



RICOH UNIVERSITY
Learning ♦ Knowledge ♦ Performance



**B234/B235/B236
D101/D102/D103
SERVICE MANUAL**

(Book 1 of 2)

002671MIU

MAINFRAME

LANIER RICOH SAVIN®





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D101/D102/D103
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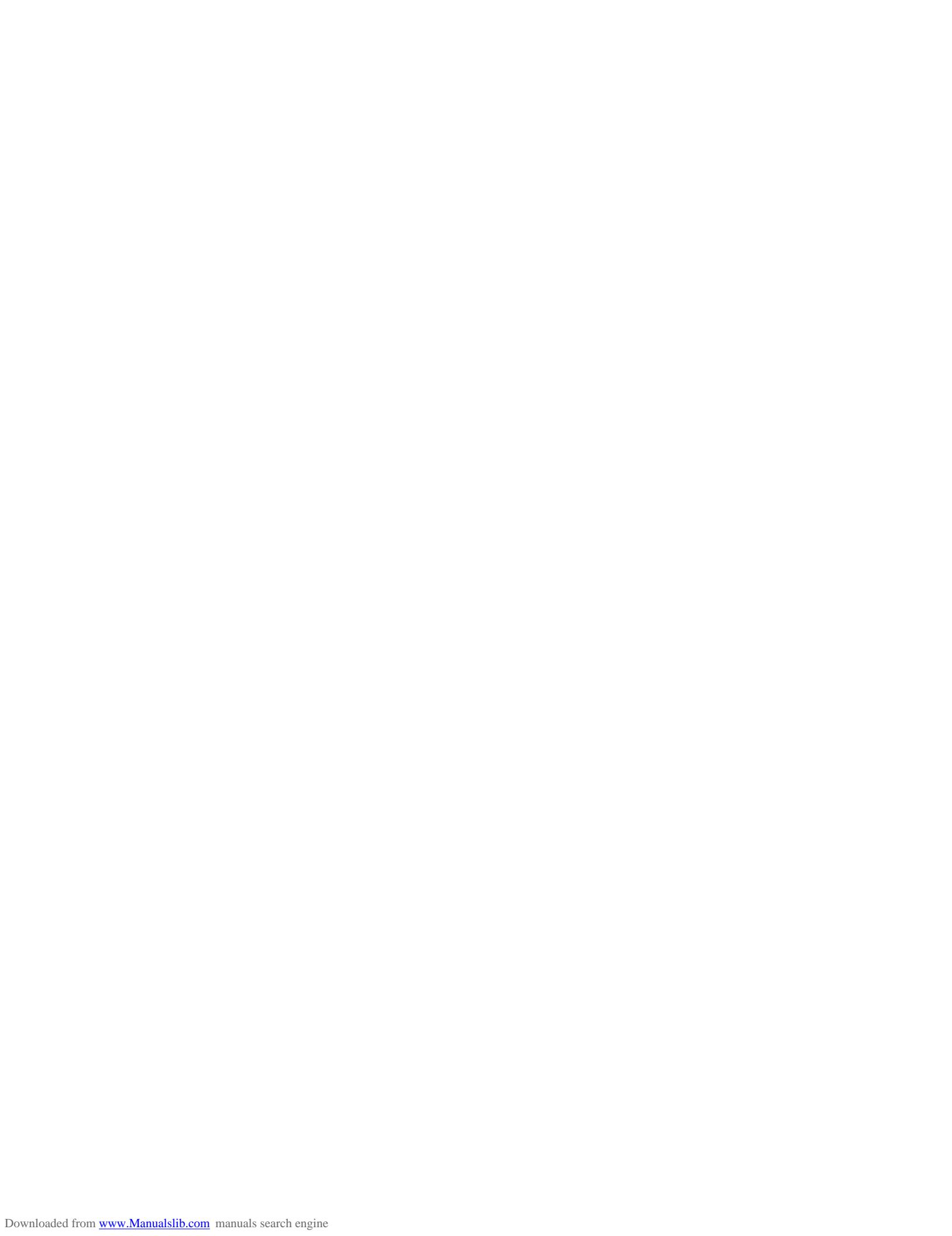


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Z-FOLDING UNIT (B660)

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FINISHER (B830)

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LCIT (B832)

SEE SECTION B832 FOR DETAILED TABLE OF CONTENTS

MULTI BYPASS TRAY (B833)

SEE SECTION B833 FOR DETAILED TABLE OF CONTENTS

LCIT (B834)

SEE SECTION B834 FOR DETAILED TABLE OF CONTENTS

COVER INTERPOSER TRAY (B835)

SEE SECTION B835 FOR DETAILED TABLE OF CONTENTS

BOOKLET FINISHER (B836)

SEE SECTION B836 FOR DETAILED TABLE OF CONTENTS



INSTALLATION

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POSITION 2

REPLACEMENT AND ADJUSTMENT

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LCIT B834

TAB
POSITION 3

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POSITION 8



⚠️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 cold 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 controller board has a lithium battery which can explode if replaced incorrectly. Replace the NVRAM only with an identical type. However, the manufacturer recommends replacing the entire NVRAM, not just the battery. Never recharge or incinerate a used NVRAM battery. Dispose of a used NVRAM or NVRAM battery in accordance with local regulations.
3. The danger of explosion exists if the battery on the controller board is incorrectly replaced. Replace the battery only with the equivalent type recommended by the manufacturer. Discard the used controller board battery in accordance with the manufacturer's instructions and 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:

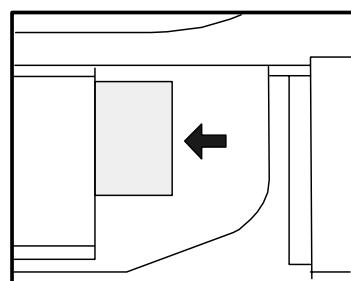


Conventions in this Manual

This manual uses several symbols.

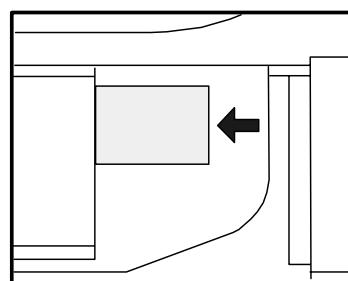
| Symbol | What it means |
|--------|----------------------------------|
| | Refer to section number |
| | See Core Tech Manual for details |
| | Screw |
| | Connector |
| | E-ring |
| | Clip ring |
| NA | North America |
| EUR/A | Europe/Asia |

ADF



LEF

ADF



SEF



INSTALLATION

| INSTALLATION REVISION HISTORY | | |
|-------------------------------|------------|---|
| Page | Date | Added/Updated/New |
| 30 | 09/07/2006 | Updated Information – Completing the Installation |
| 46 ~ 47 | 10/09/2007 | Updated Information – Adjusting Image Position Sensor |
| 122 | 09/07/2006 | Updated Information – Key Counter |
| 123 | 11/21/2006 | Updated Information – MFP Controller Options |
| 123 | 03/23/2007 | Updated Information – MFP Controller Options |
| 134 ~ 137 | 02/01/2007 | Updated Information – Data OverWrite Security Unit Type F |
| 152 ~ 157 | 11/21/2006 | Updated Information – Connection Kit B328 |
| 199 | 03/23/2007 | Updated Information – VM Card Type C |

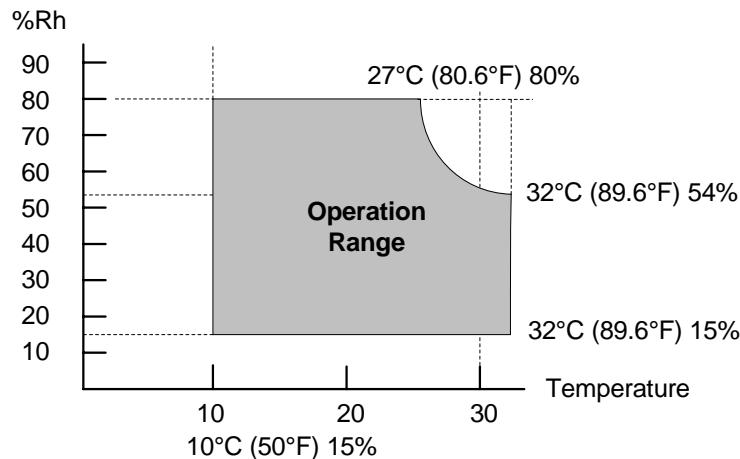


1. INSTALLATION PROCEDURES

1.1 INSTALLATION REQUIREMENTS

1.1.1 ENVIRONMENT

1. Temperature Range: 10°C to 32°C (50°F to 89.6°F)
2. Humidity Range: 15% to 80% RH



3. Ambient Illumination: Less than 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 per person
5. Ambient Dust: Less than 0.075 mg/m³
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.

INSTALLATION REQUIREMENTS

9. Place the copier on a strong and level base.
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 an electrical field which could interfere with radio or television reception.

1.1.2 MACHINE LEVEL

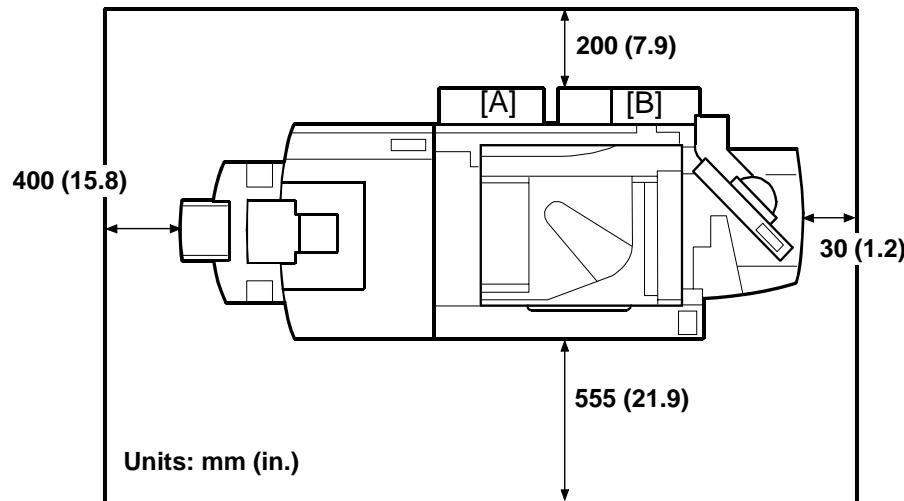
1. Front to back: Within 5 mm (0.2") of level
2. Right to left: Within 5 mm (0.2") of level

NOTE: The machine legs may be raised or lowered 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 clearance as shown below. The same amount of clearance is necessary when optional equipment is installed.

Installation

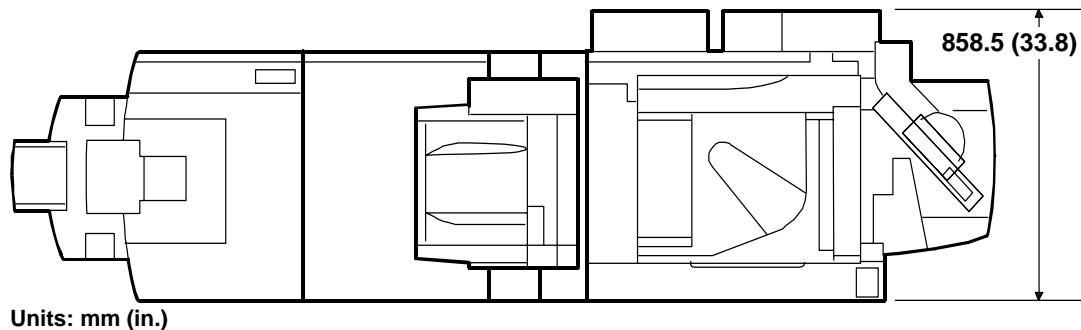


NOTE: The controller box door [A] and PSU door [B] on the back of the machine swing open and can be removed. Both doors can be removed to allow the machine to pass through a narrow doorway. (☞1.3.4)

INSTALLATION REQUIREMENTS

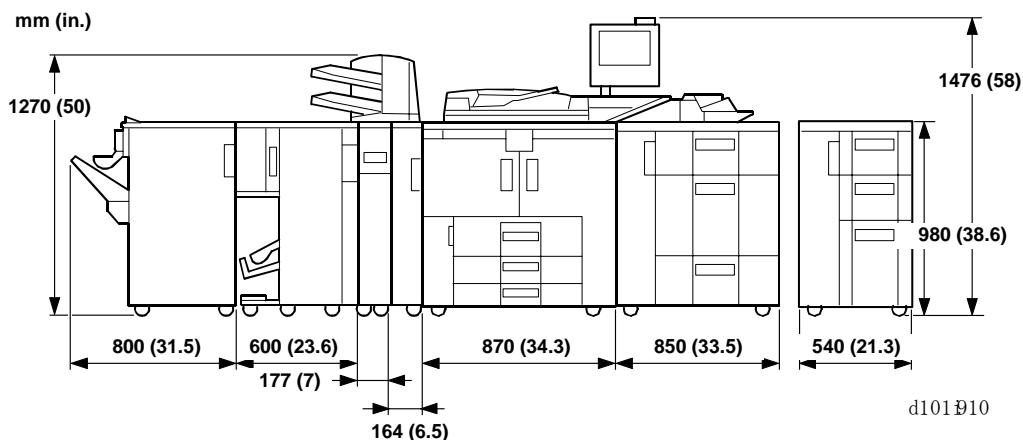
1.1.4 DIMENSIONS

Top View



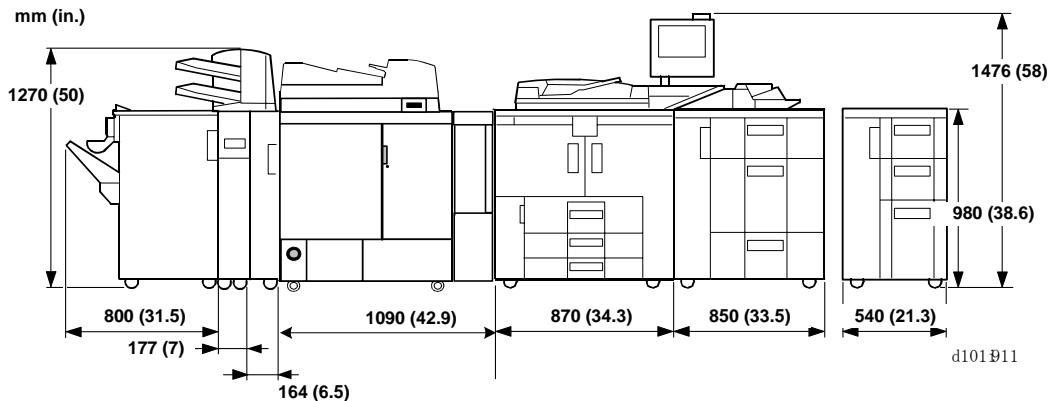
Side Views

With Booklet Finisher B836



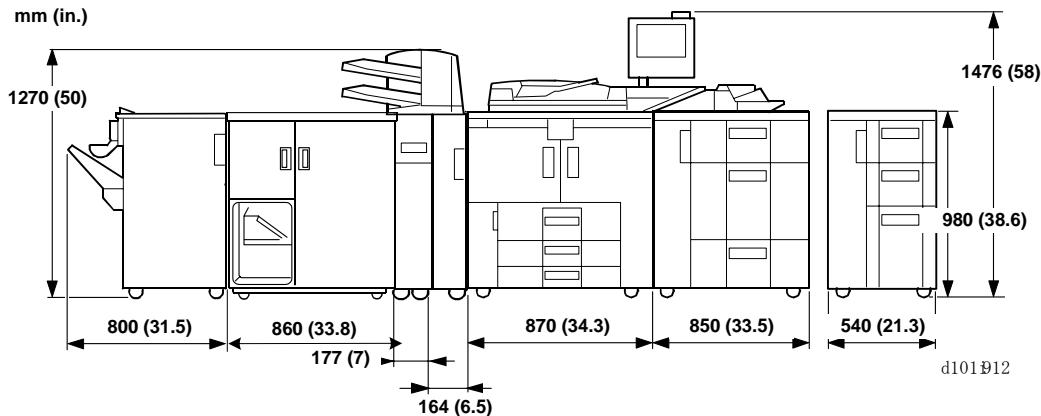
Approximate space required (With Booklet Finisher B836)

| LCT | Meters | Feet |
|----------------------|--------|------|
| With A3/DLT LCT B833 | 3.5 | 11.4 |
| With A4/LT LCT B832 | 3.2 | 10.4 |

With Perfect Binder D391

Approximate Space Required (All Options with Perfect Binder D391)

| LCT | Meters | Feet |
|----------------------|--------|------|
| With A3/DLT LCT B833 | 4 | 13 |
| With A4/LT LCT B832 | 3.6 | 12 |

With Ring Binder D392

Approximate Space Required (All Options with Ring Binder D392)

| LCT | Meters | Feet |
|----------------------|--------|------|
| With A3/DLT LCT B833 | 3.7 | 12.2 |
| With A4/LT LCT B832 | 3.4 | 11.2 |

INSTALLATION REQUIREMENTS

1.1.5 POWER REQUIREMENTS

⚠ CAUTION

- 1. Make sure that the wall outlet is near the copier 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

| Machine | Area | |
|----------------------------------|-------------------------------|-------------------------------|
| | NA | Europe/Asia |
| B234/D101 | 208~240V 60 Hz Minimum 20A | 220~240V 50/60 Hz Minimum 16A |
| B235/D102 | | |
| B236/D103 | | |
| Permissible voltage fluctuation: | 10% | |

⚠ 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.**

The Main Power LED (②) lights or flashes at the following times:

- While the platen cover or ADF is open
- While the copier 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.**

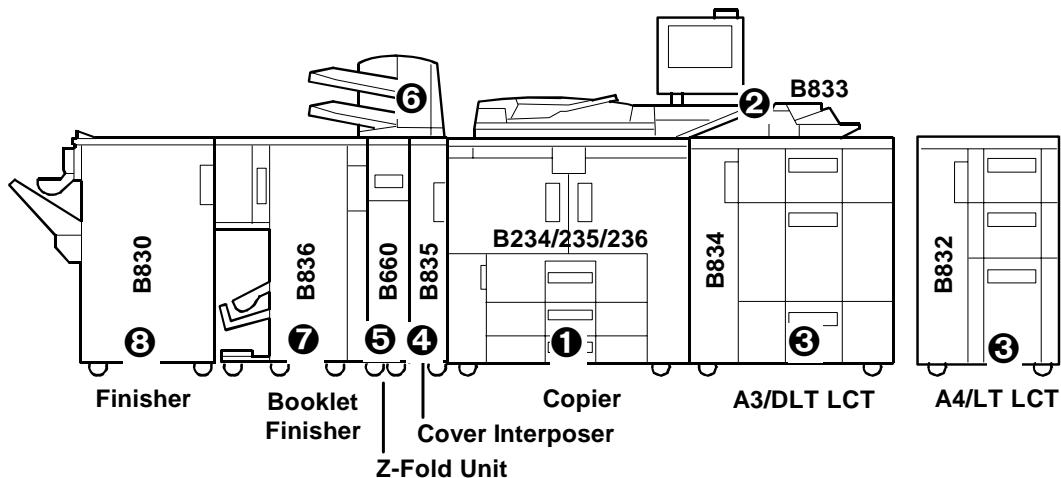
Located on the front left corner of the machine and covered by a plastic cover.
This switch should always remain on unless the machine is being serviced.

- **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.

1.2 BEFORE YOU BEGIN...

1.2.1 B234/B235/B236 OVERVIEW OF OPTIONAL PERIPHERALS



There are many peripherals available for this machine. Install them in this order:

- ① Mainframe
 - ② Multi Bypass Tray B833
 - ③ LCIT RT5010 (B834), or LCIT RT5000 (B832)
- Important!** The Multi Bypass Tray (B833) must be installed on the LCT before the LCT is docked to the mainframe.
- ④ Cover Interposer Tray CI5000 B835 (Transport Unit)
 - ⑤ Z-Folding Unit ZF4000 (B660) (or next peripheral in line)

Important!

- The Transport Unit (base) of the Cover Interposer Tray is narrow and cannot fully support its tray unit. Part of the tray unit must rest on top of the Z-folding unit (or the next peripheral device installed to the left of the cover interposer).
 - To prevent the Cover Interposer Tray from falling, always install the next peripheral device in line before installing the tray unit ⑥ of the Cover Interposer Tray.
- ⑥ Cover Interposer Tray (Tray Unit)
 - ⑦ Booklet Finisher BK5000 (B836)
 - ⑧ Finisher SR5000 (B830)

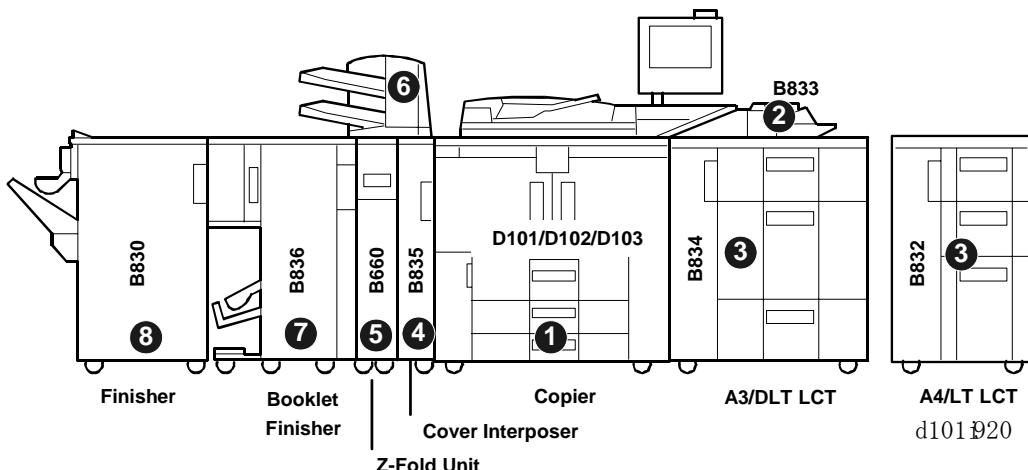
BEFORE YOU BEGIN...

1.2.2 D101/D102/D102 OVERVIEW OF OPTIONAL PERIPHERALS

There are many peripherals available for this machine. Install them in the order described below.

Configuration 1: Booklet Finisher B836

This configuration shows the Booklet Finisher B836 installed. The booklet finisher cannot be installed with either the Perfect Binder D391 or Ring Binder D392.



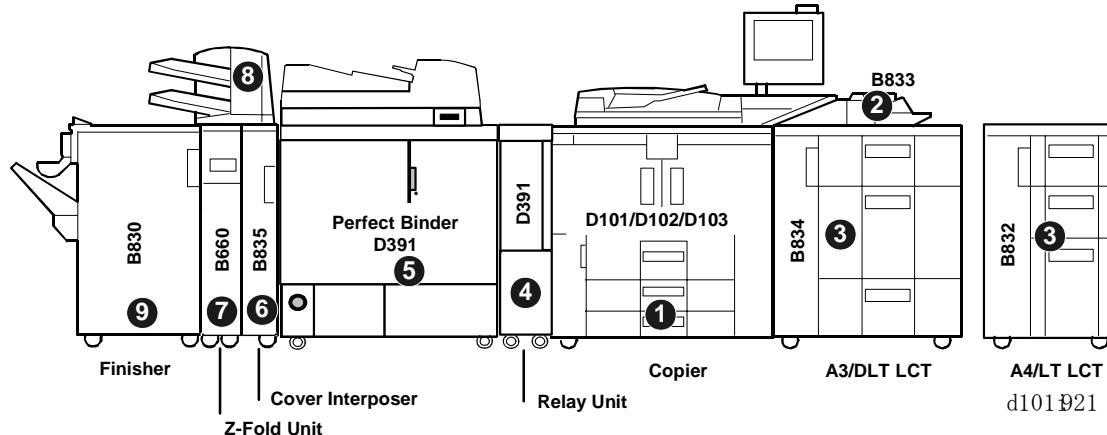
F

| | |
|---|---|
| ① | Mainframe |
| ② | Multi Bypass Tray B833 |
| ③ | LCIT RT5010 (B834), or LCIT RT5000 (B832) Important! The Multi Bypass Tray (B833) must be installed on the LCT before the LCT is docked to the mainframe. |
| ④ | Cover Interposer Tray CI5010 B835 (Transport Unit) |
| ⑤ | Z-Folding Unit ZF4000 (B660) (or next peripheral in line) Important! <ul style="list-style-type: none"> The Transport Unit (base) of the Cover Interposer Tray is narrow and cannot fully support its tray unit. Part of the tray unit must rest on top of the Z-folding unit (or the next peripheral device installed to the left of the cover interposer). To prevent the Cover Interposer Tray from falling, always install the next peripheral device in line before installing the tray unit ⑥ of the Cover Interposer Tray. |
| ⑥ | Cover Interposer Tray (Tray Unit) |
| ⑦ | Booklet Finisher BK5000 (B836) |
| ⑧ | Finisher SR5000 (B830) |

Configuration 2: Perfect Binder D391

This configuration shows the Perfect Binder D391 installed.

- The Booklet Finisher B836 cannot be installed with either the Perfect Binder D391 or Ring Binder D392.
- The Perfect Binder D391 and Ring Binder D392 cannot be installed together.



| | |
|----------|--|
| ① | Mainframe |
| ② | Multi Bypass Tray B833 |
| ③ | LCIT RT5010 (B834), or LCIT RT5000 (B832) Important! The Multi Bypass Tray (B833) must be installed on the LCT before the LCT is docked to the mainframe. |
| ④ | Transit Path Unit D391 (Relay Unit). Required for installation of the Perfect Binder D391. |
| ⑤ | Perfect Binder D391. |
| ⑥ | Cover Interposer Tray CI5010 B835 (Transport Unit) |
| ⑦ | Z-Folding Unit ZF4000 (B660) (or next peripheral in line) Important! <ul style="list-style-type: none"> The Transport Unit (base) of the Cover Interposer Tray is narrow and cannot fully support its tray unit. Part of the tray unit must rest on top of the Z-folding unit (or the next peripheral device installed to the left of the cover interposer). To prevent the Cover Interposer Tray from falling, always install the next peripheral device in line before installing the tray unit ⑧ of the Cover Interposer Tray. |
| ⑧ | Cover Interposer Tray (Tray Unit) |
| ⑨ | Finisher SR5000 (B830) |

BEFORE YOU BEGIN...

1.2.3 SPECIAL POINTS ABOUT INSTALLATION

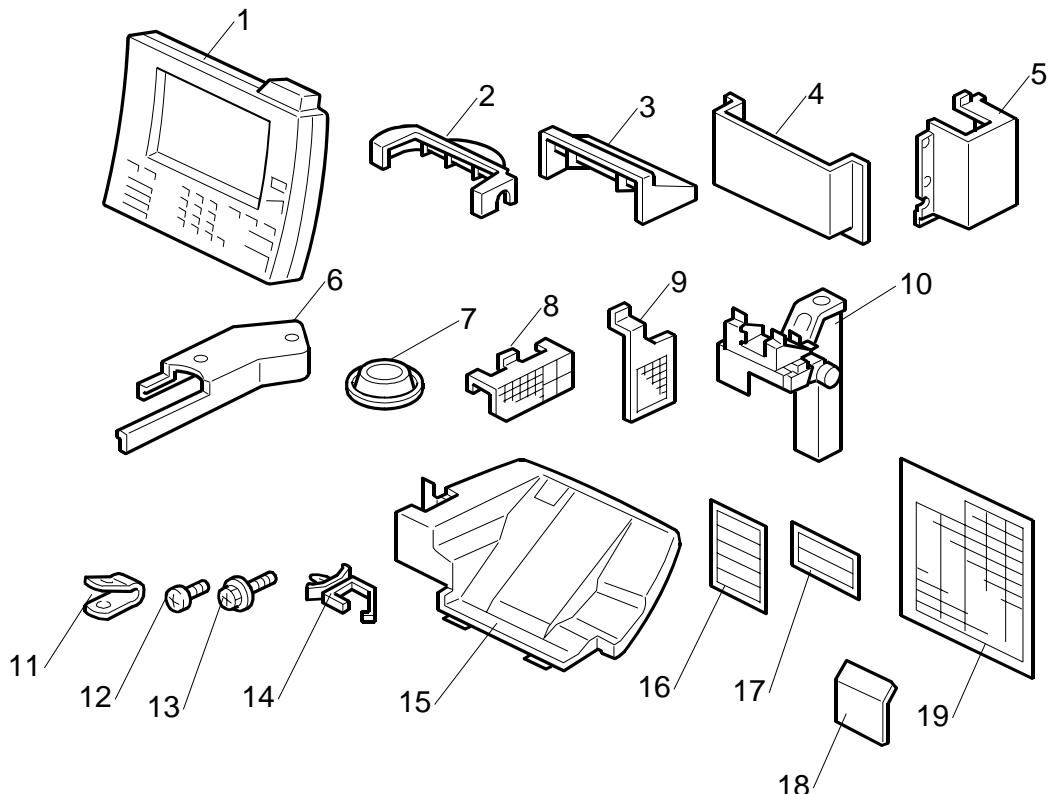
This table summarizes the recommended order of installation procedures, and describes some special points about installation of individual units.

| Item | Comments |
|---|---|
| 1.3 Copier (B234/B235/B236/D101/D102/D103) | <ul style="list-style-type: none"> First, install the copier (section 1.3.2). |
| 1.4 A3/11"x17" Tray Unit (B331-11) | |
| 1.5 LCIT RT5000 (B832) | |
| 1.6 LCIT RT5010 (B834) | The CIS of the image position sensor unit in the LCT must be calibrated at installation for both LCT units, B832 and B834 (procedure: 1-49). If you install the bypass tray, you must install it on the LCT before you dock the LCT with the machine. |
| 1.7 Multi Bypass Tray (B833) | The bypass tray can be installed on either the B832 (1-64, 1-68) or B834 (1-66, 1-68). |
| 1.8 Cover Interposer Tray CI5000 (B835) | The next peripheral device must be installed before completing the installation of the cover interposer tray (1-76) |
| 1.9 Z-Folding Unit ZF4000 (B660) | <ul style="list-style-type: none"> Before installing the Z-folding unit with the B236/D103(135 cpm) a gear must be replaced so the unit can keep pace with the higher speed of the B236/D103 (1-79) The breaker switch of the Z-folding unit must be tested before the unit is docked (1-83) |
| 1.10 Booklet Finisher BK5000 (B836) | The booklet finisher has no corner stapler. Corner stapling is done by the B830. |
| 1.11 Finisher SR5000 (B830) | |
| 1.12 Punch Unit PU5000 (B831) | |
| 1.13 Skew And Side-To-Side Adjustment | Due to the length of the paper path, if more than two peripheral devices are installed, the system must be tested and adjusted after installation. Do this procedure after installation of all peripheral units, or after adding a peripheral unit to the system after installation. (1-106) |
| 1.14 Key Card Counter MK1, MK4 | This installation can be done at any time. |
| 1.15 MFP Controller Options | <ul style="list-style-type: none"> Only one slot is available for applications. If more than one application is to be installed, all the applications must be merged onto 1 SD card. If the PS3 option will be installed, the applications must be copied onto the PS3 SD card. (1-124) Once an SD card is copied, it cannot be used in another machine. Copied SD cards serve as proof of purchase by the customer; therefore, copied SD cards must be stored on site inside the copier. (1-127) |
| 1.3 Copier (B234/B235/B236/D101/D102/D103) | <ul style="list-style-type: none"> Then, complete the installation (section 1.3.3). |

NOTE: Please refer to the Perfect Binder D391 and Ring Binder B392 manuals for the installation procedures for these peripheral units.

1.3 COPIER (B234/B235/B236/D101/D102/D103)

1.3.1 ACCESSORIES



COPIER (B234/B235/B236/D101/D102/D103)

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

| Description | Q'ty |
|--|------|
| 1. Operation Panel..... | 1 |
| 2. Lower Cover - Operation Panel Holder | 1 |
| 3. Upper Cover - Operation Panel Holder | 1 |
| 4. Operating Instruction Holder | 1 |
| 5. Right Arm Cover | 1 |
| 6. Operation Panel Arm | 1 |
| 7. Leveling Shoes | 4 |
| 8. Optics Dust Filter | 1 |
| 9. Dust Filter | 1 |
| 10. Operation Panel Unit Arm..... | 1 |
| 11. Metal Cable Clamp | 1 |
| 12. Philips Pan Head Screw - M4 x 6 | 1 |
| 13. Tapping Screw - M4 x 12 | 27 |
| 14. Nylon Harness Clamp..... | 1 |
| 15. ADF Exit Tray | 1 |
| 16. Face-up Decals..... | 1 |
| 17. Paper Loading Decals..... | 3 |
| 18. Copier Emblem | 1 |
| 19. Paper Size Decals | 1 |
| Model Name Plate (-10, -15, -22 machines) – not shown..... | 1 |
| Operating Instructions – not shown | 1 |

1.3.2 INSTALLATION

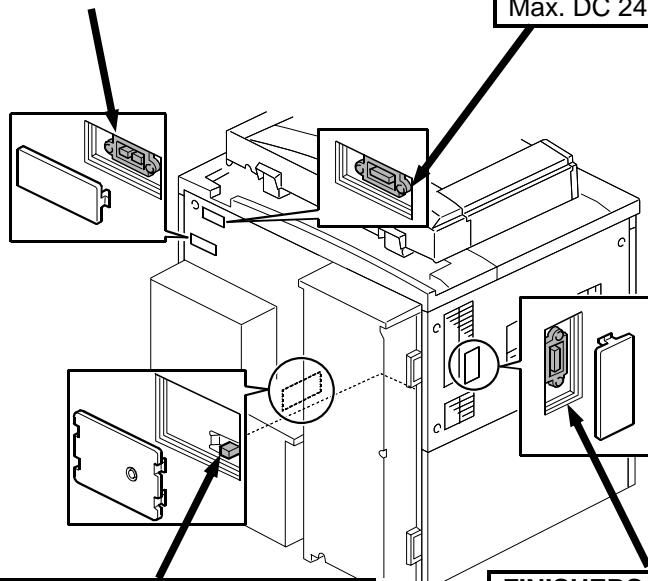
⚠ CAUTION

Rating Voltage for Peripherals

Make sure to plug the cables into the correct sockets.

