/step]
	Not used		
003	Temp.: FC: M	*ENG	[100 to 200 / **C1c: 135, C1d: 140** / 1 deg/step]
	Not used		
004	Temp.: FC: L	*ENG	[100 to 200 / **C1c: 140, C1d: 145** / 1 deg/step]
	Not used		
005	ON/OFF: BW: M	*ENG	[0 or 1 / **1** / -]
	Not used		
006	ON/OFF: BW: L	*ENG	[0 or 1 / **1** / -]
	Not used		
007	ON/OFF: FC: M	*ENG	[0 or 1 / **1** / -]
	Not used		
008	ON/OFF: FC: L	*ENG	[0 or 1 / **1** / -]
	Not used		
009	Non Permissive Time: BW: M	*ENG	[0 to 180 / **0** / 1 sec/step]
	Not used		
010	Non Permissive Time: BW: L	*ENG	[0 to 180 / **0** / 1 sec/step]
	Not used		
011	Non Permissive Time: FC: M	*ENG	[0 to 180 / **0** / 1 sec/step]
	Not used		

012	Non Permissive Time: FC: L	*ENG	[0 to 180 / **0** / 1 sec/step]
	Not used		
013	CPM: BW: M	*ENG	[20 to 30 / **C1c: 25, C1d: 30** / 5 cpm/step]
	Not used		
014	CPM: BW: L	*ENG	[20 to 30 / **C1c: 25, C1d: 30** / 5 cpm/step]
	Not used		
015	CPM: FC: M	*ENG	[20 to 30 / **C1c: 25, C1d: 30** / 5 cpm/step]
	Not used		
016	CPM: FC: L	*ENG	[20 to 30 / **C1c: 25, C1d: 30** / 5 cpm/step]
	Not used		
017	O/V: Plain	*ENG	[0 to 100 / **20** / 1 deg/step]
	Specifies the offset temperature for plain paper for the CPM down threshold. CPM down threshold temperature for plain paper = Fusing temperature for plain paper (SP1-105-030, -032, -034, -036) – this offset value		
018	O/V: M-Thick: BK	*ENG	[0 to 100 / **25** / 1 deg/step]
	Specifies the offset temperature for middle thick paper in B/W mode for the CPM down threshold. CPM down threshold temperature for middle thick paper in B/W mode = Fusing temperature for middle thick paper in B/W mode (SP1-105-099, -101) – this offset value		
019	O/V: M-Thick: FC	*ENG	[0 to 100 / **10** / 1 deg/step]
	Specifies the offset temperature for middle thick paper in full color mode for thed CPM down threshold. CPM down threshold temperature for middle thick paper in full color mode = Fusing temperature for middle thick paper in full color mode (SP1-105-095, -097) – this offset value		
020	CPM Value: Plain	*ENG	[20 to 30 / **C1c: 25, C1d: 30** / 5 cpm/step]
	Adjusts the CPM for plain paper. This setting is activated only when the machine enters the CPM down mode. For details, refer to "CPM Down System" in the "Detailed Section Descriptions" section.		
021	CPM Value: M-Thick: BK	*ENG	[20 to 30 / **C1c: 25, C1d: 30** / 5 cpm/step]

	Adjusts the CPM for middle thick paper in B/W mode. This setting is activated only when the machine enters the CPM down mode. For details, refer to "CPM Down System" in the "Detailed Section Descriptions" section.		
022	CPM Value: M-Thick: FC	*ENG	[20 to 30 / **C1c: 25, C1d: 30** / 5 cpm/step]
	Adjusts the CPM for middle thick paper in full color mode. This setting is activated only when the machine enters the CPM down mode. For details, refer to "CPM Down System" in the "Detailed Section Descriptions" section.		
023	Operation Time	*ENG	[0 to 60 / **20** / 1 sec/step]
	Specifies the time for keeping CPM down mode. This SP is activated only for middle thick paper in full color mode.		
024	Low Temp.: CPM O/V Co-effiecient	*ENG	[0 to 10 / **5** / 5 cpm/step]
	Specifies the offset value for CPM down mode. This SP is activated only when the machine determines that input voltage is 93% or less (SP1-916-026) and ambient temperature is 17° C or less (SP1-112-001) using middle thick paper in full color mode.		
025	CPM Down Enable	*ENG	[0 or 1 / **C1c: 0, C1d: 1** / -] 0: OFF, 1: ON
	Enables or disables the CPM down mode.		
026	Voltage Target	*ENG	[80 to 120 / **93*** / 1%/step] *Only TAIWAN: **90**
	Specifies the threshold voltage for CPM down mode.		

1917	**[Magnetic Field Roller HP Detection]**		
001	Temp.: BW: M	*ENG	[5 to 100 / **40** / 1 time/step]
	Specifies the limit times of the ferrite roller rotation for initializing the home position of the ferrite roller. After the ferrite roller rotates more than 40 times, the machine starts to find the home position of the ferrite roller.		
002	Continuous Feed Page	*ENG	[100 to 1000 / **500** / 10 sheets/step]
	Specifies the limit sheets of outputs for initializing the home position of the ferrite roller. When the outputs are more than 500 sheets of paper, the machine starts to find the home position of the ferrite roller.		

SP2-XXX (Drum)

2005	**[Charge DC Voltage]** Charge Roller DC Voltage Adjustment (Paper Type, Process Speed, Color) Paper Type –> Plain, Thick 1, Thick 2		
	Adjusts the DC component of the charge roller bias in the various print modes. Charge bias (DC component) is automatically adjusted during process control; therefore, adjusting these settings does not effect while process control mode (SP3-041-1 Default: ON) is activated. When deactivating process control mode with SP3-041-1, the values in these SP modes are used for printing.		
001	Plain: Bk	*ENG	[0 to 1000 / **690** / 10 –volts/step]
002	Plain: M	*ENG	
003	Plain: C	*ENG	
004	Plain: Y	*ENG	
005	Thick 1: Bk	*ENG	
006	Thick 1: M	*ENG	
007	Thick 1: C	*ENG	
008	Thick 1: Y	*ENG	
009	Thick 2&FINE: Bk	*ENG	
010	Thick 2&FINE: M	*ENG	
011	Thick 2&FINE: C	*ENG	
012	Thick 2&FINE: Y	*ENG	

2006	**[Charge AC Voltage]** Charge Roller AC Voltage Adjustment (Paper Type, Process Speed, Color) Paper Type –> Plain, Thick 1, Thick 2		
	Adjusts the AC component of the charge roller bias in the various print modes. Charge bias (AC component) is adjusted by environment correction (SP2-007-xxx to SP2-011-xxx). These SPs are activated only when SP2-012-1 is set to "1: manual control".		
001	Plain: Bk	*ENG	[0 to 3 / **2.1** / 0.01 KV/step]

002	Plain: M	*ENG	
003	Plain: C	*ENG	
004	Plain: Y	*ENG	
005	Thick 1: Bk	*ENG	
006	Thick 1: M	*ENG	
007	Thick 1: C	*ENG	
008	Thick 1: Y	*ENG	
009	Thick 2&FINE: Bk	*ENG	
010	Thick 2&FINE: M	*ENG	
011	Thick 2&FINE: C	*ENG	
012	Thick 2&FINE: Y	*ENG	

2007	**[Charge AC Current: LL]** Charge Roller AC Current Adjustment for LL (Color)		
	Displays/sets the AC current target of the charge roller for LL environment (Low temperature and Low humidity). **DFU**		
001	Environmental Target: Bk	*ENG	[0 to 3 / **C1c: 1.24, C1d: 1.64** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **C1c: 1.28, C1d: 1.68** / 0.01 mA/step]
003	Environmental Target: C	*ENG	
004	Environmental Target: Y	*ENG	

2008	**[Charge AC Current: ML]** Charge Roller AC Current Adjustment for MM (Color)		
	Displays/sets the AC current target of the charge roller for ML environment (Meddle temperature and Low humidity). **DFU**		
001	Environmental Target: Bk	*ENG	[0 to 3 / **C1c: 1.21, C1d: 1.6** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **C1c: 1.25, C1d: 1.65** / 0.01 mA/step]

003	Environmental Target: C	*ENG	
004	Environmental Target: Y	*ENG	

2009	**[Charge AC Current: MM]** Charge Roller AC Current Adjustment for MM (Color)		
	Displays/sets the AC current target of the charge roller for MM environment (Middle temperature and Middle humidity). **DFU**		
001	Environmental Target: Bk	*ENG	[0 to 3 / **C1c: 1.16, C1d: 1.53** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **C1c: 1.2, C1d: 1.58** / 0.01 mA/step]
003	Environmental Target: C	*ENG	
004	Environmental Target: Y	*ENG	

2010	**[Charge AC Current: MH]** Charge Roller AC Current Adjustment for MH (Color)		
	Displays/sets the AC current target of the charge roller for MH environment (Middle temperature and High humidity). **DFU**		
001	Environmental Target: Bk	*ENG	[0 to 3 / **C1c: 1.13, C1d: 1.49** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **C1c: 1.15, C1d: 1.52** / 0.01 mA/step]
003	Environmental Target: C	*ENG	
004	Environmental Target: Y	*ENG	

2011	**[Charge AC Current: HH]** Charge Roller AC Current Adjustment for HH (Color)		
	Displays/sets the AC current target of the charge roller for HH environment (High temperature and High humidity). **DFU**		
001	Environmental Target: Bk	*ENG	[0 to 3 / **C1c: 1. 21, C1d: 1.48** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **C1c: 1.14, C1d: 1.5** / 0.01 mA/step]

003	Environmental Target: C	*ENG	
004	Environmental Target: Y	*ENG	

2012	[Charge Output Control]		
001	AC Voltage	*ENG	Selects the AC voltage control type. [0 or 1 / **0** / 1/step] 0: Process control 1: Manual control (AC voltages are decided with SP2006.)

2013	[Environmental Correction: PCU]		
001	Current Environmental: Display	*ENG	Displays the environmental condition, which is measured in absolute humidity. [1 to 5 / **–** / 1 /step] 1: LL (LL <= 4.3 g/m^3) 2: ML (4.3 < ML <= 11.3 g/m^3) 3: MM (11.3 < MM <= 18.0 g/m^3) 4: MH (18.0 < MH <= 24.0 g/m^3) 5: HH (24.0 g/m^3 < HH)
002	Forced Setting	*ENG	Selects the environmental condition manually. [0 to 5 / **0** / 1 /step] 0: The environmental condition is determined automatically. 1: LL, 2: ML, 3: MM, 4: MH, 5: HH
003	Absolute Humidity: Threshold 1	*ENG	Changes the humidity threshold between LL and ML. [0 to 100 / **4.3** / 0.01 g/m^3/step]
004	Absolute Humidity: Threshold 2	*ENG	Changes the humidity threshold between ML and MM. [0 to 100 / **11.3** / 0.01 g/m^3/step]
005	Absolute Humidity: Threshold 3	*ENG	Changes the humidity threshold between MM and MH.

			[0 to 100 / **18.0** / 0.01 g/m^3/step]
006	Absolute Humidity: Threshold 4	*ENG	Changes the humidity threshold between MH and HH. [0 to 100 / **24.0** / 0.01 g/m^3/step]
007	Current Temp.: Display	*ENG	Displays the current temperature. [0 to 100 / – / 1°C/step]
008	Current Relative Humidity: Display	*ENG	Displays the current relative humidity. [0 to 100 / – / 1%RH/step]
009	Current Absolute Humidity: Display	*ENG	Displays the absolute humidity. [0 to 100 / – / 0.01 g/m^3/step]
010	Previous Environmental: Display	*ENG	Displays the previous environmental condition, which is measured in absolute humidity. [1 to 5 / – / 1 /step] 1: LL, 2: ML, 3: MM, 4: MH, 5: HH
011	Previous Temp.: Display	*ENG	Displays the previous temperature. [0 to 100 / – / 1°C/step]
012	Previous Relative Humidity: Display	*ENG	Displays the previous relative humidity. [0 to 100 / – / 1%RH/step]
013	Previous Absolute Humidity: Display	*ENG	Displays the previous absolute humidity. [0 to 100 / – / 0.01 g/m^3/step]

2101	**[Color Registration Correction] FA**		
	These values are the parameters for the automatic line position adjustment and are adjusted at the factory. However, you must input a value for SP2101-001 after replacing the laser optics housing unit. For details, see "p.148 "Laser Optics Housing Unit"" in the "Replacement and Adjustment" section. The value should be provided with the new laser optics housing unit.		
001	Main Dot: Bk	*ENG	[–512 to 511 / **0** / 1 dot/step]
002	Main Dot: M	*ENG	
003	Main Dot: C	*ENG	
004	Main Dot: Y	*ENG	

005	Sub Line: Bk	*ENG	[–16384 to 16383 / **0** / 1 line/step]
006	Sub Line: M	*ENG	
007	Sub Line: C	*ENG	
008	Sub Line: Y	*ENG	

2102	[Magnification Adjustment] DFU		
001	Main Mag.: High Speed: Bk	*ENG	These are results of the main scan length adjustment. [0 to 560 / **280** / 1 /step]
002	Main Mag.: Medium Speed: Bk	*ENG	
003	Main Mag.: Low Speed: Bk	*ENG	
004	Main Mag.: High Speed: M	*ENG	
005	Main Mag.: Medium Speed: M	*ENG	
006	Main Mag.: Low Speed: M	*ENG	
007	Main Mag.: High Speed: C	*ENG	
008	Main Mag.: Medium Speed: C	*ENG	
009	Main Mag.: Low Speed: C	*ENG	
010	Main Mag.: High Speed: Y	*ENG	
011	Main Mag.: Medium Speed: Y	*ENG	
012	Main Mag.: Low Speed: Y	*ENG	

2103	[Erase Margin Adjustment] (Area, Paper Size)		
	Adjusts the erase margin by deleting image data at the margins.		
001	Lead Edge Width	*ENG	[0 to 9.9 / **4.2** / 0.1 mm/step]
002	Trail. Edge Width	*ENG	
003	Left	*ENG	[0 to 9.9 / **2** / 0.1 mm/step]

004	Right	*ENG	
005	Lead Edge Width: Thin	*ENG	[0 to 9.9 / **5** / 0.1 mm/step]
006	Duplex Trail. L Size	*ENG	[0 to 4 / **0** / 0.1 mm/step]
007	Duplex Trail. M Size	*ENG	
008	Duplex Trail. S Size	*ENG	
009	Duplex Left Edge	*ENG	[0 to 1.5 / **0.3** / 0.1 mm/step]
010	Duplex Right Edge	*ENG	

2105	**[LD Power Adj.]** (Process Speed, Color)		
	Adjusts the LD power of each color for each process speed. Each LD power setting is decided by process control. High Speed: 154 (C1c)/205 (C1d) mm/sec, Middle Speed: 111 mm/sec, Low Speed: 77 mm/sec		
001	High Speed: Bk	*ENG	[50 to 120 / **100** / 1%/step] Decreasing a value makes lines thinner on the output. Increasing a value makes lines thicker on the output.
002	High Speed: M	*ENG	
003	High Speed: C	*ENG	
004	High Speed: Y	*ENG	
005	Middle Speed: Bk	*ENG	
006	Middle Speed: M	*ENG	
007	Middle Speed: C	*ENG	
008	Middle Speed: Y	*ENG	
009	Low Speed: Bk	*ENG	
010	Low Speed: M	*ENG	
011	Low Speed: C	*ENG	
012	Low Speed: Y	*ENG	

2106	**[Polygon Rotation Time]**

	Adjusts the time of the polygon motor rotation. **DFU**		
001	Warming-Up	*ENG	[0 to 60 / **10** / 1 sec/step]
002	Job End	*ENG	

2107	**[Image Parameter]**		
	DFU		
001	Image Gamma Flag	*ENG	[0 or 1 / **1** / 1 /step]
002	Shading Correction Flag	*ENG	[0 or 1 / **1** / 1 /step]

2109	**[Test Pattern]**		
	Generates the test pattern using "COPY Window" tab in the LCD.		
003	Pattern Selection	-	[0 to 23 / **0** / 1/step] 0 None 1: 1-dot line pattern (Vertical) 2: 2-dot line pattern (Vertical) 3: 1-dot line pattern (Horizontal) 4: 2-dot line pattern (Horizontal) 5: 1-dot grid pattern (Vertical) 6: 1-dot grid pattern (Horizontal) 7: 1-dot grid pattern (Fine) 8: 1-dot grid pattern (Rough) 9: 1-dot slant pattern (Fine) 10: 1-dot slant pattern (Rough) 11. 1-dot pattern 12. 2-dot pattern 13. 4-dot pattern 14. 1-dot trimming pattern 15: Cross stitch: sub-scan 16: Cross stitch: main-scan 17: Belt pattern (Horizontal) 18: Belt pattern (Vertical)

			19: Checkered flag 20: Gray scale (Vertical) 21: Gray scale (Horizontal) 22: Dual beams density pattern 23: Solid
005	Color Selection	-	Specifies the color for the test pattern. [1 to 4 / 1 / 1/step] 1: All colors, 2: Magenta, 3: Yellow, 4: Cyan
006	Density: Bk	-	Specifies the color density for the test pattern. [0 to 15 / **15** / 1 /step] 0: Lightest density 15: Darkest density
007	Density: M	-	
008	Density: C	-	
009	Density: Y	-	

2111	[Forced Line Position Adj.]		
001	Mode a	-	Executes the fine line position adjustment twice. If this SP is not completed (NG is displayed), do SP2111-003 first and then try this SP again.
002	Mode b	-	Executes the fine line position adjustment once. If this SP is not completed, do SP2111-003 first and then try this SP again.
003	Mode c	-	Executes the rough line position adjustment once. After doing this SP, make sure to execute SP2111-001 or -002. Otherwise, the line position adjustment is not perfectly done.

2112	**[TM/ID Sensor Check]** ID Sensor Check **FA**		
001	Execute		This SP is used to check the ID sensors at the factory. The results of this SP are displayed in SP2140 to SP2145.

2117	[Skew Adjustment]
	Specifies a skew adjustment value for the skew motor M, C or Y.

	These SPs must be used when a new laser optics housing unit is installed or when SC285 occurs. For details, see "p.148 "Laser Optics Housing Unit"" in the "Replacement and Adjustment" section.		
001	Pulse: M	*ENG	[–50 to 50 / **0** / 1 pulse/step]
002	Pulse: C	*ENG	
003	Pulse: Y	*ENG	

2118	[Skew Adjustment]		
001	Pulse: M	*ENG	Changes the current skew adjustment values to the values specified with SP2117. These SPs must be used when a new laser optics housing unit is installed or when SC285 occurs. For details, see "p.148 "Laser Optics Housing Unit"" in the "Replacement and Adjustment" section.
002	Pulse: C	*ENG	
003	Pulse: Y	*ENG	

2119	[Skew Adjustment Display]		
	Displays the current skew adjustment value for each skew motor.		
001	M	*ENG	[–50 to 50 / **0** / 1 pulse/step]
002	C	*ENG	
003	Y	*ENG	

2140	[ID Sensor Check Result] DFU		
	Displays the results of the ID sensor check. Bk, M, C, Y: ID sensors for the process control Front, Center, Rear: ID sensors for the automatic line position adjustment		
001	Bk	*ENG	[0 to 1024 / - / 1/step]
002	M	*ENG	
003	C	*ENG	
004	Y	*ENG	
005	Front	*ENG	

006	Center	*ENG	
007	Rear	*ENG	

2141	[ID Sensor Check Result: Ave.] DFU		
	Displays the average result values of the ID sensor check. Bk, M, C, Y: ID sensors for the process control Front, Center, Rear: ID sensors for the automatic line position adjustment		
001	Bk	*ENG	[0 to 5.5 / **0** / 0.01V/step]
002	M	*ENG	
003	C	*ENG	
004	Y	*ENG	
005	Front	*ENG	
006	Center	*ENG	
007	Rear	*ENG	

2142	[ID Sensor Check Result] DFU		
	Displays the maximum result values of the ID sensor check. Bk, M, C, Y: ID sensors for the process control Front, Center, Rear: ID sensors for the automatic line position adjustment		
001	Maximum: Bk	*ENG	[0 to 5.5 / **0** / 0.01V/step]
002	Maximum: M	*ENG	
003	Maximum: C	*ENG	
004	Maximum: Y	*ENG	
005	Maximum: Front	*ENG	
006	Maximum: Center	*ENG	
007	Maximum: Rear	*ENG	

2143	[ID Sensor Check Result] DFU

	Displays the minimum result values of the ID sensor check. Bk, M, C, Y: ID sensors for the process control Front, Center, Rear: ID sensors for the automatic line position adjustment		
001	Minimum: Bk	*ENG	[0 to 5.5 / **0** / 0.01V/step]
002	Minimum: M	*ENG	
003	Minimum: C	*ENG	
004	Minimum: Y	*ENG	
005	Minimum: Front	*ENG	
006	Minimum: Center	*ENG	
007	Minimum: Rear	*ENG	

2144	[ID Sensor Check Result] DFU		
	Displays the maximum result 2 values of the ID sensor check. Bk, M, C, Y: ID sensors for the process control Front, Center, Rear: ID sensors for the automatic line position adjustment		
001	Maximum 2: Bk	*ENG	[0 to 5.5 / **0** / 0.01V/step]
002	Maximum 2: M	*ENG	
003	Maximum 2: C	*ENG	
004	Maximum 2: Y	*ENG	
005	Maximum 2: Front	*ENG	
006	Maximum 2: Center	*ENG	
007	Maximum 2: Rear	*ENG	

2145	[ID Sensor Check Result] DFU		
	Displays the minimum result 2 values of the ID sensor check. Bk, M, C, Y: ID sensors for the process control Front, Center, Rear: ID sensors for the automatic line position adjustment		
001	Minimum 2: Bk	*ENG	[0 to 5.5 / **0** / 0.01V/step]

002	Minimum 2: M	*ENG	
003	Minimum 2: C	*ENG	
004	Minimum 2: Y	*ENG	
005	Minimum 2: Front	*ENG	
006	Minimum 2: Center	*ENG	
007	Minimum 2: Rear	*ENG	

2150	**[Area Mag. Correction]** LD Pulse Area Correction (Color, Area) **FA**		
	Adjusts the magnification for each area. The main scan (297 mm) is divided into 8 areas. Area 1 is at the front side of the machine (left side of the image) and area 8 is at the rear side of the machine (right side of the image). Decreasing a value makes the image shift to the left side on the print. Increasing a value makes the image shift to the right side on the print. 1 pulse = 1/16 dot		
027	Area0: Bk	*ENG	DFU
028	Area1: Bk	*ENG	Adjusts the area magnification for LD 0. [–256 to 255 / **0** / 1 sub-dot/step]
029	Area2: Bk	*ENG	
030	Area3: Bk	*ENG	
031	Area4: Bk	*ENG	
032	Area5: Bk	*ENG	
033	Area6: Bk	*ENG	
034	Area7: Bk	*ENG	
035	Area8: Bk	*ENG	
036	Area9: Bk	*ENG	Not used
037	Area10: Bk	*ENG	
038	Area11: Bk	*ENG	
039	Area12: Bk	*ENG	
040	Area0: Bk	*ENG	Not used

041	Area1: Bk	*ENG	Adjusts the area magnification for LD 1. [–256 to 255 / 0 / 1 sub-dot/step]
042	Area2: Bk	*ENG	
043	Area3: Bk	*ENG	
044	Area4: Bk	*ENG	
045	Area5: Bk	*ENG	
046	Area6: Bk	*ENG	
047	Area7: Bk	*ENG	
048	Area8: Bk	*ENG	
049	Area9: Bk	*ENG	Not used
050	Area10: Bk	*ENG	
051	Area11: Bk	*ENG	
052	Area12: Bk	*ENG	
079	Area0: M	*ENG	Not used
080	Area1: M	*ENG	Adjusts the area magnification for LD 0. [–256 to 255 / 0 / 1 sub-dot/step]
081	Area2: M	*ENG	
082	Area3: M	*ENG	
083	Area4: M	*ENG	
084	Area5: M	*ENG	
085	Area6: M	*ENG	
086	Area7: M	*ENG	
087	Area8: M	*ENG	
088	Area9: M	*ENG	Not used
089	Area10: M	*ENG	
090	Area11: M	*ENG	
091	Area12: M	*ENG	
092	Area0: M	*ENG	Not used

093	Area1: M	*ENG	Adjusts the area magnification for LD 1. [–256 to 255 / **0** / 1 sub-dot/step]
094	Area2: M	*ENG	
095	Area3: M	*ENG	
096	Area4: M	*ENG	
097	Area5: M	*ENG	
098	Area6: M	*ENG	
099	Area7: M	*ENG	
100	Area8: M	*ENG	
101	Area9: M	*ENG	Not used
102	Area10: M	*ENG	
103	Area11: M	*ENG	
104	Area12: M	*ENG	
131	Area0: C	*ENG	Not used
132	Area1: C	*ENG	Adjusts the area magnification for LD 0. [–256 to 255 / **0** / 1 sub-dot/step]
133	Area2: C	*ENG	
134	Area3: C	*ENG	
135	Area4: C	*ENG	
136	Area5: C	*ENG	
137	Area6: C	*ENG	
138	Area7: C	*ENG	
139	Area8: C	*ENG	
140	Area9: C	*ENG	Not used
141	Area10: C	*ENG	
142	Area11: C	*ENG	
143	Area12: C	*ENG	
144	Area0: C	*ENG	Not used

145	Area1: C	*ENG	Adjusts the area magnification for LD 1. [–256 to 255 / 0 / 1 sub-dot/step]
146	Area2: C	*ENG	
147	Area3: C	*ENG	
148	Area4: C	*ENG	
149	Area5: C	*ENG	
150	Area6: C	*ENG	
151	Area7: C	*ENG	
152	Area8: C	*ENG	
153	Area9: C	*ENG	Not used
154	Area10: C	*ENG	
155	Area11: C	*ENG	
156	Area12: C	*ENG	
183	Area0: Y	*ENG	Not used
184	Area1: Y	*ENG	Adjusts the area magnification for LD 0. [–256 to 255 / 0 / 1 sub-dot/step]
185	Area2: Y	*ENG	
186	Area3: Y	*ENG	
187	Area4: Y	*ENG	
188	Area5: Y	*ENG	
189	Area6: Y	*ENG	
190	Area7: Y	*ENG	
191	Area8: Y	*ENG	
192	Area9: Y	*ENG	Not used
193	Area10: Y	*ENG	
194	Area11: Y	*ENG	
195	Area12: Y	*ENG	
196	Area0: Y	*ENG	Not used

197	Area1: Y	*ENG	Adjusts the area magnification for LD 0. [–256 to 255 / **0** / 1 sub-dot/step]
198	Area2: Y	*ENG	
199	Area3: Y	*ENG	
200	Area4: Y	*ENG	
201	Area5: Y	*ENG	
202	Area6: Y	*ENG	
203	Area7: Y	*ENG	
204	Area8: Y	*ENG	
205	Area9: Y	*ENG	Not used
206	Area10: Y	*ENG	
207	Area11: Y	*ENG	
208	Area12: Y	*ENG	

2152	[Area Shad. Correct. Setting] FA		
	Adjusts the area correction value for each LD power. The main scan is divided into 16 areas. However, the image areas are limited from area 1 to area 14. For BK and Magenta, area 1 is at the rear side of the machine (left side of the image) and area 14 is at the front side of the machine (right side of the image). For Cyan and Yellow, area 1 is at the front side of the machine (right side of the image) and area 14 is at the rear side of the machine (left side of the image).		
001	Area 0: Bk	*ENG	This is for the synchronizing detection board.
002	Area 1: Bk	*ENG	[50 to 150 / **100** / 1 %/step]
003	Area 2: Bk	*ENG	
004	Area 3: Bk	*ENG	
005	Area 4: Bk	*ENG	
006	Area 5: Bk	*ENG	
007	Area 6: Bk	*ENG	

008	Area 7: Bk	*ENG	
009	Area 8: Bk	*ENG	
010	Area 9: Bk	*ENG	
011	Area 10: Bk	*ENG	
012	Area 11: Bk	*ENG	
013	Area 12: Bk	*ENG	
014	Area 13: Bk	*ENG	
015	Area 14: Bk	*ENG	
016	Area 15: Bk	*ENG	This is out of the image area.
033	Area 0: M	*ENG	This is for the synchronizing detection board.
034	Area 1: M	*ENG	[50 to 150 / **100** / 1 %/step]
035	Area 2: M	*ENG	
036	Area 3: M	*ENG	
037	Area 4: M	*ENG	
038	Area 5: M	*ENG	
039	Area 6: M	*ENG	
040	Area 7: M	*ENG	
041	Area 8: M	*ENG	
042	Area 9: M	*ENG	
043	Area 10: M	*ENG	
044	Area 11: M	*ENG	
045	Area 12: M	*ENG	
046	Area 13: M	*ENG	
047	Area 14: M	*ENG	
048	Area 15: M	*ENG	This is out of the image area.
065	Area 0: C	*ENG	This is for the synchronizing detection board.

066	Area 1: C	*ENG	[50 to 150 / **100** / 1 %/step]
067	Area 2: C	*ENG	
068	Area 3: C	*ENG	
069	Area 4: C	*ENG	
070	Area 5: C	*ENG	
071	Area 6: C	*ENG	
072	Area 7: C	*ENG	
073	Area 8: C	*ENG	
074	Area 9: C	*ENG	
075	Area 10: C	*ENG	
076	Area 11: C	*ENG	
077	Area 12: C	*ENG	
078	Area 13: C	*ENG	
079	Area 14: C	*ENG	
080	Area 15: C	*ENG	This is out of the image area.
097	Area 0: Y	*ENG	This is for the synchronizing detection board.
098	Area 1: Y	*ENG	[50 to 150 / **100** / 1 %/step]
099	Area 2: Y	*ENG	
100	Area 3: Y	*ENG	
101	Area 4: Y	*ENG	
102	Area 5: Y	*ENG	
103	Area 6: Y	*ENG	
104	Area 7: Y	*ENG	
105	Area 8: Y	*ENG	
106	Area 9: Y	*ENG	
107	Area 10: Y	*ENG	

108	Area 11: Y	*ENG	
109	Area 12: Y	*ENG	
110	Area 13: Y	*ENG	
111	Area 14: Y	*ENG	
112	Area 15: Y	*ENG	This is out of the image area.

2180	[Line Position Adj. Setting Clear]		
001	Color Regist	-	DFU
002	Main Scan Length Detection	-	DFU
003	MUSIC Result	-	DFU
004	Area Magnification Correction	-	DFU

2181	[Line Position Adj. Result]		
	Displays the values for each correction. • "Paper Int. Mag: Subdot" indicates the magnification correction value between two sheets of paper. • "Mag.Cor. Subdot" indicates the magnification correction value. • "M. Scan Erro." indicates the shift correction value in the main scan direction. • "S. Scan Erro." Indicates the shift correction value in the sub scan direction. • "M. Cor.: Dot" indicates the dot correction value in the main scan direction. • "M. Cor.: Subdot" indicates the sub dot correction value in the main scan direction.		
001	Paper Int. Mag: Subdot: Bk	*ENG	[–32768 to 32767 / 0 / 1 pulse/step]
002	Mag.Cor. Subdot: Bk	*ENG	[–32768 to 32767 / 0 / 1 pulse/step]
003	Skew: M	*ENG	[–5000 to 5000 / 0 / 0.001 um/step]
004	Bent: M	*ENG	
005	M. Scan Erro.: Left: M	*ENG	[–5000 to 5000 / 0 / 0.001 um/step]
006	M. Scan Erro.: Center: M	*ENG	
007	M. Scan Erro.: Right: M	*ENG	

008	S. Scan Erro.: Left: M	*ENG	
009	S. Scan Erro.: Center: M	*ENG	
010	S. Scan Erro.: Right: M	*ENG	
011	M. Cor.: Dot: M	*ENG	[–512 to 511 / 0 / 1 dot/step]
012	M. Cor.: Subdot: M	*ENG	
013	Paper Int. Mag: Subdot: M	*ENG	[–32768 to 32767 / 0 / 1 pulse/step]
014	Mag.Cor. Subdot: M	*ENG	
015	M. Left Mag.: Subdot: M	*ENG	
016	M. Right Mag.: Subdot: M	*ENG	
017	S. Cor.: 600 Line: M	*ENG	[–16384 to 16383 / 0 / 1 line/step]
018	S. Cor.: 600 Sub: M	*ENG	[–1 to 1 / 0 / 0.001 line/step]
019	S. Cor.: 1200 Line: M	*ENG	[–16384 to 16383 / 0 / 1 line/step]
020	S. Cor.: 1200 Sub: M	*ENG	[–1 to 1 / 0 / 0.001 line/step]
021	Skew: C	*ENG	[–5000 to 5000 / 0 / 0.001 um/step]
022	Bent: C	*ENG	
023	M. Scan Erro.: Left: C	*ENG	[–5000 to 5000 / 0 / 0.001 um/step]
024	M. Scan Erro.: Center: C	*ENG	
025	M. Scan Erro.: Right: C	*ENG	
026	S. Scan Erro.: Left: C	*ENG	[–5000 to 5000 / 0 / 0.001 um/step]
027	S. Scan Erro.: Center: C	*ENG	
028	S. Scan Erro.: Right: C	*ENG	
029	M. Cor.: Dot: C	*ENG	[–512 to 511 / 0 / 1 dot/step]
030	M. Cor.: Subdot: C	*ENG	[–15 to 15 / 0 / 1 pulse/step]
031	Paper Int. Mag: Subdot: C	*ENG	[–32768 to 32767 / 0 / 1 pulse/step]
032	Mag.Cor. Subdot: C	*ENG	
033	M. Left Mag.: Subdot: C	*ENG	

034	M. Right Mag.: Subdot: C	*ENG	
035	S. Cor.: 600 Line: C	*ENG	[–16384 to 16383 / 0 / 1 line/step]
036	S. Cor.: 600 Sub: C	*ENG	[–1 to 1 / 0 / 0.001 line/step]
037	S. Cor.: 1200 Line: C	*ENG	[–16384 to 16383 / 0 / 1 line/step]
038	S. Cor.: 1200 Sub: C	*ENG	[–1 to 1 / 0 / 0.001 line/step]
039	Skew: Y	*ENG	[–5000 to 5000 / 0 / 0.001 um/step]
040	Bent: Y	*ENG	
041	M. Scan Erro.: Left: Y	*ENG	[–5000 to 5000 / 0 / 0.001 um/step]
042	M. Scan Erro.: Center: Y	*ENG	
043	M. Scan Erro.: Right: Y	*ENG	
044	S. Scan Erro.: Left: Y	*ENG	[–5000 to 5000 / 0 / 0.001 um/step]
045	S. Scan Erro.: Center: Y	*ENG	
046	S. Scan Erro.: Right: Y	*ENG	
047	M. Cor.: Dot: Y	*ENG	[–512 to 511 / 0 / 1 dot/step]
048	M. Cor.: Subdot: Y	*ENG	[–15 to 15 / 0 / 1 pulse/step]
049	Paper Int. Mag: Subdot: Y	*ENG	[–32768 to 32767 / 0 / 1 dot/step]
050	Mag.Cor. Subdot: Y	*ENG	
051	M. Left Mag.: Subdot: Y	*ENG	
052	M. Right Mag.: Subdot: Y	*ENG	
053	S. Cor.: 600 Line: Y	*ENG	[–16384 to 16383 / 0 / 1 line/step]
054	S. Cor.: 600 Sub: Y	*ENG	[–1 to 1 / 0 / 0.001 line/step]
055	S. Cor.: 1200 Line: Y	*ENG	[–16384 to 16383 / 0 / 1 line/step]
056	S. Cor.: 1200 Sub: Y	*ENG	[–1 to 1 / 0 / 0.001 line/step]

2182	[Line Position Adj. Offset] (Color) M. Scan: Main scan, S. Scan: Sub-scan

	High: 154 (C1c)/ 205 (C1d) mm/sec, Medium: 115 mm/sec, Low: 77 mm/sec		
001	M Magnification	*ENG	Adjusts the line position manually. [-1 to 1 / 0 / 0.001%/step] When line shifts are not corrected by the automatic line position adjustment, do this SP. Increasing a value reduces the image in the main scan direction. Decreasing a value enlarges the image in the main scan direction.
002	C Magnification	*ENG	
003	Y Magnification	*ENG	
004-021	Adjusts the main scan registration for each color and speed. Decreasing a value makes the image shift to the left side on the print. Increasing a value makes the image shift to the right side on the print. 1 dot = 21µm, 1 pulse = 1.3µm Dot: Rough adjustment, Subdot: Fine adjustment. Adjust ‘dot’ first, then adjust ‘subdot’.		
004	M. Scan: High: Dot: M	*ENG	[-512 to 512 / 0 / 1 dot/step]
005	M. Scan: High: Subdot: M	*ENG	[-15 to 15 / 0 / 1 pulse/step]
006	M. Scan: Medium: Dot: M	*ENG	[-512 to 512 / 0 / 1 dot/step]
007	M. Scan: Medium: Subdot: M	*ENG	[-15 to 15 / 0 / 1 pulse/step]
008	M. Scan: Low: Dot: M	*ENG	[-512 to 512 / 0 / 1 dot/step]
009	M. Scan: Low: Subdot: M	*ENG	[-15 to 15 / 0 / 1 pulse/step]
010	M. Scan: High: Dot: C	*ENG	[-512 to 512 / 0 / 1 dot/step]
011	M. Scan: High: Subdot: C	*ENG	[-15 to 15 / 0 / 1 pulse/step]
012	M. Scan: Medium: Dot: C	*ENG	[-512 to 512 / 0 / 1 dot/step]
013	M. Scan: Medium: Subdot: C	*ENG	[-15 to 15 / 0 / 1 pulse/step]
014	M. Scan: Low: Dot: C	*ENG	[-512 to 512 / 0 / 1 dot/step]
015	M. Scan: Low: Subdot: C	*ENG	[-15 to 15 / 0 / 1 pulse/step]
016	M. Scan: High: Dot: Y	*ENG	[-512 to 512 / 0 / 1 dot/step]
017	M. Scan: High: Subdot: Y	*ENG	[-15 to 15 / 0 / 1 pulse/step]
018	M. Scan: Medium: Dot: Y	*ENG	[-512 to 512 / 0 / 1 dot/step]

019	M. Scan: Medium: Subdot: Y	*ENG	[-15 to 15 / 0 / 1 pulse/step]
020	M. Scan: Low: Dot: Y	*ENG	[-512 to 512 / 0 / 1 dot/step]
021	M. Scan: Low: Subdot: Y	*ENG	[-15 to 15 / 0 / 1 pulse/step]
022-039	Adjusts the sub-scan registration for each color and speed. Decreasing a value makes the image shift to the leading edge side on the print. Increasing a value makes the image shift to the trailing edge side on the print. 1 line = 42µm		
022	S. Scan: High: Line: M	*ENG	[-16384 to 16384 / 0 / 1 line/step]
023	S. Scan: High: Subline: M	*ENG	[–1 to 1 / 0 / 0.001 /line]
024	S. Scan: Medium: Line: M	*ENG	[-16384 to 16384 / 0 / 1 line/step]
025	S. Scan: Medium: Subline: M	*ENG	[–1 to 1 / 0 / 0.001 /line]
026	S. Scan: Low: Line: M	*ENG	[-16384 to 16384 / 0 / 1 line/step]
027	S. Scan: Low: Subline: M	*ENG	Not used
028	S. Scan: High: Line: C	*ENG	[-16384 to 16384 / 0 / 1 line/step]
029	S. Scan: High: Subline: C	*ENG	[–1 to 1 / 0 / 0.001 /line]
030	S. Scan: Medium: Line: C	*ENG	[-16384 to 16384 / 0 / 1 line/step]
031	S. Scan: Medium: Subline: C	*ENG	[–1 to 1 / 0 / 0.001 /line]
032	S. Scan: Low: Line: C	*ENG	[-16384 to 16384 / 0 / 1 line/step]
033	S. Scan: Low: Subline: C	*ENG	Not used
034	S. Scan: High: Line: Y	*ENG	[-16384 to 16384 / 0 / 1 line/step]
035	S. Scan: High: Subline: Y	*ENG	[–1 to 1 / 0 / 0.001 /line]
036	S. Scan: Medium: Line: Y	*ENG	[-16384 to 16384 / 0 / 1 line/step]
037	S. Scan: Medium: Subline: Y	*ENG	[–1 to 1 / 0 / 0.001 /line]
038	S. Scan: Low: Line: Y	*ENG	[-16384 to 16384 / 0 / 1 line/step]
039	S. Scan: Low: Subline: Y	*ENG	Not used

2183	[Main Scan Length Detection] DFU

001	Execute: High: Bk	-	Executes the adjustment for the main scan length detection manually.
002	Execute: Medium: Bk	-	
003	Execute: Low: Bk	-	
004	Execute: High: M	-	
005	Execute: Medium: M	-	
006	Execute: Low: M	-	
007	Execute: High: C	-	
008	Execute: Medium: C	-	
009	Execute: Low: C	-	
010	Execute: High: Y	-	
011	Execute: Medium: Y	-	
012	Execute: Low: Y	-	

2184	[Main Scan Length Detection Target] DFU		
001	Execute: Bk	-	Executes the target value for the main scan length detection.
002	Execute: M	-	
003	Execute: C	-	
004	Execute: Y	-	

2185	[Main Scan Length Detection Disp.]		
	Displays/adjusts the target value for the main scan magnification correction of the line position adjustment. After replacing the laser optics housing unit, input the standard value for Bk provided with the new unit. For details, see "p.148 "Laser Optics Housing Unit"" in the "Replacement Adjustment" section. It is not necessary to input the values for the other colors; these are automatically adjusted after doing the line position adjustment.		
001	Bk	*ENG	[0 to 266667 / **249449** / 1 sub-dot/step]
002	M	*ENG	**DFU**

003	C	*ENG	
004	Y	*ENG	

2186	[Main Scan Length Detection] DFU		
001	Selection	*ENG	[0 or 1 / **1** / 1/step] 0: OFF, 1: ON
	Enables or disables the main scan length detection for the laser.		
002	Paper Interval	*ENG	[0 to 999 / **1** / 1 sec/step]
	Adjusts the interval of the main scan length detection for the laser.		
003	Freq. Selection	*ENG	[0 or 1 / **1** / 1/step] 0: D-phase, 1: D-phase and PLL
	Selects the correction method of the main scan length detection for the laser.		
004	Freq. Threshold	*ENG	Not used

2190	[Line Position Adj.]		
001	Paper Int. Mag.: Subdot: Bk	*ENG	DFU
002	Paper Int. Mag.: Subdot: M	*ENG	
003	Paper Int. Mag.: Subdot: C	*ENG	
004	Paper Int. Mag.: Subdot: Y	*ENG	
005	M. Scan Mag.: Subdot: M	*ENG	DFU [0 or 1 / **1** / 1/step] 0: Disable correction, 1: Enable correction
006	M. Scan Mag.: Subdot: C	*ENG	
007	M. Scan Mag.: Subdot: Y	*ENG	
008	Area Mag.: Subdot: M	*ENG	DFU
009	Area Mag.: Subdot: C	*ENG	
010	Area Mag.: Subdot: Y	*ENG	
011	S. Scan Cor. Setting	*ENG	DFU [0 or 1 / **1** / 1/step]

			0: Adjusted with Bk 1: Adjusted in minimum shift among four colors
012	1 Line Shift Control	*ENG	**DFU**

2191	**[MUSIC Coefficient Setting]** Line Position Adjustment: Coefficient Setting **DFU** ch 0: ID sensor at rear, ch 1: ID sensor at center, ch 2: ID sensor at front		
001	ch 0: Filter: Front: a1	*ENG	[–131071 to 131071 / **125869** / 1 bit/step]
002	ch 0: Filter: Front: a2	*ENG	[–131071 to 131071 / **–60488** / 1 bit/step]
003	ch 0: Filter: Front: b0	*ENG	[–131071 to 131071 / **39** / 1 bit/step]
004	ch 0: Filter: Front: b1	*ENG	[–131071 to 131071 / **77** / 1 bit/step]
005	ch 0: Filter: Front: b2	*ENG	[–131071 to 131071 / **39** / 1 bit/step]
006	ch 0: Filter: Rear: a1	*ENG	[–131071 to 131071 / **128596** / 1 bit/step]
007	ch 0: Filter: Rear: a2	*ENG	[–131071 to 131071 / **–63398** / 1 bit/step]
008	ch 0: Filter: Rear: b0	*ENG	[–131071 to 131071 / **84** / 1 bit/step]
009	ch 0: Filter: Rear: b1	*ENG	[–131071 to 131071 / **168** / 1 bit/step]
010	ch 0: Filter: Rear: b2	*ENG	[–131071 to 131071 / **84** / 1 bit/step]
011	ch 1: Filter: Front: a1	*ENG	[–131071 to 131071 / **125869** / 1 bit/step]
012	ch 1: Filter: Front: a2	*ENG	[–131071 to 131071 / **–60488** / 1 bit/step]
013	ch 1: Filter: Front: b0	*ENG	[–131071 to 131071 / **39** / 1 bit/step]
014	ch 1: Filter: Front: b1	*ENG	[–131071 to 131071 / **77** / 1 bit/step]
015	ch 1: Filter: Front: b2	*ENG	[–131071 to 131071 / **39** / 1 bit/step]
016	ch 1: Filter: Rear: a1	*ENG	[–131071 to 131071 / **128596** / 1 bit/step]
017	ch 1: Filter: Rear: a2	*ENG	[–131071 to 131071 / **–63398** / 1 bit/step]
018	ch 1: Filter: Rear: b0	*ENG	[–131071 to 131071 / **84** / 1 bit/step]
019	ch 1: Filter: Rear: b1	*ENG	[–131071 to 131071 / **168** / 1 bit/step]
020	ch 1: Filter: Rear: b2	*ENG	[–131071 to 131071 / **84** / 1 bit/step]
021	ch 2: Filter: Front: a1	*ENG	[–131071 to 131071 / **125869** / 1 bit/step]

022	ch 2: Filter: Front: a2	*ENG	[–131071 to 131071 / **–60488** / 1 bit/step]
023	ch 2: Filter: Front: b0	*ENG	[–131071 to 131071 / **39** / 1 bit/step]
024	ch 2: Filter: Front: b1	*ENG	[–131071 to 131071 / **77** / 1 bit/step]
025	ch 2: Filter: Front: b2	*ENG	[–131071 to 131071 / **39** / 1 bit/step]
026	ch 2: Filter: Rear: a1	*ENG	[–131071 to 131071 / **128596** / 1 bit/step]
027	ch 2: Filter: Rear: a2	*ENG	[–131071 to 131071 / **–63398** / 1 bit/step]
028	ch 2: Filter: Rear: b0	*ENG	[–131071 to 131071 / **84** / 1 bit/step]
029	ch 2: Filter: Rear: b1	*ENG	[–131071 to 131071 / **168** / 1 bit/step]
030	ch 2: Filter: Rear: b2	*ENG	[–131071 to 131071 / **84** / 1 bit/step]
031	Q Format Selection	*ENG	[0 to 3 / **3** / 1/step]

2192	**[MUSIC Threshold Setting]** Line Position Adjustment: Threshold Setting **DFU** ch 0: ID sensor at rear, ch 1: ID sensor at center, ch 2: ID sensor at front		
001	ch 0: 1st	*ENG	[0.5 to 3 / **1.3** / 0.1 V/step]
002	ch 0: 2nd	*ENG	
003	ch 0: 3rd	*ENG	
004	ch 0: 4th	*ENG	
005	ch 1: 1st	*ENG	[0.5 to 3 / **1.3** / 0.1 V/step]
006	ch 1: 2nd	*ENG	
007	ch 1: 3rd	*ENG	
008	ch 1: 4th	*ENG	
009	ch 2: 1st	*ENG	[0.5 to 3 / **1.3** / 0.1 V/step]
010	ch 2: 2nd	*ENG	
011	ch 2: 3rd	*ENG	
012	ch 2: 4th	*ENG	

2193	**[MUSIC Condition Set]** Line Position Adjustment: Condition Setting

001	Auto Execution	*ENG	[0 or 1 / **1** / –] 0: OFF, 1: ON
	Enables/disables the automatic line position adjustment		
002	Page: Job End: BW+FC	*ENG	[0 to 999 / **500** / 1 page/step]
	Adjusts the threshold of the line position adjustment for BW and color printing mode after job end.		
003	Page: Job End: FC	*ENG	[0 to 999 / **200** / 1 page/step]
	Adjusts the threshold of the line position adjustment for color printing mode after job end.		
004	Page: Interrupt: BW+FC	*ENG	[0 to 999 / **200** / 1 page/step]
	Adjusts the threshold of the line position adjustment for BW and color printing mode during job.		
005	Page: Interrupt: FC	*ENG	[0 to 999 / **200** / 1 page/step]
	Adjusts the threshold of the line position adjustment for color printing mode during jobs.		
006	Page: Stand-By: BW	*ENG	[0 to 999 / **100** / 1 page/step]
	Adjusts the threshold of the line position adjustment for BW printing mode in stand-by mode. The line position adjustment is done when the number of outputs in BW printing mode reaches the value specified with this SP and the condition of SP2-193-008 or SP2-193-009 is satisfied.		
007	Page: Stand-By: FC	*ENG	[0 to 999 / **100** / 1 page/step]
	Adjusts the threshold of the line position adjustment for BW printing mode in stand-by mode. The line position adjustment is done when the number of outputs in color printing mode reaches the value specified with this SP and the condition of SP2-193-008 or SP2-193-009 is satisfied.		
008	Temp.	*ENG	[0 to 100 / **5** / 1°C/step]
	Adjust the temperature change threshold for the line position adjustment (Mode b: adjustment once). The timing for line position adjustment depends on the combinations of several conditions. For details, see ‘p.771 "Automatic Line Position Adjustment"’ in the "Detailed Section Descriptions" section.		
009	Time	*ENG	[1 to 1440 / **300** / 1 minute/step]
	Adjust the time threshold for the line position adjustment (Mode b: adjustment once). The timing for line position adjustment depends on the combinations of several conditions. For		

	details, see 'p.771 "Automatic Line Position Adjustment"' in the "Detailed Section Descriptions" section.		
010	Magnification	*ENG	[0 to 10 / **1** / 0.1%/step]
	Adjusts the magnification threshold for line position adjustment. If the length of the main scan is changed by this amount since the previous MUSIC, then MSUIC is done again.		
011	Temp. 2	*ENG	[0 to 100 / **10** / 1°C/step]
	Adjust the temperature change threshold for the line position adjustment (Mode a: adjustment twice). The timing for line position adjustment depends on the combinations of several conditions. For details, see 'p.771 "Automatic Line Position Adjustment"' in the "Detailed Section Descriptions" section.		
012	Time 2	*ENG	[1 to 9999 / **600** / 1 minute/step]
	Adjust the time threshold for the line position adjustment (Mode a: adjustment twice). The timing for line position adjustment depends on the combinations of several conditions. For details, see 'p.771 "Automatic Line Position Adjustment"' in the "Detailed Section Descriptions" section.		

2194	**[MUSIC Execution Result]** Line Position Adjustment: Execution Result		
001	Year	*ENG	[0 to 99 / **0** / 1 year/step]
002	Month	*ENG	[1 to 12 / **1** / 1 month/step]
003	Day	*ENG	[1 to 31 / **1** / 1 day/step]
004	Hour	*ENG	[0 to 23 / **0** / 1 hour/step]
005	Minute	*ENG	[0 to 59 / **0** / 1 minute/step]
006	Temperature	*ENG	[0 to 100 / **0** / 1 page/step]
007	Execution Result	*ENG	[0 or 1 / **0** / 1 /step] 0: Completed successfully, 1: Failed
008	Number of Execution	*ENG	[0 to 999999 / **0** / 1 time/step]
009	Number of Failure	*ENG	[0 to 999999 / **0** / 1 /step]
010	Error Result: M	*ENG	[0 to 9 / **0** / 1 /step] 0: Not done 1: Completed successfully
011	Error Result: C	*ENG	
012	Error Result: Y	*ENG	

			2: Cannot detect patterns 3: Fewer lines on the pattern than the target 4: Not used 5: Out of the adjustment range 6 to 9: Not used

2197	**[MUSIC Start Time]**		
	DFU		
001	MUSIC Start Time (EDT)	*ENG	[10 to 40 / **20** / 10ms/step]
002	TM Sensor Position	*ENG	[50 to 500 / **105.5** / 0.1mm/step]

2198	**[Music A/D Interval]**		
	DFU		
001	ADC Trigger Counter	*ENG	[7.5 to 20 / **10** / 0.1 µm/step]

2199	**[Music Error Time Setting]**		
	DFU		
001	Error Detection Counter	*ENG	[0.5 to 3 / **2.5** / 0.1 sec /step]

2221	**[LD Power] LD Power Control**		
	Adjusts the fixed LD power for each line speed and color. These SPs are activated only when SP3-041-002 is set to "0". Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Plain: Bk	*ENG	[0 to 200 / **100** / 1%/step] Increasing this value makes the image density darker.
002	Plain: M	*ENG	
003	Plain: C	*ENG	
004	Plain: Y	*ENG	
005	Thick 1: Bk	*ENG	
006	Thick 1: M	*ENG	

007	Thick 1: C	*ENG	
008	Thick 1: Y	*ENG	
009	Thick 2&FINE: Bk	*ENG	
010	Thick 2&FINE: M	*ENG	
011	Thick 2&FINE: C	*ENG	
012	Thick 2&FINE: Y	*ENG	

2229	**[Development DC Bias]** Development DC Bias Adjustment		
	Adjusts the development bias. Development bias is automatically adjusted during process control; therefore, adjusting these settings has no effect while Process Control (SP3-041-001 Default: ON) is activated. After deactivating Process Control with SP3-041-001, the values in these SP modes are used for printing. Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Plain: Bk	*ENG	[0 to 700 / **550** / 10 –V/step]
002	Plain: M	*ENG	
003	Plain: C	*ENG	
004	Plain: Y	*ENG	
005	Thick 1: Bk	*ENG	
006	Thick 1: M	*ENG	
007	Thick 1: C	*ENG	
008	Thick 1: Y	*ENG	
009	Thick 2: Bk	*ENG	
010	Thick 2: M	*ENG	
011	Thick 2: C	*ENG	
012	Thick 2: Y	*ENG	
013	Fine: Bk	*ENG	
014	Fine: M	*ENG	

015	Fine: C	*ENG	
016	Fine: Y	*ENG	

2241	**[Temperature/Humidity: Display]**		
	Displays the environment temperature and humidity.		
001	Temperature	-	[–128 to 127 / - / 0.1°C/step]
002	Relative Humidity	-	[0 to 100 / - / 0.1 %RH/step]
003	Absolute Humidity	-	[0 to 100 / - / 0.01 g/m^3/step]

2302	**[Environmental Correction: Transfer]** Environmental Correction: Image Transfer Belt Unit		
002	Forced Setting	*ENG	Sets the environment condition manually. [0 to 5 / **0** / 1/step] 0: Automatic environment control 1: LL (Low temperature/ Low humidity) 2: ML (Middle temperature/ Low humidity) 3: MM (Middle temperature/ Middle humidity) 4: MH (Middle temperature/ High humidity) 5: HH (High temperature/ High humidity)
003	Absolute Humidity: Threshold 1	*ENG	Adjusts the threshold value between LL and ML. [0 to 100 / **4.3** / 0.01 g/m^3/step]
004	Absolute Humidity: Threshold 2	*ENG	Adjusts the threshold value between ML and MM. [0 to 100 / **11.3** / 0.01 g/m^3/step]
005	Absolute Humidity: Threshold 3	*ENG	Adjusts the threshold value between MM and MH. [0 to 100 / **18** / 0.01 g/m^3/step]
006	Absolute Humidity: Threshold 4	*ENG	Adjusts the threshold value between MH and HH. [0 to 100 / **24** / 0.01 g/m^3/step]

2308	**[Paper Size Correction]**
	Adjusts the threshold value for the paper size correction.

001	Threshold 1	*ENG	[0 to 350 / **297** / 1 mm/step] Threshold 1 ≤ paper: Paper is detected as "S1" size.
002	Threshold 2	*ENG	[0 to 350 / **257** / 1 mm/step] Threshold 2 ≤ paper ≤ Threshold 1: Paper is detected as "S2" size.
003	Threshold 3	*ENG	[0 to 350 / **210** / 1 mm/step] Threshold 3 ≤ paper ≤ Threshold 2: Paper is detected as "S3" size.
004	Threshold 4	*ENG	[0 to 350 / **148** / 1 mm/step] Threshold 4 ≤ paper ≤ Threshold 3: Paper is detected as "S4" size. Paper ≤ Threshold 4: Paper is detected as "S5" size.

2311	[Non Image Area: Bias]		
001	Image Transfer	*ENG	Adjusts the bias of the image transfer belt between images. This value is added to the value of the image transfer belt bias. [10 to 250 / **100** / 5 %/step]
002	Paper Transfer	*ENG	Adjusts the bias of the paper transfer roller between images. [0 to 200 / **5** / 1 –μA/step]
003	Paper Transfer: Resistance FB	*ENG	Adjusts the bias of the paper transfer roller for measuring the resistance of the paper transfer roller when the image processing starts. [0 to 200 / **30** / 1 –μA/step]

2314	[P/M Pattern: Bias] Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec

001	Image Transfer: Plain	*ENG	Adjusts the bias of the image transfer belt during the process control and automatic line position control. [0 to 80 / **C1c: 24, C1d: 32** / 1 µA /step]
002	Image Transfer: Thick 1	*ENG	[0 to 80 / **18** / 1 µA /step]
003	Image Transfer: Thick 2 & FINE	*ENG	[0 to 80 / **12** / 1 µA /step]

2316	**[Power ON: Bias]**		
001	Image Transfer	*ENG	Adjusts the bias of the image transfer belt at warming up mode after a machine has been turned on or any door has been closed. [0 to 80 / **5** / 1 µA /step]

2326	**[Transfer Roller CL: Bias]** Transfer Roller Cleaning: Bias Adjustment		
001	Positive	*ENG	[0 to 5000 / **2000** / 1 V /step]
	Adjusts the positive voltage of the paper transfer roller for cleaning the paper transfer roller.		
002	Negative	*ENG	[0 to 200 / **50** / 1 –µA /step]
	Adjusts the negative current of the paper transfer roller for cleaning the paper transfer roller.		
003	Negative: Limit Voltage	*ENG	[0 to 5000 / **2000** / 1 –V /step]
	Adjusts the negative current limit of the paper transfer roller for cleaning the paper transfer roller.		

2351	**[Common: BW: Bias]** Image Transfer Belt: B/W: Bias Adjustment Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Image Transfer: Plain	*ENG	[0 to 80 / **C1c: 80, C1d: 38** / 1 µA]
	Adjusts the current for the image transfer belt in B/W mode for plain paper.		
002	Image Transfer: Thick 1	*ENG	[0 to 80 / **21** / 1 µA]
	Adjusts the current for the image transfer belt in B/W mode for thick 1 paper.		
003	Image Transfer: Thick 2 & FINE	*ENG	[0 to 80 / **14** / 1 µA]

	Adjusts the current for the image transfer belt in B/W mode for thick 2 paper or FINE mode.

2357	**[Common: FC: Bias]** Image Transfer Belt: Full Color: Bias Adjustment Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Image Transfer: Plain: Bk	*ENG	[0 to 80 / **C1c: 22, C1d: 30** / 1 µA]
	Adjusts the current for the image transfer belt for Black in full color mode for plain paper.		
002	Image Transfer: Plain: M	*ENG	[0 to 80 / **C1c: 22, C1d: 30** / 1 µA]
	Adjusts the current for the image transfer belt for Magenta in full color mode for plain paper.		
003	Image Transfer: Plain: C	*ENG	[0 to 80 / **C1c: 25, C1d: 33** / 1 µA]
	Adjusts the current for the image transfer belt for Cyan in full color mode for plain paper.		
004	Image Transfer: Plain: Y	*ENG	[0 to 80 / **C1c: 28, C1d: 38** / 1 µA]
	Adjusts the current for the image transfer belt for Yellow in full color mode for plain paper.		
005	Image Transfer: Thick 1: Bk	*ENG	[0 to 80 / **17** / 1 µA]
	Adjusts the current for the image transfer belt for Black in full color mode for thick 1 paper.		
006	Image Transfer: Thick 1: M	*ENG	[0 to 80 / **17** / 1 µA]
	Adjusts the current for the image transfer belt for Magenta in full color mode for thick 1 paper.		
007	Image Transfer: Thick 1: C	*ENG	[0 to 80 / **18** / 1 µA]
	Adjusts the current for the image transfer belt for Cyan in full color mode for thick 1 paper.		
008	Image Transfer: Thick 1: Y	*ENG	[0 to 80 / **21** / 1 µA]
	Adjusts the current for the image transfer belt for Yellow in full color mode for thick 1 paper.		
009	Image Transfer: Thick 2 & FINE: Bk	*ENG	[0 to 80 / **11** / 1 µA]
	Adjusts the current for the image transfer belt for Black in full color mode for Thick 2 and fine.		
010	Image Transfer: Thick 2 & FINE: M	*ENG	[0 to 80 / **11** / 1 µA]
	Adjusts the current for the image transfer belt for Magenta in full color mode for Thick 2 and fine.		
011	Image Transfer: Thick 2 & FINE: C	*ENG	[0 to 80 / **12** / 1 µA]

	Adjusts the current for the image transfer belt for Cyan in full color mode for Thick 2 and fine.		
012	Image Transfer: Thick 2 & FINE: Y	*ENG	[0 to 80 / **15** / 1 µA]
	Adjusts the current for the image transfer belt for Yellow in full color mode for Thick 2 and fine.		

2381	[Common: LL]		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2351 and SP2357 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Image Transfer: Plain	*ENG	[10 to 250 / **70** / 5%/step]
002	Image Transfer: Thick 1	*ENG	[10 to 250 / **80** / 5%/step]
003	Image Transfer: Thick 2 & FINE	*ENG	[10 to 250 / **80** / 5%/step]
004	Image Transfer: P/M Pattern	*ENG	[10 to 250 / **100** / 5%/step] P/M Pattern: When doing process control or automatic line position adjustment.

2382	[Common: ML]		
	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2351 and SP2357 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Image Transfer: Plain	*ENG	[10 to 250 / **90** / 5%/step]
002	Image Transfer: Thick 1	*ENG	[10 to 250 / **90** / 5%/step]
003	Image Transfer: Thick 2 & FINE	*ENG	[10 to 250 / **90** / 5%/step]
004	Image Transfer: P/M Pattern	*ENG	[10 to 250 / **100** / 5%/step] P/M Pattern: When doing the process control or automatic line position adjustment.

2383	[Common: MM]

	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2351 and SP2357 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Image Transfer: Plain	*ENG	[10 to 250 / **100** / 5%/step]
002	Image Transfer: Thick 1	*ENG	[10 to 250 / **100** / 5%/step]
003	Image Transfer: Thick 2 & FINE	*ENG	[10 to 250 / **100** / 5%/step]
004	Image Transfer: P/M Pattern	*ENG	[10 to 250 / **100** / 5%/step] P/M Pattern: When doing the process control or automatic line position adjustment.

2384	[Common: MH]		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2351 and SP2357 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Image Transfer: Plain	*ENG	[10 to 250 / **90** / 5%/step]
002	Image Transfer: Thick 1	*ENG	[10 to 250 / **90** / 5%/step]
003	Image Transfer: Thick 2 & FINE	*ENG	[10 to 250 / **90** / 5%/step]
004	Image Transfer: P/M Pattern	*ENG	[10 to 250 / **100** / 5%/step] P/M Pattern: When doing the process control or automatic line position adjustment.

2385	[Common: HH]		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2351 and SP2357 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Image Transfer: Plain	*ENG	[10 to 250 / **80** / 5%/step]
002	Image Transfer: Thick 1	*ENG	[10 to 250 / **80** / 5%/step]
003	Image Transfer: Thick 2 & FINE	*ENG	[10 to 250 / **80** / 5%/step]

004	Image Transfer: P/M Pattern	*ENG	[10 to 250 / **100** / 5%/step] P/M Pattern: When doing the process control or automatic line position adjustment.

2401	**[Plain: Bias]**		
	Adjusts the DC voltage of the discharge plate for plain paper. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Separation DC: Plain: 1st Side	*ENG	[0 to 5000 / **1500** / 10 –V/step]
002	Separation DC: Plain: 2nd Side	*ENG	
003	Separation DC: Fine: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]
004	Separation DC: Fine: 2nd Side	*ENG	

2403	**[Plain: Bias: BW]**		
	Adjusts the current for the paper transfer roller for plain paper in black-and-white mode. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **C1c: 22, C1d: 30** / 1 –µA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 200 / **C1c: 22, C1d: 30** / 1 –µA /step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2407	**[Plain: Bias: FC]**		
	Adjusts the current for the paper transfer roller for plain paper in full color mode. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **C1c: 33, C1d: 40** / 1 –µA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 200 / **C1c: 33, C1d: 40** / 1 –µA /step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **15** / 1 –µA /step]

004	Paper Transfer: FINE: 2nd Side	*ENG	

2411	**[Plain: Paper Size Correction]**		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2403 and SP2407 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain : 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: Plain: 2nd Side: S1	*ENG	
003	Paper Transfer: FINE: 1st Side: S1	*ENG	
004	Paper Transfer: FINE: 2nd Side: S1	*ENG	
005	Paper Transfer: Plain: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
006	Paper Transfer: Plain: 2nd Side: S2	*ENG	[100 to 600 / **130** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
007	Paper Transfer: FINE: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
008	Paper Transfer: FINE: 2nd Side: S2	*ENG	
009	Paper Transfer: Plain: 1st Side: S3	*ENG	[100 to 600 / **140** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
010	Paper Transfer: Plain: 2nd Side: S3	*ENG	[100 to 600 / **200** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
011	Paper Transfer: FINE: 1st Side: S3	*ENG	[100 to 600 / **130** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
012	Paper Transfer: FINE: 2nd Side: S3	*ENG	

013	Paper Transfer: Plain: 1st Side: S4	*ENG	[100 to 600 / **160** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
014	Paper Transfer: Plain: 2nd Side: S4	*ENG	[100 to 600 / **220** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
015	Paper Transfer: FINE: 1st Side: S4	*ENG	[100 to 600 / **140** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
016	Paper Transfer: FINE: 2nd Side: S4	*ENG	
017	Paper Transfer: Plain: 1st Side: S5	*ENG	[100 to 600 / **180** / 5%/step] 148 mm ≥ S5 size (Paper width)
018	Paper Transfer: Plain: 2nd Side: S5	*ENG	[100 to 600 / **240** / 5%/step] 148 mm ≥ S5 size (Paper width)
019	Paper Transfer: FINE: 1st Side: S5	*ENG	[100 to 600 / **150** / 5%/step] 148 mm ≥ S5 size (Paper width)
020	Paper Transfer: FINE: 2nd Side: S5	*ENG	

2421	**[Plain: Leading Edge Correction]** Plain Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2403 and SP2407 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec **Note** • The paper leading edge area can be adjusted with SP2422.		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 400 / **150** / 5%/step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2421	Adjusts the correction to the discharge plate current at the paper leading edge in each mode. SP2401 is multiplied by these SPs values.		

	Note • The paper leading edge area can be adjusted with SP2422.		
005	Separation DC: Plain: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
006	Separation DC: Plain: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	
008	Separation DC: Fine 2nd Page	*ENG	

2422	**[Plain: Switch Timing: Lead. Edge]**		
	Adjusts the bias/ voltage switch timing of the paper transfer roller/ discharge plate at the paper leading edge between the erase margin area and the image area. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 30 / **20** / 1 mm/step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005	Separation DC: Plain: 1st Page	*ENG	[0 to 30 / **0** / 1 mm/step]
006	Separation DC: Plain: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	
008	Separation DC: Fine: 2nd Page	*ENG	

2423	**[Plain: Trailing Edge Correction]** Plain Paper: Trailing Edge Correction
	Adjusts the correction coefficient to the paper transfer roller current for the paper trailing edge in each mode. SP2403 and SP2407 are multiplied by these SP values.

	Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec **Note** • The paper trailing edge area can be adjusted with SP2424.		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	
004	Paper Transfer: FINE: 2nd Side	*ENG	

2424	**[Plain: Switch Timing: Trail. Edge]**		
	Adjusts the bias/voltage switch timing of the paper transfer roller/discharge plate at the paper trailing edge between the erase margin area and the image area. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE (: 1st Side	*ENG	
004	Paper Transfer: FINE: 2nd Side	*ENG	

2431	**[Plain: LL]** Plain Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2403 and SP2407 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[10 to 250 / **90** / 5%/step]
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2431	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2401 is multiplied by these SP values.		

005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **200** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2432	**[Plain: ML]** Plain Paper: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2403 and SP2407 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	
004	Paper Transfer: FINE: 2nd Side	*ENG	
2432	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2401 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **200** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **170** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2433	**[Plain: MM]** Plain Paper: MM Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2403 and SP2407 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	
004	Paper Transfer: FINE: 2nd Side	*ENG	

2433	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2401 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **170** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **140** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2434	**[Plain: MH]** Plain Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2403 and SP2407 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	
004	Paper Transfer: FINE: 2nd Side	*ENG	
2434	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2401 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **90** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2435	**[Plain: HH]** Plain Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2403 and SP2407 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	

004	Paper Transfer: FINE: 2nd Side	*ENG	
2435	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2401 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **50** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **80** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2451	[Thin: Bias]		
	Adjusts the DC voltage of the discharge plate for thin paper. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Separation DC: Plain: 1st Side	*ENG	[0 to 5000 / **1500** / 10 –V/step]
002	Separation DC: Plain: 2nd Side	*ENG	
003	Separation DC: Fine: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]
004	Separation DC: Fine: 2nd Side	*ENG	

2453	[Thin: Bias: BW]		
	Adjusts the current for the paper transfer roller for thin paper in black-and-white mode. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **C1c: 22, C1d: 30** / 1 –µA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2457	[Thin: Bias: FC]
	Adjusts the current for the paper transfer roller for thin paper in full color mode. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec

001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **C1c: 33, C1d: 40** / 1 –µA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 200 / **C1c: 33, C1d: 45** / 1 –µA /step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **15** / 1 –µA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2461	**[Thin: Paper Size Correction]**		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2453 and SP2457 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: Plain: 2nd Side: S1	*ENG	
003	Paper Transfer: FINE: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
004	Paper Transfer: FINE: 2nd Side: S1	*ENG	
005	Paper Transfer: Plain: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
006	Paper Transfer: Plain: 2nd Side: S2	*ENG	[100 to 600 / **130** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
007	Paper Transfer: FINE: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
008	Paper Transfer: FINE: 2nd Side: S2	*ENG	
009	Paper Transfer: Plain: 1st Side: S3	*ENG	[100 to 600 / **140** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
010	Paper Transfer: Plain: 2nd Side: S3	*ENG	[100 to 600 / **200** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
011	Paper Transfer: FINE: 1st Side: S3	*ENG	[100 to 600 / **130** / 5%/step]

012	Paper Transfer: FINE: 2nd Side: S3	*ENG	275 mm ≥ S3 size ≥ 210 mm (Paper width)
013	Paper Transfer: Plain: 1st Side: S4	*ENG	[100 to 600 / **160** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
014	Paper Transfer: Plain: 2nd Side: S4	*ENG	[100 to 600 / **220** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
015	Paper Transfer: FINE: 1st Side: S4	*ENG	[100 to 600 / **140** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
016	Paper Transfer: FINE: 2nd Side: S4	*ENG	
017	Paper Transfer: Plain: 1st Side: S5	*ENG	[100 to 600 / **180** / 5%/step] 148 mm ≥ S5 size (Paper width)
018	Paper Transfer: Plain: 2nd Side: S5	*ENG	[100 to 600 / **240** / 5%/step] 148 mm ≥ S5 size (Paper width)
019	Paper Transfer: FINE: 1st Side: S5	*ENG	[100 to 600 / **150** / 5%/step] 148 mm ≥ S5 size (Paper width)
020	Paper Transfer: FINE: 2nd Side: S5	*ENG	

2471	**[Thin: Leading Edge Correction]** Thin Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2453 and SP2457 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec **Note** • The paper leading edge area can be adjusted with SP2472.		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2471	Adjusts the correction to the discharge plate current at the paper leading edge in each mode. SP2451 is multiplied by these SP values.		

	Note • The paper leading edge area can be adjusted with SP2472.		
005	Separation DC: Plain: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
006	Separation DC: Plain: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2472	**[Thin: Switch Timing: Lead. Edge]**		
	Adjusts the bias/ voltage switch timing of the paper transfer roller/ discharge plate at the paper leading edge between the erase margin area and the image area. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 30 / **0** / 2 mm/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 30 / **0** / 2 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005	Separation DC: Plain: 1st Page	*ENG	[0 to 30 / **0** / 2 mm/step]
006	Separation DC: Plain: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 30 / **0** / 2 mm/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2473	**[Thin: Trailing Edge Correction]** Thin Paper: Trailing Edge Correction		
	Adjusts the correction coefficient to the paper transfer roller current for the paper trailing edge in each mode. SP2453 and SP2457 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec **Note** • The paper trailing edge area can be adjusted with SP2474.		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	

003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2474	**[Thin: Switch Timing: Trail. Edge]**		
	Adjusts the bias/voltage switch timing of the paper transfer roller/discharge plate at the paper trailing edge between the erase margin area and the image area. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[–100 to 0 / **0** / 2 mm/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[–100 to 0 / **0** / 2 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2481	**[Thin: LL]** Thin Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2453 and SP2457 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2481	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2451 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **200** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2482	**[Thin: ML]** Thin Paper: ML Environment Coefficient Adjustment

	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2453 and SP2457 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2482	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2451 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **200** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **170** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2483	**[Thin: MM]** Thin Paper: MM Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2453 and SP2457 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2483	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2451 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **170** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **140** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2484	**[Thin: MH]** Thin Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2453 and SP2457 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2484	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2451 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **90** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2485	**[Thin: HH]** Thin Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2453 and SP2457 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2485	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2451 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **50** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **80** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]

008	Separation DC: FINE: 2nd Side	*ENG	

2501	**[Thick 1: Bias]**		
	Adjusts the DC voltage of the discharge plate for thick 1 paper. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Separation DC: Thick 1: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]
002	Separation DC: Thick 1: 2nd Side	*ENG	
003	Separation DC: Fine: 1st Side	*ENG	[0 to 5000 / **0** / 10 –V/step]
004	Separation DC: Fine: 2nd Side	*ENG	

2502	**[Thick 1: Bias: BW]**		
	Adjusts the current for the paper transfer roller for thick 1 paper in black-and-white mode. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 200 / **18** / 1 –µA /step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2507	**[Thick 1: Bias: FC]**		
	Adjusts the current for the paper transfer roller for thick 1 paper in full color mode. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 200 / **22** / 1 –µA /step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **15** / 1 –µA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2511	**[Thick 1: Paper Size Correction]**		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2502 and SP2507 are multiplied by these SP values.		

	Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: Thick 1: 2nd Side: S1	*ENG	
003	Paper Transfer: FINE: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
004	Paper Transfer: FINE: 2nd Side: S1	*ENG	
005	Paper Transfer: Thick 1: 1st Side: S2	*ENG	[100 to 600 / **130** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
006	Paper Transfer: Thick 1: 2nd Side: S2	*ENG	[100 to 600 / **150** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
007	Paper Transfer: FINE: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
008	Paper Transfer: FINE: 2nd Side: S2	*ENG	
009	Paper Transfer: Thick 1: 1st Side: S3	*ENG	[100 to 600 / **180** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
010	Paper Transfer: Thick 1: 2nd Side: S3	*ENG	[100 to 600 / **240** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
011	Paper Transfer: FINE: 1st Side: S3	*ENG	[100 to 600 / **130** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
012	Paper Transfer: FINE: 2nd Side: S3	*ENG	
013	Paper Transfer: Thick 1): 1st Side: S4	*ENG	[100 to 600 / **230** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
014	Paper Transfer: Thick 1: 2nd Side: S4	*ENG	[100 to 600 / **370** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
015	Paper Transfer: FINE: 1st Side: S4	*ENG	[100 to 600 / **140** / 5%/step]
016	Paper Transfer: FINE: 2nd Side: S4	*ENG	

			210 mm ≥ S4 size ≥ 148 mm (Paper width)
017	Paper Transfer: Thick 1: 1st Side: S5	*ENG	[100 to 600 / **290** / 5%/step] 148 mm ≥ S5 size (Paper width)
018	Paper Transfer: Thick 1: 2nd Side: S5	*ENG	[100 to 600 / **500** / 5%/step] 148 mm ≥ S5 size (Paper width)
019	Paper Transfer: FINE: 1st Side: S5	*ENG	[100 to 600 / **150** / 5%/step] 148 mm ≥ S5 size (Paper width)
020	Paper Transfer: FINE: 2nd Side: S5	*ENG	

2521	**[Thick 1: Leading Edge Correction]** Thick 1 Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2502 and SP2507 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec **Note** • The paper leading edge area can be adjusted with SP2522.		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2521	Adjusts the correction to the discharge plate current at the paper leading edge in each mode. SP2501 is multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2522.		
005	Separation DC: Thick 1: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
006	Separation DC: Thick 1: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2522	**[Thick 1: Switch Timing: Lead. Edge]**

	Adjusts the bias/ voltage switch timing of the paper transfer roller/ discharge plate at the paper leading edge between the erase margin area and the image area. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005	Separation DC: Thick 1: 1st Page	*ENG	[0 to 30 / **0** / 1 mm/step]
006	Separation DC: Thick 1: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 30 / **0** / 1 mm/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2523	**[Thick 1: Trailing Edge Correction]** Thick 1 Paper: Trailing Edge Correction		
	Adjusts the correction coefficient to the paper transfer roller current for the paper trailing edge in each mode. SP2502 and SP2507 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec **Note** • The paper trailing edge area can be adjusted with SP2524.		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2524	**[Thick 1: Switch Timing: Trail. Edge]**		
	Adjusts the bias/voltage switch timing of the paper transfer roller/discharge plate at the paper trailing edge between the erase margin area and the image area. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	

003	Paper Transfer: FINE: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2531	**[Thick 1: LL]** Thick 1 Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2502 and SP2507 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2531	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2501 is multiplied by these SP values.		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **180** / 5%/step]
006	Separation DC: Thick 1: 2nd Side:	*ENG	[10 to 250 / **240** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2532	**[Thick 1: ML]** Thick 1 Paper: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2502 and SP2507 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2532	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2501 is multiplied by these SP values.		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **140** / 5%/step]

006	Separation DC: Thick 1: 2nd Side:	*ENG	[10 to 250 / **240** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2533	**[Thick 1: MM]** Thick 1 Paper: MM Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2502 and SP2507 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2533	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2501 is multiplied by these SP values.		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
006	Separation DC: Thick 1: 2nd Side:	*ENG	[10 to 250 / **200** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2534	**[Thick 1: MH]** Thick 1 Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2502 and SP2507 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2534	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2501 is multiplied by these SP values.		

	Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
006	Separation DC: Thick 1: 2nd Side:	*ENG	[10 to 250 / **180** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2535	**[Thick 1: HH]** Thick 1 Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2502 and SP2507 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2535	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2501 is multiplied by these SP values.		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
006	Separation DC: Thick 1: 2nd Side:	*ENG	
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2551	**[Thick 2: Bias]**		
	Adjusts the DC voltage of the discharge plate for thick 2 paper.		
001	Separation DC: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]
002	Separation DC: 2nd Side	*ENG	

2553	**[Thick 2: Bias: BW]**
	Adjusts the current for the paper transfer roller for thick 2 paper in black-and-white mode.

001	Paper Transfer: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]
002	Paper Transfer: 2nd Side	*ENG	

2558	[Thick 2: Bias: FC]		
	Adjusts the current for the paper transfer roller for thick 2 paper in full color mode.		
001	Paper Transfer: 1st Side	*ENG	[0 to 200 / **15** / 1 –µA /step]
002	Paper Transfer: 2nd Side	*ENG	

2561	[Thick 2: Paper Size Correction]		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2553 and SP2558 are multiplied by these SP values.		
001	Paper Transfer: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: 2nd Side: S1	*ENG	
003	Paper Transfer: 1st Side: S2	*ENG	[100 to 600 / **140** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
004	Paper Transfer: 2nd Side: S2	*ENG	[100 to 600 / **160** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
005	Paper Transfer: 1st Side: S3	*ENG	[100 to 600 / **200** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
006	Paper Transfer: 2nd Side: S3	*ENG	[100 to 600 / **260** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
007	Paper Transfer: 1st Side: S4	*ENG	[100 to 600 / **260** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
008	Paper Transfer: 2nd Side: S4	*ENG	[100 to 600 / **430** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
009	Paper Transfer: 1st Side: S5	*ENG	[100 to 600 / **330** / 5%/step] 148 mm ≥ S5 size (Paper width)
010	Paper Transfer: 2nd Side: S5	*ENG	[100 to 600 / **600** / 5%/step] 148 mm ≥ S5 size (Paper width)

2571	**[Thick 2: Leading Edge Correction]** Thick 2 Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2553 and SP2558 are multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2572.		
001	Paper Transfer: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: 2nd Side	*ENG	
2571	Adjusts the correction to the discharge plate current at the paper leading edge in each mode. SP2551 is multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2572.		
003	Separation DC: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
004	Separation DC: 2nd Page	*ENG	

2572	**[Thick 2: Switch Timing: Lead. Edge]**		
	Adjusts the bias/ voltage switch timing of the paper transfer roller/ discharge plate at the paper leading edge between the erase margin area and the image area.		
001	Paper Transfer: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
002	Paper Transfer: 2nd Side	*ENG	
003	Separation DC: 1st Page	*ENG	
004	Separation DC: 2nd Page	*ENG	

2573	**[Thick 2: Trailing Edge Correction]** Thick 2 Paper: Trailing Edge Correction		
	Adjusts the correction to the paper transfer roller current for the paper trailing edge in each mode. SP2553 and SP2558 are multiplied by these SP values. **Note** • The paper trailing edge area can be adjusted with SP2574.		
001	Paper Transfer: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: 2nd Side	*ENG	

2574	**[Thick 2: Switch Timing: Trail. Edge]**		
	Adjusts the bias/voltage switch timing of the paper transfer roller/discharge plate at the paper trailing edge between the erase margin area and the image area.		
001	Paper Transfer: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
002	Paper Transfer: 2nd Side	*ENG	

2581	**[Thick 2: LL]** Thick 2 Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2553 and SP2558 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Paper Transfer: 2nd Side	*ENG	
2581	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2551 is multiplied by these SP values.		
003	Separation DC: 1st Side	*ENG	[10 to 250 / **180** / 5%/step]
004	Separation DC: 2nd Side:	*ENG	[10 to 250 / **240** / 5%/step]

2582	**[Thick 2: ML]** Thick 2 Paper: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2553 and SP2558 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Paper Transfer: 2nd Side	*ENG	
2582	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2551 is multiplied by these SP values.		
003	Separation DC: 1st Page	*ENG	[10 to 250 / **140** / 5%/step]
004	Separation DC: 2nd Page	*ENG	[10 to 250 / **240** / 5%/step]

2583	**[Thick 2: MM]** Thick 2 Paper: MM Environment Coefficient Adjustment
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2553 and SP2558 are multiplied by these SP values.

001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Paper Transfer: 2nd Side	*ENG	
2583	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2551 is multiplied by these SP values.		
003	Separation DC: 1st Page	*ENG	[10 to 250 / **100** / 5%/step]
004	Separation DC: 2nd Page	*ENG	[10 to 250 / **200** / 5%/step]

2584	**[Thick 2: MH]** Thick 2 Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2553 and SP2558 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Paper Transfer: 2nd Side	*ENG	
2584	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2551 is multiplied by these SP values.		
003	Separation DC: 1st Page	*ENG	[10 to 250 / **90** / 5%/step]
004	Separation DC: 2nd Page	*ENG	[10 to 250 / **180** / 5%/step]

2585	**[Thick 2: HH]** Thick 2 Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2553 and SP2558 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Paper Transfer: 2nd Side	*ENG	
2585	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2551 is multiplied by these SP values.		
003	Separation DC: 1st Page	*ENG	[10 to 250 / **80** / 5%/step]
004	Separation DC: 2nd Page	*ENG	

2601	**[OHP: Bias]**
	Adjusts the DC voltage of the discharge plate for OHP.

001	Separation DC	*ENG	[0 to 5000 / **1500** / 10 –V/step]

2603	**[OHP: Bias: BW]**		
	Adjusts the current for the paper transfer roller for OHP in black-and-white mode.		
001	Paper Transfer	*ENG	[0 to 200 / **12** / 1 –µA /step]

2608	**[OHP: Bias: FC]**		
	Adjusts the current for the paper transfer roller for OHP in full color mode.		
001	Paper Transfer	*ENG	[0 to 200 / **15** / 1 –µA /step]

2611	**[OHP: Paper Size Correction]**		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2603 and SP2608 are multiplied by these SP values.		
001	Paper Transfer: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: S2	*ENG	[100 to 600 / **140** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
003	Paper Transfer: S3	*ENG	[100 to 600 / **200** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
004	Paper Transfer: S4	*ENG	[100 to 600 / **260** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
005	Paper Transfer: S5	*ENG	[100 to 600 / **330** / 5%/step] 148 mm ≥ S5 size (Paper width)

2621	**[OHP: Leading Edge Correction]** OHP: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2603 and SP2608 are multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2622.		
001	Paper Transfer	*ENG	[0 to 400 / **100** / 5%/step]

2621	Adjusts the correction to the discharge plate current at the paper leading edge in each mode. SP2601 is multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2622.		
002	Separation DC	*ENG	[0 to 400 / **100** / 5%/step]

2622	**[OHP: Switch Timing: Lead. Edge]**		
	Adjusts the bias/ voltage switch timing of the paper transfer roller/ discharge plate at the paper leading edge between the erase margin area and the image area.		
001	Paper Transfer	*ENG	[0 to 30 / **0** / 1 mm/step]
002	Separation DC	*ENG	

2623	**[OHP: Trailing Edge Correction]** OHP: Trailing Edge Correction		
	Adjusts the correction to the paper transfer roller current for the paper trailing edge in each mode. SP2603 and SP2608 are multiplied by these SP values. **Note** • The paper trailing edge area can be adjusted with SP2624.		
001	Paper Transfer	*ENG	[0 to 400 / **100** / 5%/step]

2624	**[OHP: Switch Timing: Trail. Edge]**		
	Adjusts the bias/voltage switch timing of the paper transfer roller/discharge plate at the paper trailing edge between the erase margin area and the image area.		
001	Paper Transfer	*ENG	[–100 to 0 / **0** / 1 mm/step]

2631	**[OHP: LL]** OHP: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2603 and SP2608 are multiplied by these SP values.		
001	Paper Transfer	*ENG	[10 to 250 / **80** / 5%/step]
2631	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2601 is multiplied by these SP values.		
002	Separation DC	*ENG	[10 to 250 / **120** / 5%/step]

2632	**[OHP: ML]** OHP: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode When the environment is detected as ML, SP2603 and SP2608 are multiplied by these SP values.		
001	Paper Transfer	*ENG	[10 to 250 / **90** / 5%/step]
2632	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2601 is multiplied by these SP values.		
002	Separation DC	*ENG	[10 to 250 / **110** / 5%/step]

2633	**[OHP: MM]** OHP: MM Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2603 and SP2608 are multiplied by these SP values.		
001	Paper Transfer	*ENG	[10 to 250 / **100** / 5%/step]
2633	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2601 is multiplied by these SP values.		
002	Separation DC	*ENG	[10 to 250 / **100** / 5%/step]

2634	**[OHP: MH]** OHP: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2603 and SP2608 are multiplied by these SP values.		
001	Paper Transfer	*ENG	[10 to 250 / **110** / 5%/step]
2634	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2601 is multiplied by these SP values.		
002	Separation DC	*ENG	[10 to 250 / **90** / 5%/step]

2635	**[OHP: HH]** OHP Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2603 and SP2608 are multiplied by these SP values.		
001	Paper Transfer	*ENG	[10 to 250 / **120** / 5%/step]
2635	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2601 is multiplied by these SP values.		

002	Separation DC	*ENG	[10 to 250 / **80** / 5%/step]

2650	[Thick 3: Bias]		
	Adjusts the DC voltage of the discharge plate for thick paper 3.		
001	Separation DC: Thick 3: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]
002	Separation DC: Thick 3: 2nd Side	*ENG	

2651	[Thick 3: Bias: BW]		
	Adjusts the current for the paper transfer roller for thick paper 3 in black-and-white mode.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]
002	Paper Transfer: Thick 3: 2nd Side	*ENG	

2652	[Thick 3: Bias: FC]		
	Adjusts the current for the paper transfer roller for thick paper 3 in full color mode.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[0 to 200 / **15** / 1 –µA /step]
002	Paper Transfer: Thick 3: 2nd Side	*ENG	

2653	[Thick 3: Paper Size Correction]		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2651 and SP2652 are multiplied by these SP values.		
001	Paper Transfer: Thick 3: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: Thick 3: 1st Side: S2	*ENG	[100 to 600 / **140** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
003	Paper Transfer: Thick 3: 1st Side: S3	*ENG	[100 to 600 / **200** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
004	Paper Transfer: Thick 3: 1st Side: S4	*ENG	[100 to 600 / **260** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)

005	Paper Transfer: Thick 3: 1st Side: S5	*ENG	[100 to 600 / **330** / 5%/step] 148 mm ≥ S5 size (Paper width)
006	Paper Transfer: Thick 3: 2nd Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
007	Paper Transfer: Thick 3: 2nd Side: S2	*ENG	[100 to 600 / **160** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
008	Paper Transfer: Thick 3: 2nd Side: S3	*ENG	[100 to 600 / **260** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
009	Paper Transfer: Thick 3: 2nd Side: S4	*ENG	[100 to 600 / **430** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
010	Paper Transfer: Thick 3: 2nd Side: S5	*ENG	[100 to 600 / **600** / 5%/step] 148 mm ≥ S5 size (Paper width)

2654	**[Thick 3: Leading Edge Correction]** Thick 3 Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2651 and SP2652 are multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2655.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Separation DC: Thick 3: 1st Page	*ENG	
2654	Adjusts the correction to the discharge plate current at the paper leading edge in each mode. SP2650 is multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2655.		
003	Paper Transfer: Thick 3: 2nd Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Separation DC: Thick 3: 2nd Page	*ENG	

2655	**[Thick 3: Switch Timing: Lead. Edge]**
	Adjusts the bias/ voltage switch timing of the paper transfer roller/ discharge plate at the paper leading edge between the erase margin area and the image area.

