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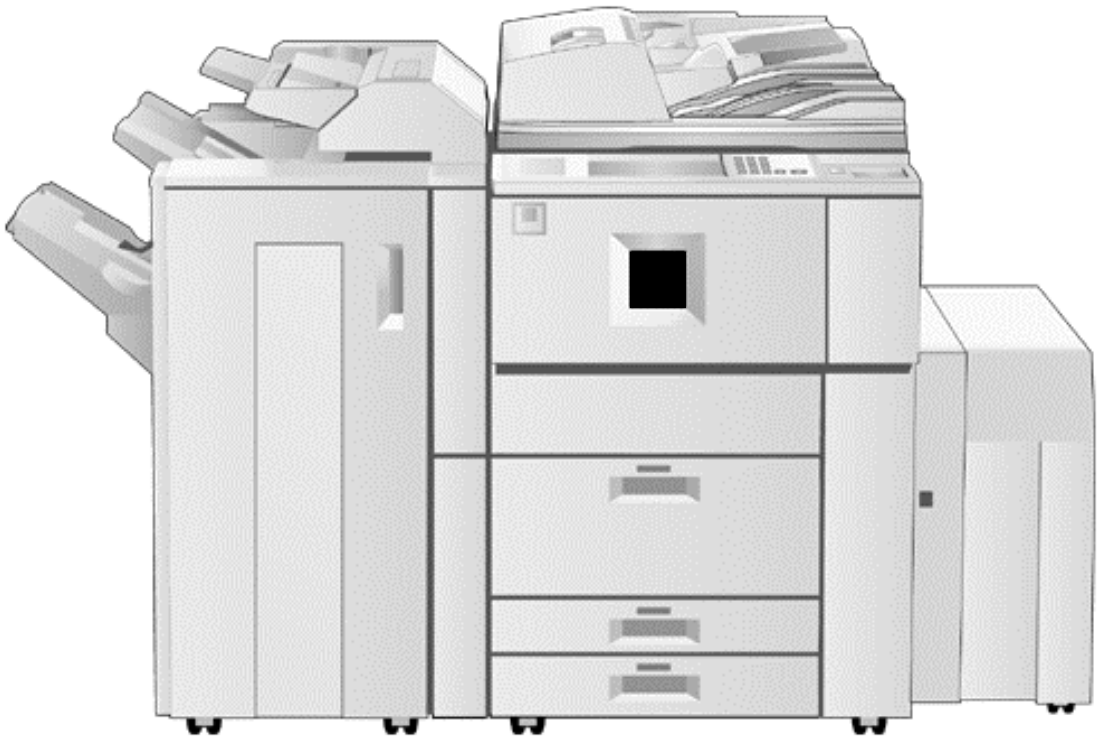

B064/B065

SERVICE MANUAL

001360MIU

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Ricoh Corporation

LEGEND

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LCT B473

SEE SECTION B473 FOR DETAILED TABLE OF CONTENTS

3000-SHEET FINISHERS B468/B469

SEE SECTION B468/B469 FOR DETAILED TABLE OF CONTENTS

PUNCH UNIT B377

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COVER INTERPOSER TRAY B470

SEE SECTION B470 FOR DETAILED TABLE OF CONTENTS

A3/DLT FEEDER KIT B475

SEE SECTION B475 FOR DETAILED TABLE OF CONTENTS

9-BIN MAILBOX B471

SEE SECTION B471 FOR DETAILED TABLE OF CONTENTS

3000-SHEET FINISHER B478

SEE SECTION B478 FOR DETAILED TABLE OF CONTENTS

⚠IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the copier and peripherals, make sure that the copier power cord is unplugged.
2. The wall outlet should be near the copier and easily accessible.
3. Note that some components of the copier and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. If the Start key is pressed before the copier completes the warm-up period (the Start key starts blinking red and green alternatively), keep hands away from the mechanical and the electrical components as the copier starts making copies as soon as the warm-up period is completed.
6. The inside and the metal parts of the fusing unit become extremely hot while the copier is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

1. Never operate the copier without the ozone filters installed.
2. Always replace the ozone filters with the specified ones at the specified intervals.
3. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The copier and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.
2. The NVRAM on the system control board has a lithium battery which can explode if replaced incorrectly. Replace the NVRAM only with an identical one. The manufacturer recommends replacing the entire NVRAM. Do not recharge or burn this battery. Used NVRAM 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, developer, and organic photoconductors in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

LASER SAFETY

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

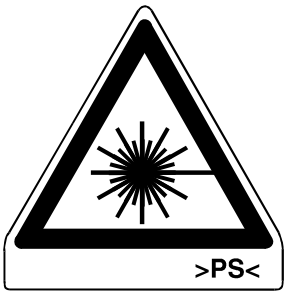
⚠WARNING

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

⚠WARNING

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

CAUTION MARKING:



What This Manual Contains

This preliminary manual describes the installation procedures for the B064/B065 Copier and its peripheral devices:

Main unit

- B064/065 Copier with ADF, Tandem Tray

Peripherals

- B473 LCT. (Attached to the right side of the machine). Provides an additional feed station of 4,000 sheets.
- B474 LG/B4 Feeder Kit (Attached to B473 LCT). Converts the LCT to a feed station for legal or B4 size paper.)
- B475 A3/DLT Feeder Kit (Installed in Tandem Tray). Converts the top tray to a feed station for A3 paper.
- B468/B469 3000-Sheet Finishers (Attached to B064/B065). Both finishers provide punch, staple, and shift capability. The B468 provides saddle-stitching with staples, the B469 does not provide saddle-stitching.
- B470 Cover Interposer Tray (Attached to B468/B469). Mounted on top of the B468/B469 finisher, provides a feed station for inserting cover sheets.
- B471 9-Bin Mailbox (Attached to B468/B469). Mounted on top of the B468/B469 provides 9 output trays, each assigned to a different user.

Conventions in this Manual

This manual uses several symbols.

Symbol	What it means
☛	Refer to section number
CT	See Core Tech Manual for details
	Screw
	Connector
	E-ring
	Clip ring

INSTALLATION

PREVENTIVE MAINTENANCE
PRINTER/SCANNER G338/G339

REPLACEMENT AND ADJUSTMENT
LCT B473

TROUBLESHOOTING
3,000-SHEET FINISHER B468/B469
3,000-SHEET FINISHER B478
PUNCH UNIT B377

SERVICE TABLES

DETAILED DESCRIPTIONS

SPECIFICATIONS
A3/DLT TRAY KIT B475TRAY UNITS
COVER INTERPOSER TRAY B470

9-BIN MAILBOX B471

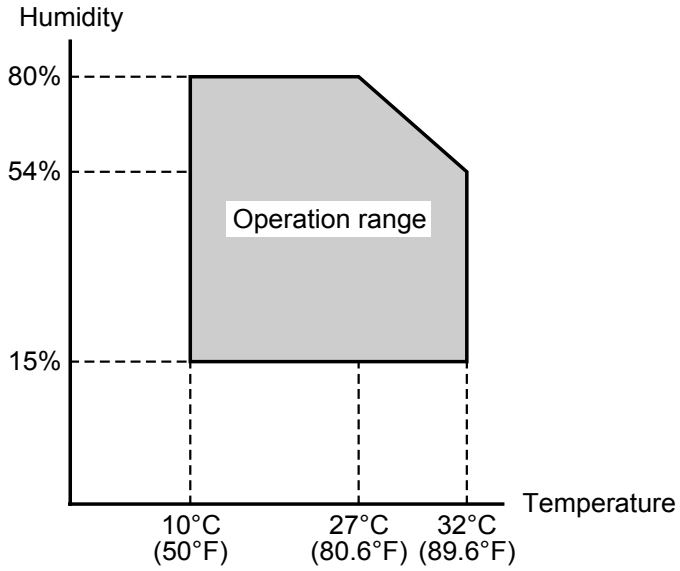
INSTALLATION

1. INSTALLATION

1.1 INSTALLATION REQUIREMENTS

1.1.1 OPERATING ENVIRONMENT

1. Temperature Range: Recommended: 15°C to 25°C (59°F to 77°F)
   Possible: 10°C to 32°C (50°F to 90°F)
2. Humidity Range: 15% to 80% RH (27°C 80%, 32°C 54%)
3. Ambient Illumination: Less than 1,500 lux (do not expose to direct sunlight or strong light.)
4. Ventilation: Room air should turn over at least 3 times per hour
5. Ambient Dust: Less than 0.10 mg/m^3



6. If the place of installation is air-conditioned or heated, do not place the machine where it will be:
   1) Subjected to sudden temperature changes
   2) Directly exposed to cool air from an air-conditioner
   3) Directly exposed to heat from a heater

7. Do not place the machine where it will be exposed to corrosive gases.
8. Do not install the machine at any location over 2,000 m (6,500 feet) above sea level.
9. Place the copier on a strong and level base with the front and back of the machine within ±5 mm (0.2") of level.
10. Do not place the machine where it may be subjected to strong vibrations.
11. Do not connect the machine to a power source shared with another electrical appliance.
12. The machine can generate a an electromagnetic field which could interfere with radio or television reception.

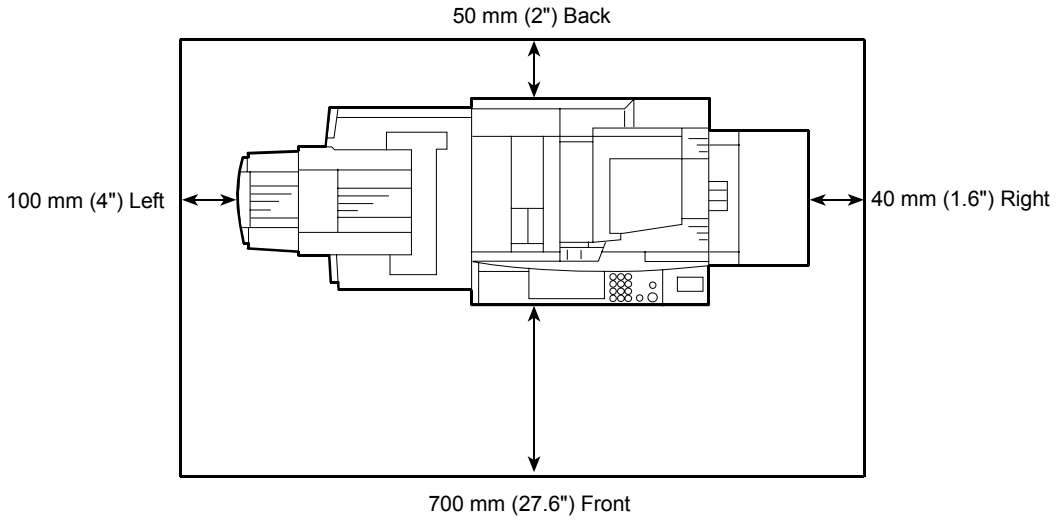
1.1.2 MACHINE LEVEL

1. Front to back: Within ±5 mm (0.2") of level
2. Right to left: Within ±5 mm (0.2") of level

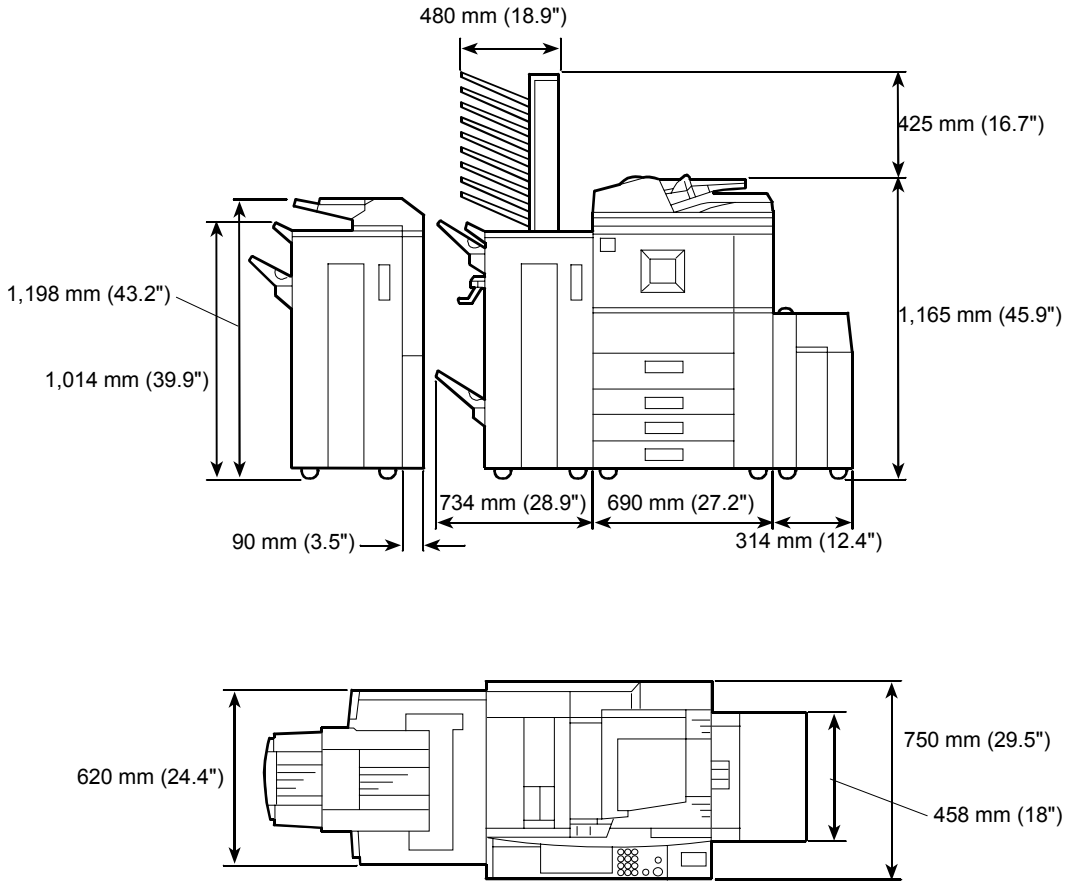
The machine legs may be screwed up or down in order to level the machine. Set a carpenter's level on the exposure glass.

1.1.3 MINIMUM SPACE REQUIREMENTS

Place the copier near the power source, providing minimum clearance as shown below. The same amount of clearance is necessary when optional peripheral devices are installed.



1.1.4 DIMENSIONS

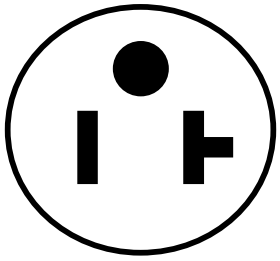


1.1.5 POWER REQUIREMENTS

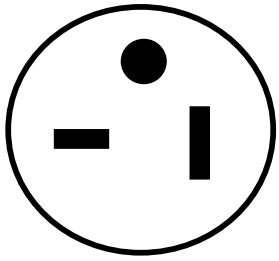
⚠CAUTION

1. **Make sure that the wall outlet is near the main machine and easily accessible. Make sure the plug is firmly inserted in the outlet.**
2. **Avoid multi-wiring.**
3. **Be sure to ground the machine.**
4. **Never set anything on the power cord.**

Input voltage level	North America 120 V, 60 Hz: More than 20 A
	Europe/Asia 220 V ~ 240 V, 50 Hz/60 Hz: more than 10 A
Permissible voltage fluctuation	±10%



NEMA 5-20 R
Standard 20 Amp
120 Volt Receptacle



NEMA 5-20 P
Standard 20 Amp
120 Volt Plug

⚠CAUTION

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

The Operation Power Switch LED (⏻) lights or flashes at the following times:

- While the main machine is communicating with the network server
- While the machine is accessing the hard disk or memory when reading or writing data.

There are two power switches on the machine:

- **Main Power Switch**.
  Located on the front left corner of the machine and covered by a plastic cover. This switch should always remain on unless the machine is being serviced.
- **Operation Power Switch**.
  Located on the right side of the operation panel. This is the switch normally used by the customer to power the machine on and off.

1.1.6 OPTION CORRELATION CHARTS

The charts below show which accessories can be used together. Specific legend information follows each chart.

Main Unit Option Correlation

Necessary Item / Purchasing Item	Copy Tray	Finisher (50 sheets)	Finisher 100 sheets	Booklet Finisher	Jogger	LCT	LG kit for LCT	LG/A3 tray	Copy Connector	Cover Interposer	Tab Sheet option	Mailbox	2/3-hole punch for 100	2/3-hole punch for 50	File Format converter	Printer/Scanner	128MB RAM
Copy Tray		X	X	X	X					X							
Finisher (50 sheets)	X		X	X	X												
Finisher 100 sheets	X	X		X													
Booklet Finisher	X	X	X		X												
Jogger	X	X	M	X													
LCT																	
LG kit for LCT						M											
LG/A3 tray																	
Copy Connector																	
⇒ Cover Interposer	X	m	m	m	X							X					
Tab Sheet option																	
Mailbox	X	m	X	m	X					X						M	
2/3-hole punch for 100			M											X			
2/3-hole punch for 50		m		m									X				
File Format converter																	
Printer/Scanner																	M
128MB RAM																	

Rows indicate items user wants to purchase.
Columns indicate item compatibility with the purchased item.

X: Items do not exist together.
M: Items that **MUST** go with purchased item.
m: The purchased item **needs** at least one of these items to function.

Printer Option Correlation

⇒

Necessary Item / Purchased Item	Printer Unit	Printer/Scanner	Post Script 3	RAM (128 or 256MB)	USB 2.0	Wireless LAN	IEEE 1394
Printer Unit		X					
Printer/Scanner	X			M			
Post Script 3	M	m					
RAM (128 or 256MB)	m	m					
USB 2.0	M	m				X	X
Wireless LAN	M	m			X		X
IEEE 1394	M	m			X	X	

Rows indicate items user wants to purchase.
Columns indicate item compatibility with the purchased item.

X: Cannot be installed together
M: Must be installed together
m: The purchased item needs at least one of these items to function.

1.2 MAIN MACHINE (B064/B065)

1.2.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

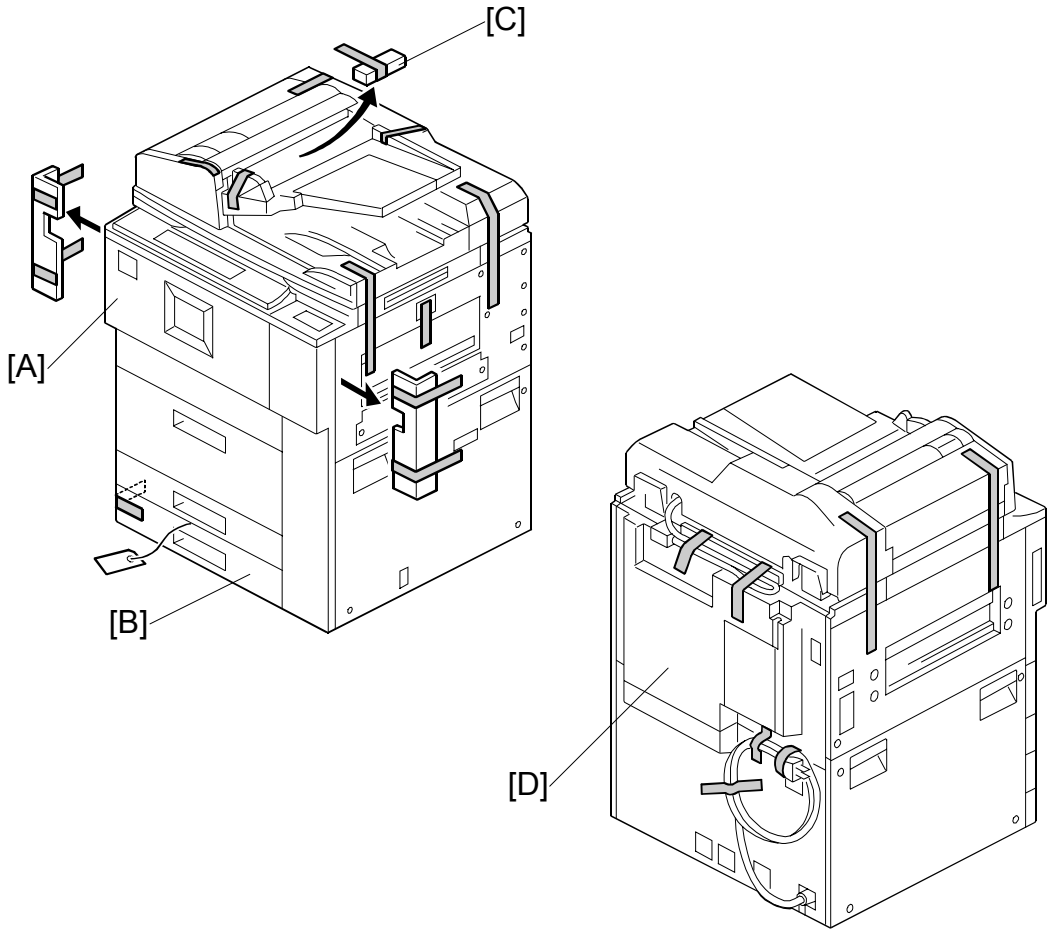
Description	Q'ty
1. Model Name Decal	1
2. Operation Instructions	2
3. NECR with Envelope	1
4. Operation Panel Brand Decal	1
5. Paper Size Decal	1
6. Decal – Face Up	1
7. Leveling Shoes	2
8. Operation Instruction Holder	1
9. Decal – Cleaning	1

1.2.2 INSTALLATION PROCEDURE

Removing Tapes and Retainers

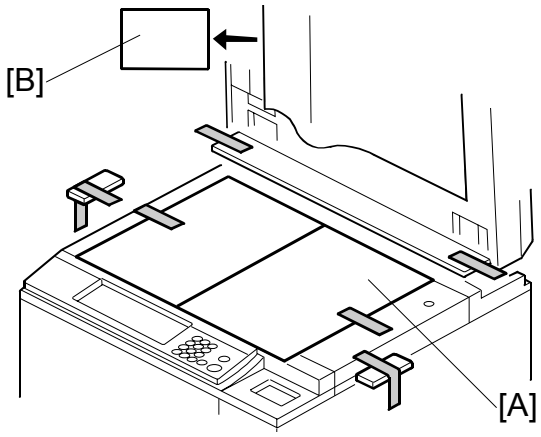
⚠CAUTION

To avoid serious injury, do not connect the power plug to the machine until you are instructed to do so.

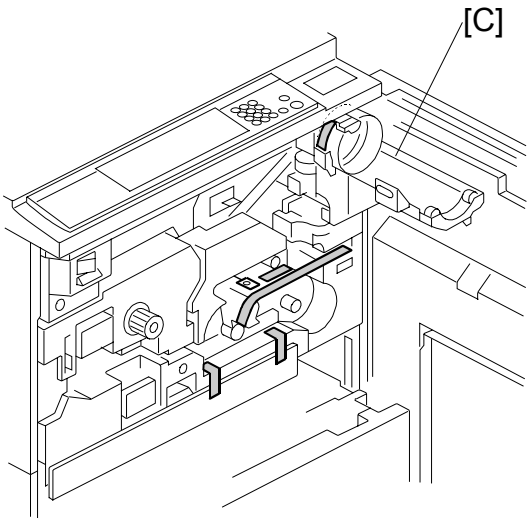


1. Unpack the machine and remove all the wrapping.
2. Remove all filament tape from the front [A] of the machine.
3. Open the lower tray [B] and remove the operating instructions holder and foot risers.
4. Open the ADF feed cover and remove the tape and retainer [C].
5. Remove the tape from the back [D] of the machine.
   NOTE: Save the filament tape and shipping retainers to prepare the machine for shipping in the future.

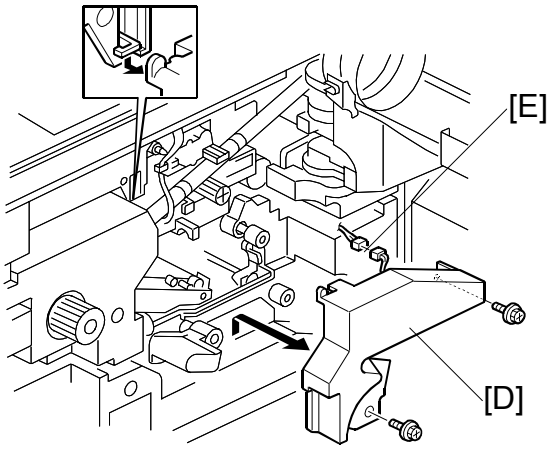
6. Raise the ADF and remove all the tape and shipping retainers around the exposure glass [A] and operation panel.
7. Remove the shipping retaining sheet [B] under the white pad.



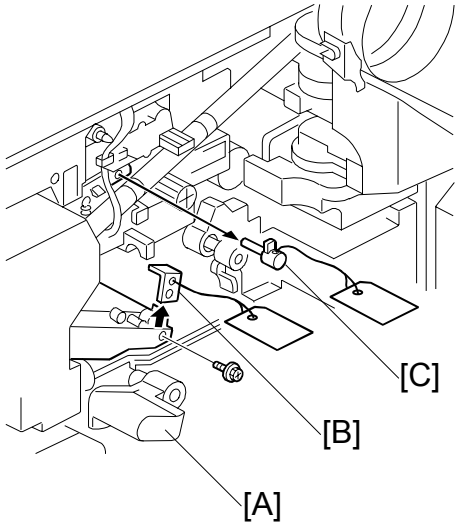
8. Open the front door, open the toner bottle holder [C], then remove all tape and shipping retainers.



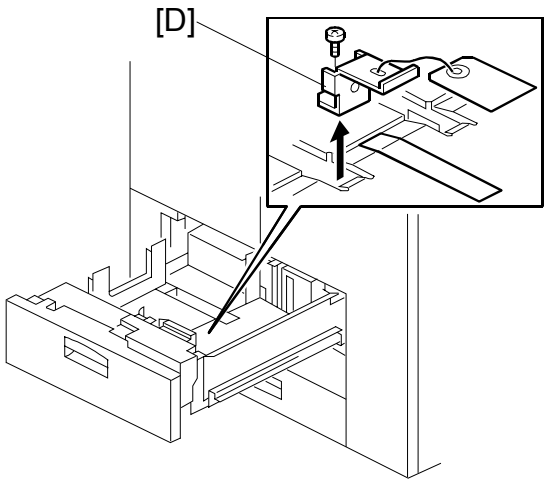
9. Remove the PCU inner cover [D] (x2) and disconnect the fan motor [E] (x 1).



10. Lower the transfer unit by turning its knob [A].
11. Remove the bracket [B], and the red tag from the transfer belt (☞ x1).
12. Remove the pin [C], and the red tag from the cleaning plate.

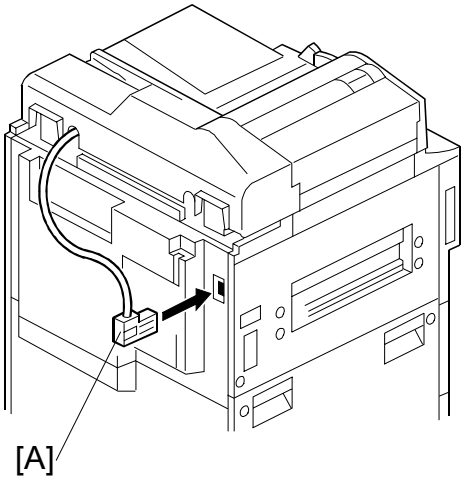


13. Open the tandem tray (top paper tray) and remove the metal retainer bracket [D] (☞ x1), wire, and red tag. Also remove all filament tape and foam or cardboard cushions.



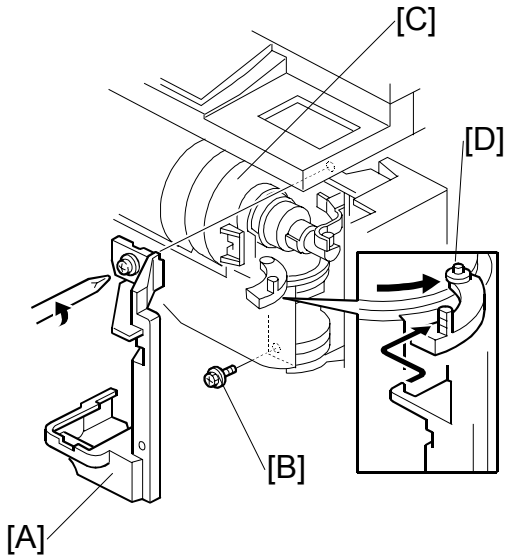
Connecting the ADF

Connect the ADF plug [A] to the connector on the back of the machine.

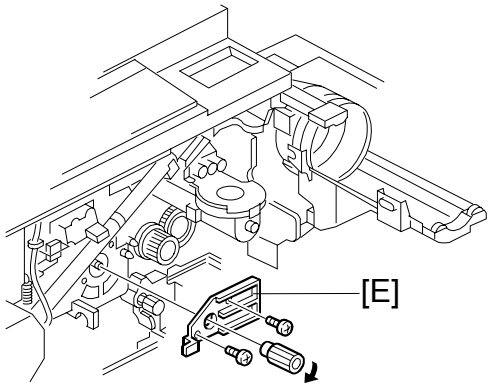


Removing and Filling the Development Unit

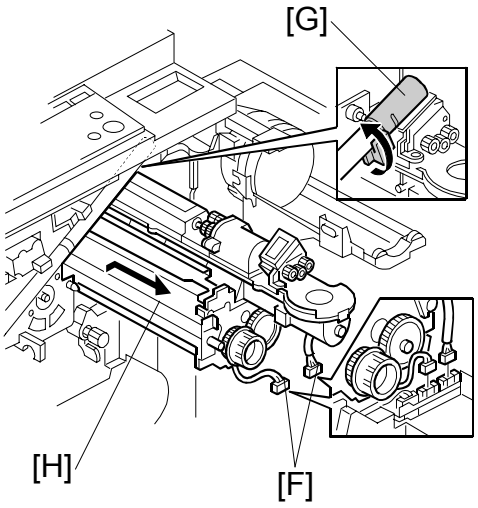
1. Remove shutter cover [A] of the toner supply unit (🖉 x1).
2. Remove the lock screw [B] from the toner bottle open/close metal bracket.
3. Make sure that the shipping tape at [C] has been removed.
4. Pull the toner bottle holder out and swing the toner bottle holder to the right.
   NOTE: After re-installation, the tab [D] should be behind the stay and its pin below should be in the open track below.



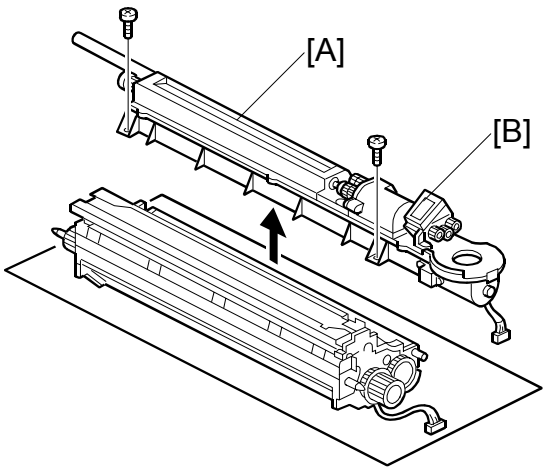
5. Remove the face plate [E] of the development unit (knob x1, 🖉 x2).



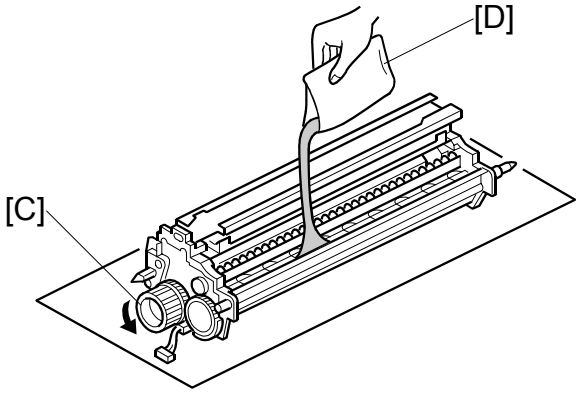
6. Disconnect the development unit [F] (🖑 x2).
   NOTE: If the LCT is installed, you may need to disconnect it so the front door can open far enough to allow removal of the development unit.
7. Close the supply pipe shutter [G], and then while allowing the development unit [H] to slip to the right, slowly pull it out of the machine.



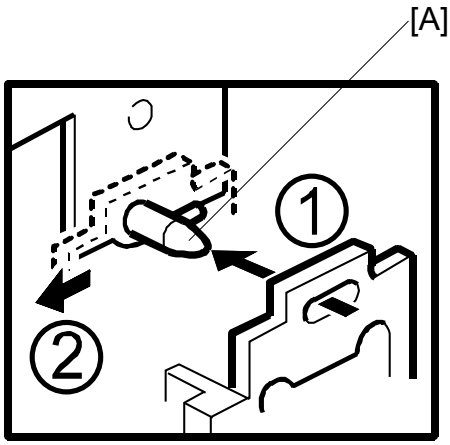
8. Remove the toner hopper assembly [A] (x2).
9. Rotate the toner hopper [B] slightly 10° to 20° as you slide it up to remove it.



10. While turning the knob [C] slowly, pour in one pack of developer [D] from one end of the development unit to the other.
    NOTE: Make sure that the developer is evenly distributed. Note the developer lot number printed on the top edge of the bag. You will need the lot number when you execute SP2963 (Installation Mode).
11. Assembly the developer unit then re-install it in the machine.
12. Follow the instructions printed on the inside of the front door to install the toner bottle.
    NOTE: If the door does not close, make sure that the pipe line shutter is rotated down. (See Step 7 above.)



Re-installing the Development Unit



When re-installing the development unit, engage the plate ① on the front of the development unit with the silver pin [A] inside the machine, then slide it to the left ② toward the drum.

If the unit is installed correctly, you should see the pin above the plate, and the plate should be flat against the front of the development unit.

If the development unit will not move past the pin, the couplings are not aligned correctly at the back of the machine. Turn the gear on the front of the developer unit until the couplings engage at the rear of the machine.

Before closing the front door, make sure that the pipe line shutter is rotated down to the open position.

Initializing the Drum Settings

After switching on the machine, you must execute SP2963 (Installation Mode) within 60 seconds to 1. Initialize the developer and force toner supply to the development unit, and 2. Initialize the auto process control settings.

- SP2963 must be executed before sample copying or test printing.
- If you do not press “Execute” in Step 2 of the following procedure within 60 seconds after the machine is switched on, the auto process control features will not initialize correctly. (potential sensor calibration, Vsg, Vref, etc.)
- If the machine starts the auto process control routine before you have a chance to press Execute, switch the machine off and try again.

Proceed as follows:

1. Connect the power cord.
2. Within one minute, before the auto process control settings initialize, execute SP2963.
   - Press Clear Modes ⌧.
   - On the operation panel keypad, press ①⓪⑦.
   - Hold down Clear/Stop Ⓒ/⊗ for more than 3 seconds.
   - Press “Copy SP” on the touch-panel.
   - Press ②⑨⑥③.
   - Press Enter ⓝ.
   - Enter the Developer Lot No. with the key display, then press “Execute”.

   About four minutes is required to initialize toner supply and the auto process control settings.
3. Press “Exit” to leave the SP mode.
4. Attach the appropriate decals (provided) to the paper trays.
5. Check copy quality and machine operation.

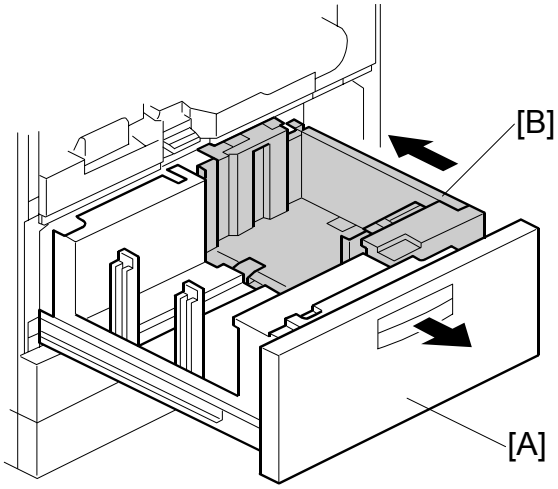
NOTE: At installation, use SP2963 to enter the lot number, initialize the developer, and to force toner supply to the toner hopper.
After replacing developer in a machine that has already been installed, do not use SP2963; execute SP2801 (TD Sensor Initial Setting) instead to enter the lot number and initialize the TD sensor. (☛ 3.7.1)

Tandem Tray

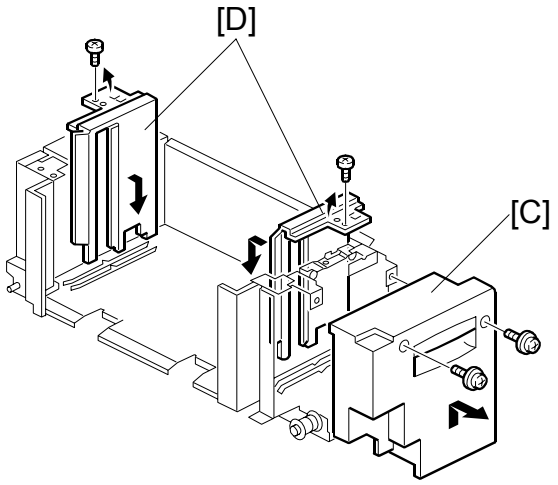
Before shipping the machine, the tandem tray is set for A4 or LT LEF and must be adjusted if the customer wants to use the tandem tray for another paper size.

Feed Station	Allowed Size
Tandem Tray (Tray 1)	A4 LEF, LT LEF
A3/DLT Kit	A3, B4, A4, DLT, LG, LT

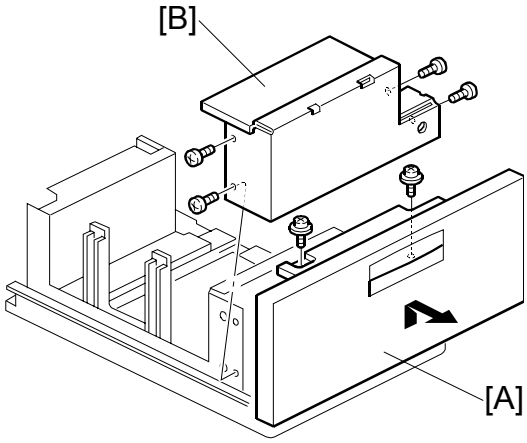
1. Open the front cover.
2. Completely pull out the tandem feed tray [A] so that the right tandem tray [B] separates from the left tandem tray.



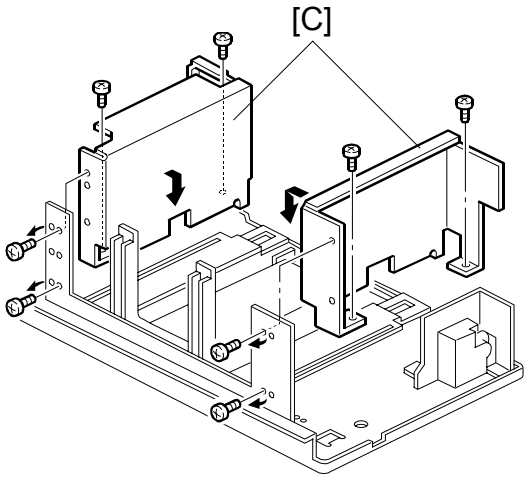
3. Remove the right tandem inner cover [C].
4. Re-position the side fences [D] (x2). The outer slot position is used when loading A4 size paper.
5. Re-install the right tandem inner cover [C].



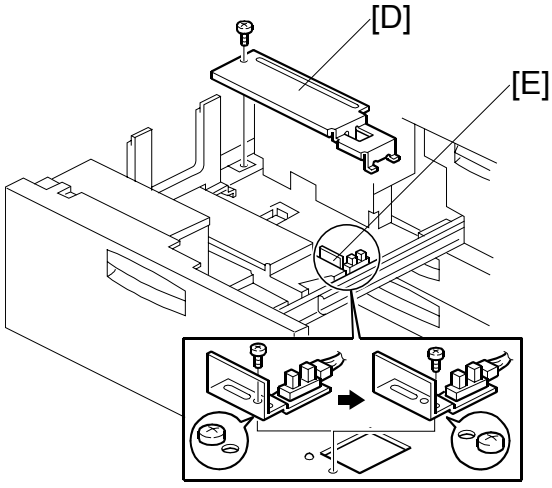
6. Remove the tray cover [A] (☞ x2).
7. Remove the motor cover [B] (☞ x4).



8. Re-position the side fences [C] (☞ x8). The outer slot position is used when loading A4 size paper.
9. Re-install the motor cover and the tray cover.

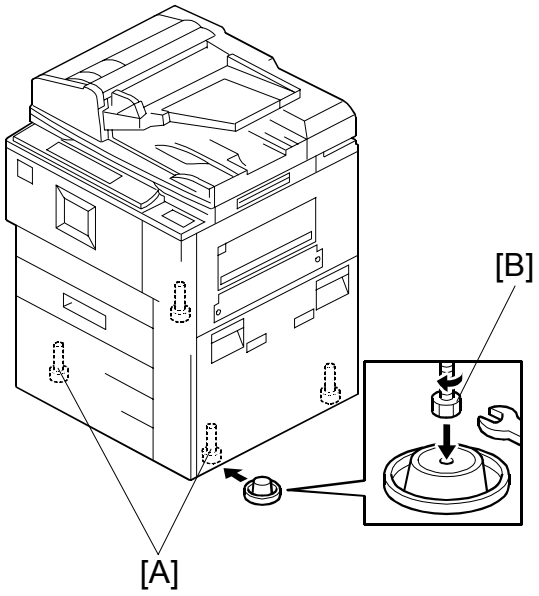


10. Remove the rear bottom plate [D] (☞ x1).
11. Re-position the return position sensor bracket [E] (☞ x1). To use the paper tray for A4 size, put the screw in the left hole as shown. (For LT size, the screw should be placed on the right.)
12. Re-install the rear bottom plate.
13. Change the paper size using SP5959-001 (Paper Size – Tray 1). For details, see SP5959 in section “5. Service Tables”.



Machine Level

1. Set a stand [A] at each corner of the machine.
2. Place a level on the exposure glass and use a wrench to turn each nut [B] and level the machine to ±5 mm of the horizontal.
3. Check the machine operation. With the customer, determine the best place to attach the cleaning reminder decal.



Date/Time Setting

Use the User Tools menu to set the current date and time.

- On the operation panel, press the User Tools key.
- On the touch-panel, press “System Settings”.
- Press the “Timer Setting” tab.
- Press “Set Date” the enter the date.
- Press “Set Time” to enter the time.

SP Codes

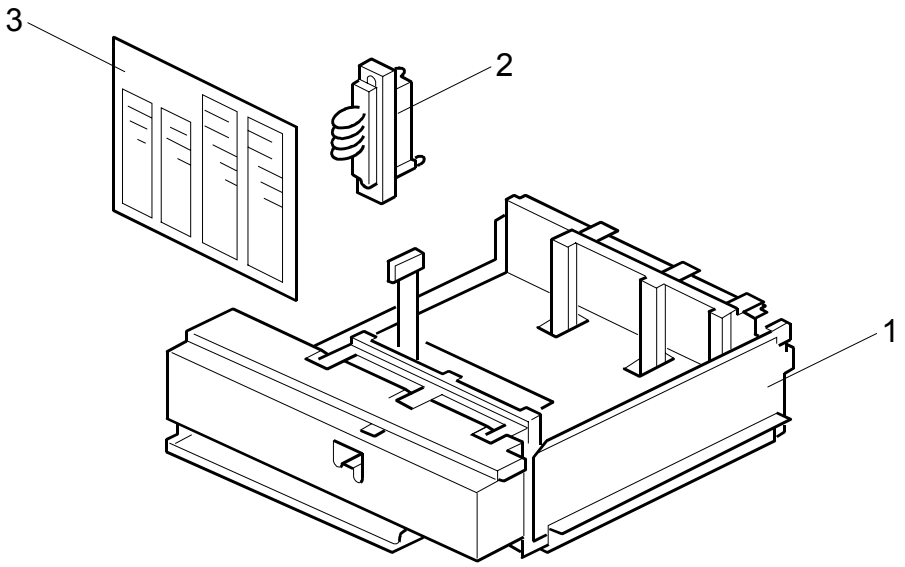
SP5812 001~002	Service Telephone Number Settings	Execute this SP and enter the contact numbers of the custom engineer. These are the numbers displayed when a service call is issued.
SP5841 001	Supply Name Setting – Toner Name Setting: Black	This name appears when the user presses the Inquiry on the User Tools screen.
SP7825	Total Counter Reset	Execute after installation and after making all test copies to reset the electronic counter total.

1.3 A3/DLT FEEDER KIT (B475)

1.3.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. A3/DLT Tray	1
2. Short connector	1
3. Page size decals	1

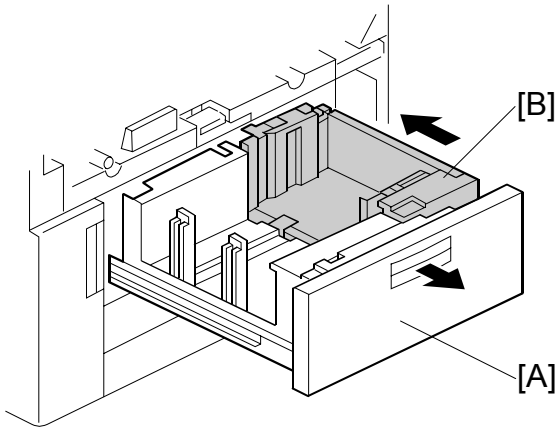


1.3.2 INSTALLATION PROCEDURE

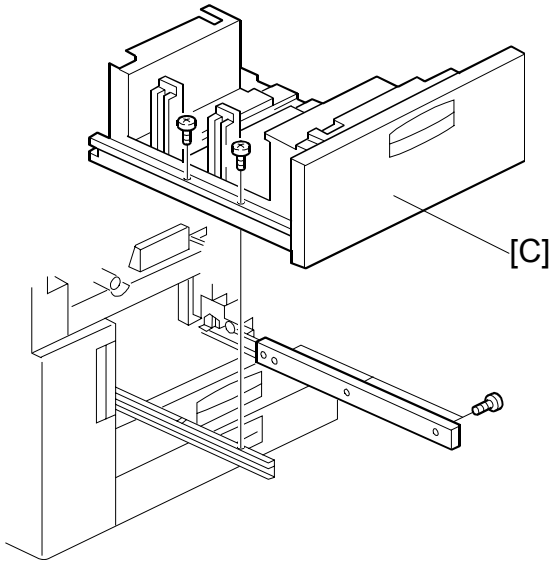
⚠CAUTION

Switch the machine off and unplug the machine before starting the following procedure.

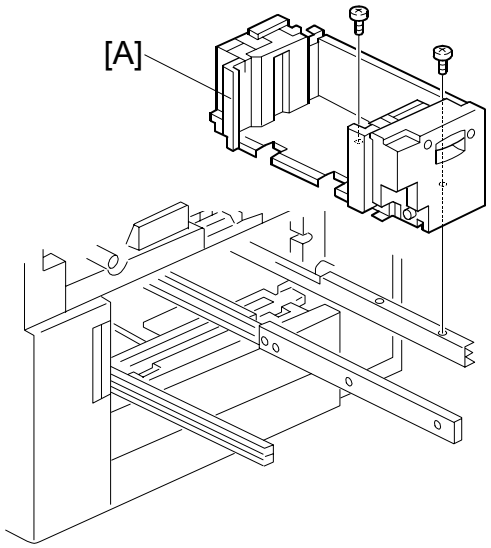
1. Draw out the tandem tray completely to separate the left and right sides of the tray, then remove the front cover [A] (🖉 x2).
2. Push in the right tandem tray [B].



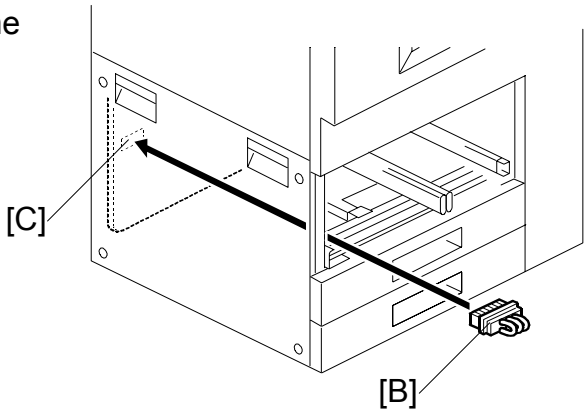
3. Remove the left tandem tray [C] (🖉 x5). Save these screws.



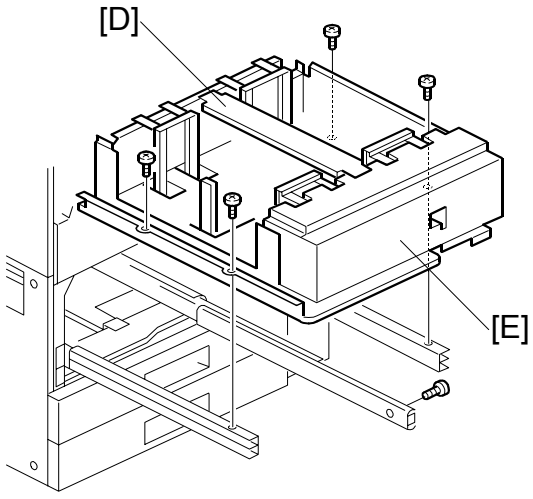
4. Remove the right tandem tray [A] (x2). Save these screws.



5. Connect the short connector [B] to the left tandem tray terminal [C].



6. Remove the stay [D] (x2) and re-install it.
7. Attach the A3/DLT tray [E], using the screws removed earlier.
8. Re-install the front cover.
9. Switch the machine on, enter the SP mode and select the paper size for Tray 1 with SP5959 001 (Paper Size – Tray 1) For details, see SP5959 in section “5. Service Tables”.
10. Attach the appropriate decal for the selected paper size.



1.4 LCT (B473)

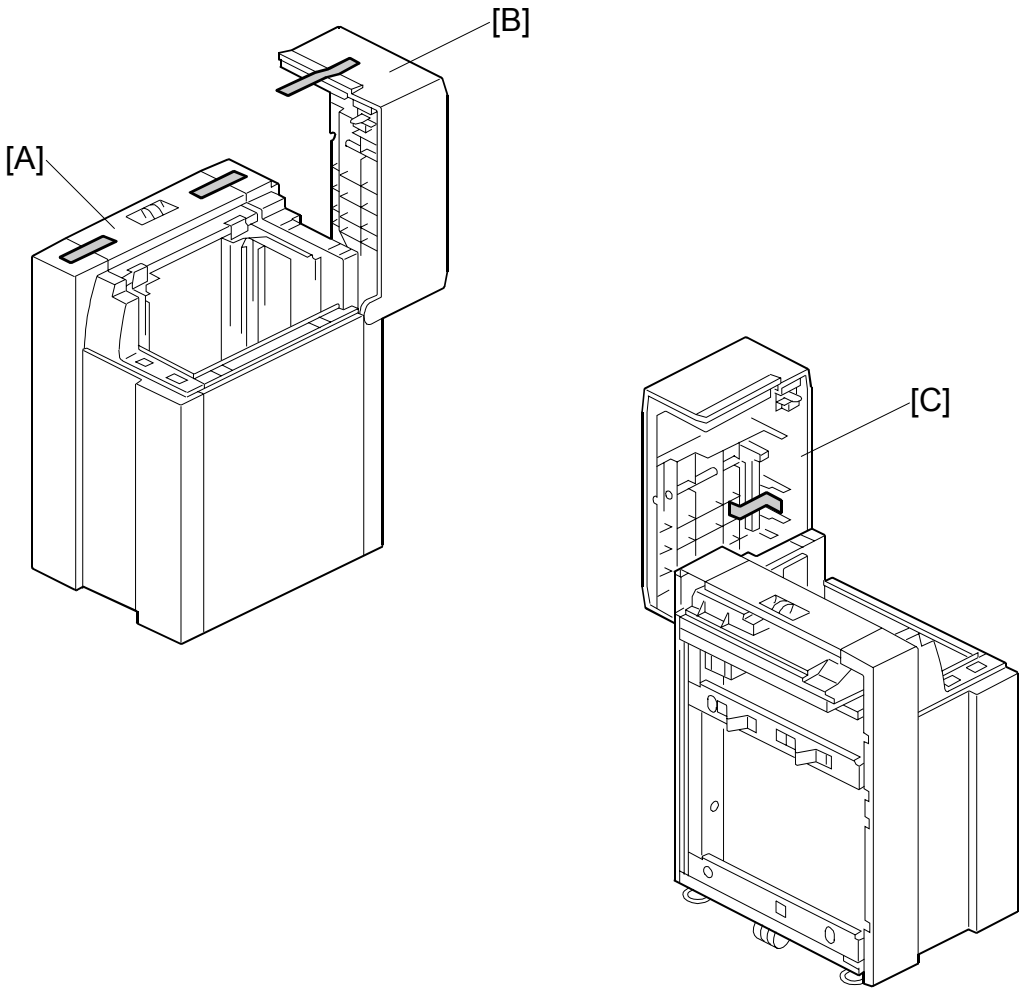
1.4.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. Flat-head shoulder screw - M4x6	1
2. Upper docking pins (grooved)	2
3. Lower docking pin (not grooved)	1
4. Installation Instructions	1
5. Paper Set Decal	1

1.4.2 INSTALLATION PROCEDURE

Removing Tape



1. Remove the filament tape from the body [A] and top cover [B] of the LCT.
2. Remove the tape under the lid [C] of the LCT.

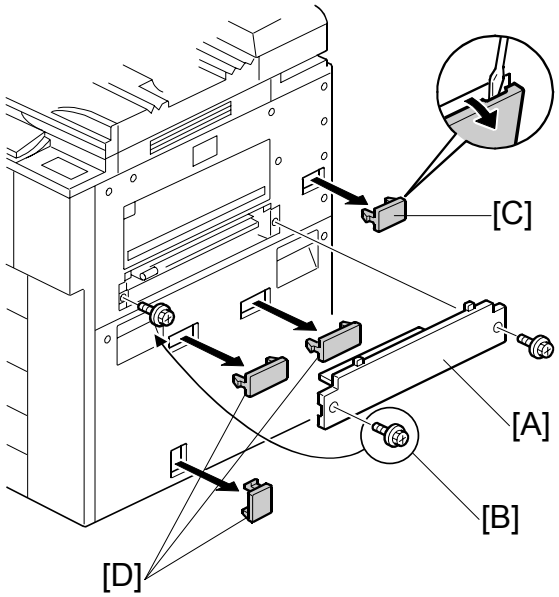
NOTE: If LG/B4 Feeder Kit (B474) is to be installed with the LCT, it should be installed at this time.

Preparing the Main Machine

⚠**CAUTION**

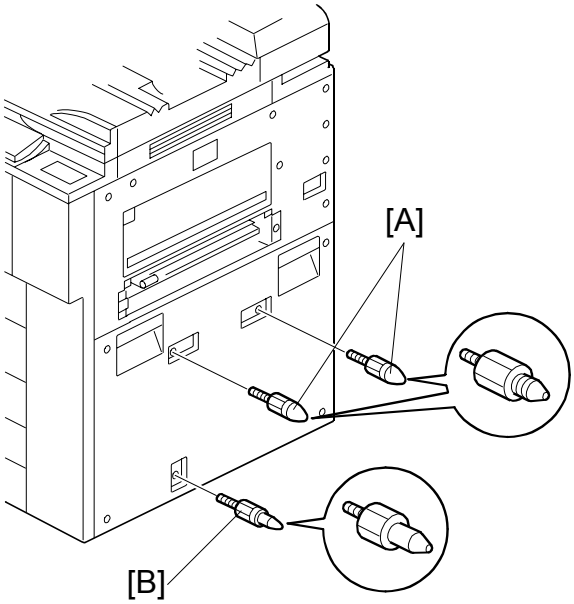
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

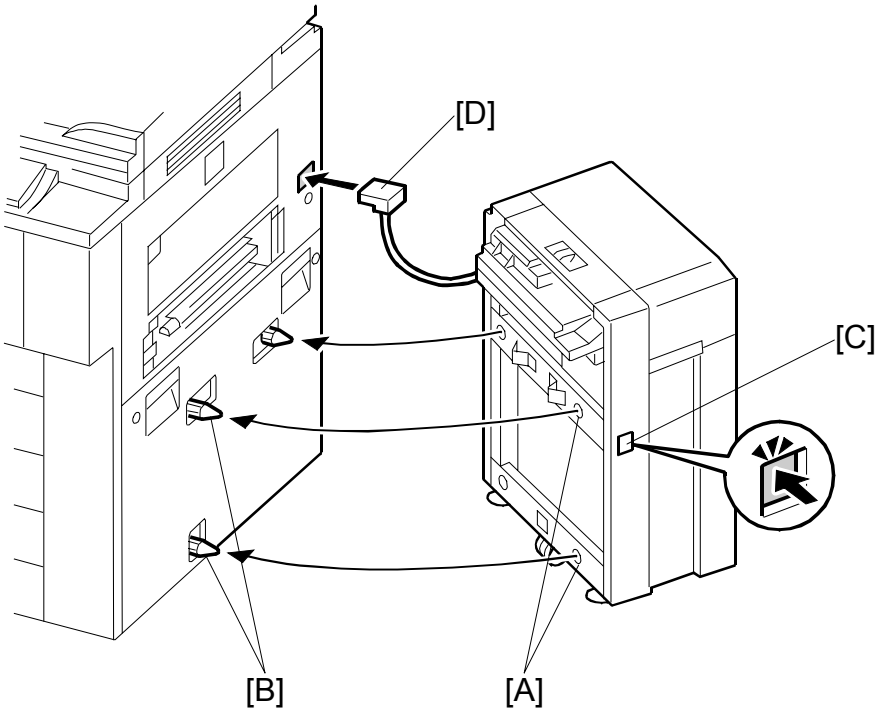
1. Remove the LCT installation cover [A] from the right side of the machine. (🖉 x2).
2. Reinsert the screw on the left [B].
3. Remove the LCT connector cover [C] (x1) and the covers over the holes for the docking pins [D]. (x3)



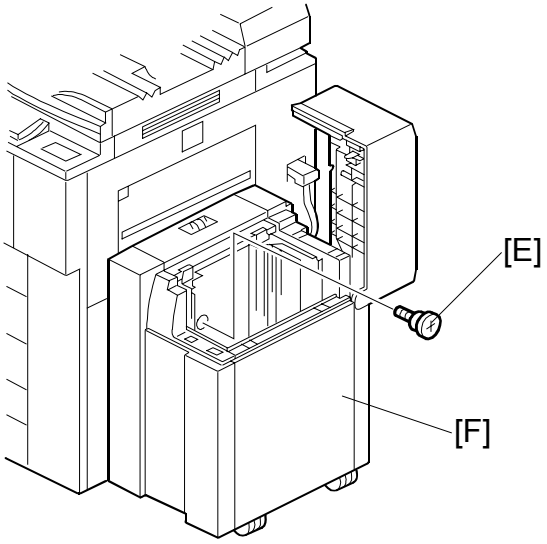
Installing the LCT

1. Insert the two upper docking pins (grooved) [A] into the upper slots and the lower docking pin [B] into the lower slot.





2. Align the holes on the side of the LCT [A] with the docking pins on the side of the machine [B], then slowly push the LCT onto the pins.
   NOTE: The release button [C] is used to unlock the LCT so it can be disconnected from the machine.
3. Connect the plug [D] of the LCT power cord to the side of the machine.
4. Insert the flat-head shoulder screw [E] into the hole and fasten it to lock the release lever in place.
   For easier access to the hole for the screw [E], you can remove the right panel [F] (🔩 x2).
5. Switch the machine on and execute SP5959 005 (Paper Size – Tray 4 (LCT)) to select the paper size. For details, see SP5959 in section "5. Service Tables."



1.5 LG/B4 FEEDER KIT (B474)

1.5.1 ACCESSORY CHECK

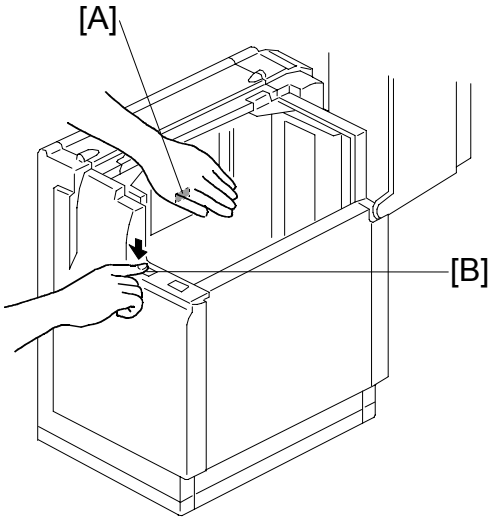
Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. Tapping screws - M4x8	4
2. Tapping hex screws - M4x8	6
3. Harness clamp	1
4. B4/LG frame	1
5. Front bracket	1
6. Rear bracket	1
7. Bottom plate extension	1
8. Cover	1

1.5.2 INSTALLATION PROCEDURE

If the LCT is connected to the machine

1. Open the cover and remove the paper.
2. Lower the LCT tray. Cover the near end sensor [A], then press the tray down button [B] to lower the tray bottom plate.
3. Disconnect the LCT from the machine (☛ 1.4.2).

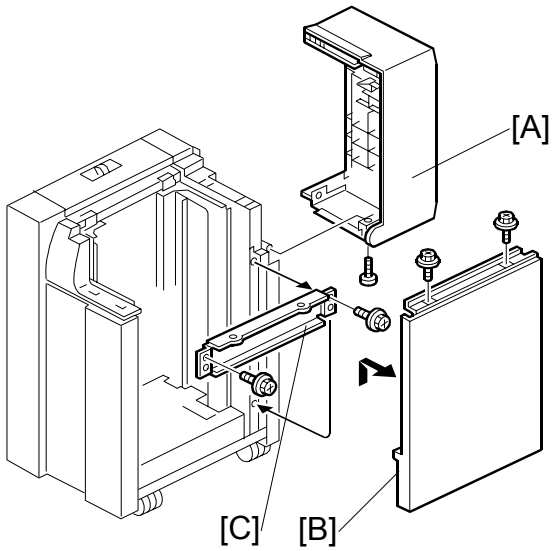


⇒

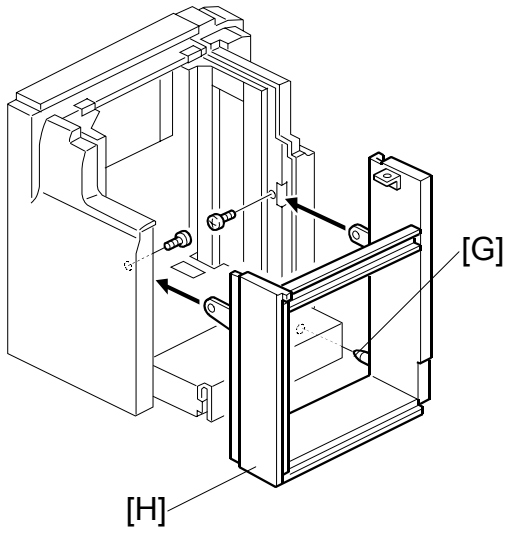
⚠CAUTION

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

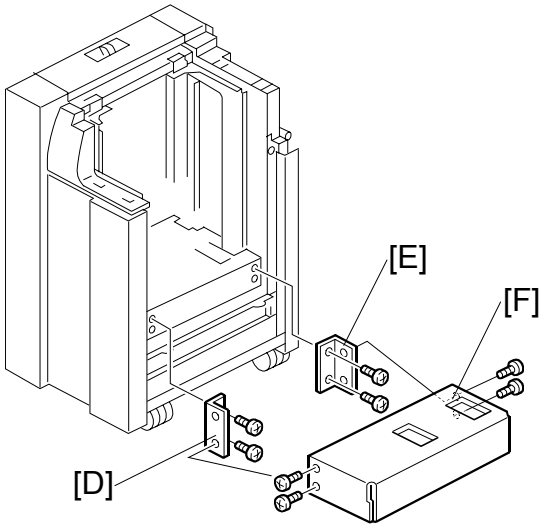
4. Remove the LCT cover [A] (☞ x1).
5. Remove the right cover [B] (☞ x2).
6. Remove the right stay [C] (☞ x2).



7. Attach the front bracket [D] with the beveled corner down (☞ x2).
   NOTE: If the brackets are difficult to install, raise the bottom plate with your hand.
8. Attach the rear bracket [E] with the beveled corner down (☞ x2).
9. Attach the bottom plate extension [F] with the hex nuts (☞ x4).

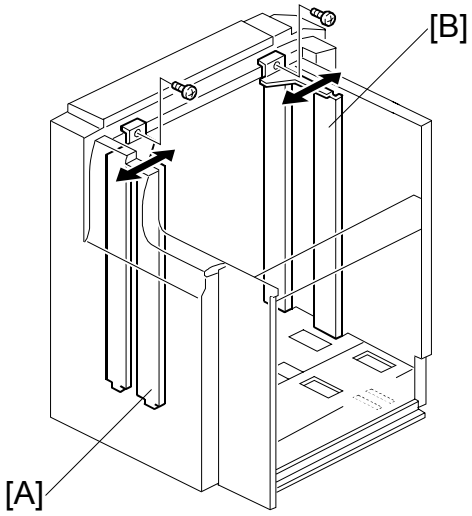


10. Align the positioning pin [G].
11. Attach the B4/LG frame [H] with the hex nuts (☞ x2).

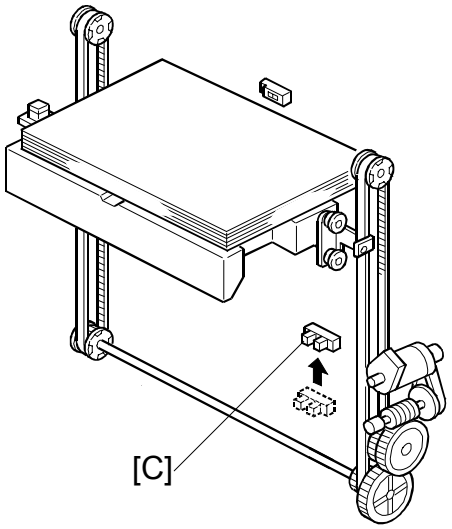


The kit is set for B4. If you need to change the paper size to LG, do the following steps.

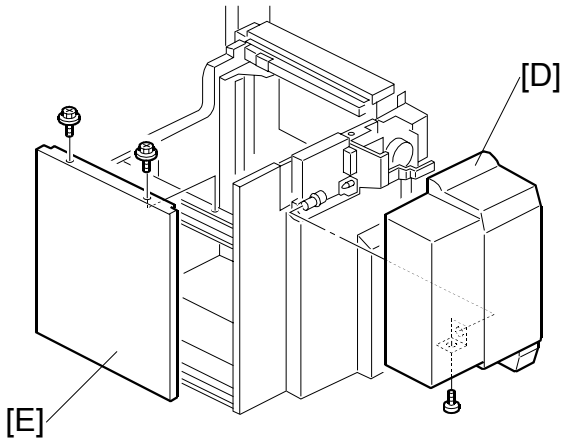
12. Move the front side fence [A] to the LG position and fasten (☞ x1).
13. Move the rear side fence [B] to the LG position and fasten (☞ x1).



14. Change the position of the lower limit sensor [C] (x1).
15. Attach the harness (not shown) to the back of the plate and secure the sensor connector wire.



16. Attach the LCT cover [D] provided with the kit (x1).
17. Re-attach the right cover [E] (x2).
18. Connect the LCT to the machine (☛ 1.1.2).
19. Switch the machine on, enter the SP mode, then use SP5959 005 (Paper Size – Tray 4 (LCT) to select the new paper size. For details, see SP5959 in section “5. Service Tables”.



1.6 3000-SHEET FINISHERS (B468/B469)

1.6.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. Rear joint bracket	1
2. Front joint bracket	1
3. Upper output tray	1
4. Lower output tray	1
5. Tapping screws - M3x6	2
6. Tapping screws - M4x8	4
7. Tapping screws - M4x14	4
8. Cushion (with double-sided tape)	1
9. Ground (earth) plate	1
10. Installation Instructions	1

1.6.2 INSTALLATION PROCEDURE

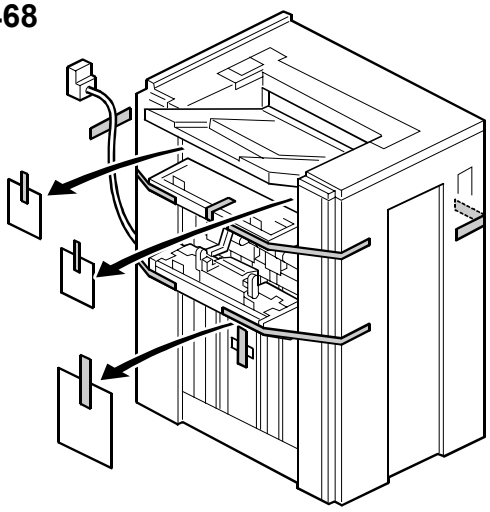
This section describes the common installation instructions for two peripheral devices:

- B468 Finisher, capable of punching, shifting, stapling, and saddle-stitching with staples.
- B469 Finisher, capable of punching, shifting, and stapling but with no saddle-stitching unit.

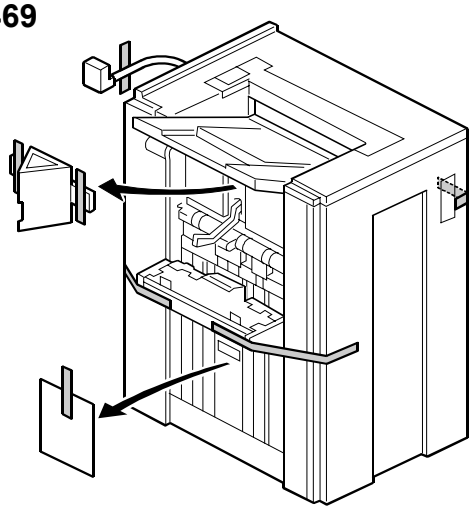
NOTE: Differences in the installation procedure are noted as "**B468**" or "**B469**".

Removing Tapes and Retainers

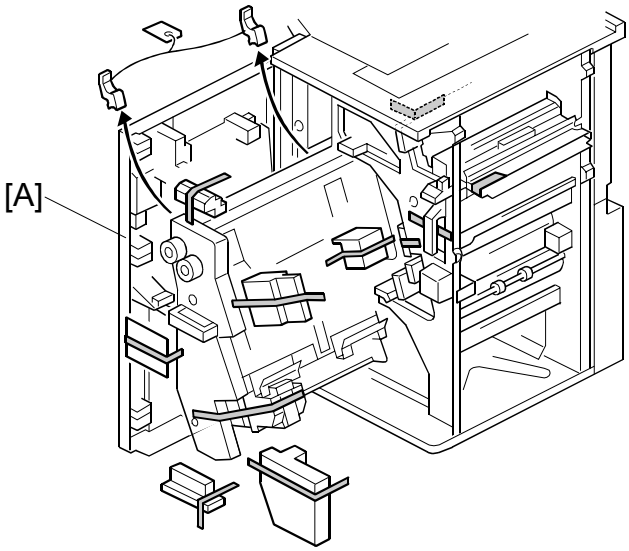
B468



B469



1. Unpack the machine and remove all the wrapping.
2. Remove all filament tape and shipping retainers from the front of the finisher.
3. Open the front door [A] and remove all the tape and shipping retainers from inside the finisher.



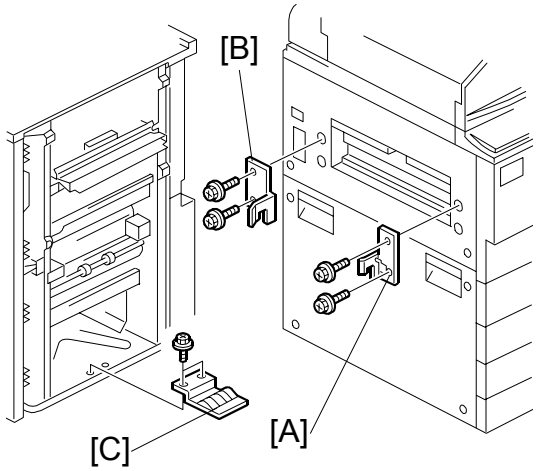
B468/B469 Installation

⚠CAUTION

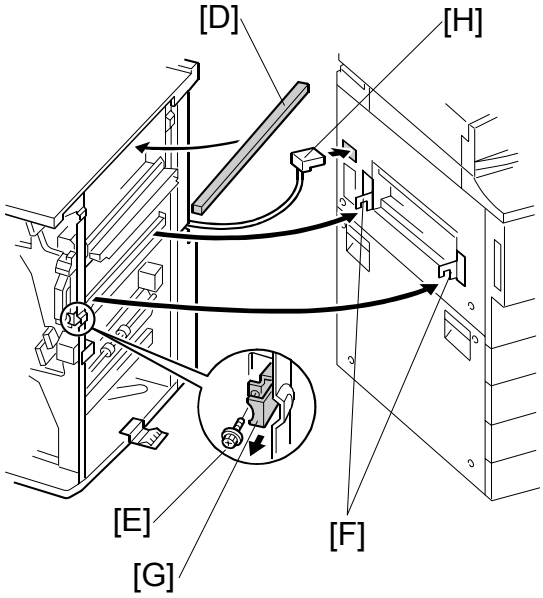
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Install the front [A] and rear [B] joint brackets (🔩 x2 each, M4x14).
2. Install the ground plate [C] (🔩 x2, M3x6).

NOTE: If the Cover Interposer Tray (B470) is to be installed with the finisher, it should be installed at this time.

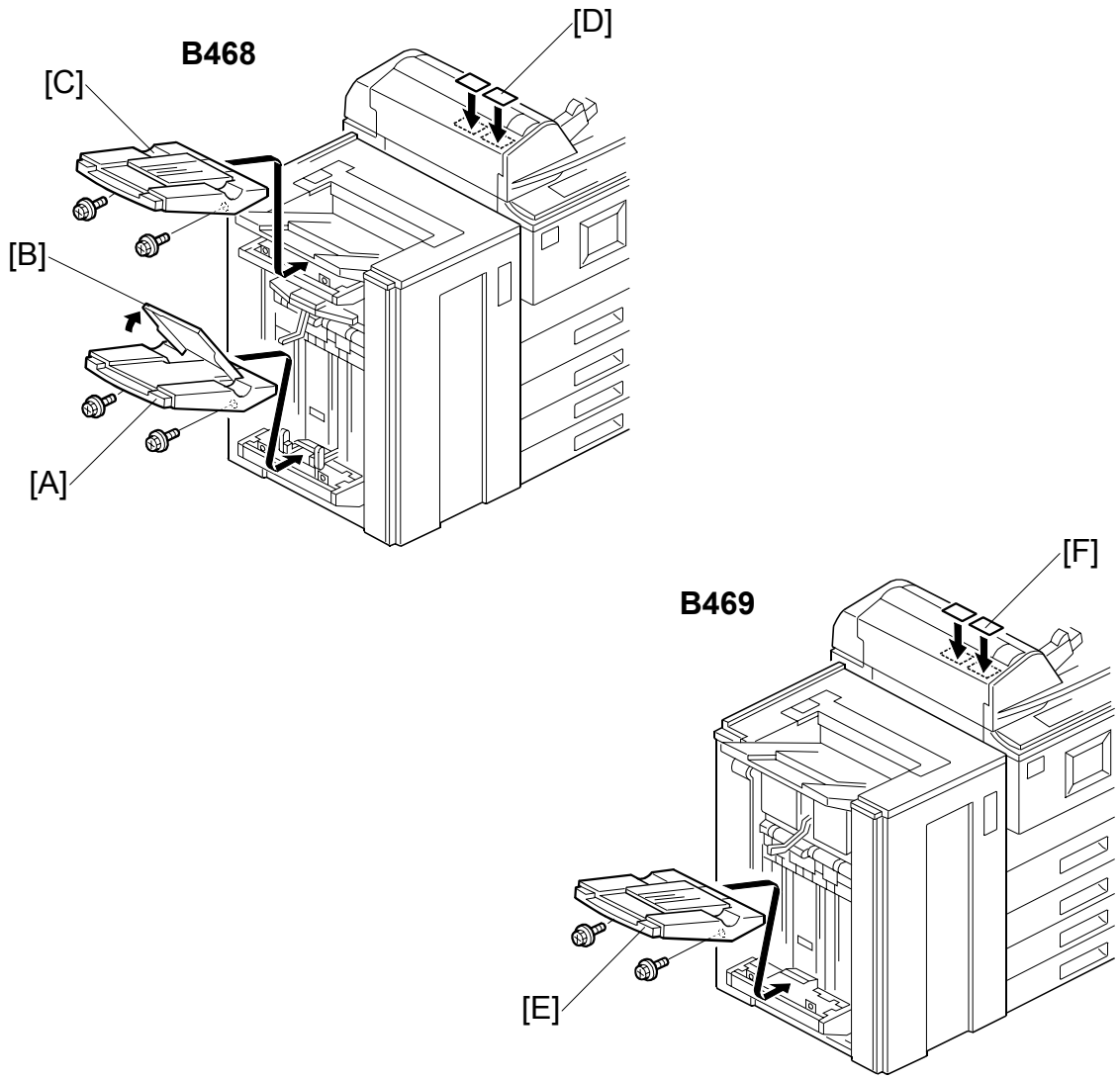


3. Peel the cover tape from the sponge cushion [D], then install it in the upper slot.
4. Remove the screw [E] to release the lock lever (🔩 x1).
5. Align the brackets [F] with the slots in the finisher.
6. To avoid bending the entrance guide plates of the finisher, slowly and carefully push the finisher against the side of the machine until the brackets enter the slots.
7. Using the screw [E] removed above, secure the lock lever [G] (🔩 x1).
8. Connect the plug [H] of the finisher power cord to the connector on the machine.



⚠CAUTION

Always move the finisher slowly to avoid bending the entrance guide plates. Bent guide plates could interfere with paper transport from the machine to the finisher.



B468

1. Install the lower output tray [A] (x2).
   NOTE: Only the lower output tray has a movable support tray [B].
2. Install the upper output tray [C] (x2).
3. Attach the staple position decal [D] to the ADF.

B469

1. Install the output tray [E] (x2).
2. Attach the staple position decal [F].

Selecting the Staple Supply Name

Enter the SP mode and execute the following information.

5841*	Supply Name Setting		These names appear when the user presses the Inquiry button on the initial User Tools screen.
	005	Staple Std	Enter the name of the staples in use for normal stapling (not booklet stapling). This setting should be done for both the B468 and B469.
	006	Staple Bind	Enter the name of the staples in use for booklet stapling (saddle-stitching). This setting is required only for the B468.

Enabling Booklet Binding

To enable booklet binding, you must select the 'center stapling' position.

1. Press the User Tools key.
2. Touch "Copier/Document Server Features".
3. Touch the "Input/Output" tab, then locate the "Select Stapling Position" buttons.
4. Touch any one "Stapling Position" button that will not be used and then touch the center stapling symbol to replace it.
5. Exit the User Tools mode. Specify the number of copies, touch the center stapling symbol on the operation panel, then start the print job.

These SP adjustments are available but not required at installation.

SP6902	Fold Position Adjustment	Use this SP to fine adjust the fold and staple positions if they are not aligned correctly. See "5. Service Tables".
SP6120	Staple Jogger Adjustment	Allows fine adjustment of the staple unit jogger fences for different paper sizes, if required. See "5. Service Tables".

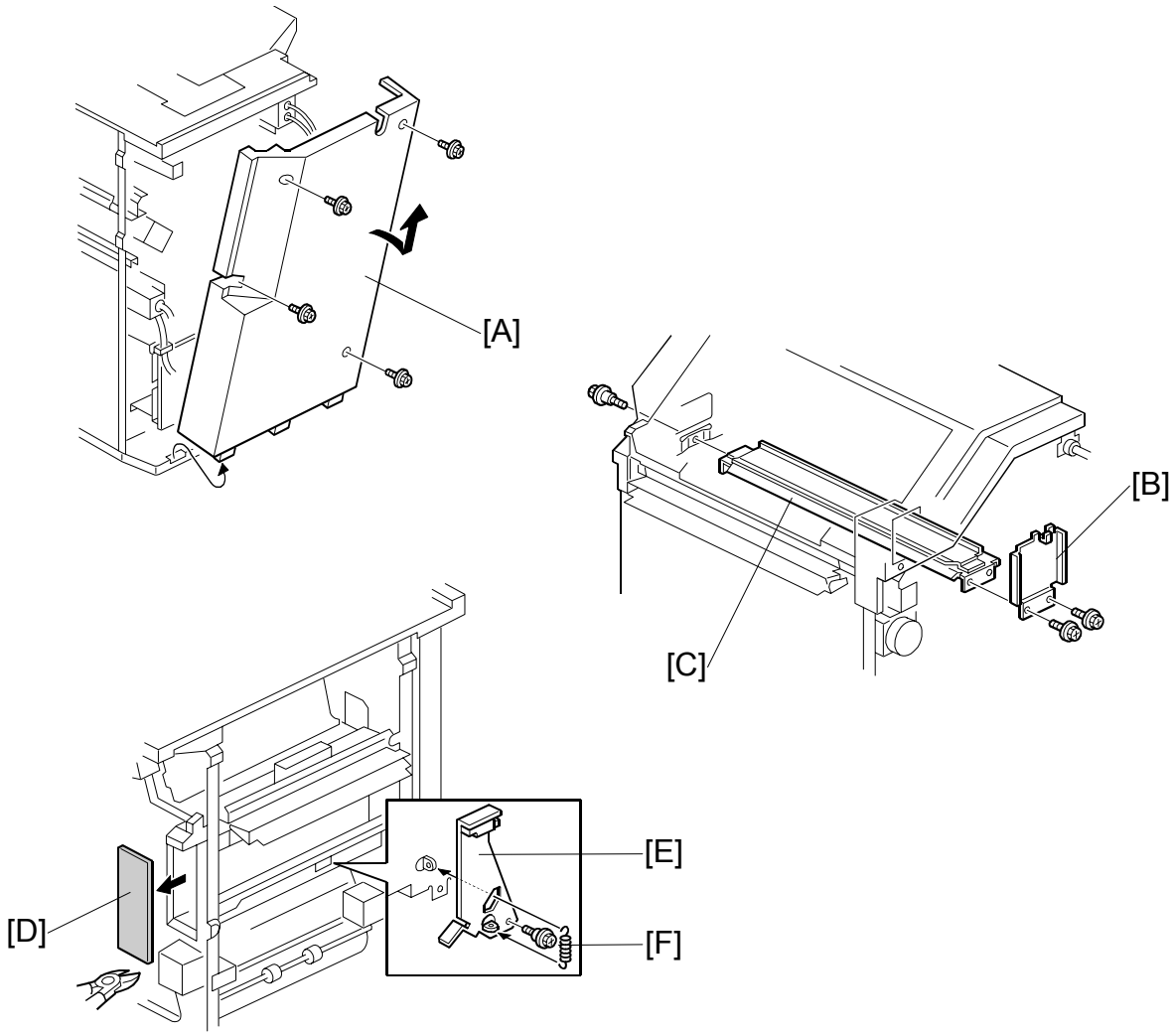
1.7 PUNCH UNIT (B377)

1.7.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. Punch unit	1
2. Sensor arm	1
3. Hopper	1
4. Step screw	1
5. Spring	1
6. Spacer (2 mm)	1
7. Spacer (1 mm)	1
8. Tapping screw - M3x8	1
9. Tapping screw - M3x10	2

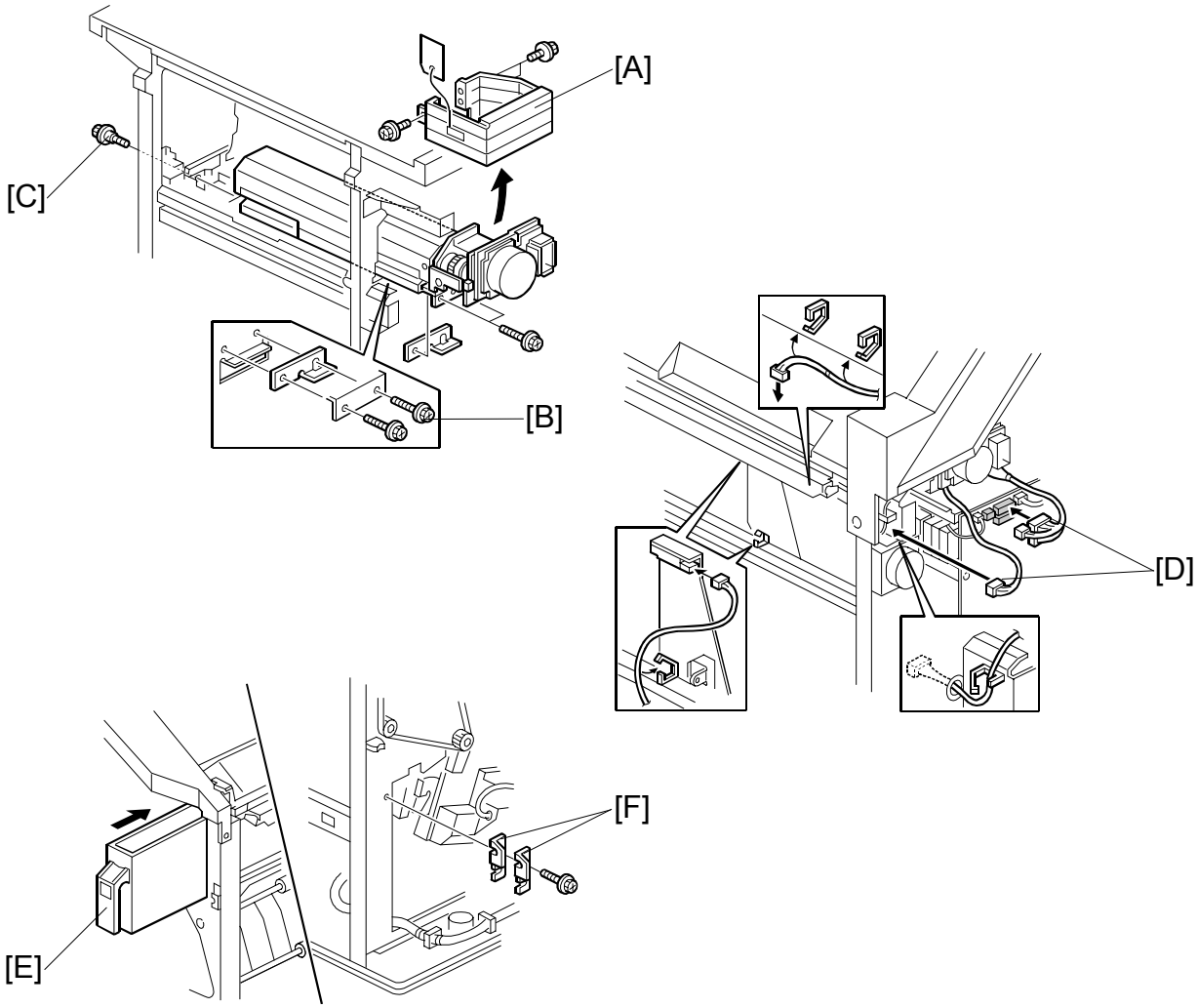
1.7.2 INSTALLATION PROCEDURE



⚠CAUTION

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. If the finisher is connected to the machine, disconnect it.
2. Unpack the punch unit and remove all tapes and shipping retainers.
3. Open the front door and remove the rear cover [A] (☞ x4).
4. Remove the bracket [B] (☞ x2) and paper guide [C] (☞ x1).
5. Remove the plastic knockout [D].
6. Install the sensor arm [E] (☞ x1).
7. Install the spring [F].



8. Remove the shipping bracket [A] (☞ x2).
9. Position the 2 mm spacer [B] and secure the punch unit (☞ x2).
10. Secure the punch unit at the front with the shoulder screw [C] (☞ x1).
11. Connect the harnesses [D] and clamp them as shown.
    NOTE: No special DIP switch settings are required for this punch unit. The punch unit sends an identification signal to the machine, so it knows what type of punch unit has been installed.
12. Slide the hopper [E] into the machine.
13. Fasten the two 1 mm spacers [F] to the rear frame. These may be used during future adjustments.
    NOTE: The spacers are used to adjust the horizontal positioning of the holes.
14. Reassemble the finisher and check the punch operation.

1.8 COVER INTERPOSER TRAY (B470)

1.8.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. Shoulder screws	3
2. Upper front door extension	1
3. Lower front door extension	1
4. Lower cover extension	1
5. Lower plate	1
6. Cover spacer	2*1
7. Tapping screws - M3x6	5
8. Tapping screws - M4x8	4
9. Tapping screws - M4x6	2
10. Installation Instructions	1

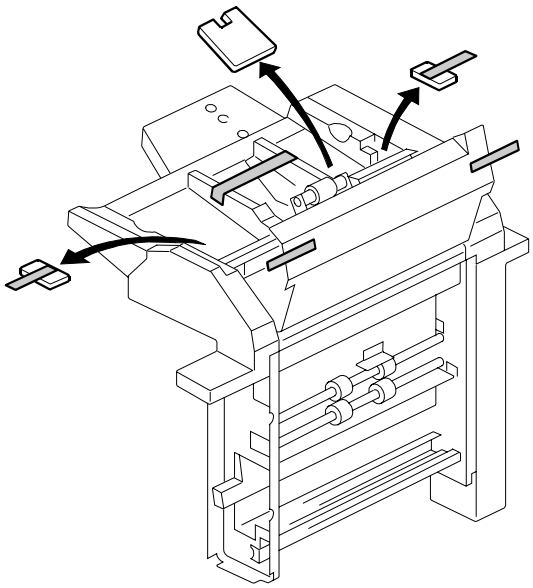
*1: The extra spacer is provided for the B478 3000-Sheet Finisher.

1.8.2 INSTALLATION PROCEDURE

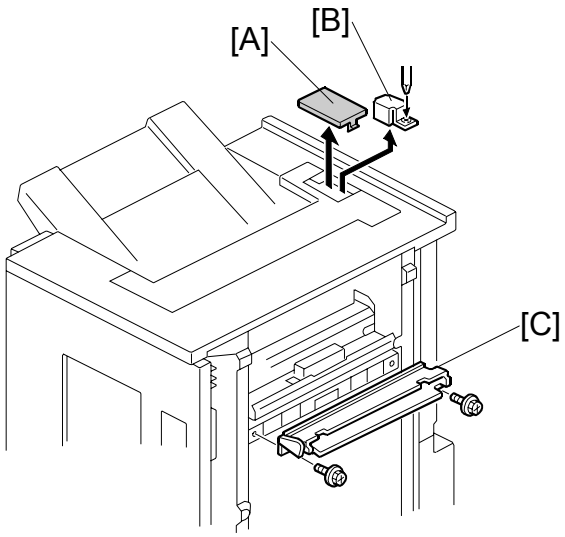
NOTE: If the B468/B469/B478 Finisher is connected to the machine, disconnect it.

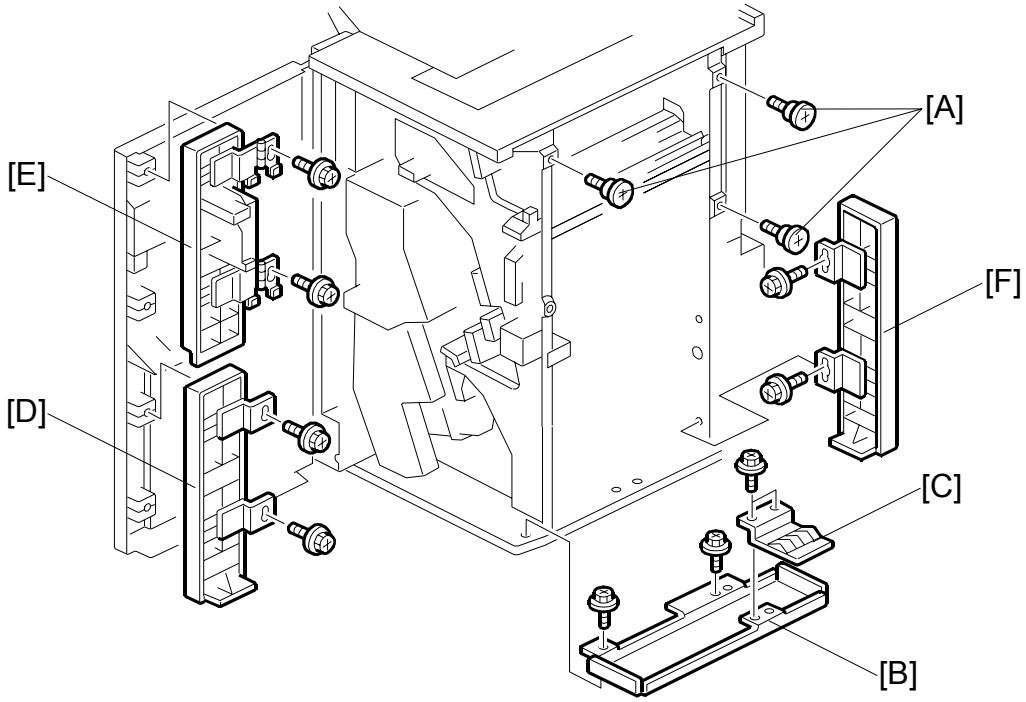
Removing Tapes and Retainers

1. Remove all the filament tape and shipping retainers.



2. Remove the cover [A] of the relay connector.
3. Remove the bracket [B] (x1).
   NOTE: Loosen the screw. Do not remove it.
4. Remove the guide plate [C] (x2).



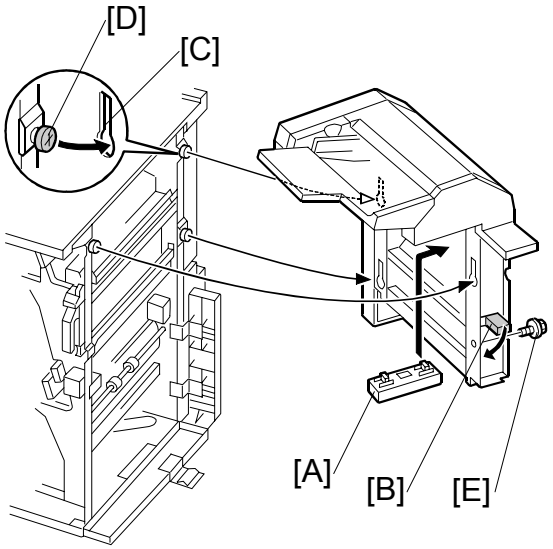


⚠**CAUTION**

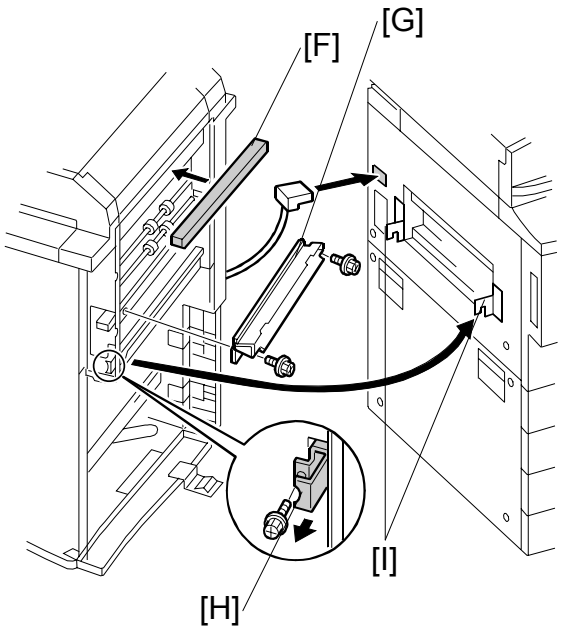
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

5. Attach the three shoulder screws [A] (☞ x3).
6. Attach the bottom plate [B] (☞ x2, M3x6).
7. Remove the ground plate [C] from the finisher, then attach it to the bottom plate (☞ x2, M3x6).
8. Attach the lower front door extension [D] (☞ x2, M4x8).
9. Attach the upper front door extension [E] (☞ x2, M4x8).
10. Attach the lower cover extension [F] (☞ x2, M4x6).

11. Insert the spacer [A] and snap it into position.
12. Lower the transport guide plate [B].
13. Pick up the cover interposer, align the keyholes [C] with the shoulder screws [D], then set the cover interposer onto the screws.
14. Secure the cover interposer with the tapping screw [E] (☞ x1, M3x6).
15. Raise the transport guide plate [B] to close it.



16. Take the sponge cushion [F] out of the finisher and set it on the right side of the cover interposer.
17. Attach the guide plate [G] (removed from the finisher) to the cover interposer (☞ x2).
18. Release the lock lever [H] on the cover interposer (☞ x1).
19. To avoid bending the entrance guide plates of the finisher, slowly and carefully push the finisher against the side of the machine until the brackets [I] enter the slots.
20. Secure the lock lever [H] (☞ x1).



⚠CAUTION

Dock the finisher carefully to avoid bending the entrance guide plates. Bent guide plates could interfere with paper transport from the machine to the finisher.

1.9 9-BIN MAILBOX (B471)

1.9.1 ACCESSORY CHECK

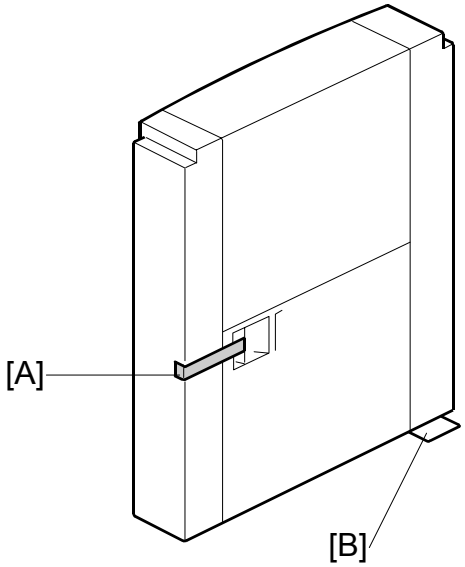
Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. Trays	9
2. Guide plate	1
3. Decals (bin display)	1
4. Tapping screws - M3x8	6
5. Installation Instructions	1

1.9.2 INSTALLATION PROCEDURE

Removing Tapes and Retainers

1. Remove the filament tape [A].
   NOTE: Handle the mailbox carefully. The corner leaf [B] can be damaged easily.



Installation

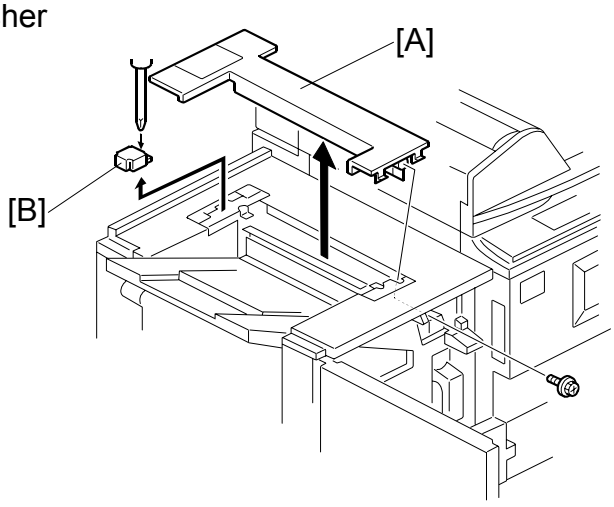
⇒

⚠CAUTION

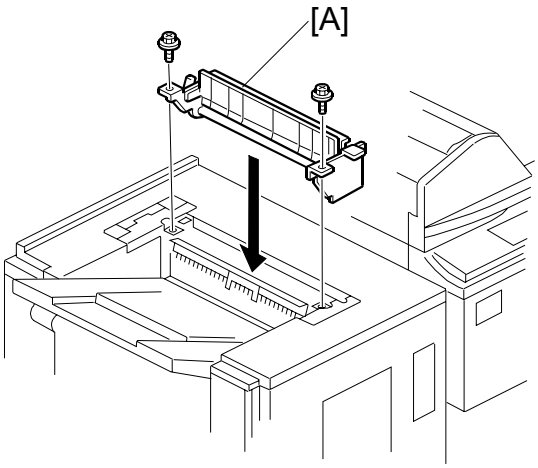
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

If the Cover Interposer Tray B470 is installed on the Finisher B468/B469, remove it. The cover interposer tray and mailbox cannot be installed on the finisher at the same time.

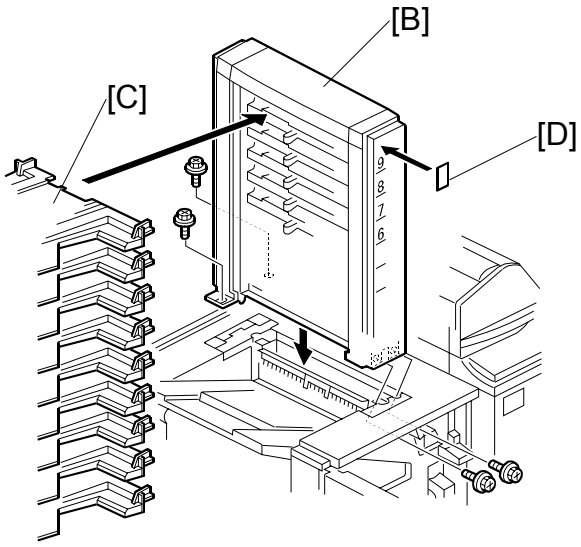
1. Remove the top cover [A] of the finisher (🖉 x1).
2. Remove the bracket [B] (🖉 x1).
   NOTE: Loosen the screw. Do not remove it.



3. Attach the guide plate [A] to the top of the finisher (🔩 x2, M3x8).



4. Attach the mailbox [B] to the top of the finisher (🔩 x4, M3x8).
5. Attach the 9 trays [C] to the mailbox.
6. Give the decals [D] to the customer for notation and pasting at the correct location.



1.10 PRINTER/SCANNER KIT (G338), PRINTER KIT (G339)

1.10.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. Scanner/Printer DIMM (G338) or Printer DIMM (G339)	1
2. Centronics Interface	1
3. NIB	1
4. Screws - M3x8	2
5. Ferrite Core	1
6. Key Top Assembly	1
7. Operating Instructions – Printer	1
8. Installation Instructions	1
9. FCC Label	1
10. Software CD-ROM	3

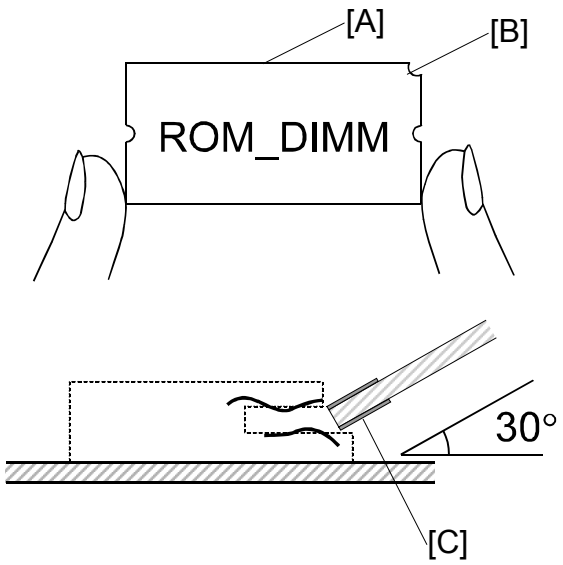
1.10.2 INSTALLATION PROCEDURE

Inserting DIMMs

Read this section carefully before installation so you know how to insert the DIMMs correctly.

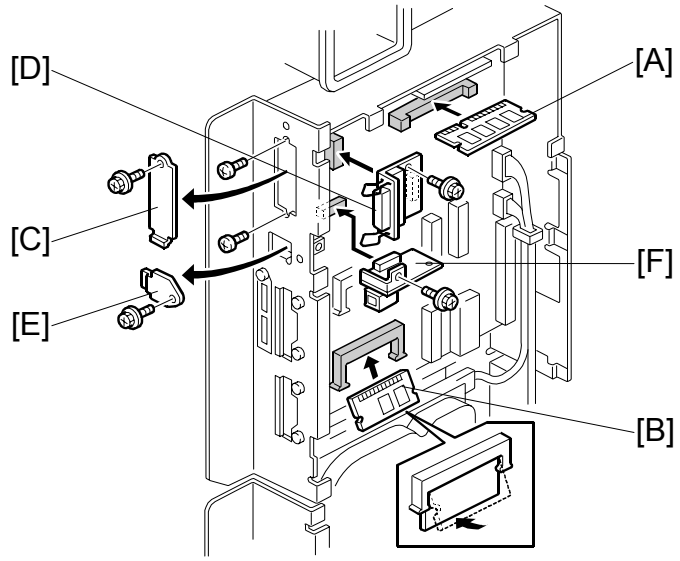
⚠CAUTION

Follow the procedure below to connect the DIMMs to the controller board. Incorrect insertion can damage the controller board or cause a bad connection between the DIMM and controller contacts. If the upper contact is pressed in and bent, the resulting poor connection could cause the entire system to not operate.



1. Hold the ROM DIMM with the edge connector [A] pointing toward the slot and the notch [B] on the DIMM in the upper right corner.
2. Insert the edge connector [C] into the slot at a 30-degree angle from the surface of the board.
   NOTE: If the angle is too low, the upper contact could bend.
3. Move the outside edge of the ROM DIMM up and down slightly until it works into the connector, then gently press it down level with the controller board.

Installation Procedure



⇒

⚠CAUTION

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

NOTE: The printer/scanner unit requires at least 128 MB of optional memory (more is recommended). Memory chips are not packaged with this unit.

1. Disconnect the ADF cable.
2. Remove the rear upper cover (🖉 x2).
3. Remove the controller cover (🖉 x10).

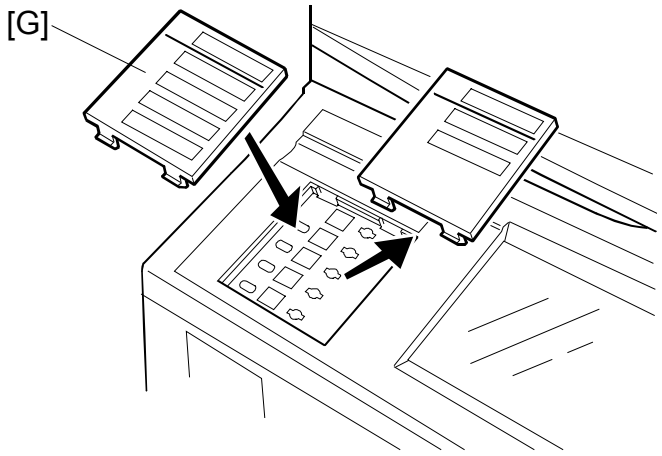
⚠CAUTION

Make sure that the DIMMs are inserted correctly. (☛ 1.10.2)

4. Insert the SDRAM DIMM (expansion memory 128 MB or 256 MB) [A] into connector PC133 on the controller.
5. Insert the ROM DIMM [B] (printer/scanner) board into **Slot 1**.
6. Remove the Centronics connector cover [C] and insert the Centronics connector [D] into CN310 and fasten with the provided screws (🖉 x2).

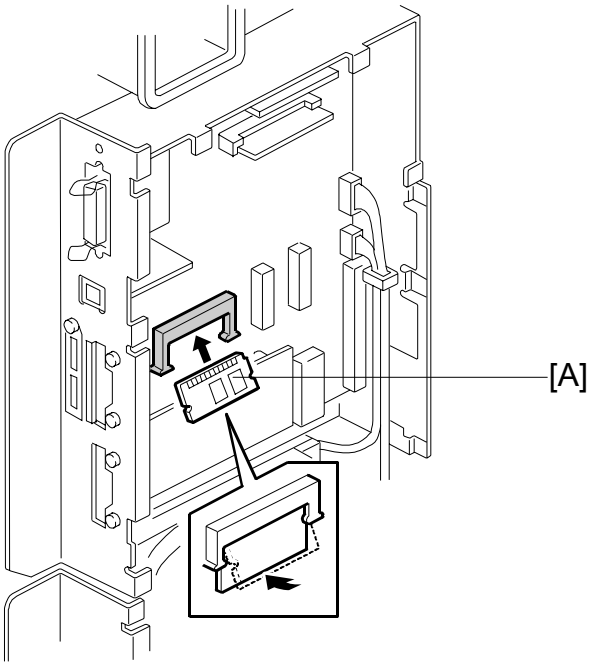
   Rating voltage of interface connectors: Max. DC 5V
7. Remove the slot cover [E] (🖉 x1).
8. Install the NIB [F] into CN311 (🖉 x1).
   Rating voltage of interface connectors: Max. DC 5V

9. Make sure that the following SP commands are set correctly.
   - SP5811 – Machine No. Setting
   - SP5907 – Plug & Play
10. Attach the provided decal near the machine name on the copier.
11. Wrap the Ethernet cable three times inside the ferrite core, close the ferrite core, then connect the modular jack to the NIB.
12. Follow the procedures in the instruction manuals to perform the user settings.
13. Replace the key top assembly [G].



1.11 PS3 (B525-08)

1.11.1 INSTALLATION PROCEDURE



1. Remove the rear upper cover (🔩 x2).
2. Remove the controller cover (🔩 x9).
3. Insert the PS3 module [A] into **Slot 2**.

⚠CAUTION
Make sure that the DIMM is inserted correctly. (☛1.6.2)

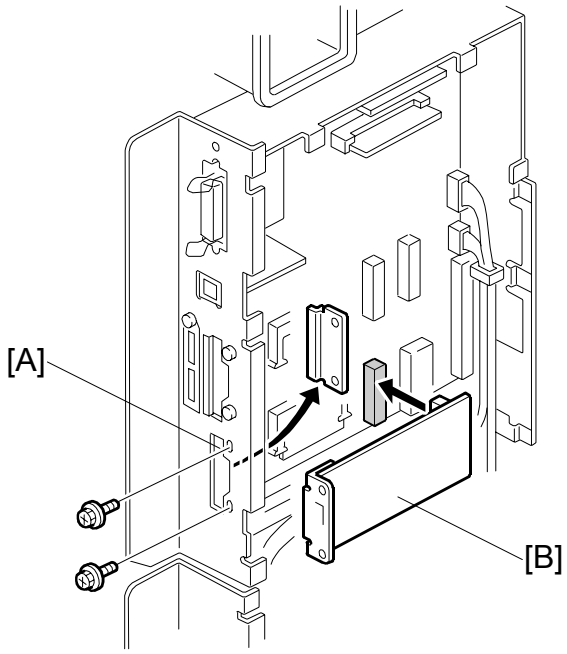
1.12 USB 2.0 (B525-01)

1.12.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. USB 2.0 PCB.....	1

1.12.2 INSTALLATION PROCEDURE



⚠**CAUTION**

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Remove the rear upper cover (☞ x2).
2. Remove the controller cover (☞ x9).
3. Remove the slot cover [A] (☞ x2).
4. Insert the USB board [B] into the PCI slot.
5. Fasten the slot cover to the USB board (☞ x2).
6. Use SP5990 005 to print a Self-Diagnostic Report with the system settings and confirm that the machine correctly recognizes the interface.

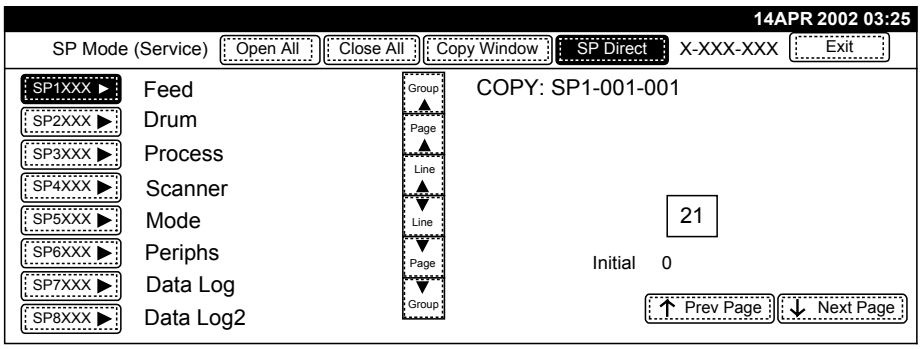
1.12.3 USB SP SETTINGS

The following SP commands are available. However, only one setting may require adjustment and this setting should be performed only if the customer is experiencing USB data transmission errors.

NOTE: Do not change the settings marked “DFU”. These settings are for design and factory use only.

To enter the SP mode:

1. Press Clear Modes
2. On the operation panel keypad, press 1 0 7.
3. Hold down Clear/Stop C/⊗ for more than 3 seconds.
4. Press “Copy SP” on the touch-panel to open the SP command selection screen.



5. Enter 5 8 4 4.

SP No.	Name	Function	
5844 001	Transfer Rate	Adjusts the USB transfer rate. Do not change the setting unless there is a data transfer error using the USB high speed mode.	
		HS/FS:	High speed/Full speed auto adjust (480Mbps/12Mbps)
		FS:	Full speed (12Mbps fixed)
5844 002	Vendor ID	Displays the vendor ID. **DFU**	
5844 003	Product ID	Displays the product ID. **DFU**	
5844 004	Dev. Release Num	Displays the development release version number. **DFU**	

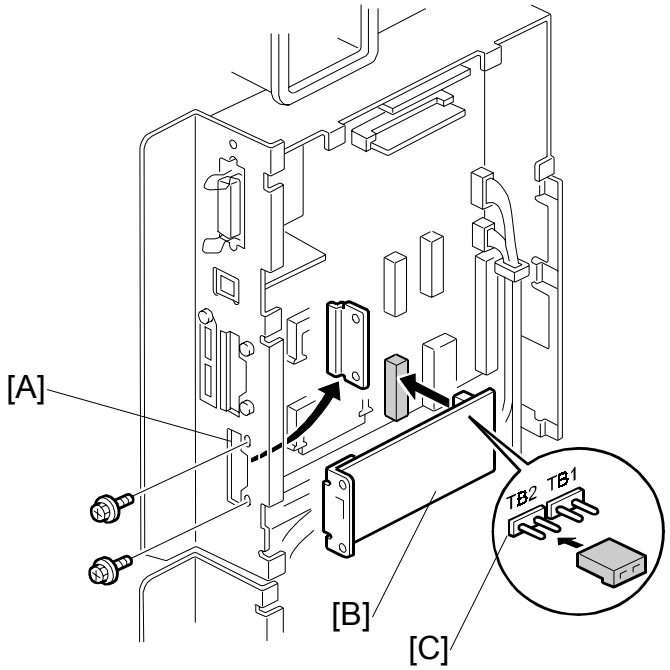
⇒ 1.13 IEEE1394 (G336) FIREWIRE INTERFACE

1.13.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. IEEE-1394 Cable 2M 4PI	1
2. IEEE-1394 Cable 2M 6PI	1
3. PCB GW1394	1

⇒ 1.13.2 INSTALLATION PROCEDURE



⚠CAUTION

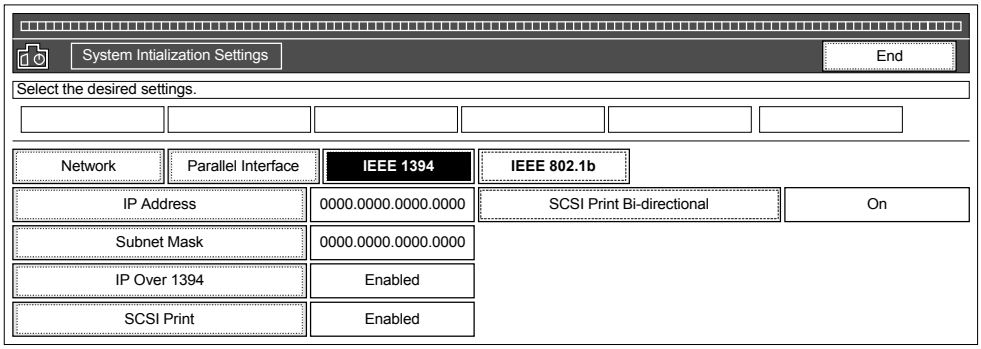
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Remove the rear upper cover (☞ x2).
2. Remove the controller cover (☞ x9).
3. Remove the slot cover [A] (☞ x2).
4. Attach the IEEE1394 board [B].
5. Use the provided cable to connect the machine and the computer.
6. Make sure that the jumper is on **TB2** [C].
7. Print a system settings list and confirm that the machine correctly recognizes the interface.

⇒ 1.13.3 UP MODE SETTINGS FOR IEEE 1394

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

1. Press User Tools/Counter.
2. On the touch panel, press System Settings.
3. Press Interface Settings.



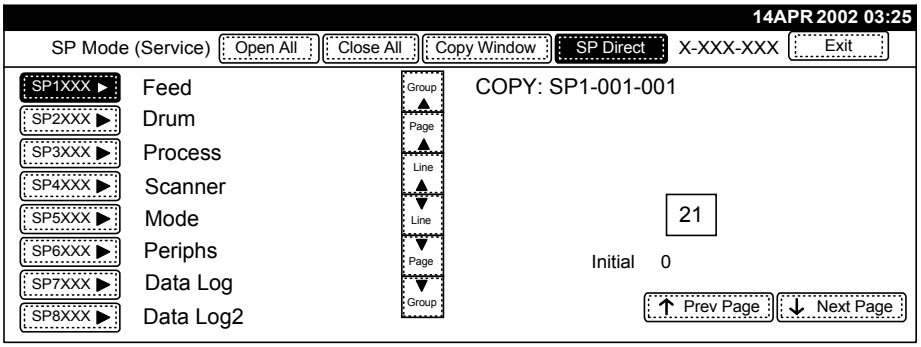
4. Press the key and enter the following settings:
   - IP Address
   - Subnet Mask
   - IP Over 1394. Enable or disable this setting as required. This setting enables IP Over 1394 as the default setting for the printing method.
   - SCSI Print. Enable or disable this setting as required. This setting enables SCSI Print as the default setting for the printing method.
   - SCSI Print Bi-directional. Switch bi-directional printing on or off for SCSI print.

⇒ 1.13.4 SP MODE SETTINGS FOR IEEE 1394

The following SP commands can be set for IEEE 1394.

To enter the SP mode:

1. Press Clear Modes
2. On the operation panel keypad, press 1 0 7.
3. Hold down Clear/Stop C/⊗ for more than 3 seconds.
4. Press "Copy SP" on the touch-panel to open the SP command selection screen.



5. Enter 5 8 3 9.

SP No.	Name	Function
5839 004	Device Name	Sets the names for all the physical devices connected to the IEEE 1394 firewire network.
5839 007	Cycle Master	Enables or disables cycle master function of the IEEE 1394 standard bus.
5839 008	BCR Mode	Sets the BCR (Broadcast Channel Register) setting for the Auto Node operation for the standard IEEE1394 bus for when IRM is not in use. Three settings are available: 00, 01, 11.
5839 009	IRM 1394a Check	Determines whether an IRM check for IEEE 1394 is conducted for the Auto Node when IRM is not used.
5839 010	Unique ID	Enables the "Node_Unique_Id" setting for enumeration on the standard IEEE 1394 bus.
5839 011	Logout	Determines how successive initiator login in requests are handled during login for SBP-2.
5839 012	Login	Enables or disables exclusive login for SBP-2.
5839 013	Login MAX	Sets the limit for the number of logins for SBP-2. Range: 1 ~ 62.

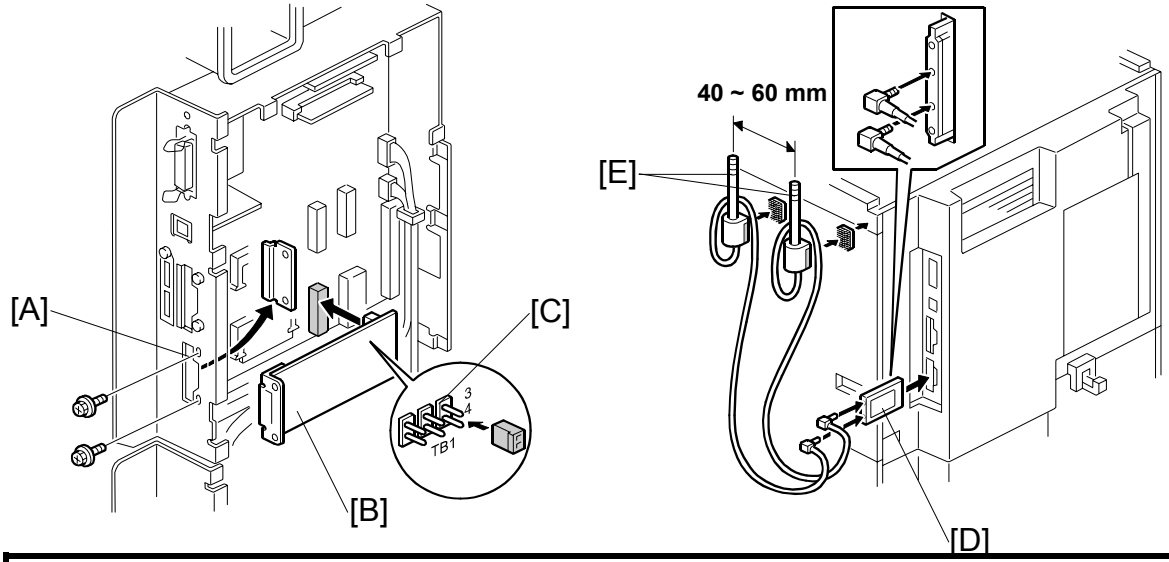
1.14 802.11B WIRELESS LAN (G628)

1.14.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. Wireless LAN PCB (GW-WLAN)	1
2. Antenna (GW-WLAN) (options)	2
3. Card (GW-WLAN)	1
4. Wireless LAN Instructions	1

1.14.2 INSTALLATION PROCEDURE



⚠CAUTION

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Remove the rear upper cover (☞ x2).
2. Remove the controller cover (☞ x9).
3. Remove the slot cover [A] (☞ x2).
4. Insert the wireless LAN board [B] into the PCI Slot 1.
5. Fasten the slot cover to the wireless LAN board (☞ x2).
6. Set the jumper [C] between pins 3 and 4 on the wireless LAN board.
7. Insert the LAN PC card [D] into the wireless LAN board.
8. Connect the antennas. Use the provided double-sided tape to attach the antennas [E] to the side of the machine.

NOTE: 1) Set the antennas 40~60 mm apart (1.5~2.5").
2) Attach the antennas where they will not be moved or damaged by opening and closing the door of the machine.
3) Set up the antenna in an area that is free of interference from electrical equipment that generates a strong electromagnetic field.
4) Always remove the antenna before moving the machine.
5) If reception is poor, move the machine and antenna closer to the access point.

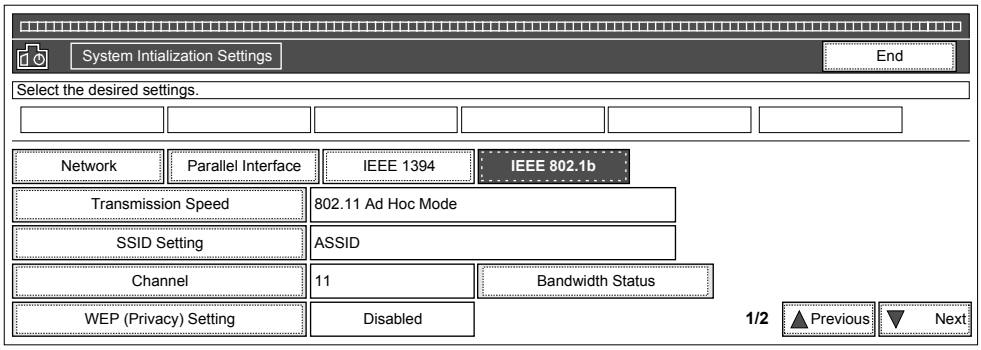
9. Print a system settings list and confirm that the machine correctly recognizes the interface.

1.14.3 UP MODE SETTINGS FOR WIRELESS LAN

Enter the UP mode and follow the procedure below to perform the initial interface settings for IEEE 802.116b. These settings take effect every time the machine is powered on.

NOTE: The wireless LAN cannot be used if Ethernet is being used.

1. Press the User Tools/Counter key.
2. On the touch panel, press System Settings.
   NOTE: The Network I/F (default: Ethernet) must be set for either Ethernet or wireless LAN.
3. Select Interface Settings ➔ Network (tab) ➔ Network I/F Settting
4. Select either “Ethernet” or “IEEE 802.11b”.
5. Press IEEE 802.11b. Only the wireless LAN options are displayed.



6. **Transmission Mode**. Select either “Ad Hoc Mode” or “Infrastructure Mode”.
7. **SSID Setting**. Enter the SSID (Service Set ID) setting. (The setting is case sensitive.)
8. **Channel**. This setting is required when Ad Hoc Mode is selected.
   Range: 1 ~ 14 (default: 11)
   NOTE: The allowed range for the channel settings may vary for different countries.

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

   Range of Allowed Settings:

64 bit	10 characters
128 bit	26 characters

10. **Bandwidth Status**. This setting is enabled only for the Infrastructure Mode. Press here to display the current status of the bandwidth. One of the following is displayed to reflect the reception status signal strength of the wireless LAN:

Good	76 ~ 100%
Fair	41 ~ 75%
Poor	21 ~ 40%
Unavailable	0 ~ 20%

11. **Transmission Speed**. Press the Next button to display more settings, then select the transmission speed for the mode: Auto, 11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps (default: Auto). This setting should match the distance between the closest machine or access point, depending on which mode is selected.
    NOTE: For the Ad Hoc Mode, this is the distance between the machine and the closest PC in the network. For the Infrastructure Mode, this is the distance between the machine and the closest access point, base on an unobstructed path.

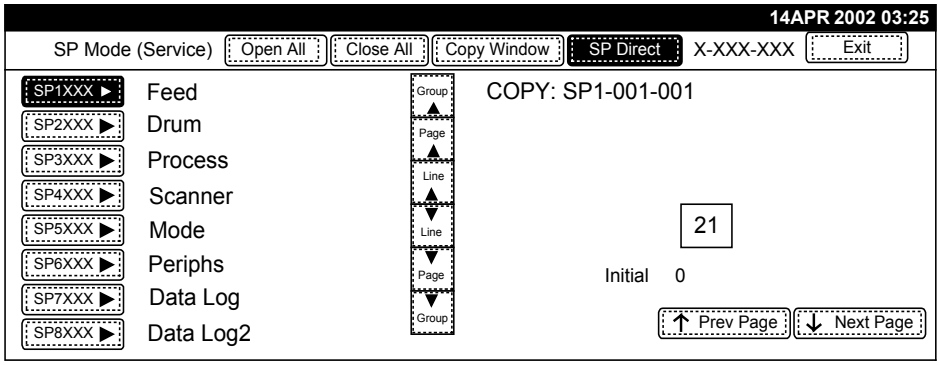
11 Mbps	140 m (153 yd.)
5.5 Mbps	200 m (219 yd.)
2 Mbps	270 m (295 yd.)
1 Mbps	400 m (437 yd.)

12. To initialize the wireless LAN settings, use page 2/2. Press Execute to initialize the following settings:
    - Transmission mode
    - Channel
    - Transmission Speed
    - WEP
    - SSID
    - WEP Key

1.14.4 SP MODE SETTINGS FOR 802.11B WIRELESS LAN

The following SP commands can be set for 802.11b

1. Press Clear Modes
2. On the operation panel keypad, press 1 0 7.
3. Hold down Clear/Stop C/⊘ for more than 3 seconds.
4. Press “Copy SP” on the touch-panel to open the SP command selection screen.



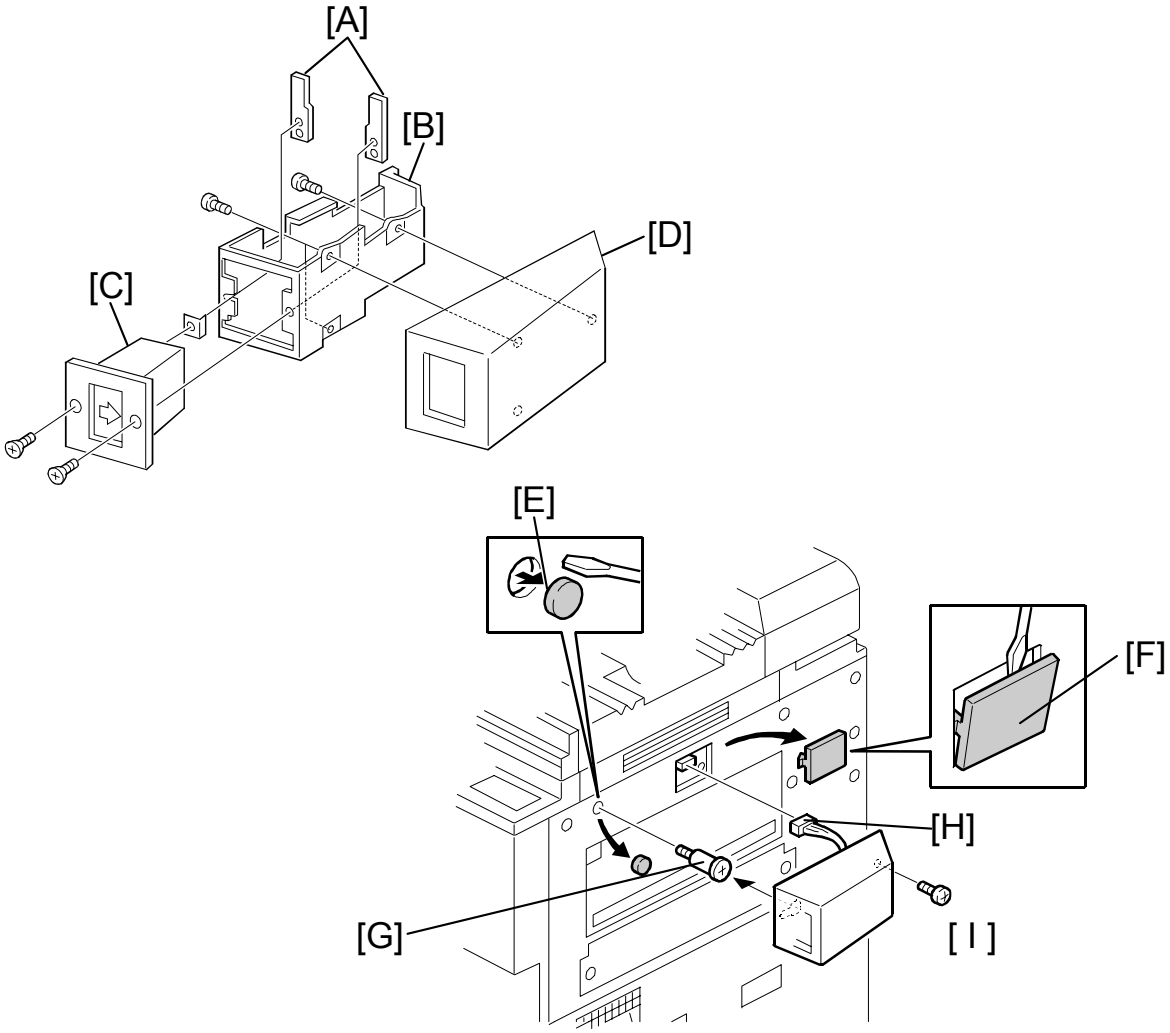
5. Enter 5 8 4 0.

SP No.	Name	Function
5840 004	SSID	Used to confirm the current SSID setting.
5840 006	Channel MAX	Sets the maximum range of the channel settings for the country.
5840 007	Channel MIN	Sets the minimum range of the channels settings allowed for your country.
5840 010	WEP Key	Used to confirm the current WEP key setting.
5840 011	WEP Key Select	Used to select the WEP key (Default: 00).
5840 020	WEP Mode	Used to display the maximum length of the string that can be used for the WEP Key entry.

1.15 KEY COUNTER

1.15.1 INSTALLATION PROCEDURE

1. Hold the key counter plate nuts [A] on the inside of the key counter bracket [B] and insert the key counter holder [C].
2. Secure the key counter holder to the bracket (2 screws).
3. Install the key counter cover [D] (2 screws).
4. Remove the caps [E, F] from the right cover with a screwdriver.
5. Install the stepped screw [G].
6. Join the connector [H].
7. Hook the key counter holder assembly [I] onto the stepped screw.
8. Change the setting of the Key Counter Management to the customer requirement (User Tools - System Setting - Key Operator Tools).
9. If necessary, change the setting SP5121 (Counter Up Timing).



1.16 COPY CONNECTOR KIT TYPE 1075

1.16.1 ACCESSORY CHECK LIST

Check the quantity and condition of the accessories in the box against the following list:

1. Copy Connector Board 2
2. MLB Interface Board.....2
3. Interface Cable 3
4. Interface Harness – Power Line 2
5. Hub.....2
6. Key Top – Application.....6
7. Operating Instructions (English) 1
8. Key Top – Printer.....2
9. Anti-static Cap 2
10. Ferrite Core 4
11. Knob Screw 4
12. Decal – Copy Connector.....4
13. Tapping Screw – M3 x 8 4

1.16.2 IMPORTANT NOTES:

1. The following are the specialized firmware versions for use with the Copy Connector Kit or MLB option. When installing either of these options, it is necessary to install the following firmware together as a set.

Software	Part Number	Version (1st released)
GW Controller: System	B5254108	5.07
GW Controller: Copy	B5254109	5.07
BCU	B5254123	5.03d
Printer/Scanner	B5255204	4.15/5.00
NIB/Netfile	B5254114	3.00/1.79
LCDC	B5254176 (NA)	2.04

2. With the Copy Connector/MLB modifications, the machine firmware has been divided up into 2 main groups:
   1) The Copy Connector/MLB group (beginning with the versions listed above)
   2) The usual firmware used up to the present, i.e. for machines without the Copy Connector or MLB options.

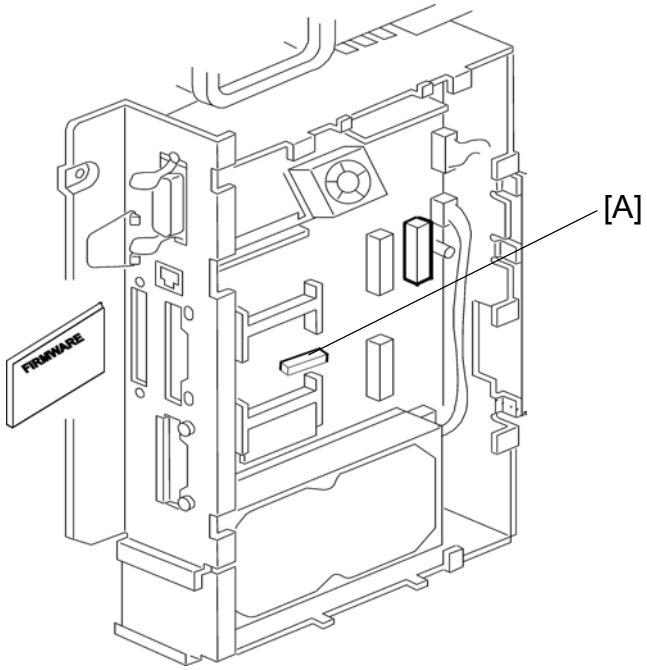
   Important: Firmware from these two groups **cannot** be used interchangeably. Always update **within** the same group, otherwise the machine will not operate correctly.
3. The Copy Connector Kit and MLB options cannot be installed in the same machine. It is necessary to install one or the other.
4. As shown above, the GW controller firmware for the Copy Connector/MLB group has been divided into GW System and GW Copy, as the increased size has exceeded the card's storage capacity.

1.16.3 INSTALLATION PROCEDURE

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

Perform the following procedures for both the main and sub copiers.

1.16.4 INSTALLING THE FIRMWARE

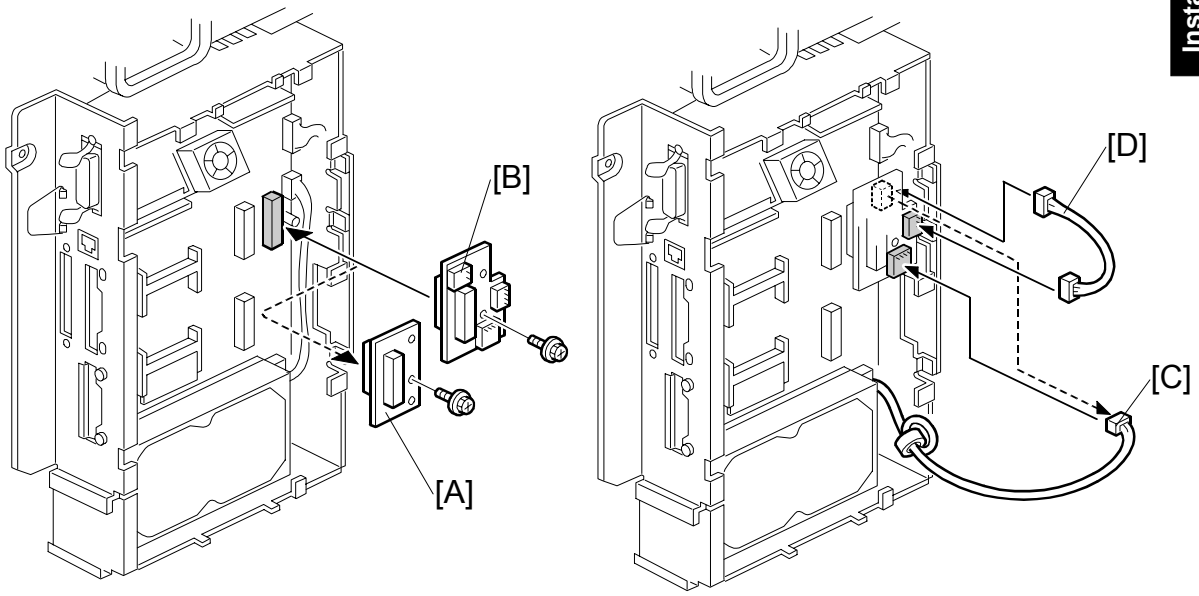


1. Remove the rear cover (2 screws).
2. Remove the controller cover (10 screws).
3. Turn on DIP SW2-1 on the controller board [A].

⇒**NOTE:** Only perform this step when installing the Copy Connector Kit. Leave the switch off whenever performing any future updates.

4. Install the following firmware.
   - GW Controller (System and Copy)
   - Printer/Scanner
   - NIB Netfile
5. Turn off DIP SW2-1 on the controller board.
6. Install the following firmware.
   - BCU
   - LCDC

1.16.5 INSTALLING THE HARDWARE

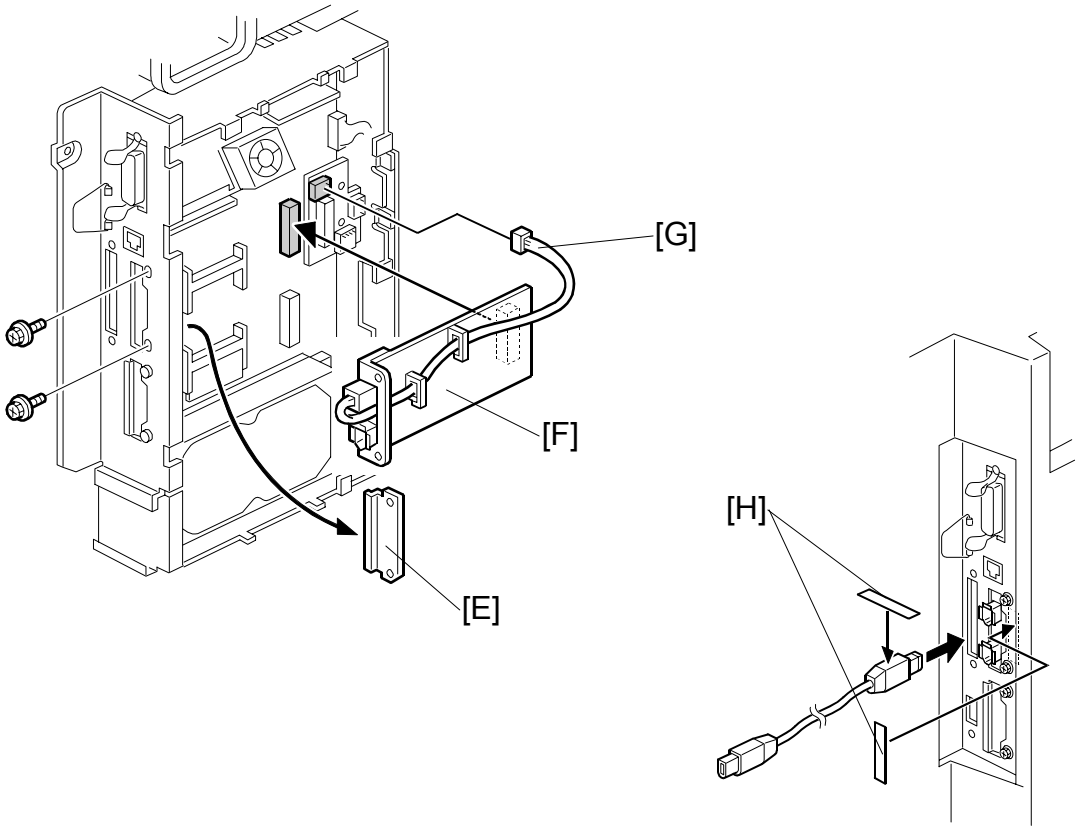


1. Replace the interface board [A] with the MLB Interface Board [B].

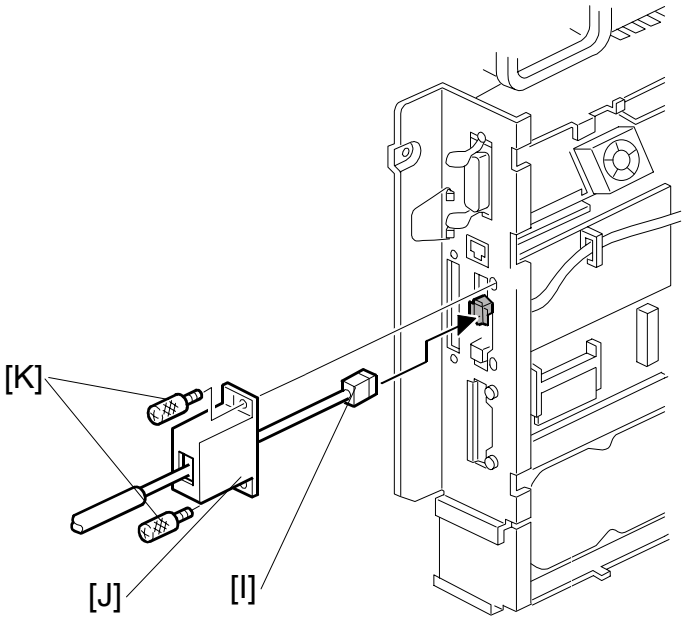
   NOTE: This step is not necessary from the following serial numbers or higher:

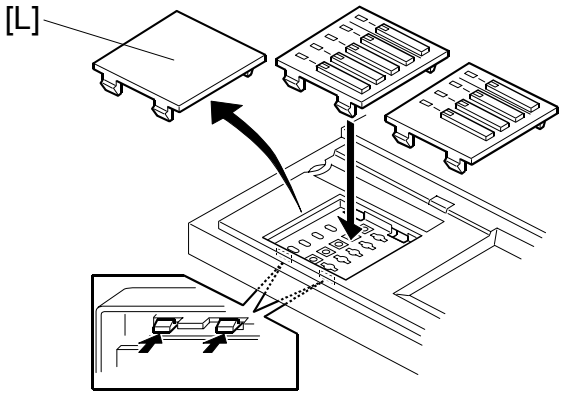
Product Code	Serial Number
B064	J4235300054
B065	J4335300191

2. Remove the 4P connector [C] for the HDD and connect it to CN319 on the MLB Board.
3. Connect one end of the power interface harness [D] to the HDD connector, and the other end to CN318 on the MLB Board.



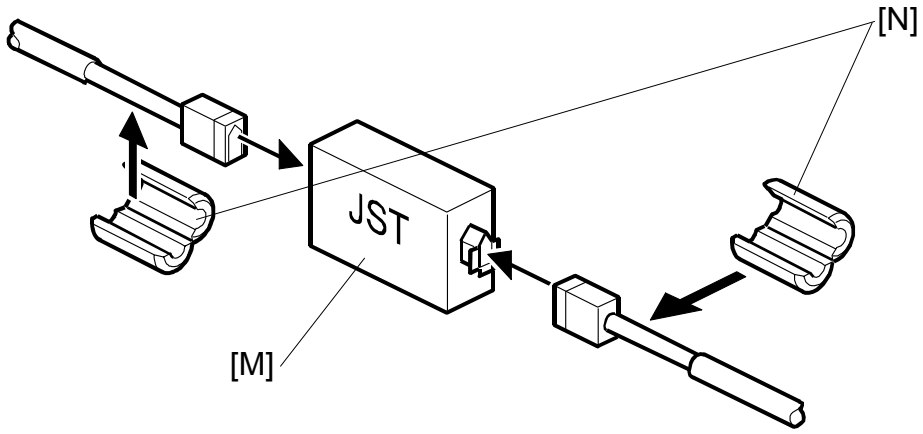
4. Remove the connector cover [E] (2 screws).
5. Install the CCK interface board [F] as shown.
6. Connect the harness [G] to CN315 on the MLB Board.
7. Attach the decals [H] as shown.





8. Lead the interface cable [I] through the anti-static cap [J], and then connect it to the interface board.
9. ⇒ Attach the anti-static cap (2 knob screws [K]).
10. Replace the key top [L].
11. Repeat both the firmware and hardware procedures above for the other copier.

Perform Steps 12 and 13 below if the distance between the two machines is more than 4.5m.



12. Use the Hubs [M] to connect the interface cables.

    NOTE: When connected in this way, the maximum length possible is 13.5m (3 interface cables).

13. Attach the ferrite cores [N] as shown.

1.17 FILE FORMAT CONVERTER (MLB)

1.17.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

1. File Format Converter Board 1
2. MLB bracket 1
3. MLB panel 1
4. Screw M3x6.....2

1.17.2 IMPORTANT NOTES:

1. The following are the specialized firmware versions for use with the Copy Connector Kit or File Format Converter (MLB option). When installing either of these options, it is necessary to install the following firmware **together as a set**.

Software	Part Number	Version (1st released)
GW Controller: System	B5254108	5.07
GW Controller: Copy	B5254109	5.07
BCU	B5254123	5.03d
Printer/Scanner	B5255204	4.15/5.00
NIB/Netfile	B5254114	3.00/1.79
LCDC	B5254176	2.04

2. With the Copy Connector/MLB modifications, the machine firmware has been divided up into 2 main groups:
   1) The Copy Connector/MLB group (beginning with the versions listed above)
   2) The usual firmware used up to the present, i.e. for machines without the Copy Connector or MLB options.

   Important: Firmware from these two groups **cannot** be used interchangeably. Always update **within** the same group, otherwise the machine will not operate correctly.

3. The MLB option cannot operate with any of the following installed, i.e. it is necessary to remove these before beginning the procedure below:
   - Wireless LAN board
   - IEEE1394 I/F board
   - USB2.0 I/F board
   - Copy Connector Kit components

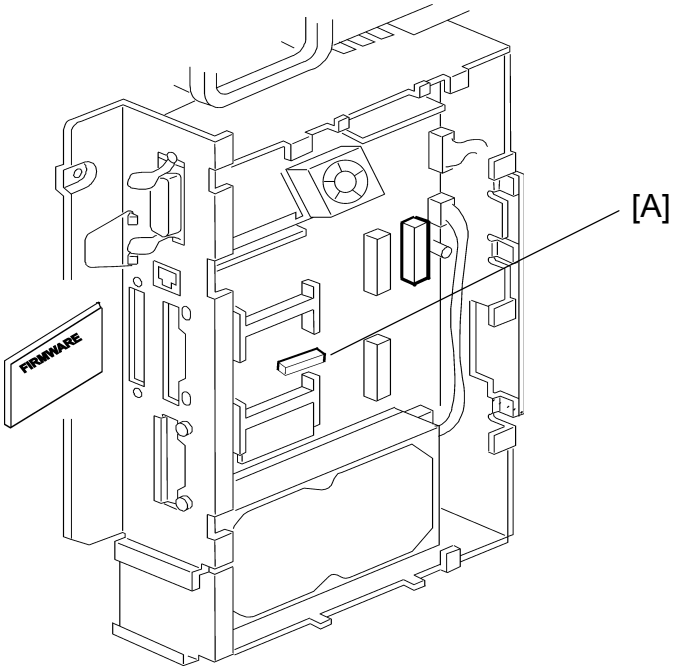
4. As shown above, the GW controller firmware for the Copy Connector/MLB group has been divided into GW System and GW Copy, as the increased size has exceeded the card's storage capacity.

1.17.3 INSTALLATION PROCEDURE

⚠CAUTION

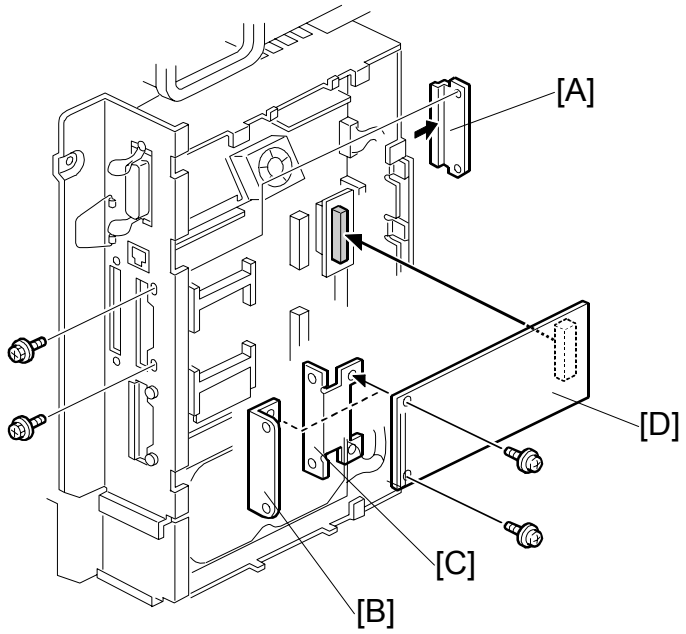
Unplug the main machine power code before starting the following procedure.

1.17.4 INSTALLING THE FIRMWARE



1. Remove the rear cover (2 screws).
2. Remove the controller cover (10 screws).
3. Turn on DIP SW2-1 on the controller board [A].
4. Install the following firmware.
   - GW Controller (System and Copy)
   - Printer/Scanner
   - NIB Netfile
5. Turn off DIP SW2-1 on the controller board.
6. Install the following firmware.
   - BCU
   - LCDC

1.17.5 INSTALLING THE HARDWARE



1. Remove the slot cover [A] (2 screws).
2. Remove the bracket [B] and attach the MLB panel [C].
3. Attach the File Format Converter board [D] to the controller board (2 screws).
4. Replace the controller board cover and rear cover.
5. Turn the main switch ON.
6. Perform a network function Memory Clear (SP5-801-10).
7. Perform an NCS function Memory Clear (SP5-801-011), which will reset the network password to “password.”

NOTE: This step is necessary to ensure that the password is properly reset as mentioned.

8. Input the following default values manually (SP5-836).

SP Number	Value	SP Number	Value
5-836-01	0	5-836-82	1
5-836-02	0	5-836-83	1
5-836-72	0	5-836-85	1
5-836-73	0	5-836-86	2
5-836-75	0	5-836-91	50
5-836-76	1		

PREVENTIVE MAINTENANCE

2. PREVENTIVE MAINTENANCE

2.1 PM TABLES

The amounts mentioned (K=1,000) as the PM interval indicate the number of prints or copies unless stated otherwise. These numbers are based on the PM counter.

Symbol key: **C**: Clean, **R**: Replace, **L**: Lubricate, **I**: Inspect, **EM**: Emergency Maintenance

⇒

⚠WARNING

Power off the machine (☛ 1.1.5) and unplug the machine before performing any procedure in this section. Laser beams can seriously damage the eyes.

2.1.1 MAIN MACHINE

	EM	300K	450K	600K	Expected K	Note
SCANNER OPTICS						
1st, 2nd, 3rd Mirror		C	C	C		Optics cloth
Exposure Glass	C	C	C	C		Dry cloth or alcohol
Scanner Guide Rails		L	L	L		After cleaning with alcohol, lubricate scanner guide rails with Grease 501.
Toner Shield Glass	C	C	C	C		Optics cloth
Reflector		C	C	C		Optics cloth

	EM	300K	450K	600K	Expected K	Note
AROUND THE DRUM						
Charge Corona Grid		R		R	450	Blower brush.
Charge Corona Wire		R	C	R	450	Alcohol, or clean damp cloth.
Charge Wire Cleaning Pad		R		R	450	
Cleaning Blade		R		R	500	
Cleaning Brush		R		R	500	
Charge Corona Casing		C		C		Alcohol, or clean damp cloth.
Internal Dust Filter		C	C	C		Blower brush.
ID Sensor		C	C	C		Blower brush. Do SP 3001 002 after cleaning.
Pick-off Pawls		I		I		Replace if necessary.
Potential Sensor		C	C	C		Blower brush.
Quenching Lamp		C	C	C		Dry cloth.
Transfer Entrance Stay		C	C	C		Dry cloth.
Ozone Filter (Top)		R		R		
Cleaning Filter		R		R		
Cleaning Side Seal		C	C	C		Dry cloth.
Cleaning Entrance Seal		C	C	C		Dry cloth.

	EM	300K	450K	600K	Expected K	Note
DEVELOPMENT UNIT						
Developer		R		R		(☛ 3.7.1)PM cycle is 350K.
Development Roller Shaft		C		C		Clean with blower brush and dry cloth every time the developer is replaced.
Development Roller		C		C		
Development Filter		R	I	R		Blower brush.
Development Sleeve Surface		C	C	C		Dry cloth.
Drive Gears		C	C	C		Blower brush.
Entrance Seal		C	C	C		Blower brush, dry cloth.
Side Seals		C	C	C		Blower brush, dry cloth.
Toner Bottle Holder		C	C	C		Dry cloth.
Paddle Roller Shaft		C	C	C		Blower brush, dry cloth.
Used Toner Separation Unit		I		R		

	EM	300K	450K	600K	Expected K	Note
PAPER FEED						
Registration Rollers		C		C		Alcohol
Relay Rollers		C		C		Alcohol
Paper Dust Mylar		C	C	C		Dry cloth
Registration Sensor		C		C		Blower brush
Relay Sensor		C		C		Blower brush
Feed Rollers		R		R	450	See **NOTE** below this table.
Pick-up Rollers		R		R	450	
Separation Rollers		R		R	450	
By-pass Feed Rollers		R		R	450	See **NOTE** below this table.
By-pass Pick-up Rollers		R		R	450	
By-pass Separation Rollers		R		R	450	
By-pass Paper End Sensor		C		C		Dry cloth, blower brush
Grip Rollers		C		C		Dry cloth, blower brush
Paper Feed Guide Plate		C		C		Dry cloth
Vertical Transport Rollers		C	C	C		Alcohol
Paper Feed Sensors		C	C	C		Blower brush
Paper End Sensors		C	C	C		Blower brush

NOTE: Replace pick-up, feed and separation rollers as a set. Check the counter value for each paper tray station with SP7204 (Copy Counter – Paper Trays). If the value has reached 300K, replace the rollers. After replacing the rollers, reset the counter with SP7816 (Copy Counter Reset).

	EM	300K	450K	600K	Expected K	Note
TRANSFER BELT UNIT						
Transfer Belt		C	R	C	750	Use dry cloth to clean transfer belt. Always replace transfer belt and transfer roller cleaning blade together.
Transfer Roller Cleaning Blade			R		750	
Transfer Entrance Guide Plate		C		C		Dry cloth
Transfer Drive Roller		C		C		Dry cloth
Transfer Drum Roller		C		C		Dry cloth
Transfer Bias Roller		C		C		Dry cloth
Transfer Exit Guide Plate		C		C		Dry cloth
Discharge Plate		R		R		

	EM	300K	500K	600K	Expected K	Note
FUSING UNIT AND PAPER EXIT						
Cleaning Web		R		R		
Cleaning Web Pressure Roller				R		Replace roller and bushings together.
Cleaning Web Pressure Roller Bearings				R		
De-Curler Rollers		C		C		Alcohol
Exit Rollers		C		C		Alcohol
Exit Static Discharge Brush		I		I		
Fusing Entrance Guide Plate		C		C		Dry cloth.
Fusing Exit Guide Plate		C		C		Dry cloth.
Hot Roller			R		600	
Hot Roller Bearings			R		1000	
Hot Roller Strippers		R		R	600	
Pressure Cleaning Roller		R		R		Replace as a set.
Pressure Cleaning Roller Bearings		R	I	R		
Pressure Cleaning Roller Spring Plate		I		I		
Pressure Roller			R		600	Replace pressure roller and bearings together.
Pressure Roller Bearings		I	R	I	600	
Thermistors		I	I	I		
Transport Rollers		C		C		Alcohol
Fusing Lamp		I	I	I		

	EM	300K	450K	600K	Expected K	Note
DUPLEX						
Entrance Sensor		C	C	C		Blower brush
Inverter Exit Rollers		C		C		Alcohol
Transport Rollers		C		C		Dry cloth
Reverse Trigger Rollers		C		C		Dry cloth
Inverter Entrance Roller		C		C		Dry cloth
Entrance Anti-Static Brush		C		C		Blower brush
Reverse Junction Gate		C	C	C		Dry cloth

2.1.2 ADF

	EM	80K	160K	240K	Expected K	Note
The PM interval is for the number of originals that have been fed.						
Pick-up Roller	C	R	R	R		Water or alcohol, belt cleaner to clean paper feed belt. Replace these items together.
Separation Roller	C	R	R	R		
Paper Feed Belt	C	R	R	R		
CIS Glass		C	C	C		Dry cloth
White Guide Plate		C	C	C		Dry cloth
Sensors	C	C	C	C		Blower brush.
Platen Cover Sheet	C	C	C	C		Water or alcohol
Drive Gears		L	L	L		Grease G501.
Transport Rollers		C	C	C		Water or alcohol
Entrance Roller		C	C	C		
White Platen Roller		C	C	C		
Pre-Scanning Roller		C	C	C		
Scanning Roller		C	C	C		
Exit Roller		C	C	C		

2.1.3 OPTIONAL PERIPHERAL DEVICES

LCT (Large Capacity Tray) B473

	EM	300K	450K	600K	Expected K	Note
ROLLERS						
Pick-up Roller		R		R	450	See **NOTE** below this table.
Feed Roller		R		R	450	
Separation Roller		R		R	450	

NOTE: Replace pick-up, feed and separation rollers as a set. Check the counter value for each paper tray station with SP7204 (Copy Counter – Paper Trays). If the value has reached 300K, replace the rollers. After replacing the rollers, reset the counter with SP7816 (Copy Counter Reset).

Cover Interposer Tray B470

	EM	60K	120K	180K	Note
The PM interval is for the number of sheets that have been fed.					
Feed Belt		R	R	R	Replace as a set.
Pick-up Roller		R	R	R	
Separation Roller		R	R	R	
Driver Rollers		C	C	C	Damp clean cloth.
Idle Rollers		C	C	C	
Discharge Brush		C	C	C	
Bushings	L				Lubricate with silicone oil if noisy.
Sensors		C	C	C	Blower brush.
Feed Drive Gear	L				Lubricate with silicone oil if noisy.

3000-Sheet Finisher with 50-sheet stapler and Saddle-Stitching B468/B469

	EM	300K	450K	600K	Note
Driver Rollers		C	C	C	Dry cloth
Idle Rollers		C	C	C	
Discharge Brush		C	C	C	
Bushings	L				Lubricate with silicone oil if noisy.
Sensors		C	C	C	Blower brush.
Jogger Fences		I	I	I	Make sure screws are tight.

2.2 RELATED SP CODES

This is a list of the PM related SP codes. For details, refer to Section “5 Service Tables”.

7803*	PM Counter Display	Displays the PM count since the last PM.
7804*	PM Counter Reset	Resets the PM count.

REPLACEMENT AND ADJUSTMENT

3. REPLACEMENT AND ADJUSTMENT

3.1 GENERAL CAUTIONS

Do not turn off either of the power switches while any of the electrical components are active. Doing so might cause damage to units such as the transfer belt, drum, and development unit when they are pulled out of or put back into the copier.

3.1.1 DRUM

An organic photoconductor (OPC) drum is more sensitive to light and ammonia gas than a selenium drum. Follow the cautions below when handling an OPC drum.

1. Never expose the drum to direct sunlight.
2. Never expose the drum to direct light of more than 1,000 Lux for more than a minute.
3. Never touch the drum surface with bare hands. When the drum surface is touched with a finger or becomes dirty, wipe it with a dry cloth or clean it with wet cotton. Wipe with a dry cloth after cleaning with wet cotton.
4. Never use alcohol to clean the drum; alcohol dissolves the drum surface.
5. Store the drum in a cool, dry place away from heat.
6. Take care not to scratch the drum as the drum layer is thin and is easily damaged.
7. Never expose the drum to corrosive gases such as ammonia gas.
8. Always keep the drum in the protective sheet when keeping the drum unit, or the drum itself, out of the copier. Doing so avoids exposing it to bright light or direct sunlight, and will protect it from light fatigue.
9. Dispose of used drums in accordance with local regulations.
10. When installing a new drum, execute SP2962 (Adjustment of Drum Conditions).

3.1.2 DRUM UNIT

1. Before pulling out the drum unit, place a sheet of paper under the drum unit to catch any spilt toner.
2. Make sure that the drum unit is set in position and the drum stay is secured with a screw before the main switch is turned on. If the drum unit is loose, poor contact of the drum connectors may cause electrical noise, resulting in unexpected malfunctions (RAM data change is the worst case).
3. To prevent drum scratches, remove the development unit before removing the drum unit.

3.1.3 TRANSFER BELT UNIT

1. Never touch the transfer belt surface with bare hands.
2. Take care not to scratch the transfer belt, as the surface is easily damaged.
3. Before installing the new transfer belt, clean all the rollers and the inner part of the transfer belt with a dry cloth to prevent the belt from slipping.

3.1.4 SCANNER UNIT

1. When installing the exposure glass, make sure that the white paint is at the rear left corner.
2. Clean the exposure glass with alcohol or glass cleaner to reduce the amount of static electricity on the glass surface.
3. Use a cotton pad with water or a blower brush to clean the mirrors and lens.
4. Do not bend or crease the exposure lamp flat cable.
5. Do not disassemble the lens unit. Doing so will throw the lens and the copy image out of focus.
6. Do not turn any of the CCD positioning screws. Doing so will throw the CCD out of position.

3.1.5 LASER UNIT

1. Do not loosen the screws that secure the LD drive board to the laser diode casing. Doing so would throw the LD unit out of adjustment.
2. Do not adjust the variable resistors on the LD unit, as they are adjusted in the factory.
3. The polygon mirror and F-theta lenses are very sensitive to dust. Do not open the optical housing unit.
4. Do not touch the glass surface of the polygon mirror motor unit with bare hands.
5. After replacing the LD unit, do the main scan adjustment (☛3.5.2). Otherwise, an SC condition will be generated.

3.1.6 CHARGE CORONA

1. Clean the corona wires with a dry cloth. Do not use sandpaper or solvent.
2. Clean the charge corona casing with water first to remove NOx based compounds. Then clean it with alcohol if any toner still remains on the casing.
3. Clean the end block with a blower brush first to remove toner and paper dust. Then clean with alcohol if any toner still remains.
4. Do not touch the corona wires with bare hands. Oil stains from fingers may cause uneven image density on copies.
5. Make sure that the wires are correctly positioned between the cleaner pads and that there is no foreign material (iron filings, etc.) on the casing.
6. When installing new corona wires, do not bend or scratch the wire surface. Doing so may cause uneven charge. Also be sure that the corona wires are correctly positioned in the end blocks.
7. Clean the grid plate with a blower brush (not with a dry cloth).
8. Do not touch the charge grid plate with bare hands. Also, do not bend the charge grid plate or make any dent in it. Doing so may cause uneven charge.

3.1.7 DEVELOPMENT

1. Be careful not to nick or scratch the development roller.
2. Place the development unit on a sheet of paper after removing it from the copier.
3. Never disassemble the development roller assembly. The position of the doctor plate is set with special tools and instruments at the factory to ensure the proper gap between the doctor blade and the development roller.
4. Clean the drive gears after removing used developer.
5. Dispose of used developer in accordance with local regulations.
6. Never load types of developer and toner into the development unit other than specified for this model. Doing so will cause poor copy quality and toner scattering.
7. Immediately after installing new developer, the TD sensor initial setting procedure should be performed with SP2801 (TD Sensor Initialization) to avoid damage to the copier. Do not perform the TD sensor initial setting with used developer. Do not make any copies before doing the TD sensor initial setting.
8. When using a vacuum cleaner to clean the development unit casing, always ground the casing with your fingers to avoid damaging the toner density sensor with static electricity.
9. When replacing the TD sensor, replace the developer, then execute SP2801 (TD Sensor Initialization) and SP2962 (Adjustment of Drum Conditions).

3.1.8 CLEANING

1. When servicing the cleaning section, be careful not to damage the edge of the cleaning blade.
2. Do not touch the cleaning blade with bare hands.
3. Before disassembling the cleaning section, place a sheet of paper under it to catch any toner falling from it.

3.1.9 FUSING UNIT

1. After installing the fusing thermistor, make sure that the end themistor is in contact with the hot roller and that it is movable. The center thermistor should not contact the hot roller.
2. Be careful not to damage the edges of the hot roller strippers or their tension springs.
3. Do not touch the fusing lamp and rollers with bare hands.
4. Make sure that the fusing lamp is positioned correctly and that it does not touch the inner surface of the hot roller.

3.1.10 PAPER FEED

1. Do not touch the surface of the pick-up, feed, and separation rollers.
2. To avoid paper misfeeds, the side fences and end fence of the paper tray must be positioned correctly to align with the actual paper size.

3.1.11 USED TONER

1. We recommend checking the amount of used toner at every EM.
2. Dispose of used toner in accordance with local regulations. Never throw toner into an open flame, for toner dust may ignite.

3.2 SPECIAL TOOLS AND LUBRICANTS

3.2.1 SPECIAL TOOLS

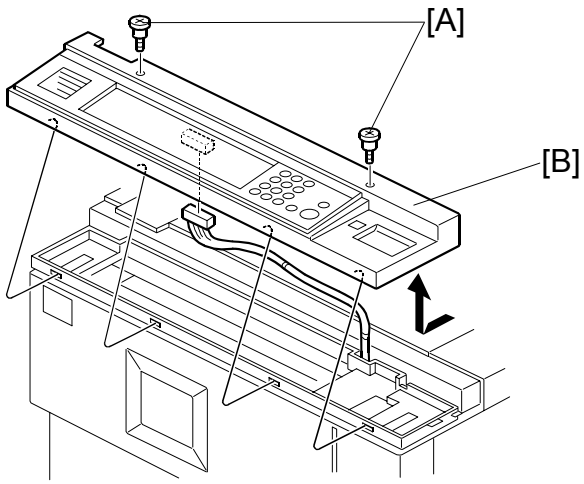
Part No.	Description
A0069104	Scanner Positioning Pin (4 pcs./set)
A2929500	Test Chart – S5S (10 pcs./set)
B0649500	Test Chart – S5S, Soft Paper (10 pcs./set)
A0299387	Digital Multimeter – FLUKE 87
N8036701	Flash Memory Card – 4 MB
N8036701	Case – Flash Memory Card
G0219350	Loop Back Connector
VSST9500	Test Chart – S5S – DF(10 Sheet/Set)

3.2.2 LUBRICANTS

Part No.	Description
A2579300	Grease Barrierta – JFE 5 5/2
52039502	Silicon Grease G-501

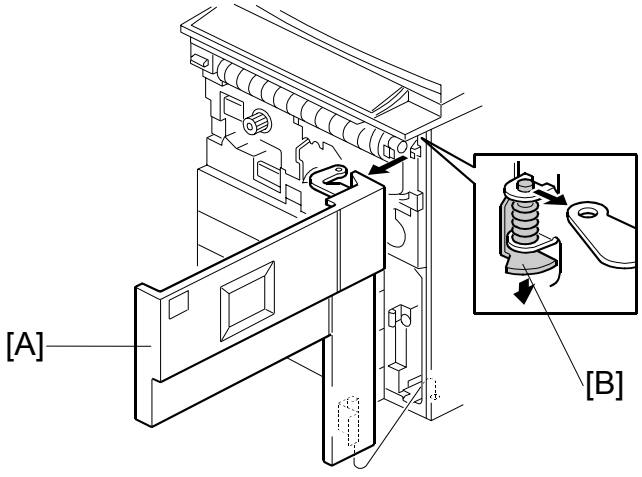
3.3 OPERATION PANEL AND EXTERNAL COVERS

3.3.1 OPERATION PANEL



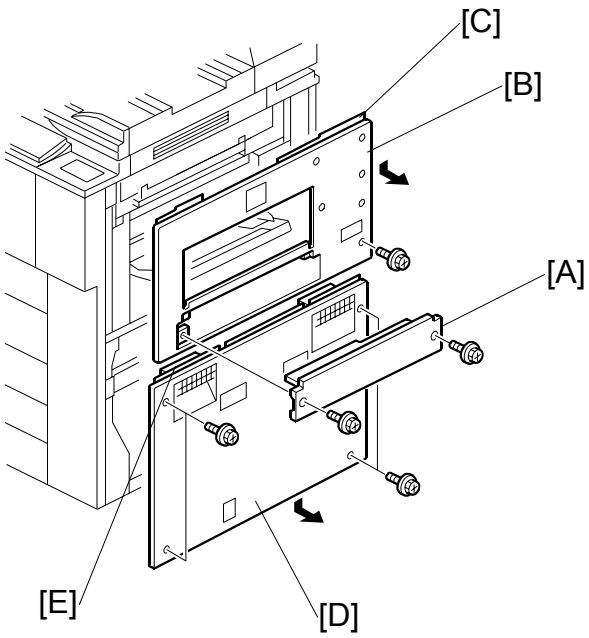
[A]: Shoulder screws (x2)
[B]: Operation panel (x1)

3.3.2 FRONT DOOR



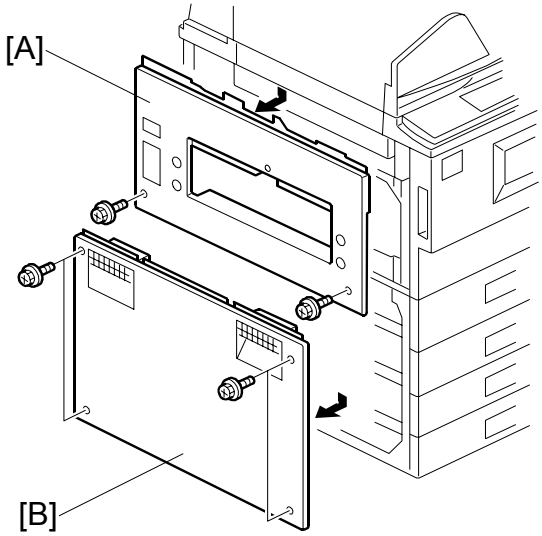
While supporting the front door [A] with one hand, press down on the hinge bracket [B] then raise the door slightly to remove it.

3.3.3 RIGHT COVERS



1. LCT entrance guide cover [A] (☞ x2)
2. Right upper cover [B] (☞ x2)
   - To remove the right cover, remove the LCT entrance guide plate, open the by-pass tray, then slide the right upper cover down to remove it.
   - When re-attaching, before tightening the screws make sure that 1) the tabs [C] on the cover are engaged with the grooves on the machine, and 2) the catches on the cover are engaged with the shoulder screws.
3. Lower right cover [D] (☞ x2)
   - After removing the screws, slide the cover down to remove it.
   - When re-attaching, before tightening the screws make sure that the tabs [E] on the cover are engaged with the grooves on the machine.

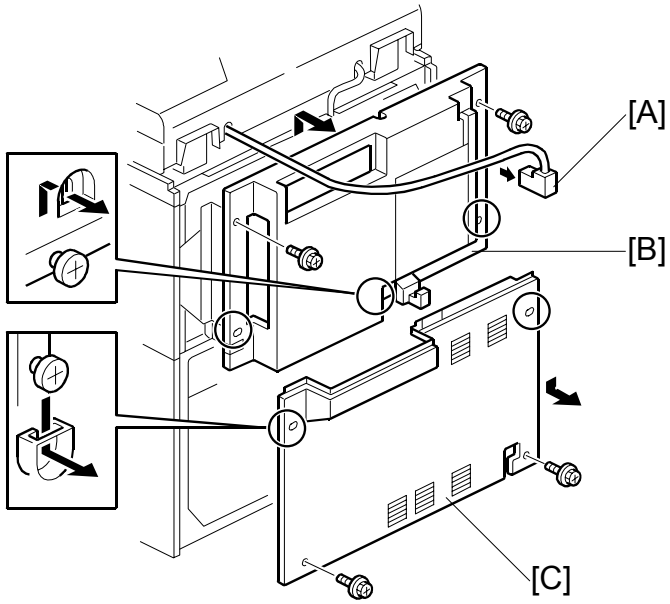
3.3.4 LEFT COVERS



[A]: Left upper cover (x2)
- Slide down to remove.
- When re-attaching, before tightening the screws make sure that 1) the tabs on the cover are engaged with the grooves on the machine, and 2) the catches on the cover are engaged with the shoulder screws.

[B]: Left lower cover (x2)
- Slide down to remove.
- When re-attaching, before tightening the screws make sure that the tabs on the cover are engaged with the grooves on the machine.

3.3.5 REAR COVERS



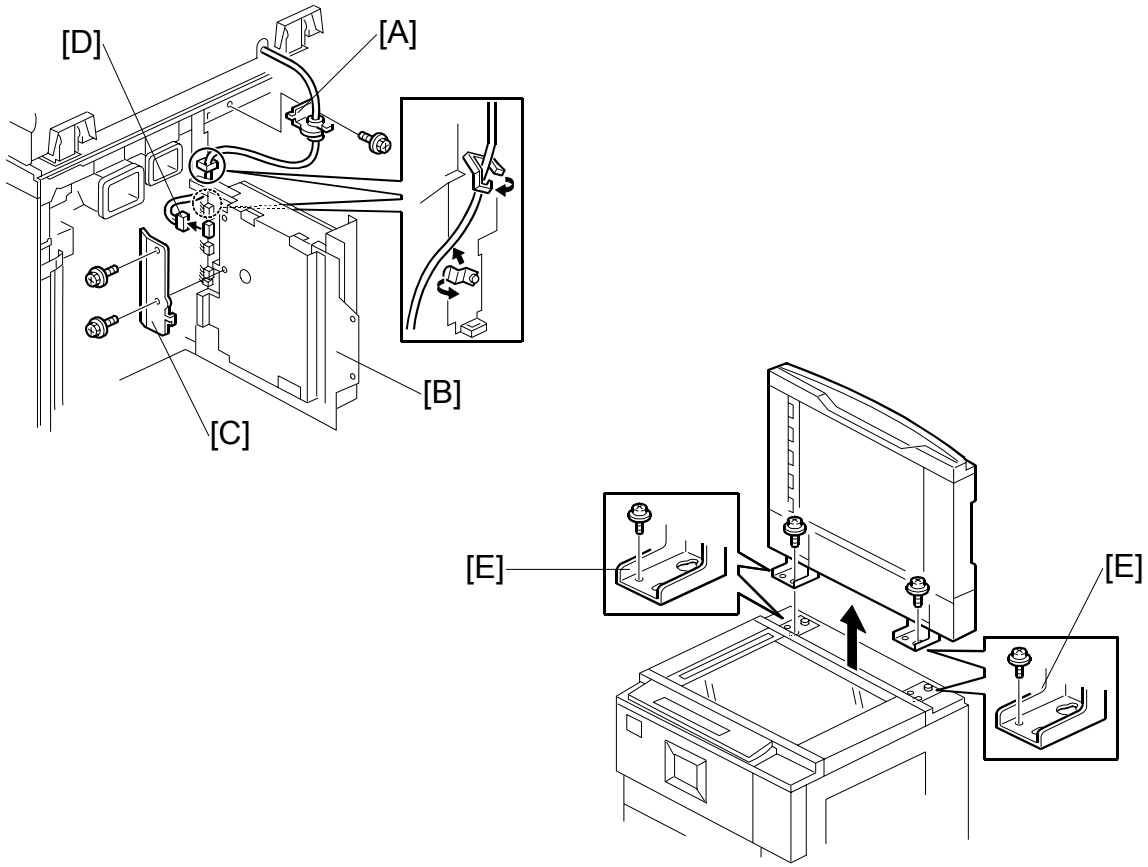
[A]: Disconnect the ADF plug.
[B]: Rear upper cover (x3)
- Slide down to remove.
- When re-attaching, before tightening the screws make sure that the tabs on the cover are engaged with the shoulder screws.

[C]: Rear lower cover (x2)
- When re-attaching, before tightening the screws make sure that the tabs on the cover are engaged with the shoulder screws.

3.4 SCANNER

3.4.1 ADF AND TOP COVERS

ADF



Rear upper cover. (☛ 3.3.5)

[A]: Cable bracket (☞ x1)

[B]: Controller/IPU panel (☞ x2)

- Swing open the panel so you can see the back.

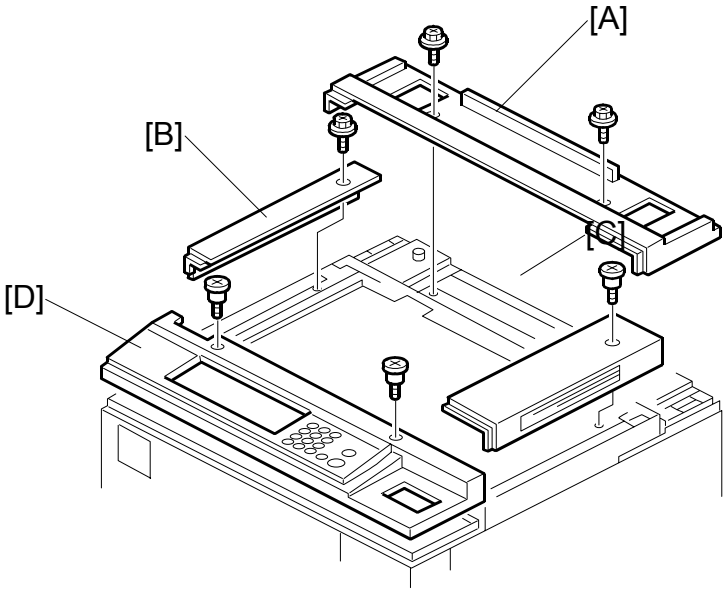
[C]: Connector cover (☞ x2)

[D]: Connector (2nd from the top) (☜ x1)

[E]: ADF base left and right plates (☞ x2)

- While holding the ADF firmly, slide the ADF back and lift the large end of the keyholes over the shoulder screws.

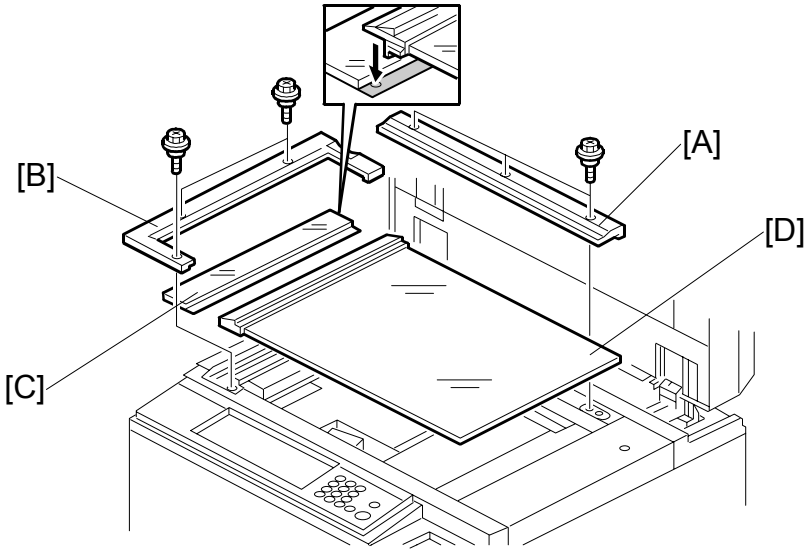
Top Covers



ADF (☛ 3.4.1)

[A]: Top inside cover (☞ x2)
[B]: Top left cover (☞ x1)
[C]: Top right cover (☞ x1)
[D]: Operation panel (☞ x1) (☛ 3.3)

3.4.2 EXPOSURE GLASS



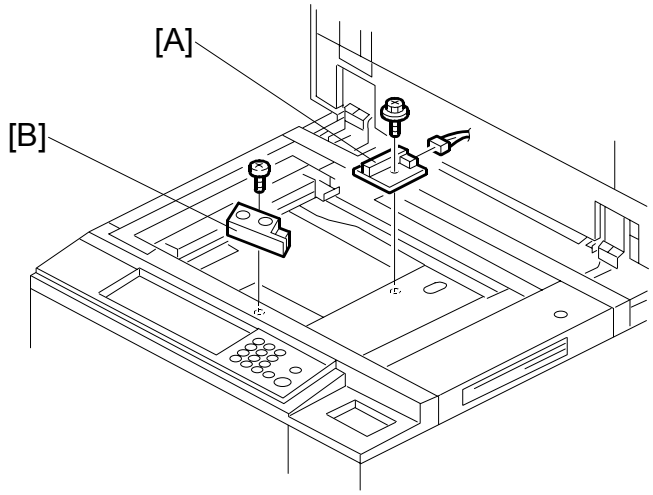
[A]: Rear scale (☞ x3)
[B]: Left cover (☞ x3)
[C]: ADF exposure glass
[D]: Exposure glass

NOTE: Lift out the exposure glass and left scale together. The left scale is permanently attached to the exposure glass with double-sided tape. Do not remove the left scale from the exposure glass.

When re-installing the exposure glass:

- Position the exposure glass first. Make sure that the arrow mark is in the upper left corner.
- When re-installing the left cover, make sure it is seated correctly.

3.4.3 SCANNER ORIGINAL SIZE SENSORS

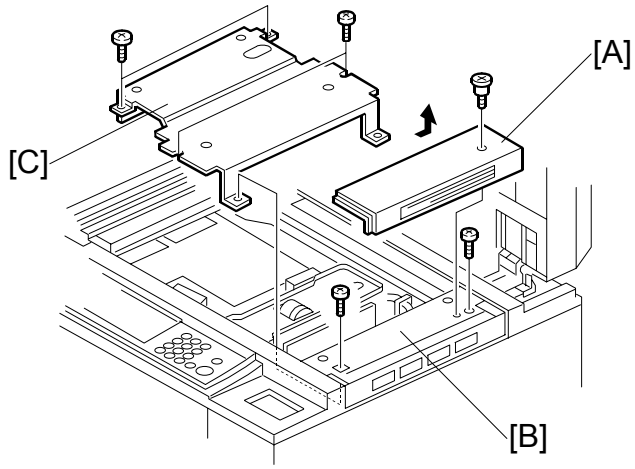


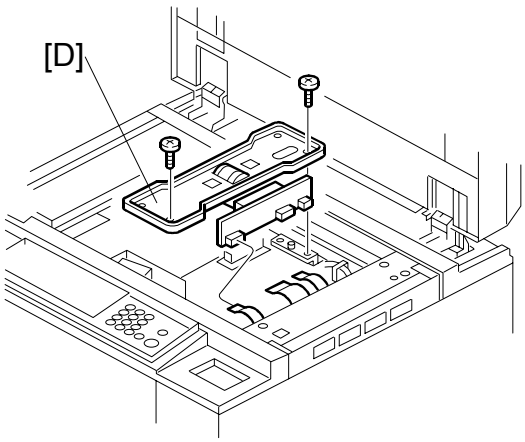
Exposure glass (☛ 3.4.2)

[A]: Original length sensor (x1, x1)
NOTE: In North America, two length sensors are provided.

[B]: Original width sensor (x1, x1)

3.4.4 LENS BLOCK





Exposure glass (☛ 3.4.2)

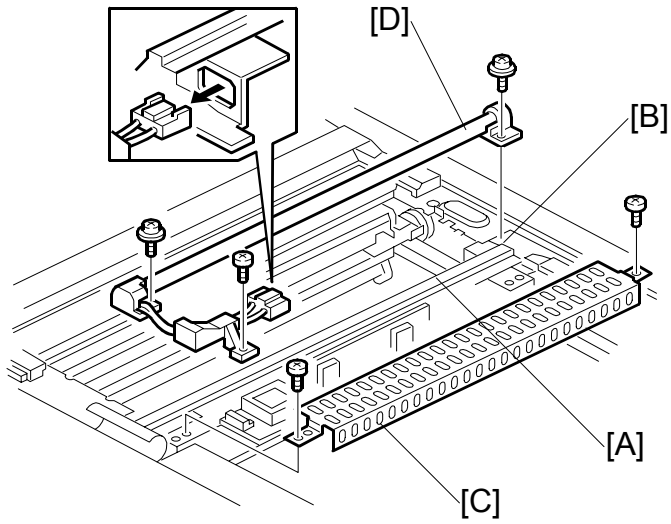
Operation panel (☛ 3.3)

[A]: Top right cover (☞ x1)
[B]: Right upper stay (☞ x2)
[C]: Lens cover (☞ x2)
[D]: Lens block (☞ x2, ✋ x3)

NOTE: To avoid damaging the lens block, never set it down on the side with the PCB; turn it over with the PCB up.

Re-assemble the machine, then perform the scanner and printer adjustments. (☛ 3.14)

3.4.5 EXPOSURE LAMP



Exposure glass (☛ 3.4.2)

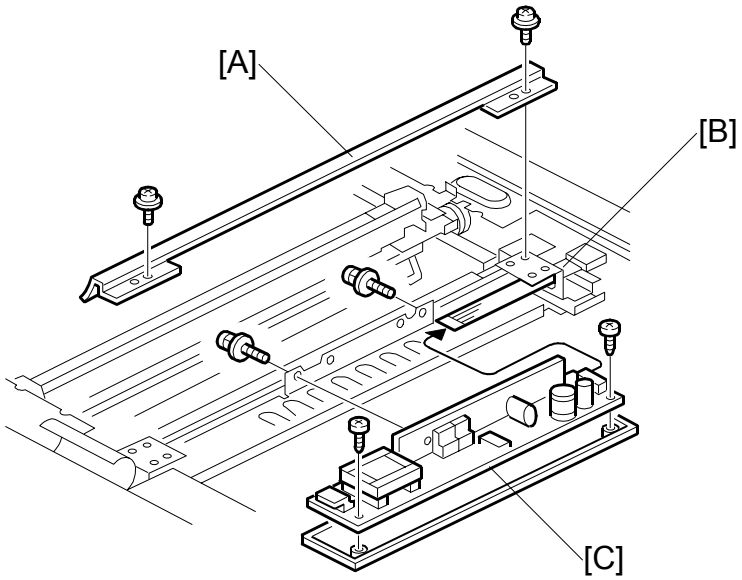
Operation Panel (☛ 3.3.1)

Push the 1st scanner [A] to the cutout [B] in the scanner frame.

[C]: Exposure lamp cover (☞ x2)
[D]: Exposure lamp (☞ x3, ☜ x1)

NOTE: Never touch the surface of the exposure lamp with bare fingers.

3.4.6 LAMP REGULATOR



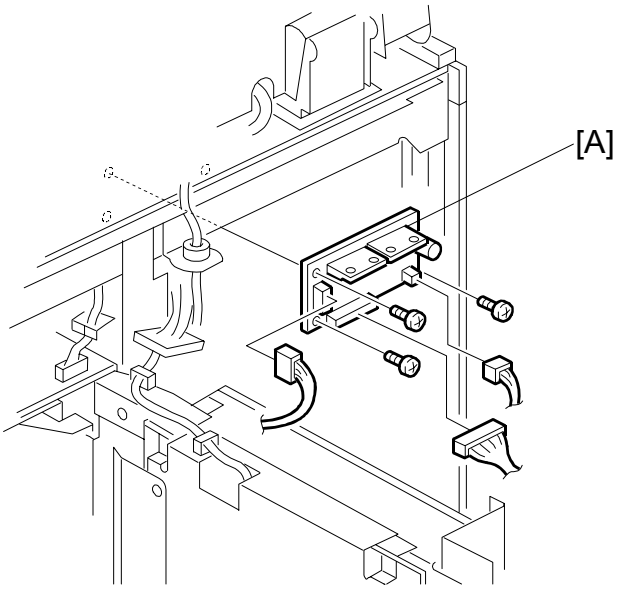
Operation panel (☛ 3.3.1)

Exposure glass (☛ 3.4.2)

Exposure lamp cover and exposure lamp (☛ 3.4.5)

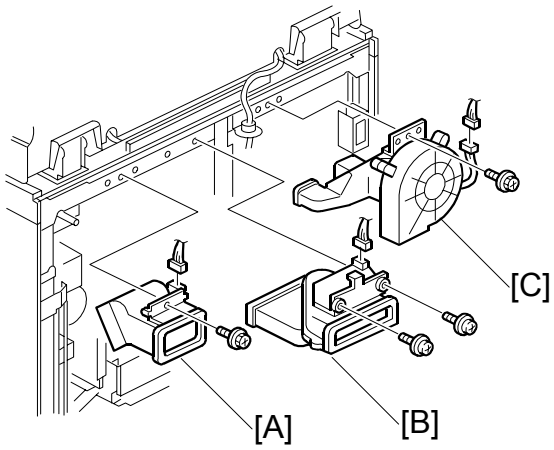
[A]: Metal strip reflector
NOTE: Avoid touching the surface of the reflector and do not bend it.
[B]: Lamp regulator ribbon connector
[C]: Lamp regulator (x 4, x1)

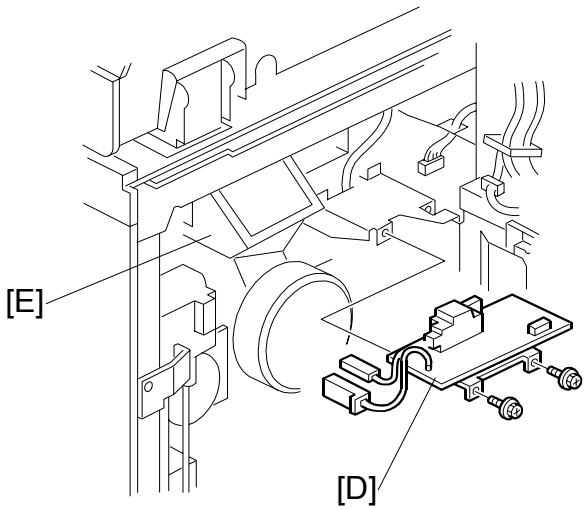
3.4.7 SCANNER MOTOR DRIVE BOARD (SDRB)

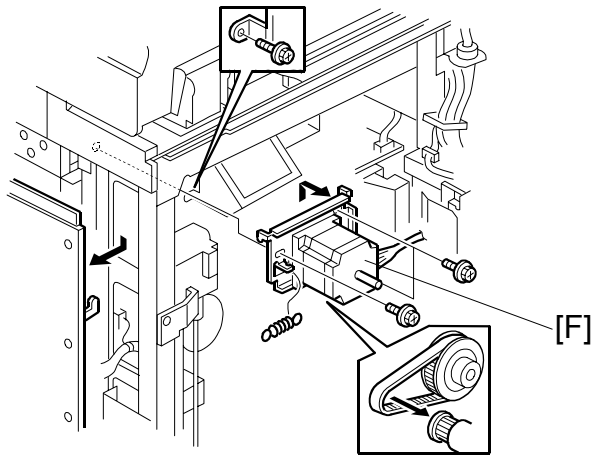


Rear upper cover (☛ 3.3.5)
[A]: Scanner motor drive board (x3, x3)

3.4.8 SCANNER MOTOR







Right upper cover (☛ 3.3.3)

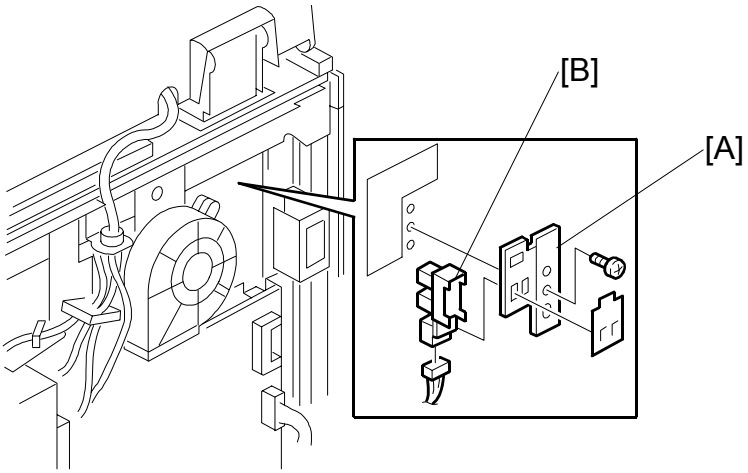
Controller/IPU panel door

Flywheel (☞ x3)

[A]: Drum cooling fan (☞ x1, ☞ x1)
[B]: Charge power pack cooling fan (☞ x2, ☞ x1)
[C]: Exhaust fan (☞ x1, ☞ x1)
[D]: Development power pack (☞ x2, ☞ x3)
[E]: Vent (☞ x2)
[F]: Scanner motor (☞ x1, harnesses x2, ☞ x3, timing belt x1)

Re-assemble the scanner, then do the scanner and printer adjustments. (☛ 3.14)

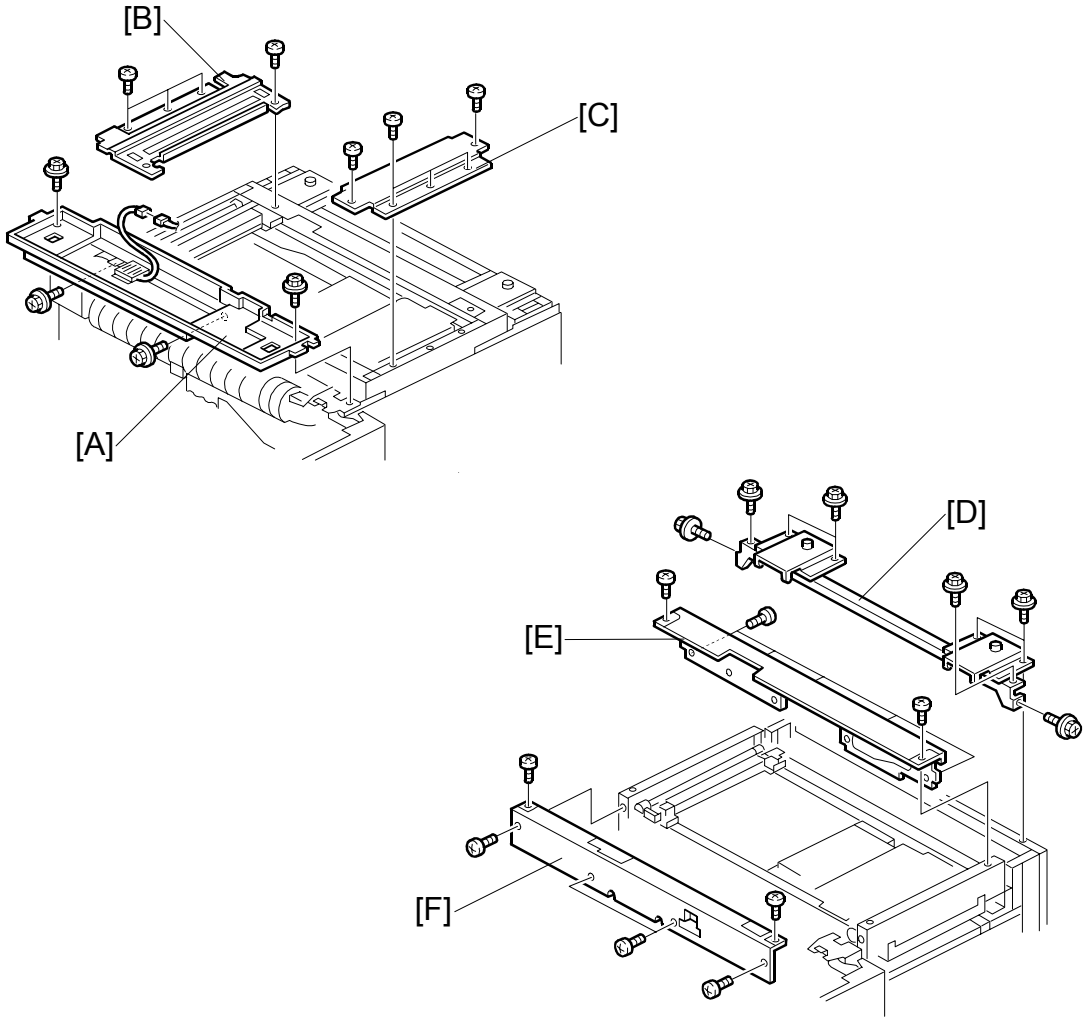
3.4.9 SCANNER HP SENSOR



Rear upper cover (☛ 3.3.5)
[A]: Sensor bracket and leaf (x1)
[B]: Scanner HP sensor (x1)

3.4.10 SCANNER WIRE REPLACEMENT

Preparation for Removal

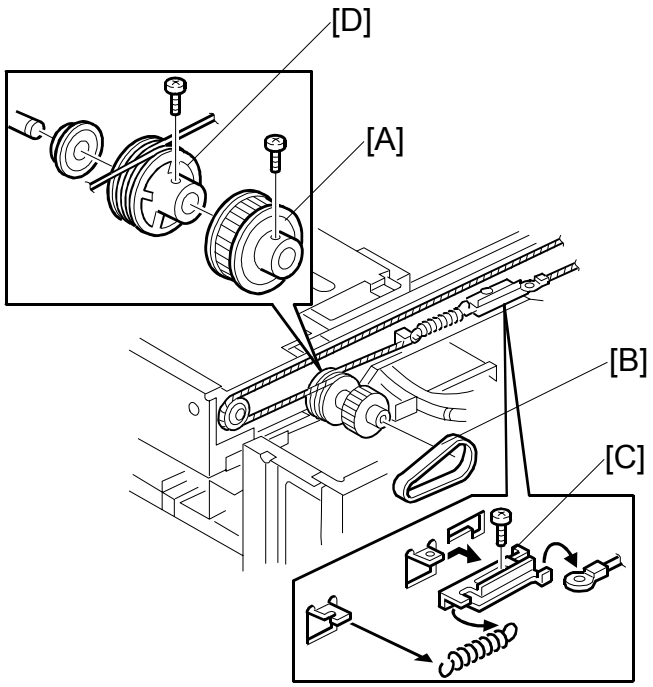


ADF and top covers (☛ 3.4.1)

Operation panel (☛ 3.3)

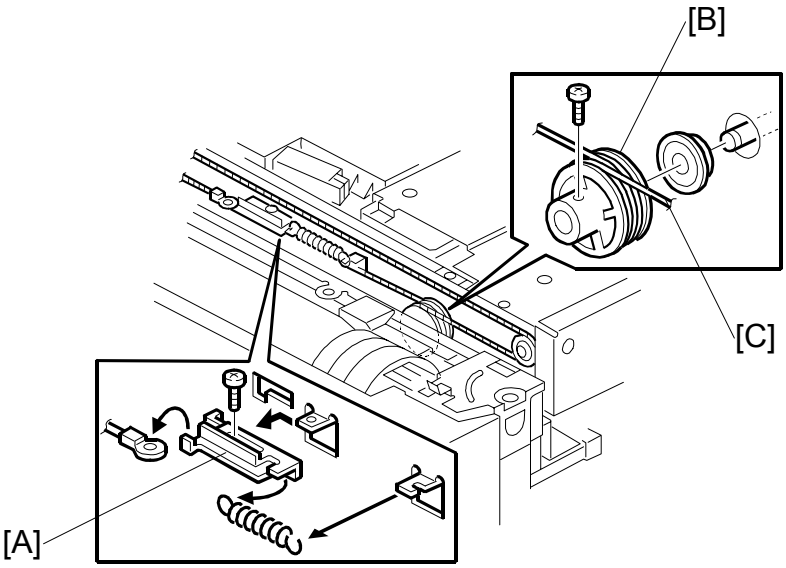
[A]: Scanner unit external cover (x4, x1)
[B]: Left stay (x5)
[C]: Right stay (x5)
[D]: ADF upper support frame (x8)
[E]: Lower support frame (x6)
[F]: Scanner unit front panel (x6)

Wire Removal: Back



[A]: Drive pulley (☞ x1)
[B]: Timing belt
[C]: Tension bracket (☞ x1, spring x1)
[D]: Rear wire pulley (☞ x1) and rear scanner wire

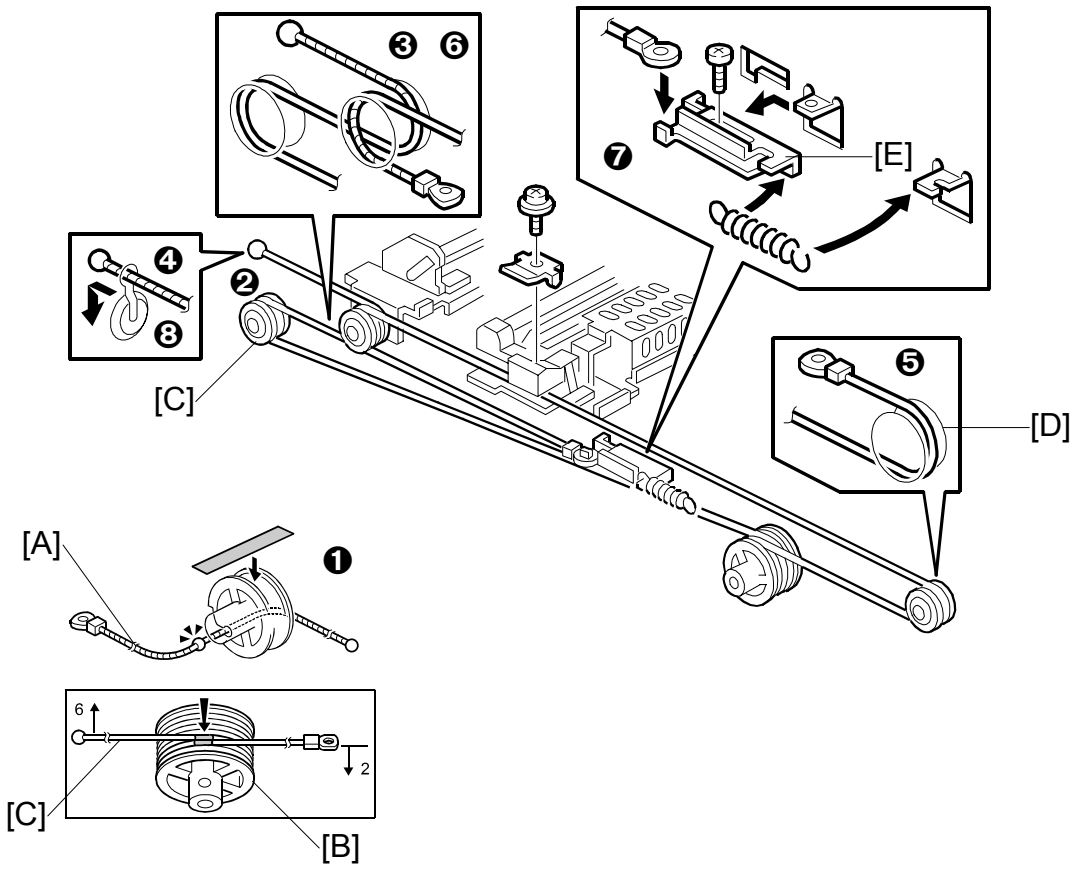
Wire Removal: Front



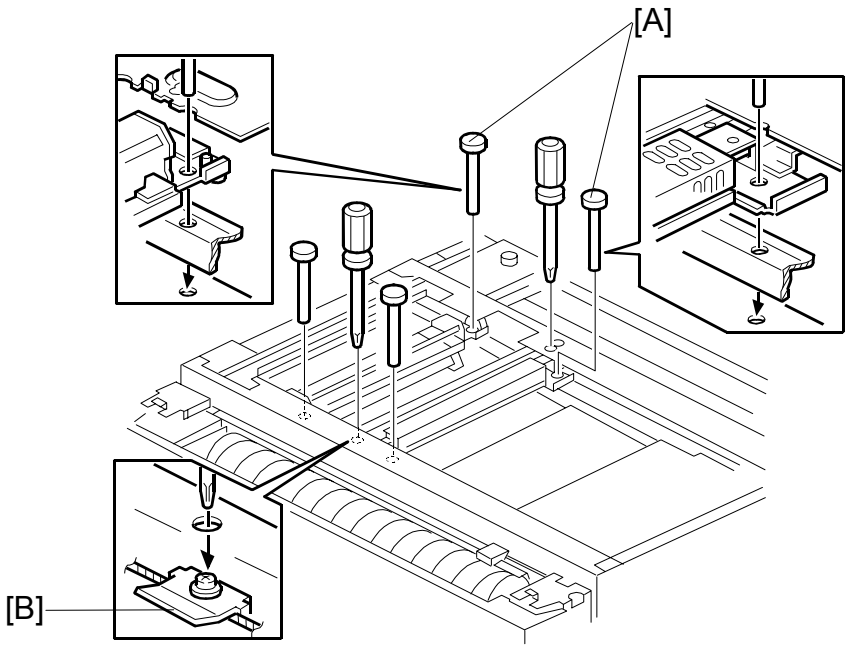
[A]: Tension bracket (x1, spring x1)
[B]: Front wire pulley (x1)
- Remove the screw. While pulling back on the drive shaft, remove the pulley shaft.

[C]: Scanner wire

Attaching the New Wire

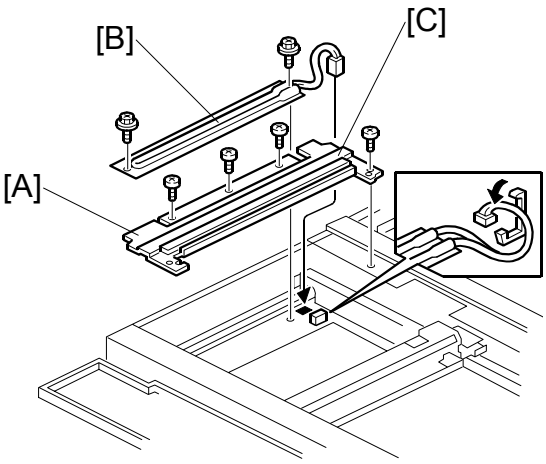


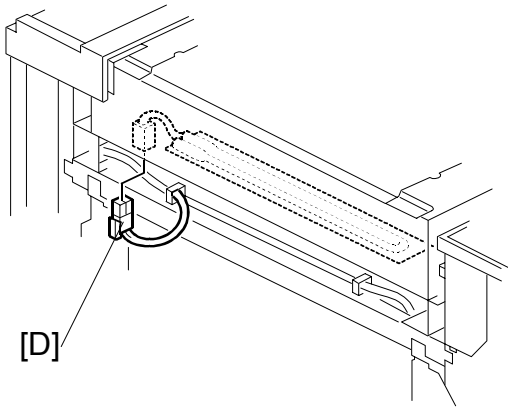
1. While paying attention to the direction of the wire (the leading bead), thread the wire [A] through the pulley [B], wrap the wire on the pulley, then apply tape to hold it in place.
   - Wind the wire on the bead side [C] clockwise 6 times, and the ring side 2 times as shown (❶).
2. Set the pulley with the taped wire on the scanner drive shaft.
3. Position the 1st scanner with the positioning pins, part number A0069104 ([A] on the next page).
4. Wind the end of the wire with the bead [C] as shown (❷❸❹).
5. Wind the ring-end of the wire around the pulley [D], install the tension bracket [E] , then tighten the screw slightly to temporarily lock the wire to the bracket (❺❻❼).



6. Attach the 1st scanner bracket [B].
7. Tighten the screw on the tension bracket ([E] previous page).
8. Remove the positioning pins. Hold the center of the 1st scanner then move it gently left and right to make sure that the wire is seated and positioned correctly.
9. Insert the positioning pins again, then loosen the following screws: 2nd scanner inner screws, 1st scanner bracket screws, tension bracket screw.
10. With the pulley facing directly up, tighten the screws again to fix the pulley in place.
11. Re-assemble the scanner, then perform the scanner and printer adjustments. (☛ 3.14)

3.4.11 SCANNER HEATER





Exposure glass (☛ 3.4.2)

Operation panel (☛ 3.3.1)

[A]: Scanning glass plate (🔩 x 4).
[B]: Scanner heater (🔩 x 2).
[C]: Fasten the cable with the harness clamp.
[D]: Fasten the connector on the left side of the machine (✋ x1).

3.5 LASER UNIT

⚠WARNING

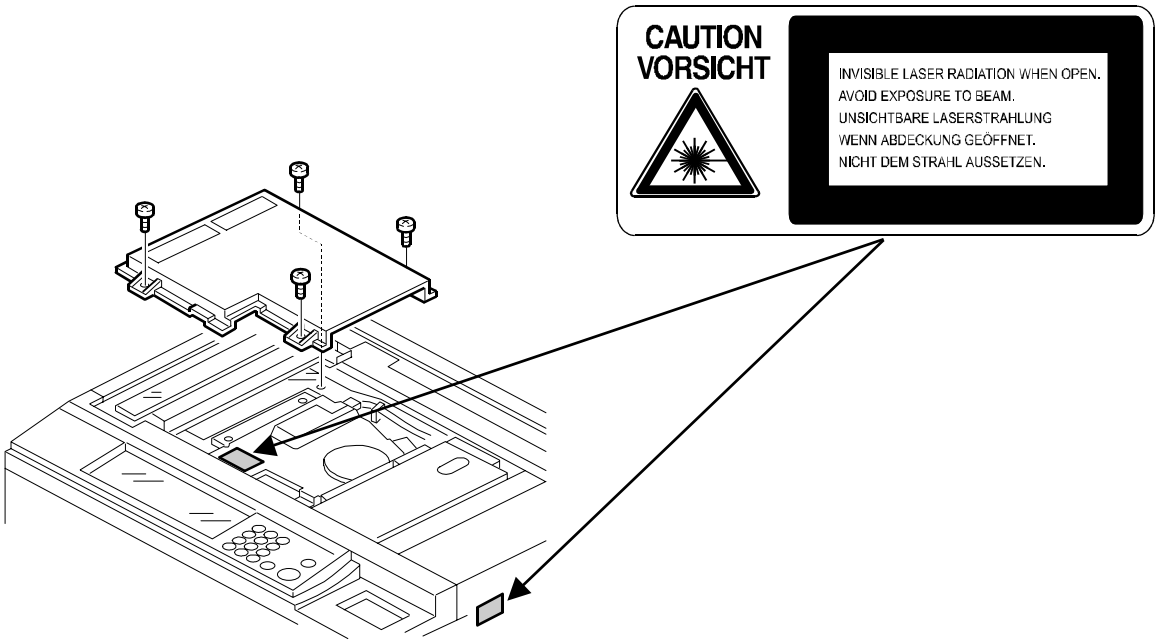
⇒ **Power off the machine and unplug the machine before performing any procedure in this section. Laser beams can seriously damage the eyes.**

⚠WARNING

- **This laser unit uses four laser beams produced by a Class III LDA with a wavelength of 788 nm and intensity of 10 mW. Direct exposure to the eyes could cause permanent blindness.**
- ⇒ **Before performing any replacement or adjustment of the laser unit. Power off the machine (☛ 1.1.5). Then unplug the machine from the power source. Allow the machine to cool for a few minutes. The polygon motor continues to rotate for about one to three minutes.**
- **Never power on the machine with any of these components removed: 1) LD unit, 2) polygon motor cover, 3) synchronization detector.**

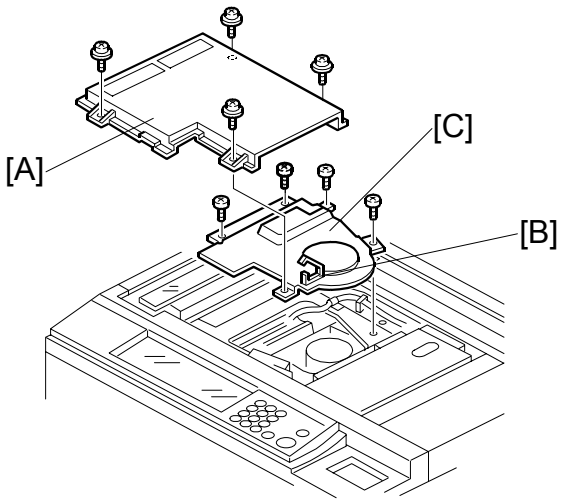
3.5.1 CAUTION DECALS

Two caution decals are provided for the laser section.



3.5.2 LD UNIT AND POLYGON MOTOR

[A]: LD unit cover (☞ x4)
[B]: Harness connector
[C]: Polygon motor cover (☞ x4)

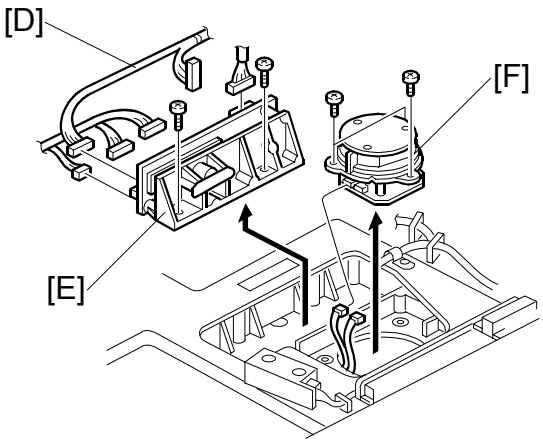


⚠CAUTION

- **An accidental static discharge could damage the LDB (Laser Diode Board). Touch a metal surface to discharge any static electricity from your hands.**
- **The polygon motor rotates at extremely high speed and continues to rotate after switching the machine off. To avoid damaging the motor, never remove the polygon motor within three minutes of switching off the main power and disconnecting the power plug.**

[D]: LDB connectors (☞ x6)
[E]: LD unit (☞ x2)
[F]: Polygon motor (☞ x3, ☞ x2)

- Follow this procedure in reverse order to install the new LD unit or polygon motor.

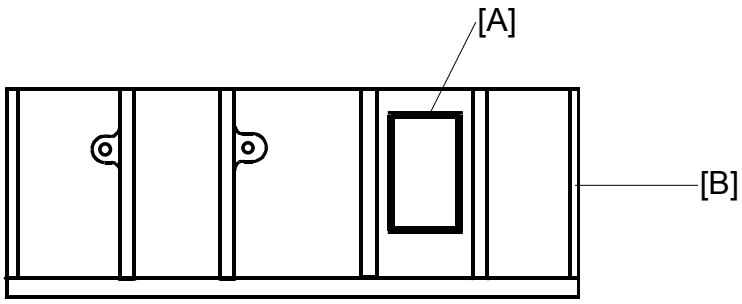


⚠CAUTION

Before fastening the polygon motor in place (☞ x3, ☞ x2), make sure that the glass panel of the laser port is facing to the right (toward the mirrors in the optical path).

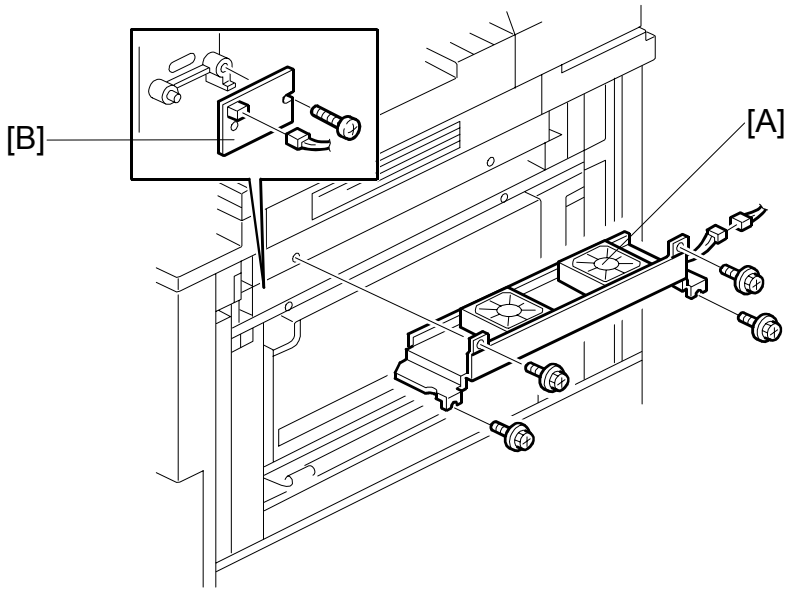
SP Adjustments

1. Execute SP2962 (Automatic Adjustment of Drum Conditions) after replacing the LD unit, but only if SP3901 – Auto Process Control – is on.
2. Read the label [A] attached to the LD unit [B]. Execute SP2115 (Main Scan Beam Pitch Adjustment) and enter the numbers printed on the label.



   - The first line on the label is the machine number.
   - The second line on the label includes three numbers separated by slashes. Reading from left to right, these are the correct settings for SP2115 (Main Scan Beam Pitch Adjustment) 001, 002, and 003.
   - Do not remove this label and make sure it is flat against the side of the LD unit.
3. Perform the scanner and printer adjustments. (☛ 3.14)

3.5.3 LASER SYNCHRONIZATION DETECTOR REPLACEMENT



Remove the right side cover (☞ x2)

NOTE: If the optional LCT is installed, disconnect it (☞ x1).

[A]: Development unit fans (☞ x4, ☞ x1)
[B]: Synchronization detector (☞ x1, ☞ x1)

After replacement, set SP1002 001~007 (Side-to-Side Registration) to the defaults.

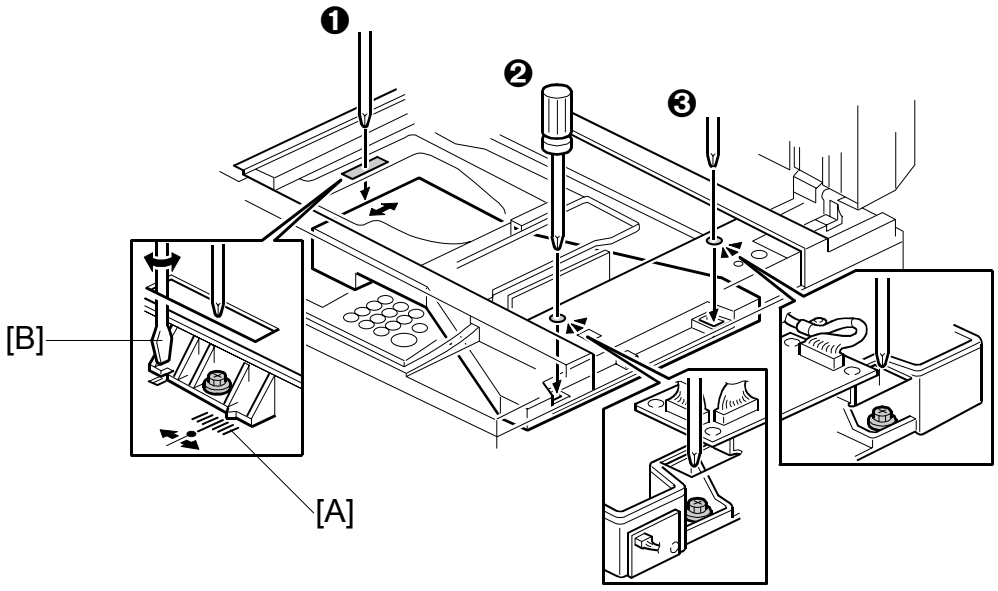
3.5.4 LASER UNIT ALIGNMENT

⚠WARNING

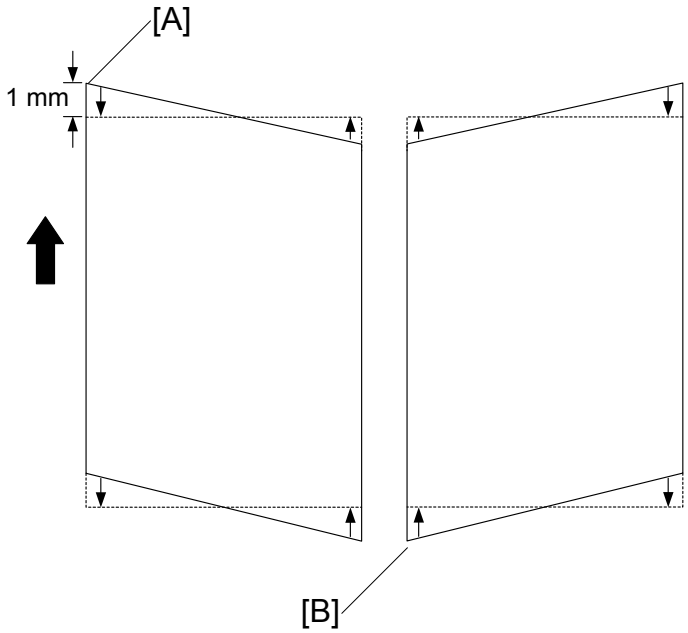
If you have just disassembled the LD unit, to avoid serious damage to the eyes from accidental exposure to laser beams you must confirm that the machine has been re-assembled completely before operation.

This adjustment corrects the parallelogram pattern to the desired rectangular pattern for printing; it does not correct the skew of scanned images.

1. Execute SP2902 003 (Test Pattern – Printing Test Pattern) 018 to print the A4 LEF pattern. Check the printed patterns and estimate the angle of adjustment required.
2. Remove the exposure glass (☛ 3.4.2).
3. Remove the LD unit cover and polygon motor cover (☛ 3.5.2).
4. Remove the right cover (☛ 3.5.3).
5. Loosen the screws of the laser exposure unit ❶❷❸ (🔩 x3).



6. While watching the scale [A], use a flathead screwdriver [B] to move the laser exposure unit left or right to adjust the position of the unit.



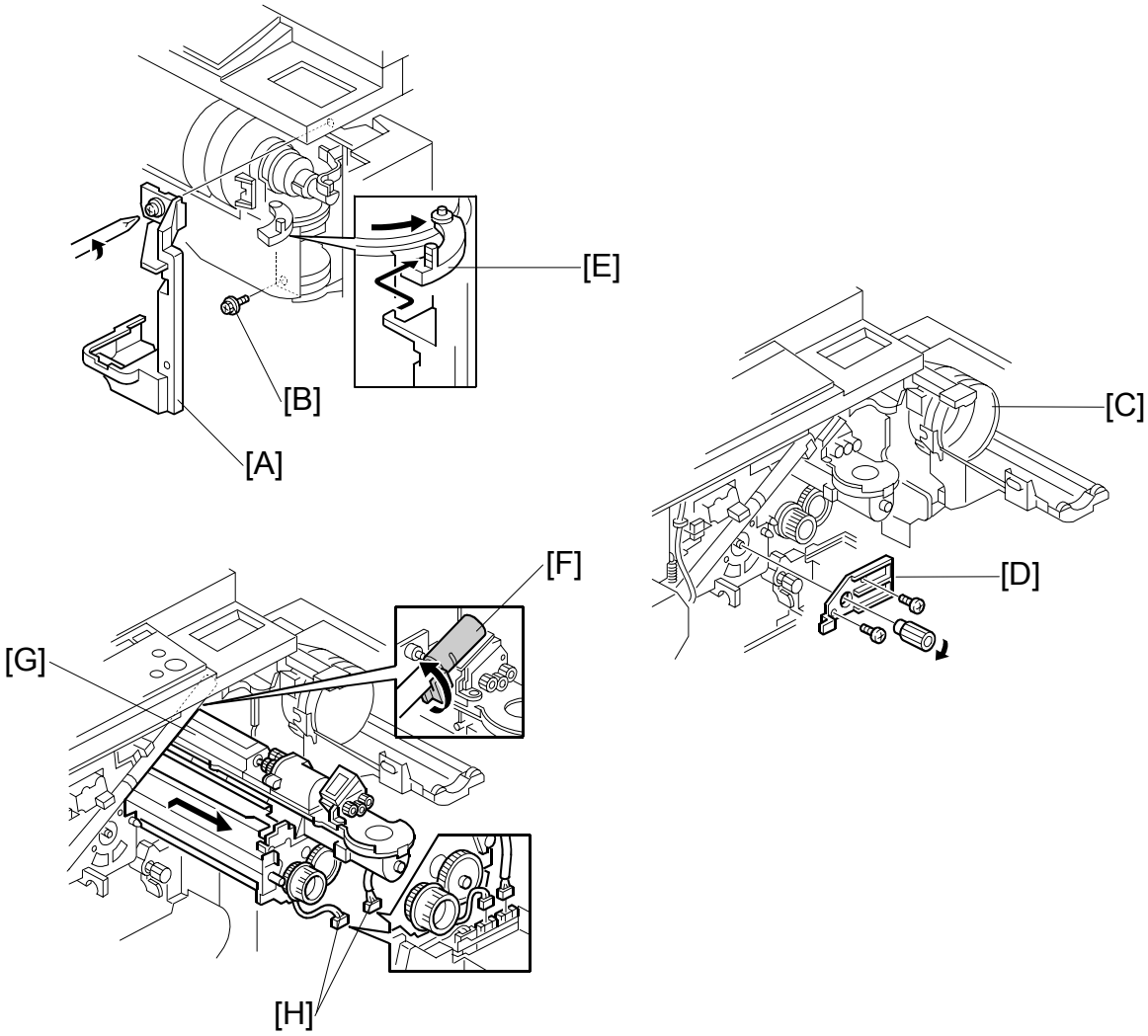
7. Adjust the position of the laser exposure unit.
   - If the pattern is skewed at the corner of the leading edge [A], move the unit so it moves the pointer on the scale toward the back.
   - If the pattern is skewed at the lower left corner of the trailing edge [B], move the unit so it moves the pointer on the scale toward the front.

   NOTE: The scale is set for increments of 1 mm.
8. After adjustment, tighten the screws on the laser exposure unit, re-assemble the machine and print the pattern again with SP2902 003 018.
9. Check the pattern. Repeat the procedure if more adjustment is required.

3.6 DRUM UNIT

3.6.1 DEVELOPMENT UNIT REMOVAL

Removal



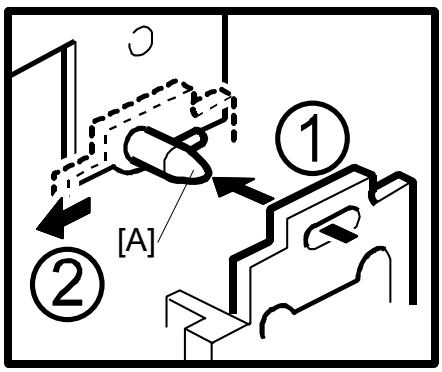
[A]: Shutter cover (☞ x 1).
[B]: Lock screw
[C]: Toner bottle.
- Pull the toner bottle holder out and swing the toner bottle holder to the right.

[D]: Face plate (knob x 1, ☞ x 2)
NOTE: After re-installation, the tab [E] should be behind the stay and its pin below should be in the open track below.
[F]: Close the supply pipe shutter
[G]: Development unit (✋ x 2 [H])
- Allow the unit to slip to the right, then slowly pull it out of the machine.

NOTE: If the LCT is installed, you may need to remove the front door of the copier to allow removal of the development unit.

Re-installation

When re-inserting the development unit, engage the plate ① on the front of the development unit with the silver pin [A] inside the machine, then slide it to the left ② toward the drum.



If the unit is installed correctly, you should see the pin above the plate, and the plate should be flat against the front of the development unit.

If the development unit will not move past the pin, the couplings are not aligned correctly at the back of the machine. Turn the gear on the front of the developer unit until the couplings engage at the rear of the machine.

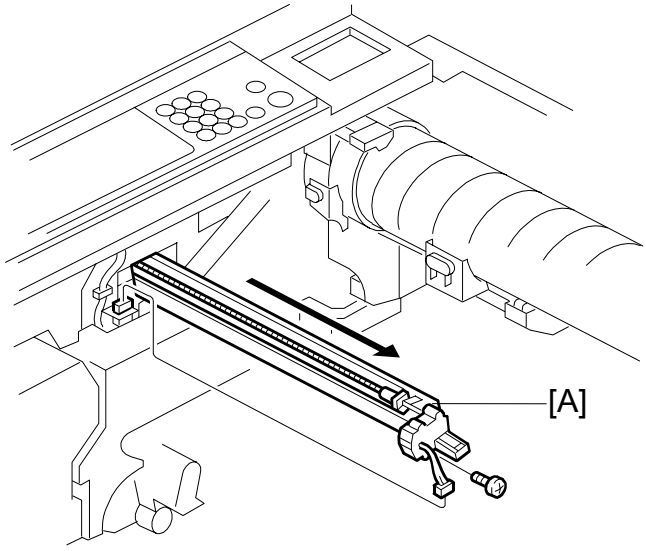
Before closing the front door, make sure that the pipe line shutter is rotated down to the open position.

Replacement with a used Development Unit

When using a development unit from another machine for test purposes, execute the following procedure.

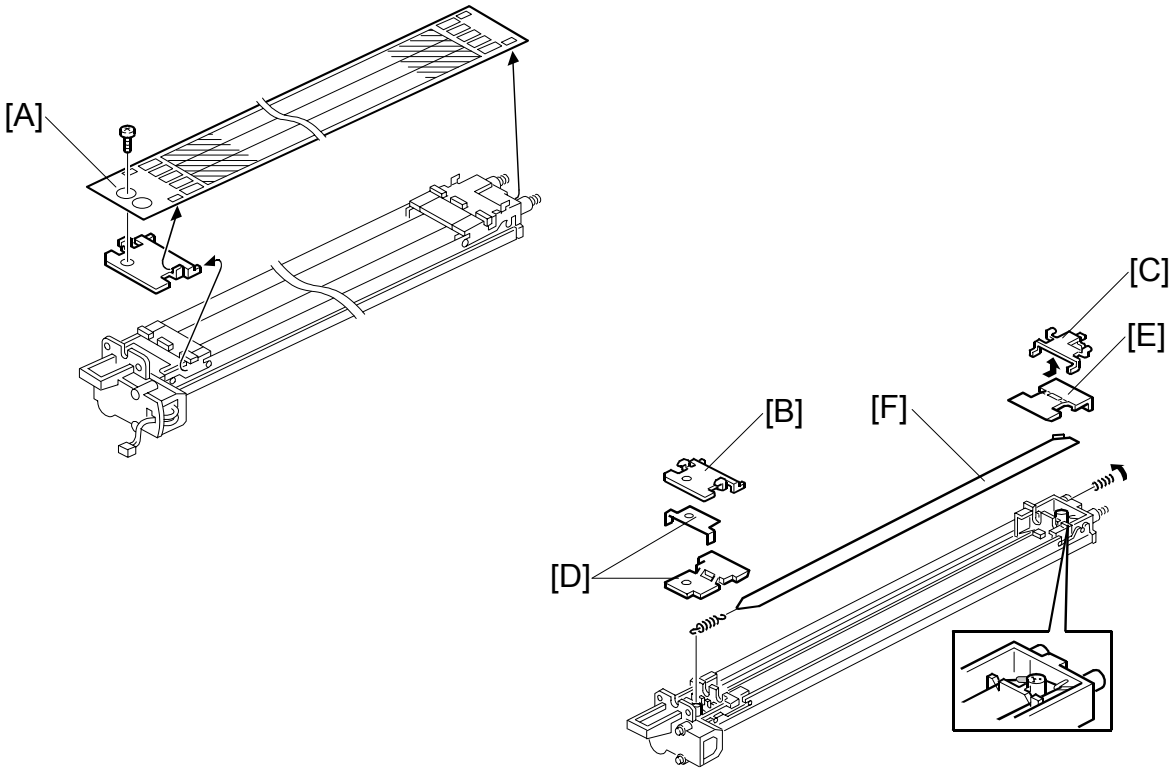
1. Check the value of SP2220 (Vref Manual Setting) in both the machine containing the test unit and the machine that you are going to move it to.
2. Install the test development unit, then input the V_{REF} for this unit into SP2220.
3. After the test, reinstall the old development unit, and change SP2220 back to the original value.

3.6.2 CHARGE CORONA UNIT



Development unit (☛ 3.6.1)
[A]: Charge corona unit (x1, x1)

3.6.3 CHARGE CORONA WIRE AND GRID

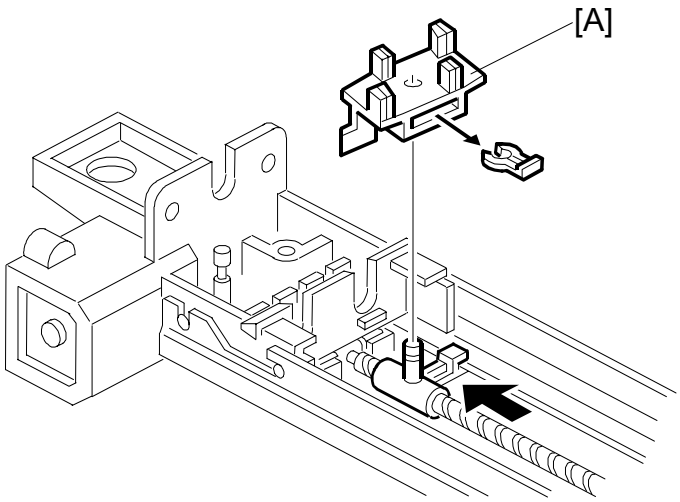


Charge corona unit (☛ 3.6.1)

[A]: Grid (☞ x1)
[B]: Front bracket
[C]: Rear bracket
[D]: Front block cover
[E]: Rear block cover
[F]: Corona wire
- Disconnect the wire behind the grid bracket.

NOTE: 1) Never touch the charge corona wire with bare hands. Always protect it from dust, oil, etc.
2) Never bend or knot the wire. Charge will not distribute evenly on a bent wire.
3) Make sure that the wire seam is as close as possible to the wire hook at the rear.
4) At the front and back, make sure that the wire is threaded correctly into the grooves in the end blocks.
5) After replacing the charge corona wire, make sure that the wire cleaner pads are engaged correctly with the wires.
6) After replacing the wire, set SP2001 001 (Charge Roller Bias Adjustment – Applied Voltage for Image Processing) to the default.

3.6.4 CHARGE CORONA WIRE CLEANING PADS

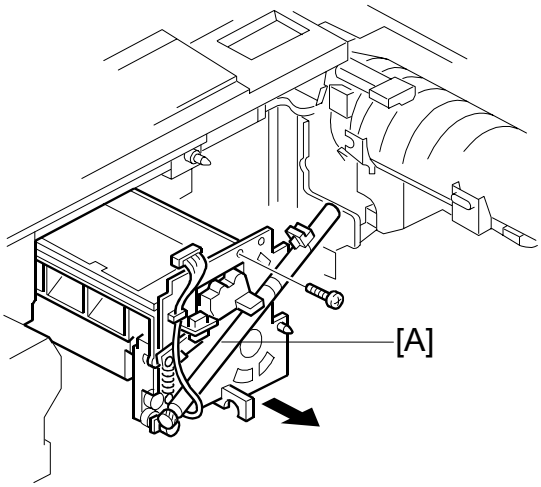


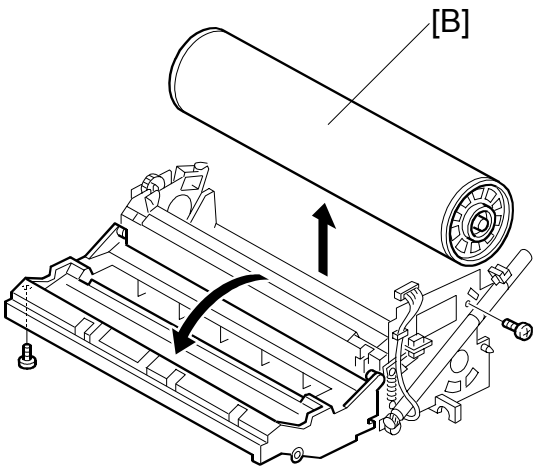
Charge corona unit (☛ 3.6.2)

Charge corona wire and grid (☛ 3.6.3)

[A]: Cleaning pad (x1)

3.6.5 OPC DRUM REMOVAL





Development unit (☛ 3.6.1)

Charge corona unit (☛ 3.6.2)

[A]: Drum unit (🔩 x1, ✋ x1)

- Grasp the drum unit by the knob to remove it from the machine.

[B]: OPC drum

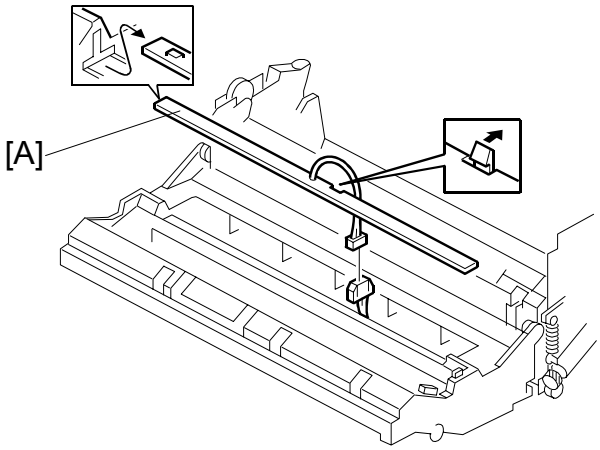
⟹**NOTE:** If the Lot Number for the new drum is "_L_xxxxxxxxx", ☛ 3.16 *OPC Drum Change*. If not, follow the procedure below.

After replacing the drum, do the following SPs:

- Set SP2001 001 (Charge Roller Bias Adjustment – Applied Voltage for Image Processing) to the default.
- SP2962 (Adjustment of Drum Conditions), only if SP3901 (Auto Process Control) is on.

NOTE: 1) To avoid fingerprints on the surface of the OPC drum, never touch the surface of the drum with bare fingers.
2) Never use alcohol to clean the surface of the OPC drum. Blow dry the OPC drum, then wipe clean with a clean, slightly damp cloth.
3) Before installing a new drum, dust the surface of the OPC drum carefully with setting powder.

3.6.6 QUENCHING LAMP



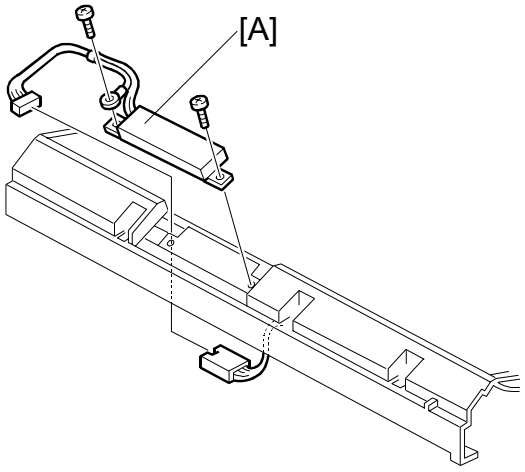
OPC drum (☛ 3.6.5)

[A]: Quenching lamp (🖐 x1)

- At the center, push back the hook to release the quenching lamp.

NOTE: Use only a blower brush to clean the quenching lamp.

3.6.7 DRUM POTENTIAL SENSOR

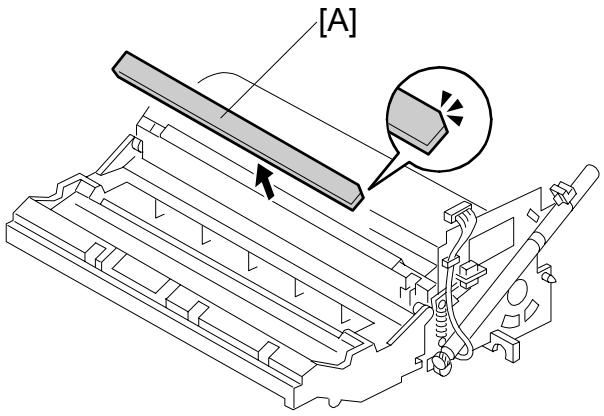


OPC drum (☛ 3.6.5)

[A]: Drum potential sensor (🔧 x2, 🖐 x1)

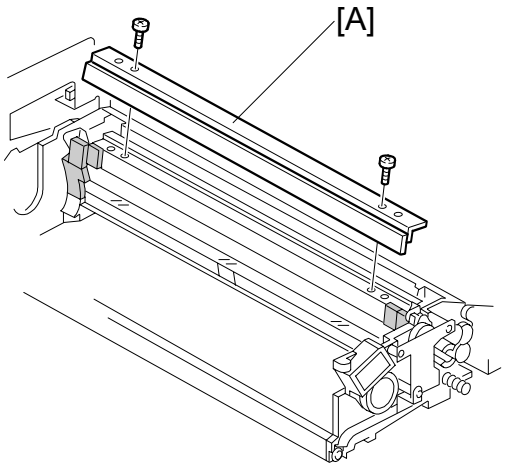
NOTE: After replacing the drum potential sensor, do SP2962 (Adjustment of Drum Conditions), only if SP3901 (Auto Process Control) is on).

3.6.8 CLEANING FILTER



OPC drum (☛ 3.6.5)
[A]: Cleaning filter

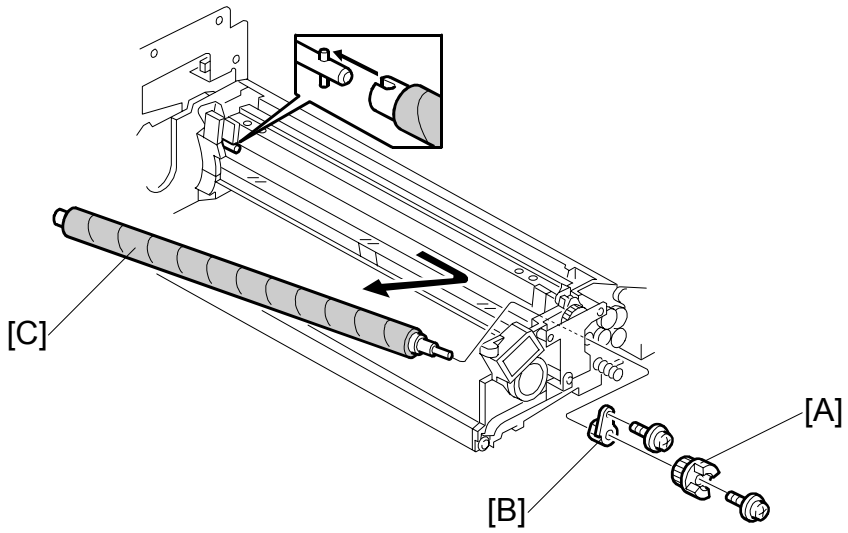
3.6.9 CLEANING BLADE



OPC drum (☛ 3.6.5)
[A]: Drum cleaning blade (🖉 x2)

NOTE: 1) Clean the blade edge carefully with only a soft, clean cloth.
2) Handle the blade carefully to avoid nicking its edge.
3) New blades are treated with special setting powder, so avoid touching the edge of a new cleaning blade. If the edge of a new blade is accidentally wiped clean, dust it lightly with some toner before installing it.
4) Before installing a new blade, make sure that the blade side seals are not pinched by the blade.

3.6.10 CLEANING BRUSH



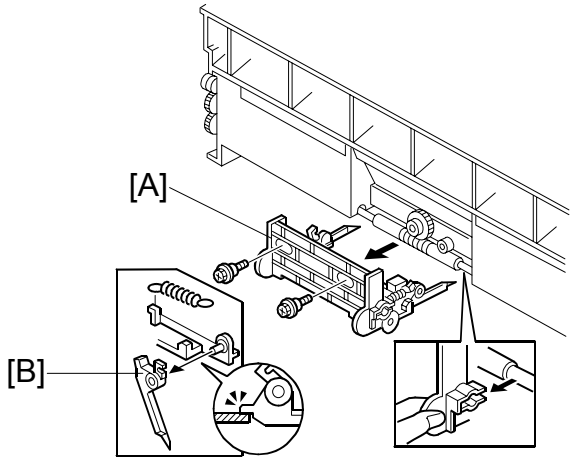
OPC drum (☛ 3.6.5)

Drum cleaning blade (☛ 3.6.9)

[A]: Coupling (x1)
[B]: Inner bushing
[C]: Cleaning brush
- Pull the shaft toward the rear to disengage the front of the shaft, then pull out.

NOTE: 1) After replacing the cleaning brush, clean the ID sensor to make sure that it is clean and free of toner.
2) Avoid touching the cleaning brush with bare hands.
3) Check the entrance seals and confirm that they are not bent.

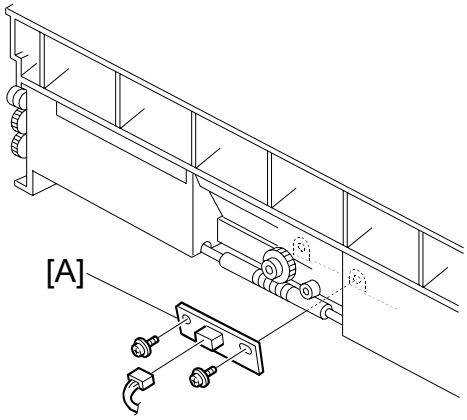
3.6.11 PICK-OFF PAWLS



OPC drum (☛ 3.6.5)

[A]: Pick-off pawl bracket (🔩 x2)
[B]: Pick-off pawl (spring x1)

3.6.12 ID SENSOR



OPC drum (☛ 3.6.5)

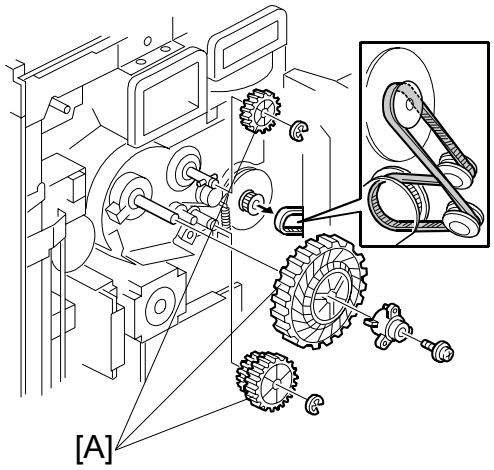
Pick-off pawls (☛ 3.6.11)

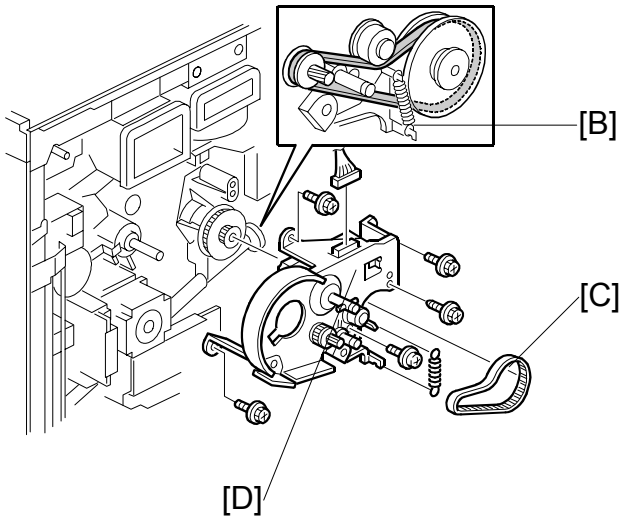
[A]: ID sensor (🔩 x2, 🖐 x1)

After replacing the sensor, do the following SPs:

- SP2962 (Adjustment of Drum Conditions), only if SP3901 (Auto Process Control) is on).
- SP3001 002 (ID Sensor Initialization Setting).

3.6.13 DRUM MOTOR





Rear covers (☛ 3.3.5)

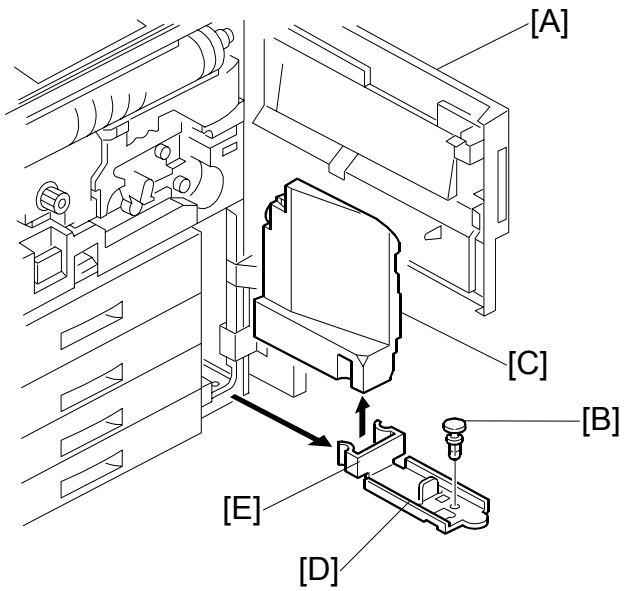
Controller/IPU panel (x2) (not shown)

- The panel swings open like a door. You do not need to remove it.

Flywheel (x3) (not shown)

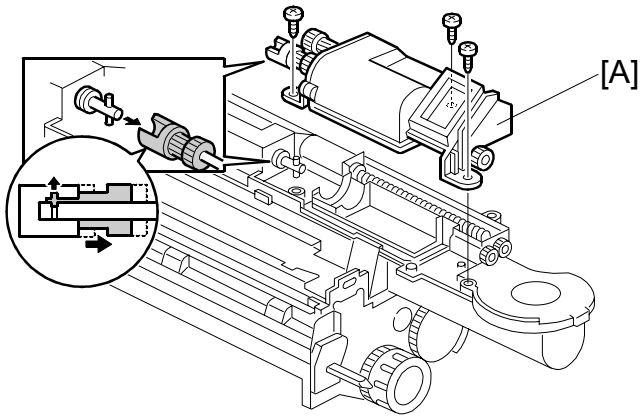
[A]: Three gears (x1, x2, Timing belt)
[B]: Spring
[C]: Timing belt
[D]: Drum motor (x1, x5)

3.6.14 TONER COLLECTION BOTTLE



1. Open the front door [A].
2. Remove the lock pin [B], then pull out the toner collection bottle [C] and its base [D].
3. Detach the bottle from the base clamp [E] and replace it.

3.6.15 TONER SEPARATION UNIT



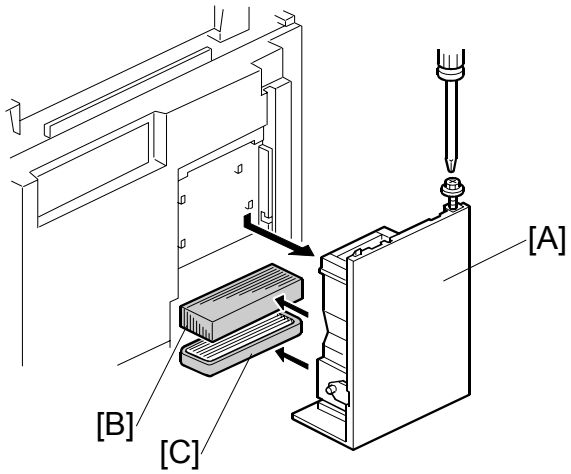
Development unit (☛ 3.6.1)

[A]: Toner separation unit (🔩 x3)

3.6.16 OZONE FILTERS

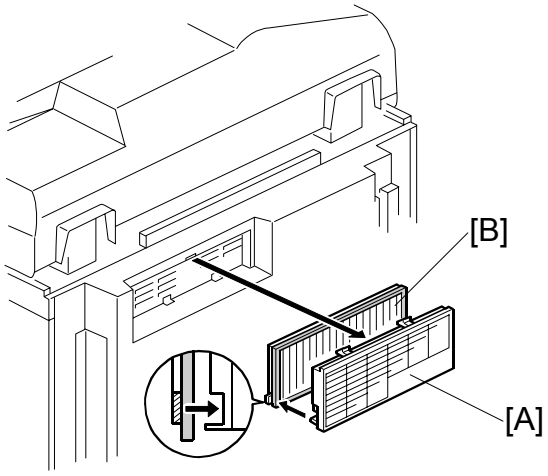
[A]: Filter cover (x1)
- The filter cover is on the back of the machine.

[B]: Ozone filter (top)
[C]: Ozone filter (bottom)



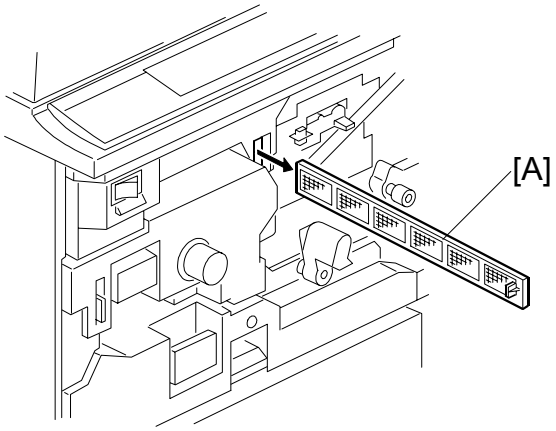
3.6.17 OPTICS DUST FILTER

[A]: Filter cover
[B]: Optics dust filter



3.6.18 INTERNAL DUST FILTER

1. Open the front door.
2. Pull out the internal dust filter [A],

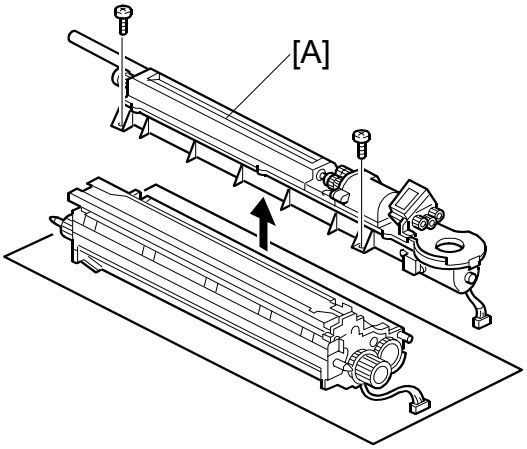


3.7 DEVELOPMENT UNIT

3.7.1 DEVELOPER REPLACEMENT

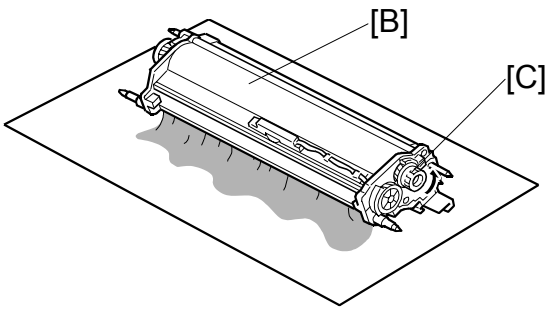
1. Remove the development unit (☛ 3.6.1)
2. Remove the toner hopper [A] (x2)
   - Rotate the toner hopper very slightly (10° ~ 20°) as you slide it up to remove it.

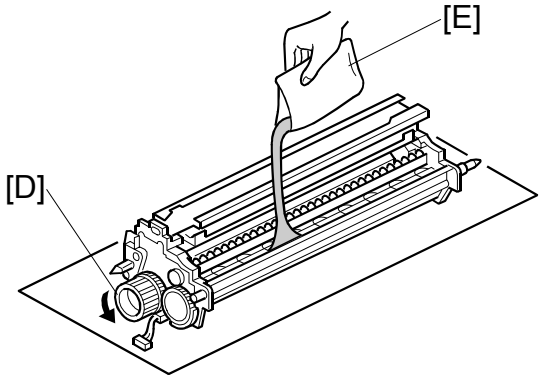
   NOTE: To avoid toner spill, hold the hopper level as you remove it



3. Hold the development [B] unit over a large sheet of paper, then slowly turn it upside down to empty the developer.
4. Turn the knob [C] through several complete rotations to empty all the developer in the development unit.
5. Clean the development sleeve and its side seals.
6. Turn the unit over and set it on another sheet of clean paper.
7. Note the developer lot number printed on the top edge of the bag. You will need the lot number when you input SP2801.
8. Clean the development roller shaft with a clean cloth and blower brush.
9. While turning the knob [D] slowly, pour in one pack of developer [E] from one end of the development unit to the other.
   - Make sure that the developer is evenly distributed.

   NOTE: Continue to turn the knob several times to prevent clumping in the developer.

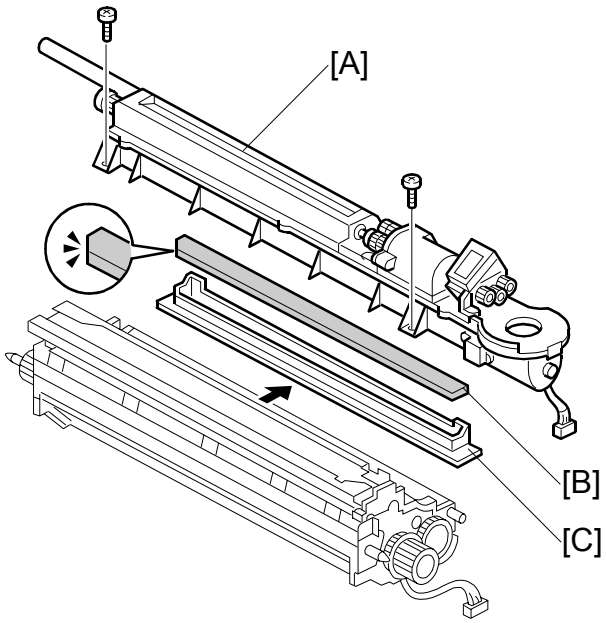




10. Re-assemble the machine.
    - Hold the hopper perfectly level when re-attaching it, to prevent toner from entering the rails of the development filter.

    NOTE: Automatic process control starts automatically after the machine is switched on, so after replacing the developer, you should enter the SP mode and initialize the developer with SP2801 as soon as possible after switching the machine on.
11. Switch the machine on, enter the SP mode and execute SP2801 (TD Sensor Initial Setting).
    - Press Clear Modes
    - On the operation panel keypad, press 1 0 7.
    - Hold down Clear/Stop for more than 3 seconds.
    - Press “Copy SP” on the touch-panel.
    - Press 2 8 0 1.
    - Read the lot number from the package, enter the number, then press #.
    - Press Execute.

