Model AP-P1

Machine Code: G133

SERVICE MANUAL

31st Aug. 2006
Subject to change

Important Safety Notices

Prevention of Physical Injury

1. Before disassembling or assembling parts of the printer and peripherals, make sure that the printer power cord is unplugged.
2. The wall outlet should be near the printer 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 printer 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 printer starts operation.
5. The inside and the metal parts of the fusing unit become extremely hot while the printer 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 printer, 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 printer 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.

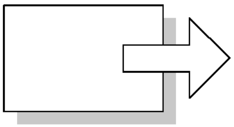
Safety and Ecological Notes for Disposal

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.

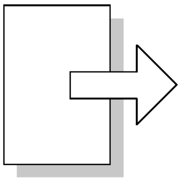
Symbols, Abbreviations and Trademarks

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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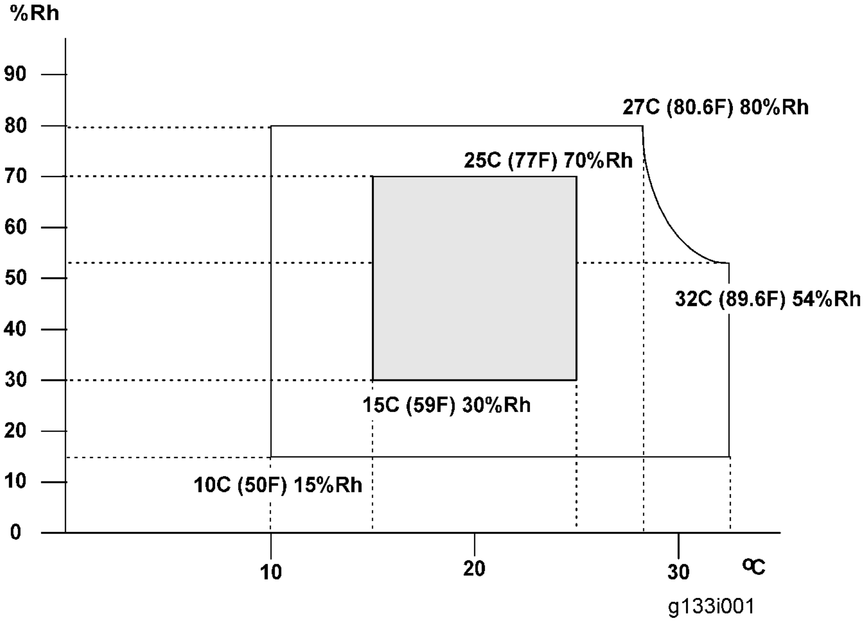
1. Installation

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

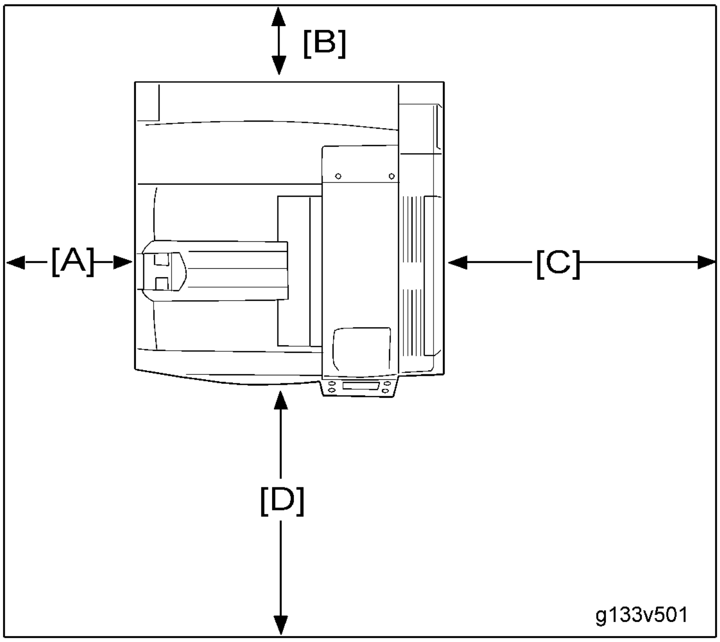
Front to back: Within 5 mm (0.2")

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 7 A
2. Permissible voltage fluctuation: ±10 %
3. Do not put things on the power cord.

Optional Unit Combinations

Machine Options

U: User installation, C: CE installation

No.	Options	Remarks	
1	Paper tray unit	U	One from No.1, No.2, No.3 or No.1 + No.2
2	2-tray paper feed unit	U	
3	Large capacity tray unit	U	
4	Bridge unit	C	-
5	1000-sheet booklet finisher	C	One from No.5 or No.7. Requires No.4 and one from No.2 and No.3.
6	*Punch kit (3 types)	C	No.5 required. One of the three types
7	3000-sheet finisher	C	One from No.5 or No.7. Requires No.4 and one from No.2 and No.3.
8	*Punch kit (3 types)	C	No.7 required. One of the three types

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

Controller Options

U: User installation, C: CE installation

No.	Options	Remarks	
1	Bluetooth	U	One from the three (I/F Slot B)
2	IEEE 802.11b	U	
3	IEEE 1284	U	
4	USB Host Interface Unit	U	I/F Slot A
5	PictBridge Option	U	One from the two (SD card slot 2)

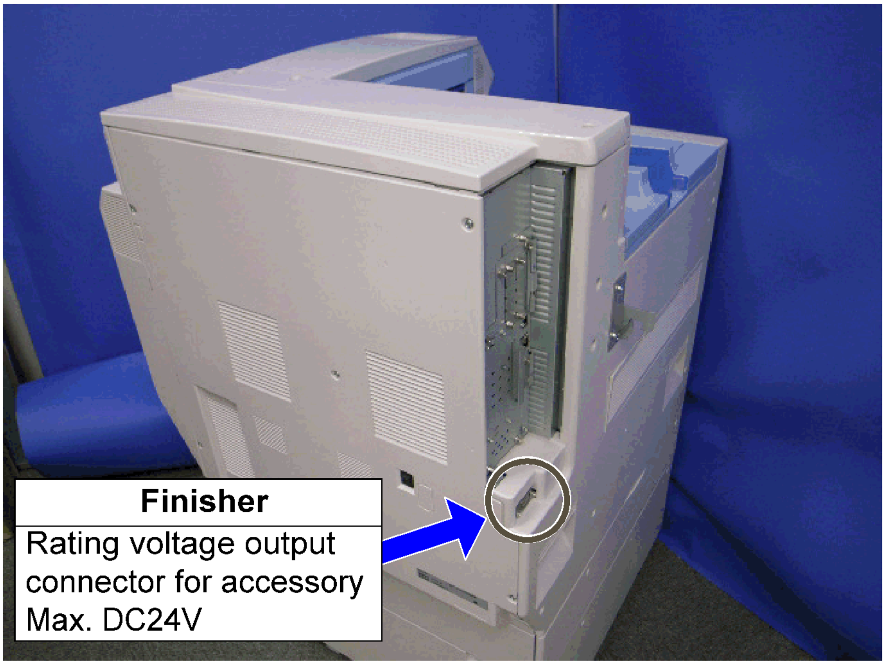
6	Data Overwrite Security Unit Type G	C	
7	VM Card Type C	C	SD card slot 3 (during installation only)
8	128 MB DIMM	C	One from No.8 and No.9
9	256 MB DIMM	C	

Printer Installation

Power Socket for Peripheral

⚠CAUTION

- Rating voltage for peripheral.
- Make sure to plug the cable into the correct socket.



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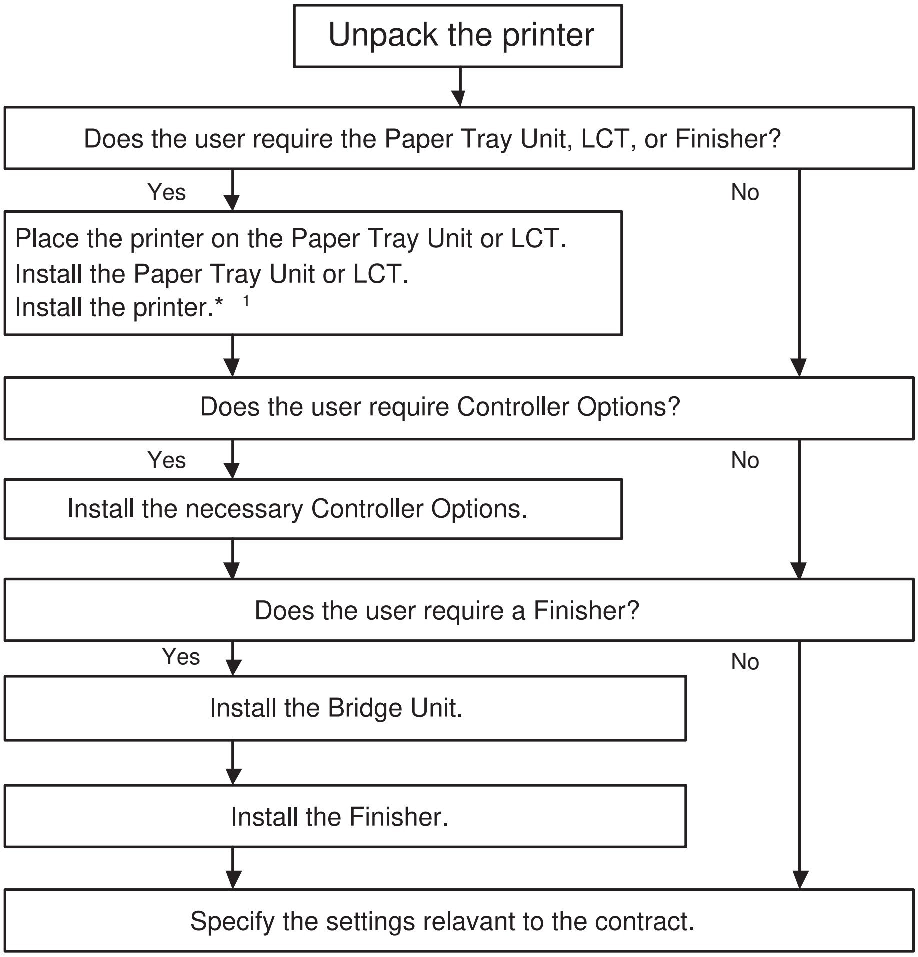
Installation Flow Chart

This flow chart shows the best procedure for installation.


Unpack the printer
Does the user require the Paper Tray Unit, LCT, or Finisher?
Yes
No
Place the printer on the Paper Tray Unit or LCT.
Install the Paper Tray Unit or LCT.
Install the printer.* 1
Does the user require Controller Options?
Yes
No
Install the necessary Controller Options.
Does the user require a Finisher?
Yes
No
Install the Bridge Unit.
Install the Finisher.
Specify the settings relavant to the contract.

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* 1: Available installation of the paper feed units are as follows:

• Mainframe + G832 • Mainframe + G832 + B800	• Mainframe + B800 • Mainframe + B801

You need the two-tray paper feed unit (B800) or the LCT (B801) if you want to install the finisher (B793 or B805).

The punch unit "B702" is for the 3000-sheet finisher (B805).

The punch unit "B807" is for the 1000-sheet booklet finisher (B793).

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.

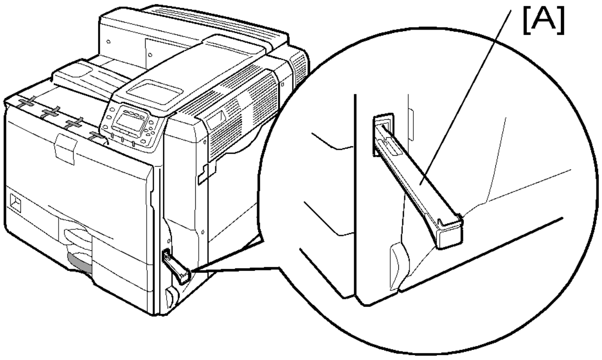
Note

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

Unpacking

⚠CAUTION

- When lifting the machine, use the handle and grips on both sides of the machine.
- If not, the machine could be dropped. This may cause an injury and may damage the machine.



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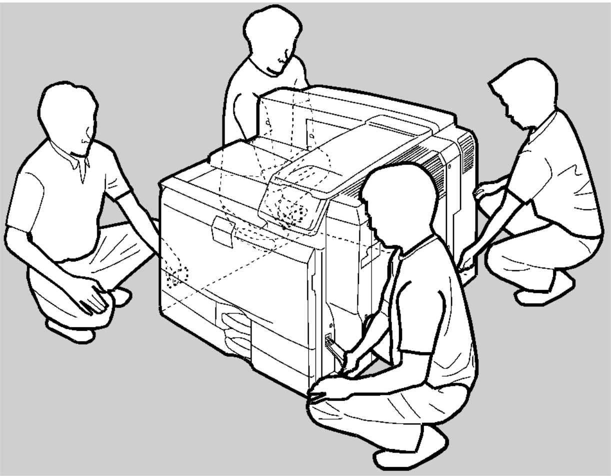
1. Pull out the handle [A].



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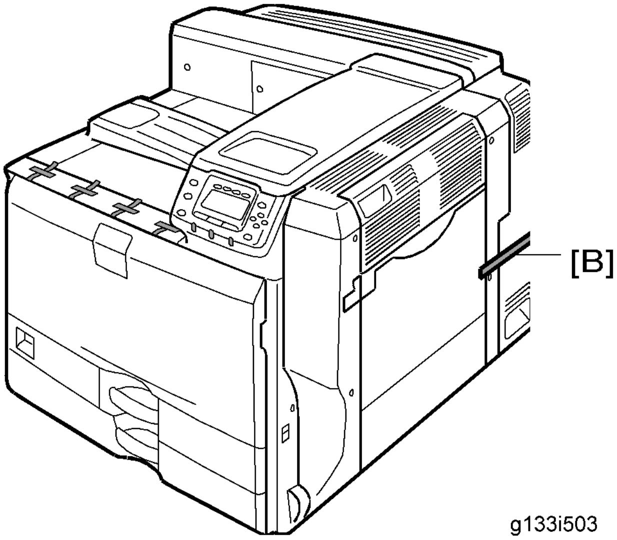
2. Lift the machine with four people by using the handle and grips on both sides of the machine.

Important

- Do not remove the tapes before placing the machine.
- Lower the machine slowly and carefully, so as not to pinch your hands.

3. Push back the handle into the machine.



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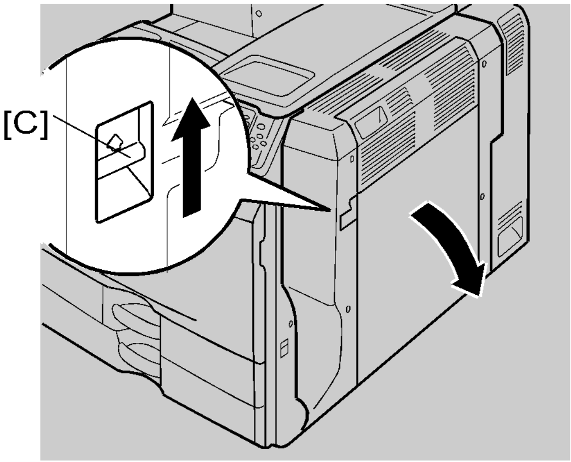
4. Remove the tape [B].



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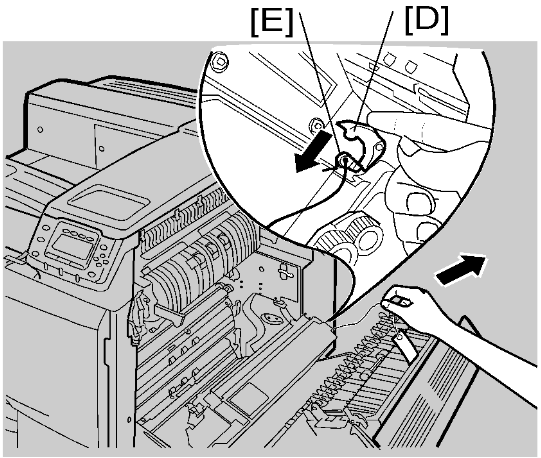
1. Push up the lever [C] on the right door, and then open the right door.



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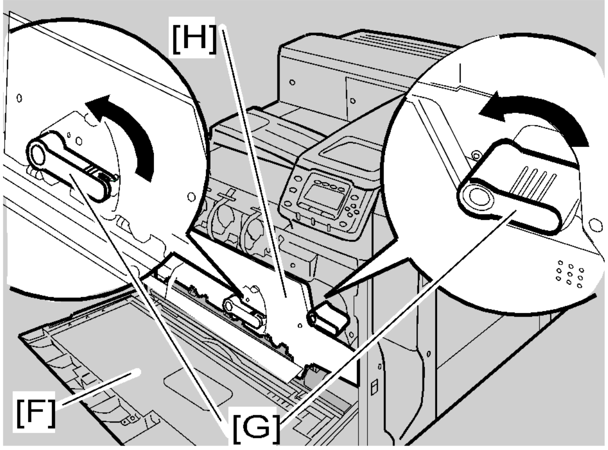
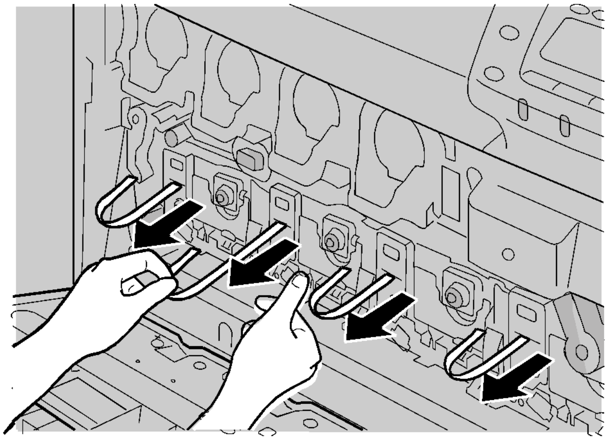
2. Keep pushing the lever [D], and then remove the securing pin [E] by pulling the wire with the red tag.
3. Close the right door.



4. Open the front door [F].
5. Turn the two green levers [G] counterclockwise.
6. Open the drum positioning plate [H].



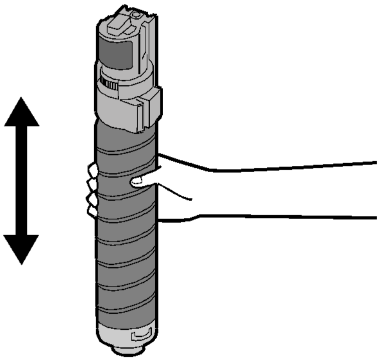
7. Remove and pull out the four tapes horizontally from all PCUs.

Note

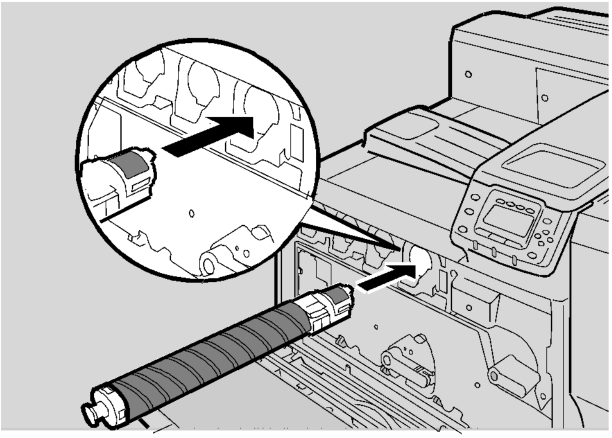
- Make sure that all tapes are removed.

8. Close the drum positioning plate.
9. Turn the green levers clockwise to lock the levers.

Installing the Toner

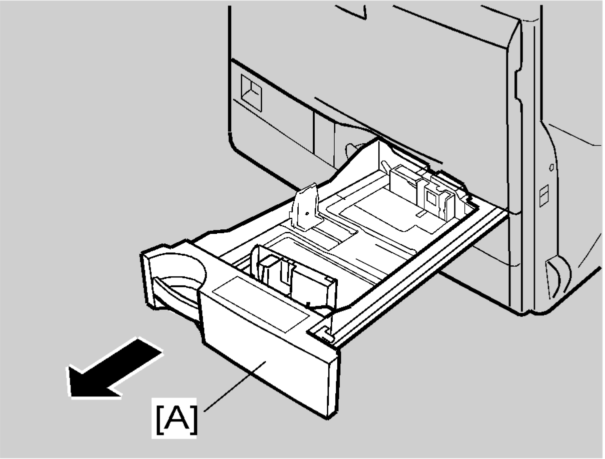


1. Shake the toner bottle up and down five or six times before installing.

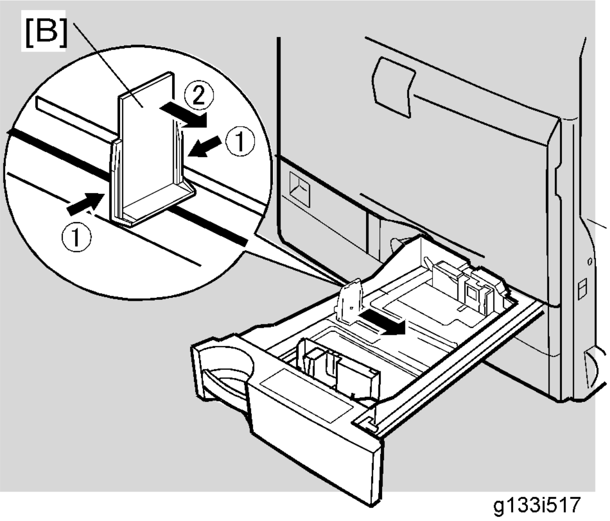


2. Insert the each toner bottle into the machine with the label facing up.
3. Close the front door.

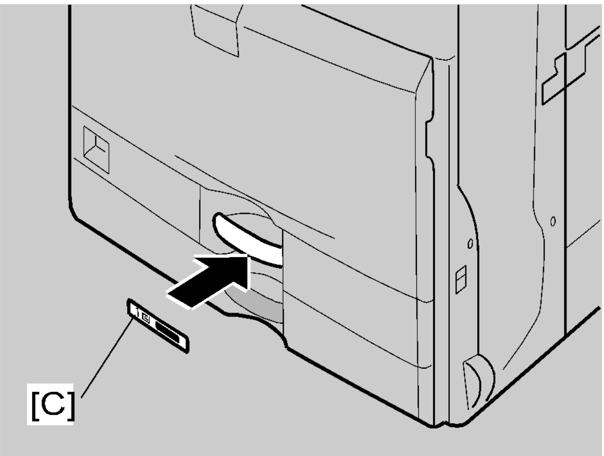
Loading Paper



1. Pull out the tray 1 [A] of the machine.
2. Take out the contents from tray 1.



3. Adjust the end plate [B] to A4 LEF/Letter LEF size.
4. Load paper in tray 1, and then close tray 1.



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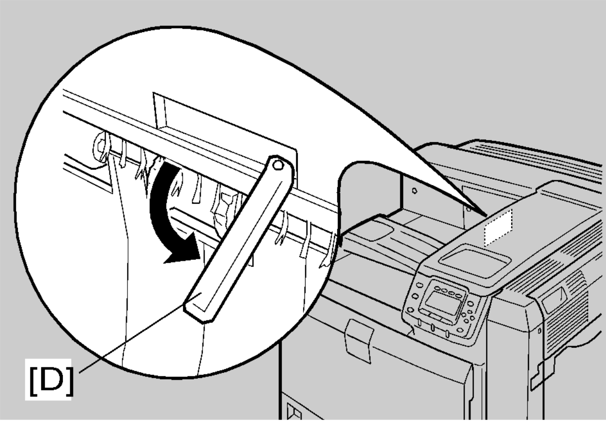
5. Attach the tray number decal "1" to the handle [C] of tray 1.



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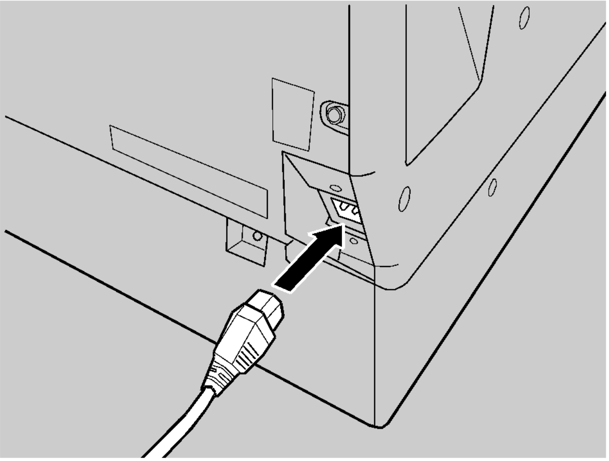
6. Pull out the feeler [D] for the output-tray-full detection mechanism.

Turning Power On

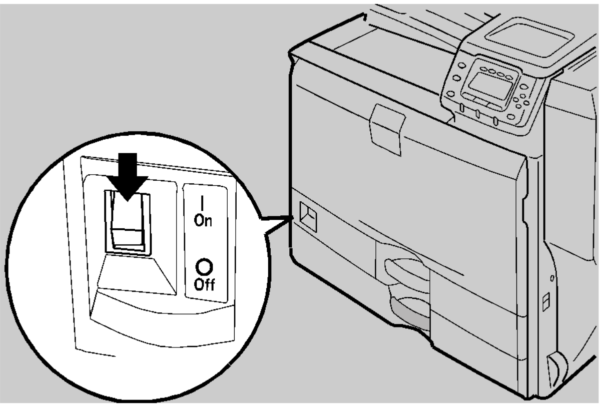
⚠CAUTION

- Turn off the power switch whenever you plug in and unplug the power cord.

1. Make sure that the power switch is set to "O" (Off).



2. Plug in the machine.



3. Turn on the power switch.

Important

- Do not turn off the power switch until initialization is completed (‘Ready’ appears on the display when initialization is completed). Otherwise, the machine may malfunction.

Selecting the Panel Display Language

Note

- You can select one of these languages (the default is English): English, German, French, Italian, Dutch, Swedish, Norwegian, Danish, Spanish, Finnish, Portuguese, Czech, Polish or Hungarian.
- You do not have to do this procedure if you use English. Do this procedure if you want to use a different language.

1. Turn on the power switch of the printer.

   Note

   - “Ready” shows on the panel display after the machine warms up.
2. Press the "Menu" key.

   Note

   - “Menu” shows on the panel display.
3. Press the "▲" or "▼" key to show “Language.”
4. Press the "Enter" key. “Language:” shows on the panel display.
5. Press the "▲" or "▼" key to get the language you want.
6. Press the "Enter" key. “Menu” shows on the panel display.
7. Press the "Menu" key. “Ready” shows on the panel display.

Printing the Test Page

1. You can check if the printer works correctly by printing a test page such as the configuration page. However, you cannot check the connection between the printer and the computer by printing the test page.
2. Turn on the printer.

   Note

   - “Ready” shows on the panel display after the machine warms up.
3. Press the "Menu" key.
4. Press the "▲" or "▼" key to get “List/Test Print.”
5. Press the "Enter" key. “ListTest Print” shows on the panel display.
6. Make sure that “Config. Page” is on the display. Then press the "Enter" key.
7. The test printing starts shortly after.
8. Press the “Online” key. “Ready” shows on the panel display.
9. Turn off the power switch of the printer.

Settings Relevant to the Service Contract

Change the necessary settings depending on the each customer's service contract. For details, refer to "Meter Click Charge" following this section.

Meter Click Charge

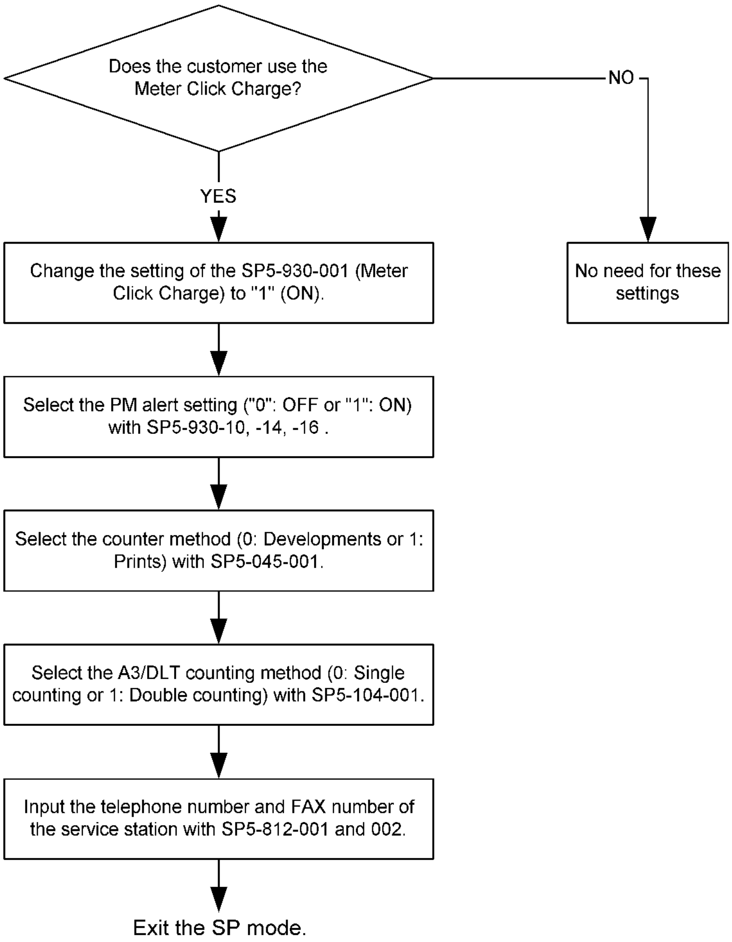
Basically, there are two ways to set up this function.

Meter click change enabled (SP 5-930-001 set to 'enabled'): The counter can be displayed and printed by the customer. The technician can then call the customer and ask them to read the counter.

Meter click charge disabled (SP 5-930-001 set to 'disabled'; this is the default setting): The counter cannot be displayed or printed by the customer. To check the counter, the technician must print the SMC report (SP 5-990).

Note

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


Does the customer use the Meter Click Charge?
NO
YES
Change the setting of the SP5-930-001 (Meter Click Charge) to "1" (ON).
No need for these settings
Select the PM alert setting ("0": OFF or "1": ON) with SP5-930-10, -14, -16 .
Select the counter method (0: Developments or 1: Prints) with SP5-045-001.
Select the A3/DLT counting method (0: Single counting or 1: Double counting) with SP5-104-001.
Input the telephone number and FAX number of the service station with SP5-812-001 and 002.
Exit the SP mode.

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Item	SP No.	Function	Default

Meter Click Charge	SP5-930-001	Enables or disables Meter Click Charge. When enabled: • The counter menu shows immediately after you push the "Menu" key. The "Counter Method" (SP5-045) sets the type of the counter. • You can print the counter from the counter menu. When disabled: • The counter menu does not show.	"0": OFF
Meter Click Charge: PCU	SP5-930-010	Enables or disables the PM alert for the PCUs. If this SP is enabled, an alert message is displayed when the PCUs need to be replaced.	"1": No alert
Meter Click Charge: Image Transfer Belt Unit	SP5-930-014	Enables or disables the PM alert for the image transfer belt unit. If this SP is enabled, an alert message is displayed when the image transfer belt unit needs to be replaced.	"1": No alert
Meter Click Charge: Fusing Unit	SP5-930-016	Enables or disables the PM alert for the fusing unit. If this SP is enabled, an alert message is displayed when the fusing unit needs to be replaced.	"1": No alert
Counter 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.	“1”: Prints
A3/DLT double count	SP5-104-001	Specifies whether the counter is doubled for A3/DLT paper.	“0”: Single counting

Service Tel: Telephone / Facsimili	SP5-812-001 and -002	-001: shows or sets the telephone number of the service representative. -002: shows or sets the fax number of the service station. The number is printed on the counter list when the "Meter Click Charge" is enabled. User can send a fax message with the counter list.	-

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.

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

Transporting the Machine

1. Make sure there is no paper left in the paper trays. Then fix down the bottom plates with a sheet of paper and tape.
2. Replace the waste toner bottle. Then attach securing tape to stop the toner bottle from coming out.
3. Do one of the following:
    - Attach shipping tape to the covers and doors.
    - Shrink-wrap the machine tightly.

Note

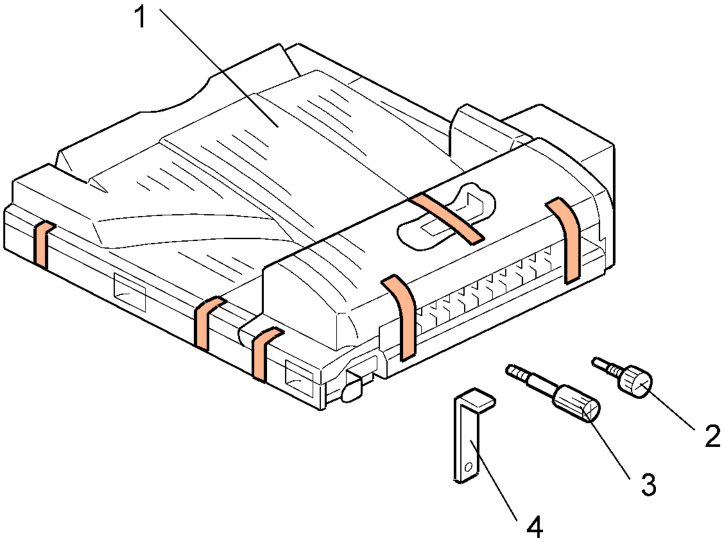
- After you move the machine, make sure you do the "Auto Color Registration" as follows. This optimizes color registration.
    1. Do the "Forced Line Position Adj. Mode c" (SP2-111-3).
    2. Then do the "Forced Line Position Adj. Mode a" (SP2-111-1).
       To check if SP 2-111-1 was successful, watch 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.

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



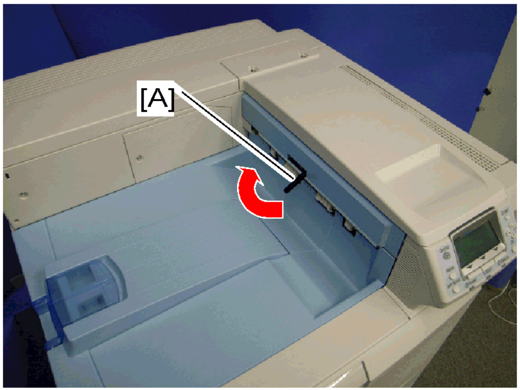
Installation Procedure

⚠CAUTION

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

Note

- If you will install a finisher (B793 or B805) in the machine, install the finisher after you install the bridge unit (B227).



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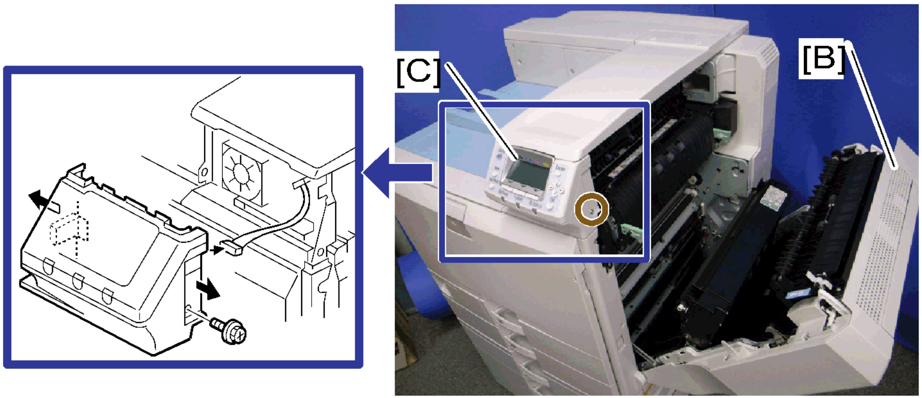
1. Remove all tapes.
2. If the sensor feeler [A] is out, fold it into the machine.



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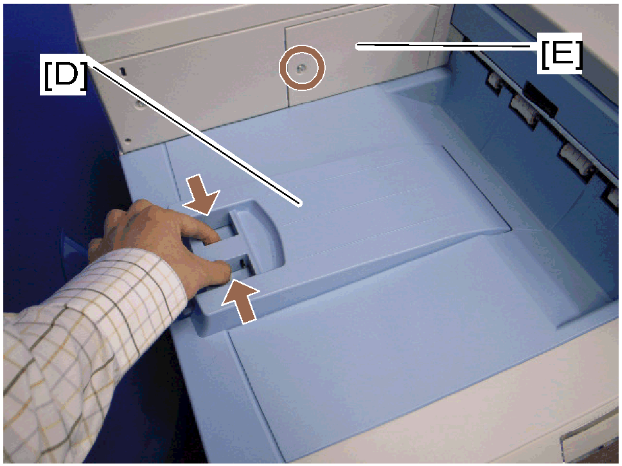
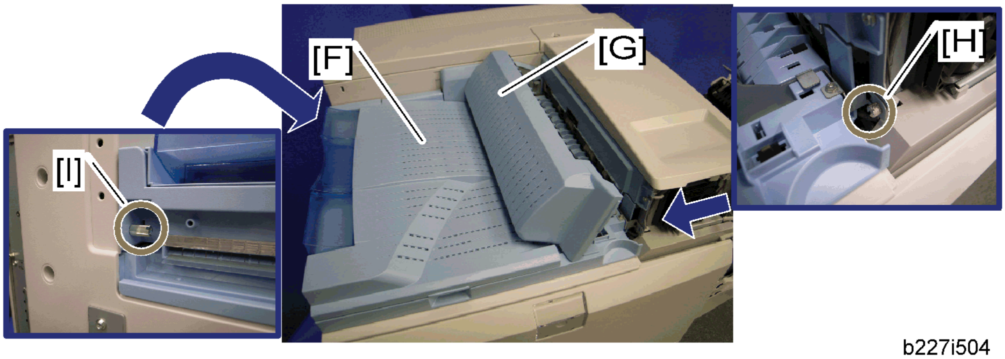
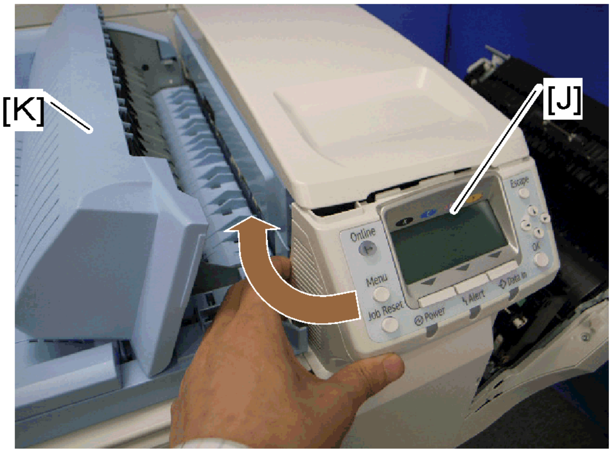
3. Open the right door [B] of the machine.
4. Remove the operation panel cover [C] (🔩 x 1, 🔌 x 1, hook).



5. Remove the inner tray [D].
6. Remove the connector cover [E] (🔩 x 1).



7. Install the bridge unit [F].
8. Open the bridge unit cover [G]
9. Secure it with screw [H] and knob screw [I].



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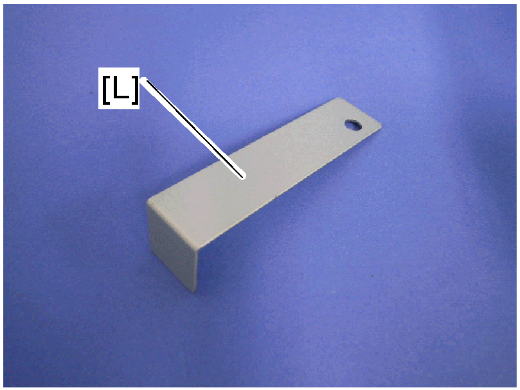
10. Reinstall the operation panel cover [J] (🔩 x 1, ⊏ x 1, hook).
11. Close the bridge unit cover [K].

Note

- Keep the bridge unit cover [K] open during installing the operation panel cover. Otherwise, you cannot reinstall it.

12. Reassemble the machine.
13. Install the optional finisher (refer to the finisher installation procedure).



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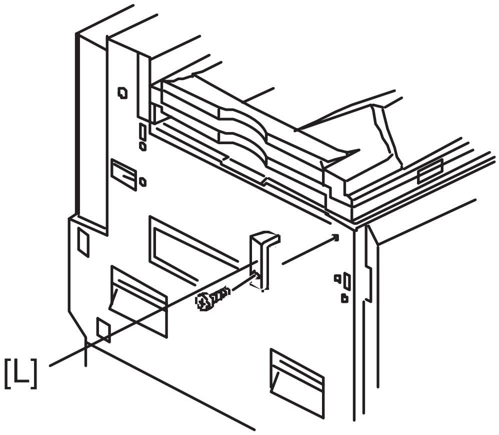
14. Holder bracket [L] is used in the installation procedure of the finisher (B793 or B805). At this time, do not install it.



Note

- If you cannot install the finisher at this time, install the holder bracket [L]. 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.

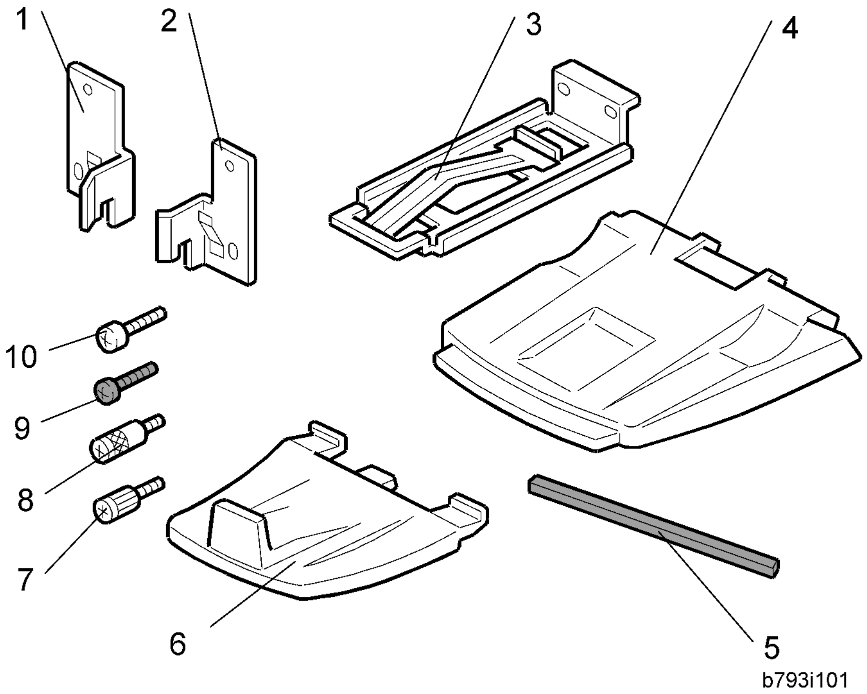
15. Turn on the main power switch of the machine.
16. Check the bridge unit operation.

1000-Sheet Booklet Finisher (B793)

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	Grounding Plate	1
4	Upper Output Tray	1
5	Cushion	2
6	Lower Output Tray	1
7	Short Knob Screw	1
8	Long Knob Screw	1
9	Screw (M3 x 8)	2
10	Screw (M4 x 14)	4

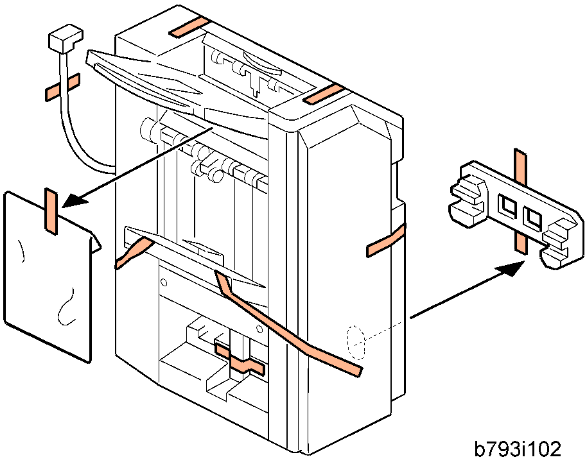


Installation Procedure

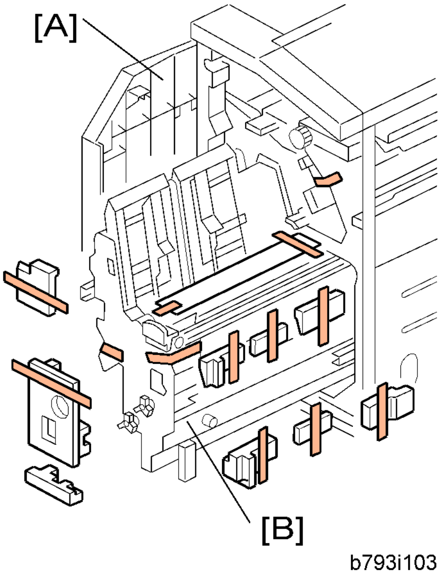
⚠CAUTION

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

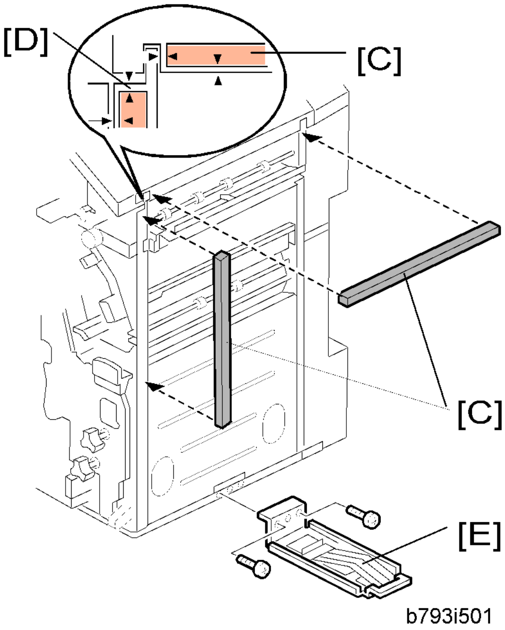
The bridge unit (B227) and optional paper feed unit (B800 or B801) must be installed before installing this finisher (B793).



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



2. Open the front door [A] of the 1000-sheet booklet finisher, and then pull out the jogger unit [B].
3. Remove all tapes and packing materials from the inside of the finisher.

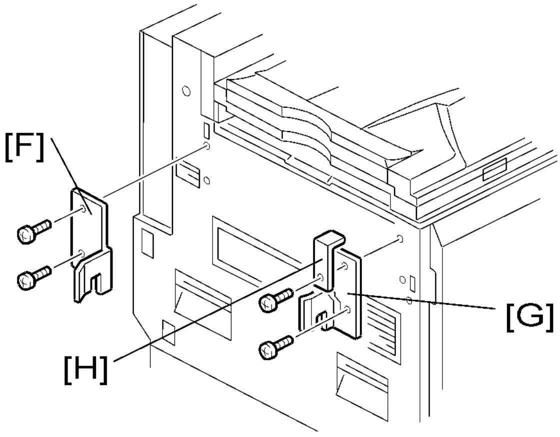


4. Attach the cushions [C] to the finisher.

Note

- Make sure that the cushions are placed within 0 to 1 mm [D] from the edge of the cover or frame.

5. Install the ground plate [E] on the finisher (🔩 x 2; M3 x 8).

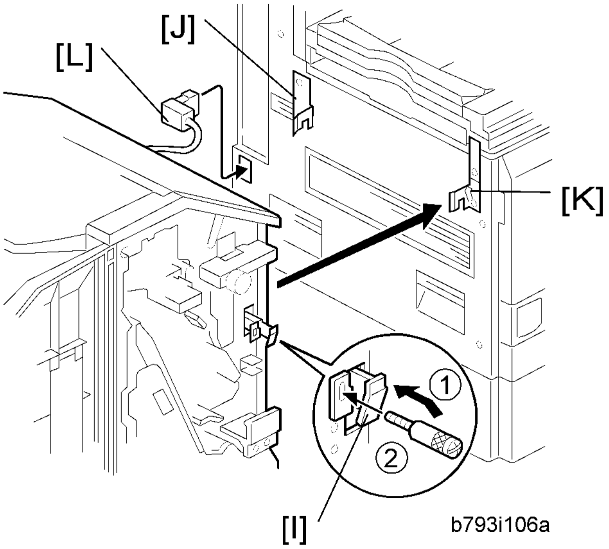


b793i105b

6. Attach the rear joint bracket [F] (🔩 x 2, M4 x 14).
7. Attach the front joint bracket [G] and the holder bracket [H] (🔩 x 2; M4 x 14).

Note

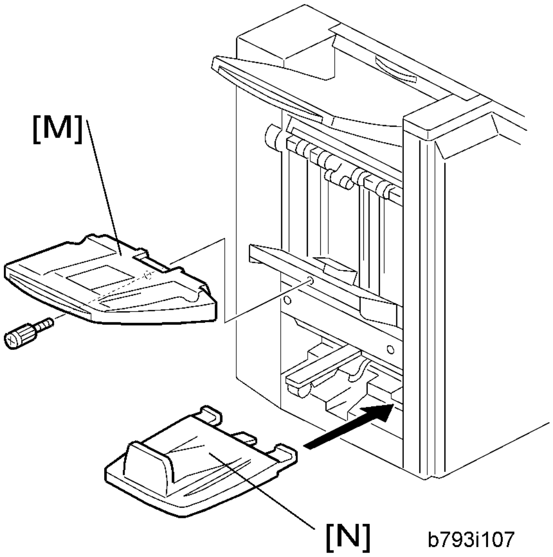
- The holder bracket [H] must be placed outside the front joint bracket [G]. The holder bracket is provided with the bridge unit (B227).



b793i106a

8. Pull the lock lever [I] (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 [J] [K] go into their slots.
10. Push the lock lever [I], and then secure it (Long knob screw x 1).

11. Close the front door of the finisher.
12. Connect the finisher connector [L] to the machine.



13. Install the upper output tray [M] (Short knob screw x 1).
14. Install the lower output tray [N].
15. Turn on the main power switch of the machine.
16. Check the 1000-sheet booklet finisher operation.

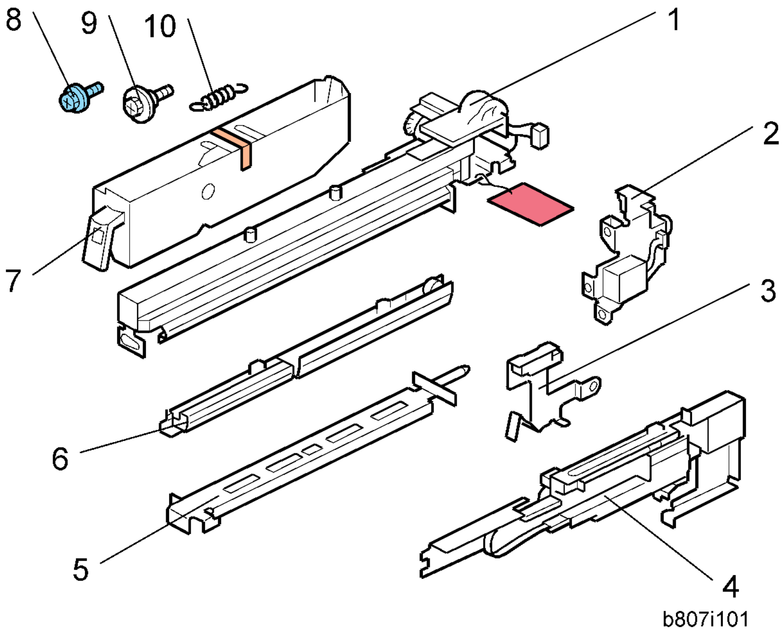
Punch Unit (B807)

The punch unit "B807" is used for the 1000-sheet booklet finisher (B793).

Component Check

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

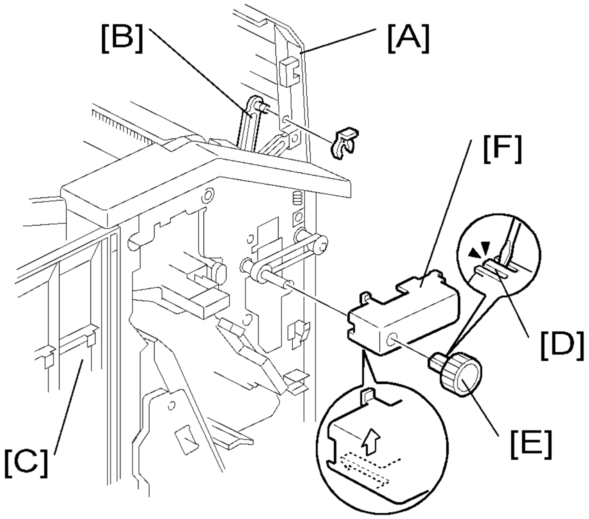
No.	Description	Q'ty
1	Punch Unit	1
2	Punch Drive Motor	1
3	Hopper Full Sensor Arm	1
4	Sub-scan Registration Sensor Unit	1
5	Punch Unit Stay	1
6	Sub-scan Registration Sensor Guide	1
7	Hopper	1
8	Screw	1
9	Step Screw	1
10	Spring	1



Installation Procedure

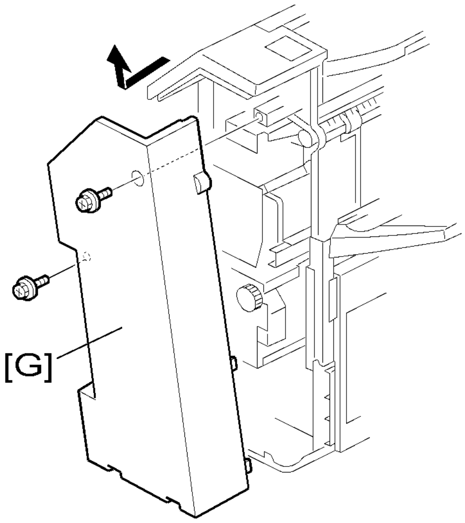
⚠CAUTION

- Unplug the main machine power cord before starting the following procedure. If the 1000-sheet booklet finisher has been installed, disconnect it and pull it away from the machine.

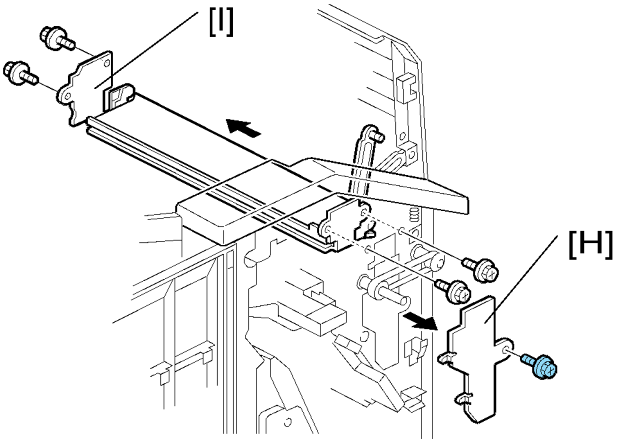


1. If the finisher is connected to the machine, disconnect it.

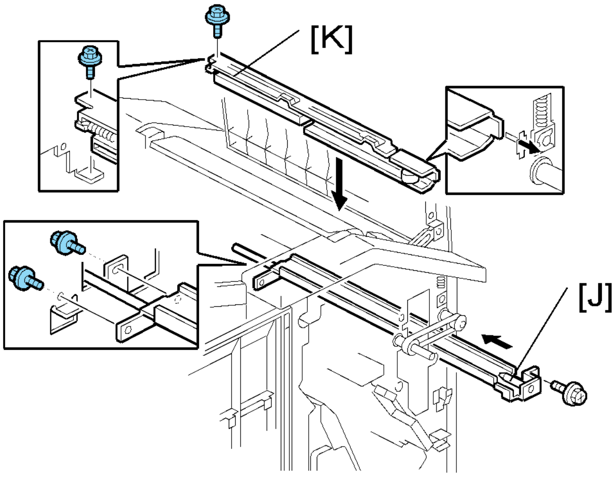
2. Open the top cover [A] and then release the guide arm [B] (🗜x 1).
3. Open the front door [C].
4. Pull the hook [D] up then remove the knob [E].
5. Timing belt cover [F].



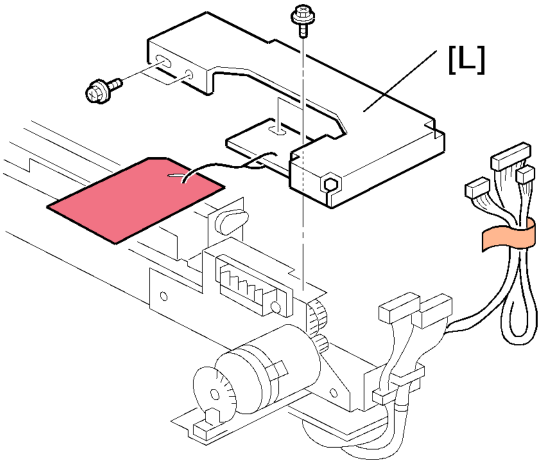
6. Rear cover of the 1000-sheet booklet finisher [G] (🔩x 2).



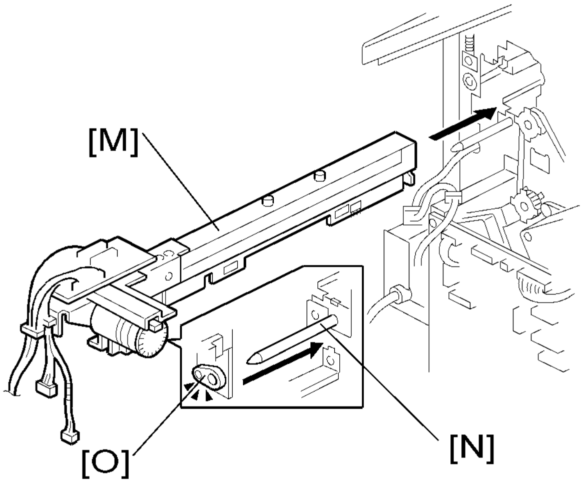
7. Cover bracket [H] (🔩 x 1)
8. Remove the paper guide plate [I] from the rear side (🔩 x 4).



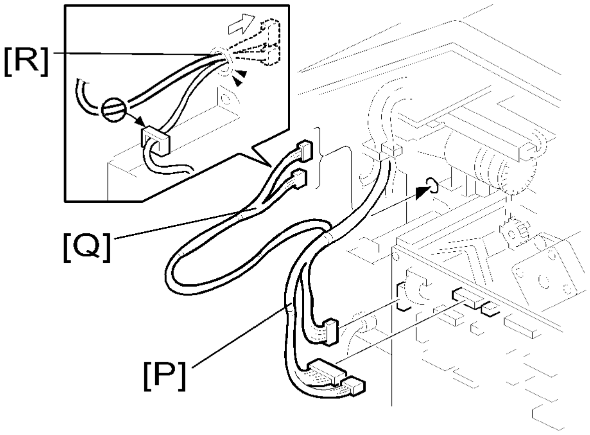
9. Install the punch unit stay [J] from the front side (🔩 x 3).
10. Install the sub-scan registration sensor guide [K] from the top (🔩 x 1).



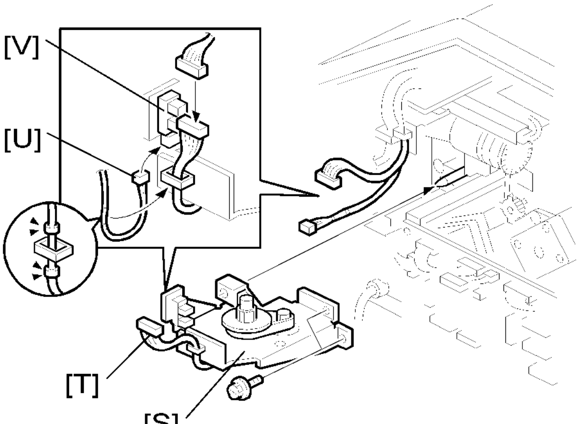
11. Remove the bracket [L] from the punch unit (🔩 x 1).



12. Install the punch unit [M] along the punch unit stay from the rear side.
13. Make sure to put the punch unit stay pin [N] through the hole [O].

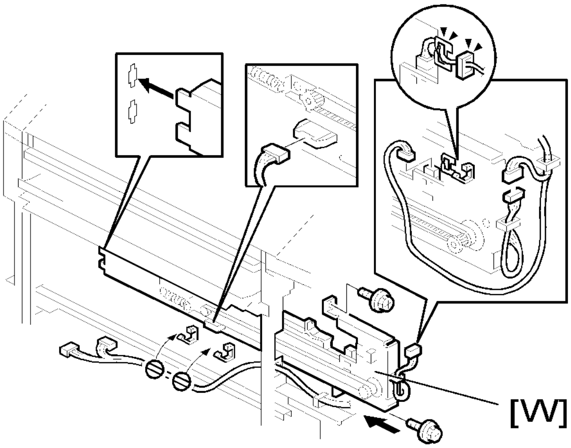


14. Connect the harnesses [P] to the main PCB.
15. Put the harnesses [Q] through the hole [R] in the rear frame (x 1).



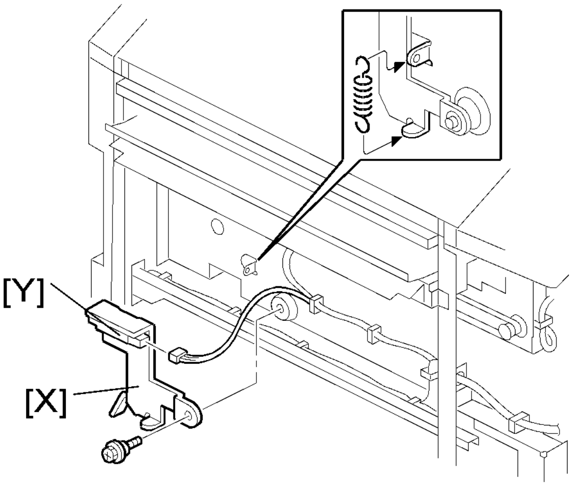
b807i109

16. Install the punch drive motor [S] on the rear frame (x 2).
17. Connect the drive motor harness [T] (yellow connector) to the harness from the punch unit (x 1).
18. Connect the home position sensor harness [U] (yellow connector) from the punch unit to the home position sensor [V].

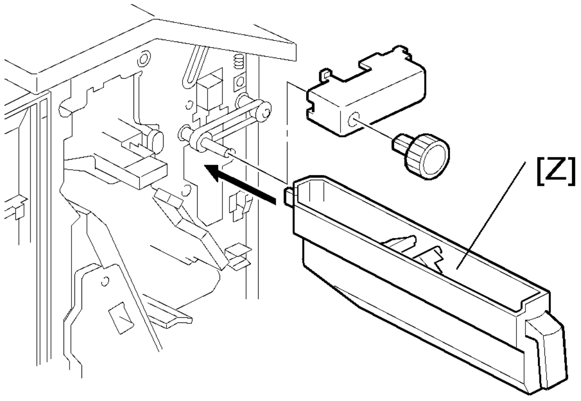


b807i110

19. Install the sub-scan registration sensor unit [W] from the rear side (x 2).
20. Route and connect the harnesses as shown (x 2).



21. Install the hopper full sensor arm [X] (🔩 x 1, spring x 1).
22. Connect the harness from the sub-scan registration sensor unit to the hopper full sensor [Y].



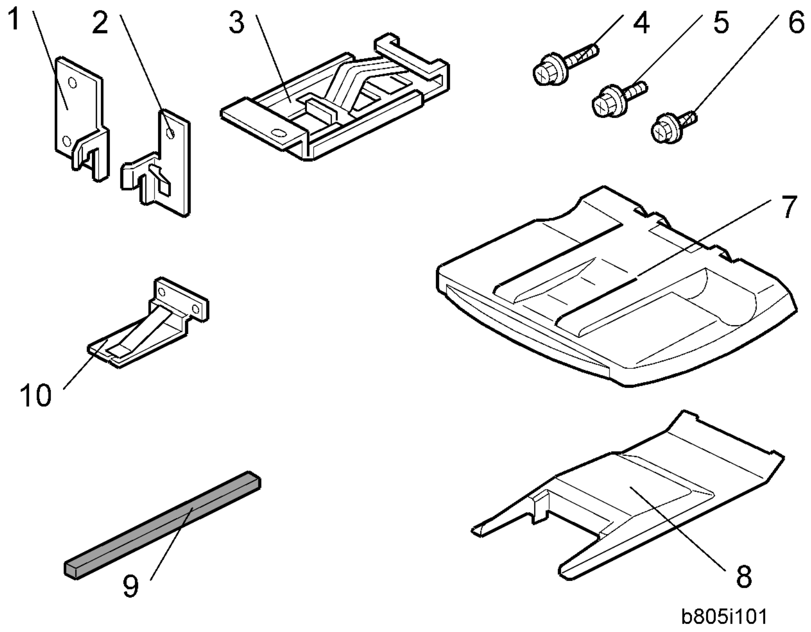
23. Install the hopper [Z] from the front side.
24. Reinstall the timing belt cover and knob.
25. Reinstall the rear cover (🔩x 2).
26. Close the front door and top cover.
27. Install the 1000-sheet booklet finisher on the mainframe.
28. Plug in and turn on the main power switch.
29. Check the 1000-sheet booklet finisher operation.

3000-Sheet Finisher (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 (earth) 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	Cushion (with double-sided tape)	1
10	Small ground (earth) plate	2



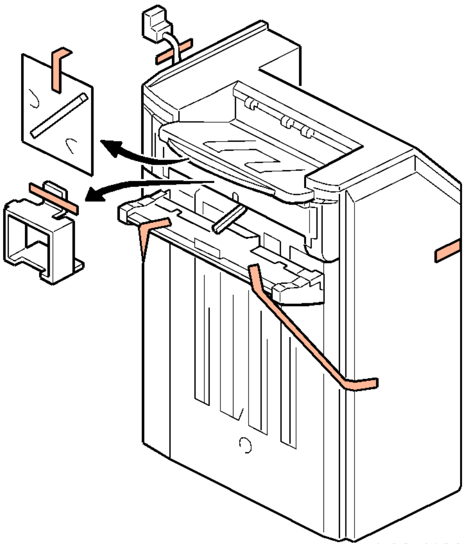
Installation Procedure

This installation procedure uses the following symbols.

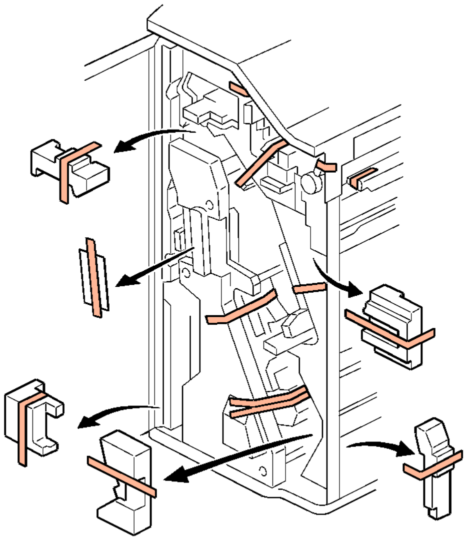
⚠CAUTION

- **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.

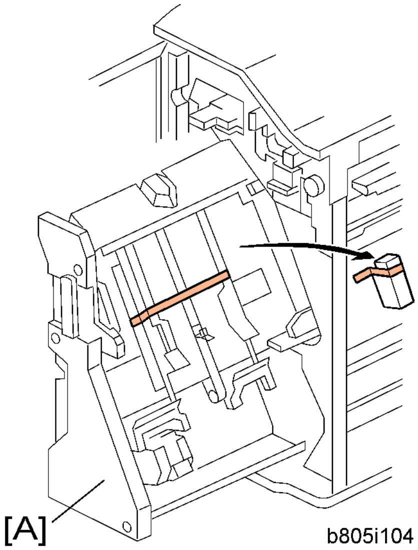


b805i102



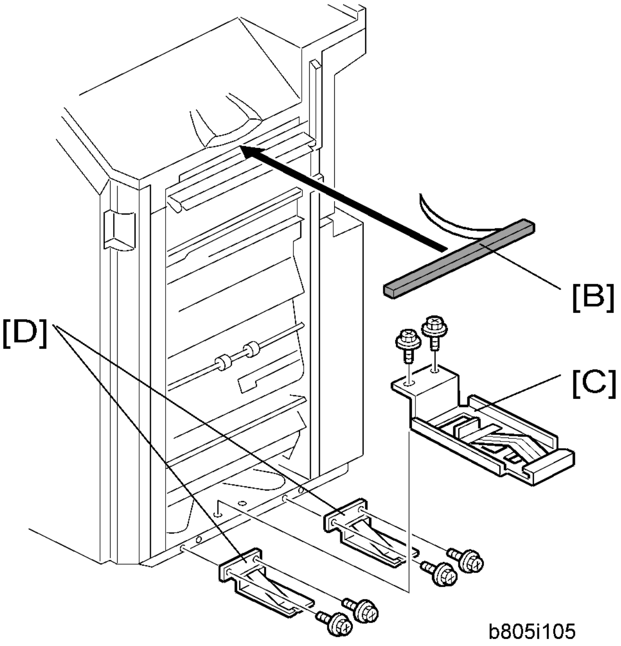
b805i103

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.



b805i104

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

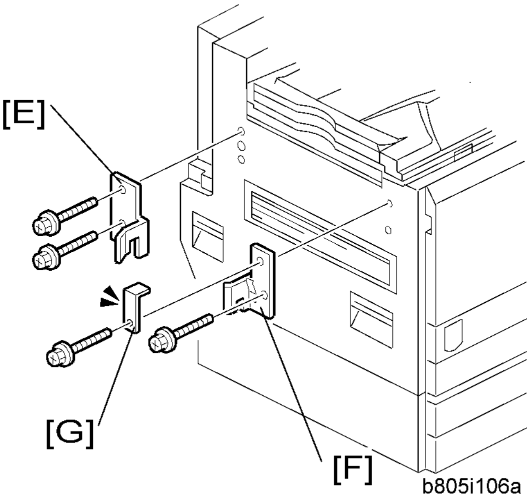


4. Attach the cushion [B] to the finisher.

Note

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

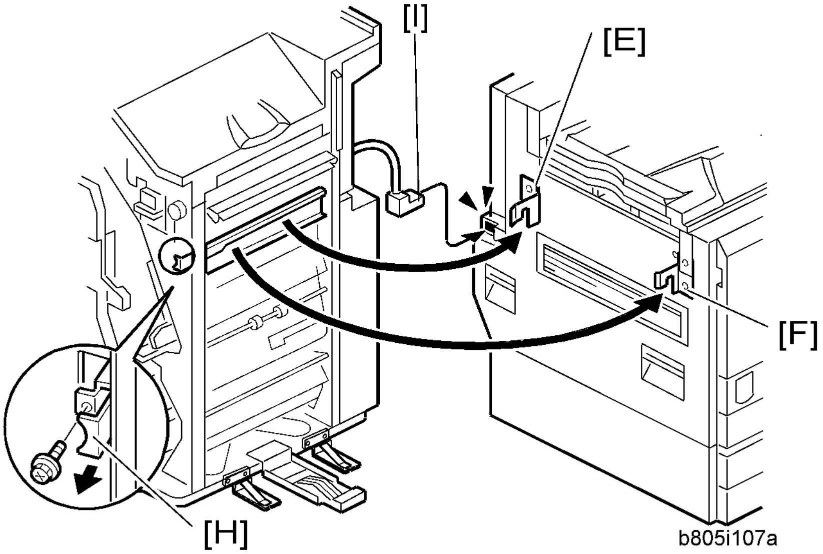
5. Install the ground plate [C] to the finisher (🔩 x 2; M3 x 6).
6. Install the small ground plates [D] to the finisher (🔩 x 2; M3 x 6 each).



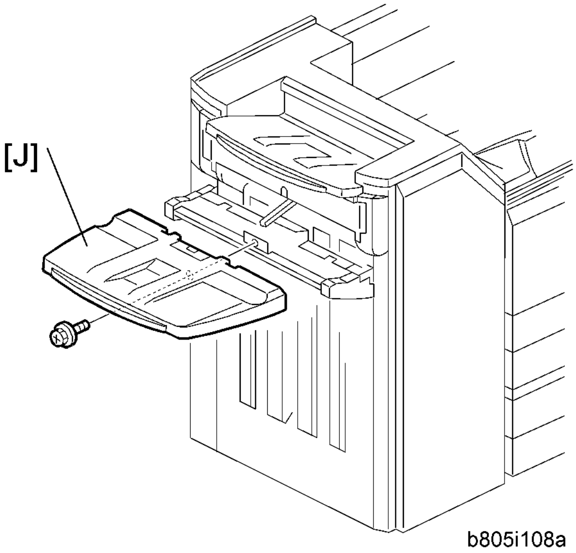
7. Attach the rear joint bracket [E] (🔩 x 2; M4 x 14).
8. Attach the front joint bracket [F] and the holder bracket [G] (🔩 x 2; M4 x 14).

Note

- Holder bracket [G] must be placed outside the front joint bracket [F]. This bracket is provided with the Bridge Unit (B227).

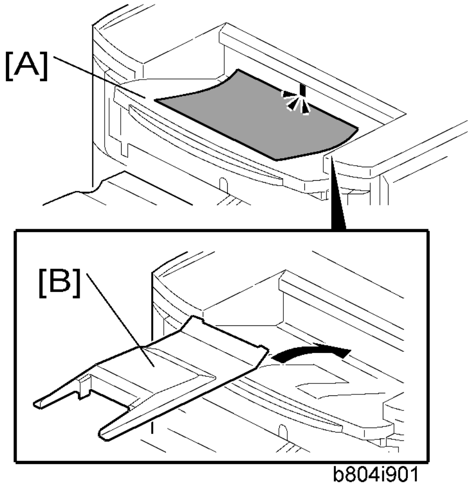


9. Pull the lock lever [H] (🔩 x 1).
10. Slowly push the finisher to the left side of the machine keeping its front door open until the brackets [E] [F] go into their slots.
11. Push the lock lever [H], and then secure it (🔩 x 1).
12. Close the front door of the finisher.
13. Connect the finisher connector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



14. Install the upper output tray [J] (🔩 x 1; M3 x 8).
15. Turn on the main power switch of the machine.
16. Check the finisher operation.

Support Tray Installation



1. If a stack problem occurs several times on the upper output tray [A], put the support tray [B] on the tray as shown.
2. Keep this tray in the manual pocket if this tray does not need to be installed.

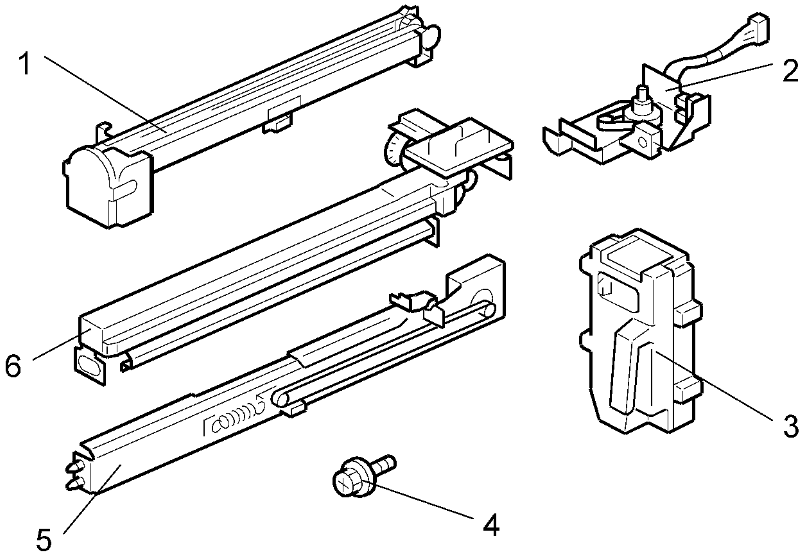
Punch Unit (B702)

The Punch Unit "B702" is used for the 3000 Sheet Finisher (B805).

Component Check

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

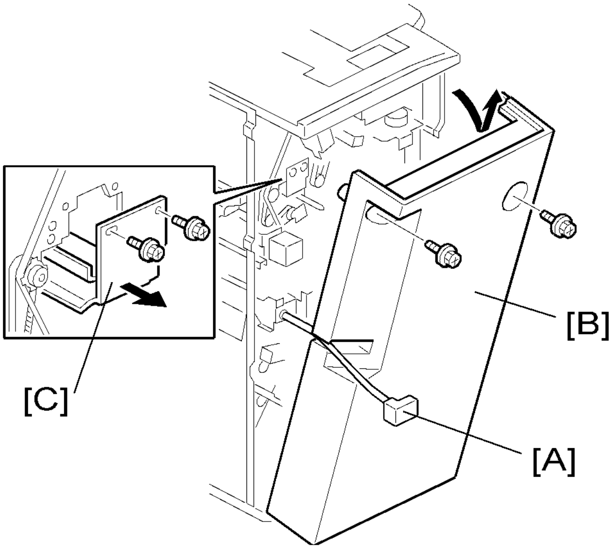
No.	Description	Q'ty
1	Punchout Waste Unit	1
2	Slide Drive Unit	1
3	Punch Waste Hopper	1
4	Screws (M3 x 6)	5
5	Side-to-Side Detection Unit	1
6	Punching Unit	1



Installation Procedure

⚠CAUTION

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

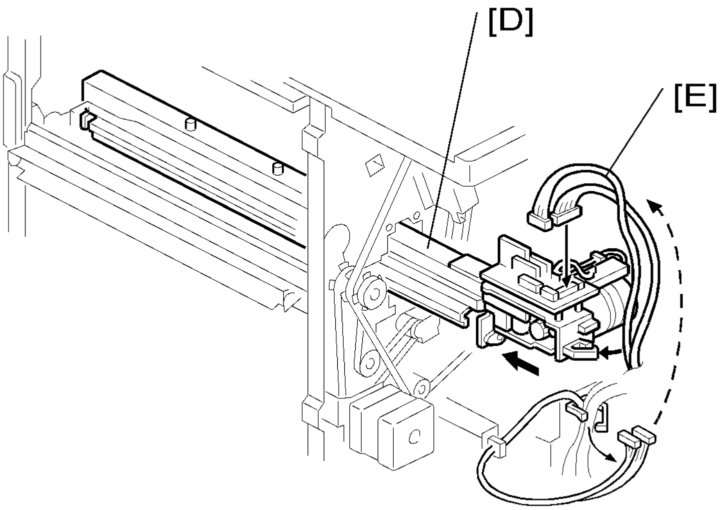


1. If the finisher is connected to the mainframe, disconnect the power connector [A] and move the finisher away from the mainframe.
2. Remove the rear cover [B] (🔩 x 2) and open the front door.

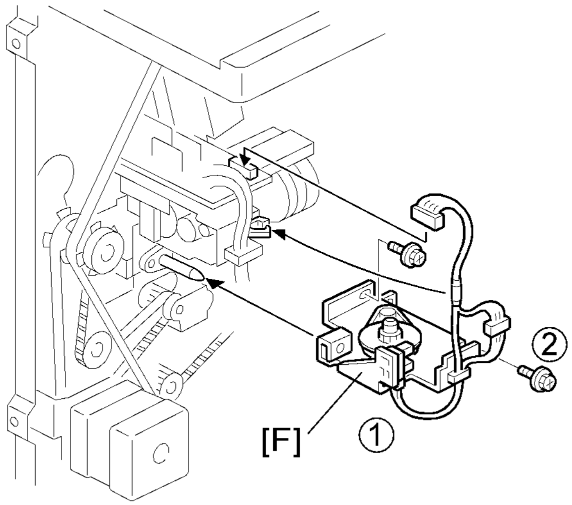
   Note

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

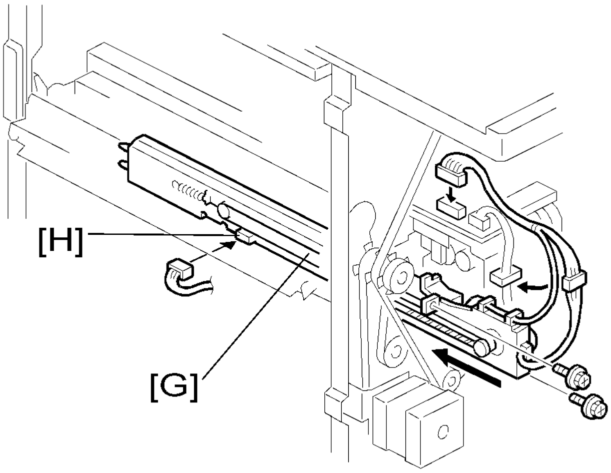
3. Remove the guide plate [C] (🔩 x 2).