001	Paper Transfer: Thick 3: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
002	Separation DC: Thick 3: 1st Page	*ENG	
003	Paper Transfer: Thick 3: 2nd Side	*ENG	
004	Separation DC: Thick 3: 2nd Page	*ENG	

2656	**[Thick 3: Trailing Edge Correction]** Thick 3 Paper: Trailing Edge Correction		
	Adjusts the correction to the paper transfer roller current for the paper trailing edge in each mode. SP2651 and SP2652 are multiplied by these SP values. **Note** • The paper trailing edge area can be adjusted with SP2657.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Thick 3: 2nd Side	*ENG	

2657	**[Thick 3: Switch Timing: Trail. Edge]**		
	Adjusts the bias/voltage switch timing of the paper transfer roller/discharge plate at the paper trailing edge between the erase margin area and the image area.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
002	Paper Transfer: Thick 3: 2nd Side	*ENG	

2658	**[Thick 3: LL]** Thick 3 Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2651 and SP2652 are multiplied by these SP values.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Separation DC: Thick 3: 1st Side	*ENG	[10 to 250 / **180** / 5%/step]
2658	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2650 is multiplied by these SP values.		
003	Paper Transfer: Thick 3: 2nd Side	*ENG	[10 to 250 / **80** / 5%/step]
004	Separation DC: Thick 3: 2nd Side:	*ENG	[10 to 250 / **240** / 5%/step]

2659	**[Thick 3: ML]** Thick 3 Paper: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode When the environment is detected as ML, SP2651 and SP2652 are multiplied by these SP values.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Separation DC: Thick 3: 1st Side	*ENG	[10 to 250 / **140** / 5%/step]
2659	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2650 is multiplied by these SP values.		
003	Paper Transfer: Thick 3: 2nd Side	*ENG	[10 to 250 / **90** / 5%/step]
004	Separation DC: Thick 3: 2nd Side:	*ENG	[10 to 250 / **240** / 5%/step]

2660	**[Thick 3: MM]** Thick 3 Paper: MM Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2651 and SP2652 are multiplied by these SP values.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Separation DC: Thick 3: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
2660	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2650 is multiplied by these SP values.		
003	Paper Transfer: Thick 3: 2nd Side	*ENG	[10 to 250 / **100** / 5%/step]
004	Separation DC: Thick 3: 2nd Side:	*ENG	[10 to 250 / **200** / 5%/step]

2661	**[Thick 3: MH]** Thick 3 Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2651 and SP2652 are multiplied by these SP values.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Separation DC: Thick 3: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
2661	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2650 is multiplied by these SP values.		
003	Paper Transfer: Thick 3: 2nd Side	*ENG	[10 to 250 / **110** / 5%/step]
004	Separation DC: Thick 3: 2nd Side:	*ENG	[10 to 250 / **180** / 5%/step]

2662	**[Thick 3: HH]** Thick 3 Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2651 and SP2652 are multiplied by these SP values.		
001	Paper Transfer: Thick 3: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Separation DC: Thick 3: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
2662	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2650 is multiplied by these SP values.		
003	Paper Transfer: Thick 3: 2nd Side	*ENG	[10 to 250 / **120** / 5%/step]
004	Separation DC: Thick 3: 2nd Side:	*ENG	[10 to 250 / **80** / 5%/step]

2751	**[Special 1: Bias]**		
	Adjusts the DC voltage of the discharge plate for special paper 1. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Separation DC: Plain: 1st Side	*ENG	[0 to 5000 / **1500** / 10 –V/step]
002	Separation DC: Plain: 2nd Side	*ENG	
003	Separation DC: Fine: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]
004	Separation DC: Fine: 2nd Side	*ENG	

2753	**[Special 1: Bias: BW]**		
	Adjusts the current for the paper transfer roller for special paper 1 in black-and-white mode. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **C1c: 22/C1d: 30** / 1 –µA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2757	**[Special 1: Bias: FC]**
	Adjusts the current for the paper transfer roller for special paper 1 in full color mode.

	Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain): 1st Side	*ENG	[0 to 200 / **C1c: 33/C1d: 40** / 1 –µA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **15** / 1 –µA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2761	[Special 1: Paper Size Correction]		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2753 and SP2757 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: Plain: 2nd Side: S1	*ENG	
003	Paper Transfer: FINE: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
004	Paper Transfer: FINE: 2nd Side: S1	*ENG	
005	Paper Transfer: Plain: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
006	Paper Transfer: Plain: 2nd Side: S2	*ENG	[100 to 600 / **130** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
007	Paper Transfer: FINE: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
008	Paper Transfer: FINE: 2nd Side: S2	*ENG	
009	Paper Transfer: Plain: 1st Side: S3	*ENG	[100 to 600 / **140** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
010	Paper Transfer: Plain: 2nd Side: S3	*ENG	[100 to 600 / **200** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
011	Paper Transfer: FINE: 1st Side: S3	*ENG	[100 to 600 / **130** / 5%/step]

012	Paper Transfer: FINE: 2nd Side: S3	*ENG	275 mm ≥ S3 size ≥ 210 mm (Paper width)
013	Paper Transfer: Plain: 1st Side: S4	*ENG	[100 to 600 / **160** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
014	Paper Transfer: Plain: 2nd Side: S4	*ENG	[100 to 600 / **220** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
015	Paper Transfer: FINE: 1st Side: S4	*ENG	[100 to 600 / **140** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
016	Paper Transfer: FINE: 2nd Side: S4	*ENG	
017	Paper Transfer: Plain: 1st Side: S5	*ENG	[100 to 600 / **180** / 5%/step] 148 mm ≥ S5 size (Paper width)
018	Paper Transfer: Plain: 2nd Side: S5	*ENG	[100 to 600 / **240** / 5%/step] 148 mm ≥ S5 size (Paper width)
019	Paper Transfer: FINE: 1st Side: S5	*ENG	[100 to 600 / **150** / 5%/step] 148 mm ≥ S5 size (Paper width)
020	Paper Transfer: FINE: 2nd Side: S5	*ENG	

2771	**[Special 1: Leading Edge Correction]** Special 1 Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2753 and SP2757 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec **Note** • The paper leading edge area can be adjusted with SP2772.		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 400 / **150** / 5%/step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2771	Adjusts the correction to the discharge plate current at the paper leading edge in each mode. SP2751 is multiplied by these SP values.		

	Note • The paper leading edge area can be adjusted with SP2772.		
005	Separation DC: Plain: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
006	Separation DC: Plain: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2772	**[Special 1: Switch Timing: Lead. Edge]**		
	Adjusts the bias/ voltage switch timing of the paper transfer roller/ discharge plate at the paper leading edge between the erase margin area and the image area. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 30 / **20** / 1 mm/step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005	Separation DC: Plain: 1st Page	*ENG	[0 to 30 / **0** / 1 mm/step]
006	Separation DC: Plain: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 30 / **0** / 1 mm/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2773	**[Special 1: Trailing Edge Correction]** Special 1 Paper: Trailing Edge Correction		
	Adjusts the correction to the paper transfer roller current for the paper trailing edge in each mode. SP2753 and SP2757 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec **Note** • The paper trailing edge area can be adjusted with SP2774.		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	

003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2774	**[Special 1: Switch Timing: Trail. Edge]**		
	Adjusts the bias/voltage switch timing of the paper transfer roller/discharge plate at the paper trailing edge between the erase margin area and the image area. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2781	**[Special 1: LL]** Special 1 Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2753 and SP2757 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[10 to 250 / **90** / 5%/step]
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2781	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2751 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **200** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2782	**[Special 1: ML]** Special 1 Paper: ML Environment Coefficient Adjustment		

	Adjusts the environment coefficient for each mode When the environment is detected as ML, SP2753 and SP2757 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2782	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2751 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **200** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **170** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2783	**[Special 1: MM]** Special 1 Paper: MM Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2753 and SP2757 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2783	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2751 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **170** / 5%/step]
006	Separation DC: Plain : 2nd Side:	*ENG	[10 to 250 / **140** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2784	**[Special 1: MH]** Special 1 Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2753 and SP2757 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2784	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2751 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **90** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2785	**[Special 1: HH]** Special 1 Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2753 and SP2757 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2785	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2751 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **50** / 5%/step]
006	Separation DC: Plain: 2nd Side	*ENG	[10 to 250 / **80** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]

008	Separation DC: FINE: 2nd Side	*ENG	

2801	[Special 2: Bias]		
	Adjusts the DC voltage of the discharge plate for special paper 2. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Separation DC: Plain: 1st Side	*ENG	[0 to 5000 / **1500** / 10 –V/step]
002	Separation DC: Plain: 2nd Side	*ENG	[0 to 5000 / **1500** / 10 –V/step]
003	Separation DC: Fine: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]
004	Separation DC: Fine: 2nd Side	*ENG	

2803	[Special 2: Bias: BW]		
	Adjusts the current for the paper transfer roller for special paper 2 in black-and-white mode. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **C1c: 22/ C1d: 30** / 1 –μA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **12** / 1 –μA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2807	[Special 2: Bias: FC]		
	Adjusts the current for the paper transfer roller for special paper 2 in full color mode. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **C1c: 33/ C1d: 40** / 1 –μA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 200 / **C1c: 33/ C1d: 45** / 1 –μA /step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **15** / 1 –μA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2811	[Special 2: Paper Size Correction]

	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2803 and SP2807 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: Plain: 2nd Side: S1	*ENG	
003	Paper Transfer: FINE: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
004	Paper Transfer: FINE: 2nd Side: S1	*ENG	
005	Paper Transfer: Plain: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
006	Paper Transfer: Plain: 2nd Side: S2	*ENG	[100 to 600 / **130** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
007	Paper Transfer: FINE: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
008	Paper Transfer: FINE: 2nd Side: S2	*ENG	
009	Paper Transfer: Plain: 1st Side: S3	*ENG	[100 to 600 / **140** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
010	Paper Transfer: Plain: 2nd Side: S3	*ENG	[100 to 600 / **200** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
011	Paper Transfer: FINE: 1st Side: S3	*ENG	[100 to 600 / **130** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
012	Paper Transfer: FINE: 2nd Side: S3	*ENG	
013	Paper Transfer: Plain: 1st Side: S4	*ENG	[100 to 600 / **160** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
014	Paper Transfer: Plain: 2nd Side: S4	*ENG	[100 to 600 / **220** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)

015	Paper Transfer: FINE: 1st Side: S4	*ENG	[100 to 600 / **140** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
016	Paper Transfer: FINE: 2nd Side: S4	*ENG	
017	Paper Transfer: Plain: 1st Side: S5	*ENG	[100 to 600 / **180** / 5%/step] 148 mm ≥ S5 size (Paper width)
018	Paper Transfer: Plain: 2nd Side: S5	*ENG	[100 to 600 / **240** / 5%/step] 148 mm ≥ S5 size (Paper width)
019	Paper Transfer: FINE: 1st Side: S5	*ENG	[100 to 600 / **150** / 5%/step] 148 mm ≥ S5 size (Paper width)
020	Paper Transfer: FINE: 2nd Side: S5	*ENG	

2821	**[Special 2: Leading Edge Correction]** Special 2 Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2803 and SP2807 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec **Note** • The paper leading edge area can be adjusted with SP2822.		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 400 / **150** / 5%/step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
2821	Adjusts the correction to the discharge plate current at the paper leading edge in each mode. SP2801 is multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2822.		
005	Separation DC: Plain: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
006	Separation DC: Plain: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2822	**[Special 2: Switch Timing: Lead. Edge]**		
	Adjusts the bias/ voltage switch timing of the paper transfer roller/ discharge plate at the paper leading edge between the erase margin area and the image area. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 30 / **20** / 1 mm/step]
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005	Separation DC: Plain: 1st Page	*ENG	[0 to 30 / **0** / 1 mm/step]
006	Separation DC: Plain: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 30 / **0** / 1 mm/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2823	**[Special 2: Trailing Edge Correction]** Special 2 Paper: Trailing Edge Correction		
	Adjusts the correction to the paper transfer roller current for the paper trailing edge in each mode. SP2803 and SP2807 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec **Note** • The paper trailing edge area can be adjusted with SP2824.		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2824	**[Special 2: Switch Timing: Trail. Edge]**		
	Adjusts the bias/voltage switch timing of the paper transfer roller/discharge plate at the paper trailing edge between the erase margin area and the image area. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]

002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2831	**[Special 2: LL]** Special 2 Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2803 and SP2807 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[10 to 250 / **90** / 5%/step]
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2801 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **200** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2832	**[Special 2: ML]** Special 2 Paper: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode When the environment is detected as ML, SP2803 and SP2807 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2801 is multiplied by these SP values.		

005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **200** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **170** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2833	**[Special 2: MM]** Special 2 Paper: MM Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2803 and SP2807 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2801 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **170** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **140** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2834	**[Special 2: MH]** Special 2 Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2803 and SP2807 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

005-008	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2801 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **90** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2835	[Special 2: HH] Special 2 Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2803 and SP2807 are multiplied by these SP values. Plain: 154 (C1c)/205 (C1d) mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Paper Transfer: Plain: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2801 is multiplied by these SP values.		
005	Separation DC: Plain: 1st Side	*ENG	[10 to 250 / **50** / 5%/step]
006	Separation DC: Plain: 2nd Side:	*ENG	[10 to 250 / **80** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2851	[Special 3: Bias]		
	Adjusts the DC voltage of the discharge plate for special paper 3. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Separation DC: Thick 1: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]
002	Separation DC: Thick 1: 2nd Side	*ENG	
003	Separation DC: Fine: 1st Side	*ENG	[0 to 5000 / **0** / 10 –V/step]

004	Separation DC: Fine: 2nd Side	*ENG	

2852	**[Special 3: Bias: BW]**		
	Adjusts the current for the paper transfer roller for special paper 3 in black-and-white mode. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 200 / **18** / 1 –µA /step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2857	**[Special 3: Bias: FC]**		
	Adjusts the current for the paper transfer roller for special paper 3 in full color mode. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 200 / **22** / 1 –µA /step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 200 / **15** / 1 –µA /step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2861	**[Special 3: Paper Size Correction]**		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2852 and SP2857 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: Thick 1: 2nd Side: S1	*ENG	
003	Paper Transfer: FINE: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
004	Paper Transfer: FINE: 2nd Side: S1	*ENG	
005	Paper Transfer: Thick 1: 1st Side: S2	*ENG	[100 to 600 / **130** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)

006	Paper Transfer: Thick 1: 2nd Side: S2	*ENG	[100 to 600 / **150** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
007	Paper Transfer: FINE: 1st Side: S2	*ENG	[100 to 600 / **120** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
008	Paper Transfer: FINE: 2nd Side: S2	*ENG	
009	Paper Transfer: Thick 1: 1st Side: S3	*ENG	[100 to 600 / **180** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
010	Paper Transfer: Thick 1: 2nd Side: S3	*ENG	[100 to 600 / **240** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
011	Paper Transfer: FINE: 1st Side: S3	*ENG	[100 to 600 / **130** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
012	Paper Transfer: FINE: 2nd Side: S3	*ENG	
013	Paper Transfer: Thick 1: 1st Side: S4	*ENG	[100 to 600 / **230** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
014	Paper Transfer: Thick 1: 2nd Side: S4	*ENG	[100 to 600 / **370** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
015	Paper Transfer: FINE: 1st Side: S4	*ENG	[100 to 600 / **140** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
016	Paper Transfer: FINE: 2nd Side: S4	*ENG	
017	Paper Transfer: Thick 1: 1st Side: S5	*ENG	[100 to 600 / **290** / 5%/step] 148 mm ≥ S5 size (Paper width)
018	Paper Transfer: Thick 1: 2nd Side: S5	*ENG	[100 to 600 / **500** / 5%/step] 148 mm ≥ S5 size (Paper width)
019	Paper Transfer: FINE: 1st Side: S5	*ENG	[100 to 600 / **150** / 5%/step] 148 mm ≥ S5 size (Paper width)
020	Paper Transfer: FINE: 2nd Side: S5	*ENG	

2871	**[Special 3: Leading Edge Correction]** Special 3 Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2852 and SP2857 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec **Note** • The paper leading edge area can be adjusted with SP2872.		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the correction to the discharge plate current at the paper leading edge in each mode. SP2851 is multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2872.		
005	Separation DC: Thick 1: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
006	Separation DC: Thick 1: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 400 / **100** / 5%/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2872	**[Special 3: Switch Timing: Lead. Edge]**		
	Adjusts the bias/ voltage switch timing of the paper transfer roller/ discharge plate at the paper leading edge between the erase margin area and the image area. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 30 / **0** / 1 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005	Separation DC: Thick 1: 1st Page	*ENG	[0 to 30 / **0** / 1 mm/step]

006	Separation DC: Thick 1: 2nd Page	*ENG	
007	Separation DC: Fine: 1st Page	*ENG	[0 to 30 / **0** / 1 mm/step]
008	Separation DC: Fine: 2nd Page	*ENG	

2873	**[Special 3: Trailing Edge Correction]** Special 3 Paper: Trailing Edge Correction		
	Adjusts the correction to the paper transfer roller current for the paper trailing edge in each mode. SP2852 and SP2857 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec **Note** • The paper trailing edge area can be adjusted with SP2874.		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2874	**[Special 3: Switch Timing: Trail. Edge]**		
	Adjusts the bias/voltage switch timing of the paper transfer roller/discharge plate at the paper trailing edge between the erase margin area and the image area. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[–100 to 0 / **0** / 1 mm/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	

2881	**[Special 3: LL]** Special 3 Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2852 and SP2857 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]

002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2851 is multiplied by these SP values.		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **180** / 5%/step]
006	Separation DC: Thick 1: 2nd Side:	*ENG	[10 to 250 / **240** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2882	**[Special 3: ML]** Special 3 Paper: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode When the environment is detected as ML, SP2852 and SP2857 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the environment coefficient for each mode. When the environment is detected as ML, SP2851 is multiplied by these SP values.		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **140** / 5%/step]
006	Separation DC: Thick 1: 2nd Side:	*ENG	[10 to 250 / **240** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2883	**[Special 3: MM]** Special 3 Paper: MM Environment Coefficient Adjustment
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2852 and SP2857 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec

001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2851 is multiplied by these SP values.		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
006	Separation DC: Thick 1: 2nd Side:	*ENG	[10 to 250 / **200** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2884	**[Special 3: MH]** Special 3 Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2852 and SP2857 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2851 is multiplied by these SP values.		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
006	Separation DC: Thick 1: 2nd Side:	*ENG	[10 to 250 / **180** / 5%/step]
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2885	**[Special 3: HH]** Special 3 Paper: HH Environment Coefficient Adjustment

	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2852 and SP2857 are multiplied by these SP values. Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Paper Transfer: Thick 1: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	
003	Paper Transfer: FINE: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
004	Paper Transfer: FINE: 2nd Side	*ENG	
005-008	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2851 is multiplied by these SP values.		
005	Separation DC: Thick 1: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
006	Separation DC: Thick 1: 2nd Side:	*ENG	
007	Separation DC: FINE: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
008	Separation DC: FINE: 2nd Side	*ENG	

2901	**[OPC Drum Brake Time]**		
	Adjusts the time when the OPC drum motor reverses from normal rotation after job end. **DFU** Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Plain	*ENG	[0 to 1500 / **500** / 10 msec/step]
002	Thick 1	*ENG	
003	Thick 2 & FINE	*ENG	

2902	**[OPC Drum Reverse Time]**		
	Adjusts the time for how long the OPC drum motor reverses after job end. **DFU**		
001	All: BW	*ENG	[0 to 200 / **50** / 10 msec/step]
002	All: FC	*ENG	[0 to 200 / **40** / 10 msec/step]

2903	**[Image Transfer Roller Brake Time]**
	Adjusts the time when the image transfer belt motor reverses from normal rotation after job end. **DFU**

	Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
003	Plain	*ENG	[0 to 1500 / **500** / 10 msec/step]
004	Thick 1	*ENG	
005	Thick 2 & FINE	*ENG	

2904	**[OPC Drum Reverse Time]**		
	Adjusts the time for how long the image transfer belt motor reverses after job end. **DFU**		
003	All	*ENG	[0 to 200 / **30** / 10 msec/step]

2906	**[Drum Stop Angle]**		
	DFU		
001	Y	*ENG	[0 to 359 / **0** / 1 deg/step]
002	C	*ENG	
003	M	*ENG	
004	Bk	*ENG	
005	Drum Gear Phase Adj. Range	*ENG	

2907	**[ACS Setting (FC to Bk)]**		
	Adjusts the threshold for moving away the image transfer belt from the color PCUs. This SP moves the image transfer belt away from the color PCUs when the number of B/W image printouts reaches the number of sheets specified with this SP after consecutive full color image printouts in the full color mode. If this SP is set to "0", the image transfer belt does not move away.		
001	Continuous Bk Pages	*ENG	[0 to 10 / **0** / 1 sheet/step]

2908	**[Gain Adjust]** Gain Adjustment of Image Transfer Belt Motor		
	DFU		
001	205 mm/sec	*ENG	[0 or 1 / **1** / 1/step]] 0: High speed (Low level)
002	154 mm/sec	*ENG	

003	115 mm/sec	*ENG	1: Low speed (High level)
004	77 mm/sec	*ENG	

2914	**[Dust Shield Shutter Motor]**		
001	Stop Delay: Open	*ENG	**DFU** [1 to 50 / **38** / 1 ms/step]
002	Stop Delay: Close	*ENG	
003	Open Execution	*ENG	Opens the shutter on the laser optics housing unit manually for test purposes.
004	Close Execution	*ENG	Closes the shutter on the laser optics housing unit manually for test purposes.

2930	**[SecondaryFB: Threshold]** Paper Transfer Roller Feed-back: Threshold Adjustment		
	Adjusts the threshold between high resistance (division 1) and low resistance (division 2) at the paper transfer roller. This SP affects SP2931 to SP2939.		
001	Voltage	*ENG	[0 to 7000 / **5000** / 10 –V/step]

2931	**[SecondaryFB: Plain]**		
	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for plain paper use in full color mode.		
001	Limit Voltage: Division 1	*ENG	[0 to 7000 / **6000** / 10 –V/step]
002	Limit Voltage: Division 2	*ENG	[0 to 7000 / **5000** / 10 –V/step]

2932	**[SecondaryFB: Thin]**		
	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for thin paper use in full color mode.		
001	Limit Voltage: Division 1	*ENG	[0 to 7000 / **6000** / 10 –V/step]
002	Limit Voltage: Division 2	*ENG	[0 to 7000 / **5000** / 10 –V/step]

2933	**[SecondaryFB: Special 1]**

	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for special 1 paper use in full color mode.		
001	Limit Voltage: Division 1	*ENG	[0 to 7000 / **6000** / 10 –V/step]
002	Limit Voltage: Division 2	*ENG	[0 to 7000 / **5000** / 10 –V/step]

2934	[SecondaryFB: Special 2]		
	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for special 2 paper use in full color mode.		
001	Limit Voltage: Division 1	*ENG	[0 to 7000 / **6000** / 10 –V/step]
002	Limit Voltage: Division 2	*ENG	[0 to 7000 / **5000** / 10 –V/step]

2935	[SecondaryFB: Thick 1]		
	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for thick 1 paper use in full color mode.		
001	Limit Voltage: Division 1	*ENG	[0 to 7000 / **6000** / 10 –V/step]
002	Limit Voltage: Division 2	*ENG	[0 to 7000 / **5000** / 10 –V/step]

2936	[SecondaryFB: Thick 2]		
	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for thick 2 paper use in full color mode.		
001	Limit Voltage: Division 1	*ENG	[0 to 7000 / **6000** / 10 –V/step]
002	Limit Voltage: Division 2	*ENG	[0 to 7000 / **5000** / 10 –V/step]

2937	[SecondaryFB: Thick 3]		
	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for thick 3 paper use in full color mode.		
001	Limit Voltage: Division 1	*ENG	[0 to 7000 / **6000** / 10 –V/step]
002	Limit Voltage: Division 2	*ENG	[0 to 7000 / **5000** / 10 –V/step]

2938	[SecondaryFB: OHP]

	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for OHP paper use in full color mode.		
001	Limit Voltage: Division 1	*ENG	[0 to 7000 / **6000** / 10 –V/step]
002	Limit Voltage: Division 2	*ENG	[0 to 7000 / **5000** / 10 –V/step]

2939	**[SecondaryFB: Special 3]**		
	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for special 3 paper use in full color mode.		
001	Limit Voltage: Division 1	*ENG	[0 to 7000 / **6000** / 10 –V/step]
002	Limit Voltage: Division 2	*ENG	[0 to 7000 / **5000** / 10 –V/step]

SP3-XXX (Process)

3011	**[Process Cont. Manual Execution]**		
001	Normal	-	Executes the normal process control manually (potential control). Check the result with SP3-325-001 and 3-012-001 after executing this SP.
002	Density Adjustment	-	Executes the toner density adjustment manually.
003	Pre-ACC	-	Executes the process control that is normally done before ACC. The type of process control is selected with SP3-041-004.
004	Full MUSIC	-	Executes the process control that is normally done at the same time as MUSIC. This SP does the MUSIC (line position adjustment) twice.
005	Normal MUSIC	-	Executes the process control that is normally done at the same time as MUSIC. This SP does the MUSIC (line position adjustment) once.

3012	**[Process Cont. Check Result]** Process Control Self-check Result
	Displays the result of the latest process control self-check.

	All colors are displayed. The results are displayed in the order “Y C M K” e.g., 11 (Y) 99 (C) 11 (M) 11 (K): The self-check for Cyan failed but the others were successful. See the "p.272 " in the troubleshooting section for details.		
001	History: Latest	*ENG	[11111111 to 99999999 / - / 1/step]
002	Result: Latest 1	*ENG	
003	Result: Latest 2	*ENG	
004	Result: Latest 3	*ENG	
005	Result: Latest 4	*ENG	
006	Result: Latest 5	*ENG	
007	Result: Latest 6	*ENG	
008	Result: Latest 7	*ENG	
009	Result: Latest 8	*ENG	
010	Result: Latest 9	*ENG	

3013	**[T Sensor Initial Set: Execution]** Developer Initialization Setting		
001	Execution: ALL	-	DFU
002	Execution: COL (MCY)	-	
003	Execution: Bk	-	
004	Execution: M	-	
005	Execution: C	-	
006	Execution: Y	-	

3014	**[T Sensor Initial Set Result: Display]** Developer Initialization Result: Display		
001	Display: YCMK	*ENG	[0 to 9999 / - / -] 1: Success 2 to 9: Failure

	Displays the developer initialization result. See section "p.271 "Developer Initialization Result"" for details on the meaning of each code. All colors are displayed. Values are displayed in the order Y C M Bk. e.g., 1 (Y) 2 (C) 1 (M) 1 (Bk): Initialization of Cyan failed but the others succeeded.

3015	**[Forced Toner Supply]** Forced Toner Supply ([Color])		
001	Execution: ALL	-	Executes the manual toner supply to the development unit.
002	Execution: COL (MCY)	-	
003	Execution: Bk	-	
004	Execution: M	-	
005	Execution: C	-	
006	Execution: Y	-	

3016	**[Forced Toner Supply: Setting]** Forced Toner Supply Setting ([Color])		
	Specifies the manual toner supply time for each color.		
001	Supply Time: Bk	*ENG	[0 to 30 / **4** / 1 sec/step]
002	Supply Time: M	*ENG	
003	Supply Time: C	*ENG	
004	Supply Time: Y	*ENG	

3020	**[Vt Limit Error]**		
	DFU		
001	Delta Vt Threshold	*ENG	[0 to 5 / **5** / 0.01 V/step]
002	Upper Threshold	*ENG	[0 to 5 / **4.7** / 0.01 V/step]
003	Threshold Number of Upper counter	*ENG	[0 to 99 / **20** / 1 time/step]
004	Lower Threshold	*ENG	[0 to 5 / **0.5** / 0.01 V/step]
005	Number of Lower counter	*ENG	[0 to 99 / **10** / 1 time/step]

006	Upper Counter: Bk	*ENG	[0 to 99 / **0** / 1 time/step]
007	Upper Counter: M	*ENG	
008	Upper Counter: C	*ENG	
009	Upper Counter: Y	*ENG	
010	Lower Counter: Bk	*ENG	
011	Lower Counter: M	*ENG	
012	Lower Counter: C	*ENG	
013	Lower Counter: Y	*ENG	

3021	**[TD Sensor Initial Set]** Developer Initialization Setting		
	Specifies the developer agitation time for each color at the developer initialization. **DFU**		
001	Agitation Time: Bk	*ENG	[0 to 200 / **30** / 1 sec/step]
002	Agitation Time: M	*ENG	
003	Agitation Time: C	*ENG	
004	Agitation Time: Y	*ENG	
005-008	Sets the execution flag of the developer initialization for each color. **DFU**		
005	Execution Flag: Bk	*ENG	[0 or 1 / **0** / 1/step] 0: Flag OFF, 1: Flag ON This flag is cleared after executing TD sensor initialization.
006	Execution Flag: M	*ENG	
007	Execution Flag: C	*ENG	
008	Execution Flag: Y	*ENG	
009	Prohibition	*ENG	Enables or disables developer initialization. **DFU** [0 or 1 / **0** / 1/step] 0: Enable, 1: Disable

3022	**[Toner Replenishment Mode] DFU**
	Specifies the toner supply time for each color in the toner supply mode.

001	Number: Bk	*ENG	[0 to 30 / **8** / 1 sec/step]
002	Number: M	*ENG	[0 to 30 / **6** / 1 sec/step]
003	Number: C	*ENG	
004	Number: Y	*ENG	
005-008	Sets the execution flag for the toner supply mode for each color.		
005	Execution Flag: Bk	*ENG	[0 or 1 / **0** / 1/step] 0: Flag OFF, 1: Flag ON This flag is cleared after executing TD sensor initialization.
006	Execution Flag: M	*ENG	
007	Execution Flag: C	*ENG	
008	Execution Flag: Y	*ENG	

3041	[Process Control Type]		
001	Voltage Control	*ENG	[0 or 1 / **1** / 1/step] Alphanumeric 0: FIXED (Use the fixed values for the charge DC bias and development DC bias set with SP2-005 and SP2-229.) 1: CONTROL
	Enables or disables potential control.		
002	LD Power Control	*ENG	[0 or 1 / **1** / 1/step] Alphanumeric 0: FIXED (at the value in SP2221-xxx) 1: CONTROL (adjusted by process control)
	Selects the LD power control mode.		
004	Pre-ACC Process Control	*ENG	[0 to 2 / **2** / 1/step] 0: Not Executed 1: Process Control 2: TC Control (TD Adjustment) 3: Not used
	Selects the process control mode that is done before ACC.		

3043	[TD Adjustment Mode]		
001	Repeat Number: Power ON	*ENG	[0 to 9 / **4** / 1 time/step]
	Specifies the maximum number of repeats of the toner density adjustment at power on. 0: Disabled, 1 to 3: Repeat number, 4: Repeat three times (No consumption mode) 5: Repeat three times (Toner is supplied only when the toner density is too low, and toner is consumed only when the toner density is too dark.) 6 to 9: Disabled		
002	Repeat Number: Initialization	*ENG	[0 to 9 / **3** / 1 time/step]
	Specifies the maximum number of repeats of the toner density adjustment at the developer initialization. 0: Disabled, 1 to 3: Repeat number, 4: Repeat three times (No consumption mode) 5: Repeat three times (Toner is supplied only when the toner density is too low, and toner is consumed only when the toner density is too dark.) 6 to 9: Disabled		
003	Repeat Number: Non-use	*ENG	[0 to 9 / **0** / 1 time/step]
	Specifies the maximum number of repeats of the toner density adjustment in stand by mode. 0: Disabled, 1 to 3: Repeat number, 4: Repeat three times (No consumption mode) 5: Repeat three times (Toner is supplied only when the toner density is too low, and toner is consumed only when the toner density is too dark.) 6 to 9: Disabled		
004	Repeat Number: ACC	*ENG	[0 to 9 / **3** / 1 time/step]
	Specifies the maximum number of repeats of the toner density adjustment at ACC. 0: Disabled, 1 to 3: Repeat number, 4: Repeat three times (No consumption mode) 5: Repeat three times (Toner is supplied only when the toner density is too low, and toner is consumed only when the toner density is too dark.) 6 to 9: Disabled		
005	Repeat Number: Recovery	*ENG	[0 to 9 / **0** / 1 time/step]

	Not used		
006	Repeat Number: Job End	*ENG	[0 to 9 / **4** / 1 time/step]
	Specifies the maximum number of repeats of the toner density adjustment at job end. 0: Disabled, 1 to 3: Repeat number, 4: Repeat three times (No consumption mode) 5: Repeat three times (Toner is supplied only when the toner density is too low, and toner is consumed only when the toner density is too dark.) 6 to 9: Disabled		
007	Repeat Number: Interrupt	*ENG	[0 to 9 / **0** / 1 time/step]
	Specifies the maximum number of repeats of the toner density adjustment during printing. **DFU**		
008	Toner Supply Coefficient	*ENG	[0 to 25.5 / **10** / 0.1 sec/step]
	Adjusts the time for the toner supply mode when a toner density is detected to be low.		
009	Consumption pattern: Bk	*ENG	[0 to 255 / **5** / 1 time/step]
	Specifies the belt mark generating time for checking the black toner density when toner density is detected to be low at the toner density adjustment.		
010	Consumption pattern: M	*ENG	[0 to 255 / **5** / 1 time/step]
	Specifies the belt mark generating time for checking the magenta toner density when toner density is detected to be low at the toner density adjustment.		
011	Consumption pattern: C	*ENG	[0 to 255 / **5** / 1 time/step]
	Specifies the belt mark generating time for checking the cyan toner density when toner density is detected to be low at the toner density adjustment.		
012	Consumption pattern: Y	*ENG	[0 to 255 / **5** / 1 time/step]
	Specifies the belt mark generating time for checking the yellow toner density when toner density is detected to be low at the toner density adjustment.		
013	T1 Bias: Bk	*ENG	[0 to 80 / **C1c: 22/C1d: 30** / 1 µA/step]
	Adjusts the image transfer belt bias for Black.		
014	T1 Bias: M	*ENG	[0 to 80 / **C1c: 22/C1d: 30**/ 1 µA/step]
	Adjusts the image transfer belt bias for Magenta.		

015	T1 Bias: C	*ENG	[0 to 80 / **C1c: 25/C1d: 33**/ 1 µA/step]
	Adjusts the image transfer belt bias for Cyan.		
016	T1 Bias: Y	*ENG	[0 to 80 / **C1c: 33/C1d: 45** / 1 µA/step]
	Adjusts the image transfer belt bias for Yellow.		
017	Developer Mixing Time	*ENG	[0 to 250 / **10** / 1 sec/step]
	Specifies the developer mixing time at the toner density adjustment.		
018	Consumption Pattern: LD: DUTY: Bk	*ENG	[0 to 15 / **15** / 1 /step]
	Adjusts the LD duty for the toner consumption mode at the toner density adjustment. In toner consumption mode, toner is discharged when the detected development gamma values (SP3611-001) exceed the target values (SP3611-005) by more than the specified thresholds (SP3239-009).		
019	Consumption Pattern: LD: DUTY: M	*ENG	[0 to 15 / **15** / 1 /step]
	Adjusts the LD duty for the toner consumption mode at the toner density adjustment. In toner consumption mode, toner is discharged when the detected development gamma values (SP3611-002) exceed the target values (SP3611-006) by more than the specified thresholds (SP3239-009).		
020	Consumption Pattern: LD: DUTY: C	*ENG	[0 to 15 / **15** / 1 /step]
	Adjusts the LD duty for the toner consumption mode at the toner density adjustment. In toner consumption mode, toner is discharged when the detected development gamma values (SP3611-003) exceed the target values (SP3611-007) by more than the specified thresholds (SP3239-009).		
021	Consumption Pattern: LD: DUTY: Y	*ENG	[0 to 15 / **15** / 1 /step]
	Adjusts the LD duty for the toner consumption mode at the toner density adjustment. In toner consumption mode, toner is discharged when the detected development gamma values (SP3611-004) exceed the target values (SP3611-008) by more than the specified thresholds (SP3239-009).		

3044	**[Toner Supply Type]** Toner Supply Type ([Color])		
	Selects the toner supply method type.		
001	Bk	*ENG	[0 to 3 / **2** / 1/step] Alphanumeric

002	M	*ENG	0: FIXED (with the supply rates stored with SP 3401) 1: PID (Vtref_Fixed) 2: PID (Vtref_Control) 3: Not used
003	C	*ENG	
004	Y	*ENG	

3045	**[Toner End Detection Set]**		
	Enables/disables the toner alert display on the LCD.		
001	ON/OFF	*ENG	[0 or 1 / **0** / 1/step] 0: Detect, 1: Not Detect

3101	**[Toner End/Near End]**		
	Displays the amount of each color toner. **DFU**		
001	Toner Replenishment: Bk	*ENG	[1 to 600 / **500** / 1 g/step]
002	Toner Replenishment: M	*ENG	[1 to 600 / **400** / 1 g/step]
003	Toner Replenishment: C	*ENG	
004	Toner Replenishment: Y	*ENG	
005-008	Displays the consumed amount of each color toner.		
005	Toner Consumption: Bk	*ENG	[0 to 3000 / **0** / 0.001 g/step]
006	Toner Consumption: M	*ENG	
007	Toner Consumption: C	*ENG	
008	Toner Consumption: Y	*ENG	
009-012	Displays the remaining amount of each color toner. These are calculated by the operating times of the toner supply pumps.		
009	Toner Remaining: Bk	*ENG	[–50000 to 600 / **0** / 0.001 g/step]
010	Toner Remaining: M	*ENG	
011	Toner Remaining: C	*ENG	
012	Toner Remaining: Y	*ENG	

013-016	Adjusts the threshold of toner near end for each color. The toner near end message appears on the LCD when the remaining toner amount reaches this threshold. When one of these SPs (SP3-101-009 to 012 or -032 to -035) reaches this threshold, toner near end is detected.		
013	Near End Threshold: Bk	*ENG	[0 to 600 / **50** / 1 g/step]
014	Near End Threshold: M	*ENG	
015	Near End Threshold: C	*ENG	
016	Near End Threshold: Y	*ENG	
017-020	DFU		
017	Cartridge Error Threshold: Bk	*ENG	[–50000 to 0 / **–50000** / 1 g/step]
018	Cartridge Error Threshold: M	*ENG	
019	Cartridge Error Threshold: C	*ENG	
020	Cartridge Error Threshold: Y	*ENG	
021	Delta Vt Threshold	*ENG	[0 to 5 / **0.5** / 0.01 V/step]
	This SP is the threshold for toner end. Delta Vt: Vt-Vtref When both this SP and SP3-101-026 occur at same time, toner end is determined.		
022-025	Displays the total delta Vt (Vt-Vtref) value for each color. These are calculated by pixel counting.		
022	Delta Vt Sum: Bk	*ENG	[0 to 655 / **0** / 0.01 V/step]
023	Delta Vt Sum: M	*ENG	
024	Delta Vt Sum: C	*ENG	
025	Delta Vt Sum: Y	*ENG	
026	Delta Vt Sum Threshold	*ENG	[0 to 255 / 10 / 1 V/step]
027	Gamma Threshold: Coefficient	*ENG	Not used
028-031	Displays the consumed toner amount calculated with the pixel count for each color.		
028	Pixel: Consumption: Bk	*ENG	[0 to 3000 / **0** / 0.001 g/step]

029	Pixel: Consumption: M	*ENG	
030	Pixel: Consumption: C	*ENG	
031	Pixel: Consumption: Y	*ENG	
032-035	Displays the remaining toner amount for each color, using pixel count.		
032	Pixel: Remaining : Bk	*ENG	[-50000 to 600 / **0** / 0.001 g/step]
033	Pixel: Remaining : M	*ENG	
034	Pixel: Remaining : C	*ENG	
035	Pixel: Remaining : Y	*ENG	
036-039	Adjusts the threshold of toner end for each color.		
036	End Threshold: Bk	*ENG	Not used
037	End Threshold: M	*ENG	
038	End Threshold: C	*ENG	
039	End Threshold: Y	*ENG	
040-043	Displays the pixel M/A for each color.		
040	Pixel M/A: Bk	*ENG	[0 to 1 / **0.4** / 0.001 mg/cm^2/step]
041	Pixel M/A: M	*ENG	
042	Pixel M/A: C	*ENG	
043	Pixel M/A: Y	*ENG	
044	Delta Vt Threshold Before Near End	*ENG	Adjusts the delta Vt (Vt – Vtref) of toner end before toner near end is detected. [0 to 5 / **0.5** / 0.01 V/step]
045	Delta Vt Sum Threshold Before Near End	*ENG	Adjusts the total delta Vt (Vt – Vtref) of toner end before toner near end is detected. [0 to 255 / **10** / 1 V/step]

3102	[Toner End Recovery]		
	Adjusts the number of times toner supply is attempted for each color when the TD sensor continues to detect toner end during toner recovery.		
001	Repeat: Bk	*ENG	[1 to 20 / **5** / 1 time/step]
002	Repeat: M	*ENG	
003	Repeat: C	*ENG	
004	Repeat: Y	*ENG	

3131	[TE Count m: Display]		
	Display the number of toner end detections for each color.		
001	Bk	*ENG	[0 to 99 / **0** / 1 time/step]
002	M	*ENG	
003	C	*ENG	
004	Y	*ENG	

3201	[TD Sensor: Vt Display]		
	Display the current voltage of the TD sensor for each color.		
001	Current: Bk	*ENG	[0 to 5.5 / **0.01** / 0.01 V/step]
002	Current: M	*ENG	
003	Current: C	*ENG	
004	Current: Y	*ENG	

3211	[Vt Shift: Display/Set]		
	Adjusts the Vt correction value for each line speed. Thick 1: 115 mm/sec, Thick 2 & FINE: 77 mm/sec		
001	Thick 1 Shift: Bk	*ENG	[0 to 5 / **C1c: 0.14, C1d: 0.67** / 0.01 V/step]
002	Thick 1 Shift: M	*ENG	
003	Thick 1 Shift: C	*ENG	

004	Thick 1 Shift: Y	*ENG	
005	Thick 2 & FINE Shift: Bk	*ENG	[0 to 5 / **C1c: 0.28, C1d: 0.81** / 0.01 V/step]
006	Thick 2 & FINE Shift: M	*ENG	
007	Thick 2 & FINE Shift: C	*ENG	
008	Thick 2 & FINE Shift: Y	*ENG	

3221	[Vtcnt: Display/Set]		
	Displays or adjusts the current Vtcnt value for each color.		
001	Current: Bk	*ENG	[2 to 5 / **4** / 0.01 V/step]
002	Current: M	*ENG	
003	Current: C	*ENG	
004	Current: Y	*ENG	
005-008	Displays or adjusts the Vtcnt value for each color at developer initialization. **DFU**		
005	Initial: Bk	*ENG	[2 to 5 / **4** / 0.01 V/step]
006	Initial: M	*ENG	
007	Initial: C	*ENG	
008	Initial: Y	*ENG	

3222	[Vtref: Display/Set]		
	Displays or adjusts the current Vtref value for each color.		
001	Current: Bk	*ENG	[0 to 5.5 / **3** / 0.01 V/step]
002	Current: M	*ENG	
003	Current: C	*ENG	
004	Current: Y	*ENG	
005-008	Displays or adjusts the Vtref value for each color at developer initialization. **DFU**		

005	Initial: Bk	*ENG	[0 to 5.5 / **3** / 0.01 V/step]
006	Initial: M	*ENG	
007	Initial: C	*ENG	
008	Initial: Y	*ENG	
009-012	Displays and adjusts Vtref correction by pixel coverage for each color. **DFU**		
009	Pixel Correction: Bk	*ENG	[-5 to 5.5 / **0** / 0.01 V/step]
010	Pixel Correction: M	*ENG	
011	Pixel Correction: C	*ENG	
012	Pixel Correction: Y	*ENG	

3223	**[Vtref Upper Lower: Set] DFU**		
	Adjusts the lower or upper limit value of Vtref for each color.		
001	Lower: Bk	*ENG	[0 to 5 / **2** / 0.01 V/step]
002	Lower: M	*ENG	
003	Lower: C	*ENG	
004	Lower: Y	*ENG	
005	Upper: Bk	*ENG	[0 to 5 / **4** / 0.01 V/step]
006	Upper: M	*ENG	
007	Upper: C	*ENG	
008	Upper: Y	*ENG	
009	Initial TC	*ENG	Adjusts the initial toner concentration. [1 to 15 / **7** / 0.1 wt%/step]
010	Upper: TC	*ENG	Adjusts the upper limit of the toner concentration. [1 to 15 / **10.5** / 0.1 wt%/step]
011	Lower: TC	*ENG	Adjusts the lower limit of the toner concentration. [1 to 15 / **4** / 0.1 wt%/step]

012	Upper Sensitivity	*ENG	Adjusts the upper limit of the TD sensor sensitivity. [0.2 to 0.5 / **0.44** / 0.001 V/wt% /step]
013	Lower Sensitivity	*ENG	Adjusts the lower limit of the TD sensor sensitivity. [0.2 to 0.5 / **0.209** / 0.001 V/wt% /step]
014	Toner Density Between H and M	*ENG	[1 to 10 / **3.4** / 0.1 wt%/step]
015	Toner Density Between M and L	*ENG	[1 to 10 / **4.3** / 0.1 wt%/step]

3224	[Vtref Correction: Pixel] DFU		
	Adjusts the coefficient of Vtref correction for each coverage and color.		
001	Low Coverage Coefficient: Bk	*ENG	[0 to 5 / **1** / 0.1 /step]
002	Low Coverage Coefficient: M	*ENG	
003	Low Coverage Coefficient: C	*ENG	
004	Low Coverage Coefficient: Y	*ENG	
005	High Coverage Coefficient: Bk	*ENG	[0 to 5 / **1** / 0.01 V/step]
006	High Coverage Coefficient: M	*ENG	[0 to 5 / **0.5** / 0.01 V/step]
007	High Coverage Coefficient: C	*ENG	
008	High Coverage Coefficient: Y	*ENG	
009	Low Coverage: Threshold	*ENG	Adjusts the threshold of the low coverage. [0 to 20 / **3** / 0.1 %/step]
010	High Coverage: Threshold	*ENG	Adjusts the threshold of the high coverage. [0 to 100 / **60** / 1 %/step]
011	TC Upper Limit Correction	*ENG	[0 to 5 / **0.5** / 0.1 wt%/step]
012	Upper Limit TC: Display: Bk	*ENG	[1 to 15 / **10** / 0.01 wt% /step]
013	Upper Limit TC: Display: M	*ENG	
014	Upper Limit TC: Display: C	*ENG	

015	Upper Limit TC: Display: Y	*ENG	
016	Process Control Execution Threshold	*ENG	[0 to 255 / **50** / 1 time/step]

3231	[Toner Supply: Setting]		
	Adjusts the coefficient of the toner supply time for each color. DFU		
001	Conversion Coefficient: Bk	*ENG	[0.5 to 9.99 / **1.48** / 0.01 /step]
002	Conversion Coefficient: M	*ENG	[0.5 to 9.99 / **1.67**/ 0.01 /step]
003	Conversion Coefficient: C	*ENG	[0.5 to 9.99 / **1.45** / 0.01 /step]
004	Conversion Coefficient: Y	*ENG	[0.5 to 9.99 / **1.74** / 0.01 /step]

3232	[Toner Supply Coefficient: Setting] DFU		
001	Vt Proportion: Bk	*ENG	[0 to 2550 / **50** / 1 /step]
002	Vt Proportion: M	*ENG	
003	Vt Proportion: C	*ENG	
004	Vt Proportion: Y	*ENG	
005	Pixel Proportion: Bk	*ENG	[0 to 2.55 / **0.47** / 0.01 /step]
006	Pixel Proportion: M	*ENG	
007	Pixel Proportion: C	*ENG	
008	Pixel Proportion: Y	*ENG	
009	Vt Integral Control: Bk	*ENG	[0 to 2550 / **500** / 1 /step]
010	Vt Integral Control: M	*ENG	
011	Vt Integral Control: C	*ENG	
012	Vt Integral Control: Y	*ENG	
013	Vt Sum Times: Bk	*ENG	[1 to 255 / **20** / 1 time/step]
014	Vt Sum Times: M	*ENG	
015	Vt Sum Times: C	*ENG	

016	Vt Sum Times: Y	*ENG	

3233	[Pixel Proportion Coefficient 2: Setting] DFU		
001	Correction Coefficient: 1	*ENG	[0 to 2.55 / **1** / 0.01 /step]
002	Correction Coefficient: 2	*ENG	[0 to 2.55 / **0.5** / 0.01 /step]
003	Correction Coefficient: 3	*ENG	[0 to 2.55 / **0** / 0.01 /step]
004	Correction Coefficient: 4	*ENG	[0 to 2.55 / **0.25** / 0.01 /step]
005	Correction Coefficient: 5	*ENG	[0 to 2.55 / **0.5** / 0.01 /step]

3234	[Pixel Proportion Coefficient 3: Setting] DFU		
001	Correction Value 1	*ENG	[-0.1 to 0 / **-0.01** / 0.01 /step]
002	Correction Value 2	*ENG	[0 to 0.1 / **0.01** / 0.01 /step]

3235	[Toner Supply Coefficient: Display] DFU		
001	Pixel Proportion 2: Bk	*ENG	[0 to 2.55 / **1** / 0.01 /step]
002	Pixel Proportion 2: M	*ENG	
003	Pixel Proportion 2: C	*ENG	
004	Pixel Proportion 2: Y	*ENG	
005	Pixel Proportion 3: Bk	*ENG	[0.7 to 1.3 / **1** / 0.01 /step]
006	Pixel Proportion 3: M	*ENG	
007	Pixel Proportion 3: C	*ENG	
008	Pixel Proportion 3: Y	*ENG	
009	Vt Integral Value: Bk	*ENG	[-255 to 255 / **0** / 0.01 /step]
010	Vt Integral Value: M	*ENG	
011	Vt Integral Value: C	*ENG	
012	Vt Integral Value: Y	*ENG	

3236	[Toner Supply Consumption: Display] DFU		
	Displays the toner amount of the latest toner supply for each color.		
001	Latest: Bk	*ENG	[0 to 40000 / **0** / 0.1 mg/step]
002	Latest: M	*ENG	
003	Latest: C	*ENG	
004	Latest: Y	*ENG	

3237	[Developer Mixing Setting]		
	Displays the toner amount of the latest toner supply for each color. **DFU**		
001	Mixing Time	*ENG	[0 to 200 / **5** / 1 sec/step]

3238	[Vt Target: Setting]		
	Displays the Vt target value at developer initialization. **DFU**		
001	Bk	*ENG	[0 to 5 / **2.7** / 0.01 V/step]
002	M	*ENG	
003	C	*ENG	
004	Y	*ENG	

3239	[Vtref Correction: Setting]		
	Adjusts the parameter for Vtref correction at the process control.		
001	(+)Consumption: Bk	*ENG	[0 to 1 / **0.1** / 0.01 V/step]
002	(+)Consumption: M	*ENG	
003	(+)Consumption: C	*ENG	
004	(+)Consumption: Y	*ENG	
005	(-)Consumption: Bk	*ENG	
006	(-)Consumption: M	*ENG	
007	(-)Consumption: C	*ENG	

008	(-)Consumption: Y	*ENG	
009-012	Threshold for development gamma rank.		
009	P Rank 1 Threshold	*ENG	[0 to 2 / **0.2** / 0.1 /step]
010	P Rank 2 Threshold	*ENG	[0 to 2 / **0.1** / 0.1 /step]
011	P Rank 3 Threshold	*ENG	[-2 to 0 / **-0.1** / 0.1 /step]
012	P Rank 4 Threshold	*ENG	[-2 to 0 / **-0.2** / 0.1 /step]
013-014	Threshold for image density rank on the image transfer belt.		
013	T Rank 1 Threshold	*ENG	[-1 to 0 / **-0.2** / 0.01 V/step]
014	T Rank 2 Threshold	*ENG	[0 to 1 / **0.2** / 0.01 V/step]

3241	[Background Potential Setting]		
001	Coefficient: Bk	*ENG	These are parameters for calculating the charge bias referring to the development bias at process control. [-1000 to 1000 / **0** / 1 /step] DC charge bias = Development bias x (1 + 0.001 x these vales) + SP3-241-005 to -008
002	Coefficient: M	*ENG	
003	Coefficient: C	*ENG	
004	Coefficient: Y	*ENG	
005	Offset: Bk	*ENG	These are additional values for calculating the charge bias referring to the development bias at process control. [0 to 255 / **140** / 1 V/step] DC charge bias = Development bias x (1 + 0.001 x SP3-241-001 to -004) + these values
006	Offset: M	*ENG	
007	Offset: C	*ENG	
008	Offset: Y	*ENG	

3242	[LD Power Setting]		
	Adjusts the coefficient for LD power control value at the process control.		
001	Coefficient: Bk	*ENG	[-1000 to 1000 / **75** / 1 /step]
002	Coefficient: M	*ENG	
003	Coefficient: C	*ENG	

004	Coefficient: Y	*ENG	
005	Offset: Bk	*ENG	[-1000 to 1000 / **65** / 1 /step]
006	Offset: M	*ENG	
007	Offset: C	*ENG	
008	Offset: Y	*ENG	

3251	**[Coverage]**		
	These (-001 to -016) are coefficients for SP3-222-009 to -012.		
001	Latest Pixel: Bk	*ENG	Displays the latest coverage for each color. [0 to 9999 / **0** / 1 cm^2/step]
002	Latest Pixel: M	*ENG	
003	Latest Pixel: C	*ENG	
004	Latest Pixel: Y	*ENG	
005-008	Displays the average coverage of each color for the Vtref correction. "Average S" is defined when the number of developed pages does not reach the number specified with SP3251-017.		
005	Average S: Bk	*ENG	[0 to 100 / **5** / 0.01 %/step]
006	Average S: M	*ENG	
007	Average S: C	*ENG	
008	Average S: Y	*ENG	
009-012	Displays the average coverage of each color for the Vtref correction. "Average M" is defined when the number of developed pages does not reach the number specified with SP3251-018.		
009	Average M: Bk	*ENG	[0 to 100 / **5** / 0.01 %/step]
010	Average M: M	*ENG	
011	Average M: C	*ENG	
012	Average M: Y	*ENG	
013-016	Displays the average coverage of each color for the Vtref correction.		

	"Average L" is defined when the number of developed pages does not reach the number specified with SP3-251-019.		
013	Average L: Bk	*ENG	[0 to 100 / **5** / 0.01 %/step]
014	Average L: M	*ENG	
015	Average L: C	*ENG	
016	Average L: Y	*ENG	
017-019	Adjusts the threshold for SP3-251-005 to -016.		
017	Total Page Setting: S	*ENG	[1 to 100 / **10** / 1 sheet/step]
018	Total Page Setting: M	*ENG	[1 to 500 / **10** / 1 sheet/step]
019	Total Page Setting: L	*ENG	[1 to 999 / **50** / 1 sheet/step]
024-027	Displays the latest coverage ratio for each color.		
024	Latest Coverage: Bk	*ENG	[0 to 100 / - / 0.01 %/step]
025	Latest Coverage: M	*ENG	
026	Latest Coverage: C	*ENG	
027	Latest Coverage: Y	*ENG	

3311	**[ID Sensor Detection Value: Vofset]**		
	Displays the ID sensor (regular) offset voltage for Vsg adjustments.		
001	Voffset reg: Bk	*ENG	[0 to 5.5 / - / 0.01 V/step]
002	Voffset reg: M	*ENG	
003	Voffset reg: C	*ENG	
004	Voffset reg: Y	*ENG	
005-007	Displays the ID sensor (diffusion) offset voltage for Vsg adjustments.		
005	Voffset dif: M	*ENG	[0 to 5.5 / - / 0.01 V/step]
006	Voffset dif: C	*ENG	

007	Voffset dif: Y	*ENG	
008-010	Displays the ID sensor offset voltage for Vsg adjustments.		
008	Voffset TM (Front)	*ENG	[0 to 5.5 / - / 0.01 V/step]
009	Voffset TM (Center)	*ENG	
010	Voffset TM (Rear)	*ENG	

3313	[ID Sensor Detection Value: Vsgave]		
	Not used		
001	Vsgave reg: Bk	*ENG	[0 to 5.5 / - / 0.01 V/step]
002	Vsgave reg: M	*ENG	
003	Vsgave reg: C	*ENG	
004	Vsgave reg: Y	*ENG	
005-007	Not used		
005	Vsgave dif: M	*ENG	[0 to 5.5 / - / 0.01 V/step]
006	Vsgave dif: C	*ENG	
007	Vsgave dif: Y	*ENG	
008-010	Not used		
008	Vsgave TM (Front)	*ENG	[0 to 5.5 / - / 0.01 V/step]
009	Vsgave TM (Center)	*ENG	
010	Vsgave TM (Rear)	*ENG	

3321	[Vsg Adjustment: Execution]		
010	P/TM Sensor All	-	Execute the ID sensor initialization setting for all sensors

3322	[Vsg Adjustment Result: Vsg]

	Displays the result value of the Vsg adjustment for each sensor.		
001	Vsg reg: Bk	*ENG	[0 to 5.5 / - / 0.01 V/step]
002	Vsg reg: M	*ENG	
003	Vsg reg: C	*ENG	
004	Vsg reg: Y	*ENG	
005	Vsg dif: M	*ENG	[0 to 5.5 / - / 0.01 V/step]
006	Vsg dif: C	*ENG	
007	Vsg dif: Y	*ENG	
008	Vsg TM (Front)	*ENG	[0 to 5.5 / - / 0.01 V/step]
009	Vsg TM (Center)	*ENG	
010	Vsg TM (Rear)	*ENG	

3323	[Vsg Adjustment Result: Ifsg] DFU		
001	Ifsg: Bk	*ENG	[0 to 50 / - / 0.1 mA/step]
002	Ifsg: M	*ENG	
003	Ifsg: C	*ENG	
004	Ifsg: Y	*ENG	
005	Ifsg TM (Front)	*ENG	[0 to 50 / - / 0.1 mA/step]
006	Ifsg TM (Center)	*ENG	
007	Ifsg TM (Rear)	*ENG	

3324	[Vsg Adjustment: Set] DFU		
002	Vofset Error Counter	*ENG	[0 to 99 / - / 0.1 time/step]
003	Vofset Error Counter	*ENG	
004	Vofset Threshold	*ENG	[0 to 5 / **1** / 0.01 V/step]
005	Vsg Upper Threshold	*ENG	[0 to 5 / **4.5** / 0.01 V/step]
006	Vsg Lower Threshold	*ENG	[0 to 5 / **3.5** / 0.01 V/step]

3325	[Vsg Adjustment Result]		
	Displays the result of the Vsg adjustment. The displayed numbers mean the result of each sensor (sensor for Front, sensor for Bk, sensor for Cyan, sensor for Center, sensor for Magenta, sensor for Yellow and sensor for Rear).		
001	Latest	*ENG	[1111111 to 9999999 / **9999999** / 1 / step] 9: Unexpected error 3: Offset voltage error 2: Vsg adjustment value error 1: O.K
002	Latest 1	*ENG	
003	Latest 2	*ENG	
004	Latest 3	*ENG	
005	Latest 4	*ENG	
006	Latest 5	*ENG	
007	Latest 6	*ENG	
008	Latest 7	*ENG	
009	Latest 8	*ENG	
010	Latest 9	*ENG	

3361	[ID Sensor Sensitivity: Display] Not Used		
001	K2K (Latest)	*ENG	[0 to 5 / - / 0.0001 /step]
002	K5K (Latest)	*ENG	
003	K2M (Latest)	*ENG	
004	K5M (Latest)	*ENG	
005	K2C (Latest)	*ENG	
006	K5C (Latest)	*ENG	
007	K2Y (Latest)	*ENG	
008	K5Y (Latest)	*ENG	

3362	[ID Sensor Sensitivity: Setting] DFU		
001	K2: Upper	*ENG	[0 to 1 / **0.32** / 0.01 /step]

002	K2: Lower	*ENG	[0 to 1 / **0.22** / 0.01 /step]
003	K5: Upper	*ENG	[0 to 10 / **5** / 0.01 /step]
004	K5: Lower	*ENG	[0 to 10 / **0.5** / 0.01 /step]
005	Kn: Lower	*ENG	[0 to 1 / **0.1** / 0.01 /step]
006	Kn: Upper	*ENG	[0 to 1 / **1** / 0.01 /step]
007	K5 Edit Point	*ENG	[0 to 1 / **0.15** / 0.01 /step]
008	K5 Target Voltage	*ENG	[0 to 5 / **1.63** / 0.01 V/step]
009	K5 Approximate Method	*ENG	[0 to 1 / **1** / 1 /step] 0:Linear, 1: Curve
010	K2: Upper/Lower Limit Coefficient 1	*ENG	[0 to 1 / **0** / 0.01 /step]
011	K2: Upper Limit Correction	*ENG	[–0.2 to 0.4 / **0.07** / 0.01 /step]
012	K2: Lower Limit Correction	*ENG	[–0.2 to 0.4 / **–0.07** / 0.01 /step]
013	Diffusion Correction: M	*ENG	[0.75 to 1.35 / **1** / 0.01 /step]
014	Diffusion Correction: C	*ENG	
015	Diffusion Correction: Y	*ENG	
016	K2: Check: M	*ENG	[0 to 1 / **0.25** / 0.001 /step]
017	K2: Check: C	*ENG	
018	K2: Check: Y	*ENG	

3363	[ID Pattern Timing Setting] DFU		
001	Scan YCMBk	*ENG	Adjusts the detection timing for the process control pattern. [-500 to 500 / **13.7** / 1 mm/step]
002	Paper Transfer Release Start Time	*ENG	Adjusts the timing when the paper transfer unit is kept away from the image transfer belt. [0 to 2500 / **0** / 1 msec/step]

003	Delay Time	*ENG	Adjusts the processing timing for the process control pattern. [0 to 2500 / **880** / 1 msec/step]
004	MUSIC Delay Time	*ENG	Adjusts the processing timing for the pattern that is used for the line position adjustment. [-2500 to 2500 / **300** / 1 msec/step]

3371	[M/A Calculation] DFU		
001	Correction Coefficient: Bk	*ENG	[0.5 to 2.0 / **1.04** / 0.01 /step]
002	Correction Coefficient: M	*ENG	[0.5 to 2.0 / **0.98** / 0.01 /step]
003	Correction Coefficient: C	*ENG	[0.5 to 2.0 / **1.11** / 0.01 /step]
004	Correction Coefficient: Y	*ENG	[0.5 to 2.0 / **0.91** / 0.01 /step]

3401	[Fixed Supply Mode]		
	Adjusts the toner supply rate in the fixed toner supply mode.		
001	Fixed Rate: Bk	*ENG	[0 to 100 / **5** / 1 %/step] These SPs are used only when SP3-044 is set to "1".
002	Fixed Rate: M	*ENG	
003	Fixed Rate: C	*ENG	
004	Fixed Rate: Y	*ENG	

3411	[Toner Supply Rate: Display]		
	Displays the current toner supply rate.		
001	Latest: Bk	*ENG	[0 to 100 / - / 1 %/step]
002	Latest: M	*ENG	
003	Latest: C	*ENG	
004	Latest: Y	*ENG	

3421	[Toner Supply Range]		
001	Upper Limit: Bk	*ENG	Adjusts the toner supply rate during printing.

002	Upper Limit: M	*ENG	[0 to 100 / **100** / 1%/step]
003	Upper Limit: C	*ENG	
004	Upper Limit: Y	*ENG	
005	Minimum Supply Time: Bk	*ENG	Adjusts the minimum toner supply time. [0 to 1000 / **0** / 1 msec/step]
006	Minimum Supply Time: M	*ENG	
007	Minimum Supply Time: C	*ENG	
008	Minimum Supply Time: Y	*ENG	

3451	[Toner Supply Carry Over: Display] DFU		
001	Bk	*ENG	[0 to 10000 / **0** / 1 msec/step]
002	M	*ENG	
003	C	*ENG	
004	Y	*ENG	

3452	[Toner Supply Carry Over: Setting] DFU		
001	Maximum: Bk	*ENG	[0 to 10000 / **1000** / 1 msec/step]
002	Maximum: M	*ENG	
003	Maximum: C	*ENG	
004	Maximum: Y	*ENG	

3501	[Process Control Target M/A]		
	Adjusts the target M/A.		
001	Maximum M/A: Bk	*ENG	[0 to 1 / **0.42** / 0.001 mg/cm^2/step]
002	Maximum M/A: M	*ENG	
003	Maximum M/A: C	*ENG	
004	Maximum M/A: Y	*ENG	[0 to 1 / **0.43** / 0.001 mg/cm^2/step]

3510	[Image Quality Adj. Counter: Display]		
	Displays the total page counter for each adjustment mode.		
001	Potential Control: BW	*ENG	[0 to 2000 / **0** / 1 page/step]
002	Potential Control: FC	*ENG	
003	Power ON: BW	*ENG	
004	Power ON: FC	*ENG	
005	MUSIC: BW	*ENG	
006	MUSIC: FC	*ENG	
007	Vsg Adj.	*ENG	
008	Charge AC Control	*ENG	

3511	[Execution Interval: Setting]		
	Adjusts the threshold for each adjustment mode.		
001	Job End: Potential Control: BW	*ENG	[0 to 2000 / **250** / 1 page/step]
002	Job End: Potential Control: FC	*ENG	[0 to 2000 / **100** / 1 page/step]
003	Interrupt: Potential Control: BW	*ENG	[0 to 2000 / **500** / 1 page/step]
004	Interrupt: Potential Control: FC	*ENG	[0 to 2000 / **200** / 1 page/step]
005	Initial: Potential Control: BW	*ENG	[0 to 2000 / **200** / 1 page/step]
006	Initial: Potential Control: FC	*ENG	[0 to 2000 / **100** / 1 page/step]
007	Vsg Adj. Counter	*ENG	[0 to 2000 / **500** / 1 page/step]
008	Charge AC Control Counter	*ENG	[0 to 2000 / **500** / 1 page/step]
019	Environmental Correction	*ENG	[0 or 1 / **1** / 1 /step] 0: Not Correct (OFF), 1: Correct (ON)
020	Gamma Correction	*ENG	[0 or 1 / **1** / 1 /step] 0: Not Correct (OFF), 1: Correct (ON)
021	Non-use Time Correction	*ENG	[0 or 1 / **1** / 1 /step] 0: Not Correct (OFF), 1: Correct (ON)

022	Correction Coefficient 1: JE: BW	*ENG	[0 to 1 / **0.2** / 0.01 page/step]
023	Correction Coefficient 2: JE: BW	*ENG	[0 to 1 / **1** / 0.01/step]
024	Correction Coefficient 1: JE: FC	*ENG	[0 to 1 / **0.5** / 0.01/step]
025	Correction Coefficient 2: JE: FC	*ENG	[0 to 1 / **1** / 0.01/step]
026	Correction Coefficient 1: Interrupt: BW	*ENG	[0 to 1 / **0.1** / 0.01/step]
027	Correction Coefficient 2: Interrupt: BW	*ENG	[0 to 1 / **1** / 0.01/step]
028	Correction Coefficient 1: Interrupt: FC	*ENG	[0 to 1 / **0.25** / 0.01/step]
029	Correction Coefficient 2: Interrupt: FC	*ENG	[0 to 1 / **1** / 0.01/step]
030	Max. Number Correction Threshold	*ENG	[0 to 99 / **2** / 1/step]
031	Max. Number Correction Counter	*ENG	[0 to 255 / **0** / 1/step]

3512	[Image Quality Adj.: Interval]		
	Adjusts the timing for execution of process control and line position adjustment.		
001	During Job	*ENG	[0 to 100 / **30** / 1 page/step]
002	During Stand-by	*ENG	[0 to 100 / **10** / 1 minute/step]

3513	[PCU Motor Stop Time: Bk]		
	Displays the last time that the PCU motors stopped. These are used for process control execution timing.		
001	Year	*ENG	[0 to 99 / **0** / 1/step]
002	Month	*ENG	[1 to 12 / **1** / 1/step]
003	Date	*ENG	[1 to 31 / **1** / 1/step]
004	Hour	*ENG	[0 to 23 / **0** / 1/step]
005	Minute	*ENG	[0 to 59 / **0** / 1/step]

3514	**[Environmental Display: Job End]**		
	Displays the environmental conditions for the last job. These are used for process control execution timing.		
001	Temperature	*ENG	[-1280 to 1270 / **0** / 0.1°C/step]
002	Relative Humidity	*ENG	[0 to 1000 / **-** / 0.1%RH/step]
003	Absolute Humidity	*ENG	[0 to 1000 / **-** / 0.1 g/cm^3/step]

3515	**[Execution Interval: Display]**		
	Displays the current interval for process control execution. When the machine calculates the timing for process control, it uses a number of conditions. These are the results after considering all the conditions.		
001	Job End: Potential Control: BW	*ENG	[0 to 2000 / **–** / 1 page/step]
002	Job End: Potential Control: FC	*ENG	[0 to 2000 / **–** / 1 page/step]
003	Interrupt: Potential Control: BW	*ENG	[0 to 2000 / **–** / 1 page/step]
004	Interrupt: Potential Control: FC	*ENG	[0 to 2000 / **–** / 1 page/step]

3516	**[Refresh Mode] DFU**		
	While making prints with low coverage, the developer is agitated with less toner consumption and the toner carrier attraction tends to increase. This may cause low image density or poor transfer (white dots). To prevent this, the coagulated toner or overcharged toner has to be consumed by performing the refresh mode.		
001	Dev. Motor Rotation: Display: Bk	*ENG	[0 to 1000 / **0** / 1 m/step]
002	Dev. Motor Rotation: Display: M	*ENG	
003	Dev. Motor Rotation: Display: C	*ENG	
004	Dev. Motor Rotation: Display: Y	*ENG	
005	Rotation Threshold	*ENG	[0 to 1000 / **1** / 1 m/step]
006	Pixel Coverage Sum: Bk	*ENG	[0 to 65535 / **0** / 1 cm^2/step]
007	Pixel Coverage Sum: M	*ENG	
008	Pixel Coverage Sum: C	*ENG	

009	Pixel Coverage Sum: Y	*ENG	
010	Required Area: Bk	*ENG	[0 to 65535 / **0** / 1 cm^2/step]
011	Required Area: M	*ENG	
012	Required Area: C	*ENG	
013	Required Area: Y	*ENG	
014	Refresh Threshold: Bk	*ENG	[0 to 255 / **34** / 1 cm^2/m/step]
015	Refresh Threshold: M	*ENG	
016	Refresh Threshold: C	*ENG	
017	Refresh Threshold: Y	*ENG	
018	Pattern Generation Number: Bk	*ENG	[0 to 255 / **0** / 1 time/step]
019	Pattern Generation Number: M	*ENG	
020	Pattern Generation Number: C	*ENG	
021	Pattern Generation Number: Y	*ENG	
022	Pattern Generation Number: Upper limit	*ENG	[0 to 255 / **0** / 1 time/step]
023	Toner Consumption Pattern Area	*ENG	[10 to 2550 / **320** / 10 cm^2/step]
024	Supply Coefficient	*ENG	[0 to 2.55 / **1** / 0.01/step]
025	Job End Area Coefficient	*ENG	[0.1 to 25.5 / **1** / 0.1/step]
026	Job End Vb Coefficient	*ENG	[0 to 100 / **40** / 1%/step]
027	Job End Length	*ENG	[0 to 56 / **25** / 1mm/step]
028	Job End Supply	*ENG	[0 to 1 / 0.45 / 0.001 mg/cm^2/ step]

3517	**[Blade damage prevention mode]**		
	Adjusts the threshold temperature for preventing the cleaning blade at the drum unit from being damaged. If the temperature is above this value, the drum reverses briefly at the end of the job to prevent the blade from flipping over.		
001	Execution Temp. Threshold	*ENG	[0 to 50/ **40** / 1°C/step]

3518	[Image Quality Adj. Execution Flag] DFU		
001	Toner End Recovery: Bk	*ENG	[0 or 1 / **0** / 1/step] 0: OFF. 1: ON
002	Toner End Recovery: M	*ENG	
003	Toner End Recovery: C	*ENG	
004	Toner End Recovery: Y	*ENG	
005	Vsg Adj.	*ENG	[0 or 1 / **0** / 1/step] 0: OFF. 1: ON
006	Developer Mixing	*ENG	[0 or 1 / **0** / 1/step] 0: OFF. 1: ON
007	Process Control	*ENG	[0 or 1 / **0** / 1/step] 0: OFF. 1: ON
008	MUSIC	*ENG	[0 to 2 / **0** / 1/step] 0: OFF. 1: ON (once), 2: ON (twice)
009	Drum Phase Adj.	*ENG	[0 or 1 / **0** / 1/step] 0: OFF. 1: ON
010	Charge AC Control	*ENG	[0 or 1 / **0** / 1/step] 0: OFF. 1: ON
011	Blade Damage Prevention	*ENG	[0 or 1 / **0** / 1/step] 0: OFF. 1: ON

3519	[Toner End Prohibition Setting]		
	Enables or disables each adjustment at toner near end.		
001	Process Control	*ENG	[0 or 1 / **1** / 1/step] 0: Permit (adjustment is done even toner near end condition) 1: Forbid (adjustment is not done at toner near end condition)
002	MUSIC	*ENG	
003	TC Adj.	*ENG	

3522	[Initial Process Control Setting]

	Adjusts the threshold for the process control at power on. When the current condition has changed by more than the values of these SPs when compared with the conditions at the previous operation, the process control at power on is executed.		
002	Non-use Time Setting	*ENG	[0 to 1440 / **360** / 1 minute/step]
003	Temperature Range	*ENG	[0 to 99 / **10** / 1°C/step]
004	Relative Humidity Range	*ENG	[0 to 99 / **50** / 1 %RH/step]
005	Absolute Humidity Range	*ENG	[0 to 99 / **6** / 1 g/m^3/step]

3531	**[Non-use Time Process Control Setting]**		
	Adjusts the threshold for the process control at stand-by. When the current condition has changed by more than the values of these SPs when compared with the conditions at the previous operation, the process control at stand-by is executed.		
001	Non-use Time Setting	*ENG	[0 to 1440 / **360** / 1 minute/step]
002	Temperature Range	*ENG	[0 to 99 / **10** / 1°C/step]
003	Relative Humidity Range	*ENG	[0 to 99 / **50** / 1 %RH/step]
004	Absolute Humidity Range	*ENG	[0 to 99 / **6** / 1 g/m^3/step]
005	Maximum Execution Number	*ENG	Adjusts the maximum execution time for the process control at stand-by. [0 to 99 / **10** / 1 time/step]

3611	**[Development Gamma: Display/Set]**		
001	Bk (Current)	*ENG	Displays the current development gamma for each color. [0 to 5 / - / 0.01 mg/cm^2/kV /step]
002	M (Current)	*ENG	
003	C (Current)	*ENG	
004	Y (Current)	*ENG	
005	Bk (Target Display)	*ENG	Displays the target development gamma for each color. [0 to 5 / **0.85** / 0.01 mg/cm^2/kV /step]
006	M (Target Display)	*ENG	

007	C (Target Display)	*ENG	[0 to 5 / **0.8** / 0.01 mg/cm^2/kV /step]
008	Y (Target Display)	*ENG	[0 to 5 / **0.77** / 0.01 mg/cm^2/kV /step]
009	Bk (Standard Target Set)	*ENG	Displays the standard target development gamma for each color. [0 to 5 / **0.9** / 0.01 mg/cm^2/kV /step]
010	M (Standard Target Set)	*ENG	[0 to 5 / **0.8** / 0.01 mg/cm^2/kV /step]
011	C (Standard Target Set)	*ENG	
012	Y (Standard Target Set)	*ENG	
013	Environmental Correction	*ENG	Turns on or off the environmental correction for target development gamma. [0 or 1 / **1** / -] 0: Not Correct, 1: Correct

3612	**[Vk Display]** Displays Vk for each color.		
001	Bk	*ENG	[-300 to 300 / - / 1 V/step]
002	M	*ENG	
003	C	*ENG	
004	Y	*ENG	

3621	**[Development DC Control: Display]** Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 2 & FINE: 77 mm/sec Displays the development DC bias adjusted with the process control for each line speed and color.		
001	Plain: Bk	*ENG	[0 to 700 / **550** / 1 -V/step]
002	Plain: M	*ENG	
003	Plain: C	*ENG	
004	Plain: Y	*ENG	
009	Thick 2 & FINE: Bk	*ENG	[0 to 700 / **550** / 1 -V/step]

010	Thick 2 & FINE: M	*ENG	
011	Thick 2 & FINE: C	*ENG	
012	Thick 2 & FINE: Y	*ENG	

3631	[Charge DC Control: Display] Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 2 & FINE: 77 mm/sec		
	Displays the charge DC voltage adjusted with the process control for each line speed and color.		
001	Plain: Bk	*ENG	[0 to 2000 / **690** / 1 -V/step]
002	Plain: M	*ENG	
003	Plain: C	*ENG	
004	Plain: Y	*ENG	
009	Thick 2 & FINE: Bk	*ENG	[0 to 2000 / **690** / 1 -V/step]
010	Thick 2 & FINE: M	*ENG	
011	Thick 2 & FINE: C	*ENG	
012	Thick 2 & FINE: Y	*ENG	

3641	[Charge AC Control: Display] Plain: 154 (C1c)/205 (C1d) mm/sec		
	Displays the charge AC voltage adjusted with the process control for each color.		
001	Plain: Bk	*ENG	[0 to 3 / **1.75** / 0.01 kV/step]
002	Plain: M	*ENG	
003	Plain: C	*ENG	
004	Plain: Y	*ENG	

3651	[LD Power Control: Display] Plain: 154 (C1c)/205 (C1d) mm/sec, Thick 2 & FINE: 77 mm/sec
	Displays the LD power adjusted for each environment.

001	Plain: Bk	*ENG	[0 to 200 / **100** / 1 %/step]
002	Plain: M	*ENG	
003	Plain: C	*ENG	
004	Plain: Y	*ENG	
005	Thick 1: Bk	*ENG	[0 to 200 / **100** / 1 %/step]
006	Thick 1: M	*ENG	
007	Thick 1: C	*ENG	
008	Thick 1: Y	*ENG	
009	Thick 2 & FINE: Bk	*ENG	[0 to 200 / **100** / 1 %/step]
010	Thick 2 & FINE: M	*ENG	
011	Thick 2 & FINE: C	*ENG	
012	Thick 2 & FINE: Y	*ENG	

3710	**[HST Concentration Control: Set]** TD Sensor: Toner Concentration Control Setting		
	Selects the toner concentration control method by HST memory, which is in the TD sensor.		
001	Control Method: Selection	*ENG	[0 or 1 / **1** / -] 0: Not Use, 1: Use

3711	**[HST Concentration Control: Bk]**		
	Displays the factory settings of the black PCU.		
001	Vcnt	*ENG	[0 to 5 / **4** / 0.1 V/step]
002	Vt	*ENG	[0 to 5 / **2.5** / 0.1 V/step]
003	Sensitivity: HL	*ENG	[0 to 5 / **2.5** / 0.1 V/step]
004	Sensitivity: HM	*ENG	[0 to 5 / **1.3** / 0.1 V/step]
005	Sensitivity: ML	*ENG	[0 to 5 / **1.2** / 0.1 V/step]
006	Set Detection	*ENG	[0 to 5 / **1** / 0.1 V/step]

007	Without Developer	*ENG	[0 to 5 / **1.2** / 0.1 V/step]
008	With Developer	*ENG	[0 to 5 / **1.3** / 0.1 V/step]
009	Serial Number 1	*ENG	[0 to 255 / - / 1 V/step]
010	Serial Number 2	*ENG	
011	Adjustment: Vt	*ENG	[0 to 5 / **3** / 0.1 V/step]
012	Adjustment: Vtref	*ENG	[0 to 5 / **3** / 0.1 V/step]
013	Adjustment: Vtcnt	*ENG	[0 to 5 / **4** / 0.01 V/step]
014	Adjustment: Gamma	*ENG	[0 to 2.55 / **0** / 0.01 mg/cm^2/kV /step]
015	Adjustment: Vcnt Result	*ENG	[0 to 9 / **9** / 1 /step]

3712	[HST Concentration Control: M]		
	Displays the factory settings of the magenta PCU.		
001	Vcnt	*ENG	[0 to 5 / **4** / 0.1 V/step]
002	Vt	*ENG	[0 to 5 / **2.5** / 0.1 V/step]
003	Sensitivity: HL	*ENG	[0 to 5 / **2.5** / 0.1 V/step]
004	Sensitivity: HM	*ENG	[0 to 5 / **1.3** / 0.1 V/step]
005	Sensitivity: ML	*ENG	[0 to 5 / **1.2** / 0.1 V/step]
006	Set Detection	*ENG	[0 to 5 / **1** / 0.1 V/step]
007	Without Developer	*ENG	[0 to 5 / **1.2** / 0.1 V/step]
008	With Developer	*ENG	[0 to 5 / **1.3** / 0.1 V/step]
009	Serial Number 1	*ENG	[0 to 255 / - / 1 V/step]
010	Serial Number 2	*ENG	
011	Adjustment: Vt	*ENG	[0 to 5 / **3** / 0.1 V/step]
012	Adjustment: Vtref	*ENG	[0 to 5 / **3** / 0.1 V/step]
013	Adjustment: Vtcnt	*ENG	[0 to 5 / **4** / 0.01 V/step]
014	Adjustment: Gamma	*ENG	[0 to 2.55 / **0** / 0.01 mg/cm^2/kV /step]

015	Adjustment: Vcnt Result	*ENG	[0 to 9 / **9** / 1 /step]

3713	[HST Concentration Control: C]		
	Displays the factory settings of the cyan PCU.		
001	Vcnt	*ENG	[0 to 5 / **4** / 0.1 V/step]
002	Vt	*ENG	[0 to 5 / **2.5** / 0.1 V/step]
003	Sensitivity: HL	*ENG	[0 to 5 / **2.5** / 0.1 V/step]
004	Sensitivity: HM	*ENG	[0 to 5 / **1.3** / 0.1 V/step]
005	Sensitivity: ML	*ENG	[0 to 5 / **1.2** / 0.1 V/step]
006	Set Detection	*ENG	[0 to 5 / **1** / 0.1 V/step]
007	Without Developer	*ENG	[0 to 5 / **1.2** / 0.1 V/step]
008	With Developer	*ENG	[0 to 5 / **1.3** / 0.1 V/step]
009	Serial Number 1	*ENG	[0 to 255 / **-** / 1 V/step]
010	Serial Number 2	*ENG	
011	Adjustment: Vt	*ENG	[0 to 5 / **3** / 0.1 V/step]
012	Adjustment: Vtref	*ENG	[0 to 5 / **3** / 0.1 V/step]
013	Adjustment: Vtcnt	*ENG	[0 to 5 / **4** / 0.01 V/step]
014	Adjustment: Gamma	*ENG	[0 to 2.55 / **0** / 0.01 mg/cm^2/kV /step]
015	Adjustment: Vcnt Result	*ENG	[0 to 9 / **9** / 1 /step]

3714	[HST Concentration Control: Y]		
	Displays the factory settings of the yellow PCU.		
001	Vcnt	*ENG	[0 to 5 / **4** / 0.1 V/step]
002	Vt	*ENG	[0 to 5 / **2.5** / 0.1 V/step]
003	Sensitivity: HL	*ENG	[0 to 5 / **2.5** / 0.1 V/step]
004	Sensitivity: HM	*ENG	[0 to 5 / **1.3** / 0.1 V/step]
005	Sensitivity: ML	*ENG	[0 to 5 / **1.2** / 0.1 V/step]

006	Set Detection	*ENG	[0 to 5 / **1** / 0.1 V/step]
007	Without Developer	*ENG	[0 to 5 / **1.2** / 0.1 V/step]
008	With Developer	*ENG	[0 to 5 / **1.3** / 0.1 V/step]
009	Serial Number 1	*ENG	[0 to 255 / **-** / 1 V/step]
010	Serial Number 2	*ENG	
011	Adjustment: Vt	*ENG	[0 to 5 / **3** / 0.1 V/step]
012	Adjustment: Vtref	*ENG	[0 to 5 / **3** / 0.1 V/step]
013	Adjustment: Vtcnt	*ENG	[0 to 5 / **4** / 0.01 V/step]
014	Adjustment: Gamma	*ENG	[0 to 2.55 / **0** / 0.01 mg/cm^2/kV /step]
015	Adjustment: Vcnt Result	*ENG	[0 to 9 / **9** / 1 /step]

3800	**[Toner Collection Bottle Full Detection]**		
	Displays/ adjusts the toner collection bottle detection settings. These SPs are used for NRS.		
001	Condition	*CTL	[0 to 4 / **0** / 1 /step]
002	Detection Times	*CTL	[0 to 50 / **-** / 1 /step]
003	Print Page After Near Full	*CTL	[0 to 1000 / **0** / 1 sheet/step]
004	Pixel Count After Near Full	*CTL	[0 to 200000 / **-** / 1 cm^2/step]
005	Pixel Count After Replacement	*CTL	Displays the pixel counter after replacement of toner collection bottle. [0 to 200000 / **-** / 1 cm^2/step]
008	Coefficient	*ENG	[0.5 to 1.5 / **1** / 0.1 /step]
011	Notice Setting	*ENG	Enables or disables the calling for NRS. [0 or 1 / **1** / -] 0: Enable NRS calling 1: Disable NRS calling NOTE: If the toner collection bottle has been replaced before the machine detects used toner near full when this setting is set to "0", the machine can-

			not detect toner collection bottle near full. In that case, set SP3-902-017 to "1".

3900	[Toner Collection Bottle Full Detection]		
	Turns toner collection bottle full detection on or off.		
001	ON/OFF Setting	*ENG	[0 or 1 / **1** / -] 0: OFF, 1: ON

3901	[New PCU Detection]		
	Turns new PCU detection on or off.		
001	ON/OFF Setting	*ENG	[0 or 1 / **1** / -] 0: OFF, 1: ON

3902	[Manual New Unit Set]		
	Turns the new unit detection flag for each PM unit on or off. The use of these counters is explained in the PM section and in the relevant parts of section 3 (Replacement and Adjustment).		
001	Development Unit: Bk	*ENG	[0 or 1 / **0** / -] 0: OFF, 1: ON
002	Development Unit: Y	*ENG	
003	Development Unit: C	*ENG	
004	Development Unit: M	*ENG	
005	Developer: Bk	*ENG	[0 or 1 / **0** / -] 0: OFF, 1: ON
006	Developer: Y	*ENG	
007	Developer: C	*ENG	
008	Developer: M	*ENG	
009	PCU: Bk	*ENG	[0 or 1 / **0** / -] 0: OFF, 1: ON
010	PCU: Y	*ENG	
011	PCU: M	*ENG	
012	PCU: C	*ENG	

013	Image Transfer Unit	*ENG	[0 or 1 / **0** / -] 0: OFF, 1: ON Do not use 3902-013 if you only change the cleaning unit. 3902-015: This is for the image transfer belt cleaning unit.
014	Fusing Unit	*ENG	
015	Cleaning Unit	*ENG	
016	Paper Transfer Unit	*ENG	
017	Toner Collection Bottle	*ENG	

SP4-XXX (Scanner)

4008	**[Sub Scan Magnification Adjustment]**		
	Adjusts the sub-scan magnification by changing the scanner motor speed.		
001	Sub Scan Magnification Adjustment	*CTL	[-1.0 to 1.0 / **0** / 0.1%/step] **FA**

4010	**[Leading Edge Registration Adjustment]**		
	Adjusts the leading edge registration by changing the scanning start timing in the sub-scan direction.		
001		*CTL	[-2.0 to 2.0 / **0** / 0.1 mm/step] **FA**

4011	**[Side-to-Side registration Adjustment]**		
	Adjusts the side-to-side registration by changing the scanning start timing in the main scan direction.		
001	-	*CTL	[-2.5 to 2.5 / **0** / 0.1 mm/step] **FA**

4012	**[Scanner Erase Margin: Scale]** Scanner: Erase Margin: Scale		
	Sets the blank margin at each side for erasing the original shadow caused by the gap between the original and the scale.		
001	Book: Leading Edge	*ENG	[0 to 3.0 / **0** / 0.1 mm/step] **FA**
002	Book: Trailing Edge		
003	Book: Left		

004	Book: Right		
005	ADF: Leading Edge	*ENG	[0 to 3.0 / **0** / 0.1 mm/step] FA
007	ADF: Right		
008	ADF: Left		

4013	[Scanner Free Run]		
	Performs the scanner free run with the exposure lamp on or off in the following mode. Full color mode / Full Size / A3 or DLT		
001	Lamp: ON	-	-
002	Lamp: OFF		

4014	[Scan]		
	Execute the scanner free fun with each mode.		
001	HP Detection Enable	-	Scanner free run with HP sensor check.
002	HP Detection Disable	-	Scanner free run without HP sensor check.