3.7.2 DEVELOPMENT FILTER



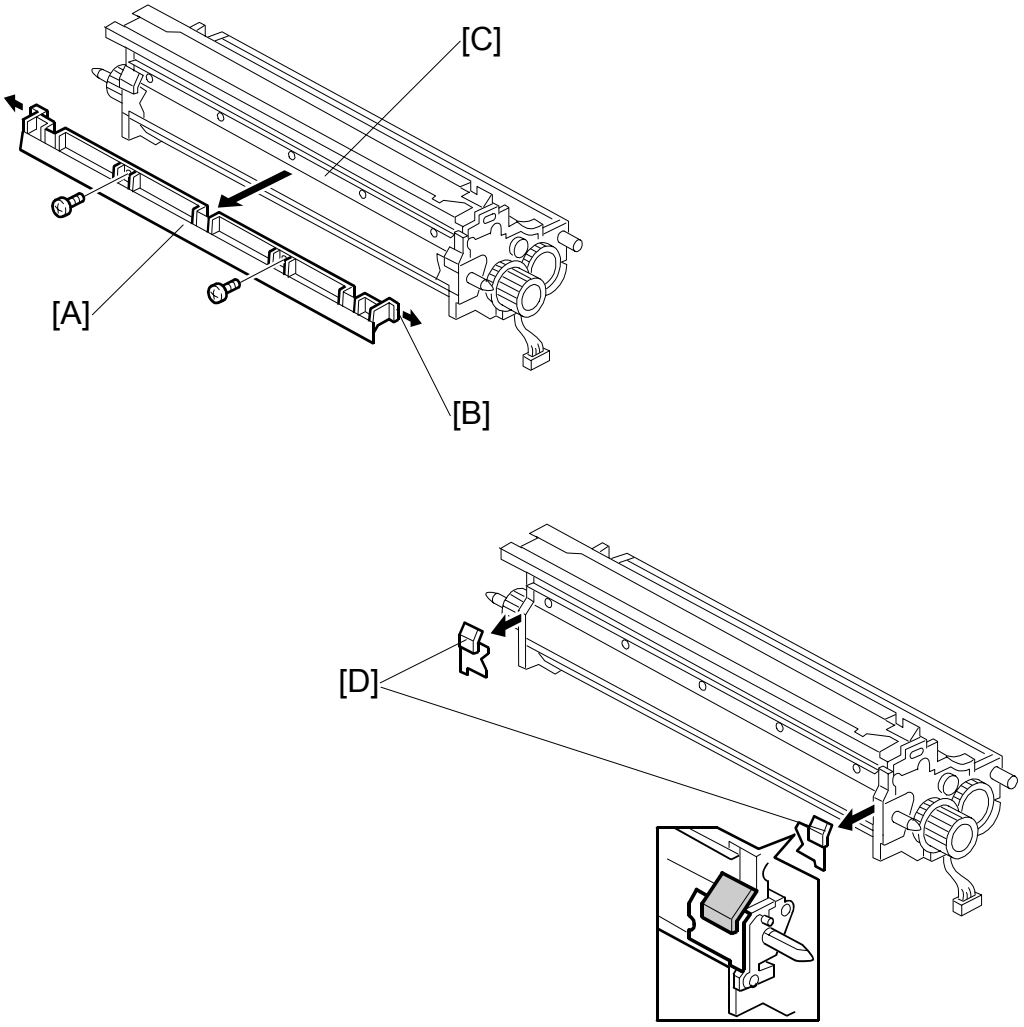
Development unit (☛ 3.6.1)

[A]: Toner hopper

[B]: Development filter

- Make sure that the rails where the development filter bracket [C] connects to the development unit are clean and free of toner. If there is any toner in the rails, wipe them clean.

3.7.3 ENTRANCE SEAL AND SIDE SEALS

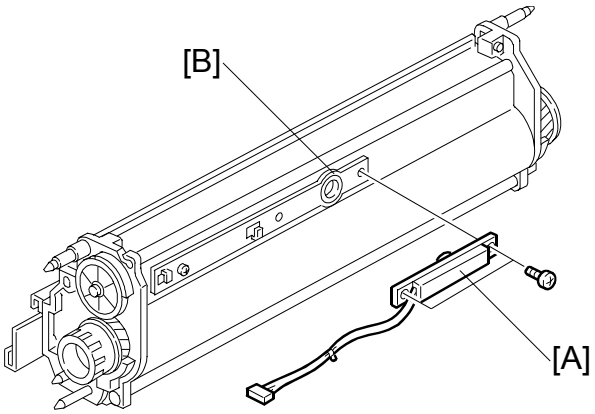


Development unit (☛ 3.6.1)

[A]: Entrance seal bracket (☞ x2)
- After removing the screws, press in the catches on either end [B] to release the entrance seal bracket, then remove it.
- Clean the entrance seal bracket before re-installing it.
- When re-installing, make sure the tabs [C] and notches are engaged at four locations.

[D]: Side seals
- Remove the side seals from both ends, clean the area, and replace with new seals.

3.7.4 TD SENSOR

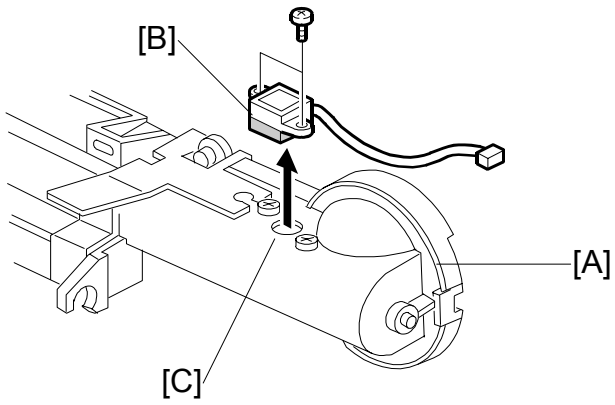


Development unit (☛ 3.6.1)

[A]: TD sensor (☞ x1)

- Before installing a new TD sensor, clean the TD sensor port [B].
- After replacing the TD sensor, do the following SPs
  SP2801 TD Sensor Initial Setting
  SP2962 Adjustment of Drum Conditions (only if SP3901 – Auto Process Control – is on).

3.7.5 TONER END SENSOR



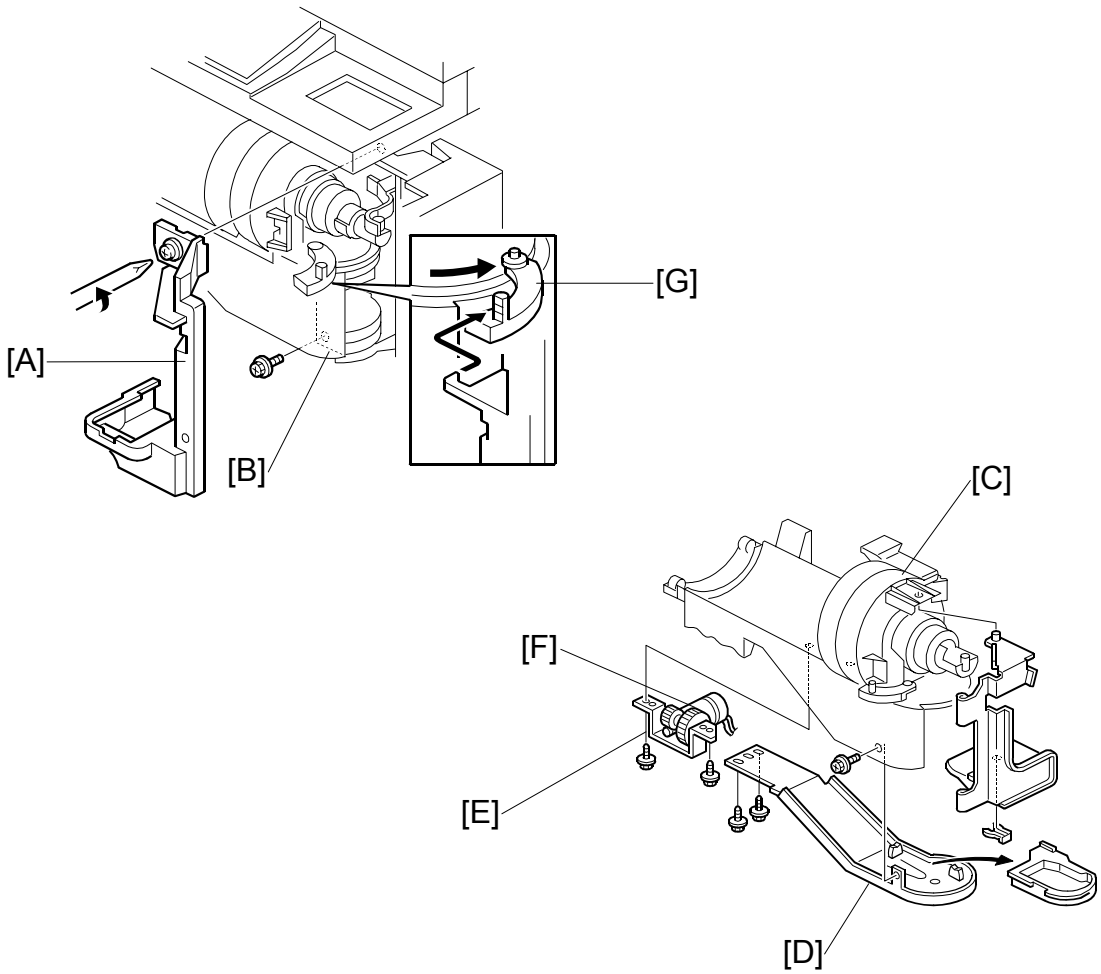
Development unit (☛ 3.6.1)

[A]: Toner hopper (☞ x2)

[B]: Toner end sensor (☞ x2)

- Remove the screws carefully to avoid stripping the holes.
- Before installing a new toner end sensor, clean the toner end sensor port [C].

3.7.6 TONER SUPPLY MOTOR



Open the front door.

Swing the toner unit out of the machine and remove the toner bottle.

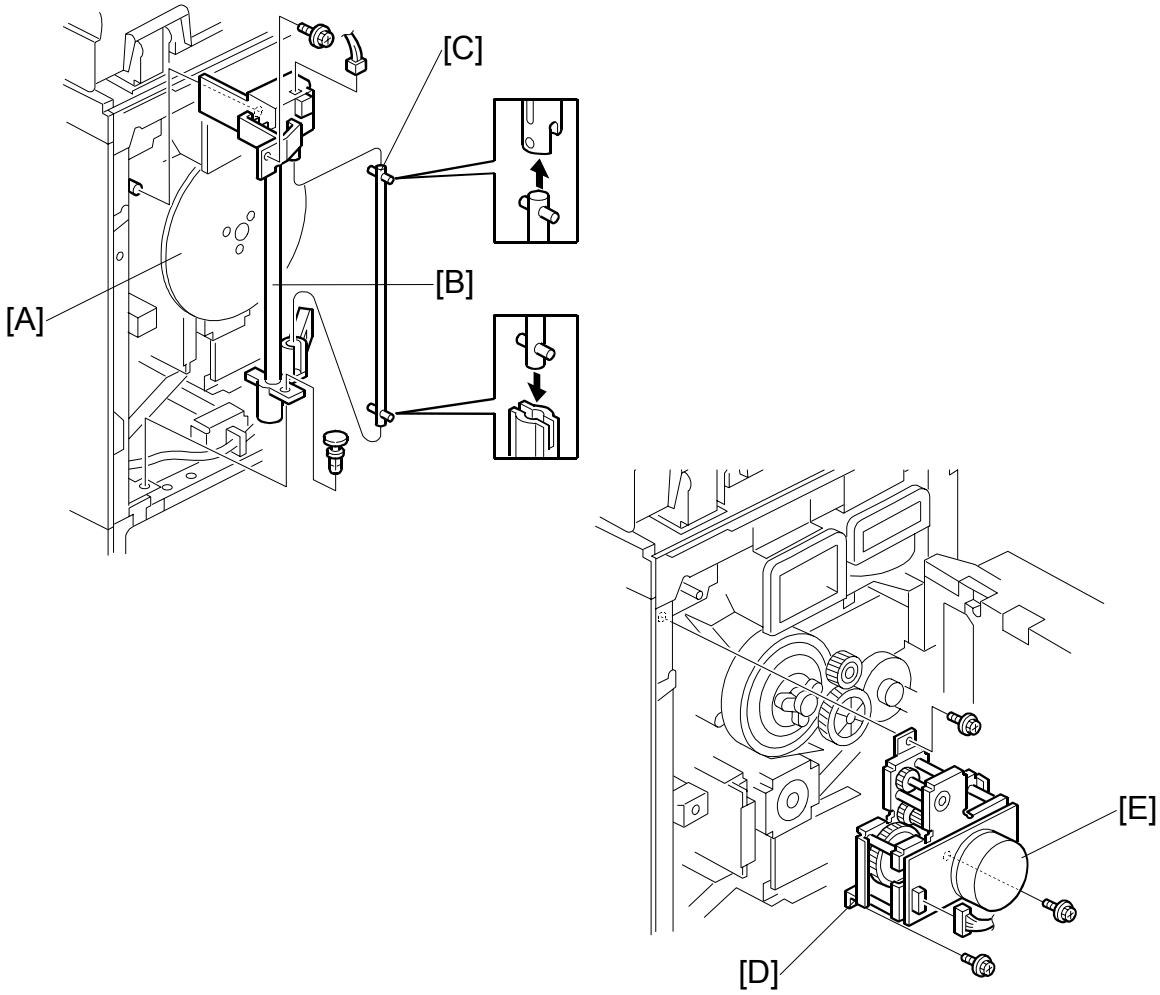
[A]: Bracket (x1)
[B]: Lock plate (x1)
[C]: Toner bottle unit (x1, harness x1, x1)
- The c-clamp is under the toner unit.
- Lift the toner bottle unit off the pegs and lay it on a piece of newspaper to avoid toner spill.

[D]: Bottom plate (x3, harnesses x2)
- 2 screws on the bottom, 1 screw on the side.

[E]: Toner supply motor bracket (x2)
[F]: Toner supply motor (x2)

NOTE: After re-installation the tab [G] should be behind the stay and its pin below should be in the open track below.

3.7.7 DEVELOPMENT MOTOR

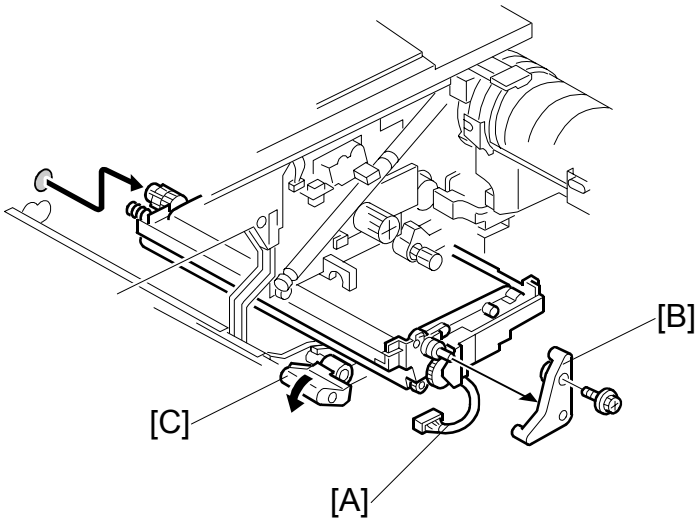


[A]: Flywheel (☞ x3)
[B]: Waste toner pump tube (☞ x1, 🖐 x1)
[C]: Drive rod
- Lift the toner pump tube to disengage the drive rod, pull out the rod, and push the rubber tube aside.

[D]: Development motor bracket (☞ x3, 🖐 x1)
[E]: Development motor (☞ x4)

3.8 TRANSFER BELT UNIT

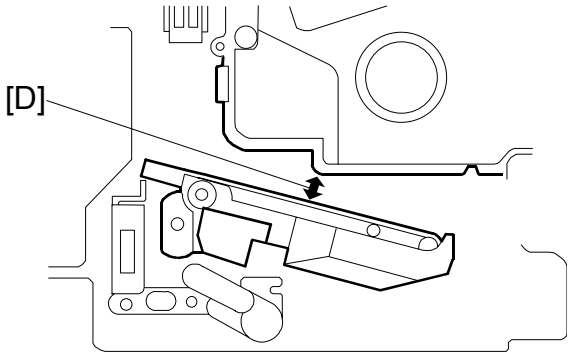
3.8.1 TRANSFER BELT UNIT



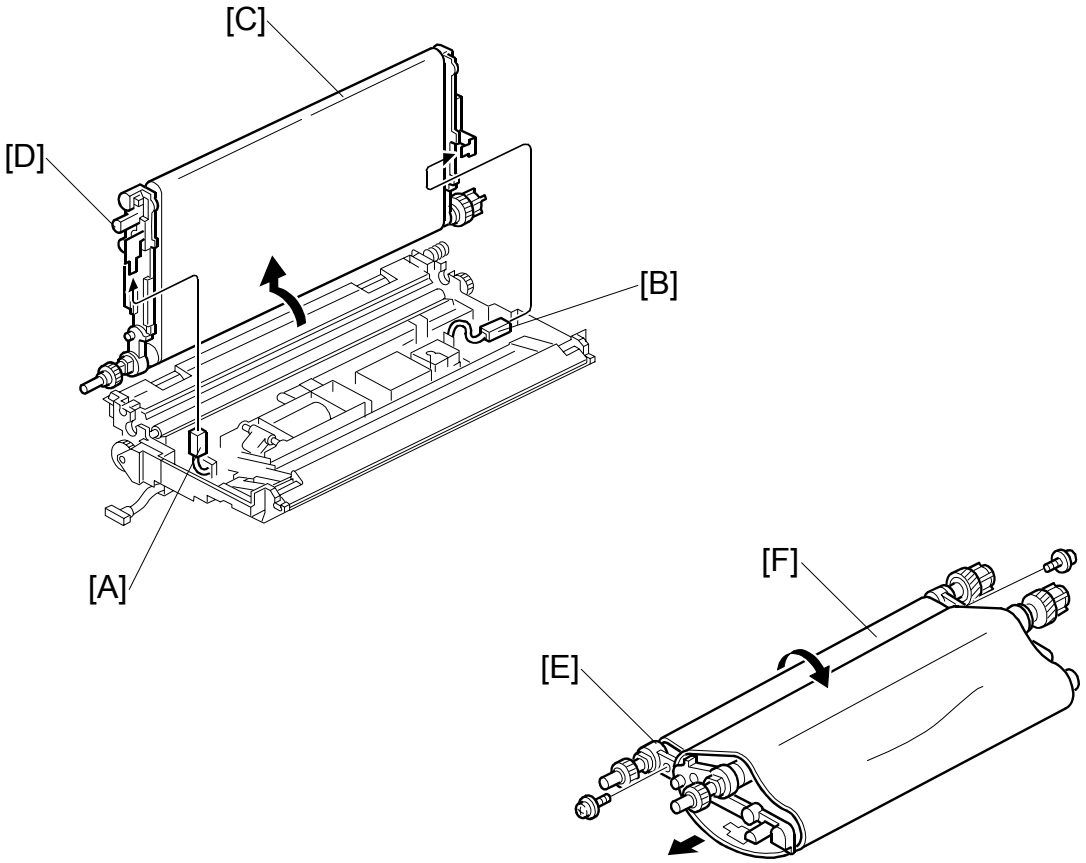
NOTE: Before you begin, spread a mat or some clean paper on the floor where you intend to set the transfer belt unit.

1. Remove the OPC drum unit (☛ 3.6.5).
2. Disconnect the transfer belt unit [A] (x1).
3. Remove the transfer belt unit stay [B] (x1).
4. While supporting the transfer belt unit with your hand, turn the release lever [C] counter-clockwise to release it, then pull the transfer belt unit out of the machine.

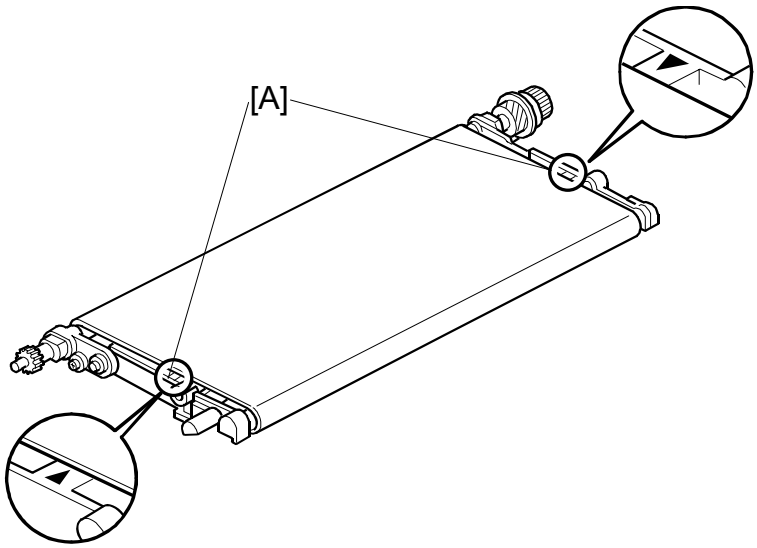
NOTE: The transfer belt unit can be removed without removing the OPC drum unit. However, the transfer belt unit must be removed carefully to avoid scratching the surface of the transfer belt on the OPC drum unit [D] above. Avoid touching the belt with bare hands.



3.8.2 TRANSFER BELT



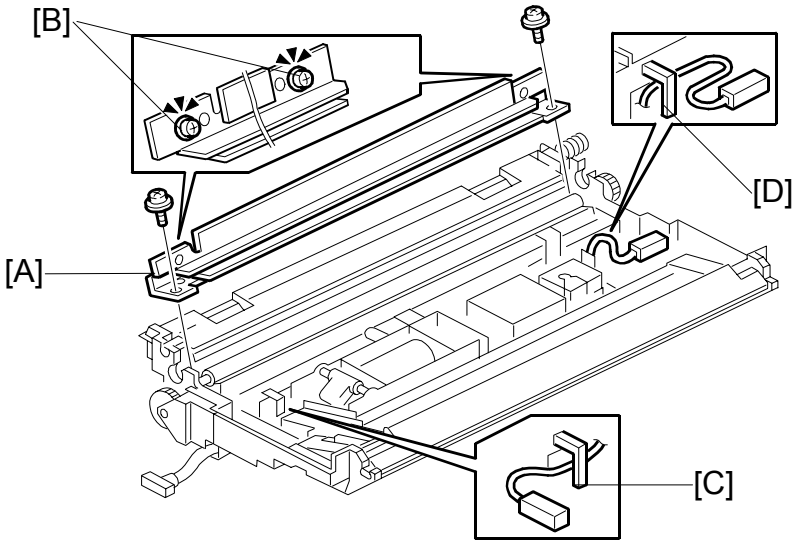
1. Remove the transfer belt unit. (☛ 3.8.1)
2. Disconnect the earth terminal [A] and transfer current terminal [B] (☞ x2). While doing this, hold the transfer belt unit [C] by its knobs [D].
3. Raise and stand the belt perpendicular to the unit and remove it.
   NOTE: To avoid scratching the belt on the guide, never rotate the belt unit farther than 90 degrees.
4. Release the drive roller [E] (☞ x2).
5. Press in on the drive roller to collapse the unit into a “U” shape [F].
6. Remove the belt and replace it.



Check the following points:

- Before re-assembling the transfer belt unit, use a clean cloth and alcohol to clean the contact points of the drive roller, idle roller, and transfer roller. Make sure these areas are clean and free from toner, paper dust, etc.
- Never touch the surface of the belt with bare hands and never apply alcohol to the surface of the belt. Clean it with a blower brush. Check the underside of the transfer belt and clean with the blower brush.
- When re-assembling the transfer belt unit, make sure that the transfer belt is centered between the triangular marks [A] on either side of the unit.
- After re-assembly, make sure that the transfer belt is inside the transfer current terminal. The belt could be cut if it is not positioned correctly.
- Confirm that both the ground and transfer current terminal are connected and that the harnesses are not touching the release lever.
- After re-installing the transfer belt unit, turn the belt and confirm that the toner collection coil turns.
- The transfer belt and transfer roller cleaning blade must always be replaced together (☛ 3.8.3).

3.8.3 TRANSFER ROLLER CLEANING BLADE



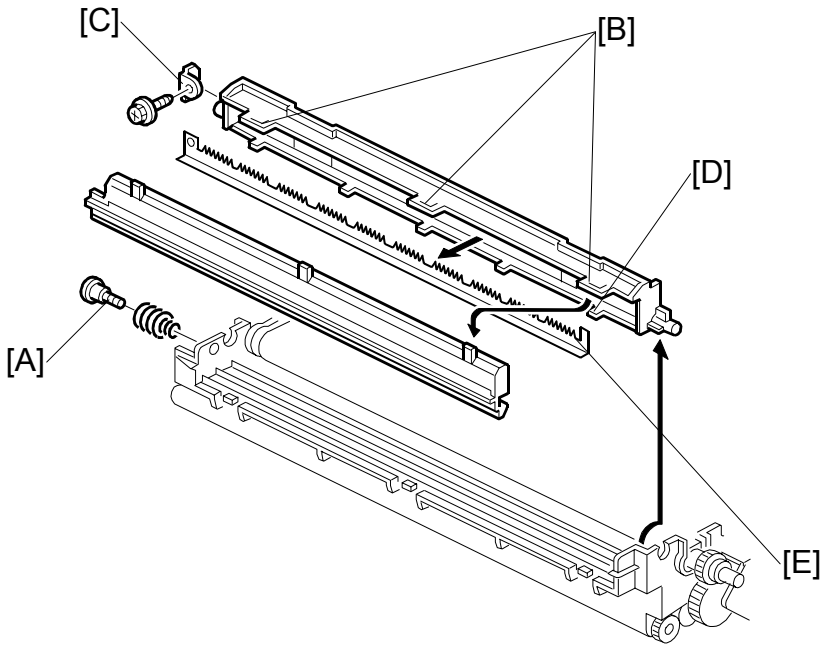
Transfer belt unit (☛ 3.8.1)

Disassemble the transfer belt unit (☛ 3.8.2)

[A]: Transfer roller cleaning blade (🔩 x2, ✋ x2)

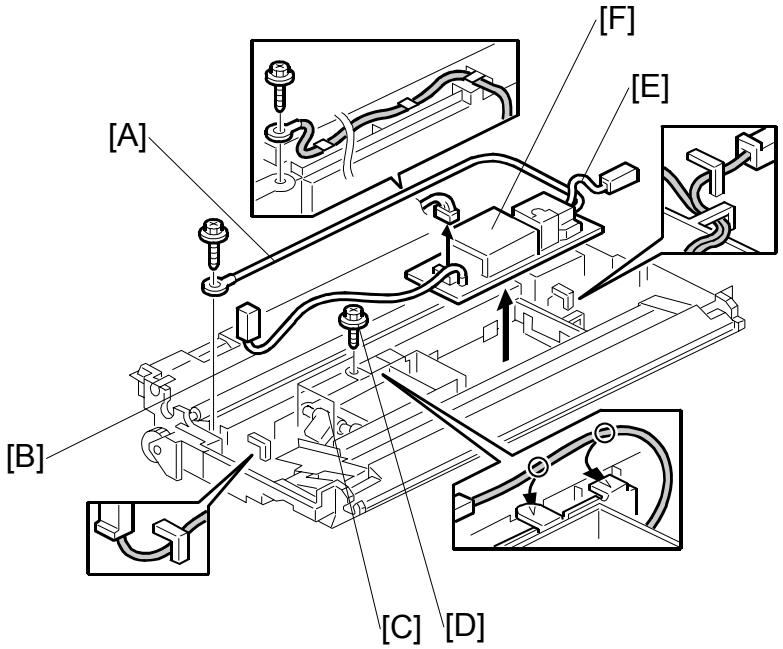
NOTE: 1) Never remove the inner lock screws [B] of the transfer roller cleaning blade. When re-assembling, make sure that the clamps [C] and [D] are arranged as shown above to avoid contact with the release lever.
2) The transfer roller cleaning blade should always be replaced when the transfer belt is replaced.
3) Never touch the edge of a new transfer roller cleaning blade. The edge of the blade is dusted with setting powder. If the setting powder is removed accidentally, dust the edge of the blade with toner. This is especially important when only the transfer roller cleaning blade must be replaced without replacing the transfer roller.
4) Work carefully around the transfer power pack located inside the transfer belt unit, especially when cleaning with an vacuum cleaner, to avoid damaging the power pack with static electricity.

3.8.4 DISCHARGE PLATE



1. Remove the transfer belt unit (☛ 3.8.1)
2. Remove the shoulder screw and spring [A].
3. Rotate the discharge unit up, then lift it straight up to remove it.
4. Disconnect the three large tabs [B].
5. Remove the bracket [C] (☞ x1).
6. Disconnect the 6 small seal case tabs [D].
7. Remove the discharge plate [E].
   NOTE: When you re-assemble the discharge unit, set the discharge plate and make sure that it is perfectly flat before re-connecting the tabs. Before re-attaching the bracket [C], make sure that all the tabs are connected.

3.8.5 TRANSFER POWER PACK



Transfer belt unit (☛ 3.8.1)

[A]: Wire (☞ x1) (all wire guides)

[B]: Ground terminal wire (wire guide x1)
- This terminal wire does not disconnect from the power pack.
- Loosen the two left screws [C] of the transfer belt lift solenoid, and remove the top screw [D] to free the ground terminal wire.

[E]: Transfer current terminal wire (wire guides x2)

[F]: Transfer power pack (☞ x1)
- Disconnect the two standoffs on the right edge of the power pack and remove.

Re-installation

- Confirm that the left edge of the power pack is below the tabs on the left.
- Confirm that the transfer current terminal wire is below the wire guides on the right.
- Pass the ground terminal wire under the top connector of the solenoid bracket and tighten all the screws of the solenoid bracket.
- Make sure the wire is below all the wire guides at the top.

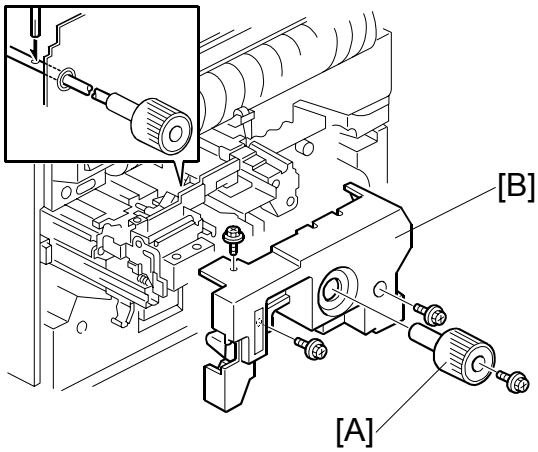
3.9 FUSING UNIT

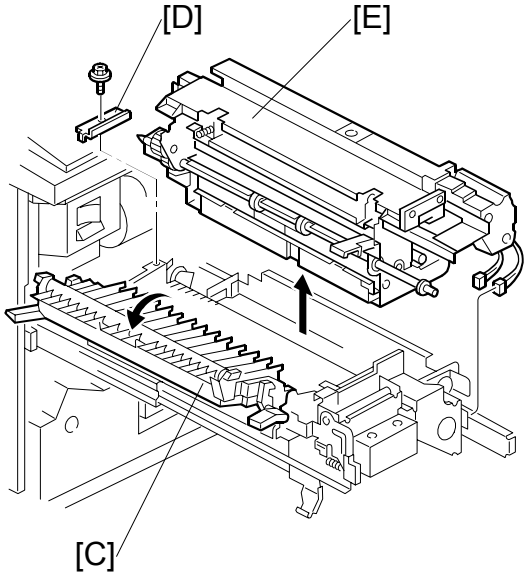
⚠**CAUTION**

Power off the machine (☛ 1.1.5), remove the plug from the power source, then allow sufficient time for the fusing unit to cool before you remove it from the machine.

3.9.1 FUSING UNIT

NOTE: Before you begin, spread a mat or some clean paper on the floor where you intend to set the fusing unit.





Open the front door.

[A]: Knob (🔩 x1)
- Insert the tip of a screwdriver into the hole of the shaft to hold it in position as the knob is turned to remove or install it.

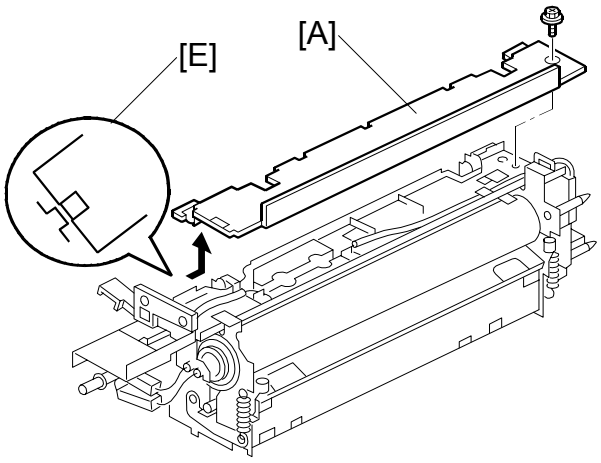
[B]: Inner cover (🔩 x3)
- Pull the fusing unit release lever, then pull the unit out on the rail supports.

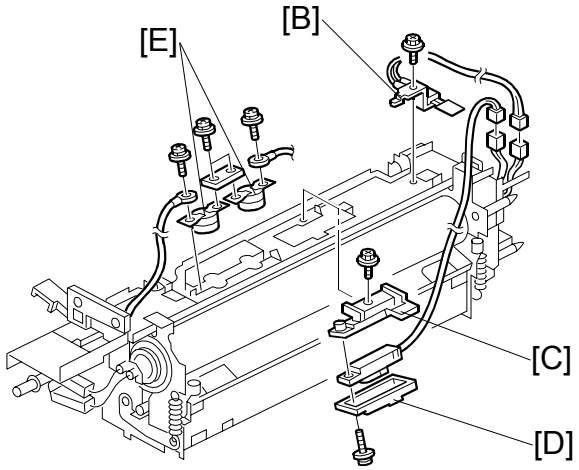
[C]: Open the exit separation pawl assembly.

[D]: Stopper bracket (🔩 x1)

[E]: Fusing unit (🔌 x2)
- Support the bottom of the fusing unit with your hand when you remove it.

3.9.2 FUSING UNIT THERMISTORS AND THERMOSTATS





Fusing unit (☛ 3.1.1)

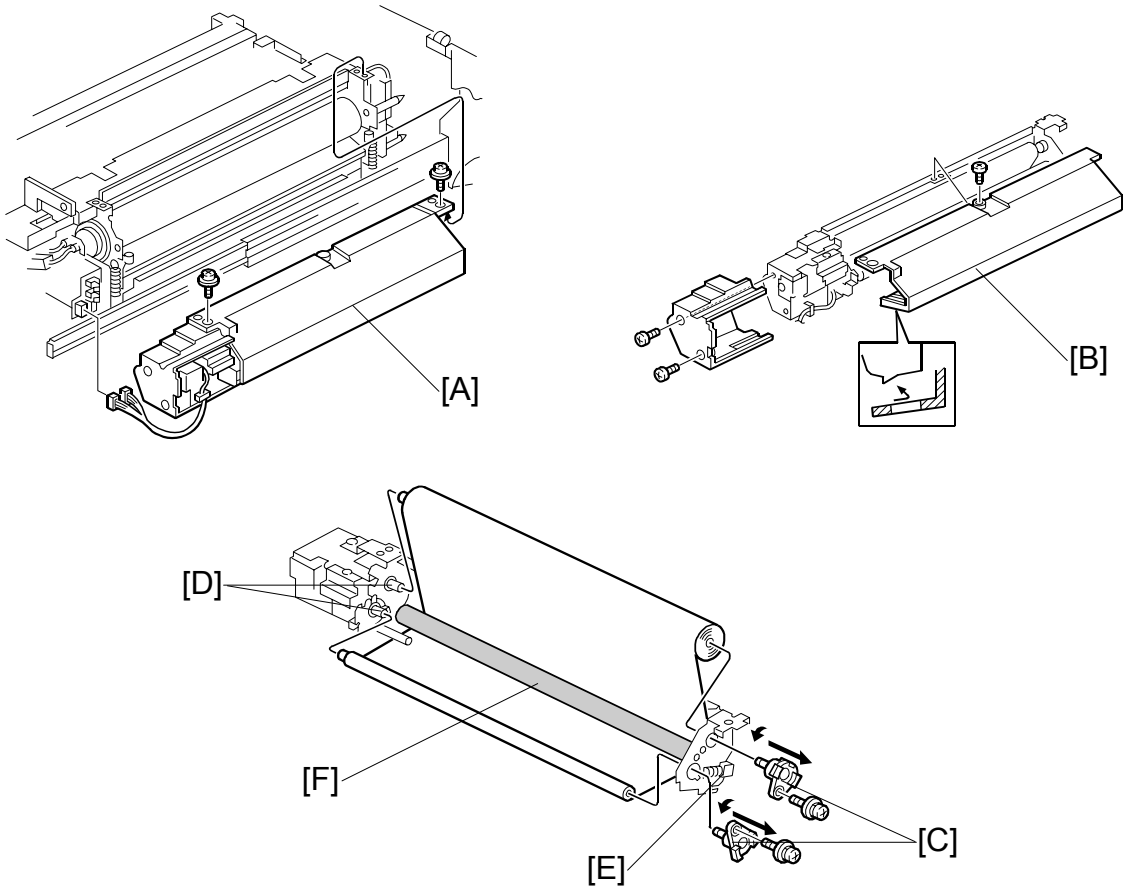
[A]: Upper cover (☞ x1)
- Press in to release the pawls inside, then remove.

[B]: Thermistor (☞ x1, ✋ x1)
[C]: Bracket (☞ x2)
[D]: Thermistor (☞ x1)
[E]: Thermostats (☞ x3)

NOTE: When re-installing, set the harness clamp [E] in the correct position.

3.9.3 WEB CLEANING ROLLER

Web Unit Disassembly



Open the front door and pull out the fusing unit on its support rails.

[A]: Web unit (x2, x2)
- The web unit can be removed without removing the fusing unit from the machine.

[B]: Upper cover (x1)
- Rotate the cover down slightly to remove.

[C]: Web shafts (x2)

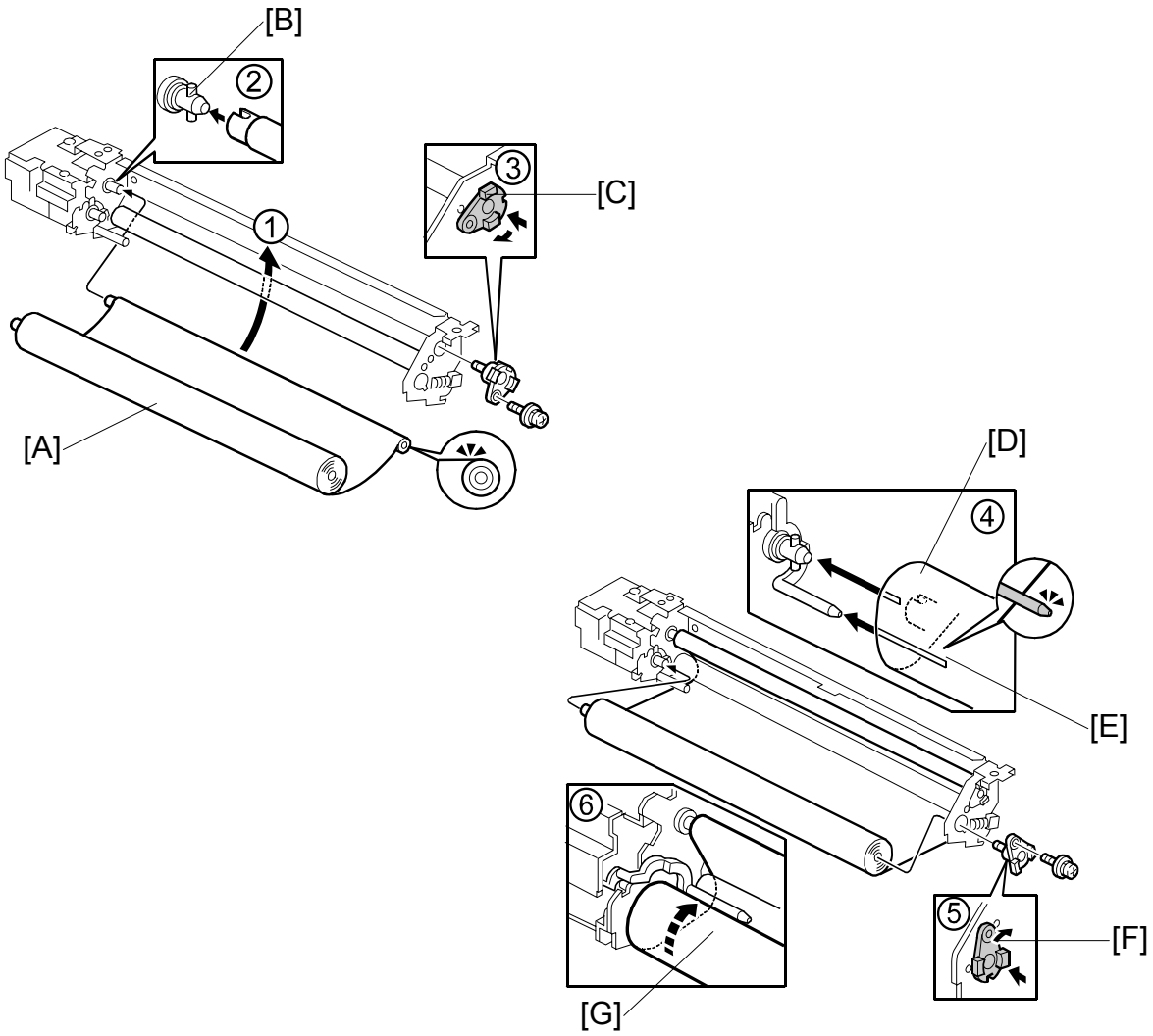
[D]: Remove the web cleaning rollers from the shaft driver pins.

[E]: Web bushing (spring x1)

[F]: Cleaning roller

NOTE: 1) After replacing the web with a new one, you must execute SP1902 001 (Fusing Web Used Area Display/Setting) to reset the web consumption count to zero. This SP code must be executed to release SC550.
2) Be sure to print an SMC report before executing Memory All Clear (SP5801). After executing SP5801, be sure to re-enter the value recorded for SP1902 001 in the SMC report.

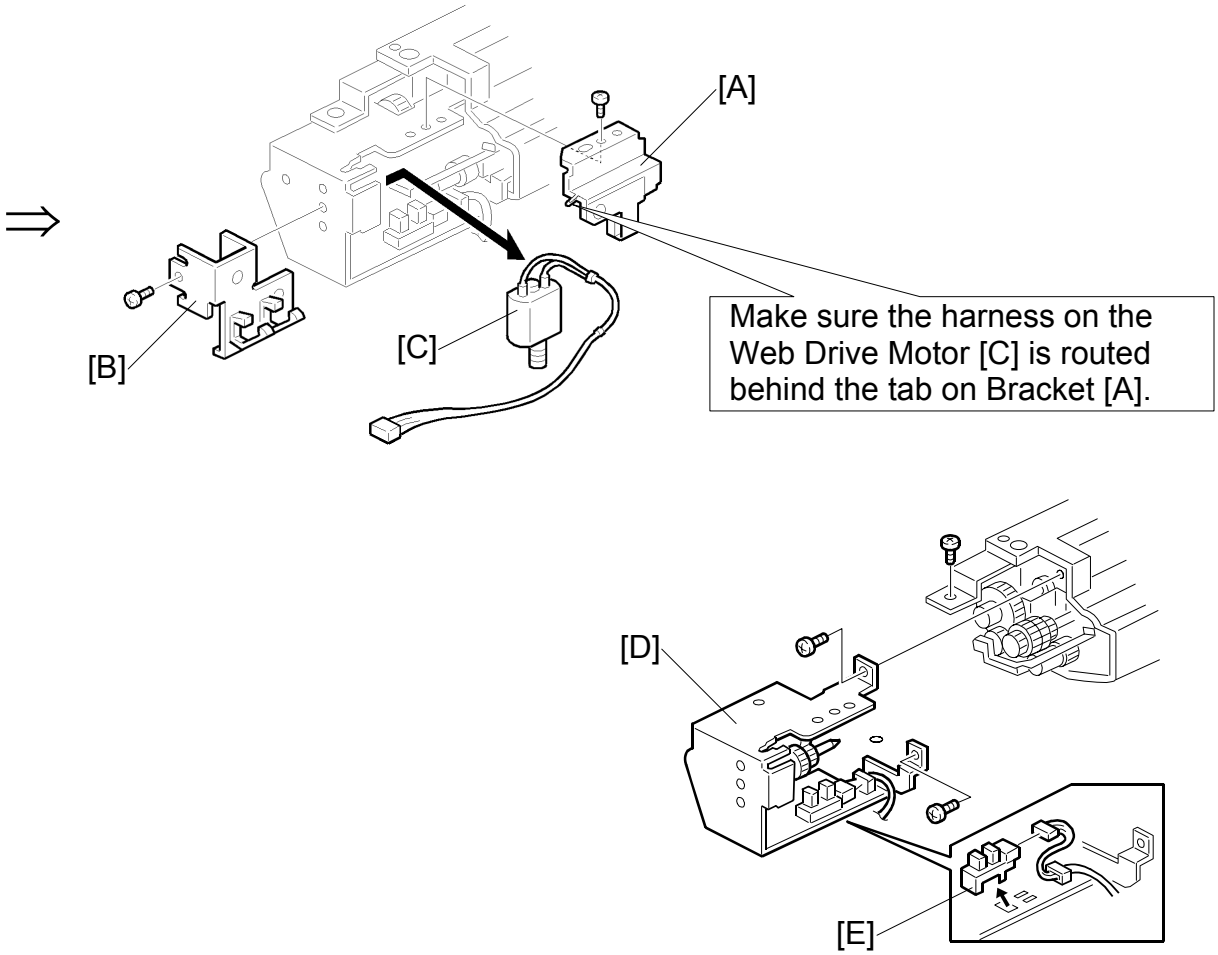
Web Unit Assembly



1. Attach the cleaning roller [A]
   - Insert the end of the web into the slot ①.
2. Insert the drive pins [B] into the web shaft (②).
3. After installing bushing 1 [C], rotate the shaft right to lock it, then attach the lock screw (③).
4. Set the web [D] under the feeler [E] of the web end sensor (④).
5. Attach bushing 2 [F] (⑤).
6. Attach the new web roll [G] and wind it tight so no slack remains (⑥).
   NOTE: Before reassembling the machine, confirm that 1) there is no slack in the web roll, 2) the web is below the feeler of the web end sensor.
7. Attach the upper cover.

After installing a new web roll, reset SP1902 001 to zero.

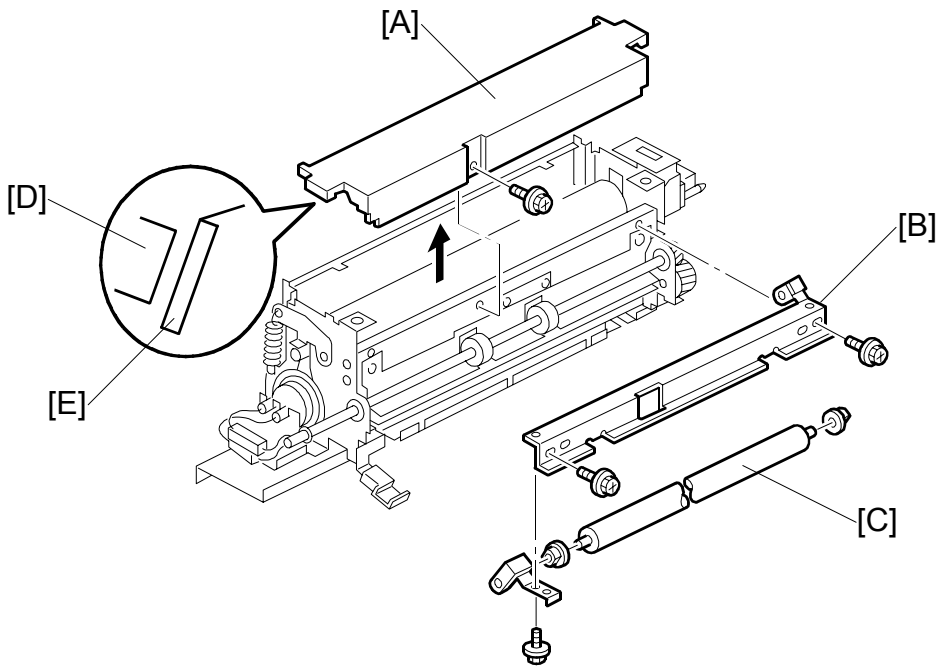
3.9.4 WEB MOTOR AND WEB END SENSOR



Web unit and end cover (☛ 3.1.3)

[A]: Bracket (🔩 x1)
[B]: Web motor positioning bracket (🔩 x1)
[C]: Web motor
[D]: Web motor/sensor mount (🔩 x3)
[E]: Web end sensor (✋ x1, harness x1)

3.9.5 PRESSURE ROLLER CLEANING UNIT



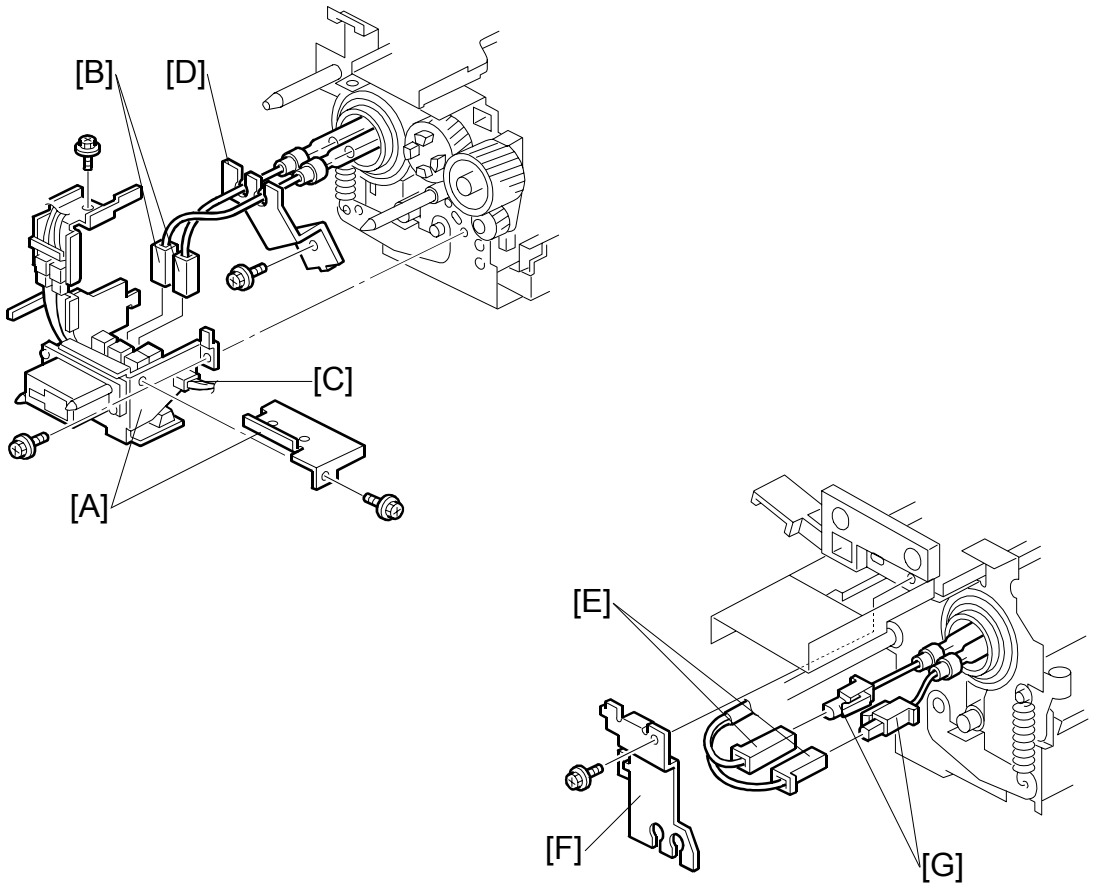
Fusing unit (☛ 3.1.1)

[A]: Lower cover (☞ x1)
[B]: Cleaning roller bracket (☞ x2)
[C]: Cleaning roller (☞ x1)

NOTE: 1) When attaching the lower cover of the pressure roller cleaning roller, make sure that the tab [D] engages with the groove [E].
2) If the bushings are noisy after replacement, lubricate them on both ends and the holes where the bushings are attached with Barietta Grease L553R.

3.9.6 FUSING LAMPS, HOT ROLLER, AND PRESSURE ROLLER

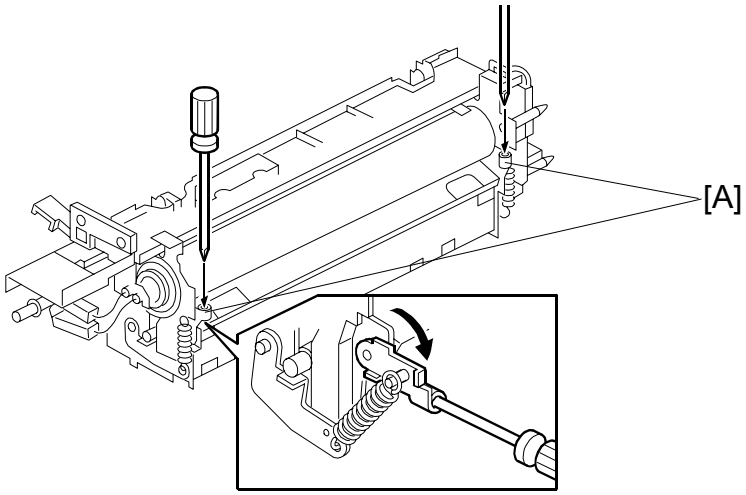
If you wish to remove the pressure roller only, without removing the hot roller and fusing lamps, please do not use this procedure. Use the procedure in the next section.

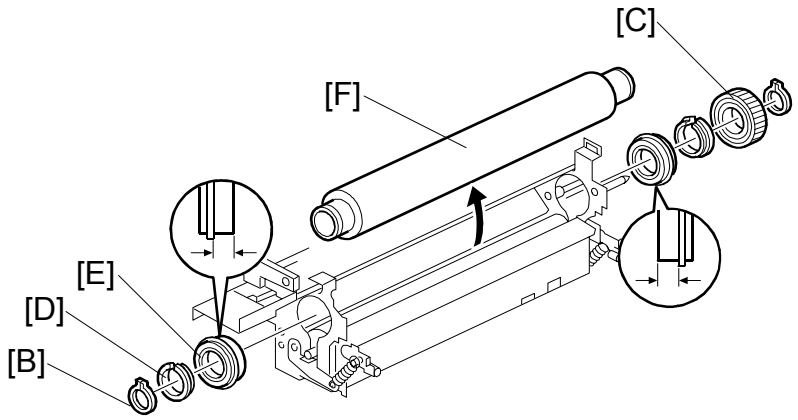


Fusing unit (☛ 3.1.1)

[A]: Rear terminal brackets (☞ x3)
[B]: Front upper connectors (☞ x2)
[C]: Lower connector (☞ x1)
[D]: Rear fusing lamp holder (☞ x1)
[E]: Front fusing lamp connectors (☞ x2)
[F]: Front fusing lamp holder (☞ x3)
[G]: Fusing lamps

NOTE: Handle the fusing lamps carefully to prevent breaking them; avoid touching them with bare hands.

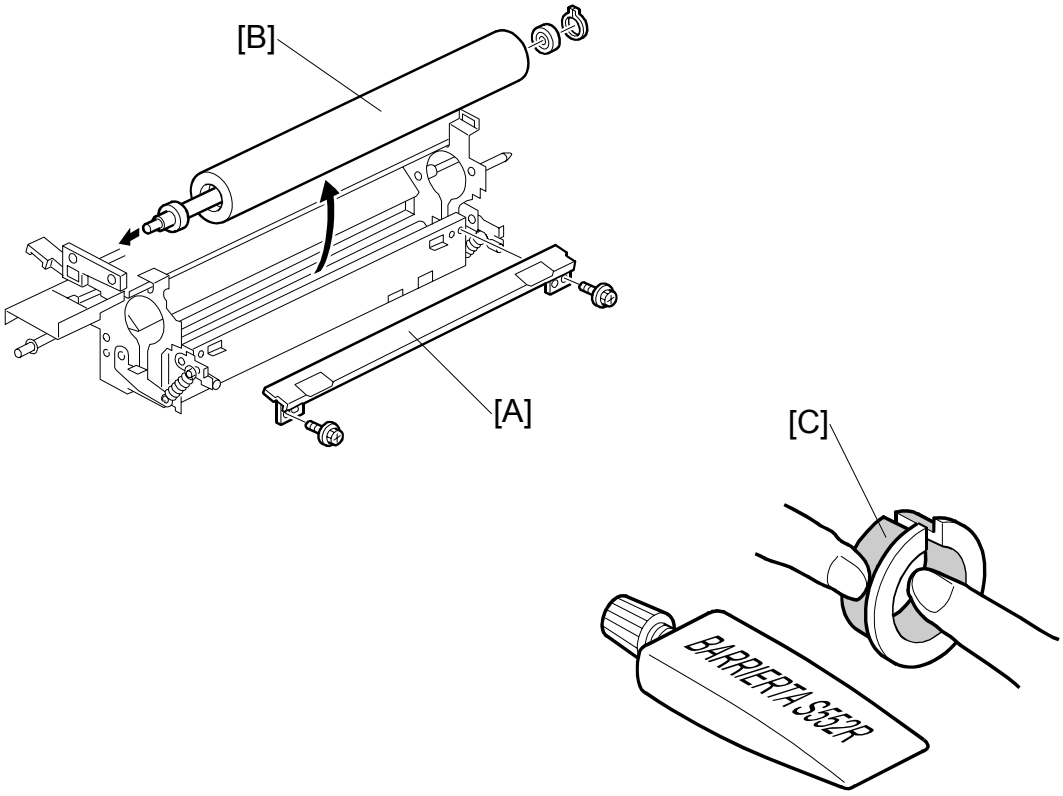




Web unit (☛ 3.1.3)

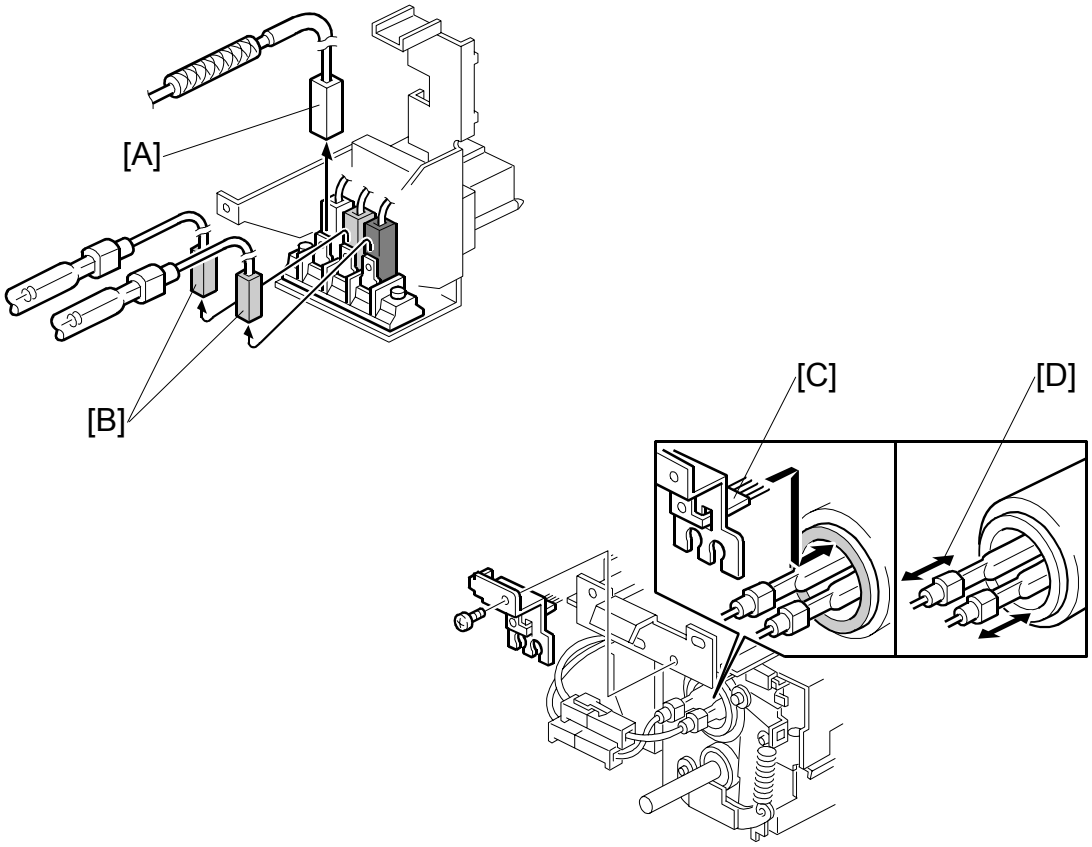
[A]: Pressure arm
- Insert the tips of two screwdrivers and press down to release.

[B]: C-clamps (both ends)
[C]: Drive gear
[D]: Bushings (both ends)
[E]: Bearings
[F]: Hot roller



[A]: Entrance guide plate (☞ x2)
[B]: Pressure roller (ℂ x2)
NOTE: The pressure roller and pressure roller bearing should always be replaced together.
[C]: Lubricate the inner and outer surfaces of the bushings with Barrierta S552R grease.
NOTE: If the bushings are warm, allow them to cool before applying the Barrierta grease. Applying the grease while the bushings are hot could generate gas.

Important Notes about Fusing Unit Assembly

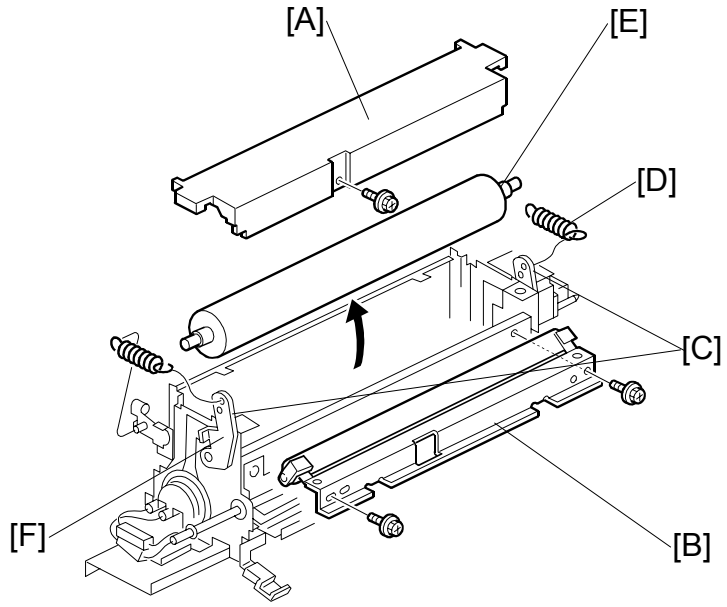


Follow these important guidelines when re-assembling the fusing unit:

- Use the external holes to fasten the screws when you fasten the lower guide plate. The inner screws are adjusted to correct wrinkling.
- Handle the fusing lamps carefully to prevent breaking them; avoid touching them with bare hands.
- Match colors of the bayonet connectors with the colors of the terminals when reconnecting them to the bracket at [A] and [B]. If either connection is incorrect, the machine cannot control the temperature of the hot roller and an SC is logged as soon as the machine is powered on.
- The discharge brush [C] on the fusing terminal bracket should contact the inner surface of the hot roller.
- Check that there is some play [D] (in the direction indicated by the arrows) in the positioning of the fusing lamps.

3.9.7 PRESSURE ROLLER

Use this procedure when you wish to remove only the pressure roller.



Fusing unit (☛ 3.1.1)

Turn the fusing unit upside down.

[A]: Lower cover (☞ x1)
[B]: Pressure roller cleaning unit (☞ x2)
[C]: Release the pressure arms
- Use two screw drivers to lower the pressure arms on both ends of the pressure roller (☛ 3.9.6) and remove the springs [D] (x2) on both sides.

[E]: Pressure roller

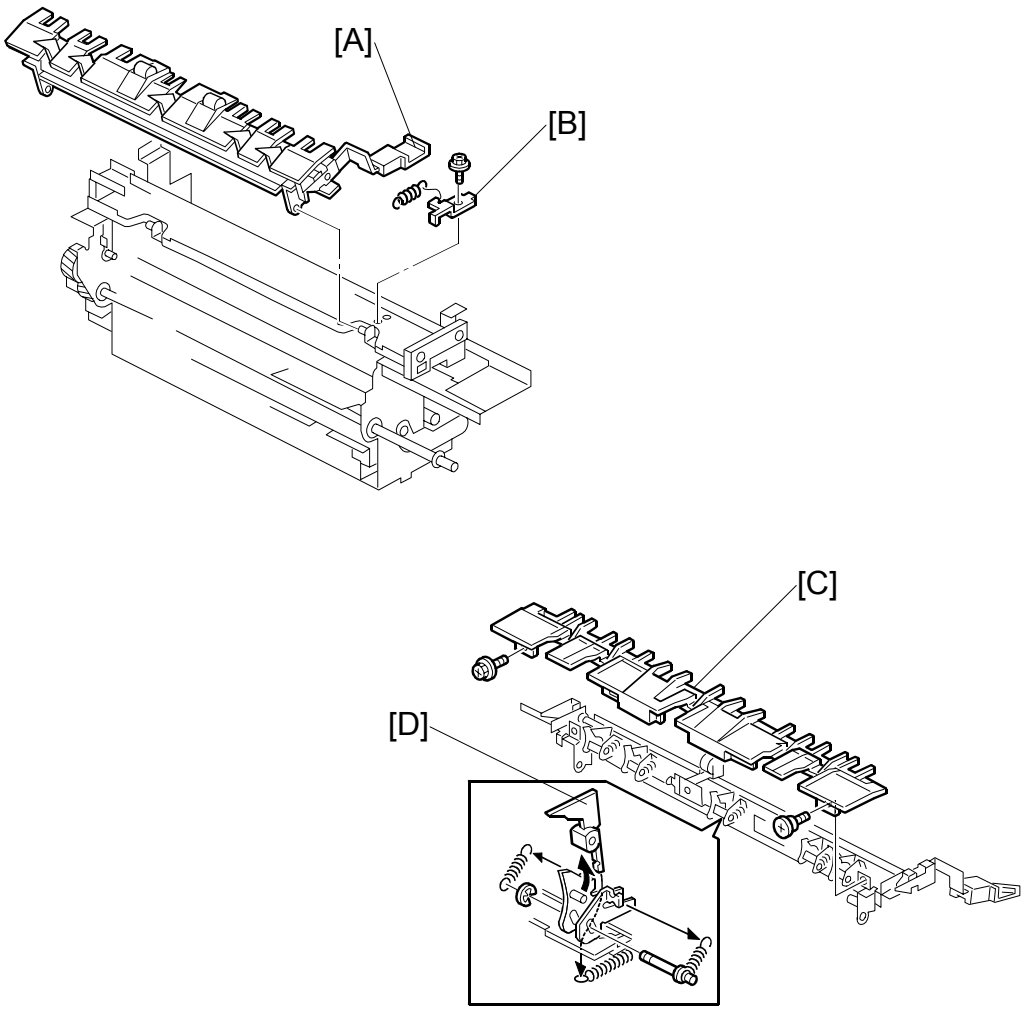
NOTE: 1) The fusing lamps are fragile. Work carefully to avoid breaking them.
2) During assembly, handle the roller carefully to avoid scratching it on the bracket.
3) Make sure the tabs and grooves of the lower cover are engaged correctly before tightening the screw.

Spring Adjustment

Two holes [F] are provided on each pressure arm for the springs.

Normally the springs should be attached to the lower holes. Attaching the springs to the upper holes exerts less pressure on the hot roller. Attach the springs to the upper holes only for especially thin paper.

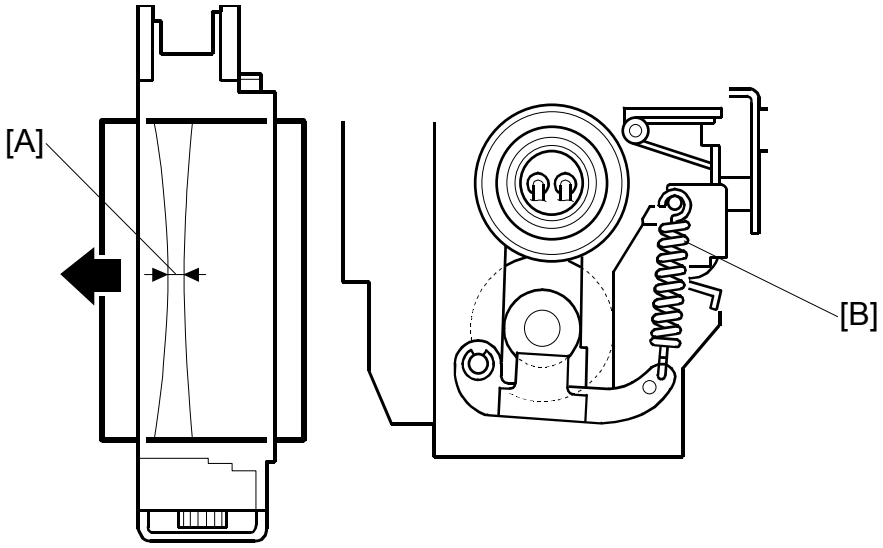
3.9.8 STRIPPER PAWLS



Remove the fusing unit (☛ 3.1.1)

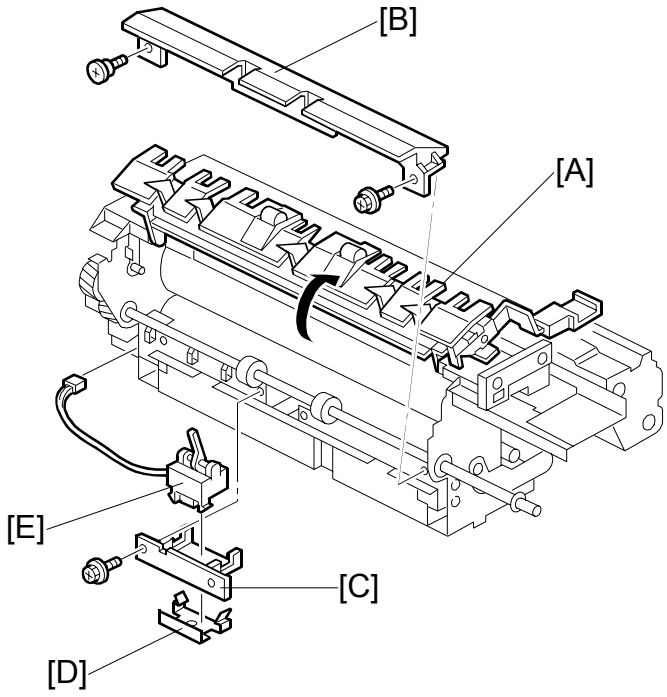
[A]: Top cover (☞ x1)
[B]: Bracket (☞ x1, spring x1)
[C]: Inner cover (☞ x2)
[D]: Stripper pawl (ℂ x1, spring x3)

3.9.9 NIP BAND WIDTH ADJUSTMENT



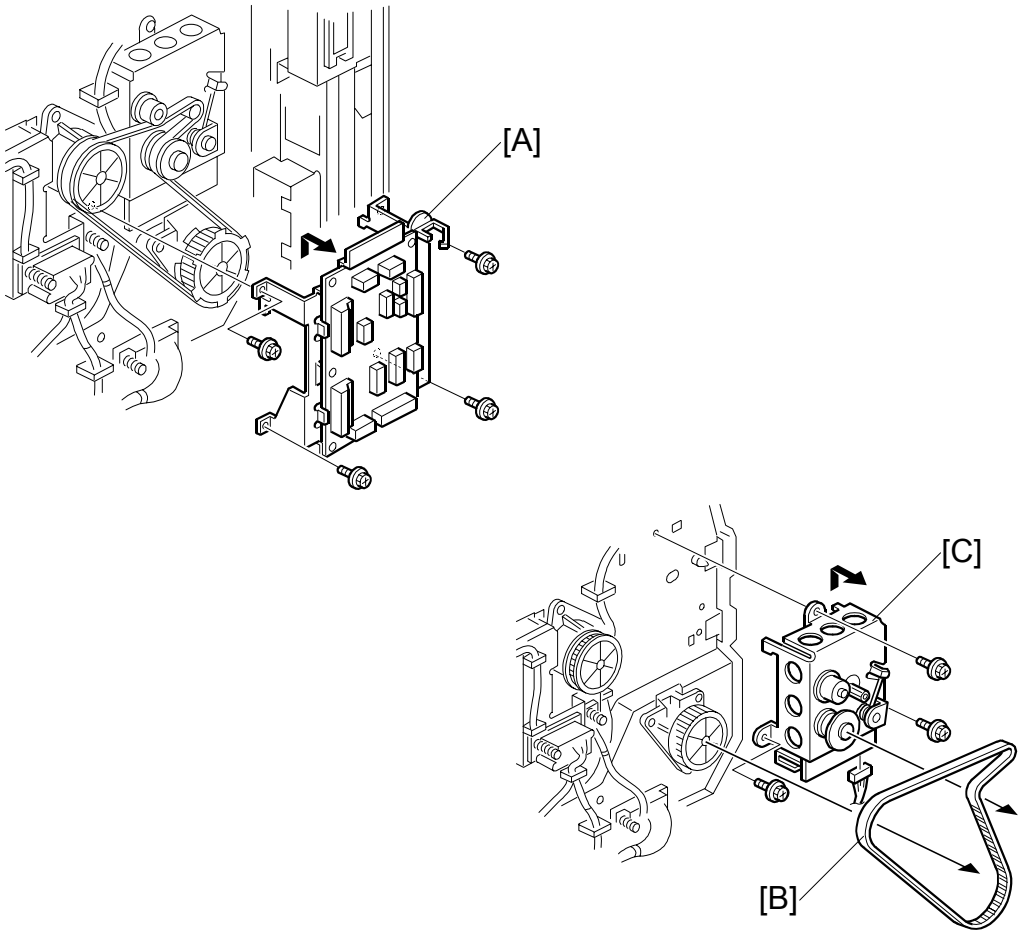
1. After the machine is powered on with the main switch, make an A4/LT LEF copy, then stop the machine while the paper is still in the fusing unit by switching it off.
   NOTE: This is easier with an OHP sheet. Use an OHP sheet if you have one available.
2. Open the front door, then turn the fusing knob to feed out the copy.
3. Measure the width of the band on the part of the image where it is particularly black. The band, called the nip band [A], should be 9.0±0.7 mm at the center.
   NOTE: When the fusing is incorrect (wrinkles, offset, curl), measure the nip band width. The nip band width can be adjusted by changing the position of the springs [B] on either end of the pressure roller. The fusing temperature can also be adjusted with SP1105 (Fusing Temperature Adjustment) for Normal, OHP, and Thick Paper.

3.9.10 FUSING UNIT EXIT SENSOR



Fusing unit (☛ 3.1.1)
[A]: Open the hot roller stripper pawl unit
[B]: Exit guide plate (☞ x2)
[C]: Fusing exit sensor holder (☞ x2)
[D]: Plate spring
[E]: Fusing exit sensor (☜ x1)

3.9.11 FUSING/EXIT MOTOR



Rear upper cover (☛ 3.3.5)

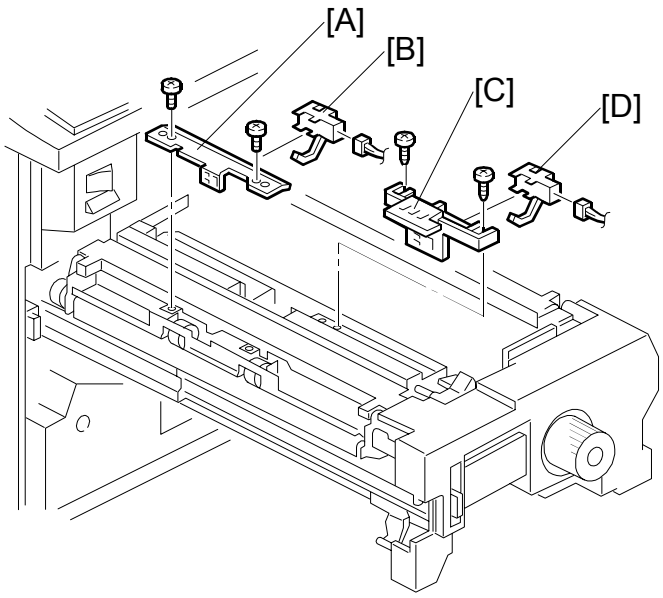
Open the I/O board (☞ x2)

[A]: CNB bracket (☞ x4, ☜ x all)
[B]: Timing belt
[C]: Fusing/exit motor bracket (☞ x1)

Fusing/exit motor (☞ x2)

- The fusing/exit motor (not shown) is inside the bracket.

3.9.12 FUSING EXIT AND EXIT UNIT ENTRANCE SENSORS

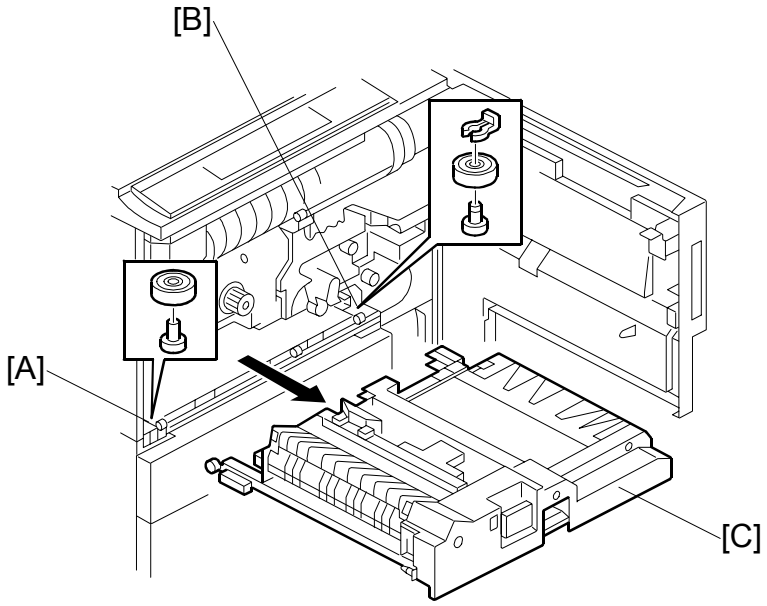


Open the front door and pull out the exit/inverter unit.

[A]: Fusing exit sensor bracket (x2)
[B]: Fusing exit sensor (x1)
[C]: Exit unit entrance sensor bracket (x2)
[D]: Exit unit entrance sensor (x1)

3.10 DUPLEX UNIT

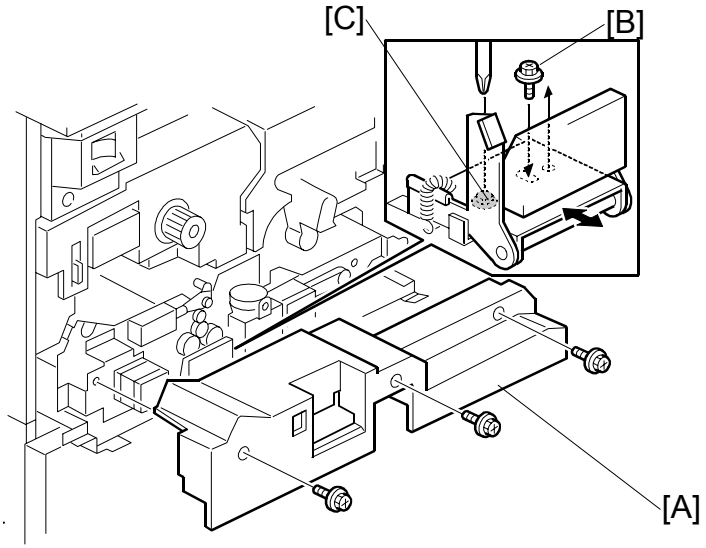
3.10.1 DUPLEX UNIT REMOVAL



1. Open the front door and pull out the duplex unit.
2. Remove the slide rail roller on the left [A] and on the right [B] (x1).
3. Lift out the duplex unit [C].

NOTE: To re-install the duplex unit, insert the duplex unit partially, only until it enters the black guide rail, then re-attach each slide rail roller. After that, push the duplex unit into the machine completely. This method prevents interference from the guide plate during installation.

3.10.2 DUPLEX UNIT SIDE-TO-SIDE ADJUSTMENT



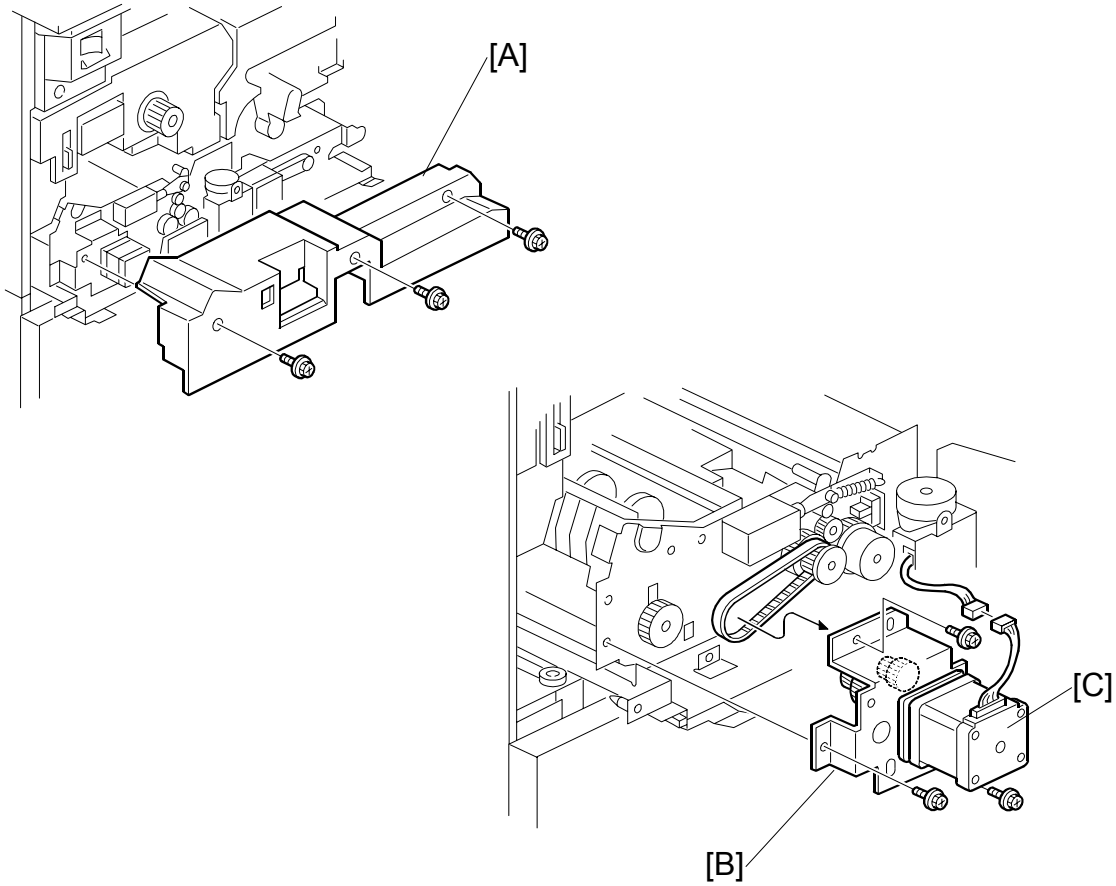
1. Remove the inner cover [A] (☞ x3)
2. Move the handle lock screw [B] from the right to the center.
3. Loosen the left lock screw [C], then adjust the position of the duplex unit.

3.10.3 JOGGER FENCE ADJUSTMENT

SP1008	Duplex Fence Adjustment	Execute this SP to adjust the distance between the jogger fences, if required. A smaller value shortens the distance. If the fences are too far apart, skewing may occur in the duplex tray. If the fences are too close, the paper may be creased in the duplex unit. For details, see “5. Service Tables”.

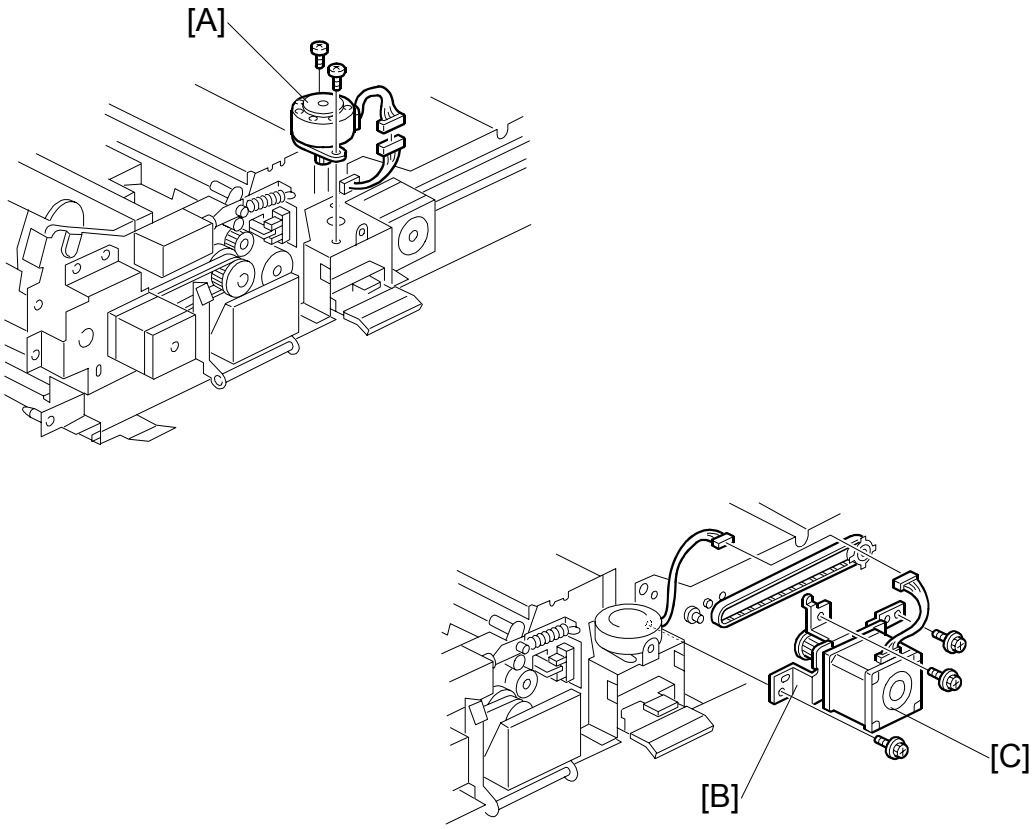
3.10.4 DUPLEX MOTORS

Duplex Inverter Motor



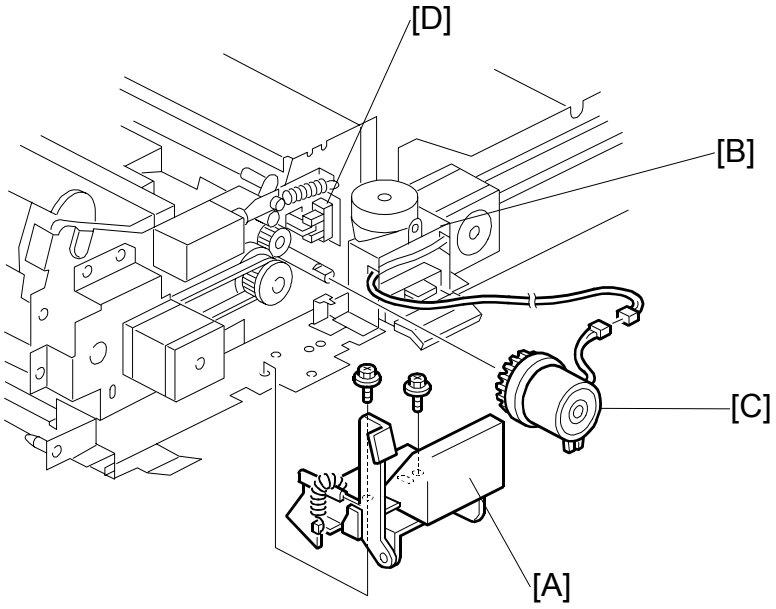
[A]: Remove the cover (x3)
[B]: Inverter motor bracket (x3)
[C]: Inverter motor (harness x1, x1, x2, timing belt x1)

Duplex Jogger and Transport Motors



[A]: Jogger motor (x1, x2)
[B]: Transport motor bracket (harness x1, x1, x3, timing belt x1)
[C]: Transport motor (x2)

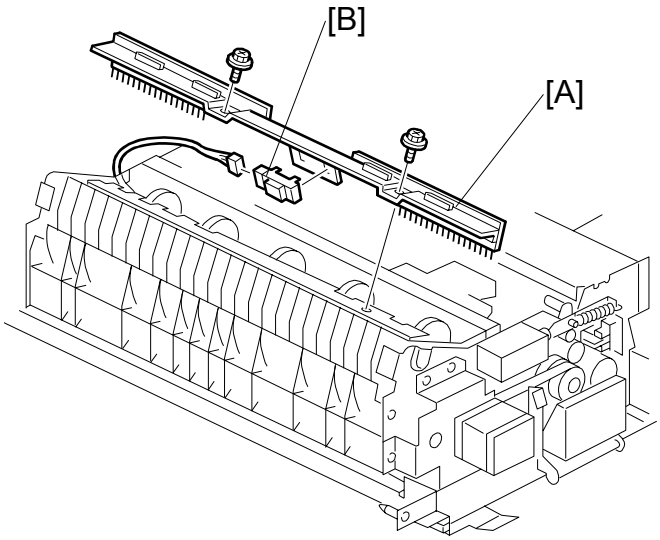
3.10.5 DUPLEX TRANSPORT CLUTCH/JOGGER HP SENSOR



[A]: Duplex unit release lever (x2)
[B]: Jogger motor bracket (harnesses x4, x3)
[C]: Transport clutch (harness x1, x1)
- To release the clutch, push in the catch pawl on the side of the shaft.

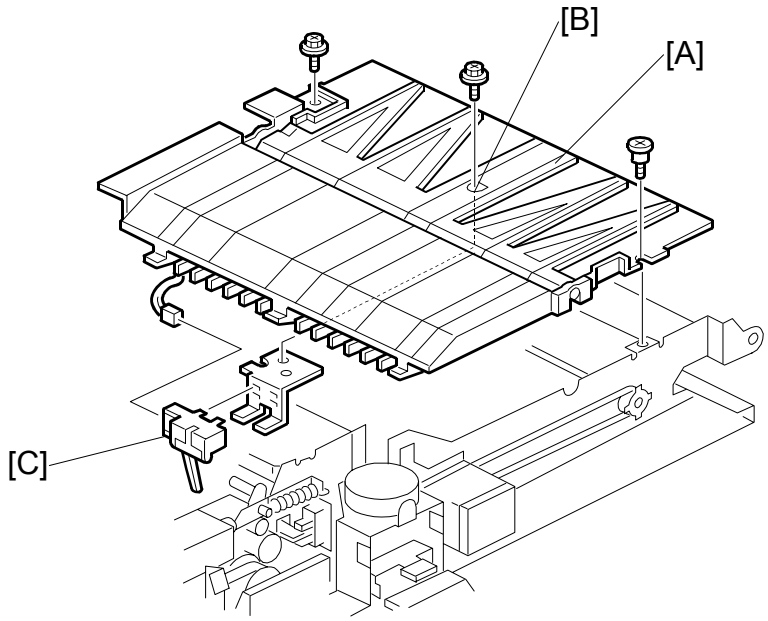
[D]: Jogger HP sensor (spring x1, x2, x1)

3.10.6 DUPLEX ENTRANCE SENSOR



[A]: Bracket (☞ x2)
[B]: Duplex entrance sensor (☞ x1)
- At re-assembly, insert the plunger into the solenoid before re-attaching the solenoid.

3.10.7 DUPLEX TRANSPORT SENSOR 3

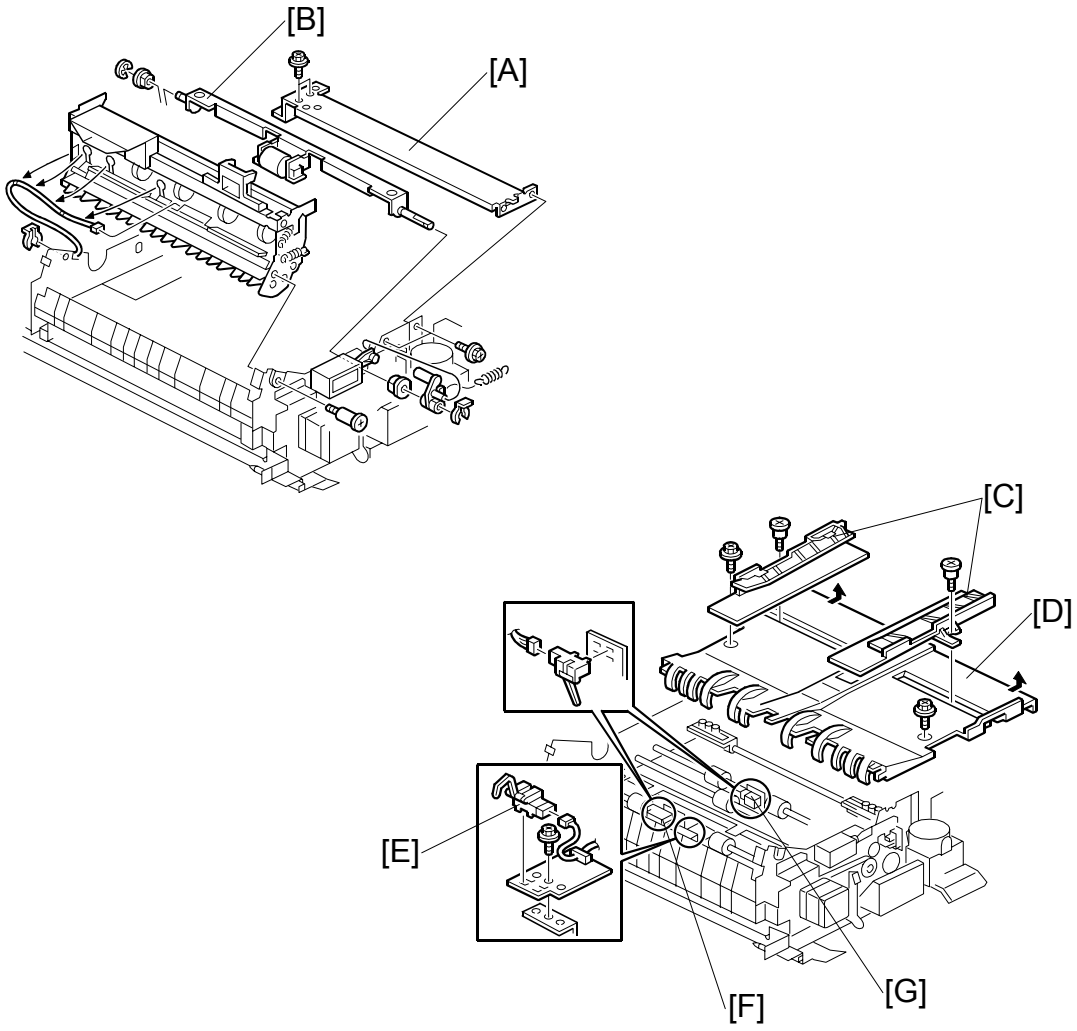


[A]: Right half of table (x2, x1)
- The front screw is a shoulder screw. Insert the screws in the correct holes when re-attaching.

[B]: Remove the screw in the center of the table to release the sensor bracket below.

[C]: Transport sensor 3 (x1)

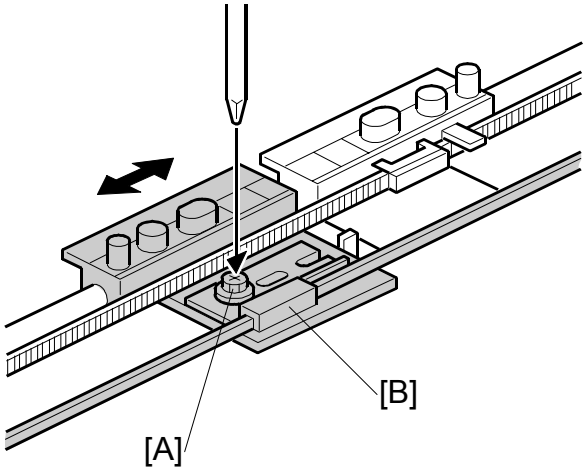
3.10.8 INVERTER EXIT SENSOR, TRANSPORT SENSORS 1 & 2



[A]: Cross-stay (x4)
[B]: Reverse trigger roller shaft
[C]: Jogger fences (x1 ea.)
[D]: Left half of table (x2)
- The front screw is a shoulder screw. Insert the screws in the correct holes when re-attaching.
- To avoid breaking the tabs under the left edge of the table, pull the table to the right to disengage the tabs and then remove.

[E]: Inverter exit sensor (x1, harness x1, x1)
[F]: Transport sensor 1 (harness x1, x1)
[G]: Transport sensor 2 (harness x1, x1)

3.10.9 DUPLEX JOGGER BELT ADJUSTMENT

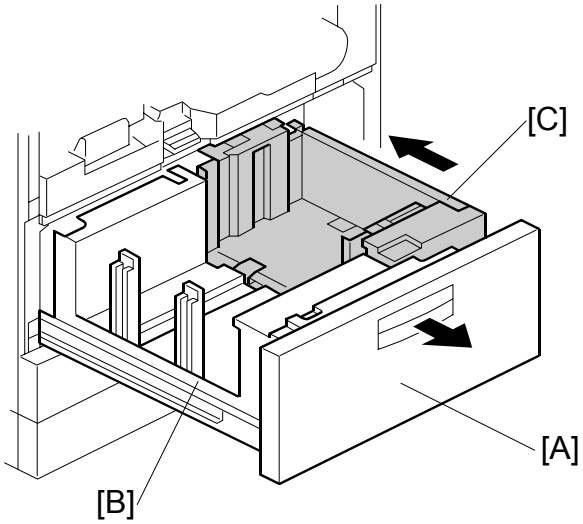


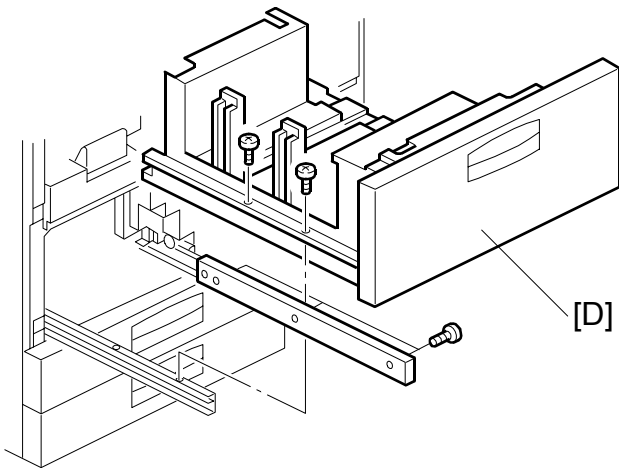
1. Cross stay (☛ 3.10.8)
2. Reverse trigger roller shaft (☛ 3.10.8)
3. Left half of the table (☛ 3.10.8)
4. Jogger motor bracket (☛ 3.10.4)
   - Slip the one end of the belt around the gear below the jogger motor.
   - Slip the other end of the belt around the gear at the other side of the duplex unit.
5. If you are replacing the belt, set both jogger fence brackets at the center of the belt and tighten the screw [A].

   If you are adjusting the belt, loosen the screw and slide the plastic piece [B] on the belt to the left or right to adjust the position of the front fence, then tighten the screw.

3.11 PAPER FEED

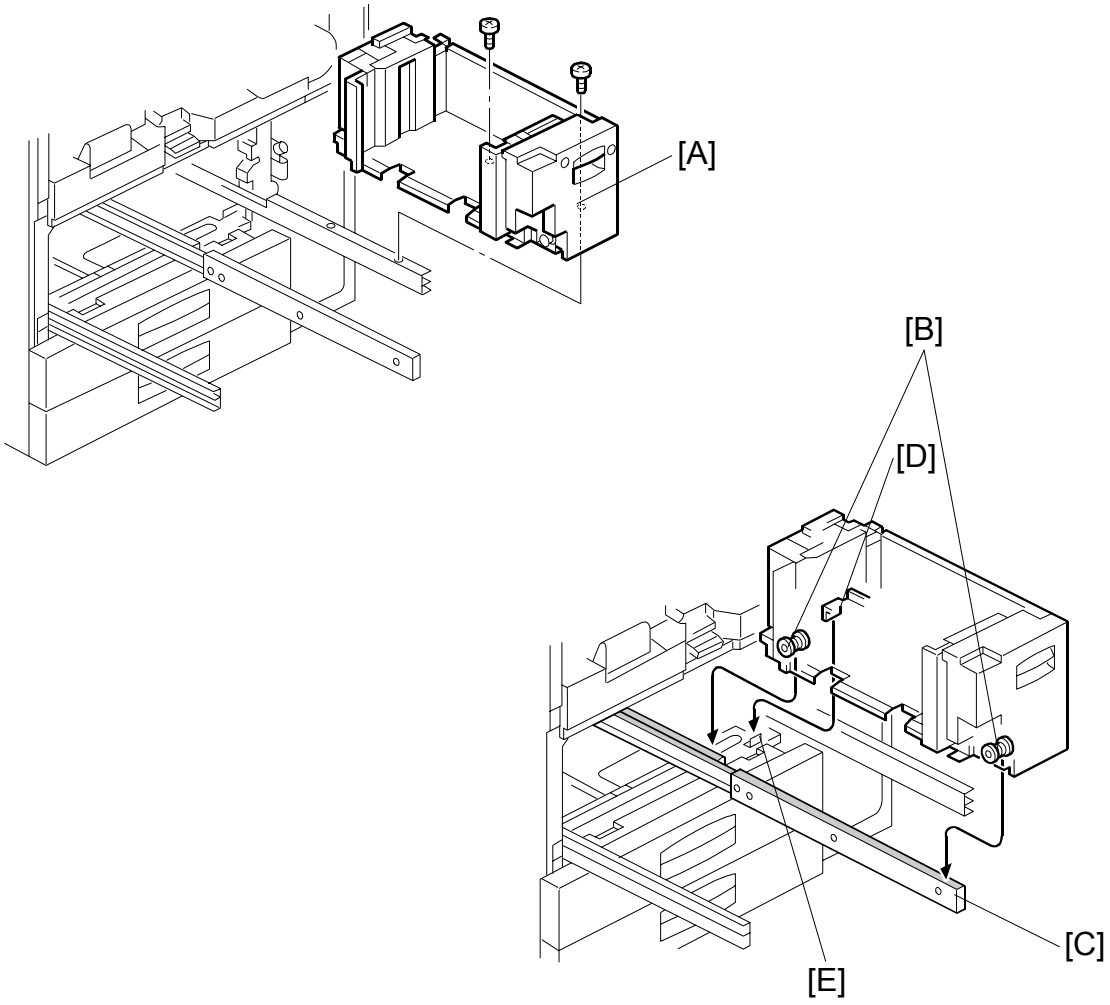
3.11.1 PAPER TRAY REMOVAL





Tandem Tray Removal

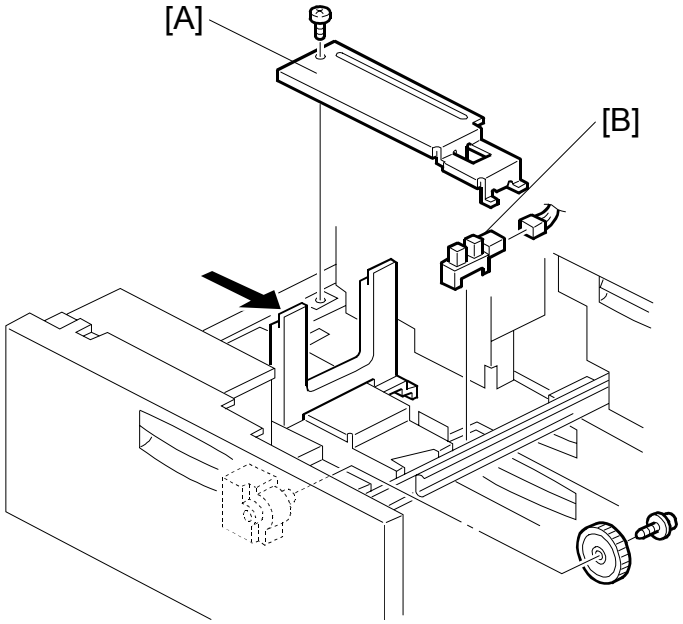
1. Open the front door.
2. Pull out the tandem tray drawer [A] completely to separate the left [B] and right [C] sides of the tandem tray.
3. Remove the left tandem tray [D] (x5).



[A]: Right tandem tray (x2).

NOTE: 1) When re-installing the right tandem tray, make sure that the wheels [B] ride on the slide rail [C].
2) When re-installing the right tandem tray, make sure that the tandem tray stopper [D] is set behind the stopper [E] on the frame.

3.11.2 REAR FENCE RETURN SENSOR REPLACEMENT



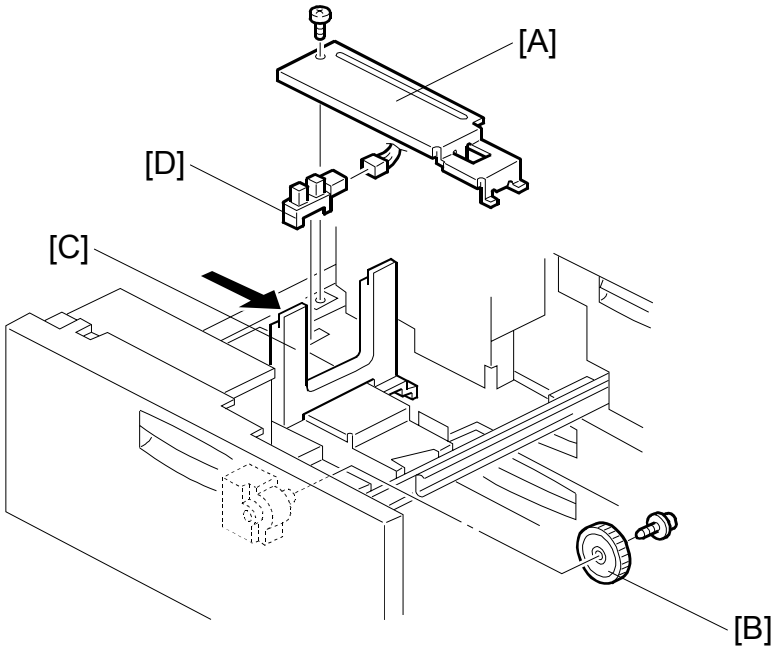
⟹ Power off the machine (☛ 1.1.5).

Pull out the tandem feed tray.

[A]: Rear bottom plate (☞ x1)

[B]: Return sensor (☜ x1).

3.11.3 REAR FENCE HP SENSOR REPLACEMENT

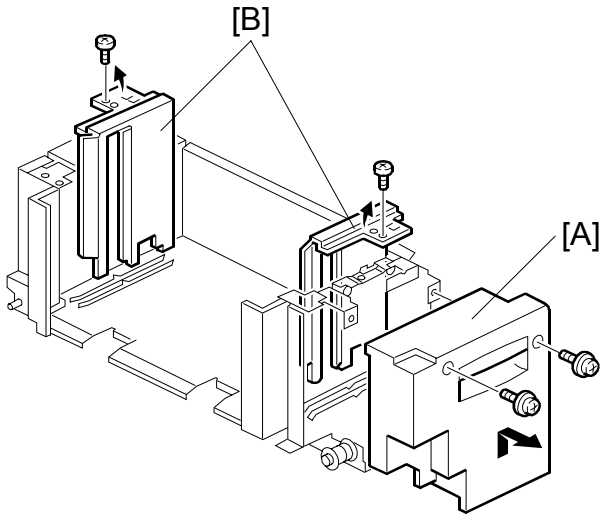


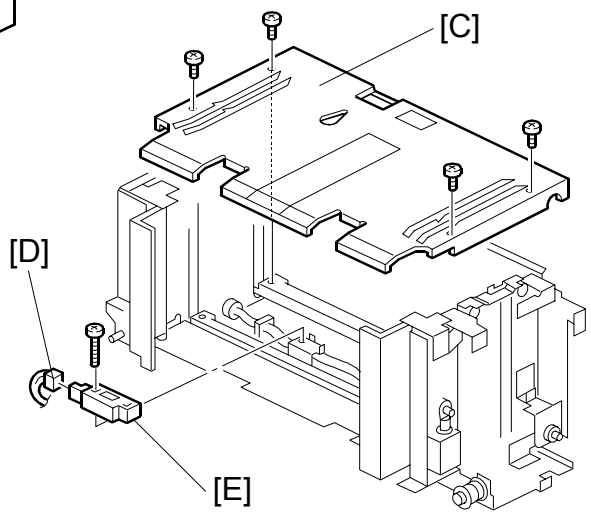
⟹Power off the machine (☛ 1.1.5).

Pull out the tandem feed tray.

[A]: Rear bottom plate (🔩 x1).
[B]: Back fence transport gear (🔩 x1)
[C]: Move the back fence to the right.
[D]: Rear HP sensor (✋ x1)

3.11.4 TANDEM RIGHT TRAY PAPER SENSOR REPLACEMENT





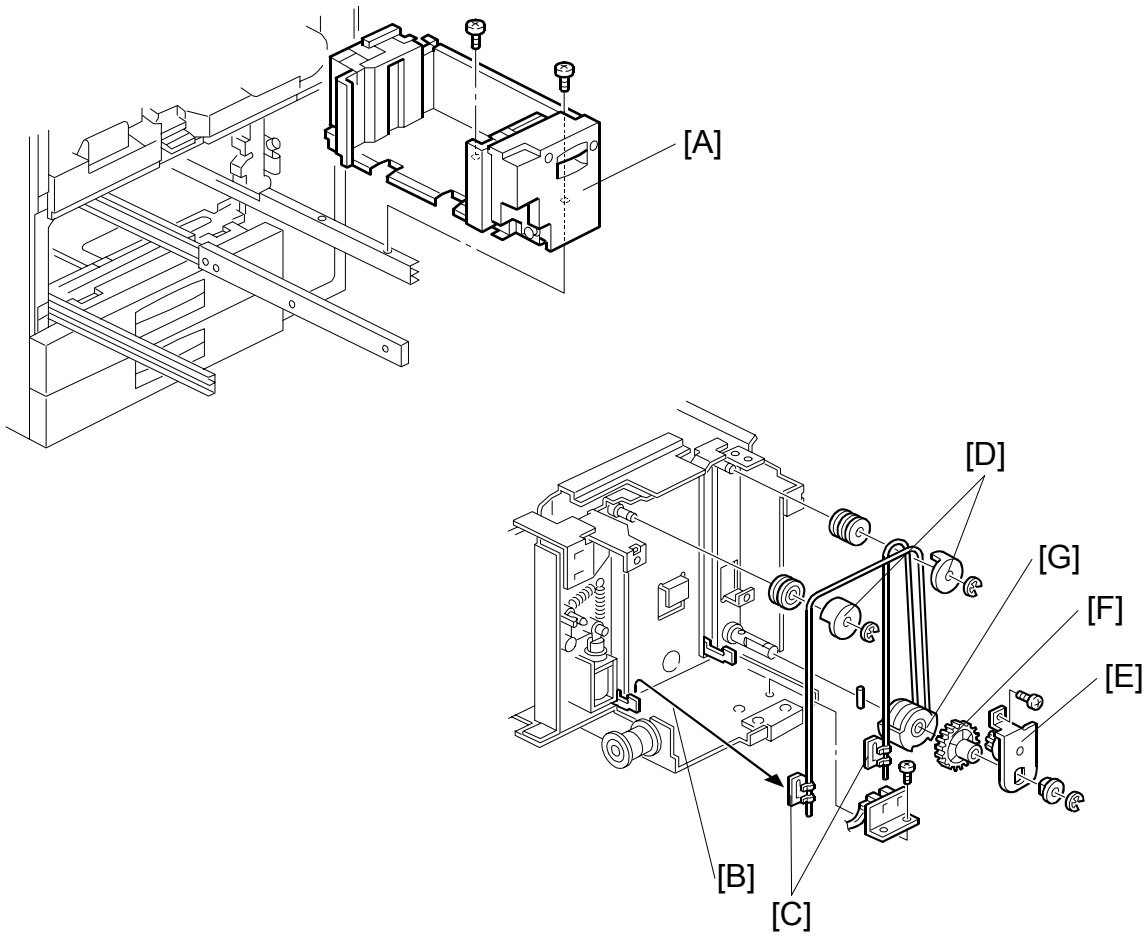
⟹ Power off the machine (☛ 1.1.5).

⟹ Remove the right tandem tray (☛ 3.11.1)

[A]: Inner cover (x2)
[B]: Side fences (x1 each)
[C]: Bottom plate (x4)
[D]: Connector (x1)
[E]: Sensor (x1)

3.11.5 BOTTOM PLATE LIFT WIRE REPLACEMENT

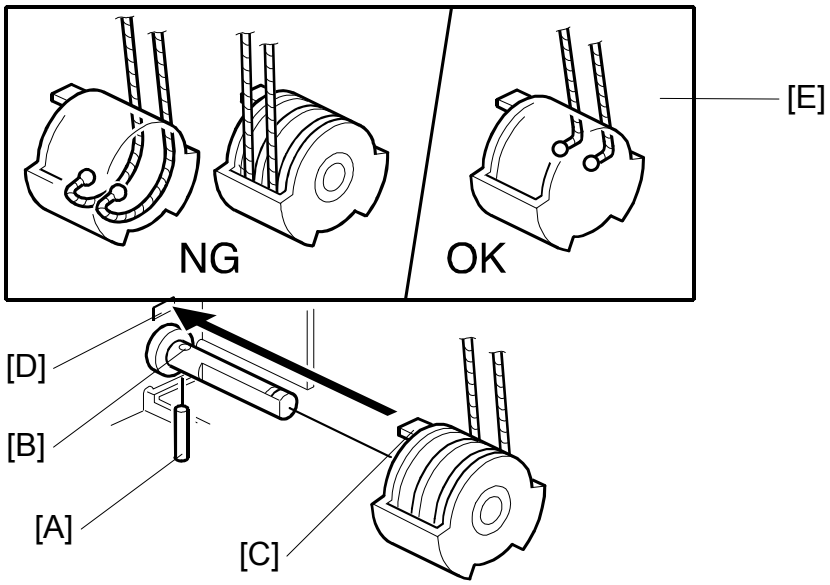
NOTE: Before replacing the rear bottom plate lift wire, remove the front bottom plate lift wire. It is necessary to remove the shaft for replacing the rear bottom plate lift wire.



Remove the right tandem tray. (Refer to Paper Tray Removal.)

[A]: Remove the inner cover (☞ x2)
[B]: Remove the left stay.
[C]: Wire stoppers.
- Slightly lift the front bottom plate and unhook.

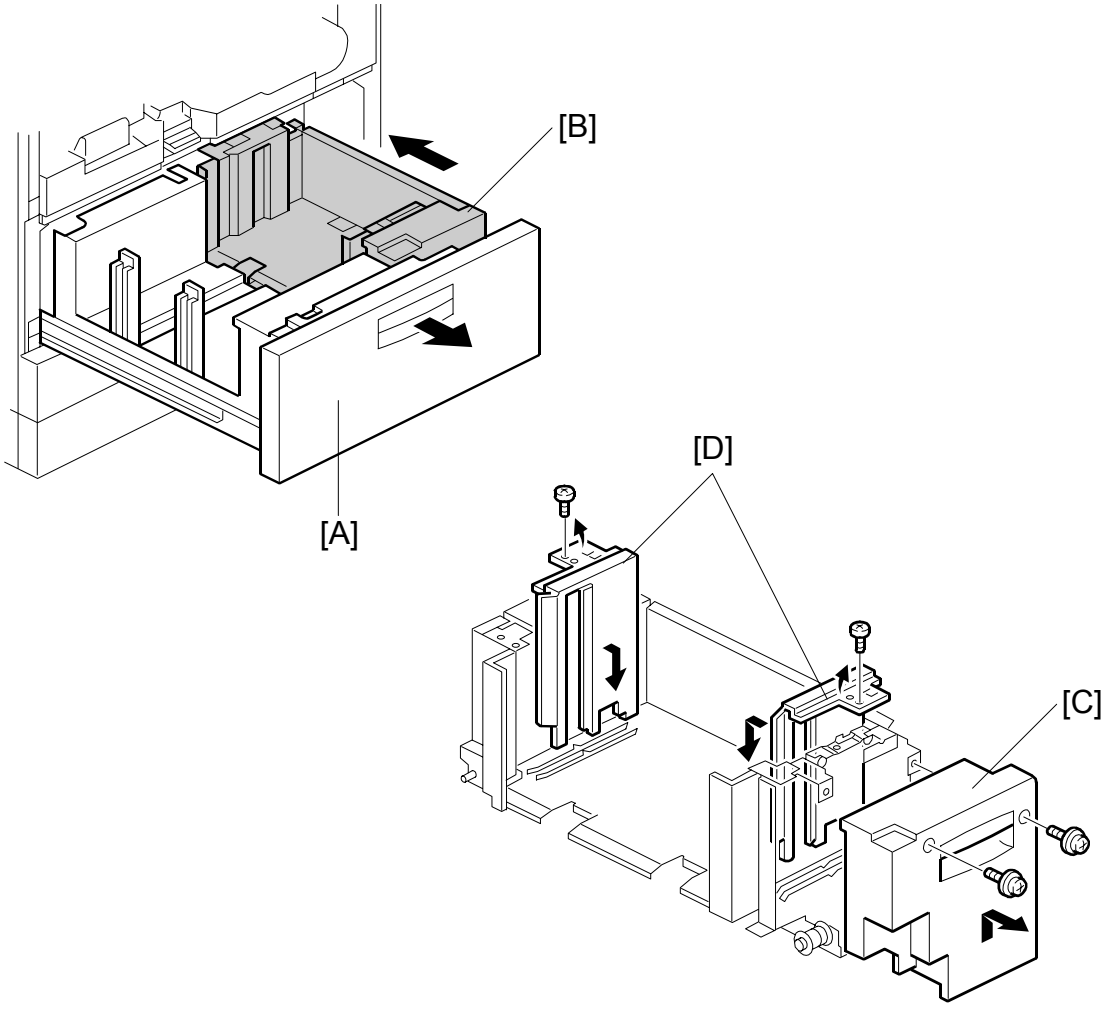
[D]: Wire covers (ℂ x1 each)
[E]: Bracket (☞ x1, ℂ x1, bushing x1)
[F]: Gear
[G]: Bottom plate lift wire



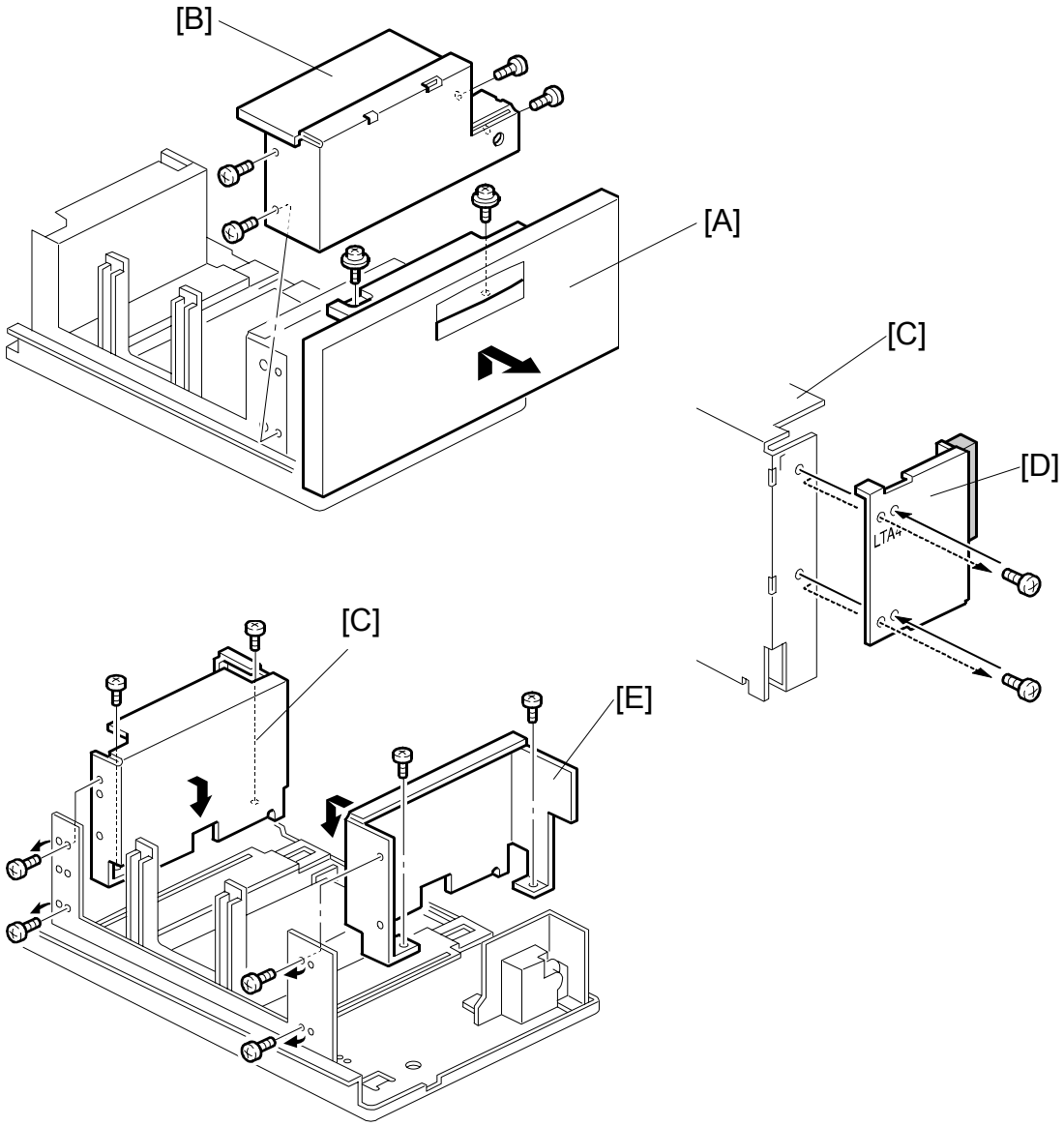
NOTE: When re-installing the bottom plate lift wire:
1) Set the positioning pin [A] in the hole [B], and set the projection [C] in the hole [D].
2) Position the wire as shown [E].
3) Do not cross the wires.

3.11.6 TANDEM LCT PAPER SIZE CHANGE

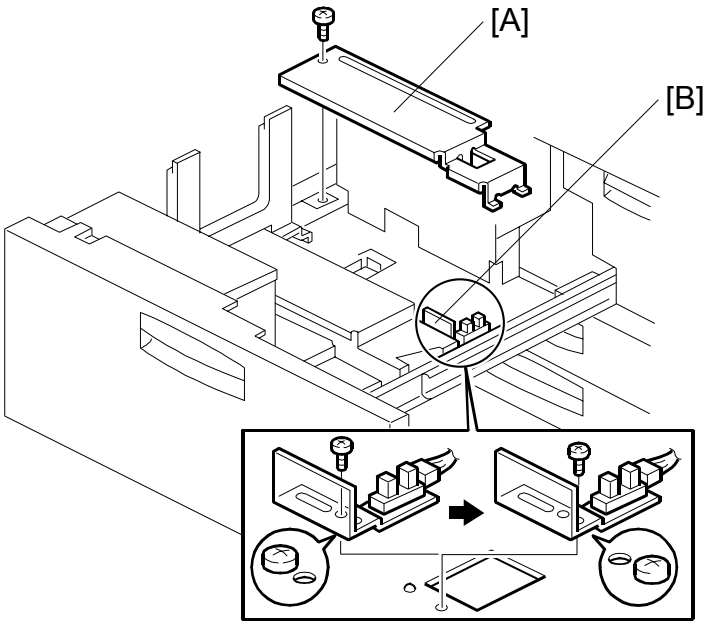
NOTE: At the factory, this tray is set up for A4 or LT LEF. Only A4 or LT LEF paper can be used for tandem feed.



1. Open the front cover.
2. Completely pull out the tandem feed tray [A] to separate the right tandem tray [B] from the left tandem tray.
3. Remove the right tandem inner cover [C] (☞ x2).
4. Re-position the side fences [D] (☞ x1 each).
   A4: Outer slot position
   LT: Inner slot position
5. Re-install the right tandem inner cover.

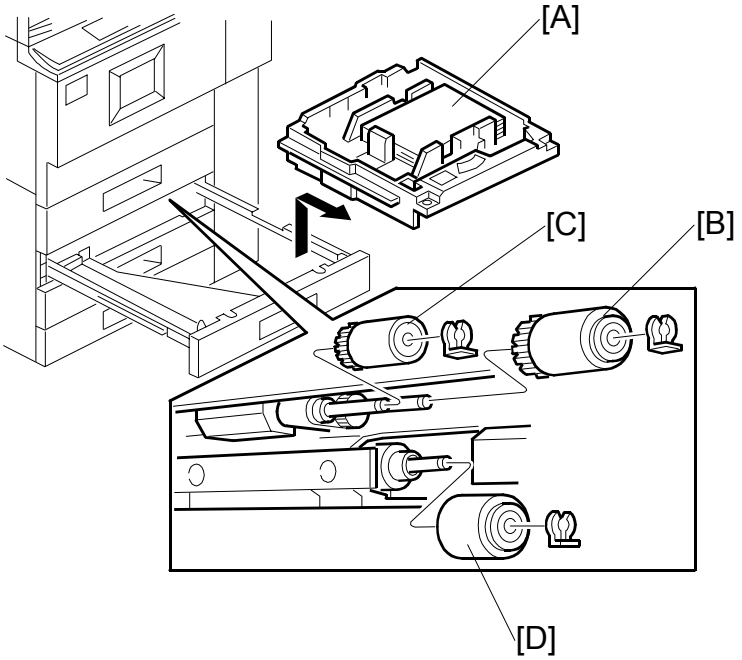


6. Remove the tray cover [A] (☞ x2).
7. Remove the DC motor cover [B] (☞ x4).
8. Remove the rear side fence [C] (☞ x4) and re-position the rear cover [D] (☞ x2).
9. Re-position the side fences [C] [E] (☞ x4).
   A4: Outer slot position
   LT: Inner slot position
10. Re-install the DC motor cover and the tray cover.



11. Remove the rear bottom plate [A] (☞ x1).
12. Re-position the return position sensor bracket [B] (☞ x1).
    To use the paper tray for A4 size, set the screw in the left hole as shown. (For LT size, the screw should be placed on the right.)
13. Reinstall the rear bottom plate.
14. Input the new paper size into SP 5959 001 (Paper Size – Tray 1). For details, see SP5959 in section “4. Service Tables”.
15. Do the scanner and printer adjustments. (☛ 3.6)

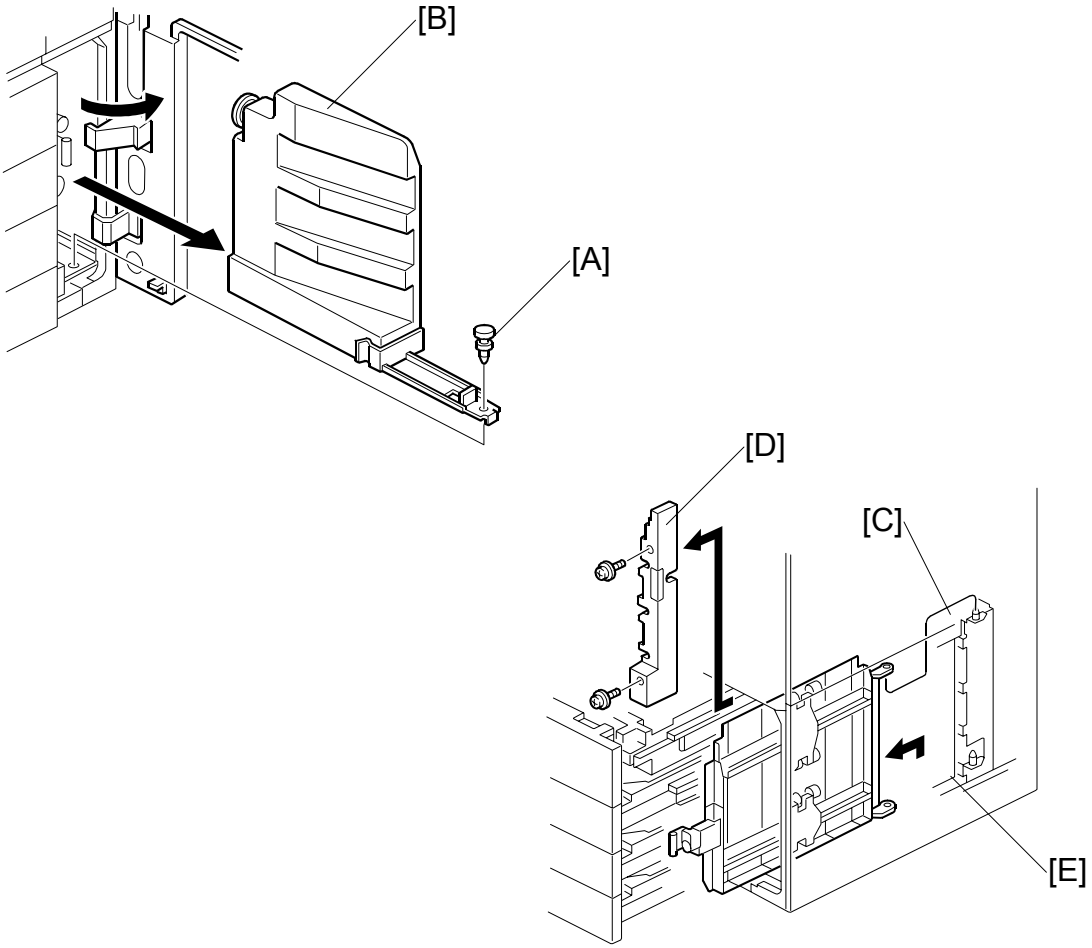
3.11.7 PICK-UP, FEED, SEPARATION ROLLER REPLACEMENT



[A]: Remove the tray.
[B]: Feed roller (x1)
[C]: Pick-up roller (x1)
[D]: Separation roller (x1)

NOTE: 1) Even though the operation of the FRR mechanisms for the tandem tray (Tray 1), universal trays (Tray 2, Tray 3), by-pass tray, and ADF are similar, the only rollers that are interchangeable are the tandem and universal trays (Trays 1,2,3).
2) Do not touch the surface of new rollers during replacement.

3.11.8 FEED UNIT



Front door (☛ 3.3.2)

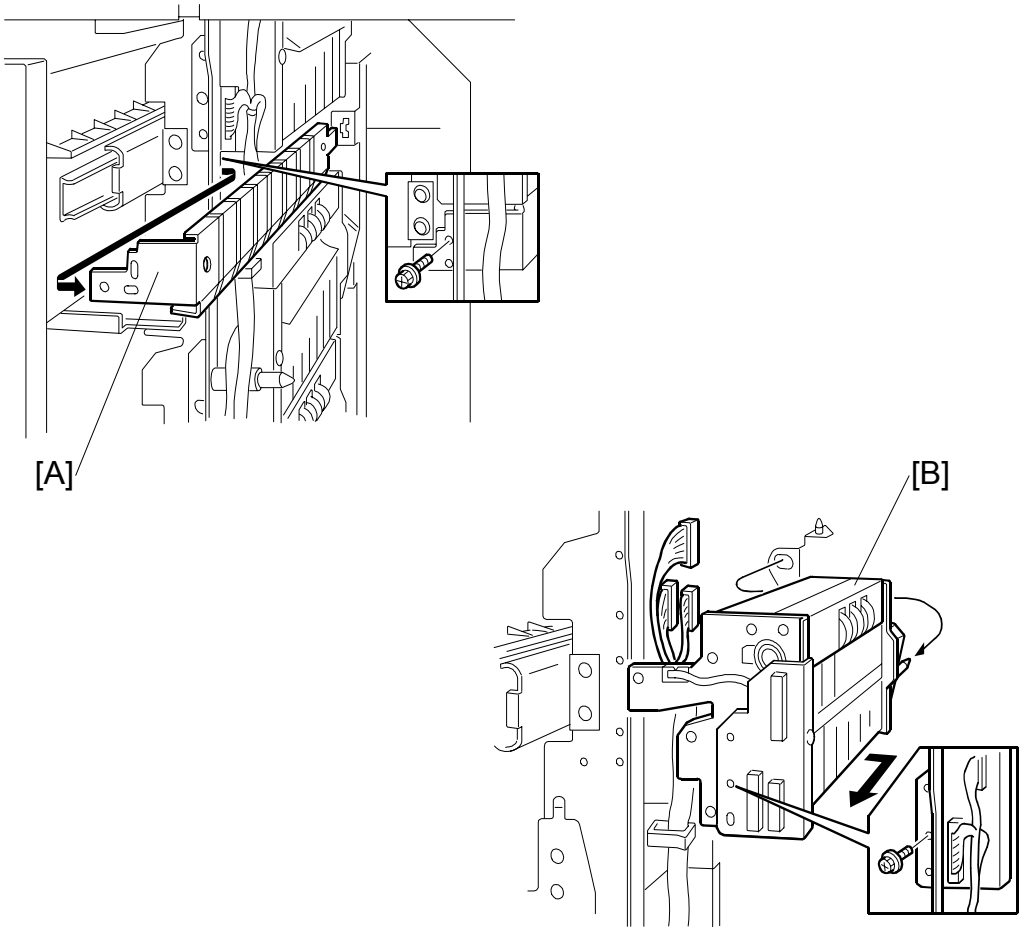
LCT entrance guide cover and right lower cover (☛ 3.3.3)

- If the LCT is connected, disconnect it and pull it away from the machine.

Pull out all three trays (do not remove).

[A]: Nylon peg
[B]: Toner collection bottle
[C]: Vertical transport guide
[D]: Inner cover (x2)

NOTE: When re-installing the vertical transport guide, remove the lower right cover then insert from [E]. (☛ 3.3.3)



[A]: Guide plate (x1)
- 1st feed unit only.

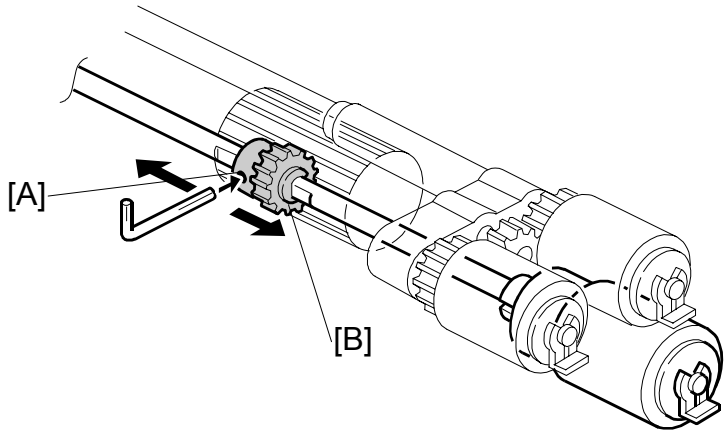
[B]: Feed unit (x1, x3)
- Insert your hand from the right and pull the feed unit forward.

NOTE: To avoid hitting the unit on the sides of the machine, remove it carefully and slowly.

3.11.9 SEPARATION ROLLER PRESSURE ADJUSTMENT

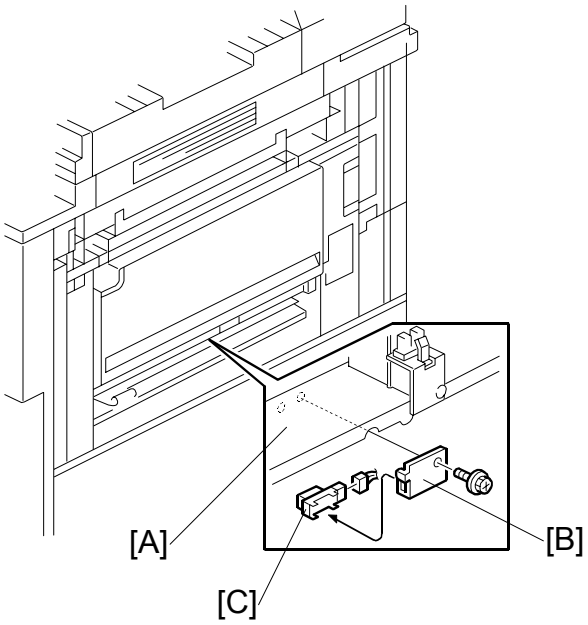
The position of the drive gear for the separation roller can be changed in order to change the amount of pressure exerted by the separation roller. This adjustment can be done:

- When feeding special paper, especially thick paper
- When the customer is experiencing feed problems



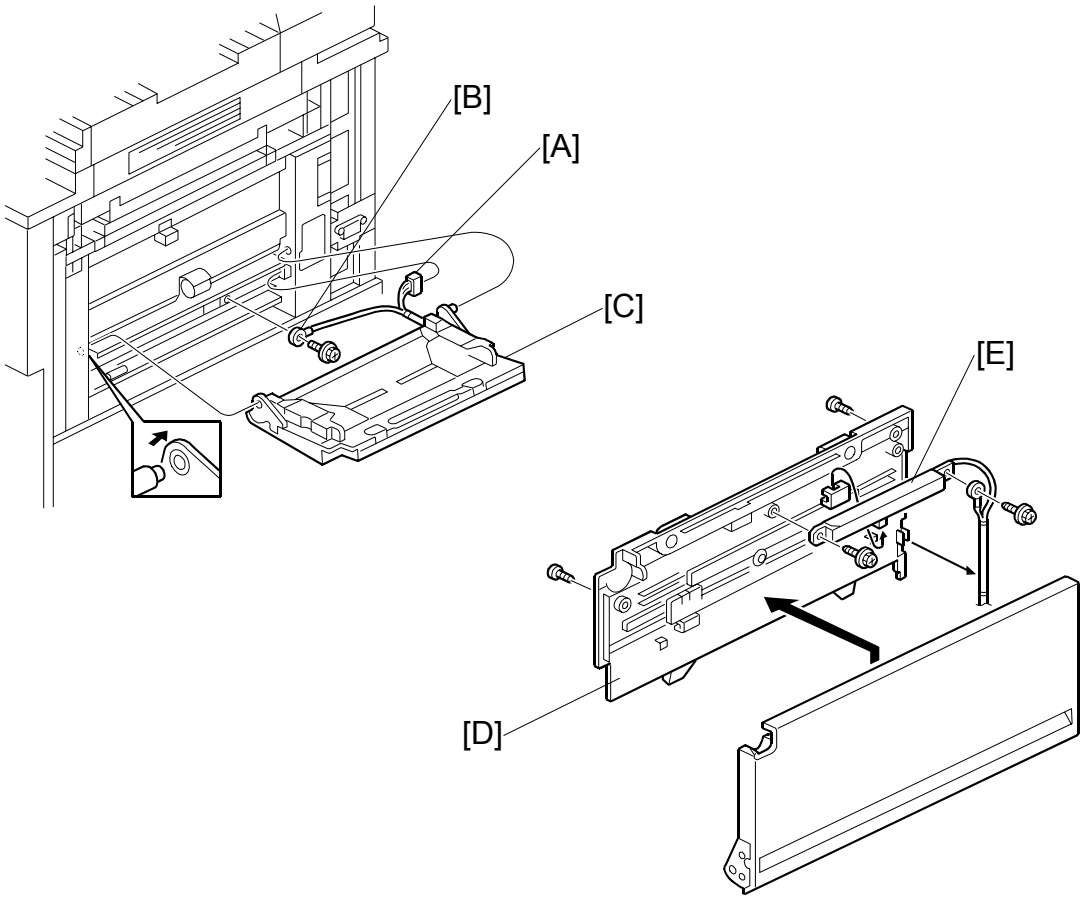
1. Remove the feed unit (☛ 3.3.8)
2. Loosen the hex screw [A].
   NOTE: The separation roller gear [B] is positioned at the groove before shipping.
3. To adjust for thick paper, move the separation roller gear [B] to the left to decrease the pressure.
   –or-
   To correct misfeeds, move the separation roller gear to the right to increase the pressure.

3.11.10 RELAY SENSOR



[A]: Remove the LCT entrance guide cover.
[B]: Relay sensor bracket (x1)
[C]: Relay sensor (x1)

3.11.11 BY-PASS PAPER SIZE DETECTION BOARD



Registration inner cover (☞ x2)

- Not shown. This cover is directly below the by-pass tray.

[A]: Connector (☞ x1)
[B]: Ground wire (☞ x1)
[C]: By-pass tray

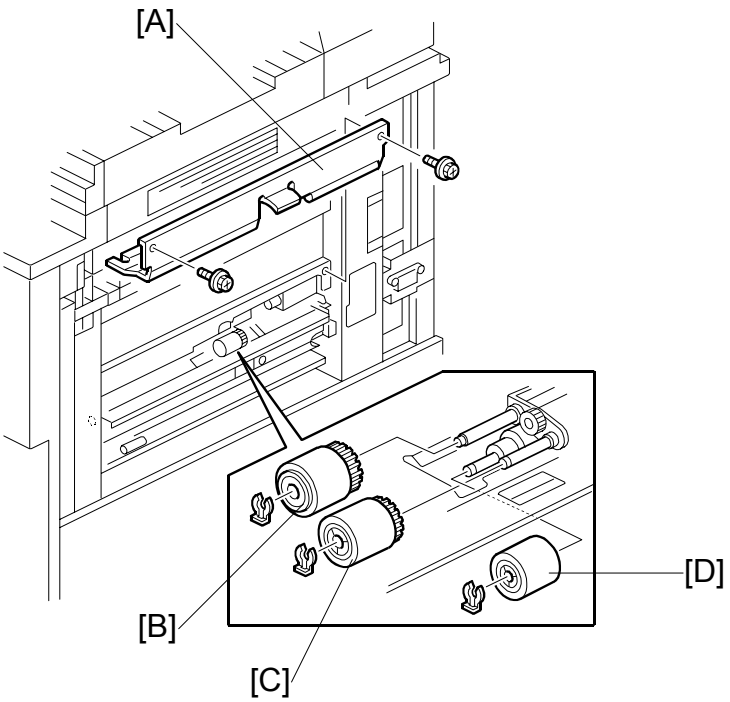
- Disconnect the by-pass tray from the pins on both sides.

[D]: By-pass table (☞ x2)
[E]: By-pass paper size detection board (☞ x2)

After installation, execute SP1904 to calibrate the maximum and minimum paper sizes for the side fences:

- SP1904 001 By-pass Tray Paper Size Detection – Minimum Size
  Move the side fences to the minimum size, then execute this SP.
- SP1904 002 By-pass Tray Paper Size Detection – Maximum Size
  Move the side fences to the maximum size, then execute this SP.

3.11.12 BY-PASS TRAY ROLLERS



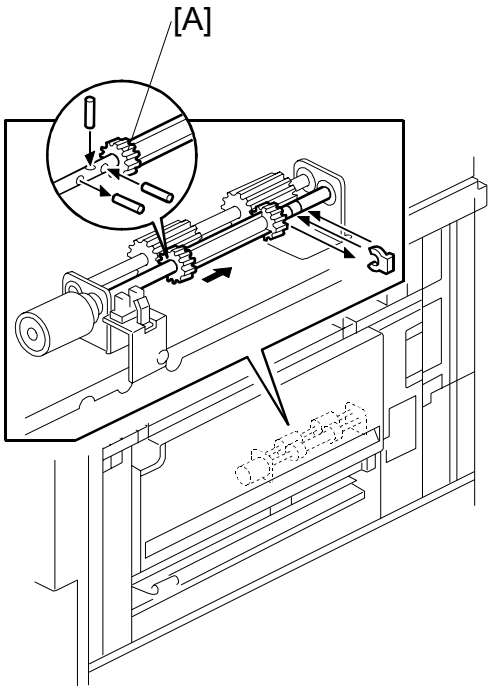
Right covers (☛ 3.3.3)

By-pass tray (☛ 3.3.11)

[A]: By-pass cover (☞ x2)
[B]: Feed roller (⟲ x1)
[C]: Pick-up roller (⟲ x1)
[D]: Separation roller (⟲ x1)

NOTE: 1) Even though the FRR mechanisms for the tandem tray (Tray 1), universal trays (Tray 2, Tray 3) and the by-pass tray are identical, the rollers are not interchangeable.
2) Do not touch the surface of new rollers during replacement.

3.11.13 BY-PASS SEPARATION ROLLER PRESSURE ADJUSTMENT



1. Loosen the separation roller gear [A].

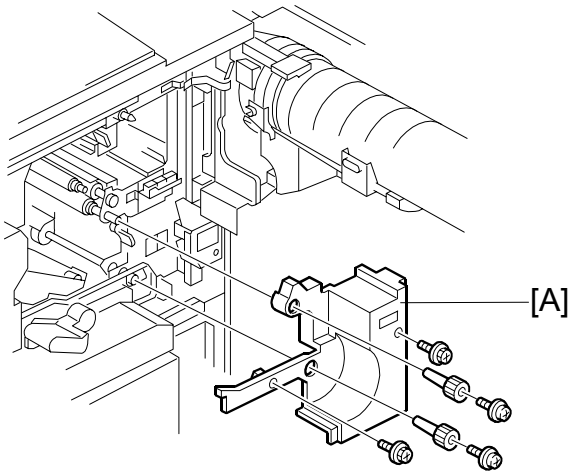
   The position of the drive gear for the separation roller can be changed in order to change the amount of pressure exerted by the separation roller. This adjustment can be done:

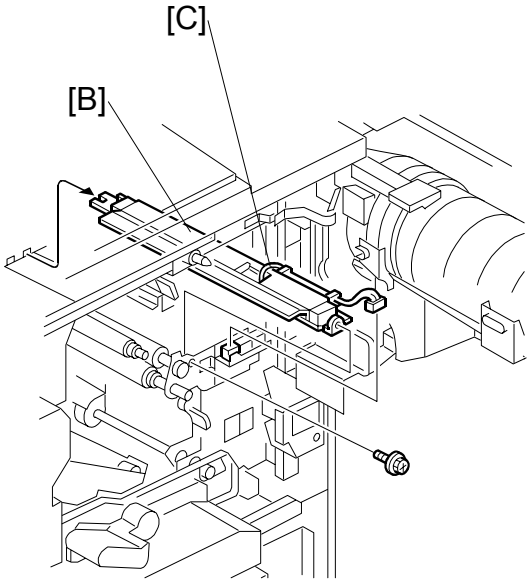
   - When feeding special paper, especially thick paper
   - When the customer experiences feed problems

NOTE: The separation roller gear is positioned at the groove before shipping.

2. Move the separation roller gear right to increase the pressure to correct misfeeds.

3.11.14 REGISTRATION SENSOR





[A]: Inner cover (x4)

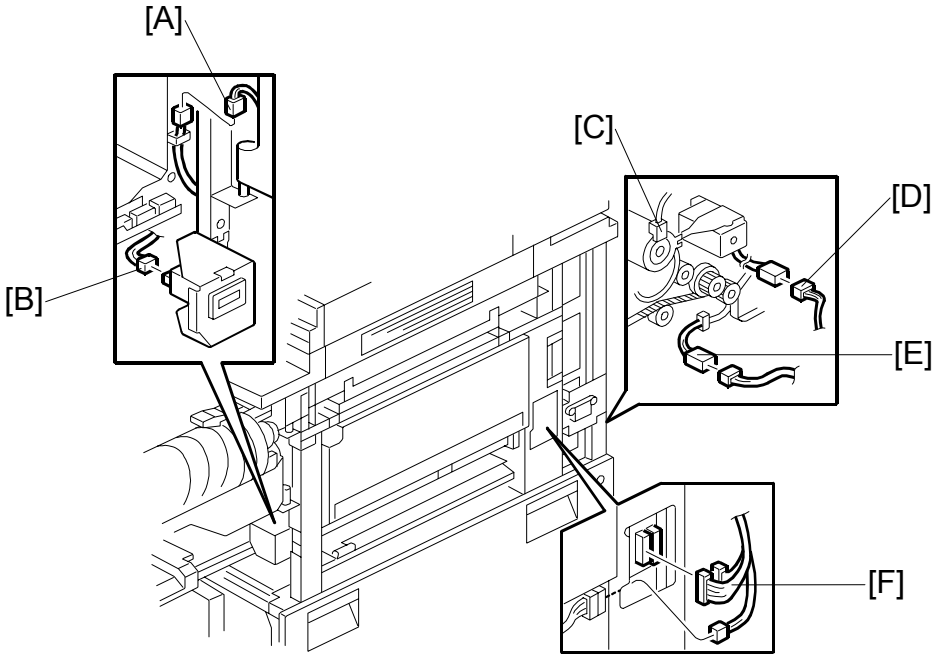
Development unit (☛ 3.6.1)

Charge corona unit (☛ 3.6.2)

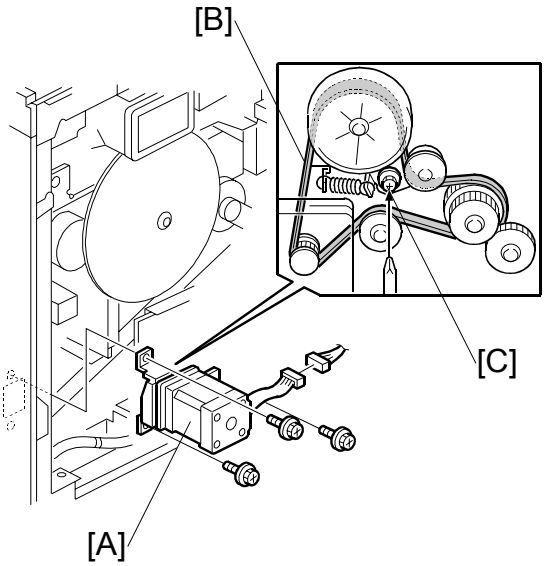
OPC drum unit (☛ 3.6.5)

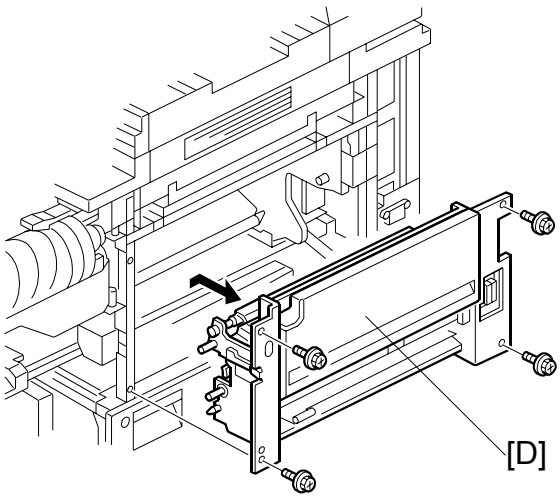
[B]: Paper dust removal unit (x1, x1)
[C]: Registration sensor

3.11.15 REGISTRATION AND BY-PASS UNIT REMOVAL



1. Remove the development unit. (☛ 3.6.1)
2. Remove the inner cover. (🔩 x4)
3. Disconnect the toner bottle holder connector [A] and counter connector [B].
4. Pull out the duplex unit about 10 cm.
   - Confirm that the registration roller is separated from the positioning pin.
5. Remove the right upper cover. (☛ 3.3.3)
6. Rear upper cover (☛ 3.3.5)
7. Disconnect the following connectors:
   - Relay clutch connector [C]
   - Guide plate solenoid connector [D]
   - Guide plate sensor connector [E]
   - By-pass tray unit connectors [F]





8. Remove the by-pass feed motor [A] (x3, x1).
   - At re-installation, if the tension of the belt [B] is slack, loosen the screw on the tension bracket [C], move the screw to put more tension on the belt, then tighten the screw at the new position.
9. Remove the by-pass unit [D] (x4).

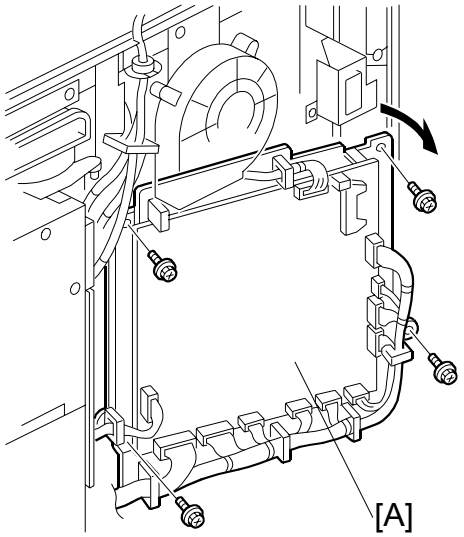
   When removing and installing the by-pass unit:
   - Make sure that the unit does not catch on any harnesses.
   - On re-installation, make sure that no harnesses are pinched between the unit and the machine frame.
   - You must re-install the by-pass unit with the duplex unit open.

3.12 PCBS AND HDD

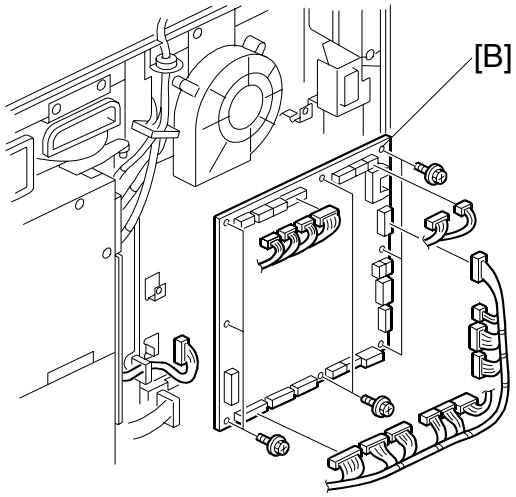
3.12.1 BCU BOARD (BASE ENGINE CONTROL UNIT)

Rear upper cover (☛ 3.3.5)

[A]: BCU board bracket (x4)



[B]: BCU board (x4, x17)



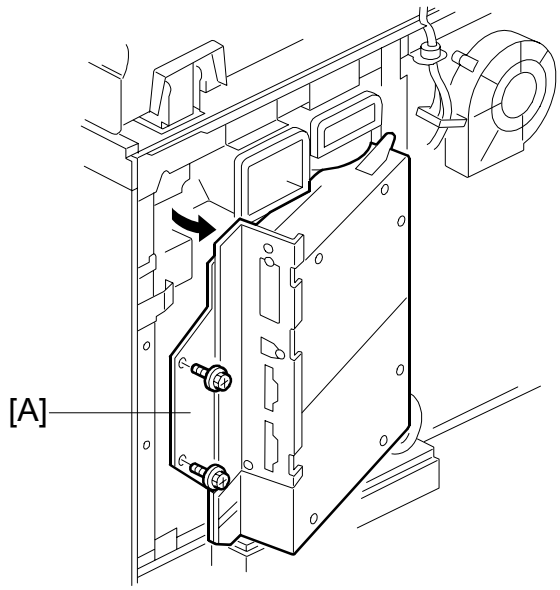
⟹ **NOTE:** Make sure that the DIP switch settings on the new board are the same as those on the old board.

- After replacing this board, execute SP 3001 002 (ID Sensor Initialization)

3.12.2 CONTROLLER BOARD

Rear upper cover (☛ 3.3.5)

[A]: Swing-out the PCB unit (🔩 x2)

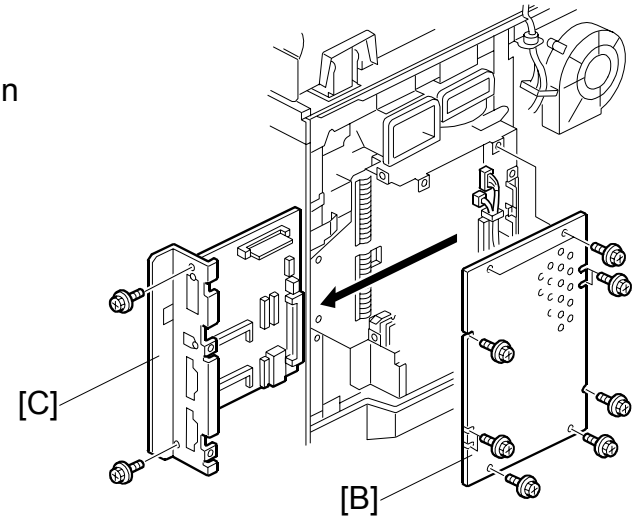


[B]: Controller cover (🔩 x9)

[C]: Controller board (🔩 x2, 🔌 x2)

- Pull the controller board out in the direction of the arrow.

Take the NVRAM from the old controller board and install it on the new board.



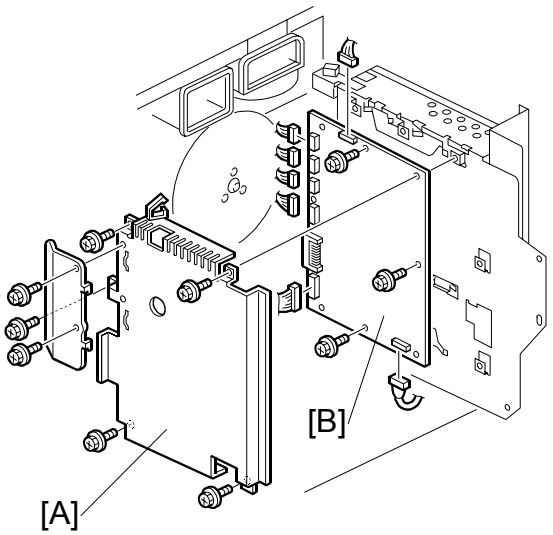
3.12.3 IPU BOARD (IMAGE PROCESSING UNIT)

Rear upper cover (☛ 3.3.5)

Swing-out the PCB unit (☛ 3.4.2)

[A]: PCB unit cover (🔩 x7)

[B]: IPU board (🔩 x3, 🖑 x7)



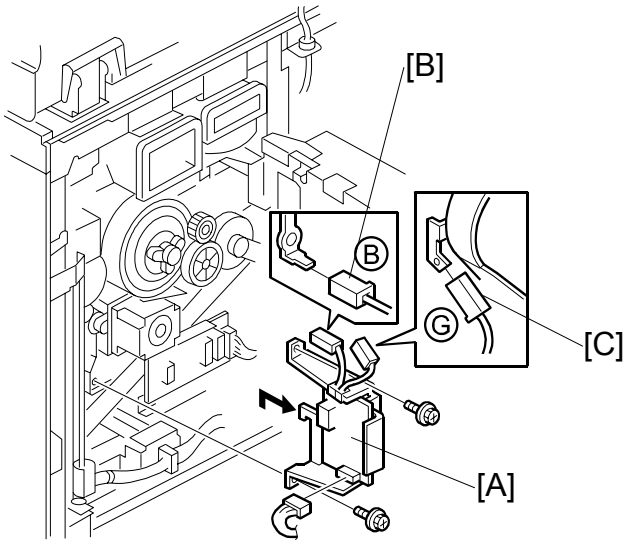
3.12.4 DEVELOPMENT POWER PACK

Rear upper cover (☛ 3.3.5)

Flywheel (🔩 x3)

[A]: Development power pack (🔩 x2, 🖑 x3)

NOTE: Mark the bayonet connectors [B], C] with a felt pen to ensure that they are not connected incorrectly when the power pack is re-connected.

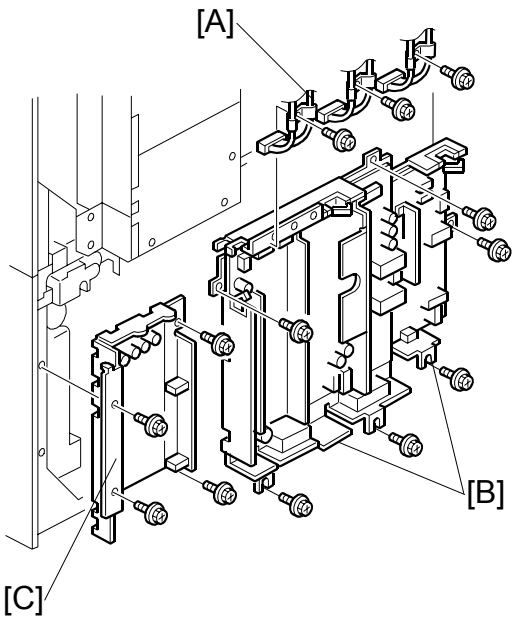


3.12.5 PSU, PFC BOARDS

Rear lower cover (☛ 3.3.5)

[A]: Harness clamps (🔩 x3)
[B]: PSU (🔩 x6, ✋ x13)
- The PSU consists of two PCB's.

[C]: PFC (🔩 x4, ✋ x14)



3.12.6 HDD

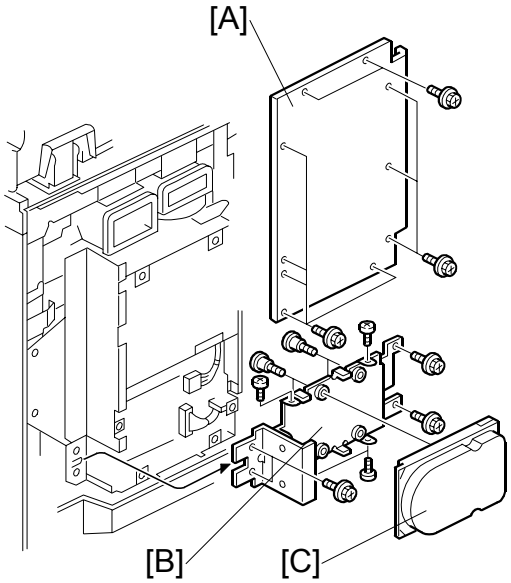
Replacing the NVRAM or the HDD erases documents stored in the document server. Before replacing either of these items, consult with the customer to determine the best time to perform the replacement.

Rear upper cover (☛ 3.3.5)

[A]: Controller cover (🔩 x10)
[B]: HDD bracket (🔩 x8, ✋ x4)
[C]: HDD (🔩 x8)

Execute SP5832 001 (HDD Format – All) to format the hard disk.

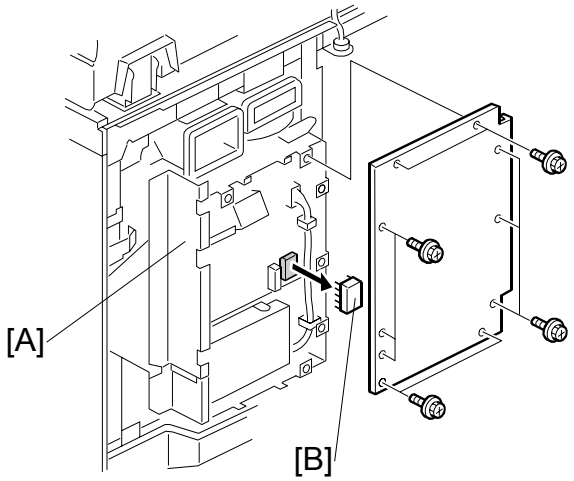
Follow the procedure described in "Stamp Data Update" on page 5-12 to download the stamp data.



3.12.7 NVRAM

This machine has an electronic counting device that uses software to monitor the number of copies. In addition to the electronic counter of the NVRAM on the controller board, the machine is also equipped with a mechanical counter.

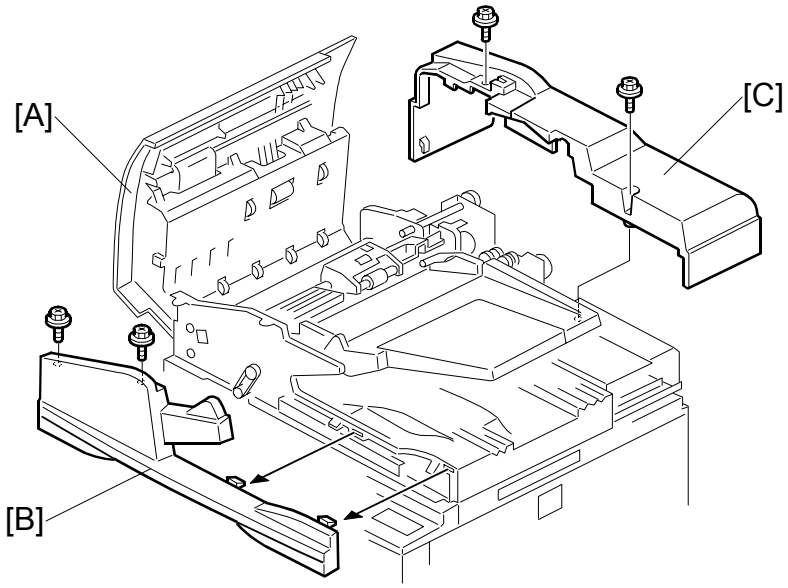
1. Enter the SP mode and print the SMC report.
   - Press Clear Modes
   - On the operation panel keypad, press 1 0 7.
   - Hold down Clear/Stop for more than 3 seconds.
   - Press “Copy SP” on the touch-panel.
2. Execute SP5990 001 (All SP Groups) to print an SMC report.
3. Remove the slot cover and insert the flash memory [A] card in the controller board.



4. Execute SP5824 (NVRAM Data Upload) to upload the data to the flash memory card.
5. Switch the machine off and disconnect the power cord.
6. Remove the NVRAM [B].
   - Touch a metal surface to discharge any static build up on your hands or tools before you touch the controller board.
   - Work carefully when removing the NVRAM to avoid damaging other components on the controller board or short circuiting the pins of other chips.
7. Install the new NVRAM. Make sure that the NVRAM is installed the correct way around.
8. Connect the power cord and switch the machine on.
9. Enter the SP mode and execute SP5801 (Memory All Clear)
10. Execute SP5825 (NVRAM Download) to download the data uploaded from the old NVRAM.
11. Switch the machine off then on.
12. Execute SP5990 to print another SMC report. Confirm that all the SP settings have been initialized.
13. Execute SP3001 002 (ID Sensor Initialization) to initialize the ID sensor.
14. Execute SP5907 (Plug & Play) and enter the brand and model name of the machine for Windows Plug & Play capability.
15. For details about SP initial settings, see “Section 5 Service Tables”.

3.13 ADF

3.13.1 ADF COVERS

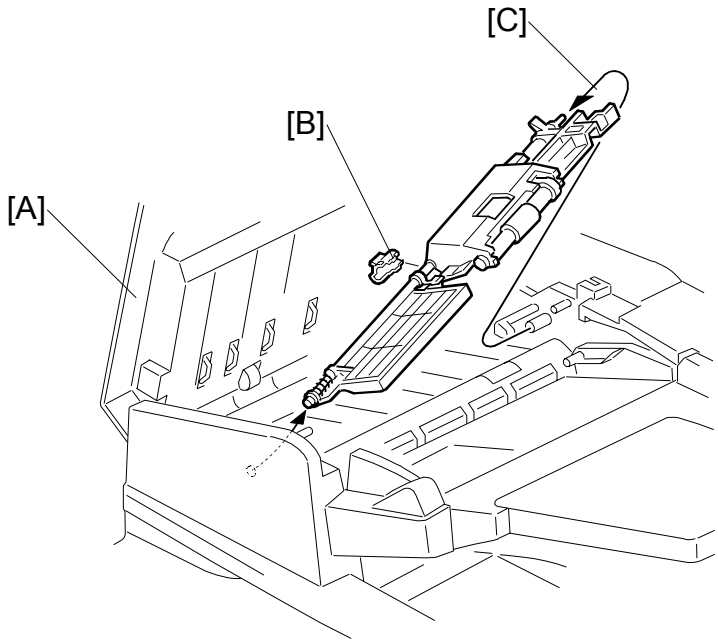


Open the feed cover [A] (x1, x2, ground wire x1).

[B]: Front cover (x2)
- Press down on the tabs to remove.

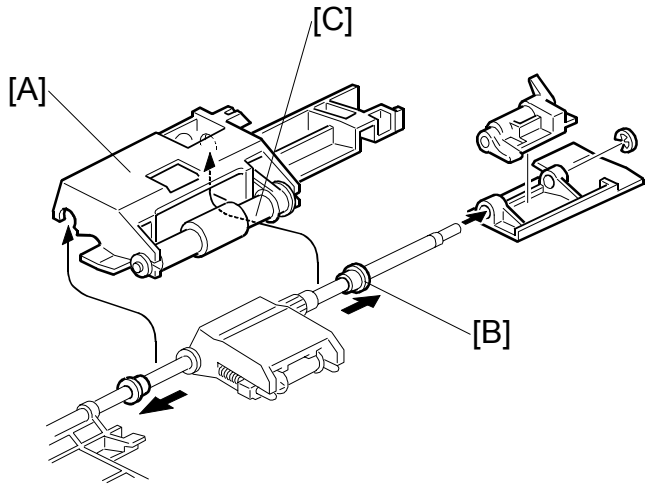
[C]: Rear cover (x2)
- Press down on the tabs to remove.

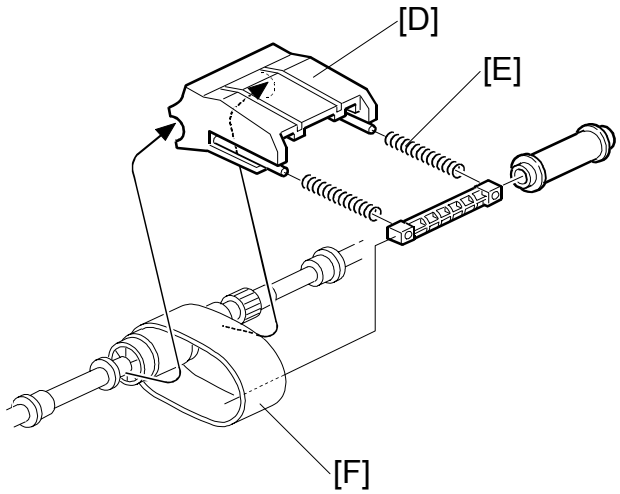
3.13.2 FEED UNIT



1. Open the feed cover [A].
2. Remove the snap fitting [B].
3. Push the feed unit slowly to the left to disengage the shaft [C] on the right, then lift it out.

3.13.3 FEED BELT AND PICK-UP ROLLER





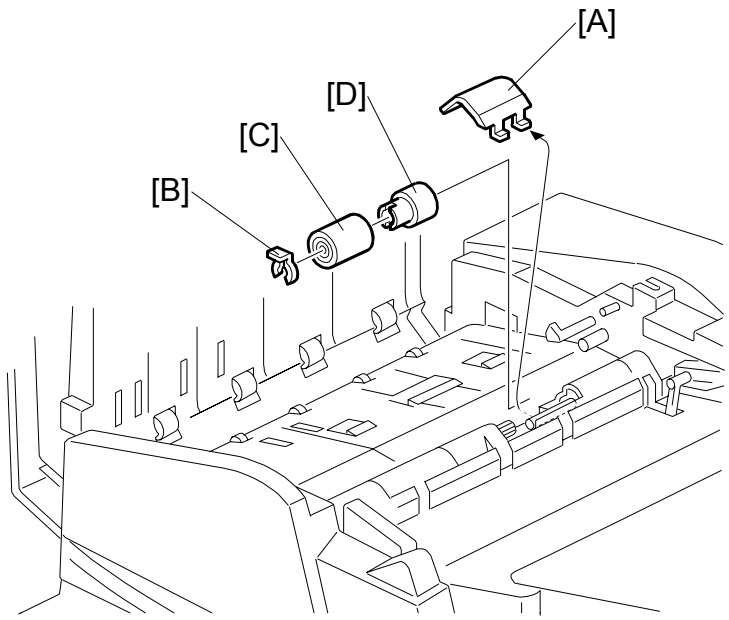
⟹ 1. Remove the feed unit (☛ 3.13.2).

2. Remove the pick-up roller unit [A].
3. Remove the bushings [B].
4. Remove the pick-up roller [C].

NOTE: At re-assembly, make sure that the tab on the front guide plate is above the pick-up roller.

5. Hold the feed belt holder [D] by the left and right sides, then carefully pull it off the bushing. Do not let the springs [E] fall.
6. Remove the feed belt [F].
   NOTE: When re-assembling, set the pick-up roller springs first, then follow this procedure in reverse.

3.13.4 SEPARATION ROLLER



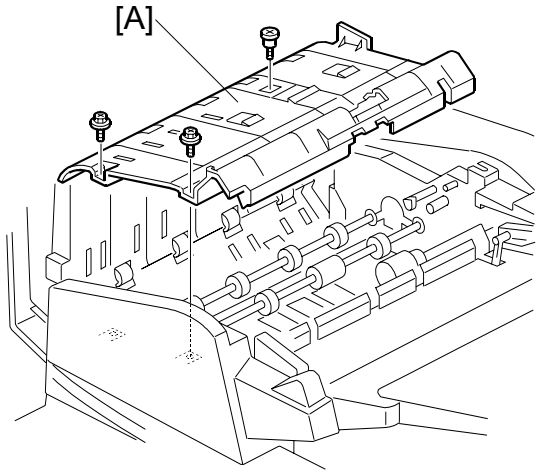
Open the feed cover.

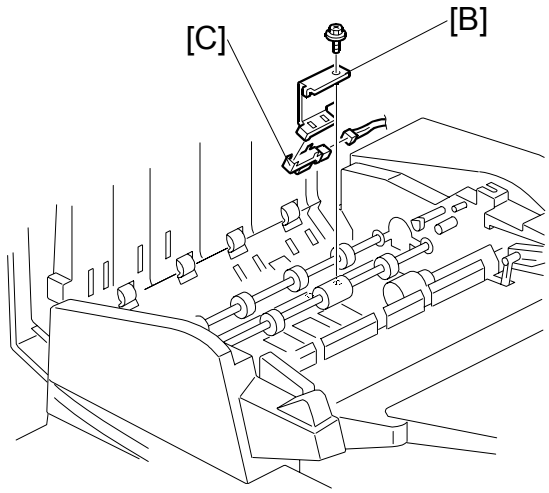
⟹ Feed unit (☛ 3.13.2)

[A]: Separation roller cover
- Use the tip of a screwdriver to push up the cover.

[B]: C-Clamp (x1)
[C]: Separation roller
[D]: Torque limiter clutch

3.13.5 REGISTRATION SENSOR



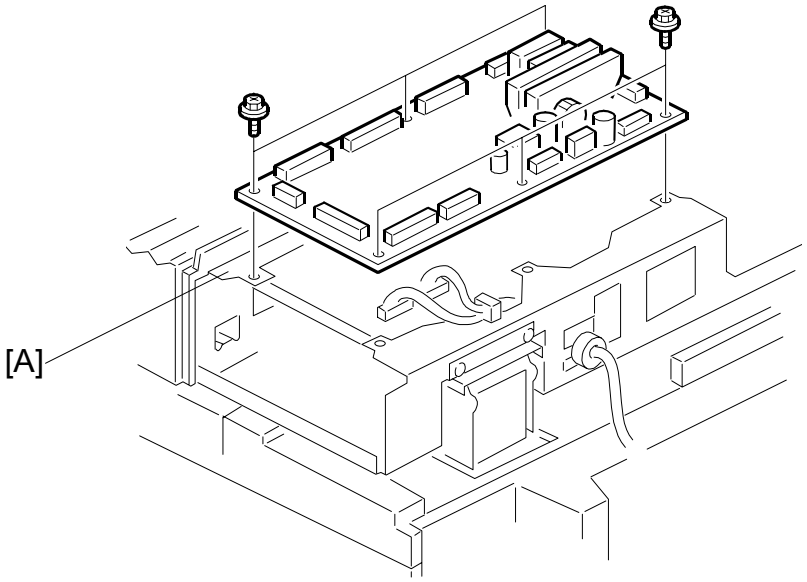


Open the feed cover.

⇒ Feed unit (☛ 3.13.2)

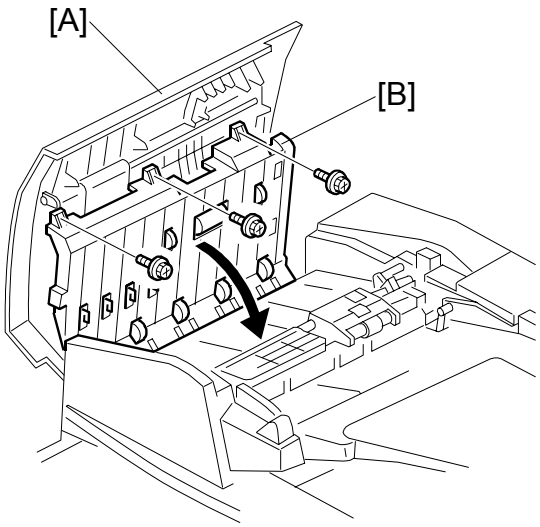
[A]: Guide plate (x3)
[B]: Registration sensor bracket (x1)
[C]: Registration sensor (x1)

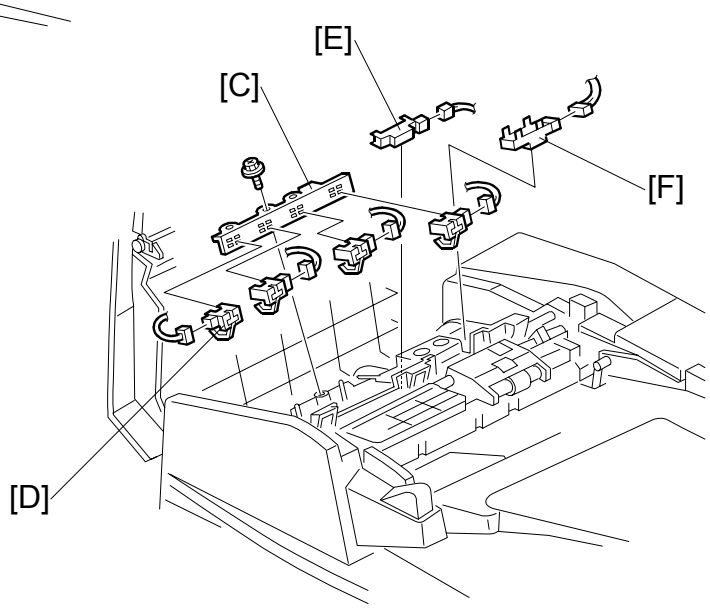
3.13.6 ADF CONTROL BOARD



⟹ Rear cover (☛ 3.13.1)
[A]: ADF board (x2, x14)

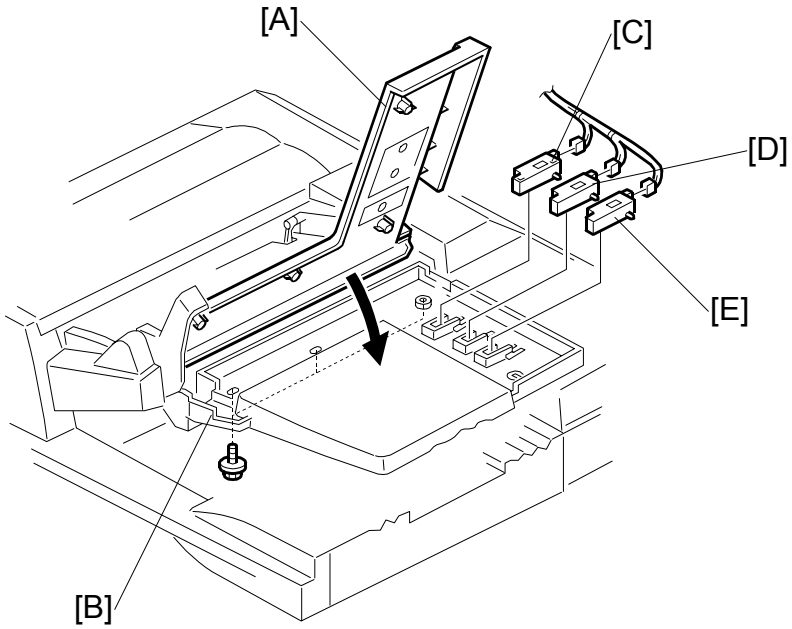
3.13.7 ORIGINAL WIDTH, INTERVAL, AND SKEW CORRECTION SENSORS





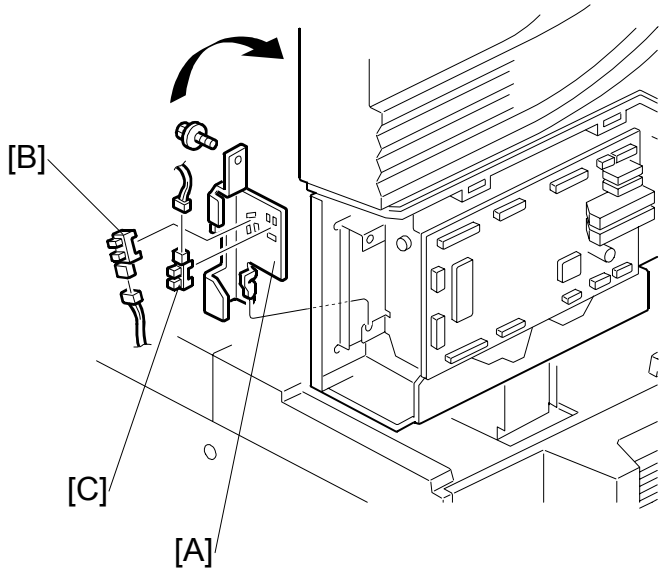
[A]: Open the feed cover.
[B]: Guide plate (x3)
[C]: Width sensor guide plate (x1)
[D]: Original width sensors (x4)
[E]: Interval sensor (x1)
[F]: Skew correction sensor (x1)

3.13.8 ORIGINAL LENGTH SENSORS



[A]: Open the original tray.
[B]: Lower cover (x4)
[C]: Original length sensor 1 – B5 (x1)
[D]: Original length sensor 2 – A4 (x1)
[E]: Original length sensor 3 – LG (x1)

3.13.9 DF POSITION AND APS SENSOR

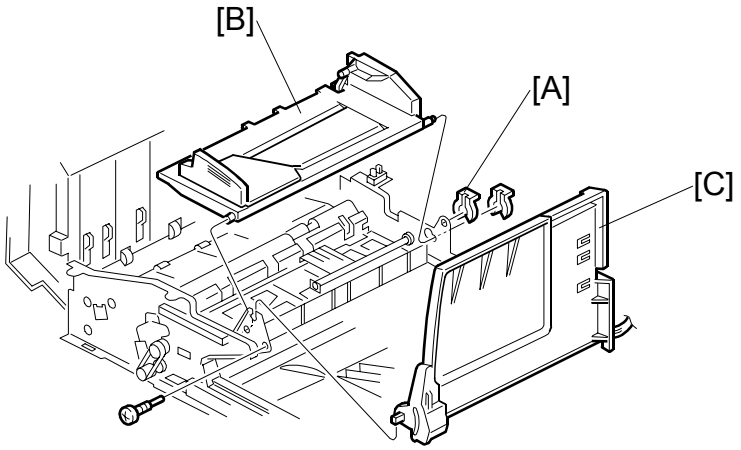


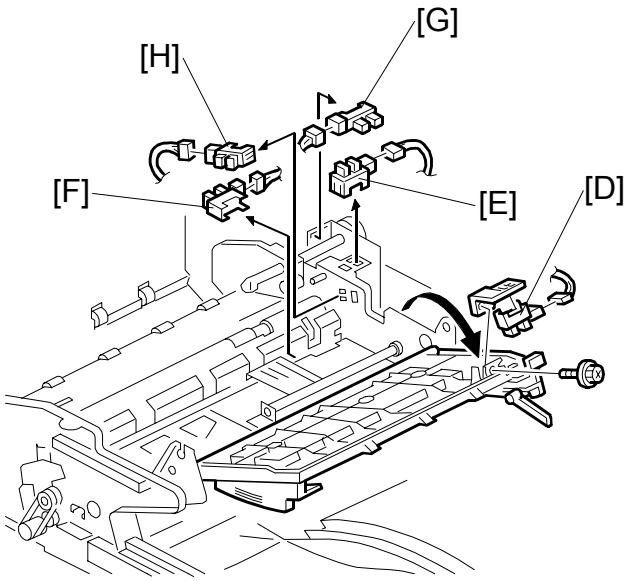
Open the ADF.

⟹ ADF rear cover. (☛ 3.13.1)

[A]: Bracket (x1)
[B]: ADF position sensor (x1)
[C]: APS sensor (x1)

3.13.10 OTHER ADF SENSORS



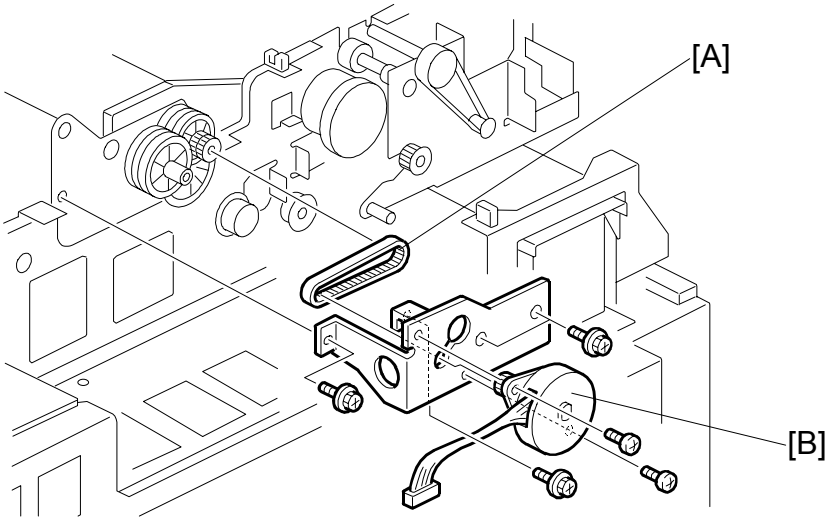


Open the feed cover.

⟹ Front/rear covers (x4) (☛ 3.13.1)

[A]: C-Clamps (x2)
[B]: Original tray (x1)
[C]: Bottom plate (x1)
[D]: Original set sensor (x1)
[E]: Feed cover sensor (x1)
[F]: Bottom plate HP sensor (x1)
[G]: Pick-up roller HP sensor ((x1)
[H]: Bottom plate position sensor (x1)

3.13.11 BOTTOM PLATE LIFT MOTOR



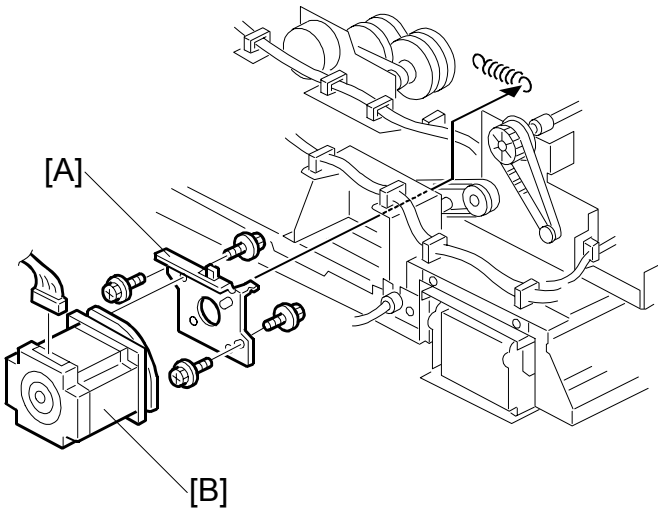
Open the feed cover.

⟹ Rear cover (☛ 3.13.1)

[A]: Bottom plate lift motor bracket (harness x1, x1, x2, timing belt x1)

[B]: Bottom plate lift motor (x2)

3.13.12 FEED MOTOR

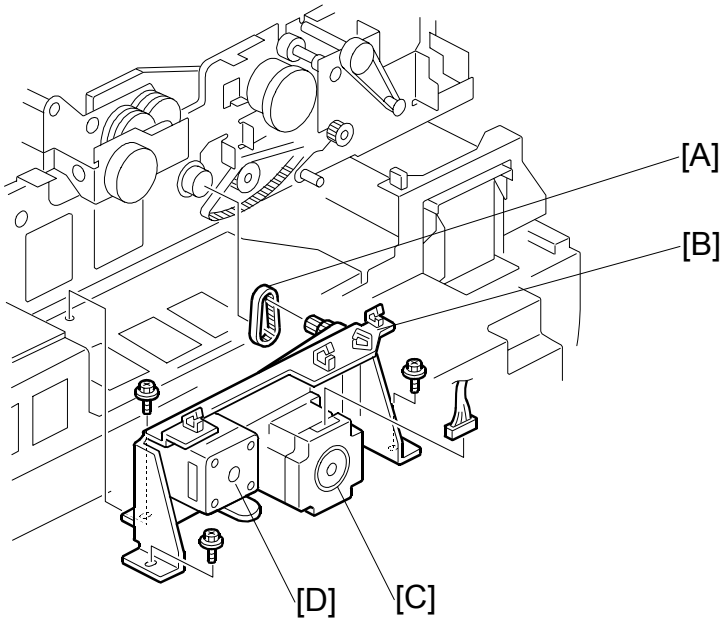


⟹ Rear cover (☛ 3.13.1)

[A]: Feed motor bracket (🔩 x2, ✋ x1, spring x1, belt x1)

[B]: Feed motor (🔩 x2)

3.13.13 EXIT MOTOR AND TRANSPORT MOTOR



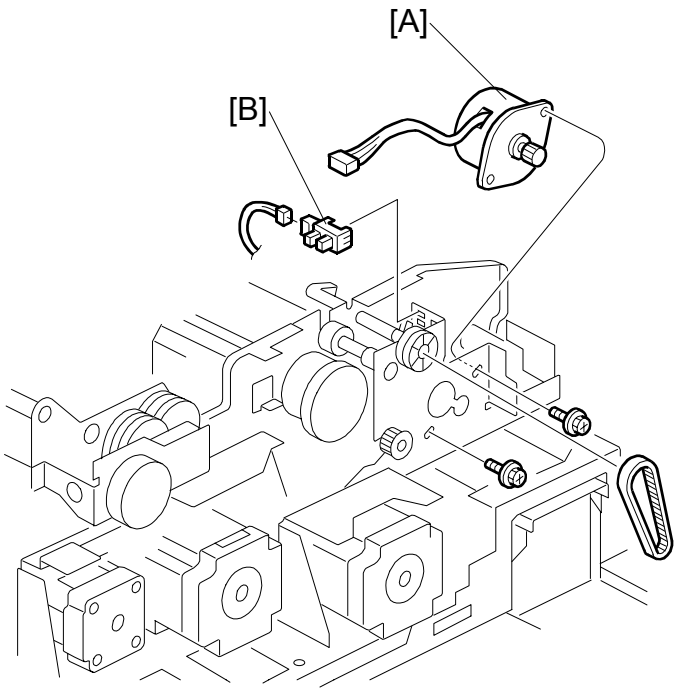
⟹ Open the feed cover.

⟹ Rear cover (☛ 3.13.1)

Bottom plate lift motor (☛ 3.13.11)

[A]: Timing belt
[B]: Exit/transport motor unit (x3, x2)
[C]: Transport motor (x2)
[D]: Exit motor (x2)

3.13.14 PICK-UP ROLLER MOTOR AND HP SENSOR

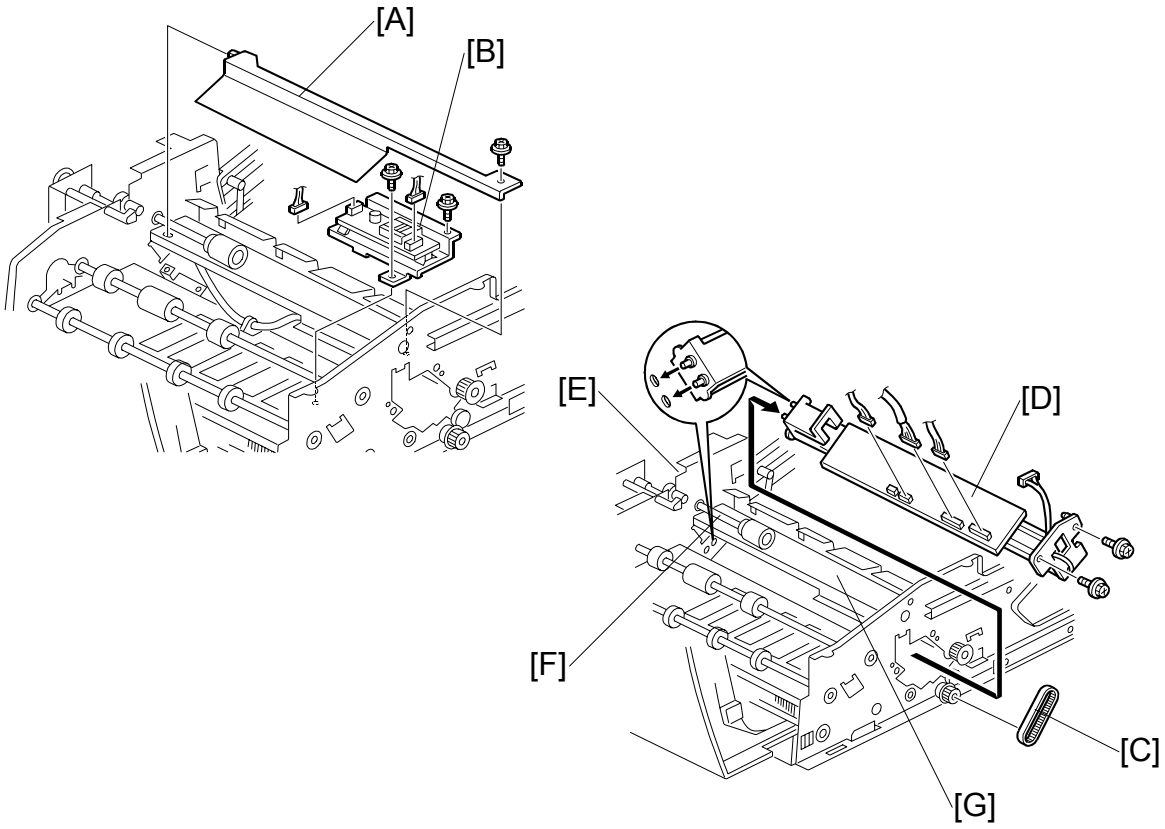


Open the feed cover.

⟹ Rear cover (☛ 3.13.1)

[A]: Pick-up roller lift motor (🔩 x2, ✋ x1)
[B]: Pick-up roller HP sensor (✋ x1)

3.13.15 CIS POWER SUPPLY BOARD AND CIS UNIT



⚠WARNING

Turn off the main power switch (☛ 1.1.5) **and unplug the machine before performing this procedure.**

Open the feed cover.

⟹ Feed unit (☛ 3.13.2)

⟹ Guide plate (☛ 3.13.5)

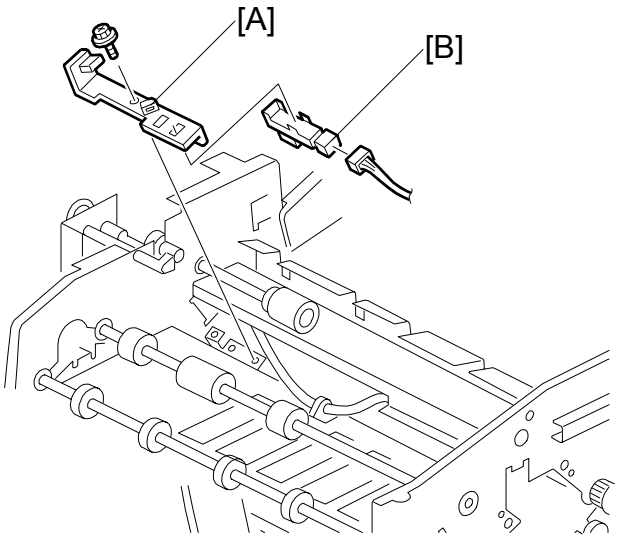
NOTE: To avoid an accidental static discharge which could damage the circuits of the CIS power supply board, touch a metal surface before touching the board.

[A]: Guide plate mylar (☞ x1)
[B]: CIS power supply board (☞ x2, 🖑 x2)
[C]: Timing belt
[D]: CIS unit (☞ x2, 🖑 x3)

- Remove the CIS unit carefully to avoid scratching the glass.

NOTE: If you experience difficulty re-installing the CIS unit, you can remove the two drive gears [E] (ℂ x1), the separation roller shaft [F] (ℂ x2), and cross-stay [G] (☞ x4).

3.13.16 ADF EXIT SENSOR



⟹ CIS Power Supply Board (☛ 3.13.15)
[A]: Exit sensor bracket (🔩 x1)
[B]: Exit sensor (✋ x1)

3.14 COPY IMAGE ADJUSTMENTS: PRINTING/SCANNING

These adjustments must be performed after replacing any of the following parts:

- Scanner wires
- Lens block
- Scanner motor
- Polygon motor
- Tandem tray side fences
- Memory All Clear

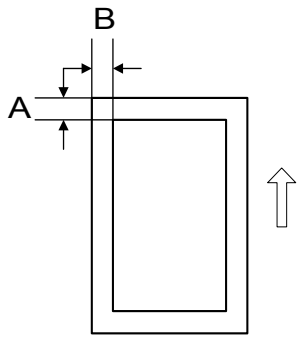
3.14.1 PRINTING

1. Make sure paper is installed correctly in each paper tray before you start these adjustments.
2. ⇒ Use the Trimming Area Pattern (SP2-902-3, No. 18) to print the test pattern for the following procedures.
3. After completing these printing adjustments, be sure to set SP 2-902-3 to 0 again.

Registration - Leading Edge/Side-to-Side

1. Check the leading edge registration, and adjust it using SP1-001.
   Specification: 3 ± 2mm.
2. Check side-to-side registration for each paper feed station, and adjust with the following SP modes.

	SP mode	Specification
Tray 1 (Tandem Tray)	SP1002 001	0±1.5
Tray 2 (Universal Tray)	SP1002 002	
Tray 3 (Universal Tray)	SP1002 003	
Tray 4	SP1002 004	**Japan Only**
By-pass Tray	SP1002 005	0±1.5
LCT	SP1002 006	0±1.5
Duplex Tray	SP1002 007	0±1.5



Blank Margin

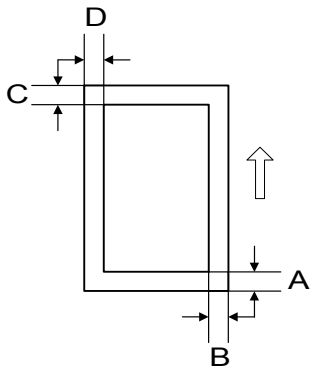
NOTE: If the leading edge/side-to-side registration cannot be adjusted within specifications, adjust the leading/left side edge blank margin.

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

SP2101 Print Erase Margin

	SP mode	Specification
Leading Edge	SP2101 001	2.5±2 mm
Trailing Edge	SP2101 002	
Left edge	SP2101 003	2±1.5 mm
Right edge	SP2101 004	

A: Trailing edge blank margin
B: Right edge blank margin
C: Leading edge blank margin
D: Left edge blank margin



Registration Buckle Adjustment

When the customer is using special paper, buckle adjustment may be required if paper feed problems arise.

- If the buckle is too *large*, this can cause wrinkling, creasing, or Z-fold jams caused by sheets overtaking the sheets ahead of them in the paper path.
- If the buckle is too *small*, this can cause jams at the registration roller or skew during paper feed.

1. Enter the SP mode.
2. Open SP1003.
   - To prevent wrinkling, creasing, or Z-fold jams, set a *smaller* value.
   - To prevent jams at the registration roller or to eliminate skew, set a *larger* value.

SP1003 001	Registration Buckle Adjustment – Tray, LCT
SP1003 002	Registration Buckle Adjustment – Duplex Tray
SP1003 003	Registration Buckle Adjustment – By-pass Tray

Adjustment range	-9 mm ~ +9 mm (small ~ large buckle)
Initial value	0 mm (Buckle = 10 mm)

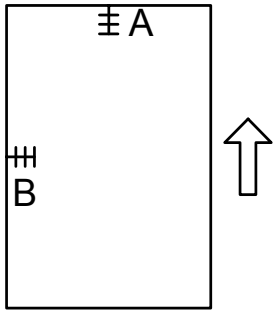
3.14.2 SCANNING

Before doing the following scanner adjustments, perform or check the printing registration/side-to-side adjustment and the blank margin adjustment.

NOTE: Use an S-5-S chart to perform the following adjustments.

Registration: Platen Mode

1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the leading edge and side-to-side registration, and adjust them with the following SP modes if necessary.



A: Leading Edge Registration
B: Side-to-side Registration

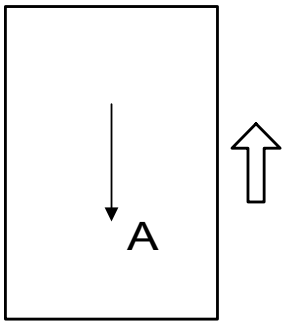
SP No.	Name	Initial	Comment
SP4010	Scanner Leading Edge Registration	0	A positive value shifts the image away from the leading edge, a negative value shifts it toward the leading edge.
SP4011	Scanner Side-to-Side Registration	0	A positive value shifts the image toward the right edge, a negative value shifts it toward the left edge.

Magnification

Use an OS-A3 test chart to perform the following adjustment.

Main Scan Magnification

1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check magnification, and then SP2909 001 (Main Scan Magnification - Copy) to adjust magnification if required. Specification: ±2%.



A: Main scan magnification

Sub Scan Magnification

1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the magnification ratio. Use SP4008 (Scanner Sub Scan Magnification) to adjust if necessary. Specification: ±0.9%.

3.14.3 ADF SCANNING ADJUSTMENTS

Vertical Black Lines

Vertical black lines in scanned images may be caused by dust or scratches on the ADF exposure glass. If the problem cannot be solved by cleaning the ADF exposure glass, execute SP4018 (Scanner Optical Axis Adjustment).

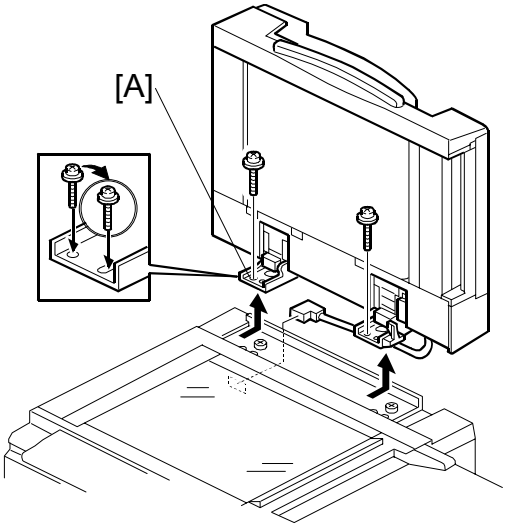
1. Adjust the scanner stopping position with SP 4018 003 (just input a new value).
2. Store this value in the machine with SP 4018 004.
3. Adjust the ADF registration for the front side scan with SP 6006 003.
4. Make a test copy to check that the problem has been solved.

DIP Switch Settings (ADF Main Board)

SW 101				Operation Mode
1	2	3	4	
OFF	OFF	OFF	OFF	I/F Operation
ON	OFF	OFF	OFF	Free run (Simplex: each sheet stopped for registration)
OFF	ON	OFF	OFF	Free run (Simplex: continuous scanning)
ON	ON	OFF	OFF	Free run (Duplex: no registration) SP6009 (ADF Free Run)
ON	OFF	ON	OFF	Not used.
OFF	ON	ON	OFF	
ON	ON	ON	OFF	
OFF	OFF	OFF	ON	
ON	OFF	OFF	ON	Free run (Entrance mode[*1], simplex, no registration)
OFF	ON	OFF	ON	Free run (Entrance mode, simplex, continuous scanning)
OFF	ON	ON	ON	Motor test (feed, transport, exit motors)

[*1]: The entrance mode disregards paper size. Skew correction is performed at the scanning roller.

ADF Skew Correction



If the skew with A4 SEF paper is more than 0.5/200 mm in the main scan direction, you can adjust the position of the ADF hinge [A] or adjust the appropriate SP codes below.

	6006	ADF Registration Adjustment		
		001	ADF Horizontal Registration (Front)	Adjusts the side-to-side registration for the front/back in ADF mode. [-3~+3/**0**/0.1 mm]
⇒		002	ADF Horizontal Registration (Back)	
		003	ADF Vertical Registration (Front)	Adjusts the vertical registration for the front/back in ADF mode. [-5~+5/**0**/0.1 mm]
⇒		004	ADF Vertical Registration (Back)	
		005	ADF Buckle Adjustment 1	Adjusts the roller timing at the skew correction sensor/entrance roller. A higher setting causes more buckling. [-3.0~+3.0/**0**/0.1mm]
		006	ADF Buckle Adjustment 2	Adjusts the roller timing at the interval sensor/scanning roller. A higher setting causes more buckling. [-5.0~+5.0/**0**/0.1mm]
		007	ADF Trailing Edge Erase Margin (Front)	These settings adjust the erase margin for the trailing edges for the front/back. [-10~+10/**0**/0.5 mm].
		008	ADF Trailing Edge Erase Margin (Back)	

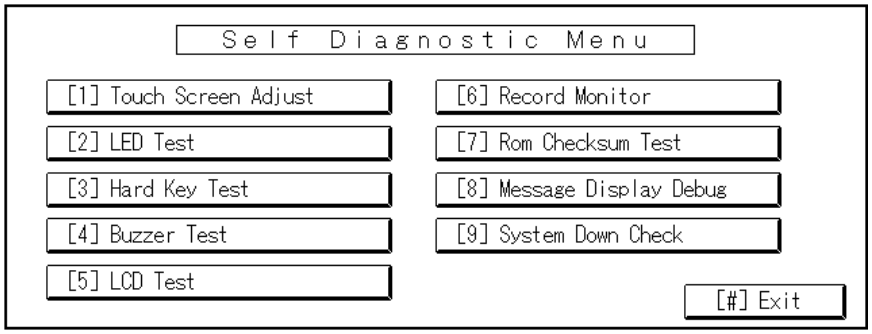
NOTE: Normally, the interval sensor detects the leading edge of small originals (B6, A5, HLT), or originals for duplex copying, and delays the start of the scanning roller for the prescribed number of pulses to buckle the paper and correct skew. This feature can be switched on for all paper sizes with SP6020 (ADF Contact Mode In/Out). However, switching this feature on for all sizes reduces scanning speed slightly.

3.15 TOUCH SCREEN CALIBRATION

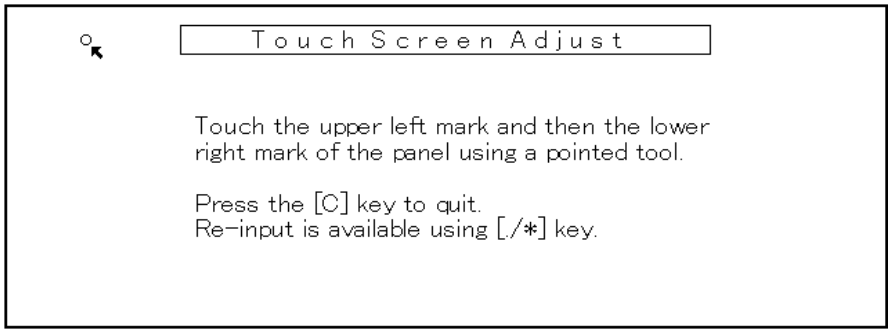
After clearing the memory, or if the touch screen detection function is not working correctly, follow this procedure to calibrate the touch screen.

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

1. Press [⚙], press ①⑨⑨③, and then press C/⊘ 5 times to open the Self-Diagnostics menu.



2. On the touch screen press “Touch Screen Adjust” (or press ①).



3. Use a pointed (not sharp!) tool to press the upper left mark ○↖.
4. Press the lower right mark ↘○ after it appears.
5. Touch a few spots on the touch screen to confirm that the marker (+) appears exactly where the screen is touched.
   If the + mark does not appear where the screen is touched, press Cancel and repeat from Step 2.
6. When you are finished, press [#] OK on the screen (or press #).
7. Touch [#] Exit on the screen to close the Self-Diagnostic menu and save the calibration settings.

⇒ 3.16 OPC DRUM CHANGE

The OPC drum has been changed as follows:

3.16.1 REASON FOR CHANGE:

1. Changing over to environmentally-friendly materials:

As of the end of February 2004, the use of the organic solvent dichloromethane for the OPC drum production process was discontinued as part of Ricoh's ongoing efforts, through the expanding application of in-house environmental management standards, to eliminate the use of environmentally sensitive materials in the manufacturing process.

Important Note: It is necessary to apply setting powder when installing the new drum (See ***Application Procedure*** below).

2. Increasing the drum yield:

The yield of the OPC drum has been increased from (360K to 700K) by using a thicker surface layer.

3.16.2 AFFECTED DRUMS AND MODELS:

To distinguish the drums from before and after this change, the drum lot numbers will be changed as follows.

Lot Number Change:

Old: XXXXXXXXXXXX (12 digits)

New: L XXXXXXXXX

Space

3.16.3 IMPORTANT NOTE FOR INSTALLATION OF THE NEW DRUM:

Since the smoothness of the new drum (without dichloromethane) is reduced, it is essential to make sure and apply Drum Setting Powder (P/N: 54429101) to the drum surface as shown below before installing. See *Application Procedure* below.

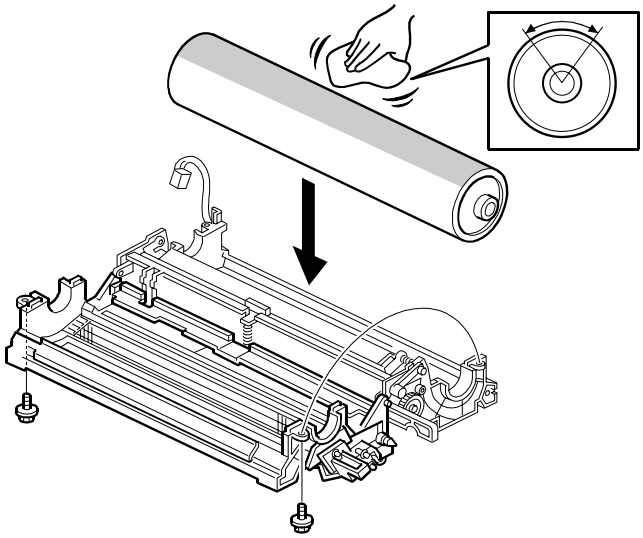
NOTE: *If the setting powder is not applied, the drum's cleaning blade may turn outward, causing a drum cleaning failure.*

Application Procedure for Drum Setting Powder

1. Apply the setting powder (P/N 54429101) to the drum by tapping the powder bag across the surface area shown in the illustration below, i.e. spanning the entire length of the drum but covering about a 45-90 degree portion (up to 1/4) of the total surface.

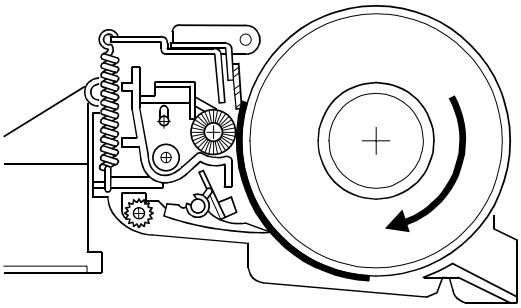
NOTE:

- *Be sure to apply enough powder to give the area a moderate dusting (so that the area turns white).*
- *If setting powder is not available, please apply waste toner as a substitute in the same manner described above (waste toner is charged and will be attracted to the drum surface). Please note that a dirty background may occur, but be sure to apply the waste toner if there is no setting powder available.*



2. Install the new drum in the OPC unit so that the powdered area (in bold below) faces the cleaning blade.
3. Rotate the drum once along its normal rotational direction (arrow shown below), so that it stops again at the same position.

NOTE: *Be sure not to rotate the drum in the opposite direction.*



After replacing the drum, do the following SPs:

- Set SP2001 001 (Charge Roller Bias Adjustment – Applied Voltage for Image Processing) to the default.
- SP2962 (Adjustment of Drum Conditions), only if SP3901 (Auto Process Control) is on.

TROUBLESHOOTING

4. TROUBLESHOOTING

4.1 IMPORTANT SP MODES

⇒ SP2902	Test Patterns	SP2902-001 ~ 004 will be used to produce both scan and printer test patterns to aid in troubleshooting.
SP5802	Free Run Mode	Execute this SP to force base engine to run in the free run mode for testing.
SP5803	Input Check	Displays the signals received from sensors and switches. Refer to the detailed tables in “5. Service Tables”.
SP5804	Output Check	Switches electrical components one by one for testing. Refer to the detailed tables in “5. Service Tables”.
⇒ SP5990	SMC Print	Execute this SP to print the system parameter and data lists (SMC Report). Individual reports or all reports may be printed using the appropriate SP Mode (SP 5990.00x).
SP7801	ROM Version Display.	Displays the version number of the main machine and connected peripherals.
SP7832	Self-Diagnostic Result Display	Execute this SP to display a list of error codes. No errors have occurred if nothing is displayed.
SP7911	Firmware Version	Displays the current numbers of all versions of the firmware in the system.
SP7990	Status of Issued SC	Execute to display the following information about the most recently issued SC: 1) Source file name, 2) SC number, 3) Result

NOTE: For more information about these and other SP Modes, see “5. Service Tables”.

4.2 PROGRAM DOWNLOAD

4.2.1 OVERVIEW

Here are some important points to keep in mind when downloading software:

- If an error interrupts download processing, the machine cannot operate normally with the program software only partially downloaded.
- When download processing execution starts, “Downloading…” is displayed and when downloading has completed successfully, the message is cleared.
- If the download is interrupted when the “Downloading …” message is displayed, the machine does not attempt a re-try.
- The program that downloads firmware from an IC card is part of the GW controller software. If downloading this software is interrupted, the program stored in the machine may be corrupted. Because of this, it may not be possible to restart the downloading program. (In addition, if the GW controller software cannot be downloaded, other software on other IC cards cannot be downloaded.) However, it may be possible to restart the program without replacing the board by setting DIP SW 1 on the controller to ON, and re-starting.

4.2.2 RECOVERY METHODS

When an error occurs during downloading, an error code is displayed on the operation panel.

- If the download procedure can be re-started, re-start the download procedure.
- If the download procedure cannot be downloaded for other than the GW controller, replace the board where the downloaded program is stored.
- If the download procedure cannot be downloaded for the GW controller, set DIP SW 1 to ON. Power the machine off and on to start the downloading program. After downloading has completed, set the DIP SW to OFF then power the machine off and on again.

4.2.3 DOWNLOAD ERROR CODES

	Display	Details	Recovery
01	Reboot after card insert E01 ↕ Module ID Card No. xx/xx	Controller ROM update error 1 When the update break data is stored in NVRAM, the break module information and the decompression module capable of writing do not match.	• Use the correct card
02	Download Error E02 Power off/on	Controller ROM update error 2. Error occurs during ROM update program initialization.	• Cycle the machine off/on to rewrite
03	Download Error E03 Power off/on	Controller ROM update error 3 The ROM for the write operation does not exist.	• Cycle the machine off/on • Install the missing ROM DIMM
04	Download Error E04 Power off/on	Controller ROM update error 4 GZIP data confirmation fails. (CRC value check)	• Cycle the machine off/on • Set DIP SW 1 to ON and retry • Replace RAM DIMM • Replace controller board
05	Download Error E05 Power off/on	Controller ROM update error 5 Error occurs when writing to the device.	• Cycle the machine off/on • Set DIP SW 1 to ON and retry • Replace RAM DIMM • Replace controller board
19	Download Error E19 Power off/on	Controller ROM update error 6 Schedule data is unclear.	• Software defective
20	Down Error E20 Power Off/On	System error 1 (+SC991) The physical address cannot be mapped. Software/hardware is defective	• Cycle the machine off/on and re-try • Replace controller board
21	Download Error E21 Power Off/On	System error 2 (+SC991) There is not sufficient memory to download.	• Cycle the machine off/on and re-try. • Replace RAM • Replace the controller board
22	Download Error E22 Module ID Card No xx/xx	System error 3 (+SC991) Data fails to decompress. Card defective.	• Cycle the machine off/on and re-try. • Replace card • Replace controller board
	SC991	System error 4 “Selfupdate” does not execute. Software defective.	• Cycle the machine off/on and re-try • Set DIP SW 1 to ON and re-try • Replace the controller board

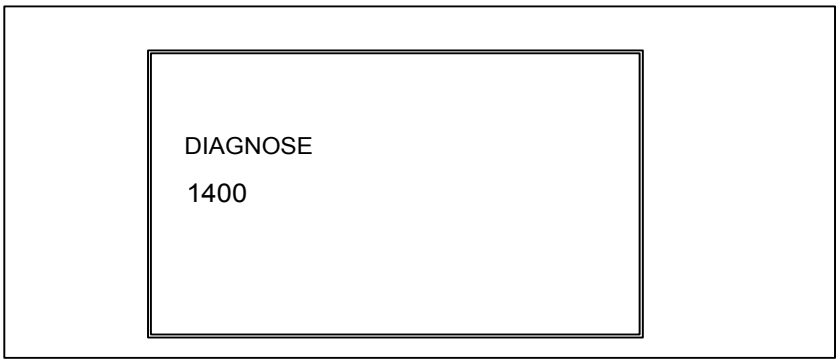
Trouble-shooting

	Display	Details	Recovery
23	Download Error E24 Power Off/On	System error 5 Card read/write error. Software or card defective.	• Cycle the machine off/on and re-try • Replace the card • Replace the controller board
30	No Valid Data E30	Download disfunction 1 Print download is not possible. Cannot download to HDD because HDD not installed or defective.	• HDD defective • HDD harness disconnected, defective
31	Reboot After Card Insert E31 Module ID Card No. xx/xx	Download disfunction 2 Download continuity error with more than one card. The second or later card is not compatible.	• Set the correct cards in the correct order
32	Reboot After Card Insert E32 Module ID Card No. xx/xx	Download disfunction 3 Download interrupted because card is not correct, or power failure interrupted download.	• Use the correct card • If power failure caused the failure, remove the card and insert another.
33	No Valid Data E33	Download disfunction 4 Card version error. Attempted to download program using a card with the wrong version number.	• Use the correct card
34	No Valid Data E34	Download disfunction 5 Specification error. DOM card set in EXP machine, or vice versa.	• Use the correct card
35	No Valid Data E35	Download disfunction 6 Wrong model. The inserted card is for another model.	• Use the correct card
36	No Valid Data E36	Download disfunction 7 Module error. The program that you are attempting to download does not exist on the machine, or the contact points at the card and the machine slot are not connected.	• Use the correct card, inserted correctly • Install a ROM DIMM if none is installed
37	No Valid Data E37	Download disfunction 8 Edit option card error. You attempted to employ a used card.	• Use an unused card
40	Download Error E40 Module ID Card No. xx/xx	Download result failure 1 Engine download failure.	• Cycle the machine off/on and re-try
41	Download Error E41 Module ID Card No. xx/xx	Download result failure 2 Fax download failure.	• Cycle the machine off/on and re-try
42	Download Error E42 Module ID Card No. xx/xx	Download result failure 3 Operation panel or language download failed. For this error, sometimes the message may not be displayed.	• Cycle the machine off/on and re-try
43	Download Error E43 Module ID Card No. xx/xx	Download result failure 4 Print download failed.	• Cycle the machine off/on and re-try

4.3 CONTROLLER BOARD SELF-DIAGNOSTIC TEST

To start the self-diagnostic test:

1. Switch the machine off.
   NOTE: If the Centronics interface is installed on the controller, attach the Centronics loopback connector.
2. Press and hold down #*.
3. Switch the machine on. The initial screen is displayed.



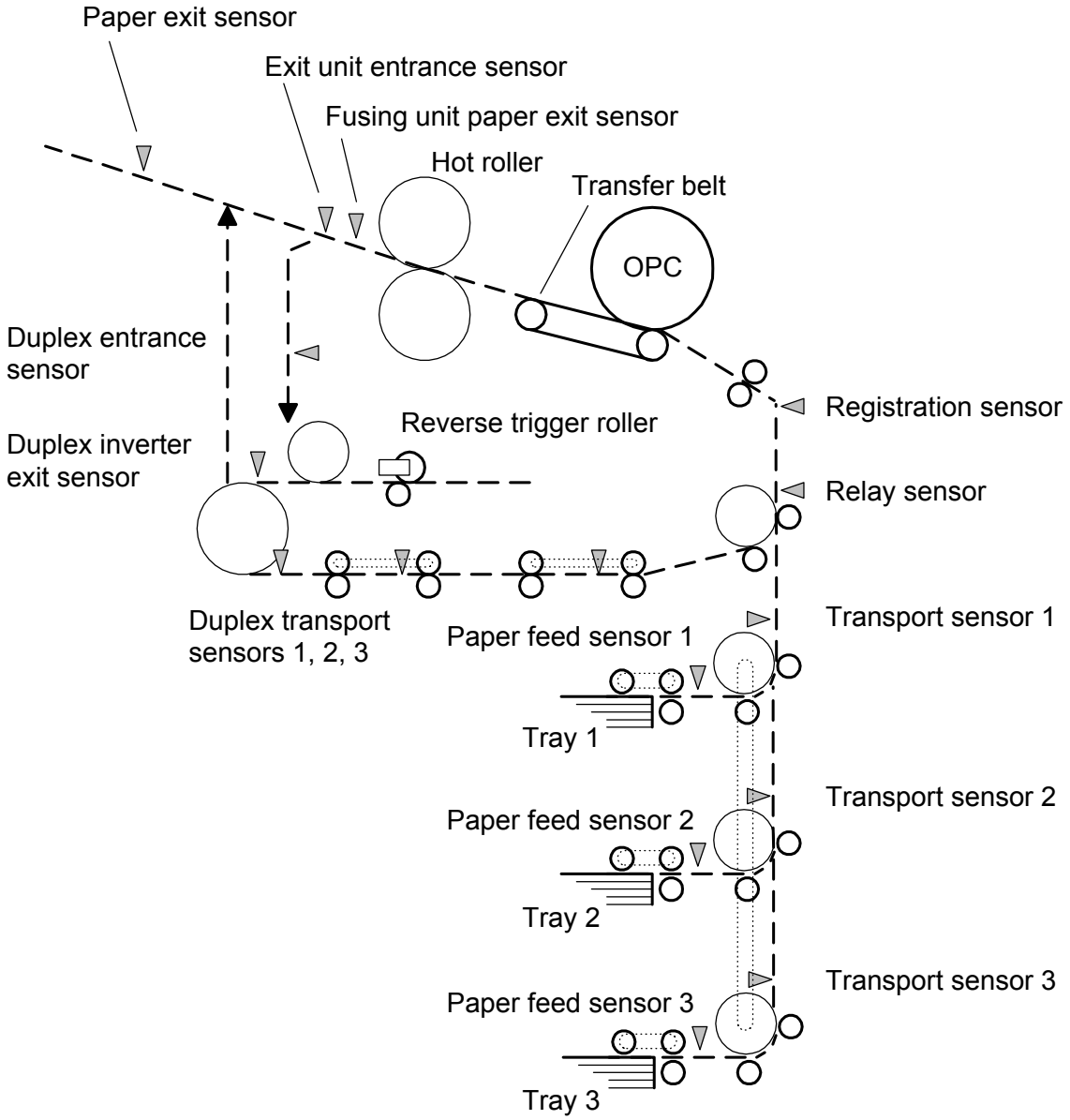
   - When the test ends, a self-diagnostic test report prints automatically. The size of the paper, index, and counter print are selected automatically at the same time. The paper size selection priority is as follows:
     A4 LEF → A4 SEF → LT LEF → LT SEF → B4 → LG → A3 → DLT
   - If paper is not available for the printed report, the machine automatically returns to normal operation mode. After supplying paper to the machine, execute SP5990 005 to print the report. (The report does not print by cycling the machine off and on.)
4. After the report prints, cycle the machine off and on.

4.4 JAM DETECTION

4.4.1 SENSOR LOCATIONS

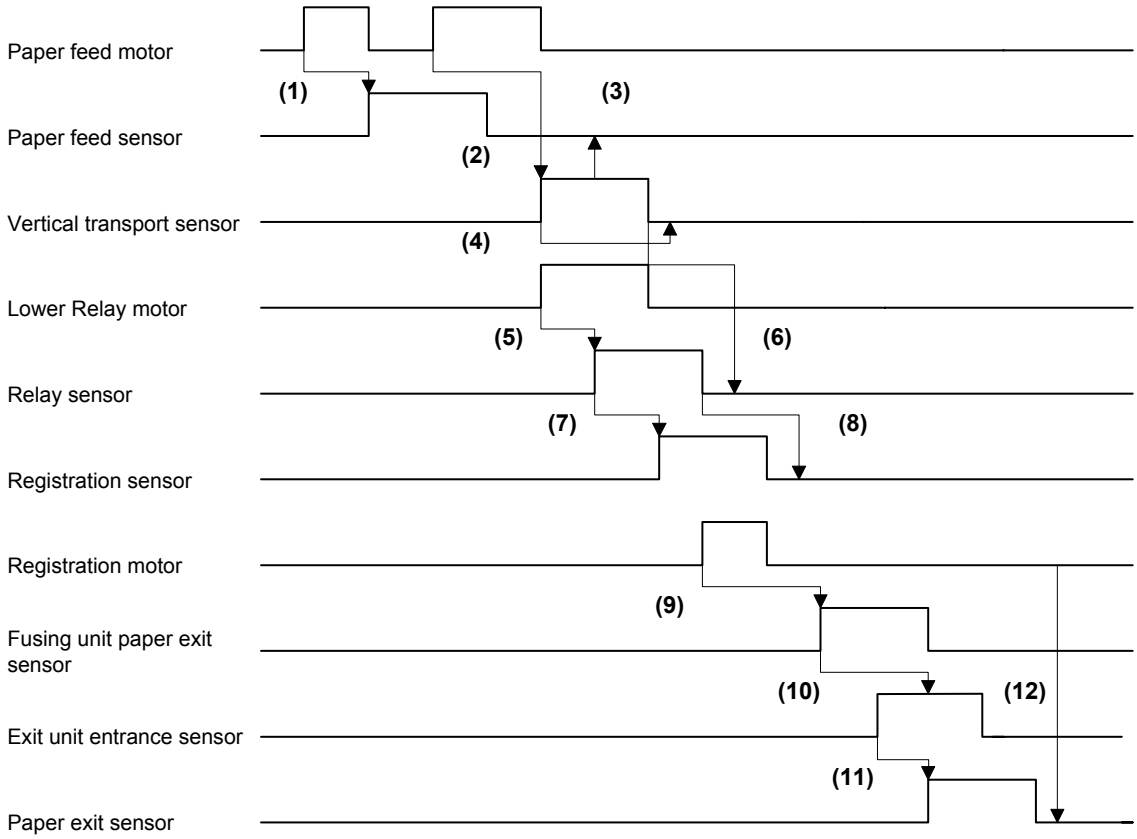
The flashing portion of the jam position display on the operation panel indicates the location of the paper jam, then lights if any paper remains after jam removal. However, paper may remain in the paper path at locations other than where the jam was removed.

The illustration below shows the locations of the jam sensors.



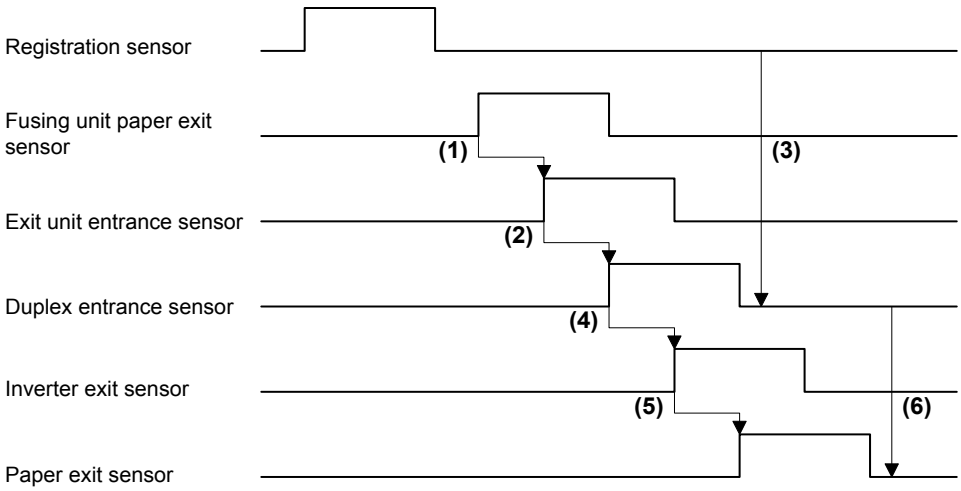
4.4.2 TIMING CHARTS

Feed, Transport, Feed Out: Face-up



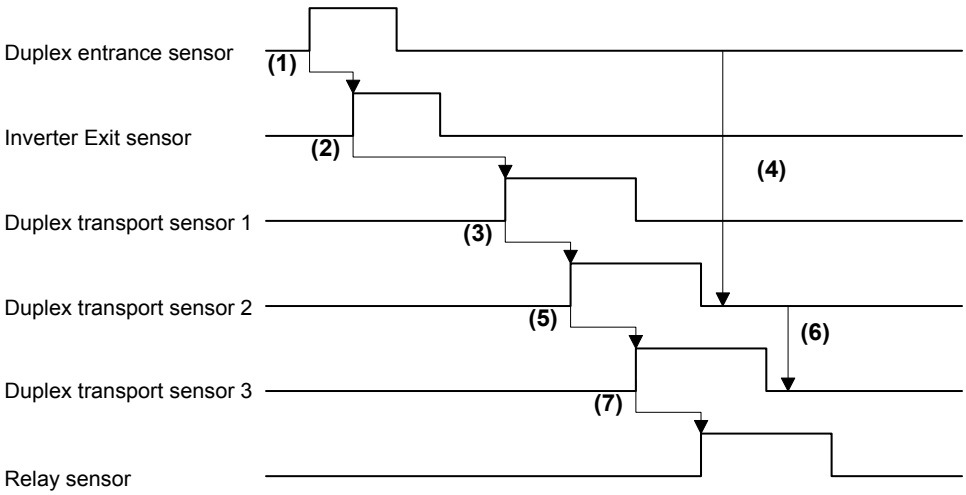
(1): Paper feed motor ON ➔ Paper feed sensor does not switch ON at the correct time.
(2): Paper feed motor ON ➔ Vertical transport sensor does not switch ON at the correct time.
(3): Vertical transport sensor ON ➔ Paper feed sensor does not switch OFF at the correct time.
(4): Vertical transport sensor ON ➔ Vertical transport sensor does not switch OFF at the correct time.
(5): Lower relay motor ON ➔ Relay sensor does not switch ON at the correct time.
(6): Vertical transport sensor OFF ➔ Relay sensor does not switch OFF at the correct time.
(7): Relay sensor ON ➔ Registration sensor does not switch ON at the correct time.
(8): Relay sensor OFF ➔ Registration sensor does not switch OFF at the correct time.
(9): Registration motor ON ➔ Fusing unit paper exit sensor does not switch ON at the correct time.
(10): Fusing unit paper exit sensor ON ➔ Exit unit entrance sensor does not switch ON at the correct time.
(11): Exit unit entrance sensor ON ➔ Paper exit sensor does not switch ON at the correct time.
(12): Registration motor OFF ➔ Paper exit sensor does not switch OFF at the correct time.

Transport, Inverter, Feed Out: Face-down



(1): From the registration sensor to the fusing unit exit, jam detection is the same as face-up feed out.
(2): Exit unit entrance sensor ON ➔ Duplex entrance sensor does not switch OFF at the correct time.
(3): Registration sensor OFF ➔ Duplex entrance sensor does not switch OFF at the correct time.
(4): Duplex entrance sensor ON ➔ Inverter exit sensor does not switch OFF at the correct time.
(5): Inverter exit sensor ON ➔ Paper exit sensor does not switch ON at the correct time.
(6): Duplex entrance sensor OFF ➔ Paper exit sensor does not switch OFF at the correct time. (Paper remains at the duplex unit exit.)

Duplex Transport



(1): Duplex entrance sensor ON ➔ Inverter exit sensor does not switch ON at the correct time.
(2): Inverter exit sensor ON ➔ Duplex transport sensor 1 does not switch on at the correct time.
(3): Duplex transport sensor 1 ON ➔ Duplex transport sensor 2 does not switch on at the correct time.
(4): Duplex entrance sensor ON ➔ Duplex transport sensor 2 does not switch OFF at the correct time.
(5): Duplex transport sensor 2 ON ➔ Duplex transport sensor 3 does not switch ON at the correct time.
(6): Duplex transport sensor 2 OFF ➔ Duplex transport sensor 3 does not switch OFF at the correct time.
(7): Duplex transport sensor 3 ON ➔ Relay sensor does not switch on at the correct time.

4.5 SERVICE CALL CONDITIONS

4.5.1 SUMMARY

There are 4 levels of service call conditions.

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

NOTE: 1) If the problem concerns electrical circuit boards, first disconnect then reconnect the connectors before replacing the PCBs.
2) If the problem concerns a motor lock, first check the mechanical load before replacing motors or sensors.
⟹ 3) When a Level A or B SC occurs while in an SP mode, the display does not indicate the SC number. If this occurs, check the SC number after leaving the SP mode.

4.5.2 SC CODE DESCRIPTIONS

Scanning System

SC No.		Symptom	Possible Cause
101	C	Exposure Lamp Error	
		At trigger on, the lamp was not detected on.	• Exposure lamp defective • Lamp regulator defective • Exposure lamp connector defective • Dirty standard white plate • Dirty scanner mirror or scanner mirror out of position • SBU board defective • SBU connector defective • IPU defective
120	B	Scanner home position error 1	
		The scanner HP sensor does not detect the on condition during initialization or copying.	• BCU, SDRB (Scanner Driver Board) defective. • Scanner motor defective • Harness between BCU, SDRB, scanner motor disconnected. • Scanner HP sensor defective. • Harness between scanner HP sensor and BCU disconnected. • Scanner wire, timing belt, pulley, carriage installation incorrect.
121	B	Scanner home position error 2	
		The scanner HP sensor does not detect the off condition during initialization or copying.	• BCU, SDRB (Scanner Driver Board) defective. • Scanner motor defective. • Harness between BCU, SDRB, scanner motor disconnected. • Scanner HP sensor defective. • Harness between scanner HP sensor and BCU disconnected. • Scanner wire, timing belt, pulley, carriage installation incorrect.
122	B	Scanner home position error 3	
		The scanner home position sensor does not detect the on condition during original scanning.	• BCU, SDRB (Scanner Driver Board) defective. • Scanner motor defective. • Harness between BCU, SDRB, scanner motor disconnected. • Scanner HP sensor defective. • Harness between scanner HP sensor and BCU disconnected. • Scanner wire, timing belt, pulley, carriage installation incorrect.

SC No.		Symptom	Possible Cause
123	B	Scanner home position error 4	
		The scanner home position sensor does not detect the off condition during original scanning.	• BCU, SDRB (Scanner Driver Board) defective. • Scanner motor defective. • Harness between BCU, SDRB, scanner motor disconnected. • Scanner HP sensor defective. • Harness between scanner HP sensor and BCU disconnected. • Scanner wire, timing belt, pulley, carriage installation incorrect.
143	D	SBU auto adjust error	
		Automatic adjustment of the SBU fails when the machine is switched on.	• Exposure lamp defective. • Exposure lamp regulator defective. • Harness between exposure lamp and lamp regulator is disconnected. • White plate installed incorrectly or is dirty. • Scanning mirrors of the exposure unit are dirty or out of position. • SBU board defective. • VIB board defective. • Harness between SBU, VIB disconnected. • Harness between VIB, BCU disconnected. • IPU defective • BCU defective
144	B	SBU transmission error	
		After the SBU switches on, the BCU detects one of the following conditions on the SBU: • 1 s after power on, the SYDI signal does not go high, even after 1 retry. • 1 s after power on, the SYDI signal goes high, but the SBU ID could not be read after 3 attempts.	• SBU defective. • VIB defective • Harness (40-pin shielded) between the SBU, VIB is disconnected. • Harness (shielded cable) between the VIB, BCU is disconnected. • IPU defective
181	C	CIS lamp abnormal	
		After the CIS lamp trigger goes on, the CIS lamp is not detected on. Detecting the lamp on or off determines the peak white level value for shading correction. (If the peak level is determined to be below a certain level, the CIS lamp is judged to be off.)	• CIS lamp defective. • CIS power supply board defective. • Harness between lamp and power supply board is disconnected. • Harness between CIS, ADF is disconnected. • CIS exposure glass dirty. • White roller dirty or installed incorrectly. • CIS unit defective. • PSU defective

SC No.		Symptom	Possible Cause
183	D	CIS auto adjust error	
		Automatic adjustment of the CIS unit failed.	• CIS unit defective. • CIS exposure glass dirty. • White roller dirty or installed incorrectly. • PSU power supply (+5V, –12V) is abnormal. • IPU defective
184	C	CIS transmission error	
		When the CIS is powered on, the ADF detects one of the following abnormal conditions on the CIS unit: • The SOUT signal does not go high within 1 s after power on. • The SOUT signal goes high within 1 s after power on, but the SBU ID cannot be read after 3 attempts.	• CIS unit defective. • Harness between the CIS, ADF is disconnected. • PSU power (5V) is abnormal. • BCU, IPU defective

Image Development System (1)

SC No.		Symptom	Possible Cause
300	C	Charge corona output error	
		The feedback voltage from the charge corona unit is detected too high 9 times.	• Charge corona power pack defective • Charge corona harness disconnected • Poor charge corona unit connection
303	C	Charge corona grid leak	
		When the high voltage is output to the corona grid, feedback voltage exceeds the prescribed value 9 times.	• Charge corona power pack defective • Charge corona harness disconnected • Poor charge corona unit connection
305	D	Charge corona wire cleaner error 1	
		The charge corona wire cleaner motor is detected: • Motor locks within 4 s after switching on, or does not lock within 30 s. • Motor locks within 10 s after reversing, or does not lock within 30 s.	• Charge corona wire cleaner motor defective • BCU board defective
306	C	Charge corona wire cleaner error 2	
		The current at the charge corona motor is detected less than 83 mA.	• Charge corona wire cleaner motor connector is defective or not connected.

When SC310~SC317 are logged, the machine halts without displaying the SC number. These SC codes log an abnormal condition at the potential sensor only when SP3901 (Auto Process Control) is set to on.

SC No.		Symptom	Possible Cause
310	D	Potential sensor calibration error 1	
		During drum potential sensor calibration, the drum potential sensor output voltage does not meet specification when test voltages (–100V, –800V) are applied to the drum.	• Potential sensor defective • Potential sensor harness disconnected • Potential sensor connector defective or disconnected • BCU defective • OPC connector defective • Development power pack defective
311	D	Potential sensor calibration error 2	
		During drum potential sensor calibration, the drum potential sensor output voltage does not meet specification when test voltages (–100V, –800V) are applied to the drum.	• Potential sensor defective • Potential sensor harness disconnected • Potential sensor connector defective or disconnected • BCU defective • OPC connector defective • Development power pack defective

SC No.		Symptom	Possible Cause
312	D	Potential sensor calibration error 3	
		During drum potential sensor calibration when adjusting the drum potential (VD), the drum potential sensor detects VD higher than VG (grid voltage). -or- When adjusting VD (drum surface potential of black areas after exposure), even after 5 adjustments of VG (charge corona grid potential), VD could not be set in the target range (–800±10 + VL + 130V)	• Potential sensor defective • Potential sensor harness disconnected • Potential sensor connector defective or disconnected • BCU defective • OPC connector defective • Development power pack defective • Charge corona unit worn out, dirty
314	D	Potential sensor calibration error 4	
		During drum potential sensor calibration when adjusting the drum potential (VH) for LD power adjustment, the first time the VH pattern is made, the drum potential sensor detects that VH is more than 500V: VH > |–500 + VL + 130| V	• Potential sensor defective • Potential sensor harness disconnected • Potential sensor connector defective or disconnected • BCU defective • OPC connector defective • LD defective
315	D	Potential sensor calibration error 5	
		During drum potential sensor calibration, when –100V is applied to the drum, the output value is out of the prescribed range.	• Potential sensor defective • Potential sensor harness disconnected • Potential sensor connector defective or disconnected • BCU defective • OPC connector defective • Development power pack defective
316	D	Potential sensor calibration error 6	
		During drum potential sensor calibration, when –800V is applied to the drum, the output value is out of the prescribed range.	• Potential sensor defective • Potential sensor harness disconnected • Potential sensor connector defective or disconnected • BCU defective • OPC connector defective • Development power pack defective
317	D	Potential sensor calibration error 7	
		During drum potential sensor calibration, when VL is adjusted, the pattern surface potential VL pattern is not within range 0V ~ –400V. (VL is the potential after exposing a white pattern.)	• Potential sensor defective • Potential sensor harness disconnected • Potential sensor connector defective or disconnected • BCU defective • OPC connector defective • Charge corona power pack defective • Development power pack defective
321	C	No laser writing signal (F-GATE) error 1	
		The laser writing signal (F-GATE) for the IPU does not go LOW within 60 s.	• IPU board defective • PCI bus between controller board, IPU board defective

SC No.		Symptom	Possible Cause
322	C	Laser synchronization detector error	
		After the polygon motor reaches standard rotation speed and the LD unit fires for 500 ms, the laser synchronization detector does not generate a signal.	• Harness between detector and I/F disconnected or damaged • Detector is installed incorrectly. • Detector board is defective • Controller board defective • IPU board defective • LDB defective
335	C	Polygonal mirror motor error 1	
		The ready signal does not go low within 20 s after the polygonal mirror motor turns on or changes speed of rotation.	• Harness between I/F and polygon motor disconnected or defective • Polygon motor or polygon motor driver defective • IPU board defective
336	C	Polygonal mirror motor error 2	
		The ready signal does not go high within 20 s after the polygonal mirror motor turns off.	• Harness between I/F and polygon motor disconnected or defective • Polygon motor or polygon motor driver defective • IPU board defective
337	C	Polygonal mirror motor error 3	
		The XSCRDY signal goes high while the polygonal mirror motor turns on, even though there was no demand for either turning off the motor or changing the motor speed.	• Harness between the polygon motor and I/F disconnected or defective. • Polygon motor or polygon motor driver defective • IPU board defective
338	C	Polygonal mirror motor error 1	
		During exposure, while the polygon motor is rotating, the XSCRDY signal goes high.	• Harness between the polygon motor and I/F disconnected or defective. • Polygon motor or polygon motor driver defective • IPU board defective
340	D	TD sensor output error	
		TD sensor output voltage (Vt), measured during each copy cycle, is detected 10 times at one of the following levels: Vt = 0.5 volts or lower Vt = 4.0 volts or higher	• TD sensor defective • TD sensor harness disconnected • TD sensor connector disconnected or defective • BCU defective • Toner bottle motor defective **Note:** When the TD sensor is defective, the toner supply is controlled using pixel count and the ID sensor.

SC No.		Symptom	Possible Cause
341	C	TD sensor adjustment error 1	
		During the TD sensor auto adjustment, the TD sensor output voltage (Vt) is 2.5 volts or higher even though the control voltage is set to the minimum value (PWM = 0) When this error occurs, SP2-906-1 reads 0.00V. Note: This SC is released only after correct adjustment of the TD sensor has been achieved. Switching the machine off and on will cancel the SC display, but does not release ID sensor toner supply.	• TD sensor defective • TD sensor harness disconnected • TD sensor connector disconnected or defective • BCU defective • Toner bottle motor defective **Note**: When the TD sensor is defective, the toner supply is controlled using pixel count and the ID sensor.
342	C	TD sensor adjustment error 2	
		During the TD sensor auto adjustment, the TD sensor output voltage (Vt) does not enter the target range (3.0 ± 0.1V) within 20 s. When this error occurs, the indication of SP2-906-1 reads 0.00V. **Note**: This SC is released only after correct adjustment of the TD sensor has been achieved. Switching the machine off and on will cancel the SC display, but does not release ID sensor toner supply.	• TD sensor defective • TD sensor harness disconnected • TD sensor connector disconnected or defective • BCU defective
345	C	Development output abnormal	
		The high voltage applied to the development unit is detected 10 times higher than the upper limit (45%) of PWM.	• Development power pack defective • Development bias connection defective • Development bias connector disconnected or defective
350	C	ID sensor error 1	
		One of the following ID sensor output voltages was detected twice consecutively when checking the ID sensor pattern. Vsp ≥ 2.5V Vsg < 2.5 Vsp = 0V Vsg = 0	• ID sensor defective • ID sensor harness disconnected • ID sensor connector defective • BCU defective • Defect at ID sensor pattern writing • Charge power pack defective • ID sensor dirty
351	C	ID sensor error 2	
		The ID sensor output voltage is 5.0V and the PWM signal input to the ID sensor is 0 when checking the ID sensor pattern.	• ID sensor defective • ID sensor harness disconnected • ID sensor connector defective • BCU defective • Defect during ID sensor pattern writing • Charge power pack defective • ID sensor dirty

SERVICE CALL CONDITIONS

SC No.		Symptom	Possible Cause
352	C	ID sensor error 3	
		For 2 s during the ID sensor pattern check, the ID sensor pattern edge voltage is not 2.5V or the pattern edge is not detected within 800 ms.	• ID sensor defective • ID sensor harness disconnected • ID sensor connector defective • BCU defective • Defect during ID sensor pattern writing • Charge power pack defective • ID sensor dirty
353	C	ID sensor error 4	
		One of the following ID sensor output voltages is detected at ID sensor initialization. • Vsg < 4.0V when the maximum PWM input (255) is applied to the ID sensor. • Vsg ≥ 4.0V when the minimum PWM input (0) is applied to the ID sensor.	• ID sensor defective • ID sensor harness disconnected • ID sensor connector defective • BCU defective • Defect during ID sensor pattern writing • Charge power pack defective • ID sensor dirty
354	C	ID sensor error 5	
		Vsg falls out of the adjustment target (4.0 ± 0.2V) during Vsg checking.	• ID sensor defective • ID sensor harness disconnected • ID sensor connector defective • BCU defective • Defect during ID sensor pattern writing • Charge power pack defective • ID sensor dirty
354	C	ID sensor error 6	
		20 s after the start of automatic adjustment, Vsg cannot be adjusted to target (4.0 ± 0.2V).	• ID sensor defective • ID sensor harness disconnected • ID sensor connector defective • BCU defective • Defect during ID sensor pattern writing • Charge power pack defective • ID sensor dirty

Image Development System (2)

SC No.		Symptom	Possible Cause
401	C	Transfer output abnormal	
		When the transfer is output, the feedback voltage remains higher than 4V for 60 ms.	• Transfer power pack defective • Poor connection between the transfer current terminal and the transfer power pack
402	C	Transfer output abnormal release detection	
		When the transfer is output, there is hardly any feedback voltage within 60 ms even with application of 24% PWM.	• Transfer power pack defective • Transfer unit harness disconnected • Transfer connector disconnected, defective
430	C	Quenching lamp error	
		At the completion of auto process control initialization, the potential of the drum surface detected by the potential sensor is more than –400V, the prescribed value.	• Quenching lamp defective • Quenching lamp harness disconnected • Quenching lamp connector disconnected or defective
440	C	Main motor lock	
		The main motor lock signal remains low for 2 seconds while the main motor is on.	• Too much load on the drive mechanism • Main motor defective
441	C	Development motor lock	
		The development motor lock signal remains high for 2 seconds while the development motor is on.	• Too much load on the drive mechanism • Development motor defective
490	C	Main fan abnormal	
		The main fan motor lock signal goes high for 5 s while the fan is on.	• Too much load on the motor, motor is blocked by something • Fan connector disconnected
495	C	Toner recycling unit error	
		Encoder pulse does not change for 3 s after the main motor switches on.	• Too much load on the drive mechanism • Toner end sensor detective, disconnected
496	C	Toner collection bottle error	
		The toner collection bottle set switch remains off when the front door is closed.	• No toner collection bottle set • Poor connection on the switch connector
497	C	Toner collection motor error	
		The toner collection motor connector set signal remains off for 1 s.	• Toner collection motor defective • Motor connector disconnected

Feed, Transport, Duplexing, and Fusing Systems

SC No.		Symptom	Possible Cause
501	C	Tray 1 lift malfunction	
		• The lift sensor is not activated within 10 seconds after the tray lift motor starts lifting the bottom plate. • Paper height sensor actuator does not move away from the sensor for 4 counts.	• Tray lift motor defective or disconnected • Paper or other obstacle trapped between tray and motor • Pick-up solenoid disconnected or blocked by an obstacle
502	C	Tray 2 lift malfunction	
		• The lift sensor is not activated within 10 seconds after the tray lift motor starts lifting the bottom plate. • Paper height sensor actuator does not move away from the sensor for 4 counts.	• Tray lift motor defective or disconnected • Paper or other obstacle trapped between tray and motor • Pick-up solenoid disconnected or blocked by an obstacle
503	C	Tray 3 lift malfunction	
		• The lift sensor is not activated within 13 s after the tray lift motor starts lifting the bottom plate. • At power on, or when the tray set sensor goes on after tray inserted, the tray continues to lower for 5 s. The motor stops but restarts when the tray is re-inserted.	• Tray lift motor defective or poor connection • Lift sensor defective or poor connection
504	C	Tray 4 lift malfunction	
		Japan only.	
507	C	LCT feed motor malfunction	
		One of the following conditions is detected: • The LD signal from the feed motor is detected abnormal for 50 ms after the motor switches on. • At power on, the motor is detected loose or disconnected.	• Feed motor defective • Feed motor connector disconnected • Obstacle interfering with operation of motor

SC No.		Symptom	Possible Cause
510	C	LCT tray malfunction	
		One of the following conditions is detected: • When the bottom plate is lifted, the upper limit sensor does not come on for 18 s. • When the bottom plate is lowered, the lower limit sensor does not come on for 18 s. • After lift begins, the upper limit sensor does not switch on before the pick-up solenoid switches on. • The paper end sensor switches on during lift and the upper limit sensor does not switch on for 2.5 s, and a message prompts user to reset paper.	• Tray lift motor defective or connector disconnected • Lift sensor defective or disconnected • Pick-up solenoid defective or disconnected • Paper end sensor defective
515	C	Tandem rear fence motor error	
		One of the conditions is detected: • The rear fence does not reach the return position with 10 s after the rear fence motor switches on, or does not return to the HP. • The HP sensor and return sensor switch on at the same time.	• Rear fence motor defective or poor connection • Paper or other obstacle trapped between tray and motor • Motor mechanical overload • Return sensor or HP sensor defective or dirty
520	C	Duplex jogger motor error 1	
		When the jogger fence moves to the home position, the jogger HP sensor does not turn on even if the jogger fence motor has moved the jogger fence 153.5 mm.	• Paper or other obstacle has jammed mechanism • Sensor connector disconnected or defective • Sensor defective
521	C	Duplex jogger motor error 2	
		When the jogger fence moves from the home position, the jogger fence HP sensor does not turn off even if the jogger motor has moved the jogger fence 153.5 mm.	• Paper or other obstacle has jammed mechanism • Sensor connector disconnected or defective • Sensor defective
541	A	Fusing thermistor open	
		• The fusing temperature detected by the thermistor is below 7°C for 35 seconds. • The center thermistor (non-contact) abnormal.	• Thermistor open • Thermistor connector defective • Thermistor damaged or warped • Fusing temperature –15% less than the standard input voltage
542	A	Fusing temperature warm-up error	
		• After power on, or after closing the front door, the hot roller does not reach the 80°C control temperature within 360 s. • After the fusing lamp temperature exceeds 80°C, temperature does not change 2 degrees within 20 s.	• Fusing lamp disconnected • Thermistor warped or installed incorrectly • Thermostat operating

SERVICE CALL CONDITIONS

SC No.		Symptom	Possible Cause
543	A	Fusing lamp overheat error 1 (software)	
		• Central thermistor detected a temperature of 230°C at the center of the hot roller. • End thermistor detected 220°C x 100 ms 5 times at the end of the hot roller.	• PSU defective • BCU defective
544	A	Fusing lamp overheat error 1 (hardware)	
		The BCU detects an overheat error even if the protection in the software does not work.	• PSU defective • BCU defective
545	A	Fusing lamp overheat error 2	
		After hot roller reaches the warm-up temperature, the fusing lamps continued full capacity output for 55 s without the hot roller rotating (for a total of 45s).	• Fusing thermistor out of position
547	B	Zero cross signal malfunction	
		One of the following conditions is detected 10 times: • When the main switch is on, the frequency measured by the number of zero cross signals for 500 ms is larger than 66Hz or smaller than 45 Hz. • The interval between one zero cross signal and the next is 7.5 ms or shorter 3 times consecutively for 500 ms.	• Noise on the ac power line
550	A	Fusing Web End	
		Web end detected 5 times within 500 ms and web motor continues to rotate 40 s. If web end is detected for another 400 ms, then the SC is logged.	• Web end (requires replacement) • Web end sensor defective **Note:** After replacing the web with a new one, reset SP1902 001 to 0 to release SC550.
590	B	Toner collection motor error	
		The toner collection motor sensor output does not change for 3 seconds while the toner collection motor is on.	• Toner collection motor defective • Motor drive defective • Toner collection motor sensor connector defective • Motor overload
599	C	1-bin Exit Motor Error (**should only occur in Japanese models**)	
		The transport lock sensor output does not change within 300 ms after the motor switches on.	• Motor overload • Motor drive defective

Data Communication

SC No.		Symptom	Possible Cause
601	C	Communication error between BCU and scanner unit	
		• BCU does not communicate with scanner unit within 0.8 s after power on. • BCU does not detect a break signal after connecting to scanner unit. • Communication error detected 3 times.	• Serial line connection unstable • External noise on the line
610	C	BCU ⇔ ADF communication/timeout abnormal	
		After 1 data frame is sent to the ADF, an ACK signal is not received within 100 ms, and is not received after 3 retries.	• Serial line connection unstable • External noise on the line
611	C	BCU ⇔ ADF communication/break reception abnormal	
		During communication a break (Low) signal was received from the ADF.	• Serial line connection unstable • Harness disconnected or defective
612	C	BCU ⇔ ADF communication/command abnormal	
		An command that cannot be executed was sent from the main machine to the ADF.	• A software error, result of an abnormal procedure.
620	C	BCU ⇔ ADF communication/timeout error	
		After 1 data frame is sent to the finisher MBX, an ACK signal is not received within 100 ms, and is not received after 3 retries.	• Serial line connection unstable • External noise on the line
621	C	BCU ⇔ Finisher communication/break error	
		During communication with the finisher MBX, the BCU received a break (Low) signal from the finisher.	• Serial line connection unstable • External noise on the line
623	C	BCU ⇔ Tray 1~3 communication/timeout error	
		After 1 data frame is sent to the trays, an ACK signal is not received within 100 ms, and is not received after 3 retries.	• Serial line connection unstable • External noise on the line
624	C	BCU ⇔ Tray 1~3 communication/break reception error	
		During communication with the finisher trays, the BCU received a break (Low) signal.	• Serial line connection unstable • External noise on the line
626	C	BCU ⇔ LCT communication/timeout error	
		After 1 data frame is sent to the LCT, an ACK signal is not received within 100 ms, and is not received after 3 retries.	• Serial line connection unstable • External noise on the line
627	C	BCU ⇔ LCT communication/break reception error	
		During communication with the LCT, the BCU received a break (Low) signal.	• Serial line connection unstable • External noise on the line
630	D	CSS (RSS) communication error between line adapter and CSS center	
		Japan only	

SC No.		Symptom	Possible Cause
632	B	Key/card counter device error 1	
		After 1 data frame is sent to the device, an ACK signal is not received within 100 ms, and is not received after 3 retries.	• The serial line from the device to the copier is unstable, disconnected, or defective.
633	B	Key/card counter device error 2	
		During communication with the device, the BCU received a break (Low) signal.	• The serial line from the device to the copier is unstable, disconnected, or defective.
634	B	Key/card counter device error 3	
		After installation of the device, a message alerts user to a backup RAM error.	• Device control board defective • Device control board backup battery defective
635	B	Key/card counter device error 4	
		After installation of the device a message alerts user to a battery voltage abnormal error.	• Device control board defective • Device control board backup battery defective
640	D	BCU ⇔ Controller data transfer error 1	
		Data is sent from the BCU to the controller, but the transmission causes a checksum error.	• The error is logged but the machine can continue to operate.
641	D	BCU ⇔ Controller data transfer error 2	
		Data is sent from the BCU to the controller, but the transmission causes a frame error.	• The error is logged but the machine can continue to operate.
670	B	Engine startup error	
		• Engine does not respond within 30 s after power on. • Engine down detected suddenly during power on and warmup.	• BCU installation incorrect • BCU defective • Sudden communication reset occurred between the BCU and the controller.
672	B	Controller startup error	
		• After power on the line between the controller and the operation panel does not open for normal operation. • After normal startup, communication with the controller ceases.	• Controller stalled • Controller installed incorrectly • Controller board defective • Operation panel harness disconnected or defective
690	C	GAVD Block 12 bus error	
		The register for this block is set for an error.	• IPU defective
691	C	GAVD FCI Block I2 bus error	
		The register for this block is set for an error.	• IPU defective
692	C	CDIC GAVD Block I2 bus error	
		The register for this block is set for an error.	• IPU defective

Peripherals

SC No.		Symptom	Possible Cause
700	B	ADF original pick-up error 1	
		Pick-up roller HP sensor signal does not change after the pick-up motor has turned on.	• Pick-up roller HP sensor defective • Pick-up motor defective • Timing belt slipping, out of position • ADF main board defective
701	B	ADF bottom plate motor error	
		• Bottom plate position sensor does not detect the plate after the bottom plate lift motor switches on to lift the plate. • Bottom plate HP sensor does not detect the plate after the bottom plate motor reverses to lower the plate.	• Bottom plate position sensor defective • Bottom plate HP sensor defective • Bottom plate motor defective • ADF main board defective
720	B	Finisher transport motor error	
		The encoder pulse of the transport motor does not change state (high/low) within 600 ms and does not change after 2 retries.	• Finisher transport motor defective • Transport motor harness disconnected, or defective • Finisher main board defective
722	B	Finisher jogger motor error	
		• The finisher jogger HP sensor remains de-activated for more 1,000 pulses when returning to home position. • The finisher jogger HP sensor remains activated for more than 1,000 pulses when moving away from home position.	• Jogger HP sensor defective • Jogger mechanism overload • Jogger motor defective (not rotating) • Finisher main board defective • Harness disconnected or defective
724	B	Finisher staple hammer motor error	
		Stapling does not finish within 450 ms after the staple hammer motor switches on and the stapler jams. Stapler is released from the reverse lock status. If the stapler does not operate within 450 ms, even in the reverse lock position, then the SC is logged.	• Staple jam • Stapler operation overload • Staple hammer motor defective • Motor connector disconnected, or defective
725	B	Finisher stack feed-out motor error	
		The stack feed-out belt HP sensor does not activate within the prescribed number of pulses after the stack feed-out motor turns on and does not activate after 2 retries.	• Stack feed-out HP sensor defective • Harness disconnected or defective • Stack feed-out motor defective • Finisher main board defective • Motor overload
726	B	Finisher upper tray lift motor error	
		The paper height sensor does not activate within the prescribed time after the upper tray lift motor turns on, or the sensor remains on after the motor reverses to lower the tray.	• Upper tray paper height sensor defective • Sensor harness disconnected, defective • Tray lift motor defective • Finisher main board defective • Tray lift motor overload

SC No.		Symptom	Possible Cause
727	B	Finisher stapler rotation motor error	
		The stapler motor switches on but the motor does not return to the home position within the prescribed number of pulses. After 2 counts, the SC is logged as a jam.	• Stapler rotation motor defective • Poor stapler rotation motor connection • Stapler rotation sensor defective • Finisher main board defective • Rotation motor overload
729	B	Finisher punch motor error	
		The punch HP sensor does not activate within the prescribed time the punch motor turns on.	• Punch HP sensor defective • Sensor harness disconnected, defective • Punch motor defective • Finisher main board defective • Poor punch motor overload
730	B	Finisher stapler movement motor error	
		The stapler HP sensor does activate within the prescribed time after the stapler motor turns on and moves the stapler away from home position. After 2 counts, the SC is logged as a jam.	• Stapler HP sensor defective • Sensor harness disconnected, defective • Stapler movement motor defective • Finisher main board defective • Stapler movement motor overload
732	C	Finisher shift roller motor error	
		The shift roller HP sensor does not activate within the prescribed time after the shift roller motor turns on. After 2 counts, the SC is logged as a jam.	• Shift roller HP sensor defective • Sensor harness disconnected, defective • Shift roller motor defective • Finisher main board defective • Shift roller motor overload
733	C	Finisher lower tray lift motor error	
		After the lift motor switches on to lift the tray, paper height sensor 2 does not detect the top of the paper stack, or after the motor reverses to lower the stack the top of the stack remains detected (the status of paper height sensor 1 does not change). After 2 counts, the SC is logged as a jam.	• Paper height sensor 1 or 2 defective • Sensor harness disconnected, defective • Tray lift motor defective • Finisher main board defective • Tray lift motor overload
735	B	Finisher pre-stack motor error	
		• The pre-stack motor starts but does not return to the home position within 400 pulses. After 2 counts, the SC is logged as a jam. • Motor does not return to the home position within 280 pulses immediately before or after pre-stacking. After 2 counts, the SC is logged as a jam.	• Jogger HP sensor defective • Sensor harnesses disconnected, defective • Pre-stack motor defective • Finisher main board defective • Pre-stack motor overload
736	B	Finisher paper exit guide plate motor error	
		The paper exit guide plate motor starts but the paper exit guide plate HP sensor does not activate within 750 ms. After 2 counts, the SC is logged as a jam.	• Guide plate HP sensor defective • Sensor harness disconnected, defective • Paper exit guide plate motor defective • Finisher main board defective • Guide plate motor overload.