LCT

"Rating Voltage of Output Connector for Accessory:
Max. DC 24 V"



LCT Anti-Condensation Heaters

"Rating Voltage of Output Connector for Accessory:
Max. AC 230 V ±10%"

ADF

"Rating Voltage of Output Connector for Accessory:
Max. DC 24 V"

FINISHERS

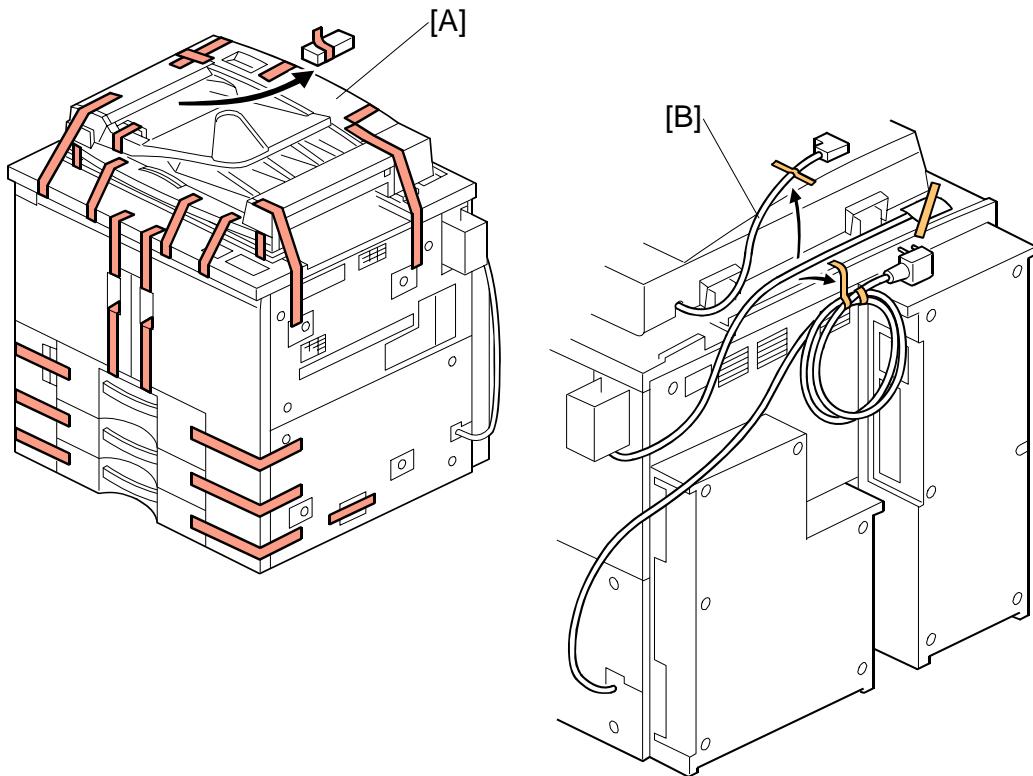
"Rating Voltage of Output Connector for Accessory:
Max. DC 24 V"

External Tape and Retainers

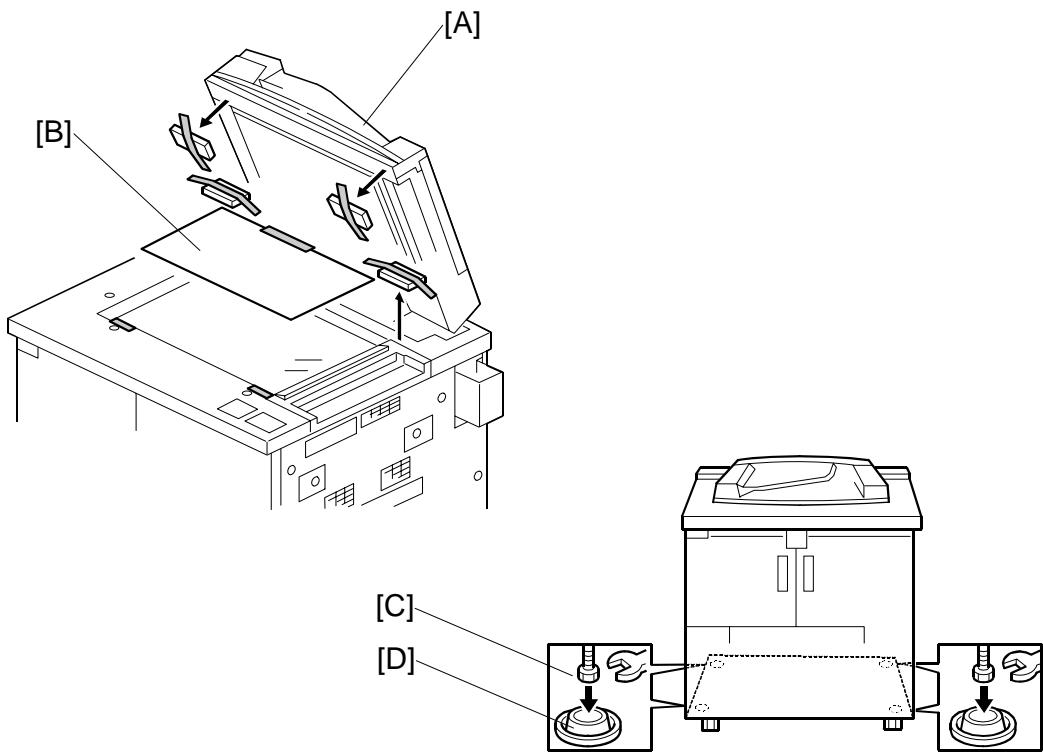
The installation procedure is not packed with the copier. Always bring this service manual with you.

CAUTION

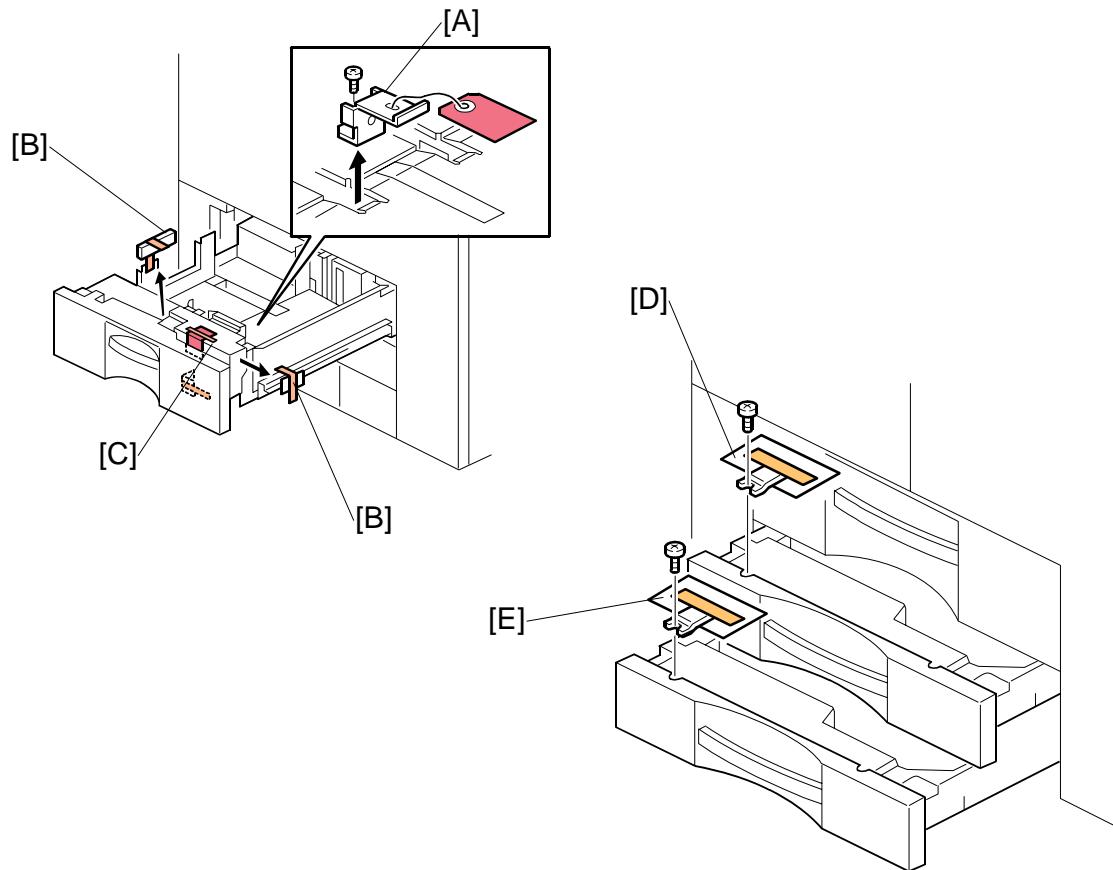
Before performing the following procedures, make sure that the machine is unplugged from the power source.



1. Remove all tape from the exterior [A].
 2. Remove the tape and retainers from the power cord and cables [B].
- NOTE:** Keep the shipping retainers after installing the machine. They can be reused if the machine is moved to another location in the future.

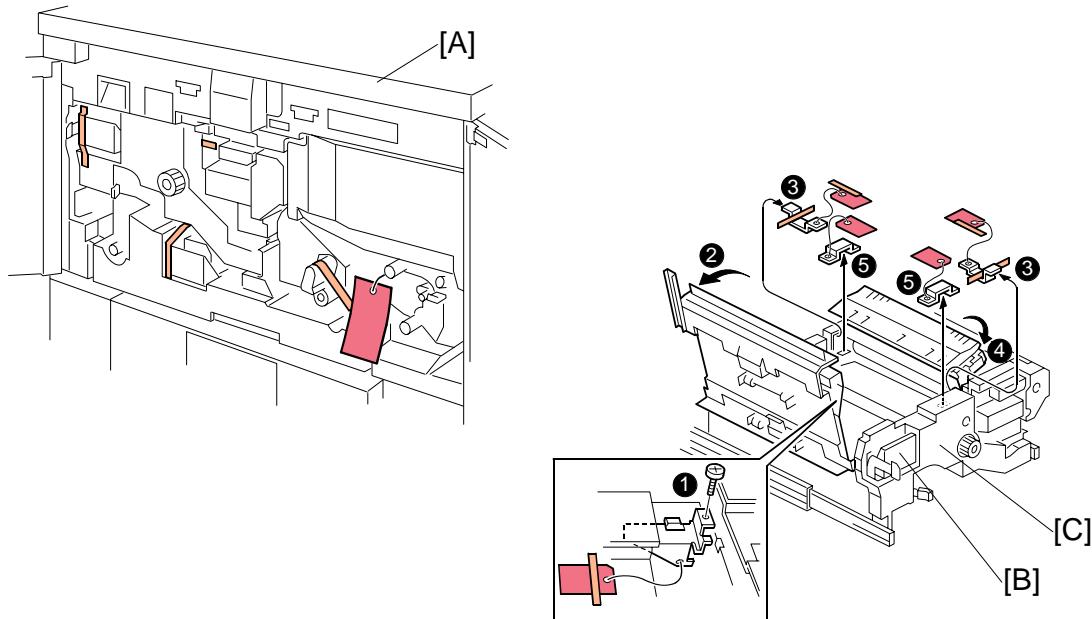


3. Remove all tape and retainers from under the ADF [A].
4. Remove A3 paper [B].
5. Set the leveling shoes [C] (x 4) under the feet [D], then level the machine.

Internal Tape and Retainers: Paper Trays

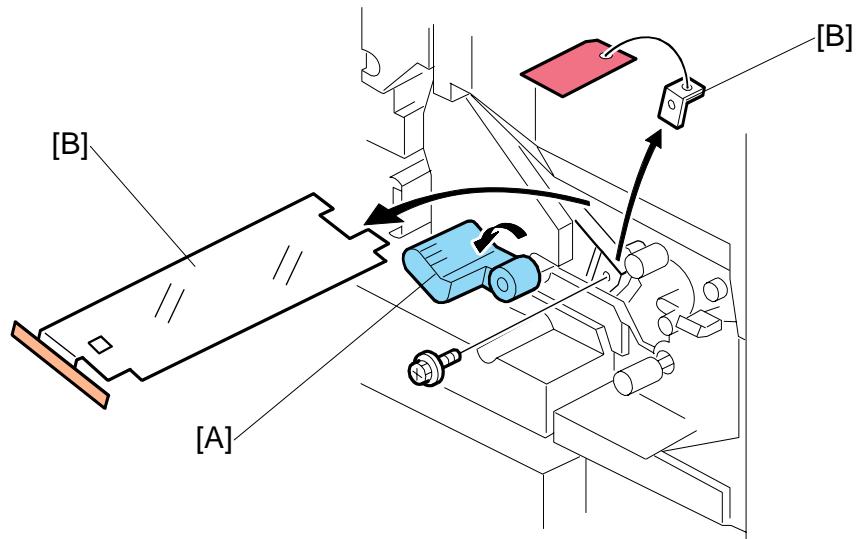
1. Pull out the tandem tray (1st tray) completely, remove the tray lock plate [A] (\wedge x 1) and remove the cushion [B].
2. Push in the right tray of the tandem tray, then remove the cushion [C].
3. Pull out the 2nd tray and remove the lock plate [D] (\wedge x 1).
NOTE: Be sure the re-attach the screw to the same hole. Do not discard the screw.
4. Pull out the 3rd tray and remove the lock plate [E] (\wedge x 1).
NOTE: Be sure the re-attach the screw to the same hole. Do not discard the screw.

NOTE: Retain item D and E since they will be used during servicing to activate the front door switches.

Internal Tape and Retainers: Fusing Unit

1. Open the front doors and remove all visible tape and retainers from inside the machine [A].
2. Press down lever **D2** [B], pull out the fusing unit [C], and remove all tape and retainers from the fusing unit:
 - ① Retainer (x1)
 - ② Raise **D3**.
 - ③ Remove retainer.
 - ④ Raise **D4**.
 - ⑤ Remove retainer.
3. Push in the fusing unit.

Internal Tape and Retainers: Transfer Unit



1. Lower the lever **C1** [A].
2. Remove all tape, tags, and retainers [B] from the transfer unit (x1).

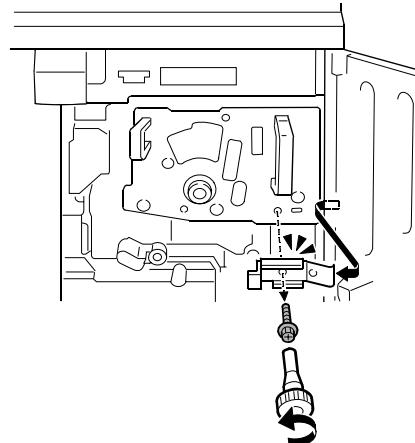
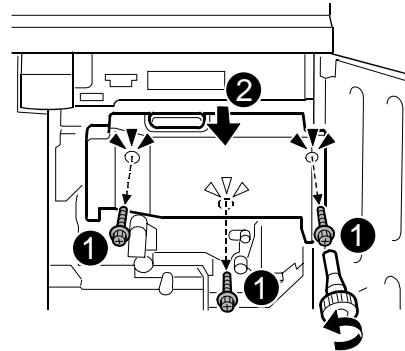
Internal Tape and Retainers: Drum Cleaning Unit

1. Open the right front door.
2. Remove the black screws at ① (\wedge x3).
3. Take off the inner cover ②.

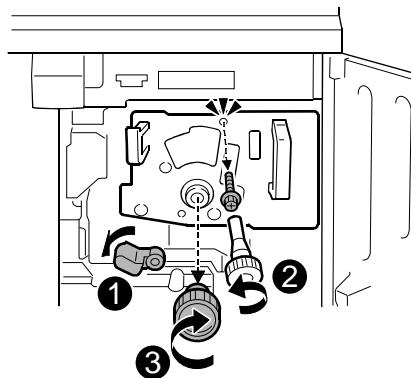
NOTE: These illustrations show removal using the hex driver provided to the customer. This tool is not required for removal of these screws. You can use a common Phillips head (plus) screwdriver to remove these screws.

Important! This cover functions as a duct in the ventilation path of the machine. It must be reinstalled.

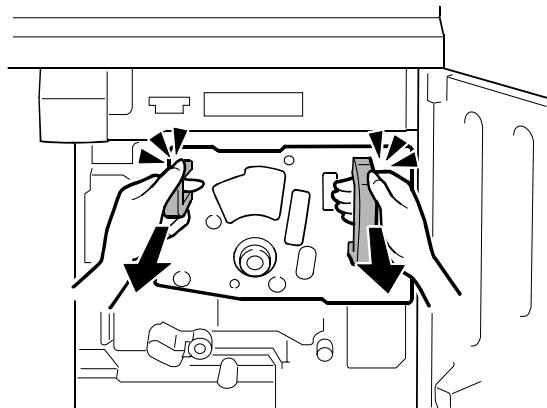
4. Remove the ground plate (\wedge x1)



5. Remove the faceplate.
 ① Lower C1 and remove the retainer (\wedge x1).
 ② Screw (\wedge x)
 ③ Remove the knob.

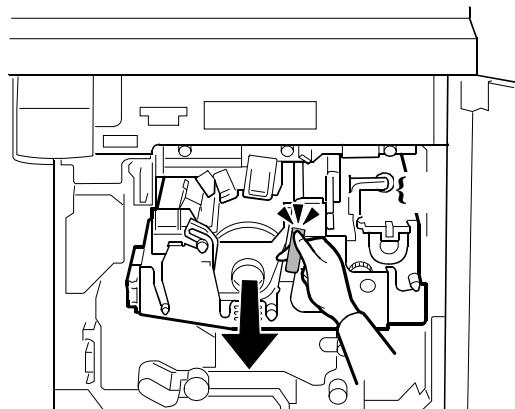


6. Remove the faceplate.



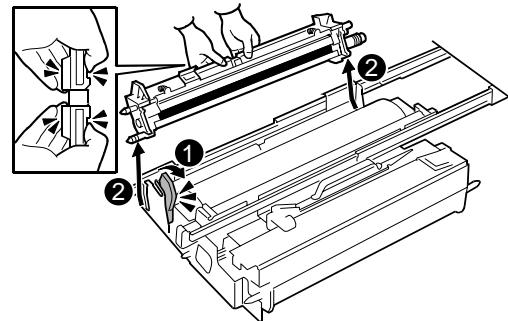
7. Pull the purple handle toward you until the drawer stops.

NOTE: The development unit { will shift slightly to the right as you pull the drawer out.

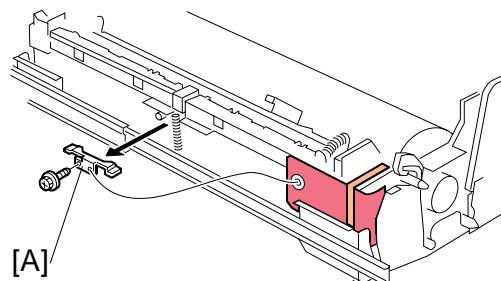


8. Remove the drum cleaning unit.
 - Raise the purple lever ① and pull the cleaning unit to the left ② until it disengages the lever
 - Lift the unit out of the drawer

Important: Grasp the cleaning unit by its handles as shown and lift it straight up.

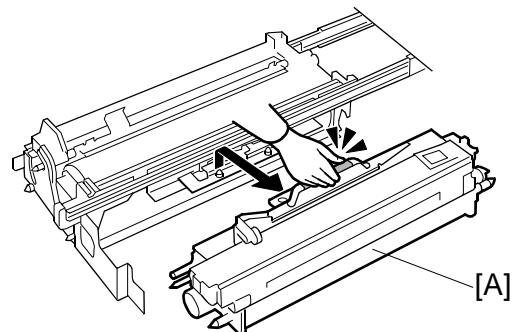


9. Remove the retainer [A] from the cleaning unit (☞ x1).

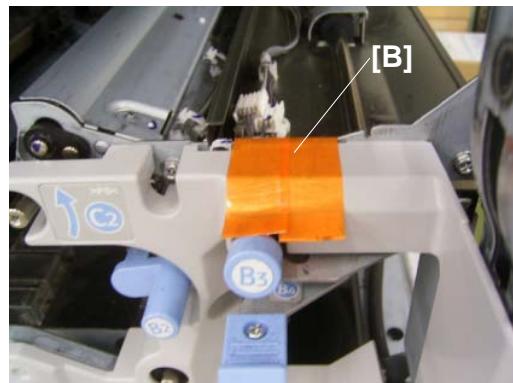


Pouring Developer

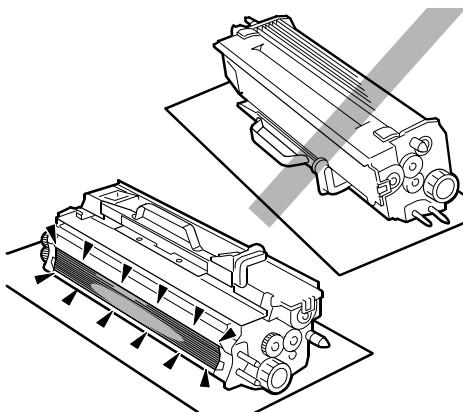
1. Lift the development unit [A] by its purple handle and hold it level as you remove it.



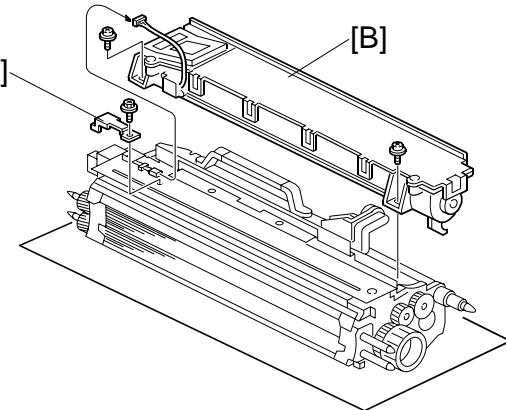
2. Remove the shipping tape from the inner cover [B].



3. Place the development unit on the spread paper as shown.

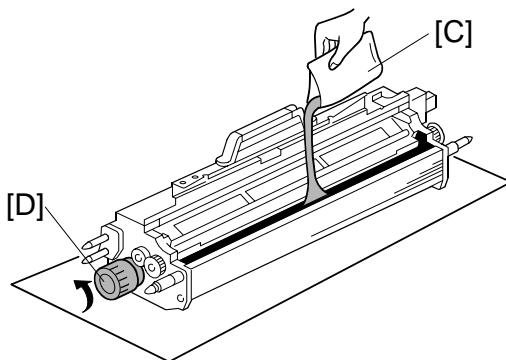


4. Remove the bracket [A] ( x1).
5. Disconnect the toner hopper [B] ( x1,  x2)
6. Tilt the hopper slightly when you remove it.



7. Pour the developer into the development unit.

- Move the toner packet [C] from side to side while you pour a small amount of toner across the length of the gap.
- Stop pouring and turn the knob [D] so the toner settles into the development unit.
- Repeat this sequence until the packet is empty.



8. Reattach the hopper to the development unit. ( x1,  x2)

Important:

- Confirm that the TD harness is connected properly.
- Confirm that the harness is not pinched.

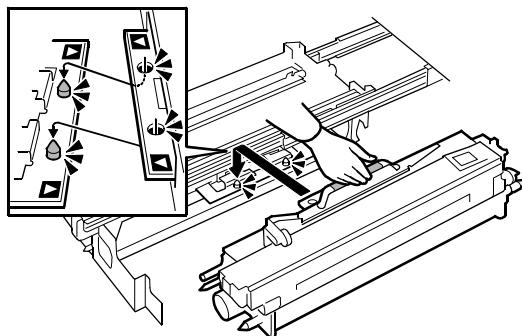
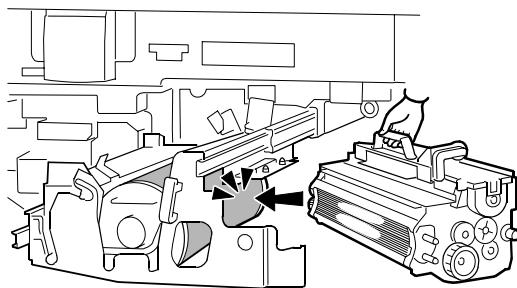
9. Set the connected harnesses between the toner hopper and the metal plate.

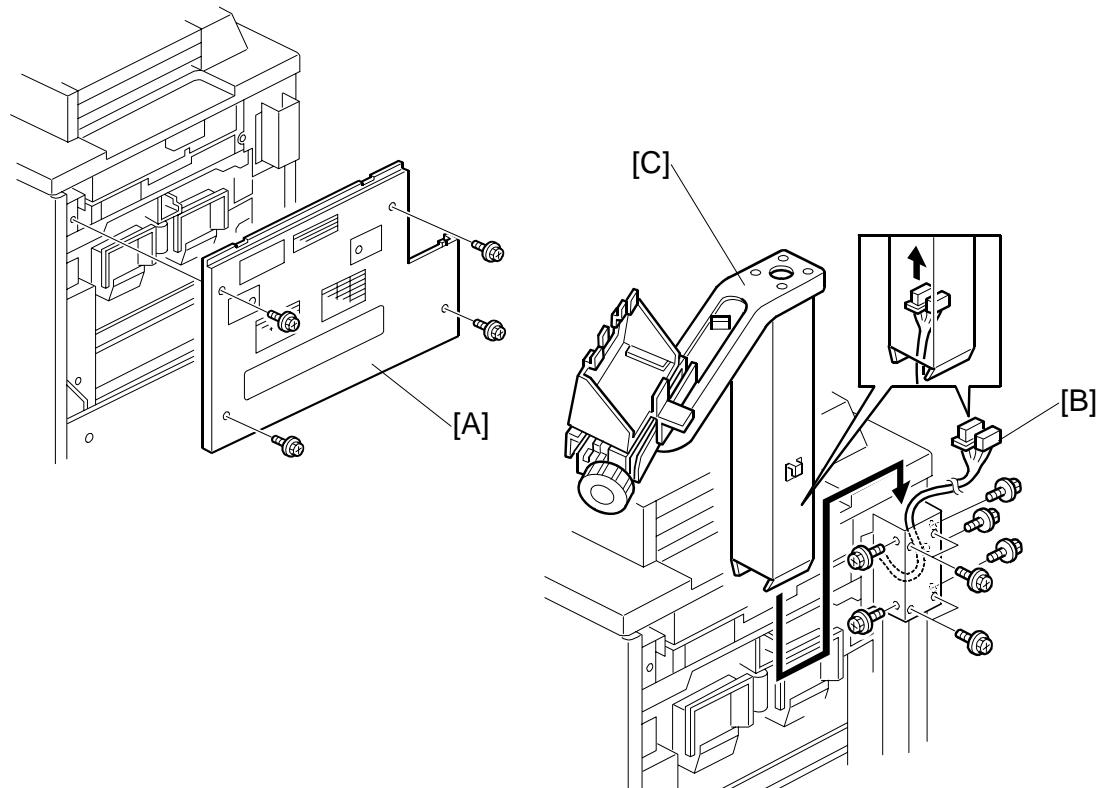
10. Re-attach the bracket (see the previous page) ( x1).

Reinstalling the Development Unit

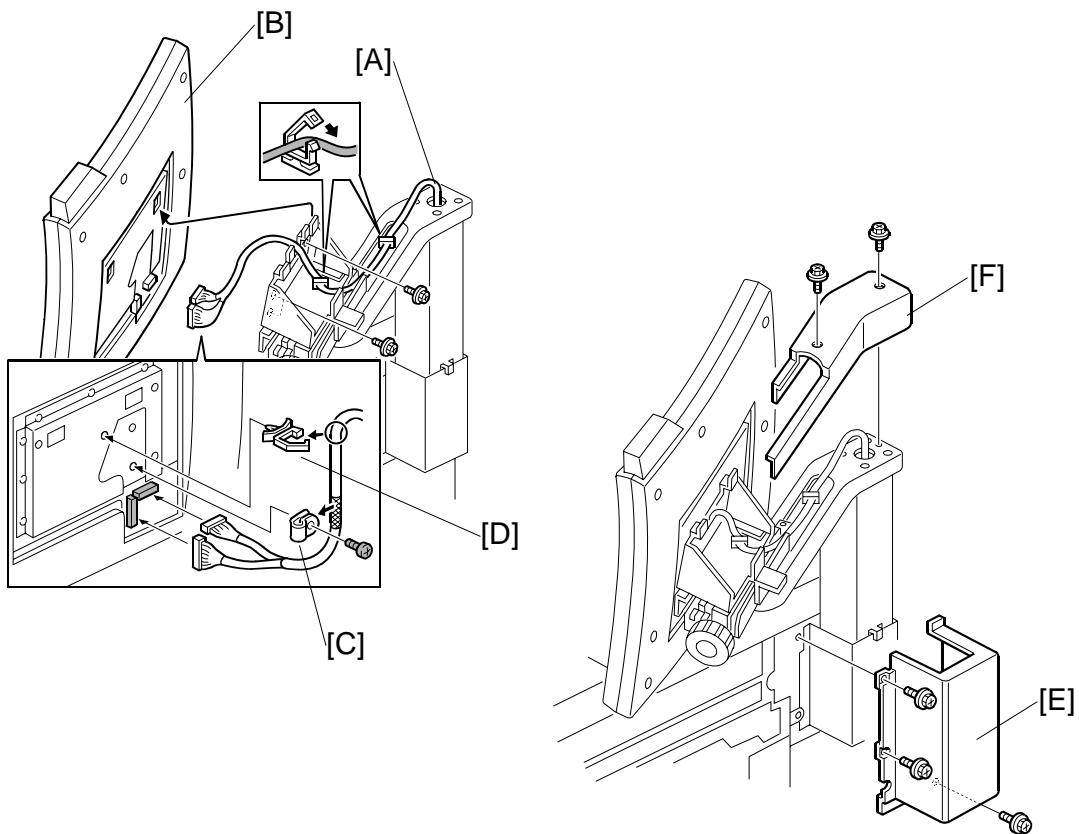
Important: When you reinstall the development unit, handle it carefully.

- Never allow the development roller to hit the OPC drum or any other part of the frame of the development unit drawer.
 - Scratches or other damage to either the drum or development roller will adversely affect the operation of the machine.
1. Align the triangular reference marks of the development unit and drawer frame.
 2. Place the holes on the edge of the development unit over the pegs on the drawer frame.
 3. Push the development unit drawer into the machine, reattach the faceplate and inner cover, then close the right front door.

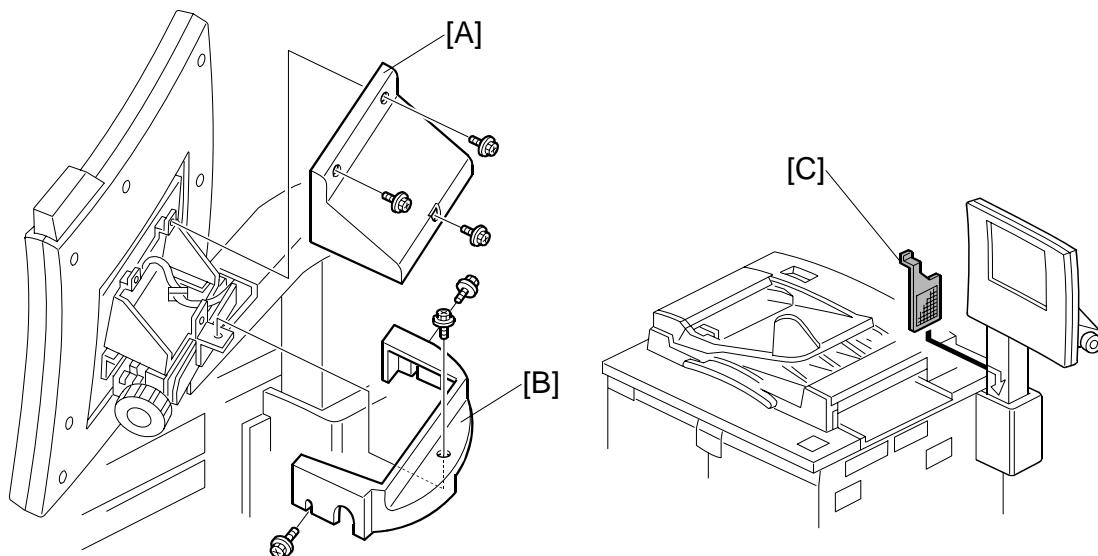


Operation Panel

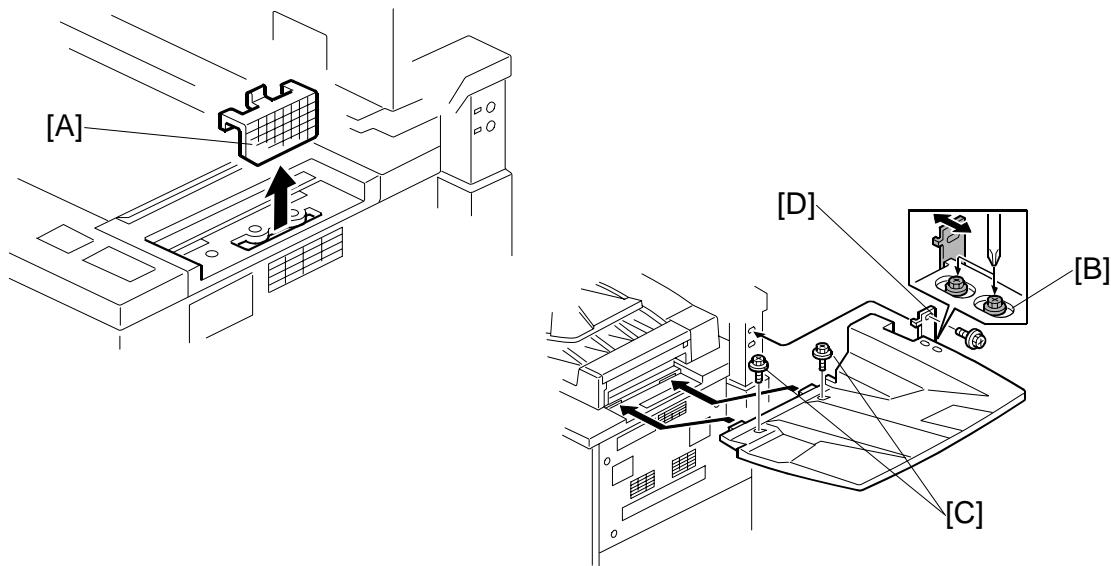
1. Remove the right upper cover [A] (\wedge x 4).
2. Pass the harness [B] through the arm [C].
3. Install the arm [C] (\wedge x 9).



4. Pull the harness [A] through the top of the arm and connect it to the operation panel [B] (x2).
5. Secure the harness clamp [C] on the operation panel (x 1, M4 x 6 brass pan head).
6. Install the operation panel on the arm (x 4).
7. Set the harness clamp [D].
8. Pass the harness through the clamps (x3).
9. Install the right arm cover [E] (x 3).
10. Install the arm upper cover [F] (x 2).

Filters, Original Exit Tray

1. Install the upper cover [A] (\wedge x 3)
2. Install the lower cover [B] (\wedge x 3).
3. Set the drum dust filter [C].
4. Loosen the bottom knob, adjust the view angle of the operation panel, then tighten the knob.
5. Loosen the side knob, adjust the tilt of the operation panel, then tighten the knob.



6. Set the optics dust filter [A].
7. Loosen the two screws of the bracket [B].
8. Attach the original exit tray at [C] ($\frac{1}{4}$ x 2) and [D] ($\frac{1}{4}$ x 1)
9. Re-tighten the screws of the bracket [B] ($\frac{1}{4}$ x 2).
10. Re-attach the right upper cover ($\frac{1}{4}$ x 4).
11. Remove the tape from the operating instructions holder and attach it to one of the front doors.
12. At the back of the machine, connect the ADF to the copier body.

Testing the Copier Breaker Switch

1. Plug the copier power cord into its power source.
NOTE: Do not turn on the copier. The copier should be off.
2. Use the tip of a small screwdriver to push the breaker test button.



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

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

3. Raise the switch to the "|" position for normal operation.

Important

- The copier will not turn on if the breaker switch is not returned to the "|" position.