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.



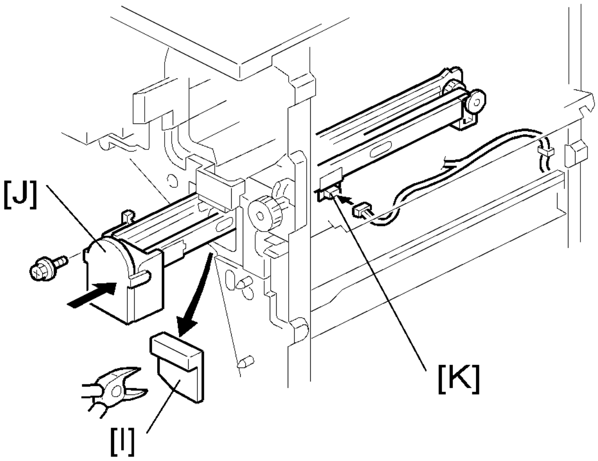
6. Attach the slide drive unit [F] to the finisher and connect it to the punch unit (🔩 x 2, 🔌 x 1). Push in the slide drive unit at ① when you attach the screw .
7. Make sure that the punch unit moves freely and is not blocked by the screws.



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.



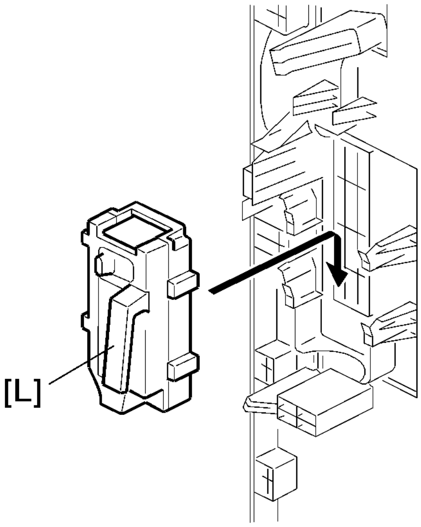
12. At the front, use a pair of wire cutters to remove the part [I] of the cover.
13. Install the punch-waste transport unit [J] in the finisher.
14. Make sure that the punch-waste transport unit moves smoothly on its rails. If it does not, make sure that the rails are aligned with the grooves.

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

Note

- This is the 4-pin connector.

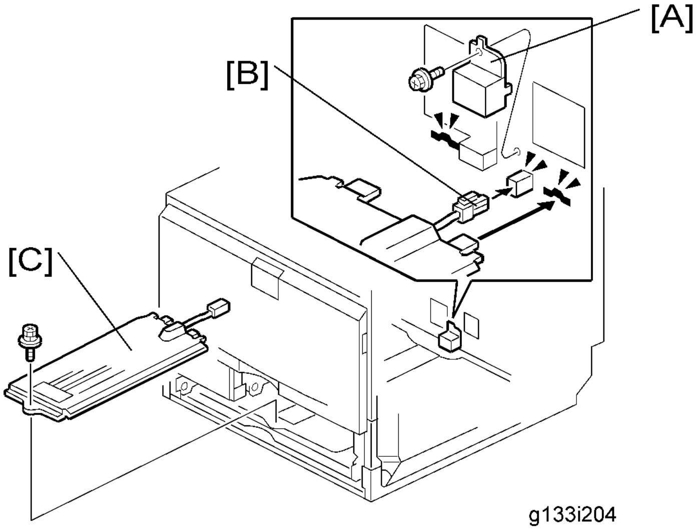
16. Connect the cable and attach the punch-waste transport unit (🔌 x 1, ⊏ x 1, 🔩 x 1).



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.

Tray Heater (Standard Tray)

Installation Procedure

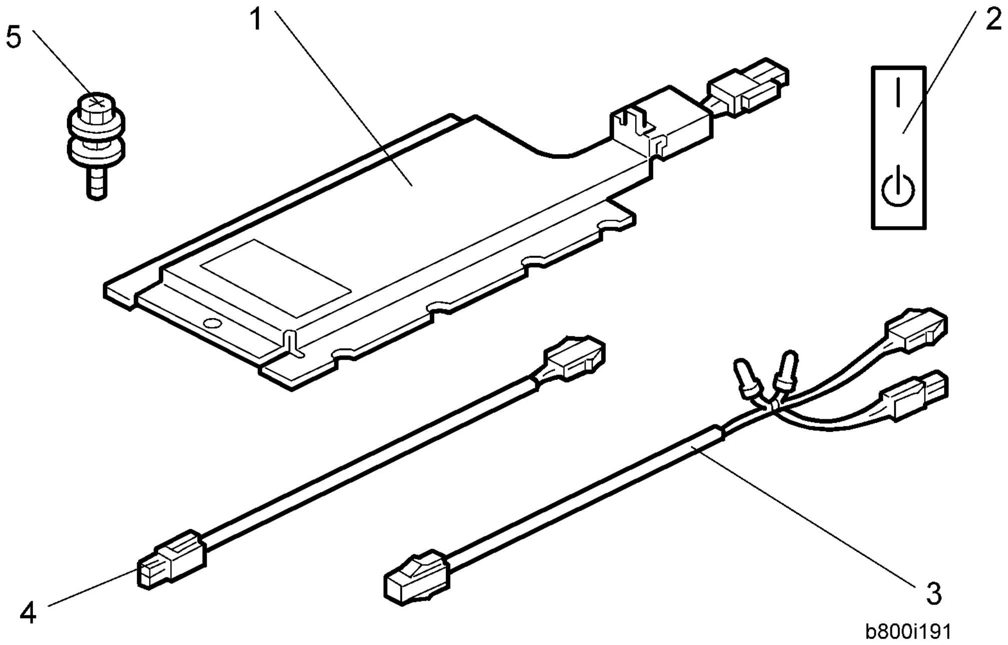


1. Remove trays 1 and 2 from the machine.
2. Remove the connector cover [A] (🔩 x 1).
3. Connect the connector [B] of the heater to the connector of the main machine.
4. Install the heater [C] inside the machine (🔩 x 1)
5. Reassemble the machine.

Tray Heater (Optional Tray)

Component Check

No.	Description	Q'ty
1	Tray heater	1
2	On-standby decal	1 (-90) or 2 (-91)
3	Harness 2 (For G832)	1
4	Harness 1 (For B800/B801)	1
5	Screw M4 x 10	2
-	Installation procedure	1



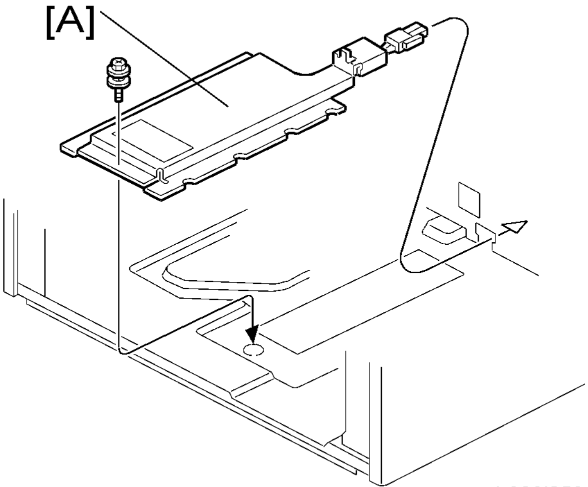
Installation Procedure

⚠CAUTION

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

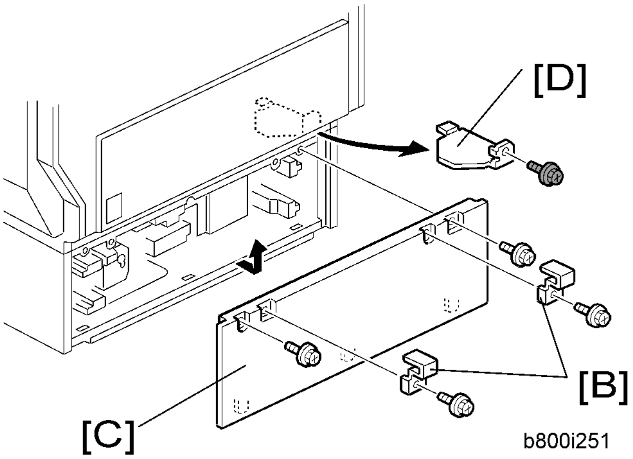
For installing the tray heater in the B800 (Two-tray paper feed unit)

1. Remove the rear cover of the mainframe (🔩 x 6).
2. Pull out the two trays from the optional paper feed unit.



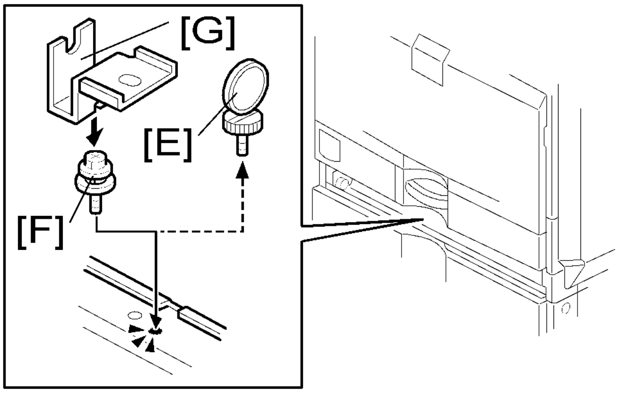
b800i250

3. Install the tray heater [A] in the optional paper feed unit (🔩 x 1).



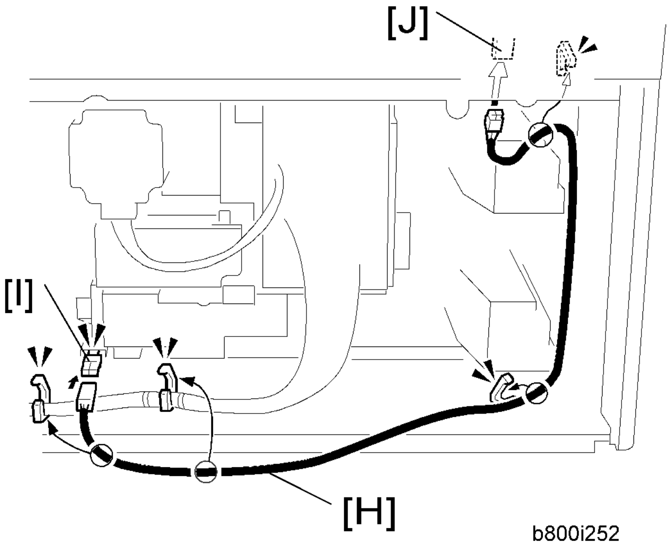
b800i251

4. Remove the two securing brackets [B] (🔩 x 1 each), and then the rear cover [C] of the optional paper feed unit (🔩 x 2).
5. Remove the harness cover bracket [D] (🔩 x 1).



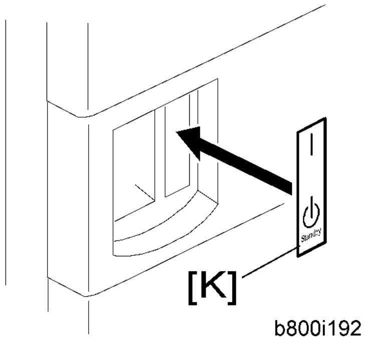
g832i250a

6. Pull out tray 2 from the mainframe.
7. Replace the shoulder screw [E] with the washer screw [F], using securing bracket [G] (🔩 x 1).



b800i252

8. Connect the harness [H] to the connector [I] of the tray heater.
9. Route the harness [H] as shown and clamp it with four clamps (🗜 x 4).
10. Connect the harness [H] to the connector [J] of the mainframe.
11. Reassemble the mainframe and optional paper feed unit.



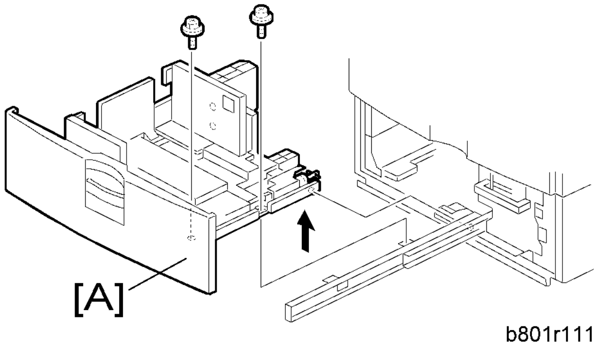
12. Attach the on/standby decal [K] to the right-hand side of the main power switch.

For installing the tray heater in the B801 (LCT)

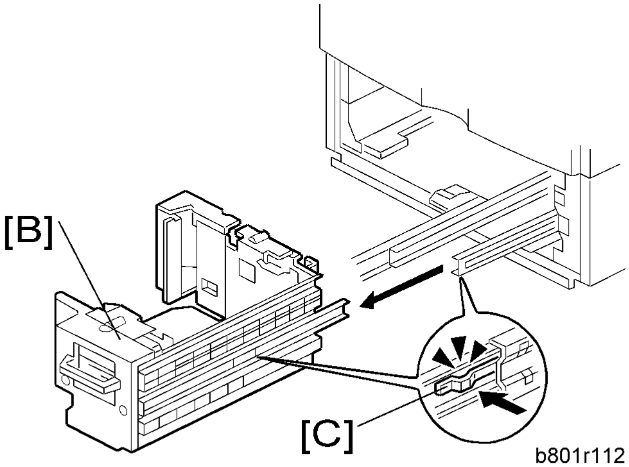
1. Remove the rear cover of the mainframe (🔩 x 6).
2. Pull out the LCT drawer.

Note

- If the right tray comes out with the left tray, push the right tray into the LCT.



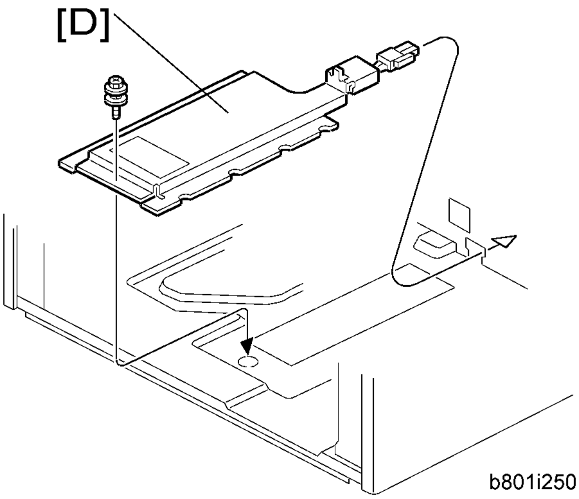
3. Left tray [A] (🔩 x 2)



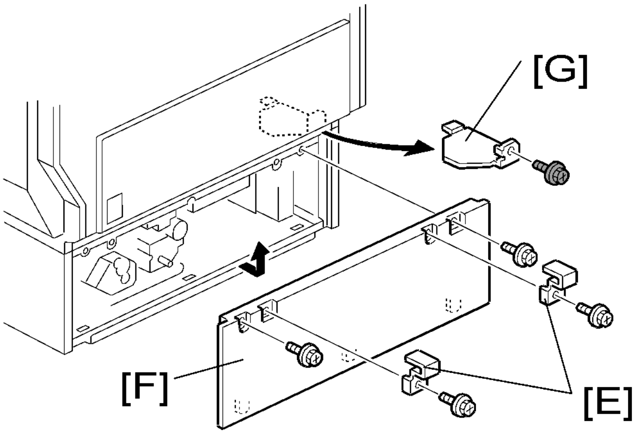
4. Remove the right tray [B] while pressing down the stopper [C].

Note

- When reinstalling the right tray, set the right tray on the guide rail and carefully push the tray in, making sure to keep the tray level.

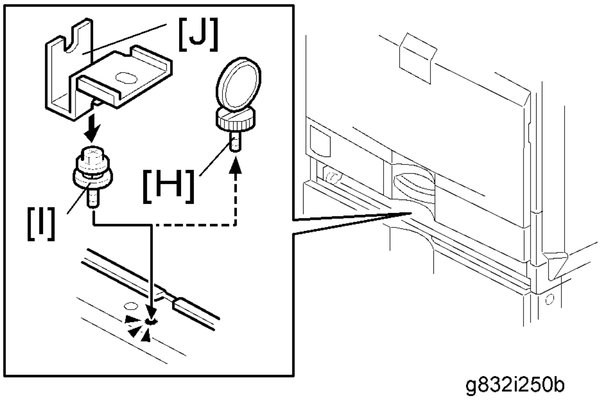


5. Install the tray heater [D] in the optional LCT (🔩 x 1).



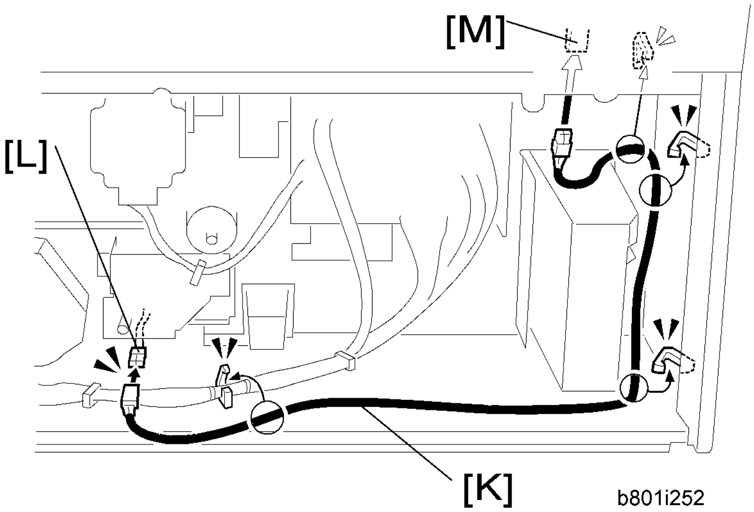
b801i251

6. Remove the two securing brackets [E] (🔩 x 1 each), and then the rear cover [F] of the optional LCT (🔩 x 2).
7. Remove the harness cover bracket [G] (🔩 x 1).

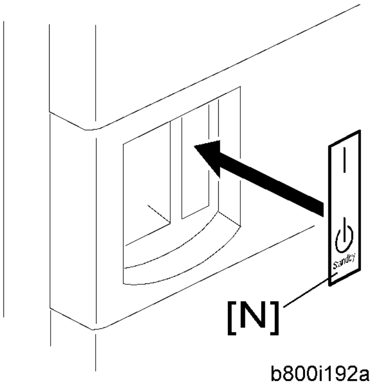


g832i250b

8. Pull out tray 2 from the mainframe.
9. Replace the shoulder screw [H] with the washer screw [I], using the securing bracket [J] (🔩 x 1).



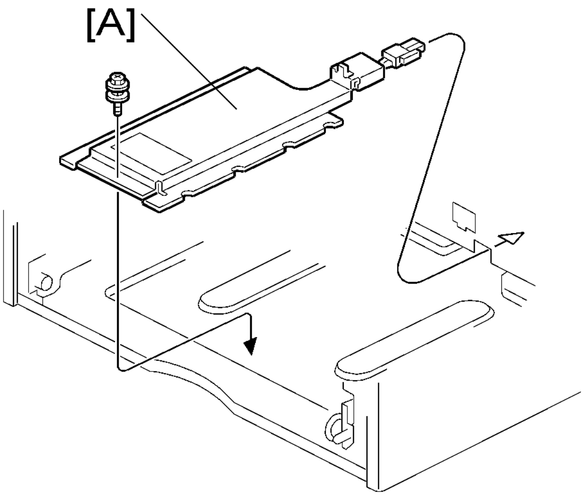
10. Connect the harness [K] to the connector [L] of the tray heater.
11. Route the harness [K] as shown and clamp it with four clamps (x 4).
12. Connect the harness [K] to the connector [M] of the mainframe.
13. Reassemble the mainframe and optional LCT.



14. Attach the on/standby decal [N] to the right-hand side of the main power switch.

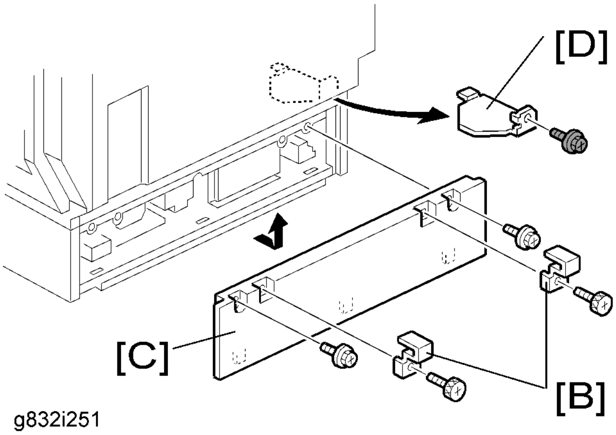
For installing the tray heater in the G832 (Paper tray unit)

1. Remove the rear cover of the mainframe (x 6).
2. Pull out the tray from the optional paper tray.



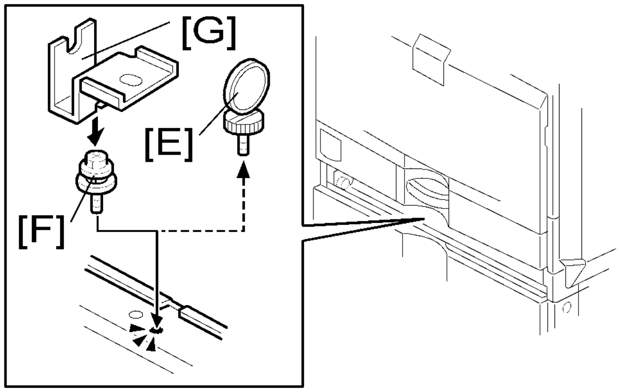
g832i250

3. Install the tray heater [A] in the optional paper tray (🔩 x 1).



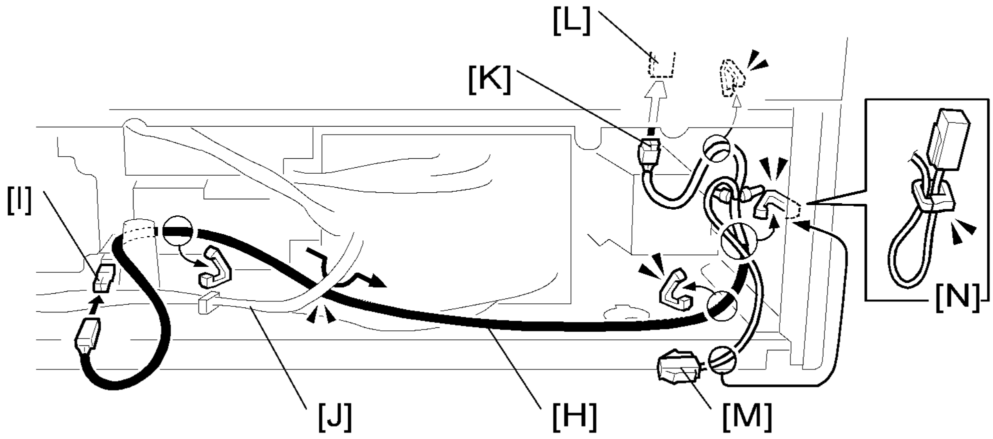
g832i251

4. Remove the two securing brackets [B] (🔩 x 1 each), and then the rear cover [C] of the optional paper tray (🔩 x 2).
5. Remove the harness cover bracket [D] (🔩 x 1).



g832i250a

6. Pull out tray 2 from the mainframe.
7. Replace the shoulder screw [E] with the washer screw [F], using the securing bracket [G] (🔩 x 1).



g832i252

8. Connect the harness [H] to the connector [I] of the tray heater.
9. Route the harness [H] as shown and clamp it with four clamps (🗜 x 4).

Note

- Make sure that the harness [H] is placed below the harness [J].

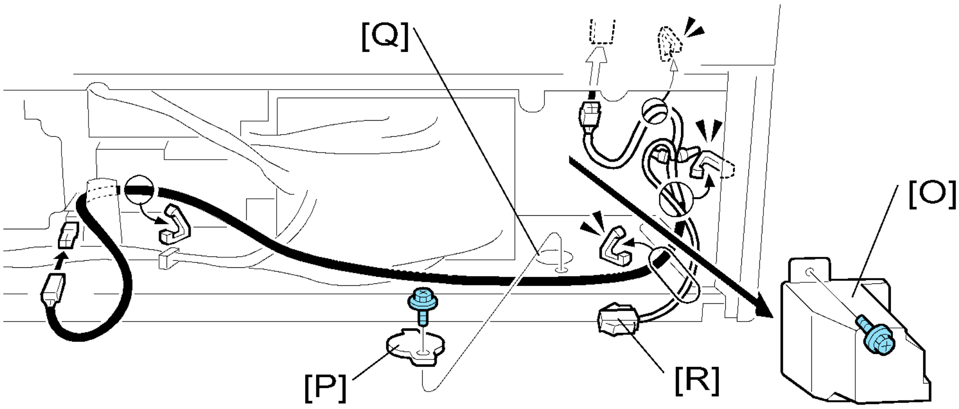
10. Connect one harness [K] of the two-way harness to the connector [L] of the mainframe.

Note

- Connect [K] to the connector on the mainframe. The harness of connector [K] has two binders. The harness of the other connector [M] has one binder, and this is for another optional paper feed unit.

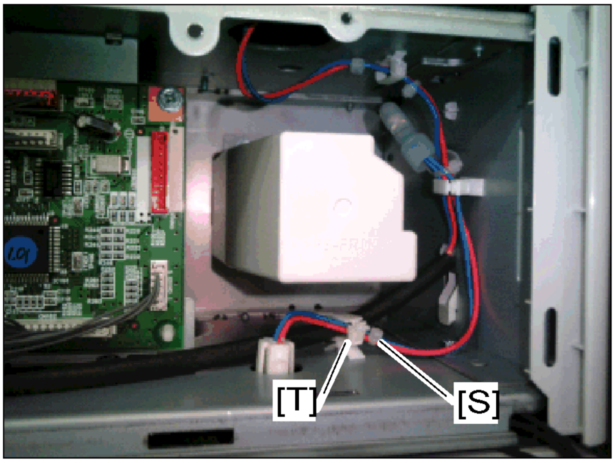
11. Clamp the other harness [M] of the two-way harness as shown [N] if you do not install another optional paper feed unit.

Do steps 12 to 14 if you install another optional paper feed unit below G832. If not, skip to step 15.



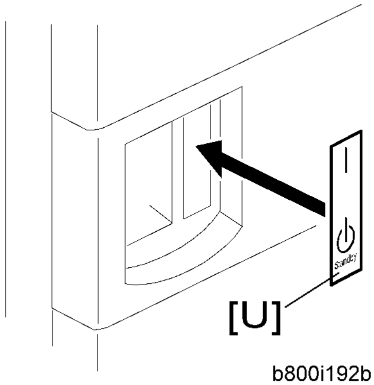
g832i253

12. Remove the tray bar cover [O] (🔩 x 1).
13. Remove the harness cover bracket [P].
14. Pass the harness from the lower paper feed unit through the hole [Q], and then connect it to the harness [R].



Note

- Make sure that the harness is clamped, with the bind [S] placed at the right hand side of the clamp [T].



b800i192b

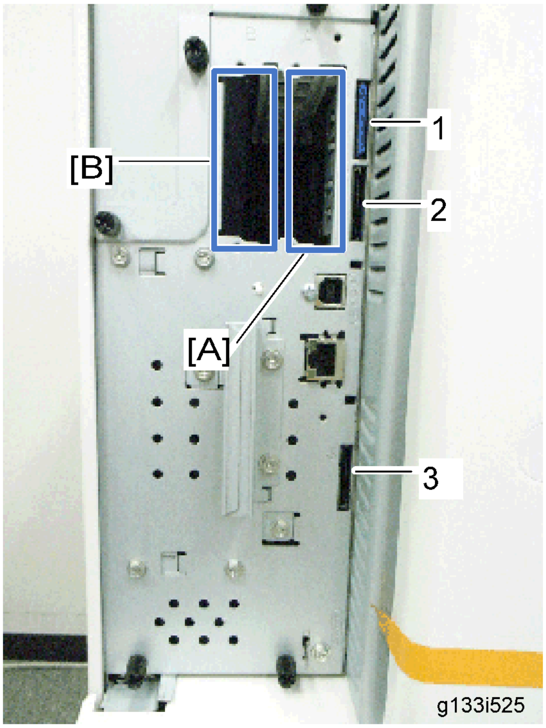
15. Reassemble the mainframe and optional paper tray.
16. Attach the on/standby decal [U] to the right-hand side of the main power switch.

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 the USB Host only.
- Slot B is used for one of the optional I/F connections (only one can be installed): IEEE1284, IEEE802.11 (Wireless LAN), Bluetooth or Gigabit Ethernet.

SD Card Slots

- Slot 1 is used for the system card only.
- Slot 2 is used for one of the optional applications: Data Overwrite Security Unit, PictBridge.
- Slot 3 is used for installing the VM card, 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.

You cannot run application programs from Slot 3. However you can move application programs from Slot 3 to Slot 2 with the following procedure.

Do not remove the system card from slot 1.

Make sure that the target SD card has enough space, and put it in slot 2.

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

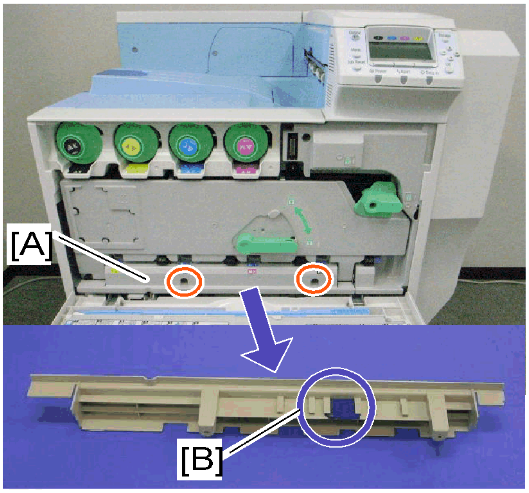
   Note

   - Do steps 1-2 again if you want to move another application program.

3. Exit the SP mode.

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

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



- 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.

Move Exec

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

Important

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

1. Turn the main switch off.
2. Make sure that an SD card is in SD Card Slot 2. The application program is copied 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 2. 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).

Data Overwrite Security Unit Type G (G874)

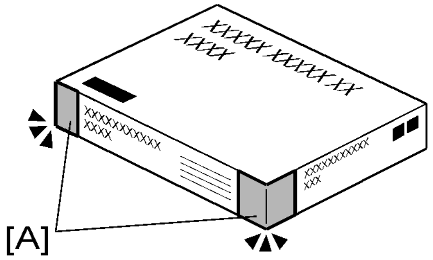
Before You Begin the Procedure

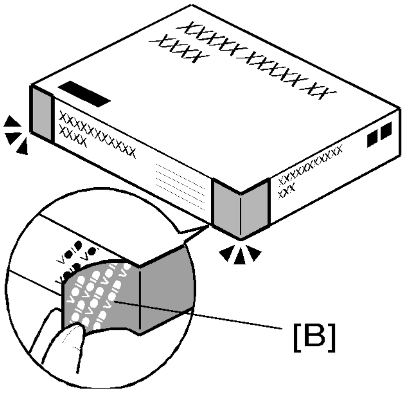
Confirm that the Data Overwrite Security unit SD card is the correct type for the machine. The correct type for this machine is type "G".

Important

- If the NVRAM is replaced, then the data overwrite security feature must be replaced with the new data overwrite security option.

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

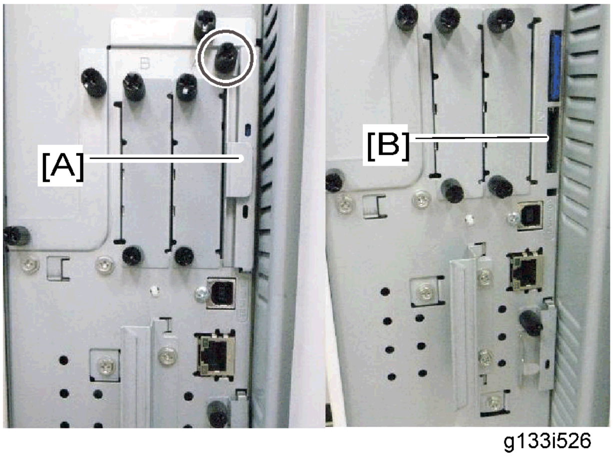
⚠CAUTION

- **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 PictBridge option is also installed in SD Card slot 2. You must do the SD Card Appli move procedure first if you have the 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.



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 main power 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 No. / Firmware Version]" – "HDD Format Option"
    - [b]: "[Loading Program]" – "GW1a_zoffy"

Diagnostic Report:	"ROM No. / Firmware Version" [a]	"Loading Program" [b]
Data Overwrite Security Unit	HDD Format Option: B7355050 / 0.03	GW2a_zoffy: B7355050 / 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 G).

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. Exit the SP mode.

2. Preventive Maintenance

User Maintenance Items

The user replaces the following maintenance items.

Mainframe

Replacement Items

Item	Remarks
• PCU - BK, C, M, Y • Waste Toner Bottle	40 KP (YMC, BK)
• Fusing Unit • Paper Transfer Roller	120 KP
• Image Transfer Belt Unit • Dust Filter	160 KP

Chart: A4 (LT), 5%

Mode: 3 pages/Job

Environment: Recommended temperature and humidity

Yield changes depend on circumstances and print conditions

An error message shows when a maintenance counter gets to the value in the PM table when the machine's default settings are used.

It is not necessary to reset counters for each part. The machine detects new components automatically and resets the necessary counters.

Service Maintenance Items

Mainframe

Cleaning Items

Item	EM
• Dust Shield Glass of the Laser Optics Housing Unit	Cleaning tool, provided with the machine (the tool is on the inside of the front cover)
• Paper Dust Container	-
• Sensors (including the ID sensors)	Dry cloth
• Rollers	Damp cloth

Optional Units

C: Clean

Paper Tray Unit/ Two-tray Paper Feed Unit/ LCT

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

1000/3000-Sheet (Booklet) Finisher

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

1000/3000-Sheet (Booklet) Finisher Punch Kit

Items	EM	Remarks
Punch Chads	C	Discard chads.

3. Replacement and Adjustment

Beforehand

⚠CAUTION

- Before installing options, please do the following:
  1. If there are printer jobs in the machine, print out all jobs in the printer buffer.
  2. Turn off the main switch and disconnect the power cord and the network cable.

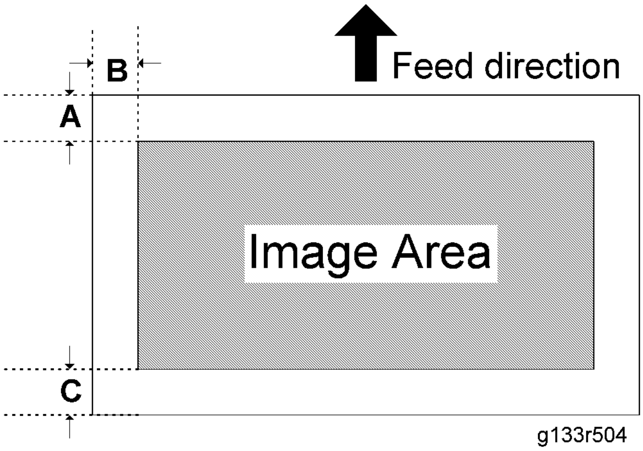
Special Tools

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
C401 9503	20X Magnification Scope	1
A257 9300	Grease Barrierta – S552R	1
5203 9502	Silicone Grease G-501	1
B679 5100	Plug - IEEE1284 Type C	1
B132 9700	Lubricant Powder	1

Image Adjustment

Registration

Image Area



A = 5.2 mm (0.21"), B = 4.2 mm (0.17") C = 3.2 mm (0.13")

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

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.

Adjustment Standard

- Leading edge (sub-scan direction): 5.2 ± 1.5 mm
- Side to side (main-scan direction): 2.0 ± 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: 0.5 ± 4 mm

Adjustment Procedure

1. Enter SP2-109-003.
2. Select the test pattern (14: 1-dot trimming pattern) with SP2-109-003.
3. Exit SP mode.
4. Enter the menu mode, and then select "Color Demo Page" (Menu > "List/Test Print" > "Color Demo Page").

   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.
5. Do the leading edge registration adjustment.

   a. Check the leading edge registration and adjust it with SP1-001.

   b. Select the adjustment conditions (paper type and process line speed).

   c. Change the value with the ◀/▶, ▲/▼ keys. Then press the "OK" key.

   d. Generate a trim pattern to check the leading edge adjustment.
6. Do the side-to-side registration adjustment.

   a. Check the side-to-side registration and adjust it with SP1-002.

   b. Select the adjustment conditions (paper feed station).

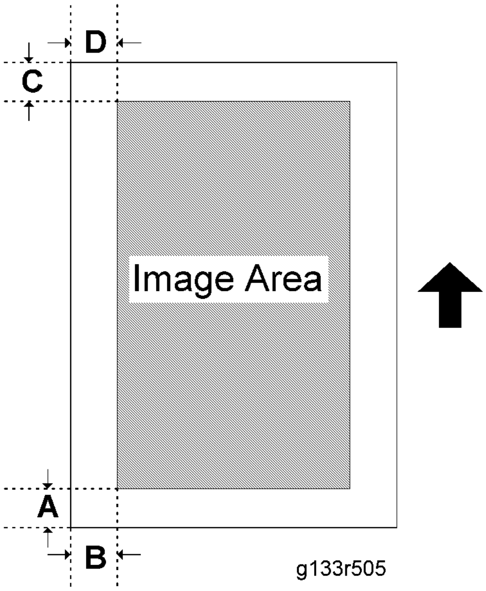
   c. Change the value with the ◀/▶, ▲/▼ keys. Then press the "OK" key.

   d. Generate a trim pattern to check the leading edge adjustment.
7. Return the value of the setting in SP2-109-003 to "00" before completing this procedure.

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. Select the test pattern (14: 1-dot trimming pattern) with SP2-109-003.
3. Exit SP mode.

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 "Forced Line Position" 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 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 or laser optical housing unit

Gamma Adjustment

Note

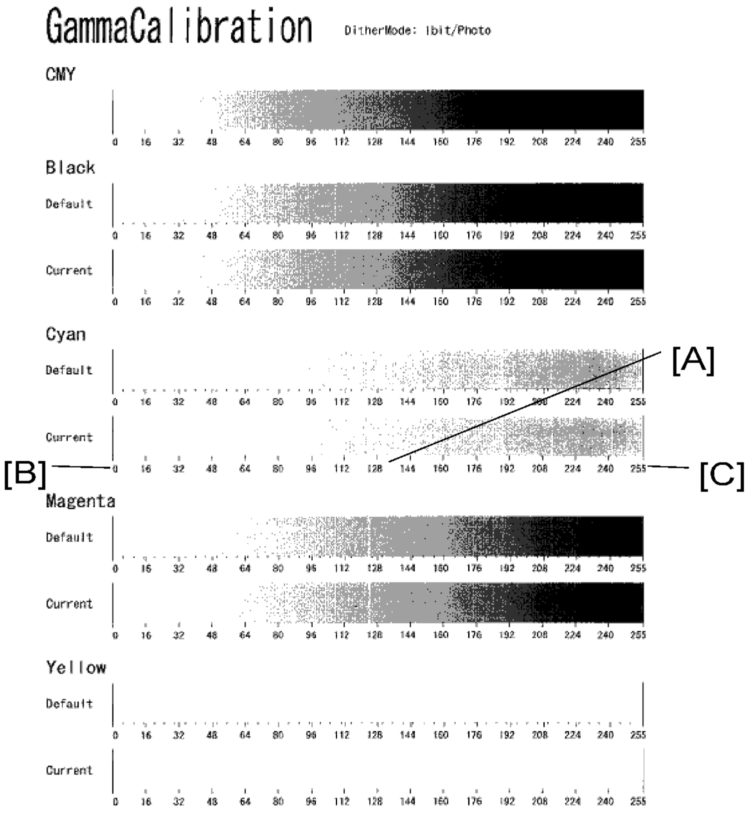
- Clean and/or replace related parts first to solve color quality problems. Do these procedures if adjustments are necessary:

Summary

To adjust the printer gamma:

- Select the print mode you want to calibrate
- Print a color calibration test sheet
- Make the gradation scales on the printout smooth from the lowest to the highest density. Adjust the CMY gradation scale at the top of the chart by balancing the density of the C, M, and Y gradation scales – the CMY gray scale should change smoothly from minimum to maximum. There should be no coloration.

Examine this color adjustment sheet:



g133r913

You can adjust 15 points for each color: (example [A]) between 0 (lowest density) [B] and 255 (highest density) [C]. For each point, you can adjust the density within 0 and 255.

The gradation scales marked ‘Default’ are printed according to the default gamma settings in the flash ROM in the controller. The gamma adjustment changes the densities at the adjustable points in the gradation scale. The gradation scale marked “Current” shows the current settings.

Compare the “Current” gradation scale with the ‘Default’ at the time you do the adjustment procedure. Select the density for each of the 15 adjustable points, excluding points 0 and 255, from the ‘Default’ gradation scale.

The NVRAM holds three sets of controller gamma settings:

- Those saved this time: Controller SP1-101 "ToneCtlSet" - "Tone (Current)"
- Those saved in the previous adjustment: Controller SP1-101 "ToneCtlSet - Tone (Prev)"
- The factory settings: Controller SP1-101 "ToneCtlSet - "Tone (Factory)".

Adjustment Procedure

1. Enter the controller service mode.
2. Use the down arrow key to select Controller SP1-102 "ToneCtlSet". Then press the Enter key.
3. Use the up/down key to select the mode you want to calibrate, Then press the Escape key until you get back to the controller service mode menu.
4. Use the down arrow key to select Controller SP1-103 "PrnColorSheet". Then press the Enter key.
5. Use the up/down key to select Controller SP1-103-001 "ToneCtlSheet" (normally this is displayed by default). Then press the Enter key.
6. Press the Enter key to print out the "color calibration test sheet". When "Execute?" shows.
7. Press the Escape key 2 times to exit from the menu. when "Execute OK" shows. (You return to Controller SP1-103 "PrnColorSheet" in the controller service menu.)
8. Use the down arrow key to select Controller SP1-104 "ToneCtlValue". Then press the enter key.
9. Use the up/down arrow key to select the setting you want to adjust. Then press the enter key. The three digits in the display (example '016') indicate a position on the color calibration test sheet.

Operation Panel Display	Color Calibration Test Sheet
Set Black 1	Default Value 16
Set Black 2	Default Value 32
Set Black 3	Default Value 48
:	:
:	:
Set Black 13	Default Value 208
Set Black 14	Default Value 224
Set Black 15	Default Value 240
Set Cyan 1 ~ 15	See Set Black 1 ~ 15
Set Magenta 1 ~ 15	See Set Black 1 ~ 15
Set Yellow 1 ~ 15	See Set Black 1 ~ 15

Adjust the color density at each of the 15 points for each of the four colors.

Do the following to decide what density value to input:

a) Look at the color adjustment sheet.

b) Look at the gradation scale entitled ‘Default’ for the color you want to adjust.

c) Go along the scale until you reach the density you want to input.

d) Read off the value on the scale and store it in the machine.

- Use the up/down key to move the cursor along the three-digit display. Then press the Enter key.
- Use the up/down key to change the digit at the cursor. Then press the Enter key.
- Press the Escape key to exit from the menu.

e) Do the same for all 15 points.

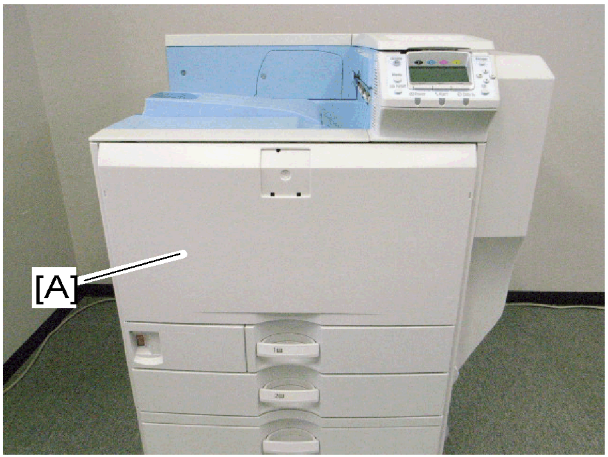
10. When the density setting is complete for all colors, print out a color adjustment sheet again and make sure that the gradation scale for each printed color is smooth and that the CMY gradation scale is gray. Do the adjustment again if there is an anomaly (normally, repeat this procedure 3 to 5 times).
11. Do these when the adjustment results are satisfactory:
12. Use Controller SP1-105 “ToneCtlSave” in the controller service menu, to store the new settings in the controller.
13. Reset the controller (press the [Reset] key when the machine is off line”) to use the new settings.

Note

- You must reset the controller to keep the new settings in the controller NVRAM.

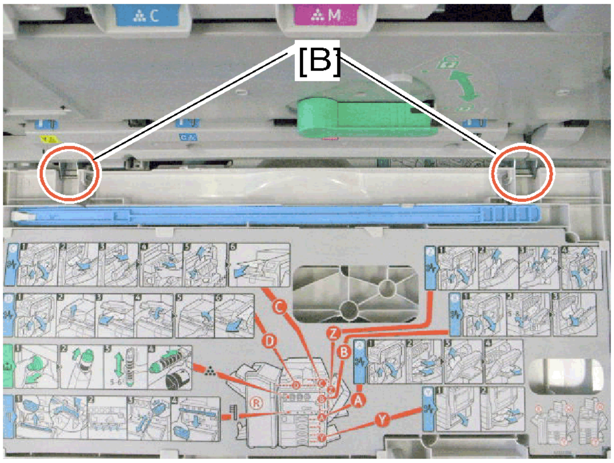
Exterior Covers

Front Door



g133r512

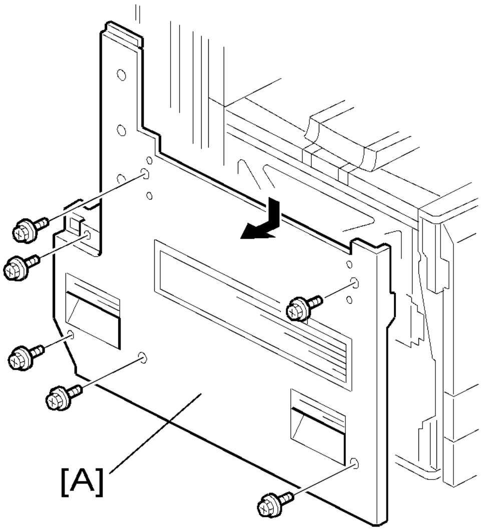
1. Open the front door [A].



g133r513

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

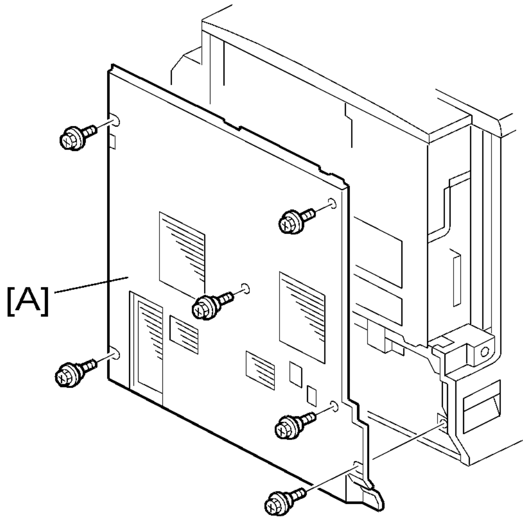
Left Cover



g133r201

1. Left cover [A] (🔩 x 6)

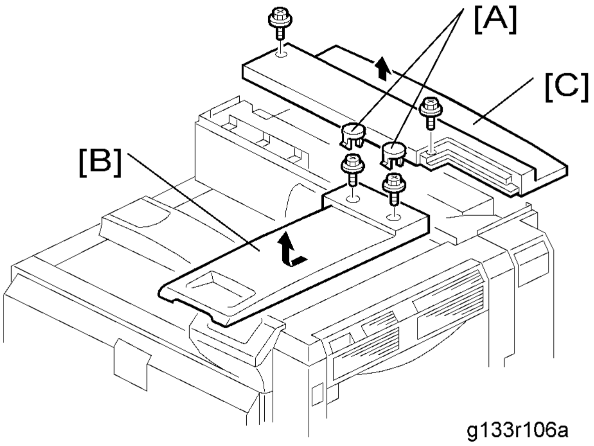
Rear Cover



g133r106

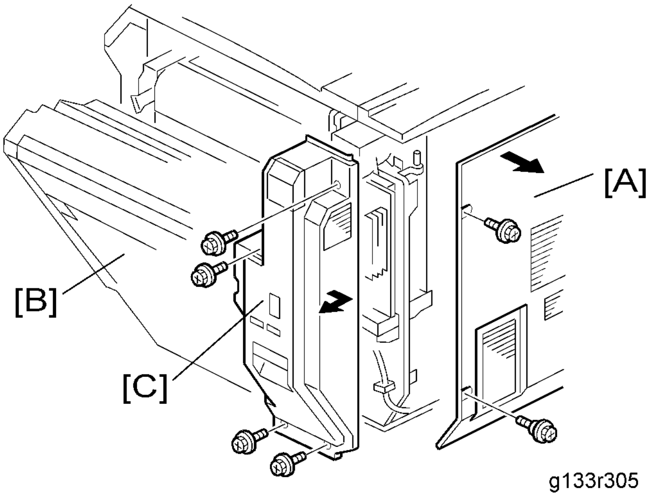
1. Rear cover [A] (🔩 x 6)

Top Right and Rear Cover



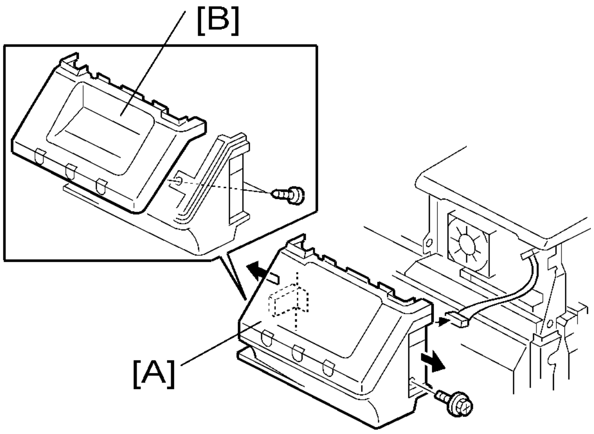
1. Remove the screw caps [A].
2. Top right cover [B] (🔩 x 2)
3. Top rear cover [C] (🔩 x 2)

Right Rear Cover



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

Operation Panel

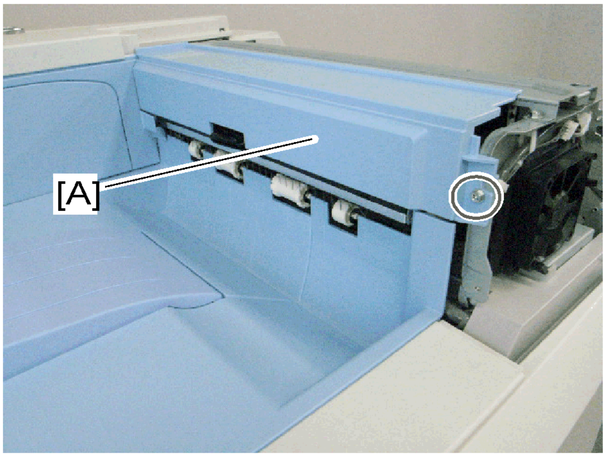


g133r157

1. Open the right door.
2. Operation panel cover [A] (🔩 x 1, 🔌 x 1, hook)
3. Operation panel [B] (🔩 x 2)

Paper Exit Cover

1. Top right cover (☛ "p.96 "Top Right and Rear Cover"")
2. Operation panel cover (☛ "p.97 "Operation Panel"")

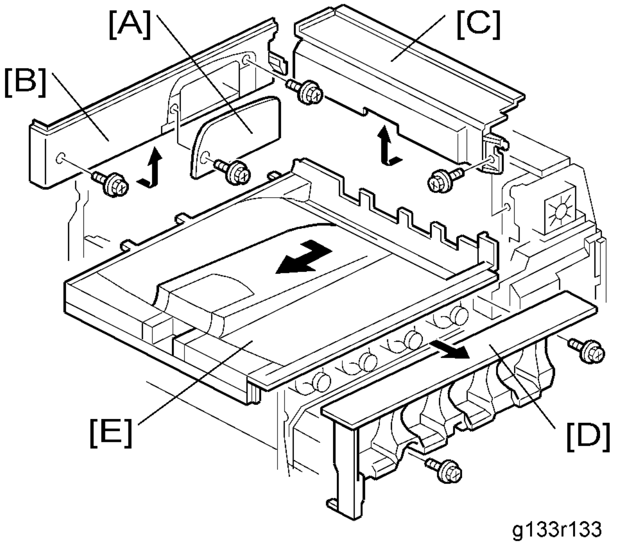


g133r593

3. Paper exit cover [A] (🔩 x 1)

Output Tray

1. Top right cover and top rear cover(☛ "p.96 "Top Right and Rear Cover"")
2. Operation panel cover (☛ "p.97 "Operation Panel"")
3. Left cover (☛ "p.95 "Left Cover"")

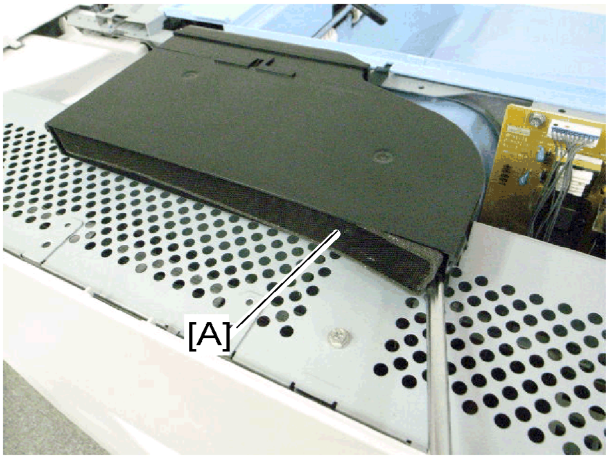


4. Connector cover [A] (🔩 x 1)
5. Inner rear cover [B] (🔩 x 2)
6. Paper exit cover [C] (🔩 x 1)
7. Toner cartridge cover [D] (🔩 x 2)
8. Output tray [E]

Ozone Filter

Ozone filter for charge unit

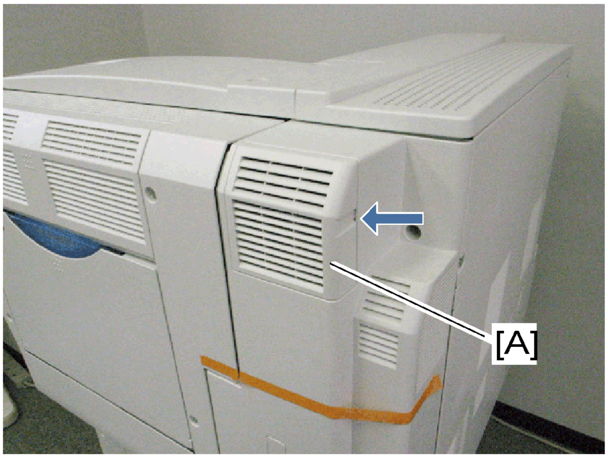
1. Top right cover (☛ "p.96 "Top Right and Rear Cover"")
2. Top rear cover (☛ "p.96 "Top Right and Rear Cover"")



g133r551

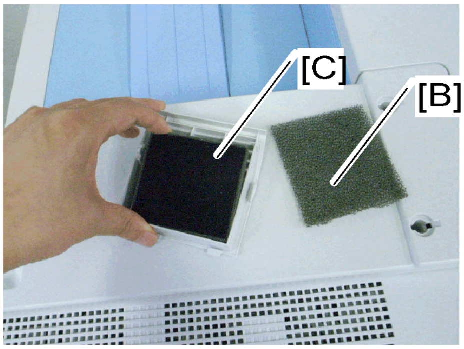
3. Ozone filter [A]

Ozone filter for IH inverter



g133r672

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



g133r673

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

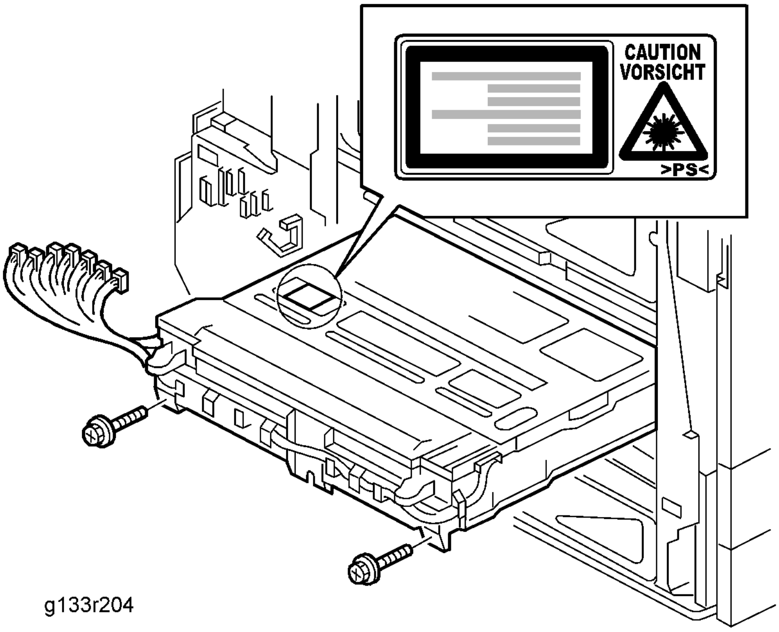
Laser Optics

⚠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.



⚠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 printer 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

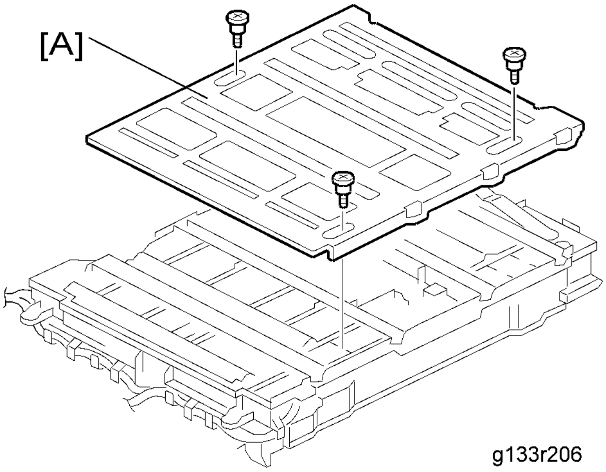
⚠CAUTION

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

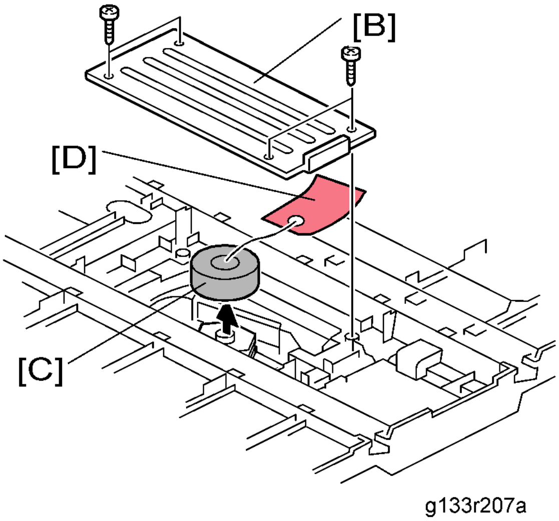
Note

- 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

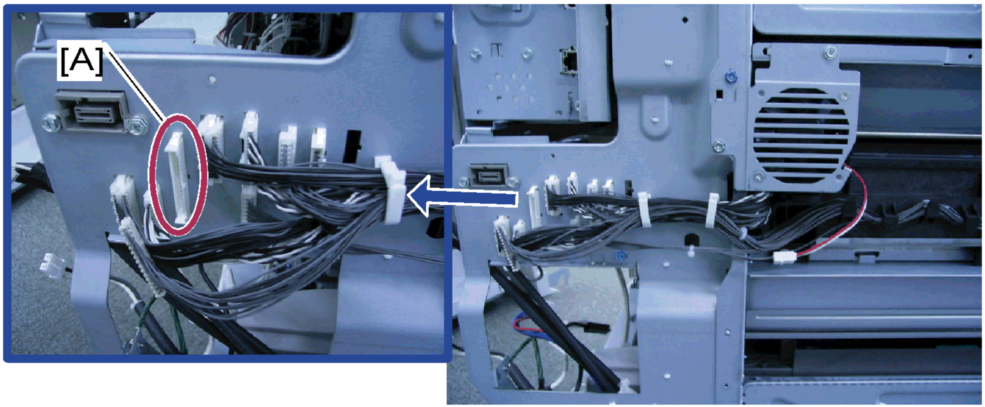
Do the following settings before removing the laser optics housing unit. These are adjustments for skew adjustment motors in the laser optics housing unit.

1. Plug in and turn on the main power switch of the mainframe.
2. Enter the SP mode.
3. Execute SP9-511-001 to clear the L2 lens positioning motor setting for Magenta.
4. Execute SP9-511-002 to clear the L2 lens positioning motor setting for Cyan.
5. Execute SP9-511-003 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 mainframe.

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 mainframe.
2. Remove the left cover and harness cover bracket (see the following "Removing the old laser optics housing unit")

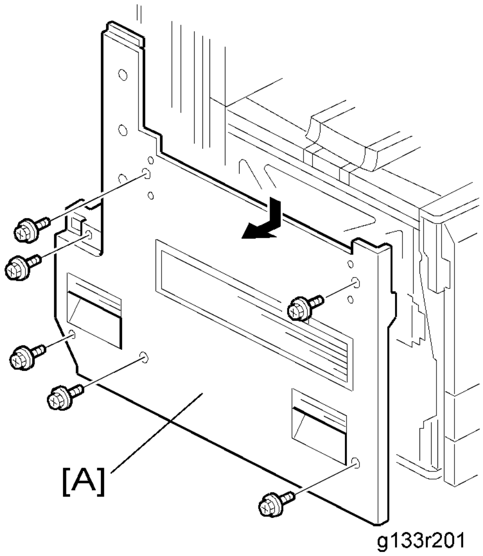


g133r610

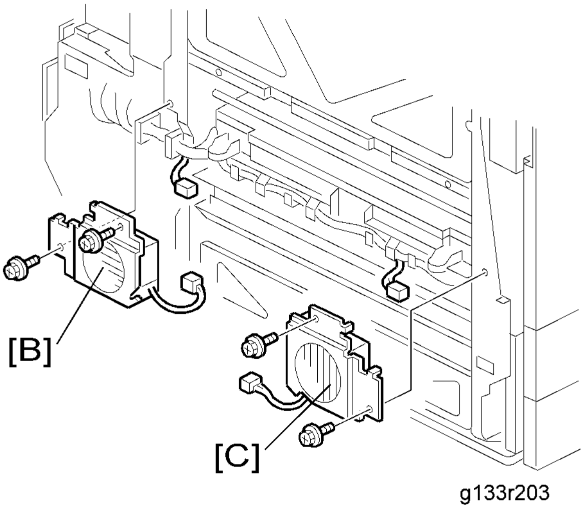
3. Disconnect the harness [A] of the skew correction motor.
4. Do steps 1 to 7 of "Before removing the old laser optics housing unit".

5. Connect the harness [A] and reinstall the harness bracket and left cover.
6. Plug in and turn on the main power switch.

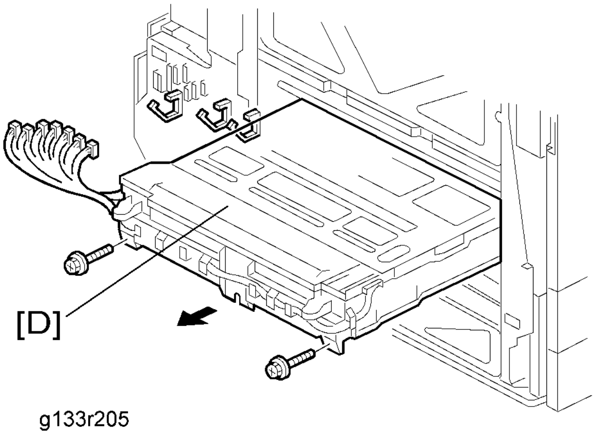
Removing the old laser optics housing unit



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)



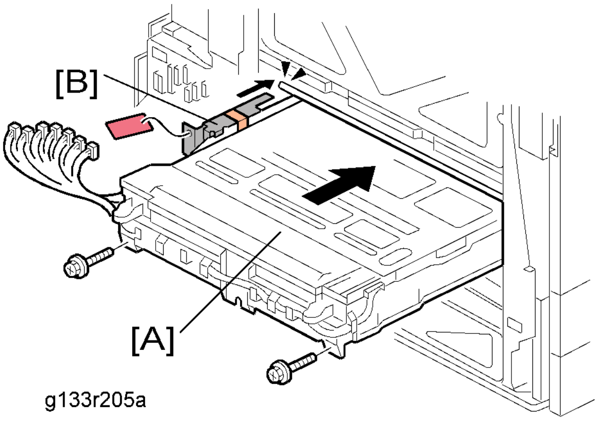
g133r205

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 mainframe when you install the new unit.



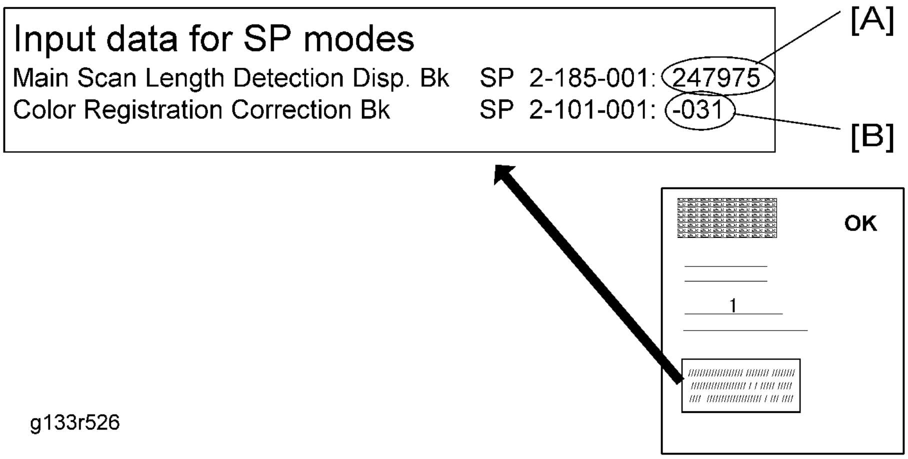
g133r205a

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

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).
    - 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.
    - Print the test pattern (14: 1-dot trimming pattern in the SP2-109-003).
    - 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).
    - Input the registration value [B] provided with a new laser optics housing unit for the main scan registration adjustment with SP2101-001.

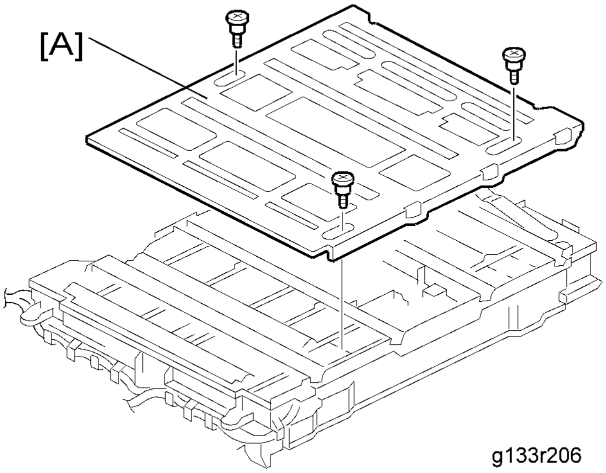
      Note

        - The value [B] is different for each laser optics housing unit.
    - Print the test pattern (14: 1-dot trimming pattern in the SP2-109-003).
    - 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.
    - First do SP2-111-3.
    - Then do SP2-111-1.

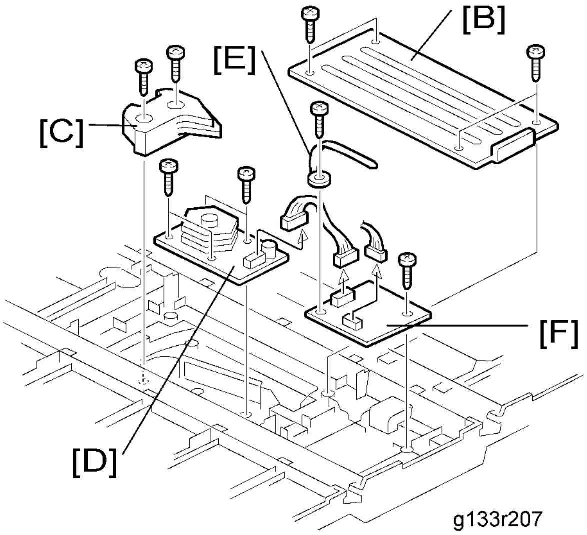
To check if SP 2-111-1 was successful, watch the screen during the process. A message is displayed at the end. Also, you can check the result with SP 2-194-10 to -12.

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.101 "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. Harness clamp [E] (🔩 x 1)
7. Polygon mirror motor drive board [F] (🔩 x 1, 🔌 x 2)

After installing the polygon mirror motor:

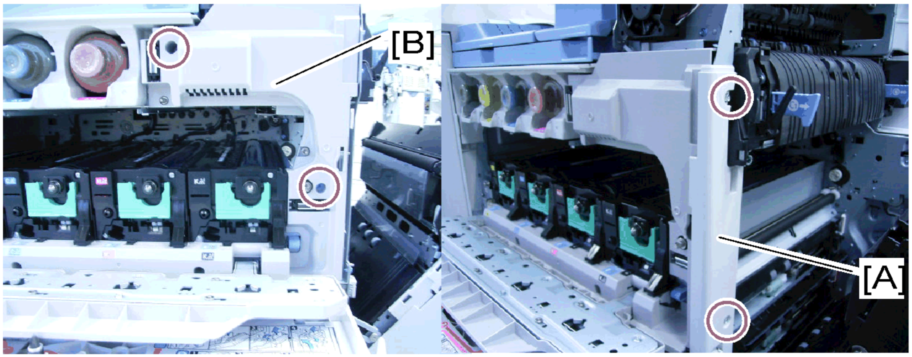
- Do the "Forced Line Position Adj. Mode c" (SP2-111-3).
- Then do the "Forced Line Position Adj. Mode a" (SP2-111-1).

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.

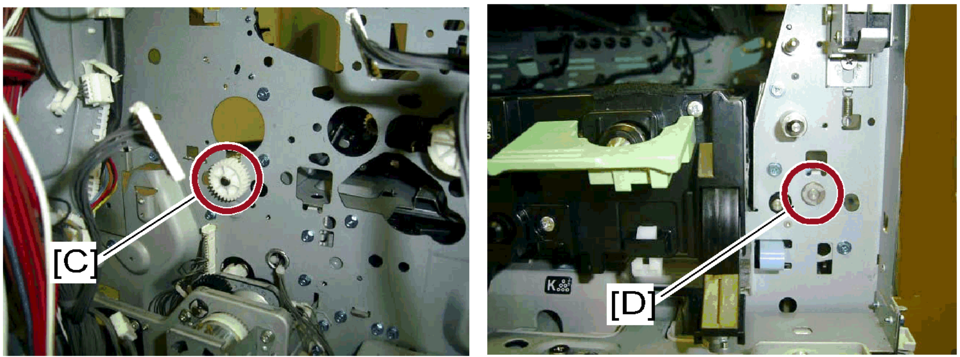
Shutter Motor

1. All PCUs (☛ "p.112 "PCU"")
2. Image transfer belt unit (☛ "p.123 "Image Transfer Belt Unit"")
3. Rear cover (☛ "p.95 "Rear Cover"")
4. Right rear cover (☛ "p.96 "Right Rear Cover"")
5. Controller box (☛ "p.203 "Controller Box"")
6. Third duct (☛ "p.114 "Third Duct Fan"")
7. Left cover (☛ "p.95 "Left Cover"")
8. PSU bracket (☛ "p.207 "PSU"")
9. Gear unit (☛ "p.137 "Gear Unit"")
10. Image transfer belt contact motor (☛ "p.148 "Image Transfer Belt Contact Motor"")
11. Registration motor (☛ "p.144 "Registration Motor"")
12. Duplex unit (☛ "p.198 "Duplex Unit"")
13. Paper guide plate 1 and 2 (☛ "p.188 "Registration Sensor"")
14. Operation panel cover (☛ "p.97 "Operation Panel"")



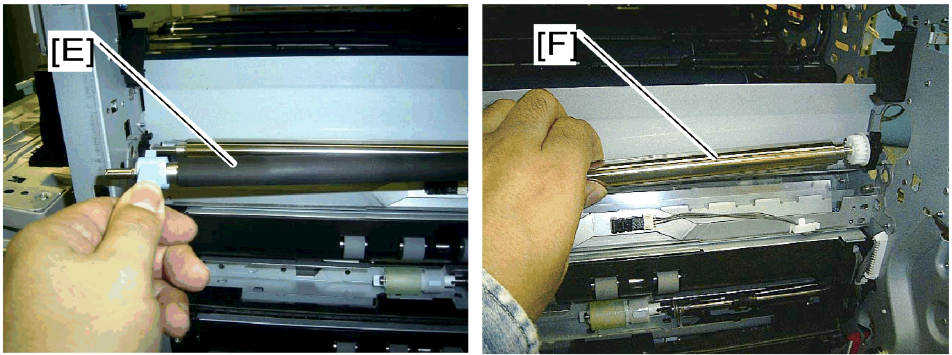
g133r611

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)



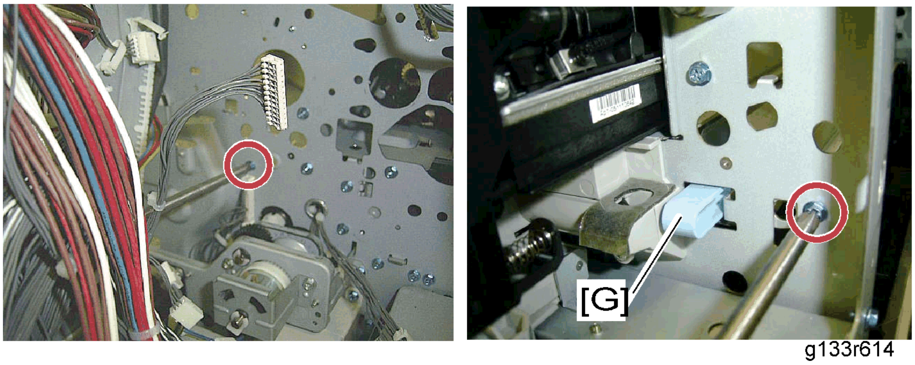
g133r612

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).



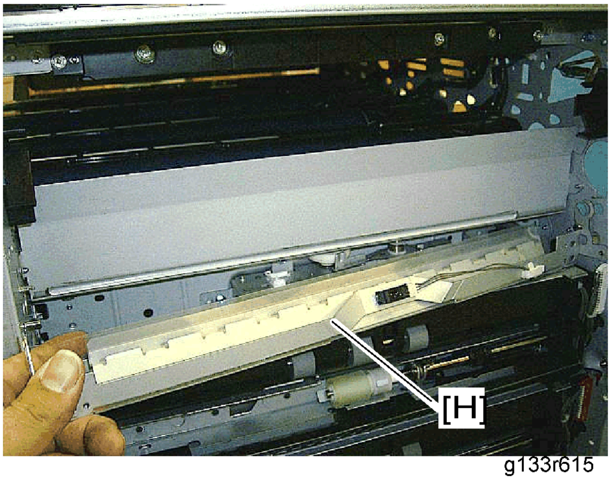
g133r613

20. Registration rollers [E] and [F]



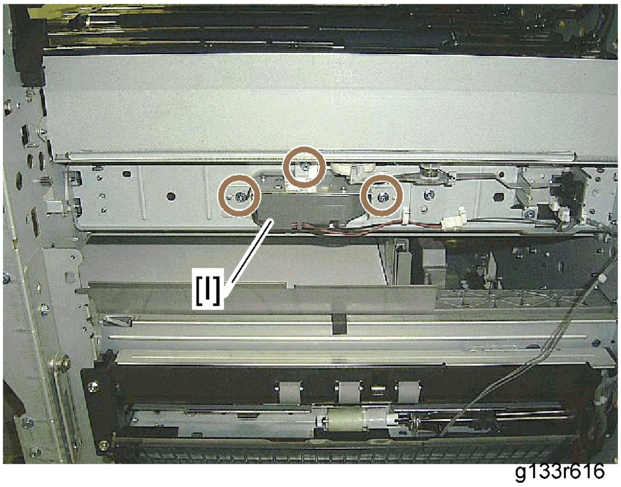
g133r614

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



g133r615

22. Registration sensor bracket [H] (🔌 x 1, 🔩 x 2)
23. Paper feed unit (☛ "p.186 "Paper Feed Unit"")



g133r616

24. Shutter motor [I] (🔩 x 3, 🗜 x 1, 🔌 x 1)

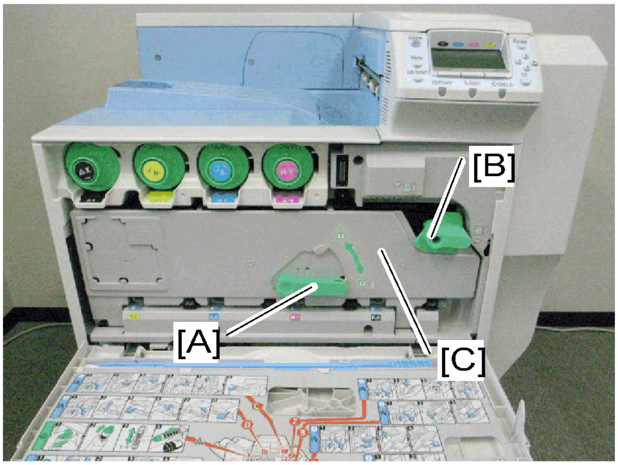
Image Creation

PCU

Note

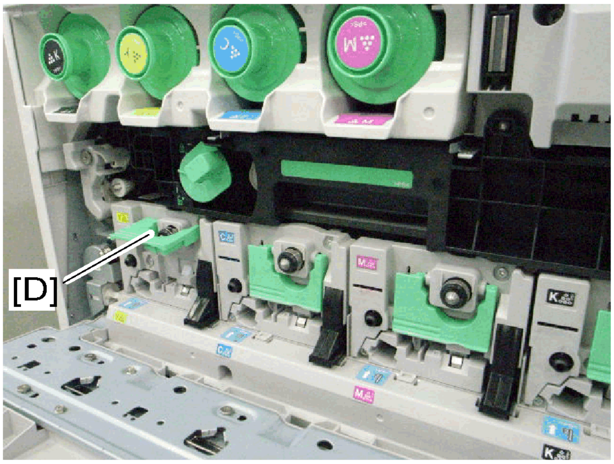
- Do not touch the OPC drum. Do not let metal objects touch the development sleeve.

1. Open the front door.



g133r527

2. Turn the drum positioning plate lever [A] and the image transfer unit lock lever [B] counter-clockwise.
3. Open the drum positioning plate [C].