SC No.		Symptom	Possible Cause
737	B	Trimmed staple waste hopper full	
		The hopper that holds the waste from staple trimming is full.	• Staple waste hopper full • Staple waste sensor defective
738	B	Finisher pressure plate motor error	
		The pressure plate motor switches on but does not return to the home position within the prescribed time after 2 counts.	• HP sensor defective • Harness disconnected, defective • Motor defective • Finisher main board defective • Motor overload
739	B	Finisher folder plate motor error	
		The folder plate motor turns on but the plate does not return to the home position within the prescribed time for 2 counts.	• Plate HP sensor defective • Harness disconnected, defective • Folder plate motor defective • Finisher main board defective • Folder plate motor overload
740	B	Finisher front saddle-stitch stapler motor error	
		Saddle-stitch stapler motor fails to operate within 450 ms within 2 counts..	• HP sensor defective • Harness disconnected, defective • Stapler motor defective • Finisher main board defective • Stapler motor overload
741	B	Finisher rear saddle-stitch stapler motor error	
		Saddle-stitch stapler motor fails to operate within 450 ms within 2 counts..	• HP sensor defective • Harness disconnected, defective • Stapler motor defective • Finisher main board defective • Stapler motor overload
742	B	Finisher jogger side fence motor error	
		The jogger motor turns on but the side fences to not return to the home position within 340 pulses for 2 counts.	• HP sensors defective • Harness disconnected, defective • Motor defective • Finisher main board defective • Motor overload
750	B	Cover interposer bottom plate motor error	
		• The bottom plate motor turns on to raise the bottom plate but the plate position sensor does not detect the plate within 3 s. • The bottom plate motor reverses to lower the bottom plate but the bottom plate HP sensor does not detect the plate within 3 s.	• Bottom plate position sensor defective • Bottom plate HP sensor defective • Bottom plate motor defective • Cover sheet feeder main board defective • Harnesses disconnected, defective

Overall System

SC No.		Symptom	Possible Cause
800	B	Video output transfer does not end (K)	
		Video signal is sent to the engine but no command is received within the prescribed time from the engine to signal the end of transfer – output all black.	• Controller board defective
804	B	Video input transfer does not end (K)	
		Video transfer is requested from the scanner, but no command is received within the prescribed time from the scanner to signal a response – output all black.	• Controller board defective
818	B	Watchdog error	
		Control error	• System program defective • Controller board defective • Optional board defective
819	B	Fatal kernel error	
		Software defective	• Software defective
820	B	Self-diagnostic error: CPU	
		Unexpected external error or interrupt occurred.	• Controller board defective • Software defective
821	B	Self-diagnostic error: ASIC	
		ASIC timer interrupt and CPU timer interrupt are compared and found to be out of range.	• Controller board defective
822	B	Self-diagnostic error: HDD	
		Check performed when HDD is installed: • HDD device busy for over 31 s. • After a diagnostic command is set for the HDD, but the device remains busy for over 6 s. • A diagnostic command is issued to the HDD device but the result is an error.	• HDD defective • HDD harness disconnected, defective • Controller board defective
823	B	Self-diagnostic error: NIB	
		• The SUM of the MAC address written in the SEEP ROM for the MAC address is calculated and compared with the stored SUM and judged NG. • There is a format error in the MAC address stored in the SEEP ROM for the MAC address. • A loopback error occurs on the PHY chip of the NIB.	• NIB board defective • Controller board defective
824	B	Self-diagnostic error: NVRAM	
		NVRAM device does not exist, or NVRAM device is damaged.	• NVRAM defective • Controller board defective
825	B	Self-diagnostic error: NVRAM (option)	
		Optional NVRAM is installed, but a write/verify error occurred.	• Incorrect NVRAM installed.

SC No.		Symptom	Possible Cause
826	B	Self-diagnostic error: NVRAM (option NVRAM)	
		The difference between the 1 s measured for RTC in the NVRAM and the 1 s timeout of the CPU is out of range, or the NVRAM is not detected.	• NVRAM defective • NVRAM installed incorrectly
827	B	Self-diagnostic error: RAM	
		The write/verify check for the RAM mounted on the board resulted in an error.	• Controller board defective • RAM defective
828	B	Self-diagnostic error: ROM	
		• Measuring the CRC for the boot monitor and operating system program results in an error. • A check of the CRC value for ROMFS of the entire ROM area results in an error.	• Software defective • Controller board defective • ROM defective
829	B	Self-diagnostic error: RAM (option)	
		• A write/verify check of the RAM mounted on the board results in a error. • The SPD value of the entire RAM DIM is incorrect, or cannot be read. **Note**: RAM is not in use so the result is not displayed on the operation panel.	• Controller board defective • RAM defective
835	B	Self-diagnostic error: Centronic device	
		• Loopback connector is connected but check results in an error. • Loopback connector is connected but DMA data error detected. • Centronic loopback connector is not connected for detailed self-diagnostic test.	• Controller board defective • Centronic loopback connector not connected correctly • Centronic loopback connector defective
836	B	Self-diagnostic error: Font ROM	
		A device exists in the font area but it contains corrupted data.	• Font device defective
837	B	Self-diagnostic error: Font ROM (option)	
		A device exists in the font area but it contains corrupted data.	• Font device defective
838	B	Self-diagnostic error: Clock Generator	
		Setup data is read from the clock generator via the I2C bus but differs from the prescribed value.	• Controller board defective
850	B	Net I/F error	
		• Duplicate IP addresses. • Illegal IP address. • Driver unstable and cannot be used on the network.	• IP address setting incorrect • NIB (PHY) board defective • Controller board defective

SC No.		Symptom	Possible Cause
851	B	IEEE 1394 I/F error	
		Driver setting incorrect and cannot be used by the 1394 I/F.	• 1394 I/F connection incorrect • 1394 I/F board defective • Controller board defective
		USB driver is corrupted or has become unstable and cannot be used by the USB I/F.	• USB connection incorrect • Controller board defective
⇒ 853	D	IEEE802.11b card startup error	
		The machine starts up. The IEEE802.11b card connection board is recognized. The IEEE802.11b card is not recognized.	• Loose connection between the card and the connection board.
⇒ 854	D	IEEE802.11b card access error	
		The machine has been reading the data from the card. The machine loses access to the card; the IEEE802.11b card connection board is still recognized.	• Loose connection between the card and the connection board.
⇒ 855	D	IEEE802.11b card error	
		Some illegal data is found in the card.	• Defective Card
⇒ 856	D	IEEE802 11b card connection board error	
		An error is detected in the IEEE802.11b card connection.	• Defective card connection board.
860	B	HDD startup error at main power on	
		• HDD is connected but a driver error is detected. • The driver does not respond with the status of the HDD within 30 s.	• HDD is not initialized • Level data is corrupted • HDD is defective
861	C	HDD re-try failure	
		At power on with the HDD detected, power supply to the HDD is interrupted, after the HDD is awakened from the sleep mode, the HDD is not ready within 30 s.	• Harness between HDD and board disconnected, defective • HDD power connector disconnected • HDD defective • Controller board defective
862	A	Number of bad sectors exceeds allowed maximum	
		The number of bad sectors on the HDD in the area for storing images exceeds 101.	• Execute 5832 001 to format the HDD and replace the bad sectors. HDD replacement is recommended because an HDD unit that generates bad sectors is probably of poor quality and performs poorly.
863	C	HDD data read failure	
		The data written to the HDD cannot be read normally, due to bad sectors generated during operation.	• HDD defective • **Note**: If the bad sectors are generated at the image partition, the bad sector information is written to NVRAM, and the next time the HDD is accessed, these bad sectors will not be accessed for read/write operation.

SC No.		Symptom	Possible Cause
864	B	HDD data CRC error	
		During HDD operation, the HDD cannot respond to a CRC error query.	• Data transfer did not execute normally while data was being written to the HDD.
865	B	HDD access error	
		HDD responded to an error during operation for a condition other than those for SC863, 864.	• HDD defective.
⇒ 870	B	Address book data error	
		The address book in the hard disk is accessed. An error is detected in the address book data; address book data is not read; or data is not written into the address book. **NOTE:** To recover from the error, do any of the following countermeasures: Format the address book by using SP5-832-008 (all data in the address book including the user codes and counters are initialized) Initialize the user data by using SP5-832-006 and -007 (the user codes and counters are recovered when the main switch is turned on).	• Data corruption • Defective hard drive • Defective software

Miscellaneous

SC No.		Symptom	Possible Cause
900	A	Electrical total counter error	
		The total counter contains something that is not a number.	• NVRAM defective
901	C	Mechanical total counter error	
		The mechanical counter is not connected.	• Mechanical total counter defective • Mechanical total counter connector not connected
⇒ 920	D	Printer Error	
		Because of printer error, operation cannot continue.	• Defective hardware • Data corruption • Defective software
⇒ 925	D	Net File Error	
		The management file for net files is corrupted; net flies do not read properly. Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software.	• Defective hardware • Data corruption • Defective software
951	C	F-GATE signal error	
		When the IPU has already received the F-GATE signal (laser writing start trigger signal), the IPU receives another F-GATE signal.	• Software defective • BCU defective
953	C	Scanner image setting error	
		The settings required for image processing using the scanner are not sent from the IPU.	• Software defective
954	C	Printer image setting error	
		The settings required for image processing using the printer controller are not sent from the IPU.	• Software defective
955	C	Memory setting error	
		The settings that are required for image processing using the memory are not sent from the IPU.	• Software defective
964	C	Printer ready error	
		The print ready signal is not generated for more than 17 seconds after the IPU received the print start signal.	• Software defective
984	B	Print image data transfer error	
		After a data transfer begins from the controller to the engine via the PCI bus, the transfer does not end within 15 s.	• Controller board defective • BICU defective • BICU, controller disconnected
985	B	Scanned image data transmission error	
		After a data transfer begins from the engine to the controller via the PCI bus, the transfer does not end within 3 s.	• Controller board defective • BICU defective • BICU, controller disconnected

SC No.		Symptom	Possible Cause
986	C	Value of setting for software write parameter incorrect	
		The write parameter received by the write module at the beginning of the setting table is NULL.	• Controller board defective • BICU defective • BICU, controller disconnected
990	B	Software performance error	
		The software performs an unexpected function and the program cannot continue.	• Software defective, re-boot[*1]
991	D	Software capable of looping cannot continue	
		The software performs an unexpected function and the program cannot continue. However, unlike SC990, recovery processing allows the program to continue.	• Software defective, re-boot[*1]
⇒ 992	C	Other system SCs	
		The controller received an unknown SC code from the engine.	• Contact your product specialist.
⇒ 993	D	Network error	
		The ASIC program of GW controller cannot be continued.	• Defective ASIC • Defective GW controller

[*1]: In order to get more details about SC990 and SC991:

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

SC No.		Symptom	Possible Cause
997	B	Cannot select application function	
		Application does not start after pressing the appropriate key on the operation panel.	• Software bug • A RAM or DIMM option required by the application is not installed or not installed correctly.
998	B	Application cannot start	
		Register processing does not execute for any application within 60 s after the machine is powered on. All applications do not start correctly, and all end abnormally.	• Software bug • A RAM or DIMM option required by the application is not installed or not installed correctly.
999	B	Program download error	
		The program download from the IC card does not execute normally. This SC is not logged.	• Card installed incorrectly • BICU defective • IC card defective • NVRAM defective • Power down during program downloading (☛ 4.1.1)

4.5.3 ADDITIONAL SC CODES PRINTED IN SMC REPORT

Here is a list of SC codes that are printed in the SMC report but may not appear in the operation panel display. Note that the codes that have the same number are identified by an additional 4-digit hexadecimal number.

SC No.		Symptom	Possible Cause
820	0001	TLB conversion (store) exception error	Unexpected error in CPU device: • Controller board defective • Boot monitor or self-diagnostic program corrupted
820	0002	TLB miss (load) exception error	
820	0003	TLB miss (store) exception error	
820	0004	Read address exception error	
820	0005	Write address exception error	
820	0006	Command bus exception error	
820	0007	Data bus exception error	
820	0008	System call exception error	
820	0009	Break exception error	
820	000A	Illegal command exception error	
820	000B	Potential sensor exception error	
820	000C	Overflow exception error	
820	000D	UTLB miss exception error	
820	0010	Allocation 0 error	
820	0011	Allocation 1 error	
820	0012	Allocation 2 error	
820	0013	Allocation 3 error	
820	0014	Allocation 4 error	
820	0015	Allocation 5 error	
820	00FF	Non-initialization allocation error	• CPU defective • Local bus defective • Controller board defective
820	0601	Read address exception error	• CPU device error • Controller board defective
820	0602	Write address exception error	
820	0605	System call exception error	
820	0606	Break point exception error	
820	0607	Illegal command exception error	
820	060A	Allocation 0 mask exception error	• CPU device error • ASIC device error • Controller board defective
820	060B	Allocation 1 mask exception error	
820	060C	Allocation 2 mask exception error	
820	060D	Allocation 3 mask exception error	
820	060E	Allocation 4 mask exception error	
820	0610	CPU timer 2 allocation set error	• CPU device error • Controller board defective
820	0612	ASIC allocation error	• ASIC device error • Controller board defective • Peripheral device defective
820	06FF	CPU master clock error	• CPU device error • Error in CPU initialization data (ASIC error) • Controller board defective

SC No.		Symptom	Possible Cause
820	0702	Command cache error	• CPU cache defective • Controller board defective • Memory error (insufficient speed)
820	0709	Data cache error	• CPU device error • Boot mode setting for CPU error • Controller defective • Insufficient memory
820	070A	Data cache clear error	
820	0801	TLB virtual address error	• CPU device defective (controller board defective)
820	0804	TLB global error	
820	0807	UTLB miss error	
820	0808	TLB read miss error	
820	0809	TLB write miss error	
820	080A	TLB mode file error	
820	4002	Single-precision calculation error	• CPU error (controller board defective)
820	4003	Double-precision calculation error	
820	4004	Exception error	
820	4005	Exception mask error	
822	3003	HDD timeout	• HDD defective • HDD connector disconnected, defective • ASIC device error (controller board defective)
822	3004	Self-diagnostic command error	• HDD defective
823	6101	MAC address SUM error	• NIB (PHY) board defective • Controller board defective
823	6104	PHY chip ID illegal	
823	6105	PHY loopback error	
824	1401	NVRAM verify error	• NVRAM defective
826	1501	Clock error	• Optional NVRAM defective
826	15FF	RTC non-detection error	• Incompatible NVRAM installed • NVRAM battery defective
826	0201	Resident memory verify error	• Memory on controller board defective • RAM DIMM defective
828	0101	Boost trap code (CODE) error	• Software storage error (re-install software) • Controller board defective
828	0104	ROM FS error	• ROM device error
828	0105	Forgery prevention error	• Forgery prevention chip defective • Forgery prevention chip error • Replace the controller, ROM, or RAM DIMM
829	0301	Option memory 0 verify error	• Controller board internal memory error • RAM DIMM defective
829	0302	Option memory 0 configuration information error	
835	1102	Verify error	• Loopback connector error (controller board defective)
835	110C	DMA verify error	• Loopback connector error • Controller board defective
835	1120	Loopback connector non-detection	• Loopback connector not set • Loopback connector error • Controller board defective
836	1601	Font ROM 0 error	
837	1602	Font ROM 1 error	
838	2701	Verify error	

4.6 BLOWN FUSE CONDITIONS

Fuse	Rating		Symptom at Power On
	115 V	210~230V	
FU1	2A/125V	6.3A/250V	Anti-condensation heater does not operate.
FU101	12A/125V	6.3A/250V	No response.
FU103	6.3A/125V	6.3A/250V	SC510 is displayed.
FU104	6.3A/125V	6.3A/250V	Nothing displayed on LCD.
FU105	6.3A/125V	6.3A/250V	“Door Open” is displayed.
FU106	6.3A/125V	6.3A/250V	ADF does not operate.
FU107	6.3A/125V	6.3A/250V	SC121 is displayed.
FU108	6.3A/125V	6.3A/250V	Finisher does not work.
FU109	6.3A/125V	6.3A/250V	“Door Open” is displayed.
FU110	6.3A/125V	6.3A/250V	SC510 is displayed.
FU111	6.3A/125V	6.3A/250V	Nothing is displayed on LCD.

4.7 COMMON PROBLEMS

Problem	Check	Inspect, Clean, Replace
Dirty Copies	Fusing Unit	Pressure roller
Jam – Fusing Unit	Fusing Unit	Hot roller
Jam – Fusing Unit	Fusing Unit	Hot roller strippers
Jam – Original	ADF	Pick-up, paper feed, separation rollers
Lines (black or white)	Around the Drum	Cleaning blade, cleaning brush
Misfeed – Fusing Unit	Fusing Unit	Hot roller
Offset	Fusing Unit	Hot roller
Poor separation	Transfer Belt Unit	Transfer belt, transfer belt cleaning blade
SC300 ~ SC306	Around the Drum	Charge corona wire, charge corona grid, charge corona wire cleaner.
Skew – Original	ADF	Pick-up, paper feed, separation rollers
Toner on transfer belt	Transfer Belt Unit	Transfer belt, transfer belt cleaning blade
Wrinkling	Fusing Unit	Pressure roller

SERVICE TABLES

⇒ 5. SERVICE TABLES

⚠CAUTION

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

5.1 SERVICE PROGRAM MODE

5.1.1 SERVICE PROGRAM MODE OPERATION

The service program mode is used to check electrical data, change modes, and adjust values. Two service program modes are provided:

- **SP Mode (Service)**. Includes all the options in the SP displays for normal maintenance and adjustments.
- **SSP Mode (Special Service)**. Includes the normal SP modes and *some additional options in the SP displays not required for normal settings and adjustments*. (These SP numbers are in **bold type** and most are marked "DFU" (Design or Factory Use) in the tables.) Do not change these settings needlessly.

Entering and Exiting SP mode

	1. Press the Clear Mode key.
1 0 7	2. Use the keypad to enter "107".
C/⊘	3. Hold down Clear/Stop for at least 3 seconds. The Copy SP or PM Counter items are displayed. The Printer SP and Scanner SP are also available if installed.
	4. Enter the Service Mode.
	To enter the Normal Service Mode:
Copy SP	On the touch-panel, press Copy SP.
	To enter the Special Service Mode:
# **Copy SP**	Hold down # and then press Copy SP.
Exit	5. Press Exit to return to the copy window.

To Switch to the Copy Window for Test Printing

1. In the SP mode display, press Copy Window to switch to the copy operation screen when you need to select paper for a test print.
2. Use the copy window (copier mode) to select the appropriate settings (paper size, etc.) for the test print.
3. Press Start ◈ to execute the test print.
4. Press SP Mode (highlighted) to return to the SP mode screen and repeat from step 1.

Service Tables

Using the SP Mode

SP command numbers can be entered directly (if you know the entire number) or the command can be selected from the menus.

Direct Entry

SP5831 (Initial Setting Clear) an executable SP that initializes the User Tools settings, can be executed immediately by just entering the numbers.

1. Press 5 8 3 1.
2. Press Enter #.
3. Press "Execute" on the touch panel.

If you know all seven digits of the SP code, enter the seven numbers and press Execute.

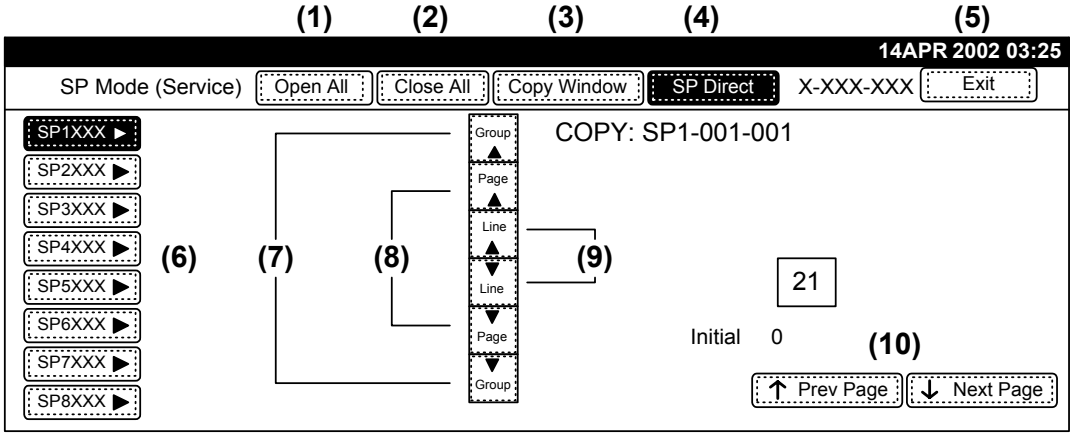
However, if you do not know all the numbers, enter only the first four numbers of the seven-digit SP and press Enter #. The display goes immediately to the first SP of that group. Then you can use the buttons to browse to the desired selection.

Button Selection Entry

1. Refer to the SP Mode Tables at the end of this section to find the SP that you want to adjust.
2. Press the Group number on the left side SP Mode window that contains the SP that you want to adjust.
3. Use the scrolling buttons in the center of the SP mode window to display the SP number that you want to open, then press that number to expand the list.
4. Use the center touch-panel buttons to scroll to the number and title of the item that you want to set, and press #. The small entry box on the right is activated and displays the default or the current setting below.
5. To enter a setting
   - Press • to enter a minus sign. Then use the keypad to enter the appropriate number. The number you enter will write over the previous setting.
   - Press # to enter the setting. (If you enter a number that is out of range, the key press is ignored.)
   - When you are prompted to complete the selection, press Yes.
6. If you need to perform a test print, press Copy Window to open the copy window and select the settings for the test print. Press Start ◇ twice, then press SP Mode (highlighted) in the copy window to return to the SP mode display.
7. When you are finished, press Exit twice to return to the copy window.

SP Mode Button Summary

Here is a short summary of the touch-panel buttons.



(1): **Open All**.
Opens all SP groups and sublevels.

(2): **Close All**.
Closes all open groups and sublevels and restores the initial SP mode display.

(3): **Copy Window**.
Opens the copy window (copy mode) so you can make test copies. To return to the SP mode screen, press SP Mode (highlighted) in the copy window.

(4): **SP Direct**.
Enter the SP code directly with the number keys if you know the SP number, then press #. (SP Direct must be highlighted before you can enter the number. Just press SP Direct if it is not highlighted.)

(5): **Exit**.
Press twice to leave the SP mode and return to the copy window to resume normal operation.

(6): **SPnxxx**.
Press any group number to open a list of SP codes and titles for that group. For example, to open the SP code list for SP1-nnn, press SP1XXX. If an SP has sublevels, it is marked with a right pointing triangle.

(7): **Group**.
Press to scroll the display to the previous or next group.

(8): **Page**.
Press to scroll to the previous or next display in segments the size of the screen display (page).

(9): **Line**.
Press to scroll the display to the previous or next line, line by line.

(10): **Prev Page** or **Next Page**.
Press to move the highlight on the left to the previous or next selection in the list.

5.2 RESETS

5.2.1 MEMORY ALL CLEAR: SP5801

Before shipping, the SP mode data settings are printed in an SMC Report and attached to the exposure glass of the machine for your reference. Store this report in a safe place (next to the toner collection bottle, for example). It is a list of all the SP initial settings. Refer to this list if you need to initialize one or more SPs. The initial SP settings are also written in the SP mode tables at the end of this section.

As a rule, you should always print an SMC Report before initializing or adjusting the SP settings. The SMC Report provides a concise list of all the SP commands and their current settings. The report can be used for reference if the service manual is not available.

Executing Memory All Clear resets all the settings stored in the NVRAM to their default settings except the following:

SP7-003-1:	Electrical total counter value
SP5-811-1:	Machine serial number
SP5-907:	Plug & Play Brand Name and Production Name Setting

1. Execute SP5990 to print out all SMC Data Lists.
2. Open SP mode 5801.
3. Press the number for the item that you want to initialize. The number you select determines which application is initialized. For example, press 1 if you want to initialize all modules.

No.	What It Initializes	Comments
1	All modules	Initializes items 2 ~ 15 below.
2	Engine	Initializes all registration settings for the engine and copy process settings.
3	SCS (System Control Service) /SRM	Initializes default system settings, CSS settings, operation display coordinates, and ROM update information.
4	IMH	Initializes the image file system.
5	MCS (Memory Control Service)	Initializes the automatic delete time setting for stored documents.
6	Copier application	Initializes all copier application settings.
7	Fax application	Not used.
8	Printer application	Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter.
9	Scanner application	Initializes the defaults for the scanner and all the scanner SP modes.
10	Network application	Deletes the Netfile (NFA) management files and thumbnails, and initializes the Job login ID. Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software
11	NCS (Network Control Service)	Initializes the system defaults and interface settings (IP addresses also), the SmartNetMonitor for Admin settings, WebStatusMonitor settings, and the TELNET settings.
14	DCS	Initializes the DCS (Delivery & Receive Control Server) settings.
15	UCS	Initializes the UCS (User Directory Control Server) settings.

4. Press Execute, then follow the prompts on the display to complete the procedure.
5. Make sure that you perform the following settings:
   - Execute SP2115 – Laser Beam Pitch Adjustment
   - Do the printer and scanner registration and magnification adjustments (☛ Section 3 “Copy Adjustments”).
   - Do the touch screen calibration (☛ Section 3 “Touch Screen Calibration”).
   - Referring to the SMC data lists, re-enter any values, which had been changed from their factory settings.
   - Execute SP 3001 002 – ID Sensor Initial Setting
6. Check the copy quality and the paper path, and do any necessary adjustments.

5.2.2 SOFTWARE RESET

The software can be rebooted when the machine hangs up. Use the following procedure.

Power off the machine (☛ 1.1.5 Powering Unit Off) and then back on.

-or-

Press and hold down ⊙ # together for over 10 seconds. When the machine beeps once, release both buttons. After “Now loading. Please wait” is displayed for a few seconds, the copy window will open. The machine is ready for normal operation.

5.3 TEST PATTERN PRINTING

5.3.1 IPU FRONT/BACK TEST PATTERNS: SP2902 001,002

- **Front side pattern** (SP2902 001). Generated by the IPU in place of data scanned from the front side of an original (CCD→SBU). Generated in the scanner image correction circuit.
- **Back side pattern**. (SP2902 002. Generated by the IPU in place of data scanner from the back side of an original (CIS→SBU). Generated in the scanner image correction circuit.

The IPU test patterns are primarily used for design purposes. However, they can be used as follows:

- To confirm that the IPU is processing images correctly.
- To fine tune the image processing parameters
- To help trace the causes of poor images. For example, if the IPU test patterns are normal when the machine is producing poor quality images, then the problem must be after the IPU.

1. Enter the SP mode, select SP2902.
2. Select 001 to print a test pattern for the front side, or select 002 to print a test pattern for the back side.
3. Scroll then select the number of the test pattern that you want to print (see the table below).
4. Press # or select OK.
5. Press Copy Window to open the copy window, then select the settings for the test print (paper size, etc.)
6. Press Start to start the test print.
7. Press SP Mode (highlighted) to return to the SP mode display.
   NOTE: Patterns 6, 8, 9, and 11 are the best choices for testing and confirming the operation of the IPU.

Test Pattern Table

These patterns can be selected for both SP2902 001 and 002.

No.	Test Pattern
0	None
1	Vertical Line (1-dot)
2	Vertical Line (2-dot)
3	Horizontal Line (1-dot)
4	Horizontal Line (2-dot)
5	Independent Dot (1-dot)
6	Grid Pattern (1-dot)
7	Vertical Stripes
8	Grayscale Horizontal
9	Grayscale Vertical
10	Density Patch
11	Argyle Pattern
12	Bandwidth Characteristics Horizontal
13	Density Patch (256-level)
14	Density Patch (64-level)
15	Trimming Area
16	Bandwidth (Vertical)
17	Bandwidth (Horizontal)
18	*Auto Create Vertical 1-dot Line (Main Scan)*
19	*Auto Create Horizontal 1-dot Line (Sub Scan)*
20	*Auto Create Vertical 2-dot Line (Main Scan)*
21	*Auto Create Horizontal 2-dot Line (Sub Scan)*
22	*Auto Create 1-dot Independent Dots*
23	*Auto Create Grid 1-dot Line*
24	*Auto Create Argyle*
25	*Auto Create Argyle*
26	*Auto Create Grayscale Horiz. (20 mm)*
27	*Auto Create Grayscale Horiz. (40 mm)*
28	*Auto Create Grayscale Vertical (20 mm)*
29	*Auto Vertical Grayscale 40*
30	*Auto Slant Cross Strip*

Items 18-30 above (in italics) will print a blank sheet with a line at one side.

5.3.2 PRINTING TEST PATTERN: SP2902 003

Some of these test patterns are used for copy adjustments (☛3.14) but most are used primarily for design testing. These test patterns do not use the IPU.

1. Enter the SP mode and select SP2902 003.
2. Enter the number for the test pattern that you want to print and press #or select OK. (See the table below.)
3. Press Copy Window to open the copy window, then select the settings for the test print (paper size, etc.)
4. Press Start ◇ twice (ignore the “Place Original” messages) to start the test print.
5. Press SP Mode (highlighted) to return to the SP mode display.

No.	Test Pattern
0	None
1	Gray Inside Trimming Area
2	Gray Inside Trimming Area
3	Full Dot Pattern
4	Black Squares
5	Black Squares
6	Grid Pattern (1-dot pair)
7	Grid Pattern (1-dot pair)
8	Grid Pattern (1-dot pair)
9	Grid Pattern (2-dot pair)
10	Checker Board
11	Black Inside Trimming Area
12	Black Inside Trimming Area
13	Black Inside Trimming Area
14	Black Inside Trimming Area
15	Vertical Lines
16	Horizontal Lines
17	Horizontal Cross Stitch (1-dot Horizontal 600 dpi)
18	Trimming Pattern
19	Black Inside Trimming Area
20	Large Black Bars
21	Large Black Bars
22	Horizontal Lines
23	Blank
24	Trimming Area (External Data Composite)
25	Trimming Pattern
26	Diagonal Squares
27	Vertical Lines

6. Switch the machine off and on.

5.3.3 IPU PRINTING TEST PATTERN: SP2902 004

This test pattern is generated in the application input processing circuit in the IPU. The operation path is as follows:

Application input ➔ Memory ➔ Printer

This test pattern is primarily used for design purposes, but it can also be used to trace the source of problems beyond the IPU (in the application input or BICU) which are causing poor print quality.

1. Enter the SP mode and select SP2902 004.
2. Enter the number for the test pattern that you want to print and press #. (See the table below.)

No.	Pattern
0	None
1	Grayscale Vertical (16-level/20 mm)
2	Grayscale Vertical (16-level/40 mm)
3	Grayscale Horizontal (16-level 20 mm)
4	Grayscale Horizontal (16-level 20 mm)
5	Grayscale Horizontal (16-level 20 mm)

3. When you are prompted to confirm your selection, press Yes to select the test pattern for printing.
4. Press Copy Window to open the copy window, then select the settings for the test print (paper size, etc.)
5. Press Start twice (ignore the “Place Original” messages) to start the test print.
6. Press SP Mode (highlighted) to return to the SP mode display.
7. Switch the machine off and on.

5.4 SOFTWARE UPDATE

5.4.1 OVERVIEW

IC cards are used to update the software and to back up important data. Here is a list of the items that can be updated or restored from a card:

- BCU software
- GW controller software
- LCDC (operation panel) software
- Printer option (DIMM) software
- Scanner option (DIMM) software
- PHY: NCS (NIB) software
- PHY: NFA (NetFile) software
- Stamp data
- NVRAM software

First, install the BCU software, then the GW controller software, then the others can be upgraded in any order.

NOTE: Here are some important points to keep in mind when handling and using IC cards.

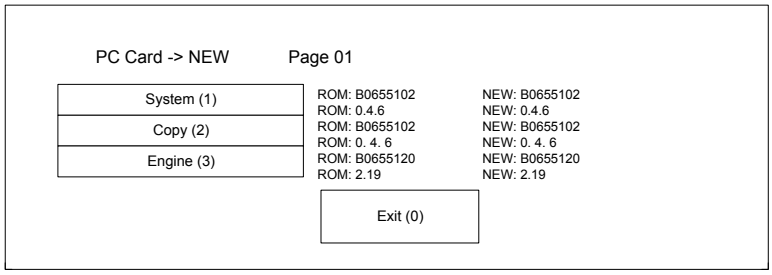
1) With BCU firmware ver4.x or later, please use GW firmware ver3.x or later (and with GW ver3.x or later, please use BCU ver4.x or later).
2) Never insert or remove a card with the machine power switched on.
3) Never switch the power off while the machine is downloading data from an IC card.
4) The IC card is a precision item so handle it carefully. Never store the card in a location subject to high temperature, high humidity, or direct sunlight.
5) Never bend the card, scratch it, or subject it to strong shock or vibration.

If an error occurs during downloading, an error code appears. For full details on these error codes and how to recover the machine, see ‘Troubleshooting – Program Download’ (Section 4.1).

5.4.2 SOFTWARE UPDATE PROCEDURE

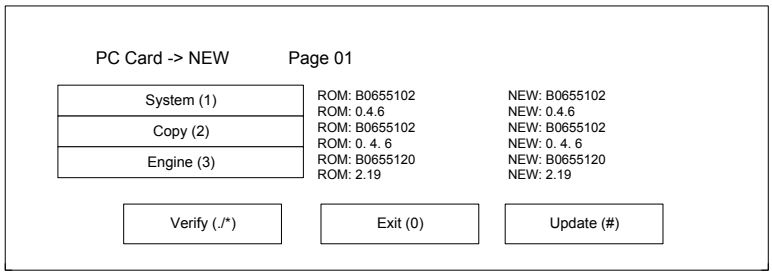
GW Controller/BCU Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Remove the IC card slot cover (🔩 x1).
3. With its A side facing away from the machine, insert the IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.



NOTE: 1) In the ROM number displays, the first line is the software number and the second line is the version number.
2) The left column displays the current software and version numbers of the software in the machine, and the column on the right displays the same information for the data on the IC card.

6. Press the appropriate item on the touch-panel.
   - For the GW controller, press System (1) and Copy (2) on the touch-panel, or you can press ① or ② on the operation panel.
   - For the BCU, press Engine (3) on the touch-panel, or you can press ③ on the operation panel.
   - To update all, press two buttons simultaneously.



7. To start the installation, press Update (#) on the touch panel, or press ⓗ on the operation panel.
8. The installation screen opens. As the installation progresses, the dashes on the display are replaced by asterisks (****----)
9. When “Update Done” is displayed, switch the machine off and remove the IC card.

Service Tables

Forced Update

If the download does not complete normally and you cannot restart the installation procedure, execute a forced installation.

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Remove the controller cover and set DIP SW1 to ON.
3. Make sure that the IC card is inserted correctly and switch the machine on.
4. Repeat from Step 5 of the previous section.
   NOTE: If the IC card of a different machine is used by mistake to start the installation, the operation panel will return a message: “Download Error” or “No Matching Data”. Then the machine will log SC999.

Stamp Data Update

After the hard disk has been initialized, the preset stamp data must be downloaded to the hard disk.

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With the A side facing up, insert the printer IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   In the lower right corner of the Download Watermark screen, press OK on the touch panel.

Operation Panel Software Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With it's A side facing up, put the operation panel IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press "OpePanel.EXP" then press Update (#).
   The installation download starts in about 9 seconds.

   The operation panel goes off and the Start ⓓ LED flashes red during downloading.

   When the download is completed, the Start ⓓ LED flashes green.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NOTE: 1) During the download, the operation panel switches off and only the Start key flashes red.
2) You must wait until the Start key stops flashing red and starts flashing green.
3) If a power failure occurs during downloading, E32 (Reboot After Card Insert) is logged. Remove the IC card, switch off the machine. Insert the card again and switch on the machine to restart downloading.

Printer Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the printer IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press "Opt DIMM Prn (1)" then press Update (#).
   When "Power Off/On" is displayed, the download is completed.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

Scanner Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the scanner IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press “Opt DIMM Scn (1)” then press Update (#).
   When “Power Off/On” is displayed, the download is completed.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NIB Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the NIB data IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press “Network Support (1)” then press Update (#).
   When “Power Off/On” is displayed, the download is completed.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NetFile Firmware Update

Netfile firmware controls jobs to be printed from the document server using a PC and the DeskTopBinder software.

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the NetFile IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press “Network DocBox (1)” then press Update (#).
   When “Power Off/On” is displayed, the installation is completed.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NVRAM Firmware Update

This procedure describes updating the NVRAM firmware. For details about replacing the NVRAM see “3.4.7 NVRAM”.

NOTE: Before updating NVRAM, the contents of NVRAM should be uploaded to a PC memory card and then downloaded after updating the NVRAM firmware. For details, see “3.12.7 NVRAM”.

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the NVRAM IC card into the slot..
4. Open the front door.
   NOTE: The success of the download cannot be guaranteed if the front door is closed during the download execution.
5. Switch the machine on.
6. After the download is completed, a message on the operation panel will prompt you to switch the machine off and on.
7. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

   The NVRAM download execution updates everything except the following SP functions:

SP7003 ***	Total Count
SP7006 ***	C/O, P/O
SP7007 ***	Other Device Counters

5.5 USER TOOLS

5.5.1 OVERVIEW

This section is a summary of the user tools. Refer to the operator's manual for more details.

1. On the operation panel, press User Tools
2. Press the appropriate key, then access the following items:
   - System Settings
   - Copier/Document Server Features
   - Printer Features
   - Scanner Features
   - Display Language
   - Inquiry
   - Counters

You can use these tools while the machine is operating, during a jam, or even when a warning is displayed. However, you cannot move to the user screen while in the SP mode, but you can easily switch between the SP mode screen and the operation screen by pressing Copy Window.

During machine operation, in the jam mode, or while a warning message is displayed, the display language can be changed and the counters can be displayed. However, the counters cannot be printed.

5.5.2 SYSTEM SETTINGS

General Features
Panel Tone
Warm Up Notice
Copy Count Display
Function Priority
Print Priority
Function Reset Timer
Interleave Print
Output Tray Setting
Output Copier
Output: Document Server
Output: Printer
ADF Original Table Elevation
Job List Display Time
Tray Paper Settings
Paper Tray Priority: Copier
Paper Tray Priority: Printer
Tray Paper Size: Tray 2
Tray Paper Size: Tray 3
Paper Type: Bypass Tray
Paper Type: Tray 1
Paper Type: Tray 2
Paper Type: Tray 3
Paper Type: LCT
Cover Sheet Tray
Slip Sheet Tray 1
Slip Sheet Tray 2
Timer Setting
Auto Off Timer
Energy Saver Timer
Panel Off Timer
System Reset Timer
Copier/Document Server Auto Reset Timer
Scanner Auto Reset Toner
Set Date
Set Time
Weekly Timer Code
Weekly Timer: Monday
Weekly Timer: Tuesday
Weekly Timer: Wednesday
Weekly Timer: Thursday
Weekly Timer: Friday
Weekly Timer: Saturday
Weekly Timer: Sunday

Interface Settings
Network
IP Address
Subnet Mask
Gateway Address
Network Boot
Effective Protocol
NW Frame Type
LAN Type
Ethernet Speed
Parallel Interface
Parallel Timing
Parallel Communication Speed
Selection Signal Status
Input Prime
Bidirectional Communication
Signal Control
File Transfer
Delivery Option
Scanner Recall Interval Time
Number of Scanner Recalls
Key Operator Tools
User Code Management
Key Counter Management
Key Operator Code
Display/Print Counter
Display/Clear/Print Counter per User Code
Address Book Management
Address Book: Program/Change/Delete Group
Address Book: Change Order
Address Book: Edit Title
Address Book: Select Title
Auto Delete File
Delete All Files
Display Password with Stored File
Key Operator's E-Mail Address
AOF (Always On)

5.5.3 COPIER/DOCUMENT SERVER FEATURES

General Features
Auto Paper Select Priority
Auto Tray Switching
Paper Display
Original Type Priority
Original Type Display
Auto Image Density Priority
Copy Quality
Image Density
Duplex Mode Priority
Copy Orientation in Duplex Mode
Original Orientation in Duplex Mode
Change Initial Mode
Max. Copy Quantity
Tone: Original Remains
Job End Call
Copy Function Key: F1
Copy Function Key: F2
Copy Function Key: F3
Copy Function Key: F4
Copy Function Key: F5
Document Server Storage Key: F1
Document Server Storage Key: F2
Document Server Storage Key: F3
Document Server Storage Key: F4
Document Server Storage Key: F5
Document Server Print Key 1: F1
Document Server Print Key 1: F2
Document Server Print Key 1: F3
Document Server Print Key 1: F4
Document Server Print Key 1: F5
Reproduction Ratio
Shortcut R/E 1
Shortcut R/E 2
Shortcut R/E 3
Enlarge 1
Enlarge 2
Enlarge 3
Enlarge 4
Enlarge 5
Priority Setting: Enlarge
Reduce 1
Reduce 2
Reduce 3
Reduce 4
Reduce 5
Reduce 6
Priority Setting: Reduce
Ratio for Create Margin
R/E Priority

Edit
Front Margin: Left/Right
Back Margin: Left/Right
Front Margin: Top/Bottom
Back Margin: Top/Bottom
1-Sided → 2-Sided Auto Margin: T to T
1-Sided → 2-Sided Auto Margin: T to B
Erase Border Width
Erase Original Shadow in Combine
Erase Center Width
Image Repeat Separation Line
Double Copies Separation Line
Separation Line in Combine
Copy Back Cover
Front Cover Copy in Combine
Copy on Designating Page in Combine
Orientation: Booklet, Magazine
Copy Order in Combine

Stamp
Background Numbering
Size
Density
Preset Stamp
Stamp Priority
Stamp Language
Stamp Position: COPY
Stamp Position: URGENT
Stamp Position: PRIORITY
Stamp Position: For Your Info.
Stamp Position: PRELIMINARY
Stamp Position: For Internal Use Only
Stamp Position: CONFIDENTIAL
Stamp Position: DRAFT
Stamp Format: COPY
Stamp Format: URGENT
Stamp Format: PRIORITY
Stamp Format: For Your Info.
Stamp Format: PRELIMINARY
Stamp Format: For Internal Use Only
Stamp Format: CONFIDENTIAL
Stamp Format: DRAFT
User Stamp
Program/Delete Stamp
Stamp Position: 1
Stamp Position: 2
Stamp Position: 3
Stamp Position: 4
Stamp Format: 1
Stamp Format: 2
Stamp Format: 3
Stamp Format: 4
Date Stamp
Format
Font
Stamp Position
Stamp Setting
Size
Superimpose

Page Numbering
Stamp Format
Font
Size
Duplex Back Page Stamping Position
Page Numbering in Combine
Stamp on Designating Slip Sheet
Stamp Position P1, P2
Stamp Position: 1/5, 2/5 …
Stamp Position: -1-, -2- …
Stamp Position: P.1, P.2 …
Stamp Position: 1, 2, …
Stamp Position: 1-1, 1-2 …
Superimpose

Input/Output
Switch to Batch
SADF Auto Reset
Rotate Sort: Auto Paper Continue
Auto Sort
Memory Full Auto Scan Restart
Select Stapling Position (Top Left)
Select Stapling Position (Bottom Left)
Select Stapling Position (Top Right)
Select Stapling Position (Bottom Right)
Select Stack Position
Select Punch Type
Letterhead Setting
Eject Copy Face Up/Down in Glass Mode
Eject Copy Face Up/Down in Bypass Mode

5.5.4 PRINTER

Paper Input
Bypass Paper Size
List/Test Print
Config. Page
Menu List
PCL Config./Font Page
PS Config./Font Page
Hex Dump
Maintenance
System
Print Error Report
Auto Continue
Memory Overflow
Job Separation
Memory Usage
Duplex
Edge Smoothing
Spool Images
Resolution
Toner Saving
Reserved Job Waiting Time
Printer Language
Sub Paper Size
Page Size
Letterhead Setting
Edge to Edge Printing
Quantity of Print Sets
Host Interface
I/O Buffer
I/O Timeout
PCL Menu
Orientation
Form Lines
Font Source
Font Number
Point Size
Font Pitch
Symbol Set
Extend A4 Width
Appent CR to CF

5.5.5 SCANNER

Basic Settings
Program Change
Initial Setup
1 ~ 9
Delete
1 ~ 9
Scanner Settings
Send/Store Correction Timeout
Compression (Black & White)
Compression (Gray Scale)
Sender's Name Default
Max. E-Mail Size
Divide & Send E-Mail
E-Mail Information Language
Job Reset Time in Adding Original
Original Setting
Original Orientation Priority
Mixed Original Sizes Priority
Switch to Batch
File Type Priority
Print & Delete Scanner Journal
Select Title
Subject Settings
Program Change
Delete

5.5.6 INQUIRY

Machine Repair
Telephone No.
Serial No. of Machine
Sales Representative
Telephone Number
Print Inquiry List

5.5.7 COUNTER

Total 000000
Print Counter List

5.6 SERVICE PROGRAM MODE TABLES

Service Table Key

Notation	What it means
[range/**default**/step]	[–9~+9/**+3.0**/0.1 mm] The default setting +3.0 can be adjusted in 0.1mm steps in the range ±9.
Italics	Comments added for reference.
*	An asterisk marks the SP's that are reset to their factory default settings after an NVRAM reset.
DFU	Denotes "Design or Factory Use". Do not change this value.
Japan only	The feature or item is for Japan only. Do not change this value.
SEF	Short Edge Feed
LEF	Long Edge Feed

5.6.1 COPIER SERVICE TABLE

SP1-xxx Feed

SP	Number/Name		Function/[Setting]
1001*	Leading Edge Registration		Adjusts the printing leading edge registration using the trimming area pattern (SP2-902-3, No.10). [–9~+9/**+3.0**/0.1mm] Specification: 3±2mm
1002*	Side-to-Side Registration		Adjusts printing side-to-side registration for each feed station, using test pattern SP2902 003 No. 10. These SP's should be adjusted after replacing the laser synchronization detector or the laser optical unit.
	001	Tray 1	[–9~+9/**0.0**/0.1mm]
	002	Tray 2	[–9~+9/**0.0**/0.1mm]
	003	Tray 3	[–9~+9/**0.0**/0.1mm]
	004	Tray 4 (Japan only)	
	005	By-pass Tray	[–9~+9/**0.0**/0.1mm]
	006	LCT	[–9~+9/**0.0**/0.1mm]
	007	Duplex Tray	[–9~+9/**0.0** /0.1mm]
1003	Registration Buckle Adjustment		
	001*	"Tray, LCT"	Adjusts the registration motor timing. This timing determines the amount of paper buckle at registration. (A higher setting causes more buckling.) [–9~+9/**0**/1 mm]
	002	Duplex Tray	
	003*	By-pass Tray	
1007	By-pass Feed Paper Size Display		Use this SP to confirm the size of the paper detected in the by-pass tray if paper is skewing during feeding.

SP	Number/Name		Function/[Setting]
1008*	Duplex Fence Adjustment		Adjusts the distance between front and rear fences. A smaller value shortens the distance. If the fences are too far apart, skewing may occur in the duplex tray. If the fences are too close, the paper may be creased in the duplex unit. [–4~+4/**0**/0.1 mm]
1103*	Fusing Idling		Adjusts the fusing idling time. [0~900/**70**/1 s] Increase this value when fusing on the 1st and 2nd copies is incomplete due to low room temperature.
1104*	Fusing Temperature Control		Selects the fusing temperature control mode. **Off**: On/Off control On: Phase control If power supply to the machine is unstable, select Phase Control. The machine must be switched off and on after this setting is changed for the new setting to take effect. *Phase control could interfere with radio or TV reception.*
1105*	Fusing Temperature Adjustment		Adjusts the fusing temperature of the hot roller for plain paper, OHP or thick paper.
	001	Normal	[170~200/**185**/1 degree C]
	003	OHP	[170~200/**165**/1 degree C]
	005	Thick Paper	[170~200/**195**/1 degree C]
1106	Fusing Temperature Display		Displays the temperature of the hot roller detected by the thermistors.
1112	Auto Process Control		Sets the temperature of the hot roller for auto process control to start. [70°~150°/**140°**/1°C] **DFU**
1901*	CPM Down Setting for Special Paper		
	001	Thick Paper	Selects the speed (copies per minute) for copying on thick paper or tab sheets. A slower speed ensures better fusing. [0~4/**2**/1 step] 0: 25 cpm 1: 35 cpm 2: 40 cpm 3: 45 cpm 4: 55 cpm This setting does not affect fusing temperature.
	002	Tab Sheet	

Service Tables

SP	Number/Name		Function/[Setting]
1902*	Fusing Web Motor Control		
	001	Fusing Web Used Area Display/Setting	Displays the percentage of the web consumption in 1% steps (0% ~ 100%). This setting must be reset to zero after the web is replaced. [0~120%/**0**/1%]
	002	Fusing Web Motor Operation Interval	Adjusts the interval of copy operation time (seconds) after which the web motor is driven. [5~50/**15**/1 s]
	003	Fusing Web Motor Operation Time	Adjusts the length of time that the web motor is driven. [1~40/**28**/0.1 s] **DFU**
	004	Web Near End Value	Adjusts the timing of the web near end alert by changing the amount of web that has been used before the alert is triggered. [0~100/**80**/1%]
	005	Web Roll Coefficient	Determines the coefficient of the web take-up time from cleaning toner from the roller while taking into consideration the take-up time for web buckle. **DFU** [10~20/**12**/1]
1903*	Web Job End		
	001	Yes/No	This determines whether the web motor is driven at the end of a job. [0~1/**0**/0 or 1] 0: Off 1: On *Enable when paper affected by too much paper dust is causing copies to blacken.*
	002	Job End Condition	At the end of a job, the web motor is driven if the job lasted longer than the value of this SP mode. Only valid if SP1903 001 is set to 'On'. [1~99/**7**/1s]
	003	Job End Frequency	If the web motor is driven at the end of a job, this SP determines how many times the web motor operation is executed. [1~5/**2**/1]
1904	By-pass Tray Paper Size Selection		
	001	Minimum Size	Calibrates the minimum paper width position of the sensor (100 mm). Move the side fences to the 100 mm position then press Start.
	002	Maximum Size	Calibrates the maximum paper width position of the sensor (A3). Move the side fences to the A3 position then press Start.

SP	Number/Name	Function/[Setting]
1905*	Thick Paper – By-pass Tray	Adjusts the by-pass feed clutch operation for thick paper. **On**: 30 ms 0: Off 1: On This setting switches the by-pass feed clutch on for 30 ms when the registration motor turns on. It only happens when thick paper is selected, to help this paper pass through the registration rollers.

SP2-xxx Drum

SP	Number/Name		Function/[Setting]
2001*	Charge Bias Adjustment		
	001	Applied Voltage for Image Processing	Adjusts the voltage applied to the grid plate during copying when auto process control is off. [–600~–1300/**–900**/10V Steps] After replacing the charge corona wire or the drum, reset to the factory default setting.
	002	ID Sensor Pattern: Adjustment	Adjusts the voltage applied to the grid plate when the ID sensor pattern is created. [–600~–1300/**–800**/10V]]
	003	Setting for Total Bias Current	Adjusts the total current applied to the charge corona wire. **DFU** [–600~–1300/**–1300**/10μA]
	004	Setting for Total Bias Current (With Auto Processing Control)	Adjusts the voltage applied to the grid plate during copying when auto process control is on. [–600~–1300/**–900**/10μA] This voltage changes every time auto process control starts up (every time the machine is switched on).
	005	Total Bias Grid Current: OHP	Adjusts the voltage applied to the grid plate when OHP mode is selected. [–600~–1300/**–700**/10V] Use this if there is a copy quality problem when making OHP's.
	006	Total Bias Current: Photo	Adjusts the voltage applied to the grid plate when Photo mode is selected. **DFU** [–1400~ –1600/**–1600**/10 μA]
2101*	Printing Erase Margin		These settings adjust the erase margin for the leading, trailing, left, and right edges.
	001	Leading Edge	[0.0~9.0/**2.5**/0.1 mm] Specification: 3±2 mm
	002	Trailing Edge	[0.0~9.0/**2.5**/0.1 mm] Specification: 3±2 mm
	003	Left Edge	[0.0~9.0/**2**/0.1 mm] Specification: 2±1.5 mm
	004	Right Edge	[0.0~9.0/**2**/0.1 mm] Specification: 2±1.5 mm
2103*	LD Power Adjustment		Adjusts the laser to prevent uneven 1200 dpi images.
	001	LD0 Power Adjust	Adjusts the power of each of the four laser beams. **DFU** [–127~+ 127/**0**/1] 1 = 1.1 μW
	002	LD1 Power Adjust	
	003	LD2 Power Adjust	
	004	LD3 Power Adjust	
	005	LD0 Power Start/End	
	006	LD1 Power Start/End	
	007	LD2 Power Start/End	
	008	LD3 Power Start/End	

SP	Number/Name		Function/[Setting]
2104*	Small Pitch Banding Reduction		
	001	Reduction Mode On/Off Setting:1200 dpi	Switches on/off the setting that corrects uneven images generated during 1200 dpi printing. [0~1/**1**/1 or 0] 1: On, 0: Off *Unevenness may appear in dot patterns or narrowly spaced horizontal lines, i.e. some areas may appear lighter or darker than others.*
	002	Reduction Mode On: 1200 dpi Printing	Adjusts the amount of correction for uneven images generated during 1200 dpi printing. [–20~+10/**–8**/1]
	003	Reduction Mode On/Off: 1200 dpi Copying	Switches on/off the setting that corrects uneven images generated during 1200 dpi copying. [0~1/**0**/1 or 0] 1: On, 0: Off
	004	Reduction Mode On: 1200 dpi Copying	Adjusts the amount of correction of uneven image generated during 1200 dpi copying. [–20~+10/**0**/1]
2110	Test Mode dpi		Adjusts the pixel density. Required for design check, beam pitch adjustment for the test pattern, etc. **DFU**.
2111	FCI Shade Detection		
	001	Matrix Size (>600 dpi) [0~128/**18**/1]	Allows shading detection if FCI (Fine Character Adjustment) smoothing is on. With this SP switched on, photos and painted areas are detected, and FCI is not applied in these areas. FCI is used for outputs in printer mode. [0~1/**1**/1 or 0] 1: On, 0: Off
	002	Threshold Val. (>600 dpi) [0~128/**4**/1]	
	003	Matrix Size (<400 dpi) [0~128/**18**/1]	
	004	Threshold Val. (<400 dpi) [0~128/**4**/1]	
2114*	Binary Edge Processing		Allows setting a parameter for binary edge processing for the printer application with FCI switched off. The value for this SP is enabled only when the printer is initialized. In all other cases, the data registered in the software are enabled. This SP allows adjustment of image quality if the desired effect cannot be achieved with the default settings for edge processing. However, some settings could cause defective images on white paper.
	001	Leading Edge Pixel Level (1200 dpi)	[0~15/**7**/1]
	002	Trailing Edge Pixel Level (1200 dpi)	[0~15/**14**/1]
	003	Continuous Pixel Level (1200 dpi)	[0~15/**15**/1]
	004	Independent Dot Pixel Level (600 dpi)	[0~15/**15**/1]
	005	Leading Edge Pixel Level (600 dpi)	[0~15/**7**/1]

SP	Number/Name		Function/[Setting]
2114*	Binary Edge Processing		
	006	Trailing Edge Pixel Level (600 dpi)	[0~15/**15**/1]
	007	Continuous Pixel Level (600 dpi)	[0~15/**15**/1]
	008	Independent Dot Pixel Level (600 dpi)	[0~15/**15**/1]
2115	Main Scan Beam Pitch Adjustment		A label attached to the LD unit service part lists the correct settings. Refer to these settings when adjusting the beam pitch for LD0 to LD3.
	001	Pitch Adjustment Between LD0 and LD1	[0~999/**106**/1]
	002	Pitch Adjustment Between LD0 and LD2	[0~999/**212**/1]
	003	Pitch Adjustment Between LD0 and LD3	[0~999/**317**/x]
2201*	Development Bias Adjustment		
	001	Dev. Bias (Image)	Adjusts the development bias for copying when process control is off [–700~–200/**–550**/10V] *Adjust as a temporary measure to compensate for an aging drum until the old drum can be replaced.*
	002	ID Sensor Pattern	Adjusts the development bias used to create the ID sensor pattern. **DFU** [–700~–200/**–360**/10V] *This SP and SP2201 004 must be changed together by the same amount.*
	003	OHP	Adjusts the development bias for copying with OHP sheets. [–700~–200/**–300**/10V]
	004	ID Sensor Pattern Dev. Potential	Adjusts the development potential to create the ID sensor pattern. **DFU** [–700~–200/**–240**/10V] *This SP and SP2201 002 must be changed together by the same amount.*
	005	Vb Scale Voltage Setting	Sets the Vb target development bias voltage (Vb). **DFU**
2207*	Forced Toner Supply		Rotates the toner bottle for 7 s to supply toner to the toner supply unit. Press Start to force toner supply. *Use to determine if toner supply is operating correctly. If forcing toner supply with this SP does not darken the image, then toner supply is not operating correctly.*

SP	Number/Name		Function/[Setting]
2208*	Toner Supply Mode		Selects the toner supply mode: Sensor Control or Image Pixel Count. [0~1/**0**/0 or 1] 0: Sensor Control 1: Pixel Count Select Image Pixel Count only if the TD sensor has failed and cannot be replaced immediately, so that the customer can use the machine. Return the setting to Sensor Control after replacing the sensor.
2209*	Toner Supply Rate		Adjusts the toner supply rate. [50~2000/**850**/5 mg/s] Increasing this value reduces the time the toner supply clutch remains on. Use a lower value if the user tends to make many copies that have large areas of black.
2210*	ID Sensor Pattern Interval		Adjusts the time interval between making ID sensor patterns onto the drum for Vsp/Vsg detection. [0~200/**100**/1] Reduce the interval for copies that contain a high proportion of black.
2220*	Vref Manual Setting		Adjusts the TD sensor reference voltage (Vref) manually. [100~400V/**250**/0.01V]
	Change this value after replacing the development unit with another one that already contains toner. For example, when using a development unit from another machine for test purposes, do the following: 1) Check the value of SP2-220 in both the machine containing the test unit and the machine that you are going to move it to. 2) Install the test development unit, then input the VREF for this unit into SP2-220. 3) After the test, put back the old development unit, and change SP2-220 back to the original value.		
2223*	Vt Display		Displays the current TD sensor output voltage. [317]
2301*	Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	1st Copy	[20~200/**80**/1 µA]
	002	2nd Copy	[20~200/**80**/1 µA]
	003	By-pass Tray	[20~200/**75**/1 µA]
	004	Postcard (Japan Only)	[20~200/**165**/1 µA]
	005	Paper Interval	[20~200/**15**/1 µA]
	006	Tab Paper	[20~200/**75**/1 µA]
	007	Thick Paper: Front Side	[20~200/**120**/1 µA]
	008	OHP: Front Side	[20~200/**75**/1 µA]
	009	Tracing Paper: Front Side	[20~200/**120**/1 µA]
	010	Image Leading Edge	[20~200/**65**/1 µA]
	011	Image Trailing Edge	[20~200/**65**/1 µA]

SP	Number/Name		Function/[Setting]
2310*	LCT Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]
	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2311*	Tray 1 Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]
	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2312*	Tray 2 Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]
	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2313*	Tray 3 Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]

SP	Number/Name		Function/[Setting]
2313	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2314*	Tray 4 Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]
	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2315*	By-Pass Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge:	[20~200/**65**/1 µA]
	002	Image Trailing Edge:	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
	007	Image Leading Edge: OHP	[20~200/**75**/1 µA]
	008	Image Trailing Edge: OHP	[20~200/**75**/1 µA]
2506*	Cont. Op. Time Cleaning Setting		
	001	Operation Setting	Determines whether multiple copy jobs are stopped at regular intervals for: 1) Stopping and reversing the drum motor to clean the cleaning blade edge, and 2) creating an ID sensor pattern to correct toner density control. [1~2/**1**/1 or 2] 1: No 2: Yes The interval is set with SP2-506-2. Use if the drum gets dirty or images get too pale or too dark during a long job.
	002	Time Setting	Selects the interval at which multi-copy jobs are stopped. [1~100/**15**/1 min.]

SP	Number/Name		Function/[Setting]
2507*	ID Sensor Pattern During Job		
	001	Operation Setting	Determines whether an ID sensor pattern is created during copy jobs. [0~1/**0**/1] 0: Off 1: On
	002	No. of Copies	Selects the interval (number of copies) between ID sensor patterns when 1 is selected for SP2507 001 [0~10,000/**100**/1]
2801*	TD Sensor Initial Setting		Press the Start button to do the TD sensor initial setting. This SP mode controls the voltage applied to the TD sensor to make the TD sensor output about 3.0 V. When SP2967 is on, the TD sensor output is set to about 2.5 V. Execute this SP only after replacing the TD sensor or the developer.
2803	Charge Cleaner Start Time		Press Start to clean the charge corona wire manually. When copy density across the paper is uneven, clean the wire with this mode.
2804	Charge Cleaning		
	001	Operation Mode	Determines whether the charge corona wire is cleaned at regular intervals. [0~1/**1**/1] 1: Yes 0: No The time interval between cleaning is set with SP2804 002.
	002	Number of Sheets	Sets the interval (number of sheets printed) between charge corona wire cleanings. [100~10,000/**5000**/100]
2813	Exposure Gamma Table		
	001	Exposure Gamma Table Execute	
2902	Test Pattern		
	001	IPU Test Pattern: Front Side	Produces a scan test pattern in place of data scanned from the front side (CCD→SBU) of an original. (☛ 5-6)
	002	IPU Test Pattern: Back Side	Produces a scan test pattern in place of data scanned from the back side (CIS→SBU) of an original. (☛ 5-6)
	003	Printing Test Pattern	Produces the printer test patterns. (☛ 5-8)
	004	IPU Printing Test Pattern	Produces test patterns in place of scan image data. (☛ 5-9)

SP	Number/Name		Function/[Setting]
2906*	TD Sensor Control Voltage and Check		
	001	TD Sensor Control Voltage Setting	Adjustment mode for production. **DFU** [4.0~12.0/**9.7**/0.1]
	002	Automatic Adjustment Setting	Displays the TD sensor data stored when SP2801 (TD Sensor Initial Settings) is executed. [4.0~12.0/**9.7**/0.1]
2909*	Main Scan Magnification		
	001	Copy	Adjusts magnification in the main scan direction for copying. [–2.0~+2.0/**0**/0.1%]
	002	Printer	Adjusts magnification in the main scan direction for printing from a computer. [–2.0~+2.0/**0**/0.1%]
2910*	Writing Sub Scan Magnification		Adjusts magnification in the sub scan direction for copying. [–1.0~+1.0/**0.0**/0.1%]
2911	Transfer Current On/Off Timing		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2911	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	013	La4	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	014	La4f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	015	Lc4r	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	016	Lc4r	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
2912*	Drum Reverse Rotation		
	001	Rotation Amount	Sets the length of time the drum is reversed to clean the drum cleaning blade. [1~3/**3**/1] *To calculate the actual time of reverse rotation, multiply the selected value by the 15 ms.*
	002	Rotation Interval	Determines the frequency of drum reverse rotation for blade cleaning. [0~6/**0**/1 min.]
2920*	LD Off Check		Checks whether the LD turns off or on when the front door is opened. **DFU** **0**: On 1: Off

SP	Number/Name		Function/[Setting]
2930*	Transfer Idle Cleaning		When resolution changes from 400 to 600 dpi, the LD writes a pattern on the drum. Toner is applied, and this must be cleaned off the belt. This SP mode determines whether bias is applied to the transfer belt cleaning bias roller at this time. **DFU** [**0**/1] 0: Off 1: On Switching this function on adds 3 s to the job time.
2931*	Transfer Current On/Off Timing: LCT		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**20**/1 mm]
	002	La1f	Adjusts the area where the transfer is applied for the leading edge during front side copying. [0~+20/**20**/1 mm]
	003	Lc1r	Adjusts the area where the transfer current is applied for the trailing edge during front side copying. [0~+20/**20**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**20**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**20**/1 mm]
	006	La2f	Adjusts the area where the transfer current is applied for the leading edge during front side copying. [0~+20/**20**/1 mm]
	007	Lc2r	Adjusts the area where the transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the LCT. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the LCT. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the LCT. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the LCT. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2932*	Transfer Current On/Off Timing: Tray 1		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the transfer current for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the transfer current for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	090	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2933*	Transfer Current On/Off Timing: Tray 2		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where the transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2934*	Transfer Current On/Off Timing: Tray 3		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2935*	Transfer Current On/Off Timing: Tray 4 **Japan Only**		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2936*	Transfer Current On/Off Timing: By-pass		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	013	La4	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2936*	014	La4f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	015	Lc4r	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	016	Lc4r	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
2940*	Reface Mode		Determines whether a blade bend prevention pattern is created during creation of the ID sensor pattern. This setting sets the pattern count. **DFU** [0~100/6/1] *Increase the setting if the rotation of the drum is not smooth, i.e. when drum rotation is generating noise.*
2961	Developer Adjust Mode		**DFU**
2962	Adjustment of Drum Conditions		Manually executes a process control. However, this only works if process control is enabled with SP3901, and if the fusing temperature is less than 100°C.
2963	Installation Mode		Use the keyboard display to enter the lot number of the developer. (The lot number is embossed on the top edge of the developer pack.) Press Execute to initialize the developer and force toner supply to the toner hopper at machine installation. *Use this SP mode only during initial installation. Use SP2801 when replacing developer during PM on previously installed units.*
2964	Transfer Cleaning Blade Forming		
	001	Pattern Interval Setting	Selects the interval for application of a strip of toner across drum and transfer belt to prevent the drum cleaning blade and belt cleaning blade from sticking and bending against the drum or belt. [0~100/**0**/1 copy] **DFU** *If set to zero, then no pattern is created.*
	002	Pattern Light Amount Setting	Adjusts the intensity of light that is used to create the blade protection pattern. [0~4/**2**/1] **DFU**
	003	Transfer Current On/Off Setting	Determines whether transfer current is switched on or off while the blade protection pattern is created. **DFU** Off: Toner is applied to the entire cleaning area and drum cleaning blade.

SP	Number/Name		Function/[Setting]
2965*	Toner Pump System Adjustment **DFU**		
	001	Toner Consumption for First Rotation	[0~100/**3**/1 g] **DFU**
	002	Toner Consumption After First Rotation	[0~100/**3**/1 g] **DFU**
	003	Pump Clutch On Time	[0~5/**2**/1 s] **DFU**
	004	Pump Motor On Time	[0~20/**6**/1 s] **DFU**
	005	Toner Consumed: Rev. Returning to First	[0~50/**30**/1 g] **DFU**
	006	Amount of Toner Consumed Display	**DFU**
2966*	Drum Conditions: Periodic Adjustment		
	001	On/Off	Determines whether auto process control is adjusted and corona wire cleaning is executed at a prescribed interval. [On/**Off**] 0: Off 1: On When this setting is on, auto process control and wire cleaning are done automatically (1) when the main switch has not been switched off for 24 hours, and (2) after every copy job.
	002	Time Setting	Sets the time interval between automatic adjustments after SP2966 001 is switched on. [1~24/**24**/1 hour]
2967*	Developer Density Adjustment Mode		Determines whether the amount of toner is checked during auto process control with only the TD sensor. With this feature on, the machine uses the TD sensor only. [On/**Off**] 0: Off 1: On *During auto process control execution after the main switch is turned on, the toner amount in the development unit is normally checked and adjusted using the ID sensor. However, in some environments, such as where there could be traces ammonia in the air, copies could appear dirty or too dark because the ID sensor reading is not reliable.*
2968	Toner Exit Mode		Press Execute to force used toner into the toner collection bottle. Blank paper will feed for about 60 s with the transfer belt released.
2969*	Toner Bottle: Revolution Count		
	001	Copy Count Setting	Sets the standard number of copies by using the number of toner bottle rotations. **DFU** [50~500/**100**/1]
	002	Count Reset	Resets the toner bottle rotation count. **DFU**
	003	Copy Count Display 1	Used to confirm the number of toner bottle rotations. [0~10K/**0**]

SP	Number/Name		Function/[Setting]
2970*	001	Transfer Belt Resistance: Disp. Current Value	Uses the interval between sheets to measure the resistance of the transfer belt and displays this value (Ω). Very High → 190 ← High → 90 ← Standard → 25 ← Low → 15 ← Very Low
2971*	Trans. Interval Output		
	001	Voltage	Displays the measurement condition of the value in SP2970.
	002	Current	
2972*	Toner Bottle Cool. Fan Drive Control		Switches fan control On/**Off**. Off: The toner bottle fan switches off when the machine is powered off and when the machine enters the night mode. On: Toner bottle fan remains on. *Switch on in an extremely hot environment to prevent the toner from overheating and clumping.*

SP3xxx Processing

SP	Number/Name		Function/[Setting]
3001*	ID Sensor Initial Setting		
	001	ID Sensor PWM Setting	Recovers the machine when an SC is logged because the ID Sensor Initial Setting is not done after doing an NVRAM Clear or replacing the NVRAM. Reset this SP to the factory setting in this case. [0~255/**70**/1]
	002	ID Sensor Initialization	Performs the ID sensor initial setting. The ID sensor output for the bare drum (VSG) is adjusted to 4.0 ± 0.2V. Press Execute. This SP mode should be performed after: (1) replacing or cleaning the ID sensor, (2) replacing the NVRAM, (3) clearing NVRAM, (4) Replacing the BICU board
3103*	ID Sensor Output Display		
	001	Vsg	Displays the current value of the ID sensor output after checking the bare drum surface.
	002	Vsp	Displays the current value of the ID sensor output after checking the ID sensor pattern image
	003	Vsdp	Displays the current value of the ID sensor output immediately after Vsp is output when the charge potential drops. This reading is used to test and determine characteristics for design.
	If the ID sensor output is abnormal, an SC is logged and the displays change: 1) SC350 01 logged: Vsp/Vsg/Vsdp = 0.00/0.00/0.00 2) SC350 02 logged: Vsp/Vsg/Vsdp = 5.00/5.00/5.00 3) SC350 03 logged: Vsp/Vsg/Vsdp = 0.01/0.01/0.01		
3901*	Auto Process Control On/Off Setting		Determines whether the machine checks and corrects the drum potential (Vd) and LD power when the fusing temperature is lower than 100°C at power-on. [**On**/Off] 0: Off 1: On This setting attempts to change the Vd setting consistent with the OPC, the charge corona unit, and environment to improve the reliability of the system.
3902*	Drum Condition Display		
	001	Auto Process Control On/Off	Displays whether auto process control is switched on or off (0:Off, 1:**On**) When auto processing control is set on, displays only when the potential sensor is calibrated correctly. Auto process control is not executed when this SP is switched off. 0: Off 1: On

SP	Number/Name		Function/[Setting]
3902*	Drum Condition Display		
	002	Vd	Displays drum dark potential, the standard potential, electrical potential of the black areas after exposure.
	003	Vh	Displays standard halftone drum potential, used for laser power adjustment.
	004	Vg	Displays the charge grid voltage resulting from the latest Vd adjustment.
	005	LD Level	Displays the LD power correction value as a result of the latest Vh adjustment.
	006	ID Sensor Pattern Potential (Back)	Displays the latest drum surface voltage measured on the ID sensor pattern.
	007	Vql	Displays the drum potential after quenching.
	008	Vl	Displays the standard electrical potential of white areas on the drum after exposure.
3903*	Drum Rotation Time Extension On/Off		Switch this setting on to reduce the occurrence of out-of-focus copy images when the machine is used immediately after power-on. [On/**Off**] *If On is selected, after auto process control calibrates its initial settings, the drum continues to rotate until the fusing unit reaches its operation temperature.*

SP4-xxx Scanner

SP	Number/Name		Function/[Setting]
4008*	Scanner Sub Scan Magnification		Fine adjusts the magnification in the sub scan direction for scanning by changing the speed of the scanner motor. [–0.9~+0.9%/**0**/0.1%] *Setting a lower value reduces the speed of the motor and lengthens the image in the sub scan direction (direction of paper feed).* *Setting a higher value increases the speed of the motor speed and shortens the image in the sub scan direction.*
4010*	Scanner Leading Edge Registration		Adjust the registration of the leading edge for scanning in the sub scan direction. [–0.9~+0.9/**0**/0.1%] *This setting ensures that the point where the original strikes the registration roller matches the point where the F-GATE signal will trigger the start of scanning in the main scan direction.* *Setting a larger value shifts the image away from the leading edge, and a smaller value shifts the image toward the leading edge.*
4011*	Scanner Side-to-Side Registration		Adjusts the side-to-side registration for scanning in the main scan direction across the page. [–0.6~+0.6/**0**/0.1%] *Setting a negative value shifts the image toward the left edge, and setting a positive value shifts the image toward the right edge.*
4012*	Scanner Erase Margin		These settings adjust the margins (erase margins) of the scanned area on the sheet. The leading, trailing, right, and left margins can be set independently.
	001	Leading Edge	[0~0.9/**0.5**/0.1 mm]
	002	Trailing Edge	
	003	Right	
	004	Left	
4013	Scanner Free Run		Switches on/off a scanner free run. 1: On, 0: Off The scanning area is A3.
	001	Scanner Free Run: Lamp On	Performs a scanner free run with the exposure lamp on. 1: On, 0: Off
	002	Scanner Free Run: Lamp Off	Performs a scanner free run with the exposure lamp off. 1: On, 0: Off
4016*	White Board Read Adjust		
	001	Read Start Position	Adjusts the start position for reading the standard white board. [–9~+9/**0**/1]
	002	Read Width	Adjusts the width of the area read on the standard white board. [–9~+9/**0**/1]

SP	Number/Name		Function/[Setting]
4018	Scanner Optical Axis Adjust		
	001	Adjust Display	Switches on the mode for scanner optical adjustment mode. **DFU** [–2~+2/**0**/1]
	002	Adjust Display	Displays the result after adjusting SP4018 001 **DFU**
	003*	Read Position Set	Allows adjustment of the scanning position for free runs by changing the scanning stop position if the exposure glass is dirty and producing black lines. The default is set with SP4018 001. Adjusting this SP changes the leading edge registration and affects the setting of SP6006 003 for the ADF. [–4~+4/**0**/1]
	004	Read Position Set Start	If 003 is adjusted, press Execute to force the change to take effect on the main machine.
4019*	Scanner HP View Position Display		Use to display the status of each after SC120, SC121, SC122, or SC123 is logged. (These are scanner HP sensor errors.) 0: Normal 1: Abnormal Bit 0: Sensor OFF at start of high-speed return operation. Bit 1: Remains ON after return. Bit 2: Remains ON during return. Bit 3: Does not switch OFF during forward motion Bit 4: Switches ON at return Bit 5: Scanner HP detection is out of position.
4301	APS Sensor Output Display		Displays the APS sensor output signals when an original is placed on the exposure glass. If a non-standard size is placed on the glass, asterisks (*) are displayed.
4303*	APS A5 Size Detection		Selects whether or not the copier determines that the original is A5/HLT size when the APS sensor does not detect the size. [0~3/**0**/1] 0: Not detected 1: A5 length/5 1/2" x 8 1/2" 2: Not detected 3: A5 length/5 1/2" x 8 1/2" *If "A5 length/5 1/2" x 8 1/2" is selected, paper sizes that cannot be detected by the APS sensors are regarded as A5 lengthwise or 5 1/2" x 8 1/2". If "Not detected" is selected, "Cannot detect original size" will be displayed. If not using 8 k and 16 k paper, select "0" or "1". If using 8 k and 16 k paper, select "2" or "3".*

SP	Number/Name		Function/[Setting]
4600*	Read SBU ASIC ID		Displays the SBU ID code confirmed by reading the SBU after the SBU adjusts automatically at power on. [0~FFFFh/**B550h**]
4601*	SBU PLL Adjustment		Adjusts the PLL bandwidth. **DFU** [0~FFFFh/**2862h**]
4605	Scanner Adjustment		
	001*	Flag Display	Displays a flag to indicate whether density control adjustment was executed with the standard white board for the CCD. [0~1/**1**/1] 0: Not executed. 1: Executed
	002	Start	Starts the density adjustment for the CCD using the standard white board. Place 5 sheets of A3 plain paper on the exposure glass, then press Execute. A message is displayed to indicate the success or failure of the adjustment.
4610*	White Level Adj: Next		Displays the value read from the standard white board after density adjustment. **DFU** [0~255/**0**/1]
4613*	White Level Adj.: Previous Normal		**DFU**
4616*	White Level Adj.: Factory		**DFU**
4624*	Read Offset Data		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	LO ch	**DFU**
4632*	Gain Adjustment		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	LO ch	**DFU**
4641*	White Adjust Loop		**DFU**
4646*	SBU Adjustment Error Flag		**DFU**
4647*	SBU Hard Error Flag		**DFU**
4662*	Gain Adjustment Normally		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	L0 ch	**DFU**
4681*	Gain Adjustment at Factory		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	L0 ch	**DFU**

SP	Number/Name		Function/[Setting]
4691*	Read Shading Data		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	L0 ch	**DFU**
4700*	Read CIS ASIC ID		Reads and displays the ID of the CIS board at power on. 0~FFh/0Ah
4701*	Frequency Adjustment		**DFU**
4702*	Periodic Adjustment Setting		**DFU**
4705	CIS Adjustment		
	001*	Flag Display	Displays whether density adjustment was executed for the CIS, using the white roller. 0: Not executed 1: Executed
	002	Start	Starts the standard white density adjustment for the CIS. Place 5 sheets of A3 on the exposure glass, then press Execute. A message is displayed to indicate the success or failure of the adjustment.
4713*	CIS White Level Adjustment		
	001	White Roller	**DFU**
	002	White Document	**DFU**
4716*	CIS White Level Adjustment: Factory		
	001	White Roller	**DFU**
	002	White Document	**DFU**
4732*	CIS Gain Adjustment		**DFU**
4735*	CIS Read White Level		**DFU**
4741*	CIS White Adjust Loop		**DFU**
4742*	CIS White Roller Adjust Loop		**DFU**
4745*	CIS Adjustment Overflow Flag		**DFU**
4747*	CIS Adjustment Time Out Flag		**DFU**
4762*	CIS Gain Adjustment Normally		
4765*	CIS Standard White Level Adjustment: Normally		
	001	White Roller	**DFU**
	002	Standard White Original	**DFU**
4781*	CIS Gain Adjustment at Factory		**DFU**
4901	Front Side Scan Correction		
	001*	Shading Correction: AEREF Setting	Changes the AEREF (Automatic Exposure Reference) value used in shading correction for the image scanned from the front side (SBU). **DFU** [0~63/**0**/1]

SP	Number/Name		Function/[Setting]
4901	Front Side Scan Correction		
	002	Front Shading Correction: Shading Data Output	Outputs the AEREF value used in shading correction for the image scanned from the front side (SBU). **DFU** **0**: Normal 1: Output After setting 001, return to the Copy Window and press Start to output. (The machine automatically leaves SP mode.)
	003*	Front Digital AE: AEREF Setting	Changes the AEREF (Automatic Exposure Reference) value used in digital A/E processing for the image data scanned from the front side. **DFU** [–63/**–12**/63]
	004*	Front Digital AE: Low Limit	Sets the low limit at 120 for the value used in digital A/E processing for the image data scanned from the front side. **DFU** 0: No low limit **1**: Low limit set
	010*	Front Scan Image Adj. Mode: Text	Changes the density of front side (SBU) scanned image data and the MTF. [0~3/**0**/1] 0: Normal 1: Low Level 2: Medium Level 3: High Level
	011*	Front Scan Image Adj. Mode: Photo	
	012*	Front Scan Image Adj. Mode: Text/Photo	
	013*	Front Scan Image Adj. Mode: Pale	
	014*	Front Scan Image Adj. Mode: Generation	
	019*	Front Scan Image Adj. Mode: Setting	
4902	Back Side Scan Correction		
	001*	Back Shading Correction: AEREF Setting	**DFU**
	002	Back Shading Correction: Shading Data Output	**DFU**
	003*	Back Digital AE: AEREF Setting	**DFU**
	004*	Back Digital AE: Low Limit	**DFU**
	010*	Back Scan Image Adj. Mode: Text	Changes the density of front side (SBU) scanned image data and the MTF. [0~2/**0**/1] 0: Normal 1: Low Level 2: Medium Level 3: High Level
	011*	Back Scan Image Adj. Mode: Photo	
	012*	Back Scan Image Adj. Mode: Text/Photo	
	013*	Back Scan Image Adj. Mode: Pale	
	014*	Back Scan Image Adj. Mode: Generation	
	019*	Back Scan Image Adj. Scan Select Mode	

SP	Number/Name		Function/[Setting]
4903*	Image Quality Adjustment		
	001	Text Mode (25.0~55%)	Adjusts the sharpness and texture of images processed in Text mode. [0~10/**5**/1] 0: Softest 1: Soft Mode 2: ↑ 3: ↑ 4: ↑ 5: Normal 6: ↓ 7: ↓ 8: ↓ 9: Sharp Mode 10: Sharpest
	002	Text Mode (55.5~75.0%	
	003	Text Mode (75.5%~160%)	
	004	Text Mode (160.5~400.0%)	
	005	Photo Mode Dithering (25.0~55%)	Adjusts the sharpness and texture of images processed in Photo mode with dithering [0~6/**3**/1] 0: Softest 1: ↑ 2: ↑ 3: Print Original Mode 4: ↓ 5: ↓ 6: Sharpest
	006	Photo Mode Dithering (55.5~75.0%	
	007	Photo Mode Dithering (75.5%~160%)	
	008	Photo Mode Dithering (160.5~400.0%)	
	009	Photo Mode Error Diffusion (25.0~55%)	Adjusts the sharpness and texture of images processed in Photo mode with error diffusion. [0~6/**1**/1] 0 Softest 1: Normal (Default) 2: ↑ 3: ↑ 4: ↑ 5: Print Original Mode 6: Sharpest
	010	Photo Mode Error Diffusion (55.5~75.0%	
	011	Photo Mode Error Diffusion (75.5%~160%)	
	012	Photo Mode Error Diffusion (160.5~400.0%)	
	013	Text/Photo Mode (25.0~55%)	Adjusts the sharpness and texture of images processed in Text/Photo mode. 0: Softest 1: Photo Priority 2: ↑ 3: ↑ 4 ↑ **5 Normal (Default)** 6 ↓ 7 ↓ 8 ↓ 9 Text Priority Sharpest
	014	Text/Photo Mode (55.5~75.0%	
	015	Text/Photo Mode (75.5%~160%)	
	016	Text/Photo Mode (160.5~400.0%)	

Service Tables

SP	Number/Name		Function/[Setting]
4903*	Image Quality Adjustment		
	017	Pale Mode (25.0~55%)	Adjusts the sharpness and texture of images processed in Pale mode. [0~10/5/1] 0: Softest 1: Soft 2: ↑ 3: ↑ 4: ↑ **5: Normal (Default)** 6: ↓ 7: ↓ 8: ↓ 9; Sharp 10: Sharpest
	018	Pale Mode (55.5~75.0%	
	019	Pale Mode (75.5%~160%)	
	020	Pale Mode (160.5~400.0%)	
	021	Generation Mode (25.0~55%)	Adjusts the sharpness and texture of images processed in Generation mode. [0~10/5/1] 0: Softest 1: Soft 2: ↑ 3: ↑ 4: ↑ **5: Normal (Default)** 6: ↓ 7: ↓ 8: ↓ 9: Sharp 10: Sharpest
	022	Generation Mode (55.5~75.0%	
	023	Generation Mode (75.5%~160%)	
	024	Generation Mode (160.5~400.0%)	
	060	Independent Dot Erase: Text Mode	Sets the level for independent dot erasure. [0~14/**0**/1] 0: Off The higher the setting, the stronger the effect.
	061	Independent Dot Erase: Photo Mode	
	062	Independent Dot Erase: Text/Photo Mode	
	063	Independent Dot Erase: Pale Mode	
	064	Independent Dot: Generation Mode	
	070	Background Erase: Text Mode	Sets the level for background erase. [0~255/**0**/1] 0: Off The higher the setting, the stronger the effect.
	071	Background Erase: Photo Mode	
	072	Background Erase: Text/Photo Mode	
	073	Background Erase: Pale Mode	
	074	Background Erase: Generation Mode	

SP	Number/Name		Function/[Setting]
4903*	Image Quality Adjustment		
	080	Line Width Correction: Text Mode Select	Selects the level of line width correction for Text mode. [0~8/**1**/1] The higher the setting, the thicker the line.
	081	Line Width Correction: Text Mode (Main Scan)	Switches on line width correction in the main scan direction in text mode. 0: Line width correction OFF **1**: Line width correction ON
	082	Line Width Correction: Text Mode (Sub Scan)	Switches on line width correction in the sub scan direction in text mode. 0: Line width correction OFF **1**: Line width correction ON
	083	Line Width Correction: Photo Mode Select	Selects the level of line width correction for photo mode. [0~8/**4**/1] The higher the setting, the thicker the line.
	084	Line Width Correction: Photo Mode (Main Scan)	Switches on line width processing for the main scan direction in photo mode. 0: Line width correction OFF **1**: Line width correction ON
	085	Line Width Correction: Photo Mode (Sub Scan)	Selects the level of line width processing for sub scan direction in photo mode. [0~8/**1**/1] The higher the setting, the thicker the line.
	086	Line Width Correction: Text/Photo Mode Select	Selects the level of line width processing for text/photo mode. [0~8/**4**/1] The higher the setting, the thicker the line.
	087	Line Width Correction: Text/Photo Mode (Main Scan)	Switches on line width processing for the main scan direction in text/photo mode. 0: Line width correction OFF **1**: Line width correction ON
	088	Line Width Correction: Text/Photo Mode (Sub Scan)	Switches on line width processing for the the sub scan direction in text/photo mode. 0: Line width correction OFF **1**: Line width correction ON
	089	Line Width Correction: Pale Mode Select	Selects the level of line width processing for pale mode. [0~8/**4**/1] The higher the setting, the thicker the line.
	090	Line Width Correction: Pale Mode (Main Scan)	Switches on line width processing for the main scan direction in pale mode. 0: Line width correction OFF **1**: Line width correction ON
	091	Line Width Correction: Pale Mode (Sub Scan)	Switches on line width processing for the sub scan direction in pale mode. 0: Line width correction OFF **1**: Line width correction ON

SP	Number/Name		Function/[Setting]
4903*	Image Quality Adjustment		
	092	Line Width Correction: Generation Mode Select	Selects the level of line width processing for generation mode. [0~8/**0**/1] The higher the setting, the thicker the line.
	093	Line Width Correction: Generation Mode (Main Scan)	Switches on line width processing for the main scan direction in generation mode. 0: Line width correction OFF **1**: Line width correction ON
	094	Line Width Correction: Generation Mode (Sub Scan)	Switches on line width processing for the sub scan direction in generation mode. 0: Line width correction OFF **1**: Line width correction ON
4904*	Image Quality/Exposure Thin Line		
	002	Image Processing Setting: Photo Mode	Selects the image processing mode for Photo Mode. 0: 106 line dither processing 1: 141 line dither processing 2: 212 line dither processing 3: Error diffusion processing [0~3/**0**/1]
	020	Text Mode	Selects the line width correction level for Text mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)
	021	Photo Mode	Selects the line width correction level for Photo mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)
	022	Text/Photo Mode	Selects the line width correction level for Text/Photo mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)

SP	Number/Name		Function/[Setting]
4904*	Image Quality/Exposure Thin Line		
	023	Pale Mode	Selects the line width correction level for Pale mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)
	024	Generation Mode	Selects the line width correction level for Generation mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)
4909	Image Processing Through		
	001	IPU Front Side Image Module	**DFU**
	002	IPU Back Side Image Module	
	003	IPU Plotter Image Module	
4999	ADF Scan Glass Dust Check		
	001	Enables or disables the check: 0: OFF, 1: ON **Default: 0**	When this SP is enabled, and dust is detected, a message is displayed on the LCD instructing the operator to clean the exposure glass. • Before enabling this mode, make sure to clean the scanning guide plate (B4772517). If this is not done, a misdetection may occur. • To use this function, it is necessary to install the following firmware versions: BCU: V4.02 or later GW Controller: V3/51 or later
	002	Detection Level (Weak 0 - 8 Strong) **Default: 4**	

SP5-xxx Mode

SP	Number/Name		Function/[Setting]
5024*	mm/inch Display Selection		Selects the unit of measurement. After selection, turn the main power switch off and on. **1**: inch 0: mm
5044	Operation Panel Bit Switch		
	001*	SW 1	Numeral keys 0-7 can be used to change octal value of op panel bit switches. 00000000 (00H)
	002	SW 2	
	003*		
5047	Reverse Paper Disp		Determines whether the tray loaded with paper printed on one side is displayed. [0~1/**0**/1] 0: Not displayed 1: Displayed
5104*	A3/DLT Double Count		Specifies whether the counter is doubled for A3/11"x17" paper. [0~1/**0**/1] 0: No 1: Yes *If "1" is selected, the total counter and the current user code counter count up twice when A3/11"x17" paper is used.*
5106*	Auto Density Level		Selects the image density levels that are used in ADS mode by assigning a value to the center notch. [1~7/**4**/1 step/notch]
5112*	Non-standard Paper Selection		Determines whether a non-standard paper size can be input for the universal cassette trays (Tray 2, Tray 3) [0~1/**0**/1] **0:** No 1: Yes. If "1" is selected, the customer will be able to input a non-standard paper size using the UP mode.
5113*	Optional Counter Type		Selects the type of counter: **0:** None 1: Key card (RK 3,4) **Japan only** 2: Key card (countdown type) 3: Pre-paid card 4: Coin lock 5: MF key card 6: Not used 7: Not used 8: Key counter + Non-count system 9: Barcode printer 11: Exp Key Card (Add) 12: Exp Key Card (Deduct)

SP	Number/Name		Function/[Setting]
5118*	Disable Copying		Temporarily denies access to the machine. **Japan Only** [0~1/**0**/1] 0: Release for normal operation 1: Prohibit access to machine.
5120*	Mode Clear Opt. Counter Removal		Do not change. **Japan Only** [0~2/**0**/1] 0: Normal reset 1: Resets before job start/after completion 2: Normally no reset
5121*	Counter Up Timing		Determines whether the optional key counter counts up at paper feed-in or at paper exit. **Japan Only** [0~1/**0**/1] 0: Feed count 1: Exit count
5126	F Original Size Selection		Selects size: **0:** 8.5”x13” 1: 8.5”x13.25” 2: 8”x13”
5127	APS OFF Mode		This SP can be used to switch APS (Auto Paper Select) off when a coin lock or pre-paid key card device is connected to the machine. [**0**/1] 0: On 1: Off
5128	Copy Mode With Key/Card Option		**Japan Only**
5129	F Paper Size Selection		Selects size: **0:** 8”x13” 1: 8.5”x13” 2: 8.25”x13”
5131*	Paper Size Type Selection		Selects the paper size type (for originals and copy paper). (Only needs to be adjusted if the optional printer controller is installed) [0~2/**1**/1] 0: Japan 1: North America 2: Europe After changing the value, turn the main power switch off and on.
5141*	Tray for Tab Sheets		
	001	By-pass	Specifies which tray contains tab sheets. [0~1/**0**/1] 0: OFF 1: ON ***SP 5141 Continued on next page***
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4 (Japan Only)	
	006	Tray 5 (LCT)	

SP	Number/Name		Function/[Setting]
5141*	Tray for Tab Sheets		
	011	Tab Height: By-pass	Sets the height of the tabs for each paper source for feed tab sheets. The height of a tab is measured from the edge of the paper to the edge of the tab. [0~152/**130**/0.1 mm] *The actual height of the tab is the set value multiplied by 0.1. The default tab height then is:* *130 x 0.1 = 13 mm* *To change this setting, measure the height of the tab in millimeters, multiply by 10, then enter the product. For example, if the measured height of the tab is 10 millimeters, enter "100".*
	012	Tab Height: Tray 1	
	013	Tab Height: Tray 2	
	014	Tab Height: Tray 3	
	015	Tab Height: Tray 4	
	016	Tab Height: Tray 5	
5145	Cardboard Paper		
	001	By-pass Tray	Specifies which tray contains thick paper. [0~1/**0**/1 0: OFF 1: ON
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4 (Japan Only)	
	006	Tray 5 (LCT)	
5146	Printed P Tray		
	001	By-pass Tray	Specifies which tray contains paper pre-printed forms for overlay printing. [0~1/**0**/1] **0**: Off 1: On
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4 (Japan Only)	
	006	Tray 5 (LCT)	
	011	By-pass Tray	Specifies the position of the letterhead on the paper in the tray. [[0~3/**0**/1] 0: 0° 1: 90° 2: 180° 3: 270°
	012	Tray 1	
	013	Tray 2	
	014	Tray 3	
	015	Tray 4 (Japan Only)	
	016	Tray 5 (LCT)	
	021	By-pass Tray	Enables the settings for 011~016 or 001~006. [0~1/**1**/1] 0: Enables the settings for 011~016 (letterhead). 1: Enables the settings for 001~006 (pre-printed forms). *If either feature is selected with the User Tools, the SP settings are changed by the User Tool settings.*
	022	Tray 1	
	023	Tray 2	
	024	Tray 3	
	025	Tray 4 (Japan Only)	
	026	Tray 5 (LCT)	

SP	Number/Name		Function/[Setting]
5147	Punch P Tray		
	001	By-pass	Specifies which tray contains punched paper. [0~1/**0**/1] 0: Off 1: On
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4 (Japan Only)	
	006	Tray 5 (LCT)	
	011	By-pass Tray	Informs the machine about the location of the punch holes on the punched paper loaded in the feed station. [0~3/**0**/1] 0: Left 1: Right 2: Top 3: Bottom
	012	Tray 1	
	013	Tray 2	
	014	Tray 3	
	015	Tray 4 (Japan Only)	
	016	Tray 5 (LCT)	
5150	By-pass Wide Paper Mode (Long Paper)		Sets up the by-pass tray for long paper. [0~1/**0**/1] 0: Off 1: On. Sets the tray for feeding paper up to 600 mm long. *With this SP selected on, paper jams are not detected in the paper path.*
5154	Exit Tray Set		
	001	Limitless	Allows 'limitless' paper output. [0~1/**0**/1] 0: Off 1: On. Once the initial paper exit is full, another will be selected automatically. *Switch this SP on only in the job queuing mode, i.e. when printing jobs in the order of selection with the print priority function. Print priority is set in the User Tools mode (System Settings> General Features> Print Priority> Job Order.)*
	002	Override	Allows overriding of the setting for SP5154 001. [0~1/**0**/1] 0: Off 1: On *This SP can be set only when on is selected for SP5154 001. Changing this setting has no effect on the machine when SP5154 001 is off.*

SP	Number/Name		Function/[Setting]
5212*	Page Numbering		
	003	Duplex Printout Left/Right Position	Horizontally positions the page numbers printed on both sides during duplexing. [–10~+10/**0**/1 mm] 0 is center, minus is left, + is right.
	004	Duplex Printout High/Low Position	Vertically positions the page numbers printed on both sides during duplexing. [–10~+10/**0**/1 mm] 0 is center, minus is down, + is up.
5302*	Set Time		Sets the time clock for the local time. [–1440~1440/**+300**/1 min.]
5404*	Password Code Clear Count		
	001	User Code Counter Clear	To clear all user code counters press Execute
5501*	PM Alarm Level		Sets the count level for the PM alarm. [0~9999/**0**/1] 0: Alarm disabled The PM alarm goes off when the print count reaches this value multiplied by 1,000.
5504*	Jam Alarm		
	001	Jam Alarm Level	RSS functions. **Japan Only**.
	002	Jam Auto Call	
5505*	Error Alarm		**Japan Only**
5507	Supply Alarm **Japan Only**		
	001	Paper Supply Alarm	Enables or disables the paper supply call function. **Japan Only** [0~1/**0**/1] 0: No call 1: Call If this SP is enabled, use the settings below to set the supply level to initiate a call for each paper size.
	002	Staple Supply Alarm	Enables or disables the staple supply call function. **Japan Only** [0~1/**0**/1] 0: No call 1: Call A staple supply call is issued for every 1,000 staples consumed.
	003	Toner Supply Alarm	Enables or disables the toner supply call function. **Japan Only** [0~1/**0**/1] 0: No call 1: Call

SP	Number/Name		Function/[Setting]
5507	Supply Alarm **Japan Only**		
	128*	Interval: Other	Sets the level to initiate a paper supply call for each paper size, if SP 5507 001 is enabled. **Japan Only** [00250~10,000/**1000**/1]
	132*	Interval: A3	
	134*	Interval: A4	
	141*	Interval: A5	
	142*	Interval: B4	
	160*	Interval: B5	
	164*	Interval: DLT	
	166*	Interval: LT	
	172*	Interval HLT	
5508*	Auto Call Settings		**Japan Only**
	001	Remain of Jam	Enables/disables initiating a call for an unattended paper jam. [0~1/**1**/1] 0: Disable 1: Enable
	002	Continuous Jam Occurrence	Enables/disables initiating a call for continuous paper jam. [0~1/**1**/1] 0: Disable 1: Enable
	003	Continuous Door Open	Enables/disables initiating a call when the front door remains open. [0~1/**1**/1] 0: Disable 1: Enable
	004	Low Call Mode	Enables/disables the new call specifications designed to reduce the number of calls. [0~1/**1**/1] 0: Normal mode 1: Reduced mode
	011	Jam Detection: Time Length	Sets the length of time to determine the length of an unattended paper jam. [03~30/**10**/1] This setting is enabled only when SP5508 004 is enabled (set to 1).
	012	Jam Detection Continuous Count	Sets the number of continuous paper jams required to initiate a call. [02~10/**5**/1] This setting is enabled only when SP5508 004 is enabled (set to 1).
	013	Door Open: Time Length	Sets the length of time the remains opens to determine when to initiate a call. [03~30/**10**/1] This setting is enabled only when SP5508 004 is enabled (set to 1).

SP	Number/Name		Function/[Setting]
5508*	021	Jam Operation: Time Length	Determines what happens when a paper jam is left unattended. [0~1/**1**/1] 0: Automatic Call 1: Audible Warning at Machine
	022	Jam Operation: Continuous Count	Determines what happens when continuous paper jams occur. [0~1/**1**/1] 0: Automatic Call 1: Audible Warning at Machine
	023*	Door Operation: Time Length	Determines what happens when the front door remains open. [0~1/**1**/1] 0: Automatic Call 1: Audible Warning at Machine
5513	Parts Alarm Level Count **Japan Only**		
	001	Normal	Sets the parts replacement alarm counter to sound for the number of copies. [1~999/**300**/1K]
	002	DF	Sets the parts replacement alarm counter to sound for the number of scanned originals. [1~999/**80**/1]
5514	Parts Alarm Level		**Japan Only**
	001	Normal	
	002	DF	
5801	Memory Clear		Clears all data from NVRAM. Before executing this SP, print an SMC Report. (☛ 5.2.1)
	001	All Clear	Initializes items 002~0105.
	002	Engine Clear	For details, see 5.2.1.
	003	SCS	
	004	IMH Memory Clear	
	005	MCS	
	006	Copier Application	
	007	Fax Application	
	008	PRT	
	009	Scanner Application	
	010	Network Application	
	011	NCS	
	014	Clear DCS Setting	
	015	Clear UCS Setting	

SP	Number/Name		Function/[Setting]
5802*	Printer Free Run		Makes a base engine free run 0: Release free run mode 1: Enable free run mode Return this setting to off (0) after testing is completed.
5803	Input Check		Displays signals received from sensors and switches. (☛ 5.7.1)
5804	Output Check		Turns on the electrical components individually for testing. (☛ 5.7.2)
5807	Option Connection Check		
	001	ADF (1:Connection)	Displays a 1 or 0 to indicate the status of the device.: 1: Connected 0: Not connected
	002	Bank (1:Connection)	
	003	LCT (1:Connection)	
	004	Finisher (1:Connection)	
5811*	Machine No. Setting		Enters the machine serial number. **DFU**
5812*	Service Tel. No. Setting		
	001	Service	Inputs the telephone number of the CE (displayed when a service call condition occurs.) (•/*) : Enters a pause. ⌫ : Deletes the previous number.
	002	Fax	Use this to input the fax number of the CE printed on the Counter Report (UP mode) (•/*) : Enters a pause. ⌫ : Deletes the previous number.
	003	Supply	Displayed on the initial SP screen.
	004	Operation	Allows the service center contact telephone number to be displayed on the initial screen.
5816*	CSS Function		Switches the CSS function on/off. Do not change this setting. **Japan Only** [0~1/**0**/1]
5821*	CSS-PI Device Code		Do not change**. Japan Only** [0~4/**0**/1]
5824	NVRAM Data Upload		Uploads the NVRAM data to a flash memory card. Press Start When uploading this SP mode data, the front door must be open.
5825	NVRAM Data Download		Downloads data from the flash memory to the NVRAM in the machine. After downloading is completed, remove the card and cycle the machine off and on.

SP	Number/Name		Function/[Setting]
5828	Network Setting		
	065	Job Spooling	Enable or disables Job Spooling.
	069	Job Spooling Protocol	Enable or disables LPR and IPP protocols. 0: Enables 1: Disables (default) Bit 0: LPR Bit 2: IPP All other bits: Not Used NOTE: A table is displayed for all 8 bits, numbered 0 to 7, along with their current settings (0 or 1).
	012	Device Name	Use these SPs to perform the network settings.
	074	Delete Password	
	075	DNS Server From DHCP	
	076	DNS Server 1	
	077	DNS Server 2	
	078	DNS Server 3	
	079	Domain Name (Ethernet)	
	080	Host Name (Ethernet)	
5831	Initial Setting Clear		Press Execute to initialize all User Tool settings and restore them to their factory settings.
5832	HDD Formatting		
	001	HDD Formatting (All)	Enter the SP number for the partition to initialize, then press #. When the execution ends, cycle the machine off and on.
	002	HDD Formatting (IMH)	
	003	HDD Formatting (Thumbnails)	
	004	HDD Formatting (Job Log)	
	005	HDD Formatting (Printer Fonts)	
	006	HDD Formatting (User Info. 1)	
	007	HDD Formatting (User Info. 2)	
	008	HDD Formatting (Scanner Mail)	
	009	HDD Formatting (Data for Design)	
	011	HDD Formatting (Ridoc)	

SP	Number/Name		Function/[Setting]
5833	Job Log On/Off		Determines whether to send the job log on the Poplar server. **Japan Only** [**0**/1] 0: No send 1: Send
5836*	Capture		
	001	Capture Function	With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected. **DFU** [0~1/**0**/1] 0: Disable 1: Enable
	002	Panel Setting	Determines whether each capture related setting can be selected or updated from the initial system screen. [0~1/0/1] 0: Disable 1: Enable The setting for SP5836 001 has priority.
	061	Captured File Resend	In order to reduce the load on the network, only the captured document is sent (0), or the network accurately maintains the captured document for re-sending. [0~1/**0**/1]
5839*	IEEE 1394		This SP is displayed only when an IEEE 1394 (firewire) card is installed.
	004	Device Name	Enter the name of the device used on the network. Example: RNP0000000000
	007	Cycle Master	Enables or disables the cycle master function for the 1394 bus standard. [0~1/**1**/1] 0: Disable (Off) 1: Enable (On)
	008	BCR Mode	Determines how BCR (Broadcast Channel Register) operates on the 1394 standard bus when the independent node is in any mode other than IRM. (NVRAM: 2-bits) (Range: Binary settings 0~3) 00: Off. Writes from the IRM. 01: Copies BCR of the IRM after no data is written from the IRM after the prescribed time has elapsed. 10: Reserved. Not used. 11: BCR normally enabled.

SP	Number/Name		Function/[Setting]
5839*	009	1394a Check	Conducts a 1394a check of IRM when the independent node is in any mode other than IRM. 0: Off, 1: On 0: Checks whether IRM conforms to 1394a 1: After IRM is checked, if IRM does not conform then independent node switches to IRM.
	010	Unique ID	Lists the ID (Node_Unique_ID) assigned to the device by the system administrator. [0~1/**1**/1] 0: Off, 1: On 0: Does not list the Node_Unique_ID assigned by the system administrator. Instead, the Source_ID of the GASP header in the ARP is used. 1: The Node_Unique_ID assigned by the system administrator is used, and the Source_ID of the GASP header in the ARP is ignored. Also, when the serial bus is reset, extra bus transactions are opened for the enumeration.
	011	Logout	Handles the login request of the login initiator for SBP-2. (1-bit) [0~1/**1**/1] 0: Off, 1: On 0: Disable (refuse login) Initiator retry during login Login refusal on arrival of login request (standard operation) 1: Enable (force logout) Initiator retry during login Login refusal on arrival of login request, and the initiator forces the login.
	012	Login	Enables or disables the exclusive login feature (SBP-2 related). [0~1/1/1] 0: Off, 1: On 0: Disables. The exclusive login (LOGIN ORB exClusvie it) is ignored. 1: Enables. Exclusive login is in effect.
	013	Login MAX	Sets the maximum number of logins from the initiator (6-bits) [0~63/**8**/1] 0: Reserved 63: Reserved

SP	Number/Name		Function/[Setting]
5840*	IEEE 802.11b		
	004	SSID	Enters a unique ID (up to 32 characters long) to identify the device when it is operating in an area with another wireless LAN network.
	006	Channel MAX	Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries. [1~14/**14**/1]
	007	Channel MIN	Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries. [1~14/**1**/1]
	010	WEP Key	A security feature of wireless LAN, Wired Equivalent Privacy (WEP) is a coding system designed to protect wireless data transmission. In order to unlock encoded data, the same WEP key is required on the receiving side. WEP is employed in both the ad hoc and infrastructure mode. Range: Binary 0~3 00: 1st Key 01: 2nd Key (Reserved) 10: 3rd Key (Reserved) 11: 4th Key (Reserved)
	011	WEP Key Select	Determines how the initiator (SBP-2) handles subsequent login requests. [0~1/**0**/1] 0: If the initiator receives another login request while logging in, the request is refused. 1: If the initiator receives another login request while logging in, the request is refused and the initiator logs out. *Displayed only when the wireless LAN card is installed.*

SP	Number/Name		Function/[Setting]
5841*	Supply Name Setting		Press the User Tools key. These names appear when the user presses the Inquiry button on the User Tools screen.
	001	Toner Name Setting: Black	Enter the name of the toner in use.
	005	Staple Std	Enter the name of the staples in use for normal stapling (not booklet stapling)
	006	Staple Bind	Enter the name of the staples in use for booklet stapling.
	007	Org Stamp	**Japan Only**
5842*	001	Net File Analysis Mode Setting	DFU
5844*	USB		
	001	Transmission Rate	Sets the speed for USB data transmission. Full Speed Full Speed / Auto Change
	002	Vendor ID	Sets the vendor ID: Initial Setting: 0x05A Ricoh Company [0x0000~0xFFFF/0x05A/1] **DFU**
	003	Product ID	Sets the product ID. [0x0000~0xFFFF/0x0403/1] **DFU**
	004	Device Release No.	Sets the device release number of the BCD (binary coded decimal) display. [0000~9999/0100/1] **DFU** Enter as a decimal number. NCS converts the number to hexadecimal number recognized as the BCD.
5845*	Delivery Server		Provides items for delivery server settings.
	001	FTP Port No.	[0~65535/**3670**/1]
	002	IP Address	[0~FFFFFFFF/0x00/1
	003	Retry Attempts	[60~900/**300**/1]
	004	Number of Retries	[0~99/**3**/1]
	005	Capture Server IP Address	[0~0xFFFFFFF]
	006	Error Display Time	[0~999/**300**/1]
	007	Options	[0~1/**0**/1]

SP	Number/Name		Function/[Setting]
5846*	UCS Setting		
	001	Machine ID (Delivery Server)	Displays the unique device ID in use by the delivery server directory. The value is only displayed and cannot be changed. This ID is created from the NIC MAC or IEEE 1394 EUI. The ID is displayed as either 6-byte or 8-byte binary. 6-byte %02X.%02X.%02X.%02X.%02X.%02X 8-byte %02X.%02X.%02X.%02X.%02X.%02X.%02X.%02X
	002	Machine ID Clear (Delivery Server)	Clears the unique ID of the device used as the name in the file transfer directory. Execute this SP if the connection of the device to the delivery server is unstable. After clearing the ID, the ID will be established again automatically by cycling the machine off and on.
	003	Max. Length of Entry	Changes the maximum number of entries that UCS can handle. [2000~50000/**2000**/1] If a value smaller than the present value is set, the UCS managed data is cleared, and the data (excluding user code information) is displayed.
	004	Delivery Server Model	Changes the model of the transfer server registered for the I/O device. [0~4/**0**/1] 0: Not used 1: SG1 Provided 2: SG1 Package 3: SG2 Provided 4: SG2 Package
	005	Delivery Server Capability	Changes the capability of the server registered for the I/O device. Bit 7 = 1 Comment information Bit 6 = 1 Address direct entry possible Bit 5 = 1 Mail Rx confirmation possible Bit 4 = 1 Address book auto update Bit 3 = 1 Fax Rx function
	006	Delivery Server Retry Timer	Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book. [0~255/**0**/1 s] 0: No retries
	007	Delivery Server Retry Times	Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book. [0~255/**0**/1]

SP	Number/Name		Function/[Setting]
5846*	050	Initialize All Directory Information	Clears all the directory information managed by UCS. Also clears the user codes.
	099	Bit Switch	
5847*	Net File Mag. Rate		Changes the default settings of image data transferred externally by the Net File page reference function. [0~2/] 0: 1x 1: ½x 2: ¼x
	001	Copy: Color	[0~2/**2**/1]
	002	Copy: B&W Text	[0~2/**0**/1]
	003	Copy: Other B&W	[0~2/**2**/1]
	004	Printer: Color	[0~2/**2**/1]
	005	Printer: B&W Binary	[0~2/**0**/1]
	006	Printer: B&W Dither	[0~2/**2**/1]
5848*	Net File Page Quality Default for JPEG		Selects the default setting for the quality of JPEG data files transferred externally by the Net File Page reference function of [5~95/**50**/1]
5849*	Counter Clear Day		Sets the delivery date for the machine. **DFU**
5850*	Address Book Function		
	001	Switch Module	Selects the module for managing user information. [0~1/**1**/1] 0: SCS 1: UCS
	002	Select Title	Selects the default heading of the address book. [2~4/**2**/1] 2: Heading 1 3: Heading 2 4: Heading 3
5852	SMTP		Simple Mail Transfer Protocol. The protocol for communication between Internet main MTAs (Message Transfer Agents).
	001	Server Name	Sets the server name.
	002	Port Number	Sets the port number
5907*	Plug & Play Maker/Model Name		Selects the brand name and the production name for Windows Plug & Play. This information is stored in the NVRAM. If the NVRAM is defective, these names should be registered again. After selecting, press the “Original Type” key and “**#**” key at the same time. When the setting is completed, the beeper sounds five times.

SP	Number/Name		Function/[Setting]
5913	Switchover Permission Time		Sets the length of time to elapse before allowing another application to take control of the display when the application currently controlling the display is not operating because a key has not been pressed. [3~30/**3**/1 s]
5914*	Application Counter Display		Selects the total counts that will be displayed in the UP mode.
	001	Print Counter	[0~1/**0**/1 0: Not displayed 1: Displayed
	003	Copier Counter	
5915*	Mechanical Counter Detection		Displays whether the mechanical counter is installed in the machine. [0~1/**0**/1] 0: Not detected. 1: Detected 2: Unknown
5918*	A3/DLT Counter Display		Determines whether pressing the counter key displays count confirmation: system initial settings → system manager settings → counter [0~1/**0**/1] 0: No display 1: Display *This SP affects the display only, and has no effect on SP5104 (A3/DLT Double Count).*
5921	Key Card Setting		Enables operation with a key card device outside Japan. [0~1/**0**/1] 0: No key card operation 1: Key card operation
5959*	Paper Size		
	001	Tray 1	Tray 1 (Tandem Tray) can accept two paper sizes: A4 LEF and LT LEF. Enter the correct number to select the size of the paper loaded in Tray 1: A4 LEF: 5 LT LEF: 38 If the A3/DLT Tray Kit B475 is installed, enter the correct number to select the size of the paper loaded in the kit:

Size	No.	Size	No.
A3 SEF	132	11" x 17"	160
B4 SEF	141	8 1/2" x 14" SEF	164
A4 LEF	5	8 1/2" x 11" LEF	38
A4 SEF	133	8 1/2" x 11" SEF	166

SP	Number/Name		Function/[Setting]
5959*	Paper Size		
	005	Tray 4 (LCT)	Tray 4 (LCT) accepts three paper sizes. Enter the correct number of the size of the paper loaded in the LCT: A4 LEF: 5 B5 LEF: 14 LT LEF: 38 If the LG/B4 Feeder Kit B474 is installed, enter the correct number to select the size of the paper loaded in the kit: A4 SEF: 133 B4 SEF: 141 LG SEF: 164
	006	Cover Sheet	The Cover Interposer Tray B470 is provided with two arrays of paper size sensors to detect the paper size. However, some of the paper sizes may not be indicated correctly on the display panel. For more details, refer to the Cover Interposer Tray manual section “Paper Size Detection”.
5974*	Cherry Server		Do not change. **Japan Only**
5990	SMC Print		In the SP mode, press Copy Window to move to the copy screen, select the paper size, then press Start. Select A4/LT (Sideways) or larger to ensure that all the information prints. Press SP Window to return to the SP mode, select the desired print, and press Execute.
	001	All	
	002	SP Data	
	003	UP Data	
	004	Logging Data	
	005	Self-Diagnostic Report	
	007	NIB Summary	
	008	Net File Log	
	021	Copy UP Mode	
	022	Scanner SP Mode	
	023	Scanner UP Mode	

SP6-xxx Peripherals

SP	Number/Name		Function/[Setting]
6006*	ADF Registration Adjustment		
	001	ADF Horizontal Registration (Front)	Adjusts the side-to-side registration for the front/back in ADF mode. [–3~+3/**0**/0.1 mm]
	002	ADF Horizontal Registration (Back)	
	003	ADF Vertical Registration (Front)	Adjusts the vertical registration for the front/back in ADF mode. [–5~+5/**0**/0.1 mm]
	004	ADF Vertical Registration (Back)	
	005	ADF Buckle Adjustment 1	Adjusts the roller timing at the skew correction sensor/entrance roller. A higher setting causes more buckling. [–3.0~+3.0/**0**/0.1mm]
	006	ADF Buckle Adjustment 2	Adjusts the roller timing at the interval sensor/scanning roller. A higher setting causes more buckling. [–5.0~+5.0/**0**/0.1mm]
	007	ADF Trailing Edge Erase Margin (Front)	These settings adjust the erase margin for the trailing edges for the front/back. [–10~+10/**0**/0.5 mm].
	008	ADF Trailing Edge Erase Margin (Back)	
6007	ADF Input Check		Displays signals received from sensors and switches in the ADF. (☛ 5.7.3)
	001	Group 1	For details, see 5.7.3.
	002	Group 2	
	003	Group 3	
6008	ADF Output Check		Turns on the ADF electrical components individually for testing. (☛ 5.7.4)
	001	Feed Motor: Forward	
	002	Feed Motor: Reverse	
	003	Transport Motor: Forward	
	004	Exit Motor: Forward	
	005	Pick-up Motor: Reverse	
	006	Bottom Plate Motor: Forward	
	007	Bottom Plate Motor: Reverse	
6009	ADF Free Run		Performs an ADF free run in duplex original mode.
6010	ADF Stamp Position Adjustment		Not used.
6016	Original Size Determination Priority		Allows selection of alternate settings for automatic original size detection. (☛ 6.4.9)
6017*	Sheet Through Magnification		This changes the magnification by adjusting the speed of scanning. [–50(–5%)~+50(+5%)/**0**/0.1%]

SP	Number/Name		Function/[Setting]
6018*	Original Length Setting		Allows setting long originals; adjusts the ADF jam timing. ***(Do not change settings here; use the Special Original function from the operation panel.)*** Default: 440 mm (17") Maximum: 603 mm (23.7")
6020*	ADF Contact Mode In/Out		If the original is small (B6, A5, HLT), the delay sensor detects the leading edge of the sheet and delays the original at the entrance roller for the prescribed number of pulses to buckle the leading edge and correct skew. [0~1/**0**/1] 0: Delay skew correction only for small originals 1: Delay skew correction for all originals, regardless of size. (May reduce the scanning speed of the ADF)
6105*	Staple Position Adjustment		Adjusts the stapling position in the main scan direction. [–3.5~+3.5/**0**/0.5 mm] *A larger value shifts the stapling position outward.*
6113*	Punch Hole Adjustment		
	001	2-Hole	Adjusts the punch hole position in the sub-scan direction for the punch unit with two punch holes. [–7.5~+7.5/**0**/0.5 mm] *A larger value shifts the punch holes towards the edge of the paper.*
	002	3-Hole	Adjusts the punch hole position in the sub-scan direction for the punch unit with three punch holes. [–7.5~+7.5/**0**/0.5 mm] *A larger value shifts the punch holes towards the edge of the paper.*
6116*	Staple Limit Counter for Thick		Multiply the normal limit by this number to determine the staple limit number for thick paper. [1~3/**3**/1 sheet]
6119*	Punch Enabled (Thick Paper)		Allows punching heavier paper, including tab sheets. [0~1/**0**/1] 0: Punching thick paper prohibited 1: Punching thick paper allowed

SP	Number/Name		Function/[Setting]
6120*	Staple Jogger Adjustment		
	001	A3	Allows fine adjustment of the staple unit jogger fences for different paper sizes. [-1.5~1.5/**0**/0.5 mm] A higher value moves the fences away from the paper, while a lower value brings them closer in. **NOTES**: This SP mode is new to the firmware used with the SR840. To enable this SP mode, it is also necessary to install the following: 1. BCU v4.02b or later 2. SR850/860 ROM # B4685131 or later The CCK/MLB firmware (B5254108/4109) already contains this SP mode from its first production.
	002	B4	
	003	A4 T	
	004	A4 Y	
	005	B5 T	
	006	B5 Y	
	007	DLT	
	008	LG	
	009	LT T	
	010	LT Y	
	011	Other	
6900*	ADF Up/Down Setting		Sets the timing for raising and lowering the bottom plate of the ADF. [0~1/**0**/1] 0: Original set 1: Copy start
6902*	Fold Position Adjustment		Adjusts the fold position of the copies for saddle-stitching according to paper size.
	001	A3/DLT	[–3.0~+3.0/**0**/0.5 mm]
	002	B4	[–2.0~+2.0/**0**/0.5 mm]
	003	A4/LT	[–1.5~+1.5/**0**/0.5 mm]
NOTE: ***Always be sure to set SP 6902 first and then SP 6903. If they are set in the opposite order, the value of SP6902 will be added to that of SP 69033, causing the folding position for single-sheets to shift and the booklet to skew.***			
6903	Fold Position Adjustment (1 Sheet)		
	001	A3	Adjusts the folding position for single sheets Booklet copies, to minimize vertical folding skew. Adjustment Range: [-7.5mm to 7.5mm Steps:0.5mm] Default: **0mm** **NOTES**: To enable this SP mode, it is also necessary to install the following: 3. BCU v4.02b or later 4. SR850/860 ROM # B4685131 or later The CCK/MLB firmware (B5254108/4109) already contains this SP mode from its first production.
	002	B4	
	003	A4 lengthwise	
	004	DLT	
	005	LT lengthwise	
	006	Other	

SP7-xxx Data Logs

SP	Number/Name		Function/[Setting]
7001*	Main Motor Operation Time		Displays the total drum rotation time.
7002*	Original Counter		
	001	Total	Displays the total number of fed originals.
	002	Copy	Displays the total number of fed originals in copy mode.
	003	Fax	Not used.
	004	Document Box	Displays the total number of fed originals in document server mode.
	005	Scanner	Displays the total number of fed originals in scanner mode.
	006	Others	Displays the total number of fed originals in other modes.
7003*	Print Counter		Displays the total number of prints in all modes.
	001	Total Count	Displays the total number of prints in all modes.
	002	Copy	Displays the total number of prints in copy mode.
	003	Fax	Not used.
	004	Printer	Displays the total number of prints in printer mode.
	005	Others	Displays the total number of prints in other modes.
7006*	C/O, P/O Counter		
	001	C/O	Displays the number of sets of copies per original when making 10 or more sets of copies. When making 15 sets of copies of an original, this counter value will increase by “6”.
	002	P/O	Displays the number of sets of prints per original data when making 10 or more sets. When making 15 sets of prints of an original data, this counter value will increase by “6”.
7007*	Other Device Counters		
	001	Duplex Counter	Displays the count total for the selected item.
	002	A3/DLT Counter	
	003	Staple Counter	
	004	Scan Counter	

SP	Number/Name		Function/[Setting]
7101*	Print Count – Paper Size		Displays the total number of prints by paper size.
	005	A4 H	Displays the number of copies by paper size. Display range: 0~9999999
	006	A5 H	
	014	A5 H	
	038	LT H	
	044	HLT H	
	132	A3 H	
	133	A4 V	
	134	A5 V	
	141	B4 V	
	142	B5 V	
	160	DLT V	
	164	LG V	
	166	LT V	
	172	HLT V	
	255	Other	
7105*	P Type Counter		
	001	Normal	Displays the total number of prints by paper type. A single-sided print counts as 1 and a two-sided print counts as 2. Display range: 0~9999999
	002	Recycled	
	003	Special	
	004	Color 1	
	005	Color 2	
	006	Letterhead	
	007	Label	
	008	Thick	
	009	OHP	
	010	Used	
	011	Index (Tab Sheets)	
	012	Tracing	
	255	Others	
7201*	Total Scan Counter		Displays the total number of scanned originals.
7204*	Print Counter – Paper Trays		Displays the total number of sheets fed from each paper tray.
	001	By-pass	
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4	
	006	LCT	
	007	Inserter	
7205*	ADF Counter		Displays the total number of originals fed by the ADF.

SP	Number/Name		Function/[Setting]
7206*	Staple Counter		Displays the total number of staples used.
	001	Normal	
	002	Booklet	
7209*	Punch Counter		Displays the total number of times the punch has been used.
7301*	Number of Copies by Reproduction Ratio		
	001	Reduce 25% <-> 49%	Displays the total number of prints for each reproduction ratio range. Display range: 0~9999999 SP7848 clears these counters.
	002	Reduce 50% <-> 99%	
	003	Full Size	
	004	Enlarge 101% <-> 200%	
	005	Enlarge 201% <-> 400%	
	006	Free Mag. %	
	007	Free Size Mag. %	
	008	Auto Reduce/Enlarge	
7304*	Copy: Number of Copies by Mode		Displays the total number of copies by original type. SP7837 or SP7848 clears this counter.
	001	Text	
	002	Text/Photo	
	003	Photo	
	004	Generation Copy	
	005	Pale	
	006	Punching	
	007	Repeat	
	008	Sort	
	009	Staple	
	010	Series	
	011	Erase	
	012	Duplex	
	013	ADF	
	014	Double Copy	
	015	Duplex Original	
	016	Divide Copy	
	017	Combine 1 Side	
	018	Combine 2 Side	
	019	Booklet Gathering	
	020	Pamphlet Saddle-Stitch	
	021	Batch	
	022	SADF	
	023	Mixed Sizes	
	024	Stamp	
	025	Cover/Chapter Sheet	
	026	Chapter Page	

SP	Number/Name		Function/[Setting]
7305	Copy: Display Jobs by Continuous		Displays the total number of multiple print jobs by the size of the sets. SP7838 or SP7848 clears this counter.
	001	1 to 1	
	002	1 to 2 2<-> 5	
	003	1 to 6 <-> 10	
	004	1 to 11 <-> 20	
	005	1 to 21 <-> 50	
	006	1 to 51 <-> 100	
	007	1 to 101 <-> 300	
	008	1 to 301 <-> Over	
7306	Copy: Display Jobs by Mode		Displays the total number of copy jobs by operation mode (stapling, punching, etc.). SP7839 or SP7848 clears this counter. Doc. Svr. – Scan Count
	001	Sort	
	002	Staple	
	003	Punching	
	004	Reserve Copy	
	005	Check Copy	
7320	Doc. Svr. – Scan Count		Displays the total number of pages stored in the document server. SP7840 or SP7848 clears this counter. Doc038. Svr. – Original Size Display
	004	A3	
	005	A4	
	006	A5	
	013	B4	
	014	DLT	
	022	LG	
	036	LT	
	044	HLT	
	128	others	
7321	Doc038. Svr. – Original Size Display		Displays by paper size the total number of originals stored in the document server. SP7841 or SP7848 clears this counter.
	004	A3	
	005	A4	
	006	A5	
	013	B4	
	014	DLT	
	022	LG	
	036	LT	
	044	HLT	
	128	others	

SP	Number/Name		Function/[Setting]
7323	Doc. Svr. – Print Size Display		Displays by paper size the total number of prints stored in the document server. SP7842 or SP7848 clears this counter.
	005	A4 H	
	006	A5 H	
	014	B5 H	
	038	LT H	
	044	HLT H	
	128	other	
	132	A3 V	
	133	A4 V	
	134	A5 V	
	141	B4 V	
	142	B5 V	
	160	DLT V	
	164	LG V	
	166	LT V	
	172	HLT V	
	255	Other	
7324	Doc. Svr. – Print Job Counter		Displays the total number of jobs executed from the document server. SP7843 or SP7848 clears this counter.
	001	Duplex	
	002	Srt	
	003	Staple	
	004	Punch	
	005	Check Copy	
	006	Print 1st Page	
7325	Doc. Svr. – Job Count (Page No)		Displays the number of pages in jobs executed from the document server. SP7844 or SP7848 clears this counter.
	001	Page 1	
	002	Page 2	
	003	Pages 3 to 5	
	004	Pages 6 to 10	
	005	Pages 11 to end	
7326	Doc. Svr. – Job Count (File No.)		Displays the number of files in jobs executed from the document server. SP7845 or SP7848 clears this counter.
	001	File 1	
	002	Files 1 to 5	
	003	Files 6 to 10	
	004	Files 11 to end	

SP	Number/Name		Function/[Setting]
7327	Doc. Svr. – Job Count (Set No.)		Displays the number of sets of multiple page print jobs executed from the document server. SP7846 or SP7848 clears this counter.
	001	1 to 1	
	002	1 to 2 2<-> 5	
	003	1 to 6 <-> 10	
	004	1 to 11 <-> 20	
	005	1 to 21 <-> 50	
	006	1 to 51 <-> 100	
	007	1 to 101 <-> 300	
	008	1 to 301 <-> Over	
7328	Doc. Svr. – Job Count (Print Mode)		Displays the total number of prints in print mode executed from the document server. SP7847 or SP7848 clears this counter.
	006	Punch	
	008	Sort	
	009	Staple	
	012	Duplex	
	019	Booklet	
	020	Magazine	
	024	Stamp	
	025	Cover/Chapter Sheet/Switching	
	026	Slipsheet	
7401*	Total SC Counter		Displays the total number of SCs logged.
7403*	SC History		
	001	Latest	Displays information about the most recent service calls. The SC code number, total, and date are displayed for the 10 most recent service calls. However, for SC990 and SC991 (issued for software errors) three additional items are displayed: Line: The number of the line in the program code where the error occurred. Val: The value in the line that caused the error. File: The name of the file where the error occurred.
	002	Last 1	
	003	Last 2	
	004	Last 3	
	005	Last 4	
	006	Last 5	
	007	Last 6	
	008	Last 7	
	009	Last 8	
	010	Last 9	
7502*	Total Paper Jam Counter		Displays the total number of copy jams.
7503*	Total Original Jam Counter		Displays the total number of original jams.

SP	Number/Name		Function/[Setting]
7504	Paper Jam Counter by Location		Displays the list of possible locations where a jam could have occurred. Press the appropriate key to display the jam count for that location. These jams are caused by the failure of a sensor to activate.
	001	At Power On	
	003	1st Paper Feed Sensor: On	
	004	2nd Paper Feed Sensor: On	
	005	3rd Paper Feed Sensor: On	
	006	4th Paper Feed Sensor (Japan Only): On	
	007	LCT Paper Feed Sensor	
	008	1st Vertical Transport Sensor: On	
	009	2nd Vertical Transport Sensor: On	
	010	3rd Vertical Transport Sensor: On	
	011	4th Vertical Transport Sensor (Japan Only): On	
	012	Relay Sensor: On	
	013	Registration Sensor: On	
	014	Fusing Exit Sensor: On	
	015	Exit Unit Entrance Sensor: On	
	016	Paper Exit Sensor: On	
	019	Duplex Entrance Sensor: On	
	020	Duplex Transport Sensor 1: On	
	021	Duplex Transport Sensor 2: On	
	022	Duplex Transport Sensor 3: On	
	023	Duplex Inverter Sensor Exit Duplex	
	024	1-Bin Tray Sensor (Japan Only): On	
	034	By-pass Paper End Sensor: Non Feed	
	053	1st Paper Feed Sensor: Off	
	054	2nd Paper Feed Sensor: Off	
	055	3rd Paper Feed Sensor: Off	
	056	4th Paper Feed Sensor (Japan Only: Off	
	057	LCT Paper Feed Sensor	
	058	1st Vertical Transport Sensor: Off	
	059	2nd Vertical Transport Sensor: Off	
	060	3rd Vertical Transport Sensor: Off	
	061	4th Vertical Transport Sensor (Japan Only): Off	
	062	Relay Sensor: Off	
	063	Registration Sensor: Off	

SP	Number/Name		Function/[Setting]
7504	066	Paper Exit Sensor: Off	Displays the list of possible locations where a jam could have occurred. Press the appropriate key to display the jam count for that location. These jams are caused by the failure of a sensor to activate.
	069	Duplex Entrance Sensor: Off	
	071	Duplex Transport Sensor 2: Off	
	072	Duplex Transport Sensor 3: Off	
	073	Duplex Inverter Sensor	
	074	1 Bin Tray Sensor (Japan Only): Off	
	B469 Finisher (No Saddle Stitch)		
	101	Entrance Sensor	When the paper fails to activate the entrance sensor at the precise time or remains at the entrance sensor for longer than the prescribed time.
	102	Proof Tray Exit Sensor	When the paper fails to activate the proof tray exit sensor at the precise time after activating the entrance sensor or remains at the proof tray exit sensor for longer than the prescribed time.
	103	Exit Sensor	When the paper fails to activate the exit sensor at the precise time after activating the entrance sensor or remains at the exit sensor for longer than the prescribed time.
	104	Staple Entrance Sensor	When the paper fails to activate the staple entrance sensor at the precise time after activating the entrance sensor or remains at the staple entrance sensor for longer than the prescribed time.
	105	Exit Sensor after jogging	When the paper from the jogger unit fails to activate the exit sensor at the precise time or remains at the exit sensor for longer than the prescribed time.
	106	Stapler Unit 1	When the stapler unit fails to send any signals while stapling.
	109	Shift Motor	**Related SC733** When the signal status of the lower tray encoder sensor does not change at the precise time during motor rotation.
	110	Jogger Fence Motor	**Related SC722** When the status of the jogger fence HP sensor does not change at the precise time during jogger fence motor rotation.
	111	Shift Roller or Guide Plate Motor	**Related SC732, SC736** When the status of the shift roller HP sensor does not change at the precise time during shift roller motor rotation, or the status of the guide plate position sensor does not change at the precise time during guide plate motor rotation.

SP	Number/Name		Function/[Setting]
7504	112	Stapler Movement or Stapler Rotation Motor	**Related SC730, SC727** When the status of the stapler HP sensor does not change at the precise time during stapler movement motor rotation, or the status of the stapler rotation sensor does not change at the precise time during stapler rotation motor.
	113	Stapler Unit 2	**Related SC724** Not logged.
	115	Feed Out Belt Motor	**Related SC725** When the status of the feed out belt HP sensor does not change at the precise time during feed out belt motor rotation.
	116	Punch Hole Motor	**Related SC729** When the status of the punch HP sensor does not change at the precise time during punch hole motor rotation.
	B468 Finisher with Saddle Stitch		
	121	Entrance Sensor	When the paper fails to activate the entrance sensor at the precise time or remains at the entrance sensor for longer than the prescribed time.
	122	Proof Tray Exit Sensor	When the paper fails to activate the proof tray exit sensor at the precise time after activating the entrance sensor or remains at the proof tray exit sensor for longer than the prescribed time.
	123	Exit Sensor	When the paper fails to activate the exit sensor at the precise time after activating the entrance sensor or remains at the exit sensor for longer than the prescribed time.
	124	Staple Entrance Sensor	When the paper fails to activate the staple entrance sensor at the precise time after activating the entrance sensor or remains at the staple entrance sensor for longer than the prescribed time.
	125	Exit Sensor after jogging	When the paper from jogger unit fails to activate the exit sensor at the precise time or remains at the exit sensor for longer than the prescribed time.
	126	Stapler Unit 1	When the stapler unit fails to send any signals while stapling.
	127	Saddle Stitch Stapler Unit	When the saddle stitch stapler fails to send any signals while stapling.
	128	Saddle Stitch	When the status of the exit sensor does not change at the precise time during saddle stitching.
	129	Shift Motor	**Related SC733, SC726** When the status of the upper tray limit sensor does not change at the precise time while lifting the upper exit tray. The status of the upper tray full sensor does not change at the precise time while lowering the upper exit tray, or the status of the lower tray encoder sensor does not change at the precise time while moving the lower tray.

SP	Number/Name		Function/[Setting]
7504	130	Jogger Fence Motor	**Related SC722** When the status of the jogger fence HP sensor does not change at the precise time during jogger fence motor rotation.
	131	Shift Roller or Guide Plate Motor	**Related SC732, SC736** When the status of the shift roller HP sensor does not change at the precise time during shift roller motor rotation, or the status of the guide plate position sensor does not change at the precise time during guide plate motor rotation.
	132	Stapler Movement or Stapler Rotation Motor	**Related SC730, SC727** When the status of the stapler HP sensor does not change at the precise time during stapler movement motor rotation, or the status of the stapler rotation sensor does not change at the precise time during stapler rotation motor.
	133	Stapler Unit 2	**Related SC724, SC740, SC741** Not logged.
	134	Folder Plate Motor	**Related SC739** When the status of the folder plate HP sensor does not change at the precise time during folder plate motor rotation.
	135	Feed Out Belt Motor	**Related SC725** When the status of the feed out belt HP sensor does not change at the precise time during feed out belt motor rotation.
	136	Punch Hole Motor	**Related SC729** When the status of the punch HP sensor does not change at the precise time during punch hole motor rotation.
	B478 Finisher		
	141	Entrance Sensor	When the paper fails to activate the entrance sensor at the precise time or remains at the entrance sensor for longer than the prescribed time.
	142	Proof Tray Exit Sensor	When the paper fails to activate the proof tray exit sensor at the precise time after activating the entrance sensor or remains at the proof tray exit sensor for longer than the prescribed time.
	143	Exit Sensor	When the paper fails to activate the exit sensor at the precise time after activating the entrance sensor or remains at the exit sensor for longer than the prescribed time.
	144	Staple Entrance Sensor	When the paper fails to activate the staple entrance sensor at the precise time after activating the entrance sensor or remains at the staple entrance sensor for longer than the prescribed time.
	145	Exit Sensor after jogging	When the paper from jogger unit fails to activate the exit sensor at the precise time or remains at the exit sensor for longer than the prescribed time.
	148	Upper Transport Motor	When the upper transport motor fails to send any signals while rotating.

SP	Number/Name		Function/[Setting]
7504	149	Shift Motor	**Related SC733** When the status of the lower tray encoder sensor does not change at the precise time during shift motor rotation.
	150	Jogger Fence Motor	**Related SC722** When the status of the jogger fence HP sensor does not change at the precise time during jogger fence motor rotation.
	151	Shift Roller or Guide Plate Motor	**Related SC732, SC736** When the status of the shift roller HP sensor does not change at the precise time during shift roller motor rotation, or the status of the guide plate position sensor does not change at the precise time during guide plate motor rotation.
	153	Stapler Unit	**Related SC724** When the stapler unit fails to send any signals while stapling.
	155	Feed Out Belt Motor	**Related SC725** When the status of the feed out belt HP sensor does not change at the precise time during feed out belt motor rotation.
	156	Punch Hole Motor	**Related SC729** When the status of the punch HP sensor does not change at the precise time during punch hole motor rotation.
	157	Data	DFU
	B471 Mail Box		
	161	Transport Sensor 1	When the paper fails to activate transport sensor 1 at the precise time or remains at transport sensor 1 for longer than the prescribed time.
	162	Transport Sensor 2	When the paper fails to activate transport sensor 2 at the precise time or remains at transport sensor 2 for longer than the prescribed time..
	163	Transport Sensor 3	When the paper fails to activate transport sensor 3 at the precise time or remains at transport sensor 3 for longer than the prescribed time..
	164	Transport Sensor 4	When the paper fails to activate transport sensor 4 at the precise time or remains at transport sensor 4 for longer than the prescribed time.
	165	Transport Sensor 5	When the paper fails to activate transport sensor 5 at the precise time or remains at transport sensor 5 for longer than the prescribed time.
	B470 Cover Interposer Tray		
	166	Feed or Pull-out Sensor	When the paper fails to activate the feed or pull-out sensor at the precise time.
	167	Exit Sensor	When the paper fails to activate the exit sensor at the precise time or remains at the exit sensor for longer than the prescribed time.
	168	Bottom Plate Position Sensor	When the status of the bottom plate position sensor does not change at the precise time during bottom plate motor rotation.

SP	Number/Name		Function/[Setting]
7505*	Total Original Jam Counter		Displays the total number of original jams by paper size
	001	At Power On	
	003	Registration Sensor Check-in Failure	
	004	Nip-in Sensor Check-in Failure	
	005	Registration Sensor (On Check)	
	006	Relay Sensor (On Check)	
	053	Registration Sensor Check Out	
	054	Nip-in Sensor Check-out Failure	
	055	Registration Sensor (Off Check)	
	056	Relay Sensor (Off Check)	
7506*	Total Jam Counter by Paper Size		Displays the total number of jams by paper size
	005	A4- H	
	006	A5- H	
	014	B5- H	
	038	LT- H	
	044	HLT-H	
	132	A3-V	
	133	A4-V	
	134	A5-V	
	141	B4-V	
	142	B5-V	
	160	DLT-V	
	164	LG-V	
	166	LT-V	
	172	HLT-V	
	255	others	
7507*	Plotter Jam History		
	001	Latest	Displays the following items for the last 10 copy paper jams: 1) Jam code, 2) Paper size, 3) Total count when jam occurred, 4) Date of jam. *The "jam codes" are listed in the SMC report under SP7504.*
	002	Last 1	
	003	Last 2	
	004	Last 3	
	005	Last 4	
	006	Last 5	
	007	Last 6	
	008	Last 7	
	009	Last 8	
	010	Last 9	

SP	Number/Name		Function/[Setting]
7508*	Original Jam		
	001	Latest	Displays the following items for the last 10 copy paper jams: 1) Jam code, 2) Paper size, 3) Total count when jam occurred, 4) Date of jam. *The "jam codes" are listed in the SMC report under SP7504.*
	002	Last 1	
	003	Last 2	
	004	Last 3	
	005	Last 4	
	006	Last 5	
	007	Last 6	
	008	Last 7	
	009	Last 8	
	010	Last 9	
7617	PM Parts Counter Display		
	001	Normal	
	002	DF	
7618	PM Parts Counter Reset		**Japan Only**
	001	Normal	Press Execute to clear the parts replacement alarm counter for the main machine.
	002	DF	Press Execute to clear the parts replacement alarm counter for the ADF.
7801*	ROM Version Display		Displays the ROM version numbers of the main machine and connected peripheral devices.
7803*	PM Counter Display		Displays the PM count since the last PM.
7804*	PM Counter Reset		Resets the PM count.
7807*	SC/Jam Counter Reset		Press Start to reset the SC and jam counters.
7808*	Counters Reset		Press # to reset all counters, with the exception of the optional card/key counter devices. The following counts are reset: • Total electronic counts • Copy count • Print count • Duplex count • Staple count • A3/DLT count • P/O count • C/O count
7810*	Access Code Clear		Press # to clear the key operator code if the customer key operator forgets the password and the machine cannot be used..
7811*	Original Counter Clear		Clears the original total display, displayed with SP7-002-***. To clear, press ①.

SP	Number/Name		Function/[Setting]
7816*	Print Counter Reset – Paper Tray		Resets the total feed count for each feed station.
	001	By-pass	
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4	
	006	LCT	
	007	Inserter	
7817*	ADF Counter Reset		Resets the counters of SP7205.
7822	Copy Clear: Pages By Mag. Rate		Resets all counters of SP7301.
7825	Total Counter Reset		Resets the electronic counter total. Normally, this SP is executed at installation.
7826*	MF Error Counter		Displays the number of counts requested of the card/key counter. **Japan Only**
	001*	Error Total Counter	
	002*	Error Stapler Counter	
7827*	MF Error Counter Clear		Press # to reset to 0 the values of SP7826. **Japan Only**
7828	Punch Count Reset		Resets the count for SP7209 (Punch Count)
7832	Self-Diagnostic Results Display		Press # to display a list of error codes. Nothing is displayed if no errors have occurred.
7836	Memory Contents		Press # to display the contents of the memory on the controller board.
7837	Copy Clear: Pages by Mode		Press Execute to clear counter SP7304 (Copy Num – Copies by Mode)
7838	Copy Clear: Jobs by Continuous Output		Press Execute to clear counter SP7305 (Copy: Display Jobs by Mode)
7839	Copy Clear: Jobs by: Mode		Press Execute to clear counter SP7306 (Copy: Display Jobs by Mode).
7840	LS Clear: Stored Image Logins		Press Execute to clear counter SP7320 (Doc. Svr. – Scan Count.
7841	LS Clear: Originals by Size		Press Execute to clear counter SP7321 (Doc. Svr. – Original Size Display)
7842	LS Clear: Prints by Size		Press Execute to clear counter SP7323 (Doc. Svr – Print Size Display).
7843	LS Clear: Print Job Logins		Press Execute to clear counter SP7324 (Doc. Svr. – Print Job Counter).
7844	LS Clear: Print to Page Distr.		Press Execute to clear SP7325 (Doc. Svr. – Job Count (Page No.).
7845	LS Clear: Print Job File Distr.		Press Execute to clear SP7326 (Doc. Svr – Job Count (File No.)
7846	LS Clear: Print Job Copies Distr.		Press Execute to clear SP7327 (Doc. Svr. – Job Count (Set No.
7847	LS Clear: Number of Pages by Mode		Press Execute to clear SP7328 (Doc. Svr – Job Count (Print Mode).

SP	Number/Name		Function/[Setting]
7848	Copy: All Clear		Press Execute to clear the following SP codes: SP7301, SP7304, SP7305, SP7306, SP7320, SP7321, SP7323, SP7324, SP7325, SP7326, SP7327, SP7328.
7901	Assert Info.		
	001	Filename	Used for debugging. **DFU**
	002	Line No.	
	003	Value	
7910	ROM Number		Prints the ROM number in the SMC Report. The number is not displayed on the operation panel.
7911	Firmware Version		Displays the version numbers of all firmware in the system.
7990	Status of Issued SC		Displays the following information about the most recently issued SC: 1) Source file name, 2) SC number, 3) Result

SP8-xxx Design Factory Use

8XXX	Data Log	**DFU**

SP9-xxx Design Factory Use

9525	Finisher Halt SW 1		**DFU**
9904	Charge Off Timing		**DFU**
9905	Transfer Belt Release Timing		**DFU**
9907	Transport Timing Adjustment		**DFU**
	001	Idle Stop Time	
	002	Secondary Feed Start Timing	
	003	Jogger Start Timing	
	005	Reverse Roller On Time	
	006	Reverse Roller Off Position	
	007	Duplex: 1st Stop Position	
	008	Duplex: 1st Stop Position	
	009	Duplex: 1st Stop Position	
	010	Reverse Start Time	
	011	Duplex: Gate Pawl SOL on time	
	012	Duplex: STM Speed Reductions	
9908	Debug: Toner Supply Control		**DFU**
	004	Toner Supply Gain Display	
	006	Pixel Count Display	
9909	Development Time Adjustment		**DFU**
	001	Development On Tome	
	002	Development Off Time	
	003	Development Off Timing: Jam	
	004	Development Motor On Timing	
	005	Development Motor Off Timing	
9911	High Voltage Power Supply Test		**DFU**
	001	Charge Corona Gain	
	002	Charge Grid Gain	
	003	Development Gain	
	004	Transfer Gain	
	030	Transfer Corona Max. PWM Width	
	031	Transfer Grid Max. PWM Width	
	032	Development Max. PWM Width	
	033	Transfer Max. PWM Width	
9922	Toner Supply CL Drive Time		**DFU**
	001	Min. On Time	
	002	Max. On Time	

9925	BY-Pass Thick Paper Mode Timing		**DFU**
	002	Feed CL Restart Time Setting	
	003	Pick-up Restart Setting	
	004	Pick-up Restart Time Setting	
9926	Debug: Fusing		**DFU**
	001	B Relay Stat	
	002	B Fuser Status	
	003	St Fuser	
	004	Call Service	
	005	Power Relay Port	
	006	Heater 1	
	007	Heater 2	
	008	BICU High Temperature	
9927	ID Sensor Gain		**DFU**
	001	Denominator of ID Proportional Gain	
	002	ID Proportional Gain: Denominator	
	003	ID Proportional Gain: Numerator	
	004	ID Integral Gain: Denominator	
9928	TD Sensor Gain		**DFU**
	001	ID Integral Gain: Numerator	
	002	TD Proportional Gain: Denominator	
	003	TD Proportional Gain: Numerator	
	004	TD Integral Gain: Denominator	
9930	Toner Control NV Data		**DFU**
	001	Toner End Status	
	002	Toner End Counter	
	003	Toner Remain Counter	
	004	Bottle Revolution Counter	
9931	Potential Sensor Check Data		**DFU**
	001	V100	
	002	V800	
	003	Slope	
	004	Y Cutoff	
	005	QL Potential Check	
	006	QL Potential Check Timing	
	007	Vd (AD value)	
	008	Vh (AD value)	
9932	Sub Heater Control Setting		**DFU**

9933	Vd Scale Voltage Setting		**DFU**
9936	Transfer Current Correction		
9937	Vh Pattern Creation Setting		**DFU**
	001	Exposure Level	
	002	Offset Light Amount	
9938	ID Sensor Pattern Create Setting		**DFU**
	001	Exposure Level	
	002	Offset Light Amount	
9943	Intermittant Shading Setting		**DFU**
9961	Fusing SC parameters (Reload E		**DFU**
	001	Reload Within Start-up Time x 2	
	002	Over Power On Time	
	003	Temperature Up in 20 s	
9962	Fusing SC parameters (Temp. De		
9963	CPM Down Setting		**DFU**
	001	Yes/No	
	002	CPM Down Temperature	
	003	Down Level	
9964	For Web Design		**DFU**
	001	Web Length	
	002	Paper Thru Time (hh)	
9971	Web Operation /Temp. Variable		**DFU**
	001	Yes/No	
	002	Variable Temp. 1	
	003	Operation Interval 1	
9972	Force n Web Rotations at Job E		**DFU**
9980	Force Jam Release Setting		**DFU**
9990	Mailbox Exit Test		**DFU**
9991	Mailbox Exit Bin Setting		**DFU**
9992	Debug: Binding in ZAIRE		**DFU**

5.6.2 PRINTER SERVICE TABLE

SP No.	Description	Function and Setting
1001	Bit Switch	Adjusts bit switch settings. **Note:** Currently the bit switches are not being used except for Bit Switch 2 bit 3. See PUB(C)-051 for details.
1003	Clear Setting	Not used
1004	Print Summary	Prints the service summary sheet (An error log is printed in the configuration page).
1005	Display Version	Displays the version of the controller firmware

5.6.3 SCANNER SERVICE TABLE

SP	Number/Name		Function/[Setting]
1001	System		
	001	Model Name	Displays the model name.
	002	Scanner Firmware Version	Displays the scanner firmware version.
	003	Scanner Firmware Number	Displays the firmware's part number.
	004	Detail Model Name	Displays the detail model name.
1002	Error Log Display		Displays the error log data.
1003*	FTP Port Number		Changes the FTP port number. *After changing this value, do the following:* 1. Run *the Registry Editor* 2. *Access /HKEY_LOCAL_MACHINE/SOFTWARE/Ricoh/NetworkScanner* *3. Change the value of 'PortNo' to this SP mode's value* [0 – 65535/**3670**/1 step]
1004*	Compression Type		Selects the compression type for binary picture processing. [1: MH, 2: MR, **3: MMR**]
1005*	Erase Margin		Creates an erase margin for all edges of the scanned image. *If the machine has scanned the edge of the original, create a margin.* [0 – 5/**0mm**/1mm step]
1006*	Auto Reset Timer		Adjusts the auto reset timer for the scanner function. *If this is "0", the auto reset function is disabled.* [0, 10 – 999/**60s**/1s step]
2002	**Text/Print Mode Settings**		
	001*	MTF Filter Coefficient (Main scan)	Selects the MTF filter coefficient in the main scan direction for Text mode. *Select a higher number for a stronger filter.* *If this is "0", the MTF filter is not applied.* [0~13/**7**/1 step]
	002*	MTF Filter Coefficient (Sub scan)	As above, for sub scan [0~13/**7**/1 step]
	003*	MTF Filter Strength (Main scan)	Selects the MTF filter strength in the main scan direction for Text mode. *Select a higher number for a stronger filter.* [0~7/**2**/1 step]
	004*	MTF Filter Strength (Sub scan)	As above, for sub scan [0~7/**5**/1 step]

SP	Number/Name		Function/[Setting]
2002	005*	Smoothing Filter	Selects the smoothing pattern for Text mode when using binary picture processing mode. *A larger value could cause moiré to appear in the image.* [0~7/**0**/1 step]
	Text Mode		
	006*	Scanner Gamma	Selects the scanner gamma type for Text mode when using binary picture processing mode. [0~6/**4**/1 step]
	007*	Brightness – Notch 7	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image density level (from 7 to 1) for Text mode when using binary picture processing mode. The settings are reflected in the gamma table. [0~255/**128**/1 step]
	008*	Contrast – Notch 7 (Text/Binary)	[0~255/**128**/1 step]
	009*	Threshold Level – Notch 7 (Text/Binary)	[0~255/**160**/1 step]
	010*	Brightness – Notch 6 (Text/Binary)	[0~255/**128**/1 step]
	011*	Contrast – Notch 6 (Text/Binary)	[0~255/**128**/1 step]
	012*	Threshold Level – Notch 6 (Text/Binary)	[0~255/**145**/1 step]
	013*	Brightness – Notch 5 (Text/Binary)	[0~255/**128**/1 step]
	014	Notch No. 5: Contrast	[1~255/**102**/1]
	015	Notch No. 5: Threshold	[1~255/**115**/1]
	016	Notch No. 4: Intermediate Brightness	[1~255/**104**/1]
	017	Notch No. 4: Intermediate Contrast	[1~255/**102**/1]
	018	Notch No. 4: Intermediate Threshold	[1~255/**107**/1]
	019	Notch No. 3: Brightness	[1~255/**104**/1]
	020	Notch No. 3: Contrast	[1~255/**102**/1]
	021	Notch No. 3: Threshold	[1~255/**90**/1]
	022	Notch No. 2: Brightness	[1~255/**104**/1]
	023	Notch No. 2: Contrast	[1~255/**102**/1]
	024	Notch No. 2: Threshold	[1~255/**65**/1]
	025	Notch No. 1 Dark Brightness	[1~255/**104**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**102**/1]

SP	Number/Name		Function/[Setting]
2002	027	Notch No. 1 Dark: Threshold	[1~255/**58**/1]
	028	Independent Dot Erase	[0x00~0x07/**0x04**/1]
	029	Unevenness Correction	[0x00~0x07/**0x04**/1]
2003	**Text (OCR)**		
	001	MTF Filter Coefficient (Main scan)	Sets the MTF coefficient for the main scan direction. [0x00~0xFF/**0x04**/0x01]
	002	MTF Filter Coefficient (Sub scan)	Sets the MTF coefficient for the sub scan direction. [0x00~0xFF/**0x04**/0x01]
	003	MTF Filter Strength (Main scan)	Sets the MTF strength for the main scan direction. [0~0x07/**0x05**/0x01]
	004	MTF Filter Strength (Sub scan)	Sets the MTF strength for the sub scan direction. [0~0x07/**0x05**/0x01]
	005	Smoothing Filter	Sets the smoothing coefficient. [0~0xFF/**0x00**/0x01]
	006	Scanner Gamma	Selects the gamma setting. 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 5:Photo. [0x00~0x06/**0x05**/0x01]
	007	Notch No. 7 Light : Brightness	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image Notch No. (from 7 to 1) for Text/Photo mode when using the delivery scanner mode. The settings are reflected in the gamma table. [1~255/15/1]
	008	Notch No. 7 Light: Contrast	[1~255/**110**/1]
	009	Notch No. 7 Light: Threshold	[1~255/**128**/1]
	010	Notch No. 6: Brightness	[1~255/**25**/1]
	011	Notch No. 6: Contrast	[1~255/**85**/1]
	012	Notch No. 6: Threshold	[1~255/**128**/1]
	013	Notch No. 5: Brightness	[1~255/**27**/1]
	014	Notch No. 5: Contrast	[1~255/**51**/1]
	015	Notch No. 5: Threshold	[1~255/**128**/1]
	016	Notch No. 4 Intermediate: Brightness	[1~255/**70**/1]
	017	Notch No. 4 Intermediate: Contrast	[1~255/**70**/1]
	018	Notch No. 4 Intermediate: Threshold	[1~255/**128**/1]
	019	Notch No. 3: Brightness	[1~255/**69**/1]
	020	Notch No. 3: Contrast	[1~255/**80**/1]

SP	Number/Name		Function/[Setting]
2003	**Text/Photo Mode**		
	021	Notch No. 3: Threshold	[1~255/**128**/1]
	022	Notch No. 2: Brightness	[1~255/**100**/1]
	023	Notch No. 2: Contrast	[1~255/**100**/1]
	024	Notch No. 2: Threshold	[1~255/**128**/1]
	024	Notch No. 1 Dark: Brightness	[1~255/**128**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**128**/1]
	027	Notch No. 1 Dark: Threshold	[1~255/**128**/1]
	028	Independent Dot Erase	0: Off 1: On 1-7 High
	029	Unevenness Correction	0: Off 1: On
2004	**Text/Photo Mode Settings**		
	001	MTF Filter Coefficient (Main scan)	Sets the MTF coefficient for the main scan direction. [0x00~0xFF/**0x00**/0x01]
	002	MTF Filter Coefficient (Sub scan)	Sets the MTF coefficient for the sub scan direction. [0x00~0xFF/**0x00**/0x01]
	003	MTF Filter Strength (Main scan)	Sets the MTF strength for the main scan direction. [0~0x07/**0x05**/0x01]
	004	MTF Filter Strength (Sub scan)	Sets the MTF strength for the sub scan direction. [0~0x07/**0x00**/0x01]
	005	Smoothing Filter	Sets the smoothing coefficient. [0~0x07/**0x00**/0x01]
	006	Scanner Gamma	Selects the gamma setting. 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 5:Photo. [0x00~0x06/**0x06**/0x01]
	007	Notch No. 7 Light : Brightness	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image Notch No. (from 7 to 1) for Photo mode when using the delivery scanner mode. The settings are reflected in the gamma table. [1~255/**16**/1]
	008	Notch No. 7 Light: Contrast	[1~255/**128**/1]
	009	Notch No. 7 Light: Threshold	[1~255/**128**/1]
	010	Notch No. 6: Brightness	[1~255/**25**/1]
	011	Notch No. 6: Contrast	[1~255/**85**/1]
	012	Notch No. 6: Threshold	[1~255/**128**/1]

SP	Number/Name		Function/[Setting]
2004	**Photo Mode**		
	013	Notch No. 5: Brightness	[1~255/**120**/1]
	014	Notch No. 5: Contrast	[1~255/**120**/1]
	015	Notch No. 5: Threshold	[1~255/**128**/1]
	016	Notch No. 4 Intermediate: Brightness	[1~255/**120**/1]
	017	Notch No. 4 Intermediate: Contrast	[1~255/**120**/1]
	018	Notch No. 4 Intermediate: Threshold	[1~255/**128**/1]
	019	Notch No. 3: Brightness	[1~255/**135**/1]
	020	Notch No. 3: Contrast	[1~255/**133**/1]
	021	Notch No. 3: Threshold	[1~255/**128**/1]
	022	Notch No. 2: Brightness	[1~255/**138**/1]
	023	Notch No. 2: Contrast	[1~255/**133**/1]
	024	Notch No. 2: Threshold	[1~255/**128**/1]
	025	Notch No. 1 Dark: Brightness	[1~255/**140**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**133**/1]
	027	Notch No. 1 Dark: Threshold	[1~255/**133**/1]
2005	**Photo Mode Setting**		
	001	MTF Filter Coefficient (Main scan)	Sets the MTF coefficient for the main scan direction. [0x00~0xFF/**0xFF**/0x01]
	002	MTF Filter Coefficient (Sub scan)	Sets the MTF coefficient for the sub scan direction. [0x00~0xFF/**0x00**/0x01]
	003	MTF Filter Strength (Main scan)	Sets the MTF strength for the main scan direction. [0~0x07/**0x00**/0x01]
	004	MTF Filter Strength (Sub scan)	Sets the MTF strength for the sub scan direction. [0~0x07/**0x07**/0x01]
	005	Smoothing Filter	Sets the smoothing coefficient. [0~0xFF/**0x00**/0x01]
	006	Scanner Gamma	Selects the gamma setting. 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 5:Photo [0x00~0x06/**0x01**/0x01]
	007	Dither Matrix Filter	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image Notch No. (from 7 to 1) for greyscale mode when using the delivery scanner mode. The settings are reflected in the gamma table. [1~255/**98**/1]
	008	Notch No. 7 Light: Contrast	[1~255/**98**/1]

SP	Number/Name		Function/[Setting]
2005	009	Notch No. 7 Light: Threshold	[1~255/**98**/1]
	010	Notch No. 6: Brightness	[1~255/**108**/1]
	011	Notch No. 6: Contrast	[1~255/**108**/1]
	012	Notch No. 6: Threshold	[1~255/**108**/1]
	013	Notch No. 5: Brightness	[1~255/**118**/1]
	014	Notch No. 5: Contrast	[1~255/**118**/1]
	015	Notch No. 5: Threshold	[1~255/**118**/1]
	016	Notch No. 4 Intermediate: Brightness	[1~255/**128**/1]
	017	Notch No. 4 Intermediate: Contrast	[1~255/**128**/1]
	018	Notch No. 4 Intermediate: Threshold	[1~255/**128**/1]
	019	Notch No. 3: Brightness	[1~255/**138**/1]
	020	Notch No. 3: Contrast	[1~255/**138**/1]
	021	Notch No. 3: Threshold	[1~255/**138**/1]
	022	Notch No. 2: Brightness	[1~255/**148**/1]
	023	Notch No. 2: Contrast	[1~255/**148**/1]
	024	Notch No. 2: Threshold	[1~255/**148**/1]
	025	Notch No. 1 Dark: Brightness	[1~255/**158**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**158**/1]
	027	Notch No. 1 Dark: Threshold	[1~255/**158**/1]
	028	Notch No. 1	
2006	**Gray Scale Mode Setting**		
	001	MTF Filter Coefficient (Main scan)	Sets the MTF coefficient for the main scan direction. [0x00~0xFF/**0xFF**/0x01]
	002	MTF Filter Coefficient (Sub scan)	Sets the MTF coefficient for the sub scan direction. [0x00~0xFF/**0x00**/0x01]
	003	MTF Filter Strength (Main scan)	Sets the MTF strength for the main scan direction. [0~0x07/**0x00**/0x01]
	004	MTF Filter Strength (Sub scan)	Sets the MTF strength for the sub scan direction. [0~0x07/**0x07**/0x01]
	005	Smoothing Filter	Sets the smoothing coefficient. [0~0xFF/**0x00**/0x01]
	006	Scanner Gamma	Selects the gamma setting. 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 5:Photo [0x00~0x06/**0x01**/0x01]

SP	Number/Name		Function/[Setting]
2006	007	Notch No. 7 Light : Brightness	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image Notch No. (from 7 to 1) for greyscale mode when using the delivery scanner mode. The settings are reflected in the gamma table. [1~255/**98**/1]
	008	Notch No. 7 Light: Contrast	[1~255/**98**/1]
	009	Notch No. 7 Light: Threshold	[1~255/**98**/1]
	010	Notch No. 6: Brightness	[1~255/**108**/1]
	011	Notch No. 6: Contrast	[1~255/**108**/1]
	012	Notch No. 6: Threshold	[1~255/**108**/1]
	013	Notch No. 5: Brightness	[1~255/**118**/1]
	014	Notch No. 5: Contrast	[1~255/**118**/1]
	015	Notch No. 5: Threshold	[1~255/**118**/1]
	016	Notch No. 4 Intermediate: Brightness	[1~255/**128**/1]
	017	Notch No. 4 Intermediate: Contrast	[1~255/**128**/1]
	018	Notch No. 4 Intermediate: Threshold	[1~255/**128**/1]
	019	Notch No. 3: Brightness	[1~255/**138**/1]
	020	Notch No. 3: Contrast	[1~255/**138**/1]
	021	Notch No. 3: Threshold	[1~255/**138**/1]
	022	Notch No. 2: Brightness	[1~255/**148**/1]
	023	Notch No. 2: Contrast	[1~255/**148**/1]
	024	Notch No. 2: Threshold	[1~255/**148**/1]
	025	Notch No. 1 Dark: Brightness	[1~255/**158**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**158**/1]
	027	Notch No. 1 Dark: Threshold	[1~255/**158**/1]

SP	Number/Name		Function/[Setting]
2007	**Compression Ratio Of Grayscale**		
	001	Compression Ratio (Normal Range)	Sets the rate of compression when Standard is selected for handling JPEG files. [5~95/**50**/1] 95: Low compression (larger file) 5: High compression (smaller file)
	002	Compression Ratio (High Quality)	Sets the rate of compression when High is selected for handling JPEG files. [5~95/**60**/1] 95: Low compression (larger file) 5: High compression (smaller file)
	003	Compression Ratio (Low Quality)	Sets the rate of compression when JPEG files.Low is selected for handling [5~95/**40**/1] 95: Low compression (larger file) 5: High compression (smaller file)
9001	Bit Switch For Debug		
9001	Debug Print		

5.7 INPUT/OUTPUT CHECK

5.7.1 INPUT CHECK: SP5803

This procedure allows you to test sensors and other components of the machine. After you select one of the categories below by number, you will see a small 8-bit table with the number of the bit and its current setting (0 or 1). The bits are numbered 0 to 7, reading right to left.

1. Enter the SP mode and select SP5803.
2. Enter the number (1 to 13) for the item that you want to check. A small box will be displayed on the SP mode screen with a series of 0's and 1's.
   The meaning of the display is as follows.

Bit	7 6 5 4 3 2 1 0
Setting	**1 1 0 0 1 0 1 0**

3. Check the status of each item against the corresponding bit numbers listed in the table below.

1. Paper Feed 1			
Bit	**Description**	**Reading**	
		0	**1**
7	Rear Side Fence Close Sensor	Activated	Deactivated
6	Rear Side Fence Open Sensor	Activated	Deactivated
5	Rear Side Fence Close Sensor	Activated	Deactivated
4	Rear Side Fence Open Sensor	Activated	Deactivated
3	Near End Sensor	(See Table Below)	
2	Paper Height 1 Sensor		
1	Paper Height 2 Sensor		
0	Paper Height 3 Sensor		

2. Paper Feed 2			
Bit	**Description**	**Reading**	
		0	**1**
7	2nd Paper Size Switch	(See Table Below)	
6	2nd Paper Size Switch		
5	2nd Paper Size Switch		
4	2nd Paper Size Switch		
3	2nd Paper Size Switch		
2	Not Used		
1	Not Used		
0	Not Used		

	1500 sheets	1000 sheets			400 sheets			70 sheets
bit-3	0	0	0	0	0	0	1	1
bit-2	0	0	0	1	1	1	1	0
bit-1	0	0	1	1	1	0	0	0
bit-0	0	1	1	0	0	0	0	0

Service Tables

3. Paper Feed 3			
Bit	Description	Reading	
		0	1
7	3rd Paper Size Switch	(see tables below)	
6	3rd Paper Size Switch		
5	3rd Paper Size Switch		
4	3rd Paper Size Switch		
3	3rd Paper Size Switch		
2	Not used		
1	Not used		
0	Not used		

Universal Tray Size Detection – N.A. models only

Paper Size	Switch Setting (LOW = pressed)				Panel Display	
11" x 17"	LOW	HIGH	HIGH	HIGH	HIGH	11" x 17" SEF
8 1/2" x 14"	LOW	LOW	HIGH	HIGH	HIGH	8 1/2" x 14" SEF
8 1/2" x 11"	HIGH	LOW	LOW	HIGH	HIGH	8 1/2" x 11" SEF
11" x 8 1/2"	LOW	HIGH	LOW	LOW	HIGH	8 1/2" x 11" LEF
5 1/2" x 8 1/2"	LOW	LOW	HIGH	LOW	LOW	5 1/2" x 8 1/2" SEF
8 1/2" x 5 1/2"	LOW	LOW	LOW	HIGH	LOW	8 1/2" x 5 1/2" LEF
8" x 10 1/2"	LOW	LOW	LOW	LOW	HIGH	8" x 10 1/2" SEF
7 1/4" x 10 1/2"	HIGH	LOW	LOW	LOW	LOW	7 1/4" x 10 1/2" SEF
8" x 13"	HIGH	HIGH	LOW	LOW	LOW	8" x 13" SEF
*	HIGH	HIGH	HIGH	HIGH	LOW	(size set in User Tools)

Universal Tray Size Detection – EU/ASIA models

Paper Size	Switch Setting (LOW = pressed)				Panel Display	
A3 SEF	LOW	HIGH	HIGH	HIGH	HIGH	A3 SEF
8 1/4" x 13"	LOW	LOW	HIGH	HIGH	HIGH	8 1/4" x 13" SEF
A4 SEF	HIGH	LOW	LOW	HIGH	HIGH	A4 SEF
A4 LEF	LOW	HIGH	LOW	LOW	HIGH	A4 LEF
8 1/2" x 13"	LOW	LOW	HIGH	LOW	LOW	8 1/2" x 13" SEF
A5 SEF	LOW	LOW	LOW	HIGH	LOW	A5 SEF
A5 LEF	LOW	LOW	LOW	LOW	HIGH	A5 LEF
*	HIGH	HIGH	HIGH	HIGH	LOW	(size set in User Tools)

4. Paper Feed 4			
Bit	Description	Reading	
		0	1
7	1st Paper Height	Less than 30%	30% or more
6	Japan only		
5	2nd Paper Height	Less than 30%	30% or more
4	3rd Paper Height	Less than 30%	30% or more
3	1st Paper Near End	Near End	Not Near End
2	Japan only		
1	2nd Paper Near End	Near End	Not Near End
0	3rd Paper Near End	Near End	Not Near End

5. Paper Feed 5			
Bit	Description	Reading	
		0	1
7	Japan only		
6	Japan only		
5	Japan only		
4	Japan only		
3	Japan only		
2	Right Tray Paper Sensor	Paper not present	Paper present
1	Tray Type	3 trays	4 trays
0	Not used		

6. Paper Feed 6			
Bit	Description	Reading	
		0	1
7	Left Tandem Tray Set	Set	Not set
6	Japan only		
5	Japan only		
4	Rear Fence HP Sensor	Deactivated	Activated
3	Japan only		
2	Rear Fence Return Sensor	Deactivated	Activated
1	Left Tray Paper Sensor	Paper present	Paper not present
0	Right Tandem Tray Set	Set	Not set

7. Paper Feed 7			
Bit	Description	Reading	
		0	1
7	1st Paper Feed Sensor	Paper present	Paper not present
6	Japan only		
5	2nd Paper Feed Sensor	Paper present	Paper not present
4	3rd Paper Feed Sensor	Paper present	Paper not present
3	1st Vertical Transport Sensor	Paper present	Paper not present
2	Japan only		
1	2nd Vertical Transport Sensor	Paper present	Paper not present
0	3rd Vertical Transport Sensor	Paper present	Paper not present

8. Paper Feed 8			
Bit	Description	Reading	
		0	1
7	1st Tray Lift Sensor	Deactivated	Activated
6	Japan only		
5	2nd Tray Lift Sensor	Deactivated	Activated
4	3rd Tray Lift Sensor	Deactivated	Activated
3	1st Paper End Sensor	Paper present	Paper not present
2	Japan only		
1	2nd Paper End Sensor	Paper present	Paper not present
0	3rd Paper End Sensor	Paper present	Paper not present

9. Paper Feed 9			
Bit	Description	Reading	
		0	1
7	Not used		
6	Not used		
5	Toner Overflow SW	Switch not pressed	Switch pressed
4	Toner Collection Bottle Set SW	Switch pressed	Switch not pressed
3	Not used		
2	Not used		
1	Not used		
0	Not used		

10. Paper Feed 10			
Bit	Description	Reading	
		0	1
7	DFU		
6			
5			
4			
3			
2			
1			
0			

11. Paper Feed 11			
Bit	Description	Reading	
		0	1
7	DFU		
6			
5			
4			
3			
2			
1			
0			

12. DIP Switches			
Bit	Description	Reading	
		0	1
7	DFU		
6			
5			
4			
3			
2			
1			
0			

13. Exit			
Bit	Description	Reading	
		0	1
7	Toner Collection Motor Sensor	Deactivated	Activated
6	Toner End Sensor	Toner end	Not toner end
5	Toner Collection Coil Sensor	Deactivated	Activated
4	Not used		
3	Exit Unit Set	Set	Not set
2	Paper Exit Sensor	Paper present	Paper not present
1	Exit Unit Entrance Sensor	Paper present	Paper not present
0	Web End Sensor	Not web end	Web end

14. Duplex			
Bit	Description	Reading	
		0	1
7	Not used		
6	Duplex Unit Set	Set	Not set
5	Duplex Transport 3 Sensor	Paper not present	Paper present
4	Duplex Transport 2 Sensor	Paper not present	Paper present
3	Duplex Transport 1 Sensor	Paper not present	Paper present
2	Duplex Jogger HP Sensor	Deactivated	Activated
1	Duplex Inverter Sensor	Paper not present	Paper present
0	Duplex Entrance Sensor	Paper not present	Paper present

15. Lock Detection 1			
Bit	Description	Reading	
		0	1
7	Key Card Set	Set	Not set
6	Development Motor Lock	Not locked	Locked
5	Fusing/Exit Motor Lock	Locked	Not locked
4	Drum Motor Lock	Not locked	Locked
3	CPM	60 CPM	75 CPM
2	Not used		
1	Not used		
0	Not used		

16. Lock Detection 2			
Bit	Description	Reading	
		0	1
7	Charge Corona Leak	Leaked	Not leaked
6	Not used		
5	Toner Collection Motor Lock	Locked	Not locked
4	Exhaust Fan Lock	Locked	Not locked
3	Not used		
2	Not used		
1	Not used		
0	Not used		

17. Registration Sensor			
Bit	Description	Reading	
		0	1
7	Not used		
6	Not used		
5	Front Door Open	Open	Closed
4	Copy Tray Full Sensor	Not full	Full
3	Guide Plate Position Sensor	Closed	Open
2	Relay Sensor	Paper present	Paper not present
1	By-pass Paper End Sensor	Paper present	Paper not present
0	Registration Sensor	Paper present	Paper not present

18. Original Size Set Sensor			
Bit	Description	Reading	
		0	1
7	Fusing Unit Set	Set	Not set
6	Not used		
5	Key Counter Set	Set	Not set
4	Original Length 2 Sensor	Paper present	Paper not present
3	Original Length 1 Sensor	Paper present	Paper not present
2	Original Width 3 Sensor	Paper present	Paper not present
1	Original Width 2 Sensor	Paper present	Paper not present
0	Original Width 1 Sensor	Paper present	Paper not present

5.7.2 OUTPUT CHECK: SP5804

1. Open SP mode 5-804.
2. Select the SP number that corresponds to the component you wish to check. (Refer to the table on the next page.)
3. Press On then press Off to test the selected item.
   NOTE: You cannot exit and close this display until you press off to switch off the output check currently executing. Do not keep an electrical component switched on for a long time.

No.	Description
1	Feed Motor 1
2	Lower Relay Motor
3	2nd Feed Motor
4	3rd Feed Motor
5	By-pass Feed Clutch
6	LCT Paper Feed Motor
9	1st Pick-up SOL
10	2nd Pick-up SOL
11	3rd Pick-up SOL
12	4th Pick-up SOL
13	By-pass Pick-up SOL
14	LCT Pick-up SOL
17	Reverse Release SOL 1
18	Reverse Release SOL 2
19	Reverse Release SOL 3
20	Not Used
22	Tandem Connection Release SOL
23	Left Tandem Lock SOL
24	Rear Fence Motor
25	Not used
27	Relay Motor/By-pass Feed
28	Main Motor
31	Fusing/Exit Motor
39	Registration Motor
40	Guide Plate Release SOL
41	Exit Junction SOL
43	Inverter Duplex Motor
44	Duplex Transport Motor
45	Duplex Entrance Gate SOL
46	InverterJogger SOL
47	Duplex Transport CL
52	Development Roller CL
53	Development Motor

No.	Description
54	Used Toner Motor
55	Web Motor
56	Toner Bottle Motor
57	Transfer/Separation SOL
62	Quenching Lamp
63	Charge Corona
64	Grid Wire
67	Development Bias
69	Transfer Bias
70	ID Sensor LED
72	Xenon Lamp
74	Development Unit Fan
75	Duplex Unit Fan
76	Main Ventilation Fan
77	Main Suction Fan
78	Main Vacuum Fan
79	OPC Fan
80	FIN Junction SOL
81	FIN Junction SOL (Stapler)
82	FIN End Roller SOL
84	Total Counter
85	FIN Main Motor 1
86	FIN Main Motor 2
87	FIN Exit Motor
88	FIN Stapler Motor
89	FIN Punch Motor
90	LD DC Lamp
92	FIN Tray Lift Motor
93	FIN Jogger Motor
94	FIN Staple Transport Motor
95	FIN Exhaust Motor
96	FIN Shift Motor
97	FIN Staple Slant Motor

5.7.3 ADF INPUT CHECK: SP6007

1. Open SP mode SP6007.
2. Select the SP number that corresponds to the component you wish to check. (Refer to the table below.)
3. Press On then press Off to test the selected item. You cannot exit and close this display until you click Off to switch off the output check currently executing.

Bit	7 6 5 4 3 2 1 0
Data	**1 1 0 0 1 0 1 0**

Group 1	
No.	**Description**
0	Original Length Sensor 3 (LG)
1	Original Length Sensor 2 (A4)
2	Original Length Sensor 3 (B5)
3	Original Set Sensor
4	Original Width Sensor 1
5	Original Width Sensor 2
6	Original Width Sensor 3
7	Original Width Sensor 4

Group 2	
No.	**Description**
0	Skew Correction Sensor
1	Interval Sensor
2	Registration Sensor
3	Exit Sensor
4	DF Position Sensor
5	APS Start Sensor
6	Feed Cover Sensor
7	Pick-up Roller HP Sensor

Group 3	
No.	**Description**
0	Bottom Plate HP Sensor
1	Bottom Plate Position Sensor
2	Not Used
3	Not Used
4	Not Used
5	Not Used
6	Not Used
7	Not Used

5.7.4 ADF OUTPUT CHECK: SP6008

1. Open SP mode SP6008.
2. Select the SP number that corresponds to the component you wish to check. (Refer to the table below.)
3. Press On then press Off to test the selected item. You cannot exit and close this display until you click Off to switch off the output check currently executing.

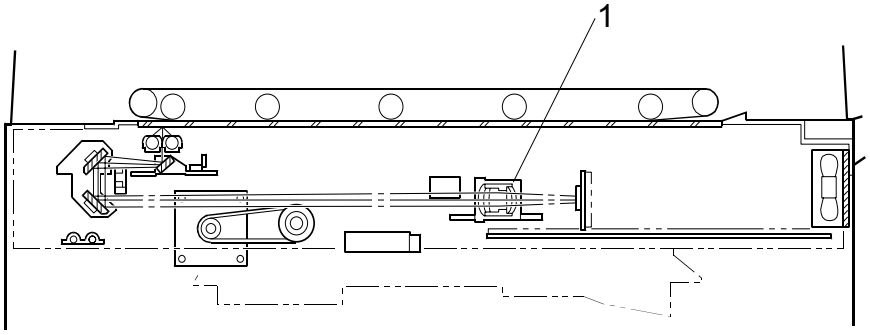
Bit	7 6 5 4 3 2 1 0
Data	**1 1 0 0 1 0 1 0**

No.	Description	0	1
1	Feed Motor: Forward	OFF	ON
2	Feed Motor: Reverse	OFF	ON
3	Transport Motor: Forward	OFF	ON
4	Exit Motor: Forward	OFF	ON
5	Pick-up Motor: Reverse	OFF	ON
6	Bottom Plate Motor: Forward	OFF	ON
7	Bottom Plate Motor: Reverse	OFF	ON

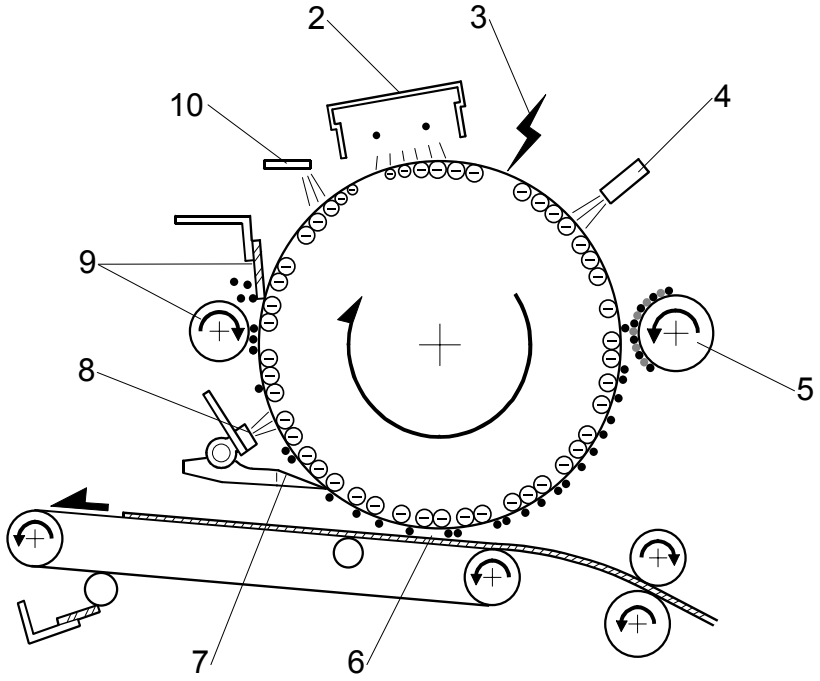
DETAILED DESCRIPTIONS

6. DETAILED DESCRIPTIONS

6.1 COPY PROCESS OVERVIEW



⇒



1. EXPOSURE

A xenon lamp exposes the original. Light reflected from the original passes to the CCD, where it is converted into an analog data signal. This data is converted to a digital signal, processed, and stored in the memory. At the time of printing, the data is retrieved and sent to the laser diode. For multi-copy runs, the original is scanned once and stored on the hard disk.

2. DRUM CHARGE

In the dark, the charge corona unit gives a negative charge to the OPC drum. The grid plate ensures that corona charge is applied uniformly. The charge remains on the surface of the drum because the OPC layer has a high electrical resistance in the dark.

3. LASER EXPOSURE

The processed image data from the scanned original is retrieved from the hard disk and transferred to the drum by four laser beams, which form an electrostatic latent image on the drum surface. The amount of charge remaining as a latent image on the drum depends on the laser beam pulse duration, which is controlled by the BICU.

4. DRUM POTENTIAL SENSOR

The drum potential sensor detects the change in drum potential, caused by variable conditions around the drum (heat, humidity, drum service) and adjusts **the following voltages**:

- Grid bias voltage (Vg or Vgrid)
- Laser diode power
- Development bias voltage (Vb)

5. DEVELOPMENT

The magnetic developer brush on the development roller contacts the latent image on the drum surface. Toner particles are electrostatically attracted to the areas of the drum surface where the laser reduced the negative charge on the drum.

6. IMAGE TRANSFER

Paper is fed to the area between the drum surface and the transfer belt at the proper time to align the copy paper and the developed image on the drum. The transfer roller applies a high positive charge to the reverse side of the paper through the transfer belt. This positive charge pulls the toner particles from the drum to the paper while the paper is electrostatically attracted to the transfer belt.

7. PAPER SEPARATION

Paper separates from the drum as a result of the attraction between the paper and the transfer belt. The pick-off pawls also help separate the paper from the drum.

8. ID SENSOR

The laser writes a sensor pattern on the drum surface. The ID sensor measures the reflectivity of the pattern and outputs this data (Vsp) to the CPU. The Vsp output signal is one of the factors used for toner supply control.

9. CLEANING

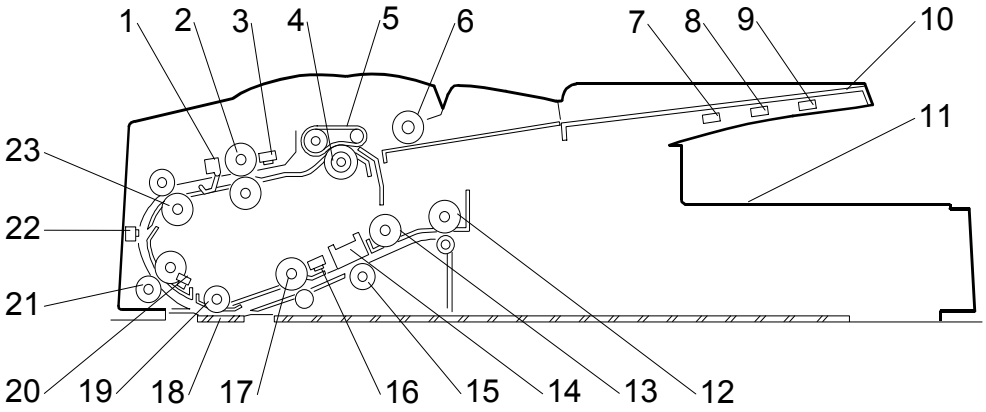
The cleaning brush removes toner remaining on the drum after image transfer and the cleaning blade scrapes off all remaining toner.

10. QUENCHING

The light from the quenching lamp electrically neutralizes the charge on the drum surface. After cleaning and quenching, the drum surface is ready for the next cycle.

6.2 ADF

6.2.1 OVERVIEW



1. Original Width Sensors (x4)
2. Entrance Roller
3. Skew Correction Sensor
4. Separation Roller
5. Feed Belt
6. Pick-up Roller
7. Original Length Sensor 1
8. Original Length Sensor 2
9. Original Length Sensor 3
10. Original Tray
11. Exit Tray
12. Exit Roller
13. 3rd Transport Roller
14. CIS (Contact Image Sensor)
15. White Platen Roller
16. Exit Sensor
17. 2nd Transport Roller
18. ADF Exposure Glass
19. Scanning Roller
20. Registration Sensor
21. Pre-scanning Roller
22. Interval sensor
23. 1st Transport Roller

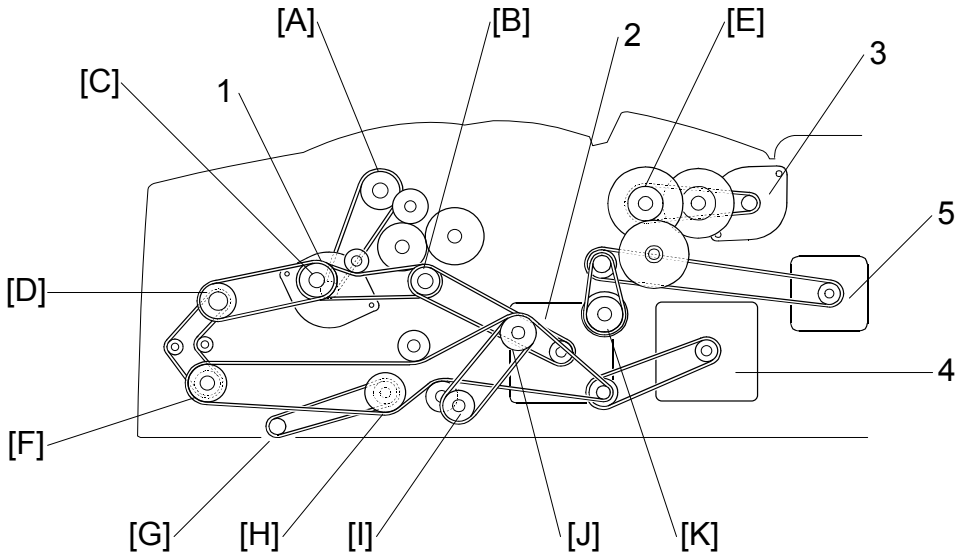
Some sensors are not shown, but the callouts indicate their approximate locations.

Original Separation and Feed. The standard FRR system for paper separation and feed. (CT Handling Paper> Handling Originals> Document Feed> **FRR with Feed Belt**

Original Size Detection. A combination of three original length sensors on the original tray and an array of four original width sensors in the paper feed path is used. (CT Handling Paper> Handling Originals> Original Size Detection> **Dynamic Original Size Detection**)

Duplex Scanning. The front side of the original is scanned as it passes over the ADF exposure glass below, and the back is scanned by a CIS mounted above the paper path. There is no inverter mechanism for duplex scanning in the ADF.

6.2.2 ADF DRIVE LAYOUT



1. Pick-up Roller Lift Motor
2. Feed Motor
3. Bottom Plate Motor
4. Transport Motor
5. Exit Motor

Pick-up roller lift motor: Drives the pick-up roller lift mechanism through gear [A].

Feed motor: Drives the following:

- Pick-up roller and feed belt drive gear [B]
- Entrance roller [C] and 1st transport roller [D]

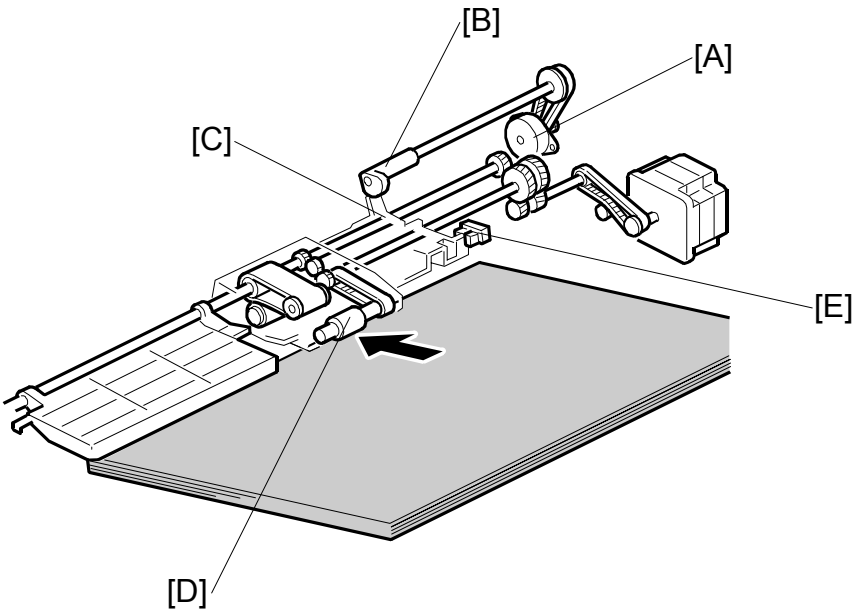
Bottom plate motor: Drives the bottom plate lift mechanism through gear [E].

Transport motor: Drives the following:

- Pre-scanning roller [F]
- Scanning roller [G]
- 2nd transport roller [H]
- White platen roller [I]
- 3rd transport roller [J]

Exit motor: Drives the exit roller [K].

6.2.3 PICK-UP ROLLER LIFT

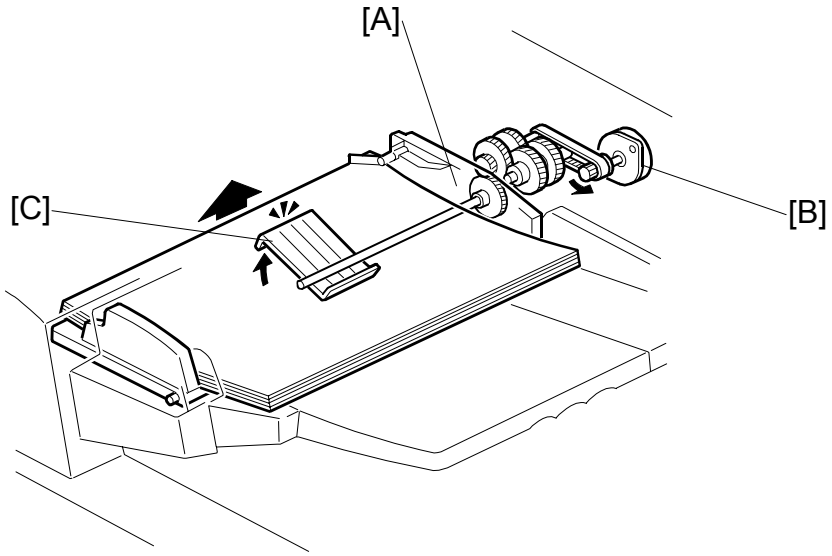


[A]: Pick-up roller lift motor
[B]: Cam
[C]: Pick-up roller release lever
[D]: Pick-up roller
[E]: Pick-up roller HP sensor

When there are no originals: The pick-up roller [D] remains up (this is the home position).

When an original is placed on the tray: The original set sensor switches on, and this switches motor [A] on. The cam [B] releases lever [C]. The lever rises and the pick-up roller [D] drops onto the stack of paper. Then the pick-up roller feeds the paper to the feed belt and separation roller.

6.2.4 BOTTOM PLATE LIFT



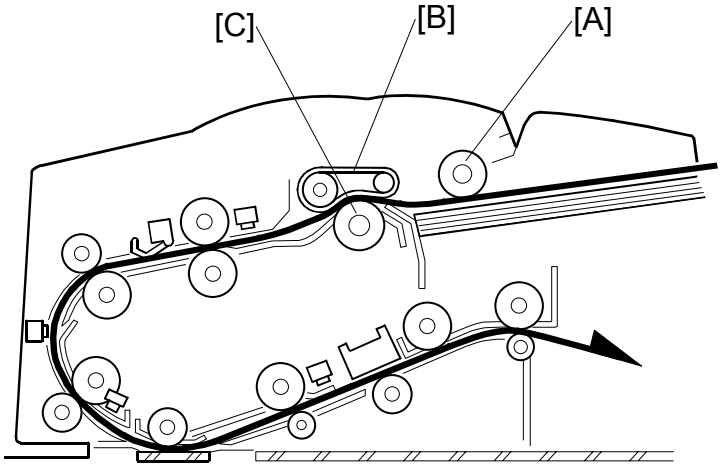
[A]: Bottom plate sensor
[B]: Bottom plate motor
[C]: Lift lever

When an original is placed on the original tray: The original set sensor switches on, the pick-up roller drops, and sensor [around location A] (on the pick-up roller assembly) switches off. Then, motor [B] lifts lever [C], raising the bottom plate.

When the bottom plate reaches the correct feed position: Sensor [A] switches off and motor [B] stops.

During the job, when the top of the stack becomes too low: When the pick-up roller drops low enough to switch sensor [A] on again, motor [B] switches on again to raise the stack to the correct feed position.

6.2.5 ORIGINAL SEPARATION

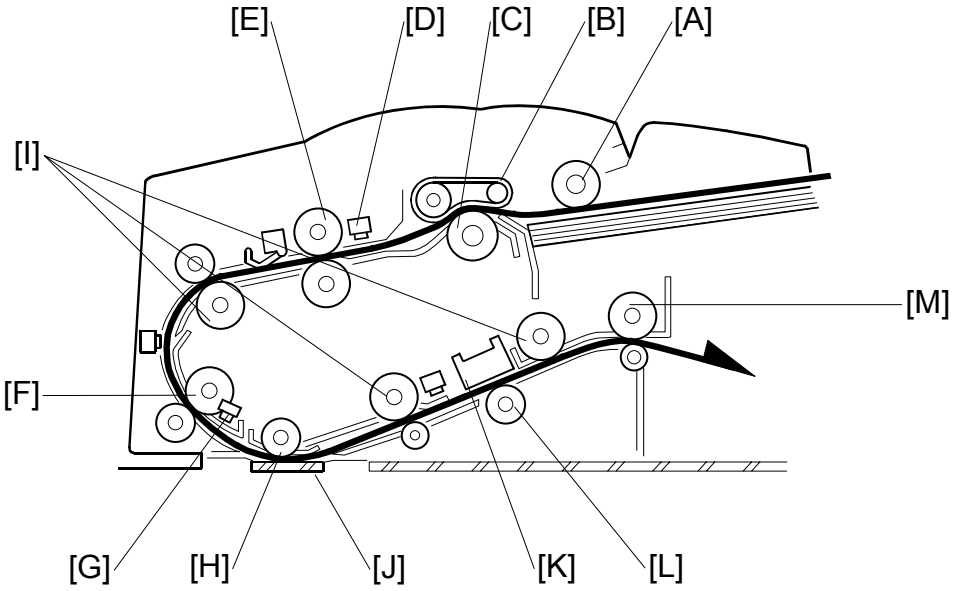


[A}: Pick-up roller
[B]: Feed belt
[C]: Separation roller

This mechanism prevents feeding more than one sheet at a time.

(CT Handling Paper> Handling Originals> Document Feed> **FRR with Feed Belt)**

6.2.6 ORIGINAL TRANSPORT



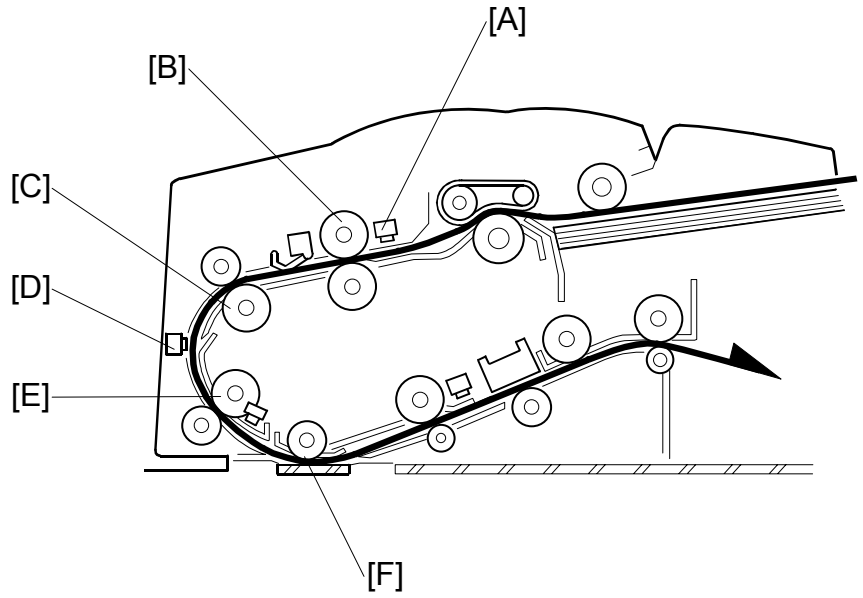
The pick-up roller [A] feeds the original to the feed belt [B] and separation roller [C]. Skew is corrected at the skew correction sensor [D] and entrance roller [E].
⇒(☛ 6.2.7)

When the skew correction sensor detects the leading edge of the original, the pre-scanning roller [F] switches on. Skew is also corrected at the pre-scanning roller.
⇒(☛ 6.2.7)

Shading correction, which attempts to compensate for slight distortions caused by the differences in brightness of the light elements due to wear, temperature variation, or distortion by the lenses, is done for the first sheet:

- The original is fed for a few clock pulses after the registration sensor [G] detects the leading edge of the original.
- The original is then delayed slightly at the ADF exposure glass while the CPU uses the white plate to determine the white peak level for the job.
- The pre-scanning roller [F], scanning roller [H] and transport rollers [I] feed the original over the ADF exposure glass [J] and under the CIS [K], until it reaches the exit roller [M].
- If the reverse side of the original is to be scanned, the CPU uses the surface of the white platen roller [L] to determine the white peak level for the job.

6.2.7 ORIGINAL SKEW CORRECTION



[A]: Skew correction sensor
[B]: Entrance roller
[C]: Feed roller (Transport Roller 1)
[D]: Interval sensor
[E]: Pre-scanning roller
[F]: Scanning roller

After pick-up and separation, the skew correction sensor [A] detects the leading edge of the original and the entrance roller [B] is delayed for the prescribed number of pulses to buckle the original and correct skew.

If the original is B6, A5, or HLT, or during any duplex scanning regardless of original size, when the interval sensor [D] detects the leading edge of the original, the pre-scanning motor [E] is delayed for the prescribed number of pulses to buckle the original and correct skew.

When scanning only the front side of originals larger than A5, after the entrance roller [B] starts rotating, the feed motor increases the speed of roller [C] to reduce the interval between the original just fed and the original ahead being scanned. When the interval sensor [D] detects the leading edge of the original approaching the pre-scanning roller, the pre-scanning roller slows down slightly. Roller [C] is still feeding the paper faster than the pre-scanning roller [E], and this slows the original at the leading edge and corrects skew.

Here is a summary of the skew correction methods.

① Skew correction sensor/entrance roller

	B6, A5, HLT	Larger Than A5
Duplex Scanning	Yes	Yes
Simplex Scanning	Yes	Yes

NOTE: Skew is always corrected with method ① for every job, regardless of the paper size and mode.

② Interval sensor/pre-scanning roller stop correction

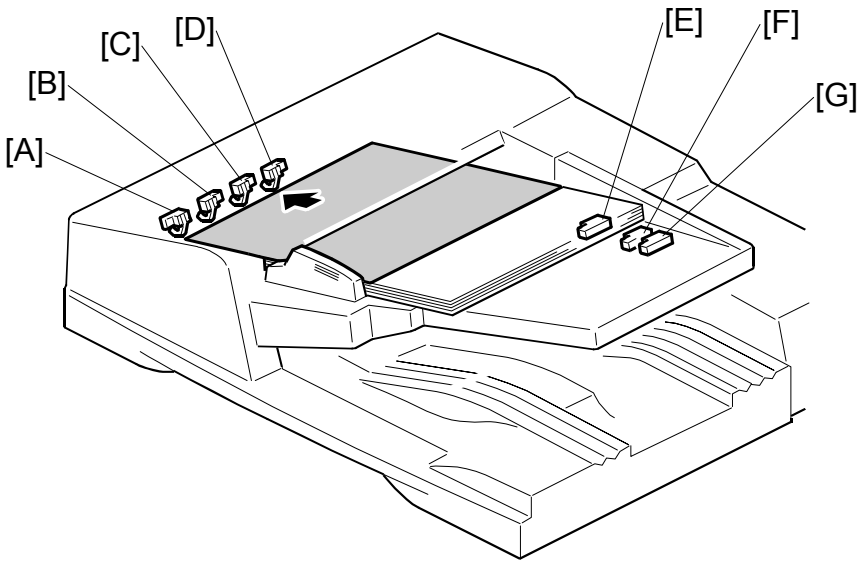
	B6, A5, HLT	Larger Than A5
Duplex Scanning	Yes	Yes
Simplex Scanning	Yes	No

NOTE: Use SP6020 (ADF Contact Mode In/Out) to enable skew correction method ② for all jobs to ensure accurate original feeding. However, switching this feature on slows original feed slightly.

③ Interval sensor/pre-scanning roller slow-down correction

	B6, A5, HLT	Larger Than A5
Duplex Scanning	No	No
Simplex Scanning	No	Yes

6.2.8 ORIGINAL SIZE DETECTION



[A]: Original width sensor 1
[B]: Original width sensor 2
[C]: Original width sensor 3
[D]: Original width sensor 4
[E]: B5 length sensor
[F]: A4 length sensor
[G]: LG length sensor

When the leading edge of the paper passes the skew correction sensor, the CPU reads the outputs from the original width and length sensors.

Please refer to the table on the next page.

Original Size Detection Table

Size (W x L)	Original Width Sensors				Original Length Sensors				
	1	2	3	4	B5	A4	LG	NA	EU
A3 SEF (297 x 420 mm)	1	1	1	1	1	1	1	Y	Y
B4 SEF (257 x 364 mm)	1	1	0	0	1	1	1	N	Y
A4 SEF (210 x 297 mm)	1	0	0	0	1	1	0	Y	Y
A4 LEF (297 x 210 mm)	1	1	1	1	0	0	0	Y	Y
B5 SEF (182 x 257 mm)	0	0	0	0	1	0	0	N	Y
B5 LEF (257 x 182 mm)	1	1	0	0	0	0	0	N	Y
A5 SEF (148 x 210 mm) *1	0	0	0	0	0	0	0	N	Y
A5 LEF (210 x 148 mm)	1	0	0	0	0	0	0	N	Y
B6 SEF (128 x 182 mm) *1	0	0	0	0	0	0	0	N	Y
B6 LEF (182 x 128 mm) *1	0	0	0	0	0	0	0	N	Y
11" x 17" SEF (DLT)	1	1	1	0	1	1	1	Y	**S**
11" x 15" SEF	1	1	1	0	1	1	1	**S**	N
10" x 14" SEF	1	1	0	0	1	1	1	Y	N
8 1/2" x 14" SEF (LG)	1	0	0	0	1	1	1	Y	N
8 1/2" x 13" SEF (F4)	1	0	0	0	1	1	1	**S**	Y
8 1/4" x 13" SEF	1	0	0	0	1	1	1	N	N
8" x 13" SEF (F)	1	0	0	0	1	1	1	N	N
8 1/2" x 11" SEF (LT)	1	0	0	0	1	0	0	Y	**S**
11" x 8 1/2" LEF (LT)	1	1	1	0	0	0	0	Y	**S**
7 1/4" x 10 1/2" SEF	1	0	0	0	1	0	0	Y	N
10 1/2" x 7 1/4" LEF	1	1	1	0	0	0	0	**S**	N
8" x 10" SEF (F)	1	0	0	0	1	0	0	**S**	N
5 1/2" x 8 1/2" SEF (HLT)	0	0	0	0	0	0	0	Y	N
8 1/2" x 5 1/2" LEF (HLT)	1	0	0	0	0	0	0	Y	N
8 K SEF (267 x 390 mm)	1	1	1	0	1	1	1	N	Y
16 K SEF (195 x 267 mm)	1	0	0	0	1	0	0	N	Y
16 K LEF (267 x 195 mm)	1	1	1	0	0	0	0	N	Y

1: Actuated
0: Not actuated
Y: Yes. Size detected.
N: No. Size not detected.
S: Selectable. Size not detected with default but default can be changed with SP6016 (Original Size Determination Priority). Refer to the description in the next section.

*1: For A5 SEF, B6 SEF, and B6 LEF, all sensors are off. The machine determines the paper size by measuring the distance between the leading and trailing edges using the skew correction sensor and clock pulses.

Changing the Default Selection with SP6016

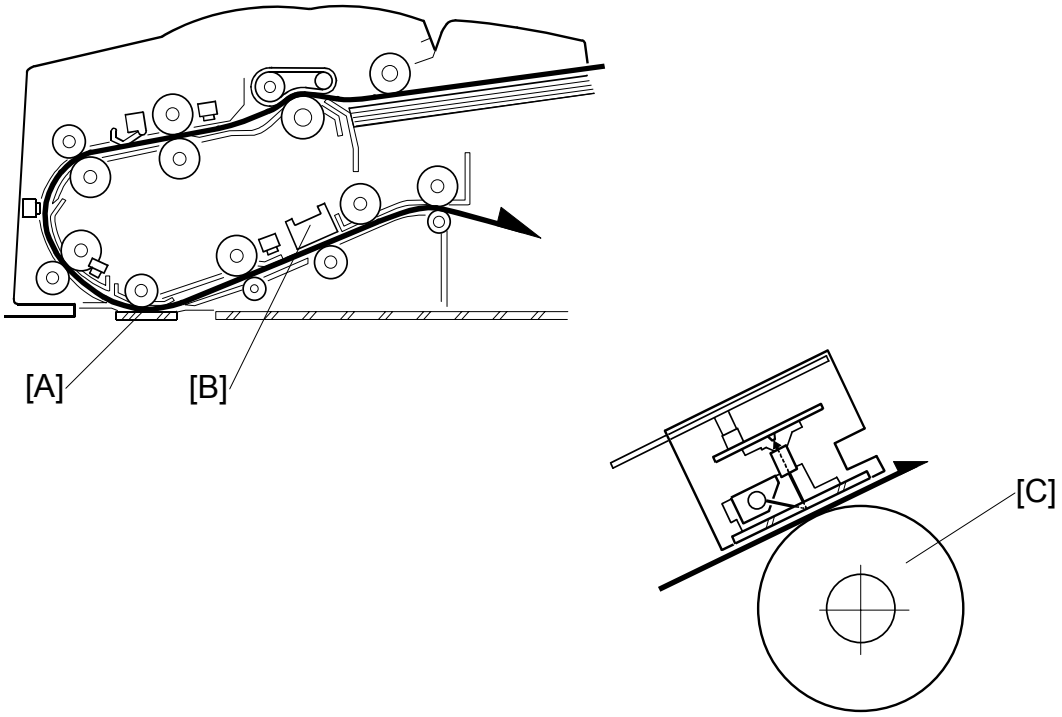
Here is a list of paper sizes that can be set for the default to enable detection. The **bold sizes** are the default settings, and the italic sizes are the alternate settings.

North America			Europe/Asia		
64	**DL SEF**	*11" x 15"*	4	**8 K**	*DL SEF*
32	**LT LEF**	*Exec LEF*	2	**16 K SEF**	*LT SEF*
16	**LT SEF**	*8" x 10" SEF*	1	**16 K LEF**	*LT LEF*
8	**LG SEF**	*F4 SEF*			

To change the default settings:

1. Enter the SP mode.
2. Select SP6016.
3. Replace the default settings with the alternate settings.
   - In North America, enter 120 to replace the default settings with the alternate settings. The bold settings in the table above are replaced with the italicized settings.
   - In Europe (or Asia), enter 7 to replace the default settings with the alternate settings. The bold settings in the table above are replaced with the italicized settings.
4. To restore all the default settings in either North America or Europe/Asia, enter "0".

6.2.9 ADF SCANNING



The ADF scans both sides of an original without inverting the original:

- Front side: Scanned at the ADF exposure glass [A] by a xenon exposure lamp and CCD below the original
- Back side: Scanned by a CIS [B] above the paper path

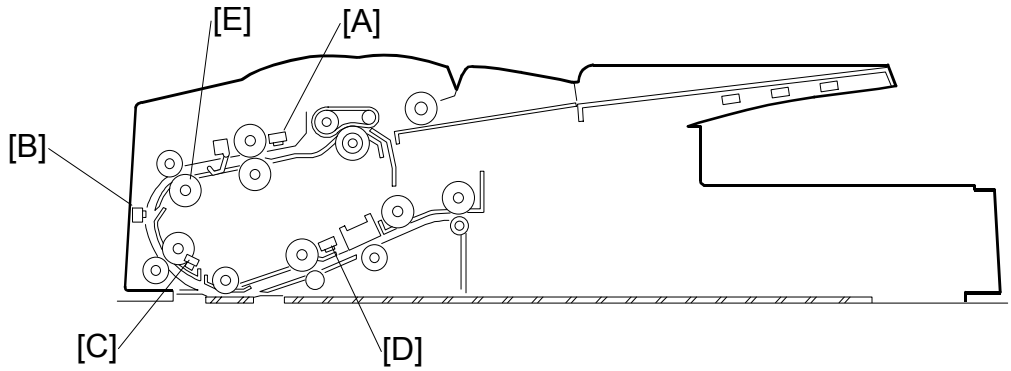
The CIS can scan a line 306 mm (12") wide at 600 dpi. To increase the scanning speed, the sensors are divided into 13 parallel blocks.

NOTE: Both sides are scanned at 600 dpi. The 600 dpi output is boosted to 1200 dpi by image processing at the IPU.

The CIS reads the surface of the white roller [C] and uses this reading (white point =0) as a reference point for density correction.

CT Digital Processes> Image Processing> Black and White CCD Systems, Black and White CIS Systems

6.2.10 JAM DETECTION



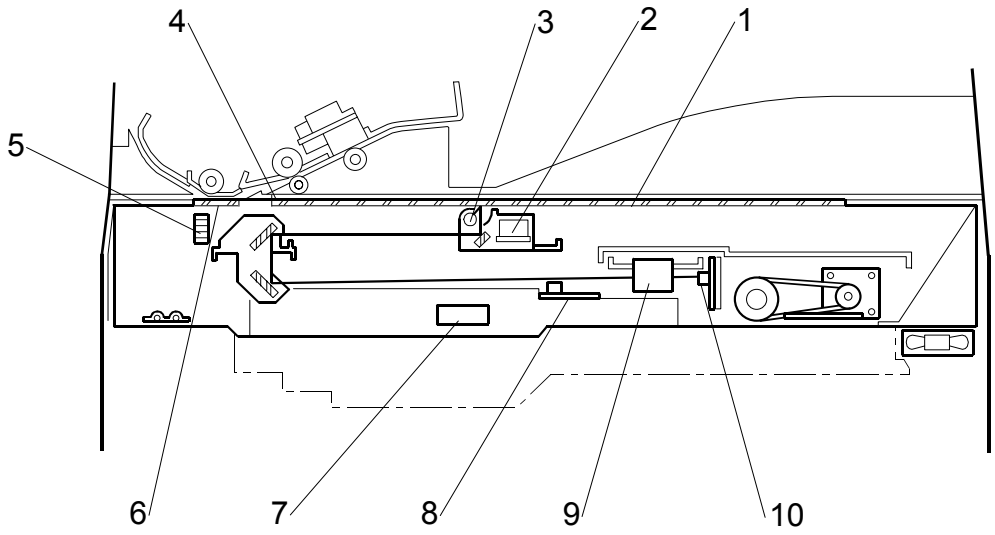
Four sensors, the skew correction sensor [A], interval sensor [B], registration sensor [C], and exit sensor [D] detect jams in the paper path. The conditions that trigger a jam detection are listed below.

Jam Type		Cause
Skew correction sensor	Check in failure	Remains off after enough time for the original to feed twice the distance from the original setting position to the skew correction sensor.
Interval sensor	Check in failure	Remains off after enough time for the original to feed twice the distance from roller [E] to the interval sensor.
Registration sensor	Check in failure	Remains off after enough time for the original to feed twice the distance from the skew correction sensor to the registration sensor.
Exit sensor	Check in failure	Remains off after enough time for the original to feed twice the distance from the registration sensor to the exit sensor.
Skew correction sensor	Check out failure	Remains on after enough time for a 610 mm (24”) original to feed (except when the user is feeding custom-sized originals, which can be up to 1260 mm).
Interval sensor	Check out failure	Remains on after enough time for the original to feed twice the distance from the interval sensor to the skew correction sensor.
Registration sensor	Check out failure	Remains on after enough time for the original to feed twice the distance from the skew correction sensor to the registration sensor.
Exit sensor	Check out failure	Remains on after enough time for the original to feed twice the distance from the registration sensor to the exit sensor.

NOTE: If a problem occurs in the ADF, either SC700 or SC701 will be issued. For details, please refer to Section 4 of this manual.

6.3 SCANNING

6.3.1 OVERVIEW



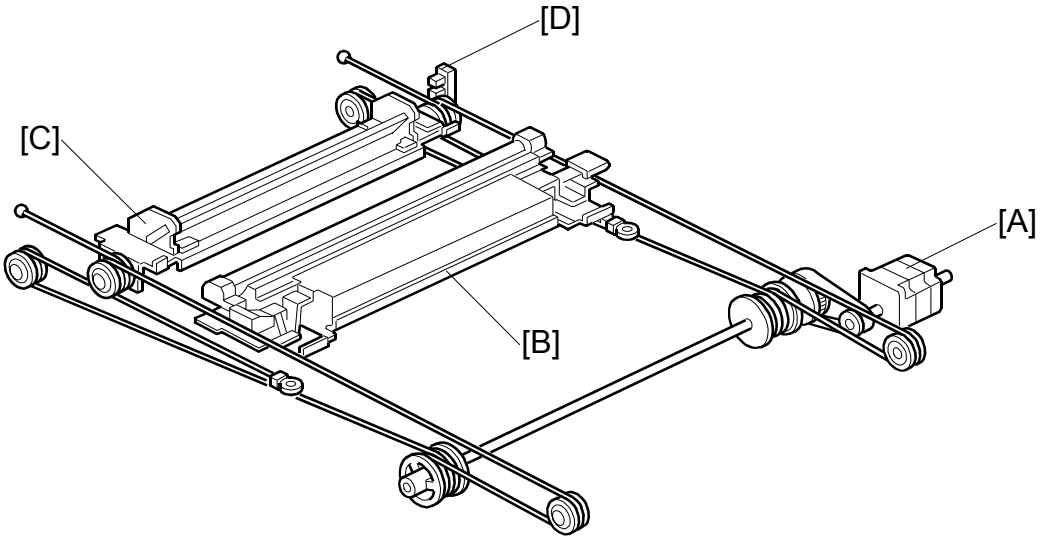
1. Exposure Glass
2. Lamp Regulator
3. Exposure Lamp (Xenon)
4. White Plate
5. Scanner HP Sensor
6. Exposure Glass (ADF)
7. Original Width Sensor
8. Original Length Sensors 1, 2
9. Scanner Lens Block
10. CCD (Charge Coupled Device)

A xenon lamp (23W) illuminates the original. Light is reflected from the original to the CCD: 1st Mirror ➔ 2nd Mirror ➔ 3rd Mirror ➔ Scanner Lens ➔ CCD

The lens block (which consists of the scanner lens, CCD, and SBU) adjusts for refraction, MTF, and focusing. The lens block is replaced as a unit and requires no adjustment in the field.

The resolution of the CCD is 600 dpi.

6.3.2 SCANNER DRIVE



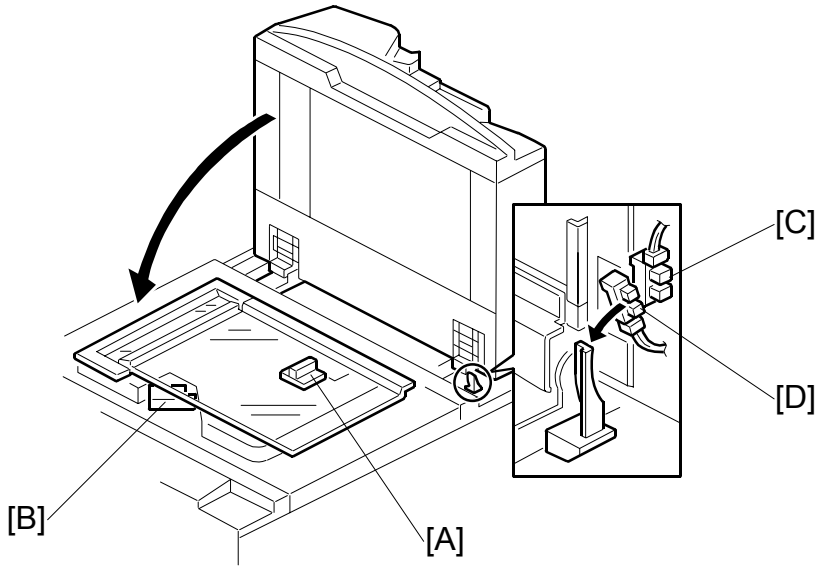
The scanner motor [A] (a dc stepper motor) drives the first scanner [B] and second scanner [C] through drive wires and pulleys.

The scanner HP sensor [D] detects when the scanner is at home position. The machine measures distance from home position by counting scanner motor pulses.

Scanning Mode	Speed
100% Reproduction Ratio	420 mm/s
Returning to HP	840 mm/s

6.3.3 ORIGINAL SIZE DETECTION

Sensors

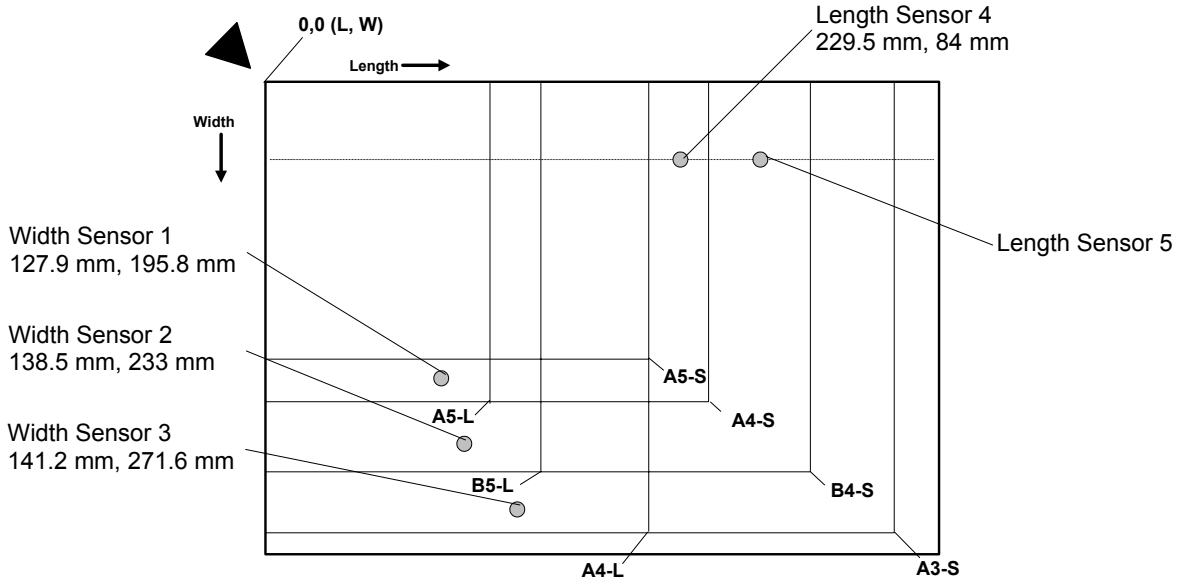


Original length sensor [A] and Original width sensor [B] (reflective sensors) detect the width and length of the original on the exposure glass.

The ADF functions as the platen. The DF position sensor [C] (attached to the ADF) detects whether the ADF is open or closed.

The APS start sensor [D] triggers auto paper size detection.

The following diagram shows the locations of the sensors.



The table below lists the sensor output for each paper size.

If an original is on the exposure glass, you can check the sensor output by using SP4301 (APS Sensor Output Display).

Original Size		APS Length		APS Width			SP4301 Display
A4/A3	LT/DLT	5	4	1	2	3	
A3	11" x 17"	1	1	1	1	1	000 11111
B4	—	0	1	1	1	0	000 01110
A4 SEF	8 1/2" x 11"	0	0	1	1	1	000 00111
A4 LEF	11" x 8 1/2"	0	1	1	0	0	000 01100
B5 SEF	—	0	0	1	1	0	000 00110
B5 LEF	—	0	1	0	0	0	000 01000
A5 SEF	5 1/2" x 8 1/2"	0	0	1	0	0	000 00100
A5 LEF	8 1/2" x 5 1/2"	0	0	0	0	0	000 00000

1: High (Paper Present), 0: Low (No Paper)

If the original is small (such as A5-LEF), all sensors remain off and the machine indicates that the original size cannot be detected. However, you can force the machine to detect A5/HLT in this situation by adjusting SP4303 (APS A5 Size Detection).

Detection Timing

When the power is on, the APS sensors are always active, but the CPU checks their signals only after the platen is lowered.

Book Mode

In the Book mode (when the ADF is open), the CPU checks the APS sensors and determines the original size after Start ⓓ is pressed.

ADF Mode

The CPU checks the APS sensors after the platen is lowered.

By-pass Mode

The APS sensors are ignored when copy paper is fed from the by-pass tray, but the by-pass tray can handle a variety of sizes and orientations. To accomplish this:

- The machine always assumes short-edge feed for paper on the by-pass tray.
- Width is measured by a sensor inside the by-pass tray.
- The bypass tray cannot measure length, so the registration sensor determines the length of the paper using clock pulses.

The copy time for the first sheet is slower, because the entire exposure glass area (or width for the CIS) is scanned. However, when the size of the first sheet has been detected, scanning is at normal speed for the remaining sheets. (CT Handling Paper> Paper Feed> Paper Size Detection> **By-pass Size Detection**)

6.3.4 SCANNING MAGNIFICATION

Book Mode

Reduction and enlargement is done differently for main scan and sub scan:

- Main scan: Handled by image processing in the IPU.
- Sub scan: Handled by varying the speed of the scanner motor.

Reproduction ratios of 50% or higher: The scanner speed is lower for higher magnification ratios. For example, for 200% enlargement, the scanner motor speed is reduced to 50%.

Reproduction ratios of less than 50%: The scanner motor cannot run fast enough. So, the scanner slows to half the speed required for that reduction ratio. For a 49% magnification ratio, the scanner speed is the same as for 98% magnification. This causes twice as many scan lines as needed, so alternate lines are removed.

6.3.5 AUTO IMAGE DENSITY (ADS)

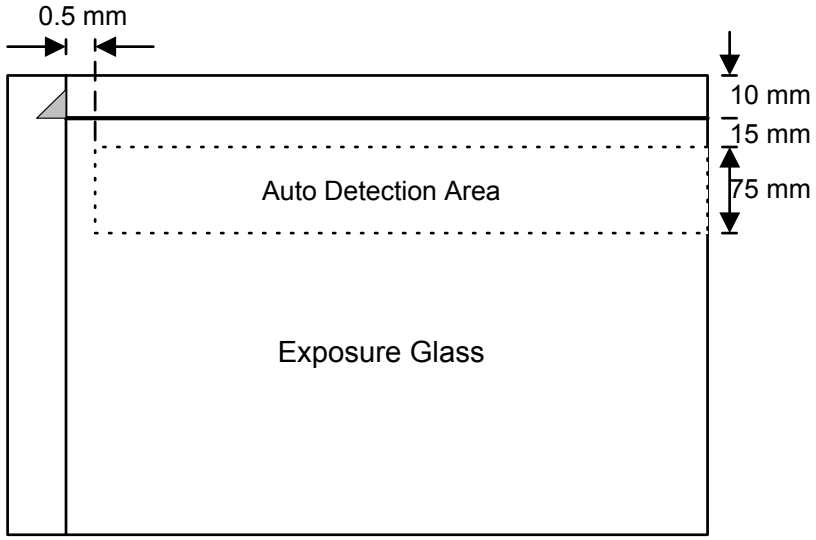
Auto Image Density (ADS), also called *original background correction*, corrects for variation in background density down the page to prevent the background of an original from appearing in copies. This machine uses rear scale peak sampling (the area sampled, which must contain no data, is near the rear scale).

Xenon Lamp ➔ CCD ADS

When an original with a gray background is scanned, for example, the gray area becomes the peak white level density; therefore, the gray background will not appear on copies.

The area that the CCD uses as a reference for ADS is shown in the following diagram.

(CT Digital Processes> Image Processing> Black and White CCD Systems> Analog Signal Processing> **Automatic Image Density**)



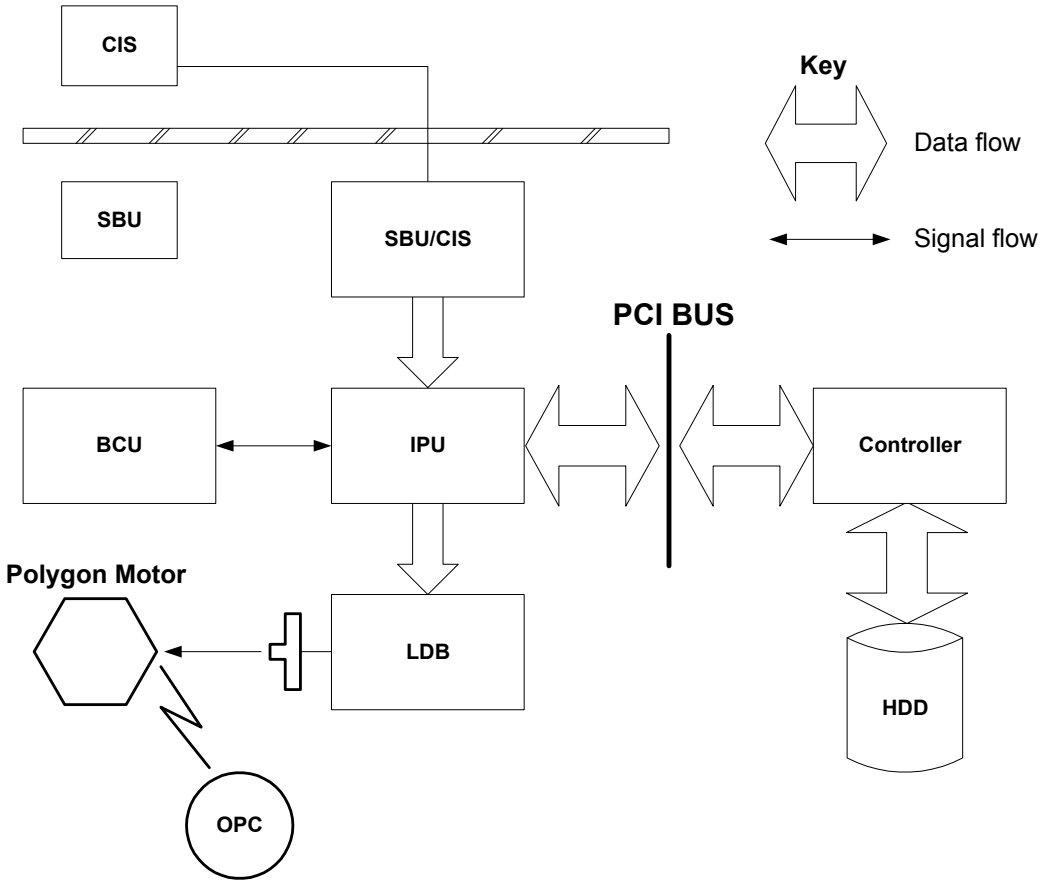
CIS ADS

The CIS reads the surface of the white platen roller and uses this reading (white point =0) as a reference point for density correction. When an original is scanned, the CIS starts 20 mm from the edge away from the operation panel and reads 65 mm in towards the center of the white platen roller and then performs image density correction line by line.

6.4 IMAGE PROCESSING

6.4.1 OVERVIEW

This diagram shows the machine components that do the image processing.



SBU/CIS: Photoelectric conversion (600 dpi, 2-channel CCD odd/even allocation), Amplification, A/D Conversion (analog to digital), Light intensity detection (scanning)

BCU: Engine control, Scanner control, SBU settings, LDB settings

IPU: Shading correction, Image Processing, Main/Sub scan magnification, Video patch switching, Compression/ decompression, GAVD

Controller: System control, software application control, image storage control, compression/decompression

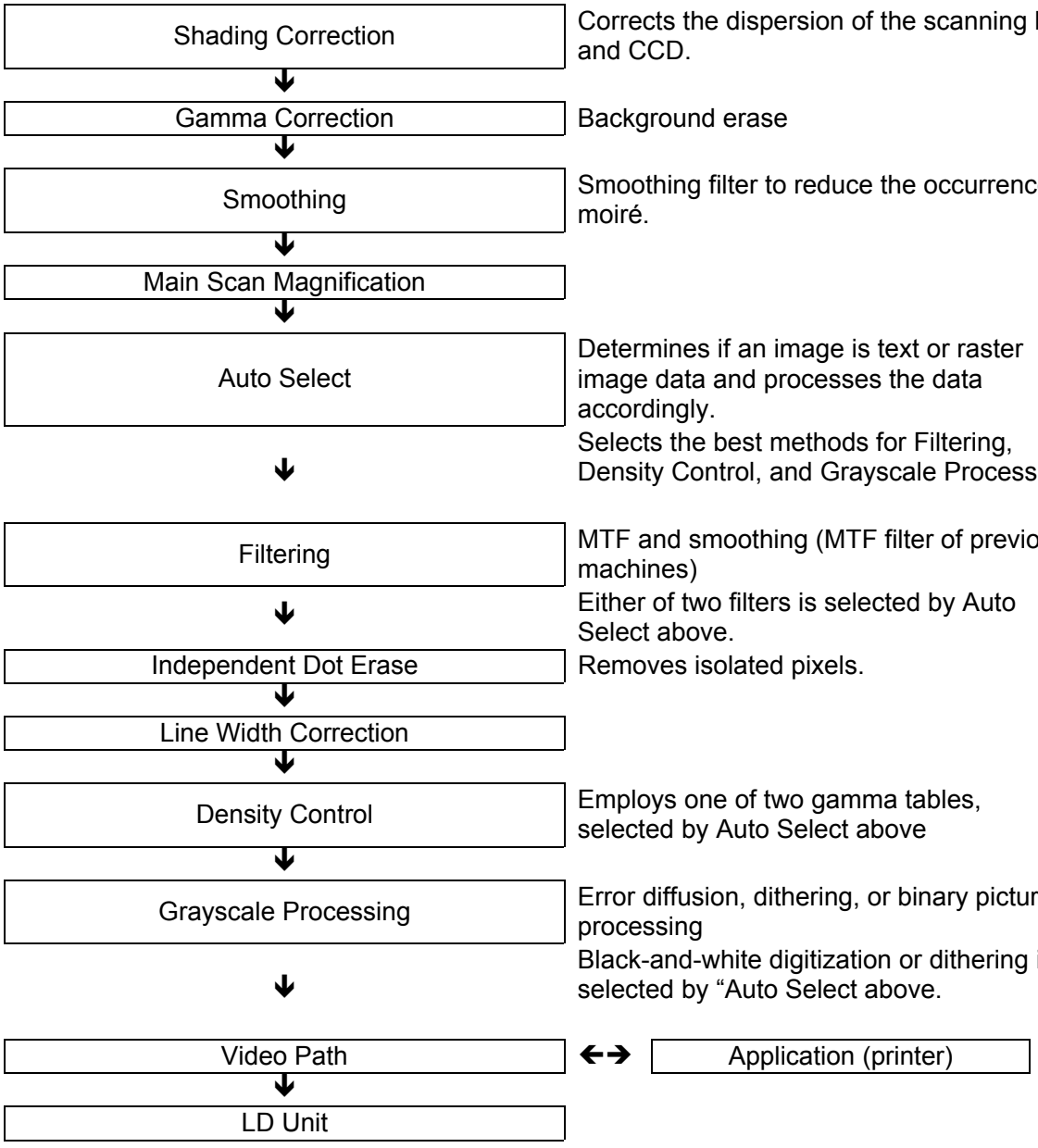
LDB: 4-beam laser exposure, digital-to-grayscale conversion, synchronization detection

6.4.2 IMAGE PROCESSING FLOW

Image processing is done by the IPU (Image Processing Unit), following the steps shown below.

Overall image processing for this machine is designed to:

- Target edges with filters to improve the angles of text characters and reduce the occurrence of moiré filled areas.
- Improve the evenness of granular areas in images



6.4.3 IMAGE PROCESSING MODES

The user can select one of the following five modes with the User Tools screen: Text, Text/Photo, Photo, Pale, Generation.

Each mode has four different settings (described below). Each mode has a Custom Setting that can be customized with SP modes to meet special requirements that cannot be covered by the standard settings.

NOTE: To see these settings in the User Tools mode, press the User Tools key, press “Copier/Document Server Functions”, then press “Copy Quality”.

Mode	Setting	Function
Text	Soft	Used for black-and-white printed material and documents that contain mainly text. Easily reads lines as well as text
	Normal	
	Sharp	Used for newspapers, time schedules, or any type of printed material with fine print.
	Custom Setting	Stores SP command settings.
Tex/Photo	Photo Priority	Used for documents that contain text and color or black-and-white photos, such as catalogs, magazines, maps, etc. Provides more faithful reproduction than the Text mode.
	Normal	
	Text Priority	
	Custom Setting	Stores SP command settings.
Photo	Print Photo	Used for magazines, graphics, for smooth reproduction. Employs dithering.
	Normal	Used for copying photographs, graphics, for sharp reproduction. Employs error diffusion.
	Glossy Photo	Used for best results in copying glossy photographs for sharp reproduction. Employs error diffusion.
	Custom Settings	Stores SP command settings. Employs either error diffusion or dithering, depending on an SP setting.
Pale	Soft	Used for low density documents with text handwritten in black or color pencil (or carbon copies) such as receipts, invoices, etc.
	Normal	
	Sharp	
	Custom Setting	Stores SP command settings.
Generation Copy	Soft	Used to achieve an image smoother than Normal.
	Normal	Used to achieved best reproduction of “copies of copies” by smoothing the image.
	Sharp	Used to emphasize lines and text stronger than Normal for better image quality.
	Custom Setting	Stores SP command settings.

6.4.4 IMAGE QUALITY SP ADJUSTMENTS

Adjustments are easier with this machine, because the parameters have been grouped and no longer have to be adjusted one by one.

In this section, we will cover the custom settings for each of the 5 original modes: These custom settings are:

- Image Quality
- Line Width Correction
- Duplex Scanning Mode

Settings adjustable for each original mode will also be covered (these do not just affect the custom settings; they also affect all sub original modes, such as sharp text).

- Independent Dot Erase
- Background Erase

Note concerning Photo Mode: There are two sets of custom settings for photo mode. One is for dithering, and one is for error diffusion. The set of custom settings that will be used depends on the setting of SP 4904 002.

Custom Settings for Each Mode: Image Quality

Custom Setting: Text Mode Image Quality

Item		Range	Default	SP No.
Text	25~55%	0~10	5 Normal	SP4903 001
	55.5~75%			SP4903 002
	75.5~160%			SP4903 003
	160.5~400%			SP4903 004

If the value is increased, the outlines of lines become sharper but this could cause moiré to appear in dot patterns. If the value is decreased, image patterns become smoother, the occurrence of moiré decreases, but the corners of characters and intersections of lines at acute angles may not be as sharp.

Custom Setting: Photo Mode (Dithering) Image Quality

Item		Range	Default	SP No.
Photo	25~55%	0~6	3 Print Photo	SP4903 005
	55.5~75%			SP4903 006
	75.5~160%			SP4903 007
	160.5~400%			SP4903 008

Used for coarse, dithered tone photographs such as newsprint.

If the value is increased, the photo becomes sharper, but blurring could occur in the sub scan direction. If the value is decreased, blurring in the sub scan direction is less obvious but outlines become fuzzy.

Custom Setting: Photo Mode (Error Diffusion) Image Quality

Item		Range	Default	SP No.
Photo	25~55%	0~6	1 Normal	SP4903 009
	55.5~75%			SP4903 010
	75.5~160%			SP4903 011
	160.5~400%			SP4903 012

Used for printed materials (magazines, etc.) with photographs to sharp patterns in copies.

If the photos have dithered tones, the image becomes sharper if the value is increased, but blurring could occur in the sub scan direction. If the value is decreased, blurring in the sub scan direction is less obvious but outlines become fuzzy.

Custom Setting: Text/Photo Mode Image Quality

Item		Range	Default	SP No.
Text/Photo	25~55%	0~10	5 Normal	SP4903 013
	55.5~75%			SP4903 014
	75.5~160%			SP4903 015
	160.5~400%			SP4903 016

See the remarks for 'Custom Setting: Text Mode Image Quality' above.

Custom Setting: Pale Mode Image Quality

Item		Range	Default	SP No.
Pale	25~55%	0~10	5 Normal	SP4903 017
	55.5~75%			SP4903 018
	75.5~160%			SP4903 019
	160.5~400%			SP4903 020

If the value is increased, low density areas become sharper, but the background could become dirtier. If the value is decreased, the background disappears but the density of low density areas becomes low.

Custom Setting: Generation Mode Image Quality

Item		Range	Default	SP No.
Generation	25~55%	0~10	5 Normal	SP4903 021
	55.5~75%			SP4903 022
	75.5~160%			SP4903 023
	160.5~400%			SP4903 024

See the remarks for 'Custom Setting: Pale Mode Image Quality' above.

Custom Settings for Each Mode: Line Width Correction

Custom Setting: Text Mode Line Width Correction

Selection		Range	Default	Content	SP No.
Item	Line Width Correction	0~8	1	0 (Thin) - 4 (Off) - 8 (Thick)	SP4903 080
	Main Scan	0~1	1	0:OFF 1:ON	SP4903 081
	Sub Scan	0~1	1	0:OFF 1:ON	SP4903 082

If the value is made smaller, the line width correction becomes thinner, and if the value is made larger, the line width correction becomes thicker. To switch this feature off, select “4”.

If the above settings do not make the lines thin enough, use SP4904 020 (Image Quality Exposure: Thin Line - Text Mode). Normally, SP4904 020 is set to 0 (OFF). As the setting is increased (1~3), the line width correction effect becomes stronger, and lines become thinner. All settings of SP4903 080 will be affected by the same amount.

Custom Setting: Photo Mode Line Width Correction

Selection		Range	Default	Content	SP No.
Item	Line Width Correction	0~8	4	0 (Thin) - 4 (Off) - 8 (Thick)	SP4903 083
	Main Scan	0~1	1	0:OFF 1:ON	SP4903 084
	Sub Scan	0~1	1	0:OFF 1:ON	SP4903 085

See the remarks for ‘Custom Setting: Text Mode Line Width Correction’ above.

If the above settings do not make the lines thin enough, use SP4904 021 (Image Quality Exposure: Thin Line – Photo Mode). Normally, SP4904 021 is set to 0 (OFF). As the setting is increased (1~3) the line width correction effect becomes stronger, and lines become thinner. All settings of SP4903 083 will be affected by the same amount.

Custom Setting: Text/Photo Mode Line Width Correction

Selection		Range	Default	Content	SP No.
Item	Line Width Correction	0~8	4	0 (Thin) - 4 (Off) - 8 (Thick)	SP4903 086
	Main Scan	0~1	1	0:OFF 1:ON	SP4903 087
	Sub Scan	0~1	1	0:OFF 1:ON	SP4903 088

See the remarks for ‘Custom Setting: Text Mode Line Width Correction’ above.

If the above settings do not make the lines thin enough, use SP4904 022 (Image Quality Exposure: Thin Line – Text/Photo Mode). Normally, SP4904 022 is set to 0 (OFF). As the setting is increased (1~3) the line width correction effect becomes stronger, and lines become thinner. All settings of SP4903 086 will be affected by the same amount.

Custom Setting: Pale Mode Line Correction

Selection		Range	Default	Content	SP No.
Item	Line Width Correction	0~8	4	0 (Thin) - 4 (Off) - 8 (Thick)	SP4903 089
	Main Scan	0~1	1	0:OFF 1:ON	SP4903 090
	Sub Scan	0~1	1	0:OFF 1:ON	SP4903 091

See the remarks for 'Custom Setting: Text Mode Line Width Correction' above.

If the above settings do not make the lines thin enough, use SP4904 023 (Image Quality Exposure: Thin Line – Pale Mode). Normally, SP4904 023 is set to 0 (OFF). As the setting is increased (1~3) the line width correction effect becomes stronger, and lines become thinner. All settings of SP4903 089 will be affected by the same amount.

Custom Setting: Generation Copy Line Width Correction

Selection		Range	Default	Content	SP No.
Item	Line Width Correction	0~8	0	0 (Thin) - 4 (Off) - 8 (Thick)	SP4903 092
	Main Scan	0~1	1	0:OFF 1:ON	SP4903 093
	Sub Scan	0~1	1	0:OFF 1:ON	SP4903 094

See the remarks for 'Custom Setting: Text Mode Line Width Correction' above.

If the above settings do not make the lines thin enough, use SP4904 024 (Image Quality Exposure: Thin Line – Generation Mode). Normally, SP4904 024 is set to 0 (OFF). As the setting is increased (1~3) the line width correction effect becomes stronger, and lines become thinner. All settings of SP4903 092 will be affected by the same amount.

Custom Setting: Duplex Scanning Mode Original Image Quality Settings

Front Side Quality Adjustment

Item		Range	Default	Content	SP No.
Front Side Scan	Text	0~3	0	0: Normal 1: Weak 2: Medium 3: Strong	SP4901 010
	Photo				SP4901 011
	Text/Photo				SP4901 012
	Pale				SP4901 013
	Generation Copy				SP4901 014

Rear Side Quality Adjustment

Item		Range	Default	Content	SP No.
Back Side Scan	Text	0~3	0	0: Normal 1: Weak 2: Medium 3: Strong	SP4902 010
	Photo				SP4902 011
	Text/Photo				SP4902 012
	Pale				SP4902 013
	Generation Copy				SP4902 014

Simplex/Duplex Front Side Quality Adjustment

Item	Range	Default	SP No.
Determines if SP4901 010 ~ 014 applies to scanning single-side or single and double-side originals.	0~1	0	SP4901 019

0: The adjustment will be applied only for duplex mode front side copies.
1: The adjustment will be applied for simplex mode, and for front side copies in duplex mode.

Settings Adjustable for Each Original Mode

Independent Dot Erase

Item	Range	Default	SP No.
Text	0~14	0 (Off)	SP4903 060
Photo			SP4903 061
Text/Photo			SP4903 062
Pale			SP4903 063
Generation Copy			SP4903 064

Independent dot erase removes isolated black pixels. As this setting is increased, the greater the number of eliminated isolated pixels. Setting to zero switches this function off.

Background Erase

Item	Range	Default	SP No.
Text	0~255	0 (Off)	SP4903 070
Photo			SP4903 071
Text/Photo			SP4903 072
Pale			SP4903 073
Generation Copy			SP4903 074

Background erase attempts to eliminate the heavy background texture from copies of newspaper print or documents printed on coarse paper. Pixels of density below the selected threshold level are eliminated. Setting this feature to zero switches it off. Increasing this setting increases the effect of background erase.

6.4.5 RELATION BETWEEN THE SP AND UP SETTINGS

The tables below illustrate the relationship between the UP and SP settings for each of the 5 original modes. The scale across the top of the table is the range of settings for the SP modes.

NOTE: The settings in the gray areas indicate the UP settings overlaid on the SP scale of the table. Words that are not shaded within the tables, such as 'softer', indicate how the image changes if you change the SP setting is a certain direction.
The related UP mode is User Tools – Copier Features – General Features – Copy Quality.

Text Mode

Setting	0	1	2	3	4	5	6	7	8	9	10	SP No.
25% ~55%		Soft				Normal				Sharp		SP4903 001
55.5 ~ 75%												SP4903 002
75.5 ~ 160%												SP4903 003
160.5 ~ 400%												SP4903 004

Photo Mode (Dithering)

Setting	0	1	2	3	4	5	6	SP No.
25% ~55%	Softer			Print Photo			Sharper	SP4903 005
55.5 ~ 75%								SP4903 006
75.5 ~ 160%								SP4903 007
160.5 ~ 400%								SP4903 008

Photo Mode (Error Diffusion)

Setting	0	1	2	3	4	5	6	SP No.
25% ~55%	Softer	Normal				Glossy Photo	Sharper	SP4903 009
55.5 ~ 75%								SP4903 010
75.5 ~ 160%								SP4903 011
160.5 ~ 400%								SP4903 012

Text/Photo Mode

Setting	0	1	2	3	4	5	6	7	8	9	10	SP No.
25% ~55%		Photo Priority				Normal				Text Priority		SP4903 013
55.5 ~ 75%												SP4903 014
75.5 ~ 160%												SP4903 015
160.5 ~ 400%												SP4903 016

Pale Mode

Setting	0	1	2	3	4	5	6	7	8	9	10	SP No.
25% ~55%		Soft				Normal				Sharp		SP4903 017
55.5 ~ 75%												SP4903 018
75.5 ~ 160%												SP4903 019
160.5 ~ 400%												SP4903 020

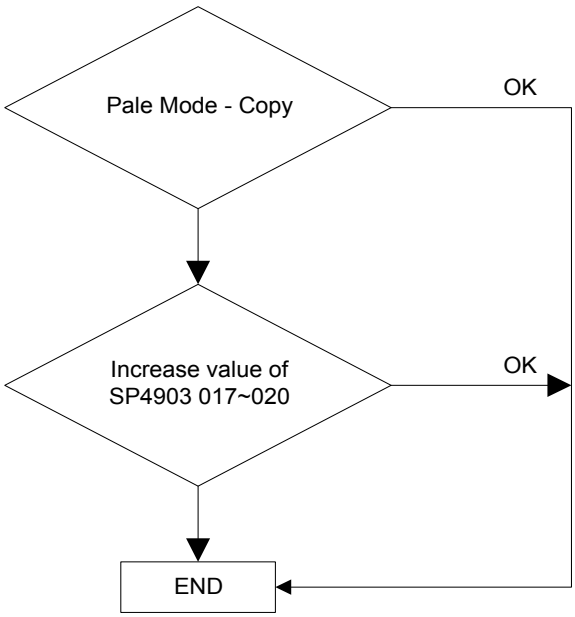
Generation Copy

Setting	0	1	2	3	4	5	6	7	8	9	10	SP No.
25% ~55%		Soft				Normal				Sharp		SP4903 021
55.5 ~ 75%												SP4903 022
75.5 ~ 160%												SP4903 023
160.5 ~ 400%												SP4903 024

6.4.6 IMAGE PROCESSING TROUBLESHOOTING

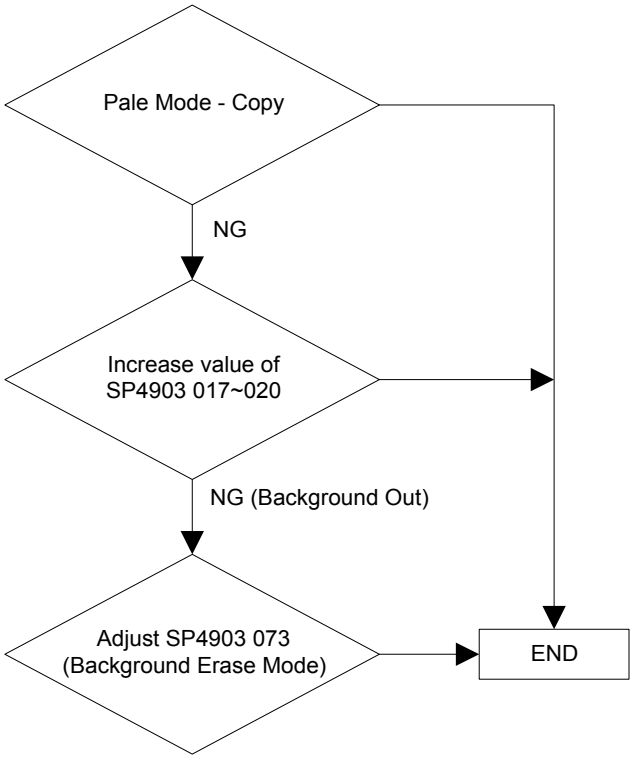
Removing Background from Coarse Paper

NOTE: If text fades and thin lines appear broken, then adjust SP4903 080~082 (Text Mode – Select Thick Lines for Line Width Correction).



Improving the Appearance of a Copy of a Color Document

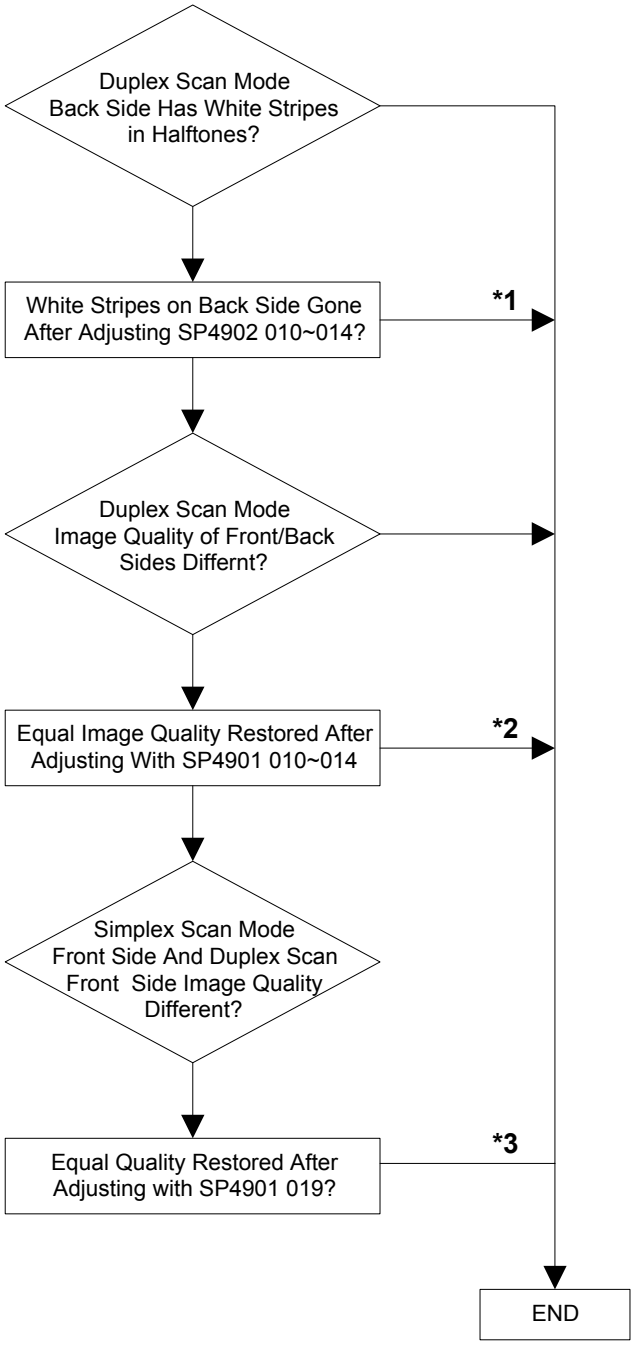
NOTE: If text fades, adjust SP4903 089~091 (Pale Mode – Select Thick Lines for Line Width Correction).



Removing Vertical White Lines During Duplex Scanning

During duplex scanning, the CCD scans the front side and the CIS scans the rear side. In Text, Pale, or Generation Copy mode, when there are halftones (such as photos) on the rear side, vertical white lines may appear in these areas. This is because of gaps at the junctions between blocks of elements in the CIS (there is a junction every 25 mm). If this occurs, adjust SP4902 010~014 (Image Adjust Mode – Back Side Scan). Increasing the value reduces the white stripes, but could reduce resolution slightly. Otherwise, try using Text/Photo mode.

NOTE: Each original mode has a separate adjustment.



***1: Front Side Quality Adjustment**
***2: Rear Side Quality Adjustment**
***3: Simplex/Duplex Front Side Quality Adjustment**

See page 6-50.

Equalizing Duplex Scanned Image Quality of Front/Back Sides

During duplex scanning, when SP4902 010~014 is adjusted, only the back side is affected, so you may see a slight difference in the quality of the images scanned from the front and back sides of the same page. You can adjust the quality of the front side image by changing SP4901 010~014 (Image Quality Adjustment For Front Side Scan). This mode is enabled for the Custom Setting original mode only.

NOTE: Each original mode has a separate adjustment.

Equalizing Image Quality of Front Sides for Duplex and Simplex Modes

Normally, the front side adjustment (SP 4901 010~014) is only applied for duplex jobs. So, you may see a slight difference in the quality of images scanned in simplex mode and for the front sides of duplex mode jobs.

If you change SP 4901 019 to 1, the front side image quality adjustment (SP4901 010-014) will be applied to both duplex and simplex jobs. This mode is enabled for the Custom Setting only.

SP4901 019

0: Enabled for Duplex Only (default setting)
1: Enabled for Simplex and Duplex Scanning

6.5 LASER EXPOSURE

6.5.1 OVERVIEW

There are four laser diodes. Four parallel beams write four lines at once, 24 lines with one complete rotation of the polygon mirror, with the polygon motor rotating at 42,756 rpm.

Multiple beam scanning achieves:

- Longer life of the polygon motor (four-beam scanning requires fewer motor rotations)
- Quieter operation because fewer polygon motor revolutions are required.

Up to 5 image density levels (0 ~ 4) are used for each pixel. To achieve this, this machine controls the duration of the laser exposure using PWM (Pulse Width Modulation).

(CT Digital Processes> Printing> Laser Printing> Image Processing)

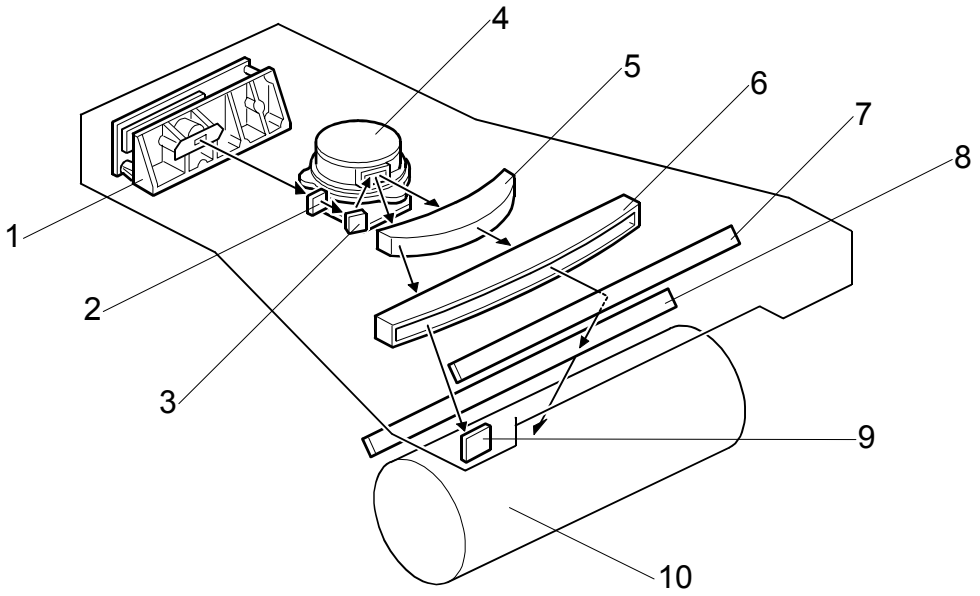
The strength of each beam is 10 mW/channel at a wavelength of 788 nm.

Specifications

LD Unit	Semi-conductor laser encased in an aluminum die-cast bracket.
	Wavelength: 788 nm
	Output: 10 mW/channel
	4-beam exposure
	APC (Auto Power Control) provided
	Gradation control with PWM
Line Scanning	Light weight, aluminum die-cast housing
	Main line scanning by polygon mirror
	Fθ lens controls the beam position and focus in the main scan direction.
	Beam focus correction by WTL.
Polygon Motor	42,756 rpm

⇒ **NOTE:** 1) A new ceramic shaft increases the durability of the polygon motor.
2) This machine uses APC (Auto Power Control), so no laser power adjustments are required when the LD unit is replaced.

6.5.2 OPTICAL PATH

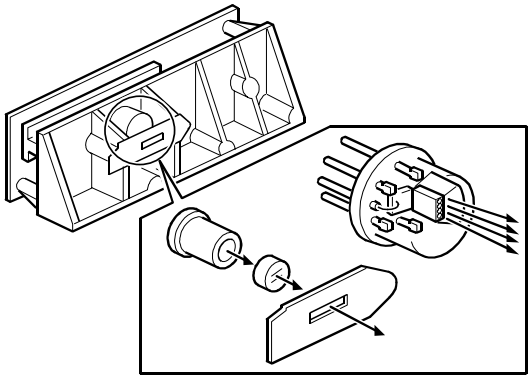


1. LD Unit
2. Cylindrical Lens
3. 1st Mirror
4. Polygonal Mirror Motor
5. Fθ Lens
6. WTL
7. 2nd Mirror
8. Toner Shield Glass
9. Laser Synchronizing Detector
10. OPC Drum

The optical path is a standard arrangement, starting at the LD unit and ending with the creation of the latent image on the OPC drum. (CT Digital Processes> Printing> Laser Printing> Image Processing> Optical Components)

6.5.3 FOUR-BEAM EXPOSURE

The LD unit uses four laser diodes to scan four lines simultaneously. The diodes are fixed at 1200 dpi, so beam pitch adjustments are not required.

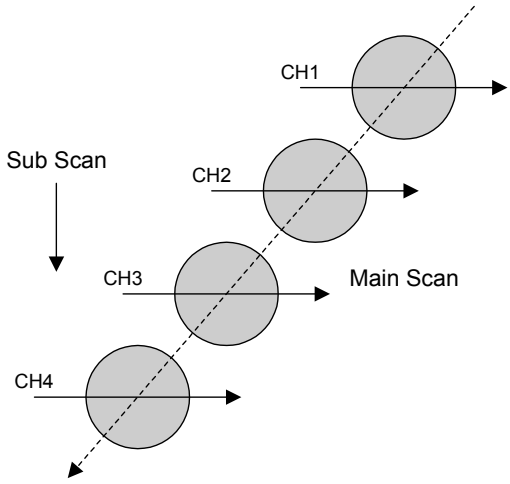


The diagonal arrangement of the four beams achieves 1200 dpi.

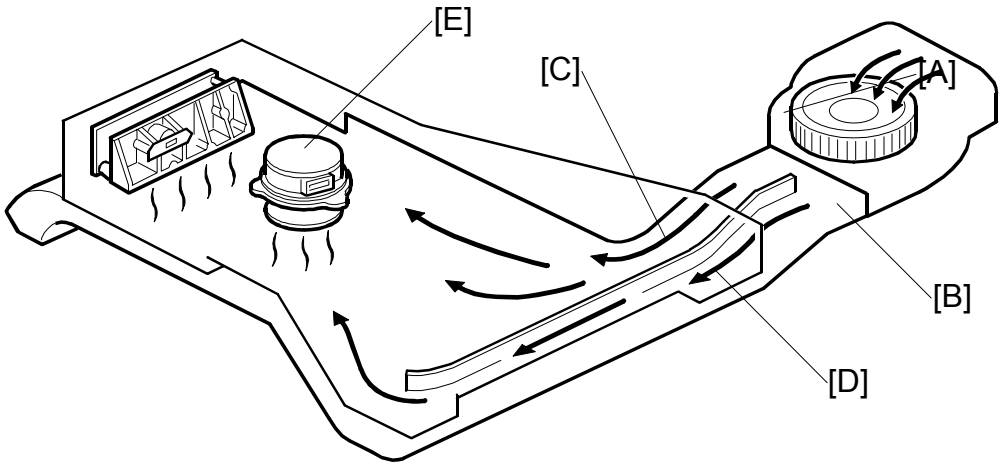
600 dpi 8-bit scanner data is converted to 1200 dpi 1-bit digital data during image processing.

When edge processing or smoothing (FCI fine character adjustment) is used, one-bit data is converted to grayscale data in the LD driver circuit board.

Greyscale control: The greater the exposure time of the laser beam, the darker the pixel. The duration (width) of the pulse is adjusted with PWM (pulse width modulation) in 5 steps.