Initializing the Machine

Important:

- Before you do this procedure, make sure that the front doors of the machine are closed.

1. Plug in the power cord and turn the main switch on.
2. Install the toner bottles.
3. When the machine is ready, enter SP mode:
 - 1) Press **C/©**.
 - 2) Enter “107”.
 - 3) Hold down **C/©** for more than 3 seconds.
4. Press “Copy SP” on the LCD, and perform the TD initial setting:
 - 1) Select **SP2801** (TD Sensor Initial Setting)
 - 2) Use the keys displayed on the screen and the numeric keys on the LCD to enter the developer Lot No., then press **#**.
NOTE: The Lot No. is embossed on the top edge of the developer packet.
 - 3) Press “Execute” on the LCD.
NOTE: This executes the TD initial setting. After about 1 minute, “Completed” is displayed on the screen, and the execution stops automatically.
5. Start to supply toner from the toner bank to the toner hopper:
 - 1) Select **SP2207 002** (Toner Bank Toner Setup).
 - 2) Press “Execute” on the LCD.
This procedure supplies toner to the toner hopper and the toner transport path. It will stop automatically in about 6 minutes. If **SP2207 002** fails after **SP2801** is completed (an SC code is displayed), repeat only **SP2207 002**.
6. Execute **SP2962** (Auto Process Control Execution).
NOTE: In step 2, if you enter SP mode immediately after switching the machine on, the system will not execute process control automatically. To ensure that process control calibrates its settings, use this SP to execute process control manually.
If SP 2962 fails, the setting of 3901 001 (auto process control setting) changes from ‘on’ to ‘off’.

Connecting the Copier Tray Heaters

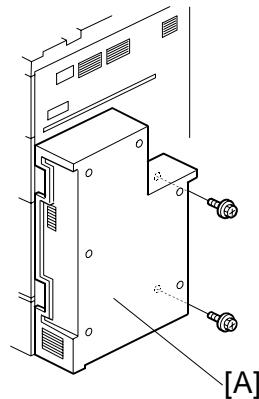
The machine comes from the factory with the tray heaters already installed but disconnected. Tray heater connection is optional. The heaters should be connected if the location has high humidity.

Consult with the customer before connecting the tray heaters.

Doing this procedure connects the following anti-condensation heaters inside the copier at the following locations:

- One unit below the transfer unit
- Two units in the paper tray unit (if installed)
- One unit in the scanner unit (if installed)
- One unit in the LCT (if installed)

1. Switch off the main power switch and disconnect the power cord from the power source.
2. Open the PSU box ( x 2).

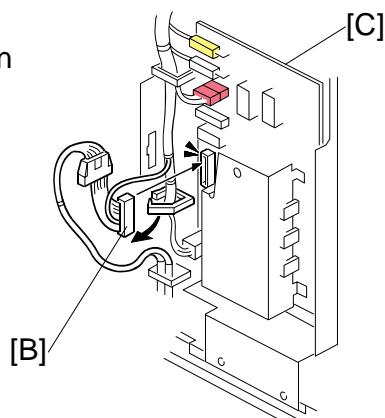


To set the connector

3. Connect the white connector [B] to **CN602** on the AC drive board [C].

NOTE:

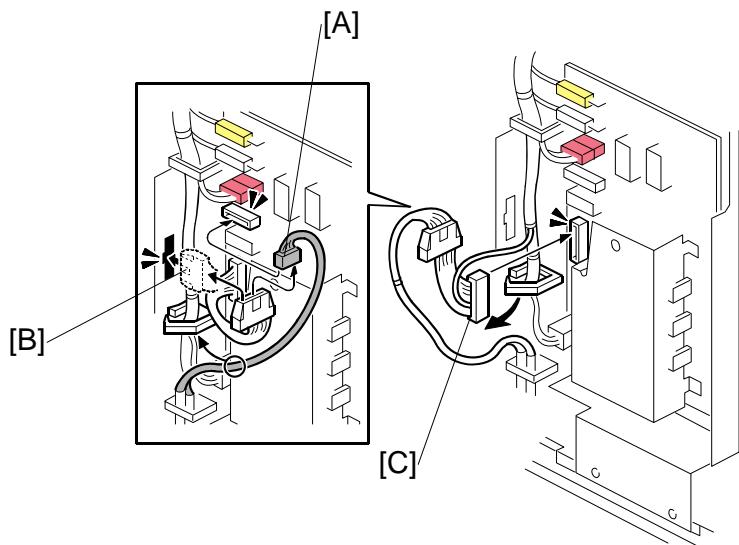
- Connect the large connector clamped beneath the board.
- This step is not required if the LCT anti-condensation heater will be connected.



To supply power 24 hours a day

Doing the connection in the previous procedure assures that power is supplied to the machine for the heaters even after the copier is switched off with the main power switch (for example, in auto off mode). However, with only this connection, the heaters do not operate while the copier is operating.

Another connection can be done so the heaters in the paper tray unit will switch on and off while the copier is operating. This connection will also allow the LCT heater (option) to operate while the copier is switched off with the main power switch (for example, in auto off mode). In energy saver and low power modes, the heaters switch off.



1. Remove the small connector [A] from the relay connector, then connect it to connector **CN606**.
2. Clamp the relay connector [B] to bracket of the AC drive board.
3. Connect the large connector [C] to connector **CN602** as described in the previous procedure.

1.3.3 COMPLETING THE INSTALLATION

Setting Paper Sizes for the Paper Trays

- Set the required paper sizes for all paper trays.

| Unit | Name | No. | Setting |
|-----------------------|--|-----|----------------------------------|
| Copier | 1st Tray | 1 | SP5019 002 |
| | 2nd Tray | 2 | Automatic side fence detection. |
| | 3rd Tray | 3 | Automatic side fence detection. |
| A4/LT LCT (B832) | 1st Tray | 4 | Paper size dial at rear of tray |
| | 2nd Tray | 5 | Paper size dial at rear of tray. |
| | 3rd Tray | 6 | SP5019 007 |
| A3/DLT LCT (B834) | 1st Tray | 4 | Automatic side fence detection. |
| | 2nd Tray | 5 | Automatic side fence detection. |
| | 3rd Tray | 6 | Automatic side fence detection. |
| Bypass Tray (B833) | --- | 7 | Automatic side fence detection. |
| Cover Inserter (B835) | 1 st and 2 nd Tray | --- | Automatic side fence detection. |

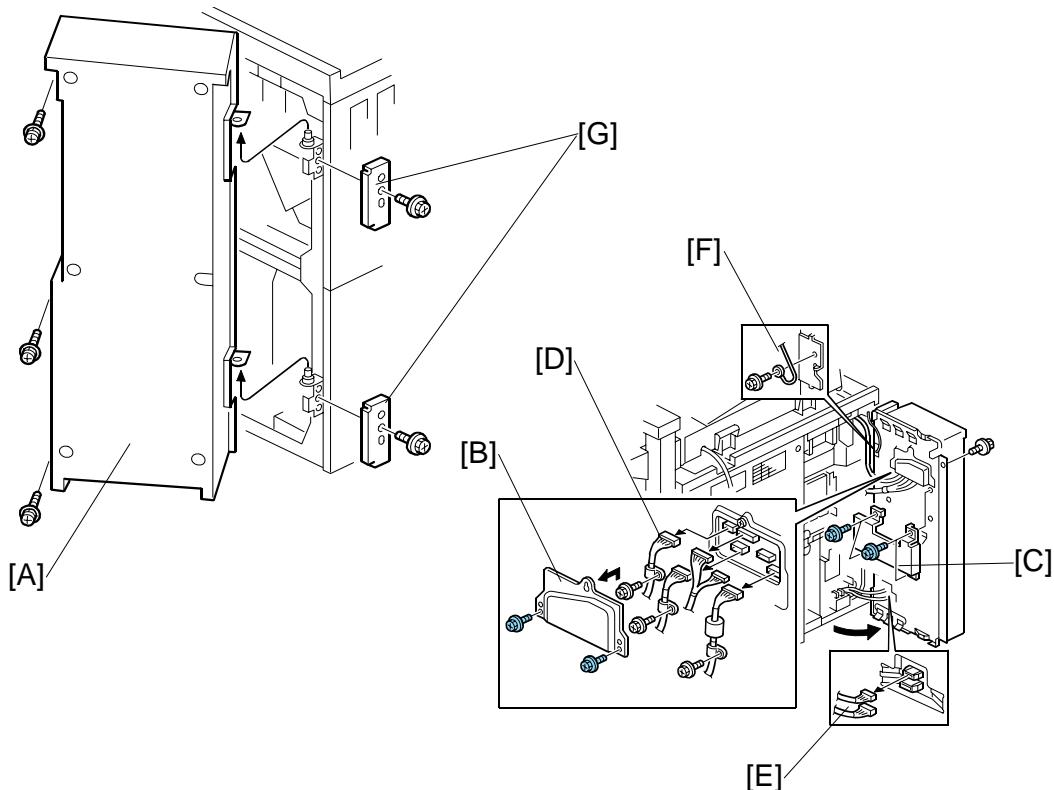
NOTE:If the customer wants to use a custom size, they must press the Tray Paper Settings button, then press the icon for the appropriate tray. Then they must press the Paper Size tab, select 'Custom Size', then input the required paper size.

- Attach the appropriate paper size decal to each tray (decals are provided in the accessories bag).
- Attach the face-up decal to the ADF.
- Check copy quality and machine operation.
- NOTE:**The first time the ADF is used, dust on the ADF transport belt will transfer to the exposure glass. To remove this dust, perform **SP6008-3** (DF Output Check) for 3 minutes, then check the exposure glass for dust and remove it.
- Input the supply name with **SP5841** (Supply Name Settings).
- Install the stamp data (**SP5853**). (→5.10.5)
- Input the following telephone numbers with SP 5812.
 - Service technician telephone number: SP 5812 001
 - Service technician fax number: SP 5812 002
 - For ordering consumables: SP 5812 003
 - Sales representative: SP 5812 004
- Install the language firmware if necessary.

1.3.4 CONTROLLER BOX, PSU BOX REMOVAL

Remove the controller box and PSU box only if the machine is too large to pass through a narrow door or passageway.

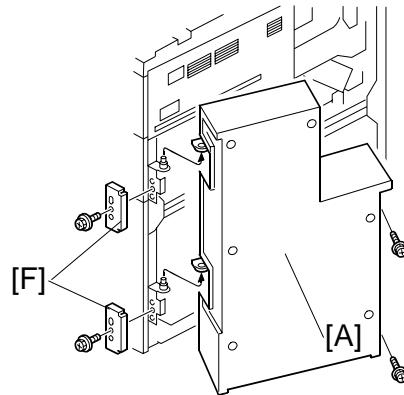
Controller Box Removal



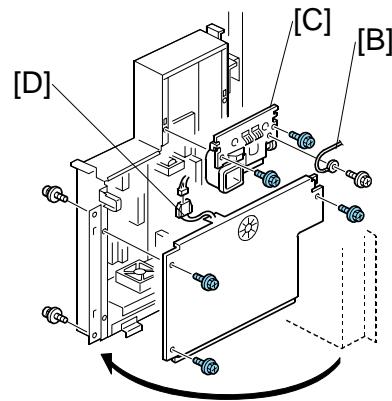
1. Open the controller box [A] (\wedge x 3 with washers).
2. Remove 1st connector cover [B] (\wedge x2).
3. Remove 2nd connector cover [C] (\wedge x2)
4. Disconnect [D], [E] (\square x9)
5. Disconnect the ground wire [F] (\wedge x1)
6. Remove the hinge covers (top, bottom [G]) (\wedge x2)
7. Remove the controller box [A]

PSU Box Removal

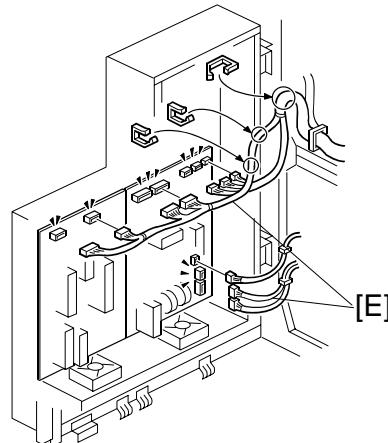
1. Open the PSU box [A] (\wedge x 2).



2. Disconnect ground wire [B] (\wedge x 1).
3. Remove duct [C] (\wedge x 3)
4. Disconnect [D] (\square x1).
5. Remove the cover ① (\wedge x 3).



6. Disconnect connectors [E] (\square x10)
7. Remove the hinge covers (top, bottom) [F] (\wedge x 2)
8. Remove the PSU box.



1.3.5 TRANSPORTING THE COPIER

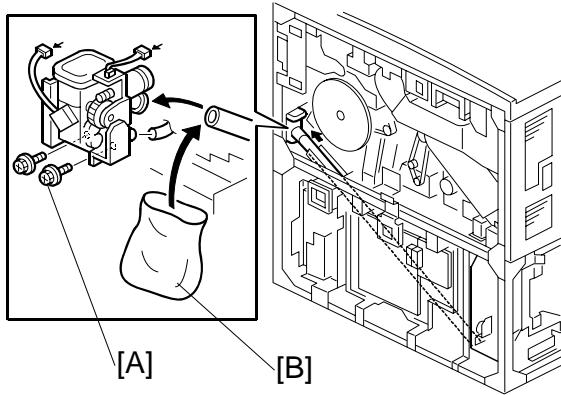
To prevent blockages in the toner supply path, always follow the procedure below before transporting the copier. If this procedure is not done, **SC592** (Toner Bank Motor Error) or **SC495** (Toner Bottle Unit Error) may be displayed, requiring replacement of the toner transport hose and coil.

CAUTION

To prevent damaging the toner supply coil inside the toner transport hose, never bend the toner hose. If the coil is bent, SC592 will be displayed and the hose must be replaced. Use care performing step 8-11 below.

Before Moving the Copier

1. Use **SP5804 041** (Upper Bottle) and **SP5804 042** (Lower Bottle) to close the toner caps.
2. Turn off the operation switch.
NOTE: If you turn off the main power switch, you cannot remove the toner bottles.
3. Then remove the toner bottles from the toner bank.
4. Remove the rear cover.
5. Open the PSU box and controller box (do not remove them!).
6. Remove the left upper cover, left lower cover, and right upper cover.
7. Remove the two screws [A] securing the toner supply cylinder.
8. Cover the end of the toner transport coil tube [B] with a plastic bag.
9. Turn on the operation switch.
10. Execute **SP5804 038** (Output Check – Toner Bank Motor) and **SP5804 039** (Output Check – Toner Supply Coil Clutch) to actuate the toner bank motor and toner supply coil clutch for 2 minutes and remove all toner in the supply hose.
11. Re-install all removed parts except the toner bottles.
12. Make sure that three tubes are connected to the toner supply cylinder when putting it back.



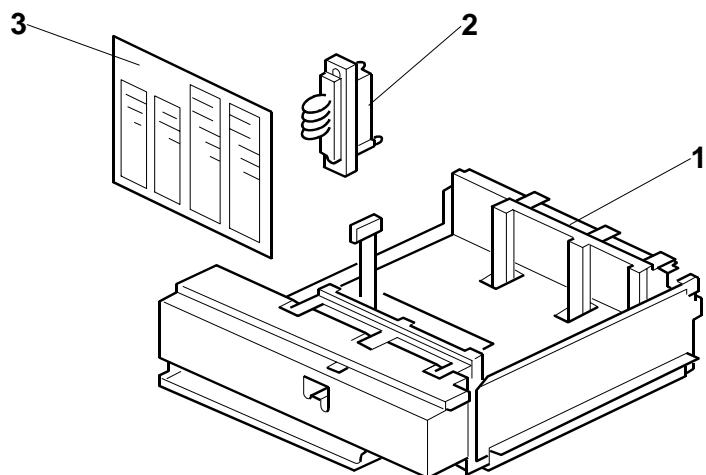
After Moving the Copier

1. Turn the main power switch on.
2. Load the toner bottles into the toner bank.
3. Start to supply toner from the toner bank to the toner hopper:
 - 1) Select SP2207 002 (Toner Bank Toner Setup).
 - 2) Press "Execute" on the LCD.

This procedure supplies toner to the toner hopper and the toner transport path. It will stop automatically in about 6 minutes. If **SP2207 002** fails after **SP2801** is completed (an SC code is displayed), repeat only **SP2207 002**.

1.4 A3/11"X17" TRAY UNIT TK5000 (B331-11)

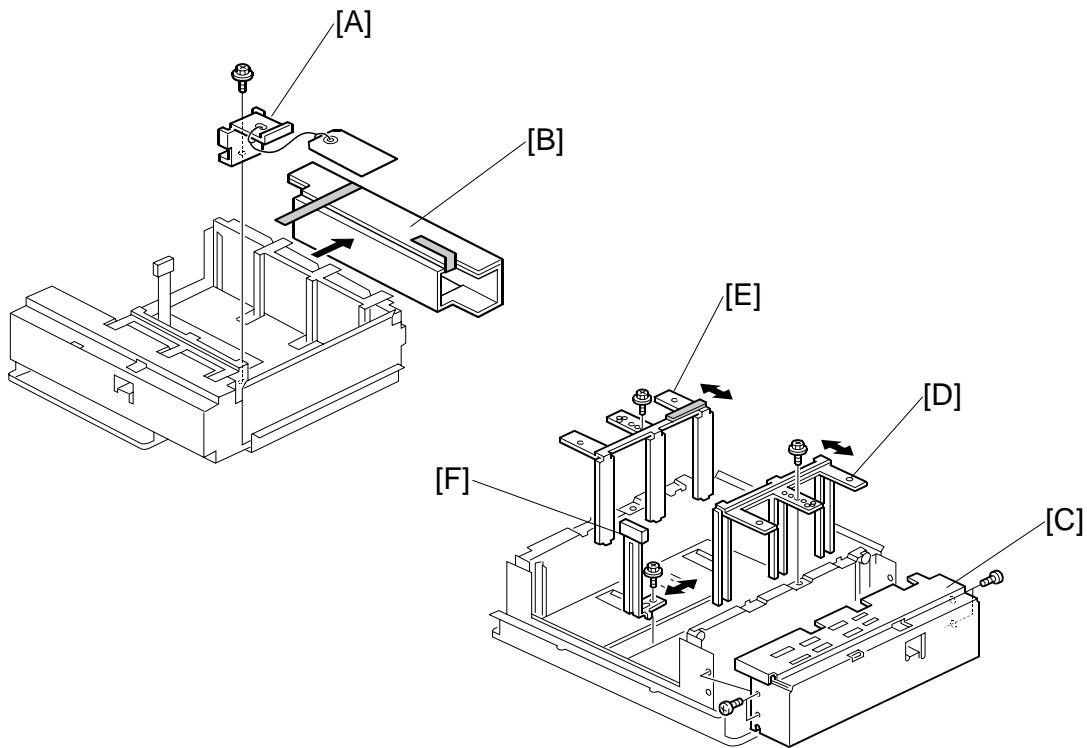
1.4.1 ACCESSORIES



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. Paper Size Decal | 1 |

1.4.2 INSTALLATION

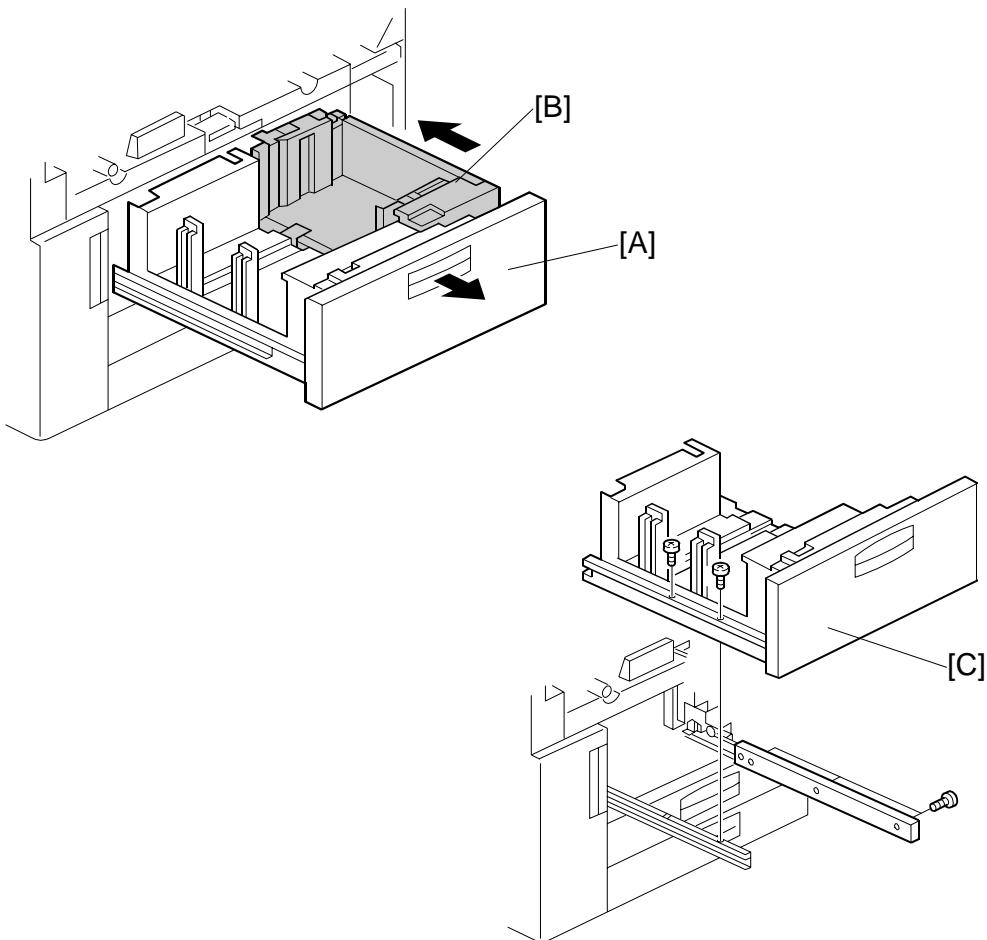


CAUTION

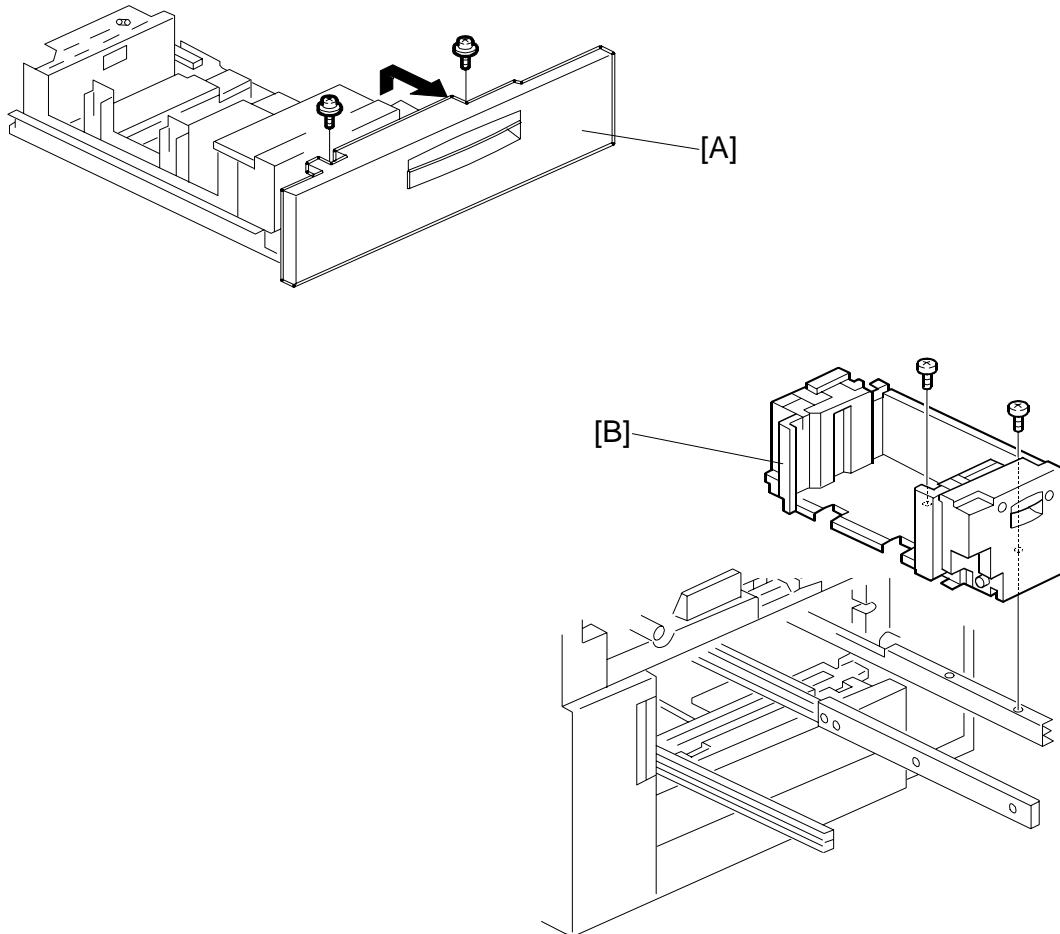
Switch the machine off and unplug it from the power source before starting the following procedure.

1. Remove the shipping material [A] and metal retainer [B] ($\frac{1}{4}$ " x 1).
2. Check the position of the front and back side fences and make sure that they are set for DLT or A3.
3. If you need to adjust the positions of the side fences for the paper to be loaded in the tray, remove the front panel [C] ($\frac{1}{4}$ " x 4).
4. Remove the fences and adjust their positions for the paper to be loaded: front fence [D] ($\frac{1}{4}$ " x 1), back fence [E] ($\frac{1}{4}$ " x 1), and end fence [F] ($\frac{1}{4}$ " x 1)

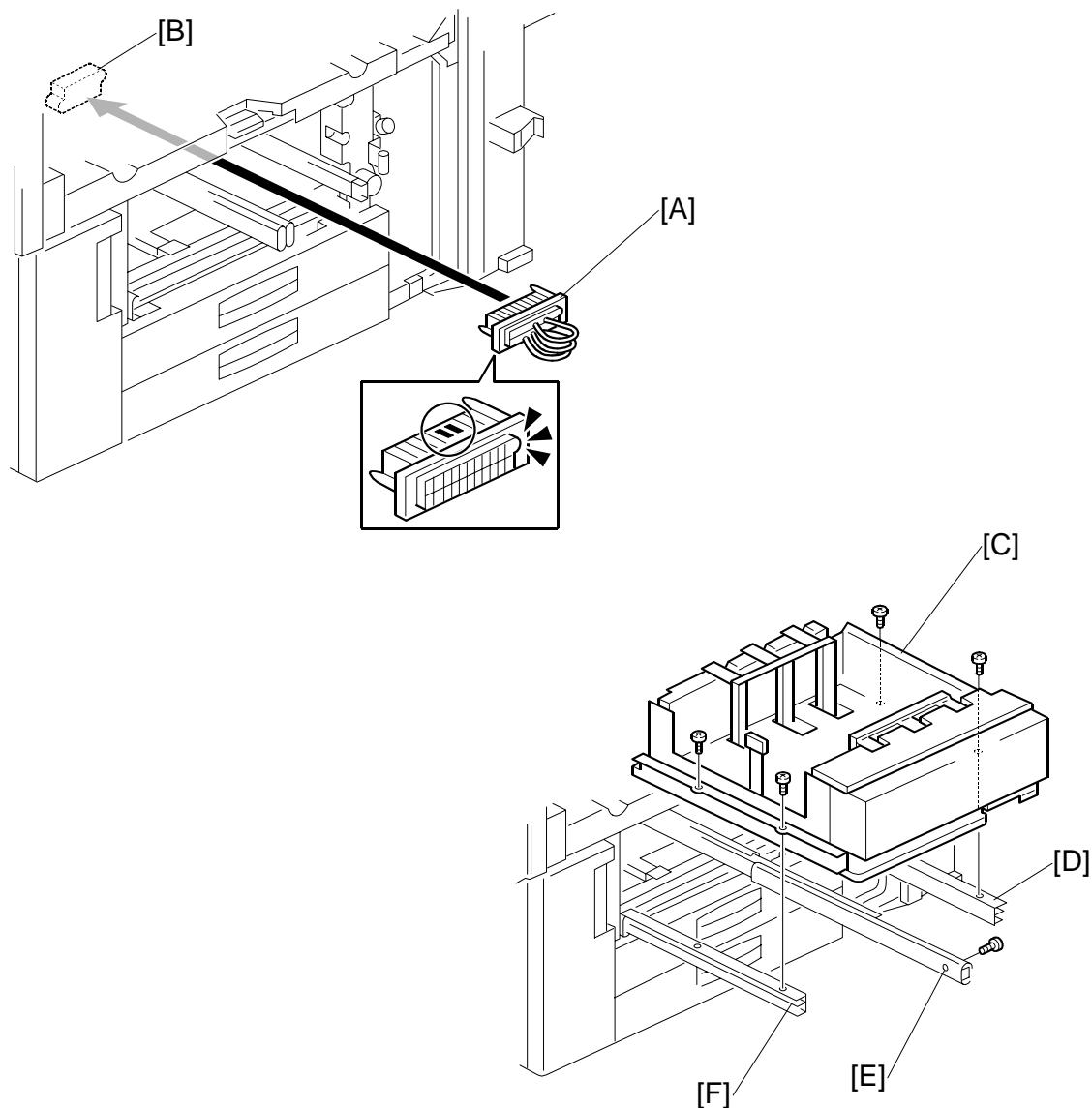
A3/11"X17" TRAY UNIT TK5000 (B331-11)



5. Open the front doors.
6. Pull out the tandem feed tray [A] completely.
7. Push the right tandem tray [B] into the machine.
8. Remove the left tandem tray [C] ($\frac{1}{2} \times 2$ left, $\frac{1}{2} \times 3$ right).



9. From the left tandem tray, remove the front cover [A] (x 2).
10. Pull out the right tandem tray [B] then remove it. (x 2).

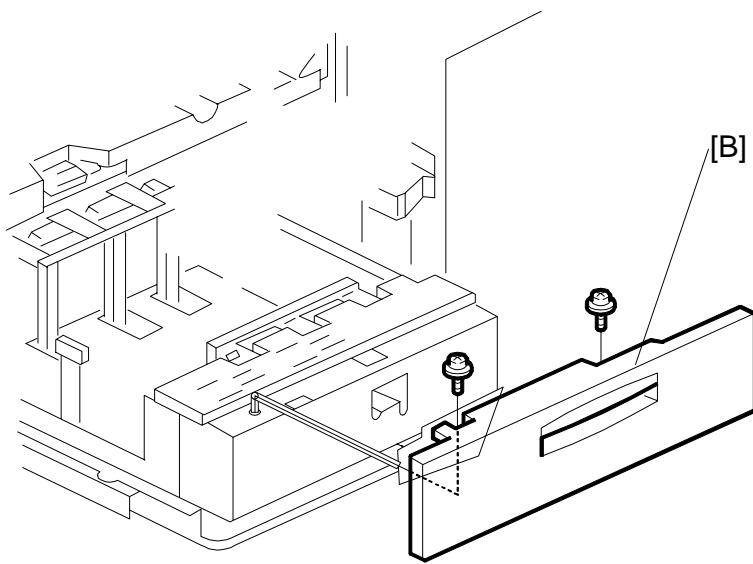


11. Insert the short connector [A] into the socket inside the machine [B].

NOTE: Hold the connector as shown in the illustration.

12. Using the screws removed in Steps 8 and 11, install the tray [C] on the right rail [D], center rail [E], left rail [F].

NOTE: You must use the short, silver screws on the left and right rails. If you use one of the longer screws, it will block the movement of the tray on the rails.



13. Re-install the front cover [A] (\wedge x 2).
14. Use **SP5019 002** to select the paper size for Tray 1 (A3 or DLT).
15. After selecting the paper size, switch the machine off and on to change the indicator on the operation panel.

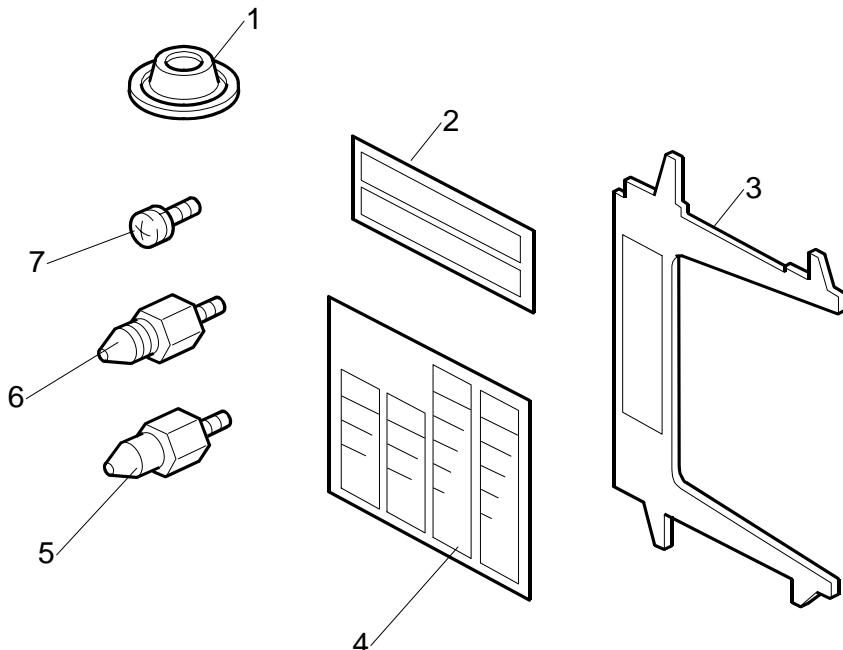
1.5 LCIT RT5000 (B832)

1.5.1 ACCESSORIES

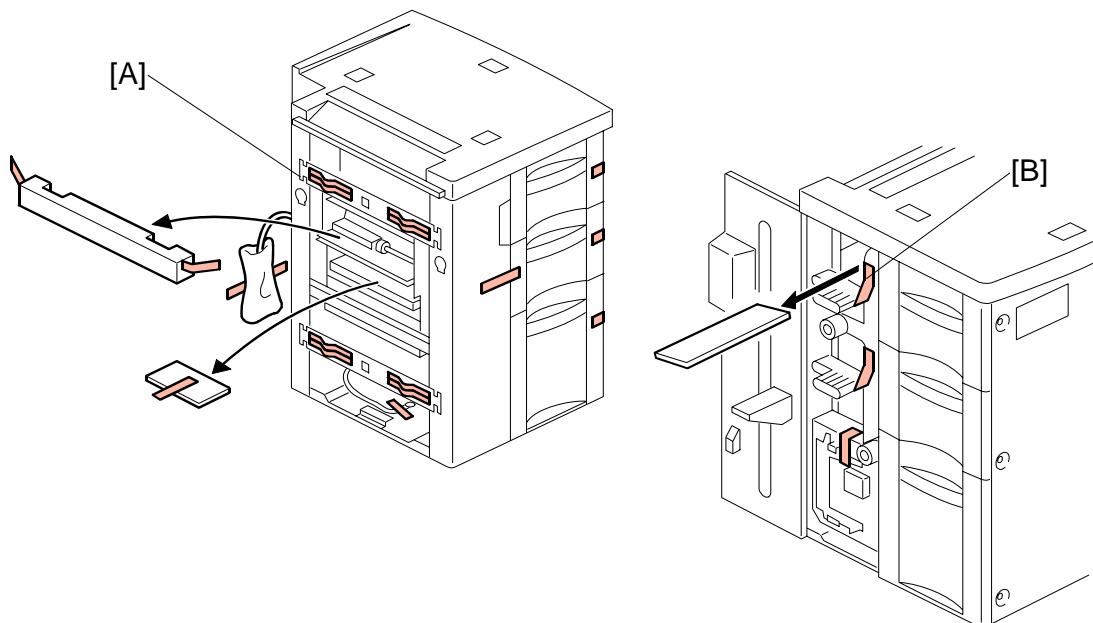
Check the quantity and condition of the accessories in the box against the following list:

| Description | Q'ty |
|---|------|
| 1. Leveling Shoes | 3 |
| 2. Decal – Paper Set..... | 3 |
| 3. Tab Paper End Fence..... | 1 |
| 4. Decal – Paper Size | 1 |
| 5. Lower Joint Pins | 2 |
| 6. Upper Joint Pins | 2 |
| 7. Philips Screw - M4 x 8 | 1 |
| Installation Procedure – English (not shown)..... | 1 |

NOTE: The tab paper end fence (3) is located in the LCT unit, mounted on hooks behind the front door.