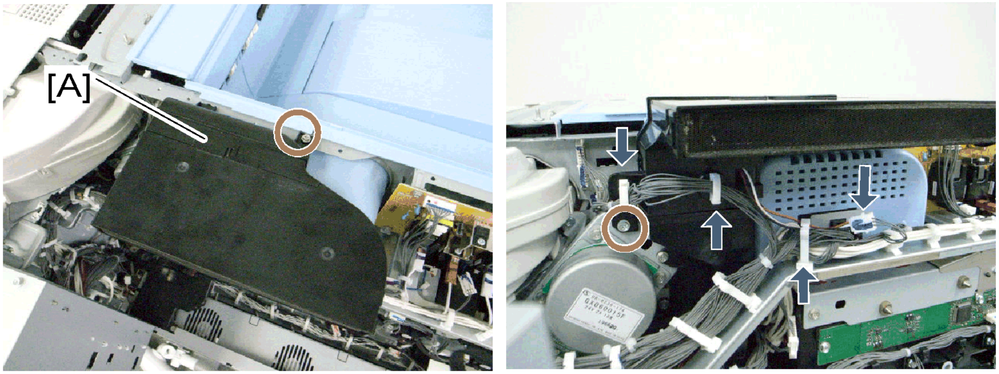


g133r528

4. Pull out the PCU (hold the grip while you pull it out) [D].

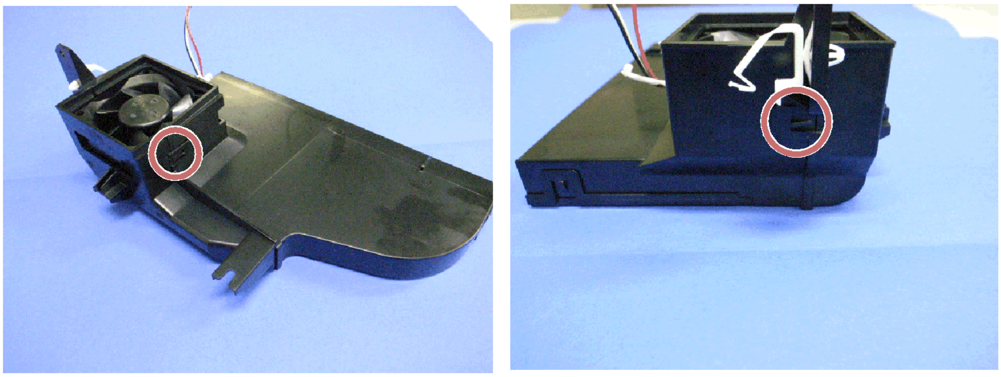
Second Duct Fan

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Top right cover (☛ "p.96 "Top Right and Rear Cover"")
3. Top rear cover (☛ "p.96 "Top Right and Rear Cover"")
4. Open the controller box (☛ "p.203 "Controller Box"")



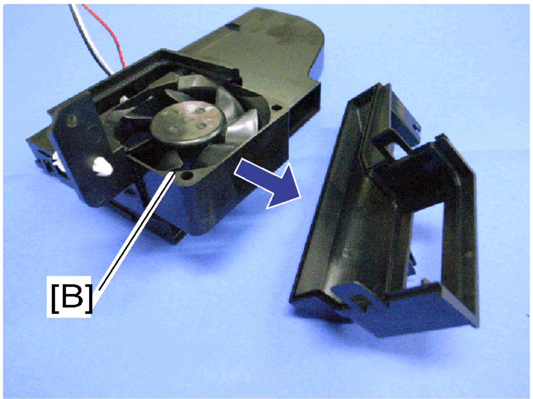
g133r536

5. Second duct [A] (🔩 x 2, 🔌 x 1, ⊏ x 3)



g133r537

6. Split the second duct (2 hooks).



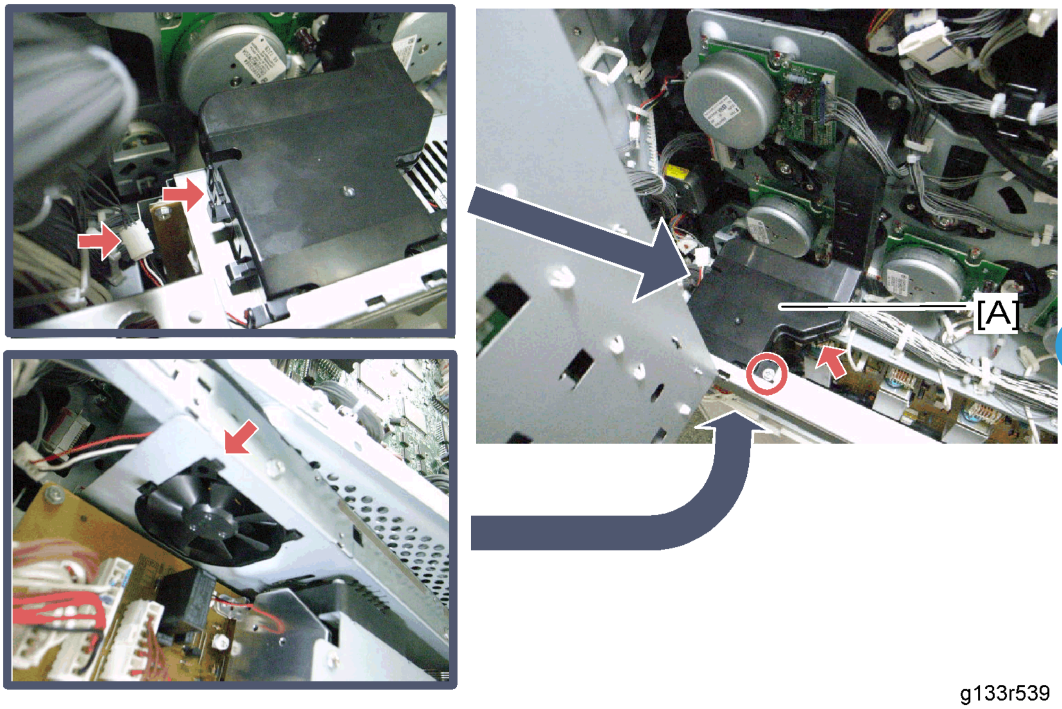
7. Second duct fan [B]

When reinstalling the second duct fan

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

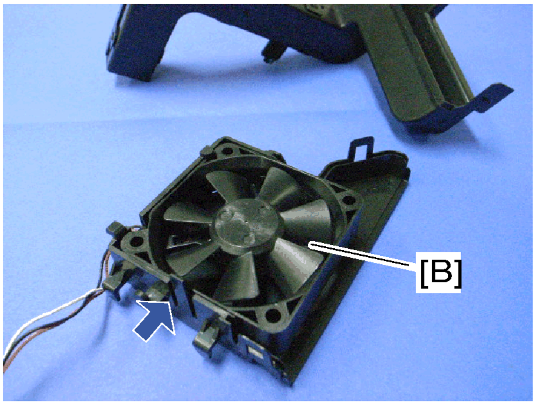
Third Duct Fan

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Top right cover (☛ "p.96 "Top Right and Rear Cover"")
3. Top rear cover (☛ "p.96 "Top Right and Rear Cover"")
4. Open the controller box (☛ "p.203 "Controller Box"").
5. PSU bracket (☛ "p.207 "PSU"")



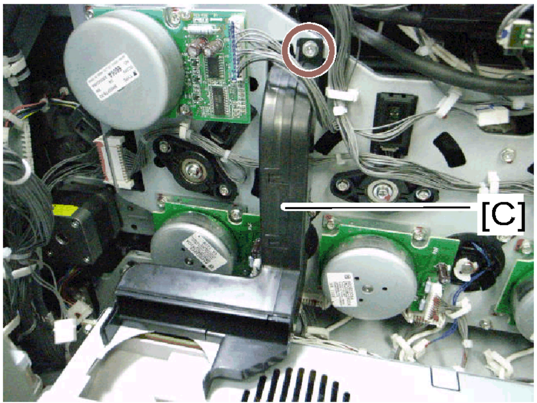
g133r539

6. Third duct fan cover [A] (🔩 x 1, 🔌 x 1, hook x 3)



g133r540

7. Third duct fan [B] (hook x 1)



8. Third duct [C] (🔩 x 1)

When reinstalling the third duct fan

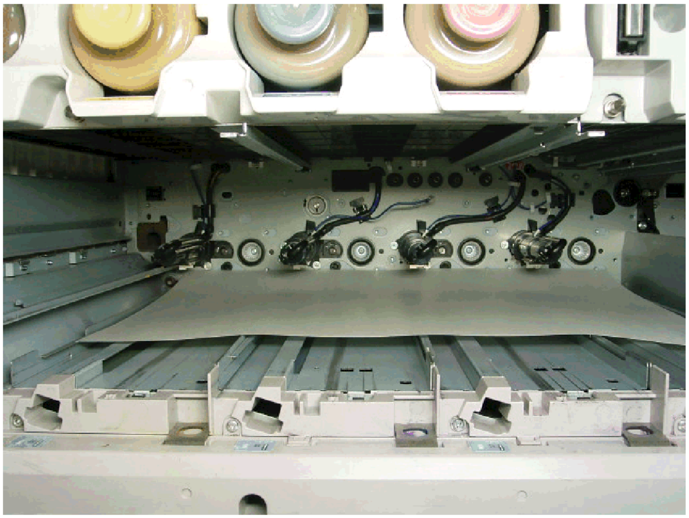
Make sure that the third duct fan is installed with its decal facing to the upper side of the machine.

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

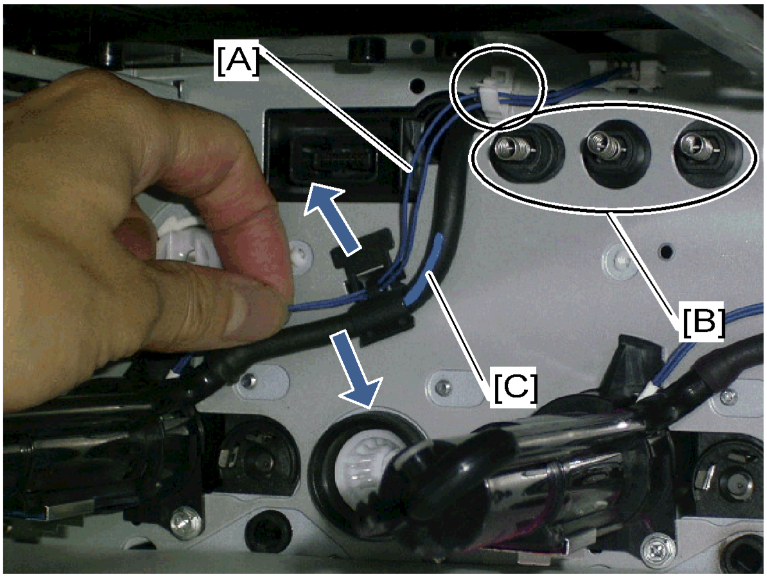
- Put some sheets of paper on the floor before doing this procedure. Toner may fall on the floor.



1. Front door (☛ "p.95 "Rear Cover"")
2. Image transfer belt unit (☛ "p.123 "Image Transfer Belt Unit"")
3. All PCUs (☛ "p.112 "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.



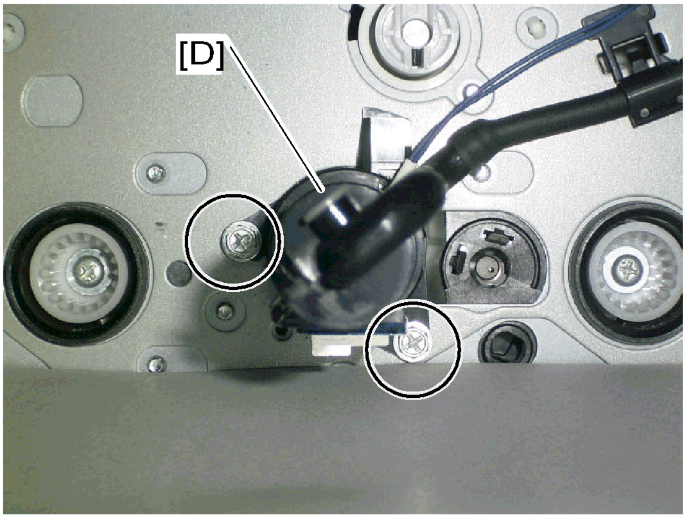
g133r702

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

Note

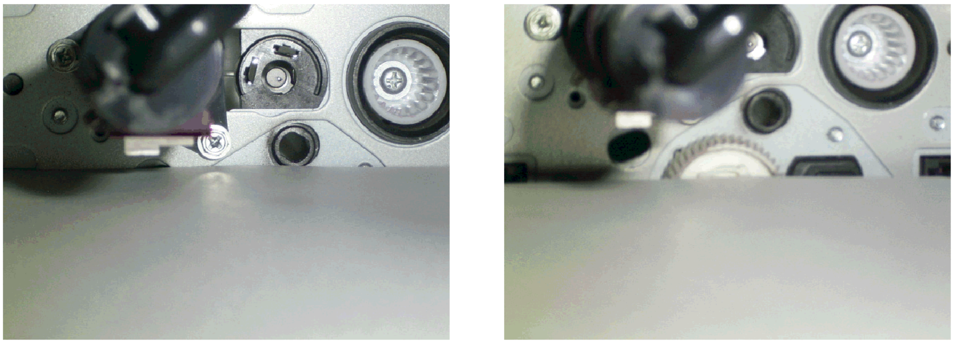
- Avoid touching these spring terminals [B].

6. Release the toner supply tube [C].



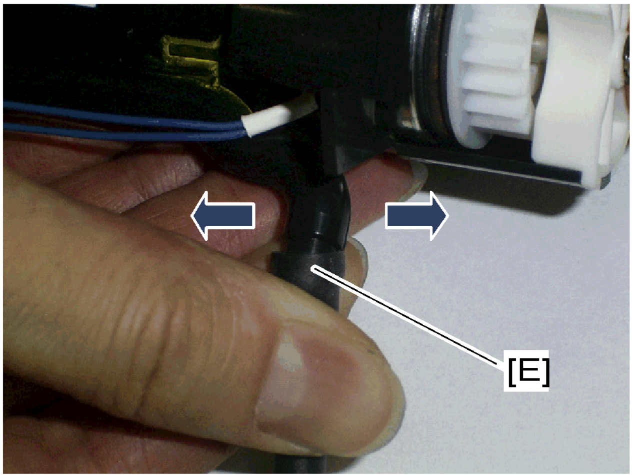
g133r703

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



g133r704

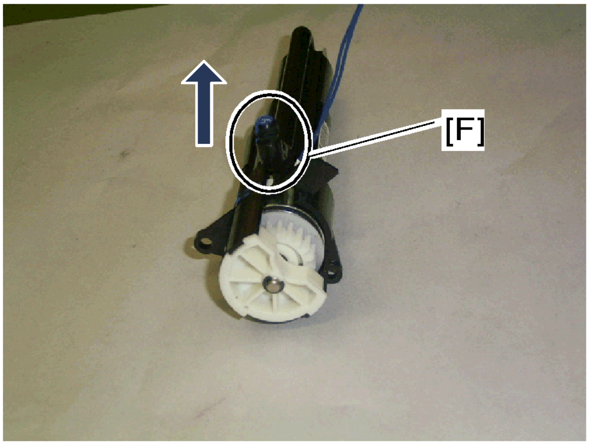
Make sure that a sheet of paper is attached to the frame of the rear side and covers the four gears. The picture on the left shows a sheet of paper that is correctly set, but the picture on the right shows a sheet of paper that is not correctly set. This sheet of paper prevents toner and screws from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



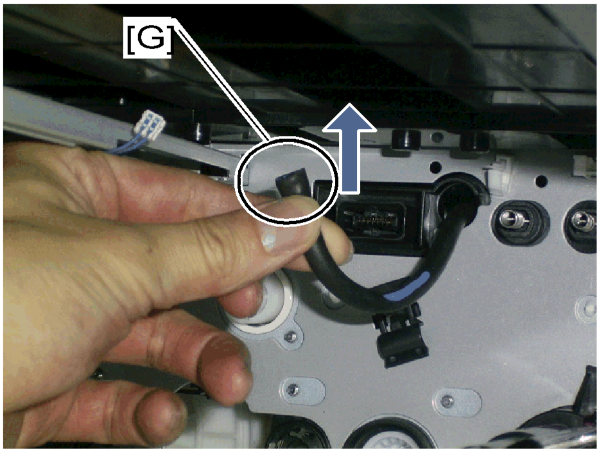
8. Slowly remove the toner supply tube [E] from the toner pump unit by pulling the tube right and left.
9. Turn up the openings of the toner pump unit and toner supply tube just after removing the tube.

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.

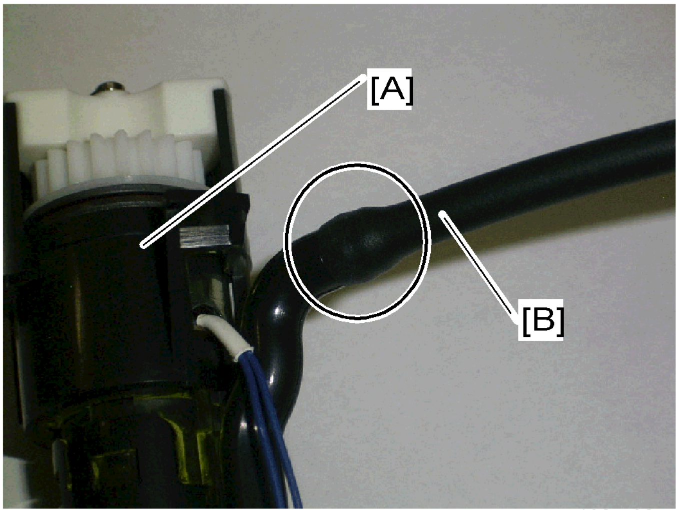


g133r707

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

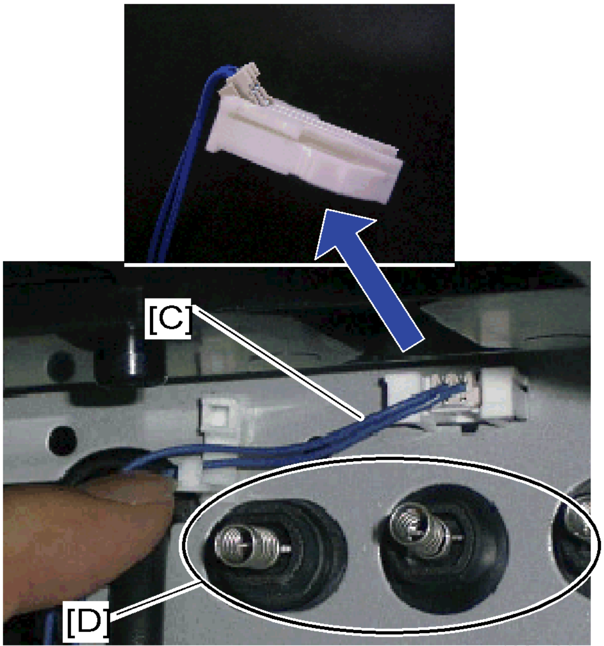
When you install the new toner pump unit

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



g133r708

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.



g133r709

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

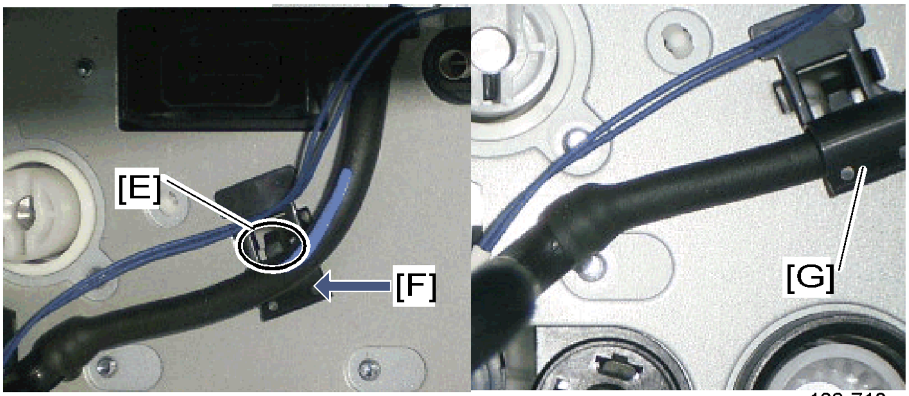
Note

- 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].



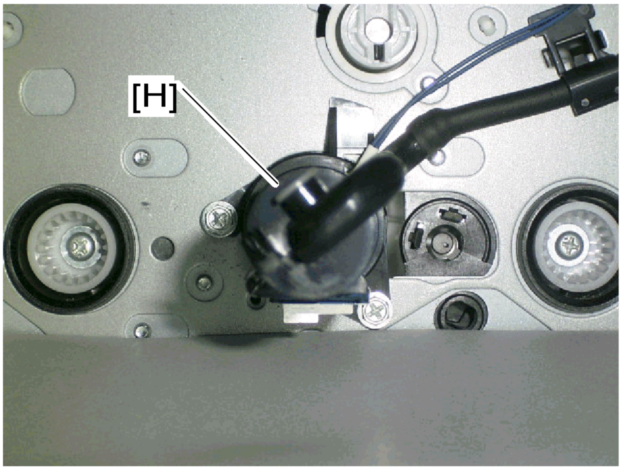
g133r710

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

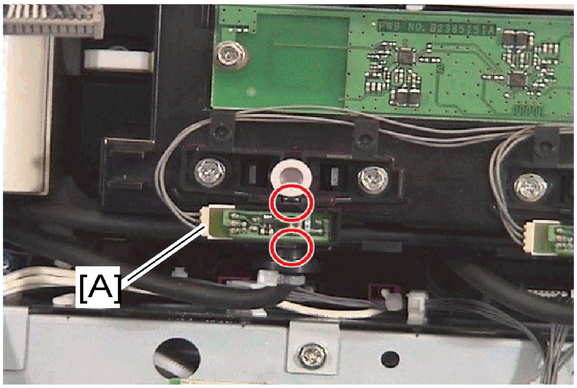
- Be careful when you lift the edge of the holder, because the holder is easily broken.



g133r711

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

Toner End Sensor

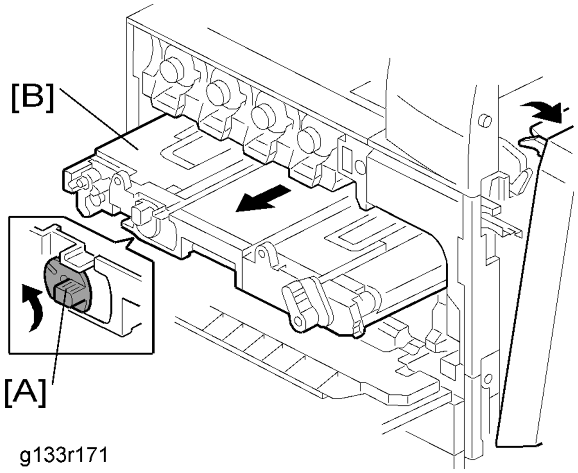


g133r042

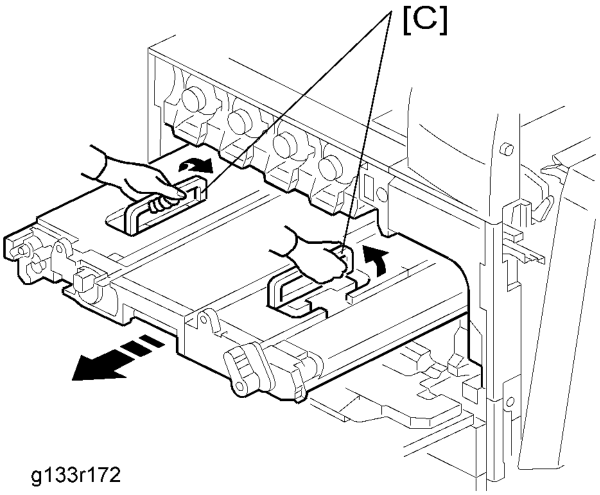
1. Rear cover (☛ "p.95 "Rear Cover"")
2. Open the controller box (☛ "p.203 "Controller Box"")
3. Toner end sensor [A] (🔌 x 1, 2 hooks each)

Image Transfer

Image Transfer Belt Unit



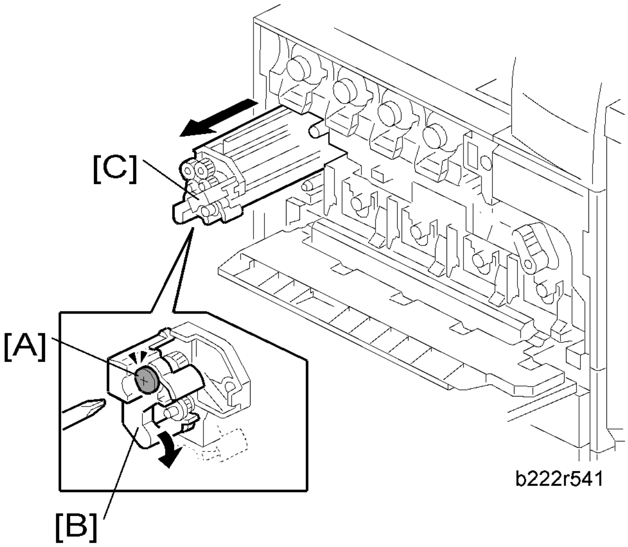
1. Open the right door.
2. Open the front door
3. Open the drum positioning plate. (☛ "p.112 "PCU"")
4. Turn the image transfer belt unit lock lever [A] counterclockwise.
5. Pull out the image transfer belt unit [B] halfway.



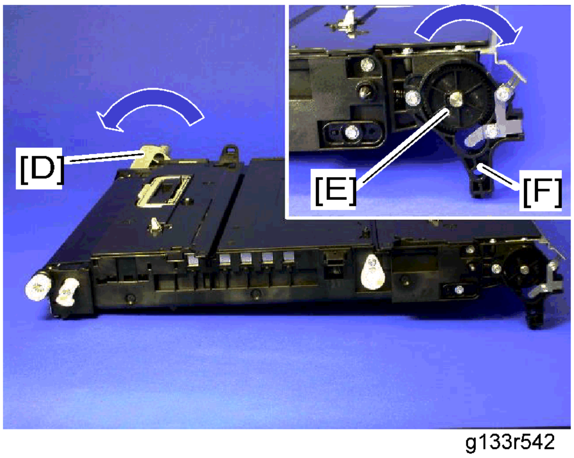
6. Grasp the handles [C], and then pull out the image transfer belt unit fully.

Image Transfer Belt

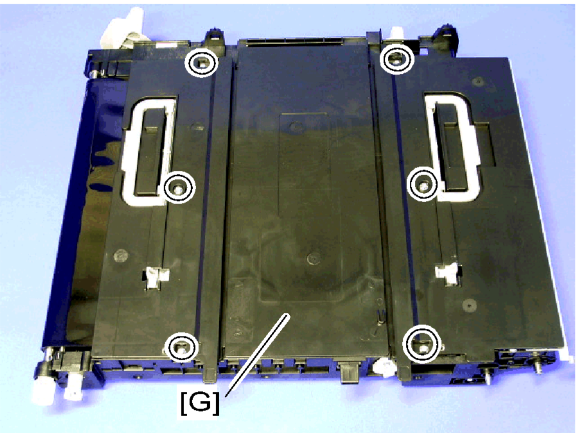
1. Open the right door.
2. Open the front door
3. Open the drum positioning plate. (☛ "p.112 "PCU"")



4. Loosen the screw [A].
5. Turn the lock lever [B] clockwise
6. Pull out the image transfer belt cleaning unit [C].
7. Image transfer belt unit (☛ "p.123 "Image Transfer Belt Unit"")

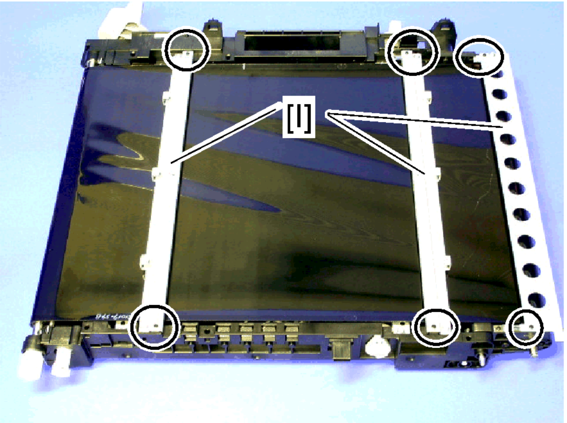


8. Turn the image transfer unit contact lover [D] counterclockwise (as seen from the rear).
9. Gear [E] (hook x 1)
10. Turn the gear cover [F] clockwise (as seen from the rear) (🔩 x 1).



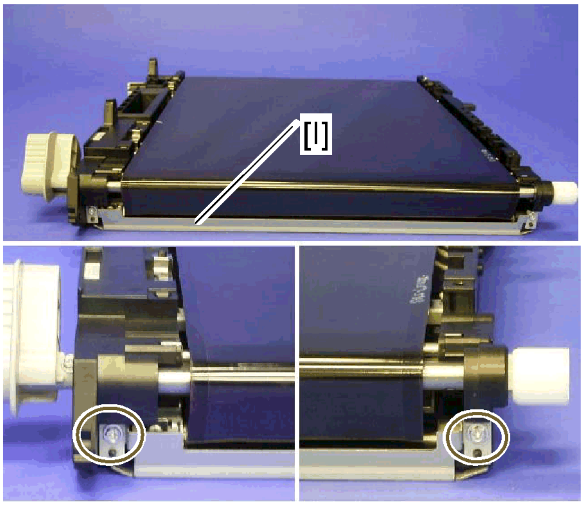
g133r543

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

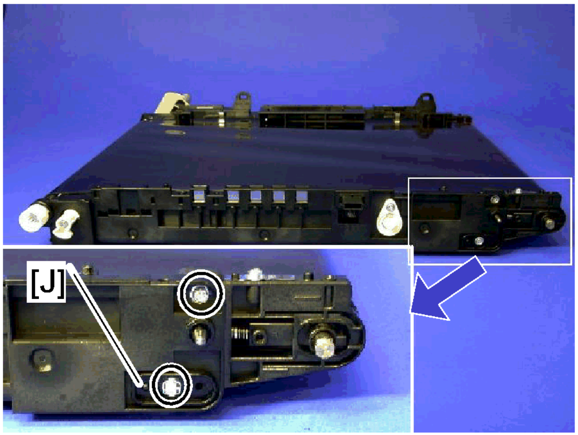


g133r544

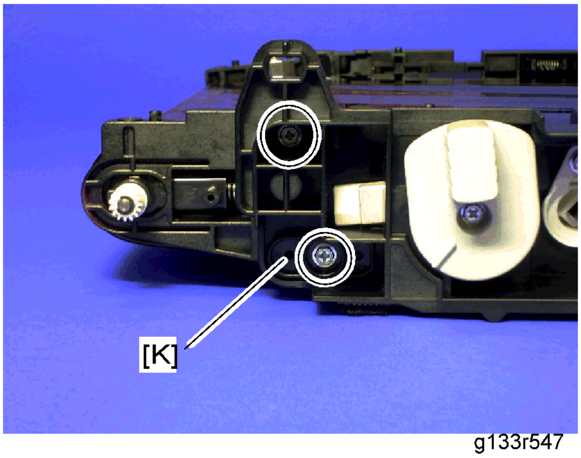
12. Three stays [H] (🔩 x 6)



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

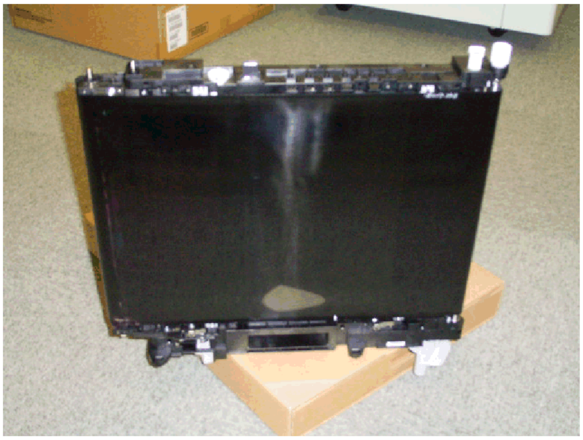


14. Remove the two screws and then rear hold bracket [J] (as seen from the rear).



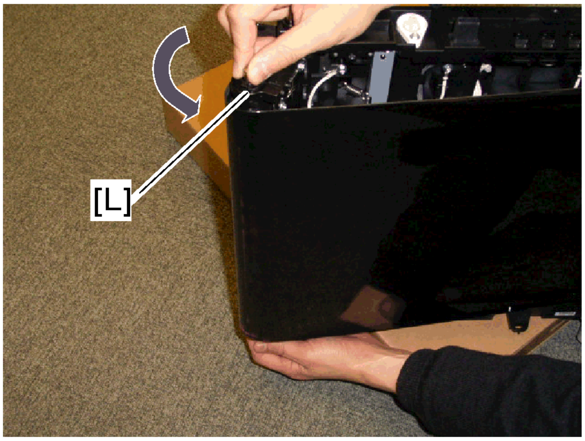
g133r547

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



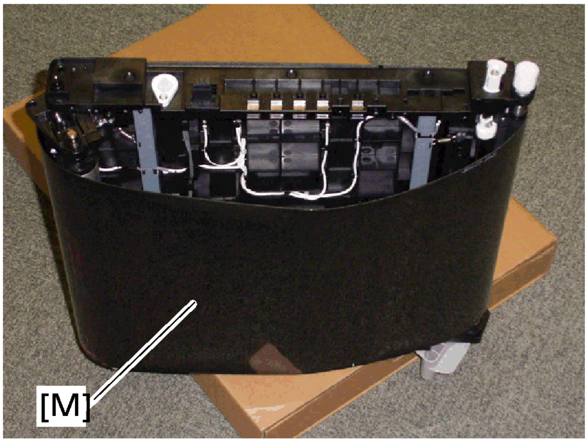
g133r548

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



g133r549

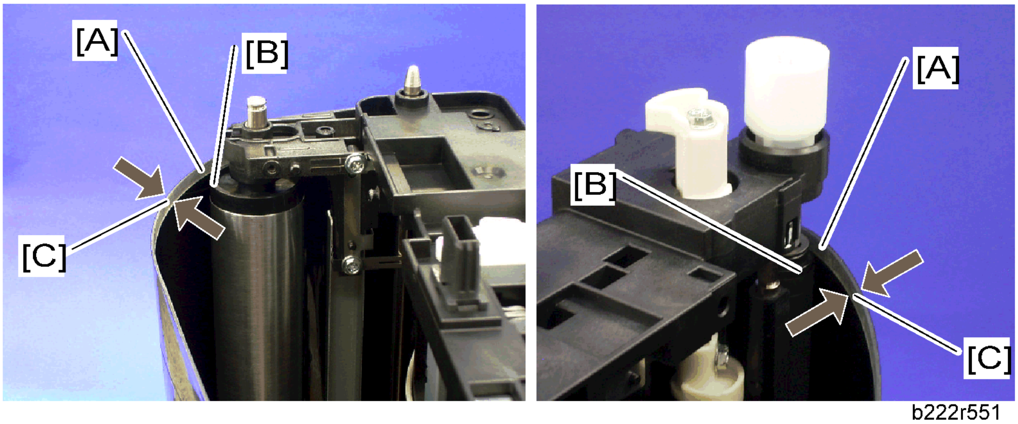
17. Pull the tension roller [L] as shown.



18. Image transfer belt [M]

When reinstalling the image transfer belt

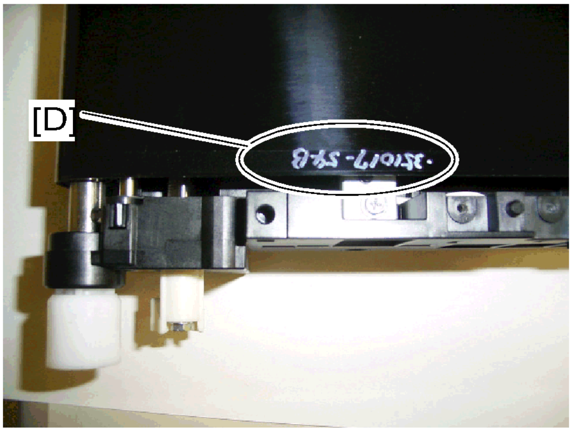
- Clean all rollers with dry cloth before installing the image transfer belt.



- 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.

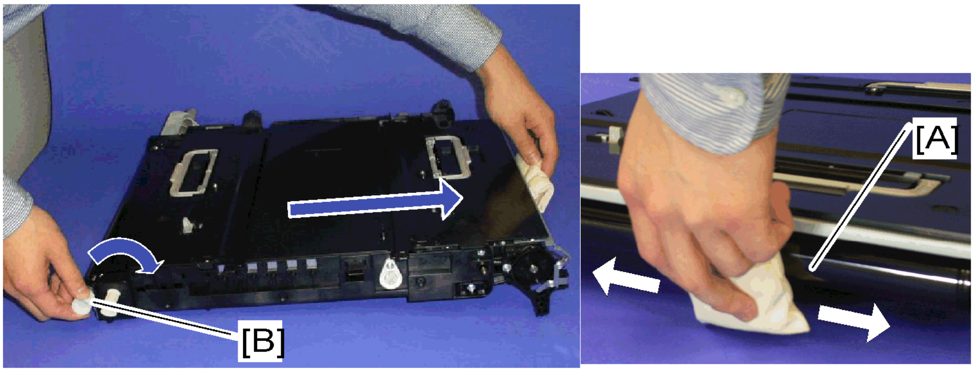
  Note

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



b222r552

- 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.



b222r553

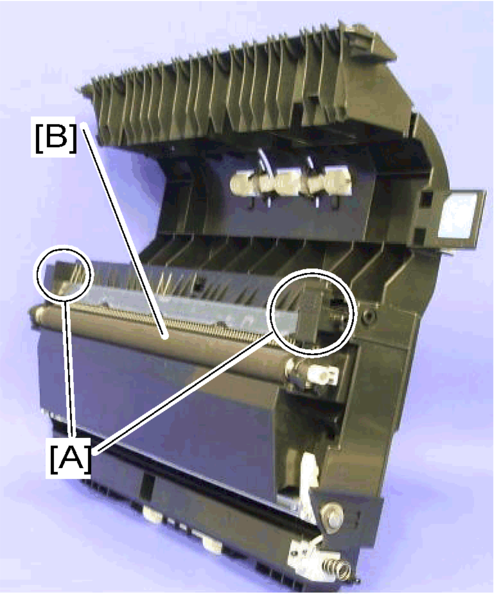
- Put "Lubricant Powder" (B132 9700) on the surface of the image transfer belt [A], while you turn the drive gear [B] at a constant speed, as shown. (The straight arrow in the picture shows belt movement direction.) Lubricant powder prevents the image transfer cleaning blade from turning up.

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

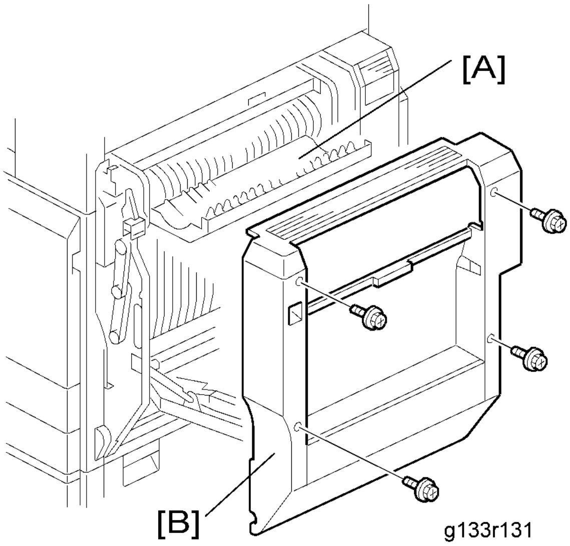


b222r554

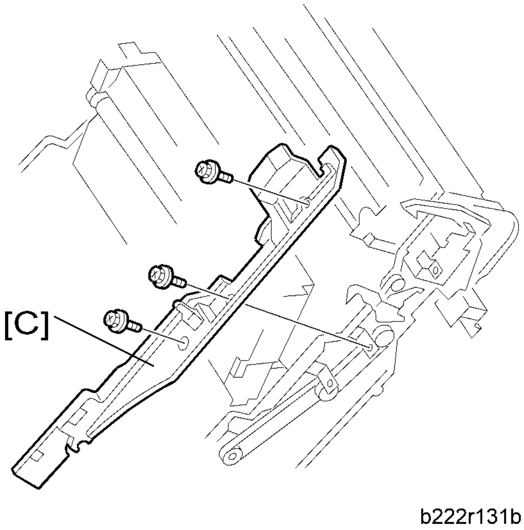
1. Open the right door.
2. Release the two locks [A].
3. Paper transfer roller unit [B]

Paper Transfer Unit

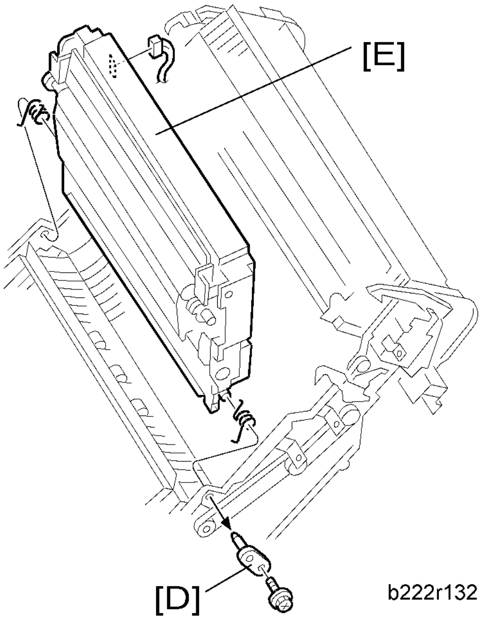
1. Turn off the main power switch.



2. Open the duplex door [A].
3. Right door cover [B] (🔩 x 4)
4. Open the right door.
5. Paper transfer roller unit (☛ "p.130 "Paper Transfer Roller Unit"")



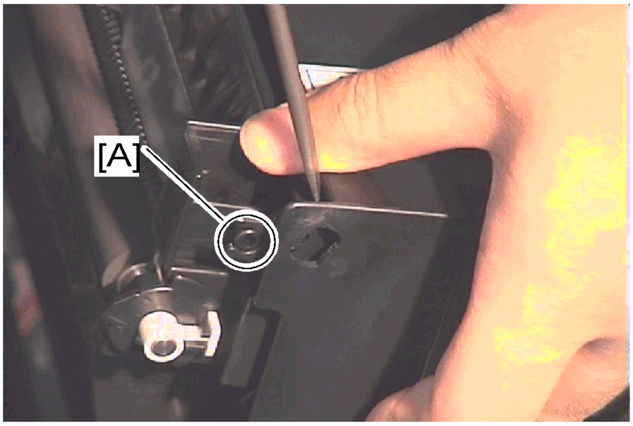
6. Right door inner cover [C] (🔩 x 3)



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

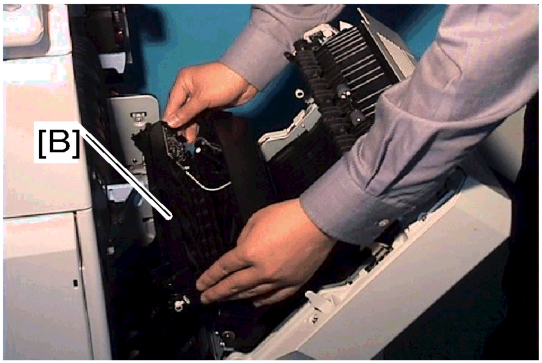
High Voltage Supply Board - Discharge Plate

1. Open the right door.



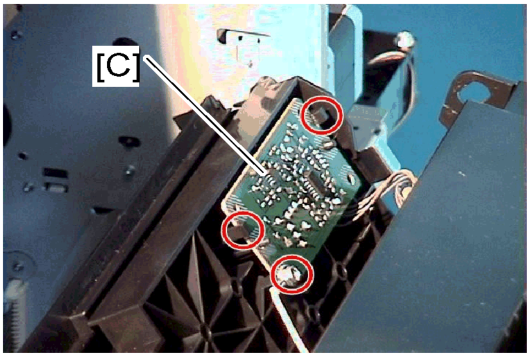
b222r556

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



b222r557

3. Paper transfer roller case [B]

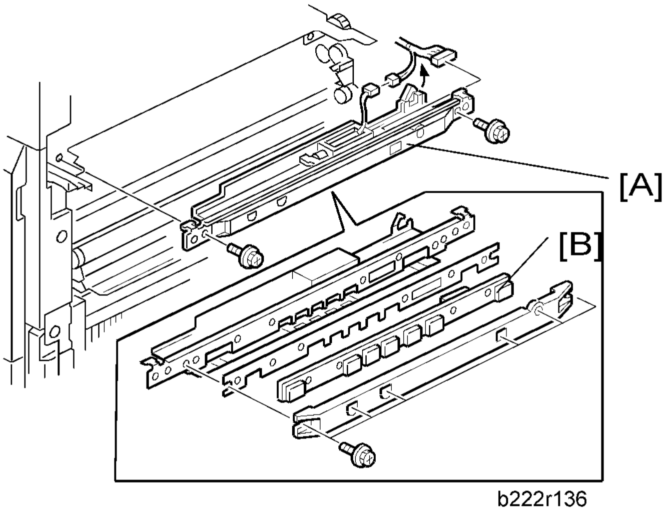


b222r558

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

ID Sensor Board

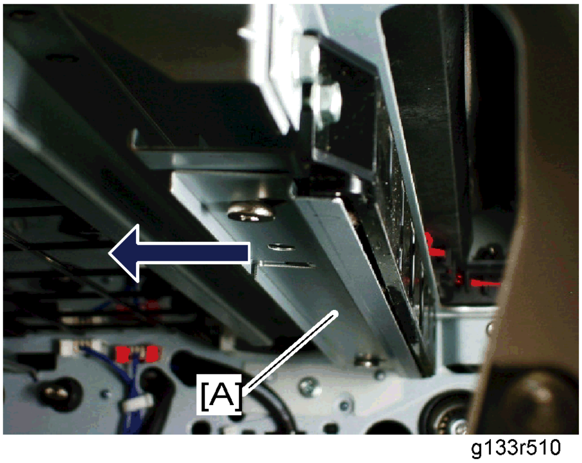
1. K PCU (☛ "p.112 "PCU"")
2. Open the right door.
3. Fusing unit (☛ "p.161 "Fusing Unit"")
4. Image transfer belt unit (☛ "p.123 "Image Transfer Belt Unit"")



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

Cleaning for ID sensors

ID sensors must be cleaned when you visit the customer to service the machine. Do the following steps for ID sensor cleaning.



1. K PCU (☛ "p.112 "PCU"")
2. Fusing unit (☛ "p.161 "Fusing Unit"")
3. Image transfer belt unit (☛ "p.123 "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.

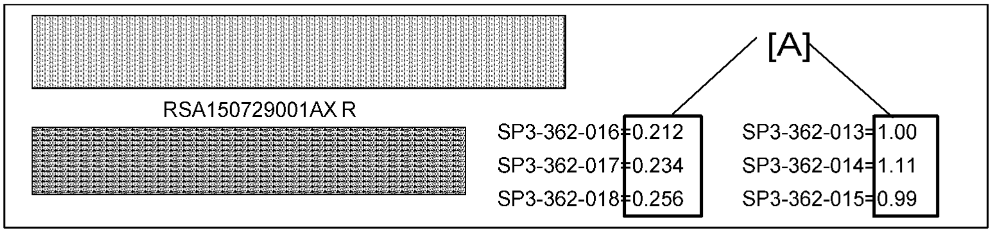
After installing a new ID sensor unit/board

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

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

   Note

   - For example, input "1.00" with SP3-362-013.
4. Exit the SP mode.

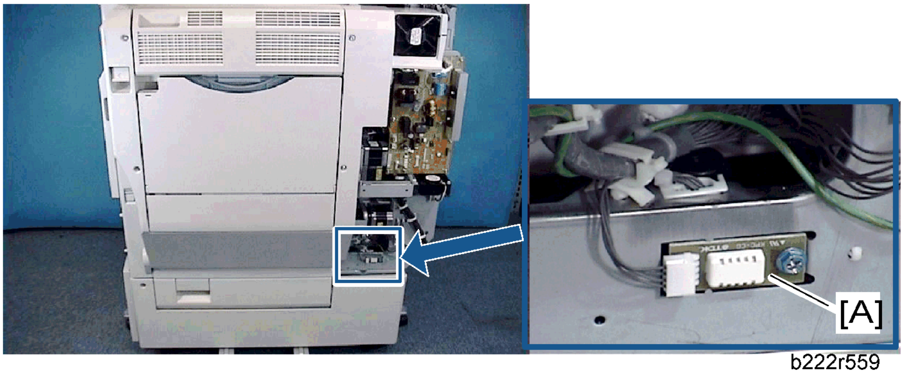

RSA150729001AX R

SP3-362-016=0.212
SP3-362-017=0.234
SP3-362-018=0.256
SP3-362-013=1.00
SP3-362-014=1.11
SP3-362-015=0.99

g133r502

Temperature and Humidity Sensor

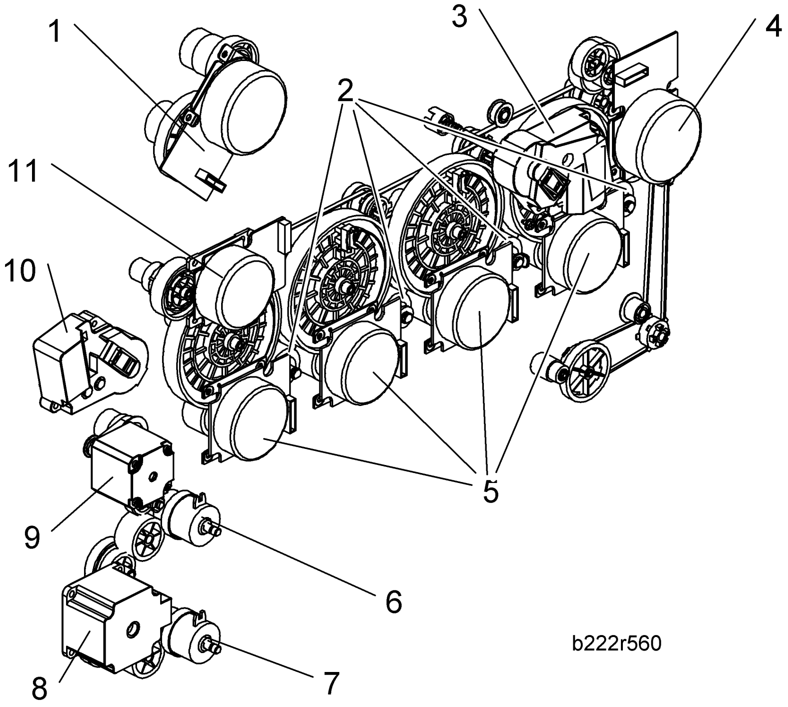
1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")



b222r559

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

Drive Unit



The drawing above shows the drive unit layout.

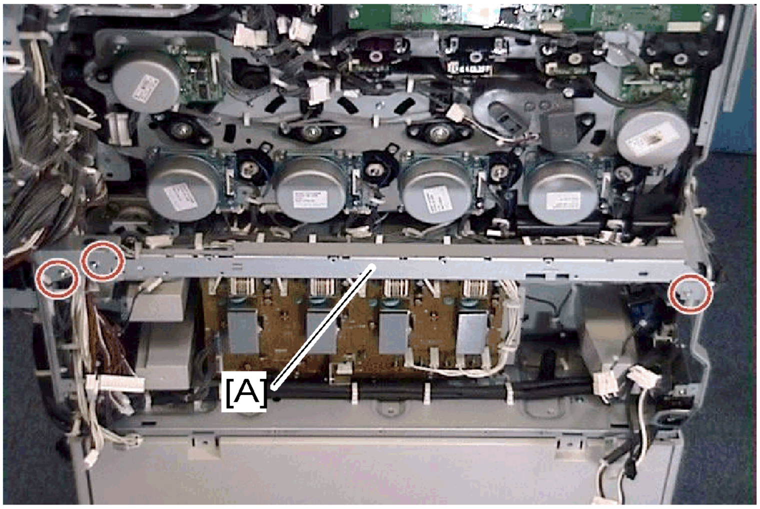
1. Fusing/paper exit motor 2. Development clutches 3. Image transfer belt contact motor 4. Toner transport motor 5. Drum/Development drive motors 6. Paper feed clutch – Tray 1	7. Paper feed clutch – Tray 2 8. Paper feed motor 9. Registration motor 10. Paper transfer contact motor 11. ITB drive motor

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

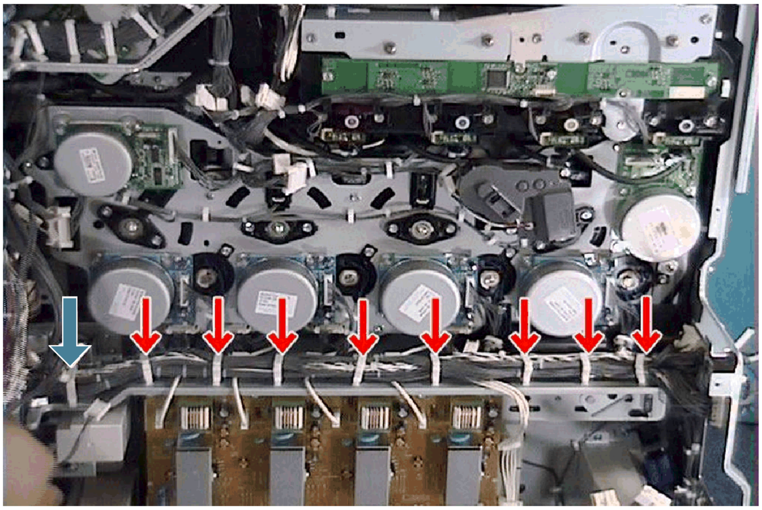
Gear Unit

1. All PCU's
2. Image transfer belt unit.
3. Rear cover (☛ "p.95 "Rear Cover"")
4. Controller box (☛ "p.203 "Controller Box"")
5. Third duct (☛ "p.114 "Third Duct Fan"")
6. Left cover (☛ "p.95 "Left Cover"")
7. PSU bracket (☛ "p.207 "PSU"")

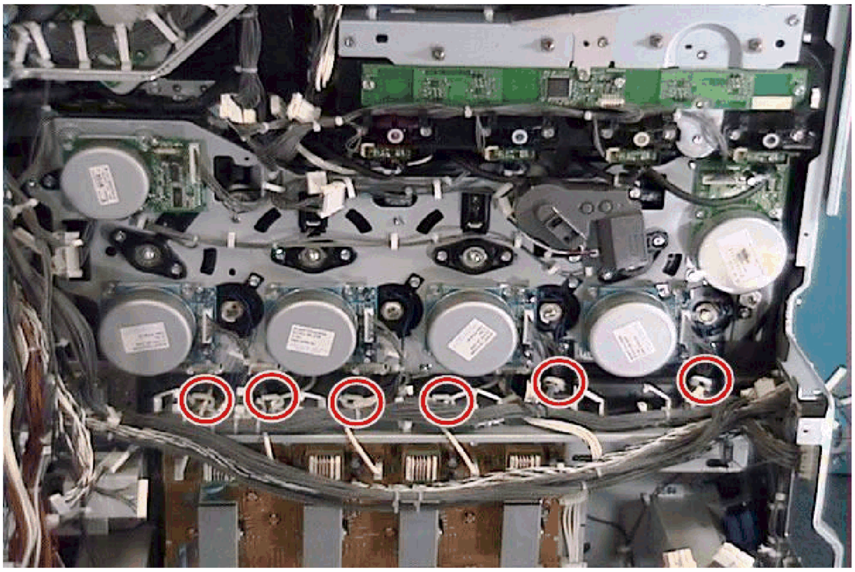


b222r561

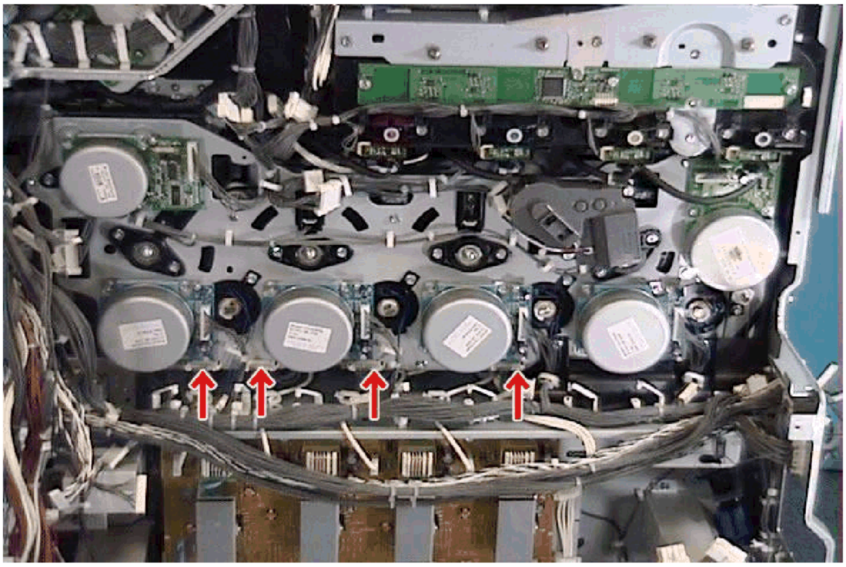
8. Remove the rear stay [A] (🔩 x 3).



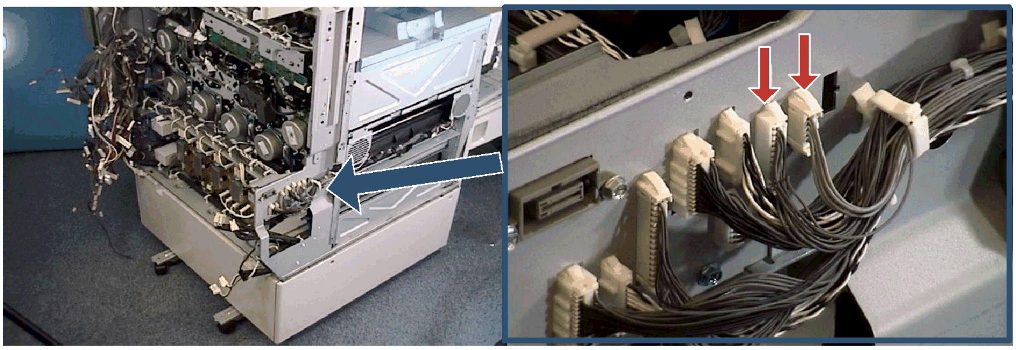
9. Remove eight clamps (red arrows) and release one clamp (blue arrow).



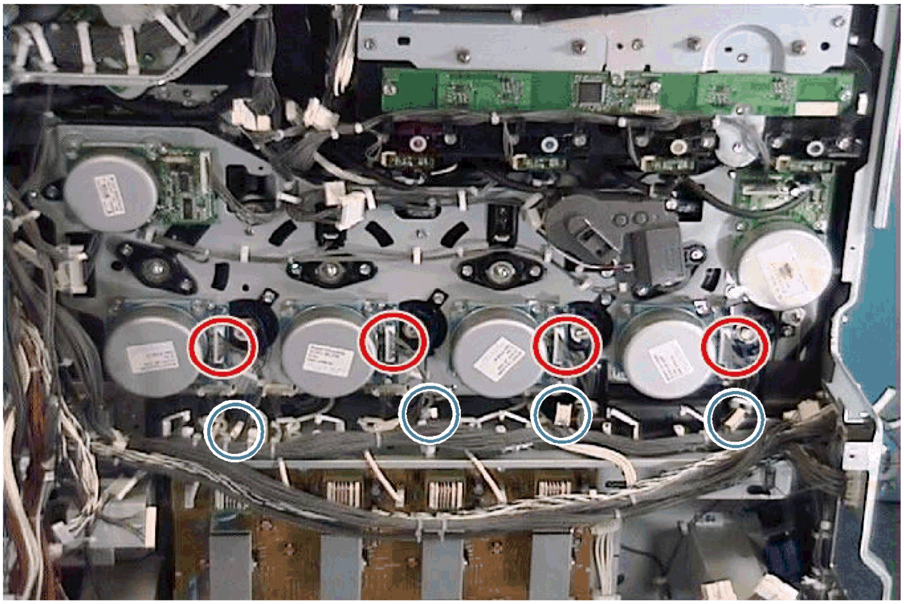
10. Release seven clamps and turn each harness aside.


b222r564

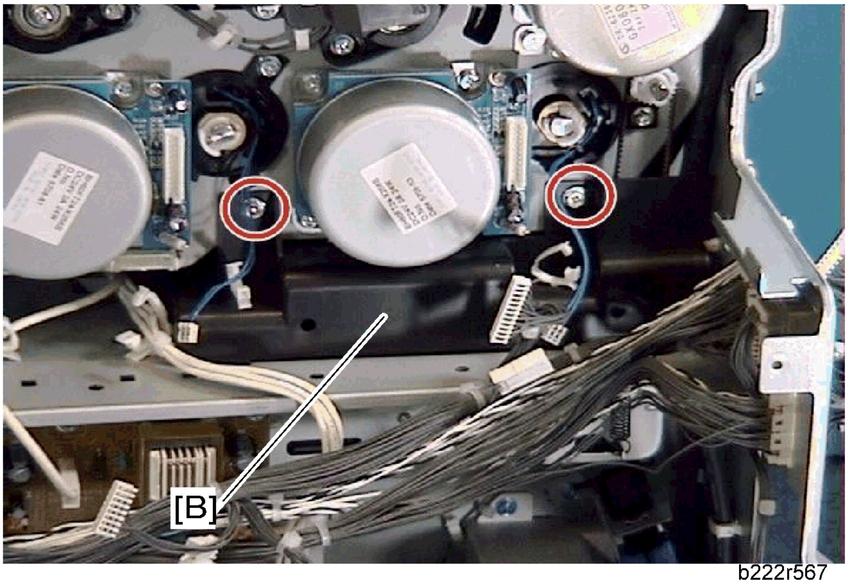
11. Disconnect four connectors (red arrows).


b222r565

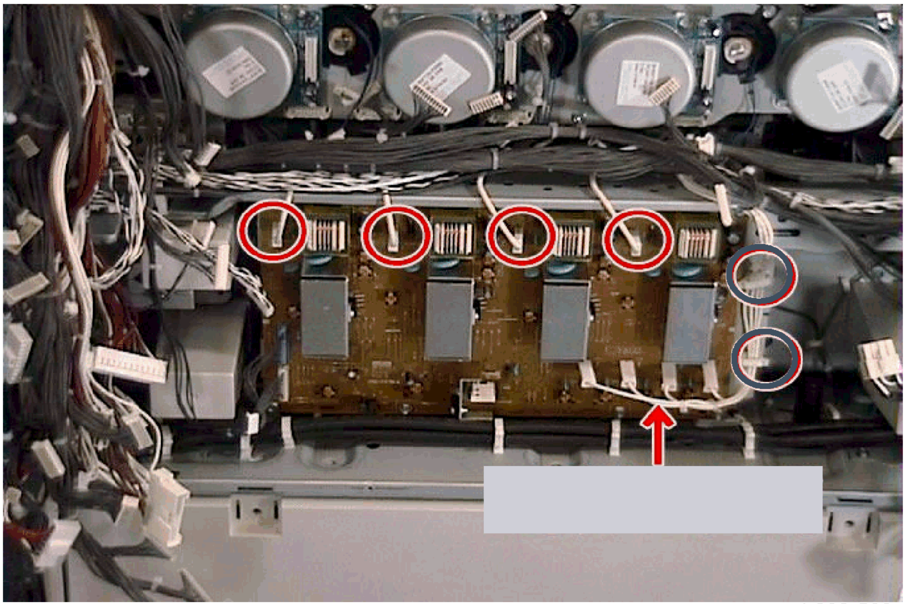
12. Disconnect two connectors (red arrows) and put these harnesses inside the machine.



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).

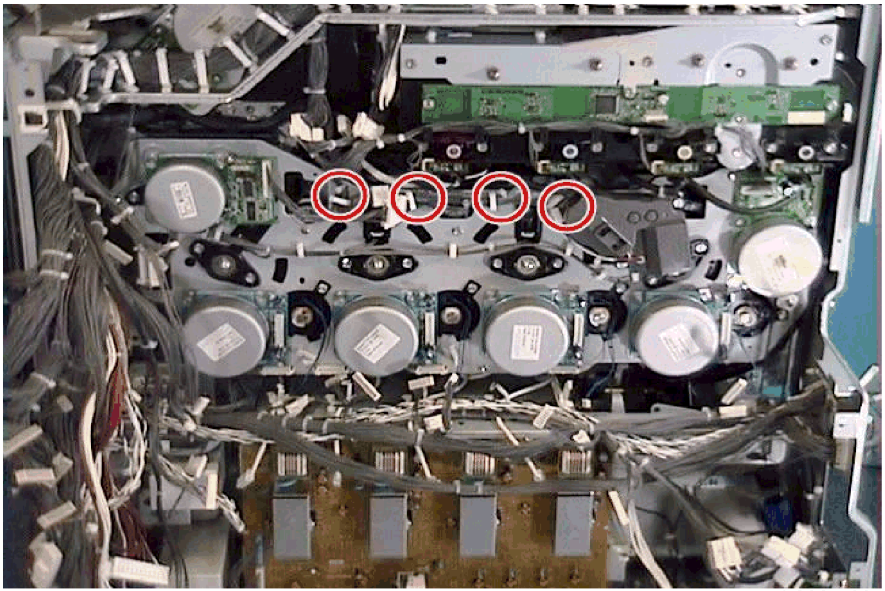


15. Cover [B] (x 2)



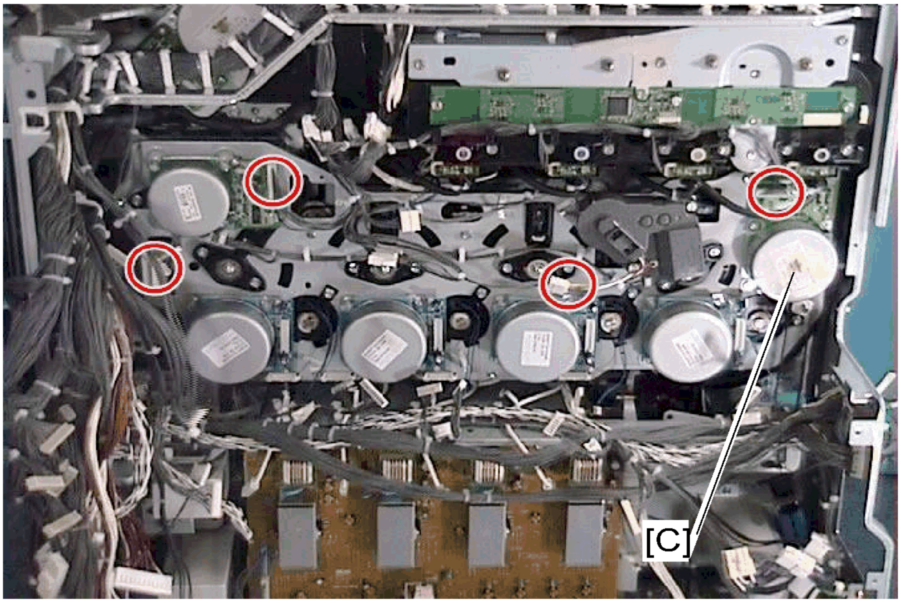
b222r568

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



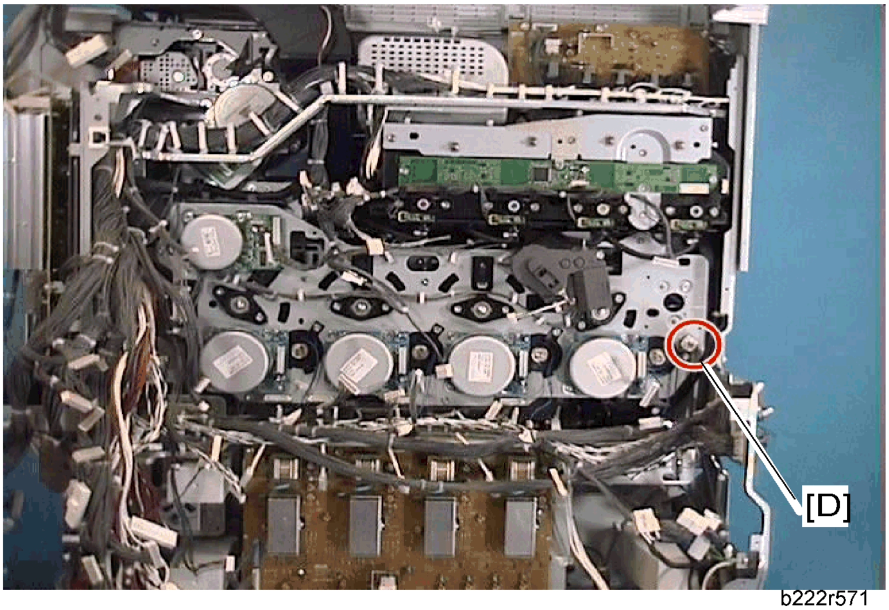
b222r569

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



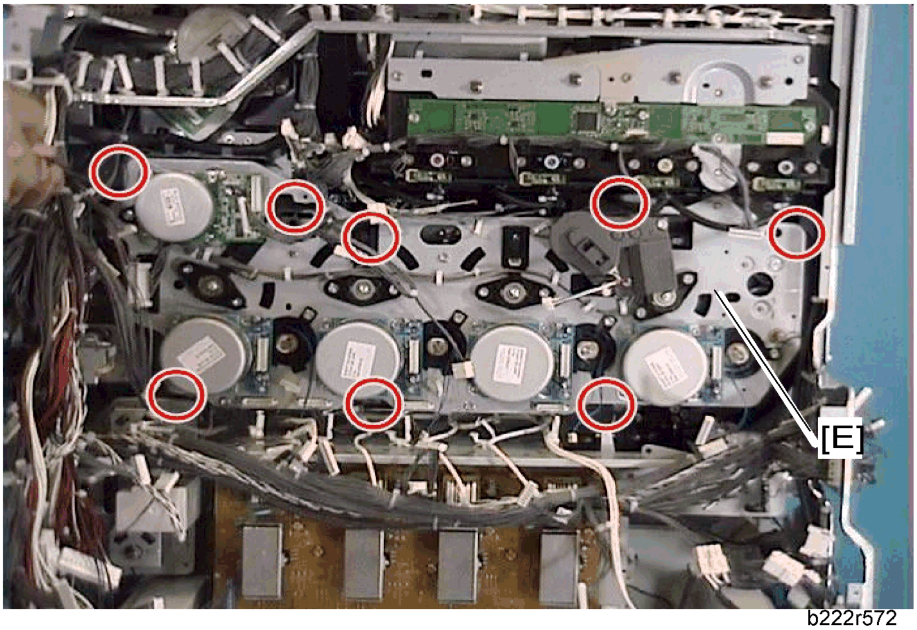
b222r570

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



b222r571

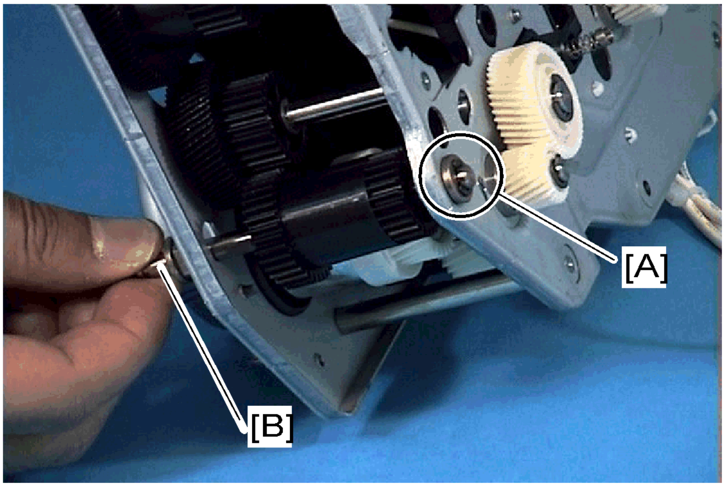
20. Pulley [D] (timing belt)



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 on 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, 2: Failure due to no sampling data,

   3: Failure due to insufficient number of pattern detections

   When the result of this adjustment is "2" or "3":

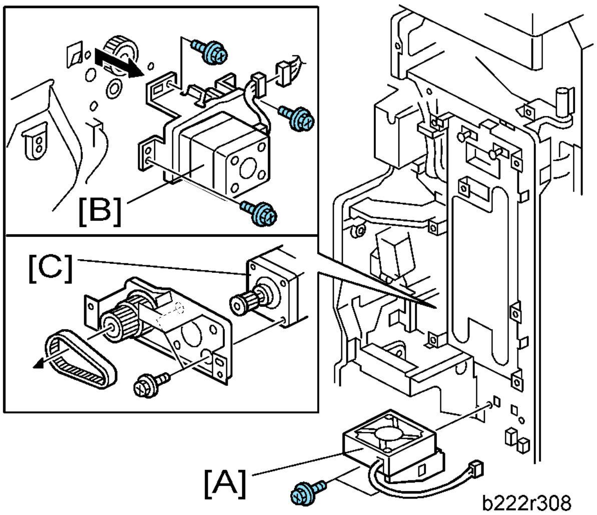
   - Check that all the PCUs are correctly set and that the image transfer belt unit is correctly set.
   - Do the "Drum Phase Adjustment" again after checking the PCUs and image transfer belt unit.

   When the result is still "2" or "3" after checking the PCUs and image transfer belt unit:

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

Registration Motor

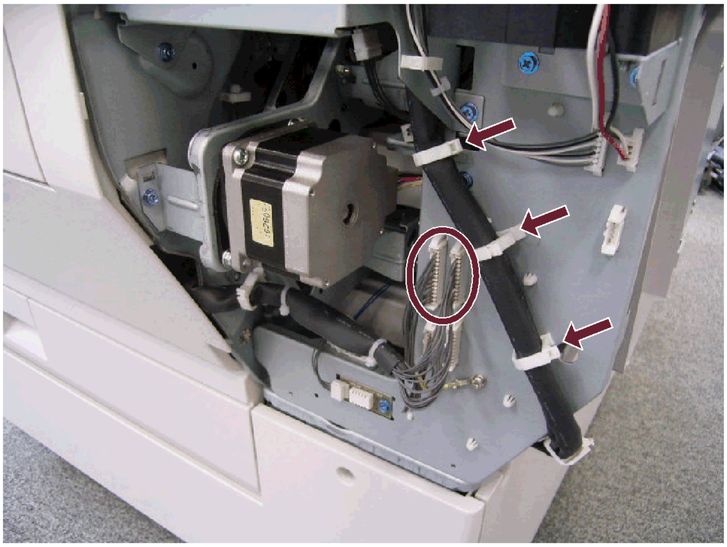
1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")
3. Ventilation duct (☛ "p.207 "PSU"")
4. Turn the harnesses aside (x 5)



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)

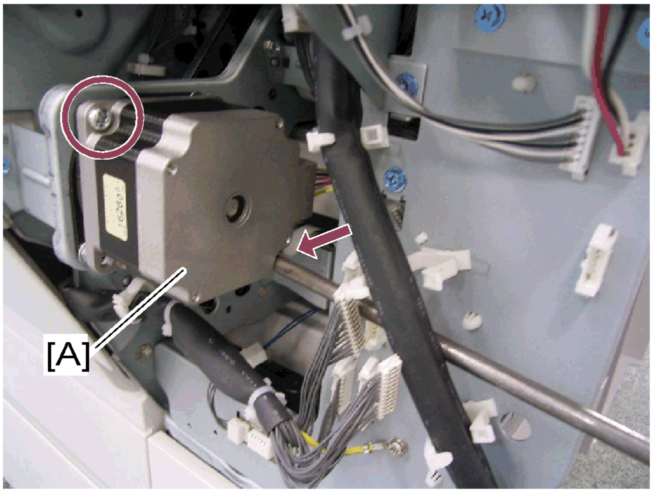
Paper Feed Motor

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")



b222r679

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

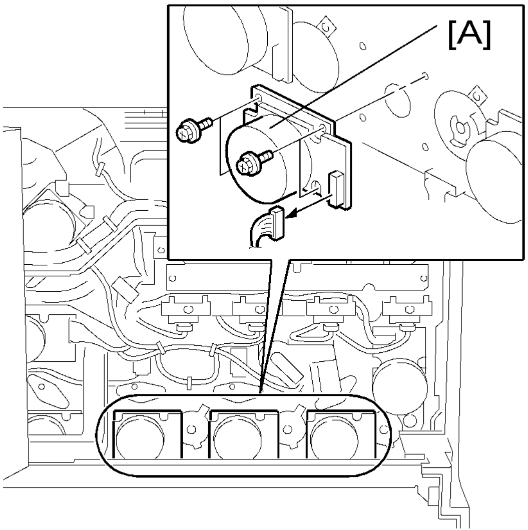


b222r680

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

Drum/Development Motors for M, C, and Y

1. Rear cover (☛ "p.95 "Rear Cover"")
2. PSU bracket (☛ "p.207 "PSU"")
3. Open the controller box.

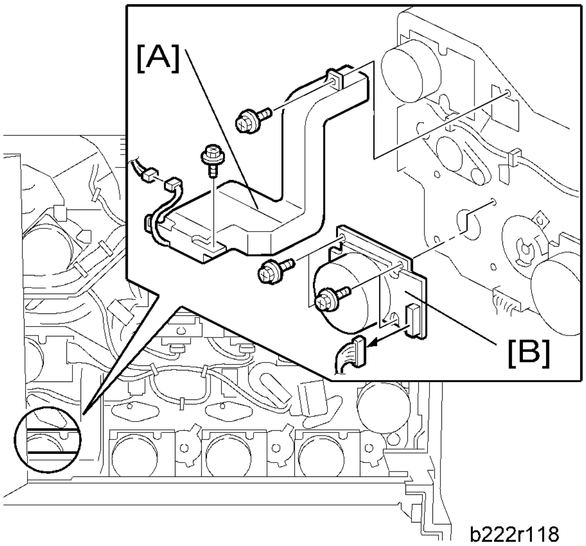


b222r117

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

Drum/Development Motor-K

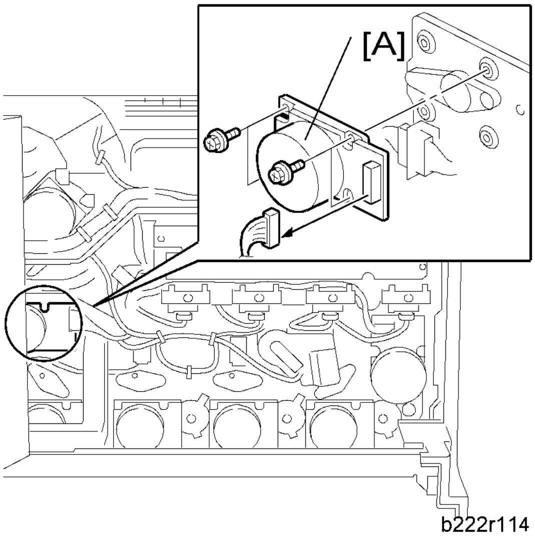
1. Rear cover (☛ "p.95 "Rear Cover"")
2. PSU bracket (☛ "p.207 "PSU"")
3. Controller box (☛ "p.203 "Controller Box"")



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

ITB Drive Motor

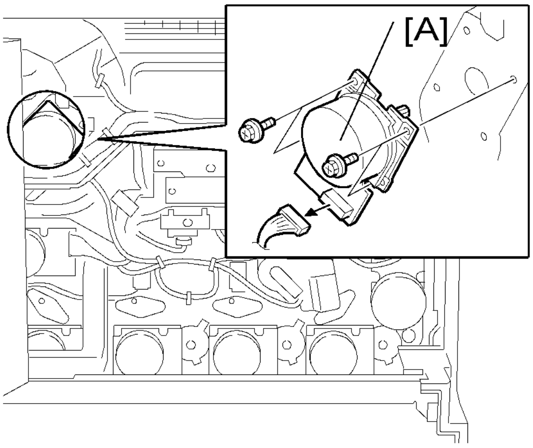
1. Rear cover (☛ "p.95 "Rear Cover"")
2. Controller box (☛ "p.203 "Controller Box"")



3. ITB drive motor [A] (🔩 x 4, 🔌 x 1)

Fusing/Paper Exit Motor

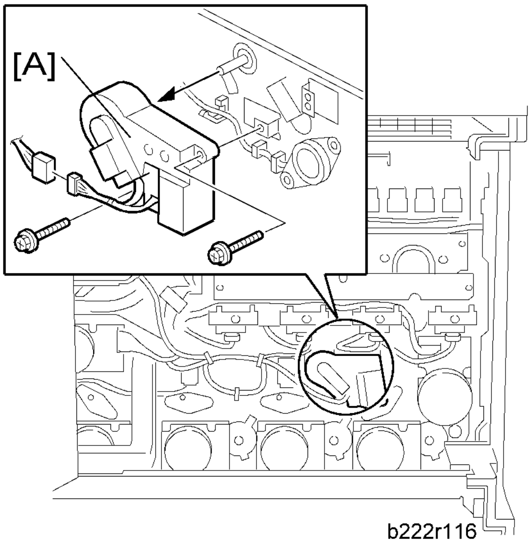
1. Rear cover (☛ "p.95 "Rear Cover"")
2. Controller box (☛ "p.203 "Controller Box"")



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

Image Transfer Belt Contact Motor

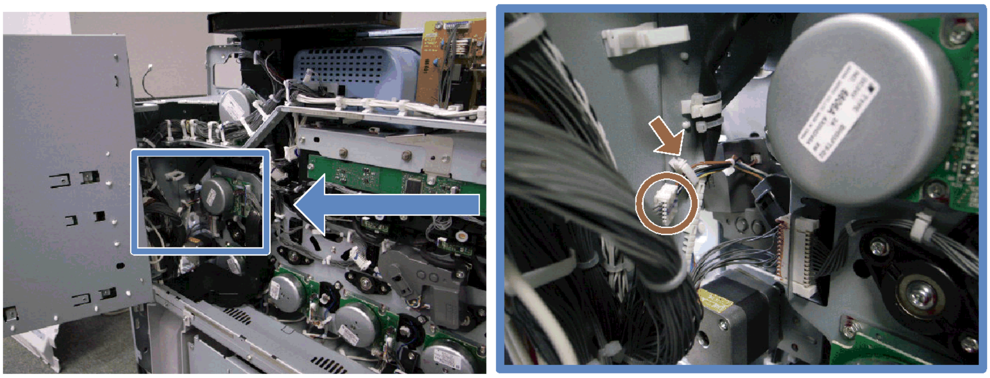
1. Rear cover (☛ "p.95 "Rear Cover"")
2. Open the controller box. (☛ "p.203 "Controller Box"")



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

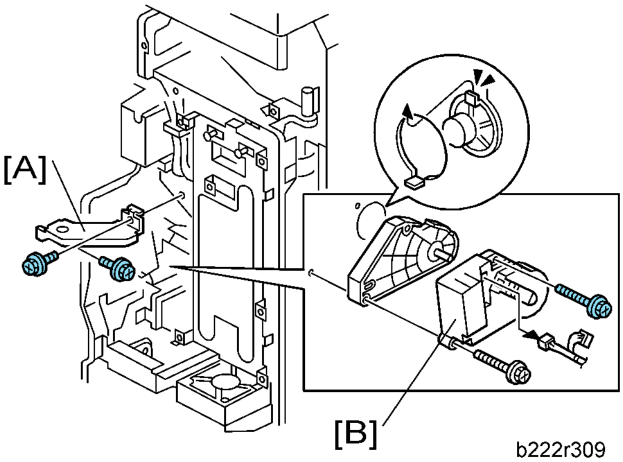
Paper Transfer Contact Motor

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")
3. Open the controller box (☛ "p.203 "Controller Box"")



g133r575

4. Release the clamp, and disconnect the connector (🗜 x 1, 🔌 x 1).



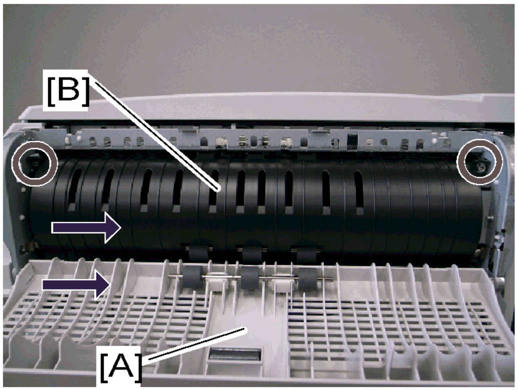
b222r309

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

Duplex Inverter Motor

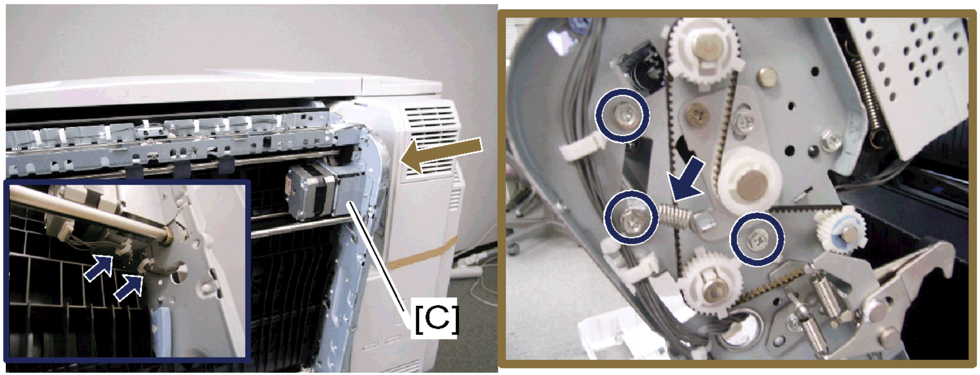
1. Open the right door.