6.5.4 COOLING FAN

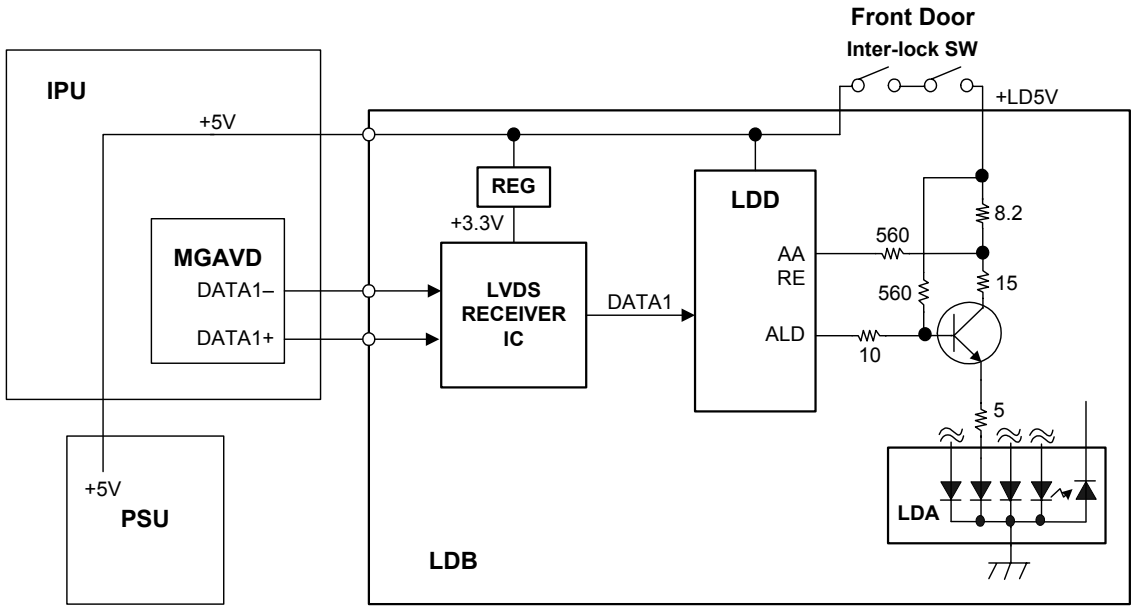


The cooling fan [A] at the back of the machine blows air through the duct [B] and sends it above and below the laser exposure unit. The fan switches on and off with the polygon motor.

The air [C] above passes through a dust filter before it reaches the optical path. The air passing below [D] flows over the top of the fusing unit and is expelled by the fusing cooling fan.

The polygonal mirror motor [E] normally remains on. It shuts down when the machine is powered off or enters the auto off mode or night mode.

6.5.5 LD SAFETY SWITCHES

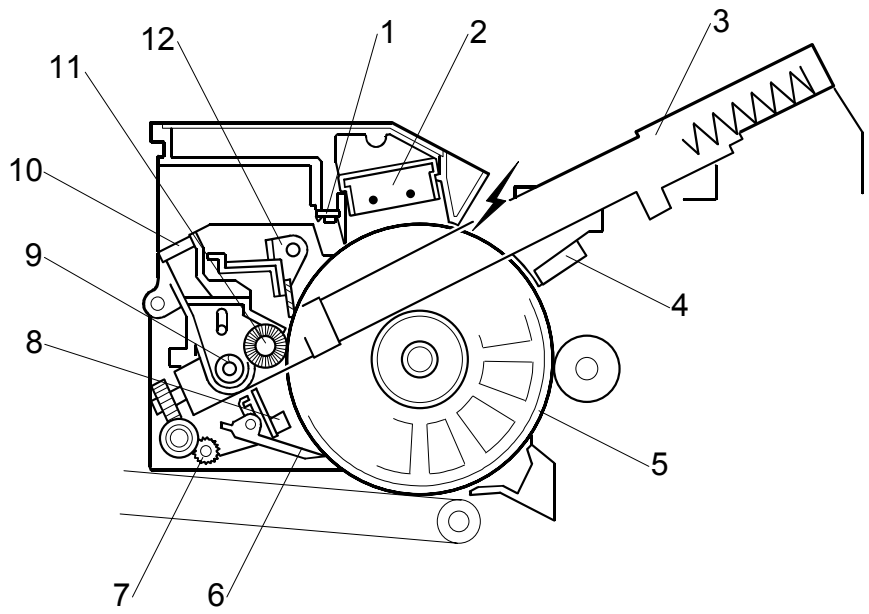


To ensure the safety of customers and customer engineers, two switches inside the cover prevent the laser beams from switching on accidentally.

When the front cover is open, the 5V line connecting each LD driver on the LD control board is disconnected.

6.6 DRUM UNIT

6.6.1 OVERVIEW



1. Quenching Lamp
2. Charge Corona Unit
3. Toner Recycling Pipe
4. Drum Potential Sensor
5. OPC Drum
6. Pick-off Pawls
7. Pick-off Pawl Spurs
8. ID Sensor
9. Toner Collection Coil
10. Pressure Release Filter
11. Cleaning Brush
12. Cleaning Blade

The OPC drum (diameter 100 mm) is charged by the charge corona unit, a standard Scorotron grid wire charging and cleaning system.

The drum motor drives the drum and the drum cleaning unit.

A counter blade system, with both cleaning blade and brush, clean the drum.

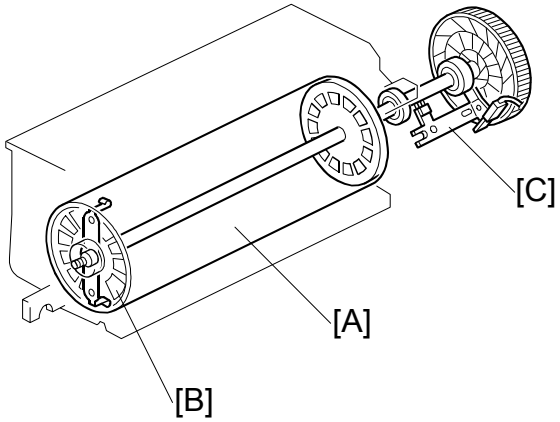
Two sensors mounted near the drum, an ID sensor and potential sensor, are used for process control.

Toner is collected at the cleaning area and transported back to the development unit via the toner collection coil and toner recycling pipe.

6.6.2 OPC DRUM

The OPC drum [A] contains ventilation holes [B] to prevent overheating.

A ground (earth) brush [C] at the back grounds the drum unit.

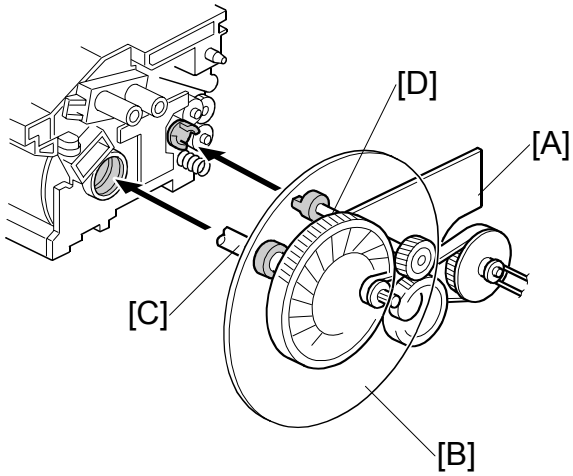


6.6.3 DRUM DRIVE

The drum motor [A] drives both the OPC drum and the cleaning unit.

A flywheel [B] on the drum drive shaft [C] reduces drum vibration. The other drive shaft [D] drives the cleaning unit.

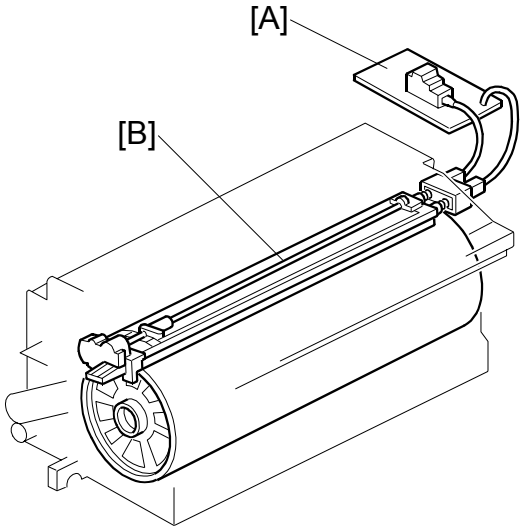
The drum drive shaft [C] drives the drum at 362 mm/s.



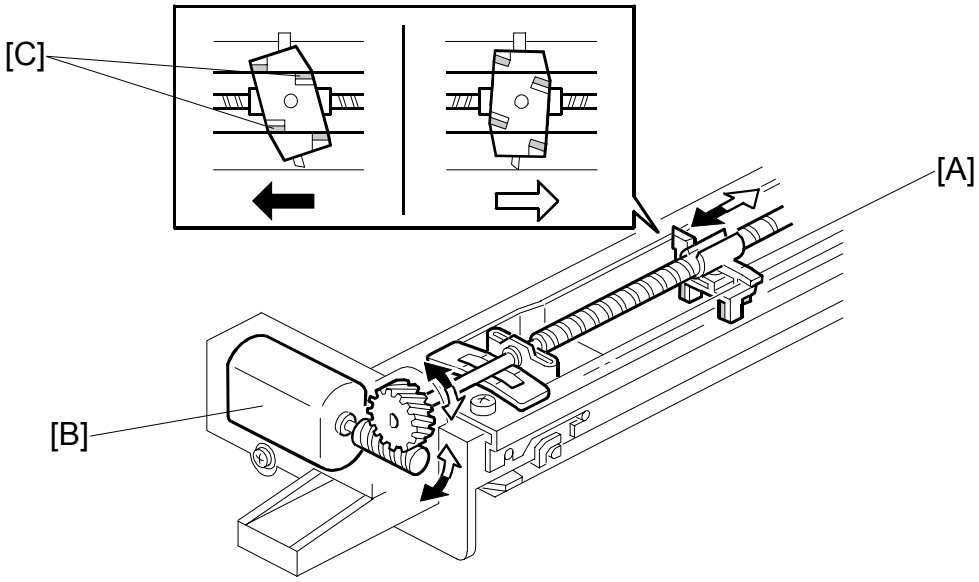
6.6.4 DRUM CHARGE

The charge power pack [A] provides an even negative charge to the two charge corona wires in the charge corona unit [B].

(CT Photocopying Process> Charge> Corona Charge> **Scorotron Method**)



6.6.5 CHARGE CORONA WIRE CLEANING



Air flowing around the charge corona unit deposits toner particles on the wires. These particles interfere with charging and cause pale bands on copies.

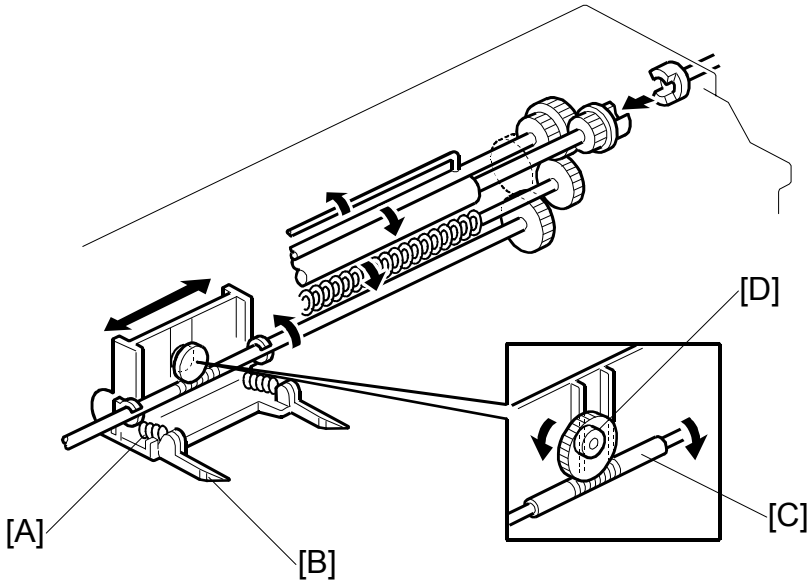
The wire cleaner [A] normally remains at the home position at the front end.

To clean the wires, the charge corona wire cleaner motor [B] switches on and drives the cleaner [A] to the rear, then back to the home position.

The wire cleaner rotates slightly on the forward pass to bring the cleaning pads [C] into contact with the wires. Cleaning is done only on the forward pass. The pads do not contact the wires on their return to home position.

The motor [B] switches on after the machine is switched on, but only after 5,000 or more copies have been made since the last wire cleaning.

6.6.6 DRUM PICK-OFF MECHANISM

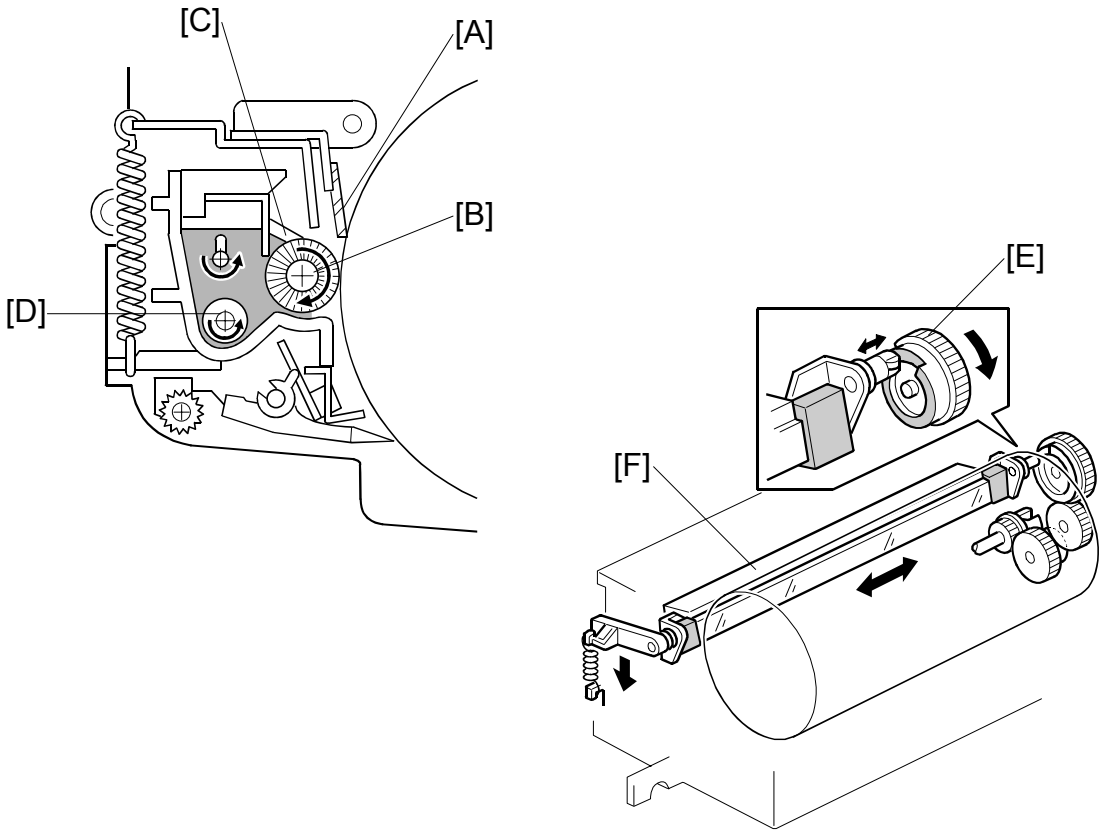


Pick-off pawls ride along the surface of the drum to peel off paper that has not separated from the drum.

Weak spring pressure [A] keeps the pick-off pawls [B] against the surface of the drum.

During copying, a shaft [C] turns a cam [D]. The cam moves the pick-off pawls from side to side to prevent drum wear at any fixed location.

6.6.7 DRUM CLEANING



This machine uses a counter blade and brush system.

The drum cleaning blade [A] contacts the drum, and is angled against the direction of rotation to improve cleaning.

- A cam [E] moves the cleaning blade [F] slightly from side to side to prevent it from scouring the drum.

The cleaning brush [B] rotates and removes some toner from the drum, and collects the toner removed by the cleaning blade.

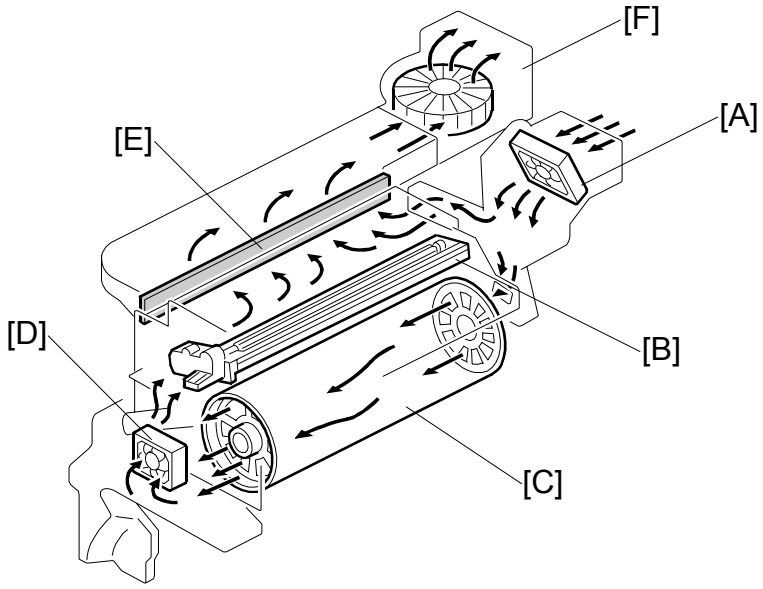
The mylar [C] scrapes toner from the cleaning brush.

The toner collection coil [D] receives the toner that falls from the mylar and transports it to the toner collection bottle.

At the end of every job, the drum reverses about 10 mm to remove toner that has collected at the edge of the counter blade.

The drum motor drives the cleaning unit, as described in an earlier section.

6.6.8 DRUM VENTILATION AND OZONE FILTER



Cooling prevents uneven buildup of negative ions which can lead to uneven charge on the drum surface.

The drum cooling fan [A] draws cool air into the machine and sends it over the charge corona unit [B] and down through the vents in the ends of the drum [C].

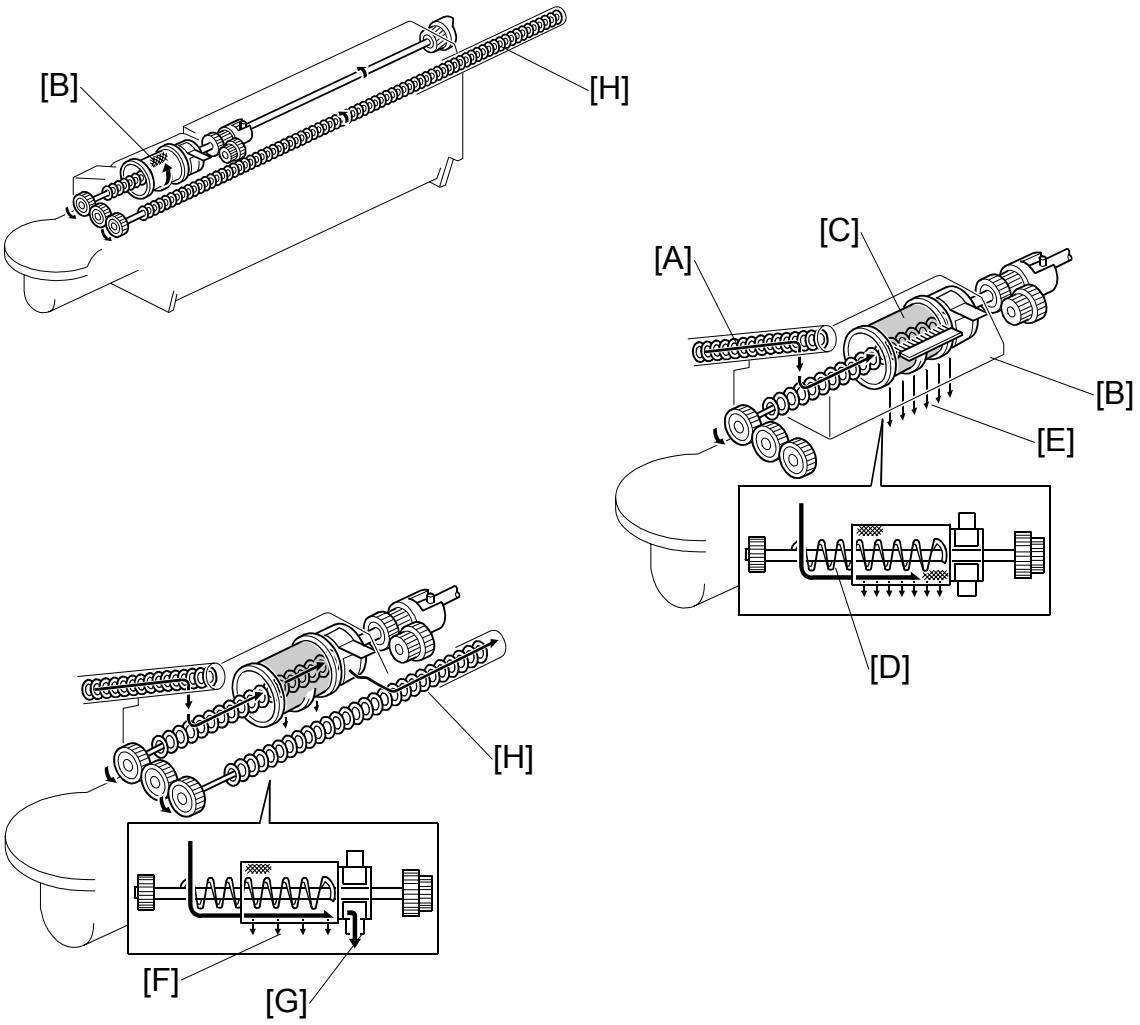
The PCU cooling fan [D] cools the drum and charge corona unit from the other end.

The dust filter [E] above the charge corona unit absorbs ozone in the air coming from around the drum.

The exhaust fan [F] vents the hot filtered air from inside the machine.

Fan	Operation Timing
Drum cooling fan	Turns on and off at the same time the polygon motor
PCU cooling fan	Stays on when the fusing lamp temperature is being controlled (at all times except in auto off or night mode).
Exhaust fan	Switches on after the main power switch is turned on, and remains on. However, to reduce noise and conserve energy, this fan turns slower when the drum motor is off.

6.6.9 TONER RECYCLING



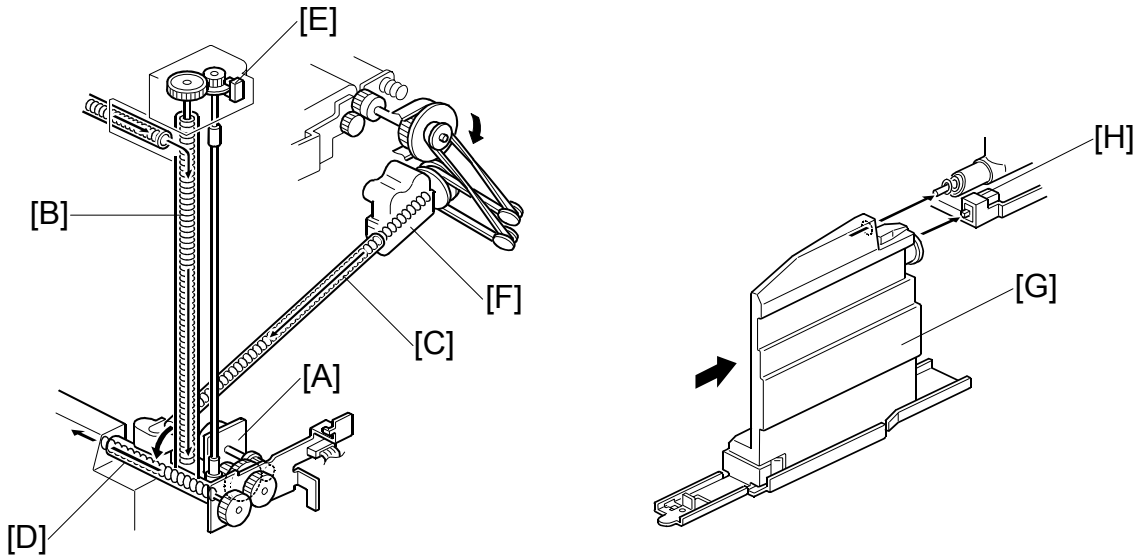
The toner collection coil inside the toner recycling pipe [A] carries toner collected from the drum cleaning unit into the toner separation unit [B] (above the toner hopper).

Re-usable toner is separated here from waste toner. Sieve [C] sifts the toner, and brush [D] inside the sieve moves the toner forward.

- Reusable toner [E] falls through the sieve into the toner hopper. A fine brush outside the sieve prevents toner from plugging the mesh of the sieve.
- Waste toner [F] does not fall through the sieve. It is pushed through opening [G] to the waste toner transport coil [H]. The coil moves the toner towards the back of the machine, where it is deposited in the waste toner bottle.

The toner separation unit and waste toner transport coil [H] are connected to the same drive shaft (driven by the development motor).

6.6.10 WASTE TONER COLLECTION



Mechanism

The toner collection motor [A] drives the coils [B, C, and D].

- Coil [B] brings waste toner from the toner hopper (which originally came from the drum cleaning unit)
- Coil [C] brings waste toner from the transfer unit.
- Coil [D] transports waste toner from both sources to the toner collection bottle.

The toner collection bottle can hold 5000 cc of waste toner, equivalent to about 1,000K copies.

Motor [A] switches on and off at the same time as the drum motor.

Error Detection

The toner collection motor sensor [E] monitors the gear driven by motor [A]. If the sensor output does not change for 3 seconds while motor [A] is on, then SC590 (Toner Collection Motor Error) is logged.

If the toner collection coil sensor [F] (not shown) does not change within 3 seconds after the drum motor turns on, the transport coil is clogged and cannot rotate, then SC495 (Toner Recycling Unit Error) is logged.

When the toner overflow switch (not shown) detects that the toner collection bottle [G] is full, operation halts after an additional 100 copies and the machine prompts the user to replace the toner collection bottle.

The toner collection bottle set switch [H] detects when a new toner collection bottle is installed. If installing a new bottle does not reset the machine, SC496 (Toner Collection Bottle Error) is logged.

6.6.11 PROCESS CONTROL

Drum potential gradually changes for the following reasons:

- Dirty optics, exposure glass
- Dirty charge corona casing, grid plate
- Deterioration of drum sensitivity

What Happens at Power On

Here is a description of what happens immediately after the main power switch is turned on if the fusing temperature is below 100°C (process control must also be enabled with SP3901, or this will not happen).

At any time, this process can also be executed manually by using SP2962. However, process control must be enabled with SP3901 and the fusing temperature must be below 100°C, or this will not work.

1. Potential sensor is calibrated.
2. Drum starts first rotation after fusing temperature reaches 140°C.
3. Readout from the potential sensor is used to adjust:
   - Development bias (Vb)
   - Grid voltage (Vg)
   - Laser diode (LD) power.

   NOTE: This step occurs only if process control is enabled with SP3901 (Auto Process Control On/Off Setting). If this SP is disabled, then:
   - Development bias is set to the value stored in SP 2201 001
   - Grid voltage is set to the value stored in SP 2001 001
   - Laser power is set to the values stored in SP 2103
4. ID sensor is calibrated (Vsg).
5. TD sensor is calibrated (Vref).

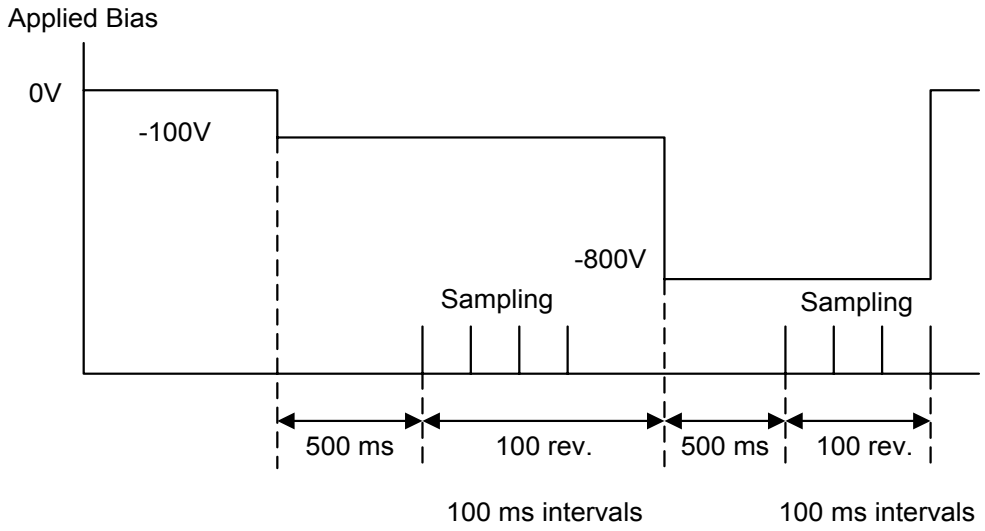
   NOTE: These calibrations are used to determine toner supply, so it is very important that the developer be initialized with SP2963 (Installation Mode) at installation and with SP2801 (TD Sensor Initialization) when the developer is replaced.

Any SC codes that are generated during auto process control are logged in the memory and do not appear. The machine will continue to operate.

Drum Potential Sensor Calibration

The potential sensor output is affected by the distance of the sensor from the OPC, paper dust or other matter on the surface of the sensor, and environmental conditions. For these reasons, the potential sensor is calibrated often, as described below.

1. 100 samples are taken at –100V and at –800V, and the readings are averaged.



2. If the readings are within the normal range, then these readings are used to calibrate the potential sensor.

   If the variations in the readings exceed the specified range, then an SC is logged (Sensor Calibration Error, SC310 to SC317) and automatic process control halts. The charge grid voltage Vg, development bias, and LD power are set as follows.

   - Development bias is set to the value stored in SP 2201 001
   - Grid voltage is set to the value stored in SP 2001 001
   - Laser power is set to the values stored in SP 2103

Development Bias, Bias Grid, and LD Adjustment

Development Bias (Vb)

First, the development bias that will be used for copying (Vb) is determined by measuring the potential of a pattern made on the drum using a fixed grid voltage, development bias, and laser power.

1. The drum motor starts.
2. The grid voltage, development bias, and laser power are set to the default values that would be used if process control was disabled. These are as follows:
   - Development bias is set to the value stored in SP 2201 001
   - Grid voltage is set to the value stored in SP 2001 001
   - Laser power is set to the values stored in SP 2103
3. A VL pattern is made on the drum, and VL is measured. The target value of VL is –130V.
   VL: Potential measured after exposing a white pattern
4. Vb is adjusted to a value that is calculated to bring the value of VL to –130V. There are no limitations on the amount of change that can be made to Vb.

Grid Voltage (Vg)

Then, the machine determines the corona grid voltage (Vg) that will be used during copying. This is done as follows:

1. A Vd pattern is exposed on the drum (if developed with toner, this will be black).
   Vd: Drum potential in black areas after exposure.
2. The potential sensor reads the potential, Vd, from this pattern.
3. Vd should be –800 $\pm$ 10V. If it is within this range, the current value of Vg will be used for copying.
   - If it is not, -(Vd + 800)V is added to Vg, and the process starts again from step 1.
4. If Vd cannot be adjusted to this standard within 5 attempts, Vg is fixed to –1,000V and SC312 (Potential Sensor Calibration Error 3) is logged.

LD Power

Finally, the machine determines the laser diode power that will be used during copying. This is done as follows.

1. The laser power is changed to the value needed to write a halftone pattern to the drum.
2. The potential sensor reads the potential, Vh, from this pattern.
   Vh: Standard halftone drum potential
3. Vh should be –300 ± 20V. If it is within this range, the current value of the laser power will be used for copying.
   - If it is not, the laser power changes by 3 units, and the process starts again from step 1.
   - The laser power cannot be changed by more than ± 60 units.
4. If Vh cannot be adjusted to this standard within 25 attempts, LD power is set to the most recent value and SC314 (Potential Sensor Calibration Error 4) is logged.

ID Sensor Calibration (Vsg)

After power-on, Vsg (the ID sensor output from reading the bare drum) is set to 4.00±0.2V by changing the intensity of the light from the sensor shining on the drum. This can also be done at any time with SP3001 002 (ID Initial Setting – Vsg).

The calibrated ID sensor output will be used for calibrating the TD sensor (described below).

NOTE: If the ID sensor output cannot be adjusted to the standard, then after 20 seconds SC353 or SC354 is issued. Toner supply during copying will then be controlled using the TD sensor only, until the machine is repaired.

TD Sensor Calibration (Vref)

Next, Vref (TD sensor reference voltage) is updated using the latest calibration values from the ID sensor.

Vref is updated to stabilize the concentration of toner in the development unit. By shifting the value of Vref, the density of the ID sensor pattern image is controlled. Toner supply control is covered in the Development and Toner Supply section.

Vref is determined from a table in the machine software, using the following values:

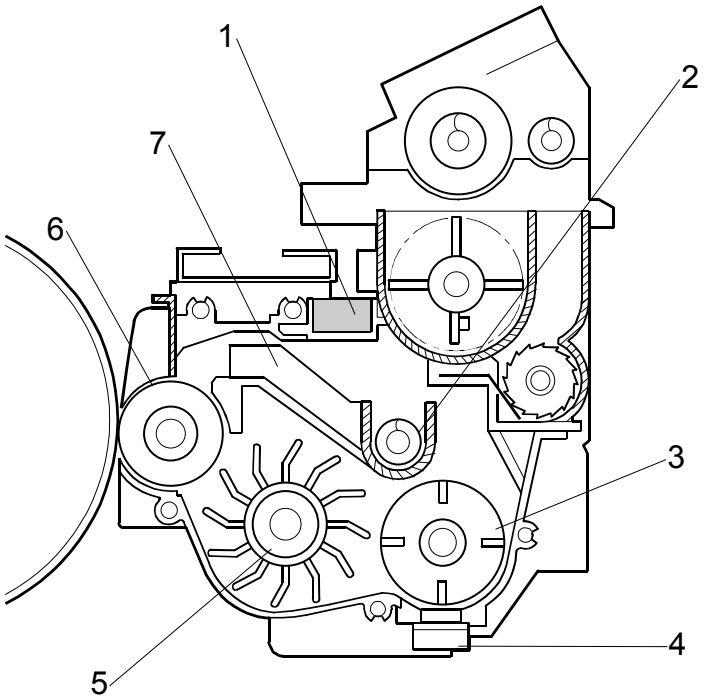
- Vsp/Vsg
  Vsp: ID sensor output when checking the ID sensor pattern.
  Vsg: ID sensor output when checking the bare drum.
- Vref-Vt:
  Vref is the TD sensor reference voltage
  Vt is the current output voltage of the TD sensor.

NOTE: If the ID sensor could not be calibrated during the latest process control (when measuring Vsg), then the previous ID sensor value is used.
If the ID sensor output is abnormal when measuring Vsp, SC350, 351, or 352 is issued, and Vref is not updated (the machine uses the previous value).

6.7 DEVELOPMENT AND TONER SUPPLY

6.7.1 OVERVIEW

Development Unit



1. Development Filter
2. Toner Auger
3. Developer Agitator
4. TD Sensor
5. Paddle Roller
6. Development Roller Sleeve
7. Separator

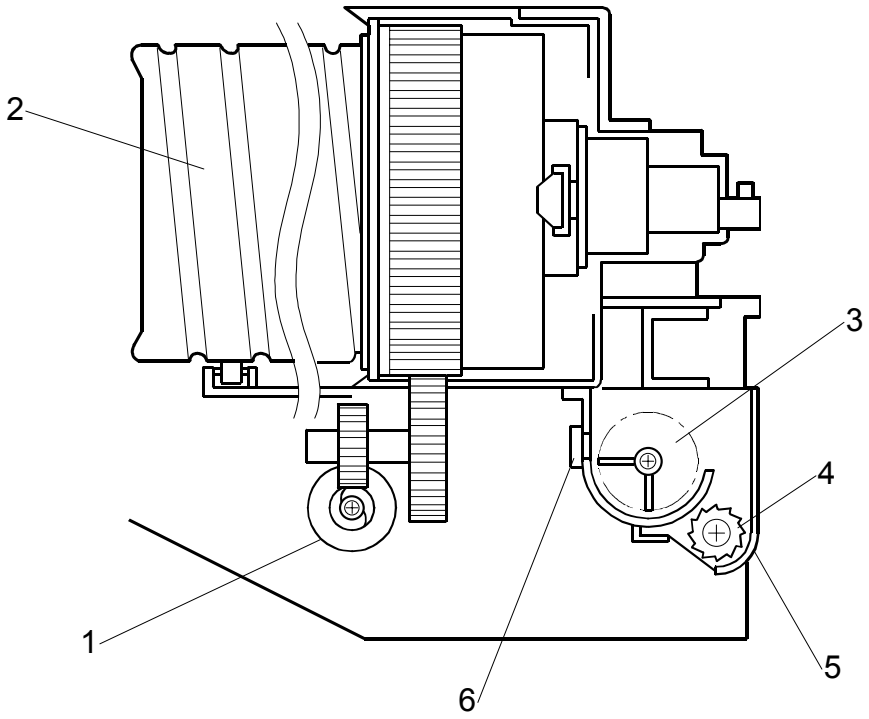
This machine uses dual-component development.

The development unit has its own motor.

The toner concentration is monitored with the ID sensor and TD sensors.

The toner auger, separator, developer agitator, and paddle roller mix and transport the developer and toner. The development power pack applies development bias to the development roller.

Toner Supply



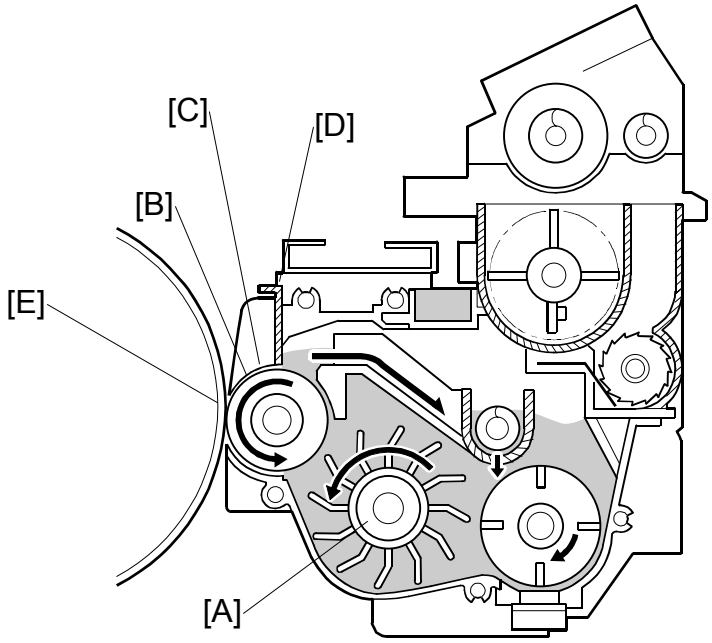
1. Toner Supply Motor
2. Toner Bottle
3. Toner Agitator
4. Toner Supply Roller
5. Toner Hopper
6. Toner End Sensor

The toner supply roller carries toner from front to back in the hopper and into the development unit.

The toner supply motor rotates the toner bottle to supply toner. The cap of the bottle seals itself immediately when the toner bottle is removed from its holder.

A toner recycling system separates waste toner from toner that can be re-used. Reusable toner is carried to the development unit, and waste toner is sent to the waste toner bottle.

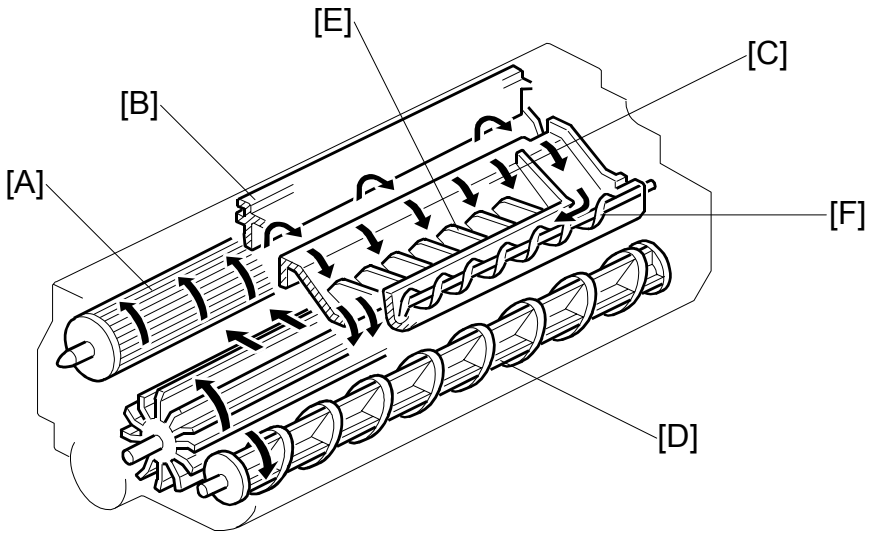
6.7.2 DEVELOPMENT UNIT



[A]: Paddle roller
[B]: Development roller
[C]: Development roller sleeve
[D]: Doctor blade
[E]: OPC drum

(CT Photocopying Process> Development> Dual-component Development)

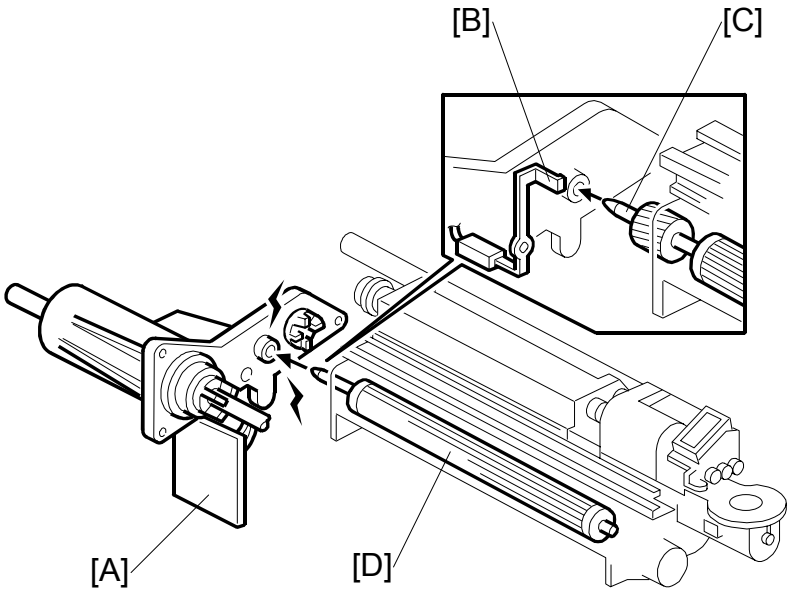
6.7.3 DEVELOPER/TONER MIXING (AGITATION)



[A]: Development roller
[B]: Doctor blade
[C]: Backspill plate
[D]: Agitator
[E]: Mixing vanes
[F]: Auger

(CT Photocopying Process> Development> Crossmixing)

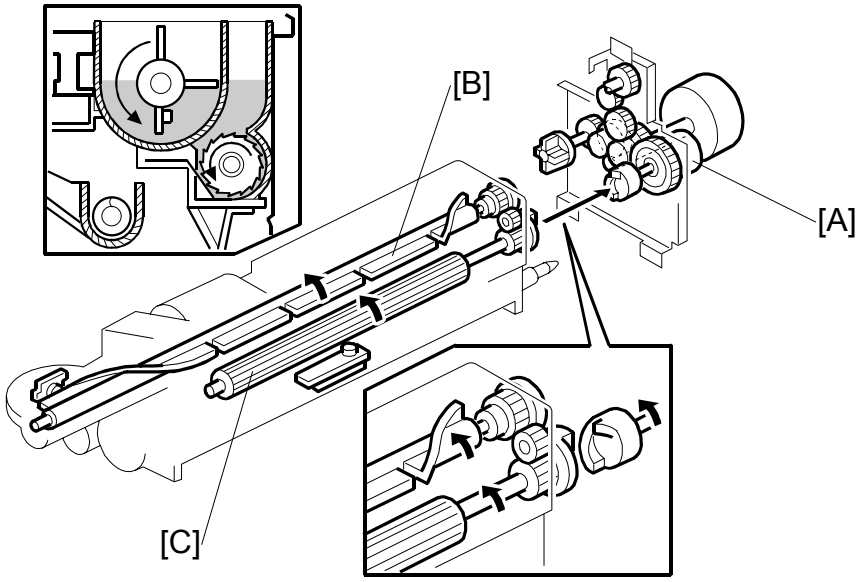
6.7.4 DEVELOPMENT BIAS



Development power pack [A] applies –550V through terminal [B] to the shaft [C] of the development roller [D]

Bias is also applied to the lower casing to prevent toner from being attracted back from the drum.

6.7.5 TONER SUPPLY

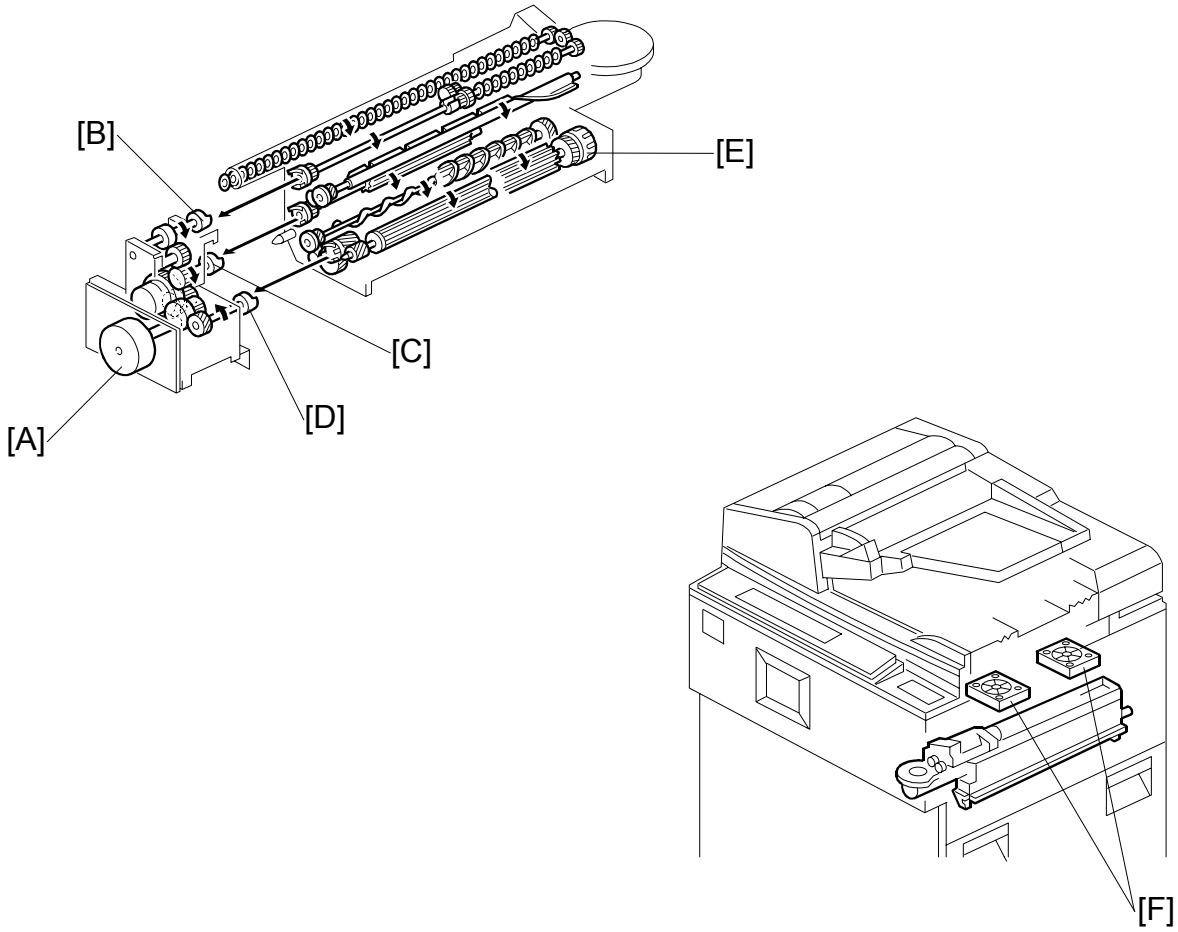


The ID sensor and TD sensor control toner density. The output of these two sensors determines when to switch the toner supply clutch [A] on. The clutch transfers drive from the development motor to the toner supply mechanism.

When the toner supply clutch turns on, the agitator [B] mixes the toner in the hopper and sends it to the toner supply roller [C].

Toner is caught in the grooves in the toner supply roller. Then, as the grooves turn past the opening, the toner falls into the development unit.

6.7.6 DEVELOPMENT UNIT DRIVE AND VENTILATION

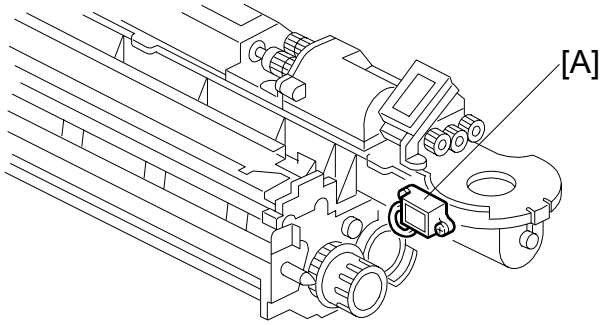


The development motor [A] (a dc motor) drives the following units through three drive shafts: toner separation unit [B], toner supply unit [C], and development unit [D].

The knob [E] attached to the paddle roller can be rotated in one direction only. Use this knob just after adding new developer, to apply an even coating of developer to the development roller sleeve.

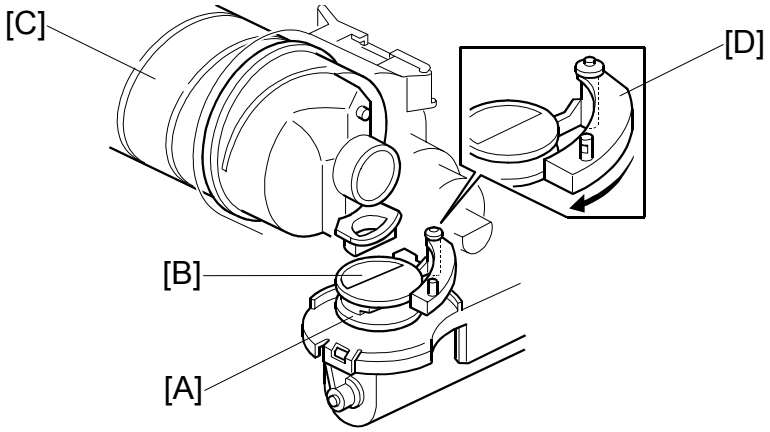
Two cooling fans [F] above the bypass tray draw in air to cool the development unit. Both fans switch on when the drum motor switches on, then both switch off 110 seconds after the drum motor switches off.

6.7.7 TONER END SENSOR



The toner end sensor [A], a piezoelectric sensor (a sensor sensitive to pressure) is attached to the toner hopper.

6.7.8 SHUTTER MECHANISM

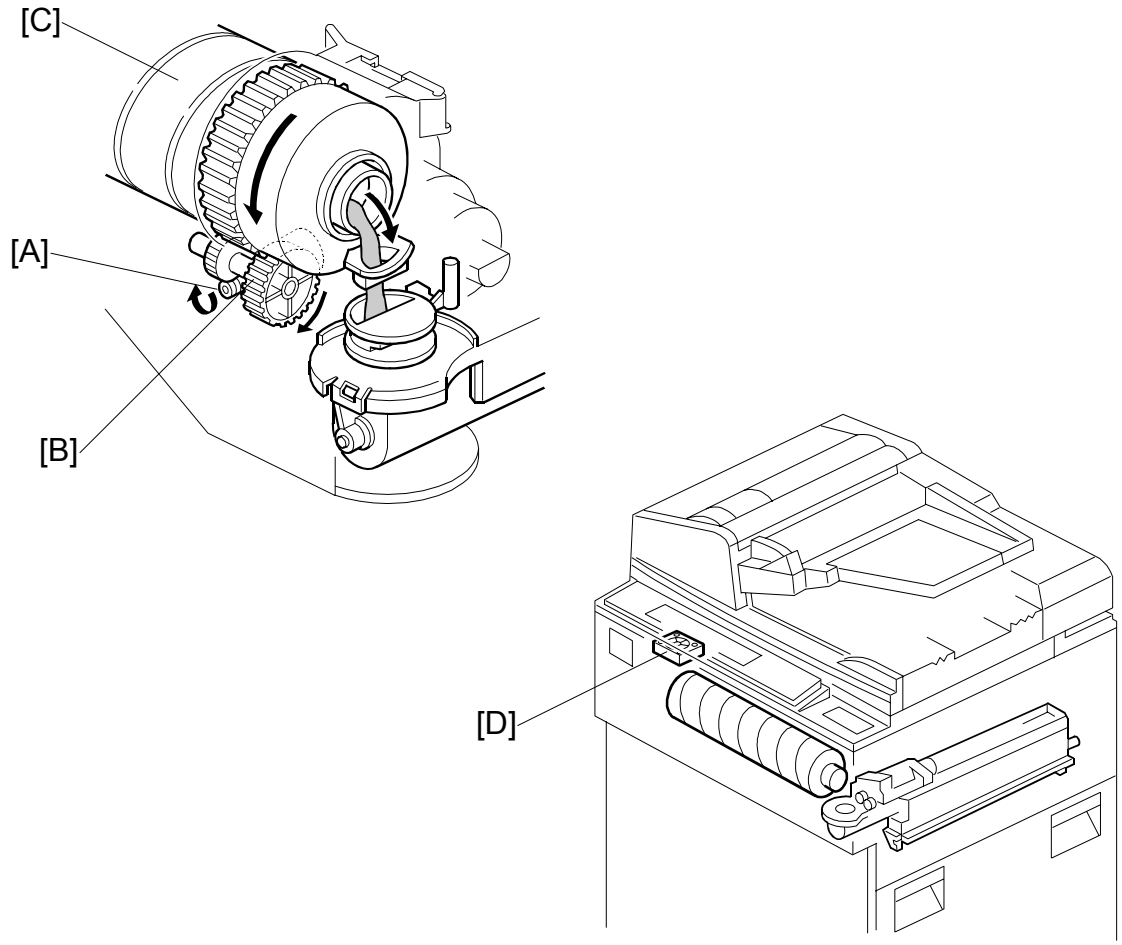


When the toner bottle holder is opened, a self-sealing shutter prevents toner spill.

The top of the shutter [A] has a semi-circular opening [B]. Normally, toner from the toner bottle [C] flows through this opening into the hopper below.

However, pulling out the shutter cover [D] closes the cover automatically to prevent toner spill from the hopper.

6.7.9 TONER BOTTLE SUPPLY AND VENTILATION



The toner supply motor [A] (a dc motor) and gears [B] rotate the toner bottle [C].

The toner cooling fan [D] (below the operation panel) ventilates the area around the bottle. This fan always switches off and on with the polygonal mirror motor.

6.7.10 TONER SUPPLY CONTROL

There are two toner supply modes: Sensor Control and Image Pixel Count. The mode can be changed with SP2208 001 (Toner Supply Mode). The factory setting is sensor control mode. This setting automatically changes if the TD sensor or ID sensor is defective.

Sensor Control Mode

In sensor control mode, the machine uses the outputs of the TD sensor and the ID sensor.

Every copy, the following occurs.

1. The TD sensor reads the density of the toner in the developer once every copy cycle, after the trailing edge of the image passes the development roller, and outputs this reading as Vt. The current Vt value can be displayed with SP2223 001 (Vt display).
2. For every copy, Vt (TD sensor output) is subtracted from Vref (the targeted control reference voltage for the TD sensor) to set the value of 'GAIN' (0, 1, 2, 3, or 4).
3. The following equation is used to calculate how long the toner supply clutch switches on.

$$\frac{\text{GAIN x Image Pixel Count x Target Density}}{\text{Toner Supply Rate}} + \text{Clutch Startup Time}$$

Factor	Description	
GAIN	With GAIN = 0, "Clutch On Time" is 0 ms	
Image Pixel Count	The density for every dot in the output data for the page is calculated. Example: 255 for A3 all black, for comparison.	
Target Density	0.7 mg/cm^2	
Toner Supply Rate	850 mg/s	This default setting can be adjusted with SP2209 – Toner Supply Rate
Clutch Startup Time	16 ms	The actual time required for the toner to arrive at the hopper after the clutch switches on.

If we substitute the default settings, then:

$$\frac{\text{GAIN x Image Pixel Count x 0.7 mg/cm}^2}{\text{850 mg/s}} + \text{16 ms}$$

At the end of the job, if Vref has not been updated for 10 copies or more, the following occurs:

1. Vref is updated, as follows (also done just after the machine is switched on):
   - The charge corona and laser diode write the ID sensor pattern on the drum.
   - The ID sensor reads the reflectivity of the ID sensor pattern and outputs this reading as Vsp.
   - The ID sensor also reads the reflectivity of the bare surface of the drum and outputs this reading as Vsg.

   NOTE: 1) The 10 copy interval can be extended with SP2210 001 (ID Sensor Pattern Interval).
   2) SP2507 002 (ID Sensor Interval – Page Setting) is available for customers who are concerned about changes in toner density during long copy jobs and may want to specify an interval to force creating and reading the ID sensor pattern. However, enabling this SP will pause copying for 2 or 3 seconds every time the ID sensor pattern is created and read.

2. The CPU uses the Vsp/Vsg readings to calculate a new value for Vref (TD sensor reference voltage).
3. Finally, Vt and Vref are compared. If Vt is higher than Vref, the CPU switches on the toner supply clutch to supply more toner to the development unit.

Pixel Count Toner Supply Mode

This mode should only be used as a temporary countermeasure while waiting for replacement parts, such as a TD sensor.

For each copy, the CPU adds up the image data value of each pixel and converts the sum to a value between 0 and 255 (0 = blank page, 255= black page).

The toner supply clutch on time is calculated using the same formula, but the GAIN value is fixed at 0.7.

TD Sensor Initialization

The TD sensor must be initialized with SP2801 (TD Sensor Initial Setting) at the following times:

- The first time the development unit is filled with developer
- Every time the developer is replaced.

The sensor control voltage is adjusted until the output is 3.0±0.1V. Then, after setting the control voltage, Vt is sampled 100 times, these samplings are averaged, then the average is used to set the standard value for Vt.

NOTE: 1) After developer is replaced, you must execute SP2801.
2) After the TD sensor is replaced, you must execute SP2801.
3) After a partially used development unit from another machine is installed, you must use SP2220 (Vref Manual Setting) to enter the Vref value for that unit, and use SP2906 001 (TD Sensor Control Voltage Setting) to enter the TD sensor control voltage.
4) These initial values are stored in NVRAM. Before replacing the NVRAM, print an SMC report so you can re-enter these settings manually after the NVRAM is replaced.

Determining Vref

At certain intervals (see 'Sensor Control Mode, step 4), the ID sensor reads the bare drum and the ID sensor pattern on the drum.

Vref is calculated from Vsp and Vsg as explained in the Process Control section of the manual.

ID sensor pattern creation parameters depend on whether automatic process control is switched on or off with SP3901 001 (Auto Process Control).

If automatic process control is switched on:

- Charge corona grid voltage: Set automatically for the existing conditions around the drum.
- LD power: The value Vh is used to adjust the laser power. The laser diode writes the Vh halftone pattern on the drum. The reading from this pattern is Vh.
- Development bias: The potential sensor checks the bias voltage when the ID sensor pattern is created (target voltage: -230V) and boosts the voltage by –280, the voltage set for SP2201 004 (ID Sensor Pattern Development Potential), to bring the bias to the target voltage of –510.

If automatic process control is switched off:

- Charge corona grid voltage: Set to –800V, the default setting for SP2001 002 (ID Sensor Pattern: Adj. to Applied Voltage).
- LD power: 185 μW (target drum potential –130V)
- Development bias: -360V, default for SP2201 002 (ID Sensor Pattern: Adj. to Applied Voltage).

Toner Supply without ID Sensor and TD Sensors

Toner supply can continue even if either or both sensors fails:

Failed Sensor	Toner Supply Method
TD sensor	ID sensor + Image Pixel Count
ID sensor	TD sensor (but Vref is nor updated)
TD and ID sensors	Image Pixel Count

Abnormal TD Sensor Output

If this occurs, toner supply is controlled using pixel count and Vsp/Vsg.

Abnormal output detected during initialization of the developer: An SC is logged and SP2906 (TD Sensor Control Voltage & Check) will display 0.00V.

- During the TD sensor auto adjustment, the TD sensor output voltage (Vt) is 2.5 volts or higher even though the control voltage is set to the minimum value (PWM = 0). The machine logs SC341 TD Sensor Adjustment Error 1.
- During the TD sensor auto adjustment, the TD sensor output voltage (Vt) does not come in the target range (3.0 ± 0.1V) within 20 seconds. The machine logs SC342.

Abnormal output detected during copying: If one of the following conditions is detected more than 10 times consecutively:

- Vt = 0.5 volts or lower
- Vt = 4.0 volts or higher

Then SC340 (TD Sensor Output Error) is logged.

Abnormal ID Sensor Output

Abnormal output detected during process control at power-on: SC353 or SC354 is issued. Toner supply during copying will then be controlled using the TD sensor only, until the machine is repaired.

Abnormal output detected when updating Vref: SC350, 351, or 352 is issued, and Vref is not updated (the machine uses the current value).

Toner End Detection

The toner end sensor is checked every copy.

- **Toner near end**. When the toner end sensor remains on for two consecutive pages, the toner supply motor turns on for 1.1 s. If the toner supply motor has turned on more than 30 times during the last 100 prints, the “Toner Near End” warning is issued. The warning is cleared if the toner end sensor turns off.
- **Toner end**. If the toner end sensor remains on for about 1,000 copies (A4 size with 6% coverage), the "Toner End” warning is issued. If the toner end sensor switches off twice consecutively, the toner end sensor copy counter is reset to zero.

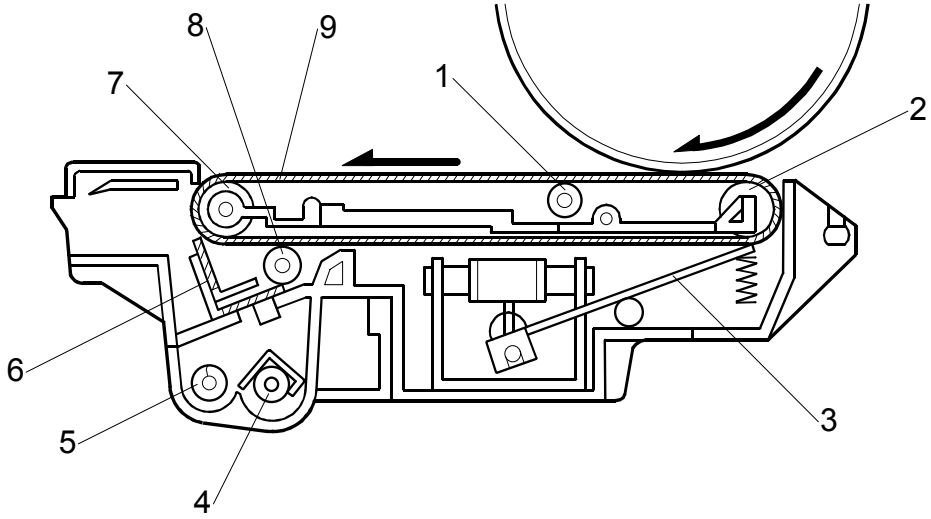
Toner End Recovery

If the front door is opened and closed while a toner near end or toner end condition exists, the machine attempts to recover using measurements from the toner end sensor and TD sensor, based on the possibility that the toner bottle has been replaced.

1. The drum development motor, charge grid, and development bias switch on.
2. The toner supply motor switches on for 1.1 s, the toner supply clutch switches on for 1 s, and the CPU checks the toner end sensor output.
3. If the toner end sensor is OFF, i.e. there is toner in the hopper, the CPU compares Vt and Vref.
   - If Vt is less than or equal to Vref, there is sufficient toner in the development unit. The CPU waits 20 s for the toner in the developer to mix evenly, the above components switch off, and the machine is released from the toner end or toner near end status.
   - If Vt is more than Vref, the CPU turns on the toner supply clutch for 1 s again until Vt becomes less than or equal to Vref.
   - If the toner end sensor output remains on even after seven attempts of the above procedure, the components switch off and the machine remains in the “Toner End” status.

6.8 IMAGE TRANSFER AND PAPER SEPARATION

6.8.1 OVERVIEW



1. Transfer Roller
2. Transfer Belt Drive Roller
3. Belt Lift Lever
4. Waste Toner Agitator
5. Waste Toner Collection Coil
6. Cleaning Blade
7. Drive Roller
8. Cleaning Roller
9. Transfer Belt

A transfer belt system transfers the image from the OPC drum to paper.

A solenoid lifts the belt against the OPC drum at the correct time.

The transfer belt system is driven by the drum motor, through a shaft and a gear.

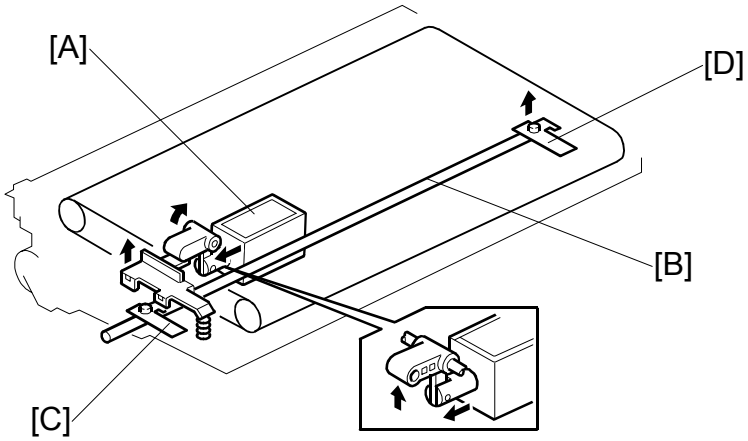
A cleaning blade and a cleaning roller clean the surface of the transfer belt.

Easy access to the transfer belt from behind the front door allows quick removal of paper jams.

A heater near the transfer belt unit ensures that the area around the belt is always dry.

6.8.2 TRANSFER BELT LIFT

Mechanism



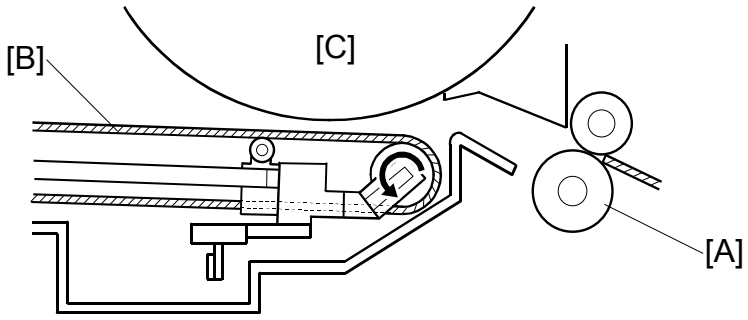
The transfer belt lift solenoid [A] lifts the belt into contact with the drum using the link [B], which is connected to the front [C] and rear [D] belt lift levers.

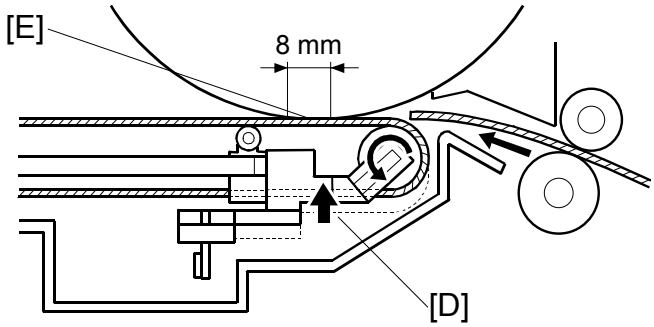
Springs attached to the front of the solenoid reduce the load on the solenoid as it lifts the transfer belt.

This mechanism raises the transfer belt unit against the OPC drum only when needed, and keeps it separated at all other times because:

- The transfer belt is between the drum unit and the ID sensor, so it would rub off the ID sensor pattern if it remained in contact with the drum.
- Allowing toner to transfer to the belt when making sensor patterns would increase the load on the transfer roller cleaning blade.
- The transfer belt would cause the drum to wear, if it were allowed to remain in contact with the drum.

Timing



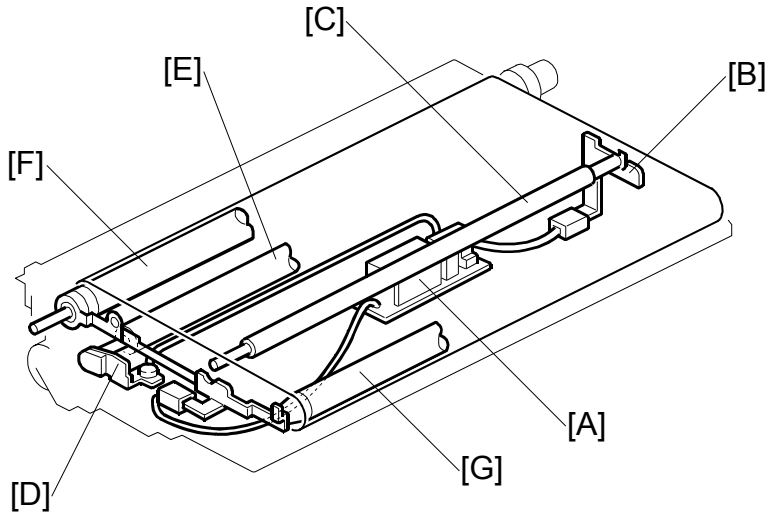


[A]: Registration roller
[B]: Transfer belt
[C]: OPC drum
[D]: Front and back levers
[E]: Nip width (about 8 mm)

The transfer belt stays away from the OPC drum until 500 ms after the drum motor starts. Then the transfer belt lift solenoid switches on to lift the belt.

At the end of the job, the solenoid switches off, and the transfer belt unit lowers away from the drum.

6.8.3 TRANSFER BELT CHARGE



The transfer power pack [A], inside the transfer belt unit, applies the following charges:

- Transfer Roller: Max. +7.0 kV through terminal [B] to the transfer roller [C].
- Cleaning Roller: About +1.0 kV max. through terminal [D] to the cleaning roller [E].

Drive rollers [F, G] are grounded so that the cleaning unit can clean the belt easily.

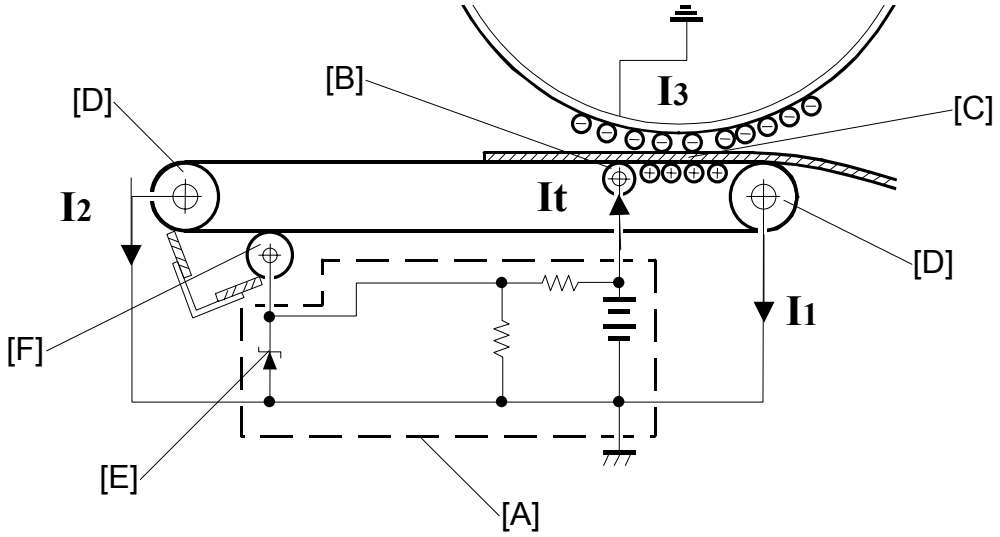
6.8.4 TRANSFER CURRENT SETTINGS

Here is a list of the default current settings for each paper feed station.

SP No.	Station/Mode	Transfer Current (Initial Value)
SP2301 001	Trays 1, 2, 3: Front Side	80 μA
SP2301 002	Trays 1, 2, 3: Back Side	80 μA
SP2301 003	Bypass: Front Side	75 μA
SP2301 004	Postcard: Front Side	165 μA
SP2301 005	Paper Interval	15 μA
SP2301 006	Tab Paper	75 μA
SP2301 007	Thick Paper: Front Side	120 μA
SP2301 008	OHP: Front Side	75 μA
SP2301 009	Tracing Paper: Front Side	120 μA
SP2301 010	Image Leading Edge	65 μA
SP2301 011	Image Trailing Edge	65 μA

NOTE: 1) For postcards, use the by-pass tray and set the side fences for A6 width.
2) The charge for cleaning is applied even during the interval between sheets of copy paper.
3) At the following times, the transfer roller output changes to 2.6 kV, and the cleaning roller output is fixed at 1.0 kV:
- When the job ends
- Whenever the drum motor is turning, except during copying and during process control

6.8.5 TRANSFER CURRENT CIRCUIT



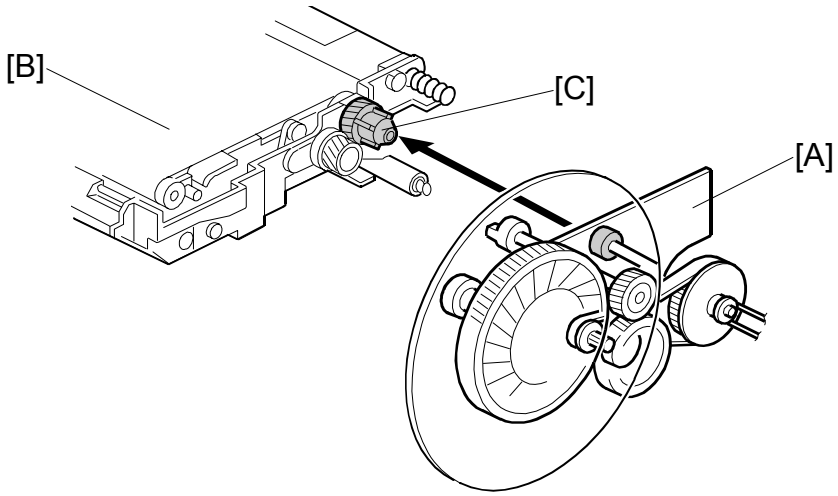
[A]: Transfer power pack
[B]: Transfer roller
[C]: Nip between drum and transfer belt
[D]: Drive rollers

The transfer power pack does the following:

- Monitors the currents I_1 and I_2
- Adjusts its output (It) to keep the current I_3 constant, regardless of changes in temperature or humidity which can affect the surface resistance of the paper.

A varistor [E] keeps the voltage at the cleaning roller [F] constant.

6.8.6 TRANSFER BELT DRIVE AND PAPER TRANSPORT

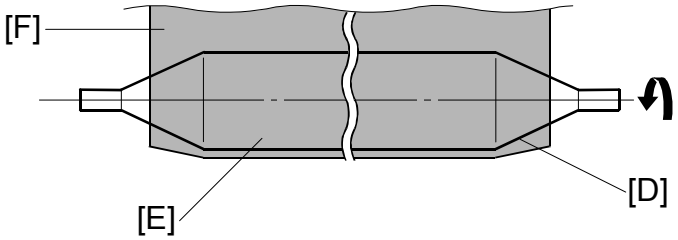


The drum motor [A] drives the transfer belt [B] through belts and gears.

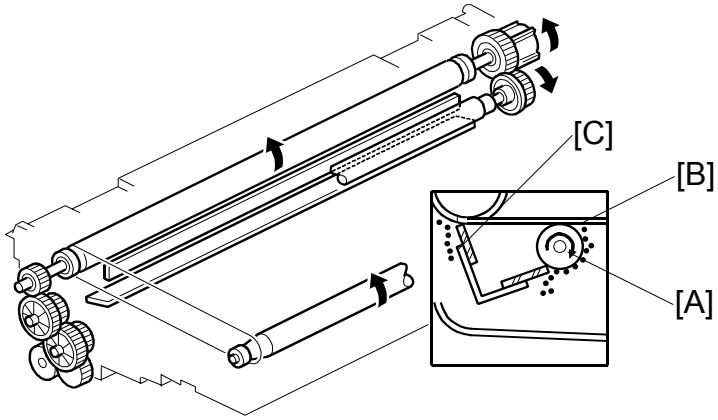
The transfer belt by its electrostatic charge attracts the paper [B], so a transport fan is not required.

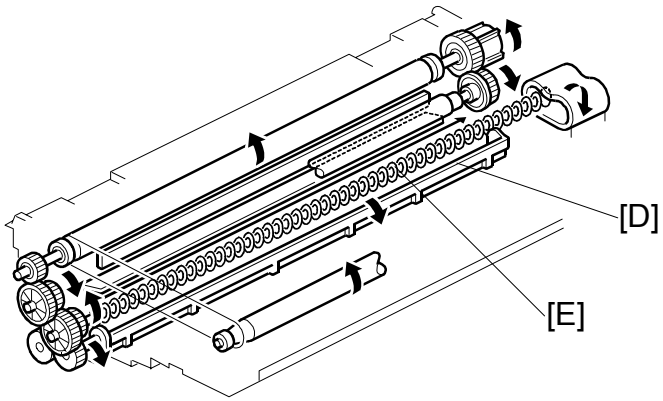
At the turn in the transfer belt, the transfer belt drive roller [C] discharges the belt to reduce paper attraction, and the paper separates from the belt as a result of its own stiffness.

The tapered parts [D] at both ends of the roller [E] help keep the transfer belt [F] in the center, so that it does not run off the rollers.



6.8.7 TRANSFER BELT CLEANING





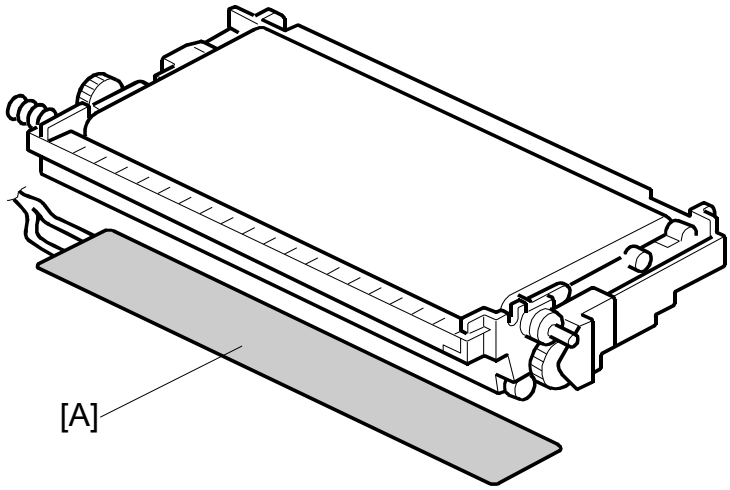
Toner collects on the transfer belt in the following cases. This toner causes streaking on the reverse sides of copies.

- As a result of a paper jam
- If the by-pass feed tray side fences are set in the wrong position

The cleaning roller [A] has a positive charge, so it can collect negatively charged toner and paper dust from the transfer belt [B]. The cleaning roller always contacts the transfer belt.

The cleaning blade [C] scrapes toner off the cleaning roller and drops it onto the agitator plate [D]. The plate [D] moves the toner into the collection coil [E]. The coil takes the toner to the toner collection bottle.

6.8.8 ANTI-CONDENSATION HEATER



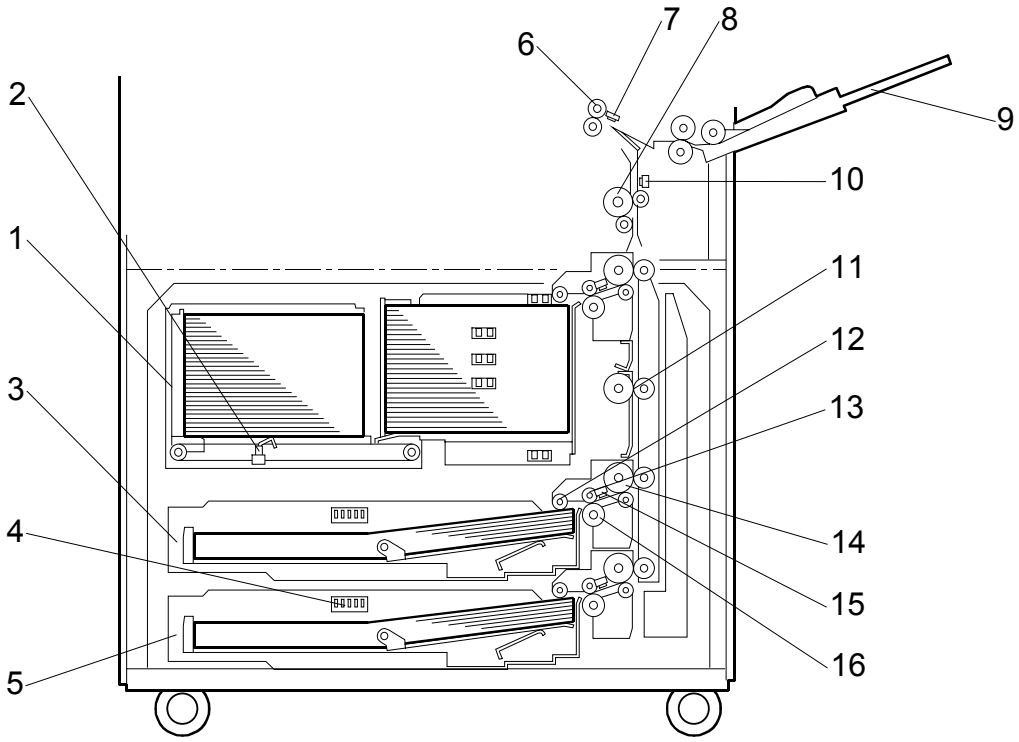
The anti-condensation heater [A] is directly below the transfer belt drive roller.

This anti-condensation heater turns on automatically at the following times:

- When the main power switch is turned off
- When the machine enters auto off mode

6.9 PAPER FEED

6.9.1 OVERVIEW



1. Tandem Tray (Tray 1)
2. Left Tray Paper Sensor
3. Universal Tray (Tray 2)
4. 3rd Paper Size Switch
5. Universal Tray (Tray 3)
6. Registration Roller
7. Registration Sensor
8. Upper Relay Roller
9. By-pass Tray
10. Relay Sensor
11. Lower Relay Roller
12. Pick Up Roller
13. Feed Roller
14. Grip Roller
15. Paper Feed Sensor
16. Separation Roller

NOTE: Items (12)~(16) comprise the standard FRR feed system, which is used for Trays 1, 2, and 3. This machine uses motor on/off time (not clutches) to control paper feed.

Tray Capacities

The machine has three built-in paper trays:

- Tandem LCT (Tray 1). 1550 + 1550 sheets
- Universal Tray (Tray 2) 550 sheets
- Universal Tray (Tray 3) 550 sheets

The machine also has a by-pass feed tray which can hold 100 sheets (T-6200).

Built-in Feed Stations

- **Paper feed and separation**. Standard FRR system with a torque limiter for paper separation and feed. Each tray has an independent stepper motor to drive its paper feed mechanisms.
  GT Handling Paper> Paper Feed Methods> **Forward and Reverse Roller (FRR)**
- **Tray Lift motors**. Provided for each tray, easily disengage when a tray is removed and engage once again when the tray is re-installed. In trays 2 and 3, the lift of the motors on the bottom plates is also used for paper near-end detection.
- **Tandem tray paper end**. A sensor mounted near the top of the right rail signals paper near end and another sensor under the bottom tray signals paper end after the last sheet is fed. Three paper height sensors, mounted on the left rail, are actuated as the actuator rises with the bottom plate. The combinations of actuating and de-actuating these sensors as the plate rises are used to signal the paper supply display on the operation panel.
- **Paper size detection**. For the tandem tray (Tray 1), an SP setting is required (SP 5959 001). For the universal trays (Tray 2, 3), there is a 5-step manual switch on each tray.
- **Vertical Transport**. A grip roller at each feed station feeds the paper into the vertical paper path.
- **Heaters**. Two anti-condensation heaters are provided for the built-in paper feed stations.

By-pass Feed

- **Capacity**: 100 sheets.
- **Paper feed and separation**: Standard FRR system with a torque limiter for paper separation and feed. By-pass tray motor and clutch.
- **Paper end detection**: Photointerrupter and feeler.
- **Size detection**: Side fence is used for width detection, registration sensor pulse count is used for length detection.
- **Thick paper feed**: By-pass feed clutch switches on twice.

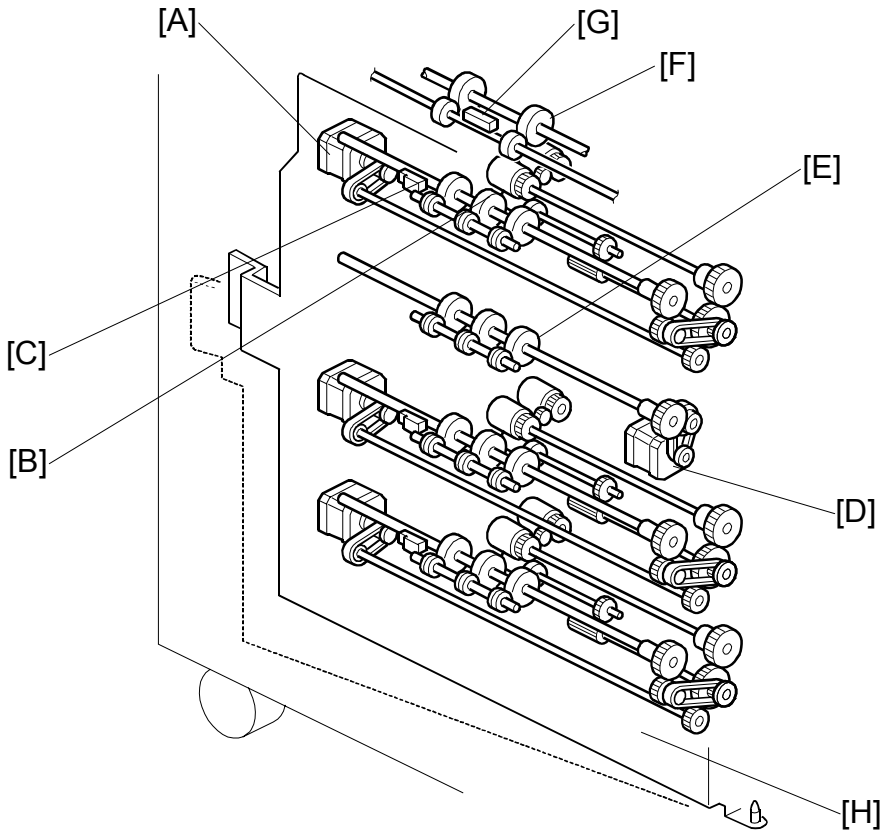
Paper Registration

- Paper is guided to the registration roller from five sources: the 3 built-in paper trays, 1 by-pass tray, and 1 duplex tray.
- There is a mylar strip over the entire length of the registration roller.

Jam Removal

Pulling out a paper tray releases the pressure on the rollers, making it easy to remove paper jams.

6.9.2 DRIVE



An independent paper feed motor [A] drives the rollers in each tray. It also drives grip rollers [B], which pull the paper out of the tray. The mechanism is identical for each tray.

A vertical transport sensor [C] at each feed station detects paper jams.

The paper feed motors on the trays drive the vertical transport rollers, which are opposite each feed station (not shown here).

The lower relay motor [D] drives the lower relay roller [E], halfway between trays 1 and 2. The relay motor is added here due to the length of the paper path.

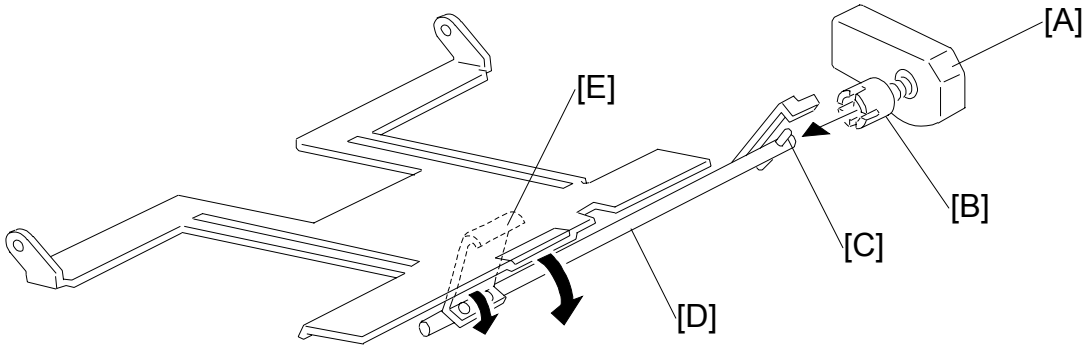
The upper relay roller [F] feeds each sheet to the registration roller. The by-pass feed motor (not shown here) drives the upper relay roller [F].

The relay sensor [G], at the top of the vertical transport path, triggers the start of image exposure on the OPC drum, and detects jams in the paper path.

The transport guide plate [H] swings against the side of the machine and locks in place.

6.9.3 TRAY AND PAPER LIFT MECHANISM – TRAY 2,3

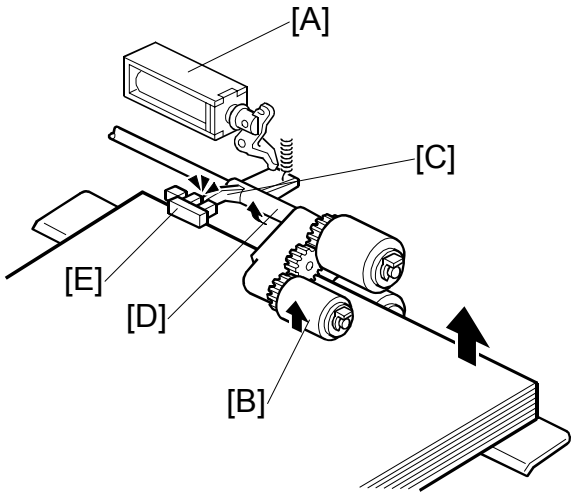
Bottom Plate Lift

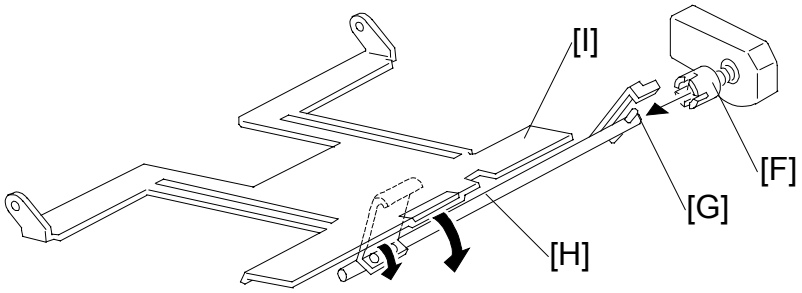


Tray lift motor [A] ➔ Coupling [B] ➔ Pin [C] ➔ Shaft [D] ➔ Lift arm [E] (under the bottom plate).

The universal trays (Tray 2, Tray 3) are not provided with near end sensors. The pulse count of the tray lift motor is used to signal near end.

Lift Sensor





When the tray lift motor turns on, the pick-up solenoid [A] turns on, and pick-up roller [B] lowers.

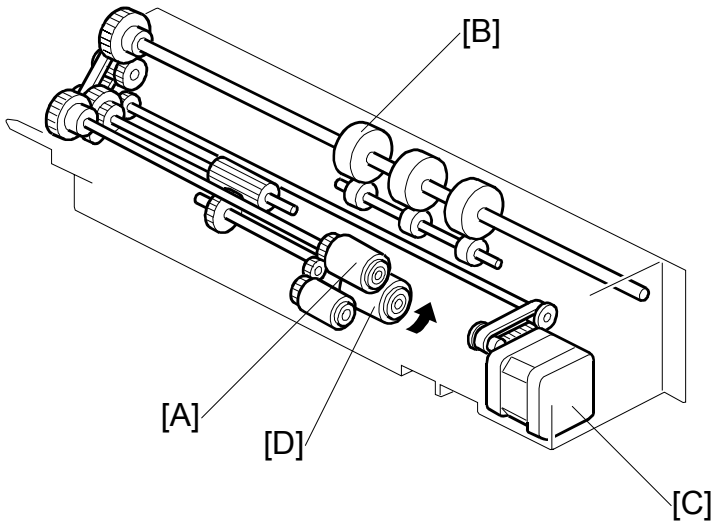
When the top sheet of paper reaches the proper paper feed level, actuator [C] on the pick-up roller support [D] activates the tray lift sensor [E], and the lift motor stops.

After several paper feeds, the paper level gradually lowers and the lift sensor is de-activated. Then the lift motor turns on again until the lift sensor is activated again.

When the tray is drawn out of the feed unit: gear [F] disengages pin [G] on shaft [H], then the tray bottom plate [I] drops by its own weight.

6.9.4 PAPER FEED AND SEPARATION MECHANISM

Paper Feed and Separation: No Paper Present

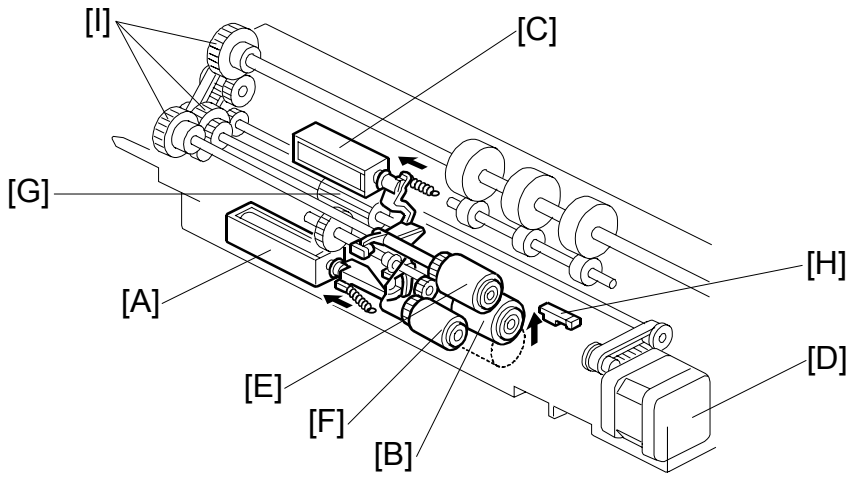


While waiting for the first sheet to feed and between sheets, the feed roller [A] must not rotate. However, the grip roller [B] must turn, so that any paper coming up the vertical transport path continues to feed. To do this, the paper feed motor [C] rotates in reverse. The separation roller [D] is free to rotate in the direction shown by the arrow, because the separation roller solenoid is off.

When the feed motor reverses:

Feed roller [A]	→	No rotation
Separation roller [D]	→	Free to rotate
Grip roller [B]	→	Rotates

Paper Feed and Separation



If a paper feed station is not selected, its separation roller solenoid [A] stays off and the separation roller [B] can turn freely in the opposite direction to feed paper.

When the paper feed station is selected and the start key is pressed, the following mechanisms activate:

- Separation roller solenoid [A] ➔ separation roller [B] contacts feed roller [E]
- Pick-up solenoid [C] ➔ pick-up roller [F] lowers to contact the paper
- Paper feed motor [D] ➔ turns feed roller [E] ➔ turns pick-up roller [F] via gear [G]

When the paper feed sensor [H] detects the leading edge of the paper:

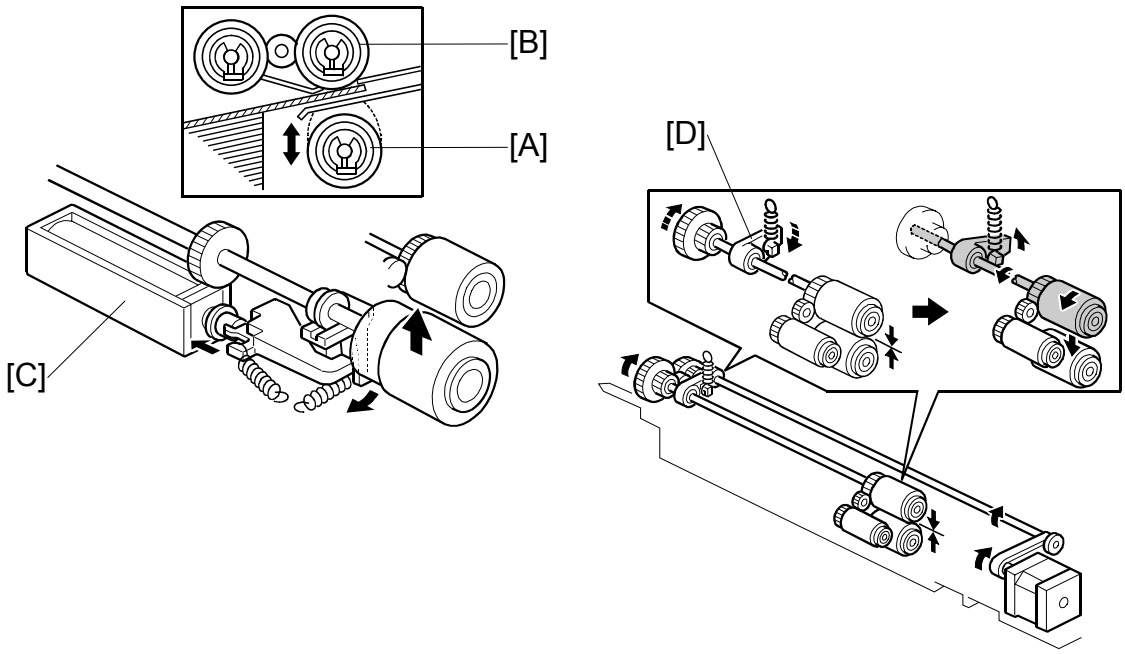
- Pick-up solenoid [C] switches off, and pick-up roller [F] lifts.
- The feed roller [E] then feeds the sheet to the registration roller.

Note the three one-way clutches [I]: One for the grip roller, one for the feed roller, and one for the separation roller.

When the feed motor rotates forward:

Feed roller	→	Rotates
Separation roller	→	Rotates in accordance with the FRR principle CT Handling Paper> Paper Feed Methods> **Forward and Reverse Roller (FRR)**
Grip roller	→	Rotates

Separation Roller Release Mechanism



Normally, the separation roller [A] and feed roller [B] are not in contact. However, when the feed station is selected, the separation roller solenoid [C] pushes the separation roller against the feed roller.

This mechanism has these advantages:

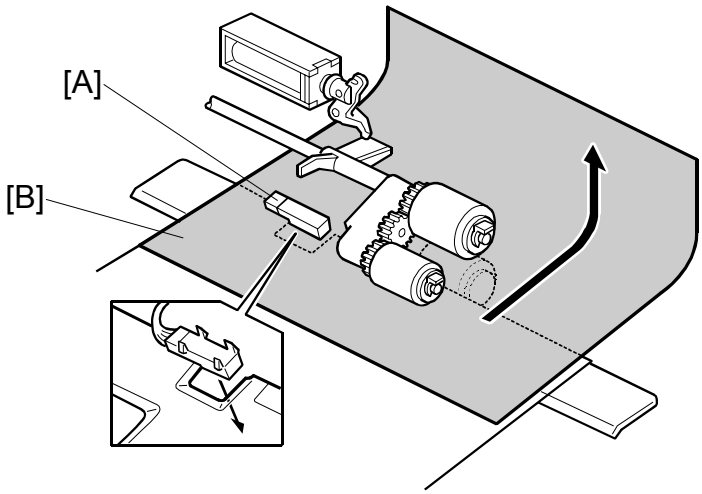
- When the paper feed motor turns on, the separation roller rotates. If the separation roller is away from the feed roller, it reduces the load on the paper feed motor and drive mechanism, and it also reduces wear to the rubber surface of the separation roller caused by friction between the separation roller and the feed roller.
- After a job, paper sometimes remains between the feed and separation rollers. If the paper tray is pulled out of the machine, this paper might be torn if the two rollers do not separate.
- The user can easily pull out jammed paper between the feed and separation rollers if the separation roller is away from the feed roller.

Normally, the feed and separation roller separate when the separation roller solenoid switches off.

However, if the rollers stick together after paper passes between them, the separation roller could rotate the feed roller in reverse before the motor and solenoid switch off. To prevent this, if the feed roller starts to reverse, a small brake arm [D] on the feed roller shaft rotates down, strikes a stopper, and drives the feed roller forward slightly to separate it from the reverse roller below.

The rollers are composed of rubber and may stick occasionally. This mechanism prevents excessive wear on the rollers.

6.9.5 PAPER NEAR-END AND PAPER END – TRAYS 2 AND 3



The machine detects paper near end by counting the number of pulses the motor makes when lifting the bottom plate.

The paper end sensor [A] receives light reflected from the paper below [B] until the last sheet has been fed. Then, paper end is detected.

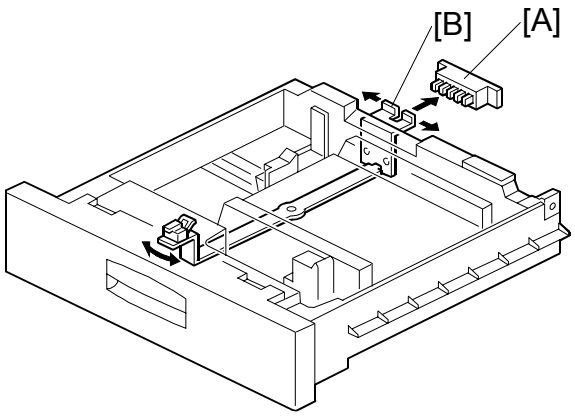
6.9.6 PAPER SIZE DETECTION

Tandem Tray (Tray 1)

The tandem tray does not have paper size detection switches. Every time the paper size is changed by moving the front and back fences, you must enter the selected paper size using SP 5959 001.

Universal Paper Cassettes (Tray 2, 3)

The paper size switch [A] detects the paper size with 5 microswitches. The actuator plate [B], attached to the rear of the paper tray, actuates the paper size switch.



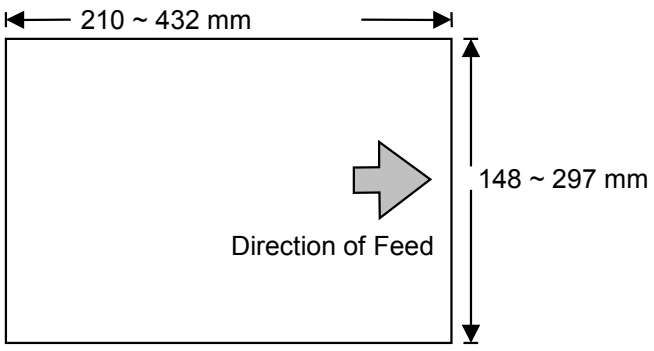
The output from the sensor depends on the position of the dial, as shown in the table. The CPU uses these outputs to determine the paper size.

Sensor Outputs	A4/A3 Version	LT/DLT Version
01111	A3 SEF	11" x 17" SEF
00111	8 1/4" x 13" SEF	8 1/2" x 14" SEF
10011	A4 SEF	8 1/2" x 11" SEF
01001	A4 LEF	8 1/2" x 11" LEF
00100	8 1/2" x 13" SEF	5 1/2" x 8 1/2" SEF
00010	A5 SEF	5 1/2" x 8 1/2" LEF
00001	A5 LEF	8" x 10 1/2" SEF
10000	—	7 1/4" x 10" SEF
11000	—	8" x 13" SEF
11100	—	Not used
11110	*	*

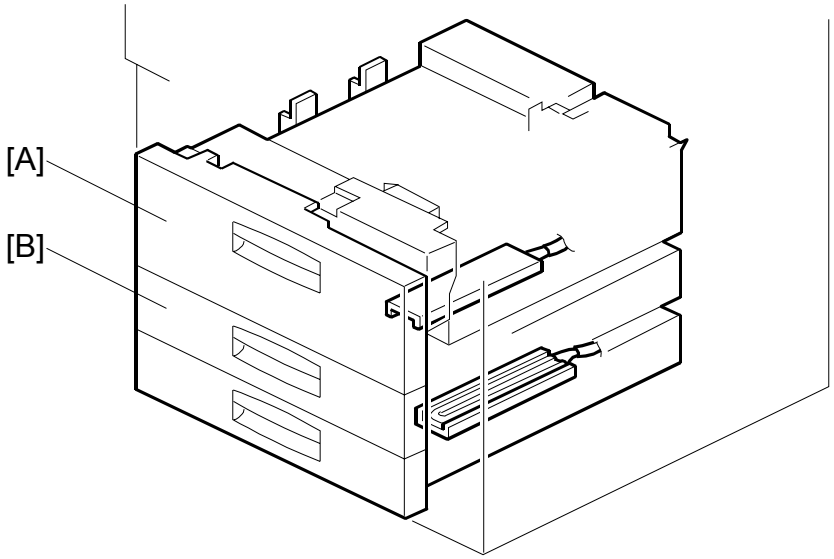
0: Actuated 1: Deactuated

If the switch is set to the asterisk (*), a range of paper sizes (illustrated below) can be selected, but the size must be entered with a UP mode.

Special Size Setting Range



6.9.7 ANTI-CONDENSATION HEATERS



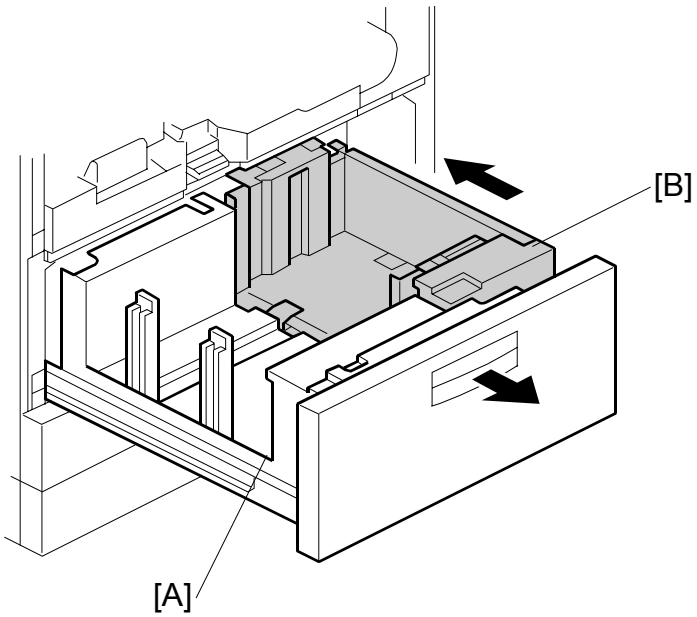
Two heaters, one below the tandem tray [A] and one below the bottom tray [B], prevent condensation around the feed rollers and keep paper dry.

This anti-condensation heater turns on automatically at the following times:

- When the main power switch is turned off
- When the machine enters auto off mode

6.9.8 TANDEM TRAY – TRAY 1

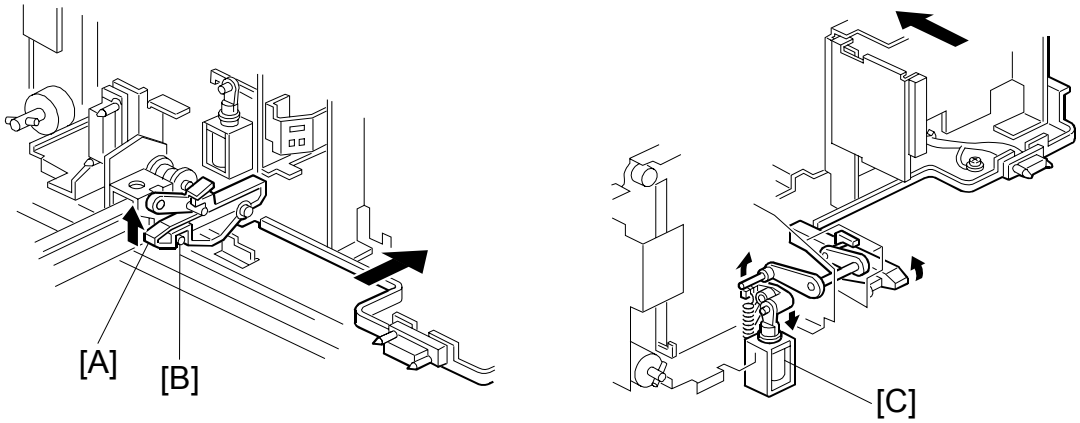
Overview

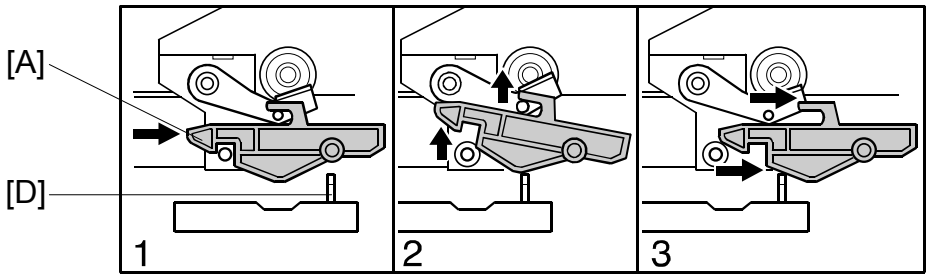


1,550 sheets of paper can be set in each of the left [A] and right trays [B]. Paper is fed from the right tray. When the paper in the right tray runs out, the paper in the left tray automatically transfers to the right tray. After the paper transfers to the right tray, paper feeding resumes.

Normally, both the right and the left trays are joined together. However, during copying, if there is no paper in the left tray, the left tray can be pulled out to load paper. During that time, the right tray stays in the machine and paper feed continues.

Connecting the Left and Right Sides of the Tray





When there is paper in the left tray:

- Lock lever [A] in the left tray catches the pin [B] in the right tray.

During copying, if there is no paper in the left tray:

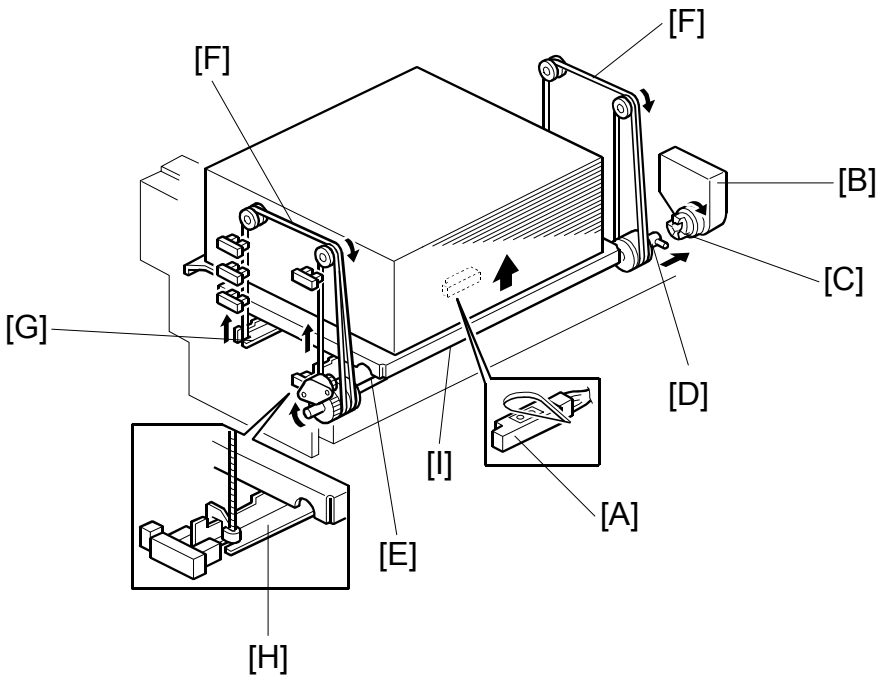
- Right tray lock solenoid [C] turns on, which releases lock lever [A].
- The left tray can now be pulled out to load paper, even while paper is being fed into the machine from the right tray.

When the tandem tray is drawn out fully:

- Projection [D] pushes up lock lever [A] so that both trays separate. This makes paper loading easier.

Paper Lift/Remaining Paper Detection

The machine detects when the 1st tray has been placed in the machine by monitoring the tray set signal through the connector.



When the machine detects that the tray is in the machine, the right tray paper sensor [A] (under the tray) checks whether there is paper in the right tandem tray.

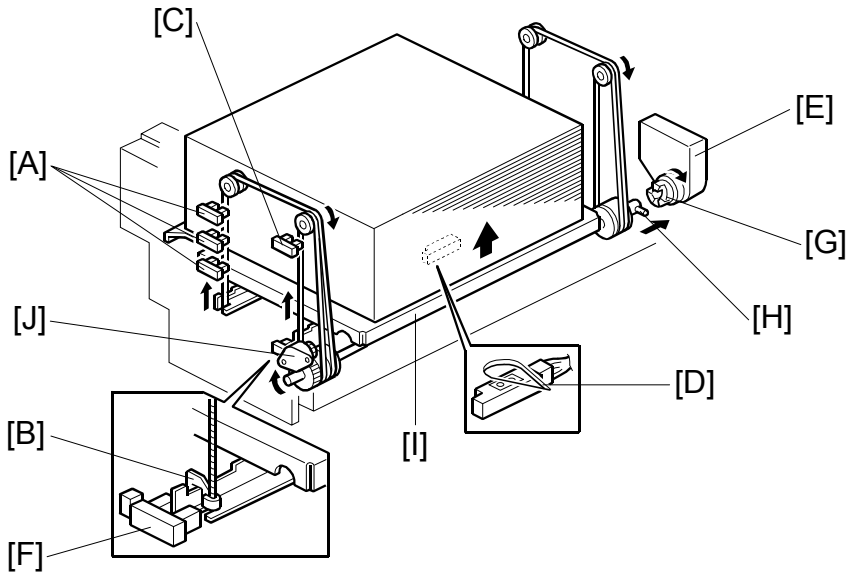
NOTE: If sensor [A] was not present and the tray was empty, the bottom plate would have to lift until the 1st tray lift paper end sensor (at the top of the tray) detected that there was no paper, and this would waste several seconds.

If paper is detected, the lift mechanism starts:

- 1st tray Lift motor [B] ➔ Coupling gear [C] ➔ Pin [D] on the lift shaft [E] ➔ Wires [F] ➔ Slots at the ends of the tray support rods [G, H] ➔ Tray bottom plate [I].

The tray goes up until both of the following occur:

- The paper pushes up the pick-up roller and the lift sensor is activated
- The paper end sensor at the top of the tray is deactivated.



Paper remaining: The amount of paper remaining in the tray is detected by which combination of the three paper height sensors [A] are actuated by the actuator on the left rail as the bottom plate rises.

- With the actuator below paper height sensor 1 (the bottom sensor), no sensor is actuated and the display indicates the tray is full.
- When the actuator passes paper height sensor, the display indicates 50% of the paper supply remaining.
- When the actuator passes paper height sensor 2 (the middle sensor), the display indicates 30% of the paper supply remaining.
- When the actuator passes paper height sensor 3 (the top sensor), the display does not change. This prevents the signal from returning to the off state, which would indicate 100% of the paper remaining (the same state as when the sensor is below paper sensor 1.

Paper near-end: Detected when the actuator [B] on the right rail activates the paper near end sensor [C]. When the actuator passes this sensor, the display indicates 10% of the paper supply remaining.

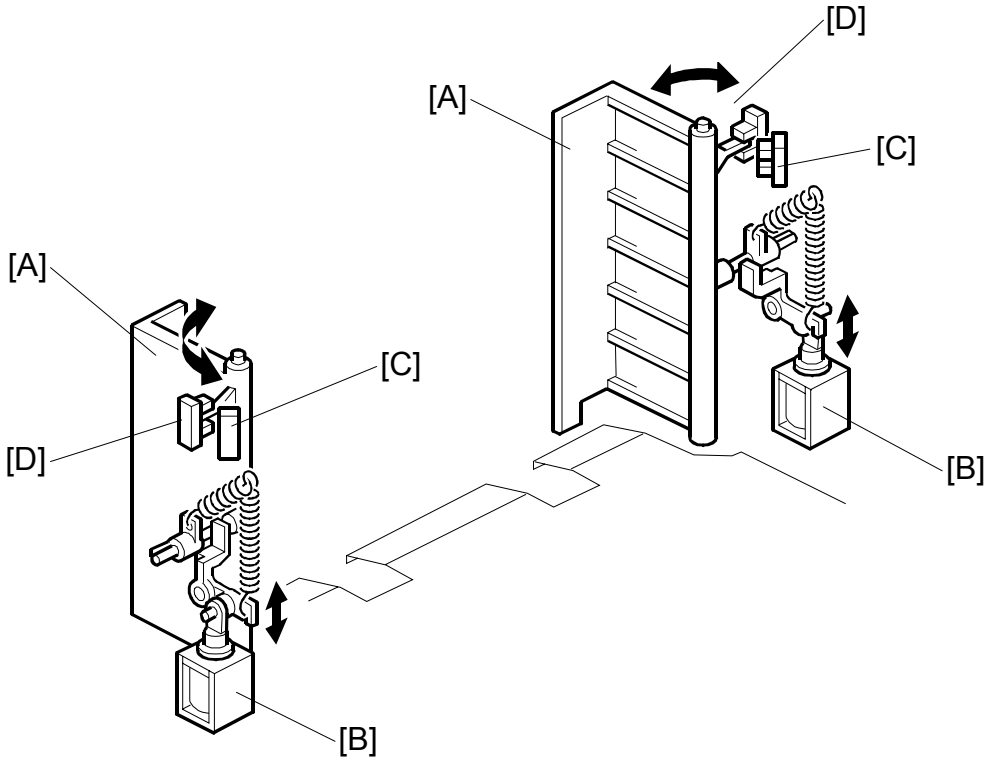
Paper end: After the last sheet feeds, the right tray paper sensor [D] below the bottom of the tray actuates and signals paper end.

When paper runs out in the right tray, the stack must be moved across from the left tray. To do that, the tray must first be lowered. The 1st tray lift motor [E] reverses until actuator [B] activates the right tray down sensor [F].

When removing the tray manually, if paper is still present, the tray lowers under its own weight as follows:

- Coupling [G] separates from pin [H] ➔ Tray bottom plate [I] moves down.
- Damper [J] lets the tray bottom plate drop slowly.

Fence Drive

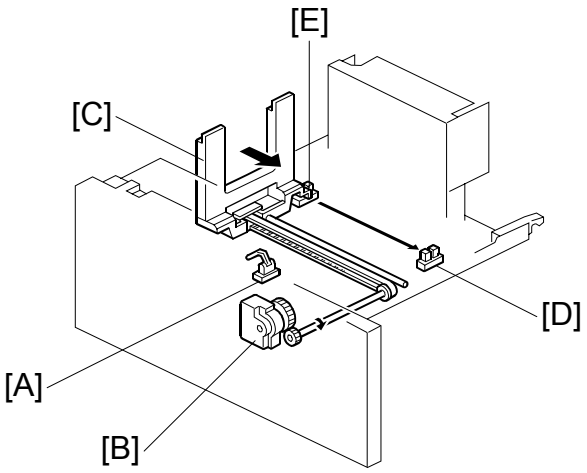


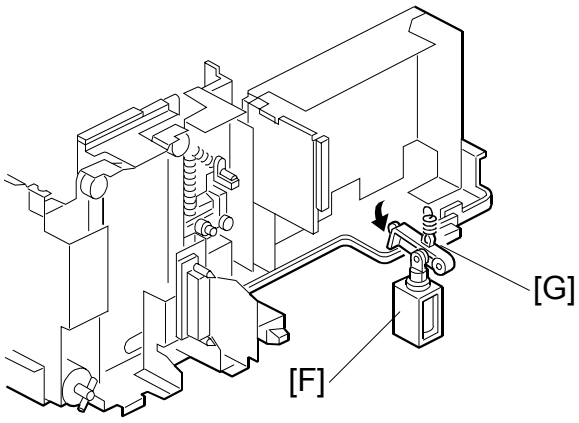
The side fences [A] of the right tray open only when paper in the left tray goes to the right tray.

The side fence solenoids [B] turn on to open the side fences, until the side fence open sensors [C] activate.

After the stack has been moved into the right tray: The side fence solenoids turn off to close the side fences, until the side fence close sensors [D] activate. Then, the LCD prompts the user to set some paper in the left side of the tandem tray.

Rear Fence Drive



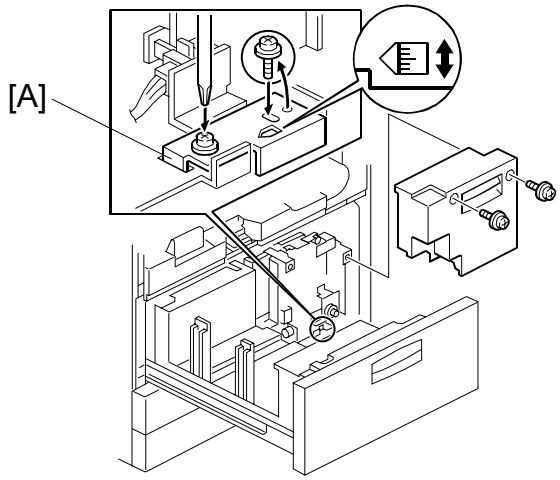


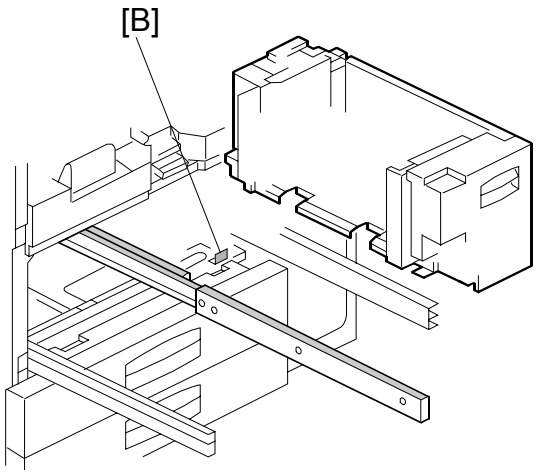
When the left tray paper sensor [A] detects paper but the right tray paper sensor does not, the following happens.

- Rear fence motor [B] (a DC motor, in the left tray) turns counter-clockwise ➔ Rear fence [C] pushes the paper stack into the right tray.
- When rear fence return sensor [D] detects the actuator on the rear fence, motor [B] turns clockwise until rear fence HP sensor [E] detects the actuator.

While the rear fence is moving, the left tray lock solenoid [F] turns on and the lock lever [G] locks the left tray.

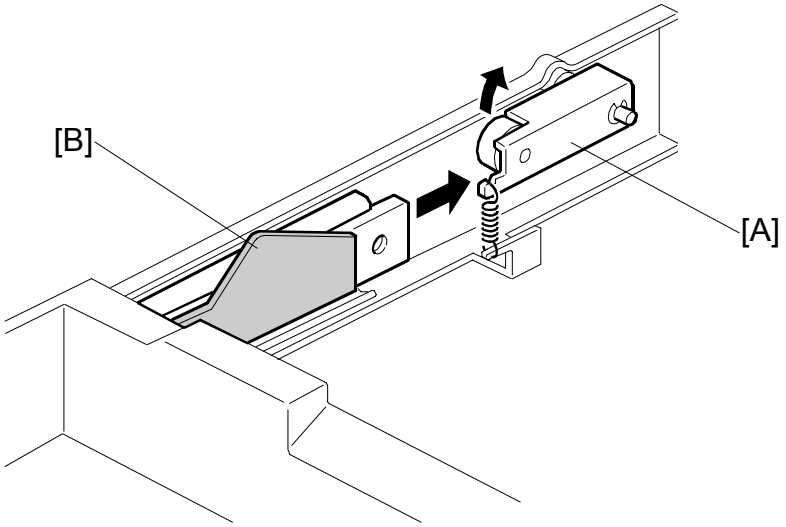
Tray Side-to-side Positioning





When the feed tray is set in the paper feed unit, the side-to-side positioning plate [A] presses the feed tray against the stopper [B]. By moving the positioning plate, the tray position can be changed to adjust the side-to-side registration.

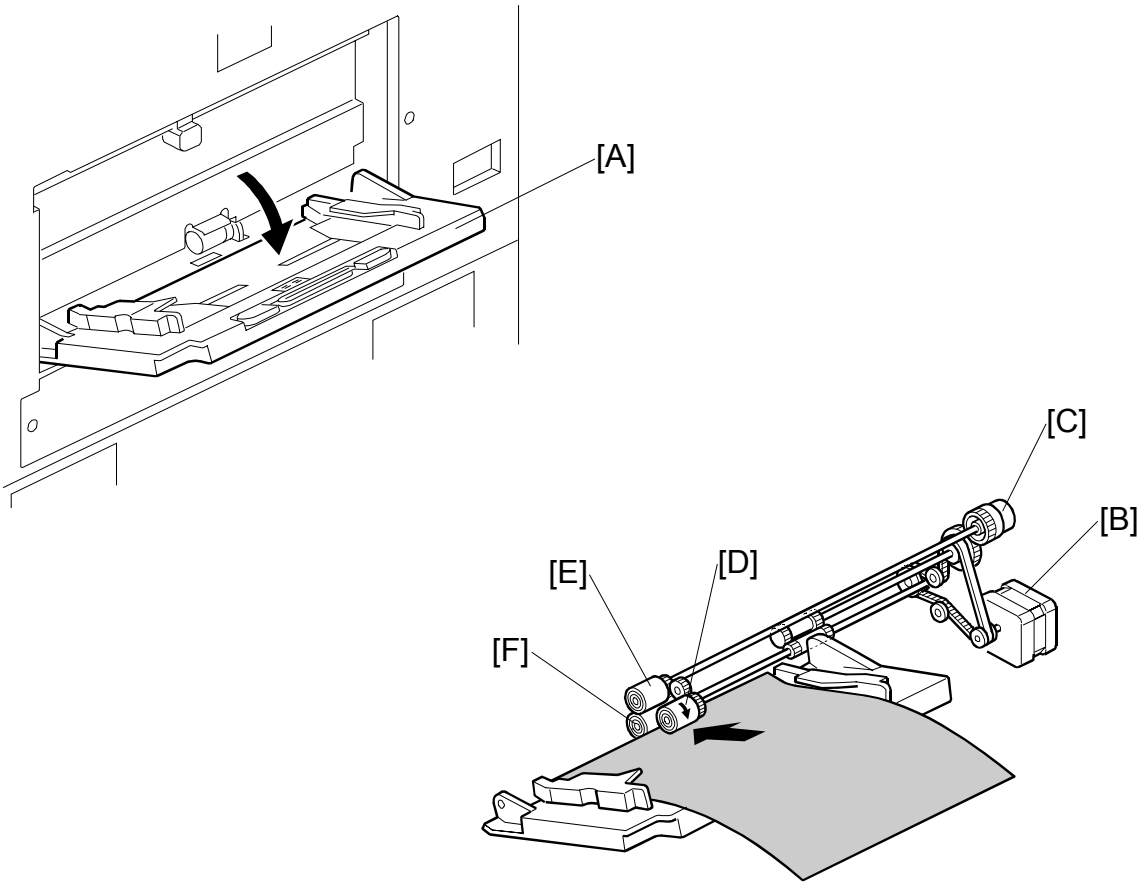
6.9.9 TRAY POSITIONING MECHANISM – TRAYS 1 TO 3



When the tray is placed in the paper feed unit, the lock lever [A] drops behind the lock plate [B] on the support bracket to lock the tray in the proper position.

6.9.10 BY-PASS TRAY

By-pass Feed and Separation



The by-pass tray [A] opens from the right side of the machine.

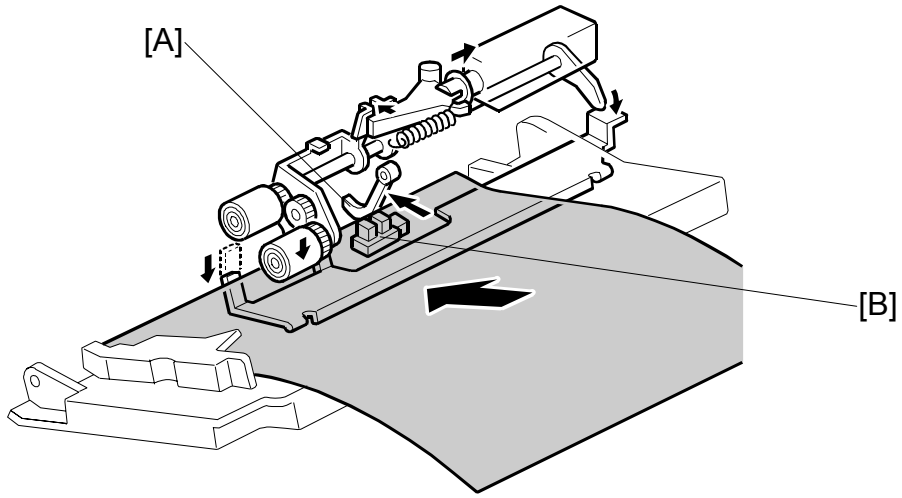
By-pass feed motor [B] ➔ By-pass feed clutch [C] ➔ Pick-up roller [D] (pick-up solenoid – see the next page) ➔ Feed roller [E] and separation roller [F]

The by-pass tray uses a standard FRR feed system.

(CT Handling Paper> Paper Feed Methods> **Forward and Reverse Roller (FRR)** or **By-pass Feed Tray**)

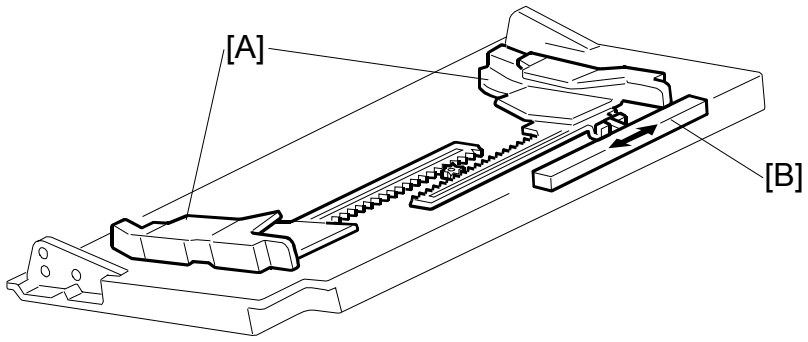
NOTE: The direction of feed in the by-pass tray is opposite from that of the other paper trays, so their parts (with the exception of the separation roller) are not interchangeable.

By-pass Tray Paper End Detection



When the paper runs out, the paper end feeler [A] drops through the cutout in the by-pass paper end sensor [B].

By-pass Paper Size Detection



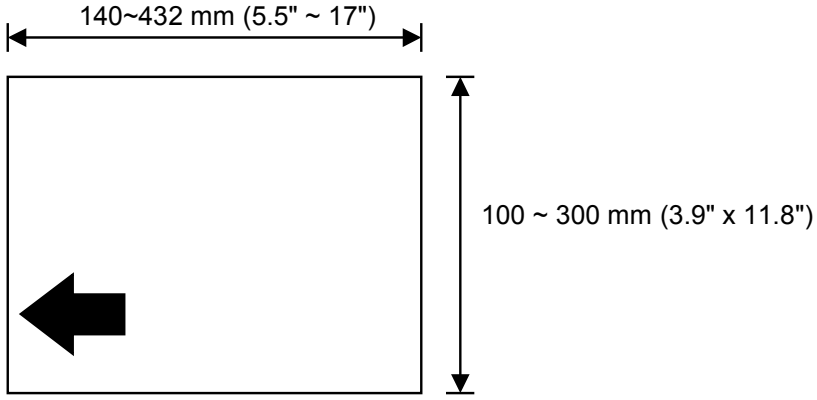
The positions of the side fences [A], connected to the by-pass paper size sensor [B] determine the paper width.

Paper length is determined with pulse counts read from the registration sensor.

(CT Handling Paper> Paper Feed> Paper Size Detection> **By-pass Size Detection**)

NOTE: Use SP1007 (By-pass Feed Paper Size Display) to confirm the size of the paper detected in the by-pass tray if paper is skewing during feeding.

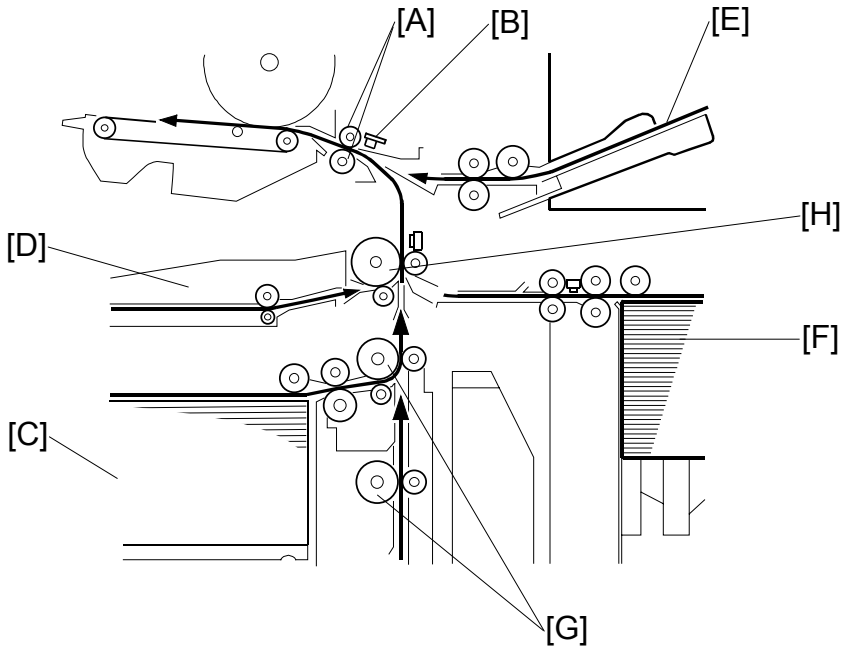
The user can specify non-standard paper sizes for feeding from the by-pass tray. The size must be within the range shown in the illustration.



NOTE: SP1904 001~002 (By-pass Paper Size Selection): Use this to calibrate the minimum and maximum size positions of the by-pass tray side fences. Refer to Replacement and Adjustment> Paper Feed> By-pass Paper Size Detector.
SP1905 (Thick Paper – Bypass Tray): Use this to adjust the by-pass feed clutch operation if thick paper often jams at the registration roller. See “5. Service Tables” for details.

6.9.11 PAPER REGISTRATION

Overview



The registration rollers [A] and registration sensor [B] handle paper fed from four directions:

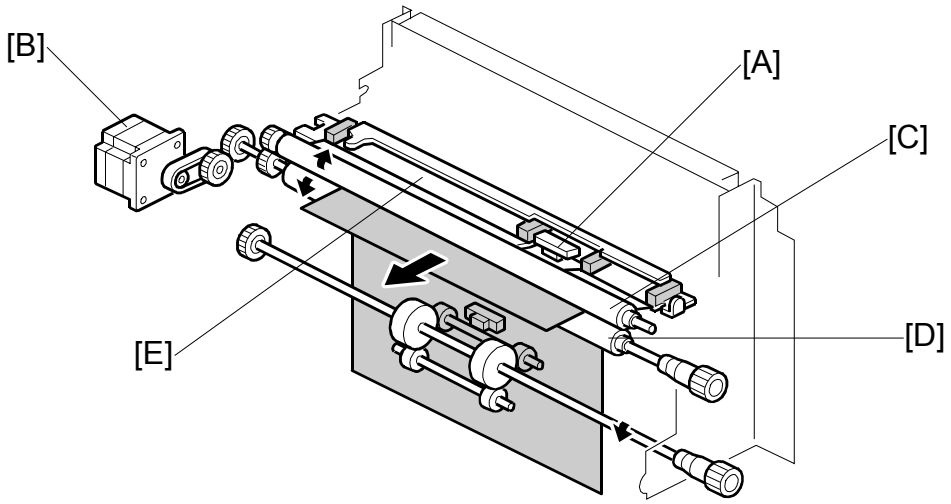
- Tandem tray and universal trays below [C]
- Duplex unit [D]
- By-pass tray [E]
- Optional LCT [F]

The grip rollers [G] feed paper from the trays into the vertical transport path to the registration rollers.

The upper relay roller [H] feeds all paper exiting the vertical transport path. It also feeds paper from the duplex unit and LCT.

The by-pass tray feeds paper directly to the registration rollers.

Paper Registration Drive

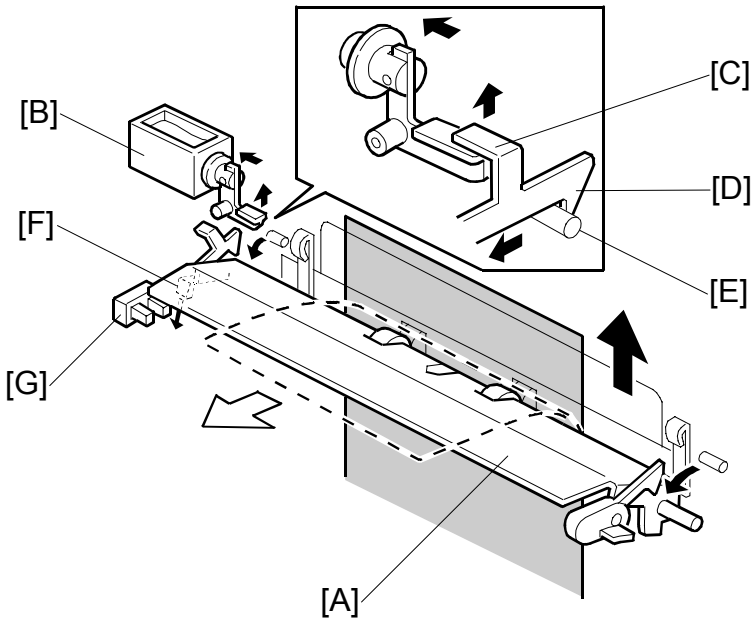


When the registration sensor [A] detects the leading edge of the paper, the registration motor [B] stops the paper at the registration rollers [C, D] for a short while to correct the skew in the paper.

Mylar [E] touches the upper surface of roller [C]. This mylar removes dust from the paper while it passes the registration rollers.

NOTE: Use SP1003 (Registration Buckle Adjustment) to adjust the registration motor timing for each paper feed station or the duplex tray. For details see "5. Service Tables".

Jam Removal at Paper Registration



If a paper misfeed occurs between the vertical transport rollers and the registration rollers, the next sheet is already on its way up from the paper tray, and must be stopped, or there will be a pile-up of jammed paper.

Guide plate solenoid [B] turns on ➔ Lever [C] raises ➔ Lock lever [D] (on the guide plate) releases from pin [E] (on the rear side frame) ➔ Guide plate [A] falls open ➔ Paper coming along the feed path is diverted into the duplex tray.

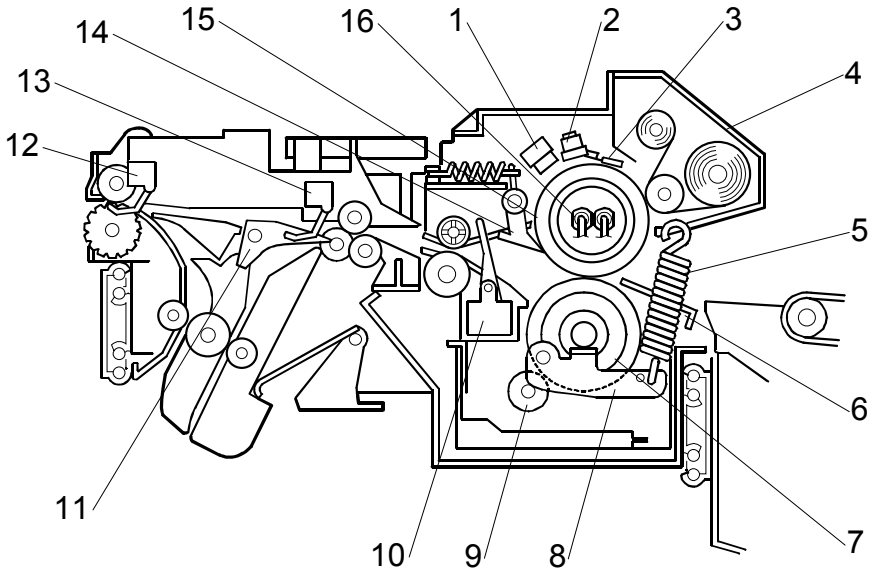
Actuator [F] on the guide plate activates the guide plate position sensor [G] when the guide plate opens.

The user must remove jammed paper in the feed path, the sheet in the duplex tray, and manually close the guide plate.

To prevent the guide plate from being left open, if the guide plate position sensor is activated, copying is disabled and a caution is displayed on the LCD panel.

6.10 IMAGE FUSING AND PAPER EXIT

6.10.1 OVERVIEW



1. Thermistor (Center)
2. Thermostats (x2)
3. Thermistor (End)
4. Web Cleaning Unit
5. Pressure Spring
6. Entrance Guide Plate
7. Pressure Roller
8. Pressure Arm
9. Pressure Roller Cleaning Roller
10. Fusing Exit Sensor
11. Exit Junction Gate
12. Paper Exit Sensor
13. Exit Unit Entrance Sensor
14. Hot Roller Strippers
15. Hot Roller
16. Fusing Lamps (x2)

The fusing unit is a hot roller/pressure roller system.

Two 550W fusing lamps switch on and off at the same time to keep the hot roller temperature steady at 185°C.

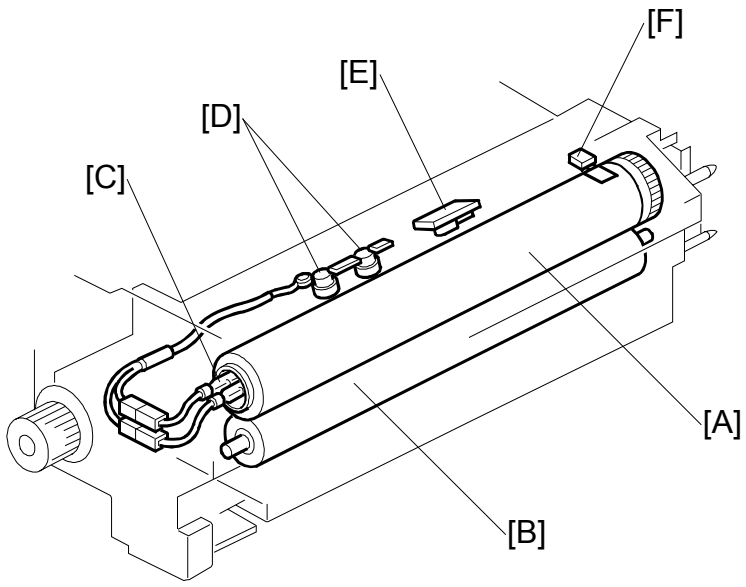
The center thermistor (1) (not in direct contact with the hot roller) controls the temperature at the center of the hot roller. The end thermistor (3) directly contacts the hot roller surface and prevents overheating. The two thermostats (2) also prevent overheating.

The web cleaning unit (web roller, cleaning roller, and take up roller) applies a light coat of silicone oil to the hot roller to prevent toner and paper dust from sticking to the hot roller.

The fusing exit sensor detects concertina jams at the fusing unit exit. This sensor is required because the user may not see this type of jam in the machine when removing a jam at the exit.

The fusing unit and exit unit can be separated, making it easier to service.

6.10.2 FUSING MECHANISM



The hot roller [A] and pressure roller [B] fuse the toner to the paper .

The hot roller, constructed of soft silicone rubber, is about 0.3 mm thick and coated with a thin coat of Teflon (30 μ).

Two fusing lamps [C] (550 W) are inside the hot roller.

Two thermostats [D] are positioned above the hot roller near the center.

One thermistor [E] is also positioned above the hot roller near the center.

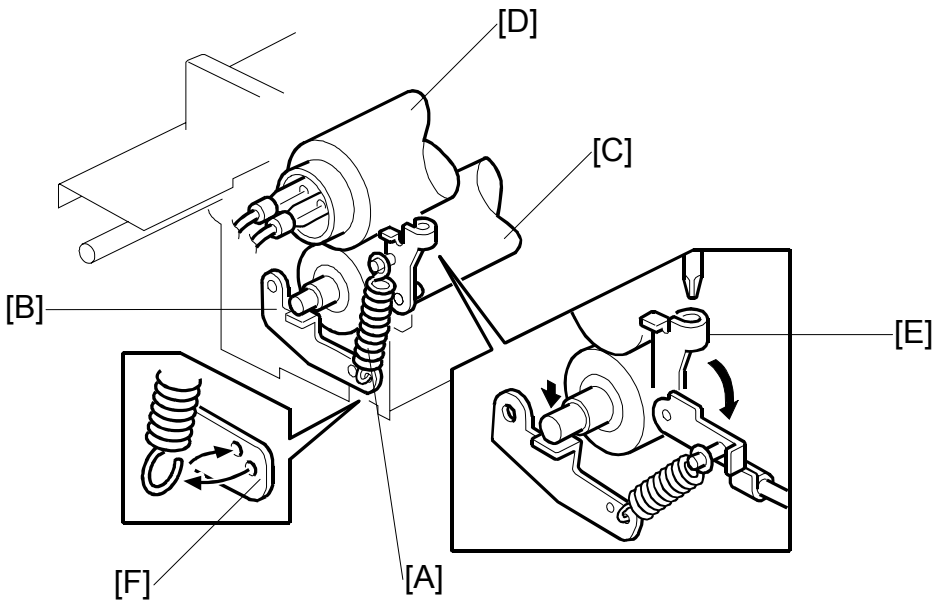
Another thermistor [F] is in contact with the end of the hot roller.

Thermistors	
Center (non-contact) thermistor	Temperature control
End (contact) thermistor	Overheating protection
Thermostats[*1]	
Center (non-contact) thermostats	Overheating protection
[*1] If the thermostats trigger an alert, the thermostat requires replacement.	

A fusing exit sensor, located between the hot roller and paper exit roller, detects paper jams inside the fusing unit.

NOTE: The term thermostat and thermoswitch are often used interchangeably. Both refer to a device in which bi-metal contacts will open at a specific temperature.

6.10.3 PRESSURE ROLLER



Heavy springs [A], attached to pressure arms [B] below both ends of the pressure roller [C], keep the roller pressed against the hot roller [D] above.

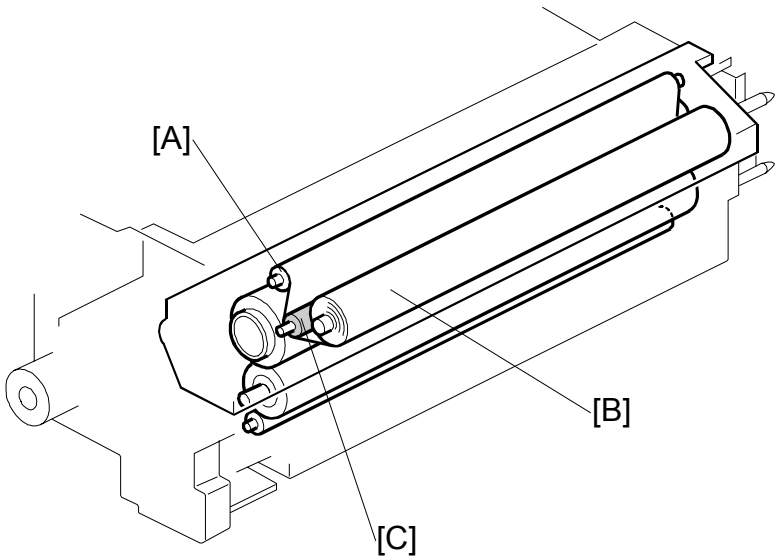
Release the springs [E] in order to release the pressure from the rollers for maintenance.

Two holes [F] are provided on each pressure arm for the springs.

NOTE: Normally, the springs should be attached to the lower holes. Attaching the springs to the upper holes exerts less pressure on the hot roller. Attach the springs to the upper holes only for especially thin paper.

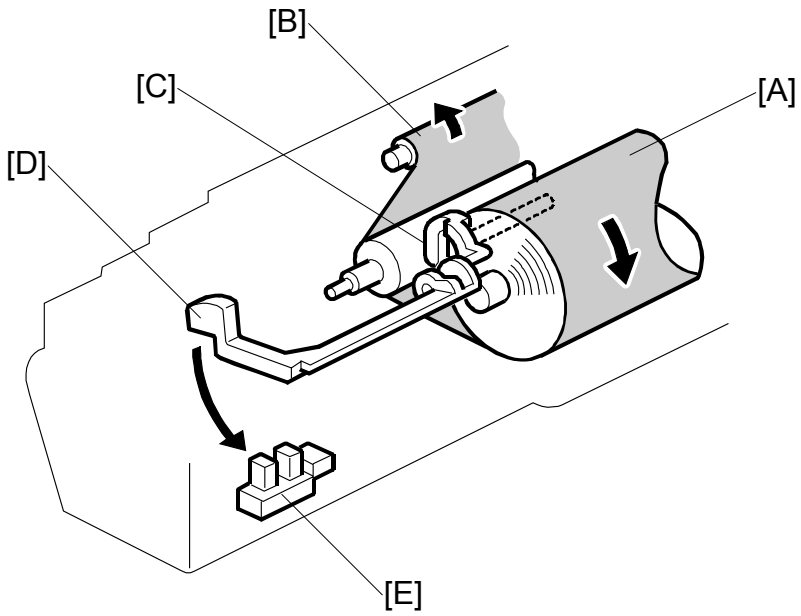
6.10.4 HOT ROLLER CLEANING

Overview



The cleaning web is saturated with silicone oil.

Inside the web cleaning unit, the web take-up roller [A] pulls the web from the web supply roller [B] past the cleaning roller [C]. The cleaning roller is pressed against the hot roller.



Web Drive

The web motor drives the web supply roller [A] and web take-up roller [B]. The web motor switches on for 0.8 to 2.8 s at 15 s intervals during copying.

Web Near-end

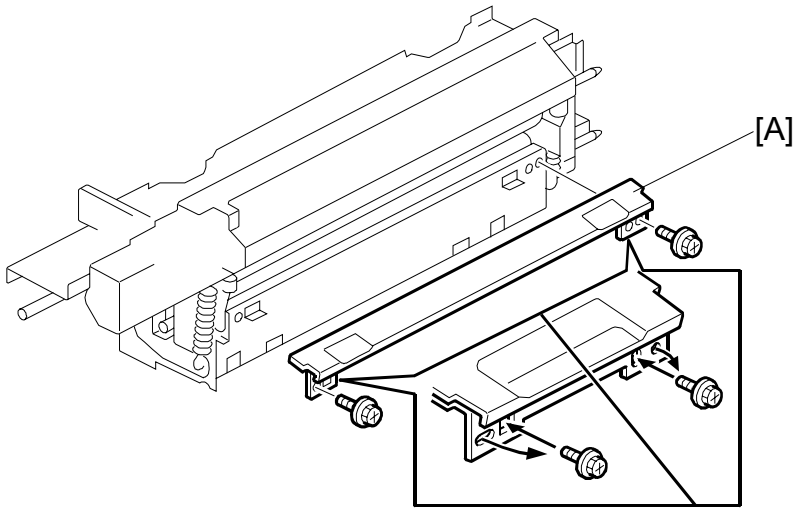
The machine monitors how much of the roll has been fed since it was installed. The setting of SP1902 004 (Fusing Web Motor Control) determines the amount of web remaining on the web roll when the near end alert is issued. (The default setting is after 90% of the web has been used, which is about 300K A4 LEF.)

Web End

A light-tension spring holds the feeler [C] against the top of the feed roll. When the roll runs out, the actuator on the end of the feeler [D] enters the web end sensor [E].

When all of the web has been used (after about another 30k copies), the actuator rotates, its feeler actuates the web end sensor, and SC550 (Fusing Unit Web End) is logged. After replacing the web with a new one, reset SP1902 001 to 0 to release SC550.

6.10.5 FUSING UNIT ENTRANCE GUIDE

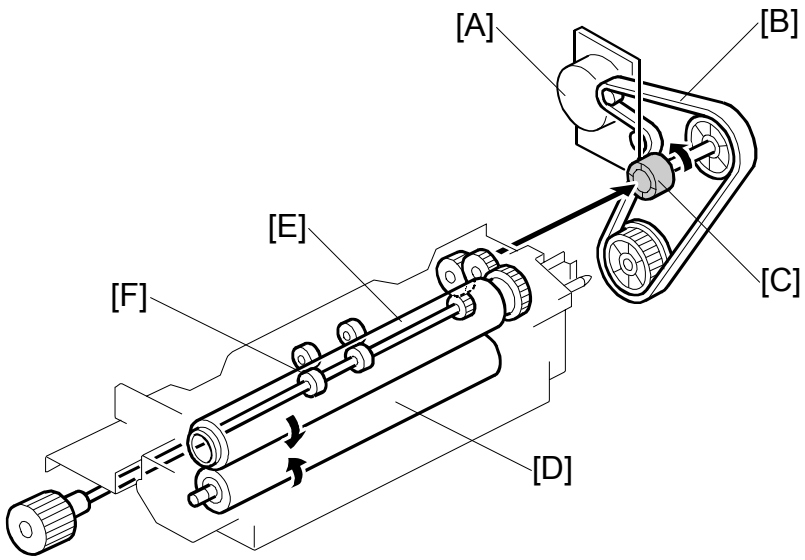


The height of the entrance guide [A] can be adjusted.

- **Normal or thick paper**. For normal or thick paper, the guide should be up with the screws in the outer holes (this is the standard or default position). Thick paper does not bend easily and is less likely to crease. The standard position also allows direct access to the gap between the hot roller and pressure roller. This prevents thick paper from buckling against the hot roller, which can lead to blurring at the leading edge of the copy.
- **Thin paper**. If wrinkling occurs with thin paper, adjust the guide down by removing both screws and moving them to the inner holes. This lengthens the paper path slightly to prevent the paper from wrinkling in the unit.

NOTE: 1) Before shipping, the screws are set in the outer holes.
2) If the customer is experiencing problems with paper sizes larger than A4, then use the inner holes.

6.10.6 FUSING UNIT DRIVE



Fusing/exit motor [A] ➔ timing belt [B] ➔ gear coupling [C] ➔ fusing unit

Inserting the fusing unit engages the coupling [C].

The pressure roller [D] is driven by friction between the pressure roller and the hot roller [E].

The fusing unit exit rollers [F] are driven through some gears.

6.10.7 CPM DOWN MODE

CPM (Copies Per Minute) Down Control adjusts the copy speed automatically when printing OHP (transparencies) or extremely thick paper from the bypass tray.

Slowing down the paper as it goes through the fusing unit makes the paper spend more time in the fusing unit. This compensates for the loss of temperature caused by the demand on the hot roller.

When feeding special paper such as tab paper or thick paper from a paper station other than the by-pass tray, the copy speed can be adjusted with SP1901 (CPM Down Setting for Special Paper). A slower speed selection ensures better fusing. Adjusting SP1901 does not affect fusing temperature control.

6.10.8 FUSING TEMPERATURE CONTROL

This machine uses either on/off control or phase control to control the temperature of the hot roller. Before shipping, the machine is set for on/off control.

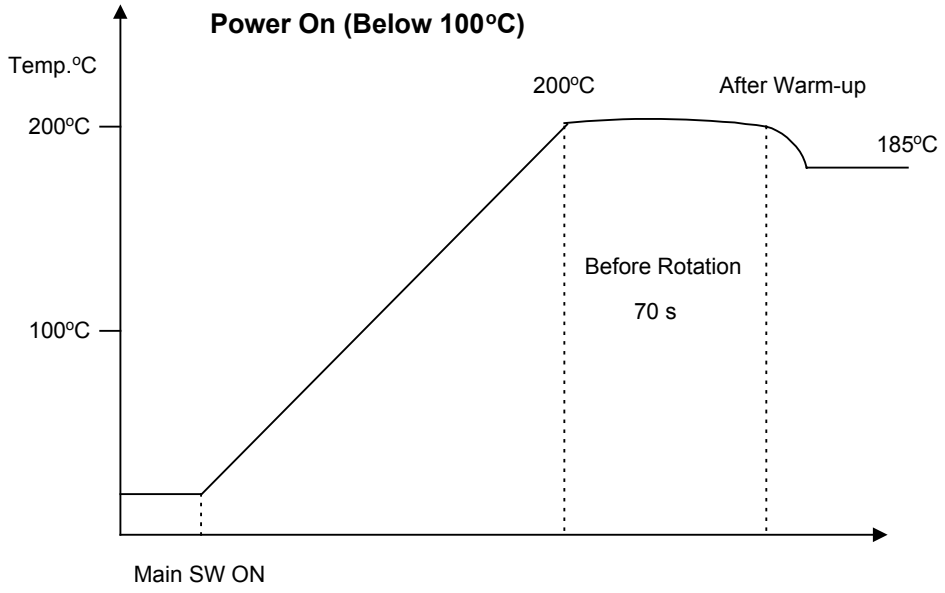
Generally, phase control is used only if the customer has a problem with electrical noise or interference on the power line. Phase control can be selected with SP1104 001 (Fusing Temperature Control).

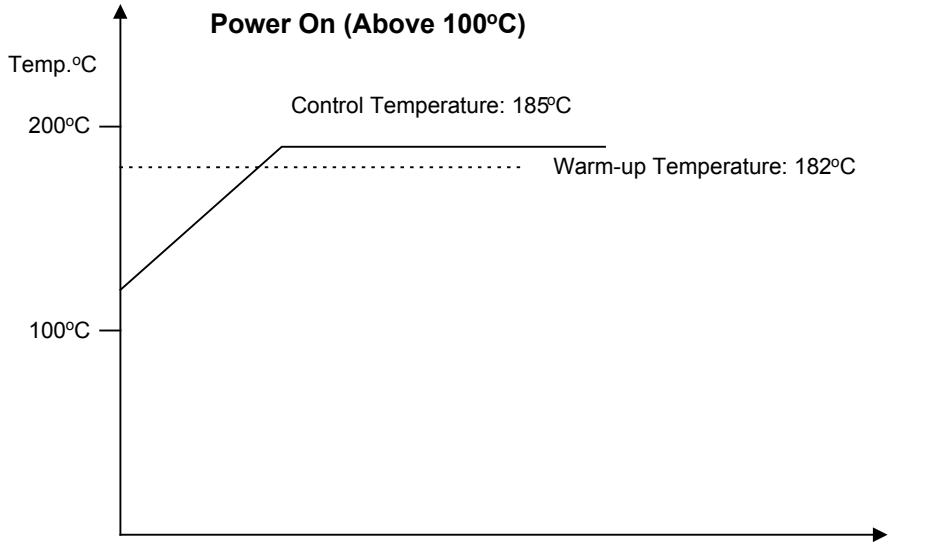
The thermistor contacting the center of the hot roller surface monitors the temperature of the hot roller. The CPU turns the fusing lamps on and off to keep the hot roller surface at the target temperature. The target temperature depends on the paper type.

- Normal: 185°C±5 (365°F±9) – Adjust with SP1105 001
- OHP: 165°C (329°F) – Adjust with SP1105 003
- Thick: 195°C (374°F) – Adjust with SP1105 005

As shown in the illustration, at power on when the temperature is less than 100°C, there is an interval of 70 s during which the hot roller rotates before printing starts (this is called 'fusing idling'). This interval allows the hot roller to reach the control temperature. At power on when the temperature is over 100°C, printing can start as soon as the hot roller reaches the warm-up temperature of 182°C.

NOTE: 1) SP1103 (Fusing Idling) adjusts the fusing idling time if fusing on the first and second copies is incomplete due to low room temperature.
2) SP1106 (Fusing Temperature Display) displays the current center and end temperatures for the hot roller.



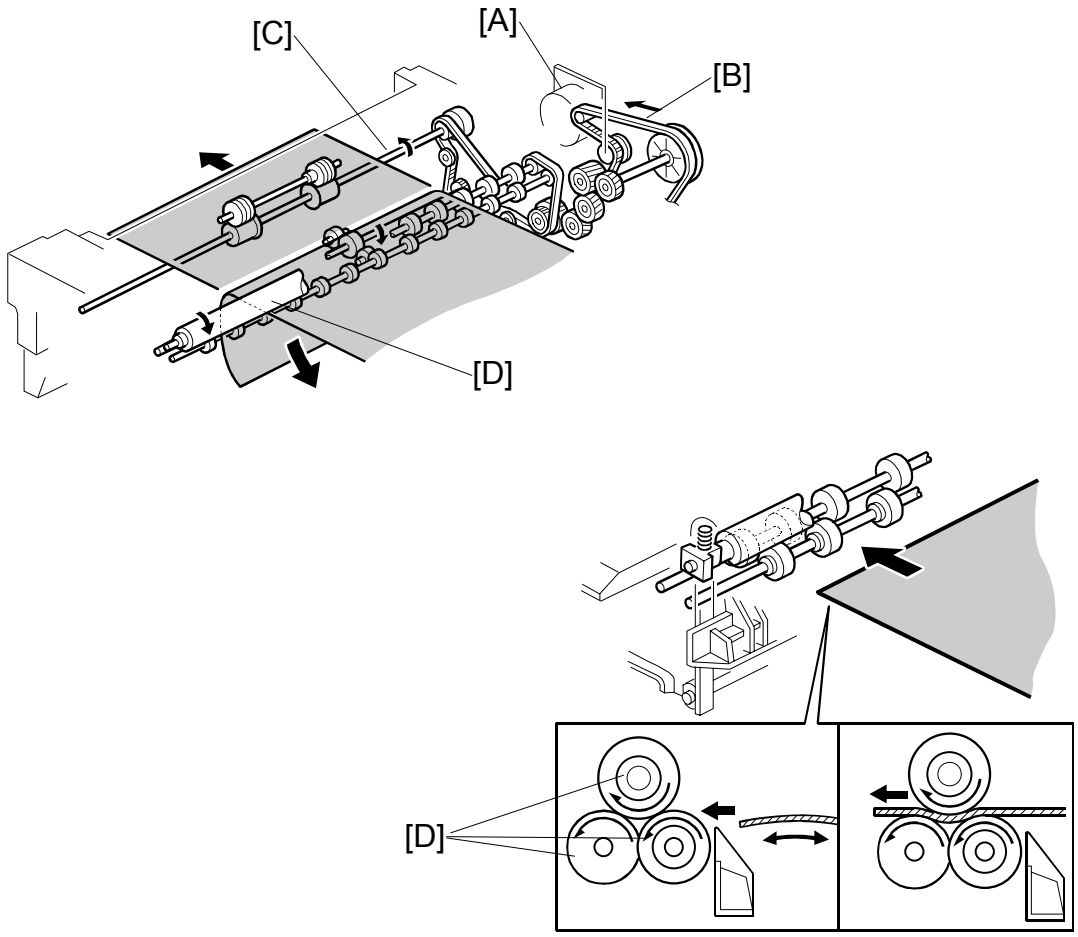


Here is a list of SC codes issued if a fusing unit error occurs. For details, see "Troubleshooting".

SC541	Fusing thermistor open
SC542	Fusing temperature warm-up error
SC543	Fusing lamp overheat error 1 (software)
SC544	Fusing lamp overheat error 1 (hardware)
SC545	Fusing lamp overheat error 2

NOTE: To release these machine after one of these SC codes is issued, just enter the SP mode.

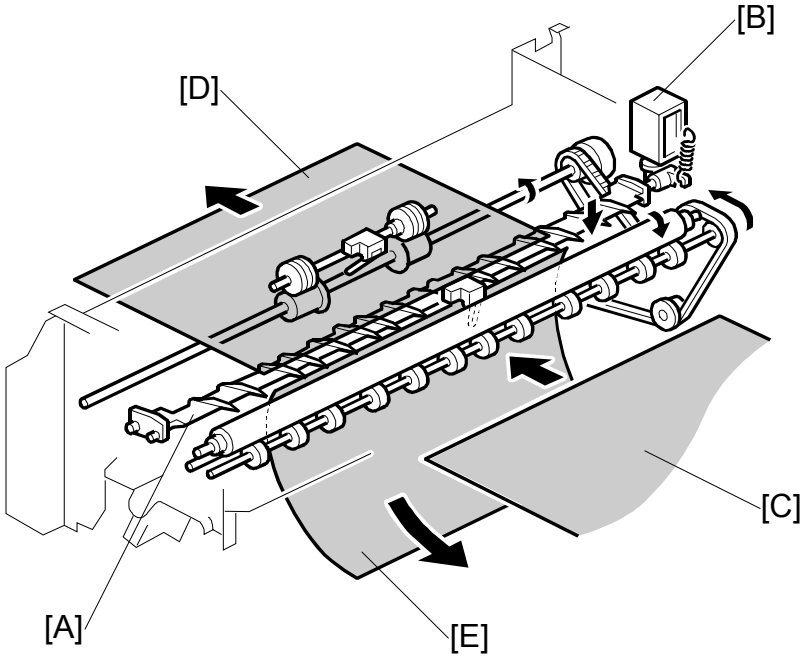
6.10.9 EXIT



Fusing/exit motor [A] ➔ timing belt [B] ➔ exit roller [C] via gears and timing belts.

The de-curler rollers [D] remove curl from the paper before it exits. This improves feed through the duplex unit and finishers.

6.10.10 EXIT JUNCTION GATE

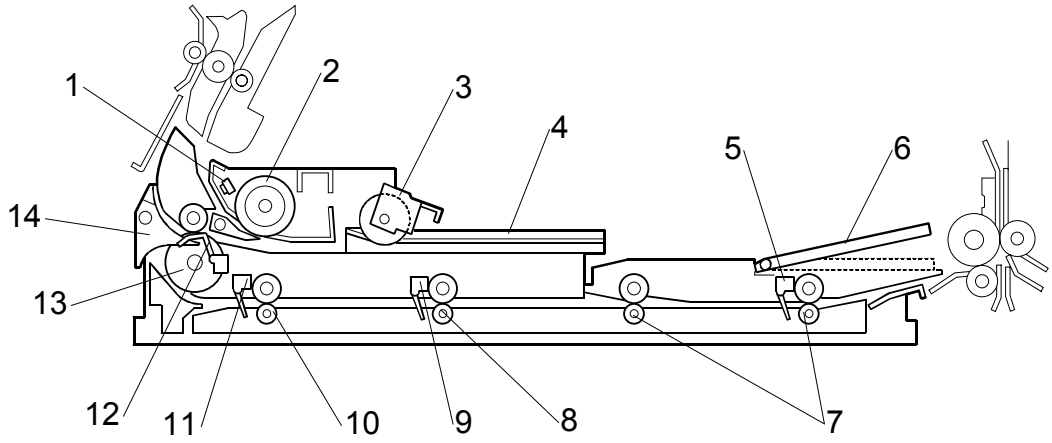


The exit junction gate [A] is controlled by the exit junction gate solenoid [B].

- If the solenoid is on: The gate opens, and paper [C] goes straight through [D] to the output tray (for face-up delivery) or the finisher.
- If the solenoid is off: The gate remains closed and forces the paper down [E] to the duplex unit.

6.11 DUPLEX UNIT

6.11.1 OVERVIEW



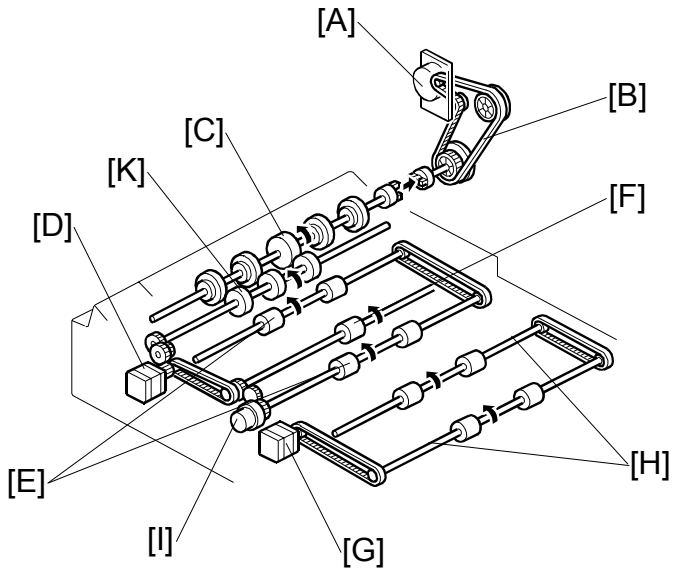
1. Duplex Entrance Sensor
2. Inverter Entrance Roller
3. Reverse Trigger Roller
4. Jogger Fences
5. Duplex Transport Sensor 3
6. Trailing Edge Guide Plate
7. Duplex Transport Rollers 3, 4
8. Duplex Transport Roller 2
9. Duplex Transport Sensor 2
10. Duplex Transport Roller 1
11. Duplex Transport Sensor 1
12. Duplex Inverter Sensor
13. Inverter Exit Roller
14. Duplex Junction Gate

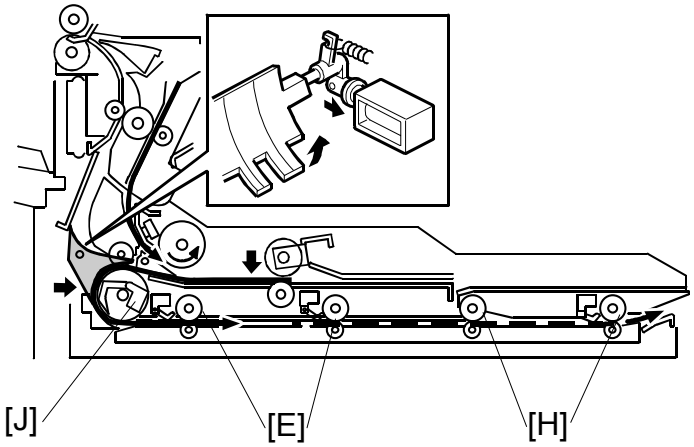
Normally the page is fed out directly face-up to the output tray. If the user selected face-down output, the exit junction gate sends the page to the inverter. The inverter inverts the page for face-down output.

If the user selected duplex mode, after the inverter inverts the page, the duplex junction gate directs the page into the duplex unit, then the duplex unit feeds the page back to the machine for printing the second side.

NOTE: When the duplex unit is removed, the trailing edge guide plate (6) drops to the horizontal position to make it easier to remove.

6.11.2 DUPLEX DRIVE





Fusing/exit motor [A] ➔ Timing belt [B] ➔ Inverter entrance roller [C]

Duplex inverter motor [D] ➔ Timing belt ➔ Transport rollers 1, 2 [E] and reverse trigger rollers [F]

Duplex Inverter motor [D] ➔ Inverter exit roller [K]

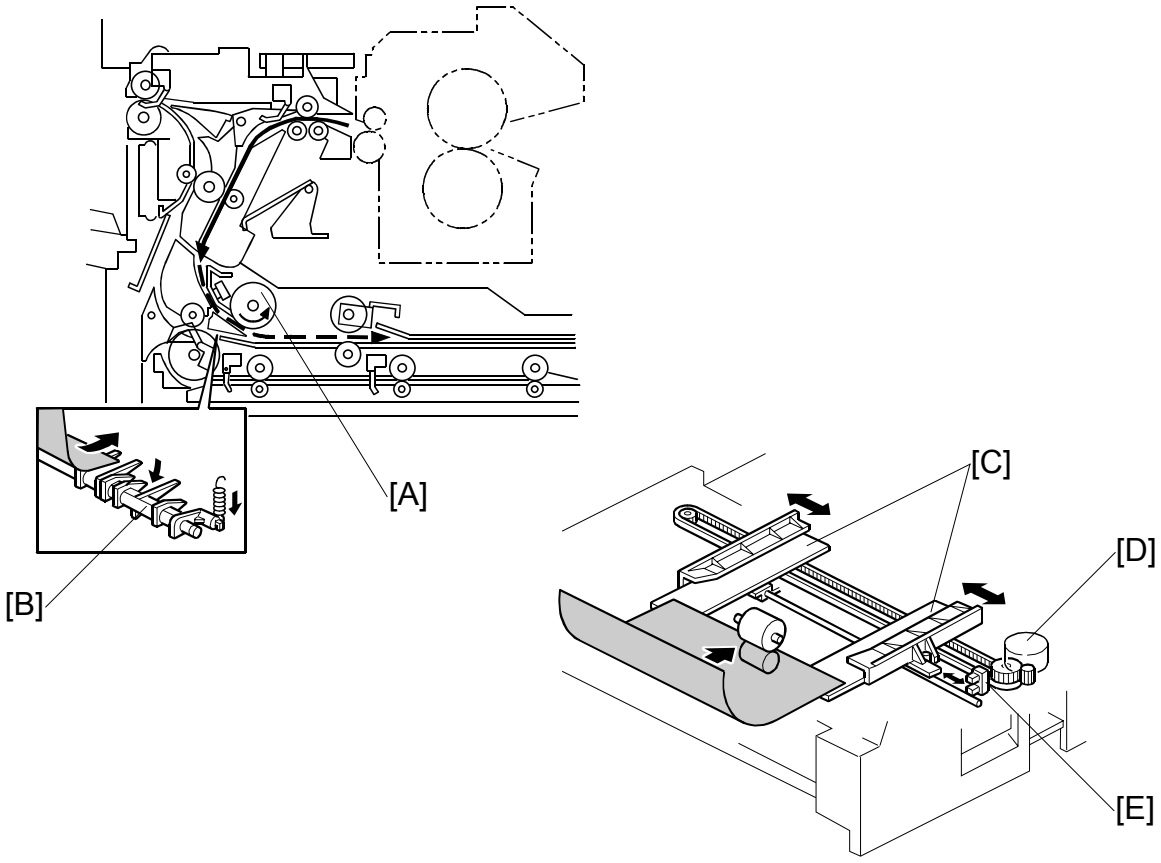
Duplex transport motor [G] ➔ Timing belt ➔ transport rollers 3, 4 [H]

Duplex transport clutch [I]:

- Stops transport rollers 1, 2 [E] when there are two sheets in the duplex paper path (when interleaving is used)➔ Allows the sheet in front to be fed out of the duplex unit by motor [G] and rollers [H].
- Controlled by the duplex inverter sensor [J]

6.11.3 INVERTER OPERATION

Inverter Feed-in and Jogging



Just after the main switch is turned on:

- Jogger motor [D] (a stepper motor) moves the jogger fences [C] to home position (determined by the duplex jogger HP sensor [E]).

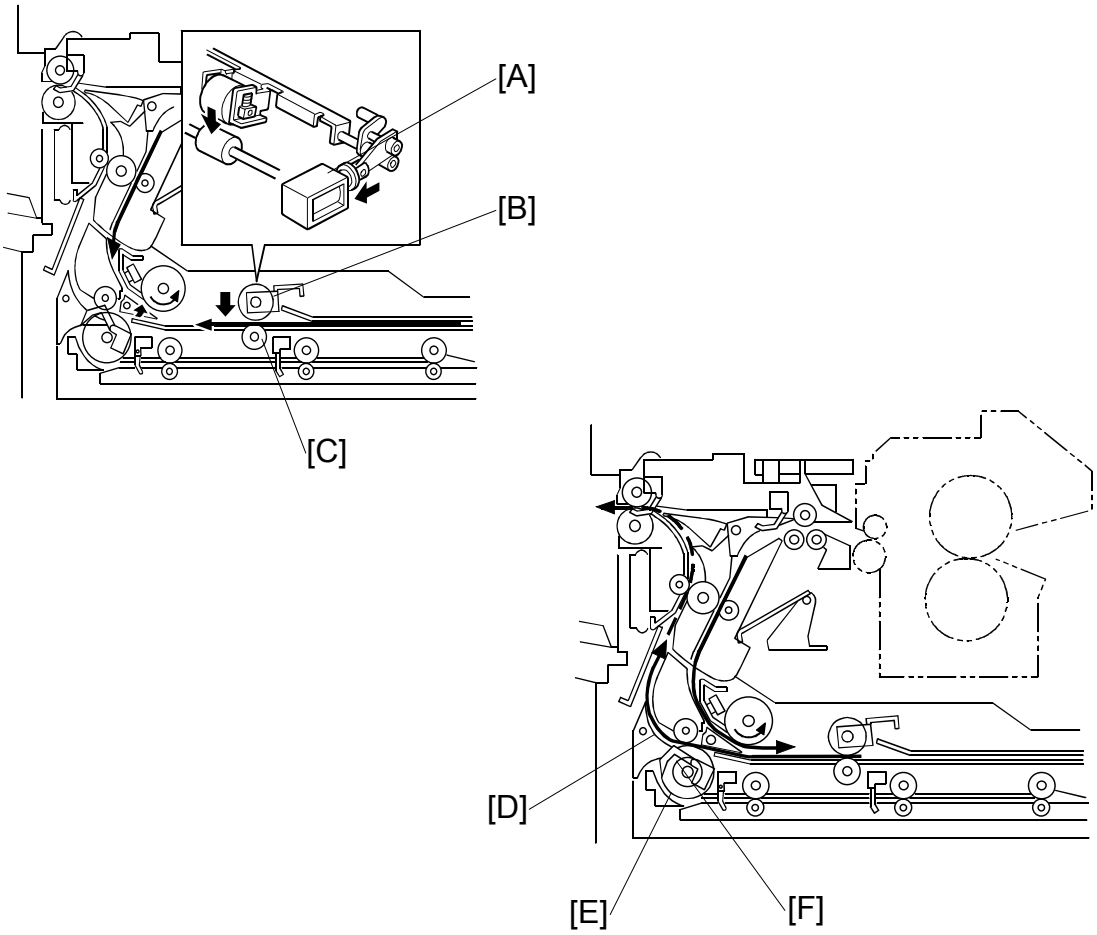
When the Start key is pressed:

- Motor [D] positions fences [C] 20 mm away from the selected paper size to wait for the paper.
- Inverter entrance roller [A] feeds paper to the jogger section ➔ The paper pushes down the gate [B].

After the paper passes through the gate:

- Motor [D] (a stepper motor) moves the jogger fences [C] in to square the paper. This happens every page.
- After this, the jogger fences move back to the previous position (12 mm away from the paper)
- A spring pushes the gate back up again after the paper has gone (there is no solenoid).

Inverter Feed-out



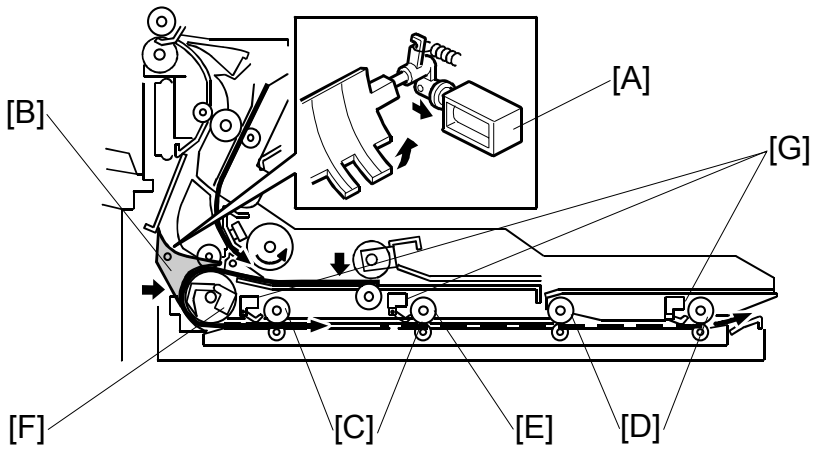
[A]: Reverse trigger roller solenoid
[B]: Reverse trigger roller
[C]: Reverse roller
[D]: Paper
[E]: Inverter exit roller
[F]: Duplex inverter sensor

After jogging, each page is fed back as follows:

- Solenoid [A] pushes down roller [B].
- Roller [B] contacts roller [C], catching the paper between the two rollers.
- Roller [C] always turns counter-clockwise, and feeds the paper [D] backwards to roller [E].

When the leading edge of the paper, now caught by roller [E], passes sensor [F], solenoid [A] switches off and roller [B] returns to its home position.

6.11.4 DUPLEX TRAY FEED



After inversion:

- If duplex mode is not selected, the duplex junction gate solenoid [A] does not switch on to open the duplex junction gate [B]. The paper goes to the output tray or finisher face down.
- If duplex mode is selected, after the paper leaves the inverter, the solenoid [A] switches on and opens the junction gate [B]. The paper goes down to the duplex tray.

For details of how the transport rollers [C, D], duplex transport clutch [E (not shown here)], and duplex inverter sensor [F] control duplex feed, see 6.13.2.

Duplex transport sensors 1, 2, 3 [G] detect jams in the paper path.

6.11.5 DUPLEX INTERLEAVE FEED

The number of sheets that can be processed at a time depends on the size of the paper.

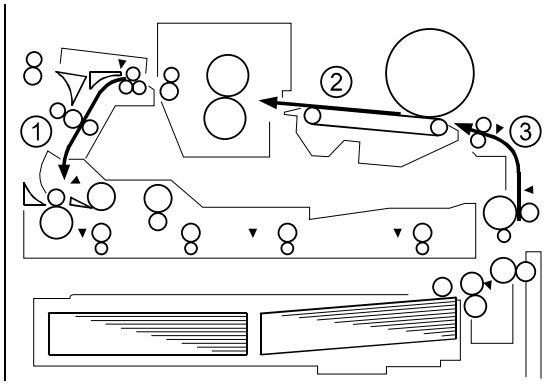
The table below shows the order of page processing for a 14-page job. Odd numbers are the front sides of the pages, even numbers are the back sides.

	Order of Page Processing ➔													
Scanning Order	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A4/LT LEF or smaller *1	1	3	5	2	7	4	9	6	11	8	13	10	12	14
Longer than A4/LT(LEF) *2	1	3	2	5	4	7	6	9	8	11	10	13	12	14

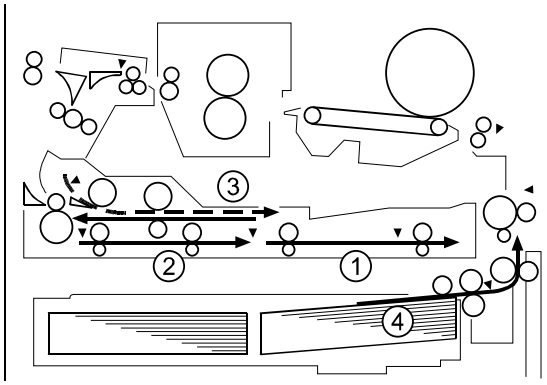
*1: 3 pages can be interleave processed at once.
*2: Only 2 pages can be interleave processed at once.

The following diagrams show where the 7 sheets are located at every step during a 14-page duplex print job with A4/LT LEF paper (three pages can be in the feed path at once).

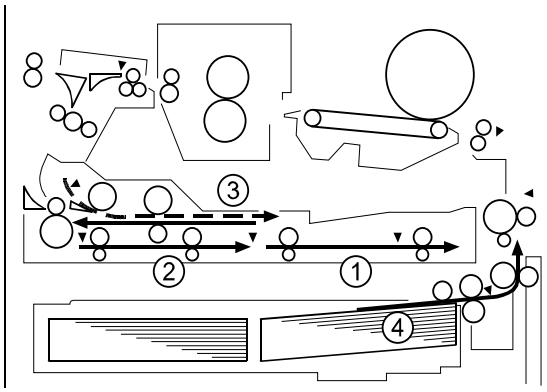
1. First 3 sheets ①②③ fed.
   1) 1st sheet, front page printed (pg. 1)
   2) 2nd sheet, front page printed (pg. 3)
   3) 3rd sheet, front page printed (pg. 5)



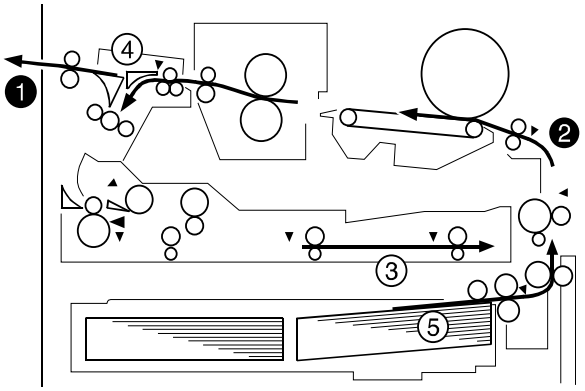
2. 1st, 2nd, 3rd sheet fed to duplex tray and inverter table.
3. 4th sheet feeds.



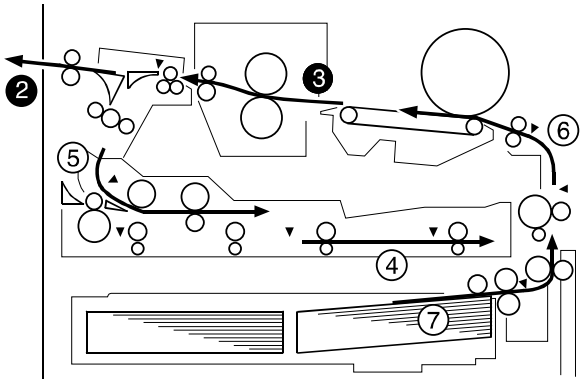
4. 1st sheet, back page printed (pg. 2)



5. 4th sheet feeds, front page printed (pg.7)
6. 1st sheet exits (pp. 1, 2)
7. 4th sheet feeds to duplex tray.
8. 2nd sheet, back page printed (pg. 4)
9. 5th sheet feeds.

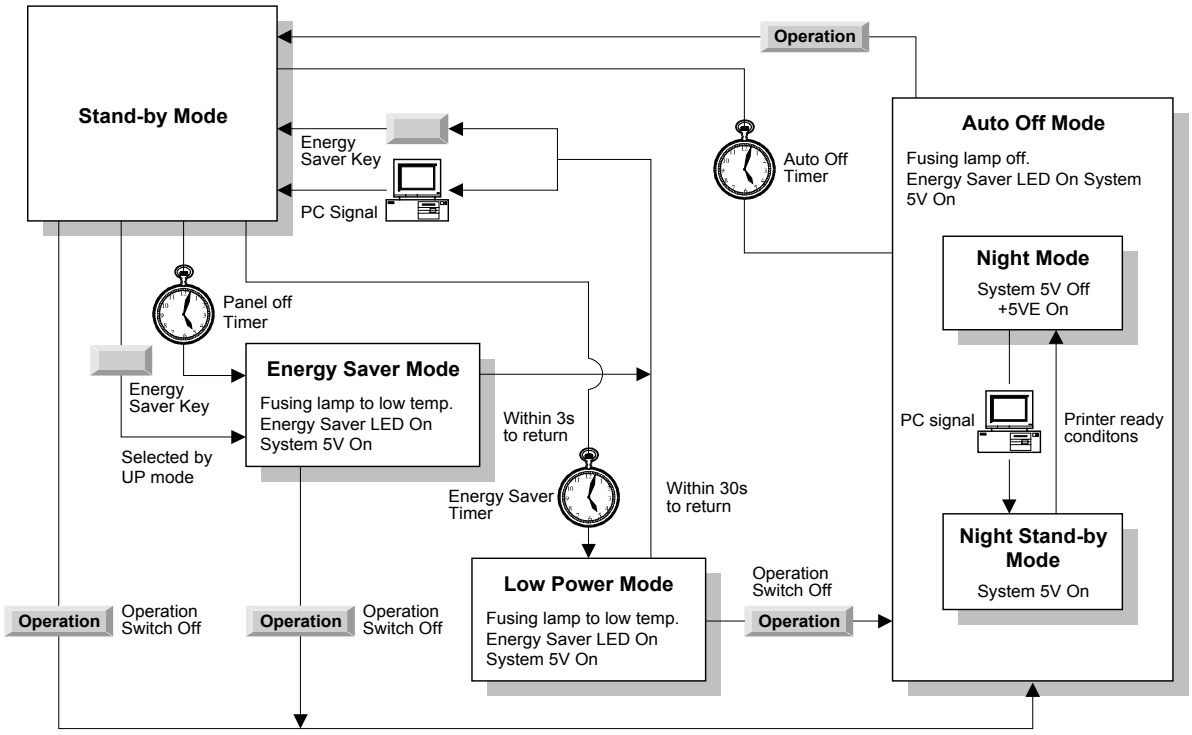


10. 2nd sheet exits.
11. 5th sheet, back page printed (pg. 9), feeds to duplex tray.
12. 3rd sheet, back page printed (pg. 6)
13. 6th sheet, front page printed (pg. 11)
14. 4th sheet, back page, (pg. 8), 7th sheet front page (pg. 13) copied in order, the process above repeats.



6.12 ENERGY SAVER MODES

6.12.1 OVERVIEW



When the machine is not used, the energy saver function reduces power consumption by lowering the fusing temperature.

This machine has four types of energy saver mode as follows.

1) Energy saver mode (called 'panel off mode' in the operation manual)
2) Low power mode (called 'energy saver mode' in the operation manual)
3) Auto off mode (copier configuration only)
4) Night mode (copier/printer/scanner configuration only)

These modes are controlled by the following User Tools:

- Panel off timer
- Energy saver timer
- Auto off timer
- Auto off disabling

The way that the machine operates depends on the combination of installed equipment (copier only, or whether a printer/scanner is installed).

6.12.1 ENERGY SAVER MODE

Entering the energy saver mode

The machine enters energy saver mode when one of the following is done.

- The Energy Saver Key is held down for a second.
- The panel off timer runs out after the last job (User Tools - System Settings - Timer Setting - Panel Off Timer: default setting is 60 s).

What happens in energy saver mode

When the machine enters energy saver mode, the fusing lamp drops to a certain temperature and the operation panel indicators are turned off except for the Energy Saver LED and the Power LED.

If the CPU receives the image print out command from an application (e. g. to print data from a PC), the fusing temperature rises to print the data. However, the operation indicators stay off.

Return to stand-by mode

If one of the following is done, the machine returns to stand-by mode:

- The Energy Saver Mode key is pressed
- An original is placed in the ADF
- The ADF is lifted
- A sheet of paper is placed in the by-pass feed table

Operation Switch	Energy Saver LED	Fusing Temp.	Approx. Recovery Time	System +5V
On	On	182 °C	3 s	On

6.12.2 LOW POWER MODE

Entering the low power mode

The machine enters low power mode when:

The energy saver timer runs out after the last job.
(User Tools - System Settings - Timer Setting - Energy Saver Timer: default setting is 15 min)

What happens in low power mode

The fusing lamp drops to the prescribed temperature, as shown in the table below (the temperature drops more than that in energy saver mode). The other conditions are the same as for the energy saver mode.

Return to stand-by mode

The machine returns to standby mode in the same way as from the energy saver mode.

Operation Switch	Energy Saver LED	Fusing Temp.	Approx. Recovery Time	System +5V
On	On	165 °C	30 s	On

6.12.3 AUTO OFF MODE

Auto off mode is used only if no optional printer/scanner unit is installed.

Entering auto off mode

The machine enters auto off mode when one of the following is done.

- The auto off timer runs out after the last job (User Tools – System Settings – Timer Setting – Auto Off Timer: default setting is 90 min)
- The operation switch is pressed to turn the power off

What happens in auto off mode

When the machine enters auto off mode, the main power switch turns off automatically. The fusing lamp and all dc supplies except +5VE (+5V for energy saver mode) turn off.

Returning to stand-by mode

The machine returns to stand-by mode when the main power switch is turned on.

Operation Switch	Energy Saver LED	Fusing Temp.	Approx. Recovery Time	System +5V	Note
Off	Off	Room Temp. (Fusing lamp off)	300 s	Off	Only +5VE is supplied to the BICU.

Disabling auto off mode

If the user wishes to disable auto off mode, use the following user tool: User Tools – System Settings – AOF (change the setting to 'OFF').

6.12.4 NIGHT MODE

This is used instead of auto off mode when an optional scanner/printer unit is installed.

There are two types of night mode: Night Stand-by Mode and Night Mode. The difference between night stand-by mode and night mode is the machine's condition when the machine enters auto off mode.

Entering night stand-by and night modes

The machine enters the night stand-by mode and night modes when one of the following is done.

- The operation switch is pressed to turn the power off
- The auto off timer runs out (the operation switch is then turned off, but the main power switch stays on)

If the machine is in one or more of the following conditions, the machine enters night stand-by mode. If not, the machine enters night mode.

- Error or SC condition
- Image data is stored in the memory
- An original is in the ADF
- The ADF is open
- Paper is left in the duplex unit or staple tray

What happens in night stand-by and night modes

When the machine enters either of these modes, the fusing lamp and operation switch turn off, and only the main power LED is lit.

Night stand-by mode

The system +5V and +24 V are supplied to all components.

Night mode

The system +5V supply is also turned off. However, +5VE (+5V for energy saver mode) is still activated. When the machine detects a signal from the PC, the machine goes back to night stand-by mode and the system +5V and +24V supplies are activated. Then the machine receives the incoming message and prints it.

Returning to stand-by mode

The machine returns to stand-by mode when the operation switch is pressed. The recovery time is about 45 s.

Mode	Operation Switch	Energy Saver LED	Fusing Temp.	System +5V	Note
Night stand-by mode	Off	Off	Room Temp. (Fusing lamp off)	On	
Night mode	Off	Off	Room Temp. (Fusing lamp off)	Off	Only +5VE is supplied to the printer controller.

SPECIFICATIONS

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

1.1 COPIER

Configuration	Console		
Original	Sheet/Book/Objects		
Original Size	Max. A3/11"x17"		
	Min. B5 SEF/5.5"x8.5" (using ADF)		
Original Alignment	Rear left corner		
Copy Paper Size	Paper tray, Duplex	A3/11"x17" – A5 SEF/5.5"x8.5"	
	By-pass tray	A3/11"x17" – A6 SEF/5.5"x8.5"	
	Non-standard sizes	Width: 100 – 305 mm (3.9"x12") Length: 148 - 432 mm (5.6"x17.0")	
Copy Paper Weight	Paper Tray	52.3 ~ 127.9 g/m^2 (14 ~ 34 lb.)	
	Duplex	64 ~ 127.9 g/m^2 (17 ~ 34 lb.)	
⇒	By-pass	52.3 ~ 157 g/m^2 (14 ~ 34 lb.) (110 lb Index)	
Reproduction Ratios	6 reduction ratios, 5 enlargement ratios	Metric (%)	400, 200, 141, 122, 115, 93, 82, 75, 71, 65, 50
		Inch (%)	400, 200, 155, 129, 121, 93, 85, 78, 73, 65, 50
	Zoom	25 ~ 400% in 1% steps	
Copying Speed	B064	60 cpm (A4/11" x 8.5" LEF)	
	B065	75 cpm (A4/11" x 8.5" LEF)	
First Copy Time	3.5 s (1st Tray, A4/11"x8.5" LEF Face-up mode)		
	5.3 s (1st Tray, A4/11"x8.5" LEF Face-down mode)		
Warm-up Time	Less than 300 s from Off mode		
	Less than 25 s from low power mode		
Continuous Copy	1 ~ 999 (Operation panel entry)		
Paper Capacity	Tray 1	3100 sheets (when used as tandem tray)	
	Tray 2	550 sheets	
	Tray 3	550 sheets	
	By-pass Tray	100 sheets (80 g/m^2, 20 lb.)	
Paper Output	A4/8 1/2"x11" and smaller	500 sheets	
	B4 and larger	250 sheets	
Power Source	North America	120 V/60 Hz 16 A	
	Europe/Asia	220 ~ 240 V/ 50/60 MHz 8 A	
Input voltage level	North America	120 V/60 Hz: more than 20 A	
	Europe	220 ~ 240 V/50-60 Hz: more than 10 A	
Allowed voltage fluctuation	10%		
Dimensions (W x D x H)	690 x 750 x 1165 mm (27.2" x 29.6" x 38.8")		
Weight	Approx. 200 kg (440.9 lb.)		
Resolution	1200 dpi (printing) 600 dpi (scanning)		
Gradation	256 levels (scanning and printing)		
Original Archive	10,000 A4/8 1/2"x11" pages for document server		
Toner Replenishment	Cartridge exchange (1100 g)		
Total Counter	Electric Counter		

1.2 ADF

Original Size	A3/11"x17" – B6/5.5"x8.5"	
⇒ Original Weight	1-sided original	40 ~ 128 g/m^2 (11 ~ 34 lb.)
	2-sided original	52 ~ 128 g/m^2 (14 ~ 34 lb.)
Table Capacity	100 sheets (81.4 g/m^2, 22 lb.) or less than 12 mm (0.4") original stack height	
Original Standard Position	Rear left corner	
Separation	Feed belt and separation roller	
Original Transport	Roller transport	
Original Feed Order	From top original	
Reproduction Range	100%	
Power Source	DC 24 V from the main machine	
Power Consumption	Less than 110 W	
Rated Voltage of Output Connector	Max. DC 24 V	
Permissible voltage fluctuation	±10%	
Dimensions (W x D x H)	680 x 560 x 180 mm (26.8" x 22.0" x 7.1")	
Weight	18 kg (39.6 lb.)	

1.3 POWER CONSUMPTION

B064/B065 Copier (120V Model)

	Mainframe Only	Full System
Warm-up	Approx. 1.20 Kw	Approx. 1.25 kW
Stand-by	Approx. 0.30 kW	Approx. 0.32 kW
Copying	Approx. 1.55 kW	Approx. 1.65 kW
Maximum	Less than 1.60 kW	Less than 1.70 kW

B064/B065 Copier (220V to 240V Model)

	Mainframe Only	Full System
Warm-up	Approx. 1.25 kW	Approx. 1.26 kW
Stand-by	Approx. 0.27 kW	Approx. 0.27 kW
Copying	Approx. 1.60 kW	Approx. 1.60 kW
Maximum	Less than 1.75 kW	Less than 1.75 kW

Noise Emission: Sound Power Level

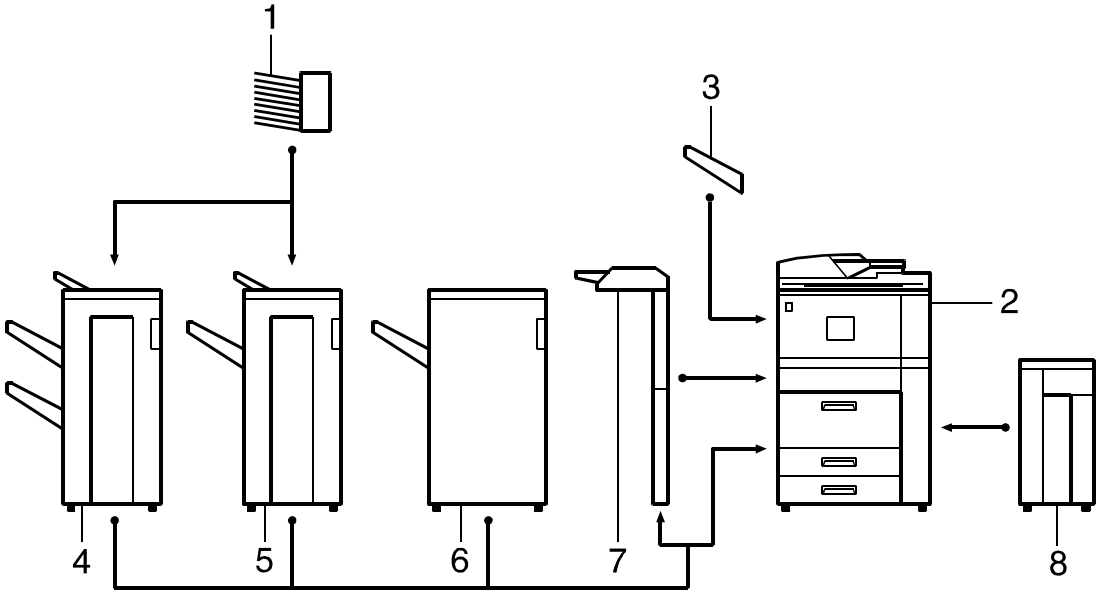
	B064 (60 CPM)	B065 (75 CMP)
Mainframe Only		
Standby	Less than 48dB(A)	Less than 48dB(A)
Copying	Less than 71dB(A)	Less than 71dB(A)
Complete System		
Standby	Less than 49dB(A)	Less than 49dB(A)
Copying	Less than 74dB(A)	Less than 74dB(A)

Noise Emission: Sound Pressure Level

	B064 (60 CPM)	B065 (75 CMP)
Mainframe Only		
Standby	Less than 38dB(A)	Less than 38dB(A)
Copying	Less than 57dB(A)	Less than 57dB(A)
Complete System		
Standby	Less than 39dB(A)	Less than 39dB(A)
Copying	Less than 64dB(A)	Less than 64dB(A)

NOTE: The above measurements were made in accordance with ISO 7779. Full system measurements include the Finisher, LCT, and Mailbox. In the above stand-by condition, the polygon mirror motor is not rotating.

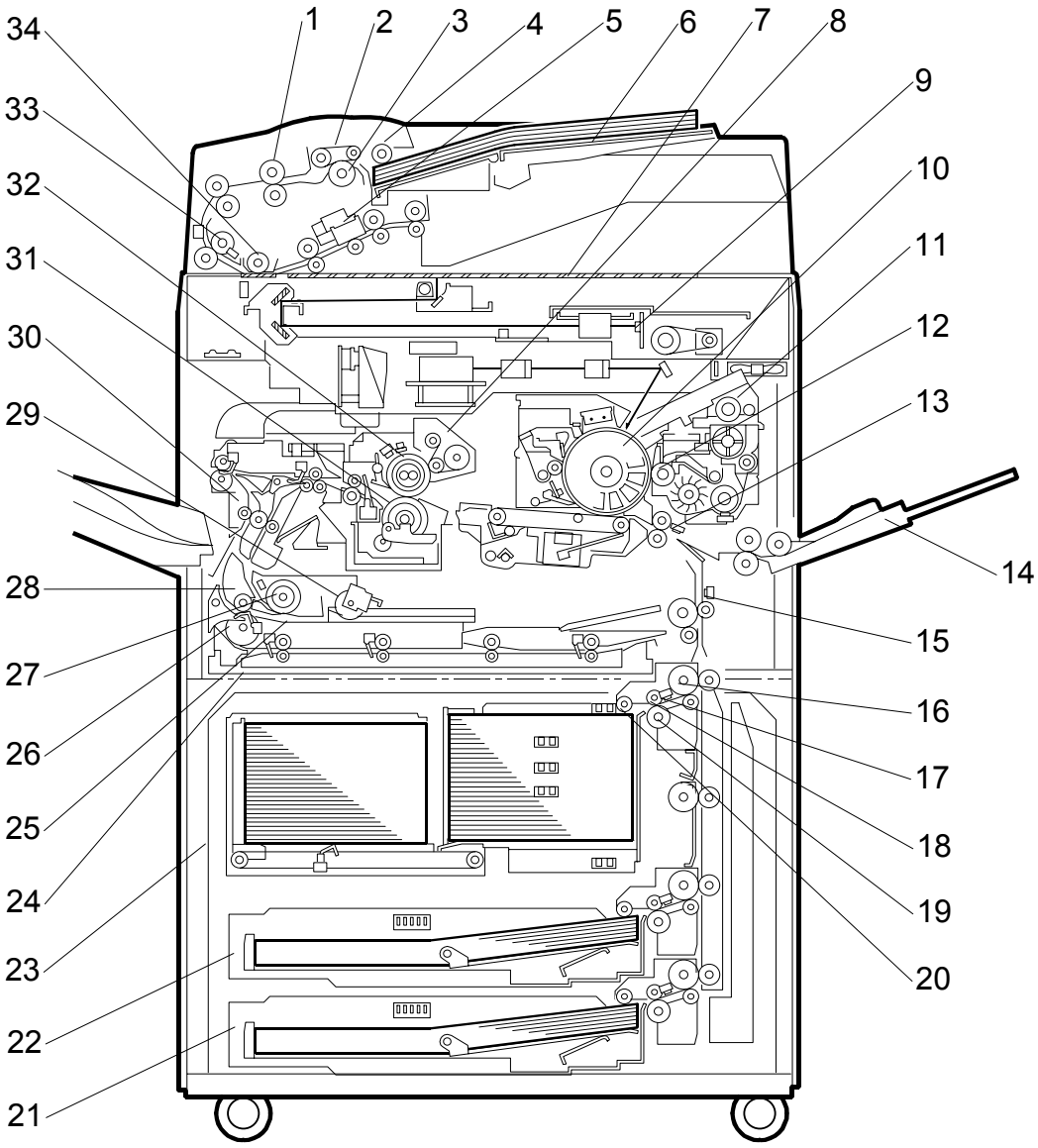
2. MACHINE CONFIGURATION



Item	Machine code	Letter
Mainframe	B064/B065	2
A3/DLT Kit	B475	Inside mainframe
Tab Sheet Kit	B499	
LCT (Large Capacity Tray)	B473	8
LG/B4 Kit	B474	Inside LCT
Copy Tray	B476	3
Cover Interposer Tray	B470	7
9-Bin Mailbox	B471	1
Finisher with saddle-stitching and 50-sheet stapler	B468	4
Finisher with 50-sheet stapler	B469	5
Punch Unit for 50-staple Finisher	B377	Inside Finisher No. 4 or 5
Finisher with 100-sheet stapler	B478	6
Punch Unit for 100-staple Finisher	B531	Inside Finisher No. 6
Jogger Unit	B513	Inside Finisher No. 6

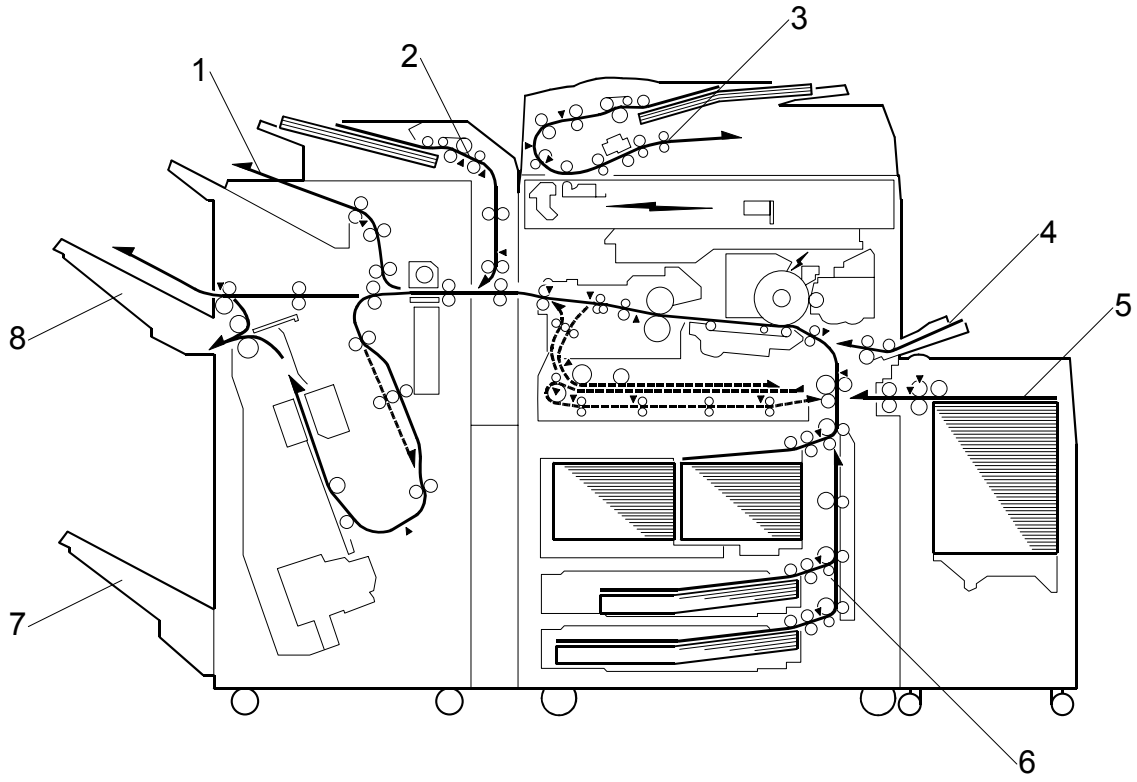
2.1 COMPONENT LAYOUT

2.1.1 COPIER ENGINE



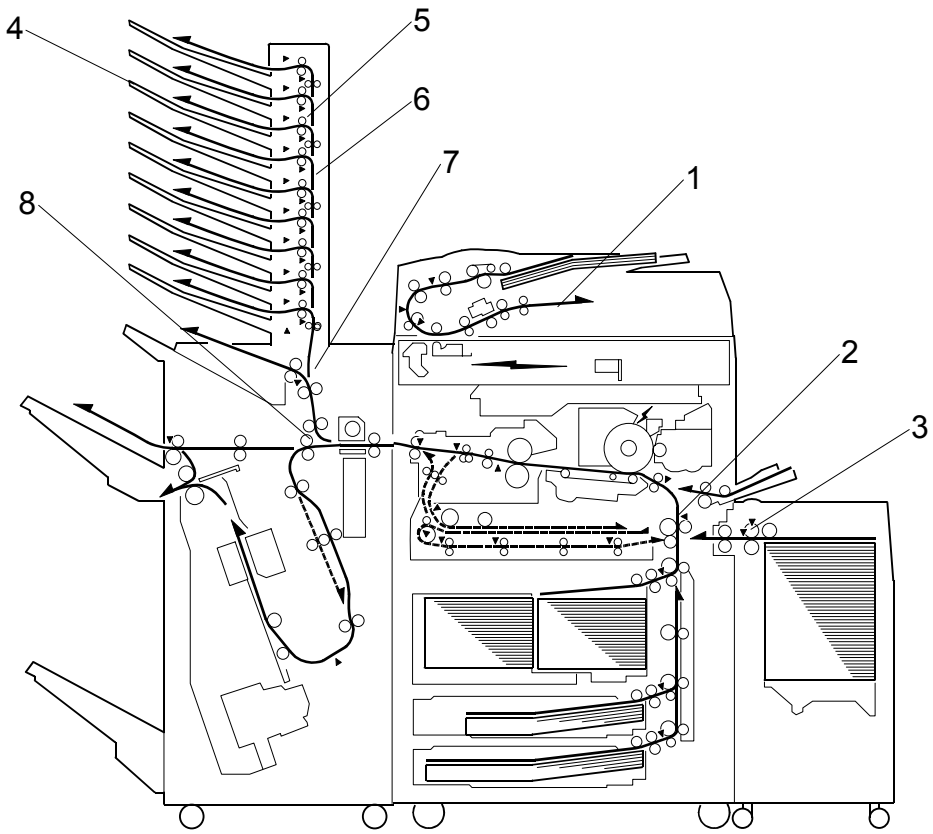
1. Entrance Roller (ADF)
2. Feed Belt (ADF)
3. Separation Roller (ADF)
4. Pick-up Roller (ADF)
5. CIS (Contact Image Sensor)
6. Original Feed-in Tray
7. Exposure Glass
8. Fusing Unit
9. CCD
10. OPC Drum
11. Development Unit
12. Development Roller
13. Registration Sensor
14. By-pass Tray
15. Relay Sensor
16. Grip Roller
17. Feed Sensor (Paper Tray)
18. Feed Roller (Paper Tray)
19. Separation Roller (Paper Tray)
20. Pick-up Roller (Paper Tray)
21. Universal Tray (Tray 3)
22. Universal Tray (Tray 2)
23. Tandem Tray (Tray 1)
24. Duplex Unit
25. Inverter
26. Inverter Exit Roller
27. Inverter Entrance Roller
28. Duplex Junction Gate
29. Reverse Trigger Roller
30. Exit Unit
31. Pressure Roller
32. Hot Roller
33. Scanning (ADF)
34. Exposure (ADF)

2.1.2 PAPER PATH (WITH COVER INTERPOSER TRAY)



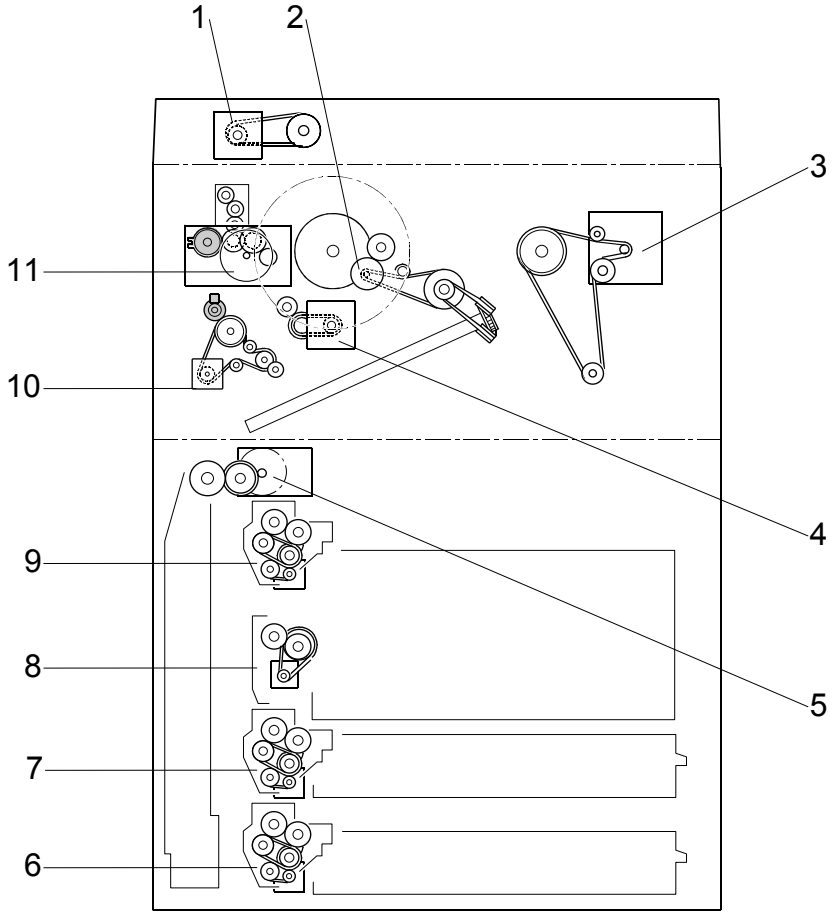
1. Proof Exit Tray
2. Cover Sheet Path
3. Original Path
4. By-pass Tray
5. LCT Feed
6. Vertical Transport Path
7. Finisher Exit Tray 2
8. Finisher Exit Tray 1

2.1.3 PAPER PATH (WITH 9-BIN MAILBOX)



1. Original Paper Path
2. Vertical Transport Path
3. LCT Feed
4. Selected Trays
5. Turn Gates
6. Mailbox Paper Path
7. Junction Gate (paper goes either up to the mailbox or out to the finisher's proof tray)
8. Junction Gates (two junction gates control the paper path inside the finisher)

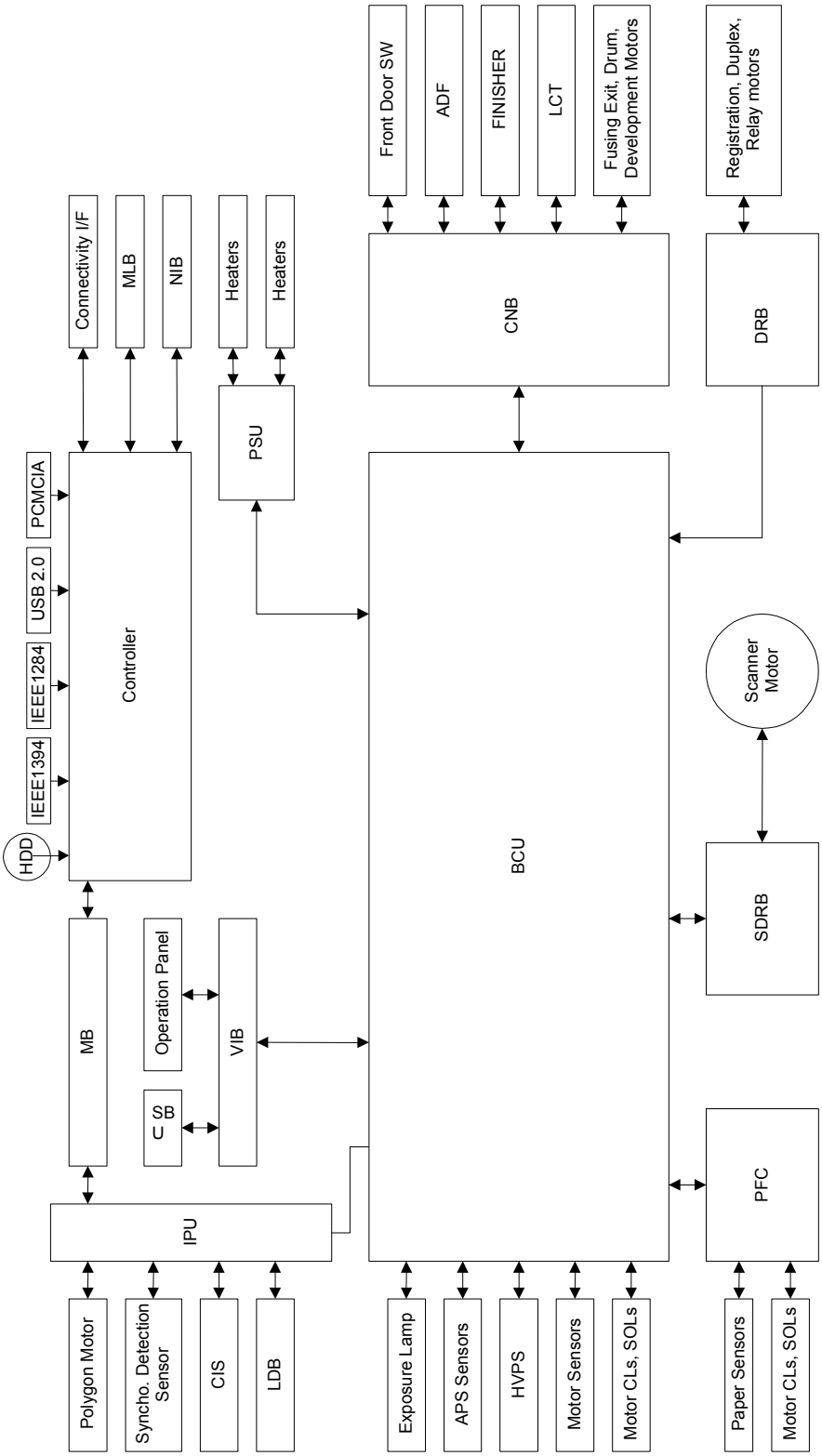
2.1.4 DRIVE LAYOUT



1. Scanner Motor
2. Drum Motor
3. Fusing/Exit Motor
4. Registration Motor
5. Toner Collection Motor
6. Paper Feed Motor 3
7. Paper Feed Motor 2
8. Lower Relay Motor
9. Paper Feed Motor 1
10. By-pass Motor
11. Development Motor

2.2 BOARD STRUCTURE

2.2.1 BLOCK DIAGRAM



2.2.2 COMPONENT DESCRIPTIONS

This machine employs Ricoh GW (Grand Work) architecture.

Here is a summary of the main parts of the board structure.

2.2.2.1 BCU (Base Engine Control Unit)

This is the main control board that controls engine sequence, timing for peripherals, image processing, and the video data path.

2.2.2.1.1 BCU Base Board DIP SW101

No.	Function	On/Off	Comment	
1	Not used	OFF		
2	Not used	OFF		
3	Design/Factory Use Only	OFF		
4	Not used	OFF		
5	Not used	OFF		
6	Local	OFF	Japan	6,7,8: OFF, OFF, OFF
7	Local	OFF	115 V	6,7,8: ON, OFF, OFF
8	Local	OFF	220/240V	6,7,8: OFF, ON, OFF

2.2.2.2 Controller Board

The controller controls all devices for memory DIMMs, HDD, copying, printing, scanning, etc. In order to add an option (printer, scanner, FireWire, wireless LAN, etc.), install the appropriate ROM DIMM on the controller board.

NOTE: 1) The Controller is on the front side of the swing out circuit board unit, with the IPU on the back side.
2) All Controller DIP SWs should be OFF during normal operation.

NOTE: 1) The Controller also contains 128 MB of standard SDRAM used to support option operation.
2) Additional ram may be installed (128 or 256 MB SDRAM modules) as required by the options selected. See G338/G339 Scanner Unit/Printer Unit section, 1.2.1 Controller Board Layout; for placement of optional memory.

2.2.2.3 MB (Mother Board)

Interfaces the Controller, BICU, and optional devices such as key counters.

2.2.2.4 IPU (Image Processing Unit)

Processes images scanned by the CIS and SBU.

All IPU Board DIP switches should be set to OFF.

2.2.2.4.1 IPU Board DIP SW 102

No.	Function	On\OFF	Comment
1	DFU	OFF	
2	DFU	OFF	
3	DFU	OFF	
4	DFU	OFF	

DFU: Design, Factory Use only. Do not change these settings.

NOTE: The IPU is on the back side of the swing out circuit board unit.

2.2.2.5 `SBU (Sensor Board Unit)

The SBU receives analog signals from the CCD and converts these into digital signals used for image processing.

2.2.2.6 PFC (Paper Feed Control)

Controls the paper feed trays built into the main machine. The PFC contains an independent CPU.

2.2.2.7 SDRB (Scanner Driver Board)

Located behind the BCU, drives the scanner and ADF motors and exposure lamp, monitors the scanner HP sensor and the ADF components.

2.2.2.8 VIB (Video Interface Board)

Located under the exposure glass, interfaces the BCU and IPU with the operation panel and SBU.

2.2.2.9 DRB (Drive Board)

Drives the duplex stepper motors (x2), the registration motor, and lower relay motor.

2.2.2.10 CNB (Connection Board)

Relays signals for the ADF, finishers, LCT, fusing exit, drum motor, development motor, and front cover switches.

2.2.2.11 HDD (Hard Disk Drive)

The HDD has a capacity of 40 GB for image storage. It can store up to approximately 1,735 copy images, based on the ITU-T No. 4 Chart.

Area	Power Off	Capacity	Control		Comment
For image storage	Store	37124 MB	Copy conversion 1735		Copy server, local storage
For temporary images	Delete		Copy Allocated copies Printer Scanner	500 100 200 500	Electronic sort, test printing, confidential printing
FileSystem1	Store	500 MB			Print font download, form registration
FileSystem2	Delete	500 MB	50 jobs		Job spooling area
FileSystem3	Store	2000 MB			Work data of SmartNet Monitor for ADMIN.
FileSystem4	Store	2 MB			Area for storing email addresses
Other	Store	174 MB			For debugging

An SC is logged if the HDD is abnormal or cannot be detected. After pressing a key to affirm that you have read the message, the machine shuts down partially but can still be used. However, some features may not be available.

Note the following important points regarding HDD replacement:

- Replacing the HDD loses all document server documents, and user stamps.
- When the HDD is replaced, the print data (user stamps) must be re-installed, so bring an IC card holding the print data so it can be downloaded.
- The “Scan to Email” addresses are also lost by HDD replacement. However, addresses can be backed up SmartNetMonitor.

2.3 OPTIONAL EQUIPMENT

2.3.1 A3/DLT KIT B475

Paper Size	A3, B4, 11"x17", 8 1/2"x14", A4 SEF, A4 LEF, 8 1/2"x11" SEF, 11"x8 1/2" LEF
Paper Weight	52 ~ 163 g/m^2 16 ~ 40 lb. Bond 50 ~ 60 lb. Cover 90 lb. Index (no Tab)
Tray Capacity	1,000 sheets (80 g/m^2, 20lb)

2.3.2 LCT (LARGE CAPACITY TRAY) B473

Paper capacity	4,000 sheets3
Paper Sizes	A4 LEF, B5 LEF, 8 1/2"x11" LEF[*1]
⇒ Paper Weight	52 ~ 128 g/m^2 (14 ~ 34 lb Bond)
Pick-up and Feed	FRR (Feed and Reverse Roller)
Power Consumption	Less than 50 W (Max.)
Power Supply	DC24 V, 5V (powered by the main unit)
Rated Voltage of Output Connector	Max. DC 24 V
Dimensions (W x D x H)	314 x 458 x 659 mm (12.4" x 18.1" x 25.9")
Weight	20.0 kg (44 lb.)

[*1]: In platen mode, APS (Auto Paper Select) with the original length and original width sensors are not used.

2.3.3 3000-SHEET FINISHER WITH SADDLE-STITCH AND 50-SHEET STAPLER B468

UPPER TRAY

Tray Capacity (80 g/m^2)	Unstapled	500 sheets (A4, A5 LEF, B5, 8 1/2"x11") 250 sheets (A3, B4, 12"x18", 11"x17") 100 sheets (A5 SEF, A6 SEF, B6 SEF, 5 1/2"x8 1/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	500 sheets	A4 LEF, 8 1/2"x11" LEF
		25 docs.	250 sheets	A3, A4 SEF, B4, B5, 12"x18", 11"x17", 8 1/2"x11"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 5 1/2"x8 1/2"		
⇒ Paper Weight		52 g/m^2 ~ 216 g/m^2 (110 lb Index)		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF (Max: 16 docs, Max sheets: 30 sheets or less)		

LOWER TRAY

Tray Capacity (80 g/m^2)	Unstapled	2,500 sheets (A4 LEF, 8 1/2"x11" LEF) 500 sheets (A5 LEF) 100 sheets (A5 SEF, A6 SEF, B6 SEF, 5 1/2"x8 1/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	2,500 sheets	A4 LEF, 8 1/2"x11" LEF
		50 docs.	1,250 sheets	A4 SEF, B5, 8 1/2"x11" SEF
		30 docs.	1,250 sheets	A3, B4, 12"x18", 11"x17"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 5 1/2"x8 1/2"		
Paper Weight		52 g/m^2 ~ 216 g/m^2 (110 lb Index)		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF (Max: 50 docs, Max sheets: 30 sheets or less)		

LOWER TRAY (Saddle Stitch Mode)

Binding Capacity (80 g/m^2)	15 sheets		
Paper Size	A3, B4, A4 SEF, 11"x17", 8 1/2"x11" SEF		
Paper Weight	64 g/m^2 ~ 90 g/m^2		
Stapling Position	Center, 2 locations		
Staple Capacity	2,000 staples/Cartridge		
Fold Position	Center, half-folding		
Saddle-Stitch Capacity	Max docs.	Total sheets	Size
	25 docs.	2 ~ 5 sheets	A4 SEF, 8 1/2"x11" SEF
	15 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	
	30 docs.	2 ~ 5 sheets	A3, B4, 11"x17"
	20 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	

PROOF TRAY

Tray Capacity	250 sheets (A4, 8 1/2"x11" or smaller) 50 sheets (B4, 8 1/2"x14" or larger)
Paper Weight	52 g/m^2 ~ 216 g/m^2 (90 lb Index)

STAPLE SPECIFICATIONS

Binding Capacity (80 g/m^2)	Same Size	50 sheets (A4, 8 1/2"x11" or smaller) 30 sheets (B4, 8 1/2"x14" or larger)
	Mixed Size	30 sheets (A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF)
Paper Size		A3-B5, 11"x17" ~ 8 1/2"x11"
Paper Weight		64 g/m^2 ~ 90 g/m^2
Stapling Position		Front (1), Back (1), Back (1: diagonal), Duplex Binding
Stapling Capacity		5,000 staples/Cartridge

2.3.4 3000-SHEET FINISHER WITH 50-SHEET STAPLER B469

UPPER TRAY

Tray Capacity (80 g/m^2)	Unstapled	3,000 sheets (A4 LEF, 81/2"x11" LEF) 1,500 sheets (A3, A4 SEF, B4, B5, 12"x18", 11"x17", 81/2"x14", 81/2"x11" SEF) 500 sheets (A5 LEF) 100 sheets (A5 SEF, A6 SEF, B6 SEF, 51/2"x81/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	3,000 sheets	A4 LEF, 8$^1/_2$"x11" LEF
		50 docs.	1,500 sheets	A4 SEF, B5, 8$^1/_2$"x11" SEF
		30 docs.	1,500 sheets	A3, B4, 12"x18", 11"x17"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 5$^1/_2$"x8$^1/_2$"		
Paper Weight		52 g/m^2 ~ 216 g/m^2		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8$^1/_2$"x11" LEF (Max: 50 docs, Max sheets: 30 sheets or less)		

PROOF TRAY

	Tray Capacity	250 sheets (A4, 8$^1/_2$"x11" or smaller) 50 sheets (B4, 8$^1/_2$"x14" or larger)
⇒	Paper Weight	52 g/m^2 ~ 216 g/m^2 (90 lb Index)

STAPLE SPECIFICATIONS

Binding Capacity (80 g/m^2)	Same Size	50 sheets (A4, 8$^1/_2$"x11" or smaller) 30 sheets (B4, 8$^1/_2$"x14" or larger)
	Mixed Size	30 sheets (A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8$^1/_2$"x11" LEF)
Paper Size		A3 ~ B5, 11"x17" ~ 8$^1/_2$"x11"
Paper Weight		64 g/m^2 ~ 90 g/m^2
Stapling Position		Front (1), Back (1), Back (1: diagonal), Duplex Binding
Stapling Capacity		5,000 staples/Cartridge

2.3.5 PUNCH UNIT FOR B468/B469

Punch Specifications			
Punch Position	North America (NA)		2/3 holes
	Europe (E)		2/4 holes
	Northern Europe (NE)		4 holes
Punching Allowed	All modes		
Allowed Paper Sizes	Holes	Feed	Paper Size
	2 holes (E)	SEF	A3 ~ A5, 11" x 17" ~ 5 1/2" x 8 1/2"
		LEF	A4 ~ A5, 8 1/2" x 11", 5 1/2" x 8 1/2"
	2 holes (NA)	SEF	A3 ~ A5, 11" x 17" ~ 5 1/2" x 8 1/2"
		LEF	A4 ~ A5, 8 1/2" x 11", 5 1/2" x 8 1/2"
	3 holes (NA)	SEF	A3, B4, 11" x 17"
		LEF	A4, B5, 8 1/2" x 11"
	4 holes (E)	SEF	A3, B4, 8 1/2" x 11"
		LEF	A4, B5, 8 1/2" x 11"
	4 holes (NE)	SEF	A3 ~ A5, 11" x 17" ~ 5 1/2" x 8 1/2"
		LEF	A3 ~ A5, 8 1/2" x 11", 5 1/2" x 8 1/2"
Allowed Paper Weight	Holes	Weight	
	2 holes	52 ~ 163 g/m^2 (14 ~ 43 lb.) (40 lb Bond, 90 lb Index)	
	3 holes		
	4 holes (E)		
	4 holes (NE)		
	2 holes (NA)		
Hopper Capacity	North America (2/3 hole)		More than 60 K prints
	Europe, Europe (4 holes)		More than 80 K prints
Rated Voltage of Output Connector	Max. DC 24 V		
Dimensions (W x D x H)	700 x 620 x 960 mm (27.6" x 24.4" x 37.8")		
Weight	Approx. 65 kg (143 lb.) (with punch unit)		
Power Consumption	72 W (3 A/24 V)		
Power Supply	DC 24 V		

2.3.6 COVER INTERPOSER TRAY B470

Configuration	Attached to 3000-sheet finisher B468, B469, and B478.
Paper Separation	FRR system with feed belt.
Paper Transport	Feed from top tray via vertical roller transport to finisher.
Paper Sizes	A3 ~ A5, 11" x 17" ~ 5 1/2" x 8 1/2"
Paper Weight	64 ~ 216 g/m^2
Capacity	200 sheets (80 g/m^2)
Paper Set Detection	Provided
Power Supply (from main machine)	24 V ±10%, 5 V ±5%
Power Consumption	Less than 48 W
Dimensions (W x D x H)	500 x 620 x 138 mm (19.7" x 24.4" x 5.4")
Weight	12 kg (26.4 lb.)

2.3.6.1 Cover Interposer Tray B470 Paper Sizes

This is a list of the paper sizes that can be detected automatically by the cover interposer tray.

	North America	Europe/Asia
A3 SEF		
B4 SEF	Displays 10" x 14" *1	
A4 SEF		
A4 LEF		
B5 SEF	Displays “US Exec.” *1	
B5 LEF		
A5 SEF	Displays “HLT SEF” *1	
A5 LEF	Displays “HLT LEF” *1	
11" x 17"		Displays “8K LEF” *2
8 1/2"x14"		Displays “F4 SEF” *2
8 1/2"x13"		
8 1/2"x11"		Displays “16 K SEF” *2
11"x8 1/2"		Displays “16 K LEF” *2
8"x10"		
10"x14"		
5 1/2"x8 1/2"		
8 1/2"x5 1/2"		
7 1/2"x10 1/2"		
10 1/2"x7 1/2"		
8 K SEF		
16 K SEF		
16 K LEF		

*1: The paper size is detected but the paper size is displayed incorrectly. The display cannot be corrected.

*2: The paper size is detected. The paper size is displayed incorrectly but the display can be corrected with SP5959 006 (Paper Size – Cover Sheet). For details, refer to the Cover Interposer Tray manual, section “Paper Size Detection”.

2.3.7 9-BIN MAILBOX B471

Bin Capacity	100 sheets per bin (80 g/m^2)
Allowed Paper Sizes	A3 ~ A5 11" x 17" ~ 5 1/2" x 8 1/2"
Allowed Paper Thickness	52 ~ 128 g/m^2
Power Consumption	Less than 48W (average)
Power Supply	DC 24 V, 5 V
Dimensions (W x D x H)	480 x 600 x 660 mm (18.9 x 23.6 x 26)
Weight	15 kg (33 lb.)

3. COMPONENT LISTS

MAIN COPIER

Sensors

Original Set Sensor (ADF)	Detects when an original has been placed in the ADF
ADF Original Length Sensors (x3) – B5, A4, LG	Detects the length of the original in the ADF
ADF Original Width Sensors (x4)	Detects the width of the original in the ADF
Entrance Sensor (ADF)	Controls timing for skew correction at the entrance roller; detects jams in the ADF
Delay Sensor (ADF)	Controls timing for skew correction at the scanning and exposure rollers, and for feed speed reduction; detects jams in the ADF
Registration Sensor (ADF)	Controls timing for peak level detection; detects jams in the ADF
Exit Sensor (ADF)	Detects jams in the ADF
Pick-up Roller HP Sensor (ADF)	Detects when the pick-up roller is lifted away from the stack
Feed Cover Sensor (ADF)	
Bottom Plate Sensor (ADF)	
Bottom Plate HP Sensor (ADF)	
ADF Position Sensor	Detects whether the ADF is open or closed
APS Start Sensor	Detects when the ADF is closed, and triggers auto paper size detection
Scanner HP Sensor	Detects when the scanner is at home position
Scanner Original Length Sensor (x1)	Detects the length of the original in the scanner
Scanner Original Width Sensors (x3)	Detects the width of the original in the scanner
Laser Synchronization Detector	Detects when the laser is about to start another main scan line across the OPC
TD Sensor	Detects the density of the developer/toner mixture
Toner End Sensor	detects when it is time to add a new toner cartridge
ID Sensor	Detects the image density of various sensor patterns made on the drum during process control
Drum Potential Sensor	Detects drum potential during process control
Waste Toner Blockage Sensor	Detects when the toner collection motor cannot turn, because a collection coil is blocked with waste toner
Paper Size Switches (Trays 2 and 3)	Dial and microswitch mechanism. The user turns the dial until the correct paper size is indicated
Lift Sensors (x3)	Detect when the top of the paper stack is at the correct height for paper feed; one for each feed station
Paper Feed Sensors (x3)	Detect paper being fed in from the paper tray; one for each feed station

Vertical Transport Sensors (x3)	Monitor paper feed up from the paper trays
Relay Sensor	Detects paper at the upper relay roller
Registration Sensor	Detects paper at the registration roller
Guide Plate Sensor	Detects when the guide plate below the registration area has opened to divert paper into the duplex tray.
By-pass Size Sensor	Detects the width of paper in the by-pass tray; connected to the side fences (the registration sensor measures the length)
By-pass Paper End Sensor	Detects when there is no paper in the by-pass tray
Paper End Sensors (x3)	Detects when there is no paper in the tray; one for each feed station
Tandem Tray Side Fence Open Sensor (x2)	Detects when the side fence in the right tray is open, before the stack is moved across from the left. There are two side fences – one at the front of the machine and one at the rear
Tandem Tray Side Fence Closed Sensor (x2)	Detects when the side fence in the right tray is closed. Two side fences: one at the front and one at the rear
Tandem Tray Paper End Sensor (Left Tray)	Detects when there is no paper in the left side of the tray. The user can then pull out the left tray and load more paper.
Tandem Tray Paper End Sensor (Right Tray)	Detects when there is no paper in the right tray. Used just after the tray is put back in the machine to check if paper is present before lifting the tray to the paper feed position.
Tandem Tray Rear Fence HP Sensor	Detects when the rear fence is at home position. The rear fence pushes the paper stack from the left tray to the right tray.
Tandem Tray Rear Fence Return Sensor	Detects when the rear fence is at the return position (this is when the rear fence has just pushed the stack all the way across from left to right, and must now go back to home position)
Tandem Tray Down Sensor	Detects when the right tray is all the way down to its lowest position
Tandem Tray Paper Height Sensors (x3)	Detect the amount of paper remaining in the right tray
Tandem Tray Paper Near-end Sensor Web End Sensor	Detect when paper in the right tray has almost been used up Detects when the hot roller cleaning web has been used up
Feed-out Entrance Sensor	Detects paper leaving the fusing unit and entering the exit section
Feed-out Exit Sensor	Detects paper leaving the machine
Duplex Entrance Sensor	Detects paper entering the duplex unit
Duplex Transport Sensors 1, 2, 3	Monitor paper feed in the duplex unit

Jogger HP Sensor	Detects when the joggers in the duplex unit are at home position
Duplex Inverter Exit Sensor	Detects paper leaving the inverter

Switches

Paper Tray Front Switch	
Front Door Switch	

PCBs

BCU (Base Engine Control Unit)	Main control board: Controls engine sequence, timing for peripherals, image processing, and the video data path
Controller Board	Controls all memory and firmware devices
SBU (Sensor Board Unit)	Controls the CCD
VIB (Video Interface Board)	Interfaces the BCU and IPU with the SBU
IPU (Image Processing Unit)	Processes images from the CCD and CIS.
SDRB (Scanner Drive Board)	Controls the scanner mechanisms
DRB (Drive Board)	Drives the duplex inverter and transport motors, registration motor, and lower relay motor
PFC (Paper Feed Control)	Controls the built-in paper feed trays
LD Unit	Contains the laser diodes
LDB (Laser Drive Board)	Drives LD unit
LCDC	See op panel
CNB (Connection Board)	Relays signals from remote parts of the machine to the main circuit boards
MB (Mother Board)	Interfaces the controller and BCU with other components
HDD (Hard Disk Drive)	40GB for image storage
PSU (Power Supply Unit)	Supplies DC to the machine and controls the anti-condensation heaters
Charge/Grid Power Pack	
Development Power Pack	
Transfer Power Pack	
Lamp Regulator	Controls the xenon exposure lamp
ADF Main Board	
Inverter Board (ADF)	

Motors

Pick-up Roller Lift Motor (ADF)	Lifts and lowers the pick-up roller in the ADF
Feed Motor (ADF)	
Bottom Plate Motor (ADF)	Lifts and lowers the bottom plate in the ADF

Exit Motor (ADF)	
Transport Motor (ADF)	
Scanner Motor	Drives the scanner
Drum Motor	Drives the drum, drum cleaning unit, transfer belt
Development Motor	Development unit, toner supply unit, toner separation unit, and the first waste toner transport coil leading from the toner separation unit
Polygon Motor	Drives the polygon mirror in the laser optics unit
Paper Feed Motors (x3)	Drives the paper feed and pick-up roller in the paper trays; one motor for each feed station
Paper Lift Motors (x3)	Lifts the paper stack to the correct height for paper feed ; one motor for each feed station
Lower Relay Motor	Drives the lower relay roller (between tray 1 and tray 2)
By-pass Tray Motor	Drives the by-pass feed rollers, and the upper relay roller
Registration Motor	Drives the registration roller; there is no clutch
Fusing/Exit Motor	Drives the fusing unit, exit rollers, and duplex inverter entrance roller
Tandem Tray Side Fence Motor	
Tandem Tray Rear Fence Motor	Drives the rear fence in the tandem tray
Charge Wire Cleaning Motor	Drives the corona wire cleaning pads
Toner Bottle Motor	Turns the toner bottle
Toner Collection Motor	Drives most of the toner collection coils, except the first one leading from the toner separation unit
Web Motor	Drives the hot roller cleaning web
Duplex Inverter Motor	Drives the inverter exit roller, the first two duplex transport rollers, and the reverse trigger roller
Duplex Transport Motor	Drives the second pair of duplex transport rollers
Jogger Motor	

Clutches

By-pass Feed Clutch	Transfers drive from the by-pass motor to the feed roller
Duplex Transport Clutch	Stops paper in the duplex unit when required by feed timing in the interleaving process

Solenoids

By-pass Pick-up Solenoid	Drops the pick-up roller onto the top of the stack of paper
Pick-up Solenoids (x3)	Drops the pick-up roller onto the top of the stack of paper; one for each paper feed station

Separation Roller Release Solenoids (x3)	Moves the separation roller into contact with the feed roller; one for each paper feed station
Tandem Tray Side Fence Solenoids (Front/Rear)	Opens the side fences in the right tray so that the stack can be moved across from the left
Tandem Tray Connection Solenoid	Releases the left half of the tandem tray, so that a stack of paper can be added, even while paper is being fed from the right tray
Left Tandem Tray Lock Solenoid	Locks the left tray when the stack is being moved from left to right
Guide Plate Solenoid	Drops the guide plate just before the registration roller if there is a jam between the vertical transport section and the registration roller; the plate diverts the next sheet of paper to the duplex tray, to prevent a pile up
Transfer Belt Lift Solenoid	Moves the transfer belt into contact and away from the drum
Exit Junction Gate Solenoid	Diverts paper either down to the duplex/inverter unit, or out to the copy tray or finisher
Duplex Reverse Roller Solenoid	Drops the reverse trigger roller onto the paper to start feeding it out of the inverter
Duplex Junction Gate Solenoid	After inversion, this diverts paper either out of the machine (face-down output) or through the duplex tray for duplex printing

Others

Toner Bottle Cooling Fan	
Development Unit Cooling Fans (x2)	
PCB Fans (x2)	
Main Exhaust Fan	
Main Intake Fan	
OPC Drum Cooling Fan	
Duplex Unit Fan	
Toner Bottle Cooling Fan	
Scanner Heater (option)	
Drum Heater	
Anti-Condensation Heater	
Exposure Lamp	
CIS (Contact Image Sensor)	This is in the ADF
Quenching Lamp	
Fusing Lamps (x2)	These are identical.

Thermistor (centre)	Used for fusing temperature control
Thermistor (end)	Used for overheat prevention inside the fusing unit
Thermofuse	
Mechanical Counter	

MAILBOX

Motors

Main Motor	Drives all the rollers that feed paper to the 9 bins.

Sensors

Bin Sensors (1 – 9)	Detect the presence of paper in each bin.
Overflow Sensors (1 – 9)	Detect paper overflow in each bin.
Vertical Transport Sensors (1 – 5)	Detects misfeeds in the vertical transport path between bins

Switches

Door Switch	Detects whether door is open or closed. When open, allows paper to enter from the main machine.

Solenoids

Entrance Gate Solenoid	Opens and closes the junction gate to send paper to the mailbox (open) or to the output tray (closed).
Turn Gate Solenoids (1 – 8)	Open and close the turn gates to direct the paper to the correct bin

PCBs

Control Board	Controls the mailbox

LARGE CAPACITY TRAY

Motors

Feed Motor	Drives the pick-up, feed, and transport rollers
Tray Motor	Controls the tray height

Sensors

Lift Sensor	Detects when the top of the stack is at the correct height for paper feed
Paper Feed Sensor	Monitors the feed path out of the LCT
Paper Height Sensors (1 – 3)	Monitor the amount of paper remaining in the LCT
Near End Sensor	Detects when paper has almost run out
Paper End Sensor	Detects paper end
Stack Sensor	Detects the top of the stack – used in conjunction with the tray down button when loading up the tray with paper
Lower Limit Sensor	Detects when the tray is at its lowest possible position

Switches

Tray Down Button	The user presses this to add paper to the tray
Transport Cover Switch	Detects when the cover is open
Upper Cover Switches 1, 2	Detects when the cover is open

Solenoids

Pick-up Solenoid	Transfers drive from the feed motor to the pick-up and feed rollers.

PCBs

LCT Main Board	Controls the LCT

COVER INTERPOSER

Sensors

Pick-up Roller Position Sensor	Detects when the top of the stack is at the correct height for paper feed. May have problems with part name in SM
Bottom Plate HP Sensor	Detects when the bottom plate is at home position
Paper Set Sensor	Detects when paper has been inserted into the tray
Paper Width Sensors 1, 2, 3	???? we have sp 5959
Paper Length Sensors 1, 2, 3	????
Paper Feed Sensor	Monitors paper feed into the unit
Grip Sensor	Monitors paper feed through the unit
Exit Sensor	Monitors paper feed out of the unit
Near End Sensor	Detects when paper has almost run out
Feed Cover Set Sensor	Detects the status of the cover

Motors

Bottom Plate Lift Motor	Lifts and lowers the bottom plate
Feed Motor	Drives the pick-up roller and feed belt
Transport Motor	Drives the grip roller and the top two transport rollers
Vertical Transport Motor	Drives the bottom transport roller

PCBs

Main Board	Controls the cover interposer tray

G338/G339

SCANNER UNIT/PRINTER UNIT

PRINTER/SCANNER KIT G338
PRINTER UNIT G339
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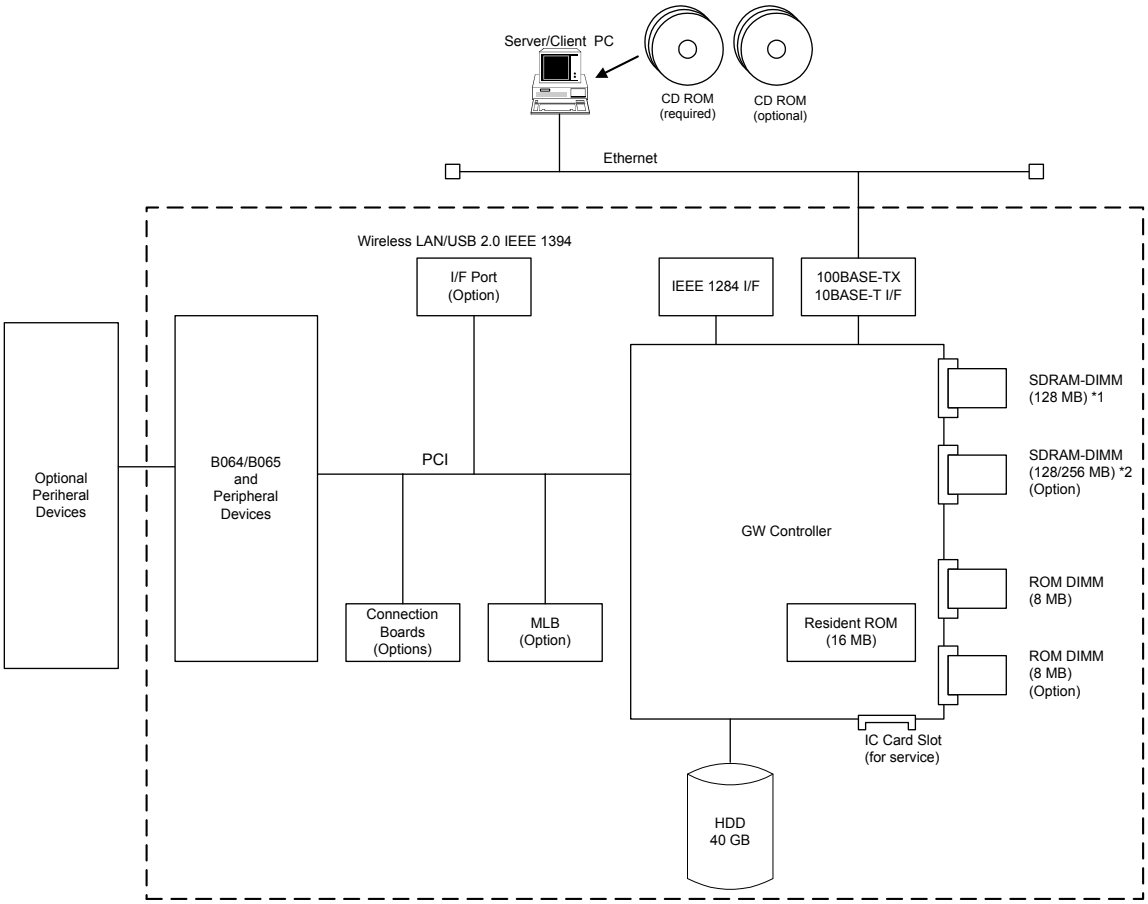
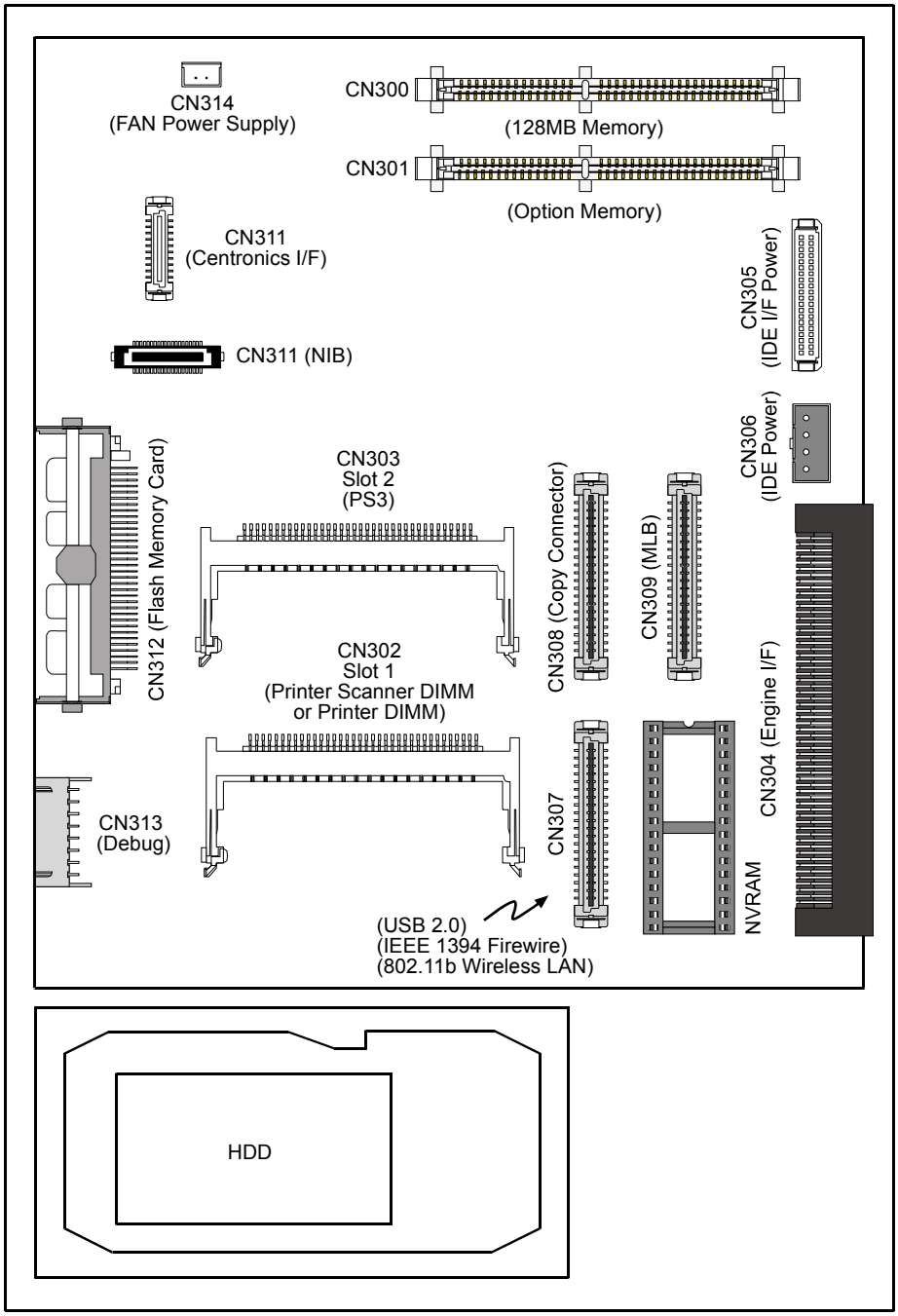
1. DETAILS

1.1 MACHINE LAYOUT



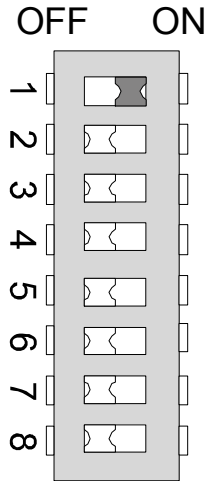
1.2 CONTROLLER BOARD

1.2.1 CONTROLLER BOARD LAYOUT



Name	CN	CN Shape	Function
SDRAM DIMM I/F	CN300	144-pin (Straight: SMT)	Standard RAM DIMM
	CN301		Optional RAM DIMM
ROM DIMM I/F	CN302	72-pin (right-angle)	Optional printer/scanner program
	CN303		Optional PS3 emulation program
Engine I/F	CN304	120-pin (right-angle DIP)	Engine I/F (RAPI, CSS, MK1)
IDE I/F	CN305	40-pin (straight DIP)	HDD connection
IDE Power I/F	CN306	4-pin (straight DIP)	HDD power
PCI Option I/F	CN307	80-pin (straight SMT)	PCI I/F options (1394, wireless LAN, USB); only one of these can be installed
IEEE 1284 I/F	CN310	40-pin (straight SMT)	Centronics port
PHY I/F	CN311	40-pin (straight SMT)	Ethernet NIB
IC Card I/F	CN312	68-pin JEIDA V4.0	Flash ROM download
Debug I/F	CN313	8-pin (right-angle DIP)	Debugging
Fan I/F	CN314	2-pin (straight DIP)	Fan power supply

1.2.2 CONTROLLER BOARD DIP SWITCHES



No.	Function		Comments
1	Boot selection	OFF	Switch ON only to boot from an IC card.*1
2	DFU	OFF	
3	DFU	OFF	
4	DFU	OFF	
5	Localization setting	ON	ON for export models, OFF for models for the Japanese market
6	Model Setting	OFF	Currently these switches are not used.
7	Model Setting	OFF	
8	Model Setting	OFF	

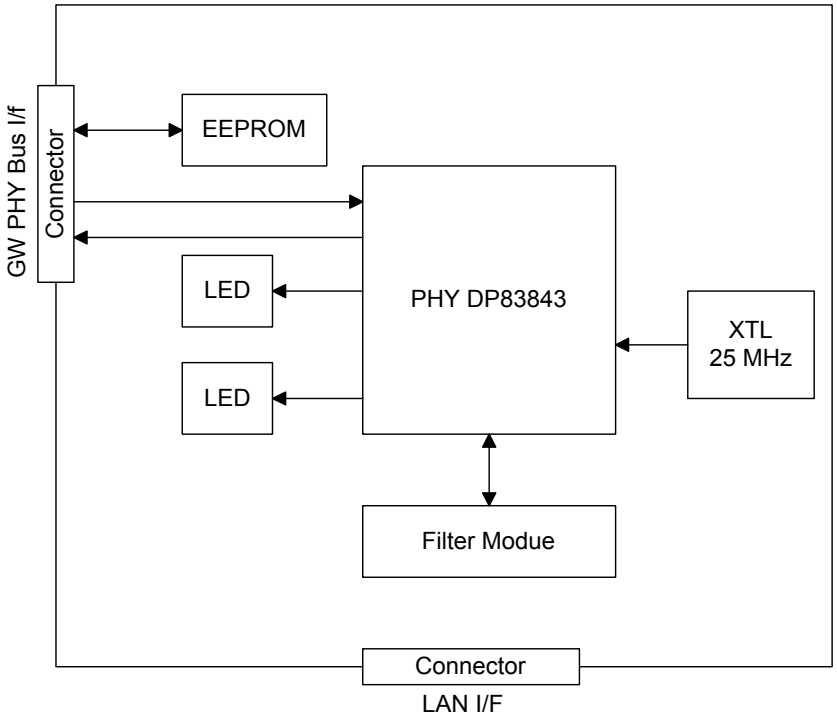
*1: Set SW1 ON and boot from the IC card only if the normal installation procedure fails. After booting from the card, switch the machine off, set SW1 to OFF, then switch the machine on. SW should always remain set to OFF.

1.2.3 LED INDICATORS

Operation	LED1 (Upper)	LED2 (Lower)
Controller upgrade	Flashes	Flashes
Version upgrade	Off	Off
Version upgrade end	On	On
Controller normal operation	Alternately flash	
Controller non-operation	Alternately light	
Controller stall (SC819 logged)	Off	Off
RAM error (SC818 logged)	Off	Off

1.3 ETHERNET BOARD

1.3.1 ETHERNET BOARD LAYOUT



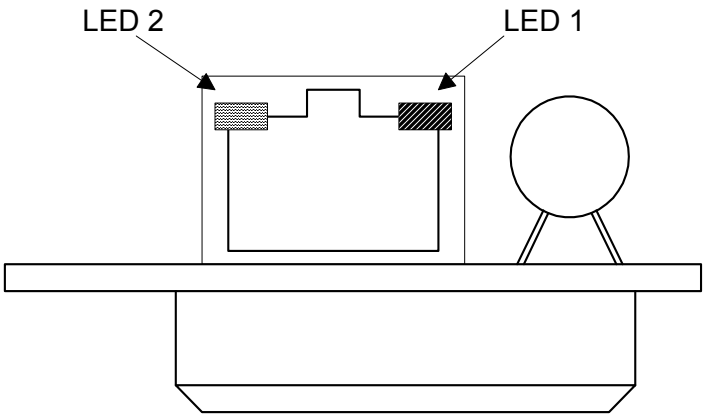
The Ethernet board is provided as a standard feature of the G338/G339 option.

Function Blocks	Description
PHY (Physical Layer Device)	Completely standardized physical layer device for the functions of each device in the network.
EEPROM	Stores the MAC address.

The physical layer device, the lowest layer of the OSI reference model, refers to the physical components of the network: cables, connectors, and so on. OSI, the *Operating Standard Interface*, is a framework upon which networking standards are arranged. It is commonly diagramed as a layered cake.

1.3.2 ETHERNET BOARD OPERATION

The NIB is a standard IEEE802.3u type which implements 10/100Mbps auto negotiation. System initialization sets the network for 10Mbps/100Mbps.