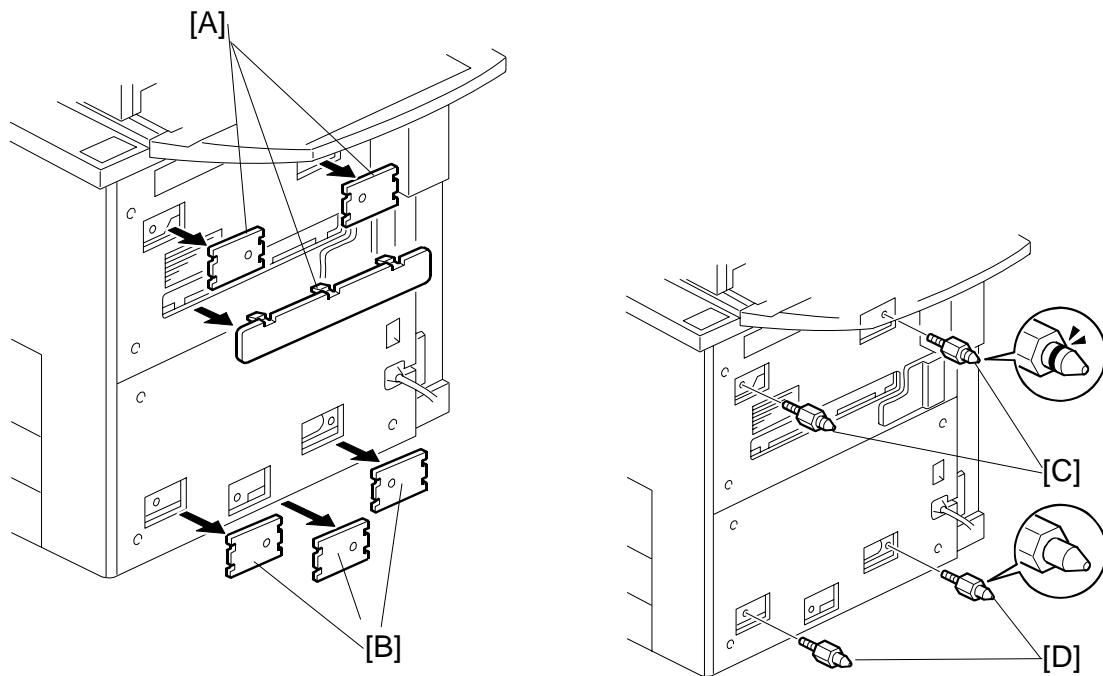
1.5.2 INSTALLATION



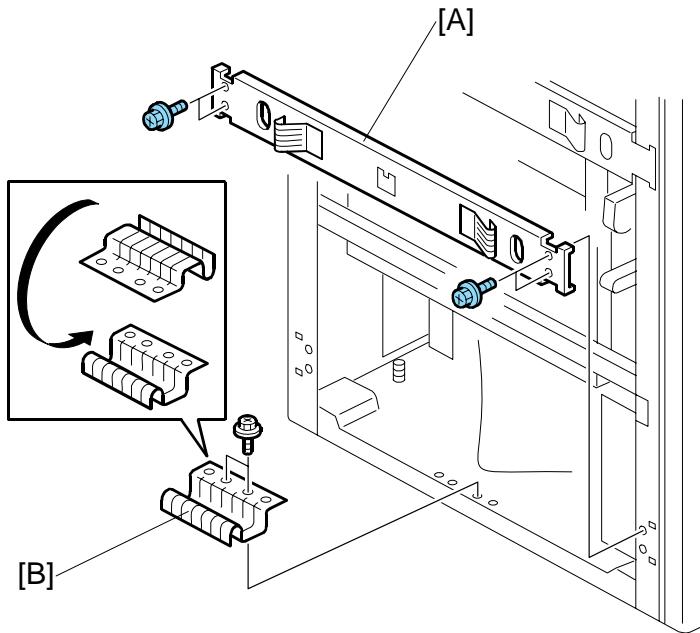
CAUTION

Unplug the power cord before starting the following procedure.

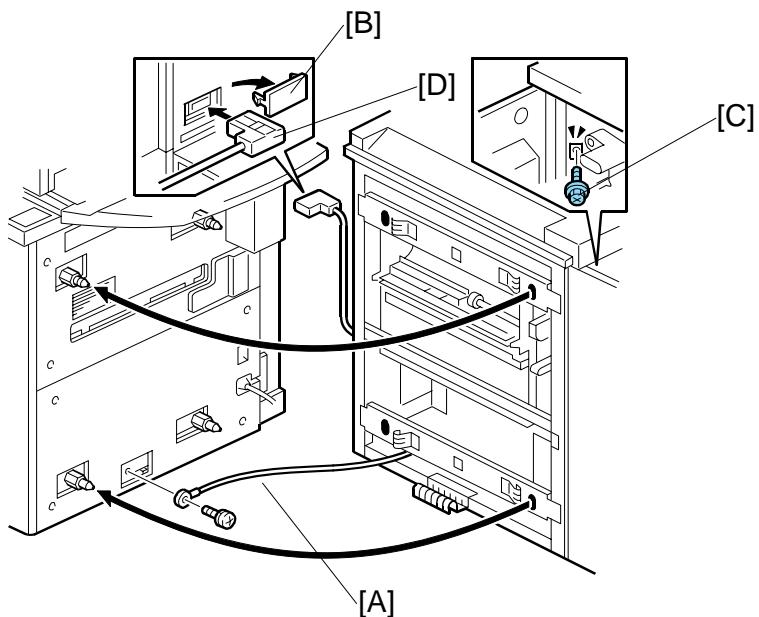
1. Remove the visible tape and other items [A] from the covers and left side of the LCT.
2. Open the LCT door and remove the shipping retainers and tape [B] holding the levers.



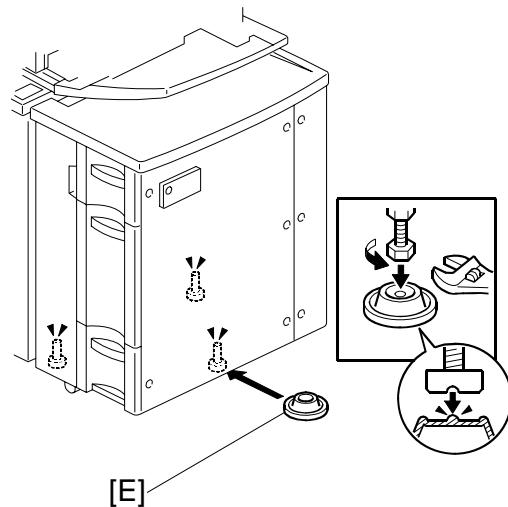
3. Remove the covers [A] from the right upper side.
4. Remove the covers [B] from the right lower side.
5. Install the pins with the grooved rings [C] on the right upper cover.
6. Install the other pins [D] on the right lower cover.



7. Remove the lower stay [A] (\wedge x 4).
 8. Remove the two screws that secure the ground plate [B].
 9. Turn over the ground plate and use the screws to fasten it to the same holes as shown (\wedge x 2).
- Important!**
- If you are going to install the Multi Bypass Tray B833, it must be installed before the LCT is docked to the mainframe. (☞1.7)



10. Move the LCT to the right side of the copier.
11. Fasten the ground wire [A] (\wedge x 1).
12. Remove cover [B].
13. Open the LCT front door and remove screw [C] (\wedge x 1).
14. Align the LCT on the joint pins, and dock the LCT with the right side of the copier.
15. Fasten screw [C] to lock the LCT to the side of the copier.
16. Attach connector [D].
17. Insert the leveling shoes [E] (x 3) under the leveling feet and level the LCT.
18. Attach the appropriate decals to the trays.



Procedure 1

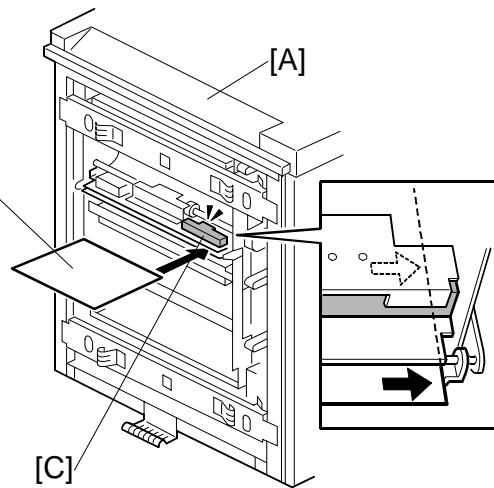
1.5.3 ADJUSTING IMAGE POSITION SENSOR STRENGTH AND SIDE-TO-SIDE REGISTRATION

The CIS inside the LCT must be calibrated. The two CIS assemblies inside the copier are calibrated at the factory. This is not possible for the LCT because the LCT and copier are not together at the factory.

This is a common procedure that must be done for either LCT (B832 or B834).

CIS Image Position Adjustment: LED Strength (LCIT)

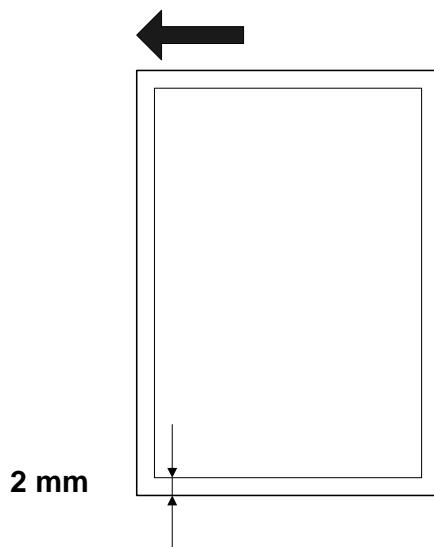
1. Turn OFF the main power switch.
2. Disconnect the LCT from the mainframe.
3. With the LCT [A] separated from the mainframe, reconnect the LCT cable to the mainframe.
4. Turn ON the main power switch.
5. Insert one sheet of plain white paper [B] in the paper path.
6. Make sure that the paper covers the entire area below the image position sensor (CIS) [C].
7. Enter the SP mode and do **SP1910 002** (CIS Image Position Adjustment: LED Strength - LCT). This calibrates the amount of light to be emitted from the CIS.
8. Do **SP1909 002** (CIS Image Position Adjustment: PWM After Adjustment - LCT).
 - If the displayed value is between 20 (14h) and 40 (28h), the CIS is calibrated successfully. (The display is in hexadecimal code.)
 - If the value is outside this range, do **SP 1910 002** and **1909 002** again. If the value does not come between 20 and 40, the CIS may be defective.
9. Exit the SP mode and turn OFF the main power switch.
10. Remove the paper from the machine.
11. Reattach the LCT to the side of the copier.
12. Turn ON the main power switch.



Procedure 2

CIS Image Position Adjustment: Normal Paper (LCIT)

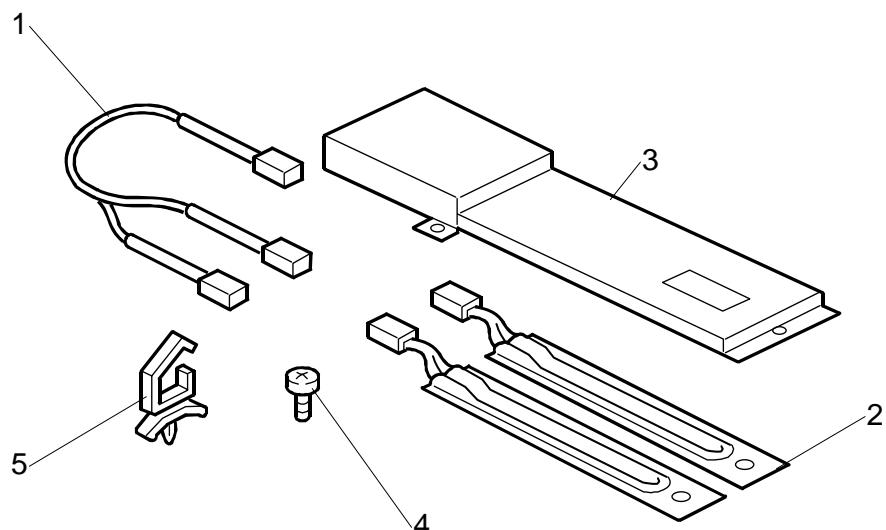
13. Push [User Tools]> [Adjust Settings for Operators].
14. Do **SP1911** for Trays 4, 5, 6, and 7, and set the value for each tray to "0" (OFF).
15. Enter the SP Mode menu.
16. Adjust the image positions in the main scan direction.
 - Do **SP2902 003**, select Pattern **27**, then print the trimming pattern.
 - Do **SP1002** and adjust the image position in the main scan direction for Trays 4, 5, 6, and 7.
 - Print the trimming pattern from each tray of the LCT and from the bypass tray (if installed).
 - To do this, touch "Copy Window" in the SP display, select a tray, then push [Start].
 - The distance of the test pattern line from the paper edge for each tray must be 2 mm. If it is not 2 mm, adjust with **SP1002 004** to **007**, depending on which tray is not within the specified 2 mm.
17. Print the trimming pattern (pattern27) one more time.
18. Do **SP1912 002** (CIS Image Position Adjustment: Normal Paper). This sets the CIS for operation with standard copy paper.
19. Exit the SP mode. Push [User Tools]> [Adjust Settings for Operators].
20. Do **SP1911** again (CIS Image Position Adjustment: Feed Setting) and reset the values for Trays 4, 5, 6, and 7 to "1" (ON).

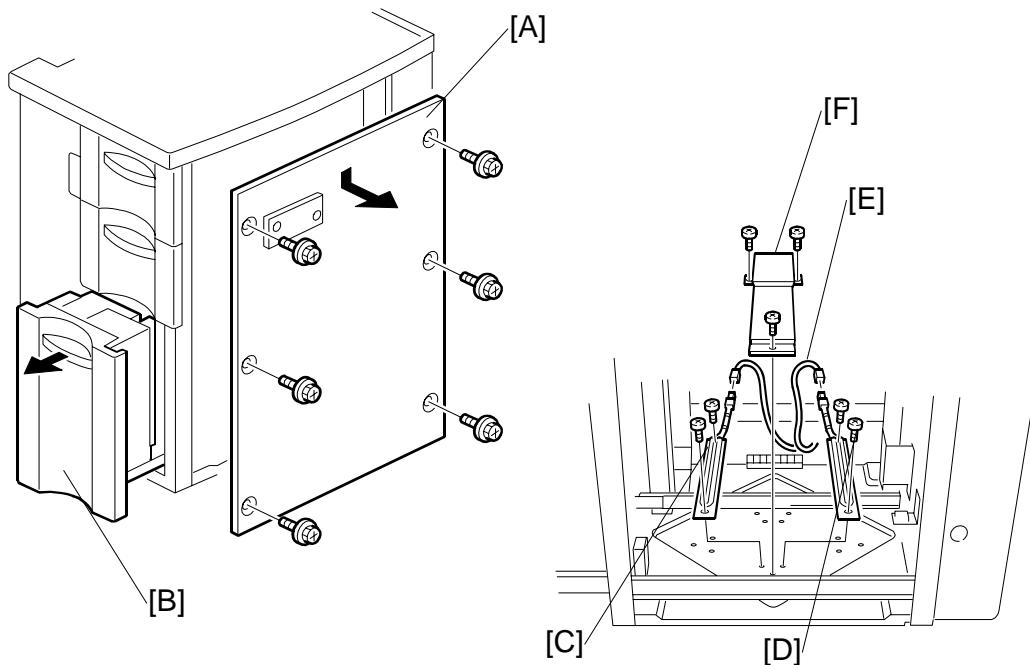


1.5.4 LCT B832 TRAY HEATERS

Accessories

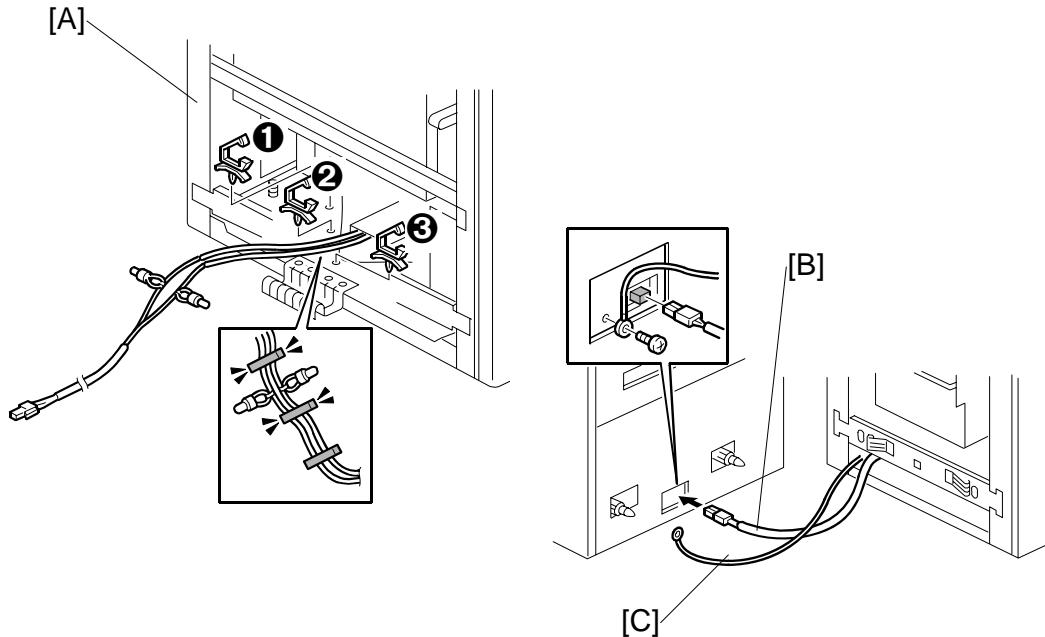
| Description | Qty |
|-------------------------|-----|
| 1. Relay Harness | 1 |
| 2. Heaters | 2 |
| 3. Cover Plate | 1 |
| 4. Screws | 7 |
| 5. Harness Clamps | 3 |



Installation***CAUTION***

Unplug the power cord before starting the following procedure.

1. If the LCT is already installed, disconnect the LCT:
 - Lock bar ( x1)
 - Interface cable
 - Ground wire ( x1)
2. Remove the right cover [A] ( x6).
3. Open the bottom tray [B], remove all the paper, then pull out the tray completely.
Important: Do not remove either tray.
4. Attach the front heater [C] ( x2).
5. Attach the rear heater [D] ( x2).
6. Pass the relay harness [E] through the right side of the LCT and connect it to the heaters ( x2).
7. Attach the cover plate [F] ( x3).
8. Load paper in the bottom paper tray.
9. Push the bottom paper tray into the LCT.
10. Reattach the right cover ( x6).



11. Attach the harness clamps ①, ②, ③ to the LCT.
 12. Set the harnesses in the clamps, then close them (☞x3).
 13. Attach the LCT relay harness [B] to the mainframe.
 14. Reconnect the ground wire [C] to the mainframe (☞ x1).
 15. Dock the LCT to the mainframe.
 - Lock bar (☞ x1)
 - Interface cable
- NOTE:** Confirm that neither the relay harness nor ground wire is pinched between the mainframe and the LCT.

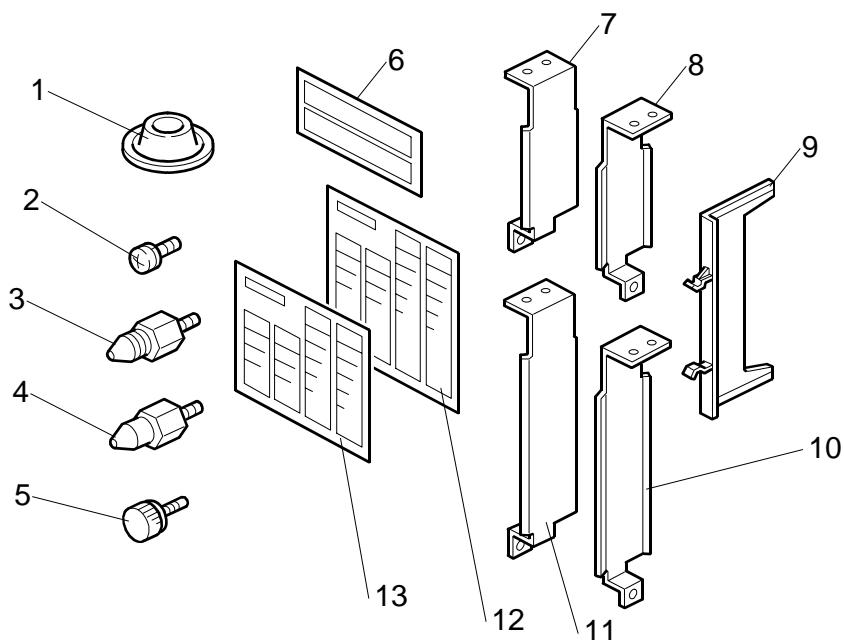
1.6 LCIT RT5010 (B834)

1.6.1 ACCESSORIES

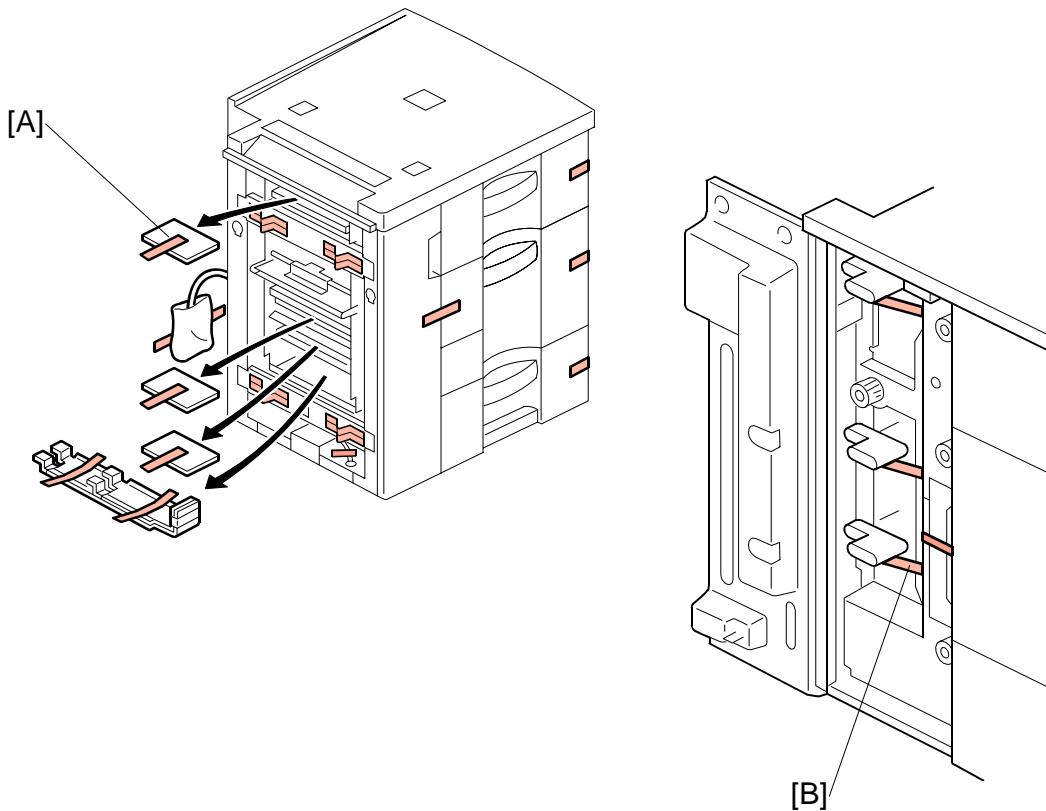
Check the quantity and condition of the accessories in the box against the following list:

| Description | Q'ty |
|---|------|
| 1. Leveling Shoes | 4 |
| 2. Phillips Screw - M4 x 8..... | 1 |
| 3. Upper Joint Pins..... | 2 |
| 4. Lower Joint Pins..... | 2 |
| 5. Knob Screws..... | 4 |
| 6. Decal – Paper Set..... | 3 |
| 7. Postcard fence – tray 4 or 6 (packed with the main copier) | 1 |
| 8. Postcard fence – tray 4 or 6 (packed with the main copier) | 1 |
| 9. Tab Paper End Fence | 1 |
| 10. Postcard fence – tray 5 (packed with the main copier)..... | 1 |
| 11. Postcard fence – tray 5 (packed with the main copier)..... | 1 |
| 12. Decals – Paper Size..... | 1 |
| 13. Decals – Paper Size..... | 1 |
| • Installation Procedure – English (not shown)..... | 1 |

NOTE: The tab paper end fence (9) is located in the LCT unit, mounted on hooks behind the front door.



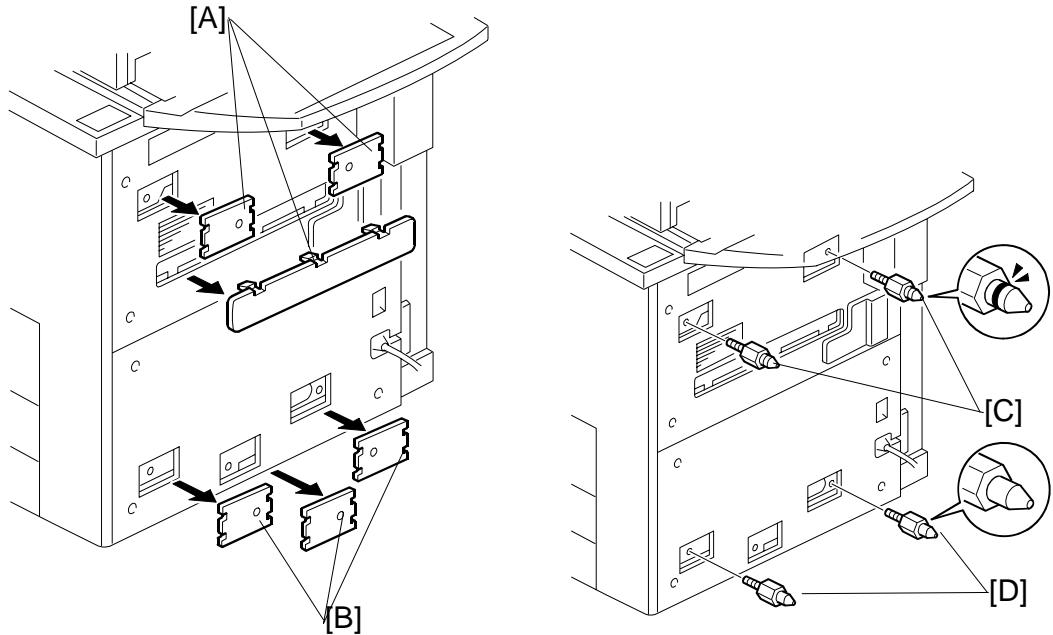
1.6.2 INSTALLATION



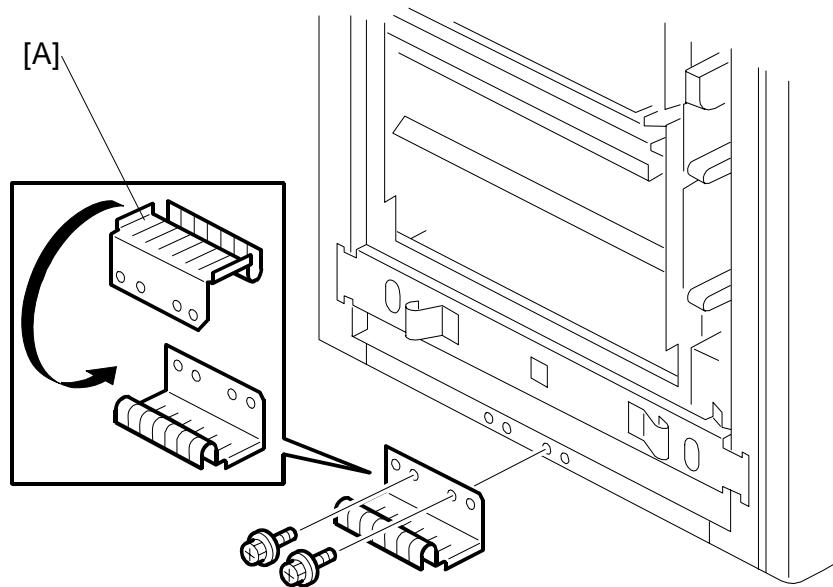
CAUTION

Unplug the power cord before starting the following procedure.

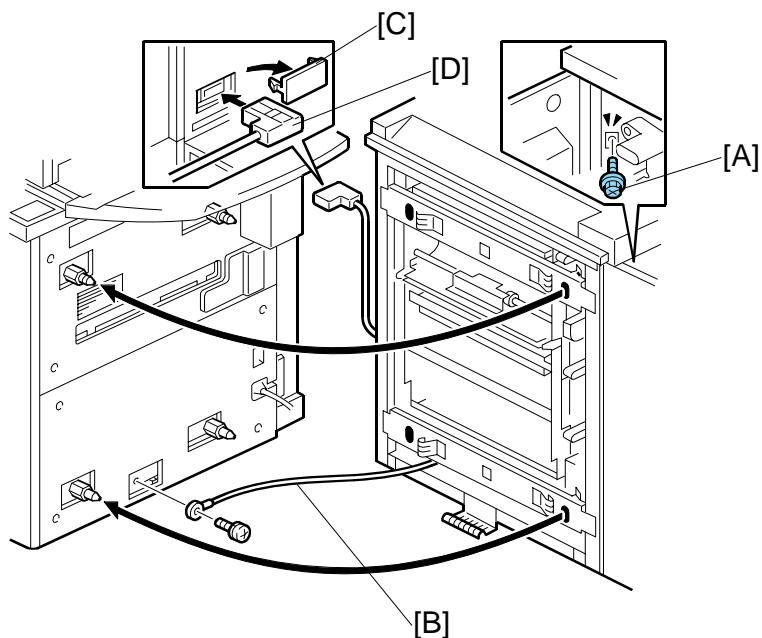
1. Remove all the visible strips of tape and packing materials [A] from the covers and left side of the LCT.
2. Open the LCT door and remove the shipping retainers and strips of tape [B] holding the levers.



3. Remove the covers [A] from the right upper side.
4. Remove the covers [B] from the right lower side.
5. Install the pins with the grooved rings [C] on the right upper cover.
6. Install the other pins [D] on the right lower cover.



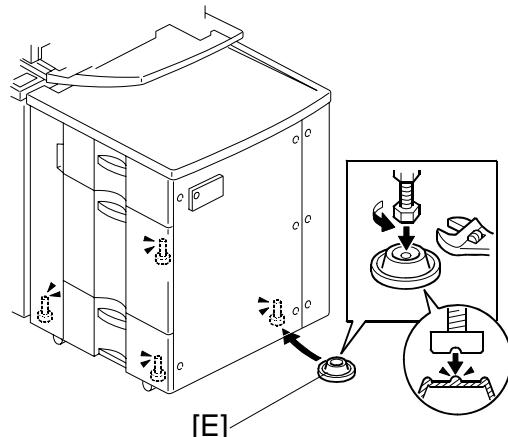
7. Remove the two screws that secure the ground plate [A].
 8. Turn over the ground plate and use the screws to fasten it to the same holes as shown (☞ x 2).
- Important!**
- If you are going to install the Multi Bypass Tray B833, it must be installed before the LCT is docked to the mainframe. (☞1.7)



9. Move the LCT to the right side of the copier.
10. Open the LCT front cover and remove screw [A] (x 1).
11. Fasten the ground wire [B] (x 1).
12. Remove cover [C] from the back side of the mainframe.
13. Attach connector [D].
14. Align the LCT on the joint pins, and dock the LCT with the right side of the copier.
15. Fasten screw [A] to lock the LCT to the side of the copier.
16. Insert the leveling shoes [E] (x 4) under the leveling feet and level the LCT.
17. Attach the appropriate decals to the trays.

Important!