4020	[Dust Check]		
001	Detection: ON/OFF	*ENG	Turns the ADF scan glass dust check on/ off. [0 or 1 / **0** / 1 /step] 0: OFF, 1: ON
002	Dust Detect: Level	*ENG	Selects the detect level. [0 to 8 / **4** / 1 /step] 0: lowest detection level 8: highest detection level
003	Correction Level	*ENG	Selects the level of the sub scan line correction when using the ARDF. [0 to 4 / **0** / 1 /step] 0: Off 1: Weakest 2: Weak

			3: Strong 4: Strongest

4301	[APS Operation Check]		
	Displays a code that represents the original size detected by the original sensors. (See "p.688 "Input Check Table"".)		
001	APS Operation Check	-	-

4303	[APS Min Size (A5/HLT/16K)]		
	Specifies the result of the detection when the outputs from the original sensors are all OFF.		
001	APS Min. Size (A5/HLT/16K)	*ENG	[0 to 2 / 0 / 1 /step] 0: No Original 1: A5-Lengthwise (16K SEF if 4305 is set to 3) 2: A5-Sideways (16K LEF if 4305 is set to 3)

4305	[8K/16K Detection]	*ENG	[0 to 3 / 0 / 1 /step] 0: Normal Detection (the machine detects A4/LT size as A4 or LT, depending on the paper size setting) 1: A4-Sideways LT-Lengthwise 2: LT-Sideways A4-Lengthwise 3: 8K 16K
001	This program enables the machine to automatically recognize the 8K/16K size.		

4400	[Scanner Erase Margin]	*ENG	
	Set the Mask for Original. These SPs set the area to be masked during platen (book) mode scanning.		
001	Book: Leading Edge	[0 to 3.0 / 0 / 0.1 mm/step]	
002	Book: Trailing Edge		
003	Book: Left		
004	Book: Right		

005	ADF: Leading Edge	
007	ADF: Right	
008	ADF: Left	

4417	**[IPU Test Pattern]**		
	Selects the IPU test pattern.		
001	Test Pattern Selection	[0 to 24 / **0** / 1/step] 0: Scanned image 1: Gradation main scan A 2: Gradation main scan B 3: Gradation main scan C 4: Gradation main scan D 5: Gradation sub scan (1) 6: Grid pattern 7: Slant grid pattern 8: Gradation RGBCMYK 9: UCR pattern 10: Color patch 16 (1) 11: Color patch 16 (2) 12: Color patch 64	13: Grid pattern CMYK 14: Color patch CMYK 15: Gray pattern (1) 16: Gray pattern (2) 17: Gray Pattern (3) 18: Shading pattern 19: Thin line pattern 20: Scanned + Grid pattern 21: Scanned + Gray scale 22: Scanned + Color patch 23: Scanned + Slant Grid C 24: Scanned + Slant Grid D

4429	**[ICI Output Selection]**		
	Adjusts the ICI output density level.		
001	-	*ENG	[32 to 255 / **128** / 1 /step] 255: Strongest density

4440	**[Saturation Adjustment]**		
	Adjusts the level of saturation for copying.		
001	Saturation Adj. 1	*ENG	[0 to 5 / **3** / 1 /step] 0: High 1: Lowest

			2: Lower 3: Default 4: Higher 5: Highest

4450	**[Scan Image Path Selection]**	
001	Black Subtraction ON/OFF	[0 or 1 / **1** / -] 0: OFF, 1: ON
	Uses or does not use the black reduction image path.	
002	SH ON/OFF	[0 or 1 / **0** / 1 /step] 0: ON, 1: OFF
	Uses or does not use the shading image path.	

4460	**[Digital AE Set] DFU**		
	Specifies the level of deleting the background in the ADS mode. You can adjust its level for each scanning method (platen, ADF).		
001	Lower Limit	*ENG	[0 to 1024 / **364** / 4 digit/step]
002	Background Level	*ENG	[512 to 1532 / **972** / 1 digit/step]

4501	**[ACC Target Density]**		
	Selects the ACC result.		
001	Copy: Bk: Text	*ENG	[0 to 10 / **5** / 1 /step] 10: Darkest density
002	Copy: M: Text	*ENG	
003	Copy: C: Text	*ENG	
004	Copy: Y: Text	*ENG	
005	Copy: Bk: Photo	*ENG	
006	Copy: M: Photo	*ENG	
007	Copy: C: Photo	*ENG	
008	Copy: Y: Photo	*ENG	

4505	**[ACC Offset: Light]**

	Adjusts the offset correction for light areas of the ACC pattern.		
001	Self Machine: Bk	*ENG	[-128 to 127 / 0 / 1 /step]
002	Self Machine: M	*ENG	
003	Self Machine: C	*ENG	
004	Self Machine: Y	*ENG	
005	Other Machine: Bk	*ENG	Reserved
006	Other Machine: M	*ENG	
007	Other Machine: C	*ENG	
008	Other Machine: Y	*ENG	

4506	**[ACC Offset: Dark]**		
	Adjusts the offset correction for dark areas of the ACC pattern.		
001	Self Machine: Bk	*ENG	[-128 to 127 / 0 / 1 /step]
002	Self Machine: M	*ENG	
003	Self Machine: C	*ENG	
004	Self Machine: Y	*ENG	
005	Other Machine: Bk	*ENG	Reserved
006	Other Machine: M	*ENG	
007	Other Machine: C	*ENG	
008	Other Machine: Y	*ENG	

4540	**[Printer Vector Correction]**		
	This SP corrects the printer coverage of 12 hues (RY, YR, YG, etc. x 4 Colors [R, G, B, Option]) for a total of 48 parameters.		
001-004	RY Phase: Option/R/G/B	*ENG	Specifies the printer vector correction value. [0 to 255 / 0 / 1 /step]
005-008	YR Phase: Option/R/G/B		

009-012	YG Phase: Option/R/G/B		
013-016	GY Phase: Option/R/G/B		
017-020	GC Phase: Option/R/G/B		
021-024	CG Phase: Option/R/G/B		
025-028	CB Phase: Option/R/G/B		
029-032	BC Phase: Option/R/G/B		
033-036	BM Phase: Option/R/G/B		
037-040	MB Phase: Option/R/G/B		
041-044	MR Phase: Option/R/G/B		
045-048	RM Phase: Option/R/G/B		

4550	[Scanner Application: text/Printing] DFU
4551	[Scanner Application: text] DFU
4552	[Scanner Application: text (Drop Out Coor)] DFU
4553	[Scanner Application: text-Photo] DFU
4554	[Scanner Application: Photo] DFU
4565	[Scanner Application: GrayScale] DFU
4570	[Scanner Application: Color: Text-Photo] DFU
4571	[Scanner Application: Color: Glossy Photo] DFU
4572	[Scanner Application: AutoColor] DFU

-005	MTF: 0 (Off), 1-15 (Strong)	*ENG	[0 to 15 / **8** / 1 /step] 0: MTF Off
	Sets the MTF level (Modulation Transfer Function) designed to improve image contrast. Set higher for stronger effect, lower for weaker effect.		
-006	Smoothing: 0 (x1), 1-7 (Strong)	*ENG	[0 to 7 / **4** / 1 /step]
	Use to remove "jaggies" if they appear. Set higher for smoother images.		
-007	Brightness: 1–255	*ENG	[1 to 255 / **128** / 1 /step]
	Set higher for darker, set lower for lighter.		
-008	Contrast: 1–255	*ENG	[1 to 255 / **128** / 1 /step]
	Set higher for more contrast, set lower for less contrast.		
-009	Independent Dot Erase (0), 1-7 (Strong)	*ENG	[0 to 7 / **0** / 1 /step]
	Sets the erasure level of Irregular Dots. Set higher for stronger effect, lower for weaker effect. 0: Not activated		

4580	**[FAX Application: Text/Chart] DFU**		
4581	**[FAX Application: Text] DFU**		
4582	**[FAX Application: Text/Photo] DFU**		
4583	**[FAX Application: Photo] DFU**		
4584	**[FAX Application: Original 1] DFU**		
4585	**[FAX Application: Original 2] DFU**		
-005	MTF: 0 (Off), 1-15 (Strong)	*ENG	[0 to 15 / **8** / 1 /step] 0: MTF Off
	Sets the MTF level (Modulation Transfer Function) designed to improve image contrast. Set higher for stronger effect, lower for weaker effect.		
-006	Smoothing: 0 (x1), 1-7 (Strong)	*ENG	[0 to 7 / **4** / 1 /step]
	Use to remove "jaggies" if they appear. Set higher for smoother images.		

-007	Brightness: 1–255	*ENG	[1 to 255 / **128** / 1 /step]
	Set higher for darker, set lower for lighter.		
-008	Contrast: 1–255	*ENG	[1 to 255 / **128** / 1 /step]
	Set higher for more contrast, set lower for less contrast.		
-009	Independent Dot Erase (0), 1-7 (Strong)	*ENG	[0 to 7 / **0** / 1 /step]
	Selects the contrast level for B/W the Text mode. Sets the erasure level of Irregular Dots. Set higher for stronger effect, lower for weaker effect. 0: Not activated		
-010	Texture Erase: 0	*ENG	[0 to 2 / **0** / 1 /step]
	Sets the erasure level of textures. Set higher for stronger effect, lower for weaker effect. This SP (suffix "-010") only exists in SP4580, 4582 and 4583. 0: Not activated		

4600	**[SBU Version Display]**		
001	-	-	Displays the ID of the SBU.

4602	**[Scanner Memory Access]**		
001	Scanner Memory Access	-	Enables the read and write check for the SBU registers.
002	Address Set	-	Not used
003	Data Set	-	

4603	**[AGC Execution]**		
001	HP Detection Enable	-	Executes the AGC.
002	HP Detection Disable	-	DFU

4604	**[FGATE Open/Close] DFU**

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

4606	**[White Balance Target: R] DFU**		
001	-	*ENG	This value is the target value of red for the white level adjustment. [0 to 1024 / **784** / 1 digit/step]

4607	**[White Balance Target: G] DFU**		
001	-	*ENG	This value is the target value of green for the white level adjustment. [0 to 1024 / **784** / 1 digit/step]

4608	**[White Balance Target: B] DFU**		
001	-	*ENG	This value is the target value of blue for the white level adjustment. [0 to 1024 / **784** / 1 digit/step]

4623	**[Black Level Fine Adj. Display]** RE: Red Even signal, RO: Red Odd signal		
001	Latest: RE Color	-	Displays the black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
002	Latest: RO Color	-	Displays the black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
003	Latest: RE Color	-	Displays the black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed).

004	Latest: RO Color	-	Displays the black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
005	Latest: RE BW	-	Displays the black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]
006	Latest: RO BW	-	Displays the black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
007	Latest: RE BW	-	Displays the black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed).
008	Latest: RO BW	-	Displays the black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4624	**[Black Level Rough Adj. Display]** GE: Green Even signal, GO: Green Odd signal		
001	Latest: GE Color	-	Displays the black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
002	Latest: GO Color	-	Displays the black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).
003	Latest: GE Color	-	Displays the black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed).
004	Latest: GO Color	-	Displays the black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
005	Latest: GE BW	-	Displays the black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed).

			[0 to 255 / **128** / 1 digit/step]
006	Latest: GO BW	-	Displays the black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
007	Latest: GE BW	-	Displays the black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed).
008	Latest: GO BW	-	Displays the black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

4625	**[Black Level Rough Adj. Display]** BE: Blue Even signal, BO: Blue Odd signal		
001	Latest: BE Color	-	Displays the black offset value (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
002	Latest: BO Color	-	Displays the black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
003	Latest: BE Color	-	Displays the black offset value (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed).
004	Latest: BO Color	-	Displays the black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
005	Latest: BE BW	-	Displays the black offset value (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to255 / **128** / 1 digit/step]
006	Latest: BO BW	-	Displays the black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).
007	Latest: BE BW	-	Displays the black offset value (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed).

008	Latest: BO BW	-	Displays the black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).

4628	[Gain Adjustment] Displays the gain value of the amplifiers on the controller for Red.		
001	Latest: RE Color	-	[0 to 255 / 0 / 1 digit/step]
002	Latest: RO Color	-	
003	Latest: RE BW	-	
004	Latest: RO BW	-	

4629	[Gain Adjustment] Displays the gain value of the amplifiers on the controller for Green.		
001	Latest: GE Color	-	[0 to 255 / 0 / 1 digit/step]
002	Latest: GO Color	-	
003	Latest: GE BW	-	
004	Latest: GO BW	-	

4630	[Gain Adjustment] Displays the gain value of the amplifiers on the controller for Blue.		
001	Latest: BE Color	-	[0 to 255 / 0 / 1 digit/step]
002	Latest: BO Color	-	
003	Latest: BE BW	-	
004	Latest: BO BW	-	

4640	**[Black Level Adj. Loop]** Black Level Adjustment Loop Counter Displays the black level adjustment time for each mode. The black level adjustment is done twice. The 1st adjustment decides the reference value for the 2nd adjustment.

001	Adj. 1 Number: Color	-	1st adjustment [0 to 20 / **0** / 1 /step]
002	Adj. 1 Number: BW	-	
003	Adj. 2 Number: Color	-	2nd adjustment [0 to 20 / **0** / 1 /step]
004	Adj. 2 Number: BW	-	

4641	**[White Level Adj. Loop]** White Level Adjustment Loop Counter		
	Displays the white level adjustment time for each mode.		
001	Adj. Number: Color	-	[0 to 20 / **0** / 1 /step]
002	Adj. Number: BW	-	

4646	**[Scan Adj. Time Out Error]**		
	Displays the result of the AGC adjustment. If the AGC adjustment fails, SC141 (B/W mode) or SC142 (Color mode) occurs.		
001	Black Offset Correction 1	-	[0 or 1 / **0** / 1/step] 0: OK, 1: AGC adjustment failure
002	Black Offset Correction 2	-	
003	White Offset Correction	-	

4647	**[Read Hard Error]**		
	Displays the result of the SBU connection check.		
001	Power-ON	-	[0 or 1 / **0** / 1/step] 0: OK, 1: SBU connection check failure If the SBU connection check fails, SC141-001, -002 or -003 occurs.

4654	**[Black Level Fine Adj. Display]** RE: Red Even signal, RO: Red Odd signal		
001	Last Correct Value: RE Color	*ENG	Displays the previous black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / **112** / 1 digit/step]

002	Last Correct Value: RO Color	*ENG	Displays the previous black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
003	Last Correct Value: RE Color	*ENG	Displays the previous black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
004	Last Correct Value: RO Color	*ENG	Displays the previous black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
005	Last Correct Value: RE BW	*ENG	Displays the previous black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / **112** / 1 digit/step]
006	Last Correct Value: RO BW	*ENG	Displays the previous black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
007	Last Correct Value: RE BW	*ENG	Displays the previous black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]
008	Last Correct Value: RO BW	*ENG	Displays the previous black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4655	[Black Level Rough Adj. Display] GE: Green Even signal, GO: Green Odd signal		
001	Last Correct Value: GE Color	*ENG	Displays the previous black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / **112** / 1 digit/step]
002	Last Correct Value: GO Color	*ENG	Displays the previous black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).

003	Last Correct Value: GE Color	*ENG	Displays the previous black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
004	Last Correct Value: GO Color	*ENG	Displays the previous black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
005	Last Correct Value: GE BW	*ENG	Displays the previous black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / **112** / 1 digit/step]
006	Last Correct Value: GO BW	*ENG	Displays the previous black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
007	Last Correct Value: GE BW	*ENG	Displays the previous black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]
008	Last Correct Value: GO BW	*ENG	Displays the previous black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

4656	**[Black Level Rough Adj. Display]** BE: Blue Even signal, BO: Blue Odd signal		
001	Last Correct Value: BE Color	*ENG	Displays the previous black offset value (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / **112** / 1 digit/step]
002	Last Correct Value: BO Color	*ENG	Displays the previous black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
003	Last Correct Value: BE Color	*ENG	Displays the previous black offset value (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]

004	Last Correct Value: BO Color	*ENG	Displays the previous black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
005	Last Correct Value: BE BW	*ENG	Displays the previous black offset value (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / **112** / 1 digit/step]
006	Last Correct Value: BO BW	*ENG	Displays the previous black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).
007	Last Correct Value: BE BW	*ENG	Displays the previous black offset value (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]
008	Last Correct Value: BO BW	*ENG	Displays the previous black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).

4658	**[Gain Adjustment]**		
	Displays the previous gain value of the amplifiers on the controller for Red.		
001	Last Correct Value: RE Color	*ENG	[0 to 255 / **0** / 1 digit/step]
002	Last Correct Value: RO Color	*ENG	
003	Last Correct Value: RE BW	*ENG	
004	Last Correct Value: RO BW	*ENG	

4659	**[Gain Adjustment]**		
	Displays the previous gain value of the amplifiers on the controller for Green.		
001	Last Correct Value: GE Color	*ENG	[0 to 255 / **0** / 1 digit/step]
002	Last Correct Value: GO Color	*ENG	
003	Last Correct Value: GE BW	*ENG	
004	Last Correct Value: GO BW	*ENG	

4660	[Gain Adjustment] Displays the previous gain value of the amplifiers on the controller for Blue.		
001	Last Correct Value: BE Color	*ENG	[0 to 255 / **0** / 1 digit/step]
002	Last Correct Value: BO Color	*ENG	
003	Last Correct Value: BE BW	*ENG	
004	Last Correct Value: BO BW	*ENG	

4661	[Black Level 2 Rough Adj. Display] RE: Red Even signal, RO: Red Odd signal		
001	Last Correct Value: RE Color	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / **112** / 1 digit/step]
002	Last Correct Value: RO Color	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
003	Last Correct Value: RE Color	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
004	Last Correct Value: RO Color	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
005	Last Correct Value: RE BW	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / **112** / 1 digit/step]
006	Last Correct Value: RO BW	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

007	Last Correct Value: RE BW	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]
008	Last Correct Value: RO BW	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4662	**[Black Level 2 Rough Adj. Display]** GE: Green Even signal, GO: Green Odd signal		
001	Last Correct Value: GE Color	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / **112** / 1 digit/step]
002	Last Correct Value: GO Color	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).
003	Last Correct Value: GE Color	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
004	Last Correct Value: GO Color	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
005	Last Correct Value: GE BW	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / **112** / 1 digit/step]
006	Last Correct Value: GO BW	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
007	Last Correct Value: GE BW	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]

008	Last Correct Value: GO BW	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

4663	**[Black Level 2 Rough Adj. Display]** BE: Blue Even signal, BO: Blue Odd signal		
001	Last Correct Value: BE Color	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / **112** / 1 digit/step]
002	Last Correct Value: BO Color	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
003	Last Correct Value: BE Color	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
004	Last Correct Value: BO Color	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
005	Last Correct Value: BE BW	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / **112** / 1 digit/step]
006	Last Correct Value: BO BW	*ENG	Displays the previous 2nd black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).
007	Last Correct Value: BE BW	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]
008	Last Correct Value: BO BW	*ENG	Displays the previous 2nd black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).

4673	[Black Level Rough Adj. Display] RE: Red Even signal, RO: Red Odd signal		
001	Factory Setting: RE Color	*ENG	Displays the factory setting values of the black level adjustment for the even red signal in the CCD circuit board (color printing speed).. [0 to 255 / **112** / 1 digit/step]
002	Factory Setting: RO Color	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
003	Factory Setting: RE Color	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
004	Factory Setting: RO Color	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
005	Factory Setting: RE BW	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / **112** / 1 digit/step]
006	Factory Setting: RO BW	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
007	Factory Setting: RE BW	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]
008	Factory Setting: RO BW	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4674	[Black Level Rough Adj. Display] GE: Green Even signal, GO: Green Odd signal		
001	Factory Setting: GE Color	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / **112** / 1 digit/step]
002	Factory Setting: GO Color	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).
003	Factory Setting: GE Color	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
004	Factory Setting: GO Color	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
005	Factory Setting: GE BW	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / **112** / 1 digit/step]
006	Factory Setting: GO BW	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
007	Factory Setting: GE BW	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]
008	Factory Setting: GO BW	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd green sig-

			nal in the CCD circuit board (black and white printing speed).

4675	**[Black Level Rough Adj. Display]** BE: Blue Even signal, BO: Blue Odd signal		
001	Factory Setting: BE Color	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / **112** / 1 digit/step]
002	Factory Setting: BO Color	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
003	Factory Setting: BE Color	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / **128** / 1 digit/step]
004	Factory Setting: BO Color	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
005	Factory Setting: BE BW	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / **112** / 1 digit/step]
006	Factory Setting: BO BW	*ENG	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).
007	Factory Setting: BE BW	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / **128** / 1 digit/step]

008	Factory Setting: BO BW	*ENG	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).

4677	**[Gain Adjustment]**		
	Displays the factory setting values of the gain adjustment for Red.		
001	Factory Setting: RE Color	*ENG	[0 to 255 / **0** / 1 digit/step]
002	Factory Setting: RO Color	*ENG	
003	Factory Setting: RE BW	*ENG	
004	Factory Setting: RO BW	*ENG	

4678	**[Gain Adjustment]**		
	Displays the factory setting values of the gain adjustment for Green.		
001	Factory Setting: GE Color	*ENG	[0 to 255 / **0** / 1 digit/step]
002	Factory Setting: GO Color	*ENG	
003	Factory Setting: GE BW	*ENG	
004	Factory Setting: GO BW	*ENG	

4679	**[Gain Adjustment]**		
	Displays the factory setting values of the gain adjustment for Blue.		
001	Factory Setting: BE Color	*ENG	[0 to 255 / **0** / 1 digit/step]
002	Factory Setting: BO Color	*ENG	
003	Factory Setting: BE BW	*ENG	
004	Factory Setting: BO BW	*ENG	

4685	**[Gray Balance Set: R] DFU**		
	Adjusts the gray balance of the red signal for each scanning mode.		
001	Book Read	*ENG	[-512 to 511 / **-240** / 1 digit/step]

002	DF Read	*ENG	

4686	**[Gray Balance Set: G] DFU**		
	Adjusts the gray balance of the green signal for each scanning mode.		
001	Book Read	*ENG	[-512 to 511 / **-240** / 1 digit/step]
002	DF Read	*ENG	

4687	**[Gray Balance Set: B] DFU**		
	Adjusts the gray balance of the blue signal for each scanning mode.		
001	Book Read	*ENG	[-512 to 511 / **-240** / 1 digit/step]
002	DF Read	*ENG	

4688	**[DF: Density Adjustment]**		
	Adjusts the white shading parameter when scanning an image with the ARDF. Adjusts the density level if the ID of outputs made in the DF and Platen mode is different.		
001	-	*ENG	[50 to 150 / **100** / 1%/ step]

4690	**[White Level Peak Read]**		
	Displays the peak level of the white level scanning.		
001	RE	-	[0 to 1024 / **0** / 1 digit/step]
002	RO	-	
003	RE: Bk	-	
004	RO: Bk	-	

4691	**[White Level Peak Read]**		
	Displays the peak level of the white level scanning.		
001	GE	-	[0 to 1024 / **0** / 1 digit/step]
002	GO	-	

003	GE: Bk	-	
004	GO: Bk	-	

4692	**[White Level Peak Read]**		
	Displays the peak level of the white level scanning.		
001	BE	-	[0 to 1024 / **0** / 1 digit/step]
002	BO	-	
003	BE: Bk	-	
004	BO: Bk	-	

4693	**[Black Level Peak Read]**		
	Displays the peak level of the black level scanning.		
001	RE	-	[0 to 1024 / **0** / 1 digit/step]
002	RO	-	
003	RE: Bk	-	
004	RO: Bk	-	

4694	**[Black Level Peak Read]**		
	Displays the peak level of the black level scanning.		
001	GE	-	[0 to 1024 / **0** / 1 digit/step]
002	GO	-	
003	GE: Bk	-	
004	GO: Bk	-	

4695	**[Black Level Peak Read]**		
	Displays the peak level of the black level scanning.		
001	BE	-	[0 to 1024 / **0** / 1 digit/step]

002	BO	-	
003	BE: Bk	-	
004	BO: Bk	-	

4802	[DF Shading FreeRun]		
001	Lamp ON	-	Executes the scanner free run of shading movement with exposure lamp on or off. Press "OFF" to stop this free run. Otherwise, the free run lasts.
002	Lamp OFF		

4804	[Home Position]		
001	Lamp ON	-	Executes the scanner HP detection.

4806	[Carriage Save]		
001	Lamp ON	-	Moves the carriage from the scanner home position. Dust may fall through the DF exposure glass. Therefore, do this SP when you transport the machine a long distance.

4902	[ACC Data Display]		
	This SP outputs the final data read at the end of ACC execution. A zero is returned if there was an error reading the data. [0 to 255 / 0 / 1 /step]		
001	R DATA1	*ENG	Photo C Patch Level 1 (8-bit)
002	G DATA1	*ENG	Photo M Patch Level 1 (8-bit)
003	B DATA1	*ENG	Photo Y Patch Level 1 (8-bit)
004	R DATA2	*ENG	Photo C Patch Level 17 (8-bit)
005	G DATA2	*ENG	Photo M Patch Level 17(8-bit)
006	B DATA2	*ENG	Photo Y Patch Level 17 (8-bit)

4904	**[Scanner IPU Board Test]**		
001	Test1	-	Bit0: TAURUS register Bit1: ORION register Bit2: LUPUS register Bit3 to 11: Not used Bit12: Ri20 Bit13 to 15: Not used 0: OK, 1: Error
	Performs a write and read check of the ASICs on the IPU board and displays the result.		
002	Test2	-	Bit0: Image path from SBU to TAURUS Bit1: Image path from TAURUS to ORION Bit2: Image path from ORION to TAURUS Bit3: Image path from TAURUS to LUPUS Bit4 to 11: Not used Bit12: Image path from LUPUS to Ri20 Bit13: Image path from Ri20 to GAVD Bit14 and 15: Not used 0: OK, 1: Error
	Performs an image path check on the IPU board and displays the result.		

4905	**[Dither Selection] DFU**		
	Changes the parameters for error diffusion.		
4905 1	Dither Selection	*ENG	[0 to 255 / **0** / 1 /step] **DFU**

4907	**[SBU Test Pattern Change]**		
4907 1	Test Pattern: R	-	[0 to 255 / **0** / 1 /step] 0: Default (Scanning Image) 1: Grid pattern 2: Gradation main scan 3: Gradation sub scan 4 to 250: Default (Scanning Image)

	Selects the test pattern generated by the controller board.

4918	[Manual Gamma Adj.]		
	Adjusts the offset data of the printer gamma for yellow in Photo mode. See “p.119 " in the Replacement and Adjustment for how to use.		
009	Change	-	Enter the manual gamma adjustment screen (-001 to 008). For details, see the "p.119 "Printer Gamma Correction"" in the section "Replace and Adjustment".

4991	[IPU Image Pass Selection]		
	Selects the image path. Enter the number to be selected using the 10-key pad.		
001	RGB Frame Memory	*ENG	[0 to 14 / **2** / 1 /step]
	0: Scanner input RGB images 1: Scanner I/F RGB images 2: RGB images done by Shading correction (Shading ON, Black offset ON) 3: Shading data 4: Inner pattern data: Gray scale 5: RGB images done by Line skipping correction 6: RGB images done by Digital AE 7: RGB images done by Vertical line correction 8: RGB image done by Scanner gamma correction 9: RGB image done by Filtering correction 10: RGB images done by Full color ADS 11: RGB image done by Color correction		

4993	[High Light Correction]		
001	Sensitivity Selection	*ENG	Selects the Highlight correction level. [0 to 9 / **4** / 1 /step] 0: weakest sensitivity 9: strongest sensitivity

002	Range Selection	*ENG	Selects the range level of Highlight correction. [0 to 9 / **4** / 1 /step] 0: weakest skew correction, 9: strongest skew correction

4994	[Text/Photo Detection Level Adj.]		
	Selects the definition level between Text and Photo for high compression PDF.		
001	PDF Sensitivity Level text/photo	*ENG	[0 to 2 / **1** / 1 /step] 0: Text priority 1: Normal 2: Photo priority

SP5-XXX (Mode)

5024	[mm/inch Display Selection]		
	Display units (mm or inch) for custom paper sizes.		
001	0:mm 1:inch	*CTL	0: mm (Europe/Asia) 1: inch (USA)

5045	[Accounting Counter]		
	Selects the counting method. **NOTE:** The counting method can be changed only once, regardless of whether the counter value is negative or positive.		
001	Counter Method	*CTL	[0 or 1 / **0** / -] 0: Developments 1: Prints

5047	[Paper Display]		
	Turns on or off the printed paper display on the LCD.		
001	-	*CTL	[0 or 1 / **0** / -] 0: OFF, 1: ON

5051	**[Toner Refill Detection Display]**		
	Enables or disables the toner refill detection display.		
5051 1	Toner Refill Detection Display	*CTL	[0 or 1 / **0** / -] Alphanumeric 0: ON 1: OFF

5055	**[Display IP Address]**		
	Display or does not display the IP address on the LCD.		
001	-	*CTL	[0 or 1 / **0** / -] 0: OFF 1: ON

5056	**[Coverage Counter Display]**		
	Display or does not display the coverage counter on the LCD.		
001	-	*CTL	[0 or 1 / **0** / -] 0: Not display, 1: Display

5061	**[Toner Remaining Icon Display]**		
	Display or does not display the remaining toner display icon on the LCD.		
001	-	*CTL	[0 or 1 / **0** / -] 0: Not display, 1: Display

5062	**[Parts PM Display Setting]**		
	Display or does not display the PM part yield on the LCD. **Not used in this model**		
001	-	*CTL	[0 or 1 / **1** / -] 0: ON, 1: OFF

5104	**[A3/DLT Double Count] SSP**
	Specifies whether the counter is double clicked for A3/DLT size prints. When you have to change this SP, ask your supervisor.

5104 1	Double Count	*CTL	[0 to 2 / **0** / 1 /step] 0: NO (Normal count) 1: YES (Double count) 2: YES except By-pass (Normal count for unknown size)

5112	**[Non-Std. Paper Sel.]** Non-Standard Paper Selection
001	Determines whether a non-standard paper size can be input for the universal cassette trays (Tray 2, and Optional paper tray unit trays 1 and 2) [0 or 1/ **0** / -] 0: OFF 1: ON, If "1" is selected, the customer will be able to input a non-standard paper size using the UP mode.

5113	**[Optional Counter Type]**		
001	Default Optional Counter Type	*CTL	This program specifies the counter type. **0: None**, 1: Key card (RK 3, 4) 2: Key card (down), 3: Prepaid card 4: Coin rack, 5: MF key card 8: Key counter + Vendor 9: Bar-code Printer
002	External Optional Counter Type	*CTL	This program specifies the external counter type. **0: None** 1: Expansion Device 1 2: Expansion Device 2 3: Expansion Device 3

5114	**[Optional Counter I/F]**		
001	MF Key Card Extension	*CTL	[**0: Not installed**/ 1: Installed (scanning accounting)]

5118	**[Disable Copying]**	*CTL	[0: Not disabled/ 1: Disabled]

001	This program disables copying.

5120	[Mode Clear Opt. Counter Removal]	*CTL	[**0: Yes (removed)**/ 1: Standby (installed but not used)/ 2: No (not removed)]
001	This program updates the information on the optional counter. When you install or remove an optional counter, check the settings.		

5121	[Counter Up Timing]	*CTL	[**0: Feed**/ 1: Exit]
001	This program specifies when the counter goes up. The settings refer to “paper feed” and “paper exit” respectively.		

5126	[F Size Original Setting]	*ENG	[0 to 2 / **0** / 1 /step] 0: 8 1/2" x 13" (Foolscap) 1: 8 1/4" x 13" (Folio) 2: 8" x 13" (F)
001	Selects F size original setting.		

5127	[APS Mode]	*CTL	[0: Not disabled/ 1: Disabled]
001	This program disables the APS.		

5128	[Code Mode With Key/Card Option]	*CTL	-
001	DFU		

5131	[Paper Size Type Selection]	*ENG	[0: JP (Japan)/ 1: NA / 2: EU]
001	The program selects a paper size system from the following alternatives: the AB system (0), the LT system (1), and the AF system (2).		

5150	[By-Pass Length Setting]	*CTL	[0: OFF/ 1: ON]
001	Determines whether the transfer sheet from the by-pass tray is used or not. Normally the paper length for sub scanning paper from the by-pass tray is limited to 600 mm, but this can be extended with this SP to 1260 mm.		

5162	[App. Switch Method]	*CTL	[0: Soft Key Set/ 1: Hard Key Set]
001	This program specifies the switch that selects an application program.		

5167	[Fax Printing Mode at Optional]		
	Enables or disables the automatic print out without an accounting device. This SP is used when the receiving fax is accounted by an external accounting device.		
001	Fax Printing Mode at Optional Counter Off	*CTL	[0 or 1 / **0** / -] 0: Automatic printing 1: No automatic printing

5169	[CE Login]		
	If you will change the printer bit switches, you must 'log in' to service mode with this SP before you go into the printer SP mode.		
001	CE Login	*CTL	[0 or 1 / **0** / -] 0: Disabled 1: Enabled

5179	[By-pass Size Error Detection]		
	Turns on or off the by-pass tray size error message.		
001	-	*ENG	[0 or 1 / **0** / 1/step] 0: OFF 1: ON (Paper size error message is displayed when the paper jam occurs due to the wrong direction of set paper in by-pass mode.)

5181	[Size Adjust]		
	Adjusts the paper size for each tray.		
001	TRAY 1	*ENG	[0 to 3 / **0 (EU/ASIA), 1 (NA)** / 1 /step] 0: A4 LEF, 1: LT LEF, 2: B5 LEF, 3: A5 LEF
002	TRAY 2: 1	*ENG	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: A4 LEF, 1: LT LEF

003	TRAY 2: 2	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: A3, 1: DLT
004	TRAY 2: 3	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: B4, 1: LG
005	TRAY 2: 4	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: B5 LEF, 1: Exe LEF
006	TRAY 3: 1 (LCT)	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: A4 LEF, 1: LT LEF
007	TRAY 3: 2 (LCT)	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: A3, 1: DLT
008	TRAY 3: 3 (LCT)	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: B4, 1: LG
009	TRAY 3: 4 (LCT)	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: B5 LEF, 1: Exe LEF
010	TRAY 4: 1	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: A4 LEF, 1: LT LEF
011	TRAY 4: 2	*ENG	[0 or 1 / 00 (EU/ASIA), 1 (NA) / -] 0: A3, 1: DLT
012	TRAY 4: 3	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: B4, 1: LG
013	TRAY 4: 4	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: B5 LEF, 1: Exe LEF
014	TRAY 5: 1	*ENG	Not used in this machine.
015	TRAY 5: 2	*ENG	
016	TRAY 5: 3	*ENG	
017	TRAY 5: 4	*ENG	

5186	[RK 4]

	Enables or disables the prevention for RK4 (accounting device) disconnection. If the RK4 is disconnected for 10 seconds when this SP is set to "1 (Enable)", the machine automatically jams a sheet of paper and stops.		
001	-	*ENG	[0 or 1 / **0** / 1/step] 0: Disable 1: Enable

5212	[Page Numbering]	*CTL	
	This program adjusts the position of the second side page numbers. A "– value" moves the page number positions to the left edge. A "+ value" moves the page number positions to the right edge.		
003	Duplex Printout Right/Left Position	[–10 to 10 / **0** / 1 mm/step]	
004	Duplex Printout High/Low Position	[–10 to 10 / **0** / 1 mm/step]	

5302	[Set Time]		
	Adjusts the RTC (real time clock) time setting for the local time zone. Examples: For Japan (+9 GMT), enter 540 (9 hours x 60 min.) DOM: +540 (Tokyo) NA: -300 (New York) EU: + 60 (Paris) CH: +480 (Peking) TW: +480 (Taipei) AS: +480 (Hong Kong)		
002	Time Difference	*CTL #	[-1440 to 1440 / **Area** / 1 min./step]

5307	[Summer Time]		
001	Setting		[0 to 1 / **NA, EU, ASIA** / 1 /step] 0: Disabled 1: Enabled

			NA and EUR: 1, ASIA: 0
	Enables or disables the summer time mode. **Note** • Make sure that both SP5-307-3 and -4 are correctly set. Otherwise, this SP is not activated even if this SP is set to "1".		
003	Rule Set (Start)		
	Specifies the start setting for the summer time mode. There are 8 digits in this SP. For months 1 to 9, the "0" cannot be input in the first digit, so the eight-digit setting for -2 or -3 becomes a seven-digit setting. 1st and 2nd digits: The month. [1 to 12] 3rd digit: The week of the month. [1 to 5] 4th digit: The day of the week. [0 to 6 = Sunday to Saturday] 5th and 6th digits: The hour. [00 to 23] 7th digit: The length of the advanced time. [0 to 9 / 1 hour /step] 8th digit: The length of the advanced time. [0 to 5 / 10 minutes /step] For example: 3500010 (EU default) The timer is advanced by 1 hour at am 0:00 on the 5th Sunday in March • The digits are counted from the left. • Make sure that SP5-307-1 is set to "1".		
004	Rule Set (End)	-	-
	Specifies the end setting for the summer time mode. There are 8 digits in this SP. 1st and 2nd digits: The month. [1 to 12] 3rd digit: The week of the month. [0 to 5] 4th digit: The day of the week. [0 to 7 = Sunday to Saturday] 5th and 6th digits: The hour. [00 to 23] The 7th and 8 digits must be set to "00". • The digits are counted from the left. • Make sure that SP5-307-1 is set to "1".		

5401	[Access Control]
	When installing the SDK application, SAS (VAS) adjusts the following settings. **DFU**

200	SDK1 Unique ID	*CTL	This ID is overwritten by SAS (VAS) when you install or uninstall the SDK application.
201	SDK1 Certification Method	*CTL	[0 to 255 / **0** / 1 /step]
210	SDK2 Unique ID	*CTL	-
211	SDK2 Certification Method	*CTL	[0 to 255 / **0** / 1 /step]
220	SDK3 Unique ID	*CTL	-
221	SDK3 Certification Method	*CTL	[0 to 255 / **0** / 1 /step]

5404	[User Code Counter Clear]		
001	UCodeCtrClr		Clears all counters for users.

5501	[PM Alarm]	*CTL	-
001	PM Alarm Level	[0 to 9999 / **0** / 1 /step] 0: Alarm off 1 to 9999: Alarm goes off when **Value (1 to 9999) x 1000 ≥ PM counter**	
002	Original Count Alarm	[0 or 1 / **1** / –] 0: No alarm sounds 1: Alarm sounds after the number of originals passing through the ARDF ≥ 10,000	

5504	[Jam Alarm]	*CTL	-
001	Sets the alarm to sound for the specified jam level (document misfeeds are not included). [0 to 3 / **3** / 1 /step] 0: Zero (Off) 1: Low (2.5K jams) 2: Medium (3K jams) 3: High (6K jams)		

5505	[Error Alarm]
	Sets the error alarm level.

	The error alarm counter counts "1" when any SC is detected. However, the error alarm counter decreases by "1" when an SC is not detected during a set number of copied sheets (for example, default 1500 sheets). The error alarm occurs when the SC error alarm counter reaches "5".		
001	-	*CTL	[0 to 255 / **50/75 (C1c/C1d)** / 100 copies / step]

5507	**[Supply Alarm]**	*CTL	-
001	Paper Supply Alarm	0: Off, 1: On, **DFU**	
002	Staple Supply Alarm	0: Off, 1: On, **Japan only**	
003	Toner Supply Alarm	0: Off, 1: On, **DFU**	
128	Interval :Others	[250 to 10000 / **1000** / 1 /step] **DFU**	
132	Interval :A3		
133	Interval :A4		
134	Interval :A5		
141	Interval :B4		
142	Interval :B5		
160	Interval :DLT		
164	Interval :LG		
166	Interval :LT		
172	Interval :HLT		

5508*	**[CC Call]**	*CTL	-
001*	Jam Remains	0: Disable, 1: Enable	
	Enables/disables initiating a call for an unattended paper jam.		
002*	Continuous Jams	0: Disable, 1: Enable	
	Enables/disables initiating a call for consecutive paper jams.		
003*	Continuous Door Open	0: Disable, 1: Enable	

	Enables/disables initiating a call when the front door remains open.	
011*	Jam Detection: Time Length	[3 to 30 / **10** / 1 minute /step]
	Sets the time a jam must remain before it becomes an "unattended paper jam". This setting is enabled only when SP5508-004 is set to "1".	
012*	Jam Detection: Continuous Count	[2 to 10 / **5** / 1 /step]
	Sets the number of consecutive paper jams required to initiate a call. This setting is enabled only when SP5508-004 is set to "1".	
013*	Door Open: Time Length	[3 to 30 / **10** / 1 /step]
	Sets the length of time the door remains open before the machine initiates a call. This setting is enabled only when SP5-508-004 is set to "1".	
021*	Jam Operation: Time Length	0: Automatic Call **1**: Audible Warning at Machine
	Determines what happens when a paper jam is left unattended.	
022*	Jam Operation: Continuous Count	0: Automatic Call **1**: Audible Warning at Machine
	Determines what happens when consecutive paper jams occur.	
023*	Door Operation: Time Length	0: OFF, **1**: ON
	Determines what happens if the door remains open (15 min.). Displays a warning if set to ON. Pressing the call button will contact the service center. This setting is available for setting only if SP5508-004 is set to "1".	

5515	**[SC/Alarm Setting]**	*CTL	-
	With NRS (New Remote Service) in use, these SP codes can be set to issue an SC call when an SC error occurs. If this SP is switched off, the SC call is not issued when an SC error occurs.		
001	SC Call	[0 or 1 / **1** / -] 0: Off 1: On	
002	Service Parts Near End Call		
003	Service Parts End Call		
004	User Call		

006	Communication Test Call	[0 or 1 / 1 / -] 0: Off 1: On
007	Machine Information Notice	
008	Alarm Notice	
009	Non Genuine Toner Alarm	
010	Supply Automatic Ordering Call	
011	Supply Management Report Call	
012	Jam/Door Open Call	

5516	[Individual PM Part Alarm Call]	*CTL	-
001	Disable/ Enable Setting	Enables or disables the PM part alarm call. [0 or 1 / 1 / -] 0: Not Send, 1: Send	
002	Alarm Flag	Displays the condition of the PM part alarm call. [0 or 1 / 1 / -] 0: Ready (to send), 1: Already Send	
003	Alarm Flag Clear	Clears the alarm flag (SP5-516-002). Do this SP after servicing for PM parts. So, SP5-516-002 is set to "0".	

5610	[ACC Factory Setting]		
004	Recall	-	-
	Recalls the factory settings.		
005	Overwrite	-	-
	Overwrites the current values onto the factory settings.		
006	Previous Setting	-	-
	Recalls the previous settings.		

5611	[Toner Color in 2C]		
001	B-C	*ENG	[0 to 128 / **100** / 1 /step] 128: Darkest density
	Adjusts the Cyan correction value of the blue signal in two-color mode.		
002	B-M	*ENG	[0 to 128 / **100** / 1 /step] 128: Darkest density
	Adjusts the Magenta correction value of the blue signal in two-color mode.		
003	G-C	*ENG	[0 to 128 / **100** / 1 /step] 128: Darkest density
	Adjusts the Cyan correction value of the blue signal in two-color mode.		
004	G-Y	*ENG	[0 to 128 / **100** / 1 /step] 128: Darkest density
	Adjusts the Yellow correction value of the blue signal in two-color mode.		
005	R-M	*ENG	[0 to 128 / **100** / 1 /step] 128: Darkest density
	Adjusts the Magenta correction value of the blue signal in two-color mode.		
006	R-Y	*ENG	[0 to 128 / **100** / 1 /step] 128: Darkest density
	Adjusts the Yellow correction value of the blue signal in two-color mode.		

5618	[Color Mode Display Selection]		
001	-	*CTL	[0 or 1 / **1** / -] 0: ACS, Colour, Black & White, Two Colour, Single colour 1: ACD, Full Colour, Black & White
	Selects the color selection display on the LCD.		

5801	[Memory Clear] **NOTE**: For more information, see “NOTE 1” following "SP8-xxx" table.

001	All Clear		
	Resets all correction data for process control and all software counters, and returns all modes and adjustments to their default values. Use this SP only after replacing the NVRAM, or after the copier has malfunctioned due to a damaged NVRAM.		
002	Engine	-	-
	Clears the engine settings.		
003	SCS	-	-
	Clears the system settings.		
004	IMH Memory Clr	-	-
	Clears IMH data. **DFU**		
005	MCS	-	-
	Clears MCS data. **DFU**		
006	Copier Application	-	-
	Clears the copy application settings.		
007	Fax Application	-	-
	Clears the fax application settings.		
008	Printer Application	-	-
	Clears the printer application settings.		
009	Scanner Application	-	-
	Clears the scanner application settings.		
010	Web Service/Network Application	-	-
	Delete the netfile application management files and thumbnails, and initializes the job login ID.		
011	NCS	-	-
	Initializes the system default and interface settings (IP address also), SmartDeviceMonitor for		

	Admin, WebStatusMonitor settings, and the TELNET settings.		
012	R-FAX	-	-
	Initializes the job login ID, SmartDeviceMonitor for Admin, job history, and local storage file numbers.		
013	IPU	-	-
	Initializes the IPU settings.		
014	Clear DCS Settings	-	-
	Initializes the DCS (Delivery Control Service) settings.		
015	Clear UCS Settings	-	-
	Initializes the UCS (User Information Control Service) settings.		
016	MIRS Setting	-	-
	Initializes the MIRS (Machine Information Report Service) settings.		
017	CCS	-	-
	Initializes the CCS (Certification and Charge-control Service) settings.		
018	SRM Memory Clr	-	-
	Initializes the SRM (System Resource Manager) settings.		
019	LCS	-	-
	Initializes the LCS (Log Count Service) settings.		
020	WebUapl		-
	Initializes the WebUapl settings.		

5802	**[Free Run]**
	Performs a free run on the copier engine. **Note** • The machine starts free run in the same condition as the sequence of A4/LT, A3 or A4 SEF printing from the 1st or 2nd tray. Therefore, the correct paper should be loaded in the 1st tray or 2nd tray, but paper is not fed. • The main switch has to be turned off and on after using the free run mode for a test.

001	TRAY1: A4LEF: FC	-	-
002	TRAY2: A3: FC	-	
003	TRAY2: A4SEF: FC	-	

5803	[Input Check]	-	See "p.688 "Input Check Table"" in this section.
5804	[Output Check]	-	See "p.698 "Output Check Table"" in this section.

5810	[SC Reset]		
	Resets a type A service call condition. **Note** • Turn the main switch off and on after resetting the SC code.		
001	Fusing SC Reset	-	-

5811	**[Machine Serial]** Machine Serial Number Display		
002	Display	*ENG	Displays the machine serial number.

5812	[Service Tel. No. Setting]		
001	Service	*CTL	-
	Sets the telephone number for a service representative. This number is printed on the Counter List, which can be printed with the user's "Counter" menu. This can be up to 20 characters (both numbers and alphabetic characters can be input).		
002	Facsimile	*CTL	-
	Sets the fax or telephone number for a service representative. This number is printed on the Counter List. This can be up to 20 characters (both numbers and alphabetic characters can be input).		
003	Supply	*CTL	-
	Use this to input the telephone number of your supplier for consumables. Enter the number and press #.		
004	Operation	*CTL	-

	Use this to input the telephone number of your sales agency. Enter the number and press #.

5816	[Remote Service]	*CTL	-
001	I/F Setting		
	Selects the remote service setting. [0 to 2 / **2** / 1 /step] 0: Remote service off 1: CSS remote service on 2: NRS remote service on		
002	CE Call		
	Performs the CE Call at the start or end of the service. [0 or 1 / **0** / 1 /step] 0: Start of the service 1: End of the service **NOTE:** This SP is activated only when SP 5816-001 is set to "2".		
003	Function Flag		
	Enables or disables the remote service function. [0 to 1 / **0** / 1 /step] 0: Disabled 1: Enabled		
006	Device Information Call Display Setting		
	Displays or does not display the device information call content. [0 to 1 / **0** / 1 /step] 0: Not displayed 1: Displayed		
007	SSL Disable		
	Uses or does not use the RCG certification by SSL when calling the RCG. [0 to 1 / **0** / 1 /step] 0: Uses the RCG certification		

	1: Does no use the RCG certification	
008	RCG Connect Timeout	
	Specifies the connect timeout interval when calling the RCG. [1 to 90 / **10** / 1 second /step]	
009	RCG Write Timeout	
	Specifies the write timeout interval when calling the RCG. [1 to 100 / **60** / 1 second /step]	
010	RCG Read Timeout	
	Specifies the read timeout interval when calling the RCG. [1 to 100 / **60** / 1 second /step]	
011	Port 80 Enable	-
	Enables/disables access via port 80 to the SOAP method. [0 or 1 / **0** / –] 0: Disabled 1: Enabled	
021	RCG – C Registed	
	This SP displays the Cumin installation end flag. 0: Installation not completed 1: Installation completed	
022	RCG – C Registed Detail	
	This SP displays the Cumin installation status. 0: Basil not registered 1: Basil registered 2: Device registered	
023	Connect Type (N/M)	
	This SP displays and selects the Cumin connection method. [0 or 1 / **0** / 1 /step 0: Internet connection 1: Dial-up connection	

061	Cert. Expire Timing **DFU**	Proximity of the expiration of the certification.
062	Use Proxy	This SP setting determines if the proxy server is used when the machine communicates with the service center.
063	Proxy Host	This SP sets the address of the proxy server used for communication between Cumin-N and the gateway. Use this SP to set up or display the customer proxy server address. The address is necessary to set up Cumin-N. **Note** • The address display is limited to 128 characters. Characters beyond the 128 character are ignored. • This address is customer information and is not printed in the SMC report.
064	Proxy Port Number	This SP sets the port number of the proxy server used for communication between Cumin-N and the gateway. This setting is necessary to set up Cumin-N. **Note** • This port number is customer information and is not printed in the SMC report.
065	Proxy User Name	This SP sets the HTTP proxy certification user name. **Note** • The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored. • This name is customer information and is not printed in the SMC report.
066	Proxy Password	This SP sets the HTTP proxy certification password. **Note** • The length of the password is limited to 31 characters. Any character beyond the 31st character is ignored. • This name is customer information and is not printed in the SMC report.
067	CERT: Up State	Displays the status of the certification update.

	0	The certification used by Cumin is set correctly.
	1	The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated.
	2	The certification update is completed and the GW URL is being notified of the successful update.
	3	The certification update failed, and the GW URL is being notified of the failed update.
	4	The period of the certification has expired and new request for an update is being sent to the GW URL.
	11	A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection.
	12	The rescue certification setting is completed and the GW URL is being notified of the certification update request.
	13	The notification of the request for certification update has completed successfully, and the system is waiting for the certification update request from the rescue GW URL.
	14	The notification of the certification request has been received from the rescue GW controller, and the certification is being stored.
	15	The certification has been stored, and the GW URL is being notified of the successful completion of this event.
	16	The storing of the certification has failed, and the GW URL is being notified of the failure of this event.
	17	The certification update request has been received from the GW URL, the GW URL was notified of the results of the update after it was completed, but an certification error has been received, and the rescue certification is being recorded.
	18	The rescue certification of No. 17 has been recorded, and the GW URL is being notified of the failure of the certification update.
068	CERT: Error	
	Displays a number code that describes the reason for the request for update of the certification.	
	0	Normal. There is no request for certification update in progress.
	1	Request for certification update in progress. The current certification has expired.

	2	An SSL error notification has been issued. Issued after the certification has expired.
	3	Notification of shift from a common authentication to an individual certification.
	4	Notification of a common certification without ID2.
	5	Notification that no certification was issued.
	6	Notification that GW URL does not exist.
069	CERT: Up ID	The ID of the request for certification.
083	Firmware Up Status	Displays the status of the firmware update.
084	Non-HDD Firm Up	This setting determines if the firmware can be updated, even without the HDD installed. 0: Not allowed update 1: Allowed update
085	Firm Up User Check	This SP setting determines if the operator can confirm the previous version of the firmware before the firmware update execution. If the option to confirm the previous version is selected, a notification is sent to the system manager and the firmware update is done with the firmware files from the URL.
086	Firmware Size	Allows the service technician to confirm the size of the firmware data files during the firmware update execution.
087	CERT: Macro Version	Displays the macro version of the NRS certification.
088	CERT: PAC Version	Displays the PAC version of the NRS certification.
089	CERT: ID2 Code	Displays ID2 for the NRS certification. Spaces are displayed as underscores (_). Asteriskes () indicate that no NRS certification exists.
090	CERT: Subject	Displays the common name of the NRS certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks () indicate that no DESS exists.
091	CERT: Serial Number	Displays serial number for the NRS certification. Asterisks () indicate that no DESS exists.
092	CERT: Issuer	Displays the common name of the issuer of the NRS certification. CN = the following 30 bytes. Asteriskes () indicate that no DESS exists.

093	CERT: Valid Start	Displays the start time of the period for which the current NRS certification is enabled.
094	CERT: Valid End	Displays the end time of the period for which the current NRS certification is enabled.
150	Selection Country	Select from the list the name of the country where Cumin-M is installed in the machine. After selecting the country, you must also set the following SP codes for Cumin-M: • SP5816-153 • SP5816-154 • SP5816-161 0: Japan, 1: USA, 2: Canada, 3: UK, 4: Germany, 5: France, 6: Italy, 7: Netherlands, 8: Belgium, 9: Luxembourg, 10: Spain
151	Line Type Authentication Judgment	Touch [Execute]. Setting this SP classifies the telephone line where Cumin-M is connected as either dial-up or push type, so Cumin-M can automatically distinguish the number that connects to the outside line. • The current progress, success, or failure of this execution can be displayed with SP5816-152. • If the execution succeeded, SP5816-153 will display the result for confirmation and SP5816-154 will display the telephone number for the connection to the outside line.
152	Line Type Judgment Result	Displays a number to show the result of the execution of SP5816 151. Here is a list of what the numbers mean. 0: Success 1: In progress (no result yet). Please wait. 2: Line abnormal 3: Cannot detect dial tone automatically 4: Line is disconnected 5: Insufficient electrical power supply 6: Line classification not supported 7: Error because fax transmission in progress – ioctl() occurred. 8: Other error occurred

	9: Line classification still in progress. Please wait.
153	Selection Dial/Push
	This SP displays the classification (tone or pulse) of the telephone line to the access point for Cumin-M. The numbered displayed (0 or 1) is the result of the execution of SP5816 151. However, this setting can also be changed manually. [0 to 1/ **0** / 1 /step] 0: Tone Dialing Phone 1: Pulse Dialing Phone Inside Japan "2" may also be displayed: 0: Tone Dialing Phone 1: Pulse Dialing Phone 10PPS 2: Pulse Dialing Phone 20PPS
154	Outside Line/Outgoing Number
	The SP sets the number that switches to PSTN for the outside connection for Cumin-M in a system that employs a PBX (internal line). • If the execution of SP5816 151 has succeeded and Cumin-M has connected to the **external** line, this SP display is completely blank. • If Cumin-M has connected to an **internal** line, then the number of the connection to the external line is displayed. • If Cumin-M has connected to an external line, a comma is displayed with the number. The comma is inserted for a 2 sec. pause. • The number setting for the external line can be entered manually (including commas).
156	Dial Up User Name
	Use this SP to set a user name for access to remote dial up. Follow these rules when setting a user name: • Name length: Up to 32 characters • Spaces and # allowed but the entire entry must be enclosed by double quotation marks (").
157	Dial Up Password
	Use this SP to set a password for access to remote dial up. Follow these rules when setting a user name: • Name length: Up to 32 characters

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		• Spaces and # allowed but the entire entry must be enclosed by double quotation marks (").
161	Local Phone Number	Use this SP to set the telephone number of the line where Cumin-M is connected. This number is transmitted to and used by the Call Center to return calls. Limit: 24 numbers (numbers only)
162	Connection Timing Adjustment: Incoming	When the Call Center calls out to a Cumin-M modem, it sends a repeating ID tone (*#1#). This SP sets the line remains open to send these ID tones after the number of the Cumin-M modem is dialed up and connected. [0 to 24 / 1 / 1 /step] The actual amount of time is this setting x 2 sec. For example, if you set "2" the line will remain open for 4 sec.
163	Access Point	This is the number of the dial-up access point for Cumin-M. If no setting is done for this SP code, then a preset value (determined by the country selected) is used. Default: 0 Allowed: Up to 16 alphanumeric characters
164	Line Connecting	
		This SP sets the connection conditions for the customer. This setting dedicates the line to Cumin-M only, or sets the line for sharing between Cumin-M and a fax unit. [0 to 1 / 0 / 1 /step] 0: Sharing Fax 1: No Sharing Fax **Note** • If this setting is changed, the copier must be cycled off and on. • SP5816 187 determines whether the off-hook button can be used to interrupt a Cumin-M transmission in progress to open the line for fax transaction.
173	Modem Serial Number	This SP displays the serial number registered for the Cumin-M.
174	Retransmission Limit	

	Normally, it is best to allow unlimited time for certification and ID2 update requests, and for the notification that the certification has been completed. However, Cumin-M generates charges based on transmission time for the customer, so a limit is placed upon the time allowed for these transactions. If these transactions cannot be completed within the allowed time, do this SP to cancel the time restriction.		
187	FAX TX Priority	-	
	This SP determines whether pushing the off-hook button will interrupt a Cumin-M transmission in progress to open the line for fax transaction. This SP can be used only if SP5816 164 is set to "0". [0 or 1/ **0** / -] 0: Disable, 1: Enable		
200	Manual Polling	-	Executes the manual polling.
201	Regist: Status		
	Displays a number that indicates the status of the NRS service device. 0: Neither the NRS device nor Cumin device are set. 1: The Cumin device is being set. Only Box registration is completed. In this status the Basil unit cannot answer a polling request. 2: The Cumin device is set. In this status the Basil unit cannot answer a polling request. 3: The NRS device is being set. In this status the Cumin device cannot be set. 4: The NRS module has not started.		
202	Letter Number	Allows entry of the number of the request needed for the Cumin device.	
203	Confirm Execute	Executes the inquiry request to the NRS GW URL.	
204	Confirm Result		
	Displays a number that indicates the result of the inquiry executed with SP5816 203. 0: Succeeded 1: Inquiry number error 2: Registration in progress 3: Proxy error (proxy enabled) 4: Proxy error (proxy disabled) 5: Proxy error (Illegal user name or password)		

<table>
<tr><td></td><td colspan="3">6: Communication error
7: Certification update error
8: Other error
9: Inquiry executing</td></tr>
<tr><td rowspan="2">205</td><td colspan="3">Confirm Place</td></tr>
<tr><td colspan="3">Displays the result of the notification sent to the device from the GW URL in answer to the inquiry request. Displayed only when the result is registered at the GW URL.</td></tr>
<tr><td>206</td><td>Register Execute</td><td colspan="2">Executes Cumin Registration.</td></tr>
<tr><td rowspan="2">207</td><td colspan="3">Register Result</td></tr>
<tr><td colspan="3">Displays a number that indicates the registration result.
0: Succeeded
2: Registration in progress
3: Proxy error (proxy enabled)
4: Proxy error (proxy disabled)
5: Proxy error (Illegal user name or password)
6: Communication error
7: Certification update error
8: Other error
9: Registration executing</td></tr>
<tr><td rowspan="8">208</td><td colspan="3">Error Code</td></tr>
<tr><td colspan="3">Displays a number that describes the error code that was issued when either SP5816-204 or SP5816-207 was executed.</td></tr>
<tr><td>Cause</td><td>Code</td><td>Meaning</td></tr>
<tr><td rowspan="3">Illegal Modem Parameter</td><td>-11001</td><td>Chat parameter error</td></tr>
<tr><td>-11002</td><td>Chat execution error</td></tr>
<tr><td>-11003</td><td>Unexpected error</td></tr>
<tr><td rowspan="2">Operation Error, Incorrect Setting</td><td>-12002</td><td>Inquiry, registration attempted without acquiring device status.</td></tr>
<tr><td>-12003</td><td>Attempted registration without execution of an inquiry and no previous registration.</td></tr>
</table>

		-12004	Attempted setting with illegal entries for certification and ID2.
	Error Caused by Response from GW URL	-2385	Attempted dial up overseas without the correct international prefix for the telephone number.
		-2387	Not supported at the Service Center
		-2389	Database out of service
		-2390	Program out of service
		-2391	Two registrations for same device
		-2392	Parameter error
		-2393	Basil not managed
		-2394	Device not managed
		-2395	Box ID for Basil is illegal
		-2396	Device ID for Basil is illegal
		-2397	Incorrect ID2 format
		-2398	Incorrect request number format
209	@Remote Setting Clear	Releases the machine from its Cumin setup.	
250	CommLog Print	Prints the communication log.	

5821	**[Remote Service Address]**		
001	CSS-PI Device Code	*CTL	Sets the PI device code. After you change this setting, you must turn the machine off and on. [0 to 4 / **0** / 1 /step]
002	RCG IP Address		Sets the IP address of the RCG (Remote Communication Gate) destination for call processing at the remote service center.

5824	**[NV-RAM Data Upload]**
	Uploads the UP and SP mode data (except for counters and the serial number) from the NVRAM to an SD card. For details, see the "p.724 "NVRAM Data Upload/Download"" in this section.

5824 1	NV-RAM Data Upload	#	-

5825	**[NV-RAM Data Download]**		
	Downloads the UP and SP mode data from an SD card to the NVRAM. For details, see the "p.724 "NVRAM Data Upload/Download"" in this section.		
5825 1	NV-RAM Download	#	-

5828	**[Network Setting]**	*CTL	-
050	1284 Compatibility (Centro)	Enables or disables 1284 Compatibility. [0 or 1 / **1** / 1 / step] 0: Disabled, 1: Enabled	
052	ECP (Centro)	Enables or disables ECP Compatibility. [0 or 1 / **1** / 1 / step] 0: Disabled, 1: Enabled **Note** - This SP is activated only when SP5-828-50 is set to "1".	
065	Job Spooling	Enables/disables Job Spooling. [0 or 1 / **0** / 1 / step] 0: Disabled, 1: Enabled	
066	Job Spooling Clear: Start Time	Treatment of the job when a spooled job exists at power on. 0: ON (Data is cleared) **1**: OFF (Automatically printed)	
069	Job Spooling (Protocol)	Validates or invalidates the job spooling function for each protocol. **0**: Validates 1: Invalidates bit0: LPR bit1: FTP bit2: IPP bit3: SMB bit4: BMLinkS	

		bit5: DIPRINT bit6: sftp bit7: (Reserved)
090	TELNET (0: OFF 1: ON)	Enables or disables the Telnet protocol. [0 or 1 / **1** / –] 0: Disable, 1: Enable
091	Web (0: OFF 1: ON)	Enables or disables the Web operation. [0 or 1 / **1** / –] 0: Disable, 1: Enable
145	Active IPv6 Link Local Address	This is the IPv6 local address link referenced on the Ethernet or wireless LAN (802.11b) in the format: "Link Local Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.
147	Active IPv6 Stateless Address 1	These SPs are the IPv6 status addresses (1 to 5) referenced on the Ethernet or wireless LAN (802.11b) in the format: "Status Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.
149	Active IPv6 Stateless Address 2	
151	Active IPv6 Stateless Address 3	
153	Active IPv6 Stateless Address 4	
155	Active IPv6 Stateless Address 5	
156	IPv6 Manual Address	This SP is the IPv6 manually set address referenced on the Ethernet or wireless LAN (802.11b) in the format: "Manual Set Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.
158	IPv6 Gateway Address	This SP is the IPv6 gateway address referenced on the Ethernet or wireless LAN (802.11b). The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.

160	Action Mode (IPv6)	
161	IPv6 Stateless Auto Setting	Enables or disables the automatic setting for IPv6 stateless. [0 or 1 / 1 / 1 /step] 0: Disable, 1: Enable

5832	**[HDD]** HDD Initialization	*CTL	-
001	HDD Formatting (ALL)	Initializes the hard disk. Use this SP mode only if there is a hard disk error.	
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 Data		
009	HDD Formatting (Data for a Design)		
010	HDD Formatting (Log)		
011	HDD Formatting (Ridoc I/F)		

5836	**[Capture Settings]**	*CTL	-
001	Capture Function (0:Off 1:On)		0: Disable, 1: Enable
	With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected.		
002	Panel Setting		0: Displayed, 1: Not displayed
	Displays or does not display the capture function buttons.		
	5836-71 to 5836-78, Copier and Printer Document Reduction The following 6 SP modes set the default reduction for stored documents sent to the document management server via the MLB.		

	Enabled only when optional MLB (Media Link Board) is installed.	
071	Reduction for Copy Color	0: 1to-1, 1: 1/2, **2: 1/3**, 3: 1/4
072	Reduction for Copy B&W Text	**0: 1to-1**, 1: 1/2, 2: 1/3, 3: 1/4
073	Reduction for Copy B&W Other	**0: 1to-1**, 1: 1/2, 2: 1/3, 3: 1/4
074	Reduction for Printer Color	0: 1to-1, 1: 1/2, **2: 1/3**, 3: 1/4
075	Reduction for Printer B&W	**0: 1to-1**, 1: 1/2, 2: 1/3, 3: 1/4
076	Reduction for Printer B&W HQ	**0: 1to-1**, 1: 1/2, 2: 1/3, 3: 1/4
077	Reduction for Printer Color 1200	1: 1/2, 3: 1/4, **4: 1/6**, 5: 1/8 (2: skipped)
078	Reduction for Printer B&W 1200	**1: 1/2**, 3: 1/4, 4: 1/6, 5: 1/8 (2: skipped)
	5836-81 to 5836-86, Stored document format The following 6 SP modes set Sets the default format for stored documents sent to the document management server via the MLB. Enabled only when optional MLB (Media Link Board) is installed.	
081	Format for Copy Color	**0: JFIF/JPEG**, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR **Note** - This SP is not used in this model.
082	Format for Copy B&W Text	0: JFIF/JPEG, **1: TIFF/MMR**, 2: TIFF/MH, 3: TIFF/MR
083	Format Copy B&W Other	0: JFIF/JPEG, **1: TIFF/MMR**, 2: TIFF/MH, 3: TIFF/MR
084	Format for Printer Color	**0: JFIF/JPEG**, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR **Note** - This SP is not used in this model.
085	Format for Printer B&W	0: JFIF/JPEG, **1: TIFF/MMR**, 2: TIFF/MH, 3: TIFF/MR
086	Format for Printer B&W HQ	0: JFIF/JPEG, 1: TIFF/MMR, **2: TIFF/MH**, 3: TIFF/MR

091	Default for JPEG	[5 to 95 / **50** / 1 /step]
	Sets the JPEG format default for documents sent to the document management server via the MLB with JPEG selected as the format. Enabled only when optional MLB (Media Link Board) is installed.	

5839	[IEEE1394]	*CTL	-
007	Cycle Master	Turns the cycle master function on/off. [0 or 1 / **1** / 1 /step] 0: OFF 1: ON	
008	BCR mode	Selects either 'Standard', 'IRM Color Copy', or **'Always Effective'**.	
009	IRM 1394a Check	Turns the IRM 1394a check on/off. [0 or 1 / **0** / -] 0: OFF 1: ON If the IRM is not defined as 1394a standard, its node is used as IRM.	
010	Unique ID	[0 or 1 / **1** / -] 0: OFF 1: ON	
011	Logout	Prevents initiators from logging on or makes initiators log off. [0 or 1 / **1** / -] 0: OFF (Prevents the initiators, having already logged on, to log on if they try to log on.) 1: ON (Makes initiators, having already logged on, to log off if they try to log on.)	
012	Login	Allows/disallows an initiator to exclusively log on. [0 or 1 / **0** / -] 0: OFF (Disallows) 1: ON (Allows)	

013	Login MAX		Specifies the maximum initiators able to log on. [0 to 63 / **8** / 1 /step]

5840	[IEEE 802.11b]		
006	Channel Max	*CTL	[1 to 11 or 13 / **11 or 13** / 1 /step] Europe/Asia: 1 to 13 NA/ Asia: 1 to 11
	Sets the maximum number of channels available for data transmission via the wireless LAN. The number of channels available varies according to location. The default settings are set for the maximum end of the range for each area. Adjust the upper 4 bits to set the maximum number of channels. **DFU** **Note** • Do not change the setting.		
007	Channel Min	*CTL	[1 to 11 or 13 / **1** / 1 /step] Europe: 1 to 13 NA/ Asia: 1 to 11
	Sets the minimum number of channels available for data transmission via the wireless LAN. The number of channels available varies according to location. The default settings are set for the minimum end of the range for each area. Adjust the lower 4 bits to set the minimum number of channels. **DFU** **Note** • Do not change the setting.		
011	WEP key Select	*CTL	Selects the WEP key. [00 to 11 / **00** / 1 binary] 00: Key #1 01: Key #2 (Reserved) 10: Key #3 (Reserved) 11: Key #4 (Reserved)

5841	[Supply Name Setting]		
001	Toner Name Setting: Black	*CTL	Specifies supply names. These appear on the screen when the user presses the Inquiry button in the user tools screen.
002	Toner Name Setting: Cyan		

003	Toner Name Setting: Yellow		
004	Toner Name Setting: Magenta		
007	OrgStamp		
011	Staple Std1		
012	Staple Std2		
013	Staple Std3		
014	Staple Std4		
021	Staple Bind 1		
022	Staple Bind 2		
023	Staple Bind 3		

5842	**[GWWS Analysis Mode] DFU**		
001	Setting 1	*CTL	Default: **00000000** – do not change Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software
002	Setting 2	*CTL	Adjusts the debug program modesetting. Bit7: 5682 mmseg-log setting 0: Date/Hour/Minute/Second 1: Minute/Second/Msec. 0 to 6: Not used

5844	**[USB]**		
001	Transfer Rate	*CTL	0x01: Full speed **0x04: Auto Change**
	Adjusts the USB transfer rate.		
002	Vendor ID	*CTL	Displays the vendor ID. **DFU**
003	Product ID	*CTL	Displays the product ID. **DFU**

004	Device Release Number	*CTL	Displays the development release version number. **DFU**

5845	**[Delivery Server Setting]**	*CTL	-
	Provides items for delivery server settings.		
001	FTP Port No.	[0 to 65535 / **3670** / 1 /step]	
	Sets the FTP port number used when image files to the Scan Router Server.		
002	IP Address (Primary)	Range: **000.000.000.000** to 255.255.255.255	
	Use this SP to set the Scan Router Server address. The IP address under the transfer tab can be referenced by the initial system setting.		
006	Delivery Error Display Time	[0 to 999 / **300** / 1 second /step]	
	Use this setting to determine the length of time the prompt message is displayed when a test error occurs during document transfer with the NetFile application and an external device.		
008	IP Address (Secondary)	Range: **000.000.000.000** to 255.255.255.255	
	Specifies the IP address assigned to the computer designated to function as the secondary delivery server of Scan Router. This SP allows only the setting of the IP address without reference to the DNS setting.		
009	Delivery Server Model	[0 to 4/ **0** / 1 /step]	
	Allows changing the model of the delivery server registered by the I/O device. 0: Unknown 1: SG1 Provided 2: SG1 Package 3: SG2 Provided 4: SG2 Package		
010	Delivery Svr Capability	[0 to 255 / **0** / 1 /step]	
	Bit7 = 1 Comment information exits		Changes the capability of the registered that the I/O device registered.
	Bit6 = 1 Direct specification of mail address possible		
	Bit5 = 1 Mail RX confirmation setting possible		
	Bit4 = 1 Address book automatic update function exists		

	Bit3 = 1 Fax RX delivery function exists	
	Bit2 = 1 Sender password function exists	
	Bit1 = 1 Function to link MK-1 user and Sender exists	
	Bit0 = 1 Sender specification required (if set to 1, Bit6 is set to “0”)	
011	Delivery Svr Capability (Ext)	[0 to 255 / **0** / 1 /step]
	Changes the capability of the registered that the I/O device registered.	
	Bit7 = 1 Address book usage limitation (Limitation for each authorized user) Bit6 = 1 RDH authorization link Bit5 to 0: Not used	
013	Server Scheme (Primary) **DFU**	
	This is used for the scan router program.	
014	Server Port Number (Primary) **DFU**	
	This is used for the scan router program.	
015	Server URL Path (Primary) **DFU**	
	This is used for the scan router program.	
016	Server Scheme (Secondary) **DFU**	
	This is used for the scan router program.	
017	Server Port Number (Secondary) **DFU**	
	This is used for the scan router program.	
018	Server URL Path (Secondary) **DFU**	
	This is used for the scan router program.	
019	Capture Server Scheme **DFU**	
	This is used for the scan router program.	
020	Capture Server Port Number **DFU**	
	This is used for the scan router program.	
021	Capture Server URL Path **DFU**	

	This is used for the scan router program.

5846	[UCS Settings]	*CTL	-
001	Machine ID (For Delivery Server)	Displays ID	
	Displays the unique device ID in use by the delivery server directory. The value is only displayed and cannot be changed. This ID is created from the NIC MAC or IEEE 1394 EUI. The ID is displayed as either 6-byle or 8-byte binary.		
002	Machine ID Clear (For Delivery Server)	Clears ID	
	Clears the unique ID of the device used as the name in the file transfer directory. Execute this SP if the connection of the device to the delivery server is unstable. After clearing the ID, the ID will be established again automatically by cycling the machine off and on.		
003	Maximum Entries	[2000 to 20000/ **2000** /1 /step]	
	Changes the maximum number of entries that UCS can handle. If a value smaller than the present value is set, the UCS managed data is cleared, and the data (excluding user code information) is displayed.		
006	Delivery Server Retry Timer	[0 to 255 / **0** / 1 /step]	
	Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book.		
007	Delivery Server Retry Times	[0 to 255 / **0** / 1 /step]	
	Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book.		
008	Delivery Server Maximum Entries	[2000 to 50000 / **2000** / 1/ step]	
	Sets the maximum number account entries of the delivery server user information managed by UCS.		
010	LDAP Search Timeout	[1 to 255 / **60** / 1 /step]	
	Sets the length of the timeout for the search of the LDAP server.		
040	Addr Book Migration (SD => HDD)		
	Not used in this machine.		
041	Fill Addr Acl Info.		

	This SP must be executed immediately after installation of an HDD unit in a basic machine that previously had no HDD. The first time the machine is powered on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it onto the new HDD. However, the new address book on the HDD can be accessed only by the system administrator at this stage. Executing this SP by the service technician immediately after power on grants full address book access to all users. Procedure 1. Turn the machine off. 2. Install the new HDD. 3. Turn the machine on. 4. The address book and its initial data are created on the HDD automatically. 5. However, at this point the address book can be accessed by only the system administrator or key operator. 6. Enter the SP mode and do SP5846 041. After this SP executes successfully, any user can access the address book.	
047	Initialize Local Addr Book	Clears the local address book information, including the user code.
048	Initialize Delivery Addr Book	Clears the distribution address book information, except the user code.
049	Initialize LDAP Addr Book	Clears the LDAP address book information, except the user code.
050	Initialize All Addr Book	Clears all directory information managed by UCS, including all user codes.
051	Backup All Addr Book	Uploads all directory information to the SD card.
052	Restore All Addr Book	Downloads all directory information from the SD card.
053	Clear Backup Info	Deletes the address book data from the SD card in the service slot. Deletes only the files that were uploaded from this machine. This feature does not work if the card is write-protected. **Note** • After you do this SP, go out of the SP mode, and then turn the power off. • Do not remove the SD card until the Power LED stops flashing.

060	Search Option	
	This SP uses bit switches to set up the fuzzy search options for the UCS local address book. Bit: Meaning 0: Checks both upper/lower case characters 1: Japan Only 2: Japan Only 3: Japan Only 4 to 7: Not Used	
062	Complexity Option 1	
	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to **upper case** and sets the length of the password. [0 to 32 / **0** / 1 /step] **Note** • This SP does not normally require adjustment. • This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.	
063	Complexity Option 2 **DFU**	
064	Complexity Option 3 **DFU**	
065	Complexity Option 4 **DFU**	
091	FTP Auth Port Setting	Specifies the FTP port for getting a distribution server address book that is used in the identification mode. [0 to 65535 / **3671** / 1 /step]
094	Encryption Stat	Shows the status of the encryption function for the address book data.

5847	**[Rep Resolution Reduction]**	*CTL	-
	5847 1 through 5847 8 changes the default settings of image data transferred externally by the Net File page reference function. [0 to 5 / **2** / 1 /step] 5847 21 sets the default for JPEG image quality of image files handled by NetFile. “Net files” are jobs to be printed from the document server using a PC and the DeskTop-Binder software.		

001	Rate for Copy Color	0: 1x 1: 1/2x **2: 1/3x** 3: 1/4x 4: 1/6x 5: 1/8x
002	Rate for Copy B&W Text	
003	Rate for Copy B&W Other	
004	Rate for Printer Color	
005	Rate for Printer B&W	
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 to 95 / **50** / 1 /step]	

5848	**[Web Service]**	*CTL	-
	5848 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. 5848 100 sets the maximum size allowed for downloaded images. The default is equal to 1 gigabyte.		
001	ACC Ctrl: Netfile Protocol (Lower 4 bits only)	Bit switch settings.	
	0000: No access control 0001: Denies access to DeskTop Binder. Access and deliveries from Scan Router have no effect on capture.		
002	Access Ctrl: Repository (only Lower 4 bits)	**0000**: No access control 0001: Denies access to DeskTop Binder. **0010**: No writing control	
003	Access Control: Doc. Svr. Print (Lower 4 bits)	Switches access control on and off. **0000**: No access control 0001: Denies access to DeskTop Binder.	
004	Access Control: User Directory (only Lower 4 bits)		
005	Access Cntl: For Cherry(only lower 4bits)		
007	Access Ctrl: Comm. Log Fax (Lower 4 bits)		

009	Access Ctrl: Job Ctrl (Lower 4 bits)	
011	Access Ctrl: Device management (Lower 4 bits)	
021	Access Ctrl: Delivery (Lower 4 bits)	
022	Access Ctrl: uAdministration (Lower 4bits)	
100	Repository: Download Image Max. Size	Specifies the max size of the image data that the machine can download. [1 to 1024 / **1024** / 1 MB /step]
210	Setting: LogType: Job1	NIA
211	Setting: LogType: Job2	
212	Setting: LogType: Access	
213	Setting: Primary Srv	
214	Setting: Secondary Srv	
215	Setting: Start Time	
216	Setting: Interval Time	
217	Setting: Timing	

5849	[Installation Date]	*CTL	-
5849 1	Display	The “Counter Clear Day” has been changed to “Installation Date” or “Inst. Date”.	
5849 2	Switch to Print	Determines whether the installation date is printed on the printout for the total counter. [0 or 1 / **1** / -] 0: OFF (No Print) 1: ON (Print)	

5850	[Address Book Function]	*CTL	-
003	Replacement of Circuit Classification **Japan Only**		

	The machine is sold ready to use with a G3 line. This SP allows you to switch all at once to convert to G4 after you add a G4 line. Conversely, if for some reason the G4 line becomes unusable, you can easily switch back to G3.

5851	[Bluetooth Mode]
	Sets the operation mode for the Bluetooth Unit. Press either key. [0:Public] [1: Private]

5853	[Stamp Data Download]
	Use this SP to download the fixed stamp data stored in the firmware of the ROM and copy it to the HDD. This SP can be executed as many times as required. This SP must be executed after replacing or formatting the hard disks. **Note** • This SP can be executed only with the hard disks installed.

5856	[Remote ROM Update]		
	Allows the technician to upgrade the firmware using a local port (IEEE1284) when updating the remote ROM.		
002	Local Port	*CTL	[0 to 1 / **0** / 1/step] 0: Disable 1: Enable

5857	[Save Debug Log]	*CTL	-
5857 1	On/Off (1:ON 0:OFF)	**0**: OFF, 1: ON	
	Switches the debug log feature on and off. The debug log cannot be captured until this feature is switched on.		
5857 2	Target (2: HDD 3: SD)	**2**: HDD, 3: SD Card	
	Selects the storage device to save debug logs information when the conditions set with SP5-858 are satisfied. [2 to 3 / **2** / 1 /step]		
005	Save to HDD		

	Saves the debug log of the input SC number in memory to the HDD. A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card.
006	Save to SD Card
	Saves the debug log of the input SC number in memory to the SD card.
009	Copy HDD to SD Card (Latest 4 MB)
010	Copy HDD to SD Card (Latest 4 MB Any Key)
011	Erase HDD Debug Data
012	Erase SD Card Debug Data
013	Free Space on SD Card
014	Copy SD to SD (Latest 4 MB)
015	Copy SD to SD (Latest 4 MB Any Key)
016	Make HDD Debug
017	Make SD Debug

5858	**[Debug Save When]**	*CTL	-
	These SPs select the content of the debugging information to be saved to the destination selected by SP5857-002. SP5858-3 stores one SC specified by number. Refer to Section 4 for a list of SC error codes.		
001	Engine SC Error	Turns on/off the debug save for SC codes generated by copier engine errors. [0 or 1 / **0** / 1/ step] 0: OFF, 1: ON	
002	Controller SC Error	Turns on/off the debug save for SC codes generated by GW controller errors. [0 or 1 / **0** / 1/ step] 0: OFF, 1: ON	
003	Any SC Error	[0 to 65535 / **0** / 1 /step]	
004	Jam	Turns on/off the debug save for jam errors.	

		[0 or 1 / **0** / 1/ step] 0: OFF, 1: ON

5859	[Debug Save Key No.]	*CTL	-
001	Key 1	These SPs allow you to set up to 10 keys for log files for functions that use common memory on the controller board. [–9999999 to 9999999 / **0** / –]	
002	Key 2		
003	Key 3		
004	Key 4		
005	Key 5		
006	Key 6		
007	Key 7		
008	Key 8		
009	Key 9		
010	Key 10		

5860	[SMTP/POP3/IMAP4]	*CTL	-
020	Partial Mail Receive Timeout		[1 to 168 / **72** / –]
	Sets the amount of time to wait before saving a mail that breaks up during reception. The received mail is discarded if the remaining portion of the mail is not received during this prescribed time.		
021	MDN Response RFC2298 Compliance		[0 to 1 / **1** / –]
	Determines whether RFC2298 compliance is switched on for MDN reply mail. 0: No 1: Yes		
022	SMTP Auth. From Field Replacement		[0 to 1 / **0** / –]
	Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated. 0: No. “From” item not switched. 1: Yes. “From item switched.		

025	SMTP Auth. Direct Setting	[0 or 1 / 0 / –]
	Selects the authentication method for SMPT. **Bit switch:** • Bit 0: LOGIN • Bit 1: PLAIN • Bit 2: CRAM MD5 • Bit 3: DIGEST MD5 • Bit 4 to 7: Not used **Note** • This SP is activated only when SMTP authorization is enabled by UP mode.	

5866	[E-mail Alert] Not Used		
001	Report Validity	-	Enables or disables the E-mail alert function. [0 or 1 / 0 / –] 0: Enabled, 1: Disabled
005	Add Date Field	*CTL	Adds or does not add the date field to the header of the alert mail. [0 or 1 / 0 / –] 0: Not added, 1: Added

5870	[Common Key Info Writing]		
001	Writing	*CTL	Writes to flash ROM the common proof for validating the device for NRS specifications.

5873	[SD Card Appli Move]	
001	Move Exec	This SP copies the application programs from the original SD card in SD card slot 3 to an SD card in SD card slot 1 or 2 (slot 1 has the priority to be copied).
002	Undo Exec	This SP copies back the application programs from an SD card in SD Card Slot 3 to the original SD card in SD card slot 1 or 2 (slot 1 has the priority to be copied). Use this menu when you have mistakenly copied some programs by using "Move Exec" (SP5873-1).

5875	[SC Auto Reboot]

001	Reboot Setting	*CTL	Enables or disables the automatic reboot function when an SC error occurs. [0 or 1/ **0** / –] 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 is not executed for Type A or C SC codes.
002	Reboot Type	*CTL	Selects the reboot method for SC. [0 or 1 / **0** / -] 0: Manual reboot, 1: Automatic reboot

5878	[Option Setup]		
001	Option Setup	-	Enables the Data Overwrite Security unit. Press "EXECUTE" on the operation panel. Then turn the machine off and on.

5881	[Fixed Phrase Block Erasing]		
001	-	-	Deletes the fixed phrase.

5883	[Line Speed Selection]		
	Selects the line speed for middle thick paper.		
001	Middle Thick	*ENG	[0 or 1 / **1** / 1 /step] 0: MID CARD: Half Speed (115 mm/sec) 1: MID CARD: Normal Speed (C1c: 154, C1d: 205 mm/sec)

5885	[WIM Settings] Web Image Monitor Settings		
	Close or disclose the functions of web image monitor.		
020	Document Server ACC Ctrl	*CTL	0: OFF, 1: ON Bit Meaning

			0: Forbid all document server access (1) 1: Forbid user mode access (1) 2: Forbid print function (1) 3: Forbid fax TX (1) 4: Forbid scan sending (1) 5: Forbid downloading (1) 6: Forbid delete (1) 7: Reserved

5886	**[Permit ROM Updating] DFU**		
	This SP determines whether the ROM can be updated.		
001	-	*CTL	[0 or 1 / **0** / 1/step] 0: ON, 1: OFF

5907	**[Plug & Play Maker/Model Name]** Plug & Play Name Selection		
	Specifies the manufacturer and model name. These names are registered in the NVRAM. If the NVRAM becomes defective, these names should be re-registered.		
001	Plug/Play	*ENG	[0 to 11 / **0** / 1 /step] **FA** 0: RICOH Aficio MP C3500 1: RICOH Aficio MP C4500 2: SAVIN C3535 3: SAVIN C4540 4: Gestetner MPC 3500/DSc535 5: Gestetner MPC 4500/DSc545 6: NRG MP C3500 7: NRG MP C4500 8: infotec ISC3535 9: infotec ISC4540 10: LANIER MP C3500/LD435c 11: LANIER MP C4500/LD445c

5913	**[Switchover Permission Time]**

002	Print Application Timer	*CTL	[3 to 30 / **3** / 1 second /step]
	Sets the amount of time to elapse while the machine is in standby mode (and the operation panel keys have not been used) before another application can gain control of the display.		

5967	[Copy Server Set Function]	*CTL	**0**: ON, 1: OFF
	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.		

5974	[Cherry Server]		
	Specifies which version of ScanRouter, “Lite” or “Full”, is installed.		
001	Cherry Server	*CTL	[0 or 1 / **0** / –] 0: Lite 1: Full

5985	[Device Setting]	
	The NIC and USB support features are built into the GW controller. Use this SP to enable and disable these features. In order to use the NIC and USB functions built into the controller board, these SP codes must be set to "1".	
001	On Board NIC	[0 to 2 / **0** / 1 /step] 0: Disable, 1: Enable, 2: Function limitation When the "Function limitation" is set, "On board NIC" is limited only for the NRS or LDAP/NT authentication. **Note** • Other network applications than NRS or LDAP/NT authentication are not available when this SP is set to "2". Even though you can change the initial settings of those network applications, the settings do not work.
002	On Board USB	[0 or 1 / **0** / 1/step] 0: Disable, 1: Enable

5987	[Counter Falsification Prevention]

001	0: OFF / 1: ON	This SP detects that a mechanical counter device is removed. If it is detected, SC610 occurs. **Note** • The mechanical counter is provided only for NA model.

5990	[SP print mode]		
	Prints out the SMC sheets.		
001	All (Data List)	-	-
002	SP (Mode Data List)	-	
003	User Program	-	
004	Logging Data	-	
005	Diagnostic Report	-	
006	Non-Default	-	
007	NIB Summary	-	
008	Capture Log	-	
021	Copier User Program	-	
022	Scanner SP	-	
023	Scanner User Program	-	

5998	**[Fusing Cont mode]** Fusing Control Mode		
	Turns the silent fusing warm-up mode on or off.		
001	fast/silent	*ENG	[0 or 1 / **1** / -] 0: Silent (less noise) 1: Fast (less time)

SP6-XXX (Peripherals)

6006	**[ADF Adj.]** ADF Adjustment
	Adjusts the side-to-side and leading registration of originals with the ARDF.

001	Side-to-Side Registration	*ENG	[-3.0 to 3.0 / **0** / 0.1 mm/step]
003	Leading Edge Registration		[-5.0 to 5.0 / **0** / 0.1 mm/step]
	Adjusts the amount of paper buckle to correct original skew for the front and rear sides.		
005	Buckle: Duplex Front	*ENG	[-5.0 to 5.0 / **0** / 0.1 mm/step]
006	Buckle: Duplex Rear		
	Adjusts the erase margin at the original trailing edge.		
007	Rear Edge Erase	*ENG	[-5.0 to 5.0 / **0** / 0.1 mm/step]

6007	**[ADF Input Check]**	
	Displays the signals received from the sensors and switches of the ARDF. Only Bit 0 is used for ADF input check.	
001	Original Length 1 (B5 Detection Sensor)	0: Paper not detected 1: Paper detected
002	Original Length 2 (A4 Detection Sensor)	
003	Original Length 3 (LG Detection Sensor)	
004	Original Width S	
005	Original Width M	
006	Original Width L	
007	Original Width LL	
009	Original Detection	
010	Rear Edge Detection	
011	Skew Correction	
013	Registration	
014	Exit	
015	Feed Cover	0: ADF cover close 1: ADF cover open

016	Lift Up	0: ADF close 1: ADF open

6008	**[ADF Output Check]**		
	Activates the electrical components for functional check. It is not possible to activate more than one component at the same time.		
003	Feed Motor Forward	-	Feed Motor-Forward rotation
004	Feed Motor Reverse		Feed Motor-Reverse rotation
005	Relay Motor Forward		Transport Motor- Forward rotation
006	Relay Motor Reverse		Transport Motor- Forward rotation
009	Feed Clutch		-
010	Feed Solenoid		Pick-up Solenoid
011	Inverter Solenoid		-
012	Stamp		Stamp Solenoid

6009	**[ADF Free Run]**		
	Performs a DF free run in simplex, duplex mode or stamp mode.		
001	Free Run Simplex Motion	-	-
002	Free Run Duplex Motion	-	
003	Free Run Stamp Motion	-	

6010	**[Stamp Position Adj.]** Fax Stamp Position Adjustment		
	Adjusts the horizontal position of the stamp on the scanned originals.		
6010 1	Stamp Position Adj.	*ENG	[-5.0 to 5.0 / **0** / 1 mm/step]

6016	**[Original Size Detection Priority]** Original Size Detection Priority
	Specifies the original size for a size detected by the original sensor, since original sensors cannot recognize all sizes.