LED 1 (Green)	Indicates the link status: ON Link Safe OFF Link Fail
LED 2 (Orange)	Indicates the operation mode: ON 100 Mbps mode OFF 10 Mbps mode

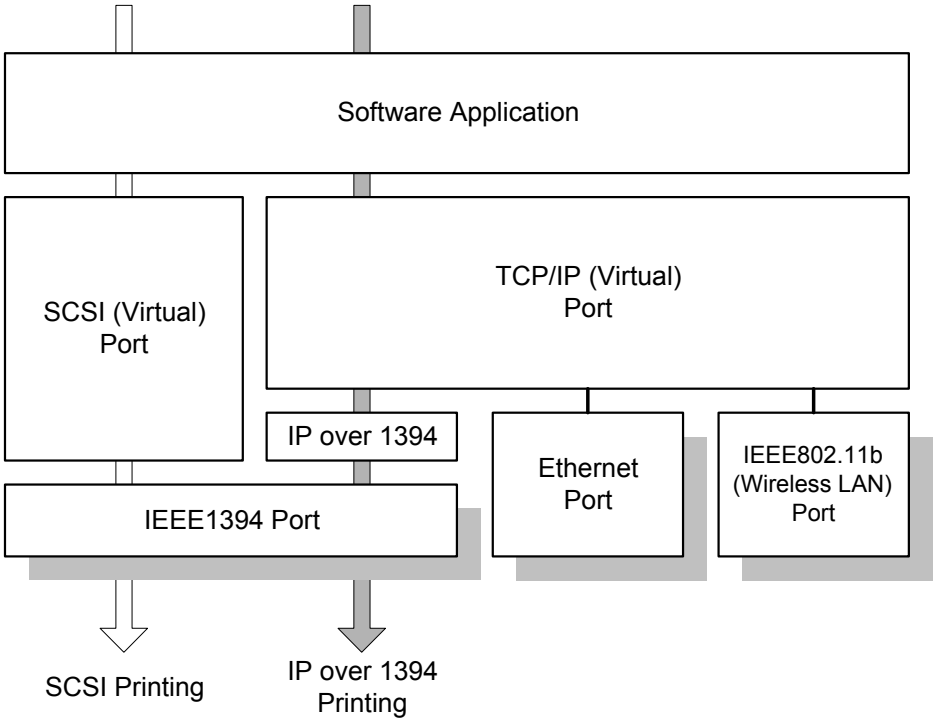
1.4 IEEE1394 BOARD (FIREWIRE)

1.4.1 OVERVIEW

An IEEE1394 interface board is available as an option for this machine to provide high speed connectivity through what is commonly called Firewire or i.LINK (Sony). Some important advantages of Firewire are:

- High speed data transmission at 400 Mbps.
- Easier connectivity (many devices can be connected without a host).
- Devices in a computer can be connected to external devices on a shared bus.

IEEE1394 supports two printing methods: 1) SCSI Print, and 2) IP Over 1394. IP Over 1394 supports printing by setting an IP address, and SCSI supports printing without an IP address.



NOTE: 1) Windows Me and Windows XP support IP over 1394.
2) Windows XP and 2000 support IEEE1394 SCSI printing.

When the host computer powers up, it queries all the devices connected to the bus and assigns each one an address, a process called enumeration. Here are some general features of Firewire:

- Firewire is Plug-and-Play.
- Firewire devices are hot pluggable (they can be plugged while the system is operating).
- Firewire uses 64-bit fixed addressing, based on the IEEE 1212 standard. There are three parts to each packet of information sent by a device over FireWire:
  - 10-bit Bus ID. Used to determine the Firewire bus where the data came from.
  - 6-bit Physical ID. Used to identify the device that sent the data.
  - 48-bit Storage Area. Capable of addressing 256 terabytes of information for each node
- The Bus ID and Physical ID comprise the 16-bit Node ID. 64,000 nodes are allowed on each system.
- Up to 16 hops are allowed (4.5 m/hop) for a total of 72 meters devices are daisy-chained.
- Firewire allows its devices to draw power from the Firewire connection. Two power connectors in the cable can supply power (8 to 40 V, 1.5 amp max.)
- An important element of Firewire is its support of isochronous devices. When isochronous devices are in the isochronous mode, data streams between the device and the host in real time with guaranteed bandwidth and no error correction. Essentially, this means that a device like a digital camcorder can request that the host computer allocate enough bandwidth for the camcorder to send uncompressed video in real time to the computer. The camera can send data via the Firewire connection in a steady flow to the computer without anything disrupting the process. This is one of the main reasons why 1394 has been widely adopted by the consumer electronics industry.

1.5 USB

1.5.1 SPECIFICATIONS

USB connectivity is provided as an option for this machine.

Interface:	USB 1.1, USB 2.0
Data rates:	480 Mbps (high speed), 12 Mbps (full speed), 1.5 Mbps (low speed) High speed mode is only supported by USB 2.0.

1.5.2 USB 1.1/2.0

USB (Universal Serial Bus) offers simple connectivity for computers, printers, keyboards, and other peripherals. In a USB environment, terminators, device IDs (like SCSI), and DIP switch settings are not necessary.

USB 1.1 provides the following features:

- Plug & Play. As soon as a new device is connected via USB, the operating system recognizes it, and the appropriate driver is installed for it automatically if the driver is available. If the driver is not available, a message prompts the user for the driver disk for immediate installation.
- Hot swapping (cables can be connected and disconnected while the computer and other devices are switched on)
- No terminator or device ID required
- Data rates of 12 Mbps (full speed), and 1.5 Mbps (low speed)
- Common connectors for different devices
- Bi-directional data communication between device and host computer via a 4-byte header and DEVICE ID.

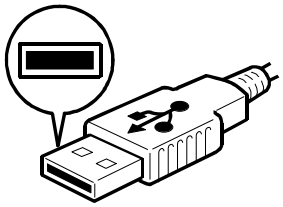
USB 2.0 is an evolution of the USB 1.1 specification. It uses the same cables, connectors, and software interfaces so the user will see no change. It provides an easy-to-use connection to a wide range of products with a maximum data rate of 480Mbps (high speed).

Up to 127 devices can be connected and 6 cascade connections are allowed. Power is supplied from the computer and the maximum cable length is 5 m.

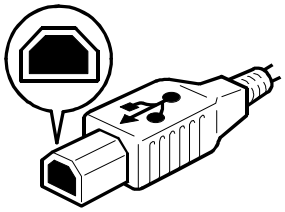
1.5.3 USB CONNECTORS

USB is a serial protocol and a physical link, which transmits all data on a single pair of wires. Another pair provides power to downstream peripherals. The USB standard specifies two types of connectors, type “A” connectors for upstream connection to the host system, and type “B” connectors for downstream connection to the USB device.

Type “A” connector

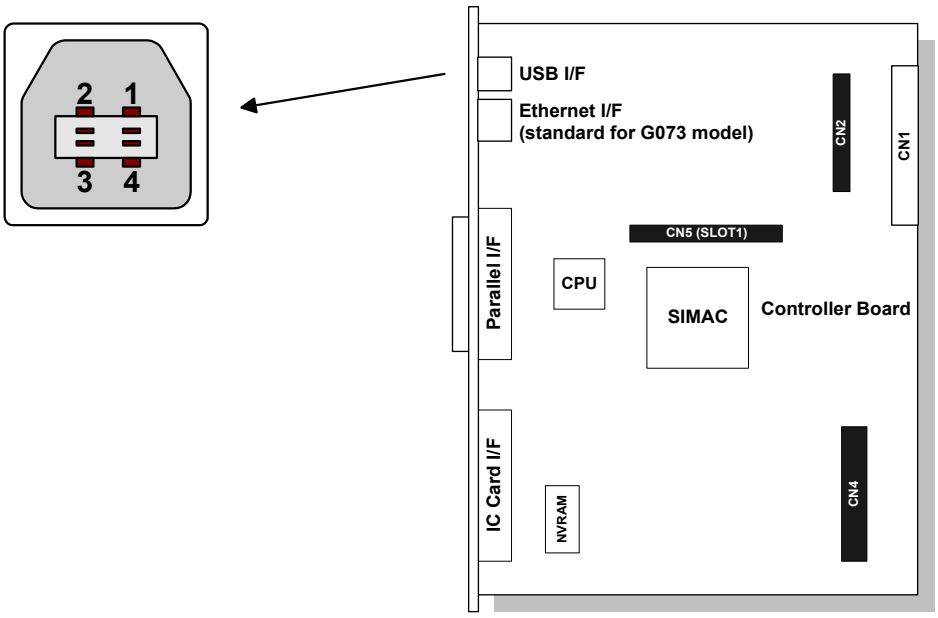


Type “A” connector



1.5.4 PIN ASSIGNMENT

The controller has a type “B” receptacle (CN10).



Pin No.	Signal Description	Wiring Assignment
1	Power	Red
2	Data –	White
3	Data +	Green
4	Power GND	White

1.5.5 REMARKS ABOUT USB

- The machine does not print reports specifically for USB.
- Only one host computer is allowed for the USB connection.
- After starting a job using USB, do not switch the printer off until the job has been completed. When a user cancels a print job, if data transmitted to the printer has not been printed at the time of cancellation, the job will continue to print up to the page where the print job was cancelled
- When the controller board is replaced, the host computer will recognize the machine as a different device.

Related SP Mode

"USB Settings" in the printer engine service mode. Data rates can be adjusted to full speed fixed (12 Mbps). This switch may be used for troubleshooting if there is a data transfer error using the high speed mode (480Mbps).

1.6 IEEE802.11B (WIRELESS LAN)

1.6.1 SPECIFICATIONS

The IEEE 802.11b wireless LAN interface card is available as an option for this machine.

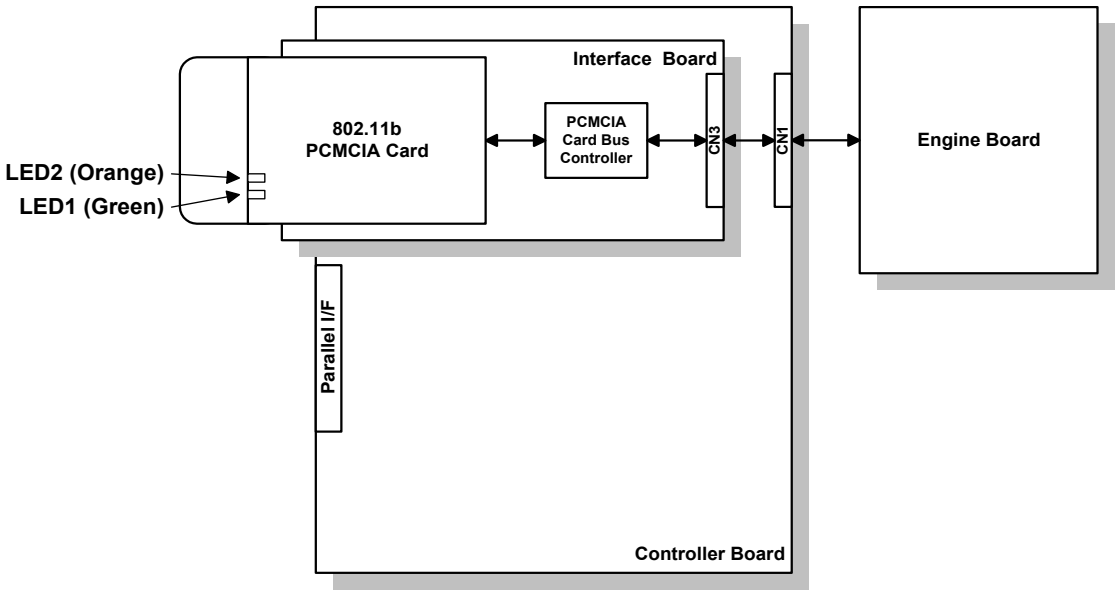
A wireless LAN is a flexible data communication system used to extend or replace a wired LAN. Wireless LAN employs radio frequency technology to transmit and receive data over the air and minimize the need for wired connections.

- With wireless LANs, users can access information on a network without looking for a place to plug into the network.
- Network managers can set up or expand networks without installing or moving wires.
- Most wireless LANs can be integrated into existing wired networks. Once installed, the network treats wireless nodes like any other physically wired network component.
- Flexibility and mobility make wireless LANs both effective extensions of and attractive alternatives to wired networks.

Standard applied:	IEEE802.11b	
Data transmission rates:	Speed	Distance
	11 Mbps	140 m (153 yd.)
	5.5 Mbps	200 m (219 yd.)
	2 Mbps	270 m (295 yd.)
	1 Mbps	400 m (437 yd.)
Network protocols:	TCP/IP, Apple Talk, NetBEUI, IPX/SPX	
Bandwidth:	2.4GHz (divided over 14 channels, 2400 to 2497 MHz for each channel)	

NOTE: The wireless LAN cannot be active at the same time as the Ethernet LAN. The following user tool setting determines which LAN is active: System Settings – Interface Settings – Network - LAN Type.

1.6.2 BLOCK DIAGRAM



LED Indicators

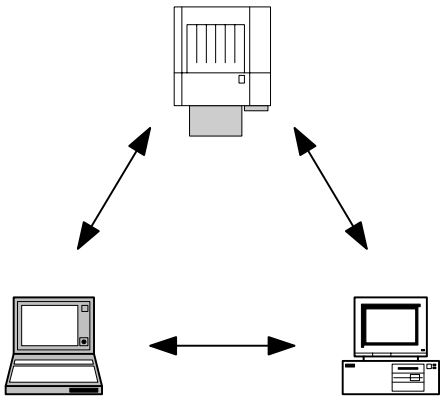
LED	Description	On	Off
LED1 (Green)	Link status	Link success	Link failure
LED2 (Orange)	Power distribution	Power on	Power off

1.6.3 TRANSMISSION MODES

Wireless communication has two modes: 1) ad hoc mode, and 2) infrastructure mode.

Ad Hoc Mode

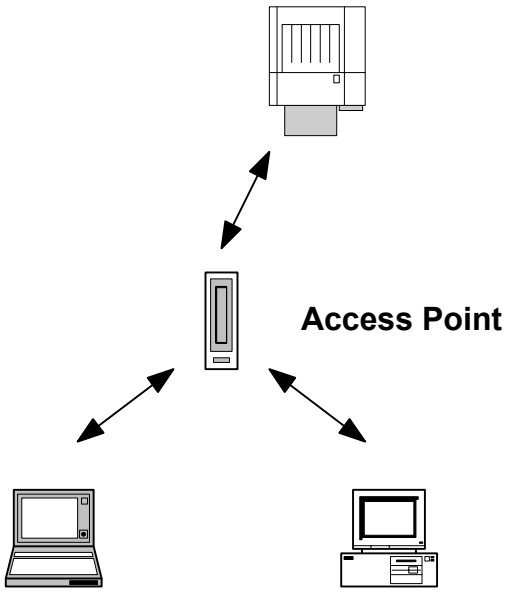
The ad hoc mode allows communication between each device (station) in a simple peer-to-peer network. In this mode, all devices must use the same channel to communicate. In this machine, the default transmission mode is ad hoc mode and the default channel is 11. First, set up the machine in ad hoc mode and program the necessary settings, even if the machine will be used in the infrastructure mode.



To switch between ad hoc and infrastructure modes, use the following user tool: Host Interface Menu - IEEE802.11b - Comm Mode

Infrastructure Mode

The infrastructure mode allows communication between each computer and the printer via an access point equipped with an antenna and wired into the network. This arrangement is used in more complex topologies. The wireless LAN client must use the same SSID (Service Set ID) as the access point in order to communicate.



1.6.4 SECURITY FEATURES

SSID (Service Set ID)
The SSID is used by the access point to recognize the client and allow access to the network. Only clients that share the same SSID with the access point can access the network.

NOTE: 1) If the SSID is not set, clients connect to the nearest access point.
2) The SSID can be set using the web status monitor or telnet.

Using the SSID in Ad hoc mode

When the SSID is used in ad hoc mode and nothing is set, the machine automatically uses “ASSID” as the SSID. In such a case, “ASSID” must also be set at the client.

NOTE: SSID in ad hoc mode is sometimes called “Network Name.”

Some devices automatically change from ad hoc mode to infrastructure mode when the same SSID is used in ad hoc mode and infrastructure mode. In such a case, to use the device in ad hoc mode, use a specified SSID in infrastructure mode and use “ASSID” in the ad hoc mode.

WEP (Wired Equivalent Privacy)
WEP is a coding system designed to protect wireless data transmission. In order to unlock encoded data, the same WEP key is required on the receiving side. There are 64 bit and 128 bit WEP keys.

NOTE: The WEP key can be set using the Web Status Monitor or Telnet.

MAC Address
When the infrastructure mode is used, access to the network can also be limited at the access points using the MAC address. This setting may not be available with some types of access points.

1.6.5 WIRELESS LAN TROUBLESHOOTING NOTES

Communication Status

Wireless LAN communication status can be checked with the UP mode “W.LAN Signal” in the Maintenance menu. This can also be checked using the Web Status Monitor or Telnet.
The status is described on a simple number scale.

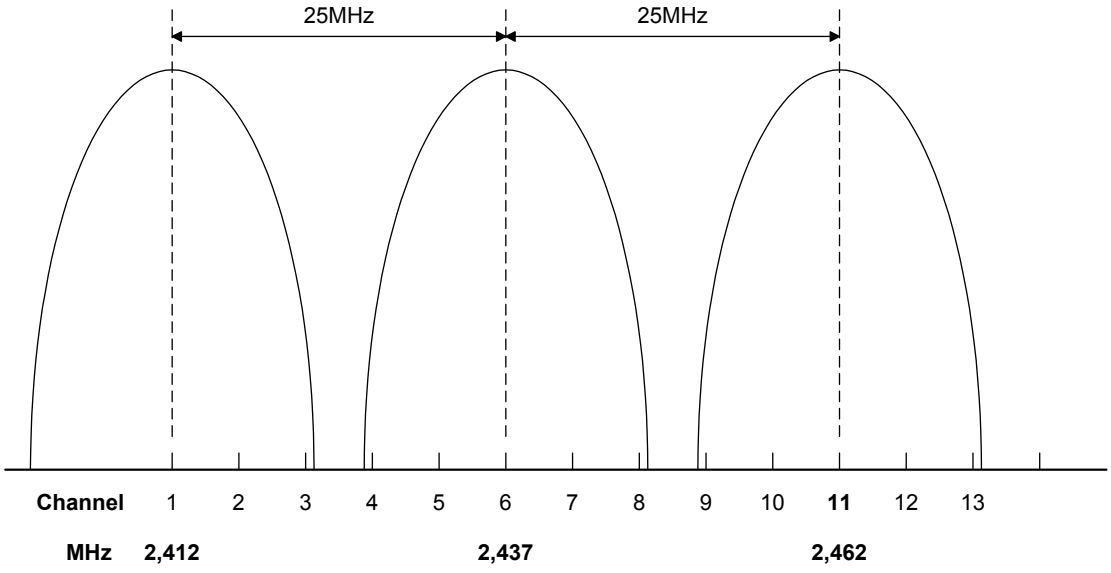
Status Display	Communication Status
Good	76 ~ 100
Fair	41 ~ 75
Poor	21 ~ 40
Unavailable	0 ~ 20

NOTE: Communication status can be measured only when the infrastructure mode is being used.

Channel Settings

If a communication error occurs because of electrical noise, interference with other electrical devices, etc., you may have to change the channel settings.

To avoid interference with neighboring channels, it is recommended to change by 3 channels. For example, if there are problems using channel 11 (default), try using channel 8.



Troubleshooting Procedure

If there are problems using the wireless LAN, check the following.

1) Check the LED indicator on the wireless LAN card.
2) Check if “IEEE802.11b” is selected in the following user tool: Host Interface menu - Network Setup - LAN Type.
3) Check if the channel settings are correct.
4) Check if the SSID and WEP are correctly set.

If infrastructure mode is being used,

1) Check if the MAC address is properly set.
2) Check the communication status.
   If the communication status is poor, bring the machine closer to the access point, or check for any obstructions between the machine and the access point.
   If the problem cannot be solved, try changing the channel setting.

2. SPECIFICATIONS

2.1 SCANNER

Scanning method	Front side main scan	Scanned by CCD.
	Platen (original on exposure glass)	
	Back side main scan	Scanned by CIS.
	Back side sub scan	
Scanning Area	Main scan	Max. 297 mm
	Sub scan	Max. 432 mm
Resolution	Main scan	600 dpi
	Sub scan	600 dpi
Main Scan Line Range of Precision	100 ~ 1200 dpi (digital black and white)	
Grayscale	8-bit graduation or 2-digit per pixel, 2-digit halftone also possible.	
Scanning Speed	0.8 seconds (1 A4 page at 200 dpi in 2-digit black and white with no compression.	
Interface	Ethernet 100Base-TX/10Base-T	
	IEEE 802.11b Wireless LAN (option)	
	IEEE 1394 with IP Over 1394 only (option)	
Network Protocols	TCP/IP only	
Scan-to-Email	Compatible	
TWAIN driver	Compatible	

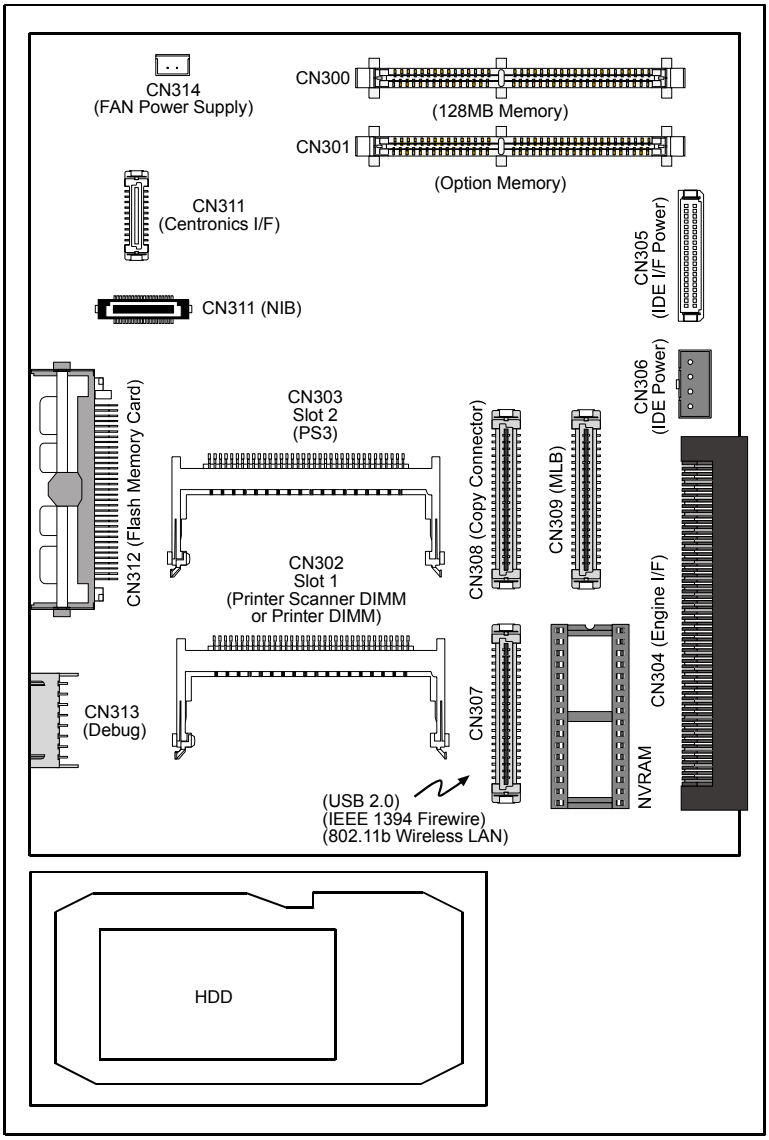
The scanner driver and utility software are provided on one CD-ROM.

Scanner Driver	Network TWAIN Driver for Windows 95/98/Me/ NT 3.51/2000/XP
Scanner Utilities	Scan Router V2 Lite (Cherry Lite) for Windows 95/98/Me/NT4.0/2000/XP Desk Top Binder V2 Lite (Plumeria Lite) for Windows 95/98/Me/NT4.0/XP

2.2 PRINTER

Printing Speed	B065 model	Max. 75 ppm (A4/LT LEF)
	B064 model	Max. 60 ppm (A4/LT LEF)
Printer Languages	PCL5e/PCL6	
	PostScript 3 (option)	
	RPCS (Refined Printing Command Stream)	
Resolution	1200 dpi (PCL6/PCL5e/PS3/RPCS)	
	600 dpi (PCL 6/PCL5e/PS3/RPCS)	
	300 dpi (PCL5e)	
Resident Fonts	PCL	35 Intellifonts
		10 TrueType Fonts
	PS3	136 fonts (24 Type 2 fonts, 112 Type 14 fonts)
Host Interfaces	Bi-directional IEEE 1284 parallel x 1 (standard)	
	Ethernet 100Base-TX/10Base-T	
	IEEE 802.11b Wireless LAN (option)	
	IEEE 1394 with SCSI Print and IP Over 1394 (option)	
	IEEE 802.11b Wireless LAN (Option)	
Network Protocols	TCP/IP, IPX/SPX, NetBEUI, AppleTalk	
Memory	Max. 384 MB (128 MB + 256 MB)	
	(Standard 128 MB + 128 MB/256 MB with optional DIMM`s)	

2.3 CONTROLLER BOARD CONFIGURATION



Item	Machine Code	Remarks
Printer/Scanner DIMM		The printer/scanner option includes the Centronics I/F and NIB.
Printer DIMM	G339	The printer option includes the Centronics I/F and NIB.
⇒ IEEE 1394	G336	Firewire I/F (option)
USB 2.0	525-01	USB I/F (option)
IEEE 802.11b	G628	Wireless LAN (option)
PS3	G525-08	PostScript 3 (option)
Memory 128MB	G331	Also used with the G071 printer (option).
Memory 256MB	G332	

2.4 SOFTWARE ACCESSORIES

The printer drivers and utility software are provided on one CD-ROM. An auto run installer allows you to select which components to install.

2.4.1 PRINTER

Printer Drivers

Printer language	Windows 9x/me	Windows NT 4.0	Windows 2000/XP	Macintosh
PCL6	Yes	Yes	Yes	No
PCL5e	Yes	Yes	Yes	No
PS3	Yes	Yes	Yes	Yes
RPCS	Yes	Yes	Yes	No

NOTE: 1) 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.
2) The PS3 drivers are all genuine Adobe PS drivers, except Windows 2000/XP, which uses Microsoft PS.

Printer Utility Software

Software	Description
Agfa Monotype Font Manager 2000 (Windows 95/98/Me, NT4, 2000/XP)	A font management utility with screen fonts for the printer.
Smart Net Monitor for Admin (Windows 95/98/Me, NT4, 2000/XP)	A printer management utility for network administrators. NIB setup utilities are also available.
Smart Net Monitor for Client (Windows 95/98/Me, NT4, 2000/XP)	A printer management utility for client users. Peer-to-peer printing utility and parallel/recovery printing functions are included.
1394 Utility (Windows 2000 with SPI or later and Windows XP	A utility for remote IEEE 1394 printers.
Printer Utility for Mac	This software provides several convenient functions for printing from Macintosh clients.
USB Printing Support	This utility is for the USB 2.0 Interface Board. Using the USB connection on a computer running Windows 98 SE or Windows Me requires the installation of this utility.

2.5 PAPER SIZES SUPPORTED BY THE PRINTER

Paper	Size (W x L)	Paper Trays Main Unit/Option		By-pass Tray	LCT	Duplex
		US	Eur/Asia			
A3	297 x 420 mm	Y#/Y#	Y/Y	Y#	N	Y
B4	257 x 364 mm	Y#/Y#	Y#/Y#	Y#	N	Y
A4 SEF	210 x 297 mm	Y/Y	Y/Y	Y#	N	Y
A4 LEF	297 x 210 mm	Y/Y	Y/Y	Y#	Y	Y
B5 SEF	182 x 257 mm	Y#/Y#	Y#/Y#	Y#	N	Y
B5 LEF	257 x 182 mm	Y#/Y#	Y#/Y#	Y#	N	Y
A5 SEF	148 x 210 mm	Y#/Y#	Y/Y	Y#	N	Y
A5 LEF	210 x 148 mm	N	N	Y#	N	N
B6 SEF	128 x 182 mm	N	N	YC	N	N
B6 LEF	182 x 128 mm	N	N	N	N	N
A6 SEF	105 x 148 mm	N	N	YC	N	N
Ledger	11 x 17”	Y/Y	Y#/Y#	Y#	N	Y
Legal	8.5 x 14“	Y/Y	Y#/Y#	Y#	N	Y
Letter SEF	8.5 x 11”	Y/Y	Y/Y	Y#	N	Y
Letter LEF	11 x 8.5”	Y/Y	Y/Y	Y#	Y	Y
Half Letter SEF	5.5 x 8.5”	Y/Y	Y#/Y#	Y#	N	Y
Half Letter LEF	8.5 x 5.5”	N	N	N	N	N
Executive SEF	7.25 x 10.5”	Y#/Y#	Y#/Y#	Y#	N	Y
Executive LEF	10.5 x 7.25”	N	N	Y#	N	Y
F	8 x 13”	Y#/Y#	Y#/Y#	Y#	N	Y
Foolscap	8.5 x 13”	Y#/Y#	Y#/Y#	Y#	N	Y
Folio	8.25 x 13”	Y#/Y#	Y#/Y#	Y#	N	Y
Com10 Env.	4.125 x 9.5”	N	N	N	N	N
Monarch Env.	3.875 x 7.5”	N	N	N	N	N
C6 Env.	114 x 162 mm	N	N	N	N	N
C5 Env.	162 x 229 mm	N	N	N	N	N
DL Env.	110 x 220 mm	N	N	N	N	N
8K	267 x 390 mm	Y#/Y#	Y#/Y#	Y#	N	Y
16K SEF	195 x 267 mm	Y#/Y#	Y#/Y#	Y#	N	Y
16K LEF	267 x 195 mm	Y#/Y#	Y#/Y#	Y#	N	Y
Custom	Minimum: 100 x 297 mm Maximum: 148 x 600 mm	N	N	YC	N	N

Remarks:

Y	Supported. The paper size sensor detects the paper size.
Y#	Supported. The user has to select the correct paper size for the tray.
YC	Supported. The user has to enter the width and length of the paper.
N	Not supported.

2.6 USB SPECIFICATIONS

USB connectivity is provided as an option for this machine.

Interface	USB 1.1, USB 2.0
Data rates	480 Mbps (high speed), 12 Mbps (full speed), 1.5 Mbps (low speed)
	High speed mode is only supported by USB 2.0.

2.7 IEEE 802.11B SPECIFICATIONS

Standard applied	IEEE802.11b	
Data transmission rates	Speed	Distance
	11 Mbps	140 m (153 yd.)
	5.5 Mbps	200 m (219 yd.)
	2 Mbps	270 m (295 yd.)
	1 Mbps	400 m (437 yd.)
Network protocols	TCP/IP, Apple Talk, NetBEUI, IPX/SPX	
Bandwidth	2.4GHz (divided over 14 channels, 2400 to 2497 MHz for each channel)	

B473

LCT

LCT B473

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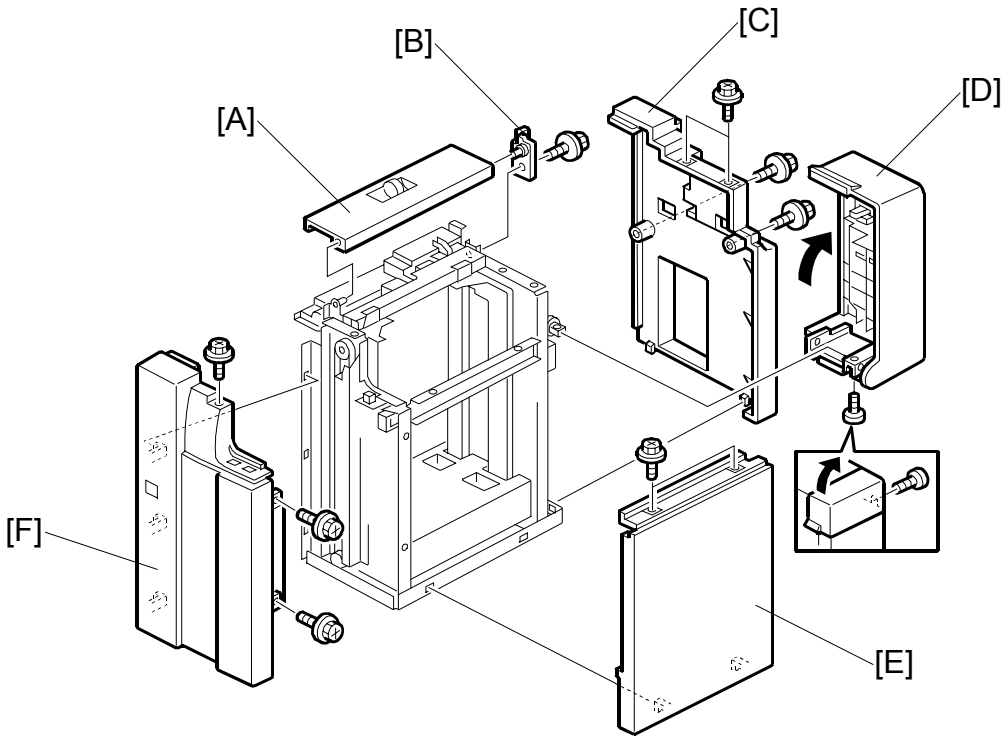
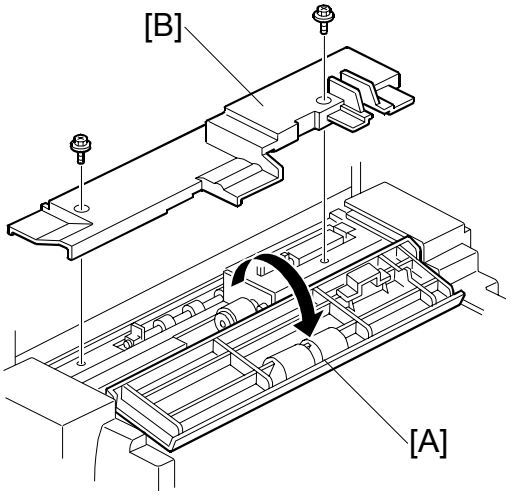
1. REPLACEMENT AND ADJUSTMENT

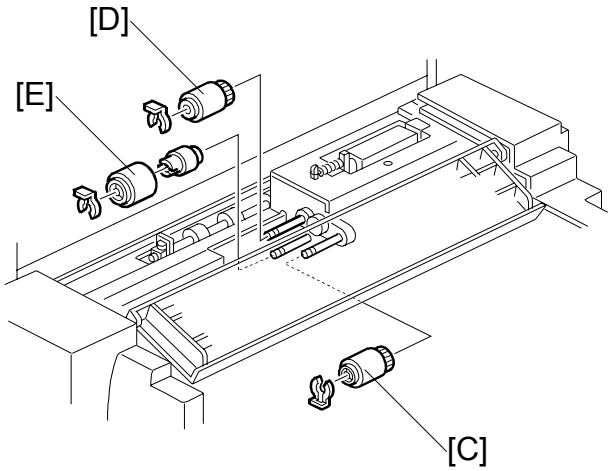
1.1 EXTERNAL COVERS



[A]: Transport cover
[B]: Transport cover hinge (x1)
[C]: Rear cover (x4)
[D]: Top cover (x1)
[E]: Right cover (x2)
[F]: Front cover (x3)

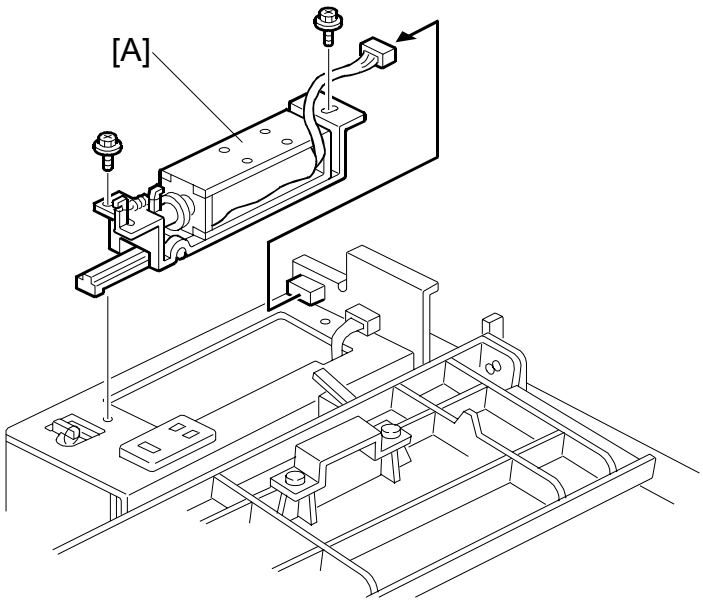
1.2 PICK-UP/FEED/SEPARATION ROLLERS





[A]: Open the transport cover
[B]: Bracket cover (x2)
[C]: Pick-up roller (x1)
[D]: Feed roller (x1)
[E]: Separation roller (x1)

1.3 PICK-UP SOLENOID



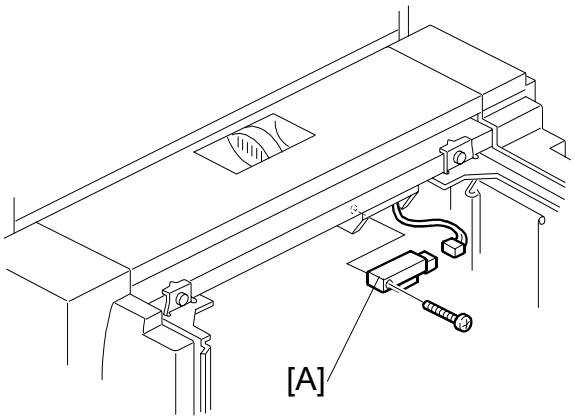
Rear cover (x4)

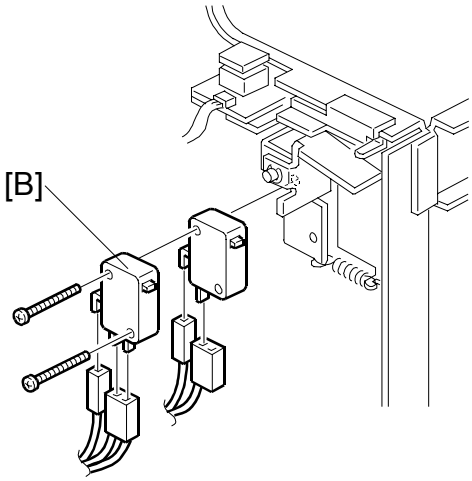
Open the transport cover (☛ 2.2)

Bracket cover (☛ 2.2)

[A]: Pick-up solenoid (x2, x1)

1.4 PAPER END SENSOR, UPPER COVER SWITCHES





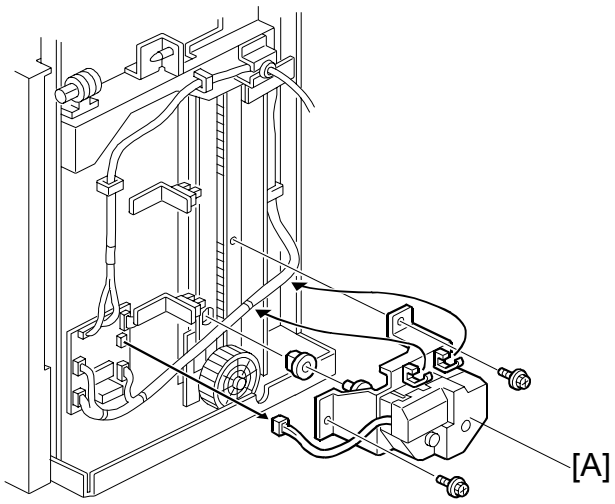
Open the top cover.

Right cover (☛ 1.1)

[A]: Paper end sensor (☞ x1)

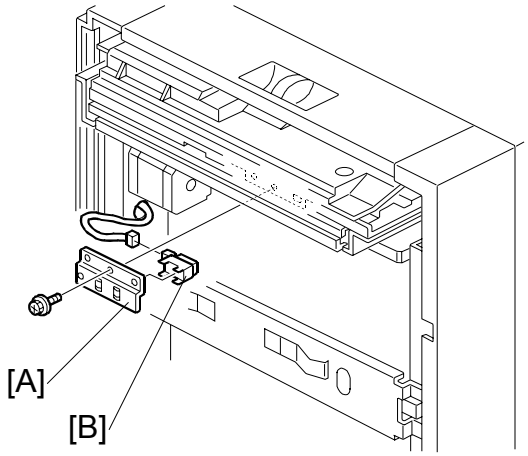
[B]: Upper cover switches 1, 2 (☞ x2)

1.5 TRAY MOTOR



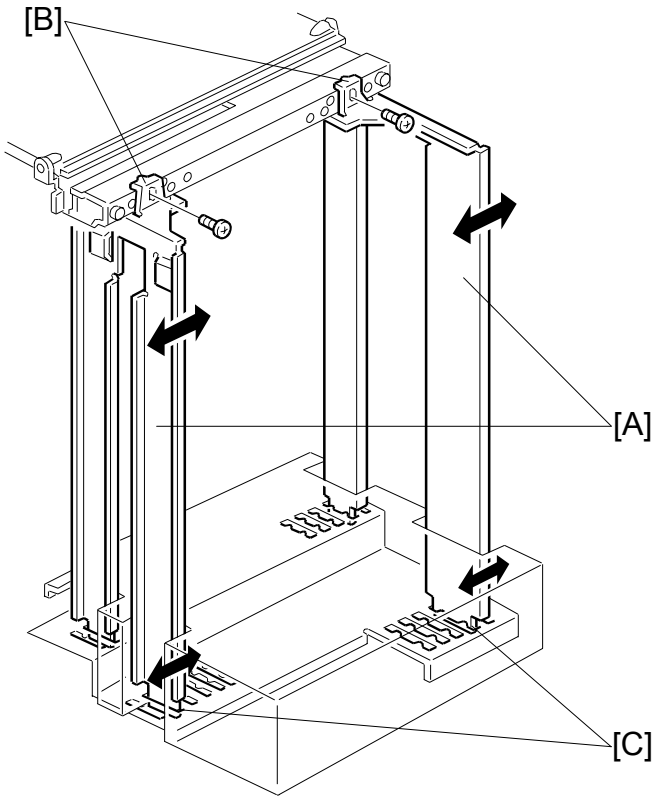
Rear cover (☛ 1.1)
[A]: Tray motor (x2, x1)

1.6 PAPER STACK SENSOR



Disconnect the LCT from the machine
[A]: Sensor cover (x1)
[B]: Paper stack sensor (x1)

1.7 PAPER SIZE ADJUSTMENT



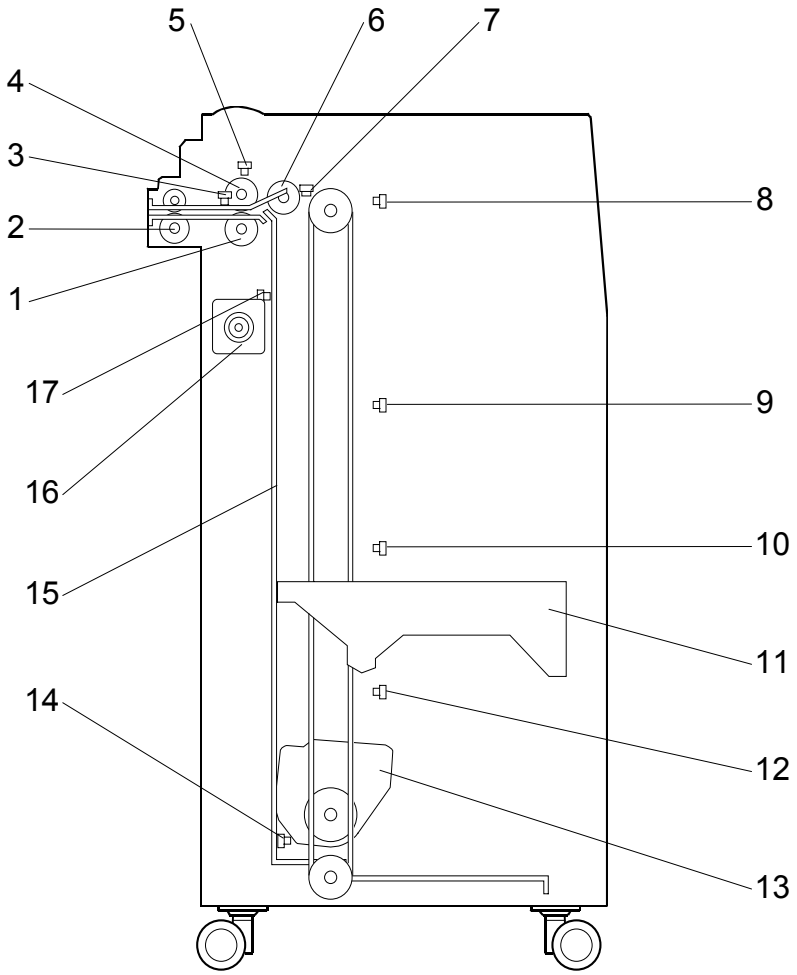
The side fences [A] can be adjusted for A4 Sideways, B5 Sideways, or LT sideways at the top [B] and bottom brackets [C].

After changing the side fences to accept another paper size, you must execute SP5959 005 (Paper Type – Tray 4) and select the paper size of the side fence positions. For details, see SP5959 in section “5. Service Tables” of the B064/B065 manual.

2. DETAILS

2.1 OVERVIEW

2.1.1 LCT MAIN COMPONENTS



1. Separation Roller
2. Transport Roller
3. Feed Sensor
4. Feed Roller
5. Lift Sensor
6. Pick-up Roller
7. Paper End Sensor
8. Paper Near End Sensor
9. Paper Height Sensor 1
10. Paper Height Sensor 2
11. Paper Tray
12. Paper Height Sensor 3
13. Paper Tray Motor
14. Low Limit Sensor
15. Tray Drive Belt
16. Feed Motor
17. Stack Sensor

Pick-up, Separation, Feed. Non-contact, maintenance free FRR sysem. (CT Handling Paper> Paper Feed Methods> **Forward and Reverse Roller (FRR)**)

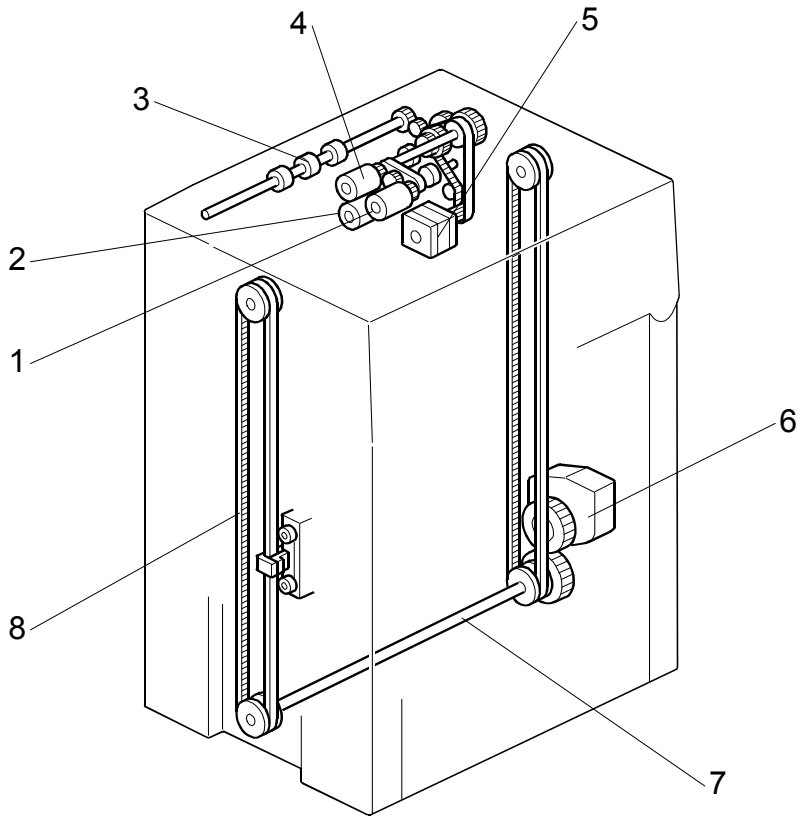
Tray Lift. Tray lift motor and timing belt raise and lower the paper tray.

Paper Size Detection. The side fences cannot be adjusted by customers. The paper size must be entered with SP5959 005. For details, see SP5959 in section "4. Service Tables."

Paper Height Detection. A feeler and four photointerrupters are used.

Paper End Detection. A reflective sensor on the upper stay detects paper end.

2.1.2 LCT DRIVE LAYOUT

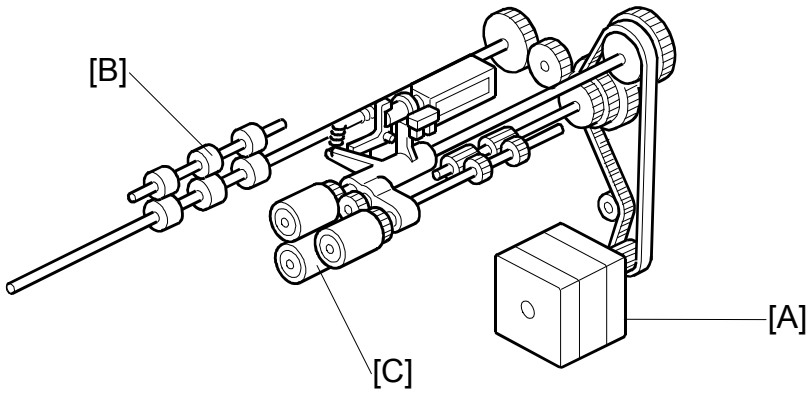


1. Pick-up Roller
2. Separation Roller
3. Transport Rollers
4. Feed Roller
5. Feed Motor
6. Tray Motor
7. Tray Lift Shaft
8. Tray Drive Belt

2.2 PAPER FEED AND SEPARATION

A standard FRR system is used. It consists of the pick-up, feed, and separation rollers.

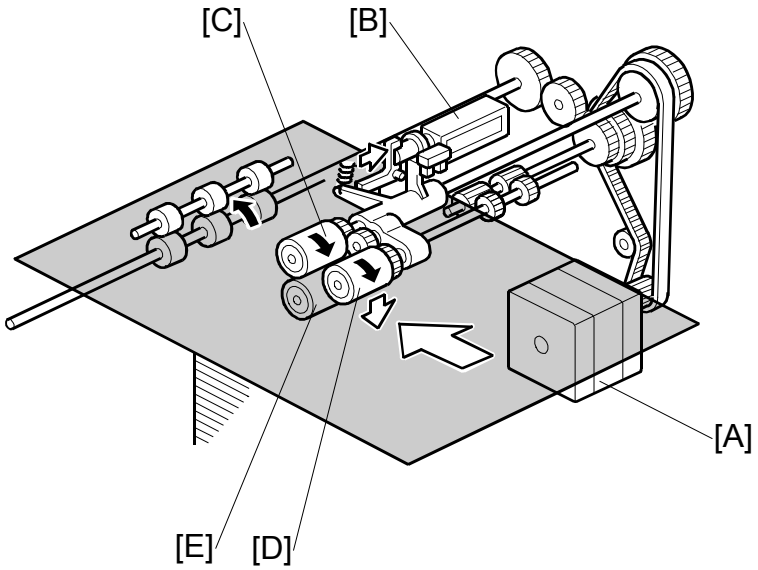
2.2.1 STARTING PAPER FEED



The feed motor [A] drives the transport rollers [B].

The separation roller [C], which is free to rotate in the direction indicated by the arrow, remains at rest.

2.2.2 FEED AND SEPARATION



The feed motor [A] switches on, then the pick-up solenoid [B] switches on and transfers drive to the paper feed roller [C] and pick-up roller [D].

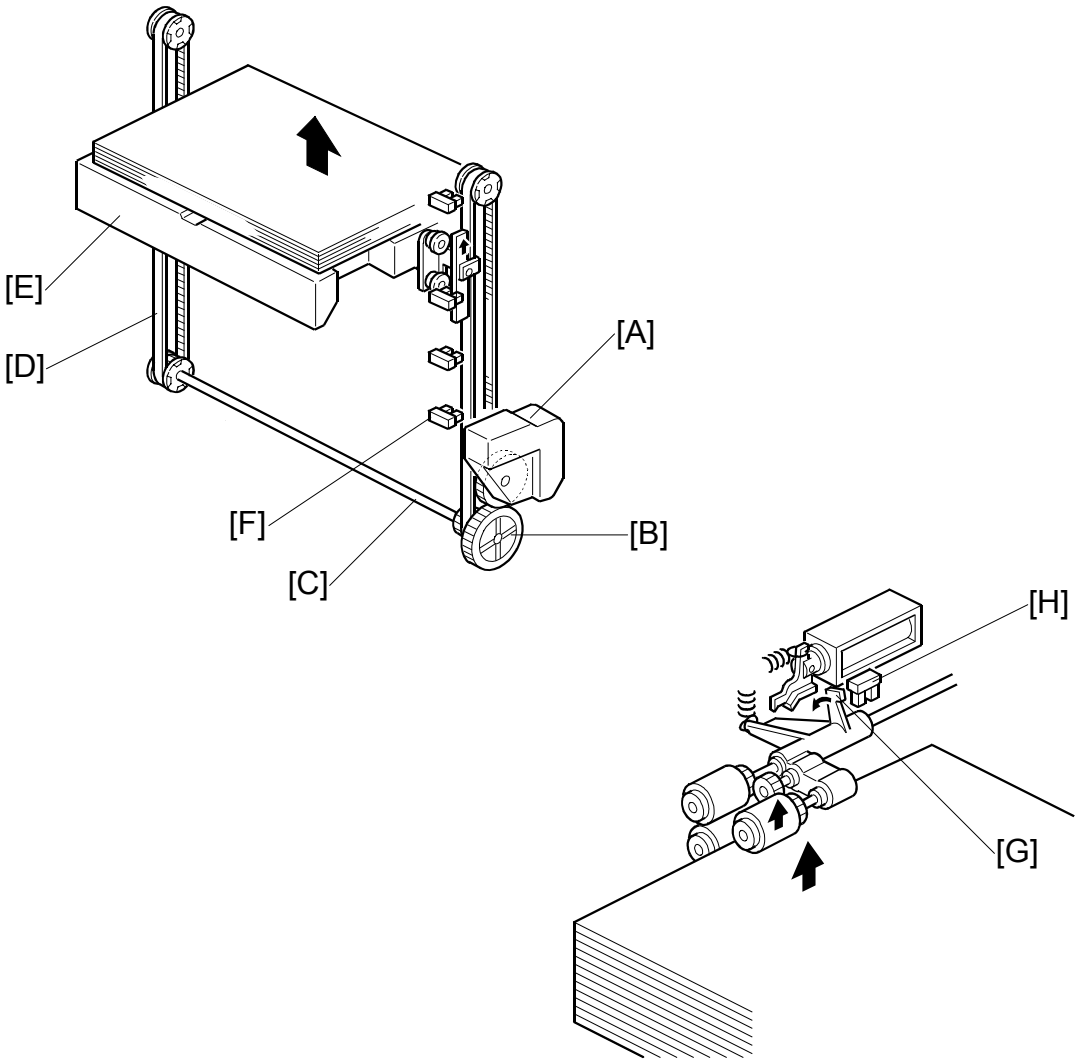
The rotating pick-up roller lowers and feeds the first sheet when it contacts the top of the stack.

The separation roller [E], in contact with the feed roller, only allows one sheet out of the tray.

As soon as the paper feed sensor (not shown) detects the leading edge of the paper, it switches off the pick-up solenoid which raises the pick-up roller. The feed roller feeds the sheet to the registration roller.

This process is repeated for each sheet.

2.3 PAPER LIFT

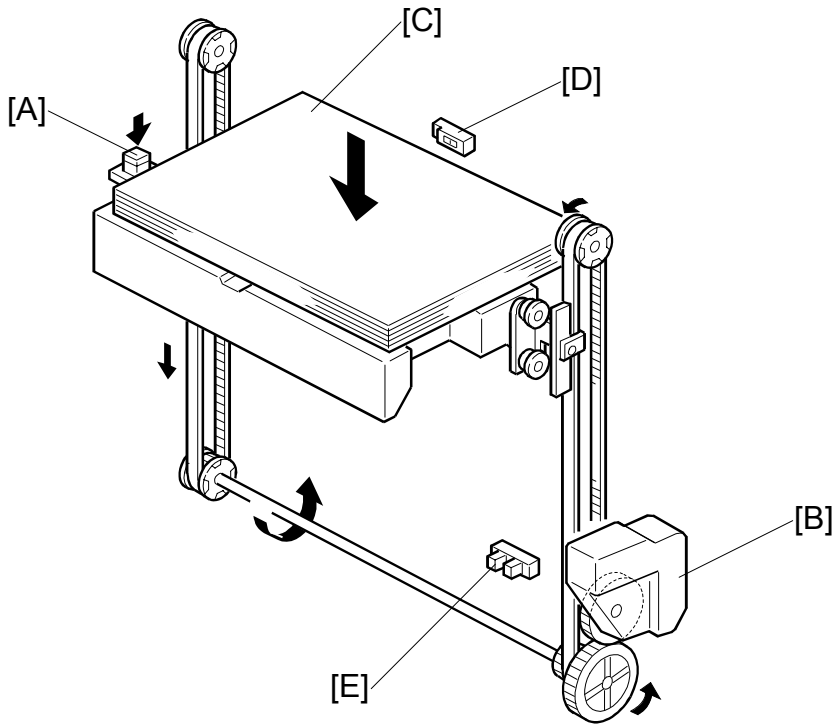


Tray motor [A] ➔ Gear [B] ➔ Shaft [C] ➔ Tray belts [D] raise and lower the paper tray [E].

After paper is set in the LCT and the upper cover is closed, if the paper height sensor [F] is not activated, the tray motor lowers the tray and stops. When the paper height sensor activates, the tray motor lifts the tray.

After several sheets have been fed, the paper level lowers, the actuator [G] activates the lift sensor [H], and switches on the motor again. The motor raises stack until the actuator de-activates the lift sensor.

This cycle repeats to maintain the correct height of the stack until the end of the job.



Pressing the tray down button [A] reverses the rotation of the tray motor [B] and lowers the tray [C].

The tray lowers until the stack sensor [D] detects the top of the stack and stops the tray motor.

- This mechanism lowers the tray by 5 cm, which gives the user enough space to add 500 sheets of paper.
- If the down switch is then pressed again, the bottom plate moves down once again by 5 cm. This allows the customer to replenish paper in convenient amounts and at the same position.

A lower limit sensor [E] (triggered by an actuator on the bottom of the tray) is also provided to stop the tray motor if the stack sensor should fail.

Summary

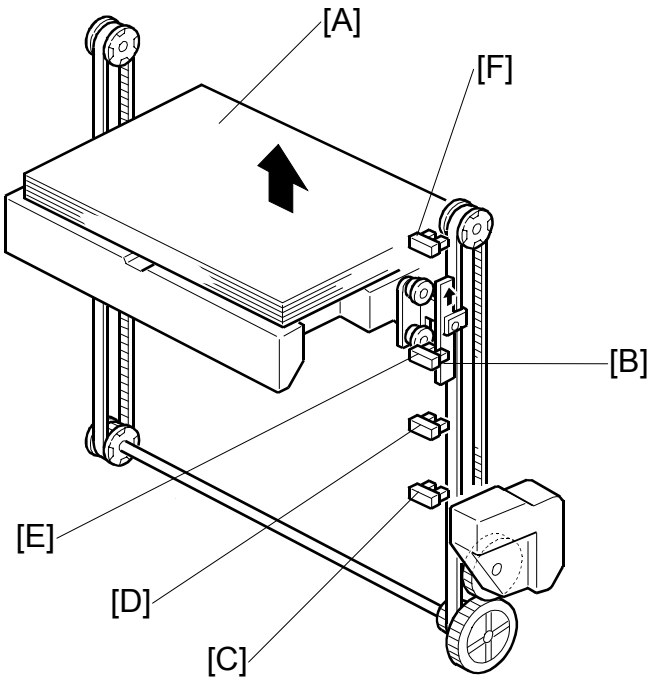
The tray raises when:

- The main power switch is turned on
- When the lift sensor switches on during copying
- The top cover is closed and the lift sensor switches on

The tray lowers when:

- The tray down button is pressed.
- The paper end sensor signals that there is no paper in the tray.

2.4 PAPER HEIGHT DETECTION



As paper is consumed from the top of the stack [A], the paper tray rises and the actuator [B] attached to the tray passes through paper height sensor 3 [C], paper height sensor 2 [D], and paper height sensor 1 [E] until the actuator reaches the paper near end sensor [F].

The operation panel displays a message for each paper height until the actuator reaches the near-end sensor, then a message warns the user that the tray is nearly empty.

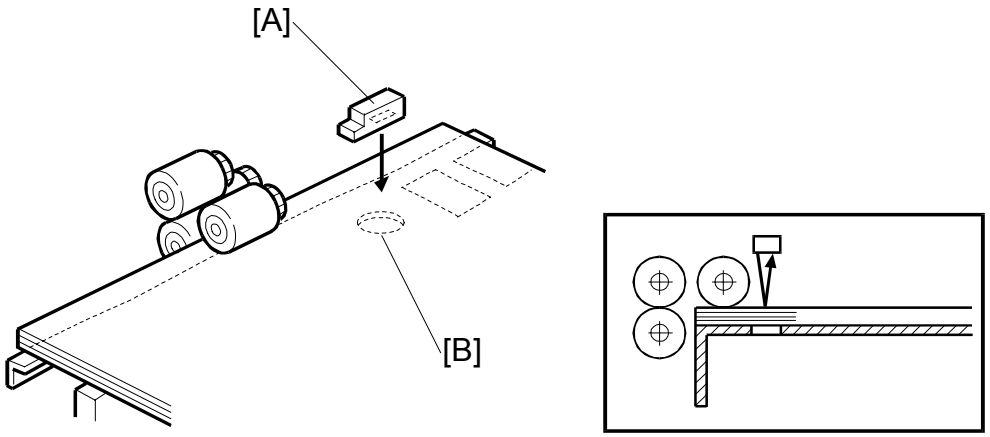
The table summarizes the relation between sensor detection and the number of sheets remaining in the stack.

Sheet Remaining	Bars *1	Sensors			
		Near-end	P.Height 1	P.Height 2	P.Height 3
75	1	●	—	—	—
1500	2	❍	●	—	—
2500	3	❍	❍	●	—
3500	4	❍	❍	❍	●

*1: The number of vertical bars in the paper height display on the operation panel.

●: Actuator blocking the sensor gap.
❍: Sensor gap is open

2.5 PAPER END DETECTION



The paper end sensor [A] monitors the light reflected by each sheet on top of the stack.

When the last sheet feeds, the cutout [B] is exposed, and the paper end sensor receives no reflected light from below because there is no paper and this signals paper end.

B468/B469
3000-SHEET FINISHER

B468/B469 3000-SHEET FINISHERS

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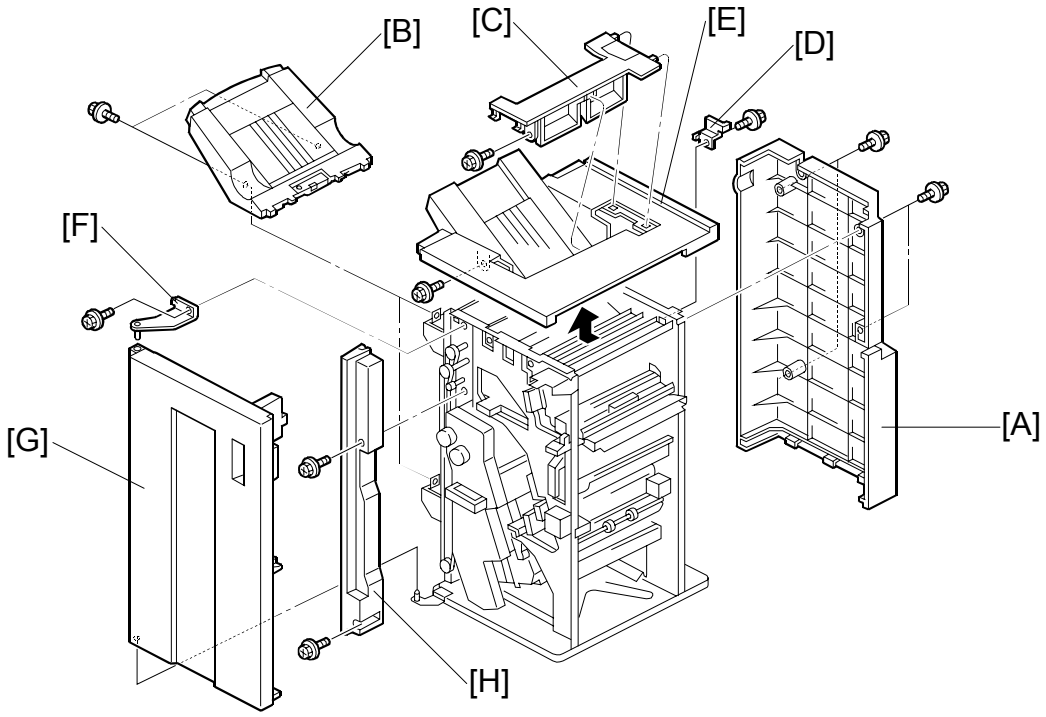
What This Manual Contains

This manual describes two 3000-sheet finishers which are essentially the same, the B468 and B469. Both finishers provide punch, staple, and shift capability. However, only the B468 provides saddle-stitching with staples—the B469 does not provide saddle-stitching.

Unless noted otherwise, all descriptions in this manual apply to both the B468 and B469. When the machines differ in the descriptions of their configuration or operation, you will see the notations “B468 only” or “B469 only”.

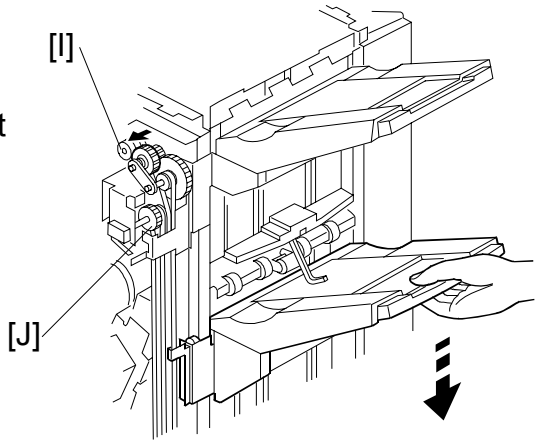
1. REPLACEMENT AND ADJUSTMENT

1.1 EXTERNAL COVERS



[A]: Rear cover (☞ x4)
[B]: Upper tray, lower tray (☞ x2 each) (See note below)
[C]: Top cover center (☞ x1)
[D]: Stopper (☞ x1)
[E]: Top cover (☞ x1)
[F]: Front door hinge (☞ x2)
[G]: Front door
[H]: Left side cover (☞ x2)

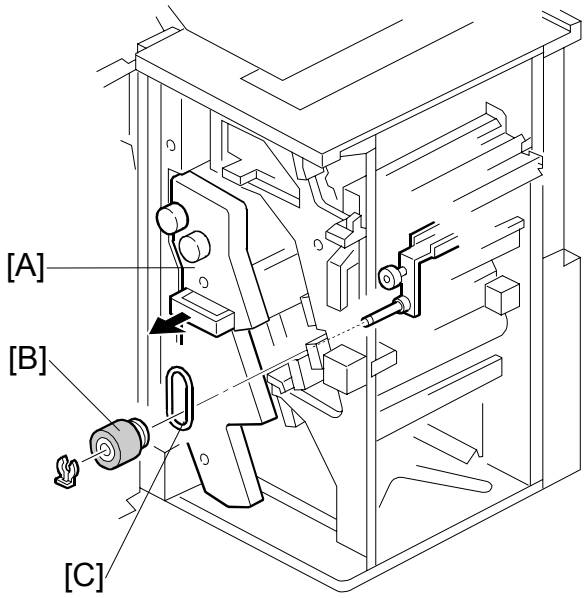
The trays may be difficult to remove at the up position. Support the tray with your hand, pull out the gear [I] (for the lower tray) or [J] (for the upper tray) to release the tray and lower it slowly.



1.2 POSITIONING ROLLER

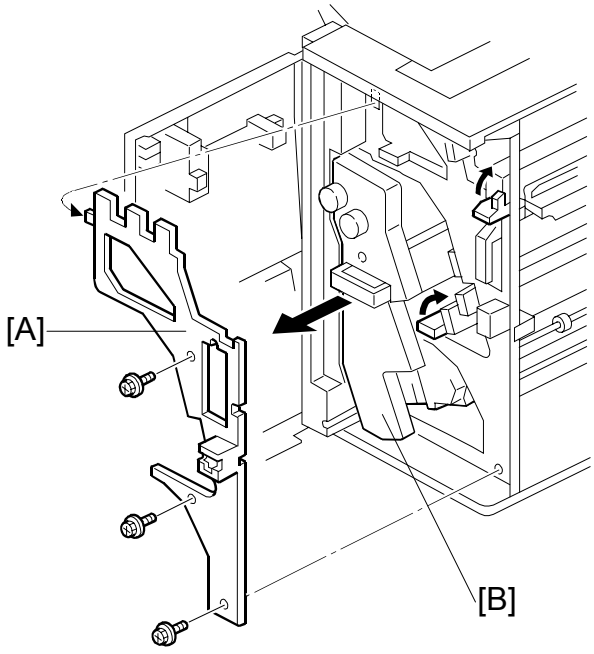
Open the front door.

[A]: Pull out the jogger unit.
[B]: Positioning roller (x1)
[C]: Positioning roller drive belt

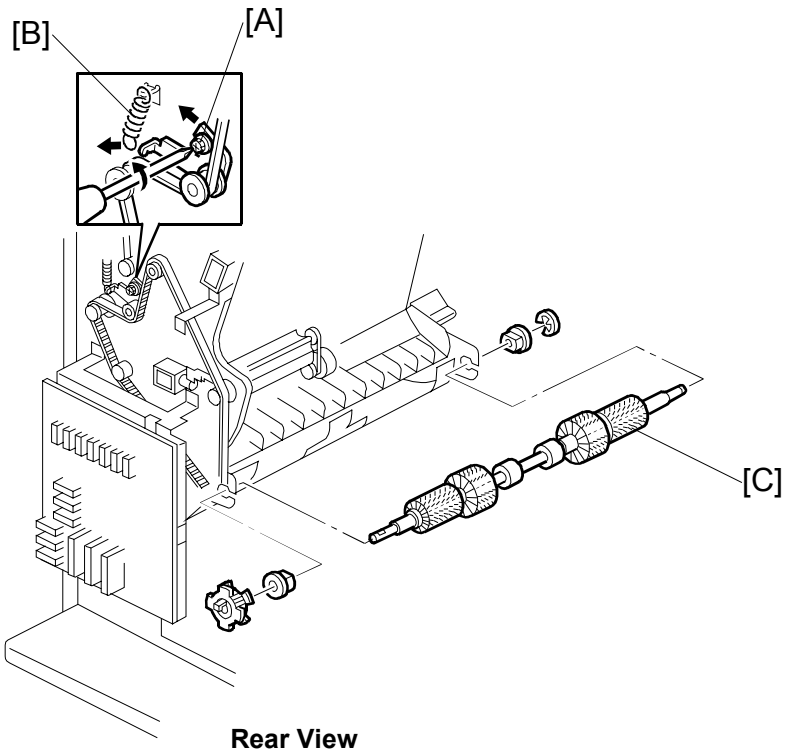


1.3 INNER COVER

[A]: Inner cover (x3)
[B]: Pull out the jogger unit.



1.4 BRUSH ROLLER



Rear View

Open the front door.

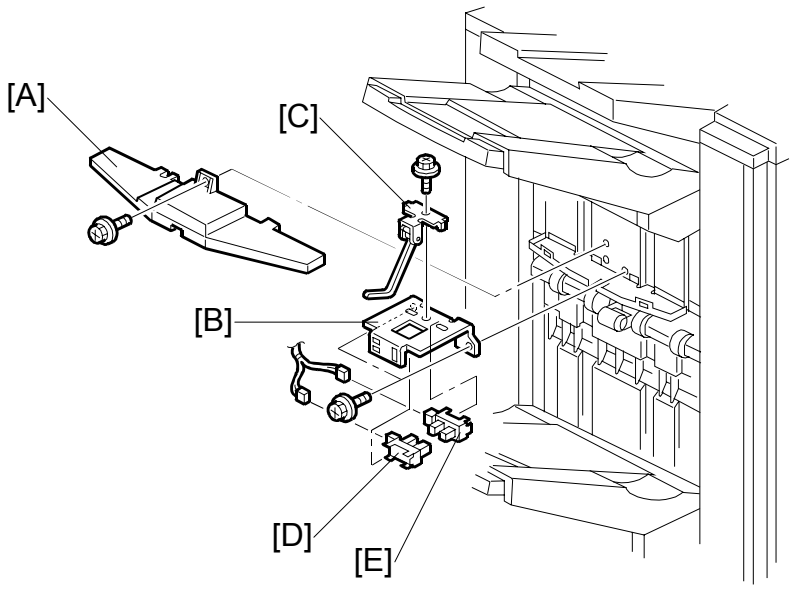
Pull out the jogger unit.

Rear cover (☛ 1.1)

[A]: Loosen tension bracket (🔩 x1)
[B]: Spring
[C]: Brush roller assy (ℂ x1, bushing x3)

- Remove the e-ring and bushing at [C] before removing the bushings on the back end of the shaft.

1.5 LOWER TRAY PAPER HEIGHT SENSORS 1, 2

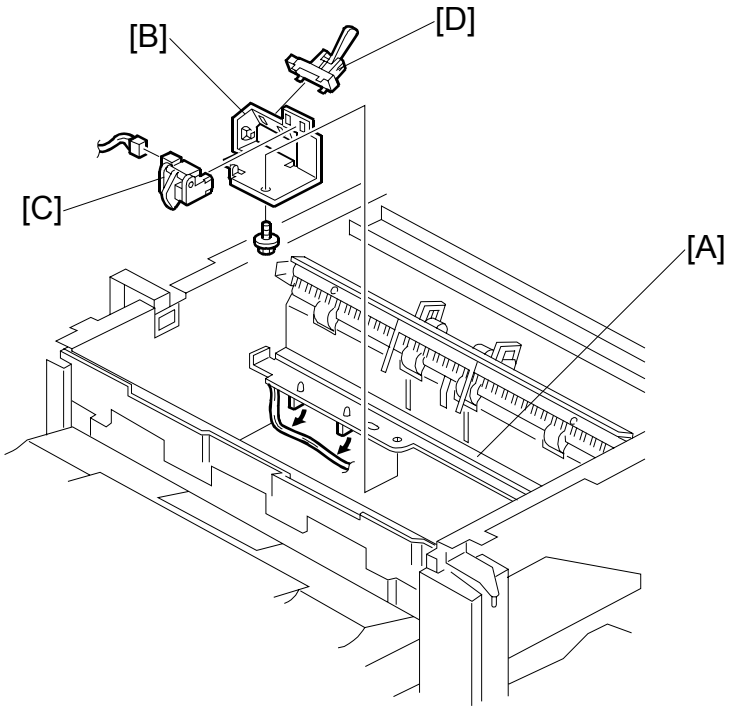


[A]: Paper height sensor cover (x1)
- Lift the back edge of the cover up. Then pull it toward you slowly to disengage the tabs under the front edge of the cover and remove it.

[B]: Paper height sensor bracket (x2, x2)
- Mark the one socket and its connector with a felt pen to ensure that you do not reverse the connectors at re-connection.

[C]: Paper height sensor feeler (x1)
[D]: Paper height sensor 1
[E]: Paper height sensor 2

1.6 PROOF TRAY EXIT AND FULL SENSORS

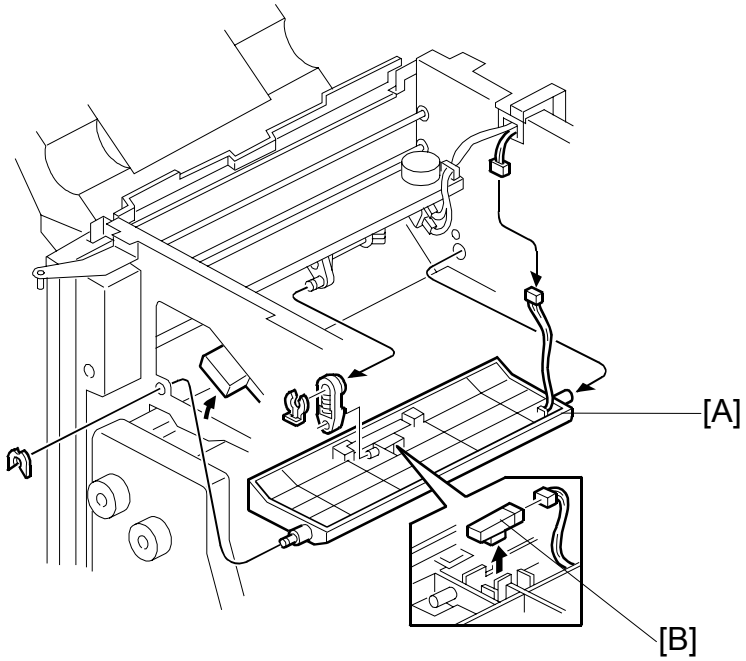


Open the front door.

Top cover (☛ 1.1)

[A]: Guide plate (🔩 x4)
[B]: Sensor bracket (🔩 x1)
[C]: Proof tray full sensor (✋ x1)
[D]: Proof tray exit sensor (✋ x1)

1.7 EXIT SENSOR



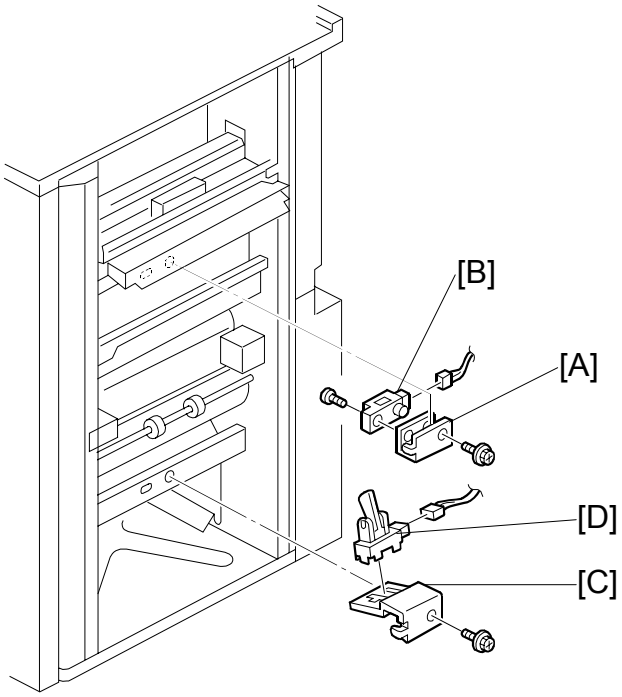
Open the front door.

Top and rear cover (☛ 1.1)

[A]: Guide plate (☞ x1) (☜ x2)

[B]: Exit sensor (☞ x1)

1.8 FINISHER, STAPLER ENTRANCE SENSORS



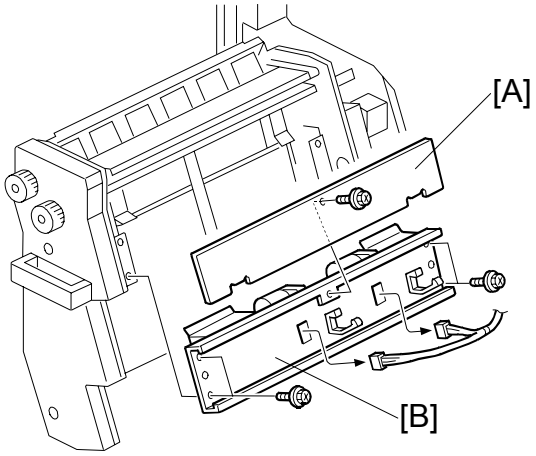
Disconnect the finisher from the main unit.

If the Cover Interposer Tray B470 is installed, remove it. Loosen the three shoulder screws, remove one set screw, then lift it off the frame.

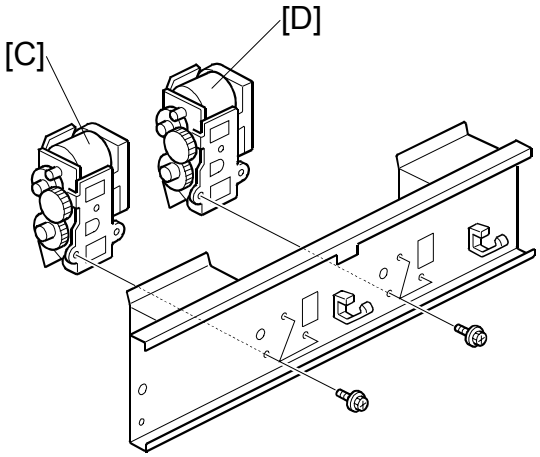
[A]: Finisher entrance sensor bracket (x1)
[B]: Finisher entrance sensor (x1) (x1)
[C]: Stapler entrance sensor bracket (x1)
[D]: Stapler entrance sensor and feeler (x1)

1.9 SADDLE-STITCH STAPLER REPLACEMENT

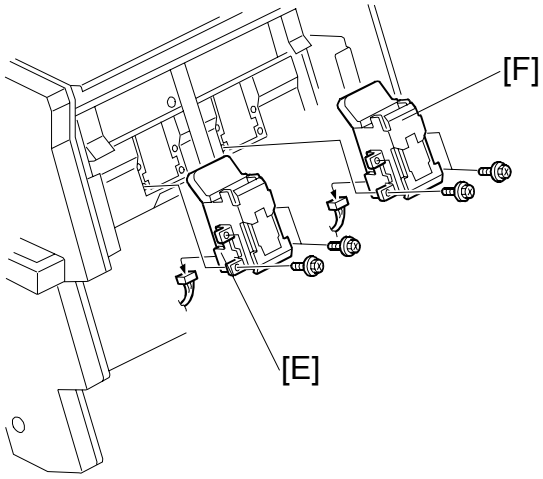
1. Remove the cover [A] (x1).
2. Remove the staple unit motor mount [B] (x4, x2).



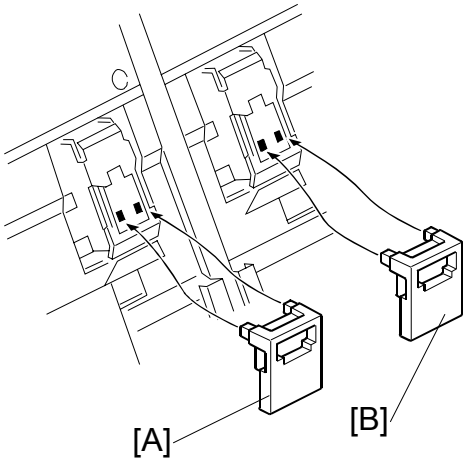
3. Remove the old booklet stapler motors (x3 each x1 each).
4. Attach the left booklet stapler motor [C] and right stapler motor [D] (x3 each).
   NOTE: Do not tighten the screws.



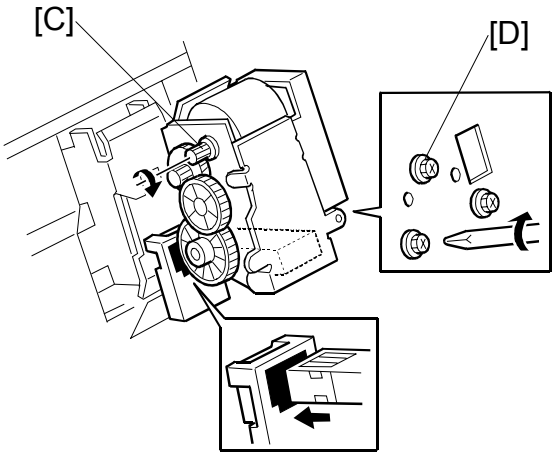
5. Remove the old booklet staplers (x4 each, x1 each).
6. Attach the booklet stapler [E] and the stapler [F] (x4 each, x1 each) and tighten the screws.



7. Attach the Teflon jigs [A] and [B].
8. Attach the new booklet stapler motor mount to the frame (x4).



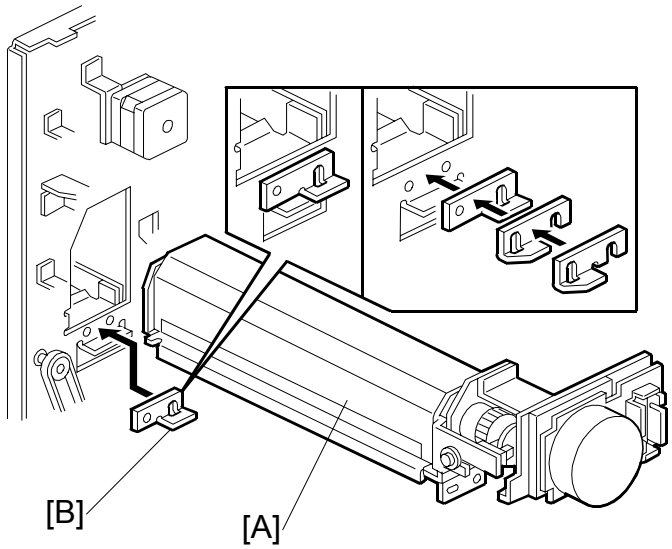
9. On each motor, with your finger turn the brass gear [C] toward you until it stops then tighten the motor screws [D] .(x3)
10. Remove the motor mount board (x4) and remove the jigs.
11. Fasten the new motor mount to the frame (x4, x2).



1.10 PUNCH POSITION ADJUSTMENT

The positions of punch holes can be adjusted in two directions:

- **Vertical positon**. To adjust the vertical positions of the punch holes, execute SP6113 002 (Punch Hole Adjustment – 2 Holes) or 003 (3 Holes) to adjust the timing of the punch motor.



- **Horizontal position**. To adjust the horizontal positions of the punch holes, install or remove the metal spacers. Three spacers are used:
  - 1 spacer, 2 mm thick
  - 2 spacers, each 1 mm thick.

Rear cover (☛ 1.1)

[A]: Punch unit (🔩 x2)

[B]: Spacer
- Attach or remove the required number of spacers.
- The 2 mm spacer should be installed to set the default punch hole positions. Use the 1 mm spacers to adjust.

1.11 JAM DETECTION

Mode	Jam	Cause
Proof/Shift/Staple	Finisher entrance sensor check in failure	Remains off even after the main machine exit sensor goes OFF and the paper feeds 270 mm.
	Finisher entrance sensor check out failure	Remains on even after enough time has elapsed for twice the length of the paper to feed.
Proof	Proof tray exit sensor check in failure	Remains OFF even after the entrance sensor goes ON and the paper has fed 380 mm.
	Proof tray exit sensor check out failure	Remains ON even after enough time has elapsed for twice the length of the paper to feed.
Shift	Exit sensor check in failure	Remains OFF after the entrance sensor goes ON and the paper has fed 570 mm.
	Exit sensor check out failure	Remains ON after enough time has elapsed for twice the length of the paper to feed.
Staple	Booklet exit sensor check in failure	Remains OFF after the entrance sensor goes ON and the paper has 760 mm.
	Booklet exit sensor check out failure	Remains ON after the stapler tray entrance sensor goes OFF, and enough time has elapsed for twice the length of the paper to feed.
	Stapler tray paper sensor check out failure	Remains ON after the feed out belt motor switches ON and pulse count exceeded 466.
	Exit sensor check in failure	Remains OFF after the feed out belt motor switches ON for 1260 ms.

1.12 DIP SW 100 (MAIN BOARD)

The settings of DIP SW 100 on the main finisher board should remain set to OFF (zero in the table below). These settings should not be changed by the customer or the customer engineer during normal operation or testing. These settings are provided for reference only.

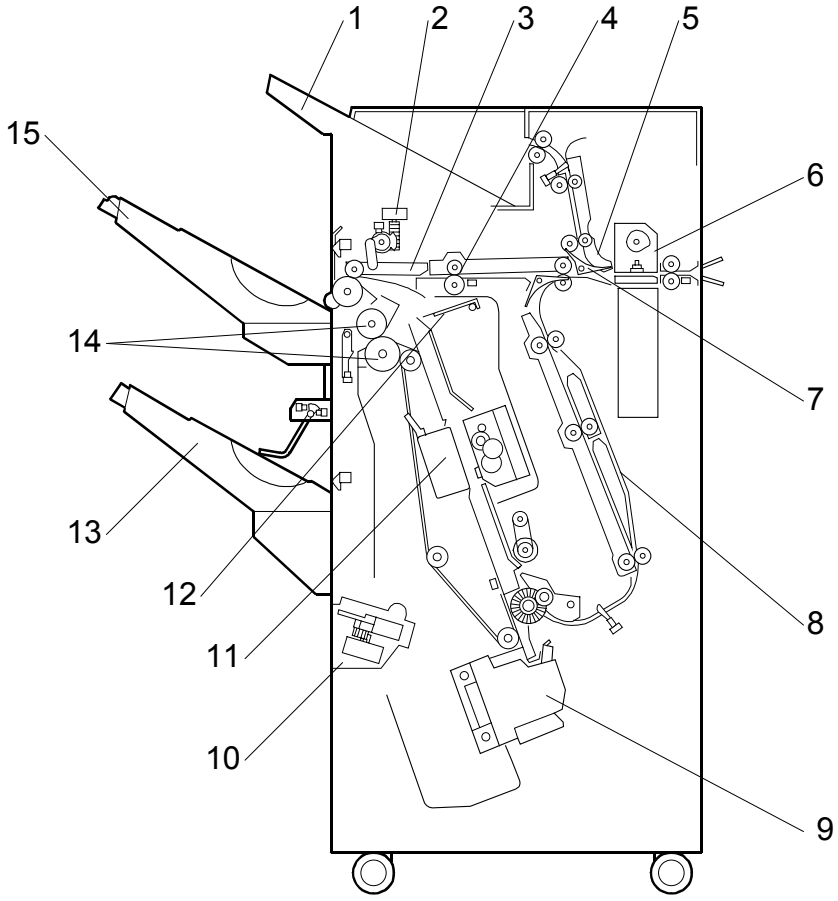
DIP SW 101				Mode	Content
1	2	3	4		
0	0	0	0	Default	
1	0	0	0	Not Used	
0	1	0	0	Cover Feeder Test	Operation Check
1	1	0	0	Cover Feeder Test	Operation Check
0	0	1	0	Move to Shipping Position *1	See note below.
1	0	1	0	Cover Feeder Check	Operation Check
1	1	1	0	Cover Feed Test	Operation Check

*1: The following procedure repositions the trays to the shipping position.

1) Make sure that the main switch is turned off.
2) Turn on DIP SW101-3.
3) Turn on the main switch. The finisher automatically repositions the trays to the shipping position.
4) After the finisher completes moving the trays, turn off DIP SW101-3.

2. DETAILS

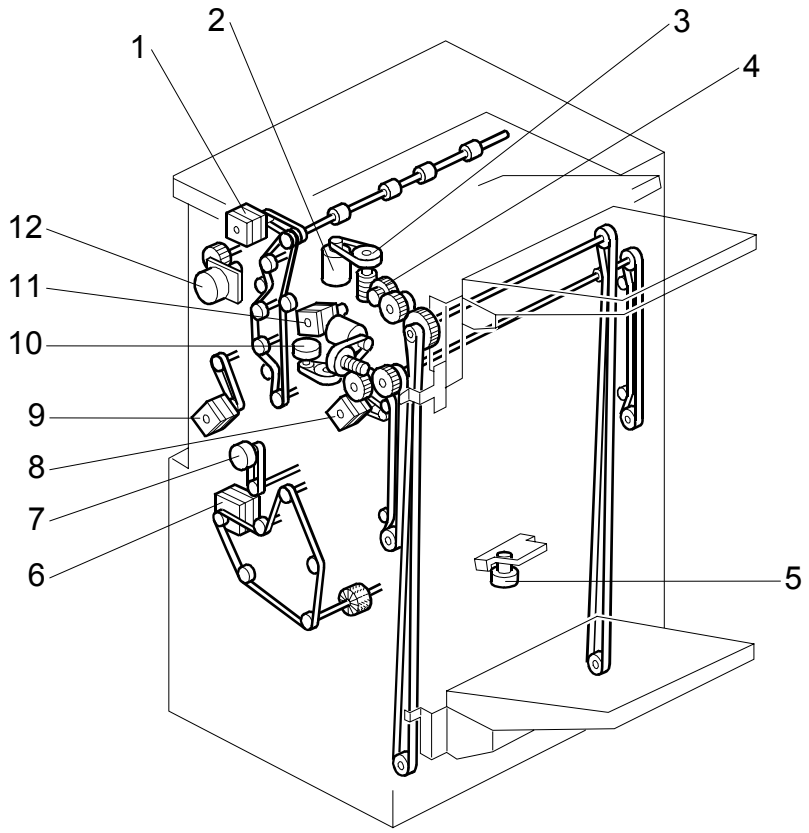
2.1 OVERVIEW



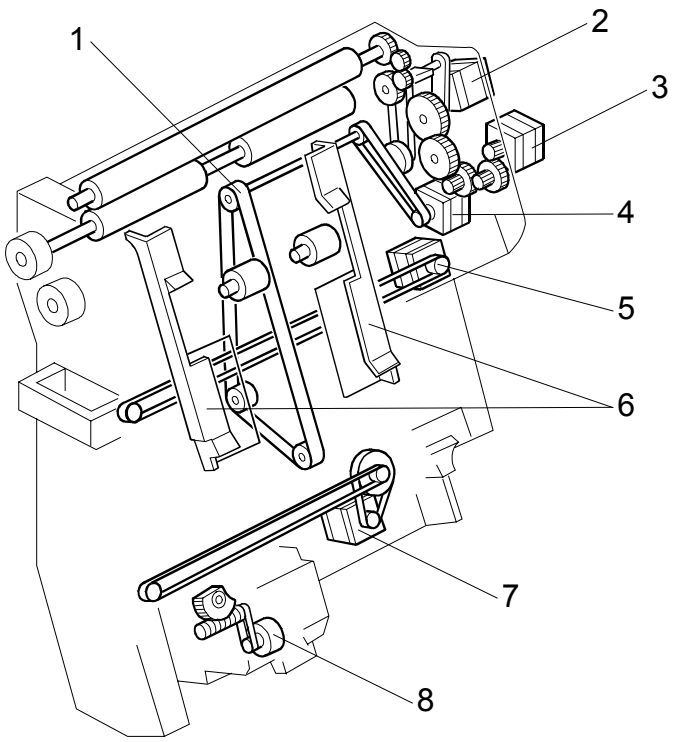
1. Proof Tray
2. Guide Plate Motor
3. Guide Plate
4. Shift Roller
5. Tray Junction Gate
6. Punch Unit
7. Stapler Junction Gate
8. Pre-Stack Tray
9. Stapler Unit
10. Pressure Plate Unit*
11. Saddle Stitch Stapler*
12. Folder Plate*
13. Lower Tray*
14. Folder Rollers*
15. Upper Tray

*** B468 Only**

2.2 DRIVE LAYOUT

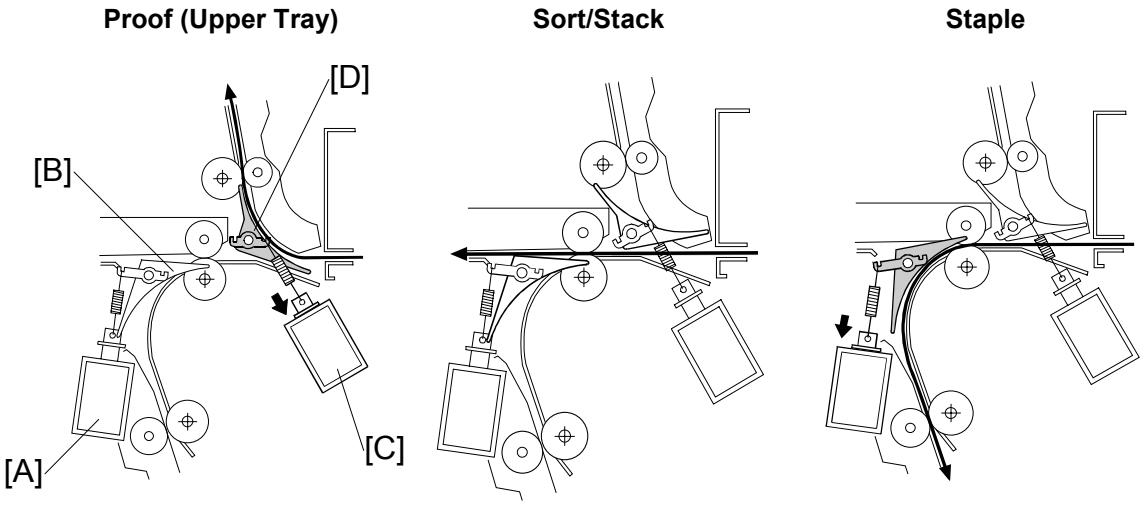


1. Proof Tray Motor
2. Lower Tray Lift Motor
3. Lower Tray Encoder Disk
4. Upper Tray Lift Motor
5. Pressure Plate Motor
6. Stapler Transport Motor
7. Pre-Stack Motor
8. Exit Motor
9. Entrance Motor
10. Shift Roller Motor
11. Shift Drive Motor
12. Punch Motor



1. Stack Feed Out Belt
2. Folder Roller Motor*
3. Folder Plate Motor*
4. Feed Out Belt Motor
5. Jogger Fence Motor
6. Jogger Fences
7. Stapler Movement Motor
8. Stapler Rotation Motor

2.3 TRAY/STAPLER JUNCTION GATES

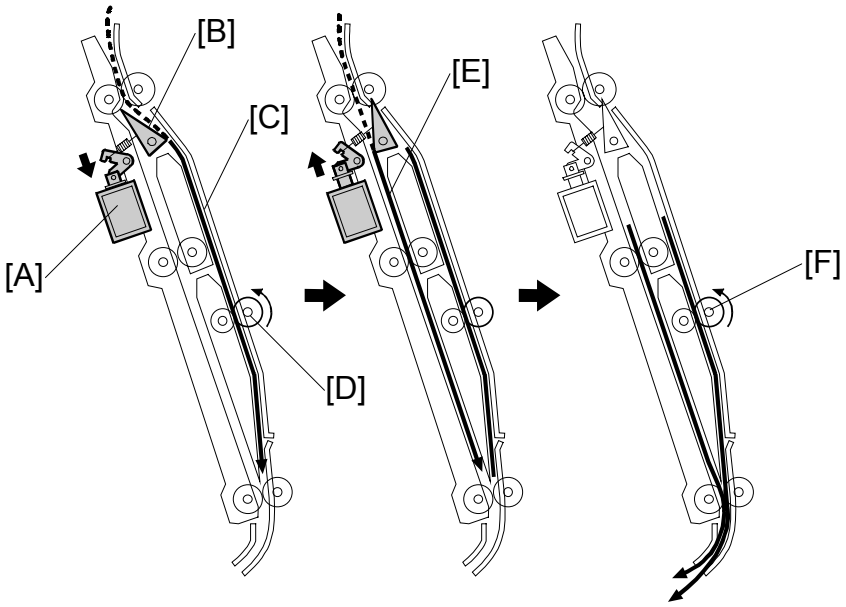


The finishing mode selected for the job determines the direction of the paper in the finisher.

- **Proof Tray (Top of the unit)**. Paper is sent to the top tray.
- **Shift**. Paper is sent straight to the upper or lower tray.
- **Staple**. Paper is sent down to the stapler unit

Solenoid/Gate		Selected Operation Mode		
		Proof	**Sort/Stack**	**Staple**
[A]	Stapler junction gate solenoid	OFF	OFF	ON
[B]	Stapler junction gate	Closed	Closed	Open
[C]	Proof tray junction gate solenoid	ON	OFF	OFF
[D]	Proof tray junction gate	Open	Closed	Closed

2.4 PRE-STACKING



During a multiple copy job selected for stapling, the pre-stacking mechanism delays the first two sheets of every set (after the first set) to allow enough time to staple the preceding stack on the stapler tray. Pre-stacking is performed with the first and second sheets for the second and all subsequent sets.

Shortly after the first sheet of the set enters the finisher, the pre-stack junction gate solenoid [A] switches on, opens the pre-stack junction gate [B] and shunts the first sheet to the paper pre-stack tray [C]. When the first sheet passes the pre-stack roller [D], the pre-stack motor switches off and the sheet stops.

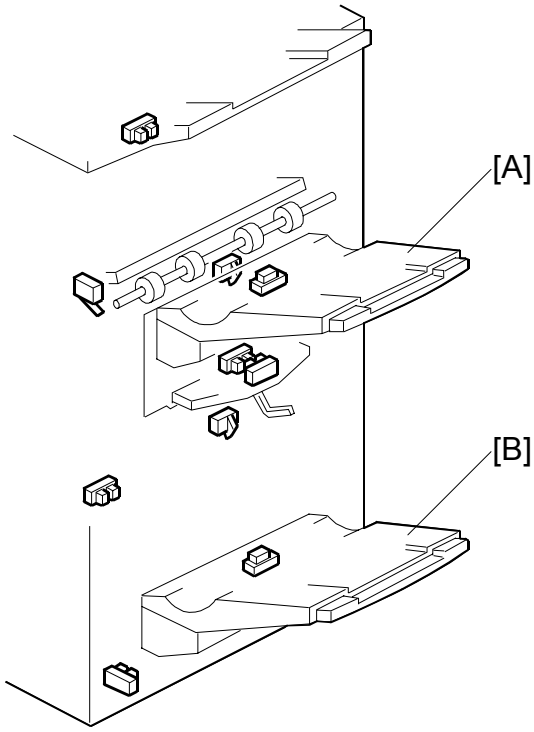
Shortly after the trailing edge of the first sheet enters the finisher, the solenoid switches off, and the junction gate closes. This allows the second sheet of the set to pass the closed junction gate and enter the main paper path [E].

At the prescribed time, the pre-stack motor switches on, and the pre-stack transport roller [F] rotates and sends the first sheet to the stapler tray at the same time as the second sheet arrives there.

All subsequent sheets of the same set are sent through the main paper path to the stapler tray for stapling.

2.5 VERTICAL LIFT MECHANISM

2.5.1 OVERVIEW

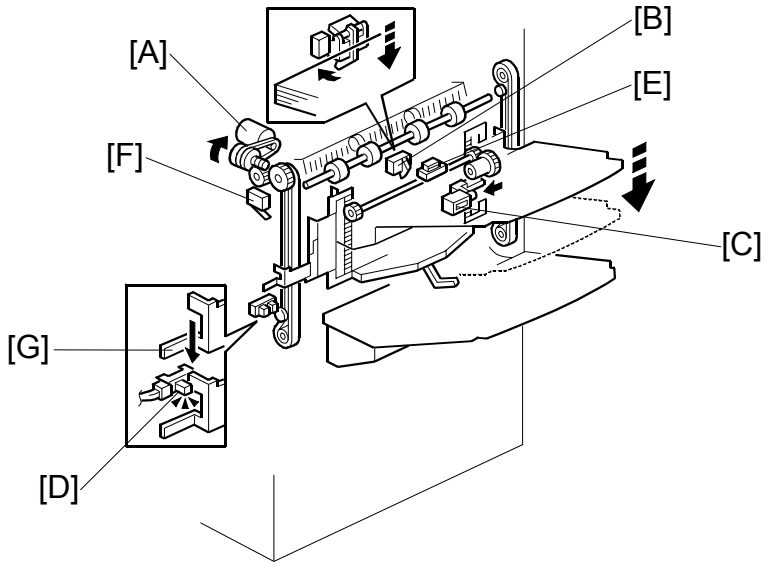


At power on, both trays lower slightly, then the upper tray stops at the feed-out position. The machine is ready for feed out to the upper tray [A]

During printing, the upper [A] or lower tray [B] (whichever is selected) is repeatedly lowered until the stack reaches a certain height and then the job halts. The upper tray holds 500 sheets (A4 LEF), and the lower tray holds 2500 sheets.

Both trays can be used for the normal, shift, and staple modes. However, only the lower tray can be used for the booklet binding (saddle-stitch mode).

2.5.2 UPPER TRAY



[A]: Upper tray lift motor
[B]: Upper tray paper height sensor
[C]: Upper tray lift solenoid
[D]: Upper tray full sensor
[E]: Upper tray paper sensor
[F]: Upper limit switch (upper tray)

Just After the Power is Switched on

At power on, the motor [A] moves the upper tray to the start position just under the feed-out slot. The motor stops when the paper height sensor [B] detects the tray.

Height Adjustment During Feed-Out

The upper tray moves up and down on a rack and pinion on a movable side fence that remains locked in place during copying.

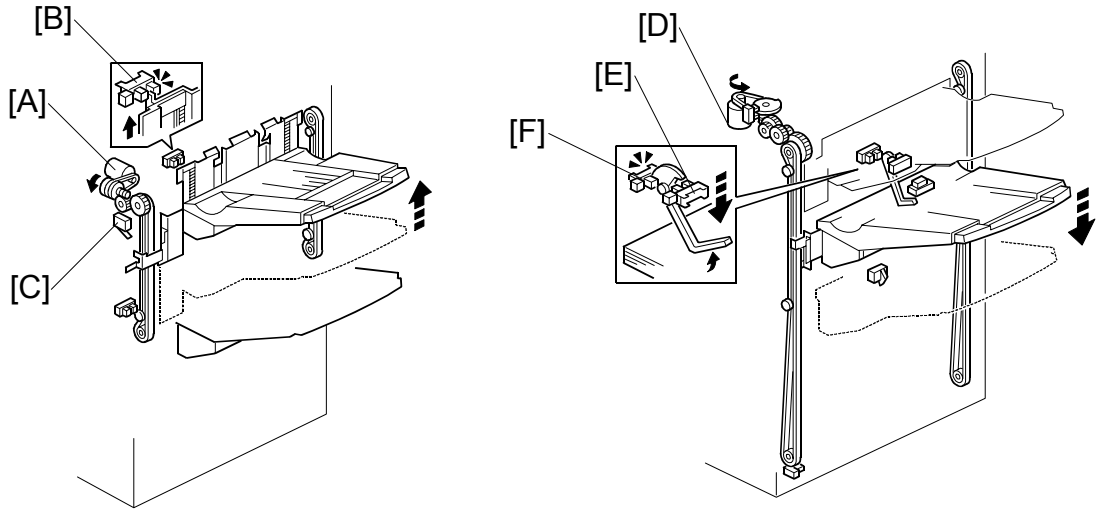
When the top of the stack actuates the sensor [B], a solenoid [C] inside the upper tray releases a locked one-way clutch long enough to lower the upper tray a short distance on its track to allow more pages to feed out. This process repeats until the tray is full.

Upper Tray Full

When the tray is full, a metal actuator [G] on the side of the upper tray frame actuates the upper tray full sensor [D] and the job stops.

The paper sensor [E] inside the upper tray detects when the stack is removed from the tray, and the tray returns to the initial position at the feed-out slot. The upper limit switch [F] (a micro-switch) is a backup if sensor [B] fails to stop the tray.

2.5.3 LOWER TRAY



[A]: Upper tray lift motor
[B]: Upper tray upper limit sensor
[C]: Upper limit switch (upper tray)
[D]: Lower tray lift motor
[E]: Lower tray paper height sensor 1
[F]: Lower tray paper height sensor 2

Just After the Power is Switched on

At power on, the lower tray moves to the start position under the feed-out slot, as described previously.

Positioning the Lower Tray for Feed-out

If the lower tray is selected for a job, the upper tray is moved away from the feed-out slot at the start of the job. The motor [A] lifts the side fence and upper tray to upper limit sensor [B], which stops the motor. The upper tray remains locked in position on the side fence (by the upper tray lift solenoid) while the lower tray is in use.

If sensor [B] fails, switch [C] stops the tray.

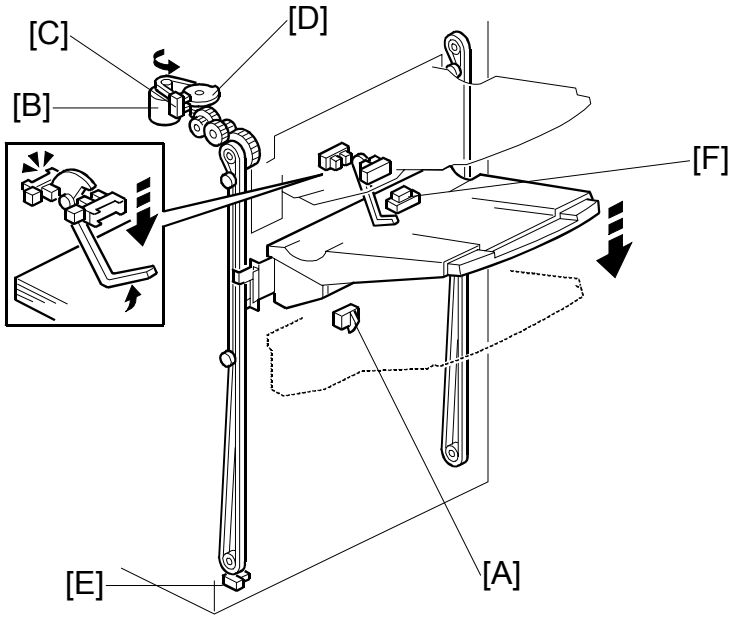
While the lower tray is being raised, motor [D] lifts the lower tray to the feed-out slot. The motor stops when the upper tray paper height sensor detects the tray.

Lower Tray Height Adjustment During Feed-out

Two sensors and a long feeler that contacts the top of the stack control the lower tray height during feed-out.

When the top of the stack is low, the feeler drops and the actuator swings up and actuates height sensor 1 [E]. As the stack grows higher, the feeler is pushed up until it actuates height sensor 2 [F]. After height sensor 2 remains active for 3 seconds, the lift motor [D] switches on and lowers the tray a short distance. This process repeats until the tray is full.

Lower Tray Full



[A]: Lower tray full sensor (sort/shift mode)
[B]: Lower tray lift motor
[C]: Lower tray encoder sensor
[D]: Encoder disk
[E]: Lower tray full sensor (saddle-stitch mode)
[F]: Lower tray paper sensor

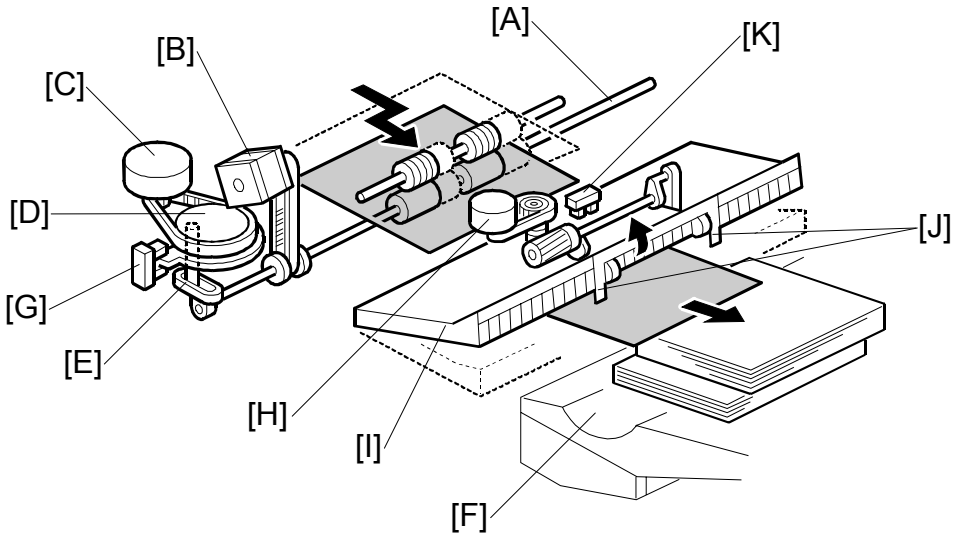
The sensor that is used depends on which mode the user has selected.

Normal sorting/stapling, without saddle stitching: When the bottom of the tray actuates sensor [A], the lift motor [B] continues to rotate for a certain number of rotations. The rotations are detected using sensor [C] and encoder disk [D]. Then printing stops. If sensor [C] fails, the upper limit switch (lower tray) stops the motor. This switch (not shown in the diagram) is next to the plastic foam roller at the feed-out slot.

Saddle-stitch mode: Sensor [A] is not used. The tray is lowered until the actuator on the side of the tray actuates sensor [E]. Then printing stops.

In both modes, when the stack is removed from the tray, sensor [F] de-actuates and returns the lower tray to the initial position at the feed-out slot.

2.6 SHIFT MECHANISM



The same shift mechanism is used for the upper tray and lower tray.

Shift Roller Rotation

The shift roller [A] is turned by the shift roller motor [B].

Shift Roller Horizontal Movement

The shift roller is moved from left to right by the shift motor [C] and shift gear disk [D].

When the trailing edge of the copy passes the upper transport roller, the shift motor switches on, moving the shift roller to the left or right via the shift gear disk [D] and the link [E].

After the paper is delivered to the tray [F], the shift roller moves to the home position, detected by the shift HP sensor [G].

The process is repeated for every page of the same set, when the trailing edge of the page passes the transport roller.

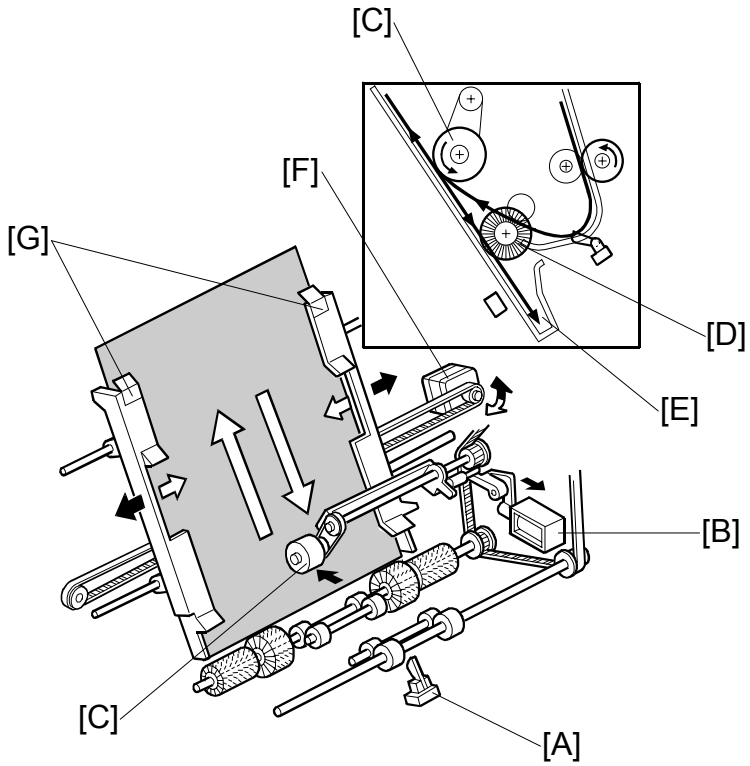
For the next set, the shift motor rotates the gear disk in the opposite direction to shift every page of the next stack to the opposite side.

Exit Guide Plate

The guide plate motor [H] (a stepper motor) controls the opening and closing of the guide plate [I], via a cam and pin mechanism. The guide plate opens for each sheet to allow the shift, then closes to keep the sheet in the correct position for feed out. Two mylars [J] above the feed-out slot keep the copies straight in the feed path.

The guide plate position sensor [K] detects whether the guide plate is open or closed.

2.7 PAPER POSITIONING



Vertical Alignment

When the trailing edge of the copy passes the stapler tray entrance sensor [A], the positioning roller solenoid [B] switches on long enough for the selected paper size and pushes the positioning roller [C] onto the paper. The positioning roller and alignment brush roller [D] rotate to push the paper and align the trailing edge of the paper with the stack stopper [E].

The stapler transport motor (not shown in this diagram) drives rollers [C] and [D].

Horizontal alignment

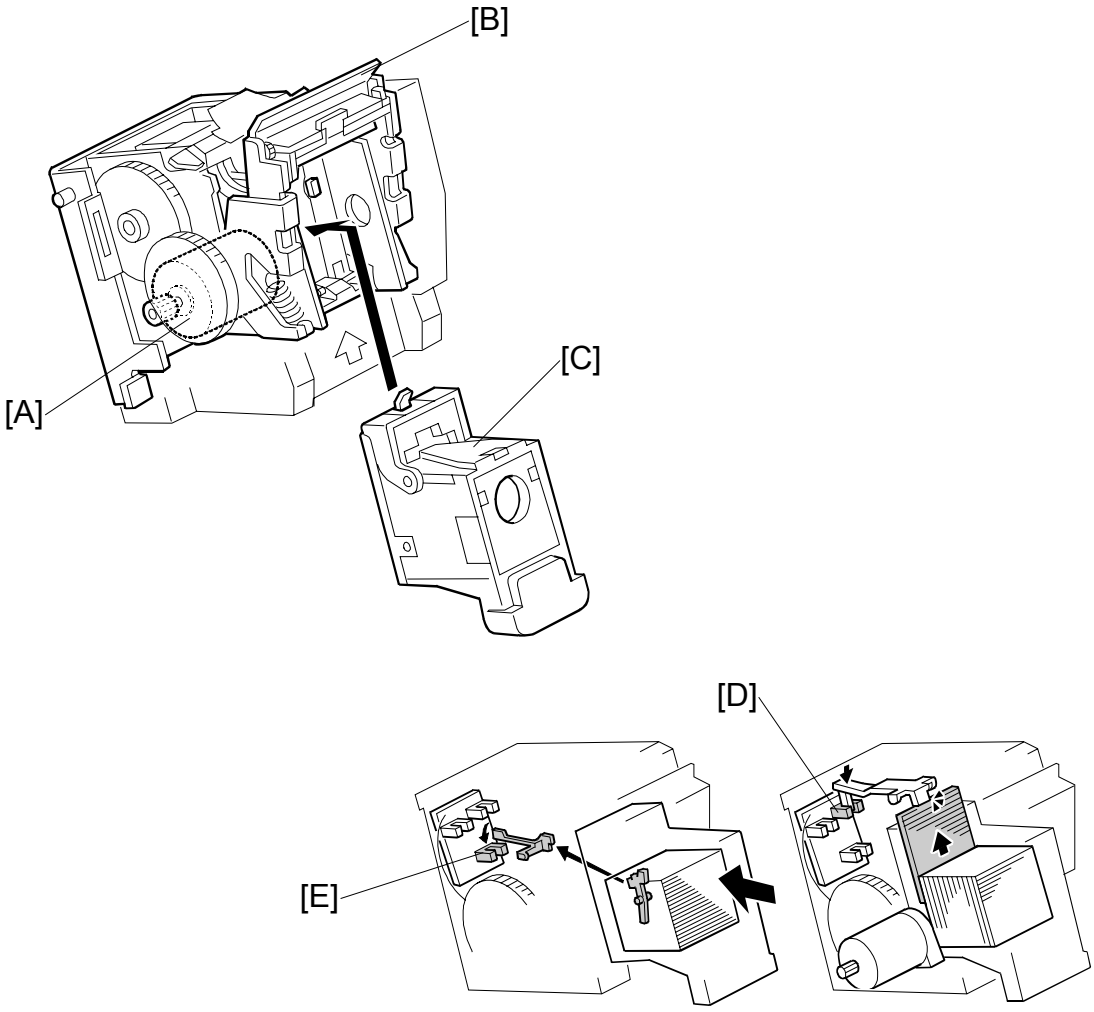
When the Start key is pressed, the jogger motor [F] switches on and opens the jogger fences 10 mm wider than the selected paper size.

When the leading edge of the sheet passes the staple unit entrance sensor, for the initial alignment, the jogger motor switches on for the prescribed time and closes the jogger fences 4 mm (2 mm closer to either side of the paper)

Next, the jogger motor switches on again for the prescribed time for the horizontal alignment to close the jogger fences 6 mm (3 mm to the sides of the paper) for the final alignment correction. The jogger motor switches on again and the fences return to the wait position 10 mm wider than the selected paper size.

2.8 STAPLER

2.8.1 STAPLING MECHANISM



Staple firing is driven by the stapler motor [A] inside the stapler unit. The stapler hammer [B] fires the stapler [C].

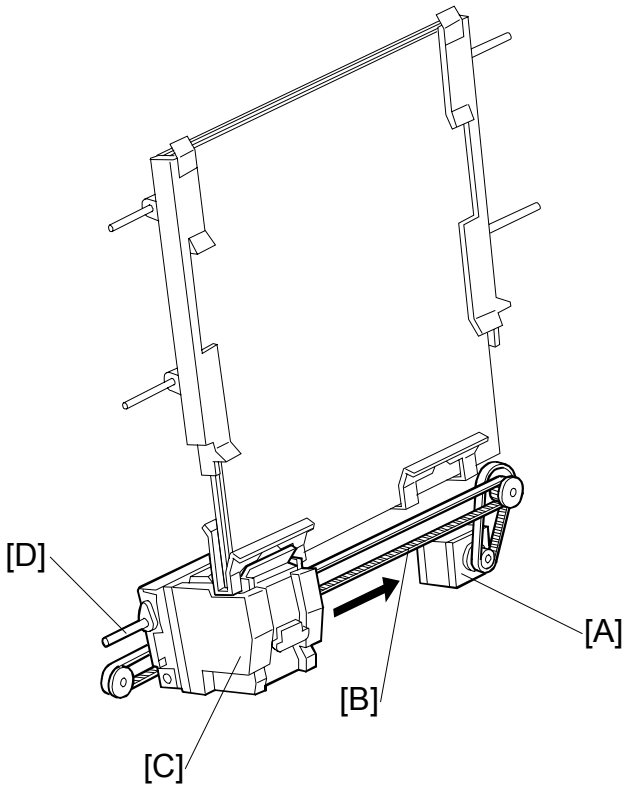
The cartridge set sensor [D] detects the cartridge at the correct position, or logs an SC if the stapler unit is not at the correct position.

The stapler end sensor [E] detects the staple end condition and logs an SC.

2.8.2 STAPLER MOVEMENT

The stapler performs horizontal and rotational movement in each of the four staple modes.

Horizontal Stapler Movement



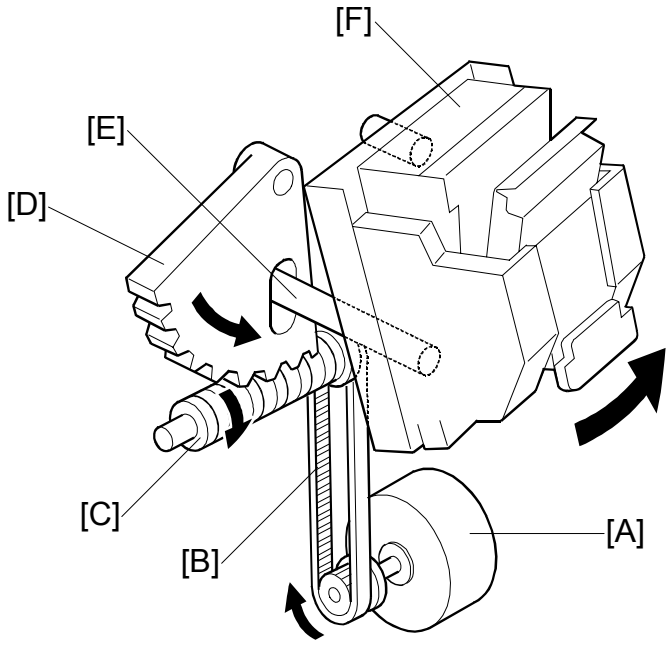
The stapler movement motor [A] drives the timing belt [B] which moves stapler [C] left and right on a support bar [D].

When the Start key is pressed, the jogger fences move to the wait position 10 mm wider than the selected paper size, the stapler motor switches on and moves the stapler to the staple position and then switches off. The motor switches on and off for the time needed to position the stapler for the paper size selected for the job.

If the stack is to be stapled at two locations, the stapler moves to the front position first, staples, moves to the back position, staples, and then returns to the home position.

NOTE: SP6120 001~011 (Staple Jogger Adjustment). Use this SP to fine adjust the staple unit jogger fences for different paper sizes. For details, see section “5. Service Tables”.

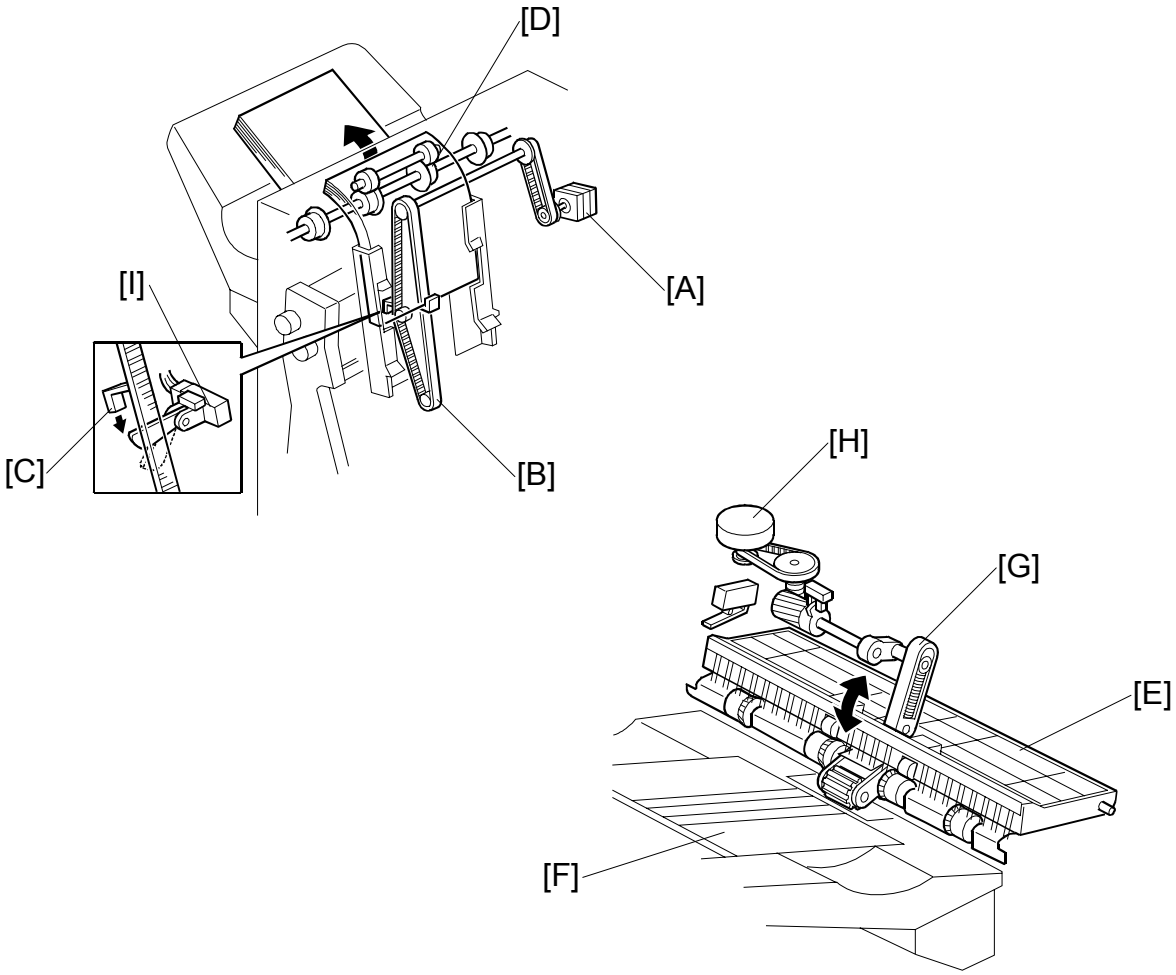
Rotational Stapler Movement



When the user has selected oblique stapling at one position, first the stapler motor switches on and off for the amount of time needed to move the stapler to the stapling position for the selected paper size.

At the correct time, the stapler rotation motor [A] switches on and via the timing belt [B] rotates the worm gear [C]. The worm gear drives the gear [D] and the lift arm [E], which lifts and positions the stapler unit [F] so the stapler can fire the staple at a 45 degree angle.

2.8.3 FEED OUT



After a set has been stapled, the stack feed out motor [A] switches on and drives the stack feed out belt [B]. The pawl [C] on the belt lifts the stapled stack and transports it to the exit rollers [D]. There are two pawls on the belt, to increase productivity.

The exit guide plate [E] remains open until the leading edge of the stapled sheets has passed the prescribed distance from the tray exit rollers, then the exit guide plate closes, and the stapled sheets feed out to the tray [F].

A cam and pin [G], powered by the guide plate motor [H], opens and closes the guide plate.

The stack feed out motor stops for 300 ms to allow the exit rollers to feed out the stapled sheets to the output tray. This pause prevents the copies from pushing out too far onto the tray.

The stack feed out motor switches on again until the pawl actuates the stack feed out belt HP sensor [I].

2.9 BOOKLET FINISHING

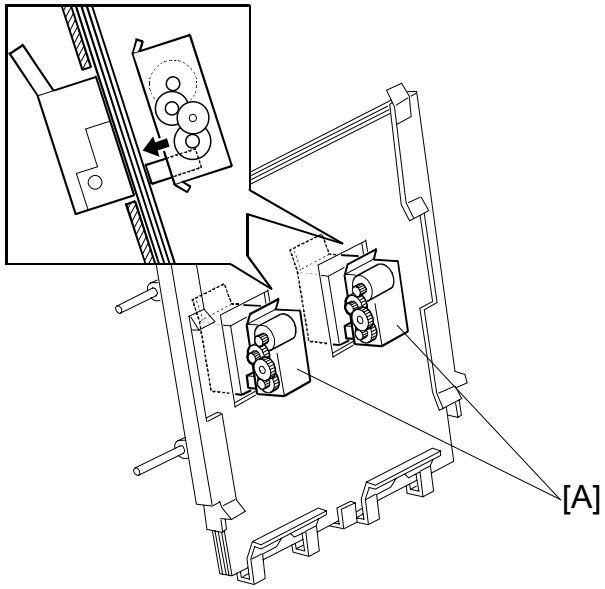
2.9.1 OVERVIEW

Stapling: Two booklet staplers are used. These are about half way up the stack fed-out path The stack feed-out belt moves the stack to the correct position for stapling.

Folding: This is done in two phases: initial folding and final folding.

- Initial folding: At the top of the stack feed-out belt, a plate pushes the centre of the copy (at the stapled place) through a pair of rollers to give the booklet an initial fold. However, this fold is only a partial fold.
- Final folding: The partially folded copy drops to the lower tray, where it is caught by a pressure plate mechanism, which completes the fold in the booklet before letting it drop onto the lower tray.

2.9.2 BOOKLET STAPLING AND FOLDING

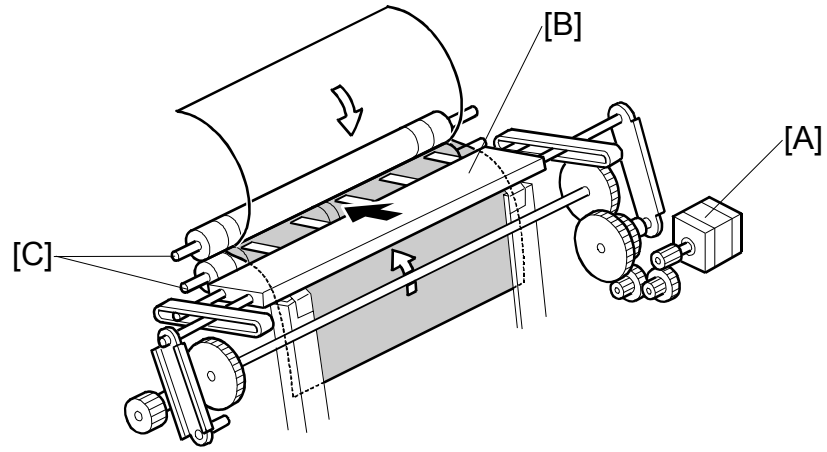


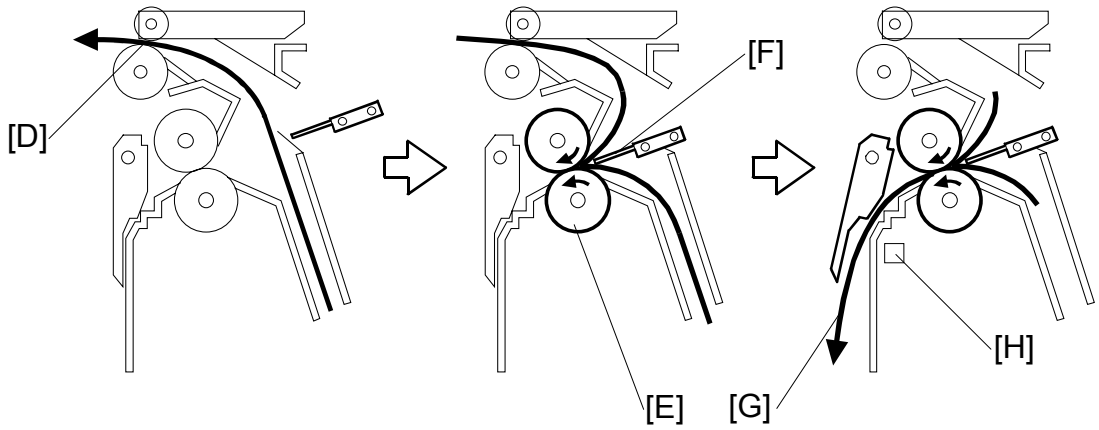
The sheets are aligned by the jogger fences before stapling. (☛ 2.7)

The aligned sheets are sent to the booklet stapler unit and positioned below the booklet staplers [A] for stapling at two locations in the center of the paper.

The stack feed-out belt lifts the booklet until two pawls on the folder plate mechanism (see the next page) catch the staples to position the booklet for folding.

2.9.3 INITIAL FOLDING





The folder plate motor [A] switches on and drives the folder plate [B] forward to push the center of the booklet into the nip of the folder rollers [C], giving the booklet a partial fold.

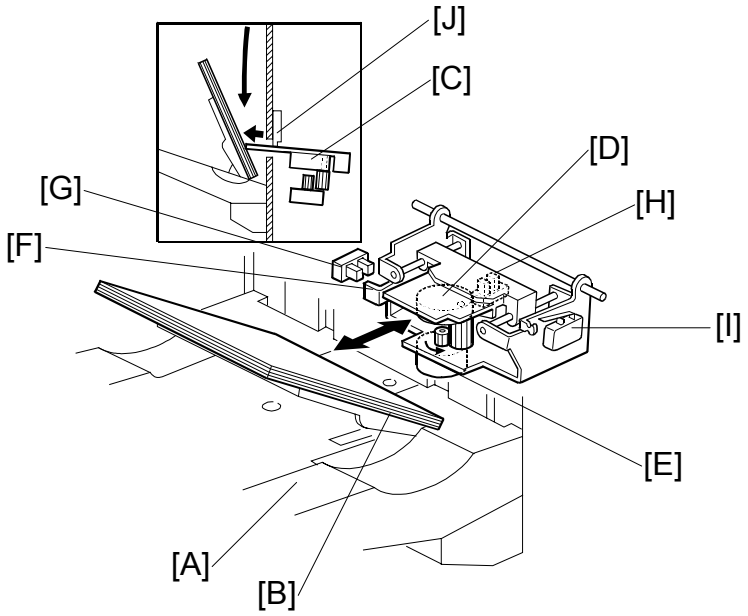
This is a detailed cross-section of the operation described above. The timing of the sequence depends on the size of the paper selected for the job.

The stack feed-out belt transports the booklet toward the paper exit [D] and stops when the center of the booklet is opposite the nip of the folder rollers [E].

The folder roller motor starts to turn and the folder rollers [E] start rotating. Then the folder plate motor switches on and pushes the folder plate [F] into the center of the booklet, driving the booklet between the rotating rollers. The booklet [G] (partially folded) then feeds out between the folder rollers.

The booklet exit sensor [H] detects the booklet when it leaves the folder rollers. This sensor triggers the mechanism for the next phase of the operation.

2.9.4 FINAL FOLDING AND FEED-OUT



When the finisher is ready to feed out the first stapled booklet, the lower tray [A] descends past the pressure plate slot [J], the spring-loaded arms inside the lower tray snap into the grooves on the side fence, and the springs push the arms against the bottom of the support wing [B] to raise it.

Then, before the first stapled booklet falls from the slot above, the pressure plate motor [E] (stepper motor) rotates the gear and cam [D] counter-clockwise to extend the pressure plate [C]. The lower tray then raises and pushes the pressure plate up until the actuator [F] actuates the pressure plate lift sensor [G] and switches off the lower tray lift motor.

Then, the folded and stapled booklet comes out of the booklet exit slot, actuates the booklet exit sensor, and falls onto the pressure plate below. The actuated booklet exit sensor switches on the pressure plate motor, which rotates the gear and cam clockwise to retract the pressure plate. The motor rotates until the actuator on the rim of the cam actuates the pressure plate HP sensor [H] and stops the motor. Retracting the pressure plate allows the stapled booklet to fall past the pressure plate slot onto the stack below.

Next, the pressure plate motor switches on again to extend the pressure plate, while the lower tray raises and pushes the folded and stapled edges of the booklets up against the pressure plate until the actuator [F] actuates the pressure plate lift sensor [G] and switches off the lower tray lift motor. The booklets remain pressed between the extended pressure plate and lower tray until the next booklet is fed out.

The pressure plate limit switch [I] switches off the lower tray lift motor if the pressure plate lift sensor fails.

B377
PUNCH UNIT

PUNCH UNIT B377

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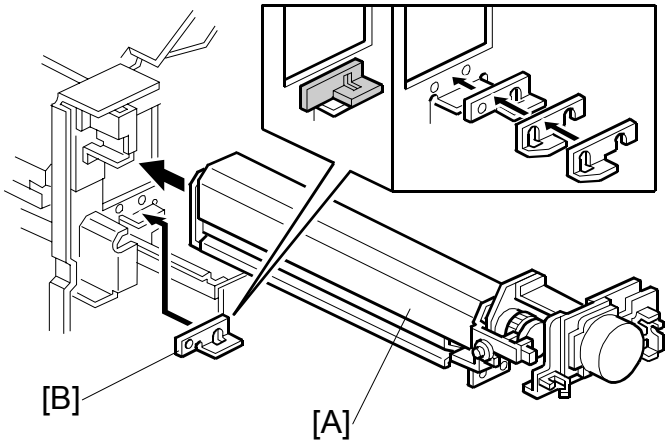
1. REPLACEMENT AND ADJUSTMENT

1.1 PUNCH POSITION ADJUSTMENT

To adjust the position of the punch holes in the paper feed direction, use SP6113 (Punch Hole Adjustment).

The punch position can be adjusted by up to 4 mm using combinations of the 3 spacers provided with the finisher. To adjust the horizontal position of the holes, use the spacers provided with the punch unit.



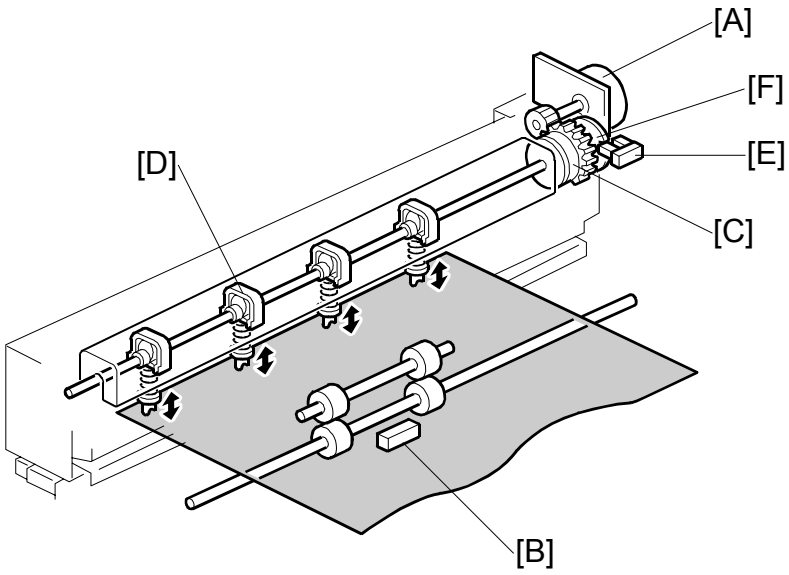
1. Rear cover (x4)
2. Punch unit [A] (x3, x5)
3. Spacers [B]

2. DETAILS

The punch unit punches holes in printed sheets, one by one. The punch unit is provided with a new punch mechanism to improve the accuracy of punching.

NOTE: The illustrations below show the unit for Europe for 2/4 hole punching. The North American unit has five holes for 2/3 hole punching.

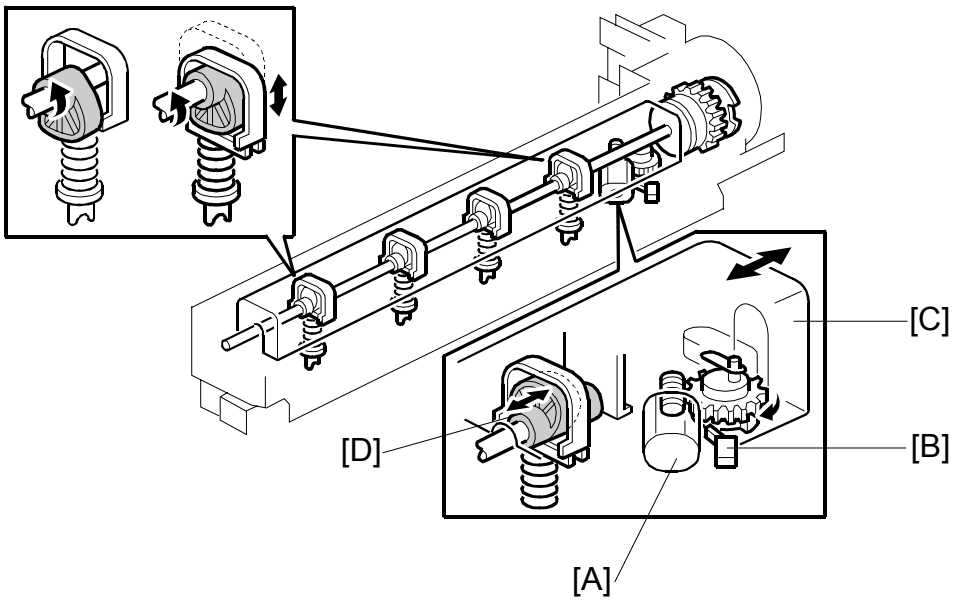
2.1.1 PUNCH DRIVE MECHANISM



The punch motor [A] drives the punch mechanism. At the correct time after the trailing edge of the paper passes the finisher entrance sensor [B], the punch motor turns on and the paper stops. The punch clutch [C] turns and drives the punch heads [D].

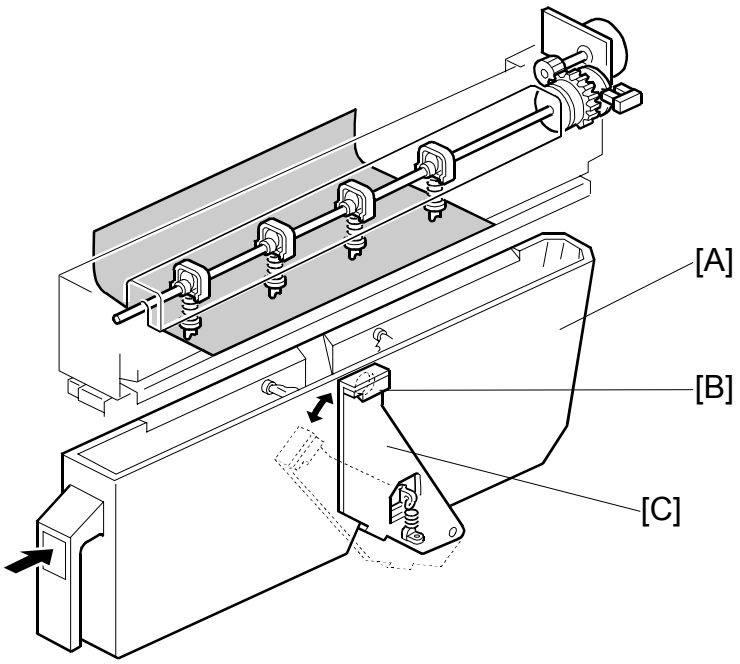
The punch HP sensor [E] detects the home position for the actuator. The punch unit switches off when the cut-out in the punch shaft disk [F] enters the punch HP sensor.

NOTE: SP6113 (Punch Hole Adjustment) adjusts the punch hole position in the sub scan direction for two holes (001 2-Hole) or for three holes (002 3-Hole). Use the spacers provided with the punch unit to adjust the position of the punch in the main scan direction. For details, refer to the installation of the punch unit in section “1. Installation”).



When the finisher has received the command that changes the number of punch holes for the job, the punch hole motor [A] turns on until the actuator disk changes the status of the punch hole switch [B] (until it switches on or off). This indicates that the cover [C] and the punch cam [D] have moved to one side or the other to determine which punchers are used.

2.1.2 PUNCH WASTE COLLECTION



Waste punchouts are collected in the punch waste hopper [A] below the punch unit inside the finisher.

When the top of the punchout waste in the hopper reaches and actuates the hopper sensor [B], a message will be displayed on the operation panel after the current job is completed.

This sensor also detects whether the punch waste hopper is installed. When the waste hopper is taken out, the arm [C] moves down and this will actuate the sensor and display a message in the operation panel. This message is the same as for the hopper full condition.

B470

COVER INTERPOSER TRAY

B470 COVER INTERPOSER TRAY
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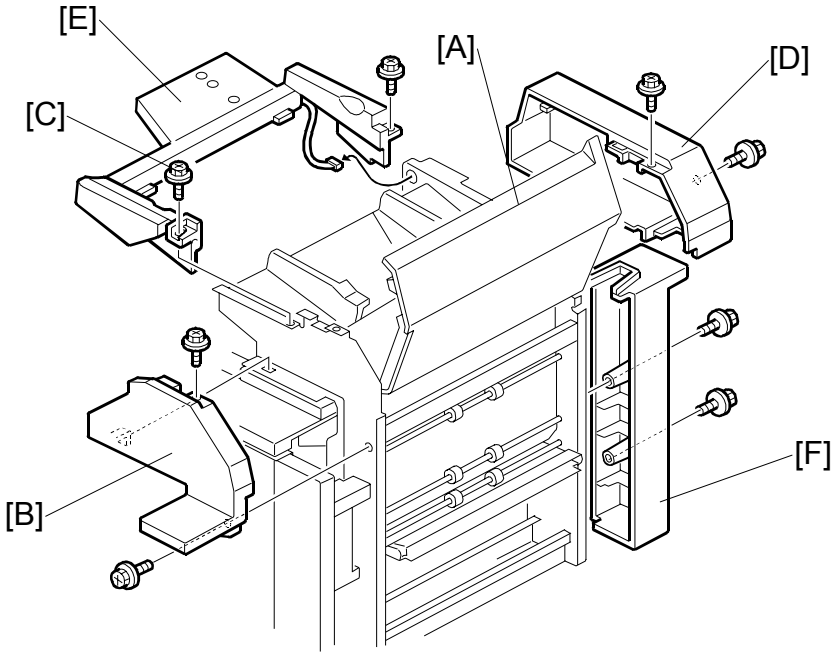
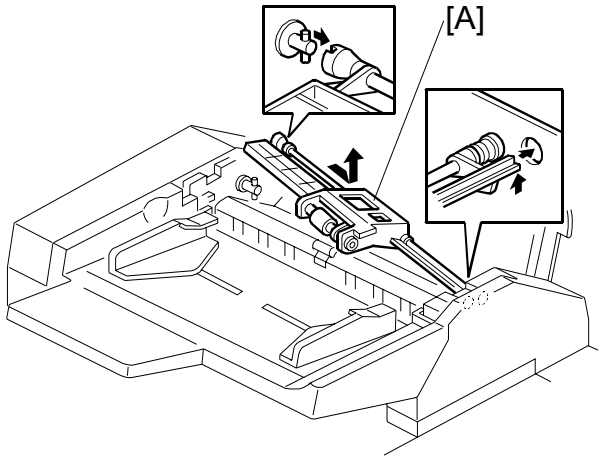
1. REPLACEMENT AND ADJUSTMENT

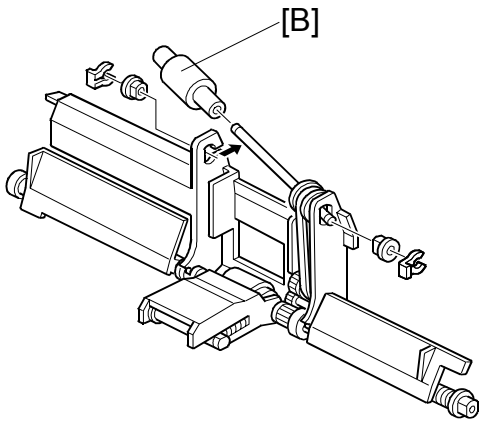
1.1 EXTERNAL COVERS



[A]: Open the feed cover.
[B]: Upper front cover (x2)
NOTE: To remove the upper front cover, screw [C] must be removed.
[D]: Rear upper cover (x2)
[E]: Slip sheet tray (x2, x1)
[F]: Rear middle cover (x2)

1.2 FEED UNIT AND PICK-UP ROLLER





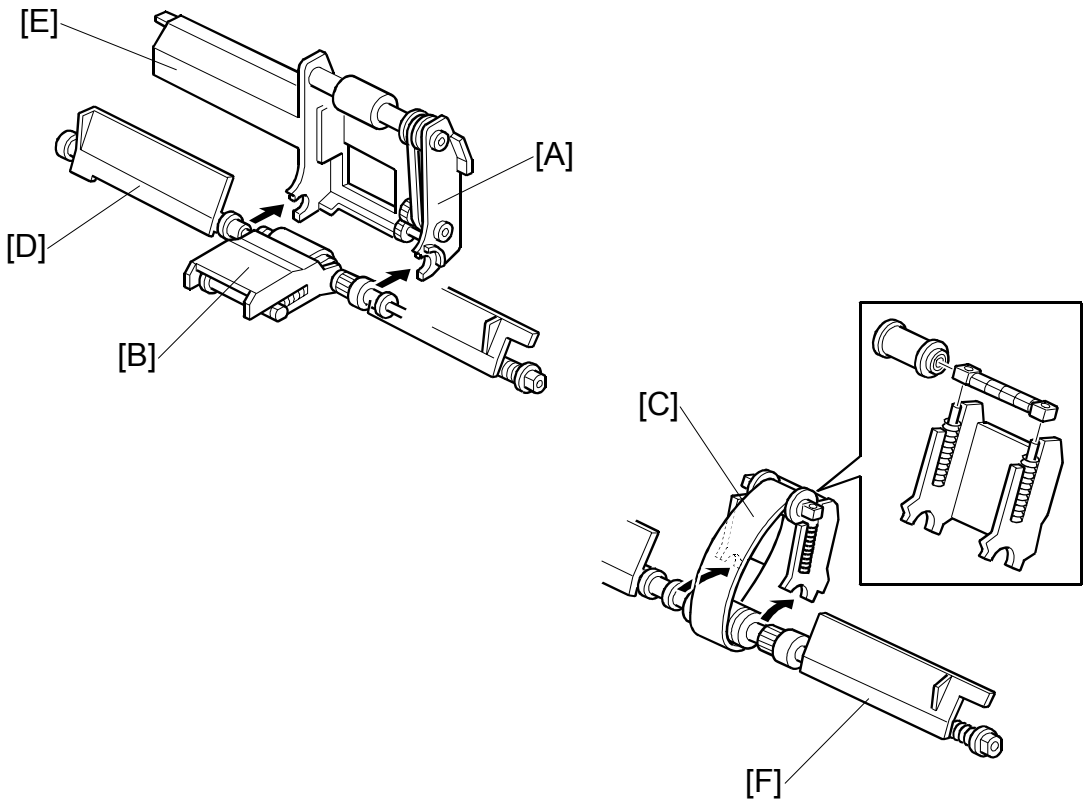
Open the feed cover.

[A]: Feed unit

- The unit is spring loaded. Push it to the right to release it, then lift it out.

[B]: Pick-up roller (x2, bushings x2)

1.3 FEED BELT



Feed unit (☛ 1.2)

[A]: Pick-up roller unit.
- Pull the unit away from the bushings in the direction of the arrow.

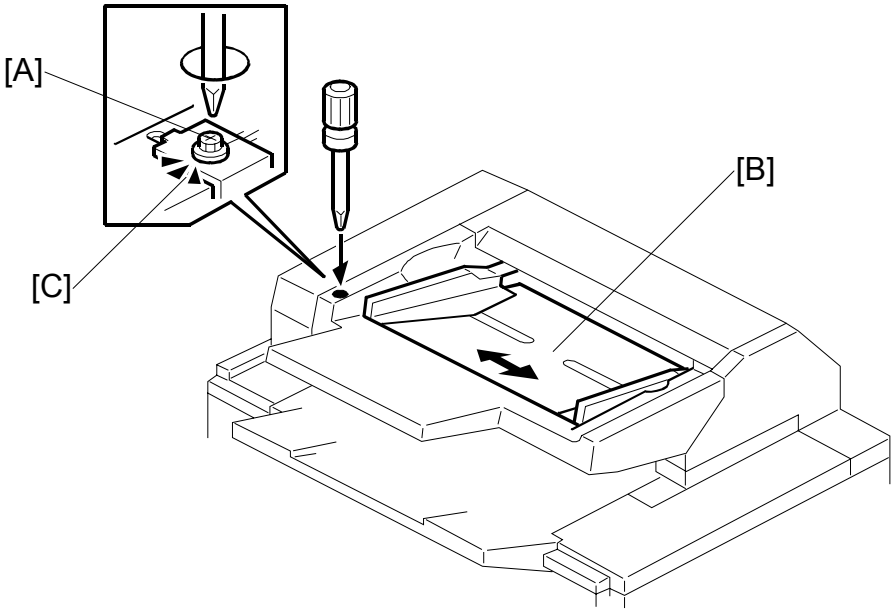
[B]: Feed belt holder
- Hold the feed belt holder by the sides, then lift up to separate from the holder.
- Pull slowly to avoid losing the springs.

[C]: Feed belt.

Re-assembly

1. Position the pick-up roller unit [A] and feed belt holder [B] as shown above.
2. On the rear side, slide out the bushing, and rotate [D] until its flat side is parallel with [E], then snap it on.
3. On the front side, rotate [F] until its flat side is parallel with [D], then snap it on. Viewed from the bottom, the plates must be aligned.

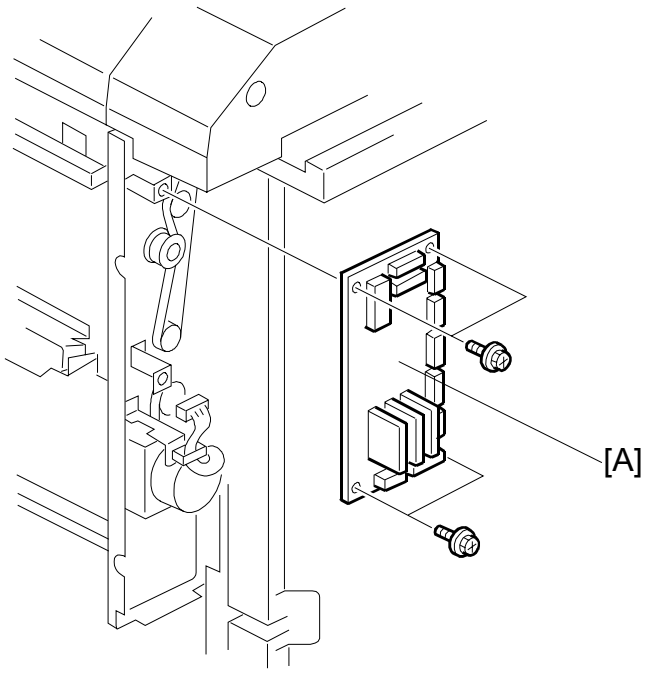
1.4 GUIDE PLATE ADJUSTMENT



Adjust the guide plate if the holes punched in the covers or slip sheets are not correctly aligned with holes punched in the other sheets.

1. Open the feed cover.
2. Loosen the screw [A].
3. Push the table [B] left or right to change its position, then tighten the screw.
   NOTE: If you want to see the scale [C], you must remove the rear cover and the support tray.

1.5 MAIN BOARD



Open the top cover.

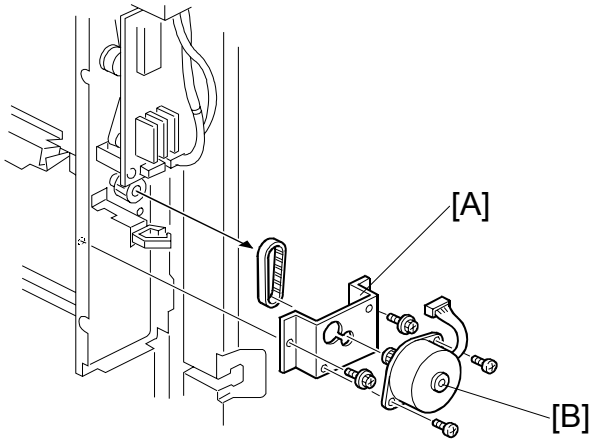
Rear cover (x1)

[A]: Main board (x9, x4)

NOTE: All DIP switch settings on the main board of the cover sheet unit should be set to OFF.

1.6 MOTOR REPLACEMENT

1.6.1 VERTICAL TRANSPORT MOTOR



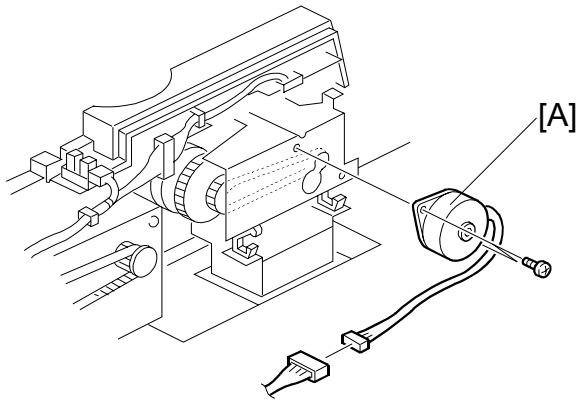
Open the top cover.

Rear cover (x1) (☛ 1.1)

[A]: Motor bracket (x1, harness x1, x2, timing belt x1)

[B]: Motor (x2)

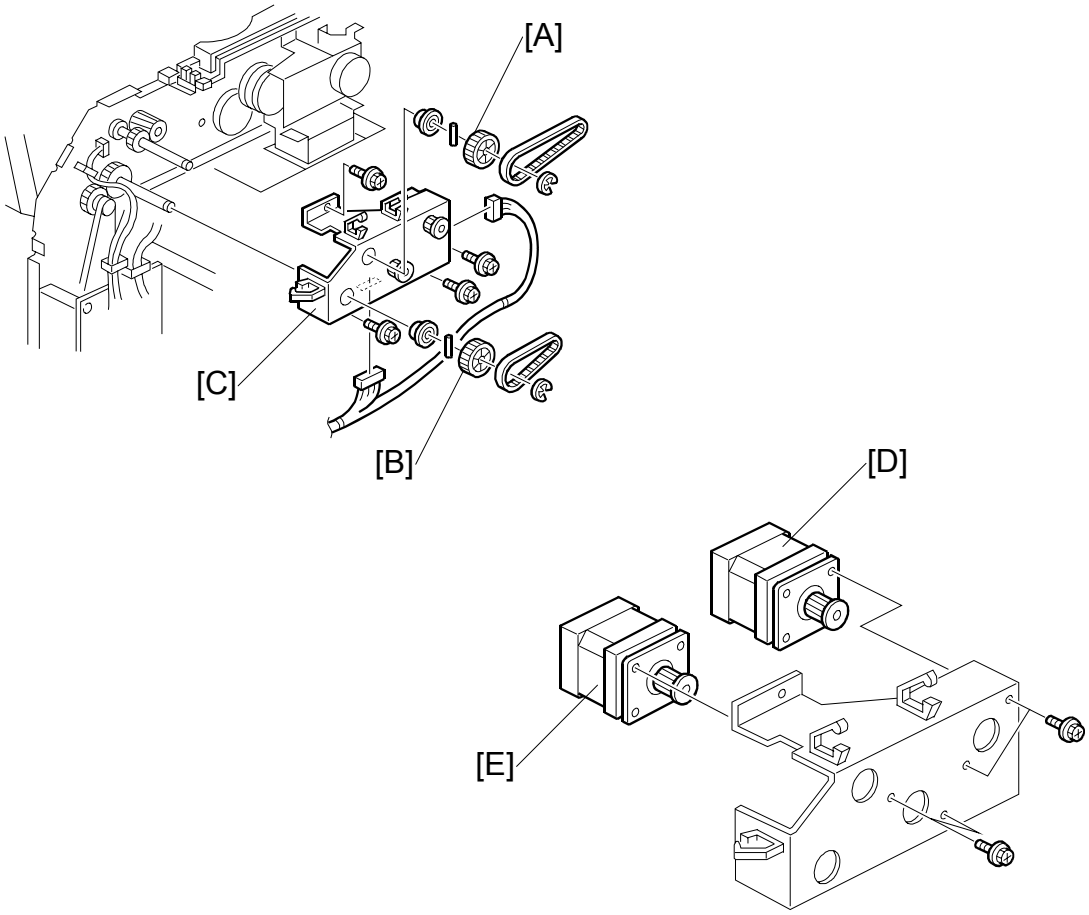
1.6.2 BOTTOM PLATE LIFT MOTOR



Rear upper cover (☛ 1.1)

[A]: Bottom plate lift motor (harness x2, x1, x2)

1.6.3 FEED MOTOR, TRANSPORT MOTOR



Rear upper cover (☛ 1.1)

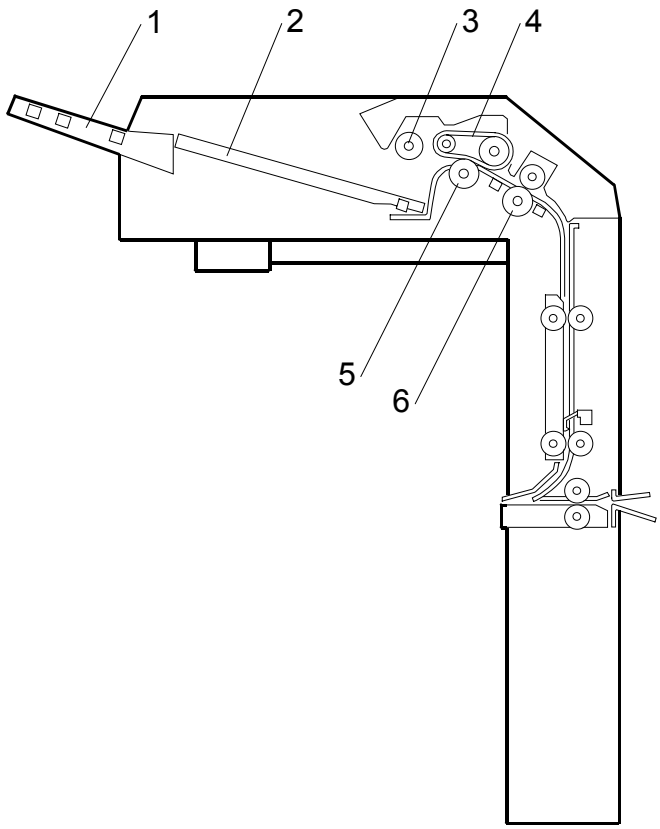
NOTE: When removing the feed gear and transport gear, hold one hand under the gear to catch the pin as it falls from the hole in the shaft.

[A]: Feed gear (ℂ x1, pin x1, timing belt x1, bushing x1)
[B]: Transport gear (ℂ x1, pin x1, timing belt x1, bushing x1)
[C]: Motor bracket (harness x5, 𝒻 x4)
[D]: Feed motor (🖳 x1, 𝒻 x2)
[E]: Transport motor (🖳 x1, 𝒻 x2)

2. DETAILS

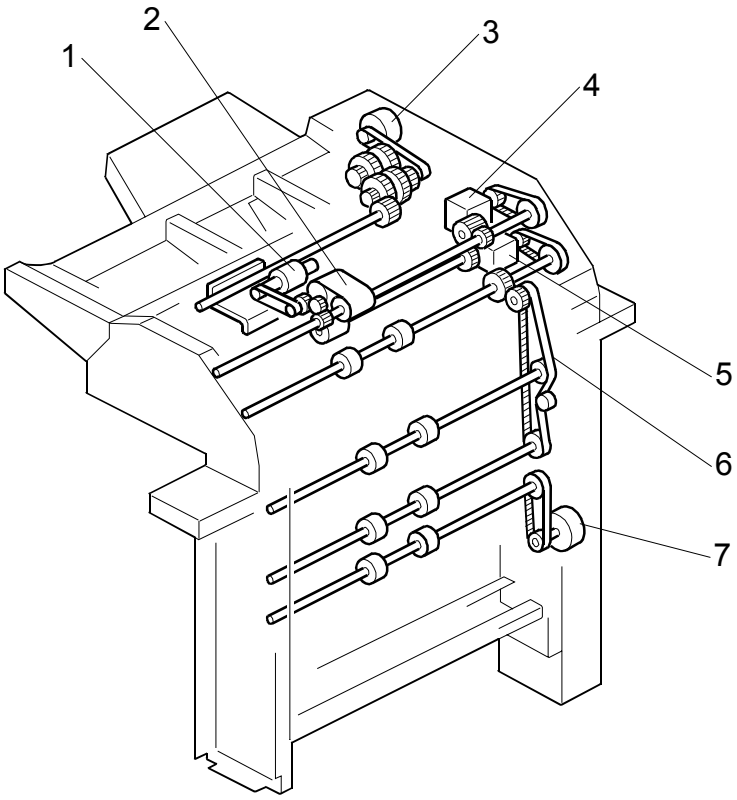
2.1 OVERVIEW

2.1.1 MAIN LAYOUT



1. Support tray
2. Slip sheet tray
3. Pick-up roller
4. Feed belt
5. Separation roller
6. Grip roller

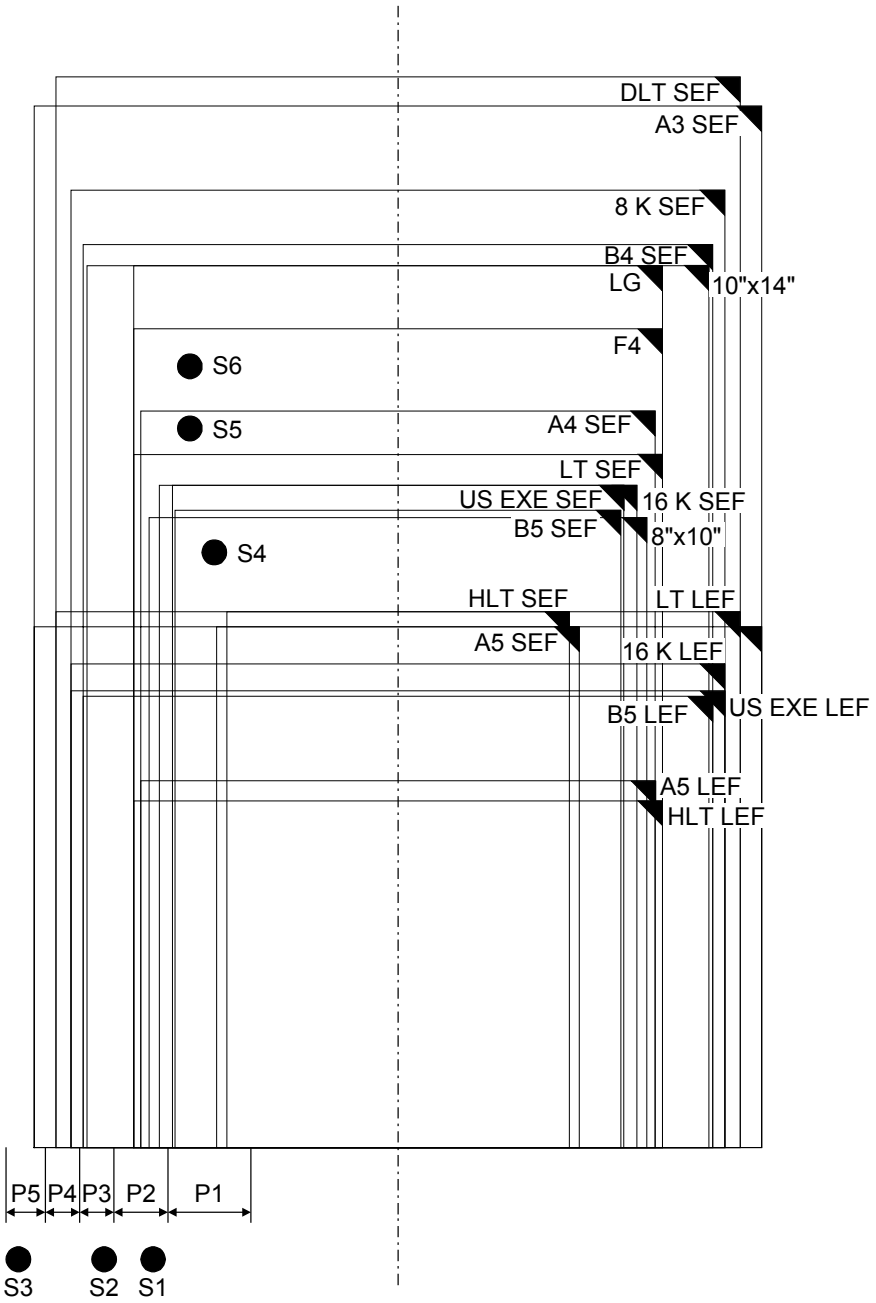
2.1.2 DRIVE LAYOUT



1. Pick-up Roller
2. Feed Belt
3. Bottom Plate Lift Motor
4. Feed Motor
5. Transport Motor
6. Timing Belt
7. Vertical Transport Motor

2.1.3 PAPER SIZE DETECTION

The width sensors [A] (S1, S2, S3) and length sensors [B] (S4, S5, S6) detect the width and length of the original on the interposer feed tray.



The table below lists the sensor output for each paper size.

	S1	S2	S3	S4	S5	S6
A3	0	1	1	1	1	1
B4	1	1	0	1	1	1
A4 SEF	1	0	0	1	1	0
A4 LEF	0	1	1	0	0	0
B5 SEF	0	0	0	1	0	0
B5 LEF	1	1	0	0	0	0
A5 SEF	0	0	0	0	0	0
A5 LEF	1	0	0	0	0	0
11" x 17"	1	1	1	1	1	1
10" x 14" SEF	1	1	0	1	1	1
8 1/2" x 14"	1	0	0	1	1	1
8 1/2" x 13"	1	0	0	1	1	1
8 1/2" x 11"	1	0	0	1	0	0
11" x 8 1/2"	1	1	1	0	0	0
8" x 10"	1	0	0	1	0	0
5 1/2" x 8 1/2"	0	0	0	0	0	0
8 1/2" x 5 1/2"	1	0	0	0	0	0
7 1/2" x 10 1/2" (US Exec.)	0	0	0	1	0	0
10 1/2" x 7 1/2" (US Exec.)	1	1	1	0	0	0
8 K	1	1	1	1	1	1
16 K SEF	1	0	0	1	0	0
16 K LEF	1	1	1	0	0	0

The cover interposer tray detects all the paper sizes listed above. However, there are some limitations on the display of the correct paper size.

		North America	Europe/Asia
B4 SEF	257 x 364 mm	Displays 10"x14 *1	
B5 SEF	182 x 257	Displays "US Exec." *1	
A5 SEF	148 x 210	Displays "HLT SEF" *1	
A5 LEF	210 x 148	Displays "HLT LEF" *1	
DLT SEF	11" x 17"		Displays "8K LEF" *2
LG SEF	8 1/2" x 14"		Displays "F4 SEF" *2
LT SEF	8 1/2" x 11"		Displays "16 K SEF" *2
LT LEF	11" x 8 1/2"		Displays "16 K LEF" *2

*1: Cannot be corrected.
*2: Can be corrected with SP5990 006 (Paper Size – Cover Sheet).

North America

Execute SP5959 006 and enter the correct number for the size of the paper loaded for feeding from the cover interposer tray.

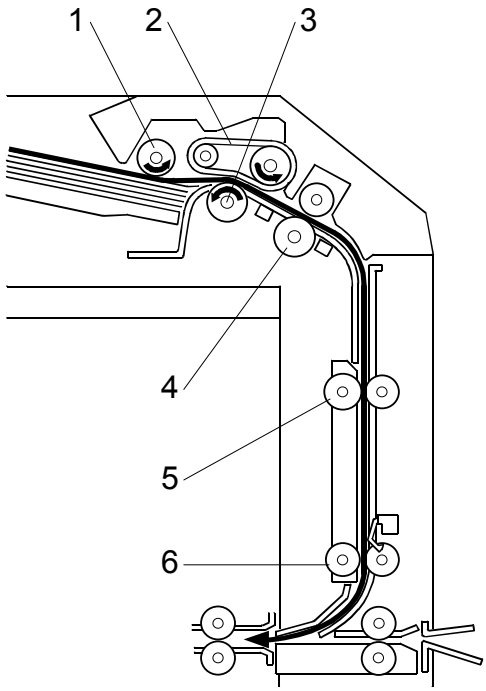
Loaded	Display (Default)	To Select for Display	Enter
8 1/2" x 13"	8 1/2" x 14"	8 1/2" x 13"	165
10 1/2" x 7 1/2"	8 1/2" x 11"	10 1/2" x 7 1/2"	173
8" x 10"	8 1/2" x 11"	8" x 10"	171

Europe/Asia

Execute SP5959 006 and enter the correct number for the size of the paper loaded for feeding from the cover interposer tray.

Loaded	Display (Default)	To Select for Display	Enter
11" x 17"	8 K	11" x 17"	160
8 1/2" x 11"	16 K SEF	8 1/2" x 11"	166
11" x 8 1/2"	16 K LEF	11" x 8 1/2"	38
8 1/4" x 13"	8 1/2" x 13" SEF	8 1/4" x 13"	168

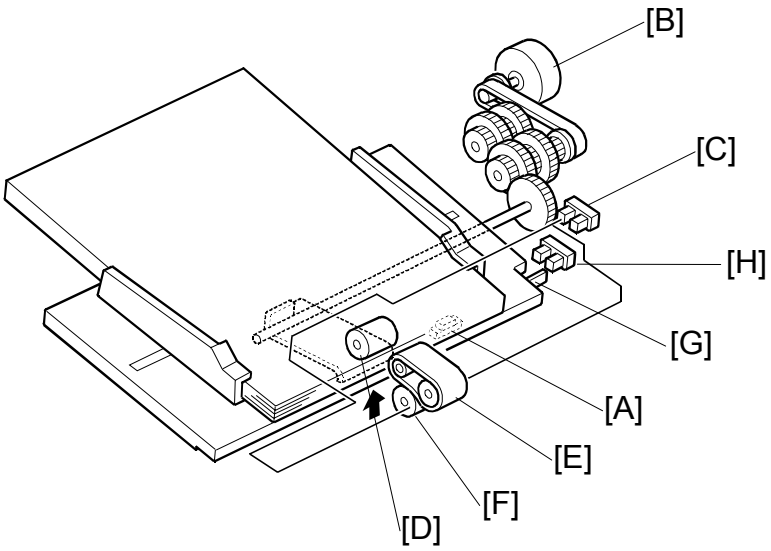
2.1.4 PAPER PATH



1. Pick-up Roller
2. Feed Belt
3. Separation Roller
4. Grip Roller
5. Transport Roller 1
6. Transport Roller 2

The paper feeds from the tray, to the feed belt, then to the grip roller and down into the paper path to the finisher below.

2.2 PAPER FEED



Power On

When paper is placed on the tray, the paper set sensor [A] in the tray actuates and switches on the bottom plate lift motor [B]. The top of the stack raises the pick-up roller unit until the actuator on this unit actuates the pick-up roller position sensor [C] and switches the motor off.

Paper Separation and Feed

The pick-up roller [D] picks up the original, and the feed belt [E] feeds the sheet to the grip roller. The separation roller [F] reverses if more than one sheet is fed

Bottom Tray Lift

As sheets feed from the top of the stack:

- The pick-up roller unit descends until the actuator on the pick-up roller unit drops out of the pick-up roller position sensor [C].
- The bottom plate lift motor switches on to raise the stack until the actuator enters the pick-up roller unit position sensor again and switches the motor off.
- This repeats until the end of the job or until paper runs out.

Paper Near-end

Near-end is detected when the actuator [G] on the bottom plate enters the near-end sensor [H]

Paper End

After the last sheet feeds the paper set sensor [A] goes off and signals paper out.

B475
A3/DLT TRAY KIT

A3/DLT TRAY KIT B475

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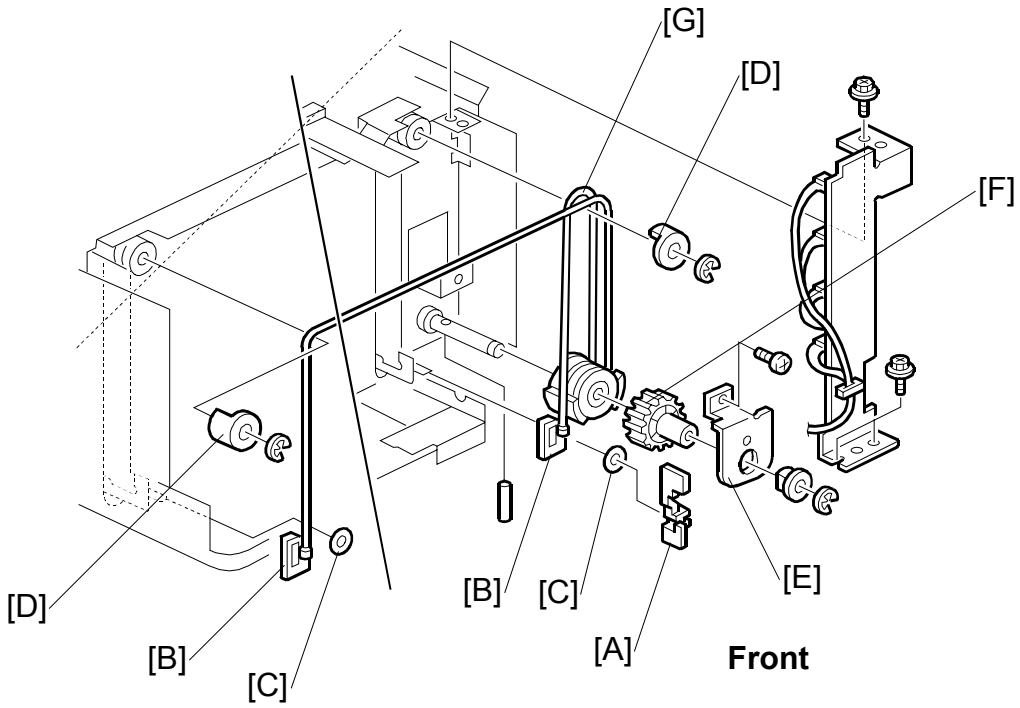
1. REPLACEMENT AND ADJUSTMENT

1.1 BOTTOM PLATE LIFT WIRE REPLACEMENT

1.1.1 REMOVING THE LIFT WIRE

NOTE: The procedures for front and rear wire removal are the same.

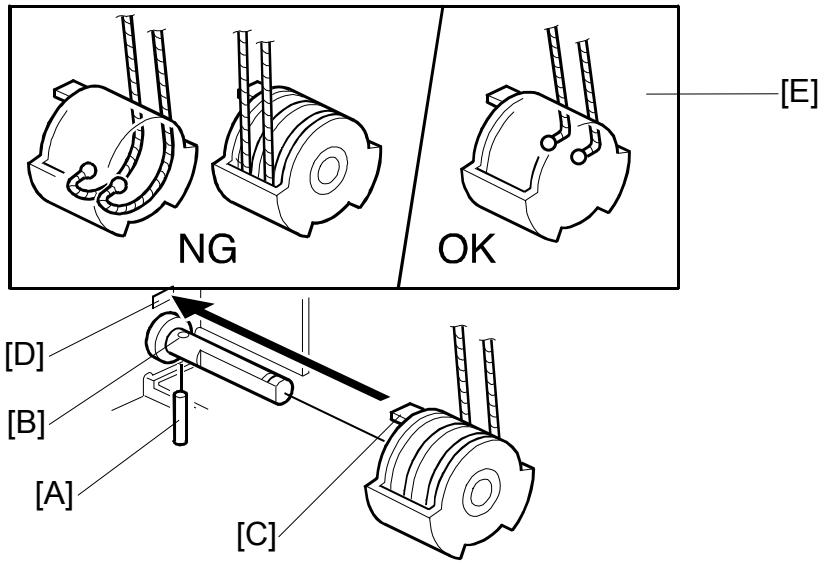


Remove the A3/DLT tray from the machine.

Inner cover (☞ x2)

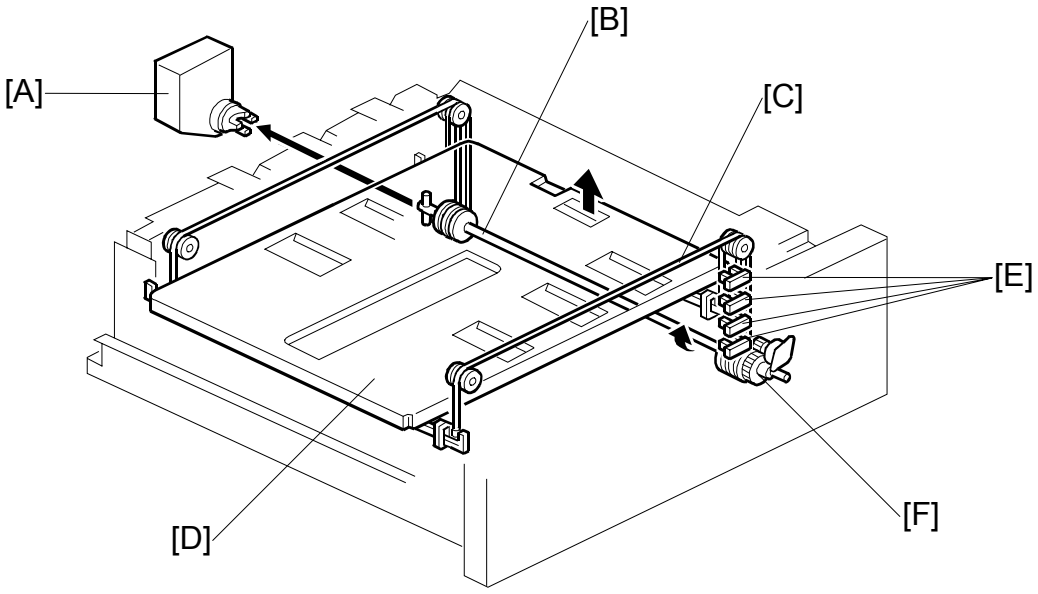
[A]: Sensor bracket (☞ x1)
[B]: Wire stoppers
[C]: Wire stopper rings
[D]: Wire covers x 2 (ℂ x1 ea.)
[E]: Bracket (☞ x1, ℂ x1, Bushing x1)
[F]: Gear
[G]: Bottom plate lift wire

1.1.2 INSTALLING THE LIFT WIRE



1. Put the positioning pin [A] in hole [B]
2. Fit the projection [C] into slot [D].
3. Attach the wire as shown [E].
   NOTE: Make sure that the wires are not crossed.

2. DETAILS



With this option installed, only one stack of paper can be loaded.

Lift motor [A] ➔ Shaft and pulleys [B] ➔ Tray wires [C] ➔ Tray bottom plate [D].

An array of four paper height sensors [E] provide paper supply detection. As each sensor is actuated, a message (percent of paper remaining) alerts the user about the remaining amount of paper. When the bottom sensor [F] of the four sensors is actuated, the paper end message is displayed.

B471

9-BIN MAILBOX

9-BIN MAILBOX B471
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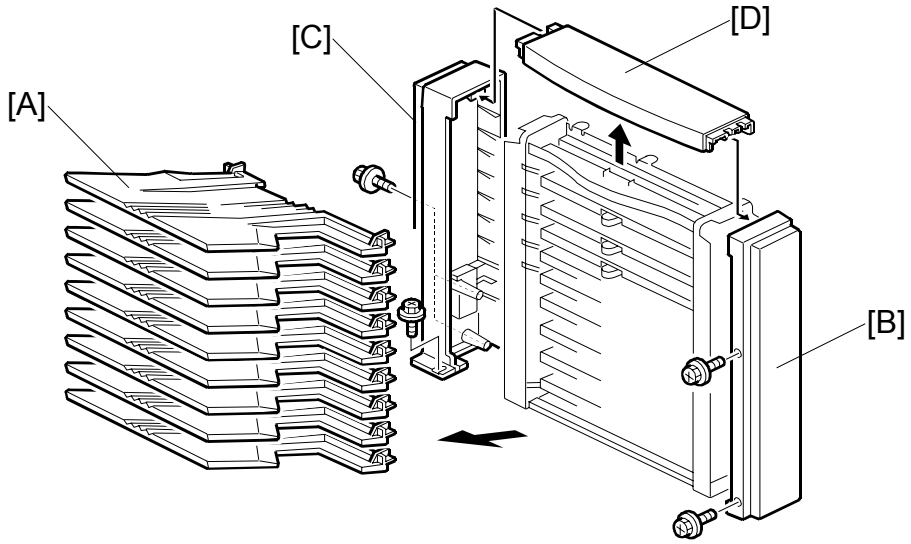
1. REPLACEMENT AND ADJUSTMENT

⚠CAUTION
Switch the machine off and unplug the machine before starting and procedure in this section.

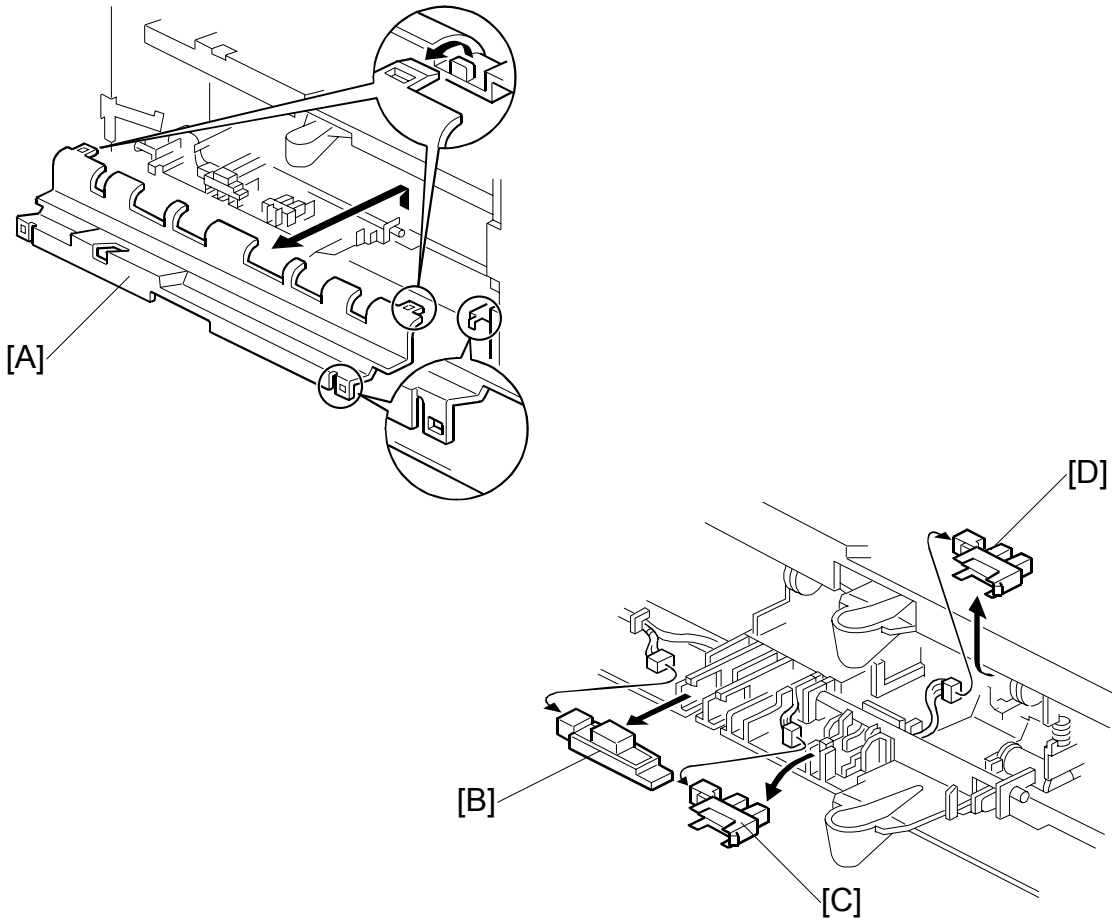
1.1 COVERS AND TRAYS



[A]: Trays
- Grip each tray by the front and lift out.

[B]: Front cover (x2)
[C]: Rear cover (x3)
[D]: Top cover

1.2 SENSORS



Remove the tray (☛ 1.1)

[A]: Bin cover

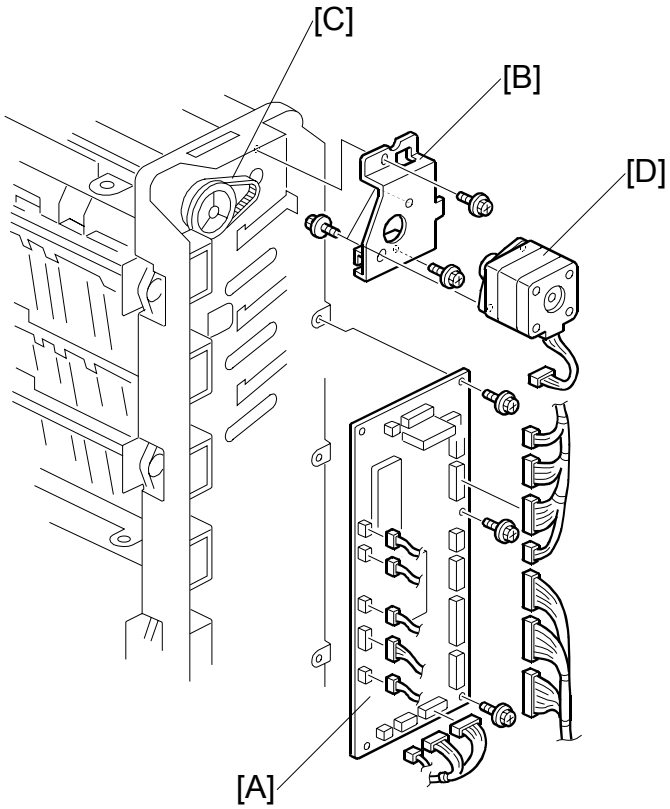
[B]: Tray sensor (✋ x1)

[C]: Tray overflow sensor (✋ x1)

[D]: Vertical transport sensor (✋ x1)

- Raise the pawl, then grip the bottom of the sensor to remove.

1.3 MAIN MOTOR AND CONTROL BOARD



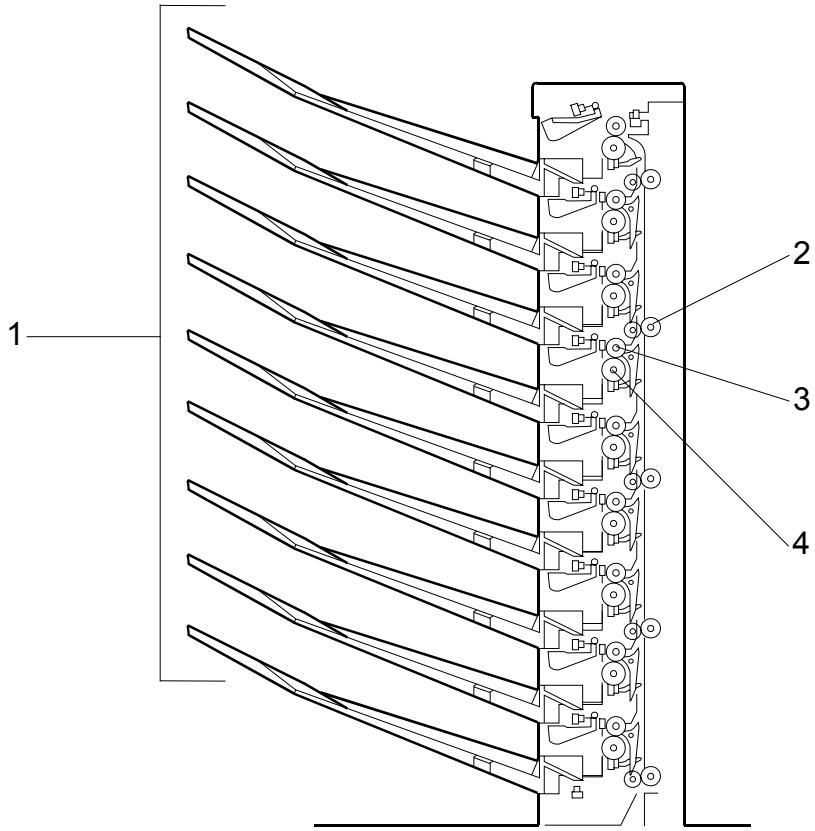
Rear cover (☛ 1.1)

[A]: Control board (x3, x17)
[B]: Main motor bracket (main motor x1, x2)
[C]: Timing belt
[D]: Main motor (x1)

2. DETAILS

2.1 OVERVIEW

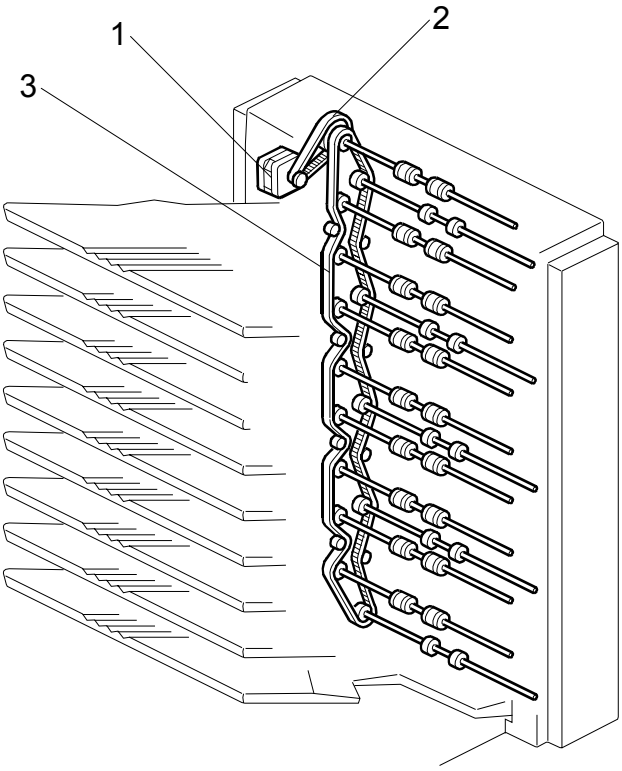
2.1.1 MAIN COMPONENT LAYOUT



1. Bins (x9)
2. Vertical Transport Rollers (x5)
3. Turn Gates (x8)
4. Exit Rollers (x9)

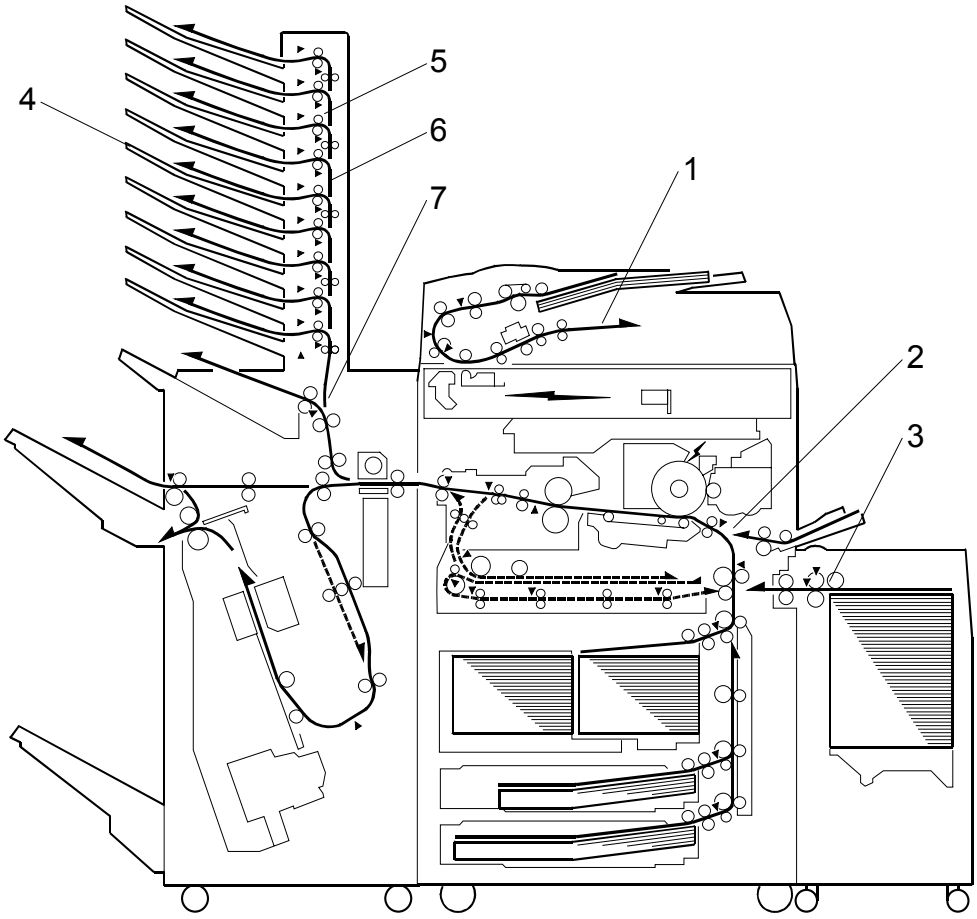
The trays are 1 to 9 (bottom to top). The numbers are clearly marked on the side of the unit. The top tray does not require a turn gate. When the top tray is selected for output, all turn gates remain closed, leaving only the top bin open.

2.1.2 DRIVE LAYOUT



1. Main Motor
2. Main Timing Belt
3. Timing Belt

2.1.3 PAPER PATH

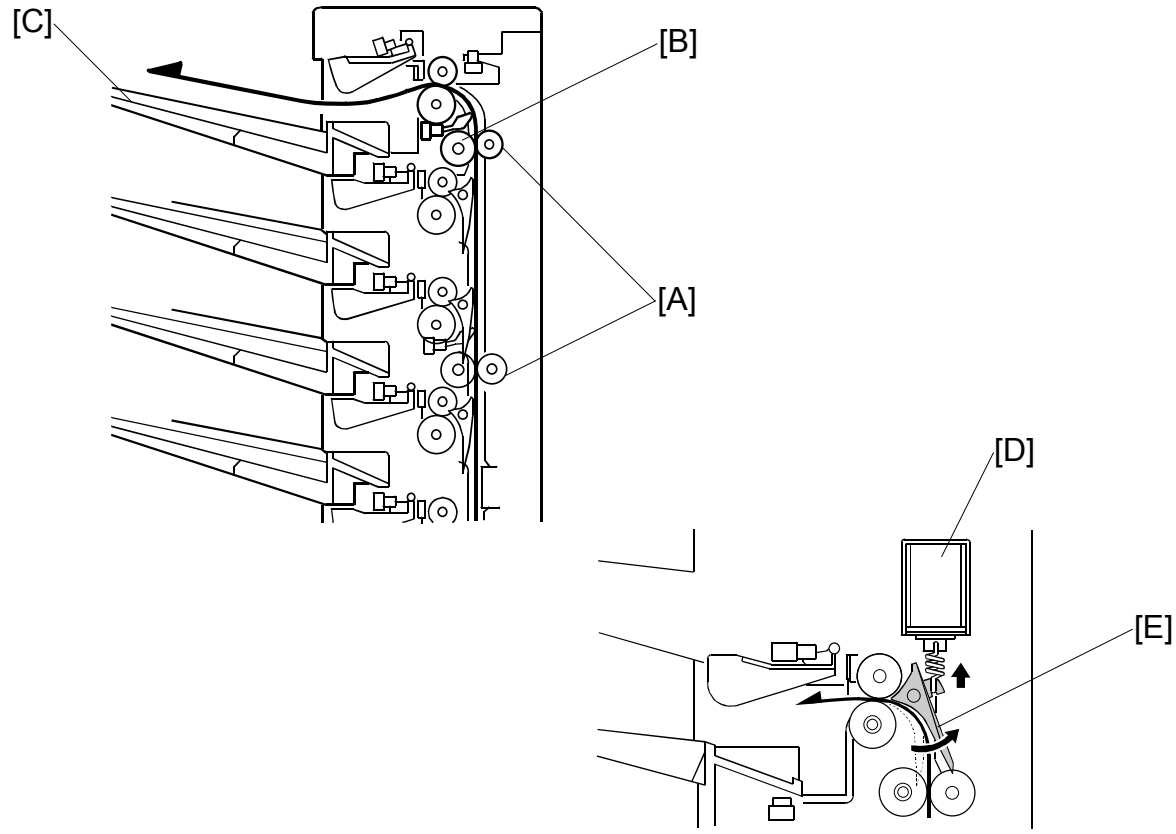


1. Original Paper Path
2. Vertical Transport Path
3. LCT Feed
4. Selected Trays
5. Turn Gates
6. Mailbox Paper Path
7. Junction Gate (paper goes either up to the mailbox or out to the finisher's proof tray)

The solenoid for the junction gate (7) is part of the mailbox.

2.2 BASIC OPERATION

2.2.1 PAPER PATH



The unit is mounted on top the finisher and connected to the finisher by a 14-pin connector. When the leading edge of the paper passes and activates the entrance sensor of the finisher, the mailbox main motor switches on and the mailbox vertical transport rollers [A] begin to turn. The exit roller [B] feeds the paper out to the selected tray [C].

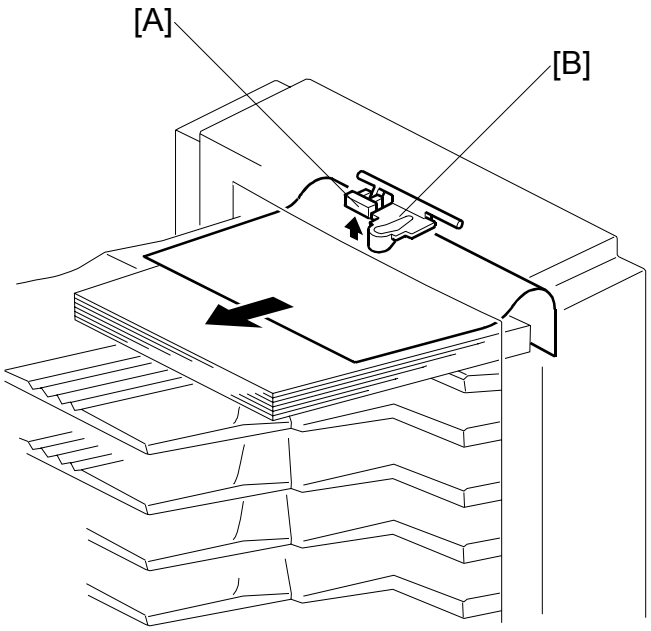
A solenoid [D] opens and closes the junction gate [E]. When a solenoid switches on, the gate opens and directs to the paper to the tray.

NOTE: When the top tray (bin 9) is selected, all solenoids are off and closed, allowing the paper to pass to the top tray (bin 9 does not require a solenoid).

When the last sheet is fed out, it switches off the vertical transport sensor, and both the mailbox main motor and the junction gate solenoid of the selected bin switch off. The mailbox normally feeds paper at 372 mm/s, about the same speed as the finisher. (The finisher speed is 370 mm/s.)

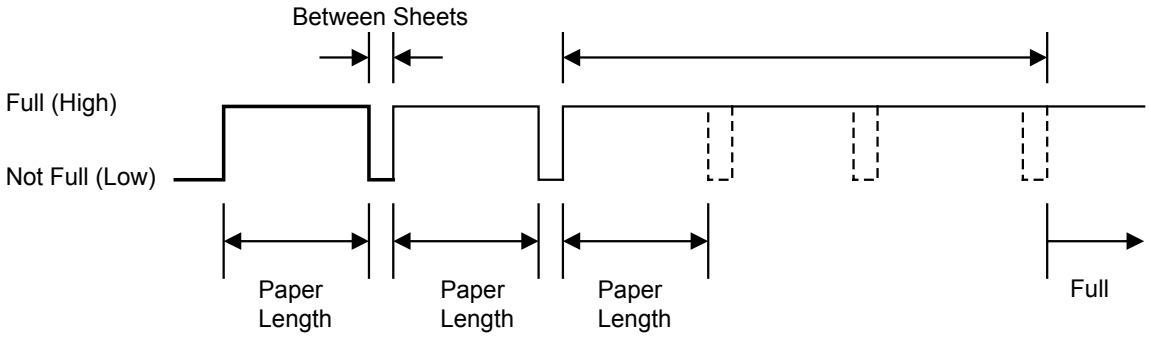
2.3 OVERFLOW DETECTION

2.3.1 OVERVIEW



An overflow sensor [A] and actuator [B] are above the exit of each paper tray. The actuator, mounted on a swivel arm, remains in contact with the top of the stack. The actuator rises as the stack becomes higher until it activates the sensor. Then, a tray full message appears on the operation panel and the job halts. If the paper is removed before the tray is full, the job continues.

2.3.2 DETECTION TIMING



When the mailbox exit sensor goes high for the prescribed time (T), the machine determines that the tray is full. The value of T is calculated, regardless of paper size, as follows:

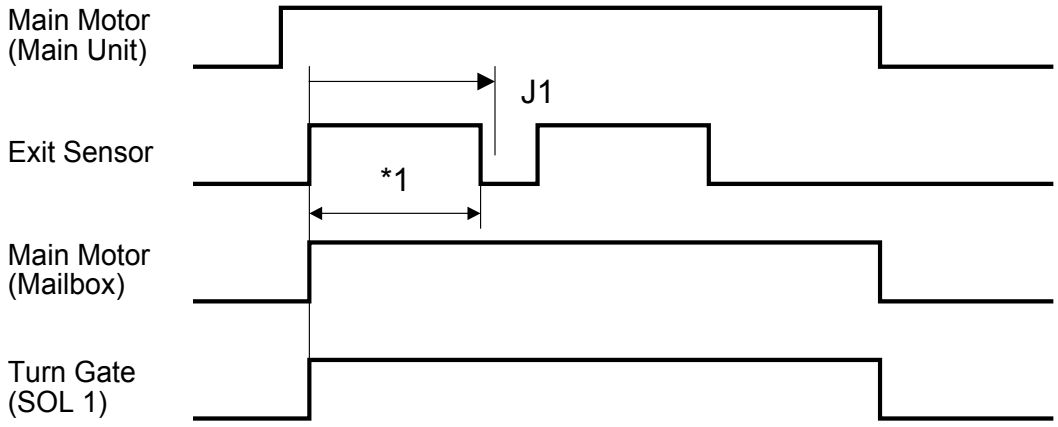
T (s) = (60/s x max. size ppm) x 3 s

After the tray full sensor switches on, if it remains on for the feeding of eight additional sheets, then this notifies the machine that the tray is full.

“T” is calculated as shown above. For example, for a minimum ppm of 12 prints (regardless of paper size), the value T is 15 s. Then, if the sensor detects paper for 15 s or more, the machine stops the copy job.

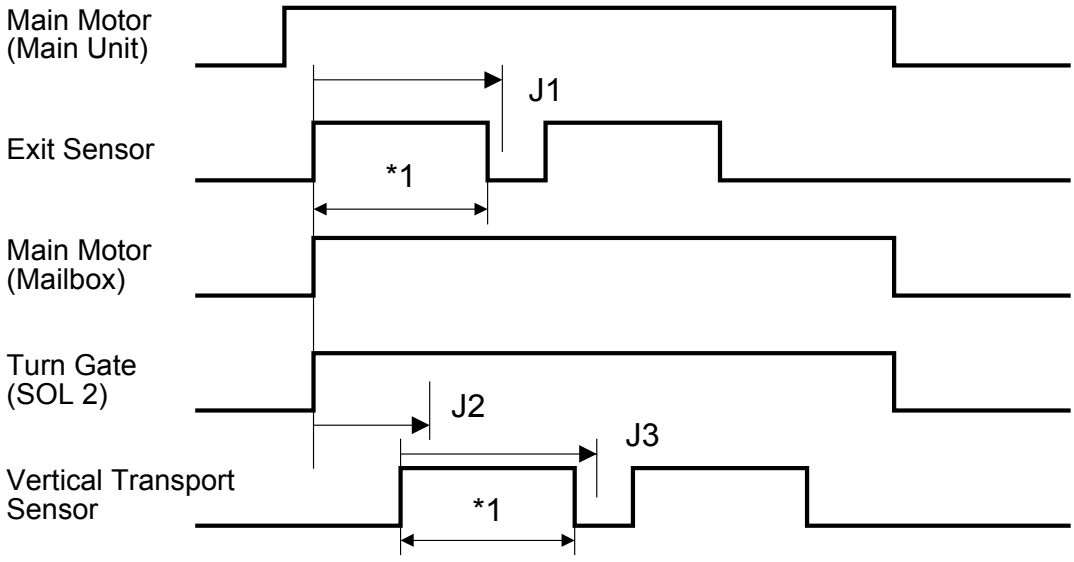
2.4 PAPER MISFEED DETECTION TIMING

2.4.1 A4 SIDEWAYS (LEF) ➔ 1ST BIN TRAY



***1: Time required for A4 LEF**

2.4.2 A4 SIDEWAYS (LEF) ➔ 2ND ~ 9TH BIN TRAY



***1: Time required for A4 Sideways (LEF)**
***2: Feed to 9th Tray: All SOLs OFF.**

J1 Timing: After the leading edge of the sheet activates the mailbox exit sensor, a misfeed is detected if the sensor does not switch off within:

X+0.5 s

Where X = The amount of time prescribed for the paper size to pass the sensor. (X = 1.74 s for A4 Sideways for example)

J2 Timing: After the mailbox paper exit sensor is activated, the machine determines that the paper has not yet fed and detects a misfeed if the vertical transport sensor does not activate within the time prescribed for the paper size (1.94 s for A4 paper, for example)

J3 Timing: After the vertical transport sensor is activated, a misfeed is detected if the vertical transport sensor does not turn off within:

X+0.52 s

Where X = The amount of time prescribed for the paper size to pass the sensor. (X = 2.26 s for A4 Sideways for example)

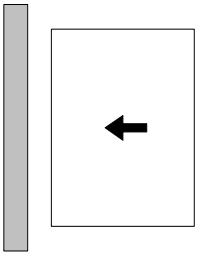
B478

3000-SHEET FINISHER

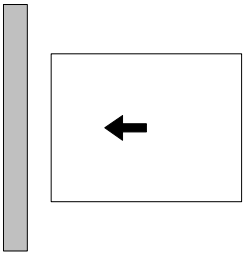
Conventions in this Manual

This manual uses several symbols.

Symbol	What it means
☛	Refer to section number
CT	See Core Tech Manual for details
	Screw
	Connector
	E-ring
	Clip ring



Sideways (LEF)



Lengthways (SEF)

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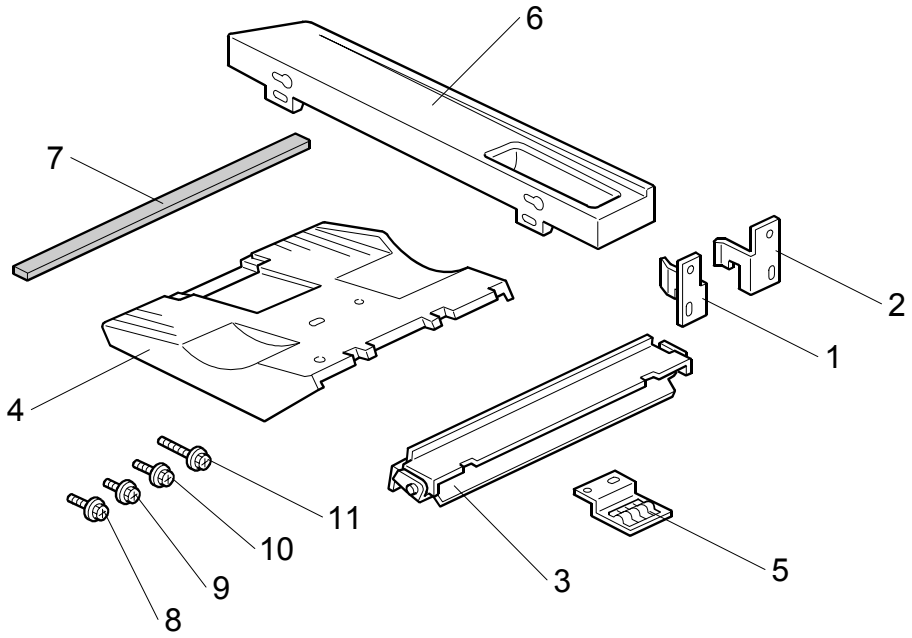
1. INSTALLATION

1.1 3000-SHEET FINISHER B478

1.1.1 ACCESSORY CHECK



Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Front Joint Bracket	1
2. Rear Joint Bracket	1
3. Entrance Guide Plate	1
4. Shift Tray	1
5. Grounding Plate	1
6. Table Extension	1
7. Cushion	1
8. Tapping Screws - M4x8	2
9. Tapping Screws - M3x6	4
10. Tapping Screws - M3x8	4
11. Phillips Screws w/washer - M4x14	4
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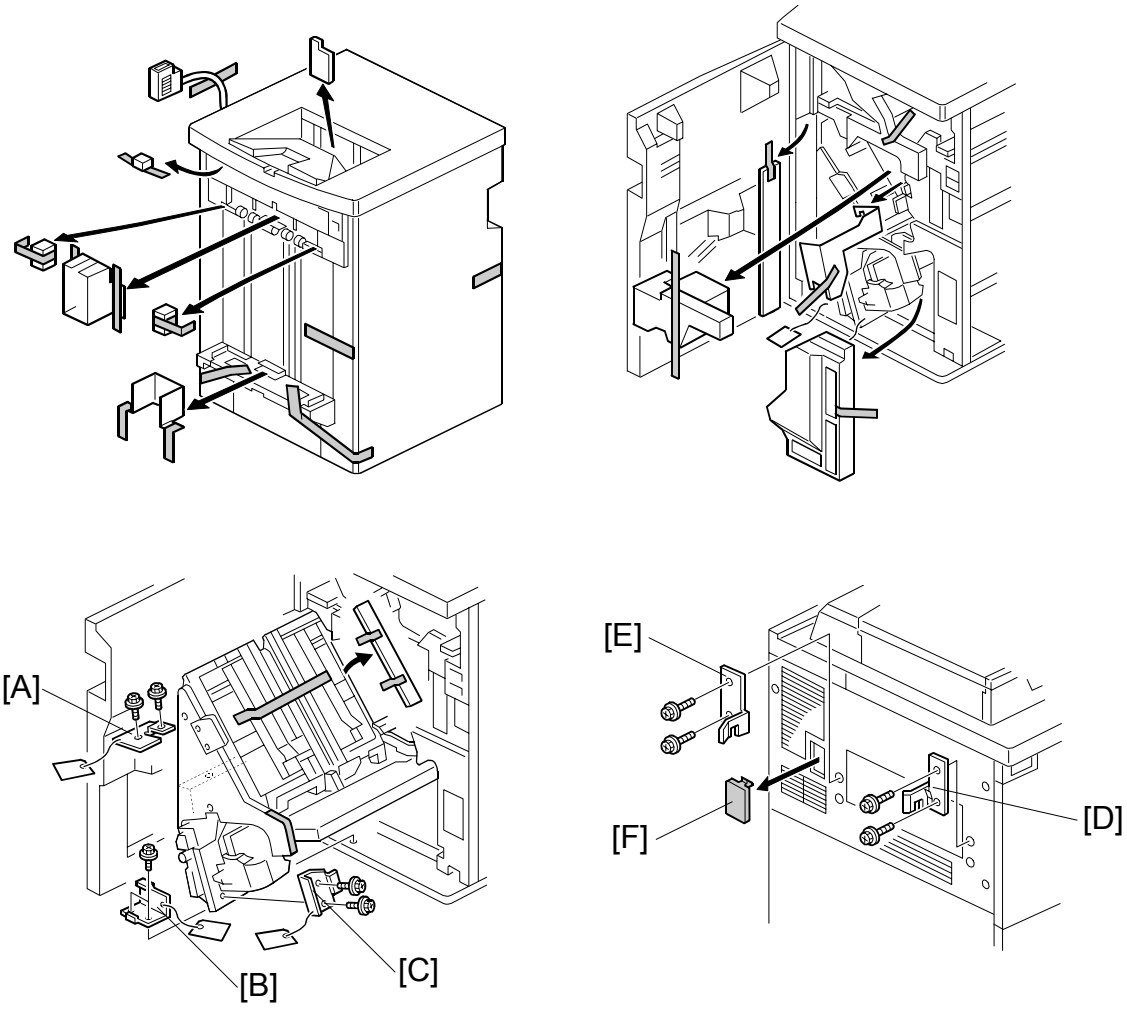
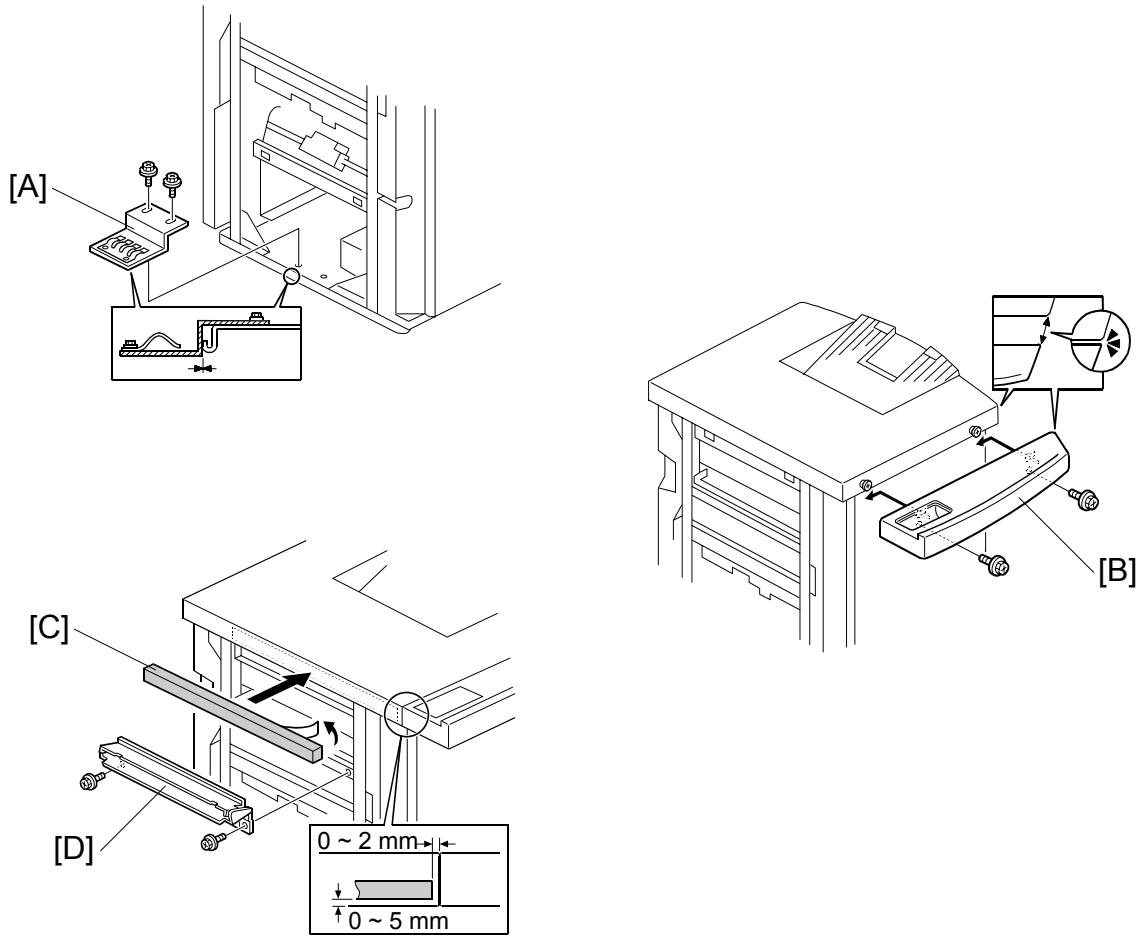
1.1.2 INSTALLATION PROCEDURE



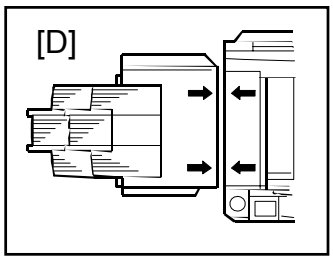
⚠CAUTION

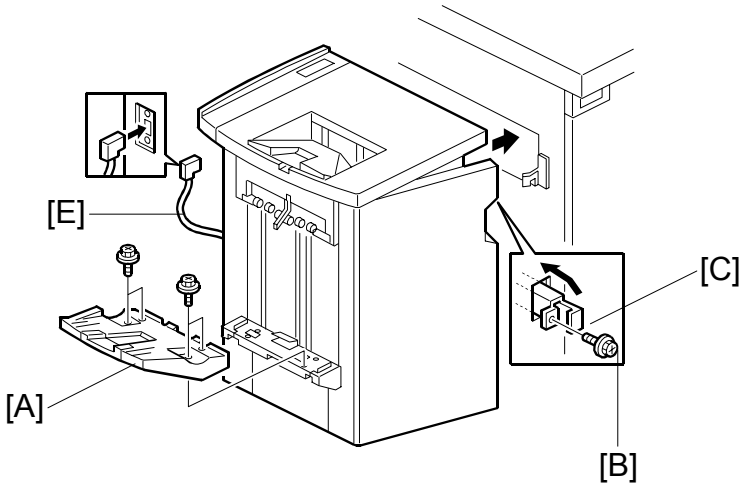
Switch off the machine (☛ 1.1.5) and unplug the machine power cord before starting the following procedure.

1. Unpack the finisher and remove all tapes and shipping retainers.
2. Open the front door and remove the shipping retainers. Remove brackets [A], [B], and [C] (🔩 x2 ea.).
3. Install the front joint bracket [D] and rear joint bracket [E] (🔩x 2 ea.) (M4x14) on the left side of the copier.
4. Remove the connector cover [F].



5. Install the grounding plate [A] (☞ x2) (M3x6).
   NOTE: Set the grounding plate so that there is no gap between the grounding plate and the bottom frame of the finisher (as shown).
6. Install the table extension [B] as shown (☞ x2) (M4x8).
   NOTE: The edge of the table extension should be aligned with the edge of the finisher (as shown).
7. Attach the cushion [C] to the right side of the upper cover.
8. Install the entrance guide plate [D] (☞ x2) (M3x6).



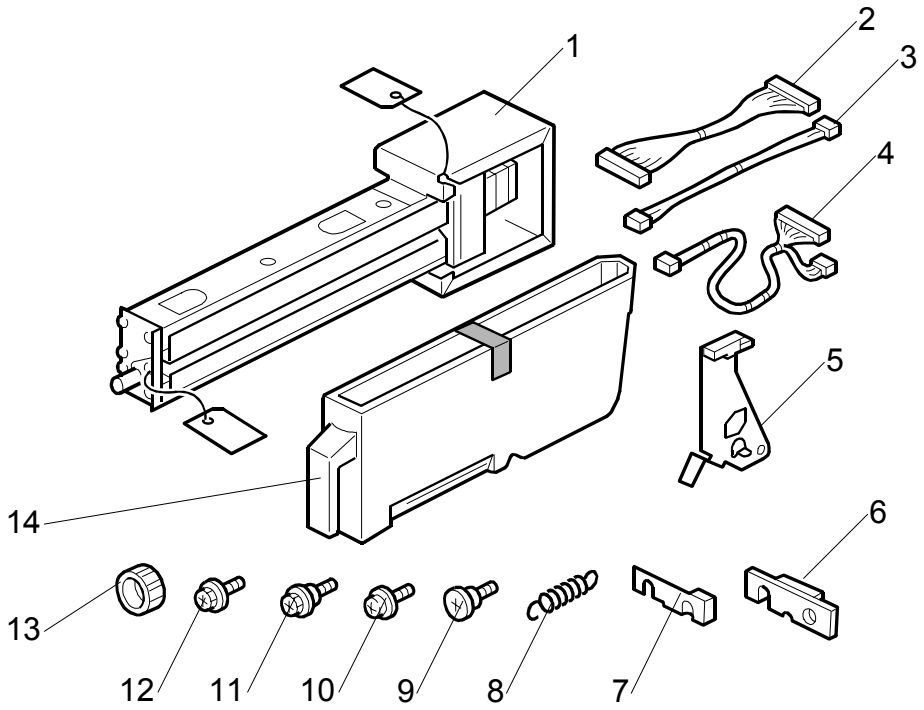


9. Install the shift tray [A] (x4) (M3x8).
10. Open the front door of the finisher, and remove the screw [B] from the locking lever, then pull the locking lever [C].
11. Align the finisher on the joint brackets, and lock it in place by pushing the locking lever [C].
    NOTE: Before securing the locking lever, make sure that the top edges of the finisher and the copier are parallel from front to rear as shown [D].
12. Secure the locking lever [C] (x1) again and close the front door.
13. Connect the finisher cable [E] to the copier.

1.2 PUNCH UNIT B531 (OPTION)

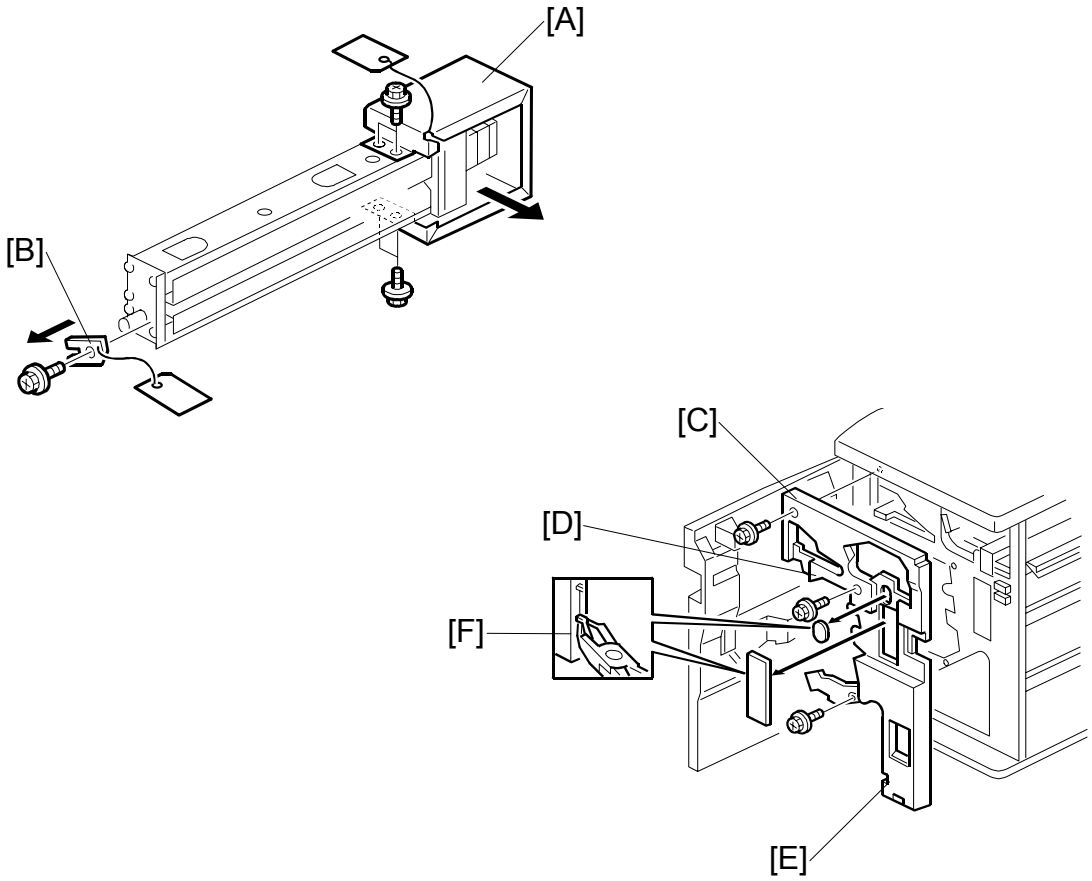
1.2.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:



Description	Quantity
1. Punch unit	1
2. Harness Connect Cable - PCB	1
3. Harness Connector Cable - HP Sensor 2	1
4. Harness Connector Cable - HP Sensor 1, Hopper Full	1
5. Sensor Arm and Sensor	1
6. Spacer (2 mm)	1
7. Spacer (1 mm)	2
8. Spring	1
9. Step Screw (large) (M4x11)	1
10. Tapping Screw (M4x10)	2
11. Step Screw (small) (M3x4)	1
12. Machine Screw, Washer (M4x6)	1
13. Knob	1
14. Punch Waste Hopper	1

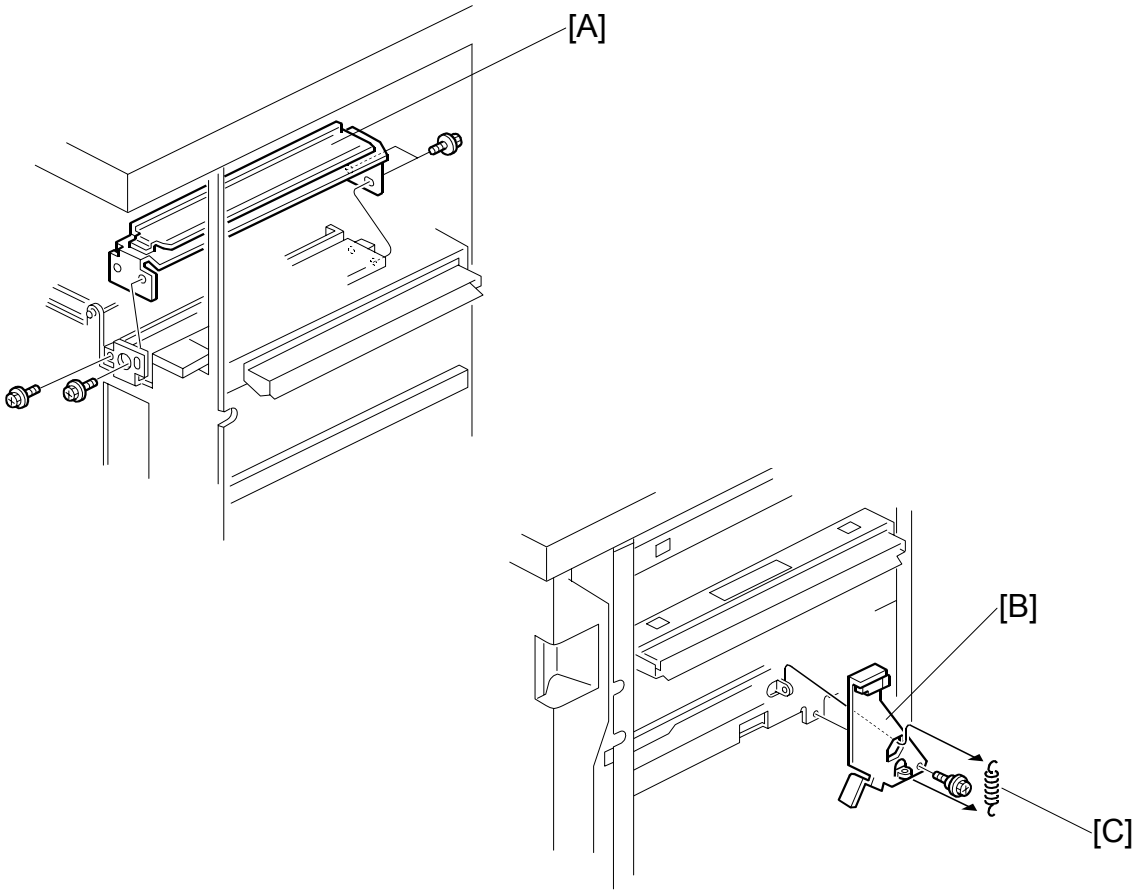
1.2.2 INSTALLATION PROCEDURE



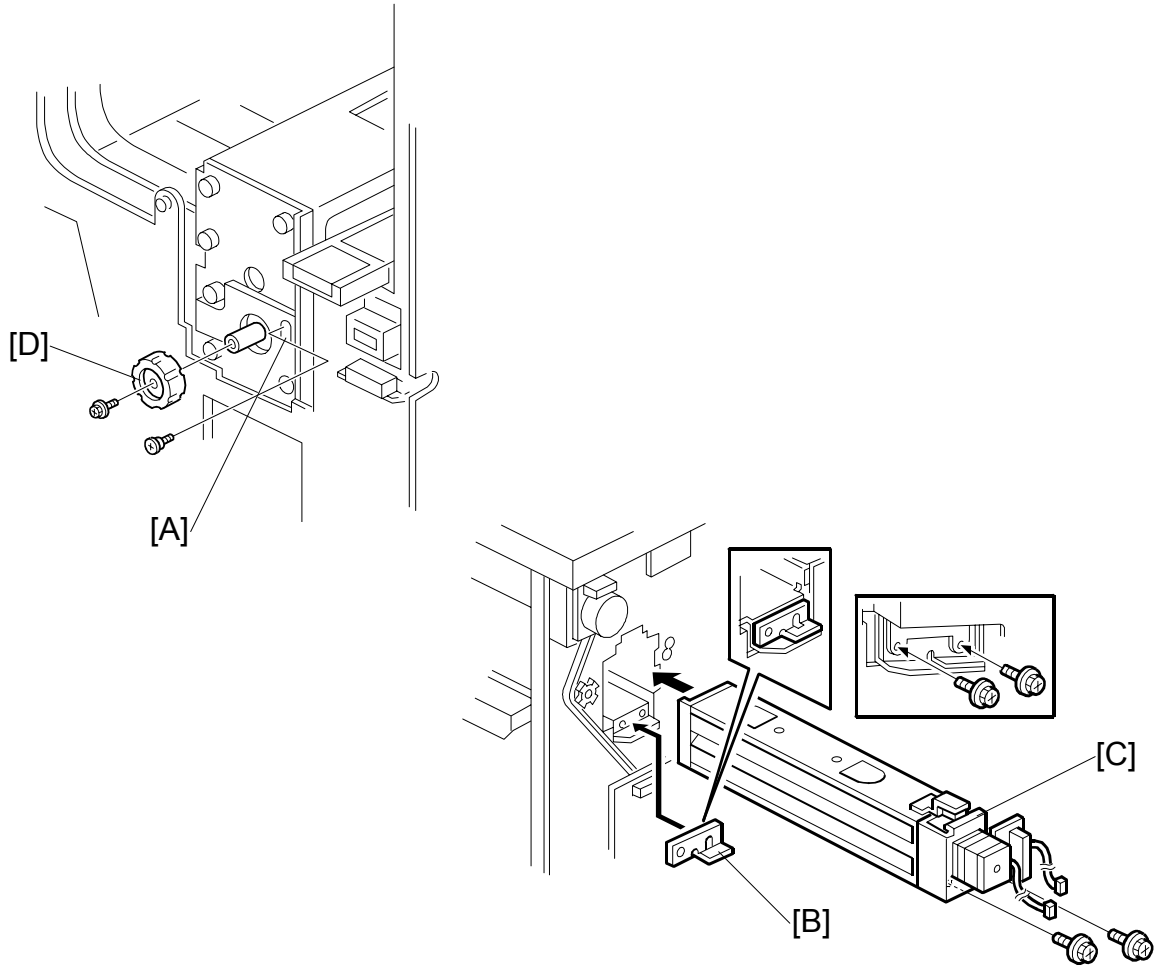
⚠CAUTION

Switch the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

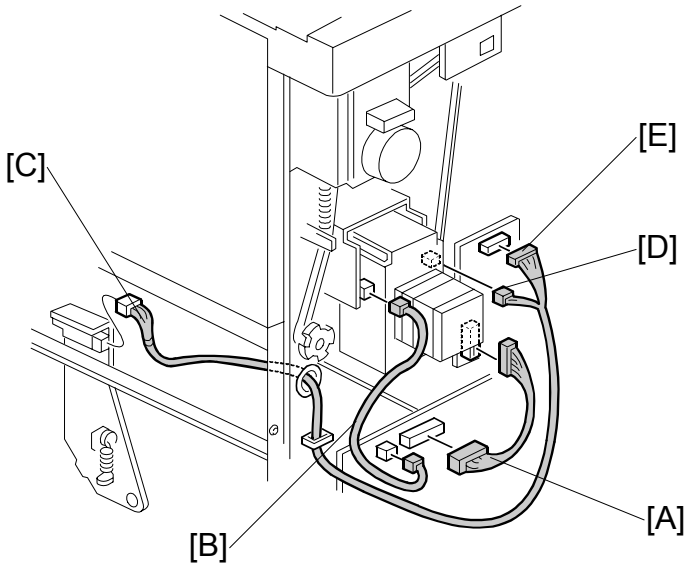
1. If the finisher is connected to the machine, disconnect it.
2. Open the front door and remove the rear cover (☞ x2).
3. Unpack the punch unit and remove the motor protector plate [A](☞ x4) and the cam lock plate [B] (☞ x1).
4. Remove the inner cover [C] (☞ x3).
5. Behind the inner cover at [D] and [E] press the lock tab to the right to release the inner cover from the frame.
6. Use a pair of nippers to remove the plastic knockouts [F].



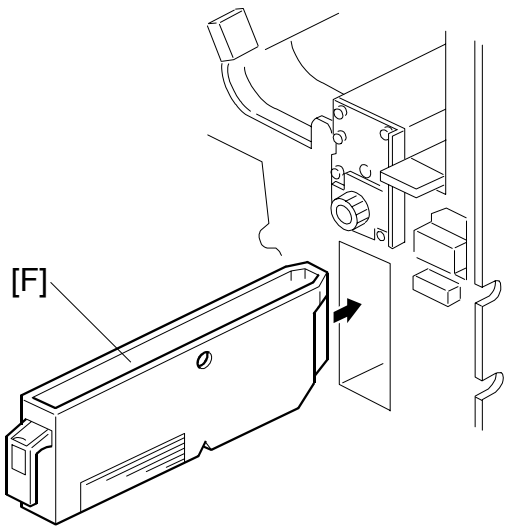
7. Remove the paper guide [A](☞ x4).
8. Install the sensor arm [B] (☞ x1, small step screw (M3x4).
   NOTE: Make sure that the sensor arm swings freely on the step screw.
9. Attach the spring [C].



10. At the front, secure the punch unit [A] with the large step screw (☞ x1, M4x10).
11. At the rear, position the 2 mm spacer [B] and attach the punch unit [C] (☞ x2, M4x10).
    NOTE: At the hole just above the lock lever, use one of the screws from the paper guide removed above to fasten the remaining two spacers to the frame. These extra spacers are used to adjust the horizontal position of the punch holes.
12. At the front, fasten the punch unit knob [D] (☞ x1).



13. Connect the PCB harness connector [A] to CN129 of the finisher PCB and to CN600 of the punch unit PCB.
14. Connect the HP Sensor 2 harness connector [B] to CN130 of the finisher PCB and to HP Sensor 2.
15. Connect the single end of the hopper full sensor connector cable [C] to the hopper full sensor on the arm (☞ x1, clamp x1), then connect the other two connectors to HP Sensor 1 [D] and CN620 [E] of the punch PCB.
    NOTE: No special DIP switch settings are required for this punch unit. The punch unit sends an identification signal to the machine, so it knows what type of punch unit has been installed.
16. Slide the hopper [F] into the finisher.
17. Re-attach the inner cover and rear cover.
18. Close the front door and re-connect the finisher to the machine.



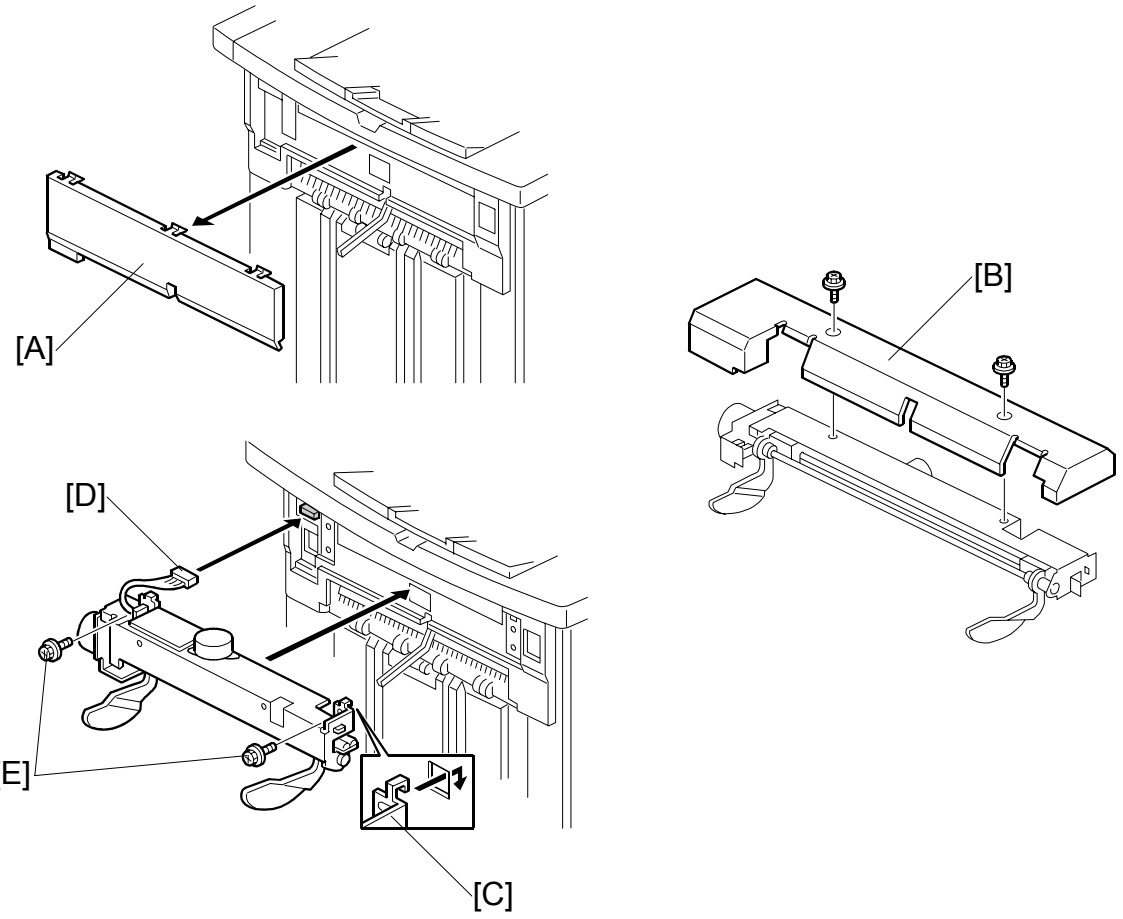
1.3 JOGGER UNIT B513 (OPTION)

1.3.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Jogger Unit B513	1
2. Tapping Screws - M3x6	2
3. Installation Procedure	1

1.3.2 INSTALLATION PROCEDURE



⚠CAUTION

Switch the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Disconnect the finisher from the main frame.
2. Use the flat head of a screw driver to remove the left upper cover [A] from the finisher and discard it.
3. Remove the cover plate [B] from the jogger unit (🔩 x2). Save the screws.
4. With the jogger unit connector on the left side, hook the frame of the jogger unit [C] into the holes on the left and right side of the finisher frame.
5. On the left side, fasten the connector [D] to the socket (✋ x1).
6. On the left and right side, attach the jogger unit frame to the side of the finisher with the screws [E] provided (🔩 x2).
7. Re-attach the jogger unit cover to its frame with the screws removed in step 2 (🔩 x2).

2. PREVENTIVE MAINTENANCE

2.1 PM TABLE

NOTE: The amounts mentioned (K=1,000) as the PM interval indicate the number of prints or copies unless stated otherwise.

Symbol key: **C**: Clean, **R**: Replace, **L**: Lubricate, **I**: Inspect, **EM**: Emergency Maintenance

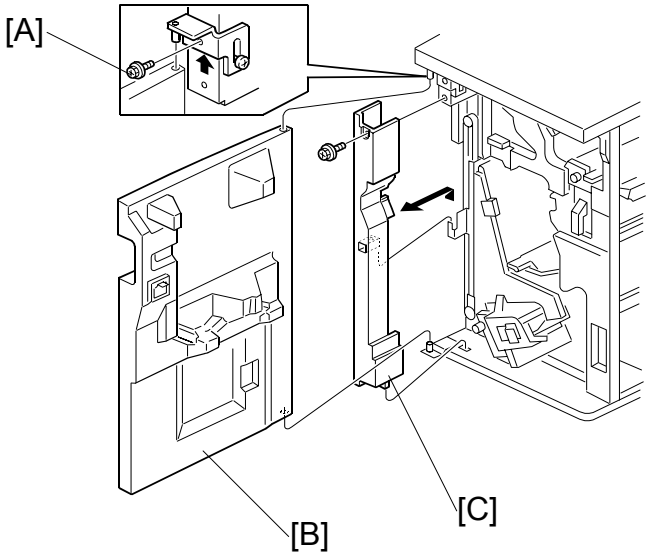
⚠WARNING

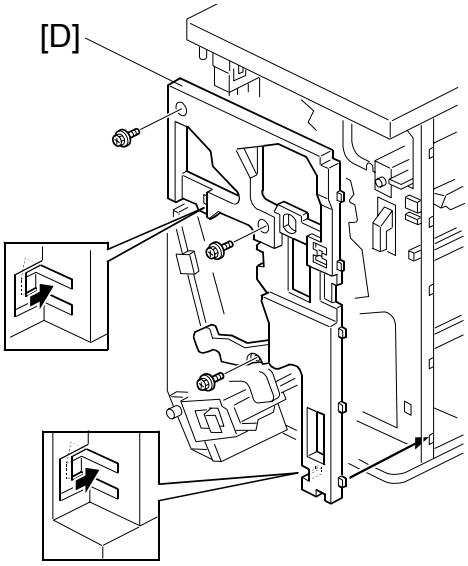
Turn off the main power switch (☛ 1.1.5) and unplug the machine before performing any procedure in this section. Laser beams can seriously damage the eyes.

	EM	175K	350K	525K	Note
Driver Rollers		C	C	C	Damp, clean cloth.
Idle Rollers		C	C	C	
Bushings		C	C	C	Clean cloth. Lubricate with silicone oil if noisy.
Sensors		C	C	C	Blow brush.
Jogger Fences		I	I	I	Make sure screws are tight.
Punch Waste Hopper		I	I	I	Empty punch waste.
Staple Waste Hopper		I	I	I	Empty staple waste.
Brush Rollers		C	C	C	Clean with damp, clean cloth.
Positioning Roller		C	C	C	
Shift Position Roller		C	C	C	

3. REPLACEMENT AND ADJUSTMENT

3.1 DOOR AND COVER REPLACEMENT





Front Door

1. Remove the front door screw [A] (x1).
2. Remove the front door [B].

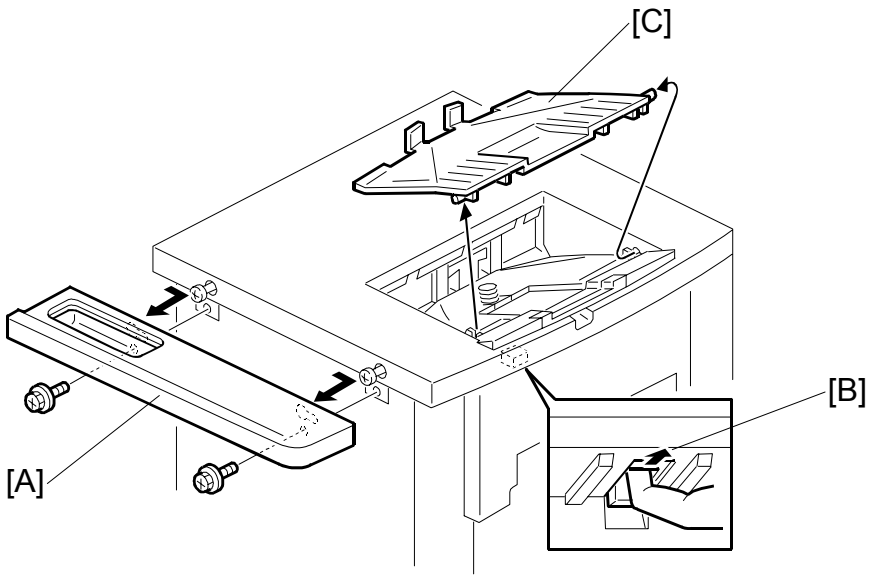
Left Inner Cover

1. Remove the front door.
2. Remove the left inner cover [C] (x1).

Inner Cover

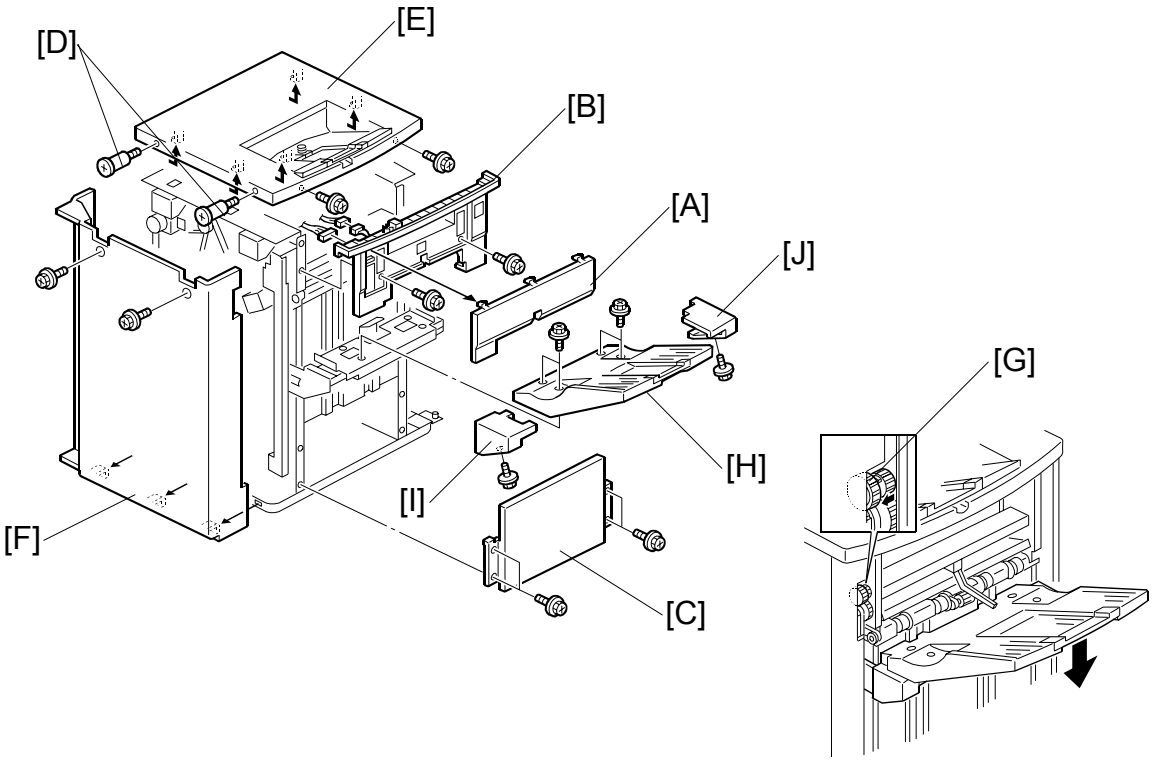
1. Remove the inner cover [D] (x3).

Side Table and Upper Tray



Side Table and Upper Tray

1. Remove the side table [A] (🔩 x2). Slide to the right to remove it.
2. Click the release lever [B] and remove the upper tray [C].



Left Covers

1. Remove the left upper panel [A].
2. Remove the left upper cover [B] (x2, x2).
3. Remove the door and left inner cover. (See “Door and Cover Replacement”.)
4. Remove the left lower cover [C] (x4).

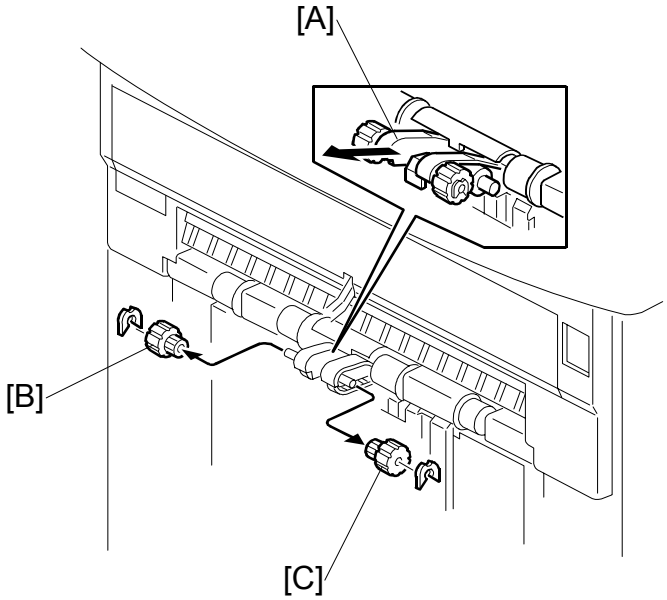
Rear Cover and Top Cover

1. Remove the upper tray. (See “Side Table and Upper Tray”.)
2. Remove the step screws [D] (x2).
3. Remove the top cover [E] (x2). Slide to the right to remove.
4. Remove the rear cover [F] (x2).

Shift Tray

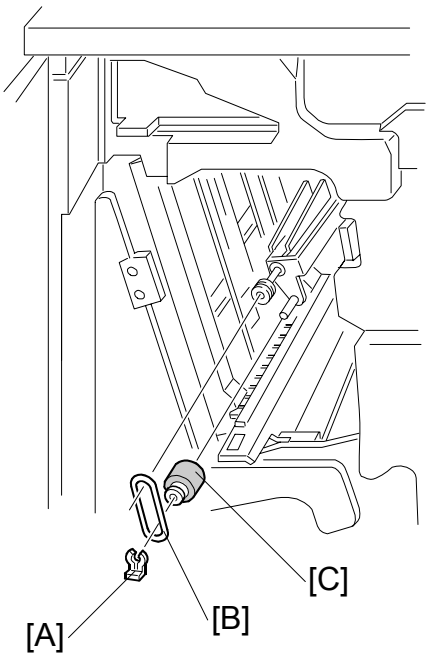
1. If you need to lower the shift tray, support the bottom of the tray with your hand, then pull the gear toward you [G] to release the tray and lower it.
2. Remove the shift tray [H] (x4).
3. Remove the shift tray rear cover [I] and front cover [J] (x2).

3.2 SHIFT POSITIONING ROLLER



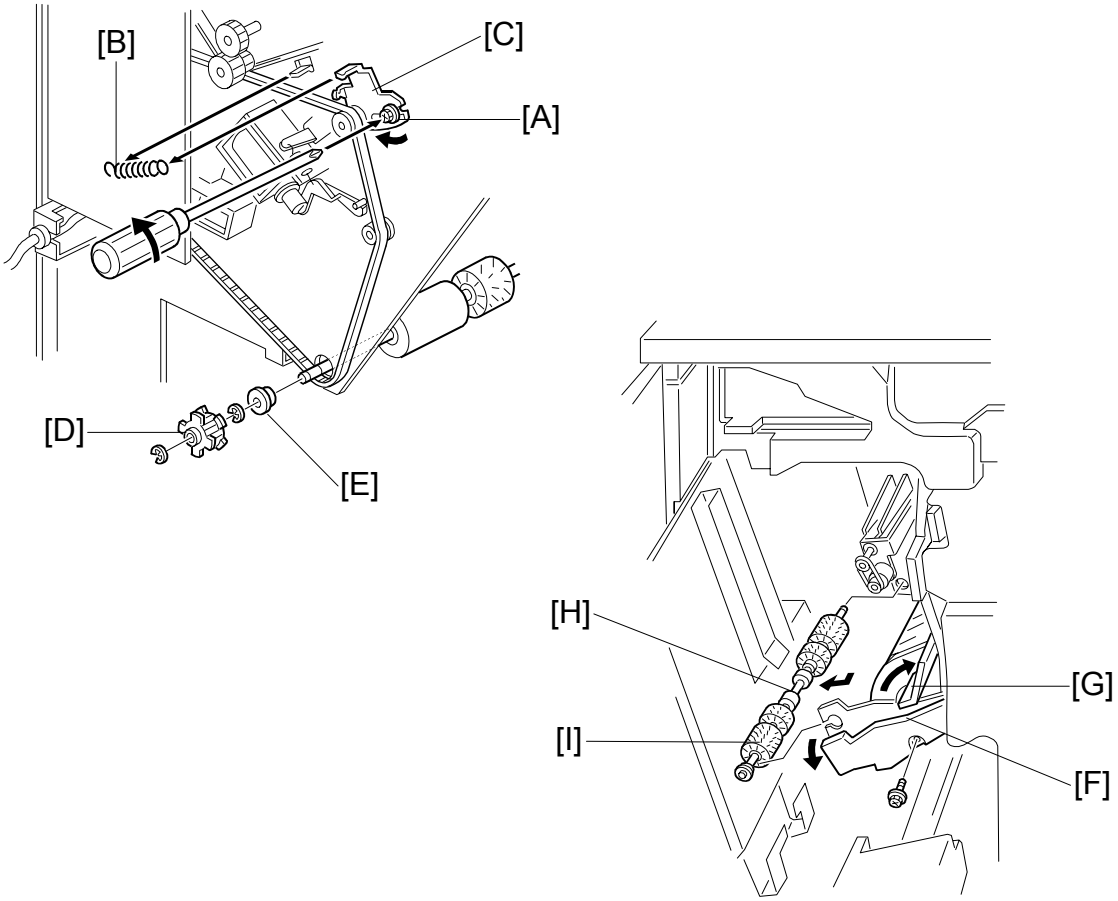
1. Above the shift tray, pull the roller mount [A] out.
2. Remove the rollers [B] and [C] (⌀ x1 ea.)

3.3 POSITIONING ROLLER REPLACEMENT



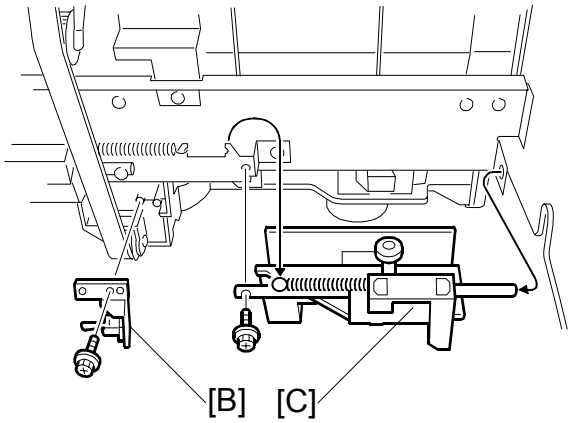
1. Open the front door.
2. Remove the snap ring [A].
3. Release the rubber belt [B].
4. Replace the positioning roller [C].

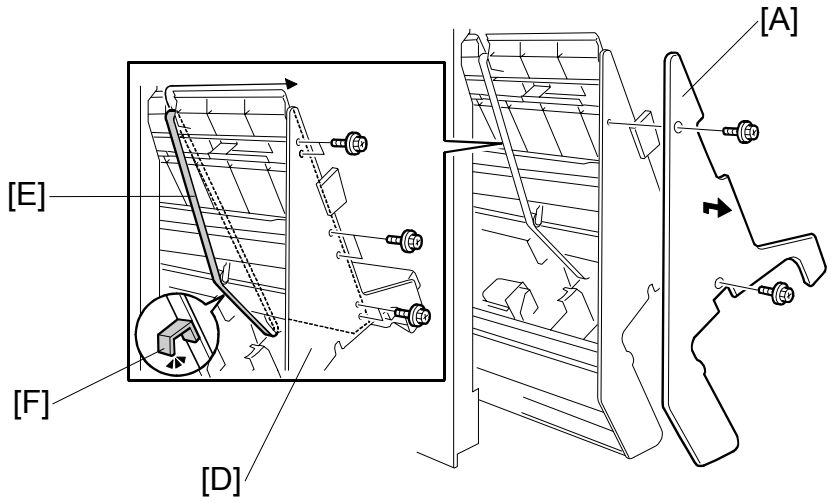
3.4 ALIGNMENT BRUSH ROLLER REPLACEMENT



1. Open the front door and pull out the staple unit.
2. Remove the rear cover.
3. Remove the main board and all connectors (x8).
4. Remove the screw [A] and tension spring [B] for the tension bracket [C], and release the tension of the timing belt.
5. Remove the pulley [D] and bushing [E] (x2).
6. Remove the inner cover [F] (x1).
7. Open the guide [G], then remove the alignment brush roller assembly [H] (x1).
8. Remove the alignment brush roller [I] (x1, bushing x 1).