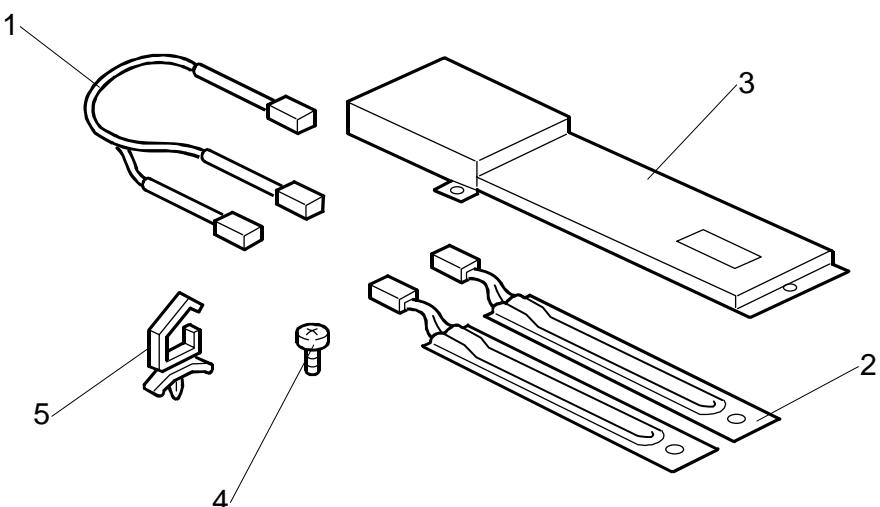
- The CIS inside the LCT must be calibrated. Do this now. (●1.5.3)

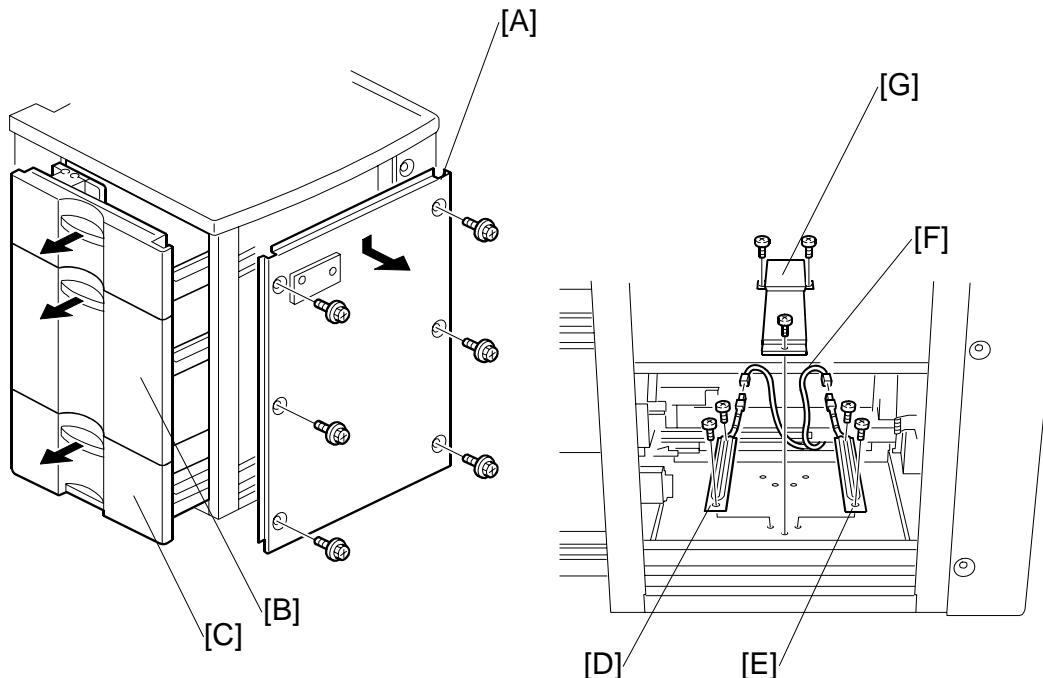


1.6.3 LCT B834 TRAY HEATERS

Accessories

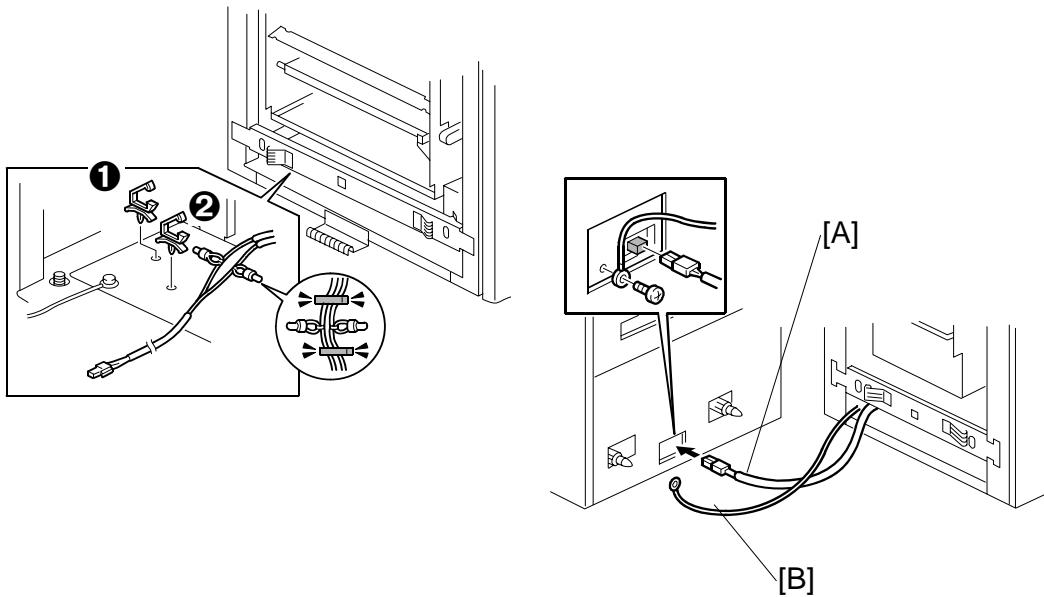
| Description | Qty |
|-------------------------|-----|
| 1. Relay Harness | 1 |
| 2. Heaters | 2 |
| 3. Cover Plate | 1 |
| 4. Screws | 7 |
| 5. Harness Clamps | 2 |



Installation**CAUTION**

Unplug the power cord before starting the following procedure.

1. If the LCT is already installed, disconnect the LCT:
 - Lock bar ( x1)
 - Interface cable
 - Ground wire ( x1)
2. Remove the right cover [A] ( x6).
3. Open the middle tray [B] and bottom tray [C], remove all the paper, then pull out the trays completely.
Important: Do not remove either tray.
4. Attach the front heater [D] ( x2).
5. Attach the rear heater [E] ( x2).
6. Pass the relay harness [F] through the right side of the LCT and connect it to the heaters ( x2).
7. Attach the cover plate [G] ( x3).
8. Load paper in the paper trays.
9. Push the trays into the LCT.
10. Reattach the right cover ( x6).



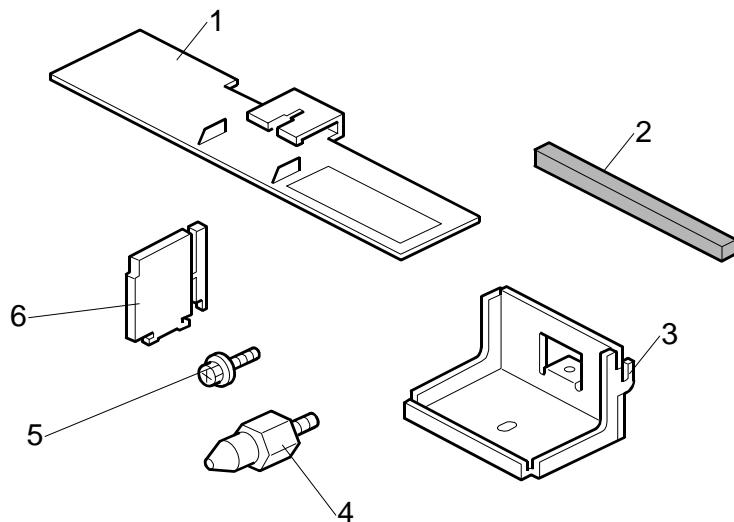
16. Attach the harness clamps ①, ② to the LCT.
17. Set the harnesses in the clamps, then close them (x2).
18. Attach the LCT relay harness [A] to the mainframe.
19. Reconnect the ground wire [B] to the mainframe (x1).
20. Dock the LCT to the mainframe.
 - Lock bar (x1)
 - Interface cable

NOTE: Confirm that neither the relay harness nor ground wire is pinched between the mainframe and the LCT.

1.7 MULTI BYPASS TRAY (B833)

1.7.1 ACCESSORIES

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



| Description | Q'ty |
|-------------------------|------|
| 1. Tab Sheet Fence..... | 1 |
| 2. Sponge Strip..... | 1 |
| 3. Bracket | 1 |
| 4. Joint Pins | 2 |
| 5. Tapping Screws | 4 |
| 6. End Fence | 1 |

Important!

- The Multi Bypass Unit must be installed on top of the LCT B834 or B832 before the LCT is docked to the mainframe.
- If the LCT is already installed, it must be disconnected from the mainframe before installation of the Multi Bypass Unit B833.

1.7.2 INSTALLATION

The Multi Bypass Tray B833 can be installed on either the LCIT RT5000 B832 or the LCIT RT5010 B834.

⚠ CAUTION

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

Before Installing the Multi Bypass Tray

If the LCT is connected to the machine, disconnect it.

To prevent damage to the connectors and ground wire, before pulling the LCIT away from the mainframe:

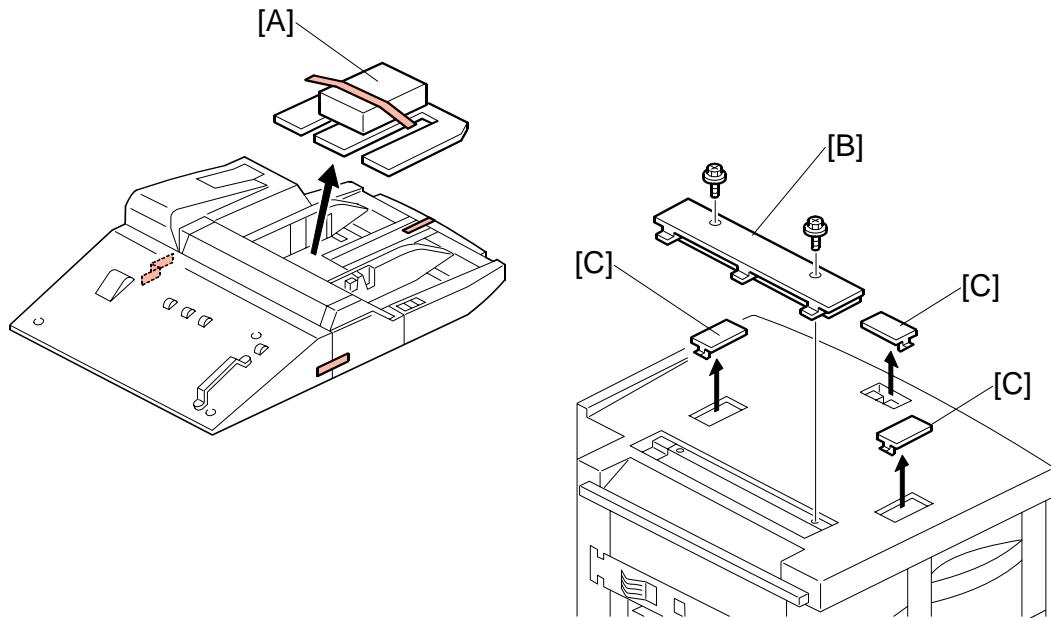
- Pull the LCIT about 20 cm (8") away from the copier.
- Disconnect the connectors and the ground wire (8 x 1)
- Pull the LCIT completely away from the machine.

Be sure to follow the correct tray installation procedure depending on which LCIT will be installed.

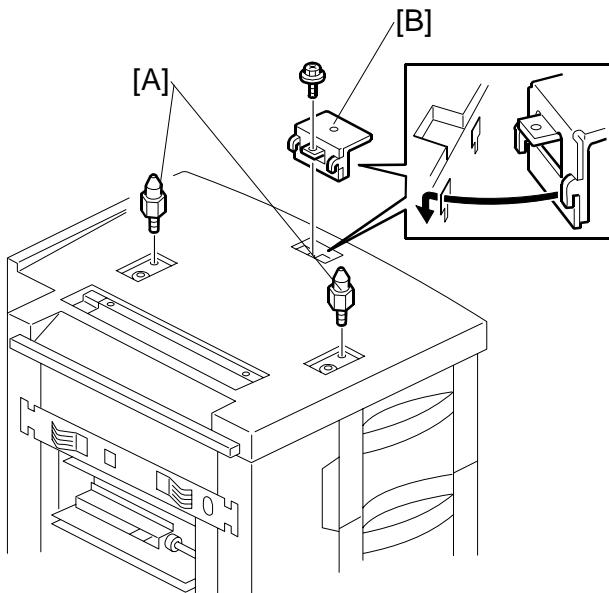
| LCIT Type | Mounting | Connection |
|--------------------|---|---|
| • LCIT RT5000 B832 | Do the procedure starting on page 1-64. | Do the procedure starting on page 1-68. |
| • LCIT RT5010 B834 | Do the procedure starting on page 1-66. | |

MULTI BYPASS TRAY (B833)

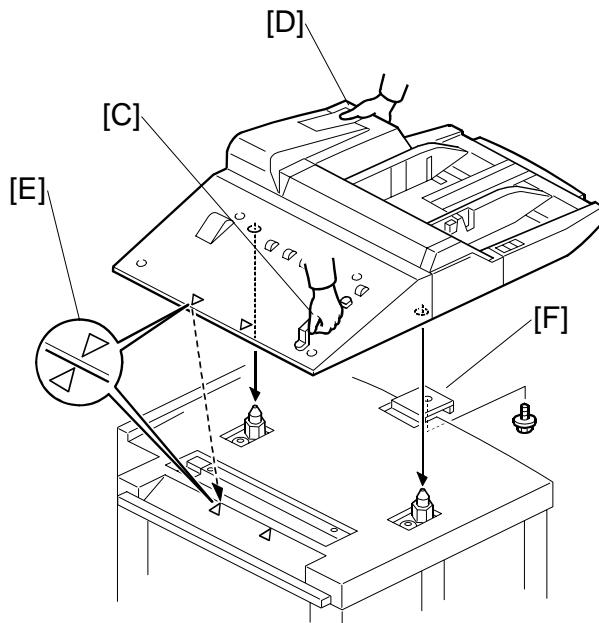
LCIT RT5000 B832



1. Remove the accessory packet [A].
2. Remove all other tape and shipping materials.
3. Remove the paper slot cover [B] ($\frac{1}{4}$ x 2) and discard the screws.
4. Use the edge of a fine tip flathead screwdriver to remove the smaller three covers [C].

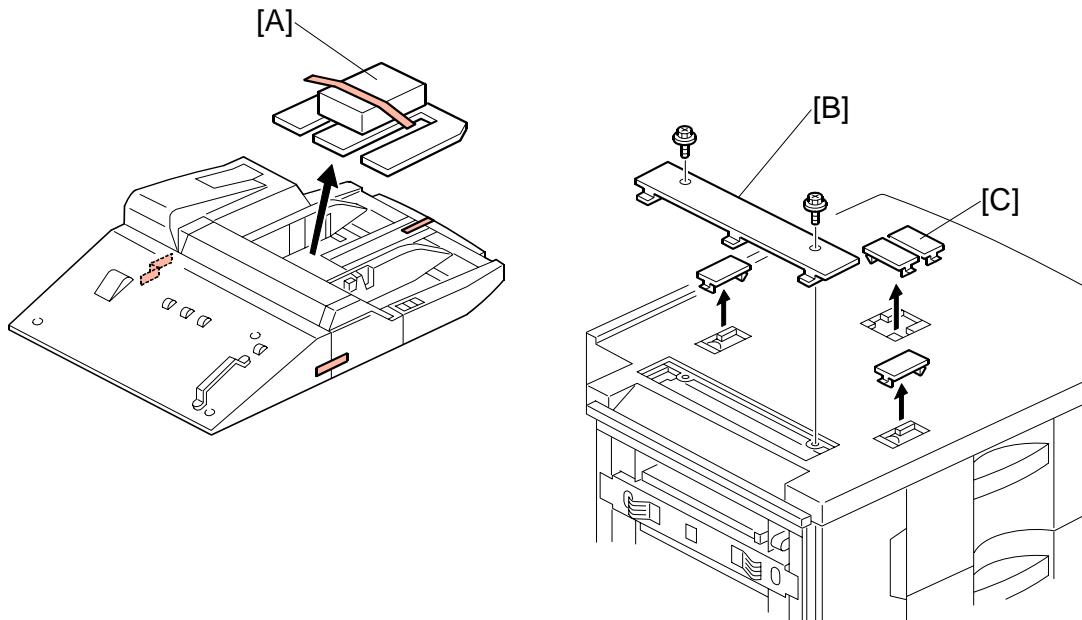


5. Screw in the guide pins [A].
6. Attach the bracket [B] (\wedge x 1).
7. Grip the bypass tray unit handle [C] and place your hand under the corner [D] diagonal to the handle, lift the unit and set it on top of the LCT.
8. Align the embossed arrows on the top left cover [E] of the bypass tray with the arrows on the LCT top.
9. Fasten the bypass tray to the right bracket [F] (\wedge x 1).

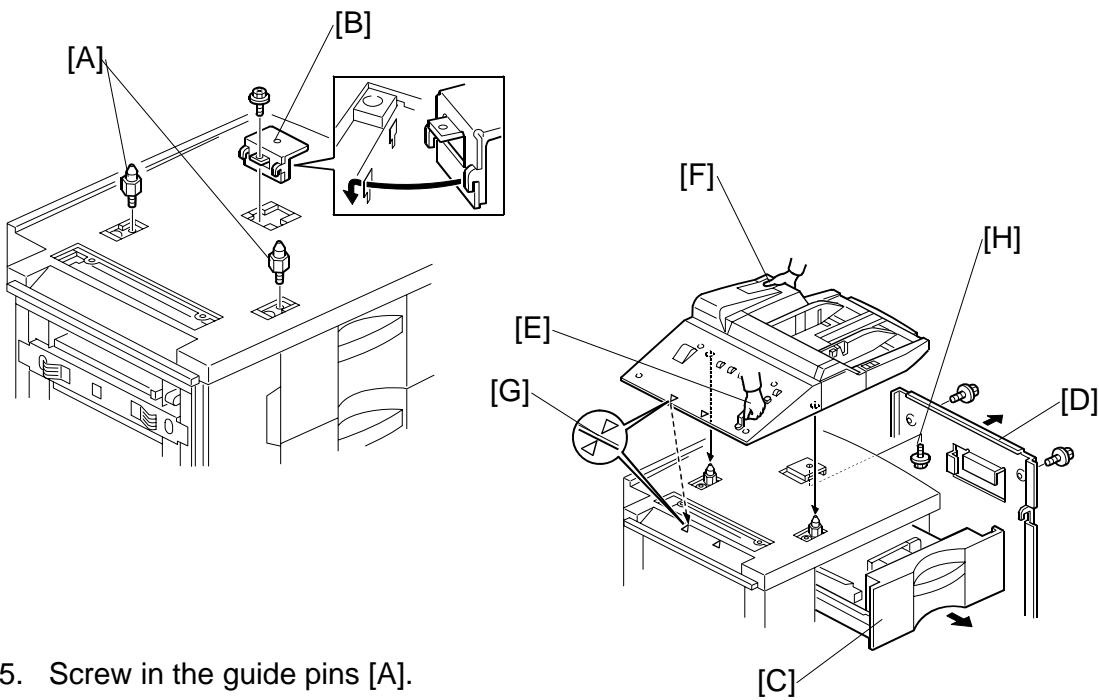


MULTI BYPASS TRAY (B833)

LCIT RT5010 B834



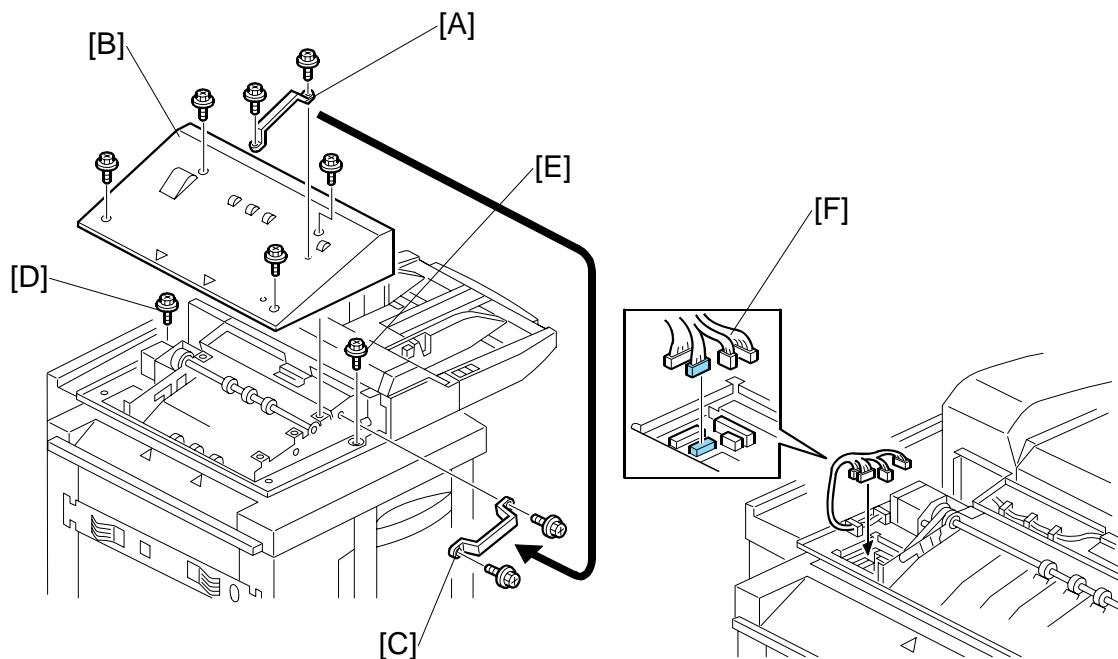
1. Remove the accessory packet [A].
2. Remove all other tape and shipping materials.
3. Remove the paper slot cover [B] ($\frac{1}{4}$ " x 2) and discard the screws.
4. Use the edge of a fine tip flathead screwdriver to remove the smaller four covers [C].



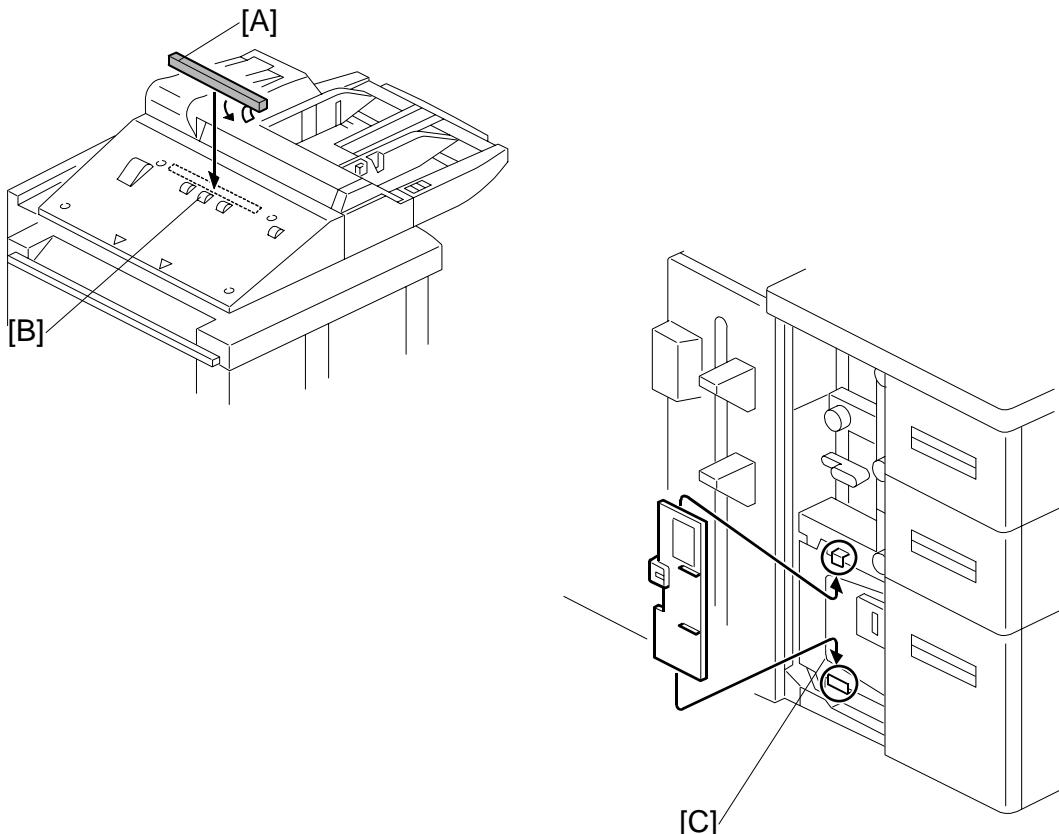
5. Screw in the guide pins [A].
6. Attach the bracket [B] ($\frac{1}{4}$ x 1).
7. Open Tray 1 [C].
8. Remove the right cover [D] ($\frac{1}{4}$ x 6).
9. Grip the bypass tray unit handle [E]. Then place your hand under the corner [F] diagonal to the handle, then lift the unit and set it on top of the LCT.
10. Align the embossed arrows on the top left cover [G] of the bypass tray with the arrows on the LCT top.
11. Under the top of the LCT, attach the lock screw [H].
12. Close Tray 1, then reattach the right cover.

MULTI BYPASS TRAY (B833)

LCIT RT5000 B832/LCIT RT5010 B834



1. Remove the handle [A] ($\frac{1}{4}$ x 2). Save these screws.
2. Remove the cover [B] ($\frac{1}{4}$ x 4).
3. Use the screws removed above to attach the handle [C] to the front frame.
4. Fasten the bypass tray rear frame [D] to the LCT ($\frac{1}{4}$ x 1).
5. Fasten the bypass tray front frame [E] to the LCT ($\frac{1}{4}$ x 1).
6. Connect the bypass tray harness [F] to the LCIT (4x).
7. Re-attach the cover [B].



8. Remove the tape from the sponge strip [A] and attach it to the top left cover of the bypass tray.

9. Position the strip in the center above the three roller housings [B].

NOTE: The sponge strip prevents paper or other objects from accidentally falling between the output tray and the left cover.

10. Attach the end fence (follow the instructions on the decal attached to the top of the bypass tray).

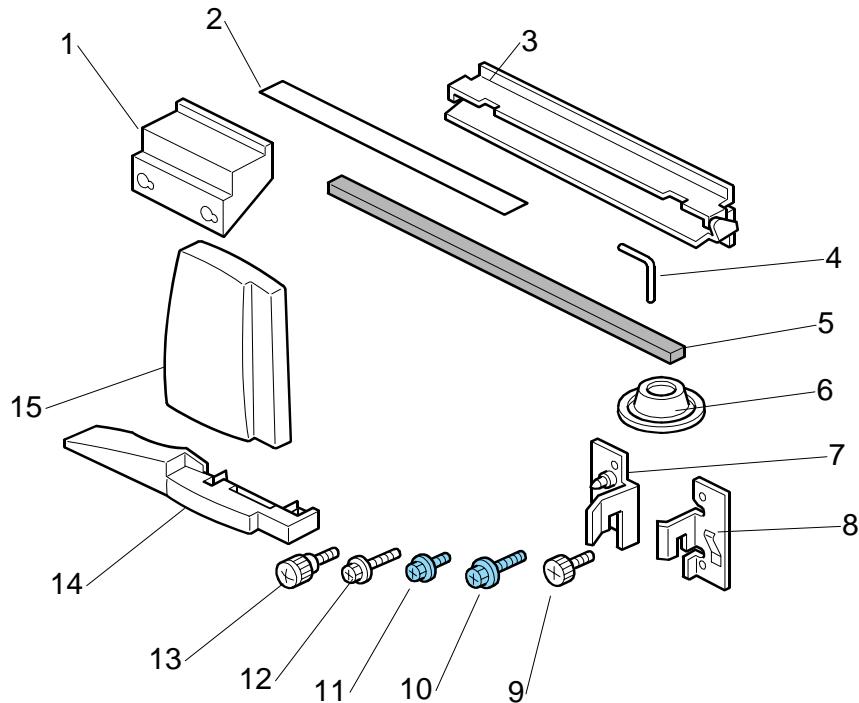
NOTE: Open the LCT front door. Hang the tab sheet fence on the hooks [C] on top of the LCT tab fence. When feeding tab sheets from the bypass tray, follow the decal instructions on the tab fence to install the fence.

1.8 COVER INTERPOSER TRAY CI5000 (B835)

1.8.1 ACCESSORIES

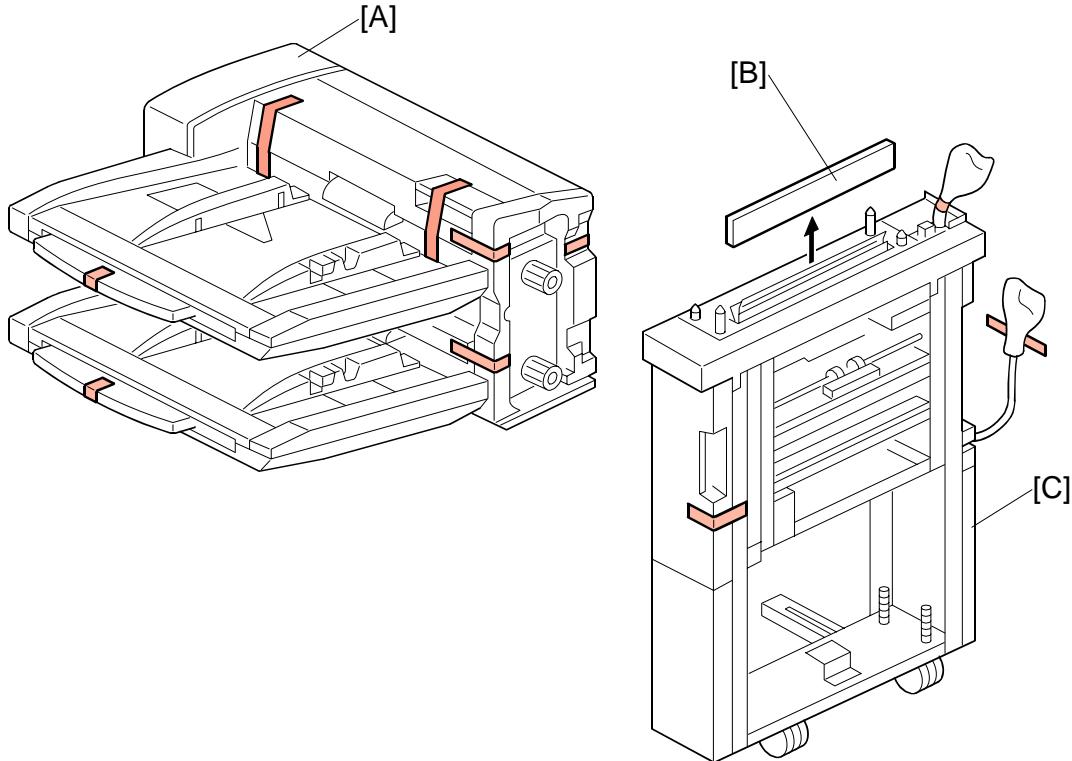
Check the quantity and condition of the accessories in the box against the following list.

| Description | Q'ty |
|---|------|
| 1. Spacer | 1 |
| 2. Black Mylar | 1 |
| 3. Relay Guide Plate | 1 |
| 4. "L" Hinge Pins (Tray Unit Front Cover) | 2 |
| 5. Sponge Strip | 1 |
| 6. Leveling Shoes | 4 |
| 7. Rear Docking Bracket..... | 1 |
| 8. Front Docking Bracket | 1 |
| 9. Flat Knob Screw | 1 |
| 10. Screw (M4 x 8)..... | 4 |
| 11. Screw (M3 x 6)..... | 2 |
| 12. Screw (M4 x 12)..... | 2 |
| 13. Knob Screw | 3 |
| 14. Base Cover (Tray Unit) | 1 |
| 15. Rear Cover | 1 |



1.8.2 INSTALLATION

Setting Up the Unit and Docking to the Copier

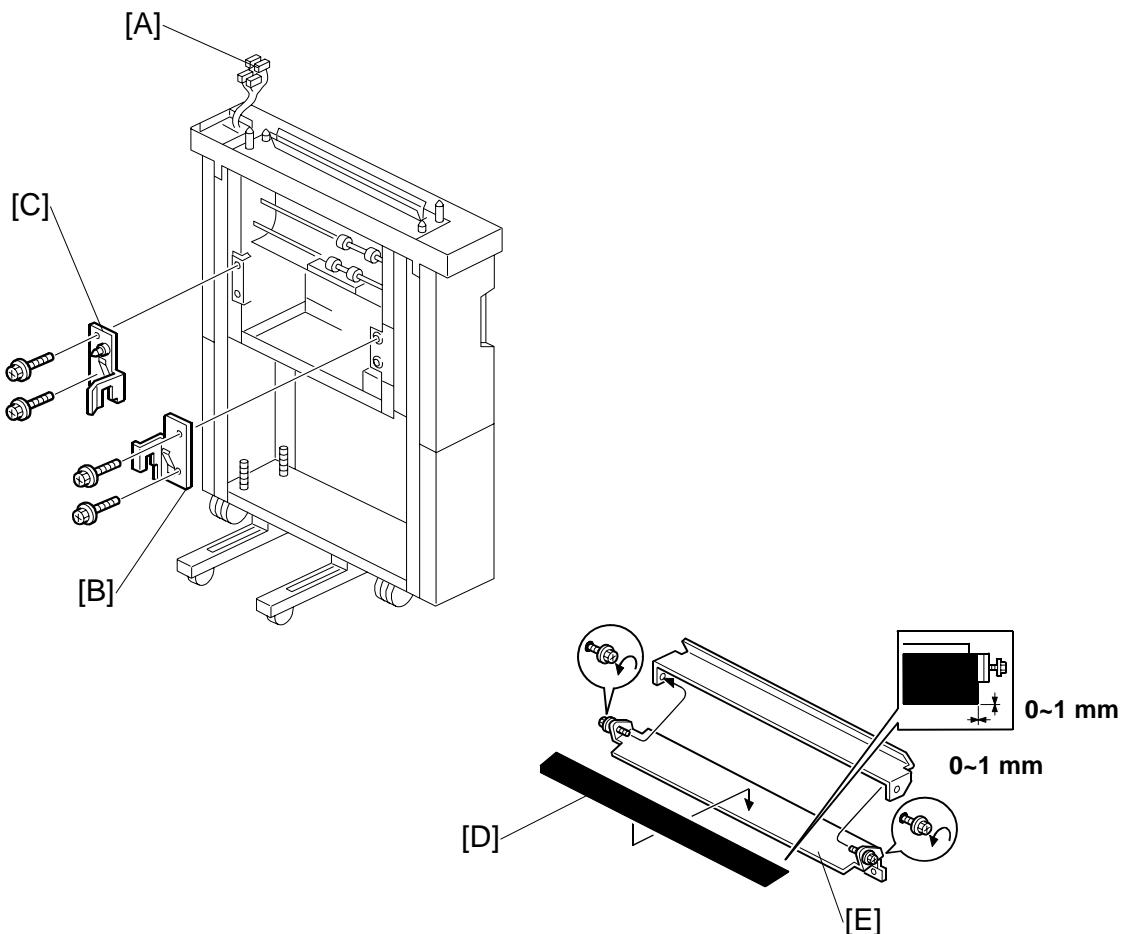


CAUTION

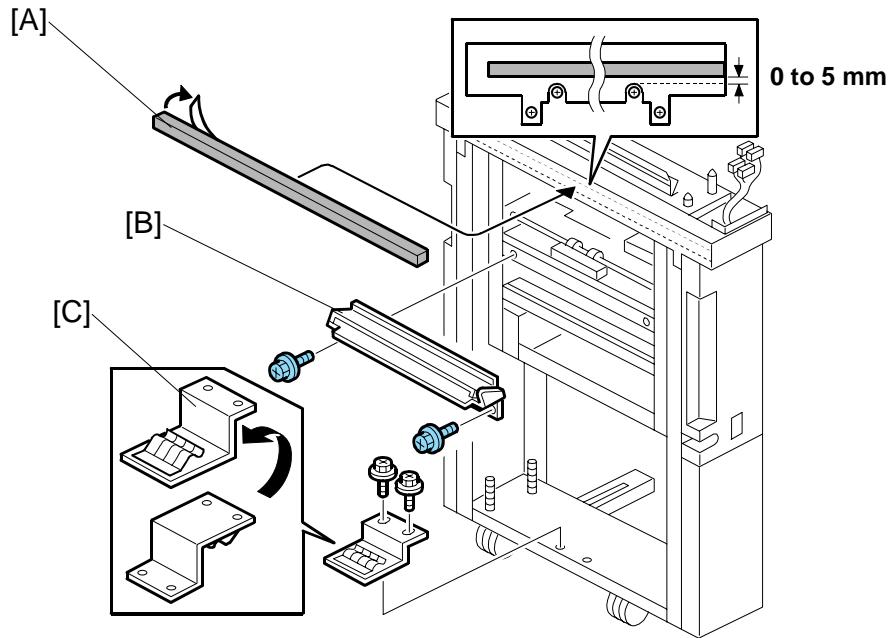
Unplug the power cord before starting the following procedure.