001	Original Size Detection Priority	*ENG	[0 or 1 / **0** / -] 0: Setting 1 1: Setting 2	
		NA	Setting 1	Setting 2
			DLT SEF	Folio SEF 11" x 15"
			LG SEF	Foolscap SEF
			LT SEF	US EXE 8" x 10"
			LT LEF	US EXE LEF
		EU/ ASIA	DLT SEF	8K 267 x 390 mm
			LT SEF	16K 195 x 267 mm
			LT LEF	16K 267 x 195 mm

6017	**[DF Magnification Adj.]** DF Magnification Adjustment		
	Adjusts the magnification in the sub-scan direction for the ARDF.		
001	DF Magnification Adj.	*CTL	[-5.0 to 5.0 / **0** / 0.1 %/step]

6020	**[Skew Correction Moving Setting]**		
	Turns the original skew correction in the ARDF for all original sizes on or off.		
001	-	*ENG	[0 or 1 / **0** / -] 0: Off (only for small original sizes) 1: On (for all original sizes)

6128	**[Punch Position: Sub Scan]**		
	Adjusts the punching position in the sub scan direction.		
001	Domestic (Japan) 2Hole	*ENG	[-7.5 to 7.5 / **0** / 0.5 mm/step]]
002	North America 3Hole	*ENG	
003	Europe 4Hole	*ENG	
004	North Europe 4Hole	*ENG	

005	North Europe 2Hole	*ENG	

6129	[Punch Position: Main Scan] Adjusts the punching position in the main scan direction.		
001	Domestic (Japan) 2Hole	*ENG	[-2.0 to 2.0 / **0** / 0.4 mm/step]]
002	North America 3Hole	*ENG	
003	Europe 4Hole	*ENG	
004	North Europe 4Hole	*ENG	
005	North Europe 2Hole	*ENG	

6130	[Skew Correction: Buckle Adj.] Adjusts the paper buckle for each paper size.		
001	A3T (SEF)	*ENG	[-5.0 to 5.0 / **0** / 0.25 mm/step]]
002	B4T (SEF)	*ENG	
003	A4T (SEF)	*ENG	
004	A4Y (LEF)	*ENG	
005	B5T (SEF)	*ENG	
006	B5Y (LEF)	*ENG	
007	DLT-T (SEF)	*ENG	
008	LG-T (SEF)	*ENG	
009	LT-T (SEF)	*ENG	
010	LT-Y (LEF)	*ENG	
011	12" x 18"	*ENG	
012	Other	*ENG	

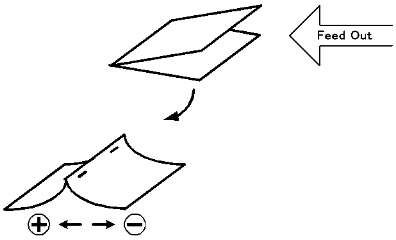
6131	[Skew Correction Control]

	Selects the skew correction control for each paper size. These are only activated for B804/ B805.		
001	A3T (SEF)	*ENG	[0 to 2 / 1 / 1/step]] 0: No (No skew correction) 1: Roller Stop Skew Correction 2: Roller Reverse Skew Correction
002	B4T (SEF)	*ENG	
003	A4T (SEF)	*ENG	
004	A4Y (LEF)	*ENG	
005	B5T (SEF)	*ENG	
006	B5Y (LEF)	*ENG	
007	DLT-T (SEF)	*ENG	
008	LG-T (SEF)	*ENG	
009	LT-T (SEF)	*ENG	
010	LT-Y (LEF)	*ENG	
011	12" x 18"	*ENG	
012	Other	*ENG	

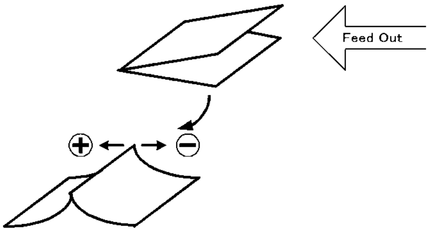
6132	[Jogger Fence Fine Adj]		
	This SP adjusts the distance between the jogger fences and the sides of the stack on the finisher stapling tray in the (Booklet) Finisher B804/B805. The adjustment is done perpendicular to the direction of paper feed.		
001	A3T (SEF)	*ENG	[-1.5 to 1.5 / 0 / 1/step] + Value: Increases distance between jogger fences and the sides of the stack. - Value: Decreases the distance between the jogger fences and the sides of the stack.
002	B4T (SEF)	*ENG	
003	A4T (SEF)	*ENG	
004	A4Y (LEF)	*ENG	
005	B5T (SEF)	*ENG	
006	B5Y (LEF)	*ENG	
007	DLT-T (SEF)	*ENG	
008	LG-T (SEF)	*ENG	

009	LT-T (SEF)	*ENG	
010	LT-Y (LEF)	*ENG	
011	12" x 18"	*ENG	
012	Other	*ENG	

6133	[Staple Position Adjustment]		
	Adjusts the staple position for each finisher (B408/B804/B805). + Value: Moves the staple position to the rear side. - Value: Moves the staple position to the front side.		
001	Finisher (B408/B804/B805)	*ENG	[-3.5 to 3.5 / **0** / 1/step]

6134	[Saddle Stitch Position Adjustment]	
User SP	Use this SP to adjust the stapling position of the booklet stapler when paper is stapled and folded in the Booklet Finisher B804.	
001	A3 SEF	[-3.0 to 3.0 / **0** / 0.2 mm/step] + Value: Shifts staple position toward the crease. - Value: Shifts staple position away from the crease. 
002	B4 SEF	
003	A4 SEF	
004	B5 SEF	
005	DLT-T (SEF)	
006	LG-T (SEF)	
007	LT-T (SEF)	
008	12" x 18"	
009	Other	

6135	[Folder Position Adj.]	
User SP	This SP corrects the folding position when paper is stapled and folded in the Booklet Finisher B804.	
001	A3 SEF	[-3.0 to 3.0 / 0 / 0.2 mm/step]

002	B4 SEF	+ Value: Shifts staple position toward the crease. - Value: Shifts staple position away from the crease. 
003	A4 SEF	
004	B5 SEF	
005	DLT-T (SEF)	
006	LG-T (SEF)	
007	LT-T (SEF)	
008	12" x 18"	
009	Other	

6136	**[Folding Number]**	
User SP	Sets the number of times that folding is done in the Booklet Finisher B804.	
001	-	[2 to 30 / 2 / 1 time/step]

6137	**[Finisher Free Run]** These SPs are used only for B793 finisher.	
001	Free Run 1	Free run for paper edge stapling.
002	Free Run 2	Free run for booklet stapling.
003	Free Run 3	Shipping free run. Simulates standby conditions during shipping.
004	Free Run 4	**DFU**

6138	**[FIN (TIG) INPUT Check]** Finisher (B793) Input Check
	Displays the signals received from sensors and switches of the booklet finisher. (☛ "p.688 "Input Check Table"")

6139	**[FIN (KIN) INPUT Check]** Finisher (B408) Input Check
	Displays the signals received from sensors and switches of the booklet finisher. (☛ "p.688 "Input Check Table"")

6140	**[FIN (EUP) INPUT Check]** Finisher (B804/B805) Input Check

	Displays the signals received from sensors and switches of the (booklet) finisher. (☛ "p.688 "Input Check Table"")

6143	**[FIN (TIG) OUPUT Check]** Finisher (B793) Output Check
	Displays the signals received from sensors and switches of the booklet finisher. (☛ "p.698 "Output Check Table"")

6144	**[FIN (KIN) OUPUT Check]** Finisher (B408) Output Check
	Displays the signals received from sensors and switches of the booklet finisher. (☛ "p.698 "Output Check Table"")

6145	**[FIN (EUP) OUPUT Check]** Finisher (B804/B805) Output Check
	Displays the signals received from sensors and switches of the (booklet) finisher. (☛ "p.698 "Output Check Table"")

6147	**[FIN (JAK) OUPUT Check]**
	Not used in this machine.

6148	**[Jogger Fine Adj]**	*ENG	Fine Adjust Output Jogger Unit Fences
001	A3T (SEF)	This SP corrects the distance between the jogger fences and the sides of the stack when the output jogger unit attached to the side of the machine jogs sheets as they exit the finisher. + Value: Increases distance between jogger fences and the sides of the stack. - Value: Decreases the distance between the jogger fences and the sides of the stack. [-1.5 to 1.5 / **0** / 0.5 mm/step]	
002	B4T (SEF)		
003	A4T (SEF)		
004	A4Y LEF)		
005	B5Y (LEF)		
006	A5Y (LEF)		
007	DLT-T (SEF)		
008	LG-T (SEF)		
009	LT-T (SEF)		
010	LT-Y (LEF)		
011	HLT-Y (LEF)		

012	Other	

6149	[Max. Pre-Stack Sheet]	*ENG	Number of Pre-Stack Sheets
	This SP sets the number of sheets sent to the pre-stack tray. Note: You may need to adjust this setting or switch it off when feeding thick or slick paper.		
001	-	[0 to 3 / **3** / 1 sheet/step]	

SP7-XXX (Data Log)

7401	[Total SC Counter]		
	Displays the number of SC codes detected.		
7401 1	SC Counter	*CTL	[0 to 9999 / **0** / 1/step]

7403	[SC History]		
	Logs the SC codes detected. The 10 most recently detected SC Codes are not displayed on the screen, but can be seen on the SMC (logging) outputs.		
7403 1	Latest	*CTL	-
7403 2	Latest 1		
7403 3	Latest 2		
7403 4	Latest 3		
7403 5	Latest 4		
7403 6	Latest 5		
7403 7	Latest 6		
7403 8	Latest 7		
7403 9	Latest 8		
7403 10	Latest 9		

7502	[Total Paper Jam Counter]		
	Displays the total number of jams detected.		
7502 1	Total Jam	* CTL	[0 to 9999 / 0 / 1 sheet/step]

7503	[Total Original Jam Counter]		
	Displays the total number of original jams.		
7503 1	Original Jam counter	*CTL	[0 to 9999 / 0 / 1 original/step]

7504	[Paper Jam Location] ON: On check, OFF: Off Check		
	Displays the number of jams according to the location where jams were detected. **NOTE:** The LCT is counted as the 3rd feed station.		
7504 1	At Power On	*CTL	For details, see the "p.356 "Jam Detection"" in the Troubleshooting (section 4)".
7504 3	Tray 1: ON	*CTL	
7504 4	Tray 2: ON	*CTL	
7504 5	Tray 3: ON	*CTL	
7504 6	Tray 4: ON	*CTL	
7504 8	Bypass: ON	*CTL	
7504 9	Duplex: ON	*CTL	
7504 11	Vertical Transport 1: ON	*CTL	
7504 12	Vertical Transport 2: ON	*CTL	
7504 13	Bank Transport 1	*CTL	
7504 17	Registration: ON	*CTL	
7504 18	Fusing Entrance: ON	*CTL	
7504 19	Fusing Exit: ON	*CTL	
7504 20	Paper Exit: ON	*CTL	
7504 21	Relay Exit: ON	*CTL	

7504 22	Relay Transport: ON	*CTL	
7504 25	Duplex Exit: ON	*CTL	
7504 26	Duplex Reverse: ON	*CTL	
7504 27	Duplex Entrance: ON	*CTL	
7504 28	1 Bin Exit Sensor	*CTL	
7504 51	SEF Sensor 1	*CTL	
7504 52	SEF Sensor 2	*CTL	
7504 53	Bank SEF Sensor 1	*CTL	
7504 54	Bank SEF Sensor 2	*CTL	
7504 57	Regist Sensor	*CTL	
7504 59	Fusing Exit Sensor	*CTL	
7504 60	Exit Sensor	*CTL	
7504 61	Relay Exit Sensor	*CTL	
7504 62	Relay Sensor	*CTL	
7504 65	Duplex Exit Sensor	*CTL	
7504 66	Duplex Entrance Sensor	*CTL	
7504 68	1-Bin Exit: ON	*CTL	
7504 100	Finisher Entrance	*CTL	
7504 101	Finisher Shift Tray Exit	*CTL	
7504 102	Finisher Staple	*CTL	
7504 103	Finisher Exit	*CTL	
7504 104	Finisher Drive Motor	*CTL	
7504 105	Finisher Tray Lift Motor	*CTL	
7504 106	Finisher Jogger Motor	*CTL	
7504 107	Finisher Shift Motor	*CTL	
7504 108	Finisher Staple Motor	*CTL	

7504 109	Finisher Exit Motor	*CTL	
7504 130	Finisher Entrance	*CTL	
7504 131	Finisher Proof Exit	*CTL	
7504 132	Finisher Shift Tray Exit	*CTL	
7504 133	Finisher Staple Exit	*CTL	
7504 134	Finisher Exit	*CTL	
7504 135	Finisher Folding	*CTL	
7504 136	Finisher Folding Exit	*CTL	
7504 137	Finisher Guide Motor	*CTL	
7504 138	Finisher Staple Moving Motor	*CTL	
7504 139	Finisher Punch Motor	*CTL	
7504 140	Finisher Tray Lift Motor	*CTL	
7504 141	Finisher Jogger Motor	*CTL	
7504 142	Finisher Shift Roller Motor	*CTL	
7504 143	Finisher Folding Plate Motor	*CTL	
7504 144	Finisher Staple Motor	*CTL	
7504 145	Finisher Exit Motor	*CTL	
7504 146	Finisher Stack 1 Release Motor	*CTL	
7504 147	Finisher Stack 2 Release Motor	*CTL	
7504 148	Finisher Stopper Motor	*CTL	
7504 160	Finisher Entrance: ON	*CTL	
7504 161	Finisher Entrance: OFF	*CTL	
7504 162	Finisher Stack Exit	*CTL	
7504 163	Finisher Staple	*CTL	

7504 164	Finisher Staple Cancel	*CTL	
7504 165	Finisher Jogger Motor	*CTL	
7504 166	Finisher Pickup Lift Motor	*CTL	
7504 167	Finisher Staple Slide	*CTL	
7504 168	Finisher Stack Tray	*CTL	
7504 169	Finisher Belt Lift Solenoid	*CTL	
7504 230	Finisher Exit No Response	*CTL	
7504 231	Finisher Communication Error	*CTL	

7505	**[Original Jam Detection]** Displays the total number of original jams by location.		
7505 1	At Power On	*CTL	-
7505 3	Skew Correction: ON		
7505 4	Registration: ON		
7505 5	Paper Exit: ON		
7505 53	Skew Correction: OFF		
7505 54	Registration: OFF		
7505 55	Paper Exit: OFF		

7506	**[Jam Count by Paper Size]** Displays the number of jams according to the paper size.		
7506 5	A4 LEF	*CTL	[0 to 9999 / **0** / 1 sheet/step]
7506 6	A5 LEF		
7506 14	B5 LEF		
7506 38	LT LEF		
7506 44	HLT LEF		

7506 132	A3 SEF		
7506 133	A4 SEF		
7506 134	A5 SEF		
7506 141	B4 SEF		
7506 142	B5 SEF		
7506 160	DLT SEF		
7506 164	LG SEF		
7506 166	LT SEF		
7506 172	HLT SEF		
7506 255	Others		

7507	[Plotter Jam History]		
	Displays the 10 most recently detected paper jams.		
7507 1	Latest	*CTL	-
7507 2	Latest 1		
7507 3	Latest 2		
7507 4	Latest 3		
7507 5	Latest 4		
7507 6	Latest 5		
7507 7	Latest 6		
7507 8	Latest 7		
7507 9	Latest 8		
7507 10	Latest 9		

7508	[Original Jam History]		
	Displays the 10 most recently detected original jams.		
7508 1	Latest	*CTL	-

7508 2	Latest-1		
7508 3	Latest-2		
7508 4	Latest-3		
7508 5	Latest-4		
7508 6	Latest-5		
7508 7	Latest-6		
7508 8	Latest-7		
7508 9	Latest-8		
7508 10	Latest-9		

7801	**[ROM No./Firmware Version]**		
7801 255	Engine	-	Displays all versions and ROM numbers in SP7-910 and SP7-911.

7803	**[PM Counter Display]**		
	(Page, Unit, [Color])		
	Displays the number of sheets printed for each current maintenance unit. PM counters click up based on the number of A4 (LT) LEF size sheets printed. Therefore, the A3 (DLT) Double Count is activated. The Double Count cannot be deactivated. When a unit is replaced, the machine automatically detects that the new unit is installed. Then, the current PM counter value is automatically moved to the PM Counter - Previous (SP7-906-1 to 10) and is reset to "0". The total number of sheets printed with the last unit replaced can be checked with SP7-906-1 to 10. **NOTE**: The LCT is counted as the 3rd feed station.		
7803 1	Paper	*ENG	[0 to 9999999 / 0 / 1 page/step]
7803 2	Page: PCU: Bk		
7803 3	Page: PCU: M		
7803 4	Page: PCU: C		

7803 5	Page: PCU: Y		
7803 6	Page: Development Unit: Bk		
7803 7	Page: Development Unit: M		
7803 8	Page: Development Unit: C		
7803 9	Page: Development Unit: Y		
7803 10	Page: Developer: Bk		
7803 11	Page: Developer: M		
7803 12	Page: Developer: C		
7803 13	Page: Developer: Y		
7803 14	Page: Image Transfer		
7803 15	Page: Cleaning Unit		
7803 16	Page: Fusing Unit		
7803 17	Page: Paper Transfer Unit		
7803 18	Page: Toner Collection Bottle		
	Displays the number of revolutions of motors or clutches for each current maintenance unit. [0 to 9999999 / 0 / 1 revolution/step] When a unit is replaced, the machine automatically detects that the new unit is installed. Then, the current PM counter value is automatically moved to the PM Counter - Previous (SP7-906-11 to 20) and is reset to “0”. The total number of revolutions made with the last unit replaced can be checked with SP7-906-11 to 20.		
7803 31	Rotation: PCU: Bk	*ENG	[0 to 999999999 / - / 1 mm/step]
7803 32	Rotation: PCU: M		
7803 33	Rotation: PCU: C		
7803 34	Rotation: PCU: Y		
7803 35	Rotation: Development Unit: Bk		
7803 36	Rotation: Development Unit: M		
7803 37	Rotation: Development Unit: C		

7803 38	Rotation: Development Unit: Y		
7803 39	Rotation: Developer: Bk		
7803 40	Rotation: Developer: M		
7803 41	Rotation: Developer: C		
7803 42	Rotation: Developer: Y		
7803 43	Rotation: Image Transfer Belt		
7803 44	Rotation: Cleaning Unit		
7803 45	Rotation: Fusing Unit		
7803 46	Rotation: Paper Transfer Unit		
7803 47	Measurement: Toner Collection bottle		
	Displays the value given by the following formula: (Current revolution ÷ Target revolution) × 100. This shows how much of the unit's expected lifetime has been used up. The Rotation% counter is based on rotations, not prints. If the number of rotations reaches the limit, the machine enters the end condition for that unit. If the print count lifetime is reached first, the machine also enters the end condition, even though the R% counter is still less than 100%.		
7803 61	Rotation (%): PCU: Bk	*ENG	[0 to 255 / - / 1 %/step]
7803 62	Rotation (%): PCU: M		
7803 63	Rotation (%): PCU: C		
7803 64	Rotation (%): PCU: Y		
7803 65	Rotation (%): Development Unit: Bk		
7803 66	Rotation (%): Development Unit: M		
7803 67	Rotation (%): Development Unit: C		
7803 68	Rotation (%): Development Unit: Y		
7803 69	Rotation (%): Developer: Bk		
7803 70	Rotation (%): Developer: M		

7803 71	Rotation (%): Developer: C		
7803 72	Rotation (%): Developer: Y		
7803 73	Rotation (%): Image Transfer		
7803 74	Rotation (%): Cleaning Unit		
7803 75	Rotation (%): Fusing Unit		
7803 76	Rotation (%): Paper Transfer Unit		
7803 77	Measurement (%): Toner Collection bottle		
	Displays the value given by the following formula: (Current printouts ÷ Target printouts) × 100. This shows how much of the unit's expected lifetime has been used up. The Page% counter is based on printouts, not revolutions. If the number of printouts reaches the limit, the machine enters the end condition for that unit. If the revolution count lifetime is reached first, the machine also enters the end condition, even though the Page% counter is still less than 100%.		
7803 91	Page (%): PCU: Bk	*ENG	[0 to 255 / - / 1 %/step]
7803 92	Page (%): PCU: M		
7803 93	Page (%): PCU: C		
7803 94	Page (%): PCU: Y		
7803 95	Page (%): Development Unit: Bk		
7803 96	Page (%): Development Unit: M		
7803 97	Page (%): Development Unit: C		
7803 98	Page (%): Development Unit: Y		
7803 99	Page (%): Developer: Bk		
7803 100	Page (%): Developer: M		
7803 101	Page (%): Developer: C		
7803 102	Page (%): Developer: Y		
7803 103	Page (%): Image Transfer		

7803 104	Page (%): Cleaning Unit		
7803 105	Page (%): Fusing Unit		
7803 106	Page (%): Paper Transfer Unit		

7804	**[PM Counter Reset]** PM Counter Clear		
	(Unit, [Color])		
	Clears the PM counter. Press the Enter key after the machine asks "Execute?", which will store the PM counter value in SP7-906 (PM Counter - Previous) and reset the value of the current PM counter (SP7-803) to "0".		
7804 1	Paper	-	-
7804 2	PCU: K		
7804 3	PCU: M		
7804 4	PCU: C		
7804 5	PCU: Y		
7804 6	PCU: All		
7804 7	Development Unit: Bk		
7804 8	Development Unit: M		
7804 9	Development Unit: C		
7804 10	Development Unit: Y		
7804 11	Development Unit: All		
7804 12	Developer: Bk		
7804 13	Developer: M		
7804 14	Developer: C		
7804 15	Developer: Y		
7804 16	Developer: All		
7804 17	Image Transfer Belt		

7804 18	Cleaning Unit		
7804 19	Fusing Unit		
7804 20	Paper Transfer Unit		
7804 21	Toner Collection Bottle		
7804 100	All		

7807	**[SC/Jam Counter Reset]**		
	Clears the counters related to SC codes and paper jams.		
7807 1	SC/Jam Clear	-	-

7826	**[MF Error Counter] Japan Only**
7826 1	Error Total
7826 2	Error Staple

7827	**[MF Error Counter Clear] Japan Only**

7832	**[Self-Diagnose Result Display]**		
	Displays the result of the diagnostics.		
7832 1	Diag. Result	*CTL	-

7836	**Total Memory Size**
	Displays the memory capacity of the controller system.

7852	**[DF Scan Glass Dust Check Counter]**		
	Counts the number of occurrences (0 to 65,535) when dust was detected on the scanning glass of the ADF or resets the dust detection counter. Counting is done only if SP4-020-1 (ADF Scan Glass Dust Check) is switched on.		
7852 1	Dust Detection Counter	*CTL	[0 to 9999 / - / 1 /step]
7852 2	Dust Detection Clear Counter	*CTL	[0 to 9999 / - / 1 /step]

7853	[Replacement Counter] Displays the PM parts replacement number.		
7853 1	PCU: Bk	*CTL	[0 to 255 / - / 1 /step]
7853 2	PCU: M	*CTL	
7853 3	PCU: C	*CTL	
7853 4	PCU: Y	*CTL	
7853 5	Development Unit: Bk	*CTL	
7853 6	Development Unit: M	*CTL	
7853 7	Development Unit: C	*CTL	
7853 8	Development Unit: Y	*CTL	
7853 9	Developer: Bk	*CTL	
7853 10	Developer: M	*CTL	
7853 11	Developer: C	*CTL	
7853 12	Developer: Y	*CTL	
7853 13	Image Transfer	*CTL	
7853 14	Cleaning Unit	*CTL	
7853 15	Fusing Unit	*CTL	
7853 16	Paper Transfer Unit	*CTL	
7853 17	Toner Collection Bottle	*CTL	

7901	[Assert Info] Records the location where a problem is detected in the program. The data stored in this SP is used for problem analysis. DFU		
7901 1	File Name	*CTL	-
7901 2	Number of Lines		
7901 3	Location		

7906	**[Prev. Unit PM Counter]**		
	(Page or Rotations, Unit, [Color]), Dev.: Development Unit		
	Displays the number of sheets printed with the previous maintenance units.		
7906 1	Page: PCU: Bk	*ENG	[0 to 9999999 / 0 / 1 page/step]
7906 2	Page: PCU: M		
7906 3	Page: PCU: C		
7906 4	Page: PCU: Y		
7906 5	Page: Development Unit: Bk		
7906 6	Page: Development Unit: M		
7906 7	Page: Development Unit: C		
7906 8	Page: Development Unit: Y		
7906 9	Page: Developer: Bk		
7906 10	Page: Developer: M		
7906 11	Page: Developer: C		
7906 12	Page: Developer: Y		
7906 13	Page: Image Transfer		
7906 14	Page: Cleaning Unit		
7906 15	Page: Fusing Unit		
7906 16	Page: Paper Transfer Unit		
7906 17	Page: Toner Collection Bottle		
	Displays the number of revolutions for motors or clutches in the previous maintenance units.		
7906 31	Rotation: PCU: Bk	*ENG	[0 to 9999999 / 0 / 1 mm/step]
7906 32	Rotation: PCU: M		
7906 33	Rotation: PCU: C		
7906 34	Rotation: PCU: Y		
7906 35	Rotation: Development Unit: Bk		

7906 36	Rotation: Development Unit: M		
7906 37	Rotation: Development Unit: C		
7906 38	Rotation: Development Unit: Y		
7906 39	Rotation: Developer: Bk		
7906 40	Rotation: Developer: M		
7906 41	Rotation: Developer: C		
7906 42	Rotation: Developer: Y		
7906 43	Rotation: Image Transfer Belt		
7906 44	Rotation: Cleaning Unit		
7906 45	Rotation: Fusing Unit		
7906 46	Rotation: Paper Transfer Unit		
7906 47	Measurement: Toner Collection bottle		
	Displays the number of sheets printed with the previous maintenance unit or toner cartridge.		
7906 61	Rotation (%): PCU: Bk	*ENG	[0 to 255 / 0 / 1 %/step]
7906 62	Rotation (%): PCU: M		
7906 63	Rotation (%): PCU: C		
7906 64	Rotation (%): PCU: Y		
7906 65	Rotation (%): Development Unit: Bk		
7906 66	Rotation (%): Development Unit: M		
7906 67	Rotation (%): Development Unit: C		
7906 68	Rotation (%): Development Unit: Y		
7906 69	Rotation (%): Developer: Bk		
7906 70	Rotation (%): Developer: M		
7906 71	Rotation (%): Developer: C		
7906 72	Rotation (%): Developer: Y		

7906 73	Rotation (%): Image Transfer		
7906 74	Rotation (%): Cleaning Unit		
7906 75	Rotation (%): Fusing Unit		
7906 76	Rotation (%): Paper Transfer Unit		
7906 77	Measurement (%): Toner Collection bottle		
	Displays the value given by the following formula: (Current count ÷ Yield count) x 100, where "Current count" is the current values in the counter for the part, and "Yield count" is the recommended yield.		
7906 91	Page (%): PCU: Bk	*ENG	[0 to 255 / **0** / 1 %/step]
7906 92	Page (%): PCU: M		
7906 93	Page (%): PCU: C		
7906 94	Page (%): PCU: Y		
7906 95	Page (%): Development Unit: Bk		
7906 96	Page (%): Development Unit: M		
7906 97	Page (%): Development Unit: C		
7906 98	Page (%): Development Unit: Y		
7906 99	Page (%): Developer: Bk		
7906 100	Page (%): Developer: M		
7906 101	Page (%): Developer: C		
7906 102	Page (%): Developer: Y		
7906 103	Page (%): Image Transfer		
7906 104	Page (%): Cleaning Unit		
7906 105	Page (%): Fusing Unit		
7906 106	Page (%): Paper Transfer Unit		

7931	**[Toner Bottle Bk]**

	Displays the toner bottle information for Bk.		
7931 1	Machine Serial ID	*ENG	
7931 2	Cartridge Ver		
7931 3	Brand ID		
7931 4	Area ID		
7931 5	Product ID		
7931 6	Color ID		
7931 7	Maintenance ID		
7931 8	New Product Information		
7931 9	Recycle Counter		
7931 10	Date		
7931 11	Serial No.		
7931 12	Toner Remaining		
7931 13	EDP Code		
7931 14	End History		
7931 15	Refill Information		
7931 16	Attachment: Total Counter		
7931 17	Attachment: Color Counter		
7931 18	End: Total Counter		
7931 19	End: Color Counter		
7931 20	Attachment Date		
7931 21	End Date		

7932	**[Toner Bottle M]**		
	Displays the toner bottle information for M.		
7932 1	Machine Serial ID	*ENG	

7932 2	Cartridge Ver		
7932 3	Brand ID		
7932 4	Area ID		
7932 5	Product ID		
7932 6	Color ID		
7932 7	Maintenance ID		
7932 8	New Product Information		
7932 9	Recycle Counter		
7932 10	Date		
7932 11	Serial No.		
7932 12	Toner Remaining		
7932 13	EDP Code		
7932 14	End History		
7932 15	Refill Information		
7932 16	Attachment: Total Counter		
7932 17	Attachment: Color Counter		
7932 18	End: Total Counter		
7932 19	End: Color Counter		
7932 20	Attachment Date		
7932 21	End Date		

7933	[Toner Bottle C]		
	Displays the toner bottle information for C.		
7933 1	Machine Serial ID	*ENG	
7933 2	Cartridge Ver		
7933 3	Brand ID		

7933 4	Area ID		
7933 5	Product ID		
7933 6	Color ID		
7933 7	Maintenance ID		
7933 8	New Product Information		
7933 9	Recycle Counter		
7933 10	Date		
7933 11	Serial No.		
7933 12	Toner Remaining		
7933 13	EDP Code		
7933 14	End History		
7933 15	Refill Information		
7933 16	Attachment: Total Counter		
7933 17	Attachment: Color Counter		
7933 18	End: Total Counter		
7933 19	End: Color Counter		
7933 20	Attachment Date		
7933 21	End Date		

7934	**[Toner Bottle Y]**		
	Displays the toner bottle information for Y.		
7934 1	Machine Serial ID	*ENG	
7934 2	Cartridge Ver		
7934 3	Brand ID		
7934 4	Area ID		
7934 5	Product ID		

7934 6	Color ID		
7934 7	Maintenance ID		
7934 8	New Product Information		
7934 9	Recycle Counter		
7934 10	Date		
7934 11	Serial No.		
7934 12	Toner Remaining		
7934 13	EDP Code		
7934 14	End History		
7934 15	Refill Information		
7934 16	Attachment: Total Counter		
7934 17	Attachment: Color Counter		
7934 18	End: Total Counter		
7934 19	End: Color Counter		
7934 20	Attachment Date		
7934 21	End Date		

7935	[Toner Bottle Log 1/2/3/4/5: Bk]		
7935 1	Serial No.	*ENG	Displays the toner bottle information log 1 for Bk.
7935 2	Attachment Date		
7935 3	Attachment: Total Counter		
7935 4	Serial No.	*ENG	Displays the toner bottle information log 2 for Bk.
7935 5	Attachment Date		
7935 6	Attachment: Total Counter		
7935 7	Serial No.	*ENG	Displays the toner bottle information log 3 for Bk.
7935 8	Attachment Date		

7935 9	Attachment: Total Counter		
7935 10	Serial No.	*ENG	Displays the toner bottle information log 4 for Bk.
7935 11	Attachment Date		
7935 12	Attachment: Total Counter		
7935 13	Serial No.	*ENG	Displays the toner bottle information log 5 for Bk.
7935 14	Attachment Date		
7935 15	Attachment: Total Counter		

7936	**[Toner Bottle Log 1/2/3/4/5: M]**		
7936 1	Serial No.	*ENG	Displays the toner bottle information log 1 for M.
7936 2	Attachment Date		
7936 3	Attachment: Total Counter		
7936 4	Serial No.	*ENG	Displays the toner bottle information log 2 for M.
7936 5	Attachment Date		
7936 6	Attachment: Total Counter		
7936 7	Serial No.	*ENG	Displays the toner bottle information log 3 for M.
7936 8	Attachment Date		
7936 9	Attachment: Total Counter		
7936 10	Serial No.	*ENG	Displays the toner bottle information log 4 for M.
7936 11	Attachment Date		
7936 12	Attachment: Total Counter		
7936 13	Serial No.	*ENG	Displays the toner bottle information log 5 for M.
7936 14	Attachment Date		
7936 15	Attachment: Total Counter		

7937	**[Toner Bottle Log 1/2/3/4/5: C]**		
7937 1	Serial No.	*ENG	Displays the toner bottle information log 1 for C.

7937 2	Attachment Date		
7937 3	Attachment: Total Counter		
7937 4	Serial No.	*ENG	Displays the toner bottle information log 2 for C.
7937 5	Attachment Date		
7937 6	Attachment: Total Counter		
7937 7	Serial No.	*ENG	Displays the toner bottle information log 3 for C.
7937 8	Attachment Date		
7937 9	Attachment: Total Counter		
7937 10	Serial No.	*ENG	Displays the toner bottle information log 4 for C.
7937 11	Attachment Date		
7937 12	Attachment: Total Counter		
7937 13	Serial No.	*ENG	Displays the toner bottle information log 5 for C.
7937 14	Attachment Date		
7937 15	Attachment: Total Counter		

7938	[Toner Bottle Log 1/2/3/4/5: Y]		
7938 1	Serial No.	*ENG	Displays the toner bottle information log 1 for Y.
7938 2	Attachment Date		
7938 3	Attachment: Total Counter		
7938 4	Serial No.	*ENG	Displays the toner bottle information log 2 for Y.
7938 5	Attachment Date		
7938 6	Attachment: Total Counter		
7938 7	Serial No.	*ENG	Displays the toner bottle information log 3 for Y.
7938 8	Attachment Date		
7938 9	Attachment: Total Counter		
7938 10	Serial No.	*ENG	Displays the toner bottle information log 4 for Y.

7938 11	Attachment Date		
7938 12	Attachment: Total Counter		
7938 13	Serial No.	*ENG	Displays the toner bottle information log 5 for Y.
7938 14	Attachment Date		
7938 15	Attachment: Total Counter		

7950	**[Unit Replacement Date]**		
	Displays the replacement date of each PM unit.		
7950 1	Image Transfer Belt	*ENG	
7950 2	Cleaning Unit		
7950 3	Paper Transfer Unit		
7950 4	Fusing Unit		
7950 5	Toner Collection Bottle		

7951	**[Remaining Day Counter]**		
	Displays the remaining unit life of each PM unit.		
7951 1	Page: PCU: Bk	*ENG	[0 to 255 / **255** / 1 day/step]
7951 2	Page: PCU: M		
7951 3	Page: PCU: C		
7951 4	Page: PCU: Y		
7951 5	Page: Development Unit: Bk		
7951 6	Page: Development Unit: M		
7951 7	Page: Development Unit: C		
7951 8	Page: Development Unit: Y		
7951 9	Page: Developer: Bk		
7951 10	Page: Developer: M		
7951 11	Page: Developer: C		

7951 12	Page: Developer: Y		
7951 13	Page: Image Transfer Belt		
7951 14	Page: Cleaning Unit		
7951 15	Page: Fusing Unit		
7951 16	Page: Paper Transfer Unit		
7951 31	Rotation: PCU: Bk	*ENG	[0 to 255 / **255** / 1 day/step]
7951 32	Rotation: PCU: M		
7951 33	Rotation: PCU: C		
7951 34	Rotation: PCU: Y		
7951 35	Rotation: Development Unit: Bk		
7951 36	Rotation: Development Unit: M		
7951 37	Rotation: Development Unit: C		
7951 38	Rotation: Development Unit: Y		
7951 39	Rotation: Developer: Bk		
7951 40	Rotation: Developer: M		
7951 41	Rotation: Developer: C		
7951 42	Rotation: Developer: Y		
7951 43	Rotation: Image Transfer Belt		
7951 44	Rotation: Cleaning Unit		
7951 45	Rotation: Fusing Unit		
7951 46	Rotation: Paper Transfer Unit		
7951 47	Measurement: Toner Collection bottle		

7952	**[PM Yield Setting]**
	Adjusts the unit yield of each PM unit.

7952 1	Rotation: Image Transfer Belt	*CTL	[0 to 999999999 / **256597000** / 1 mm/step]
7952 2	Rotation: Cleaning Unit	*CTL	[0 to 999999999 / **128299000** / 1 mm/step]
7952 3	Rotation: Fusing Unit	*CTL	[0 to 999999999 / **155595000** / 1 mm/step]
7952 4	Rotation: Paper Transfer Unit	*CTL	[0 to 999999999 / **192448000**/ 1 mm/step]
7952 11	Page: Image Transfer Belt	*CTL	[0 to 999999 / **320000** / 1 sheet/step]
7952 12	Page: Cleaning Unit	*CTL	[0 to 999999 / **160000** / 1 sheet/step]
7952 13	Page: Fusing Unit	*CTL	[0 to 999999 / **160000** / 1 sheet/step]
7952 14	Page: Paper Transfer Unit	*CTL	[0 to 999999 / **240000**/ 1 sheet/step]
7952 21	Day Threshold: PCU: Bk	*CTL	Adjusts the threshold day for the near end fro each PM unit. [1 to 30 / **15** / 1 day/step] These threshold days are used for NRS alarms.
7952 22	Day Threshold: PCU: M		
7952 23	Day Threshold: PCU: C		
7952 24	Day Threshold: PCU: Y		
7952 25	Day Threshold: Development Unit: Bk		
7952 26	Day Threshold: Development Unit: M		
7952 27	Day Threshold: Development Unit: C		
7952 28	Day Threshold: Development Unit: Y		
7952 29	Day Threshold: Developer: Bk		
7952 30	Day Threshold: Developer: M		
7952 31	Day Threshold: Developer: C		
7952 32	Day Threshold: Developer: Y		

7952 33	Day Threshold: Image Transfer Belt		
7952 34	Day Threshold: Cleaning Unit		
7952 35	Day Threshold: Fusing Unit		
7952 36	Day Threshold: Paper Transfer Unit]		
7952 37	Day Threshold: Toner Collection Botte		

7953	[Operation Env. Log: PCU: Bk]		
	Displays the PCU rotation distance in each specified operation environment. T: Temperature (°C), H: Relative Humidity (%)		
7953 1	T<=5: 0<=H<30	*CTL	[0 to 99999999 / - / 1 mm/step]
7953 2	T<=5: 30<=H<55		
7953 3	T<=5: 55<=H<80		
7953 4	T<=5: 80<=H<=100		
7953 5	5<T<15: 0<=H<30		
7953 6	5<T<15: 30<=H<55		
7953 7	5<T<15: 55<=H<80		
7953 8	5<T<15: 80<=H<=100		
7953 9	15<=T<25: 0<=H<30		
7953 10	15<=T<25: 30<=H<55		
7953 11	15<=T<25: 55<=H<80		
7953 12	15<=T<25: 80<=H<=100		
7953 13	25<=T<30: 0<=H<30		
7953 14	25<=T<30: 30<=H<55		
7953 15	25<=T<30: 55<=H<80		

7953 16	25<=T<30: 80<=H<=100		
7953 17	30<=T: 0<=H<30		
7953 18	30<=T: 30<=H<55		
7952 19	30<=T: 55<=H<80		
7952 20	30<=T: 80<=H<=100		

7954	[Operation Env. Log Clear]		
	Clears the operation environment log.		
7954 1			

SP8-xxx: 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
SP8 211 to SP8 216	The number of pages scanned to the document server.
SP8 401 to SP8 406	The number of pages printed from the document server
SP8 691 to SP8 696	The number of pages sent from the document server

Specifically, the following questions can be answered:

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

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

Prefixes	What it means	
T:	Total: (Grand Total).	Grand total of the items counted for all applications (C, F, P, etc.)..

C:	Copy application.	Totals (pages, jobs, etc.) executed for each application when the job was not stored on the document server.
F:	Fax application.	
P:	Print application.	
S:	Scan application.	
L:	Local storage (document server)	Totals (jobs, pages, etc.) for the document server. The L: counters work differently case by case. Sometimes, they count jobs/pages stored on the document server; this can be in document server mode (from the document server window), or from another mode, such as from a printer driver or by pressing the Store File button in the Copy mode window. Sometimes, they include occasions when the user uses a file that is already on the document server. Each counter will be discussed case by case.
O:	Other applications (external network applications, for example)	Refers to network applications such as Web Image Monitor. Utilities developed with the SDK (Software Development Kit) will also be counted with this group in the future.

The Group 8 SP codes are limited to 17 characters, forced by the necessity of displaying them on the small LCDs of printers and faxes that also use these SPs. Read over the list of abbreviations below and refer to it again if you see the name of an SP that you do not understand.

Key for Abbreviations

Abbreviation	What it means
/	"By", e.g. "T:Jobs/Apl" = Total Jobs "by" Application
>	More (2> "2 or more", 4> "4 or more"
AddBook	Address Book
Apl	Application
B/W	Black & White
Bk	Black
C	Cyan
ColCr	Color Create
ColMode	Color Mode

Abbreviation	What it means
Comb	Combine
Comp	Compression
Deliv	Delivery
DesApl	Designated Application. The application (Copy, Fax, Scan, Print) used to store the job on the document server, for example.
Dev Counter	Development Count, no. of pages developed.
Dup, Duplex	Duplex, printing on both sides
Emul	Emulation
FC	Full Color
FIN	Post-print processing, i.e. finishing (punching, stapling, etc.)
Full Bleed	No Margins
GenCopy	Generation Copy Mode
GPC	Get Print Counter. For jobs 10 pages or less, this counter does not count up. For jobs larger than 10 pages, this counter counts up by the number that is in excess of 10 (e.g., for an 11-page job, the counter counts up 11-10 =1)
IFax	Internet Fax
ImgEdt	Image Edit performed on the original with the copier GUI, e.g. border removal, adding stamps, page numbers, etc.
K	Black (YMCK)
LS	Local Storage. Refers to the document server.
LSize	Large (paper) Size
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

Abbreviation	What it means
OrgJam	Original Jam
Palm 2	Print Job Manager/Desk Top Editor: A pair of utilities that allows print jobs to be distributed evenly among the printers on the network, and allows files to moved around, combined, and converted to different formats.
PC	Personal Computer
PGS	Pages. A page is the total scanned surface of the original. Duplex pages count as two pages, and A3 simplex count as two pages if the A3/DLT counter SP is switched ON.
PJob	Print Jobs
Ppr	Paper
PrtJam	Printer (plotter) Jam
PrtPGS	Print Pages
R	Red (Toner Remaining). Applies to the wide format model A2 only. This machine is under development and currently not available.
Rez	Resolution
SC	Service Code (Error SC code displayed)
Scn	Scan
Sim, Simplex	Simplex, printing on 1 side.
S-to-Email	Scan-to-E-mail
SMC	SMC report printed with SP5990. All of the Group 8 counters are recorded in the SMC report.
Svr	Server
TonEnd	Toner End
TonSave	Toner Save
TXJob	Send, Transmission
YMC	Yellow, Magenta, Cyan
YMCK	Yellow, Magenta, Cyan, Black

Note

- All of the Group 8 SPs are reset with SP5 801 1 Memory All Clear.

8 001	T:Total Jobs	*CTL	These SPs count the number of times each application is used to do a job. [0 to 9999999/ 0 / 1] **Note**: The L: counter is the total number of times the other applications are used to send a job to the document server, plus the number of times a file already on the document server is used.
8 002	C:Total Jobs	*CTL	
8 003	F:Total Jobs	*CTL	
8 004	P:Total Jobs	*CTL	
8 005	S:Total Jobs	*CTL	
8 006	L:Total Jobs	*CTL	

- These SPs reveal the number of times an application is used, not the number of pages processed.
- When an application is opened for image input or output, this counts as one job.
- Interrupted jobs (paper jams, etc.) are counted, even though they do not finish.
- Only jobs executed by the customer are counted. Jobs executed by the customer engineer using the SP modes are not counted.
- When using secure printing (when a password is required to start the print job), the job is counted at the time when either “Delete Data” or “Specify Output” is specified.
- A job is counted as a fax job when the job is stored for sending.
- When a fax is received to fax memory, the F: counter increments but the L: counter does not (the document server is not used).
- A fax broadcast counts as one job for the F: counter (the fax destinations in the broadcast are not counted separately).
- A fax broadcast is counted only after all the faxes have been sent to their destinations. If one transmission generates an error, then the broadcast will not be counted until the transmission has been completed.
- A printed fax report counts as one job for the F: counter.
- The F: counter does not distinguish between fax sending or receiving.
- When a copy job on the document server is printed, SP8022 also increments, and when a print job stored on the document server is printed, SP8024 also increments.
- When an original is both copied and stored on the document server, the C: and L: counters both increment.
- When a print job is stored on the document server, only the L: counter increments.
- When the user presses the Document Server button to store the job on the document server, only the L: counter increments.

- When the user enters document server mode and prints data stored on the document server, only the L: counter increments.
- When an image received from Palm 2 is received and stored, the L: counter increments.
- When the customer prints a report (user code list, for example), the O: counter increments. However, for fax reports and reports executed from the fax application, the F: counter increments.

8 011	T:Jobs/LS	*CTL	These SPs count the number of jobs stored to the document server by each application, to reveal how local storage is being used for input. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.
8 012	C:Jobs/LS	*CTL	
8 013	F:Jobs/LS	*CTL	
8 014	P:Jobs/LS	*CTL	
8 015	S:Jobs/LS	*CTL	
8 016	L:Jobs/LS	*CTL	
8 017	O:Jobs/LS	*CTL	

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

8 021	T:Pjob/LS	*CTL	These SPs reveal how files printed from the document server were stored on the document server originally. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.
8 022	C:Pjob/LS	*CTL	
8 023	F:Pjob/LS	*CTL	
8 024	P:Pjob/LS	*CTL	
8 025	S:Pjob/LS	*CTL	
8 026	L:Pjob/LS	*CTL	
8 027	O:Pjob/LS	*CTL	

- When a copy job stored on the document server is printed with another application, the C: counter increments.
- When an application like DeskTopBinder merges a copy job that was stored on the document server with a print job that was stored on the document server, the C: and P: counters both increment.

- When a job already on the document server is printed with another application, the L: counter increments.
- When a scanner job stored on the document server is printed with another application, the S: counter increments. If the original was scanned from within document server mode, then the L: counter increments.
- When images stored on the document server by a network application (including Palm 2), are printed with another application, the O: counter increments.
- When a copy job stored on the document server is printed with a network application (Web Image Monitor, for example), the C: counter increments.
- When a fax on the document server is printed, the F: counter increments.

8 031	T:Pjob/DesApl	*CTL	These SPs reveal what applications were used to output documents from the document server. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs printed from within the document server mode screen at the operation panel.
8 032	C:Pjob/DesApl	*CTL	
8 033	F:Pjob/DesApl	*CTL	
8 034	P:Pjob/DesApl	*CTL	
8 035	S:Pjob/DesApl	*CTL	
8 036	L:Pjob/DesApl	*CTL	
8 037	O:Pjob/DesApl	*CTL	

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

8 041	T:TX Jobs/LS	*CTL	These SPs count the applications that stored files on the document server that were later accessed for transmission over the telephone line or over a network (attached to an e-mail, or as a fax image by I-Fax). [0 to 9999999/ 0 / 1] **Note**: Jobs merged for sending are counted separately. The L: counter counts the number of jobs scanned from within the document server mode screen at the operation panel.
8 042	C:TX Jobs/LS	*CTL	
8 043	F:TX Jobs/LS	*CTL	
8 044	P:TX Jobs/LS	*CTL	
8 045	S:TX Jobs/LS	*CTL	
8 046	L:TX Jobs/LS	*CTL	
8 047	O:TX Jobs/LS	*CTL	

- When a stored copy job is sent from the document server, the C: counter increments.

- When images stored on the document server by a network application or Palm2 are sent as an e-mail, the O: counter increments.

8 051	T:TX Jobs/DesApl	*CTL	These SPs count the applications used to send files from the document server over the telephone line or over a network (attached to an e-mail, or as a fax image by I-Fax). Jobs merged for sending are counted separately. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs sent from within the document server mode screen at the operation panel.
8 052	C:TX Jobs/DesApl	*CTL	
8 053	F:TX Jobs/DesApl	*CTL	
8 054	P:TX Jobs/DesApl	*CTL	
8 055	S:TX Jobs/DesApl	*CTL	
8 056	L:TX Jobs/DesApl	*CTL	
8 057	O:TX Jobs/DesApl	*CTL	

- If the send is started from Desk Top Binder or Web Image Monitor, for example, then the O: counter increments.

8 061	T:FIN Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs total the finishing methods. The finishing method is specified by the application.		
8 062	C:FIN Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for copy jobs only. The finishing method is specified by the application.		
8 063	F:FIN Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for fax jobs only. The finishing method is specified by the application. **Note**: Finishing features for fax jobs are not available at this time.		
8 064	P:FIN Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for print jobs only. The finishing method is specified by the application.		
8 065	S:FIN Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for scan jobs only. The finishing method is specified by the application. **Note**: Finishing features for scan jobs are not available at this time.		
8 066	L:FIN Jobs	*CTL	[0 to 9999999/ 0 / 1]

	These SPs total finishing methods for jobs output from within the document server mode screen at the operation panel. The finishing method is specified from the print window within document server mode.		
8 067	O:FIN Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for jobs executed by an external application, over the network. The finishing method is specified by the application.		
8 06x 1	Sort	Number of jobs started in Sort mode. When a stored copy job is set for Sort and then stored on the document server, the L: counter increments. (See SP8 066 1)	
8 06x 2	Stack	Number of jobs started out of Sort mode.	
8 06x 3	Staple	Number of jobs started in Staple mode.	
8 06x 4	Booklet	Number of jobs started in Booklet mode. If the machine is in staple mode, the Staple counter also increments.	
8 06x 5	Z-Fold	Number of jobs started In any mode other than the Booklet mode and set for folding (Z-fold).	
8 06x 6	Punch	Number of jobs started in Punch mode. When Punch is set for a print job, the P: counter increments. (See SP8 064 6.)	
8 06x 7	Other	Reserved. Not used.	

8 071	T:Jobs/PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the number of jobs broken down by the number of pages in the job, regardless of which application was used.		
8 072	C:Jobs/PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count and calculate the number of copy jobs by size based on the number of pages in the job.		
8 073	F:Jobs/PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count and calculate the number of fax jobs by size based on the number of pages in the job.		
8 074	P:Jobs/PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count and calculate the number of print jobs by size based on the number of pages in the job.		

8 075	S:Jobs/PGS		[0 to 9999999/ 0 / 1]
	These SPs count and calculate the number of scan jobs by size based on the number of pages in the job.		
8 076	L:Jobs/PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count and calculate the number of jobs printed from within the document server mode window at the operation panel, by the number of pages in the job.		
8 077	O:Jobs/PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count and calculate the number of "Other" application jobs (Web Image Monitor, Palm 2, etc.) by size based on the number of pages in the job.		
8 07x 1	1 Page	8 07x 8	21 to 50 Pages
8 07x 2	2 Pages	8 07x 9	51 to 100 Pages
8 07x 3	3 Pages	8 07x 10	101 to 300 Pages
8 07x 4	4 Pages	8 07x 11	301 to 500 Pages
8 07x 5	5 Pages	8 07x 12	501 to 700 Pages
8 07x 6	6 to 10 Pages	8 07x 13	701 to 1000 Pages
8 07x 7	11 to 20 Pages	8 07x 14	1001 to Pages

- For example: When a copy job stored on the document server is printed in document server mode, the appropriate L: counter (SP8076 0xx) increments.
- Printing a fax report counts as a job and increments the F: counter (SP 8073).
- Interrupted jobs (paper jam, etc.) are counted, even though they do not finish.
- If a job is paused and re-started, it counts as one job.
- If the finisher runs out of staples during a print and staple job, then the job is counted at the time the error occurs.
- For copy jobs (SP 8072) and scan jobs (SP 8075), the total is calculated by multiplying the number of sets of copies by the number of pages scanned. (One duplex page counts as 2.)
- The first test print and subsequent test prints to adjust settings are added to the number of pages of the copy job (SP 8072).
- When printing the first page of a job from within the document server screen, the page is counted.

8 111	T:FAX TX Jobs	*CTL	[0 to 9999999/ 0 / 1]

	These SPs count the total number of jobs (color or black-and-white) sent by fax, either directly or using a file stored on the document server, on a telephone line. **Note**: Color fax sending is not available at this time.		
8 113	F: FAX TX Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) sent by fax directly on a telephone line. **Note**: Color fax sending is not available at this time.		
8 11x 1	B/W		
8 11x 2	Color		

- These counters count jobs, not pages.
- This SP counts fax jobs sent over a telephone line with a fax application, including documents stored on the document server.
- If the mode is changed during the job, the job will count with the mode set when the job started.
- If the same document is faxed to both a public fax line and an I-Fax at a destination where both are available, then this counter increments, and the I-Fax counter (8 12x) also increments.
- The fax job is counted when the job is scanned for sending, not when the job is sent.

8 121	T:IFAX TX Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) sent, either directly or using a file stored on the document server, as fax images using I-Fax. **Note**: Color fax sending is not available at this time.		
8 123	F: IFAX TX Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the number of jobs (color or black-and-white) sent (not stored on the document server), as fax images using I-Fax. **Note**: Color fax sending is not available at this time.		
8 12x 1	B/W		
8 12x 2	Color		

- These counters count jobs, not pages.
- The counters for color are provided for future use; the color fax feature is not available at this time.
- The fax job is counted when the job is scanned for sending, not when the job is sent.

8 131	T:S-to-Email Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) scanned and attached to an e-mail, regardless of whether the document server was used or not.		
8 135	S: S-to-Email Jobs	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the number of jobs (color or black-and-white) scanned and attached to e-mail, without storing the original on the document server.		
8 13x 1	B/W		
8 13x 2	Color		
8 13x 3	ACS		

- These counters count jobs, not pages.
- If the job is stored on the document server, after the job is stored it is determined to be color or black-and-white then counted.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- If several jobs are combined for sending to the Scan Router, Scan-to-Email, or Scan-to-PC, or if one job is sent to more than one destination. each send is counted separately. For example, if the same document is sent by Scan-to-Email as well as Scan-to-PC, then it is counted twice (once for Scan-to-Email and once for Scan-to-PC).

8 141	T:Deliv Jobs/Svr	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) scanned and sent to a Scan Router server.		
8 145	S: Deliv Jobs/Svr	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the number of jobs (color or black-and-white) scanned in scanner mode and sent to a Scan Router server.		
8 14x 1	B/W		
8 14x 2	Color		
8 14x 3	ACS		

- These counters count jobs, not pages.

- The jobs are counted even though the arrival and reception of the jobs at the Scan Router server cannot be confirmed.
- If even one color image is mixed with black-and-white images, then the job is counted as a “Color” job.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be delivered, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

8 151	T:Deliv Jobs/PC	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) scanned and sent to a folder on a PC (Scan-to-PC). **Note**: At the present time, 8 151 and 8 155 perform identical counts.		
8 155	S:Deliv Jobs/PC	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) scanned and sent with Scan-to-PC.		
8 15x 1	B/W		
8 15x 2	Color		
8 15x 3	ACS		

- These counters count jobs, not pages.
- If the job is cancelled during scanning, it is not counted.
- If the job is cancelled while it is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

8 161	T:PCFAX TX Jobs	*CTL	These SPs count the number of PC Fax transmission jobs. A job is counted from when it is registered for sending, not when it is sent. [0 to 9999999/ 0 / 1] **Note**: At the present time, these counters perform identical counts.
8 163	F:PCFAX TX Jobs	*CTL	

- This counts fax jobs started from a PC using a PC fax application, and sending the data out to the destination from the PC through the copier.

8 191	T:Total Scan PGS	*CTL	These SPs count the pages scanned by each application that uses the scanner to scan images. [0 to 9999999/ 0 / 1]
8 192	C:Total Scan PGS	*CTL	
8 193	F:Total Scan PGS	*CTL	
8 195	S:Total Scan PGS	*CTL	
8 196	L:Total Scan PGS	*CTL	

- SP 8 191 to 8 196 count the number of scanned sides of pages, not the number of physical pages.
- These counters do not count reading user stamp data, or reading color charts to adjust color.
- Previews done with a scanner driver are not counted.
- A count is done only after all images of a job have been scanned.
- Scans made in SP mode are not counted.

Examples

- If 3 B5 pages and 1 A3 page are scanned with the scanner application but not stored, the S: count is 4.
- If both sides of 3 A4 sheets are copied and stored to the document server using the Store File button in the Copy mode window, the C: count is 6 and the L: count is 6.
- If both sides of 3 A4 sheets are copied but not stored, the C: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.

8 201	T:LSize Scan PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of large pages input with the scanner for scan and copy jobs. Large size paper (A3/DLT) scanned for fax transmission are not counted. **Note**: These counters are displayed in the SMC Report, and in the User Tools display.		
8 203	F: LSize Scan PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of large pages input with the scanner for fax transmission. **Note**: These counters are displayed in the SMC Report, and in the User Tools display.		
8 205	S:LSize Scan PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of large pages input with the scanner for scan jobs only. Large size paper (A3/DLT) scanned for fax transmission are not counted.		

	Note: These counters are displayed in the SMC Report, and in the User Tools display.

8 211	T:Scan PGS/LS	*CTL	These SPs count the number of pages scanned into the document server . [0 to 9999999/ **0** / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen
8 212	C:Scan PGS/LS	*CTL	
8 213	F:Scan PGS/LS	*CTL	
8 215	S:Scan PGS/LS	*CTL	
8 216	L:Scan PGS/LS	*CTL	

- 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.

8 221	ADF Org Feeds	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the number of pages fed through the ADF for front and back side scanning.		
8 221 1	Front	Number of front sides fed for scanning: With an ADF that can scan both sides simultaneously, the Front side count is the same as the number of pages fed for either simplex or duplex scanning. With an ADF that cannot scan both sides simultaneously, the Front side count is the same as the number of pages fed for duplex front side scanning. (The front side is determined by which side the user loads face up.)	
8 221 2	Back	Number of rear sides fed for scanning: With an ADF that can scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex scanning. With an ADF that cannot scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex rear-side scanning.	

- When 1 sheet is fed for duplex scanning the Front count is 1 and the Back count is 1.
- If a jam occurs during the job, recovery processing is not counted to avoid double counting. Also, the pages are not counted if the jam occurs before the first sheet is output.

8 231	Scan PGS/Mode	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the number of pages scanned by each ADF mode to determine the work load on the ADF.		
8 231 1	Large Volume	Selectable. Large copy jobs that cannot be loaded in the ADF at one time.	
8 231 2	SADF	Selectable. Feeding pages one by one through the ADF.	
8 231 3	Mixed Size	Selectable. Select "Mixed Sizes" on the operation panel.	
8 231 4	Custom Size	Selectable. Originals of non-standard size.	
8 231 5	Platen	Book mode. Raising the ADF and placing the original directly on the platen.	

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.
- The user cannot select mixed sizes or non-standard sizes with the fax application so if the original's page sizes are mixed or non-standard, these are not counted.
- If the user selects "Mixed Sizes" for copying in the platen mode, the Mixed Size count is enabled.
- In the SADF mode if the user copies 1 page in platen mode and then copies 2 pages with SADF, the Platen count is 1 and the SADF count is 3.

8 241	T:Scan PGS/Org	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the total number of scanned pages by original type for all jobs, regardless of which application was used.		
8 242	C:Scan PGS/Org	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the number of pages scanned by original type for Copy jobs.		
8 243	F:Scan PGS/Org	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the number of pages scanned by original type for Fax jobs.		
8 245	S:Scan PGS/Org	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the number of pages scanned by original type for Scan jobs.		
8 246	L:Scan PGS/Org	*CTL	[0 to 9999999/ **0** / 1]

	These SPs count the number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen				
	8 241	8 242	8 243	8 245	8 246
8 24x 1: Text	Yes	Yes	Yes	Yes	Yes
8 24x 2: Text/Photo	Yes	Yes	Yes	Yes	Yes
8 24x 3: Photo	Yes	Yes	Yes	Yes	Yes
8 24x 4: GenCopy, Pale	Yes	Yes	No	Yes	Yes
8 24x 5: Map	Yes	Yes	No	Yes	Yes
8 24x 6: Normal/Detail	Yes	No	Yes	No	No
8 24x 7: Fine/Super Fine	Yes	No	Yes	No	No
8 24x 8: Binary	Yes	No	No	Yes	No
8 24x 9: Grayscale	Yes	No	No	Yes	No
8 24x 10: Color	Yes	No	No	Yes	No
8 24x 11: Other	Yes	Yes	Yes	Yes	Yes

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.

8 251	T:Scan PGS/ImgEdt	*CTL	These SPs show how many times Image Edit features have been selected at the operation panel for each application. Some examples of these editing features are: • Erase> Border • Erase> Center • Image Repeat • Centering • Positive/Negative [0 to 9999999/ 0 / 1] Note: The count totals the number of times the edit features have been used. A detailed breakdown of exactly which features have been used is not given.
8 252	C:Scan PGS/ImgEdt	*CTL	
8 254	P:Scan PGS/ImgEdt	*CTL	
8 256	L:Scan PGS/ImgEdt	*CTL	
8 257	O:Scan PGS/ImgEdt	*CTL	

The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen.

8 261	T:Scan PGS/ColCr	*CTL	-
8 262	C:Scan PGS/ ColCr	*CTL	-
8 266	L:Scn PGS/ColCr	*CTL	-
8 26x 1	Color Conversion	These SPs show how many times color creation features have been selected at the operation panel.	
8 26x 2	Color Erase		
8 26x 3	Background		
8 26x 4	Other		

8 281	T:Scan PGS/TWAIN	*CTL	These SPs count the number of pages scanned using a TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions. [0 to 9999999/ **0** / 1] **Note**: At the present time, these counters perform identical counts.
8 285	S:Scan PGS/TWAIN	*CTL	

8 291	T:Scan PGS/Stamp	*CTL	These SPs count the number of pages stamped with the stamp in the ADF unit. [0 to 9999999/ **0** / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen
8 293	F:Scan PGS/Stamp	*CTL	
8 295	S:Scan PGS/Stamp	*CTL	
8 296	L:Scan PGS/Stamp	*CTL	

8 301	T:Scan PGS/Size	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count by size the total number of pages scanned by all applications. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-441].		
8 302	C:Scan PGS/Size	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count by size the total number of pages scanned by the Copy application. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-442].		

8 303	F:Scan PGS/Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by size the total number of pages scanned by the Fax application. Use these totals to compare original page size (scanning) and output page size [SP 8-443].		
8 305	S:Scan PGS/Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by size the total number of pages scanned by the Scan application. Use these totals to compare original page size (scanning) and output page size [SP 8-445].		
8 306	L:Scan PGS/Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by size the total number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen. Use these totals to compare original page size (scanning) and output page size [SP 8-446].		
8 30x 1	A3	-	
8 30x 2	A4		
8 30x 3	A5		
8 30x 4	B4		
8 30x 5	B5		
8 30x 6	DLT		
8 30x 7	LG		
8 30x 8	LT		
8 30x 9	HLT		
8 30x 10	Full Bleed		
8 30x 254	Other (Standard)		
8 30x 255	Other (Custom)		

8 311	T:Scan PGS/Rez	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings.		
8 315	S: Scan PGS/Rez	*CTL	[0 to 9999999/ 0 / 1]

	These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings. **Note**: At the present time, SP8-311 and SP8-315 perform identical counts.	
8 31x 1	1200dpi <	
8 31x 2	600dpi to 1199dpi	
8 31x 3	400dpi to 599dpi	
8 31x 4	200dpi to 399dpi	
8 31x 5	< 199dpi	

- Copy resolution settings are fixed so they are not counted.
- The Fax application does not allow finely-adjusted resolution settings so no count is done for the Fax application.

8 381	T:Total PrtPGS	*CTL	These SPs count the number of pages printed by the customer. The counter for the application used for storing the pages increments. [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter.
8 382	C:Total PrtPGS	*CTL	
8 383	F:Total PrtPGS	*CTL	
8 384	P:Total PrtPGS	*CTL	
8 385	S:Total PrtPGS	*CTL	
8 386	L:Total PrtPGS	*CTL	
8 387	O:Total PrtPGS	*CTL	

- When the A3/DLT double count function is switched on with SP5104, 1 A3/DLT page is counted as 2.
- When several documents are merged for a print job, the number of pages stored are counted for the application that stored them.
- These counters are used primarily to calculate charges on use of the machine, so the following pages are not counted as printed pages:
  - Blank pages in a duplex printing job.
  - Blank pages inserted as document covers, chapter title sheets, and slip sheets.
  - Reports printed to confirm counts.
  - All reports done in the service mode (service summaries, engine maintenance reports, etc.)
  - Test prints for machine image adjustment.

- Error notification reports.
- Partially printed pages as the result of a copier jam.

8 391	LSize PrtPGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count pages printed on paper sizes A3/DLT and larger. **Note**: In addition to being displayed in the SMC Report, these counters are also displayed in the User Tools display on the copy machine.		

8 401	T:PrtPGS/LS	*CTL	These SPs count the number of pages printed from the document server. The counter for the application used to print the pages is incremented. The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel. [0 to 9999999/ 0 / 1]
8 402	C:PrtPGS/LS	*CTL	
8 403	F:PrtPGS/LS	*CTL	
8 404	P:PrtPGS/LS	*CTL	
8 405	S:PrtPGS/LS	*CTL	
8 406	L:PrtPGS/LS	*CTL	

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the L: count.
- Fax jobs done with Web Image Monitor and Desk Top Binder are added to the F: count.

8 411	Prints/Duplex	*CTL	This SP counts the amount of paper (front/back counted as 1 page) used for duplex printing. Last pages printed only on one side are not counted. [0 to 9999999/ 0 / 1]

8 421	T:PrtPGS/Dup Comb	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing. This is the total for all applications.		
8 422	C:PrtPGS/Dup Comb	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the copier application.		
8 423	F:PrtPGS/Dup Comb	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the fax application.		

8 424	P:PrtPGS/Dup Comb	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the printer application.		
8 425	S:PrtPGS/Dup Comb	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the scanner application.		
8 426	L:PrtPGS/Dup Comb	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing from within the document server mode window at the operation panel.		
8 427	O:PrtPGS/Dup Comb	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by Other applications		
8 42x 1	Simplex> Duplex		
8 42x 2	Duplex> Duplex		
8 42x 3	Book> Duplex		
8 42x 4	Simplex Combine		
8 42x 5	Duplex Combine		
8 42x 6	2>	2 pages on 1 side (2-Up)	
8 42x 7	4>	4 pages on 1 side (4-Up)	
8 42x 8	6>	6 pages on 1 side (6-Up)	
8 42x 9	8>	8 pages on 1 side (8-Up)	
8 42x 10	9>	9 pages on 1 side (9-Up)	
8 42x 11	16>	16 pages on 1 side (16-Up)	
8 42x 12	Booklet		
8 42x 13	Magazine		

- These counts (SP8 421 to SP8 427) are especially useful for customers who need to improve their compliance with ISO standards for the reduction of paper consumption.

- Pages that are only partially printed with the n-Up functions are counted as 1 page.
- Here is a summary of how the counters work for Booklet and Magazine modes:

Booklet			Magazine	
Original Pages	Count		Original Pages	Count
1	1		1	1
2	2		2	2
3	2		3	2
4	2		4	2
5	3		5	4
6	4		6	4
7	4		7	4
8	4		8	4

8 431	T:PrtPGS/ImgEdt	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output with the three features below, regardless of which application was used.		
8 432	C:PrtPGS/ImgEdt	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output with the three features below with the copy application.		
8 434	P:PrtPGS/ImgEdt	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output with the three features below with the print application.		
8 436	L:PrtPGS/ImgEdt	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output from within the document server mode window at the operation panel with the three features below.		
8 437	O:PrtPGS/ImgEdt	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output with the three features below with Other applications.		

8 43x 1	Cover/Slip Sheet	Total number of covers or slip sheets inserted. The count for a cover printed on both sides counts 2.
8 43x 2	Series/Book	The number of pages printed in series (one side) or printed as a book with booklet right/left pagination.
8 43x 3	User Stamp	The number of pages printed where stamps were applied, including page numbering and date stamping.

8 441	T:PrtPGS/Ppr Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by all applications.		
8 442	C:PrtPGS/Ppr Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by the copy application.		
8 443	F:PrtPGS/Ppr Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by the fax application.		
8 444	P:PrtPGS/Ppr Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by the printer application.		
8 445	S:PrtPGS/Ppr Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by the scanner application.		
8 446	L:PrtPGS/Ppr Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed from within the document server mode window at the operation panel.		
8 447	O:PrtPGS/Ppr Size	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by Other applications.		
8 44x 1	A3		
8 44x 2	A4		
8 44x 3	A5		
8 44x 4	B4		

8 44x 5	B5	
8 44x 6	DLT	
8 44x 7	LG	
8 44x 8	LT	
8 44x 9	HLT	
8 44x 10	Full Bleed	
8 44x 254	Other (Standard)	
8 44x 255	Other (Custom)	

- These counters do not distinguish between LEF and SEF.

8 451	PrtPGS/Ppr Tray	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the number of sheets fed from each paper feed station.		
8 451 1	Bypass	Bypass Tray	
8 451 2	Tray 1	Copier	
8 451 3	Tray 2	Copier	
8 451 4	Tray 3	Paper Tray Unit (Option)	
8 451 5	Tray 4	Paper Tray Unit (Option)	
8 451 6	Tray 5	LCT (Option)	
8 451 7	Tray 6	Currently not used.	
8 451 8	Tray 7	Currently not used.	
8 451 9	Tray 8	Currently not used.	
8 451 10	Tray 9	Currently not used.	

8 461	T:PrtPGS/Ppr Type	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count by paper type the number pages printed by all applications. • These counters are not the same as the PM counter. The PM counter is based on feed timing to accurately measure the service life of the feed rollers. However, these counts are based on output timing.		

	- Blank sheets (covers, chapter covers, slip sheets) are also counted. - During duplex printing, pages printed on both sides count as 1, and a page printed on one side counts as 1.		
8 462	C:PrtPGS/Ppr Type	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by paper type the number pages printed by the copy application.		
8 463	F:PrtPGS/Ppr Type	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by paper type the number pages printed by the fax application.		
8 464	P:PrtPGS/Ppr Type	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by paper type the number pages printed by the printer application.		
8 466	L:PrtPGS/Ppr Type	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by paper type the number pages printed from within the document server mode window at the operation panel.		
8 46x 1	Normal		
8 46x 2	Recycled		
8 46x 3	Special		
8 46x 4	Thick		
8 46x 5	Normal (Back)		
8 46x 6	Thick (Back)		
8 46x 7	OHP		
8 46x 8	Other		

8 471	PrtPGS/Mag	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by magnification rate the number of pages printed.		
8 471 1	< 49%		
8 471 2	50% to 99%		
8 471 3	100%		
8 471 4	101% to 200%		

8 471 5	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%.

8 481	T:PrtPGS/TonSave	*CTL	
8 484	P:PrtPGS/TonSave	*CTL	
	These SPs count the number of pages printed with the Toner Save feature switched on. **Note**: These SPs return the same results as this SP is limited to the Print application. [0 to 9999999/ 0 / 1]		

8 491	T:PrtPGS/Col Mode	*CTL	These SPs count the number of pages printed in the Color Mode by each application.
8 492	C:PrtPGS/Col Mode	*CTL	
8 493	F:PrtPGS/Col Mode	*CTL	
8 496	L:PrtPGS/Col Mode	*CTL	
8 497	O:PrtPGS/Col Mode	*CTL	
8 49x 1	B/W		
8 49x 2	Single Color		
8 49x 3	Two Color		
8 49x 4	Full Color		

8 501	T:PrtPGS/Col Mode	*CTL	These SPs count the number of pages printed in the Color Mode by the print application.
8 504	P:PrtPGS/Col Mode	*CTL	

8 057	O:PrtPGS/Col Mode	*CTL	
8 50x 1	B/W		
8 50x 2	Mono Color		
8 50x 3	Full Color		
8 50x 4	Single Color		
8 50x 5	Two Color		

8 511	T:PrtPGS/Emul	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by printer emulation mode the total number of pages printed.		
8 514	P:PrtPGS/Emul	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by printer emulation mode the total number of pages printed.		
8 514 1	RPCS		
8 514 2	RPDL		
8 514 3	PS3		
8 514 4	R98		
8 514 5	R16		
8 514 6	GL/GL2		
8 514 7	R55		
8 514 8	RTIFF		
8 514 9	PDF		
8 514 10	PCL5e/5c		
8 514 11	PCL XL		
8 514 12	IPDL-C		
8 514 13	BM-Links	Japan Only	
8 514 14	Other		

- SP8 511 and SP8 514 return the same results as they are both limited to the Print application.

- Print jobs output to the document server are not counted.

8 521	T:PrtPGS/FIN	*CTL	[0 to 9999999 / 0 / 1]
	These SPs count by finishing mode the total number of pages printed by all applications.		
8 522	C:PrtPGS/FIN	*CTL	[0 to 9999999 / 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Copy application.		
8 523	F:PrtPGS/FIN	*CTL	[0 to 9999999 / 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Fax application. NOTE: Print finishing options for received faxes are currently not available.		
8 524	P:PrtPGS/FIN	*CTL	[0 to 9999999 / 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Print application.		
8 525	S:PrtPGS/FIN	*CTL	[0 to 9999999 / 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Scanner application.		
8 526	L:PrtPGS/FIN	*CTL	[0 to 9999999 / 0 / 1]
	These SPs count by finishing mode the total number of pages printed from within the document server mode window at the operation panel.		
8 52x 1	Sort		
8 52x 2	Stack		
8 52x 3	Staple		
8 52x 4	Booklet		
8 52x 5	Z-Fold		
8 52x 6	Punch		
8 52x 7	Other		

Note

- If stapling is selected for finishing and the stack is too large for stapling, the unstapled pages are still counted.
- The counts for staple finishing are based on output to the staple tray, so jam recoveries are counted.

8 531	Staples	*CTL	This SP counts the amount of staples used by the machine. [0 to 9999999 / **0** / 1]

8 581	T:Counter	*CTL	[0 to 9999999 / **0** / 1]
	These SPs count the total output broken down by color output, regardless of the application used. In addition to being displayed in the SMC Report, these counters are also displayed in the User Tools display on the copy machine.		
8 581 1	Total		
8 581 2	Total: Full Color		
8 581 3	B&W/Single Color		
8 581 4	Development: CMY		
8 581 5	Development: K		
8 581 6	Copy: Color		
8 581 7	Copy: B/W		
8 581 8	Print: Color		
8 581 9	Print: B/W		
8 581 10	Total: Color		
8 581 11	Total: B/W		
8 581 12	Full Color: A3		
8 581 13	Full Color: B4 JIS or Smaller		
8 581 14	Full Color Print		
8 581 15	Mono Color Print		
8 581 16	Full Color GPC		

8 582	C:Counter	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total output of the copy application broken down by color output.		
8 582 1	B/W		
8 582 2	Single Color		
8 582 3	Two Color		
8 582 4	Full Color		

8 583	F:Counter	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total output of the fax application broken down by color output.		
8 583 1	B/W		
8 583 2	Single Color		

8 584	P:Counter	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total output of the print application broken down by color output.		
8 584 1	B/W		
8 584 2	Mono Color		
8 584 3	Full Color		
8 584 4	Single Color		
8 584 5	Two Color		

8 586	L:Counter	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total output of the local storage broken down by color output.		
8 582 1	B/W		
8 582 2	Single Color		
8 582 3	Two Color		
8 582 4	Full Color		

8 591	O:Counter	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the totals for A3/DLT paper use, number of duplex pages printed, and the number of staples used. These totals are for Other (O:) applications only.		
8 591 1	A3/DLT		
8 591 2	Duplex		

8 601	Coverage Counter	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the total coverage for each color and the total printout pages for each printing mode.		
8 601 1	B/W		
8 601 2	Color		
8 601 11	B/W Printing Pages		
8 601 12	Color Printing Pages		

8 631	T:FAX TX PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by fax to a telephone number.		
8 633	F:FAX TX PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by fax to a telephone number.		
8 63x 1	B/W		
8 63x 2	Color		

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/W or Color.
- At the present time, this feature is provided for the Fax application only so SP8631 and SP8633 are the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions and are counted for each destination.

8 641	T:IFAX TX PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by fax to as fax images using I-Fax.		
8 643	F:IFAX TX PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by Fax as fax images using I-Fax.		
8 64x 1	B/W		
8 64x 2	Color		

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/W or Color.
- At the present time, this feature is provided for the Fax application only so SP8641 and SP8643 are the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions and are counted for each destination.

8 651	T:S-to-Email PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages attached to an e-mail for both the Scan and document server applications.		
8 655	S-to-Email PGS	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages attached to an e-mail for the Scan application only.		
8 65x 1	B/W		
8 65x 2	Color		

Note

- The count for B/W and Color pages is done after the document is stored on the HDD. If the job is cancelled before it is stored, the pages are not counted.
- If Scan-to-Email is used to send a 10-page document to 5 addresses, the count is 10 (the pages are sent to the same SMTP server together).

- If Scan-to-PC is used to send a 10-page document to 5 folders, the count is 50 (the document is sent to each destination of the SMB/FTP server).
- Due to restrictions on some devices, if Scan-to-Email is used to send a 10-page document to a large number of destinations, the count may be divided and counted separately. For example, if a 10-page document is sent to 200 addresses, the count is 10 for the first 100 destinations and the count is also 10 for the second 100 destinations, for a total of 20.).

8 661	T:Deliv PGS/Svr	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages sent to a Scan Router server by both Scan and LS applications.		
8 665	Deliv PGS/Svr	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages sent to a Scan Router server by the Scan application.		
8 66x 1	B/W		
8 66x 2	Color		

Note

- The B/W and Color counts are done after the document is stored on the HDD of the Scan Router server.
- If the job is canceled before storage on the Scan Router server finishes, the counts are not done.
- The count is executed even if regardless of confirmation of the arrival at the Scan Router server.

8 671	T:Deliv PGS/PC	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages sent to a folder on a PC (Scan-to-PC) with the Scan and LS applications.		
8 675	Deliv PGS/PC	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages sent with Scan-to-PC with the Scan application.		
8 67x 1	B/W		
8 67x 2	Color		

8 681	T:PCFAX TXPGS	*CTL	These SPs count the number of pages sent by PC Fax. These SPs are provided for the Fax application only, so the counts for SP8 681 and SP8 683 are the same.
8 683	F:PCFAX TXPGS	*CTL	

			[0 to 9999999/ 0 / 1]

- This counts pages sent from a PC using a PC fax application, from the PC through the copier to the destination.
- When sending the same message to more than one place using broadcasting, the pages are only counted once. (For example, a 10-page fax is sent to location A and location B. The counter goes up by 10, not 20.)

8 691	T:TX PGS/LS	*CTL	These SPs count the number of pages sent from the document server. The counter for the application that was used to store the pages is incremented. [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter.
8 692	C:TX PGS/LS	*CTL	
8 693	F:TX PGS/LS	*CTL	
8 694	P:TX PGS/LS	*CTL	
8 695	S:TX PGS/LS	*CTL	
8 696	L:TX PGS/LS	*CTL	

Note

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the count.
- If several documents are merged for sending, the number of pages stored are counted for the application that stored them.
- When several documents are sent by a Fax broadcast, the F: count is done for the number of pages sent to each destination.

8 701	TX PGS/Port	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the number of pages sent by the physical port used to send them. For example, if a 3-page original is sent to 4 destinations via ISDN G4, the count for ISDN (G3, G4) is 12.		
8 701 1	PSTN-1		
8 701 2	PSTN-2		
8 701 3	PSTN-3		
8 701 4	ISDN (G3,G4)		
8 701 5	Network		

8 711	T:Scan PGS/Comp	*CTL	[0 to 9999999/ 0 / 1]

8 715	S:Scan PGS/Comp	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the number of pages sent by each compression mode.		
8 715 1	JPEG/JPEG2000		
8 715 2	TIFF(Multi/Single)		
8 715 3	PDF		
8 715 4	Other		

8 741	RX PGS/Port	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the number of pages received by the physical port used to receive them.		
8 741 1	PSTN-1		
8 741 2	PSTN-2		
8 741 3	PSTN-3		
8 741 4	ISDN (G3,G4)		
8 741 5	Network		

8 771	Dev Counter	*CTL	[0 to 9999999/ **0** / 1]
	These SPs count the frequency of use (number of rotations of the development rollers) for black and other color toners.		
8 771 1	Total		
8 771 2	K		
8 771 3	Y		
8 771 4	M		
8 771 5	C		

8 781	Toner Bottle Info.	*ENG	[0 to 9999999/ **0** / 1]
	These SPs display the number of already replaced toner bottles. NOTE: Currently, the data in SP7-833-011 through 014 and the data in SP8-781-001 through 004 are the same.		

8 781 1	Toner: BK	The number of black-toner bottles
8 781 2	Toner: Y	The number of yellow-toner bottles
8 781 3	Toner: M	The number of magenta-toner bottles
8 781 4	Toner: C	The number of cyan-toner bottles

8 791	LS Memory Remain	*CTL	This SP displays the percent of space available on the document server for storing documents. [0 to 100 / **0** / 1]

8 801	Toner Remain	*CTL	[0 to 100/ **0** / 1]
	These SPs display the percent of toner remaining for each color. This SP allows the user to check the toner supply at any time. **Note:** This precise method of measuring remaining toner supply (1% steps) is better than other machines in the market that can only measure in increments of 10 (10% steps).		
8 801 1	K		
8 801 2	Y		
8 801 3	M		
8 801 4	C		

8 851	Coverage Count: 0-10%	*ENG	[0 to 9999999/ **0** / 1]
	These SPs display the number of scanned sheets on which the coverage of each color is from 0% to 10%.		
8 851 11	0 to 2%: BK	8 851 31	5 to 7%: BK
8 851 12	0 to 2%: Y	8 851 32	5 to 7%: Y
8 851 13	0 to 2%: M	8 851 33	5 to 7%: M
8 851 14	0 to 2%: C	8 851 34	5 to 7%: C
8 851 21	3 to 4%: BK	8 851 41	8 to 10%: BK
8 851 22	3 to 4%: Y	8 851 42	8 to 10%: Y
8 851 23	3 to 4%: M	8 851 43	8 to 10%: M

8 851 24	3 to 4%: C	8 851 44	8 to 10%: C

8 861	Coverage Count: 11-20%	*ENG	[0 to 9999999/ 0 / 1]
	These SPs display the number of scanned sheets on which the coverage of each color is from 11% to 20%.		
8 861 1	BK		
8 861 2	Y		
8 861 3	M		
8 861 4	C		

8 871	Coverage Count: 21-30%	*ENG	[0 to 9999999/ 0 / 1]
	These SPs display the number of scanned sheets on which the coverage of each color is from 21% to 30%.		
8 871 1	BK		
8 871 2	Y		
8 871 3	M		
8 871 4	C		

8 881	Coverage Count: 31%-	*ENG	[0 to 9999999/ 0 / 1]
	These SPs display the number of scanned sheets on which the coverage of each color is 31% or higher.		
8 881 1	BK		
8 881 2	Y		
8 881 3	M		
8 881 4	C		

8 891	Printing PGS: Present Ink	*ENG	[0 to 9999999/ 0 / 1]

	These SPs display the amount of the remaining current toner for each color.
8 891 1	BK
8 891 2	Y
8 891 3	M
8 891 4	C

8 901	Printing PGS: Log: Latest 1	*ENG	[0 to 9999999/ **0** / 1]
	These SPs display the amount of the remaining previous toner for each color.		
8 901 1	BK		
8 901 2	Y		
8 901 3	M		
8 901 4	C		

8 911	Printing PGS: Log: Latest 2	*ENG	[0 to 9999999/ **0** / 1]
	These SPs display the amount of the remaining 2nd previous toner for each color.		
8 911 1	BK		
8 911 2	Y		
8 911 3	M		
8 911 4	C		

8 921	Coverage Count: Total	*CTL	[0 to 9999999/ **0** / 1]
	Displays the total coverage and total printout number for each color.		
8 921 1	BK (%)		
8 921 2	Y (%)		
8 921 3	M (%)		
8 921 4	C (%)		
8 921 14	BK (Page)		

8 921 15	Y (Page)	
8 921 16	M (Page)	
8 921 17	C (Page)	

8 941	Machine Status	*CTL	[0 to 9999999/ 0 / 1]
	These SPs count the amount of time the machine spends in each operation mode. These SPs are useful for customers who need to investigate machine operation for improvement in their compliance with ISO Standards.		
8 941 1	Operation Time	Engine operation time. Does not include time while controller is saving data to HDD (while engine is not operating).	
8 941 2	Standby Time	Engine not operating. Includes time while controller saves data to HDD. Does not include time spent in Energy Save, Low Power, or Off modes.	
8 941 3	Energy Save Time	Includes time while the machine is performing background printing.	
8 941 4	Low Power Time	Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing.	
8 941 5	Off Mode Time	Includes time while machine is performing background printing. Does not include time machine remains powered off with the power switches.	
8 941 6	SC	Total time when SC errors have been staying.	
8 941 7	PrtJam	Total time when paper jams have been staying during printing.	
8 941 8	OrgJam	Total time when original jams have been staying during scanning.	
8 941 9	Supply PM Unit End	Total time when toner end has been staying	

8 951	AddBook Register	*CTL	
	These SPs count the number of events when the machine manages data registration.		
8 951 1	User Code	User code registrations.	[0 to 9999999/ 0 / 1]
8 951 2	Mail Address	Mail address registrations.	

8 951 3	Fax Destination	Fax destination registrations.	
8 951 4	Group	Group destination registrations.	
8 951 5	Transfer Request	Fax relay destination registrations for relay TX.	
8 951 6	F-Code	F-Code box registrations.	
8 951 7	Copy Program	Copy application registrations with the Program (job settings) feature.	[0 to 255 / 0 / 255]
8 951 8	Fax Program	Fax application registrations with the Program (job settings) feature.	
8 951 9	Printer Program	Printer application registrations with the Program (job settings) feature.	
8 951 10	Scanner Program	Scanner application registrations with the Program (job settings) feature.	

8 999	Adomin. Counter List	*CTL	[0 to 9999999/ 0 / 1]
	Displays the total coverage and total printout number for each color.		
8 999 1	Total		
8 999 2	Copy: Full Color		
8 999 3	Copy: BW		
8 999 4	Copy: Single Color		
8 999 5	Copy: Two Color		
8 999 6	Printer Full Color		
8 999 7	Printer BW		
8 999 8	Printer Single Color		
8 999 9	Printer Two Color		
8 999 10	Fax Print: BW		
8 999 12	A3/DLT		

8 999 13	Duplex	
8 999 14	Coverage: Color (%)	
8 999 15	Coverage: BW (%)	
8 999 16	Coverage: Color Print Page (%)	
8 999 17	Coverage: BW Print Page (%)	
8 999 101	Transmission Total: Color	
8 999 102	Transmission Total: BW	
8 999 103	FAX Transmission	
8 999 104	Scanner Transmission: Color	
8 999 105	Scanner Transmission: BW	

SP9-XXX: Others

9511	Skew Origin Set	*CTL	
001	M: Skew Motor	These SPs reset the skew correction value (SP2-119-001 to -003) to "0".	
002	C: Skew Motor		
003	Y: Skew Motor		

9911	[Pressure Roller Condition]		
001	Normal: Threshold: Upper Limit	*ENG	[0 to 200 / **140** / 1 deg/step]
	Specifies the threshold temperature of the pressure roller between M (middle) and H (high). This SP is referred when the input voltage of the IH inverter is more than 93% (adjustable with SP1-916-026).		
002	Normal: Threshold: Lower Limit	*ENG	[0 to 200 / **120** / 1 deg/step]
	Specifies the threshold temperature of the pressure roller between L (low) and M (middle). This SP is referred when the input voltage of the IH inverter is more than 93% (adjustable with SP1-916-026).		

003	Coefficient: Low	*ENG	[0 to 3 / **2** / 1 /step] 0: No effect 1: Normal 2: High 3: Highest
	DFU Adjusts the coefficient value of the temperature correction for ferrite roller rotation when the the fusing unit is in the low temperature.		
004	Coefficient: Mid.	*ENG	[0 to 3 / **1** / 1 /step] **DFU**
005	Coefficient: High	*ENG	[0 to 3 / **0** / 1 /step] **DFU**
006	Stand-by: Threshold: Upper Limit	*ENG	[0 to 200 / **180** / 1 deg/step]
	Specifies the threshold temperature of the pressure roller between M (middle) and H (high). This SP is referred when the input voltage of the IH inverter is 93% or less (adjustable with SP1-916-026).		
007	Stand-by: Threshold: Lower Limit	*ENG	[0 to 200 / **120** / 1 deg/step]
	Specifies the threshold temperature of the pressure roller between L (low) and M (middle). This SP is referred when the input voltage of the IH inverter is 93% or less (adjustable with SP1-916-026).		
008	Mid. Thick: A3: Threshold: Upper Limit	*ENG	[0 to 200 / **200** / 1 deg/step]
	Specifies the threshold temperature of the pressure roller between M (middle) and H (high). This SP is referred when the paper of 275 mm width or more is used in the middle thick paper and 205/154 mm/sec line speed mode.		
009	Mid. Thick: A3: Threshold: Lower Limit	*ENG	[0 to 200 / **190** / 1 deg/step]
	Specifies the threshold temperature of the pressure roller between L (low) and M (middle). This SP is referred when the paper of 275 mm width or more is used in the middle thick paper and 205/154 mm/sec line speed mode.		