3.5 STACK FEED-OUT BELT REPLACEMENT

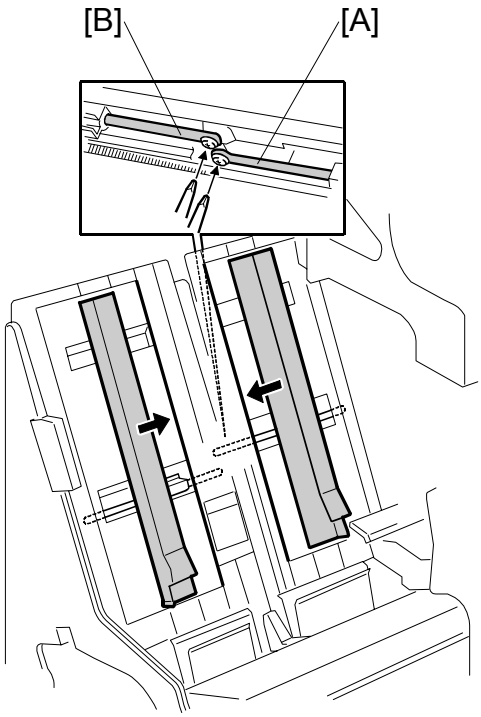




1. Open the front door.
2. Pull out the jogger and stapler unit.
3. Remove the inner cover [A] (x2).
4. Remove the belt bracket [B] (x1, x1, clamp x1).
5. Remove the front guide [C] (x1, spring x1).
   NOTE: When re-installing, make sure that the flat end of the shaft is against the plate.
6. Remove the front panel [D] from the stays (x6).
7. Remove the old belt [E] from the bottom, center, then the top.

NOTE: 1) Make sure the ribbed side of the new belt and pawl [F] are facing down.
2) Make sure the new belt is engaged at all three rollers.

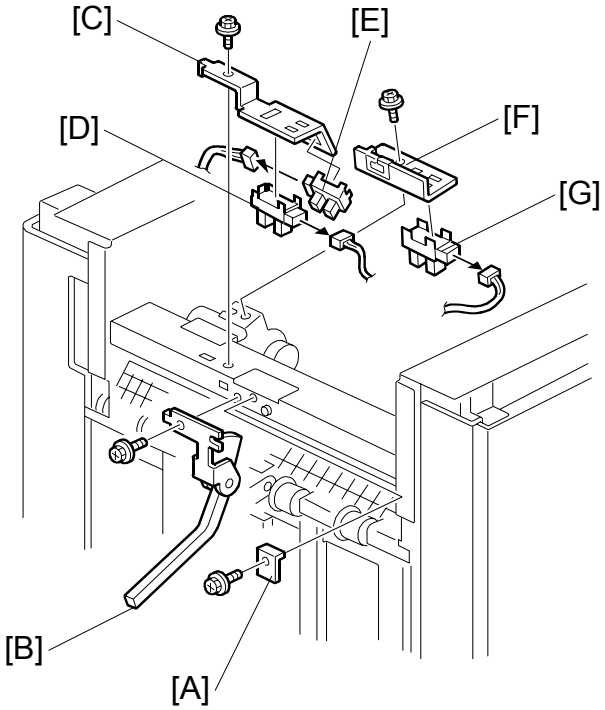
3.6 JOGGER FENCE REPLACEMENT



1. Open the front door.
2. Pull out the jogger and stapler unit.
3. Push both fences to the center.
4. Remove the left jogger fence [A] (x1)
5. Remove the right jogger fence [B] (x1).
   NOTE: If the screws are difficult to remove or re-attach, remove the jogger fence belt.

3.7 SENSOR REPLACEMENT

3.7.1 STACK HEIGHT 1, 2 AND EXIT GUIDE OPEN SENSOR



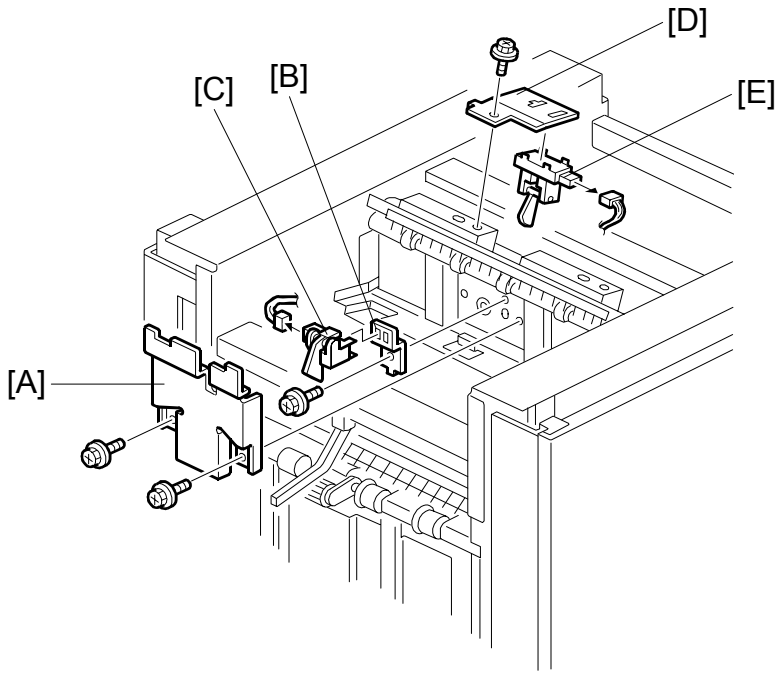
Stack Height Sensors 1 and 2

1. Remove the top cover. (See **(☛ 3.1)** “Door and Cover Replacement”.)
2. Remove the left upper panel and left upper cover (x2, x2). **(☛ 3.1)**
3. Remove the protector plate [A] (x1).
4. Remove the sensor feeler [B] (x1).
5. Remove the sensor bracket [C] (x1).
6. Replace the stack height sensor 1 [D] (x1) or 2 [E] (x1).

Exit Guide Open Sensor

1. Remove the sensor bracket [F] (x1).
2. Replace the exit guide open sensor [G] (x1).

3.7.2 UPPER TRAY PAPER LIMIT AND EXIT SENSOR



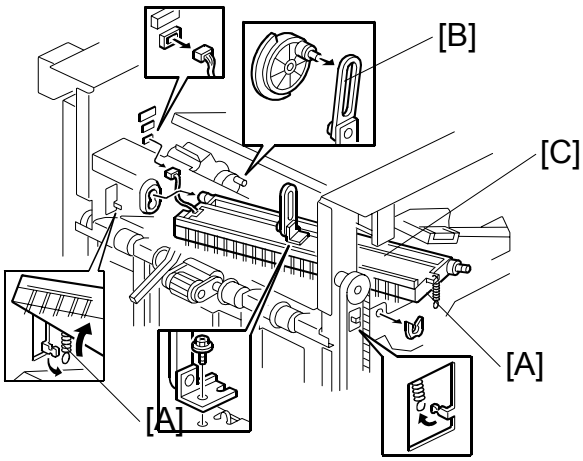
Upper Tray Paper Limit Sensor

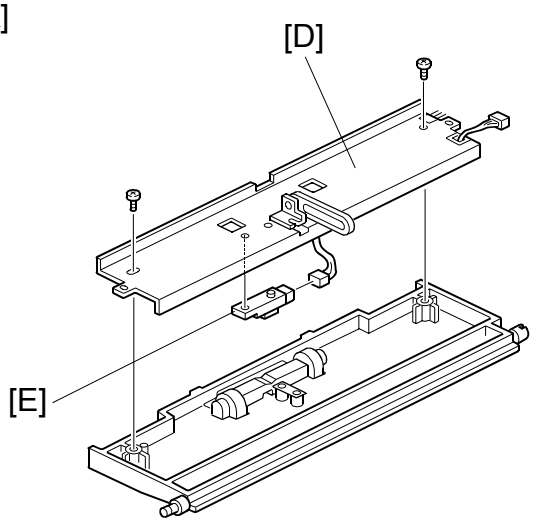
1. Remove the top cover.
2. Remove the sensor cover [A] (☞ x2).
3. Remove the sensor bracket [B] (☞ x1).
4. Replace the upper tray paper limit sensor [C] (☜ x1).

Upper Tray Exit Sensor

5. Remove the sensor bracket [D] (☞ x1).
6. Replace the upper tray exit sensor [E] (☜ x1).

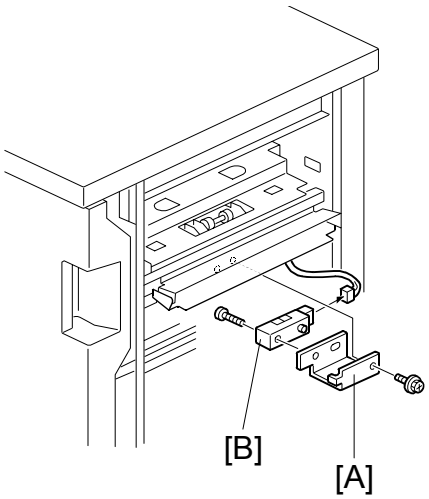
3.7.3 SHIFT TRAY EXIT SENSOR

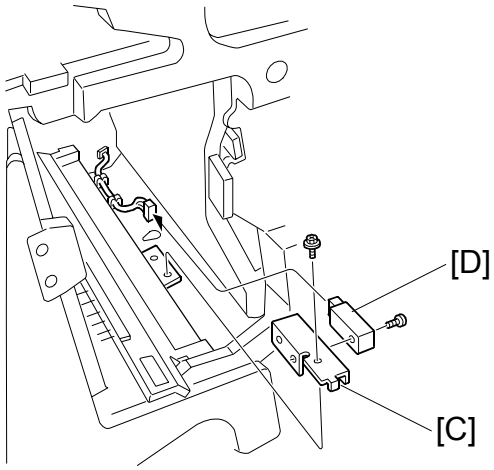




1. Remove the top cover.
2. Open the front door.
3. Remove the inner cover.
4. Release the upper exit guide springs [A] (x2).
5. Disconnect the link [B] from the cam (x1).
6. Remove the upper exit guide [C] (x1, x1).
7. Remove the guide stay [D] (x2).
8. Replace the shift tray exit sensor [E] (x1) (x1).

3.7.4 ENTRANCE AND STAPLER TRAY ENTRANCE SENSORS





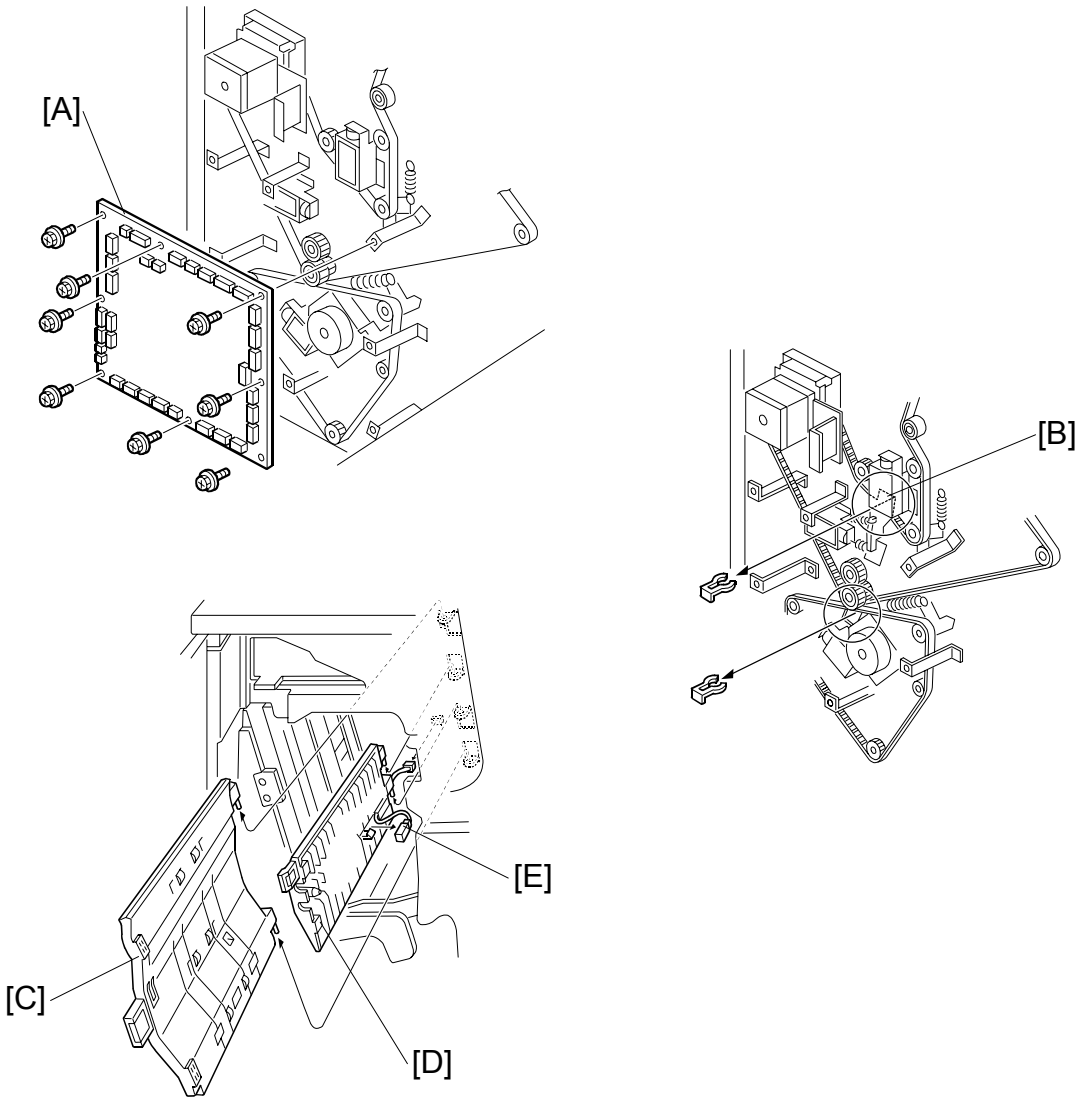
Entrance Sensor

1. Disconnect the finisher from the copier.
2. Remove the sensor bracket [A] (x1).
3. Replace the entrance sensor [B] (x1) (x1).

Stapler Tray Entrance Sensor

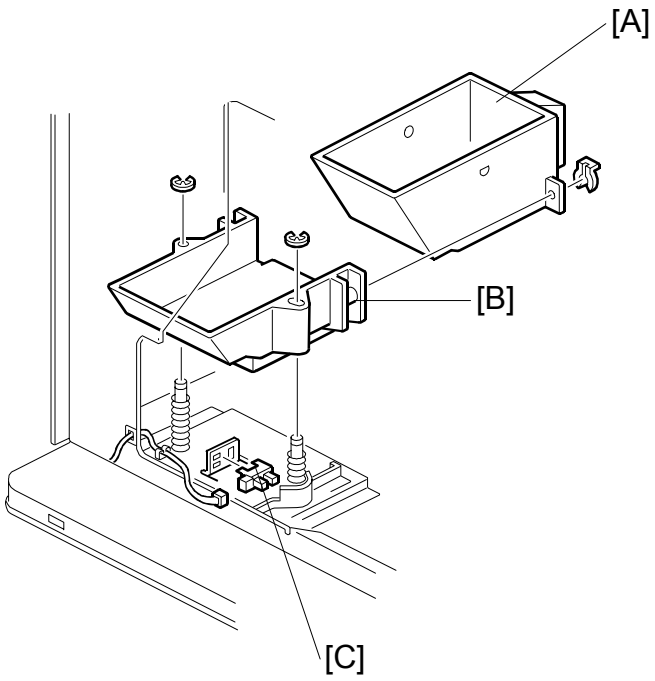
1. Open the front door.
2. Remove the sensor bracket [C] (x1).
3. Replace the stapler tray entrance sensor [D] (x1)(x1).

3.7.5 PRE-STACK PAPER SENSOR



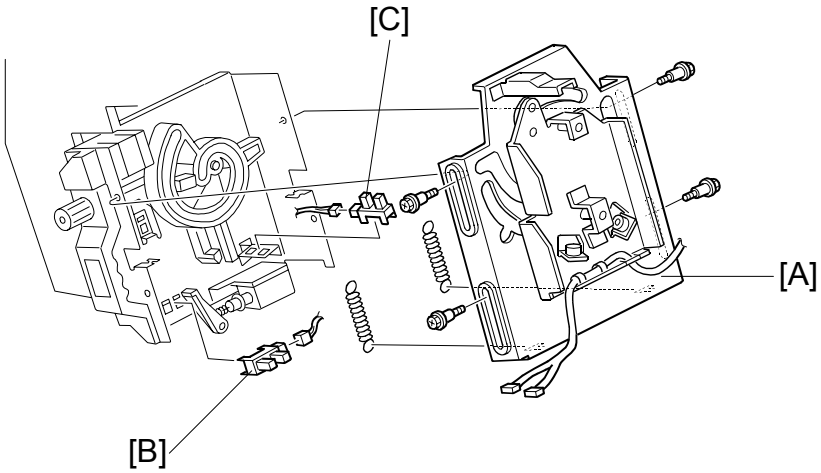
1. Remove the rear cover.
2. Remove the main board [A] (x8, x all).
3. Release the guide [B] (x2).
4. Open the front door.
5. Remove the left vertical transport guide [C].
6. Remove the middle vertical transport guide [D] (x1).
7. Replace the pre-stack paper sensor [E] (x1).

3.7.6 STAPLE WASTE HOPPER SENSOR



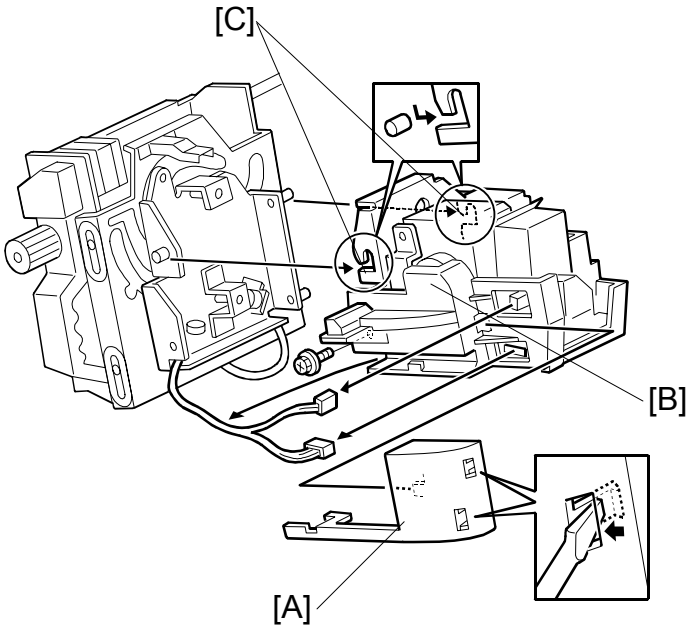
1. Open the front door, pull out the stapler unit, then remove the rear cover.
2. Remove the rear cover (x2).
3. Remove the staple waste hopper [A] (x1).
4. Remove the hopper holder [B] (x2).
5. Replace the staple waste hopper sensor [C] (x1).

3.7.7 STAPLER ROTATION HP AND STAPLER RETURN SENSORS



1. Remove the stapler unit. **(☛ 3.8)**
2. Remove the stapler mount bracket [A] (x4) (Springs x 2).
3. Replace the stapler rotation HP sensor [B] (x1).
4. Replace the stapler return sensor [C] (x1).

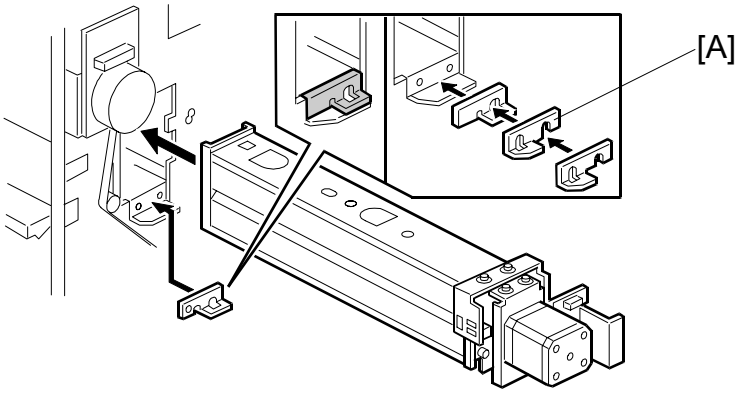
3.7.8 STAPLER REMOVAL



1. Open the front door and pull out the staple tray.
2. Remove the stapler unit harness cover [A].
3. Remove the stapler cover [B] (x1, x2).
4. Lift the stapler off of the pegs. [C]

3.8 PUNCH UNIT B531 (OPTION)

3.8.1 PUNCH POSITION ADJUSTMENT



The position of the punched holes can be adjusted in two ways.

Front to Rear Adjustment

Three spacers [A] are provided with the punch unit for manual adjustment of the hole position in the main scan direction:

- 2mm (x1)
- 1 mm (x2)

NOTE: One spacer was installed at installation and the remaining spacers were fastened with a screw to the rear frame of the finisher under the rear cover and slightly above the lock bar.

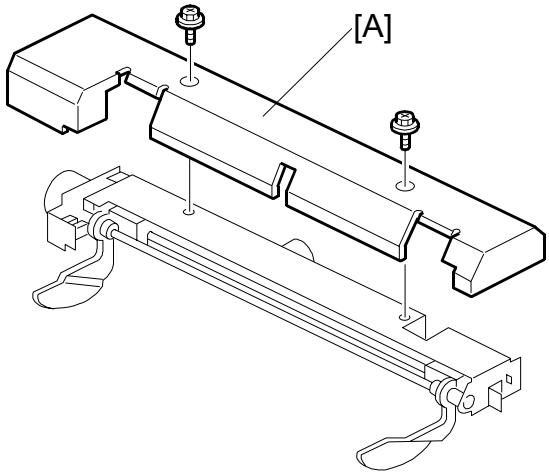
Right to Left Adjustment

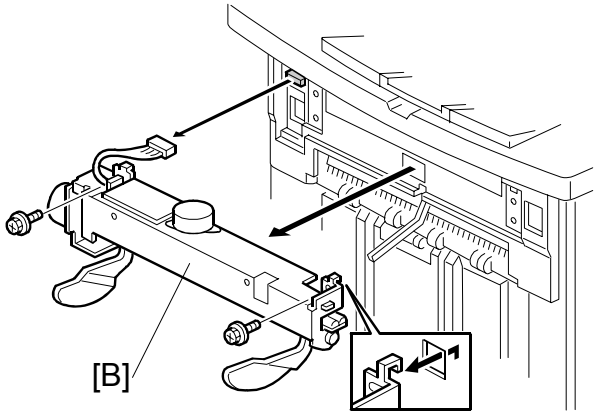
The position of the punched holes can be adjusted right to left in the sub scan direction with SP6-113 Punch Hole Adjustment. The position can be adjusted in the range ±7.5 mm in 0.5 mm steps. The default setting is 0.

Press the [•/⌧] key to toggle the ± selection. A larger value shifts the punch holes left toward the edge of the paper, and a smaller value shifts the holes right away from the edge.

3.9 JOGGER UNIT B513 (OPTION)

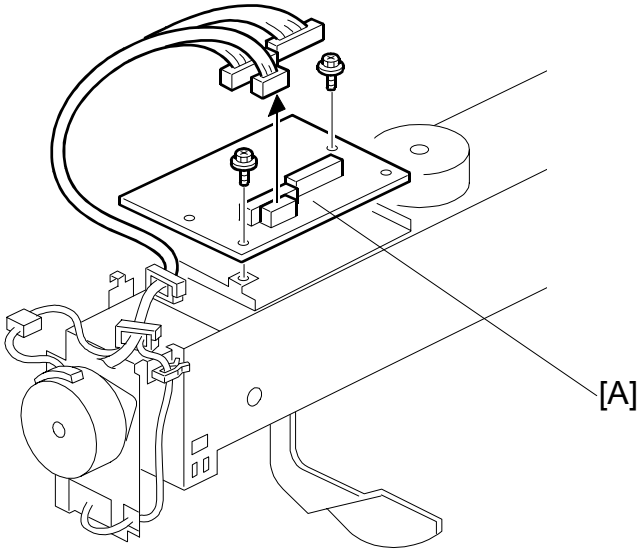
3.9.1 JOGGER UNIT REMOVAL





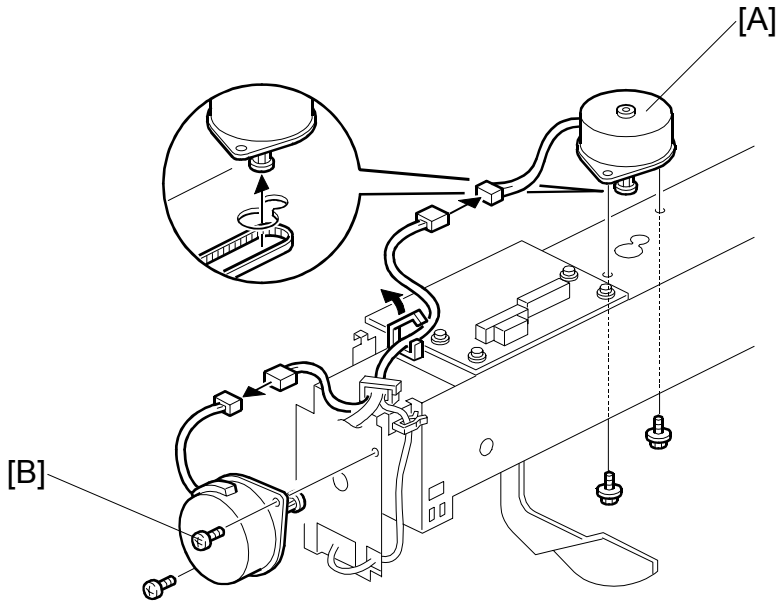
1. Remove the jogger unit cover [A] (x2).
2. Remove the jogger unit [B] (x2, x1).

3.9.2 JOGGER UNIT PCB REPLACEMENT



1. Remove the jogger unit from the finisher. **(☛ 3.9.1)**
2. Remove the jogger unit control PCB [A] (x2, x3)

3.9.3 JOGGER UNIT MOTOR REPLACEMENT



1. Remove the jogger unit from the finisher. **(☛ 3.9.1)**
2. Remove the shift jogger motor [A] (x2, x1).
3. Remove the shift jogger lift motor [B] (x2, x1).

4. TROUBLESHOOTING

If the machine logs an SC code in the display of the operation panel, see “Section 4 Troubleshooting” of the Service Manual. Section 4 contains a complete list of all service codes and how to troubleshoot the problem.

5. SERVICE TABLES

For details about 3000-Sheet Finisher B478 SP codes, please refer to “5. Service Tables” in the main machine service manual.

5.1 DIP SWITCHES

DPS100				Description
1	2	3	4	
0	0	0	0	Default
1	0	0	0	Free run: A4 LEF, staple mode
0	1	0	0	Free run: staple and tray shift

NOTE: Do not use any other settings.

5.2 TEST POINTS

No.	Label	Monitored Signal
TP100	(5V)	+5 V
TP101	(GND)	Ground
TP102	(RXD)	RXD
TP103	(TXD)	TXD

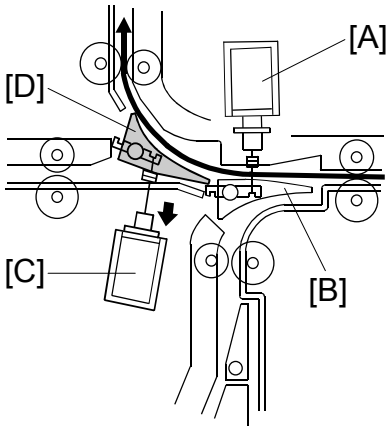
5.3 FUSES

No.	Function
FU100	Protects 24 V.

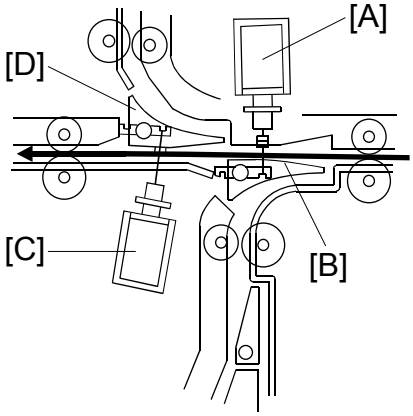
6. DETAILS

6.1 TRAY AND STAPLER JUNCTION GATE

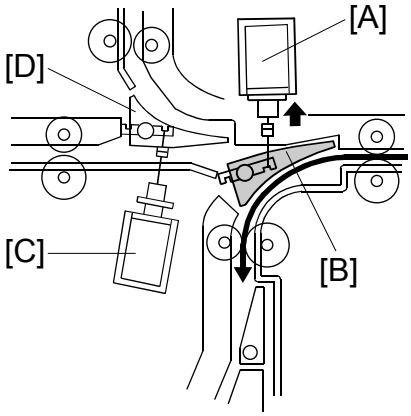
Upper Tray Mode



Sort/Stack Mode



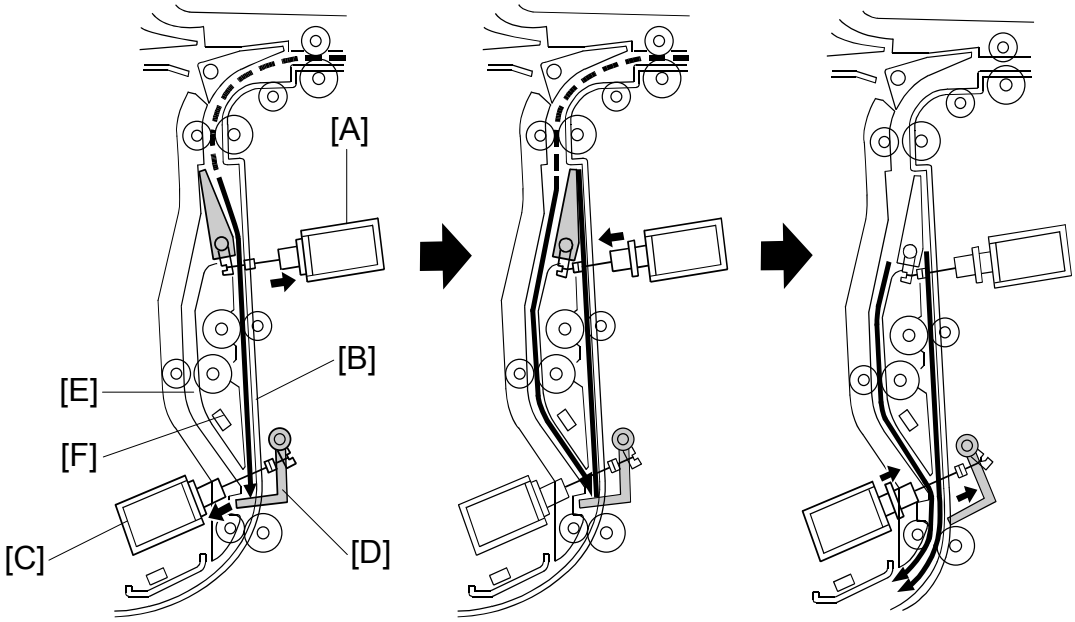
Staple Mode



Depending on the finishing mode, the copies are directed up, straight through, or down by the combinations of open and closed junction gates.

Solenoid/Gate		Selected Operation Mode		
		Upper Tray	Sort/Stack	Staple
[A]	Stapler junction gate solenoid	Off	Off	ON
[B]	Stapler junction gate	Closed	Closed	OPEN
[C]	Tray junction gate solenoid	ON	Off	Off
[D]	Tray junction gate	OPEN	Closed	Closed

6.2 PAPER PRE-STACKING



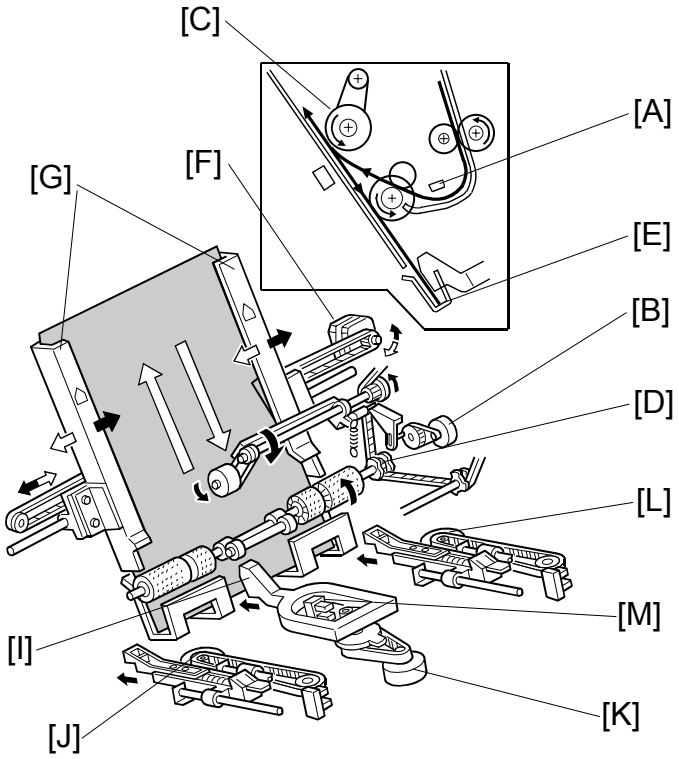
This mechanism improves productivity in staple mode. It is only used when copying on A4, LT, or B5 (all LEF).

During stapling, the copier has to wait. This mechanism reduces the wait by holding the first two sheets of a job while the previous job is still being stapled. It only works during the second and subsequent sets of a multi-set copy job.

The pre-stack junction gate solenoid [A] turns on about 230 ms after the 1st sheet of paper turns on the entrance sensor, and this directs the sheet to the pre-stack tray [B]. (This sheet cannot be fed to the stapler yet, because the first set is still being stapled.) The pre-stack paper stopper solenoid [C] turns on about 680 ms after the 1st sheet turns on the entrance sensor. The pre-stack paper stopper [D] then stops the paper.

The pre-stack junction gate solenoid turns off 450 ms after the trailing edge of the 1st sheet passes through the entrance sensor, and the 2nd sheet is sent to the paper guide [E]. The pre-stack paper stopper is released about 50 ms after the 2nd sheet turns on the pre-stack stopper sensor [F], and the two sheets of copy paper are sent to the stapler tray. All sheets after the 2nd sheet go to the stapler tray via the paper guide [E].

6.3 JOGGER UNIT PAPER POSITIONING



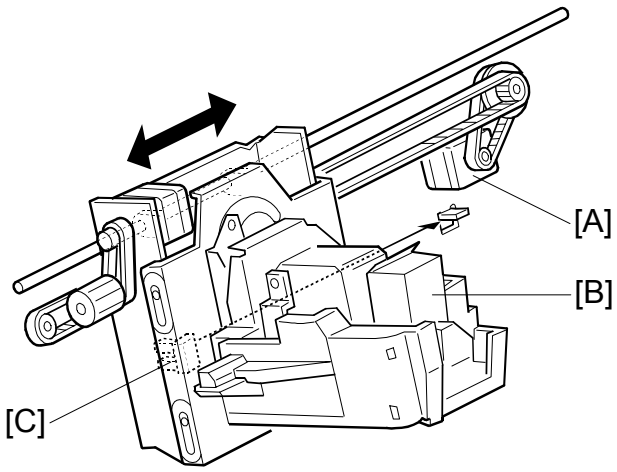
In the staple mode, as every sheet of paper arrives in the jogger unit, it is vertically and horizontally aligned, then the staple edge is pressed flat to ensure the edge of the stack is aligned correctly for stapling.

Vertical Paper Alignment. About 60 ms after the trailing edge of the copy passes the staple tray entrance sensor [A], the positioning roller motor [B] is energized to push the positioning roller [C] into contact with the paper. The positioning roller and alignment brush roller [D] rotate to push the paper back and align the trailing edge of the paper against the stack stopper [E].

Horizontal Paper Alignment. When the print key is pressed, the jogger motor [F] turns on and the jogger fences [G] move to the wait position about 7 mm wider than the selected paper size on both sides. When the trailing edge of the paper passes the staple unit entrance sensor, the jogger motor turns on for approximately 32 ms (4.7 mm) to move the jogger fences approximately 5 mm towards the paper. Next, the jogger motor turns on again for 18 ms (3.0 mm) for the horizontal paper alignment then goes back to the wait position.

Paper Stack Correction. After the paper is aligned in the stapler tray, the left [J], center [K], and right [L] stack plate motors switch on briefly and drive the front stack, center stack, and rear stack plates against the edge of the stack to flatten the edge completely against the staple tray for stapling. When the next copy paper turns on the stapler tray entrance sensor, the stack plate motor turns on and returns to its home position. The home position is detected by stack plate HP sensor [M].

6.4 STAPLER UNIT MOVEMENT



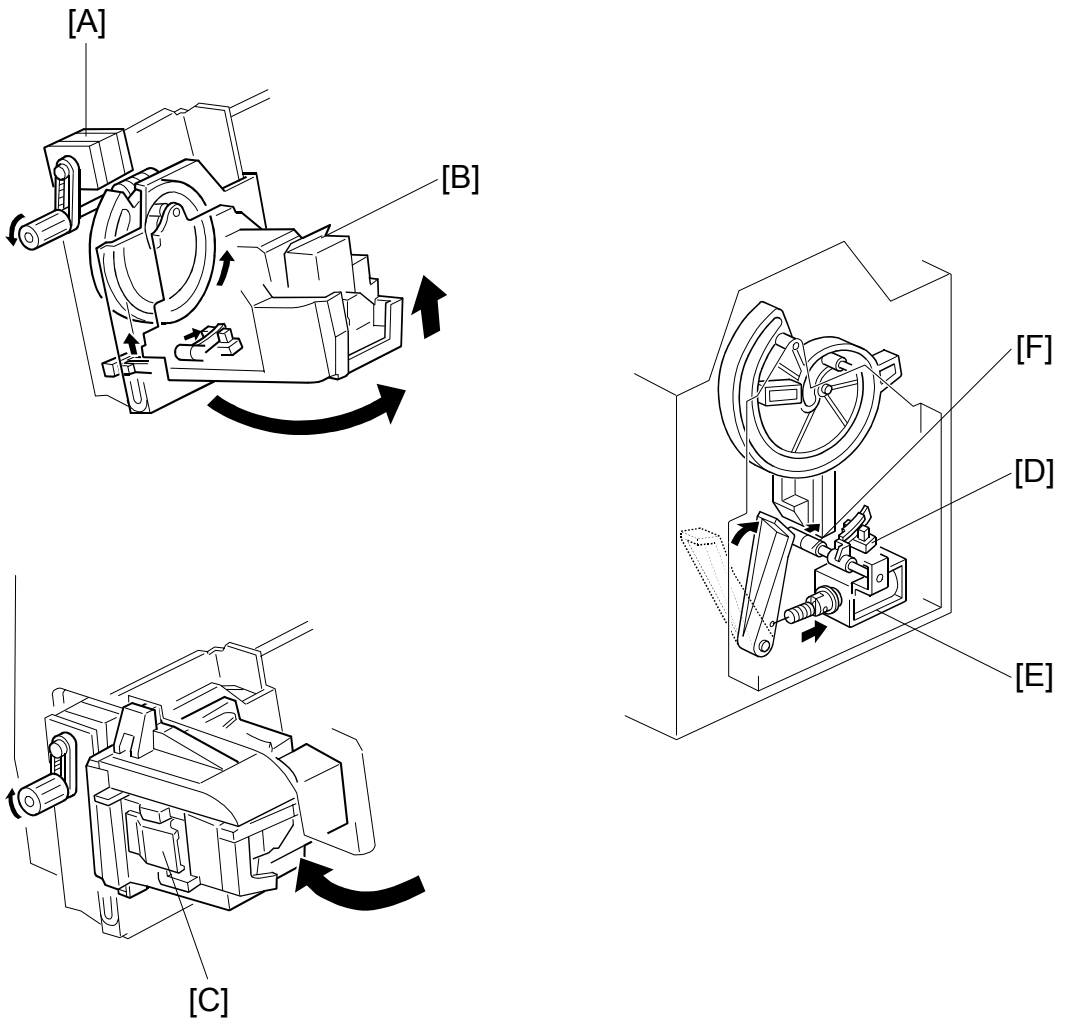
Side-to-Side

The stapler motor [A] moves the stapler [B] from side to side. After the start key is pressed, the stapler moves from its home position to the stapling position.

If two-staple-position mode is selected, for the first stack the stapler moves to the rear stapling position first, staples, moves to the front position, staples and waits at the front. For the second stack, the stapler staples the front corner first, then moves to the rear corner and staples.

NOTE: For continuous stapling jobs, the corners are stapled rear then front for the odd number stacks and stapled front then rear for even number stacks.

After the job is completed, the stapler returns to its home position. This is detected by the stapler HP sensor [C].



Rotation (1)

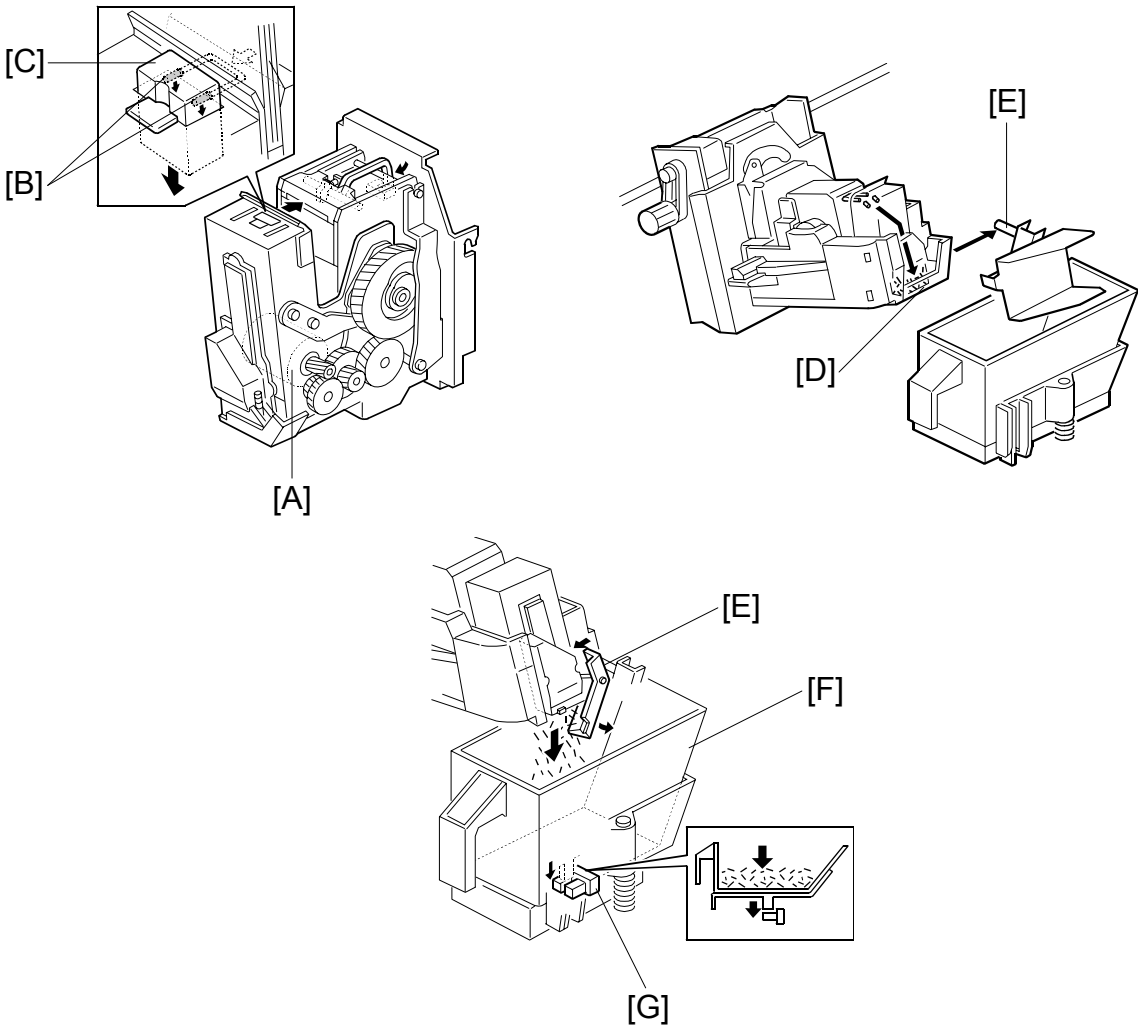
In the oblique staple position mode, the stapler rotation motor [A] rotates the stapler units [B] 45° to counterclockwise after it moves to the stapling position.

Rotation (2)

When the staple end condition arises, the stapler motor moves the stapler to the front and the stapler rotation motor rotates the stapler unit to clockwise to remove the staple cartridge [C]. This allows the user to add new staples.

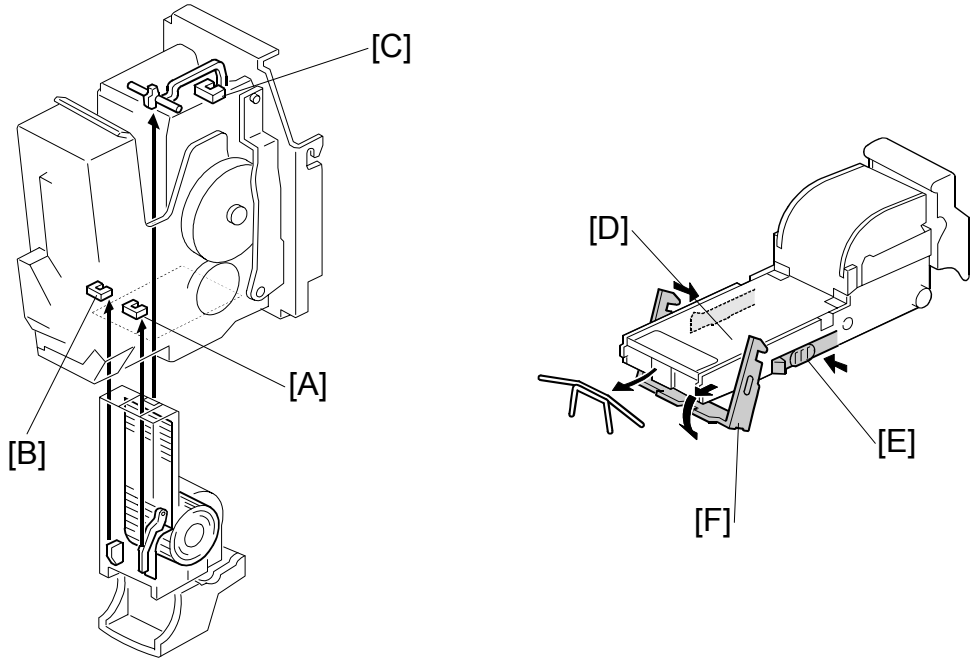
Once the staples have been installed, and the front door closed, the stapler unit returns to its home position. As the stapler unit is returning to the home position, the stapler return sensor [D] is activated, the return solenoid [E] turns on and it assists the guide roller [F] to return to its guide (this guide directs the stapler during rotation).

6.5 STAPLER



When the aligned copies are brought to the stapling position by the positioning roller and jogger fences, the staple hammer motor [A] starts stapling.

During stapling, the stapler trims off the excess length [B] of the staples by lowering the cutter [C]. This excess length depends on the number of copies in the set; there will be very little for a stack containing 100 sheets. The staple waste drops into the tray [D] in the stapler. When the stapler unit returns to its home position, the tray hits the shaft [E] and the tray opens. The staple waste drops into the staple waste hopper [F]. When the staple waste hopper is full, the actuator on its base activates the staple waste hopper sensor [G]. An SC is displayed.

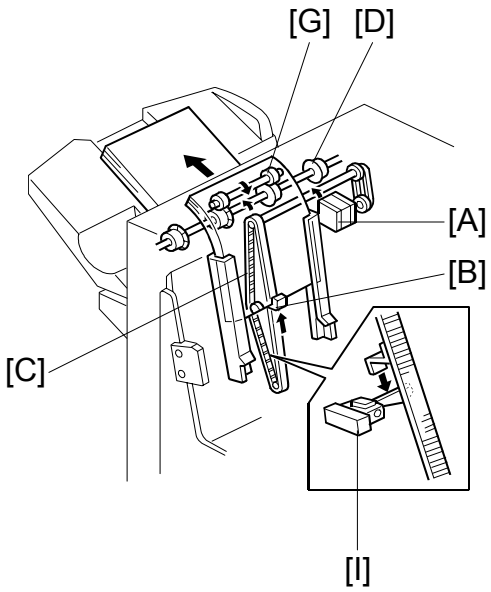


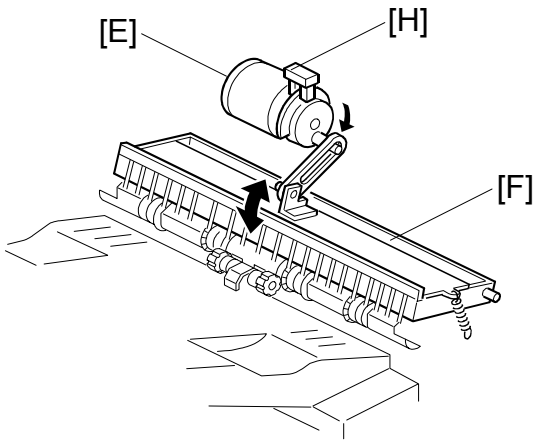
The stapler has a staple end sensor [A], cartridge set sensor [B] and staple hammer HP sensor [C].

When a staple end or no cartridge condition is detected, a message is displayed advising the operator to install a staple cartridge. If this condition is detected during a copy job, the indication will appear, and the copy job will stop.

The staple cartridge has a clinch area [D] where jammed staples collect. The operator can remove the jammed staples from the clinch area by pressing in the releases [E] on both sides, then lowering the bracket lever [F].

6.6 FEED-OUT



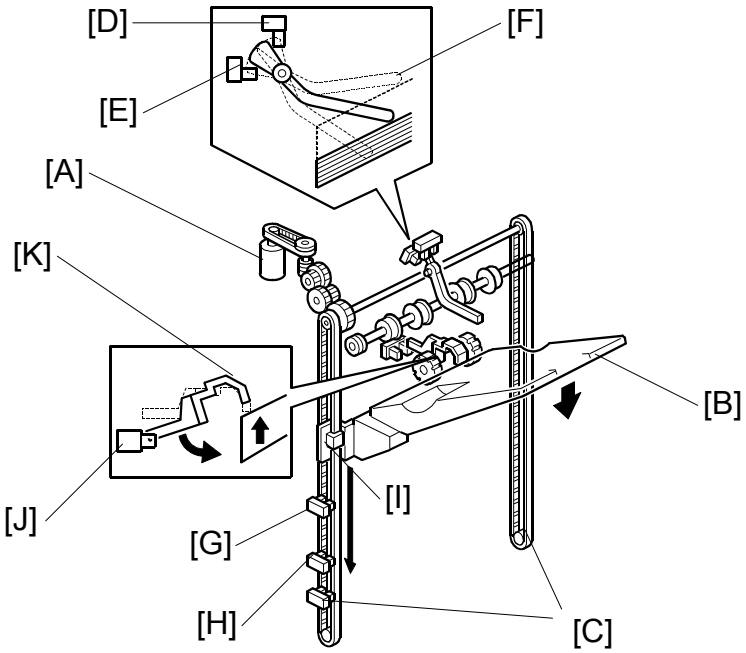


After the copies have been stapled, the stack feed-out motor [A] starts. The pawl [B] on the stack feed-out belt [C] transports the set of stapled copies up and feeds it to the shift tray exit roller [D]. When stapling starts, the exit guide motor [E] opens the upper exit guide [F], which includes the upper shift tray exit roller [G], in order to feed out the leading edge of the copy set smoothly. The exit guide motor turns on again a certain time after stapling is complete, and the upper exit guide plate is lowered. Then the shift tray exit roller takes over the stack feed-out.

The on-off timing of the exit guide motor is detected by the exit guide open sensor [H].

The stack-feed-out motor turns off when the pawl actuates the stack feed-out belt home position sensor [I].

6.7 SHIFT TRAY UP/DOWN MOVEMENT



The shift tray lift motor [A] controls the vertical position of the shift tray [B] through gears and timing belts [C]. When the main switch is turned on, the tray is initialized at the upper position. The tray is moved up until stack height sensor 1 [D] is de-actuated. In sort/stack mode, if stack height sensor 2 [E] is actuated for 2 seconds, the shift tray lift motor lowers the shift tray for 20 ms.

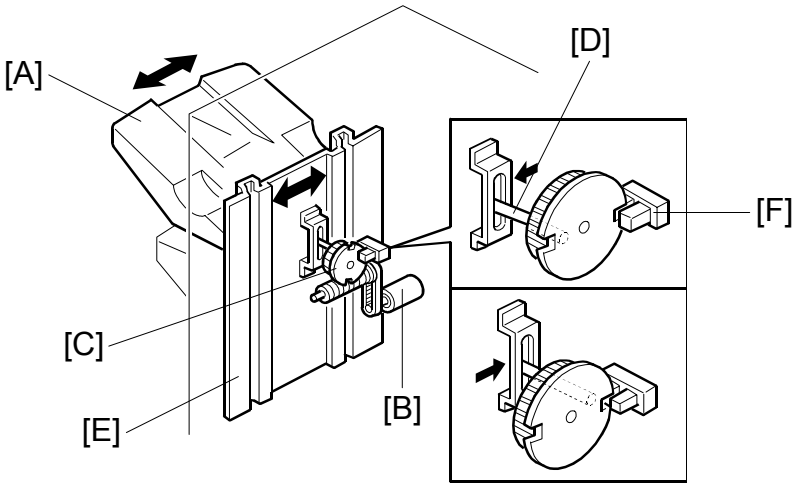
In staple mode, when the pawl on the stack feed-out belt reaches the upper position of the staple unit, the shift tray lift motor lowers the shift tray for 400 ms and stops for 200 ms. Then, it lifts the shift tray until stack height sensor 1 is de-actuated by the feeler [F]. This means the tray lowers earlier in staple mode, to prevent the next copy suddenly exceeding the space currently available on the tray.

For both modes, the shift tray will rise until stack height sensor 1 is de-actuated when the user takes the stack of paper from the shift tray.

This machine has two shift tray lower limit sensors 1 [G], 2 [H]. Shift tray lower limit sensor 1 detects the near lower limit and sensor 2 detects the lower limit. When the actuator [I] enters sensor 1, a message will be displayed and copying will continue. When the actuator enters sensor 2, a message will be displayed and copying will stop.

The shift tray upper limit switch [J] prevents the drive gear from being damaged if stack height sensor 1 fails. When the shift tray pushes up the shift tray positioning roller [K], the switch will cut the power to the shift tray lift motor.

6.8 SHIFT TRAY SIDE-TO-SIDE MOVEMENT



In sort/stack mode, the shift tray [A] moves from side to side to separate the sets of copies.

The horizontal position of the shift tray is controlled by the shift motor [B] and shift gear disk [C]. After one set of copies is made and delivered to the shift tray, the shift motor turns on, driving the shift gear disk and the shaft [D]. The end fence [E] is positioned by the shaft, creating the side-to-side movement.

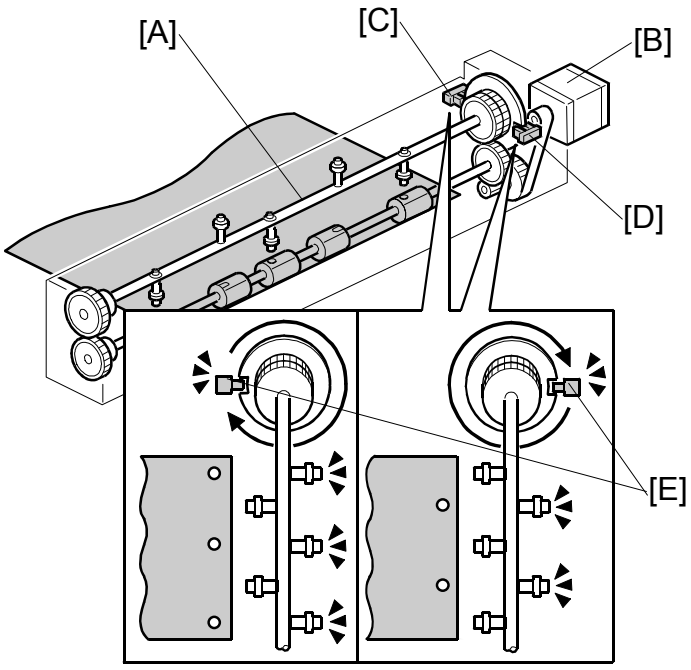
When the shift gear disk has rotated 180 degrees (when the shift tray is fully shifted across), the cut-out in the shift gear disk turns on the shift tray half-turn sensor [F] and the shift motor stops. The next set of copies is then delivered. The motor turns on, repeating the same process and moving the tray back to the previous position.

6.9 JAM CONDITIONS

1. The entrance sensor does not turn on when the copier has fed paper 426 mm after the copier exit sensor turned off.
2. The entrance sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
3. The upper tray exit sensor does not turn on when the upper transport motor has fed paper 574 mm after the entrance sensor turned on.
4. The upper tray exit sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
5. In sort/stack mode, the shift tray exit sensor does not turn on when the upper transport motor has fed paper 783 mm after the entrance sensor turned on.
6. In sort/stack mode, the shift tray exit sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
7. In staple mode, the stapler tray entrance sensor does not turn on when the upper and lower transport motor have fed paper 835 mm after the entrance sensor turned on.
8. In staple mode, the stapler tray entrance sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
9. In staple mode, the stapler tray paper sensor does not turn off within 250 pulses of the stack feed-out motor after it started.
10. In staple mode, the shift tray exit sensor does not turn off within 1,260 ms after the stack feed-out motor started.

6.10 PUNCH UNIT B531 (OPTION)

6.10.1 PUNCH UNIT DRIVE



The punch unit makes 2 or 3 holes at the trailing edge of the paper. The cam [A], equipped with 2 punches on one side and 3 punches on the other, is rotated and set for 2 or 3 hole punching by a selection on the operation panel.

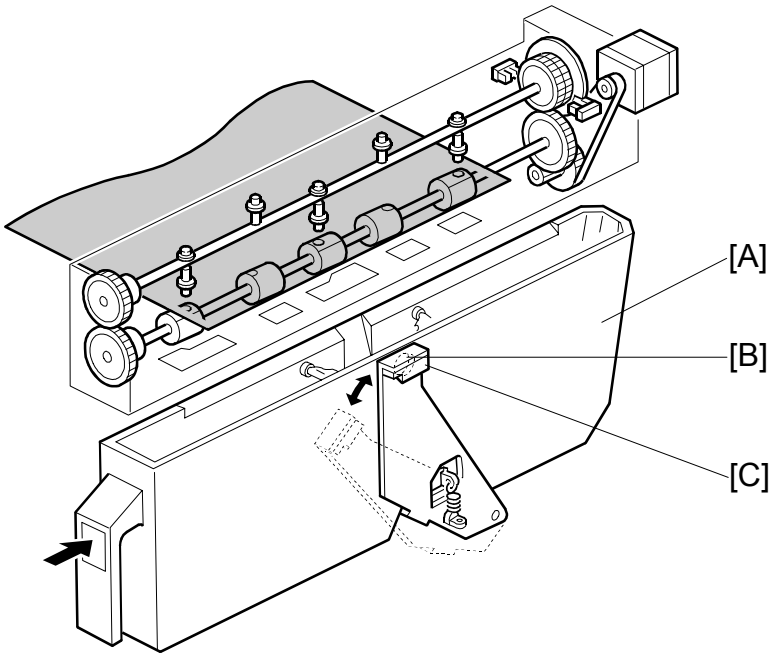
The punch unit is driven by the punch motor [B]. The punch motor turns on immediately after the trailing edge of the paper passes the entrance sensor and punches the holes in the paper.

The punch unit is equipped with two punch HP sensors, punch HP sensor 1 [C] when 2-hole punching is selected and punch HP sensor 2 [D] when 3-hole punching is selected.

The cam home position for either mode is detected by punch HP sensor 1 or 2, depending on which mode (2-hole, or 3-hole) was selected for the job. When the cut-out [E] enters either punch HP sensor, the punch motor stops.

The knob (not shown) on the front end of the punch unit can be turned in either direction to clear paper jammed in the punch unit.

6.10.2 PUNCH WASTE COLLECTION



Punch waste is collected in the punch waste hopper [A] positioned under the punch unit.

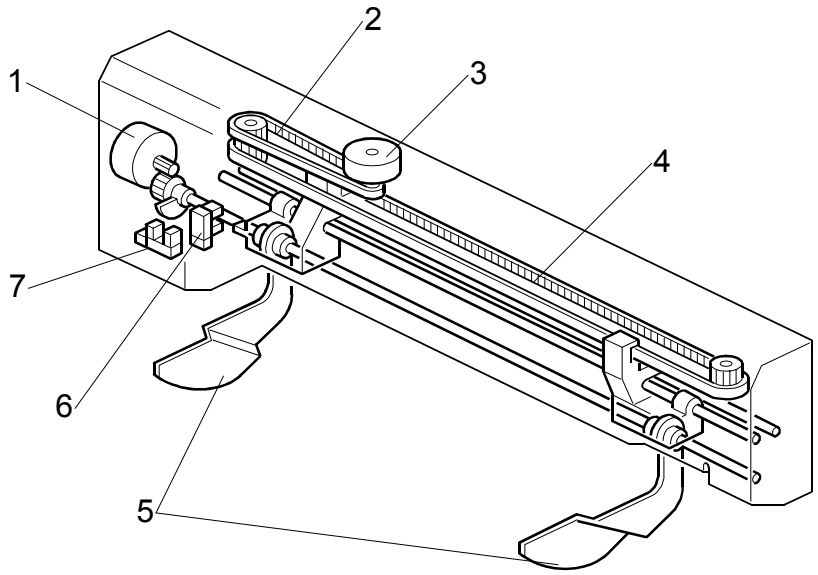
When the level of the punch waste in the hopper rises as far as the hole [B] in the hopper, the punch waste sensor [C] turns on, stops the job, and triggers a message on the operation to indicate that the hopper is full and must be removed and emptied.

The job resumes automatically after the hopper is emptied and returned to the finisher.

The punch waste hopper sensor also functions as the hopper set sensor. When the hopper is not in the finisher, or if it is not inserted completely, the spring loaded sensor arm rotates up and to the right with the punch waste sensor away from the hole in the hopper holder and a message is displayed. The message in this case is the same as the hopper full message.

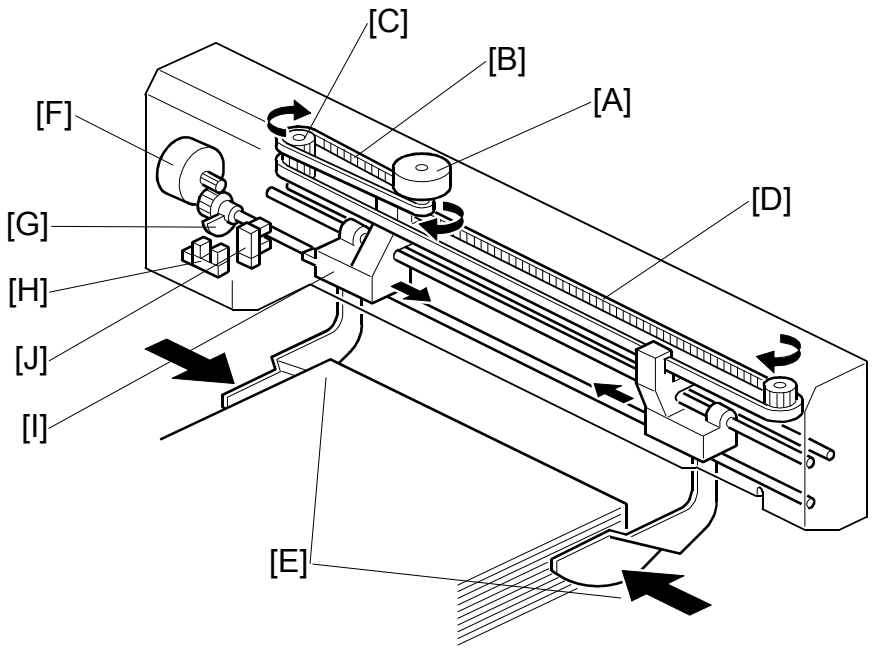
6.11 JOGGER UNIT B513 (OPTION)

6.11.1 JOGGER UNIT MECHANICAL LAYOUT



1. Shift Jogger Fence Lift Motor
2. Shift Jogger Motor Timing Belt
3. Shift Jogger Motor
4. Shift Jogger Fence Timing Belt
5. Shift Jogger Fences
6. Shift Jogger HP Sensor
7. Shift Jogger Lift HP Sensor

6.11.2 JOGGER UNIT DRIVE



At prescribed intervals, the jogger motor [A] switches on and drives the jogger timing belt [B], gear [C] and jogger fence timing belt [D] which drives the shift jogger fences [E] against the sides of the stack to align its edges.

As soon as the fences reach the sides of the stack (the distance is determined by the width of the paper size selected for the job), the jogger fence lift motor [F] switches on and raises the fences until the actuator [G] leaves the slot of the shift jogger fence lift HP sensor [H] and shuts off the shift jogger fence lift motor.

At the same time, the jogger motor reverses and drives the fences away from the sides of the stack until the actuator [I] deactivates the shift jogger fence HP sensor [J] and switches off shift the jogger motor.

7. SPECIFICATIONS

7.1 FINISHER SPECIFICATIONS

NOTE: The Punch Unit B531 is an option for this finisher.

TOP TRAY

Paper Capacity (80 g/m^2)	500 sheets (A4, LT and smaller) 250 sheets (B4, LG and larger)
Paper Size	A3 LEF to A6, B6 LEF DLT to HLT
Paper Weight	52 to 216 g/m^2
Top Tray Full Detection	Provided

SHIFT TRAY

Paper Capacity (80 g/m^2)	3000 sheets (A4 LEF, B5 LEF, LT LEF) 1500 sheets (A3, A4 SEF, B4, B5 .SEF, DLT, LG, LT SEF) 500 sheets (A5 LEF, HLT LEF) 100 (A5 SEF, HLT SEF)
Paper Size	A3 SEF to A5 DLT to HLT
Paper Weight	52 to 216 g/m^2
Paper Height Detection	Not provided
Shift Tray Full Detection	Provided

STAPLER

Stapling Stack Size	A4 and smaller, 100 sheets B4 and larger, 50 sheets
Stapling Paper Size	A3 SEF to B5 DLT to LT
Stapling Paper Weight	64 to 80 g/m^2
Staple Position	4 Modes 1 Staple: Front, Rear, Rear-Oblique 2 Stapes: 2 locations
Staple Capacity	5000 staples/cartridge
Staple Supply	Cartridge or Staple Replacement

STAPLER (cont.)

Stapled Stack Size

Sheets	Sets	Sizes
10 ~ 100	200 ~ 30	A4 SEF, B5 SEF, LT SEF
2 ~ 9	150	A4 LEF, B5 LEF, LT LEF
10 ~ 50	150 ~ 30	A3, B4, DLT, LG
2 ~ 9	150	

Trim Waste Staple Capacity	30,000 or more
Waste Staple Hopper Full Detection	Provided
Staple Waste Disposal Method	Manual removal by CE.

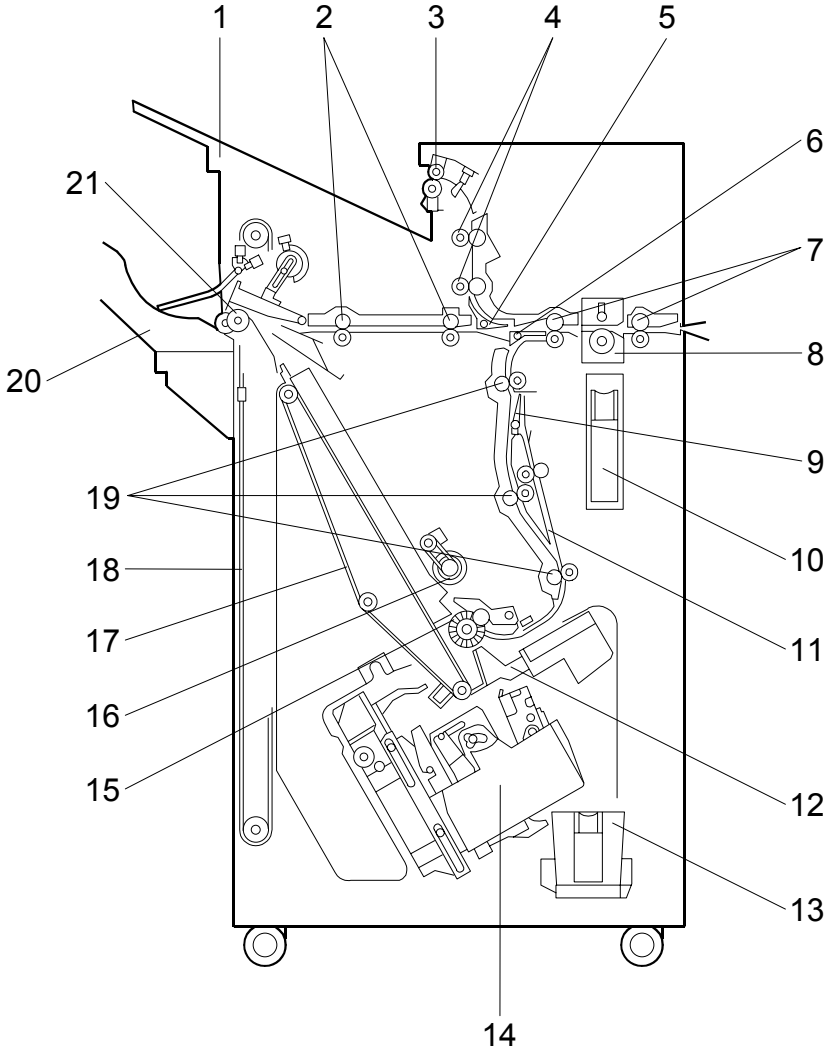
FINISHER

Power Consumption	Less than 100 W
Power Source	DC 24 V
Size (w x d x h)	800 x 730 x 980 mm 31.5 x 28.7 x 38.6 in.
Weight	Less than 65 kg (143 lb.)
Compatible Machines	B070 90 ppm, 450 mm/s B071 105 ppm, 500 mm/s B064 60 ppm, 360 mm/s B065 75 ppm, 360 mm/s

PUNCH UNITS

Punch Hole Positions	2/3-hole (North America) 2/4-hole (Europe) 4-hole (Europe) 4-hole (North Europe)
Punch Paper Size	
2-hole (LEF)	A3 to A5, DLT to HLT
2-hole (SEF)	A4 to A5, LT, HLT
3-hole (LEF)	A3, B4, DLT
3-hole (SEF)	A4, 4, LT
4-hole (Europe – LEF)	A3 to A5, DLT to HLT
4-hole (Europe – SEF)	A4 to A5, HLT
4-hole (N. Europe – LEF)	A3 to A5, DLT to LT
4-hole (N. Europe – SEF)	A4 to A5, LT, HLT
2-hole (N. America – LEF)	A3 to A5, DLT to HLT
2-hole (N. America – SEF)	A4 to A5, LT, HLT
Paper Weights	
2-hole	52 to 163 g/m^2
3-hole	52 to 163 g/m^2
4-hole (Europe, N. Europe)	52 to 128 g/m^2
2-hole (N. America)	52 to 163 g/m^2
Punch Alignment Precision	Within 1.5 mm (A4/B4/LT LEF) Within 2 mm (Other Sizes)

7.2 MECHANICAL COMPONENT LAYOUT



1. Upper Tray
2. Middle Transport Rollers
3. Upper Tray Exit Roller
4. Upper Transport Rollers
5. Tray Junction Gate
6. Stapler Junction Gate
7. Entrance Rollers
8. Punch Unit
9. Pre-stack Junction Gate
10. Punch Waste Hopper
11. Pre-stack Tray
12. Stack Plate
13. Staple Waste Hopper
14. Stapler
15. Alignment Brush Roller
16. Positioning Roller
17. Stack Feed-out Belt
18. Shift Tray Drive Belt
19. Lower Transport Rollers
20. Shift Tray
21. Shift Tray Exit Roller

TECHNICAL SERVICE BULLETINS

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 001 **07/11/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SERVICE MANUAL – INSERTS & POINT TO POINT CORRECTION

GENERAL:

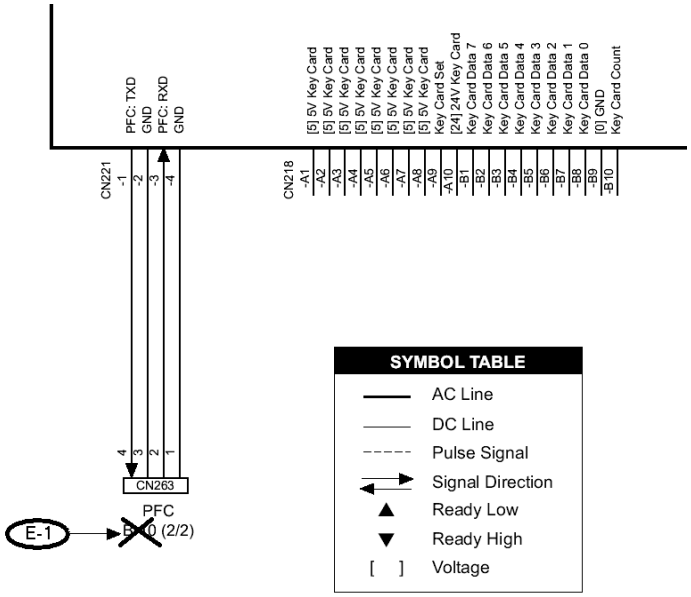
The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- xii Updated Information (Table of Contents)
- 3-126 Updated Information (Printing)
- 4-1 Updated Information (Important SP Modes)
- 5-71 Updated Information (SP-xxx Peripherals)
- 7-2 Updated Information (Specs - ADF)
- 7-15 Updated Information (Specs - Lower Tray)
- 7-16 Updated Information (Specs - 3000-Sheet Finisher B469)

Please correct your Point-to-Point diagram at location B1, as shown in the illustration below:



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3.14 COPY IMAGE ADJUSTMENTS: PRINTING/SCANNING

These adjustments must be performed after replacing any of the following parts:

- Scanner wires
- Lens block
- Scanner motor
- Polygon motor
- Tandem tray side fences
- Memory All Clear

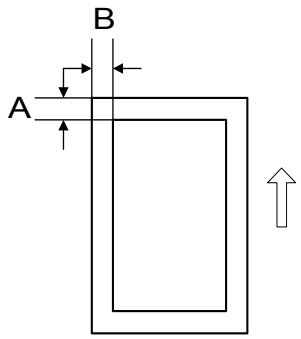
3.14.1 PRINTING

1. Make sure paper is installed correctly in each paper tray before you start these adjustments.
2. ⇒ Use the Trimming Area Pattern (SP2-902-3, No. 18 to print the test pattern for the following procedures.
3. After completing these printing adjustments, be sure to set SP 2-902-3 to 0 again.

Registration - Leading Edge/Side-to-Side

1. Check the leading edge registration, and adjust it using SP1-001.
   Specification: 3 ± 2mm.
2. Check side-to-side registration for each paper feed station, and adjust with the following SP modes.

	SP mode	Specification
Tray 1 (Tandem Tray)	SP1002 001	0±1.5
Tray 2 (Universal Tray)	SP1002 002	
Tray 3 (Universal Tray)	SP1002 003	
Tray 4	SP1002 004	**Japan Only**
By-pass Tray	SP1002 005	0±1.5
LCT	SP1002 006	0±1.5
Duplex Tray	SP1002 007	0±1.5



4. TROUBLESHOOTING

4.1 IMPORTANT SP MODES

⇒ SP2902	Test Patterns	SP2902-001 ~ 004 will be used to produce both scan and printer test patterns to aid in troubleshooting.
SP5802	Free Run Mode	Execute this SP to force base engine to run in the free run mode for testing.
SP5803	Input Check	Displays the signals received from sensors and switches. Refer to the detailed tables in “5. Service Tables”.
SP5804	Output Check	Switches electrical components one by one for testing. Refer to the detailed tables in “5. Service Tables”.
⇒ SP5990	SMC Print	Execute this SP to print the system parameter and data lists (SMC Report). Individual reports or all reports may be printed using the appropriate SP Mode (SP 5990.00x).
SP7801	ROM Version Display.	Displays the version number of the main machine and connected peripherals.
SP7832	Self-Diagnostic Result Display	Execute this SP to display a list of error codes. No errors have occurred if nothing is displayed.
SP7911	Firmware Version	Displays the current numbers of all versions of the firmware in the system.
SP7990	Status of Issued SC	Execute to display the following information about the most recently issued SC: 1) Source file name, 2) SC number, 3) Result

NOTE: For more information about these and other SP Modes, see “5. Service Tables”.

4.2 PROGRAM DOWNLOAD

4.2.1 OVERVIEW

Here are some important points to keep in mind when downloading software:

- If an error interrupts download processing, the machine cannot operate normally with the program software only partially downloaded.
- When download processing execution starts, “Downloading…” is displayed and when downloading has completed successfully, the message is cleared.
- If the download is interrupted when the “Downloading …” message is displayed, the machine does not attempt a re-try.
- The program that downloads firmware from an IC card is part of the GW controller software. If downloading this software is interrupted, the program stored in the machine may be corrupted. Because of this, it may not be possible to restart the downloading program. (In addition, if the GW controller software cannot be downloaded, other software on other IC cards cannot be downloaded.) However, it may be possible to restart the program without replacing the board by setting DIP SW 1 on the controller to ON, and re-starting.

SP6-xxx Peripherals

SP	Number/Name		Function/[Setting]
6006*	ADF Registration Adjustment		
	001	ADF Horizontal Registration (Front)	Adjusts the side-to-side registration for the front/back in ADF mode. [–3~+3/**0**/0.1 mm]
	002	ADF Horizontal Registration (Back)	
	003	ADF Vertical Registration (Front)	Adjusts the vertical registration for the front/back in ADF mode. [–5~+5/**0**/0.1 mm]
	004	ADF Vertical Registration (Back)	
	005	ADF Buckle Adjustment 1	Adjusts the roller timing at the skew correction sensor/entrance roller. A higher setting causes more buckling. [–3.0~+3.0/**0**/0.1mm]
	006	ADF Buckle Adjustment 2	Adjusts the roller timing at the interval sensor/scanning roller. A higher setting causes more buckling. [–5.0~+5.0/**0**/0.1mm]
	007	ADF Trailing Edge Erase Margin (Front)	These settings adjust the erase margin for the trailing edges for the front/back. [–10~+10/**0**/0.5 mm].
	008	ADF Trailing Edge Erase Margin (Back)	
6007	ADF Input Check		Displays signals received from sensors and switches in the ADF. (☛ 5.7.3)
	001	Group 1	For details, see 5.7.3.
	002	Group 2	
	003	Group 3	
6008	ADF Output Check		Turns on the ADF electrical components individually for testing. (☛ 5.7.4)
	001	Feed Motor: Forward	
	002	Feed Motor: Reverse	
	003	Transport Motor: Forward	
	004	Exit Motor: Forward	
	005	Pick-up Motor: Reverse	
	006	Bottom Plate Motor: Forward	
	007	Bottom Plate Motor: Reverse	
6009	ADF Free Run		Performs an ADF free run in duplex original mode.
6010	ADF Stamp Position Adjustment		Not used.
6016	Original Size Determination Priority		Allows selection of alternate settings for automatic original size detection. (☛ 6.4.9)
6017*	Sheet Through Magnification		This changes the magnification by adjusting the speed of scanning. [–50(–5%)~+50(+5%)/**0**/0.1%]
⇒ 6018*	Original Length Setting		Allows setting long originals; adjusts the ADF jam timing. Default: 440 mm (17”) Maximum: 603 mm (23.7”)

1.2 ADF

Original Size	A3/11"x17" – B6/5.5"x8.5"	
⇒ Original Weight	1-sided original	40 ~ 128 g/m^2 (11 ~ 34 lb.)
	2-sided original	52 ~ 128 g/m^2 (14 ~ 34 lb.)
Table Capacity	100 sheets (81.4 g/m^2, 22 lb.) or less than 12 mm (0.4") original stack height	
Original Standard Position	Rear left corner	
Separation	Feed belt and separation roller	
Original Transport	Roller transport	
Original Feed Order	From top original	
Reproduction Range	100%	
Power Source	DC 24 V from the main machine	
Power Consumption	Less than 110 W	
Rated Voltage of Output Connector	Max. DC 24 V	
Permissible voltage fluctuation	±10%	
Dimensions (W x D x H)	680 x 560 x 180 mm (26.8" x 22.0" x 7.1")	
Weight	18 kg (39.6 lb.)	

LOWER TRAY

Tray Capacity (80 g/m^2)	Unstapled	2,500 sheets (A4 LEF, 8 1/2"x11" LEF) 500 sheets (A5 LEF) 100 sheets (A5 SEF, A6 SEF, B6 SEF, 5 1/2"x8 1/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	2,500 sheets	A4 LEF, 8 1/2"x11" LEF
		50 docs.	1,250 sheets	A4 SEF, B5, 8 1/2"x11" SEF
		30 docs.	1,250 sheets	A3, B4, 12"x18", 11"x17"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 5 1/2"x8 1/2"		
Paper Weight		52 g/m^2 ~ 216 g/m^2		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF (Max: 50 docs, Max sheets: 30 sheets or less)		

⇒LOWER TRAY (Saddle Stitch Mode)

Binding Capacity (80 g/m^2)	15 sheets		
Paper Size	A3, B4, A4 SEF, 11"x17", 8 1/2"x11" SEF		
Paper Weight	64 g/m^2 ~ 90 g/m^2		
Stapling Position	Center, 2 locations		
Staple Capacity	2,000 staples/Cartridge		
Fold Position	Center, half-folding		
Saddle-Stitch Capacity	Max docs.	Total sheets	Size
	25 docs.	2 ~ 5 sheets	A4 SEF, 8 1/2"x11" SEF
	15 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	
	30 docs.	2 ~ 5 sheets	A3, B4, 11"x17"
	20 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	

PROOF TRAY

Tray Capacity	250 sheets (A4, 8 1/2"x11" or smaller) 50 sheets (B4, 8 1/2"x14" or larger)
Paper Weight	52 g/m^2 ~ 216 g/m^2

STAPLE SPECIFICATIONS

Binding Capacity (80 g/m^2)	Same Size	50 sheets (A4, 8 1/2"x11" or smaller) 30 sheets (B4, 8 1/2"x14" or larger)
	Mixed Size	30 sheets (A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF)
Paper Size		A3-B5, 11"x17" ~ 8 1/2"x11"
Paper Weight		64 g/m^2 ~ 90 g/m^2
Stapling Position		Front (1), Back (1), Back (1: diagonal), Duplex Binding
Stapling Capacity		5,000 staples/Cartridge

⇒2.3.4 3000-SHEET FINISHER WITH 50-SHEET STAPLER B469

UPPER TRAY

Tray Capacity (80 g/m^2)	Unstapled	3,000 sheets (A4 LEF, 81/2"x11" LEF) 1,500 sheets (A3, A4 SEF, B4, B5, 12"x18", 11"x17", 81/2"x14", 81/2"x11" SEF) 500 sheets (A5 LEF) 100 sheets (A5 SEF, A6 SEF, B6 SEF, 51/2"x81/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	3,000 sheets	A4 LEF, 81/2"x11" LEF
		50 docs.	1,500 sheets	A4 SEF, B5, 81/2"x11" SEF
		30 docs.	1,500 sheets	A3, B4, 12"x18", 11"x17"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 51/2"x81/2"		
Paper Weight		52 g/m^2 ~ 216 g/m^2		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 81/2"x11" LEF (Max: 50 docs, Max sheets: 30 sheets or less)		

PROOF TRAY

Tray Capacity	250 sheets (A4, 81/2"x11" or smaller) 50 sheets (B4, 81/2"x14" or larger)
Paper Weight	52 g/m^2 ~ 216 g/m^2

STAPLE SPECIFICATIONS

Binding Capacity (80 g/m^2)	Same Size	50 sheets (A4, 81/2"x11" or smaller) 30 sheets (B4, 81/2"x14" or larger)
	Mixed Size	30 sheets (A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 81/2"x11" LEF)
Paper Size		A3 ~ B5, 11"x17" ~ 81/2"x11"
Paper Weight		64 g/m^2 ~ 90 g/m^2
Stapling Position		Front (1), Back (1), Back (1: diagonal), Duplex Binding
Stapling Capacity		5,000 staples/Cartridge

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 001 REISSUE ★ **07/29/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SERVICE MANUAL – INSERTS & POINT TO POINT CORRECTION

GENERAL:

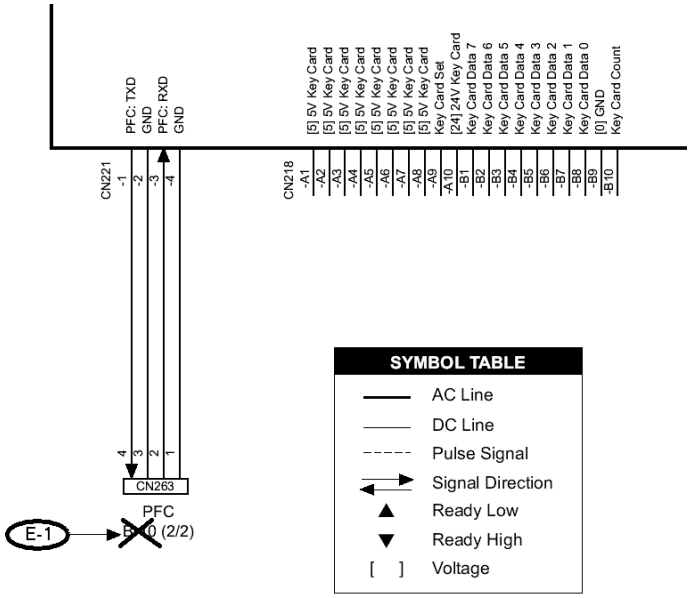
The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- xii — Updated Information (Table of Contents)
- 3-126 — Updated Information (Printing)
- 4-1 — Updated Information (Important SP Modes)
- 5-71 — Updated Information (SP-xxx Peripherals)
- 7-2 — Updated Information (Specs - ADF)
- 7-15 — Updated Information (Specs - Lower Tray)
- 7-16 — Updated Information (Specs - 3000-Sheet Finisher B469)

★ Please correct your Point-to-Point diagram at location B7, as shown in the illustration below:



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3.14 COPY IMAGE ADJUSTMENTS: PRINTING/SCANNING

These adjustments must be performed after replacing any of the following parts:

- Scanner wires
- Lens block
- Scanner motor
- Polygon motor
- Tandem tray side fences
- Memory All Clear

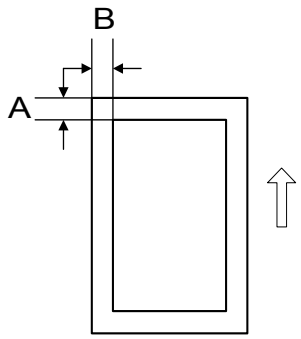
3.14.1 PRINTING

1. Make sure paper is installed correctly in each paper tray before you start these adjustments.
2. ⇒ Use the Trimming Area Pattern (SP2-902-3, No. 18 to print the test pattern for the following procedures.
3. After completing these printing adjustments, be sure to set SP 2-902-3 to 0 again.

Registration - Leading Edge/Side-to-Side

1. Check the leading edge registration, and adjust it using SP1-001.
   Specification: 3 ± 2mm.
2. Check side-to-side registration for each paper feed station, and adjust with the following SP modes.

	SP mode	Specification
Tray 1 (Tandem Tray)	SP1002 001	0±1.5
Tray 2 (Universal Tray)	SP1002 002	
Tray 3 (Universal Tray)	SP1002 003	
Tray 4	SP1002 004	**Japan Only**
By-pass Tray	SP1002 005	0±1.5
LCT	SP1002 006	0±1.5
Duplex Tray	SP1002 007	0±1.5



4. TROUBLESHOOTING

4.1 IMPORTANT SP MODES

⇒ SP2902	Test Patterns	SP2902-001 ~ 004 will be used to produce both scan and printer test patterns to aid in troubleshooting.
SP5802	Free Run Mode	Execute this SP to force base engine to run in the free run mode for testing.
SP5803	Input Check	Displays the signals received from sensors and switches. Refer to the detailed tables in “5. Service Tables”.
SP5804	Output Check	Switches electrical components one by one for testing. Refer to the detailed tables in “5. Service Tables”.
⇒ SP5990	SMC Print	Execute this SP to print the system parameter and data lists (SMC Report). Individual reports or all reports may be printed using the appropriate SP Mode (SP 5990.00x).
SP7801	ROM Version Display.	Displays the version number of the main machine and connected peripherals.
SP7832	Self-Diagnostic Result Display	Execute this SP to display a list of error codes. No errors have occurred if nothing is displayed.
SP7911	Firmware Version	Displays the current numbers of all versions of the firmware in the system.
SP7990	Status of Issued SC	Execute to display the following information about the most recently issued SC: 1) Source file name, 2) SC number, 3) Result

NOTE: For more information about these and other SP Modes, see “5. Service Tables”.

4.2 PROGRAM DOWNLOAD

4.2.1 OVERVIEW

Here are some important points to keep in mind when downloading software:

- If an error interrupts download processing, the machine cannot operate normally with the program software only partially downloaded.
- When download processing execution starts, “Downloading…” is displayed and when downloading has completed successfully, the message is cleared.
- If the download is interrupted when the “Downloading …” message is displayed, the machine does not attempt a re-try.
- The program that downloads firmware from an IC card is part of the GW controller software. If downloading this software is interrupted, the program stored in the machine may be corrupted. Because of this, it may not be possible to restart the downloading program. (In addition, if the GW controller software cannot be downloaded, other software on other IC cards cannot be downloaded.) However, it may be possible to restart the program without replacing the board by setting DIP SW 1 on the controller to ON, and re-starting.

SP6-xxx Peripherals

SP	Number/Name		Function/[Setting]
6006*	ADF Registration Adjustment		
	001	ADF Horizontal Registration (Front)	Adjusts the side-to-side registration for the front/back in ADF mode. [–3~+3/**0**/0.1 mm]
	002	ADF Horizontal Registration (Back)	
	003	ADF Vertical Registration (Front)	Adjusts the vertical registration for the front/back in ADF mode. [–5~+5/**0**/0.1 mm]
	004	ADF Vertical Registration (Back)	
	005	ADF Buckle Adjustment 1	Adjusts the roller timing at the skew correction sensor/entrance roller. A higher setting causes more buckling. [–3.0~+3.0/**0**/0.1mm]
	006	ADF Buckle Adjustment 2	Adjusts the roller timing at the interval sensor/scanning roller. A higher setting causes more buckling. [–5.0~+5.0/**0**/0.1mm]
	007	ADF Trailing Edge Erase Margin (Front)	These settings adjust the erase margin for the trailing edges for the front/back. [–10~+10/**0**/0.5 mm].
	008	ADF Trailing Edge Erase Margin (Back)	
6007	ADF Input Check		Displays signals received from sensors and switches in the ADF. (☛ 5.7.3)
	001	Group 1	For details, see 5.7.3.
	002	Group 2	
	003	Group 3	
6008	ADF Output Check		Turns on the ADF electrical components individually for testing. (☛ 5.7.4)
	001	Feed Motor: Forward	
	002	Feed Motor: Reverse	
	003	Transport Motor: Forward	
	004	Exit Motor: Forward	
	005	Pick-up Motor: Reverse	
	006	Bottom Plate Motor: Forward	
	007	Bottom Plate Motor: Reverse	
6009	ADF Free Run		Performs an ADF free run in duplex original mode.
6010	ADF Stamp Position Adjustment		Not used.
6016	Original Size Determination Priority		Allows selection of alternate settings for automatic original size detection. (☛ 6.4.9)
6017*	Sheet Through Magnification		This changes the magnification by adjusting the speed of scanning. [–50(–5%)~+50(+5%)/**0**/0.1%]
⇒ 6018*	Original Length Setting		Allows setting long originals; adjusts the ADF jam timing. Default: 440 mm (17”) Maximum: 603 mm (23.7”)

1.2 ADF

Original Size	A3/11"x17" – B6/5.5"x8.5"	
⇒ Original Weight	1-sided original	40 ~ 128 g/m^2 (11 ~ 34 lb.)
	2-sided original	52 ~ 128 g/m^2 (14 ~ 34 lb.)
Table Capacity	100 sheets (81.4 g/m^2, 22 lb.) or less than 12 mm (0.4") original stack height	
Original Standard Position	Rear left corner	
Separation	Feed belt and separation roller	
Original Transport	Roller transport	
Original Feed Order	From top original	
Reproduction Range	100%	
Power Source	DC 24 V from the main machine	
Power Consumption	Less than 110 W	
Rated Voltage of Output Connector	Max. DC 24 V	
Permissible voltage fluctuation	±10%	
Dimensions (W x D x H)	680 x 560 x 180 mm (26.8" x 22.0" x 7.1")	
Weight	18 kg (39.6 lb.)	

LOWER TRAY

Tray Capacity (80 g/m^2)	Unstapled	2,500 sheets (A4 LEF, 8 1/2"x11" LEF) 500 sheets (A5 LEF) 100 sheets (A5 SEF, A6 SEF, B6 SEF, 5 1/2"x8 1/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	2,500 sheets	A4 LEF, 8 1/2"x11" LEF
		50 docs.	1,250 sheets	A4 SEF, B5, 8 1/2"x11" SEF
		30 docs.	1,250 sheets	A3, B4, 12"x18", 11"x17"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 5 1/2"x8 1/2"		
Paper Weight		52 g/m^2 ~ 216 g/m^2		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF (Max: 50 docs, Max sheets: 30 sheets or less)		

⇒LOWER TRAY (Saddle Stitch Mode)

Binding Capacity (80 g/m^2)	15 sheets		
Paper Size	A3, B4, A4 SEF, 11"x17", 8 1/2"x11" SEF		
Paper Weight	64 g/m^2 ~ 90 g/m^2		
Stapling Position	Center, 2 locations		
Staple Capacity	2,000 staples/Cartridge		
Fold Position	Center, half-folding		
Saddle-Stitch Capacity	Max docs.	Total sheets	Size
	25 docs.	2 ~ 5 sheets	A4 SEF, 8 1/2"x11" SEF
	15 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	
	30 docs.	2 ~ 5 sheets	A3, B4, 11"x17"
	20 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	

PROOF TRAY

Tray Capacity	250 sheets (A4, 8 1/2"x11" or smaller) 50 sheets (B4, 8 1/2"x14" or larger)
Paper Weight	52 g/m^2 ~ 216 g/m^2

STAPLE SPECIFICATIONS

Binding Capacity (80 g/m^2)	Same Size	50 sheets (A4, 8 1/2"x11" or smaller) 30 sheets (B4, 8 1/2"x14" or larger)
	Mixed Size	30 sheets (A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF)
Paper Size		A3-B5, 11"x17" ~ 8 1/2"x11"
Paper Weight		64 g/m^2 ~ 90 g/m^2
Stapling Position		Front (1), Back (1), Back (1: diagonal), Duplex Binding
Stapling Capacity		5,000 staples/Cartridge

⇒2.3.4 3000-SHEET FINISHER WITH 50-SHEET STAPLER B469

UPPER TRAY

Tray Capacity (80 g/m^2)	Unstapled	3,000 sheets (A4 LEF, 81/2"x11" LEF) 1,500 sheets (A3, A4 SEF, B4, B5, 12"x18", 11"x17", 81/2"x14", 81/2"x11" SEF) 500 sheets (A5 LEF) 100 sheets (A5 SEF, A6 SEF, B6 SEF, 51/2"x81/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	3,000 sheets	A4 LEF, 81/2"x11" LEF
		50 docs.	1,500 sheets	A4 SEF, B5, 81/2"x11" SEF
		30 docs.	1,500 sheets	A3, B4, 12"x18", 11"x17"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 51/2"x81/2"		
Paper Weight		52 g/m^2 ~ 216 g/m^2		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 81/2"x11" LEF (Max: 50 docs, Max sheets: 30 sheets or less)		

PROOF TRAY

Tray Capacity	250 sheets (A4, 81/2"x11" or smaller) 50 sheets (B4, 81/2"x14" or larger)
Paper Weight	52 g/m^2 ~ 216 g/m^2

STAPLE SPECIFICATIONS

Binding Capacity (80 g/m^2)	Same Size	50 sheets (A4, 81/2"x11" or smaller) 30 sheets (B4, 81/2"x14" or larger)
	Mixed Size	30 sheets (A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 81/2"x11" LEF)
Paper Size		A3 ~ B5, 11"x17" ~ 81/2"x11"
Paper Weight		64 g/m^2 ~ 90 g/m^2
Stapling Position		Front (1), Back (1), Back (1: diagonal), Duplex Binding
Stapling Capacity		5,000 staples/Cartridge

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 002 **07/19/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SERVICE MANUAL – INSERT & PARTS CATALOG UPDATE

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

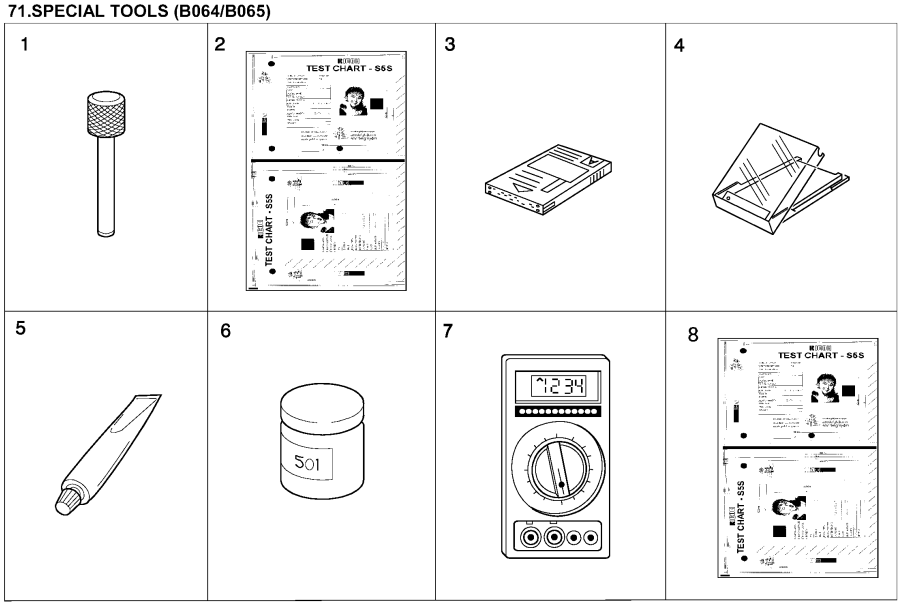
PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 3-5 Updated Information (Special Tools)

The following part addition is being issued for all B064/B065 Parts Catalogs. Note that the illustration for item 2 has also been corrected to show the S5S Test Chart. Please update your B064/B065 Parts Catalog with the following information:

71.SPECIAL TOOLS (B064/B065)



				REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B0649500	Test Chart for CIS, Soft Paper (10 pcs/set)	1	-	177	8 *

* Denotes new item number.

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3.2 SPECIAL TOOLS AND LUBRICANTS

3.2.1 SPECIAL TOOLS

Part No.	Description
A0069104	Scanner Positioning Pin (4 pcs./set)
A2929500	Test Chart – S5S (10 pcs./set)
B0649500	Test Chart – S5S, Soft Paper (10 pcs./set)
A0299387	Digital Multimeter – FLUKE 87
N8036701	Flash Memory Card – 4 MB
N8036701	Case – Flash Memory Card
G0219350	Loop Back Connector
VSST9500	Test Chart – S5S – DF(10 Sheet/Set)

3.2.2 LUBRICANTS

Part No.	Description
A2579300	Grease Barrierta – JFE 5 5/2
52039502	Silicon Grease G-501

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 003 **07/19/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SERVICE MANUAL - INSERT

■ SERVICE MANUAL

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

An arrow has highlighted the revised areas ⇒.

PAGES:

- 3-130 SP Mode (Updated Information)

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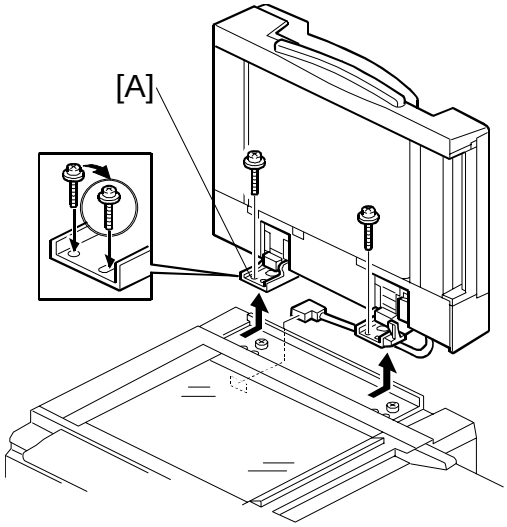
ADF Skew Correction



If the skew with A4 SEF paper is more than 0.5/200 mm in the main scan direction, you can adjust the position of the ADF hinge [A] or adjust the appropriate SP codes below.

6006	ADF Registration Adjustment		
	001	ADF Horizontal Registration (Front)	Adjusts the side-to-side registration for the front/back in ADF mode. [-3~+3/**0**/0.1 mm]
⇒	002	ADF Horizontal Registration(Back)	
⇒	003	ADF Vertical Registration (Front)	Adjusts the vertical registration for the front/back in ADF mode. [-5~+5/**0**/0.1 mm]
	004	ADF Vertical Registration (Back)	
	005	ADF Buckle Adjustment 1	Adjusts the roller timing at the skew correction sensor/entrance roller. A higher setting causes more buckling. [-3.0~+3.0/**0**/0.1mm]
	006	ADF Buckle Adjustment 2	Adjusts the roller timing at the interval sensor/scanning roller. A higher setting causes more buckling. [-5.0~+5.0/**0**/0.1mm]
	007	ADF Trailing Edge Erase Margin (Front)	These settings adjust the erase margin for the trailing edges for the front/back. [-10~+10/**0**/0.5 mm].
	008	ADF Trailing Edge Erase Margin (Back)	

NOTE: Normally, the interval sensor detects the leading edge of small originals (B6, A5, HLT), or originals for duplex copying, and delays the start of the scanning roller for the prescribed number of pulses to buckle the paper and correct skew. This feature can be switched on for all paper sizes with SP6020 (ADF Contact Mode In/Out). However, switching this feature on for all sizes reduces scanning speed slightly.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 004 **07/23/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SERVICE MANUAL – INSERTS "POWER-OFF PROCEDURE"

■ SERVICE MANUAL

GENERAL:

The B064/B065 requires a special procedure when powering off the unit. All references in the service manual for "Switch the main power switch off" have been changed to "Power off the machine (☛ 1.1.5)". Section 1.1.5, Power Requirements, details the proper technique for powering off the unit. See ⚠**Caution** below:

⚠CAUTION

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

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 2-1 Updated Information (Preventive Maintenance)
- 3-26 Updated Information (Laser Unit)
- 3-58 Updated Information (Fusing Unit)
- 3-123 Updated Information (CIS Power Supply Board and CIS Unit)
- 5-5 Updated Information (Software Reset)
- 5-11 through 5-15 Updated Information (Software Update Procedure)

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2. PREVENTIVE MAINTENANCE

2.1 PM TABLES

The amounts mentioned (K=1,000) as the PM interval indicate the number of prints or copies unless stated otherwise. These numbers are based on the PM counter.

Symbol key: **C**: Clean, **R**: Replace, **L**: Lubricate, **I**: Inspect, **EM**: Emergency Maintenance

⚠WARNING

⇒ **Power off the machine** (☛ 1.1.5) **and unplug the machine before performing any procedure in this section. Laser beams can seriously damage the eyes.**

2.1.1 MAIN MACHINE

	EM	300K	450K	600K	Expected K	Note
SCANNER OPTICS						
1st, 2nd, 3rd Mirror		C	C	C		Optics cloth
Exposure Glass	C	C	C	C		Dry cloth or alcohol
Scanner Guide Rails		L	L	L		After cleaning with alcohol, lubricate scanner guide rails with Grease 501.
Toner Shield Glass	C	C	C	C		Optics cloth
Reflector		C	C	C		Optics cloth

	EM	300K	450K	600K	Expected K	Note
AROUND THE DRUM						
Charge Corona Grid		R		R	450	Blower brush.
Charge Corona Wire		R	C	R	450	Alcohol, or clean damp cloth.
Charge Wire Cleaning Pad		R		R	450	
Cleaning Blade		R		R	500	
Cleaning Brush		R		R	500	
Charge Corona Casing		C		C		Alcohol, or clean damp cloth.
Internal Dust Filter		C	C	C		Blower brush.
ID Sensor		C	C	C		Blower brush. Do SP 3001 002 after cleaning.
Pick-off Pawls		I		I		Replace if necessary.
Potential Sensor		C	C	C		Blower brush.
Quenching Lamp		C	C	C		Dry cloth.
Transfer Entrance Stay		C	C	C		Dry cloth.
Ozone Filter (Top)		R		R		
Cleaning Filter		R		R		
Cleaning Side Seal		C	C	C		Dry cloth.
Cleaning Entrance Seal		C	C	C		Dry cloth.

3.5 LASER UNIT

⚠WARNING

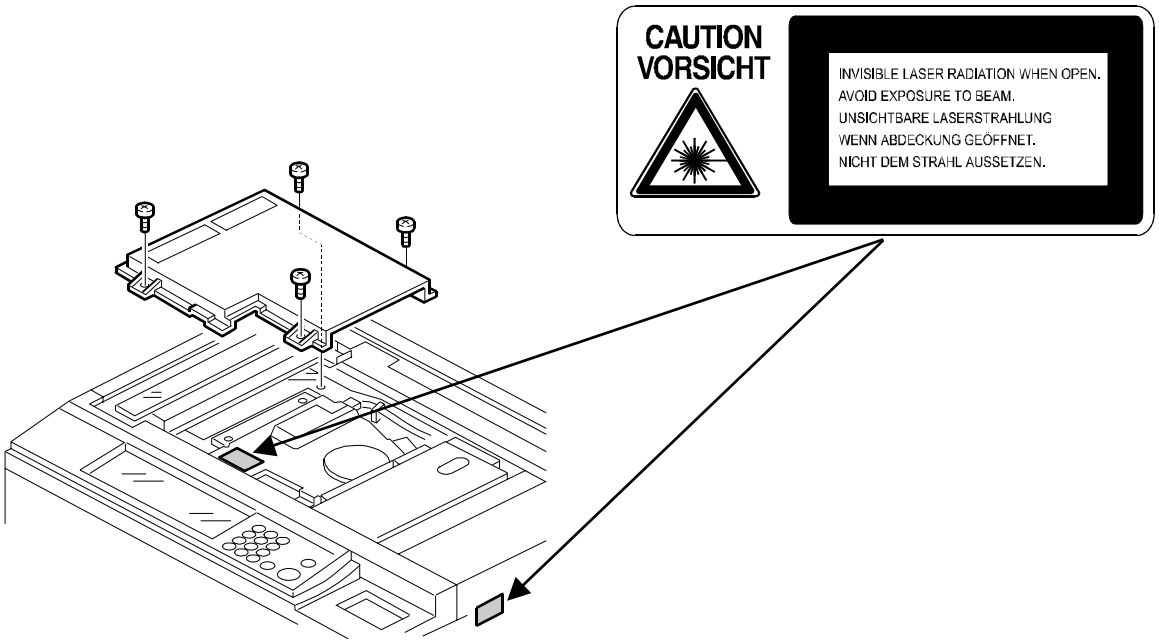
⇒ **Power off the machine (☛ 1.1.5) and unplug the machine before performing any procedure in this section. Laser beams can seriously damage the eyes.**

⚠WARNING

- **This laser unit uses four laser beams produced by a Class III LDA with a wavelength of 788 nm and intensity of 10 mW. Direct exposure to the eyes could cause permanent blindness.**
- ⇒ **Before performing any replacement or adjustment of the laser unit, Power off the machine (☛ 1.1.5). Then unplug the machine from the power source. Allow the machine to cool for a few minutes. The polygon motor continues to rotate for about one to three minutes.**
- **Never power on the machine with any of these components removed: 1) LD unit, 2) polygon motor cover, 3) synchronization detector.**

3.5.1 CAUTION DECALS

Two caution decals are provided for the laser section.



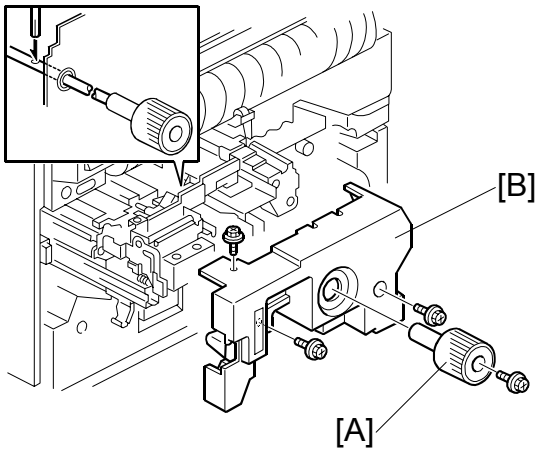
3.9 FUSING UNIT

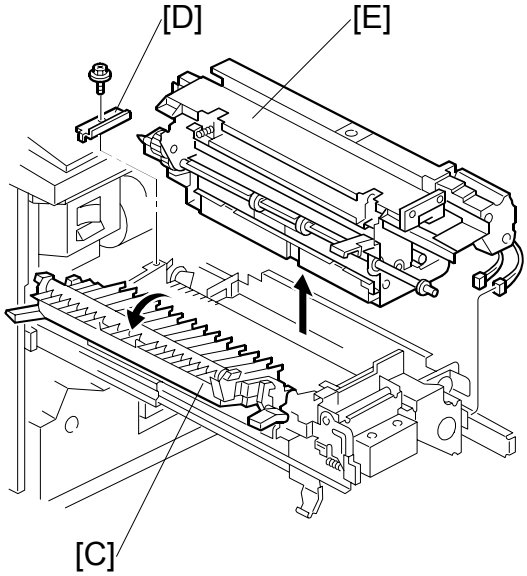
⚠CAUTION

⇒ **Power off the machine** (☛ 1.1.5)**, remove the plug from the power source, then allow sufficient time for the fusing unit to cool before you remove it from the machine.**

3.9.1 FUSING UNIT

NOTE: Before you begin, spread a mat or some clean paper on the floor where you intend to set the fusing unit.





Open the front door.

[A]: Knob (🔩 x1)
- Insert the tip of a screwdriver into the hole of the shaft to hold it in position as the knob is turned to remove or install it.

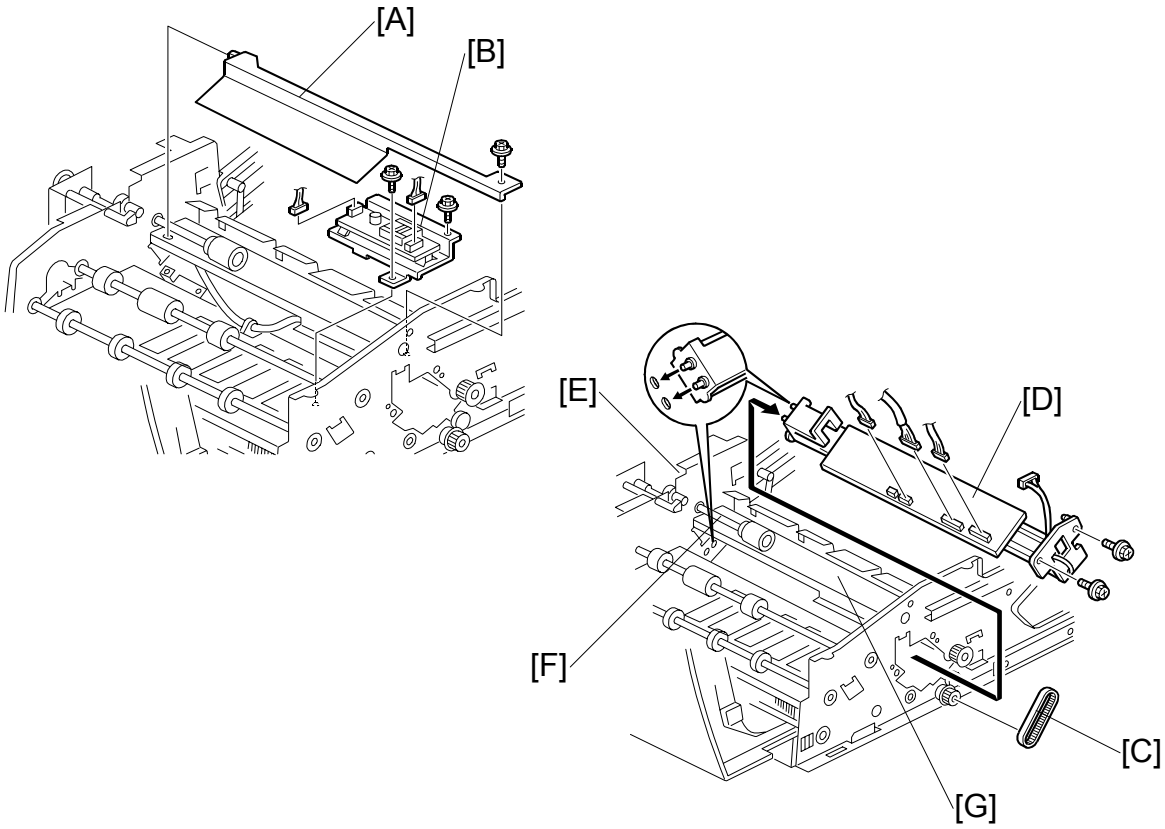
[B]: Inner cover (🔩 x3)
- Pull the fusing unit release lever, then pull the unit out on the rail supports.

[C]: Open the exit separation pawl assembly.

[D]: Stopper bracket (🔩 x1)

[E]: Fusing unit (✋ x2)
- Support the bottom of the fusing unit with your hand when you remove it.

3.13.15 CIS POWER SUPPLY BOARD AND CIS UNIT



⚠WARNING

⇒ **Turn off the main power switch** (☛ 1.1.5) **and unplug the machine before performing this procedure.**

Open the feed cover.

Feed unit (☛ 3.5.2)

Guide plate (☛ 3.5.5)

NOTE: To avoid an accidental static discharge which could damage the circuits of the CIS power supply board, touch a metal surface before touching the board.

[A]: Guide plate mylar (x1)
[B]: CIS power supply board (x2, x2)
[C]: Timing belt
[D]: CIS unit (x2, x3)
- Remove the CIS unit carefully to avoid scratching the glass.

4. Press Execute, then follow the prompts on the display to complete the procedure.
5. Make sure that you perform the following settings:
   - Execute SP2115 – Laser Beam Pitch Adjustment
   - Do the printer and scanner registration and magnification adjustments (☛ Section 3 “Copy Adjustments”).
   - Do the touch screen calibration (☛ Section 3 “Touch Screen Calibration”).
   - Referring to the SMC data lists, re-enter any values, which had been changed from their factory settings.
   - Execute SP 3001 002 – ID Sensor Initial Setting
6. Check the copy quality and the paper path, and do any necessary adjustments.

5.2.2 SOFTWARE RESET

The software can be rebooted when the machine hangs up. Use the following procedure.

⇒ Power off the machine (☛ 1.1.5 Powering Unit Off) and then back on.

-or-

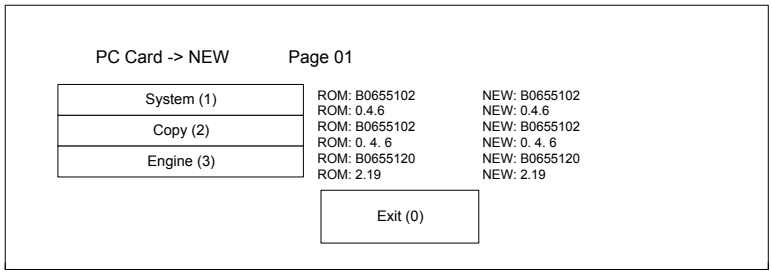
Press and hold down ⊙ # together for over 10 seconds. When the machine beeps once, release both buttons. After “Now loading. Please wait” is displayed for a few seconds, the copy window will open. The machine is ready for normal operation.

5.4.2 SOFTWARE UPDATE PROCEDURE

GW Controller/BCU Update

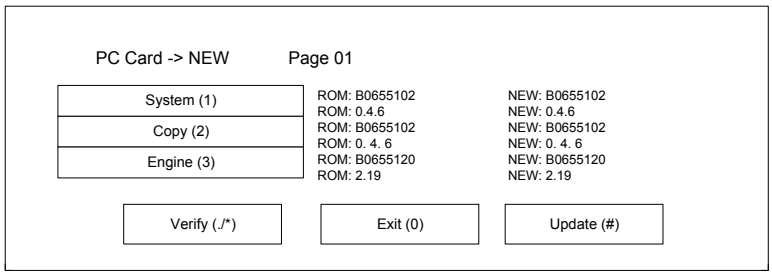
⇒ 1. Power off the machine (☛ 1.1.5 Powering Unit Off).

2. Disconnect the ADF plug, remove the rear upper cover (🔩 x2), then remove the IC card slot cover (🔩 x1).
3. With its A side facing up, insert the IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.



NOTE: 1) In the ROM number displays, the first line is the software number and the second line is the version number.
2) The left column displays the current software and version numbers of the software in the machine, and the column on the right displays the same information for the data on the IC card.

6. Press the appropriate item on the touch-panel.
   - For the GW controller, press System (1) and Copy (2) on the touch-panel, or you can press ① or ② on the operation panel.
   - For the BCU, press Engine (3) on the touch-panel, or you can press ③ on the operation panel.
   - To update all, press two buttons simultaneously.



7. To start the installation, press Update (#) on the touch panel, or press ⓗ on the operation panel.
8. The installation screen opens. As the installation progresses, the dashes on the display are replaced by asterisks (****----)
9. When “Update Done” is displayed, switch the machine off and remove the IC card.

Service Tables

Forced Update

If the download does not complete normally and you cannot restart the installation procedure, execute a forced installation.

⇒ 1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Remove the controller cover and set DIP SW1 to ON.
3. Make sure that the IC card is inserted correctly and switch the machine on.
4. Repeat from Step 5 of the previous section.
   NOTE: If the IC card of a different machine is used by mistake to start the installation, the operation panel will return a message: “Download Error” or “No Matching Data”. Then the machine will log SC999.

Stamp Data Update

After the hard disk has been initialized, the preset stamp data must be downloaded to the hard disk.

⇒ 1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With the A side facing up, insert the printer IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   In the lower right corner of the Download Watermark screen, press OK on the touch panel.

Operation Panel Software Update

⇒1. Power off the machine (☛ 1.1.5 Powering Unit Off).

2. Disconnect the ADF plug, remove the rear upper cover (🔩 x2), then remove the IC card slot cover (🔩 x1).
3. With it's A side facing up, put the operation panel IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press "OpePanel.EXP" then press Update (#).
   The installation download starts in about 9 seconds.
   The operation panel goes off and the Start ⓓ LED flashes red during downloading.
   When the download is completed, the Start ⓓ LED flashes green.

⇒6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NOTE: 1) During the download, the operation panel switches off and only the Start key flashes red.
2) You must wait until the Start key stops flashing red and starts flashing green.
3) If a power failure occurs during downloading, E32 (Reboot After Card Insert) is logged. Remove the IC card, switch off the machine. Insert the card again and switch on the machine to restart downloading.

Printer Update

⇒1. Power off the machine (☛ 1.1.5 Powering Unit Off).

2. Disconnect the ADF plug, remove the rear upper cover (🔩 x2), then remove the IC card slot cover (🔩 x1).
3. With its A side facing up, insert the printer IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press "Opt DIMM Prn (1)" then press Update (#).
   When "Power Off/On" is displayed, the download is completed.

⇒6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

Scanner Update

⇒ 1. Power off the machine (☛ 1.1.5 Powering Unit Off).

2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the scanner IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press “Opt DIMM Scn (1)” then press Update (#).
   When “Power Off/On” is displayed, the download is completed.

⇒ 6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NIB Update

⇒ 1. Power off the machine (☛ 1.1.5 Powering Unit Off).

2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the NIB data IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press “Network Support (1)” then press Update (#).
   When “Power Off/On” is displayed, the download is completed.

⇒ 6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NetFile Firmware Update

Netfile firmware controls jobs to be printed from the document server using a PC and the DeskTopBinder software.

⇒ 1. Power off the machine (☛ 1.1.5 Powering Unit Off).

2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the NetFile IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press “Network DocBox (1)” then press Update (#).
   When “Power Off/On” is displayed, the installation is completed.

⇒ 6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NVRAM Firmware Update

This procedure describes updating the NVRAM firmware. For details about replacing the NVRAM see “3.4.7 NVRAM”.

NOTE: Before updating NVRAM, the contents of NVRAM should be uploaded to a PC memory card and then downloaded after updating the NVRAM firmware. For details, see “3.12.7 NVRAM”.

⇒ 1. Power off the machine (☛ 1.1.5 Powering Unit Off).

2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the NVRAM IC card into the slot..
4. Open the front door.
   NOTE: The success of the download cannot be guaranteed if the front door is closed during the download execution.
5. Switch the machine on.
6. After the download is completed, a message on the operation panel will prompt you to switch the machine off and on.

⇒ 7. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

The NVRAM download execution updates everything except the following SP functions:

SP7003 ***	Total Count
SP7006 ***	C/O, P/O
SP7007 ***	Other Device Counters

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 005 **07/31/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

■ SERVICE MANUAL

SUBJECT: SERVICE MANUAL – INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

• 1-5 and 6	Updated Information (Option Correlation Charts)
• 1-23	Updated Information (Preparing the Machine)
• 1-26	Updated Information (Installation Procedure B474)
• 1-31	Updated Information (B468/B469 Installation)
• 1-35	Updated Information (Installation Procedure B377)
• 1-39	Updated Information (Cover Interposer Tray B470)
• 1-42	Updated Information (Installation Procedure B471)
• 1-46	Updated Information (Installation Procedure G338/G339)
• 1-50	Updated Information (Installation Procedure B525)
• 1-53	Updated Information (Installation Procedure G561)
• 1-57	Updated Information (Installation Procedure G628)
• 3-85 through 87	Updated Information (Replacement & Adjustment)
• 3-111 through 114	Updated Information (Replacement & Adjustment)
• 3-117 through 123	Updated Information (Replacement & Adjustment)
• 3-125	Updated Information (Replacement & Adjustment)
• 6-8	Updated Information (Original Transport)
• 7-1	Updated Information (Specifications)
• 7-14 through 17	Updated Information (Specifications)

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1.1.6 OPTION CORRELATION CHARTS

The charts below show which accessories can be used together. Specific legend information follows each chart.

Main Unit Option Correlation

Necessary Item / Purchasing Item	Copy Tray	Finisher (50 sheets)	Finisher 100 sheets	Booklet Finisher	Jogger	LCT	LG kit for LCT	LG/A3 tray	Copy Connector	Cover Interposer	Tab Sheet option	Mailbox	2/3-hole punch for 100	2/3-hole punch for 50	File Format converter	Printer/Scanner	128MB RAM
Copy Tray		X	X	X	X					X							
Finisher (50 sheets)	X		X	X	X												
Finisher 100 sheets	X	X		X													
Booklet Finisher	X	X	X		X												
Jogger	X	X	M	X													
LCT																	
LG kit for LCT						M											
LG/A3 tray																	
Copy Connector																	
⇒ Cover Interposer	X	m	m	m	X							X					
Tab Sheet option																	
Mailbox	X	m	X	m	X					X						M	
2/3-hole punch for 100			M											X			
2/3-hole punch for 50		m		m									X				
File Format converter																	
Printer/Scanner																	M
128MB RAM																	

Rows indicate items user wants to purchase.
Columns indicate item compatibility with the purchased item.

X: Items do not exist together.
M: Items that **MUST** go with purchased item.
m: The purchased item **needs** at least one of these items to function.

Printer Option Correlation

⇒

Necessary Item / Purchased Item	Printer Unit	Printer/Scanner	Post Script 3	RAM (128 or 256MB)	USB 2.0	Wireless LAN	IEEE 1394
Printer Unit		X					
Printer/Scanner	X			M			
Post Script 3	M	m					
RAM (128 or 256MB)	m	m					
USB 2.0	M	m				X	X
Wireless LAN	M	m			X		X
IEEE 1394	M	m			X	X	

Rows indicate items user wants to purchase.
Columns indicate item compatibility with the purchased item.

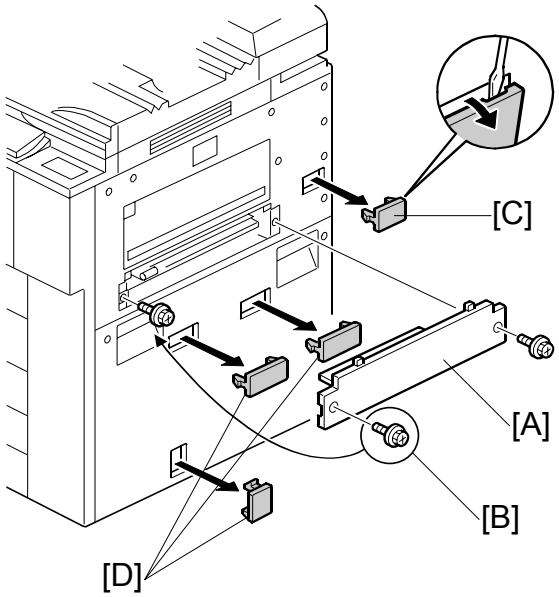
X: Cannot be installed together
M: Must be installed together
m: The purchased item needs at least one of these items to function.

Preparing the Main Machine

⚠**CAUTION**

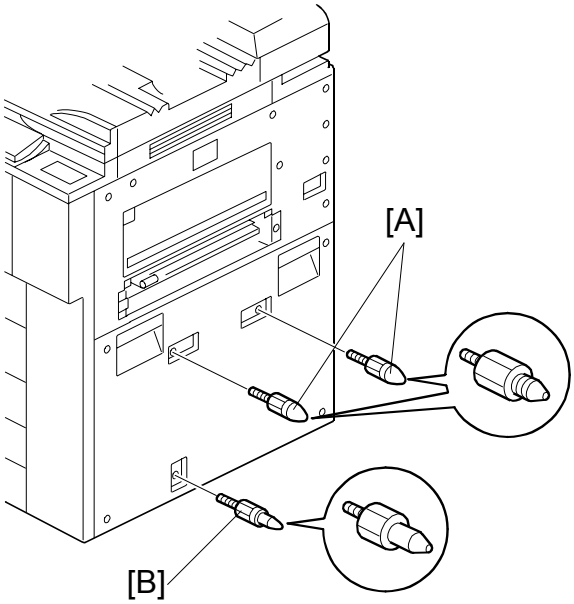
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Remove the LCT installation cover [A] from the right side of the machine. (🖉 x2).
2. Reinsert the screw on the left [B].
3. Remove the LCT connector cover [C] (x1) and the covers over the holes for the docking pins [D]. (x3)



Installing the LCT

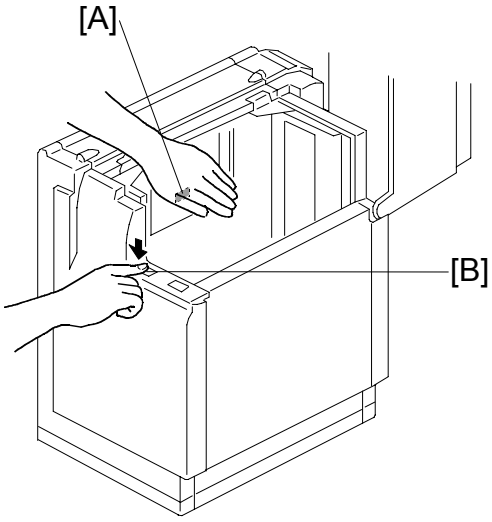
1. Insert the two upper docking pins (grooved) [A] into the upper slots and the lower docking pin [B] into the lower slot.



1.5.2 INSTALLATION PROCEDURE

If the LCT is connected to the machine

1. Open the cover and remove the paper.
2. Lower the LCT tray. Cover the near end sensor [A], then press the tray down button [B] to lower the tray bottom plate.
3. Disconnect the LCT from the machine (☛ 1.4.2).

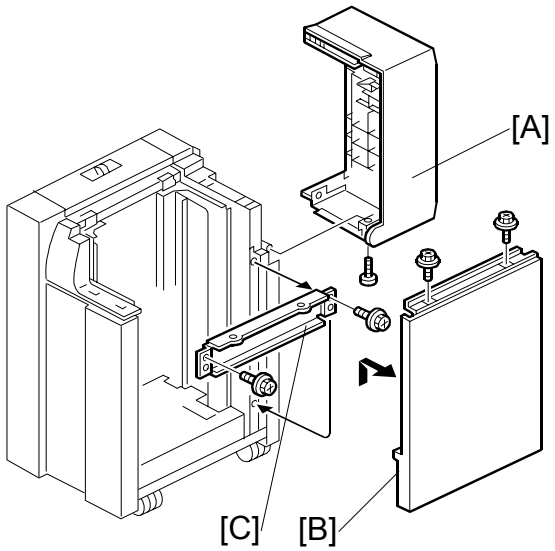


⇒

⚠CAUTION

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

4. Remove the LCT cover [A] (☞ x1).
5. Remove the right cover [B] (☞ x2).
6. Remove the right stay [C] (☞ x2).



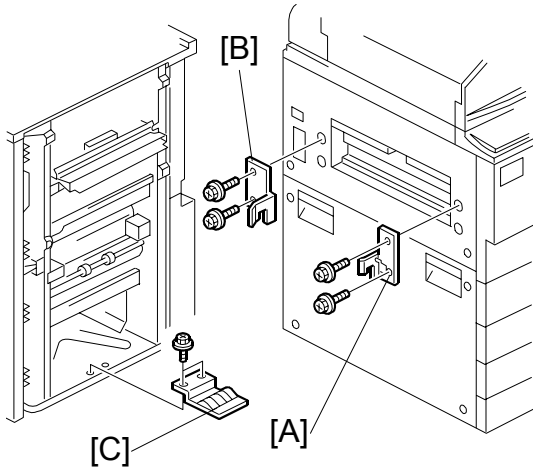
B468/B469 Installation

⚠CAUTION

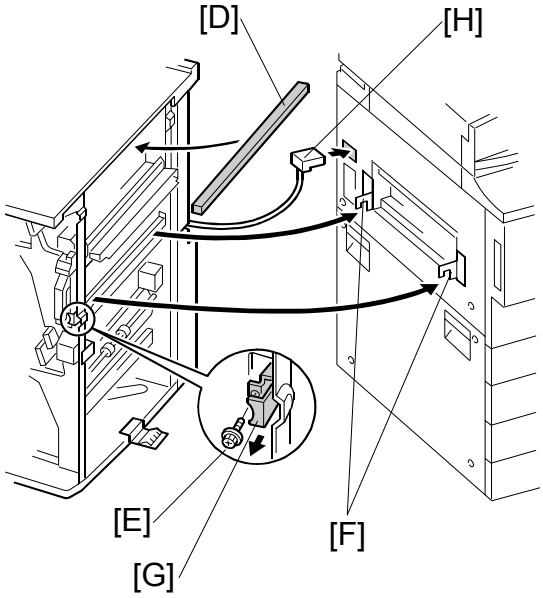
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Install the front [A] and rear [B] joint brackets (🔩 x2 each, M4x14).
2. Install the ground plate [C] (🔩 x2, M3x6).

NOTE: If the Cover Interposer Tray (B470) is to be installed with the finisher, it should be installed at this time.



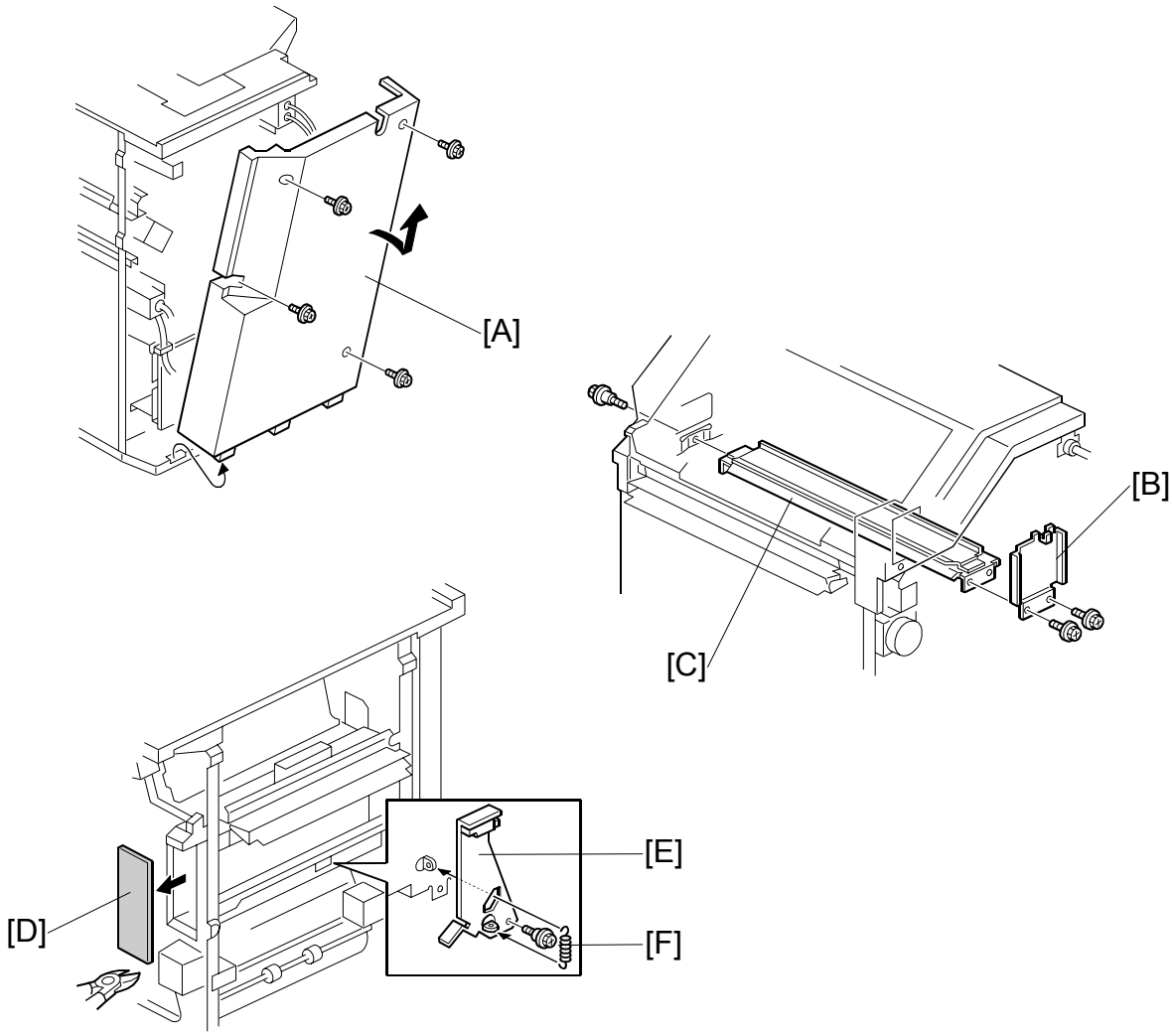
3. Peel the cover tape from the sponge cushion [D], then install it in the upper slot.
4. Remove the screw [E] to release the lock lever (🔩 x1).
5. Align the brackets [F] with the slots in the finisher.
6. To avoid bending the entrance guide plates of the finisher, slowly and carefully push the finisher against the side of the machine until the brackets enter the slots.
7. Using the screw [E] removed above, secure the lock lever [G] (🔩 x1).
8. Connect the plug [H] of the finisher power cord to the connector on the machine.



⚠CAUTION

Always move the finisher slowly to avoid bending the entrance guide plates. Bent guide plates could interfere with paper transport from the machine to the finisher.

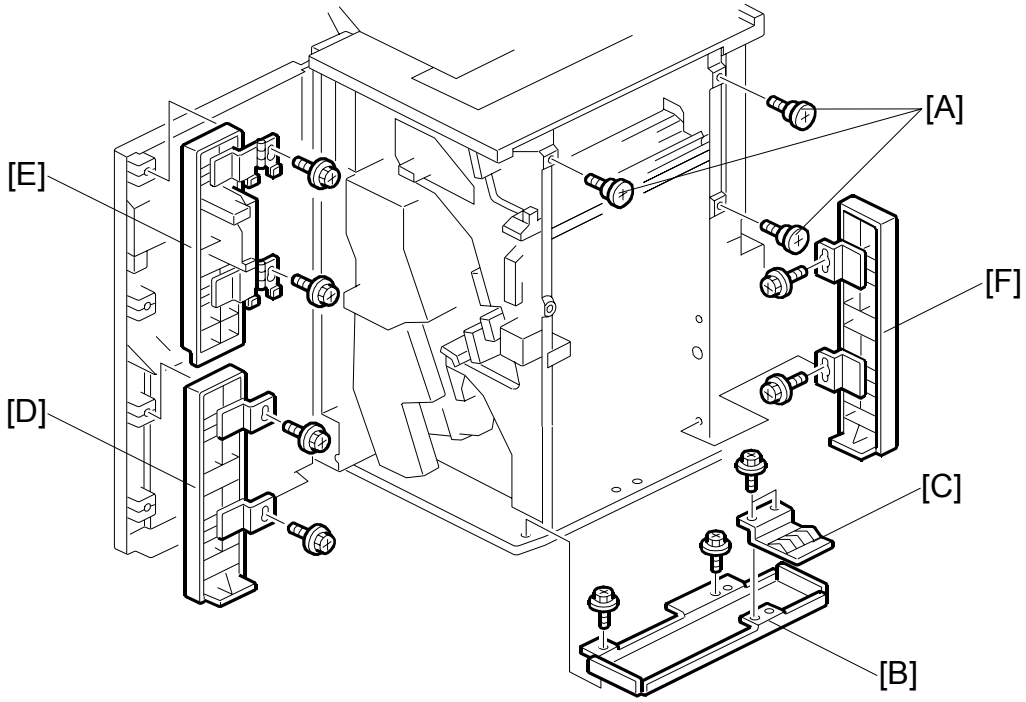
1.7.2 INSTALLATION PROCEDURE



⚠CAUTION

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. If the finisher is connected to the machine, disconnect it.
2. Unpack the punch unit and remove all tapes and shipping retainers.
3. Open the front door and remove the rear cover [A] (☞ x4).
4. Remove the bracket [B] (☞ x2) and paper guide [C] (☞ x1).
5. Remove the plastic knockout [D].
6. Install the sensor arm [E] (☞ x1).
7. Install the spring [F].



⚠**CAUTION**

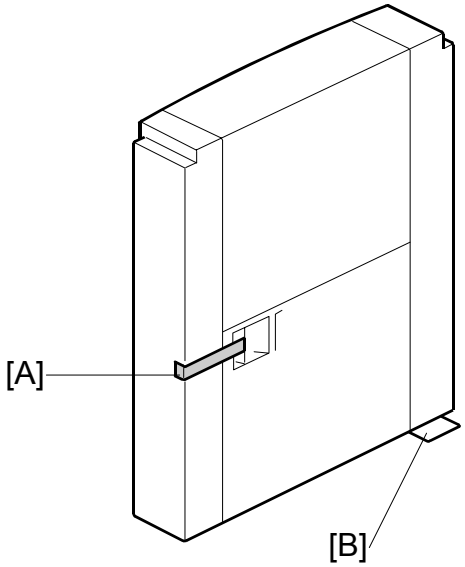
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

5. Attach the three shoulder screws [A] (☞ x3).
6. Attach the bottom plate [B] (☞ x2, M3x6).
7. Remove the ground plate [C] from the finisher, then attach it to the bottom plate (☞ x2, M3x6).
8. Attach the lower front door extension [D] (☞ x2, M4x8).
9. Attach the upper front door extension [E] (☞ x2, M4x8).
10. Attach the lower cover extension [F] (☞ x2, M4x6).

1.9.2 INSTALLATION PROCEDURE

Removing Tapes and Retainers

1. Remove the filament tape [A].
   NOTE: Handle the mailbox carefully. The corner leaf [B] can be damaged easily.



Installation

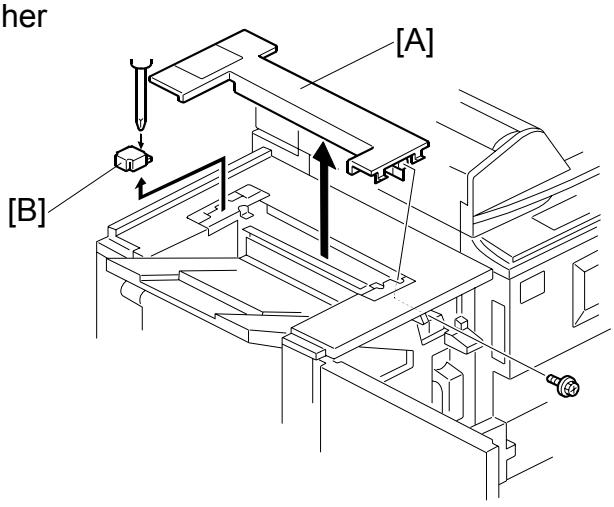
⇒

⚠CAUTION

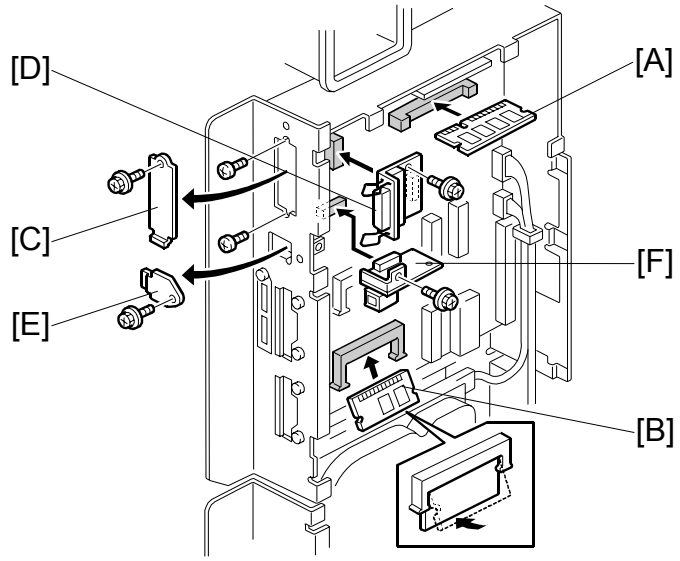
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

If the Cover Interposer Tray B470 is installed on the Finisher B468/B469, remove it. The cover interposer tray and mailbox cannot be installed on the finisher at the same time.

1. Remove the top cover [A] of the finisher (🖉 x1).
2. Remove the bracket [B] (🖉 x1).
   NOTE: Loosen the screw. Do not remove it.



Installation Procedure



⇒

⚠CAUTION

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

NOTE: The printer/scanner unit requires at least 128 MB of optional memory (more is recommended). Memory chips are not packaged with this unit.

1. Disconnect the ADF cable.
2. Remove the rear upper cover (🖉 x2).
3. Remove the controller cover (🖉 x10).

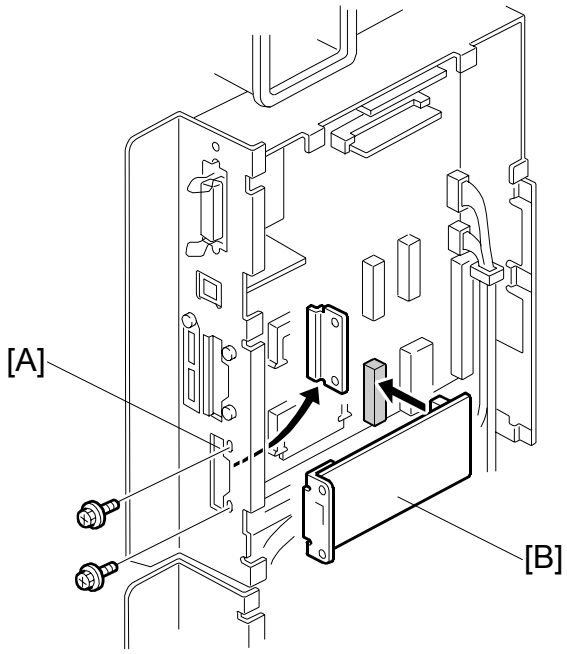
⚠CAUTION

Make sure that the DIMMs are inserted correctly. (☛ 1.10.2)

4. Insert the SDRAM DIMM (expansion memory 128 MB or 256 MB) [A] into connector PC133 on the controller.
5. Insert the ROM DIMM [B] (printer/scanner) board into **Slot 1**.
6. Remove the Centronics connector cover [C] and insert the Centronics connector [D] into CN310 and fasten with the provided screws (🖉 x2).

   Rating voltage of interface connectors: Max. DC 5V
7. Remove the slot cover [E] (🖉 x1).
8. Install the NIB [F] into CN311 (🖉 x1).
   Rating voltage of interface connectors: Max. DC 5V

1.12.2 INSTALLATION PROCEDURE

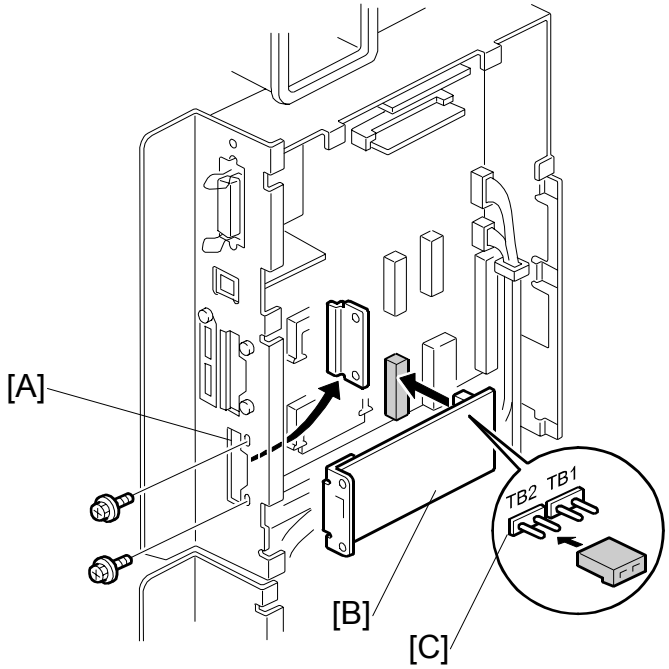


⚠**CAUTION**

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Remove the rear upper cover (☞ x2).
2. Remove the controller cover (☞ x9).
3. Remove the slot cover [A] (☞ x2).
4. Insert the USB board [B] into the PCI slot.
5. Fasten the slot cover to the USB board (☞ x2).
6. Use SP5990 005 to print a Self-Diagnostic Report with the system settings and confirm that the machine correctly recognizes the interface.

1.13.2 INSTALLATION PROCEDURE

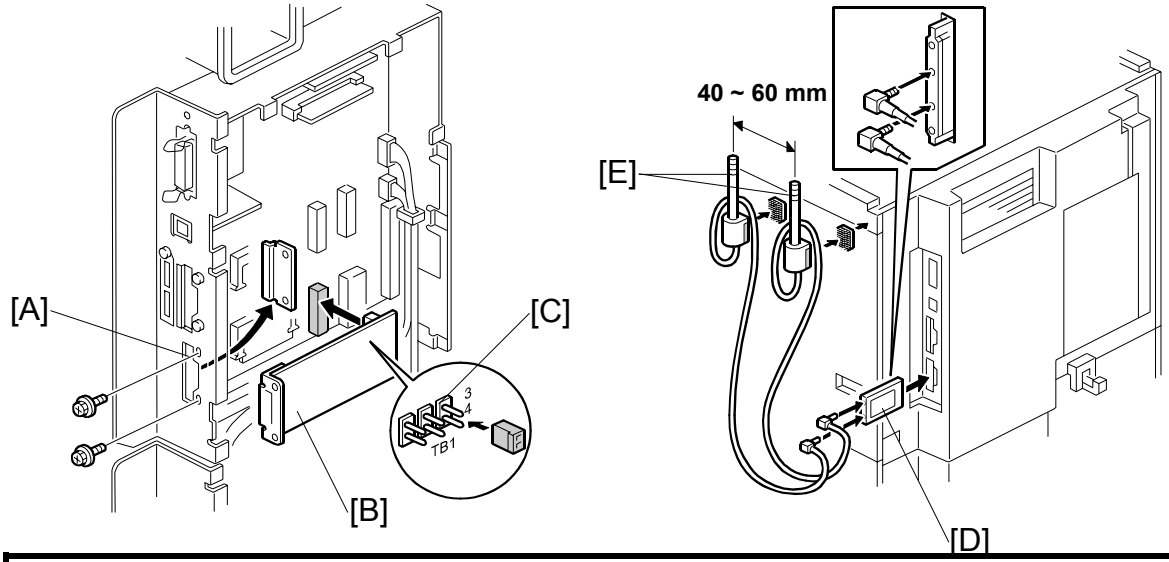


⚠**CAUTION**

Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Remove the rear upper cover (☞ x2).
2. Remove the controller cover (☞ x9).
3. Remove the slot cover [A] (☞ x2).
4. Attach the IEEE1394 board [B].
5. Use the provided cable to connect the machine and the computer.
6. Make sure that the jumper is on **TB2** [C].
7. Print a system settings list and confirm that the machine correctly recognizes the interface.

1.14.2 INSTALLATION PROCEDURE



⚠CAUTION

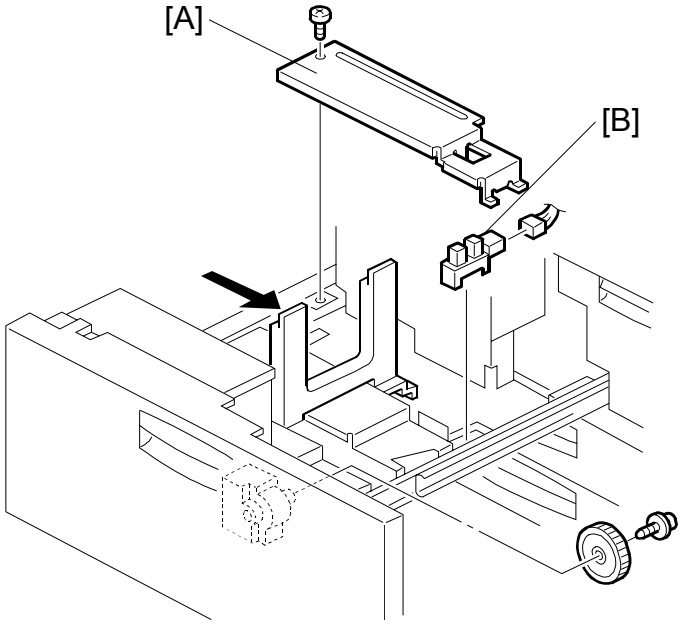
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Remove the rear upper cover (☞ x2).
2. Remove the controller cover (☞ x9).
3. Remove the slot cover [A] (☞ x2).
4. Insert the wireless LAN board [B] into the PCI Slot 1.
5. Fasten the slot cover to the wireless LAN board (☞ x2).
6. Set the jumper [C] between pins 3 and 4 on the wireless LAN board.
7. Insert the LAN PC card [D] into the wireless LAN board.
8. Connect the antennas. Use the provided double-sided tape to attach the antennas [E] to the side of the machine.

NOTE: 1) Set the antennas 40~60 mm apart (1.5~2.5").
2) Attach the antennas where they will not be moved or damaged by opening and closing the door of the machine.
3) Set up the antenna in an area that is free of interference from electrical equipment that generates a strong electromagnetic field.
4) Always remove the antenna before moving the machine.
5) If reception is poor, move the machine and antenna closer to the access point.

9. Print a system settings list and confirm that the machine correctly recognizes the interface.

3.11.2 REAR FENCE RETURN SENSOR REPLACEMENT



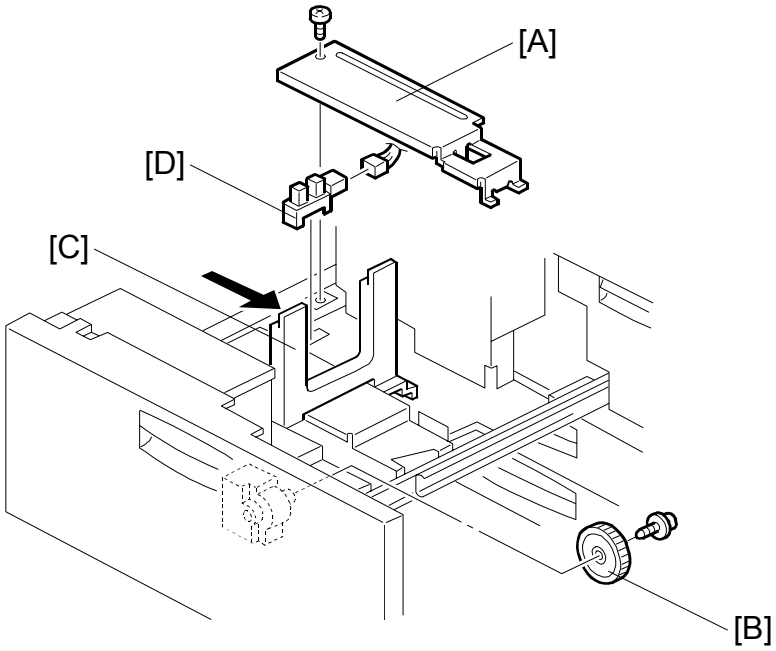
⇒Power off the machine (☛ 1.1.5).

Pull out the tandem feed tray.

[A]: Rear bottom plate (☞ x1)

[B]: Return sensor (☜ x1).

3.11.3 REAR FENCE HP SENSOR REPLACEMENT

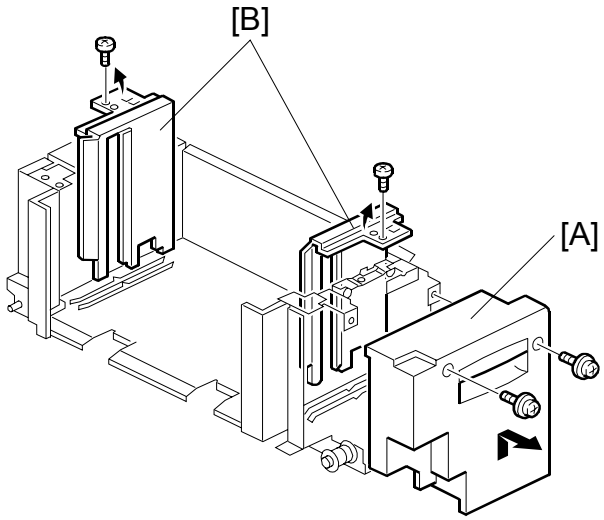


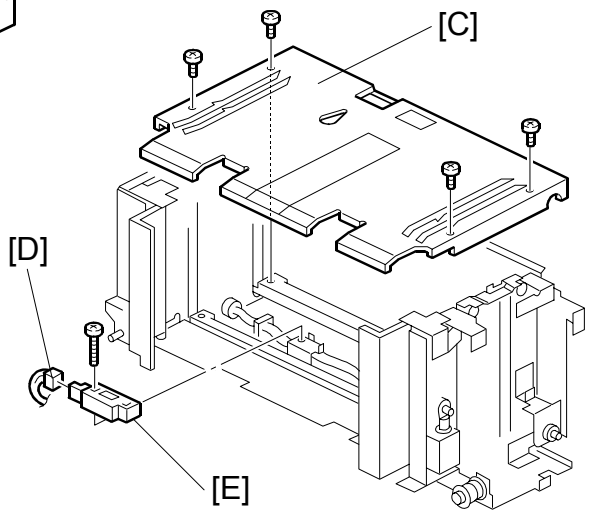
⇒Power off the machine (☛ 1.1.5).

Pull out the tandem feed tray.

[A]: Rear bottom plate (☞ x1).
[B]: Back fence transport gear (☞ x1)
[C]: Move the back fence to the right.
[D]: Rear HP sensor (✋ x1)

3.11.4 TANDEM RIGHT TRAY PAPER SENSOR REPLACEMENT



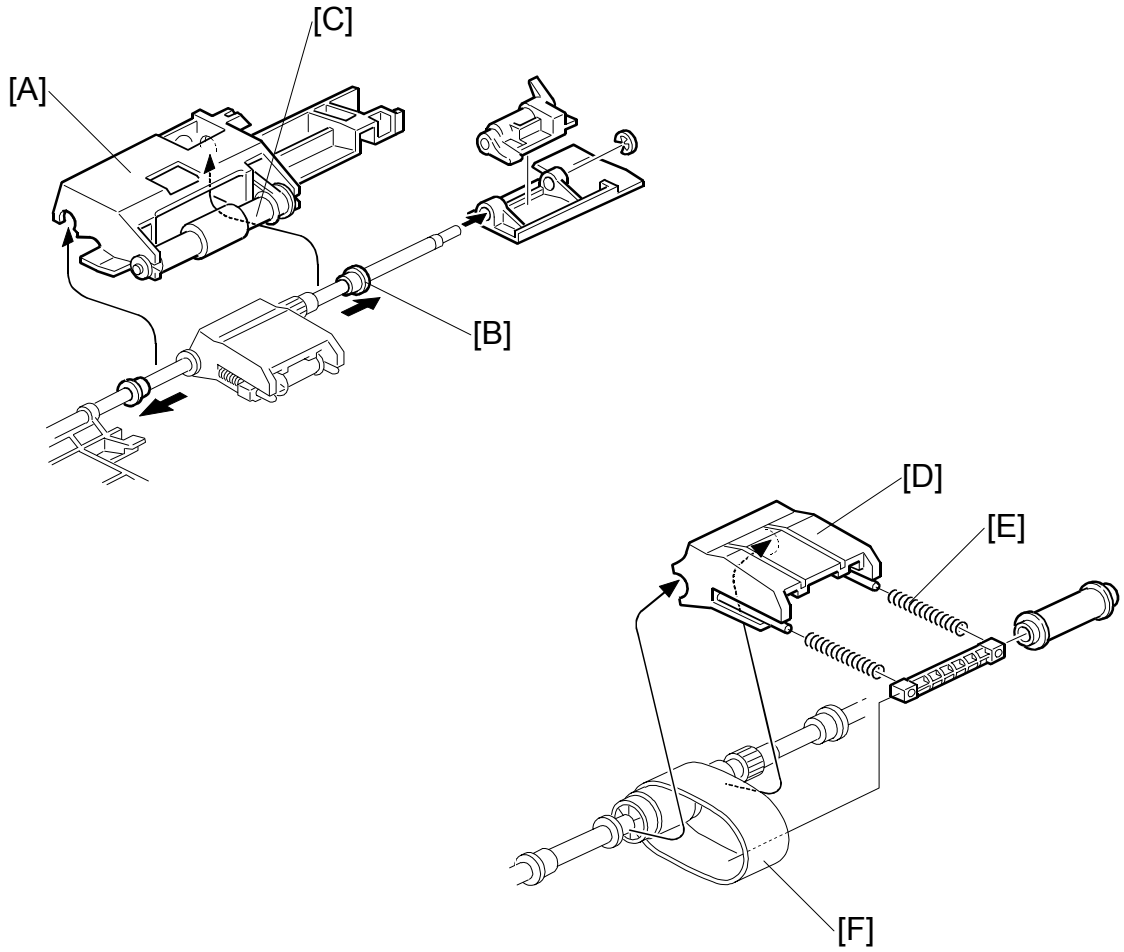


⇒ Power off the machine (☛ 1.1.5).

⇒ Remove the right tandem tray (☛ 3.11.1)

[A]: Inner cover (x2)
[B]: Side fences (x1 each)
[C]: Bottom plate (x4)
[D]: Connector (x1)
[E]: Sensor (x1)

3.13.3 FEED BELT AND PICK-UP ROLLER



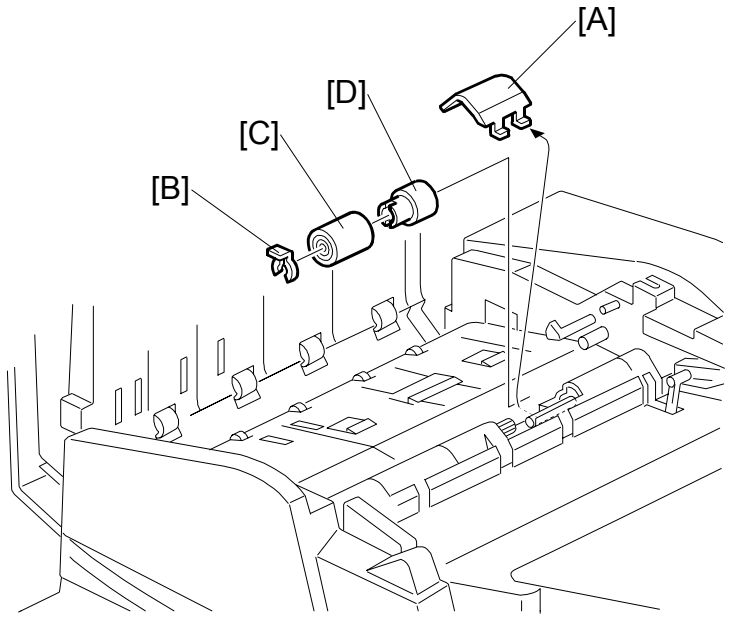
⟹1. Remove the feed unit (☛ 3.13.2).

2. Remove the pick-up roller unit [A].
3. Remove the bushings [B].
4. Remove the pick-up roller [C].

NOTE: At re-assembly, make sure that the tab on the front guide plate is above the pick-up roller.

5. Hold the feed belt holder [D] by the left and right sides, then carefully pull it off the bushing. Do not let the springs [E] fall.
6. Remove the feed belt [F].
   NOTE: When re-assembling, set the pick-up roller springs first, then follow this procedure in reverse.

3.13.4 SEPARATION ROLLER



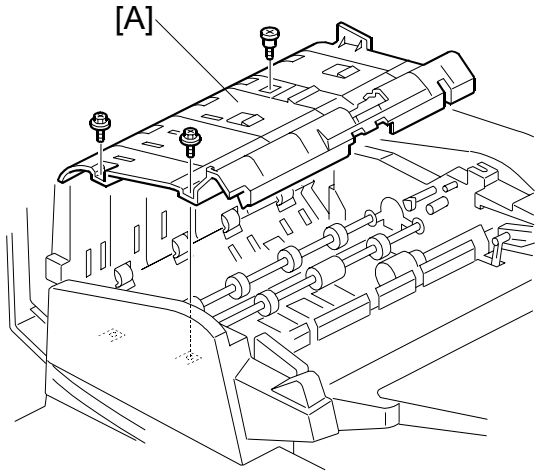
Open the feed cover.

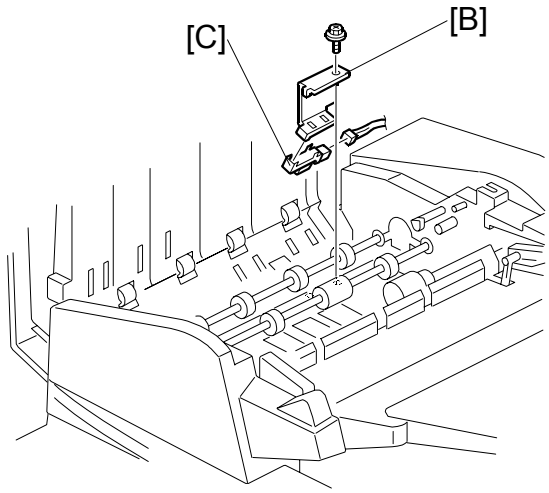
⇒Feed unit (☛ 3.13.2)

[A]: Separation roller cover
- Use the tip of a screwdriver to push up the cover.

[B]: C-Clamp (x1)
[C]: Separation roller
[D]: Torque limiter clutch

3.13.5 REGISTRATION SENSOR



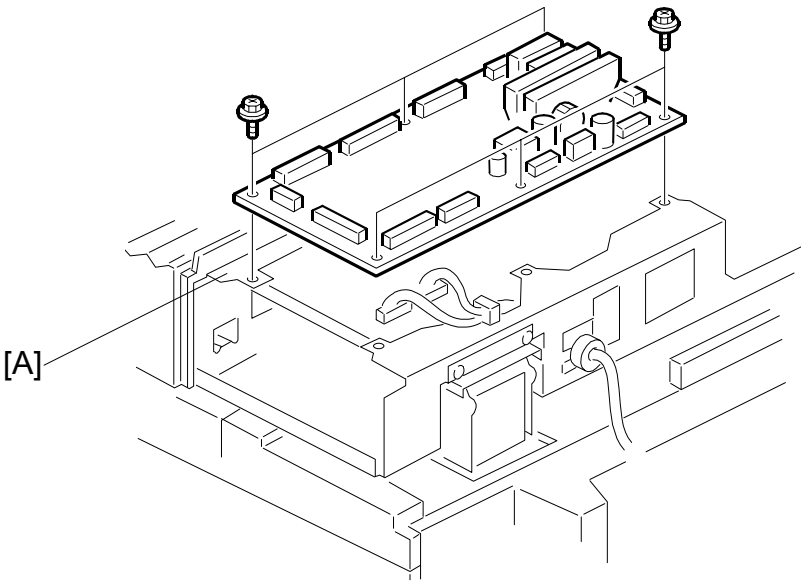


Open the feed cover.

⇒Feed unit (☛ 3.13.2)

[A]: Guide plate (🔩 x3)
[B]: Registration sensor bracket (🔩 x1)
[C]: Registration sensor (🖐 x1)

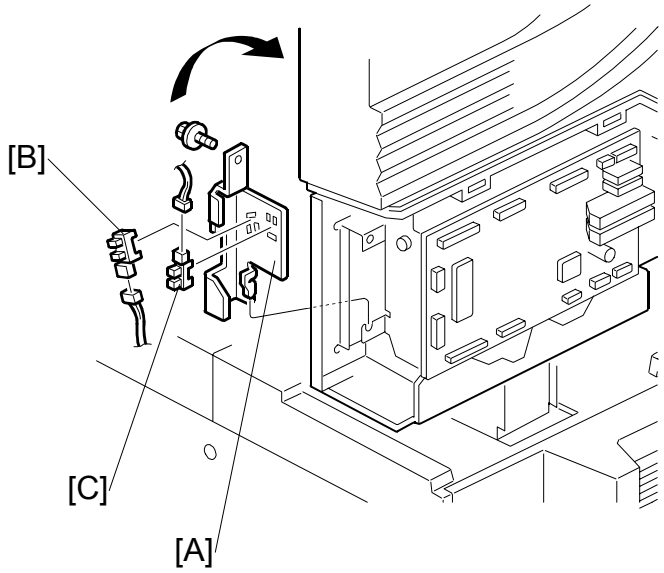
3.13.6 ADF CONTROL BOARD



⟹ Rear cover (☛ 3.13.1)

[A]: ADF board (x2, x14)

3.13.9 DF POSITION AND APS SENSOR

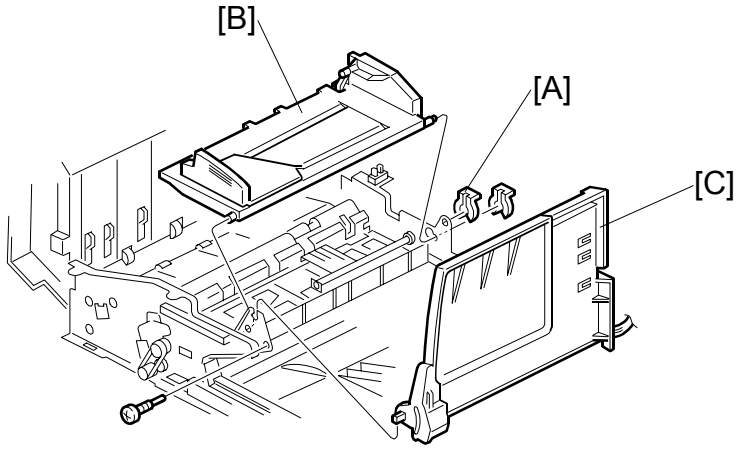


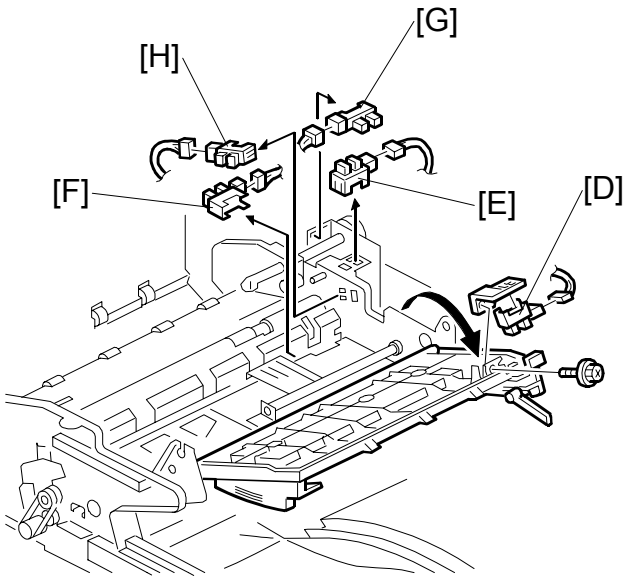
Open the ADF.

⇒ ADF rear cover. (☛ 3.13.1)

[A]: Bracket (x1)
[B]: ADF position sensor (x1)
[C]: APS sensor (x1)

3.13.10 OTHER ADF SENSORS



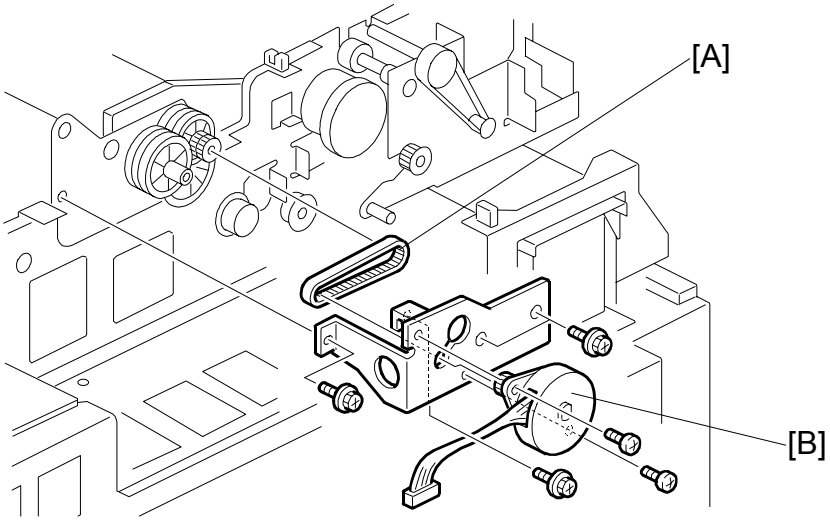


Open the feed cover.

⇒ Front/rear covers (x4) (☛ 3.13.1)

[A]: C-Clamps (x2)
[B]: Original tray (x1)
[C]: Bottom plate (x1)
[D]: Original set sensor (x1)
[E]: Feed cover sensor (x1)
[F]: Bottom plate HP sensor (x1)
[G]: Pick-up roller HP sensor ((x1)
[H]: Bottom plate position sensor (x1)

3.13.11 BOTTOM PLATE LIFT MOTOR



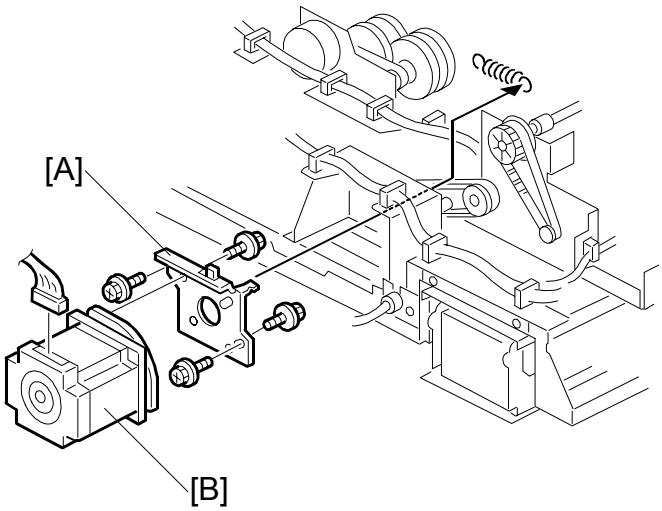
Open the feed cover.

⇒Rear cover (☛ 3.13.1)

[A]: Bottom plate lift motor bracket (harness x1, x1, x2, timing belt x1)

[B]: Bottom plate lift motor (x2)

3.13.12 FEED MOTOR

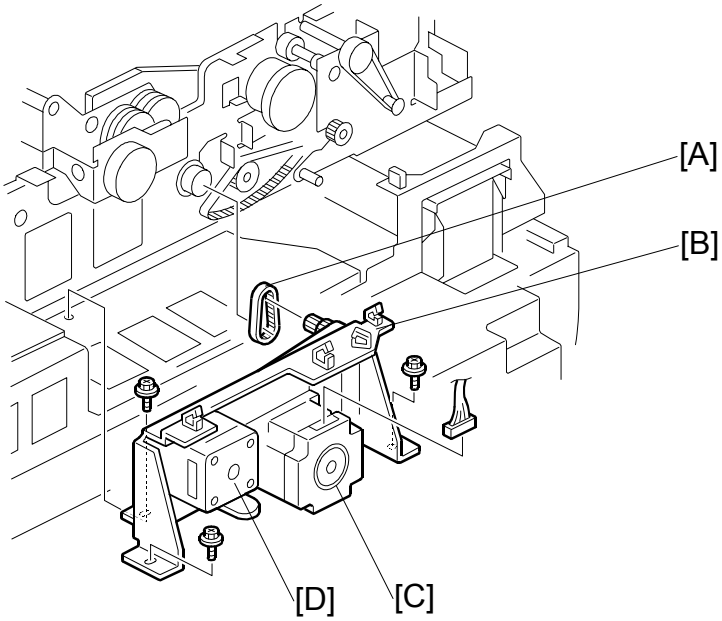


⟹ Rear cover (☛ 3.13.1)

[A]: Feed motor bracket (x2, x1, spring x1, belt x1)

[B]: Feed motor (x2)

3.13.13 EXIT MOTOR AND TRANSPORT MOTOR



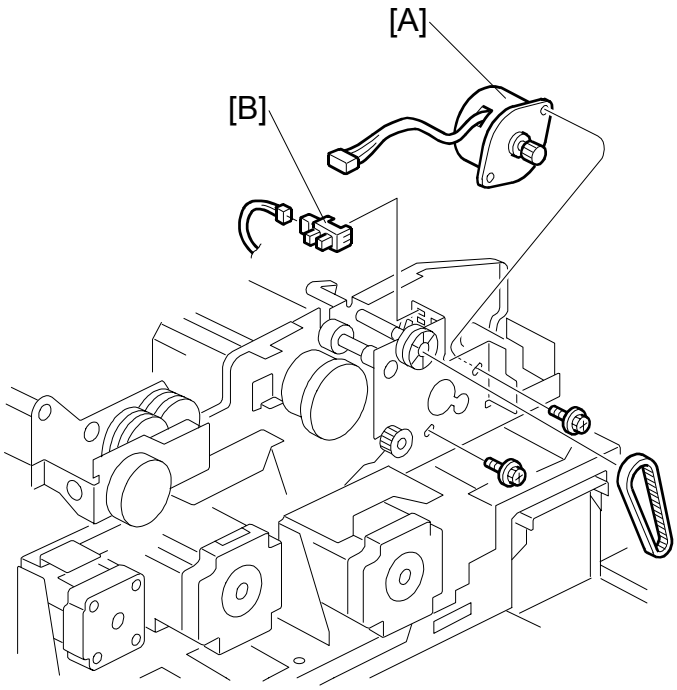
Open the feed cover.

⇒ Rear cover (☛ 3.13.1)

⇒ Bottom plate lift motor (☛ 3.13.11)

[A]: Timing belt
[B]: Exit/transport motor unit (x3, x2)
[C]: Transport motor (x2)
[D]: Exit motor (x2)

3.13.14 PICK-UP ROLLER MOTOR AND HP SENSOR

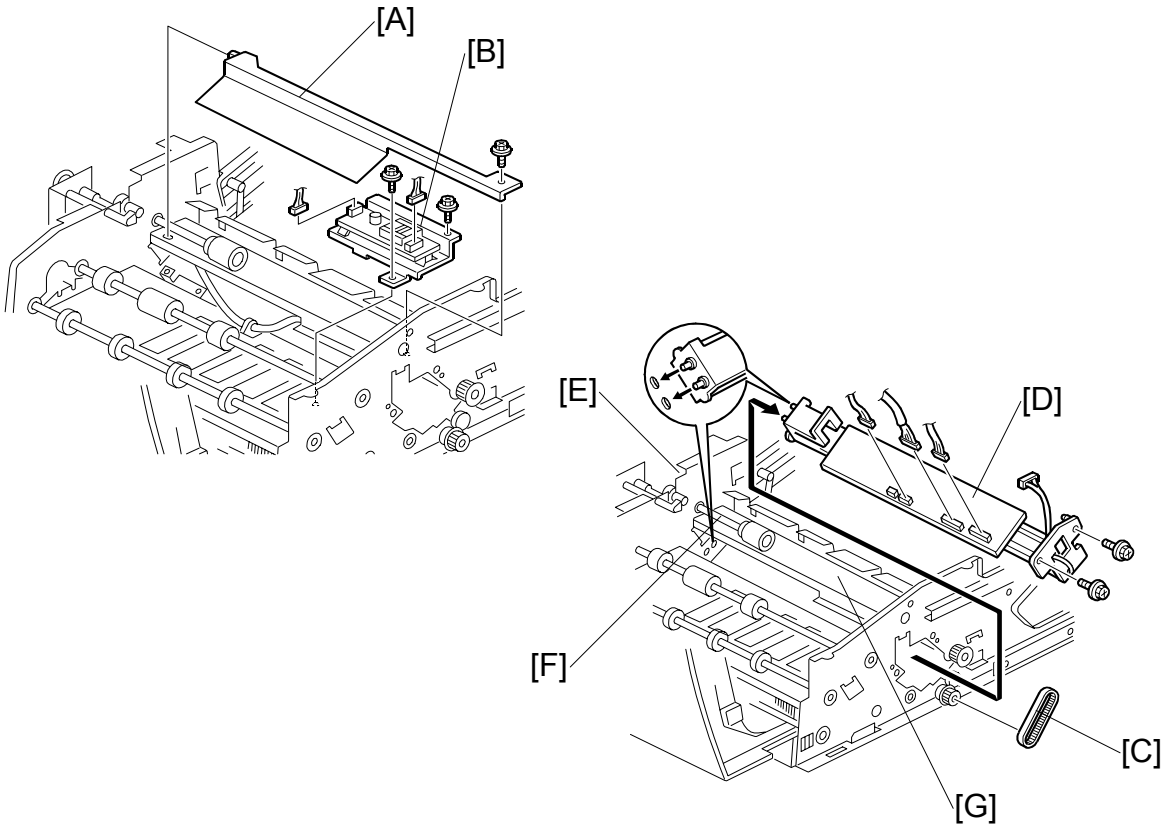


Open the feed cover.

⇒ Rear cover (☛ 3.13.1)

[A]: Pick-up roller lift motor (🔩 x2, 🖐 x1)
[B]: Pick-up roller HP sensor (🖐 x1)

3.13.15 CIS POWER SUPPLY BOARD AND CIS UNIT



⚠WARNING
Turn off the main power switch (☛ 1.1.5) and unplug the machine before performing this procedure.

Open the feed cover.

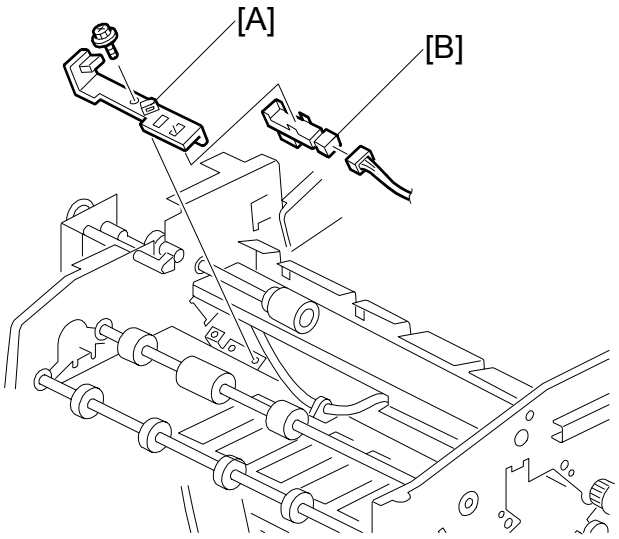
⇒ Feed unit (☛ 3.13.2)

⇒ Guide plate (☛ 3.13.5)

NOTE: To avoid an accidental static discharge which could damage the circuits of the CIS power supply board, touch a metal surface before touching the board.

[A]: Guide plate mylar (x1)
[B]: CIS power supply board (x2, x2)
[C]: Timing belt
[D]: CIS unit (x2, x3)
- Remove the CIS unit carefully to avoid scratching the glass.

3.13.16 ADF EXIT SENSOR

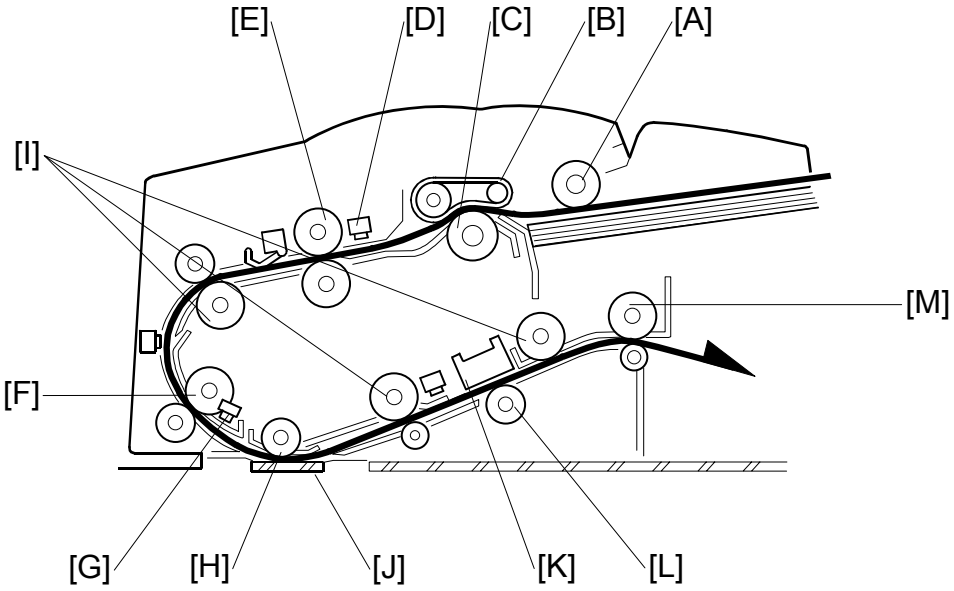


⇒ CIS Power Supply Board (☛ 3.13.15)

[A]: Exit sensor bracket (x1)

[B]: Exit sensor (x1)

6.2.6 ORIGINAL TRANSPORT



The pick-up roller [A] feeds the original to the feed belt [B] and separation roller [C]. Skew is corrected at the skew correction sensor [D] and entrance roller [E].
⇒(☛ 6.2.7)

When the skew correction sensor detects the leading edge of the original, the pre-scanning roller [F] switches on. Skew is also corrected at the pre-scanning roller.
⇒(☛ 6.2.7)

Shading correction, which attempts to compensate for slight distortions caused by the differences in brightness of the light elements due to wear, temperature variation, or distortion by the lenses, is done for the first sheet:

- The original is fed for a few clock pulses after the registration sensor [G] detects the leading edge of the original.
- The original is then delayed slightly at the ADF exposure glass while the CPU uses the white plate to determine the white peak level for the job.
- The pre-scanning roller [F], scanning roller [H] and transport rollers [I] feed the original over the ADF exposure glass [J] and under the CIS [K], until it reaches the exit roller [M].
- If the reverse side of the original is to be scanned, the CPU uses the surface of the white platen roller [L] to determine the white peak level for the job.

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

1.1 COPIER

Configuration	Console		
Original	Sheet/Book/Objects		
Original Size	Max. A3/11"x17"		
	Min. B5 SEF/5.5"x8.5" (using ADF)		
Original Alignment	Rear left corner		
Copy Paper Size	Paper tray, Duplex	A3/11"x17" – A5 SEF/5.5"x8.5"	
	By-pass tray	A3/11"x17" – A6 SEF/5.5"x8.5"	
	Non-standard sizes	Width: 100 – 305 mm (3.9"x12") Length: 148 - 432 mm (5.6"x17.0")	
Copy Paper Weight	Paper Tray	52.3 ~ 127.9 g/m^2 (14 ~ 34 lb.)	
	Duplex	64 ~ 127.9 g/m^2 (17 ~ 34 lb.)	
⇒	By-pass	52.3 ~ 157 g/m^2 (14 ~ 34 lb.) (110 lb Index)	
Reproduction Ratios	6 reduction ratios, 5 enlargement ratios	Metric (%)	400, 200, 141, 122, 115, 93, 82, 75, 71, 65, 50
		Inch (%)	400, 200, 155, 129, 121, 93, 85, 78, 73, 65, 50
	Zoom	25 ~ 400% in 1% steps	
Copying Speed	B064	60 cpm (A4/11" x 8.5" LEF)	
	B065	75 cpm (A4/11" x 8.5" LEF)	
First Copy Time	3.5 s (1st Tray, A4/11"x8.5" LEF Face-up mode)		
	5.3 s (1st Tray, A4/11"x8.5" LEF Face-down mode)		
Warm-up Time	Less than 300 s from Off mode		
	Less than 25 s from low power mode		
Continuous Copy	1 ~ 999 (Operation panel entry)		
Paper Capacity	Tray 1	3100 sheets (when used as tandem tray)	
	Tray 2	550 sheets	
	Tray 3	550 sheets	
	By-pass Tray	100 sheets (80 g/m^2, 20 lb.)	
Paper Output	A4/8 1/2"x11" and smaller	500 sheets	
	B4 and larger	250 sheets	
Power Source	North America	120 V/60 Hz 16 A	
	Europe/Asia	220 ~ 240 V/ 50/60 MHz 8 A	
Input voltage level	North America	120 V/60 Hz: more than 20 A	
	Europe	220 ~ 240 V/50-60 Hz: more than 10 A	
Allowed voltage fluctuation	10%		
Dimensions (W x D x H)	690 x 750 x 1165 mm (27.2" x 29.6" x 38.8")		
Weight	Approx. 200 kg (440.9 lb.)		
Resolution	1200 dpi (printing) 600 dpi (scanning)		
Gradation	256 levels (scanning and printing)		
Original Archive	10,000 A4/8 1/2"x11" pages for document server		
Toner Replenishment	Cartridge exchange (1100 g)		
Total Counter	Electric Counter		

2.3 OPTIONAL EQUIPMENT

2.3.1 A3/DLT KIT B475

Paper Size	A3, B4, 11"x17", 8 1/2"x14", A4 SEF, A4 LEF, 8 1/2"x11" SEF, 11"x8 1/2" LEF
Paper Weight	52 ~ 163 g/m^2 16 ~ 40 lb. Bond 50 ~ 60 lb. Cover 90 lb. Index (no Tab)
Tray Capacity	1,000 sheets (80 g/m^2, 20lb)

2.3.2 LCT (LARGE CAPACITY TRAY) B473

Paper capacity	4,000 sheets3
Paper Sizes	A4 LEF, B5 LEF, 8 1/2"x11" LEF[*1]
⇒ Paper Weight	52 ~ 128 g/m^2 (14 ~ 34 lb Bond)
Pick-up and Feed	FRR (Feed and Reverse Roller)
Power Consumption	Less than 50 W (Max.)
Power Supply	DC24 V, 5V (powered by the main unit)
Rated Voltage of Output Connector	Max. DC 24 V
Dimensions (W x D x H)	314 x 458 x 659 mm (12.4" x 18.1" x 25.9")
Weight	20.0 kg (44 lb.)

[*1]: In platen mode, APS (Auto Paper Select) with the original length and original width sensors are not used.

2.3.3 3000-SHEET FINISHER WITH SADDLE-STITCH AND 50-SHEET STAPLER B468

UPPER TRAY

Tray Capacity (80 g/m^2)	Unstapled	500 sheets (A4, A5 LEF, B5, 8 1/2"x11") 250 sheets (A3, B4, 12"x18", 11"x17") 100 sheets (A5 SEF, A6 SEF, B6 SEF, 5 1/2"x8 1/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	500 sheets	A4 LEF, 8 1/2"x11" LEF
		25 docs.	250 sheets	A3, A4 SEF, B4, B5, 12"x18", 11"x17", 8 1/2"x11"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 5 1/2"x8 1/2"		
⇒ Paper Weight		52 g/m^2 ~ 216 g/m^2 (110 lb Index)		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF (Max: 16 docs, Max sheets: 30 sheets or less)		

LOWER TRAY

Tray Capacity (80 g/m^2)	Unstapled	2,500 sheets (A4 LEF, 8 1/2"x11" LEF) 500 sheets (A5 LEF) 100 sheets (A5 SEF, A6 SEF, B6 SEF, 5 1/2"x8 1/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	2,500 sheets	A4 LEF, 8 1/2"x11" LEF
		50 docs.	1,250 sheets	A4 SEF, B5, 8 1/2"x11" SEF
		30 docs.	1,250 sheets	A3, B4, 12"x18", 11"x17"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 5 1/2"x8 1/2"		
⇒ Paper Weight		52 g/m^2 ~ 216 g/m^2 (110 lb Index)		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF (Max: 50 docs, Max sheets: 30 sheets or less)		

LOWER TRAY (Saddle Stitch Mode)

Binding Capacity (80 g/m^2)	15 sheets		
Paper Size	A3, B4, A4 SEF, 11"x17", 8 1/2"x11" SEF		
⇒ Paper Weight	64 g/m^2 ~ 90 g/m^2 (110 lb Index)		
Stapling Position	Center, 2 locations		
Staple Capacity	2,000 staples/Cartridge		
Fold Position	Center, half-folding		
Saddle-Stitch Capacity	Max docs.	Total sheets	Size
	25 docs.	2 ~ 5 sheets	A4 SEF, 8 1/2"x11" SEF
	15 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	
	30 docs.	2 ~ 5 sheets	A3, B4, 11"x17"
	20 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	

PROOF TRAY

Tray Capacity	250 sheets (A4, 8 1/2"x11" or smaller) 50 sheets (B4, 8 1/2"x14" or larger)
⇒ Paper Weight	52 g/m^2 ~ 216 g/m^2 (90 lb Index)

STAPLE SPECIFICATIONS

Binding Capacity (80 g/m^2)	Same Size	50 sheets (A4, 8 1/2"x11" or smaller) 30 sheets (B4, 8 1/2"x14" or larger)
	Mixed Size	30 sheets (A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF)
Paper Size		A3-B5, 11"x17" ~ 8 1/2"x11"
Paper Weight		64 g/m^2 ~ 90 g/m^2
Stapling Position		Front (1), Back (1), Back (1: diagonal), Duplex Binding
Stapling Capacity		5,000 staples/Cartridge

2.3.4 3000-SHEET FINISHER WITH 50-SHEET STAPLER B469

UPPER TRAY

Tray Capacity (80 g/m^2)	Unstapled	3,000 sheets (A4 LEF, 81/2"x11" LEF) 1,500 sheets (A3, A4 SEF, B4, B5, 12"x18", 11"x17", 81/2"x14", 81/2"x11" SEF) 500 sheets (A5 LEF) 100 sheets (A5 SEF, A6 SEF, B6 SEF, 51/2"x81/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	3,000 sheets	A4 LEF, 8 1/2"x11" LEF
		50 docs.	1,500 sheets	A4 SEF, B5, 8 1/2"x11" SEF
		30 docs.	1,500 sheets	A3, B4, 12"x18", 11"x17"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 5 1/2"x8 1/2"		
Paper Weight		52 g/m^2 ~ 216 g/m^2		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF (Max: 50 docs, Max sheets: 30 sheets or less)		

PROOF TRAY

	Tray Capacity	250 sheets (A4, 8 1/2"x11" or smaller) 50 sheets (B4, 8 1/2"x14" or larger)
⇒	Paper Weight	52 g/m^2 ~ 216 g/m^2 (90 lb Index)

STAPLE SPECIFICATIONS

Binding Capacity (80 g/m^2)	Same Size	50 sheets (A4, 8 1/2"x11" or smaller) 30 sheets (B4, 8 1/2"x14" or larger)
	Mixed Size	30 sheets (A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF)
Paper Size		A3 ~ B5, 11"x17" ~ 8 1/2"x11"
Paper Weight		64 g/m^2 ~ 90 g/m^2
Stapling Position		Front (1), Back (1), Back (1: diagonal), Duplex Binding
Stapling Capacity		5,000 staples/Cartridge

2.3.5 PUNCH UNIT FOR B468/B469

Punch Specifications			
Punch Position	North America (NA)		2/3 holes
	Europe (E)		2/4 holes
	Northern Europe (NE)		4 holes
Punching Allowed	All modes		
Allowed Paper Sizes	Holes	Feed	Paper Size
	2 holes (E)	SEF	A3 ~ A5, 11" x 17" ~ 5 1/2" x 8 1/2"
		LEF	A4 ~ A5, 8 1/2" x 11", 5 1/2" x 8 1/2"
	2 holes (NA)	SEF	A3 ~ A5, 11" x 17" ~ 5 1/2" x 8 1/2"
		LEF	A4 ~ A5, 8 1/2" x 11", 5 1/2" x 8 1/2"
	3 holes (NA)	SEF	A3, B4, 11" x 17"
		LEF	A4, B5, 8 1/2" x 11"
	4 holes (E)	SEF	A3, B4, 8 1/2" x 11"
		LEF	A4, B5, 8 1/2" x 11"
	4 holes (NE)	SEF	A3 ~ A5, 11" x 17" ~ 5 1/2" x 8 1/2"
		LEF	A3 ~ A5, 8 1/2" x 11", 5 1/2" x 8 1/2"
Allowed Paper Weight	Holes	Weight	
	2 holes	52 ~ 163 g/m^2 (14 ~ 43 lb.) (40 lb Bond, 90 lb Index)	
	3 holes		
	4 holes (E)		
	4 holes (NE)		
	2 holes (NA)		
Hopper Capacity	North America (2/3 hole)		More than 60 K prints
	Europe, Europe (4 holes)		More than 80 K prints
Rated Voltage of Output Connector	Max. DC 24 V		
Dimensions (W x D x H)	700 x 620 x 960 mm (27.6" x 24.4" x 37.8")		
Weight	Approx. 65 kg (143 lb.) (with punch unit)		
Power Consumption	72 W (3 A/24 V)		
Power Supply	DC 24 V		

2.3.6 COVER INTERPOSER TRAY B470

Configuration	Attached to 3000-sheet finisher B468, B469, and B478.
Paper Separation	FRR system with feed belt.
Paper Transport	Feed from top tray via vertical roller transport to finisher.
Paper Sizes	A3 ~ A5, 11" x 17" ~ 5 1/2" x 8 1/2"
Paper Weight	64 ~ 216 g/m^2
Capacity	200 sheets (80 g/m^2)
Paper Set Detection	Provided
Power Supply (from main machine)	24 V ±10%, 5 V ±5%
Power Consumption	Less than 48 W
Dimensions (W x D x H)	500 x 620 x 138 mm (19.7" x 24.4" x 5.4")
Weight	12 kg (26.4 lb.)

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 006 **08/02/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL – INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 5-11 Updated Information (Software Update Procedure)
- 6-1 Updated Information (Copy Process Overview)

Note: This copy is intended as a master original for reproduction of additional bulletins.

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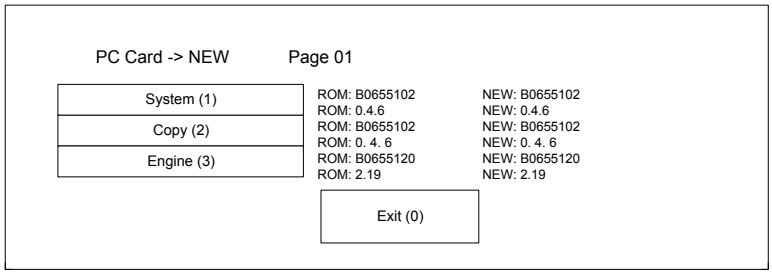
5.4.2 SOFTWARE UPDATE PROCEDURE

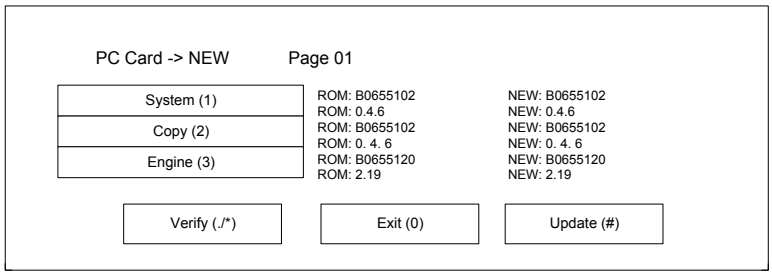
GW Controller/BCU Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. ⇒ Remove the IC card slot cover (🔩 x1).
3. ⇒ With its A side facing away from the machine, insert the IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.



NOTE: 1) In the ROM number displays, the first line is the software number and the second line is the version number.
2) The left column displays the current software and version numbers of the software in the machine, and the column on the right displays the same information for the data on the IC card.

6. Press the appropriate item on the touch-panel.
   - For the GW controller, press System (1) and Copy (2) on the touch-panel, or you can press ① or ② on the operation panel.
   - For the BCU, press Engine (3) on the touch-panel, or you can press ③ on the operation panel.
   - To update all, press two buttons simultaneously.

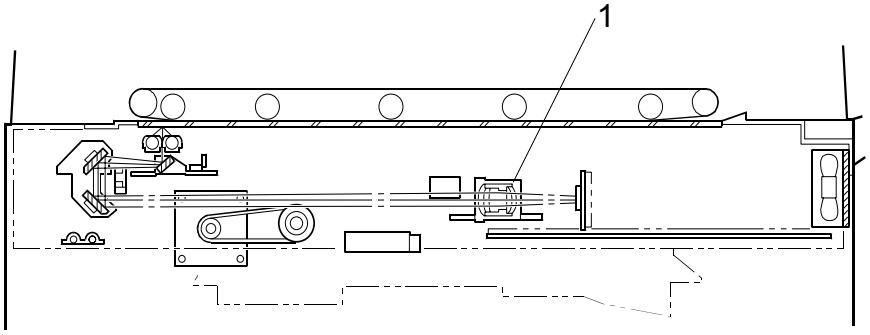


7. To start the installation, press Update (#) on the touch panel, or press ⓗ on the operation panel.
8. The installation screen opens. As the installation progresses, the dashes on the display are replaced by asterisks (****----)
9. When “Update Done” is displayed, switch the machine off and remove the IC card.

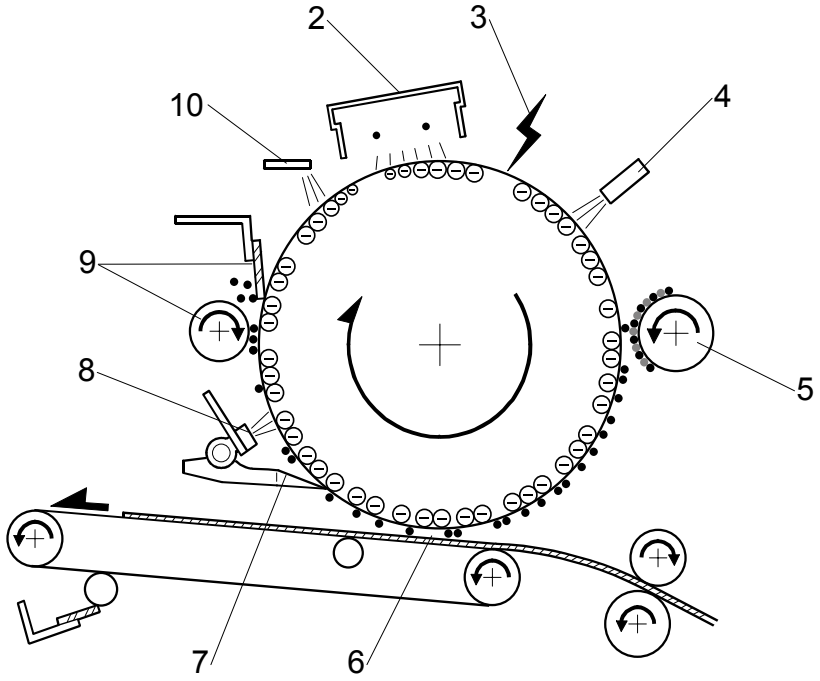
Service Tables

6. DETAILED DESCRIPTIONS

6.1 COPY PROCESS OVERVIEW



⇒



1. EXPOSURE

A xenon lamp exposes the original. Light reflected from the original passes to the CCD, where it is converted into an analog data signal. This data is converted to a digital signal, processed, and stored in the memory. At the time of printing, the data is retrieved and sent to the laser diode. For multi-copy runs, the original is scanned once and stored on the hard disk.

2. DRUM CHARGE

In the dark, the charge corona unit gives a negative charge to the OPC drum. The grid plate ensures that corona charge is applied uniformly. The charge remains on the surface of the drum because the OPC layer has a high electrical resistance in the dark.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 007 **08/16/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

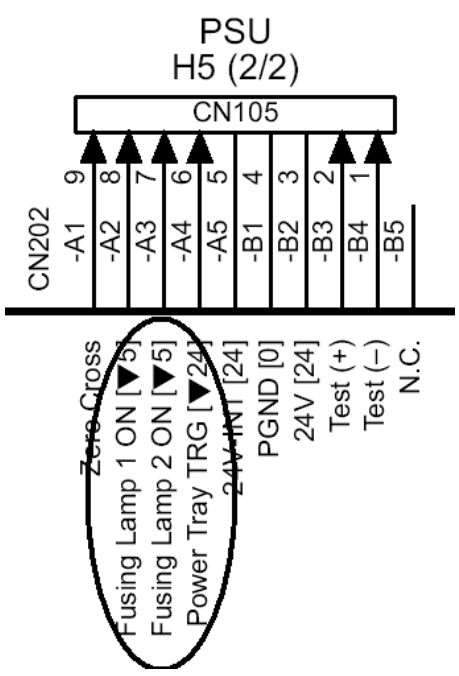
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: POINT TO POINT CORRECTION

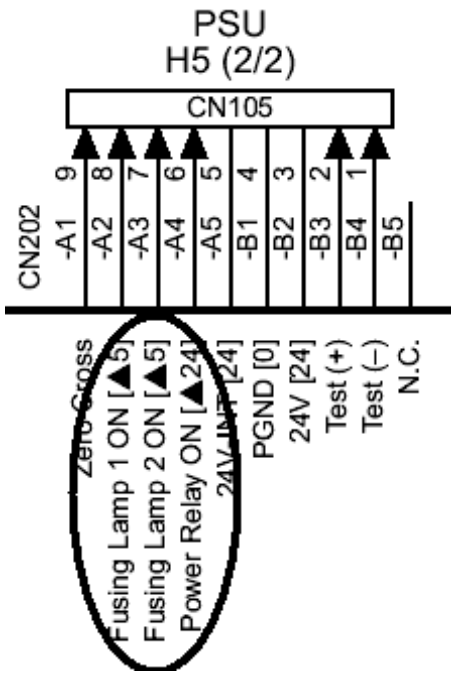
GENERAL:

Point To Point diagram's created with a revision date of 06/2002, incorrectly indicated CN202 signals A2 and A3, Fusing Lamp 1 & 2 ON signals as 5 Volts DC Ready High (▼). These should read Ready Low (▲). Also signal CN202-A4 incorrectly stated the line as Power Tray TRG 24 VDC Ready High (▼). This should read Power Relay ON 24 VDC Ready Low . (▲) If your Point To Point diagram is dated 06/2002, please make the following changes.

06/2002



07/2002



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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 008 **10/07/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

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SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

An arrow has highlighted the revised areas ⇒.

PAGES:

- ii Updated Information (TOC Correction)
- 1-52 through 55 Updated Information (Page Heading Correction)
- 20 Updated Information (G338/G339 Controller Board Configuration)

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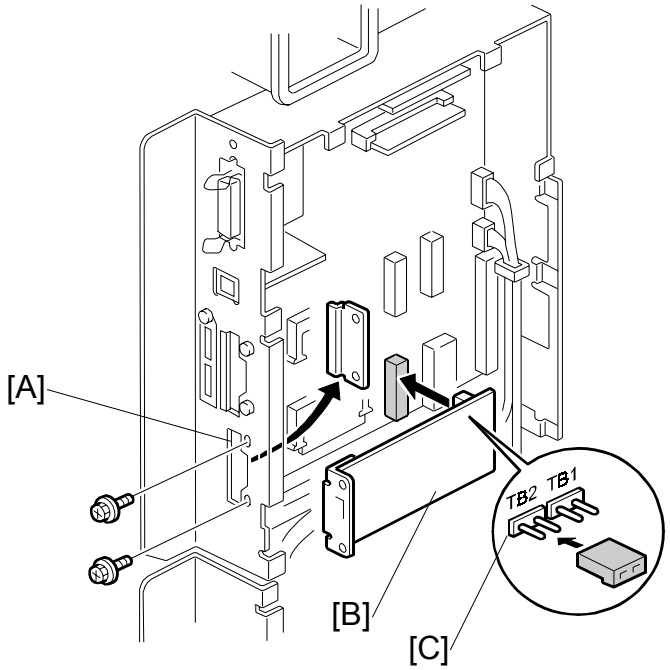
⟹ 1.13 IEEE1394 (G336) FIREWIRE INTERFACE

1.13.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

Description	Q'ty
1. IEEE-1394 Cable 2M 4PI	1
2. IEEE-1394 Cable 2M 6PI	1
3. PCB GW1394	1

⇒ 1.13.2 INSTALLATION PROCEDURE



⚠CAUTION

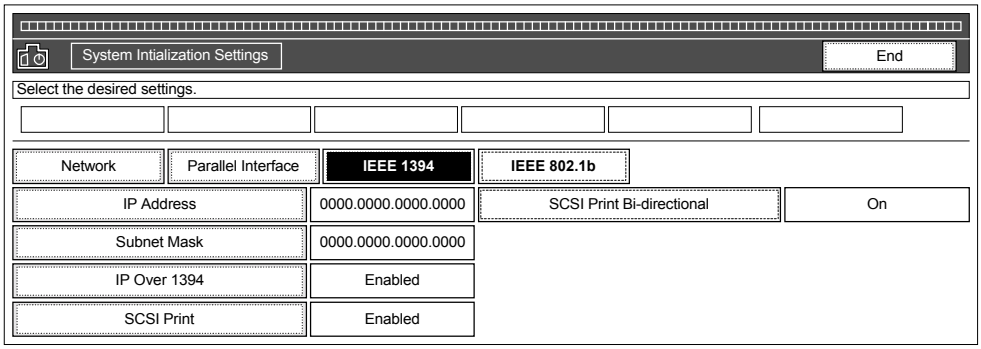
Power the machine off (☛ 1.1.5) and unplug the machine before starting the following procedure.

1. Remove the rear upper cover (☞ x2).
2. Remove the controller cover (☞ x9).
3. Remove the slot cover [A] (☞ x2).
4. Attach the IEEE1394 board [B].
5. Use the provided cable to connect the machine and the computer.
6. Make sure that the jumper is on **TB2** [C].
7. Print a system settings list and confirm that the machine correctly recognizes the interface.

⇒ 1.13.3 UP MODE SETTINGS FOR IEEE 1394

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

1. Press User Tools/Counter.
2. On the touch panel, press System Settings.
3. Press Interface Settings.



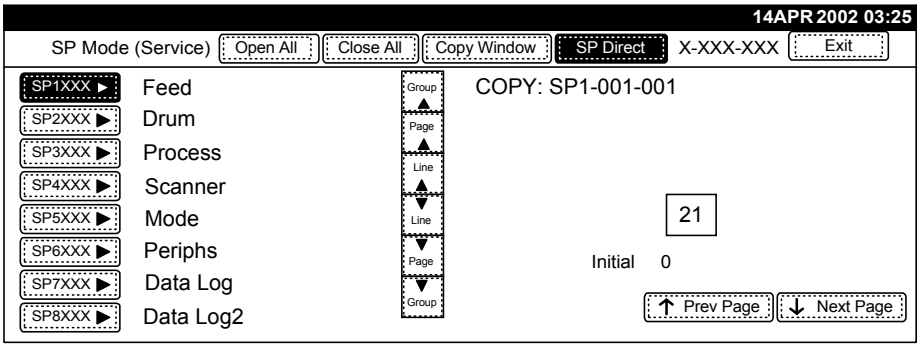
4. Press the key and enter the following settings:
   - IP Address
   - Subnet Mask
   - IP Over 1394. Enable or disable this setting as required. This setting enables IP Over 1394 as the default setting for the printing method.
   - SCSI Print. Enable or disable this setting as required. This setting enables SCSI Print as the default setting for the printing method.
   - SCSI Print Bi-directional. Switch bi-directional printing on or off for SCSI print.

⇒ 1.13.4 SP MODE SETTINGS FOR IEEE 1394

The following SP commands can be set for IEEE 1394.

To enter the SP mode:

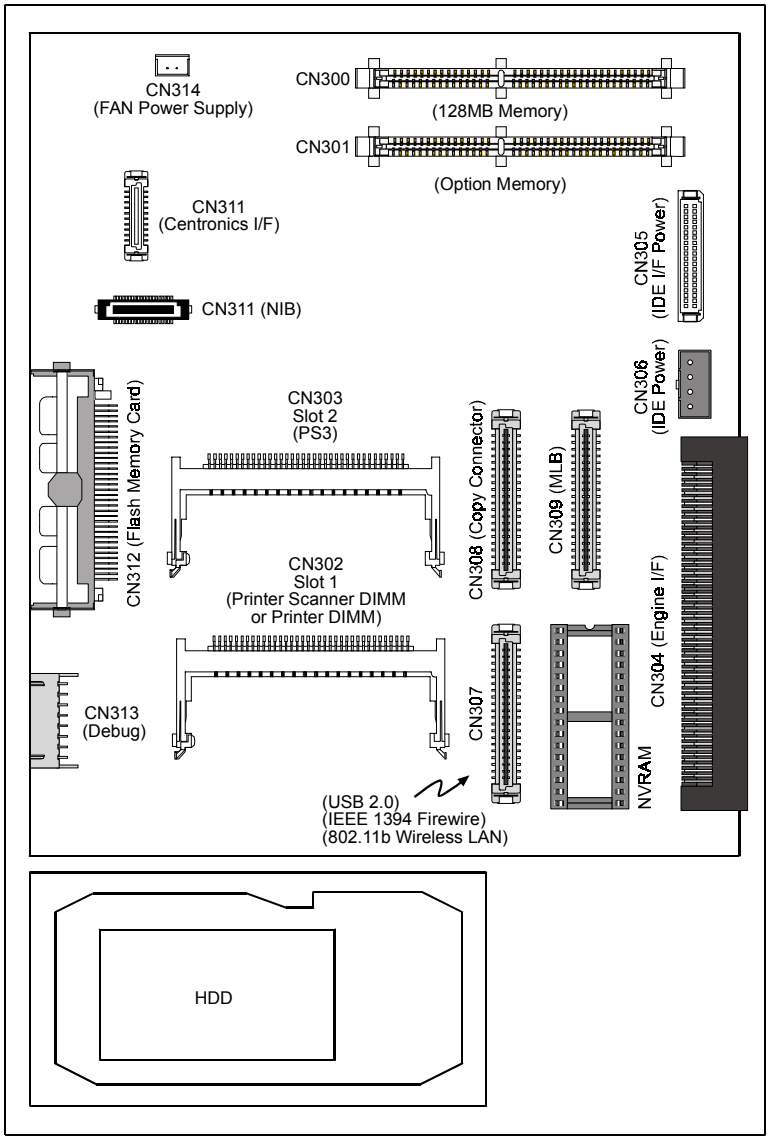
1. Press Clear Modes
2. On the operation panel keypad, press 1 0 7.
3. Hold down Clear/Stop C/⊗ for more than 3 seconds.
4. Press "Copy SP" on the touch-panel to open the SP command selection screen.



5. Enter 5 8 3 9.

SP No.	Name	Function
5839 004	Device Name	Sets the names for all the physical devices connected to the IEEE 1394 firewire network.
5839 007	Cycle Master	Enables or disables cycle master function of the IEEE 1394 standard bus.
5839 008	BCR Mode	Sets the BCR (Broadcast Channel Register) setting for the Auto Node operation for the standard IEEE1394 bus for when IRM is not in use. Three settings are available: 00, 01, 11.
5839 009	IRM 1394a Check	Determines whether an IRM check for IEEE 1394 is conducted for the Auto Node when IRM is not used.
5839 010	Unique ID	Enables the "Node_Unique_Id" setting for enumeration on the standard IEEE 1394 bus.
5839 011	Logout	Determines how successive initiator login in requests are handled during login for SBP-2.
5839 012	Login	Enables or disables exclusive login for SBP-2.
5839 013	Login MAX	Sets the limit for the number of logins for SBP-2. Range: 1 ~ 62.

2.3 CONTROLLER BOARD CONFIGURATION



Item	Machine Code	Remarks
Printer/Scanner DIMM		The printer/scanner option includes the Centronics I/F and NIB.
Printer DIMM	G339	The printer option includes the Centronics I/F and NIB.
⇒ IEEE 1394	G336	Firewire I/F (option)
USB 2.0	525-01	USB I/F (option)
IEEE 802.11b	G628	Wireless LAN (option)
PS3	G525-08	PostScript 3 (option)
Memory 128MB	G331	Also used with the G071 printer (option).
Memory 256MB	G332	

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 009 **11/05/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: B064/B065 SERVICE MANUAL SUPPLEMENT

SERVICE MANUAL

GENERAL:

The B064/B065 Service Manual Supplement is now available. This service manual supplement contains missing pages and additional SP Mode information that was not included in the original printing of the B064/B065 Service Manual.

All Dealers will automatically receive this Service Manual Supplement for all Self-Pace Kits and Service Manuals shipped since the launch of the B064/B065. This will also include all students trained via Classroom and CAT.

This manual update will be incorporated in the January 2003, issue of the "READ" program.

The B064/B065 Service Manual Supplement can also be downloaded from the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 010 **11/11/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL – INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- vii Updated Information (Table of Contents)
- 4-37 Updated Information (Blown Fuse Conditions & Common Problems)

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■ SERVICE MANUAL

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4.6 BLOWN FUSE CONDITIONS

Fuse	Rating		Symptom at Power On
	115 V	210~230V	
FU1	2A/125V	6.3A/250V	Anti-condensation heater does not operate.
FU101	12A/125V	6.3A/250V	No response.
FU103	6.3A/125V	6.3A/250V	SC510 is displayed.
FU104	6.3A/125V	6.3A/250V	Nothing displayed on LCD.
FU105	6.3A/125V	6.3A/250V	“Door Open” is displayed.
FU106	6.3A/125V	6.3A/250V	ADF does not operate.
FU107	6.3A/125V	6.3A/250V	SC121 is displayed.
FU108	6.3A/125V	6.3A/250V	Finisher does not work.
FU109	6.3A/125V	6.3A/250V	“Door Open” is displayed.
FU110	6.3A/125V	6.3A/250V	SC510 is displayed.
FU111	6.3A/125V	6.3A/250V	Nothing is displayed on LCD.

4.7 COMMON PROBLEMS

Problem	Check	Inspect, Clean, Replace
Dirty Copies	Fusing Unit	Pressure roller
Jam – Fusing Unit	Fusing Unit	Hot roller
Jam – Fusing Unit	Fusing Unit	Hot roller strippers
Jam – Original	ADF	Pick-up, paper feed, separation rollers
Lines (black or white)	Around the Drum	Cleaning blade, cleaning brush
Misfeed – Fusing Unit	Fusing Unit	Hot roller
Offset	Fusing Unit	Hot roller
Poor separation	Transfer Belt Unit	Transfer belt, transfer belt cleaning blade
SC300 ~ SC306	Around the Drum	Charge corona wire, charge corona grid, charge corona wire cleaner.
Skew – Original	ADF	Pick-up, paper feed, separation rollers
Toner on transfer belt	Transfer Belt Unit	Transfer belt, transfer belt cleaning blade
Wrinkling	Fusing Unit	Pressure roller

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 011 **11/15/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TRANSFER BELT DAMAGE

SYMPTOM:

The Transfer Belt tracks to the far front edge of the Transfer Belt Unit, contacting and sometimes damaging the edge of the Transfer Belt

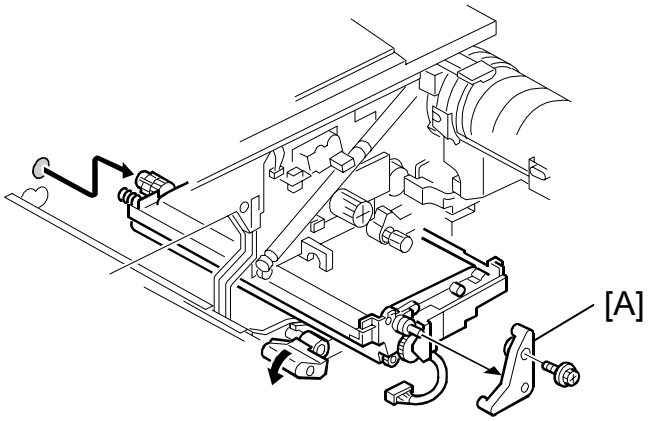
CAUSE:

Due to a damaged special tool used on the production line, a 2.3mm gap was incorrectly set between the positioning plate securing the transfer belt unit and the right edge of the machine frame (gap G1 on next page, which should normally be set to 1.5mm).

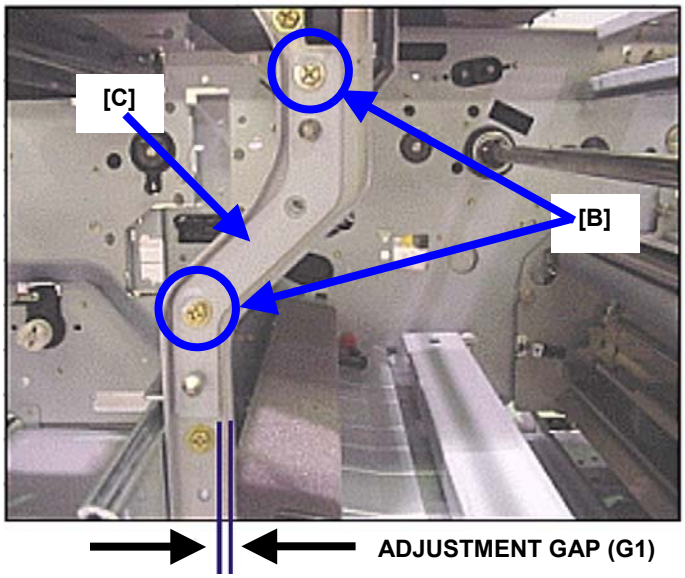
SOLUTION:

FIELD ACTION REQUIRED:

1. Check and adjust the side plate position at installation or at the next service visit for units that are experiencing transfer belt damage. For those units in the serial number range listed below. Check whether or not the transfer belt has tracked toward the front of the transfer unit case. If it has, reposition the belt to the center position of the transport unit (see s/m, pg. 3-53).



2. Remove the PCU inner cover (P/N B0651313), and then remove the transfer unit guide plate [A].
3. Loosen the two paint-locked screws [B].
4. Insert a 1.5mm feeler gauge into the gap between the positioning plate [C] and right edge of machine frame (gap G1 in photo below), and then tighten the two positioning plate screws.



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Continued...

5. Open the front door and manually actuate the upper left (power switch) and lower right door switches. Then, run a 100 sheet duplex copy job to confirm that the transfer belt does not contact the front or rear sides of the transfer unit case. If the belt contacts either front or rear edge transfer unit case, stop the copy job and go on to step 6. If the belt does not contact either edge after completing a 100 sheet duplex copy job, the adjustment is complete.
6. If the belt contacts the front edge, decrease the G1 gap to less than 1.5mm. If the belt contacts the rear edge, increase the G1 gap to greater than 1.5mm.

NOTE: *Make gap adjustments in increments of approximately 0.2mm. Then, repeat steps 2 thru 6 until the transfer belt does not contact either the front or rear edge of the transfer unit case after running a 100 sheets duplex copy job.*

UNITS AFFECTED:

MODEL NAME	SERIAL NUMBER
B064	J42255XXXXX to J42258XXXXX
B065	J43255XXXXX to J43258XXXXX

All B064/B065 copiers manufactured with the serial numbers listed below will have G1 space gap properly set at the factory during production.

B064:

J4225800101, 145, 147, 150, 167, 180, 183, 297, 299, 300~303, 338, 341, 343~352, 356, 358, 365, 367, 371, 430, 438, 439, 441~443, 446~448, 451, 452 and all units after J4225800525~

B065:

J4325800035, 089, 095, 099, 114, 115, 117, 121~127, 129~140, 142, 154, 156, 213, 219, 221, 222 and all units after J4325800292~

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 012 **11/18/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

■ FIRMWARE

SUBJECT: NO WEB END CONDITION DISPLAYED

SYMPTOM:

The entire Fusing Web has wrapped to its end, and the "Web End Condition" has not displayed on the operation panel.

NOTE: *This only occurs when using BCU Firmware version 3.12 and the 9-bin Mailbox.*

CAUSES:

- A firmware bug sometimes causes the value of SP1902-002 (Fusing Web Motor Operation Interval) to become corrupt. This can occur when the front door is opened/closed, or when the main power/operation switch is turned Off/On. If this value is changed to 0, the machine may energize the Web Motor and wrap the web forward, all the way to the end condition.

NOTE: *This SP setting determines how long of a printing interval (cumulative) is allowed before the machine runs the motor. The default is 18 seconds with the 60 cpm model (B064), and 15 seconds with the 75 cpm model (B065).*

- SP1902-001 is the primary determining factor for SC550 (Web End Condition). If the web reaches the end condition due to the firmware bug, no "Web End Condition" will be displayed.

SOLUTION:

Modify the BCU firmware to version 3.14 or higher.

Version 3.14 Firmware changes

- Web end detection will be determined by the Web End Sensor regardless of the value of SP1902-001.
- The value of SP1902-002 cannot be changed under the conditions outlined above.

Continued…

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FIELD COUNTERMEASURE:

If the BCU firmware is version 3.12 at machine installation, update it to version 3.14 or higher before installing the 9-bin mailbox.

For machines with the 9-bin mailbox already installed, SC550 (Fusing Web End) may appear if updating the BCU firmware from version 3.12 to version 3.14 or higher. If it does, perform the following:

1. Update the BCU firmware to version 3.14 or higher.
2. Replace the fusing web if it has physically reached its end.
3. Set SP1902-001 to a value of "0".
4. Check the value of SP1902-002. It should be "**18**" (B064 models) or "**15**" (B065 models). If the value has been changed, input the correct value listed above for the appropriate model.
5. Check machine operation to ensure that the symptom does not occur.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 013 **11/20/2002**

APPLICABLE MODEL:

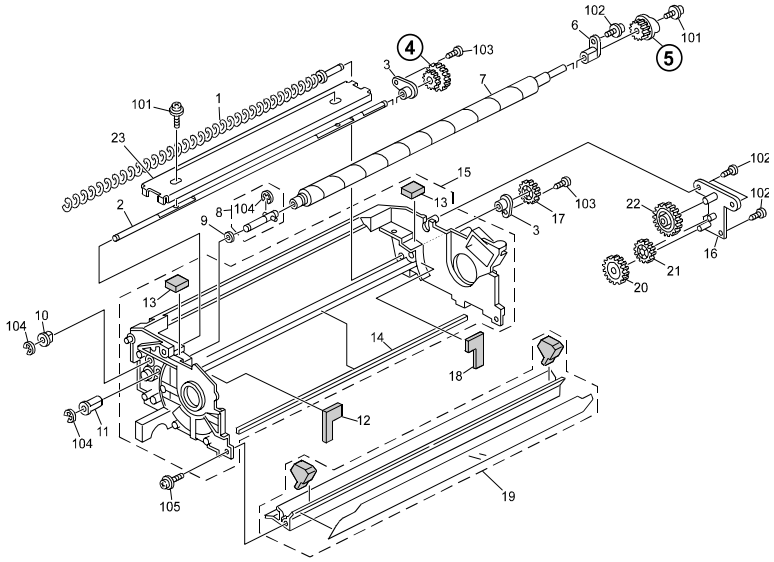
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: NOISE FROM BROKEN CLEANING BRUSH GEARS

SYMPTOM:

Noise from the PCU brush roller gear (PCU3 section 37, pg. 87, index #4, 5; P/N# B0652425, B0652428). In some cases, the brush roller gear may break and black lines may appear, as the brush roller does not rotate.



CAUSE:

Variations in the PCU brush torque may cause a large amount of reverse rotation in the drum, which causes the brush to wear down and slip over the brush stopper, the drive gear may then become damaged from the excessive load when trying to pull the brush back.

SOLUTIONS:

Two spacers in the PCU have been added to reposition the cleaning brush so it will not wear down. A cushion has also been added to ensure that the cam does not damage the stopper screw.

FIELD COUNTERMEASURE:

Install Damper Kit.

Description	Part Number	Quantity
Damper	B0652402	1 each
Spacer M6	AA132208	2 each
Tapping Screw – M4 x 14	04514014B	1 each

Continued…

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PRODUCTION COUNTERMEASURE

The spacers and cushion will be installed at the factory during production from the following serial numbers listed below.

B064: J4225800853

B065: J4325800494

ALLOCATION:

Each authorized servicing location will receive and automatic allocation of Damper Kits for 100% of the affected population.

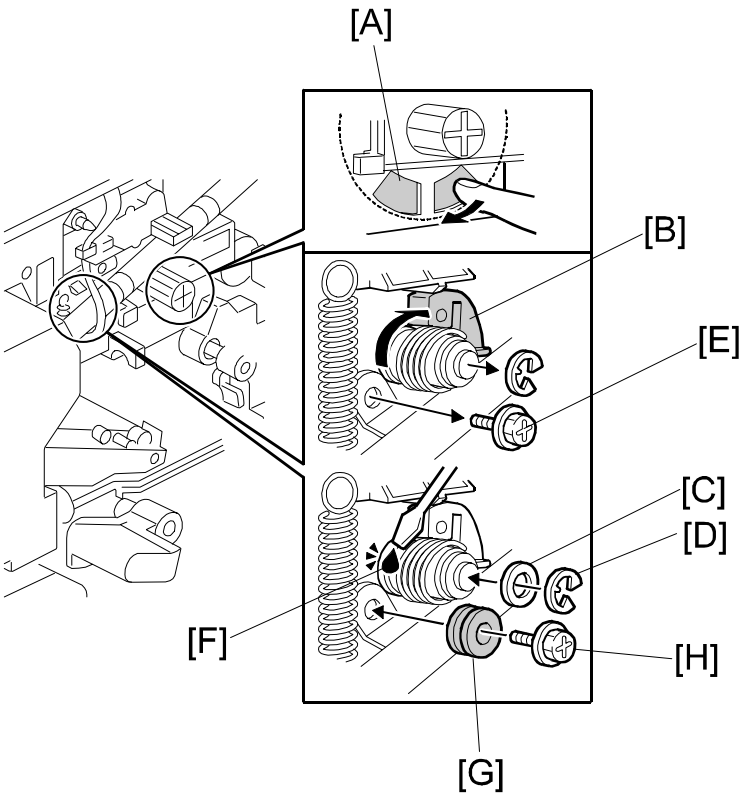
DAMPER KIT INSTALLATION PROCEDURE:

1. Turn the drum flange [A] clockwise until the cam [B] reaches the position as shown.
2. Add one spacer [C] to the release camshaft, only if there is 1 spacer already installed (1 e-ring [D]).

NOTE: *If there are two spacers already installed, skip this step.*

3. Remove the screw [E].
4. Apply grease G501 [F] to the release cam.
5. Attach the cushion [G] using the new M4x14 hexagonal screw [H].

NOTE: *To ensure the screw does not rattle or come loose, be sure to tighten it at a 90-degree angle (not titled).*



TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 013 REISSUE ★ **11/21/2002**

APPLICABLE MODEL:

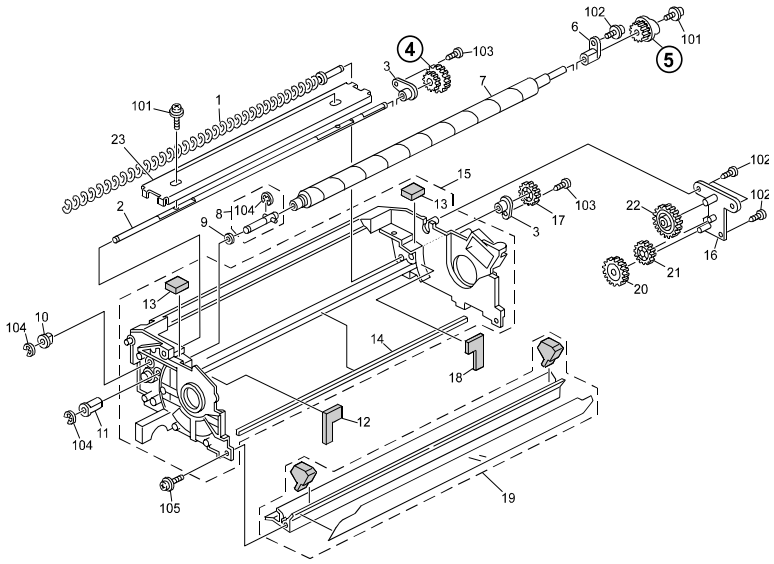
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: NOISE FROM BROKEN CLEANING BRUSH GEARS

SYMPTOM:

Noise from the PCU brush roller gear (PCU3 section 37, pg. 87, index #4, 5; P/N# B0652425, B0652428). In some cases, the brush roller gear may break and black lines may appear, as the brush roller does not rotate.



CAUSE:

Variations in the PCU brush torque may cause a large amount of reverse rotation in the drum, which causes the brush to wear down and slip over the brush stopper, the drive gear may then become damaged from the excessive load when trying to pull the brush back.

SOLUTIONS:

Two spacers in the PCU have been added to reposition the cleaning brush so it will not wear down. A cushion has also been added to ensure that the cam does not damage the stopper screw.

FIELD COUNTERMEASURE:

Install Damper Kit.

★	Description	Part Number	Quantity
	Cushion T1	A3764131	1 each
	Sleeve	AA130042	1 each
	Spacer M6	AA132208	2 each
	Tapping Screw – M4 x 14	04514014B	1 each

Continued…

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 013 REISSUE ★ **02/10/2003**

APPLICABLE MODEL:

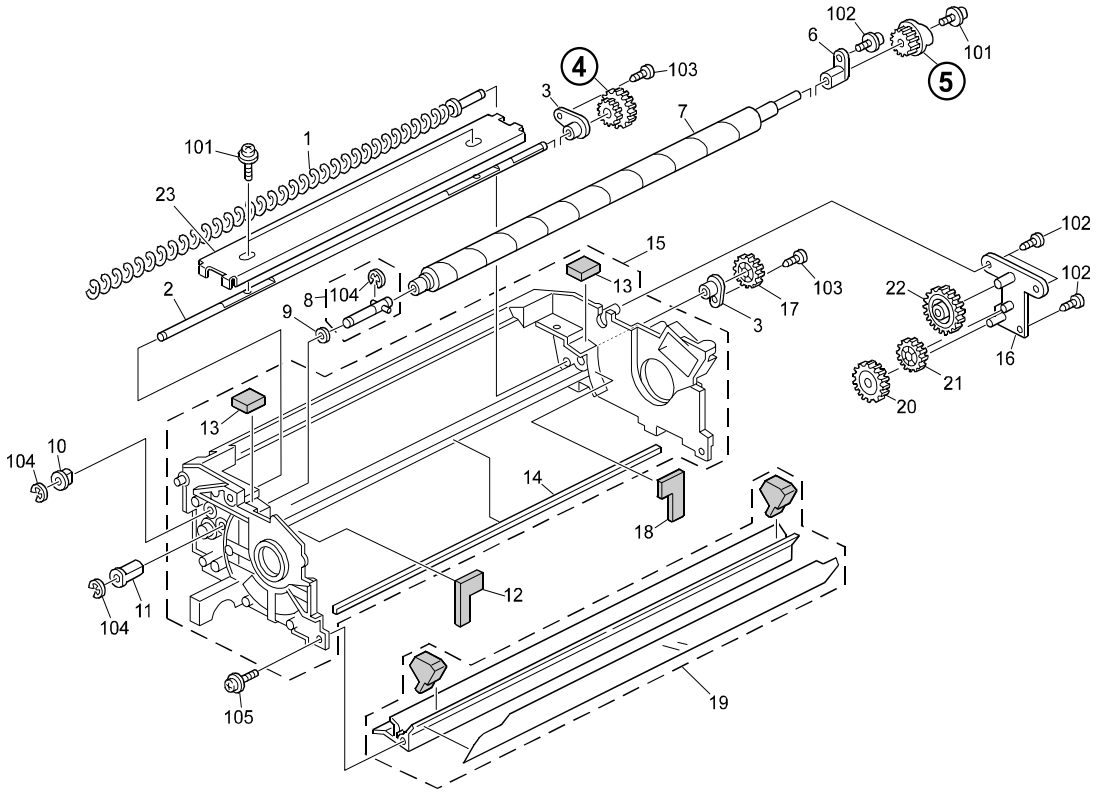
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: NOISE FROM BROKEN CLEANING BRUSH GEARS

SYMPTOM:

Noise from the PCU brush roller gear (PCU3 section 37, pg. 87, index #4, 5; P/N# B0652425, B0652428). In some cases, the brush roller gear may break and black lines may appear, as the brush roller does not rotate.



CAUSE:

The PCU brush wears down or is dirtied, decreasing the friction between it and the inner wall of the PCU. This friction normally stops the cam, but as it decreases, the cam is rotated too far and contacts the stopper screw repeatedly. The gear can be damaged by this alone, or when the cam overrides the screw and cannot be turned back, applying an excessive load on the gear

Continued…

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SOLUTIONS:

TEMPORARY:

1. Install two spacers in the PCU to ensure that the cam does not override the stopper screw.
2. Install a cushion to ensure that the shock is absorbed even if the cam contacts the screw.

FIELD COUNTERMEASURE:

Install Damper Kit.
The following parts are needed to install the cushion and spacers (procedure on next page)

	Description	Part Number	Quantity
	Cushion T1	A3764131	1 each
	Sleeve	AA130042	1 each
★	Spacer M6	AA132208	1 each
	Tapping Screw – M4 x 14	04514014B	1 each

PERMANENT:

PRODUCTION COUNTERMEASURE

The spacers and cushion will be installed at the factory during production from the following serial numbers listed below.

B064: J4234900203
B065: J4334900007

ALLOCATION:

Each authorized servicing location will receive and automatic allocation of Damper Kits for 100% of the affected population.

DAMPER KIT INSTALLATION PROCEDURE:

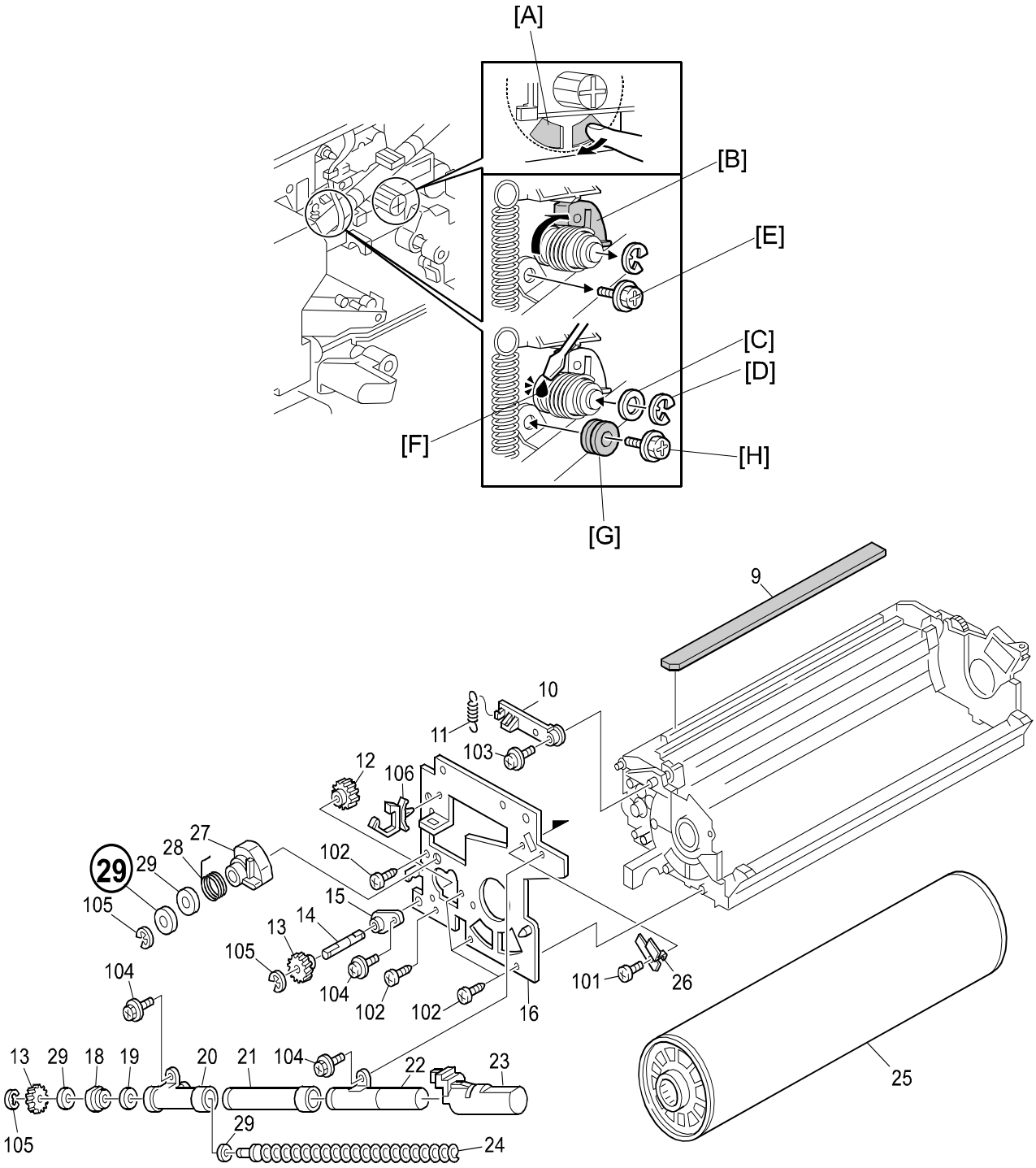
1. Turn the drum flange [A] clockwise until the cam [B] reaches the position as shown.
2. Add one spacer [C] to the release camshaft, only if there is 1 spacer already installed (1 e-ring [D]).

NOTE: *If there are two spacers already installed, skip this step.*

3. Remove the screw [E].
4. Apply grease G501 [F] to the release cam.
5. Attach the cushion [G] using the new M4x14 hexagonal screw [H].

Continued…

To ensure the screw does not rattle or come loose, be sure to tighten it at a 90-degree angle (not titled).



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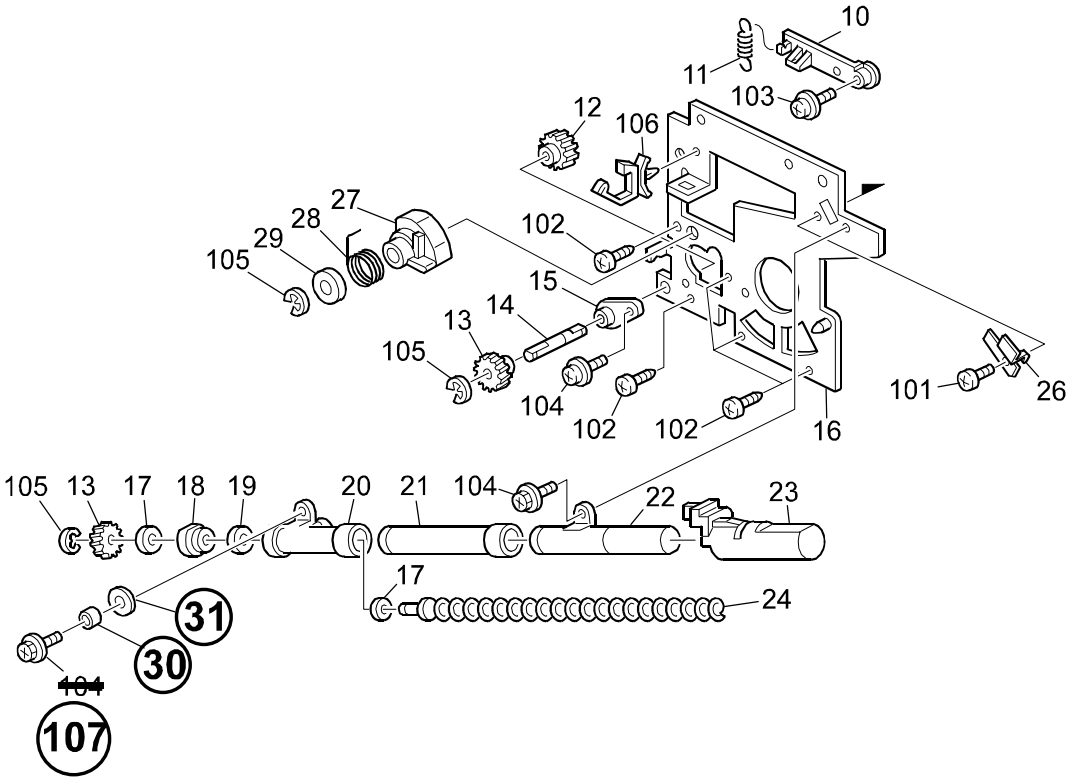


The following parts have been added to ensure the Brush Roller Gear does not break:

Before installing the Cushion -T1 (A3764131), insert the Sleeve (AA130042) into the hole in the Cushion - T1.

						REFERENCE	
	OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
★		AA130042	Sleeve	1	-	85*	30
		A3764131	Cushion - T1	1	-	85*	31
	04514008B		Tapping Screw M4x8		-	85	104
		04514014B	Tapping Screw M4x14		1	85	107
		AA13208	Spacer – M6	4	-	85*	29

*** DENOTES NEW ITEM NUMBER**

PRODUCTION COUNTERMEASURE

The spacers and cushion will be installed at the factory during production from the following serial numbers listed below.

B064: J4225800853

B065: J4325800494

ALLOCATION:

Each authorized servicing location will receive and automatic allocation of Damper Kits for 100% of the affected population.

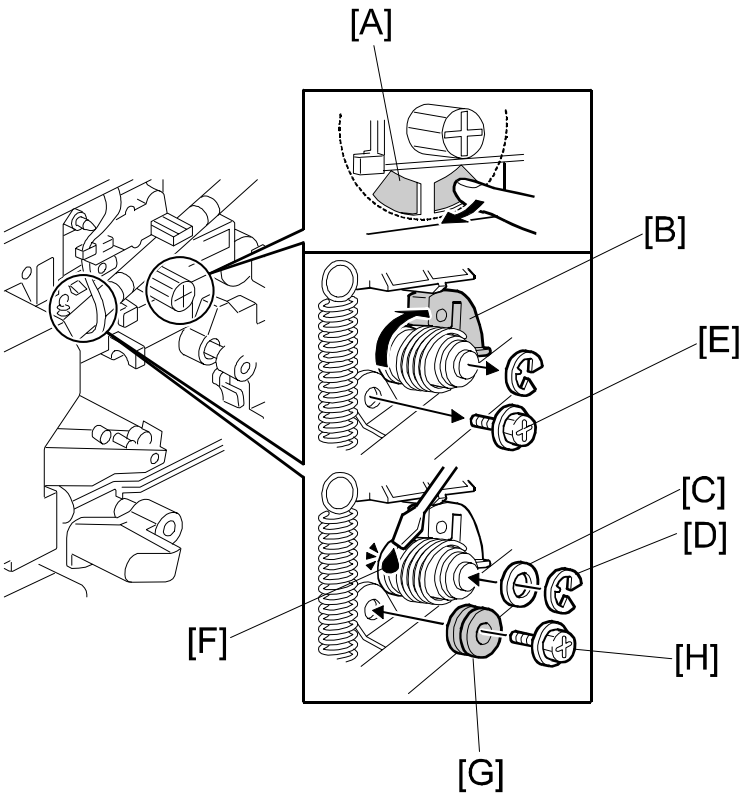
DAMPER KIT INSTALLATION PROCEDURE:

1. Turn the drum flange [A] clockwise until the cam [B] reaches the position as shown.
2. Add one spacer [C] to the release camshaft, only if there is 1 spacer already installed (1 e-ring [D]).

NOTE: *If there are two spacers already installed, skip this step.*

3. Remove the screw [E].
4. Apply grease G501 [F] to the release cam.
5. Attach the cushion [G] using the new M4x14 hexagonal screw [H].

NOTE: *To ensure the screw does not rattle or come loose, be sure to tighten it at a 90-degree angle (not titled).*



TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 014 **11/20/2002**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL – INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- xii Updated Information (Table of Contents)
- 8-1 through 8-4 New Information (Firmware History)

Note: This copy is intended as a master original for reproduction of additional bulletins.

■ SERVICE MANUAL

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FIRMWARE HISTORY

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FIRMWARE HISTORY

⇒8. FIRMWARE HISTORY

8.1 FIRMWARE MODIFICATION HISTORY

- Please check the http://tsc.ricohcorp.com website for current firmware downloads.
- Accessory firmware modification history is provided in the appropriate accessory section of the service manual.

8.1.1 BCU FIRMWARE MODIFICATION HISTORY

BCU FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
1st Mass Production	B0655123 **E**	1st Mass Production	3.12a
With DF 2-sided scanning, the edge of the original is sometimes visible on the rear side of the copy when the image is shifted by Create Margin for stapling. When making duplex copies from the exposure glass, sometimes both the front and rear sides come out as the front side of the original. SC990 sometimes occurs at power ON. When the main power is turned on, SP1902-002 sometimes changes to an illegal value, and the Fusing Web End condition occurs much earlier than normal. SC345 sometimes occurs during the initial paper feed just after the main power is turned on, or at the end of a job while making the ID sensor pattern. This version supports the Key Card, when used in combination with GW firmware 1.12. Software modified to minimize developer carrier scattering. Development bias output maximum changed from 900V to 800V. SP2970 was not triggered when occurrence conditions were present. Change in specification: Fusing Web End. 1. Web End detection priority given to the web end sensor (previously, SP1902 value had priority). 2. Near End now triggered at 80% (previous: 90%), and the default for SP1902-001 has been changed to 80% accordingly. Setting range for SP2912-001 changed from 0-10 to 1-3.	B0655123 **E**	Sept. '02 Production	3.14e

8.1.2 GW FIRMWARE MODIFICATION HISTORY

GW FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
1st Mass Production	B0655102 **E**	1st Mass Production	1.11
R9 jams (B478 Finisher) were displayed as R7 jams. At the completion of Document Box scanning, a message was sometimes displayed asking the user to remove the paper from the Finisher tray. SC870 occurs after multiple groups are selected and assigned a number in the address book programming screen. SC819 occurs if "Continue to Program" is performed 196 times in the address book programming screen. After the main power comes on with the Weekly Timer, and the Access Code screen prompts the user for code entry, the screen can be cleared by simply opening and closing the cover. "Bond Paper" does not appear as a selection for Tray 1 or the LCT in User Tools – System Settings – Tray Paper Setting. The machine serial number is not displayed with SC error codes. Setting range for SP5501: PM Alarm Level corrected from 0-255K to 0-9999K. SP2912-001 (Drum Reverse Rotation, Rotation Amount) default value changed from 2 → 3, setting range changed from 0-10 → 1-3. SP2210 (ID Sensor Pattern Interval) default value changed from 10 → 100. SP2201-001, 002, 003, 005 (Development Bias Adjustment) maximum setting changed from 900 → 800. SP2931/2/3/4/5/6-001 (Transfer Current On/Off Timing) default value changed from 0 → 20. SP2931/2/3/4/5/6-002 (Transfer Current On/Off Timing) default value changed from 0 → 15. SP1902-004 (Fusing Web Motor Control, Web Near End Value) default value changed from 90 → 80. SC990 sometimes occurs if the signal timing during scanning and printing causes a delay in the scanning process. Firmware modified so that when "2: Europe" is selected in SP5131 (Paper Size Type Selection), it is possible to select F-sized originals in User Tools – System Settings – General Features.	B0655102 **E**	Aug. '02 Production	1.12.2

…continued

GW FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
Supports the Key Card, when used in combination with GW firmware 1.12. Changes made to support the Key Card, as per field request: ● "Key Counter" changed to "Key Card" in UP Mode display. ● Use of the Interleaf function is allowed when "Key Card" is selected (SP mode). ● Automatic jam when counter reaches 0 has been disabled, so that all remaining pages are printed out. ● The following 2 selections have been added to SP5113 (Optional Counter Type): 11: Exp Key Card (Add) 12: Exp Key Card (Deduct)			

8.1.3 LCDC FIRMWARE MODIFICATION HISTORY

LCDC LANGUAGE FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
1st Mass Production	B0655176	1st Mass Production	1.01
Display message in Printer mode changed: Old: “Quality of Print Sets” New: “Copies” Several French translations appeared for “Slip Sheet” and “Designate” (translations not consistent). Corrected French translation errors for several display messages. Display for “IEEE802.11” inside User Tools → System Settings → Interface Settings → Network was incorrectly displayed as “801.11”. Official Taiwanese translation set added. Official Russian translation set added.	B0655176 **A**	Aug. ‘02 Production	1.12

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 015 **01/13/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: WASTE TONER COLLECTION SYSTEM

SYMPTOM:

The following can occur due to toner build up in the waste toner system.

- Noise from the toner supply unit (B0653110)
- Noise from the toner transfer collection assembly (B0653551)
- Gears break (B0653138 / B0653139)
- Toner collection coil - exit (B0653710) bends
- Toner leaks from the development filter (AA012060)
- Toner collection coil bends (AD043077)
- SC441 (Development motor lock) or SC590 (Toner collection motor error)

NOTE: *If either of these service codes occurs at setup, there may be a possibility of a motor error.*

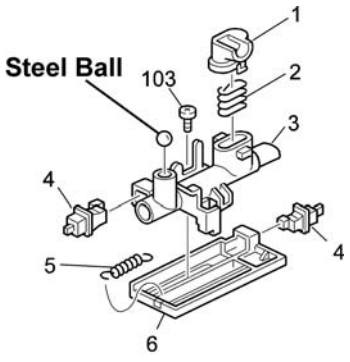
CAUSE:

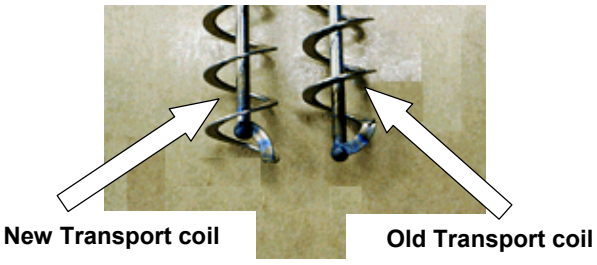
Toner buildup in the waste toner collection system.

SOLUTION:

Production Countermeasure:

The shape of the transport coil in the toner supply unit and the transport screw in the vertical waste toner transport unit has been changed. The steel ball in the lower waste toner transport unit has been removed because it is possible for the new coil to interfere with the movement of the new transport screw.





Continued…

Field Countermeasure:

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- Replace the broken gear(s) (B0653138 / B0653139)
- Replace the toner supply unit (B0653111), waste toner vertical transport unit assembly (B0653554), and remove the steel ball (A0963736).

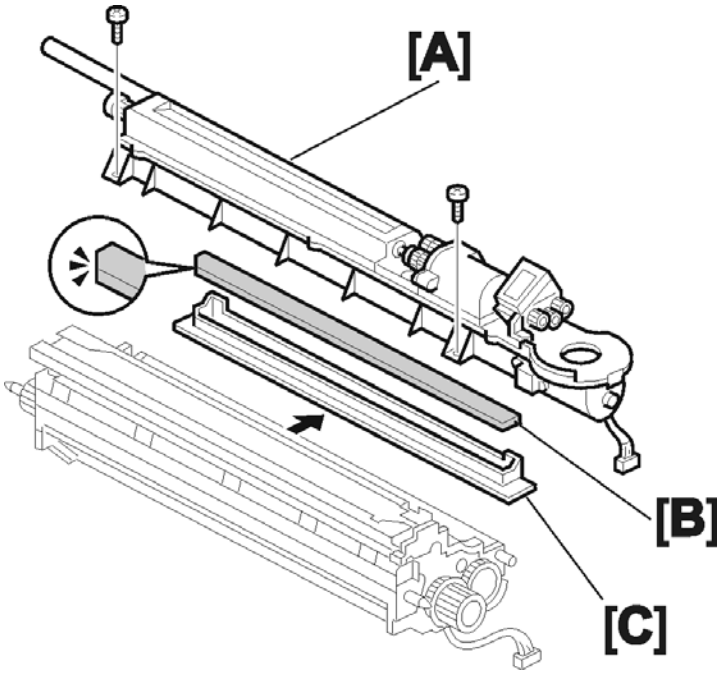
NOTE: *With gear replacement alone, the symptom will shortly reoccur. In addition, individual replacement of the toner collection coil can be a dirty job at the customer location, and during replacement, the waste toner may scatter about at the customers site. It is suggested to replace the entire toner supply unit at the customer's location.*

REPLACEMENT PROCEDURES:

Replacing the Toner Supply Unit:

1. Turn off the main switch.
2. Remove the development unit (see B064/B065 Service Manual; Section 3.6.1 Development Unit Removal).
3. Replace the old toner supply unit (B0653110) with the new toner supply unit (B0653111) (2 screws).

NOTE: *Before installing the new toner supply unit [A], make sure that the development filter [B] is securely in place (surface is at or below the level of the development filter case [C]).*



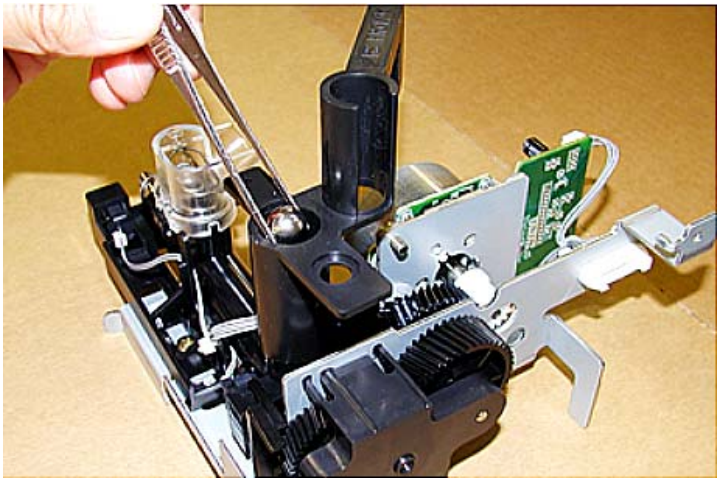
Continued…

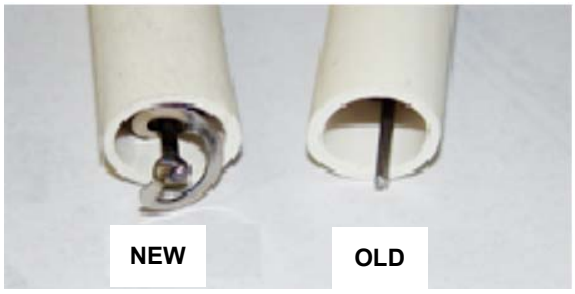
Replacing the Waste Toner Vertical Transport Unit:

1. Disconnect the connector.
2. Remove the snap ring.
3. Remove the drive rod.
4. Replace the Waste Toner Vertical Transport Unit (install B0653554, 1 screw, 1 snap-fit).

5. Removing the Steel Ball:

NOTE: *The length of the coil in the waste toner vertical transport unit has been increased as shown below. It is was necessary to remove the steel ball in the lower waste toner transport unit to prevent a loud noise that will occur if the coil contacts the ball.*

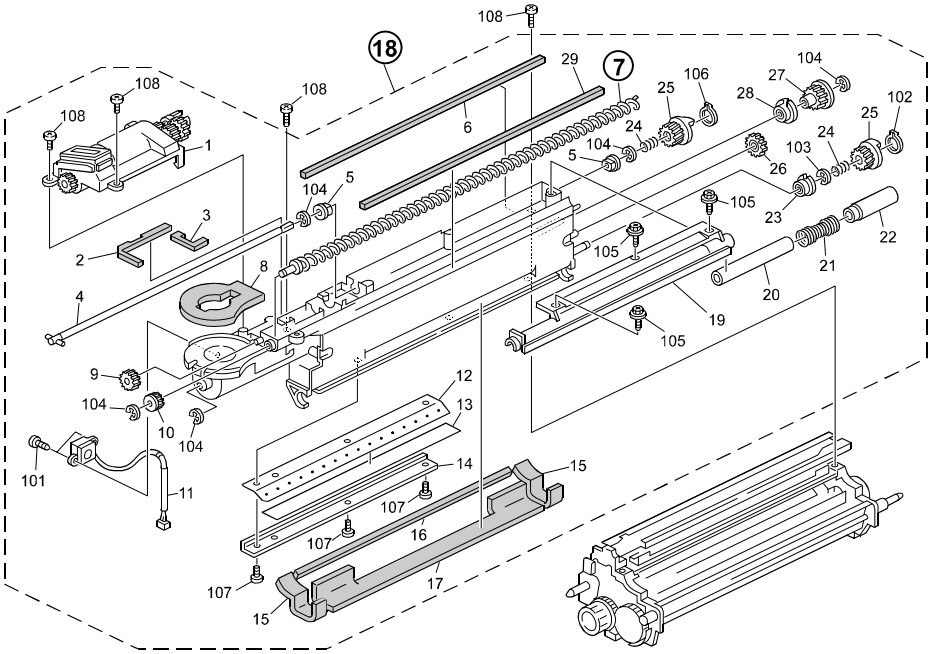


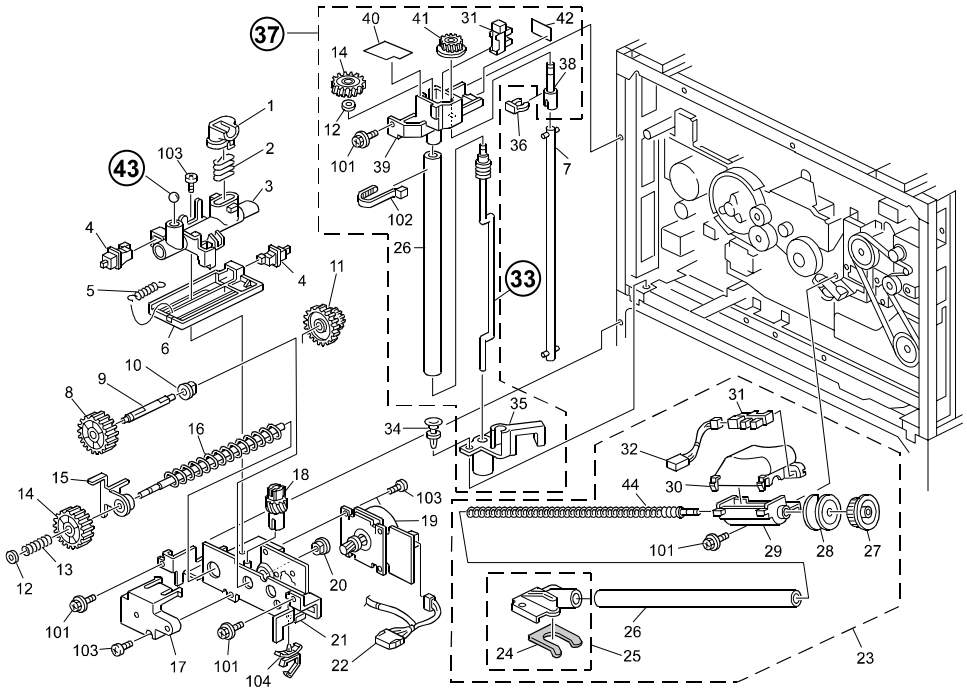


Continued…

GENERAL:

The following parts have been changed to prevent the waste toner from clogging around the coils in the toner supply unit and toner collection assembly transfer area. The following parts updates are being issued for all B064/B065 Parts Catalogs.