2. Right door cover (☛ "p.190 "By-pass Bottom Tray"")



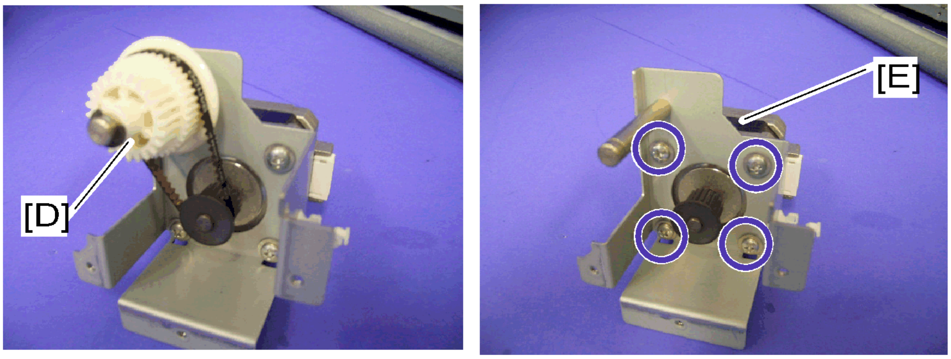
g133r659

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.190 "By-pass Bottom Tray"")



g133r660

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



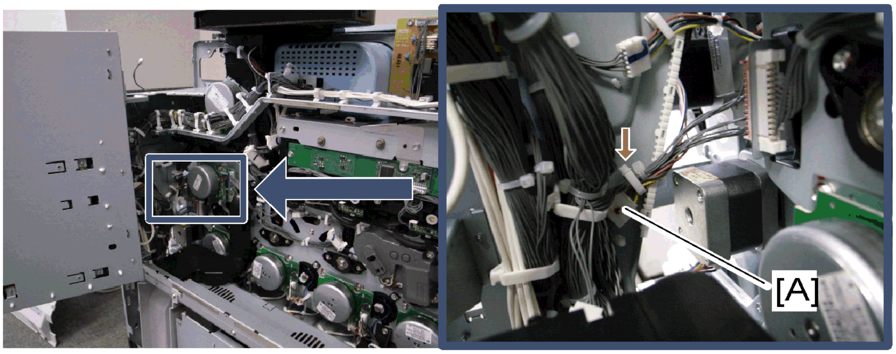
b222r661

7. Gear [D] (ℂ x 1, belt x 1)

8. Duplex inverter motor [E] (🔩 x 4)

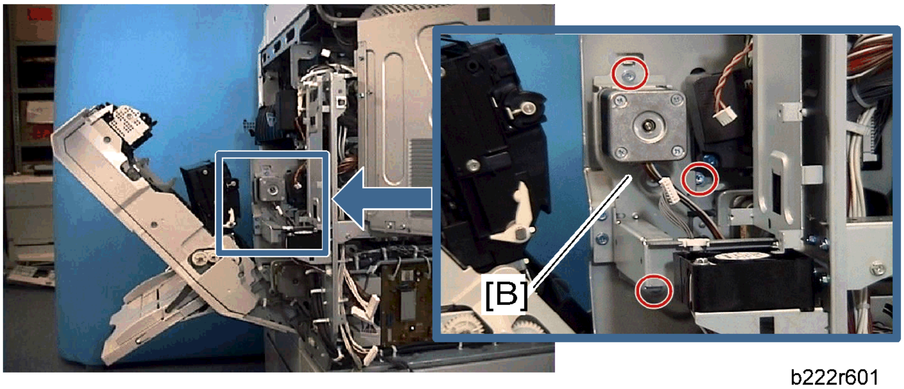
Duplex/By-pass Motor

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")
3. Open the controller box (☛ "p.203 "Controller Box"").



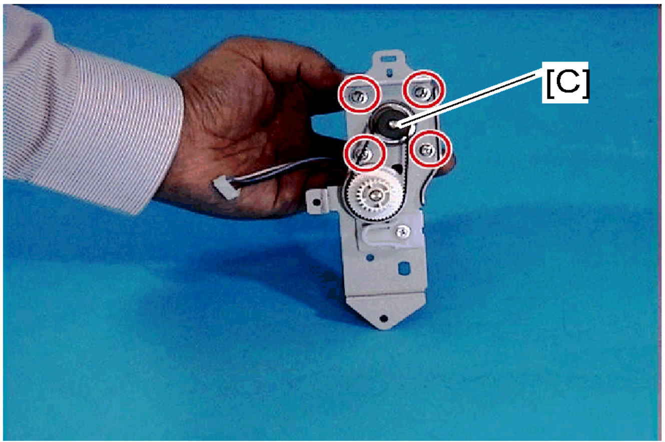
g133r600

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



b222r601

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

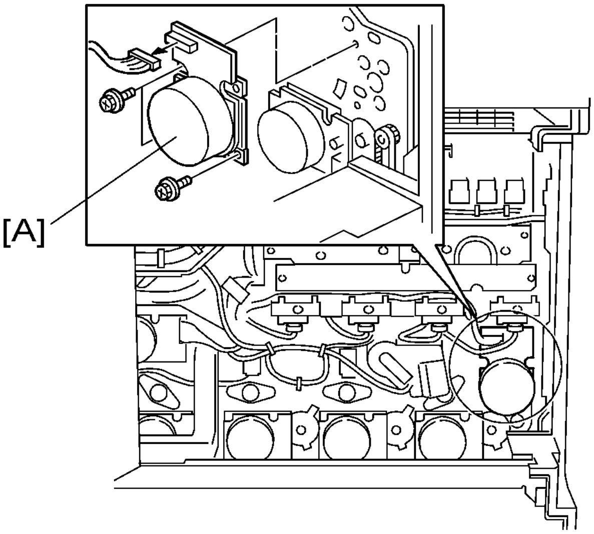


b222r602

6. Duplex/by-pass motor [C] (🔩 x 4)

Toner Transport Motor

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Open the controller box (☛ "p.203 "Controller Box"")

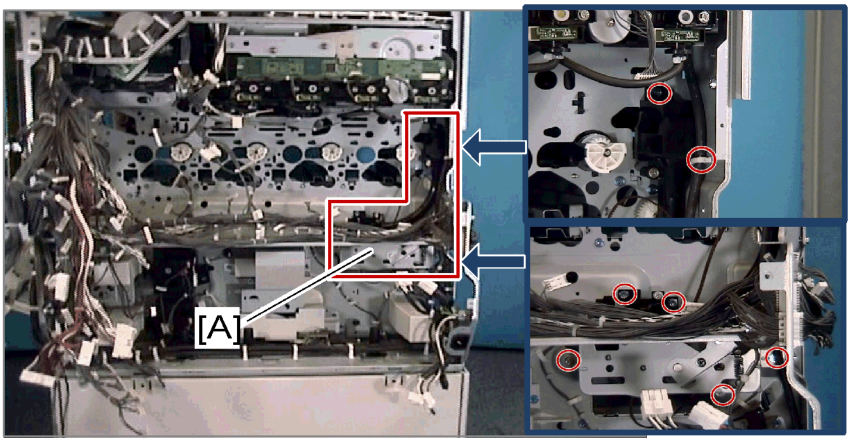


b222r120

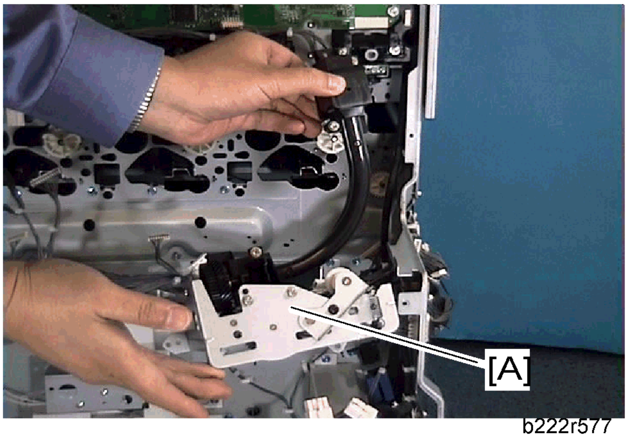
3. Toner transport motor [A] (🔩 x 3, 🔌 x 1)

Toner Collection Unit

1. Remove all PCUs (☛ "p.112 "PCU"").
2. Image transfer belt unit (☛ "p.123 "Image Transfer Belt Unit"")
3. Rear cover (☛ "p.95 "Rear Cover"")
4. Controller box (☛ "p.203 "Controller Box"")
5. Third duct (☛ "p.114 "Third Duct Fan"")
6. Left cover (☛ "p.95 "Left Cover"")
7. PSU bracket (☛ "p.207 "PSU"")
8. High voltage power supply board bracket
9. Gear unit (☛ "p.137 "Gear Unit"")



b222r576

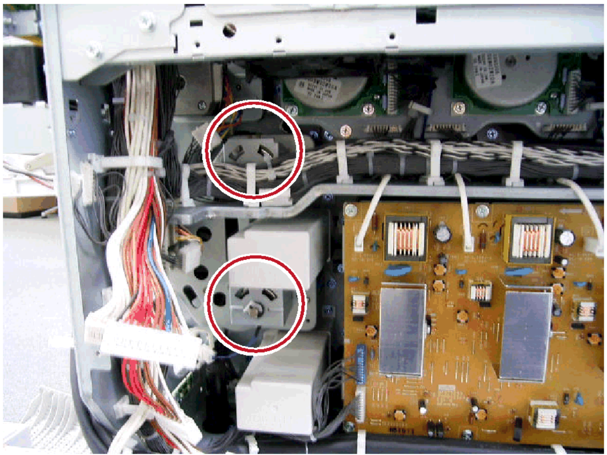


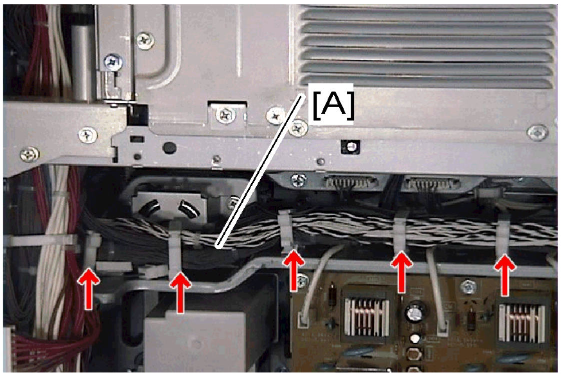
b222r577

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

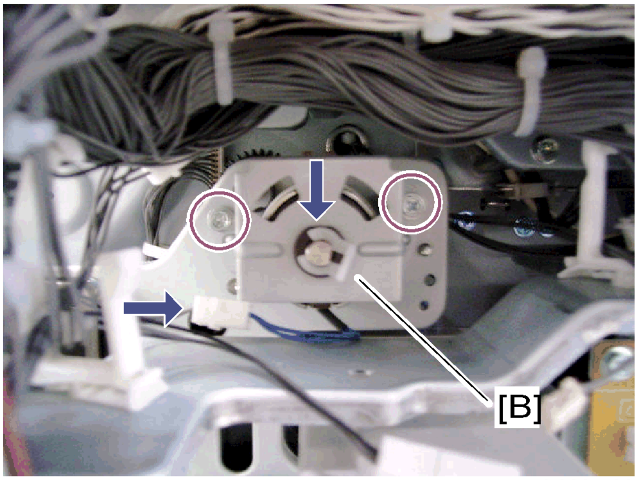
Paper Feed Clutches

1. Rear cover (☛ "p.95 "Rear Cover"")
2. PSU bracket (☛ "p.207 "PSU"")

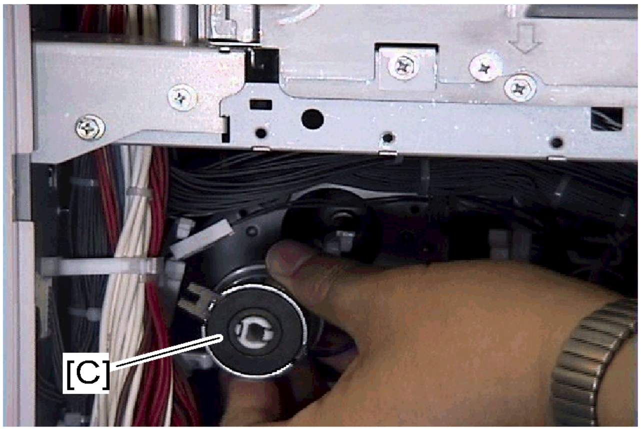




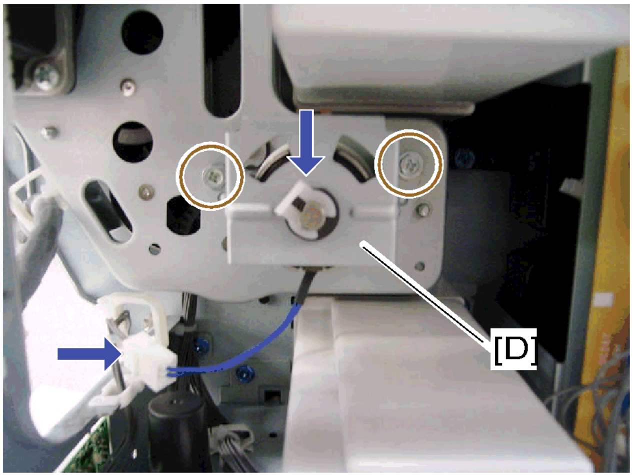
3. Release five clamps, and then turn the harness [A] aside.



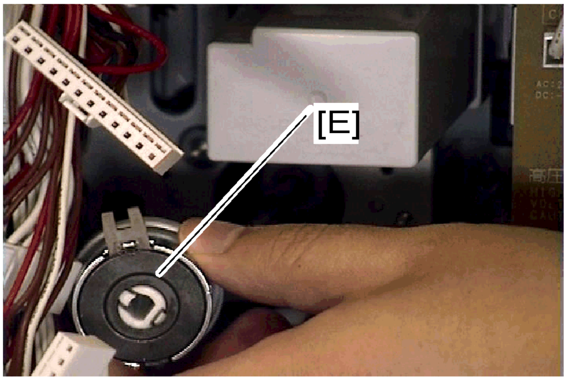
4. Paper feed clutch 1 bracket [B] (🔩 x 2, 🗜 x 1, 🔌x 1)



5. Paper feed clutch 1 [C]



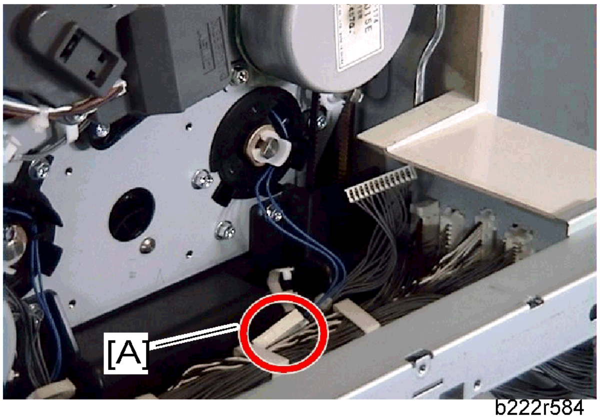
6. Paper feed clutch 2 bracket [D] (🔩 x 2, 🗜 x 1, 🔌 x 1)



7. Paper feed clutch 2 [E]

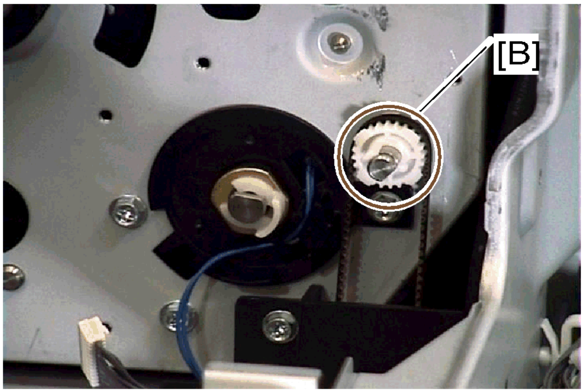
Development Clutch-Y

1. Rear cover (☛ "p.95 "Rear Cover"")
2. PSU bracket (☛ "p.207 "PSU"")
3. Open the controller box. (☛ "p.203 "Controller Box"").
4. Drum/development motor-Y (☛ "p.146 ")



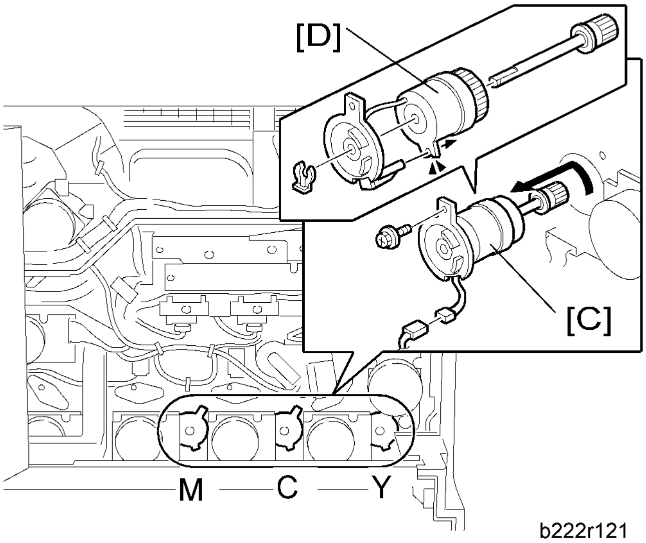
b222r584

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



b222r585

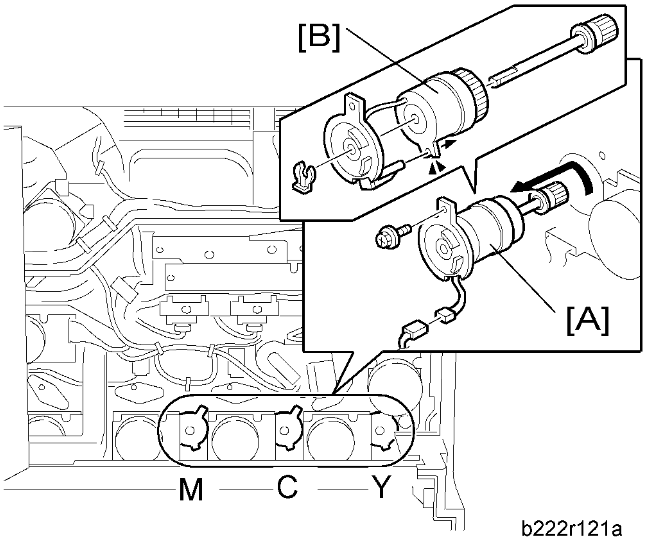
6. Remove the pulley and bushing [B].



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.95 "Rear Cover"")
2. PSU bracket (☛ "p.207 "PSU"")
3. Open the controller box. (☛ "p.203 "Controller Box"").
4. Drum/development motors for M and C (☛ "p.146 ")
5. Disconnect the connector for each development clutch (🔌 x 1).

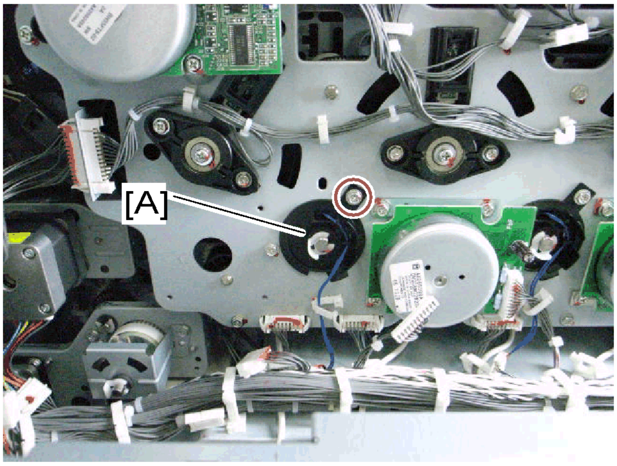


b222r121a

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

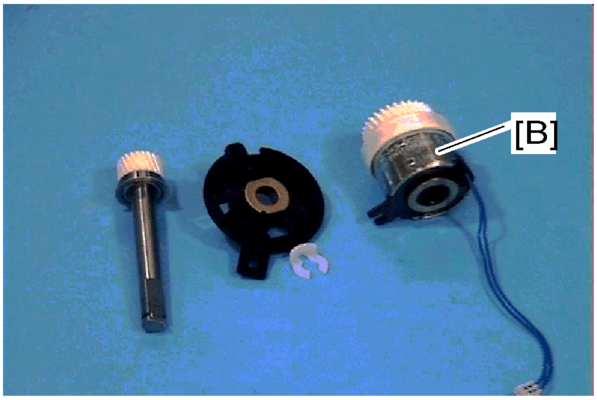
Development Clutch-K

1. Rear cover (☛ "p.95 "Rear Cover"")
2. PSU bracket (☛ "p.207 "PSU"")
3. Controller box. (☛ "p.203 "Controller Box"")
4. Drum/development motor-K (☛ "p.146 "Drum/Development Motor-K"")



g133r586

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



b222r587

6. Development clutch-K [B] (🔌 x 1)

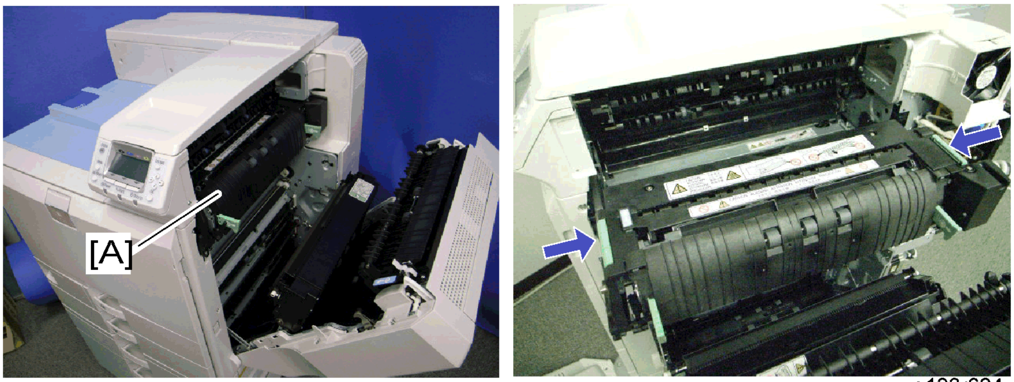
Fusing

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.

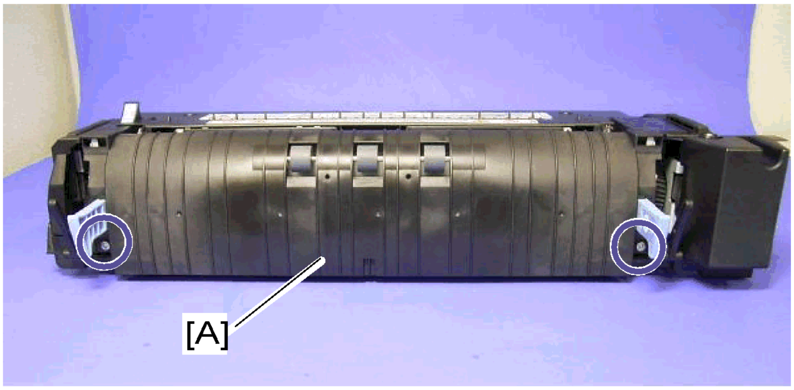
1. Open the right door.



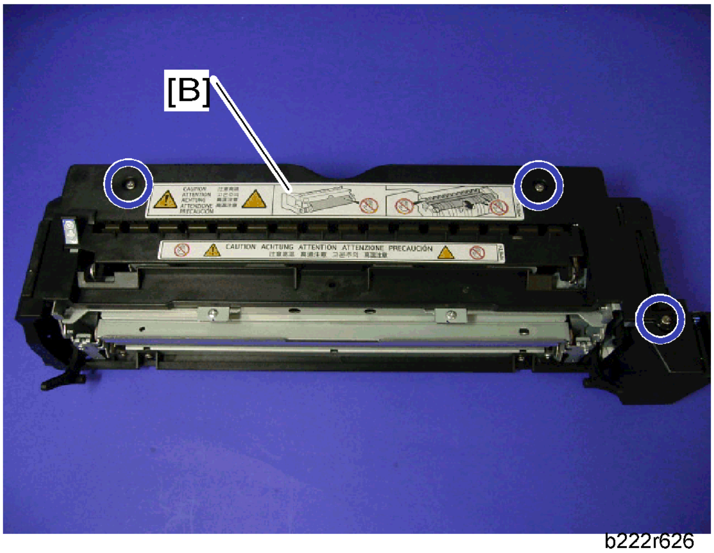
2. Pull out the fusing unit [A].

Fusing Lamp

1. Fusing unit (☛ "p.161 "Fusing Unit"")

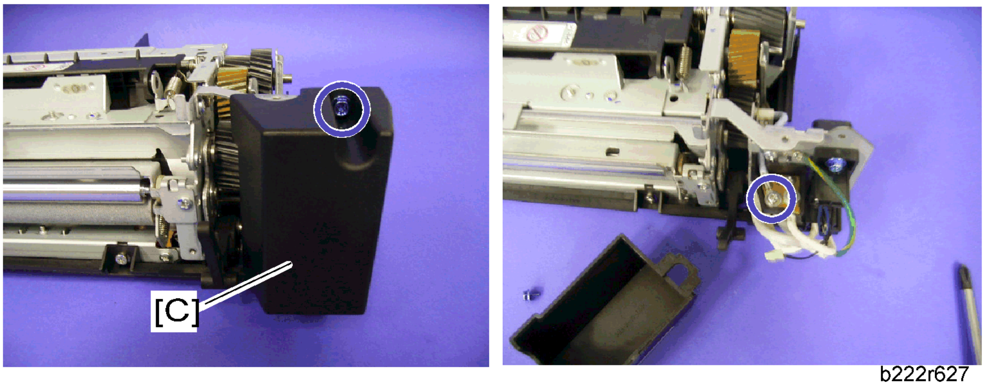


2. Fusing right cover [A] (🔩 x 2; Stepped screws)



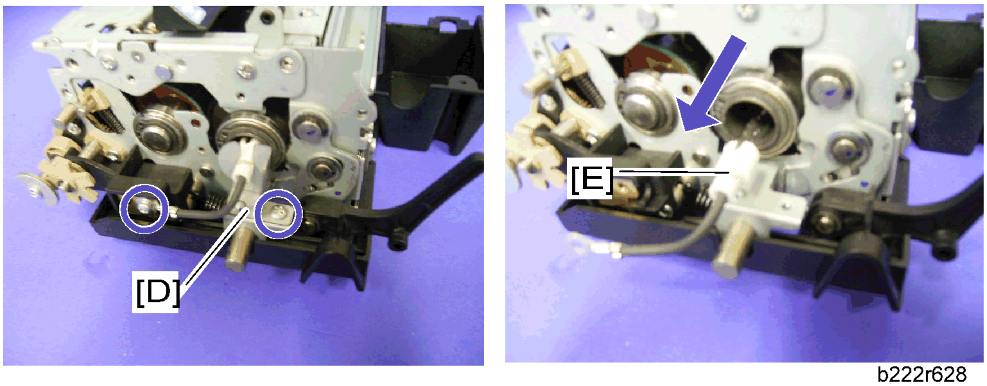
b222r626

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



b222r627

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

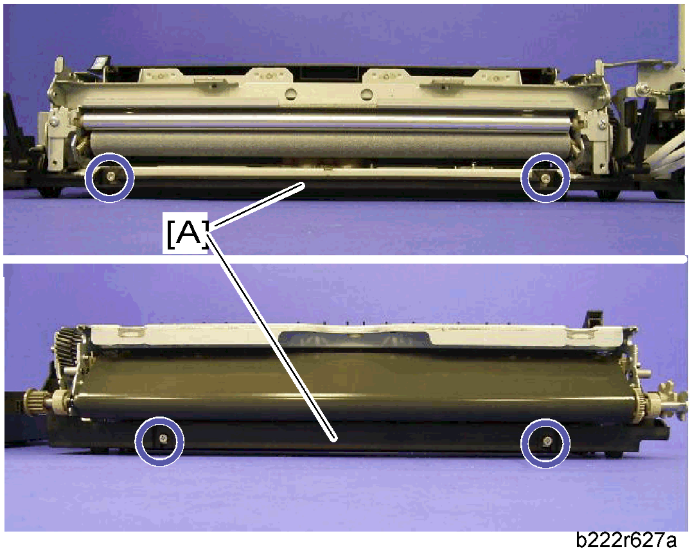


b222r628

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

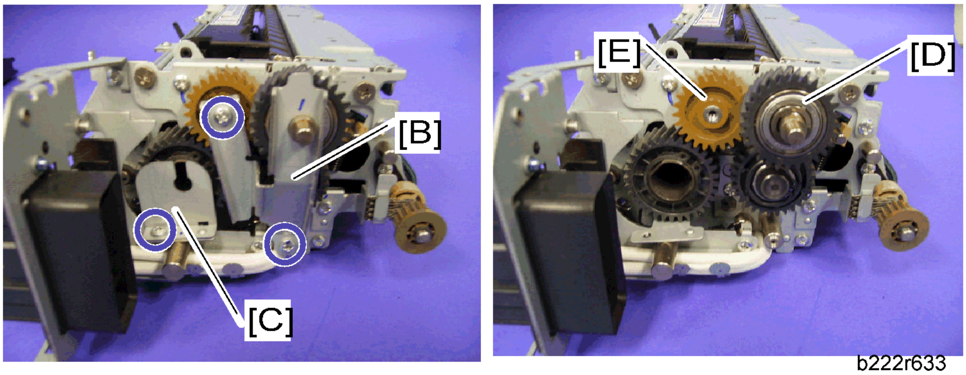
Pressure Roller and Pressure Roller Bearing

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Fusing right cover, fusing upper cover (☛ "p.161 "Fusing Lamp"")



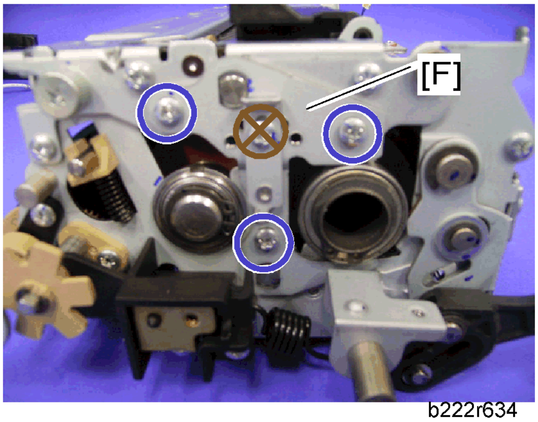
b222r627a

3. Fusing bottom cover [A] (🔩 x 4)
4. Fusing lamp (☛ "p.161 "Fusing Lamp"")



b222r633

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]

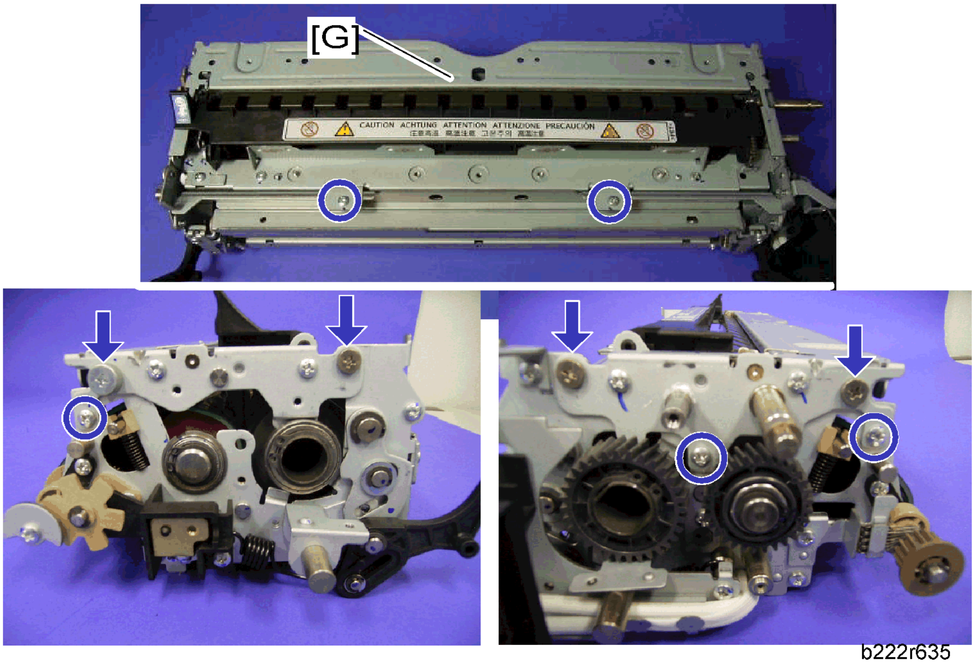


b222r634

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

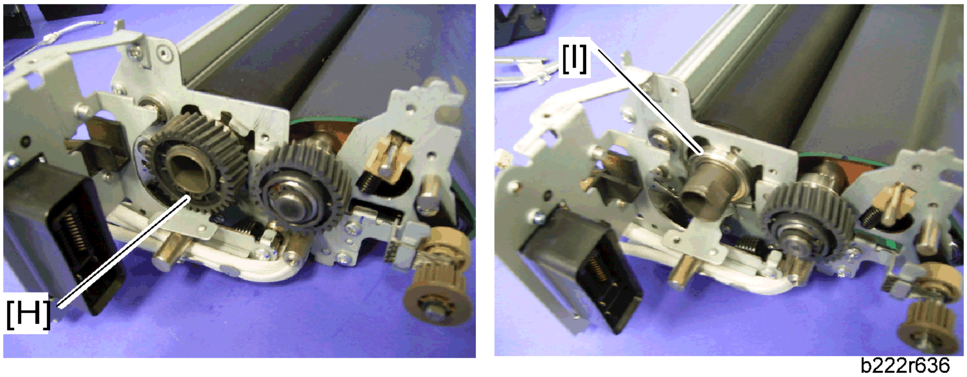
Important

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



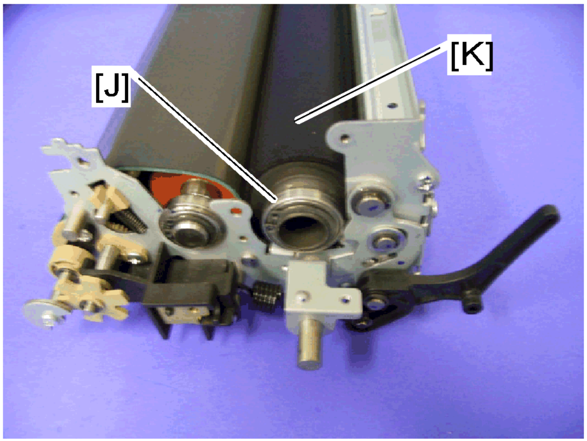
b222r635

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



b222r636

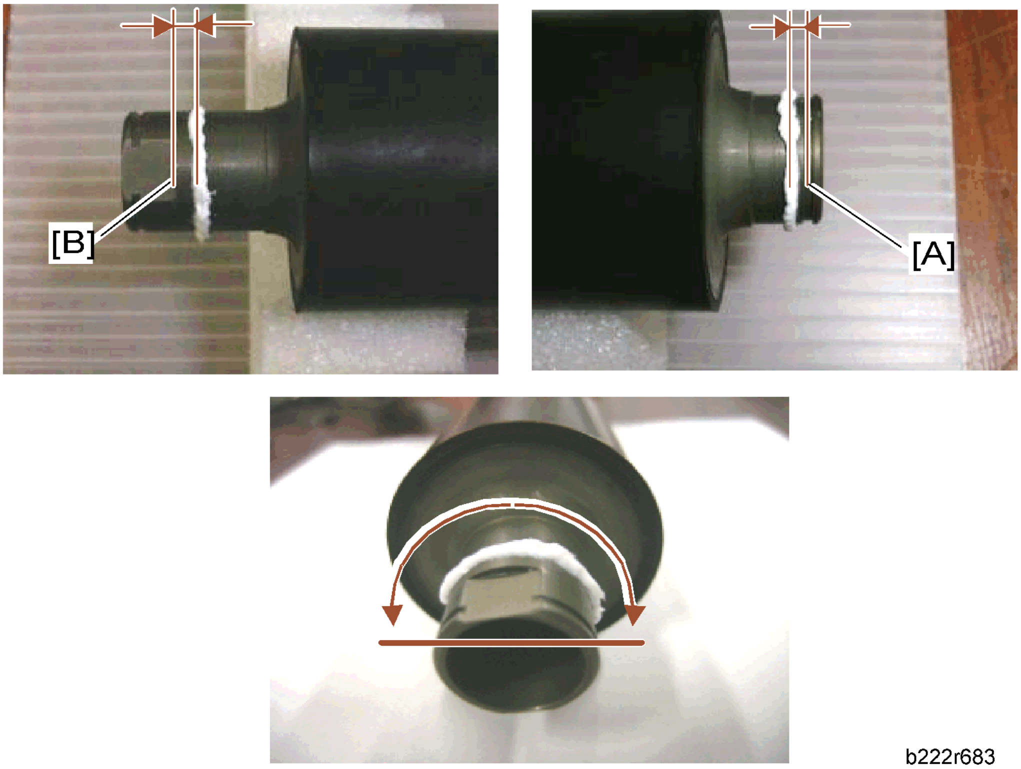
10. Pressure roller gear [H] (C-ring x 1)
11. Pressure roller bushing [I] at the rear side



b222r638

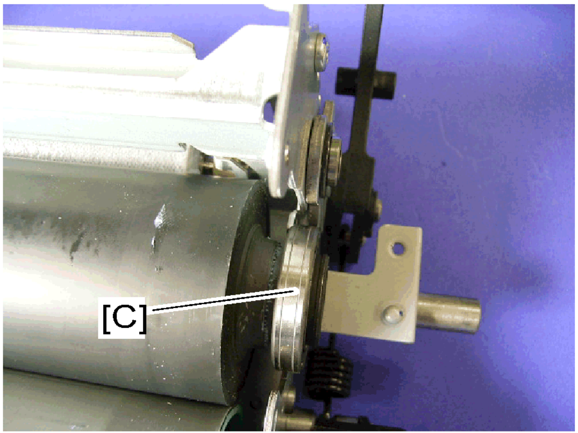
12. Pressure roller bushing [J] at the front side
13. Pressure roller [K]

When re-installing the pressure roller



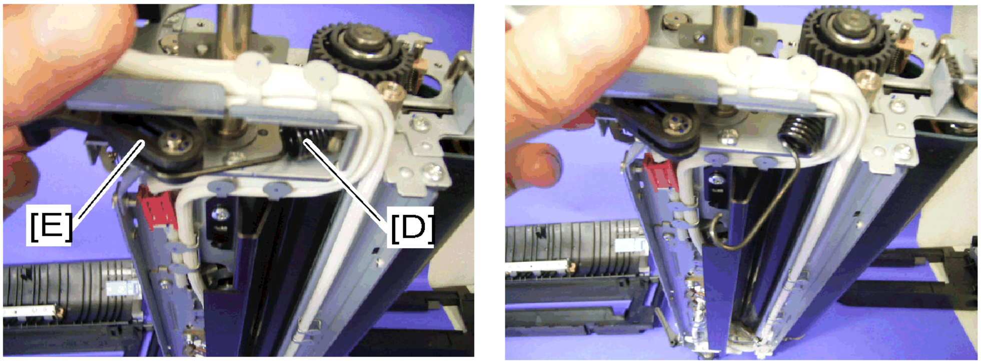
b222r683

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.)



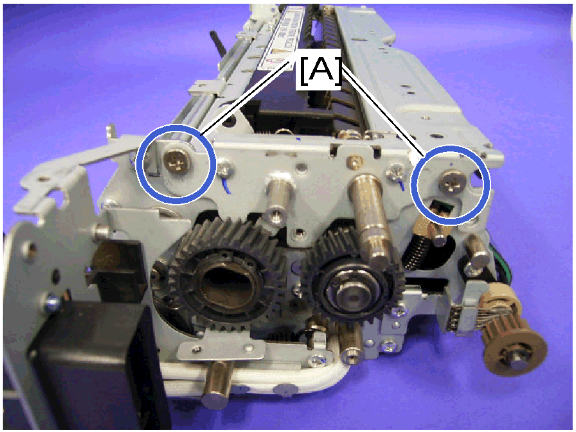
b222r648

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

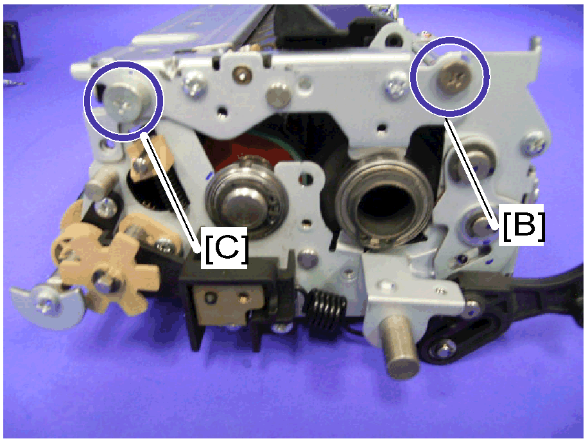


b222r651

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.



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



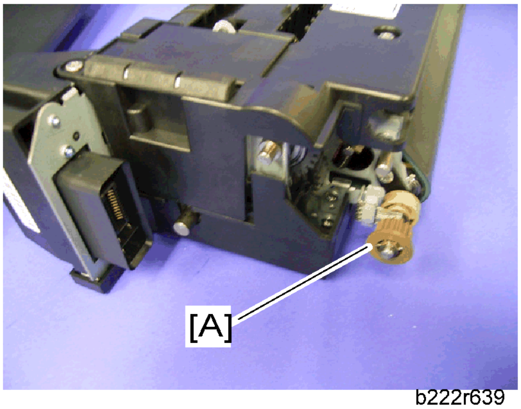
b) Secure the stepped screw [B] and stud screw [C] at the front side tightly.

c) Secure the stepped screws [A] at the rear side tightly after securing the stepped screw [B] and stud screw [C] at the front side.

d) Install the pressure adjustment bracket, and then secure the other screws.

Ferrite Roller Gear

1. Fusing unit (☛ "p.161 "Fusing Unit" ")

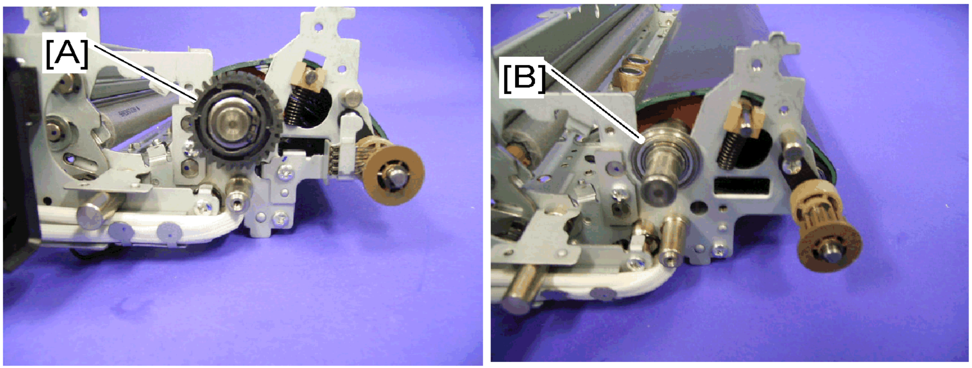


b222r639

2. Ferrite roller gear [A] (ℂ x 1)

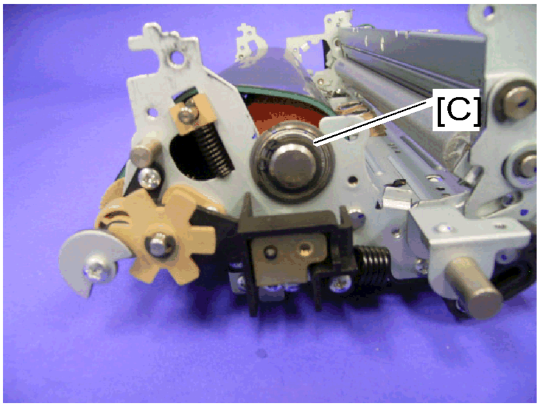
Fusing Roller Bushing and Tension Roller Bushing

1. Fusing unit (☛ "p.161 "Fusing Unit" ")
2. Fusing right cover, fusing upper cover (☛ "p.161 "Fusing Lamp"")
3. Pressure Roller (☛ "p.163 "Pressure Roller and Pressure Roller Bearing"")

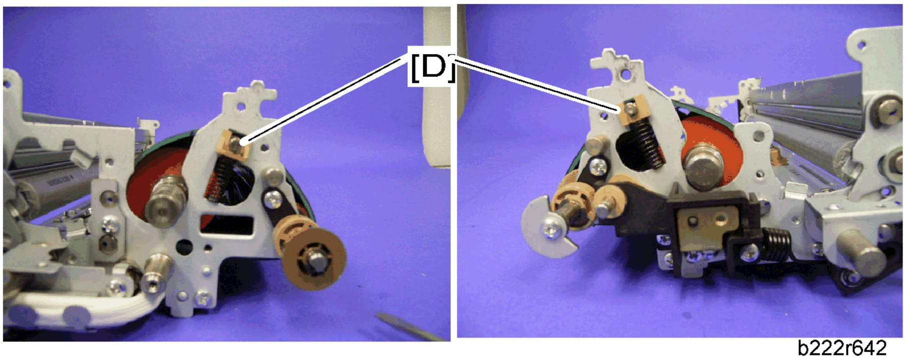


b222r640

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



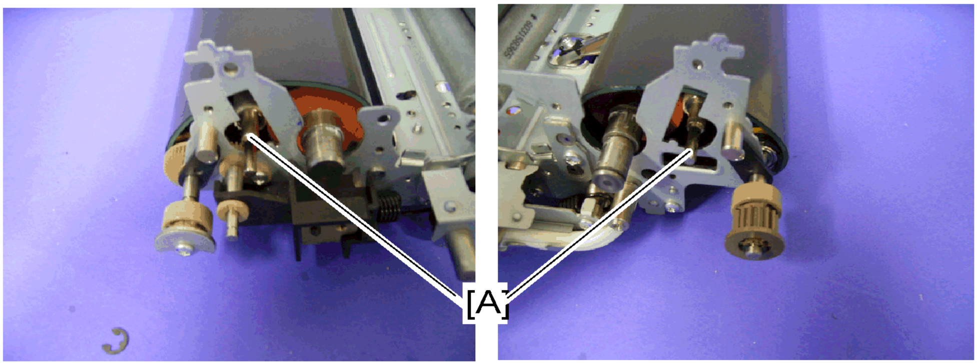
7. Tension roller bushings [D] (spring x 1 each)

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.163 "Pressure Roller and Pressure Roller Bearing"")

Tension Roller

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Fusing right cover, fusing upper cover (☛ "p.161 "Fusing Lamp"")
3. Pressure Roller (☛ "p.163 "Pressure Roller and Pressure Roller Bearing"")
4. Tension roller bushings (☛ "p.169 "Fusing Roller Bushing and Tension Roller Bushing"")



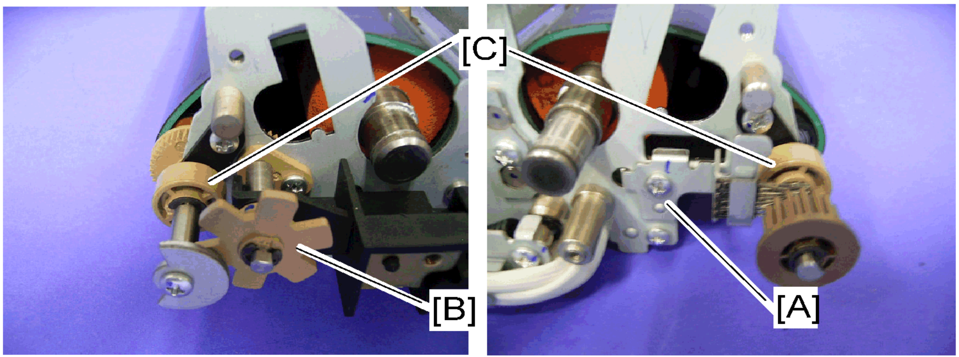
5. Tension roller [A]

When re-installing the tension roller

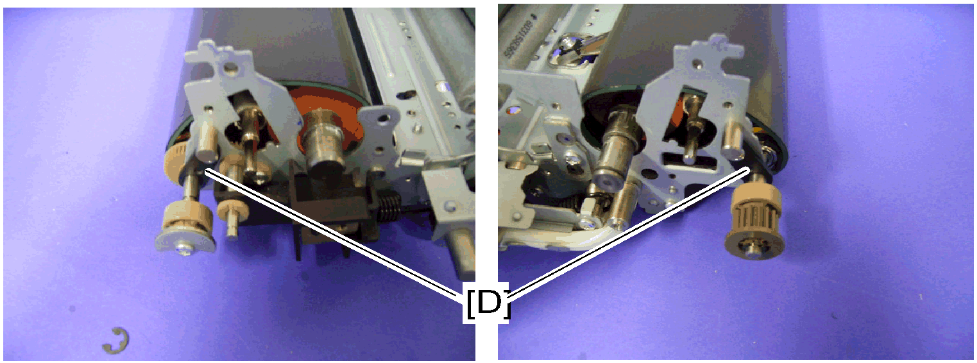
Follow points 3 and 4 explained in "When re-installing the pressure roller" (☛ "p.163 "Pressure Roller and Pressure Roller Bearing"")

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

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Fusing right cover, fusing upper cover (☛ "p.161 "Fusing Lamp"")
3. Pressure Roller (☛ "p.163 "Pressure Roller and Pressure Roller Bearing"")
4. Tension roller (☛ "p.169 "Fusing Roller Bushing and Tension Roller Bushing"")

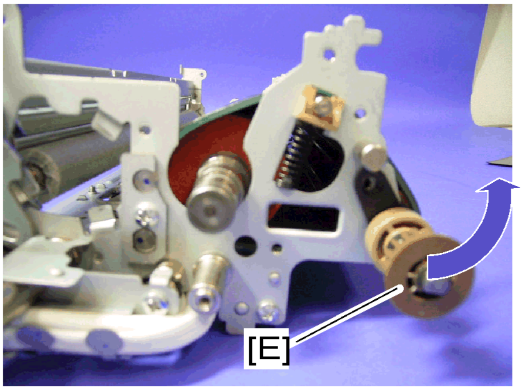


5. Discharge brush bracket [A] (🔩 x 1)
6. Fusing belt sensor actuator [B] (ℂ x 1)
7. Slide the holder rollers [C] to the front and rear sides (ℂ x 1 each).



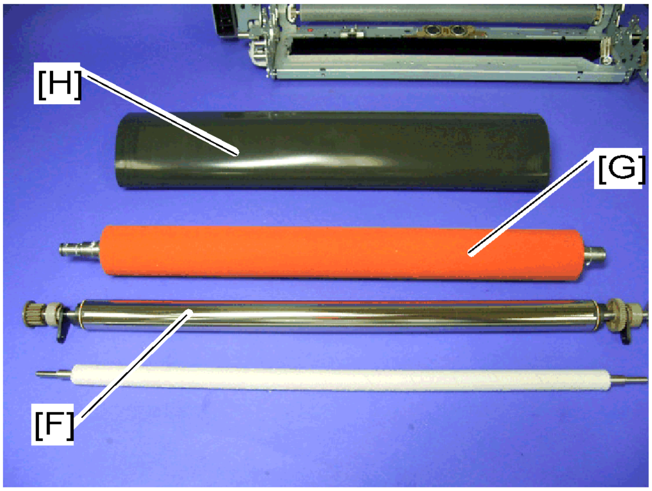
b222r645

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



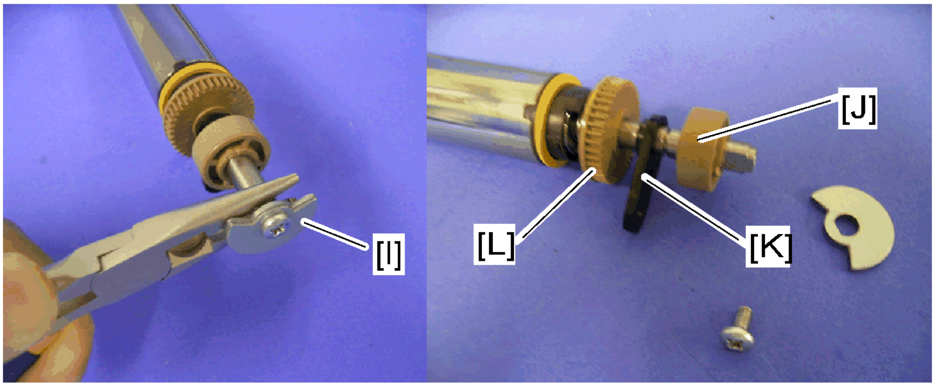
b222r646

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



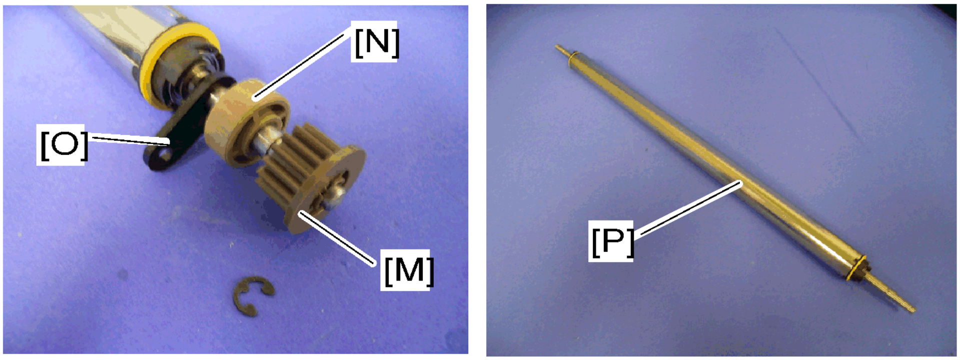
b222r647

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



b222r674

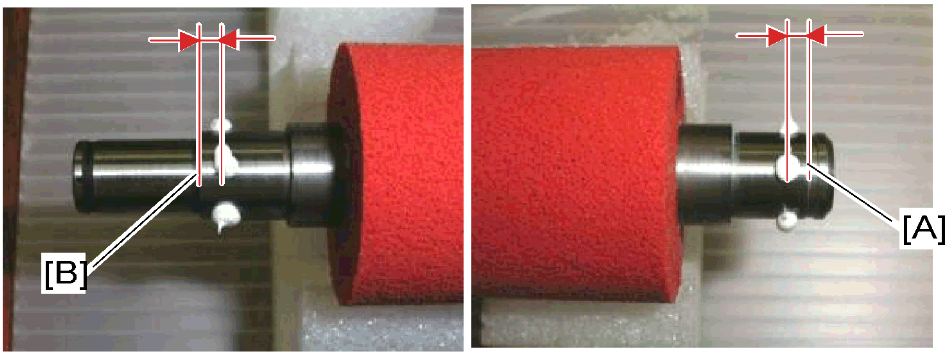
11. Remove the ferrite roller actuator [I] (🔩 x 1), while holding the shaft with the pliers.
12. Bushing holder [J], heating roller bushing [K], gear [L]



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

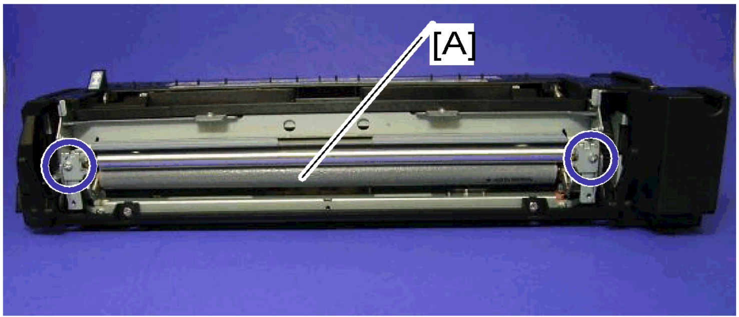
1. Apply three spots of "Barrierta S552R" (the diameter of each spot must be about 3 mm in diameter, and approximately 0.1 g in weight) to the front shaft of the fusing roller at 2 - 3 mm from the notch [A].
2. Apply three spots of "Barrierta S552R" (the diameter of each spot must be about 3 mm in diameter, 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.163 "Pressure Roller and Pressure Roller Bearing"")

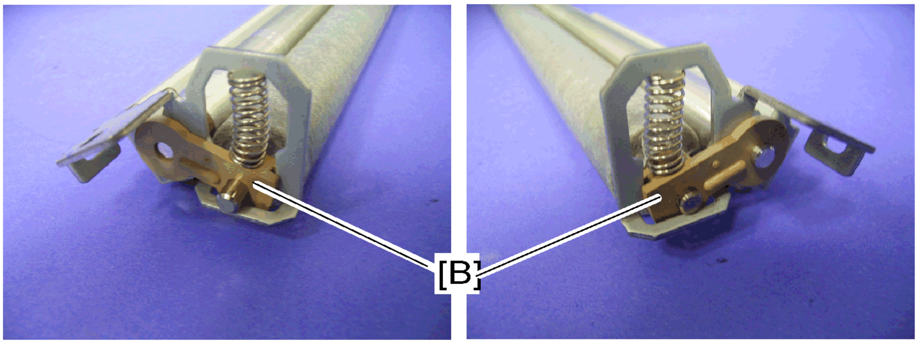
Lubricant Roller Bushing

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Fusing right cover (☛ "p.161 "Fusing Lamp"")



b222r652

3. Lubricant roller unit [A] (🔩 x 2)

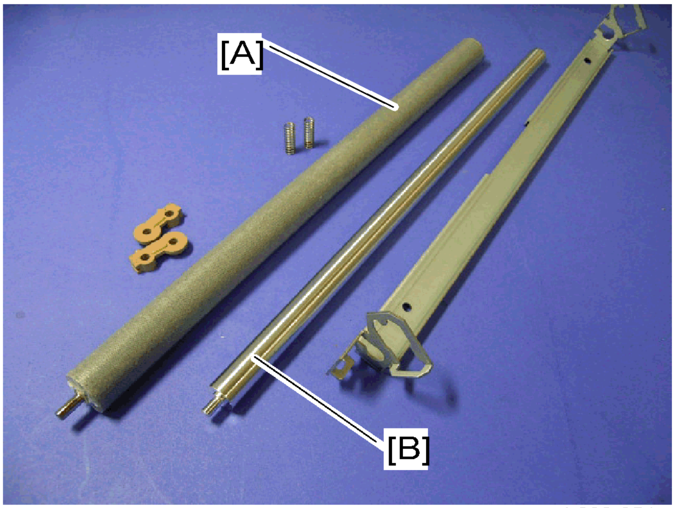


b222r653

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

Lubricant Roller and Cleaning Roller

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Fusing right cover (☛ "p.161 "Fusing Lamp"")
3. Lubricant roller bushings (☛ "p.174 "Lubricant Roller Bushing"")

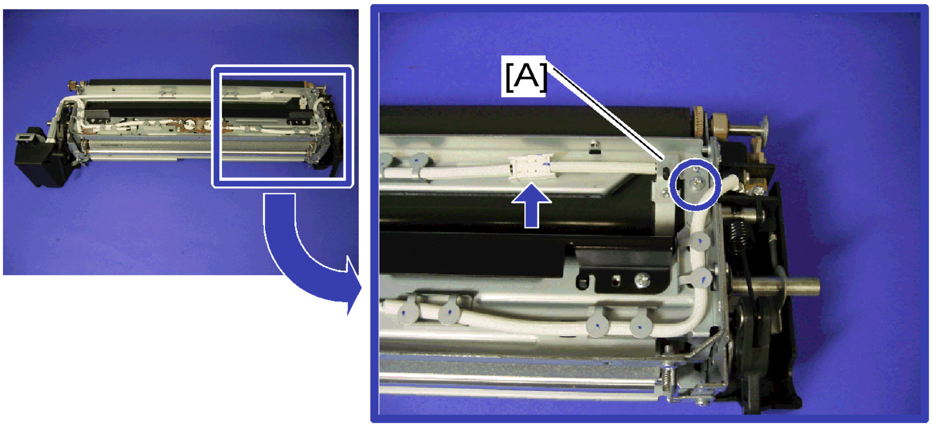


b222r654

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

Heating Roller Thermistor

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Fusing right cover (☛ "p.161 "Fusing Lamp"")
3. Fusing bottom cover (☛ "p.161 "Fusing Lamp"")

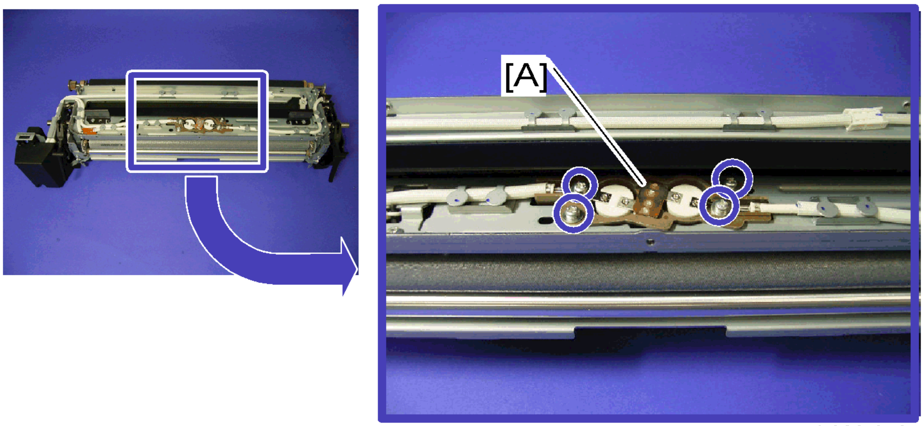


b222r655

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

Pressure Roller Thermostat

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Fusing right cover (☛ "p.161 "Fusing Lamp"")
3. Fusing bottom cover (☛ "p.161 "Fusing Lamp"")



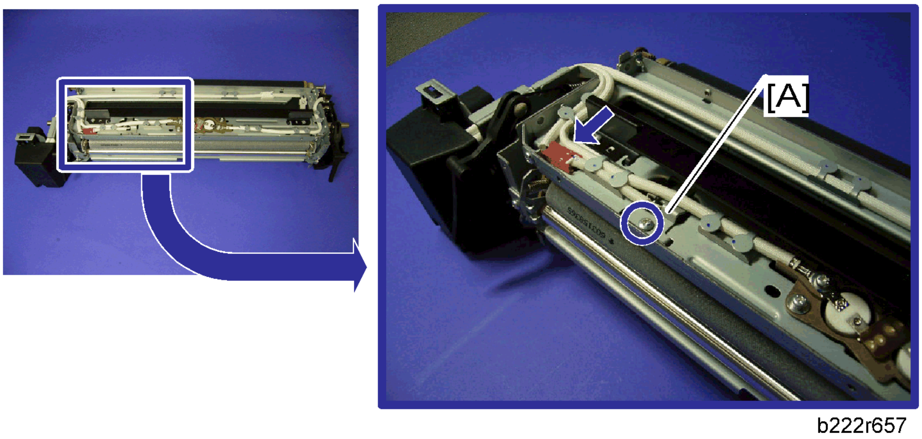
b222r656

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

Pressure Roller Thermistor

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Fusing right cover (☛ "p.161 "Fusing Lamp"")

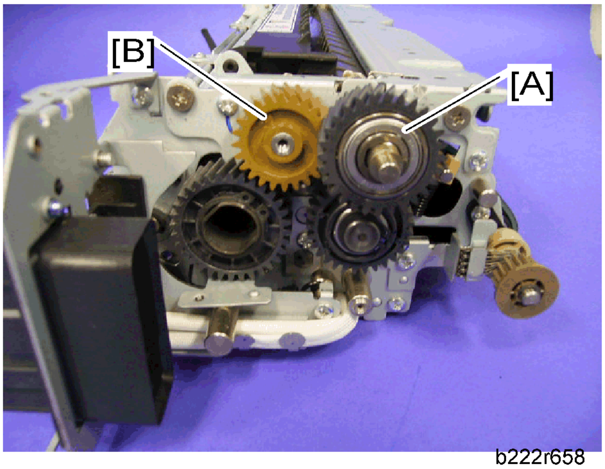
3. Fusing bottom cover (☛ "p.161 "Fusing Lamp"")



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

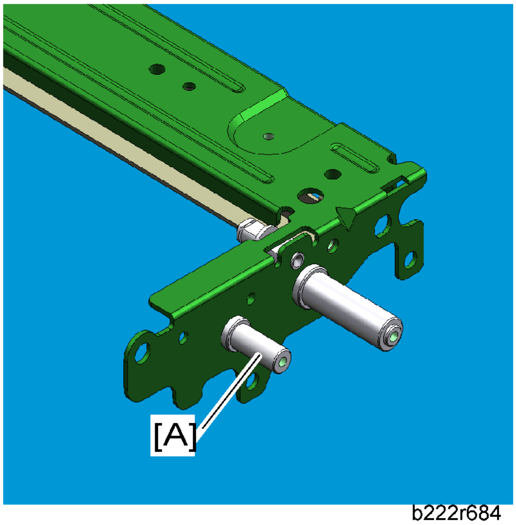
Fusing Roller One-way Clutch and Idle Gear

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Fusing upper cover (☛ "p.161 "Fusing Lamp"")
3. Fusing bottom cover (☛ "p.163 "Pressure Roller and Pressure Roller Bearing"")
4. Gear holder bracket (☛ "p.163 "Pressure Roller and Pressure Roller Bearing"")



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

When re-installing the idle gear

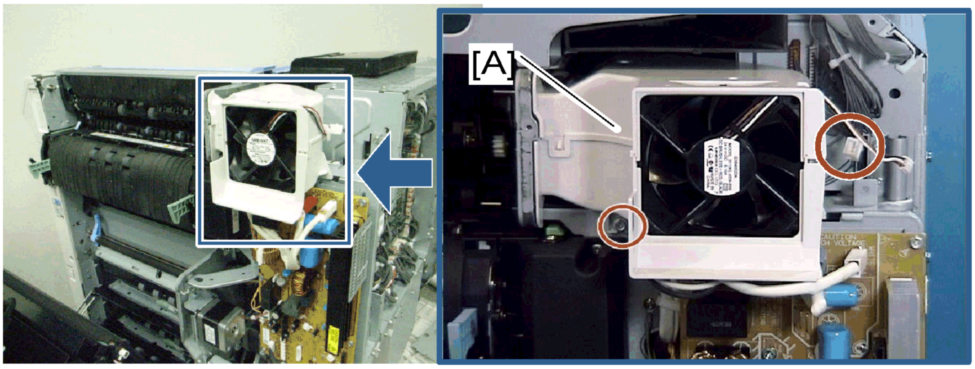


b222r684

- 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].

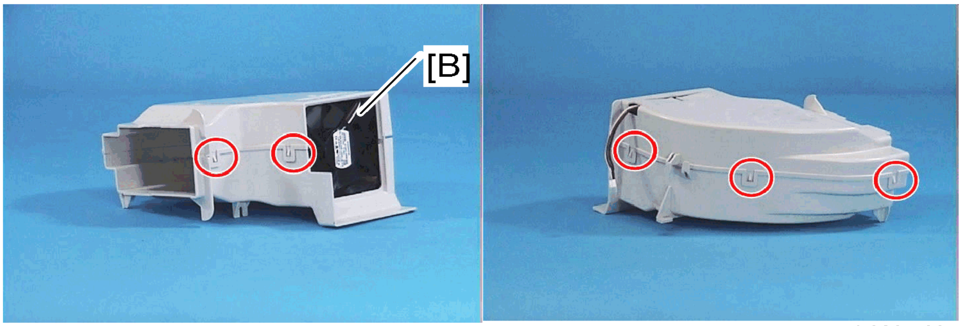
Fusing Fan

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")



g133r588

3. Fusing duct [A] (🔩 x 1, 🔌 x 1)



b222r589

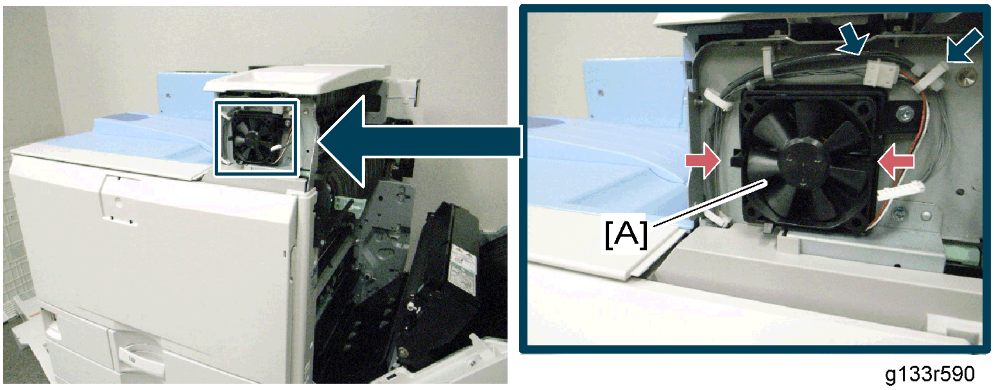
4. Fusing fan [B] (hook x 5)

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. Operation panel cover (☛ "p.97 "Operation Panel"")



g133r590

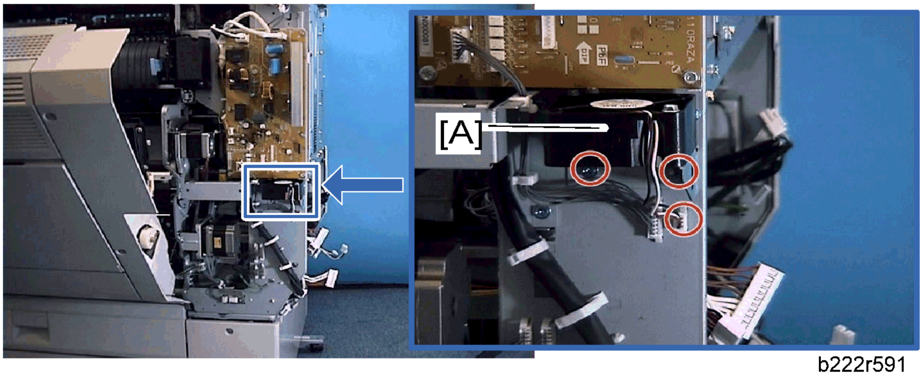
3. Paper exit fan [A] (🔌 x 1, 🗜 x 1, hook x 2)

When installing the paper exit fan

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

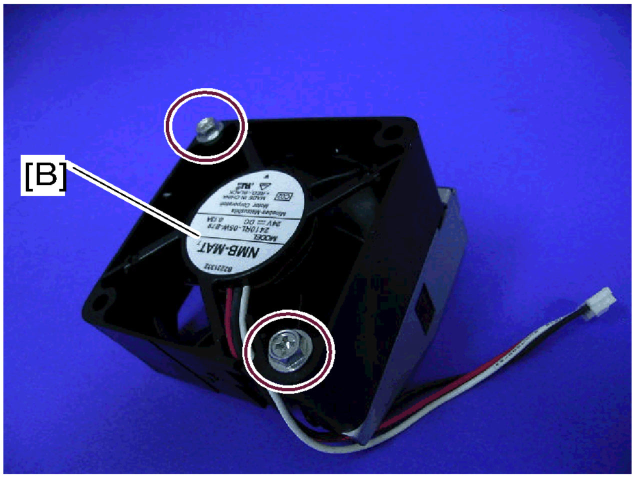
IH (Induction Heating) Inverter Fan

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")



b222r591

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



b222r592

4. IH inverter fan [B] (🔩 x 2)

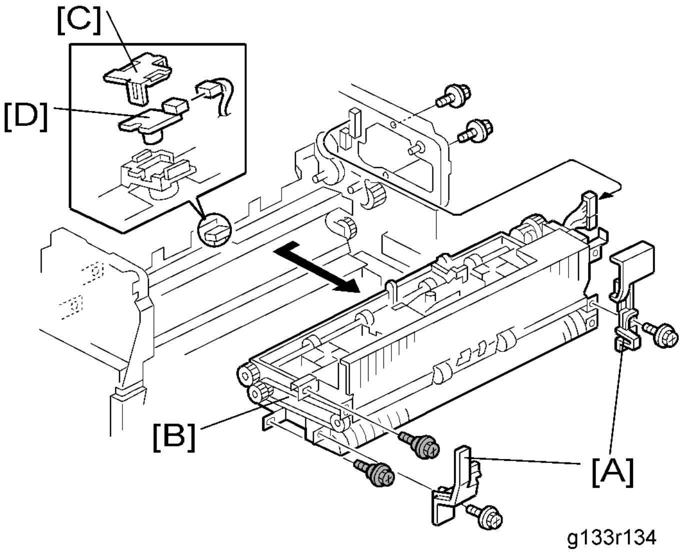
When installing the IH inverter fan

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

Thermopile

1. Open the right door.

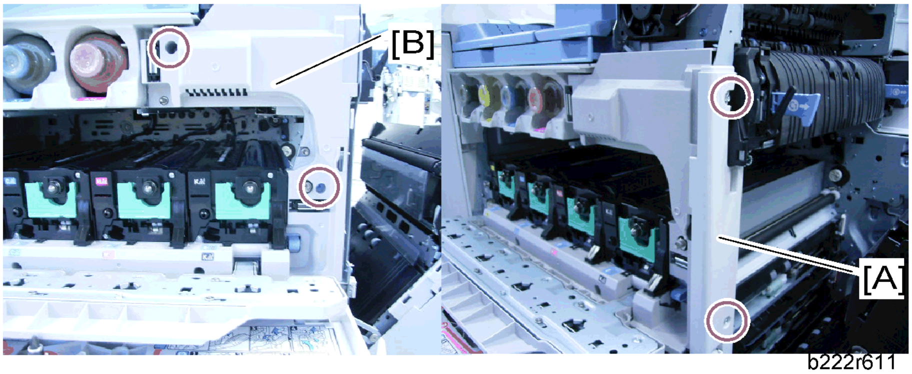
2. Fusing unit (☛"p.161 "Fusing Unit"")
3. Top right cover (☛ "Top Right and Rear Cover")
4. Fusing fan (☛ "p.178 "Fusing Fan"")
5. Paper exit cover (☛ "p.97 "Paper Exit Cover"")



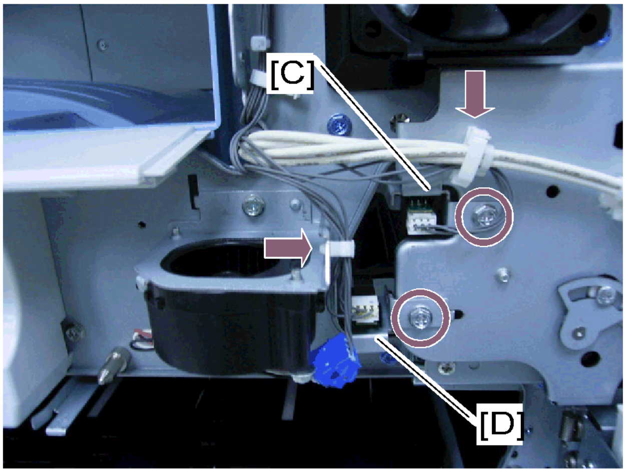
6. Gear covers [A] (🔩 x 1 each)
7. Paper exit unit [B] (🔩 x 4)
8. Thermopile bracket [C]
9. Thermopile [D] (🔌 x 1)

Fusing Belt Sensor and Ferrite Roller HP Sensor

1. Open the right door.
2. Operation panel cover (☛ "p.97 "Operation Panel"")
3. Pull out tray 1 and 2, and the image transfer belt unit.