9912	**[Target Angle]** Ferrite Roller Paper Size Adjustment **DFU**

001	A3/DLT	*ENG	[0 to 960 / **323** / 1 PULSE/step]
002	B4	*ENG	[0 to 960 / **381** / 1 PULSE/step]
003	A4/LT	*ENG	[0 to 960 / **400** / 1 PULSE/step]
004	B5	*ENG	[0 to 960 / **498** / 1 PULSE/step]
005	A5/HLT	*ENG	[0 to 960 / **525** / 1 PULSE/step]
006	B6	*ENG	[0 to 960 / **525** / 1 PULSE/step]
007	A6	*ENG	[0 to 960 / **525** / 1 PULSE/step]

9921	Page Correction Setting	*CTL	Not used in this machine. [0 to 9999999/ **0** / 1]

9965	[Repeat Print Temp.Correction]		
	These SPs are used for Preventing the fusing temperature overheating due to a multiple printing job.		
001	JOB Interval: Plain	*ENG	[0 to 120 / **30** / 1 sec/step]
	Specifies the job interval time in plain paper mode. The machine does not enter the temperature correction mode for preventing the overheating for the time specified with this SP.		
002	JOB Interval: M-Thick	*ENG	[0 to 120 / **30** / 1 sec/step]
	Specifies the job interval time in middle thick paper mode. The machine does not enter the temperature correction mode for preventing the overheating for the time specified with this SP.		
003	Shift Time	*ENG	[0 to 1200 / **600** / 10 sec/step]
	Specifies the threshold time for entering the temperature correction mode. If a job continues for the time specified with this SP, the machine enteres the temperature correction mode.		
004	Offset Value: Plain: Low Temp.	*ENG	[0 to 20 / **5** / 1 deg/step]
	Specified the offset temperature for the plain paper in the low temperature. The machine decreases this temperature when a job continues for 600 seconds (adjustable with SP9-965-003) and the environment temperature is 17°C or less.		
005	Offset Value: Plain: Normal/ High Temp.	*ENG	[0 to 20 / **5** / 1 deg/step]

	Specified the offset temperature for the plain paper in the low temperature. The machine decreases this temperature when a job continues for 600 seconds (adjustable with SP9-965-003) and the environment temperature is more than 17°C and 30°C or less.		
006	Offset Value: M-Thick: Low Temp.	*ENG	[0 to 20 / **5** / 1 deg/step]
	Specified the offset temperature for the middle thick paper in the middle temperature. The machine decreases this temperature when a job continues for 600 seconds (adjustable with SP9-965-003) and the environment temperature is 17°C or less.		
007	Offset Value: M-Thick: Normal/High Temp.	*ENG	[0 to 20 / **5** / 1 deg/step]
	Specified the offset temperature for the middle thick paper in the middle temperature. The machine decreases this temperature when a job continues for 600 seconds (adjustable with SP9-965-003) and the environment temperature is more than 17°C and 30°C or less.		

Note

- Memory Clear (SP5-801)
- The following tables list the items that are cleared. The serial number information, meter charge setting and meter charge counters (SP8-581, 582, 583, 584, and 586) are not cleared.

5801	**[Memory Clear]**	
5801 1	All Clear	Resets all correction data for process control and all software counters, and returns all modes and adjustments to their default values.
5801 2	ENG All	Clears the engine settings.
5801 3	SCS	Initializes default system settings, SCS (System Control Service) settings, operation display coordinates, and ROM update information.
5801 4	IMH	No SP modes are cleared. But, all files stored in the HDD are cleared. (IMH: Image Memory Handler)
5801 5	MCS	No SP modes are cleared. (MCS: Memory Control Service)
5801 6	Copier application	Initializes all copier application settings.

5801 7	Fax application	Initializes the fax reset time, job login ID, all TX/RX settings, local storage file numbers, and off-hook timer.
5801 8	Printer application	The following service settings: • Bit switches • Gamma settings (User & Service) • Toner Limit The following user settings: • Tray Priority • Menu Protect • System Setting except for setting of Energy Saver • I/F Setup (I/O Buffer and I/O Timeout) • PCL Menu
5801 9	Scanner application	Initializes the scanner defaults for the scanner and all the scanner SP modes.
5801 10	Netfile application	Deletes the network file application management files and thumbnails, and initializes the job login ID.
5801 11	NCS	All setting of Network Setup (User Menu) (NCS: Network Control Service)
5801 12	R-Fax	Initializes the job login ID, SmartDeviceMonitor for Admin, job history, and local storage file numbers.
5801 13	IPU	Initilaize the IPU setting.
5801 14	Clear DCS Settings	Initializes the DCS (Delivery Control Service) settings.
5801 15	Clear UCS Settings	Initializes the UCS (User Information Control Service) settings.
5801 16	MIRS Setting	Initializes the MIRS (Machine Information Report Service) settings.
5801 17	CCS	Initializes the CCS (Certification and Charge-control Service) settings.

5998	[Memory Clear]	
5998 1	ENG Setting	All engine related SP modes except for the following:

		- Serial number information - SP modes related to meter charge - Counters and logging data
5998 2	ENG Counter	All counters and logging data related to engine

Input Check Table

When entering the Input Check mode, 8 digits display the result for a section. Each digit corresponds to a different device as shown in the table.

Bit No.	7	6	5	4	3	2	1	0
Result	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1

Copier

5803	Bit	Description	Reading	
			0	1
5803 1	Interlock Release Detection			
	0	Interlock Release Detection 1	Front door open	Front door closed
	4	Interlock Release Detection 2	Front door open	Front door closed
5803 2	Right Cover Open/Closed		Closed	Open
5803 3	Toner Collection Bottle Set		Set	Not set
5803 4	Image Transfer Contact/Release Position		Not contact	Contact
5803 9	Paper Transfer Contact/Release Position		Not contact	Contact
5803 10	Drum Motor: Bk: Lock		Normal	Lock error
5803 13	Toner Relay Motor: Lock		Normal	Lock error
5803 14	Fusing Exit Motor: Lock		Normal	Lock error
5803 15	Image Transfer Motor: Lock		Normal	Lock error
5803 16	Laser Optics Fan: Front Lock		Normal	Lock error

5803 17	Laser Optics Fan: Rear Lock	Normal	Lock error
5803 18	Fusing Exhaust Fan: Lock	Normal	Lock error
5803 20	IH Power Cooling Fan: Lock	Normal	Lock error
5803 27	Toner Collection Full Sensor	Not full	Full
5803 28	Drum Phase Sensor: Bk	Actuator not detected	Actuator detected
5803 29	Drum Phase Sensor: M	Actuator not detected	Actuator detected
5803 30	Drum Phase Sensor: C	Actuator not detected	Actuator detected
5803 31	Drum Phase Sensor: Y	Actuator not detected	Actuator detected
5803 33	IH Magnetic Field Switch HP Sensor 1	Not HP	HP
5803 34	Fusing Rotation Sensor	Actuator not detected	Actuator detected
5803 35	Toner End Sensor: Bk	Toner end	Toner remaining
5803 36	Toner End Sensor: M	Toner end	Toner remaining
5803 37	Toner End Sensor: C	Toner end	Toner remaining
5803 38	Toner End Sensor: Y	Toner end	Toner remaining
5803 39	Fusing Destination Detection: DOM	Set	Not set
5803 40	Fusing Destination Detection: NA	Set	Not set
5803 41	Fusing Destination Detection: EU	Set	Not set
5803 42	Keycard: Set	Set	Not set
5803 43	Mechanical Counter Bk: Set	Not set	Set
5803 44	Mechanical Counter FC: Set	Not set	Set
5803 45	Key Counter: Set	Set	Not set
5803 46	Fusing New Unit Detection	New	Not new
5803 48	Tray 1 Set Detection	Set	Not set

5803 49	Tray 1 Paper End	No paper	Paper remaining
5803 50	Tray 1 Paper Height Detection 1	See table 1 following this table.	
5803 51	Tray 1 Paper Height Detection 2	See table 1 following this table.	
5803 52	Tray 1 Lift Detection	Not upper limit	Upper limit
5803 53	Tray 2 Set Detection	Set	Not set
5803 54	Tray 2 Paper End	No paper	Paper remaining
5803 55	Tray 2 Paper Height Detection 1	See table 1 following this table.	
5803 56	Tray 2 Paper Height Detection 2	See table 1 following this table.	
5803 57	Tray 2 Lift Detection	Not upper limit	Upper limit
5803 58	Tray 2 Paper Size	See table 2 following this table.	
5803 59	Registration Sensor	Paper detected	Paper not detected
5803 60	Relay Sensor 1 (Paper feed sensor 1)	Paper detected	Paper not detected
5803 61	Relay Sensor 2 (Paper feed sensor 2)	Paper detected	Paper not detected
5803 62	Paper Feed Sensor 1	Paper detected	Paper not detected
5803 63	Paper Feed Sensor 2	Paper detected	Paper not detected
5803 64	Fusing Entrance Sensor	Paper detected	Paper not detected
5803 65	Fusing Exit Sensor	Paper not detected	Paper detected
5803 66	Exit Sensor	Paper detected	Paper not detected
5803 67	Exit Full Detection	Paper not full	Paper full
5803 68	Junction Gate Relay Detection	Paper detected	Paper not detected
5803 69	Junction Gate HP Detection	Not HP	HP
5803 70	By-pass Tray Paper End	Paper remaining	No paper
5803 71	By-Pass Paper Size	See table 3 following this table.	
5803 72	Bridge Exit	Paper detected	Paper not detected
5803 73	Bridge Relay Sensor	Paper detected	Paper not detected
5803 74	Bridge Paper Full	Paper not full	Paper full

5803 75	Bridge Unit Set	Set	Not set
5803 76	Bridge Exit Cover Detection	Closed	Open
5803 77	Bridge Relay Cover Detection	Closed	Open
5803 78	Duplex Entrance Sensor	Paper detected	Paper not detected
5803 79	Duplex Exit Sensor	Paper detected	Paper not detected
5803 80	Duplex Open/Closed Detection	Closed	Open
5803 81	Duplex Feed Cover	Open	Closed
5803 82	1 Bin Tray Set Detection	Set	Not set
5803 83	1 Bin Tray Sensor	Paper not detected	Paper detected
5803 87	Bank SEF (Vertical transport sensor 1/ Relay sensor) Sensor3	Paper not detected	Paper detected
5803 88	Bank SEF (Vertical transport sensor 2) Sensor4	Paper not detected	Paper detected
5803 89	Bank Feed Sensor 3	Paper not detected	Paper detected
5803 90	Bank Feed Sensor 4	Paper not detected	Paper detected
5803 91	Bank Relay Cover Detection	Closed	Open
5803 92	Bank Vertical Transport Sensor 5	Not used	
5803 93	Bank Feed Sensor 5	Not used	
5803 94	GAVD Open/Closed Detection	Closed (LD5V ON)	Open (LD5V OFF)
5803 95	Tube Cooling Fan: Lock	Normal	Lock error
5803 96	New Transfer Detection	Not new	New
5803 101	PP: D: SC Detection	SC detected	No SC
5803 102	PP: CB: SC Detection	SC detected	No SC
5803 103	PP: TTS: SC Detection	SC detected	No SC
5803 104	Fusing Coil Fan: Lock	Normal	Lock error
5803 105	Exit Fan: Lock	Normal	Lock error

5803 106	Duct Fan 2: Lock	Normal	Lock error
5803 107	Duct Fan 3: Lock	Normal	Lock error
5803 108	Laser Optics Shutter Sensor 1	Shutter open	Shutter closed
5803 109	Laser Optics Shutter Sensor 2	Shutter closed	Shutter open
5803 110	Interlock Detection 2	Switch off (Power off)	Switch on (Power on)
5803 111	Drum Motor: M: Lock	Normal	Lock error
5803 112	Drum Motor: Y: Lock	Normal	Lock error
5803 113	Drum Motor: C: Lock	Normal	Lock error
5803 200	Scanner HP Sensor	Not HP	HP
5803 201	Platen Cover Sensor	Open	Closed

1000-Sheet Booklet Finisher (B793)

Not used in this machine.

2000/3000-Sheet (Booklet) Finisher (B804, B805)

6140	Bit	Description	Reading	
			0	1
6140 1	Entrance Sensor		Paper not detected	Paper detected
6140 2	Proof Exit Sensor		Paper not detected	Paper detected
6140 3	Proof Full Detection Sensor		Not Full	Full
6140 4	Trailing Edge Detection: Shift		Paper not detected*1	Paper detected*1
6140 5	Staple Exit Sensor		Paper not detected	Paper detected
6140 6	Shift HP Sensor		Not HP	HP
6140 7	Shift Exit Sensor		Paper not detected	Paper detected
6140 8	Exit Guide Plate HP Sensor		Not HP	HP

6140 9	Paper Detection Sensor: Staple	Paper not detected	Paper detected
6140 10	Paper Detection Sensor: Shift	Paper not detected	Paper detected
6140 11	Paper Full Sensor: 2000-Sheet	Not Full	Full
6140 12	Oscillating Back Roller HP Sensor	Not HP	HP
6140 13	Jogger HP Sensor	Not HP	HP
6140 14	Exit Junction Gate HP Sensor	HP	Not HP
6140 15	Staple Tray Paper Sensor	Paper not detected	Paper detected
6140 16	Staple Moving HP Sensor	Not HP	HP
6140 17	Skew HP Sensor	Not HP	HP
6140 18	Limit SW	Not Limit	Limit
6140 19	DOOR SW	Closed	Open
6140 20	Stapler 1 Rotation	Not HP	HP
6140 21	Staple Detection	Staple not detected	Staple detected
6140 22	Staple Leading Edge Detection	Staple not detected	Staple detected
6140 23	Punch Moving HP Sensor	Not HP	HP
6140 24	Punch Registration HP Sensor	Not HP	HP
6140 25	Punch Registratioin Detection Sensor	Paper not detected	Paper detected
6140 26	Punch Chad Full Sensor	Not Full	Full
6140 27	Punch HP	Not HP	HP
6140 28	Punch Selection DIPSW 1	See *1	
6140 29	Punch Selection DiPSW 2	See *1	
6140 30	Stack Junction Gate Open/Closed HP Sensor	Not HP	HP
6140 31	Leading Edge Detection Sensor	Paper not detected	Paper detected
6140 32	Drive Roller HP Sensor	Not HP	HP
6140 33	Arrival Sensor	Paper not detected	Paper detected

6140 34	Rear Edge Fence HP Sensor	Not HP	HP
6140 35	Folder Cam HP Sensor	Not HP	HP
6140 36	Folder Plate HP Sensor	Not HP	HP
6140 37	Folder Pass Sensor	Paper not detected	Paper detected
6140 38	Saddle Full Sensor: Front	Paper not detected*2	Paper detected*2
6140 39	Saddle Full Sensor: Rear	Paper not detected*2	Paper detected*2
6140 40	Saddle Stitch Stapler 1 Rotation: Front	Not HP	HP
6140 41	Saddle Stitch Detection: Front	Staple not detected	Staple detected
6140 42	Saddle Stitch Leading Edge Detection: Front	Staple not detected	Staple detected
6140 43	Saddle Stitch Stapler 1 Rotation: Rear	Not HP	HP
6140 44	Saddle Stitch Detection: Rear	Staple not detected	Staple detected
6140 45	Saddle Stitch Leading Edge Detection: Rear	Staple not detected	Staple detected
6140 46	Full Sensor: 3000-Sheet	Not Full	Full
6140 47	Exit Jogger HP Sensor: Front	Not used in the machine	
6140 48	Exit Jogger HP Sensor: Rear	Not used in the machine	
6140 49	Exit Jogger HP Sensor: Rear	Not used in the machine	

*1: Combination of DIP SW 1 and SW 2

DIP SW 1	DIP SW 2	Punch Type
0	0	Japan
1	0	Europe
0	1	North America
1	1	North Europe

*2: Please refer to "Lower Tray (B804 Only)" in the Service Manual for the "2000/3000 (Booklet) Finisher".

1000-Sheet Finisher (B408)

6139	Bit Description	Reading	
		0	1
6139 1	Entrance Sensor	Paper detected	Paper not detected
6139 2	Shift Exit Sensor (Lower Tray Exit Sensor)	Paper not detected	Paper detected
6139 3	Staple Entrance Sensor (Stapler Tray Entrance Sensor)	Paper detected	Paper not detected
6139 4	Staple Moving HP Sensor (Stapler HP Sensor)	Not home position	Home position
6139 5	Jogger HP Sensor (Jogger Fence HP Sensor)	Not home position	Home position
6139 6	Stack Feed-out Belt HP Sensor	Home position	Not home position
6139 7	Staple Tray Paper Sensor	Paper not detected	Paper detected
6139 8	Staple Rotation Sensor (Staple Rotation HP Sensor)	Not home position	Home position
6139 9	Staple Sensor	Staple detected	Staple not detected
6139 10	Staple READY Detection	Staple detected	Staple not detected
6139 11	Exit Guide Plate HP (Exit Guide Plate HP Sensor)	Not home position	Home position
6139 12	Shift HP Sensor	Not home position	Home position
6139 13	Paper Sensor (Stack Height Sensor)	Output tray not detected	Output tray detected
6139 14	Tray Lower Sensor (Lower Tray Lower Limit Sensor)	Lower limit	Not lower limit
6139 15	Proof Full Sensor (Paper Limit Sensor)	Not full	Full

6141 12	Pick Roller Sensor (Pick-Up Roller Unit HP Sensor)	Not home position	Home position
6141 13	Staple HP Sensor	Not home position	Home position
6141 14	Staple Near Empty Sensor	Staple near empty	Staple remaining
6141 15	Staple Self Prime Sensor (End Fence Detection Sensor)	Staple not detected	Staple detected
6141 16	Top Cover Sensor	Closed	Open
6141 17	Staple Cover Sensor (Front Cover Switch)	Closed	Open

Table 1: Paper Height Sensor

0: Deactivated, 1: Activated (actuator inside sensor)

Remaining paper	Paper height sensor 1	Paper height sensor 2
Full	0	0
Nearly full	1	0
Near end	1	1
Almost empty	0	1

Table 2: Paper Size Switch (Tray 2)

Switch 1 is used for tray set detection.

0: Pushed, 1: Not pushed

Models		Switch Location		
North America	Europe/Asia	4	3	2
11" x 17" SEF*[1] (A3 SEF)	A3 SEF*[1] (11" x 17" SEF)	0	0	1
8.5" x 14" SEF *[2] (B4 SEF)	B4 SEF *[2] (8.5" x 14" SEF)	0	0	0

A4 SEF	A4 SEF	1	1	0
8.5" x 11" SEF	8.5" x 11" SEF	1	1	1
B5 SEF	B5 SEF	0	1	1
11" x 81/2" LEF*3 (A4 LEF)	A4 LEF*3 (11" x 81/2" LEF)	1	0	0
10.5" x 7.25" LEF*4 (B5 LEF)	B5 LEF*4 (10.5" x 7.25" LEF)	0	1	0
A5 LEF	A5 LEF	1	0	1

*1: The machine detects either 11" x 17" SEF or A3 SEF, depending on the setting of SP 5-181-003.

*2: The machine detects either 8.5" x 14" SEF or B4 SEF, depending on the setting of SP 5-181-004.

*3: The machine detects either 11" x 81/2" LEF or A4 LEF, depending on the setting of SP 5-181-002.

*4: The machine detects either B5 LEF or 10.5" x 7.25" LEF, depending on the setting of SP 5-181-005.

Table 3: Paper Size (By-pass Table)

0: Pushed, 1: Not pushed

Models		Bit No.			
North America	Europe/Asia	3	2	1	0
11" x 17" SEF*1 (11" x 8.5" LEF)	A3 SEF*1 (A4 LEF)	1	1	1	0
11" x 17" SEF*1 (11" x 8.5" LEF)	A3 SEF*1 (A4 LEF)	1	1	0	0
8.5" x 11" SEF*1 (8.5" x 11" SEF*2)	A4 SEF*1 (A5 LEF)	1	1	0	1
8.5" x 11" SEF*1 (8.5" x 11" SEF*2)	A4 SEF*1 (B5 LEF)	1	0	0	1
5.5" x 8.5" SEF	A5 LEF	1	0	1	1
5.5" x 8.5" SEF	A5 LEF	0	0	1	1
5.5" x 8.5" SEF	A5 LEF	0	1	1	1

5.5" x 8.5" SEF	A6 LEF	1	1	1	1

Note

- *1: When the machine determines that the paper feed direction is "LEF", it considers that the paper size is bracketed size.

Table 4: APS Original Size Detection

Original Size		Length Sensor			Width Sensor		SP4-301 display
Metric version	Inch version	L3	L2	L1	W1	W2	
A3	11" x 17"	O	O	O	O	O	00011111
B4	10" x 14"	O	O	O	O	X	00011110
F4 8.5" x 13", 8.25" x 13", or 8" x 13" SP 5126 controls the size that is detected	8.5″ x 14″	O	O	O	X	X	00011100
A4 LEF	8.5" x 11"	X	X	X	O	O	00000011
B5 LEF	-	X	X	X	O	X	00000010
A4 SEF	11" x 8.5"	X	O	O	X	X	00001100
B5 SEF	-	X	X	O	X	X	00000100
A5 LEF/ SEF	5.5" x 8.5", 8.5" x 5.5"	X	X	X	X	X	00000000

Output Check Table

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5804	Display	Description
5804 1	Image Transfer Motor	Image Transfer Belt Contact Motor
5804 2	Drum Motor: Bk: Full Speed	Drum/Development Drive Motor-K: 154/205 mm/s

5804 3	Drum Motor: Bk: Medium Speed	Drum/Development Drive Motor-K: 115 mm/s
5804 4	Drum Motor: Bk: Low Speed	Drum/Development Drive Motor-K: 77 mm/s
5804 5	Drum Motor: M: Full Speed	Drum/Development Drive Motor-M: 154/205 mm/s
5804 6	Drum Motor: M: Middle Speed	Drum/Development Drive Motor-M: 115 mm/s
5804 7	Drum Motor: M: Low Speed	Drum/Development Drive Motor-M: 77 mm/s
5804 8	Drum Motor: C: Full Speed	Drum/Development Drive Motor-C: 154/205 mm/s
5804 9	Drum Motor: C: Middle Speed	Drum/Development Drive Motor-C: 115 mm/s
5804 10	Drum Motor: C: Low Speed	Drum/Development Drive Motor- C: 77 mm/s
5804 11	Drum Motor: Y: Full Speed	Drum/Development Drive Motor-Y: 154/205 mm/s
5804 12	Drum Motor: Y: Middle Speed	Drum/Development Drive Motor-Y: 115 mm/s
5804 13	Drum Motor: Y: Low Speed	Drum/Development Drive Motor-Y: 77 mm/s
5804 20	Toner Relay Motor	Toner Transport Motor
5804 21	IH Magnetic Field Switch Motor: Forward	Ferrite Roller Motor - Forward
5804 22	IH Magnetic Field Switch Motor: Reverse	Ferrite Roller Motor - Reverse
5804 23	Paper Transfer Motor	Paper Transfer Roller Contact Motor
5804 24	Image Transfer Motor: Full Speed	Image Transfer Belt Unit Drive Motor: 154/205 mm/s
5804 25	Image Transfer Motor: Medium Speed	Image Transfer Belt Unit Drive Motor: 115 mm/s
5804 26	Image Transfer Motor: Low Speed	Image Transfer Belt Unit Drive Motor: 77 mm/s
5804 27	Fusing Exit Motor: Full Speed	Fusing/Paper Exit Motor: 154/205 mm/s
5804 28	Fusing Exit Motor: Medium Speed	Fusing/Paper Exit Motor: 115 mm/s
5804 29	Fusing Exit Motor: Low Speed	Fusing/Paper Exit Motor: 77 mm/s

5804 30	Development Clutch: Bk	Development Clutch-K
5804 31	Development Clutch: M	Development Clutch-M
5804 32	Development Clutch: C	Development Clutch-C
5804 33	Development Clutch: Y	Development Clutch-Y
5804 36	Toner Supply Pump: Bk	Toner Supply Clutch: Bk
5804 37	Toner Supply Pump: M	Toner Supply Clutch: M
5804 38	Toner Supply Pump: C	Toner Supply Clutch: C
5804 39	Toner Supply Pump: Y	Toner Supply Clutch: Y
5804 40	Front Laser Optics Fan: High Speed	Ventilation Fan - Front
5804 42	Rear Laser Optics Fan: High Speed	Ventilation Fan - Rear
5804 44	Fusing Exhaust Fan: High Speed	Fusing Fan: High Speed
5804 45	Fusing Exhaust Fan: Low Speed	Fusing Fan: Low Speed
5804 46	Drive Unit Cooling Fan: High Speed	-
5804 47	Electrical Section Cooling Fan: High Speed	IH Inverter Fan
5804 54	PSU Fan1: High Speed	PSU Fan 1: High Speed
5804 56	Dust Shield Shutter Motor	Shutter Motor (Laser Optics Housing Unit)
5804 57	TM Sensor Shutter SOL	ID Sensor Shutter Solenoid
5804 58	TM Sensor LED Output: F	ID Sensor LED Output: Front
5804 59	TM Sensor LED Output: C	ID Sensor LED Output: Center
5804 60	TM Sensor LED Output: R	ID Sensor LED Output: Rear
5804 61	P Sensor LED Output: Bk	ID Sensor (mirror reflection) - K: LED Output
5804 62	P Sensor LED Output: M	ID Sensor (mirror reflection) - M: LED Output

5804 63	P Sensor LED Output: C	ID Sensor (mirror reflection) - C: LED Output
5804 64	P Sensor LED Output: Y	ID Sensor (mirror reflection) - Y: LED Output
5804 65	ST Sensor Output: Bk	ID Sensor (diffusion) - K: LED Output
5804 66	ST Sensor Output: M	ID Sensor (diffusion) - M: LED Output
5804 67	ST Sensor Output: C	ID Sensor (diffusion) - C: LED Output
5804 68	ST Sensor Output: Y	ID Sensor (diffusion) - Y: LED Output
5804 69	Toner End Sensor: Bk	Toner End Sensor - K
5804 70	Toner End Sensor: M	Toner End Sensor - M
5804 71	Toner End Sensor: C	Toner End Sensor - C
5804 72	Toner End Sensor: Y	Toner End Sensor - Y
5804 73	Separation Voltage	Discharge Plate Voltage
5804 74	Image Transfer Output: Bk	Image Transfer Belt Unit Bias Output: K
5804 75	Image Transfer Output: M	Image Transfer Belt Unit Bias Output: M
5804 76	Image Transfer Output: C	Image Transfer Belt Unit Bias Output: C
5804 77	Image Transfer Output: Y	Image Transfer Belt Unit Bias Output: Y
5804 78	Charge DC Output: Bk	Drum Charge DC Voltage Output: K
5804 79	Charge DC Output: M	Drum Charge DC Voltage Output: M
5804 80	Charge DC Output: C	Drum Charge DC Voltage Output: C
5804 81	Charge DC Output: Y	Drum Charge DC Voltage Output: Y
5804 82	Charge AC Output: Bk: Full Speed	Drum Charge AC Voltage Output: K: 154/205 mm/s
5804 83	Charge AC Output: Bk: Medium Speed	Drum Charge AC Voltage Output: K: 115 mm/s
5804 84	Charge AC Output: Bk: Low Speed	Drum Charge AC Voltage Output: K: 77 mm/s
5804 85	Charge AC Output: M: Full Speed	Drum Charge AC Voltage Output: M: 154/205 mm/s

5804 86	Charge AC Output: M: Medium Speed	Drum Charge AC Voltage Output: M: 115 mm/s
5804 87	Charge AC Output: M: Low Speed	Drum Charge AC Voltage Output: M: 77 mm/s
5804 88	Charge AC Output: C: Full Speed	Drum Charge AC Voltage Output: C: 154/205 mm/s
5804 89	Charge AC Output: C: Medium Speed	Drum Charge AC Voltage Output: C: 115 mm/s
5804 90	Charge AC Output: C: Low Speed	Drum Charge AC Voltage Output: C: 77 mm/s
5804 91	Charge AC Output: Y: Full Speed	Drum Charge AC Voltage Output: Y: 154/205 mm/s
5804 92	Charge AC Output: Y: Medium Speed	Drum Charge AC Voltage Output: Y: 115 mm/s
5804 93	Charge AC Output: Y: Low Speed	Drum Charge AC Voltage Output: Y: 77 mm/s
5804 94	Development Output: Bk	Development Bias Output: Bk
5804 95	Development Output: M	Development Bias Output: M
5804 96	Development Output: C	Development Bias Output: C
5804 97	Development Output: Y	Development Bias Output: Y
5804 98	Paper Transfer Output +	Paper Transfer Roller Output: Positive current
5804 99	Paper Transfer Output –	Paper Transfer Roller Output: Negative current
5804 100	PCL: Bk	Toner Supply Motor Clutch: K
5804 101	PCL: M	Toner Supply Motor Clutch: M
5804 102	PCL: C	Toner Supply Motor Clutch: C
5804 103	PCL: Y	Toner Supply Motor Clutch: Y
5804 104	Polygon Motor: LL	Polygon Motor: 77 mm/s
5804 105	Polygon Motor: L	Polygon Motor: 115 mm/s
5804 107	Polygon Motor: HH	Polygon Motor: 154/205 mm/s

5804 109	Feed Motor: 77mm/s	Paper Feed Motor: 77 mm/s
5804 110	Feed Motor: 115mm/s	Paper Feed Motor: 115 mm/s
5804 112	Feed Motor: 154mm/s	Paper Feed Motor: 154 mm/s
5804 114	Feed Motor: 205mm/s	Paper Feed Motor: 205 mm/s
5804 115	Feed Motor: 215mm/s	Paper Feed Motor: 215 mm/s
5804 117	Feed Motor: 265mm/s	Paper Feed Motor: 265 mm/s
5804 118	Feed CL1	Tray 1 Paper Feed Clutch
5804 119	Feed CL2	Tray 2 Paper Feed Clutch
5804 121	Pick-Up Solenoid 1	Pick-up Solenoid: Tray 1
5804 122	Pick-Up Solenoid 2	Pick-up Solenoid: Tray 2
5804 123	Regist Motor: 77mm/s	Registration Motor: 77 mm/s
5804 126	Regist Motor: 115mm/s	Registration Motor: 115 mm/s
5804 127	Regist Motor: 154/205mm/s	Registration Motor: 154/205 mm/s
5804 128	Tray Lock SOL	Tray Lock Solenoid
5804 129	Up Motor1: Up	Tray Lift Motor 1: Lift Up
5804 130	Up Motor1: Down	Tray Lift Motor 1: Lift Down
5804 131	Up Motor2: Up	Tray Lift Motor 2: Lift Up
5804 132	Up Motor2: Down	Tray Lift Motor 2: Lift Down
5804 133	Junction Gate Motor: Clockwise	Junction Gate 2 Motor: Clockwise
5804 134	Junction Gate Motor: Counterclockwise	Junction Gate 2 Motor: Counterclockwise
5804 135	Junction Gate SOL	DuplexInverter Solenoid
5804 136	By-pass Feed Clutch	By-pass Feed Clutch
5804 137	By-pass Pick-Up Solenoid	By-pass Pick-Up Solenoid
5804 138	Duplex Motor CW: 77mm/s	Duplex/By-pass Motor: CW 77 mm/s

5804 139	Duplex Motor CW: 115mm/s	Duplex/By-pass Motor: CW 115 mm/s
5804 140	Duplex Motor CW: 154mm/s	Duplex/By-pass Motor: CW 154 mm/s
5804 141	Duplex Motor CW: 205mm/s	Duplex/By-pass Motor: CW 205 mm/s
5804 143	Duplex Motor CCW: 77mm/s	Duplex/By-pass Motor: CCW 77 mm/s
5804 144	Duplex Motor CCW: 115mm/s	Duplex/By-pass Motor: CCW 115 mm/s
5804 146	Duplex Motor CCW: 154mm/s	Duplex/By-pass Motor: CCW 154 mm/s
5804 147	Duplex Motor CCW: 205mm/s	Duplex/By-pass Motor: CCW 205 mm/s
5804 149	Inverter Motor CW: 77mm/s	Duplex Inverter Motor: CW 77 mm/s
5804 151	Inverter Motor CCW: 77mm/s	Duplex Inverter Motor: CCW 77 mm/s
5804 153	Relay Motor: 77mm/s	Bridge Unit Transport Motor: 77 mm/s
5804 154	Relay Motor: 115mm/s	Bridge Unit Transport Motor: 115 mm/s
5804 156	Relay Motor: 154mm/s	Bridge Unit Transport Motor: 154 mm/s
5804 157	Relay Motor: 205mm/s	Bridge Unit Transport Motor: 205 mm/s
5804 158	Relay Junction gate Solenoid	Bridge Unit Junction Gate Solenoid
5804 159	Relay Cooling Fan: Strong	Not used
5804 160	Relay Cooling Fan: weak	Not used
5804 161	1 Bin Junction Gate Solenoid	Junction Gate Solenoid: Bridge Unit/ Junction Gate 1 Solenoid
5804 163	Bank Motor: 77mm/s	Paper Feed (Tray) Motor: 77 mm/s (Optional Paper Feed Unit or LCT)
5804 164	Bank Motor: 115mm/s	Paper Feed (Tray)Motor: 115 mm/s (Optional Paper Feed Unit or LCT)

5804 165	Bank Motor: 154mm/s	Paper Feed (Tray)Motor: 154 mm/s (Optional Paper Feed Unit or LCT)
5804 166	Bank Motor: 205mm/s	Paper Feed (Tray)Motor: 205 mm/s (Optional Paper Feed Unit or LCT)
5804 167	Bank Motor: 215mm/s	Paper Feed (Tray)Motor: 215 mm/s (Optional Paper Feed Unit or LCT)
5804 168	Bank Motor: 265mm/s	Paper Feed (Tray)Motor: 265 mm/s (Optional Paper Feed Unit or LCT)
5804 169	Bank Feed CL3	Paper Feed Clutch 3 (Optional Paper Feed Unit: Tray 3 or LCT)
5804 170	Bank Feed CL4	Paper Feed Clutch 4 (Optional Paper Feed Unit: Tray 4)
5804 171	Bank Pickup SOL3	Pickup Solenoid 3 (Optional Paper Feed Unit: Tray 3 or LCT)
5804 172	Bank Pickup SOL4	Pickup Solenoid 4 (Optional Paper Feed Unit: Tray 4)
5804 173	Bank Tray Lock SO	Tray Lock Solenoid for Tray 3 and Tray 4
5804 176	Toner Bottle Clutch: K	Toner Bottle Clutch - K
5804 177	Toner Bottle Clutch: M	Toner Bottle Clutch - M
5804 178	Toner Bottle Clutch: C	Toner Bottle Clutch - C
5804 179	Toner Bottle Clutch: Y	Toner Bottle Clutch - Y
5804 180	Bank Motor 2: 77mm/s	Paper Feed Motor 2: 77 mm/s (Optional Paper Feed Unit)
5804 181	Bank Motor 2: 115mm/s	Paper Feed Motor 2: 115 mm/s (Optional Paper Feed Unit)
5804 182	Bank Motor 2: 154mm/s	Paper Feed Motor 2: 154 mm/s (Optional Paper Feed Unit)
5804 183	Bank Motor 2: 205mm/s	Paper Feed Motor 2: 205 mm/s (Optional Paper Feed Unit)
5804 184	Bank Motor 2: 215mm/s	Paper Feed Motor 2: 215 mm/s (Optional Paper Feed Unit)

5804 185	Bank Motor 2: 265mm/s	Paper Feed Motor 2: 265 mm/s (Optional Paper Feed Unit)
5804 186	Bank Feed Clutch 5	-
5804 187	Bank Pick-Up Solenoid 5	-
5804 188	Bank Tray Lock Solenoid 2	-
5804 190	Relay Motor: Reset	Drive Motor (Bridge Unit): Reset
5804 191	Relay Motor: Enable	Drive Motor (Bridge Unit): Enable
5804 192	RFID ON/OFF:K	RFID ON/OFF - K
5804 193	RFID ON/OFF:M	RFID ON/OFF - M
5804 194	RFID ON/OFF:C	RFID ON/OFF - C
5804 195	RFID ON/OFF:Y	RFID ON/OFF - Y
5804 196	RFID COM ON:K	RFID Communication ON - K
5804 197	RFID COM ON:M	RFID Communication ON - M
5804 198	RFID COM ON:C	RFID Communication ON - C
5804 199	RFID COM ON:Y	RFID Communication ON - Y
5804 202	Scanner Lamp	Scanner Exposure Lamp
5804 208	Fusing Coil Fan	IH Coil Fan
5804 209	IH Power Fan	IH Inverter Fan
5804 210	Exit Fan: High Speed	Paper Exit Fan: High Speed
5804 211	Exit Fan: Low Speed	Paper Exit Fan: Low Speed
5804 212	Duct Fan 2: High Speed	Second Fan: High Speed
5804 213	Duct Fan 2: Low Speed	Second Fan: Low Speed
5804 214	Duct Fan 3: High Speed	Third Fan: High Speed
5804 215	Duct Fan 3: Low Speed	Third Fan: Low Speed
5804 216	LD1: K	LD1: K
5804 217	LD2: K	LD2: K

5804 218	LD1: M	LD1: M
5804 219	LD2: M	LD2: M
5804 220	LD1: C	LD1: C
5804 221	LD2: C	LD2: C
5804 222	LD1: Y	LD1: Y
5804 223	LD2: Y	LD2: Y
5804 224	Duplex Inverter Motor: CW: 205mm/s	Duplex Inverter Motor: CW 205 mm/s
5804 225	Duplex Inverter Motor: CW: 154mm/s	Duplex Inverter Motor: CW 154 mm/s
5804 226	Duplex Inverter Motor: CW: 115mm/s	Duplex Inverter Motor: CW 115 mm/s
5804 227	Duplex Inverter Motor: CCW: 205mm/s	Duplex Inverter Motor: CCW 205 mm/s
5804 228	Duplex Inverter Motor: CCW: 154mm/s	Duplex Inverter Motor: CCW 154 mm/s
5804 229	Duplex Inverter Motor: CCW: 115mm/s	Duplex Inverter Motor: CCW 115 mm/s

1000-Sheet Booklet Finisher (B793)

SP6-143-xxx are not used in this machine.

1000-Sheet Finisher (B408)

6144	Display	Description
6144 1	Relay Up Motor	Upper Transport Motor
6144 2	Relay Down Motor	Lower Transport Motor
6144 3	Exit Motor	-
6144 4	Proof Junction Gate SOL	Tray Junction Gate Solenoid

6144 5	Tray Up Motor	Lower Tray Lift Motor
6144 6	Jogger Motor	Jogger Fence Motor
6144 7	Staple Moving Motor	Stapler Motor
6144 8	Staple Motor	Stapler Hammer
6144 9	Staple Junction Gate SOL	Stapler Junction Gate Solenoid
6144 10	Positioning Roller Solenoid	Positioning Roller Solenoid
6144 11	Stack Feed-out Motor	-
6144 12	Shift Motor	-
6144 13	Exit Guide Plate Motor	-

2000/3000-Sheet (Booklet) Finisher

6145	Display	Description
6145 1	Entrance Motor	Finisher Entrance Motor
6145 2	Upper Feed Motor	Upper Transport Motor
6145 3	Lower Feed Motor	Lower Transport Motor
6145 4	Exit Motor	Upper/Proof Tray Exit Motor
6145 5	Knock Roller Motor	Clamp Roller Retraction Motor
6145 6	Shift Motor	Shift Roller Motor
6145 7	Exit Guide Plate Open/Close Motor	Exit Guide Plate Motor
6145 8	Tray Lift Motor	Upper Tray Lift Motor
6145 9	Oscillating Back Roller Motor	Stacking Sponge Roller Motor
6145 10	Jogger Motor	Jogger Fence Motor
6145 11	Stack Feed-out Motor	Feed Out Belt Motor

6145 12	Staple Moving Motor	Corner Stapler Movement Motor
6145 13	Staple Skew Motor	Corner Stapler Rotation Motor
6145 14	Staple Motor	Corner Stapler EH530
6145 15	Upper Junction Gate Solenoid	Proof Junction Gate Solenoid
6145 16	Lower Junction Gate Solenoid	Stapling Tray Junction Gate Solenoid
6145 17	Knock Solenoid	Stapling Edge Pressure Plate Solenoid
6145 18	Trailing Edge Hold Solenoid	Positioning Roller Solenoid
6145 19	Saddle Stitch Hold Solonoid	Booklet Pressure Roller Solenoid
6145 20	Stack Junction Gate Open/Close Motor	Stack Junction Gate Motor
6145 21	Trailing Edge Fence Moving Motor	Fold Unit Bottom Fence Lift Motor
6145 22	Saddle Stitch Staple Motor: Front	Booklet Stapler EH185R: Front
6145 23	Saddle Stitch Staple Motor: Rear	Booklet Stapler EH185R: Rear
6145 24	Folder Plate Motor	Fold Plate Motor
6145 25	Folder Roller Motor	Fold Roller Motor
6145 26	Drive Roller Oscillating Motor	Positioning Roller Motor
6145 27	Punch Motor	Punch Drive Motor
6145 28	Punch Moving Motor	Punch Movement Motor
6145 29	Punch Registration Detection Motor	Paper Position Sensor Slide Motor
6145 30	Exit Jogger Motor: Front	-

6145 31	Exit Jogger Motor: Rear	-
6145 32	Exit Jogger Release Motor	-

Test Pattern Printing

Printing Test pattern: SP2-109

Some of these test patterns are used for copy image adjustments but most are used primarily for design testing.

Note

- Do not operate the machine until the test pattern is printed out completely. Otherwise, an SC occurs.

1. Enter the SP mode and select **SP2-109-003**.
2. Enter the number for the test pattern that you want to print and press [#].
3. When you want to select the single color of Magenta, Yellow or Cyan for printing a test pattern, select the color with SP2-109-005 (2: Magenta, 3: Yellow, 4: Cyan).
4. When you want to change the density of printing a test pattern, select the density with SP2-109-006 to -009 for each color.

   Note

   - If you select "0" with SP2-109-006 to -009, the color to be adjusted to "0" does not come up on a test pattern.
5. When you are prompted to confirm your selection, touch "Yes" to select the test pattern for printing.
6. Touch "Copy Window" to open the copy window, then select the settings for the test print (paper size etc.).

   Note

   - If you want to use black and white printing, touch "Black & White" on the LCD. If you want to use color printing, touch "Full Colour" on the LCD.
7. Press the "Start" key to start the test print.
8. After checking the test pattern, touch "SP Mode" on the LCD to return to the SP mode display.
9. Reset all settings to the default values.
10. Touch "Exit" twice to exit SP mode.

No.	Pattern	No.	Pattern
0	None	12	2-dot pattern

1	1-dot line pattern (Vertical)	13	4-dot pattern
2	2-dot line pattern (Vertical)	14	1-dot trimming pattern
3	1-dot line pattern (Horizontal)	15	Cross stitch: sub-scan
4	2-dot line pattern (Horizontal)	16	Cross stitch: main-scan
5	1-dot grid pattern (Vertical)	17	Belt pattern (Horizontal)
6	1-dot grid pattern (Horizontal)	18	Belt pattern (Vertical)
7	1-dot grid pattern (Fine)	19	Checkered flag
8	1-dot grid pattern (Rough)	20	Gray scale (Vertical)
9	1-dot slant pattern (Fine)	21	Gray scale (Horizontal)
10	1-dot slant pattern (Rough)	22	Dual beam density pattern
11	1-dot pattern	23	Solid

Printer Service Mode

SP1-XXX (Service Mode)

1001	[Bit Switch]		
1001 1	Bit Switch 1 Settings	*CTL	Adjusts the bit switch settings. **DFU**
1001 2	Bit Switch 2 Settings		
1001 3	Bit Switch 3 Settings		
1001 4	Bit Switch 4 Settings		
1001 5	Bit Switch 5 Settings		
1001 6	Bit Switch 6 Settings		
1001 7	Bit Switch 7 Settings		
1001 8	Bit Switch 8 Settings		

1003	[Clear Setting]		
1003 1	Initialize Printer System		
	Initializes settings in the “System” menu of the user mode.		
1003 3	Delete Program		

1004	[Print Summary]
1004 1	Print Summary
	Prints the service summary sheet (a summary of all the controller settings).

1005	[Display Version]
1005 1	Disp. Version
	Displays the version of the controller firmware.

1006	[Sample/Locked Print]	*CTL	0: Linked, 1: On

1006 1	Enables and disables the document server. When you select "0," the document server is enabled or disabled in accordance with Copy Service Mode SP5-967. When you select "1," the document server is enabled regardless of Copy Service Mode SP5-967.

1101	[Data Recall]		
	Recalls a set of gamma settings. This can be either a) the factory setting, b) the previous setting, or c) the current setting.		
1101 1	Factory	*CTL	
1101 2	Previous		
1101 3	Current		
1101 4	ACC		

1102	[Resolution Setting]
	Selects the printing mode (resolution) for the printer gamma adjustment.
1102 1	**2400x600 Photo**, 1800x600 Photo, 600 x 600 Photo, 2400x600 Text, 1800x600, Text, 600x600 Text

1103	[Test Page]
	Prints the test page to check the color balance before and after the gamma adjustment.
1103 1	Color Gray Scale
1103 2	Color Pattern

1104	[Gamma Adjustment]		
	Adjusts the printer gamma for the mode selected in the "Mode Selection" menu.		
1104 1	Black: Highlight	*CTL	[0 to 30 / **15** / 1/step]
1104 2	Black: Shadow		
1104 3	Black: Middle		
1104 4	Black: IDmax		
1104 21	Cyan: Highlight		

1104 22	Cyan: Shadow		
1104 23	Cyan: Middle		
1104 24	Cyan: IDmax		
1104 41	Magenta: Highlight		
1104 42	Magenta: Shadow		
1104 43	Magenta: Middle		
1104 44	Magenta: IDmax		
1104 61	Yellow: Highlight		
1104 62	Yellow: Shadow		
1104 63	Yellow: Middle		
1104 64	Yellow: IDmax		

1105	[Save Tone Control Value]
	Stores the print gamma adjusted with the “Gamma Adj.” menu item as the current setting. Before the machine stores the new “current setting", it moves the data currently stored as the “current setting” to the “previous setting” memory storage location.
1105 1	Save Tone Control Value

1106	[Toner Limit]		
	Adjusts the maximum toner amount for image development.		
1106 1	Toner Limit Value	*CTL	[100 to 400 / **260** / 1 %/step]

Scanner SP Mode

SP1-xxx (System and Others)

1004	[Compression Type]		
	Selects the compression type for binary picture processing.		
1004 1	Compression Type	*CTL	[1 to 3 / **1** / 1/step] 1: MH, 2: MR, 3: MMR

1005	[Erase margin]		
	Creates an erase margin for all edges of the scanned image. If the machine has scanned the edge of the original, create a margin. This SP is activated only when the machine uses TWAIN scanning.		
1005 1	Range from 0 to 5 mm	*CTL	[0 to 5 / **0** / 1 mm/step]

1009	[Remote scan disable]	*CTL	[0 or 1 / **0** / -] 0: enable, 1: disable
1009 1	Enable or disable remote scan.		

1010	[Non Display Clear Light PDF]	*CTL	[0 or 1 / **0** / -] 0: Display, 1: No display
1010 1	Enable or disable remote scan.		

SP2-XXX (Scanning-image quality)

2021	[Compression Level (Gray-scale)]		
	Selects the compression ratio for grayscale processing mode (JPEG) for the three settings that can be selected at the operation panel.		
2021 1	Level 3 (Middle Image Quality)	*CTL	[5 to 95 / **40** / 1 /step]
2021 2	Level 2 (High Image Quality)		[5 to 95 / **50** / 1 /step]

2021 3	Level 4 (Low Image Quality)		[5 to 95 / **30** / 1 /step]
2021 4	Level 1 (Highest Image Quality)		[5 to 95 / **60** / 1 /step]
2021 5	Level 5 (Lowest Image Quality)		[5 to 95 / **20** / 1 /step]

2024	**[Compression ratio of ClearLight PDF]**		
	Selects the compression ratio for clearlight PDF for the two settings that can be selected at the operation panel.		
2024 1	Compression Ratio (Normal image)	*CTL	[5 to 95 / **25** / 1 /step]
2024 2	Compression Ratio (High comp image)		[5 to 95 / **20** / 1 /step]

Reboot/System Setting Reset

Software Reset

You can reboot the software with one of the following two procedures:

1. Turn the main power switch off and on.
2. Press and hold down C/⊘ # together for over 10 seconds. When the machine beeps once, release both buttons. After "Now loading. Please wait" shows for a few seconds, the copy window will open. The machine is ready for normal operation.

System Settings And Copy Setting Reset

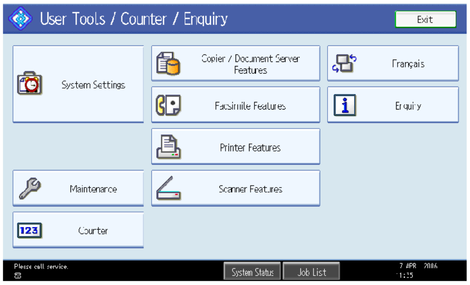
System Setting Reset

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

1. Press User Tools/Counter ◈/123.
2. Hold down # and then press System Settings.

Note

- You must press # first.



3. Press yes when the message prompts you to confirm that you want to reset the system settings.
4. Press exit when the message tells you that the settings have been reset.

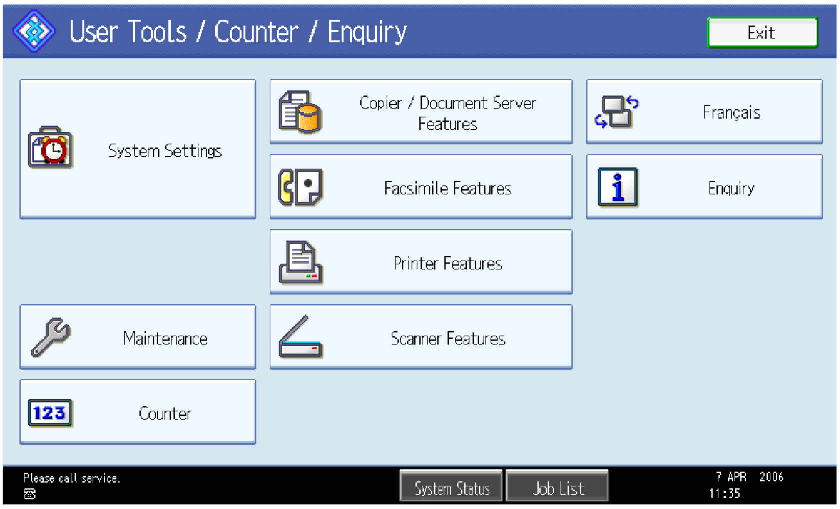
Copier Setting Reset

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

1. Press User Tools/Counter ◈/123.
2. Hold down # and then press Copier/Document Server Settings.

Note

- You must press first.



3. Press “Yes” when the message prompts you to confirm that you want to reset the Copier Document Server settings.
4. Press exit when the message tells you that the settings have been reset.

Firmware Update

To update the firmware for this machine, you must have the new version of the firmware downloaded onto an SD (Secure Digital) Card. The SD Card is inserted into SD Card Slot 3 on the right side of the controller box.

Type of Firmware

There are 19 types of firmware as shown below.

Type of firmware	Function	Location of firmware	Message shown
Engine	Printer engine control	BCU Flash ROM	Engine
System/Copy Application	Operating system	Flash ROM on the controller board	System/Copy
Netfile Application	Feature application	Printer/scanner SD card	NetworkDocBox
Printer Application	Feature application	Printer/scanner SD card	SD Printer
Scanner Application	Feature application	Printer/scanner SD card	SD Scanner
Fax Application	Feature application	Flash ROM on the controller board	Fax
NIB	Network Interface	Flash ROM on the controller board	Network
Operation Panel	Panel control	Operation Panel	OpePanel.
Jam Animation	Jam animation	Flash ROM on the controller board	Animation
Fax FCU	Fax control	FCU	GWFCU 3-3
Remote Fax	Fax control	Printer/scanner SD card	Fax (option)
Language (16 languages)	Language firmware Two languages can be selected from 16 languages.	Operation Panel	LANG

WebDocBox	Document server application	Printer/scanner SD card	Web Uapl
WebSys	Web Service application	Printer/scanner SD card	Web Support
PS3	Page description language (PostScript3)	PS3 SD card	Option PS3
PictBridge	PictBridge control	PictBridge SD card	Option PctBrgd
DESS	Security control	Flash ROM on the controller board	Security Module
ARDF	ARDF control	ARDF	ADF
Finisher (B804/805 only)	Finisher control	Finisher (B793 only)	Finisher

Before You Begin

An SD card is a precision device. Always observe the following precautions when you handle SD cards:

- Always switch the machine off before you insert an SD card. Never insert the SD card into the slot with the power on.
- Do not remove the SD card from the service slot after the power has been switched on.
- Never switch the machine off while the firmware is downloading from the SD card.
- Keep SD cards in a safe location where they are not exposed to high temperature, high humidity, or exposure to direct sunlight.
- Always handle SD cards with care. Do not bend or scratch them. Do not let the SD card get exposed to shock or vibration.
- Make sure that the write protection of an SD card is unlocked when you download an application to it. If not, downloading fails and a download error (e.g. Error Code 44) occurs during a firmware upgrade.

Keep the following points in mind when you use the firmware update software:

- “Upload” means to send data from the machine to the SD card. “Download” means to send data from the SD card to the machine.
- To select an item on the LCD, touch the appropriate button on the soft touch-screen of the LCD, or, press the appropriate number key on the 10-key pad of the operation panel. For example, when “Exit (0)” shows on the screen you can touch the Exit button on the screen, or, press the ⓪ button on the operation panel of the copier.

- Make sure that the machine is disconnected from the network to prevent a print job for arriving while the firmware update is in progress before you start the firmware update procedure.

Updating Firmware

Preparation

1. If the SD card is blank, copy the entire "romdata" folder onto the SD card.
2. If the card already contains the "romdata" folder, copy the "B221" folder onto the card.

If the card already contains folders up to "B221", copy the necessary firmware files (e.g. B221xxxx.fwu) into this folder.

Note

- Do not put multiple machine firmware programs on the same SD card. Copy the only model firmware you want.

1. **Turn the main power switch off.**
2. **Remove the slot cover (🔩 x 1).**
3. **Insert the SD card into SD Card Slot 3. Make sure the label on the SD card faces the rear side of the machine.**
4. **Slowly push the SD card into the slot so it locks in place. You will hear it click. Make sure the SD card locks in place.**

   Note

   - To remove the SD, push it in to unlock the spring lock. Then release it so it pops out of the slot.
5. **Disconnect the network cable from the copier if the machine is connected to a network.**
6. **Switch the main power switch on. After about 45 seconds, the initial version update screen appears on the LCD in English.**
7. **On the screen, touch the button or press the corresponding number key on the operation panel to select the item in the menu that you want to update.**

ROM/NEW	What it means
ROM:	Tells you the number of the module and name of the version currently installed. The first line is the module number, the second line the version name.
NEW:	Tells you the number of the module and name version on the SD card. The first line is the module number, the second line the version name.

Note

- Controller, engine and operation panel firmware cannot be updated at the same time. It is recommended to update firmware modules one by one.

8. **Touch “UpDate (#)” (or #) to start the update.**

Note

- The progress bar does not show for the operation panel firmware after you touch “OpPanel”. The power on key flashes on and off at 0.5 s intervals when the LCDC firmware is updating. The power key flashes on and off at 3 s intervals when the update is finished.

9. **The "Update is Done" message appears on the operation panel after completing the updating. The message differs depending on the firmware that has been updated.**
10. **Switch the copier main power switch off when you see the “Update is Done” message or follow the procedure that is displayed on the operation panel.**
11. **Press in the SD card to release it. Then remove it from the slot.**
12. **Switch the copier on for normal operation.**

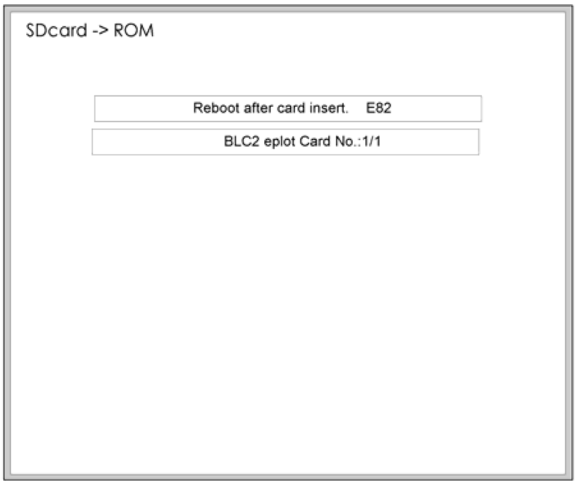
Error Messages

An error message shows in the first line if an error occurs during the download.

The error code consists of the letter “E” and a number. The example above shows error “E24” displayed. For details, refer to the Error Message Table. (☛ "p.729 "Handling Firmware Update Errors"")

Firmware Update Error

If a firmware update error occurs, this means the update was cancelled during the update because the module selected for update was not on the SD card.



SDcard -> ROM

Reboot after card insert. E82

BLC2 eplot Card No.:1/1

Recovery after Power Loss

If the ROM update is interrupted as a result of accidental loss of power while the firmware is updating, then the correct operation of the machine cannot be guaranteed after the machine is switched on again. If the ROM update does not complete successfully for any reason, then in order to ensure the correct operation of the machine, the ROM update error will continue to show until the ROM is updated successfully.

In this case, insert the card again and switch on the machine to continue the firmware download automatically from the card without the menu display.

Updating the LCDC for the Operation Panel

Do the following procedure to update the LCDC (LCD Control Board).

1. **Turn the copier main switch off.**
2. **Remove the SD slot cover (🔩 x 1).**
3. **Insert the SD card into SD Card Slot 3.**
4. **Switch the copier main switch on.**
5. **The initial screen opens in English after about 45 seconds.**
6. **Touch "Ope Panel.xx".**
7. **"xx" differs depending on the destination.**
8. **Touch "UpDate(#) or (#) to start the update.**
9. **Downloading starts after about 9 seconds.**
10. **The operation panel goes off and the main power on key flashes in red at 0.5 s intervals when the data is downloading. The same key starts flashing in green at 1 s intervals when the update is finished.**
11. **Switch the copier main power switch off and remove the SD card. Then switch the copier on.**

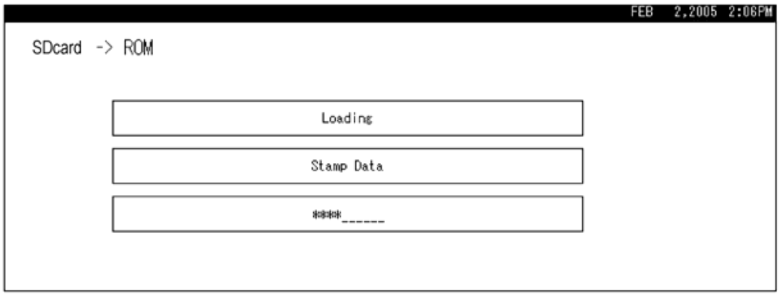
Downloading Stamp Data

The stamp data should be downloaded from the controller firmware to the hard disks at the following times:

- After the hard disks have been replaced.

The print data contains the controller software. Execute SP 5853 to download the fixed stamp data required by the hard disks.

1. **Enter the SP mode.**
2. **Select SP5853 and then press "EXECUTE". The following screen opens while the stamp data is downloading.**



FEB 2,2005 2:06PM

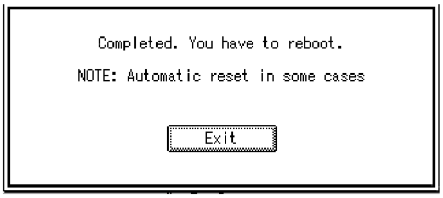
SDcard -> ROM

Loading

Stamp Data

****______

The download is finished when the message prompts you to close.



Completed. You have to reboot.

NOTE: Automatic reset in some cases

3. **Press the "Exit" button. Then turn the copier off and on again.**

NVRAM Data Upload/Download

Uploading Content of NVRAM to an SD card

Do the following procedure to upload SP code settings from NVRAM to an SD card.

Note

- This data should always be uploaded to an SD card before the NVRAM is replaced.
- Make sure that the write protection of an SD card is unlocked

1. **Do SP5990-001 (SMC Print) before you switch the machine off. You will need a record of the NVRAM settings if the upload fails.**
2. **Switch the copier main power switch off.**
3. **Remove the SD slot cover (🔩 x 1).**
4. **Insert the SD card into SD card slot 3. Then switch the copier on.**
5. **Execute SP5824-001 (NVRAM Data Upload) and then press the "Execute" key.**
6. **The following files are coped to an NVRAM folder on the SD card when the upload procedure is finished. The file is saved to the path and the following filename:**

   NVRAM\<serial number>.NV

   Here is an example with Serial Number "K5000017114":

NVRAM\K5000017114.NV

7. **In order to prevent an error during the download, be sure to mark the SD card that holds the uploaded data with the number of the machine from which the data was uploaded.**

Note

- You can upload NVRAM data from more than one machine to the same SD card.

Downloading an SD Card to NVRAM

Do the following procedure to download SP data from an SD card to the NVRAM in the machine.

- The NVRAM data down load may fail if the SD card with the NVRAM data is damaged, or if the connection between the controller and BCU is defective.
- Do the download procedure again if the download fails.
- Do the following procedure if the second attempt fails:
- Enter the NVRAM data manually using the SMC print you created before uploading the NVRAM data.

1. **Switch the copier main power switch off.**
2. **Remove the SD slot cover (🔩 x 1).**
3. **Insert the SD card with the NVRAM data into SD Card Slot 3.**
4. **Switch the copier main power switch on.**
5. **Do SP5825-001 (NVRAM Data Download) and press the "Execute" key.**

Note

- The serial number of the file on the SD card must match the serial number of the machine for the NVRAM data to download successfully. The download fails if the serial numbers do not match.

This procedure does not download the following data to the NVRAM:

- Total Count
- C/O, P/O Count

Address Book Upload/Download

Information List

The following information is possible to be uploaded and downloaded.

Information	
• Registration No.	• Select Title

• User Code • E-mail • Protection Code • Fax Destination • Fax Option • Group Name • Key Display	• Folder • Local Authentication • Folder Authentication • Account ACL • New Document Initial ACL • LDAP Authentication

Download

1. **Prepare a formatted SD card.**
2. **Make sure that the write-protection on the SD card is off.**
3. **Turn off the main power switch of the main machine.**
4. **Remove the SD slot cover at the left rear side of the machine (🔩 x 1).**
5. **Install the SD card into the SD card slot 3 (for service use).**
6. **Turn on the main power switch.**
7. **Enter the SP mode.**
8. **Do SP5-846-051 (Backup All Addr Book).**
9. **Exit the SP mode, and then turn off the main power switch.**
10. **Remove the SD card form the SD card slot 3.**
11. **Install the SD slot cover.**

Note

- If the capacity of SD card is not enough to store the local user information, an error message is displayed.
- Carefully handle the SD card, which contains user information. Do not take it back to your location.

Upload

1. **Turn off the main power switch of the main machine.**
2. **Remove the SD slot cover at the left rear side of the machine (🔩 x 1).**
3. **Install the SD card, which has already been uploaded, into the SD card slot 3.**
4. **Turn on the main power switch.**
5. **Enter the SP mode.**

6. **Do SP5-846-052 (Restore All Addr Book).**
7. **Exit the SP mode, and then turn off the main power switch.**
8. **Remove the SD card form the SD card slot 3.**
9. **Install the SD slot cover.**

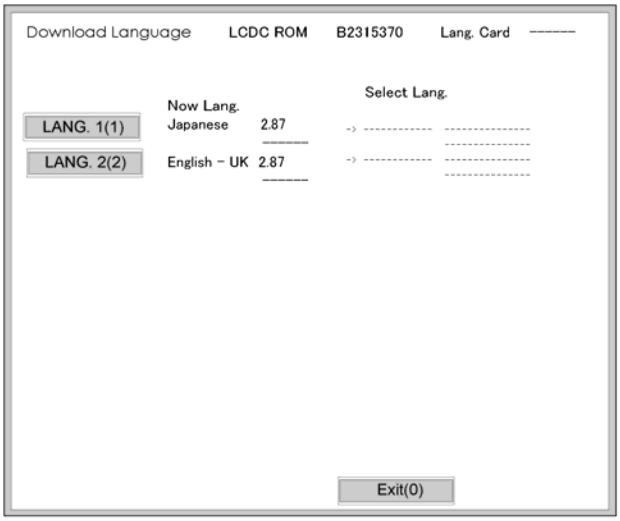
Note

- The counter in the user code information is initialized after uploading.
- The information of an administrator and supervisor cannot be downloaded nor uploaded.
- If there is no data of address book information in the SD card, an error message is displayed.

Installing Another Language

Many languages are available. But you can only switch between two languages at a time. Do the following procedure to select the two languages you want. You can select both of the languages you want from the user interface on the operation panel.

1. **Switch the copier main power switch off.**
2. **Remove the SD slot cover (🔩 x 1).**
3. **Insert the SD card with the language data into SD Card Slot 3.**
4. **Switch the copier main power switch on. The initial screen opens after about 45 seconds.**
5. **Touch "Language Data (2)" on the screen (or press ②).**



Download Language LCDC ROM B2315370 Lang. Card -------

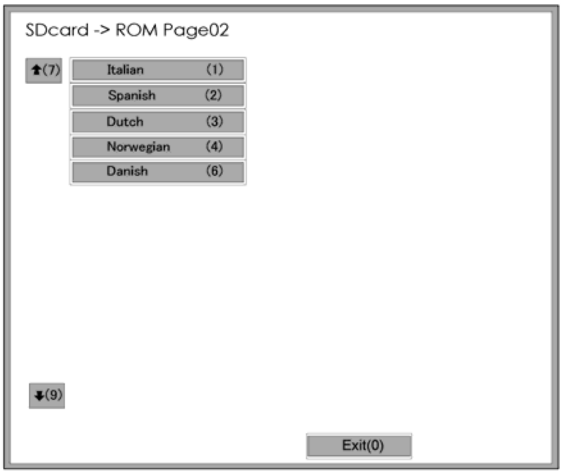
Now Lang.
Japanese 2.87
English – UK 2.87

6. **Touch "LANG. 1(1)" or "LANG. 2(2)"**

Key	What it does

LANG. 1(1)	Touch this button on the screen (or press ① on the 10-key pad) to open the next screen so you can select the 1st language.
LANG. 1(2)	Touch this button on the screen (or press ② on the 10-key pad) to open the next screen so you can select the 2nd language.
Exit(0)	Touch this key on the screen (or press ⓪ on the 10-key pad) to quit the update procedure and return to normal screen.

7. **Touch "LANG 1(1)" to select the 1st Language. Touch "LANG (2)" to select the 2nd Language.**



8. **Touch the appropriate button on the screen (or press the number on the 10-keypad) to select a language as the 1st (or 2nd) language.**

   If a language is already selected, it will show in reverse.

   Touching "Exit (0)" returns you to the previous screen.

9. **If you do not see the language that you want to select, touch "↑(7)" or "↓(9)" on the screen (or press ⑦ or ⑨) to show more choices.**

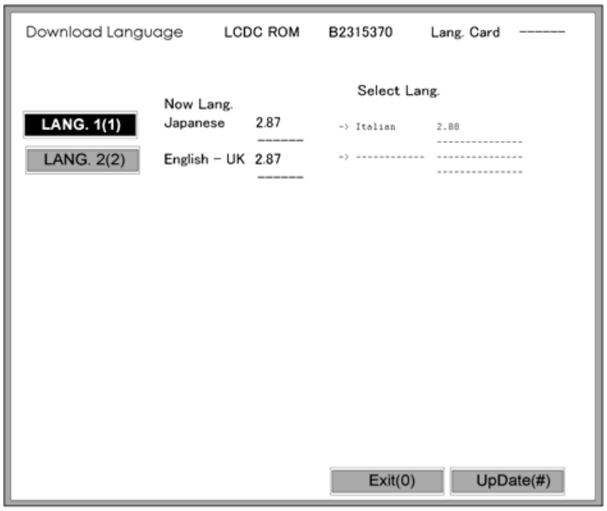
   The Download Screen opens after you select a language.

   The 1st or 2nd language selected for updating shows.

   1. The following show to right of the selection:
   2. The first column shows the language currently selected

   The 2nd column shows the language selected to replace that language.

   The example below shows that the download will replace "Japanese" with "Italian" as the 1st language.



Download Language LCDC ROM B2315370 Lang. Card -------

Now Lang.
Japanese 2.87
English – UK 2.87

Select Lang.
-> Italian 2.88
-> ------------ ---------------

10. **Touch "Update(#)" on the screen (or press #) to start the download.**

    Another screen with a progress bar does not show when the language is downloading.

    The following occur at the time the language is downloading:

    - The operation panel switches off.
    - The LED on the power on key flashes rapidly.

11. **After the message of installation completed has shown on the LCD, switch the copier main power switch off. Then remove the SD card from the slot.**
12. **Switch the copier main power switch on to resume normal operation.**

Handling Firmware Update Errors

An error message shows in the first line if an error occurs during a download. The error code consists of the letter "E" and a number ("E20", for example).

Error Message Table

Code	Meaning	Solution
20	Cannot map logical address	Make sure the SD card is inserted correctly.
21	Cannot access memory	HDD connection incorrect or replace hard disks.
22	Cannot decompress compressed data	Incorrect ROM data on the SD card, or data is corrupted.

23	Error occurred when ROM update program started	Controller program abnormal. If the second attempt fails, replace controller board.
24	SD card access error	Make sure SD card inserted correctly, or use another SD card.
30	No HDD available for stamp data download	HDD connection incorrect or replace hard disks.
31	Data incorrect for continuous download	Insert the SD card with the remaining data required for the download, the re-start the procedure.
32	Data incorrect after download interrupted	Execute the recovery procedure for the intended module download, then repeat the installation procedure.
33	Incorrect SD card version	Incorrect ROM data on the SD card, or data is corrupted.
34	Module mismatch - Correct module is not on the SD card)	SD update data is incorrect. Acquire the correct data (Japan, Overseas, OEM, etc.) then install again.
35	Module mismatch – Module on SD card is not for this machine	SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again.
36	Cannot write module – Cause other than E34, E35	SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again.
40	Engine module download failed	Replace the update data for the module on the SD card and try again, or replace the BCU board.
42	Operation panel module download failed	Replace the update data for the module on the SD card and try again, or replace the LCDC.
43	Stamp data module download failed	Replace the update data for the module on the SD card and try again, or replace the hard disks.
44	Controller module download failed	Replace the update data for the module on the SD card and tray again, or replace controller board.
50	Electronic confirmation check failed	SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again.

SD Card Appli Move

Overview

The service program "SD Card Appli Move" (SP5-873) lets you to copy application programs from one SD card to another SD card.

Slot 1 and Slot 2 are used to store application programs. But there are 3 possible applications (PostScript 3, DOS unit, PictBridge). You cannot run application programs from Slot 3. However you can move application programs from Slot 3 to either Slot 1 or Slot 2 with the following procedure (if there are cards in slots 1 and 2, Slot 1 will be used).

For this model, the printer/scanner card in slot 1 has enough space for the PictBridge and the DOS applications. Use the card that is already in slot 1 (printer/scanner card). Do not remove the printer/scanner card from slot 1.

The procedures in this section will assume that you use slot 1.

If you want to use slot 2, you must first turn the machine power off, remove the SD card from slot 1, and turn the power on again. You can then do the following procedure, and the application will go to the card in slot 2.

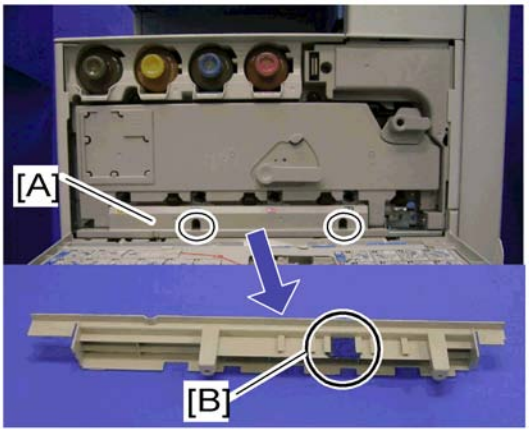
1. Choose a SD card with enough space.
2. Enter SP5873 "SD Card Appli Move". Then move the application from the SD Card in Slot 3 to the Slot you want.

   Note

   - If you move the application to slot 1, use the card that is already in slot 1 (printer/scanner card). Do not remove the printer/scanner card from slot 1.
   - Do steps 1-2 again if you want to move another application program.
3. Exit the SP mode

Use caution when you do the SD Card Appli Move procedure:

1. **The data necessary for authentication is transferred with the application program from an SD card to another SD card. Authentication fails if you try to use the SD card after you copy the application program from one card to another card.**
2. **Do not use the SD card if it has been used by the user on the computer. Normal operation is not guaranteed when such an SD card is used.**



3. **Remove the cover [A] (🔩 x 2).**
4. **Keep the SD card in the place [B] after you copy the application program from one card to another card. This is done for the following reasons:**
    1. The SD card can be the only proof that the user is licensed to use the application program.
    2. You may need to check the SD card and its data to solve a problem in the future.
5. **You cannot copy PostScript data to another SD card. You have to copy other data to the same SD card that stores PostScript data.**

Move Exec

The menu "Move Exec" (SP5-873-001) lets you copy application programs from the original SD card to another SD card.

Important

- Do not turn ON the write protect switch of the system SD card or application SD card on the machine. If the write protect switch is ON, a download error (e.g. Error Code 44) occurs during a firmware upgrade or application merge.

1. **Turn the main switch off.**
2. **Make sure that an SD card is in SD Card Slot 1. The application program is copied into this SD card.**
3. **Insert the SD card (having stored the application program) to SD Card Slot 3. The application program is copied from this SD card.**
4. **Turn the main switch on.**
5. **Start the SP mode.**
6. **Select SP5-873-001 "Move Exec."**
7. **Follow the messages shown on the operation panel.**

8. **Turn the main switch off.**
9. **Remove the SD card from SD Card Slot 3.**
10. **Turn the main switch on.**
11. **Check that the application programs run normally.**

Undo Exec

The menu "Undo Exec" (SP5-873-002) lets you copy back application programs from an SD card to the original SD card. You can use this program when, for example, you have mistakenly copied some programs by using Move Exec (SP5-873-001).

Important

- Do not turn ON the write protect switch of the system SD card or application SD card on the machine. If the write protect switch is ON, a download error (e.g. Error Code 44) occurs during a firmware upgrade or application merge.

1. **Turn the main switch off.**
2. **Insert the original SD card in SD Card Slot 3. The application program is copied back into this card.**
3. **Insert the SD card (having stored the application program) to SD Card Slot 1. The application program is copied back from this SD card.**
4. **Turn the main switch on.**
5. **Start the SP mode.**
6. **Select SP5-873-002 "Undo Exec."**
7. **Follow the messages shown on the operation panel.**
8. **Turn the main switch off.**
9. **Remove the SD card from SD Card Slot 3.**

   Note

   - This step assumes that the application programs in the SD card are used by the machine.
10. **Turn the main switch on.**
11. **Check that the application programs run normally.**

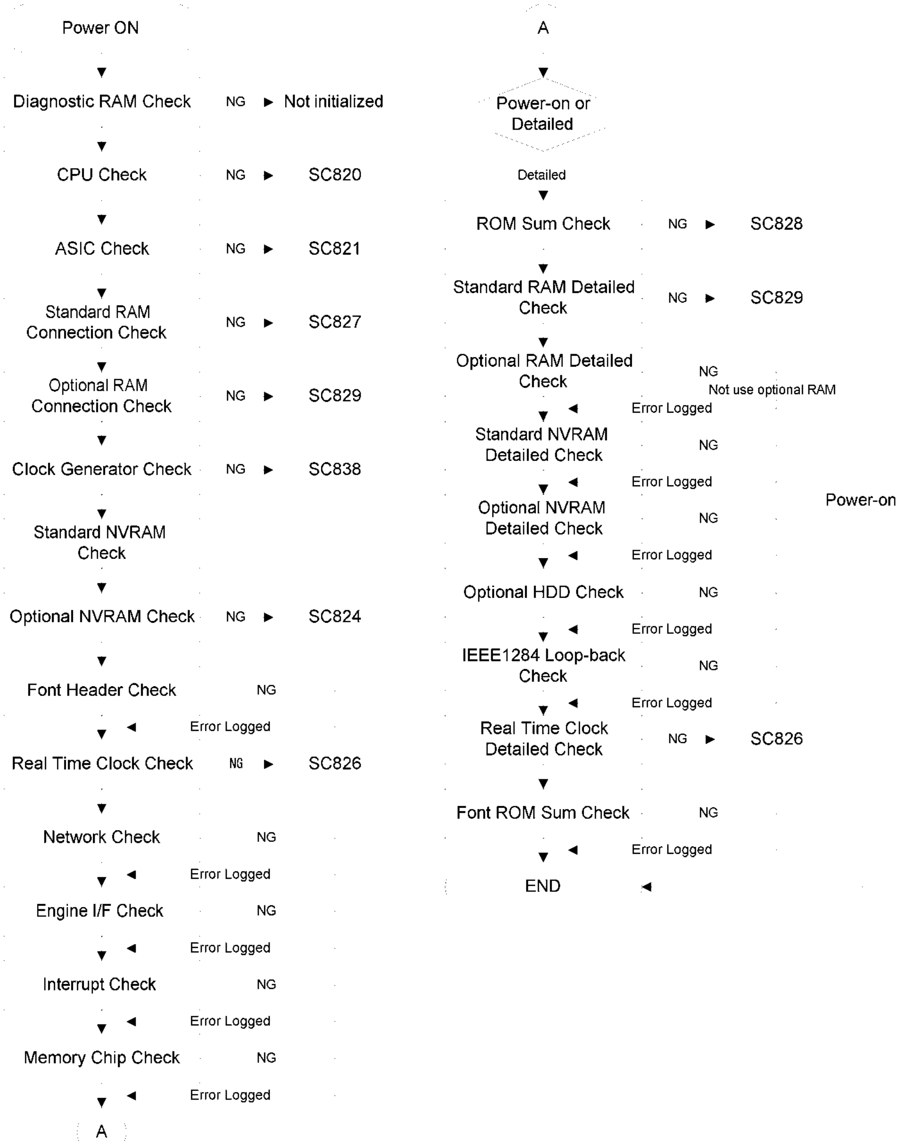
Controller Self-Diagnostics

Overview

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

1. Power-on self-diagnostics: The machine automatically starts the self-diagnostics just after the power has been turned on.
2. SC detection: The machine automatically detects SC conditions at power-on or during operation.

The following shows the workflow of the power-on and detailed self-diagnostics.


Power ON
Diagnostic RAM Check
NG
Not initialized
CPU Check
NG
SC820
ASIC Check
NG
SC821
Standard RAM Connection Check
NG
SC827
Optional RAM Connection Check
NG
SC829
Clock Generator Check
NG
SC838
Standard NVRAM Check
Optional NVRAM Check
NG
SC824
Font Header Check
NG
Error Logged
Real Time Clock Check
NG
SC826
Network Check
NG
Error Logged
Engine I/F Check
NG
Error Logged
Interrupt Check
NG
Error Logged
Memory Chip Check
NG
Error Logged
A
A
Power-on or Detailed
Detailed
ROM Sum Check
NG
SC828
Standard RAM Detailed Check
NG
SC829
Optional RAM Detailed Check
NG
Not use optional RAM
Error Logged
Standard NVRAM Detailed Check
NG
Error Logged
Optional NVRAM Detailed Check
NG
Error Logged
Power-on
Optional HDD Check
NG
Error Logged
IEEE1284 Loop-back Check
NG
Error Logged
Real Time Clock Detailed Check
NG
SC826
Font ROM Sum Check
NG
Error Logged
END

Using the Debug Log

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

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

To capture this debug information, the Save Debug Log feature provides two main features:

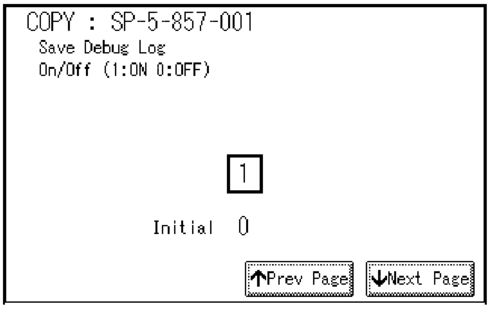
- Switching on the debug feature so error information is saved directly to the HDD for later retrieval.
- Copying the error information from the HDD to an SD card.

Do the following procedure below to set up the machine so the error information is saved automatically to the HDD when a user has problems with the machine. Then ask the user to reproduce the problem.

Switching ON and Setting UP Save Debug Log

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

1. **Enter the SP mode and switch the Save Debug Log feature on.**
    - Press then use the 10-key pad to enter ①⓪⑦.
    - 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".**



COPY : SP-5-857-001
Save Debug Log
On/Off (1:ON 0:OFF)

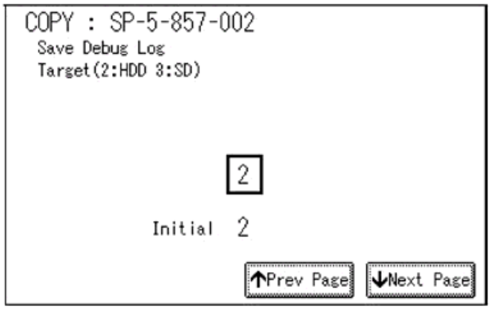
1

Initial 0

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.


COPY : SP-5-857-002
Save Debug Log
Target(2:HDD 3:SD)
2
Initial 2

4. **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.**

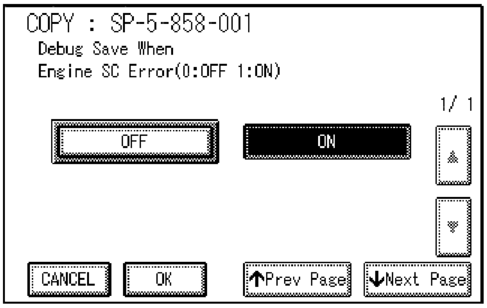
1	Engine SC Error	Saves data when an engine-related SC code is generated.
2	Controller SC Error	Saves debug data when a controller-related SC Code is generated.
3	Any SC Error	Saves data only for the SC code that you specify by entering code number.
4	Jam	Saves data for jams.

Note

- More than one event can be selected.

Example 1: To Select Items 1, 2, 4

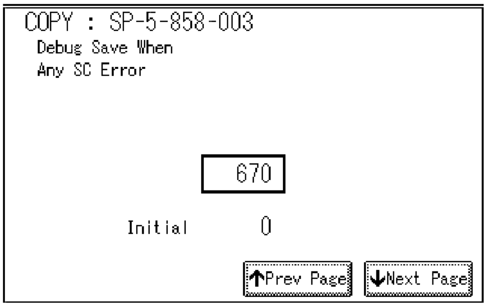
Touch the appropriate items(s). Press "ON" for each selection. This example shows "Engine SC Error" selected.



COPY : SP-5-858-001
Debug Save When
Engine SC Error(0:OFF 1:ON)

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.



COPY : SP-5-858-003
Debug Save When
Any SC Error

670

Initial 0

Note

- For details about SC code numbers, please refer to the SC tables in Section 4. “Troubleshooting”.

6. **Select one or more memory modules for reading and recording debug information. Touch “5859”.**

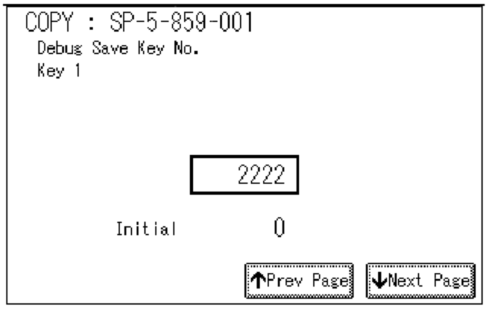
Under “5859” press the necessary key item for the module that you want to record.

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

Initial 0

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

4-Digit Entries for Keys 1 to 10

Key No.	Copy	Printer	Scanner	Web
1	2222 (SCS)			
2	14000 (SRM)			
3	256 (IMH)			
4	1000 (ECS)			
5	1025 (MCS)			
6	4848 (COPY)	4400 (GPS)	5375 (Scan)	5682 (NFA)
7	2224 (BCU)	4500 (PDL)	5682 (NFA)	6600 (WebDB)
8		4600 (GPS-PM)	3000 (UCS)	3300 (PTS)
9		2000 (NCS)	2000 (NCS)	6666 (WebSys)
10		2224 (BCU)	4126 (DCS)	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 with SP5858 and the memory modules selected with SP5859.

Please keep the following important points in mind when you do 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 to 010. For example, if you want to create a PRINTER debug log you must select the settings from the 9 available selections for the “PRINTER” column only.
- One area of the disk is reserved to store the debug log. The size of this area is limited to 4 MB.

Retrieving the Debug Log from the HDD

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. **Use a card reader to copy the file and send it for analysis to your local Ricoh representative by email. You can also send the SD card by regular mail if you want.**

Recording Errors Manually

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

Note

- You must previously switch on the Save Debug Feature (SP5857-001) and select the hard disk as the save destination (SP5857-002) if you want to use this feature.

1. **Press (Clear Modes).on the operation panel when the error occurs.**

2. **On the control panel, enter "01". Then hold down C/⊘ for at least 3 seconds until the machine beeps and then release it. 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. This lets the service representative retrieve it on their next visit by copying it from the HDD to an SD card.

New Debug Log Codes

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

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

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

This SP creates a 32 MB file to store a log on the HDD. However, this is not a completely empty file. The created file will hold the number "2225" as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the HDD when the first log is stored on the HDD (it takes some time to complete this operation). 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 need to be created. To create a new log file, do SP5857-011 to delete the debug log data from the HDD. Then do 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 (it takes some time to complete this operation). 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, do SP5857-012 to delete the debug log data from the SD card. Then do SP5857-017.

Dip Switches

Controller Board

DIP SW No.	OFF	ON
1	Boot-up from Flash Memory	Boot-up from SD card
2 to 8	Factory Use Only: Do not change the switch settings.	

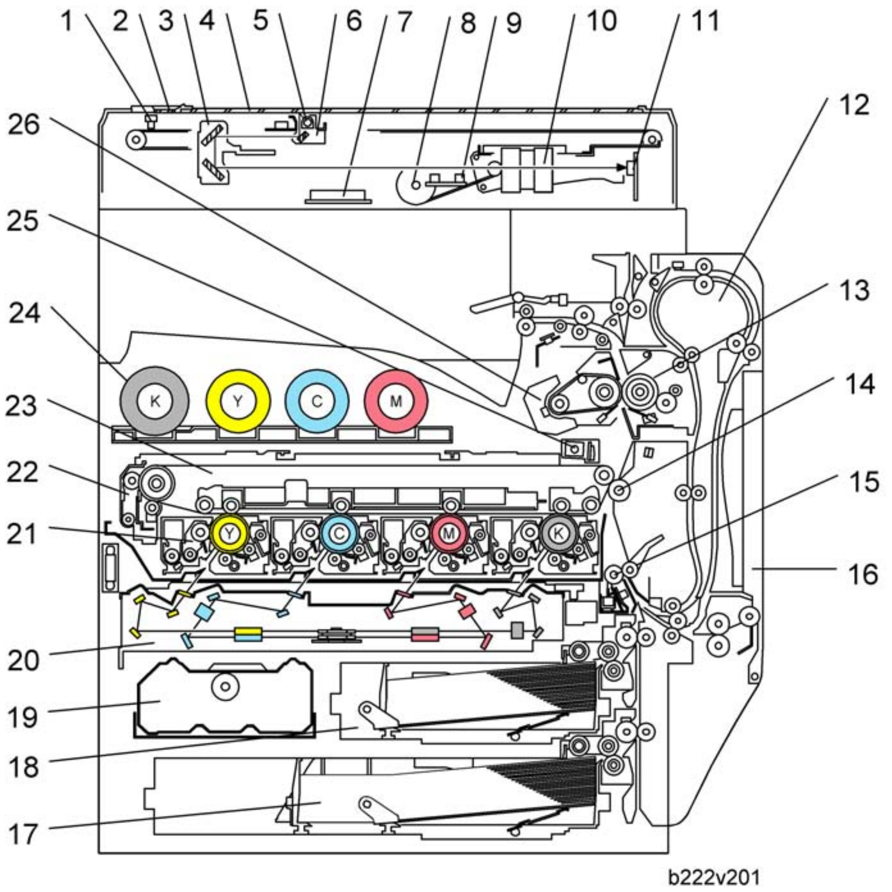
BCU Board

DIP SW No.	OFF	ON
1 and 2	Factory Use Only: Do not change the switch settings.	