Continued…

					REFERENCE		
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**	**SETS**
B0653710	B0653720	Toner Collection Coil - Exit	1-1	3/S	77	7	**As Set**
B0653638	B0653670	Transport Screw	1-1	3/S	123	33	
B0653110	B0653111	Toner Supply Unit	1-1	3/S	77	18	**As Set**
B0653551	B0653554	Toner Collection A'ssy - Transfer	1-1	3/S	123	37	
A0963736		Steel Ball - M11 (Removed)	1-0	--	123	43	----

NOTE 1: *Items #7 & 33 must be replaced as a set.*

NOTE 2: *Items #18 & 37 must be replaced as a set.*

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style coils installed and the steel ball removed installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002	J4225700571
Ricoh Aficio 1075 Savin 2575 Gestetner 7502	J4325800001

ALLOCATION:

Ricoh Corporation will do a one-time shipment of 10% of Toner Supply Unit Kits for field machines at each authorized service location. Replacement parts will also be available separately for procurement through normal parts ordering procedures.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 015 REISSUE ★ **05/05/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: WASTE TONER COLLECTION SYSTEM

SYMPTOM:

The following can occur due to toner build up in the waste toner system.

- Noise from the toner supply unit (B0653110)
- Noise from the toner transfer collection assembly (B0653551)
- Gears break (B0653138 / B0653139)
- Toner collection coil - exit (B0653710) bends
- Toner leaks from the development filter (AA012060)
- Toner collection coil bends (AD043077)
- SC441 (Development motor lock) or SC590 (Toner collection motor error)

NOTE: *If either of these service codes occurs at setup, there may be a possibility of a motor error.*

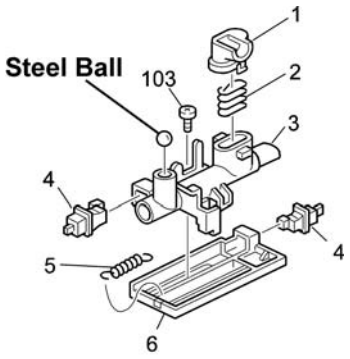
CAUSE:

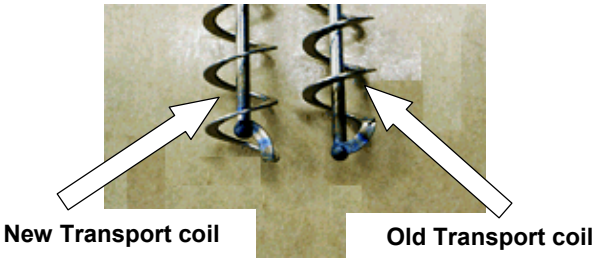
Toner buildup in the waste toner collection system.

SOLUTION:

Production Countermeasure:

The shape of the transport coil in the toner supply unit and the transport screw in the vertical waste toner transport unit has been changed. The steel ball in the lower waste toner transport unit has been removed because it is possible for the new coil to interfere with the movement of the new transport screw.





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★ **Field Countermeasure:**

- Replace the broken gear(s) (B0653138/B0653139)
- Replace the toner supply unit (B0653111), waste toner vertical transport unit assembly (B0653554), assemblies as a set or replace the toner collection coil (B0653720) and the transport screw (B0653670 as a set.
- Remove the steel ball (a0963736)

NOTE 1: ***Toner Supply Unit Coil:***
Replace the coil only if the gear in the front of the toner supply unit (B0653138/B0653139) is not damaged. If the gear is already damaged, it is very possible that the gear shaft has been warped, making it necessary to replace the entire unit (this is to avoid gear damage).

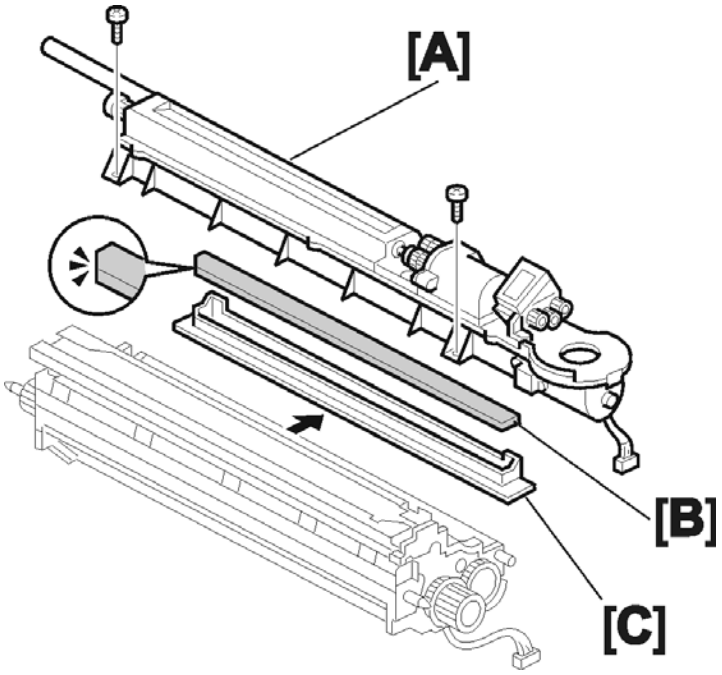
NOTE 2: ***Toner Collection Unit Coil:***
Before replacing the coil, be sure to clean out the toner inside the toner separation case (B0653629). If this is not done, the B0653645 gear cannot be properly set after replacing the coil. Please make sure that the gear pawl is tightly hooked into the coil groove.
Also, if the toner in the case cannot be cleaned out completely, please do not replace the coil alone. This can cause the coil to come out of position while the machine is running, and catch on the lower transport coil.

REPLACEMENT PROCEDURES:

Replacing the Toner Supply Unit:

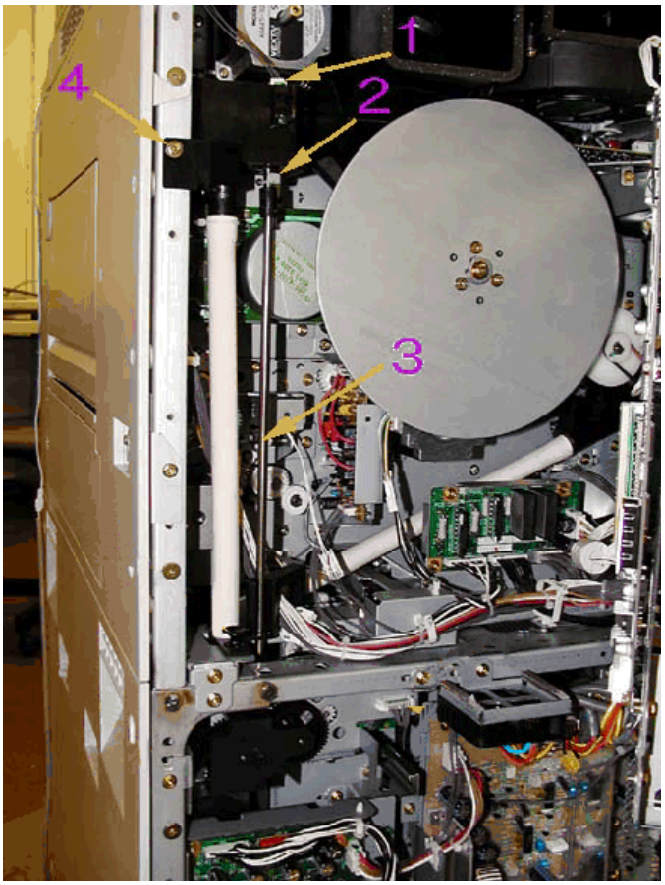
1. Turn off the main switch.
2. Remove the development unit (see B064/B065 Service Manual; Section 3.6.1 Development Unit Removal).
3. Replace the old toner supply unit (B0653110) with the new toner supply unit (B0653111) (2 screws).

NOTE: *Before installing the new toner supply unit [A], make sure that the development filter [B] is securely in place (surface is at or below the level of the development filter case [C]).*



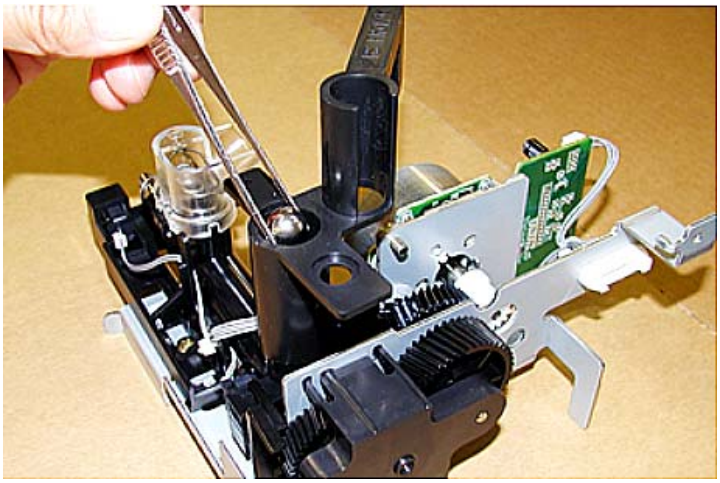
Replacing the Waste Toner Vertical Transport Unit:

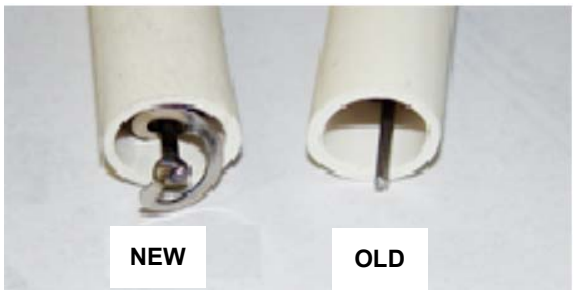
1. Disconnect the connector.
2. Remove the snap ring.
3. Remove the drive rod.
4. Replace the Waste Toner Vertical Transport Unit (install B0653554, 1 screw, 1 snap-fit).



5. Removing the Steel Ball:

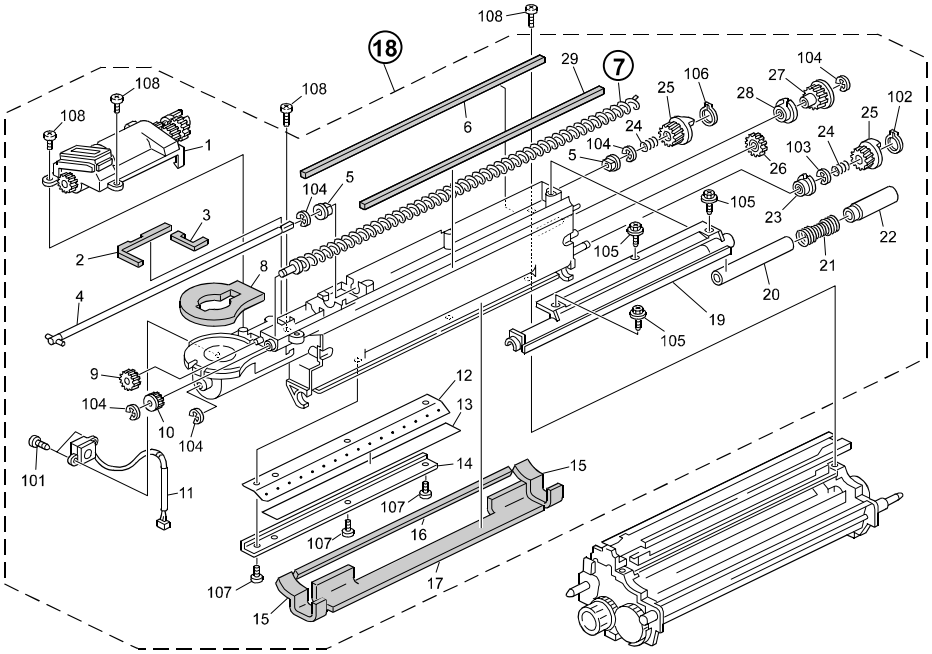
NOTE: *The length of the coil in the waste toner vertical transport unit has been increased as shown below. It is was necessary to remove the steel ball in the lower waste toner transport unit to prevent a loud noise that will occur if the coil contacts the ball.*

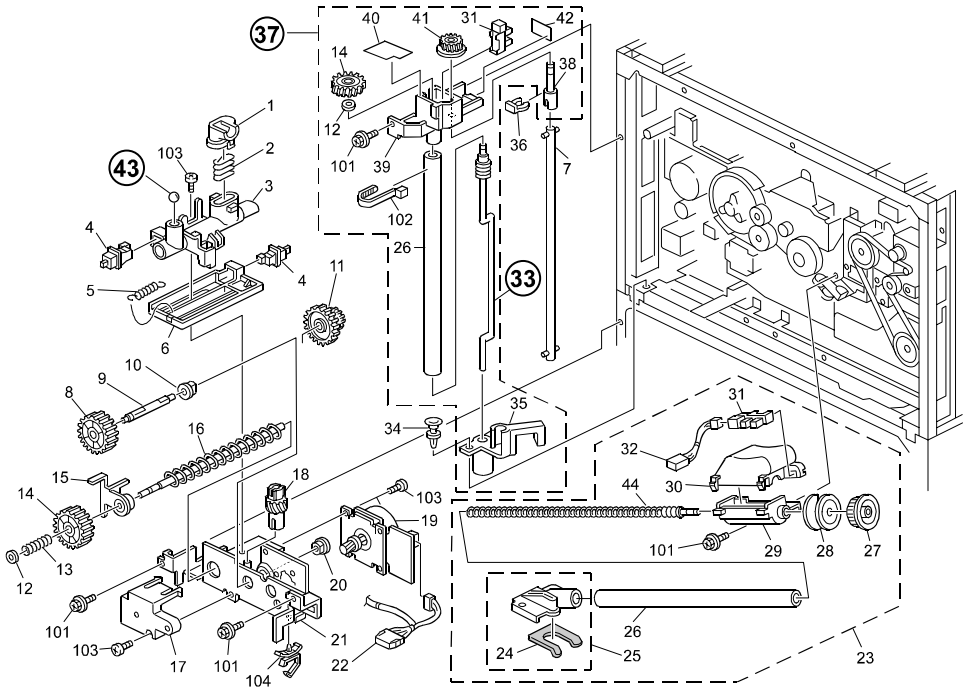




GENERAL:

The following parts have been changed to prevent the waste toner from clogging around the coils in the toner supply unit and toner collection assembly transfer area. The following parts updates are being issued for all B064/B065 Parts Catalogs.





					REFERENCE		
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**	**SETS**
B0653710	B0653720	Toner Collection Coil - Exit	1-1	3/S	77	7	**As Set**
B0653638	B0653670	Transport Screw	1-1	3/S	123	33	
B0653110	B0653111	Toner Supply Unit	1-1	3/S	77	18	**As Set**
B0653551	B0653554	Toner Collection A'ssy - Transfer	1-1	3/S	123	37	
A0963736		Steel Ball - M11 (Removed)	1-0	--	123	43	----

NOTE 3: *Items #7 & 33 must be replaced as a set.*

NOTE 4: *Items #18 & 37 must be replaced as a set.*

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style coils installed and the steel ball removed installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002	J4225700571
Ricoh Aficio 1075 Savin 2575 Gestetner 7502	J4325800001

★ ALLOCATION:

Ricoh Corporation will provide 100% of the modified replacement parts for field machines at each authorized service location. Replacement parts will also be available separately for procurement through normal parts ordering procedures.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 016 **01/15/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TONER SPILL FROM THE DEVELOPMENT FILTER

SYMPTOM:

The toner may spill from the development filter section.

CAUSE:

A gap between the Development Filter Case (A0963141) and the Development Filter (AA012060) allows toner to escape from the development unit and scatter inside the machine.

SOLUTION:

Production Countermeasure:

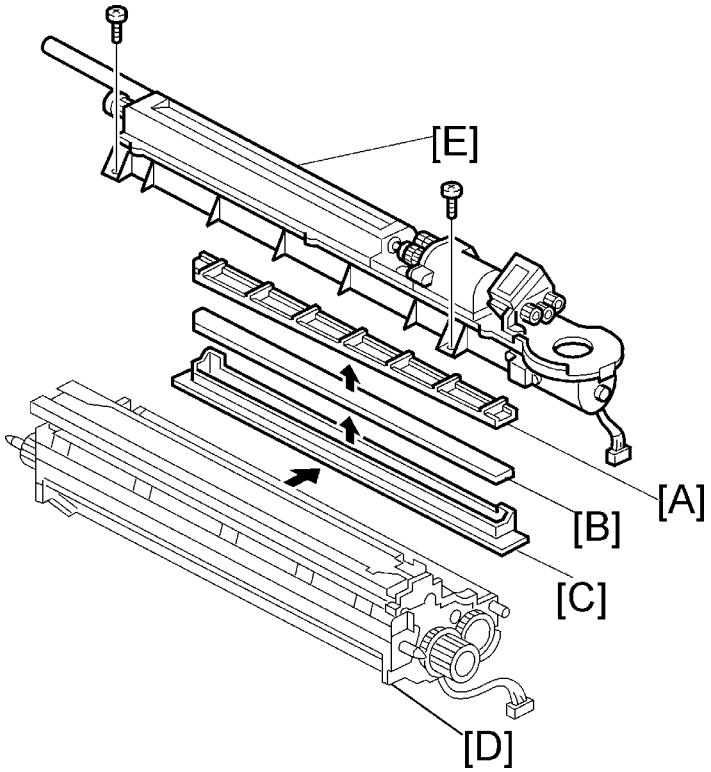
A Filter Plate (B0653108) has been added on top of the Development Filter to ensure the filter stays properly closed.

Field Countermeasure:

Whenever replacing the Development Filter, always make sure that the filter lies at or below the level of the surrounding casing. Add the new Filter Plate [A] on top of the Development Filter [B].

Installation Procedure:

1. Place the new Filter Plate [A] on top of the Development Filter [B] (in the Development Filter Case[C]).
2. Set the entire Development Filter Case Assembly [C] in the Development Unit [D]. The Development Guide Rail (B0653095) will then hold the new Filter Plate in place.



3. Attach the Toner Supply Unit [E], which will further secure the new Filter Plate in place.

Continued…

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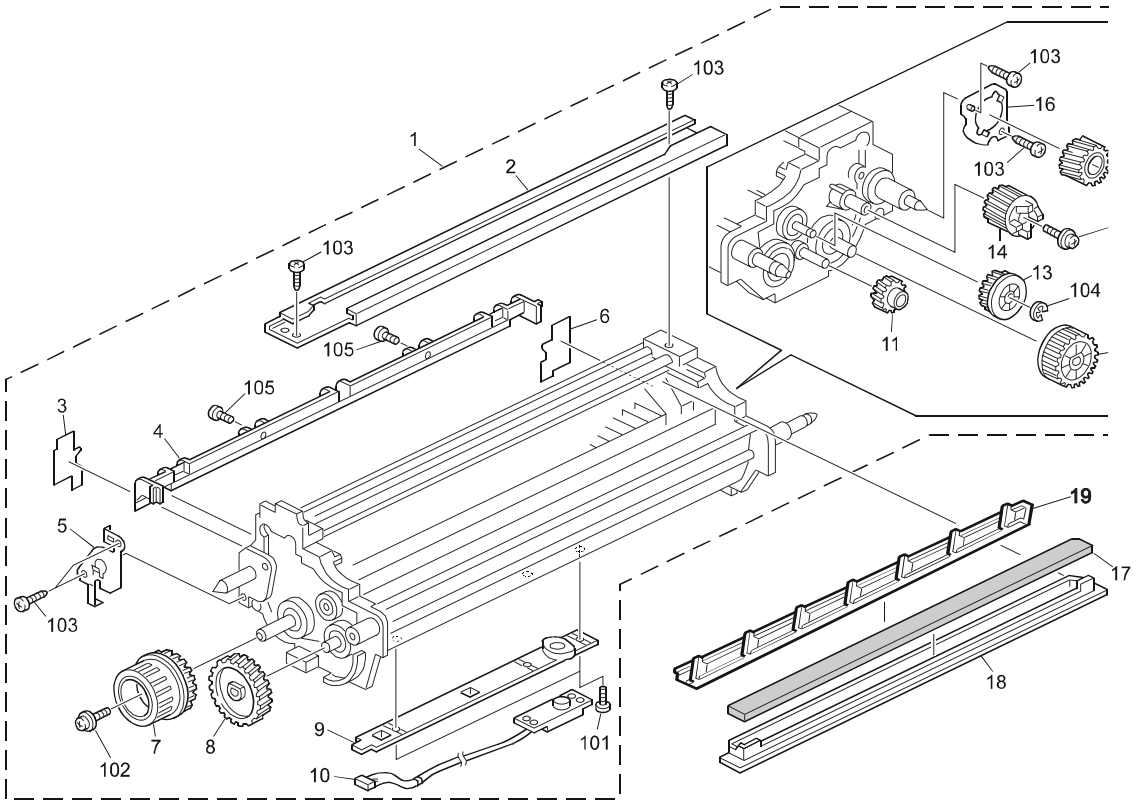
GENERAL:

The filter plate has been added to further ensure that toner does not leak out of the development unit. The following part update is being issued for all B064/B065 Parts Catalogs.



			REFERENCE	
NEW PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0653108	Filter Plate	1	79	19*

*** DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new filter plate installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Ricoh Aficio 1060 Savin 2560	J4225700571
Gestetner 7502 Ricoh Aficio 1075 Savin 2575	J4325700710

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 016 REISSUE ★ **04/03/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: TONER SPILL FROM THE DEVELOPMENT FILTER

SYMPTOM:

The toner may spill from the development filter section.

CAUSE:

A gap between the Development Filter Case (A0963141) and the Development Filter (AA012060) allows toner to escape from the development unit and scatter inside the machine.

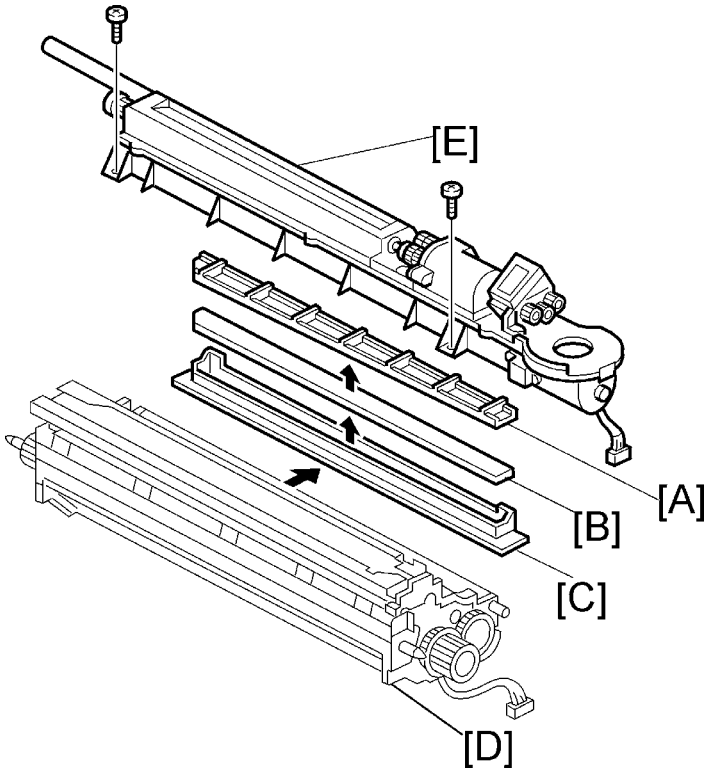
SOLUTION:

Production Countermeasure:

A Filter Plate (B0653108) has been added on top of the Development Filter to ensure the filter stays properly closed.

Field Countermeasure:

Whenever replacing the Development Filter, always make sure that the filter lies at or below the level of the surrounding casing. Add the new Filter Plate [A] on top of the Development Filter [B].



Installation Procedure:

1. Place the new Filter Plate [A] on top of the Development Filter [B] (in the Development Filter Case[C]).
2. Set the entire Development Filter Case Assembly [C] in the Development Unit [D]. The Development Guide Rail (B0653095) will then hold the new Filter Plate in place.
3. Attach the Toner Supply Unit [E], which will further secure the new Filter Plate in place.

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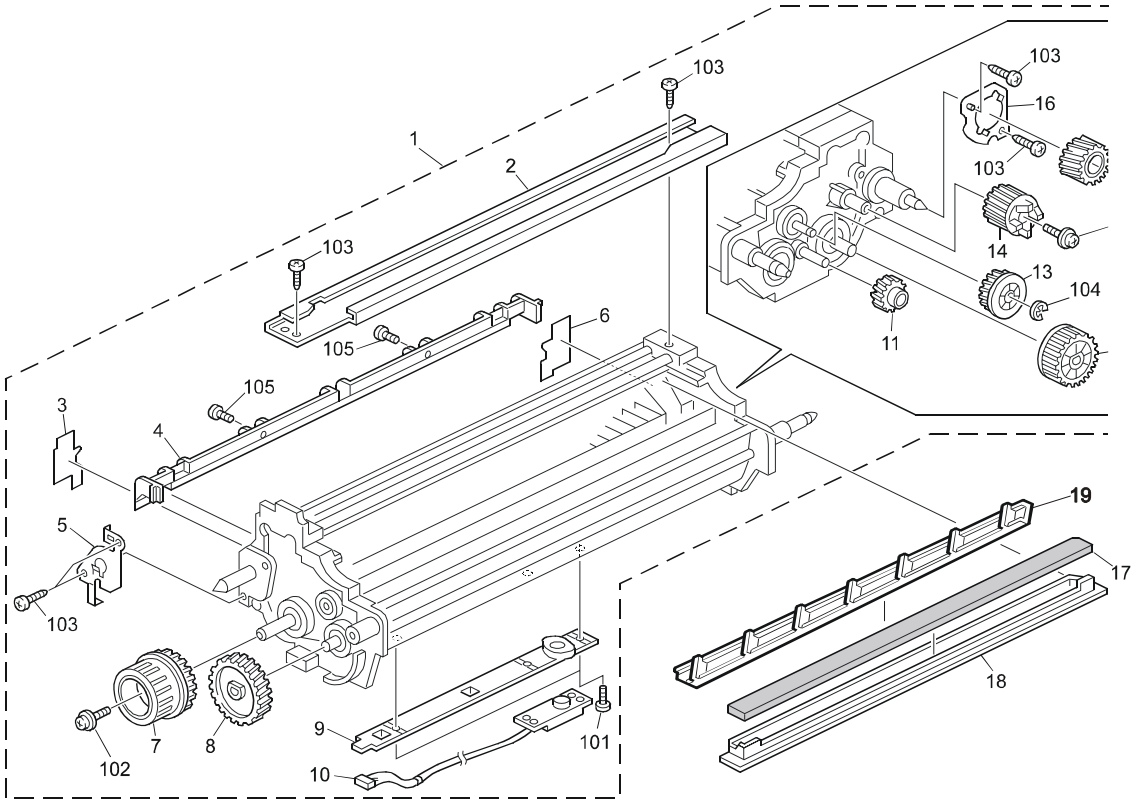
GENERAL:

The filter plate has been added to further ensure that toner does not leak out of the development unit.
The following part update is being issued for all B064/B065 Parts Catalogs.



			REFERENCE	
NEW PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0653108	Filter Plate	1	79	19*

*** DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new filter plate installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Ricoh Aficio 1060 Savin 2560	J4225700571
Gestetner 7502 Ricoh Aficio 1075 Savin 2575	J4325700710

★ ALLOCATION:

Each authorized servicing location will receive an automatic allocation of Filter Plates for 100% of the affected population.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 017 **01/17/2003**

APPLICABLE MODEL:
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

Note: This copy is intended as a master original for reproduction of additional bulletins.

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

An arrow has highlighted the revised areas ⇒.

PAGES:

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- 8 – 3 GW FIRMWARE MODIFICATION HISTORY
- 8 – 5 LCDC LANGUAGE FIRMWARE MODIFICATION HISTORY

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FIRMWARE HISTORY

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8.1.2 GW FIRMWARE MODIFICATION HISTORY ..... 8 - 3
8.1.3 LCDC FIRMWARE MODIFICATION HISTORY ..... 8 - 5

8. FIRMWARE HISTORY

8.1 FIRMWARE MODIFICATION HISTORY

- Please check the http://tsc.ricohcorp.com website for current firmware downloads.
- Accessory firmware modification history is provided in the appropriate accessory section of the service manual.

8.1.1 BCU FIRMWARE MODIFICATION HISTORY

BCU FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
1st Mass Production	B0655123 **E**	1st Mass Production	3.12a
⇒ With DF 2-sided scanning, the edge of the original is sometimes visible on the rear side of the copy when Create Margin shifts the image for stapling. When making duplex copies from the exposure glass, sometimes both the front and rear sides come out as the front side of the original. SC990 sometimes occurs at power ON. When the main power is turned on, SP1902-002 sometimes changes to an illegal value, and the Fusing Web End condition occurs much earlier than normal. SC345 sometimes occurs during the initial paper feed just after the main power is turned on, or at the end of a job while making the ID sensor pattern. This version supports the Key Card, when used in combination with GW firmware 1.12. Software modified to minimize developer carrier scattering. Development bias output maximum changed from 900V to 800V. SP2970 was not triggered when occurrence conditions were present. Change in specification: Fusing Web End. 1. Web End detection priority given to the web end sensor (previously, SP1902 value had priority). 2. Near End now triggered at 80% (previous: 90%), and the default for SP1902-001 has been changed to 80% accordingly. Setting range for SP2912-001 changed from 0-10 to 1-3.	B0655123 **F**	Sept. '02 Production	3.14e

…Continued

BCU FIRMWARE MODIFICATION HISTORY

BCU FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
⇒ When copying originals for reduction through the DF with nearly 100% image area coverage, part of the trailing edge shows dirtying.	B0655123 **G**	Sept. '02 Production	3.16b
SC181 occurs when the DF is opened and the main power is turned on with a specific timing.			
SC184 does not occur when the CIS harness is disconnected.			
When a 1-page, non-stapling printing job is sent in between two stapling jobs, it is stapled along with the following (2nd stapling) job.			
SC335/337 occur when BCU board warm-up is performed at a specific point (timing).			

8.1.2 GW FIRMWARE MODIFICATION HISTORY

GW FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
1st Mass Production	B0655102 **E**	1st Mass Production	1.11
R9 jams (B478 Finisher) were displayed as R7 jams. At the completion of Document Box scanning, a message was sometimes displayed asking the user to remove the paper from the Finisher tray. SC870 occurs after multiple groups are selected and assigned a number in the address book programming screen. SC819 occurs if "Continue to Program" is performed 196 times in the address book programming screen. After the main power comes on with the Weekly Timer, and the Access Code screen prompts the user for code entry, the screen can be cleared by simply opening and closing the cover. "Bond Paper" does not appear as a selection for Tray 1 or the LCT in User Tools – System Settings – Tray Paper Setting. The machine serial number is not displayed with SC error codes. Setting range for SP5501: PM Alarm Level corrected from 0-255K to 0-9999K. SP2912-001 (Drum Reverse Rotation, Rotation Amount) default value changed from 2 → 3, setting range changed from 0-10 → 1-3. SP2210 (ID Sensor Pattern Interval) default value changed from 10 → 100. SP2201-001, 002, 003, 005 (Development Bias Adjustment) maximum setting changed from 900 → 800. SP2931/2/3/4/5/6-001 (Transfer Current On/Off Timing) default value changed from 0 → 20. SP2931/2/3/4/5/6-002 (Transfer Current On/Off Timing) default value changed from 0 → 15. SP1902-004 (Fusing Web Motor Control, Web Near End Value) default value changed from 90 → 80. SC990 sometimes occurs if the signal timing during scanning and printing causes a delay in the scanning process. Firmware modified so that when "2: Europe" is selected in SP5131 (Paper Size Type Selection), it is possible to select F-sized originals in User Tools – System Settings – General Features.	B0655102 **E**	Aug. '02 Production	1.12.2 …continued

GW FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
Supports the Key Card, when used in combination with GW firmware 1.12. Changes made to support the Key Card, as per field request: ● "Key Counter" changed to "Key Card" in UP Mode display. ● Use of the Interleaf function is allowed when "Key Card" is selected (SP mode). ● Automatic jam when counter reaches 0 has been disabled, so that all remaining pages are printed out. ● The following 2 selections have been added to SP5113 (Optional Counter Type): 11: Exp Key Card (Add) 12: Exp Key Card (Deduct)			

8.1.3 LCDC FIRMWARE MODIFICATION HISTORY

LCDC LANGUAGE FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
1st Mass Production	B0655176	1st Mass Production	1.01
Display message in Printer mode changed: Old: “Quality of Print Sets” New: “Copies” Several French translations appeared for “Slip Sheet” and “Designate” (translations not consistent). Corrected French translation errors for several display messages. Display for “IEEE802.11” inside User Tools → System Settings → Interface Settings → Network was incorrectly displayed as “801.11”. Official Taiwanese translation set added. Official Russian translation set added.	B0655176 **A**	Aug. ‘02 Production	1.12

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 018 **01/17/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: TROUBLESHOOTING PAPER FEED JAMS

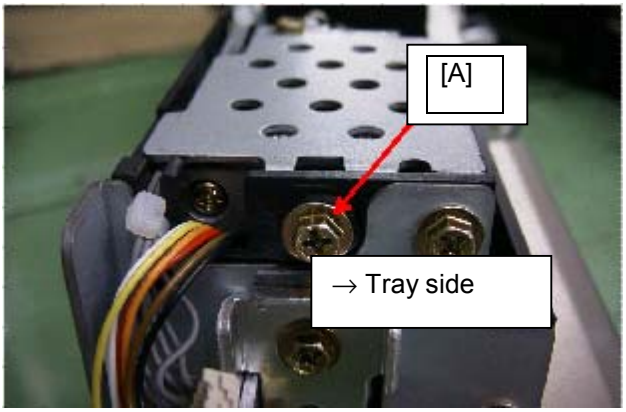
Note: This copy is intended as a master original for reproduction of additional bulletins.

GENERAL:

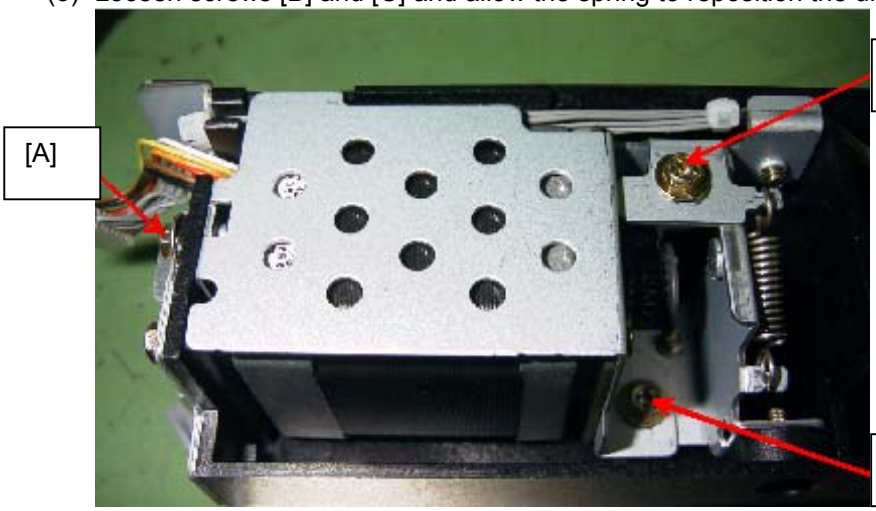
The following procedure has been created for troubleshooting paper feed jams. Please perform this procedure if jams have been logged in any of the following SP Modes: SP7504- 3, 4, 5, 8, 9, 10, 12, 53, 54, 55, 58, 59, or 60.

PROCEDURE:

1. If a paper jam occurs with a tray infrequently used (e.g. By-pass, Tray 2/3):
   - If the surface color of the pick-up, feed or separation rollers is lighter than those installed in more commonly used trays, replace the roller(s).
2. If noise is generated from the paper feed unit:
   - Adjust the timing belt tension as follows.
     (1) Remove the paper feed unit.
     (2) Loosen screw [A] and move the motor toward the tray. (See photograph below)



(3) Loosen screws [B] and [C] and allow the spring to reposition the unit. (See photograph below)



…continued

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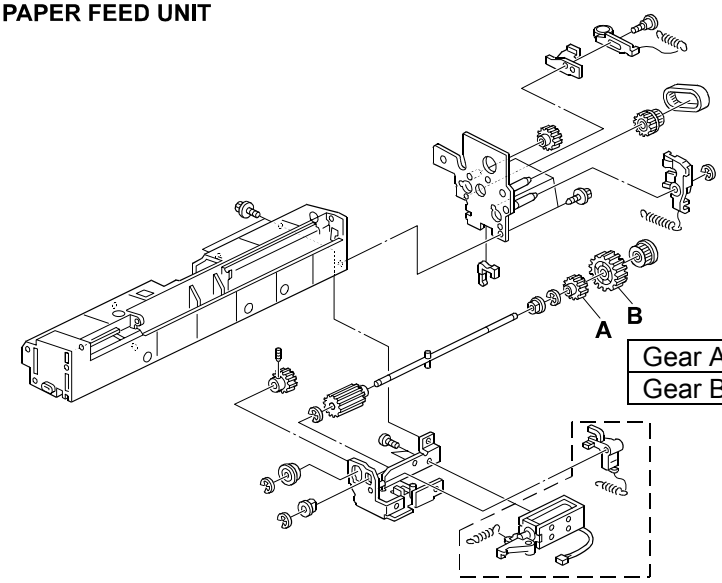
(4) Tighten screws [B] and [C]. (See photograph on page 1)

3. If neither Item 1 nor Item 2 above apply:
   (1) Using the following table, check the jam count values. For locations that show frequent occurrences, replace gears [A] and/or [B] below that contain the arrow shown in the "NG" illustration.

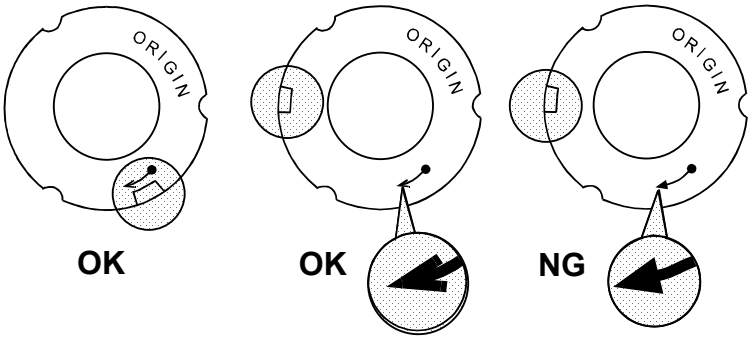
Tray	Jam 12	Jam 8	Jam 9	Jam 10
1st	Gear A	Gear B		
2nd		Gear A	Gear B	
3rd			Gear A	Gear B

   (2) Clean the shaft, and then replace the gear(s) as indicated in the table above.

PAPER FEED UNIT



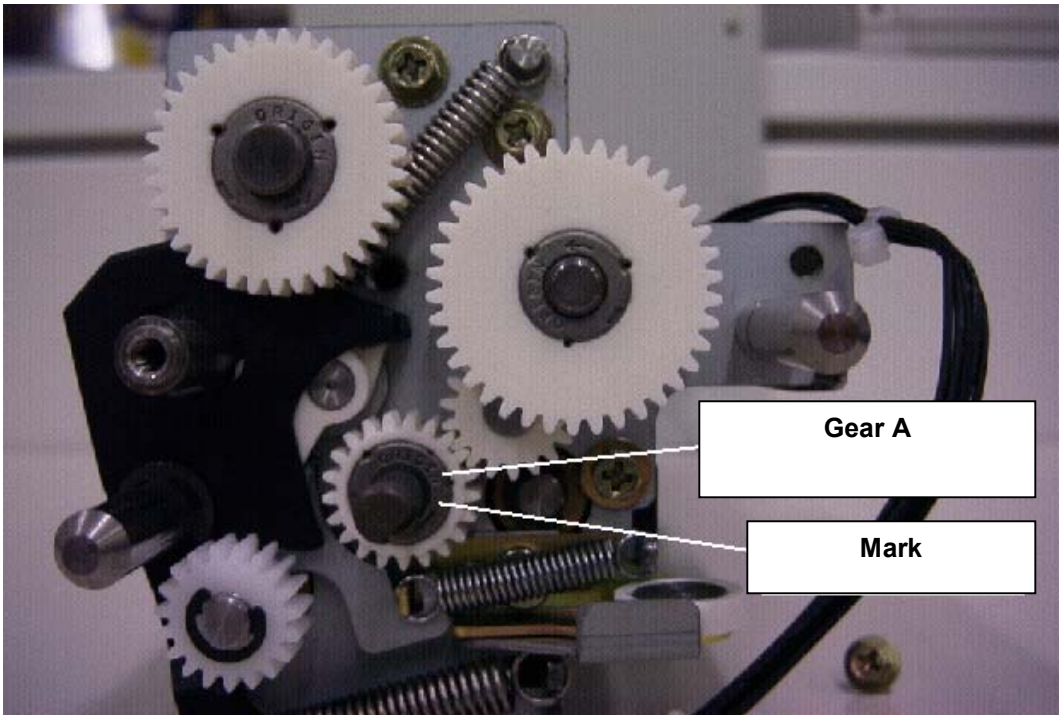
Gear A	AB011467	Gear-38Z
Gear B	AB011468	Gear-21Z

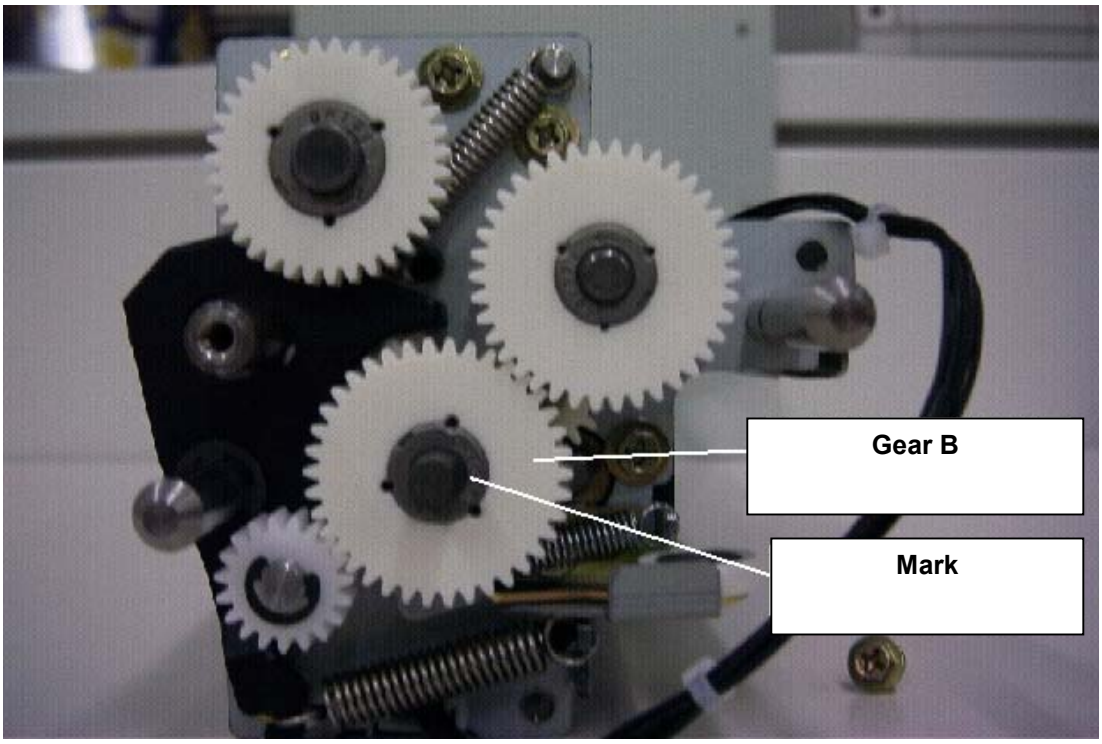


NOTE: Only replace gear(s) [A] and/or [B] if they contain the NG mark shown above (positioned as shown, with a solid triangular arrowhead ◀).

…continued

Caution: When replacing the gear, be sure to orient the side with the arrow mark (silver) outward.





Temporary Action for Item 3 only:

- If the gear above is not available for replacement, perform the following:
  (1) Remove the paper feed unit.
  (2) Remove the gear.
  (3) Clean the gear shaft and inside of the gear.
  (4) Reattach the gear.
  (5) Reattach the paper feed unit.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 018 REISSUE ★ **03/25/2003**

APPLICABLE MODEL

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: TROUBLESHOOTING PAPER FEED JAMS

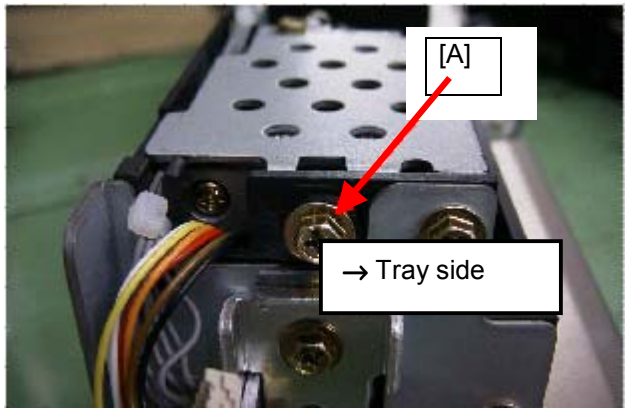
GENERAL:

The following procedure has been created for troubleshooting paper feed jams. Please perform this procedure if jams have been logged in any of the following SP Modes: SP7504 - 3, 4, 5, 8, 9, 10, 12, 53,54, 55, 58, 59, or 60. The illustration on page 3 has been changed. The gears in which the arrow position and cutout position match are OK, and those that do not match are NG.

PROCEDURE:

1. If a paper jam occurs with an infrequently used tray. (e.g. By-pass Tray):
   If the surface color of the pick-up, feed or separation rollers is lighter than those installed in more commonly used trays, replace the roller(s).

2. If noise is generated from the paper feed unit:
   Adjust the timing belt tension as follows:
   (1) Remove the paper feed unit.
   (2) Loosen screw [A] and move the motor toward the tray. (See photograph below)



Continued….

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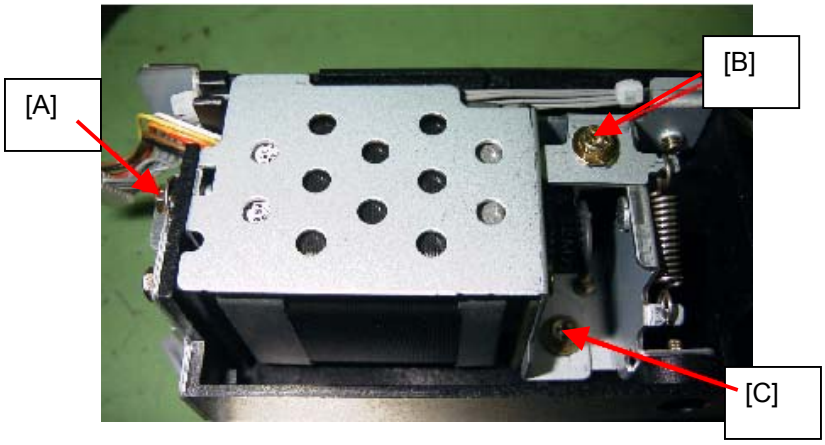
(3) Loosen screws [B] and [C] and allow the spring to reposition the unit. (See photograph below)



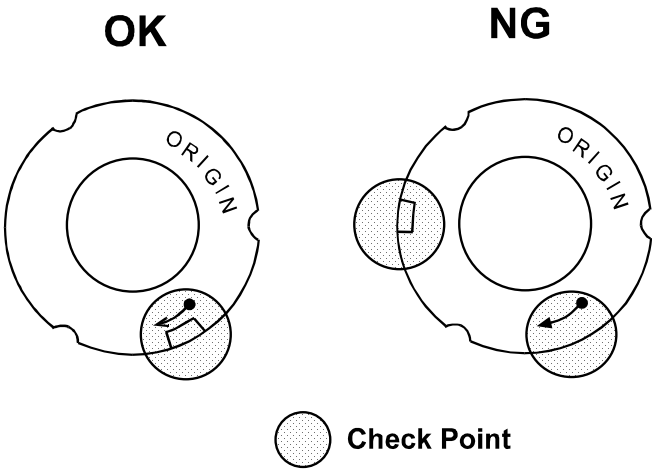
(4) Tighten screws [B] and [C]. (See photograph on page 1)

3. If neither Item 1 nor Item 2 above apply:

1) Using the following table, check the jam count values. For locations that show frequent occurrences, replace gears [A] and/or [B] below that contain the arrow shown in the "NG" illustration.

Tray	Jam 12	Jam 8	Jam 9	Jam 10
1st	Gear A	Gear B		
2nd		Gear A	Gear B	
3rd			Gear A	Gear B

2) Clean the shaft, and then replace the gear(s) as indicated in the table above.

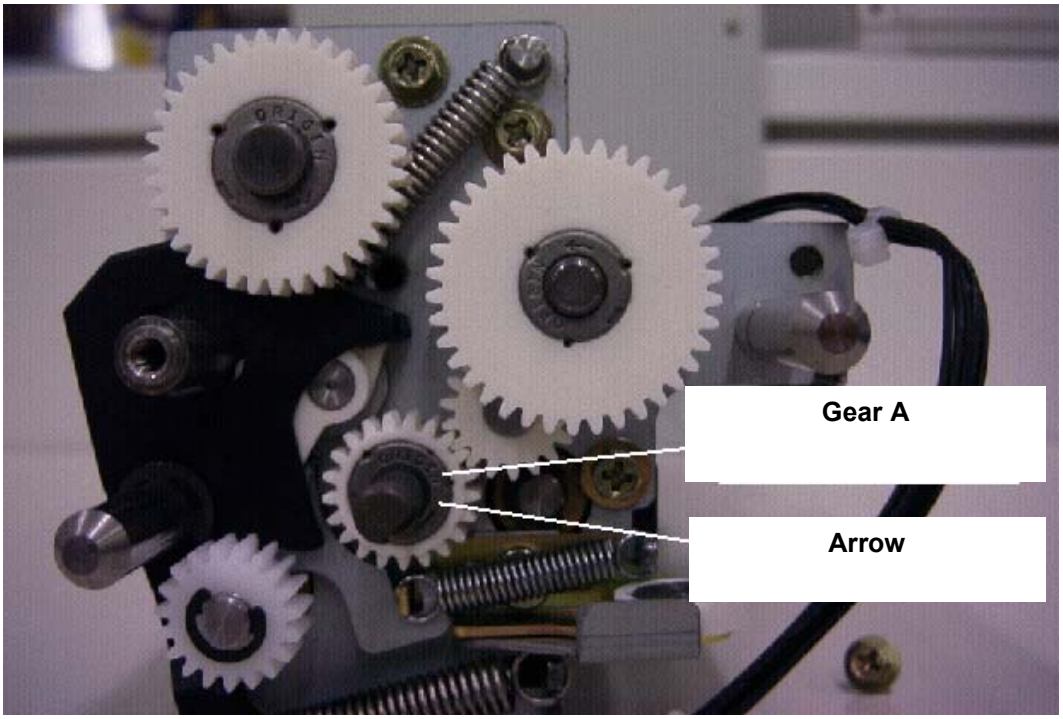


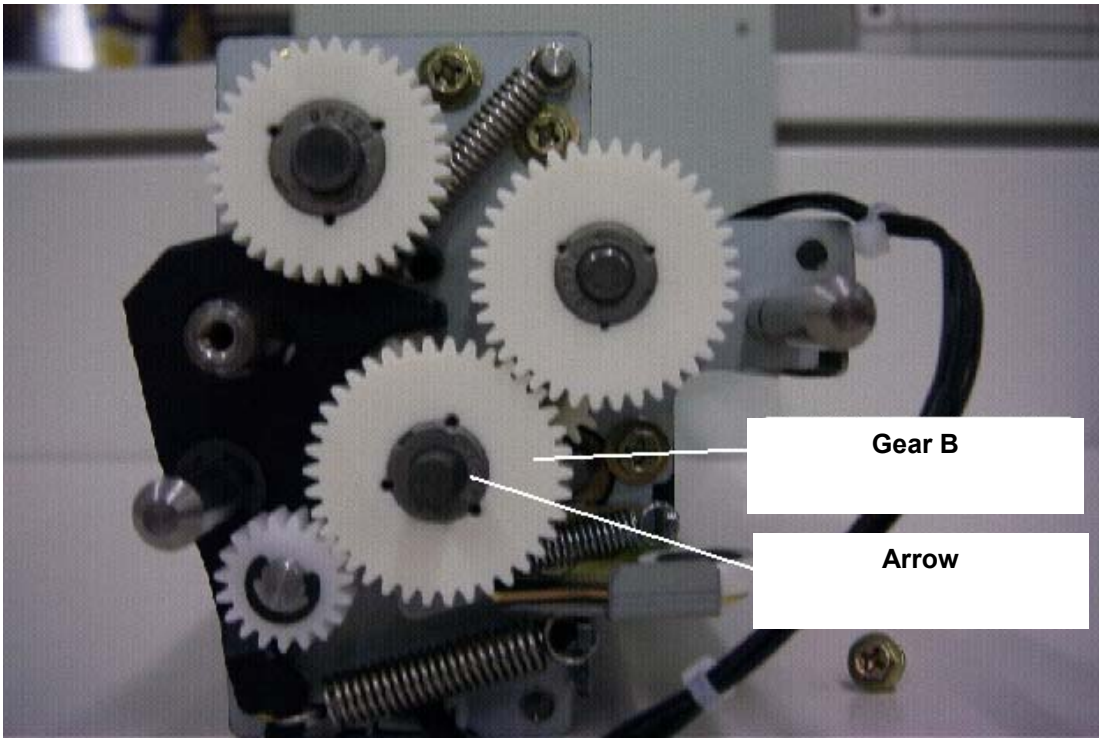
- *Which gears need to be replaced:*

As shown above, replace gears whose cutouts and arrows are in different positions.

Continued….

Caution: When replacing the gear, be sure to orient the side with the arrow mark (silver) outward.



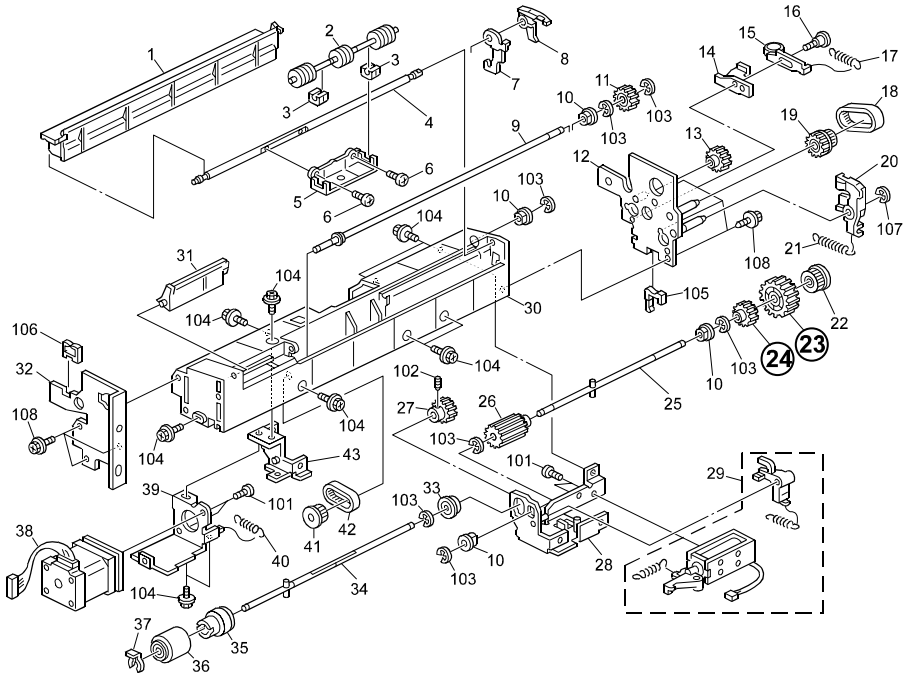


Temporary Action for Item 3 only:

- If the gear above is not available for replacement, perform the following:
  (1) Remove the paper feed unit.
  (2) Remove the gear.
  (3) Clean the gear shaft and inside of the gear.
  (4) Reattach the gear.
  (5) Reattach the paper feed unit.

Continued….

To ensure the one-way clutch gear does not slip, the following parts have been changed.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AB011467	AB011490	Gear - 38Z	1	1	65	23
AB011468	AB011491	Gear - 21Z	1	1	65	24

*** DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style one-way clutch gear installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Savin 2560	J4235100526
Gestetner 7502 Savin 2575	J4235100428
Lanier LD060	J4235100526
Lanier LD075	J4235100428
Ricoh Aficio 1060	J4235100526
Ricoh Aficio 1075	J4235100428

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 019 **01/23/2003**

APPLICABLE MODEL:

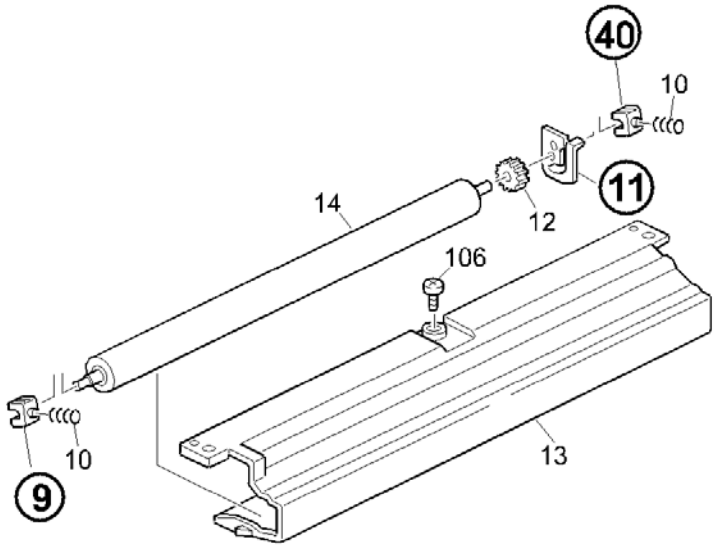
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: OIL SUPPLY ROLLER BUSHING and STOPPER BRACKET

GENERAL:

To prevent the Cleaning Web Pressure Roller from locking up, the Rear Oil Supply Roller Bushing and Stopper Bracket have been changed. The following parts updates are being issued for all B064/B065 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AE031026	→ AE031026	Bushing - Oil Supply Roller	2→1	-	95	9
	→ B0654210	Rear Bushing - Oil Supply Roller	1	3/S	95	40 *
B0654212	B0654209	Stopper Bracket	1	3/S	95	11

*** DENOTES NEW ITEM NUMBER**

NOTE: *Replace the Oil Supply Roller Rear Bushing and Stopper Bracket as a set.*

Continued…

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UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Rear Oil Supply Roller Bushing and Stopper Bracket installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002	J4225900493
Gestetner 7502	J4325900502
Ricoh AFICIO 1060	J4225900493
Ricoh AFICIO 1075	J4325900502
Savin 2560	J4225900493
Savin 2575	J4325900502

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 020 **01/29/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

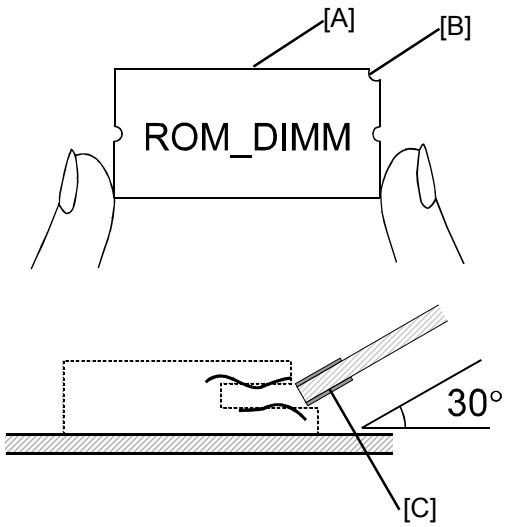
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: INSTALLATION NOTE FOR PRINTER/SCANNER DIMM

GENERAL:

Important Installation Note:

The following is the correct procedure for inserting ROM DIMMs to the controller board. Incorrect insertion can damage the controller board or cause a bad connection between the DIMM and controller contacts. If the upper contact is pressed in and bent, the resulting poor connection could cause the entire system not to operate.



Inserting the ROM DIMM:

1. Hold the ROM DIMM with the edge connector [A] pointing toward the slot and the notch [B] on the DIMM in the upper right-hand corner.
2. Insert the edge connector [C] into the slot at a 30-degree angle from the surface of the board.

NOTE: *If the angle is too low, the upper contact could bend.*

3. Move the outside edge of the ROM DIMM up and down slightly until it works into the connector, then gently press it down level with the controller board.

The above information is mentioned in the B064/B065 Service Manual (1.10.2) and on the sheet in the Printer/Scanner Kit. Normally, the controller cannot be damaged if the above procedure is followed correctly, however to further ensure damage does not result, the connector has been changed.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 021 **01/30/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: BLURRY COPIES AND VARYING REGISTRATION

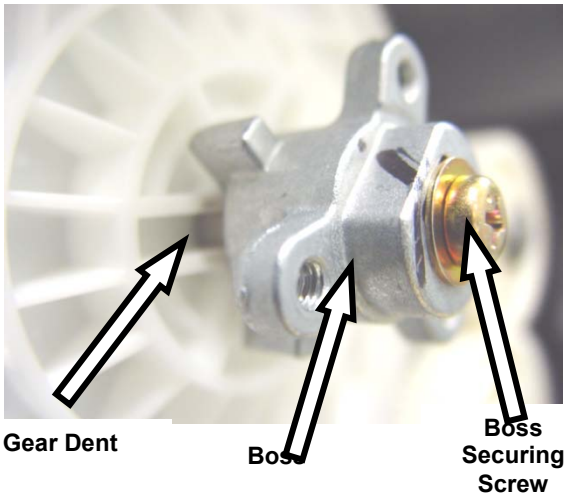
SYMPTOM:

The prints may appear blurry and the registration may also fluctuate.

CAUSE:

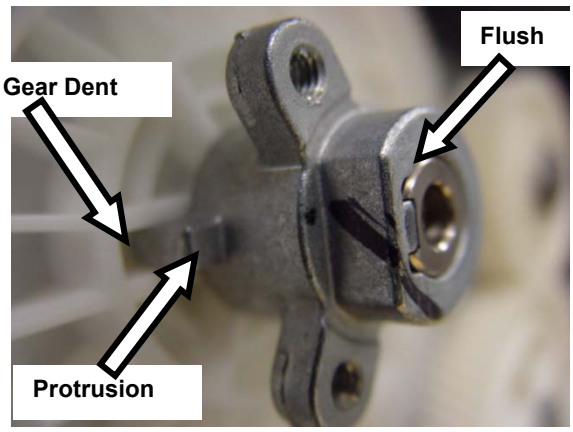
The boss (B0651145) may not be seated correctly in the gear dent (AB012315) as shown in the illustration to the right. This will cause drive to the drum unit to slip, resulting in blurry copies or paper jams. There are two primary causes.

1. The boss will slip due to its improper position
2. The screw may loosen, which will allow the boss protrusions to move out of the gear dents.



SOLUTION:

NOTE: *Lower the transfer belt unit and remove the drum assembly to prevent drum damage.*



1. Remove the rear cover.
2. Swing the controller board assembly out of the way (refer to SM PG. 3-105).
3. Remove the flywheel (A1341135).
4. Remove the boss securing screw (09515010B).
5. Reposition the drum drive shaft by turning it counterclockwise (as viewed from rear) until the three dents in the gear line up with the three protrusions on the boss.
6. Reseat the boss (which is keyed to the shaft) until it seats into the three dents of the gear and is flush with the end of the drive shaft.
7. Replace the boss securing screw, flywheel, controller board assembly, rear cover, drum assembly, and raise the transfer belt unit.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 022 **02/10/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: NEW WIRELESS LAN OPTION

GENERAL:

When installing the new Wireless LAN option (802.11b Interface Unit Type B: G515-17/EDP 405412, G515-27/EDP 405419) on machines produced before Nov '02, perform the following firmware upgrades.

Action Required:

The IC chip on the new wireless LAN option has been changed, making it necessary to update the GW controller firmware to v1.12.3 (B0655102G) or newer and the NIB/NetFile firmware to v3.55/v1.1.1 (B0655114E) or newer when installing the new wireless LAN option. This is because there is no interchangeability between the new option and previous controller firmware versions.

Since there is no interchangeability between the new option and previous controller firmware versions, the new firmware versions mentioned above will work with either the current or new wireless LAN options. Also, these new firmware versions have been applied to the production line from November '02

NOTE 1: *Both wireless LAN options are compatible with all versions of engine firmware.*

NOTE 2: *SC855 will occur if the new wireless LAN option is installed on a machine with controller firmware older than v3.55/v1.1.1.*

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 023 **02/10/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

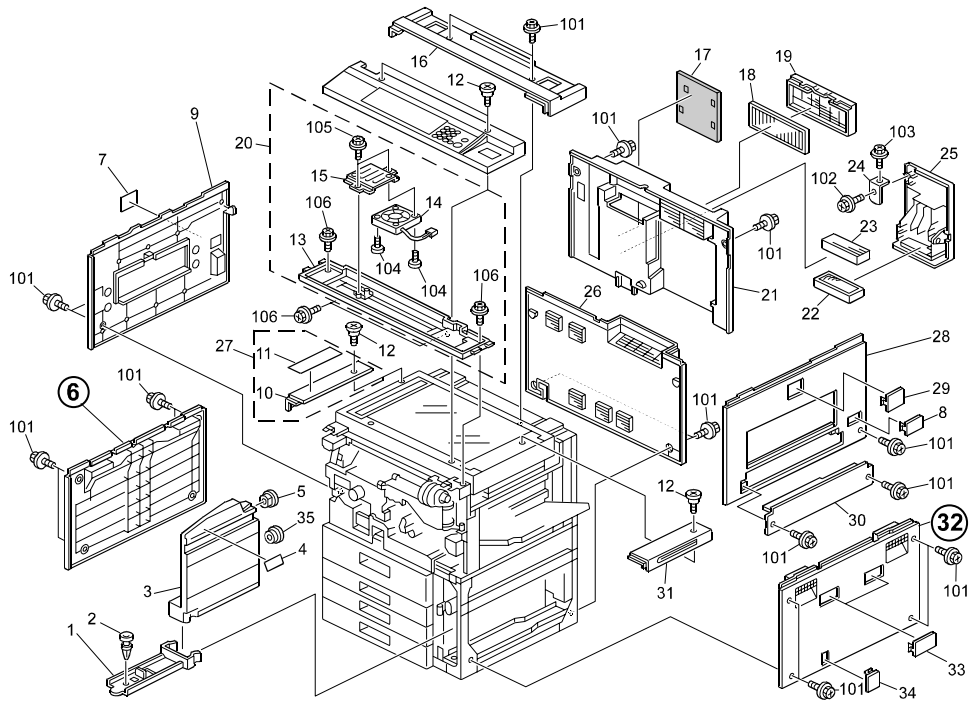
SUBJECT: PARTS CATALOG UPDATES

Note: This copy is intended as a master original for reproduction of additional bulletins.

GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs.

- **UPDATE 1:** **Covers –** The lower right and lower left covers have been changed to ensure they are not deformed from stress during shipping.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B0651306	B0651333	Lower Right Cover	1	1	17	32
B0651307	B0651334	Lower Left Cover	1	1	17	6

Continued…

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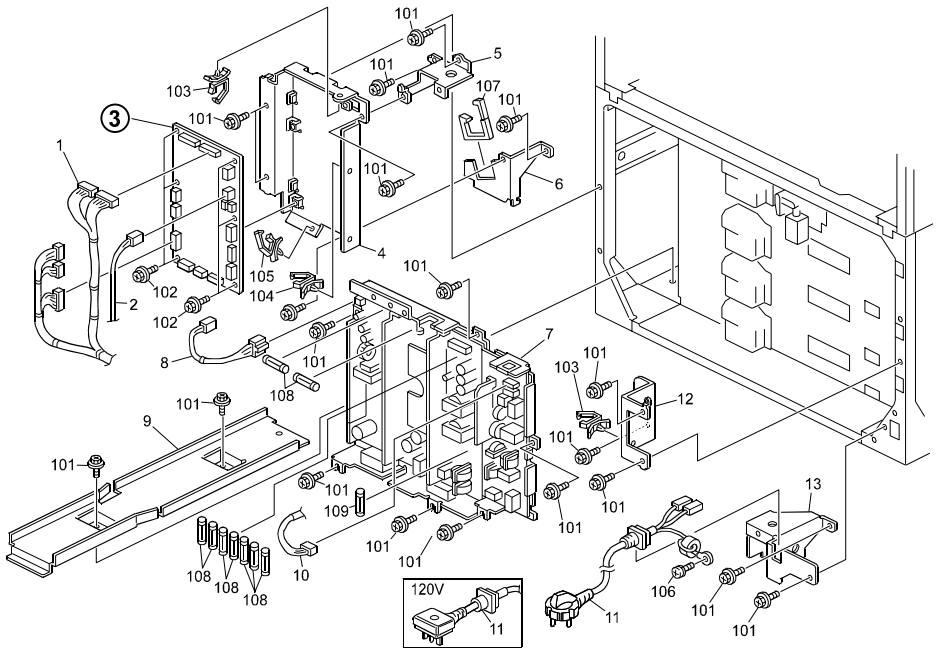
UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style lower right and left covers installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Savin 2560	J4225800532
Savin 2575 Gestetner 7502	J4325800519
Ricoh Aficio 1060	J4225800532
Ricoh Aficio 1075	J4325800519

- **UPDATE 2:** **PFC Board –** The software for the PFC Board has been changed for the following reasons:
  - To ensure the first tray lift motor does not over-run, which can cause jamming or skewing.
  - To ensure that paper in the right tandem tray is correctly detected.
  - To minimize occurrences of SC501/502/503.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B0655132	B0655139	PFC Board	1	1	133	3

Continued…

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new PFC Board installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Savin 2560	J4225500200
Savin 2575 Gestetner 7502	J4325500248
Ricoh Aficio 1060	J4225500200
Ricoh Aficio 1075	J4325500248

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 024 **02/10/2003**

APPLICABLE MODEL:

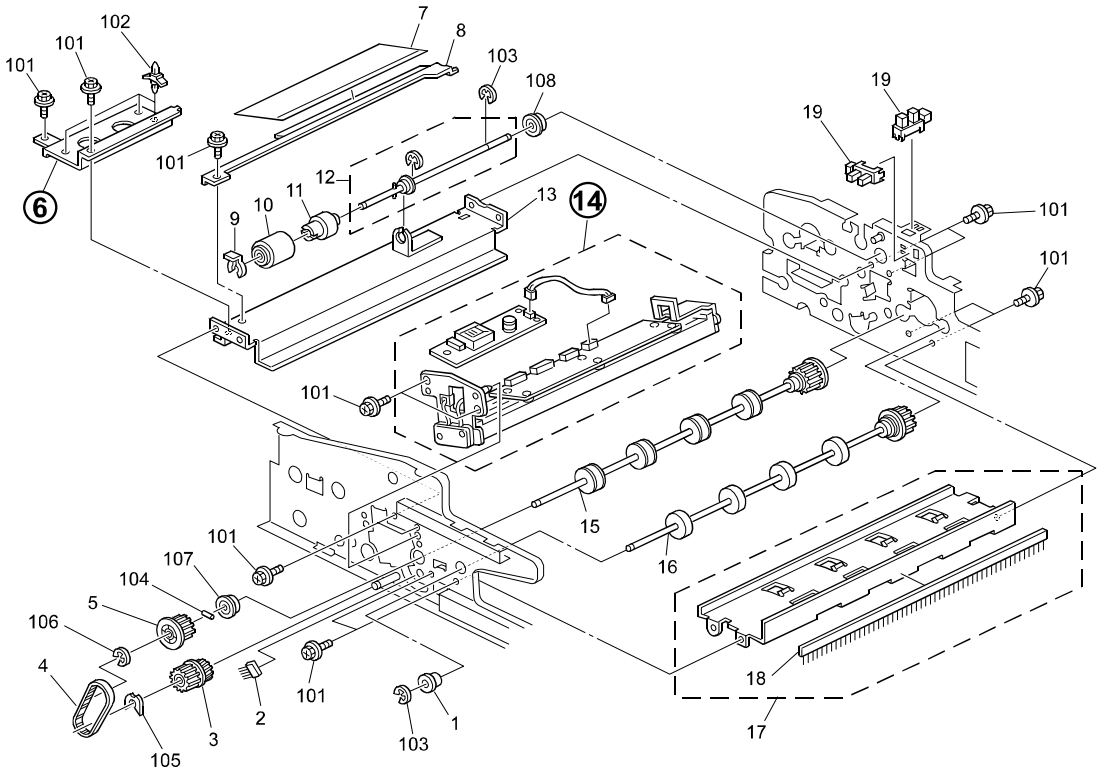
GESTETNER – 6002/7502
RICOH – 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: CIS INVERTER BRACKET

GENERAL:

The following have been changed to ensure that SC18x does not occur.
The following parts updates are being issued for all B064/B065 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B4773931	B4773933	CIS Inverter Bracket	1	3/S	33	6
B4775820	B4775830	Contact Image Sensor	1	3/S	33	14

Note: These parts must be replaced together as a set.

Continued…

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UNITS AFFECTED:

All B065/B065 copiers manufactured after the serial numbers listed below will have the new style CIS Inverter Bracket installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002r	J4225700456
Gestetner 7502	J4325700651
Ricoh Aficio 1060	J4225700456
Ricoh Aficio 1075	J4325700651
Savin 2560	J4225700456
Savin 2575	J4325700651

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 025 **02/10/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: FUSING WEB IS WRAPPED PREMATURELY

GENERAL:

Target machines:

BCU firmware v3.12, 9-bin Mailbox installed.

1. If SC550 occurs:

- Update to v3.14 or later, replace the Fusing Web and reset SP1902-001 to a value of 0.

2. If SC550 does not occur, but firmware is still at v3.12:

- Check the value of SP1902-002. If its default has not been changed (60cpm: 18, 75cpm: 15), simply update to v.314 or later.
- If the default has been changed, this means the web has been advanced prematurely at least once, so check the web itself and estimate the actual percent of web used. Input the estimated % into SP1902-001, then update to v3.14 or later.

3. If SC500 does not occur, but firmware has already been updated to v3.14 or later:

- Since the default for SP1902-002 has been set to its proper value with the firmware update, check the web itself and input the estimated value into SP1902-001 as described in #2 above.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 026 **02/12/2003**

APPLICABLE MODEL:
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: FIRMWARE MODIFICATION

Note: This copy is intended as a master original for reproduction of additional bulletins.

GENERAL:

The latest firmware version can be downloaded at the Technology Solution Center FTP Site http://tsc.ricohcorp.com. Be sure to check the README file for important notes and explanations.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM/Flash Card Exchange program.*

B064/BO65 GW FIRMWARE MODIFICATION			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
• Supports the new Wireless LAN option released in October 2002. • Default setting for DHCP changed to ***"ON"***.	BO655102 **G**	November 2002 Production	1.12.3

B064/BO65 LCDC/LANGUAGE FIRMWARE MODIFICATION			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
• Displays message in Printer Mode Changed: Old Message: "Quality of Print Sets" New Message: "Copies"	B0655176 **A**	August 2002 Production	1.12

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B064/BO65 NIB/NETFILE - BCU FIRMWARE MODIFICATION			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
• Change in Specification: 1. Changed the default setting of DHCP to **ON**. **NOTE:** *When upgrading to this version, the DHCP setting will only change to **ON** if it is manually set or a factory default clear is performed after update.* 2. TCP ports can be opened/closed. **NOTE:** *After performing the setting to disable HTTP, it is not possible to access the target device through the web browser. To change this setting, use telnet to open HTTP. When the telnet port is disabled, it is necessary to clear the network settings (Memory Clear for NCS) to open the telnet port.* 3. Supports new wireless LAN (IEEE802.11b). **NOTE:** *Since this is due to a vendor change, the new LAN cannot be used with suffix D firmware (1st Mass Production).*	B0655114 **E**	November 2002 Production	1.11

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 027 **02/25/2003**

APPLICABLE MODEL:
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

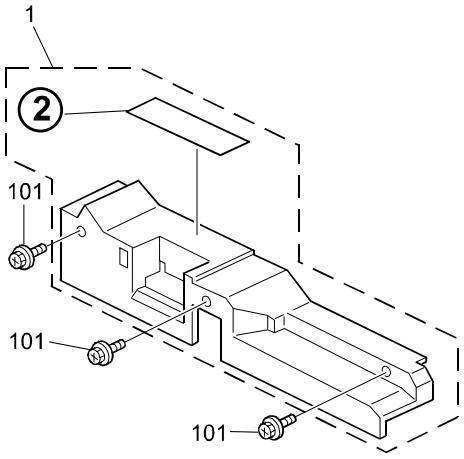
SUBJECT: PARTS CATALOG UPDATES - DECALS

GENERAL:

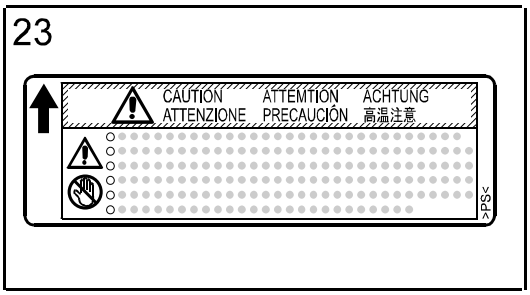
The following parts updates are being issued for all B064/B065 Parts Catalogs.

- **UPDATE 1:** **Duplex Caution Decal –** The following part has been changed due to the adding the Korean, Simplified Chinese, and Traditional Chinese languages:

PAGE 109



PAGE 175



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B0654798	B0654797	Caution Decal - Duplex	1	0	109 175	2 23

Continued…

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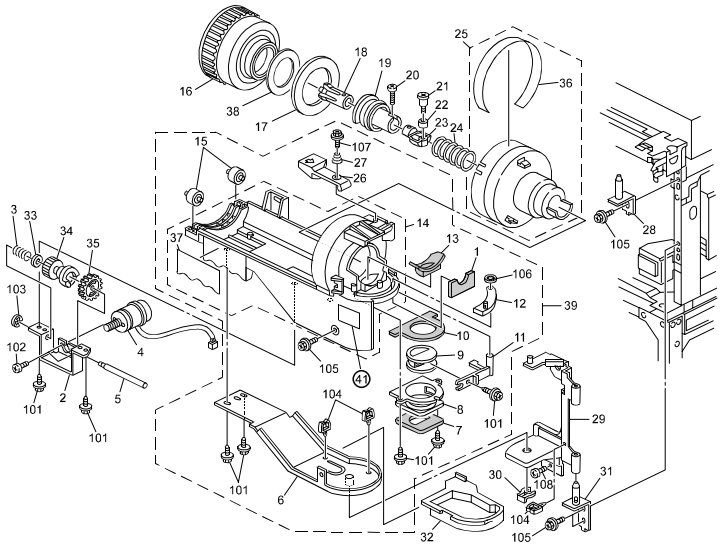
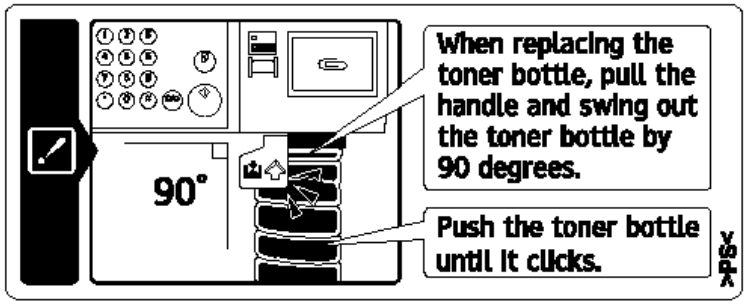
Page 75; Index 41

• UPDATE 2:

Toner Supply Decal – To ensure that the toner bottle is set correctly, a decal has been added.



Page 174; Index 45



			REFERENCE	
NEW PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0653342	**Decal - Toner Supply**	**1**	**75** **175**	**41*** **45***

*** DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

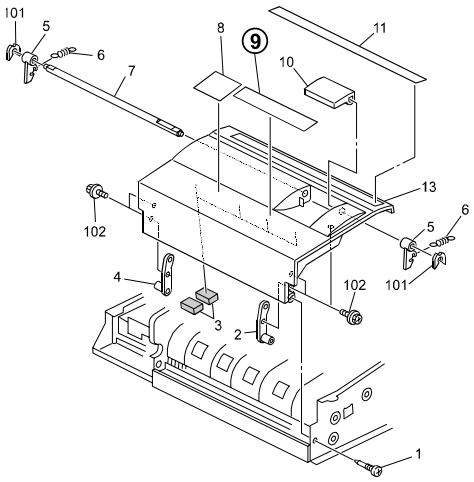
All B064/B065 copiers manufactured after the serial numbers listed below will have the new decal installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002	J4225600234
Ricoh Aficio 1075 Savin 2575 Gestetner 7502	J4325600292

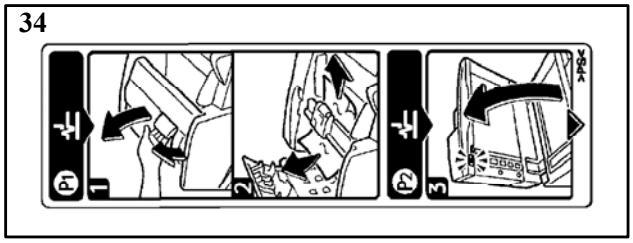
Continued…

- **UPDATE 3:** **Misfeed Removal Decal–** To ensure that operators do not bend the pick-up roller back to far when removing jammed originals, which can prevent the roller from returning to its default position, the instructions on the following decals have been changed.

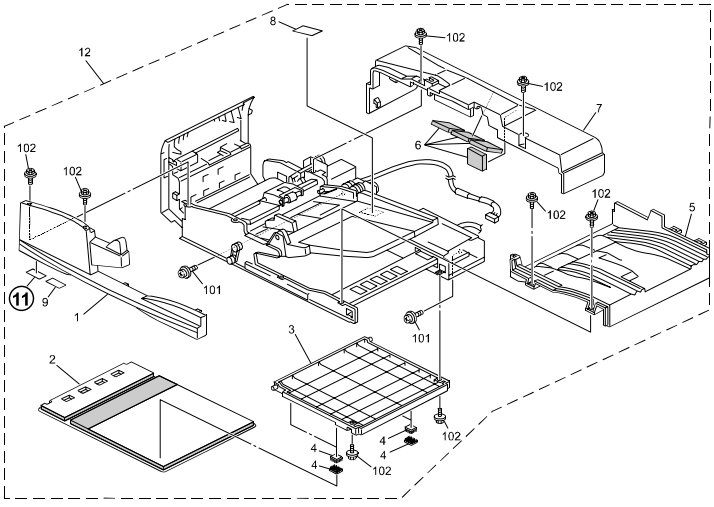
PAGE 27



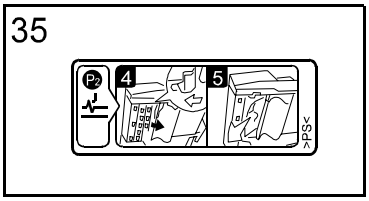
PAGE 175



PAGE 21



PAGE 175



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B4774351	B4774352	Decal - Misfeed Removal	1	3/S	27 175	9 34
B4774361	B4774362	Decal - Misfeed Removal - Exit	1	3/S	21 175	11 35

NOTE: *These parts must be replaced together as a set.*

Continued…

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new decal installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002	J4225600518
Ricoh Aficio 1075 Savin 2575 Gestetner 7502	J4325600292

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 028 **02/26/2003**

APPLICABLE MODEL:
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

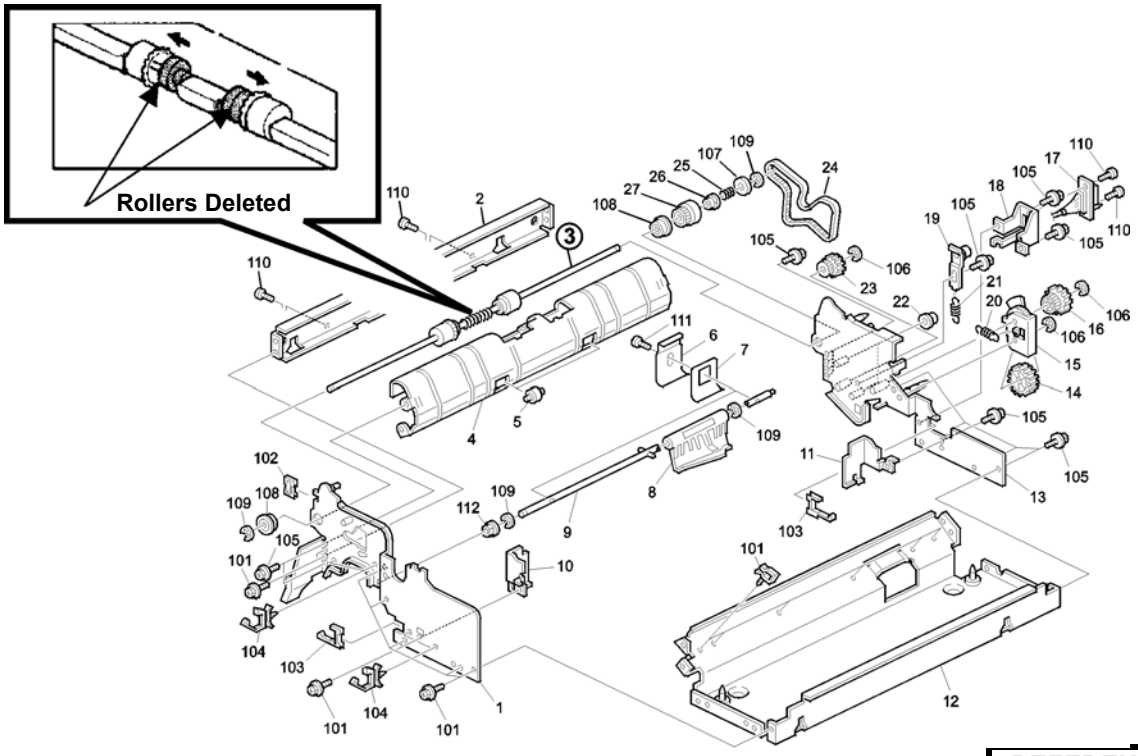
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs.

- **UPDATE 1:** **Exit Drive Roller –** Although used on previous models, the two plastic rollers in between the rubber exit drive rollers that give the paper added stiffness (optional tray) have been deleted, as they are not necessary for this model.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AF020508	AF020581	Exit Drive Roller	1	1	107	3

Continued…

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UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style exit drive roller installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002	J4225800595
Ricoh Aficio 1075 Savin 2575 Gestetner 7502	J4325800242

- **UPDATE 2:** **Fusing Hot Roller–** The hot roller has been changed to ensure that the adhesive between the surface layer and metallic core is applied evenly.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AE011069	AE011075	Hot Roller	1	1	99	23

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style hot roller installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002	J4225800629
Ricoh Aficio 1075 Savin 2575 Gestetner 7502	J4325800358

Continued…

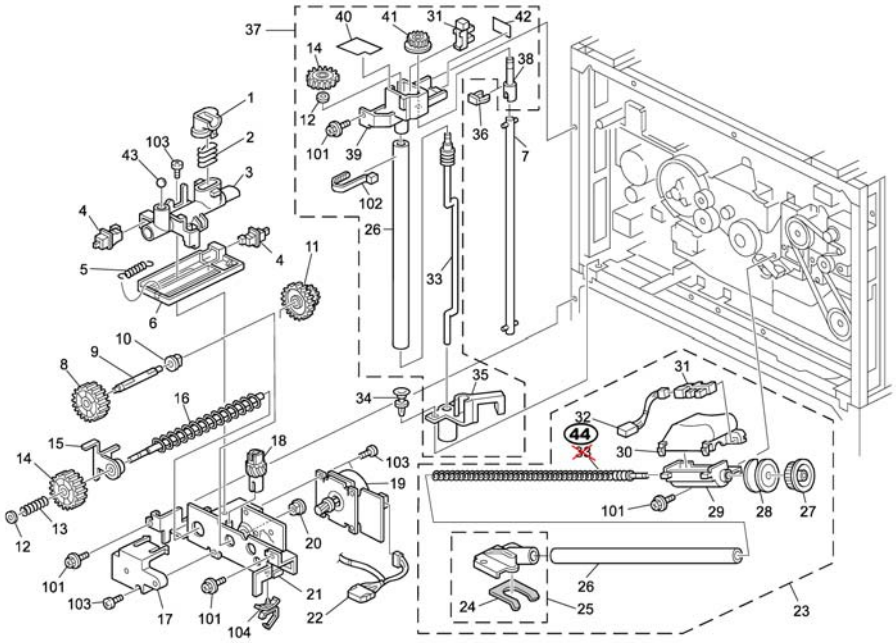
• UPDATE 3:

Gear 22z & Transport Screw –

1. The description in the parts catalog is incorrect for index # 41; page 123.
2. The index # 33 in the illustration should be index #44 please add the new item number and description to your parts catalog.

Page 123

Index No.	Part No.	Description	Q'ty Per Assembly
36	5447 2681	Snap Ring	1
37	B065 3551	Toner Collection Ass'y - Trasfer	1
38	B065 3604	Toner Separation Shaft	1
39	B065 3629	Toner Separation Case	1
40	B065 3636	Toner Collection Seal	1
41	B065 3645	~~Toner Collection Seal~~ **Gear - 22Z**	1
42	B065 3637	Seal - 40x68	1



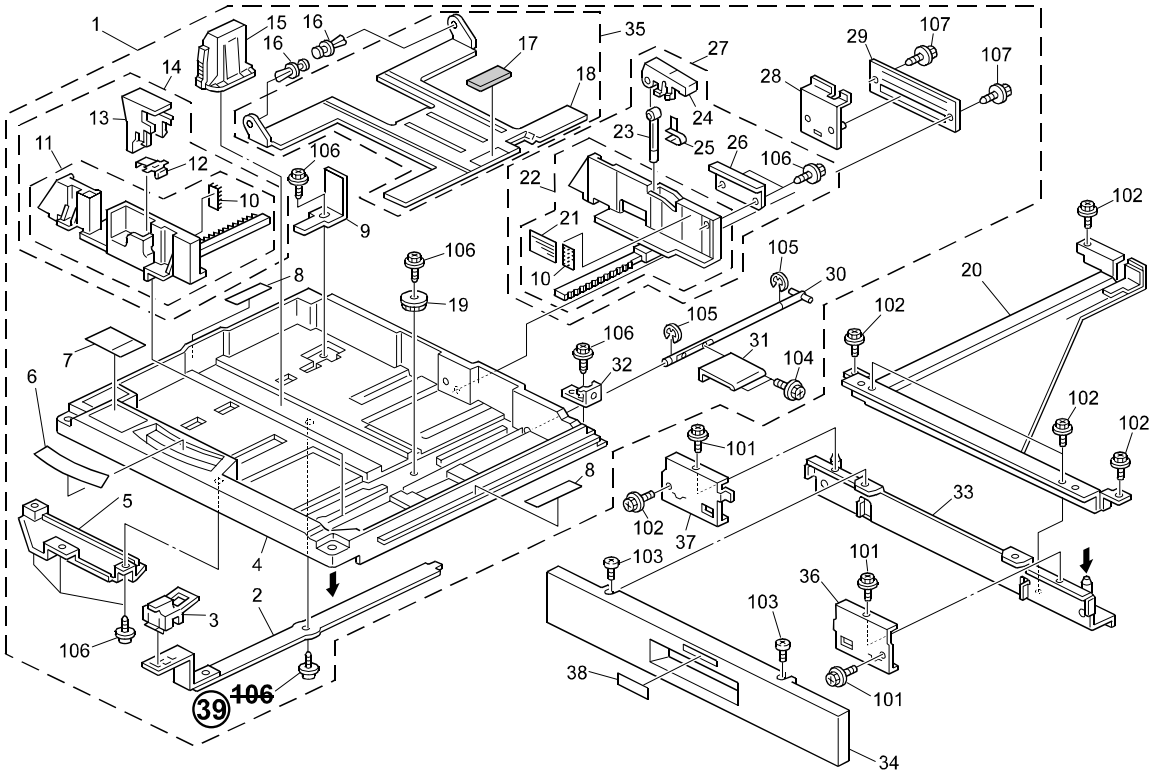
				REFERENCE	
PART NUMBER	**OLD DESCRIPTION**	**NEW DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0653645	Toner Collection Seal	Gear – 22Z	1	123	41

				REFERENCE	
NEW PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**	
B0653633	Transport Screw	1	123	44*	

*** DENOTES NEW ITEM NUMBER**

Continued…

- **UPDATE 4:** **Tapping Screw–** The tapping screw has been changed to ensure the screw head does not contact the paper tray holder base.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
04504008B		Tapping Screw - 4X8			59	106
	B0656579	Tapping Screw - M4X8	1	1	59	39

Continued…

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new tapping screw installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002	J4225901112
Ricoh Aficio 1075 Savin 2575 Gestetner 7502	J4325900839

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 029 **02/27/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

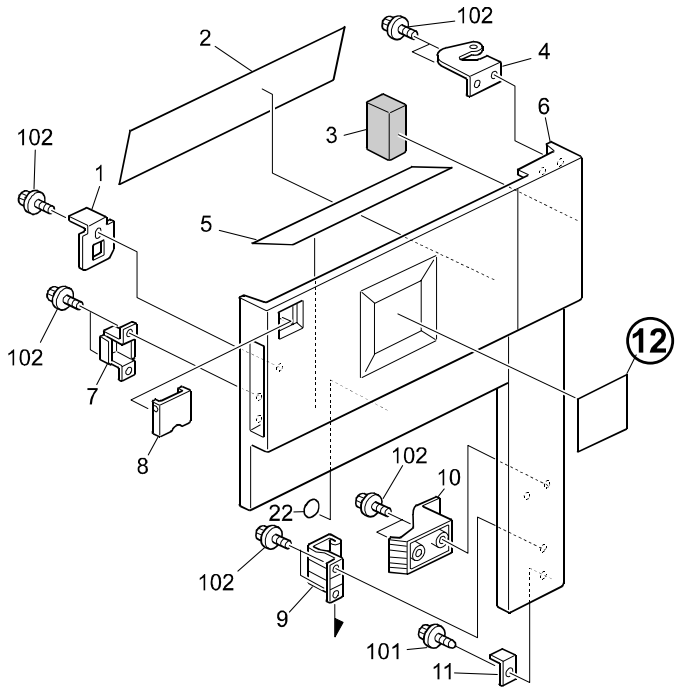
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs.

● UPDATE 1:

Model Name Plates – The model name plates were omitted from the parts catalog. Please add the new part numbers to your parts catalog.



			REFERENCE	
NEW PART NO.	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0647015	Model Name Plate - GES 6002	1	15	12*
B0647016	Model Name Plate - NSH 6005	1	15	12*
B0647017	Model Name Plate - REX 6008	1	15	12*
B0657015	Model Name Plate - GES 7502	1	15	12*
B0657016	Model Name Plate - NSH 7505	1	15	12*
B0657017	Model Name Plate - REX 7508	1	15	12*

***DENOTES NEW ITEM NUMBER**

Continued…

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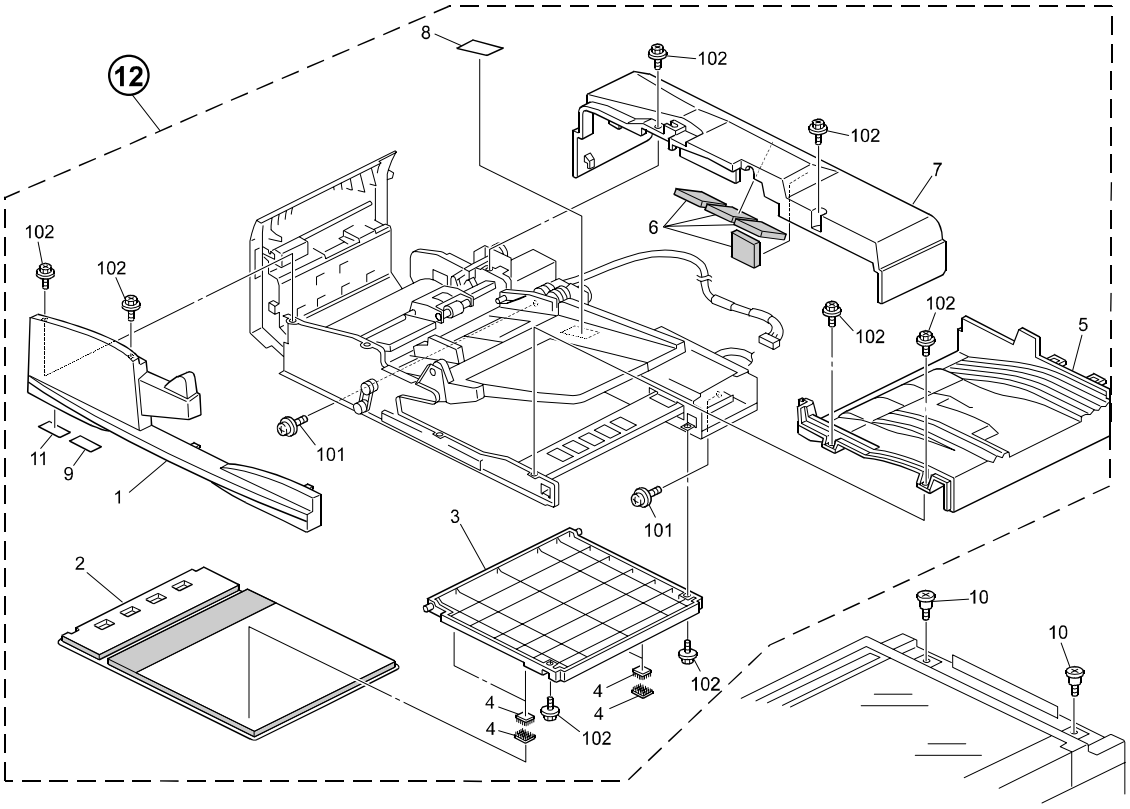
- **UPDATE 2:** **ADF Unit –** Please add the ADF Unit to your parts catalog.



			REFERENCE	
NEW PART NO.	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0657001	ADF Unit	1	21	12*

***DENOTES NEW ITEM NUMBER**

Continued…

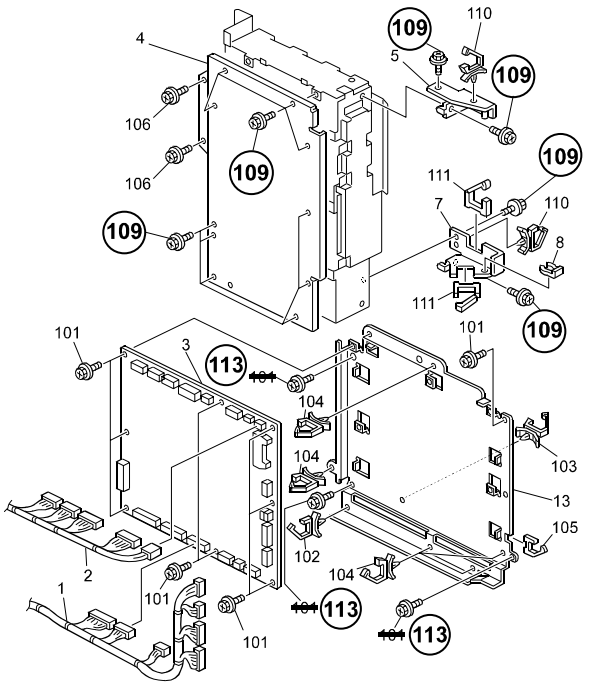
- **UPDATE 3:** **Description Change –** The description has change for item #1 (Operation Panel Ass'y) on page 19 of the parts catalog.

				REFERENCE	
PART NUMBER	**OLD DESCRIPTION**	**NEW DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0651406	Operation Panel Ass'y - LT	Operation Panel Ass'y - A4 (EU)	1	19	1
B0651404	Operation Panel Ass'y - A4	Operation Panel Ass'y - LT	1	19	1
B0651416	Operation Panel Ass'y - A4 (CHN9	Operation Panel Ass'y - A4 (CHN)	1	19	1

- **UPDATE 4:**

Screws:

1. The tapping screw M3x6 part number was incorrect on page 125 of the parts catalog.
2. Item #101 shown in the illustration has changed to Item #113 only for the following three screws.

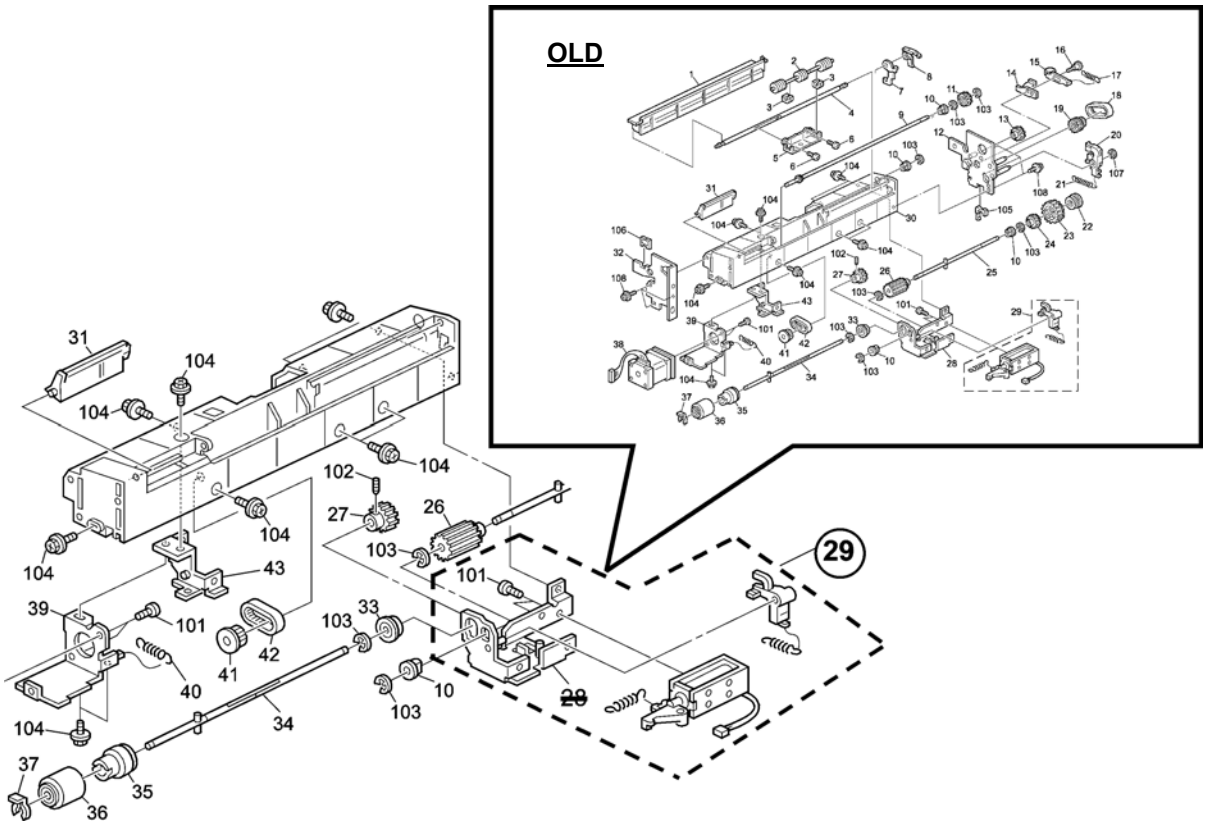


			REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**PAGE**	**ITEM**
04513006B	03603006B	Tapping Screw - M3X6	125	109

			REFERENCE	
PART NUMBER	**DESCRIPTION**	**PAGE**	**ITEM**	
			OLD	**NEW**
03603008B	Tapping Screw M3x8	125	101	113

Continued…

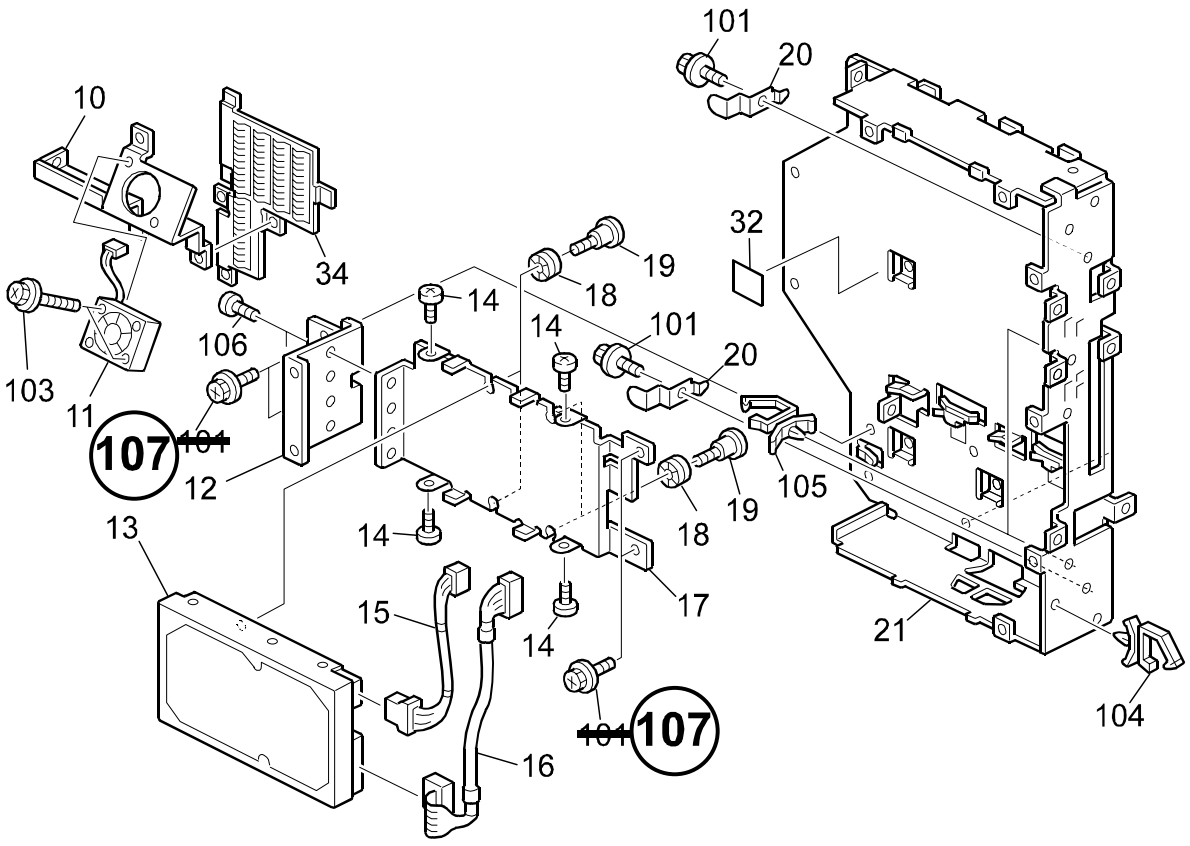
- **UPDATE 5:** **Reverse Roller-Pressure Release –** The illustration has changed for the reverse roller bracket section of the parts catalog. Refer to the illustration below. The reverse bracket has been deleted form the parts catalog, it is now included with Item number 29.



			REFERENCE	
PART NUMBER DELETED	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0656328	Reverse Bracket	1-0	65	28

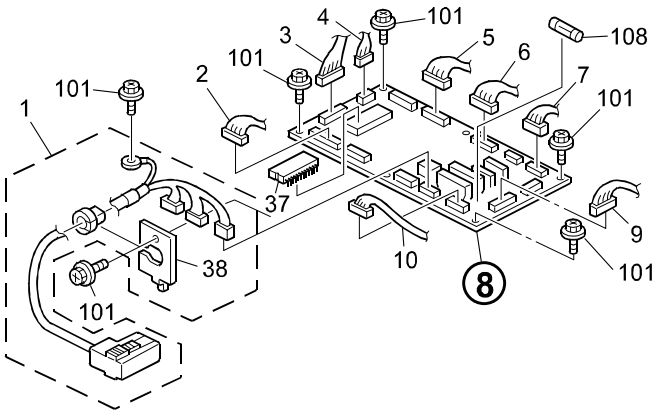
Continued…

- **UPDATE 6:** **Illustration Change–** The index number for two screws have change from 101 to 107. Refer to the illustration below.



Continued…

- **UPDATE 7:** **ADF Main Control Board –** The following has been changed to increase the latitude for compliance with EMI Standards.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B4775561	B4775571	ADF Main Control Board	1	0	39	8

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style ADF Main Control Board installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002	J4225700456
Ricoh Aficio 1075 Savin 2575 Gestetner 7502	J4325700651

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 030 **02/28/2003**

APPLICABLE MODEL:
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

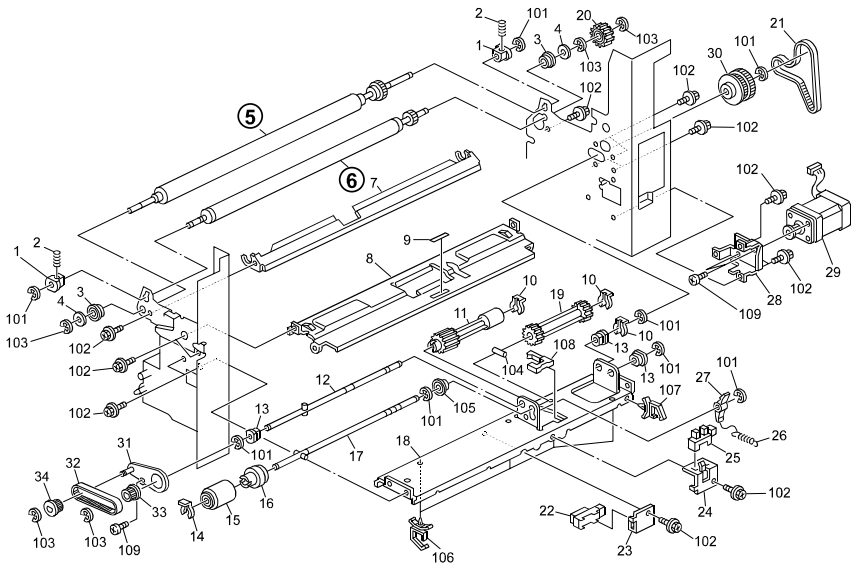
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs.

- **UPDATE 1:** **Upper & Lower Registration Rollers –** The Upper and Lower Registration Rollers have been changed to ensure that noise does not occur from the rollers. These parts should be changed as a set. Please update your B064/B065 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B0652613	B0652623	Upper Registration Roller	1	3/S	71	6
B0652617	B0652627	Lower Registration Roller	1	3/S	71	5

NOTE: *The new style Upper and Lower Registration Rollers should be replaced as a set..*

UNITS AFFECTED:

B064/B06 Serial Number cut-in was not available at time of publication.

Continued…

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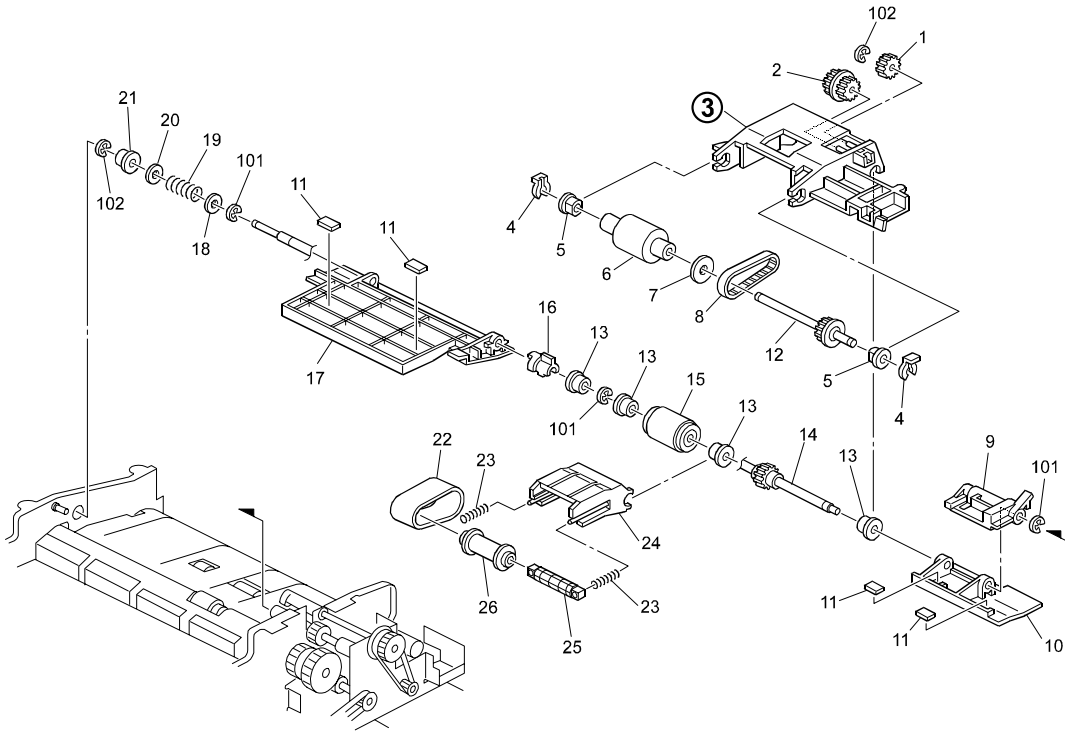
- **UPDATE 2:** **Pick-Up Roller Bracket–** To ensure that operators do not bend the Pick-Up Roller back to far when removing jammed originals, which can prevent the roller from returning to its default position, the shape of the Pick-Up Roller Bracket has been changed. Please update your B064/B065 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B4772221	B4772222	Pick-up Roller Bracket	1	1	25	3

UNITS AFFECTED:

B064/B06 Serial Number cut-in was not available at time of publication.

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 030 REISSUE ★ **03/27/2003**

APPLICABLE MODEL:

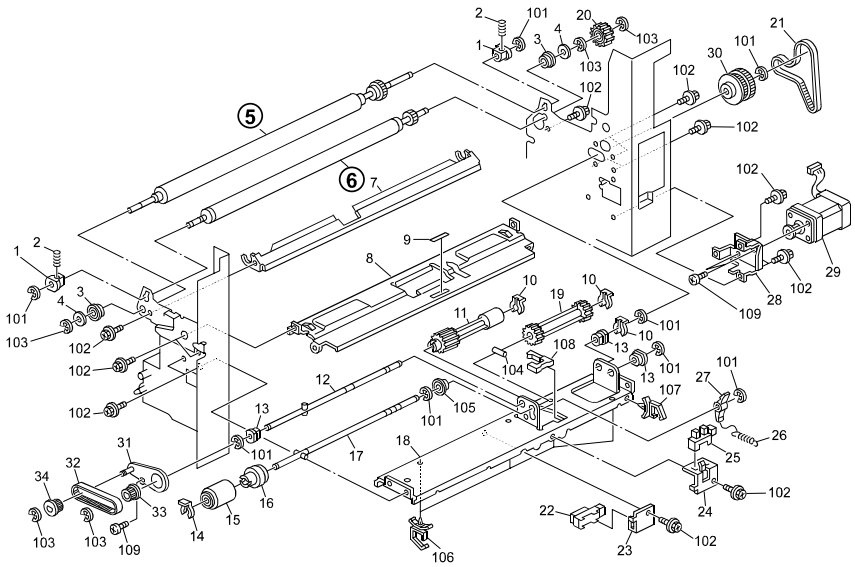
GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs.

- **UPDATE 1:** **Upper & Lower Registration Rollers –** The Upper and Lower Registration Rollers have been changed to ensure that noise does not occur from the rollers. These parts should be changed as a set. Please update your B064/B065 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B0652613	B0652623	Upper Registration Roller	1	3/S	71	6
B0652617	B0652627	Lower Registration Roller	1	3/S	71	5

NOTE: *The new style Upper and Lower Registration Rollers should be replaced as a set..*

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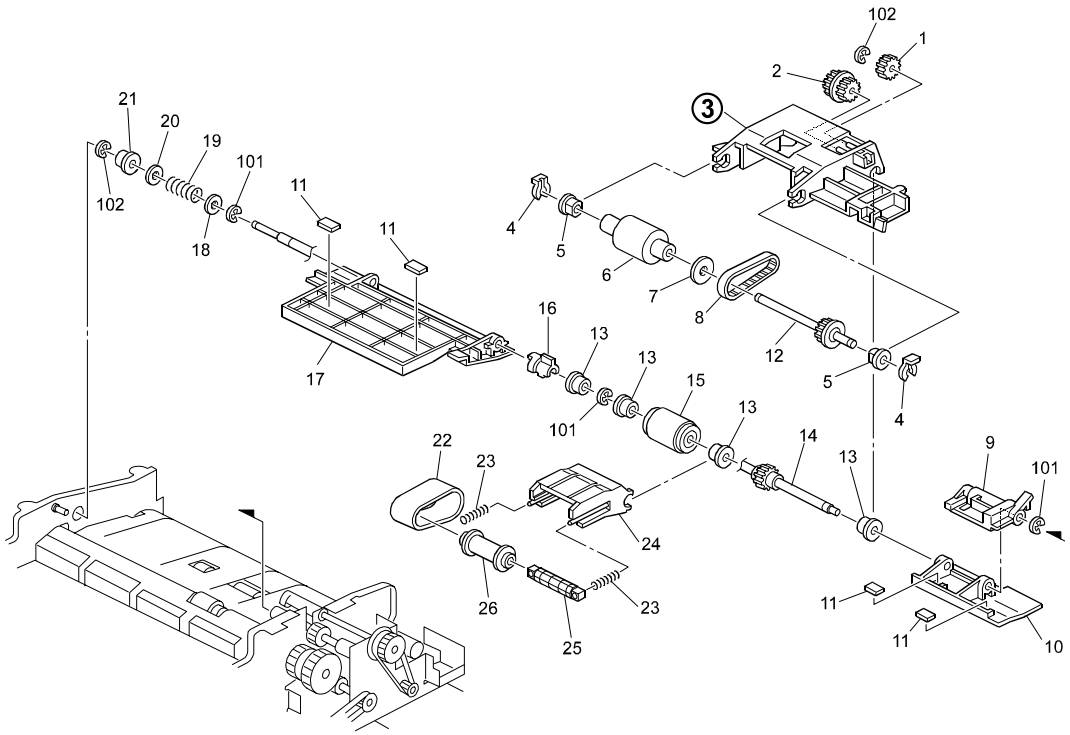
★ UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new registration rollers installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002 Lanier LD060	J4225900846
Ricoh Aficio 1075 Savin 2575 Gestetner 7502 Lanier LD075	J4325900720

- **UPDATE 2:** **Pick-Up Roller Bracket–** To ensure that operators do not bend the Pick-Up Roller back to far when removing jammed originals, which can prevent the roller from returning to its default position, the shape of the Pick-Up Roller Bracket has been changed. Please update your B064/B065 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B4772221	B4772222	Pick-up Roller Bracket	1	1	25	3

★UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new pick-up roller bracket installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002 Lanier LD060	J4225600518
Ricoh Aficio 1075 Savin 2575 Gestetner 7502 Lanier LD075	J4325600304

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 031 **03/10/2003**

APPLICABLE MODEL:
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL – INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 5-69 Updated Information (SP 5959)
- 7-15 Updated Information (Lower Tray (Saddle Stitch Mode))

Note: This copy is intended as a master original for reproduction of additional bulletins.

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<table>
<tr><th>SP</th><th colspan="2">Number/Name</th><th>Function/[Setting]</th></tr>
<tr><td>5913</td><td colspan="2">Switchover Permission Time</td><td>Sets the length of time to elapse before allowing another application to take control of the display when the application currently controlling the display is not operating because a key has not been pressed.
[3~30/3/1 s]</td></tr>
<tr><td rowspan="3">5914*</td><td colspan="2">Application Counter Display</td><td>Selects the total counts that will be displayed in the UP mode.</td></tr>
<tr><td>001</td><td>Print Counter</td><td rowspan="2">[0~1/0/1
0: Not displayed
1: Displayed</td></tr>
<tr><td>003</td><td>Copier Counter</td></tr>
<tr><td>5915*</td><td colspan="2">Mechanical Counter Detection</td><td>Displays whether the mechanical counter is installed in the machine.
[0~1/0/1]
0: Not detected.
1: Detected
2: Unknown</td></tr>
<tr><td>5918*</td><td colspan="2">A3/DLT Counter Display</td><td>Determines whether pressing the counter key displays count confirmation: system initial settings → system manager settings → counter
[0~1/0/1]
0: No display
1: Display
This SP affects the display only, and has no effect on SP5104 (A3/DLT Double Count).</td></tr>
<tr><td>5921</td><td colspan="2">Key Card Setting</td><td>Enables operation with a key card device outside Japan.
[0~1/0/1]
0: No key card operation
1: Key card operation</td></tr>
<tr><td>5959*</td><td colspan="3">Paper Size</td></tr>
<tr><td></td><td>001</td><td>Tray 1</td><td>Tray 1 (Tandem Tray) can accept two paper sizes: A4 LEF and LT LEF. Enter the correct number to select the size of the paper loaded in Tray 1:
A4 LEF: 5
LT LEF: 38
If the A3/DLT Tray Kit B475 is installed, enter the correct number to select the size of the paper loaded in the kit:
<table>
<tr><th>Size</th><th>No.</th><th>Size</th><th>No.</th></tr>
<tr><td>A3 SEF</td><td>132</td><td>11" x 17"</td><td>160</td></tr>
<tr><td>B4 SEF</td><td>141</td><td>8 1/2" x 14" SEF</td><td>164</td></tr>
<tr><td>A4 LEF</td><td>5</td><td>8 1/2" x 11" LEF</td><td>38</td></tr>
<tr><td>A4 SEF</td><td>133</td><td>8 1/2" x 11" SEF</td><td>166</td></tr>
</table></td></tr>
</table>

⇒

Service Tables

LOWER TRAY

Tray Capacity (80 g/m^2)	Unstapled	2,500 sheets (A4 LEF, 8 1/2"x11" LEF) 500 sheets (A5 LEF) 100 sheets (A5 SEF, A6 SEF, B6 SEF, 5 1/2"x8 1/2")		
	Stapled	Max docs.	Total sheets	Size
		50 docs.	2,500 sheets	A4 LEF, 8 1/2"x11" LEF
		50 docs.	1,250 sheets	A4 SEF, B5, 8 1/2"x11" SEF
		30 docs.	1,250 sheets	A3, B4, 12"x18", 11"x17"
Paper Size		A3 ~ A5, A6 SEF, B6 SEF, 12"x18", 11"x17" ~ 5 1/2"x8 1/2"		
Paper Weight		52 g/m^2 ~ 216 g/m^2 (110 lb Index)		
Mixed Sizes		A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF (Max: 50 docs, Max sheets: 30 sheets or less)		

LOWER TRAY (Saddle Stitch Mode)

Binding Capacity (80 g/m^2)	15 sheets		
Paper Size	A3, B4, A4 SEF, 11"x17", 8 1/2"x11" SEF		
Paper Weight	64 g/m^2 ~ 90 g/m^2		
Stapling Position	Center, 2 locations		
Staple Capacity	2,000 staples/Cartridge		
Fold Position	Center, half-folding		
Saddle-Stitch Capacity	Max docs.	Total sheets	Size
	25 docs.	2 ~ 5 sheets	A4 SEF, 8 1/2"x11" SEF
	15 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	
	30 docs.	2 ~ 5 sheets	A3, B4, 11"x17"
	20 docs.	6 ~ 10 sheets	
	10 docs.	11 ~ 15 sheets	

PROOF TRAY

Tray Capacity	250 sheets (A4, 8 1/2"x11" or smaller) 50 sheets (B4, 8 1/2"x14" or larger)
Paper Weight	52 g/m^2 ~ 216 g/m^2 (90 lb Index)

STAPLE SPECIFICATIONS

Binding Capacity (80 g/m^2)	Same Size	50 sheets (A4, 8 1/2"x11" or smaller) 30 sheets (B4, 8 1/2"x14" or larger)
	Mixed Size	30 sheets (A3 and A4 LEF, B4 and B5 LEF, 11"x17" and 8 1/2"x11" LEF)
Paper Size		A3-B5, 11"x17" ~ 8 1/2"x11"
Paper Weight		64 g/m^2 ~ 90 g/m^2
Stapling Position		Front (1), Back (1), Back (1: diagonal), Duplex Binding
Stapling Capacity		5,000 staples/Cartridge

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 032 **03/14/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: CONTROLLER LOCK–UP WHEN PRINTING

SYMPTOM:

Data In (Buffer) Light keeps blinking; machine indicates "Printing" or "Waiting" but nothing prints.

CAUSE:

PCL interpreter continues waiting for "tandem tray ready" status from the mainframe because the interpreter misses the "tandem tray ready" status after auto-loading paper in the tandem tray.

SOLUTION:

Upgrade to printer firmware version V1.09 or higher.

Firmware version 1.09 (file name B064/65PrtScnV1.09.EXE) can be downloaded through the Technology Solutions Center FTP Site at http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin #FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM/Flash Card Exchange program.*

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 033 **03/14/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

■ MECHANICAL

■ FIRMWARE

SUBJECT: CLEANING BRUSH GEARS BREAK WHEN CHANGING SP

SYMPTOM:

The Brush Roller Gears may break if SP2912-002 is changed from its default (0).

NOTE: *Although the gear damage is the same as in TSB B064/B065 – 013R, the above cannot be fixed with the installation of the Damper Kit.*

CAUSE:

Software issue.

SOLUTION:

Temporary:
Keep the value of SP2912-002 at its default of 0.

Permanent:
Firmware modification.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 034 **03/14/2003**

APPLICABLE MODEL:
GESTETNER – 6002/7502
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: MIXED SIMPLEX/DUPLEX COMMANDS DO NOT WORK PROPERLY

SYMPTOM:

Simplex/duplex face settings are not applied correctly when specified with PCL commands.

CAUSE:

The GPS does not correctly process the incoming PCL commands.

SOLUTION:

The following combination is only necessary for customers using PCL commands to specify simplex/duplex face settings**:**

- Upgrade the Printer/Scanner firmware to v1.10 or later.
- Upgrade the PCL 5e/XL driver to v1.3.0.0 or later.

Change Printer SP 1001 bit switches SW6, #2 from 0 to 1 (enabled); 0 (disabled) is the default. This must be done by a service technician for each machine.

NOTE: Production units from Mar '03 on will have the new firmware and driver versions, so it is only necessary to change the bit SW setting.

Firmware version 1.10 (file name B064/65 PrintScn v1.10.EXE) can be downloaded through the Technology Solutions Center FTP Site at http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin #FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM/Flash Card Exchange program.*

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 035 **03/26/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: TANDEM TRAY MIDDLE SLIDE RAIL SCREWS

SYMPTOM:

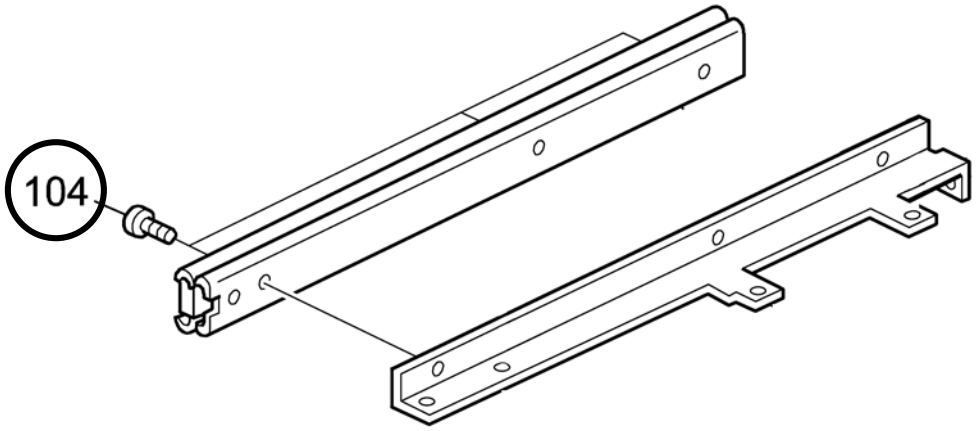
No paper detection in Tandem Tray 1 / Service Codes being generated displayed related to Tandem Tray 1

CAUSE:

Loose support screws (03140040B) for the middle tandem tray slide rail. This allows the tray to sag and causes poor electrical connection of the tandem tray to the mainframe.

SOLUTION:

Tighten screws (Lower Frame 1, index #104) (x3).



NOTE: *The occurrence rate of the tandem tray 1 middle slide rail screws becoming loose is low. We recommend checking and tightening these screws on the next service visit.*

UNITS AFFECTED:

The serial number cut-in information was not available at time of this publication.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 036 **03/27/2003**

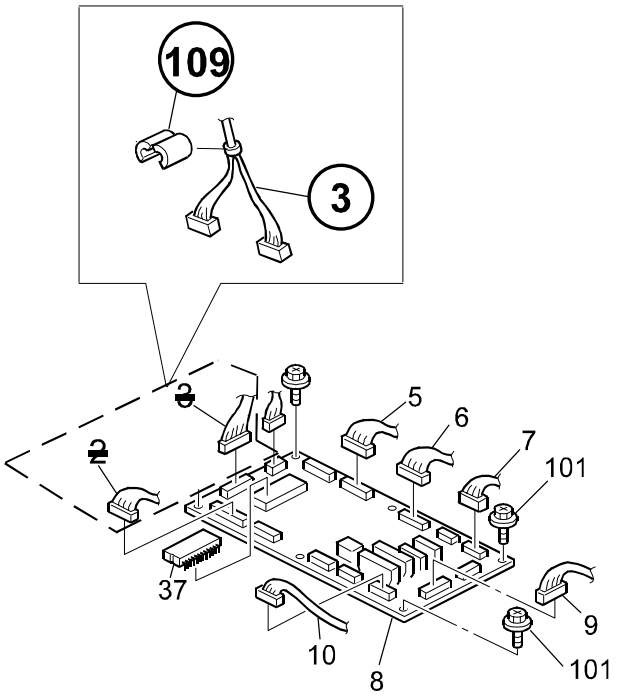
APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SENSOR HARNESSES

GENERAL:

The following have been changed to provide an even greater margin in conforming to EMI Standards.
The following parts updates are being issued for all B064/B065 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B4775641		Paper Size Sensor Harness	1		39	2
B4775661	B4775601	Registration Sensor Harness	1	1	39	3
	16070622	Ferrite Core TFC16816	1		39	109*

*** DENOTES NEW ITEM NUMBER**

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UNITS AFFECTED:

The serial number cut-in information was not available at time of this publication.

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 036 REISSUE ★ **04/18/2003**

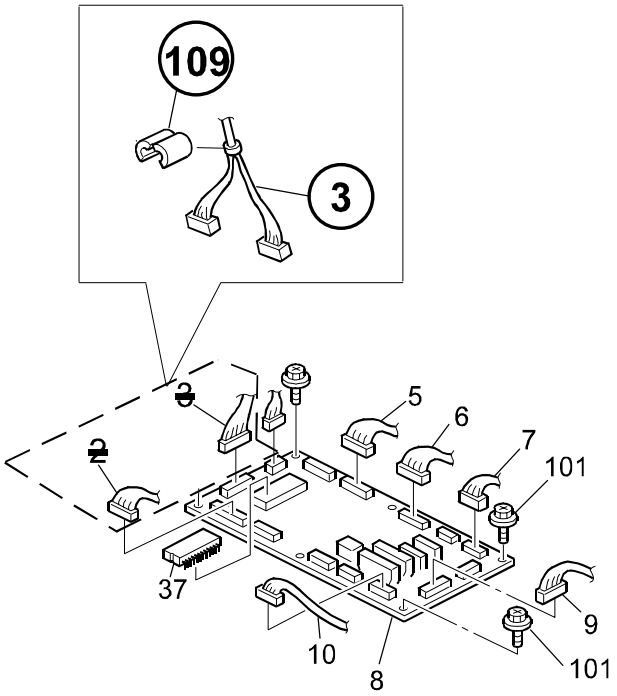
APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SENSOR HARNESSES

GENERAL:

The following have been changed to provide an even greater margin in conforming to EMI Standards.
The following parts updates are being issued for all B064/B065 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B4775641		Paper Size Sensor Harness	1		39	2
B4775661	B4775601	Registration Sensor Harness	1	1	39	3
	16070622	Ferrite Core TFC16816	1		39	109*

*** DENOTES NEW ITEM NUMBER**

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UNITS AFFECTED:

★All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Sensor Harness installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235100003
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335100001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 037 **04/07/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER - LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

MECHANICAL

SERVICE MANUAL

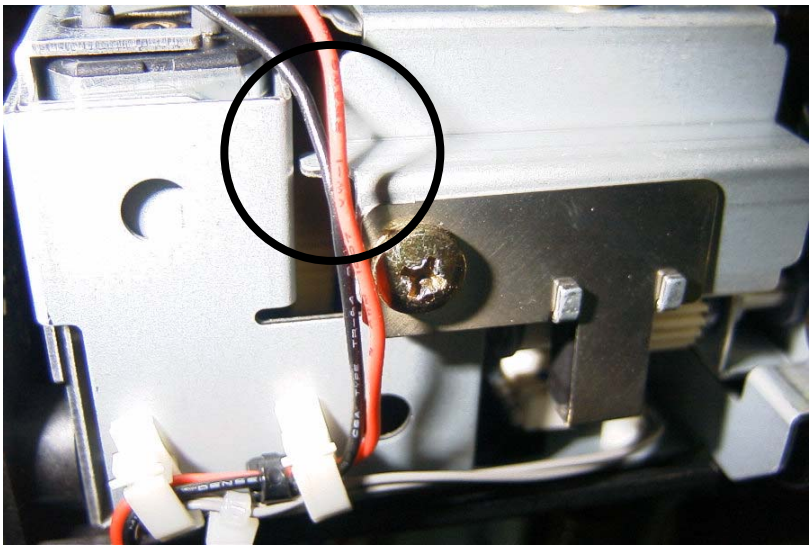
SUBJECT: WEB DRIVE MOTOR HARNESS & SERVICE MANUAL - INSERT

SYMPTOMS:

- Door open indication
- Set Fuser indication – will not clear
- Fusing Web Motor continuously runs

CAUSE:

The harness for the Web Drive Motor (P/N AX040136 - Cleaning Motor) may be pinched when the Fusing Inner Cover (B0654268) is set. The harness is routed as shown in the picture below during factory assembly.



PRODUCTION COUNTERMEASURE:

The harness position has been changed as shown in Field Countermeasure on page 2. The new harness routing procedure has started with the following serial number:

B064: From J4235100440
B065: From J4335100231

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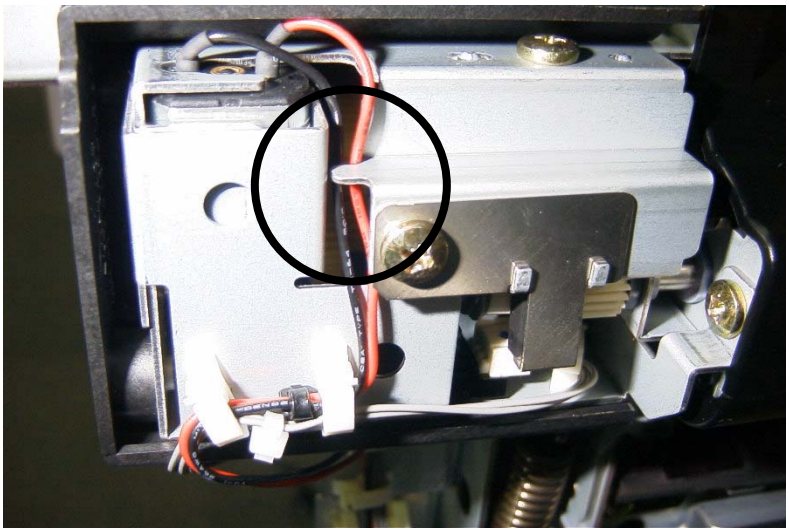
FIELD COUNTERMEASURE:

- Route the harness as shown below during your next service visit.
- Make sure to route the harness in this position whenever replacing the Web Drive Motor.



GENERAL:

The Service Manual page listed below must be replaced with the page supplied.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- 3-62 Updated Information (Web Motor and Web End Sensor)

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 038 **04/14/2003**

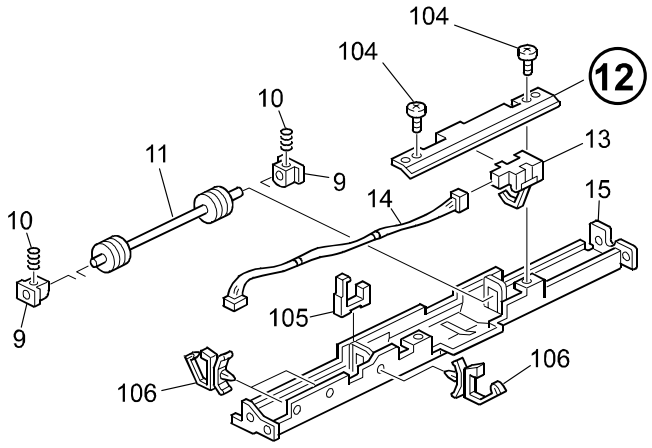
APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER - LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: PAPER FEED SENSOR BRACKET

GENERAL:

The Paper Feed Sensor Bracket has been modified to ensure that the Driven Exit Roller stays properly secured. The following part update is being issued for all B064/B065 Parts Catalogs. Please update your parts catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B0654355	B0654358	Paper Feed Sensor Bracket	1	1	103	12

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Paper Feed Sensor Bracket installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4226001310
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4334900001

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 039 **05/05/2003**

APPLICABLE MODEL:

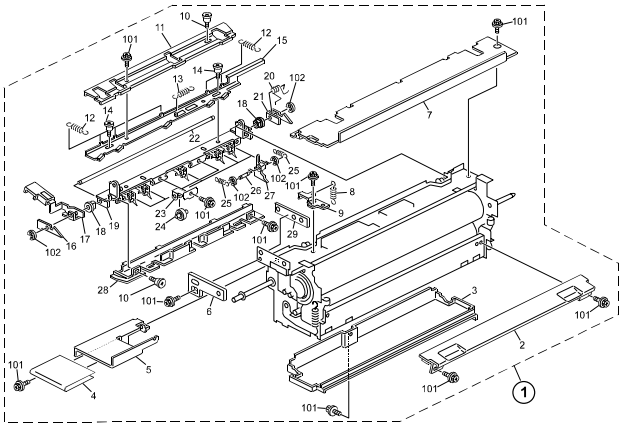
GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: MIDDLE THERMISTOR

GENERAL:

The Middle Thermistor has been changed to ensure that an abnormal temperature misdetection does not occur, which can occur when the silver contained in the adhesive separates out and gets in between the thermistor chip electrodes. The following parts updates are being issued for all B064/B065 Parts Catalogs.

Page 96



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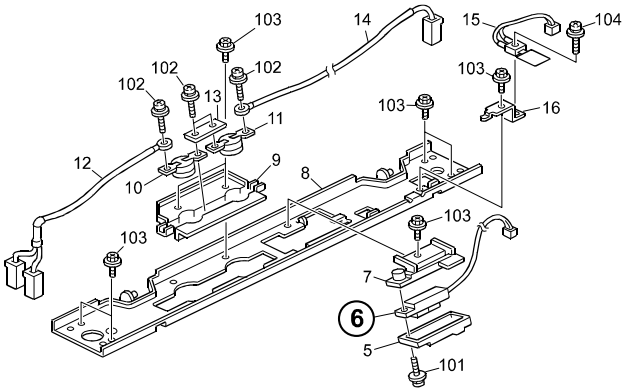

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B0654017	B0654018	Fusing Unit - 120V	1	1	97	1
B0654027	B0654028	Fusing Unit - 230V	1	1	97	1
B0654019	B0654020	Fusing Unit (TWN)	1	1	97	1
AW100075		Thermistor	1	1	99	6
	→ AW100084	Middle Thermistor				

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UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Middle Thermistor installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4234900550
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4334900338

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 040 **05/05/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SC541

SYMPTOM:

An SC541 is generated during copier operation.

CAUSES:

- Dirty or Bad Drum Potential Sensor: P/N AW330003
- BCU Board: P/N B0655120
- Middle Fusing Thermistor: P/N AW100084.

SOLUTION:

The above possible causes have all been confirmed repairs for an SC541 Code. However, The most common and most likely cause of an SC541 code is a dirty Drum Potential Sensor. Follow the procedure in section 2.1.1 of Preventive Maintenance for cleaning the Drum Potential Sensor. If replacement is necessary, follow the procedure outlined in section 3.6.7 of your B064/B065 Service Manual.

GENERAL:

			REFERENCE	
PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
AW330003	Drum Potential Sensor	1	85	6
B0655120	BCU Board	1	153	*
AW100084	Middle Fusing Thermistor	1	99	6

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 041 **05/15/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: PREMATURE SC550

■ FIRMWARE

SYMPTOM:

A Web End SC550 occurs prematurely. The error occurs before 300k copies in all cases, and depending on the mode used, it can occur at around 135k copies.

CAUSE:

The web counter in the software does not increment properly.

PRODUCTION COUNTERMEASURE:

Software has been modified from May '03 production.
Version 4.02 (B1105123A) → version 4.02a (B1105123B).

NOTE: *For the B064, this modification was applied from the end of April '03 production (from serial number J4235201427).*

FIELD COUNTERMEASURE:

The 3 types of machines in the field are as follows:
Type A. Machines which contain BCU firmware versions 4.01 or 4.02
B064
J4235100001 - J4235201426
B065
J43351xxxxxx or J43352xxxxx

Type B. Machines originally containing BCU firmware version 3.51 or earlier and were later upgraded to version 4.01 or later
Type C. Machines originally containing BCU firmware version 3.51 or earlier but were **NOT** upgraded.

PROCEDURE:

Type A Machines:
- Install BCU firmware version 4.02a or later
- Set SP1902-001 as follows:

TCV (K)	5	10	15	20	25	30	35	40	45	50	55	60
SP1902-001	3	4	6	9	11	13	16	18	21	24	27	31

TCV (K)	65	70	75	80	85	90	95	100	105	110	115	118
SP1902-001	34	38	41	45	49	53	58	62	67	72	77	80

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NOTE: *If the TCV is higher than 118K copies, it is necessary to replace the Cleaning Web. This is because the web Near End condition is triggered when the value of SP1902-001 is 80k.*

Type B Machines:
- Replace the Cleaning Web (P/N - AE045046)
- Install BCU firmware 4.02a or later
- Set SP1902-001 to 0.

Type C Machines:
Although not required, if you upgrade the BCU firmware, be sure to use version 4.02a or newer. At this time, it is also necessary to install GW controller version 3.01.2 or newer together as a set.

NOTE: *Make sure you do **NOT** install BCU version 4.01 or version 4.02 firmware.*

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 042 **06/13/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

FIRMWARE

SUBJECT: WIRELESS LAN CANNOT COMMUNICATE

SYMPTOM:

The Wireless LAN Card modified from Dec '02 (See TSB B064/B065 – 022) is unable to communicate with the PC after a certain interval when using 802.11adhoc mode.

NOTE: *This does not occur with adhoc or infrastructure modes, or Wireless LAN Cards produced up until Nov 02'.*

CAUSE:

A program bug in the Next Generation controller firmware causes the symptom to occur.

SOLUTION:

When installing the Wireless LAN option, update the Next Generation controller firmware to version 3.51 or later.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 043 **06/19/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

SERVICE MANUAL

The Service Manual pages listed below must be replaced with the pages supplied.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- i to xii — Updated Information
- 1-62 to 1-68 — Additional Section (Copy Connector Kit Type 1075)

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B064/B065
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1.16 COPY CONNECTOR KIT TYPE 1075

1.16.1 ACCESSORY CHECK LIST

Check the quantity and condition of the accessories in the box against the following list:

1. Copy Connector Board 2
2. MLB Interface Board.....2
3. Interface Cable 3
4. Interface Harness – Power Line 2
5. Hub.....2
6. Key Top – Application.....6
7. Operating Instructions (English) 1
8. Key Top – Printer.....2
9. Anti-static Cap 2
10. Ferrite Core 4
11. Knob Screw 4
12. Decal – Copy Connector.....4
13. Tapping Screw – M3 x 8 4

1.16.2 IMPORTANT NOTES:

1. The following are the specialized firmware versions for use with the Copy Connector Kit or MLB option. When installing either of these options, it is necessary to install the following firmware together as a set.

Software	Part Number	Version (1st released)
GW Controller: System	B5254108	5.07
GW Controller: Copy	B5254109	5.07
BCU	B5254123	5.03d
Printer/Scanner	B5255204	4.15/5.00
NIB/Netfile	B5254114	3.00/1.79
LCDC	B5254176 (NA)	2.04

2. With the Copy Connector/MLB modifications, the machine firmware has been divided up into 2 main groups:
   1) The Copy Connector/MLB group (beginning with the versions listed above)
   2) The usual firmware used up to the present, i.e. for machines without the Copy Connector or MLB options.

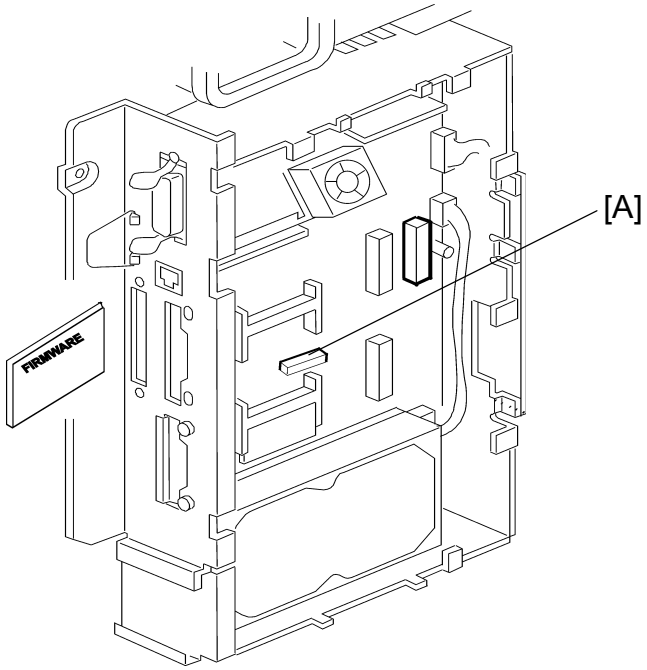
   Important: Firmware from these two groups **cannot** be used interchangeably. Always update **within** the same group, otherwise the machine will not operate correctly.
3. The Copy Connector Kit and MLB options cannot be installed in the same machine. It is necessary to install one or the other.
4. As shown above, the GW controller firmware for the Copy Connector/MLB group has been divided into GW System and GW Copy, as the increased size has exceeded the card's storage capacity.

1.16.3 INSTALLATION PROCEDURE

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

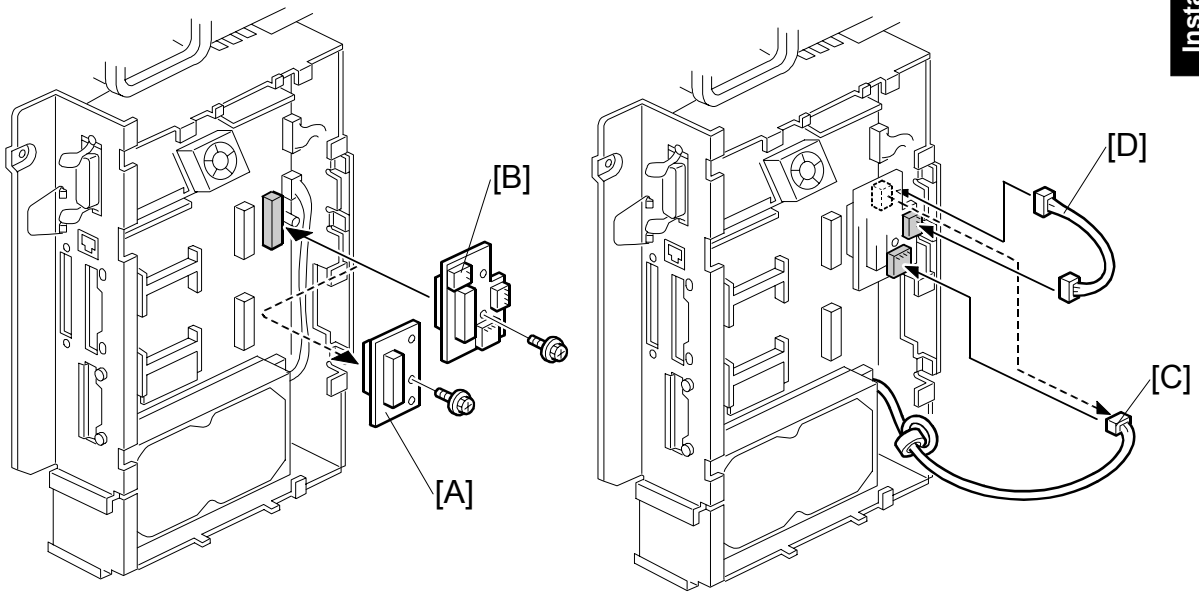
Perform the following procedures for both the main and sub copiers.

1.16.4 INSTALLING THE FIRMWARE



1. Remove the rear cover (2 screws).
2. Remove the controller cover (10 screws).
3. Turn on DIP SW2-1 on the controller board [A].
4. Install the following firmware.
   - GW Controller (System and Copy)
   - Printer/Scanner
   - NIB Netfile
5. Turn off DIP SW2-1 on the controller board.
6. Install the following firmware.
   - BCU
   - LCDC

1.16.5 INSTALLING THE HARDWARE

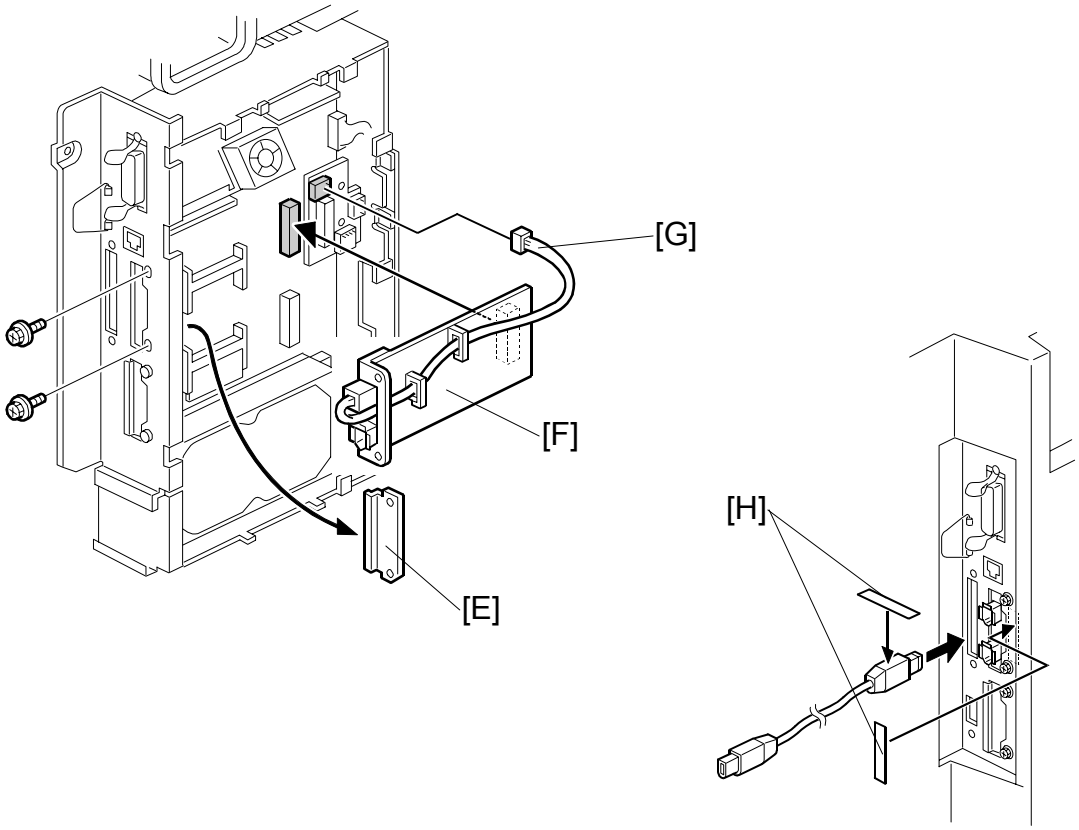


1. Replace the interface board [A] with the MLB Interface Board [B].

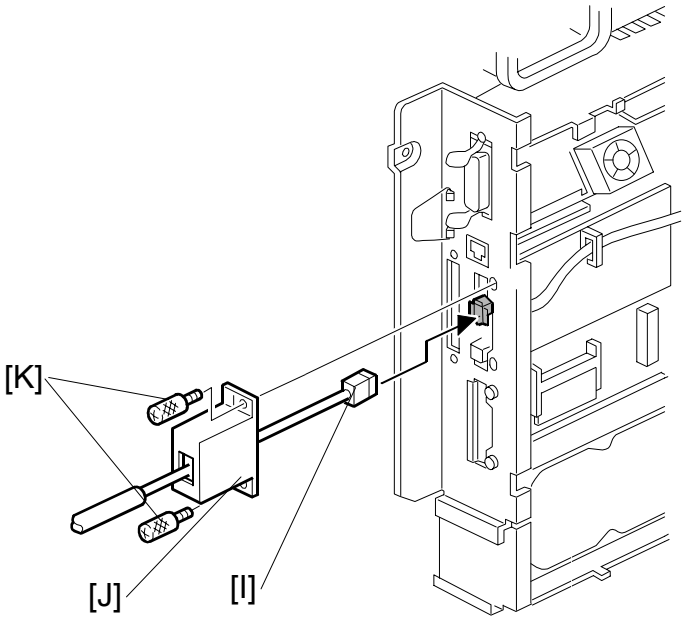
   NOTE: This step is not necessary from the following serial numbers or higher:

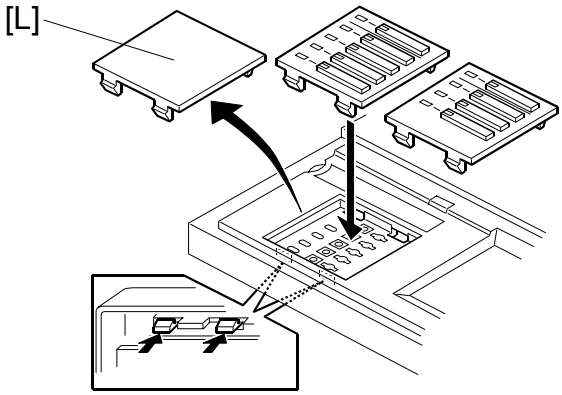
Product Code	Serial Number
B064	J4235300054
B065	J4335300191

2. Remove the 4P connector [C] for the HDD and connect it to CN319 on the MLB Board.
3. Connect one end of the power interface harness [D] to the HDD connector, and the other end to CN318 on the MLB Board.



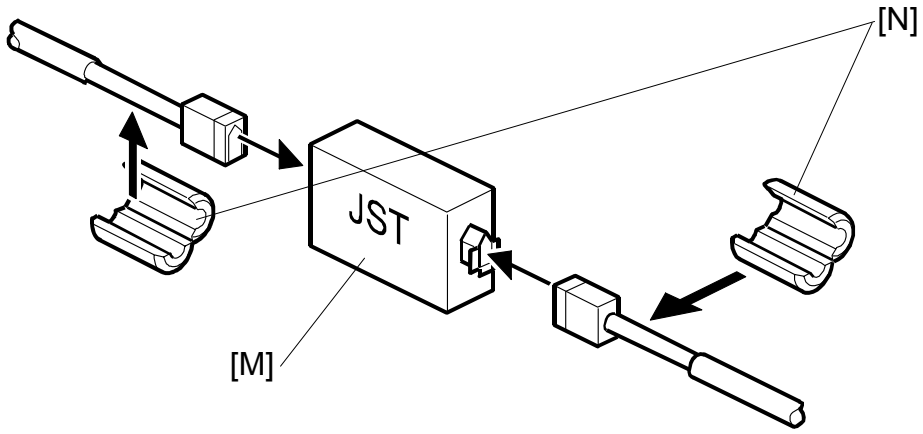
4. Remove the connector cover [E] (2 screws).
5. Install the CCK interface board [F] as shown.
6. Connect the harness [G] to CN315 on the MLB Board.
7. Attach the decals [H] as shown.





8. Lead the interface cable [I] through the anti-static cap [J], and then connect it to the interface board.
9. Attach the anti-static cap (2 knob screws [J]).
10. Replace the key top [L].
11. Repeat both the firmware and hardware procedures above for the other copier.

Perform Steps 12 and 13 below if the distance between the two machines is more than 4.5m.



12. Use the Hubs [M] to connect the interface cables.

    NOTE: When connected in this way, the maximum length possible is 13.5m (3 interface cables).

13. Attach the ferrite cores [N] as shown.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 044 **06/23/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: NOISE FROM THE TONER SUPPLY CASE

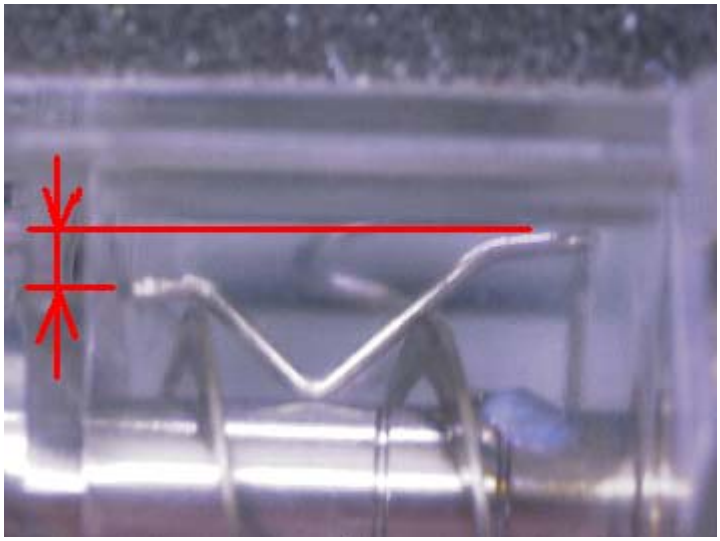
SYMPTOM:

Noise is heard from the Toner Supply Case (P/N B0653161) during the initial period after installation.

CAUSE:

The agitator in the toner supply case is deformed, causing it to get caught in the rotating toner transport coil and generate noise. As shown below, the left portion is positioned lower than the right by 4.0 mm or more.

NOTE: *This only occurs on certain toner supply cases (see Affected Machines S/N list on page 2).*



FIELD COUNTERMEASURE:

When installing developer during machine installation, check the gap shown in the illustration above (difference in height). If it is 4.0 mm or more, replace the Toner Supply Case (P/N B0653161).

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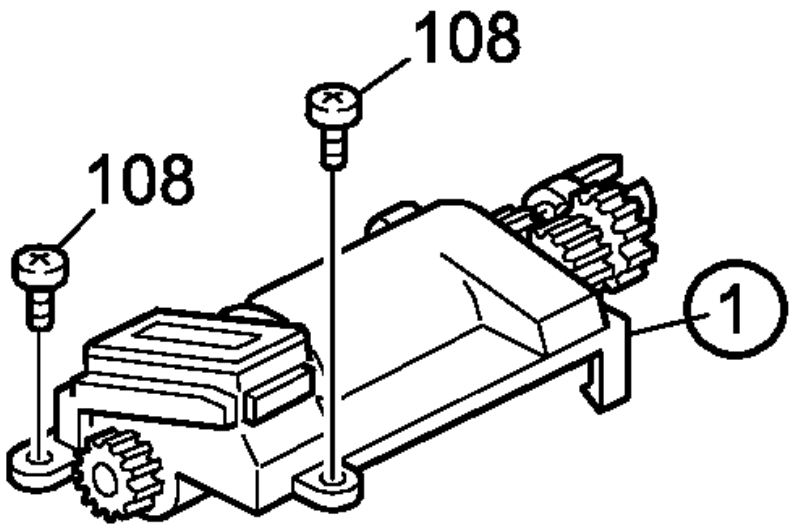
PRODUCTION COUNTERMEASURE:

The agitators will be visually inspected during production, and any that show deformation will be removed.

GENERAL:



			REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0653161	Toner Supply Case	1	77	1

UNITS AFFECTED:

The following are the serial number ranges for B064/B065 copiers manufactured which may contain the deformed toner supply case agitators.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4234900001 - J4235100875
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4334900001 - J4335100999

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 045 **06/24/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

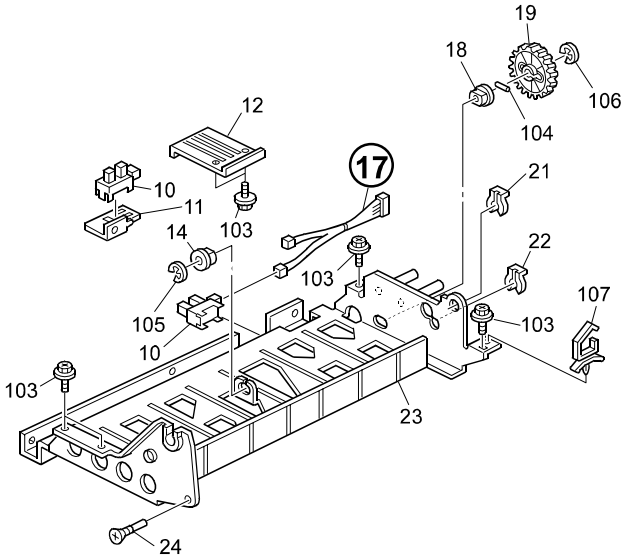
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs.

- **UPDATE 1:**

Original Connecting Harness – Please apply the following correction to your Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B4775671		Registration Relay Harness	1	1	23	17
	B4775741	Original Connecting Harness	1	1	23	17

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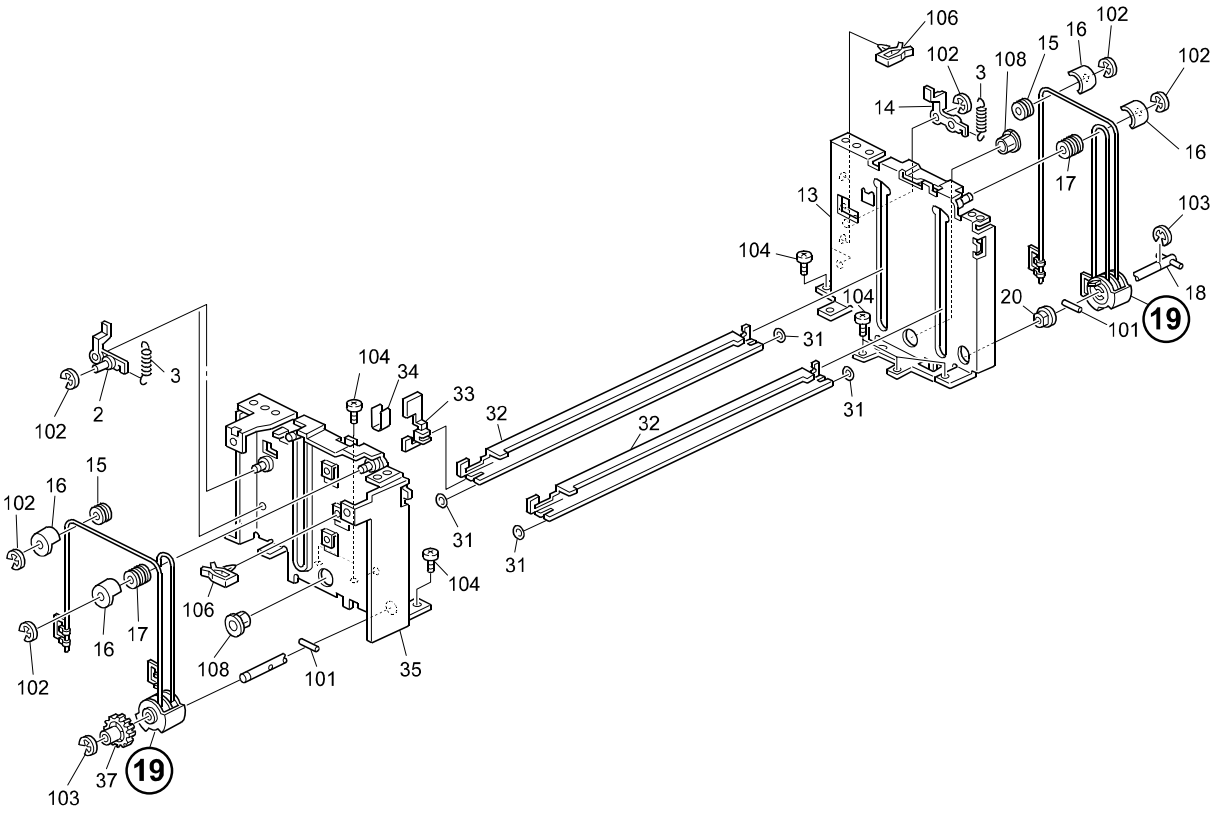
- **UPDATE 2:**

Pulley Drive Wire Ass'y – The Pulley Drive Wire Assembly has been changed to ensure that the wire is not caught between the pulley and pulley cover.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2486684	A2936684	Pulley Drive Wire Ass'y	2	3	57	19

NOTE: *When replacing, it is necessary to replace both Pulley Drive Assemblies together as a set.*

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new pulley drive wire assembly installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1060 Savin 2560 Gestetner 6002 Lanier LD060	J4225900298
Ricoh Aficio 1075 Savin 2575 Gestetner 7502 Lanier LD075	J4325900292

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 046 **07/01/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

SERVICE MANUAL

The Service Manual pages listed below must be replaced with the pages supplied.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- I to xiii — TOC Pages Updated
- 1-69 to 1-72 — New Section File Format Converter

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B064/B065
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PRINTER/SCANNER KIT G338/PRINTER UNIT G339

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LCT B473

SEE SECTION B473 FOR DETAILED TABLE OF CONTENTS

3000-SHEET FINISHERS B468/B469

SEE SECTION B468/B469 FOR DETAILED TABLE OF CONTENTS

PUNCH UNIT B377

SEE SECTION B377 FOR DETAILED TABLE OF CONTENTS

COVER INTERPOSER TRAY B470

SEE SECTION B470 FOR DETAILED TABLE OF CONTENTS

A3/DLT FEEDER KIT B475

SEE SECTION B475 FOR DETAILED TABLE OF CONTENTS

9-BIN MAILBOX B471

SEE SECTION B471 FOR DETAILED TABLE OF CONTENTS

3000-SHEET FINISHER B478

SEE SECTION B478 FOR DETAILED TABLE OF CONTENTS

1.17 FILE FORMAT CONVERTER (MLB)

1.17.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

1. File Format Converter Board 1
2. MLB bracket 1
3. MLB panel 1
4. Screw M3x6.....2

1.17.2 IMPORTANT NOTES:

1. The following are the specialized firmware versions for use with the Copy Connector Kit or File Format Converter (MLB option). When installing either of these options, it is necessary to install the following firmware **together as a set**.

Software	Part Number	Version (1st released)
GW Controller: System	B5254108	5.07
GW Controller: Copy	B5254109	5.07
BCU	B5254123	5.03d
Printer/Scanner	B5255204	4.15/5.00
NIB/Netfile	B5254114	3.00/1.79
LCDC	B5254176	2.04

2. With the Copy Connector/MLB modifications, the machine firmware has been divided up into 2 main groups:
   1) The Copy Connector/MLB group (beginning with the versions listed above)
   2) The usual firmware used up to the present, i.e. for machines without the Copy Connector or MLB options.

   Important: Firmware from these two groups **cannot** be used interchangeably. Always update **within** the same group, otherwise the machine will not operate correctly.

3. The MLB option cannot operate with any of the following installed, i.e. it is necessary to remove these before beginning the procedure below:
   - Wireless LAN board
   - IEEE1394 I/F board
   - USB2.0 I/F board
   - Copy Connector Kit components

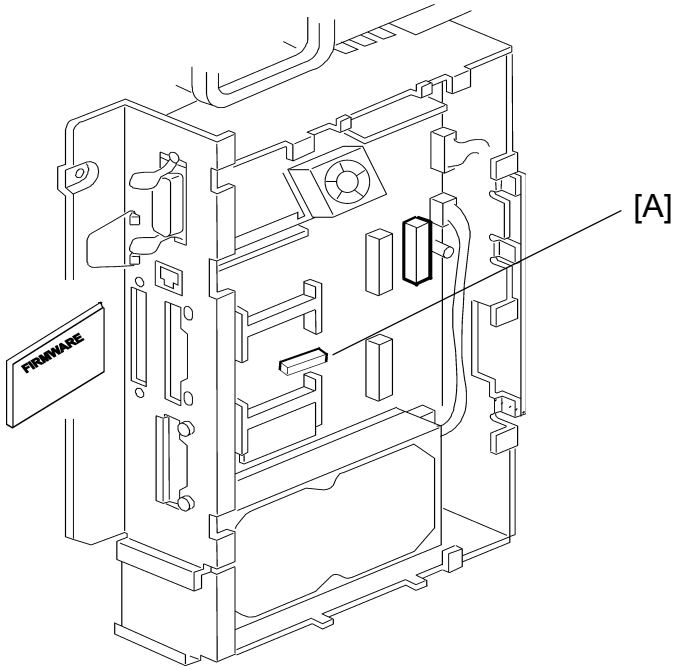
4. As shown above, the GW controller firmware for the Copy Connector/MLB group has been divided into GW System and GW Copy, as the increased size has exceeded the card's storage capacity.

1.17.3 INSTALLATION PROCEDURE

⚠CAUTION

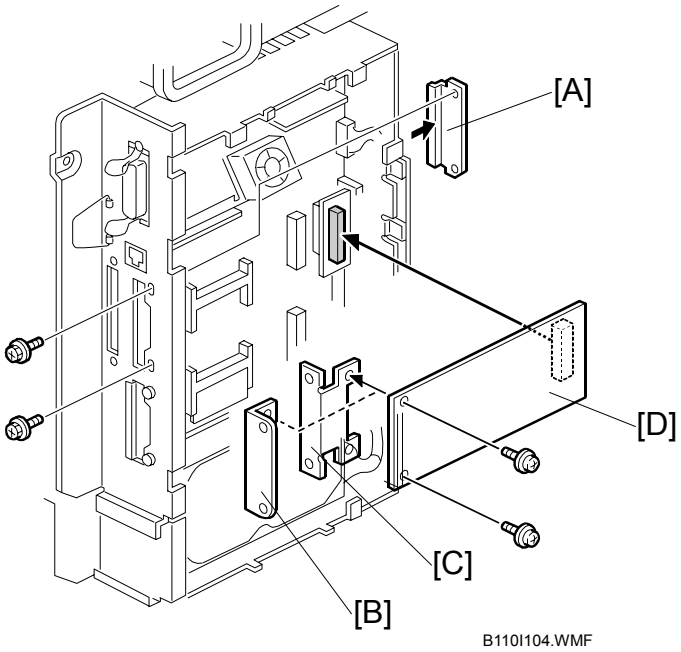
Unplug the main machine power code before starting the following procedure.

1.17.4 INSTALLING THE FIRMWARE



1. Remove the rear cover (2 screws).
2. Remove the controller cover (10 screws).
3. Turn on DIP SW2-1 on the controller board [A].
4. Install the following firmware.
   - GW Controller (System and Copy)
   - Printer/Scanner
   - NIB Netfile
5. Turn off DIP SW2-1 on the controller board.
6. Install the following firmware.
   - BCU
   - LCDC

1.17.5 INSTALLING THE HARDWARE



1. Remove the slot cover [A] (2 screws).
2. Remove the bracket [B] and attach the MLB panel [C].
3. Attach the File Format Converter board [D] to the controller board (2 screws).
4. Replace the controller board cover and rear cover.
5. Turn the main switch ON.
6. Perform a network function Memory Clear (SP5-801-10).
7. Input the following default values manually (SP5-836).

SP Number	Value	SP Number	Value
5-836-01	0	5-836-82	1
5-836-02	0	5-836-83	1
5-836-72	0	5-836-85	1
5-836-73	0	5-836-86	2
5-836-75	0	5-836-91	50
5-836-76	0		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 047 **07/23/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: PCU DRUM AND CLEANING MECHANISM

COPY QUALITY ■ PARTS

SCOPE:

Please be advised that the B0649510 OPC Drum is being changed to the A2949510 OPC Drum. The actions defined in this TSB will have a positive impact on machine reliability by improving the OPC Cleaning Mechanism.

BACKGROUND:

The material composition of B0649510 OPC Drum was selected to increase drum yield from 360K of the A292/A293 series to 500K for the B064/B065 Series. A potential side effect of the B0649510 Drum material was blurred images as a result of Nitrogen Oxide (NOx) build up on the drum surface. A hard surface Cleaning Brush was applied to the product design to shave off the NOx build up to prevent blurred images. The friction of the hard brush on the drum surface created a visual appearance of rotational lines on the OPC Drum although no affect on copy quality was identified. However, paper dust gradually accumulates under the Cleaning Blade and Cleaning Brush affecting the efficiency of the OPC Cleaning Mechanism.

SYMPTOMS:

1. Audible noise, dirty background or toner scattering caused by a broken Cleaning Brush Drive Gear
2. Black lines

CAUSE:

1. Friction between the drum and cleaning brush is high during the initial operation of a new cleaning blade requiring a relatively high amount of force to remove the blade from the drum. This friction decreases over time as the blade becomes pliable. When the pliable cleaning blade is released with the same amount of force as a new blade, the cam release mechanism may hit the stopper and damage the gear.
2. Paper dust may build up on the Cleaning Blade during high-volume runs because the blade is not released from the drum until the completion of the job. The effect of the paper dust build may create uneven contact between the blade edge and the OPC surface allowing toner to slip under the blade.

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SOLUTION:

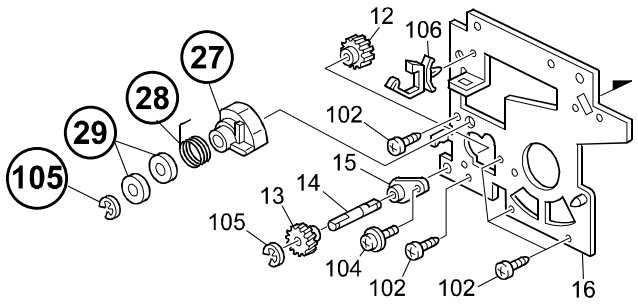
Extensive research, evaluation and testing confirms that the most effective countermeasure for the B064/B065 OPC Cleaning Unit phenomenon are as follows:

1. The B0649510 OPC Drum has been changed to the A2949510 OPC Drum; NOx (nitrogen oxide) particles tend to build up on the drum, causing blurred images.
2. The B0652347 Cleaning Brush has been changed to the AD042038 Cleaning Brush.
3. The Pressure-Release Mechanism for the cleaning blade will be removed.

IMPORTANT: Please be sure to do **all** items above. If only one is performed, this can cause dirty background, black lines/bands or blurred images.

Pressure-Release Mechanism

1. Remove the e-ring (105) and related parts (27, 28, 29).



GENERAL:

The following parts have been changed to prevent black lines and noise from the cleaning brush gears. The following parts updates are being issued for all B064/B065 Parts Catalogs.

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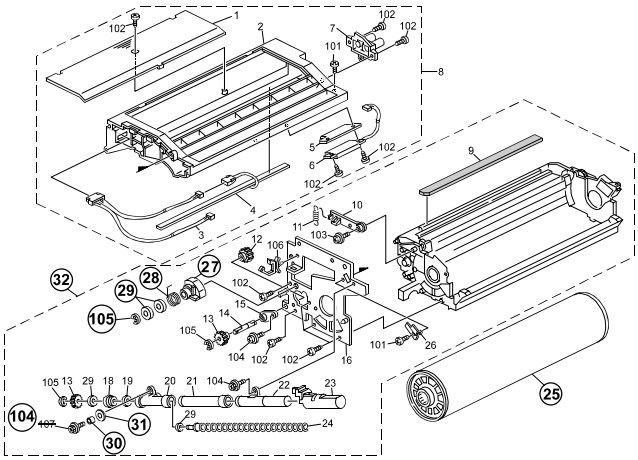

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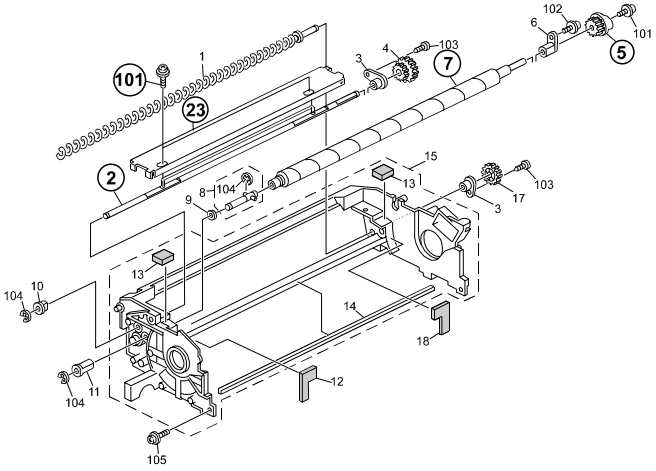

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B0649510 →		Drum	1	3/S	85	25
	→ A2949510	OPC Drum				
B0652423	-	Release Cam - Cleaning Blade	1→0	3/S	85	27
B0652424	-	Cam Spring	1→0	3/S	85	28
AA132208	-	Spacer - M6	4→2	3/S	85	29
B0652263	B1102261	PCU Lower Assembly	1	1	85	32
07200040E		Retaining Ring - M4	1→0	3/S	85	105
04514014B →		Tapping Screw - M4x14	-	3/S	85	107
	→ 04514008B	Philips Tapping Screw - M4x8	-	3/S	85	104
B0652421	B1102322	Agitator Shaft	1	3/S	87	2
B0652347	AD042038	Cleaning Brush	1	3/S	87	7

NOTE: *Except for the PCU Lower Assembly, when installing the parts above for the first time, it is necessary to remove or replace* ***together as a set****.*

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style OPC Drum and PCU Lower Assembly installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235400001
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335400001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 047 REISSUE ★ **12/30/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: PCU DRUM AND CLEANING MECHANISM

COPY QUALITY ■ PARTS ■

SCOPE:

Please be advised that the B0649510 OPC Drum is being changed to the A2949510 OPC Drum. The actions defined in this TSB will have a positive impact on machine reliability by improving the OPC Cleaning Mechanism.

BACKGROUND:

The material composition of B0649510 OPC Drum was selected to increase drum yield from 360K of the A292/A293 series to 500K for the B064/B065 Series. A potential side effect of the B0649510 Drum material was blurred images as a result of Nitrogen Oxide (NOx) build up on the drum surface. A hard surface Cleaning Brush was applied to the product design to shave off the NOx build up to prevent blurred images. The friction of the hard brush on the drum surface created a visual appearance of rotational lines on the OPC Drum although no affect on copy quality was identified. However, paper dust gradually accumulates under the Cleaning Blade and Cleaning Brush affecting the efficiency of the OPC Cleaning Mechanism.

SYMPTOMS:

1. Audible noise, dirty background or toner scattering caused by a broken Cleaning Brush Drive Gear
2. Black lines

CAUSE:

1. Friction between the drum and cleaning brush is high during the initial operation of a new cleaning blade requiring a relatively high amount of force to remove the blade from the drum. This friction decreases over time as the blade becomes pliable. When the pliable cleaning blade is released with the same amount of force as a new blade, the cam release mechanism may hit the stopper and damage the gear.
2. Paper dust may build up on the Cleaning Blade during high-volume runs because the blade is not released from the drum until the completion of the job. The effect of the paper dust build may create uneven contact between the blade edge and the OPC surface allowing toner to slip under the blade.

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SOLUTION:

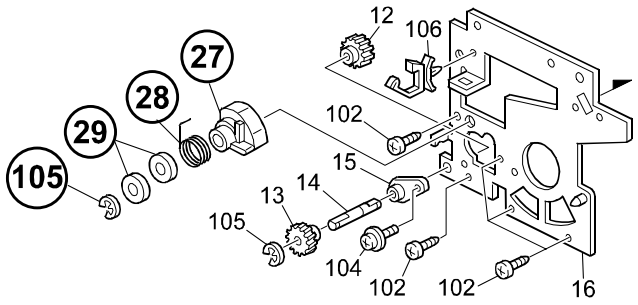
Extensive research, evaluation and testing confirms that the most effective countermeasure for the B064/B065 OPC Cleaning Unit phenomenon are as follows:

1. The B0649510 OPC Drum has been changed to the A2949510 OPC Drum; NOx (nitrogen oxide) particles tend to build up on the drum, causing blurred images.
2. The B0652347 Cleaning Brush has been changed to the AD042038 Cleaning Brush.
3. The Pressure-Release Mechanism for the cleaning blade will be removed.

IMPORTANT: Please be sure to do **all** items above. If only one is performed, this can cause dirty background, black lines/bands or blurred images.

Pressure-Release Mechanism

1. Remove the e-ring (105) and related parts (27, 28, 29).



GENERAL:

The following parts have been changed to prevent black lines and noise from the cleaning brush gears. The following parts updates are being issued for all B064/B065 Parts Catalogs.

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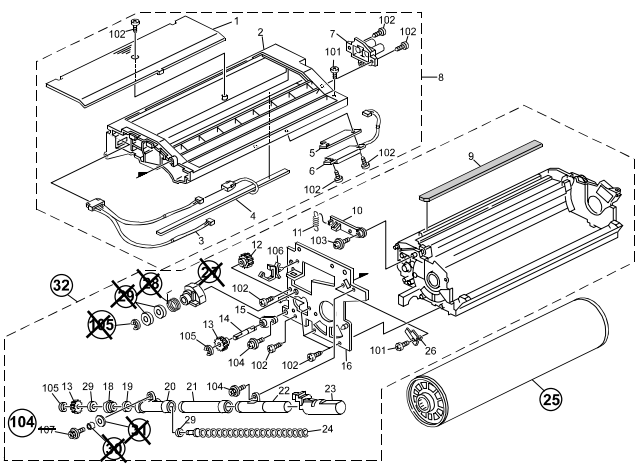
★



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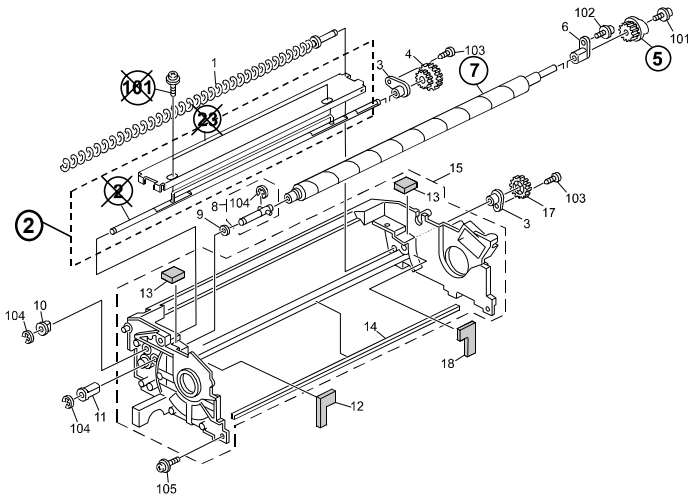


						REFERENCE	
★	**OLD PART NO.**	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
	B0649510		Drum	1	3/S	85	25
		→ A2949510	OPC Drum				
	B0652423		Release Cam - Cleaning Blade	1→0	3/S	85	27
	B0652424		Cam Spring	1→0	3/S	85	28
	AA132208		Spacer - M6	4→2	3/S	85	29
	AA130042		Sleeve	1→0	3/S	85	30
	A3764131		Cushion - T1	1→0	3/S	85	31
	B0652263	B1102261	PCU Lower A'ssy	1	1	85	32
	07200040E		Retaining Ring - M4	2→1	3/S	85	105
	04514014B		Tapping Screw - M4x14	1	3/S	85	107
		→04514008B	Philips Tapping Screw - M4x8			85	104
	B0652421		Agitator Shaft	1	3/S	87	2
		→ B1102322	Agitator A'ssy			87	2
	B0652347	AD042038	Cleaning Brush	1	3/S	87	7
	B0652422	-	Agitator Cleaning	1→0		87	23
	09513006B		Philips Screw with Flat Washer - M3x6	1→0		87	101

NOTE: *Except for the PCU Lower Assembly, when installing the parts above for the first time, it is necessary to remove or replace* ***together as a set*** *the parts marked as 3/S.*

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style OPC Drum and PCU Lower Assembly installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235400001
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335400001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 048 **07/25/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

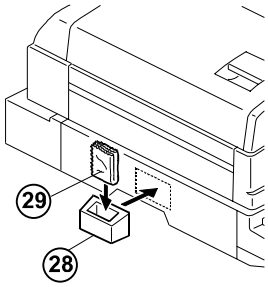
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs.

- **UPDATE 1:**

ADF Exposure Glass Cloth & Holder – When streaks appear on ADF scanned images, it is necessary to clean the ADF exposure glass. The cloth and cloth holder have been added as accessories. Please update your B064/B065 Parts Catalog with the following information.



			REFERENCE	
NEW PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
B0651371	Cloth Holder	1	27	28 *
B0651374	Cloth - DF Exposure Glass	1	27	29 *

*** DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style ADF Exposure Glass Cloth & Holder installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4226000353
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4326000259

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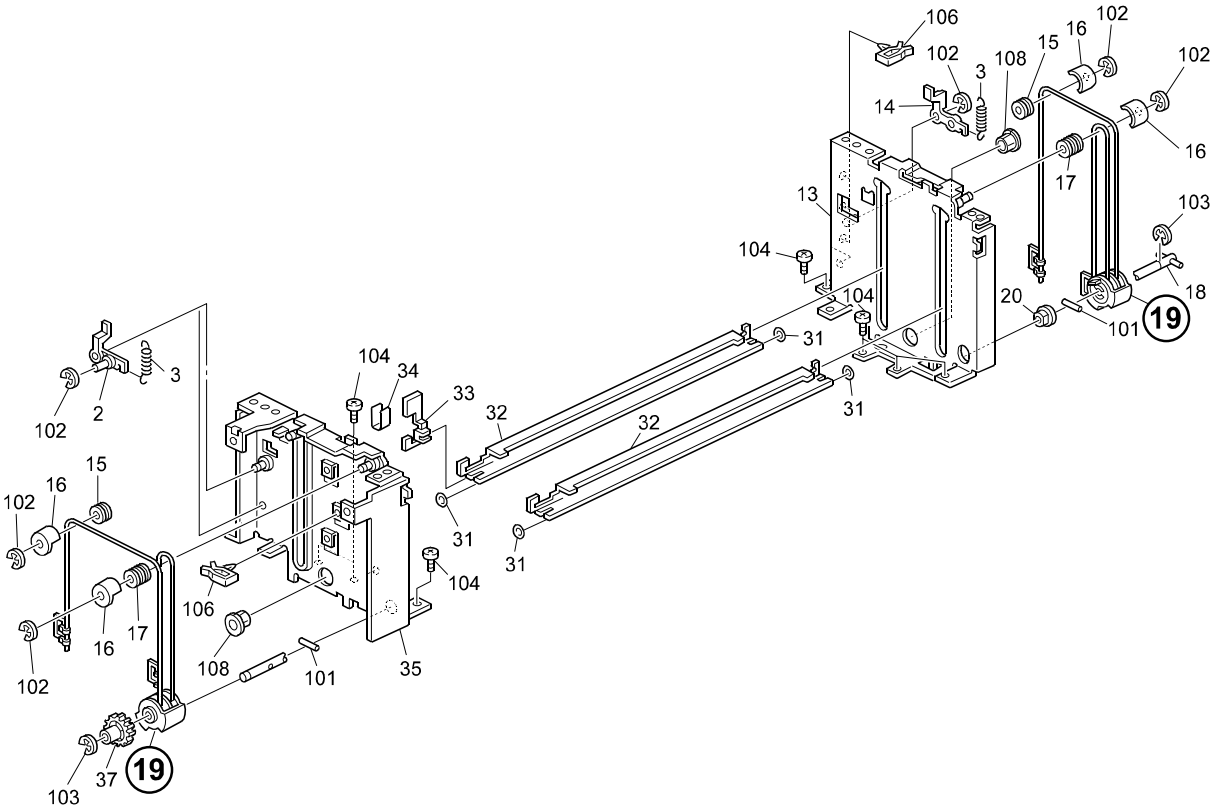
• UPDATE 2:

Pulley Drive Wire Assembly – The Pulley Drive Wire Assembly has been changed to ensure that the wire does not get locked between the pulley and pulley cover. Please update your B064/B065 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2486684	A2936684	Pulley Drive Wire Ass'y	2	3/S	57	19

NOTE: *When replacing, it is necessary to replace **both** Pulley Drive Assemblies together as a set.*

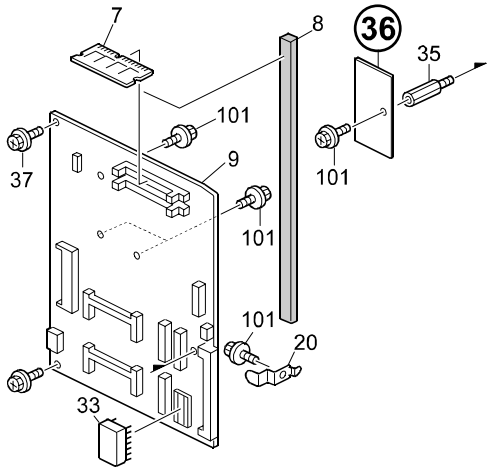
UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Pulley Drive Wire Ass'y installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4225900298
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4325900292

- **UPDATE 3:**

MLB Board – The MLB Board has been changed to support the Copy Connector Kit modification. Please update your B064/B065 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B0665300	B0665400	MLB Board	1	1	127	36

NOTE: *This is **not** the MLB option board.*

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style MLB Board installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235300054
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335300191

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 049 **07/25/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: FILE FORMAT CONVERTER ADDS CAPTURE FUNCTION

GENERAL:

B064/B065 mainframes require file format converter to capture directly to eCabinet from copier, document server, and printer modes.

NECESSARY HARDWARE CONFIGURATIONS:

- **Basic:** Capture from Copier and Document Server modes
- **Printer:** Capture from Printer & Copier and Document Server modes
- **Printer/Scanner:** Capture from Printer, Scanner & Copier and Document Server modes

	Basic	Printer	Printer/Scanner
Mainframe	✓	✓	✓
File Format Converter	✓	✓	✓
128Mb RAM Option		✓	✓
Printer Option		✓	
Printer/Scanner Option			✓

NECESSARY FIRMWARE UPGRADES FOR MAINFRAMES/OPTIONS:

Firmware (Special*)	Version	Basic	Printer	Printer/Scanner
Printer_MLB	4.15		✓	✓
Scanner_MLB	5.00			✓
BCU_MLB	5.03d	✓	✓	✓
GW_COPY_MLB	5.07	✓	✓	✓
GW_SYSTEM_MLB	5.07	✓	✓	✓
LCDC_MLB	2.04	✓	✓	✓
NIB_MLB	3.00	✓	✓	✓
NETFILE_MLB	1.79.1	✓	✓	✓

*** The special firmware must be installed as a set.**

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 049 REISSUE ★ **08/08/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: ECABINET CAPTURE FUNCTION

■ GENERAL INFORMATION

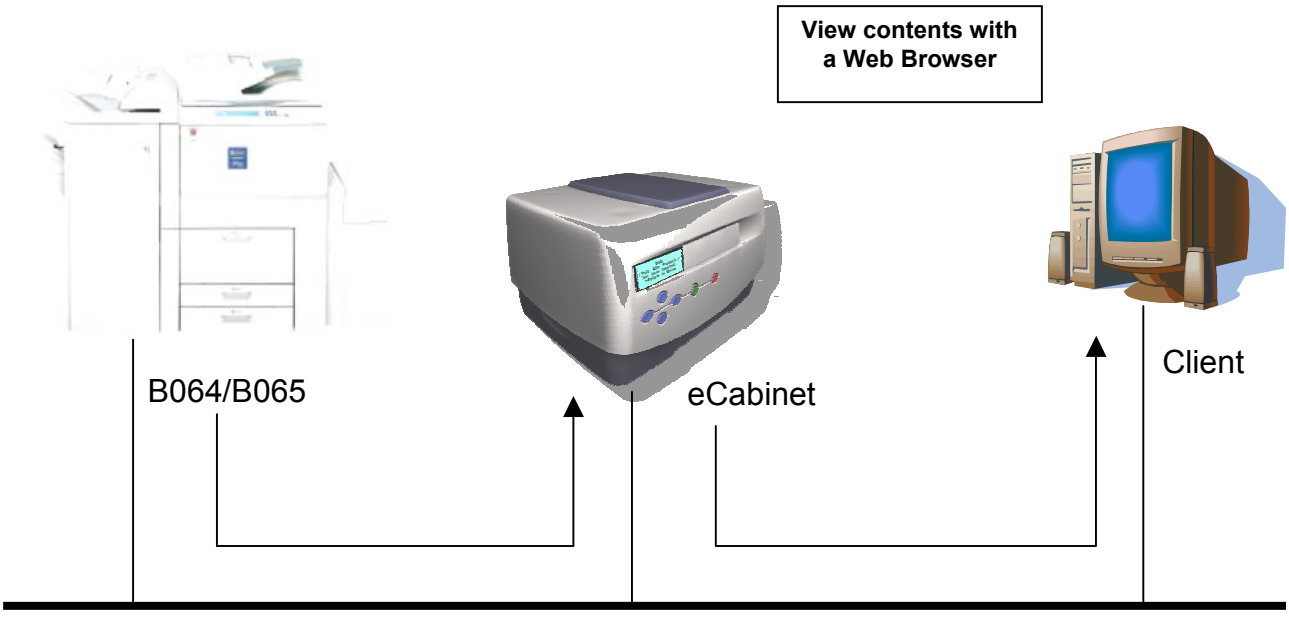
GENERAL:

B064/B065 mainframes require a file format converter to capture directly to eCabinet from copier, document server, and printer modes. The file format converter is a hardware option for the copier, which must be purchased separately.

1. Overview of the Capture Function:

Once the B064/B065 series is configured for the eCabinet, the Capture function enables users to store copier, scanner and printer documents there with such ID attributes as Owner, Name and Date. A web browser is used from the client PC to access documents stored in the eCabinet.

Even while the B064/B065 series is engaged in Capture file transfer, it is still possible to use all original B064/B065 series functions (copier, printer, Document Server). In addition, note that the Document Server can be used in place of the eCabinet in the setup shown below.



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2. HARDWARE CONFIGURATIONS:

- **Basic:** Capture from Copier and Document Server modes
- **Printer:** Capture from Printer & Copier and Document Server modes
- **Printer/Scanner:** Capture from Printer, Scanner & Copier and Document Server modes

	Basic	Printer	Printer/Scanner
Mainframe	✓	✓	✓
File Format Converter	✓	✓	✓
128Mb RAM Option		✓	✓
Printer Option		✓	
Printer/Scanner Option			✓

3. FIRMWARE UPGRADES FOR MAINFRAMES/OPTIONS:

Firmware (Special*)	Version	Basic	Printer	Printer/Scanner
Printer_MLB	4.15		✓	✓
Scanner_MLB	5.00			✓
BCU_MLB	5.03d	✓	✓	✓
GW_COPY_MLB	5.07	✓	✓	✓
GW_SYSTEM_MLB	5.07	✓	✓	✓
LCDC_MLB	2.04	✓	✓	✓
NIB_MLB	3.00	✓	✓	✓
NETFILE_MLB	1.79.1	✓	✓	✓

*** The special firmware must be installed as a set.**

4. SP SETTINGS:

SP Modes

SP5-836 -1 (Capture Function).

Enables/disables the capture function.
When enabled, the setting called capture server IP address shows up under *user tools*, *system settings*, *file transfer*.

0: Disabled (default) 1: Enabled

UP Mode:

Users need to perform the necessary settings (Capture server IP address, etc.) from inside:
[Use Tools/Counter]→[System Settings]

1. On the copier go to; *user tools, system settings, file transfer*, Capture server IP address, to enter eCabinet IP address.

2. On the copier go to; *user tools, system settings, key op tools, next button*, capture priority and set to customer's preferences.
3. On the copier go to; *user tools, system settings, timer settings* and set to customer's preference.

EXPLANATION:

- "OFF": Normal mode - eCabinet window does not pop up and there is no capture to eCabinet.
- Default "OFF": - eCabinet window pops up, select ecab user, and choose capture "ON" or OFF".
- Default "ON": - eCabinet window pops up, user must be selected, and capture mode is "ON" or OFF".
- "ON": - eCabinet window pops up, user must be selected, and capture mode is "ON" and cannot be changed.
- "ON" (NO DISPLAY): - eCabinet window and capture happens behind the scenes. Default user setup on.

Example:

Problem:
The customer wants to make copies and send an electronic copy to the eCabinet, but the customer does not want every copy to be sent to the eCabinet.

Solution:
The capture priority for copier mode should be set to Default "ON."

TO CONFIGURE THE ECABINET:

1. Install the eCabinet, and make sure that it has the same IP address that you used when you set the Capture Server IP address on the copier.
2. From a web browser, log in to the eCabinet as adminNOA.
3. On the toolbar, click Settings.

   The Settings page appears.
4. Click Network and Device Configuration.

   The Network and Device Configuration page appears.
5. Click Copiers.

   The Copiers page appears.
6. Click New.

   The Copiers - New Copier Information page appears.
7. Enter the Copier IP Address.
8. Click Merge eCabinet user list into user list on copier to keep any existing users that are on the copier.

   NOTE: *Step 8 is not necessary if using eCabinet v3.*
9. Click Save.

NOTE 1: *The MFP requires its own device name to be resolved on the DNS server. If it cannot resolve its own name, the FTP process to the eCabinet may be rejected.*

NOTE 2: *eCabinet Software version 2.1 or later is required.*

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 050 **07/28/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

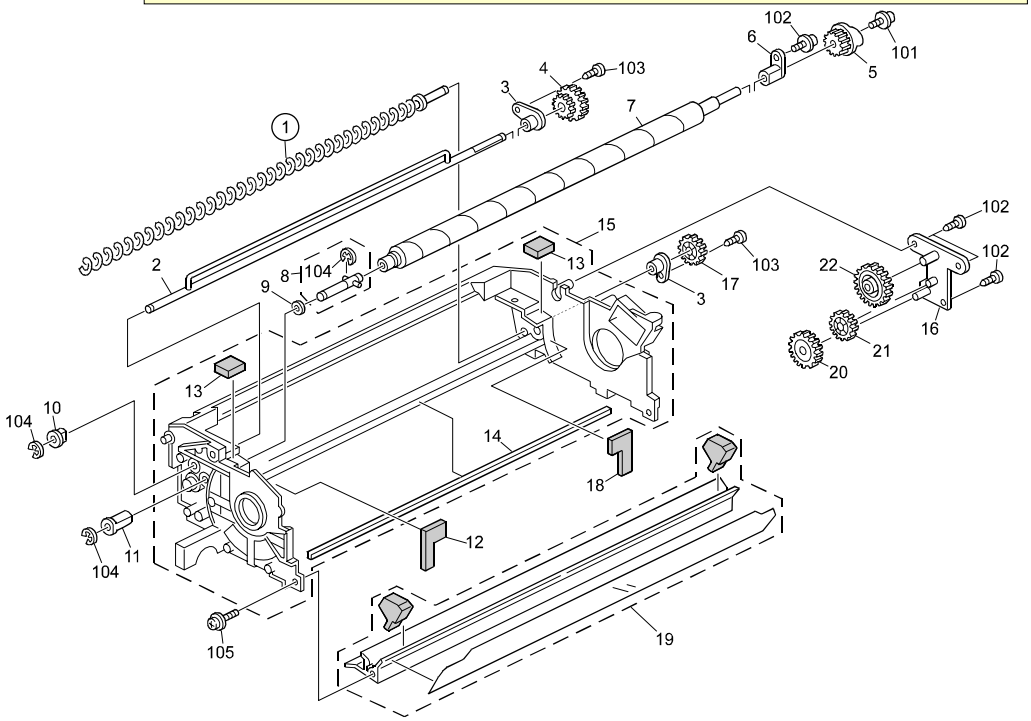
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs.

- **UPDATE 1:**

Toner Collection Coil – The Toner Collection Coil has been changed to further improve PCU toner transport efficiency. Please update your B064/B065 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AD043077	B1102326	Toner Collection Coil	1	0	87	1

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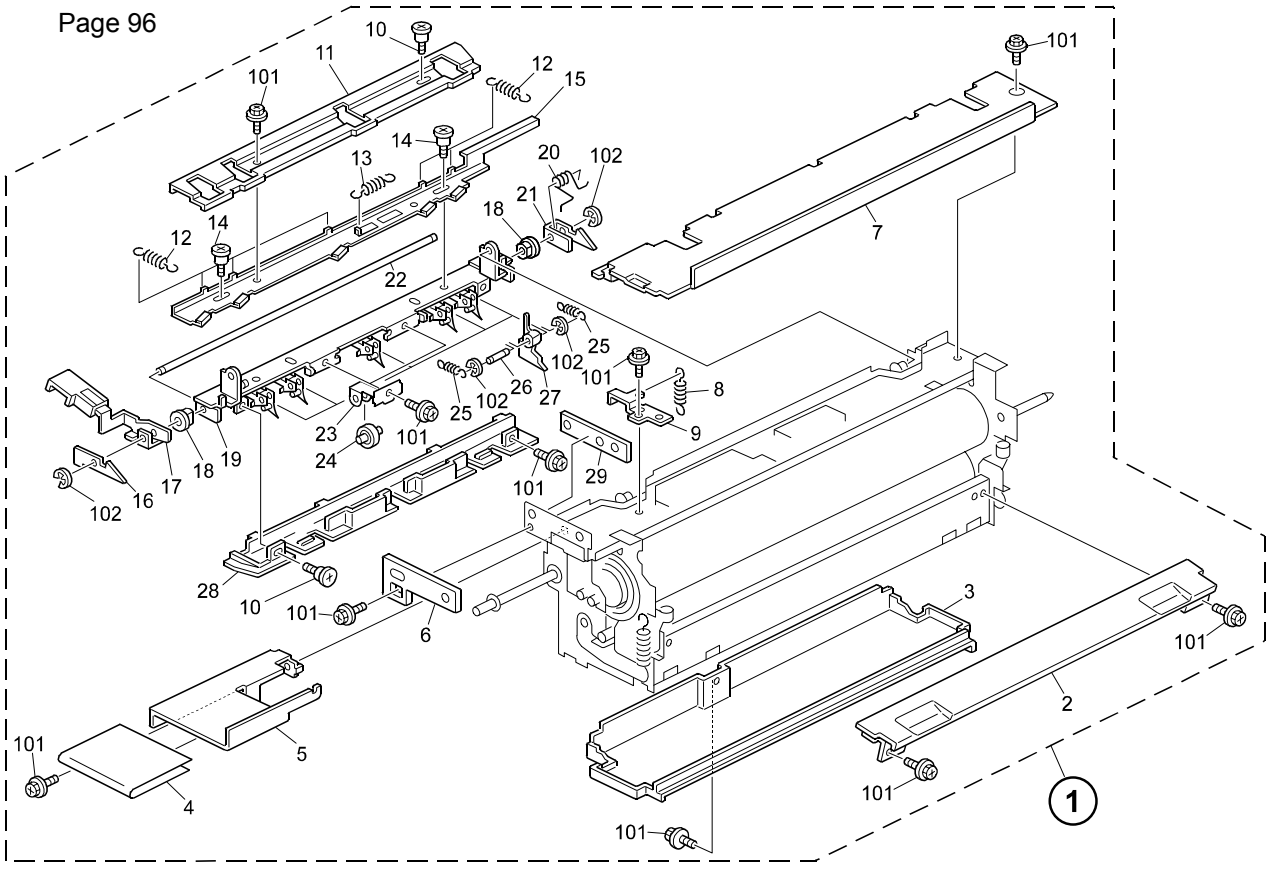
UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Toner Collection Coil installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235400252
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335400346

- **UPDATE 2:**

Hot Roller – The Hot Roller has been changed. Please update your B064/B065 Parts Catalog with the following information.



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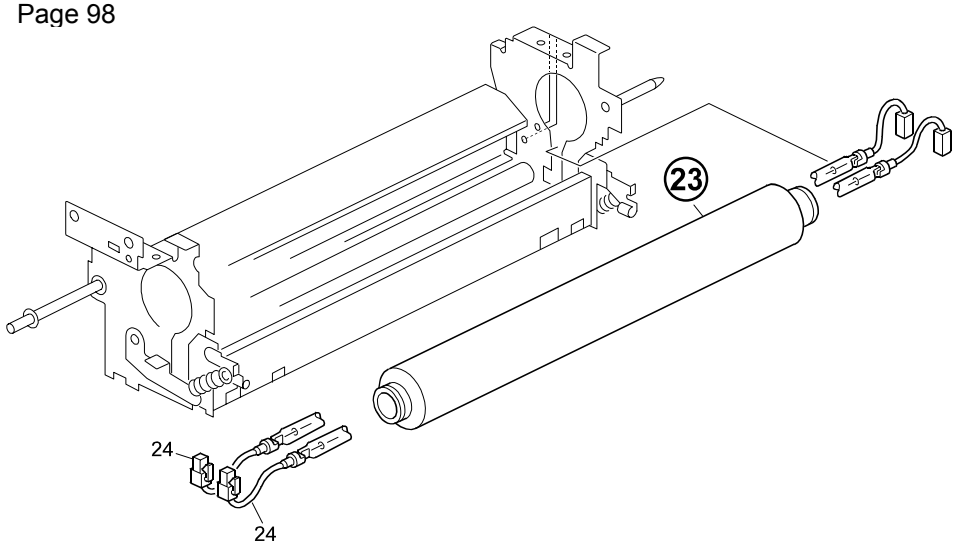


					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B0654018	B0654016	Fusing Unit - 120V	1	1	97	1
B0654028	B0654029	Fusing Unit - 230V	1	1	97	1
B0654020	B0654021	Fusing Unit (TWN)	1	1	97	1
AE011075	AE011087	Hot Roller	1	1	99	23

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Toner Collection Coil installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235400001
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335400001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 050 REISSUE ★ **10/28/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

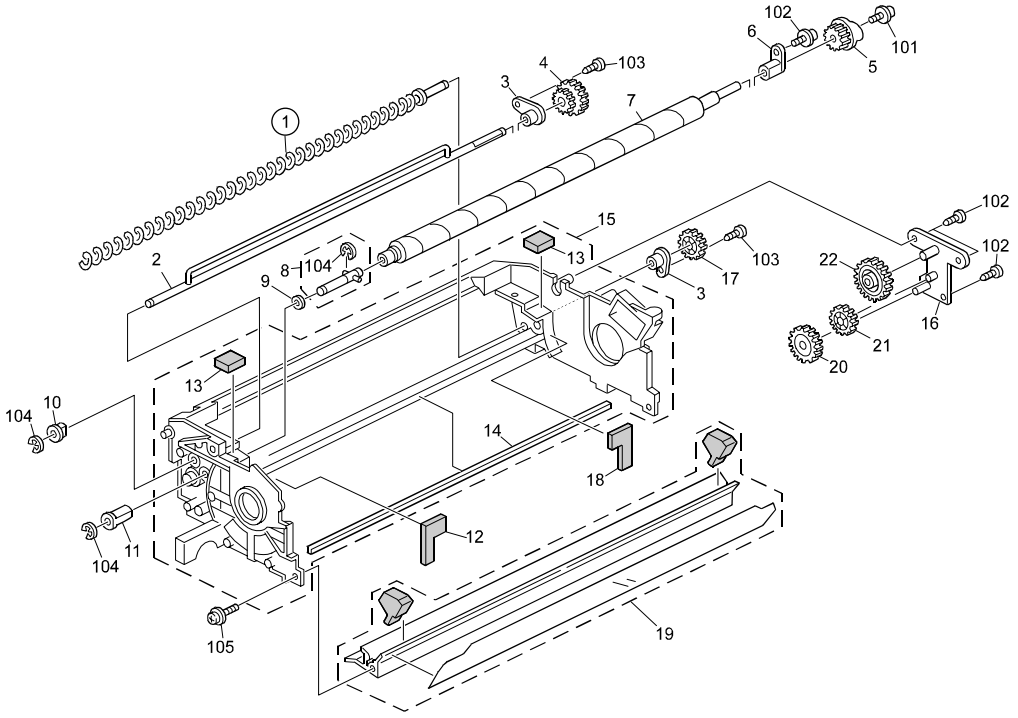
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs.

- **UPDATE 1:**

Toner Collection Coil – The Toner Collection Coil has been changed to further improve PCU toner transport efficiency. Please update your B064/B065 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AD043077	B1102326	Toner Collection Coil	1	0	87	1

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UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Toner Collection Coil installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235400252
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335400346

- **UPDATE 2:**

Hot Roller – The Hot Roller has been changed. Please update your B064/B065 Parts Catalog with the following information.

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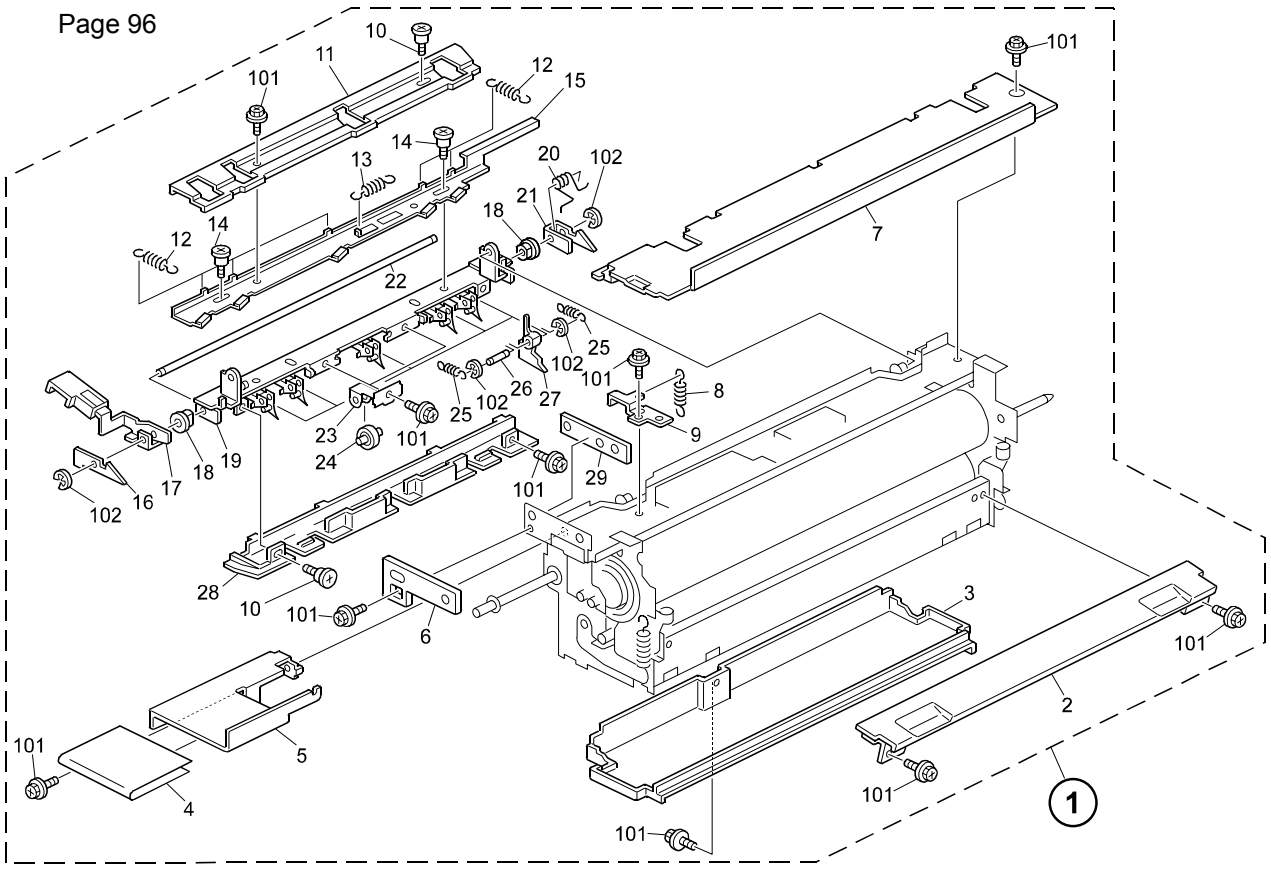

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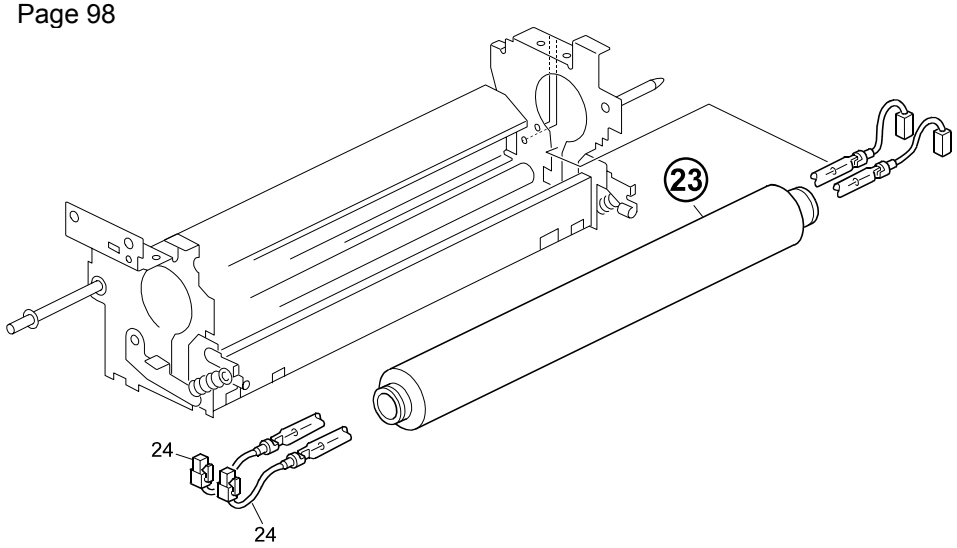


					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B0654018	B0654016	Fusing Unit - 120V	1	1	97	1
B0654028	B0654029	Fusing Unit - 230V	1	1	97	1
B0654020	B0654021	Fusing Unit (TWN)	1	1	97	1
AE011075	AE011087	Hot Roller	1	1	99	23

UNITS AFFECTED:

★ All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Fusing Unit and Hot Roller installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235400001
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335400001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 051 **07/31/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: C-JAM

SYMPTOM:

After a job is initiated for Paper Tray feed, the machine begins to feed the paper stacked in the Bypass Tray as well, resulting in a C-jam.

CAUSE:

The pulley's braking torque decreases, allowing the idling torque to take over and rotate the feed roller.

SOLUTION:

Attach the Feed Lever (P/N B0656445) to the Drive Reverse Shaft.
See installation procedure below.

GENERAL:

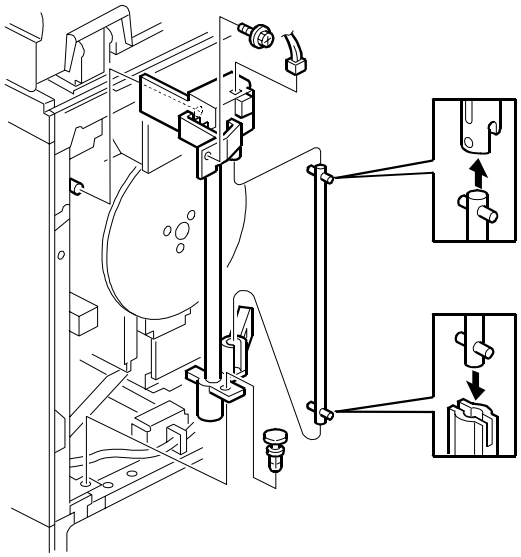
			REFERENCE	
NEW PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
B0656445	Feed Lever	1	71	35 *

*** DENOTES NEW ITEM NUMBER**

Installation Procedure for the Feed Lever (P/N B0656445)

Preparation: Make sure the main power switch has been turned OFF.

1. Remove the rear upper cover (2 screws).
2. Open the controller board frame.
3. Remove the Long Toner Separation Shaft (snap ring).



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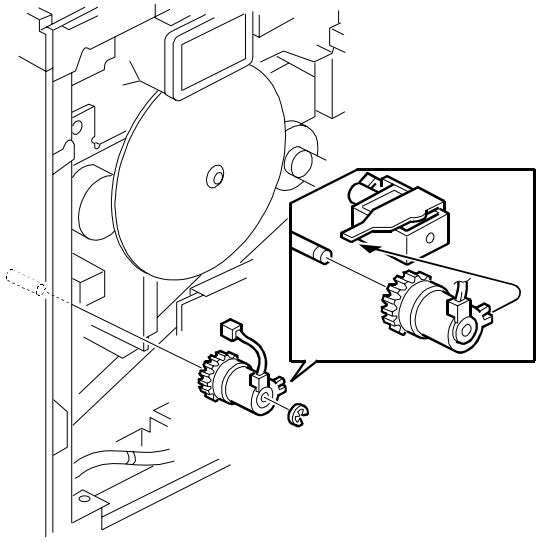
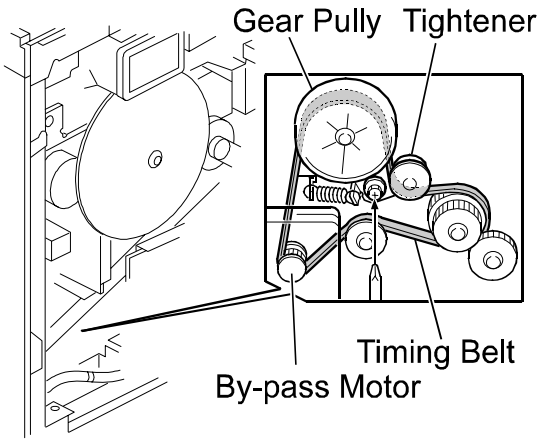
4. Remove the clutch shown at the right (e-ring).



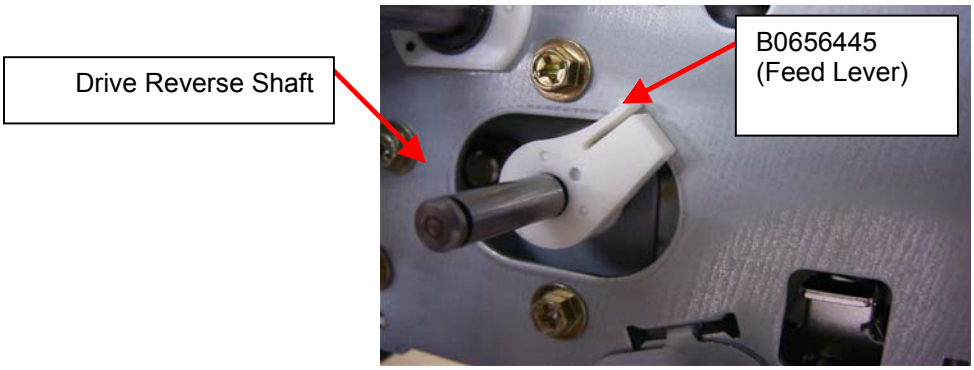
5. Loosen the screw for the tightener, slide the tightener up to its upper-right position, and then re-tighten the screw.
6. Remove the Timing Belt.
7. Remove the Gear Pulley (e-ring).
8. Remove the e-ring on the Drive Reverse Shaft behind the Gear Pulley.
9. Attach the Feed Lever to the Drive Reverse Shaft, and then reattach the e-ring.



Important: Lever Orientation

The Feed Lever should be attached with:

- The one-way clutch **facing inward** (facing the frame)
- The arm of the lever **facing the solenoid** (facing right as shown in the photo below)



UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the Feed Lever attached to the Drive Reverse Shaft installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235400001
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335400001

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 052 **09/23/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

SERVICE MANUAL

The Service Manual pages listed below must be replaced with the pages supplied.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- viii Table of Contents Page, Section Five Page Number Have Changed
- 5-1 to 5-111 Service Tables Section Has Been Updated

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NVRAM Firmware Update 5-15
5.5 USER TOOLS 5-16
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5.5.2 SYSTEM SETTINGS 5-17
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6.2.7 ORIGINAL SKEW CORRECTION 6-9
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SERVICE TABLES

⇒ 5. SERVICE TABLES

⚠CAUTION

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

5.1 SERVICE PROGRAM MODE

5.1.1 SERVICE PROGRAM MODE OPERATION

The service program mode is used to check electrical data, change modes, and adjust values. Two service program modes are provided:

- **SP Mode (Service)**. Includes all the options in the SP displays for normal maintenance and adjustments.
- **SSP Mode (Special Service)**. Includes the normal SP modes and *some additional options in the SP displays not required for normal settings and adjustments*. (These SP numbers are in **bold type** and most are marked "DFU" (Design or Factory Use) in the tables.) Do not change these settings needlessly.

Entering and Exiting SP mode

	1. Press the Clear Mode key.
1 0 7	2. Use the keypad to enter "107".
C/⊘	3. Hold down Clear/Stop for at least 3 seconds. The Copy SP or PM Counter items are displayed. The Printer SP and Scanner SP are also available if installed.
	4. Enter the Service Mode.
	To enter the Normal Service Mode:
Copy SP	On the touch-panel, press Copy SP.
	To enter the Special Service Mode:
# **Copy SP**	Hold down # and then press Copy SP.
Exit	5. Press Exit to return to the copy window.

To Switch to the Copy Window for Test Printing

1. In the SP mode display, press Copy Window to switch to the copy operation screen when you need to select paper for a test print.
2. Use the copy window (copier mode) to select the appropriate settings (paper size, etc.) for the test print.
3. Press Start ◈ to execute the test print.
4. Press SP Mode (highlighted) to return to the SP mode screen and repeat from step 1.

Service Tables

Using the SP Mode

SP command numbers can be entered directly (if you know the entire number) or the command can be selected from the menus.

Direct Entry

SP5831 (Initial Setting Clear) an executable SP that initializes the User Tools settings, can be executed immediately by just entering the numbers.

1. Press 5 8 3 1.
2. Press Enter #.
3. Press "Execute" on the touch panel.

If you know all seven digits of the SP code, enter the seven numbers and press Execute.

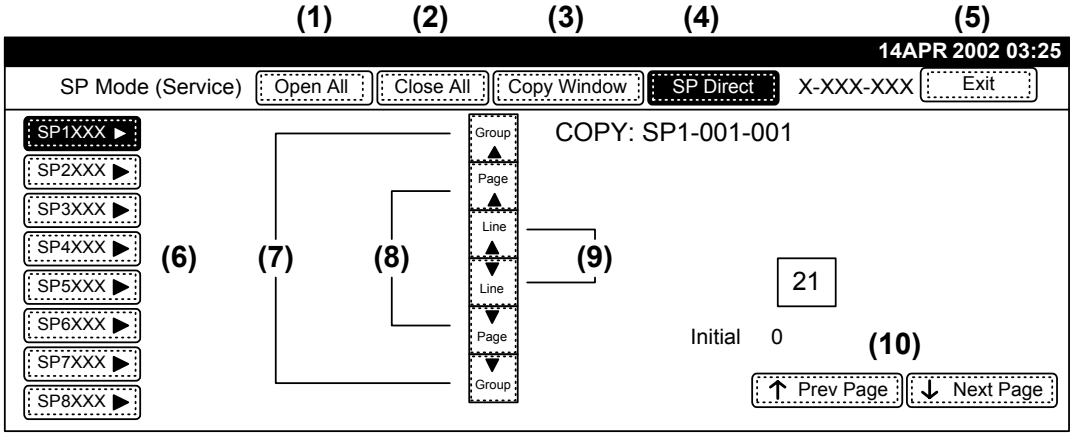
However, if you do not know all the numbers, enter only the first four numbers of the seven-digit SP and press Enter #. The display goes immediately to the first SP of that group. Then you can use the buttons to browse to the desired selection.

Button Selection Entry

1. Refer to the SP Mode Tables at the end of this section to find the SP that you want to adjust.
2. Press the Group number on the left side SP Mode window that contains the SP that you want to adjust.
3. Use the scrolling buttons in the center of the SP mode window to display the SP number that you want to open, then press that number to expand the list.
4. Use the center touch-panel buttons to scroll to the number and title of the item that you want to set, and press #. The small entry box on the right is activated and displays the default or the current setting below.
5. To enter a setting
   - Press • to enter a minus sign. Then use the keypad to enter the appropriate number. The number you enter will write over the previous setting.
   - Press # to enter the setting. (If you enter a number that is out of range, the key press is ignored.)
   - When you are prompted to complete the selection, press Yes.
6. If you need to perform a test print, press Copy Window to open the copy window and select the settings for the test print. Press Start ◇ twice, then press SP Mode (highlighted) in the copy window to return to the SP mode display.
7. When you are finished, press Exit twice to return to the copy window.

SP Mode Button Summary

Here is a short summary of the touch-panel buttons.



(1): **Open All**.
Opens all SP groups and sublevels.

(2): **Close All**.
Closes all open groups and sublevels and restores the initial SP mode display.

(3): **Copy Window**.
Opens the copy window (copy mode) so you can make test copies. To return to the SP mode screen, press SP Mode (highlighted) in the copy window.

(4): **SP Direct**.
Enter the SP code directly with the number keys if you know the SP number, then press #. (SP Direct must be highlighted before you can enter the number. Just press SP Direct if it is not highlighted.)

(5): **Exit**.
Press twice to leave the SP mode and return to the copy window to resume normal operation.

(6): **SPnxxx**.
Press any group number to open a list of SP codes and titles for that group. For example, to open the SP code list for SP1-nnn, press SP1XXX. If an SP has sublevels, it is marked with a right pointing triangle.

(7): **Group**.
Press to scroll the display to the previous or next group.

(8): **Page**.
Press to scroll to the previous or next display in segments the size of the screen display (page).

(9): **Line**.
Press to scroll the display to the previous or next line, line by line.

(10): **Prev Page** or **Next Page**.
Press to move the highlight on the left to the previous or next selection in the list.

5.2 RESETS

5.2.1 MEMORY ALL CLEAR: SP5801

Before shipping, the SP mode data settings are printed in an SMC Report and attached to the exposure glass of the machine for your reference. Store this report in a safe place (next to the toner collection bottle, for example). It is a list of all the SP initial settings. Refer to this list if you need to initialize one or more SPs. The initial SP settings are also written in the SP mode tables at the end of this section.

As a rule, you should always print an SMC Report before initializing or adjusting the SP settings. The SMC Report provides a concise list of all the SP commands and their current settings. The report can be used for reference if the service manual is not available.

Executing Memory All Clear resets all the settings stored in the NVRAM to their default settings except the following:

SP7-003-1:	Electrical total counter value
SP5-811-1:	Machine serial number
SP5-907:	Plug & Play Brand Name and Production Name Setting

1. Execute SP5990 to print out all SMC Data Lists.
2. Open SP mode 5801.
3. Press the number for the item that you want to initialize. The number you select determines which application is initialized. For example, press 1 if you want to initialize all modules.

No.	What It Initializes	Comments
1	All modules	Initializes items 2 ~ 15 below.
2	Engine	Initializes all registration settings for the engine and copy process settings.
3	SCS (System Control Service) /SRM	Initializes default system settings, CSS settings, operation display coordinates, and ROM update information.
4	IMH	Initializes the image file system.
5	MCS (Memory Control Service)	Initializes the automatic delete time setting for stored documents.
6	Copier application	Initializes all copier application settings.
7	Fax application	Not used.
8	Printer application	Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter.
9	Scanner application	Initializes the defaults for the scanner and all the scanner SP modes.
10	Network application	Deletes the Netfile (NFA) management files and thumbnails, and initializes the Job login ID. Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software
11	NCS (Network Control Service)	Initializes the system defaults and interface settings (IP addresses also), the SmartNetMonitor for Admin settings, WebStatusMonitor settings, and the TELNET settings.
14	DCS	Initializes the DCS (Delivery & Receive Control Server) settings.
15	UCS	Initializes the UCS (User Directory Control Server) settings.

4. Press Execute, then follow the prompts on the display to complete the procedure.
5. Make sure that you perform the following settings:
   - Execute SP2115 – Laser Beam Pitch Adjustment
   - Do the printer and scanner registration and magnification adjustments (☛ Section 3 “Copy Adjustments”).
   - Do the touch screen calibration (☛ Section 3 “Touch Screen Calibration”).
   - Referring to the SMC data lists, re-enter any values, which had been changed from their factory settings.
   - Execute SP 3001 002 – ID Sensor Initial Setting
6. Check the copy quality and the paper path, and do any necessary adjustments.

5.2.2 SOFTWARE RESET

The software can be rebooted when the machine hangs up. Use the following procedure.

Power off the machine (☛ 1.1.5 Powering Unit Off) and then back on.

-or-

Press and hold down ⊙ # together for over 10 seconds. When the machine beeps once, release both buttons. After “Now loading. Please wait” is displayed for a few seconds, the copy window will open. The machine is ready for normal operation.

5.3 TEST PATTERN PRINTING

5.3.1 IPU FRONT/BACK TEST PATTERNS: SP2902 001,002

- **Front side pattern** (SP2902 001). Generated by the IPU in place of data scanned from the front side of an original (CCD→SBU). Generated in the scanner image correction circuit.
- **Back side pattern**. (SP2902 002. Generated by the IPU in place of data scanner from the back side of an original (CIS→SBU). Generated in the scanner image correction circuit.

The IPU test patterns are primarily used for design purposes. However, they can be used as follows:

- To confirm that the IPU is processing images correctly.
- To fine tune the image processing parameters
- To help trace the causes of poor images. For example, if the IPU test patterns are normal when the machine is producing poor quality images, then the problem must be after the IPU.

1. Enter the SP mode, select SP2902.
2. Select 001 to print a test pattern for the front side, or select 002 to print a test pattern for the back side.
3. Scroll then select the number of the test pattern that you want to print (see the table below).
4. Press # or select OK.
5. Press Copy Window to open the copy window, then select the settings for the test print (paper size, etc.)
6. Press Start to start the test print.
7. Press SP Mode (highlighted) to return to the SP mode display.
   NOTE: Patterns 6, 8, 9, and 11 are the best choices for testing and confirming the operation of the IPU.

Test Pattern Table

These patterns can be selected for both SP2902 001 and 002.

No.	Test Pattern
0	None
1	Vertical Line (1-dot)
2	Vertical Line (2-dot)
3	Horizontal Line (1-dot)
4	Horizontal Line (2-dot)
5	Independent Dot (1-dot)
6	Grid Pattern (1-dot)
7	Vertical Stripes
8	Grayscale Horizontal
9	Grayscale Vertical
10	Density Patch
11	Argyle Pattern
12	Bandwidth Characteristics Horizontal
13	Density Patch (256-level)
14	Density Patch (64-level)
15	Trimming Area
16	Bandwidth (Vertical)
17	Bandwidth (Horizontal)
18	*Auto Create Vertical 1-dot Line (Main Scan)*
19	*Auto Create Horizontal 1-dot Line (Sub Scan)*
20	*Auto Create Vertical 2-dot Line (Main Scan)*
21	*Auto Create Horizontal 2-dot Line (Sub Scan)*
22	*Auto Create 1-dot Independent Dots*
23	*Auto Create Grid 1-dot Line*
24	*Auto Create Argyle*
25	*Auto Create Argyle*
26	*Auto Create Grayscale Horiz. (20 mm)*
27	*Auto Create Grayscale Horiz. (40 mm)*
28	*Auto Create Grayscale Vertical (20 mm)*
29	*Auto Vertical Grayscale 40*
30	*Auto Slant Cross Strip*

Items 18-30 above (in italics) will print a blank sheet with a line at one side.

5.3.2 PRINTING TEST PATTERN: SP2902 003

Some of these test patterns are used for copy adjustments (☛3.14) but most are used primarily for design testing. These test patterns do not use the IPU.

1. Enter the SP mode and select SP2902 003.
2. Enter the number for the test pattern that you want to print and press #or select OK. (See the table below.)
3. Press Copy Window to open the copy window, then select the settings for the test print (paper size, etc.)
4. Press Start ◇ twice (ignore the “Place Original” messages) to start the test print.
5. Press SP Mode (highlighted) to return to the SP mode display.

No.	Test Pattern
0	None
1	Gray Inside Trimming Area
2	Gray Inside Trimming Area
3	Full Dot Pattern
4	Black Squares
5	Black Squares
6	Grid Pattern (1-dot pair)
7	Grid Pattern (1-dot pair)
8	Grid Pattern (1-dot pair)
9	Grid Pattern (2-dot pair)
10	Checker Board
11	Black Inside Trimming Area
12	Black Inside Trimming Area
13	Black Inside Trimming Area
14	Black Inside Trimming Area
15	Vertical Lines
16	Horizontal Lines
17	Horizontal Cross Stitch (1-dot Horizontal 600 dpi)
18	Trimming Pattern
19	Black Inside Trimming Area
20	Large Black Bars
21	Large Black Bars
22	Horizontal Lines
23	Blank
24	Trimming Area (External Data Composite)
25	Trimming Pattern
26	Diagonal Squares
27	Vertical Lines

6. Switch the machine off and on.

5.3.3 IPU PRINTING TEST PATTERN: SP2902 004

This test pattern is generated in the application input processing circuit in the IPU. The operation path is as follows:

Application input ➔ Memory ➔ Printer

This test pattern is primarily used for design purposes, but it can also be used to trace the source of problems beyond the IPU (in the application input or BICU) which are causing poor print quality.

1. Enter the SP mode and select SP2902 004.
2. Enter the number for the test pattern that you want to print and press #. (See the table below.)

No.	Pattern
0	None
1	Grayscale Vertical (16-level/20 mm)
2	Grayscale Vertical (16-level/40 mm)
3	Grayscale Horizontal (16-level 20 mm)
4	Grayscale Horizontal (16-level 20 mm)
5	Grayscale Horizontal (16-level 20 mm)

3. When you are prompted to confirm your selection, press Yes to select the test pattern for printing.
4. Press Copy Window to open the copy window, then select the settings for the test print (paper size, etc.)
5. Press Start twice (ignore the “Place Original” messages) to start the test print.
6. Press SP Mode (highlighted) to return to the SP mode display.
7. Switch the machine off and on.

5.4 SOFTWARE UPDATE

5.4.1 OVERVIEW

IC cards are used to update the software and to back up important data. Here is a list of the items that can be updated or restored from a card:

- BCU software
- GW controller software
- LCDC (operation panel) software
- Printer option (DIMM) software
- Scanner option (DIMM) software
- PHY: NCS (NIB) software
- PHY: NFA (NetFile) software
- Stamp data
- NVRAM software

First, install the BCU software, then the GW controller software, then the others can be upgraded in any order.

NOTE: Here are some important points to keep in mind when handling and using IC cards.

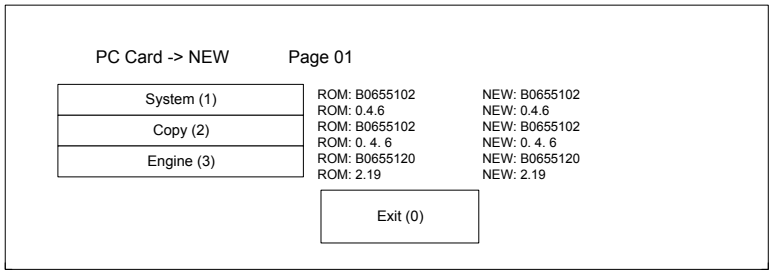
1) With BCU firmware ver4.x or later, please use GW firmware ver3.x or later (and with GW ver3.x or later, please use BCU ver4.x or later).
2) Never insert or remove a card with the machine power switched on.
3) Never switch the power off while the machine is downloading data from an IC card.
4) The IC card is a precision item so handle it carefully. Never store the card in a location subject to high temperature, high humidity, or direct sunlight.
5) Never bend the card, scratch it, or subject it to strong shock or vibration.

If an error occurs during downloading, an error code appears. For full details on these error codes and how to recover the machine, see ‘Troubleshooting – Program Download’ (Section 4.1).

5.4.2 SOFTWARE UPDATE PROCEDURE

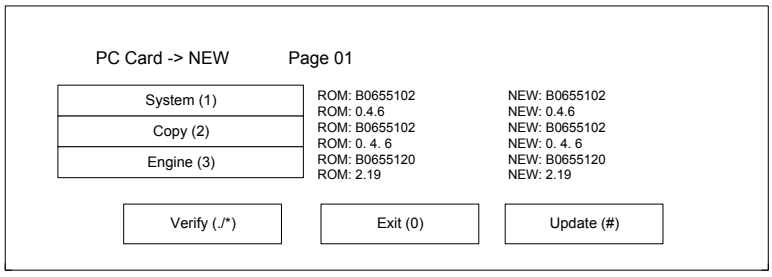
GW Controller/BCU Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Remove the IC card slot cover (🔩 x1).
3. With its A side facing away from the machine, insert the IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.



NOTE: 1) In the ROM number displays, the first line is the software number and the second line is the version number.
2) The left column displays the current software and version numbers of the software in the machine, and the column on the right displays the same information for the data on the IC card.

6. Press the appropriate item on the touch-panel.
   - For the GW controller, press System (1) and Copy (2) on the touch-panel, or you can press ① or ② on the operation panel.
   - For the BCU, press Engine (3) on the touch-panel, or you can press ③ on the operation panel.
   - To update all, press two buttons simultaneously.



7. To start the installation, press Update (#) on the touch panel, or press ⓗ on the operation panel.
8. The installation screen opens. As the installation progresses, the dashes on the display are replaced by asterisks (****----)
9. When “Update Done” is displayed, switch the machine off and remove the IC card.

Service Tables

Forced Update

If the download does not complete normally and you cannot restart the installation procedure, execute a forced installation.

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Remove the controller cover and set DIP SW1 to ON.
3. Make sure that the IC card is inserted correctly and switch the machine on.
4. Repeat from Step 5 of the previous section.
   NOTE: If the IC card of a different machine is used by mistake to start the installation, the operation panel will return a message: “Download Error” or “No Matching Data”. Then the machine will log SC999.

Stamp Data Update

After the hard disk has been initialized, the preset stamp data must be downloaded to the hard disk.

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With the A side facing up, insert the printer IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   In the lower right corner of the Download Watermark screen, press OK on the touch panel.

Operation Panel Software Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With it's A side facing up, put the operation panel IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press "OpePanel.EXP" then press Update (#).
   The installation download starts in about 9 seconds.

   The operation panel goes off and the Start ⓓ LED flashes red during downloading.

   When the download is completed, the Start ⓓ LED flashes green.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NOTE: 1) During the download, the operation panel switches off and only the Start key flashes red.
2) You must wait until the Start key stops flashing red and starts flashing green.
3) If a power failure occurs during downloading, E32 (Reboot After Card Insert) is logged. Remove the IC card, switch off the machine. Insert the card again and switch on the machine to restart downloading.

Printer Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the printer IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press "Opt DIMM Prn (1)" then press Update (#).
   When "Power Off/On" is displayed, the download is completed.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

Scanner Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the scanner IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press “Opt DIMM Scn (1)” then press Update (#).
   When “Power Off/On” is displayed, the download is completed.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NIB Update

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the NIB data IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press “Network Support (1)” then press Update (#).
   When “Power Off/On” is displayed, the download is completed.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NetFile Firmware Update

Netfile firmware controls jobs to be printed from the document server using a PC and the DeskTopBinder software.

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the NetFile IC card into the slot.
4. Switch the machine on.
5. Wait for the update screen to open.
   Press “Network DocBox (1)” then press Update (#).
   When “Power Off/On” is displayed, the installation is completed.
6. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

NVRAM Firmware Update

This procedure describes updating the NVRAM firmware. For details about replacing the NVRAM see “3.4.7 NVRAM”.

NOTE: Before updating NVRAM, the contents of NVRAM should be uploaded to a PC memory card and then downloaded after updating the NVRAM firmware. For details, see “3.12.7 NVRAM”.

1. Power off the machine (☛ 1.1.5 Powering Unit Off).
2. Disconnect the ADF plug, remove the rear upper cover (☞ x2), then remove the IC card slot cover (☞ x1).
3. With its A side facing up, insert the NVRAM IC card into the slot..
4. Open the front door.
   NOTE: The success of the download cannot be guaranteed if the front door is closed during the download execution.
5. Switch the machine on.
6. After the download is completed, a message on the operation panel will prompt you to switch the machine off and on.
7. Power off the machine (☛ 1.1.5 Powering Unit Off), remove the IC card, then switch the machine on.

   The NVRAM download execution updates everything except the following SP functions:

SP7003 ***	Total Count
SP7006 ***	C/O, P/O
SP7007 ***	Other Device Counters

5.5 USER TOOLS

5.5.1 OVERVIEW

This section is a summary of the user tools. Refer to the operator's manual for more details.

1. On the operation panel, press User Tools
2. Press the appropriate key, then access the following items:
   - System Settings
   - Copier/Document Server Features
   - Printer Features
   - Scanner Features
   - Display Language
   - Inquiry
   - Counters

You can use these tools while the machine is operating, during a jam, or even when a warning is displayed. However, you cannot move to the user screen while in the SP mode, but you can easily switch between the SP mode screen and the operation screen by pressing Copy Window.

During machine operation, in the jam mode, or while a warning message is displayed, the display language can be changed and the counters can be displayed. However, the counters cannot be printed.

5.5.2 SYSTEM SETTINGS

General Features
Panel Tone
Warm Up Notice
Copy Count Display
Function Priority
Print Priority
Function Reset Timer
Interleave Print
Output Tray Setting
Output Copier
Output: Document Server
Output: Printer
ADF Original Table Elevation
Job List Display Time
Tray Paper Settings
Paper Tray Priority: Copier
Paper Tray Priority: Printer
Tray Paper Size: Tray 2
Tray Paper Size: Tray 3
Paper Type: Bypass Tray
Paper Type: Tray 1
Paper Type: Tray 2
Paper Type: Tray 3
Paper Type: LCT
Cover Sheet Tray
Slip Sheet Tray 1
Slip Sheet Tray 2
Timer Setting
Auto Off Timer
Energy Saver Timer
Panel Off Timer
System Reset Timer
Copier/Document Server Auto Reset Timer
Scanner Auto Reset Toner
Set Date
Set Time
Weekly Timer Code
Weekly Timer: Monday
Weekly Timer: Tuesday
Weekly Timer: Wednesday
Weekly Timer: Thursday
Weekly Timer: Friday
Weekly Timer: Saturday
Weekly Timer: Sunday

Interface Settings
Network
IP Address
Subnet Mask
Gateway Address
Network Boot
Effective Protocol
NW Frame Type
LAN Type
Ethernet Speed
Parallel Interface
Parallel Timing
Parallel Communication Speed
Selection Signal Status
Input Prime
Bidirectional Communication
Signal Control
File Transfer
Delivery Option
Scanner Recall Interval Time
Number of Scanner Recalls
Key Operator Tools
User Code Management
Key Counter Management
Key Operator Code
Display/Print Counter
Display/Clear/Print Counter per User Code
Address Book Management
Address Book: Program/Change/Delete Group
Address Book: Change Order
Address Book: Edit Title
Address Book: Select Title
Auto Delete File
Delete All Files
Display Password with Stored File
Key Operator's E-Mail Address
AOF (Always On)

5.5.3 COPIER/DOCUMENT SERVER FEATURES

General Features
Auto Paper Select Priority
Auto Tray Switching
Paper Display
Original Type Priority
Original Type Display
Auto Image Density Priority
Copy Quality
Image Density
Duplex Mode Priority
Copy Orientation in Duplex Mode
Original Orientation in Duplex Mode
Change Initial Mode
Max. Copy Quantity
Tone: Original Remains
Job End Call
Copy Function Key: F1
Copy Function Key: F2
Copy Function Key: F3
Copy Function Key: F4
Copy Function Key: F5
Document Server Storage Key: F1
Document Server Storage Key: F2
Document Server Storage Key: F3
Document Server Storage Key: F4
Document Server Storage Key: F5
Document Server Print Key 1: F1
Document Server Print Key 1: F2
Document Server Print Key 1: F3
Document Server Print Key 1: F4
Document Server Print Key 1: F5
Reproduction Ratio
Shortcut R/E 1
Shortcut R/E 2
Shortcut R/E 3
Enlarge 1
Enlarge 2
Enlarge 3
Enlarge 4
Enlarge 5
Priority Setting: Enlarge
Reduce 1
Reduce 2
Reduce 3
Reduce 4
Reduce 5
Reduce 6
Priority Setting: Reduce
Ratio for Create Margin
R/E Priority

Edit
Front Margin: Left/Right
Back Margin: Left/Right
Front Margin: Top/Bottom
Back Margin: Top/Bottom
1-Sided → 2-Sided Auto Margin: T to T
1-Sided → 2-Sided Auto Margin: T to B
Erase Border Width
Erase Original Shadow in Combine
Erase Center Width
Image Repeat Separation Line
Double Copies Separation Line
Separation Line in Combine
Copy Back Cover
Front Cover Copy in Combine
Copy on Designating Page in Combine
Orientation: Booklet, Magazine
Copy Order in Combine

Stamp
Background Numbering
Size
Density
Preset Stamp
Stamp Priority
Stamp Language
Stamp Position: COPY
Stamp Position: URGENT
Stamp Position: PRIORITY
Stamp Position: For Your Info.
Stamp Position: PRELIMINARY
Stamp Position: For Internal Use Only
Stamp Position: CONFIDENTIAL
Stamp Position: DRAFT
Stamp Format: COPY
Stamp Format: URGENT
Stamp Format: PRIORITY
Stamp Format: For Your Info.
Stamp Format: PRELIMINARY
Stamp Format: For Internal Use Only
Stamp Format: CONFIDENTIAL
Stamp Format: DRAFT
User Stamp
Program/Delete Stamp
Stamp Position: 1
Stamp Position: 2
Stamp Position: 3
Stamp Position: 4
Stamp Format: 1
Stamp Format: 2
Stamp Format: 3
Stamp Format: 4
Date Stamp
Format
Font
Stamp Position
Stamp Setting
Size
Superimpose

Page Numbering
Stamp Format
Font
Size
Duplex Back Page Stamping Position
Page Numbering in Combine
Stamp on Designating Slip Sheet
Stamp Position P1, P2
Stamp Position: 1/5, 2/5 …
Stamp Position: -1-, -2- …
Stamp Position: P.1, P.2 …
Stamp Position: 1, 2, …
Stamp Position: 1-1, 1-2 …
Superimpose

Input/Output
Switch to Batch
SADF Auto Reset
Rotate Sort: Auto Paper Continue
Auto Sort
Memory Full Auto Scan Restart
Select Stapling Position (Top Left)
Select Stapling Position (Bottom Left)
Select Stapling Position (Top Right)
Select Stapling Position (Bottom Right)
Select Stack Position
Select Punch Type
Letterhead Setting
Eject Copy Face Up/Down in Glass Mode
Eject Copy Face Up/Down in Bypass Mode

5.5.4 PRINTER

Paper Input
Bypass Paper Size
List/Test Print
Config. Page
Menu List
PCL Config./Font Page
PS Config./Font Page
Hex Dump
Maintenance
System
Print Error Report
Auto Continue
Memory Overflow
Job Separation
Memory Usage
Duplex
Edge Smoothing
Spool Images
Resolution
Toner Saving
Reserved Job Waiting Time
Printer Language
Sub Paper Size
Page Size
Letterhead Setting
Edge to Edge Printing
Quantity of Print Sets
Host Interface
I/O Buffer
I/O Timeout
PCL Menu
Orientation
Form Lines
Font Source
Font Number
Point Size
Font Pitch
Symbol Set
Extend A4 Width
Appent CR to CF

5.5.5 SCANNER

Basic Settings
Program Change
Initial Setup
1 ~ 9
Delete
1 ~ 9
Scanner Settings
Send/Store Correction Timeout
Compression (Black & White)
Compression (Gray Scale)
Sender's Name Default
Max. E-Mail Size
Divide & Send E-Mail
E-Mail Information Language
Job Reset Time in Adding Original
Original Setting
Original Orientation Priority
Mixed Original Sizes Priority
Switch to Batch
File Type Priority
Print & Delete Scanner Journal
Select Title
Subject Settings
Program Change
Delete

5.5.6 INQUIRY

Machine Repair
Telephone No.
Serial No. of Machine
Sales Representative
Telephone Number
Print Inquiry List

5.5.7 COUNTER

Total 000000
Print Counter List

5.6 SERVICE PROGRAM MODE TABLES

Service Table Key

Notation	What it means
[range/**default**/step]	[–9~+9/**+3.0**/0.1 mm] The default setting +3.0 can be adjusted in 0.1mm steps in the range ±9.
Italics	Comments added for reference.
*	An asterisk marks the SP's that are reset to their factory default settings after an NVRAM reset.
DFU	Denotes "Design or Factory Use". Do not change this value.
Japan only	The feature or item is for Japan only. Do not change this value.
SEF	Short Edge Feed
LEF	Long Edge Feed

5.6.1 COPIER SERVICE TABLE

SP1-xxx Feed

SP	Number/Name		Function/[Setting]
1001*	Leading Edge Registration		Adjusts the printing leading edge registration using the trimming area pattern (SP2-902-3, No.10). [–9~+9/**+3.0**/0.1mm] Specification: 3±2mm
1002*	Side-to-Side Registration		Adjusts printing side-to-side registration for each feed station, using test pattern SP2902 003 No. 10. These SP's should be adjusted after replacing the laser synchronization detector or the laser optical unit.
	001	Tray 1	[–9~+9/**0.0**/0.1mm]
	002	Tray 2	[–9~+9/**0.0**/0.1mm]
	003	Tray 3	[–9~+9/**0.0**/0.1mm]
	004	Tray 4 (Japan only)	
	005	By-pass Tray	[–9~+9/**0.0**/0.1mm]
	006	LCT	[–9~+9/**0.0**/0.1mm]
	007	Duplex Tray	[–9~+9/**0.0** /0.1mm]
1003	Registration Buckle Adjustment		
	001*	"Tray, LCT"	Adjusts the registration motor timing. This timing determines the amount of paper buckle at registration. (A higher setting causes more buckling.) [–9~+9/**0**/1 mm]
	002	Duplex Tray	
	003*	By-pass Tray	
1007	By-pass Feed Paper Size Display		Use this SP to confirm the size of the paper detected in the by-pass tray if paper is skewing during feeding.

SP	Number/Name		Function/[Setting]
1008*	Duplex Fence Adjustment		Adjusts the distance between front and rear fences. A smaller value shortens the distance. If the fences are too far apart, skewing may occur in the duplex tray. If the fences are too close, the paper may be creased in the duplex unit. [–4~+4/**0**/0.1 mm]
1103*	Fusing Idling		Adjusts the fusing idling time. [0~900/**70**/1 s] Increase this value when fusing on the 1st and 2nd copies is incomplete due to low room temperature.
1104*	Fusing Temperature Control		Selects the fusing temperature control mode. **Off**: On/Off control On: Phase control If power supply to the machine is unstable, select Phase Control. The machine must be switched off and on after this setting is changed for the new setting to take effect. *Phase control could interfere with radio or TV reception.*
1105*	Fusing Temperature Adjustment		Adjusts the fusing temperature of the hot roller for plain paper, OHP or thick paper.
	001	Normal	[170~200/**185**/1 degree C]
	003	OHP	[170~200/**165**/1 degree C]
	005	Thick Paper	[170~200/**195**/1 degree C]
1106	Fusing Temperature Display		Displays the temperature of the hot roller detected by the thermistors.
1112	Auto Process Control		Sets the temperature of the hot roller for auto process control to start. [70°~150°/**140°**/1°C] **DFU**
1901*	CPM Down Setting for Special Paper		
	001	Thick Paper	Selects the speed (copies per minute) for copying on thick paper or tab sheets. A slower speed ensures better fusing. [0~4/**2**/1 step] 0: 25 cpm 1: 35 cpm 2: 40 cpm 3: 45 cpm 4: 55 cpm This setting does not affect fusing temperature.
	002	Tab Sheet	

Service Tables

SP	Number/Name		Function/[Setting]
1902*	Fusing Web Motor Control		
	001	Fusing Web Used Area Display/Setting	Displays the percentage of the web consumption in 1% steps (0% ~ 100%). This setting must be reset to zero after the web is replaced. [0~120%/**0**/1%]
	002	Fusing Web Motor Operation Interval	Adjusts the interval of copy operation time (seconds) after which the web motor is driven. [5~50/**15**/1 s]
	003	Fusing Web Motor Operation Time	Adjusts the length of time that the web motor is driven. [1~40/**28**/0.1 s] **DFU**
	004	Web Near End Value	Adjusts the timing of the web near end alert by changing the amount of web that has been used before the alert is triggered. [0~100/**80**/1%]
	005	Web Roll Coefficient	Determines the coefficient of the web take-up time from cleaning toner from the roller while taking into consideration the take-up time for web buckle. **DFU** [10~20/**12**/1]
1903*	Web Job End		
	001	Yes/No	This determines whether the web motor is driven at the end of a job. [0~1/**0**/0 or 1] 0: Off 1: On *Enable when paper affected by too much paper dust is causing copies to blacken.*
	002	Job End Condition	At the end of a job, the web motor is driven if the job lasted longer than the value of this SP mode. Only valid if SP1903 001 is set to 'On'. [1~99/**7**/1s]
	003	Job End Frequency	If the web motor is driven at the end of a job, this SP determines how many times the web motor operation is executed. [1~5/**2**/1]
1904	By-pass Tray Paper Size Selection		
	001	Minimum Size	Calibrates the minimum paper width position of the sensor (100 mm). Move the side fences to the 100 mm position then press Start.
	002	Maximum Size	Calibrates the maximum paper width position of the sensor (A3). Move the side fences to the A3 position then press Start.

SP	Number/Name	Function/[Setting]
1905*	Thick Paper – By-pass Tray	Adjusts the by-pass feed clutch operation for thick paper. **On**: 30 ms 0: Off 1: On This setting switches the by-pass feed clutch on for 30 ms when the registration motor turns on. It only happens when thick paper is selected, to help this paper pass through the registration rollers.