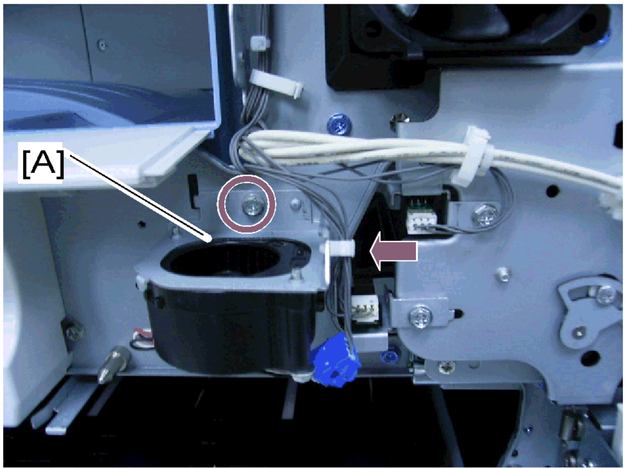
4. Right front cover [A] (🔩 x 2)
5. Front inner cover [B] (🔩 x 2)



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. Operation panel cover (☛ "p.97 "Operation Panel"")
3. Pull out trays 1 and 2, and the image transfer belt unit.
4. Right front cover and front inner cover (☛ "p.181 "Fusing Belt Sensor and Ferrite Roller HP Sensor"")



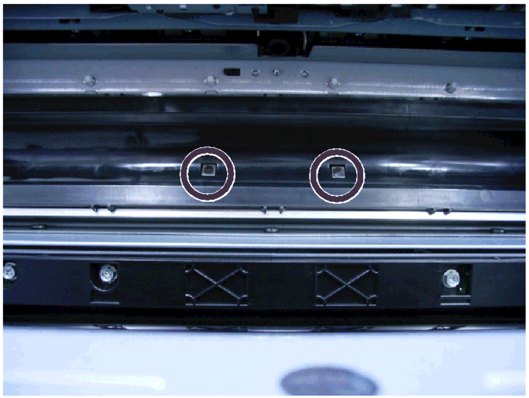
b222r623

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

IH Coil Unit

⚠CAUTION

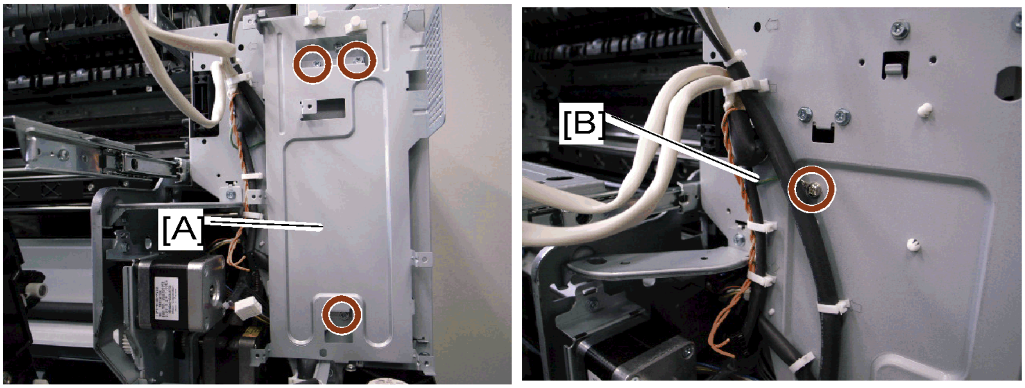
- Do not push the thermostats on the IH coil unit. If you do, the thermostats will be opened. In that case, the IH coil unit must be replaced.



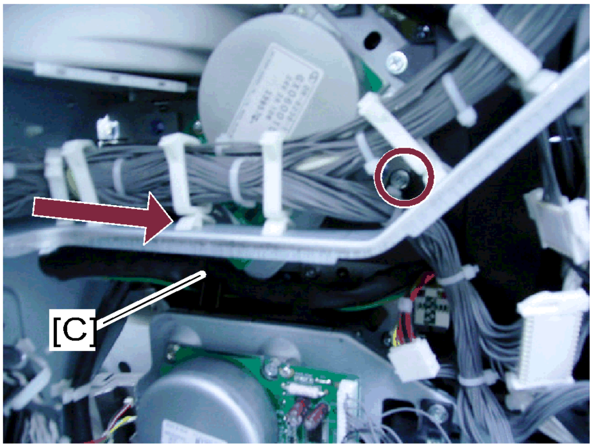
b222r617

1. Fusing unit (☛ "p.161 "Fusing Unit"")
2. Operation panel cover (☛ "p.97 "Operation Panel"")
3. Image transfer belt unit (☛ "p.123 "Image Transfer Belt Unit"")
4. Paper exit cover (☛ "p.97 "Paper Exit Cover"")
5. Output Tray (☛ "p.98 "Output Tray"")

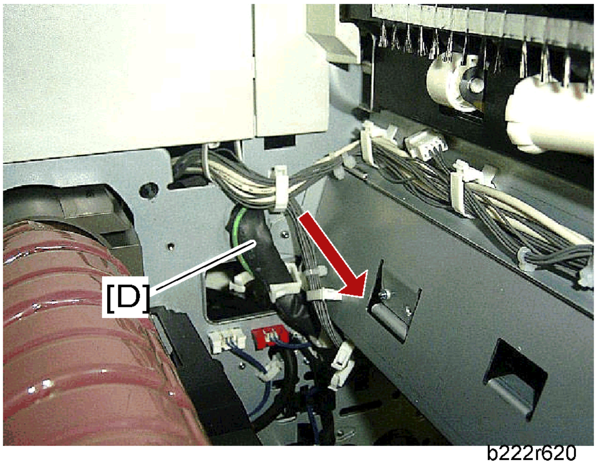
6. All PCUs (☛ "p.112 "PCU"")
7. Rear cover (☛ "p.95 "Rear Cover"")
8. Right rear cover (☛ "p.96 "Right Rear Cover"")
9. Open the controller box (☛"p.203 "Controller Box"").
10. Second duct (☛ "p.113 "Second Duct Fan"")
11. Fusing duct (☛ "p.178 "Fusing Fan"")
12. IH inverter (☛ "p.210 "IH Inverter"")



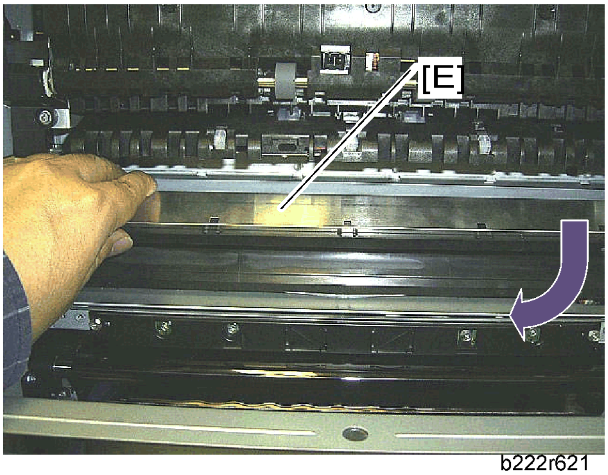
13. IH inverter bracket [A] (🔩 x 3)
14. Remove the ground cable [B] (🔩 x 1)



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 (x 2).

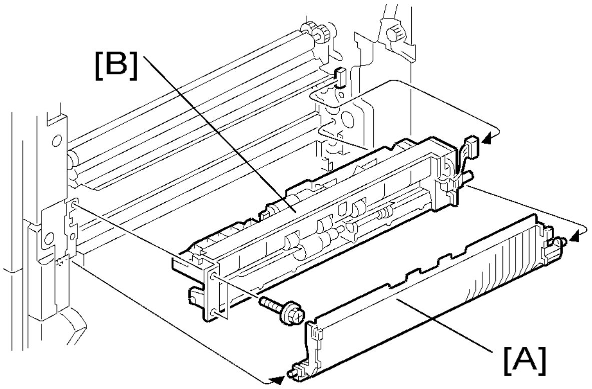


18. IH coil unit [E] (First release the rear side of the IH coil unit.)

Paper Feed

Paper Feed Unit

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")
3. Duplex unit (☛ "p.198 "Duplex Unit"")
4. Pull out tray 1 and tray 2.

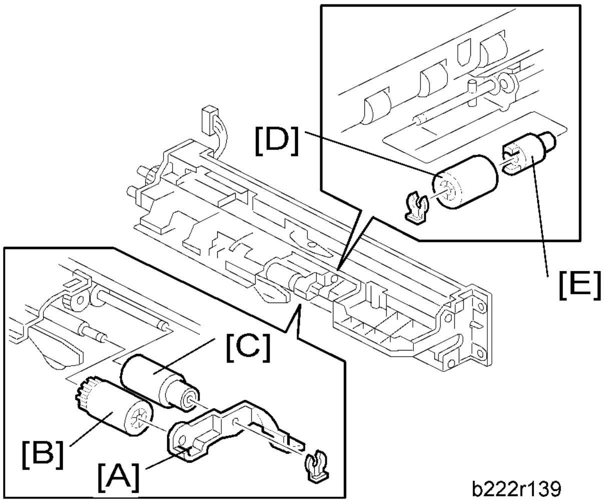


5. Paper guide plate [A] (hook x 2)
6. Paper feed unit [B] (🔩 x 2, 🔌 x 1)

Pick-Up, Feed and Separation Rollers

Tray 1 and Tray 2

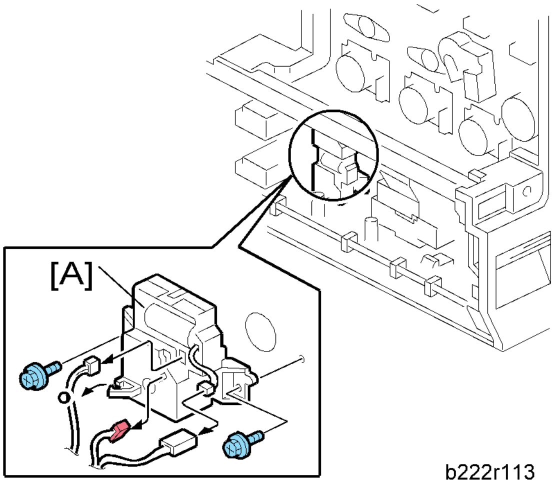
1. Paper feed unit (☛ "p.186 "Paper Feed Unit"")



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

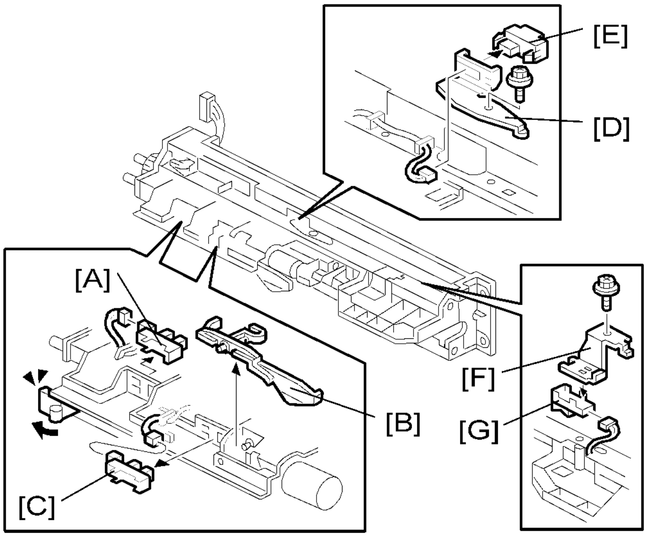
1. Rear cover (☛ "p.95 "Rear Cover"")
2. PSU bracket (☛ "p.207 "PSU"")
3. High voltage supply board bracket (☛ "p.209 "High Voltage Supply Board Bracket"")



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.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")
3. Paper feed unit (☛ "p.186 "Paper Feed Unit"")

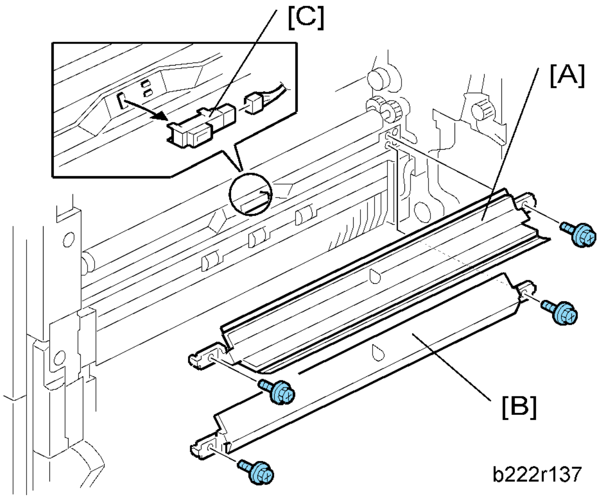


b222r140

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)

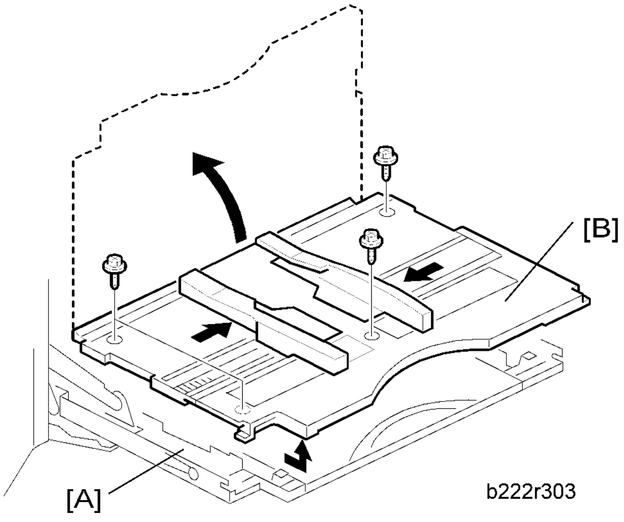
Registration Sensor

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")

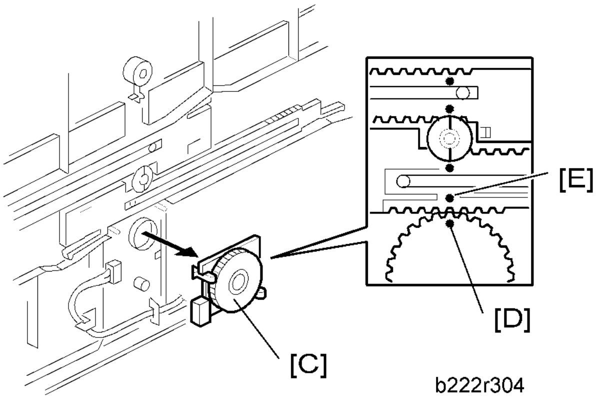


3. Paper guide plate 1 [A] and 2 [B] (🔩 x 2 each)
4. Registration sensor [C] (🔌 x 1, hook)

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

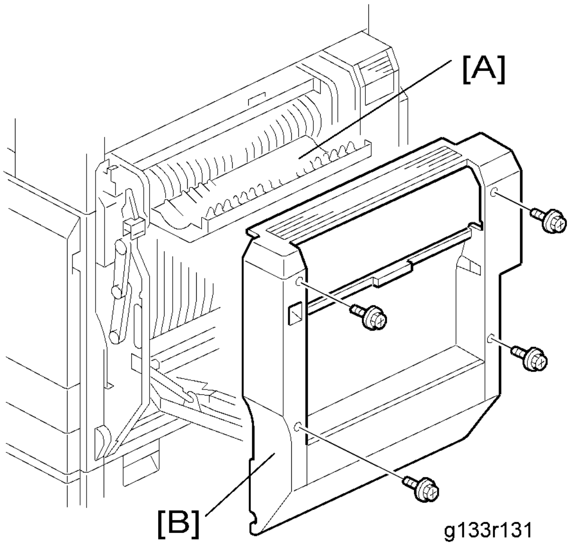
1. Adjust the projection [E] of the left side fence bar (it must be centered).
2. Install the by-pass paper size detection switch so that the hole [D] in this switch faces the projection [E] of the left side fence bar.
3. Reassemble the printer.
4. Plug in and turn on the main power switch.
5. Check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

- Display on the LCD -

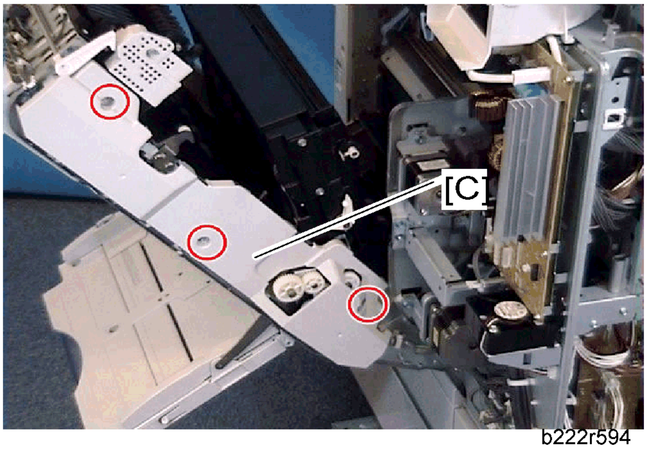
Paper Size	Display	Paper Size	Display
A3 SEF	00001110	A5 SEF	00001011
B4 SEF	00001100	B6 SEF	00000011
A4 SEF	00001101	A6 SEF	00000111
B5 SEF	00001001	Smaller A6 SEF	00001111

By-pass Bottom Tray

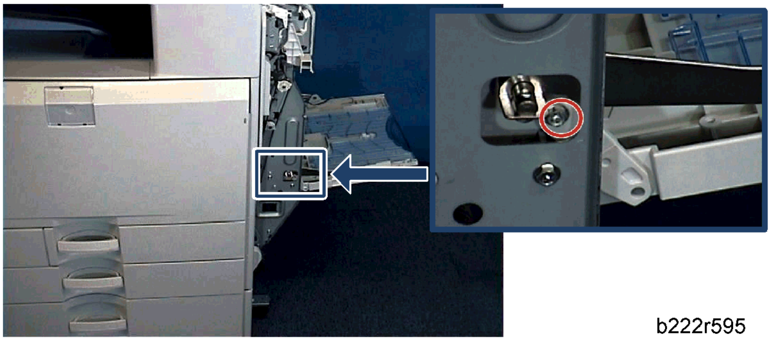
1. Open the right door.
2. By-pass tray cover (☛ "p.189 "By-pass Paper Size Sensor Switch"")



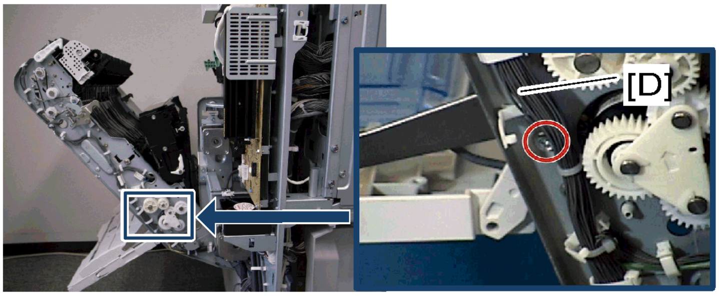
3. Open the duplex door [A].
4. Right door cover [B] (🔩 x 4)



5. Right door rear cover [C] (🔩 x 3)

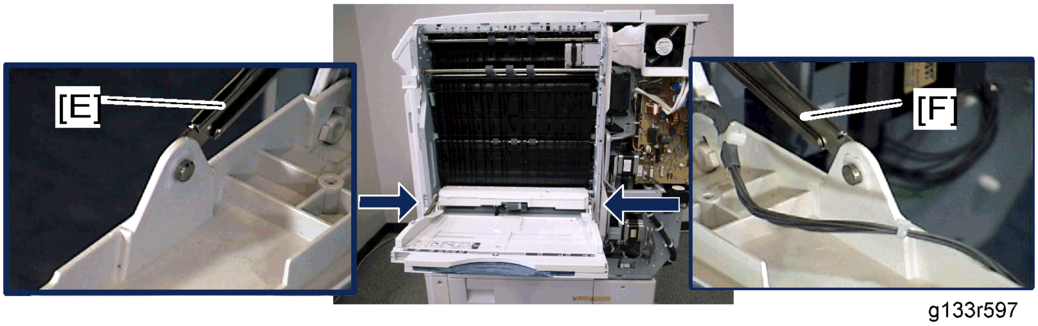

b222r595

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



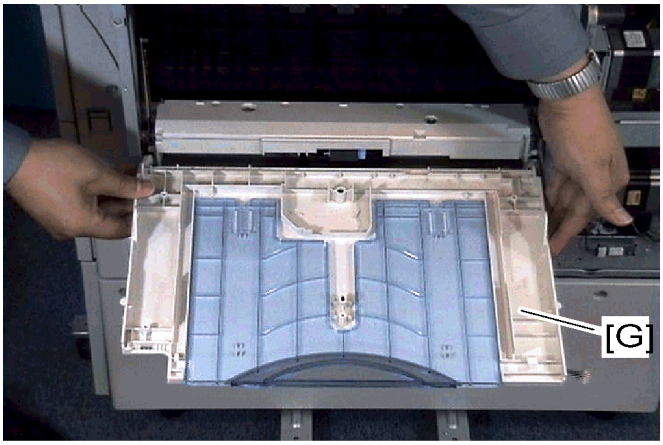
g133r596

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



g133r597

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

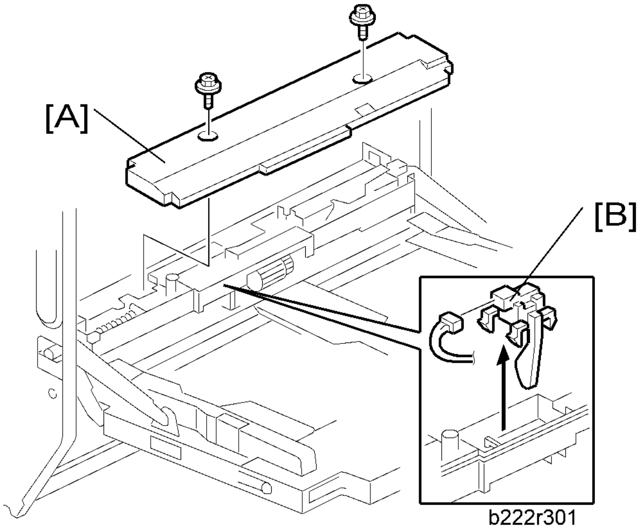


b222r598

9. By-pass Bottom Tray [G]

By-pass Paper End Sensor

1. Right door cover (☛ "p.190 "By-pass Bottom Tray"")



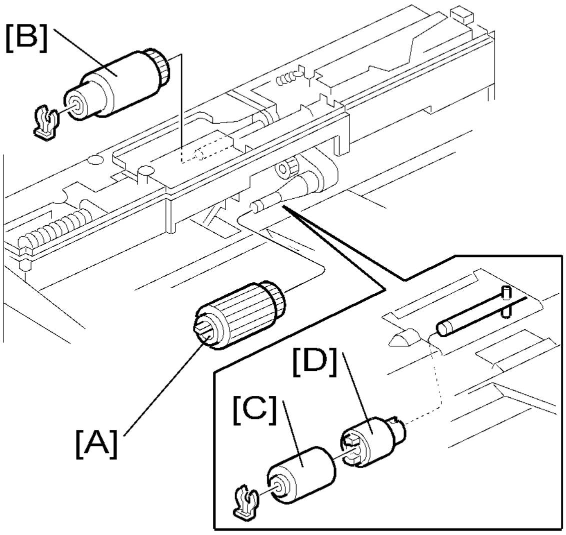
b222r301

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.190 "By-pass Bottom Tray"")

2. By-pass feed unit cover (☛ "p.193 "By-pass Paper End Sensor"")

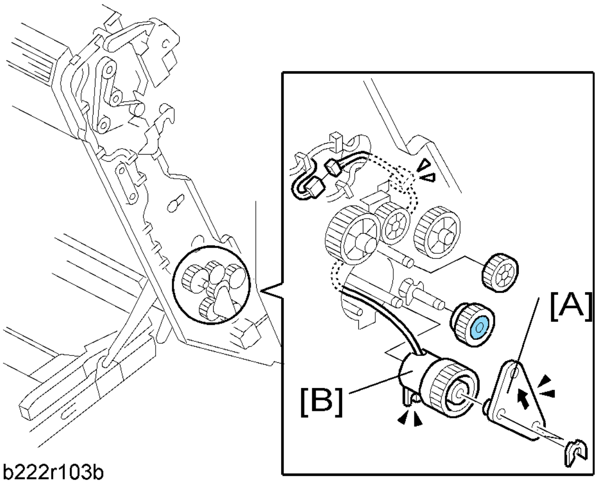


b222r302

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.190 "By-pass Bottom Tray"")

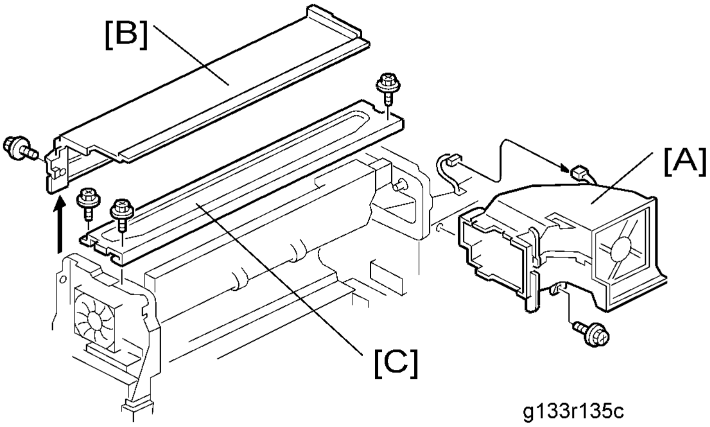


b222r103b

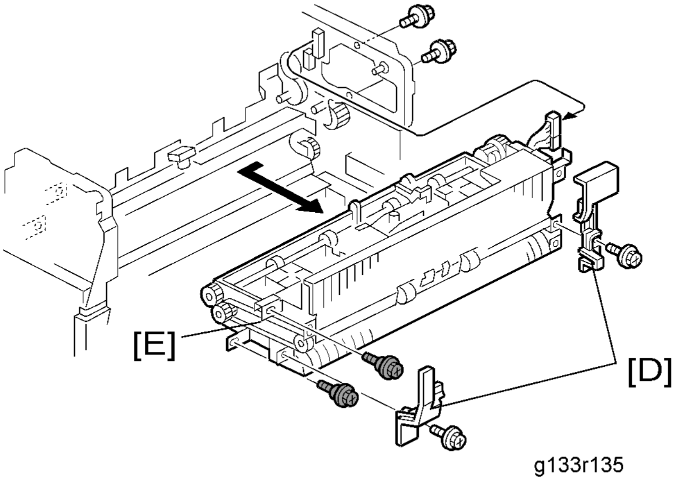
3. By-pass feed clutch holder [A] (⚲ x 2)
4. By-pass feed clutch [B] (🔌 x 1, ⚲ x 1)

Paper Exit Unit

1. Fusing Unit (☛ "p.161 "Fusing Unit"")
2. Operation panel cover (☛ "p.97 "Operation Panel"")
3. Image transfer belt unit (☛ "p.123 "Image Transfer Belt Unit"")
4. Rear cover (☛ "p.95 "Rear Cover"")
5. Right rear cover (☛ "p.96 "Right Rear Cover"")



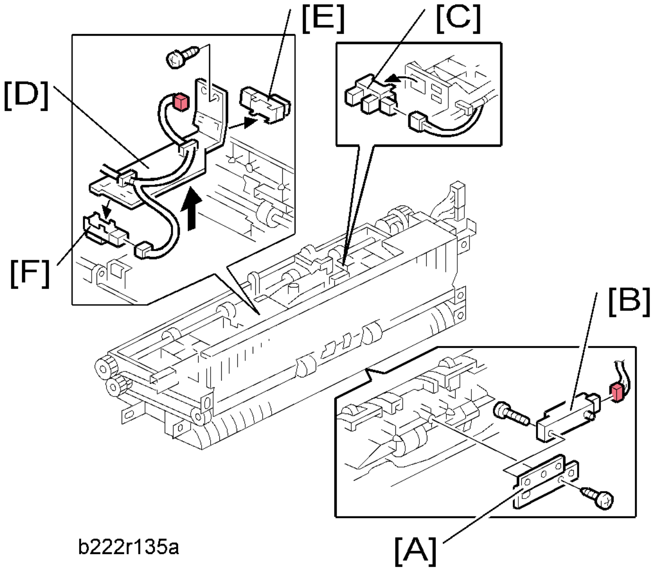
6. Fusing duct [A] (🔩 x 1, 🔌 x 1)
7. Paper exit cover [B] (🔩 x 1)
8. Top right stay [C] (🔩 x 3)



9. Gear covers [D] (🔩 x 1 each)
10. Paper exit unit [E] (🔩 x 4)

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

1. Paper exit unit (☛ "p.195 "Paper Exit Unit"")

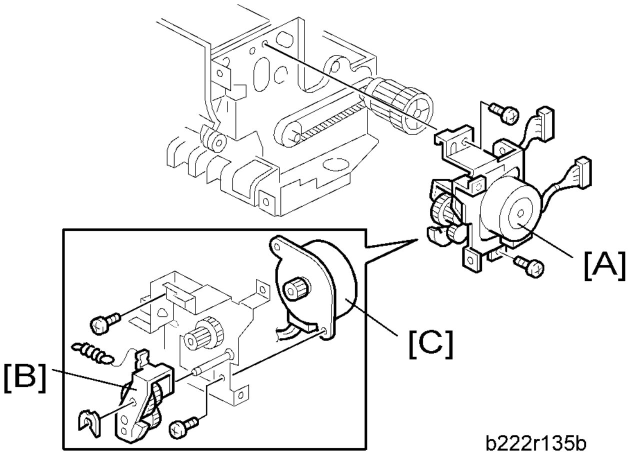


2. Fusing exit sensor bracket [A] (🔩 x 1, 🔌 x 1)
3. Fusing exit sensor [B] (🔩 x 1)

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

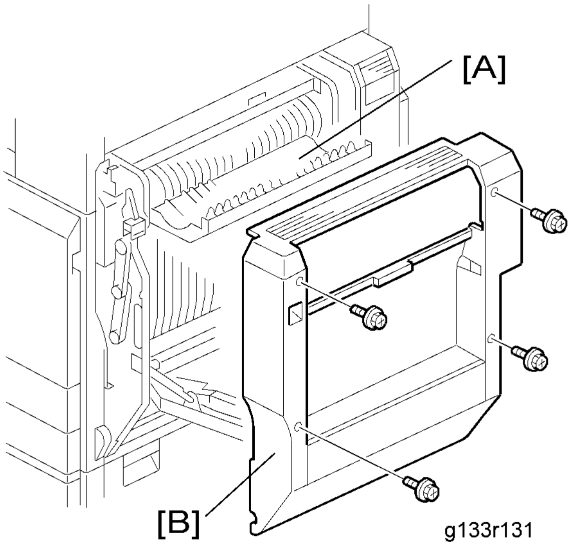
1. Paper exit unit (☛ "p.195 "Paper Exit Unit"")



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)

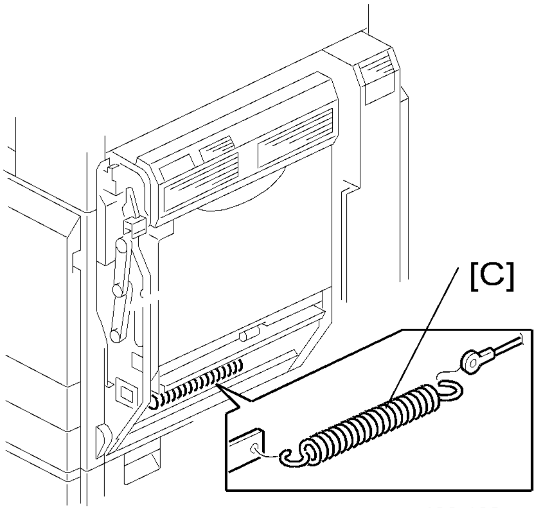
Duplex Unit

Duplex Unit



g133r131

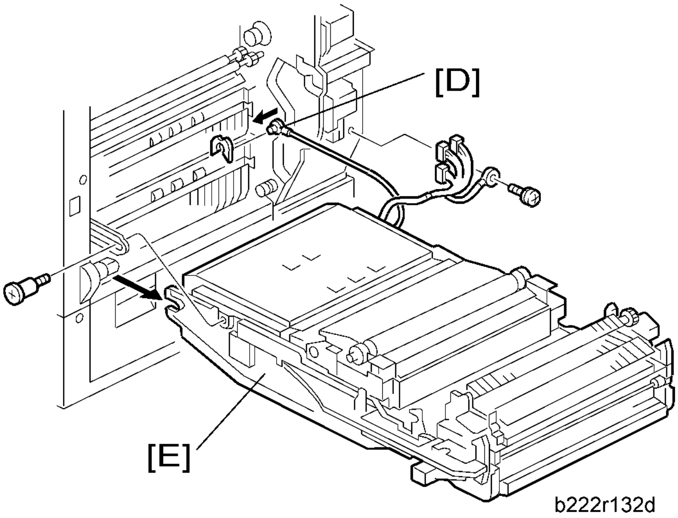
1. Open the duplex door [A] and by-pass tray.
2. Right door cover [B] (🔩 x 4)



g133r132c

3. Remove the spring [C].
4. Rear cover (☛ "p.95 "Rear Cover"")

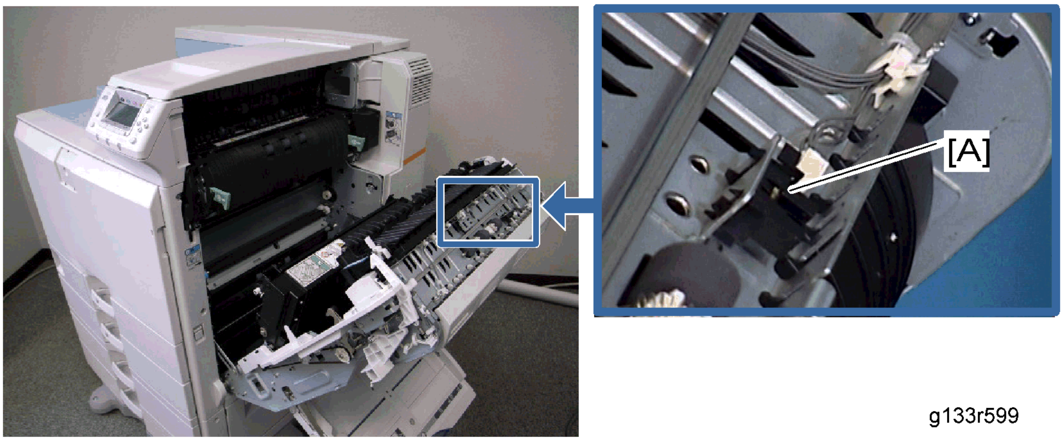
5. Right rear cover (☛ "p.96 "Right Rear Cover"")



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

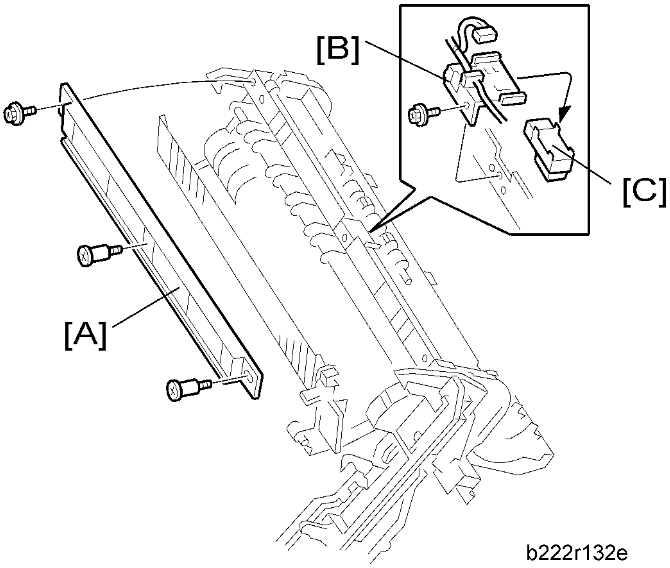
1. Right door cover (☛ "p.198 "Duplex Unit"")
2. Open the right door.



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

Duplex Entrance Sensor

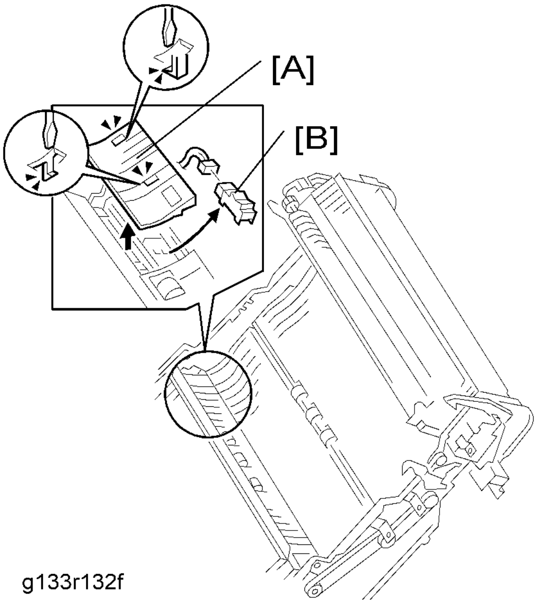
1. Right door cover (☛ "p.198 "Duplex Unit"")
2. Open the right door.



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

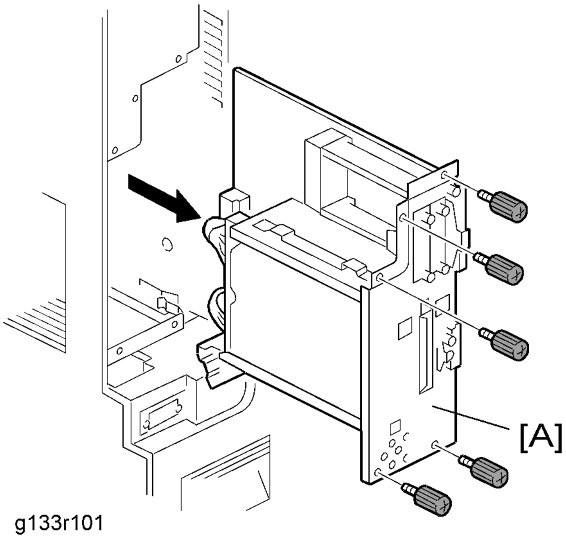
1. Paper transfer unit (☛ "p.130 "Paper Transfer Unit"")



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

Electrical Components

Controller Unit

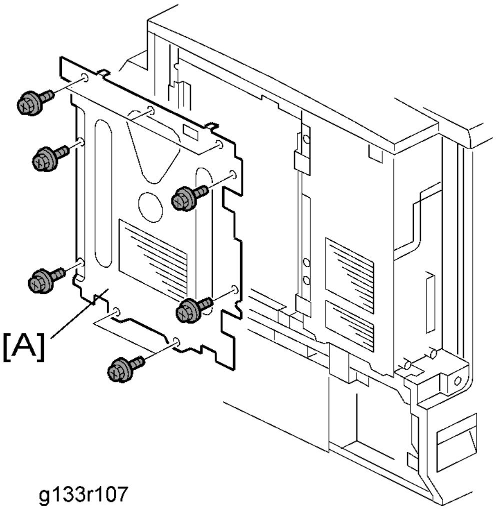


g133r101

1. Controller unit [A] (🔩 x 5)

Controller Box Right Cover

1. Rear cover (☛ "p.95 "Rear Cover"")



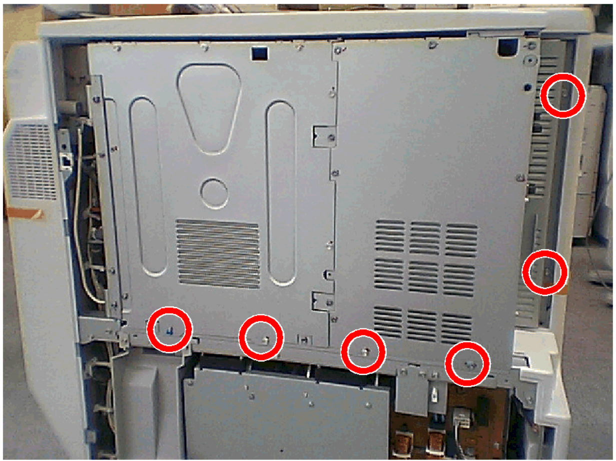
D144 RTB 89
Take caution when removing the controller board cover, because the edges of the cover are sharp.

2. Controller box right cover [A] (🔩 x 9)

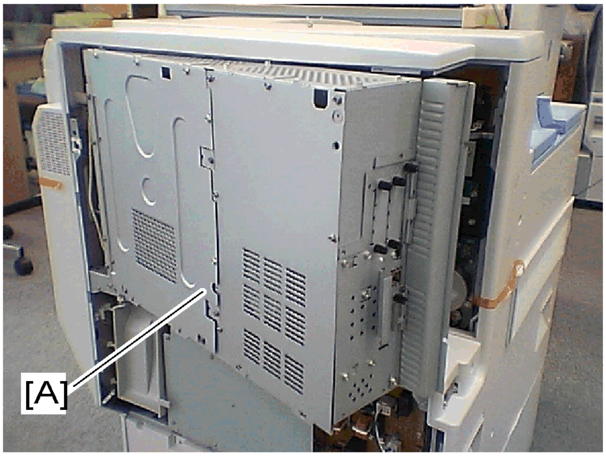
Controller Box

When opening the controller box

1. Rear cover (☛ "p.95 "Rear Cover"")



2. Remove six screws (red circles).

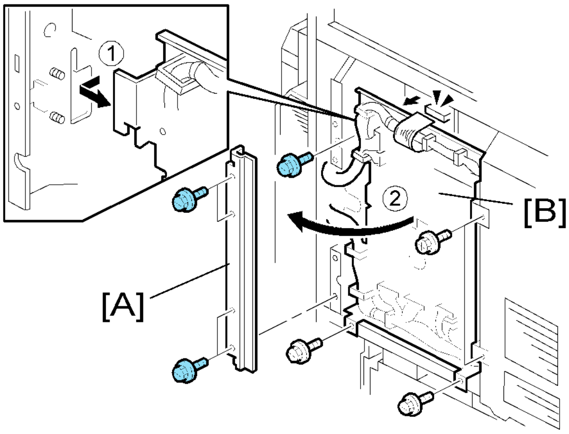


g133r604

3. Open the controller box [A].

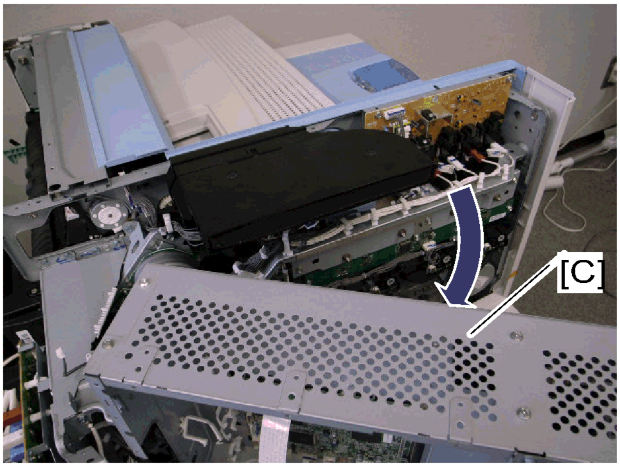
When removing the controller box

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")
3. Controller box right cover (☛ "p.202 "Controller Box Right Cover "")



g133r109

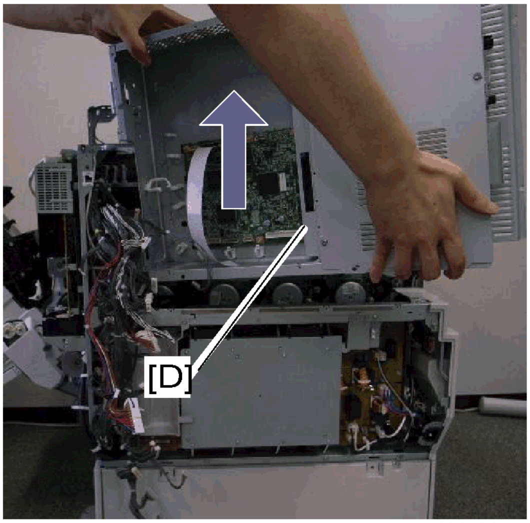
4. Remove the controller box stay [A] (🔩 x 4).
5. Take the IOB bracket [B] aside (🔩 x 5, all ⊏s, flat cable x 1).
6. Release all clamps on the controller box frame.
7. Disconnect all connectors on the EGB.



8. Open the controller box [C] as shown.

Important

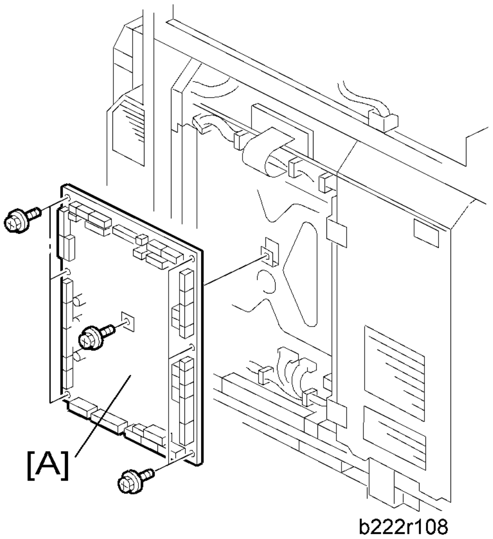
- If you do not open the controller box, the second fan duct prevents you from removing the controller box.



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

IOB (In/Out Board)

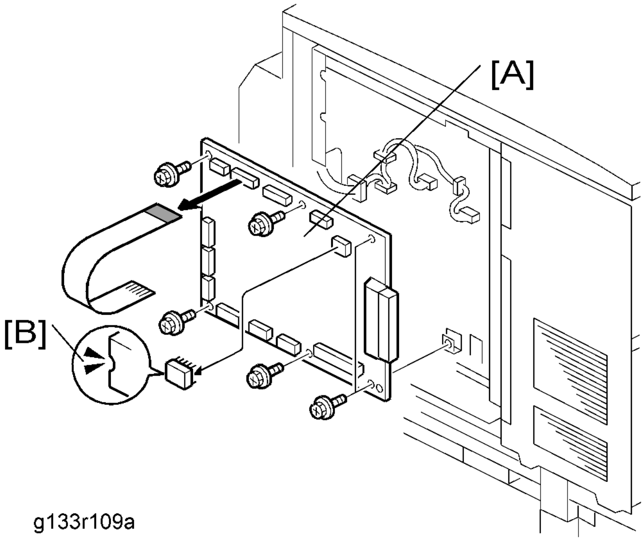
1. Rear cover (☛ "p.95 "Rear Cover"")
2. Controller box right cover (☛ "p.202 "Controller Box Right Cover "")



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

EGB

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Controller box right cover (☛ "p.202 "Controller Box Right Cover "")
3. Take the IOB bracket aside (☛ "p.203 "Controller Box"")



4. EGB board [A] (🔩 x 6, flat cable x 1, all 🔌s)

When installing the new EGB

Remove the NVRAM from the old EGB. Then install it on the new EGB after you replace the EGB. Replace the NVRAM (☛ "p.214 "NVRAM Replacement Procedure"") if the NVRAM on the old EGB is defective.

Note

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

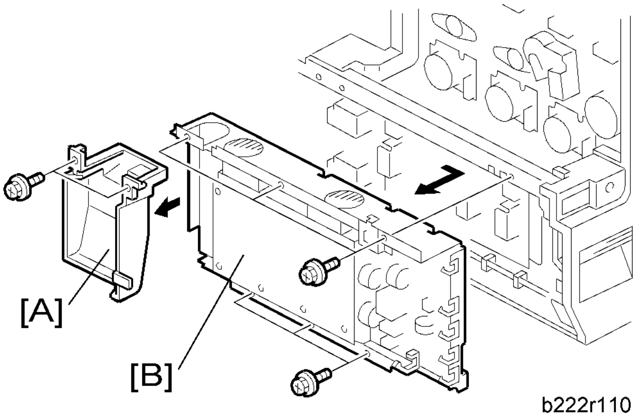
⚠CAUTION

- 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 EGB. Insert the NVRAM in the NVRAM slot with the "half-moon" [B] pointing to the left-hand side.
- Make sure that the DIP-switch settings on the old EGB are the same for the new EGB when. Do not change the DIP switches on the EGB in the field.

PSU

PSU bracket

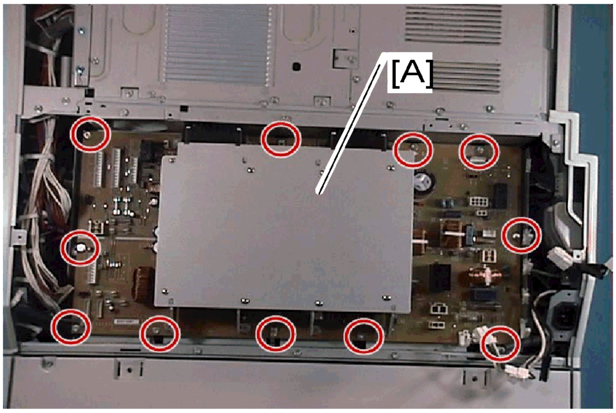
1. Rear cover (☛ "p.95 "Rear Cover"")



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

PSU board

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Ventilation duct (☛ "p.207 "PSU"")

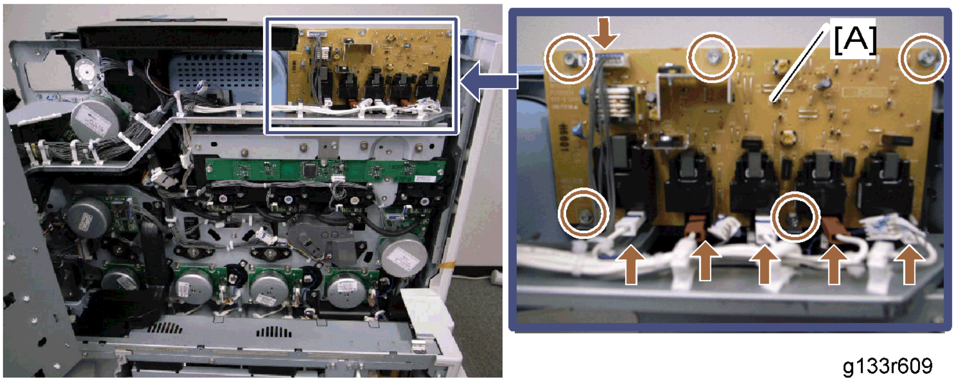


b222r608

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

ITB Power Supply Board

1. Rear cover (☛ "p.95 "Rear Cover"")
2. Open the controller box (☛ "p.203 "Controller Box"")
3. Top right cover (☛ "p.96 "Top Right and Rear Cover"")
4. Top rear cover (☛ "p.96 "Top Right and Rear Cover"")

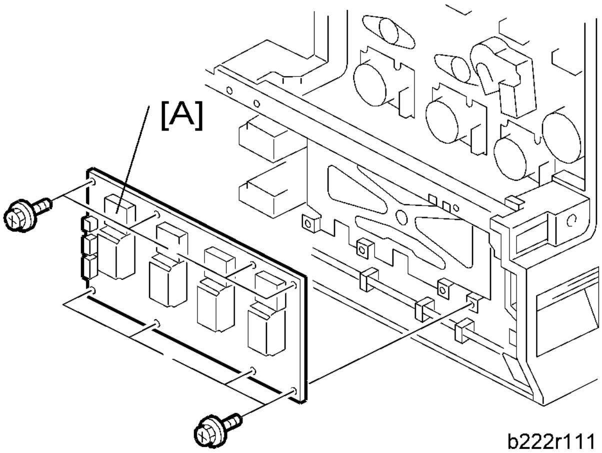


g133r609

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

High Voltage Supply Board

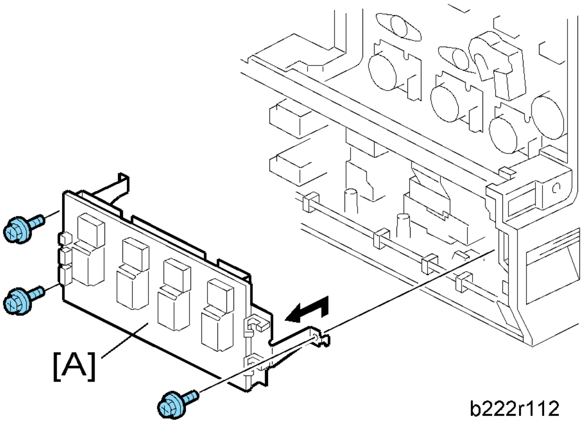
1. Rear cover (☛ "p.95 "Rear Cover"")
2. PSU bracket (☛ "p.207 "PSU"")



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

High Voltage Supply Board Bracket

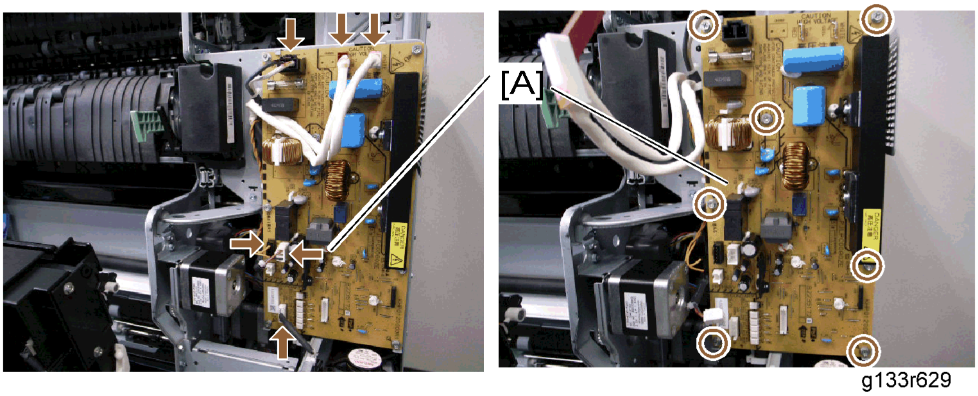
1. Rear cover (☛ "p.95 "Rear Cover"")
2. PSU bracket (☛ "p.207 "PSU"")



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

IH Inverter

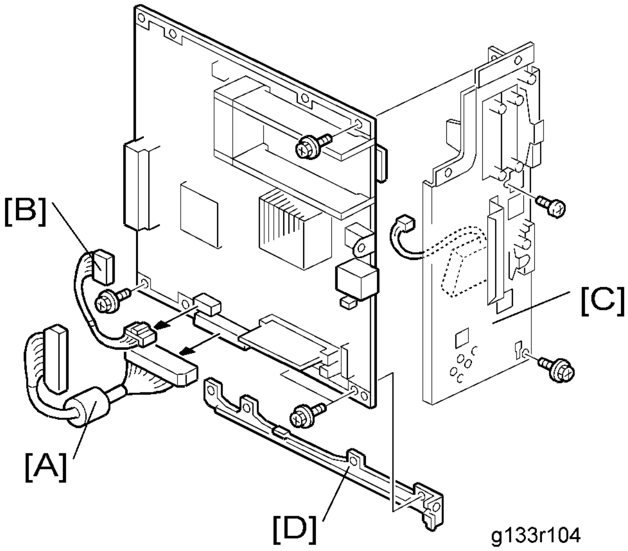
1. Rear cover (☛ "p.95 "Rear Cover"")
2. Right rear cover (☛ "p.96 "Right Rear Cover"")
3. Fusing duct (☛ "p.178 "Fusing Fan"")



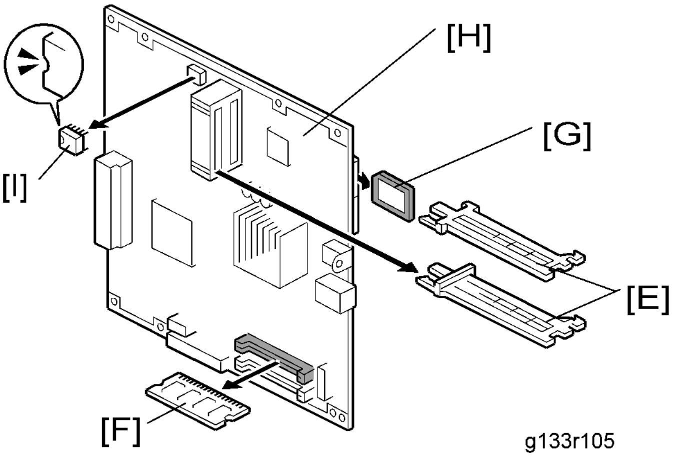
4. IH inverter [A] (🔩 x 7, 🔌 x 6)

Controller Board

1. Controller unit (☛ "p.202 "Controller Unit"")
2. HDD unit (☛ "p.212 "HDD"")
3. HDD fan bracket (☛ "p.211 "HDD Fan"")



4. HDD interface cable [A] and harness [B]
5. Controller slot bracket [C] (🔩 x 3)
6. Controller board stay [D] (🔩 x 4)



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

When installing the new controller board

Remove the NVRAM [I] from the old controller board. Then install it on the new controller board after you replace the controller board. Make sure that the NVRAM is inserted in the NVRAM slot with the "half-moon" pointing to the left-hand side. Replace the NVRAM (☛ "p.214 "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.

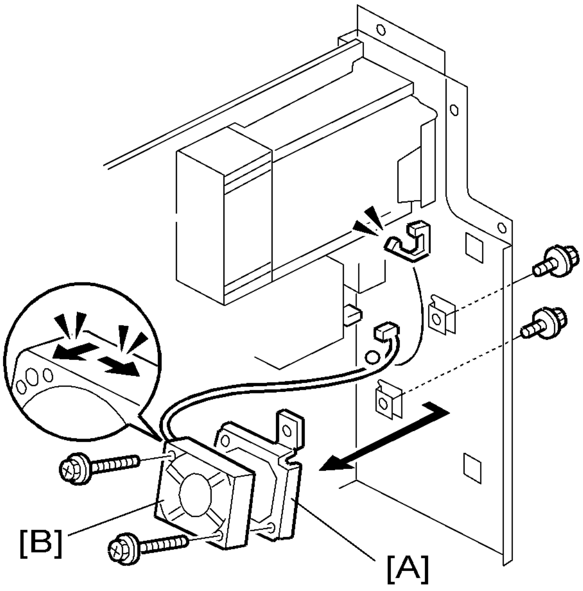
⚠CAUTION

- 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.

HDD Fan

1. Controller unit (☛ "p.202 "Controller Unit"")

2. HDD (☛ "p.212 "HDD"")



g133r678

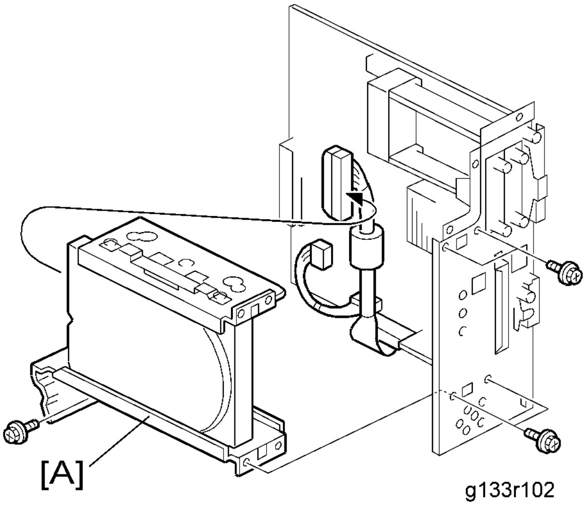
3. HDD fan bracket [A] (🔩 x 2, ⊏ x 1)
4. HDD fan [B] (🔩 x 2)

When installing the HDD fan

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

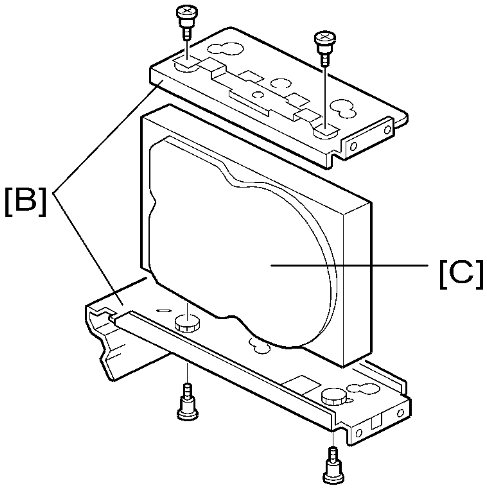
HDD

1. Controller unit (☛ "p.202 "Controller Unit"")



g133r102

2. HDD bracket unit [A] (🔩 x 5, 🔌 x 2)



g133r102a

3. Brackets [B] (Stepped screw x 2 each)
4. HDD unit [C]

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 the data stored in temporary files. Such data is stored on the HDD in a special format so it cannot normally be read but can be recovered with illegal methods.

NVRAM Replacement Procedure

NVRAM on the EGB

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 the SD card slot 3. Then turn the main power on.
5. Copy the NVRAM data to the SD card (☛ SP5-824-001) if possible.
6. Turn off the main switch. Then unplug the power cord.
7. Replace the NVRAM on the EGB 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 the 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 printer application program.

    Note

    - When installing a new NVRAM, refer to "When installing a new NVRAM".

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 the 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 the 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 the SD card slot 3.
13. Turn the main switch on.
14. Specify the SP and UP mode settings.
15. Do ACC for the printer application program.

Note

- When installing a new NVRAM, refer to "When installing a new NVRAM".

When installing a new NVRAM

After installing a new NVRAM, do the following procedure.

1. Enter the SP mode.
2. Do the "NVRAM Download" with SP5-825-001 or input the settings while referring to the SMC sheets that have been printed out.
3. Select the destination area with SP5-807-001.

   Note

   - SP5-807-001 is an SSP, so please consult your supervisor.
4. Input the serial number of the machine with SP5-811-001.
5. Only when installing an NVRAM on the **controller board**, specify the brand name with SP5-907-001.
6. Exit the SP mode, and turn the main power switch off and on.

4. Troubleshooting

Process Control Error Conditions

Developer Initialization Result

The displayed number shows the results of the TD sensor check for all 4 colours.

0000 = YCMK

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	

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

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	Not enough data can be sampled.	-	Solid image is not sufficient density:

No.	Result	Description	Possible Causes	Action
	(K5) detection error			• 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

The displayed number shows the results of the test for each ID sensor.

0000000 = Front, K, C, Center, M, Y, Rear

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.

No.	Result	Description	Possible Causes	Action
				- Replace the IOB board.
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 "p.285 "Line Position Adjustment"" section.

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 main power 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 main power switch or main switch off and on. If the error occurs again, the same SC code is displayed.	Turn the main power 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 670). 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 and 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 -	Not used in this model
		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
		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 -	Not used in this model
		720 -	Finisher: Shift/Staple
		740 -	Finisher: Staple/Punch
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)
195	D	Serial Number Mismatch
		• Serial number stored in the memory does not have the correct code.
		• NVRAM defective • EGB 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 EGB.

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
		See SC 202 for troubleshooting details.

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
		See SC 202 for troubleshooting details.

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 EGB
		1. Replace the harness of the LD board. 2. Replace the laser optics housing unit. 3. Replace the EGB.

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
223	D	Laser synchronizing detection error: start position [Y]: LD1

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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 EGB
		1. Check the connectors. 2. Replace the laser-synchronizing detector. 3. Replace the LDB. 4. Replace the EGB.

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 EGB. • Defective EGB
		1. Check the connection between the controller board and the EGB. 2. Replace the EGB. 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 EGB 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 EGB.

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
		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
		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 low) error 2: K
365	D	TD sensor (Vt low) error 2: M
366	D	TD sensor (Vt low) error 2: C
367	D	TD sensor (Vt low) 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 SP3324-005 or less than the value (default: 3.5V) specified with SP3324-006.
		• 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 belt 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 belt unit is correctly set. 2. Replace the image transfer belt unit motor. 3. Replace the image transfer belt 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	High voltage power: Separation bias output error
		The status of the power pack is checked every 20 ms. This SC is issued if the EGB 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
		• The thermistor output of the temperature sensor is not within the prescribed range (0.5V to 4.2V). If this is detected consecutively three times, the SC is generated and the machine defines that the temperature is "23°C". • The thermistor output of the humidity sensor is not within the prescribed range (0.01V to 2.4V). If this is detected consecutively three times, the SC is generated and the machine detects that the humidity is "50%".
		• 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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		- Disconnected or defective paper lift sensor - 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 Tray Unit, Paper Feed Unit or LCT)
		For the two-tray paper feed unit or one-tray paper tray 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 two-tray paper feed unit or one-tray paper tray 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 Tray Unit, Paper Feed Unit or LCT)
		This SC is generated if the following condition occurs 3 consecutive times. **For the two-tray paper feed unit or one-tray paper tray 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 two-tray paper feed unit or one-tray paper tray 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 Tray Unit, Paper Feed Unit or LCT)
		For the two-tray paper feed unit or one-tray paper tray unit When the tray lift motor is turned on, the upper limit is not detected within 10 seconds. **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. 2. Check and/or replace the defective component.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
504-02	B	Tray 4 error (Paper Tray Unit, Paper Feed Unit or LCT)
		This SC is generated if the following condition occurs 3 consecutive times. **For the two-tray paper feed unit or one-tray paper tray 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.
		For the two-tray paper feed unit or one-tray paper tray 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)
505-01	B	Tray 5 error (Two-tray paper feed unit combined with the one-tray paper tray unit)
		When the tray lift motor is turned on, the upper limit is not detected within 10 seconds.
		• 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)
505-02	B	Tray 5 error (Two-tray paper feed unit combined with the one-tray paper tray unit)
		This SC is generated if the following condition occurs 3 consecutive times. • When the tray lowers, the tray lift sensor does not go off within 1.5 sec.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• 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 0.15 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. 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 • 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)
536	D	Third duct fan error
		The motor lock signal error is detected for 10 seconds after the motor lock signal was first detected.
		• Defective controller fan motor
		Replace the controller fan motor.

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 IH inverter turns on. • The heating roller temperature does not reach 80°C for 18 seconds after the IH inverter on.
		• 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 EGB
		Related SC code: SC 553
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the EGB.

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 EGB • Defective fusing control system
		Related SC code: SC 543
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the EGB.

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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• 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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		- 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 heating roller thermistor does not reach 0 °C for 7 seconds.
		- Loose connection of heating roller thermistor - Defective heating roller thermistor
		Related SC code: SC 541
		1. Check that the heating roller thermistor is firmly connected. 2. Replace the heating 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.
		- Defective thermistor - Defective IH inverter
		Related SC code: SC 542
		1. Check if the heating roller thermistor is firmly connected.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		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 EGB
		Related SC code: SC 543
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the EGB.

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 EGB • Defective fusing control system
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the EGB.

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)

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		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 pressure roller thermistor • Defective pressure roller thermistor
		1. Check if the pressure roller thermistor is firmly connected. 2. Replace the pressure roller 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 pressure roller thermistor • 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 EGB
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the EGB.

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 EGB • Defective fusing control system
		1. Replace the PSU. 2. Replace the IOB. 3. Replace the EGB.

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.
		• 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 • Defective IH inverter • Defective IH coil unit • Defective fusing unit
		1. Check the power input terminals 1 and 2. 2. Replace the IH inverter.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		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 EGB
		1. Check the connection between IH inverter and IOB 2. Replace the IH inverter. 3. Replace the IOB. 4. Replace the EGB.

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
		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 EGB • Defective IOB • Broken connection between IH inverter and IOB • Defective thermopile
		1. Replace the IH inverter. 2. Replace the EGB. 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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		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)
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. And when the IOB does not receive an OK signal even after sending the command 3 times, the IOB resends the command.
		• Cable problems • IOB problems • EGB problems • PSU problems in the machine • Main board problems in the peripherals
		1. Check if the cables of peripherals are correctly connected.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Replace the PSU if no power is supplied to peripherals. 3. Replace the IOB or main board of peripherals. 4. Replace the EGB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
623	D	Optional paper feed unit communication error
		In the case of installing two optional paper feed units (G832 + B800, G832 + B801, or G832 + G832): • The upper unit cannot communicate with the lower unit after the upper unit has detected the lower unit. • The upper unit detects an error signal from the lower unit after the upper unit has detected the lower unit.
		• Disconnected connector
		Check and/ or connect the connector.

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
		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 EGB and controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Replace the controller. 3. Replace the EGB.

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
		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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		Caused by noise
		Turn the main power switch off and on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
687	D	Memory address command error
		The EGB 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 EGB
		1. Check if the controller is firmly connected to the EGB. 2. Replace the controller. 3. Replace the EGB.

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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• 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.
		• Loose connection • Defective EGB • 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 EGB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
721	B	Jogger motor error
		• Jogger HP sensor does not detect the jogger fence for 2000ms after the jogger unit has moved to its home position. • Jogger HP sensor does not turn off 300 ms after the jogger unit has moved from its home position. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		• Defective jogger HP sensor • Overload on the jogger motor • Defective jogger motor • Defective main board • Disconnected or defective harness
		1. Check the connections and cables for the components mentioned above. 2. Replace the jogger HP sensor (if the jogger motor works correctly). 3. Replace the jogger motor (if the jogger motor does not work). 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
723	B	Stack feed-out motor error
		• Stack feed-out HP sensor does not detect the home position of the stack feed-out belt 3000ms after the stack feed-out belt has moved to its home position. • Stack feed-out HP sensor does not turn off 200 ms after the stack feed-out belt has moved from its home position. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		• Defective stack feed-out HP sensor • Overload on the stack feed-out motor • Defective stack feed-out motor • Defective main board • Disconnected or defective harness
		1. Check the connections and cables for the components mentioned above. 2. Replace the stack feed-out HP sensor (if the stack feed-out motor works correctly). 3. Replace the stack feed-out motor (if the stack feed-out motor does not work). 4. Replace the finisher main board.

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 3000-sheet finisher** • Staple movement is not finished after a certain time. **For the 1000-sheet booklet 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 3000-sheet finisher** • Staple movement is not finished for a certain time. **For the 1000-sheet booklet finisher** • 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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. **For the 3000-sheet 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 3000-sheet finisher** The rear stapler unit saddle-stitch motor does not start operation within the specified time.
		• 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
		• The stack feed HP sensor does not detect "ON" twice (once: jam error) for specified time after the stack feed motor has turned on. • The stack feed HP sensor does not detect "OFF" twice (once: jam error) for specified time after the stack feed motor has turned on.
		• Motor overload • Loose connection of the stack feed motor • Defective stack feed motor
		1. Check the connections and cables for the stack feed motor and HP sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Check for blockages in the stack feed motor mechanism. 3. Replace the stack feed HP sensor and/or stack feed motor 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
750	B	1000/3000-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)
753	B	Return roller motor error
		Occurs during the operation of the lower tray pressure motor.
		• Motor harness disconnected, loose, defective • Motor overloaded • Home position sensor harness disconnected, loose, defective • Home position defective
		1. Check the connections to the return roller motor of the lower tray. 2. Defective return roller motor of the lower tray.

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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		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. 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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		• 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 controller • Software error
		1. Check and/or replace the RAM DIMM. 2. 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 controller • Software error
		1. Check and/or replace the RAM DIMM. 2. Replace the controller.
[4361]		Kernel stop error
		The cache error trap occurs in the CPU.
		• CPU cache error

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Replace the controller.
-		Kernel stop error
		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]		CPU/Memory Error

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
[0709] [070A]		• System firmware problem • Defective RAM-DIMM • Defective controller
		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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		The CPU checks if the ASIC timer works correctly compared with the CPU timer. If the ASIC timer does not function in the specified range, this SC code is displayed.
		• System firmware problem • Defective RAM-DIMM • Defective controller
		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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
[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.
-		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	Self-diagnostic error: Standard SDRAM DIMM

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
	D	[XXXX]: Detailed error code
[0201]		Verification error
		Error detected during a write/verify check for the standard RAM (SDRAM DIMM).
		• Loose connection • Defective SDRAM DIMM • Defective controller
		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 controller
-	-	1. Turn the main switch on and off. 2. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
829	CTL B	Self-diagnosis error: optional RAM [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/Bluetooth card not detected
		The wireless LAN/Bluetooth card is not detected before communication is established, though the wireless LAN/Bluetooth 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/Bluetooth 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
		1. Reformat the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		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
		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.
		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. 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). 2. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
874	CTL	Delete All error 1: HDD

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
	D	An error is detected while all of the HDD or NVRAM are formatted physically by the Data Overwrite Security Unit (G874).
		• Data Overwrite Security Unit (SD card) not installed • Defective HDD
		1. Install the Data Overwrite Security Unit (G874). 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 (G874).
		• The logical format for the HDD fails.
		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
		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). 2. 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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		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
		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
		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 (G874) is installed and activated.
		• Defective SD card (G874) • SD card (G874) not installed
		1. Replace the NVRAM and then install the new SD card (G874). 2. Check and reinstall the SD card (G874).

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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		2. Replace the NVRAM. 3. Replace the controller.

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.
		Check that the SD card has the correct data.

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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		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)
998	CTL D	Application start error
		No applications start within 60 seconds after the power is turned on.
		• 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

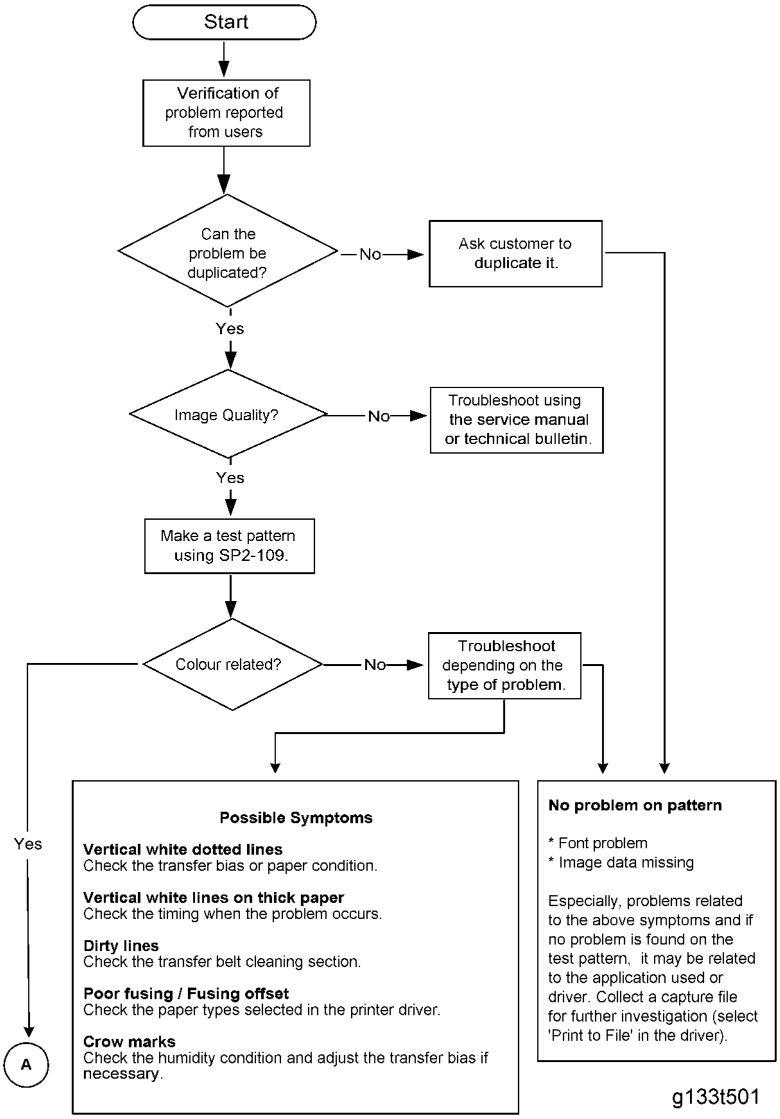
If a problem always occurs in a specific condition (for example. printer driver setting, image file), the problem may be caused by a software error. In this case, the following data and information needs to be sent back to your product specialist. Please understand that it may take some time to get a 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
Make a test pattern using SP2-109.
Colour related?
No
Troubleshoot depending on the type of problem.
Yes
A
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.
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).
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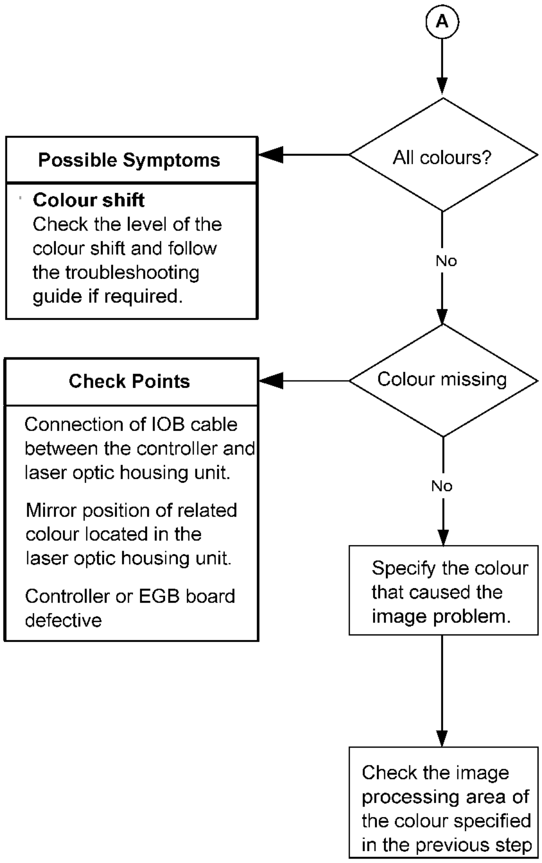
A
All colours?
Possible Symptoms
Colour shift
Check the level of the colour shift and follow the troubleshooting guide if required.
No
Colour missing
Check Points
Connection of IOB cable between the controller and laser optic housing unit.
Mirror position of related colour located in the laser optic housing unit.
Controller or EGB board defective
No
Specify the colour that caused the image problem.
Check the image processing area of the colour specified in the previous step

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 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.

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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 EGB 1. Replace the shutter motor. 2. Replace the high voltage power supply unit.