6. Detailed Section Descriptions

Overview

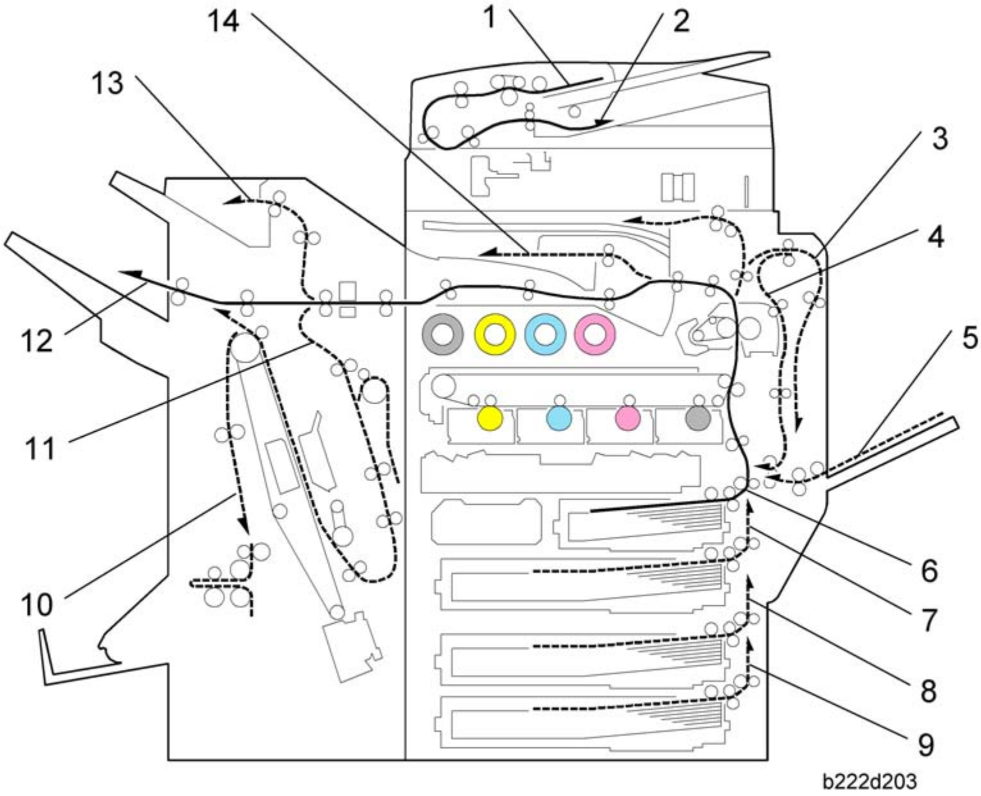
Component Layout



1. Scanner HP sensor	14. Paper transfer roller
2. ADF exposure glass	15. Registration roller
3. 2nd scanner (2nd carriage)	16. By-pass feed table
4. Exposure glass	17. Tray 2
5. Scanner lamp	18. Tray 1
6. 1st scanner (1st carriage)	19. Toner collection bottle

7. Original width sensor	20. Laser optics housing unit
8. Scanner motor	21. PCU (4 colors)
9. Original length sensor	22. Image transfer belt cleaning unit
10. Lens block	23. Image transfer belt unit
11. Sensor board unit (SBU)	24. Toner bottle (4 colors)
12. Duplex unit	25. ID sensor
13. Fusing unit	26. IH coil unit

Paper Path

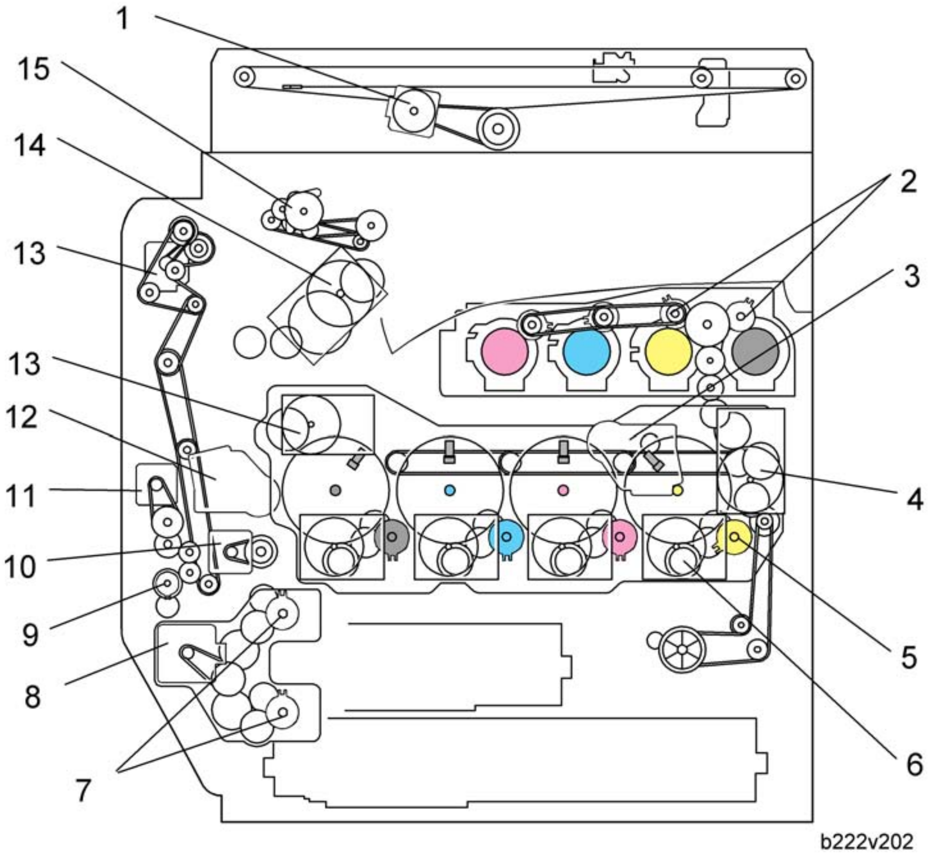


1. Original tray	8. Tray 3: Optional paper feed unit/LCT
2. Original exit tray	9. Tray 4: Optional paper feed unit
3. Duplex inverter	10. Finisher booklet stapler (Optional)
4. Duplex feed	11. Finisher stapler (Optional)

5. By-pass tray feed 6. Tray 1 feed 7. Tray 2 feed	12. Finisher upper tray (Optional) 13. Finisher proof tray (Optional) 14. Inner Tray

The 2000/3000-sheet (booklet) finisher and 1000-sheet finisher require the bridge unit (B227) and one from the two-tray paper feed unit (B800) or the LCT (B801).

Drive Layout

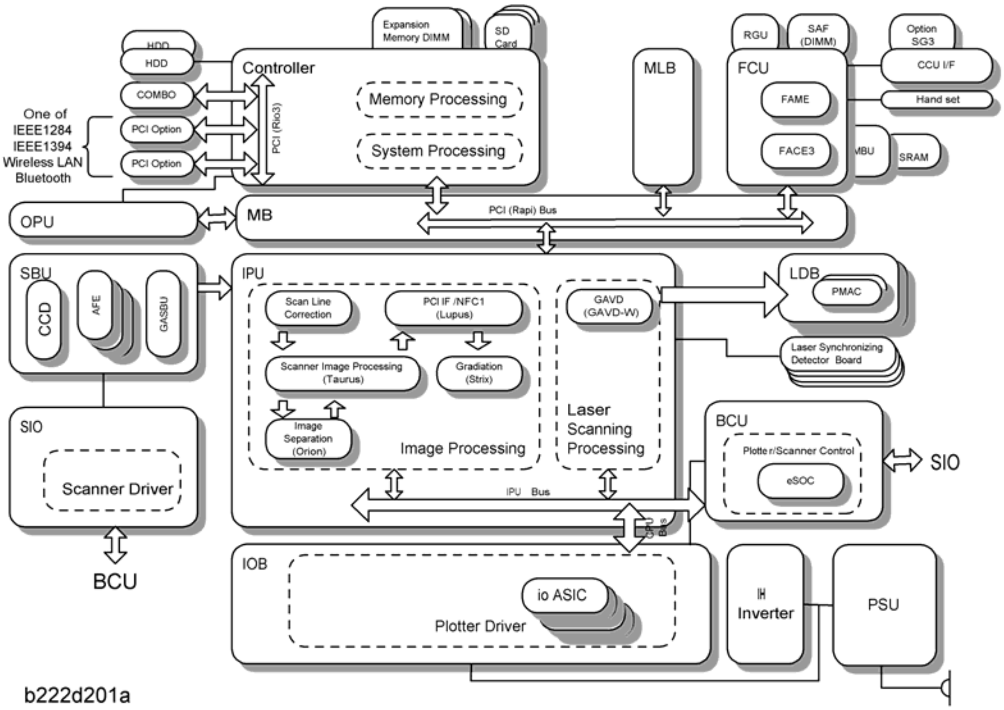


1. Scanner motor:	Drives the scanner unit.
2. Toner supply clutch-K and -CMY:	Turns on/off the drive power to the toner supply unit (Bk and -CMY).
3.ITB (Image Transfer Belt) contact motor:	Moves the ITB into contact and away from the color PCUs.

4. Toner transport motor:	Drives the toner attraction pumps and the toner collection coils from the PCUs, from the transfer belt unit, and inside the toner collection bottle. Also rotates the toner bottles.
5. Development clutch (Bk, Y, M, C):	Turns on/off the drive power to the development unit (Bk, Y, M, C).
6. Drum/Development drive motor (Bk, Y, M, C)	Drives the color drum unit and development unit (Bk, Y, M, C).
7. Paper feed clutch	Switches the drive power between the tray 1 and tray 2.
8. Paper feed motor:	Drives the paper feed mechanisms (tray 1/tray 2/by-pass tray).
9. By-pass feed clutch:	Turns on/off the drive power to the by-pass pick-up, feed and separation rollers.
10. Registration motor:	Drives the registration roller.
11. By-pass/duplex feed motor:	Drives the by-pass pick-up, feed and separation roller, and duplex transport rollers.
12. Paper transfer contact motor:	Moves the paper transfer roller in contact with the image transfer belt.
13. ITB drive motor:	Drives the image transfer belt unit.
14. Fusing/paper exit motor:	Drives the fusing unit and paper exit section.
15. Junction gate 1 motor:	Opens and closes junction gate 1.

Board Structure

Overview



b222d201a

Note

- In the diagram, ‘MLB’ is the File Format Converter

Descriptions

BCU (Base Engine Control Unit):
The BCU controls all the mechanical components and the following functions:

- Engine sequence
- Engine operation
- Polygon motor control

Controller:

The controller connects to the IPU through a PCI bus. The controller handles the following functions:

- Machine-to-host interface
- Operation panel interface
- Network interface

- Interfacing and control of the optional IEEE1284, Bluetooth, IEEE1394, IEEE802.11b (wireless LAN), USB Host, HDD, and DRAM DIMM

IPU:

The Image Processing Unit is a large-scale integrated circuit. This unit processes digital signals.

LD Drive Board:

This is the laser diode drive circuit board.

SBU:

The Sensor Board Unit has a CCD (charge-coupled device) and an analog-to-digital conversion circuit.

Operation Panel Board:

This controls the display panel, the LED and the keypad.

Scanner I/O Board (SIO):

The scanner I/O board is a circuit board that transmits control signals, image data, and electricity.

I/O Board (IOB):

Contains drivers for motors and other mechanical components.

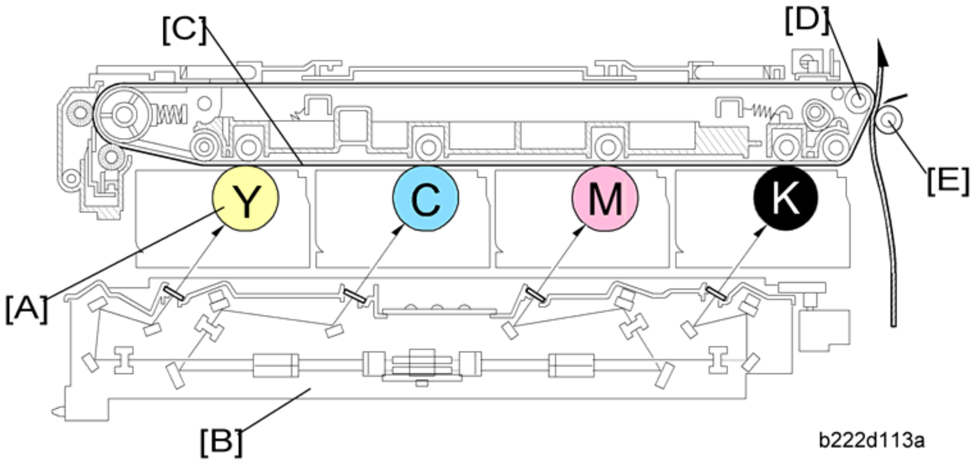
Motherboard:

Connects the controller board to the IPU.

FCU:

The FCU (fax controller unit) controls the fax programs and communicates with the controller to share copier resources.

Printing Process



This machine uses four PCUs, and four laser beams for color printing. Each PCU consists of the drum unit and the development unit. Each drum unit has a drum, charge roller, cleaning brush, and blade. From the left, the PCU stations are yellow, cyan, magenta, and black.

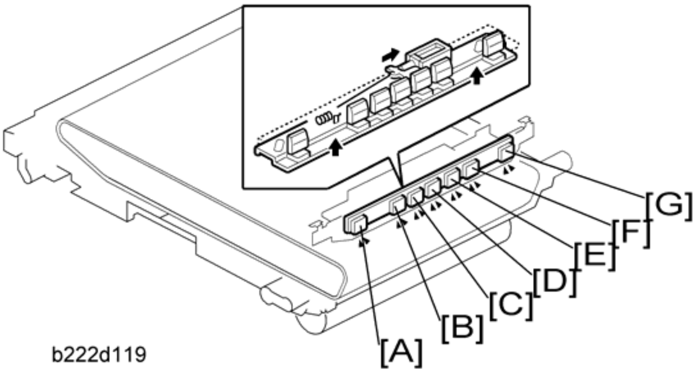
The drum [A] is charged with a negative voltage, and is exposed by the laser from the laser optics housing unit [B]. The laser neutralizes the negative charge on the surface of the drum. So, the white parts of the image correspond to areas of the drum that still have a high negative charge. The toner has a negative charge, and it moves to the areas of the drum that have the smallest negative charge (i.e., the areas written by the laser beam).

The image on each drum is moved to the transfer belt by the positive bias that is applied to the transfer belt [C]. All four toners are put on the belt at the same time. Then, the completed four-color image is moved to the paper by a negative charge applied to the ITB drive roller [D] (the transfer roller [E] is an idle roller).

1. **Drum charge:** The charge roller gives the drum a negative charge
2. **Laser exposure**: The laser beam from the laser diode (LD) goes through the lens and mirrors and reaches the drum. The machine turns the laser beam on and off to make a latent image on the drum.
3. **Development:** The development roller carries negatively charged toner to the latent image on the drum surface. This machine uses four independent development units (one for each color).
4. **Transfer:**

   Image transfer: Bias rollers opposite the OPC drums transfer toner from the drums to the transfer belt. Four toner images are super-imposed onto the belt.

   Paper transfer: Then, the ITB drive roller pushes the toner from the transfer belt to the paper (the transfer roller is an idle roller).
5. **Cleaning for OPC drum**: The cleaning brush and blade remove remaining toner on the drum surface after image transfer to the paper.
6. **Quenching for OPC drum:** Quenching is done by illuminating the whole area of the drum with the laser at the end of every job.
7. **Cleaning and quenching for transfer belt:** The cleaning brush and blade clean the belt surface. The grounding roller inside the transfer belt unit removes the remaining charge on the belt.



8. ID sensors: The ID sensors detect the density of ID sensor patterns on the transfer belt.

The ID sensor board contains three ID sensors for the line position adjustment (front, center, and rear) and four ID sensors for the process control. On this board, there are 7 ID sensors in total, as follows.

- [A]: Line position adjustment (front)
- [B]: Process control (K)
- [C]: Process control (C)
- [D]: Line position adjustment (center)
- [E] Process control (M)
- [F]: Process control (Y)
- [G]: Line position adjustment (rear)

The ID sensor output is used for the following:

- Process control and for automatic line position
- Skew correction
- Color registration adjustments for the latent image.

Process Control

Overview

This machine has the following two forms of process control:

- Potential control
- Toner supply control

The following machine components are used for process control:

- Four ID (image density) sensors (black, magenta, cyan and yellow).
- TD sensor.

Normally, process control is not disabled. If process control is disabled, fixed supply mode is used for toner supply, and the V_{REF} stored in SP 3222 is used.

Potential Control

Overview

The machine determines V_D using the ID sensor output, and then determines V_B and V_L.

- V_D: Drum potential without exposure – to adjust this, the machine adjusts the charge roller voltage.
- V_B: Development bias
- V_L: Drum potential at the strongest exposure – to adjust this, the machine adjusts the laser power

At the same time, the machine also determines V_{REF}: Reference TD sensor output, used for toner supply control.

If potential control is disabled (SP3-041-001 is set to "0"), V_D and V_B are fixed by the following SP mode settings.

- SP2-005 for V_D, SP2-229 for V_B

If LD power control is disabled (SP3-041-002 is set to "0"), the LD power is fixed by the following SP mode setting.

- SP2-221 for V_L

Process Control Self Check

This machine uses the process control self check method to do the potential control. The machine uses seven types of process control self check. These are categorized according to their execution timing.

The counter (SP3-510) is reset if a self-check is done (except for a forced self-check).

ΔT = Temperature change between the temperature of the previous process control and the current temperature

ΔRH = RH (Relative Humidity) change between the relative humidity of the previous process control and the current relative humidity

ΔAH = AH (Absolute Humidity) change between the absolute humidity of the previous process control and the current absolute humidity

1. Manual execution (forced): This is done when SP3-011-1 is used.
2. Initial

   This starts automatically when the power is turned on, or, when the machine recovers from energy saver mode.

   This is done automatically if one of these conditions occurs.

   - a) ΔT is greater than or equal to Temperature Threshold (SP3-522-003: 10°C)
   - b) ΔRH is greater than or equal to Relative Humidity Threshold (SP3-522-004: 50%RH)
   - c) ΔAH is greater than or equal to Absolute Humidity Threshold (SP3-522-005: 6 g/m^3)
   - d) If the following conditions both occur.

   BW Counter (SP3-510-003) is greater than or equal to Execution Interval (SP3-511-005)

   OR

   FC Counter (SP3-510-004) is greater than or equal to Execution Interval (SP3-511-006)

   Non-use Time is greater than or equal to SP3522-002 (default: 6 hours)
3. Interval: Job End

   This starts automatically at the end of a print job if the following condition occurs:

   BW Counter (SP3-510-001) is greater than or equal to Execution Interval (SP3-515-001)
   OR
   FC Counter (SP3-510-002) is greater than or equal to Execution Interval (SP3-515-002)
4. Interval: During a Job

   This interrupts printing and then starts automatically if the following condition occurs:

   BW Counter (SP3-510-001) is greater than or equal to Execution Interval (SP3-515-003)

   OR

   FC Counter (SP3-510-002) is greater than or equal to Execution Interval (SP3-515-004)

   After process control is completed, the machine continues to make prints.
5. In standby mode

   This is done automatically if one of these conditions occurs.

   - a) ΔT is greater than or equal to Temperature Threshold (SP3-531-002: 10°C)
   - b) ΔRH is greater than or equal to Relative Humidity Threshold (SP3-531-003: 50%RH)
   - c) ΔAH is greater than or equal to Absolute Humidity Threshold (SP3-531-004: 6 g/m^3)

- d) Non-use Time is greater than or equal to SP3-531-001 (default: 6 hours)

   It is not done if the machine is in energy saver mode.

   The default non-use time is 6 hours (see condition d above), so normally it will only be done if the user disables energy saver mode.

6. After Toner End Recovery

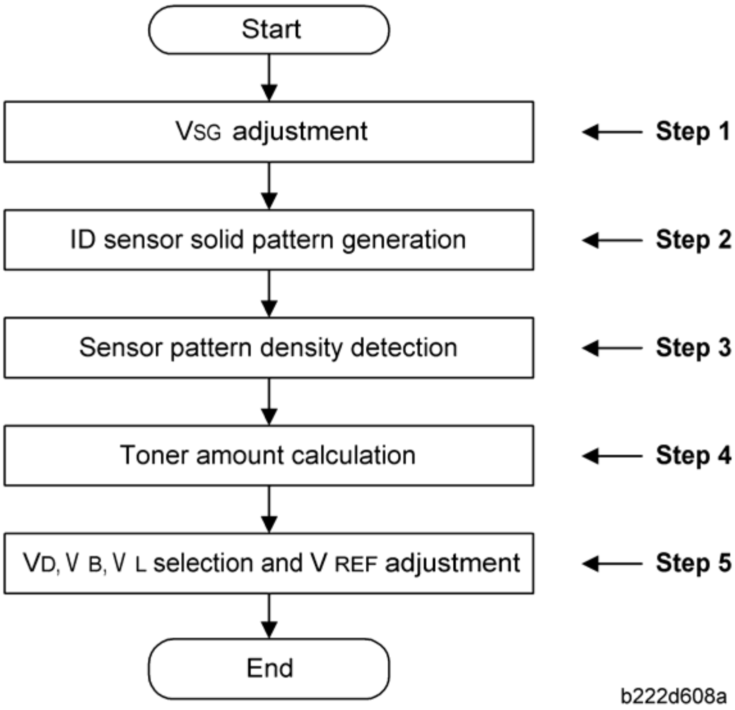
   This starts after recovery from a toner end condition.

7. After Developer Initialization

   Developer initialization occurs automatically in the following conditions:

   - After a new development unit has been installed
   - After new developer is installed and 3902-005 to 008 is done, depending on the color (see ‘Maintenance’ for details).

Process Control Self Check Procedure


Start
VSG adjustment
Step 1
ID sensor solid pattern generation
Step 2
Sensor pattern density detection
Step 3
Toner amount calculation
Step 4
VD, VB, VL selection and VREF adjustment
Step 5
End
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Step 1: VSG Adjustment

This machine uses four ID sensors (direct reflection type) for the process control. Each sensor detects a pattern for each color (see the ‘Printing Process’ section).

The ID sensor checks the bare transfer belt’s reflectivity. Then the machine calibrates the ID sensor until its output when reading the bare transfer belt (known as VSG) is as follows.

- VSG = 4.0 ± 0.5 Volts

This calibration compensates for the transfer belt's condition and the ID sensor condition. For example, dirt on the surface of the belt or ID sensor.

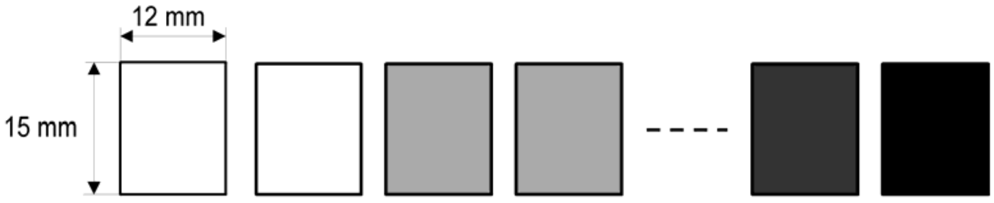
VSG adjustment is always done during initial process control. But, at other times, it is only done if the VSG adjustment counter (SP3-510-007) is more than the value set with SP3-511-007 (default: 500) during a job or at job end.

SC400 is displayed if VSG is out of adjustment range sequentially 3 times.

SP3-321: Forced VSG Adjustment for each sensor

SP 3-325: Shows the results of the VSG adjustment (automatic or forced VSG adjustment) - 7 digits (Front, Bk, C, Center, M, Y, Rear)

Step 2: ID Sensor Solid Pattern Generation



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First, the machine agitates the developer for between 15 and 30 seconds until the fluctuation in TD sensor output becomes less than 0.3V.

Second, the machine makes the grade patterns (see the diagram). This 10-grade pattern is made in black, yellow, cyan, and magenta (40 squares in total).

- The machine first makes the first five grades for each color (the first 20 squares), and then the second five grades for each color (the remaining 20 squares).

The patterns are made by changing the development bias and charge roller voltage. The difference between development bias and charge roller voltage is always the same. But, the development potential changes for each pattern.

- The development potential is the difference between the development bias and the charge remaining on the drum where the laser writes a black area. The development bias changes for each grade, and the charge on black areas of the image is always the same, so the development potential also changes.

Step 3: Sensor Pattern Detection

The ID sensor measures the light reflected from each grade of the pattern, to detect the densities of each grade. This data goes to memory.

Step 4: Toner Amount Calculation

The machine calculates the amount of toner on the transfer belt that is required to make each of the 10 grades of the sensor pattern. To do this, the machine uses the output values of the ID sensor from each grade of the pattern.

The amounts of toner are expressed as M/A (mass per unit area, mg/cm^2)

Step 5: V_D, V_B, V_L Selection and V_{TREF} Adjustment

The machine determines the relationship between the amount of toner on the transfer belt and the development bias for each of the 10 grades.

From this, the machine determines the best V_D to get the target M/A for each color. Then, based on this V_D, the machine determines the best V_B and V_L. This process ensures that enough toner is deposited to make black pixels.

The machine also adjusts V_{TREF} (toner density target) at the same time so that the development gamma used by the machine fall within the target development gamma range stored in the machine's software. If it does not fall within this range, the amount of toner deposited on the latent image will be too high or too low.

Toner Density Adjustment Mode

If the toner density becomes too high or too low because of an incorrect development gamma, this is corrected by process control (see the previous section). But sometimes, it takes many copies before the toner density comes to the correct value.

Toner density adjustment mode can be used to bring the toner concentration to the correct level much more quickly, if users complain about the toner density.

SP 3-043 controls when the toner density adjustment mode is done.

To do the toner density adjustment mode manually, execute SP 3-011-2.

It is also done automatically before ACC, if SP3-041-4 is set to "2: TC Control" (this is the default setting).

During this procedure, the machine generates ID sensor patterns and detects the current development gamma. The gamma must be within ± 0.2 of the target development gamma.

If the current gamma is too high (above the target by 0.2 or more: 0.2 limit is set with SP3-239-009), the machine consumes toner in the development unit until the development gamma is within the correct range. To consume toner, the machine generates solid patterns.

If the current gamma is too low (below the target by more than 0.2: 0.2 limit is set with SP3-239-012), the machine supplies toner to the development unit until the development gamma is within the correct range.

Toner Supply Control

Overview

Toner supply control determines how long the toner supply clutch turns on. This determines the amount of toner supplied. This is done before every development for each color.

Toner supply control uses the following factors:

- Density of the toner in the developer (detected by the TD sensor) - V_{REF}, V_T

- Pixel count: Determines how much toner was used for the page

The image density is kept constant by adjusting the density of toner in the development unit. At the same time, it accommodates changes in the development conditions through the potential control mechanism. Environmental changes and the number of prints made are also used in the calculation.

The amount of toner supplied is determined by the 'on' time of the toner supply clutch. The total 'on' time for each toner supply clutch is stored in the memory chip for the relevant toner cartridge. The machine supplies the calculated amount of toner for each color.

Toner Supply Control Modes

This machine has three toner supply control modes. You can select them with SP3-044-1 to -4.

1. Fixed supply mode

   This mode is used when the TD sensor becomes faulty. You can adjust the amount of toner supply with SP3-401-1 to -4 if the image density is incorrect (the default setting is 5%).

2. PID (Proportional Integral Differential) control mode (Fixed V_{TREF})

   This mode is used when the ID sensor becomes faulty. Only the TD sensor is used to control toner supply. The machine uses the V_{TREF} that is stored in SP3-222-1 to -4.

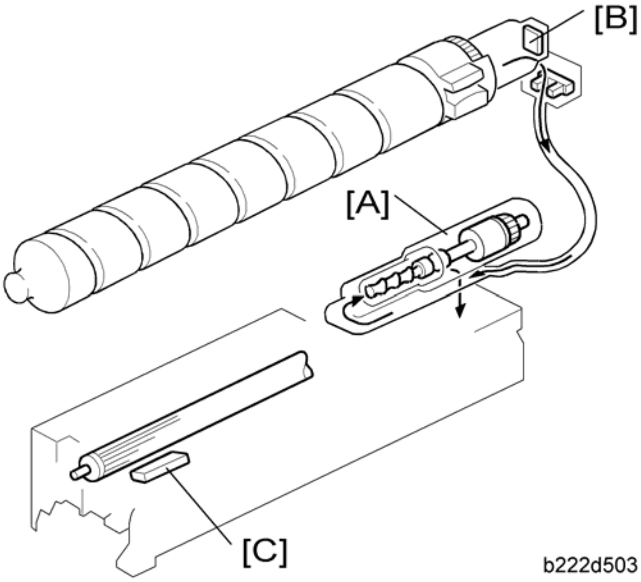
3. PID (Proportional Integral Differential) control mode

   This is the default toner supply control mode. The TD sensor, ID sensor, and pixel count are used in this mode. V_{TREF} is adjusted by process control.

The machine automatically changes the toner supply mode to fixed supply mode if the TD sensor is broken. However, the supply amount will be 70% of the normal fixed value to prevent too high image density.

The machine automatically changes the toner supply mode to PID control mode (Fixed Vtref) if the ID sensors are broken.

Toner Near End/Toner End Detection



Toner Near End

The controller considers the following information to determine the toner near end status:

- Operation time counter of the toner attraction pump [A]
- Pixel counter

These values are both stored in the memory chip [B] on the toner cartridge, and copied from the memory chip to the NVRAM on the BCU.

If either value indicates that the amount of remaining toner is 50g or less, the machine enters the near-end condition.

Toner End

To determine the toner end status, the machine uses the TD sensor [C] in the development unit. The machine must first be in a toner near-end condition, or toner end cannot be detected.

Toner end is detected if both the following conditions occur:

- $V_T - V_{TREF}$ greater than or equal to "0.5" (SP3-101-021)
- SUM ($V_T - V_{TREF}$) greater than or equal to "10" (SP3-101-026)

The machine cannot print until the toner cartridge is replaced after it detects toner end for black. The machine can print in black and white only if cyan, magenta, or yellow are in a toner end condition during standby mode. At this time the machine cannot do color print jobs.

Note

- If the yellow, cyan, or magenta toner ends during a color-printing job, the job is suspended until toner is supplied. If new color toner is not installed, the user can print black-and-white jobs only.

Toner End Recovery

The machine assumes that the toner cartridge has been replaced if either of the following occurs when the near-end or end status exists:

- The front door is opened and closed.
- The main switch is turned off and on.

Then the machine starts to supply toner to the development unit. After supplying toner, the machine clears the toner near-end or end status if the following condition is detected:

- Toner end sensor detects that toner is supplied.

The machine tries to supply toner for a maximum of 5 times (SP 3-102).

Developer Initialization

When is it done?

When you install new developer, you must set the following SPs to "1" before you turn the power off. Then, the machine will reset the PM counters automatically. Developer initialization will also be done automatically.

- Black: SP3902-005
- Yellow: SP3902-006
- Cyan: SP3902-007
- Magenta: SP3902-008

When a new development unit or PCU is installed, the machine detects the new unit automatically and initializes the developer.

How is it done?

The procedure is as follows.

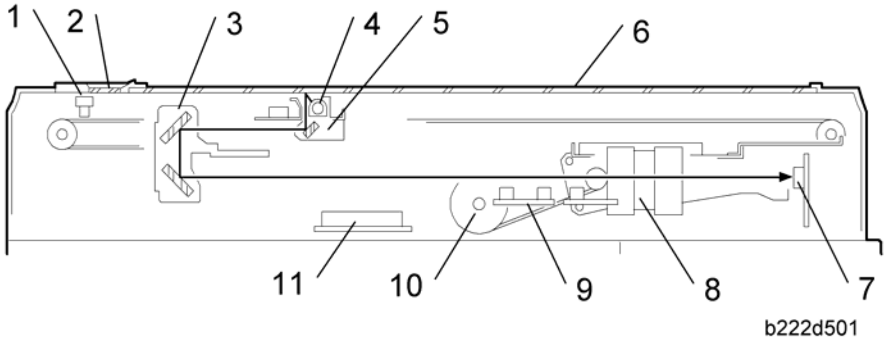
1. The machine agitates the developer for 30 seconds.
2. The machine adjusts V_{CNT} (control voltage for TD sensor) so that V_T (TD sensor output) becomes within 2.7 ± 0.2.
3. The machine keeps this as V_{TREF} if it is successful. SC372 to SC375 is displayed if it fails sequentially 3 times.

The result of developer initialization can be checked with SP3-014.

During developer initialization, the machine forcibly supplies toner because there is no toner inside the toner transport tube at installation. Then the machine does the process control self check.

Scanning

Overview



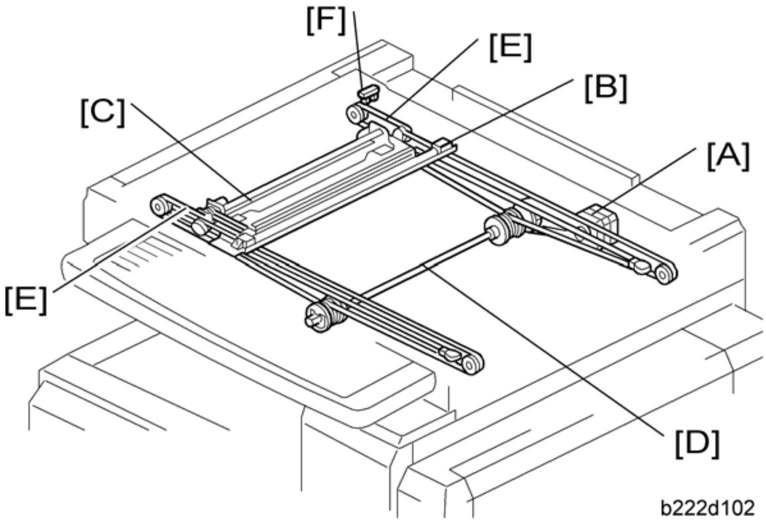
1. Scanner HP sensor 2. ADF exposure glass 3. 2nd scanner (2nd carriage) 4. Scanner lamp 5. 1st scanner (1st carriage) 6. Exposure glass	7. Sensor board unit (SBU) 8. Lens block 9. Original length sensor 10. Scanner motor 11. Original width sensor

The original on the exposure glass or ARDF exposure glass reflects the light emitted from the scanner lamp. The reflected light goes to the CCD on the sensor board by way of the 1st and 2nd scanners. The sensor board converts the CCD analog signals into digital signals.

When the original is manually placed on the exposure glass, the scanner motor pulls the 1st and 2nd scanners via mechanical linkage. The original is scanned from left to right.

When the original is fed from the optional ARDF, it is automatically transported onto the ARDF exposure glass, and to the original exit. The original does not stay on the glass; but goes to the exit. The 1st and 2nd scanners stay at their home positions.

Scanner Drive



The scanner motor [A] drives the 1st scanner [B] and the 2nd scanner [C] through the scanner drive pulley, scanner drive shaft [D], and two scanner wires [E].

Book mode -

The SBU board controls the scanner drive motor. The 2nd scanner speed is half that of the 1st scanner.

In reduction or enlargement mode, the scanning speed depends on the magnification ratio. The returning speed is always the same, whether in full size or magnification mode. The image length change in the sub scan direction is done by changing the scanner motor speed. In the main scan direction it is done by image processing on the IPU board.

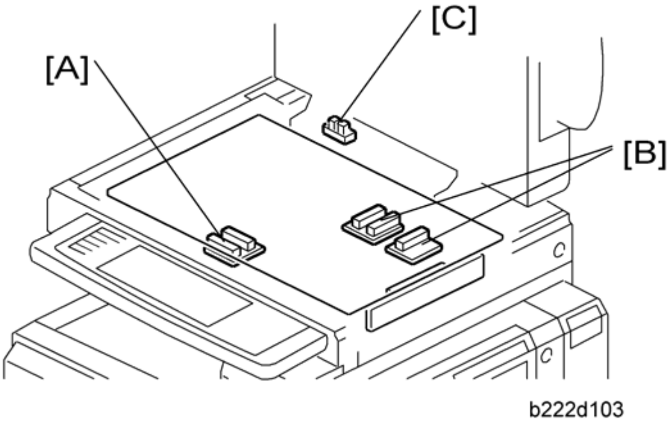
You can adjust the magnification in the sub-scan direction by changing the scanner motor speed with SP4-008.

ARDF mode -

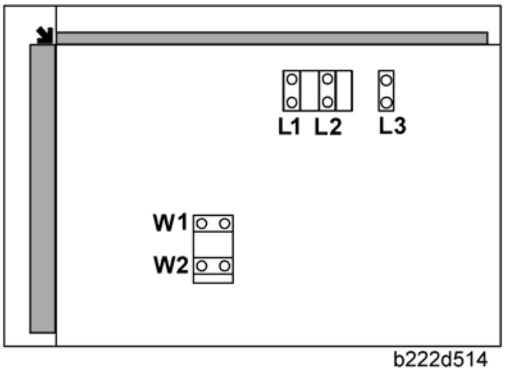
The scanners always stay in their home position (the scanner HP sensor [F] detects the 1st scanner) to scan the original. The ARDF motor feeds the original through the ARDF. In reduction/enlargement mode, the image length change in the sub-scan direction is done by changing the ARDF motor speed. Magnification in the main scan direction is done in the IPU board. This is the same as for book mode.

You can adjust magnification in the sub-scan direction by changing the ARDF motor speed with SP6-017.

Original Size Detection



- The original width sensors [A] detect the original width. The original length sensors [B] detect the original length.
- The SBU controller on the SBU board checks each sensor status when the platen cover sensor [C] is activated as it is closed. It detects the original size by the on/off signals it gets from each sensor.
- If the copy is made with the platen cover fully open, the SBU controller on the SBU determines the original size from the sensor outputs after the Start key is pressed.



Original Size		Length Sensor			Width Sensor		SP4-301 display
Metric version	Inch version	L3	L2	L1	W1	W2	
A3	11" x 17"	O	O	O	O	O	00011111
B4	10" x 14"	O	O	O	O	X	00011110

F4 8.5" x 13", 8.25" x 13", or 8" x 13" SP 5126 controls the size that is detected	8.5″ x 14″	O	O	O	X	X	00011100
A4 LEF	8.5" x 11"	X	X	X	O	O	00000011
B5 LEF	-	X	X	X	O	X	00000010
A4 SEF	11" x 8.5"	X	O	O	X	X	00001100
B5 SEF	-	X	X	O	X	X	00000100
A5 LEF/ SEF	5.5" x 8.5", 8.5" x 5.5"	X	X	X	X	X	00000000

Note

- O: Paper present, X: Paper not present

The above table shows the outputs of the sensors for each original size. This original size detection method eliminates the necessity for a pre-scan and increases the machine's productivity.

However, if the by-pass tray is used, the machine assumes that the copy paper is lengthwise (L). For example, if A4 sideways paper is placed on the by-pass tray, the machine assumes it is A3 paper and scans a full A3 area. Information from the original size sensors is disregarded.

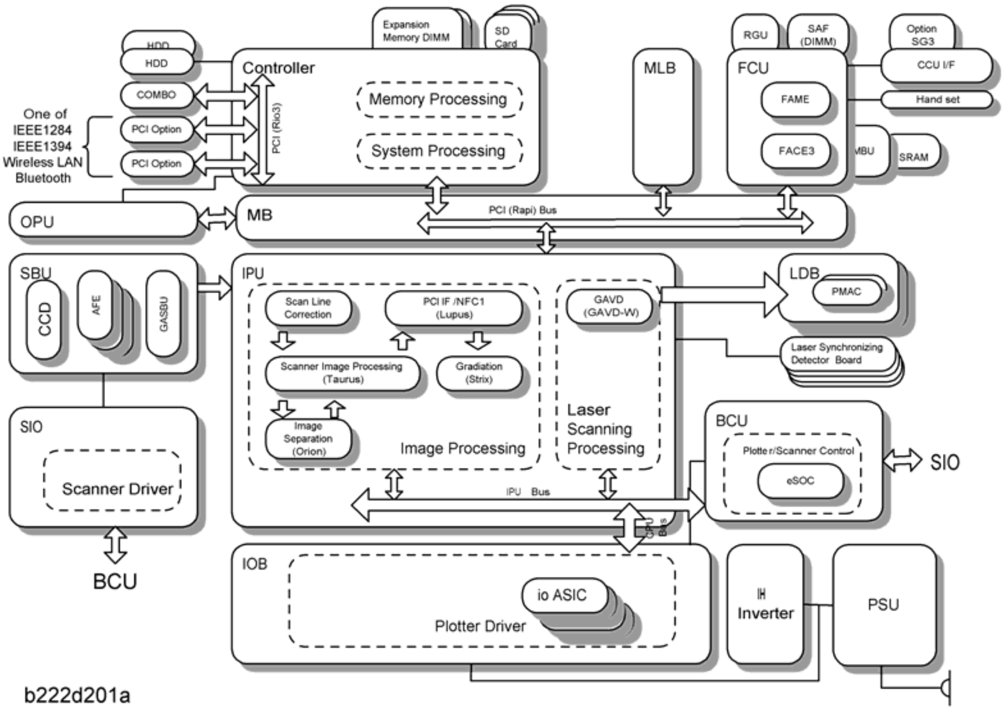
Refer to the ARDF manual for more information on original size detection with the ARDF.

Anti-Condensation Heater

The anti-condensation heater is available as an optional unit. The anti-condensation heater prevents condensation on the mirrors. Condensation can occur when the scanner unit is, for example, moved from a cold room to a warm room. Condensation can cause abnormal images.

Image Processing

Overview



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SBU (Sensor Board Unit)

SBU

The VPU (Video Processor Unit) does the following functions:

- Black level correction
- White level correction
- Gradation calibration
- ADS control (Background Density)
- Creating the SBU test pattern

Operation Summary

The signals from the 3-line CCD, one line for each color (R, G, B) and 2 analog signals per line (ODD, EVEN), are sampled by the ASIC and converted to digital signals in the 10-bit A/D converter. This is the first phase of processing the data scanned from the original.

Storing Operation Settings

The controller stores the SBU settings. These values must be restored after the lens block is replaced:

SP4-008-001	Sub Scan Mag	Sub Scan Magnification Adjustment
SP4-010-001	Sub Scan Reg	Sub Scan Registration Adjustment
SP4-011-001	Main Scan Reg	Main Scan Registration Adjustment

SBU Test Mode

There is SP code to create a test pattern which can be used as a diagnostic tool to troubleshoot problems in the SBU:

- SP4907-001 SBU Pattern - Test Pattern

To print the pattern:

- Select the pattern to print.
- Touch "Copy Window" then press the Start key twice.

IPU (Image Processing Unit)

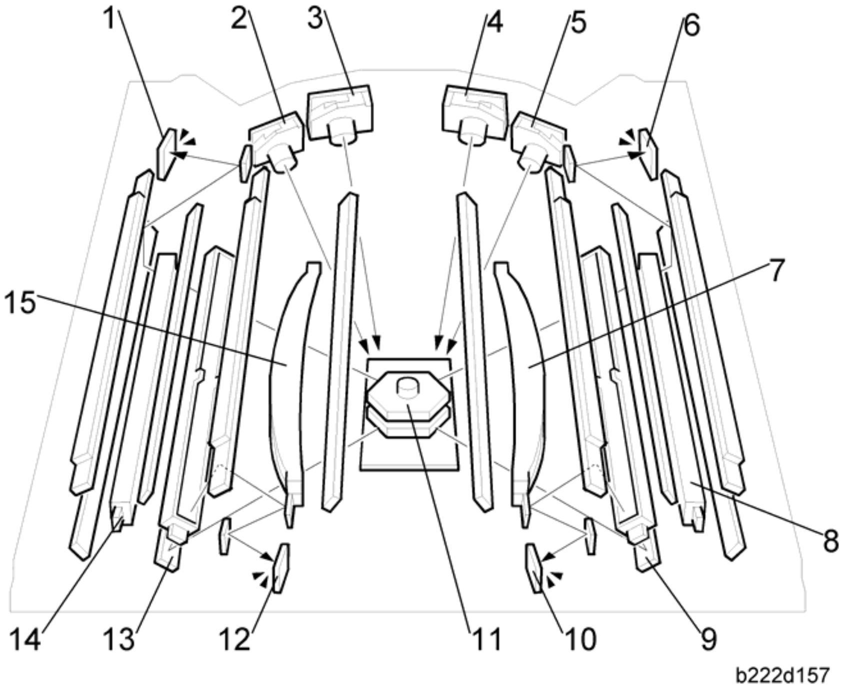
The IPU does the following:

- Controls the scanner
- Processes the image signals from the SBU and sends them over the PCI bus to the controller memory
- Receives the image processing signals sent over the PCI bus from the controller memory, processes them, then outputs them to the VGAVD.
- Outputs the control signals for the ARDF
- Controls the relay of power and signals

Image processing, ADS correction, and line width correction are done on the IPU board for all the digital data sent from the SBU. Finally, the processed data is sent to the printer as digital signals (4 bits/pixel).

Laser Exposure

Overview



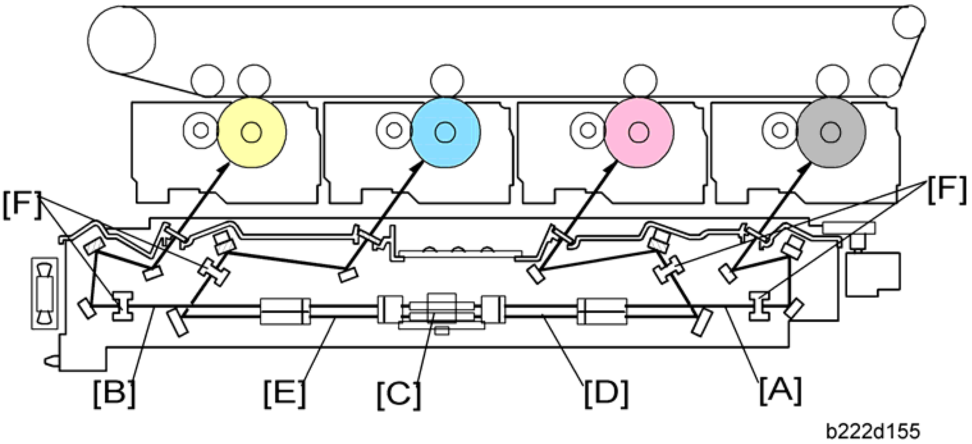
1. Synchronizing detector board: Y/C-E 2. LD unit-Y 3. LD unit-C 4. LD unit-Bk 5. LD unit-M 6. Synchronizing detector board: Bk/M-S 7. L1 lens-Bk/M 8. L2 lens-Bk	9. L2 lens-M 10. Synchronizing detector board: Bk/M-E 11. Polygon mirror motor 12. Synchronizing detector board: Y/C-S 13. L2 lens-C 14. L2 lens-Y 15. L1 lens-Y/C

This machine uses four LD units and one polygon mirror motor to produce latent images on four OPC drums (one drum for each color toner). In the C1d model, two laser beams are used for each color except for OHP/Thick paper type in 600 x 600 dpi mode.

There are two hexagonal mirrors. Each mirror reflects beams from two LD units.

Laser exposure for black and magenta starts from the rear side of the drum. But for yellow and cyan it starts from the front side of the drum. This is because the units for black and magenta are on the other side of the polygon mirror from the units for yellow and cyan.

Optical Path



The laser beams for black [A] and yellow [B] are directed to the upper part of the polygon mirror [C]. Laser beams for magenta [D] and cyan [E] are directed to the lower part of the polygon mirror [C].

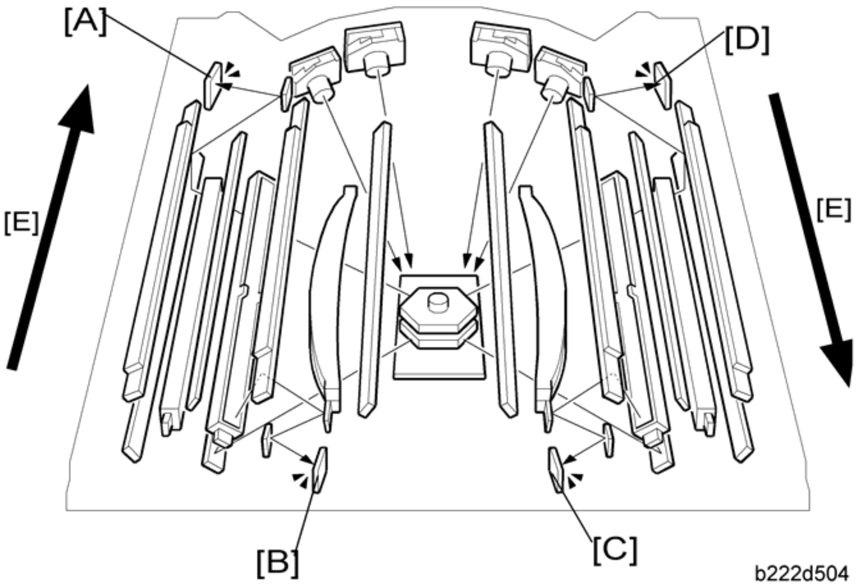
The L2 lens [F] corrects the main scan line. Without this component, the line bends out towards the middle of the main scan. The central bend of the L2 lens is adjusted in the factory.

The speed of the polygon mirror depends on the selected mode and model (see below).

Mode	Resolution (dpi)	Polygon motor speed (rpm)	Process line speed (mm/s)	Copy speed (cpm)	Remarks
B/W (except OHP/Thick paper)	00 x 600	C1c: 36,377 C1d: 24,212	C1c: 154 C1d: 205	C1c: 35 C1d: 45	Only C1d: 2 beams
	600 x 600 4bits	36,377	77	C1c: 17.5 C1d: 17.5	
Color (except OHP/Thick paper)	00 x 600	C1c: 36,377 C1d: 24,212	C1c: 154 C1d: 205	C1c: 35 C1d: 40	Only C1d: 2 beams
	600 x 600 4bits	36,377	77	C1c: 17.5 C1d: 17.5	
OHP/Thick	00 x 600	27,165	115	25 (B/W) 22.5 (Color)	

	600 x 600 4bits	36,377	77	17.5	

Laser Synchronizing Detectors



Overview

The machine has four laser synchronizing detector boards (LSD). There is one at each corner of the laser optics-housing unit.

The four LSD boards detect the following:

- [A]: Scanning end position for yellow and cyan
- [B]: Scanning start position for yellow and cyan
- [C]: Scanning end position for magenta and black
- [D]: Scanning start position for magenta and black.

The machine recognizes each color from the time that they are detected.

Main Scan Start Detection

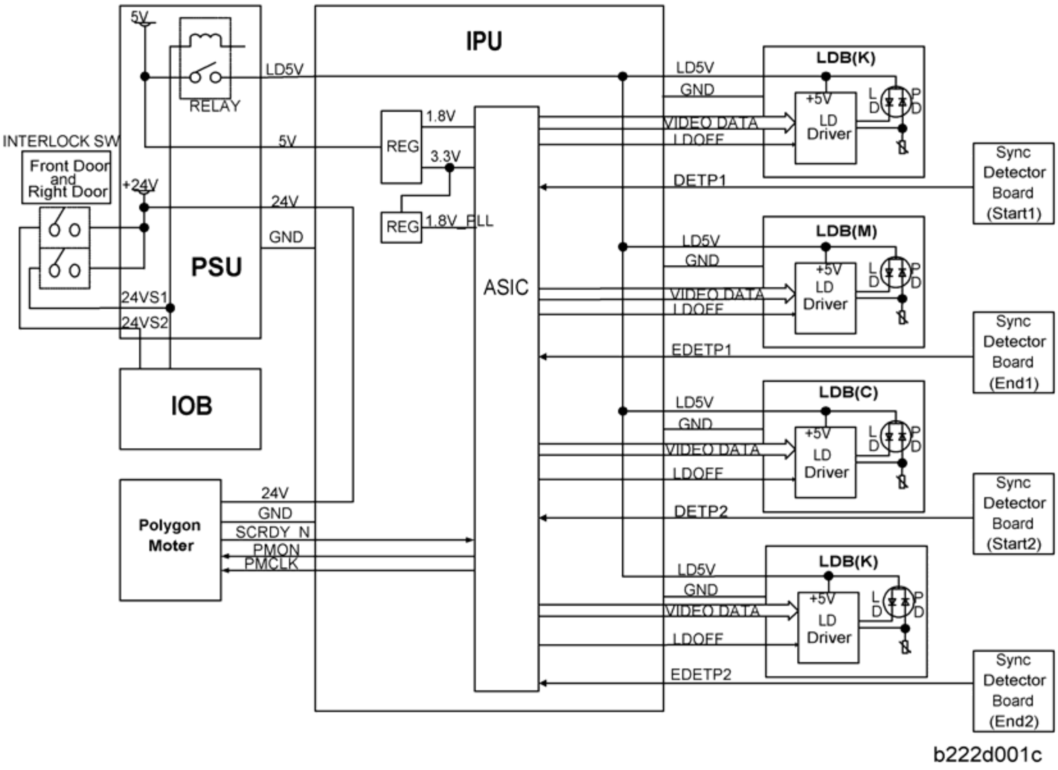
For magenta and black, the LSD at the rear detects the start of the main scan. For yellow and cyan, the LSD at the front detects the start of the main scan. The arrow [E] indicates the scanning direction.

Clock Frequency Adjustment

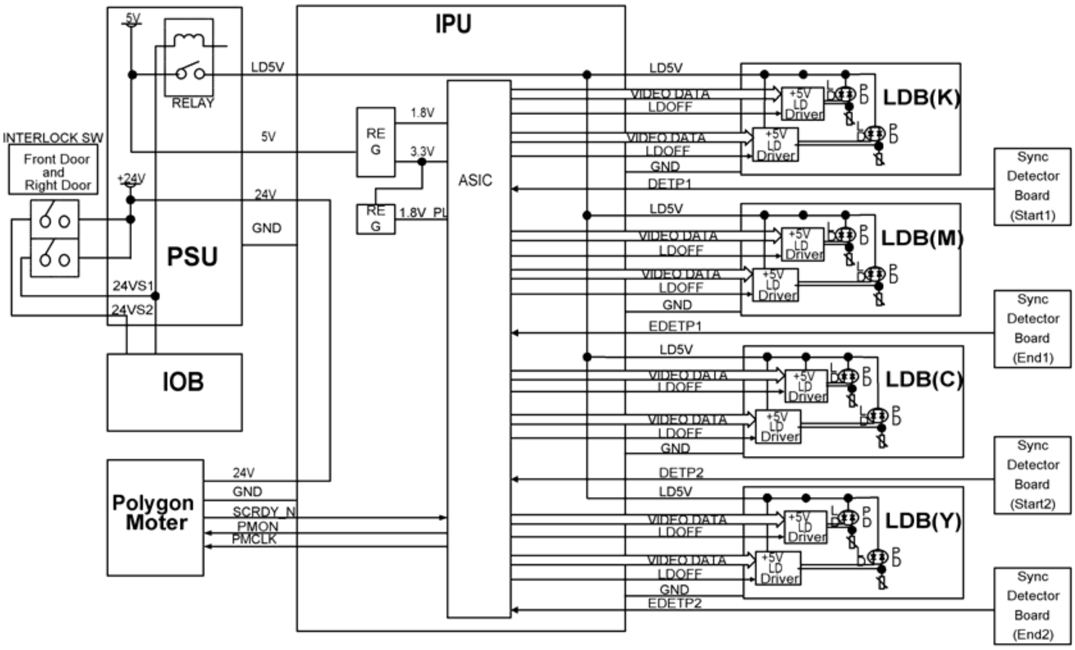
Each LSD ensures that the number of laser clock pulses in the main scan is constant. If the count for one particular beam varies from normal, the LD clock frequency for that beam is adjusted.

If the board at the end position is defective, the clock frequency cannot be adjusted. At this time, you must disable the detection feature with SP2-186-1.

LD Safety Switch



Model C1c



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Model C1d

A relay on the PSU ensures technician and user safety. It also prevents the laser beam from turning on during servicing. This relay turns off when the front cover, upper left cover, or right door is opened. At this time it cuts the power (+5V) supplied to the LD board for each color through the IPU.

Two safety switches are turned on or off by the front door or right door, and this opens the relay.

- PMAC: Precise Pulse Modulation ASIC on C-MOS technology
- LDB: LD Drive Board (included in the LD Unit)

Error Messages

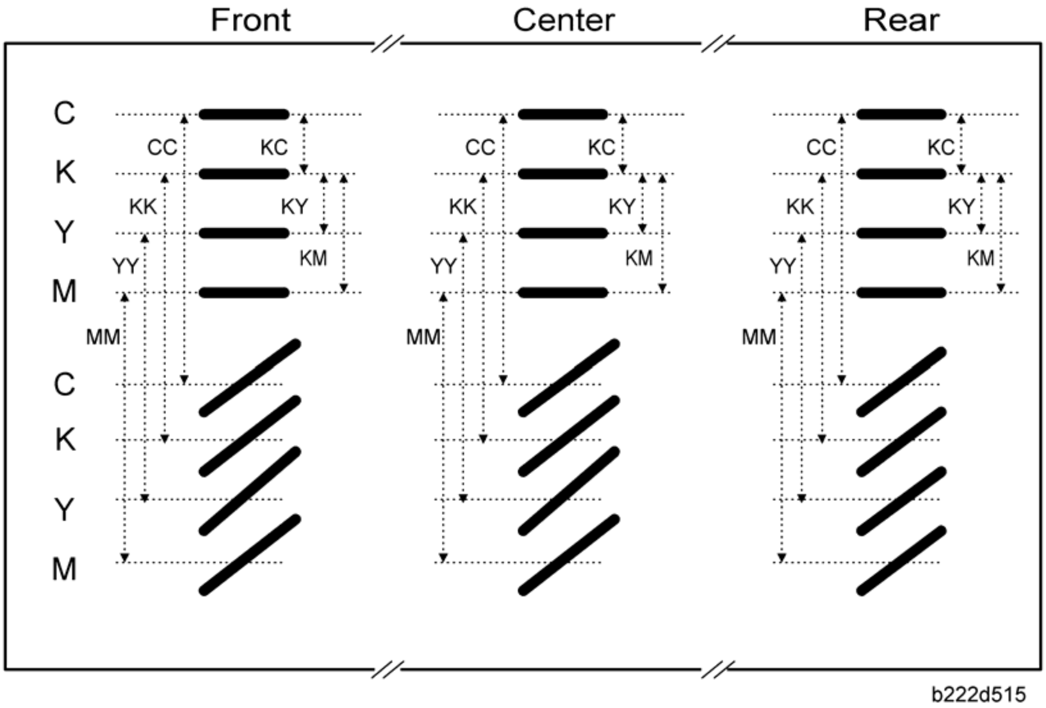
Along with other switches, the LD safety switches help show error messages related to external covers. When one or more covers are open, the messages, “Cover is open.” and “Close the indicated cover,” show with a diagram. The diagram shows which cover is open.

Automatic Line Position Adjustment

Overview

CC, KK, YY, MM: Spaces between two lines of the same color

KC, KY, KM: Spaces between a black line and a color line



During automatic line position adjustment, the line patterns above are created eight times on the transfer belt. The spaces between the lines (CC, KK, YY, MM, KC, KY, KM) are measured by the front, center, and rear ID sensors. The controller takes the average of the spaces. Then it adjusts the following positions and magnification:

- Sub scan line position for CMY
- Main scan line position for CMY
- Magnification ratio for CKMY
- Skew for CMY

The transfer belt-cleaning unit cleans the transfer belt after the patterns are measured. SC285 shows if an error is detected four times consecutively.

Summary of Each Adjustment

Sub scan line position for YCM

The adjustment of the sub-scan line position for YCM is based on the line position for K (color registration). The machine measures the gaps between the lines of each color in the pattern on the transfer belt. If the gaps for a color are not correct, the machine moves the image of the color up or down the sub scan axis. To do this, it changes the laser write timing for that color.

Main scan line position for YCM

If the machine detects that the image is out of position in the main scan direction, it changes the laser write start timing for each scan line.

Magnification adjustment for KYCM

If the machine detects that magnification adjustment is necessary, it changes the LD clock frequency for the required color.

Skew for YCM

The adjustment of the skew for YCM is based on the line position for K.

Adjustment Conditions

Line position adjustment can be turned on or off with SP2-193-001. However, it is normally recommended to turn on this function.

Line position adjustment timing depends on several SP mode settings. These are described below.

Δt = Time since the previous line position adjustment

ΔT = Temperature change between the temperature of the previous line position adjustment and the current temperature

Forced (SP2-111-001 to -003):

This activates the line position adjustment manually. There are three types of line position adjustment mode. See the SP table for details.

Initial:

This starts automatically when the power is turned on, or when the machine recovers from the energy saver mode.

Line position adjustment is automatically done **twice** if one of these conditions occurs:

1. Δt > Time threshold (SP2-193-012: [default: 600 minutes])
2. ΔT > Temperature threshold (SP2-193-011: [default: 10°C])

Line position adjustment is automatically done **once** if one of these conditions occurs:

1. Δt > Time threshold (SP2-193-009: [default: 300 minutes])
2. ΔT > Temperature threshold (SP2-193-008: [default: 5°C])

Interval: During job:

This interrupts printing and then starts automatically if one of these conditions occurs when the machine checks at the sheet interval specified with SP3-512-001 (default: 30 pages).

Line position adjustment is automatically done **once** if one of these conditions occurs:

1. Δt > Time threshold (SP2-193-009: [default: 300 minutes])
2. ΔT > Temperature threshold (SP2-193-008: [default: 5°C])
3. B/W counter (SP3-510-005) + Color counter (SP3-510-006) > Output threshold for all outputs (SP2-193-004: [default: 200 pages])

4. Color counter > Output threshold for color outputs (SP2-193-005: [default: 200 pages])

Interval: Job end:

This starts automatically at the end of a print job.

Line position adjustment is automatically done **once** if one of these conditions occurs:

1. Δt > Time threshold (SP2-193-009: [default: 300 minutes])
2. ΔT > Temperature threshold (SP2-193-008: [default: 5°C])
3. B/W counter (SP3-510-005) + Color counter (SP3-510-006) > Output threshold for all outputs (SP2-193-002: [default: 500 pages])
4. Color counter > Output threshold for color outputs (SP2-193-003: [default: 200 pages])

Front door open/close:

This starts automatically when the front door is opened/closed.

Line position adjustment is automatically done **once** if one of these conditions occurs:

1. Δt > Time threshold (SP2-193-009: [default: 300 minutes])
2. ΔT > Temperature threshold (SP2-193-008: [default: 5°C])

In stand-by mode:

This is automatically done **once** if both conditions occur at the same time. However, it is not done if the machine is in the energy saver mode.

1. Δt > Time threshold (SP2-193-009: [default: 300 minutes]) or ΔT > Temperature threshold (SP2-193-008: [default: 5°C])
2. B/W counter (SP3-510-005) > Output threshold for B/W outputs (SP2-193-002: [default: 500 pages]) or Color counter > Output threshold for color outputs (SP2-193-003: [default: 200 pages])

After new PCU or Image Transfer Belt Unit detection

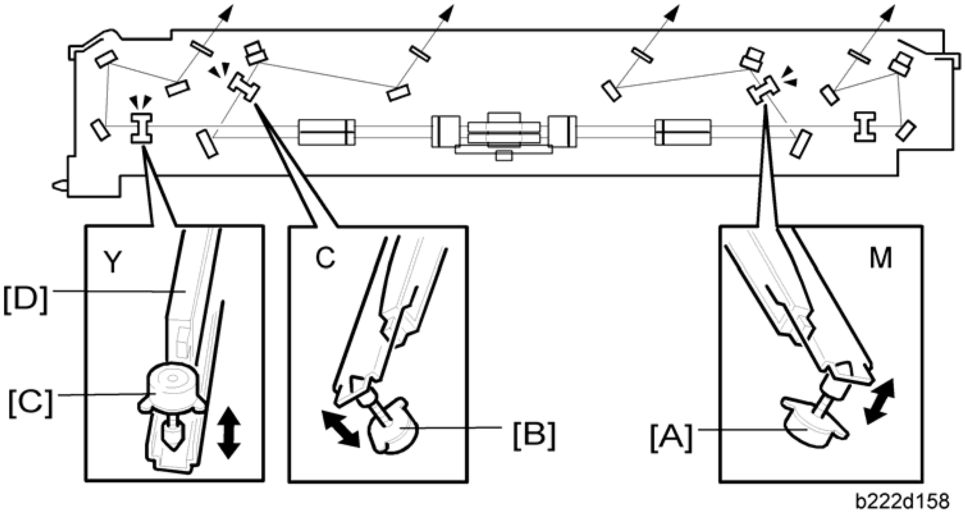
When the machine detects a new unit (one of the PCUs or the Image Transfer Belt Unit), line position adjustment is automatically done **twice**.

If the main scan magnification changes

This is detected by the main scan synchronization detectors at each end of the scan line for each color.

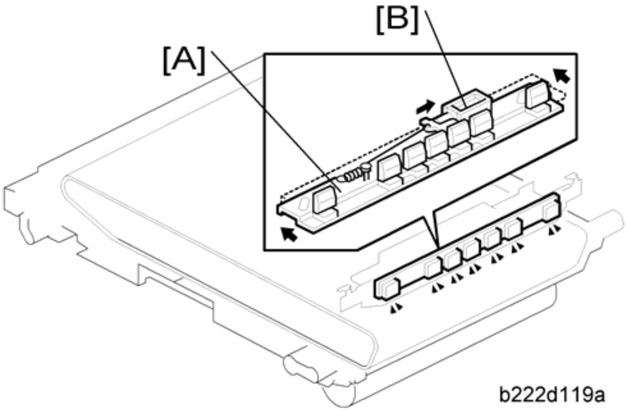
If the magnification changes by more than 1% (threshold adjustable SP2-193-010), line position adjustment is done again.

Main Scan Skew Adjustment



The L2 lens positioning motors for magenta [A], cyan [B], and yellow [C] adjust the angle of the L2 lens [D] respectively, based on the L2 lens position for black. This mechanism corrects main scan skew.

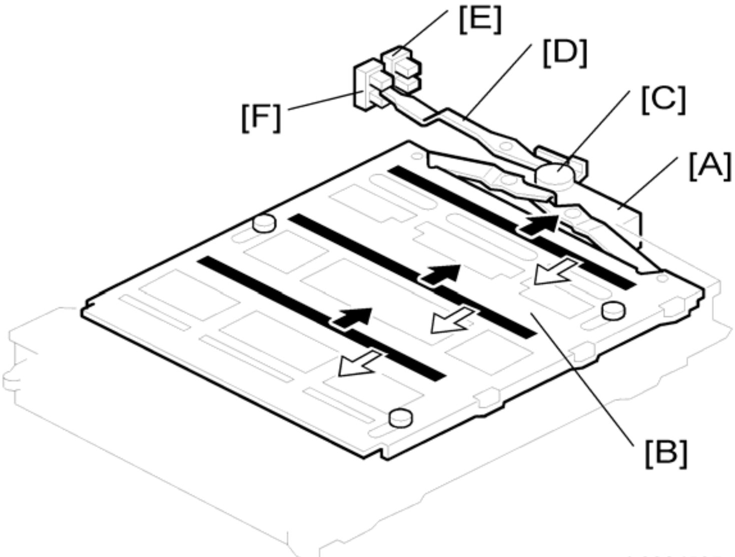
ID Sensors



There are seven ID sensors. Three of them are for the line position adjustment. Four of them are for process control. The ID sensor shutter [A] covers the sensors when the machine is idle.

When the ID sensor shutter solenoid [B] is activated, ID sensor shutter [A] slides to the left. This mechanism prevents the ID sensors from becoming dirty with toner or dust.

Shutter Mechanism



The laser optics housing unit has a shutter. As a result, toner and other dust do not fall on the glass of the laser optics housing. The shutter motor [A] moves the shutter [B] in the direction of the arrow with the cam [C] (to open: black arrow direction, to close: white arrow direction).

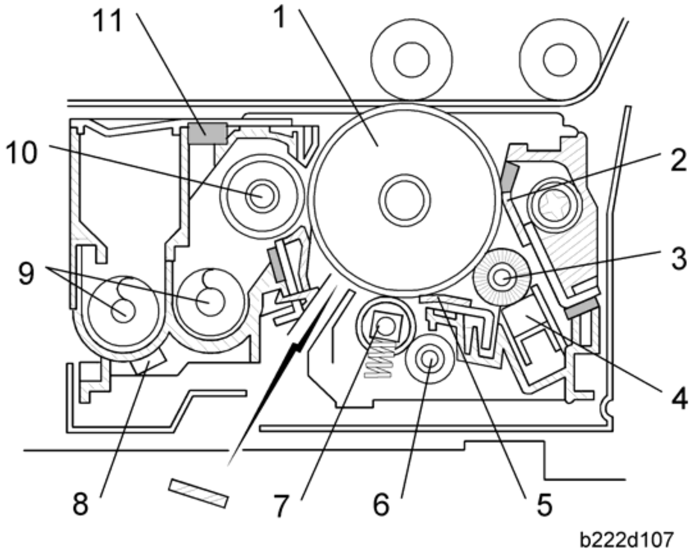
First, the actuator [D] stays at the shutter closed sensor [E]. The shutter motor opens the shutter and the actuator moves to the shutter open sensor position [F] after the polygon motor has turned on.

Finally, the shutter motor closes the shutter and the actuator moves back to the shutter closed sensor position [E] after the polygon motor has turned off.

One of SC290 to 296 occurs if the output of the shutter open [F] or closed sensor [E] does not change after the shutter motor turned on.

PCU (Photo Conductor Unit)

Overview



1. OPC drum 2. Cleaning blade 3. Brush roller 4. Lubricant bar 5. Lubricant application blade 6. Cleaning roller (charge roller)	7. Charge roller (non-contact) 8. TD sensor/ID chip 9. Mixing auger 10. Development roller 11. Inner pressure adjustment filter

This machine has four tandem PCUs. Therefore, four color developments are possible during one paper path. This improves the productivity of outputs in color printing mode. Each PCU contains identical components (drum unit, development unit and so on), but the PCUs are not interchangeable.

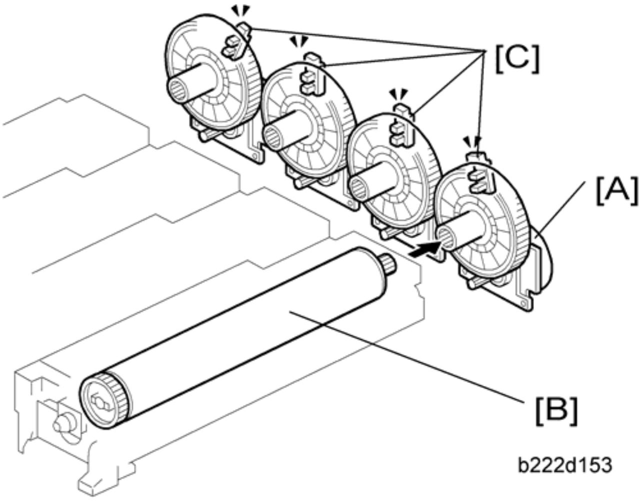
The diameter of the drum is 40 mm (circumference: about 125.7 mm).

The photoconductor gap between a drum and the corresponding development roller is not possible to adjust because these are assembled as a PCU at the factory.

The ID chip is part of the TD sensor assembly. The ID chip contains counters and other data about the PCU, drum unit, and development unit. If you replace the development unit with a new one, the counter information for the drum unit is not kept on the new ID chip.

Around the Drum

Drum Drive



Each PCU has its own drum/development drive motor [A]. The drum/development motor drives the drum [B] of each PCU.

Also, each drive gear has its own drum gear position sensor [C]. The drum gear position sensor detects the position of each drum gear, so that the four PCUs are aligned. The signal from these sensors are used for "Phase Control" as described next. This motor is a brushless DC motor. This helps to reduce the drive noise.

Phase Control Mechanism

The machine uses the drum gear position sensors to detect if the drum motors rotate. SC380 shows when it detects that the drum motor is not moving. These sensors also help the machine to initialize the relative positions of the gears when the main switch is turned on, and during initializing. This prevents phase fluctuation between printouts that is caused by incorrect gear meshing at the start of the job.

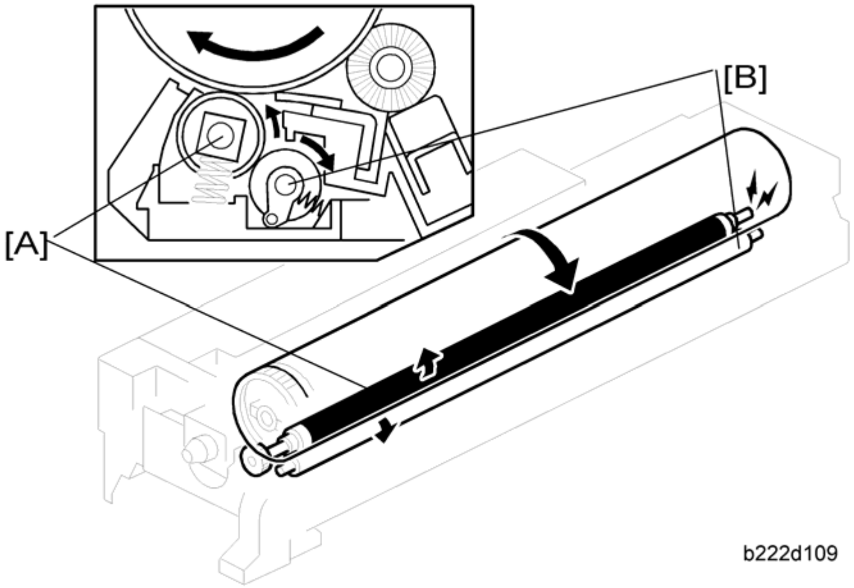
There is an interrupter on each drum gear. The drum gear position sensors [C] detect the positions of these interrupters. This mechanism makes sure that output quality does not vary.

Immediately after the machine power turns on, recovers from the energy saver mode, or the front door is opened and closed, the machine executes the drum phase adjustment if one of the following conditions occurs:

- When a new PCU is installed.
- When a new image transfer belt unit is installed.

Also, if the machine detects a shift in the drum positions during the line position adjustment, the machine executes the drum phase adjustment.

Drum Charge and Quenching



This machine uses a non-contact charge roller [A] to reduce ozone. The non-contact charge roller gives the drum surface a negative charge. The C,B high voltage supply board, which is located at the rear of the machine, applies a dc and ac voltage (at a constant current) to the roller. The ac voltage helps to ensure that the charge given to the drum is as uniform as possible.

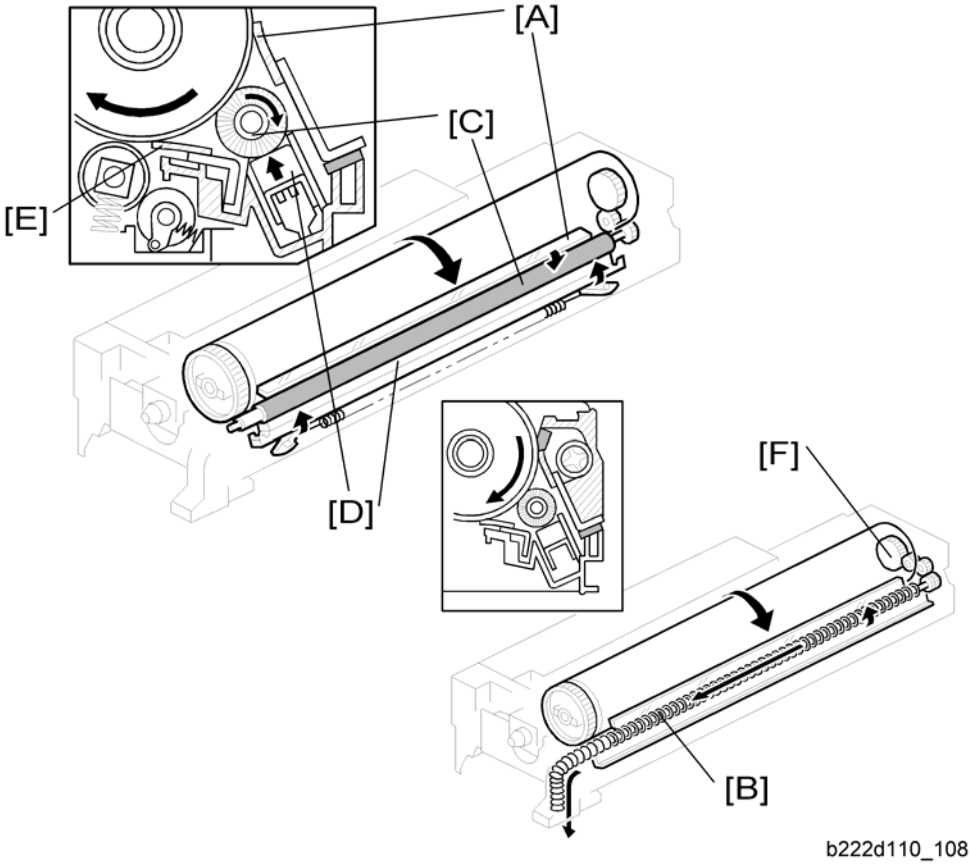
The machine automatically controls the charge roller voltage if automatic process control is enabled (i.e., if SP3-041-1 is set to "CONTROL"). However, if process control is switched off, (i.e., if SP3-041-1 is set to "FIXED"), the dc voltage is the value stored in SP2-001-1 to -12 (do not adjust in the field unless advised to do so).

The diameter of the charge roller is 12.5 mm (circumference about 39.3 mm). The gap between a drum and the corresponding charge roller is about 50 micrometers.

The cleaning roller [B], which always contacts the charge roller, cleans the charge roller.

Quenching is done by illuminating the whole area of the drum with the laser at the end of every job.

Drum Cleaning



The cleaning blade [A] scrapes off the used toner that stays on the drum. The toner collection auger [B] transports the used toner towards the toner collection duct. Then it goes to the toner collection duct. The brush roller [C] put lubricant on the drum to make toner removal easy the next time the drum rotates past the cleaning blade.

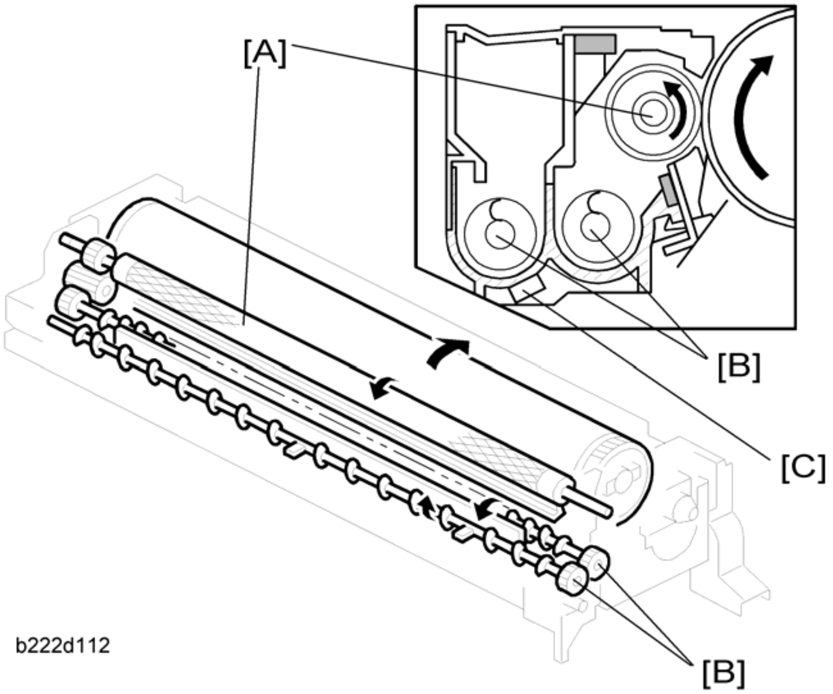
If the temperature is above the value of SP3-517, the drum reverses briefly at the end of the job to prevent the blade from flipping over.

The brush roller rubs against the lubricant bar [D] and lubricates the drum surface. Lubricant is uniformly applied on the surface of the drum by the lubricant application blade [E].

The toner collection auger [B] in each PCU is driven by gears [F] at the end of the drum. This toner then goes to the toner collection bottle (see "p.789 "Toner Collection Path and Drive"" in this section).

Development

Development Operation

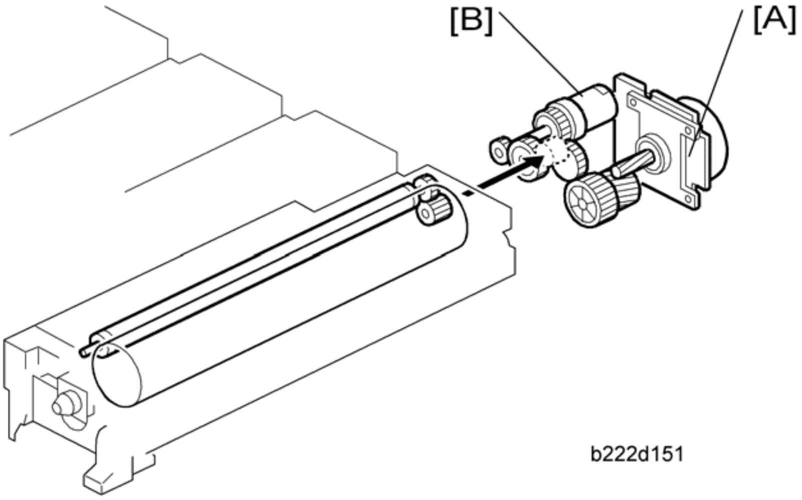


This machine uses a dual-component development system and has four development units (which are included in the drum units), one for each color. Each contains 225 g of developer when it is new. The developer in each unit is supplied to the development roller [A] by the two mixing augers [B] and attracted onto the surface of its roller.

The TD sensor [C] in the development unit and four ID sensors above the ITB control toner density. Each development unit has a TD sensor. The TD sensor contains an ID chip in which some information about the development unit is stored.

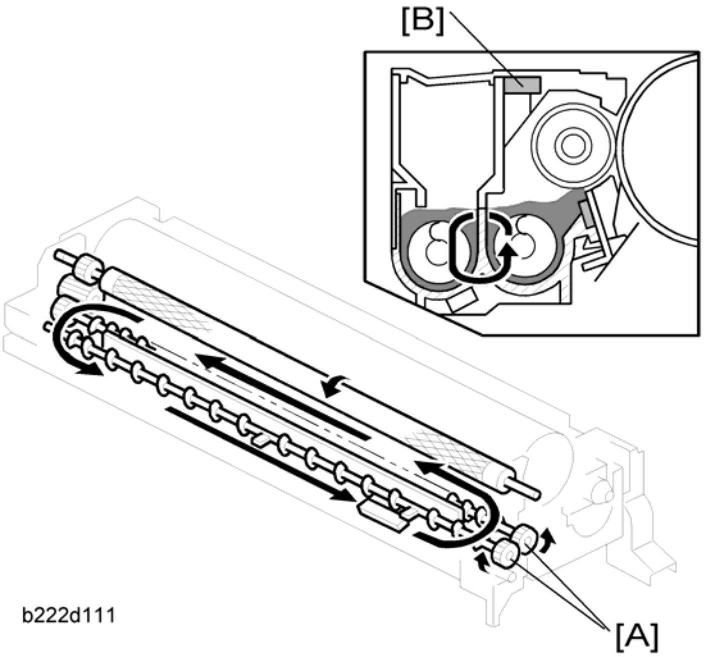
The diameter of the development roller is 18 mm (circumference about 56.5 mm).

Drive



Each color (K, Y, M, C) has its own drum/development drive motor [A] and development clutch [B]. Each drum/development motor drives the development roller through gears and development clutch. The gear trains are shown in the diagram.

Developer Agitation



Two mixing augers [A] circulate the developer forward and backward to agitate the developer.

This happens at the following times:

- During process control self check
- During toner supply
- During development.

Filters [B] on the top of the developer hopper make sure that the internal pressure does not become too high. These ducts are sealed not to let the toner solidify before installing.

This development unit does not operate very well if it has been placed in the condition of over 50°C during transportation. The toner inside the development unit can become solid at temperatures higher that this value. A developer initialization error shows if the toner does become solid. At this time, you must do the following procedure:

Note

- You should also do this procedure when you install a new development unit.

1. Remove the (old) development unit.
2. Keep the (new) development unit level and shake it several times from side to side.
3. Install it in the machine.

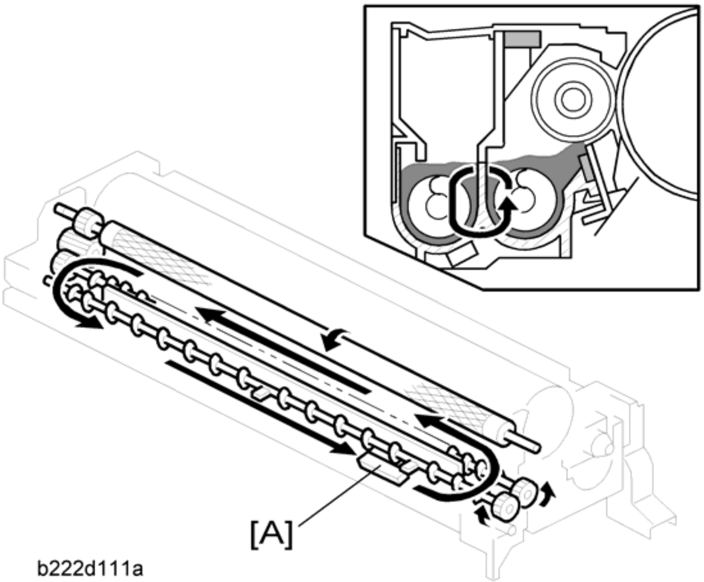
Development Bias

The PSU supplies development bias to the development roller via the receptacle at the rear of each development unit.

There is a dc bias voltage.

The machine automatically controls the dc bias if the automatic process control is enabled (i.e., if SP3-041-001 is set to "1: CONTROL"). However, if process control is switched off, (i.e., if SP3-041-001 is set to "0: FIXED"), the dc bias is the value stored in SP3-621-001 to -012 (do not adjust in the field unless advised to do so).

New Unit Detection



The TD sensor [A] in the development unit has an ID chip that contains the new unit detection flag. The machine detects that a PCU is new if the flag in the ID chip is activated. The machine automatically does the following adjustments when detecting the new unit detection flag.

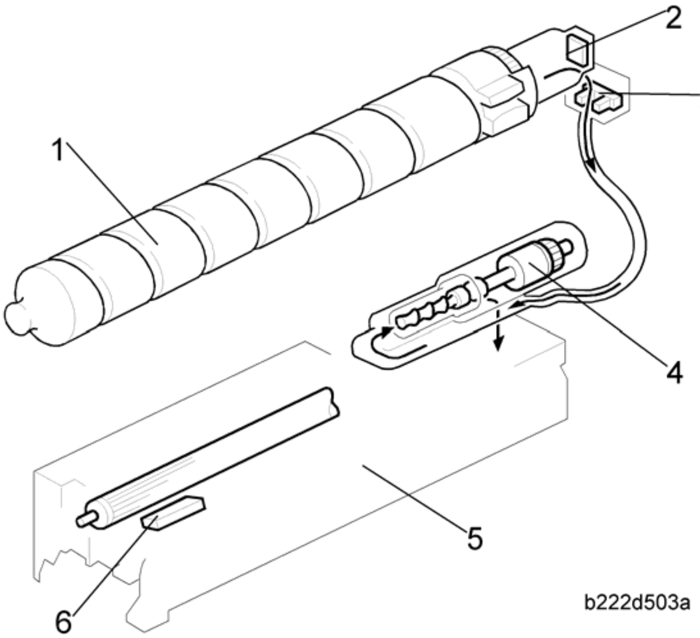
- PM counter clear for items related to the PCU
- Developer initialization
- Charge roller voltage control
- Process control
- Line position adjustment

If the PM counter clear fails, clear the following SPs manually.

- SP3-902-1 to -4
- SP3-902-5 to -8
- SP3-902-9 to -12

Toner Supply

Overview



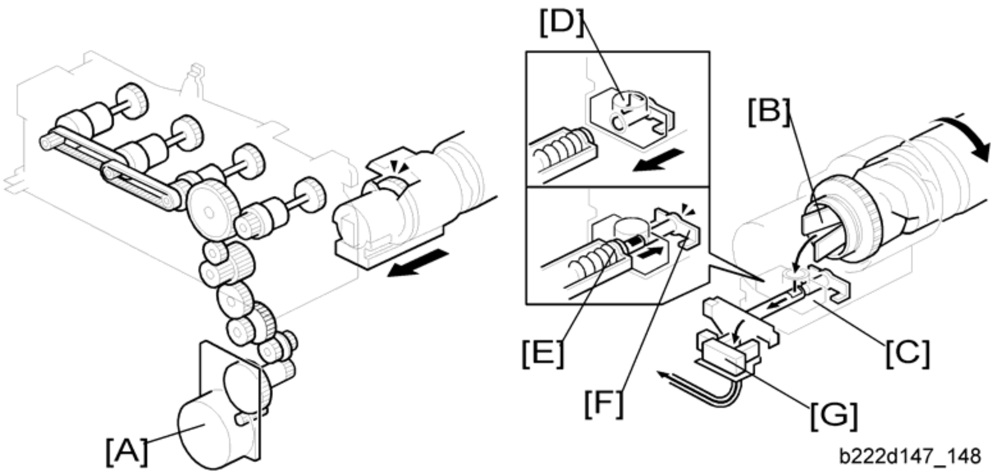
1. Toner bottle (each color)	4. Toner attraction pump (each color)
2. Memory chip (each color)	5. Development unit (each color)
3. Toner end sensor (each color)	6. TD sensor (each color)

This machine uses four toner bottles. Each bottle has a spiral groove in it and its groove moves toner to the toner attraction pump. And the toner attraction pump transports the toner to the development unit.

The toner end sensor is attached to the toner supply tube. The toner end sensor and the output from the process control define when the machine detects toner end.

Toner Supply Mechanism

Toner supply from toner bottle to toner attraction pump



The toner transport motor [A] rotates the toner bottle-Bk via gears and a clutch. It also rotates the toner bottle-Y, -C, -M via gears, clutches and timing belts.