1. Remove all the tape and shipping materials from the tray unit [A].
2. Remove cover [B].
3. Remove all tape and shipping materials from the transport unit [C].

COVER INTERPOSER TRAY CI5000 (B835)

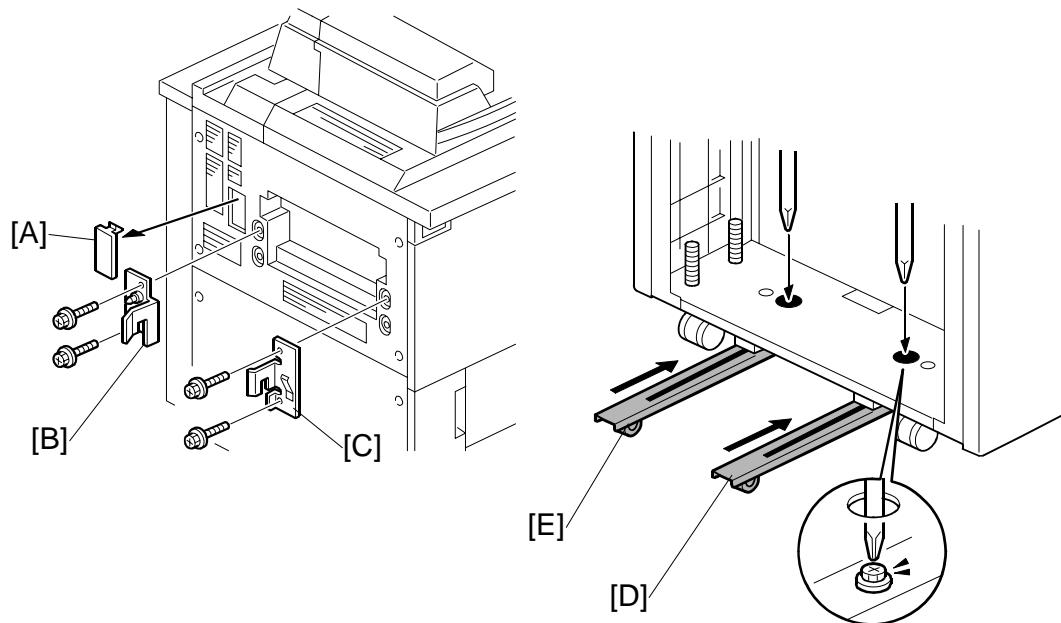


4. Confirm that the connectors [A] are free.
5. Attach the front docking plate [B] ($\text{扳手} \times 2$).
6. Attach the rear docking plate [C] ($\text{扳手} \times 2$).
NOTE: These are the docking plates for the next device to be installed in the paper feed line.
7. Attach the black mylar [D] to the relay guide plate [E] of the next finishing device to be installed to the left of the cover interposer tray (Z-folding unit, booklet finisher, or finisher).

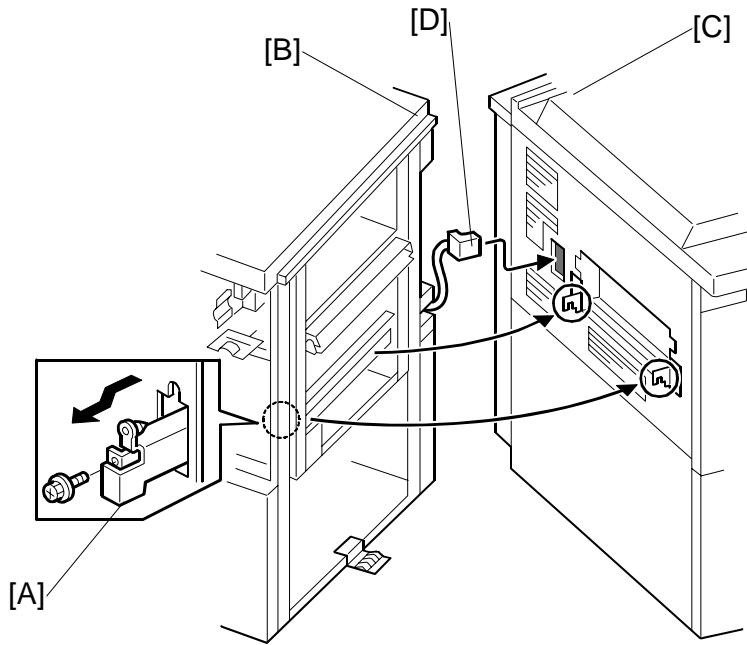


8. Peel the tape from the back of the sponge strip [A] and attach it as shown.
9. Attach the relay guide plate [B] (\wedge x2).
10. Remove the ground plate [C] from the bottom cross-piece (\wedge x2).
11. Turn the ground plate over.
12. Reattach the ground plate with the same screws as shown (\wedge x2).

COVER INTERPOSER TRAY CI5000 (B835)



13. Remove the interface connector cover [A].
14. Attach the rear docking bracket [B] (\wedge x2).
15. Attach the front docking bracket [C] (\wedge x2).
16. If the Z-Folding Unit will be installed, loosen the screws for the rear runner [D] and front runner [E].
17. Push the runners in and re-fasten them again with the screws.



18. Open the front door of the cover interposer tray.
19. Pull out the locking lever [A].
20. Align the finisher [B] with the joint brackets [C], then slowly push the finisher onto the brackets.
21. Connect the finisher cable [D] to the copier
22. Push in the locking lever.
23. Check that the top edges of the finisher are parallel with edges of the finisher (or copier) to the right.
24. Fasten the locking lever [A] ($\frac{1}{8}$ x 1)
25. Close the front door.

Docking the Next Peripheral Device

The next peripheral device to the left of the cover interposer tray must be installed before you can mount the tray unit on top of the transport unit of the cover interposer tray.

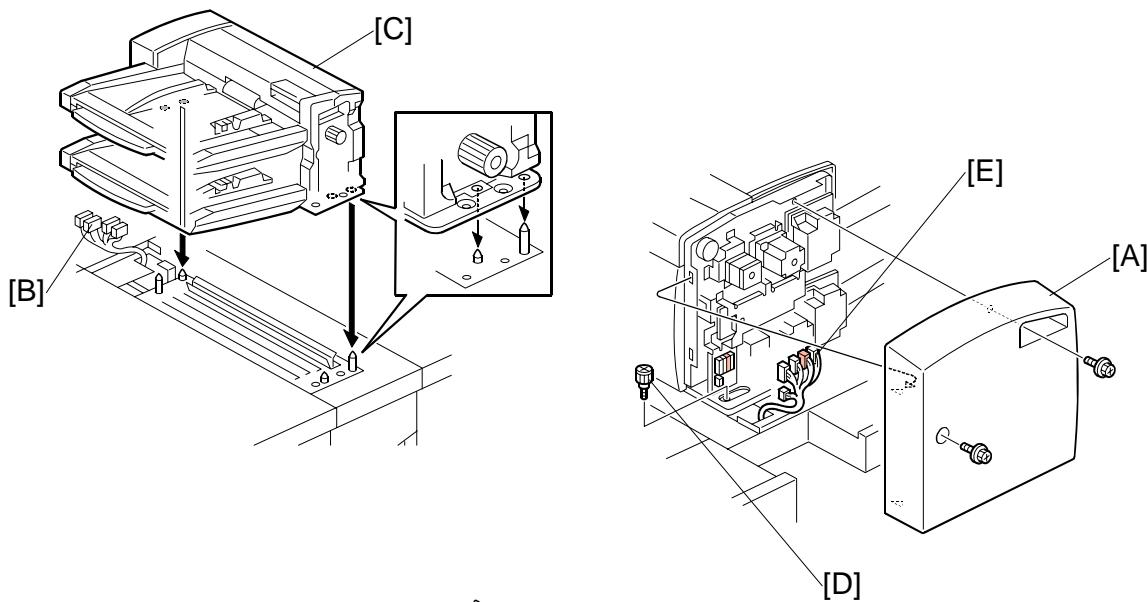
- The tray unit of the cover interposer tray is supported by the top of the next peripheral device in line to the left, as well as the transport unit of the cover interposer.
- The next peripheral device to the left of the cover interposer must be set up and docked to the cover interposer before the transport unit of the cover interposer can be mounted.

The table below shows which section to see for instructions on connecting the cover interposer.

| Connect Cover Interposer | |
|--------------------------|---------|
| Z-Folding Unit B660 | (☞1.9) |
| Booklet Finisher B836 | (☞1.10) |
| Finisher B830 | (☞1.11) |

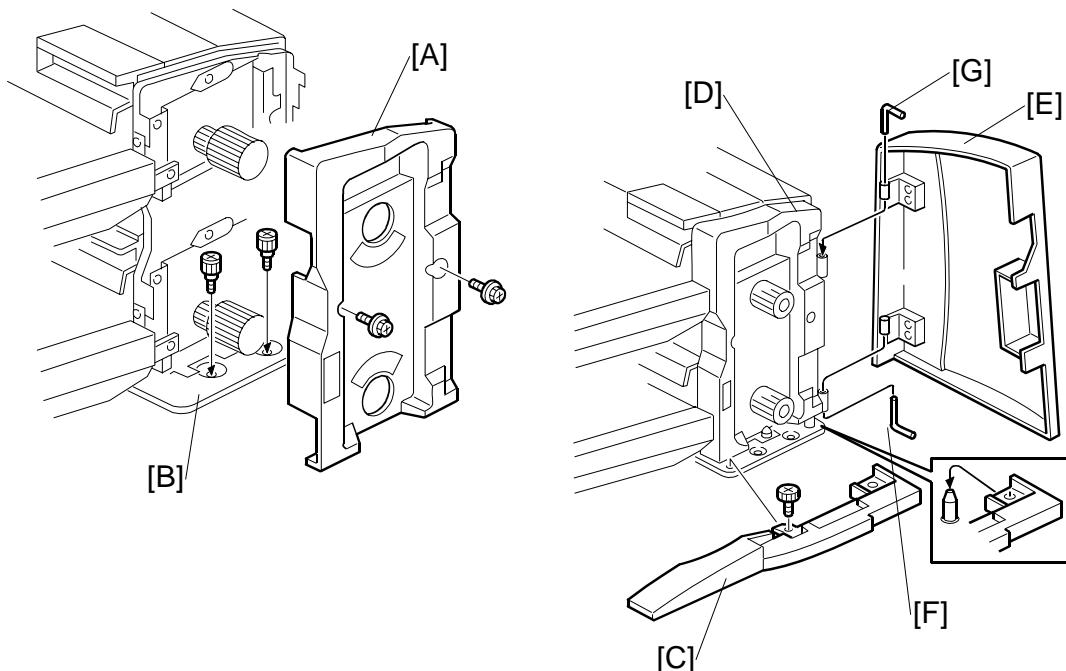
⚠ CAUTION

- Never attempt to mount the cover interposer tray until the next device in line (Z-Folding Unit B660, Booklet Finisher BK5000 B836, or Finisher SR5000 B830) has been docked to the transport unit (base) of the cover interposer tray.
- To prevent bending the frame of the tray unit and damaging its alignment, always remove the tray unit from the cover interposer tray transport unit: 1) before disconnecting either the cover interposer tray or the next peripheral device to the left, or 2) before doing any maintenance on either the cover interposer tray or the next peripheral device to the left.

Mounting the Tray Unit

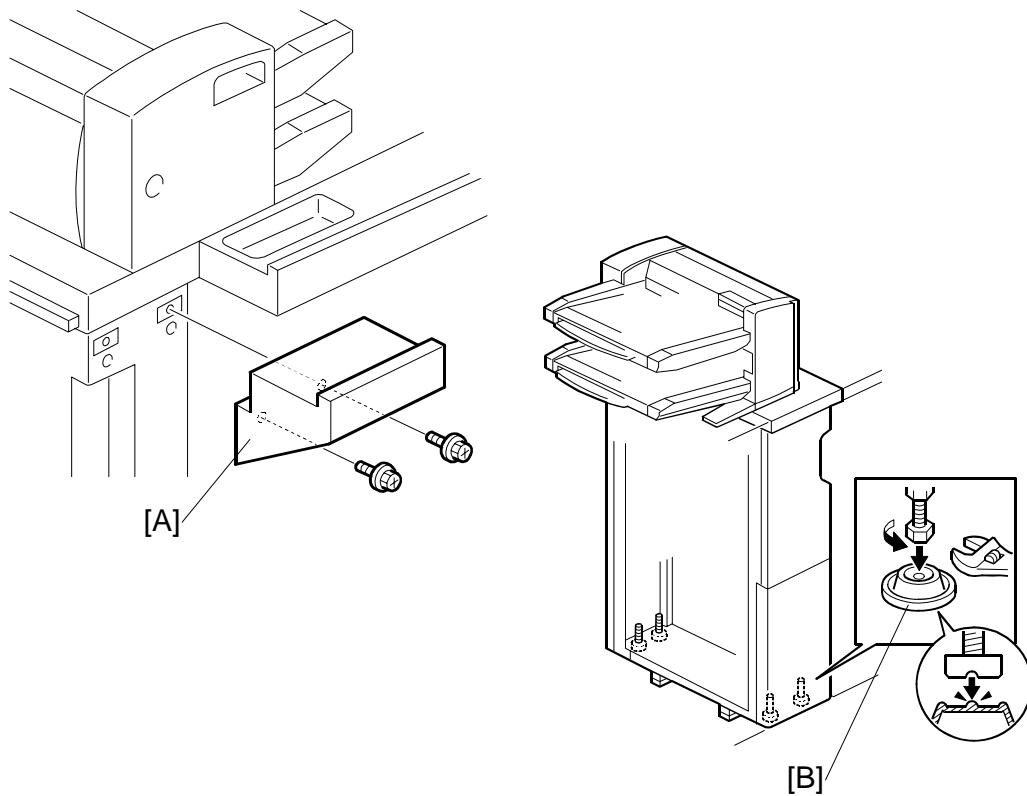
1. Remove the rear cover [A] (x2).
2. Confirm that the connectors [B] are free.
3. Place the tray unit [C] on top of the cover interposer transport unit.
4. Attach the knob screw [D] (x1).
5. Connect the harness connectors [E] (x5)
6. Reattach the rear cover.

COVER INTERPOSER TRAY CI5000 (B835)



7. Remove the front inner cover [A] from the dual tray (\wedge x2).
8. Fasten the tray unit to the top of the transport unit with the knob screws [B] (\wedge x2).
9. Attach the base cover [C] (\wedge x1).

Important: Make sure the holes in the cover are matched with the positions of the reference pins.
10. Re-attach the front inner cover [D] (removed at [A] above).
11. Position the tray unit front door [E] so its hinges match the posts on the frame of the tray unit.
12. Hold the lower L-pin [F] as shown, insert it halfway, push it up, then rotate it into its groove.
13. Hold the upper L-pin [G] as shown, insert it halfway, push it down, then rotate it into its groove.



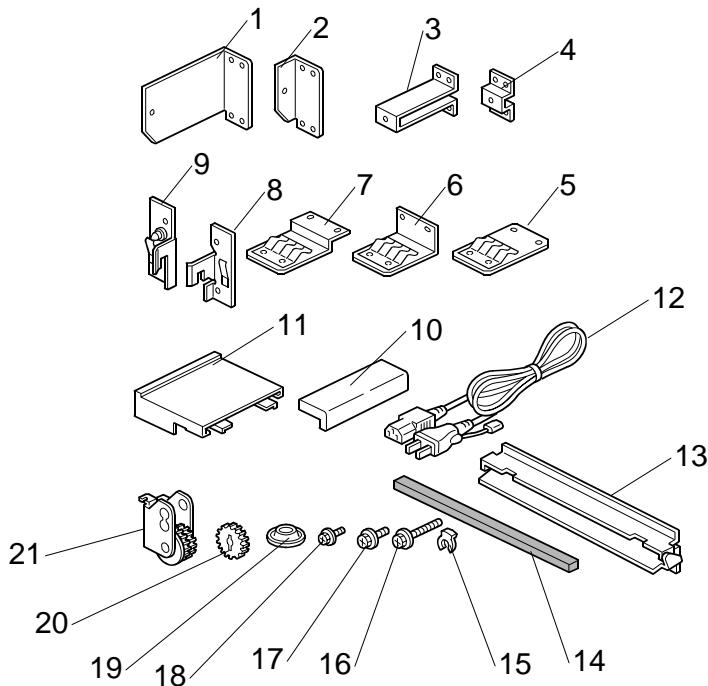
14. Attach the spacer [A] to the rear of the transport unit (\wedge x2).
15. Set the leveling shoes [B] (x4) under the feet.
16. Turn the nuts to adjust the height of the cover interposer until it is level.

1.9 Z-FOLDING UNIT ZF4000 (B660)

1.9.1 ACCESSORY CHECK

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

| Description | Q'ty |
|--|------|
| 1. Lock Bracket – Rear (Cover Interposer Tray) | 1 |
| 2. Lock Bracket – Rear | 1 |
| 3. Lock Bracket – Front (Cover Interposer Tray)*1 | 1 |
| 4. Lock Bracket – Front..... | 1 |
| 5. Ground Plate (Cover Interposer Tray) | 1 |
| 6. Ground Plate (Z-folding unit) | 1 |
| 7. Ground Plate (Finisher or Cover Interposer Tray) | 1 |
| 8. Right Docking Bracket | 1 |
| 9. Left Docking Bracket | 1 |
| 10. Front Spacer | 1 |
| 11. Rear Spacer | 1 |
| 12. Power Cord..... | 1 |
| 13. Guide Plate | 1 |
| 14. Sponge Strip | 1 |
| 15. Teflon C-Clamp..... | 1 |
| 16. Screws M4x10 | 4 |
| 17. Screws M3 x 6 | 8 |
| 18. Screws M4 x 6 | 8 |
| 19. Leveling Shoes | 3 |
| 20. Drive Gear (Black – for B236/D103 135 cpm only) | 1 |
| 21. Drive Gear Assembly (Black – for B236/D103 135 cpm only) 1 | |

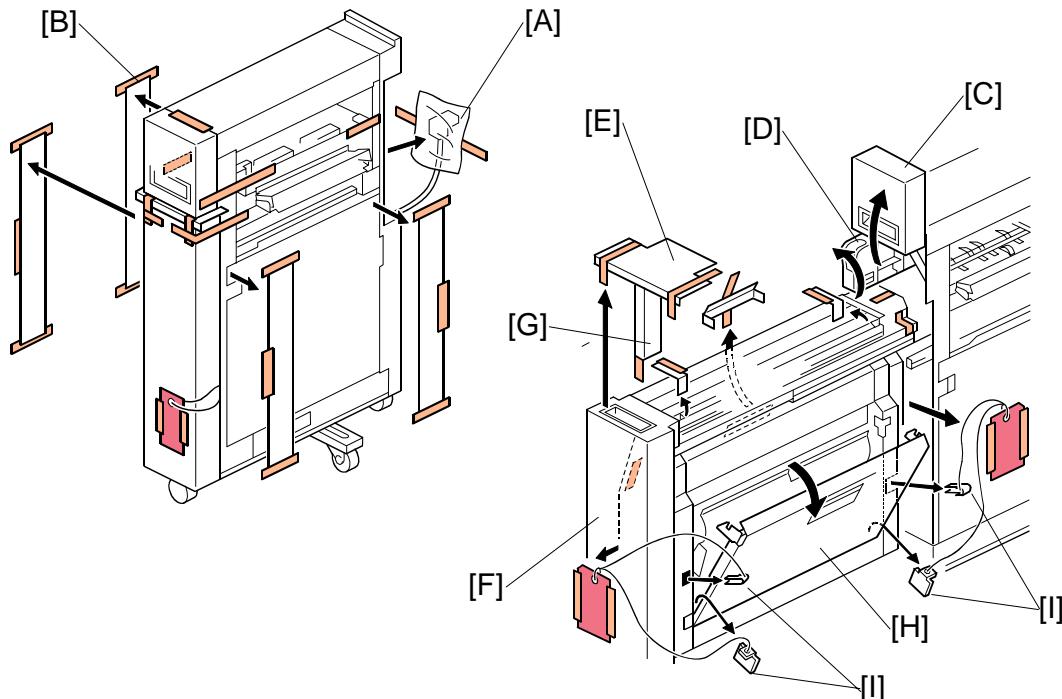


1.9.2 INSTALLATION

CAUTION

Always switch the machine off and unplug the machine before doing any of the following procedures.

Unpacking



1. Detach the head of the I/F connector [A].
2. Remove all external tape [B] and shipping materials.
3. Open the front door [C].
4. Raise the horizontal transport plate [D] and remove the cushion [E].
5. Pull out the Z-folding mechanism [F] and remove the cushion [G].
6. Open the right vertical transport cover [H] completely (2 steps).
7. Remove four spacers [I] by pulling on the string.

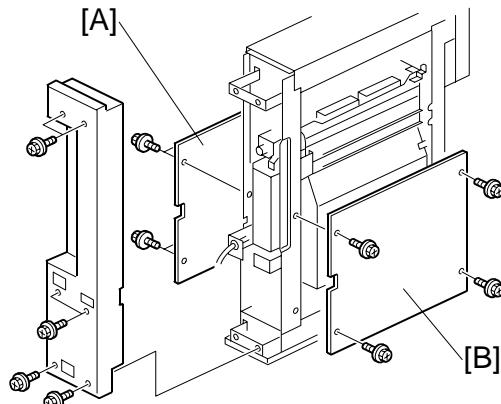
NOTE: It may be necessary to remove the front inner cover if the string fails to remove the "U" shaped piece [I].

Replacing the Gear for B236/D103 (135 cpm) only**Important:**

- This procedure is not required for the B234/D101 (90 cpm) or B235/D102 (110 cpm).
- Do this procedure only for the B236/D103 (135 cpm). The gear replacement must be done to accommodate the faster line speed of the B236/D103.
- If the gears are not replaced in the B236/D103 (135 cpm), this could cause paper jams.

1. Remove the right cover [A] (x5)

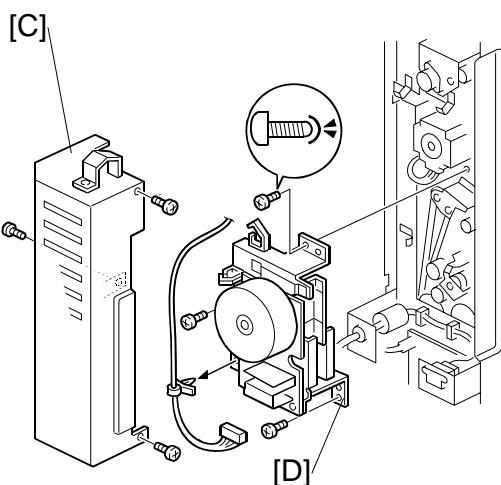
2. Remove the left cover [B] (x4)



3. Pull out the Z-fold unit.

4. Remove the motor cover [C] (x3).

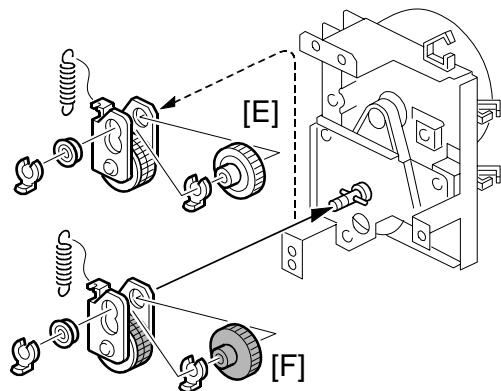
5. Remove the feed motor assembly [D] (x1, x3 x3).



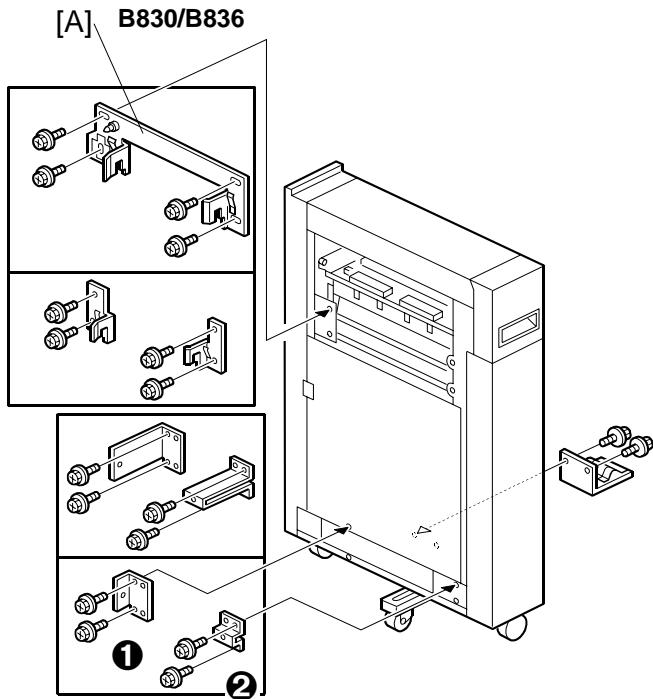
NOTE: In steps 6 and 7 when converting from 90-110 cpm to 135 cpm all white gears shown will be replaced by black gears. The white gears are used from 90-110 cpm only.

6. Remove the white gear [E] (Spring x1, x2) in order to remove the assembly.

7. Apply a small amount of grease to the black gears [F] provided with the accessories, then install them (Spring x1, x2). See 135 cpm assembly [F].



Attaching the Brackets



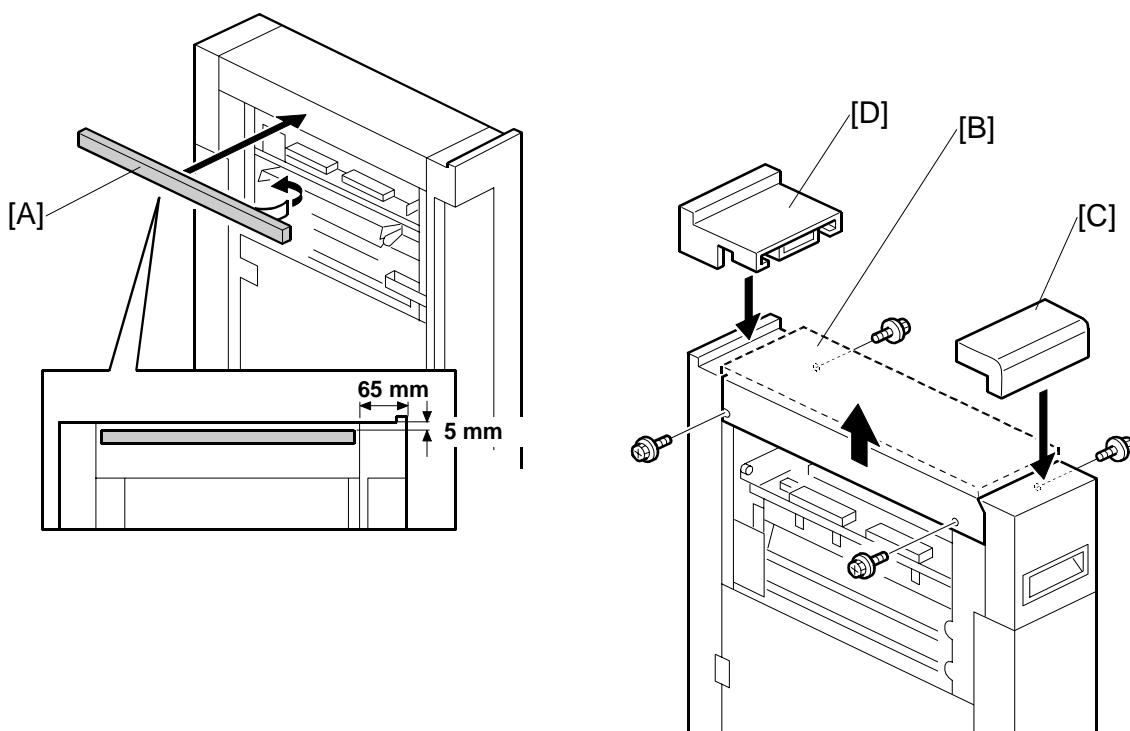
B234/B235/B236/D101/D102/D103

1. Attach the long connection bracket [A] to the unit (3000-Sheet Finisher B830 or Booklet Finisher B836) to the left of the Z-folding unit ($\frac{1}{4}$ x4 M4x10).
NOTE: Use the long screws provided with the Z-fold unit accessories.
2. Attach the brackets to the lower left corner of the Z-fold unit.

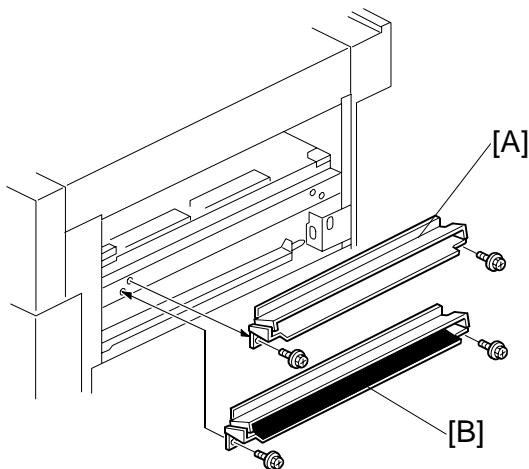
Important

- If the 3000-Sheet Finisher B830 will be docked to the Z-folding unit, attach only bracket ① ($\frac{1}{4}$ x2).
- If the Booklet Finisher B836 will be docked to the Z-folding unit, attach both brackets ① and ② ($\frac{1}{4}$ x2 ea.).

3. Attach the ground (earth) plate [B] to the side of the Z-folding unit facing the copier.

Preparing for Docking

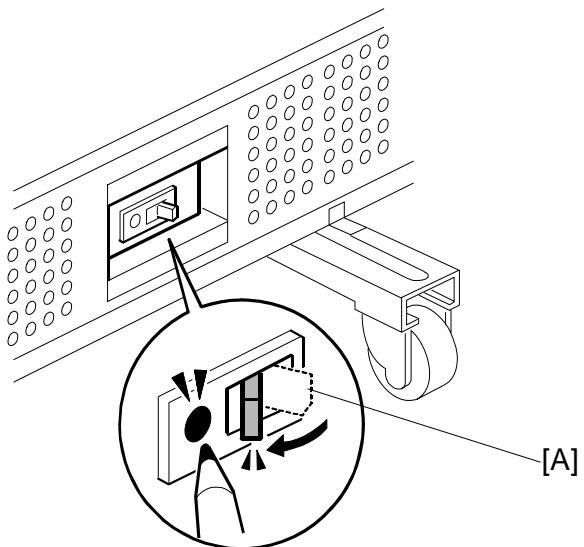
1. Remove the tape from the sponge [A] and attach it to the Z-folding unit.
2. Remove the top cover [B] (\wedge x 4).
3. Remove the seal from the double-sided tape on the bottom of the front spacer [C], then attach the front spacer [C].
4. Remove the seal from the double-sided tape on the bottom of the rear spacer [D], then attach the rear spacer [D].
NOTE: The spacers align the top of the Z-folding unit with the edge of the Copier.
5. Reattach the top cover [B] (\wedge x 4).
NOTE: Make sure that the top cover is level with the tops of the rear and front spacers.



6. Replace the entrance guide plate [A] with the longer guide plate [B] provided with the accessories (掣 x 2).

Important: Attach the mylar as shown in the illustration only to the guide plate provided with the Cover Interposer Tray B835.

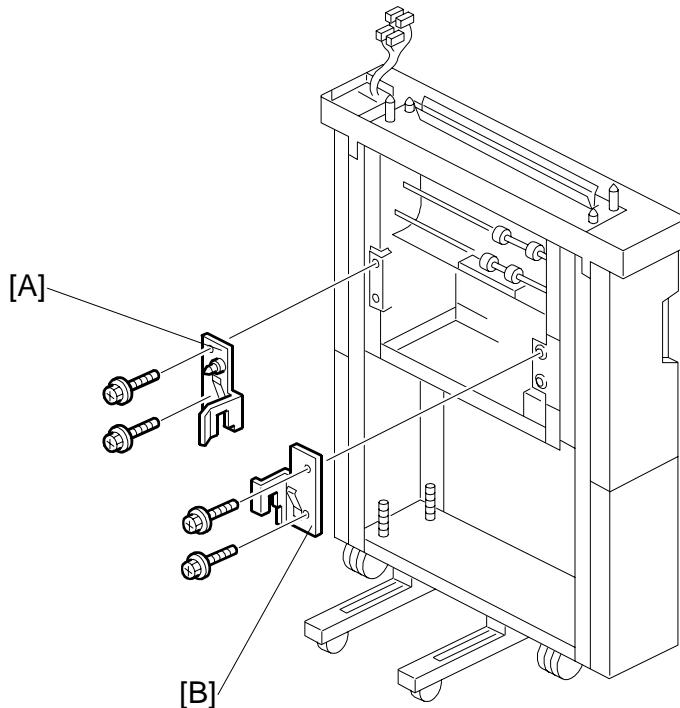
Testing the Breaker



1. The breaker switch is at the lower right side of the Z-folder. Confirm that the manual breaker switch [A] is set to the right.
NOTE: When the breaker switch is set to the right (the "—" mark will be visible) the copier is ready to be turned on.
2. Connect the Z-folding unit power cord to the Z-folding unit and connect the other end of the cord to an ac power source.
3. Push in the breaker test button with the tip of a screw driver until the breaker switch snaps to the off position.
4. Confirm that the breaker switch is at the off position.
5. If the breaker switch does not move to the off position:
 - Confirm that the power cord is securely connected to the power supply.
 - Push the test button again.
 - If the breaker switch does not snap to the off position, the breaker switch must be replaced.
6. Reset the breaker switch to the on position.