After Executing SP2-111-003			
			3. Do the forced process control (SP3-011-001) or supply some toner (SP3-015-xxx). 4. Replace the EGB.
		Normal image, but with color registration errors	• Defective ID sensor shutter • Defective ID sensor • Defective EGB 1. Replace the ID sensor shutter solenoid. 2. Replace the ID sensor. 3. Replace the EGB.
	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 EGB 1. Replace the laser optics housing unit. 2. Replace the EGB.
		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 EGB 1. Replace the image transfer belt. 2. Replace the drum motor. 3. Replace the EGB.
		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 EGB 1. Replace the ID sensor. 2. Replace the image transfer belt. 3. Replace the EGB.
		The skew for M, C, Y is more than ± 0.75 mm from the main scan registration of Bk	• Defective PCU • Defective laser optics housing unit • Defective EGB 1. Reinstall or replace the PCU.

After Executing SP2-111-003			
			2. Replace the laser optics housing unit. 3. Replace the EGB.
		Others	• Skew correction upper limit error • Defective EGB • Defective laser optics housing unit 1. Replace the EGB. 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 EGB 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 EGB.
		Normal image, but with color registration errors	• Defective ID sensor shutter • Defective ID sensor • Defective EGB 1. Replace the ID sensor shutter solenoid. 2. Replace the ID sensor. 3. Replace the EGB.

After Executing SP2-111-001			
	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 EGB 1. Do SP2-111-003 again. 2. Replace the laser optics housing unit. 3. Replace the EGB.
		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 EGB 1. Do SP2-111-003 again. 2. Replace the image transfer belt. 3. Replace the drum motor. 4. Replace the EGB.
		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 EGB 1. Replace the ID sensor. 2. Replace the image transfer belt. 3. Replace the EGB.
		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 EGB 1. Reinstall or replace the PCU. 2. Replace the laser optics housing unit. 3. Replace the EGB.

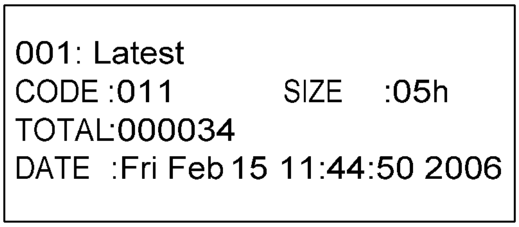
After Executing SP2-111-001			
		Others	• Skew correction upper limit error • Defective EGB • Defective laser optics housing unit 1. Replace the EGB. 2. Replace the laser optics housing unit.
Result: "0"	No color registration errors	The main scan registration of Bk is shifted.	• Abnormal SP setting value 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 EGB 1. Replace the ID sensor. 2. Replace the image transfer belt. 3. Replace the EGB.
		The main scan registrations of M, C, Y are shifted.	• Defective laser optics housing unit • Defective ID sensor • Defective EGB • Incorrect SP value 1. Replace the laser optics housing unit. 2. Replace the ID sensor. 3. Replace the EGB. 4. Adjust the value with SP2-182-004 to -021.

After Executing SP2-111-001			
		The sub scan registrations of M, C, Y are shifted.	• Defective image transfer belt • Defective drive units • Defective ID sensor • Defective EGB • Incorrect SP value 1. Replace the image transfer belt. 2. Replace the ID sensor. 3. Replace the drum motor. 4. Replace the EGB. 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

SP7-507 shows the paper jam history.



```
001: Latest
CODE :011          SIZE    :05h
TOTAL:000034
DATE  :Fri Feb 15 11:44:50 2006
```

g133t503

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

SP 7504 shows how many jams occurred at each location.

Jam Code SP	Display	Description	LCD Display
7504 1	At Power On	Paper has already stayed in the paper path 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 7	Tray 5: ON	Paper is not fed from tray 5.	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

Jam Code SP	Display	Description	LCD Display
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
7504 13	Bank Transport 1	Vertical transport sensor 2 or relay sensor does not detect paper from tray 3 (LCT).	Y
7504 14	Bank Transport 2	Vertical transport sensor 3 or relay sensor does not detect paper from tray 4 or 5 (One-tray Paper Tray Unit, Two-tray Paper Feed Unit or LCT).	Y
7504 17	Registration: ON	Registration 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 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 P Feed 1	Vertical transport sensor or relay sensor 1 does not turn off.	Y
7504 54	Bank P Feed 2	Vertical transport sensor 2 does not turn off.	Y
7504 55	Bank P Feed 3	Vertical transport sensor 3 does not turn off.	Y

Jam Code SP	Display	Description	LCD Display
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
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 130	Finisher Entrance (B793)	Entrance sensor does not detect paper after the exit sensor of the main frame has turned on or paper stays at the entrance sensor.	R1-R3
7504 131	Finisher Proof Exit (B793)	Paper does not reach to the proof tray exit sensor or stay at the proof tray exit sensor.	R1-R3
7504 132	Finisher Shift Tray Exit (B793)	Paper does not reach to the shift tray exit sensor or stay at the shift tray exit sensor.	R1-R3
7504 133	Finisher Staple Exit (B793)	• Staple tray exit sensor does not turn on after the entrance sensor has turned on. • Staple tray exit sensor does not turn off after it has turned on.	R4-R6
7504 134	Finisher Exit (B793)	• Shift tray exit sensor does not turn on while the stack feed-out roller has turned on. • Shift tray exit sensor does not turn off after the stack feed-out roller has returned to its home position.	R4-R6
7504 135	Finisher Folding (B793)	Fold unit entrance sensor does not turn on after the stopper S HP sensor has turned on.	R7-R11
7504 136	Finisher Folding Exit (B793)	• Fold unit exit sensor does not turn on after the folding has been done.	R7-R11

Jam Code SP	Display	Description	LCD Display
		- Fold unit exit sensor does not turn off after it has turned on.	
7504 137	Finisher Guide Motor (B793)	- Exit guide plate HP sensor does not turn off after the exit guide plate has opened. - Exit guide plate HP sensor does not turn on after the exit guide plate has closed.	R1-R3
7504 138	Finisher Staple Moving Motor (B793)	- Staple unit HP sensor does not turn off after the staple unit has moved from its home position. - Staple unit HP sensor does not turn on after the staple unit has returned to its home position.	R7-R11
7504 139	Finisher Punch Motor (B793)	- Punch HP, punch movement HP or paper position slide HP sensor does not turn off after each unit has moved from its home position. - Punch HP, punch movement HP or paper position slide HP sensor does not turn on after each unit has returned to its home position.	R1-R3
7504 140	Finisher Tray Lift Motor (B793)	- Shift tray position sensor does not turn on after the shift tray has lifted up. - Shift tray position sensor does not turn off after the shift tray has lifted down.	R1-R3
7504 141	Finisher Jogger Motor (B793)	- Jogger HP sensor does not turn off after the jogger fences have moved from its home position. - Jogger HP sensor does not turn on after the jogger fences have returned to its home position.	R7-R11
7504 142	Finisher Shift Roller Motor (B793)	- Shift motor HP sensor does not turn off after the shift roller has moved from its home position.	R1-R3

Jam Code SP	Display	Description	LCD Display
		• Shift motor HP sensor does not turn on after the shift roller has returned to its home position.	
7504 143	Finisher Folding Plate Motor (B793)	• Fold plate HP sensor does not turn off after the fold plate has moved from its home position. • Fold plate HP sensor does not turn on after the fold plate has returned to its home position.	R7-R11
7504 144	Finisher Staple Motor (B793)	• Staple HP sensor does not turn off after the staple has moved from its home position. • Staple HP sensor does not turn on after the staple has returned to its home position.	R7-R11
7504 145	Finisher Exit Motor (B793)	• Stack feed-out HP sensor does not turn off after the stack feed-out has moved from its home position. • Stack feed-out HP sensor does not turn on after the stack feed-out has returned to its home position.	R7-R11
7504 146	Finisher Stack 1 Release Motor (B793)	• Stopper S HP sensor does not turn off after the upper clamp roller has moved from its home position. • Stopper S HP sensor does not turn on after the upper clamp roller has returned to its home position.	R7-R11
7504 147	Finisher Stack 2 Release Motor (B793)	• Lower clamp roller HP sensor does not turn off after the lower clamp roller has moved from its home position. • Lower clamp roller HP sensor does not turn on after the lower clamp roller has returned to its home position.	R7-R11
7504 148	Finisher Stopper Motor (B793)	• Stopper S HP sensor does not turn off after the stopper S has moved from its home position.	R7-R11

Jam Code SP	Display	Description	LCD Display
		• Stopper S HP sensor does not turn on after the stopper S has returned to its home position.	
7504 191	Finisher Entrance: EUP (B805)	Paper does not reach the finisher entrance sensor or stays at the finisher entrance sensor.	R1-R4
7504 192	Finisher Proof Exit: EUP (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 (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 (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.	R5-R8
7504 195	Finisher Exit: EUP (B805)	• Upper tray exit sensor does not turn on while the stack feed-out belt is turned on. • Upper tray exit sensor does not turn off after the stack feed-out belt has returned to its home position.	R8-R12
7504 196	Finisher Staple: EUP	Not used	-
7504 197	Finisher Saddle Stitch Staple: EUP	Not used	-
7504 198	Finisher Folder: EUP	Not used	-
7504 199	Finisher Tray Motor: EUP (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.	R1-R4/ R5-R8
7504 200	Finisher Jogger Motor: EUP (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.	R5-R8

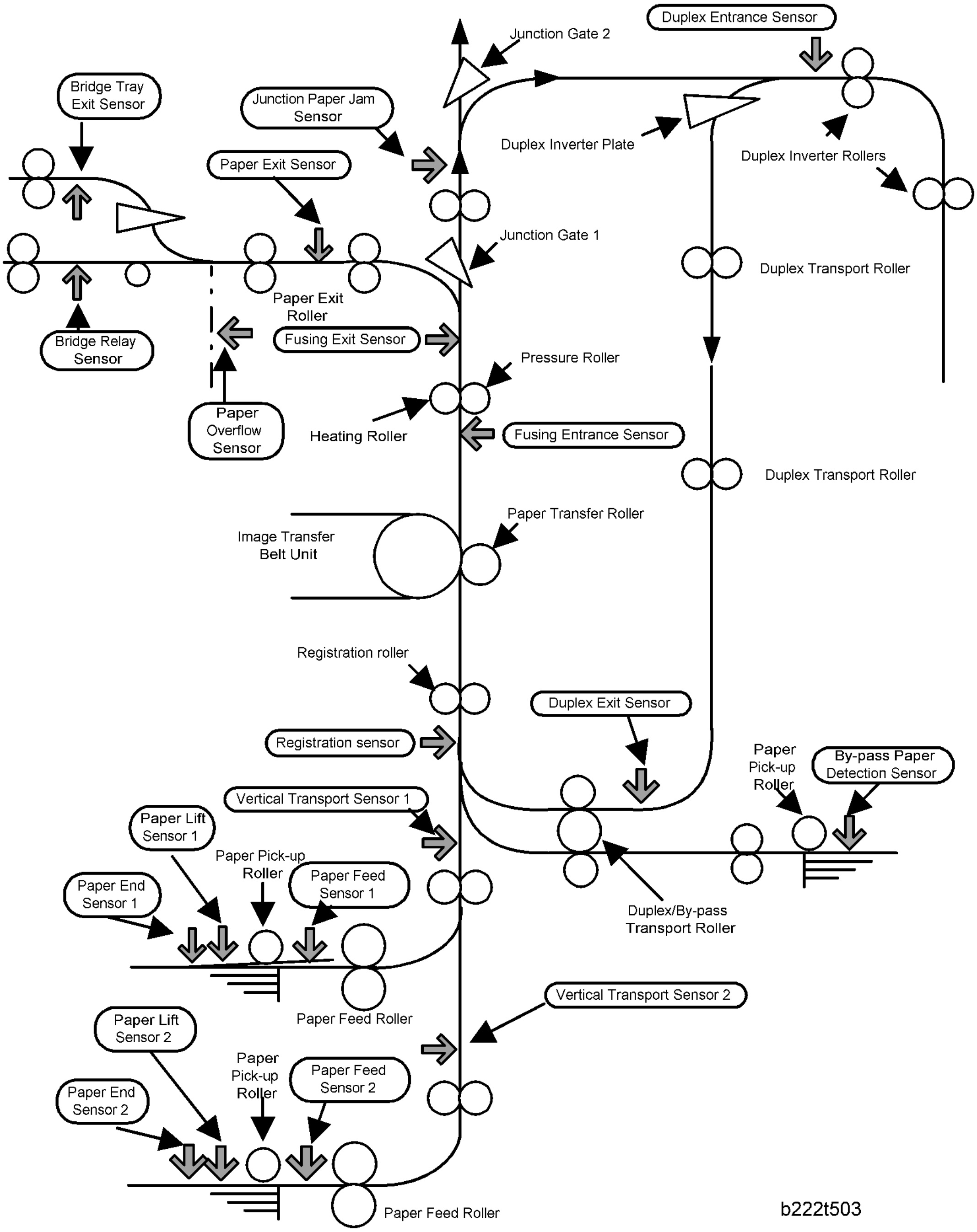
Jam Code SP	Display	Description	LCD Display
7504 201	Finisher Shift Motor: EUP (B805)	• Shift roller HP sensor does not turn on/off after the shift roller motor has turned on. • Exit guide plate HP sensor does not turn on/off after the exit guide plate motor has turned on. • Stacking roller HP sensor does not turn on/off after the stacking sponge roller motor has turned on.	R1-R4/ R5-R8
7504 202	Finisher Staple Moving Motor: EUP (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.	R5-R8
7504 203	Finisher Staple Motor: EUP (B805)	• Corner stapler does not finish stapling after a specified time. • Booklet stapler does not finish stapling after a specified time.	R5-R8
7504 204	Finisher Folder Motor: EUP	Not used	-
7504 205	Finisher Exit Motor: EUP	Not used	-
7504 206	Finisher Punch Motor: EUP (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
7504 220	MBX P. Feed 1: OFF	Japanese models only	-
7504 221	MBX P. Feed 1: ON	Japanese models only	-
7504 222	MBX P. Feed 2: OFF	Japanese models only	-

Jam Code SP	Display	Description	LCD Display
7504 223	MBX P. Feed 2: ON	Japanese models only	-
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 EGB	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	Active	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/B4	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, A15	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	CN232/10	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.
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
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

R: This means that it is possible to replace in the field (for example: Tube fuse).

Fuse	Rating		Symptom when turning on the main switch	Remark
	115V	220V - 240V		
FU1	15A/125V	8A/250V	No response. (The main power to the PSU is not supplied.)	R
FU2	10A/125V	6.3A/250V	No response. (The main power to the PSU is not supplied.)	R
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 IOB 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 EGB not supplied.	-
FU7	10A/125V	10A/125V	24VS power to the IOB not supplied.	R
FU8	10A/125V	10A/125V	24VS power to the IOB not supplied.	R
FU9	6.3A/125V	6.3A/125V	24V power to the IOB not supplied.	R
FU10	6.3A/125V	6.3A/125V	Not used	R
FU11	6.3A/125V	6.3A/125V	24V power to the EGB not supplied.	R
FU12	6.3A/125V	6.3A/125V	24V power to the PFU or LCT not supplied.	R
FU13	6.3A/125V	6.3A/125V	24V power to the finisher not supplied.	R
FU14	5A/250V	5A/250V	5V power to the EGB 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

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

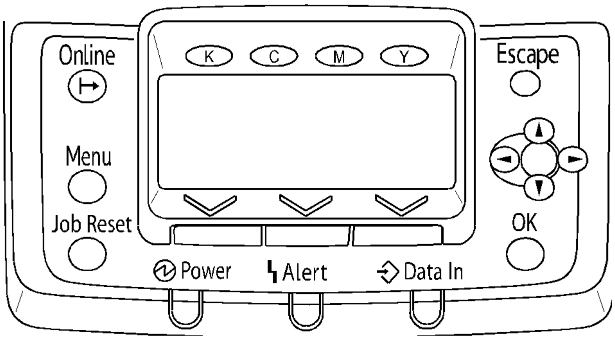
- Make sure that the data-in LED (◇) is not on before you go into the SP mode. This LED indicates that some data is coming to the machine. When the LED is on, wait for the printer to process the data.

Service Mode Operation

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 the Service Mode



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Note

- If you switch the machine off, any jobs stored on the hard disk using the sample print and protected print features will be deleted.
- Check first with the user tools to see if there are any jobs stored with these features (Menu key - Sample Print, or Protected Print).

Method 1:

1. Turn the machine on while pressing the “Online” key and “Escape” key together for five seconds or more.
2. "[SP mode (Service)]” shows on the display.

Note

- If you switch the machine off, any jobs stored on the hard disk using the sample print and protected print features will be deleted.

Method 2:

1. Press the “Up/Down arrow” keys together for about 5 seconds or more, and then press the “OK” key.
2. "[SP mode (Service)]” shows on the display.

Note

- The machine automatically goes off line when you enter the service mode.

Accessing the Required Program

Use the “Up/Down arrow” keys to scroll through the menu listing.

1. Service: Controller service modes
2. Engine: Engine service modes
3. End: Exit service mode

To select an item, press the “OK” key. Then the sub-menu appears.

Scroll through the sub menu items using the “◀ ▶” keys.

To go back to a higher level, press the “Escape” key.

Inputting a Value or Setting for a Service Program

Enter the required program mode as explained above. The setting appearing on the display is the current setting.

Select the required setting using the “◀ ▶” keys, then press the “OK” key. The previous value remains if the “OK” key is not pressed.

Exiting Service Mode

Select “End” from the service mode main menu, then press the “OK” key.

Note

- To make the settings effective, turn the main switch off and on after exiting service mode.

Remarks

Display on the Control Panel Screen

The maximum number of characters which can appear 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.
Thick Paper 3: 220 – 253 g/m^2, 58 – 67 lb.</td></tr>
<tr><td>Paper Type
N: Normal paper
MTH: Middle thick paper
TH: Thick paper</td><td>Paper Feed Station
P: Paper tray (numbered from 1 to 5, top to bottom)
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
S: Simplex
D: Duplex</td><td>Process Speed
L: Low speed (77 mm/s)
M: Middle speed (115 mm/s)
H: High speed (205 mm/s)</td></tr>
</table>

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
- NV: NVRAM on the NVRAM expansion board (user account enhancement kit)

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

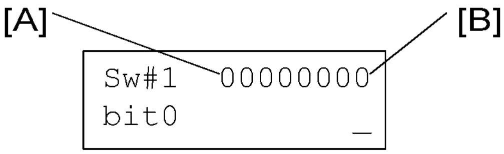
- If "Alphanumeric" is written to the right of the bracket as shown above, the setting of the SP mode shows on the screen using alphanumeric characters instead of only numbers. However, the settings in the bracket in the SP mode table are explained by using only the numbers.

SSP: This denotes a "Special Service Program" mode setting.

Bit Switch Programming

Do not change the bit switches unless you are told to do this by the manufacturer.

1. Start the SP mode. Select the "Service" menu with "▲/▼" keys.
2. Press the "OK" key three times.
3. To select a bit switch, press the "◀/▶" keys.
4. Push the OK key.
5. Set the value with these keys:
    - [Left] [Right]: Moves the cursor to one of the adjacent bits.
    - [Up] [Down]: Changes a bit between "0" and "1".
    - [Escape]: Goes out of the program without saving changes.
    - [OK]: Goes out of the program and saves changes.



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6. Push the "Escape" key one or more times until the menu “SP mode (Service)” is shown.
7. Select “End” and push the OK key.

Service Mode Table

Controller Service Mode

1001	[Bit Switch]		
1001 001	Bit Switch 1	*CTL	Adjusts bit switch settings. **DFU**
1001 002	Bit Switch 2	*CTL	Bit 0 to 2: Not used. Do not change the settings. Bit 3: Changing the print language (PCL <-> PS) • 0: Enabled • 1: Disabled (No change) Bit 4 to 7: Not used. Do not change the settings.
1001 003	Bit Switch 3	*CTL	Bit 0: PostScript3 Euro glyph • 0: Disabled • 1: Enabled (Even if there is no Euro Glyph in the ROM, it is possible to load the Euro Glyph data.) Bit 1: Not used. Do not change the setting. Bit 2:PCL5e/5c (HP4000/HP8000) The left space command is set to "0", the machine is changed to "1" • 0: Disabled • 1: Enabled Bit 3: PCL5e/GL2: pen # of PW • 0: Normal • 1: Patch Bit 4: Tray selecting • 0: Ricoh GW products (If a tray is selected using PCL5e commands and it has paper, GW products go to alert status and wait for the user to take action.) • 1: HP/SV products (If a tray is selected using PCL5e commands and it has paper, HP/SV products search for another tray that has the same paper size/type.)

			Bit 5 to 7: Not used. Do not change the settings.
1001 004	Bit Switch 4	*CTL	Adjusts bit switch settings. **DFU**
1001 005	Bit Switch 5	*CTL	Bit 0 to 2: Not used. Do not change the settings. Bit 3: Enables the "%%" command of the PostScript detection condition for the auto print language selection function. • 0: Enabled • 1: Disabled Bit 4 to 7: Not used. Do not change the settings.
1001 006	Bit Switch 6	*CTL	Adjusts bit switch settings. **DFU**
1001 007	Bit Switch 7	*CTL	
1001 008	Bit Switch 8	*CTL	

1003	**[Clear Setting]**		
1003 001	Initialize System	-	Initializes settings in the System menu of the user mode.
1003 003	Delete Program	-	**DFU**

1004	**[Print Summary]**		
1004 001	Service Summary	-	Prints the service summary sheet (a summary of all the controller settings).

1005	**[Display Version]**		
1005 001	Printer Version	-	Displays the version of the controller firmware.

1007	**[Supply Display]**		
	Enables or disables the display for information on each supply.		
1007 001	Development	*CTL	[0 or 1 / 1 / 1 /step] 0: OFF, 1: ON
1007 002	PCU	*CTL	
1007 003	Transfer	*CTL	

1007 004	Int. Transfer	*CTL	
1007 005	Transfer Roller	*CTL	
1007 006	Fuser	*CTL	
1007 007	Fuser Oil	*CTL	

1101	[ToneCtlSet]		
1101 001	Tone (Factory)	*CTL	Recalls a set of gamma settings. This can be either a) the factory setting, b) the previous setting, or c) the current setting.
1101 2	Tone (Prev.)	*CTL	
1101 3	Tone (Current)	*CTL	

1102	[ToneCtlSet]	*CTL	
	Sets the printing mode (resolution) for the printer gamma adjustment. The asterisk (*) shows which mode is set. • 00: *1200x1200Photo • 01: 600x600Text • 02: 1200x1200Text • 03: 1200x600Text • 04: 600x600Photo • 05: 1200x600Photo		

1103	[PrnColorSheet]		
1103 001	ToneCtlSheet	-	Prints the test page to check the color balance before and after the gamma adjustment.
1103 002	ColorChart	-	

1104	[ToneCtlValue]		
	Adjusts the printer gamma for the mode selected in the Mode Selection menu.		
1104 001	Set Black 1	*CTL	[0 to 255 / 16 / 1/step]
1104 021	Set Cyan 1	*CTL	
1104 041	Set Magenta 1	*CTL	

1104 061	Set Yellow 1	*CTL	
1104 002	Set Black 2	*CTL	[0 to 255 / **32** / 1/step]
1104 022	Set Cyan 2	*CTL	
1104 042	Set Magenta 2	*CTL	
1104 062	Set Yellow 2	*CTL	
1104 003	Set Black 3	*CTL	[0 to 255 / **48** / 1/step]
1104 023	Set Cyan 3	*CTL	
1104 043	Set Magenta 3	*CTL	
1104 063	Set Yellow 3	*CTL	
1104 004	Set Black 4	*CTL	[0 to 255 / **64** / 1/step]
1104 024	Set Cyan 4	*CTL	
1104 044	Set Magenta 4	*CTL	
1104 064	Set Yellow 4	*CTL	
1104 005	Set Black 5	*CTL	[0 to 255 / **80** / 1/step]
1104 025	Set Cyan 5	*CTL	
1104 045	Set Magenta 5	*CTL	
1104 065	Set Yellow 5	*CTL	
1104 006	Set Black 6	*CTL	[0 to 255 / **96** / 1/step]
1104 026	Set Cyan 6	*CTL	
1104 046	Set Magenta 6	*CTL	
1104 066	Set Yellow 6	*CTL	
1104 007	Set Black 7	*CTL	[0 to 255 / **112** / 1/step]
1104 027	Set Cyan 7	*CTL	
1104 047	Set Magenta 7	*CTL	
1104 067	Set Yellow 7	*CTL	
1104 008	Set Black 8	*CTL	[0 to 255 / **128** / 1/step]

1104 028	Set Cyan 8	*CTL	
1104 048	Set Magenta 8	*CTL	
1104 068	Set Yellow 8	*CTL	
1104 009	Set Black 9	*CTL	[0 to 255 / **144** / 1/step]
1104 029	Set Cyan 9	*CTL	
1104 049	Set Magenta 9	*CTL	
1104 069	Set Yellow 9	*CTL	
1104 010	Set Black 10	*CTL	[0 to 255 / **160** / 1/step]
1104 030	Set Cyan 10	*CTL	
1104 050	Set Magenta 10	*CTL	
1104 070	Set Yellow 10	*CTL	
1104 011	Set Black 11	*CTL	[0 to 255 / **176** / 1/step]
1104 031	Set Cyan 11	*CTL	
1104 051	Set Magenta 11	*CTL	
1104 071	Set Yellow 11	*CTL	
1104 012	Set Black 12	*CTL	[0 to 255 / **192** / 1/step]
1104 032	Set Cyan 12	*CTL	
1104 052	Set Magenta 12	*CTL	
1104 072	Set Yellow 12	*CTL	
1104 013	Set Black 13	*CTL	[0 to 255 / **208** / 1/step]
1104 033	Set Cyan 13	*CTL	
1104 053	Set Magenta 13	*CTL	
1104 073	Set Yellow 13	*CTL	
1104 014	Set Black 14	*CTL	[0 to 255 / **224** / 1/step]
1104 034	Set Cyan 14	*CTL	
1104 054	Set Magenta 14	*CTL	

1104 074	Set Yellow 14	*CTL	
1104 015	Set Black 15	*CTL	[0 to 255 / **240** / 1/step]
1104 035	Set Cyan 15	*CTL	
1104 055	Set Magenta 15	*CTL	
1104 075	Set Yellow 15	*CTL	

1105	[ToneCtlSave]
	Saves the print gamma (adjusted with the Gamma Adj.) as the new Current Setting. Before the machine stores the new "current setting", it moves the data stored as the "current setting" to the "previous setting" memory-storage location.

1106	[Toner Limit Value]		
	Adjusts the maximum toner amount for image development.		
1106 001	TonerLimitValue	*CTL	[100 to 400 / **260** / 1%/step]

1108	[Ext. Toner Save]		
1108 001	Mode 1: Text	-	DFU
1108 002	Mode 2: Text	-	
1108 003	Mode 1: Image	-	
1108 004	Mode 2: Image	-	
1108 005	Mode 1: Line	-	
1108 006	Mode 2: Line	-	
1108 007	Mode 1: Paint	-	
1108 008	Mode 2: Paint	-	

Engine Service Mode

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	
007	Paper Tray 5	*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 / **25** / 1 sec/step]
018	Extra Idling Time (M)	*ENG	

1105	**[Fusing Temperature]** Fusing Temperature Adjustment		
	The following SPs (SP1105) are related to fusing temperature control. For more details, refer to "Fusing Temperature Control" in the "Detailed Section Descriptions" chapter. (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 / **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 / **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 / **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	
099	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 / **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]
113	Thick4:FC:Simplex	*ENG	[100 to 180 / **170** / 1°C/step]
114	Thick4:BW:Simplex	*ENG	
115	Thick5:FC:Simplex	*ENG	[100 to 180 / **170** / 1°C/step]
116	Thick5:BW:Simplex	*ENG	
117	Thick6:FC:Simplex	*ENG	[100 to 180 / **170** / 1°C/step]
118	Thick6:BW:Simplex	*ENG	
119	PF/PS Temp.: Extend: O/V: Plain: FC Prn	*ENG	[0 to 100 / **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 / **90** / 1°C/step]
124	PF Temp: Pressure: M-Thick: BK	*ENG	[10 to 150 / **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]

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 Adjust] 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: 205 mm/sec
002	Normal temp. Setting	*ENG	

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 / **140** / 1 deg/step]
	Not used		
002	Temp.: BW: L	*ENG	[100 to 200 / **145** / 1 deg/step]
	Not used		
003	Temp.: FC: M	*ENG	[100 to 200 / **140** / 1 deg/step]
	Not used		
004	Temp.: FC: L	*ENG	[100 to 200 / **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 / **30** / 5 cpm/step]
	Not used		
014	CPM: BW: L	*ENG	[20 to 30 / **30** / 5 cpm/step]
	Not used		
015	CPM: FC: M	*ENG	[20 to 30 / **30** / 5 cpm/step]
	Not used		
016	CPM: FC: L	*ENG	[20 to 30 / **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 / **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 / **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 / **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 Coeffiecient	*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 / **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, 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 / **1.64** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **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 ML (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 / **1.6** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **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 / **1.53** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **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 / **1.49** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **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 / **1.48** / 0.01 mA/step]
002	Environmental Target: M	*ENG	[0 to 3 / **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 manual and 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.101 "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	[0 to 9.9 / **2.5** / 0.1 mm/step]
003	Left	*ENG	[0 to 9.9 / **1.5** / 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 / **1** / 0.1 mm/step]
007	Duplex Trail. M Size	*ENG	[0 to 4 / **0.8** / 0.1 mm/step]
008	Duplex Trail. S Size	*ENG	[0 to 4 / **0.6** / 0.1 mm/step]
009	Duplex Left Width	*ENG	[0 to 1.5 / **0.3** / 0.1 mm/step]
010	Duplex Right Width	*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: 205 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.101 "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	Execute: 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.101 "Laser Optics Housing Unit"" in the "Replacement and Adjustment" section.
002	Execute: C	*ENG	
003	Execute: 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 (Area, Color) **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. • Bk: Black, M: Magenta, C: Cyan, Y: Yellow		
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: 205 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.101 "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 / **0** / 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.: Sel: K	*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.634 "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.634 "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.634 "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.634 "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 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
011	Error Result: C	*ENG	
012	Error Result: Y	*ENG	

2197	**[MUSIC Start Time]**		
	DFU		
001	MUSIC Start Time	*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 µs/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: 205 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: 205 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: 205 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 / **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: 205 mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Image Transfer: Plain	*ENG	[0 to 80 / **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: 205 mm/sec, Thick 1: 115 mm/sec, Thick 2&Fine: 77 mm/sec		
001	Image Transfer: Plain: Bk	*ENG	[0 to 80 / **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 / **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 / **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 / **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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **30** / 1 –μA /step]

002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 200 / **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: 205 mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **40** / 1 –µA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 200 / **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	

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: 205 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: 205 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: L Edge: Timing]**		
	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: 205 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: 205 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: T Edge: Timing]**		
	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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **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: 205 mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **40** / 1 –µA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 200 / **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: 205 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	

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: 205 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: L Edge: Timing]**		
	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: 205 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: 205 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: T Edge: Timing]**		
	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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 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] 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	

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: L Edge: Timing]**		
	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: T Edge:Timing]**		
	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: L Edge: Timing]**		
	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: T Edge:Timing]**		
	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 / **1000** / 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: L Edge: Timing]**		
	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: T Edge: Timing]**		
	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: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]
002	Separation DC: 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: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]
002	Paper Transfer: 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: 1st Side	*ENG	[0 to 200 / **15** / 1 –µA /step]
002	Paper Transfer: 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: 1st Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
002	Paper Transfer: 1st Side: S2	*ENG	[100 to 600 / **140** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
003	Paper Transfer: 1st Side: S3	*ENG	[100 to 600 / **200** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
004	Paper Transfer: 1st Side: S4	*ENG	[100 to 600 / **260** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
005	Paper Transfer: 1st Side: S5	*ENG	[100 to 600 / **330** / 5%/step] 148 mm ≥ S5 size (Paper width)
006	Paper Transfer: 2nd Side: S1	*ENG	[100 to 600 / **100** / 5%/step] S1 size ≥ 297 mm (Paper width)
007	Paper Transfer: 2nd Side: S2	*ENG	[100 to 600 / **160** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
008	Paper Transfer: 2nd Side: S3	*ENG	[100 to 600 / **260** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
009	Paper Transfer: 2nd Side: S4	*ENG	[100 to 600 / **430** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
010	Paper Transfer: 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: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Separation DC: 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: 2nd Side	*ENG	[0 to 400 / **100** / 5%/step]
004	Separation DC: 2nd Page	*ENG	

2655	**[Thick 3: L Edge: Timing]**		
	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	Separation DC: 1st Page	*ENG	
003	Paper Transfer: 2nd Side	*ENG	
004	Separation DC: 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: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Paper Transfer: 2nd Side	*ENG	

2657	**[Thick 3: T Edge: Timing]**		
	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	

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: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Separation DC: 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: 2nd Side	*ENG	[10 to 250 / **80** / 5%/step]
004	Separation DC: 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: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Separation DC: 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: 2nd Side	*ENG	[10 to 250 / **90** / 5%/step]
004	Separation DC: 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: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Separation DC: 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: 2nd Side	*ENG	[10 to 250 / **100** / 5%/step]
004	Separation DC: 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: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Separation DC: 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: 2nd Side	*ENG	[10 to 250 / **110** / 5%/step]
004	Separation DC: 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: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Separation DC: 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: 2nd Side	*ENG	[10 to 250 / **120** / 5%/step]
004	Separation DC: 2nd Side:	*ENG	[10 to 250 / **80** / 5%/step]

2670	**[Thick 4: Bias]**		
	Adjusts the DC voltage of the discharge plate for thick paper 4.		
001	Separation DC: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]

2671	**[Thick 4: Bias: BW]**
	Adjusts the current for the paper transfer roller for thick paper 4 in black-and-white mode.

001	Paper Transfer: 1st Side	*ENG	[0 to 200 / **14** / 1 –µA /step]

2672	**[Thick 4: Bias: FC]**		
	Adjusts the current for the paper transfer roller for thick paper 4 in full color mode.		
001	Paper Transfer: 1st Side	*ENG	[0 to 200 / **18** / 1 –µA /step]

2673	**[Thick 4: Paper Size Correction]**		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2671 and SP2672 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: 1st Side: S2	*ENG	[100 to 600 / **130** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
003	Paper Transfer: 1st Side: S3	*ENG	[100 to 600 / **180** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
004	Paper Transfer: 1st Side: S4	*ENG	[100 to 600 / **230** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
005	Paper Transfer: 1st Side: S5	*ENG	[100 to 600 / **290** / 5%/step] 148 mm ≥ S5 size (Paper width)

2674	**[Thick 4: Leading Edge Correction]** Thick 4 Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2671 and SP2672 are multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2675.		
001	Paper Transfer: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Separation DC: 1st Page	*ENG	

2675	**[Thick 4: L Edge: Timing]**

	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	Separation DC: 1st Page	*ENG	

2676	**[Thick 4: Trailing Edge Correction]** Thick 4 Paper: Trailing Edge Correction		
	Adjusts the correction to the paper transfer roller current for the paper trailing edge in each mode. SP2671 and SP2672 are multiplied by these SP values. **Note** • The paper trailing edge area can be adjusted with SP2677.		
001	Paper Transfer: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]

2677	**[Thick 4: T Edge: Timing]**		
	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]

2678	**[Thick 4: LL]** Thick 4 Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2671 and SP2672 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **180** / 5%/step]

2679	**[Thick 4: ML]** Thick 4 Paper: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode When the environment is detected as ML, SP2671 and SP2672 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **140** / 5%/step]

2680	**[Thick 4: MM]** Thick 4 Paper: MM Environment Coefficient Adjustment

	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2671 and SP2672 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]

2681	**[Thick 4: MH]** Thick 4 Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2671 and SP2672 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]

2682	**[Thick 4: HH]** Thick 4 Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2671 and SP2672 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]

2690	**[Thick 5: Bias]**		
	Adjusts the DC voltage of the discharge plate for thick paper 5.		
001	Separation DC: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]

2691	**[Thick 5: Bias: BW]**		
	Adjusts the current for the paper transfer roller for thick paper 5 in black-and-white mode.		
001	Paper Transfer: 1st Side	*ENG	[0 to 200 / **10** / 1 –µA /step]

2692	**[Thick 5: Bias: FC]**		
	Adjusts the current for the paper transfer roller for thick paper 5 in full color mode.		
001	Paper Transfer: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]

2693	**[Thick 5: Paper Size Correction]**

	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2691 and SP2692 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: 1st Side: S2	*ENG	[100 to 600 / **140** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
003	Paper Transfer: 1st Side: S3	*ENG	[100 to 600 / **200** / 5%/step] 275 mm ≥ S3 size ≥ 210 mm (Paper width)
004	Paper Transfer: 1st Side: S4	*ENG	[100 to 600 / **260** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
005	Paper Transfer: 1st Side: S5	*ENG	[100 to 600 / **330** / 5%/step] 148 mm ≥ S5 size (Paper width)

2694	**[Thick 5: Leading Edge Correction]** Thick 5 Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2691 and SP2692 are multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2695.		
001	Paper Transfer: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Separation DC: 1st Page	*ENG	

2695	**[Thick 5: L Edge: Timing]**		
	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	Separation DC: 1st Page	*ENG	

2696	**[Thick 5: Trailing Edge Correction]** Thick 5 Paper: Trailing Edge Correction
	Adjusts the correction to the paper transfer roller current for the paper trailing edge in each mode. SP2691 and SP2692 are multiplied by these SP values.

	Note - The paper trailing edge area can be adjusted with SP2697.		
001	Paper Transfer: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]

2697	**[Thick 5: T Edge: Timing]**		
	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]

2698	**[Thick 5: LL]** Thick 5 Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2691 and SP2692 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **180** / 5%/step]

2699	**[Thick 5: ML]** Thick 5 Paper: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode When the environment is detected as ML, SP2691 and SP2692 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **140** / 5%/step]

2700	**[Thick 5: MM]** Thick 5 Paper: MM Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2691 and SP2692 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]

2701	**[Thick 5: MH]** Thick 5 Paper: MH Environment Coefficient Adjustment
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2691 and SP2692 are multiplied by these SP values.

001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]

2702	**[Thick 5: HH]** Thick 5 Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2691 and SP2692 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]

2710	**[Thick 6: Bias]**		
	Adjusts the DC voltage of the discharge plate for thick paper 6.		
001	Separation DC: 1st Side	*ENG	[0 to 5000 / **1000** / 10 –V/step]

2711	**[Thick 6: Bias: BW]**		
	Adjusts the current for the paper transfer roller for thick paper 6 in black-and-white mode.		
001	Paper Transfer: 1st Side	*ENG	[0 to 200 / **10** / 1 –µA /step]

2712	**[Thick 6: Bias: FC]**		
	Adjusts the current for the paper transfer roller for thick paper 6 in full color mode.		
001	Paper Transfer: 1st Side	*ENG	[0 to 200 / **12** / 1 –µA /step]

2713	**[Thick 6: Paper Size Correction]**		
	Adjusts the size correction coefficient for the paper transfer roller current for each paper size. SP2711 and SP2712 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: 1st Side: S2	*ENG	[100 to 600 / **140** / 5%/step] 297 mm ≥ S2 size ≥ 275 mm (Paper width)
003	Paper Transfer: 1st Side: S3	*ENG	[100 to 600 / **200** / 5%/step]

			275 mm ≥ S3 size ≥ 210 mm (Paper width)
004	Paper Transfer: 1st Side: S4	*ENG	[100 to 600 / **260** / 5%/step] 210 mm ≥ S4 size ≥ 148 mm (Paper width)
005	Paper Transfer: 1st Side: S5	*ENG	[100 to 600 / **330** / 5%/step] 148 mm ≥ S5 size (Paper width)

2714	**[Thick 6: Leading Edge Correction]** Thick 6 Paper: Leading Edge Correction		
	Adjusts the correction to the paper transfer roller current at the paper leading edge in each mode. SP2711 and SP2712 are multiplied by these SP values. **Note** • The paper leading edge area can be adjusted with SP2715.		
001	Paper Transfer: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]
002	Separation DC: 1st Page	*ENG	

2715	**[Thick 6: L Edge: Timing]**		
	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	Separation DC: 1st Page	*ENG	

2716	**[Thick 6: Trailing Edge Correction]** Thick 6 Paper: Trailing Edge Correction		
	Adjusts the correction to the paper transfer roller current for the paper trailing edge in each mode. SP2711 and SP2712 are multiplied by these SP values. **Note** • The paper trailing edge area can be adjusted with SP2717.		
001	Paper Transfer: 1st Side	*ENG	[0 to 400 / **100** / 5%/step]

2717	**[Thick 6: T Edge: Timing]**
	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]

2718	**[Thick 6: LL]** Thick 6 Paper: LL Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as LL, SP2711 and SP2712 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **80** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **180** / 5%/step]

2719	**[Thick 6: ML]** Thick 6 Paper: ML Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode When the environment is detected as ML, SP2711 and SP2712 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **140** / 5%/step]

2720	**[Thick 6: MM]** Thick 6 Paper: MM Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MM, SP2711 and SP2712 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **100** / 5%/step]

2721	**[Thick 6: MH]** Thick 6 Paper: MH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as MH, SP2711 and SP2712 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **110** / 5%/step]
002	Separation DC: 1st Side	*ENG	[10 to 250 / **90** / 5%/step]

2722	**[Thick 6: HH]** Thick 6 Paper: HH Environment Coefficient Adjustment		
	Adjusts the environment coefficient for each mode. When the environment is detected as HH, SP2711 and SP2712 are multiplied by these SP values.		
001	Paper Transfer: 1st Side	*ENG	[10 to 250 / **120** / 5%/step]

002	Separation DC: 1st 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: 205 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: 205 mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **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: 205 mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain): 1st Side	*ENG	[0 to 200 / **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: 205 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	

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: 205 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: L Edge: Timing]**

	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: 205 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: 205 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: T Edge: Timing]**		
	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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **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: 205 mm/sec, Fine: 77 mm/sec		
001	Paper Transfer: Plain: 1st Side	*ENG	[0 to 200 / **40** / 1 –µA /step]
002	Paper Transfer: Plain: 2nd Side	*ENG	[0 to 200 / **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: 205 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: 205 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: L Edge: Timing]		
	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: 205 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: 205 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: T Edge: Timing]**		
	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: 205 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: 205 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: 205 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: 205 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: 205 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: 205 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 / **1500** / 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 / **30** / 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 / **40** / 1 –µA /step]
002	Paper Transfer: Thick 1: 2nd Side	*ENG	[0 to 200 / **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	

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. Plain: 205 mm/sec, Thick 2&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	

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. Plain: 205 mm/sec, Thick 2&Fine: 77 mm/sec **Note** • The paper leading edge area can be adjusted with SP2872.		
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	

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: 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	

2872	[Special 3: L Edge: Timing]		
	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: 205 mm/sec, Thick 2&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	

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. Plain: 205 mm/sec, Thick 2&Fine: 77 mm/sec **Note** - The paper trailing edge area can be adjusted with SP2874.		
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	

2874	**[Special 3: L Edge: Timing]**		
	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: 205 mm/sec, Thick 2&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	

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. Plain: 205 mm/sec, Thick 2&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, SP2851 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	

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. Plain: 205 mm/sec, Thick 2&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, SP2851 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	

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. Plain: 205 mm/sec, Thick 2&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, SP2851 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	

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. Plain: 205 mm/sec, Thick 2&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, SP2851 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	

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. Plain: 205 mm/sec, Thick 2&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, SP2851 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	

2901	[OPC Drum Brake Time]		
	Adjusts the time when the OPC drum motor reverses from normal rotation after job end. **DFU** Plain: 205 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: 205 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	[Image Transfer Roller 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	

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 SP2907-002 is off, the image transfer belt does not move away.		
001	Continuous Bk Pages	*ENG	[1 to 10 / **1** / 1 sheet/step]
002	ON/OFF	*ENG	[0 or 1 / **0** / -] 0: ACS OFF, 1: ACS ON

2908	**[Gain Adjust]** Gain Adjustment of Image Transfer Belt Motor		
	DFU		
001	205 mm/sec	*ENG	[0 or 1 / **0**/ 1/step]] 0: High speed (Low level) 1: Low speed (High level)
002	154 mm/sec	*ENG	[0 or 1 / **1** / 1/step]] 0: High speed (Low level) 1: Low speed (High level)
003	115 mm/sec	*ENG	
004	77 mm/sec	*ENG	

2914	[Shutter Motor]		
001	Delay Time Open	*ENG	DFU [1 to 50 / **38** / 1 ms/step]
002	Delay Time Close	*ENG	
003	Shutter Open	*ENG	Opens the shutter on the laser optics housing unit manually for test purposes.
004	Shutter Close	*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]

2940	[SecondaryFB: Thick 4]

	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for thick 4 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]

2941	[SecondaryFB: Thick 5]		
	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for thick 5 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]

2942	[SecondaryFB: Thick 6]		
	Adjusts the upper limit voltage for the paper transfer roller. These SPs are only used for thick 6 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]

2960	[Process Interval]		
	When printing consecutive jobs of 1 page/job, if the next job comes more than 2.9 s after the controller has finished the current job, the engine goes to standby mode, and must wake up again to print the next job. Because of this, the total printing time may become slower than the standard 40 ppm. If printing becomes slow, set this SP to a value different from 0 (for example, if you set it to 1 second, the time limit becomes 3.9 seconds). If you increase this setting too much, the machine will spend less time in energy saver mode, and the overall power consumption of the machine will increase, causing higher costs for the customer.		
001	Additional Time	*ENG	[0 to 6 / **0** / 1 sec/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.218 "Process Control Self-Check Result"" 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.217 "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		
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: 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	K: Toner Consumption	*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	M: Toner Consumption	*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	C: Toner Consumption	*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	Y: Toner Consumption	*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 / **30** / 1 μA/step]
	Adjusts the image transfer belt bias for Black.		
014	T1 Bias: M	*ENG	[0 to 80 / **30**/ 1 μA/step]
	Adjusts the image transfer belt bias for Magenta.		
015	T1 Bias: C	*ENG	[0 to 80 / **33**/ 1 μA/step]
	Adjusts the image transfer belt bias for Cyan.		
016	T1 Bias: Y	*ENG	[0 to 80 / **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	LD Duty: K: Toner	*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	LD Duty:M: Toner	*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	LD Duty: C: Toner	*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	LD Duty: Y: Toner	*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 0: FIXED (with the supply rates stored with SP 3401) 1: PID (Vtref_Fixed) 2: PID (Vtref_Control) 3: Not used
002	M	*ENG	
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 / **510** / 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 / **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 / **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	Replacement Coefficient: Bk	*ENG	[0.5 to 9.99 / **1.48** / 0.01 /step]
002	Replacement Coefficient: M	*ENG	[0.5 to 9.99 / **1.67**/ 0.01 /step]
003	Replacement Coefficient: C	*ENG	[0.5 to 9.99 / **1.45** / 0.01 /step]
004	Replacement 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]
006	Offset: M	*ENG	

007	Offset: C	*ENG	DC charge bias = Development bias x (1 + 0.001 x SP3-241-001 to -004) + these values
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	

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
002	Latest 1	*ENG	
003	Latest 2	*ENG	
004	Latest 3	*ENG	

005	Latest 4	*ENG	1: O.K
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. [0 to 100 / **100** / 1%/step]
002	Upper Limit: M	*ENG	
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	[P Ctrl:Page:Dsp] Potential Control: Page 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	Power ON: Potential Control: BW	*ENG	[0 to 2000 / **200** / 1 page/step]
006	Power ON: 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	**[Last PCU Mt: K]** Last Drive PCU Motor: K		
	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	**[Environment: Job End]**		
	Displays the environmental conditions for the last job. These are used for process control execution timing.		
001	Temperature	*ENG	[-1280 to 1270 / **-** / 0.1°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	Distance: DevMt: K	*ENG	[0 to 1000 / **0** / 1 m/step]
002	Distance: DevMt: M	*ENG	
003	Distance: DevMt: C	*ENG	
004	Distance: DevMt: Y	*ENG	
005	Threshold: Distance	*ENG	[0 to 1000 / **1** / 1 m/step]
006	Pixel Coverage: Bk	*ENG	[0 to 65535 / **0** / 1 cm^2/step]
007	Pixel Coverage: M	*ENG	
008	Pixel Coverage: C	*ENG	
009	Pixel Coverage: 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: 205 mm/sec, Thick 1: 115 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 1: Bk	*ENG	[0 to 700 / 550 / 1 -V/step]
010	Thick 1: M	*ENG	
011	Thick 1: C	*ENG	
012	Thick 1: 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: 205 mm/sec, Thick 1: 115 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	
005	Thick 2 & FINE: Bk	*ENG	[0 to 2000 / **690** / 1 -V/step]
006	Thick 2 & FINE: M	*ENG	
007	Thick 2 & FINE: C	*ENG	
008	Thick 2 & FINE: 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: 205 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: 205 mm/sec, Thick 1: 115 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 @Remote.		
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 @Remote. [0 or 1 / **1** / -] 0: Enable @Remote calling 1: Disable @Remote 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 cannot 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).		
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	
017	Toner Collection Bottle	*ENG	

SP5-XXX (Mode)

5001	[All Indicators On]

	Turns all indicators on the operation panel on or off.		
001	All Indicators On	*CTL	0: OFF, 1: ON

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 / **1** / -] 0: Developments 1: Prints

5051	**[Refill Toner Detection Display]**		
	Enables or disables the toner refill detection display.		
5051 1	Refill Toner 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

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	A3 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)

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).		

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	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: A3, 1: DLT
008	TRAY 3: 3	*ENG	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: B4, 1: LG
009	TRAY 3: 4	*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	[0 or 1 / 0 (EU/ASIA), 1 (NA) / -] 0: A4 LEF, 1: LT LEF
015	TRAY 5: 2	*ENG	[0 or 1 / 00 (EU/ASIA), 1 (NA) / -]

			0: A3, 1: DLT
016	TRAY 5: 3	*ENG	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B4, 1: LG
017	TRAY 5: 4	*ENG	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B5 LEF, 1: Exe LEF

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

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	ON/OFF		[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	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	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**	

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 printed sheets (for example, default 1500 sheets). The error alarm occurs when the SC error alarm counter reaches "5".

001	-	*CTL	[0 to 255 / **40** / 100 pages /step]

5507	[Supply Alarm]	*CTL	-
001	Paper Supply Alarm	0: Off, 1: On	
002	Staple Supply Alarm	0: Off, 1: On	
003	Toner Supply Alarm	0: Off, 1: On	
005	Drum	0: Off, 1: On	
006	Waste Toner Bottle	0: Off, 1: On	
007	Transfer Belt	0: Off, 1: On	
008	Fusing Unit	0: Off, 1: On	
128	Interval :Others	[250 to 10000 / **1000** / 1 /step]	
132	Interval :A3		
133	Interval :A4		
134	Interval :A5		
141	Interval :B4		
142	Interval :B5		
160	Interval :DLT		
164	Interval :LG		
166	Interval :LT		
172	Interval :HLT		

5515	[SC/Alarm Setting]	*CTL	-
	With @Remote 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 / **0** / -] 0: Off, 1: On	
002	Service Parts Near End Call		
003	Service Parts End Call		

004	User Call	[0 or 1 / **1** / -] 0: Off, 1: On
006	Communication Test Call	[0 or 1 / **1** / -] 0: Off, 1: On
007	Machine Information Notice	
008	Alarm Notice	[0 or 1 / **0** / -] 0: Off, 1: On
009	Non Genuine Toner Alarm	[0 or 1 / **1** / -] 0: Off, 1: On
010	Supply Automatic Ordering Call	[0 or 1 / **0** / -] 0: Off, 1: On
011	Supply Management Report Call	

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**		
008	Printer Application	-	-

	Clears the printer application settings.		
010	GWWS/NFA	-	-
	Delete the netfile application management files and thumbnails, and initializes the job login ID.		
011	NCS	-	-
	Initializes the system default and interface settings (IP address also), SmartDeviceMonitor for Admin, WebStatusMonitor settings, and the TELNET 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.		

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.569 "Input Check Table"" in this section.
5804	[Output Check]	-	See "p.580 "Output Check Table"" in this section.

5807	[Area Selection] SSP		
	Selects the machine destination. You must change this to the correct setting if you change the NVRAM.		
001	Area Selection	-	[0 to 4 / **Destination** / -] FA 0: Japan, 1: NA, 2: EU, 3: ASIA

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]		
001	Telephone	*CTL	-
	Sets the telephone number for a service representative. This number is printed on the Counter List, which can be printed with the user's "Counter" menu. 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).

5816	[NRS Function]	*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: @Remote 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		
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	Function Flag	
	This SP displays the embedded RCG installation end flag. 0: Installation not completed 1: Installation completed	
022	Install Status	
	This SP displays the external RCG installation status. 0: External RCG not registered 1: External RCG registered 2: Device registered	
023	Connect Mode (N/M)	
	This SP displays and selects the embedded RCG 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	HTTP Proxy Use	This SP setting determines if the proxy server is used when the machine communicates with the service center.
063	HTTP Proxy Host	
	This SP sets the address of the proxy server used for communication between embedded RCG-N and the gateway. Use this SP to set up or display the customer proxy server address. The address is necessary to set up embedded RCG-N.	

	Note • The address display is limited to 128 characters. Characters beyond the 128 character are ignored. • This address is customer information and is not printed in the SMC report.	
064	HTTP Proxy Port	
	This SP sets the port number of the proxy server used for communication between embedded RCG-N and the gateway. This setting is necessary to set up embedded RCG-N. **Note** • This port number is customer information and is not printed in the SMC report.	
065	HTTP Proxy Aut Usr	
	This SP sets the HTTP proxy certification user name. **Note** • The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored. • This name is customer information and is not printed in the SMC report.	
066	HTTP Proxy Aut Pass	
	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	Cer Updt Cond	
	Displays the status of the certification update.	
	0	The certification used by embedded RCG 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	Cer Abnml Cause	
	Displays a number code that describes the reason for the request for update of the certification.	
	0	Normal. There is no request for certification update in progress.
	1	Request for certification update in progress. The current certification has expired.
	2	An SSL error notification has been issued. Issued after the certification has expired.
	3	Notification of shift from a common authentication to an individual certification.
	4	Notification of a common certification without ID2.
	5	Notification that no certification was issued.
	6	Notification that GW URL does not exist.

069	Cer Updt Reg ID	The ID of the request for certification.	
083	Firm Updating	Displays the status of the firmware update.	
084	Firm Up Flg No HDD	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 Conf	This SP setting determines if the operator can confirm the previous version of the firmware before the firmware update execution. If the option to confirm the previous version is selected, a notification is sent to the system manager and the firmware update is done with the firmware files from the URL.	
086	Firmware Size	Allows the service technician to confirm the size of the firmware data files during the firmware update execution.	
087	CERT: Macro Version	Displays the macro version of the @Remote certification.	
088	CERT: PAC Version	Displays the PAC version of the @Remote certification.	
089	CERT: ID2 Code	Displays ID2 for the @Remote certification. Spaces are displayed as underscores (_). Asteriskes () indicate that no @Remote certification exists.	
090	CERT: Subject	Displays the common name of the @Remote certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks () indicate that no DESS exists.	
091	CERT: Serial Number	Displays serial number for the @Remote certification. Asterisks () indicate that no DESS exists.	
092	CERT: Issuer	Displays the common name of the issuer of the @Remote certification. CN = the following 30 bytes. Asteriskes () indicate that no DESS exists.	
093	CERT: St Exp Time	Displays the start time of the period for which the current @Remote certification is enabled.	
094	CERT: End Exp Time	Displays the end time of the period for which the current @Remote certification is enabled.	
200	Polling Man Exc	-	Executes the manual polling.

201	Instl: Condition	Displays a number that indicates the status of the @Remote service device. 0: Neither the registered device by the embedded RCG nor embedded RCG device is set. 1: The embedded RCG device is being set. Only Box registration is completed. In this status the external RCG unit cannot answer a polling request. 2: The embedded RCG device is set. In this status the external RCG unit cannot answer a polling request. 3: The registered device by the embedded RCG is being set. In this status the embedded RCG device cannot be set. 4: The registered module by the embedded RCG has not started.
202	Instl: ID #	Allows entry of the number of the request needed for the embedded RCG device.
203	Instl: Reference	Executes the inquiry request to the @Remote GateWay URL.
204	Instl: Ref Rslf	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) 6: Communication error 7: Certification update error 8: Other error 9: Inquiry executing
205	Instl: Ref Section	Displays the result of the notification sent to the device from the GW URL in answer to the inquiry request. Displayed only when the result is registered at the GW URL.
206	Instl: Rgstltn	Executes Embedded RCG Registration.
207	Instl: Rgstltn Rst	Displays a number that indicates the registration result.

<table>
<tr><td></td><td colspan="3">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="16">208</td><td colspan="3">Instl: 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="3">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>
<tr><td>-12004</td><td>Attempted setting with illegal entries for certification and ID2.</td></tr>
<tr><td rowspan="7">Error Caused by Response from GW URL</td><td>-2385</td><td>Attempted dial up overseas without the correct international prefix for the telephone number.</td></tr>
<tr><td>-2387</td><td>Not supported at the Service Center</td></tr>
<tr><td>-2389</td><td>Database out of service</td></tr>
<tr><td>-2390</td><td>Program out of service</td></tr>
<tr><td>-2391</td><td>Two registrations for same device</td></tr>
<tr><td>-2392</td><td>Parameter error</td></tr>
<tr><td>-2393</td><td>External RCG not managed</td></tr>
</table>

		-2394	Device not managed
		-2395	Box ID for External RCG is illegal
		-2396	Device ID for External RCG is illegal
		-2397	Incorrect ID2 format
		-2398	Incorrect request number format
209	Instl Clear	Releases the machine from its embedded RCG setup.	
250	Print Com Log	Prints the communication log.	

5821	**[NRS Address]**		
001	CSS-PI Device	*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 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.598 "NVRAM Data Upload/Download"" in this section.		
5824 1	NV-RAM Upload	#	-

5825	**[NV-RAM Download]**		
	Downloads the UP and SP mode data from an SD card to the NVRAM. For details, see the "p.598 "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.

5832	**[HDD]** HDD Initialization	*CTL	-
001	Formatting (ALL)	Initializes the hard disk. Use this SP mode only if there is a hard disk error.	

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)

5842	[GWWS Analysis] 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.		
003	Delivery Error Display Time	[60 to 999 / **300** / 1 second /step]	
	Specifies the interval time for sending an e-mail to the deliver server or SMTP/FTP/NCP/ SMB server after sending error.		
004	Delivery Options	[0 to 99 / **3** / 1 time/step]	
	Specifies the retry times for sending an e-mail to the delivery server or SMTP/FTP/NCP/ SMB server.		

5846	**[UCS Settings]**	*CTL	-
010	LDAP Search Timeout	[1 to 255 / **60** / 1 /step]	
	Sets the length of the timeout for the search of the LDAP server.		
041	AddrB 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.	
046	IniSet/All AddrB	Clears the information related with UCS.
047	Initialize Local Addr Book	Clears the local address book information, including 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**
094	Encryption Stat
	Displays the status of the encryption function for the address book data. 0: No Encryption, 1: Encryption ON

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.		
004	Access Control: User Directory (only Lower 4 bits)	Switches access control on and off. **0000**: No access control 0001: Denies access to DeskTop Binder.	
009	Access Ctrl: Job Ctrl (Lower 4 bits)		
011	Access Ctrl: Device management (Lower 4 bits)		
022	Access Ctrl: uAdministration (Lower 4bits)		
210	Setting: LogType: Job1	**DFU**	
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	-
001	Display	The “Counter Clear Day” has been changed to “Installation Date” or “Inst. Date”.	
003	Total Counter	[0 or 99999999 / - / -]	

5851	**[Bluetooth Mode]**
	Sets the operation mode for the Bluetooth Unit. Press either key. [0:Public] [1: Private]

5856	**[Remote ROM Update]**		
	Allows the technician to upgrade the firmware using a 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	HDD to SD Card Latest
010	HDD to SD Card Any
011	Erase HDD Debug Data
012	Erase SD Card Debug Data
013	Dsply-SD Space
014	SD to SD Latest
015	SD to SD Any
016	Make HDD Debug
017	Make SD Debug

5858	**[Debug Log Save: SC]**	*CTL	-
	These SPs select the content of the debugging information to be saved to the destination selected by SP5857-002. 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	-
002	SMTP Srv Port No.	Specifies the number of the SMTP server ports. [1 to 65535 / **25** / 1/step]	
003	AMTP Authentication	Enables or disables the SMTP authentication for mail transfers. [0 or 1 / **0** / -] 0: Disable, 1: Enable	
006	SMTP Auth Encry	Encrypts or does not encrypt passwords for SMTP authentications. [0 to 2 / **0** / 1 /step] 0: Automatic, 1: Not encrypt, 2: Encrypt	
007	POP before SMTP	Enables or disables the authentication that is executed on the POP server before the communication is established with the SMTP server to transfer mails. [0 to 1 / **0** / 1/step] 0: Disable, 1: Enable	

008	POP to SMTP Wait	Specifies the waiting time to access the SMTP server after the authentication on the POP server. [0 to 10000 / **300** / 1 ms/step]
009	Rcv Protocol	Sets the receiving protocol for receiving an e-mail. [1 to 3 / **1** / 1 /step] 1: POP3, 2: IMAP4, 3: SMTP
013	POP Auth. Encrypt	Encrypts or does not encrypt passwords for POP3/IMAP4 authentications. [0 to 2 / **0** / 1/step] 0: Automatic, 1: Not encrypt, 2: Encrypt
014	POP Server Port No.	Specifies the port number of the POP server. [1 to 65535 / **110** / 1/step]
015	IMAP Srv Port No	Specifies the port number of the IMAP4 server. [1 to 65535 / **143** / 1/step]
016	SMPT Rx Port No	Sets the receiving port number for receiving an e-mail from the SMTP. [1 to 65535 / **25** / 1 /step]
017	Receive Interval	Specifies the interval for receiving an e-mail. [2 to 1440 / **3** / 1 min/step]
019	Mail Keep Sett.	Sets the mail type kept in the mail server after receiving an e-mail. When you set the "1", all e-mails are kept in the mail server after receiving an e-mail. When you set the "2", only error mails are kept in the mail server after receiving an e-mail. When you set the "0", no e-mail is kept in the mail server after receiving an e-mail. [0 to 2 / **0** / 1 /step] 0: No keep, 1: All, 2: Error mail
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

5869	[RAM Disk Setting]		
001	Mail Function	*CTL \#	[0 to 1 / 0 / 1/step] 0: ON, 1: OFF

	Enables or disables the e-mail transfer function. This SP sets the RAM disk size for the e-mail transfer function.

5870	[Common Key Info Writing]		
001	Writing	*CTL	Writes to flash ROM the common proof for validating the device for @Remote specifications.
003	Initialize	*CTL	Initializes the authentication data (used for @Remote) in the memory.

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 2.
002	Undo Exec	This SP copies back the application programs from an SD card in SD Card Slot 2 to the original SD card in SD card slot 3. Use this menu when you have mistakenly copied some programs by using "Move Exec" (SP5873-1).

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.

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 (205 mm/sec)

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 SP C811DN 1: SAVIN CLP240D 2: Gestetner C7640nD 3: NRG SP C811DN 4: infotec IPC 4040DN 5: LANIER LP440c/SP C811DN

5924	**[SDK Apli Display]**		
001	SDK Apli Display	*CTL	[0 or 1 / **0** / 1/step] 0: Not display, 1: Display
	Enables or disables the LCD display of the SDK application.		

5930	**[Meter Click Ch.]** Meter Click Charge		
5930 001	Meter Click Ch.	*EGB	Enables or disables the Meter Charge mode. When enabling the Meter Charge mode, the “Counter” menu is added to the user menu. [0 or 1 / **0** / -] 0: OFF, 1: ON
5930 010	PCU	*EGB	Displays or does not display the end display for the PCU. This SP is activated only when the SP5930-001 is set to "1". [0 or 1 / **1** / -] 0: OFF, 1: ON
5930 014	Mid Trans Unit	*EGB	Displays or does not display the end display for the image transfer belt unit. This SP is activated only when the SP5930-001 is set to "1". [0 or 1 / **1** / -] 0: OFF, 1: ON

5930 016	Fusing Unit.	*EGB	Displays or does not display the end display for the fusing unit. This SP is activated only when the SP5930-001 is set to "1". [0 or 1 / 1 / -] 0: OFF, 1: ON

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.

5988	[Contract Type]		
001	Maintenance ID Setting	*CTL	[1 or 2 / 1 / 1/step] 1: Yearly contract, 2: Meter Click
	Selects the contract type.		

5990	[SP print mode]		
	Prints out the SMC sheets.		
001	All (Data List)	-	-
002	SP (Mode Data List)	-	
004	Logging Data	-	
005	Diagnostic Report	-	
006	Non-Default	-	
007	NIB Summary	-	

5996	[Print Area]		
	Selects the print area mode. When you selects "1 (Enlarge)", the edge-to-edge print mode can be available.		
001	Normal/Enlarge	*CTL	[0 or 1 / 0 / 1/step]

			0: Normal, 1: Enlarge

SP6-XXX (Peripherals)

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	

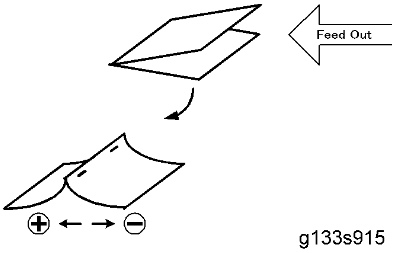
6131	[Skew Correction Control]		
	Selects the skew correction control for each paper size. These are only activated for B793/ B805.		
001	A3T (SEF)	*ENG	[0 to 2 / 1 / 1/step]] 0: No (No skew correction) 1: Roller Stop Skew Correction 2: Roller Reverse Skew Correction
002	B4T (SEF)	*ENG	
003	A4T (SEF)	*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	

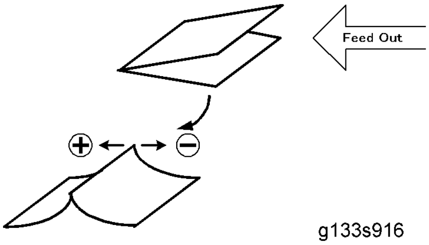
6132	[Jogger Fence Fine Adj]		
	This SP adjusts the distance between the jogger fences and the sides of the stack on the finisher stapling tray in the (Booklet) Finisher B793/B805. The adjustment is done perpendicular to the direction of paper feed.		
001	A3T (SEF)	*ENG	[-1.5 to 1.5 / **0** / 0.5 mm/step]

002	B4T (SEF)	*ENG	+ 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.
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 (B793/B805). + Value: Moves the staple position to the rear side. - Value: Moves the staple position to the front side.		
001	Staple Position (B793/B805)	*ENG	[-3.5 to 3.5 / 0 / 1/step]

6134	[Saddle Stitch Position Adjustment]	
	Use this SP to adjust the stapling position of the booklet stapler when paper is stapled and folded in the Booklet Finisher B793.	
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.]	
	This SP corrects the folding position when paper is stapled and folded in the Booklet Finisher B793.	
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	

6136	[Folding Number]	
	Sets the number of times that folding is done in the Booklet Finisher B793.	
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.569 "Input Check Table"")

6139	**[FIN (KIN) INPUT Check]** Finisher (B408) Input Check
	Not used in this machine.

6140	**[FIN (EUP) INPUT Check]** Finisher (B805) Input Check
	Displays the signals received from sensors and switches of the finisher. (☛ "p.569 "Input Check Table"")

6142	**[FIN (JAK) INPUT Check]**
	Not used in this machine.

6143	**[FIN (TIG) OUPUT Check]** Finisher (B793) Output Check
	Displays the signals received from sensors and switches of the booklet finisher. (☛ "p.580 "Output Check Table"")

6144	**[FIN (KIN) OUPUT Check]** Finisher (B408) Output Check
	Not used in this machine.

6145	**[FIN (EUP) OUPUT Check]** Finisher (B805) Output Check
	Displays the signals received from sensors and switches of the finisher. (☛ "p.580 "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]

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.292 "Jam Codes and Display Codes"" 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 7	Tray 5: 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 14	Bank P Feed 2: OFF	*CTL	
7504 17	Registration: 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 24	Junction SN: ON	*CTL	
7504 25	Duplex Exit: ON	*CTL	
7504 26	Duplex Reverse: ON	*CTL	
7504 27	Duplex Entrance: ON	*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 55	Bank P Feed 3: ON	*CTL	
7504 57	Regist Sensor	*CTL	
7504 60	Exit Sensor	*CTL	
7504 61	Relay Exit Sensor	*CTL	
7504 62	Relay Sensor	*CTL	
7504 64	Junction SN: ON	*CTL	
7504 65	Duplex Exit Sensor	*CTL	
7504 66	Duplex Entrance Sensor	*CTL	

7504 67	D Ent return: ON	*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 191	Finisher Entrance: EUP (B805)	*CTL	
7504 192	Finisher Proof Exit: EUP (B805)	*CTL	

7504 193	Finisher Shift Tray Exit: EUP (B805)	*CTL	
7504 194	Finisher Stapler Exit: EUP (B805)	*CTL	
7504 195	Finisher Exit: EUP (B805)	*CTL	
7504 196	Finisher Staple: EUP	*CTL	
7504 197	Finisher Saddle Stitch Staple: EUP	*CTL	
7504 198	Finisher Folder: EUP	*CTL	
7504 199	Finisher Tray Motor: EUP (B805)	*CTL	
7504 200	Finisher Jogger Motor: EUP (B805)	*CTL	
7504 201	Finisher Shift Motor: EUP (B805)	*CTL	
7504 202	Finisher Staple Moving Motor: EUP (B805)	*CTL	
7504 203	Finisher Staple Motor: EUP (B805)	*CTL	
7504 204	Finisher Folder Motor: EUP	*CTL	
7504 205	Finisher Exit Motor: EUP	*CTL	
7504 206	Finisher Punch Motor: EUP (B805)	*CTL	
7504 220	MBX P. Feed 1: OFF	*CTL	
7504 221	MBX P. Feed 1: ON	*CTL	
7504 222	MBX P. Feed 2: OFF	*CTL	
7504 223	MBX P. Feed 2: ON	*CTL	
7504 230	Finisher Exit No Response	*CTL	
7504 231	Finisher Communication Error	*CTL	

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		

7801	[Memory/Version/PN]		
7801 255	Memory/Version/PN	-	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		
7803 111	Yield(%):PCU:K		[–999 to 999 / 100 / 1 %/step]
7803 112	Yield(%):PCU:Col		

7803 113	Reserved		
7803 114	Reserved		
7803 115	Yield(%):ITB		[–999 to 999 / 100 / 1 %/step]
7803 116	Yield(%):Fusing		[–999 to 999 / 100 / 1 %/step]

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	-	-

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.

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		

7904	**[Near End Setting]**		
	Sets the near end setting for each maintenance items.		
7904 1	PCU:K	*ENG	[0 to 2 / 1 / 1 /step] 0: Earlier, 1: Default, 2: Nearly Limit
7904 2	PCU:Col	*ENG	
7904 4	ITB (Image Transfer Belt Unit)	*ENG	
7904 6	Fusing Unit	*ENG	

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 3	Rotation: Fusing Unit	*CTL	[0 to 999999999 / **155595000** / 1 mm/step]
7952 11	Page: Image Transfer Belt	*CTL	[0 to 999999 / **320000** / 1 sheet/step]
7952 13	Page: Fusing Unit	*CTL	[0 to 999999 / **160000** / 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 @Remote 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
Comb	Combine
Comp	Compression
Deliv	Delivery

Abbreviation	What it means
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 (@Remote), which allows a service center to monitor machines remotely. "@Remote" is used overseas, "CSS" is used in Japan.
Org	Original for scanning
OrgJam	Original Jam
Palm 2	Print Job Manager/Desk Top Editor: A pair of utilities that allows print jobs to be distributed evenly among the printers on the network, and allows files to moved around, combined, and converted to different formats.

Abbreviation	What it means
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.
RCG	Remote Communication Gate
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.
8 004	P: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.

8 021	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.
8 024	P: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.
8 034	P: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.

8 061	T:FIN Jobs	*CTL	[0 to 9999999/ **0** / 1]
	These SPs total the finishing methods. The finishing method is specified by the application.		

8 064	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.		
8 067	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.		
8 074	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.		
8 077	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.

8 381	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.
8 384	P: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.		

8 411	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.		
8 424	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.		
8 427	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.		
8 434	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.		
8 437	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.		
8 444	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.		
8 447	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 or LCT (Option)	
8 451 5	Tray 4	Paper Tray Unit (Option)	
8 451 6	Tray 5	Paper Tray Unit (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.		
8 464	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 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]

8 501	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.		
8 524	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 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

8 584	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		

8 591	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		

8 771	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

8 801	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 11	BK (Page)		
8 921 12	Y (Page)		
8 921 13	M (Page)		
8 921 14	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

8 999	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 6	Printer Full Color		
8 999 7	Printer BW		
8 999 8	Printer Single Color		
8 999 9	Printer Two Color		
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 (%)	

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 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 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]

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 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 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 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.
5801 18	SRM Memory Clr	Initializes the SRM settings
5801 19	LCS	Initializes the LCS settings and logs.

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 detected	Paper not detected
5803 87	Bank Vertical Transport Sensor 3	Paper not detected	Paper detected
5803 88	Bank Vertical Transport Sensor 4	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 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

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	A4 SEF*1	1	1	0	1

(8.5" x 11" SEF*2)	(A5 LEF)				
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.

1000-Sheet Booklet Finisher (B793)

6138	Bit	Description	Reading	
			0	1
6138 1		Interference Escape Sensor (Stapler Safety Sensor)	Not interfered	Interfered
6138 2		Staple Moving HP Sensor (Staple Unit HP Sensor)	Not home position	Home position
6138 3		Stuck Relay1 Release HP Sensor (Stopper S HP Sensor)	Not home position	Home position
6138 4		Exit Junction Gate HP Sensor (Stack Feed Out HP Sensor)	Home position	Not home position
6138 5		Jogger HP Sensor (Jogger Fence HP Sensor)	Not home position	Home position
6138 6		Staple Tray Paper Sensor (Staple Tray Paper Sensor)	Paper not detected	Paper detected
6138 7		Rear Edge Fence HP Sensor (Paper Stack Stopper HP Sensor)	Not home position	Home position

6138 8	Saddle Stitch Exit Sensor	Paper detected	Paper not detected
6138 9	Stuck Relay2 Roller HP Sensor (Clamp Roller HP Sensor)	Home position	Not home position
6138 10	Folder Tray Full Sensor 1 (Bottom Tray HP 1 Sensor)	Full	Not full
6138 11	Folder Tray Full Sensor 2 (Bottom Tray HP 2 Sensor)	Not full	Full
6138 12	Folder Plate HP Sensor (Fold Plate HP Sensor)	Not home position	Home position
6138 13	Saddle Stitch Arrival Sensor (Fold Unit Entrance Sensor)	Paper not detected	Paper detected
6138 14	Folder Cam HP Sensor (Fold Plate Cam HP Sensor)	Not home position	Home position
6138 15	Staple Exit Sensor (Stapler Tray Exit Sensor)	Paper detected	Paper not detected
6138 16	Shift Tray Paper Sensor (Shift Tray Paper Position Sensor)	Shift tray not detected	Shift tray detected
6138 17	Shift Tray Full	Full	Nor full
6138 18	Shift Roller HP Sensor	Not home position	Home position
6138 20	Entrance Sensor (Finisher Entrance Sensor)	Paper detected	Paper not detected
6138 21	Shift Exit Sensor (Shift Tray Exit Sensor)	Paper not detected	Paper detected
6138 22	Proof Exit Sensor (Proof Tray Exit Sensor)	Paper detected	Paper not detected
6138 23	Exit Guide Plate HP Sensor	Not home position	Home position
6138 24	Proof Full Sensor (Proof Tray Full Sensor)	Not full	Full

6138 25	Upper Cover Sensor	Open	Close
6138 26	Door SW (Front Door Switch)	Close	Open
6138 27	Clincher Timing Sensor	Encoder	
6138 28	Clincher HP Sensor	Home position	Not home position
6138 29	Driver Timing Sensor	Encoder	
6138 30	Staple Near End	Staple remaining	Staple near end
6138 31	Self Priming	Staple detected	Staple not detected
6138 32	Driver HP Sensor	Home position	Not home position
6138 33	Punch Registration Detection HP Sensor	Not home position	Home position
6138 34	Punch Moving HP Sensor (Punch Movement HP Sensor)	Not home position	Home position
6138 35	Punch HP Sensor (Punch HP Sensor)	Home position	Not home position
6138 36	Punch Pulse Count Sensor (Punch Encoder Sensor)	Encoder	
6138 37	Punch Chad Full Sensor (Punch Hopper Full Sensor)	Not full	Full
6138 38	Punch Registration Detection Sensor (Paper Position Sensor)	Paper detected	Paper not detected

3000-Sheet Finisher (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: Not used in B805

Output Check Table

Copier

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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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 124	Regist Motor: 115mm/s	Registration Motor: 115 mm/s
5804 126	Regist Motor: 154mm/s	Registration Motor: 154 mm/s
5804 127	Regist Motor: 205mm/s	Registration Motor: 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 148	Duplex Junction Gate Solenoid	Duplex Inverter Solenoid
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 162	4 Bin Junction G	Not used
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 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)

6143	Display	Description
6143 1	Shift Motor	Shift Tray Motor
6143 2	Entrance Motor	-
6143 3	Staple Relay Motor	Stapler Unit Motor
6143 4	Knock Solenoid	
6143 5	Junction Gate SOL 1	Proof Tray Gate Solenoid
6143 6	Junction Gate SOL 2	Staple Tray Gate Solenoid
6143 7	Folder Roller Rotation Motor	Fold Roller Motor
6143 8	Staple Motor	Staple Fold Motor
6143 10	Exit Guide Plate Motor	-
6143 11	Shift Relay Motor	Upper Transport Motor
6143 12	Tray Motor	Shift Tray Motor
6143 13	Stack Feed-out Motor	Positioning Roller Solenoid
6143 14	Stuck Relay1 Motor	Upper Clamp Roller Motor
6143 15	Stuck Relay1 Release Motor	Upper Retraction Motor
6143 16	Rear Edge Fence Drive Motor	Bottom Fence Lift Motor
6143 17	Folder Plate Motor	-
6143 18	Drive Roller Oscillating Motor	Lower Retraction Motor
6143 19	Staple Moving Motor	Staple Unit Driver Motor

6143 20	Jogger Motor	Jogger Motor
6143 21	Punch Registration Moving Motor	Paper Position Sensor Slide Motor
6143 22	Punch Motor	-
6143 23	Punch Moving Motor	Punch Movement Motor

3000-Sheet 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 print 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 "OK" key.
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, press "OK" key to select the test pattern for printing.
6. Exit SP mode.
7. Enter the menu mode, and then select "Color Demo Page" (Menu > "List/Test Print" > "Color Demo Page").
8. Press the "OK" key to start the test print.
9. After checking the test pattern, enter the SP mode again.
10. Return the value of the setting in SP2-109-003 to "00" before completing this procedure.
11. Exit the 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

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 left side of the controller box.

Type of Firmware

There are 12 types of firmware as shown below.

Type of firmware	Function	Location of firmware	Message shown
Engine	Printer engine control	EGB Flash ROM	Engine
System	Operating system	System SD card	System
Net File	Feature application	System SD card	NetworkDocBox
Printer	Feature application	System SD card	Printer
NIB	Network Interface	System SD card	Network Support
WebSystem	Web Service application	System SD card	Web Support
FONT	Page description language (PostScript3)	System SD card	PS3 Font
FONT1	Font	System SD card	Fonr
PictBridge	PictBridge control	PictBridge SD card	Option PctBrgd
DESS	Security control	System SD card	Security Module
Finisher	Finisher control	Finisher	Finisher
BIOS	Operating system	Flash ROM on the controller	BIOS

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, press the appropriate key on the operation panel.
- 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

File Arrangement

How the Program Works:

The firmware-update program for this machine searches the folder romdata for necessary firmware. When you save the firmware in an SD card, make the folder 'romdata'. You must not make the folder 'romdata' in another folder.