SP2-xxx Drum

SP	Number/Name		Function/[Setting]
2001*	Charge Bias Adjustment		
	001	Applied Voltage for Image Processing	Adjusts the voltage applied to the grid plate during copying when auto process control is off. [–600~–1300/**–900**/10V Steps] After replacing the charge corona wire or the drum, reset to the factory default setting.
	002	ID Sensor Pattern: Adjustment	Adjusts the voltage applied to the grid plate when the ID sensor pattern is created. [–600~–1300/**–800**/10V]]
	003	Setting for Total Bias Current	Adjusts the total current applied to the charge corona wire. **DFU** [–600~–1300/**–1300**/10μA]
	004	Setting for Total Bias Current (With Auto Processing Control)	Adjusts the voltage applied to the grid plate during copying when auto process control is on. [–600~–1300/**–900**/10μA] This voltage changes every time auto process control starts up (every time the machine is switched on).
	005	Total Bias Grid Current: OHP	Adjusts the voltage applied to the grid plate when OHP mode is selected. [–600~–1300/**–700**/10V] Use this if there is a copy quality problem when making OHP's.
	006	Total Bias Current: Photo	Adjusts the voltage applied to the grid plate when Photo mode is selected. **DFU** [–1400~ –1600/**–1600**/10 μA]
2101*	Printing Erase Margin		These settings adjust the erase margin for the leading, trailing, left, and right edges.
	001	Leading Edge	[0.0~9.0/**2.5**/0.1 mm] Specification: 3±2 mm
	002	Trailing Edge	[0.0~9.0/**2.5**/0.1 mm] Specification: 3±2 mm
	003	Left Edge	[0.0~9.0/**2**/0.1 mm] Specification: 2±1.5 mm
	004	Right Edge	[0.0~9.0/**2**/0.1 mm] Specification: 2±1.5 mm
2103*	LD Power Adjustment		Adjusts the laser to prevent uneven 1200 dpi images.
	001	LD0 Power Adjust	Adjusts the power of each of the four laser beams. **DFU** [–127~+ 127/**0**/1] 1 = 1.1 μW
	002	LD1 Power Adjust	
	003	LD2 Power Adjust	
	004	LD3 Power Adjust	
	005	LD0 Power Start/End	
	006	LD1 Power Start/End	
	007	LD2 Power Start/End	
	008	LD3 Power Start/End	

SP	Number/Name		Function/[Setting]
2104*	Small Pitch Banding Reduction		
	001	Reduction Mode On/Off Setting:1200 dpi	Switches on/off the setting that corrects uneven images generated during 1200 dpi printing. [0~1/**1**/1 or 0] 1: On, 0: Off *Unevenness may appear in dot patterns or narrowly spaced horizontal lines, i.e. some areas may appear lighter or darker than others.*
	002	Reduction Mode On: 1200 dpi Printing	Adjusts the amount of correction for uneven images generated during 1200 dpi printing. [–20~+10/**–8**/1]
	003	Reduction Mode On/Off: 1200 dpi Copying	Switches on/off the setting that corrects uneven images generated during 1200 dpi copying. [0~1/**0**/1 or 0] 1: On, 0: Off
	004	Reduction Mode On: 1200 dpi Copying	Adjusts the amount of correction of uneven image generated during 1200 dpi copying. [–20~+10/**0**/1]
2110	Test Mode dpi		Adjusts the pixel density. Required for design check, beam pitch adjustment for the test pattern, etc. **DFU**.
2111	FCI Shade Detection		
	001	Matrix Size (>600 dpi) [0~128/**18**/1]	Allows shading detection if FCI (Fine Character Adjustment) smoothing is on. With this SP switched on, photos and painted areas are detected, and FCI is not applied in these areas. FCI is used for outputs in printer mode. [0~1/**1**/1 or 0] 1: On, 0: Off
	002	Threshold Val. (>600 dpi) [0~128/**4**/1]	
	003	Matrix Size (<400 dpi) [0~128/**18**/1]	
	004	Threshold Val. (<400 dpi) [0~128/**4**/1]	
2114*	Binary Edge Processing		Allows setting a parameter for binary edge processing for the printer application with FCI switched off. The value for this SP is enabled only when the printer is initialized. In all other cases, the data registered in the software are enabled. This SP allows adjustment of image quality if the desired effect cannot be achieved with the default settings for edge processing. However, some settings could cause defective images on white paper.
	001	Leading Edge Pixel Level (1200 dpi)	[0~15/**7**/1]
	002	Trailing Edge Pixel Level (1200 dpi)	[0~15/**14**/1]
	003	Continuous Pixel Level (1200 dpi)	[0~15/**15**/1]
	004	Independent Dot Pixel Level (600 dpi)	[0~15/**15**/1]
	005	Leading Edge Pixel Level (600 dpi)	[0~15/**7**/1]

SP	Number/Name		Function/[Setting]
2114*	Binary Edge Processing		
	006	Trailing Edge Pixel Level (600 dpi)	[0~15/**15**/1]
	007	Continuous Pixel Level (600 dpi)	[0~15/**15**/1]
	008	Independent Dot Pixel Level (600 dpi)	[0~15/**15**/1]
2115	Main Scan Beam Pitch Adjustment		A label attached to the LD unit service part lists the correct settings. Refer to these settings when adjusting the beam pitch for LD0 to LD3.
	001	Pitch Adjustment Between LD0 and LD1	[0~999/**106**/1]
	002	Pitch Adjustment Between LD0 and LD2	[0~999/**212**/1]
	003	Pitch Adjustment Between LD0 and LD3	[0~999/**317**/x]
2201*	Development Bias Adjustment		
	001	Dev. Bias (Image)	Adjusts the development bias for copying when process control is off [–700~–200/**–550**/10V] *Adjust as a temporary measure to compensate for an aging drum until the old drum can be replaced.*
	002	ID Sensor Pattern	Adjusts the development bias used to create the ID sensor pattern. **DFU** [–700~–200/**–360**/10V] *This SP and SP2201 004 must be changed together by the same amount.*
	003	OHP	Adjusts the development bias for copying with OHP sheets. [–700~–200/**–300**/10V]
	004	ID Sensor Pattern Dev. Potential	Adjusts the development potential to create the ID sensor pattern. **DFU** [–700~–200/**–240**/10V] *This SP and SP2201 002 must be changed together by the same amount.*
	005	Vb Scale Voltage Setting	Sets the Vb target development bias voltage (Vb). **DFU**
2207*	Forced Toner Supply		Rotates the toner bottle for 7 s to supply toner to the toner supply unit. Press Start to force toner supply. *Use to determine if toner supply is operating correctly. If forcing toner supply with this SP does not darken the image, then toner supply is not operating correctly.*

SP	Number/Name		Function/[Setting]
2208*	Toner Supply Mode		Selects the toner supply mode: Sensor Control or Image Pixel Count. [0~1/**0**/0 or 1] 0: Sensor Control 1: Pixel Count Select Image Pixel Count only if the TD sensor has failed and cannot be replaced immediately, so that the customer can use the machine. Return the setting to Sensor Control after replacing the sensor.
2209*	Toner Supply Rate		Adjusts the toner supply rate. [50~2000/**850**/5 mg/s] Increasing this value reduces the time the toner supply clutch remains on. Use a lower value if the user tends to make many copies that have large areas of black.
2210*	ID Sensor Pattern Interval		Adjusts the time interval between making ID sensor patterns onto the drum for Vsp/Vsg detection. [0~200/**100**/1] Reduce the interval for copies that contain a high proportion of black.
2220*	Vref Manual Setting		Adjusts the TD sensor reference voltage (Vref) manually. [100~400V/**250**/0.01V]
	Change this value after replacing the development unit with another one that already contains toner. For example, when using a development unit from another machine for test purposes, do the following: 1) Check the value of SP2-220 in both the machine containing the test unit and the machine that you are going to move it to. 2) Install the test development unit, then input the VREF for this unit into SP2-220. 3) After the test, put back the old development unit, and change SP2-220 back to the original value.		
2223*	Vt Display		Displays the current TD sensor output voltage. [317]
2301*	Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	1st Copy	[20~200/**80**/1 µA]
	002	2nd Copy	[20~200/**80**/1 µA]
	003	By-pass Tray	[20~200/**75**/1 µA]
	004	Postcard (Japan Only)	[20~200/**165**/1 µA]
	005	Paper Interval	[20~200/**15**/1 µA]
	006	Tab Paper	[20~200/**75**/1 µA]
	007	Thick Paper: Front Side	[20~200/**120**/1 µA]
	008	OHP: Front Side	[20~200/**75**/1 µA]
	009	Tracing Paper: Front Side	[20~200/**120**/1 µA]
	010	Image Leading Edge	[20~200/**65**/1 µA]
	011	Image Trailing Edge	[20~200/**65**/1 µA]

SP	Number/Name		Function/[Setting]
2310*	LCT Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]
	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2311*	Tray 1 Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]
	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2312*	Tray 2 Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]
	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2313*	Tray 3 Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]

SP	Number/Name		Function/[Setting]
2313	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2314*	Tray 4 Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge: Front	[20~200/**65**/1 µA]
	002	Image Trailing Edge: Front	[20~200/**65**/1 µA]
	003	Image Leading Edge: Back	[20~200/**65**/1 µA]
	004	Image Trailing Edge: Back	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
2315*	By-Pass Transfer Current Adjustment		Adjusts the current applied to the transfer belt during copying.
	001	Image Leading Edge:	[20~200/**65**/1 µA]
	002	Image Trailing Edge:	[20~200/**65**/1 µA]
	005	Image Leading Edge: Thick Paper	[20~200/**120**/1 µA]
	006	Image Trailing Edge: Thick Paper	[20~200/**120**/1 µA]
	007	Image Leading Edge: OHP	[20~200/**75**/1 µA]
	008	Image Trailing Edge: OHP	[20~200/**75**/1 µA]
2506*	Cont. Op. Time Cleaning Setting		
	001	Operation Setting	Determines whether multiple copy jobs are stopped at regular intervals for: 1) Stopping and reversing the drum motor to clean the cleaning blade edge, and 2) creating an ID sensor pattern to correct toner density control. [1~2/**1**/1 or 2] 1: No 2: Yes The interval is set with SP2-506-2. Use if the drum gets dirty or images get too pale or too dark during a long job.
	002	Time Setting	Selects the interval at which multi-copy jobs are stopped. [1~100/**15**/1 min.]

SP	Number/Name		Function/[Setting]
2507*	ID Sensor Pattern During Job		
	001	Operation Setting	Determines whether an ID sensor pattern is created during copy jobs. [0~1/**0**/1] 0: Off 1: On
	002	No. of Copies	Selects the interval (number of copies) between ID sensor patterns when 1 is selected for SP2507 001 [0~10,000/**100**/1]
2801*	TD Sensor Initial Setting		Press the Start button to do the TD sensor initial setting. This SP mode controls the voltage applied to the TD sensor to make the TD sensor output about 3.0 V. When SP2967 is on, the TD sensor output is set to about 2.5 V. Execute this SP only after replacing the TD sensor or the developer.
2803	Charge Cleaner Start Time		Press Start to clean the charge corona wire manually. When copy density across the paper is uneven, clean the wire with this mode.
2804	Charge Cleaning		
	001	Operation Mode	Determines whether the charge corona wire is cleaned at regular intervals. [0~1/**1**/1] 1: Yes 0: No The time interval between cleaning is set with SP2804 002.
	002	Number of Sheets	Sets the interval (number of sheets printed) between charge corona wire cleanings. [100~10,000/**5000**/100]
2813	Exposure Gamma Table		
	001	Exposure Gamma Table Execute	
2902	Test Pattern		
	001	IPU Test Pattern: Front Side	Produces a scan test pattern in place of data scanned from the front side (CCD→SBU) of an original. (☛ 5-6)
	002	IPU Test Pattern: Back Side	Produces a scan test pattern in place of data scanned from the back side (CIS→SBU) of an original. (☛ 5-6)
	003	Printing Test Pattern	Produces the printer test patterns. (☛ 5-8)
	004	IPU Printing Test Pattern	Produces test patterns in place of scan image data. (☛ 5-9)

SP	Number/Name		Function/[Setting]
2906*	TD Sensor Control Voltage and Check		
	001	TD Sensor Control Voltage Setting	Adjustment mode for production. **DFU** [4.0~12.0/**9.7**/0.1]
	002	Automatic Adjustment Setting	Displays the TD sensor data stored when SP2801 (TD Sensor Initial Settings) is executed. [4.0~12.0/**9.7**/0.1]
2909*	Main Scan Magnification		
	001	Copy	Adjusts magnification in the main scan direction for copying. [–2.0~+2.0/**0**/0.1%]
	002	Printer	Adjusts magnification in the main scan direction for printing from a computer. [–2.0~+2.0/**0**/0.1%]
2910*	Writing Sub Scan Magnification		Adjusts magnification in the sub scan direction for copying. [–1.0~+1.0/**0.0**/0.1%]
2911	Transfer Current On/Off Timing		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2911	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	013	La4	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	014	La4f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	015	Lc4r	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	016	Lc4r	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
2912*	Drum Reverse Rotation		
	001	Rotation Amount	Sets the length of time the drum is reversed to clean the drum cleaning blade. [1~3/**3**/1] *To calculate the actual time of reverse rotation, multiply the selected value by the 15 ms.*
	002	Rotation Interval	Determines the frequency of drum reverse rotation for blade cleaning. [0~6/**0**/1 min.]
2920*	LD Off Check		Checks whether the LD turns off or on when the front door is opened. **DFU** **0**: On 1: Off

SP	Number/Name		Function/[Setting]
2930*	Transfer Idle Cleaning		When resolution changes from 400 to 600 dpi, the LD writes a pattern on the drum. Toner is applied, and this must be cleaned off the belt. This SP mode determines whether bias is applied to the transfer belt cleaning bias roller at this time. **DFU** [**0**/1] 0: Off 1: On Switching this function on adds 3 s to the job time.
2931*	Transfer Current On/Off Timing: LCT		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**20**/1 mm]
	002	La1f	Adjusts the area where the transfer is applied for the leading edge during front side copying. [0~+20/**20**/1 mm]
	003	Lc1r	Adjusts the area where the transfer current is applied for the trailing edge during front side copying. [0~+20/**20**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**20**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**20**/1 mm]
	006	La2f	Adjusts the area where the transfer current is applied for the leading edge during front side copying. [0~+20/**20**/1 mm]
	007	Lc2r	Adjusts the area where the transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the LCT. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the LCT. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the LCT. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the LCT. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2932*	Transfer Current On/Off Timing: Tray 1		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the transfer current for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the transfer current for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	090	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2933*	Transfer Current On/Off Timing: Tray 2		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where the transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2934*	Transfer Current On/Off Timing: Tray 3		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2935*	Transfer Current On/Off Timing: Tray 4 **Japan Only**		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2936*	Transfer Current On/Off Timing: By-pass		
	001	La1	Adjusts on transfer current ON timing for front side copying. [–30~+30/**0**/1 mm]
	002	La1f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	003	Lc1r	Adjusts the area where transfer current is applied for the trailing edge during front side copying. [0~+20/**0**/1 mm]
	004	Lc1	Adjusts the transfer current OFF timing for front side copying. [–30~+30/**0**/1 mm]
	005	La2	Adjusts on transfer current ON timing for back side copying. [–30~+30/**0**/1 mm]
	006	La2f	Adjusts the area where transfer current is applied for the leading edge during front side copying. [0~+20/**0**/1 mm]
	007	Lc2r	Adjusts the area where transfer current is applied for the trailing edge during back side copying. [0~+20/**0**/1 mm]
	008	Lc2	Adjusts the transfer current OFF timing for back side copying. [–30~+30/**0**/1 mm]
	009	La3	Adjusts the transfer current ON timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	010	La3f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	011	Lc3r	Adjusts the transfer current ON timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	012	Lc3	Adjusts the transfer current OFF timing for copying with thick paper from the by-pass tray. [–30~+30/**0**/1 mm]
	013	La4	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]

SP	Number/Name		Function/[Setting]
2936*	014	La4f	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	015	Lc4r	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
	016	Lc4r	Adjusts the transfer current OFF timing for copying from the by-pass tray. [–30~+30/**0**/1 mm]
2940*	Reface Mode		Determines whether a blade bend prevention pattern is created during creation of the ID sensor pattern. This setting sets the pattern count. **DFU** [0~100/6/1] *Increase the setting if the rotation of the drum is not smooth, i.e. when drum rotation is generating noise.*
2961	Developer Adjust Mode		**DFU**
2962	Adjustment of Drum Conditions		Manually executes a process control. However, this only works if process control is enabled with SP3901, and if the fusing temperature is less than 100°C.
2963	Installation Mode		Use the keyboard display to enter the lot number of the developer. (The lot number is embossed on the top edge of the developer pack.) Press Execute to initialize the developer and force toner supply to the toner hopper at machine installation. *Use this SP mode only during initial installation. Use SP2801 when replacing developer during PM on previously installed units.*
2964	Transfer Cleaning Blade Forming		
	001	Pattern Interval Setting	Selects the interval for application of a strip of toner across drum and transfer belt to prevent the drum cleaning blade and belt cleaning blade from sticking and bending against the drum or belt. [0~100/**0**/1 copy] **DFU** *If set to zero, then no pattern is created.*
	002	Pattern Light Amount Setting	Adjusts the intensity of light that is used to create the blade protection pattern. [0~4/**2**/1] **DFU**
	003	Transfer Current On/Off Setting	Determines whether transfer current is switched on or off while the blade protection pattern is created. **DFU** Off: Toner is applied to the entire cleaning area and drum cleaning blade.

SP	Number/Name		Function/[Setting]
2965*	Toner Pump System Adjustment **DFU**		
	001	Toner Consumption for First Rotation	[0~100/**3**/1 g] **DFU**
	002	Toner Consumption After First Rotation	[0~100/**3**/1 g] **DFU**
	003	Pump Clutch On Time	[0~5/**2**/1 s] **DFU**
	004	Pump Motor On Time	[0~20/**6**/1 s] **DFU**
	005	Toner Consumed: Rev. Returning to First	[0~50/**30**/1 g] **DFU**
	006	Amount of Toner Consumed Display	**DFU**
2966*	Drum Conditions: Periodic Adjustment		
	001	On/Off	Determines whether auto process control is adjusted and corona wire cleaning is executed at a prescribed interval. [On/**Off**] 0: Off 1: On When this setting is on, auto process control and wire cleaning are done automatically (1) when the main switch has not been switched off for 24 hours, and (2) after every copy job.
	002	Time Setting	Sets the time interval between automatic adjustments after SP2966 001 is switched on. [1~24/**24**/1 hour]
2967*	Developer Density Adjustment Mode		Determines whether the amount of toner is checked during auto process control with only the TD sensor. With this feature on, the machine uses the TD sensor only. [On/**Off**] 0: Off 1: On *During auto process control execution after the main switch is turned on, the toner amount in the development unit is normally checked and adjusted using the ID sensor. However, in some environments, such as where there could be traces ammonia in the air, copies could appear dirty or too dark because the ID sensor reading is not reliable.*
2968	Toner Exit Mode		Press Execute to force used toner into the toner collection bottle. Blank paper will feed for about 60 s with the transfer belt released.
2969*	Toner Bottle: Revolution Count		
	001	Copy Count Setting	Sets the standard number of copies by using the number of toner bottle rotations. **DFU** [50~500/**100**/1]
	002	Count Reset	Resets the toner bottle rotation count. **DFU**
	003	Copy Count Display 1	Used to confirm the number of toner bottle rotations. [0~10K/**0**]

SP	Number/Name		Function/[Setting]
2970*	001	Transfer Belt Resistance: Disp. Current Value	Uses the interval between sheets to measure the resistance of the transfer belt and displays this value (Ω). Very High → 190 ← High → 90 ← Standard → 25 ← Low → 15 ← Very Low
2971*	Trans. Interval Output		
	001	Voltage	Displays the measurement condition of the value in SP2970.
	002	Current	
2972*	Toner Bottle Cool. Fan Drive Control		Switches fan control On/**Off**. Off: The toner bottle fan switches off when the machine is powered off and when the machine enters the night mode. On: Toner bottle fan remains on. *Switch on in an extremely hot environment to prevent the toner from overheating and clumping.*

SP3xxx Processing

SP	Number/Name		Function/[Setting]
3001*	ID Sensor Initial Setting		
	001	ID Sensor PWM Setting	Recovers the machine when an SC is logged because the ID Sensor Initial Setting is not done after doing an NVRAM Clear or replacing the NVRAM. Reset this SP to the factory setting in this case. [0~255/**70**/1]
	002	ID Sensor Initialization	Performs the ID sensor initial setting. The ID sensor output for the bare drum (VSG) is adjusted to 4.0 ± 0.2V. Press Execute. This SP mode should be performed after: (1) replacing or cleaning the ID sensor, (2) replacing the NVRAM, (3) clearing NVRAM, (4) Replacing the BICU board
3103*	ID Sensor Output Display		
	001	Vsg	Displays the current value of the ID sensor output after checking the bare drum surface.
	002	Vsp	Displays the current value of the ID sensor output after checking the ID sensor pattern image
	003	Vsdp	Displays the current value of the ID sensor output immediately after Vsp is output when the charge potential drops. This reading is used to test and determine characteristics for design.
	If the ID sensor output is abnormal, an SC is logged and the displays change: 1) SC350 01 logged: Vsp/Vsg/Vsdp = 0.00/0.00/0.00 2) SC350 02 logged: Vsp/Vsg/Vsdp = 5.00/5.00/5.00 3) SC350 03 logged: Vsp/Vsg/Vsdp = 0.01/0.01/0.01		
3901*	Auto Process Control On/Off Setting		Determines whether the machine checks and corrects the drum potential (Vd) and LD power when the fusing temperature is lower than 100°C at power-on. [**On**/Off] 0: Off 1: On This setting attempts to change the Vd setting consistent with the OPC, the charge corona unit, and environment to improve the reliability of the system.
3902*	Drum Condition Display		
	001	Auto Process Control On/Off	Displays whether auto process control is switched on or off (0:Off, 1:**On**) When auto processing control is set on, displays only when the potential sensor is calibrated correctly. Auto process control is not executed when this SP is switched off. 0: Off 1: On

SP	Number/Name		Function/[Setting]
3902*	Drum Condition Display		
	002	Vd	Displays drum dark potential, the standard potential, electrical potential of the black areas after exposure.
	003	Vh	Displays standard halftone drum potential, used for laser power adjustment.
	004	Vg	Displays the charge grid voltage resulting from the latest Vd adjustment.
	005	LD Level	Displays the LD power correction value as a result of the latest Vh adjustment.
	006	ID Sensor Pattern Potential (Back)	Displays the latest drum surface voltage measured on the ID sensor pattern.
	007	Vql	Displays the drum potential after quenching.
	008	Vl	Displays the standard electrical potential of white areas on the drum after exposure.
3903*	Drum Rotation Time Extension On/Off		Switch this setting on to reduce the occurrence of out-of-focus copy images when the machine is used immediately after power-on. [On/**Off**] *If On is selected, after auto process control calibrates its initial settings, the drum continues to rotate until the fusing unit reaches its operation temperature.*

SP4-xxx Scanner

SP	Number/Name		Function/[Setting]
4008*	Scanner Sub Scan Magnification		Fine adjusts the magnification in the sub scan direction for scanning by changing the speed of the scanner motor. [–0.9~+0.9%/**0**/0.1%] *Setting a lower value reduces the speed of the motor and lengthens the image in the sub scan direction (direction of paper feed).* *Setting a higher value increases the speed of the motor speed and shortens the image in the sub scan direction.*
4010*	Scanner Leading Edge Registration		Adjust the registration of the leading edge for scanning in the sub scan direction. [–0.9~+0.9/**0**/0.1%] *This setting ensures that the point where the original strikes the registration roller matches the point where the F-GATE signal will trigger the start of scanning in the main scan direction.* *Setting a larger value shifts the image away from the leading edge, and a smaller value shifts the image toward the leading edge.*
4011*	Scanner Side-to-Side Registration		Adjusts the side-to-side registration for scanning in the main scan direction across the page. [–0.6~+0.6/**0**/0.1%] *Setting a negative value shifts the image toward the left edge, and setting a positive value shifts the image toward the right edge.*
4012*	Scanner Erase Margin		These settings adjust the margins (erase margins) of the scanned area on the sheet. The leading, trailing, right, and left margins can be set independently.
	001	Leading Edge	[0~0.9/**0.5**/0.1 mm]
	002	Trailing Edge	
	003	Right	
	004	Left	
4013	Scanner Free Run		Switches on/off a scanner free run. 1: On, 0: Off The scanning area is A3.
	001	Scanner Free Run: Lamp On	Performs a scanner free run with the exposure lamp on. 1: On, 0: Off
	002	Scanner Free Run: Lamp Off	Performs a scanner free run with the exposure lamp off. 1: On, 0: Off
4016*	White Board Read Adjust		
	001	Read Start Position	Adjusts the start position for reading the standard white board. [–9~+9/**0**/1]
	002	Read Width	Adjusts the width of the area read on the standard white board. [–9~+9/**0**/1]

SP	Number/Name		Function/[Setting]
4018	Scanner Optical Axis Adjust		
	001	Adjust Display	Switches on the mode for scanner optical adjustment mode. **DFU** [–2~+2/**0**/1]
	002	Adjust Display	Displays the result after adjusting SP4018 001 **DFU**
	003*	Read Position Set	Allows adjustment of the scanning position for free runs by changing the scanning stop position if the exposure glass is dirty and producing black lines. The default is set with SP4018 001. Adjusting this SP changes the leading edge registration and affects the setting of SP6006 003 for the ADF. [–4~+4/**0**/1]
	004	Read Position Set Start	If 003 is adjusted, press Execute to force the change to take effect on the main machine.
4019*	Scanner HP View Position Display		Use to display the status of each after SC120, SC121, SC122, or SC123 is logged. (These are scanner HP sensor errors.) 0: Normal 1: Abnormal Bit 0: Sensor OFF at start of high-speed return operation. Bit 1: Remains ON after return. Bit 2: Remains ON during return. Bit 3: Does not switch OFF during forward motion Bit 4: Switches ON at return Bit 5: Scanner HP detection is out of position.
4301	APS Sensor Output Display		Displays the APS sensor output signals when an original is placed on the exposure glass. If a non-standard size is placed on the glass, asterisks (*) are displayed.
4303*	APS A5 Size Detection		Selects whether or not the copier determines that the original is A5/HLT size when the APS sensor does not detect the size. [0~3/**0**/1] 0: Not detected 1: A5 length/5 1/2" x 8 1/2" 2: Not detected 3: A5 length/5 1/2" x 8 1/2" *If "A5 length/5 1/2" x 8 1/2" is selected, paper sizes that cannot be detected by the APS sensors are regarded as A5 lengthwise or 5 1/2" x 8 1/2". If "Not detected" is selected, "Cannot detect original size" will be displayed. If not using 8 k and 16 k paper, select "0" or "1". If using 8 k and 16 k paper, select "2" or "3".*

SP	Number/Name		Function/[Setting]
4600*	Read SBU ASIC ID		Displays the SBU ID code confirmed by reading the SBU after the SBU adjusts automatically at power on. [0~FFFFh/**B550h**]
4601*	SBU PLL Adjustment		Adjusts the PLL bandwidth. **DFU** [0~FFFFh/**2862h**]
4605	Scanner Adjustment		
	001*	Flag Display	Displays a flag to indicate whether density control adjustment was executed with the standard white board for the CCD. [0~1/**1**/1] 0: Not executed. 1: Executed
	002	Start	Starts the density adjustment for the CCD using the standard white board. Place 5 sheets of A3 plain paper on the exposure glass, then press Execute. A message is displayed to indicate the success or failure of the adjustment.
4610*	White Level Adj: Next		Displays the value read from the standard white board after density adjustment. **DFU** [0~255/**0**/1]
4613*	White Level Adj.: Previous Normal		**DFU**
4616*	White Level Adj.: Factory		**DFU**
4624*	Read Offset Data		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	LO ch	**DFU**
4632*	Gain Adjustment		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	LO ch	**DFU**
4641*	White Adjust Loop		**DFU**
4646*	SBU Adjustment Error Flag		**DFU**
4647*	SBU Hard Error Flag		**DFU**
4662*	Gain Adjustment Normally		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	L0 ch	**DFU**
4681*	Gain Adjustment at Factory		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	L0 ch	**DFU**

SP	Number/Name		Function/[Setting]
4691*	Read Shading Data		
	001	FE ch	**DFU**
	002	F0 ch	**DFU**
	003	LE ch	**DFU**
	004	L0 ch	**DFU**
4700*	Read CIS ASIC ID		Reads and displays the ID of the CIS board at power on. 0~FFh/0Ah
4701*	Frequency Adjustment		**DFU**
4702*	Periodic Adjustment Setting		**DFU**
4705	CIS Adjustment		
	001*	Flag Display	Displays whether density adjustment was executed for the CIS, using the white roller. 0: Not executed 1: Executed
	002	Start	Starts the standard white density adjustment for the CIS. Place 5 sheets of A3 on the exposure glass, then press Execute. A message is displayed to indicate the success or failure of the adjustment.
4713*	CIS White Level Adjustment		
	001	White Roller	**DFU**
	002	White Document	**DFU**
4716*	CIS White Level Adjustment: Factory		
	001	White Roller	**DFU**
	002	White Document	**DFU**
4732*	CIS Gain Adjustment		**DFU**
4735*	CIS Read White Level		**DFU**
4741*	CIS White Adjust Loop		**DFU**
4742*	CIS White Roller Adjust Loop		**DFU**
4745*	CIS Adjustment Overflow Flag		**DFU**
4747*	CIS Adjustment Time Out Flag		**DFU**
4762*	CIS Gain Adjustment Normally		
4765*	CIS Standard White Level Adjustment: Normally		
	001	White Roller	**DFU**
	002	Standard White Original	**DFU**
4781*	CIS Gain Adjustment at Factory		**DFU**
4901	Front Side Scan Correction		
	001*	Shading Correction: AEREF Setting	Changes the AEREF (Automatic Exposure Reference) value used in shading correction for the image scanned from the front side (SBU). **DFU** [0~63/**0**/1]

SP	Number/Name		Function/[Setting]
4901	Front Side Scan Correction		
	002	Front Shading Correction: Shading Data Output	Outputs the AEREF value used in shading correction for the image scanned from the front side (SBU). **DFU** **0**: Normal 1: Output After setting 001, return to the Copy Window and press Start to output. (The machine automatically leaves SP mode.)
	003*	Front Digital AE: AEREF Setting	Changes the AEREF (Automatic Exposure Reference) value used in digital A/E processing for the image data scanned from the front side. **DFU** [–63/**–12**/63]
	004*	Front Digital AE: Low Limit	Sets the low limit at 120 for the value used in digital A/E processing for the image data scanned from the front side. **DFU** 0: No low limit **1**: Low limit set
	010*	Front Scan Image Adj. Mode: Text	Changes the density of front side (SBU) scanned image data and the MTF. [0~3/**0**/1] 0: Normal 1: Low Level 2: Medium Level 3: High Level
	011*	Front Scan Image Adj. Mode: Photo	
	012*	Front Scan Image Adj. Mode: Text/Photo	
	013*	Front Scan Image Adj. Mode: Pale	
	014*	Front Scan Image Adj. Mode: Generation	
	019*	Front Scan Image Adj. Mode: Setting	
4902	Back Side Scan Correction		
	001*	Back Shading Correction: AEREF Setting	**DFU**
	002	Back Shading Correction: Shading Data Output	**DFU**
	003*	Back Digital AE: AEREF Setting	**DFU**
	004*	Back Digital AE: Low Limit	**DFU**
	010*	Back Scan Image Adj. Mode: Text	Changes the density of front side (SBU) scanned image data and the MTF. [0~2/**0**/1] 0: Normal 1: Low Level 2: Medium Level 3: High Level
	011*	Back Scan Image Adj. Mode: Photo	
	012*	Back Scan Image Adj. Mode: Text/Photo	
	013*	Back Scan Image Adj. Mode: Pale	
	014*	Back Scan Image Adj. Mode: Generation	
	019*	Back Scan Image Adj. Scan Select Mode	

SP	Number/Name		Function/[Setting]
4903*	Image Quality Adjustment		
	001	Text Mode (25.0~55%)	Adjusts the sharpness and texture of images processed in Text mode. [0~10/**5**/1] 0: Softest 1: Soft Mode 2: ↑ 3: ↑ 4: ↑ 5: Normal 6: ↓ 7: ↓ 8: ↓ 9: Sharp Mode 10: Sharpest
	002	Text Mode (55.5~75.0%	
	003	Text Mode (75.5%~160%)	
	004	Text Mode (160.5~400.0%)	
	005	Photo Mode Dithering (25.0~55%)	Adjusts the sharpness and texture of images processed in Photo mode with dithering [0~6/**3**/1] 0: Softest 1: ↑ 2: ↑ 3: Print Original Mode 4: ↓ 5: ↓ 6: Sharpest
	006	Photo Mode Dithering (55.5~75.0%	
	007	Photo Mode Dithering (75.5%~160%)	
	008	Photo Mode Dithering (160.5~400.0%)	
	009	Photo Mode Error Diffusion (25.0~55%)	Adjusts the sharpness and texture of images processed in Photo mode with error diffusion. [0~6/**1**/1] 0 Softest 1: Normal (Default) 2: ↑ 3: ↑ 4: ↑ 5: Print Original Mode 6: Sharpest
	010	Photo Mode Error Diffusion (55.5~75.0%	
	011	Photo Mode Error Diffusion (75.5%~160%)	
	012	Photo Mode Error Diffusion (160.5~400.0%)	
	013	Text/Photo Mode (25.0~55%)	Adjusts the sharpness and texture of images processed in Text/Photo mode. 0: Softest 1: Photo Priority 2: ↑ 3: ↑ 4 ↑ **5 Normal (Default)** 6 ↓ 7 ↓ 8 ↓ 9 Text Priority Sharpest
	014	Text/Photo Mode (55.5~75.0%	
	015	Text/Photo Mode (75.5%~160%)	
	016	Text/Photo Mode (160.5~400.0%)	

Service Tables

SP	Number/Name		Function/[Setting]
4903*	Image Quality Adjustment		
	017	Pale Mode (25.0~55%)	Adjusts the sharpness and texture of images processed in Pale mode. [0~10/5/1] 0: Softest 1: Soft 2: ↑ 3: ↑ 4: ↑ **5: Normal (Default)** 6: ↓ 7: ↓ 8: ↓ 9; Sharp 10: Sharpest
	018	Pale Mode (55.5~75.0%	
	019	Pale Mode (75.5%~160%)	
	020	Pale Mode (160.5~400.0%)	
	021	Generation Mode (25.0~55%)	Adjusts the sharpness and texture of images processed in Generation mode. [0~10/5/1] 0: Softest 1: Soft 2: ↑ 3: ↑ 4: ↑ **5: Normal (Default)** 6: ↓ 7: ↓ 8: ↓ 9: Sharp 10: Sharpest
	022	Generation Mode (55.5~75.0%	
	023	Generation Mode (75.5%~160%)	
	024	Generation Mode (160.5~400.0%)	
	060	Independent Dot Erase: Text Mode	Sets the level for independent dot erasure. [0~14/**0**/1] 0: Off The higher the setting, the stronger the effect.
	061	Independent Dot Erase: Photo Mode	
	062	Independent Dot Erase: Text/Photo Mode	
	063	Independent Dot Erase: Pale Mode	
	064	Independent Dot: Generation Mode	
	070	Background Erase: Text Mode	Sets the level for background erase. [0~255/**0**/1] 0: Off The higher the setting, the stronger the effect.
	071	Background Erase: Photo Mode	
	072	Background Erase: Text/Photo Mode	
	073	Background Erase: Pale Mode	
	074	Background Erase: Generation Mode	

SP	Number/Name		Function/[Setting]
4903*	Image Quality Adjustment		
	080	Line Width Correction: Text Mode Select	Selects the level of line width correction for Text mode. [0~8/**1**/1] The higher the setting, the thicker the line.
	081	Line Width Correction: Text Mode (Main Scan)	Switches on line width correction in the main scan direction in text mode. 0: Line width correction OFF **1**: Line width correction ON
	082	Line Width Correction: Text Mode (Sub Scan)	Switches on line width correction in the sub scan direction in text mode. 0: Line width correction OFF **1**: Line width correction ON
	083	Line Width Correction: Photo Mode Select	Selects the level of line width correction for photo mode. [0~8/**4**/1] The higher the setting, the thicker the line.
	084	Line Width Correction: Photo Mode (Main Scan)	Switches on line width processing for the main scan direction in photo mode. 0: Line width correction OFF **1**: Line width correction ON
	085	Line Width Correction: Photo Mode (Sub Scan)	Selects the level of line width processing for sub scan direction in photo mode. [0~8/**1**/1] The higher the setting, the thicker the line.
	086	Line Width Correction: Text/Photo Mode Select	Selects the level of line width processing for text/photo mode. [0~8/**4**/1] The higher the setting, the thicker the line.
	087	Line Width Correction: Text/Photo Mode (Main Scan)	Switches on line width processing for the main scan direction in text/photo mode. 0: Line width correction OFF **1**: Line width correction ON
	088	Line Width Correction: Text/Photo Mode (Sub Scan)	Switches on line width processing for the the sub scan direction in text/photo mode. 0: Line width correction OFF **1**: Line width correction ON
	089	Line Width Correction: Pale Mode Select	Selects the level of line width processing for pale mode. [0~8/**4**/1] The higher the setting, the thicker the line.
	090	Line Width Correction: Pale Mode (Main Scan)	Switches on line width processing for the main scan direction in pale mode. 0: Line width correction OFF **1**: Line width correction ON
	091	Line Width Correction: Pale Mode (Sub Scan)	Switches on line width processing for the sub scan direction in pale mode. 0: Line width correction OFF **1**: Line width correction ON

SP	Number/Name		Function/[Setting]
4903*	Image Quality Adjustment		
	092	Line Width Correction: Generation Mode Select	Selects the level of line width processing for generation mode. [0~8/**0**/1] The higher the setting, the thicker the line.
	093	Line Width Correction: Generation Mode (Main Scan)	Switches on line width processing for the main scan direction in generation mode. 0: Line width correction OFF **1**: Line width correction ON
	094	Line Width Correction: Generation Mode (Sub Scan)	Switches on line width processing for the sub scan direction in generation mode. 0: Line width correction OFF **1**: Line width correction ON
4904*	Image Quality/Exposure Thin Line		
	002	Image Processing Setting: Photo Mode	Selects the image processing mode for Photo Mode. 0: 106 line dither processing 1: 141 line dither processing 2: 212 line dither processing 3: Error diffusion processing [0~3/**0**/1]
	020	Text Mode	Selects the line width correction level for Text mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)
	021	Photo Mode	Selects the line width correction level for Photo mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)
	022	Text/Photo Mode	Selects the line width correction level for Text/Photo mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)

SP	Number/Name		Function/[Setting]
4904*	Image Quality/Exposure Thin Line		
	023	Pale Mode	Selects the line width correction level for Pale mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)
	024	Generation Mode	Selects the line width correction level for Generation mode. [0~3/**0**/1] 0: No processing 1: Low (thin) 2: Medium (thicker) 3: High (thick)
4909	Image Processing Through		
	001	IPU Front Side Image Module	**DFU**
	002	IPU Back Side Image Module	
	003	IPU Plotter Image Module	
4999	ADF Scan Glass Dust Check		
	001	Enables or disables the check: 0: OFF, 1: ON **Default: 0**	When this SP is enabled, and dust is detected, a message is displayed on the LCD instructing the operator to clean the exposure glass. • Before enabling this mode, make sure to clean the scanning guide plate (B4772517). If this is not done, a misdetection may occur. • To use this function, it is necessary to install the following firmware versions: BCU: V4.02 or later GW Controller: V3/51 or later
	002	Detection Level (Weak 0 - 8 Strong) **Default: 4**	

SP5-xxx Mode

SP	Number/Name		Function/[Setting]
5024*	mm/inch Display Selection		Selects the unit of measurement. After selection, turn the main power switch off and on. **1**: inch 0: mm
5044	Operation Panel Bit Switch		
	001*	SW 1	Numeral keys 0-7 can be used to change octal value of op panel bit switches. 00000000 (00H)
	002	SW 2	
	003*		
5047	Reverse Paper Disp		Determines whether the tray loaded with paper printed on one side is displayed. [0~1/**0**/1] 0: Not displayed 1: Displayed
5104*	A3/DLT Double Count		Specifies whether the counter is doubled for A3/11"x17" paper. [0~1/**0**/1] 0: No 1: Yes *If "1" is selected, the total counter and the current user code counter count up twice when A3/11"x17" paper is used.*
5106*	Auto Density Level		Selects the image density levels that are used in ADS mode by assigning a value to the center notch. [1~7/**4**/1 step/notch]
5112*	Non-standard Paper Selection		Determines whether a non-standard paper size can be input for the universal cassette trays (Tray 2, Tray 3) [0~1/**0**/1] **0:** No 1: Yes. If "1" is selected, the customer will be able to input a non-standard paper size using the UP mode.
5113*	Optional Counter Type		Selects the type of counter: **0:** None 1: Key card (RK 3,4) **Japan only** 2: Key card (countdown type) 3: Pre-paid card 4: Coin lock 5: MF key card 6: Not used 7: Not used 8: Key counter + Non-count system 9: Barcode printer 11: Exp Key Card (Add) 12: Exp Key Card (Deduct)

SP	Number/Name		Function/[Setting]
5118*	Disable Copying		Temporarily denies access to the machine. **Japan Only** [0~1/**0**/1] 0: Release for normal operation 1: Prohibit access to machine.
5120*	Mode Clear Opt. Counter Removal		Do not change. **Japan Only** [0~2/**0**/1] 0: Normal reset 1: Resets before job start/after completion 2: Normally no reset
5121*	Counter Up Timing		Determines whether the optional key counter counts up at paper feed-in or at paper exit. **Japan Only** [0~1/**0**/1] 0: Feed count 1: Exit count
5126	F Original Size Selection		Selects size: **0:** 8.5”x13” 1: 8.5”x13.25” 2: 8”x13”
5127	APS OFF Mode		This SP can be used to switch APS (Auto Paper Select) off when a coin lock or pre-paid key card device is connected to the machine. [**0**/1] 0: On 1: Off
5128	Copy Mode With Key/Card Option		**Japan Only**
5129	F Paper Size Selection		Selects size: **0:** 8”x13” 1: 8.5”x13” 2: 8.25”x13”
5131*	Paper Size Type Selection		Selects the paper size type (for originals and copy paper). (Only needs to be adjusted if the optional printer controller is installed) [0~2/**1**/1] 0: Japan 1: North America 2: Europe After changing the value, turn the main power switch off and on.
5141*	Tray for Tab Sheets		
	001	By-pass	Specifies which tray contains tab sheets. [0~1/**0**/1] 0: OFF 1: ON ***SP 5141 Continued on next page***
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4 (Japan Only)	
	006	Tray 5 (LCT)	

SP	Number/Name		Function/[Setting]
5141*	Tray for Tab Sheets		
	011	Tab Height: By-pass	Sets the height of the tabs for each paper source for feed tab sheets. The height of a tab is measured from the edge of the paper to the edge of the tab. [0~152/**130**/0.1 mm] *The actual height of the tab is the set value multiplied by 0.1. The default tab height then is:* *130 x 0.1 = 13 mm* *To change this setting, measure the height of the tab in millimeters, multiply by 10, then enter the product. For example, if the measured height of the tab is 10 millimeters, enter "100".*
	012	Tab Height: Tray 1	
	013	Tab Height: Tray 2	
	014	Tab Height: Tray 3	
	015	Tab Height: Tray 4	
	016	Tab Height: Tray 5	
5145	Cardboard Paper		
	001	By-pass Tray	Specifies which tray contains thick paper. [0~1/**0**/1 0: OFF 1: ON
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4 (Japan Only)	
	006	Tray 5 (LCT)	
5146	Printed P Tray		
	001	By-pass Tray	Specifies which tray contains paper pre-printed forms for overlay printing. [0~1/**0**/1] **0**: Off 1: On
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4 (Japan Only)	
	006	Tray 5 (LCT)	
	011	By-pass Tray	Specifies the position of the letterhead on the paper in the tray. [[0~3/**0**/1] 0: 0° 1: 90° 2: 180° 3: 270°
	012	Tray 1	
	013	Tray 2	
	014	Tray 3	
	015	Tray 4 (Japan Only)	
	016	Tray 5 (LCT)	
	021	By-pass Tray	Enables the settings for 011~016 or 001~006. [0~1/**1**/1] 0: Enables the settings for 011~016 (letterhead). 1: Enables the settings for 001~006 (pre-printed forms). *If either feature is selected with the User Tools, the SP settings are changed by the User Tool settings.*
	022	Tray 1	
	023	Tray 2	
	024	Tray 3	
	025	Tray 4 (Japan Only)	
	026	Tray 5 (LCT)	

SP	Number/Name		Function/[Setting]
5147	Punch P Tray		
	001	By-pass	Specifies which tray contains punched paper. [0~1/**0**/1] 0: Off 1: On
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4 (Japan Only)	
	006	Tray 5 (LCT)	
	011	By-pass Tray	Informs the machine about the location of the punch holes on the punched paper loaded in the feed station. [0~3/**0**/1] 0: Left 1: Right 2: Top 3: Bottom
	012	Tray 1	
	013	Tray 2	
	014	Tray 3	
	015	Tray 4 (Japan Only)	
	016	Tray 5 (LCT)	
5150	By-pass Wide Paper Mode (Long Paper)		Sets up the by-pass tray for long paper. [0~1/**0**/1] 0: Off 1: On. Sets the tray for feeding paper up to 600 mm long. *With this SP selected on, paper jams are not detected in the paper path.*
5154	Exit Tray Set		
	001	Limitless	Allows 'limitless' paper output. [0~1/**0**/1] 0: Off 1: On. Once the initial paper exit is full, another will be selected automatically. *Switch this SP on only in the job queuing mode, i.e. when printing jobs in the order of selection with the print priority function. Print priority is set in the User Tools mode (System Settings> General Features> Print Priority> Job Order.)*
	002	Override	Allows overriding of the setting for SP5154 001. [0~1/**0**/1] 0: Off 1: On *This SP can be set only when on is selected for SP5154 001. Changing this setting has no effect on the machine when SP5154 001 is off.*

SP	Number/Name		Function/[Setting]
5212*	Page Numbering		
	003	Duplex Printout Left/Right Position	Horizontally positions the page numbers printed on both sides during duplexing. [–10~+10/**0**/1 mm] 0 is center, minus is left, + is right.
	004	Duplex Printout High/Low Position	Vertically positions the page numbers printed on both sides during duplexing. [–10~+10/**0**/1 mm] 0 is center, minus is down, + is up.
5302*	Set Time		Sets the time clock for the local time. [–1440~1440/**+300**/1 min.]
5404*	Password Code Clear Count		
	001	User Code Counter Clear	To clear all user code counters press Execute
5501*	PM Alarm Level		Sets the count level for the PM alarm. [0~9999/**0**/1] 0: Alarm disabled The PM alarm goes off when the print count reaches this value multiplied by 1,000.
5504*	Jam Alarm		
	001	Jam Alarm Level	RSS functions. **Japan Only**.
	002	Jam Auto Call	
5505*	Error Alarm		**Japan Only**
5507	Supply Alarm **Japan Only**		
	001	Paper Supply Alarm	Enables or disables the paper supply call function. **Japan Only** [0~1/**0**/1] 0: No call 1: Call If this SP is enabled, use the settings below to set the supply level to initiate a call for each paper size.
	002	Staple Supply Alarm	Enables or disables the staple supply call function. **Japan Only** [0~1/**0**/1] 0: No call 1: Call A staple supply call is issued for every 1,000 staples consumed.
	003	Toner Supply Alarm	Enables or disables the toner supply call function. **Japan Only** [0~1/**0**/1] 0: No call 1: Call

SP	Number/Name		Function/[Setting]
5507	Supply Alarm **Japan Only**		
	128*	Interval: Other	Sets the level to initiate a paper supply call for each paper size, if SP 5507 001 is enabled. **Japan Only** [00250~10,000/**1000**/1]
	132*	Interval: A3	
	134*	Interval: A4	
	141*	Interval: A5	
	142*	Interval: B4	
	160*	Interval: B5	
	164*	Interval: DLT	
	166*	Interval: LT	
	172*	Interval HLT	
5508*	Auto Call Settings		**Japan Only**
	001	Remain of Jam	Enables/disables initiating a call for an unattended paper jam. [0~1/**1**/1] 0: Disable 1: Enable
	002	Continuous Jam Occurrence	Enables/disables initiating a call for continuous paper jam. [0~1/**1**/1] 0: Disable 1: Enable
	003	Continuous Door Open	Enables/disables initiating a call when the front door remains open. [0~1/**1**/1] 0: Disable 1: Enable
	004	Low Call Mode	Enables/disables the new call specifications designed to reduce the number of calls. [0~1/**1**/1] 0: Normal mode 1: Reduced mode
	011	Jam Detection: Time Length	Sets the length of time to determine the length of an unattended paper jam. [03~30/**10**/1] This setting is enabled only when SP5508 004 is enabled (set to 1).
	012	Jam Detection Continuous Count	Sets the number of continuous paper jams required to initiate a call. [02~10/**5**/1] This setting is enabled only when SP5508 004 is enabled (set to 1).
	013	Door Open: Time Length	Sets the length of time the remains opens to determine when to initiate a call. [03~30/**10**/1] This setting is enabled only when SP5508 004 is enabled (set to 1).

SP	Number/Name		Function/[Setting]
5508*	021	Jam Operation: Time Length	Determines what happens when a paper jam is left unattended. [0~1/**1**/1] 0: Automatic Call 1: Audible Warning at Machine
	022	Jam Operation: Continuous Count	Determines what happens when continuous paper jams occur. [0~1/**1**/1] 0: Automatic Call 1: Audible Warning at Machine
	023*	Door Operation: Time Length	Determines what happens when the front door remains open. [0~1/**1**/1] 0: Automatic Call 1: Audible Warning at Machine
5513	Parts Alarm Level Count **Japan Only**		
	001	Normal	Sets the parts replacement alarm counter to sound for the number of copies. [1~999/**300**/1K]
	002	DF	Sets the parts replacement alarm counter to sound for the number of scanned originals. [1~999/**80**/1]
5514	Parts Alarm Level		**Japan Only**
	001	Normal	
	002	DF	
5801	Memory Clear		Clears all data from NVRAM. Before executing this SP, print an SMC Report. (☛ 5.2.1)
	001	All Clear	Initializes items 002~0105.
	002	Engine Clear	For details, see 5.2.1.
	003	SCS	
	004	IMH Memory Clear	
	005	MCS	
	006	Copier Application	
	007	Fax Application	
	008	PRT	
	009	Scanner Application	
	010	Network Application	
	011	NCS	
	014	Clear DCS Setting	
	015	Clear UCS Setting	

SP	Number/Name		Function/[Setting]
5802*	Printer Free Run		Makes a base engine free run 0: Release free run mode 1: Enable free run mode Return this setting to off (0) after testing is completed.
5803	Input Check		Displays signals received from sensors and switches. (☛ 5.7.1)
5804	Output Check		Turns on the electrical components individually for testing. (☛ 5.7.2)
5807	Option Connection Check		
	001	ADF (1:Connection)	Displays a 1 or 0 to indicate the status of the device.: 1: Connected 0: Not connected
	002	Bank (1:Connection)	
	003	LCT (1:Connection)	
	004	Finisher (1:Connection)	
5811*	Machine No. Setting		Enters the machine serial number. **DFU**
5812*	Service Tel. No. Setting		
	001	Service	Inputs the telephone number of the CE (displayed when a service call condition occurs.) (•/*) : Enters a pause. ⌫ : Deletes the previous number.
	002	Fax	Use this to input the fax number of the CE printed on the Counter Report (UP mode) (•/*) : Enters a pause. ⌫ : Deletes the previous number.
	003	Supply	Displayed on the initial SP screen.
	004	Operation	Allows the service center contact telephone number to be displayed on the initial screen.
5816*	CSS Function		Switches the CSS function on/off. Do not change this setting. **Japan Only** [0~1/**0**/1]
5821*	CSS-PI Device Code		Do not change**. Japan Only** [0~4/**0**/1]
5824	NVRAM Data Upload		Uploads the NVRAM data to a flash memory card. Press Start When uploading this SP mode data, the front door must be open.
5825	NVRAM Data Download		Downloads data from the flash memory to the NVRAM in the machine. After downloading is completed, remove the card and cycle the machine off and on.

SP	Number/Name		Function/[Setting]
5828	Network Setting		
	065	Job Spooling	Enable or disables Job Spooling.
	069	Job Spooling Protocol	Enable or disables LPR and IPP protocols. 0: Enables 1: Disables (default) Bit 0: LPR Bit 2: IPP All other bits: Not Used NOTE: A table is displayed for all 8 bits, numbered 0 to 7, along with their current settings (0 or 1).
	012	Device Name	Use these SPs to perform the network settings.
	074	Delete Password	
	075	DNS Server From DHCP	
	076	DNS Server 1	
	077	DNS Server 2	
	078	DNS Server 3	
	079	Domain Name (Ethernet)	
	080	Host Name (Ethernet)	
5831	Initial Setting Clear		Press Execute to initialize all User Tool settings and restore them to their factory settings.
5832	HDD Formatting		
	001	HDD Formatting (All)	Enter the SP number for the partition to initialize, then press #. When the execution ends, cycle the machine off and on.
	002	HDD Formatting (IMH)	
	003	HDD Formatting (Thumbnails)	
	004	HDD Formatting (Job Log)	
	005	HDD Formatting (Printer Fonts)	
	006	HDD Formatting (User Info. 1)	
	007	HDD Formatting (User Info. 2)	
	008	HDD Formatting (Scanner Mail)	
	009	HDD Formatting (Data for Design)	
	011	HDD Formatting (Ridoc)	

SP	Number/Name		Function/[Setting]
5833	Job Log On/Off		Determines whether to send the job log on the Poplar server. **Japan Only** [**0**/1] 0: No send 1: Send
5836*	Capture		
	001	Capture Function	With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected. **DFU** [0~1/**0**/1] 0: Disable 1: Enable
	002	Panel Setting	Determines whether each capture related setting can be selected or updated from the initial system screen. [0~1/0/1] 0: Disable 1: Enable The setting for SP5836 001 has priority.
	061	Captured File Resend	In order to reduce the load on the network, only the captured document is sent (0), or the network accurately maintains the captured document for re-sending. [0~1/**0**/1]
5839*	IEEE 1394		This SP is displayed only when an IEEE 1394 (firewire) card is installed.
	004	Device Name	Enter the name of the device used on the network. Example: RNP0000000000
	007	Cycle Master	Enables or disables the cycle master function for the 1394 bus standard. [0~1/**1**/1] 0: Disable (Off) 1: Enable (On)
	008	BCR Mode	Determines how BCR (Broadcast Channel Register) operates on the 1394 standard bus when the independent node is in any mode other than IRM. (NVRAM: 2-bits) (Range: Binary settings 0~3) 00: Off. Writes from the IRM. 01: Copies BCR of the IRM after no data is written from the IRM after the prescribed time has elapsed. 10: Reserved. Not used. 11: BCR normally enabled.

SP	Number/Name		Function/[Setting]
5839*	009	1394a Check	Conducts a 1394a check of IRM when the independent node is in any mode other than IRM. 0: Off, 1: On 0: Checks whether IRM conforms to 1394a 1: After IRM is checked, if IRM does not conform then independent node switches to IRM.
	010	Unique ID	Lists the ID (Node_Unique_ID) assigned to the device by the system administrator. [0~1/**1**/1] 0: Off, 1: On 0: Does not list the Node_Unique_ID assigned by the system administrator. Instead, the Source_ID of the GASP header in the ARP is used. 1: The Node_Unique_ID assigned by the system administrator is used, and the Source_ID of the GASP header in the ARP is ignored. Also, when the serial bus is reset, extra bus transactions are opened for the enumeration.
	011	Logout	Handles the login request of the login initiator for SBP-2. (1-bit) [0~1/**1**/1] 0: Off, 1: On 0: Disable (refuse login) Initiator retry during login Login refusal on arrival of login request (standard operation) 1: Enable (force logout) Initiator retry during login Login refusal on arrival of login request, and the initiator forces the login.
	012	Login	Enables or disables the exclusive login feature (SBP-2 related). [0~1/1/1] 0: Off, 1: On 0: Disables. The exclusive login (LOGIN ORB exClusvie it) is ignored. 1: Enables. Exclusive login is in effect.
	013	Login MAX	Sets the maximum number of logins from the initiator (6-bits) [0~63/**8**/1] 0: Reserved 63: Reserved

SP	Number/Name		Function/[Setting]
5840*	IEEE 802.11b		
	004	SSID	Enters a unique ID (up to 32 characters long) to identify the device when it is operating in an area with another wireless LAN network.
	006	Channel MAX	Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries. [1~14/**14**/1]
	007	Channel MIN	Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries. [1~14/**1**/1]
	010	WEP Key	A security feature of wireless LAN, Wired Equivalent Privacy (WEP) is a coding system designed to protect wireless data transmission. In order to unlock encoded data, the same WEP key is required on the receiving side. WEP is employed in both the ad hoc and infrastructure mode. Range: Binary 0~3 00: 1st Key 01: 2nd Key (Reserved) 10: 3rd Key (Reserved) 11: 4th Key (Reserved)
	011	WEP Key Select	Determines how the initiator (SBP-2) handles subsequent login requests. [0~1/**0**/1] 0: If the initiator receives another login request while logging in, the request is refused. 1: If the initiator receives another login request while logging in, the request is refused and the initiator logs out. *Displayed only when the wireless LAN card is installed.*

SP	Number/Name		Function/[Setting]
5841*	Supply Name Setting		Press the User Tools key. These names appear when the user presses the Inquiry button on the User Tools screen.
	001	Toner Name Setting: Black	Enter the name of the toner in use.
	005	Staple Std	Enter the name of the staples in use for normal stapling (not booklet stapling)
	006	Staple Bind	Enter the name of the staples in use for booklet stapling.
	007	Org Stamp	**Japan Only**
5842*	001	Net File Analysis Mode Setting	DFU
5844*	USB		
	001	Transmission Rate	Sets the speed for USB data transmission. Full Speed Full Speed / Auto Change
	002	Vendor ID	Sets the vendor ID: Initial Setting: 0x05A Ricoh Company [0x0000~0xFFFF/0x05A/1] **DFU**
	003	Product ID	Sets the product ID. [0x0000~0xFFFF/0x0403/1] **DFU**
	004	Device Release No.	Sets the device release number of the BCD (binary coded decimal) display. [0000~9999/0100/1] **DFU** Enter as a decimal number. NCS converts the number to hexadecimal number recognized as the BCD.
5845*	Delivery Server		Provides items for delivery server settings.
	001	FTP Port No.	[0~65535/**3670**/1]
	002	IP Address	[0~FFFFFFFF/0x00/1
	003	Retry Attempts	[60~900/**300**/1]
	004	Number of Retries	[0~99/**3**/1]
	005	Capture Server IP Address	[0~0xFFFFFFF]
	006	Error Display Time	[0~999/**300**/1]
	007	Options	[0~1/**0**/1]

SP	Number/Name		Function/[Setting]
5846*	UCS Setting		
	001	Machine ID (Delivery Server)	Displays the unique device ID in use by the delivery server directory. The value is only displayed and cannot be changed. This ID is created from the NIC MAC or IEEE 1394 EUI. The ID is displayed as either 6-byte or 8-byte binary. 6-byte %02X.%02X.%02X.%02X.%02X.%02X 8-byte %02X.%02X.%02X.%02X.%02X.%02X.%02X.%02X
	002	Machine ID Clear (Delivery Server)	Clears the unique ID of the device used as the name in the file transfer directory. Execute this SP if the connection of the device to the delivery server is unstable. After clearing the ID, the ID will be established again automatically by cycling the machine off and on.
	003	Max. Length of Entry	Changes the maximum number of entries that UCS can handle. [2000~50000/**2000**/1] If a value smaller than the present value is set, the UCS managed data is cleared, and the data (excluding user code information) is displayed.
	004	Delivery Server Model	Changes the model of the transfer server registered for the I/O device. [0~4/**0**/1] 0: Not used 1: SG1 Provided 2: SG1 Package 3: SG2 Provided 4: SG2 Package
	005	Delivery Server Capability	Changes the capability of the server registered for the I/O device. Bit 7 = 1 Comment information Bit 6 = 1 Address direct entry possible Bit 5 = 1 Mail Rx confirmation possible Bit 4 = 1 Address book auto update Bit 3 = 1 Fax Rx function
	006	Delivery Server Retry Timer	Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book. [0~255/**0**/1 s] 0: No retries
	007	Delivery Server Retry Times	Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book. [0~255/**0**/1]

SP	Number/Name		Function/[Setting]
5846*	050	Initialize All Directory Information	Clears all the directory information managed by UCS. Also clears the user codes.
	099	Bit Switch	
5847*	Net File Mag. Rate		Changes the default settings of image data transferred externally by the Net File page reference function. [0~2/] 0: 1x 1: ½x 2: ¼x
	001	Copy: Color	[0~2/**2**/1]
	002	Copy: B&W Text	[0~2/**0**/1]
	003	Copy: Other B&W	[0~2/**2**/1]
	004	Printer: Color	[0~2/**2**/1]
	005	Printer: B&W Binary	[0~2/**0**/1]
	006	Printer: B&W Dither	[0~2/**2**/1]
5848*	Net File Page Quality Default for JPEG		Selects the default setting for the quality of JPEG data files transferred externally by the Net File Page reference function of [5~95/**50**/1]
5849*	Counter Clear Day		Sets the delivery date for the machine. **DFU**
5850*	Address Book Function		
	001	Switch Module	Selects the module for managing user information. [0~1/**1**/1] 0: SCS 1: UCS
	002	Select Title	Selects the default heading of the address book. [2~4/**2**/1] 2: Heading 1 3: Heading 2 4: Heading 3
5852	SMTP		Simple Mail Transfer Protocol. The protocol for communication between Internet main MTAs (Message Transfer Agents).
	001	Server Name	Sets the server name.
	002	Port Number	Sets the port number
5907*	Plug & Play Maker/Model Name		Selects the brand name and the production name for Windows Plug & Play. This information is stored in the NVRAM. If the NVRAM is defective, these names should be registered again. After selecting, press the “Original Type” key and “**#**” key at the same time. When the setting is completed, the beeper sounds five times.

SP	Number/Name		Function/[Setting]
5913	Switchover Permission Time		Sets the length of time to elapse before allowing another application to take control of the display when the application currently controlling the display is not operating because a key has not been pressed. [3~30/**3**/1 s]
5914*	Application Counter Display		Selects the total counts that will be displayed in the UP mode.
	001	Print Counter	[0~1/**0**/1 0: Not displayed 1: Displayed
	003	Copier Counter	
5915*	Mechanical Counter Detection		Displays whether the mechanical counter is installed in the machine. [0~1/**0**/1] 0: Not detected. 1: Detected 2: Unknown
5918*	A3/DLT Counter Display		Determines whether pressing the counter key displays count confirmation: system initial settings → system manager settings → counter [0~1/**0**/1] 0: No display 1: Display *This SP affects the display only, and has no effect on SP5104 (A3/DLT Double Count).*
5921	Key Card Setting		Enables operation with a key card device outside Japan. [0~1/**0**/1] 0: No key card operation 1: Key card operation
5959*	Paper Size		
	001	Tray 1	Tray 1 (Tandem Tray) can accept two paper sizes: A4 LEF and LT LEF. Enter the correct number to select the size of the paper loaded in Tray 1: A4 LEF: 5 LT LEF: 38 If the A3/DLT Tray Kit B475 is installed, enter the correct number to select the size of the paper loaded in the kit:

Size	No.	Size	No.
A3 SEF	132	11" x 17"	160
B4 SEF	141	8 1/2" x 14" SEF	164
A4 LEF	5	8 1/2" x 11" LEF	38
A4 SEF	133	8 1/2" x 11" SEF	166

SP	Number/Name		Function/[Setting]
5959*	Paper Size		
	005	Tray 4 (LCT)	Tray 4 (LCT) accepts three paper sizes. Enter the correct number of the size of the paper loaded in the LCT: A4 LEF: 5 B5 LEF: 14 LT LEF: 38 If the LG/B4 Feeder Kit B474 is installed, enter the correct number to select the size of the paper loaded in the kit: A4 SEF: 133 B4 SEF: 141 LG SEF: 164
	006	Cover Sheet	The Cover Interposer Tray B470 is provided with two arrays of paper size sensors to detect the paper size. However, some of the paper sizes may not be indicated correctly on the display panel. For more details, refer to the Cover Interposer Tray manual section “Paper Size Detection”.
5974*	Cherry Server		Do not change. **Japan Only**
5990	SMC Print		In the SP mode, press Copy Window to move to the copy screen, select the paper size, then press Start. Select A4/LT (Sideways) or larger to ensure that all the information prints. Press SP Window to return to the SP mode, select the desired print, and press Execute.
	001	All	
	002	SP Data	
	003	UP Data	
	004	Logging Data	
	005	Self-Diagnostic Report	
	007	NIB Summary	
	008	Net File Log	
	021	Copy UP Mode	
	022	Scanner SP Mode	
	023	Scanner UP Mode	

SP6-xxx Peripherals

SP	Number/Name		Function/[Setting]
6006*	ADF Registration Adjustment		
	001	ADF Horizontal Registration (Front)	Adjusts the side-to-side registration for the front/back in ADF mode. [–3~+3/**0**/0.1 mm]
	002	ADF Horizontal Registration (Back)	
	003	ADF Vertical Registration (Front)	Adjusts the vertical registration for the front/back in ADF mode. [–5~+5/**0**/0.1 mm]
	004	ADF Vertical Registration (Back)	
	005	ADF Buckle Adjustment 1	Adjusts the roller timing at the skew correction sensor/entrance roller. A higher setting causes more buckling. [–3.0~+3.0/**0**/0.1mm]
	006	ADF Buckle Adjustment 2	Adjusts the roller timing at the interval sensor/scanning roller. A higher setting causes more buckling. [–5.0~+5.0/**0**/0.1mm]
	007	ADF Trailing Edge Erase Margin (Front)	These settings adjust the erase margin for the trailing edges for the front/back. [–10~+10/**0**/0.5 mm].
	008	ADF Trailing Edge Erase Margin (Back)	
6007	ADF Input Check		Displays signals received from sensors and switches in the ADF. (☛ 5.7.3)
	001	Group 1	For details, see 5.7.3.
	002	Group 2	
	003	Group 3	
6008	ADF Output Check		Turns on the ADF electrical components individually for testing. (☛ 5.7.4)
	001	Feed Motor: Forward	
	002	Feed Motor: Reverse	
	003	Transport Motor: Forward	
	004	Exit Motor: Forward	
	005	Pick-up Motor: Reverse	
	006	Bottom Plate Motor: Forward	
	007	Bottom Plate Motor: Reverse	
6009	ADF Free Run		Performs an ADF free run in duplex original mode.
6010	ADF Stamp Position Adjustment		Not used.
6016	Original Size Determination Priority		Allows selection of alternate settings for automatic original size detection. (☛ 6.4.9)
6017*	Sheet Through Magnification		This changes the magnification by adjusting the speed of scanning. [–50(–5%)~+50(+5%)/**0**/0.1%]

SP	Number/Name		Function/[Setting]
6018*	Original Length Setting		Allows setting long originals; adjusts the ADF jam timing. ***(Do not change settings here; use the Special Original function from the operation panel.)*** Default: 440 mm (17") Maximum: 603 mm (23.7")
6020*	ADF Contact Mode In/Out		If the original is small (B6, A5, HLT), the delay sensor detects the leading edge of the sheet and delays the original at the entrance roller for the prescribed number of pulses to buckle the leading edge and correct skew. [0~1/**0**/1] 0: Delay skew correction only for small originals 1: Delay skew correction for all originals, regardless of size. (May reduce the scanning speed of the ADF)
6105*	Staple Position Adjustment		Adjusts the stapling position in the main scan direction. [–3.5~+3.5/**0**/0.5 mm] *A larger value shifts the stapling position outward.*
6113*	Punch Hole Adjustment		
	001	2-Hole	Adjusts the punch hole position in the sub-scan direction for the punch unit with two punch holes. [–7.5~+7.5/**0**/0.5 mm] *A larger value shifts the punch holes towards the edge of the paper.*
	002	3-Hole	Adjusts the punch hole position in the sub-scan direction for the punch unit with three punch holes. [–7.5~+7.5/**0**/0.5 mm] *A larger value shifts the punch holes towards the edge of the paper.*
6116*	Staple Limit Counter for Thick		Multiply the normal limit by this number to determine the staple limit number for thick paper. [1~3/**3**/1 sheet]
6119*	Punch Enabled (Thick Paper)		Allows punching heavier paper, including tab sheets. [0~1/**0**/1] 0: Punching thick paper prohibited 1: Punching thick paper allowed

SP	Number/Name		Function/[Setting]
6120*	Staple Jogger Adjustment		
	001	A3	Allows fine adjustment of the staple unit jogger fences for different paper sizes. [-1.5~1.5/**0**/0.5 mm] A higher value moves the fences away from the paper, while a lower value brings them closer in. **NOTES**: This SP mode is new to the firmware used with the SR840. To enable this SP mode, it is also necessary to install the following: 1. BCU v4.02b or later 2. SR850/860 ROM # B4685131 or later The CCK/MLB firmware (B5254108/4109) already contains this SP mode from its first production.
	002	B4	
	003	A4 T	
	004	A4 Y	
	005	B5 T	
	006	B5 Y	
	007	DLT	
	008	LG	
	009	LT T	
	010	LT Y	
	011	Other	
6900*	ADF Up/Down Setting		Sets the timing for raising and lowering the bottom plate of the ADF. [0~1/**0**/1] 0: Original set 1: Copy start
6902*	Fold Position Adjustment		Adjusts the fold position of the copies for saddle-stitching according to paper size.
	001	A3/DLT	[–3.0~+3.0/**0**/0.5 mm]
	002	B4	[–2.0~+2.0/**0**/0.5 mm]
	003	A4/LT	[–1.5~+1.5/**0**/0.5 mm]
NOTE: ***Always be sure to set SP 6902 first and then SP 6903. If they are set in the opposite order, the value of SP6902 will be added to that of SP 69033, causing the folding position for single-sheets to shift and the booklet to skew.***			
6903	Fold Position Adjustment (1 Sheet)		
	001	A3	Adjusts the folding position for single sheets Booklet copies, to minimize vertical folding skew. Adjustment Range: [-7.5mm to 7.5mm Steps:0.5mm] Default: **0mm** **NOTES**: To enable this SP mode, it is also necessary to install the following: 3. BCU v4.02b or later 4. SR850/860 ROM # B4685131 or later The CCK/MLB firmware (B5254108/4109) already contains this SP mode from its first production.
	002	B4	
	003	A4 lengthwise	
	004	DLT	
	005	LT lengthwise	
	006	Other	

SP7-xxx Data Logs

SP	Number/Name		Function/[Setting]
7001*	Main Motor Operation Time		Displays the total drum rotation time.
7002*	Original Counter		
	001	Total	Displays the total number of fed originals.
	002	Copy	Displays the total number of fed originals in copy mode.
	003	Fax	Not used.
	004	Document Box	Displays the total number of fed originals in document server mode.
	005	Scanner	Displays the total number of fed originals in scanner mode.
	006	Others	Displays the total number of fed originals in other modes.
7003*	Print Counter		Displays the total number of prints in all modes.
	001	Total Count	Displays the total number of prints in all modes.
	002	Copy	Displays the total number of prints in copy mode.
	003	Fax	Not used.
	004	Printer	Displays the total number of prints in printer mode.
	005	Others	Displays the total number of prints in other modes.
7006*	C/O, P/O Counter		
	001	C/O	Displays the number of sets of copies per original when making 10 or more sets of copies. When making 15 sets of copies of an original, this counter value will increase by “6”.
	002	P/O	Displays the number of sets of prints per original data when making 10 or more sets. When making 15 sets of prints of an original data, this counter value will increase by “6”.
7007*	Other Device Counters		
	001	Duplex Counter	Displays the count total for the selected item.
	002	A3/DLT Counter	
	003	Staple Counter	
	004	Scan Counter	

SP	Number/Name		Function/[Setting]
7101*	Print Count – Paper Size		Displays the total number of prints by paper size.
	005	A4 H	Displays the number of copies by paper size. Display range: 0~9999999
	006	A5 H	
	014	A5 H	
	038	LT H	
	044	HLT H	
	132	A3 H	
	133	A4 V	
	134	A5 V	
	141	B4 V	
	142	B5 V	
	160	DLT V	
	164	LG V	
	166	LT V	
	172	HLT V	
	255	Other	
7105*	P Type Counter		
	001	Normal	Displays the total number of prints by paper type. A single-sided print counts as 1 and a two-sided print counts as 2. Display range: 0~9999999
	002	Recycled	
	003	Special	
	004	Color 1	
	005	Color 2	
	006	Letterhead	
	007	Label	
	008	Thick	
	009	OHP	
	010	Used	
	011	Index (Tab Sheets)	
	012	Tracing	
	255	Others	
7201*	Total Scan Counter		Displays the total number of scanned originals.
7204*	Print Counter – Paper Trays		Displays the total number of sheets fed from each paper tray.
	001	By-pass	
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4	
	006	LCT	
	007	Inserter	
7205*	ADF Counter		Displays the total number of originals fed by the ADF.

SP	Number/Name		Function/[Setting]
7206*	Staple Counter		Displays the total number of staples used.
	001	Normal	
	002	Booklet	
7209*	Punch Counter		Displays the total number of times the punch has been used.
7301*	Number of Copies by Reproduction Ratio		
	001	Reduce 25% <-> 49%	Displays the total number of prints for each reproduction ratio range. Display range: 0~9999999 SP7848 clears these counters.
	002	Reduce 50% <-> 99%	
	003	Full Size	
	004	Enlarge 101% <-> 200%	
	005	Enlarge 201% <-> 400%	
	006	Free Mag. %	
	007	Free Size Mag. %	
	008	Auto Reduce/Enlarge	
7304*	Copy: Number of Copies by Mode		Displays the total number of copies by original type. SP7837 or SP7848 clears this counter.
	001	Text	
	002	Text/Photo	
	003	Photo	
	004	Generation Copy	
	005	Pale	
	006	Punching	
	007	Repeat	
	008	Sort	
	009	Staple	
	010	Series	
	011	Erase	
	012	Duplex	
	013	ADF	
	014	Double Copy	
	015	Duplex Original	
	016	Divide Copy	
	017	Combine 1 Side	
	018	Combine 2 Side	
	019	Booklet Gathering	
	020	Pamphlet Saddle-Stitch	
	021	Batch	
	022	SADF	
	023	Mixed Sizes	
	024	Stamp	
	025	Cover/Chapter Sheet	
	026	Chapter Page	

SP	Number/Name		Function/[Setting]
7305	Copy: Display Jobs by Continuous		Displays the total number of multiple print jobs by the size of the sets. SP7838 or SP7848 clears this counter.
	001	1 to 1	
	002	1 to 2 2<-> 5	
	003	1 to 6 <-> 10	
	004	1 to 11 <-> 20	
	005	1 to 21 <-> 50	
	006	1 to 51 <-> 100	
	007	1 to 101 <-> 300	
	008	1 to 301 <-> Over	
7306	Copy: Display Jobs by Mode		Displays the total number of copy jobs by operation mode (stapling, punching, etc.). SP7839 or SP7848 clears this counter. Doc. Svr. – Scan Count
	001	Sort	
	002	Staple	
	003	Punching	
	004	Reserve Copy	
	005	Check Copy	
7320	Doc. Svr. – Scan Count		Displays the total number of pages stored in the document server. SP7840 or SP7848 clears this counter. Doc038. Svr. – Original Size Display
	004	A3	
	005	A4	
	006	A5	
	013	B4	
	014	DLT	
	022	LG	
	036	LT	
	044	HLT	
	128	others	
7321	Doc038. Svr. – Original Size Display		Displays by paper size the total number of originals stored in the document server. SP7841 or SP7848 clears this counter.
	004	A3	
	005	A4	
	006	A5	
	013	B4	
	014	DLT	
	022	LG	
	036	LT	
	044	HLT	
	128	others	

SP	Number/Name		Function/[Setting]
7323	Doc. Svr. – Print Size Display		Displays by paper size the total number of prints stored in the document server. SP7842 or SP7848 clears this counter.
	005	A4 H	
	006	A5 H	
	014	B5 H	
	038	LT H	
	044	HLT H	
	128	other	
	132	A3 V	
	133	A4 V	
	134	A5 V	
	141	B4 V	
	142	B5 V	
	160	DLT V	
	164	LG V	
	166	LT V	
	172	HLT V	
	255	Other	
7324	Doc. Svr. – Print Job Counter		Displays the total number of jobs executed from the document server. SP7843 or SP7848 clears this counter.
	001	Duplex	
	002	Srt	
	003	Staple	
	004	Punch	
	005	Check Copy	
	006	Print 1st Page	
7325	Doc. Svr. – Job Count (Page No)		Displays the number of pages in jobs executed from the document server. SP7844 or SP7848 clears this counter.
	001	Page 1	
	002	Page 2	
	003	Pages 3 to 5	
	004	Pages 6 to 10	
	005	Pages 11 to end	
7326	Doc. Svr. – Job Count (File No.)		Displays the number of files in jobs executed from the document server. SP7845 or SP7848 clears this counter.
	001	File 1	
	002	Files 1 to 5	
	003	Files 6 to 10	
	004	Files 11 to end	

SP	Number/Name		Function/[Setting]
7327	Doc. Svr. – Job Count (Set No.)		Displays the number of sets of multiple page print jobs executed from the document server. SP7846 or SP7848 clears this counter.
	001	1 to 1	
	002	1 to 2 2<-> 5	
	003	1 to 6 <-> 10	
	004	1 to 11 <-> 20	
	005	1 to 21 <-> 50	
	006	1 to 51 <-> 100	
	007	1 to 101 <-> 300	
	008	1 to 301 <-> Over	
7328	Doc. Svr. – Job Count (Print Mode)		Displays the total number of prints in print mode executed from the document server. SP7847 or SP7848 clears this counter.
	006	Punch	
	008	Sort	
	009	Staple	
	012	Duplex	
	019	Booklet	
	020	Magazine	
	024	Stamp	
	025	Cover/Chapter Sheet/Switching	
	026	Slipsheet	
7401*	Total SC Counter		Displays the total number of SCs logged.
7403*	SC History		
	001	Latest	Displays information about the most recent service calls. The SC code number, total, and date are displayed for the 10 most recent service calls. However, for SC990 and SC991 (issued for software errors) three additional items are displayed: Line: The number of the line in the program code where the error occurred. Val: The value in the line that caused the error. File: The name of the file where the error occurred.
	002	Last 1	
	003	Last 2	
	004	Last 3	
	005	Last 4	
	006	Last 5	
	007	Last 6	
	008	Last 7	
	009	Last 8	
	010	Last 9	
7502*	Total Paper Jam Counter		Displays the total number of copy jams.
7503*	Total Original Jam Counter		Displays the total number of original jams.

SP	Number/Name		Function/[Setting]
7504	Paper Jam Counter by Location		Displays the list of possible locations where a jam could have occurred. Press the appropriate key to display the jam count for that location. These jams are caused by the failure of a sensor to activate.
	001	At Power On	
	003	1st Paper Feed Sensor: On	
	004	2nd Paper Feed Sensor: On	
	005	3rd Paper Feed Sensor: On	
	006	4th Paper Feed Sensor (Japan Only): On	
	007	LCT Paper Feed Sensor	
	008	1st Vertical Transport Sensor: On	
	009	2nd Vertical Transport Sensor: On	
	010	3rd Vertical Transport Sensor: On	
	011	4th Vertical Transport Sensor (Japan Only): On	
	012	Relay Sensor: On	
	013	Registration Sensor: On	
	014	Fusing Exit Sensor: On	
	015	Exit Unit Entrance Sensor: On	
	016	Paper Exit Sensor: On	
	019	Duplex Entrance Sensor: On	
	020	Duplex Transport Sensor 1: On	
	021	Duplex Transport Sensor 2: On	
	022	Duplex Transport Sensor 3: On	
	023	Duplex Inverter Sensor Exit Duplex	
	024	1-Bin Tray Sensor (Japan Only): On	
	034	By-pass Paper End Sensor: Non Feed	
	053	1st Paper Feed Sensor: Off	
	054	2nd Paper Feed Sensor: Off	
	055	3rd Paper Feed Sensor: Off	
	056	4th Paper Feed Sensor (Japan Only: Off	
	057	LCT Paper Feed Sensor	
	058	1st Vertical Transport Sensor: Off	
	059	2nd Vertical Transport Sensor: Off	
	060	3rd Vertical Transport Sensor: Off	
	061	4th Vertical Transport Sensor (Japan Only): Off	
	062	Relay Sensor: Off	
	063	Registration Sensor: Off	

SP	Number/Name		Function/[Setting]
7504	066	Paper Exit Sensor: Off	Displays the list of possible locations where a jam could have occurred. Press the appropriate key to display the jam count for that location. These jams are caused by the failure of a sensor to activate.
	069	Duplex Entrance Sensor: Off	
	071	Duplex Transport Sensor 2: Off	
	072	Duplex Transport Sensor 3: Off	
	073	Duplex Inverter Sensor	
	074	1 Bin Tray Sensor (Japan Only): Off	
	B469 Finisher (No Saddle Stitch)		
	101	Entrance Sensor	When the paper fails to activate the entrance sensor at the precise time or remains at the entrance sensor for longer than the prescribed time.
	102	Proof Tray Exit Sensor	When the paper fails to activate the proof tray exit sensor at the precise time after activating the entrance sensor or remains at the proof tray exit sensor for longer than the prescribed time.
	103	Exit Sensor	When the paper fails to activate the exit sensor at the precise time after activating the entrance sensor or remains at the exit sensor for longer than the prescribed time.
	104	Staple Entrance Sensor	When the paper fails to activate the staple entrance sensor at the precise time after activating the entrance sensor or remains at the staple entrance sensor for longer than the prescribed time.
	105	Exit Sensor after jogging	When the paper from the jogger unit fails to activate the exit sensor at the precise time or remains at the exit sensor for longer than the prescribed time.
	106	Stapler Unit 1	When the stapler unit fails to send any signals while stapling.
	109	Shift Motor	**Related SC733** When the signal status of the lower tray encoder sensor does not change at the precise time during motor rotation.
	110	Jogger Fence Motor	**Related SC722** When the status of the jogger fence HP sensor does not change at the precise time during jogger fence motor rotation.
	111	Shift Roller or Guide Plate Motor	**Related SC732, SC736** When the status of the shift roller HP sensor does not change at the precise time during shift roller motor rotation, or the status of the guide plate position sensor does not change at the precise time during guide plate motor rotation.

SP	Number/Name		Function/[Setting]
7504	112	Stapler Movement or Stapler Rotation Motor	**Related SC730, SC727** When the status of the stapler HP sensor does not change at the precise time during stapler movement motor rotation, or the status of the stapler rotation sensor does not change at the precise time during stapler rotation motor.
	113	Stapler Unit 2	**Related SC724** Not logged.
	115	Feed Out Belt Motor	**Related SC725** When the status of the feed out belt HP sensor does not change at the precise time during feed out belt motor rotation.
	116	Punch Hole Motor	**Related SC729** When the status of the punch HP sensor does not change at the precise time during punch hole motor rotation.
	B468 Finisher with Saddle Stitch		
	121	Entrance Sensor	When the paper fails to activate the entrance sensor at the precise time or remains at the entrance sensor for longer than the prescribed time.
	122	Proof Tray Exit Sensor	When the paper fails to activate the proof tray exit sensor at the precise time after activating the entrance sensor or remains at the proof tray exit sensor for longer than the prescribed time.
	123	Exit Sensor	When the paper fails to activate the exit sensor at the precise time after activating the entrance sensor or remains at the exit sensor for longer than the prescribed time.
	124	Staple Entrance Sensor	When the paper fails to activate the staple entrance sensor at the precise time after activating the entrance sensor or remains at the staple entrance sensor for longer than the prescribed time.
	125	Exit Sensor after jogging	When the paper from jogger unit fails to activate the exit sensor at the precise time or remains at the exit sensor for longer than the prescribed time.
	126	Stapler Unit 1	When the stapler unit fails to send any signals while stapling.
	127	Saddle Stitch Stapler Unit	When the saddle stitch stapler fails to send any signals while stapling.
	128	Saddle Stitch	When the status of the exit sensor does not change at the precise time during saddle stitching.
	129	Shift Motor	**Related SC733, SC726** When the status of the upper tray limit sensor does not change at the precise time while lifting the upper exit tray. The status of the upper tray full sensor does not change at the precise time while lowering the upper exit tray, or the status of the lower tray encoder sensor does not change at the precise time while moving the lower tray.

SP	Number/Name		Function/[Setting]
7504	130	Jogger Fence Motor	**Related SC722** When the status of the jogger fence HP sensor does not change at the precise time during jogger fence motor rotation.
	131	Shift Roller or Guide Plate Motor	**Related SC732, SC736** When the status of the shift roller HP sensor does not change at the precise time during shift roller motor rotation, or the status of the guide plate position sensor does not change at the precise time during guide plate motor rotation.
	132	Stapler Movement or Stapler Rotation Motor	**Related SC730, SC727** When the status of the stapler HP sensor does not change at the precise time during stapler movement motor rotation, or the status of the stapler rotation sensor does not change at the precise time during stapler rotation motor.
	133	Stapler Unit 2	**Related SC724, SC740, SC741** Not logged.
	134	Folder Plate Motor	**Related SC739** When the status of the folder plate HP sensor does not change at the precise time during folder plate motor rotation.
	135	Feed Out Belt Motor	**Related SC725** When the status of the feed out belt HP sensor does not change at the precise time during feed out belt motor rotation.
	136	Punch Hole Motor	**Related SC729** When the status of the punch HP sensor does not change at the precise time during punch hole motor rotation.
	B478 Finisher		
	141	Entrance Sensor	When the paper fails to activate the entrance sensor at the precise time or remains at the entrance sensor for longer than the prescribed time.
	142	Proof Tray Exit Sensor	When the paper fails to activate the proof tray exit sensor at the precise time after activating the entrance sensor or remains at the proof tray exit sensor for longer than the prescribed time.
	143	Exit Sensor	When the paper fails to activate the exit sensor at the precise time after activating the entrance sensor or remains at the exit sensor for longer than the prescribed time.
	144	Staple Entrance Sensor	When the paper fails to activate the staple entrance sensor at the precise time after activating the entrance sensor or remains at the staple entrance sensor for longer than the prescribed time.
	145	Exit Sensor after jogging	When the paper from jogger unit fails to activate the exit sensor at the precise time or remains at the exit sensor for longer than the prescribed time.
	148	Upper Transport Motor	When the upper transport motor fails to send any signals while rotating.

SP	Number/Name		Function/[Setting]
7504	149	Shift Motor	**Related SC733** When the status of the lower tray encoder sensor does not change at the precise time during shift motor rotation.
	150	Jogger Fence Motor	**Related SC722** When the status of the jogger fence HP sensor does not change at the precise time during jogger fence motor rotation.
	151	Shift Roller or Guide Plate Motor	**Related SC732, SC736** When the status of the shift roller HP sensor does not change at the precise time during shift roller motor rotation, or the status of the guide plate position sensor does not change at the precise time during guide plate motor rotation.
	153	Stapler Unit	**Related SC724** When the stapler unit fails to send any signals while stapling.
	155	Feed Out Belt Motor	**Related SC725** When the status of the feed out belt HP sensor does not change at the precise time during feed out belt motor rotation.
	156	Punch Hole Motor	**Related SC729** When the status of the punch HP sensor does not change at the precise time during punch hole motor rotation.
	157	Data	DFU
	B471 Mail Box		
	161	Transport Sensor 1	When the paper fails to activate transport sensor 1 at the precise time or remains at transport sensor 1 for longer than the prescribed time.
	162	Transport Sensor 2	When the paper fails to activate transport sensor 2 at the precise time or remains at transport sensor 2 for longer than the prescribed time..
	163	Transport Sensor 3	When the paper fails to activate transport sensor 3 at the precise time or remains at transport sensor 3 for longer than the prescribed time..
	164	Transport Sensor 4	When the paper fails to activate transport sensor 4 at the precise time or remains at transport sensor 4 for longer than the prescribed time.
	165	Transport Sensor 5	When the paper fails to activate transport sensor 5 at the precise time or remains at transport sensor 5 for longer than the prescribed time.
	B470 Cover Interposer Tray		
	166	Feed or Pull-out Sensor	When the paper fails to activate the feed or pull-out sensor at the precise time.
	167	Exit Sensor	When the paper fails to activate the exit sensor at the precise time or remains at the exit sensor for longer than the prescribed time.
	168	Bottom Plate Position Sensor	When the status of the bottom plate position sensor does not change at the precise time during bottom plate motor rotation.

SP	Number/Name		Function/[Setting]
7505*	Total Original Jam Counter		Displays the total number of original jams by paper size
	001	At Power On	
	003	Registration Sensor Check-in Failure	
	004	Nip-in Sensor Check-in Failure	
	005	Registration Sensor (On Check)	
	006	Relay Sensor (On Check)	
	053	Registration Sensor Check Out	
	054	Nip-in Sensor Check-out Failure	
	055	Registration Sensor (Off Check)	
	056	Relay Sensor (Off Check)	
7506*	Total Jam Counter by Paper Size		Displays the total number of jams by paper size
	005	A4- H	
	006	A5- H	
	014	B5- H	
	038	LT- H	
	044	HLT-H	
	132	A3-V	
	133	A4-V	
	134	A5-V	
	141	B4-V	
	142	B5-V	
	160	DLT-V	
	164	LG-V	
	166	LT-V	
	172	HLT-V	
	255	others	
7507*	Plotter Jam History		
	001	Latest	Displays the following items for the last 10 copy paper jams: 1) Jam code, 2) Paper size, 3) Total count when jam occurred, 4) Date of jam. *The "jam codes" are listed in the SMC report under SP7504.*
	002	Last 1	
	003	Last 2	
	004	Last 3	
	005	Last 4	
	006	Last 5	
	007	Last 6	
	008	Last 7	
	009	Last 8	
	010	Last 9	

SP	Number/Name		Function/[Setting]
7508*	Original Jam		
	001	Latest	Displays the following items for the last 10 copy paper jams: 1) Jam code, 2) Paper size, 3) Total count when jam occurred, 4) Date of jam. *The "jam codes" are listed in the SMC report under SP7504.*
	002	Last 1	
	003	Last 2	
	004	Last 3	
	005	Last 4	
	006	Last 5	
	007	Last 6	
	008	Last 7	
	009	Last 8	
	010	Last 9	
7617	PM Parts Counter Display		
	001	Normal	
	002	DF	
7618	PM Parts Counter Reset		**Japan Only**
	001	Normal	Press Execute to clear the parts replacement alarm counter for the main machine.
	002	DF	Press Execute to clear the parts replacement alarm counter for the ADF.
7801*	ROM Version Display		Displays the ROM version numbers of the main machine and connected peripheral devices.
7803*	PM Counter Display		Displays the PM count since the last PM.
7804*	PM Counter Reset		Resets the PM count.
7807*	SC/Jam Counter Reset		Press Start to reset the SC and jam counters.
7808*	Counters Reset		Press # to reset all counters, with the exception of the optional card/key counter devices. The following counts are reset: • Total electronic counts • Copy count • Print count • Duplex count • Staple count • A3/DLT count • P/O count • C/O count
7810*	Access Code Clear		Press # to clear the key operator code if the customer key operator forgets the password and the machine cannot be used..
7811*	Original Counter Clear		Clears the original total display, displayed with SP7-002-***. To clear, press ①.

SP	Number/Name		Function/[Setting]
7816*	Print Counter Reset – Paper Tray		Resets the total feed count for each feed station.
	001	By-pass	
	002	Tray 1	
	003	Tray 2	
	004	Tray 3	
	005	Tray 4	
	006	LCT	
	007	Inserter	
7817*	ADF Counter Reset		Resets the counters of SP7205.
7822	Copy Clear: Pages By Mag. Rate		Resets all counters of SP7301.
7825	Total Counter Reset		Resets the electronic counter total. Normally, this SP is executed at installation.
7826*	MF Error Counter		Displays the number of counts requested of the card/key counter. **Japan Only**
	001*	Error Total Counter	
	002*	Error Stapler Counter	
7827*	MF Error Counter Clear		Press # to reset to 0 the values of SP7826. **Japan Only**
7828	Punch Count Reset		Resets the count for SP7209 (Punch Count)
7832	Self-Diagnostic Results Display		Press # to display a list of error codes. Nothing is displayed if no errors have occurred.
7836	Memory Contents		Press # to display the contents of the memory on the controller board.
7837	Copy Clear: Pages by Mode		Press Execute to clear counter SP7304 (Copy Num – Copies by Mode)
7838	Copy Clear: Jobs by Continuous Output		Press Execute to clear counter SP7305 (Copy: Display Jobs by Mode)
7839	Copy Clear: Jobs by: Mode		Press Execute to clear counter SP7306 (Copy: Display Jobs by Mode).
7840	LS Clear: Stored Image Logins		Press Execute to clear counter SP7320 (Doc. Svr. – Scan Count.
7841	LS Clear: Originals by Size		Press Execute to clear counter SP7321 (Doc. Svr. – Original Size Display)
7842	LS Clear: Prints by Size		Press Execute to clear counter SP7323 (Doc. Svr – Print Size Display).
7843	LS Clear: Print Job Logins		Press Execute to clear counter SP7324 (Doc. Svr. – Print Job Counter).
7844	LS Clear: Print to Page Distr.		Press Execute to clear SP7325 (Doc. Svr. – Job Count (Page No.).
7845	LS Clear: Print Job File Distr.		Press Execute to clear SP7326 (Doc. Svr – Job Count (File No.)
7846	LS Clear: Print Job Copies Distr.		Press Execute to clear SP7327 (Doc. Svr. – Job Count (Set No.
7847	LS Clear: Number of Pages by Mode		Press Execute to clear SP7328 (Doc. Svr – Job Count (Print Mode).

SP	Number/Name		Function/[Setting]
7848	Copy: All Clear		Press Execute to clear the following SP codes: SP7301, SP7304, SP7305, SP7306, SP7320, SP7321, SP7323, SP7324, SP7325, SP7326, SP7327, SP7328.
7901	Assert Info.		
	001	Filename	Used for debugging. **DFU**
	002	Line No.	
	003	Value	
7910	ROM Number		Prints the ROM number in the SMC Report. The number is not displayed on the operation panel.
7911	Firmware Version		Displays the version numbers of all firmware in the system.
7990	Status of Issued SC		Displays the following information about the most recently issued SC: 1) Source file name, 2) SC number, 3) Result

SP8-xxx Design Factory Use

8XXX	Data Log	**DFU**

SP9-xxx Design Factory Use

9525	Finisher Halt SW 1		**DFU**
9904	Charge Off Timing		**DFU**
9905	Transfer Belt Release Timing		**DFU**
9907	Transport Timing Adjustment		**DFU**
	001	Idle Stop Time	
	002	Secondary Feed Start Timing	
	003	Jogger Start Timing	
	005	Reverse Roller On Time	
	006	Reverse Roller Off Position	
	007	Duplex: 1st Stop Position	
	008	Duplex: 1st Stop Position	
	009	Duplex: 1st Stop Position	
	010	Reverse Start Time	
	011	Duplex: Gate Pawl SOL on time	
	012	Duplex: STM Speed Reductions	
9908	Debug: Toner Supply Control		**DFU**
	004	Toner Supply Gain Display	
	006	Pixel Count Display	
9909	Development Time Adjustment		**DFU**
	001	Development On Tome	
	002	Development Off Time	
	003	Development Off Timing: Jam	
	004	Development Motor On Timing	
	005	Development Motor Off Timing	
9911	High Voltage Power Supply Test		**DFU**
	001	Charge Corona Gain	
	002	Charge Grid Gain	
	003	Development Gain	
	004	Transfer Gain	
	030	Transfer Corona Max. PWM Width	
	031	Transfer Grid Max. PWM Width	
	032	Development Max. PWM Width	
	033	Transfer Max. PWM Width	
9922	Toner Supply CL Drive Time		**DFU**
	001	Min. On Time	
	002	Max. On Time	

9925	BY-Pass Thick Paper Mode Timing		**DFU**
	002	Feed CL Restart Time Setting	
	003	Pick-up Restart Setting	
	004	Pick-up Restart Time Setting	
9926	Debug: Fusing		**DFU**
	001	B Relay Stat	
	002	B Fuser Status	
	003	St Fuser	
	004	Call Service	
	005	Power Relay Port	
	006	Heater 1	
	007	Heater 2	
	008	BICU High Temperature	
9927	ID Sensor Gain		**DFU**
	001	Denominator of ID Proportional Gain	
	002	ID Proportional Gain: Denominator	
	003	ID Proportional Gain: Numerator	
	004	ID Integral Gain: Denominator	
9928	TD Sensor Gain		**DFU**
	001	ID Integral Gain: Numerator	
	002	TD Proportional Gain: Denominator	
	003	TD Proportional Gain: Numerator	
	004	TD Integral Gain: Denominator	
9930	Toner Control NV Data		**DFU**
	001	Toner End Status	
	002	Toner End Counter	
	003	Toner Remain Counter	
	004	Bottle Revolution Counter	
9931	Potential Sensor Check Data		**DFU**
	001	V100	
	002	V800	
	003	Slope	
	004	Y Cutoff	
	005	QL Potential Check	
	006	QL Potential Check Timing	
	007	Vd (AD value)	
	008	Vh (AD value)	
9932	Sub Heater Control Setting		**DFU**

9933	Vd Scale Voltage Setting		**DFU**
9936	Transfer Current Correction		
9937	Vh Pattern Creation Setting		**DFU**
	001	Exposure Level	
	002	Offset Light Amount	
9938	ID Sensor Pattern Create Setting		**DFU**
	001	Exposure Level	
	002	Offset Light Amount	
9943	Intermittant Shading Setting		**DFU**
9961	Fusing SC parameters (Reload E		**DFU**
	001	Reload Within Start-up Time x 2	
	002	Over Power On Time	
	003	Temperature Up in 20 s	
9962	Fusing SC parameters (Temp. De		
9963	CPM Down Setting		**DFU**
	001	Yes/No	
	002	CPM Down Temperature	
	003	Down Level	
9964	For Web Design		**DFU**
	001	Web Length	
	002	Paper Thru Time (hh)	
9971	Web Operation /Temp. Variable		**DFU**
	001	Yes/No	
	002	Variable Temp. 1	
	003	Operation Interval 1	
9972	Force n Web Rotations at Job E		**DFU**
9980	Force Jam Release Setting		**DFU**
9990	Mailbox Exit Test		**DFU**
9991	Mailbox Exit Bin Setting		**DFU**
9992	Debug: Binding in ZAIRE		**DFU**

5.6.2 PRINTER SERVICE TABLE

SP No.	Description	Function and Setting
1001	BitSw#1 Set	Adjusts bit switch settings. **Note:** Currently the bit switches are not being used
1003	Clear Setting	Not used
1004	Print Summary	Prints the service summary sheet (An error log is printed in the configuration page).
1005	Display Version	Displays the version of the controller firmware

5.6.3 SCANNER SERVICE TABLE

SP	Number/Name		Function/[Setting]
1001	System		
	001	Model Name	Displays the model name.
	002	Scanner Firmware Version	Displays the scanner firmware version.
	003	Scanner Firmware Number	Displays the firmware's part number.
	004	Detail Model Name	Displays the detail model name.
1002	Error Log Display		Displays the error log data.
1003*	FTP Port Number		Changes the FTP port number. *After changing this value, do the following:* 1. Run *the Registry Editor* 2. *Access /HKEY_LOCAL_MACHINE/SOFTWARE/Ricoh/NetworkScanner* *3. Change the value of 'PortNo' to this SP mode's value* [0 – 65535/**3670**/1 step]
1004*	Compression Type		Selects the compression type for binary picture processing. [1: MH, 2: MR, **3: MMR**]
1005*	Erase Margin		Creates an erase margin for all edges of the scanned image. *If the machine has scanned the edge of the original, create a margin.* [0 – 5/**0mm**/1mm step]
1006*	Auto Reset Timer		Adjusts the auto reset timer for the scanner function. *If this is "0", the auto reset function is disabled.* [0, 10 – 999/**60s**/1s step]
2002	**Text/Print Mode Settings**		
	001*	MTF Filter Coefficient (Main scan)	Selects the MTF filter coefficient in the main scan direction for Text mode. *Select a higher number for a stronger filter.* *If this is "0", the MTF filter is not applied.* [0~13/**7**/1 step]
	002*	MTF Filter Coefficient (Sub scan)	As above, for sub scan [0~13/**7**/1 step]
	003*	MTF Filter Strength (Main scan)	Selects the MTF filter strength in the main scan direction for Text mode. *Select a higher number for a stronger filter.* [0~7/**2**/1 step]
	004*	MTF Filter Strength (Sub scan)	As above, for sub scan [0~7/**5**/1 step]

SP	Number/Name		Function/[Setting]
2002	005*	Smoothing Filter	Selects the smoothing pattern for Text mode when using binary picture processing mode. *A larger value could cause moiré to appear in the image.* [0~7/**0**/1 step]
	Text Mode		
	006*	Scanner Gamma	Selects the scanner gamma type for Text mode when using binary picture processing mode. [0~6/**4**/1 step]
	007*	Brightness – Notch 7	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image density level (from 7 to 1) for Text mode when using binary picture processing mode. The settings are reflected in the gamma table. [0~255/**128**/1 step]
	008*	Contrast – Notch 7 (Text/Binary)	[0~255/**128**/1 step]
	009*	Threshold Level – Notch 7 (Text/Binary)	[0~255/**160**/1 step]
	010*	Brightness – Notch 6 (Text/Binary)	[0~255/**128**/1 step]
	011*	Contrast – Notch 6 (Text/Binary)	[0~255/**128**/1 step]
	012*	Threshold Level – Notch 6 (Text/Binary)	[0~255/**145**/1 step]
	013*	Brightness – Notch 5 (Text/Binary)	[0~255/**128**/1 step]
	014	Notch No. 5: Contrast	[1~255/**102**/1]
	015	Notch No. 5: Threshold	[1~255/**115**/1]
	016	Notch No. 4: Intermediate Brightness	[1~255/**104**/1]
	017	Notch No. 4: Intermediate Contrast	[1~255/**102**/1]
	018	Notch No. 4: Intermediate Threshold	[1~255/**107**/1]
	019	Notch No. 3: Brightness	[1~255/**104**/1]
	020	Notch No. 3: Contrast	[1~255/**102**/1]
	021	Notch No. 3: Threshold	[1~255/**90**/1]
	022	Notch No. 2: Brightness	[1~255/**104**/1]
	023	Notch No. 2: Contrast	[1~255/**102**/1]
	024	Notch No. 2: Threshold	[1~255/**65**/1]
	025	Notch No. 1 Dark Brightness	[1~255/**104**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**102**/1]

SP	Number/Name		Function/[Setting]
2002	027	Notch No. 1 Dark: Threshold	[1~255/**58**/1]
	028	Independent Dot Erase	[0x00~0x07/**0x04**/1]
	029	Unevenness Correction	[0x00~0x07/**0x04**/1]
2003	**Text (OCR)**		
	001	MTF Filter Coefficient (Main scan)	Sets the MTF coefficient for the main scan direction. [0x00~0xFF/**0x04**/0x01]
	002	MTF Filter Coefficient (Sub scan)	Sets the MTF coefficient for the sub scan direction. [0x00~0xFF/**0x04**/0x01]
	003	MTF Filter Strength (Main scan)	Sets the MTF strength for the main scan direction. [0~0x07/**0x05**/0x01]
	004	MTF Filter Strength (Sub scan)	Sets the MTF strength for the sub scan direction. [0~0x07/**0x05**/0x01]
	005	Smoothing Filter	Sets the smoothing coefficient. [0~0xFF/**0x00**/0x01]
	006	Scanner Gamma	Selects the gamma setting. 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 5:Photo. [0x00~0x06/**0x05**/0x01]
	007	Notch No. 7 Light : Brightness	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image Notch No. (from 7 to 1) for Text/Photo mode when using the delivery scanner mode. The settings are reflected in the gamma table. [1~255/15/1]
	008	Notch No. 7 Light: Contrast	[1~255/**110**/1]
	009	Notch No. 7 Light: Threshold	[1~255/**128**/1]
	010	Notch No. 6: Brightness	[1~255/**25**/1]
	011	Notch No. 6: Contrast	[1~255/**85**/1]
	012	Notch No. 6: Threshold	[1~255/**128**/1]
	013	Notch No. 5: Brightness	[1~255/**27**/1]
	014	Notch No. 5: Contrast	[1~255/**51**/1]
	015	Notch No. 5: Threshold	[1~255/**128**/1]
	016	Notch No. 4 Intermediate: Brightness	[1~255/**70**/1]
	017	Notch No. 4 Intermediate: Contrast	[1~255/**70**/1]
	018	Notch No. 4 Intermediate: Threshold	[1~255/**128**/1]
	019	Notch No. 3: Brightness	[1~255/**69**/1]
	020	Notch No. 3: Contrast	[1~255/**80**/1]

SP	Number/Name		Function/[Setting]
2003	**Text/Photo Mode**		
	021	Notch No. 3: Threshold	[1~255/**128**/1]
	022	Notch No. 2: Brightness	[1~255/**100**/1]
	023	Notch No. 2: Contrast	[1~255/**100**/1]
	024	Notch No. 2: Threshold	[1~255/**128**/1]
	024	Notch No. 1 Dark: Brightness	[1~255/**128**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**128**/1]
	027	Notch No. 1 Dark: Threshold	[1~255/**128**/1]
	028	Independent Dot Erase	0: Off 1: On 1-7 High
	029	Unevenness Correction	0: Off 1: On
2004	**Text/Photo Mode Settings**		
	001	MTF Filter Coefficient (Main scan)	Sets the MTF coefficient for the main scan direction. [0x00~0xFF/**0x00**/0x01]
	002	MTF Filter Coefficient (Sub scan)	Sets the MTF coefficient for the sub scan direction. [0x00~0xFF/**0x00**/0x01]
	003	MTF Filter Strength (Main scan)	Sets the MTF strength for the main scan direction. [0~0x07/**0x05**/0x01]
	004	MTF Filter Strength (Sub scan)	Sets the MTF strength for the sub scan direction. [0~0x07/**0x00**/0x01]
	005	Smoothing Filter	Sets the smoothing coefficient. [0~0x07/**0x00**/0x01]
	006	Scanner Gamma	Selects the gamma setting. 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 5:Photo. [0x00~0x06/**0x06**/0x01]
	007	Notch No. 7 Light : Brightness	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image Notch No. (from 7 to 1) for Photo mode when using the delivery scanner mode. The settings are reflected in the gamma table. [1~255/**16**/1]
	008	Notch No. 7 Light: Contrast	[1~255/**128**/1]
	009	Notch No. 7 Light: Threshold	[1~255/**128**/1]
	010	Notch No. 6: Brightness	[1~255/**25**/1]
	011	Notch No. 6: Contrast	[1~255/**85**/1]
	012	Notch No. 6: Threshold	[1~255/**128**/1]

SP	Number/Name		Function/[Setting]
2004	**Photo Mode**		
	013	Notch No. 5: Brightness	[1~255/**120**/1]
	014	Notch No. 5: Contrast	[1~255/**120**/1]
	015	Notch No. 5: Threshold	[1~255/**128**/1]
	016	Notch No. 4 Intermediate: Brightness	[1~255/**120**/1]
	017	Notch No. 4 Intermediate: Contrast	[1~255/**120**/1]
	018	Notch No. 4 Intermediate: Threshold	[1~255/**128**/1]
	019	Notch No. 3: Brightness	[1~255/**135**/1]
	020	Notch No. 3: Contrast	[1~255/**133**/1]
	021	Notch No. 3: Threshold	[1~255/**128**/1]
	022	Notch No. 2: Brightness	[1~255/**138**/1]
	023	Notch No. 2: Contrast	[1~255/**133**/1]
	024	Notch No. 2: Threshold	[1~255/**128**/1]
	025	Notch No. 1 Dark: Brightness	[1~255/**140**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**133**/1]
	027	Notch No. 1 Dark: Threshold	[1~255/**133**/1]
2005	**Photo Mode Setting**		
	001	MTF Filter Coefficient (Main scan)	Sets the MTF coefficient for the main scan direction. [0x00~0xFF/**0xFF**/0x01]
	002	MTF Filter Coefficient (Sub scan)	Sets the MTF coefficient for the sub scan direction. [0x00~0xFF/**0x00**/0x01]
	003	MTF Filter Strength (Main scan)	Sets the MTF strength for the main scan direction. [0~0x07/**0x00**/0x01]
	004	MTF Filter Strength (Sub scan)	Sets the MTF strength for the sub scan direction. [0~0x07/**0x07**/0x01]
	005	Smoothing Filter	Sets the smoothing coefficient. [0~0xFF/**0x00**/0x01]
	006	Scanner Gamma	Selects the gamma setting. 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 5:Photo [0x00~0x06/**0x01**/0x01]
	007	Dither Matrix Filter	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image Notch No. (from 7 to 1) for greyscale mode when using the delivery scanner mode. The settings are reflected in the gamma table. [1~255/**98**/1]
	008	Notch No. 7 Light: Contrast	[1~255/**98**/1]

SP	Number/Name		Function/[Setting]
2005	009	Notch No. 7 Light: Threshold	[1~255/**98**/1]
	010	Notch No. 6: Brightness	[1~255/**108**/1]
	011	Notch No. 6: Contrast	[1~255/**108**/1]
	012	Notch No. 6: Threshold	[1~255/**108**/1]
	013	Notch No. 5: Brightness	[1~255/**118**/1]
	014	Notch No. 5: Contrast	[1~255/**118**/1]
	015	Notch No. 5: Threshold	[1~255/**118**/1]
	016	Notch No. 4 Intermediate: Brightness	[1~255/**128**/1]
	017	Notch No. 4 Intermediate: Contrast	[1~255/**128**/1]
	018	Notch No. 4 Intermediate: Threshold	[1~255/**128**/1]
	019	Notch No. 3: Brightness	[1~255/**138**/1]
	020	Notch No. 3: Contrast	[1~255/**138**/1]
	021	Notch No. 3: Threshold	[1~255/**138**/1]
	022	Notch No. 2: Brightness	[1~255/**148**/1]
	023	Notch No. 2: Contrast	[1~255/**148**/1]
	024	Notch No. 2: Threshold	[1~255/**148**/1]
	025	Notch No. 1 Dark: Brightness	[1~255/**158**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**158**/1]
	027	Notch No. 1 Dark: Threshold	[1~255/**158**/1]
	028	Notch No. 1	
2006	**Gray Scale Mode Setting**		
	001	MTF Filter Coefficient (Main scan)	Sets the MTF coefficient for the main scan direction. [0x00~0xFF/**0xFF**/0x01]
	002	MTF Filter Coefficient (Sub scan)	Sets the MTF coefficient for the sub scan direction. [0x00~0xFF/**0x00**/0x01]
	003	MTF Filter Strength (Main scan)	Sets the MTF strength for the main scan direction. [0~0x07/**0x00**/0x01]
	004	MTF Filter Strength (Sub scan)	Sets the MTF strength for the sub scan direction. [0~0x07/**0x07**/0x01]
	005	Smoothing Filter	Sets the smoothing coefficient. [0~0xFF/**0x00**/0x01]
	006	Scanner Gamma	Selects the gamma setting. 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 5:Photo [0x00~0x06/**0x01**/0x01]

SP	Number/Name		Function/[Setting]
2006	007	Notch No. 7 Light : Brightness	The following SPs adjust the image density (brightness, contrast, and thresholds) for each image Notch No. (from 7 to 1) for greyscale mode when using the delivery scanner mode. The settings are reflected in the gamma table. [1~255/**98**/1]
	008	Notch No. 7 Light: Contrast	[1~255/**98**/1]
	009	Notch No. 7 Light: Threshold	[1~255/**98**/1]
	010	Notch No. 6: Brightness	[1~255/**108**/1]
	011	Notch No. 6: Contrast	[1~255/**108**/1]
	012	Notch No. 6: Threshold	[1~255/**108**/1]
	013	Notch No. 5: Brightness	[1~255/**118**/1]
	014	Notch No. 5: Contrast	[1~255/**118**/1]
	015	Notch No. 5: Threshold	[1~255/**118**/1]
	016	Notch No. 4 Intermediate: Brightness	[1~255/**128**/1]
	017	Notch No. 4 Intermediate: Contrast	[1~255/**128**/1]
	018	Notch No. 4 Intermediate: Threshold	[1~255/**128**/1]
	019	Notch No. 3: Brightness	[1~255/**138**/1]
	020	Notch No. 3: Contrast	[1~255/**138**/1]
	021	Notch No. 3: Threshold	[1~255/**138**/1]
	022	Notch No. 2: Brightness	[1~255/**148**/1]
	023	Notch No. 2: Contrast	[1~255/**148**/1]
	024	Notch No. 2: Threshold	[1~255/**148**/1]
	025	Notch No. 1 Dark: Brightness	[1~255/**158**/1]
	026	Notch No. 1 Dark: Contrast	[1~255/**158**/1]
	027	Notch No. 1 Dark: Threshold	[1~255/**158**/1]

SP	Number/Name		Function/[Setting]
2007	**Compression Ratio Of Grayscale**		
	001	Compression Ratio (Normal Range)	Sets the rate of compression when Standard is selected for handling JPEG files. [5~95/**50**/1] 95: Low compression (larger file) 5: High compression (smaller file)
	002	Compression Ratio (High Quality)	Sets the rate of compression when High is selected for handling JPEG files. [5~95/**60**/1] 95: Low compression (larger file) 5: High compression (smaller file)
	003	Compression Ratio (Low Quality)	Sets the rate of compression when JPEG files.Low is selected for handling [5~95/**40**/1] 95: Low compression (larger file) 5: High compression (smaller file)
9001	Bit Switch For Debug		
9001	Debug Print		

5.7 INPUT/OUTPUT CHECK

5.7.1 INPUT CHECK: SP5803

This procedure allows you to test sensors and other components of the machine. After you select one of the categories below by number, you will see a small 8-bit table with the number of the bit and its current setting (0 or 1). The bits are numbered 0 to 7, reading right to left.

1. Enter the SP mode and select SP5803.
2. Enter the number (1 to 13) for the item that you want to check. A small box will be displayed on the SP mode screen with a series of 0's and 1's.
   The meaning of the display is as follows.

Bit	7 6 5 4 3 2 1 0
Setting	**1 1 0 0 1 0 1 0**

3. Check the status of each item against the corresponding bit numbers listed in the table below.

1. Paper Feed 1			
Bit	**Description**	**Reading**	
		0	**1**
7	Rear Side Fence Close Sensor	Activated	Deactivated
6	Rear Side Fence Open Sensor	Activated	Deactivated
5	Rear Side Fence Close Sensor	Activated	Deactivated
4	Rear Side Fence Open Sensor	Activated	Deactivated
3	Near End Sensor	(See Table Below)	
2	Paper Height 1 Sensor		
1	Paper Height 2 Sensor		
0	Paper Height 3 Sensor		

2. Paper Feed 2			
Bit	**Description**	**Reading**	
		0	**1**
7	2nd Paper Size Switch	(See Table Below)	
6	2nd Paper Size Switch		
5	2nd Paper Size Switch		
4	2nd Paper Size Switch		
3	2nd Paper Size Switch		
2	Not Used		
1	Not Used		
0	Not Used		

	1500 sheets	1000 sheets			400 sheets			70 sheets
bit-3	0	0	0	0	0	0	1	1
bit-2	0	0	0	1	1	1	1	0
bit-1	0	0	1	1	1	0	0	0
bit-0	0	1	1	0	0	0	0	0

Service Tables

3. Paper Feed 3			
Bit	Description	Reading	
		0	1
7	3rd Paper Size Switch	(see tables below)	
6	3rd Paper Size Switch		
5	3rd Paper Size Switch		
4	3rd Paper Size Switch		
3	3rd Paper Size Switch		
2	Not used		
1	Not used		
0	Not used		

Universal Tray Size Detection – N.A. models only

Paper Size	Switch Setting (LOW = pressed)				Panel Display	
11" x 17"	LOW	HIGH	HIGH	HIGH	HIGH	11" x 17" SEF
8 1/2" x 14"	LOW	LOW	HIGH	HIGH	HIGH	8 1/2" x 14" SEF
8 1/2" x 11"	HIGH	LOW	LOW	HIGH	HIGH	8 1/2" x 11" SEF
11" x 8 1/2"	LOW	HIGH	LOW	LOW	HIGH	8 1/2" x 11" LEF
5 1/2" x 8 1/2"	LOW	LOW	HIGH	LOW	LOW	5 1/2" x 8 1/2" SEF
8 1/2" x 5 1/2"	LOW	LOW	LOW	HIGH	LOW	8 1/2" x 5 1/2" LEF
8" x 10 1/2"	LOW	LOW	LOW	LOW	HIGH	8" x 10 1/2" SEF
7 1/4" x 10 1/2"	HIGH	LOW	LOW	LOW	LOW	7 1/4" x 10 1/2" SEF
8" x 13"	HIGH	HIGH	LOW	LOW	LOW	8" x 13" SEF
*	HIGH	HIGH	HIGH	HIGH	LOW	(size set in User Tools)

Universal Tray Size Detection – EU/ASIA models

Paper Size	Switch Setting (LOW = pressed)				Panel Display	
A3 SEF	LOW	HIGH	HIGH	HIGH	HIGH	A3 SEF
8 1/4" x 13"	LOW	LOW	HIGH	HIGH	HIGH	8 1/4" x 13" SEF
A4 SEF	HIGH	LOW	LOW	HIGH	HIGH	A4 SEF
A4 LEF	LOW	HIGH	LOW	LOW	HIGH	A4 LEF
8 1/2" x 13"	LOW	LOW	HIGH	LOW	LOW	8 1/2" x 13" SEF
A5 SEF	LOW	LOW	LOW	HIGH	LOW	A5 SEF
A5 LEF	LOW	LOW	LOW	LOW	HIGH	A5 LEF
*	HIGH	HIGH	HIGH	HIGH	LOW	(size set in User Tools)

4. Paper Feed 4			
Bit	Description	Reading	
		0	1
7	1st Paper Height	Less than 30%	30% or more
6	Japan only		
5	2nd Paper Height	Less than 30%	30% or more
4	3rd Paper Height	Less than 30%	30% or more
3	1st Paper Near End	Near End	Not Near End
2	Japan only		
1	2nd Paper Near End	Near End	Not Near End
0	3rd Paper Near End	Near End	Not Near End

5. Paper Feed 5			
Bit	Description	Reading	
		0	1
7	Japan only		
6	Japan only		
5	Japan only		
4	Japan only		
3	Japan only		
2	Right Tray Paper Sensor	Paper not present	Paper present
1	Tray Type	3 trays	4 trays
0	Not used		

6. Paper Feed 6			
Bit	Description	Reading	
		0	1
7	Left Tandem Tray Set	Set	Not set
6	Japan only		
5	Japan only		
4	Rear Fence HP Sensor	Deactivated	Activated
3	Japan only		
2	Rear Fence Return Sensor	Deactivated	Activated
1	Left Tray Paper Sensor	Paper present	Paper not present
0	Right Tandem Tray Set	Set	Not set

7. Paper Feed 7			
Bit	Description	Reading	
		0	1
7	1st Paper Feed Sensor	Paper present	Paper not present
6	Japan only		
5	2nd Paper Feed Sensor	Paper present	Paper not present
4	3rd Paper Feed Sensor	Paper present	Paper not present
3	1st Vertical Transport Sensor	Paper present	Paper not present
2	Japan only		
1	2nd Vertical Transport Sensor	Paper present	Paper not present
0	3rd Vertical Transport Sensor	Paper present	Paper not present

8. Paper Feed 8			
Bit	Description	Reading	
		0	1
7	1st Tray Lift Sensor	Deactivated	Activated
6	Japan only		
5	2nd Tray Lift Sensor	Deactivated	Activated
4	3rd Tray Lift Sensor	Deactivated	Activated
3	1st Paper End Sensor	Paper present	Paper not present
2	Japan only		
1	2nd Paper End Sensor	Paper present	Paper not present
0	3rd Paper End Sensor	Paper present	Paper not present

9. Paper Feed 9			
Bit	Description	Reading	
		0	1
7	Not used		
6	Not used		
5	Toner Overflow SW	Switch not pressed	Switch pressed
4	Toner Collection Bottle Set SW	Switch pressed	Switch not pressed
3	Not used		
2	Not used		
1	Not used		
0	Not used		

10. Paper Feed 10			
Bit	Description	Reading	
		0	1
7	DFU		
6			
5			
4			
3			
2			
1			
0			

11. Paper Feed 11			
Bit	Description	Reading	
		0	1
7	DFU		
6			
5			
4			
3			
2			
1			
0			

12. DIP Switches			
Bit	Description	Reading	
		0	1
7	DFU		
6			
5			
4			
3			
2			
1			
0			

13. Exit			
Bit	Description	Reading	
		0	1
7	Toner Collection Motor Sensor	Deactivated	Activated
6	Toner End Sensor	Toner end	Not toner end
5	Toner Collection Coil Sensor	Deactivated	Activated
4	Not used		
3	Exit Unit Set	Set	Not set
2	Paper Exit Sensor	Paper present	Paper not present
1	Exit Unit Entrance Sensor	Paper present	Paper not present
0	Web End Sensor	Not web end	Web end

14. Duplex			
Bit	Description	Reading	
		0	1
7	Not used		
6	Duplex Unit Set	Set	Not set
5	Duplex Transport 3 Sensor	Paper not present	Paper present
4	Duplex Transport 2 Sensor	Paper not present	Paper present
3	Duplex Transport 1 Sensor	Paper not present	Paper present
2	Duplex Jogger HP Sensor	Deactivated	Activated
1	Duplex Inverter Sensor	Paper not present	Paper present
0	Duplex Entrance Sensor	Paper not present	Paper present

15. Lock Detection 1			
Bit	Description	Reading	
		0	1
7	Key Card Set	Set	Not set
6	Development Motor Lock	Not locked	Locked
5	Fusing/Exit Motor Lock	Locked	Not locked
4	Drum Motor Lock	Not locked	Locked
3	CPM	60 CPM	75 CPM
2	Not used		
1	Not used		
0	Not used		

16. Lock Detection 2			
Bit	Description	Reading	
		0	1
7	Charge Corona Leak	Leaked	Not leaked
6	Not used		
5	Toner Collection Motor Lock	Locked	Not locked
4	Exhaust Fan Lock	Locked	Not locked
3	Not used		
2	Not used		
1	Not used		
0	Not used		

17. Registration Sensor			
Bit	Description	Reading	
		0	1
7	Not used		
6	Not used		
5	Front Door Open	Open	Closed
4	Copy Tray Full Sensor	Not full	Full
3	Guide Plate Position Sensor	Closed	Open
2	Relay Sensor	Paper present	Paper not present
1	By-pass Paper End Sensor	Paper present	Paper not present
0	Registration Sensor	Paper present	Paper not present

18. Original Size Set Sensor			
Bit	Description	Reading	
		0	1
7	Fusing Unit Set	Set	Not set
6	Not used		
5	Key Counter Set	Set	Not set
4	Original Length 2 Sensor	Paper present	Paper not present
3	Original Length 1 Sensor	Paper present	Paper not present
2	Original Width 3 Sensor	Paper present	Paper not present
1	Original Width 2 Sensor	Paper present	Paper not present
0	Original Width 1 Sensor	Paper present	Paper not present

5.7.2 OUTPUT CHECK: SP5804

1. Open SP mode 5-804.
2. Select the SP number that corresponds to the component you wish to check. (Refer to the table on the next page.)
3. Press On then press Off to test the selected item.
   NOTE: You cannot exit and close this display until you press off to switch off the output check currently executing. Do not keep an electrical component switched on for a long time.

No.	Description
1	Feed Motor 1
2	Lower Relay Motor
3	2nd Feed Motor
4	3rd Feed Motor
5	By-pass Feed Clutch
6	LCT Paper Feed Motor
9	1st Pick-up SOL
10	2nd Pick-up SOL
11	3rd Pick-up SOL
12	4th Pick-up SOL
13	By-pass Pick-up SOL
14	LCT Pick-up SOL
17	Reverse Release SOL 1
18	Reverse Release SOL 2
19	Reverse Release SOL 3
20	Not Used
22	Tandem Connection Release SOL
23	Left Tandem Lock SOL
24	Rear Fence Motor
25	Not used
27	Relay Motor/By-pass Feed
28	Main Motor
31	Fusing/Exit Motor
39	Registration Motor
40	Guide Plate Release SOL
41	Exit Junction SOL
43	Inverter Duplex Motor
44	Duplex Transport Motor
45	Duplex Entrance Gate SOL
46	InverterJogger SOL
47	Duplex Transport CL
52	Development Roller CL
53	Development Motor

No.	Description
54	Used Toner Motor
55	Web Motor
56	Toner Bottle Motor
57	Transfer/Separation SOL
62	Quenching Lamp
63	Charge Corona
64	Grid Wire
67	Development Bias
69	Transfer Bias
70	ID Sensor LED
72	Xenon Lamp
74	Development Unit Fan
75	Duplex Unit Fan
76	Main Ventilation Fan
77	Main Suction Fan
78	Main Vacuum Fan
79	OPC Fan
80	FIN Junction SOL
81	FIN Junction SOL (Stapler)
82	FIN End Roller SOL
84	Total Counter
85	FIN Main Motor 1
86	FIN Main Motor 2
87	FIN Exit Motor
88	FIN Stapler Motor
89	FIN Punch Motor
90	LD DC Lamp
92	FIN Tray Lift Motor
93	FIN Jogger Motor
94	FIN Staple Transport Motor
95	FIN Exhaust Motor
96	FIN Shift Motor
97	FIN Staple Slant Motor

5.7.3 ADF INPUT CHECK: SP6007

1. Open SP mode SP6007.
2. Select the SP number that corresponds to the component you wish to check. (Refer to the table below.)
3. Press On then press Off to test the selected item. You cannot exit and close this display until you click Off to switch off the output check currently executing.

Bit	7 6 5 4 3 2 1 0
Data	**1 1 0 0 1 0 1 0**

Group 1	
No.	**Description**
0	Original Length Sensor 3 (LG)
1	Original Length Sensor 2 (A4)
2	Original Length Sensor 3 (B5)
3	Original Set Sensor
4	Original Width Sensor 1
5	Original Width Sensor 2
6	Original Width Sensor 3
7	Original Width Sensor 4

Group 2	
No.	**Description**
0	Skew Correction Sensor
1	Interval Sensor
2	Registration Sensor
3	Exit Sensor
4	DF Position Sensor
5	APS Start Sensor
6	Feed Cover Sensor
7	Pick-up Roller HP Sensor

Group 3	
No.	**Description**
0	Bottom Plate HP Sensor
1	Bottom Plate Position Sensor
2	Not Used
3	Not Used
4	Not Used
5	Not Used
6	Not Used
7	Not Used

5.7.4 ADF OUTPUT CHECK: SP6008

1. Open SP mode SP6008.
2. Select the SP number that corresponds to the component you wish to check. (Refer to the table below.)
3. Press On then press Off to test the selected item. You cannot exit and close this display until you click Off to switch off the output check currently executing.

Bit	7 6 5 4 3 2 1 0
Data	**1 1 0 0 1 0 1 0**

No.	Description	0	1
1	Feed Motor: Forward	OFF	ON
2	Feed Motor: Reverse	OFF	ON
3	Transport Motor: Forward	OFF	ON
4	Exit Motor: Forward	OFF	ON
5	Pick-up Motor: Reverse	OFF	ON
6	Bottom Plate Motor: Forward	OFF	ON
7	Bottom Plate Motor: Reverse	OFF	ON

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 053 **09/25/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

SERVICE MANUAL

The Service Manual pages listed below must be replaced with the pages supplied.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- 1-64 and 1-67 Updated Information (Copy Connector Kit Type 1075)

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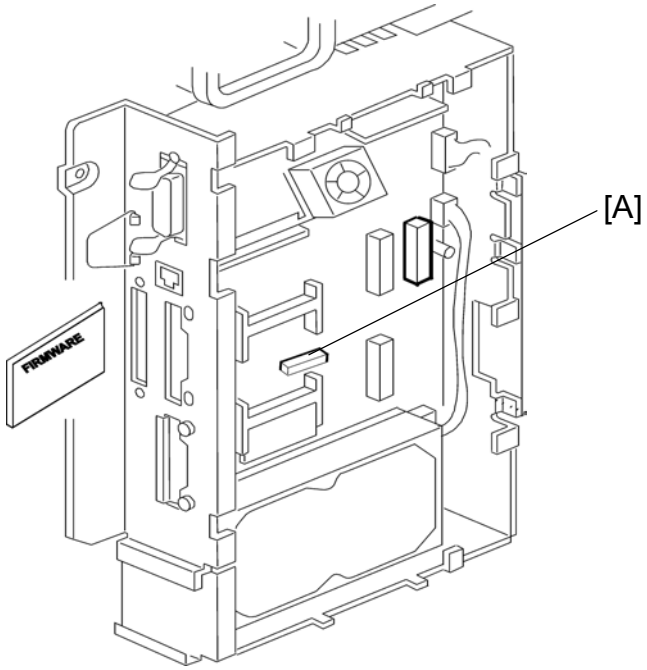
1.16.3 INSTALLATION PROCEDURE

⚠CAUTION

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

Perform the following procedures for both the main and sub copiers.

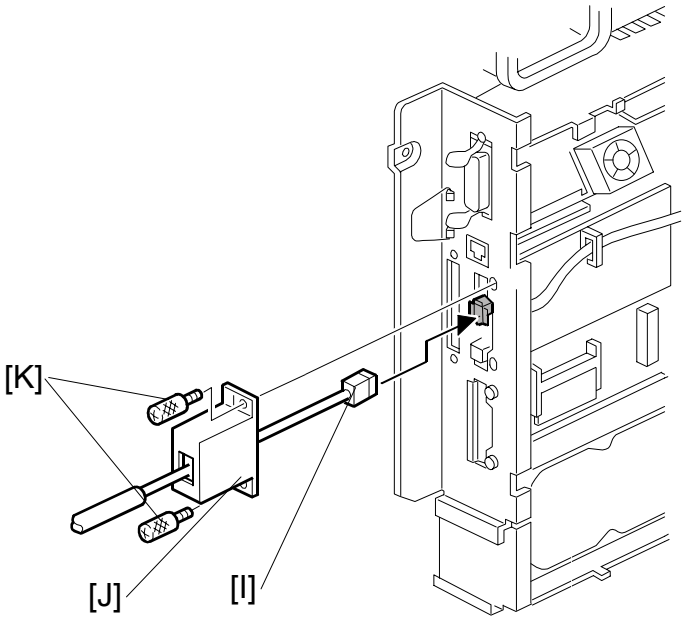
1.16.4 INSTALLING THE FIRMWARE

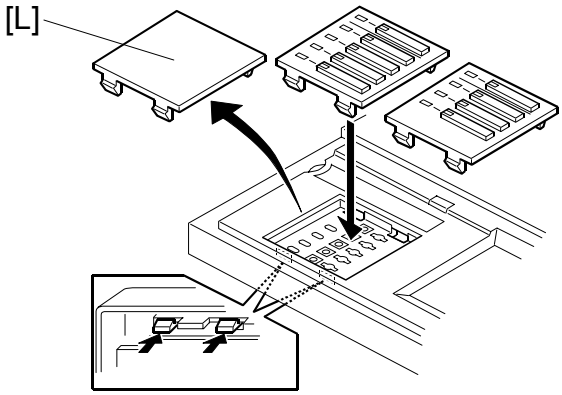


1. Remove the rear cover (2 screws).
2. Remove the controller cover (10 screws).
3. Turn on DIP SW2-1 on the controller board [A].

⇒**NOTE:** Only perform this step when installing the Copy Connector Kit. Leave the switch off whenever performing any future updates.

4. Install the following firmware.
   - GW Controller (System and Copy)
   - Printer/Scanner
   - NIB Netfile
5. Turn off DIP SW2-1 on the controller board.
6. Install the following firmware.
   - BCU
   - LCDC





8. Lead the interface cable [I] through the anti-static cap [J], and then connect it to the interface board.
9. ⇒ Attach the anti-static cap (2 knob screws [K]).
10. Replace the key top [L].
11. Repeat both the firmware and hardware procedures above for the other copier.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 054 **09/25/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

SERVICE MANUAL

The Service Manual pages listed below must be replaced with the pages supplied.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- 1-72 Updated Information (File Format Converter)

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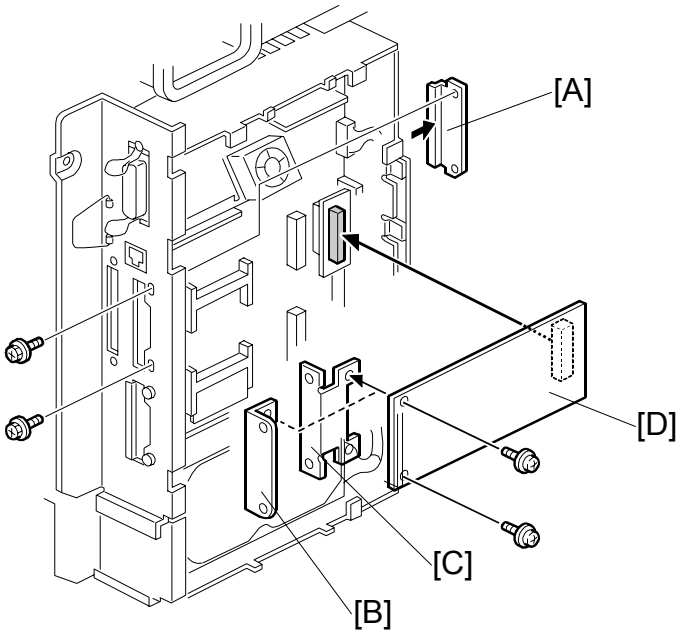
1.17.5 INSTALLING THE HARDWARE



1. Remove the slot cover [A] (2 screws).
2. Remove the bracket [B] and attach the MLB panel [C].
3. Attach the File Format Converter board [D] to the controller board (2 screws).
4. Replace the controller board cover and rear cover.
5. Turn the main switch ON.
6. Perform a network function Memory Clear (SP5-801-10).
7. Input the following default values manually (SP5-836).

SP Number	Value	SP Number	Value
5-836-01	0	5-836-82	1
5-836-02	0	5-836-83	1
5-836-72	0	5-836-85	1
5-836-73	0	5-836-86	2
5-836-75	0	5-836-91	50
5-836-76	1		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 055 **09/30/2003**

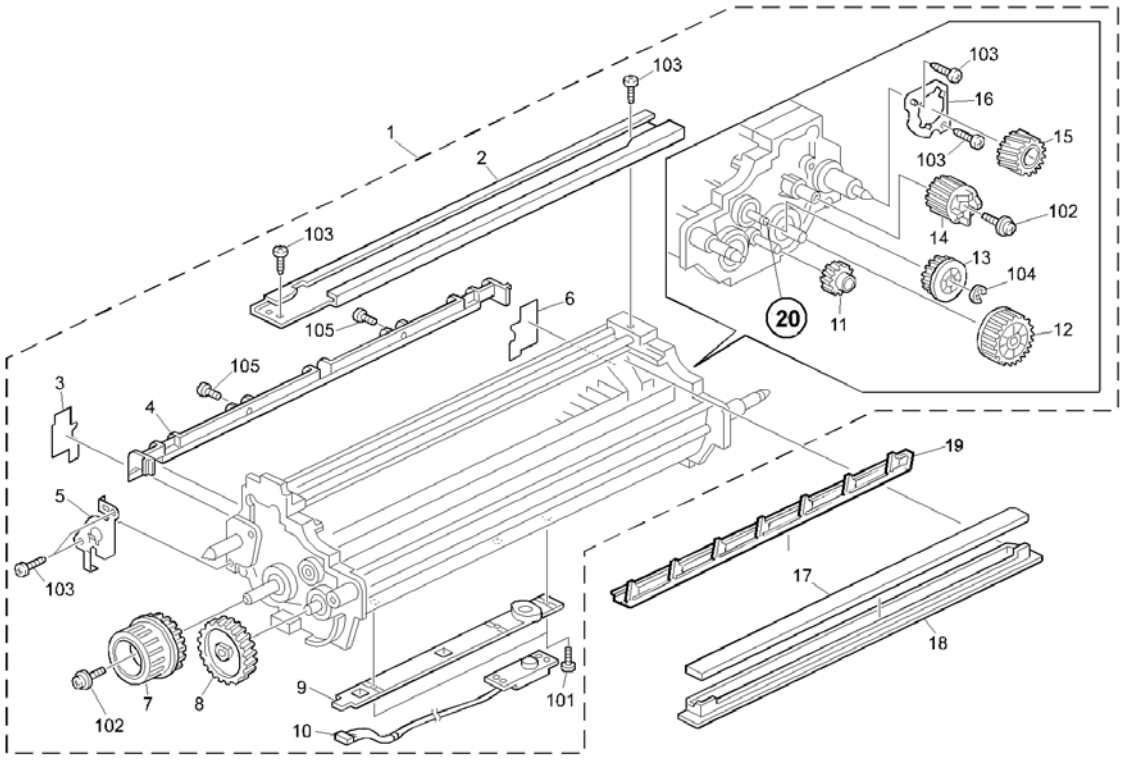
APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: DEVELOPMENT COIL

GENERAL:

The Development Coil was omitted from the B064/B065 Parts Catalog. Please update your parts catalog with the following information. The following part update is being issued for all B064/B065 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
-	A2943116	Development Coil	1	-	79	20 *

*** DENOTES NEW ITEM NUMBER**

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 056 REISSUE ★ **10/06/2003**

APPLICABLE MODEL:

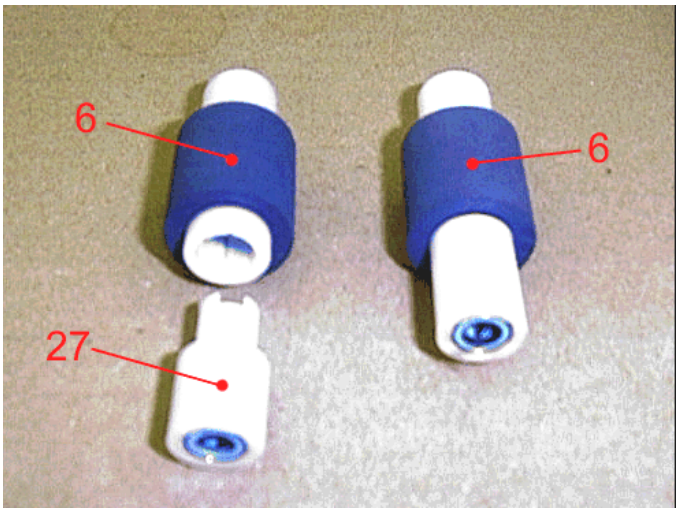
GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

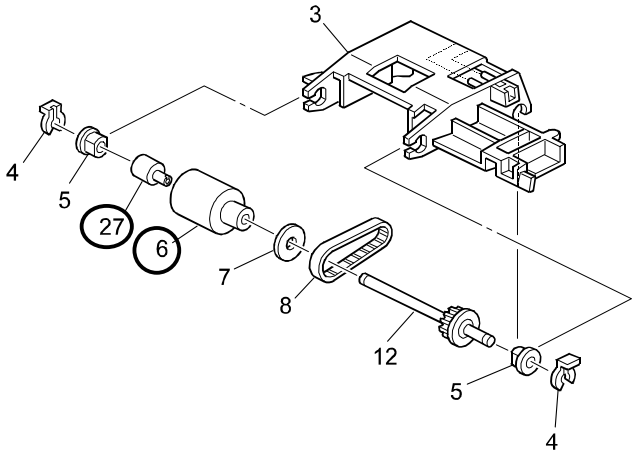
★ **SUBJECT: PICKUP ROLLER**

■ PARTS

GENERAL:

The Pickup Roller and Coupling have been registered separately due to parts standardization with the next DF model.
The following parts updates are being issued for all B064/B065 Parts Catalogs.





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				REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A8061321		Pickup Roller	1-0	25	6
	B4772225	Pickup Roller	1	25	6
	B4772226	Pickup Roller - Coupling	1	25	27*

*** DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Pickup Roller and Pickup Roller – Coupling Installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Savin 2560	J4335500043
Gestetner 7502 Savin 2575	J4235500191
LanierLD060	J4335500043
LanierLD075	J4235500191
Ricoh AFICIO 1060	J4335500043
Ricoh AFICIO 1075	J4235500191

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 057 **10/07/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

SERVICE MANUAL

The Service Manual pages listed below must be replaced with the pages supplied.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- 5-94 Updated Information (Printer Service Table)

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5.6.2 PRINTER SERVICE TABLE

SP No.	Description	Function and Setting
1001	Bit Switch	Adjusts bit switch settings. **Note:** Currently the bit switches are not being used except for Bit Switch 2 bit 3. See PUB(C)-051 for details.
1003	Clear Setting	Not used
1004	Print Summary	Prints the service summary sheet (An error log is printed in the configuration page).
1005	Display Version	Displays the version of the controller firmware

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 058 **10/22/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SOFTWARE

SUBJECT: "INSUFFICIENT MEMORY ERROR" DISPLAYED

SYMPTOM:

If versions of DeskTopBinder V2 Lite/Professional prior to version 3.0.0.0 are used with the File Format Converter, the message "Insufficient Memory Error" will be displayed.

CAUSE:

The File Format Converter supports DeskTopBinder V2 Lite/Professional from version 3.0.0.0 or later. If prior versions of DeskTopBinder V2 Lite are used with the File Format Converter, an "Insufficient Memory Error" is be displayed.

SOLUTION:

Install DeskTopBinder V2 Lite/Professional from version 3.0.0.0 or later.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 059 **11/04/2003**

APPLICABLE MODEL:

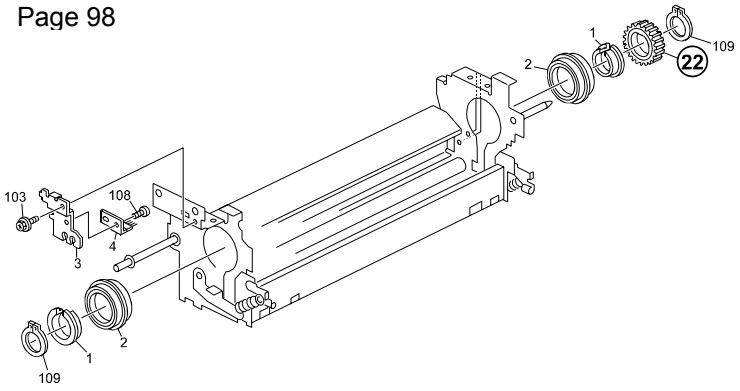
GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: FUSING GEAR & FUSING DRIVE GEAR

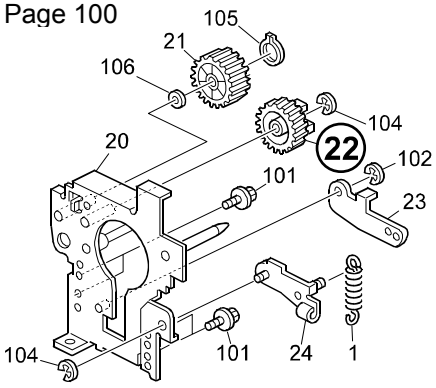
GENERAL:

The following parts updates are being issued for all B064/B065 Parts Catalogs. Note that these parts should be changed together as a set. Please update your parts catalog with the following information.

Page 98



Page 100



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AB013792	AB012316	Fusing Gear	1	3/S	99	22
AB017357	AB012317	Fusing Drive Gear	1	3/S	101	22

*** DENOTES NEW ITEM NUMBER**

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UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Fusing Gear and Fusing Drive Gear installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235700452
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335700495

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 060 **11/18/2003**

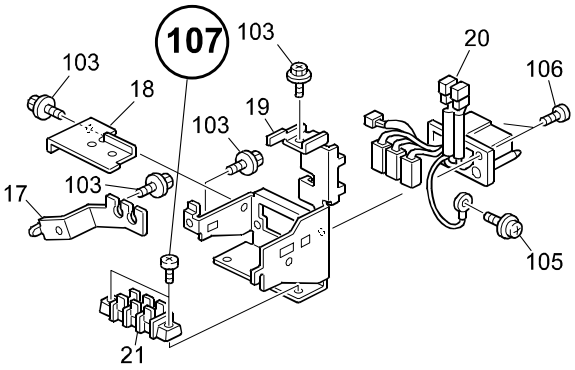
APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: PHILIPS PAN HEAD SCREW

GENERAL:

The Philips Pan Head Screw (Item 107) securing Connector-3P (Item 21) to the Connector Bracket (Item 19) has been changed to facilitate assembly. The following part update is being issued for all B064/B065 Parts Catalogs. Please update your parts catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
03140100B	03140120B	Phillips Pan Head Screw – M4x10	1	3	99	107

UNITS AFFECTED:

The serial number cut-in information was not available at time of this publication.

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 - 062 **12/02/2003**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: B064/B065 TROUBLESHOOTING GUIDE

GENERAL:

The attached document is the troubleshooting guide for the B064. Please use this guide as a supplement to your service manual.

TABLE OF CONTENTS:

1. IMAGE QUALITY:.....2
2. JAMMING:.....3
3. NOISE:.....3
4. SKEW:.....4
5. OPERATION PANEL:.....4
6. SERVICE CODES:.....5
7. COVER INTERPOSER:.....7
8. FINISHER:.....8
9. PRINTER:.....9
10. WIRELESS LAN:.....11
11. SCANNER:.....12
12. OTHER:.....13

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1. IMAGE QUALITY:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Black Line	Black line appears when using ADF (front side, along feed direction).	Dirty DF exposure glass	- Install the latest BCU/GW/LCDC firmware. - Advise the customer to clean the DF exposure glass when black lines appear on the front side along the feed direction. Set SP4999-001 to 1 **(ON).** if the customer requires this, which will activate an alert message for DF glass cleaning.
Black Line	With DF 2-sided scanning, the edge of the original is sometimes visible on the rear side of the copy when the image is shifted by Create Margin for stapling.	BCU software	Install the latest BCU firmware.
Black Line	Black lines appear when running a job of 1 to 30 or more	Toner/paper dust that accumulates on the blade edge.	- Replace with the A293 drum and A229 cleaning brush. - Remove the cleaning blade release mechanism.
Image Problem	Image problem occurs when using Magazine Copy together with Margin Adjustment.	GW controller software	Install the latest GW controller firmware.
Dirty Image	When copying originals for reduction through the DF with nearly 100% image area coverage, part of the trailing edge shows dirty.	BCU software	Install the latest BCU firmware.
Dirty Background	Dirty background occurs.	PCU brush roller gear damage due to the cleaning blade release mechanism.	- Replace with the A293 drum and A229 cleaning brush. - Remove the cleaning blade release mechanism.
Toner Scattering	Toner scattering occurs.	PCU brush roller gear damage due to the cleaning blade release mechanism.	- Replace the drum and cleaning brush. - Remove the cleaning blade release mechanism.
Toner Scattering	Toner scattering occurs.	Cleaning brush has reached its lifetime.	Replace the cleaning brush.
Poor Fusing or Offset Image	Poor fusing occurs a few months after installation.	Surface layer of the fusing roller peels off.	Replace the hot roller with A0011087.

2. JAMMING:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Jamming	Jam codes 3, 4, 5, 8, 9, 10, 12, 53, 54, 55, 58, 59, 60	1. The material used for paper feed roller on production line. 2. Incorrect belt tension (paper feed unit). 3. PFU gear failure.	Replace the rollers. 2. Adjust the tension of the belt. 3. Replace the gears. ***Refer to Technical Service Bulletin B064/B065 - 018R.***
Tandem Tray	Jamming occurs when feeding from Tandem Tray.	PFC board failure	Replace PFC board.
Exit Roller	Jamming occurs at exit section.	Wrong position of plastic rollers	Do not insert (lock) plastic rollers into rubber exit roller.
Fusing Unit	Jamming occurs at fusing unit.	Surface layer of the fusing roller peels off.	Replace the hot roller.
By-pass	Paper set in the bypass tray is fed along with the paper selected, causing a jam.	Bypass feed roller rotates even though bypass tray is not selected.	Add Feed Lever (B0656445).

3. NOISE:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Cleaning Brush Gear	Noise from the PCU brush roller gear.	PCU brush roller gear damage due to the cleaning blade release mechanism.	-Replace with the A293 drum and A229cleaning brush. - Remove the cleaning blade release mechanism. ***Refer to Technical Service Bulletin B064/B065 - 047.***
Toner Supply Unit	Noise generated due to damaged toner supply unit gears.	Poor toner transportation in the Toner Transport Coil.	Replace toner supply unit and waste toner vertical transport unit, and remove the steel ball. ***Refer to Technical Service Bulletin B064/B065 – 015R.***
Toner Supply Case	Noise is heard from the Toner Supply Case.	The agitator in the toner supply case is deformed.	Replace the toner supply case. ***Refer to Technical Service Bulletin B064/B065 – 044***

4. SKEW:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Tandem Tray	Skewing occurs when feeding from the Tandem Tray.	PFC board failure	Replace PFC board.

5. OPERATION PANEL:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Translation Error	Translation error	Translation error (language firmware)	Install the latest language firmware.
Display Error (Touch Screen Calibration)	A display error occurs if the Reset key is pressed while performing touch screen calibration.	LCDC software	Install the latest LCDC firmware.
Display Error (Document Server)	The filename of a Document Server file appears garbled on the document delete screen if the name is written in Chinese.	GW controller software	Install the latest GW controller firmware.
Waiting Display	The "Waiting" display sometimes does not clear when the machine recovers from Energy Saver Mode.	GW controller software	Install the latest GW controller firmware.
Not Displayed Job Name	The job name is not displayed on the LCD panel, and the job is not listed in the job history with PCL5e/PCL6 printing,	Printer software	Install the latest printer firmware.

6. SERVICE CODES:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
SC181	SC181 occurs when the DF is opened and the main power is turned on with a specific timing.	BCU software	Install the latest BCU firmware.
SC181 SC183	SC181 or SC183 occurs.	CIS failure	Replace the CIS.
SC310 SC541	SC310 and SC541 occur at the same time.	Dirty potential sensor	Clean the potential sensor
SC335 SC337	SC335/337 occur when BCU board warm-up is performed with a specific timing.	BCU software	Install the latest BCU firmware.
SC345	SC345 occurs during the initial paper feed just after the main power is turned on, or at the end of a job while the ID sensor pattern is being created.	BCU software	Install the latest BCU firmware.
SC441	SC441 occurs.	Waste toner lock	Replace toner supply unit and waste toner vertical transport unit, and remove the steel ball. ***Refer to Technical Service Bulletin B064/B065 – 015R.***
SC441	SC441 occurs at the installation.	Development drive motor failure	Replace the development drive motor.
SC501 SC502 SC503	SC501, 502, or 503 occurs.	PFC board failure	Replace PFC board.
SC542 SC544	SC542/544 occurs.	Middle thermistor failure.	Replace the middle thermistor.
SC550	SC550 occurs when installing BCU firmware Ver. 3.14e or later.	BCU software	Replace the web.
SC550	SC550 (Web End) occurs prematurely.	BCU software	Install the latest BCU firmware. ***Refer to Technical Service Bulletins B064/B065 – 012, 25, & 41.***

SUBJECT	SYMPTOM	CAUSE	SOLUTION
SC590	SC590 occurs.	Waste toner lock	Replace toner supply unit and waste toner vertical transport unit, and remove the steel ball. ***Refer to Technical Service Bulletin B064/B065 – 015R.***
SC620	SC620 occurs.	Finisher soft .	Replace with the latest finisher ROM (B4685132 or later).
SC819	SC819 occurs if "Continue to Program" is performed 196 times in the address book programming screen.	GW controller software	Install the latest GW controller firmware.
SC870	SC870 occurs after multiple groups are selected and assigned a number in the address book programming screen.	GW controller software	Install the latest GW controller firmware.
SC925	SC925 occurs at installation.	HDD failure	1. Perform the HDD formatting (SP5832) 2. If unsuccessful, replace the HDD.
SC955	SC995 (Memory Setting Error) occurs with large print jobs (approx. 1,500 sheets).	BCU software	Install the latest BCU firmware.
SC990	SC990 occurs during a print job if 100 sheets is specified for Desig/Chapter.	GW controller software	Install the latest GW controller firmware.
SC990	SC990 occurs when cover sheets are added at the end of a sample copy trial and the job is initiated.	GW controller software	Install the latest GW controller firmware.
SC990	SC990 occurs if performing continuous print jobs using the LPR port when network traffic is high.	GW controller software	Install the latest GW controller firmware.
SC990	SC990 occurs if the signal timing during scanning and printing causes a delay in the scanning process.	GW controller software	Install the latest GW controller firmware.
SC990	SC990 sometimes occurs with simplex originals → duplex copies when a jam occurs during rear side feeding.	BCU software	Install the latest BCU firmware.

SUBJECT	SYMPTOM	CAUSE	SOLUTION
SC990	SC990 occurs with jobs using Stapling.	BCU software	Install the latest BCU firmware.
SC990	SC990 occurs at power ON.	BCU software	Install the latest BCU firmware.
SC990	SC990 occurs with continuous LPR print jobs sent from a Windows NT station.	NIB software	Install the latest NIB firmware.
SC990	Finisher does not stop then SC990 occurs.	Finisher software	Replace the latest finisher ROM (B4685131 or later).
SC990	A transmission error occurs during fragmented mail transmission, followed by a connection error on the first retry, then SC990 (should not be displayed) on the second retry.	Scanner software	Install the latest scanner firmware.
SC990	Finisher does not stop then SC990 occurs.	Finisher software .	Replace the latest finisher ROM (B4685131 or later).

7. COVER INTERPOSER:

Subject	Symptom	Cause	Solution
Side Guide Plate Damage	Side guide plate is damaged when installing the finisher with cover interposer tray.	Shock when Finisher is docked to mainframe.	Replace the side guide plate.

8. FINISHER:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Wrong Stapling	When a 1-page, non-stapling printing job is sent in between two stapling jobs, it is stapled along with the following (2nd stapling) job.	BCU software	Install the latest BCU firmware.
Screw detaches	The screw for slide rail bracket comes loose or detaches.	Vibration during transport	Re-attach the screw.
Jamming	Jamming occurs under the following conditions: - LT LEF - Punching - Shift mode	Finisher software.	Replace with the latest finisher ROM (B4685124 or later).
Jamming	Jamming occurs under the following conditions: - LT LEF - Punching - 75cpm machine - Proof tray exit	Finisher software.	Replace with the latest finisher ROM (B4685126 or later).
Jamming	Jamming (side effect of a previous modification).	Finisher software.	Replace with the latest finisher ROM (B4685127 or later).
Booklet Skew	Booklet skew when using the B468 finisher.	1. The front and rear jogger fences are not parallel. 2. The paper is not transported straight.	Adjust the jogger fence position. ***Refer to Technical Service Bulletin B064/B065 – 001R.***
Paper Damaged	The center of the paper edge is damaged during 2-spot stapling.	Finisher software.	Replace with the latest finisher ROM (B4685125 or later).
Wrinkling	Wrinkling occurs near by saddle-stitch area.	Finisher software.	Replace with the latest finisher ROM (B4685129 or later).
Punch Full Message	The "Hole punch receptacle is full" message is displayed when the punch unit is not installed and the client PC is using SmartNet Monitor for Admin on a Win98/2000 platform.	Finisher software.	Replace with the latest finisher ROM (B4685129 or later).

9. PRINTER:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Sample Print Error	Sample Prints are not shifted when printed out to the shift tray.	Printer software	Install the latest printer firmware.
Barcodes Error	Barcodes are shifted when printed out.	Printer software	Install the latest printer firmware.
Duplex Error	Duplex face settings (front/rear) not applied correctly when specified with PCL commands.	Printer software	Install the latest printer firmware.
CAD Error	CAD files not printed out correctly.	Printer software	Install the latest printer firmware.
Duplex Error	Duplex printing does not function.	Printer software	Install the latest printer firmware.
Duplex Error	The printing orientation is in reverse after changing back from landscape to portrait with duplex jobs containing mixed printing orientations.	Printer software	Install the latest printer firmware.
Cover Sheet	The paper is not stapled/punched as expected when specifying “Front and Back Cover Sheet”.	Printer software	Install the latest printer firmware.
Mixed Binding Error	The function that the mixed binding orientations with duplex jobs using cover sheets is not worked correctly.	Printer software	Install the latest printer firmware.
Chinese Fonts Error	Some Chinese fonts do not print out correctly.	Printer software	Install the latest printer firmware.
Overlapped Characters	Some characters overlap with Booklet printing.	Printer software	Install the latest printer firmware.
Stop Printing	Printing stops with files sent from INFCO.	Printer software	Install the latest printer firmware.
Form Lines Setting	The Form Lines setting (PCL menu) is changed when the machine is rebooted.	Printer software	Install the latest printer firmware.

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Slow Printing	When performing forced print/error skip printing with the PCL, a delay occurs when printing out each page, slowing down the printing speed markedly.	Printer software	Install the latest printer firmware.
Resetting Job Message	If the host cancels the spool-printing job of a large file (10MB or more) while it is being printed out, the display reads, “Resetting job” and does not change.	Printer software	Install the latest printer firmware.
Alert When Printing By-pass Tray	An alert is displayed and does not clear if a slip-sheet size different from the original is specified (Bypass Tray printing).	Printer software	Install the latest printer firmware.
Wrong Punch Position	4 holes are punched in the left side when specifying 4 holes to be punched in the right side of the paper.	Printer software	Install the latest printer firmware.
Waiting Display	“Waiting” is displayed even after the I/F switching time has been reached when sending with Centro.	Printer software	Install the latest printer firmware.
Continuous Printing	The machine continues printing if “Clear” is pressed on the error clear alert.	Printer software	Install the latest printer firmware.
Current Job is Canceled	Only the current job is canceled when using job cancel while printing out multiple jobs with locked printing (all other jobs are printed out).	Printer software	Install the latest printer firmware.
Bold Not Function	Bold does not work with some True Type fonts.	Printer software	Install the latest printer firmware.
Slow Printing	Slow printing from AutoCAD.	Printer software	Install the latest printer firmware.
CAD Error	Same line width when bitSW3 #3 is ON in CAD printer.	Printer software	Install the latest printer firmware.
Lost Extended A4 Width Menu	The Orientation, Edge to Edge Print and Extend A4 Width menu settings are lost when the power is turned Off/On (not saved in NARAM), and are returned to their defaults.	Printer software	Install the latest printer firmware.

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Stall	Stall occurs when there is little memory installed (PCL).	Printer software	Install the latest printer firmware.
Euro Symbol is not Printed	Euro currency symbol is not printed.	Printer software	Install the latest printer firmware.
Short Black Lines	Short lines may appear around text characters when using bold fonts.	Printer software	Install the latest printer firmware.
Text Characters	Text characters appear too thick with some bolded fonts, removing the fine detail.	Printer software	Install the latest printer firmware.
Printing or Waiting	Data In (Buffer) Light keeps blinking, machine indicates "Printing" or "Waiting" but nothing prints.	Printer software	Install the latest printer firmware.
No Function	Printer does not function.	Wrong installation	1. Replace GW controller. 2. Be sure to install the DIMM correctly.

10. WIRELESS LAN:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Communication Error	Wireless LAN communication error when using 802.11 ADHOC mode.	GW controller software	Install the latest GW controller firmware.
No Function	The "Wireless LAN Signal" (Interface Settings) sometimes does not function.	GW controller software	Install the latest GW controller firmware.
AP MAC Address is Displayed	The AP MAC address is displayed even when the wireless LAN is set for ADHOC mode.	Printer software	Install the latest printer firmware.

11. SCANNER:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Start Key Standby Condition not cleared	The Start key standby condition (machine waiting to scan second side of original) cannot be cleared if the number of sheets specified for scanning is 1.	Scanner software	Install the latest scanner firmware.
Cleared Scanner History	The job for the scanner history report is cleared when the machine switches over to Night Mode while printing.	Scanner software	Install the latest scanner firmware.
No Paper Message	"No paper in the bypass tray" is displayed if there is no paper in the LCT while printing out the scanner history.	Scanner software	Install the latest scanner firmware.
Stop Key not function	The Stop key cannot be used with re-forwarding mode.	Scanner software	Install the latest scanner firmware.
Memory Leak	Memory leak occurs after repeatedly canceling documents in standby for forwarding.	Scanner software	Install the latest scanner firmware.
No Function	Printer and/or Scanner does not function.	Installation error	1. Replace GW controller. 2. Be sure to install the DIMM correctly.

12. OTHER:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Weekly Timer	Weekly Timer does not function unless the Auto Off timer expires first.	GW controller software	Install the latest GW controller firmware.
Job Deleted	Reserved jobs are sometimes deleted when the current copy job is halted by a jam or other cause.	GW controller software	Install the latest GW controller firmware.
Duplex Error	When making duplex copies from the exposure glass, sometimes both the front and rear sides come out as the front side of the original.	BCU software	Install the latest BCU firmware.
Developer Carrier Scattering	Developer carrier scattering.	BCU software	Install the latest BCU firmware.
Transfer Belt Damage	The transfer belt moves, contacting and sometimes damaging the edge of the transfer belt unit.	Incorrect gap between the positioning plate securing the transfer belt unit and right edge of the machine frame.	Adjust the side plate position. ***Refer to Technical Service Bulletin B064/B065 – 011R.***
Toner Spill	Toner spill from the development filter.	1. Waste Toner Clog. 2. Development filter was not set correctly.	Replace toner supply unit and waste toner vertical transport unit, and remove the steel ball. 2. Install the Filter Plate. ***Refer to Technical Service Bulletin B064/B065 – 015R & 16R***
Loose Drum Shaft Screw	Loose screw on drum shaft.	1. Boss attachment error. 2. Incorrect torque driver used during production.	Re-attach the boss. ***Refer to Technical Service Bulletin B064/B065 – 021***
Pinched Web Drive Motor Harness	The Web Drive Motor Harness is pinched.	Harness was led incorrectly during factory assembly.	Leading the harness correctly. ***Refer to Technical Service Bulletin B064/B065 – 037.***
Oil Web Unravels	Oil Web unravels	Factory assembly error.	Set the drive gear in the correct position, so the ratchet works correctly.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 062 REISSUE ★ **01/23/2004**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: B064/B065 TROUBLESHOOTING GUIDE

GENERAL:

The attached document is the Troubleshooting Guide for the B064. Please use this guide as a supplement to your service manual.

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1. IMAGE QUALITY:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Black Line	Black line appears when using ADF (front side, along feed direction).	Dirty DF exposure glass	- Install the latest BCU/GW/LCDC firmware. - Advise the customer to clean the DF exposure glass when black lines appear on the front side along the feed direction. Set SP4999-001 to 1 **(ON).** if the customer requires this, which will activate an alert message for DF glass cleaning.
Black Line	With DF 2-sided scanning, the edge of the original is sometimes visible on the rear side of the copy when the image is shifted by Create Margin for stapling.	BCU software	Install the latest BCU firmware.
Black Line	Black lines appear when running a job of 1 to 30 or more	Toner/paper dust that accumulates on the blade edge.	- Replace with the A293 drum and A229 cleaning brush. - Remove the cleaning blade release mechanism.
Image Problem	Image problem occurs when using Magazine Copy together with Margin Adjustment.	GW controller software	Install the latest GW controller firmware.
Dirty Image	When copying originals for reduction through the DF with nearly 100% image area coverage, part of the trailing edge shows dirty.	BCU software	Install the latest BCU firmware.
Dirty Background	Dirty background occurs.	PCU brush roller gear damage due to the cleaning blade release mechanism.	- Replace with the A293 drum and A229 cleaning brush. - Remove the cleaning blade release mechanism.
Toner Scattering	Toner scattering occurs.	PCU brush roller gear damage due to the cleaning blade release mechanism.	- Replace the drum and cleaning brush. - Remove the cleaning blade release mechanism.
Toner Scattering	Toner scattering occurs.	Cleaning brush has reached its lifetime.	Replace the cleaning brush.
Poor Fusing or Offset Image	Poor fusing occurs a few months after installation.	Surface layer of the fusing roller peels off.	Replace the hot roller with AE011087.
★ Blank page in duplex mode	The rear side of the last sheet comes out blank when feeding A4 sheets from the bypass tray in duplex mode.	GW software bug	Install the latest GW firmware. (Requires version 3.53 or later.)

2. JAMMING:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Jamming	Jam codes 3, 4, 5, 8, 9, 10, 12, 53, 54, 55, 58, 59, 60	1. The material used for paper feed roller on production line. 2. Incorrect belt tension (paper feed unit). 3. PFU gear failure.	Replace the rollers. 2. Adjust the tension of the belt. 3. Replace the gears. ***Refer to Technical Service Bulletin B064/B065 - 018R.***
Tandem Tray	Jamming occurs when feeding from Tandem Tray.	PFC board failure	Replace PFC board.
Exit Roller	Jamming occurs at exit section.	Wrong position of plastic rollers	Do not insert (lock) plastic rollers into rubber exit roller.
Fusing Unit	Jamming occurs at fusing unit.	Surface layer of the fusing roller peels off.	Replace the hot roller.
By-pass	Paper set in the bypass tray is fed along with the paper selected, causing a jam.	Bypass feed roller rotates even though bypass tray is not selected.	Add Feed Lever (B0656445).

3. NOISE:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Cleaning Brush Gear	Noise from the PCU brush roller gear.	PCU brush roller gear damage due to the cleaning blade release mechanism.	-Replace with the A293 drum and A229cleaning brush. - Remove the cleaning blade release mechanism. ***Refer to Technical Service Bulletin B064/B065 - 047.***
Toner Supply Unit	Noise generated due to damaged toner supply unit gears.	Poor toner transportation in the Toner Transport Coil.	Replace toner supply unit and waste toner vertical transport unit, and remove the steel ball. ***Refer to Technical Service Bulletin B064/B065 – 015R.***
Toner Supply Case	Noise is heard from the Toner Supply Case.	The agitator in the toner supply case is deformed.	Replace the toner supply case. ***Refer to Technical Service Bulletin B064/B065 – 044***

4. SKEW:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Tandem Tray	Skewing occurs when feeding from the Tandem Tray.	PFC board failure	Replace PFC board.

5. OPERATION PANEL:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Translation Error	Translation error	Translation error (language firmware)	Install the latest language firmware.
Display Error (Touch Screen Calibration)	A display error occurs if the Reset key is pressed while performing touch screen calibration.	LCDC software	Install the latest LCDC firmware.
Display Error (Document Server)	The filename of a Document Server file appears garbled on the document delete screen if the name is written in Chinese.	GW controller software	Install the latest GW controller firmware.
Waiting Display	The "Waiting" display sometimes does not clear when the machine recovers from Energy Saver Mode.	GW controller software	Install the latest GW controller firmware.
Not Displayed Job Name	The job name is not displayed on the LCD panel, and the job is not listed in the job history with PCL5e/PCL6 printing,	Printer software	Install the latest printer firmware.
★ Blank screen	Blank screen when 70 or more scan-to-emails are sent since the last power ON with the mainframe POP3 Encryption set to Auto Select.	Scanner software bug	Install the latest scanner firmware. (Requires version 2.14 or later.)
★ Display error (Korean)	Display error with operation panel keyboard (Korean display language).	Scanner software bug	Install the latest scanner firmware. (Requires version 2.14 or later.)

6. SERVICE CODES:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
SC181	SC181 occurs when the DF is opened and the main power is turned on with a specific timing.	BCU software	Install the latest BCU firmware.
SC181 SC183	SC181 or SC183 occurs.	CIS failure	Replace the CIS.
SC310 SC541	SC310 and SC541 occur at the same time.	Dirty potential sensor	Clean the potential sensor
SC335 SC337	SC335/337 occur when BCU board warm-up is performed with a specific timing.	BCU software	Install the latest BCU firmware.
SC345	SC345 occurs during the initial paper feed just after the main power is turned on, or at the end of a job while the ID sensor pattern is being created.	BCU software	Install the latest BCU firmware.
SC441	SC441 occurs.	Waste toner lock	Replace toner supply unit and waste toner vertical transport unit, and remove the steel ball. ***Refer to Technical Service Bulletin B064/B065 – 015R.***
SC441	SC441 occurs at the installation.	Development drive motor failure	Replace the development drive motor.
SC501 SC502 SC503	SC501, 502, or 503 occurs.	PFC board failure	Replace PFC board.
SC542 SC544	SC542/544 occurs.	Middle thermistor failure.	Replace the middle thermistor.
SC550	SC550 occurs when installing BCU firmware Ver. 3.14e or later.	BCU software	Replace the web.
SC550	SC550 (Web End) occurs prematurely.	BCU software	Install the latest BCU firmware. ***Refer to Technical Service Bulletins B064/B065 – 012, 25, & 41.***

SUBJECT	SYMPTOM	CAUSE	SOLUTION
SC590	SC590 occurs.	Waste toner lock	Replace toner supply unit and waste toner vertical transport unit, and remove the steel ball. ***Refer to Technical Service Bulletin B064/B065 – 015R.***
SC620	SC620 occurs.	Finisher software	Replace with the latest finisher ROM (B4685132 or later).
★ SC819	SC819 occurs if "Continue to Program" is performed 196 times in the address book programming screen.	GW controller software	Install the latest GW controller firmware.
		NIB/Netfile software bug	Install the latest NIB/Netfile firmware
SC870	SC870 occurs after multiple groups are selected and assigned a number in the address book programming screen.	GW controller software	Install the latest GW controller firmware.
SC925	SC925 occurs at installation.	HDD failure	1. Perform the HDD formatting (SP5832) 2. If unsuccessful, replace the HDD.
SC955	SC995 (Memory Setting Error) occurs with large print jobs (approx. 1,500 sheets).	BCU software	Install the latest BCU firmware.
SC990	SC990 occurs during a print job if 100 sheets is specified for Desig/Chapter.	GW controller software	Install the latest GW controller firmware.
SC990	SC990 occurs when cover sheets are added at the end of a sample copy trial and the job is initiated.	GW controller software	Install the latest GW controller firmware.
SC990	SC990 occurs if performing continuous print jobs using the LPR port when network traffic is high.	GW controller software	Install the latest GW controller firmware.
SC990	SC990 occurs if the signal timing during scanning and printing causes a delay in the scanning process.	GW controller software	Install the latest GW controller firmware.
SC990	SC990 sometimes occurs with simplex originals → duplex copies when a jam occurs during rear side feeding.	BCU software	Install the latest BCU firmware.

SUBJECT	SYMPTOM	CAUSE	SOLUTION
SC990	SC990 occurs with jobs using Stapling.	BCU software	Install the latest BCU firmware.
SC990	SC990 occurs at power ON.	BCU software	Install the latest BCU firmware.
SC990	SC990 occurs with continuous LPR print jobs sent from a Windows NT station.	NIB software	Install the latest NIB firmware.
SC990	Finisher does not stop then SC990 occurs.	Finisher software	Replace the latest finisher ROM (B4685131 or later).
SC990	A transmission error occurs during fragmented mail transmission, followed by a connection error on the first retry, then SC990 (should not be displayed) on the second retry.	Scanner software	Install the latest scanner firmware.
SC990	Finisher does not stop then SC990 occurs.	Finisher software	Replace the latest finisher ROM (B4685131 or later).
★ SC990	70 or more scan-to-emails are sent since the last power ON with the mainframe POP3 Encryption set to Auto Select.	Scanner software bug	Install the latest scanner firmware. (Requires Version 2.14 or later.)

7. COVER INTERPOSER:

Subject	Symptom	Cause	Solution
Side Guide Plate Damage	Side guide plate is damaged when installing the finisher with cover interposer tray.	Shock when Finisher is docked to mainframe.	Replace the side guide plate.

8. FINISHER:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Wrong Stapling	When a 1-page, non-stapling printing job is sent in between two stapling jobs, it is stapled along with the following (2nd stapling) job.	BCU software	Install the latest BCU firmware.
Screw detaches	The screw for slide rail bracket comes loose or detaches.	Vibration during transport	Re-attach the screw.
Jamming	Jamming occurs under the following conditions: - LT LEF - Punching - Shift mode	Finisher software.	Replace with the latest finisher ROM (B4685124 or later).
Jamming	Jamming occurs under the following conditions: - LT LEF - Punching - 75cpm machine - Proof tray exit	Finisher software.	Replace with the latest finisher ROM (B4685126 or later).
Jamming	Jamming (side effect of a previous modification).	Finisher software.	Replace with the latest finisher ROM (B4685127 or later).
★ Booklet Skew	Booklet skew when using the B468 finisher.	1. The front and rear jogger fences are not parallel. 2. The paper is not transported straight. 3. The jogger fences are too close or too far from the paper edges, and the paper is not fed out of the booklet maker straight. 4. The jogger fences are bent.	1. Adjust the jogger fence position. 2. Change to the new type of jogger fence that does not deform with heat. ***Refer to Technical Service Bulletin B468/B469 – 001 Reissue.***
Paper Damaged	The center of the paper edge is damaged during 2-spot stapling.	Finisher software.	Replace with the latest finisher ROM (B4685125 or later).
Wrinkling	Wrinkling occurs near by saddle-stitch area.	Finisher software.	Replace with the latest finisher ROM (B4685129 or later).
Punch Full Message	The "Hole punch receptacle is full" message is displayed when the punch unit is not installed and the client PC is using SmartNet Monitor for Admin on a Win98/2000 platform.	Finisher software.	Replace with the latest finisher ROM (B4685129 or later).

9. PRINTER:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Sample Print Error	Sample Prints are not shifted when printed out to the shift tray.	Printer software	Install the latest printer firmware.
Barcodes Error	Barcodes are shifted when printed out.	Printer software	Install the latest printer firmware.
Duplex Error	Duplex face settings (front/rear) not applied correctly when specified with PCL commands.	Printer software	Install the latest printer firmware.
CAD Error	CAD files not printed out correctly.	Printer software	Install the latest printer firmware.
Duplex Error	Duplex printing does not function.	Printer software	Install the latest printer firmware.
Duplex Error	The printing orientation is in reverse after changing back from landscape to portrait with duplex jobs containing mixed printing orientations.	Printer software	Install the latest printer firmware.
Cover Sheet	The paper is not stapled/punched as expected when specifying “Front and Back Cover Sheet”.	Printer software	Install the latest printer firmware.
Mixed Binding Error	The function that the mixed binding orientations with duplex jobs using cover sheets is not worked correctly.	Printer software	Install the latest printer firmware.
Chinese Fonts Error	Some Chinese fonts do not print out correctly.	Printer software	Install the latest printer firmware.
Overlapped Characters	Some characters overlap with Booklet printing.	Printer software	Install the latest printer firmware.
Stop Printing	Printing stops with files sent from INFCO.	Printer software	Install the latest printer firmware.
Form Lines Setting	The Form Lines setting (PCL menu) is changed when the machine is rebooted.	Printer software	Install the latest printer firmware.

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Slow Printing	When performing forced print/error skip printing with the PCL, a delay occurs when printing out each page, slowing down the printing speed markedly.	Printer software	Install the latest printer firmware.
Resetting Job Message	If the host cancels the spool-printing job of a large file (10MB or more) while it is being printed out, the display reads, “Resetting job” and does not change.	Printer software	Install the latest printer firmware.
Alert When Printing By-pass Tray	An alert is displayed and does not clear if a slip-sheet size different from the original is specified (Bypass Tray printing).	Printer software	Install the latest printer firmware.
Wrong Punch Position	4 holes are punched in the left side when specifying 4 holes to be punched in the right side of the paper.	Printer software	Install the latest printer firmware.
Waiting Display	“Waiting” is displayed even after the I/F switching time has been reached when sending with Centro.	Printer software	Install the latest printer firmware.
Continuous Printing	The machine continues printing if “Clear” is pressed on the error clear alert.	Printer software	Install the latest printer firmware.
Current Job is Canceled	Only the current job is canceled when using job cancel while printing out multiple jobs with locked printing (all other jobs are printed out).	Printer software	Install the latest printer firmware.
Bold Not Function	Bold does not work with some True Type fonts.	Printer software	Install the latest printer firmware.
Slow Printing	Slow printing from AutoCAD.	Printer software	Install the latest printer firmware.
CAD Error	Same line width when bitSW3 #3 is ON in CAD printer.	Printer software	Install the latest printer firmware.
Lost Extended A4 Width Menu	The Orientation, Edge to Edge Print and Extend A4 Width menu settings are lost when the power is turned Off/On (not saved in NARAM), and are returned to their defaults.	Printer software	Install the latest printer firmware.

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Stall	Stall occurs when there is little memory installed (PCL).	Printer software	Install the latest printer firmware.
Euro Symbol is not Printed	Euro currency symbol is not printed.	Printer software	Install the latest printer firmware.
Short Black Lines	Short lines may appear around text characters when using bold fonts.	Printer software	Install the latest printer firmware.
Text Characters	Text characters appear too thick with some bolded fonts, removing the fine detail.	Printer software	Install the latest printer firmware.
Printing or Waiting	Data In (Buffer) Light keeps blinking, machine indicates "Printing" or "Waiting" but nothing prints.	Printer software	Install the latest printer firmware.
No Function	Printer does not function.	Wrong installation	1. Replace GW controller. 2. Be sure to install the DIMM correctly.
★ SNMP error	SNMP trap not sent when an SC occurs	Printer software bug	Install the latest printer firmware. (Requires version 1.13 or later.)

10. WIRELESS LAN:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Communication Error	Wireless LAN communication error when using 802.11 ADHOC mode.	GW controller software	Install the latest GW controller firmware.
No Function	The "Wireless LAN Signal" (Interface Settings) sometimes does not function.	GW controller software	Install the latest GW controller firmware.
AP MAC Address is Displayed	The AP MAC address is displayed even when the wireless LAN is set for ADHOC mode.	Printer software	Install the latest printer firmware.

11. SCANNER:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Start Key Standby Condition not cleared	The Start key standby condition (machine waiting to scan second side of original) cannot be cleared if the number of sheets specified for scanning is 1.	Scanner software	Install the latest scanner firmware.
Cleared Scanner History	The job for the scanner history report is cleared when the machine switches over to Night Mode while printing.	Scanner software	Install the latest scanner firmware.
No Paper Message	"No paper in the bypass tray" is displayed if there is no paper in the LCT while printing out the scanner history.	Scanner software	Install the latest scanner firmware.
Stop Key not function	The Stop key cannot be used with re-forwarding mode.	Scanner software	Install the latest scanner firmware.
Memory Leak	Memory leak occurs after repeatedly canceling documents in standby for forwarding.	Scanner software	Install the latest scanner firmware.
No Function	Printer and/or Scanner does not function.	Installation error	1. Replace GW controller. 2. Be sure to install the DIMM correctly.
★ Scanner freezes	Scanner sometimes freezes when an email address is 123 characters or longer.	Scanner software bug	Install the latest scanner firmware. (Requires version. 2.14 or later.)
★ Garbled report	Garbled text when printing out SP5990-23 report (Scanner User Program).	Scanner software bug	Install the latest scanner firmware. (Requires version. 2.14 or later.)

★ 12. FILE FORMAT CONVERTER:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Not enough memory	"Insufficient Memory Error" is displayed.	DeskTopBinder V2 Lite/Pro must be version 3.0.0.0. or later	Install the correct version of DeskTopBinder V2 Lite/Professional

13. OTHER:

SUBJECT	SYMPTOM	CAUSE	SOLUTION
Weekly Timer	Weekly Timer does not function unless the Auto Off timer expires first.	GW controller software	Install the latest GW controller firmware.
Job Deleted	Reserved jobs are sometimes deleted when the current copy job is halted by a jam or other cause.	GW controller software	Install the latest GW controller firmware.
Duplex Error	When making duplex copies from the exposure glass, sometimes both the front and rear sides come out as the front side of the original.	BCU software	Install the latest BCU firmware.
Developer Carrier Scattering	Developer carrier scattering.	BCU software	Install the latest BCU firmware.
Transfer Belt Damage	The transfer belt moves, contacting and sometimes damaging the edge of the transfer belt unit.	Incorrect gap between the positioning plate securing the transfer belt unit and right edge of the machine frame.	Adjust the side plate position. ***Refer to Technical Service Bulletin B064/B065 – 011R.***
Toner Spill	Toner spill from the development filter.	1. Waste Toner Clog. 2. Development filter was not set correctly.	Replace toner supply unit and waste toner vertical transport unit, and remove the steel ball. 2. Install the Filter Plate. ***Refer to Technical Service Bulletin B064/B065 – 015R & 16R***
Loose Drum Shaft Screw	Loose screw on drum shaft.	1. Boss attachment error. 2. Incorrect torque driver used during production.	Re-attach the boss. ***Refer to Technical Service Bulletin B064/B065 – 021***
Pinched Web Drive Motor Harness	The Web Drive Motor Harness is pinched.	Harness was led incorrectly during factory assembly.	Leading the harness correctly. ***Refer to Technical Service Bulletin B064/B065 – 037.***
Oil Web Unravels	Oil Web unravels	Factory assembly error.	Set the drive gear in the correct position, so the ratchet works correctly.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 063 **01/27/2004**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

SERVICE MANUAL

The Service Manual pages listed below must be replaced with the pages supplied.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- 4-30 through 36 Updated Information (Service Call Conditions)

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SC No.		Symptom	Possible Cause
851	B	IEEE 1394 I/F error	
		Driver setting incorrect and cannot be used by the 1394 I/F.	• 1394 I/F connection incorrect • 1394 I/F board defective • Controller board defective
		USB driver is corrupted or has become unstable and cannot be used by the USB I/F.	• USB connection incorrect • Controller board defective
⇒ 853	D	IEEE802.11b card startup error	
		The machine starts up. The IEEE802.11b card connection board is recognized. The IEEE802.11b card is not recognized.	• Loose connection between the card and the connection board.
⇒ 854	D	IEEE802.11b card access error	
		The machine has been reading the data from the card. The machine loses access to the card; the IEEE802.11b card connection board is still recognized.	• Loose connection between the card and the connection board.
⇒ 855	D	IEEE802.11b card error	
		Some illegal data is found in the card.	• Defective Card
⇒ 856	D	IEEE802 11b card connection board error	
		An error is detected in the IEEE802.11b card connection.	• Defective card connection board.
860	B	HDD startup error at main power on	
		• HDD is connected but a driver error is detected. • The driver does not respond with the status of the HDD within 30 s.	• HDD is not initialized • Level data is corrupted • HDD is defective
861	C	HDD re-try failure	
		At power on with the HDD detected, power supply to the HDD is interrupted, after the HDD is awakened from the sleep mode, the HDD is not ready within 30 s.	• Harness between HDD and board disconnected, defective • HDD power connector disconnected • HDD defective • Controller board defective
862	A	Number of bad sectors exceeds allowed maximum	
		The number of bad sectors on the HDD in the area for storing images exceeds 101.	• Execute 5832 001 to format the HDD and replace the bad sectors. HDD replacement is recommended because an HDD unit that generates bad sectors is probably of poor quality and performs poorly.
863	C	HDD data read failure	
		The data written to the HDD cannot be read normally, due to bad sectors generated during operation.	• HDD defective • **Note**: If the bad sectors are generated at the image partition, the bad sector information is written to NVRAM, and the next time the HDD is accessed, these bad sectors will not be accessed for read/write operation.

SC No.		Symptom	Possible Cause
864	B	HDD data CRC error	
		During HDD operation, the HDD cannot respond to a CRC error query.	• Data transfer did not execute normally while data was being written to the HDD.
865	B	HDD access error	
		HDD responded to an error during operation for a condition other than those for SC863, 864.	• HDD defective.
⇒ 870	B	Address book data error	
		The address book in the hard disk is accessed. An error is detected in the address book data; address book data is not read; or data is not written into the address book. **NOTE:** To recover from the error, do any of the following countermeasures: Format the address book by using SP5-832-008 (all data in the address book including the user codes and counters are initialized) Initialize the user data by using SP5-832-006 and -007 (the user codes and counters are recovered when the main switch is turned on).	• Data corruption • Defective hard drive • Defective software

Miscellaneous

SC No.		Symptom	Possible Cause
900	A	Electrical total counter error	
		The total counter contains something that is not a number.	• NVRAM defective
901	C	Mechanical total counter error	
		The mechanical counter is not connected.	• Mechanical total counter defective • Mechanical total counter connector not connected
⇒ 920	D	Printer Error	
		Because of printer error, operation cannot continue.	• Defective hardware • Data corruption • Defective software
⇒ 925	D	Net File Error	
		The management file for net files is corrupted; net flies do not read properly. Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software.	• Defective hardware • Data corruption • Defective software
951	C	F-GATE signal error	
		When the IPU has already received the F-GATE signal (laser writing start trigger signal), the IPU receives another F-GATE signal.	• Software defective • BCU defective
953	C	Scanner image setting error	
		The settings required for image processing using the scanner are not sent from the IPU.	• Software defective
954	C	Printer image setting error	
		The settings required for image processing using the printer controller are not sent from the IPU.	• Software defective
955	C	Memory setting error	
		The settings that are required for image processing using the memory are not sent from the IPU.	• Software defective
964	C	Printer ready error	
		The print ready signal is not generated for more than 17 seconds after the IPU received the print start signal.	• Software defective
984	B	Print image data transfer error	
		After a data transfer begins from the controller to the engine via the PCI bus, the transfer does not end within 15 s.	• Controller board defective • BICU defective • BICU, controller disconnected
985	B	Scanned image data transmission error	
		After a data transfer begins from the engine to the controller via the PCI bus, the transfer does not end within 3 s.	• Controller board defective • BICU defective • BICU, controller disconnected

SC No.		Symptom	Possible Cause
986	C	Value of setting for software write parameter incorrect	
		The write parameter received by the write module at the beginning of the setting table is NULL.	• Controller board defective • BICU defective • BICU, controller disconnected
990	B	Software performance error	
		The software performs an unexpected function and the program cannot continue.	• Software defective, re-boot[*1]
991	D	Software capable of looping cannot continue	
		The software performs an unexpected function and the program cannot continue. However, unlike SC990, recovery processing allows the program to continue.	• Software defective, re-boot[*1]
⇒ 992	C	Other system SCs	
		The controller received an unknown SC code from the engine.	• Contact your product specialist.
⇒ 993	D	Network error	
		The ASIC program of GW controller cannot be continued.	• Defective ASIC • Defective GW controller

[*1]: In order to get more details about SC990 and SC991:

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

SC No.		Symptom	Possible Cause
997	B	Cannot select application function	
		Application does not start after pressing the appropriate key on the operation panel.	• Software bug • A RAM or DIMM option required by the application is not installed or not installed correctly.
998	B	Application cannot start	
		Register processing does not execute for any application within 60 s after the machine is powered on. All applications do not start correctly, and all end abnormally.	• Software bug • A RAM or DIMM option required by the application is not installed or not installed correctly.
999	B	Program download error	
		The program download from the IC card does not execute normally. This SC is not logged.	• Card installed incorrectly • BICU defective • IC card defective • NVRAM defective • Power down during program downloading (☛ 4.1.1)

4.5.3 ADDITIONAL SC CODES PRINTED IN SMC REPORT

Here is a list of SC codes that are printed in the SMC report but may not appear in the operation panel display. Note that the codes that have the same number are identified by an additional 4-digit hexadecimal number.

SC No.		Symptom	Possible Cause
820	0001	TLB conversion (store) exception error	Unexpected error in CPU device: • Controller board defective • Boot monitor or self-diagnostic program corrupted
820	0002	TLB miss (load) exception error	
820	0003	TLB miss (store) exception error	
820	0004	Read address exception error	
820	0005	Write address exception error	
820	0006	Command bus exception error	
820	0007	Data bus exception error	
820	0008	System call exception error	
820	0009	Break exception error	
820	000A	Illegal command exception error	
820	000B	Potential sensor exception error	
820	000C	Overflow exception error	
820	000D	UTLB miss exception error	
820	0010	Allocation 0 error	
820	0011	Allocation 1 error	
820	0012	Allocation 2 error	
820	0013	Allocation 3 error	
820	0014	Allocation 4 error	
820	0015	Allocation 5 error	
820	00FF	Non-initialization allocation error	• CPU defective • Local bus defective • Controller board defective
820	0601	Read address exception error	• CPU device error • Controller board defective
820	0602	Write address exception error	
820	0605	System call exception error	
820	0606	Break point exception error	
820	0607	Illegal command exception error	
820	060A	Allocation 0 mask exception error	• CPU device error • ASIC device error • Controller board defective
820	060B	Allocation 1 mask exception error	
820	060C	Allocation 2 mask exception error	
820	060D	Allocation 3 mask exception error	
820	060E	Allocation 4 mask exception error	
820	0610	CPU timer 2 allocation set error	• CPU device error • Controller board defective
820	0612	ASIC allocation error	• ASIC device error • Controller board defective • Peripheral device defective
820	06FF	CPU master clock error	• CPU device error • Error in CPU initialization data (ASIC error) • Controller board defective

SC No.		Symptom	Possible Cause
820	0702	Command cache error	• CPU cache defective • Controller board defective • Memory error (insufficient speed)
820	0709	Data cache error	• CPU device error • Boot mode setting for CPU error • Controller defective • Insufficient memory
820	070A	Data cache clear error	
820	0801	TLB virtual address error	• CPU device defective (controller board defective)
820	0804	TLB global error	
820	0807	UTLB miss error	
820	0808	TLB read miss error	
820	0809	TLB write miss error	
820	080A	TLB mode file error	
820	4002	Single-precision calculation error	• CPU error (controller board defective)
820	4003	Double-precision calculation error	
820	4004	Exception error	
820	4005	Exception mask error	
822	3003	HDD timeout	• HDD defective • HDD connector disconnected, defective • ASIC device error (controller board defective)
822	3004	Self-diagnostic command error	• HDD defective
823	6101	MAC address SUM error	• NIB (PHY) board defective • Controller board defective
823	6104	PHY chip ID illegal	
823	6105	PHY loopback error	
824	1401	NVRAM verify error	• NVRAM defective
826	1501	Clock error	• Optional NVRAM defective
826	15FF	RTC non-detection error	• Incompatible NVRAM installed • NVRAM battery defective
826	0201	Resident memory verify error	• Memory on controller board defective • RAM DIMM defective
828	0101	Boost trap code (CODE) error	• Software storage error (re-install software) • Controller board defective
828	0104	ROM FS error	• ROM device error
828	0105	Forgery prevention error	• Forgery prevention chip defective • Forgery prevention chip error • Replace the controller, ROM, or RAM DIMM
829	0301	Option memory 0 verify error	• Controller board internal memory error • RAM DIMM defective
829	0302	Option memory 0 configuration information error	
835	1102	Verify error	• Loopback connector error (controller board defective)
835	110C	DMA verify error	• Loopback connector error • Controller board defective
835	1120	Loopback connector non-detection	• Loopback connector not set • Loopback connector error • Controller board defective
836	1601	Font ROM 0 error	
837	1602	Font ROM 1 error	
838	2701	Verify error	

4.6 BLOWN FUSE CONDITIONS

Fuse	Rating		Symptom at Power On
	115 V	210~230V	
FU1	2A/125V	6.3A/250V	Anti-condensation heater does not operate.
FU101	12A/125V	6.3A/250V	No response.
FU103	6.3A/125V	6.3A/250V	SC510 is displayed.
FU104	6.3A/125V	6.3A/250V	Nothing displayed on LCD.
FU105	6.3A/125V	6.3A/250V	“Door Open” is displayed.
FU106	6.3A/125V	6.3A/250V	ADF does not operate.
FU107	6.3A/125V	6.3A/250V	SC121 is displayed.
FU108	6.3A/125V	6.3A/250V	Finisher does not work.
FU109	6.3A/125V	6.3A/250V	“Door Open” is displayed.
FU110	6.3A/125V	6.3A/250V	SC510 is displayed.
FU111	6.3A/125V	6.3A/250V	Nothing is displayed on LCD.

4.7 COMMON PROBLEMS

Problem	Check	Inspect, Clean, Replace
Dirty Copies	Fusing Unit	Pressure roller
Jam – Fusing Unit	Fusing Unit	Hot roller
Jam – Fusing Unit	Fusing Unit	Hot roller strippers
Jam – Original	ADF	Pick-up, paper feed, separation rollers
Lines (black or white)	Around the Drum	Cleaning blade, cleaning brush
Misfeed – Fusing Unit	Fusing Unit	Hot roller
Offset	Fusing Unit	Hot roller
Poor separation	Transfer Belt Unit	Transfer belt, transfer belt cleaning blade
SC300 ~ SC306	Around the Drum	Charge corona wire, charge corona grid, charge corona wire cleaner.
Skew – Original	ADF	Pick-up, paper feed, separation rollers
Toner on transfer belt	Transfer Belt Unit	Transfer belt, transfer belt cleaning blade
Wrinkling	Fusing Unit	Pressure roller

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 064 **02/05/2004**

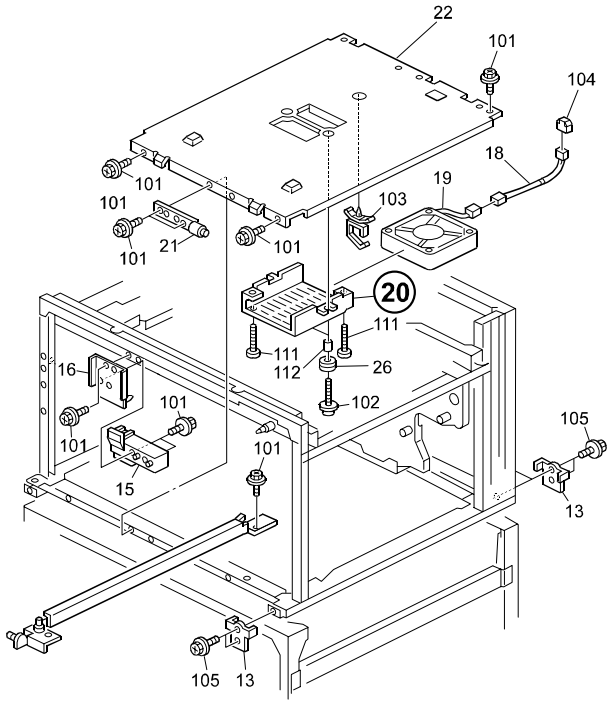
APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: DUPLEX FAN BRACKET

GENERAL:

The shape of the Duplex Fan Bracket has been changed to ensure that the proper gap is maintained between the Fan Bracket and the DLT Kit. The following part update is being issued for all B064/B065 Parts Catalogs. Please update your parts catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B0651195	B0651200	Duplex Fan Bracket	1	1	141	20

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UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Duplex Fan Bracket installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 6002 Lanier LD060 Ricoh Aficio 1060 Savin 2560	J4235700784
Gestetner 7502 Lanier LD075 Ricoh Aficio 1075 Savin 2575	J4335800001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 065 **02/13/2004**

APPLICABLE MODEL:

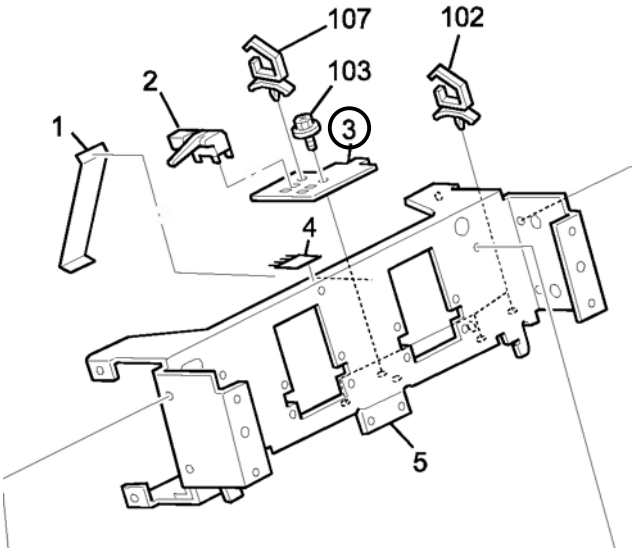
GESTETNER – SR850/SR860 FINISHER FOR 6002/7502
LANIER – SR850/SR860 FINISHER FOR LD060/LD075
RICOH – SR850/SR860 FINISHER FOR AFICIO 1060/1075
SAVIN – SR850/SR860 FINISHER FOR 2560/2575

SUBJECT: SENSOR BRACKET

GENERAL:

To increase the accuracy of sensor detection, the gap between the exit sensor and exit belt pawl has slightly increased. In accordance with this, the sensor bracket has also been changed.

The following part update is being issued for all B468/B469 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B4684172	B4684173	Sensor Bracket	1	1	23	3

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UNITS AFFECTED:

All SR850/SR860 Finishers manufactured after the serial numbers listed below will have the new style Sensor Bracket installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner SR860 Savin	Service Parts Only
SR850 Gestetner Savin Lanier Ricoh	J4630900154
Lanier SR860	Service Parts Only
Ricoh SR860	Service Parts Only

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 066 **02/13/2004**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

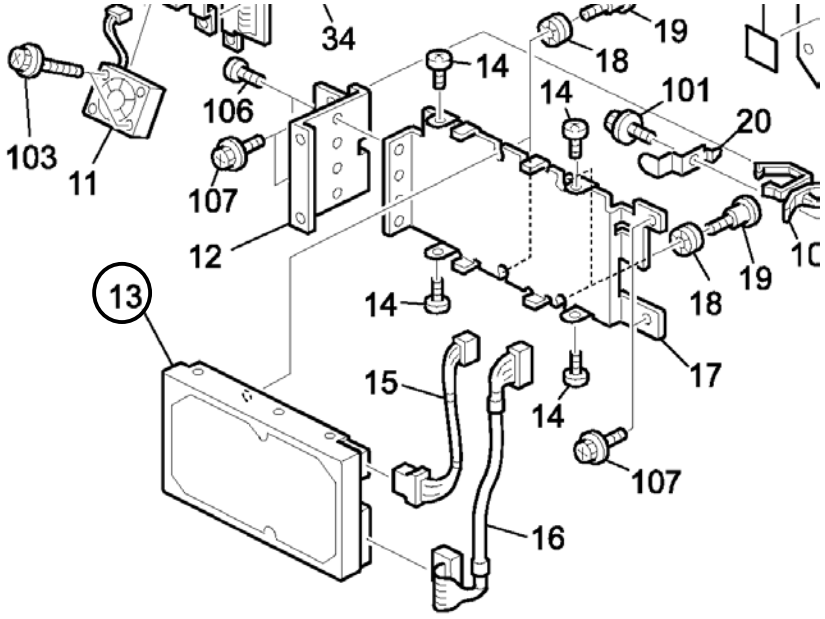
SUBJECT: HDD

GENERAL:

The HDD has been changed due to a vendor change.

NOTE: *When installing the new HDD (B5145970) it is necessary to install the B0655102M (GW/GEN.al/V3.53.3) firmware together as a set.*

The following part update is being issued for all B064/B065 Parts Catalogs.



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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B5145960	B5145970	HDD-40GB	1	0	126	13

UNITS AFFECTED:

The serial number cut-in information was not available at time of this publication.

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 066 REISSUE ★ **03/12/2004**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

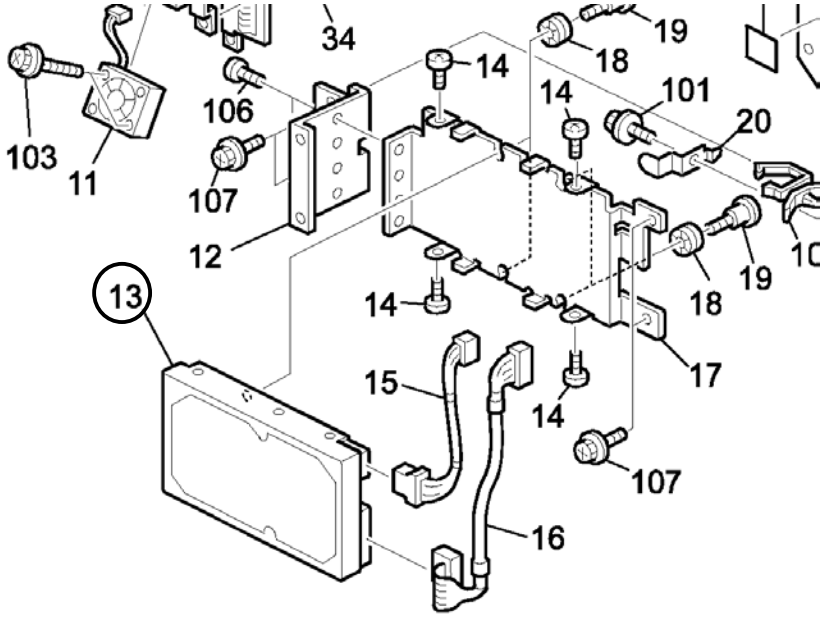
SUBJECT: HDD

GENERAL:

The HDD has been changed due to a vendor change.

NOTE: *When installing the new HDD (B5145970) it is necessary to install the B0655102M (GW/GEN.al/V3.53.3) firmware together as a set.*

The following part update is being issued for all B064/B065 Parts Catalogs.



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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B5145960	B5145970	HDD-40GB	1	0	126	13

UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style HDD installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 7502 Savin 2575	J4335900813
Gestetner 6002 Savin 2560	J4235900321
Lanier LD060	J4235900321
Lanier LD075	J4335900813
Ricoh Aficio 1060	J4235900321
Ricoh Aficio 1075	J4335900813

★

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 067 **03/11/2004**

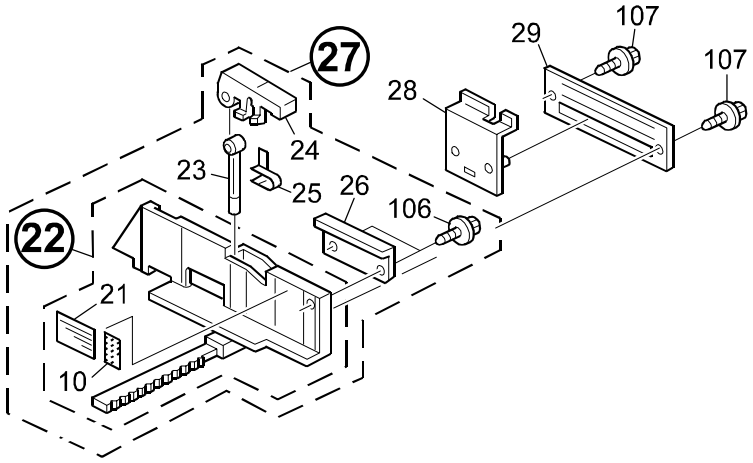
APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: REAR SIDE FENCE

GENERAL:

The following have been changed to increase the durability of the Rear Side Fence.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B0656541	B0656543	Rear Side Fence	1-1	1	59	22
B0656540	B0656542	Rear Side Fence Ass'y	1-1	1	59	27

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UNITS AFFECTED:

All B064/B065 copiers manufactured after the serial numbers listed below will have the new style Rear Side Fence installed during production.

MODEL NAME	SERIAL NUMBER
★ Gestetner 7502 Savin 2575	J4335800001
Gestetner 6002 Savin 2560	J4235800182
Lanier LD060	J4235800182
Lanier LD075	J4335800001
Ricoh Aficio 1060	J4235800182
Ricoh Aficio 1075	J4335800001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 068 **05/05/2004**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: OPC DRUM CHANGE

GENERAL:

The OPC drum has been changed as follows:

Reason for change:

1. Changing over to environmentally-friendly materials:

As of the end of February 2004, the use of the organic solvent dichloromethane for the OPC drum production process was discontinued as part of Ricoh's ongoing efforts, through the expanding application of in-house environmental management standards, to eliminate the use of environmentally sensitive materials in the manufacturing process.

Important Note: It is necessary to apply setting powder when installing the new drum (See Application Procedure).

2. Increasing the drum yield:

The yield of the OPC drum has been increased from (360K to 700K) by using a thicker surface layer.

Affected Drums and Models:

To distinguish the drums from before and after this change, the drum lot numbers and service parts numbers will be changed as follows.

Lot Number Change:

Old: XXXXXXXXXXXX (12 digits)
New: __L__XXXXXXXXX

Space

PART NUMBER INFORMATION:

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2949510	B0709510	OPC Drum	1	-	85	25

UNITS AFFECTED:

All B064/B065 OPC Drums manufactured after March 1, 2004 will require the application of setting powder and will only be available as a service part.

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Important Note for Installation of the New Drum:

Since the smoothness of the new drum (without dichloromethane) is reduced, it is essential to make sure and apply Drum Setting Powder (P/N: 54429101) to the drum surface as shown below before installing. See Application Procedure below.

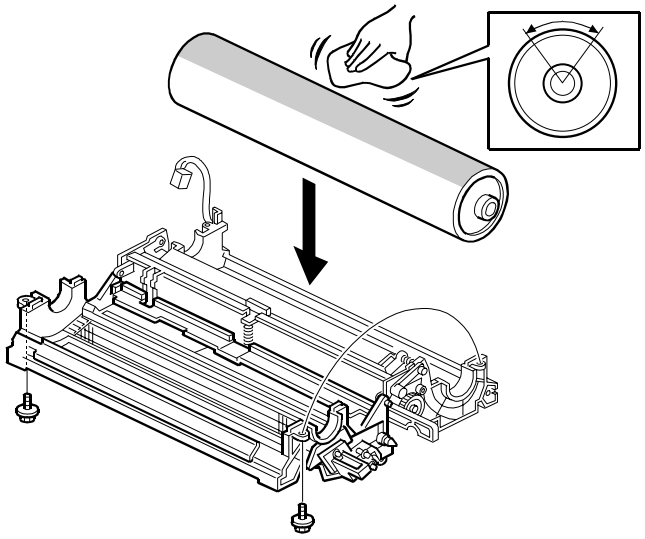
NOTE: *If the setting powder is not applied, the drum's cleaning blade may turn outward, causing a drum cleaning failure.*

Application Procedure for Drum Setting Powder

1. Apply the setting powder (P/N 54429101) to the drum by tapping the powder bag across the surface area shown in the illustration below, i.e. spanning the entire length of the drum but covering about a 45-90 degree portion (up to 1/4) of the total surface.

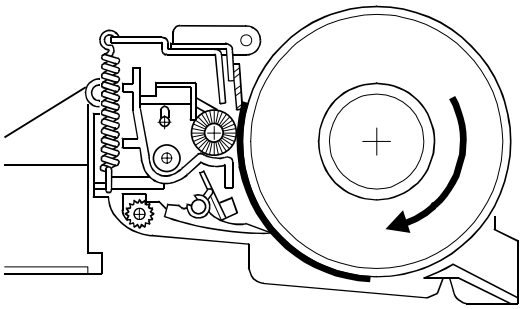
NOTE:

- *Be sure to apply enough powder to give the area a moderate dusting (so that the area turns white).*
- *If setting powder is not available, please apply waste toner as a substitute in the same manner described above (waste toner is charged and will be attracted to the drum surface). Please note that a dirty background may occur, but be sure to apply the waste toner if there is no setting powder available.*



2. Install the new drum in the OPC unit so that the powdered area (in bold below) faces the cleaning blade.
3. Rotate the drum once along its normal rotational direction (arrow shown below), so that it stops again at the same position.

NOTE: *Be sure not to rotate the drum in the opposite direction.*



TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: **B064/B065 –** 069 **05/06/2004**

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

SERVICE MANUAL

The Service Manual pages listed below must be replaced with the pages supplied.

An arrow has highlighted the revised areas ⇒.

PAGES:

- 1-72 Updated Information (NCS Memory Clear SP5-801-011)

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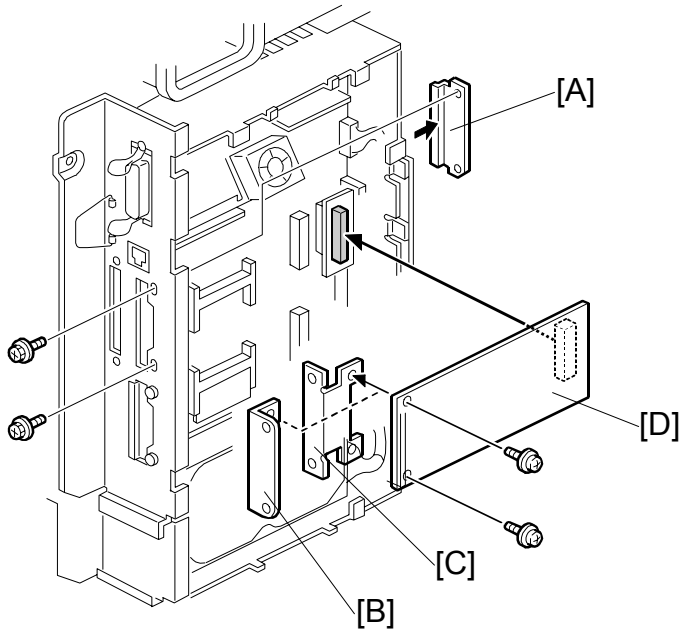
1.17.5 INSTALLING THE HARDWARE



1. Remove the slot cover [A] (2 screws).
2. Remove the bracket [B] and attach the MLB panel [C].
3. Attach the File Format Converter board [D] to the controller board (2 screws).
4. Replace the controller board cover and rear cover.
5. Turn the main switch ON.
6. Perform a network function Memory Clear (SP5-801-10).
7. Perform an NCS function Memory Clear (SP5-801-011), which will reset the network password to “password.”

NOTE: This step is necessary to ensure that the password is properly reset as mentioned.

8. Input the following default values manually (SP5-836).

SP Number	Value	SP Number	Value
5-836-01	0	5-836-82	1
5-836-02	0	5-836-83	1
5-836-72	0	5-836-85	1
5-836-73	0	5-836-86	2
5-836-75	0	5-836-91	50
5-836-76	1		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B064/B065 – 070 **05/07/2004**

APPLICABLE MODEL:
GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

SUBJECT: SERVICE MANUAL - INSERT

SERVICE MANUAL

The Service Manual pages listed below must be replaced with the pages supplied.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- vi Updated Information (Table of Contents)
- 3-37 Updated Information (OPC Drum Removal)
- 3-131 and 132 New Information (OPC Drum Change)

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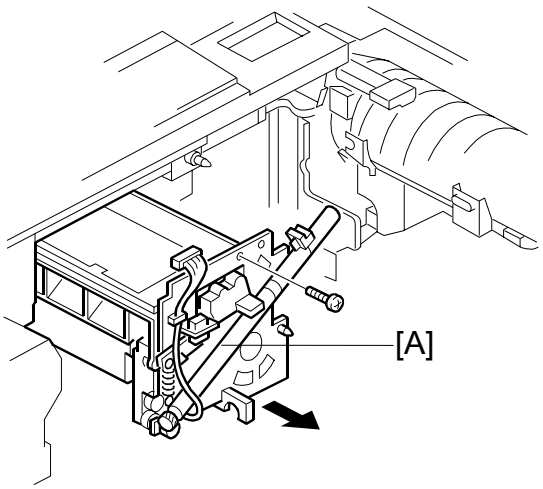
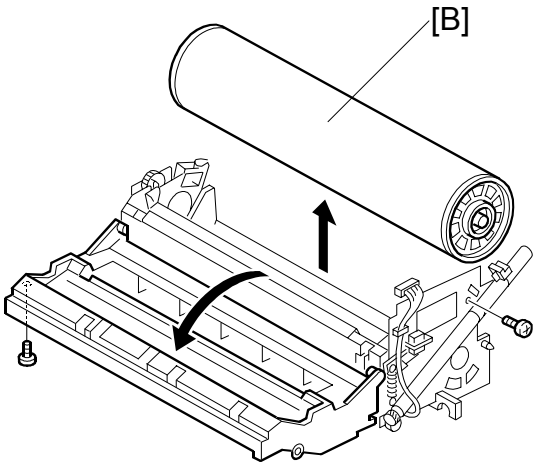
4.3 CONTROLLER BOARD SELF-DIAGNOSTIC TEST 4-5

3.6.5 OPC DRUM REMOVAL





Development unit (☛ 3.6.1)

Charge corona unit (☛ 3.6.2)

[A]: Drum unit (x1, x1)

- Grasp the drum unit by the knob to remove it from the machine.

[B]: OPC drum

⇒**NOTE:** If the Lot Number for the new drum is "_L_xxxxxxxxx", ☛ 3.16 *OPC Drum Change*. If not, follow the procedure below.

After replacing the drum, do the following SPs:

- Set SP2001 001 (Charge Roller Bias Adjustment – Applied Voltage for Image Processing) to the default.
- SP2962 (Adjustment of Drum Conditions), only if SP3901 (Auto Process Control) is on.

NOTE: 1) To avoid fingerprints on the surface of the OPC drum, never touch the surface of the drum with bare fingers.
2) Never use alcohol to clean the surface of the OPC drum. Blow dry the OPC drum, then wipe clean with a clean, slightly damp cloth.
3) Before installing a new drum, dust the surface of the OPC drum carefully with setting powder.

⇒ 3.16 OPC DRUM CHANGE

The OPC drum has been changed as follows:

3.16.1 REASON FOR CHANGE:

1. Changing over to environmentally-friendly materials:

As of the end of February 2004, the use of the organic solvent dichloromethane for the OPC drum production process was discontinued as part of Ricoh's ongoing efforts, through the expanding application of in-house environmental management standards, to eliminate the use of environmentally sensitive materials in the manufacturing process.

Important Note: It is necessary to apply setting powder when installing the new drum (See ***Application Procedure*** below).

2. Increasing the drum yield:

The yield of the OPC drum has been increased from (360K to 700K) by using a thicker surface layer.

3.16.2 AFFECTED DRUMS AND MODELS:

To distinguish the drums from before and after this change, the drum lot numbers will be changed as follows.

Lot Number Change:

Old: XXXXXXXXXXXX (12 digits)

New: L XXXXXXXXX

Space

3.16.3 IMPORTANT NOTE FOR INSTALLATION OF THE NEW DRUM:

Since the smoothness of the new drum (without dichloromethane) is reduced, it is essential to make sure and apply Drum Setting Powder (P/N: 54429101) to the drum surface as shown below before installing. See *Application Procedure* below.

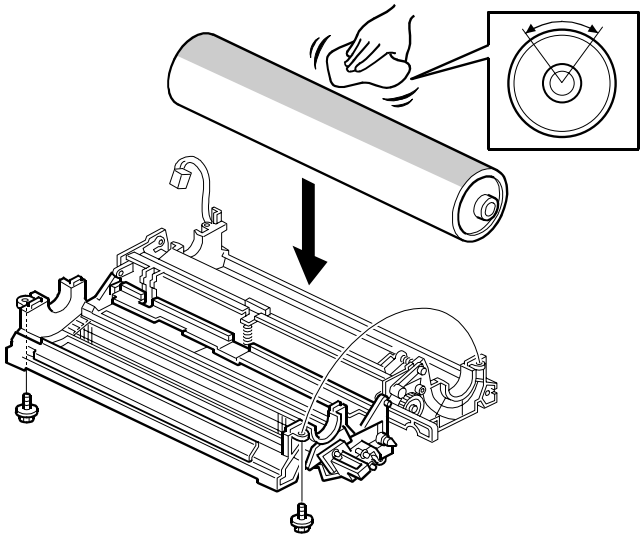
NOTE: *If the setting powder is not applied, the drum's cleaning blade may turn outward, causing a drum cleaning failure.*

Application Procedure for Drum Setting Powder

1. Apply the setting powder (P/N 54429101) to the drum by tapping the powder bag across the surface area shown in the illustration below, i.e. spanning the entire length of the drum but covering about a 45-90 degree portion (up to 1/4) of the total surface.

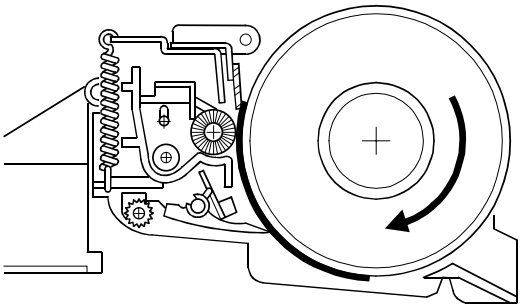
NOTE:

- *Be sure to apply enough powder to give the area a moderate dusting (so that the area turns white).*
- *If setting powder is not available, please apply waste toner as a substitute in the same manner described above (waste toner is charged and will be attracted to the drum surface). Please note that a dirty background may occur, but be sure to apply the waste toner if there is no setting powder available.*



2. Install the new drum in the OPC unit so that the powdered area (in bold below) faces the cleaning blade.
3. Rotate the drum once along its normal rotational direction (arrow shown below), so that it stops again at the same position.

NOTE: *Be sure not to rotate the drum in the opposite direction.*



After replacing the drum, do the following SPs:

- Set SP2001 001 (Charge Roller Bias Adjustment – Applied Voltage for Image Processing) to the default.
- SP2962 (Adjustment of Drum Conditions), only if SP3901 (Auto Process Control) is on.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: G338/G339 – 001 **08/02/2002**

APPLICABLE MODEL:

GESTETNER – PRINTER/SCANNER KIT TYPE 1075 for 6002/7502
RICOH – PRINTER/SCANNER KIT TYPE 1075 for AFICIO 1060/1075
SAVIN – PRINTER/SCANNER KIT TYPE 1075 for 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SERVICE MANUAL – INSERT

SERVICE MANUAL

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 7 Updated Information (IEEE1394 Board)

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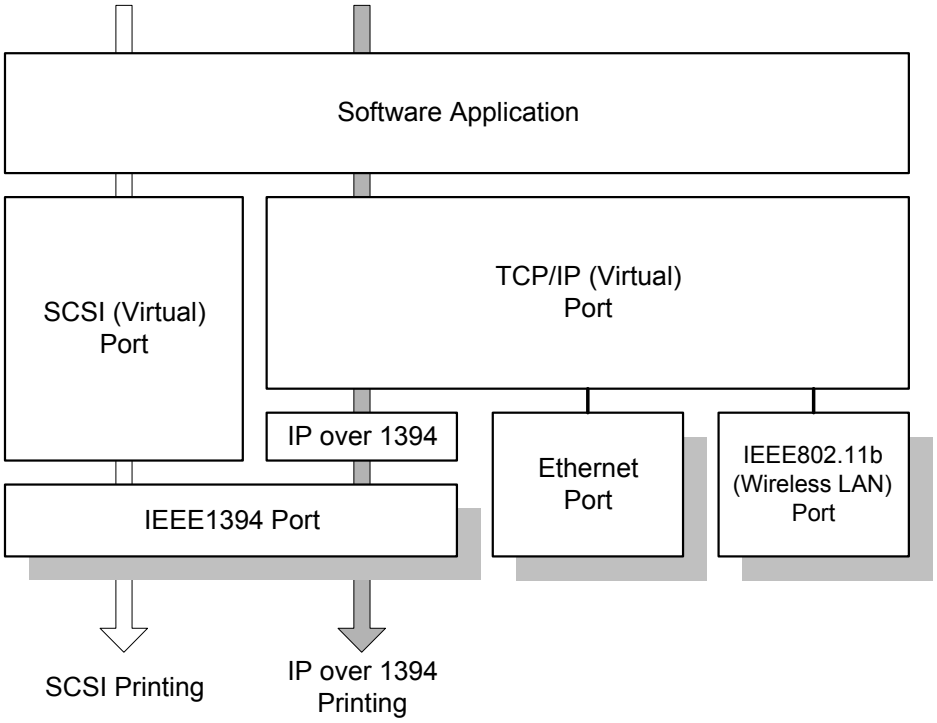
1.4 IEEE1394 BOARD (FIREWIRE)

1.4.1 OVERVIEW

An IEEE1394 interface board is available as an option for this machine to provide high speed connectivity through what is commonly called Firewire or i.LINK (Sony). Some important advantages of Firewire are:

- High speed data transmission at 400 Mbps.
- Easier connectivity (many devices can be connected without a host).
- Devices in a computer can be connected to external devices on a shared bus.

IEEE1394 supports two printing methods: 1) SCSI Print, and 2) IP Over 1394. IP Over 1394 supports printing by setting an IP address, and SCSI supports printing without an IP address.



NOTE: 1) Windows Me and Windows XP support IP over 1394.
2) Windows XP and 2000 support IEEE1394 SCSI printing.
⇒ 3) Macintosh OS8 and OS9 do not support printing over the Firewire interface.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: G338/G339 - 002 **02/12/2003**

APPLICABLE MODEL:

GESTETNER – PRINTER/SCANNER KIT TYPE 1075 for 6002/7502
RICOH – PRINTER/SCANNER KIT TYPE 1075 for AFICIO 1060/1075
SAVIN – PRINTER/SCANNER KIT TYPE 1075 for 2560/2575

SUBJECT: FIRMWARE MODIFICATION

Note: This copy is intended as a master original for reproduction of additional bulletins.

GENERAL:

The latest firmware version can be downloaded at the Technology Solution Center FTP Site http://tsc.ricohcorp.com. Be sure to check the README file for important notes and explanations.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM/Flash Card Exchange program.*

G338/G339 FIRMWARE MODIFICATION			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
• Change in specification: If the MIB cannot successfully retrieve the display language information from the machine, the driver will be displayed in English.	G3385204C	December 2002 Production	1.09 (Printer) 2.00 (Scanner)

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: G338/G339 – 003 **03/05/2003**

APPLICABLE MODEL:

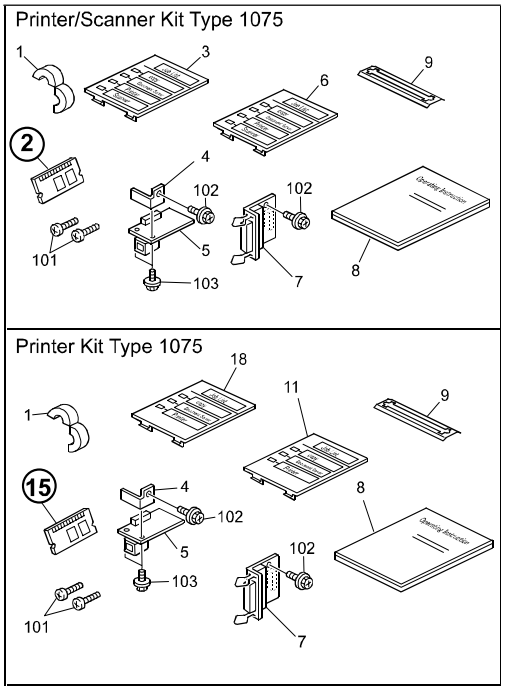
GESTETNER – PRINTER/SCANNER KIT TYPE 1075 for 6002/7502
RICOH – PRINTER/SCANNER KIT TYPE 1075 for AFICIO 1060/1075
SAVIN – PRINTER/SCANNER KIT TYPE 1075 for 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PRINTER/SCANNER DIMM

GENERAL:

When printing with the PS driver, the Euro currency symbol is not printed out with 112 of 136 fonts, which are stored in the font ROM. To prevent this, the Printer/Scanner DIMM has been changed: The following parts updates are being issued for all G338/G339 Parts Catalogs. Please update your parts catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
G3385117	G3385118	Printer/Scanner DIMM	1	1	3	2
G3395117	G3395118	Printer DIMM	1	1	3	15

NOTE: *For details, please refer to Publications Bulletin PUB(C) – 045.*

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: G338/G339 – 004 **03/19/2003**

APPLICABLE MODEL:

GESTETNER – PRINTER/SCANNER KIT TYPE 1075 for 6002/7502
RICOH – PRINTER/SCANNER KIT TYPE 1075 for AFICIO 1060/1075
SAVIN – PRINTER/SCANNER KIT TYPE 1075 for 2560/2575

Note: This copy is intended as a master original for reproduction of additional bulletins.

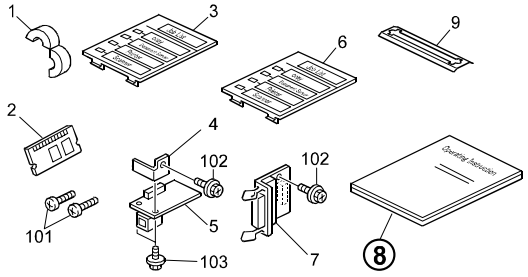
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

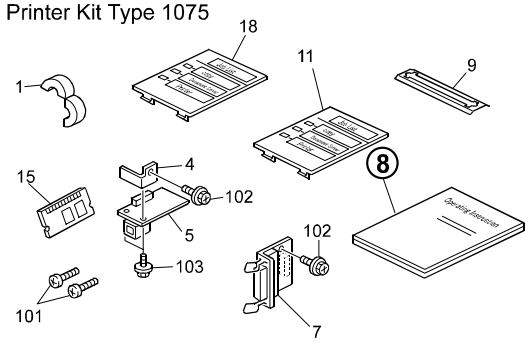
The following parts updates are being issued for all G338/G339 Parts Catalogs.

- **UPDATE 1:** **Operating Instructions –** The part numbers for the Operating Instructions were incorrect. Please correct your G338/G339 Parts Catalog with the following information.

Printer/Scanner Kit Type 1075



Printer Kit Type 1075



				REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	PAGE	ITEM
G3388612	G3398609	Operating Instructions - PRN - TWN	1	3	8
G3388613	G3398606	Operating Instructions - PRN - CHN	1	3	8

Continued…

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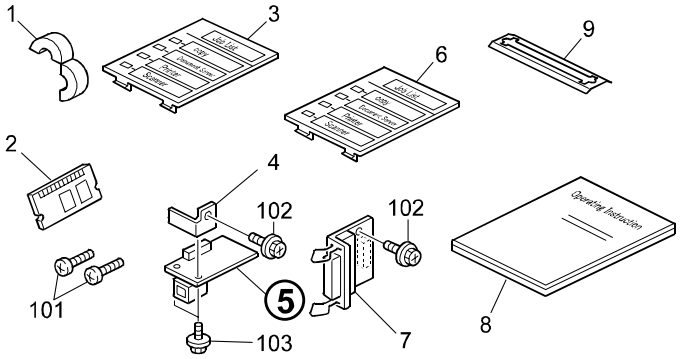
- **UPDATE 2:** **Network Interface Board –** The part number for the Network Interface Board was incorrect. Please correct your G338/G339 Parts Catalog with the following information.

Printer/Scanner Kit Type 1075



				REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B0535254	B0535166	Network Interface Board	1	3	5

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: G338/G339 – 005 **07/15/2003**

APPLICABLE MODEL:

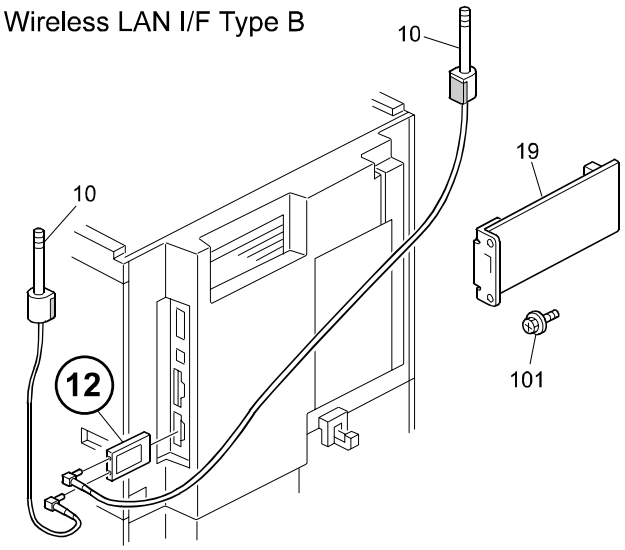
GESTETNER – PRINTER/SCANNER KIT TYPE 1075 for 6002/7502
LANIER – PRINTER/SCANNER KIT TYPE 1075 for LD060/LD075
RICOH – PRINTER/SCANNER KIT TYPE 1075 for AFICIO 1060/1075
SAVIN – PRINTER/SCANNER KIT TYPE 1075 for 2560/2575

SUBJECT: WIRELESS CARD

GENERAL:

The Wireless Card has been changed due to a vendor change. The following part update is being issued for all G338/G339 Parts Catalogs.

■ PARTS



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
G6285453	G6285461	Wireless Card - US	1	3	3	12
G6285454	G6285462	Wireless Card - EU	1	3	3	12

NOTE: *When installing the new Wireless Card, it is necessary to upgrade the GW controller and NIB/NetFile firmware. Refer to TSB B064/B065 – 022 for more information.*

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

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FIRMWARE HISTORY

FIRMWARE HISTORY

PUBLISHED DATE: 08/05/2004

PRODUCT CODE: B064/B065

APPLICABLE MODEL:

GESTETNER – 6002/7502
LANIER – LD060/LD075
RICOH – AFICIO 1060/1075
SAVIN – 2560/2575

GENERAL:

The latest firmware version can be downloaded at the Technology Solutions Center FTP Site at http://tsc.ricohcorp.com. Be sure to check the README file for important notes and explanations.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM/Flash Card Exchange program.*

The revised areas have been highlighted by an arrow ⇒.

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⇒ GW FIRMWARE HISTORY:.....2
BCU FIRMWARE HISTORY: 6
PRINTER SCANNER FIRMWARE HISTORY: 9
LCDC/LANGUAGE FIRMWARE HISTORY:.....13
POSTSCRIPT 3 OPTION FIRMWARE HISTORY:.....16
NIB & NETFILES FIRMWARE HISTORY: 17

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GW FIRMWARE HISTORY:

1) MACHINES WITHOUT THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

B0655102	VERSION	CHECK SUM	PRODUCTION
E	1.11	B179	1st Mass Production
F	1.12.2	66AF	August 2002 Production
G	1.12.3	AFC2	November 2002 Production
H	3.01.2	242A	February 2003 Production
J	3.51	679A	March 2003 Production
K	3.52	BCB9	June 2003 Production
L	3.53	CD84	September 2003 Production
M	3.53.3	5534	November 2003 Production'

IMPORTANT:
When installing version 3.01.2 or newer, it is necessary to install BCU version 4.01 or later together as a set.

2) MACHINES WITH THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

System

B5254108	VERSION	CHECK SUM	PRODUCTION
-	5.07	4AA6	1st Mass Production
A	5.07.3.1	22E3	May 2004 Production

Copy

B5254109	VERSION	CHECK SUM	PRODUCTION
-	5.07	1215	1st Mass Production
⇒ A	5.07.3.1	944B	May 2004 Production

IMPORTANT:
With the Copy Connector/MLB modifications, the machine firmware has been divided up into two main groups (BCU, GW, NIB/Netfile, LCDC, Printer/Scanner):
1) The usual firmware used up to the present, i.e. for machines without the Copy Connector or MLB options.
2) The Copy Connector/MLB group

Firmware from these two groups cannot be used interchangeably. Always update within the same group, otherwise the machine will not operate correctly.

NOTE: *The firmware has been divided into **GW System** and **GW Copy**, because the increased size has exceeded the card's storage capacity.*

DESCRIPTION OF MODIFICATION	Usual	CCK/MLB: System	CCK/MLB: Copy
SC955 sometimes occurs when printing out a Printer Document Server file in Magazine mode, if the data contains a blank page and was originally stored with Paper Saving mode disabled in the driver settings.	-	A	A
SC819 sometimes occurs when capturing PCL data and sending to eCabinet, if the data contains a blank page.	-	A	A

DESCRIPTION OF MODIFICATION	Usual	CCK/MLB: System	CCK/MLB: Copy
RTC time is shifted slightly if any of the weekly timer setup settings are changed. SC870 occurs when the machine recovers from Energy Saver Mode if the #B5145970 hard drive is installed.	M	–	–
Changes made to the Frequency Change setting for the wireless LAN card had no effect. The rear side of the last sheet comes out blank when feeding A4 sheets from the bypass tray in duplex mode.	L	–	–
New SP mode added: SP 6903: Fold Position Adjustment (1 Sheet) Adjusts the fold position for single sheets. Adjustment Range: -7.5mm to 7.5mm (default 0). Default: 0 Step: 0.5 001: A3 002: B4 003: A4 lengthwise 004: DLT 005: LT lengthwise 006: Other Note: - To enable this SP mode, it is also necessary to install the following: 1. BCU version 4.02b or later. 2. SR850/860 ROM #B4685131 or later. - The CCK/MLB firmware (B5254108/4109) already contains this SP mode from its first release.	K	–	–
Adjustment range for SP 6120 changed (Jogger Fence Adjustment): Old range: [0 to 1.5mm] New range: [-1.5mm to 1.5mm] Note: - This SP mode is new to the firmware used with the SR840. - To enable this SP mode, it is also necessary to install the following: 1. BCU version 4.02b or later. 2. SR850/860 ROM #B4685131 or later. - The CCK/MLB firmware (B5254108/4109) already contains this SP mode change from its first release.	K	–	–
Supports the Copy Connector Kit and MLB option.	–	B5254108	B5254109
Supports SMTP authentication. Note: To use this function, it is necessary to update to the following firmware versions: NIB: v3.72 or newer Scanner: v2.08 or newer	J	–	–
New SP mode added: SP4999: ADF Scan Glass Dust Check. 001: Enables or disables the check (0: OFF, 1: ON). Default: 0. 002: Detection Level (Weak 0 - 8 Strong). Default: 4. When this SP is enabled and dust is detected, a message is displayed on the LCD instructing the operator to clean the exposure glass. Note: 1. Before enabling this mode, make sure to clean the scanning guide plate (B4772517). If this is not done, a misdetection may occur. 2. To use this function, it is necessary to install the following firmware versions: BCU: version 4.02 or newer LCDC: version 1.13 or newer	J	–	–
Supports Document Mall/Global Scan function.	J	–	–

DESCRIPTION OF MODIFICATION	Usual	CCK/MLB: System	CCK/MLB: Copy
Specification change: The date the machine recognizes as the installation date has been changed as follows, due to the changeover to counter NVRAMs with an initial value of 0. Old: The day that the counter reaches 0. New: The day the counter reaches 21.	J	–	–
The filename of a Document Server file appears garbled on the document delete screen if the name is written in Chinese.	J	–	–
Wireless LAN communication error when using 802.11 adhoc mode.	J	–	–
The NIB P/N is not displayed in SP7801 or on the SMC printout when TCP/IP is disabled in User Tools.	J	–	–
The Weekly Timer does not function unless the Auto Off timer expires first.	J	–	–
SC990 sometimes occurs if 100 Desig./Chapter is specified for a print job.	J	–	–
Reserved jobs are sometimes deleted when the current copy job is halted by a jam or other cause.	H	–	–
The “Load paper” message is not displayed when all feed trays are empty and there is paper in the Cover Interposer Tray.	H	–	–
If Copy Interrupt is used once an original has been set in the DF, and is then replaced with an original with (an effectively) different width, the estimated size of the first original is not cleared.	H	–	–
Pre-stack jams with the B478 Finisher are not displayed.	H	–	–
Image problem occurs when using Magazine Copy together with Margin Adjustment.	H	–	–
The size of the window for User Tools → System Settings → SSID was incorrect.	H	–	–
Current settings appear overlapped with the default settings on the SMC printout if the report is printed out with proportional font.	H	–	–
If the virtual keyboard is displayed inside User Tools → System Settings → SSID (or WEP), and the User Tools key is then pressed to exit User Tools, the keyboard will appear again when entering System Settings.	H	–	–
If a normal stapling job with limitless paper exit is halted with Copy Interrupt to print out a center-stapling job (before switching trays), and the original job is then resumed, the machine will exit the copies directly on top of the interrupt job.	H	–	–
When printing out a job using Slip Sheet and Stapling, the machine will allow the slip sheets to be stapled even when the slip sheet paper type cannot be stapled by specification.	H	–	–
SC990 appears when cover sheets are added at the end of a sample copy trial and the job is initiated.	H	–	–
The “Wireless LAN Signal” (Interface Settings) sometimes does not function.	H	–	–
“DEC” is not displayed for December dates in the SMC logging data.	H	–	–
Titles for group registration/changes and group name changes are not displayed correctly on the virtual keyboard.	H	–	–
An incorrect number is displayed on the operation panel when SC870 occurs.	H	–	–
SC990 occurs if performing continuous print jobs using the LPR port when network traffic is high.	H	–	–
Recovery is not possible if the power is turned off during a simultaneous upgrade of the System and Copier firmware.	H	–	–
The “waiting” display sometimes does not clear when the machine recovers from Energy Saver Mode.	H	–	–

DESCRIPTION OF MODIFICATION	Usual	CCK/MLB: System	CCK/MLB: Copy
The "@" and "_" marks have been added to the virtual keyboard so that it is no longer necessary to use the SHIFT key to make them appear.	H	–	–
Added the names of all SP2901 test patterns.	H	–	–
Software modified to support Punch Units that only allow a certain number of holes to be punched (units with no hole qty selection).	H	–	–
Supports the new Wireless LAN option released in October '02.	G	–	–
Default setting for DHCP changed to ON.	G	–	–
R9 jams (B478 Finisher) were displayed as R7 jams.	F	–	–
At the completion of Document Box scanning, a message was sometimes displayed asking the user to remove the paper from the Finisher tray.	F	–	–
SC870 occurs after multiple groups are selected and assigned a number in the address book programming screen.	F	–	–
SC819 occurs if "Continue to Program" is performed 196 times in the address book programming screen.	F	–	–
After the main power comes on with the Weekly Timer, and the Access Code screen prompts the user for code entry, the screen can be cleared by simply opening and closing the cover.	F	–	–
"Bond Paper" does not appear as a selection for Tray 1 or the LCT in User Tools – System Settings – Tray Paper Setting.	F	–	–
The machine serial number is not displayed with SC error codes.	F	–	–
Setting range for SP5501: PM Alarm Level corrected from 0-255K to 0-9999K.	F	–	–
SP2912-001 (Drum Reverse Rotation, Rotation Amount) default value changed from 2 → 3, setting range changed from 0-10 → 1-3.	F	–	–
SP2210 (ID Sensor Pattern Interval) default value changed from 10 → 100.	F	–	–
SP2201-001, 002, 003, 005 (Development Bias Adjustment) maximum setting changed from 900 → 800.	F	–	–
SP2931/2/3/4/5/6-001 (Transfer Current On/Off Timing) default value changed from 0 → 20.	F	–	–
SP2931/2/3/4/5/6-002 (Transfer Current On/Off Timing) default value changed from 0 → 15.	F	–	–
SP1902-004 (Fusing Web Motor Control, Web Near End Value) default value changed from 90 → 80.	F	–	–
Supports the Key Card, when used in combination with GW firmware 1.12. Changes made to support the Key Card, as per field request: • "Key Counter" changed to "Key Card" in UP Mode display. • Use of the Interleaf function is allowed when "Key Card" is selected (SP mode). • Automatic jam when counter reaches 0 has been disabled, so that all remaining pages are printed out. • The following 2 selections have been added to SP5113 (Optional Counter Type): 11: Exp Key Card (Add) 12: Exp Key Card (Deduct)	F	–	–
Firmware modified so that when "2: Europe" is selected in SP5131 (Paper Size Type Selection), it is possible to select F-sized originals in User Tools – System Settings – General Features.	F	–	–
SC990 sometimes occurs if the signal timing during scanning and printing causes a delay in the scanning process.	F	–	–
1st Mass Production	E	–	–

BCU FIRMWARE HISTORY:

1) MACHINES WITHOUT THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

B0655123	VERSION	CHECK SUM	PRODUCTION
E	3.12a	BFCC	1st Mass Production
F	3.14e	64E0	September 2002 Production
G	3.16b	2142	September 2002 Production
B1105123	4.01	F4BF	February 2003 Production
A	4.02	3C0B	March 2003 Production
B	4.02a	36C6	May 2003 Production
C	4.02b	7606	June 2003 Production

IMPORTANT:
When installing version 4.01 or newer, it is necessary to install GW controller version 3.01.2 or later together as a set.

2) MACHINES WITH THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

B5254123	VERSION	CHECK SUM	PRODUCTION
	5.03d	FF28	1st Mass Production

IMPORTANT

With the Copy Connector/MLB modifications, the machine firmware has been divided up into 2 main groups (BCU, GW, NIB/Netfile, LCDC, Printer/Scanner):

1) The usual firmware used up to the present, i.e. for machines without the Copy Connector or MLB options.
2) The Copy Connector/MLB group

Firmware from these two groups cannot be used interchangeably. Always update within the same group, otherwise the machine will not operate correctly.

DESCRIPTION OF MODIFICATION	Usual	CCK/ MLB
New SP mode added: SP 6903: Fold Position Adjustment (1 Sheet) Adjusts the fold position for single sheets. Adjustment Range: -7.5mm to 7.5mm (default 0). Default: 0 Step: 0.5 001: A3 002: B4 003: A4 lengthwise 004: DLT 005: LT lengthwise 006: Other Note: - To enable this SP mode, it is also necessary to install the following: 2. GW firmware version 3.52 or later. 3. SR850/860 ROM #B4685131 or later. - The CCK/MLB firmware (B5254123) already contains this SP mode from its first release.	C	
Adjustment range for SP 6120 changed (Jogger Fence Adjustment): Old range: [0 to 1.5mm] New range: [-1.5mm to 1.5mm] Note: - This SP mode is new to the firmware used with the SR840. - To enable this SP mode, it is also necessary to install the following: 1. GW firmware version 3.52 or later. 2. SR850/860 ROM #B4685131 or later. - The CCK/MLB firmware (B5254123) already contains this SP mode from its first release.	C	
Supports the Copy Connector Kit and MLB option.	-	B5254123
Web End (SC550) occurs prematurely.	B	
Memory Setting Error (SC955) occurs with large print jobs (approx. 1,500 sheets).	B	
Drum sometimes rotates backwards when SP2912-2 is not set to a value of 0.	A	
SC990 sometimes occurs with simplex originals → duplex copies when a jam occurs during rear side feeding.	A	
New SP mode added: SP4999: ADF Scan Glass Dust Check. 001: Enables or disables the check (0: OFF, 1: ON). Default: 0. 002: Detection Level (Weak 0 - 8 Strong). Default: 4. When this SP is enabled and dust is detected, a message is displayed on the LCD instructing the operator to clean the exposure glass. Note: 3. Before enabling this mode, make sure to clean the scanning guide plate (B4772517). If this is not done, a misdetection may occur. 4. To use this function, it is necessary to install the following firmware versions: GW controller: v3.51 or newer. LCDC: v1.13 or newer.	A	
Some Finisher SC's and jams were not reported to the mainframe.	B1105123	

DESCRIPTION OF MODIFICATION	Usual	CCK/ MLB
SC335/336 were triggered with a detection time of 10 seconds, even though the correct detection time is 20 seconds.	B1105123	
SC990 sometimes occurs with jobs using Stapling.	B1105123	
Test patterns 18 to 30 for SP2902-1 and 2902-2 do not function.	B1105123	
Minimum setting interval for scanner resolution changed from 3dpi to 1dpi.	B1105123	
When copying originals for reduction through the DF with nearly 100% image area coverage, part of the trailing edge shows dirtying.	G	
SC181 occurs when the DF is opened and the main power is turned on with a specific timing.	G	
SC184 does not occur when the CIS harness is disconnected.	G	
When a 1-page, non-stapling printing job is sent in between two stapling jobs, it is stapled along with the following (2nd stapling) job.	G	
SC335/337 occur when BCU board warm-up is performed at a specific point (timing).	G	
With DF 2-sided scanning, the edge of the original is sometimes visible on the rear side of the copy when the image is shifted by Create Margin for stapling.	F	
When making duplex copies from the exposure glass, sometimes both the front and rear sides come out as the front side of the original.	F	
SC990 sometimes occurs at power ON.	F	
When the main power is turned on, SP1902-002 sometimes changes to an illegal value, and the Fusing Web End condition occurs much earlier than normal.	F	
SC345 sometimes occurs during the initial paper feed just after the main power is turned on, or at the end of a job while making the ID sensor pattern.	F	
This version supports the Key Card, when used in combination with GW firmware 1.12.	F	
Software modified to minimize developer carrier scattering.	F	
Development bias output maximum changed from 900V to 800V.	F	
SP2970 was not triggered when occurrence conditions were present.	F	
Change in specification: Fusing Web End. Web End detection priority given to the web end sensor (previously, SP1902 value had priority). Near End now triggered at 80% (previous: 90%), and the default for SP1902-001 has been changed to 80% accordingly.	F	
Setting range for SP2912-001 changed from 0-10 to 1-3.	F	
1st Mass Production	E	

PRINTER SCANNER FIRMWARE HISTORY:

1) MACHINES WITHOUT THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

PART NUMBER	PRINTER VERSION	SCANNER VERSION	CHECK SUM	PRODUCTION
B0665205A	1.00	1.13	9A16	1st Mass Production
B	1.02	1.13	0286	August 2002 Production
G3385204	1.07	1.13	97B6	October 2002 Production
A	1.08	1.20	3C5F	November 2002 Production
B	1.09	1.20	EE07	December 2002 Production
C	1.09	2.00	6A71	December 2002 Production
D	1.10	2.00	D2D4	March 2003 Production
E	1.11	2.08	43A1	March 2003 Production
F	1.13	2.14	4FD6	August 2003 Production

NOTE: When installing Scanner Version 2.14 or later, it is necessary to install the following GW controller and NIB firmware:

GW Controller: V3.51 or later

NIB: V3.72 or later

2) MACHINES WITH THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

PART NUMBER	PRINTER VERSION	SCANNER VERSION	CHECK SUM	PRODUCTION
B5255204	4.15	5.00	5AA6	1st Mass Production

IMPORTANT:
With the Copy Connector/MLB modifications, the machine firmware has been divided up into 2 main groups (BCU, GW, NIB/Netfile, LCDC, Printer/Scanner):
1) The usual firmware used up to the present, i.e. for machines without the Copy Connector or MLB options.
2) The Copy Connector/MLB group

Firmware from these two groups cannot be used interchangeably. Always update within the same group, otherwise the machine will not operate correctly.

DESCRIPTION OF MODIFICATION	Usual	CCK/ MLB
[Printer] SNMP trap cannot be sent when an SC occurs (even when enabled).	F	–
[Scanner] SC990 or a panel freeze occurs if 70 or more scan-to-emails are sent since the last power ON with the mainframe POP3 Encryption set to Auto Select.	F	–
[Scanner] Scanner sometimes freezes when an email address is 123 characters or longer.	F	–
[Scanner] Garbled text when printing out SP5990-23 report (Scanner User Program).	F	–
[Scanner] Display error with operation panel keyboard (Korean display language).	F	–
Supports the Copy Connector Kit and MLB option.	–	B5255204
[Printer] Sample Prints are not shifted when printed out to the shift tray.	E	–
[Printer] Barcodes are shifted when printed out.	E	–
[Printer] Firmware modified so that if there is no paper in the paper tray specified in the driver, the machine will perform Auto Tray Select and print out the job (previously, the job would be halted with an error). Note: To activate this function, it is necessary to turn BitSW#3-4 ON.	E	–
[Scanner] The following functions have been added for SMTP E-mail transmission: - SMTP Authentication - POP before SMTP	E	–
[Scanner] Supports Free BSD2.2.8/sendmail Wbeta7.	E	–
Duplex face settings (front/rear) not applied correctly when specified with PCL commands.	D	–
Selecting HDD font or DIMM font may reduce available memory.	D	–
CAD files not printed out correctly.	D	–
Duplex printing does not function.	D	–
- Selecting HDD font or DIMM font may reduce available memory. - Supported SAP Barcode & OCR printing.	D	–
Change in specification: If the MIB cannot successfully retrieve the display language information from the machine, the driver will be displayed in English.	C	–
[Printer] With duplex jobs containing mixed printing orientations, the printing orientation may sometimes be in reverse after changing back from landscape to portrait.	B	–
[Printer] When specifying “Front and Back Cover Sheet”, the paper is not stapled/punched as expected.	B	–
[Printer] Supports mixed binding orientations with duplex jobs using cover sheets.	B	–
[Printer] Some Chinese fonts do not print out correctly.	B	–
[Printer] Some characters overlap with Booklet printing.	B	–
[Printer] Printing may stop with files sent from INIFCO.	B	–
[Printer] The response to the PJL INFO CONFIG command does not include the serial number.	B	–

DESCRIPTION OF MODIFICATION	Usual	CCK/ MLB
[Printer] The Form Lines setting (PCL menu) is changed when the machine is rebooted.	A	–
[Printer] With the PCL, in the event of an error, the location of the error (PDL name) is printed as “unknown” on the system settings list/error history.	A	–
[Printer] When performing forced print/error skip printing with the PCL, a delay occurs when printing out each page, slowing down the printing speed markedly.	A	–
[Scanner] The Start key standby condition (machine waiting to scan second side of original) cannot be cleared if the number of sheets specified for scanning is 1.	A	–
[Scanner] Modified so that the machine does not enter Night Mode while printing out the scanner history report.	A	–
[Scanner] When selecting a 100-member group after selecting 1 destination inside the same Scanner page, the destination initially selected is removed.	A	–
[Scanner] “No paper in the bypass tray” is displayed if there is no paper in the LCT while printing out the scanner history.	A	–
[Scanner] Scanner jobs sometimes cannot be canceled midway through.	A	–
[Scanner] The Stop key can be used with re-forwarding mode.	A	–
[Scanner] When “Sending” is displayed during re-forwarding (Scanner), and the “input registration number” button is pressed (machine prompts operator for number), the timer for the “Sending” message comes on line and clears it, even though the registration number button is still active.	A	–
[Scanner] If a reset occurs during Scanner password authentication, defaults cannot be restored.	A	–
[Scanner] Sectors in shared memory for storing error alert information are damaged.	A	–
[Scanner] A transmission error occurs during fragmented mail transmission, followed by a connection error on the first retry, then SC990 (should not be displayed) on the second retry.	A	–
[Scanner] Memory leak occurs after repeatedly canceling documents in standby for forwarding.	A	–
When the printer is in standby for printing out pre-set jobs, it displays both the job information and “Ready.”	G3385204	–
Display errors on pre-set job screen (user name, document name, last character in “details” column).	G3385204	–
If the host cancels the spool-printing job of a large file (10 MB or more) while it is being printed out, the display reads, “Resetting job” and does not change.	G3385204	–
With PCL5e/PCL6 printing, the job name is not displayed on the LCD panel, and the job is not listed in the job history.	G3385204	–
If a slip-sheet size different from the original is specified (Bypass Tray printing), an alert is displayed and does not clear.	G3385204	–
The AP MAC address is displayed even when the wireless LAN is set for Adhoc mode.	G3385204	–

DESCRIPTION OF MODIFICATION	Usual	CCK/ MLB
Spec change: The default for the Custom Size (Printer initial settings → Bypass Paper Size → Custom Size) has been changed from A4 → letter for NA. Note: A4 is still the default for EU.	G3385204	–
When specifying 4 holes to be punched in the right side of the paper, 4 holes are punched in the left side.	G3385204	–
After an SP operations error, the correct SP mode number is not logged in the error log.	G3385204	–
With the Chinese display language, on the bypass tray size setting screen, the characters used for the up/down scroll keys are displayed outside their boxes.	G3385204	–
Display error on the B469 Finisher tray full screen: Incorrect: “Remove the paper from Finisher shift tray 1.” Correct: “Remove the paper from Finisher shift tray.”	G3385204	–
When sending with Centro, “Waiting” is displayed even after the I/F switching time has been reached.	G3385204	–
If program content printing is performed when there is no program, “There is no program registered” is displayed, but only for a brief moment, and then clears (normal: 3 seconds).	G3385204	–
On the forced printing screen when specifying LG (8 1/2 x 14) paper with no orientation, this size is incorrectly displayed as “8 1/4 x 14.”	G3385204	–
If “Clear” is pressed on the error clear alert, the machine continues printing.	G3385204	–
When locked printing or copy server printing is performed with screen spooling and user access control both ON, the display reads, “Printing”.	G3385204	–
When using job cancel while printing out multiple jobs with locked printing, only the current job is canceled (all other jobs are printed out).	G3385204	–
Bold may not work with some True Type fonts.	G3385204	–
Slow printing from AutoCAD.	G3385204	–
Same line width when bitSW3 #3 is ON in CAD printer.	G3385204	–
The Orientation, Edge to Edge Print and Extend A4 Width menu settings are lost when the power is turned Off/On (not saved in NARAM), and are returned to their defaults.	G3385204	–
Processing time for SP memory clear (SP5-801-008) is too long.	B0665205B	–
On the forced print screen, if the specified size is “undefined”, the size area (4th line) is not displayed.	B0665205B	–
Mm ←→ inch conversion error with custom sizes for bypass tray feeding.	B0665205B	–
Summary wording change: “Quantity of Print Sets” → “Copies”	B0665205B	–
When menu lock is enabled from WEB, the Printer initial settings key mark is not displayed.	B0665205B	–
Line spacing command, “lochEsc&l#D” loch causes incorrect output.	B0665205B	–
Stall occurs when there is little memory installed (PCL).	B0665205B	–
Euro currency symbol is not printed.	B0665205B	–
When using bold fonts, short lines may appear around text characters.	B0665205B	–
Text characters appear too thick with some bolded fonts, removing the fine detail.	B0665205B	–
1st Mass Production	B0665205A	–

LCDC/LANGUAGE FIRMWARE HISTORY:

1) MACHINES WITHOUT THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

LCDC:

B0655176	VERSION	CHECK SUM	PRODUCTION
	1.08	F112	1st Mass Production
A	1.12	2C31	August 2002 Production
B	1.13	715B	March 2003 Production

LANGUAGE:

B0655238	VERSION	CHECK SUM	PRODUCTION
	2.64	E914	1st Mass Production
A	2.65	5B62	August 2002 Production
B	2.72	0D5B	January 2003 Production
C	3.01	79F9	May 2003 Production

NOTE: *Language firmware can be used for both **with** or **without** Copy Connector Kit/MLB machines.*

2) MACHINES WITH THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

B5254176	VERSION	CHECK SUM	PRODUCTION
	2.04	21D2	1st Mass Production

IMPORTANT:
With the Copy Connector/MLB modifications, the machine firmware has been divided up into 2 main groups (BCU, GW, NIB/Netfile, LCDC, Printer/Scanner):
1) The usual firmware used up to the present, i.e. for machines without the Copy Connector or MLB options.
2) The Copy Connector/MLB group

Firmware from these two groups cannot be used interchangeably. Always update within the same group, otherwise the machine will not operate correctly.

DESCRIPTION OF MODIFICATION	LCDC		LANG.
	W/O CCK/ MLB	With CCK/ MLB	
Supports the Copy Connector Kit and MLB option.	–	B5254176	–
The words for “stack” and “sort” in Portuguese were reversed in the following areas: Copier error/notification pop-ups Copy main screen Facsimile main screen	–	–	C
Some messages in copier error/notification pop-ups in Portuguese that were longer than the maximum amount of characters have been shortened to fit the screen.	–	–	C
Display for “System Auto Reset Timer” inside User Tools → System Settings → Timer Settings was incorrectly displayed as “System Auto Reset Reset Timer” in Italian.	–	–	C
Wording correction: SC code: “External Charge Unit” (Italian).	–	–	C
Display for “Ethernet Speed” in the pop-ups inside User Tools → System Settings → Interface Settings was incorrectly displayed as “Ethernet Type” in Dutch.	–	–	C
Display in the pop-ups inside User Tools → System Settings → Interface Settings → IEEE802.11b → WEP (Encryption) Settings was incorrectly displayed as follows in Dutch: Incorrect: 10 alphanumeric characters must be entered for 64 bit. Correct: 10 alphanumeric characters must be entered for 64 bit, 26 alphanumeric characters for 128 bit.	–	–	C
Display for “To print counter list of all user codes, select counter type, then press [Start]” in the pop-ups inside User Tools → Key Operator Tools →Display/Clear/Print Counter per User Code was translated into Russian incorrectly (incorrect spelling).	–	–	C
Display for “Press # to use special size or paper.” in the copier main screen, which appears when the bypass tray is selected, was translated into German incorrectly (included unnecessary words).	–	–	C
Wording correction: Copy main screen: Displays and messages related to machine status and tray selection with certain job functions (German, Polish, Hungarian, Russian).	–	–	C
Wording correction: Copy main screen, Tray 2/Bypass tray selectable sizes (Italian): Incorrect: 4 1/2x9 1/2 Correct: 4 1/8x9 1/2	–	–	C
Wording corrections: - Copy main screen → Edit/Print Tab (Italian, Spanish, Swedish, Czech) - Copy main screen → Printing position/Size (Swedish) - Copy alert messages (Italian, Spanish, Dutch, Swedish, Norwegian, Russian) - Copy system settings screen → Edit → User Code settings (Norwegian)	–	–	C
Wording corrections: - Copy System Settings → Scanner Settings → Document Server screens (Czech).	–	–	C
Wording corrections: - Scanner system settings → Scanner settings screens (Swedish, Hungarian).	–	–	C

DESCRIPTION OF MODIFICATION	LCDC		LANG.
	W/O CCK/ MLB	With CCK/ MLB	
- Scanner alert messages (Swedish) - Scanner main screen → Destination Search (Hungarian, Dutch). - Scanner main screen → Scanning parameters → Image Density (Russian).			
Wording corrections: - Printer alert messages (Italian, Dutch, Norwegian, Polish, Czech, Hungarian, Russian).	–	–	C
Added terminology for the Copy Connection and SDK features.	–	–	C
Added terminology for the Printing Backup feature.	–	–	C
Wording correction: Document Server → Document selection screens (Dutch).	–	–	C
New SP mode added: SP4999: ADF Scan Glass Dust Check. 001: Enables or disables the check (0: OFF, 1: ON). Default: 0. 002: Detection Level (Weak 0 - 8 Strong). Default: 4. When this SP is enabled and dust is detected, a message is displayed on the LCD instructing the operator to clean the exposure glass. **NOTE:** 1. Before enabling this mode, make sure to clean the scanning guide plate (B4772517). If this is not done, a misdetection may occur. 2. To use this function, it is necessary to install the following firmware versions: BCU: version 4.02 or later. GW controller: version 3.51 or later.	B		
A display error occurs if the Reset key is pressed while performing touch screen calibration.	B		
The telephone number is not displayed in the correct area if SC672 occurs during a system stall.	B		
The words for “stack” and “sort” in Portuguese were reversed in the following areas: System Initial Settings – General Features Copier error/notification pop-ups Copier Initial Settings – Peripheral Settings Menu Fax (main screen)	–		B
Some messages in copier error/notification pop-ups that were longer than the maximum amount of characters have been shortened to fit the screen.	–		B
Display message in Printer mode changed: Old: “Quality of Print Sets” New: “Copies”	A		A
Official Russian translation set added.			A
1st Mass Production	–		–

POSTSCRIPT 3 OPTION FIRMWARE HISTORY:

B5255902	VERSION	CHECK SUM	PRODUCTION
A	1.00	7CB0	1st Mass Production
B	1.01	61A7	October 2002 Production
C	1.02	E285	March 2003 Production

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL
Modified for Adobe certification.	C
Wording correction on job info. descriptions.	C
Modified so that Media Handling can be used when specifying the SuperOption.	C
Slow printing from AutoCAD.	C
Configuration error when MediaType is set to an undefined value in the PS file (modified to a default of 1).	C
Supports Edge-to-Edge printing.	C
Supports CtlZ.	C
Only the first duplex command is applied when the PS file contains a mixture of simplex and duplex short/long stapling orientations. **NOTE:** *This does not occur when printing from Windows.*	C
Euro currency symbol is not printed.	B
The printer controller freezes when printing from Unix Acrobat.	B
The printing speed of a PS job slows down after a PS3 job is reset.	B
When data is sent selected for 3-hole punching to the Europe model, which only supports 2 & 4-hole punching, two holes are punched in the paper. Software modified so that no holes are punched when this data is sent.	B
Many "Punch Cancelled" messages may be displayed in the Summary Error Log after sending data to which punching could not be applied.	B
Lines sometimes appear in (what should be) blank areas.	B
Printer controller unable to recognize the “copy <filename> <printer name>” PS job command sent from a DOS prompt, and prints out the command itself as a character string.	B
Customized job not printed when feeding from a paper tray due to a “paper mismatch”, which occurs even though the paper size set in the driver has also been set at the operation panel.	B
1st Mass Production	A

NIB & NETFILES FIRMWARE HISTORY:

1) MACHINES WITHOUT THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

B0655114	NIB (PHY) VERSION	NETFILE (NFA) VERSION	CHECK SUM	PRODUCTION
D	3.54	1.11	2658	1st Mass Production
E	3.55	1.11	4088	November 2002 Production
F	3.56	1.11	177E	February 2003 Production
G	3.72	1.11	F232	March 2003 Production
H	3.73	1.1.2	7C8D	June 2003 Production
J	3.74	1.1.2	8353	October 2003 Production

2) MACHINES WITH THE COPY CONNECTOR KIT OR MLB OPTION INSTALLED

B5254114	NIB (PHY) Version	NetFile (NFA) Version	CHECK SUM	PRODUCTION
–	3.00	1.79.1	5859	1st Mass Production

IMPORTANT:
With the Copy Connector/MLB modifications, the machine firmware has been divided up into 2 main groups (BCU, GW, NIB/Netfile, LCDC, Printer/Scanner):
1) The usual firmware used up to the present, i.e. for machines without the Copy Connector or MLB options.
2) The Copy Connector/MLB group

Firmware from these two groups cannot be used interchangeably. Always update within the same group, otherwise the machine will not operate correctly.

DESCRIPTION OF MODIFICATION	W/O CCK/MLB	With CCK/MLB
Modified to support X1325 wireless LAN cards. **NOTE:** *Previously an error message was displayed since the software had not yet actually been modified to support these cards.*	J	–
The printer is unable to log on to the Netware server even when the Netware server SAP setting is unchecked.	J	–
The printer is unable to access the target local Netware server	J	–
SC819 sometimes occurs when browsing devices with SmartNetMonitor for Client using NetBEUI protocol.	H	–
Supports the Copy Connector Kit and MLB option.	–	B5254114
Supports SMTP authentication. **NOTE**: To use this function, it is necessary to update to the following firmware versions (or newer): GW Controller: version 3.51 or later Scanner: version 2.08 or later	G	–
SC990 occurs with continuous LPR print jobs sent from a Windows NT station.	F	–

DESCRIPTION OF MODIFICATION	W/O CCK/MLB	With CCK/MLB
Change in Specification: 1. Changed the default setting of DHCP to ON. **NOTE:** *When upgrading to this version, the DHCP setting will only change to ON if it is manually set or a factory default clear is performed after update.* 2. TCP ports can be opened/closed. **NOTE:** *After performing the setting to disable HTTP, it is not possible to access the target device through the web browser. To change this setting, use telnet to open HTTP. When the telnet port is disabled, it is necessary to clear the network settings (Memory Clear for NCS) to open the telnet port.* 3. Supports new wireless LAN (IEEE802.11b). **NOTE:** *Since this is due to a vendor change, the new LAN cannot be used with suffix D firmware.*	E	–
1st Mass Production	D	–