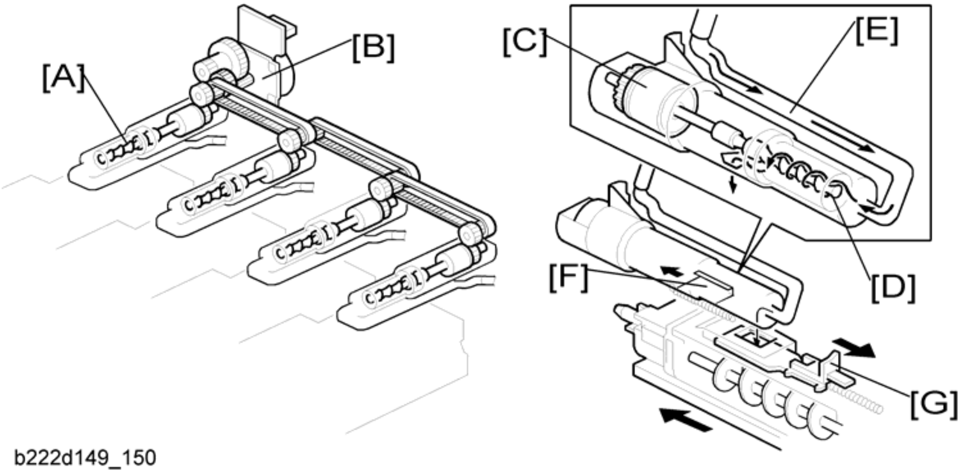
Each bottle has a spiral groove, and this groove moves toner to the mouth [B] of the bottle. Here, toner spills into a hopper [C]. The opening [D] of the toner hopper is normally closed if the toner bottle is not installed in the machine. When the toner bottle is installed in the machine, the transport tube [E] pushes the toner hopper shutter [F] and then the opening of the toner hopper is open.

The toner passes part of the way along the transport tube towards the toner attraction pump. The toner goes through the toner end sensor [G].

Toner Near End Detection

The toner end sensors [G] detect toner near end conditions (☛ "p.759 "Toner Near End/Toner End Detection"").

Toner supply from toner attraction pump to development unit



Each toner attraction pump [A] is driven by the toner transport motor [B]. Each toner attraction pump has the same mechanism. The pump (toner attraction pump) has the following components:

- Toner supply clutch [C]
- Rubber tube
- Rotor [D]

The above components attract the toner in the toner transport tube [E] toward the development unit.

The toner supply clutch controls the rotor, which draws the toner in from the cartridge and passes it to the development unit. When supplying toner, the clutch turns on and off as many times as necessary to supply the necessary amount of toner. The amount of toner depends on the results of toner supply control.

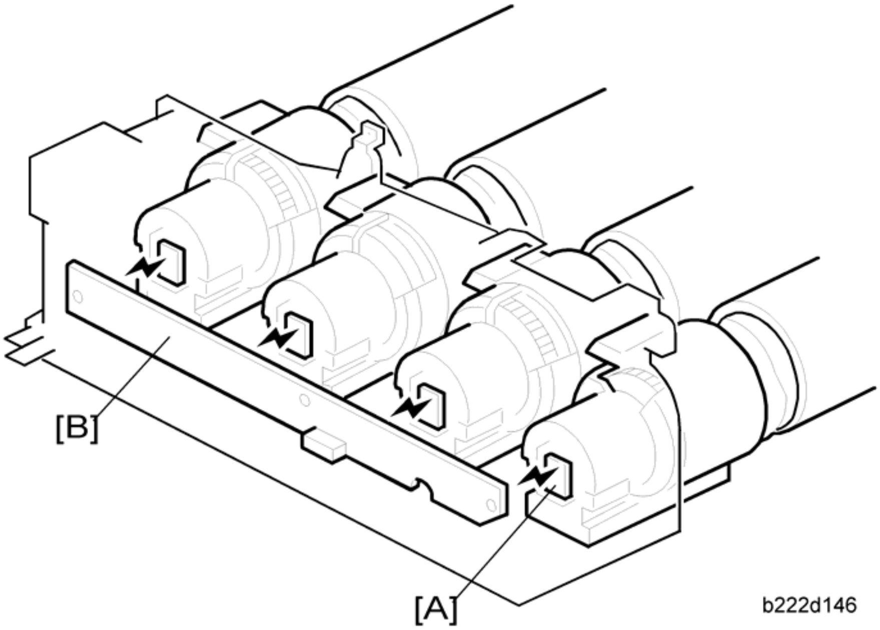
Shutter Mechanism

The development unit and toner attraction pump each have a shutter mechanism. The shutter [F] on the pump opens when the development unit is placed in the machine. At the same time, the pump opens the shutter [G] in the development unit. When both shutters are open, toner can enter the development unit from the toner attraction pump.

The shutter springs pull and close the shutter when the development unit is removed.

Toner Cartridge

RFID (Radio Frequency ID)



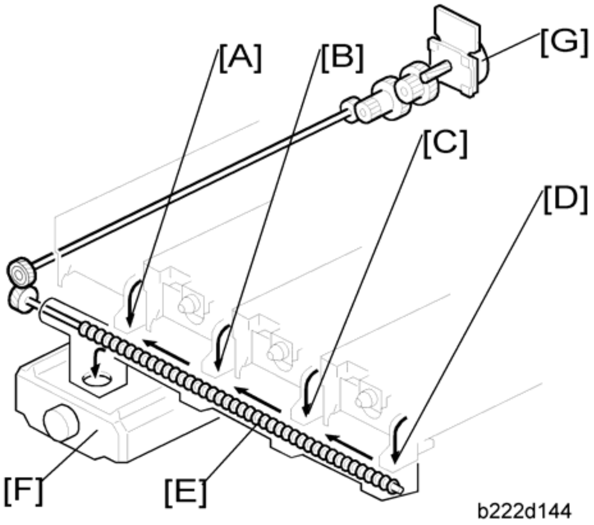
Each toner cartridge of this machine has a RFID chip [A]. This stores the total “on” time of the toner supply clutch. This is used to calculate the amount of toner remaining in the toner cartridge. The chip is also used to detect whether the cartridge is installed (if the cartridge is not installed, the machine does not detect a signal from the memory chip).

The RFID transmits its data to the RFID antenna board [B] without any contact.

Waste Toner Collection

Toner Collection Path and Drive

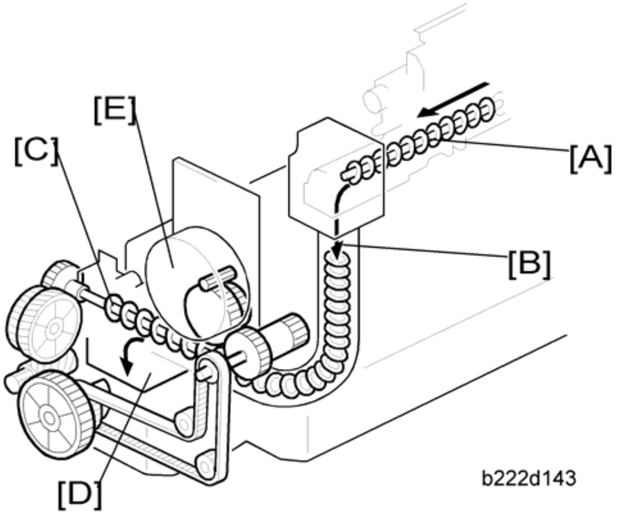
From PCU



The used toner from the collection augers in the four PCUs drops into the toner collection duct from the four openings [A][B][C][D] at the front of the PCUs. The toner collection auger [E] in the duct transports this used toner towards the toner collection bottle [F]. The coil [E] is driven by the toner transport motor [G]. The openings and PCUs correspond as follows:

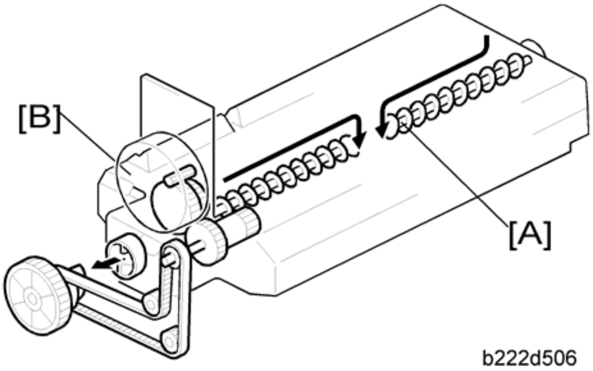
Yellow → [A], Cyan → [B], Magenta → [C], Black → [D].

From Image Transfer Belt Unit



The toner collection auger [A] moves the used toner from the image transfer belt and the used toner drops into the toner collection duct [B]. The toner collection coil [C] moves the used toner to the opening [D] at the rear of the toner collection bottle. The toner transport motor [E] drives the toner collection coil.

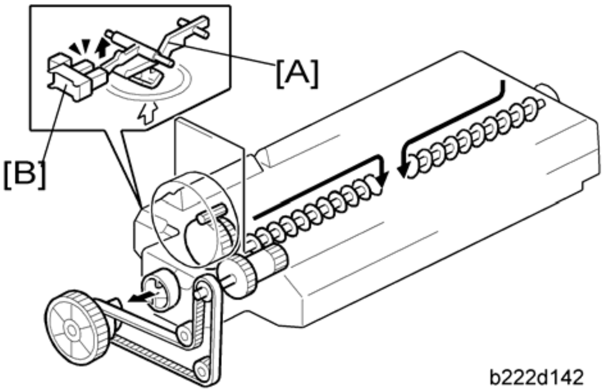
Used Toner Distribution Mechanism



The toner collection bottle has two openings (front and rear). The opening at the front is for the toner from the PCUs, and the opening at the rear is for the toner from the image transfer belt.

To distribute the toner inside the bottle evenly, the auger [A] moves the toner to the center area. The mixing auger has two spirals in different directions. As a result, it is possible to gather the toner in the center area of the toner collection bottle even if the mixing auger always rotates in the same direction. The toner transport motor [B] drives the mixing auger via a timing belt and gears.

Toner Collection Bottle Set/ Near-Full/ Full Detection



The toner collection bottle has a projection at its rear side. When the toner collection bottle is set, this projection pushes the waste toner bottle set switch at the rear of the machine. As a result, the machine detects that the toner collection bottle is installed.

The bottle near-full/full detection mechanism is above the bottle. When the used toner pushes up the used toner feeler [A], the waste toner sensor [B] turns off

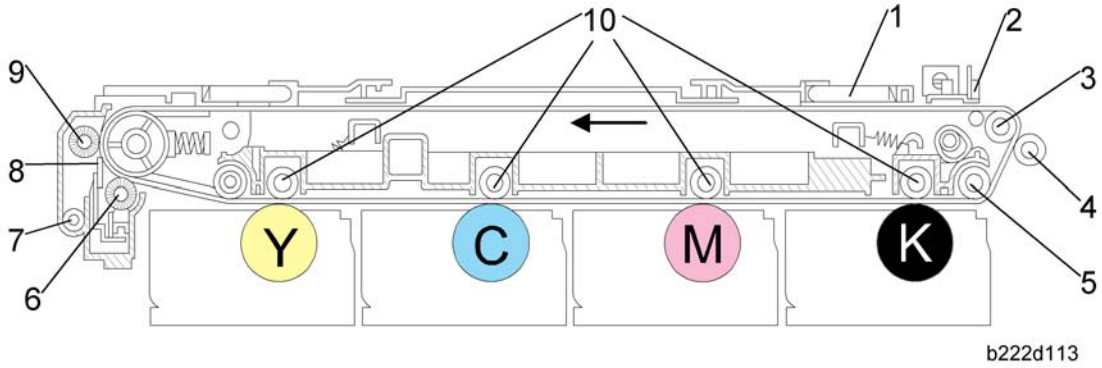
At this time, the machine detects that the toner collection bottle is almost full, and displays a message.

After this, when 500 sheets of paper have been copied, the machine detects that the toner collection bottle is full, and the machine stops.

Image Transfer and Paper Separation

Image Transfer

Overview



1. Image transfer belt (ITB)	6. Lubricant application roller
2. ID sensor	7. Toner collection auger
3. ITB drive roller	8. Cleaning blade
4. Paper transfer roller	9. Cleaning roller
5. Rotation encoder	10. Image transfer roller

The toner is moved from the four drums to the ITB by the four image transfer rollers. This is done with one rotation of the ITB (four toner images are super-imposed onto the belt). The arrow above the C and M drums on the diagram shows the direction of ITB rotation.

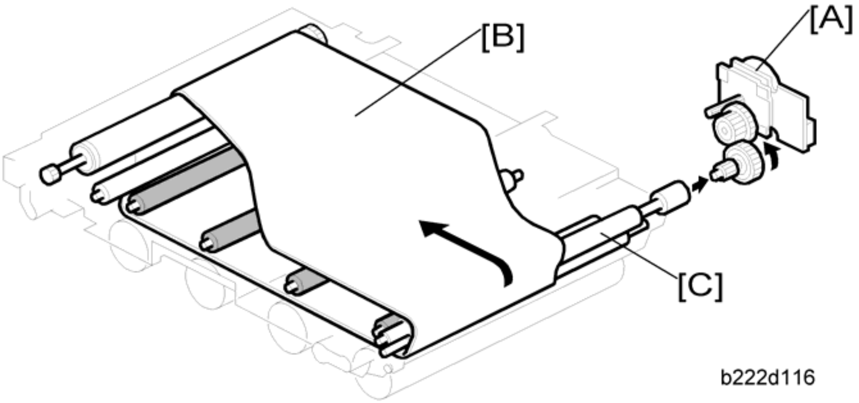
The ITB drive roller then moves the four-color toner image from the transfer belt to the paper. The paper transfer roller is an idle roller.

The cleaning unit in the transfer unit cleans the belt surface with the cleaning blade and roller. The used toner collected from the belt is transported to the toner collection bottle.

There are seven ID sensors. Three of them are for the line position adjustment. Four of them are for process control.

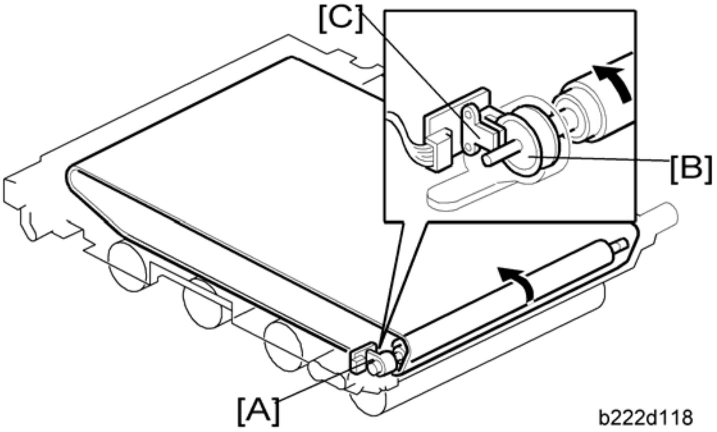
ITB (Image Transfer Belt) Drive

Drive Motor



The ITB drive motor [A] drives the image transfer belt [B] and the cleaning unit via gears and the ITB drive roller [C]. The speed of ITB drive depends on the process line speed (see 'p.768 "Optical Path"').

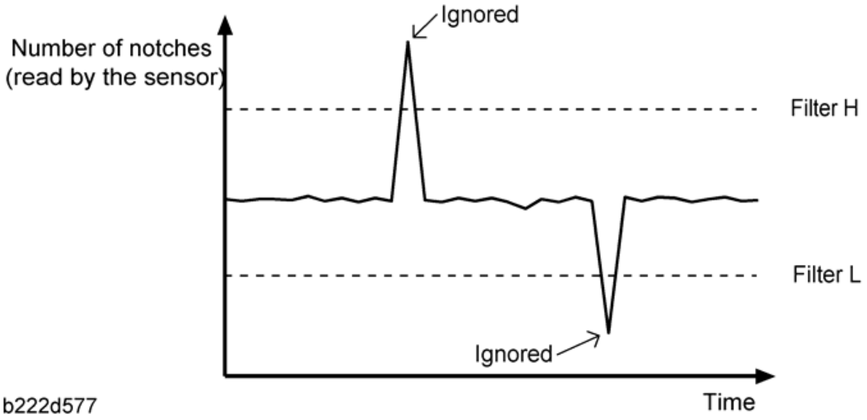
Transfer belt speed control



This machine uses the rotation encoder to control the transfer belt speed.

The encoder [A] is on one of the rollers. This encoder checks the rotation speed of the image transfer belt. The controller analyzes the signals from the encoder. Then it adjusts the rotation speed of the image transfer belt.

The encoder contains a disk that has 550 notches on its surface [B]. These notches are read by the sensor [C]. The controller counts the number of notches that the sensor has read in the unit of time. If the sensor has read an unusually large number of notches or an unusually small number of notches, the controller ignores such unusual signals. Therefore, incorrect reading does not affect the rotation speed.



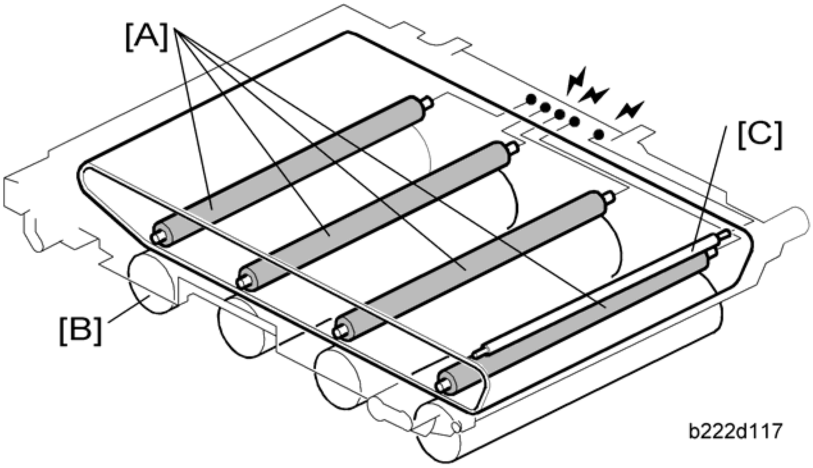
Filter H:

The number of notches read by the sensor when the rotation speed of the transfer belt is at its highest possible value.

Filter L:

The number of notches read by the sensor when the rotation speed of the transfer belt is at its lowest possible value.

ITB Current

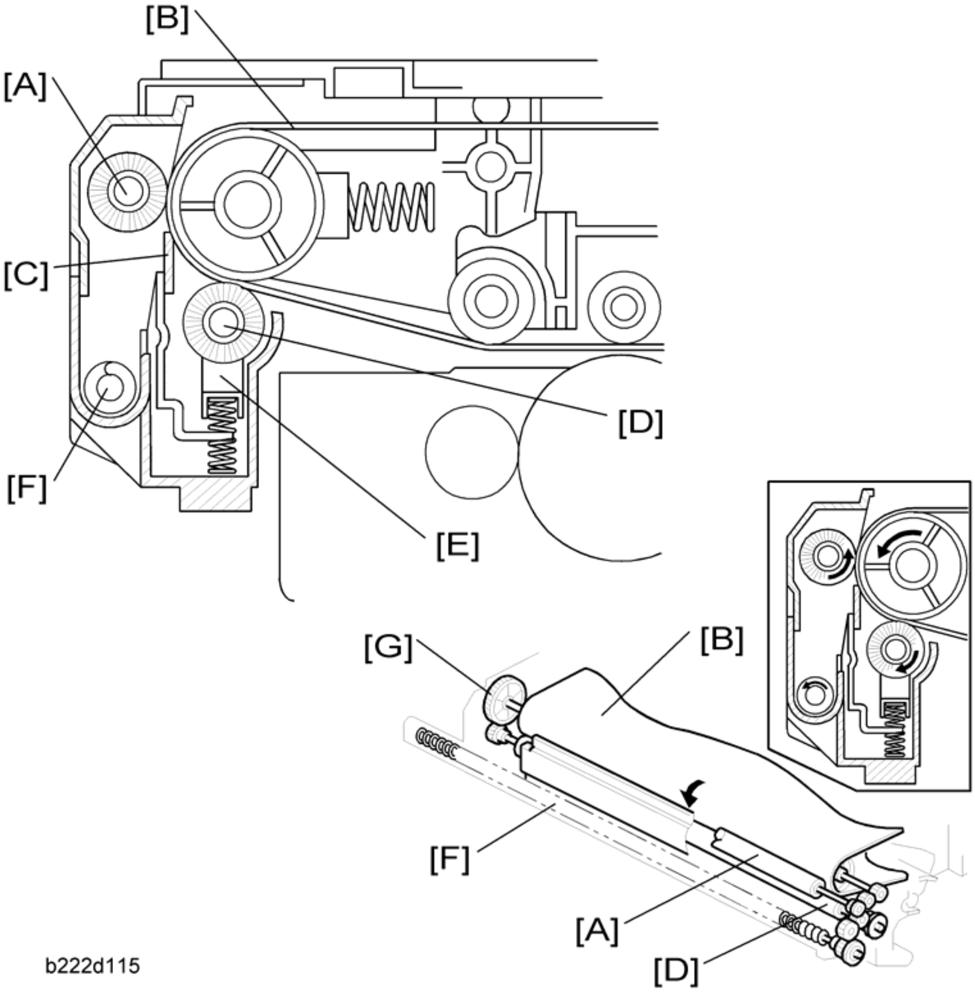


Each image transfer roller [A] applies current to the image transfer belt to attract the toner from each drum [B]. The high voltage supply board supplies current to the image transfer rollers and grounds the belt at roller [C].

The bias that is applied to the image transfer belt is automatically corrected for paper size, temperature (measured by the temperature/humidity sensor at the rear lower right side of the machine).

The other rollers are grounded to neutralize the belt surface.

Transfer belt cleaning



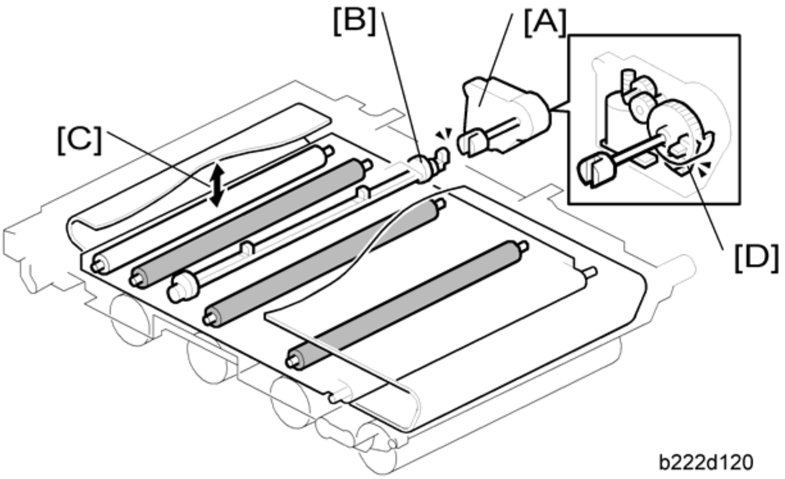
The ITB-cleaning unit removes toner (during printing) and the ID sensor patterns (during process control or automatic line position adjustment) on the belt. Belt cleaning is completed while the image transfer belt makes one rotation. The ITB drive motor drives the ITB-cleaning unit.

The cleaning brush [A] always contacts the image transfer belt [B], and removes used toner from the belt. The cleaning blade [C] in the cleaning unit scrapes the toner off the image transfer belt. Then the toner collection auger [F] transports the toner towards the toner collection duct.

The lubricant application roller [D] applies lubricant [E] to the image transfer belt to make toner removal easy.

To drive the cleaning unit, the transfer belt rotates gear [G], and gears at the front of the transfer unit drive the auger [F] and the rollers [A, D] in the cleaning unit.

ITB (Image Transfer Belt) Contact



Mechanism

The ITB contact and release mechanism increases the lifetime of the image transfer belt and drums.

The drum for black always contacts the belt. But the image transfer belt moves away from the other drums during monochrome printing.

In the standby mode, the image transfer belt contacts only the black drum. It moves away from the black drum when you turn the release lever counterclockwise.

When the machine prints a color page, the machine waits until the previous page has gone through the paper transfer unit. Then the ITB contact motor [A] turns on and a cam [B] moves the left side [C] of the image transfer belt downward, so that it contacts the other three drums.

The machine does not release the image transfer belt from the color drums during the job, even if a monochrome page comes again. This is because the total printing speed reduces if the ITB changes position.

But, if you change SP2-907-001 away from the default setting of zero, the image transfer belt will move away from the color drums if the number of consecutive black-and-white prints reaches the value of SP 2907-001.

The belt moves away from the color drums if the job is interrupted by any error except a power failure.

The image transfer belt contact sensor [D] detects if the image transfer belt contacts the color PCUs.

Note

- If a power failure occurs when the image transfer belt is in contact with the drums, the belt stays in this position. If you want to remove the image transfer belt unit while the power is still off, you must release the belt. To do this, swing out the controller box. Then turn the drive gear [B] manually.

Transfer Belt Sensor

The ITB contact sensor [D] operates as the detection sensor during machine initialization, and also as the position sensor during machine operations.

Before machine initialization, the left side of the image transfer belt is in the home position. When initialization starts, the ITB contact motor lowers the left side until the actuator has passed the sensor. Then ITB contact motor lifts up the left side to its home position. This action actuates the sensor in a certain pattern.

The table lists the sensor actuation patterns.

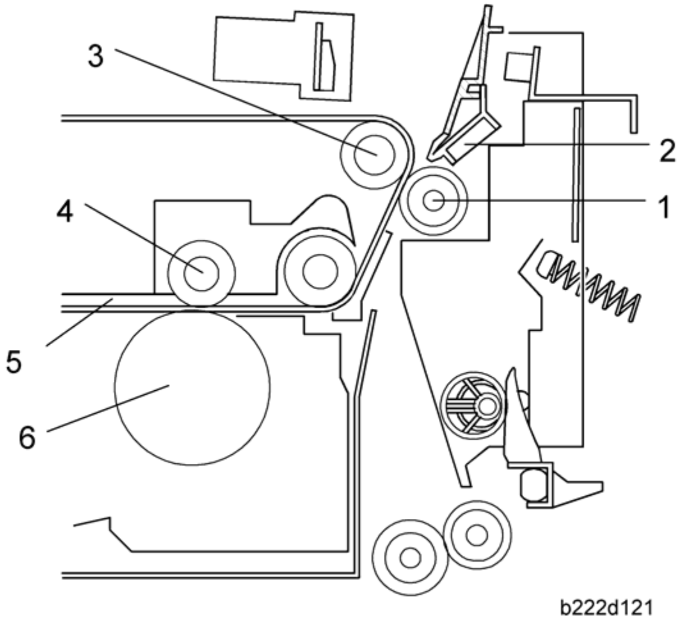
Machine status		Sensor pattern
Initialization		On → Off → On → Off → On
Operation	Standby (Default)	On
	B/W printing	On
	Color Printing	Off

On: The actuator is out of the sensor.

Off: The actuator is interrupting the sensor.

Paper Transfer and Separation

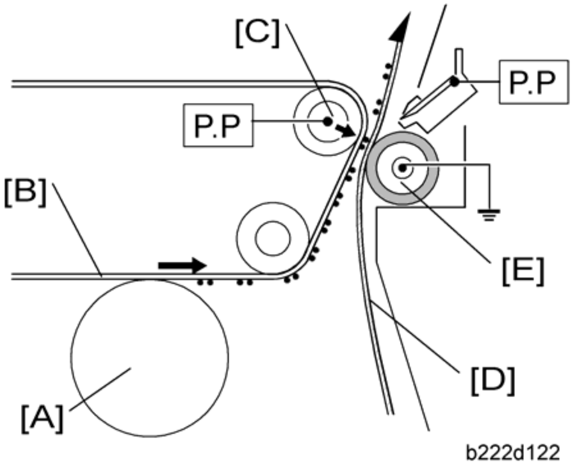
Overview



1. Paper transfer roller	4. Image transfer roller
2. Discharge plate	5. Image transfer belt
3. ITB drive roller	6. OPC drum

The paper transfer unit consists of the paper transfer roller and discharge plate. This unit completes the toner transfer to the paper.

PTR (Paper Transfer Roller) Drive

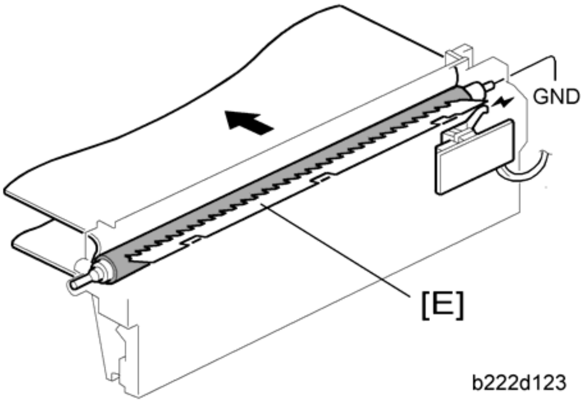


Note

- P.P.: Power Pack (ITB power supply board)

The toner is moved from the OPC [A] onto the surface of the image transfer belt [B] by a positive charge from the image transfer roller (immediately above the drum, not shown here). The ITB drive roller [C], which is given a negative charge, pushes the toner to the paper [D].

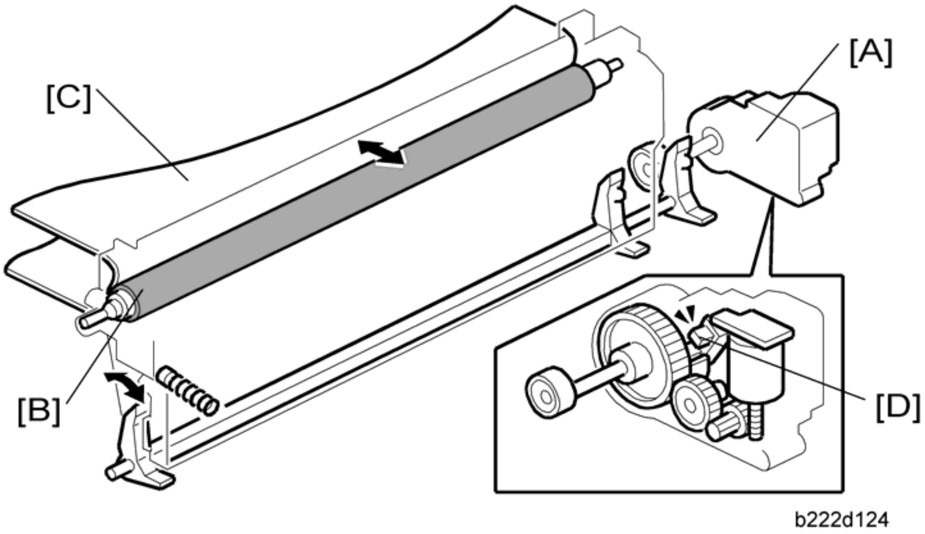
The paper transfer roller [E] presses the paper against the image transfer belt [B] (with a spring that is under tension from the paper transfer roller contact motor), and grounds the charge from the ITB drive roller [C]. (The paper transfer roller does not have a drive mechanism. This roller is driven by the image transfer belt.)



Finally, the discharge plate [E], which is given an AC charge, discharges the paper.

The discharge plate receives its charge from a different high voltage power supply board than the ITB drive roller.

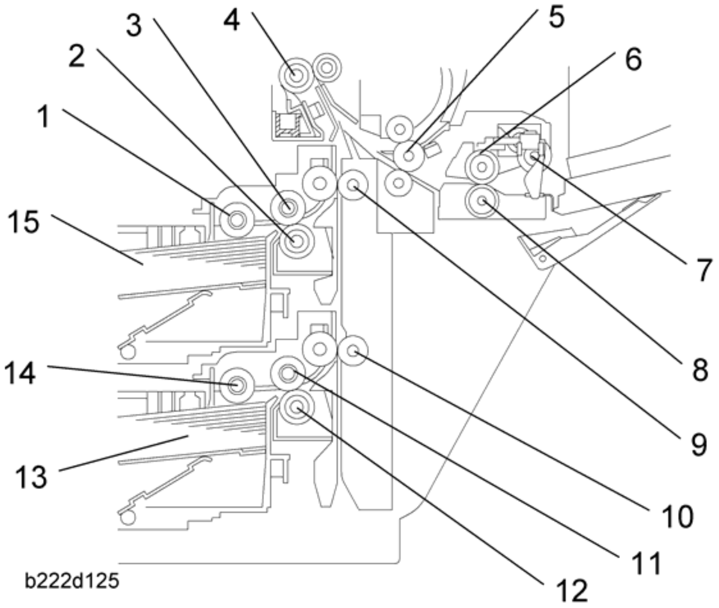
PTR (Paper Transfer Roller) Contact and Separation



The paper transfer contact motor [A] keeps the paper transfer roller [B] in contact with the image transfer belt [C]. This motor has the paper transfer HP sensor [D] inside. The paper transfer HP sensor detects if the paper transfer roller is in contact with the image transfer belt. Only when the machine executes the line position adjustment or process control, the paper transfer unit keeps away from the image transfer belt.

Paper Feed

Overview



1. Pick-up roller - tray 1
2. Separation roller - tray 1
3. Feed roller - tray 1
4. Registration roller
5. Transport roller - By-pass feed
6. Feed roller - By-pass feed
7. Pick-up roller - By-pass feed
8. Separation roller - By-pass feed
9. Vertical transport roller 1
10. Vertical transport roller 2
11. Feed roller - tray 2
12. Separation roller - tray 2
13. Paper tray 2
14. Pick-up roller - tray 2
15. Paper tray 1

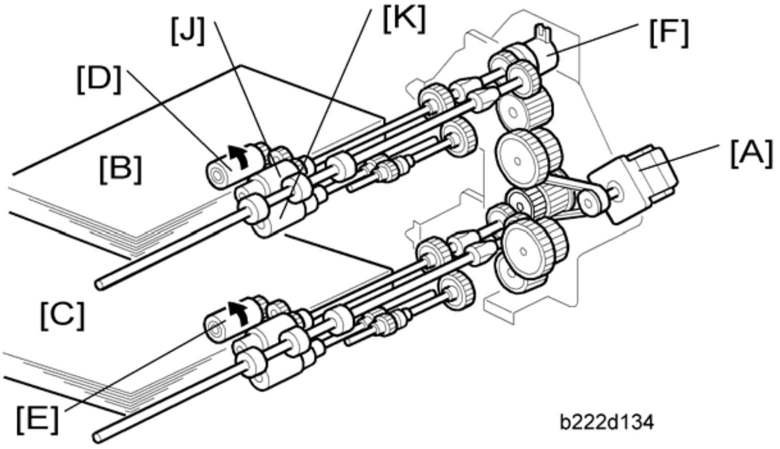
There are two paper trays (500 sheets each), and a by-pass feed table (100 sheets).

The paper feed mechanism uses an FRR system for tray 1, 2 and by-pass tray.

Tray 1 can hold A4 or letter paper only. Tray 2 can hold a range of sizes.

Drive – Tray 1, Tray 2, and By-Pass Tray

Tray 1 and Tray2

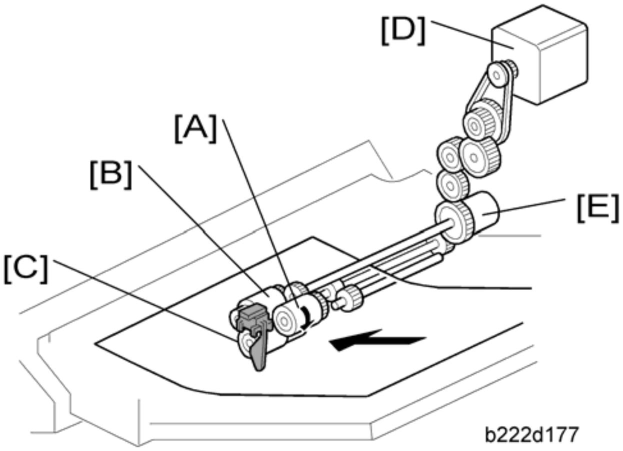


The paper feed motor [A] drives the pick-up and feed mechanisms in tray 1 [B], tray 2 [C]. It uses clutches and complex trains of gears to do this.

When tray 1 and tray 2 are inside the machine, their pick-up rollers [D][E] are always in contact with each top sheet of the paper stack (☛ "p.804 "Paper Lift – Trays 1 and 2"). When the paper feed clutch [F] for tray 1 turns on, the pick-up, feed [J] and separation [K] rollers start rotating to feed the paper. The paper from tray 2 is also fed in the same way.

The paper feed clutch stays on until shortly after the registration sensor activates.

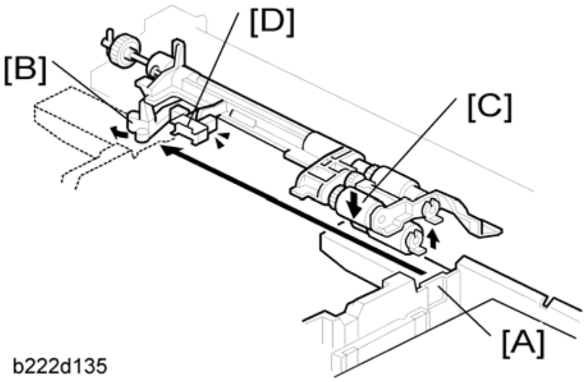
By-pass Tray



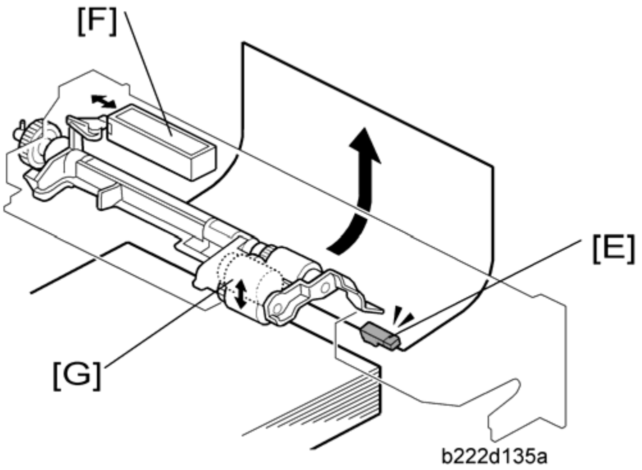
The pick-up roller [A] of the by-pass tray stays away from the top of the stack of paper until the by-pass pick-up solenoid turns on.

The duplex/by-pass motor [D] drives the pick-up, feed [B] and separation roller [C] through the by-pass clutch [E] and gears.

Paper Pick-up



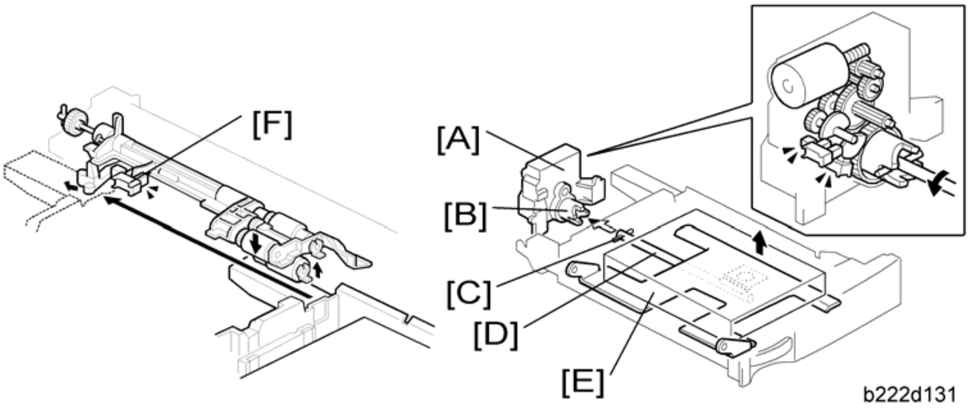
When the tray is installed in the machine, the rear [A] of the tray pushes the lever [B], and this lever pushes down the pick-up roller [C] onto the paper. This turns the paper lift sensor [D] "OFF".



When the paper feed sensor [E] detects the trailing edge of the paper, the pick-up solenoid [F] turns on and off. This lifts the pick-up roller from the top of the stack paper briefly and then releases the pick-up roller. This makes paper pick-up more effective.

The paper feed sensor [E] also controls the paper feed clutch "ON" and "OFF" timing.

Paper Lift – Trays 1 and 2

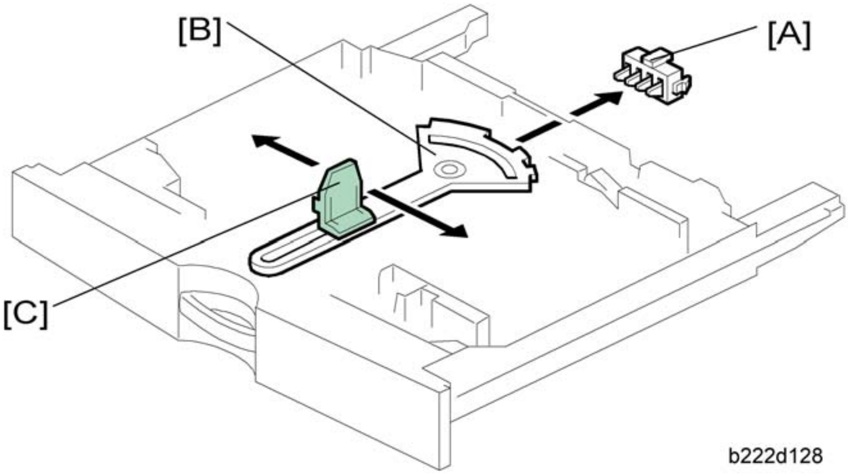


The rear end of the paper tray pushes the tray set switch (for tray 2, this is the paper size switch). As a result, the machine detects that the paper tray is installed.

When the machine detects that a tray has been placed in the machine, the tray lift motor [A] rotates and the coupling gear [B] on the tray lift motor engages the pin [C] on the lift arm shaft [D]. Then the tray lift arm lifts the tray bottom plate [E] until the paper lift sensor [F] for the tray detects that the top of the stack is at the paper feed position.

When the tray is removed from the machine, the connection between the coupling gear and lift arm shaft is disengaged, and the tray bottom plate lowers. After that, the coupling gear is moved to its home position.

Paper Size Detection – Trays 1 & 2



There is no size switch for tray 1. The paper size is fixed at either A4 or LT (LEF for both sizes). You can change the size setting with SP5-181-1.

For tray 2, there are four paper size switches [A] working in combination. Switch 1 (right end) is for tray set detection. The other three switches detect the paper size as shown in the table below. The actuator [B] is moved by the end plate [C].

0: Pushed, 1: Not pushed

Models		Switch Location		
North America	Europe/Asia	SW4	SW3	SW2
DLT (A3) SEF*[1]	A3 (DLT) SEF*[1]	0	0	1
LG (B4) SEF*[2]	B4 (LG) SEF*[2]	0	0	0
A4 SEF	A4 SEF	1	1	0
LT SEF	LT SEF	1	1	1
B5 SEF	B5 SEF	0	1	1
LT (A4) LEF*[3]	A4 (LT) LEF*[3]	1	0	0
Exe (B5) LEF*[4]	B5 (Exe) LEF*[4]	0	1	0

A5 LEF	A5 LEF	1	0	1

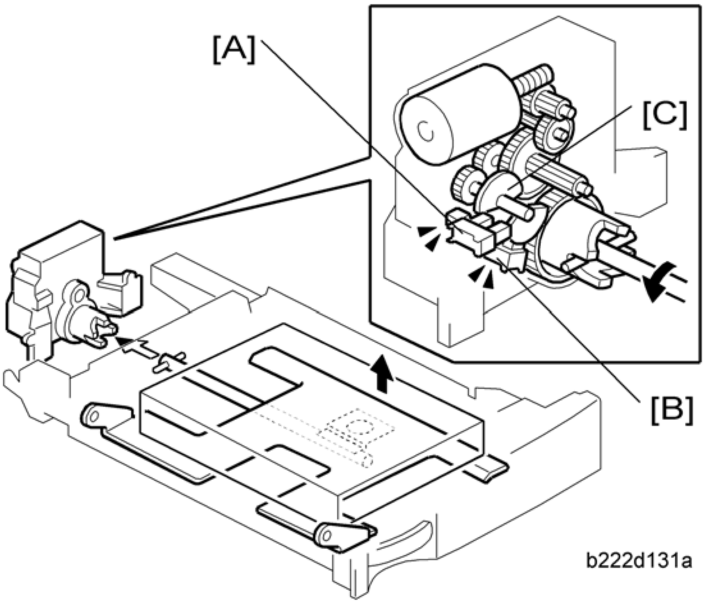
Note

- *1: The machine detects either DLT SEF or A3 SEF, depending on the setting of SP5-181-3.
- *2: The machine detects either LG SEF or B4 SEF, depending on the setting of SP5-181-4.
- *3: The machine detects either LT LEF or A4 LEF, depending on the setting of SP5-181-2.
- *4: The machine detects either Exe LEF or B5 LEF, depending on the setting of SP5-181-5
- SP 5-181-6 to –13 does similar functions for the optional paper trays.

The machine disables paper feed from a tray if the paper size cannot be detected (if the paper size actuator is broken or no tray is installed).

For non-standard paper sizes, if they are not visible on the user tool screen for selecting paper sizes, then set SP 5112 to "1". If the user selects one of these sizes, auto paper size selection is disabled.

Paper Height Detection – Trays 1 & 2



Two paper height sensors [A] [B] and actuator [C] are built into the paper tray lift motor. The paper height sensors, detect the amount of paper in the tray.

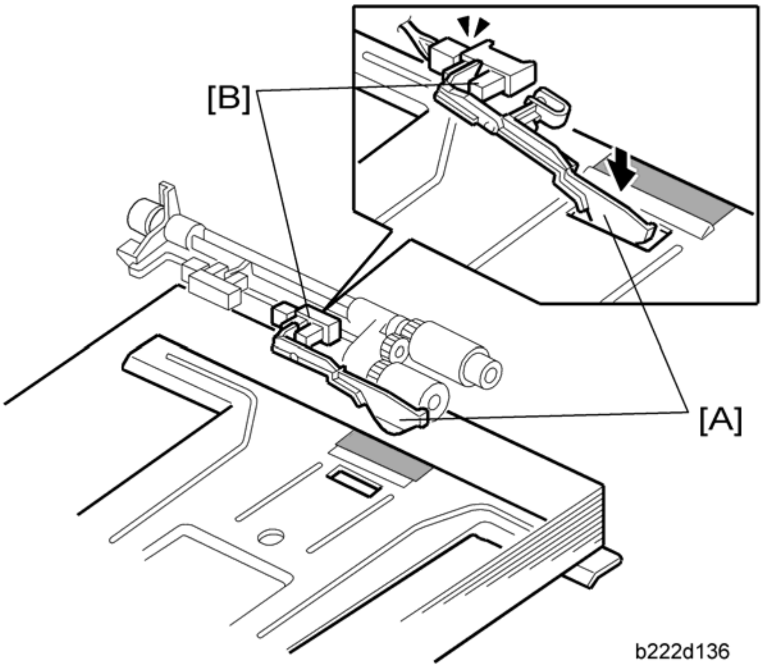
The actuator [C] has two semicircles, and it is engaged with the lift arm shaft via gears. The paper height sensors detect the paper amount depending on the position of the two semicircles. The list shown below shows the detection combination of the two sensors.

The paper remaining status bar is displayed in the tray selection icon on the LCD.

Remaining paper	Paper height sensor 1 [A]	Paper height sensor 2 [B]
100% (Status bar x 4)	OFF	OFF
70% (Status bar x 3)	ON	OFF
30% (Status bar x 2)	ON	ON
10% (Status bar x 1)	OFF	ON

OFF: No actuator

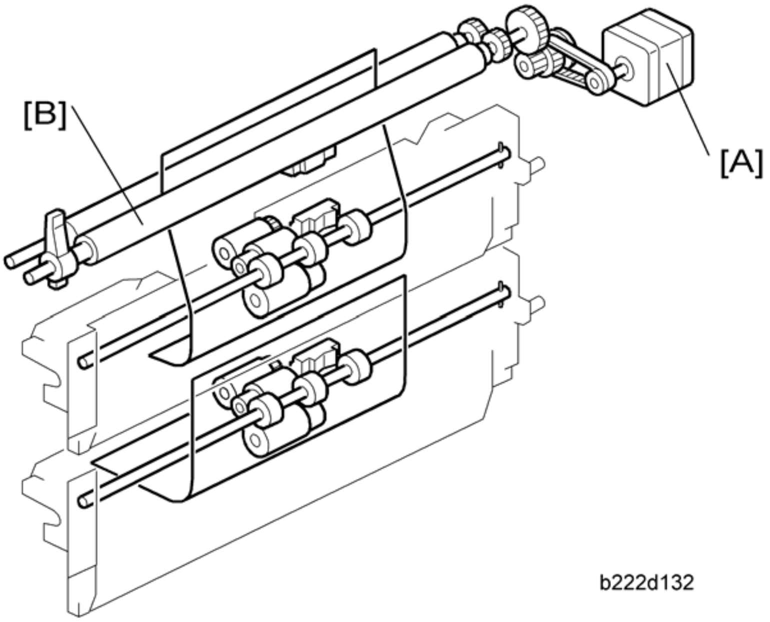
Paper End Detection – Trays 1 & 2



The paper stack raises the paper end feeler [A] and the paper end sensor [B] deactivates if there is some paper in the paper tray.

When the paper tray runs out of paper, the paper end feeler [A] drops into the cutout in the tray bottom plate. At this time the paper end sensor [B] activates.

Registration



The registration motor [A] drives the registration roller [B] with a complex train of gears.

The machine makes a paper buckle at the registration roller to correct paper skew. You can adjust the paper buckle with SP1-003.

Paper Feed Line Speed

This machine has three process line speeds (for feed from registration roller to fusing unit). The line speeds depend on the selected mode.

Model C1c

Mode	Resolution	Line speed (mm/s)	Print speed (cpm)
Plain/ Middle Thick	600 x 600 dpi	154	35
	600 x 600 dpi 4-bits	77	17.5
OHP/Thick	600 x 600 dpi	115	25 (B/W) 22.5 (Color)
	600 x 600 dpi 4-bits	77	17.5

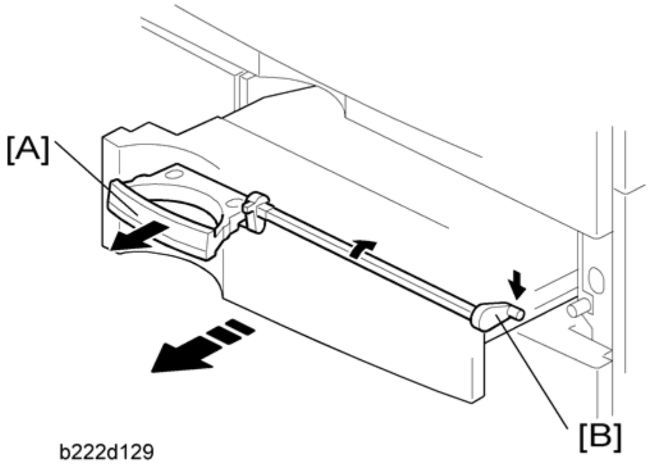
Model C1d

Mode	Resolution	Line speed (mm/s)	Print speed (cpm)
Plain/ Middle Thick	600 x 600 dpi	205	45 (B/W) 40 (Color)
	600 x 600 dpi 4-bits	77	17.5
OHP/Thick	600 x 600 dpi	115	25 (B/W) 22.5 (Color)
	600 x 600 dpi 4-bits	77	17.5

Tray Lock Mechanism

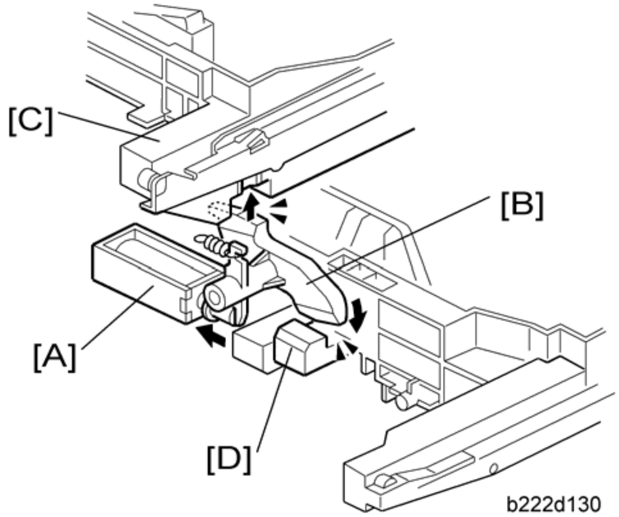
This machine has two types of tray lock mechanism.

Tray Lock at the Front



The lock at the front prevents the tray from coming out of the machine during transporting or shipping. When you pull the handle [A], the lock lever [B] is lowered. As a result, you can pull out the tray.

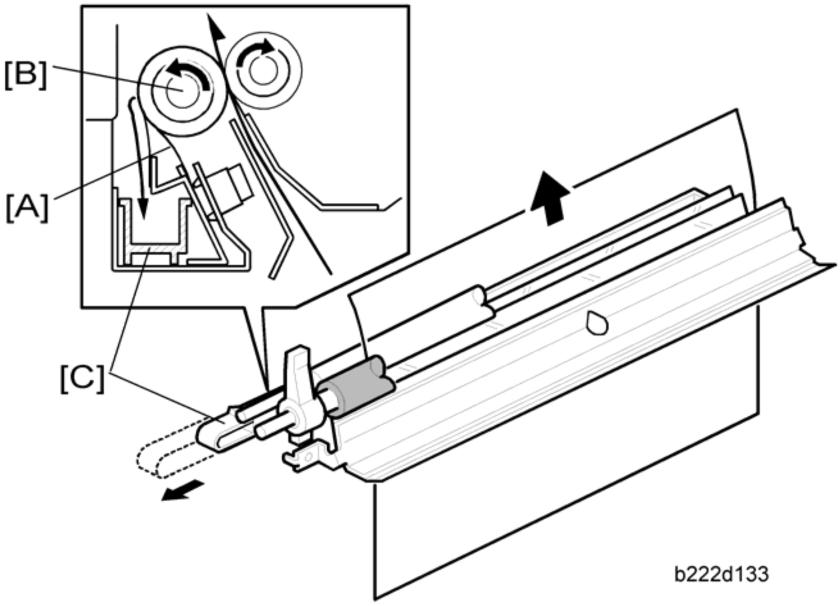
Tray Lock at the Rear



This mechanism is only activated when the machine detects a paper jam. The lock at the rear prevents the tray from coming out from the machine when the paper is jammed. If the tray is removed while the paper is jammed, the paper may be split in two pieces. This makes it difficult to remove the jammed paper.

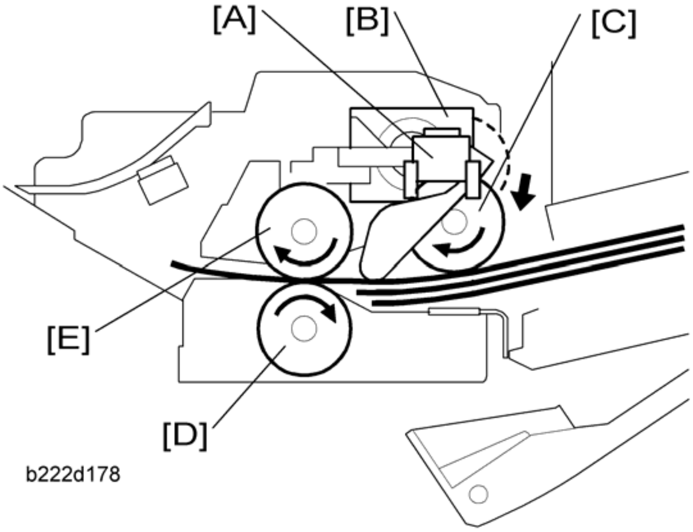
If the paper is jammed, the tray lock solenoid [A] turns on and activates the lock lever [B]. The lock lever [B] locks tray 1 [C] and tray 2 [D].

Paper Dust Collection



The two mylars [A] scrape the paper dust from the registration idle roller [B]. The paper dust falls down into the paper dust container [C].

By-pass Paper Separation

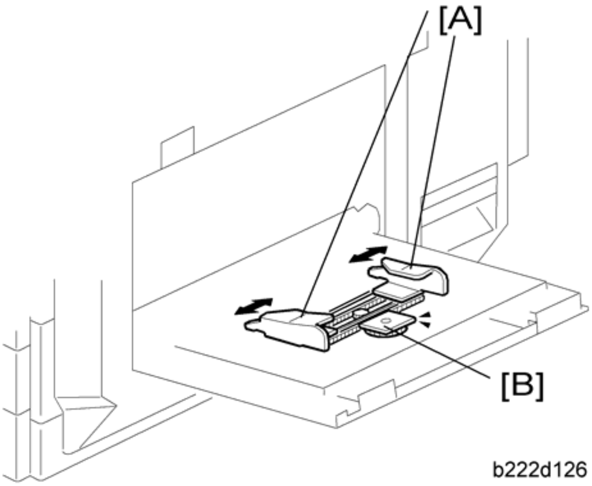


When the by-pass paper detection [A] sensor detects paper and the machine gets a by-pass printing job, the by-pass solenoid [B] drops the pick-up roller [C] onto the top of the paper stack on the by-pass tray. After that, the pick-up roller moves one sheet of paper to the feed roller.

This machine uses an FRR (Feed and Reverse Roller) system for feeding paper.

There is friction between the feed roller [E] and separation roller [D]. This friction separates the top sheet of paper from the stack.

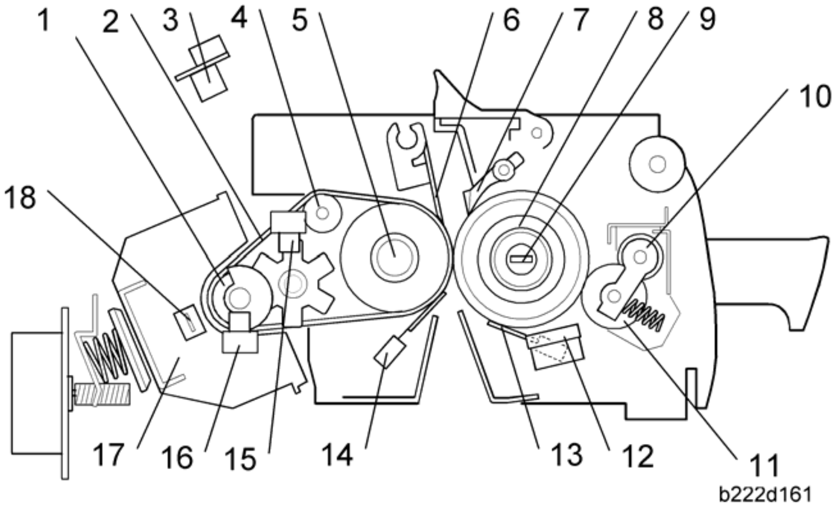
By-pass Paper Size Detection



There are two paper side plates [A] on the by-pass tray. These connect with the paper size sensor [B] through a rack-and-pinion mechanism.

Fusing

Overview

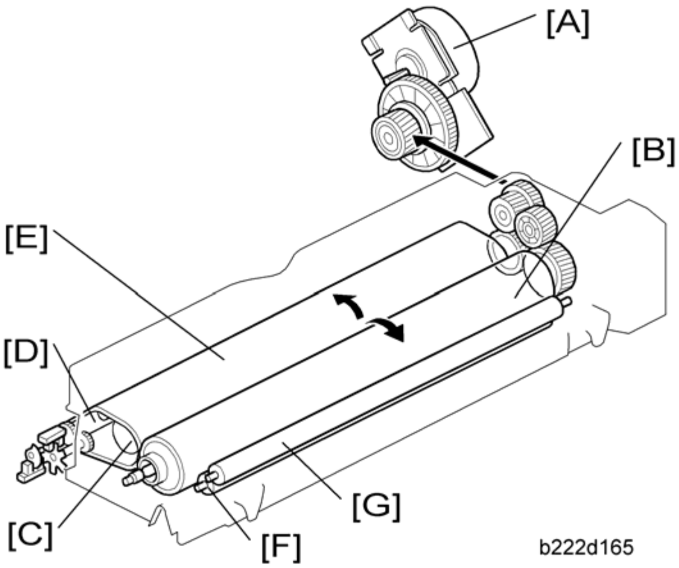


1. Heating roller	10. Cleaning roller
2. Fusing belt	11. Lubricant roller
3. Thermopile	12. Pressure roller thermostat
4. Tension roller	13. Pressure roller thermistor
5. Fusing roller	14. Fusing belt thermistor
6. Stripper plate	15. Fusing belt sensor
7. Stripper pawl	16. Ferrite roller HP sensor
8. Pressure roller	17. IH coil unit
9. Pressure roller fusing lamp	18. Heating roller thermostat

- This machine uses an IH (Induction Heating) system for the heating roller. This system increases the temperature more quickly than a fusing lamp heating system.
- A belt fusing system is used. This has a faster warm-up time than a conventional fusing and pressure roller system.
- The fusing roller is made of sponge, which flattens slightly, also increasing the fusing nip. This roller does not contain a fusing lamp.

- The fusing belt thermistor, pressure roller thermistor and thermopile control the temperature of heating roller and pressure roller. The thermopile is a non-contact sensor. The thermopile detects the temperature at the center of the fusing belt, and the thermistor detects the temperature at the end.
- Temperature is normally controlled by turning the fusing lamp and the IH system on and off.
- The lubricant roller supplies a small amount of oil to the pressure roller through the cleaning roller. An oil supply unit is not necessary because the amount of oil supplied to the pressure roller is small.

Fusing Unit Drive



Belt and Rollers

The fusing/paper exit motor [A] drives the pressure roller [B] and the fusing roller [C] through the gear train. The heating roller [D] is driven by the pressure with the fusing belt [E]. The lubricant roller [F] and cleaning roller [G] are driven by the friction with the pressure roller.

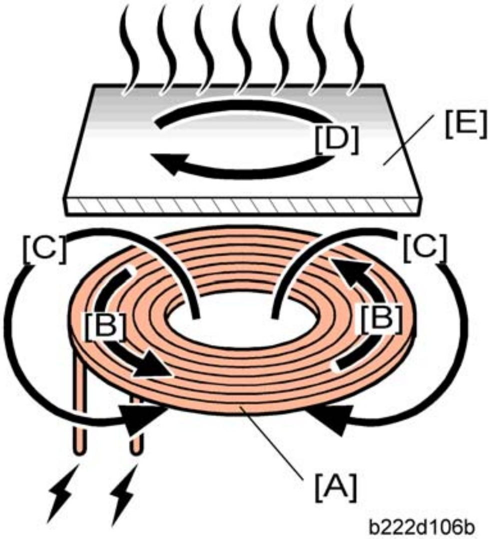
Lubricant Mechanism

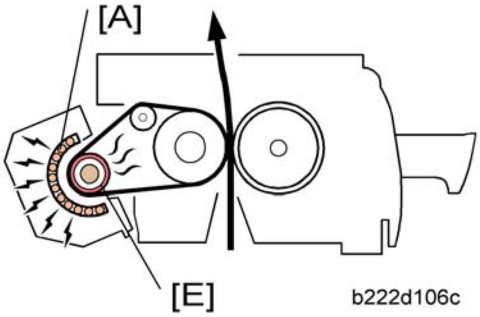
The lubricant roller [F] contains silicone oil in its material. The lubricant roller applies small amount of silicone oil to the pressure roller to reduce the friction between the pressure roller and thermistor, and stripper pawl so that white lines on the output are reduced.

The cleaning roller [G] cleans the lubricant roller to remove the residual toner stuck to the lubricant roller.

IH (Induction Heating) System

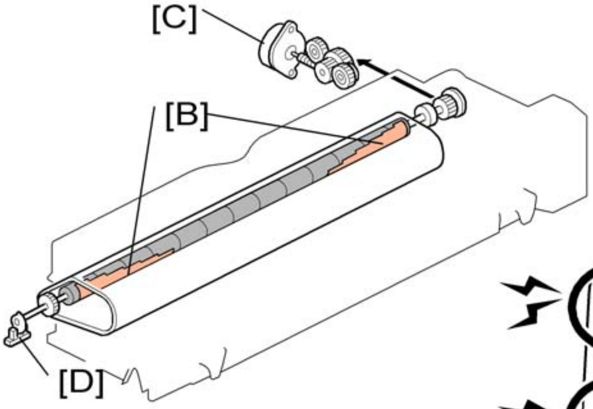
Basic IH System





When high frequency current [B] is applied to the IH coil unit, a magnetic field [C] occurs around the IH coil [A]. This magnetic field makes eddy currents [D] and the heating roller [E] becomes hot. (During warm up, 1250 W is applied to the IH coil unit and during paper feed, 950 W is applied.)

Paper Size Correction



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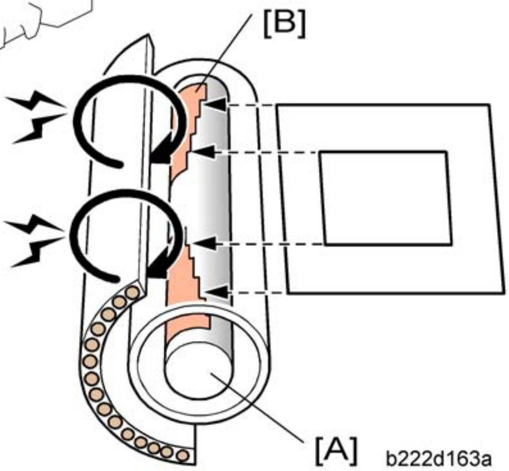

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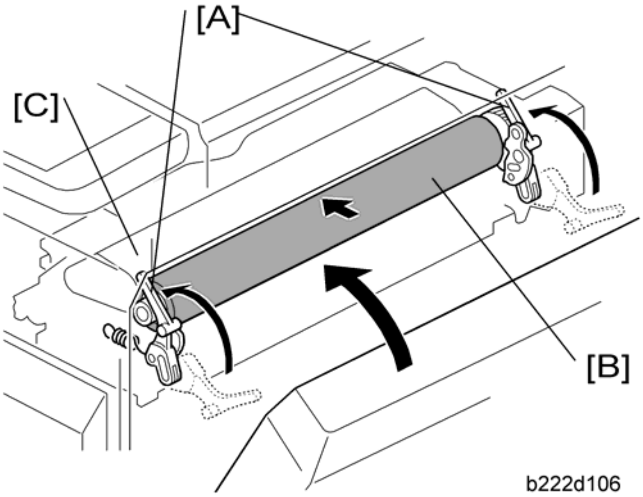
The ferrite roller [A] in the heating roller has a bronze plate [B] for paper size temperature correction. The area that is covered with the bronze plate does not generate the same amount of heat as other parts. The temperature correction for paper size is used for seven paper sizes (A3, B4, A4, B5, A5, B6, and A6). The ferrite roller motor [C] rotates the ferrite roller [A] to the correct position for the selected paper size.

The ferrite roller HP sensor [D] detects when this roller is at home position. The ferrite roller is moved to its home position at the end of every job.

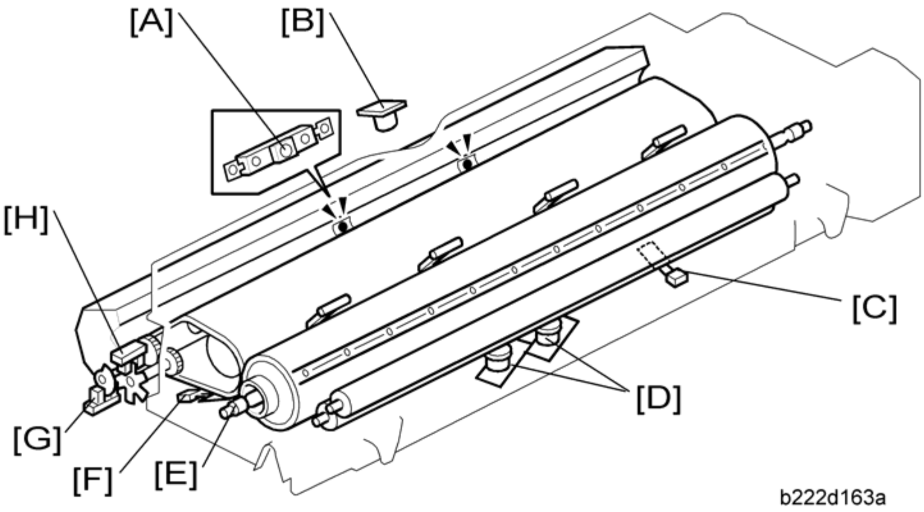
Pressure Release Mechanism



The pressure levers [A] put the proper pressure to the nip between the pressure roller [B] and fusing belt [C]. When releasing these levers, the pressure roller moves away from the fusing belt. If a paper jam occurs in the fusing unit, releasing these levers make jammed paper easily removed.

Fusing Temperature Control

Components



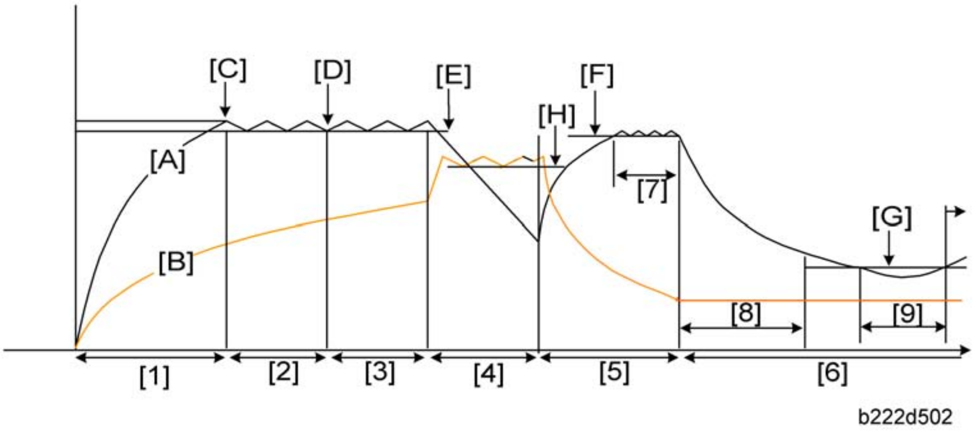
[A]: Thermostat (Heating roller)	[E]: Pressure roller fusing lamp
[B]: Thermopile	[F]: Thermistor (non-contact)
[C]: Thermistor (contact)	[G]: Ferrite roller HP sensor
[D]: Thermostat: (Pressure roller)	[H]: Fusing belt sensor

When the main switch turns on, the CPU turns on the IH coil unit and the fusing lamp. The IH coil unit and lamp stay on until the thermistor detects the standby temperature. Then the CPU raises the temperature to the printing temperature.

The fusing temperature for each mode is as follows. These are set by SP 1105.

If the ferrite roller does not rotate, it will overheat. The fusing belt sensor [H] detects if the ferrite roller stops rotating, and an SC occurs.

Fusing Temperatures



[A]: Heating roller temperature

[B]: Pressure roller temperature

[C]: Heating roller target temperature for the ready condition

[D]: Extra idling target temperature

[E]: Idling target temperature

[F]: Heating roller target temperature for the print condition

[G]: CPM down threshold temperature

[H]: Pressure roller target temperature

Warm-up mode [1]:

The machine uses the following formulas to decide the actual heating roller target temperature for the warm-up mode.

- If the ambient temperature ≤ 17°C (adjustable with SP1-112-001)

  T1 = T2 + T3

  T1: Actual target temperature

  T2: Heating roller target temperature for the ready condition (adjustable with SP1-105-001, default: 138°C)

  T3: Environment correction (adjustable with SP1-112-003, default: 5°C)

- If the ambient temperature ≥ 30°C (adjustable with SP1-112-002)

  T1 = T2 - T4

  T1: Actual target temperature

  T2: Heating roller target temperature for the ready condition (adjustable with SP1-105-001, default: 138°C)

  T4: Environment correction (adjustable with SP1-112-004, default: 0°C)

- If 17°C (adjustable with SP1-112-001) < Ambient temperature < 30°C (adjustable with SP1-112-002)

  T1 = T2

  T1: Actual target temperature

  T2: Heating roller target temperature for the ready condition (adjustable with SP1-105-001, default: 138°C)

The machine determines that the temperature of the fusing unit is at the target temperature for the ready condition when all the conditions below occur.

- The thermopile detects the specified temperature.

  Specified temperature = T2 - T4

  T2: Heating roller target temperature for the ready condition (adjustable with SP1-105-001, default: 138°C)

  T4: Offset temperature for the ready condition (adjustable with SP1-105-002, default: 0°C)

- The thermistor of the heating roller detects the specified temperature.

  T5 ≤ Specified temperature ≤ T6

  T5 = T2 (default: 138°C) - 70°C (adjustable with SP1-105-003)

  T6 = 200°C (adjustable with SP1-105-004)

- The thermistor of the pressure roller detects the specified temperature.

  T7 ≤ Specified temperature ≤ T8

  T7 = T2 (default: 138°C) - 70°C (C1c)/90°C (C1d) (adjustable with SP1-105-005)

  T8 = 180°C (adjustable with SP1-105-006)

Extra idling mode [2]:

The machine uses the extra idling when some conditions occur.

- If the ambient temperature ≤ 17°C (adjustable with SP1-112-001)

  In this condition, the temperature of the heating roller is kept at 165°C (adjustable with SP1-105-106) for 60 seconds (adjustable with SP1-103-016).
- If the ambient temperature ≥ 30°C (adjustable with SP1-112-002)

  In this condition, the temperature of the heating roller is kept at 160°C (adjustable with SP1-105-108) for 10 seconds (C1c)/25 seconds (C1d) (adjustable with SP1-103-017).
- If 17°C ≤ Ambient temperature ≤ 30°C

  In this condition, the temperature of the heating roller is kept at 160°C (adjustable with SP1-105-107) for 10 seconds (C1c)/25 seconds (C1d) (adjustable with SP1-103-018).

Maintain mode for the ready condition temperature [3]:

The temperature of the heating roller is kept at 160°C (adjustable with SP1-105-082) for 60 seconds (adjustable with SP1-113-001) after the temperature of the fusing unit reaches the temperature for the ready condition.

Stand-by mode [4]:

The machine turns off the IH coil unit (heating roller) and then turns on the pressure roller lamp. The temperature of the pressure roller is kept at 150°C (adjustable with SP1-105-012).

The machine also executes the idling rotation in the stand-by mode for 0.7 seconds (adjustable with SP1-115-002) every 60 minutes (adjustable with SP SP1-115-001).

Print ready mode [5]:

The machine turns off the pressure roller lamp and turns on the IH coil unit (heating roller) when the machine recovers.

If the machine does not get any printing/copying job, the target temperature after recovery is 170°C (adjustable with SP1-105-083). But if the machine does not get any printing/copying job for 10 seconds (adjustable with SP1-113-002), the machine turns off the IH coil unit (heating roller), turns on the pressure roller lamp, and then returns to the stand-by mode.

If the machine gets a printing/copying job, the machine uses the following formulas to decide the actual heating roller target temperature for feeding paper and processing the image (this is the print ready mode).

- If the ambient temperature ≤ 17°C (adjustable with SP1-112-001)

  Ta = Tb + Tc

  Ta: Actual target temperature for printing

  Tb: Heating roller target temperature for each paper type (adjustable with SP1-105-030 to -080)

  Tc: Environment correction (adjustable with SP1-112-003, default: 5°C)
- If the ambient temperature ≥ 30°C (adjustable with SP1-112-002)

  Ta = Tb - Tc

  Ta: Actual target temperature for printing

  Tb: Heating roller target temperature for each paper type (adjustable with SP1-105-030 to -080)

Tc: Environment correction (adjustable with SP1-112-004, default: 0°C)

- If 17°C (adjustable with SP1-112-001) ≤ Ambient temperature ≤ 30°C (adjustable with SP1-112-002)

  Ta = Tb

  Ta: Actual target temperature

  Tb: Heating roller target temperature for each paper type (adjustable with SP1-105-030 to -080)

The machine starts to feed paper after an interval of S1 (Feeding wait mode [7]) after one of the conditions below has occurred. However, the machine automatically starts to feed paper if one of conditions below does not occur for 300 seconds after the machine has entered the stand-by mode.

S1 is adjustable with SP1-910-001 to -003 and -007 to -009.

- The thermopile detects the specified temperature after the machine has recovered.

  Specified temperature = Ta - 5°C (adjustable with SP1-105-086)

  Ta = Tb + Tc

  Ta: Actual target temperature for printing

  Tb: Heating roller target temperature for each paper type (adjustable with SP1-105-030 to -080)

  Tc: Environment correction (adjustable with SP1-112-003, default: 5°C)

- The thermopile detects the specified temperature in the maintain mode for the ready condition temperature [3].

  Specified temperature = Ta - 100°C (adjustable with SP1-105-104)

  Ta = Tb - Tc

  Ta: Actual target temperature for printing

  Tb: Heating roller target temperature for each paper type (adjustable with SP1-105-030 to -080)

  Tc: Environment correction (adjustable with SP1-112-004, default: 0°C)

The machine starts to process the image when one of the conditions below occurs. However, the machine automatically starts to process the image if one of the conditions below does not occur for 300 seconds after the machine has entered the stand-by mode.

- The thermopile detects the specified temperature.

  Specified temperature = Ta - 5°C (adjustable with SP1-105-085)

  Ta = Tb + Tc

  Ta: Actual target temperature for printing

  Tb: Heating roller target temperature for each paper type (adjustable with SP1-105-030 to -080)

  Tc: Environment correction (adjustable with SP1-112-003, default: 5°C)

- The thermopile detects the specified temperature in the maintain mode for the ready condition temperature [3].

  Specified temperature = Ta - 100°C (adjustable with SP1-105-105)

Ta = Tb - Td

Ta: Actual target temperature for printing

Tb: Heating roller target temperature for each paper type (adjustable with SP1-105-030 to -080)

Td: Environment correction (adjustable with SP1-112-004, default: 0°C)

Print mode [6]:

The machine prints or makes copies, keeping the temperature at Ta.

If the machine stays in the maintain mode for the ready condition temperature [3], the machine waits until the fusing temperature reaches the specified temperature and then keeps this temperature for 20 seconds (adjustable with SP1-915-002, -004 or -006).

Specified temperature = Ta + 10°C (adjustable with SP1-915-001, -003 or -005).

CPM down limit mode [8]:

CPM down mode is not allowed for a certain time interval.

CPM down mode [9]:

This machine uses CPM down mode to prevent image offset on outputs when the fusing temperature goes below a specified temperature in some conditions. This mode is only used at line speeds of 205 or 154 mm/sec.

Mode	Temperature of Heating Roller (°C)	Temperature of Pressure Roller (°C)
Warm-up mode	138°C - 0°C (SP1105-002)	138°C - 70°C (C1c)/ - 90°C (C1d) (SP1105-005)
Print start	Actual target temperature for each paper type - 0°C (SP1105-085)	--
Feed start	Actual target temperature for each paper type - 5°C (SP1105-086)	-
Standby mode	-	150°C (SP1105-012)
Energy saver (panel off) mode	-	100°C (C1c)/ 140°C (C1d) (SP1105-016)
Plain paper	C1c: 155°C / C1d: 160°C (SP1105-030, -032, -034 and -036)	--
Thin paper	150°C (SP1105-038, -40, -42 and -044)	--

Mode	Temperature of Heating Roller (°C)	Temperature of Pressure Roller (°C)
Middle thick paper (middle speed)	145°C (SP1105-095, -097 and -099)	--
Middle thick paper (High speed)	Middle thick (middle speed) + 15°C (C1c)/ 20°C (C1d) (SP1105-103)	--
Thick 1 paper	170°C (SP1105-046, -048, -050 and -052)	--
Thick 2 paper	170°C (SP1105-054, -055)	--
Thick 3 paper	175°C (SP1105-089 and -091)	--
OHP (full color)	165°C (SP1105-056)	--
OHP (black-and-white)	160°C (SP1105-057)	--
Special paper	160°C (SP1105-058 to -080)	--

- Paper Weights -

- Thin paper: Below 60 g/m^2 (16 lb.)
- Normal plain paper: 60 – 90 g/m^2 (16 – 24 lb.)
- Middle Thick: 90 – 105 g/m^2 (24 – 28 lb.)
- Thick 1: 106 – 169 g/m^2 (28.5 – 44.9 lb.)
- Thick 2: 170 – 219 g/m^2 (45 – 58 lb.)
- Thick 3: 220 – 253 g/m^2 (58.5 – 67 lb.)

Temperature Corrections

- Corrections for ambient temperature (SP 1112) -

- If the room temperature is below 17°C, the heating roller temperature is increased by 5°C with SP1112-003 (default: 5°C)..
- If the room temperature is above 30°C, the heating roller temperature can be decreased with SP1112-004 (default: 0°C).

Overheat Protection

The CPU cuts power to the fusing lamp at the following times:

- The heating roller or pressure roller temperature becomes higher than 215°C for one second or more

SC 543 and SC 553 for the heating roller or SC 563 for the pressure roller show for this condition.

- The heating roller or pressure roller temperature reaches 220°C.

  SC 544 and SC 554 for the heating roller or SC 564 for the pressure roller show for this condition.

The following components are used if thermistor or thermopile overheat protection fails.

- Two thermostats for the IH inverter (heating roller) and two thermofuses for the pressure roller in series with the common ground line of the fusing lamp.

  Important

  - **Do not push the two thermostats for the heating roller at the IH coil unit. Otherwise, these thermostats are opened. As a result, the IH coil unit must be replaced.**
  - If one of the thermostat temperatures becomes higher than 234°C, it opens and cuts power to the IH inverter.

    If the other thermostat temperature becomes higher than 235°C, it also opens and cuts power to the IH inverter.
  - If either of the two thermofuse temperatures becomes higher than 149°C, the thermofuse opens and cuts power to the fusing lamp.

    Note

    - These thermofuses make a series circuit.

In either case, the machine stops operation.

CPM Down System

CPM Down Control

When this machine gets a sequence of coping/printing jobs at a high line speed mode (C1c: 154 mm/sec, C1d: 205 mm/sec) and some conditions occur, the machine decreases the CPM to prevent offset on outputs due to insufficient fusing temperature. This mode can be turned on or turned off with SP1-916-025 (default: "OFF" for C1c, "ON" for C1d).

CPM down mode has two steps (1 and 2).

For a full-color printing job using middle-thick paper, the machine enters step 1, and then step 2. For other types of printing job, the machine enters step 2 only.

Step 1 (Only for full color mode using middle thick paper)

If the input voltage from IH inverter to the IH coil > 93% (adjustable with SP1-916-23) and ambient temperature ≤ 17°C (adjustable with SP1-112-001):

- The machine decreases the CPM to 25cpm (C1c) or 30cpm (C1d) (adjustable with SP1-916-022) for 20 seconds (adjustable with SP1-916-023).

If input voltage ≤ 93% (adjustable with SP1-916-23) and ambient temperature > 17°C (adjustable with SP1-112-001):

- The machine decreases the CPM to 25cpm (C1c) or 30cpm (C1d) (adjustable with SP1-916-022) for 20 seconds (adjustable with SP1-916-023).

If input voltage ≤ 93% (adjustable with SP1-916-23) and ambient temperature ≤ 17°C (adjustable with SP1-112-001):

- The machine decreases the CPM to 20cpm (C1c) or 25cpm (C1d) (adjustable with SP1-916-022 and SP1-916-024) for 20 seconds (adjustable with SP1-916-023).

Step 2

When the fusing temperature goes below the print ready temperature for plain paper:

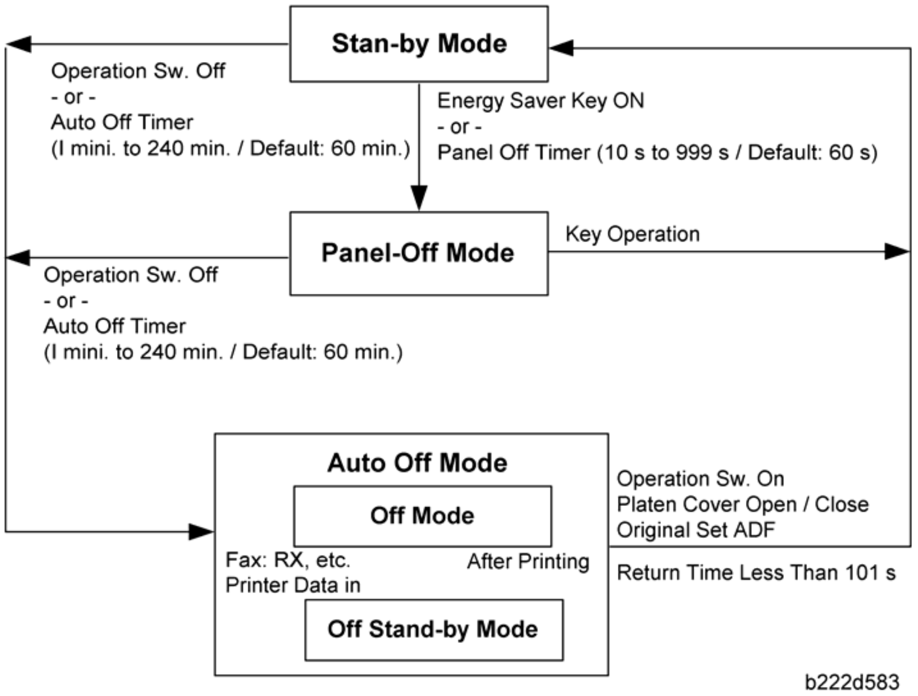
- The machine decreases the CPM to 25cpm (C1c) or 30cpm (C1d) (adjustable with SP1-916-020).

When the fusing temperature goes below the print ready temperature for middle thick paper in B/W mode:

- The machine decreases the CPM to 25cpm (C1c) or 30cpm (C1d) (adjustable with SP1-916-021).

Energy Saver Modes

Overview



When the machine is not being used, the energy saver function reduces power consumption by decreasing the fusing temperature.

This machine has the following two types of energy saver modes:

1. Panel-off mode
2. Auto Off mode

These modes are controlled by the following UP mode:

- Panel off timer: User Tools – System Settings – Timer Setting – Panel Off Timer
- Auto off timer: User Tools – System Settings – Timer Setting – Auto Off Timer

Panel Off Mode

Entering the panel off mode

The machine enters the panel off mode when one of the following is done:

- The panel off timer runs out.
- The Clear Mode/Energy Saver Key is held down for one second.

If the value in the panel off timer is larger than that in the auto off timer, the machine goes into the auto off mode. At this time it does not go into the panel off mode. To make the panel off mode effective, specify a value smaller than the values in the auto off timer.

What happens in panel off mode

When the machine is in the panel off mode, the fusing lamp is kept at the temperatures indicated in the table at the bottom of the page. The operation panel indicators are turned off except for the Energy Saver LED and the Power LED.

If the controller receives an image print out command from an application program (e.g. to print incoming fax data or to print data from a PC), the temperature of heating roller (IH coil unit) rises to print the data.

Return to stand-by mode

The machine returns to stand-by mode if one of the following is done:

- The Clear Mode/Energy Saver Mode key is pressed
- Any key on the operation panel or touch panel screen is pressed
- An original is placed in the ADF
- The ADF is lifted
- A sheet of paper is placed in the by-pass feed table

The return time from the panel off mode is less than 30 seconds.

Mode	Operation Switch	Energy Saver LED	Fusing Temperature	+24V	System +5V
Panel off	On	On	Pressure roller: 150°C	On	On

Auto Off Mode

There are two Auto Off modes: Off Stand-by mode and Off mode. The difference between Off Stand-by mode and Off mode is the machine’s condition when it enters the Auto Off mode.

Entering off stand-by and off modes

The machine enters the Off Stand-by mode or Off Mode when one of the following is done.

- The auto off timer runs out.
- The operation switch is pressed to turn the power off.

If one or more of the following conditions exists, the machine enters Off Stand-by mode. If none of these conditions exist, the machine enters the Off Mode.

- Error or SC condition
- Image data is stored in the memory
- During memory TX or polling RX
- The handset is off hook
- An original is in the ARDF
- The ARDF is open

Off Stand-by mode

The system +5V is still supplied to all components. When the machine detects a ringing signal or receives a stream of data for a print job, the +24V supply is activated. At this time the machine automatically prints the incoming message or executes the print job.

Off Mode

The system +5V supply also turns off. However, +5VE (+5V for energy saver mode) is still activated. When the machine detects a ringing signal, off-hook signal, or receives a print job, the machine returns to the Off Stand-by mode and the system +5V and +24V supplies are activated.

Returning to stand-by mode

The machine returns to stand-by mode when the operation switch is pressed. The return time is less than 45 seconds.

Mode	Operation Switch	Energy Saver LED	Fusing Lamp	+24V	System +5V	Note
Off Stand-by	Off	Off	Off (On when printing)	On	On	
Off	Off	Off	Off	Off	Off	+5VE is supplied

New Unit Detection

Fusing Unit, Image Transfer Belt Unit

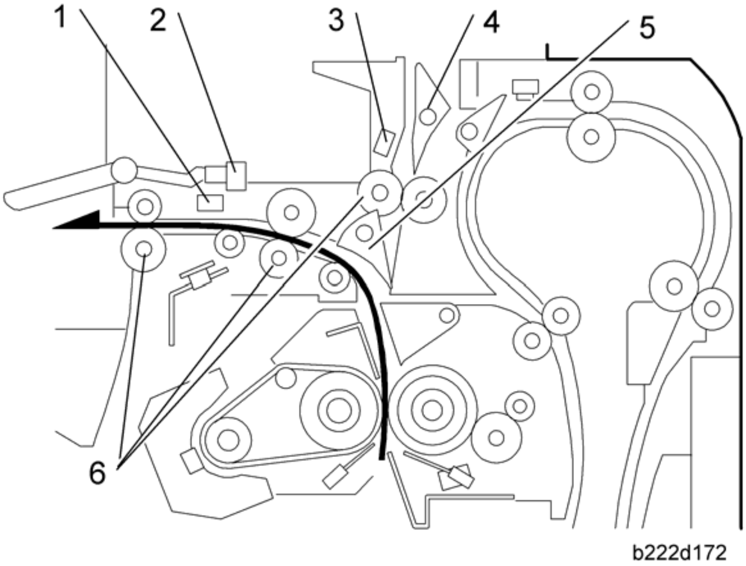
The fusing unit and image transfer belt unit each have a fuse. When the machine detects that the fuse is intact, the machine determines that a new unit is installed. Then a short time later, the fuse blows.