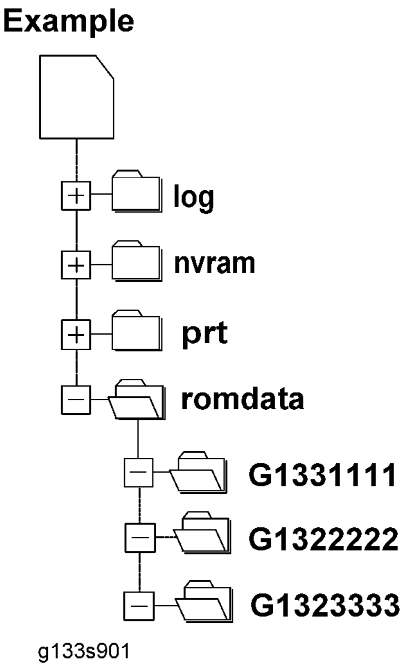
Note

- Do not make another firmware-update program folder in the folder 'romdata'.
- Otherwise, it may cause a malfunction for the firmware updating. You just keep only one firmware update program folder in the folder 'romdata'.

The firmware program contains the file information. Before downloading the firmware from an SD card, the firmware-update program reads the file information. The firmware is downloaded only when the file information is correct.

Note

- The file information can identify the firmware, but this information does not guarantee that the data is not corrupted.



When you save the firmware, we recommend that you arrange folders and files as follows:

- In the folder romdata, make only one folder and use this folder for one model. Use the machine code as the name of this folder.
- When you save some files other than firmware, make a new folder outside romdata. Save the files in this folder. Do not save any file outside the folders. (The diagram shows an example. Three folders, log, nvramdata, and prt, are outside romdata. These folders can store debug logs, NVRAM data, and captured files respectively.)

Update Procedure

1. Turn off the main power switch.
2. Disconnect the printer from the network.
3. Remove the slot cover from the slot 3 (🔩 x 1).

   Note

   - Do not use the slot 2. The slot 2 is for customer use.
4. Turn the SD card face to the rear side of the printer, and insert it into the slot 3.
5. Slowly push the SD card into the slot until it clicks.
6. Make sure that the SD card is locked in place.

Note

- To remove the SD card, push it in until it clicks, and release it slowly. The slot pushes out the SD card.

7. Turn on the main power switch.
8. Wait until a firmware name is shown on the display (about 1 minute).

Note

- The firmware name is read from inside the firmware. The firmware name is not changed even if you change the file name on your PC.

9. If the necessary firmware name is shown on the display, check the firmware version with the left-arrow or right-arrow keys. Pressing the left or right-arrow key shows a firmware name, firmware version and serial number in order.
10. To use a different firmware, push the up-arrow key or the down-arrow key to find the necessary firmware.

Note

- Controller, engine and operation panel firmware cannot be updated at the same time. It is recommended to update firmware modules one by one.

11. To select the firmware, push the OK key. Make sure that the selected firmware is high-lighted.
12. If you update more than one firmware program at the same time, find each of them and select each of them. Make sure that the selected firmware is high-lighted.

Note

- If the customer has used all of three slots, you have to keep an empty slot for this procedure. Ask the customer to temporarily remove one of the SD cards in the slot 2 or 3.

13. To start firmware update, push the "UpDate" key. While each firmware is downloaded, the underscores on the operation panel are replaced by stars.
14. Wait until the message “Update done” is shown.
15. Turn off the main power switch.
16. Remove the SD card from the slot 3.
17. Attach the slot cover to the SD card slot 3 (🔩 x 1).
18. Connect the printer to the network physically.
19. Turn on the main power switch.
20. Print the Configuration Page to check that the every firmware is correctly updated: Menu > List/Test Print > Config. Page

Error Handling

An error code is shown if an error occurs during the download. Error codes have the letter "E" and a number. If an error occurs, the firmware is not correctly downloaded; see the error code table (☛ "p.601 "Handling Firmware Update Errors"") and do the necessary steps. After this, download the firmware again.

Power Failure

If firmware update is interrupted by power failure, the firmware is not correctly downloaded. In this condition, machine operation is not guaranteed. You have to download the firmware again.

NVRAM Data Upload/Download

⚠CAUTION

- Turn off the main power switch before you insert or remove an SD card. Make sure that the controller and the EGB are correctly connected.

Uploading NVRAM Data

Copy the data from the NVRAM to an SD card (referred to as "to upload NVRAM data" in this section) before you replace the NVRAM. If you cannot upload NVRAM data, manually input the necessary settings referring to the factory settings sheet stored inside the front door of the mainframe after replacing the NVRAM.

1. Prepare a formatted SD card.
2. Make sure that the write-protection on the SD card is off.
3. Start the SP mode.
4. Select SP5990-001 (ALL (Data List)).
5. Do the SP.
6. See if the SMC Report is correctly output.

   Note

   - You may need the SMC Report when the machine did not complete an NVRAM data upload or download (☛ "") correctly.

7. Go out of the SP mode.
8. Turn off the main power switch.
9. Insert an SD card into the SD card slot 3.
10. Turn on the main power switch.

11. Start the SP mode.
12. Select SP5-824-001(NVRAM Upload).
13. Push the "OK" key. The upload starts.
    - When uploading ends correctly, the following file is made: NVRAM\serial_number.NV where “NVRAM” is the folder name in the SD card and “serial_number.NV” is the file name with the extension “.NV”. The serial number of the printer is used as the file name. For example, if the serial number is G1330017, the file name is “G1330017.NV”.
14. Go out of the SP mode.
15. Turn off the main power switch.
16. Remove the SD card from the SD card slot 3.
17. Install the SD slot cover to the SD card slot 3.
18. Mark the SD card with, for example, the machine code. You need this SD card when you download NVRAM data (☛ "").

    Note

    - One SD card can store the NVRAM data from two or more machines.

Downloading NVRAM Data

Copy the data from the SD card to the NVRAM (referred to as “to download NVRAM data” in this section) after you replace the NVRAM. If you cannot download NVRAM data, manually input the necessary settings referring to the factory settings sheet stored inside the front door of the mainframe.

1. Make sure that the main power switch is off. If it is on, turn it off.
2. Make sure that you have the correct SD card that contains the necessary NVRAM data.
3. Insert the SD card into the SD card slot 3.
4. Turn on the main power switch.
5. Start the SP mode.
6. Select SP5-825-001 (NVRAM Download).
7. Push the "OK" key. The download starts.

    Note

    - The machine cannot do the download if the file name in the SD card is different from the serial number of the printer (☛ "").
8. Go out of the SP mode.
9. Turn off the main power switch.
10. Remove the SD card from the SD card slot 3.
11. Install the SD slot cover to the SD card slot 3.

12. Turn on the main power switch.
13. Check that the NVRAM data is correctly downloaded.

    Important

    - This procedure does not download the following data to the NVRAM:
        - Total Count
        - Serial Number

Address Book Upload/Download

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 from the SD card slot 3 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 to the SD card slot 3.

    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 from the SD card slot 3 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 to the SD card slot 3.

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.

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 EGB 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.

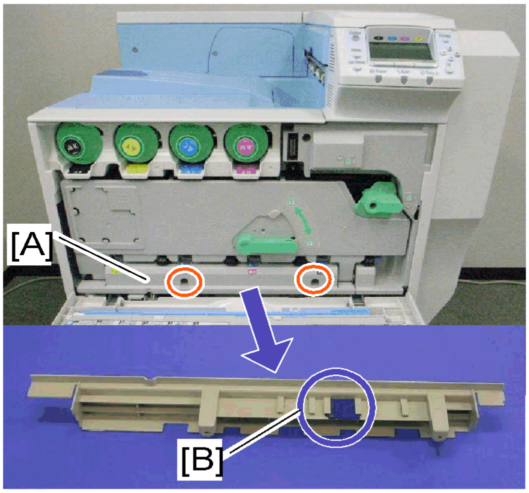
You cannot run application programs from Slot 3. However you can move application programs from Slot 3 to Slot 2 with the following procedure.

Do not remove the system card from SD card slot 1.

1. Choose an SD card with enough space and put it in SD card slot 2.
2. Enter SP5873 "SD Card Appli Move". Then move the application from the SD Card in SD card slot 3 to SD card slot 2.
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.



g133i511

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:
   - 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.

Move Exec

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

Important

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

1. Turn the main switch off.
2. Make sure that an SD card is in SD card slot 2. The application program is copied into this SD card.
3. Insert the SD card (having stored the application program) 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 2. 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.

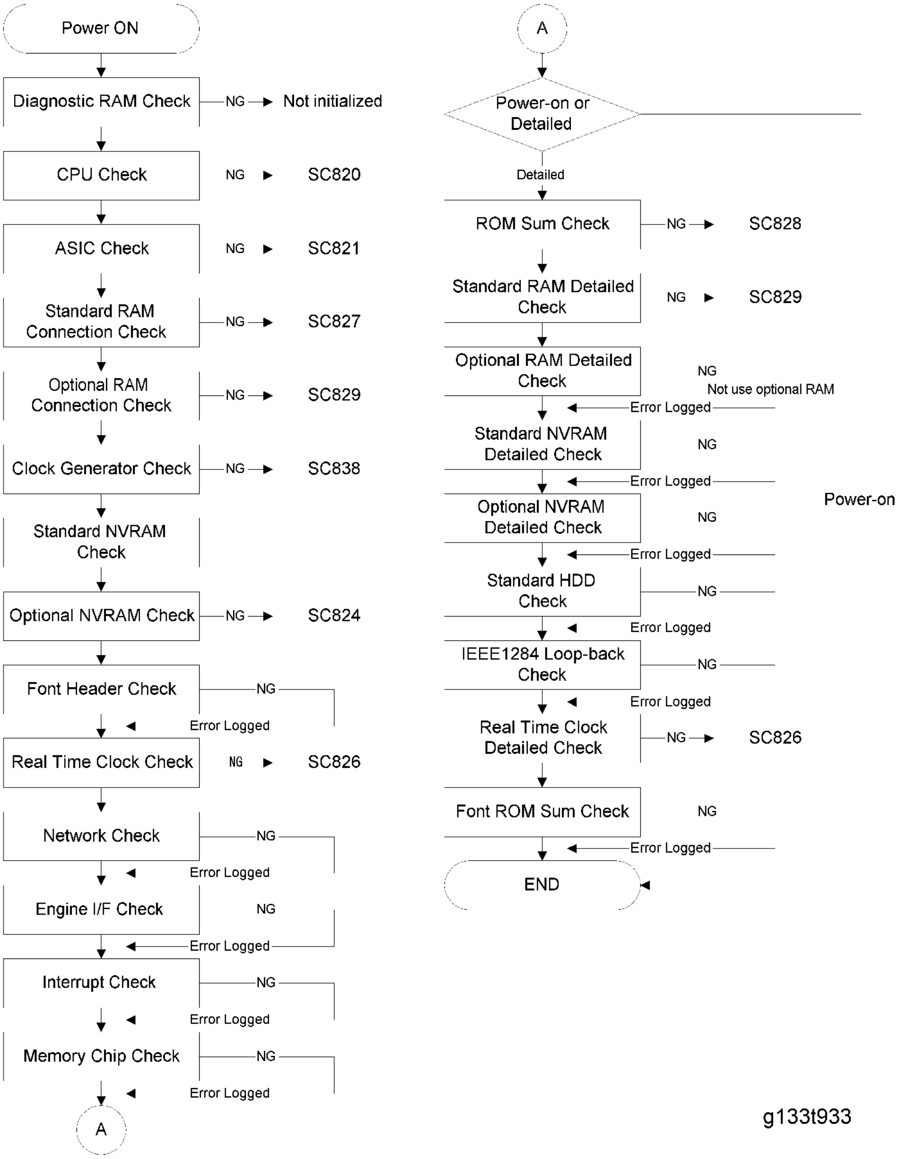
Controller Self-Diagnostics

Overview

There are two 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
Power-on
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
Standard 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

g133t933

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.
    - On the LCD panel, open SP5857.
2. Under “5857 Save Debug Log”, select “1” with the ▲ or ▼ key.
3. On the control panel keypad, press “1”. Then press "OK" key. 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.
4. Select the target destination where the debug information will be saved. Under “5857 Save Debug Log”, select “2 Target”, enter “2” with the operation panel key with the ▲ or ▼ key to select the hard disk as the target destination. Then press "OK".

    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 select “SP5858” 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

Push the ▲ or ▼ key to select the appropriate items(s). Press the “OK” key for each selection. This example shows “Engine SC Error” selected.

Example 2: To Specify an SC Code

Push the ▲ or ▼ key to select “3 Any SC Error”, enter the 3-digit SC code number with the ▲ or ▼ key. Then press"OK" key. This example shows an entry for SC670.

Note

- For details about SC code numbers, please refer to the SC tables in Chpater 4. “Troubleshooting”.

6. Select one or more memory modules for reading and recording debug information. Select “SP5859”.

Under “5859” press the necessary key item for the module that you want to record.

Enter the appropriate 4-digit number with the ▲ or ▼ key. Then press"OK".

Note

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

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.	Printer
1	2222 (SCS)
2	14000 (SRM)
3	256 (IMH)
4	1000 (ECS)
5	1025 (MCS)

6	4400 (GPS)
7	4500 (PDL)
8	4600 (GPS-PM)
9	2000 (NCS)
10	2224 (BCU)

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:

- 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.
- 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 printer.
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.

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

Switch 1

This switch turns off all power on the controller board.

Switch 2

DIP SW No.	OFF	ON
1 to 8	Factory Use Only: Do not change the switch settings.	

Switch 3

This switch resets the engine controller.

Switch 4

DIP SW No.	OFF	ON
1 to 8	Factory Use Only: Do not change the switch settings.	

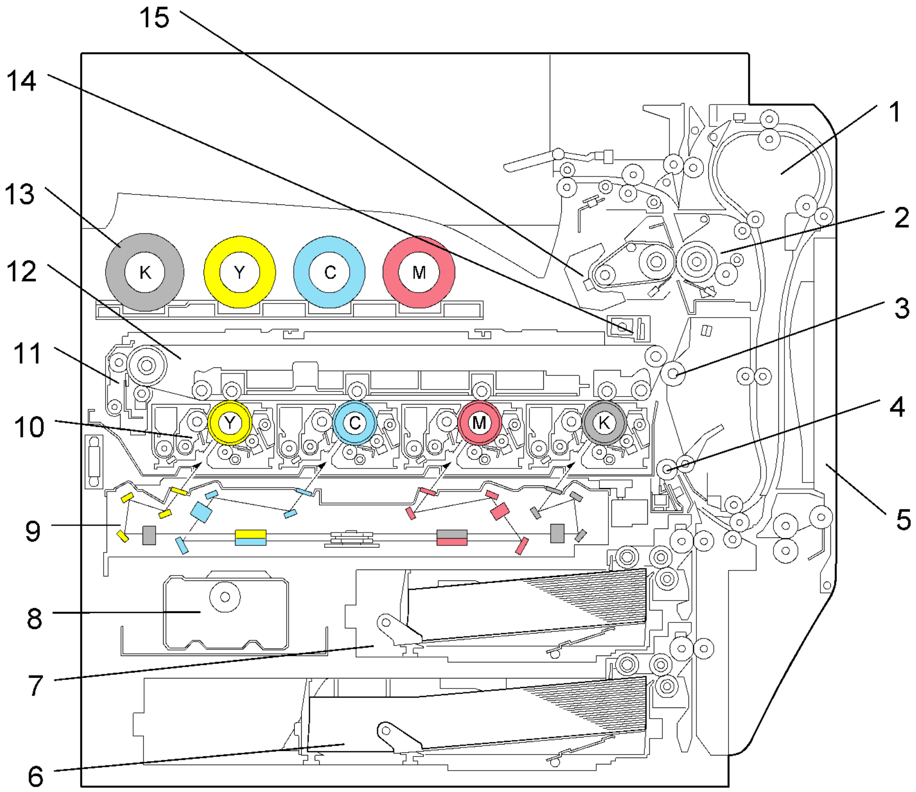
EGB Board

DIP SW No.	OFF	ON
1 and 2	Factory Use Only: Do not change the switch settings.	

6. Detailed Section Descriptions

Overview

Component Layout

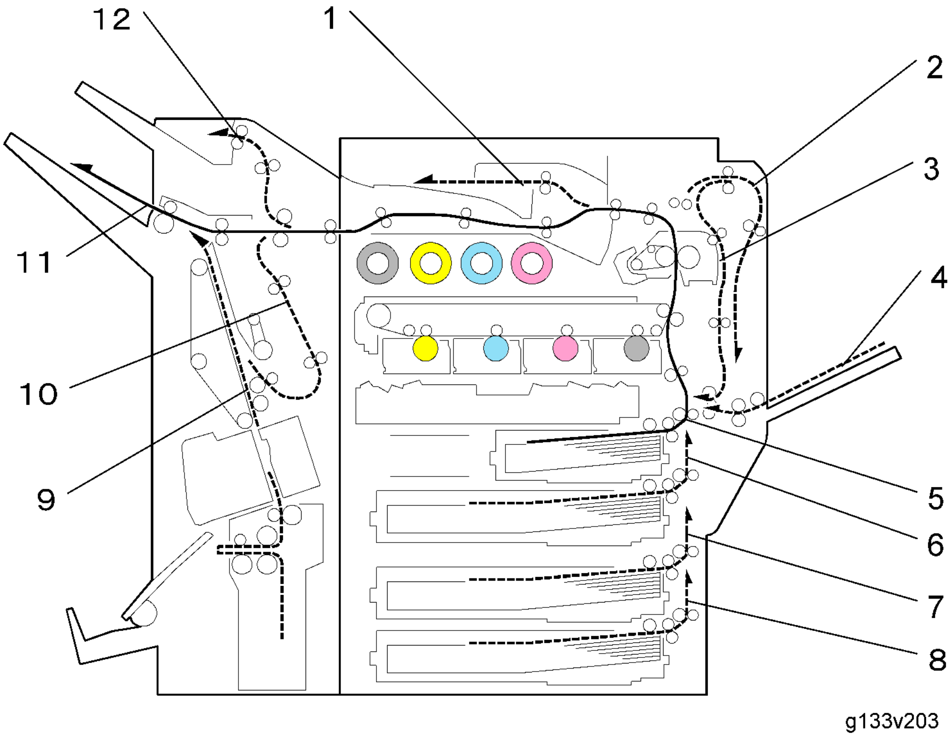


g133v201

1. Duplex unit	9. Laser optics housing unit
2. Fusing unit	10. PCU (4 colors)
3. Paper transfer roller	11. Image transfer belt cleaning unit
4. Registration roller	12. Image transfer belt unit
5. By-pass feed table	13. Toner bottle (4 colors)
6. Tray 2	14. ID sensor
7. Tray 1	15. IH coil unit

8. Waste toner bottle	

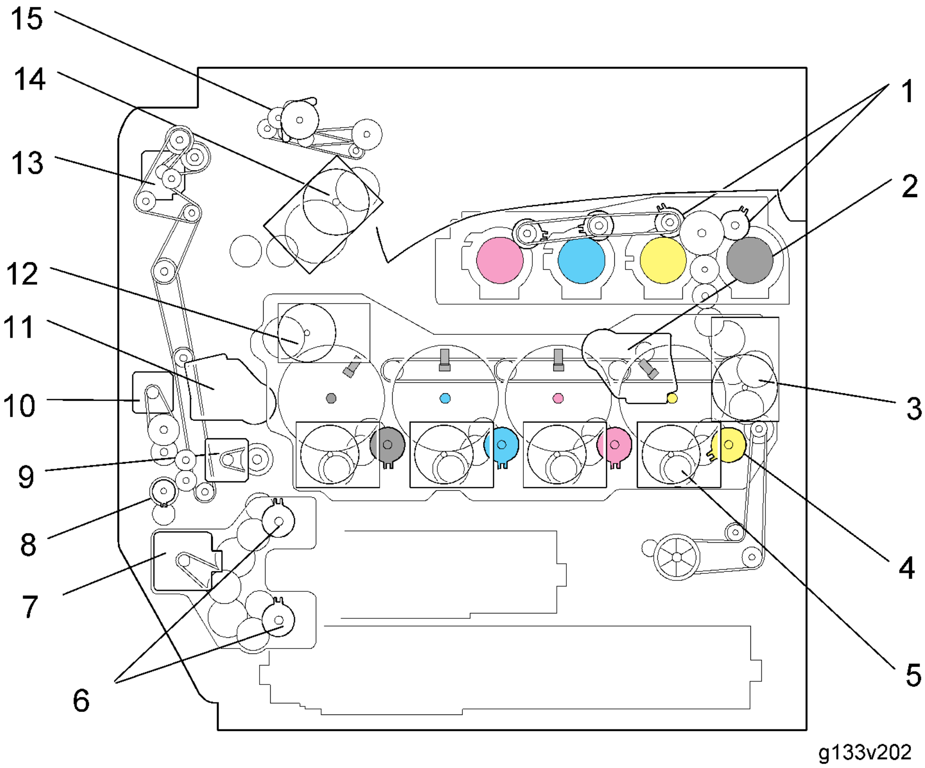
Paper Path



1. Inner Tray	7. Tray 3: Optional paper feed unit/LCT
2. Duplex inverter	8. Tray 4: Optional paper feed unit
3. Duplex feed	9. Finisher booklet stapler (Optional)
4. By-pass tray feed	10. Finisher stapler (Optional)
5. Tray 1 feed	11. Finisher upper tray (Optional)
6. Tray 2 feed	12. Finisher proof tray (Optional)

The 3000-sheet finisher and 1000-sheet booklet finisher require the bridge unit (B227) and one from the two-tray paper feed unit (B800) or the LCT (B801).

Drive Layout

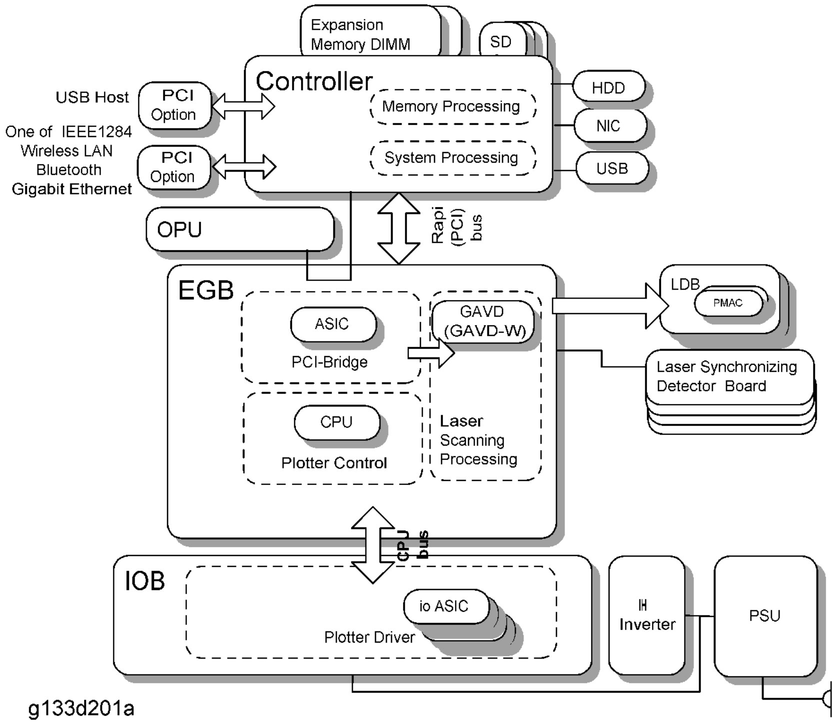


1. Toner supply clutch-K and -CMY:	Turns on/off the drive power to the toner supply unit (Bk and -CMY).
2.ITB (Image Transfer Belt) contact motor:	Moves the ITB into contact and away from the color PCUs.
3. Toner transport motor:	Drives the toner attraction pumps and the toner collection coils from the PCUs, from the transfer belt unit, and inside the toner collection bottle. Also rotates the toner bottles.
4. Development clutch (Bk, Y, M, C):	Turns on/off the drive power to the development unit (Bk, Y, M, C).
5. Drum/Development drive motor (Bk, Y, M, C)	Drives the color drum unit and development unit (Bk, Y, M, C).
6. Paper feed clutch	Switches the drive power between the tray 1 and tray 2.
7. Paper feed motor:	Drives the paper feed mechanisms (tray 1/tray 2/by-pass tray).

8. By-pass feed clutch:	Turns on/off the drive power to the by-pass pick-up, feed and separation rollers.
9. Registration motor:	Drives the registration roller.
10. By-pass/duplex feed motor:	Drives the by-pass pick-up, feed and separation roller, and duplex transport rollers.
11. Paper transfer contact motor:	Moves the paper transfer roller in contact with the image transfer belt.
12. ITB drive motor:	Drives the image transfer belt unit.
13. Duplex inverter motor	Drives the duplex inverter rollers and duplex transport rollers.
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



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Descriptions

EGB (Engine control Board):

The EGB controls all the mechanical components and the following functions:

- Engine sequence
- Engine operation
- Polygon motor control

Controller:

The controller connects to the EGB 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, IEEE802.11b (wireless LAN), Gigabit Ethernet, USB Host, HDD, and DRAM DIMM

LD Drive Board:

This is the laser diode drive circuit board.

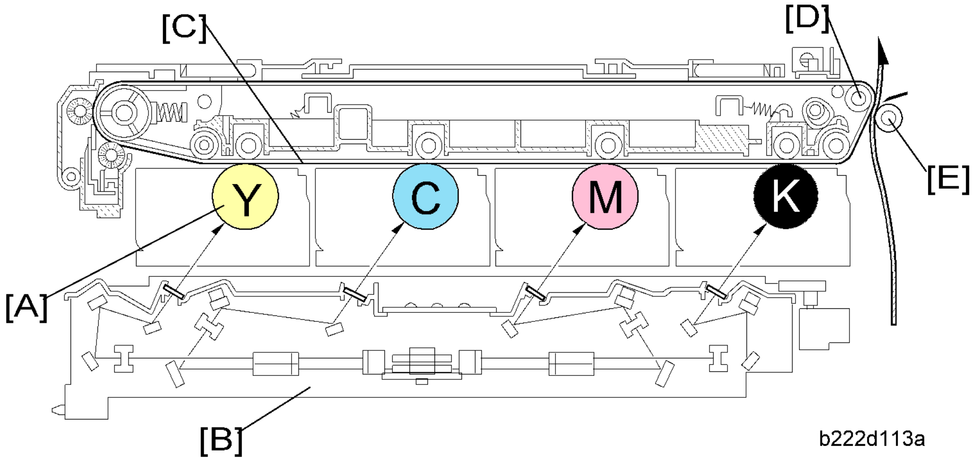
Operation Panel Board (OPU):

This controls the display panel, the LED and the keypad.

I/O Board (IOB):

Contains drivers for motors and other mechanical components.

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.

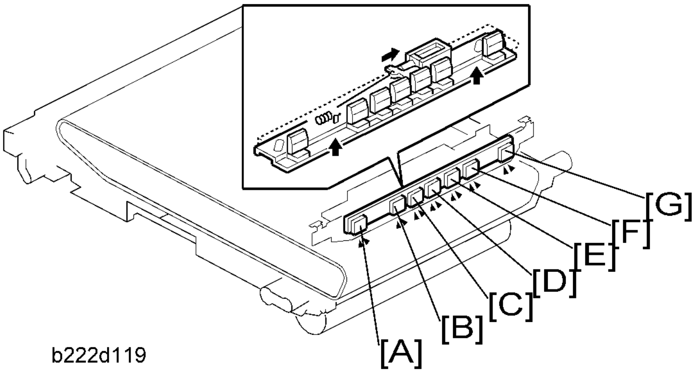
The drum [A] is charged with a negative voltage, and is exposed by the laser from the laser optics housing unit [B]. The laser neutralizes the negative charge on the surface of the drum. So, the white parts of the image correspond to areas of the drum that still have a high negative charge. The toner 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 blade removes 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.

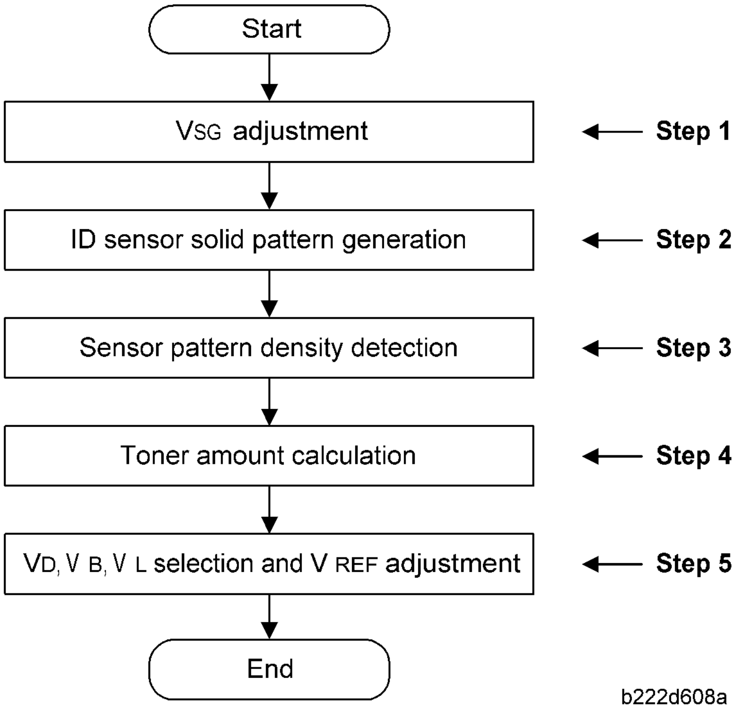
6. After Toner End Recovery

   This starts after recovery from a toner end condition.

7. After Developer Initialization

   Developer initialization occurs automatically after a new PCU is installed.

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, V B, V L selection and V REF 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 'p.619 "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.

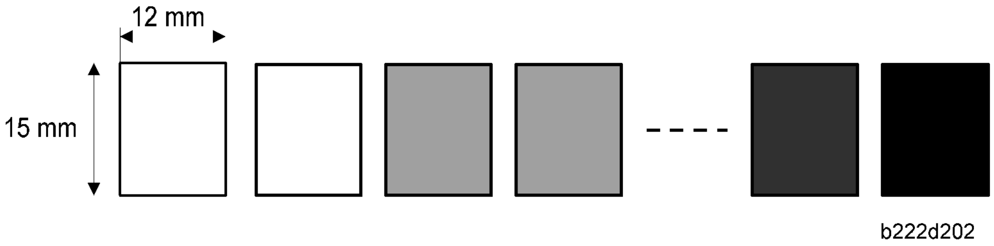
VSG adjustment is always done during initial process control. But, at other times, it is only done if the VSG adjustment counter (SP3-510-007) is more than the value set with SP3-511-007 (default: 500) during a job or at job end.

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



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 prints 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.

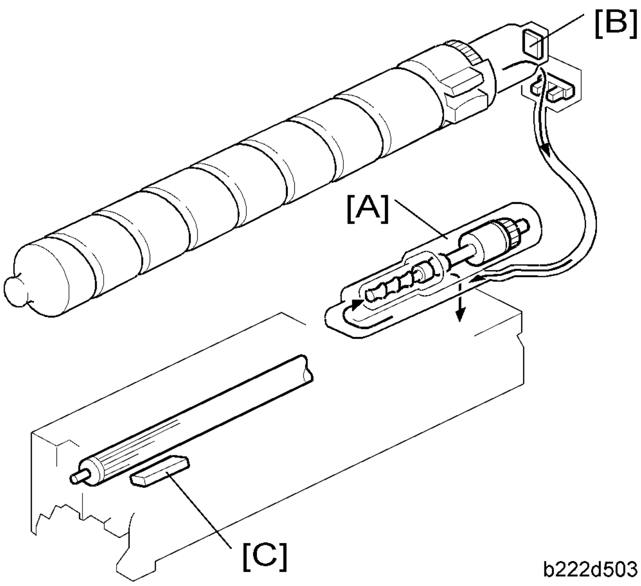
3. PID (Proportional Integral Differential) control mode

   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 EGB.

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.

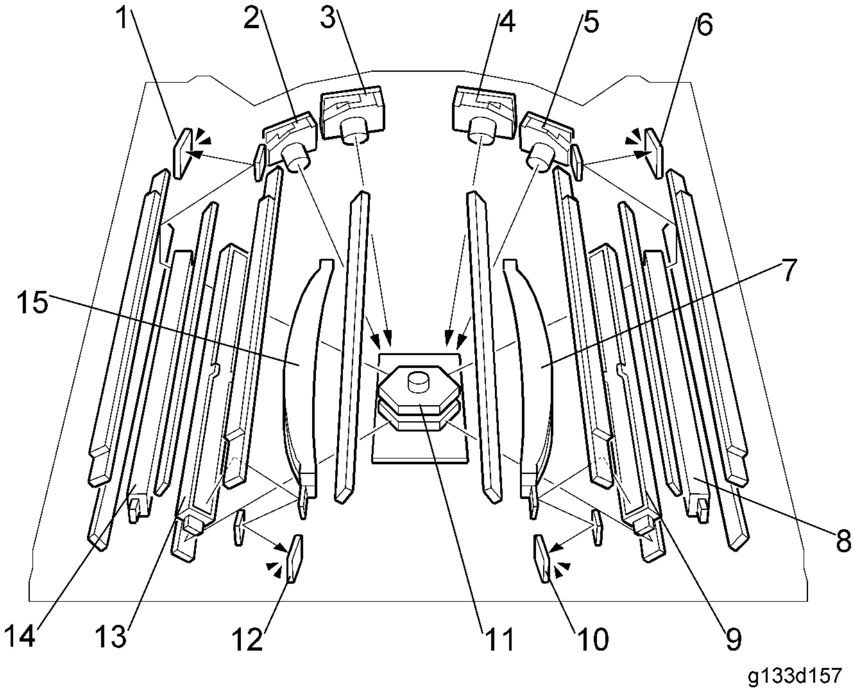
Then the machine starts to supply toner to the development unit. After supplying toner, the machine clears the toner near-end or end status if the following condition is detected:

- Toner end sensor detects that toner is supplied.

The machine tries to supply toner for a maximum of 5 times (SP 3-102).

Laser Exposure

Overview



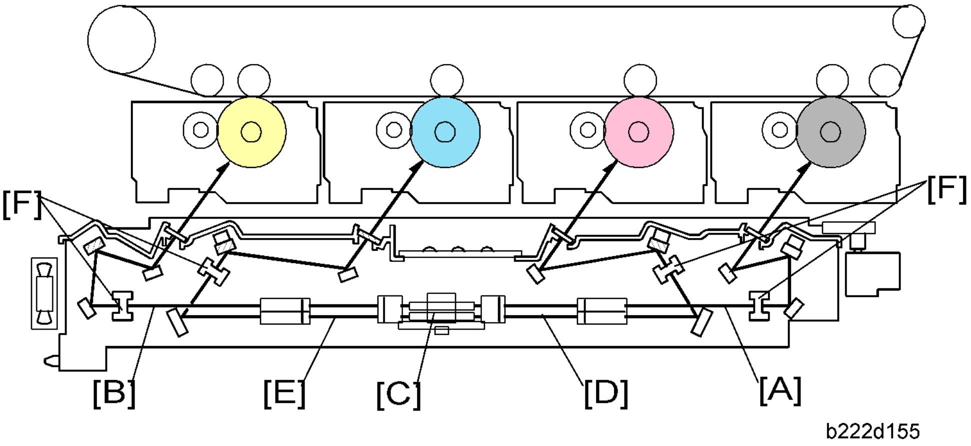
1. Synchronizing detector board: Y/C-E
2. LD unit-C
3. LD unit-Y
4. LD unit-Bk
5. LD unit-M
6. Synchronizing detector board: Bk/M-S
7. L1 lens-Bk/M
8. L2 lens-Bk
9. L2 lens-M
10. Synchronizing detector board: Bk/M-E
11. Polygon mirror motor
12. Synchronizing detector board: Y/C-S
13. L2 lens-C
14. L2 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 this 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].

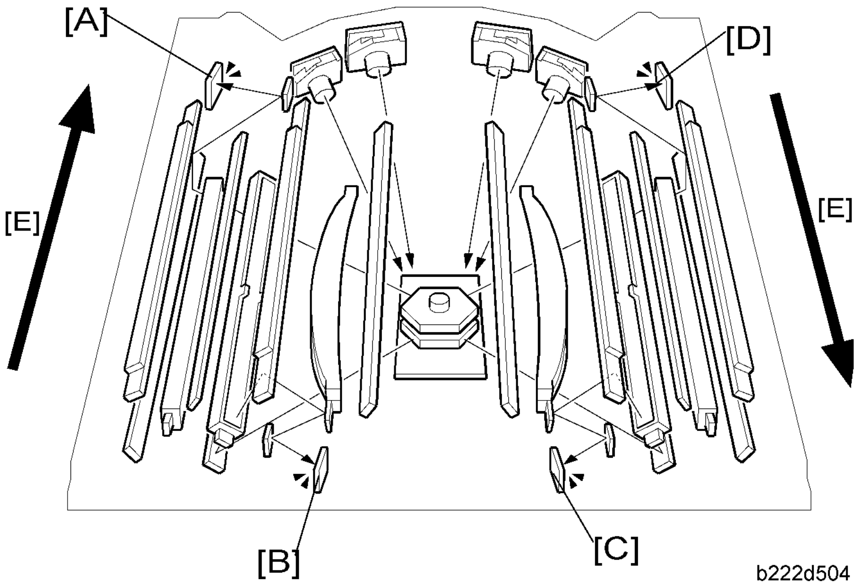
The L2 lens [F] corrects the main scan line. Without this component, the line bends out towards the middle of the main scan. The central bend of the L2 lens is adjusted in the factory.

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)	Print speed (ppm)	Remarks
B/W (except OHP/Thick paper)	600 x 600 (1 bit, 2-bit)	24,212	205	40	2 beams
	600 x 600 4-bit	36,377	77	17	-
Color (except OHP/Thick paper)	600 x 600 (1 bit, 2-bit)	24,212	205	40	2 beams
	600 x 600 4-bit	36,377	77	17	-
OHP/Thick 1 to Thick 4	600 x 600 (1 bit, 2-bit)	27,165	115	25	-

	600 x 600 4bits	36,377	77	17	-
Thick 5 to Thick 6	All	36,377	77	17	-

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

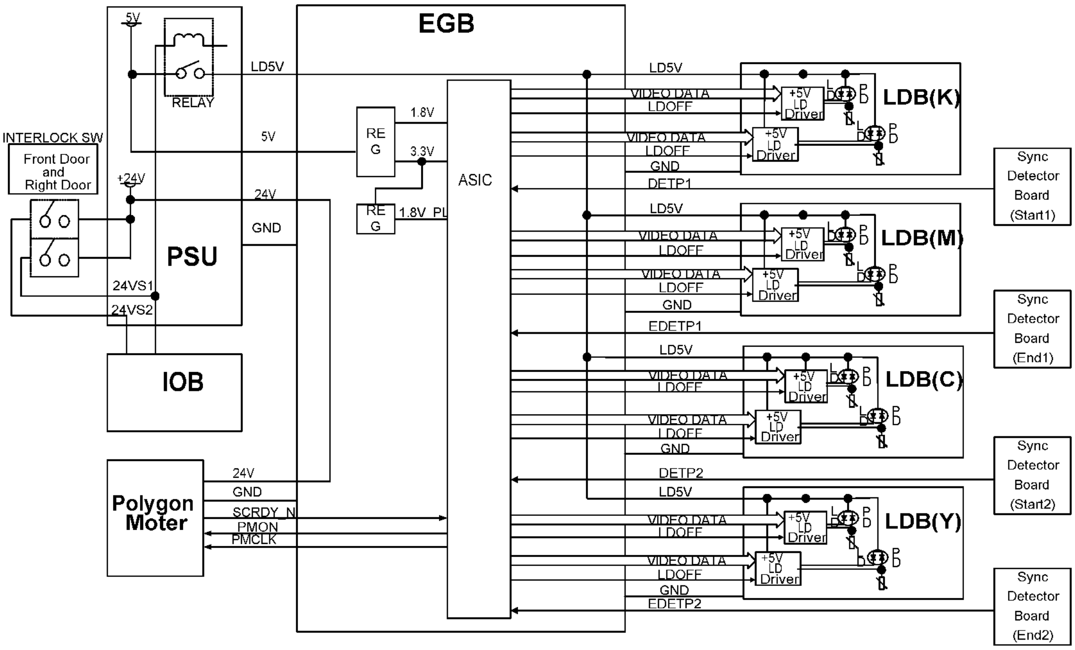
For magenta and black, the LSD at the rear detects the start of the main scan. For yellow and cyan, the LSD at the front detects the start of the main scan. The arrow [E] indicates the scanning direction.

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



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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 EGB.

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

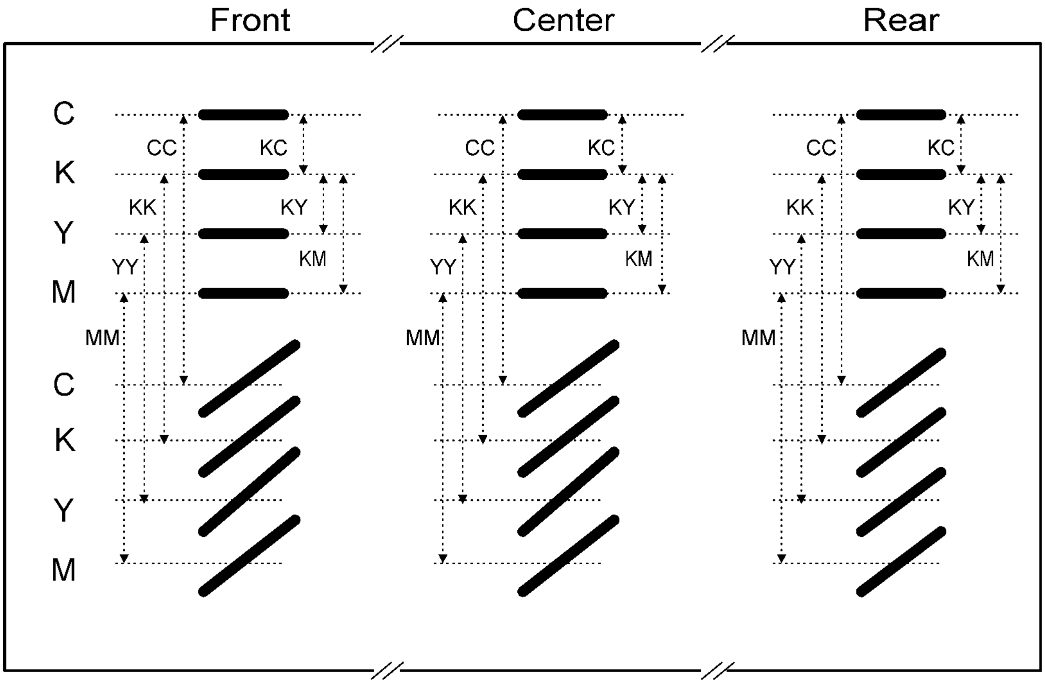
Along with other switches, the LD safety switches help show error messages related to external covers. When one or more covers are open, the messages, “Cover is open.” and “Close the indicated cover,” show with a diagram. The diagram shows which cover is open.

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



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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

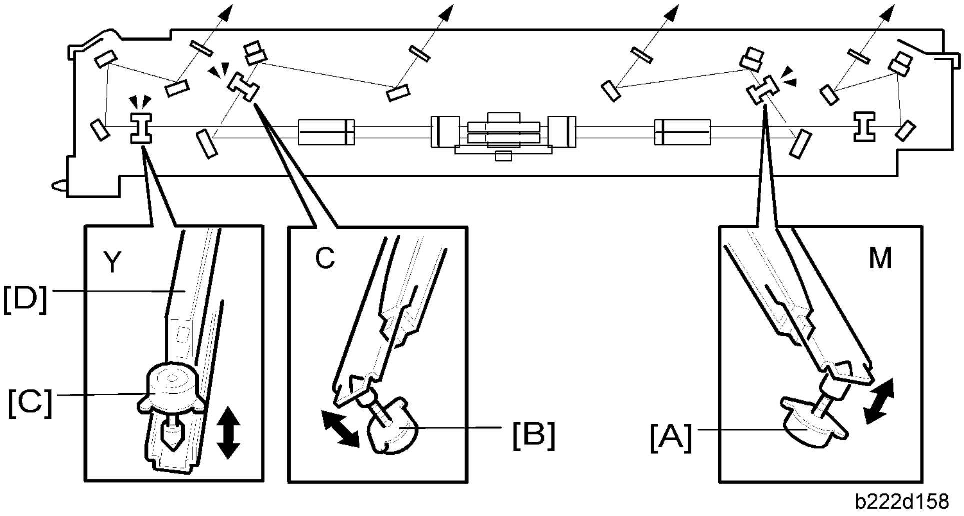
When the machine detects a new unit (one of the PCUs or the Image Transfer Belt Unit), line position adjustment is automatically done **twice**.

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.

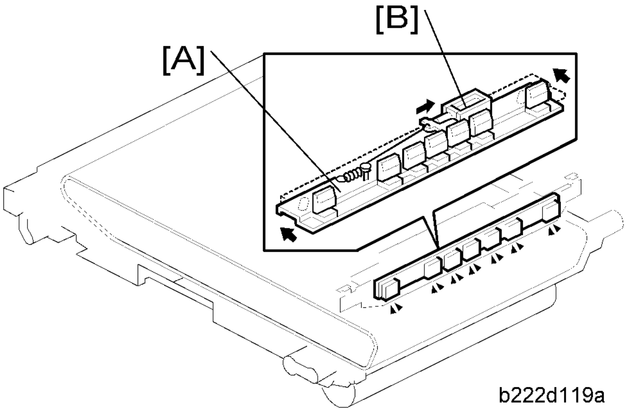
If the magnification changes by more than 1% (threshold adjustable SP2-193-010), line position adjustment is done again.

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.

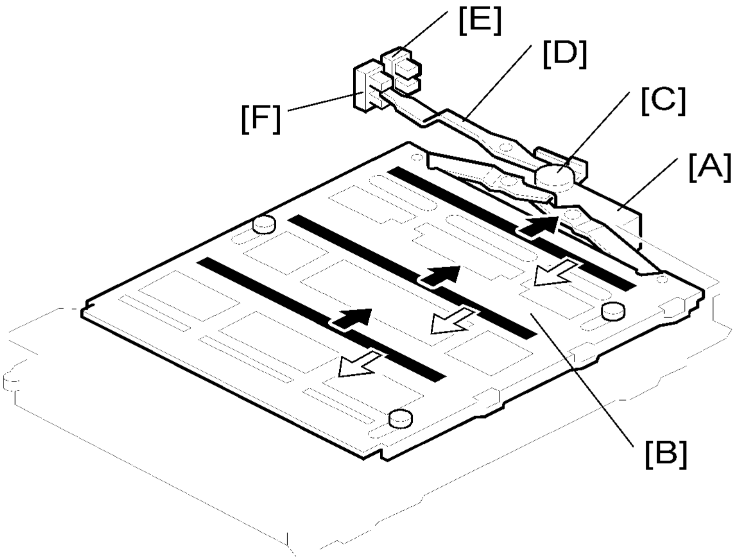
ID Sensors



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



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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).

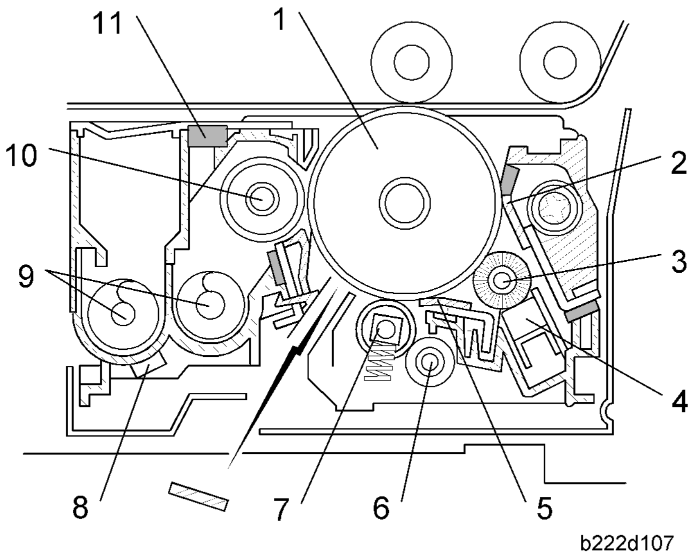
First, the actuator [D] stays at the shutter closed sensor [E]. The shutter motor opens the shutter and the actuator moves to the shutter open sensor position [F] after the polygon motor has turned on.

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.

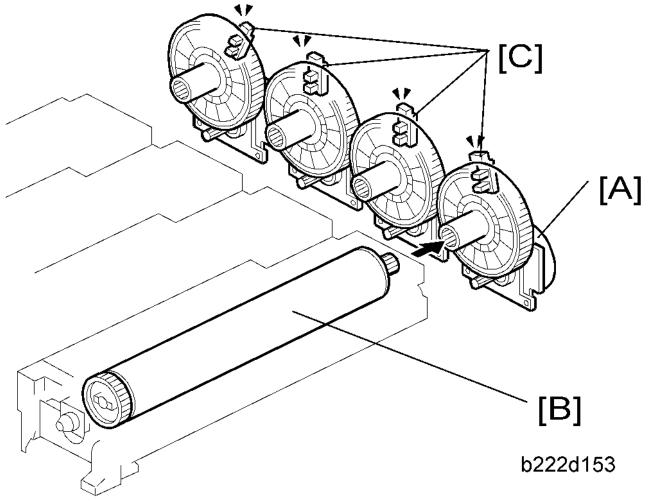
The diameter of the drum is 40 mm (circumference: about 125.7 mm).

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.

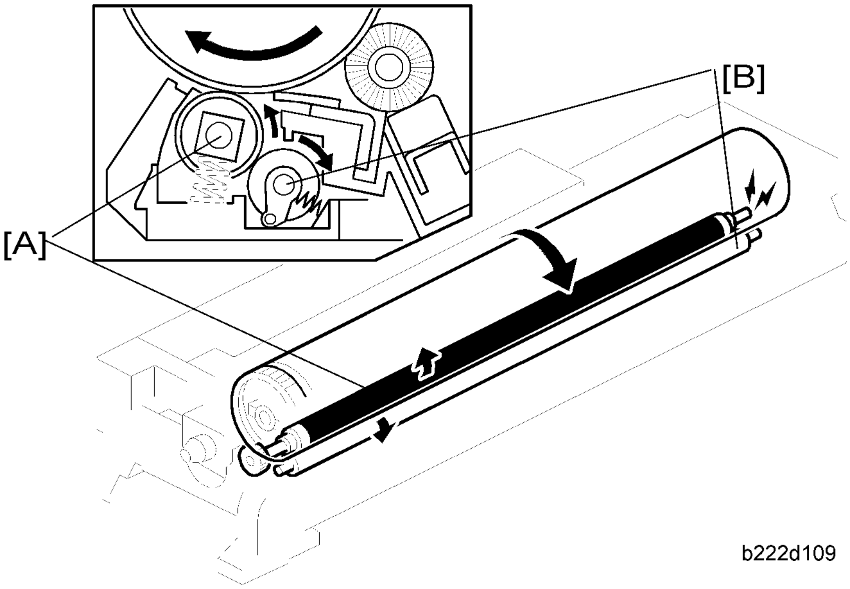
There is an interrupter on each drum gear. The drum gear position sensors [C] detect the positions of these interrupters. This mechanism makes sure that output quality does not vary.

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.

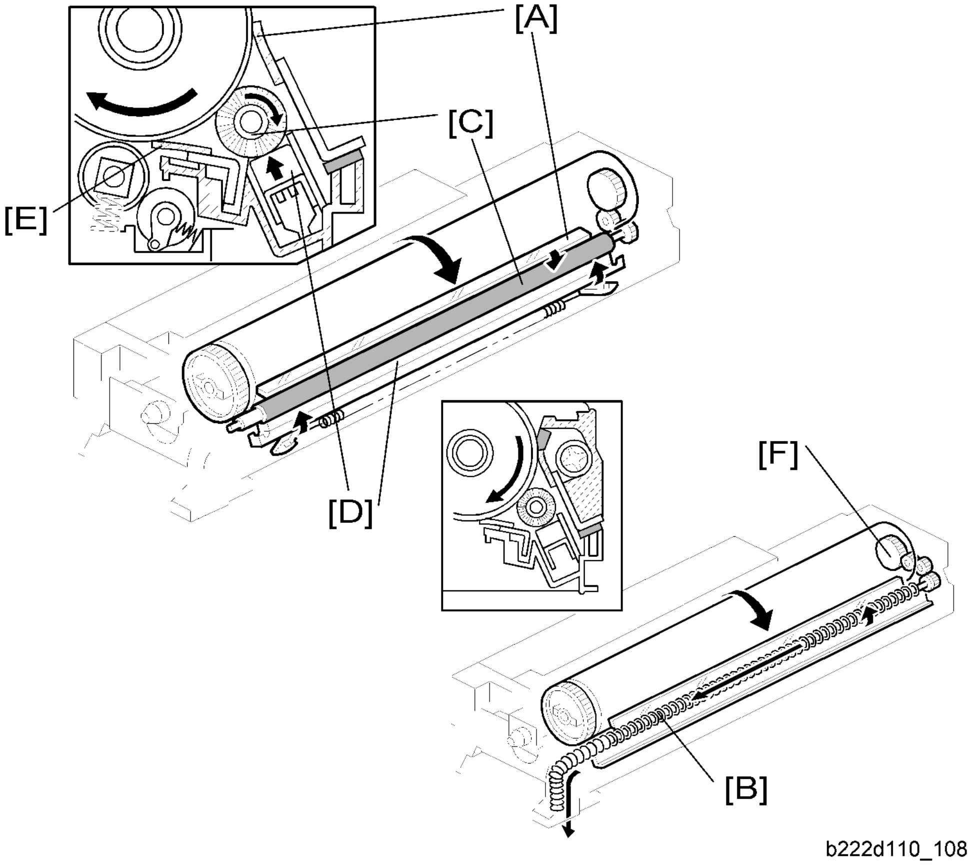
The machine automatically controls the charge roller voltage if automatic process control is enabled (i.e., if SP3-041-1 is set to "CONTROL"). However, if process control is switched off, (i.e., if SP3-041-1 is set to "FIXED"), the dc voltage is the value stored in SP2-005-1 to -12 (do not adjust in 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.

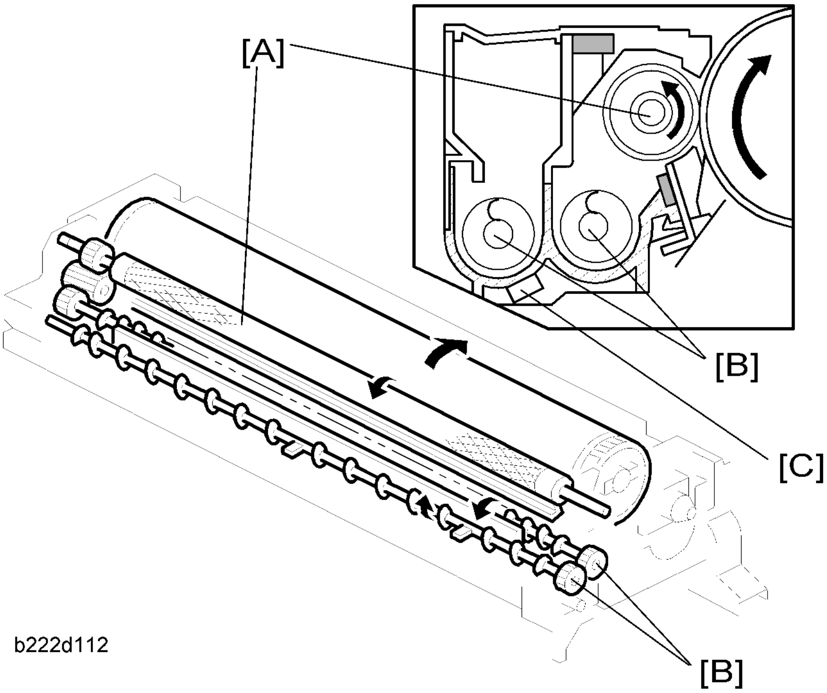
If the temperature is above the value of SP3-517, the drum reverses briefly at the end of the job to prevent the blade from flipping over.

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.651 "Toner Collection Path and Drive"" in this chapter).

Development

Development Operation

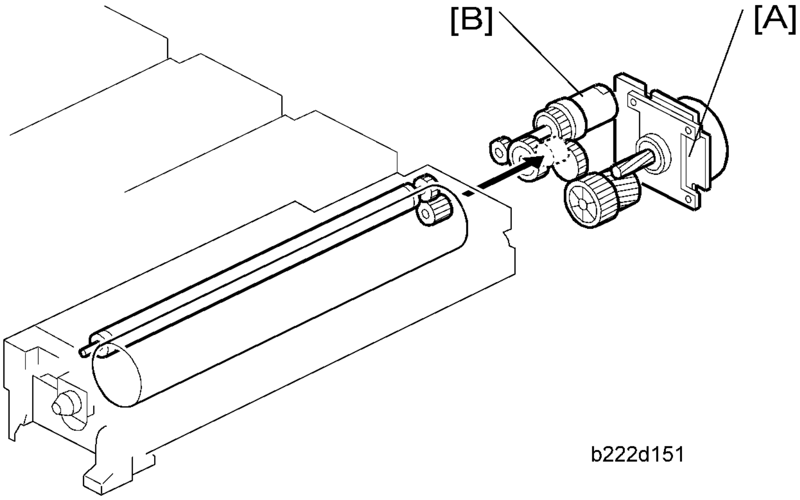


This machine uses a dual-component development system and has four development units (which are included in the drum units), one for each color. Each contains 225 g of developer when it is new. The developer in each unit is supplied to the development roller [A] by the two mixing augers [B] and attracted 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.

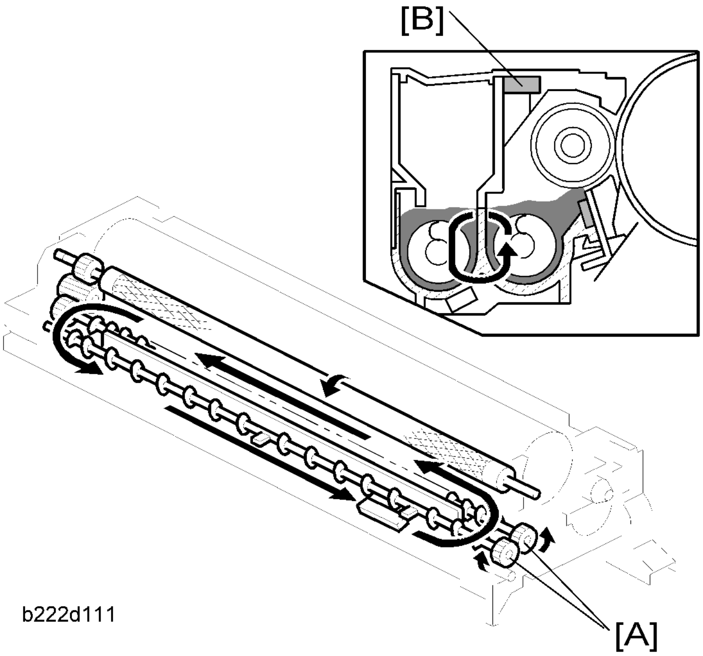
The diameter of the development roller is 18 mm (circumference about 56.5 mm).

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 developer initialization

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 PCU.

1. Remove the (old) PCU.
2. Keep the (new) PCU level and shake it several times from side to side.
3. Install it in the machine.

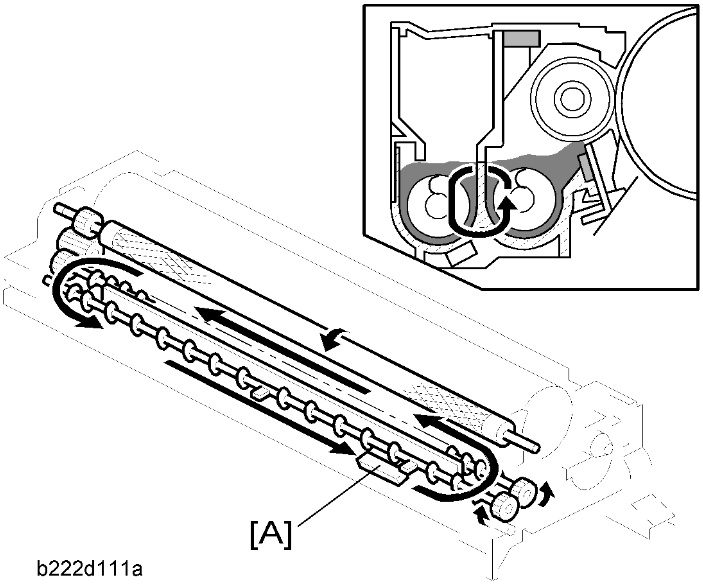
Development Bias

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.

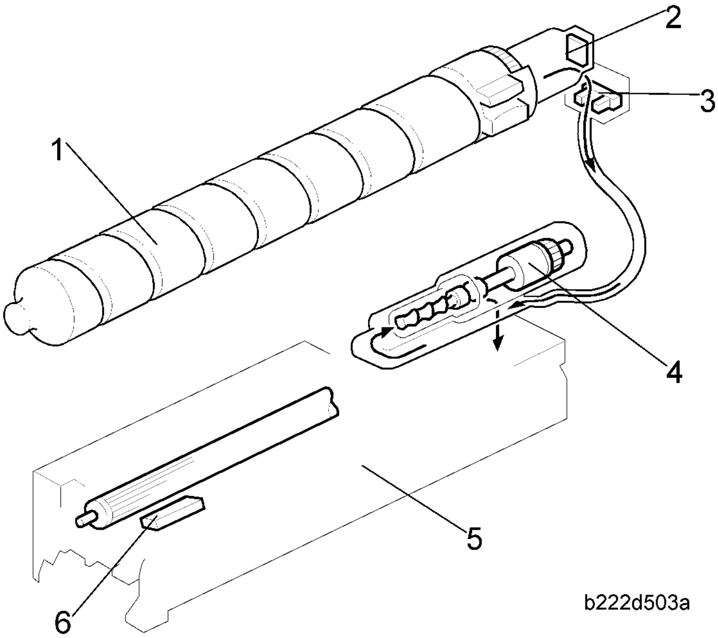
- PM counter clear for items related to the PCU
- Developer initialization
- Charge roller voltage control
- Process control
- Line position adjustment

If the PM counter clear fails, clear the following SPs manually.

- SP3-902-9 to -12

Toner Supply

Overview



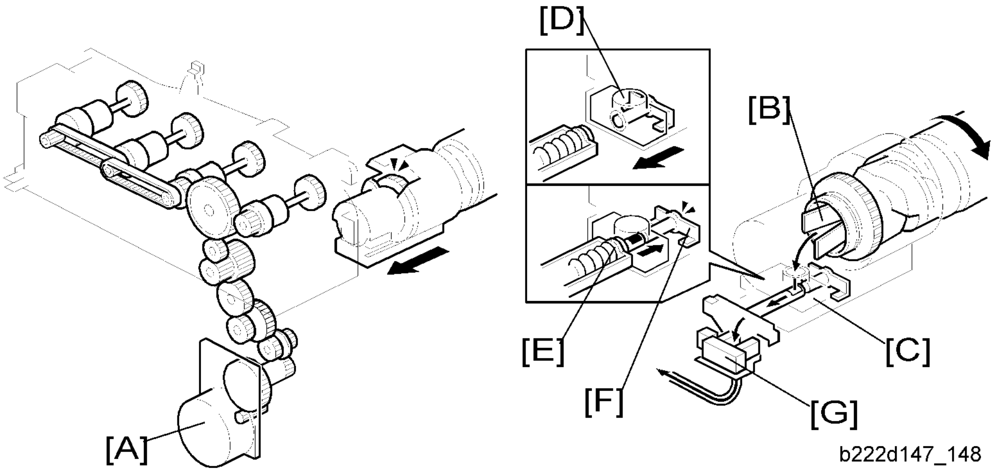
1. Toner bottle (each color)	4. Toner attraction pump (each color)
2. Memory chip (each color)	5. Development unit (each color)
3. Toner end sensor (each color)	6. TD sensor (each color)

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.

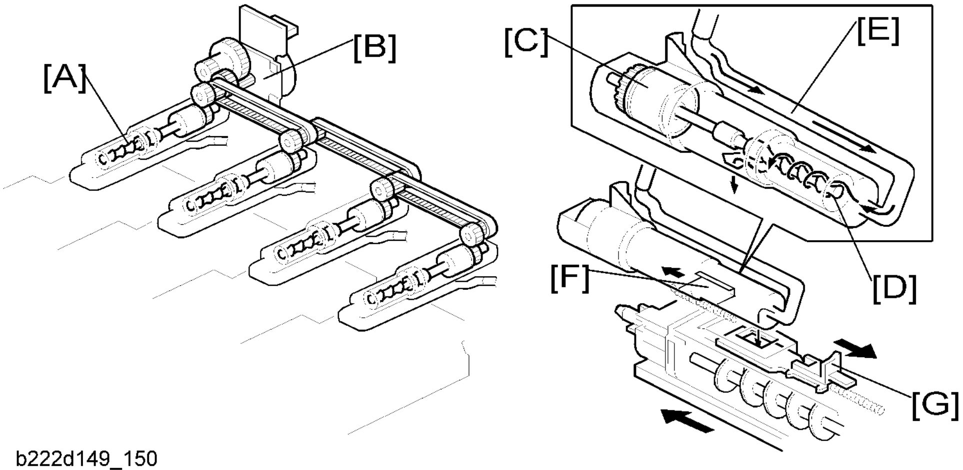
Each bottle has a spiral groove, and this groove moves toner to the mouth [B] of the bottle. Here, toner spills into a hopper [C]. The opening [D] of the toner hopper is normally closed if the toner bottle is not installed in the machine. When the toner bottle is installed in the machine, the transport 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.628 "Toner Near End/Toner End Detection"").

Toner supply from toner attraction pump to development unit



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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.

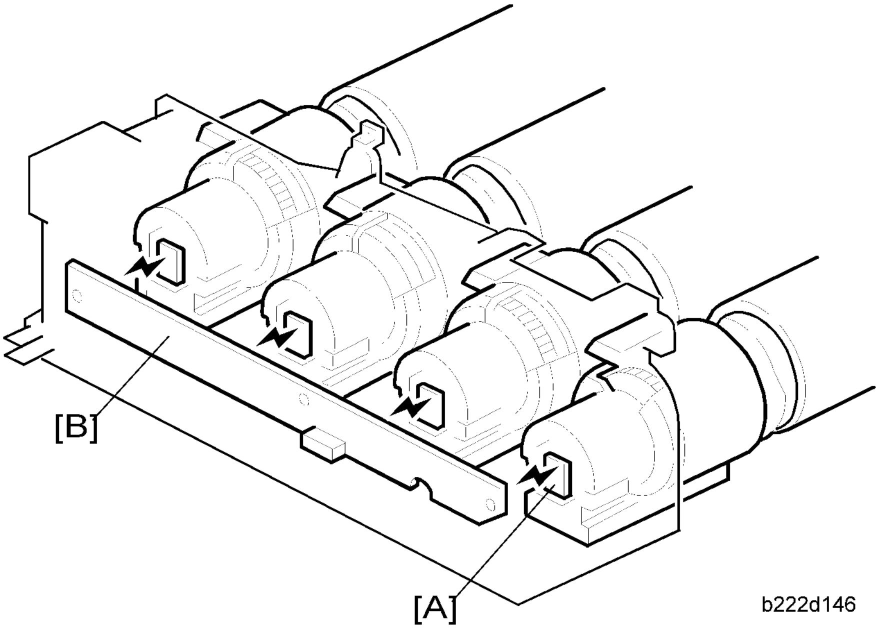
Shutter Mechanism

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)



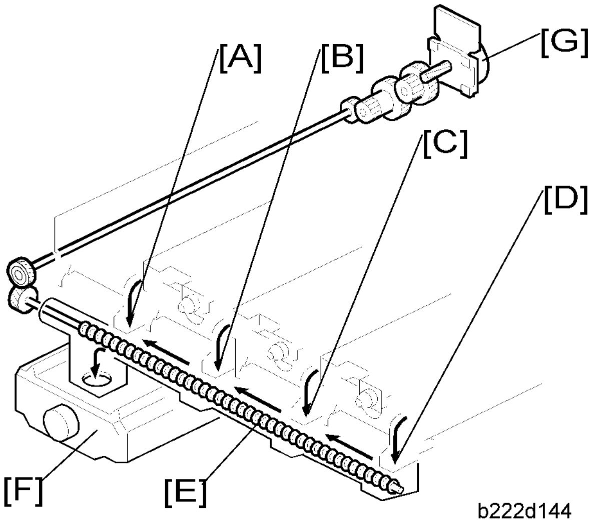
Each toner cartridge of this machine has a RFID chip [A]. This stores the total "on" time of the toner supply clutch. This is used to calculate the amount of toner remaining in the toner cartridge. The chip is also used to detect whether the cartridge is installed (if the cartridge is not installed, 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

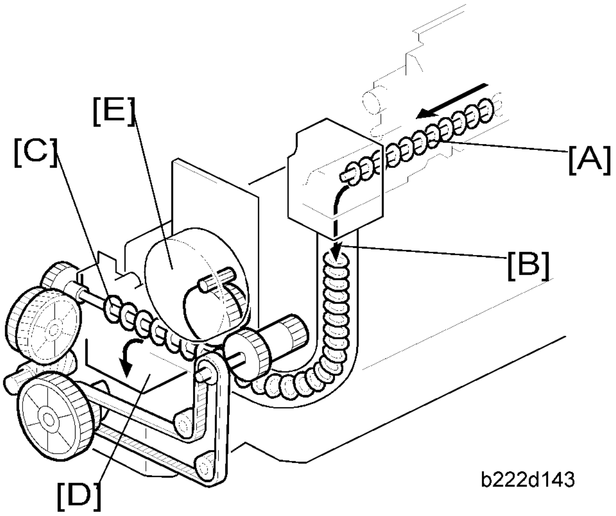
From PCU



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:

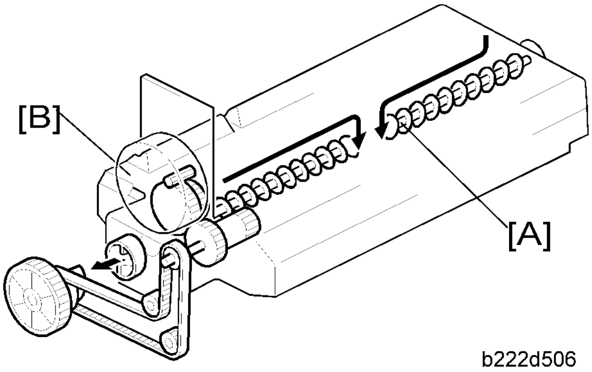
Yellow → [A], Cyan → [B], Magenta → [C], Black → [D].

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.

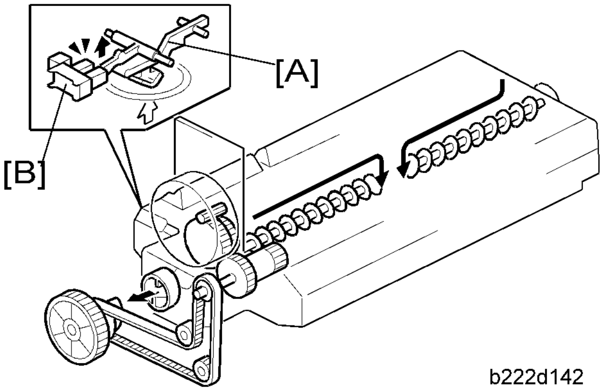
Used Toner Distribution Mechanism



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

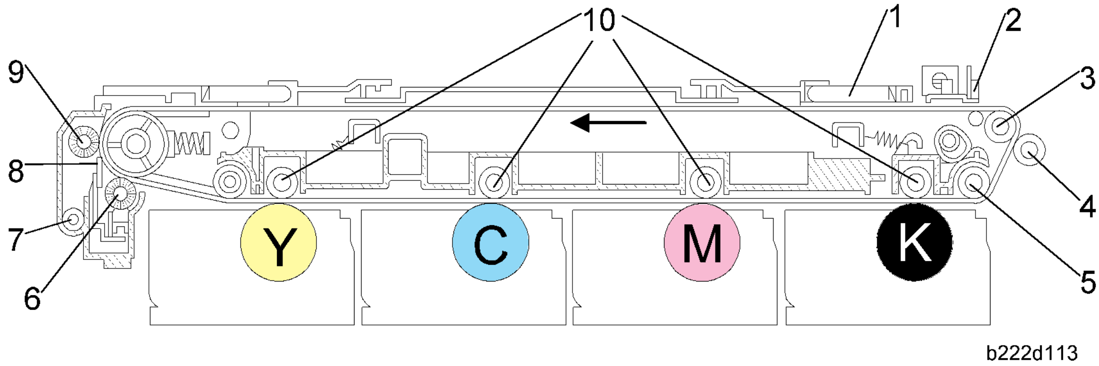
At this time, the machine detects that the toner collection bottle is almost full, and displays a message.

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.

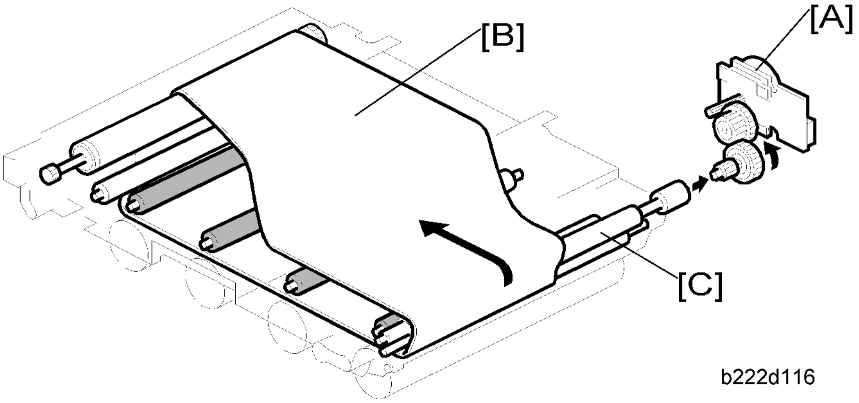
The ITB drive roller then moves the four-color toner image from the transfer belt to the paper. The paper transfer roller is an idle roller.

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.

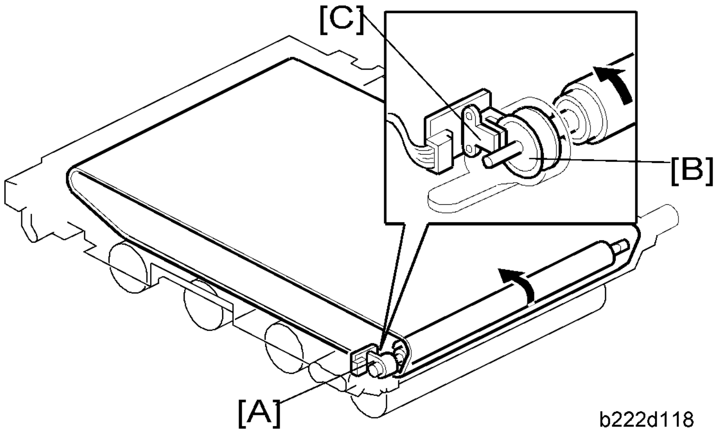
ITB (Image Transfer Belt) Drive

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.631 "Optical Path"').

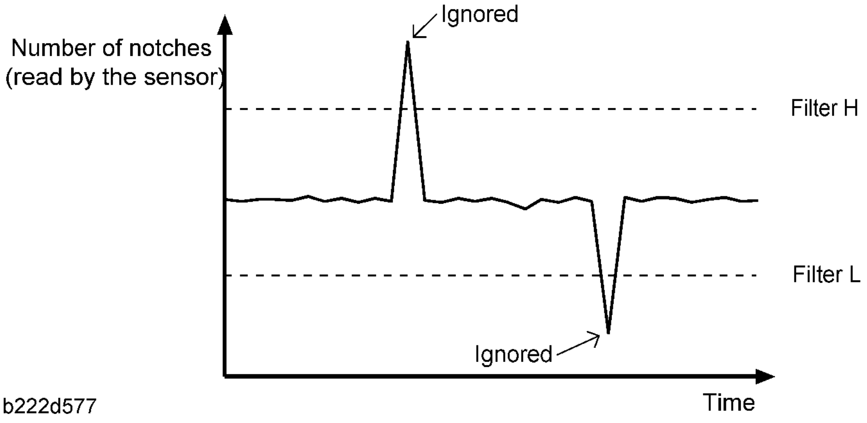
Transfer belt speed control



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.



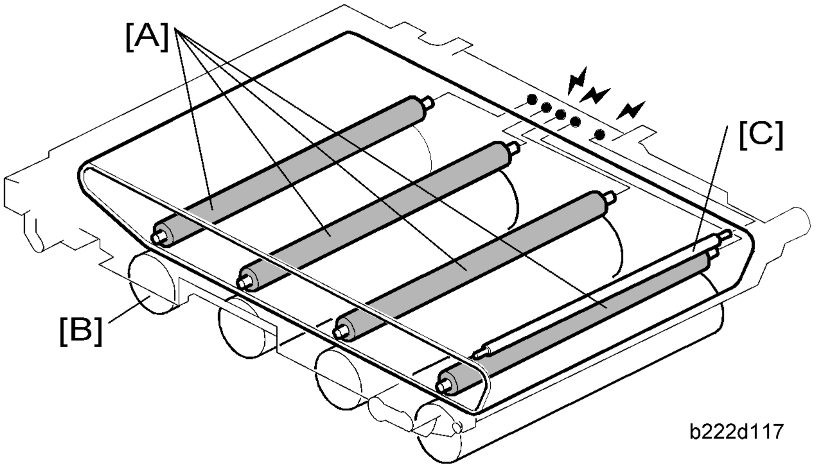
Filter H:

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

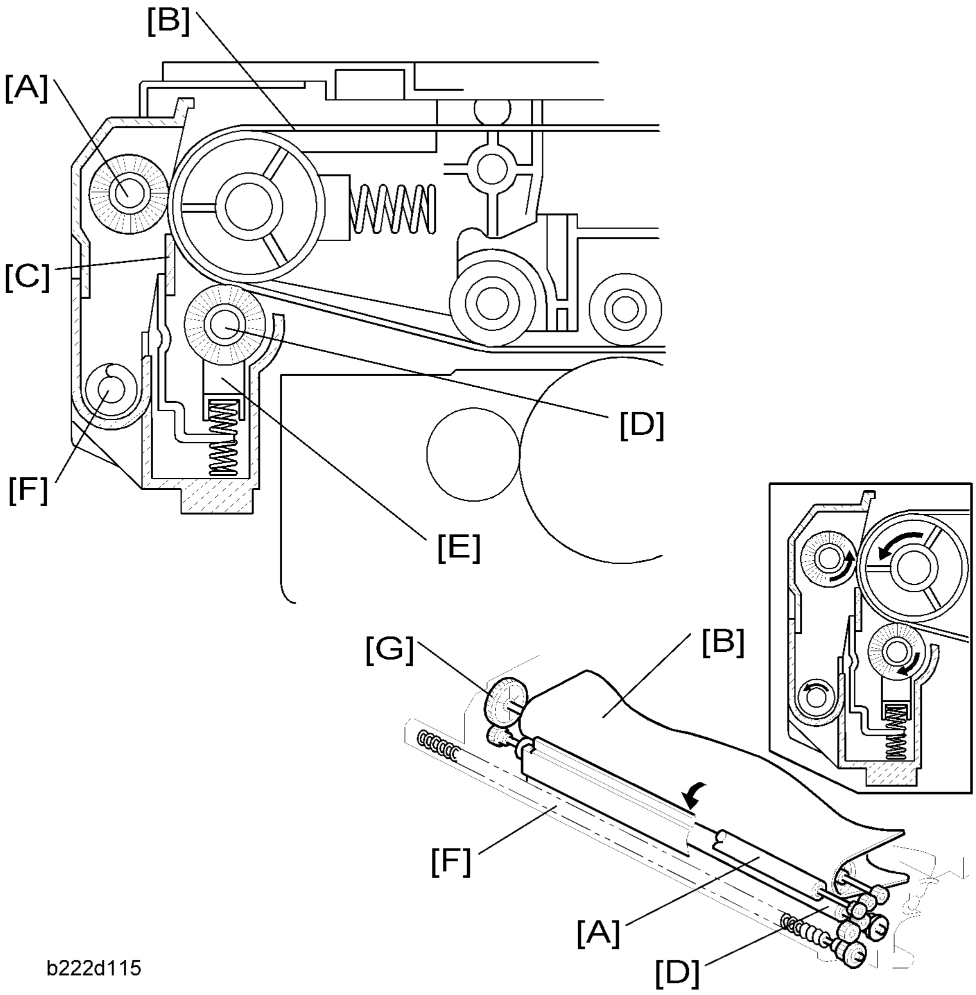


Each image transfer roller [A] applies current to the image transfer belt to attract the toner from each drum [B]. The high voltage supply board supplies current to the image transfer rollers and grounds the belt at roller [C].