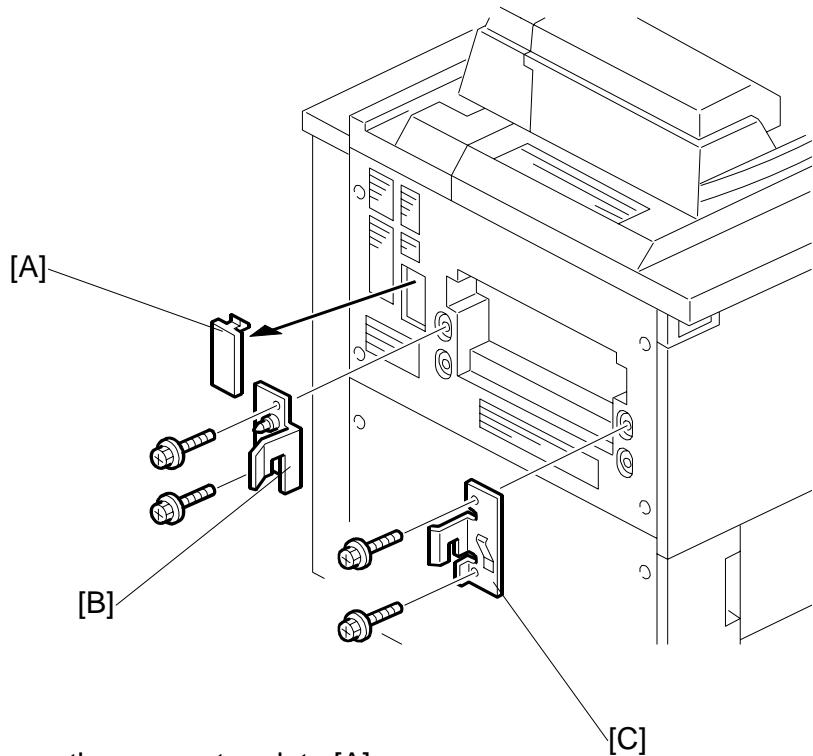
Docking the Z-Folding Unit to the Cover Interposer Tray or Copier

The Z-Folding Unit is docked to the Cover Interposer Tray B835, or to the Copier if the cover interposer tray is not used.

Z-Fold Unit → Cover Interposer Tray B835

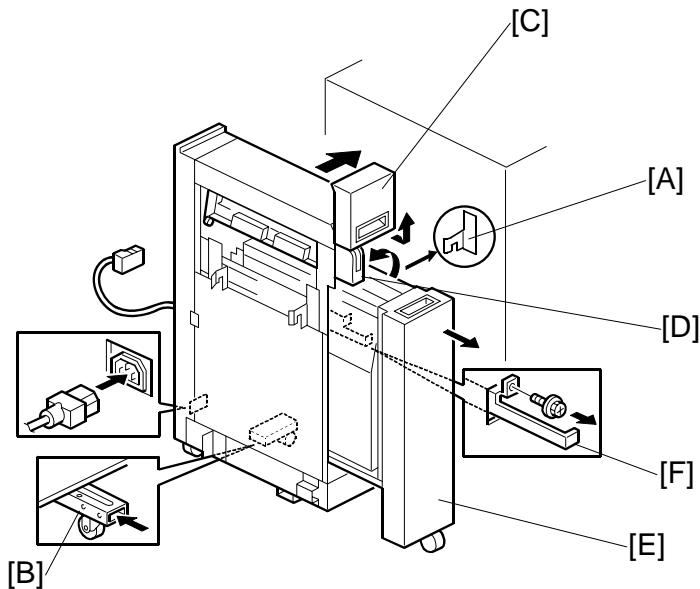
1. Attach the rear docking bracket [A].
2. Attach the front docking bracket [B].
3. Connect the Z-folding unit.

Z-Fold B660 → Copier



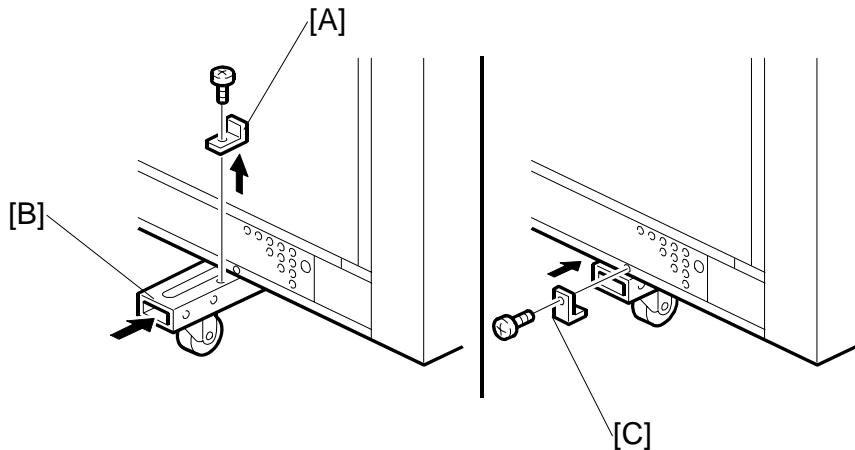
1. Remove the connector plate [A].
2. Attach the rear docking bracket [B].
3. Attach the front docking bracket [C].
4. Connect the Z-folding unit.

Connecting the Z-Folding Unit B660



1. Fasten brackets [A] (x2) (provided accessories) to the Cover Interposer Tray B835 (or Copier) ($\frac{1}{4}$ x 2 each).
2. Remove support screw and bracket [B], push in the support, then reattach the screw and bracket
3. Pull the top cover [C] toward you then raise it.
4. Raise the horizontal transport plate [D] to the left.
5. Pull out the Z-folding mechanism [E].
6. Pull out the Z-folding unit lock lever [F] ($\frac{1}{4}$ x 1).
7. At the right bottom edge of the Z-folding unit, confirm that the breaker switch is ON.
NOTE: This switch should display “—”. If you see “O”, set the switch to “—”.
The machine will not recognize the Z-folding unit if this switch is off.
8. Dock the Z-folding unit to the cover interposer tray (or Copier).
9. Push in the lock lever [F] and fasten it ($\frac{1}{4}$ x 1).
10. Push in the Z-folding mechanism [E], lower the horizontal transport plate [D], then close the front door [C].
11. Connect the Z-Folding unit to the copier.
12. Connect the Z-Folding unit power cord to the Z-folding unit and connect the other end of the cord to the power ac supply.

Z-FOLDING UNIT ZF4000 (B660)



13. At the left bottom edge of the Z-folding unit, remove the bracket [A] (\wedge x 1).
14. Push in the support [B].
15. Reattach the bracket [C] (\wedge x 1).

CAUTION

With the support retracted, the Z-folding unit tips easily!

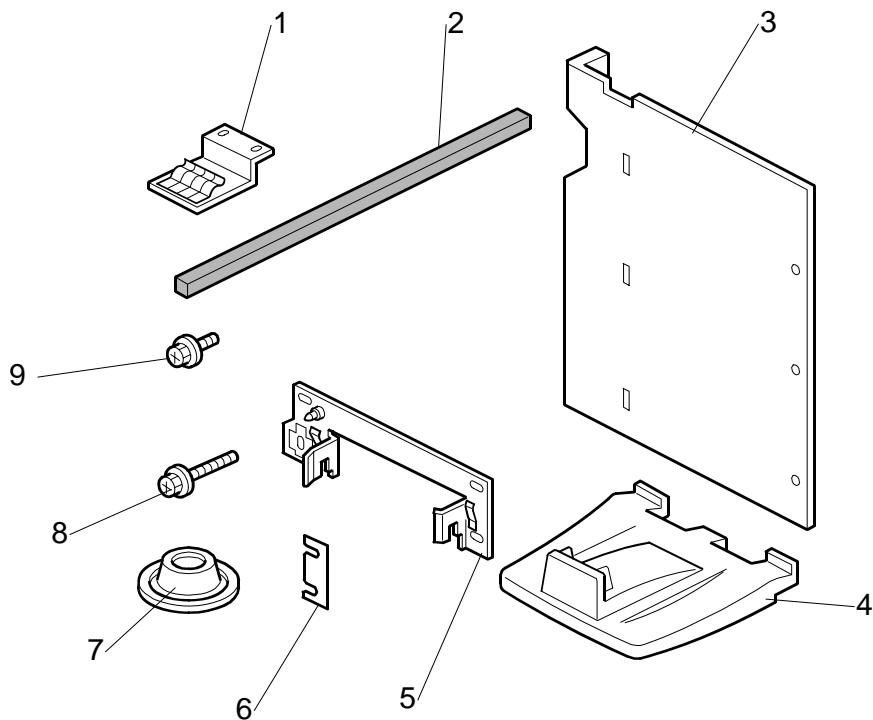
16. Attach the I/F cable to the cover interposer tray (or Copier).
17. Connect the power cord to the Z-folding unit.

1.10 BOOKLET FINISHER BK5000 (B836)

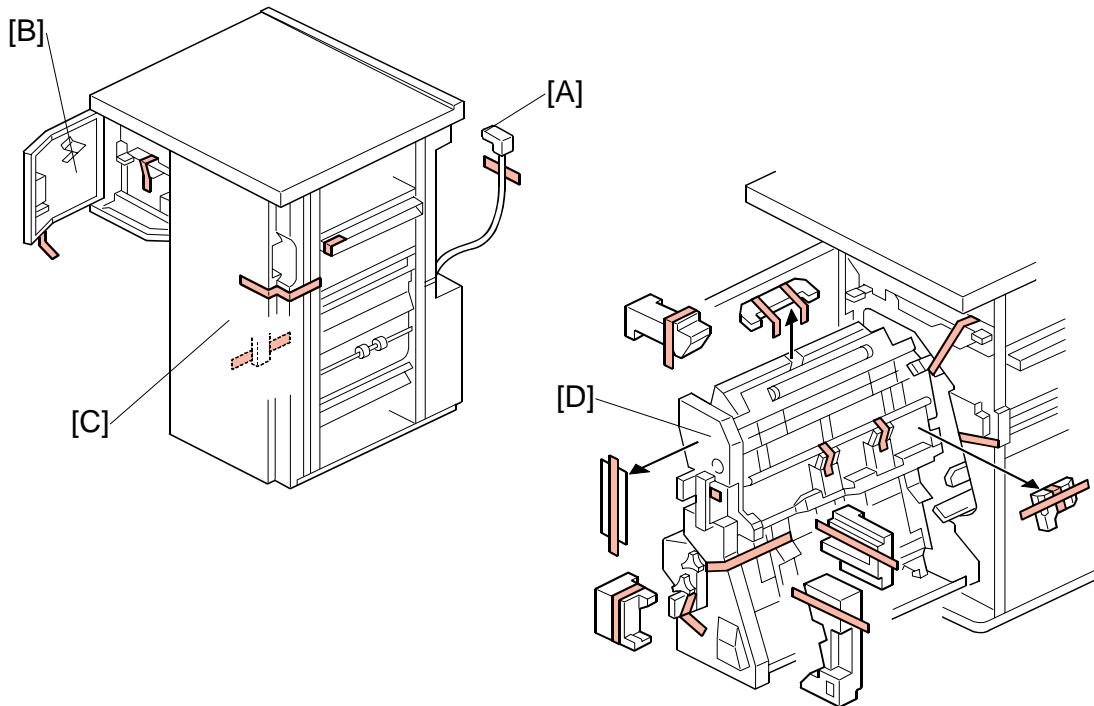
1.10.1 ACCESSORIES

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

| Description | Q'ty |
|--|------|
| 1. Ground (earth) plate | 1 |
| 2. Sponge Strip | 1 |
| 3. Right Cover (For B830)..... | 1 |
| 4. Output Tray..... | 1 |
| 5. Joint Bracket..... | 1 |
| 6. Spacers (attached to base plate with screws)..... | 2 |
| 7. Leveling Shoes | 3 |
| 8. Tapping Screw (M4 x 14)..... | 4 |
| 9. Tapping Screw (M3 x 6)..... | 8 |

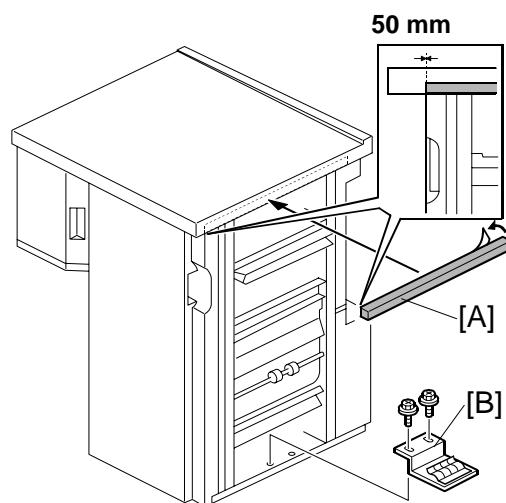


1.10.2 INSTALLATION

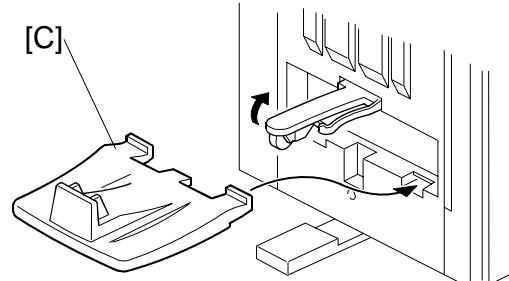


1. Remove all external filament tape and shipping material.
2. Remove the tape from the interface connector [A].
3. Open the small front door [B].
4. Remove all tapes and packing materials.
5. Open the large front door [C].
6. Pull the jogger unit [D] out of the finisher.
7. Remove all tapes and retainers.

8. Remove the strip from the sponge cushion [A].
9. Attach the cushion to the finisher as shown.
10. Use a short screwdriver to attach the grounding plate [B] ($\frac{1}{16}$ x 2, M3 x 6).



11. Attach the output tray [C].



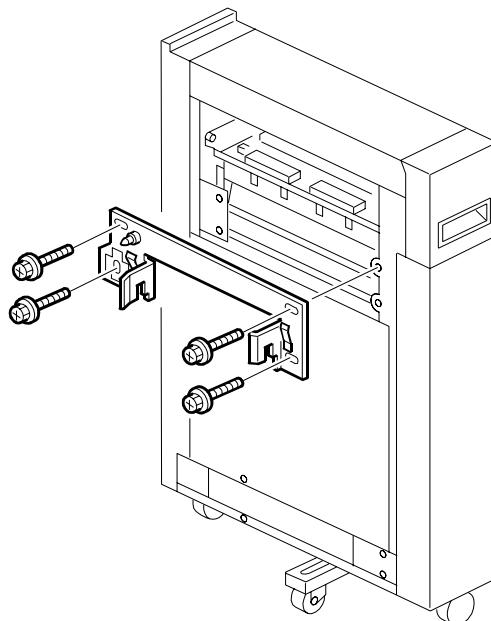
Docking the Booklet Finisher B836

The Booklet Finisher B836 is docked to:

- Z-folding unit
- Cover Interposer tray (if Z-folding unit is not installed).
- Copier (if neither Z-folding unit nor cover interposer tray is installed).

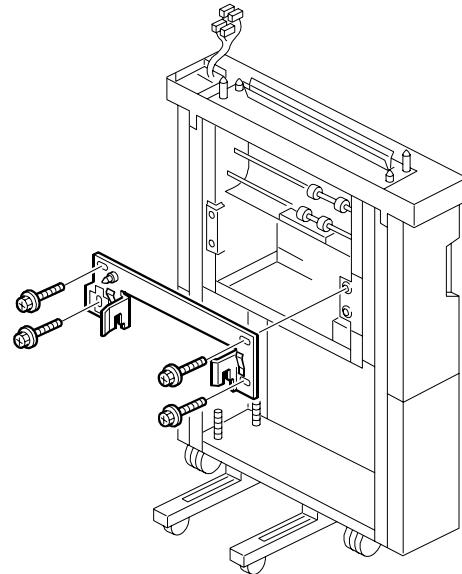
Booklet Finisher B836 → Z-Folding Unit (B660)

1. Fasten the joint bracket to the Z-Folding Unit B660. (4 x4 M4x10)
2. Dock the finisher. (Go to page 1-96.)

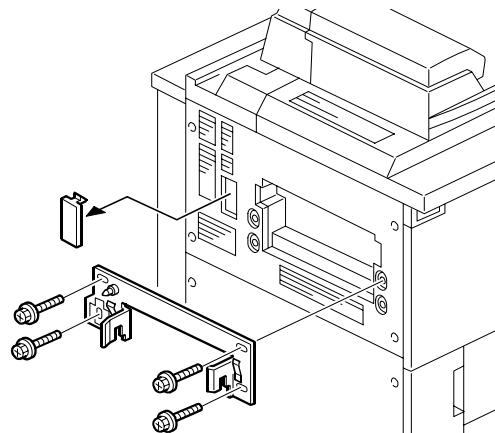


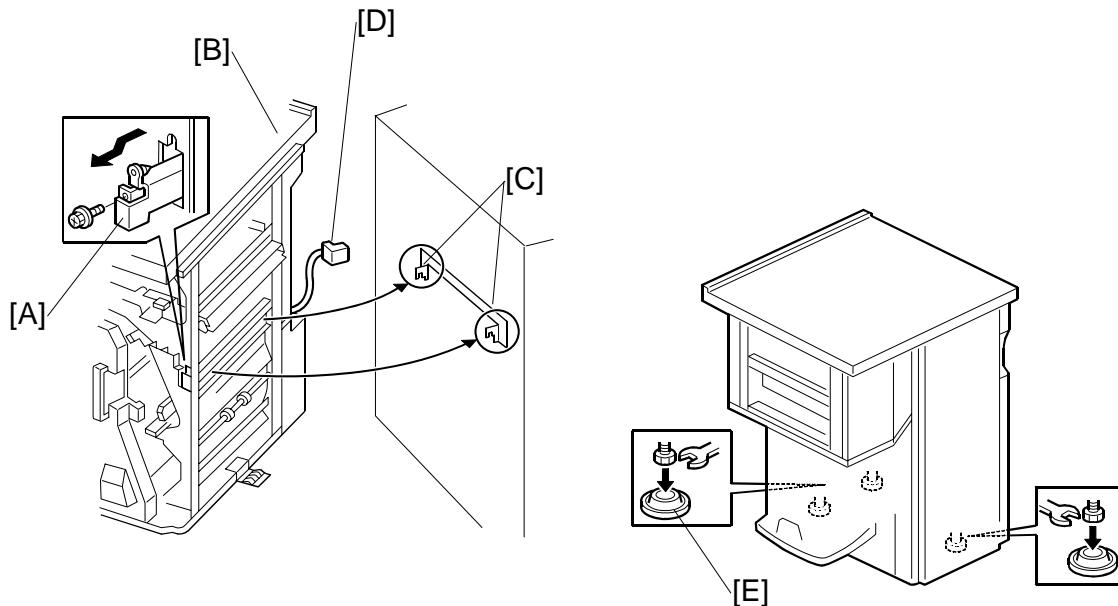
Booklet Finisher B836 → Cover Interposer Tray B835

1. Fasten the joint bracket to the Cover Interposer Tray B835. (\wedge x4 M4x14)
2. Dock the finisher. (Go to page 1-96.)

***Booklet Finisher B836 → Copier***

1. Remove the connector cover
2. Fasten the joint bracket to the Copier (\wedge x4 M4x14).
3. Dock the finisher. (Go to page 1-96.)



Connecting the Booklet Finisher B836

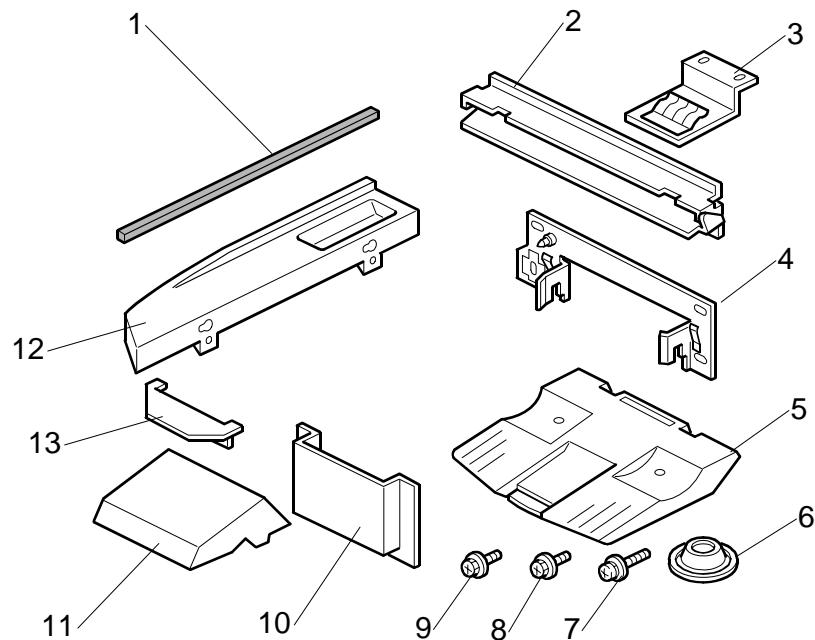
1. Open the front door of the finisher.
2. Pull out the locking lever [A] (\wedge x1).
3. Align the finisher [B] with the joint brackets [C], then slowly push the finisher onto the brackets.
4. Connect the finisher cable [D] to the copier
5. Push in the locking lever.
6. Check that the top edges of the finisher are parallel with edges of the finisher (or copier) to the right.
7. Fasten the locking lever [A] (\wedge x 1)
8. Close the front door.
9. Set the leveling shoes [E] (x3) under the feet.
10. Turn the nuts to adjust the height of the finisher until it is level.

1.11 FINISHER SR5000 (B830)

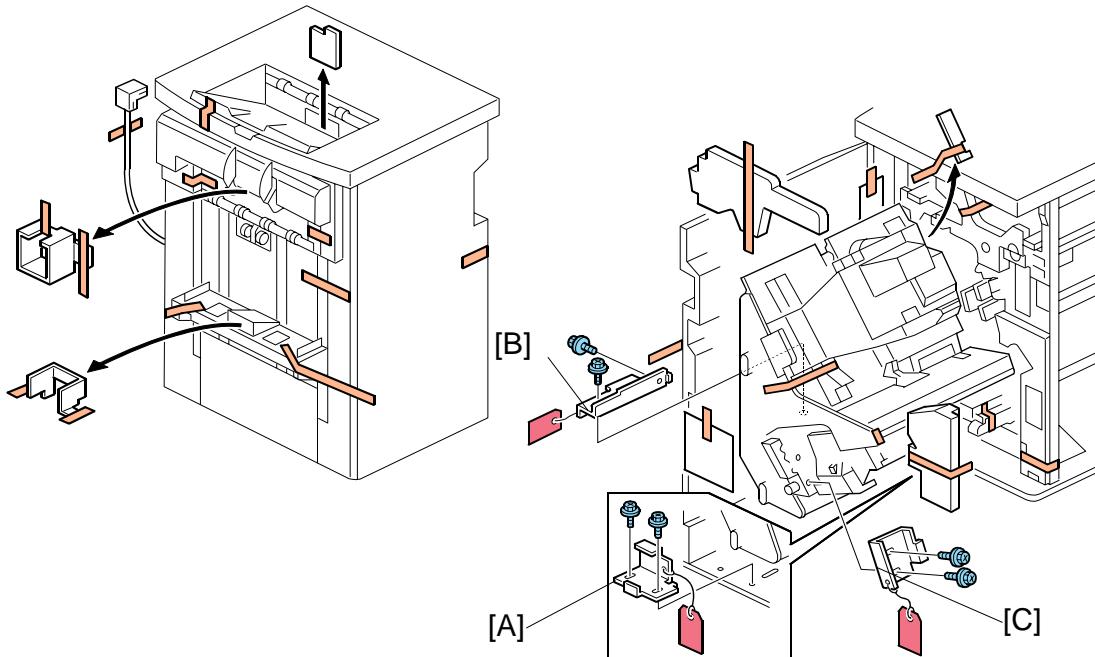
1.11.1 ACCESSORIES

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

| Description | Q'ty |
|--|------|
| 1. Sponge Strip | 1 |
| 2. Entrance Guide Plate | 1 |
| 3. Ground Plate | 1 |
| 4. Joint Bracket | 1 |
| 5. Shift Tray..... | 1 |
| 6. Leveling Shoes | 4 |
| 7. Tapping Screws – M4 x 12..... | 4 |
| 8. Tapping Screws – M3 x 6..... | 8 |
| 9. Tapping Screws – M4 x 8..... | 2 |
| 10. Support Plate Pocket | 1 |
| 11. Support Plate | 1 |
| 12. Side Tray..... | 1 |
| 13. Support Plate for Proof Tray | 1 |



1.11.2 INSTALLATION

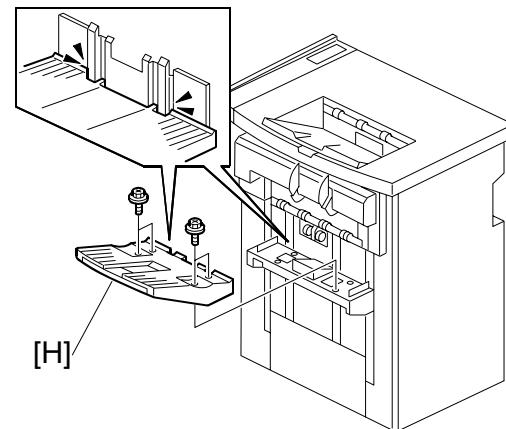
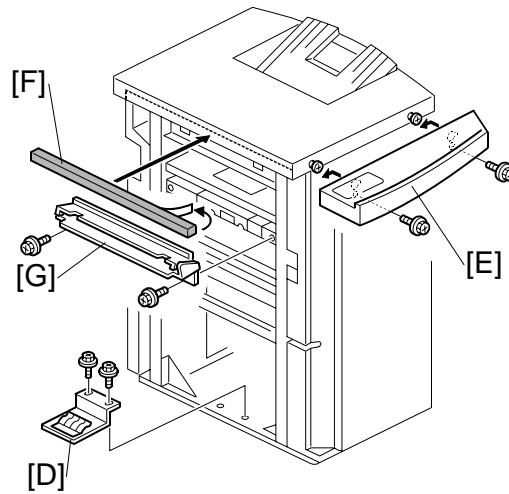


CAUTION

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.
3. Remove the brackets, tags, and wires in this order: [A]→[B]→[C] (\wedge x 2 each).

4. Install the ground plate [D] (\wedge x 2) (M3 x 6).
NOTE: Set the ground plate so that there is no gap between the plate and the bottom frame of the finisher (as shown).
5. Install the table extension [E] (\wedge x 2) (M4 x 8).
NOTE: The edge of the table extension should be aligned with the edge of the finisher.
6. Attach the cushion [F] to the right side of the upper cover.
7. Install the entrance guide plate [G] (\wedge x 2) (M3 x 6).
8. Insert the shift tray [H] properly into the grooves and fasten it (\wedge x 4) (M3 x 6).



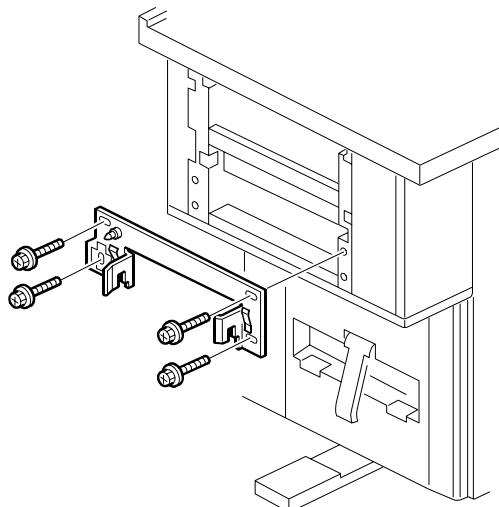
Docking the Finisher B830

The Finisher (B830) is docked to:

- Booklet Finisher (B836)
- Z-folding unit (if the Booklet Finisher B836 is not installed)
- Cover Interposer tray (if Booklet Finisher B836 and Z-Folding Unit B660 are both not installed)
- Copier (if Booklet Finisher B836, Z-Folding Unit B660, and Cover Interposer Tray B835 are all not installed.)

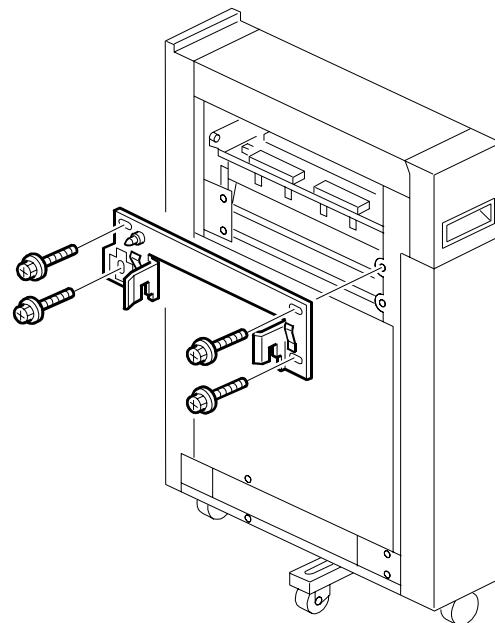
Finisher B830 → Booklet Finisher B836

1. Fasten the joint bracket to the Booklet Finisher B836.
2. Dock the finisher. (Go to page 1-103.)

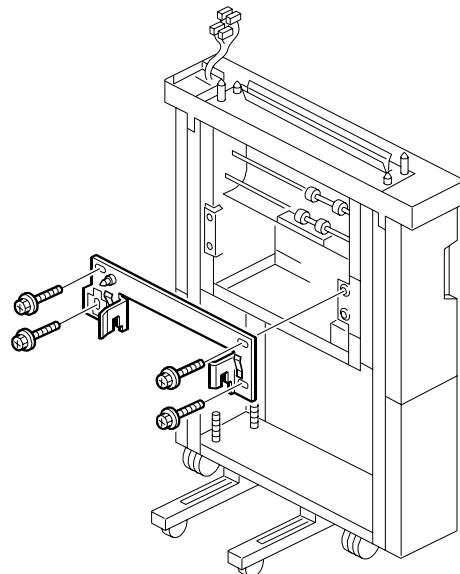


Finisher B830 → Z-Folding Unit B660

1. Fasten the joint bracket to the Z-Folding Unit B660.
2. Dock the finisher. (Go to page 1-103.)

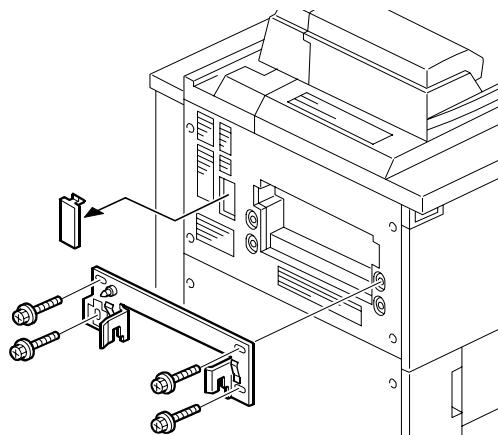
***Finisher B830 → Cover Interposer Tray B835***

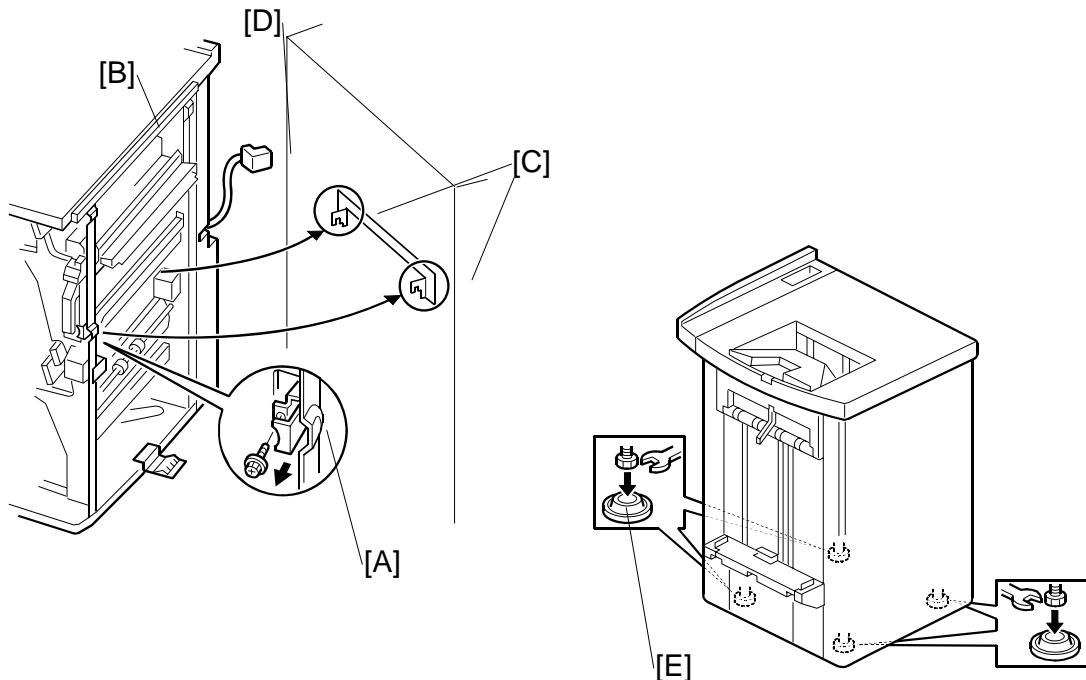
1. Fasten the joint bracket to the Cover Interposer Tray B835.
2. Dock the finisher. (Go to page 1-103.)



Finisher B830 → Copier B234

1. Remove the connector cover
2. Fasten the joint bracket to the Copier.
3. Dock the finisher. (Go to page 1-103.)



Connecting the Finisher B830

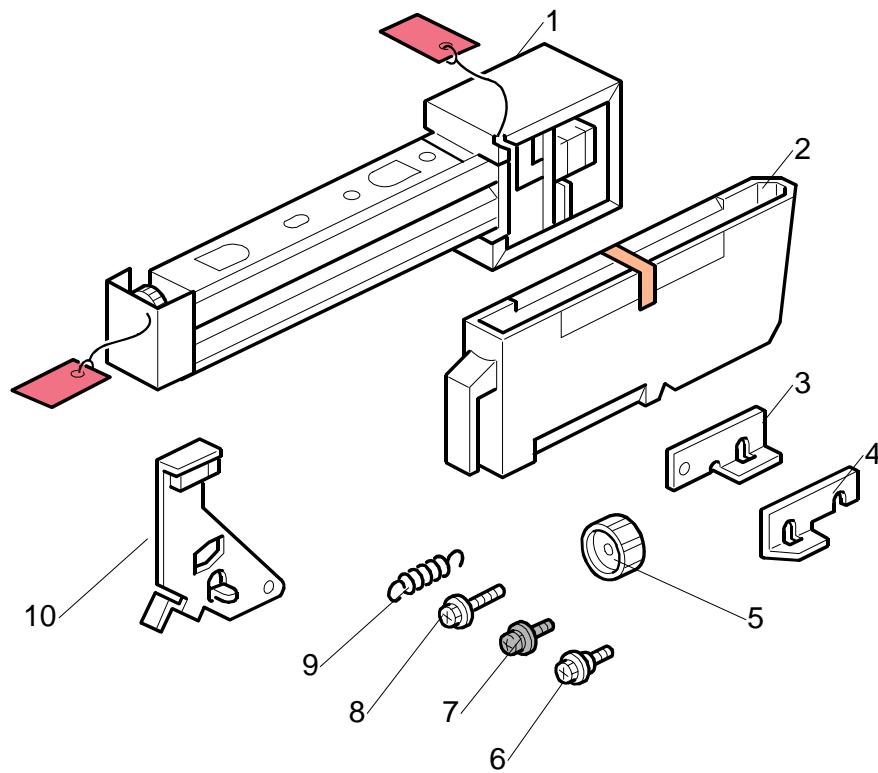
1. Open the front door of the finisher.
2. Pull out the locking lever [A] ($\text{扳手} \times 1$).
3. Align the finisher [B] with the joint brackets [C], then slowly push the finisher onto the brackets.
4. Connect the finisher cable [D] to the copier
5. Push in the locking lever.
6. Check that the top edges of the finisher are parallel with edges of the finisher (or copier) to the right.
7. Fasten the locking lever [A] ($\text{扳手} \times 1$)
8. Close the front door.
9. Set the leveling shoes [E] ($\times 4$) under the feet.
10. Turn the nuts to adjust the height of the finisher until it is level.