PCU, Development Unit

The development unit (as part of the PCU, or as a separate development unit) contains an ID chip. The ID chip contains information that tells the machine that the unit is new.

Paper Exit

Overview



1. Paper exit sensor	4. Junction gate 2
2. Paper overflow sensor	5. Junction gate 1
3. Junction gate jam sensor	6: Paper exit rollers

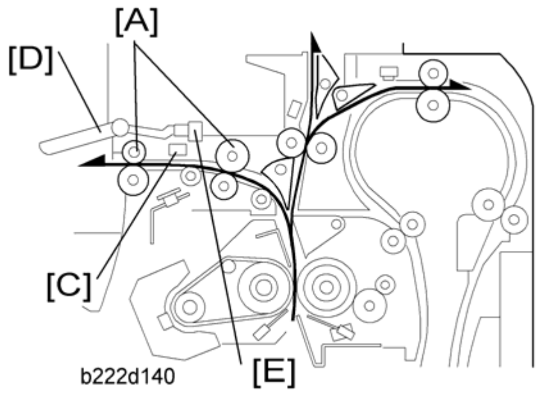
This machine has two junction gates:

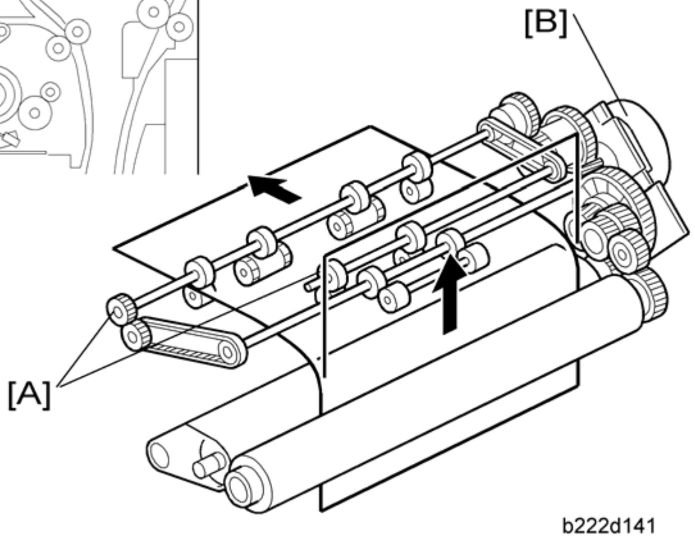
- Junction gate 1 switches the paper feed direction to the standard output tray path or the duplex unit path/1-bin tray path. This gate is controlled by the junction gate 1 motor. When the junction gate 1 HP sensor detects that the gate is at home position, the standard output tray path is opened.
- Junction gate 2 switches the paper feed direction to the 1-bin tray path or duplex unit path. This gate is controlled by the junction gate solenoid in the 1-bin tray. If the 1-bin tray is not installed, junction gate 2 does not move (the 1-bin tray path is always closed).

The fusing/paper exit motor drives the paper exit rollers.

Junction Gate Mechanism

To the Standard Tray



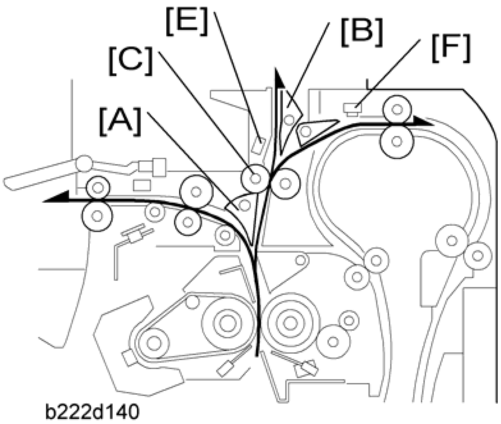


The paper exit rollers [A] feed paper to the standard output tray. These rollers are driven by the fusing/paper exit motor [B].

When a sheet of paper stays in the paper exit unit, the paper exit sensor [C] detects the paper jam and a jam message is displayed.

When outputs push up the tray full actuator [D], the paper overflow sensor [E] detects that standard output tray is full of outputs and a jam message is displayed after a job end.

To the 1-bin Tray or Duplex Unit



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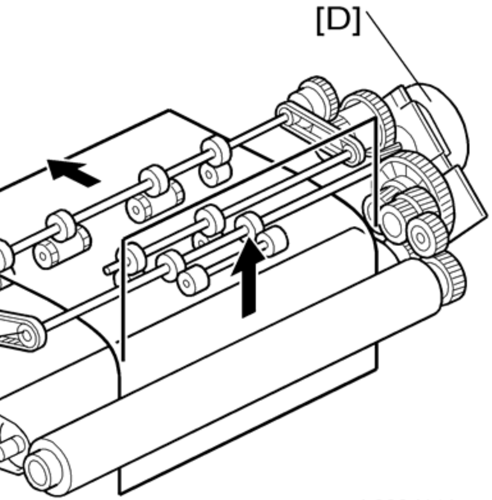

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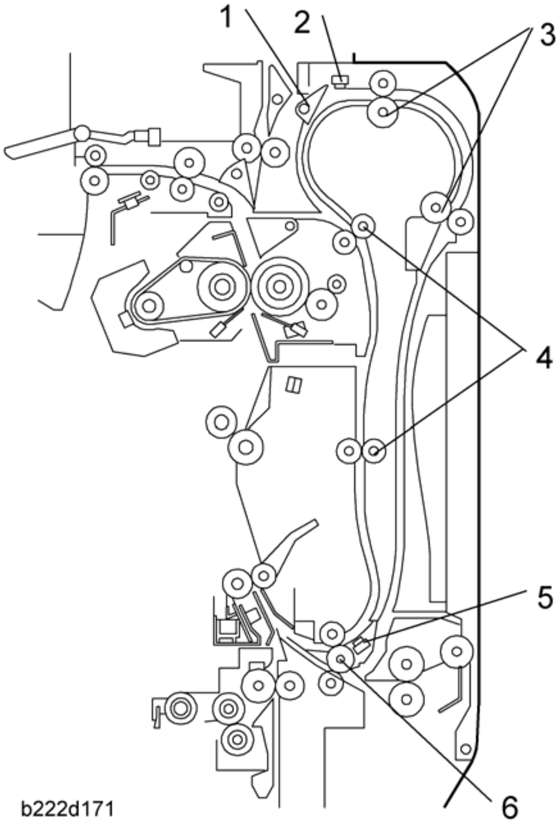
When duplex mode or 1-bin tray mode is selected, junction gate 1 [A] closes the paper path to the standard tray. And then, junction gate 2 [B] switches the paper feed direction to the 1-bin tray or the duplex unit. The paper transport roller [C] is driven by the fusing/paper exit motor [D]. The junction gate jam sensor [E] in the 1-bin tray path detects paper jams in the path to the 1-bin tray. The duplex entrance sensor [F] detects paper jams in the path to the duplex unit.

Duplex Unit

Overview



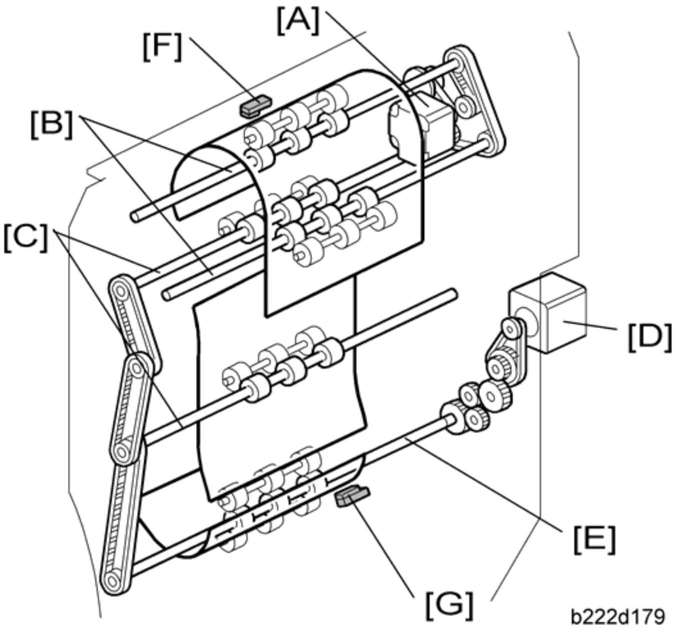
1. Duplex inverter plate	4. Duplex transport rollers
2. Duplex entrance sensor	5: Duplex exit sensor
3. Duplex inverter rollers	6. Duplex/by-pass transport roller

The duplex inverter rollers move the paper to the inverter path, and then feed it backwards to the duplex paper feed path. The duplex transport rollers move paper to the waiting position (just before the duplex/ by-pass transport roller).

The duplex/by-pass transport roller moves the paper to the registration roller. This roller is also used for by-pass mode as the by-pass transport roller. But the by-pass tray cannot be used with duplex mode.

The duplex entrance sensor and duplex exit sensor control the timing for duplex paper feed.

Duplex Drive



The duplex inverter motor [A] drives the following:

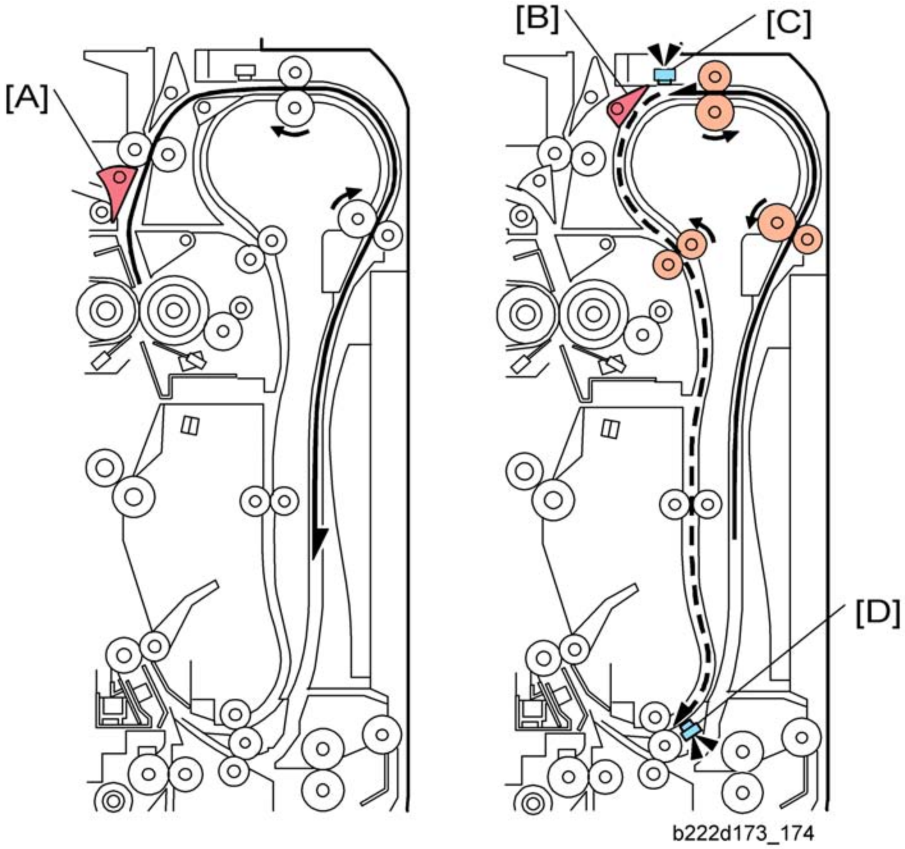
- Duplex inverter rollers [B]
- Duplex transport rollers [C]

The duplex/by-pass motor [D] drives the following:

- Duplex/by-pass transport roller [E]

The duplex entrance sensor [F] and duplex exit sensor [G] control the interleave movement and detect paper jams.

Inverter Mechanism



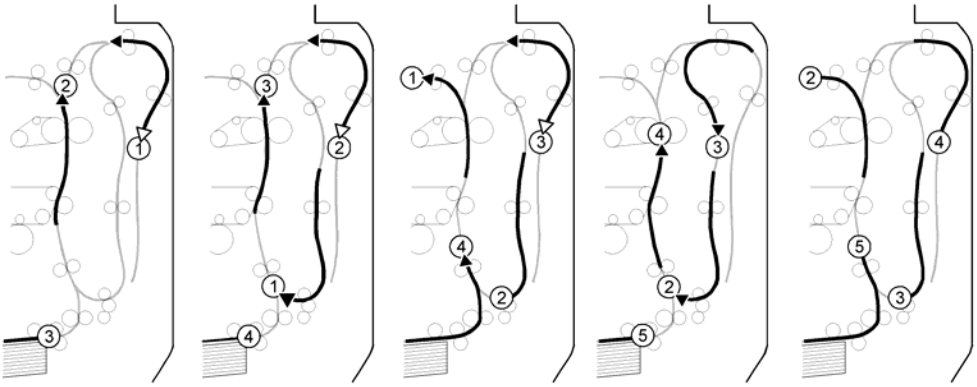
The paper is fed to the duplex path in duplex mode after junction gate 1 [A] opens the duplex path. The duplex inverter motor moves the paper into the inverter, as far as the switching back position.

Then, after the duplex entrance sensor [C] detects the trailing edge of the paper, the duplex inverter motor stops, and the duplex inverter plate [B] opens the duplex feed path (the plate is opened by the duplex inverter solenoid). Then, the duplex inverter motor reverses and moves the paper from the switching position to the duplex feed path.

In the duplex feed path, the paper is fed by the transport rollers (these rollers are driven by the duplex inverter motor) and the duplex/by-pass transport roller (this roller is driven by the duplex/by-pass motor). When the machine gets a multi-page duplex printing job, the duplex exit sensor [D] controls the duplex inverter motor and duplex/by-pass motor to synchronize the duplex feed timing.

Duplex Operation

Up to A4/LT (81/2" x 11") LEF



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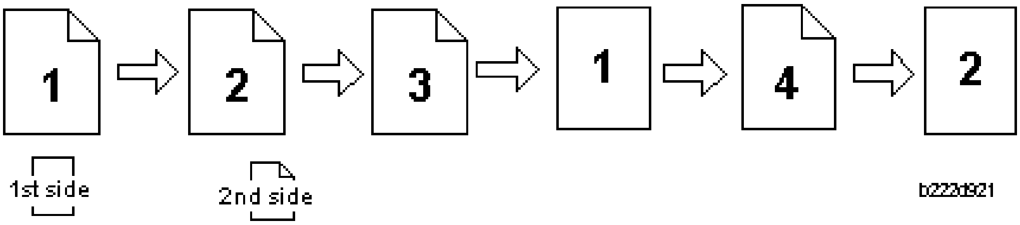
There are three sheets of paper in the paper feed path at the same time. The interleave method is used.

The drawing above shows the paper movement with the interleave method for three sheets of paper. The printing is done as follows:



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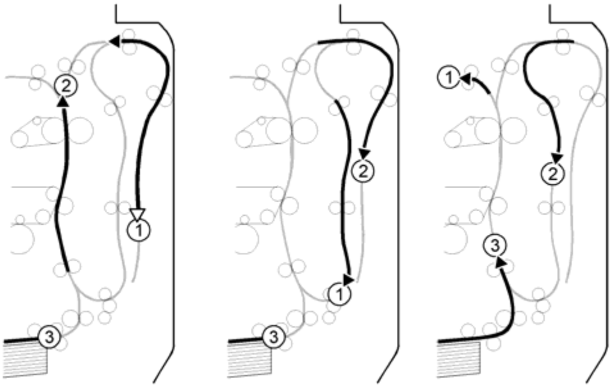
From A4/LT (8 1/2" x 11") LEF to 400mm length



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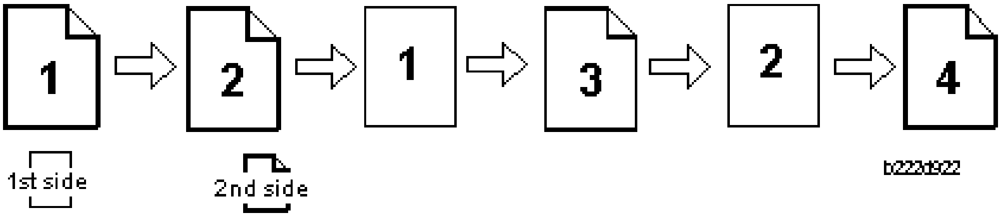
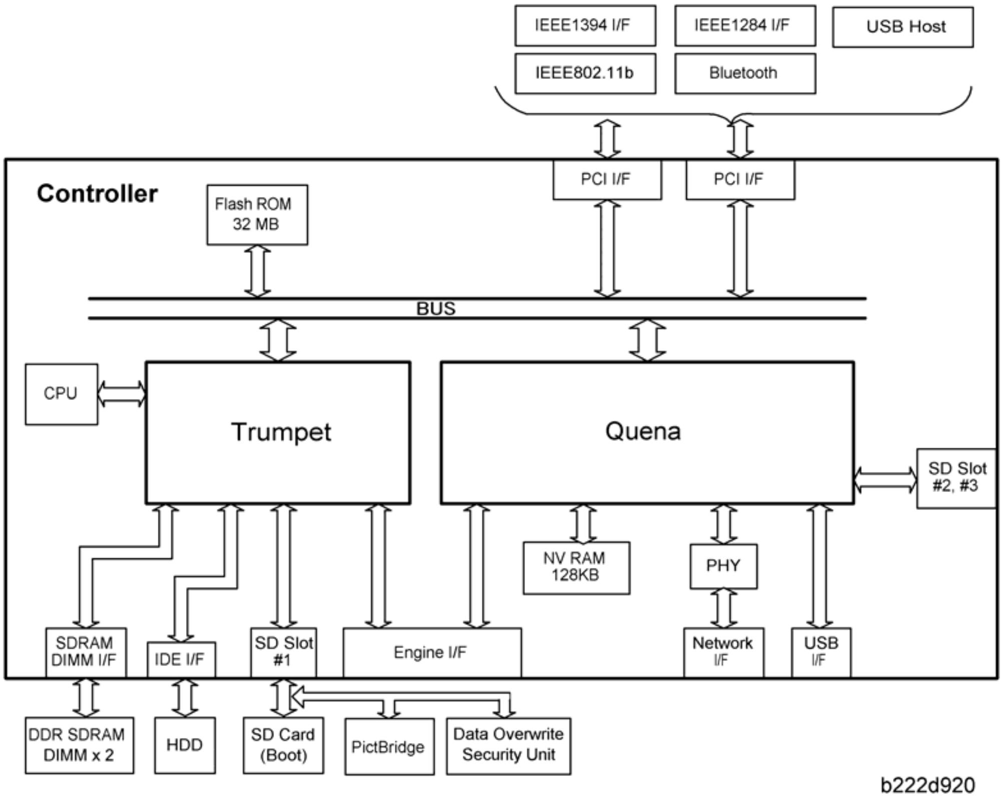
There are two sheets of paper in the paper feed path at the same time. The interleave method is used. For sheets longer than 400 mm, there is no interleaving.

The drawing above shows the paper movement with the interleave method for two sheets of paper. The printing is done as follows:



Printer Functions

Overview



The controller is based on the GW architecture.

CPU: RM7935C-835 MHz

TRUMPET:

This is one of the GW-architecture ASICs:

GW architecture ASIC. It controls the interface with the CPU and controls these functions: memory, local bus interrupts, PCI bus, video data, HDD, SD card for booting and image processing.

QUENA:

IO control ASIC. It controls the network, operation panel, USB port, SD cards.

SDRAM DIMM (2 slots):

The controller has 1024-MB resident SDRAM.

Flash ROM:

32 MB flash ROM programmed for the boot system.

SD card:

The 32 MB SD card installed in the SD card slot #1 includes the program for network application, printer, PCL5c, PS3 and RPCS applications and internal printer fonts.

NVRAM:

128 KB for the machine parameters, logged data and a record of the number of pages printed for each "User Code".

Network Interface:

100BASE-TX/10BASE-T

USB Interface:

USB2.0

IEEE 1394 Interface (option):

Supports a data transfer speed of up to 400 Mbps.

IEEE 1284 Interface (option):

This is a parallel printer port.

IEEE 802.11b (option):

This lets you connect the machine to a wireless network.

Bluetooth (option):

This lets you connect the machine to a Bluetooth network.

USB Host (option):

This is for the connection of an external device (digital camera etc.).

I/F Slot	Item
Slot A	IEEE 1394, IEEE 1284, IEEE 802.11b or Bluetooth
Slot B	USB Host
Slot C	Not used
Slot D	File format converter

HDD:

3.5" HDD x 2 (80 GB) can be connected using the IDE interface.

SD Card slots:

- Slot 1: Standard SD card (standard printer/scanner application SD card)
- Slot 2: Optional application (for PostScript 3, Data Overwrite Security Unit or PictBridge)
- Slot 3: Firmware upgrade or Browser Unit (RDS – Ricoh Document Server)

Hard Disk

Overview

The capacity of the hard disk is 80 GB (40 GB x 2). The controller partitions it into several drives and allocates them for different functions. You can initialize these partitions as necessary (☛ SP5-832). The table lists the contents of the hard disk.

Contents	Capacity (MB)	Volatile/ Nonvolatile	Initialization (SP5-832)
Images (IMH)	21,528	Nonvolatile	002
	39,176	Volatile	
Thumbnails	2400	Nonvolatile	003
Job Logs	200	Nonvolatile	004
Printer fonts	500	Nonvolatile	005
User information	300	Nonvolatile	006
Mail RX data	200	Nonvolatile	007
Mail TX data	1,000	Nonvolatile	008
Designer data	512	Nonvolatile	009
Logs	150	Nonvolatile	-
Net interfaces	500	Nonvolatile	011

Volatile: The data is lost when you turn the main switch off.

Nonvolatile: The data is not lost when you turn the main switch off.

Controller Functions

Sample Print

This feature was formerly known as “Proof Print.” This function gives users a chance to check the print results before starting a multiple-set print run.

- The size of the hard disk partition for the sample print feature is 38 GB. This partition is also used by the collation and locked print features.

- The partition can hold up to 2000 files, including files stored using locked print.
- The partition can hold a log containing up to 30 errors, excluding jobs stored using locked print.
- The maximum number of pages is 9,000, including jobs using locked print and collation.

Locked Print

Using this feature, the print job is stored in the machine but will not be printed until the user inputs an ID and a password at the machine's operation panel. These ID and password must match the ID and password that has been input with the printer driver.

- Stored data is automatically deleted after it is printed.
- Stored data can be manually deleted at the operation panel.
- The partition can hold up to 2,000 files, including files stored using sample print.
- The partition can hold a log containing up to 30 errors, excluding logs stored using locked print.
- The maximum number of pages is 9,000, including jobs using sample print and collation.
- Locked print uses the same hard disk partition (38 GB) as sample print and collation.

Hold Print

Using this feature, the print job is stored in the machine but will not be printed until the user inputs an ID at the machine's operation panel. This ID must match the ID that has been input with the printer driver.

- Stored data is automatically deleted after it is printed.

Stored Print/ Store and Print

Using this feature, the same stored files can be printed repeatedly without PC operation or stored files can be printed during receiving files even the file data has not been received completely.

Job Spooling

Print data can be spooled (stored) in the machine's HDD, and the machine starts to print when data transfer is complete. Since the machine stores all data first before printing, the host computer is freed up more quickly.

Note

- The supported print protocols are IPP, LPR, SMB, BM LinkS, DIPRINT, FTP and sftp. The default setting for this feature is "off". The user must use web image monitor to enable this feature.
- The size of the HDD partition for job spooling is 1 GB.
- The partition can hold up to 5000 files.

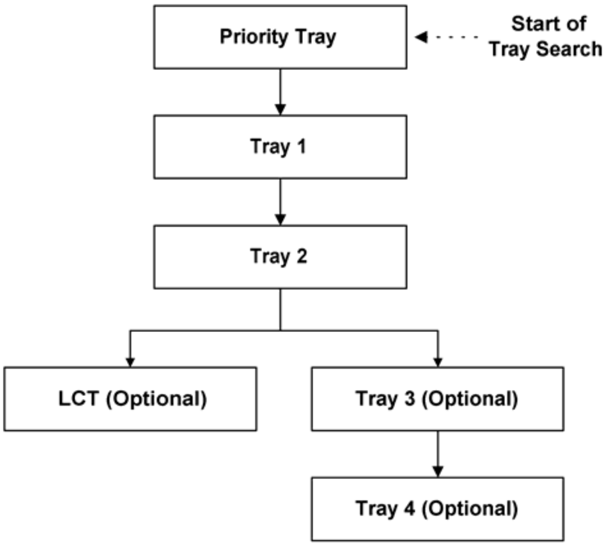
Related SP Modes

Job spooling can be turned on and off using the SP mode (SP5-828-069) for each protocol.

The machine does not spool jobs when job spooling is switched off with the SP mode, even when the customer switches it on with the user mode.

Paper Source Selection

Tray Priority (Auto Tray Select)



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The "Tray Priority" setting determines the start of the tray search when the user selects "Auto Tray Select" with the driver. The machine searches paper trays for the specified paper size and type.

When no tray contains paper that matches the paper size and type specified by the driver, the controller stops printing until the user loads the correct paper.

The "Tray Priority" setting can be specified in the following menu: > System Settings > Tray Paper Settings > Paper Tray Priority: Printer.

Note

- The by-pass feed table is not part of the tray search.

Tray Locking

If "Tray Locking" is enabled for a tray, the controller skips the "locked" tray in the tray search process.

The "Tray Locking" setting can be specified in the following menu: > System Settings > Tray Paper Settings > Paper Type: Tray # > Apply Auto Paper Select (where the "#" indicates the tray number).

The by-pass feed table cannot be unlocked (Tray Locking is always enabled).

Manual Tray Select

If the selected tray does not have the paper size and type specified by the driver, the controller stops printing until the user loads the correct paper.

Auto Continue

Overview

When this function is enabled, the machine waits for a specified period (0, 1, 5, 10, 15 minutes) for the correct paper size and type to be set in the tray. If the timer runs out, the machine starts printing, even if there is no paper tray which matches the paper size and paper type specified by the driver.

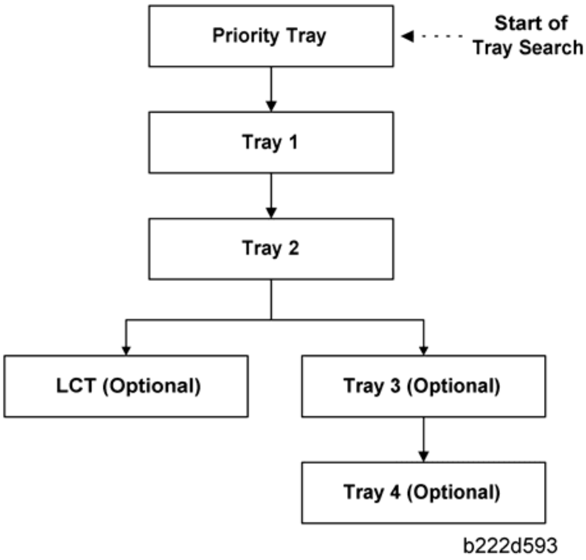
The machine searches for a paper tray in the following way:

- The interval can be set with the following menu: ◈/▤ > Printer Features > System > Auto Continue.

Note

- The default setting for this feature is "Off."

Auto Tray Select



When there is no paper tray that matches the paper size and type specified by the driver, the machine searches for any tray that has paper, and prints from the first tray it finds. The start of the tray search is the tray selected as the priority tray.

Manual Tray Select

The machine prints from the selected tray even if the paper size and type do not match the setting specified from the driver.

If "Auto Continue" is disabled, the machine waits until the user loads the correct paper in the tray.

PictBridge

General Function

The PictBridge function can make a PictBridge-standard DSC (Digital Still Camera) connect with the machine using a USB cable. As a result, photographs in the DSC can be printed directly with a machine that has the PictBridge application.

Photo image format

- Exif/JPEG
- JFIF
- TIFF/MMR (Ricoh cameras only)

Note

- It is possible to connect more than one DSC at the same time, but it is only possible to print from one DSC. If more than one DSC is connected, you can only print from the first DSC that was connected.

Printing Function List

The availability of these functions depends on each DSC function. If the DSC has the same functions as below, these functions are available.

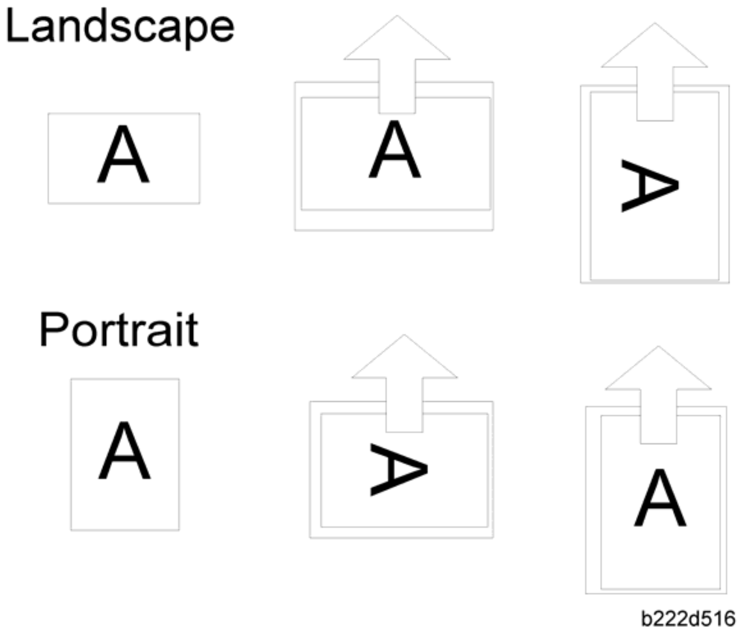
Name	Requirement for PictBridge Standard	Ap-C1
Single image printing	Must	Available
Selected image printing	Must	Available
DPOF printing	Recommended	Not available
All image printing	Must	Available
Index printing	Recommended	Available
Trimming	Recommended	Available
Multiple number printing	Must	Available
Date and file name printing	Recommended	Available
Paper size	Must	Available

Image print size	Recommended	Available
Multi-Image-Layout (N-up)	Recommended	Available
Edge-to-edge borderless printing	Recommended	Not available
Printing quality	Optional	Available
Color matching	Optional	Available
Paper type specification	Optional	Available
Form printing	Ricoh	Available
Camera memo printing	Ricoh	Available

Printing Function Description

Single image printing

This function can print an image displayed on the DSC. The image is enlarged and rotated to match the paper, but the image aspect ratio is not changed.



Selected image printing

This function can print two or more images selected from the display on the DSC. If landscape and portrait images are mixed in one job, the paper feed direction is fixed following the first image direction.

DPOF (Digital Print Order Format) printing

This function is not available in this machine.

All image printing

This function can print all images in the DSC.

Index printing

This function can print all images as thumbnail photos with index format. The size of the photos is fixed at 20 mm x 20 mm.

Paper Size	Number of Photos	
A3	192	16 x 12
A4	96	12 x 8
A5	40	8 x 5
Letter	80	10 x 8
B4	140	14 x 10

Note

- Some digital cameras have a limitation on the maximum photo number in a print job. If the number of photos in a page is more than the maximum photo number in a job, a form feed may be inserted between the thumbnail photos.

Trimming

This function can print a part of an image by specifying a clip area.

Multiple number printing

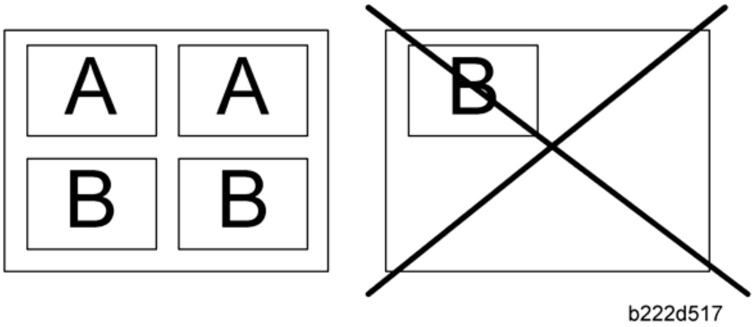
This function can print multiple images from the same image according to ordered number and layout. If the photos are printed with a multiple number printing function, and there are an odd number of photos in a page, the photo will not be printed.

Note

- If a layout is not selected (like 2 up or 4 up for example), each image will be printed on one page.

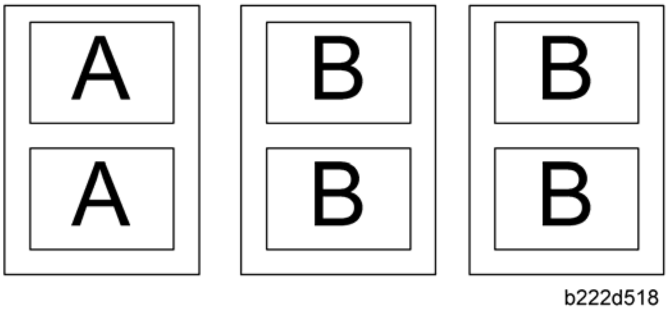
Example 1: Photo A: 2, Photo B: 3 with 4-up printing

In this case, Page 2 will not be printed.



Example 2: Photo A: 2, Photo B: 4 with 2-up printing

In this case, all photos will be printed.

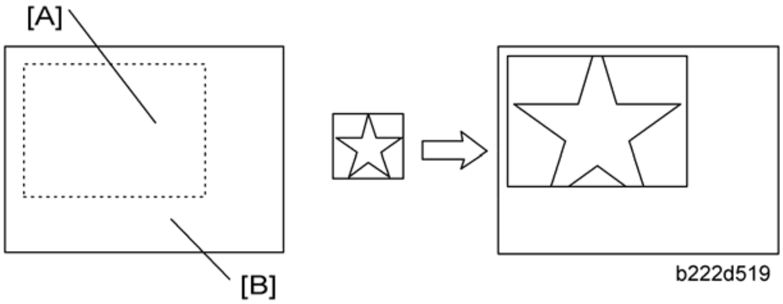


Date and file name printing

This function can impose a date stamp and file name under each image. A data stamp and file name are imposed in the following style:

- Position: It is centered under each image.
- Font color: Black
- Font type: Arial
- Font size: 6 pt to 16 pt depending on printing size

Image print size (Fixed size printing)



[A]: Specified printing size, [B]: Paper

This function can print images with the size specified on the camera.

- The image is enlarged to match the specified size.
- The image is not rotated.
- The image aspect ratio is not changed.
- If the specified aspect ratio is different from the image aspect ratio, the image aspect ratio is automatically adjusted to the specified aspect ratio even this deletes part of the image.

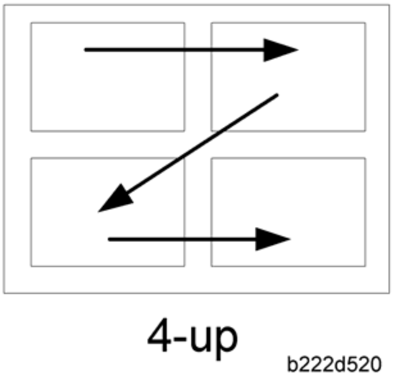
  Note

  - If the new ratios of height and width magnification are different, the larger magnification ratio is used to adjust the image to the specified printing size.
- An error occurs if the specified size is larger than the actual paper size.

3.25" x 2.5"	8cm x 6cm
5" x 2.5"	10cm x 7cm
6" x 4"	13cm x 9cm
7" x 5"	15cm x 10cm
10" x 8"	18cm x 13cm
254mm x 178mm	21cm x 15cm
110mm x 74mm	24cm x 18
89mm x 55mm	
148mm x 100mm	

Multi-Image-Layout (N-up)

This function can print multiple images on the specified paper.



The number and arrangement of images can be specified as shown in the following list.

Number of images	Vertical x Horizontal images	Paper direction
2	2 x 1	Portrait
4	2 x 2	Landscape
8	4 x 2	Portrait
9	3 x 3	Landscape
16	4 x 4	Landscape
25	5 x 5	Landscape
32	8 x 4	Portrait
36	6 x 6	Landscape
49	7 x 7	Landscape
64	8 x 8	Landscape

The number of images printed on a page can be as shown in the following list.

Paper size	Number of images
2L (5" x 7")	2, 4, 8, 9
Postcard	2, 4

100mm x 150mm	2, 4
4" x 6"	2, 4, 8, 9
8" x 10"	2, 4, 8, 9, 16, 25, 32
Letter	2, 4, 8, 9, 16, 25, 32
11" x 17"	2, 4, 8, 9, 16, 25, 32, 49, 64
A3	2, 4, 8, 9, 16, 25, 32, 49, 64
A4	2, 4, 8, 9, 16, 25, 32
A5	2, 4, 8, 9, 16
A6	2, 4, 8
B4	2, 4, 8, 9, 16, 25, 32, 49
B5	2, 4, 8, 9, 16, 25
B6	2, 4, 8, 9

Note

- A form feed may be inserted between images depending on the DSC in use. Also, printing in the specified way may not be possible depending on the specification for the number of images to be printed.

Edge-to-edge borderless printing

This function is not available in this machine.

Printing quality

This function can print images in the selected printing quality.

Normal or Default	600dpi x 600dpi (2bit)
Fine	600dpi x 600dpi (4bit)

Color matching

This function can optimize colors when printing images.

OFF or Default	Gradation
ON	Saturation

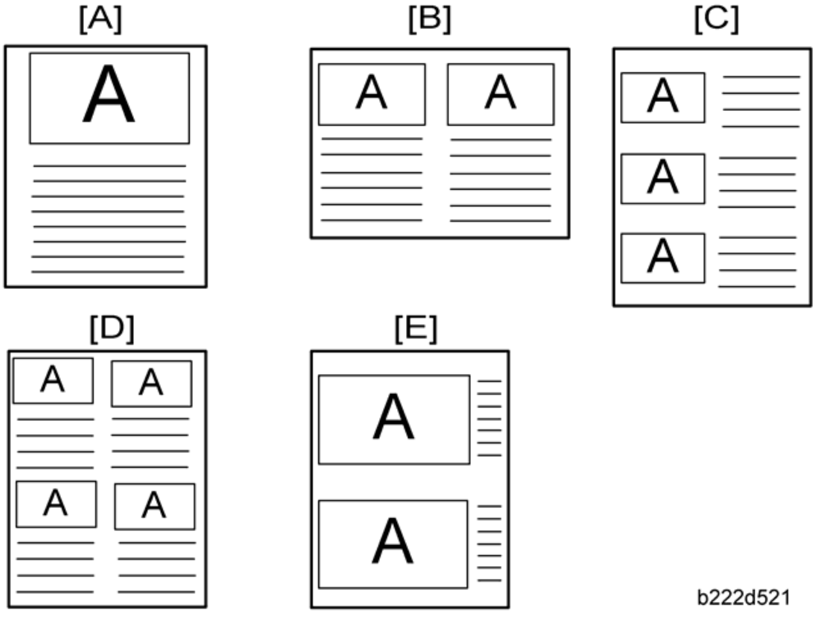
Paper type specification

This function can match the paper type names between the machine and DSC. When this function sends the machine's paper type information to the DSC, the names of paper types displayed on the DSC's screen are different from the names displayed on the machine. So, it is possible to match the paper type names with this function.

Default	Auto tray selection
Plain paper	Plain or recycled paper

Form printing

This function can print images in a predetermined layout format.



[A]: Image size A4: 170mm x 128mm LT: 174.5mm x 120mm

[B]: Image size A4: 120mm x 90mm LT: 112.5mm x 92mm

[C]: Image size A4: 86mm x 65mm LT: 88mm x 61mm

[D]: Image size A4: 86mm x 65mm LT: 88mm x 61mm

[E]: Image size A4: 152.4mm x 108mm LT: 156.7mm x 102.6mm

Camera memo printing

This function can print text data with an image if it is attached to the image.

Copy Data Security Unit

General Function

This function can prevent unauthorized copying by making a special masking pattern with an embedded message when an original is printed. This enables the machine to make grayed-out output when it is copied.

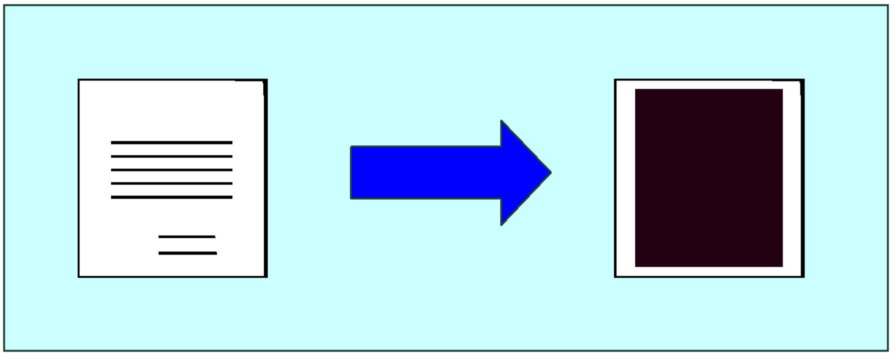
Confidential documents can never be duplicated on a machine that has the optional Copy Data Security Unit.

The embedded messages appear when a confidential document is copied on a machine without an optional Copy Data Security Unit.

However, some MFP functions are disabled if this function is enabled.

- Reduction less than 50% is disabled.
- Scanner/Fax application is disabled.

When copying on a machine with an optional Copy Data Security Unit



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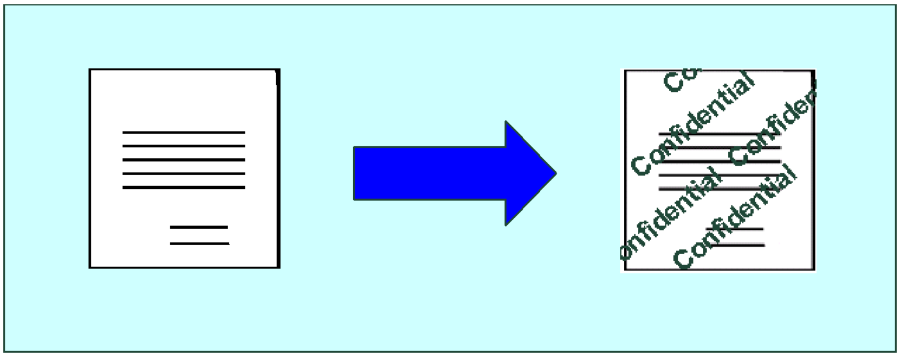
When copying on a machine without an optional Copy Data Security Unit



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Setting

This function can be turned on or off with a user tool (User Tools < System Settings <Administrator Tool).

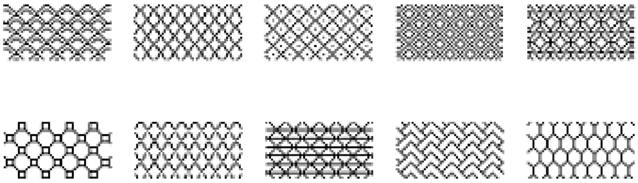
Related SC

If the "Copy Data Security Unit" is removed when the Copy Data Security Setting is On, SC165 occurs. This SC prevents someone from removing the Copy Data Security Unit "illegally”.

Mask Type for Copying

This function can prevent unauthorized copying by making masking patterns with an embedded message when making an original print. Masking patterns are good for printing documents that must not be copied. The embedded messages appear when the document is copied.

Five print densities (level 1 to 5) can be selected for the masking patterns. (Default: level 3) and 10 masking patterns can be selected from the RPCS driver.



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Note

- Some digital MFPs might not be able to detect the masking patterns. If the density of masking patterns on the output print is too light due to the settings of the machine or a mechanical problem, the pattern might not be detected.

File Format Converter (MLB)

In this machine, this conversion is hardware-based, using the optional File Format Converter. Without the File Format Converter, copy and print jobs cannot be downloaded to a PC (or e-Cabinet) from the document server.

Two common target formats are provided for conversion to files that can be selected by the SP modes: These are JPEG and TIFF.

In scanner mode, users can select file format from TIFF, JPEG, or PDF. The time to create TIFF and JPEG files is shortened with the File Format Converter, especially for high scanning resolution and large image size. When the customer selects PDF, the machine creates a TIFF or JPEG file from the scanned image first. Then it converts it to PDF. Therefore, the total time to create a PDF is also shortened with the File Format Converter.

Data Overwrite Security Unit (B735)

Auto Erase Memory

A document scanned in the copier or scanner mode, or data sent from a printer driver for printing, is stored temporarily on the hard disk of the machine. The document stays in the hard disk as temporary data even after the copy or print job is completed. Auto Erase Memory erases the temporary data on the hard disk by writing over it.

Types of Data Overwritten and Not Overwritten

The following table shows the types of data that can or cannot be overwritten by Auto Erase Memory.

<table>
<tr><td rowspan="5">Data overwritten by Auto Erase Memory</td><td>Copier</td><td>Copy jobs</td></tr>
<tr><td>Printer</td><td>1) Print jobs
2) Sample Print/Locked Print jobs(*1)
3) Spool Printing jobs</td></tr>
<tr><td>Scanner(*2)</td><td>1) Scanned files sent by e-mail
2) Files sent by Scan to Folder
3) Documents sent or retrieved by using Web Image Monitor, Desk Top Binder, or Scan Router</td></tr>
<tr><td>Fax</td><td>PC fax print jobs, Internet fax transmission jobs</td></tr>
<tr><td>Document Server</td><td>Temporary data that still remains in the Document Server even after user erases the data in the Document Server.</td></tr>
<tr><td>Data not overwritten by Auto Erase Memory</td><td colspan="2">1) Documents stored by the user in the Document Server using the Copier, Printer or Scanner functions
2) Information registered in the Address Book (*3)
3) Counters stored under each user code
4) Network setting</td></tr>
</table>

Note

- *1: A Sample Print or Locked Print job can only be overwritten after it has been executed.
- *2: Temporary data via TWAIN scanner function are not originally stored in HDD. You can use TWAIN scanner functions together with the DOS unit.

- *3: Data stored in the Address Book can be encrypted for security.

Overwrite timing

Overwriting starts automatically once a copy, print or scanner job is completed.

Copier, printer and scanner functions take priority over the Data Overwrite function. If a copier, printer or scanner job comes while a previous job is being overwritten, the overwrite process is automatically interrupted until the next job is completed.

7. Specifications

General Specifications

Main Frame

Configuration:	Desktop
Print Process:	Laser beam scanning & Dry electrostatic transfer system 4 drums tandem method
Number of scans:	1
Resolution:	Scan: 600 dpi Print: 600 dpi
Gradation:	Scan: 600dpi 4 bits/pixel Print: 600dpi 4 bits/pixel, 2 bits/pixel, 1 bit/pixel
Original type:	Sheets, book, objects
Maximum original size:	A3/11" x 17"
Original reference position:	Left rear corner, ad hoc lists
Copy speed:	Normal (ADF 1 to 1, LT/ A4 LEF) C1c: 35 cpm (color/black & white) C1d: 45 cpm (black & white) or 40 cpm (color) Thick 1 (169 g/m^2 or less) C1c: 25 cpm (color/black & white) C1d 25 cpm (color/black & white) Thick 2 (220 g/m^2 or less) C1c: 17.5 cpm (color/black & white) C1d 17.5 cpm (color/black & white) Thick 3 (253 g/m^2 or less) C1c: 15 cpm (color/black & white) C1d 15 cpm (color/black & white)

<table>
<tr><td>First copy (normal mode):</td><td colspan="3">C1c
Color: 8 seconds or less (A4/LT LEF)
Black & white: 4.9 seconds or less (A4/LT LEF)
C1d
Color: 7 seconds or less (A4/LT LEF)
Black & white: 4.5 seconds or less (A4/LT LEF)</td></tr>
<tr><td>Warm-up time:</td><td colspan="3">C1c: 45 seconds or less (23°C, 50%)
C1d: 60 seconds or less (23°C, 50%)</td></tr>
<tr><td>Print Paper Capacity: (80 g/m^2, 20 lb)</td><td colspan="3">Standard tray: 550 sheets x 2
By-pass tray: 100 sheets
Optional paper feed tray: 550 sheets x 2
LCT: 2000 sheets</td></tr>
<tr><td rowspan="7">Print Paper Size:</td><td colspan="3">(Refer to “Supported Paper Sizes”.)</td></tr>
<tr><td>-</td><td>Minimum</td><td>Maximum</td></tr>
<tr><td>Tray 1</td><td colspan="2">A4/8.5" x 11" (LEF)</td></tr>
<tr><td>Tray 2</td><td>A5 (LEF)/
8.5" x 11"</td><td>A3/11" x 17"</td></tr>
<tr><td>By-pass</td><td>90 x 148 mm</td><td>305 x 600 mm</td></tr>
<tr><td>Optional Tray</td><td>A5 (LEF)/
8.5" x 11"</td><td>A3/11" x 17"</td></tr>
<tr><td>LCT</td><td colspan="2">A4/8.5" x 11" (LEF)</td></tr>
<tr><td>Printing Paper Weight:</td><td colspan="3">Standard tray: 60 to 216 g/m^2 (16 to 57 lb.)
Optional paper tray: 60 to 216 g/m^2 (16 to 57 lb.)
By-pass tray: 52 to 253 g/m^2 (14 to 67 lb.)
Duplex unit: 60 to 169 g/m^2 (16 to 45 lb.)</td></tr>
<tr><td>Output Paper Capacity:</td><td colspan="3">Standard exit tray: 500 sheets or more (face down)[*1]
1-bin Tray: 125 (80 g/m^2)
1000-sheet finisher 250 + 1000 sheets (80 g/m^2)
2000-sheet booklet finisher: 250 + 2000 sheets (80 g/m^2)
3000-sheet booklet finisher: 250 + 3000 sheets (80 g/m^2)</td></tr>
</table>

	*1: T6200, A4 LEF			
Continuous copy:	Up to 999 sheets			
Zoom:	Arbitrary: From 25 to 400% (1% step)			
	Fixed:			
	North America	Europe		
	25%	25%		
	50%	50%		
	65%	61%		
	73%	71%		
	78%	82%		
	85%	87%		
	93%	93%		
	100%	100%		
	121%	115%		
	129%	122%		
	155%	141%		
	200%	200%		
	400%	400%		
Memory:	Standard: 1024 MB			
Power Source:	120 V, 60 Hz: More than 12A (for North America) 220 V – 240 V, 50/60 Hz: More than 8A (for Europe/ASIA)			
Power Consumption:	-	120V	220 - 240V	
	Maximum	1440 W or less	1500 W or less	
	Energy Saver	8 W or less	8 W or less	
Noise Emission: (Sound Power Level)	Model	State	Mainframe	Complete system (*1)
	C1c	Standby	44 dB(A)	44 dB(A)

			or Less	or Less
		Operating	68 dB(A) or Less	72 dB(A) or Less
	C1d	Standby	47 dB(A) or Less	47 dB(A) or Less
		Operating	68 dB(A) or Less	72 dB(A) or Less
(*1) The complete system consists of mainframe, ARDF, finisher, and LCT. The above measurements were made in accordance with Ricoh standard methodology.				
Dimensions (W x D x H): Copier: 670 x 677 x 760 mm (26.4" x 26.7" x 29.9") Copier + PFU or LCT: 670 x 677 x 1020 mm (26.4" x 26.7" x 40.2")				
Weight:	Less than 130 kg (286 lb.) [with ARDF excluding toner]			

Printer

Printer Languages:	PCL 6/5c RPCS (Refined Printing Command Stream) Adobe PostScript 3 (optional) PDF Direct (optional) PictBridge (optional)
Resolution and Gradation:	PCL 5c: 300 x 300 dpi : Available only in B/W mode 600 x 600 dpi : Fast (1 bit), Standard (2 bits), Fine (4 bits) PCL 6: 600 x 600 dpi : Fast (1 bit), Standard (2 bits), Fine (4 bits) RPCS: 600 x 600 dpi, 1,800 x 600 dpi*, 9600 dpi x 600 dpi* *1,800 x 600 dpi = 600 x 600 dpi (2 bits) *9600 dpi x 600 dpi* = 600 x 600 dpi (4 bits) PS3: 600 x 600 dpi : Fast (1 bit), Standard (2 bits), Fine (4 bits)
Printing speed:	C1c: 35 ppm in Plain/Middle Thick mode 25/17.5/15 ppm in Thick/OHP mode (depending on paper type) C1d: 45 ppm (black and white) in Plain/Middle Thick mode 40 ppm (color) in Plain/Middle Thick mode 25/17.5/15 ppm in Thick/OHP mode (depending on paper type)
Resident Fonts:	PCL 6/5c (Standard): 35 Intelli fonts 10 TrueType fonts 13 International fonts 1 Bitmap font Adobe PostScript 3 (Optional): 136 fonts (24 Type 2 fonts, 112 Type 14 fonts)

Host Interfaces:	USB 2.0: Standard Ethernet (100 Base-TX/10 Base-T): Standard IEEE1284 parallel x 1: Optional IEEE1394: Optional IEEE802.11b (Wireless LAN): Optional Bluetooth (Wireless): Optional USB Host: Optional
Network Protocols:	TCP/IP (IPv4, IPv6), IPX/SPX, AppleTalk (Auto Switching)

Scanner

Standard Scanner Resolution:	Main scan/Sub scan 600 dpi
Available scanning Resolution Range:	Twain Mode: 100 to1200 dpi Delivery Mode: 100/200/300/400/600 dpi
Grayscales:	1 bit or 8 bits/pixel each for RGB
Scanning Throughput (ARDF mode):	Scan to E-mail / Folder: BW: 63 ppm (A4LEF / BW Text / Line Art / 200dpi /Compression: On (MH)) FC: 38 ppm (A4LEF / FC Text / Photo / 200dpi / Compression: Standard)
Interface:	Ethernet (100 Base-TX/10 Base-T for TCP/IP), IEEE 1394 (IP Over 1394), Wireless LAN
Compression Method:	B&W: TIFF (MH, MR, MMR) Gray Scale, Full Color: JPEG

Supported Paper Sizes

Paper Feed

BT: By-pass Tray, T1: Tray 1, T2/3/4: Tray 2/3/4, LCT: Large Capacity Tray,

DU: Duplex Unit

Paper	Size (W x L)	North America				Europe/Asia				DU
		BT	T1	T2/3 /4	LCT	BT	T1	T2/3 /4	LCT	
A3 W	12" x 18"	M	-	-	-	M	-	-	-	-
A3 SEF	297 x 420mm	M	-	M	-	A	-	A	-	M
A4 SEF	210 x 297mm	M	-	A	-	A	-	A	-	M
A4 LEF	297 x 210mm	M	S	M	S	M	M	A	M	M
A5 SEF	148 x 210mm	M	-	-	-	A	-	-	-	-
A5 LEF	210 x 148mm	M	S	A	-	M	S	A	-	M
A6 SEF	105 x 148mm	M	-	-	-	A	-	-	-	-
B4 SEF	257 x 364mm	M	-	M	-	M	-	A	-	M
B5 SEF	182 x 257mm	M	-	A	-	M	-	A	-	M
B5 LEF	257 x 182mm	M	S	M	-	M	S	A	-	M
B6 SEF	128 x 182mm	M	-	-	-	M	-	-	-	-
Ledger	11" x 17"	A	-	A	-	M	-	M	-	M
Letter SEF	8.5" x 11"	A	-	A	-	M	-	A	-	M
Letter LEF	11" x 8.5"	M	M	A	M	M	S	M	S	M
Legal SEF	8.5" x 14"	M	-	A	-	M	-	M	-	M
Government Legal SEF	8.25" x 14"	M	-	M	-	M	-	M	-	M

Paper	Size (W x L)	North America				Europe/Asia				DU
		BT	T1	T2/3 /4	LCT	BT	T1	T2/3 /4	LCT	
Half Letter SEF	5.5" x 8.5"	A	-	-	-	M	-	-	-	-
Executive SEF	7.25" x 10.5"	M	-	M	-	M	-	M	-	M
Executive LEF	10.5" x 7.25"	M	-	A	-	M	-	M	-	M
F SEF	8" x 13"	M	-	M	-	M	-	M	-	M
Foolscap SEF	8.5" x 13"	M	-	M	-	M	-	M	-	M
Folio SEF	8.25" x 13"	M	-	M	-	M	-	M	-	M
	11" x 15"	M	-	M	-	M	-	M	-	M
	10" x 14"	M	-	M	-	M	-	M	-	M
	8" x 10"	M	-	M	-	M	-	M	-	M
8K	267 x 390mm	M	-	M	-	M	-	M	-	M
16K SEF	195 x 267mm	M	-	M	-	M	-	M	-	M
16K LEF	267 x 195mm	M	-	M	-	M	-	M	-	M
Custom		M	-	M	-	M	-	M	-	-
Com10 Env.	4.125" x 9.5"	M	-	-	-	M	-	-	-	-
Monarch Env.	3.875" x 7.5"	M	-	-	-	M	-	-	-	-
C6 Env.	114 x 162mm	M	-	-	-	M	-	-	-	-
C5 Env.	162 x 229mm	M	-	-	-	M	-	-	-	-
DL Env.	110 x 220mm	M	-	-	-	M	-	-	-	-

Remarks:

A	Supported: the sensor detects the paper size.
M	Supported: the user specifies the paper size.
S	Supported: depends on a technician adjustment
-	Not supported

Paper Exit

2000/3000 Sheet Booklet Finisher

MF: Main Frame, Prf: Proof, Clr: Clear, Shf: Shift, Stp: Staple, SS: Saddle Stitch,

2P: 2 Holes Punch, N2P: North Europe 2 Holes, 3P: 3 Holes Punch,

Punch 4 P: 4 Holes Punch, N4P: North Europe 4 Holes Punch

Paper	Size (W x L)	MF	2000/3000-sheet booklet finisher								
			Prf	Clr	Shf	Stp	SS	2P/ N2P	3P	4P	N4P
A3 W	12" x 18"	Y	Y	Y	Y	30	15	-	-	-	-
A3 SEF	297 x 420 mm	Y	Y	Y	Y	30	15	Y	Y	Y	Y
A4 SEF	210 x 297 mm	Y	Y	Y	Y	50	15	Y	-	-	Y
A4 LEF	297 x 210 mm	Y	Y	Y	Y	50	-	Y	Y	Y	Y
A5 SEF	148 x 210 mm	Y	Y	Y	Y	-	-	Y	-	-	Y
A5 LEF	210 x 148 mm	Y	Y	Y	Y	-	-	Y	-	-	Y
A6 SEF	105 x 148 mm	Y	Y	Y	-	-	-	-	-	-	-
B4 SEF	257 x 364 mm	Y	Y	Y	Y	30	15	Y	Y	Y*4	Y*4
B5 SEF	182 x 257 mm	Y	Y	Y	Y	50	15	Y	-	-	Y
B5 LEF	257 x 182 mm	Y	Y	Y	Y	50	Y	Y	Y	Y	Y
B6 SEF	128 x 182 mm	Y	Y	Y	-	-	-	-	-	-	-
Ledger	11" x 17"	Y	Y	Y	Y	30	15	Y	Y	Y	Y
Letter SEF	8.5" x 11"	Y	Y	Y	Y	50	15	Y	-	-	Y

Paper	Size (W x L)	MF	2000/3000-sheet booklet finisher								
			Prf	Clr	Shf	Stp	SS	2P/ N2P	3P	4P	N4P
Letter LEF	11" x 8.5"	Y	Y	Y	Y	50	-	Y	Y	Y	Y
Legal SEF	8.5" x 14"	Y	Y	Y	Y	30	15	Y	-	-	Y
Government Legal SEF	8.25" x 14"	Y	Y	Y	Y	30	-	Y	-	-	Y
Half Letter SEF	5.5" x 8.5"	Y	Y	Y	Y	-	-	Y	-	-	Y
Executive SEF	7.25" x 10.5"	Y	Y	Y	Y	50	-	Y	-	-	Y
Executive LEF	10.5" x 7.25"	Y	Y	Y	Y	50	-	Y	Y	Y	Y
F SEF	8" x 13"	Y	Y	Y	Y	30	-	Y	-	-	Y
Foolscap SEF	8.5" x 13"	Y	Y	Y	Y	30	-	Y	-	-	Y
Folio SEF	8.25" x 13"	Y	Y	Y	Y	30	-	Y	-	-	Y
	11" x 15"	Y	Y	Y	Y	30	-	Y	Y	Y	Y
	10" x 14"	Y	Y	Y	Y	30	-	Y	Y	-	Y
	8" x 10"	Y	Y	Y	Y	50	-	Y	-	-	Y
8K	267 x 390 mm	Y	Y	Y	Y	30	-	Y	Y	Y	Y
16K SEF	195 x 267 mm	Y	Y	Y	Y	50	-	Y	-	-	Y
16K LEF	267 x 195 mm	Y	Y	Y	Y	50	-	Y	Y	Y	Y
Custom		Y	Y	Y	-	-	-	Y*3	Y*3	Y*3	Y*3
Com10 Env.	4.125" x 9.5"	Y	Y *1	Y *2	-	-	-	-	-	-	-
Monarch Env.	3.875" x 7.5"	Y	-	Y	-	-	-	-	-	-	-
C6 Env.	114 x 162 mm	Y	-	Y	-	-	-	-	-	-	-
C5 Env.	162 x 229 mm	Y	-	Y	-	-	-	-	-	-	-
DL Env.	110 x 220 mm	Y	-	Y	-	-	-	-	-	-	-

Remarks:

Y	Supported
15	Output up to 15 sheets
30	Output up to 30 sheets
50	Output up to 50 sheets
-	Not supported

*1: Minimum 100 mm or more, Maximum 600 mm or less

*2: Minimum 100 mm or more, Maximum 600 mm or less

- Longer paper (feed length) than DLT (432 mm) is not guaranteed in this mode.

*3: Minimum 100 mm for 2P, 230 mm for 3P, 255 mm for 4P, 125 mm for N4P

*4: Corner stapling is not available in this mode.

1000-Sheet Finisher

MF: Main Frame, Prf: Proof, Clr: Clear, Shf: Shift, Stp: Staple

Paper	Size (W x L)	MF	1000-sheet finisher				1 Bin
			Prf	Clr	Shf	Stp	
A3 W	12" x 18"	Y	Y	Y	Y	30	-
A3 SEF	297 x 420 mm	Y	Y	Y	Y	30	Y
A4 SEF	210 x 297 mm	Y	Y	Y	Y	50	Y
A4 LEF	297 x 210 mm	Y	Y	Y	Y	50	Y
A5 SEF	148 x 210 mm	Y	Y	Y	Y	-	Y
A5 LEF	210 x 148 mm	Y	Y	Y	Y	-	-
A6 SEF	105 x 148 mm	Y	Y	-	-	-	Y
B4 SEF	257 x 364 mm	Y	Y	Y	Y	30	Y
B5 SEF	182 x 257 mm	Y	Y	Y	Y	50	Y
B5 LEF	257 x 182 mm	Y	Y	Y	Y	50	Y

Paper	Size (W x L)	MF	1000-sheet finisher				1 Bin
			Prf	Clr	Shf	Stp	
B6 SEF	128 x 182 mm	Y	Y	-	-	-	N
Ledger	11" x 17"	Y	Y	Y	Y	30	Y
Letter SEF	8.5" x 11"	Y	Y	Y	Y	50	Y
Letter LEF	11" x 8.5"	Y	Y	Y	Y	50	Y
Legal SEF	8.5" x 14"	Y	Y	Y	Y	30	Y
Government Legal SEF	8.25" x 14"	Y	Y	Y	Y	30	Y
Half Letter SEF	5.5" x 8.5"	Y	Y	Y	Y	-	Y
Executive SEF	7.25" x 10.5"	Y	Y	Y	Y	50	Y
Executive LEF	10.5" x 7.25"	Y	Y	Y	Y	50	Y
F SEF	8" x 13"	Y	Y	Y	Y	30	Y
Foolscap SEF	8.5" x 13"	Y	Y	Y	Y	30	Y
Folio SEF	8.25" x 13"	Y	Y	Y	Y	30	Y
	11" x 15"	Y	Y	Y	Y	30	Y
	10" x 14"	Y	Y	Y	Y	30	Y
	8" x 10"	Y	Y	Y	Y	30	Y
8K	267 x 390 mm	Y	Y	Y	Y	30	Y
16K SEF	195 x 267 mm	Y	Y	Y	Y	50	Y
16K LEF	267 x 195 mm	Y	Y	Y	Y	50	Y
Custom		Y	Y	-	-	-	-
Com10 Env.	4.125" x 9.5"	Y	-	-	-	-	-
Monarch Env.	3.875" x 7.5"	Y	-	-	-	-	-
C6 Env.	114 x 162 mm	Y	-	-	-	-	-
C5 Env.	162 x 229 mm	Y	-	-	-	-	-

Paper	Size (W x L)	MF	1000-sheet finisher				1 Bin
			Prf	Clr	Shf	Stp	
DL Env.	110 x 220 mm	Y	-	-	-	-	-

Remarks:

Y	Supported
30	Output up to 30 sheets
50	Output up to 50 sheets
-	Not supported

Platen/ARDF Original Size Detection

Size (width x length) [mm]	Platen	ARDF	Platen	ARDF
	Inches	Inches	Metric	Metric
A3 (297 x 420) SEF	-	Y	Y*3	Y
B4 (257 x 364) SEF	-	-	Y*3	Y
A4 (210 x 297) SEF	Y*1	Y	Y*3	Y
A4 (297 x 210) LEF	Y*3	Y	Y*3	Y
B5 (182 x 257) SEF	-	-	Y*3	Y
B5 (257 x 182) LEF	-	-	Y*3	Y
A5 (148 x 210) SEF	-	-	-*1	Y
A5 (210 x 148) LEF	-	-	-*1	Y
B6 (128 x 182) SEF	-	-	-	Y
B6 (182 x 128) LEF	-	-	-	Y
11" x 17" (DLT)	Y	Y*2	-	Y*2
11" x 15"	-	y*2	-	-
10" x 14"	-	Y	-	-

8.5" x 14" (LG)	Y	Y*2	-	-
8.5" x 13" (F4)	-	y*2	Y*4	Y*4
8.25" x 13"	-	-	Y*4	Y*4
8" x 13"(F)	-	-	Y*4	Y*4
8.5" x 11" (LT)	Y*3	Y*2	Y*3	Y*2
11" x 8.5" (LT)	Y*3	Y*2	Y*3	Y*2
8" x 10"	-	y*2	-	-
5.5" x 8.5" (HLT)	-*1	Y	-	-
8.5" x 5.5" (HLT)	-*1	Y	-	-
8K (267 x 390)	-	-	Y*3	y*2
16K L (195 x 267)	-	-	Y*3	y*2
16K S (267 x 195)	-	-	Y*3	y*2
7.25" x 10.5" (Executive)	-	Y	-	-
10.5" x 7.25" (Executive)	-	y*2	-	-

*1: Use SP4-303 to detect original sizes as A5 lengthwise/HLT when the message “Can-t detect original size” shows.

*2: The machine can detect the paper size depending on the setting of SP6-016-1. In default setting, "Y" is detected. "y" can be detected if you change setting of SP6-016-1.

*3: The machine can detect the paper size depending on the setting of SP4-305-1.

*4: The machine can detect the paper size depending on the setting of SP5-126-1.

Software Accessories

The printer drivers and utility software are provided as following two CD-ROMs

1: Printer Drivers and Utilities CD-ROM

2: Scanner/PostScript® Drivers and Utilities CD-ROM.

An auto-run installer lets you to select the components you want to install.

Printer Drivers

Printer Language	Windows 95/98/ME	Windows NT4.0	Windows 2000/ XP/2003	Macintosh
PCL 5c / PCL6	Yes	Yes	Yes	No
PS3 *2)	Yes	Yes	Yes	Yes
RPCS	Yes	Yes	Yes	No

Note

- The PCL5c/6 and RPCS drivers are provided on the printer drivers CD-ROM
- The PS drivers are provided on the Scanner/PostScript® Drivers and Utilities CD-ROM.
- The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for the PowerPC, Alpha, or MIPS platforms.
- The PS3 drivers are all genuine AdobePS drivers, except for Windows 2000/XP/2003. Windows 2000 uses Microsoft PS. A PPD file for each operating system is provided with the driver.
- The PS3 driver for Macintosh supports Mac OS X 10.1 or later versions.

Scanner and LAN FAX drivers

Printer Language	Windows 95/98/ME	Windows NT4.0	Windows 2000/ XP/2003	Macintosh
Network TWAIN	Yes	Yes	Yes	No
LAN-FAX	Yes	Yes	Yes	No

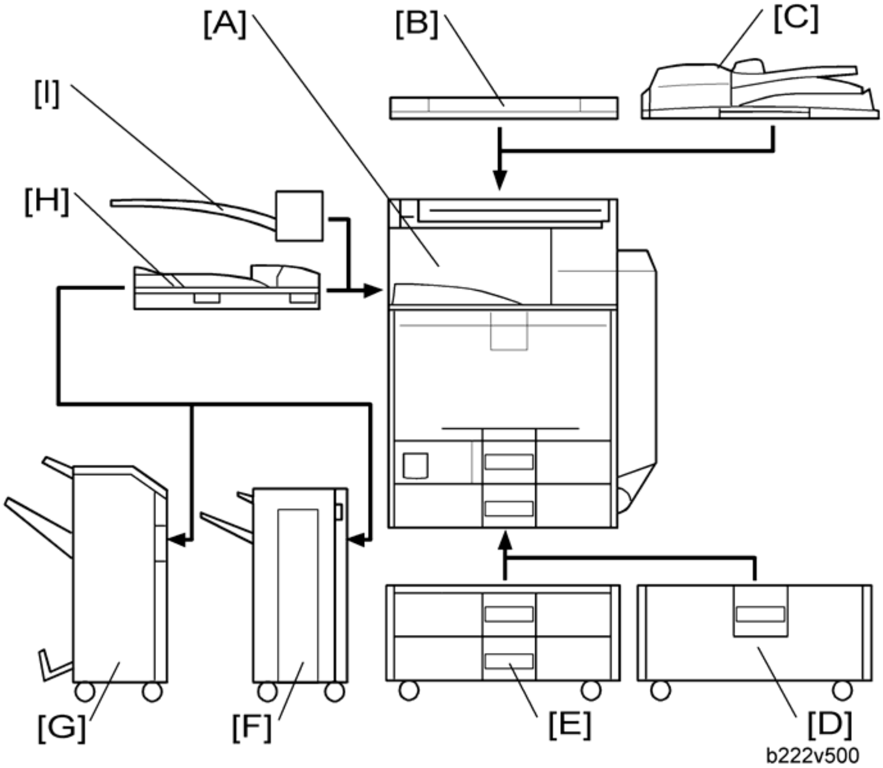
Note

- The Network TWAIN and LAN FAX drivers are provided on the scanner drivers CD-ROM.
- This software lets you fax documents directly form your PC. Address Book Editor and Cover Sheet Editor are to be installed as well. (These require the optional fax unit.)

Utility Software

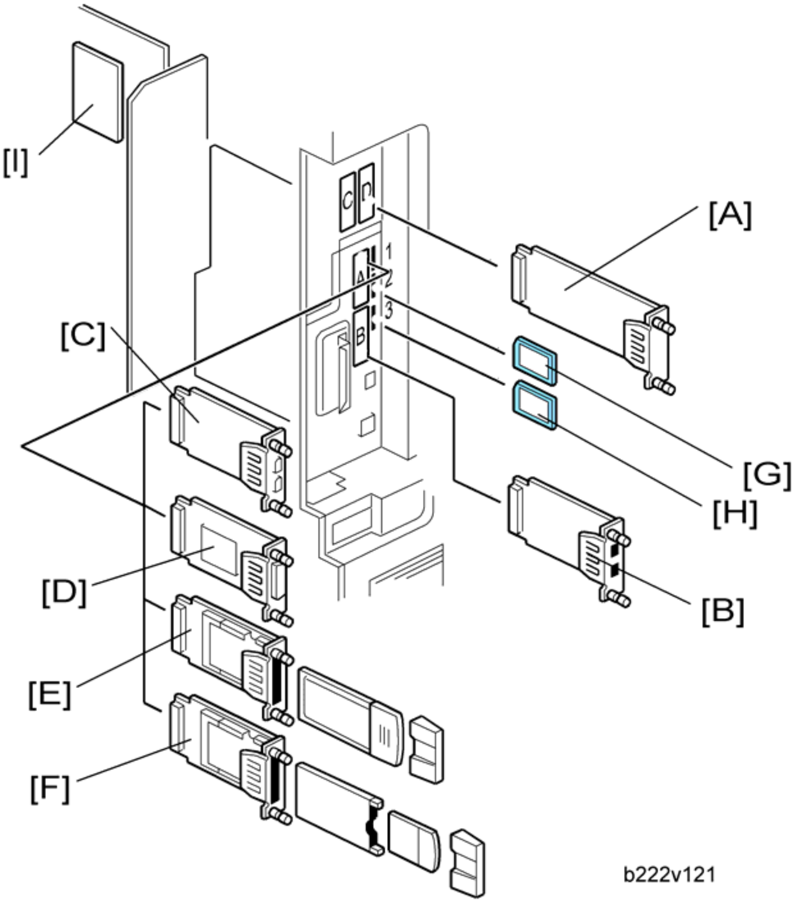
Software	Description
Font Manager 2000 (Win9x/ME, 2000/XP/2003, NT4)	A font management utility with screen fonts for the printer This is provided on the printer drivers CD-ROM
SmartDeviceMonitor for Admin (Win9x/ME, 2000/XP/2003, NT4)	A printer management utility for network administrators. NIB setup utilities are also available. This is provided on the printer drivers CD-ROM
DeskTopBinder – SmartDeviceMonitor for Client (Win9x/ME, 2000/XP/2003, NT4)	A printer management utility for client users. A utility for peer-to-peer printing over a NetBEUI or TCP/IP network. A peer-to-peer print utility over a TCP/IP network. This provides the parallel printing and recovery printing features. This is provided on the printer drivers CD-ROM
IEEE1394 Utility (Win2000/XP)	This utility deletes a print port for IEEE1394 in Win2000. This is provided on the printer drivers CD-ROM
Printer Utility for Mac (Mac)	A utility for peer-to-peer printing over a NetBEUI or TCP This software provides several convenient functions for printing from Macintosh clients. This is provided on the scanner drivers CD-ROM
DeskTopBinder Lite (Win9x/ME, 2000/XP/2003, NT4)	DeskTopBinder Lite itself can be used as personal document management software and can manage both image data converted from paper documents and application files saved in each client's PC. This is provided on the scanner drivers CD-ROM

Machine Configuration



Item	Machine Code	Call out	Remarks
Mainframe	B222/B224	[A]	-
Platen cover	G329	[B]	One from the two
ARDF	B802	[C]	
2000/3000-sheet (booklet) finisher	B804/B805	[G]	One from [F] and [G]; Requires [H] and one from [D] and [E]
Punch unit: 3/2 holes	B702-17	-	Requires [G]
Punch unit: 4/2 holes	B702-27	-	Requires [G]
Punch unit: 4 holes	B702-28	-	Requires [G]
1000-sheet finisher	B408	[F]	One from [F] and [G]; Requires [H] and one from [D] and [E]

Item	Machine Code	Call out	Remarks
LCT	B801	[D]	One from the two
Two-tray paper feed unit	B800	[E]	
1-bin tray	B803	[I]	-
Bridge unit	B227	[H]	-
Scanner Accessibility Option	B838		



Item	Machine code	Call out	Remark
USB 2.0:	-	-	Standard

Ethernet:	-	-	Standard
IEEE 1284	B679-17	[C]	You can only install one of these at a time.
IEEE 1394	B581-41	[D]	
Wireless LAN	G813-45	[E]	
Bluetooth	B826-17	[F]	
Remote Communication Gate Type CM1	B818-17	-	
USB Host	B825-17	[B]	
File Format Converter	B609-04	[A]	
Hard Disk Drive	-	-	Standard
Copy Data Security Unit	B770-17	[I]	
PostScript 3	B839-04	[G]	You can only install one of these in SD slot 2 at a time.
Data Overwrite Security Unit	B735-18		
PictBridge	B824-01		
Browser Unit	B828-01	[H]	In SD slot 3

Optional Equipment

ARDF

Paper Size/Weight:	Simplex	Size	A3 to A5, DLT to HLT
		Weight	40 to 128 g/m^2 (11 to 34 lb.)
	Duplex	Size	A3 to A5, DLT to HLT
		Weight	52 to 128 g/m^2 (14 to 34 lb.)
Table Capacity:	100 sheets (81.4 g/m^2, 22 lb)		
Original Standard Position:	Rear left corner		
Separation:	Feed belt and separation roller		
Original Transport:	Roller transport		
Original Feed Order:	From the top original		
Supported Magnification Ratios:	Copy	-	32 to 200 %
	Fax	Color	32.6 to 200 %
		Black & white	48.9 to 200 %
Power Source:	DC 24V, 5V from the scanner unit		
Power Consumption:	Less than 60W		
Dimensions (W × D × H):	570 mm x 520 mm x 135 mm (22.4"x20.5"x5.3")		
Weight:	Less than 12kg (26.5 lb.)		

Paper Feed Unit

Paper Feed System:	FRR
Paper Height Detection:	5 steps (100%, 70%, 30%, 10% (Near end), and Empty)
Capacity:	500 sheets x 2 trays
Paper Weight:	60 to 169 g/m^2 (16 to 45 lb.)

Paper Size:	A3 SEF to A5, DLT SEF to HLT
Power Source:	DC 24V, 5V (from the main frame)
Power Consumption:	Less than 50 W (Max.)/ Less than 35 W (Ave,)
Dimensions (W x D x H):	580 mm x 620 mm x 260 mm (22.8" x 24.4" x 10.2")
Weight:	25 kg (55 lb.)

Large Capacity Tray

Paper Size:	A4 LEF/LT LEF
Paper Weight:	60 g/m^2 to 169 g/m^2, 16 lb. to 45 lb.
Tray Capacity:	2,000 sheets (80 g/m^2, 20lb.)
Remaining Paper Detection:	5 steps (100%, 67%, 32%, 6%, Empty): Right Tray
Power Source:	DC 24 V, 5 V (from copier/printer)
Power Consumption:	50 W (Max.)/30 W (Ave.)
Weight:	25 kg (55 lb.)
Size (W x D x H):	580 mm x 620 mm x 260 mm (22.8" x 24.4" x 10.2")

3000-Sheet Finisher

Finisher	
Dimension (w x d x h)	657 mm x 613 mm x 960 mm (25.9” x 24.1” x 37.8”)
Weight	Less than 54 kg (119 lb.) (no punch unit) Less than 56 kg (123.5 lb.) (with punch unit)
Power Consumption	Less than 96 W
Noise	Less than 75 db
Configuration	Console type attached base-unit
Power Source	From base-unit

Proof Tray	Stack Capacity	250 sheets: A4, 8.5″ x 11″ or smaller 50 sheets: B4, 8.5″ x 14 or larger	
	Paper Size	A5-A3 SEF, A6 SEF, A6 SEF 5.5″ x 8.5″-11″ x 17″ SEF, 12″ x 18″ SEF	
	Paper Weight	52 g/m^2 - 163 g/m^2 (14 lb. - 43 lb.)	
Shift Tray	Stack Capacity	3,000 sheets	A4 LEF, 8.5" x 11″ LEF
		1,500 sheets	A3 SEF, A4 SEF, B4 SEF, B5, 11″ x 17″ SEF, 8.5″ x 14″ SEF, 8.5″ x 11″ SEF, 12″ x 18″ SEF
		500 sheets	A5 LEF
		100 sheets	A5 SEF, B6 SEF, A6 SEF, 5.5″ x 8.5″ SEF
	Paper Size	A5 - A3 SEF, A6 SEF, B6 SEF, 5.5″ x 8.5″- 11″ x 17″ SEF, 12″ x 18″ SEF	
	Paper Weight	52 g/m^2 - 256 g/m^2 (14 lb. - 68 lb.)	
Staples			
Paper Size		B5 - A3 8.5″ x 11″ - 11″ x 17″, 12″ x 18″	
Paper Weight		64 g/m^2 - 90 g/m^2 (14 lb. - 24 lb.)	
Staple Position		Top, Bottom, 2 Staple, Top-slant	
Stapling Capacity	Same Paper Size	50 sheets	A4, 8.5" x 11″ or smaller
		30 sheets	B4, 8.5" x 14" or larger
	Mixed Paper Size	30 sheets	A4 LEF + A3 SEF, B5 LEF + B4 SEF, 8.5" x11″ LEF + 11″ x 17″ SEF

Staple Replenishment	Cartridge exchange / 5000 pins per cartridge		
Stapled Stack Capacity (same size)	Paper Size	Pages/Set	Sets
	A4 LEF, 8.5″ x 11″ LEF	20 - 50 pages	150 - 60 sets

		2 - 19 pages	150 sets
	A4 SEF, B5, 8.5″ x 11″ SEF	15 - 50 pages	100 - 30 sets
		2 - 14 pages	100 sets
	Others	15 - 30 pages	100 - 33 sets
		2 - 14 pages	100 sets
Stapled Stack Capacity (mixed sizes)	A4 LEF & A3 SEF, B5 LEF & B4 SEF, 8.5″ x11″ LEF & 11″ x 17″ SEF	2 - 30 pages	50 set

2000-Sheet Booklet Finisher

Finisher			
Dimension W x D x H		657 mm x 613 mm x 960 mm (25.9 x 24.1 x 37.8")	
Weight		Less than 63 kg (138.6 lb.) (no punch unit) Less than 65 kg (143 lb.) (with punch unit)	
Power Consumption		Less than 96 W	
Noise		Less than 75 db	
Configuration		Console type attached base-unit	
Power Source		From base-unit	
Proof Tray	Stack Capacity	250 sheets: A4, 8.5″ x 11″ or smaller 50 sheets: B4, 8.5″ x 14 or larger	
	Paper Size	A5 - A3 SEF, A6 SEF, A6 LEF 5.5" x 8.5" to 11″ x 17″ SEF, 12″x18″ SEF	
	Paper Weight	52 g/m^2 - 163 g/m^2 (14 lb. - 43 lb.)	
Shift Tray	Stack Capacity	2,000 sheets	A4 LEF, 8.5″ x 11″ LEF
		1,000 sheets	A3 SEF, A4 SEF, B4 SEF, B5 11″ x 17″ SEF, 8.5" x 14″ SEF, 8.5" x 11″ SEF, 12″x18″ SEF

		500 sheets	A5 LEF
		100 sheets	A5 SEF, B6 SEF, A6 SEF, 5.5" x 8.5" SEF
	Paper Size	A5 - A3 SEF, A6 SEF, B6 SEF 5.5" x 8.5" to 11″ x 17″ SEF, 12″ x 18″ SEF	
	Paper Weight	52 g/m^2 - 256 g/m^2 (14 lb. - 68 lb.)	
Staple			
Paper Size		B5-A3, 8.5" x 11″ - 11″ x 17″, 12″ x 18″	
Paper Weight		64 g/m^2 - 90 g/m^2, 17 lb. Bond - 28 lb. Bond	
Staple Position		Top, Bottom, 2 Staple, Top-slant	
Staples Capacity	Same Paper Size	50 sheets	A4, 8.5" x 11″ or smaller
		30 sheets	B4, 8.5" x 14″ or larger
	Mixed Paper Size	30 sheets	A4 LEF & A3 SEF, B5 LEF & B4 SEF, 8.5" x 11″ LEF & 11″ x 17″ SEF
	Booklet Stapling	15 sheets	A4 SEF, A3 SEF, B5 SEF, B4 SEF, 8.5" x 11″ SEF, 8.5″ x 14″ SEF, 11″ x 17″ SEF, 12″ x 18″ SEF

Staple Replenishment		Corner staple	5,000 staples per cartridge
		Booklet staple	2,000 staples per cartridge
Corner Staple Capacity	Same Size	A4 LEF, 8.5″ x 11″ LEF	13 - 50 pages
			2 - 12 pages
		A4 SEF, B5, 8.5″ x 11″ SEF	10 - 50 pages
			2 - 9 pages
		Others	10 - 30 pages
			2 - 9 pages
	Mixed Size	A4 LEF + A3 SEF	2 - 30 pages

		B5 LEF + B4 SEF 8.5″ x 11″ LEF + 11″ x 17″ SEF	
Booklet Staple Capacity	A4 SEF, A3 SEF, B5 SEF, B4 SEF 8.5″ x 11″ SEF, 8.5″ x 14″ SEF, 11″ x 17″ SEF 12″ x 18″ SEF		2 - 5 pages
			6 - 10 pages
			11 - 15 pages

Punch Unit for 2000/3000-Sheet (Booklet) Finisher

Available Punch Units		NA	2/3 holes switchable
		EU	2/4 holes switchable
		Scandinavia	4 holes
Punch Waste Replenishment		NA 2-holes	Up to 5,000 sheets
		NA 3-holes	Up to 5,000 sheets
		EU 2-holes	Up to 14,000 sheets
		EU 4-holes	Up to 7,000 sheets
		Scandinavia 4-holes	Up to 7,000 sheets
Paper Weight		52 g/m^2 - 163 g/m^2, 14 lb Bond - 43 lb Bond / 90 lb Index / 60 lb Cover	
Paper Sizes	NA 2-holes	SEF	A5 to A3, 5.5" x 8.5" to 11″ x 17″
		LEF	A5 to A4, 5.5" x 8.5" , 8.5" x 11″
	NA 3-holes	SEF	A3, B4, 11″ x 17″
		LEF	A4, B5, 8.5" x 11″
	EU 2-holes	SEF	A5 to A3, 5.5" x 8.5" to 11″ x 17″
		LEF	A5 to A4, 5.5" x 8.5", 8.5" x 11″
	EU 4-holes	SEF	A3, B4, 11″x17″
		LEF	A4, B5, 8.5" x 11″
	Scandinavia 4-holes	SEF	A5 to A3, 5.5" x 8.5" to 11″ x 17″

		LEF	A5 to A4, 5.5" x 8.5", 8.5" x 11”

1000-Sheet Finisher

Upper Tray

Paper Size:	A3 to A6 11" x 17" to 5.5" x 8.5"
Paper Weight:	60 to 157 g/m^2 (16 to 42 lb.)
Paper Capacity:	250 sheets (A4 LEF/8.5" x 11" SEF or smaller) 50 sheets (A4, 8.5" x 11" or smaller) 30 sheets (B4, 8.5" x 14" or larger)

Lower Tray

<table>
<tr><td>Paper Size:</td><td colspan="4">No staple mode:
A3 to B5, DLT to HLT
Staple mode:
A3, B4, A4, B5, DLT to LT</td></tr>
<tr><td>Paper Weight:</td><td colspan="4">No staple mode: 60 to 157 g/m^2 (16 to 42 lb)
Staple mode: 64 to 90 g/m^2 (17 to 24 lb)</td></tr>
<tr><td>Stapler Capacity:</td><td colspan="4">30 sheets (A3, B4, DLT, LG)
50 sheets (A4, B5 LEF, LT)</td></tr>
<tr><td rowspan="4">Paper Capacity:</td><td colspan="4">No staple mode:
1,000 sheets (A4/LT or smaller: 80 g/m^2, 20 lb.)
500 sheets (A3, B4, DLT, LG: 80 g/m^2, 20 lb.)
Staple mode: (80 g/m^2, 20 lb., number of sets)</td></tr>
<tr><td>Set Size</td><td rowspan="2">2 to 9</td><td colspan="2">10 to 50</td></tr>
<tr><td>Size</td><td>10 to 30</td><td>31 to 50</td></tr>
<tr><td>A4/LT LEF</td><td>100</td><td>100 to 20</td><td>100 to 20</td></tr>
</table>

	B5 LEF			
	A4/LT SEF	100	50 to 10	50 to 10
	A3, B4, DLT, LG	50	50 to 10	-
Staple positions:	1 Staple: 2 positions (Front, Rear) 2 Staples: 2 positions (Upper, Left)			
Staple Replenishment:	Cartridge (5,000 staples/cartridge)			
Power Source:	DC 24 V, 5 V (from the copier/printer)			
Power Consumption:	50 W			
Weight:	25 kg (55.2 lbs)			
Dimensions (W x D x H):	527 x 520 x 790 mm (20.8" x 20.5" x 31.1")			

Bridge Unit

Paper Size:	Standard sizes A6 SEF to A3, HLT to DLT Non-standard sizes Width: 90 to 305 mm Length: 148 to 600 mm
Paper Weight:	52 g/m^2 to 253 g/m^2, 16 lb. to 78 lb.
Power Source:	DC 24 V, 5 V (form the copier/printer)
Dimensions (W x D x H):	415 mm x 412 mm x 111 mm (16.3" x 16.2" x 4.4")
Weight	5 kg (11 lb.)

1-bin Tray Unit

Paper Size:	Standard Size: A3 /DLT to A6/ HLT SEF
Paper Weight:	60 to 169 g/m^2, 16 to 45 lb.
Tray Capacity:	125 sheets (80 g/m^2, 20 lb., A4)

Power Source:	DC 24 V, 5 V (from the copier)
Power Consumption:	Less than 1 W
Weight:	2 kg
Size (W x D x H):	465 mm x 440 mm x 219 mm (18.3”x17.3”x8.6”)

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