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



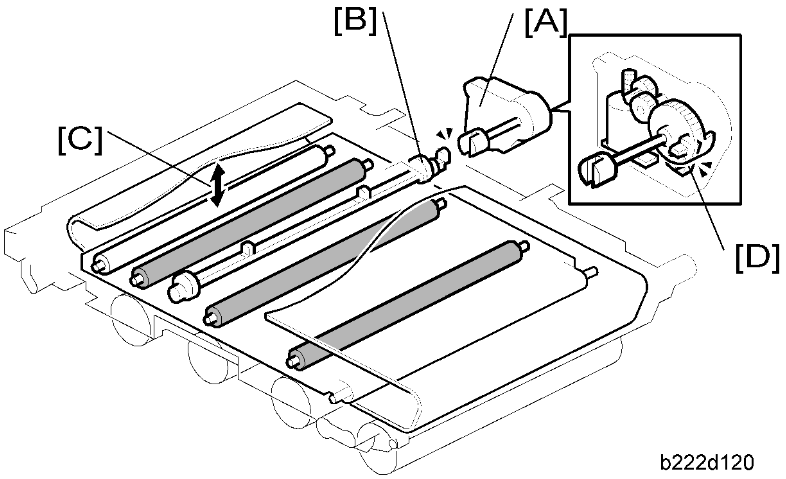
The ITB-cleaning unit removes toner (during printing) and the ID sensor patterns (during process control or automatic line position adjustment) on the belt. Belt cleaning is completed while the image transfer belt makes one rotation. The ITB drive motor drives the ITB-cleaning unit.

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. But the mechanism must be enabled with SP2907 002 (the default setting is disabled). The mechanism can also be enabled/disabled with a user tool setting). The following description explains what happens if SP2907 002 is enabled.

The drum for black always contacts the belt. But the image transfer belt moves away from the other drums during monochrome printing. This reduces wear on the color PCU components, but the total printing speed is reduced.

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.

If SP 2907 001 is set to 0, the machine does not release the image transfer belt from the color drums during the job, even if a monochrome page comes again.

But, if SP2-907-001 is not set to zero (default setting: 1), 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.

If the mechanism is disabled (SP 2907 002, default setting: disabled), the image transfer belt never moves away from the color drums when a black-and-white page appears in a color print job.

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.

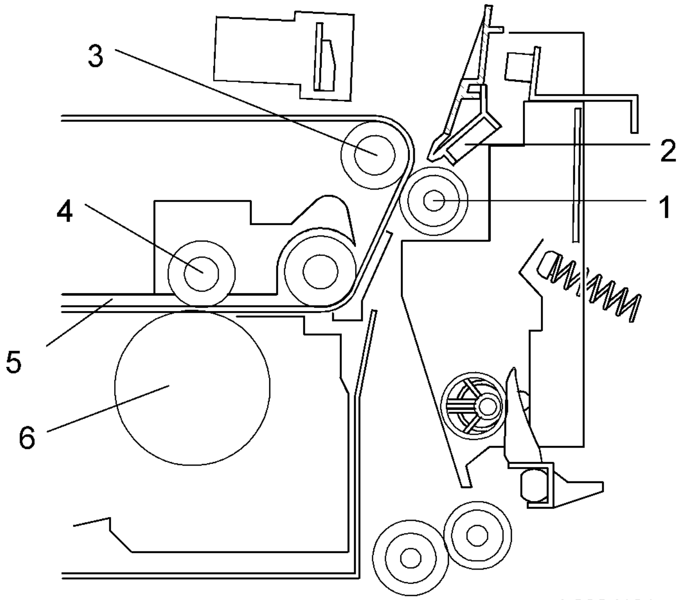
The table lists the sensor actuation patterns.

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



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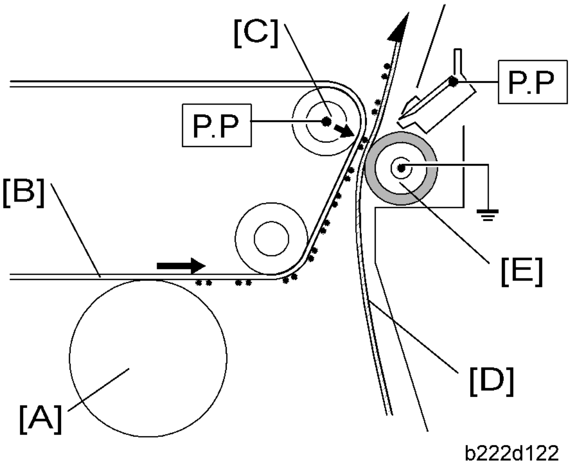
1. Paper transfer roller 2. Discharge plate 3. ITB drive roller	4. Image transfer roller 5. Image transfer belt 6. OPC drum

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

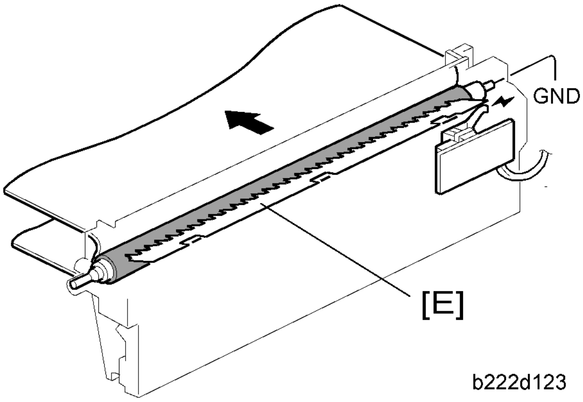


Note

- 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].

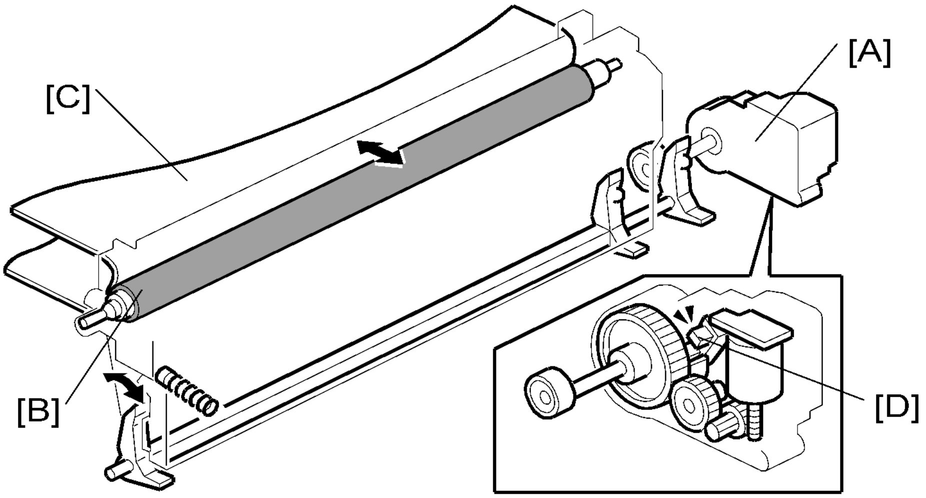
The paper transfer roller [E] presses the paper against the image transfer belt [B] (with a spring that is under tension from the paper transfer roller contact motor), and grounds the charge from the ITB drive roller [C]. (The paper transfer roller does not have a drive mechanism. This roller is driven 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



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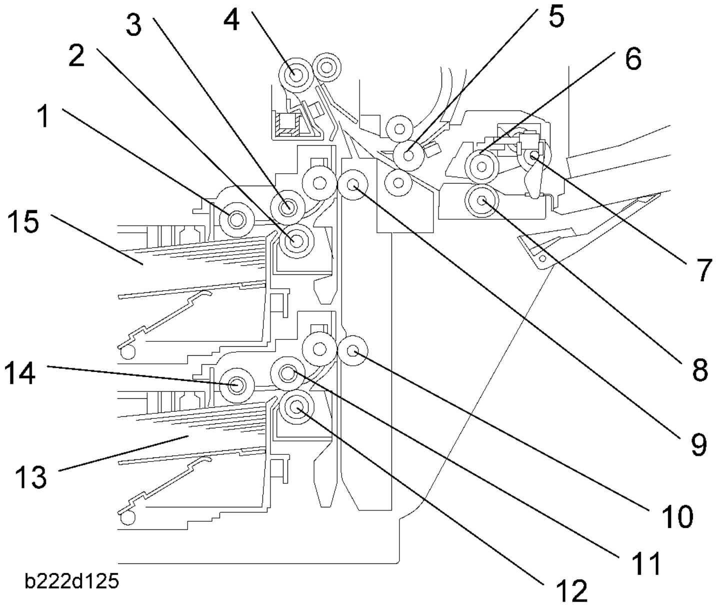
The paper transfer contact motor [A] keeps the paper transfer roller [B] in contact with the image transfer belt [C]. This motor has the paper transfer HP sensor [D] inside. The paper transfer HP sensor detects if the paper transfer roller is in contact with the image transfer belt. Only when the machine 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

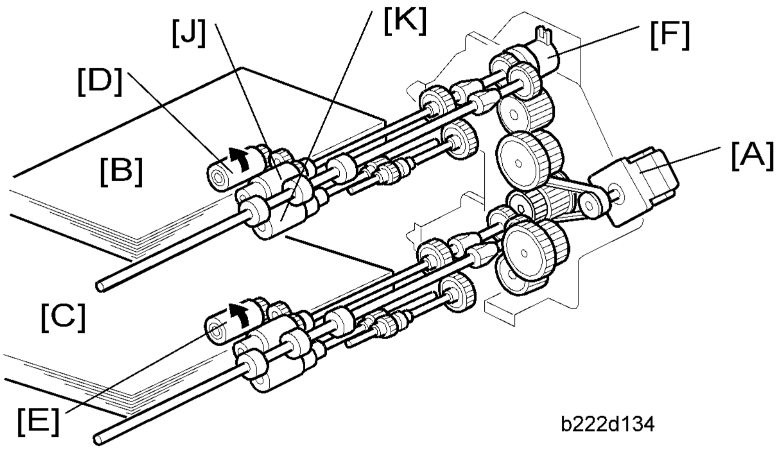
There are two paper trays (500 sheets each), and a by-pass feed table (100 sheets).

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 Tray 2

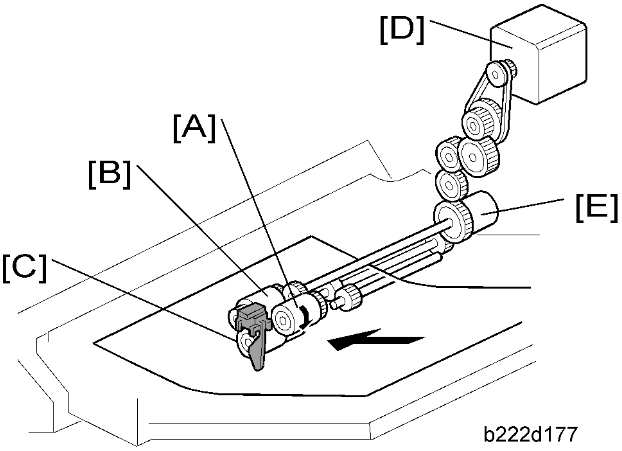


The paper feed motor [A] drives the pick-up and feed mechanisms in tray 1 [B], tray 2 [C]. It uses clutches and complex trains of gears to do this.

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.666 "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.

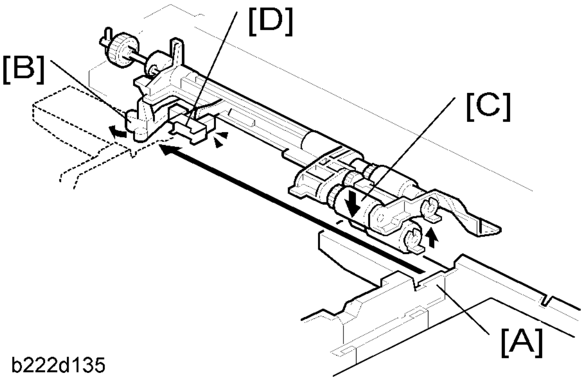
By-pass Tray



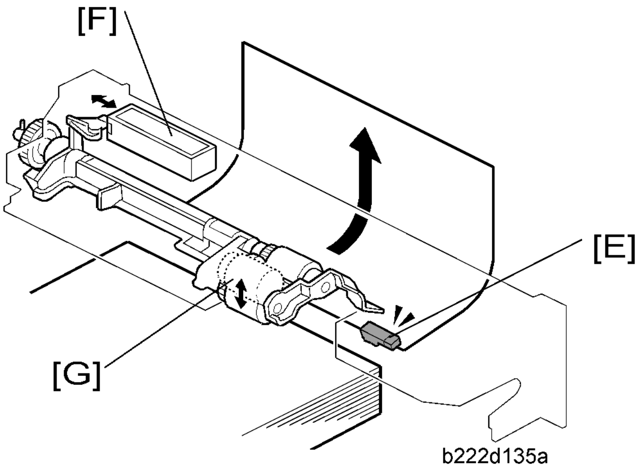
The pick-up roller [A] of the by-pass tray stays away from the top of the stack of paper until the by-pass pick-up solenoid turns on.

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



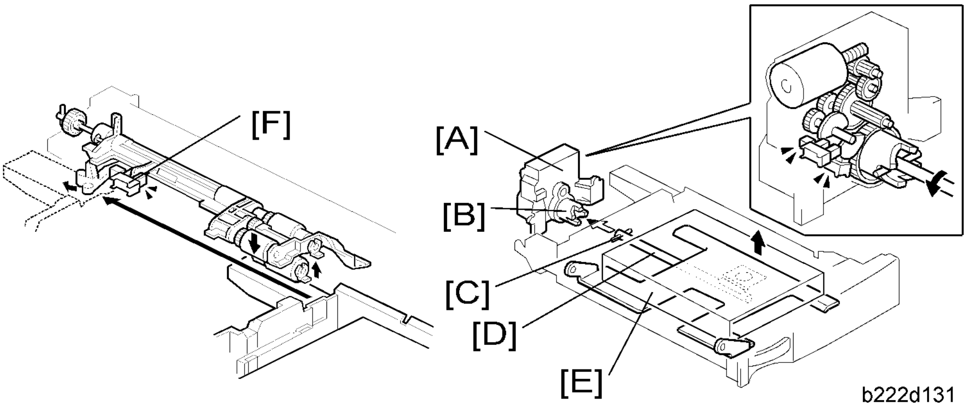
When the tray is installed in the machine, the rear [A] of the tray pushes the lever [B], and this lever pushes down the pick-up roller [C] onto the paper. This turns the paper lift sensor [D] "OFF".



When the trailing edge of the paper is 10 mm before the paper feed sensor [E], the pick-up solenoid [F] turns on. When the paper feed sensor [E] detects the trailing edge of the paper, the pick-up solenoid [F] turns 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

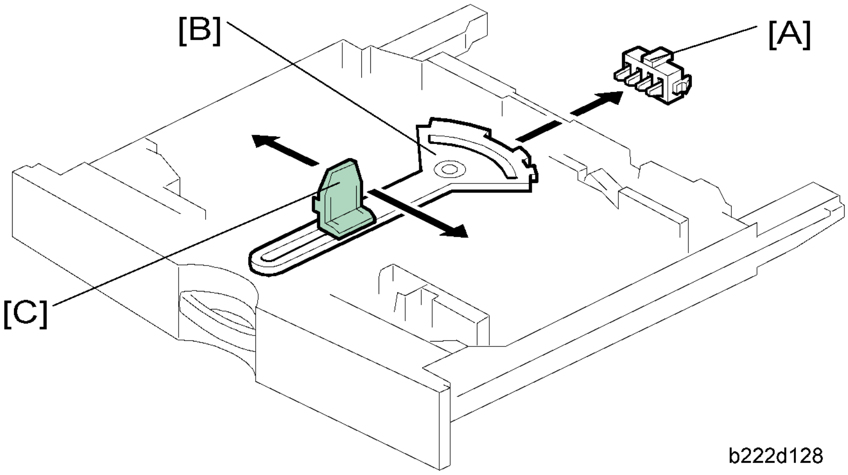


The rear end of the paper tray pushes the tray set switch (for tray 2, this is the paper size switch). As a result, the machine detects that the paper tray is installed.

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

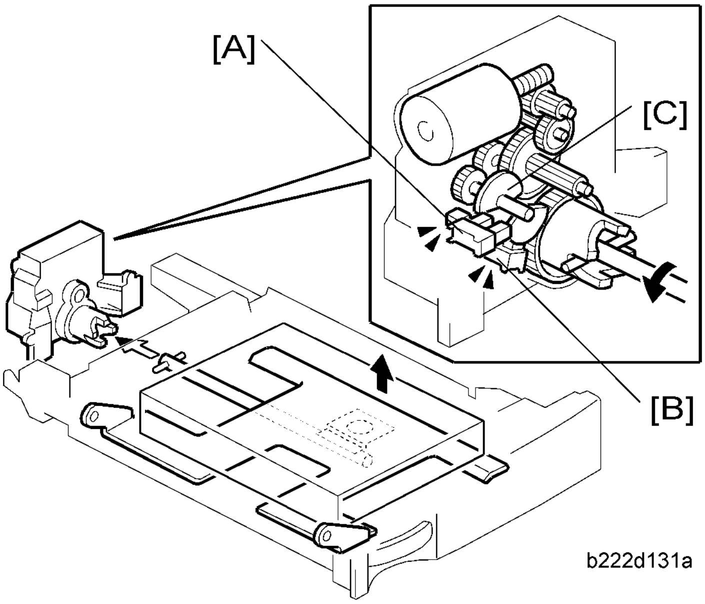
Note

- *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.

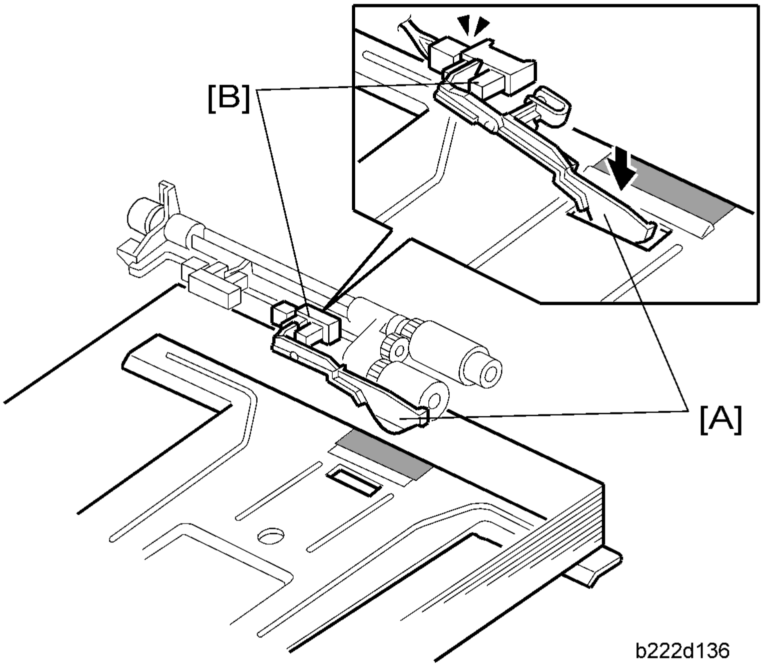
The actuator [C] has two semicircles, and it is engaged with the lift arm shaft via gears. The paper height sensors detect the paper amount depending on the position of the two semicircles. The list shown below shows the detection combination of the two sensors.

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

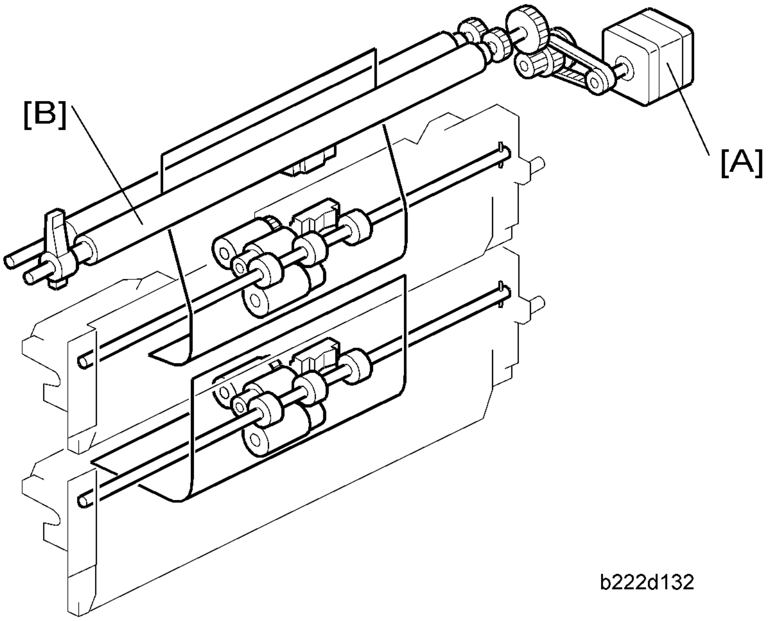
Paper End Detection – Trays 1 & 2



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

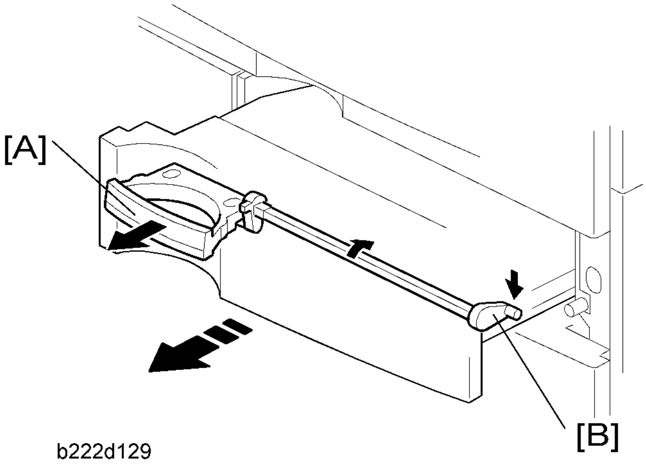
This machine has three process line speeds (for feed from registration roller to fusing unit). The line speeds depend on the selected mode.

Mode	Resolution	Line speed (mm/s)	Print speed (ppm)
Plain/ Middle Thick	600 x 600 dpi (1-bit, 2-bit)	205	40
	600 x 600 dpi 4-bit	77	17
OHP/Thick 1 to Thick 4	600 x 600 dpi (1-bit, 2-bit)	115	25
	600 x 600 dpi 4-bit	77	17
Thick 5 and Thick 6	All	77	17

Tray Lock Mechanism

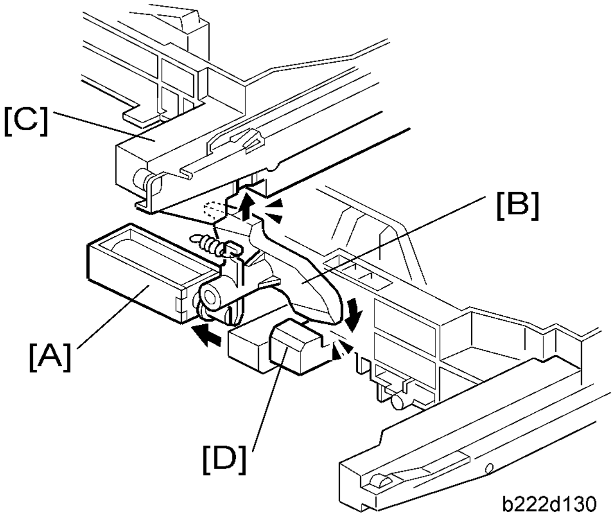
This machine has two types of tray lock mechanism.

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.

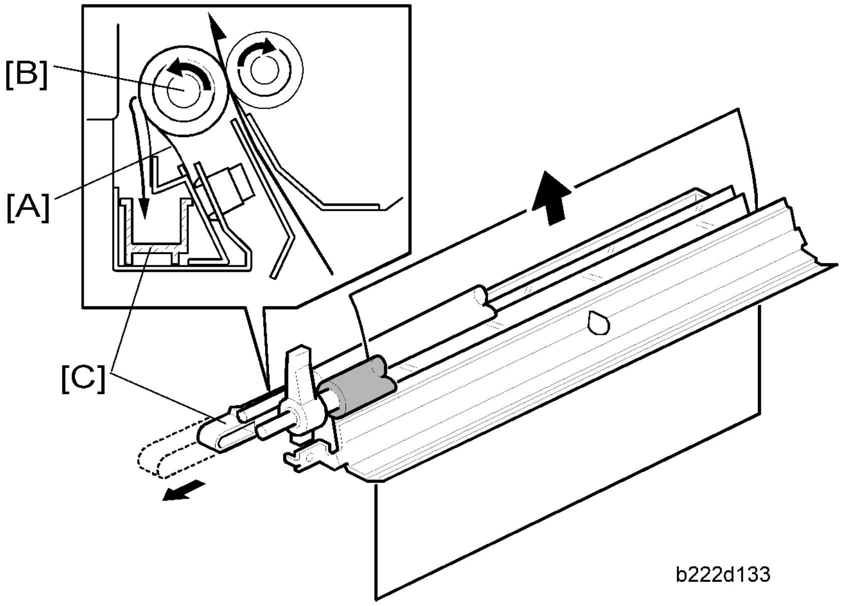
Tray Lock at the Rear



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.

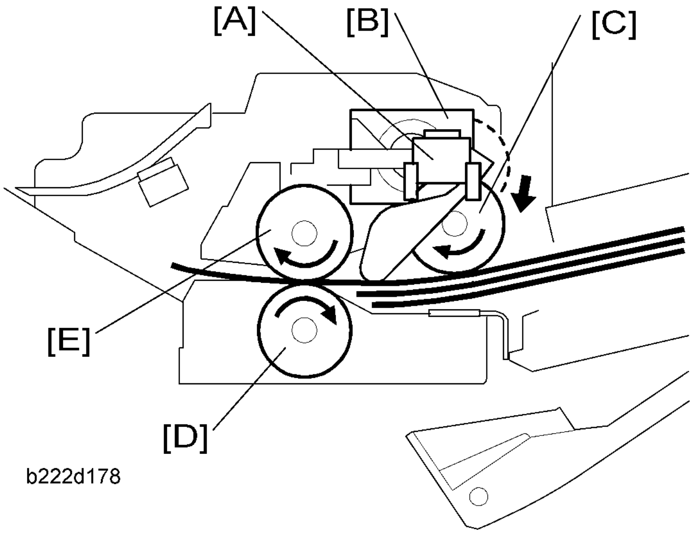
If the paper is jammed, the tray lock solenoid [A] turns on and activates the lock lever [B]. The lock lever [B] locks tray 1 [C] and tray 2 [D].

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

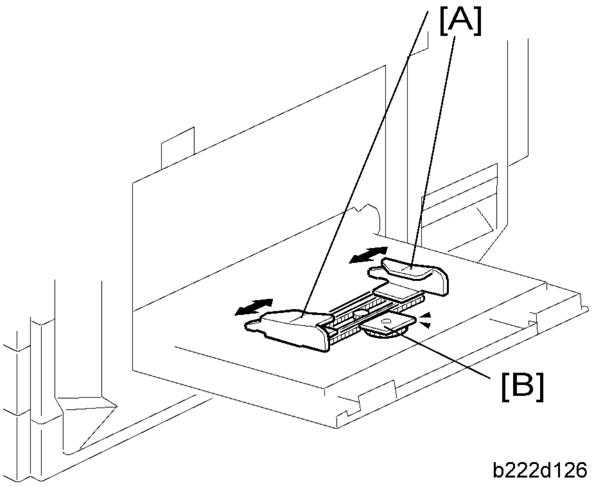


When the by-pass paper detection [A] sensor detects paper and the machine gets a by-pass printing job, the by-pass solenoid [B] drops the pick-up roller [C] onto the top of the paper stack on the by-pass tray. After that, the pick-up roller moves one sheet of paper to the feed roller.

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.

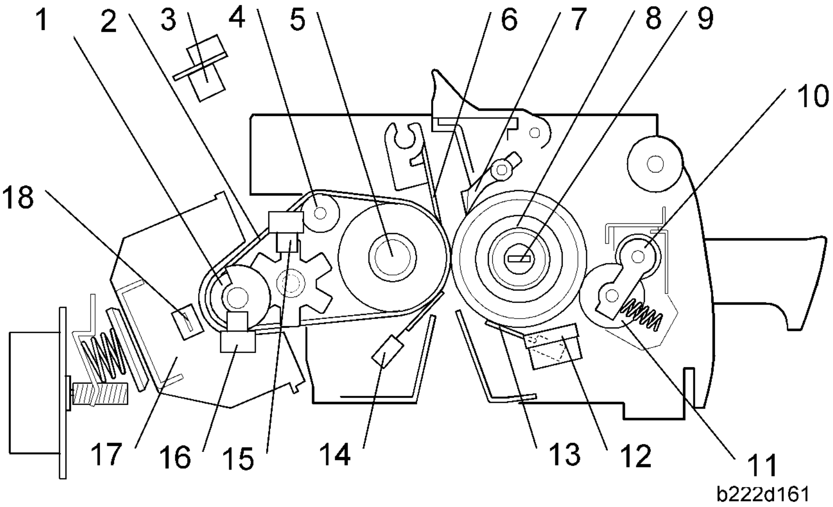
By-pass Paper Size Detection



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

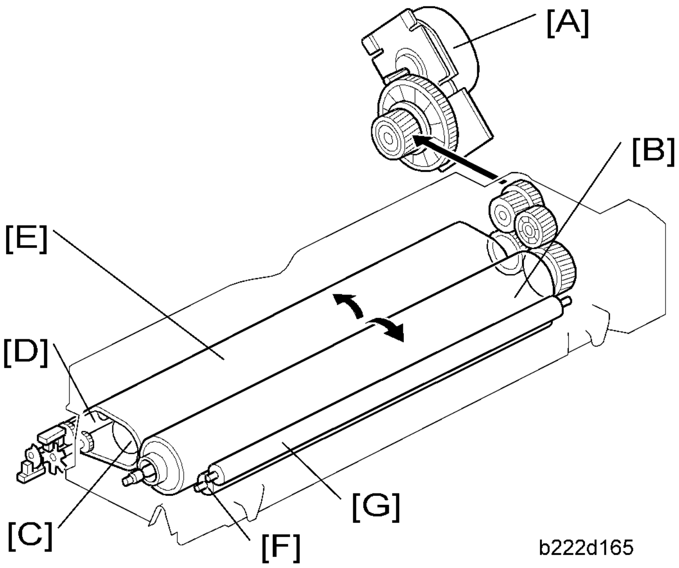


1. Heating roller	10. Cleaning roller
2. Fusing belt	11. Lubricant roller
3. Thermopile	12. Pressure roller thermostat
4. Tension roller	13. Pressure roller thermistor
5. Fusing roller	14. Fusing belt thermistor
6. Stripper plate	15. Fusing belt sensor
7. Stripper pawl	16. Ferrite roller HP sensor
8. 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.

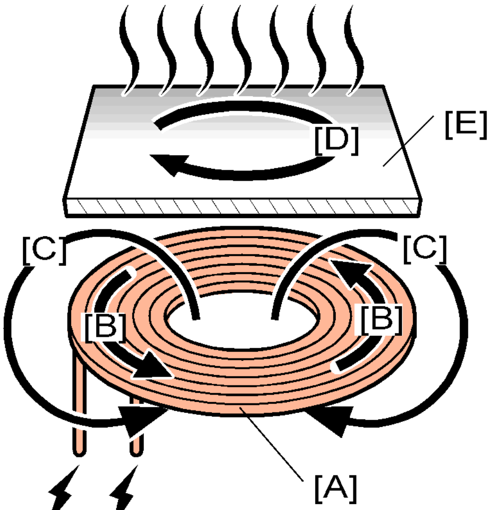
Lubricant Mechanism

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



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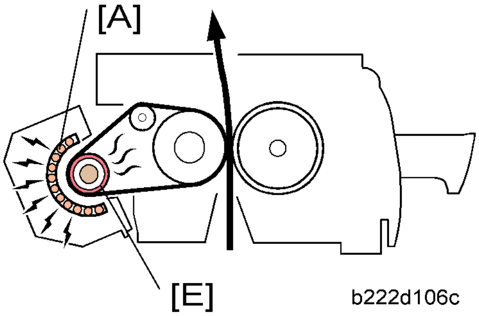

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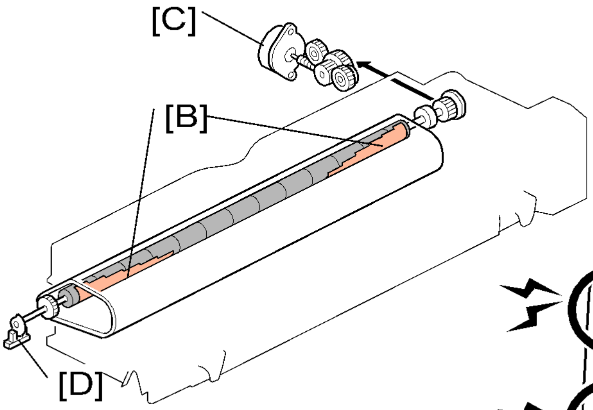
When high frequency current [B] is applied to the IH coil unit, a magnetic field [C] occurs around the IH coil [A]. This magnetic field makes eddy currents [D] and the heating roller [E] becomes hot. (During warm up, 1250 W is applied to the IH coil unit and during paper feed, 950 W is applied.)

Paper Size Correction



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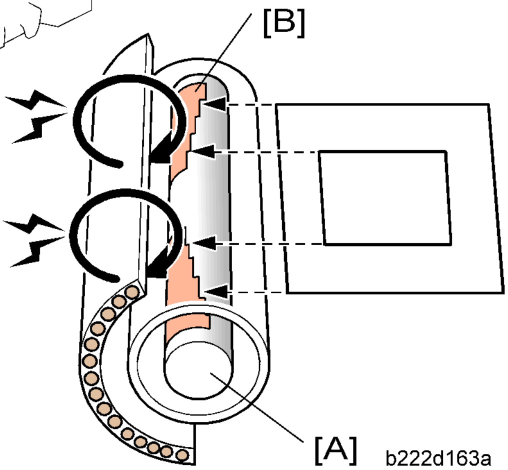

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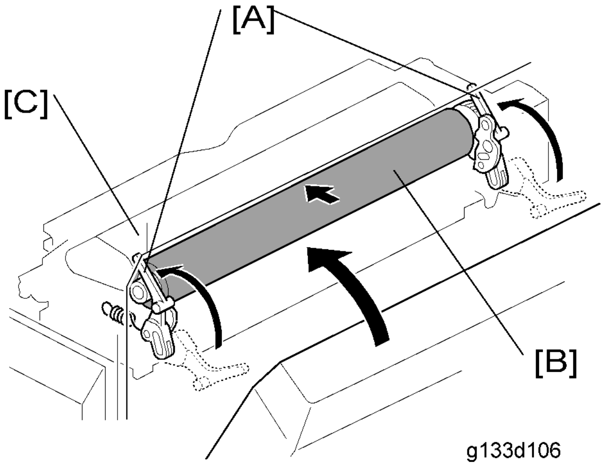
The ferrite roller [A] in the heating roller has a bronze plate [B] for paper size temperature correction. The area that is covered with the bronze plate does not generate the same amount of heat as other parts. The temperature correction for paper size is used for seven paper sizes (A3, B4, A4, B5, 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.

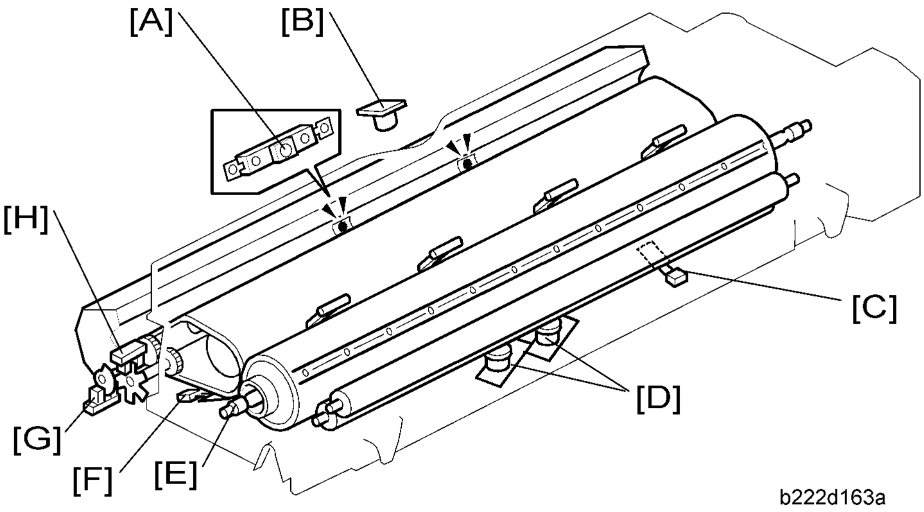
Pressure Release Mechanism



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

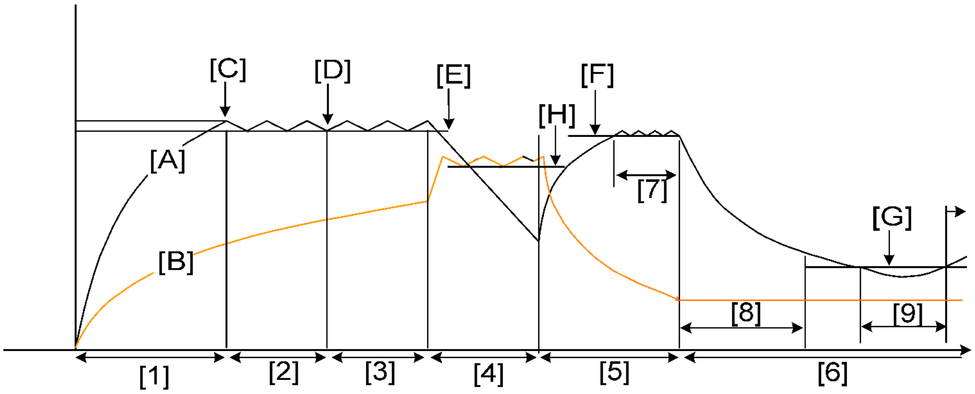
[B]: Thermopile	[F]: Thermistor (non-contact)
[C]: Thermistor (contact)	[G]: Ferrite roller HP sensor
[D]: Thermostat: (Pressure roller)	[H]: Fusing belt sensor

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 heating roller stops rotating, and an SC occurs.

Fusing Temperatures



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[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) - 90°C (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 25 seconds (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 25 seconds (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.

The target temperature after recovery is 170°C (adjustable with SP1-105-083). But if the machine does not get any printing 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 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: Actual target temperature for printing

- 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: Actual target temperature for printing

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: Actual target temperature for printing

- 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: Actual target temperature for printing

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 prints or makes copies, keeping the specified temperature for S2 seconds.

S2 is adjustable with SP1-915-002, -004 or -006

Specified temperature = Ta +Td.

Ta: Actual target temperature

Td: Additional temperature for each paper type (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 mm/sec.

Mode	Temperature of Heating Roller (°C)	Temperature of Pressure Roller (°C)
Warm-up mode	138°C - 0°C (SP1105-002)	138°C - 90°C (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	-	140°C (SP1105-016)
Plain paper	160°C (SP1105-030, -032, -034 and -036)	--
Thin paper	150°C (SP1105-038, -40, -42 and -044)	--
Middle thick paper (middle speed)	145°C (SP1105-095, -097 and -099)	--
Middle thick paper (High speed)	Middle thick (middle speed) + 20°C (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.)
- Thick 4, 5, 6: These settings are designed for special types of paper that are found in the Japanese market.

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 printing jobs at a high line speed mode (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: "ON").

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 SP1-916-26) and ambient temperature ≤ 17°C (adjustable with SP1-112-001):

- The machine decreases the CPM to 30ppm (adjustable with SP1-916-022) for 20 seconds (adjustable with SP1-916-023).

If input voltage ≤ 93% (adjustable with SP1-916-26) and ambient temperature > 17°C (adjustable with SP1-112-001):

- The machine decreases the CPM to 30ppm (adjustable with SP1-916-022) for 20 seconds (adjustable with SP1-916-023).

If input voltage ≤ 93% (adjustable with SP1-916-26) and ambient temperature ≤ 17°C (adjustable with SP1-112-001):

- The machine decreases the CPM to 25ppm (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 30ppm (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 30ppm (adjustable with SP1-916-021).

Energy Saver Modes

When the machine is not being used, the energy saver feature reduces power consumption by switching off the fusing lamps. This machine has two energy saver modes.

Level 1 Energy Saver Mode

The default of the level 1 energy saver mode is "Off." If the user enables it, level 1 energy saver mode starts 30 seconds after the machine has completed a print. In this mode, the fusing lamps are intermittently turned on and off to keep the pressure roller at 140°C.

The machine leaves this mode when one of the following happens:

- Print command received from a PC
- Any cover opened and closed
- Any operation panel key pressed

Level 2 Energy Saver Mode

The level 2 energy saver mode starts after the machine has been idle for a certain time. This time is specified with UP mode as listed below. During the level 2 energy saver mode, both fusing lamps stay off.

- 1 minute
- 5 minutes
- 15 minutes
- 30 minutes
- 45 minutes
- 60 minutes (default)

When the machine is in this mode, the machine turns off +24 V, +12 V, and +5 V lines. However, only +5 VE lines, for the controller and EGB, are still active.

The machine leaves this energy saver mode when one of the following happens:

Print command received from a PC

Any operation panel key pressed

The machine does not leave the level 2 energy saver mode when covers are opened and closed, because the IOB is not active.

New Unit Detection

Fusing Unit, Image Transfer Belt Unit

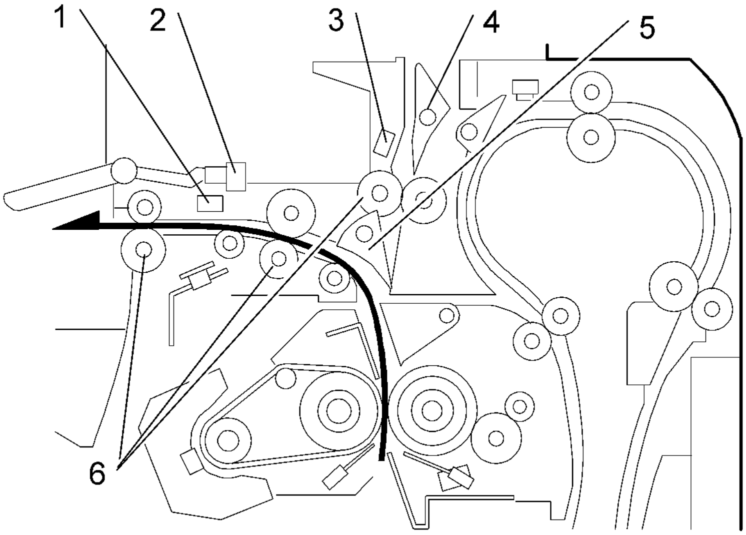
The fusing unit and image transfer belt unit each have a fuse. When the machine detects that the fuse is intact, the machine determines that a new unit is installed. Then a short time later, the fuse blows.

PCU, Development Unit

The development unit (as part of the PCU) contains an ID chip. The ID chip contains information that tells the machine that the unit is new.

Paper Exit

Overview



b222d172

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

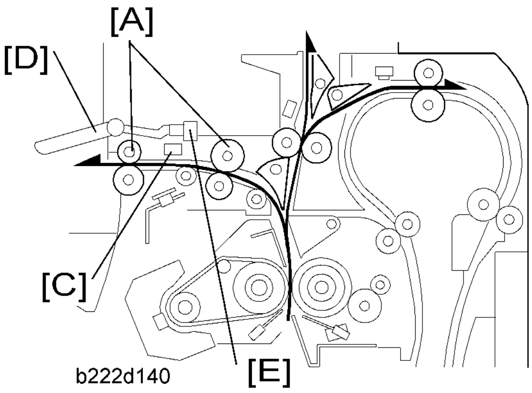
This machine has two junction gates:

- Junction gate 1 switches the paper feed direction to the standard output tray path or the duplex unit path. 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 does not switch the paper feed direction in this model. This gate is used for the Japanese model.

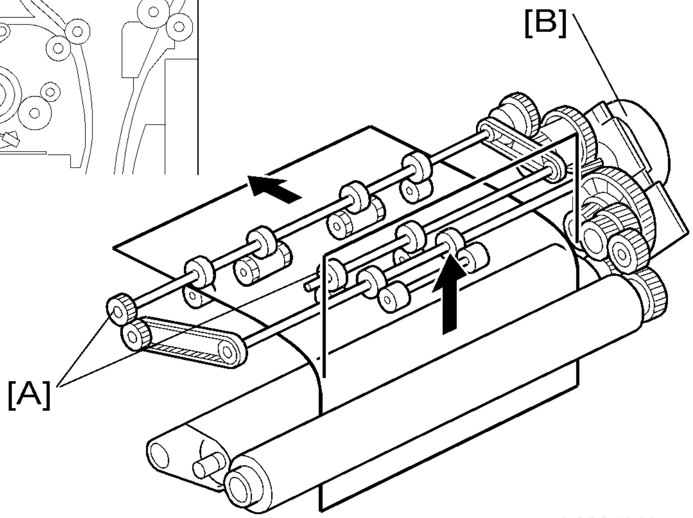
The fusing/paper exit motor drives the paper exit rollers.

Junction Gate Mechanism

To the Standard Tray



b222d140



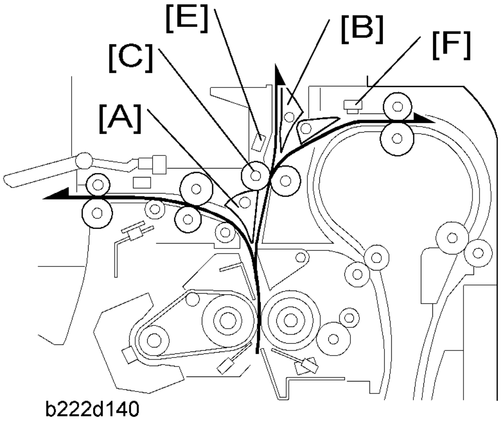
b222d141

The paper exit rollers [A] feed paper to the standard output tray. These rollers are driven by the fusing/ paper exit motor [B].

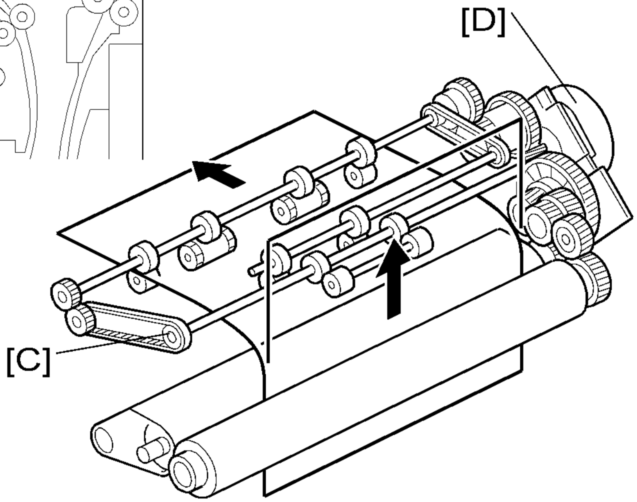
When a sheet of paper stays in the paper exit unit, the paper exit sensor [C] detects the paper jam and a jam message is displayed.

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 Duplex Unit



b222d140

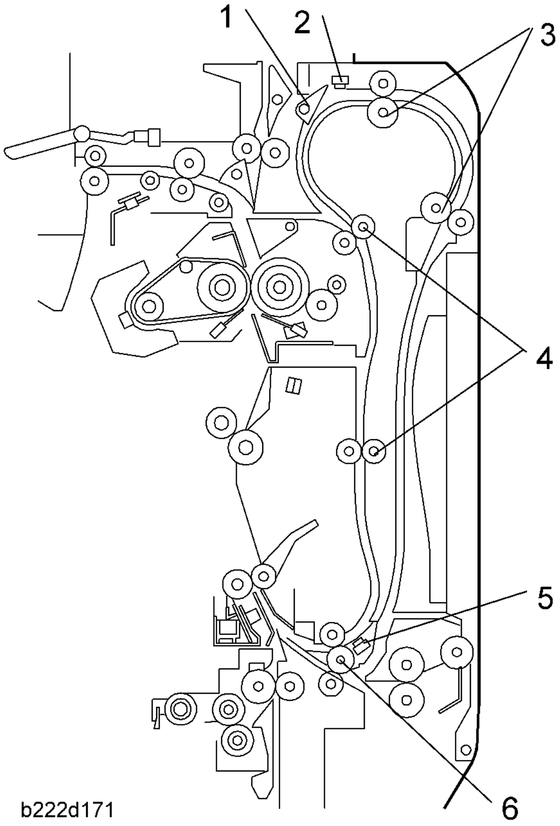


b222d141

When the duplex mode is selected, junction gate 1 [A] closes the paper path to the standard tray. The junction gate 2 [B] always closes the path to the optional unit, which is only used in the Japanese model. In this model, the junction gate 2 is not used (Japan only). The paper transport roller [C] is driven by the fusing/paper exit motor [D]. The junction gate jam sensor [E] in the path between the fusing unit and the duplex unit. The duplex entrance sensor [F] detects paper jams in the path to the duplex unit.

Duplex Unit

Overview



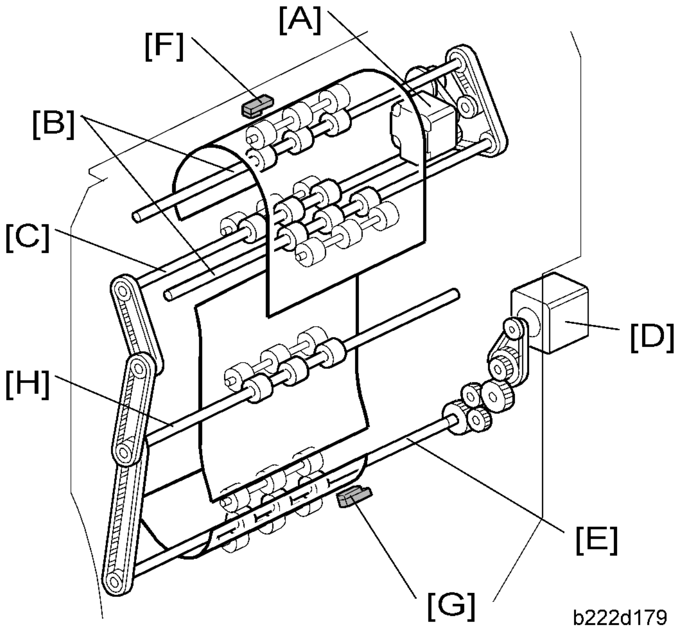
1. Duplex inverter plate	4. Duplex transport rollers
2. Duplex entrance sensor	5: Duplex exit sensor
3. Duplex inverter rollers	6. Duplex/by-pass transport roller

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 roller [C]

The duplex/by-pass motor [D] drives the following:

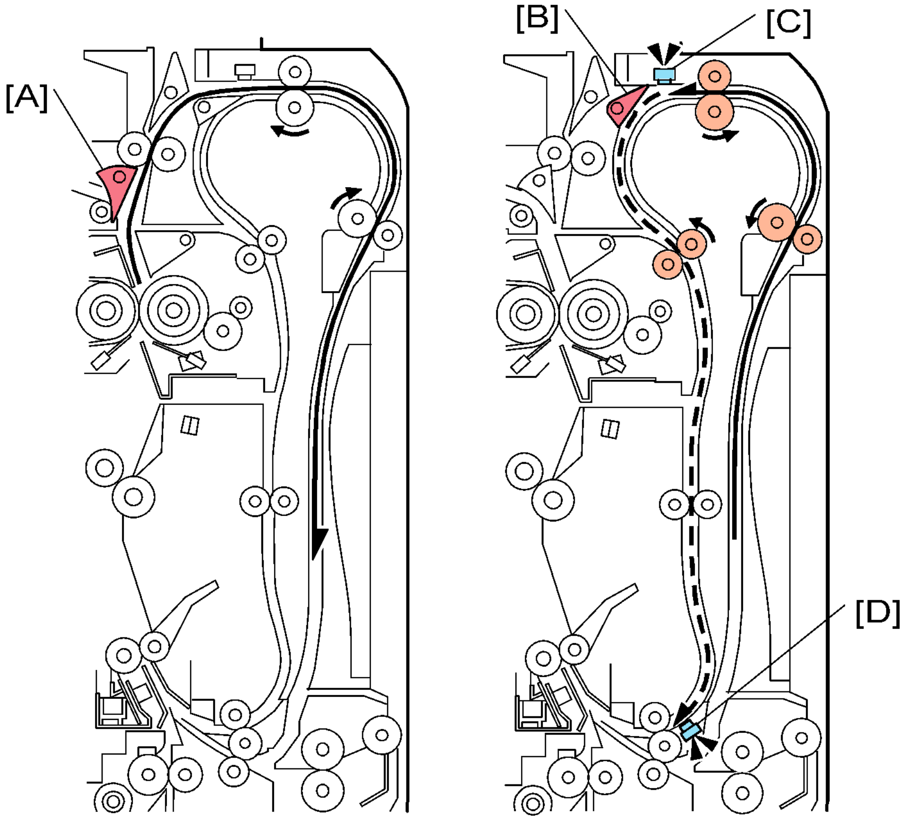
- Duplex/by-pass transport roller [E]
- Duplex transport rollers [C][H]

The duplex entrance sensor [F] and duplex exit sensor [G] control the interleave movement and detect paper jams.

There is a one-way clutch on the shaft of roller [C] where it meets the timing belt of motor [A]. Because of this, when the motor [A] feeds the paper into the inverter, roller [C] does not turn.

Then after inverting, motor [A] changes direction, and the paper goes back into the machine. For some longer paper sizes, the previous sheet is still feeding when this happens, so motor [A] must stop while motor [D] is still feeding the previous sheet down to the registration roller. This is why we have two motors ([A], [D]) controlling one roller [C].

Inverter Mechanism



b222d173_174

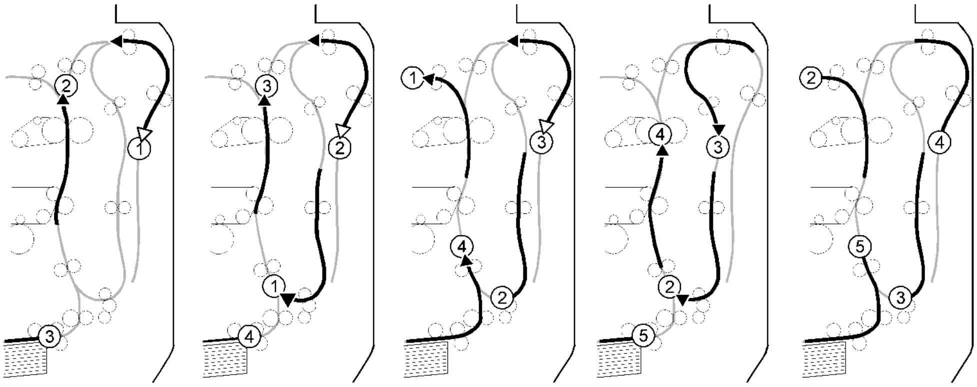
The paper is fed to the duplex path in duplex mode after junction gate 1 [A] opens the duplex path. The duplex inverter motor moves the paper into the inverter, as far as the switching back position.

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

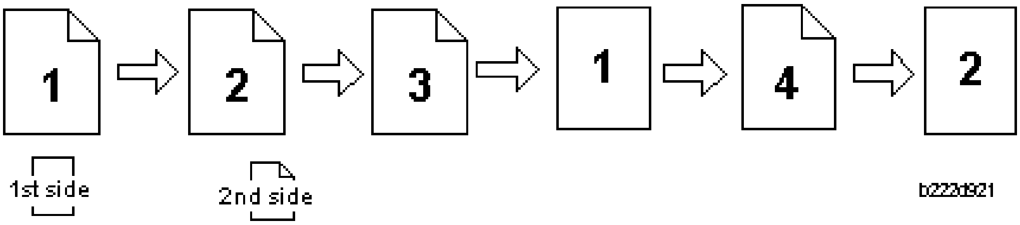
Up to A4/LT (81/2" x 11") LEF



b222d175a

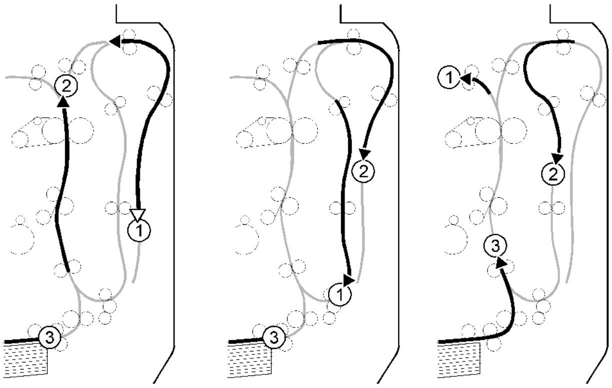
There are three sheets of paper in the paper feed path at the same time. The interleave method is used.

The drawing above shows the paper movement with the interleave method for three sheets of paper. The printing is done as follows:



b222d921

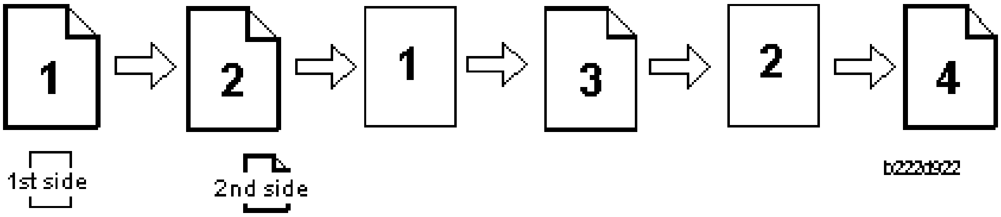
From A4/LT (8 1/2" x 11") LEF to 400mm length



b222d175b

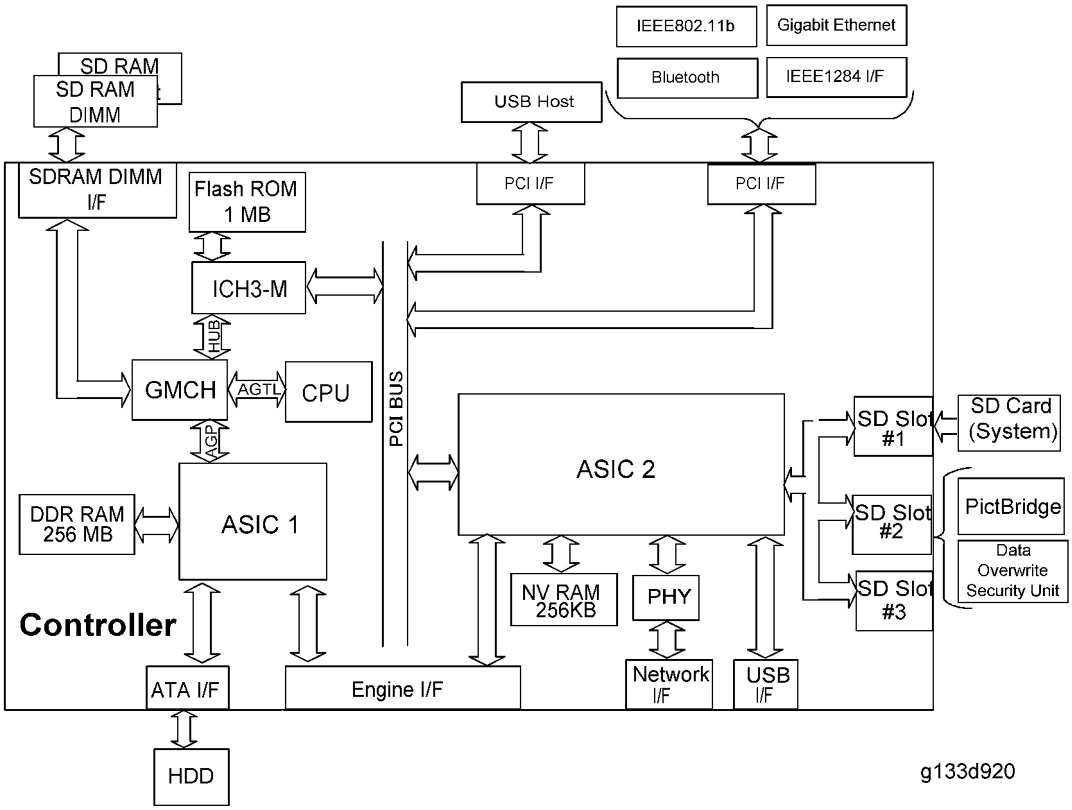
There are two sheets of paper in the paper feed path at the same time. The interleave method is used. For sheets longer than 400 mm, there is no interleaving.

The drawing above shows the paper movement with the interleave method for two sheets of paper. The printing is done as follows:



Controller Functions

Overview



The controller is based on the GW architecture.

CPU: Celeron 866 MHz

GMCH (Graphics and Memory Controller Hub):

This is one of the chip sets known as "Northbridge". It controls AGTL I/F, Memory I/F, HUB I/F and AGP I/F.

ICH-3 (I/O Controller Hub3):

This is one of the chip sets known as "Southbridge". It controls PCI I/F, USB I/F, Boot ROM I/F and System Management.

ASIC 1:

This is one of the GW-architecture ASICs:

GW architecture ASIC. It controls these functions: AGP I/F, DDR-SDRAM, RAIP I/F, ATA Bus and processes image rotation/composition and compression/decompression.

ASIC 2:

IO control ASIC. It controls the network, operation panel, USB port, SD cards.

SDRAM DIMM (2 slots):

The controller has 256-MB resident SDRAM. (option: 256 MB)

DDR SDRAM:

The controller has 256-MB resident DDR SDRAM. This is used for ASIC 1 memory or image data memory.

Flash ROM:

1 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:

256 KB for the machine parameters and logged data.

NVRAM (option):

256 KB for a record of the number of pages printed for each “User Code”.

Network Interface:

100BASE-TX/10BASE-T

USB Interface:

USB2.0

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.

Gigabit Ethernet/USB (option):

This lets you connect the machine to a network with 1 Gbps transfer rate. This board has a USB port, but it cannot be used in this model.

USB Host (option):

This is for the connection of an external device (digital camera etc.).

I/F Slot	Item
Slot A	USB Host

Slot B	IEEE 1284, IEEE 802.11b, Bluetooth or Gigabit Ethernet

HDD:

3.5" HDD (40 GB) can be connected using the IDE interface.

SD Card slots:

- Slot 1: Standard SD card (System SD card)
- Slot 2: Optional application (for Data Overwrite Security Unit or PictBridge)
- Slot 3: Firmware upgrade

Hard Disk

Overview

The capacity of the hard disk is 40 GB. The controller partitions it into several drives and allocates them for different functions. You can initialize the hard disk with SP5-832-001.

7. Specifications

General Specifications

Main Frame

<table>
<tr><td>Configuration:</td><td colspan="3">Desktop</td></tr>
<tr><td>Print Process:</td><td colspan="3">Laser beam scanning & Dry electrostatic transfer system
4 drums tandem method</td></tr>
<tr><td>Resolution:</td><td colspan="3">600 dpi</td></tr>
<tr><td>Gradation:</td><td colspan="3">600dpi 4 bits/pixel, 2 bits/pixel, 1 bit/pixel</td></tr>
<tr><td>Print speed:</td><td colspan="3">Normal (LT/ A4 LEF): 40 ppm (color/black & white))
Thick 1: 25 ppm (color/black & white)
Thick 2: 17.5 ppm (color/black & white)
Thick 3: 15 ppm (color/black & white)</td></tr>
<tr><td>First print:</td><td colspan="3">Color: 9 seconds or less (A4/LT LEF)
Black & white: 8 seconds or less (A4/LT LEF)</td></tr>
<tr><td>Warm-up time:</td><td colspan="3">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 + 1
LCT: 2000 sheets</td></tr>
<tr><td rowspan="6">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)/</td><td>A3/11" x 17"</td></tr>
</table>

		8.5" x 11"		
	LCT	A4/8.5" x 11" (LEF)		
Printing Paper Weight:	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.)			
Output Paper Capacity:	Standard exit tray: 500 sheets or more (face down)^{*1} 1000-sheet booklet finisher 250 + 1000 sheets (80 g/m^2) 3000-sheet finisher: 250 + 3000 sheets (80 g/m^2) *1: T6200, A4 LEF			
Memory:	Standard: 256 MB			
Power Source:	120 V, 60 Hz: More than 12A (for North America) 220 V – 240 V, 50/60 Hz: More than 7A (for Europe/ASIA)			
Power Consumption:	-	120V	220 - 240V	
	Maximum	1440 W or less	1440 W or less	
	Energy Saver	19.3 W or less	19.3 W or less	
Noise Emission: (Sound Power Level)	Model	State	Mainframe	Complete system (*1)
	-	Standby	37 dB(A) or Less	37 dB(A) or Less
		Operating	62 dB(A) or Less	72 dB(A) or Less
Dimensions (W x D x H): Printer: 670 x 670 x 640 mm (26.4" x 26.4" x 25.2") Printer + PFU or LCT: 670 x 670 x 1020 mm (26.4" x26.4" x 40.2")				
Weight:	Less than 97 kg (213.4 lb.)			

Printer

Printer Languages:	PCL 6/5c RPCS (Refined Printing Command Stream) Adobe PostScript 3 PDF Direct 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:	40 ppm (color/black and white) 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: 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 IEEE802.11b (Wireless LAN): Optional Bluetooth (Wireless): Optional

	Gigabit Ethernet: Optional USB Host: Optional
Network Protocols:	TCP/IP (IPv4, IPv6), IPX/SPX, AppleTalk (Auto Switching)

Supported Paper Sizes

Paper Feed

BT: By-pass Tray, T1: Tray 1, T2/3/4: Tray 2/3/4/5, LCT: Large Capacity Tray,

DU: Duplex Unit

Paper	Size (W x L)	North America				Europe/Asia				DU
		BT	T1	T2/3/4/5	LCT	BT	T1	T2/3/4/5	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 / 4/5	LCT	BT	T1	T2/3 / 4/5	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

3000 Sheet 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	3000-sheet finisher								
			Prf	Clr	Shf	Stp	SS	2P/ N2P	3P	4P	N4P
A3 W	12" x 18"	Y	Y	Y	Y	30	-	-	-	-	-
A3 SEF	297 x 420 mm	Y	Y	Y	Y	30	-	Y	Y	Y	Y
A4 SEF	210 x 297 mm	Y	Y	Y	Y	50	-	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	-	Y	Y	Y[*4]	Y[*4]
B5 SEF	182 x 257 mm	Y	Y	Y	Y	50	-	Y	-	-	Y
B5 LEF	257 x 182 mm	Y	Y	Y	Y	50	-	Y	Y	Y	Y
B6 SEF	128 x 182 mm	Y	Y	Y	-	-	-	-	-	-	-
Ledger	11" x 17"	Y	Y	Y	Y	30	-	Y	Y	Y	Y
Letter SEF	8.5" x 11"	Y	Y	Y	Y	50	-	Y	-	-	Y

Paper	Size (W x L)	MF	3000-sheet 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	-	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 Booklet Finisher

MF: Main Frame, Prf: Proof, Clr: Clear, Shf: Shift, Stp: Staple, SS: Saddle Stitch, 2/3 P: 2/3 Holes Punch, 4 P: 4 Holes Punch, N4P: North Europe 4 Holes Punch

Paper	Size (W x L)	MF	1000-sheet booklet finisher							
			Prf	Clr	Shf	Stp	SS	2/3 P	4 P	N4P
A3 W	12" x 18"	Y	Y	Y	Y	-	-	-	-	-
A3 SEF	297 x 420 mm	Y	Y	Y	Y	30	10	Y	Y	Y
A4 SEF	210 x 297 mm	Y	Y	Y	Y	50	10	-	-	Y
A4 LEF	297 x 210 mm	Y	Y	Y	Y	50	-	Y	Y	Y
A5 SEF	148 x 210 mm	Y	Y	Y	Y	-	-	-	-	Y
A5 LEF	210 x 148 mm	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	10	Y	Y	Y
B5 SEF	182 x 257 mm	Y	Y	Y	Y	50	10	-	-	Y
B5 LEF	257 x 182 mm	Y	Y	Y	Y	50	-	Y	Y	Y

Paper	Size (W x L)	MF	1000-sheet booklet finisher							
			Prf	Clr	Shf	Stp	SS	2/3 P	4 P	N4P
B6 SEF	128 x 182 mm	Y	Y	Y	-	-	-	-	-	-
Ledger	11" x 17"	Y	Y	Y	Y	30	10	Y	Y	Y
Letter SEF	8.5" x 11"	Y	Y	Y	Y	50	10	-	-	Y
Letter LEF	11" x 8.5"	Y	Y	Y	Y	50	-	Y	Y	Y
Legal SEF	8.5" x 14"	Y	Y	Y	Y	30	10	-	-	Y
Government Legal SEF	8.25" x 14"	Y	Y	Y	Y	30	10	Y	Y	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	Y	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	Y	Y
	10" x 14"	Y	Y	Y	Y	30	-	Y	-	Y
	8" x 10"	Y	Y	Y	Y	50	-	-	-	Y
8K	267 x 390 mm	Y	Y	Y	Y	30	-	Y	Y	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	Y	Y
Custom		Y	Y	Y	-	-	-	-	-	-
Com10 Env.	4.125" x 9.5"	Y	Y	-	-	-	-	-	-	-
Monarch Env.	3.875" x 7.5"	Y	Y	-	-	-	-	-	-	-
C6 Env.	114 x 162 mm	Y	Y	Y	-	-	-	-	-	-
C5 Env.	162 x 229 mm	Y	Y	Y	-	-	-	-	-	-

Paper	Size (W x L)	MF	1000-sheet booklet finisher							
			Prf	Clr	Shf	Stp	SS	2/3 P	4 P	N4P
DL Env.	110 x 220 mm	Y	Y	Y	-	-	-	-	-	-

Remarks:

Y	Supported
10	Output up to 10 sheets
30	Output up to 30 sheets
50	Output up to 50 sheets
-	Not supported

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

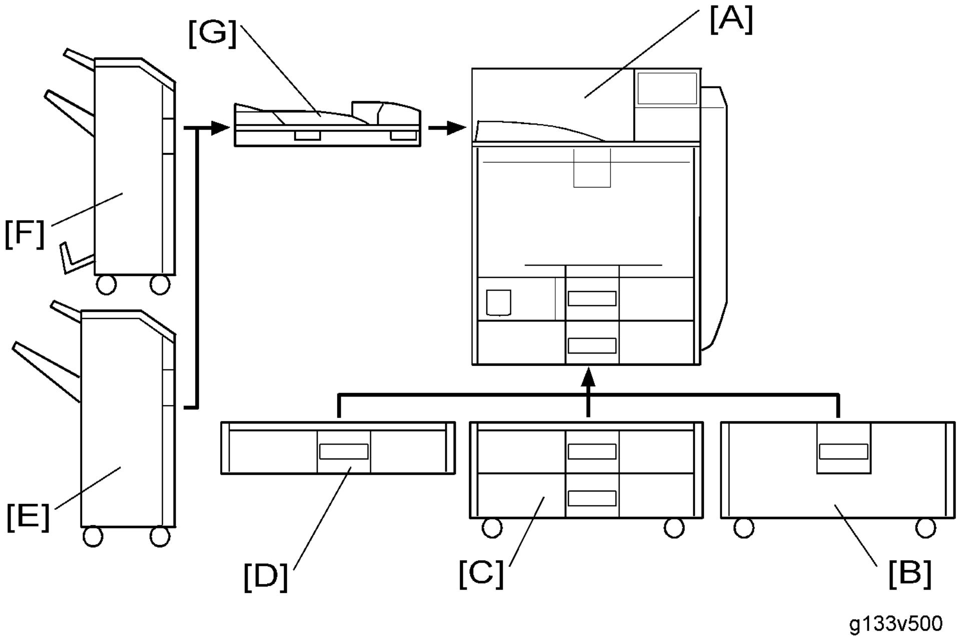
- The PCL5c/6 and RPCS drivers are provided on the printer drivers CD-ROM
- The PS drivers are provided on the Scanner/PostScript® Drivers and Utilities CD-ROM.
- The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for the PowerPC, Alpha, 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.

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

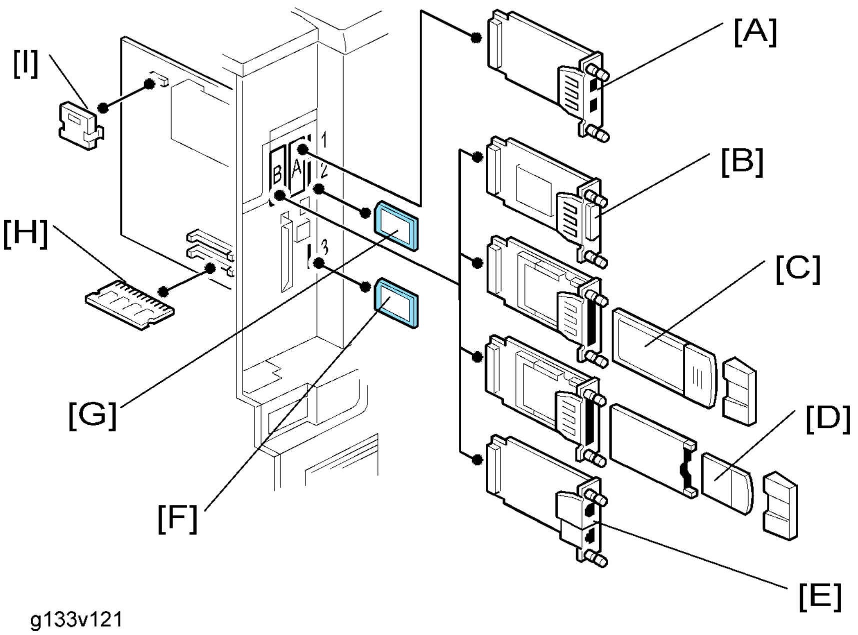
DeskTopBinder – SmartDeviceMonitor for Client (Win9x/ME, 2000/XP/2003, NT4)	A printer management utility for client users. A utility for peer-to-peer printing over a NetBEUI or TCP/IP network. A peer-to-peer print utility over a TCP/IP network. This provides the parallel printing and recovery printing features. This is provided on the printer drivers CD-ROM
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	G133	[A]	-
LCT	B801	[B]	One from the three, or G832 + B800
Two-tray paper feed unit	B800	[C]	
Paper tray unit (one tray)	G832	[D]	
3000-sheet finisher	B805	[E]	One from [E] and [F]; Requires [G] and one from [B] and [C]
Punch unit: 3/2 holes	B702-17	-	Requires [E]
Punch unit: 4/2 holes	B702-27	-	Requires [E]
Punch unit: 4 holes	B702-28	-	Requires [E]
1000-sheet booklet finisher	B793	[F]	One from [E] and [F]; Requires [G] and one from [B] and [C]
Punch unit: 3/2 holes	B807-17	-	Requires [F]

Item	Machine Code	Call out	Remarks
Punch unit: 4/2 holes	B807-27	-	Requires [F]
Punch unit: 4 holes	B807-30	-	Requires [F]
Bridge unit	B227	[G]	-



Item	Machine code	Call out	Remark
USB 2.0:	-	-	Standard
Ethernet:	-	-	Standard
IEEE 1284	B679-17	[B]	You can only install one of these at a time.
Wireless LAN	G813/G874	[C]	
Bluetooth	G826	[D]	
Gigabit Ethernet	G874-01	[E]	
USB Host	B825-17	[A]	-
Hard Disk Drive	-	-	Standard

Data Overwrite Security Unit	G874-25	[G]	You can only install one of these in SD slot 2 at a time.
PictBridge	G874-23		
VM Card Type D	G874-47	[F]	In SD slot 3
128 MB DIMM	G331	[H]	One from G331 and G332
256 MB DIMM	G332		
Optional NVRAM	G395	[I]	

Optional Equipment

Paper Tray Unit (One-tray)

Paper Feed System:	FRR
Paper Height Detection:	5 steps (100%, 70%, 30%, 10% (Near end), and Empty)
Capacity:	500 sheets
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 120 mm (22.8" x 24.4" x 4.8")
Weight:	15 kg (33.1 lb.)

Two-tray 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%, 70%, 30%, 10%, Empty): Right Tray 4 steps (100%, 70%, 30%, Empty): Left Tray
Power Source:	DC 24 V, 5 V (from copier/printer)
Power Consumption:	50 W (Max.)/30 W (Ave.)
Weight:	25 kg (55 lb.)
Size (W x D x H):	580 mm x 620 mm x 260 mm (22.8" x 24.4" x 10.2")

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, B6 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

Punch Unit for 3000-Sheet 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	
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 Booklet Finisher & Punch Unit

Print Paper Size:	**No punch mode:** A3/11" x 17" to A6/5.5" x 8.5" (SEF), A4 to A5 (LEF), 12" x 18" or 8.5" x 11" (LEF) **Punch mode:** **2 holes**: A3/11" x 17" to A6/5.5" x 8.5" (SEF), A4 to A5 (LEF) or 8.5" x 11" (LEF) **3 holes**: A3, B4, 11" x 17" (SEF) or A4, B5, 8.5" x 11" (LEF) **4 holes (North Europe)**: A3/11" x 17" to B5/8.5" x 11" (SEF), A4, A5 (LEF) or 8.5" x 11" (LEF) **Staple mode**: A3/11" x 17" to B5/8.5" x 11"
Paper Weight:	No punch mode: 52 to 256 g/m^2 (14 to 68 lb.) (Shift tray) 52 to 105 g/m^2 (14 to 28 lb.) (Proof tray) Punch mode: 52 to 163 g/m^2 (14 to 43 lb.) Staple mode: 64 to 90 g/m^2 (17 to 24 lb.) Label/Thick paper/OHP cannot be stapled
Tray Capacity:	[Proof tray] 100 sheets: A4, 8.5" x 11" or less 50 sheets: B4, 8.5" x 14" or more [Shift tray] 1000 sheets: A4, 8.5" x 11" (LEF) or smaller 500 sheets: B4, 8.5" x 14" or larger
Staple capacity:	Single size: 50 sheets: A4, 8.5" x 11" or smaller 30 sheets: B4, 8.5" x 14" or larger
Staple position:	3 positions

	1-staple: 2 positions (Top Left, Top Right) 2-staples: 1 positions	
Staple replenishment:	Cartridge (5000 staples)	
Power consumption:	60 W	
Dimensions (W x D x H):	535 mm x 600 mm x 930 mm (21.1" x 23.6" x 36.6")	
Weight	Without punch unit:	48 kg (105.8 lb.)
	With punch unit:	50 Kg (110.3 lb.)

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.)

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