1.12 PUNCH UNIT PU5000 (B831)

1.12.1 ACCESSORIES

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

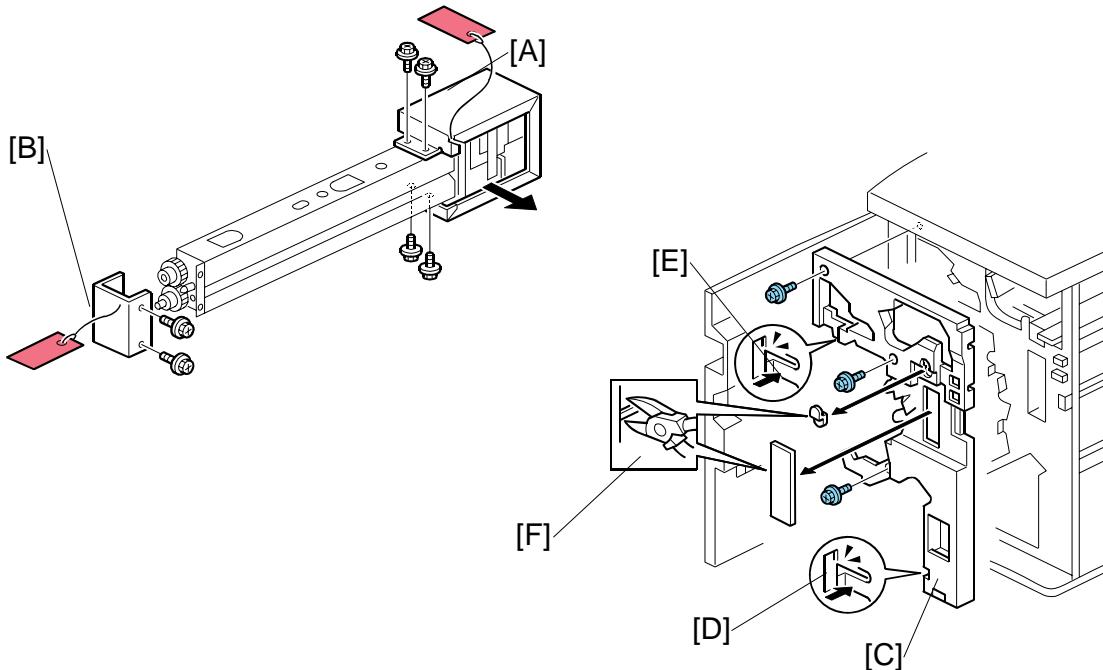
| Description | Q'ty |
|--|------|
| 1. Punch Unit | 1 |
| 2. Punch Waste Collection Hopper | 1 |
| 3. Spacer (1 mm) | 2 |
| 4. Spacer (2 mm) | 1 |
| 5. Knob | 1 |
| 6. Step Screw | 1 |
| 7. Screw (M4 x 6) Black | 1 |
| 8. Screw (M3 x 10)..... | 2 |
| 9. Spring | 1 |
| 10. Sensor Arm and Sensor..... | 1 |



1.12.2 INSTALLATION

Important!

- This punch unit is for the B830 finisher only. It cannot be installed in the Booklet Finisher BK5000 (B836).
- This punch unit cannot be used with the B236/D103 copier (135 ppm).

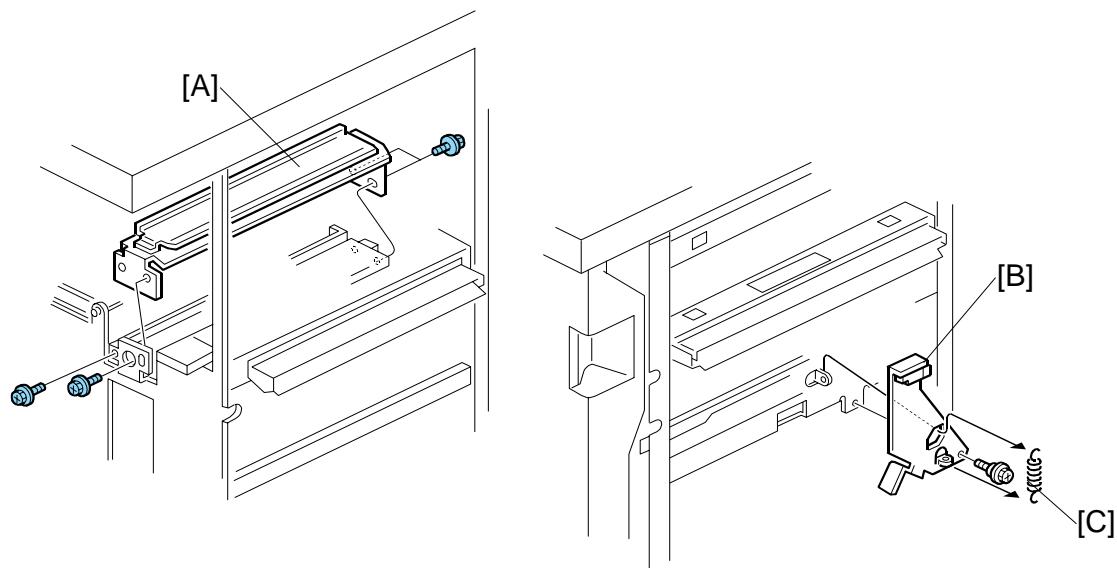


⚠ CAUTION

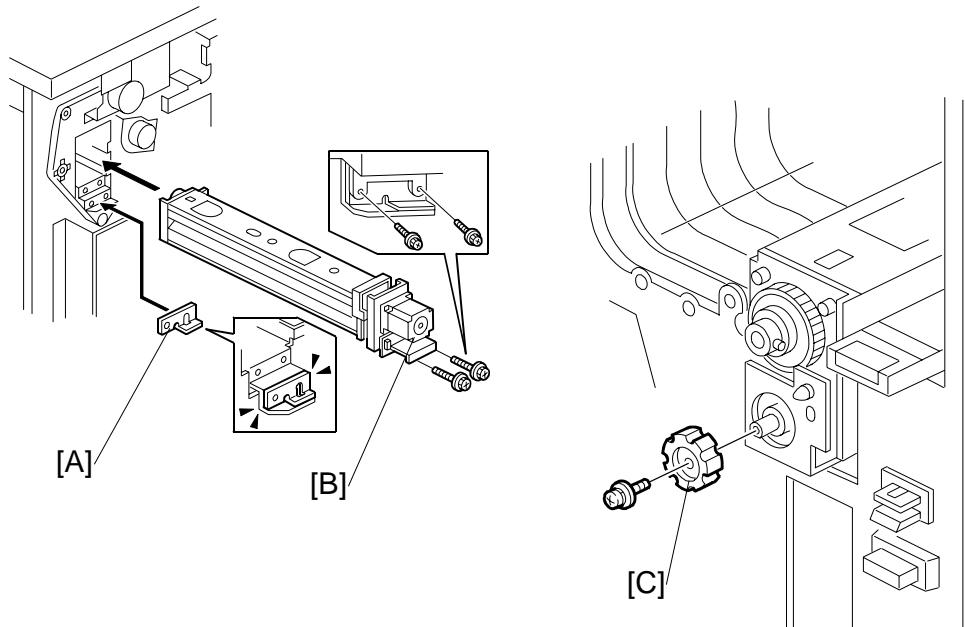
Switch the machine off and unplug the machine before starting the following procedure.

1. If the finisher is connected to the machine, disconnect it.
2. Open the front door and remove the rear cover (Phillips x 2).
3. Unpack the punch unit and remove the motor protector plate [A] (Phillips x 4, Step screw x1).
4. Remove the cam lock plate [B] (Phillips x 1).
5. Remove the inner cover [C] (Phillips x 3).
6. Behind the inner cover at [D] and [E], press the lock tab to the right to release the inner cover from the frame.
7. Remove the plastic knockouts [F].

PUNCH UNIT PU5000 (B831)

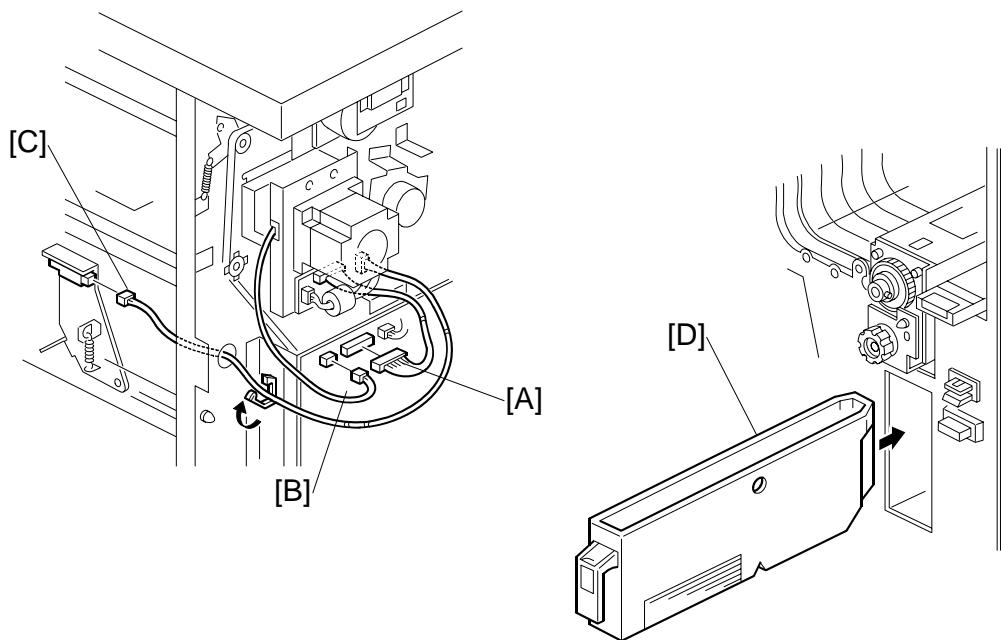


8. Remove the paper guide [A] (\wedge x 4).
9. Install the sensor arm [B] (\wedge x 1, small step screw (M3 x 4)).
NOTE: Make sure that the sensor arm swings freely on the step screw.
10. Attach the spring [C].



11. Position the 2 mm spacer [A] and attach the punch unit [B] ($\frac{3}{8} \times 2$, M3 x 10).
12. Use one of the screws removed from the motor protector plate to fasten the remaining two spacers to the frame as shown.
NOTE: These extra spacers can be used to adjust the position of the punch holes (front to rear, across the page).
13. At the front, fasten the punch unit knob [C] ($\frac{3}{8} \times 1$).

PUNCH UNIT PU5000 (B831)



14. Connect the PCB harness connector [A] to **CN135** of the finisher PCB and to **CN600** of the punch unit PCB.
15. Connect the harness [B] to **CN136** of the finisher PCB.
16. Connect the single end of the hopper full sensor connector cable [C] to the hopper full sensor on the arm (x 1, x 2).
- NOTE:** No special DIP switch settings are required for this punch unit. A signal from the punch identifies itself by sending a signal to the copier.
17. Slide the punch waste collection hopper [D] into the finisher.
18. Re-attach the inner cover and rear cover.
19. Close the front door and re-connect the finisher to the machine.

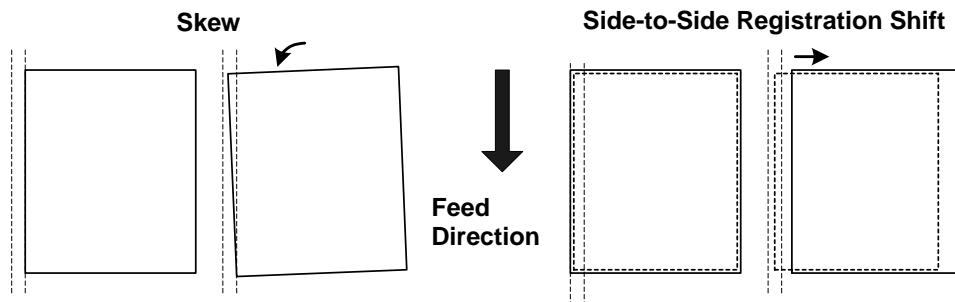
1.13 SKEW AND SIDE-TO-SIDE ADJUSTMENT

1.13.1 SKEW AND SIDE-TO-SIDE REGISTRATION ADJUSTMENT

What Is Skew and Side-to-Side Registration Shift?

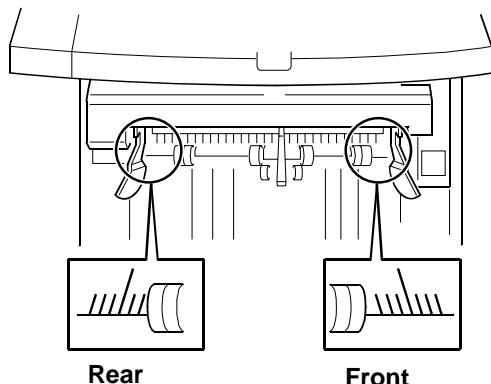
The paper feed path is extremely long when all the post-processing feed options are installed. In such a long path, the cumulative effect of paper skew and deviation in side-to-side registration may require adjustment.

- Skew appears when the paper rotates away from the direction of paper feed.
- If side-to-side registration shifts, the sheet remains straight but shifts left or right away from center.

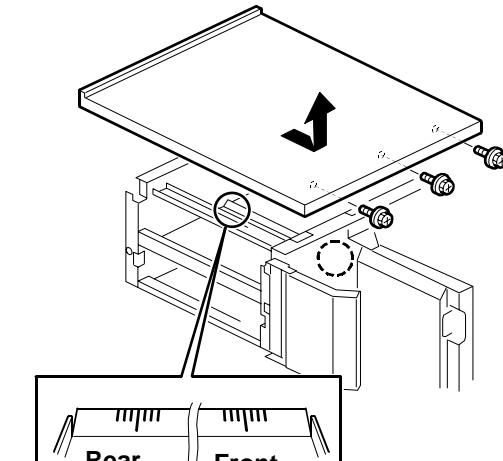


SKEW AND SIDE-TO-SIDE ADJUSTMENT

Where Skew and Side-to-Side Registration Are Measured



[A]



[B]

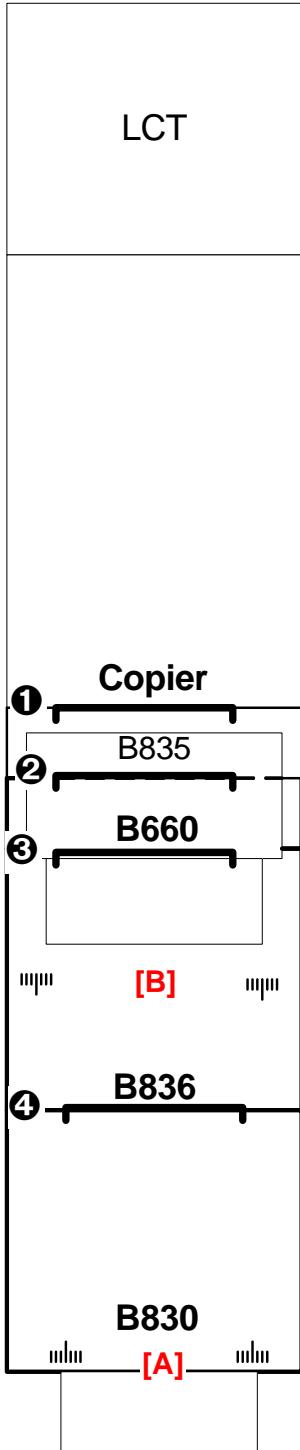
You can measure the skew and registration at two locations.

- At the output slot of the 3000-sheet finisher (B830) [A]
- Inside the booklet finisher (B836) [B] if you remove the upper cover.

At both locations, two scales are provided so that you can visually measure the amount of skew or deviation in side-to-side registration.

Important! Only one scale is read, depending on the type of paper. Be sure to read the correct scale for the paper size.

| | |
|--------------|---------------------------------|
| Rear | DLT (11" x 17") size paper only |
| Front | A3 size paper only |

Where Skew and Side-to-Side Registration Are Adjusted

There are four locations where you can adjust the joint bracket (see page 1-116) to correct for paper skew or side-to-side registration shift with all the optional peripheral units installed.

- ① At the output from the copier
- ② At the output from the cover interposer tray (B835)
- ③ At the output from the Z-folding unit (B660)
- ④ At the output from the booklet finisher (B836)

Here are some general rules you should follow for testing and adjusting for paper skew or a shift in side-to-side registration.

With all the optional peripherals installed:

- If you detect a problem at [A], do the adjustment on the bracket ④ attached to the booklet finisher (B836).
- If you detect a problem at [B], (cover removed from the booklet finisher (B836), do the adjustment on the bracket ③ attached to the Z-folding unit (B660).
- If you detect a problem at [A] when the 3000-sheet finisher (B830) is the only peripheral installed, do the adjustment on the bracket ① attached to the copier.

Important

- The bracket adjustment is done at ① only if the 3000-Sheet finisher (B830) is the only peripheral installed.
- If both the finisher (B830) and booklet finisher (B836) are installed, the adjustment can be done at ③ and ④. First, do the adjustment at ③, and do another test. If there still a problem with skew or side-to-side registration, do the adjustment at ④.

SKEW AND SIDE-TO-SIDE ADJUSTMENT

Here is a table you can use to determine where to do the adjustments based on the configuration of the system.

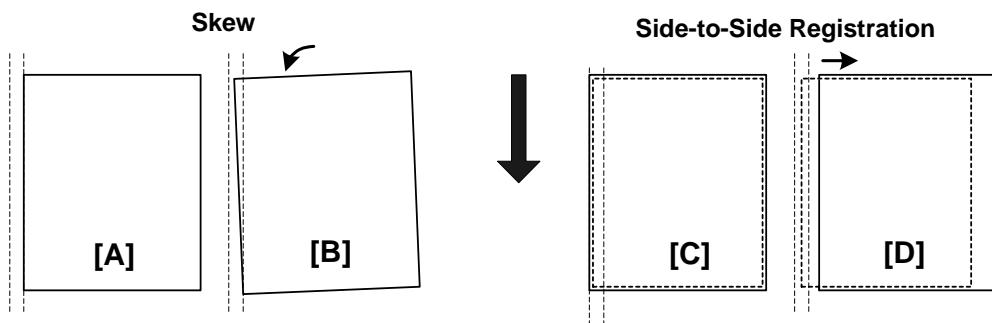
| | System Configuration | | | | | | | |
|--------------------------------|----------------------|----------------|----------------|----------------|----------|----------|----------|----------|
| | Type 1 | Type 2 | Type 3 | Type 4 | Type 5 | Type 6 | Type 7 | Type 8 |
| Copier | O | O | O | O | O | O | O | O |
| Cover Interposer B835 | O | O | X | X | O | O | X | X |
| Z-Fold Unit B660 | O | X | O | X | O | X | O | X |
| Booklet Finisher B836 | O | O | O | O | X | X | X | X |
| Finisher B830 | O | O | O | O | O | O | O | O |
| Adjust At:^{*1} | ③ ④ | ② ④ | ③ ④ | ① ④ | ③ | ② | ③ | ① |

O: Installed, X: Not Installed

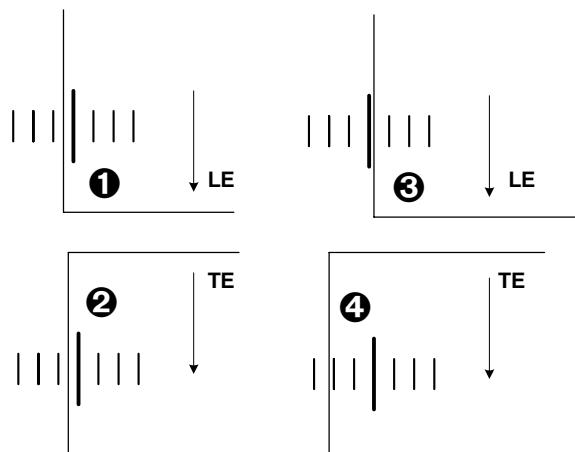
*1 Refer to diagram for locations shown on previous page by ① to ④.

When Skew and Side-to-Side Registration Should Be Adjusted

The edge of A3 [DLT] paper should be aligned with the long line of the front [rear] scale as it exits, or should not deviate from that line by more than ± 2 mm.

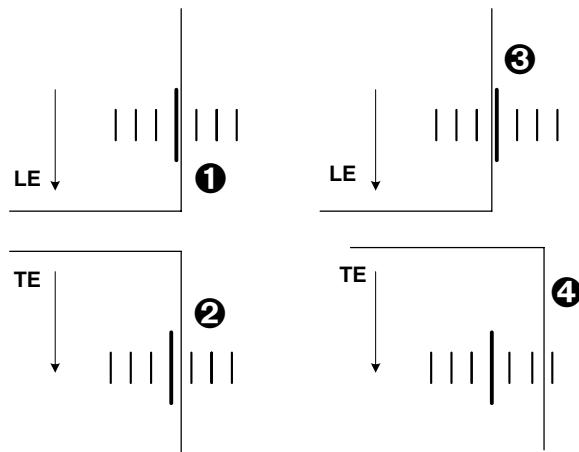


- [A] No deviation from center, no skew
- [B] Skew present. The leading edge and trailing edge of each sheet exit at points separated by more than ± 2 mm on the rear scale.
- [C] No deviation in side-to-side registration.
- [D] Deviation in side-to-side registration. The leading edge and trailing edge exit at the same point, but that point deviates more than ± 2 mm from center on the rear scale.

Example: Skew at Rear Scale (DLT)

- ①→②** There is some deviation but no adjustment is necessary.
- ③→④** Deviation is more than 2 mm.
Adjustment is necessary.

Scale: 2 mm

Example: Skew at Front Scale (A3)

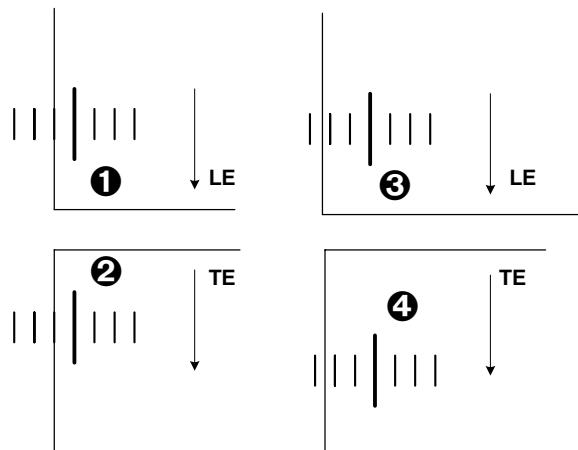
- ①→②** There is some deviation but no adjustment is necessary.
- ③→④** Deviation is more than 2 mm.
Adjustment is necessary.

LE: Leading Edge

TE: Trailing Edge

SKEW AND SIDE-TO-SIDE ADJUSTMENT

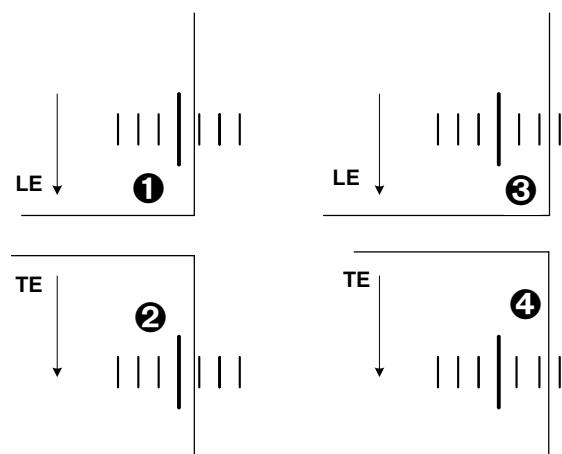
Example: Side-to-Side Shift at Rear Scale (DLT)



①→② There is some deviation but no adjustment is necessary.

③→④ Deviation is more than 2 mm.
Adjustment is necessary.

Example: Side-to-Side Shift at Front Scale (A3)



①→② There is some deviation but no adjustment is necessary.

③→④ Deviation is more than 2 mm.
Adjustment is necessary.

LE: Leading Edge

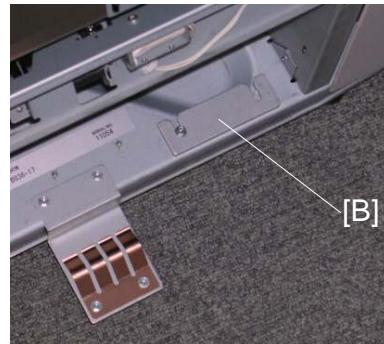
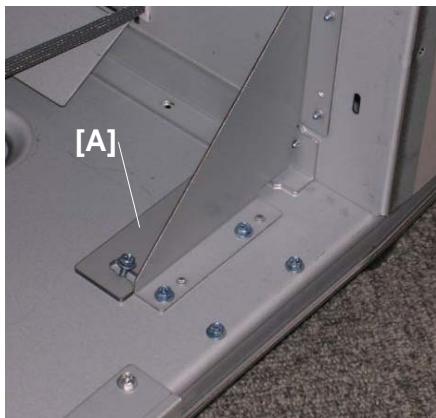
TE: Trailing Edge

1.13.2 HOW TO ADJUST SKEW, SIDE-TO-SIDE REGISTRATION

1. Do a copy job with shift mode selected for the finisher.
NOTE: Use A3 or DLT paper.
2. At the output slot of the 3000-sheet finisher B830 and B836, watch the edge of the paper at the scale to see if it deviates more than ± 2 mm from the center line.
 - Watch the front scale for A3 paper
 - Watch the rear scale for DLT paper
3. If the leading/trailing edges are exiting at different points, there is some skew.
If the deviation is within 2 mm, no adjustment is necessary.
-or-
If the deviation is more than 2 mm, do the skew adjustment (see below).
4. If the leading/trailing edges are exiting at the same point slightly left or right of center, there is some deviation in the side-to-side registration.
If the deviation is within 2 mm, no adjustment is necessary.
-or-
If the deviation is more than 2 mm, do the side-to-side registration adjustment (see below).

SKEW AND SIDE-TO-SIDE ADJUSTMENT

To Correct Skew



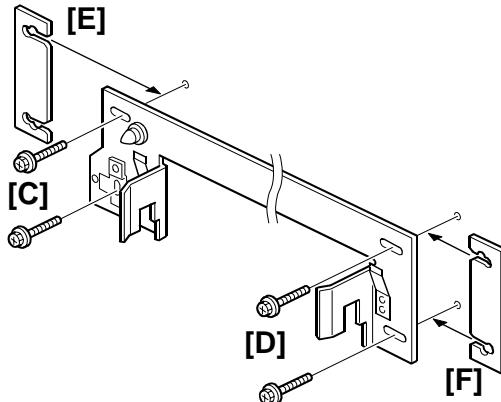
1. Spacers are provided inside the 3000-sheet finisher B830 [A] and inside the booklet finisher B836 [B].
2. If trailing edge is skewing toward the front of the machine, insert a spacer under front end of the bracket.

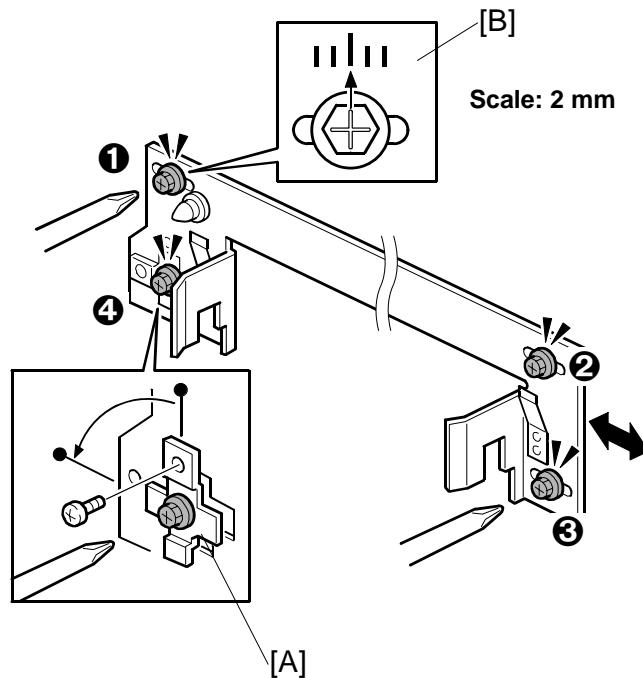
-or-

If the trailing edge is skewing toward the rear of the machine, insert a spacer under the rear end of the bracket.

The procedure is as follows:

- 1) Loosen screws (x2) [C] or [D] where the adjustment is required so the spacer can be inserted.
- 2) Insert one spacer [E] or [F].
- 3) Do some more test prints to check the adjustment.
If skew is still present, insert another spacer at the same location.

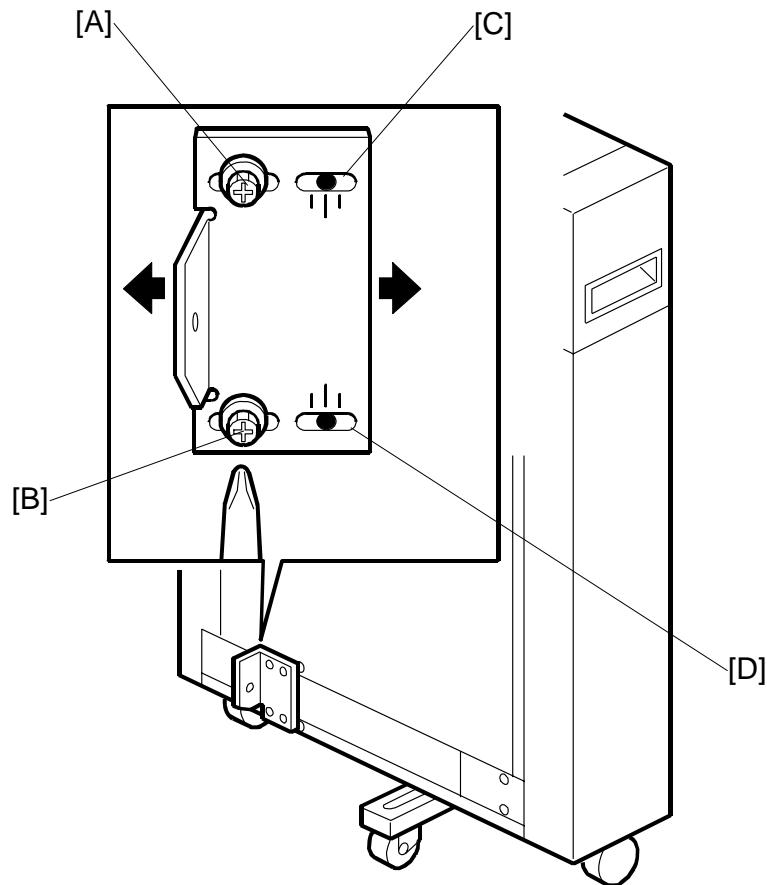


To Correct Side-to-Side Registration**Important**

- This adjustment can be done on the left side of the copier, at the Z-Folding unit B660, at the cover interposer tray B835, and at the booklet finisher B836.

1. Loosen screws ①, ②, ③, ④).
2. Remove the bracket [A] ($\frac{1}{8}$ x1), rotate it 90 degrees, then refasten it.
NOTE: Re-positioning the bracket aligns the oval cut-out horizontally so that you can slide the joint bracket to slide from side-to-side.
3. Use the scale [B] at the top of the rear end of the bracket.
If the deviation from center was toward the front of the machine, slide the bracket to the front and fasten it with the screw.
-or-
If the deviation from center was toward the back of the machine, slide the bracket to the rear and fasten it with the screw.

SKEW AND SIDE-TO-SIDE ADJUSTMENT



If you are doing this adjustment on the side of the Z-Folding unit:

- At the base of the unit, loosen screws [A] and [B].
- Slide the plate left or right.
- Move the plate on the scales [C] and [D] by the same amount as the adjustment done above on the long bracket.
- Retighten the screws.

4. Do some more test prints and repeat the adjustment until it is correct.

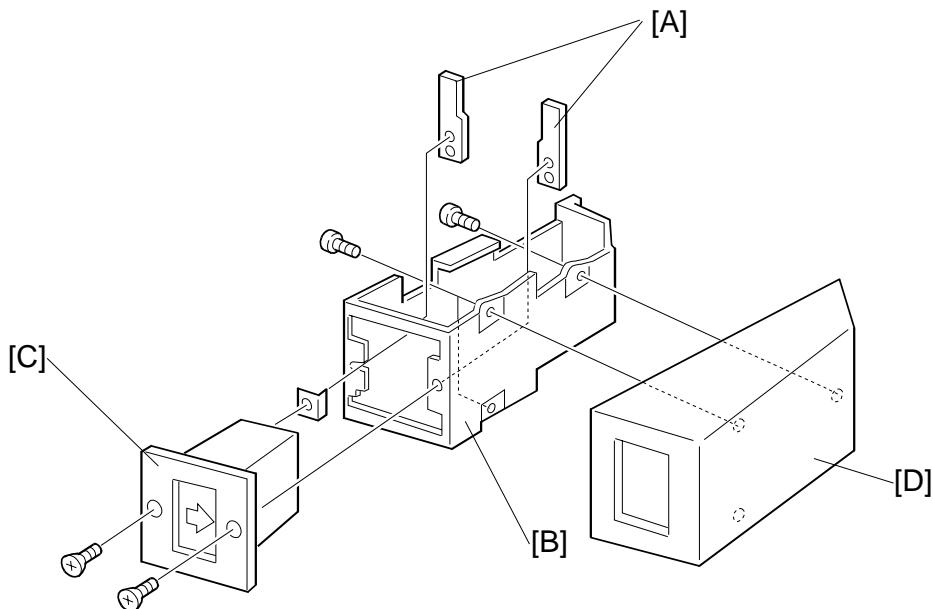
1.14 KEY COUNTER

1.14.1 ACCESSORIES

| Description | Q'ty |
|---|------|
| 1. Key Counter Cover | 1 |
| 2. Key Counter Plates..... | 2 |
| 3. Key Counter Bracket..... | 1 |
| 4. Machine screw M3 x 6 | 1 |
| 5. Shoulder Screw M3 x 4..... | 1 |
| 6. Tapping Screws M4 x 8 | 3 |
| 7. Machine Screws M3 x 20..... | 2 |
| 8. External Screw M3 x 20..... | 1 |
| 9. Machine Screw (Flathead) M4 x 16 | 1 |
| 10. Extension Cable (for LCT Installation) | 1 |
| 11. Extension Cable Clamps (for LCT Installation) | 6 |

1.14.2 INSTALLATION

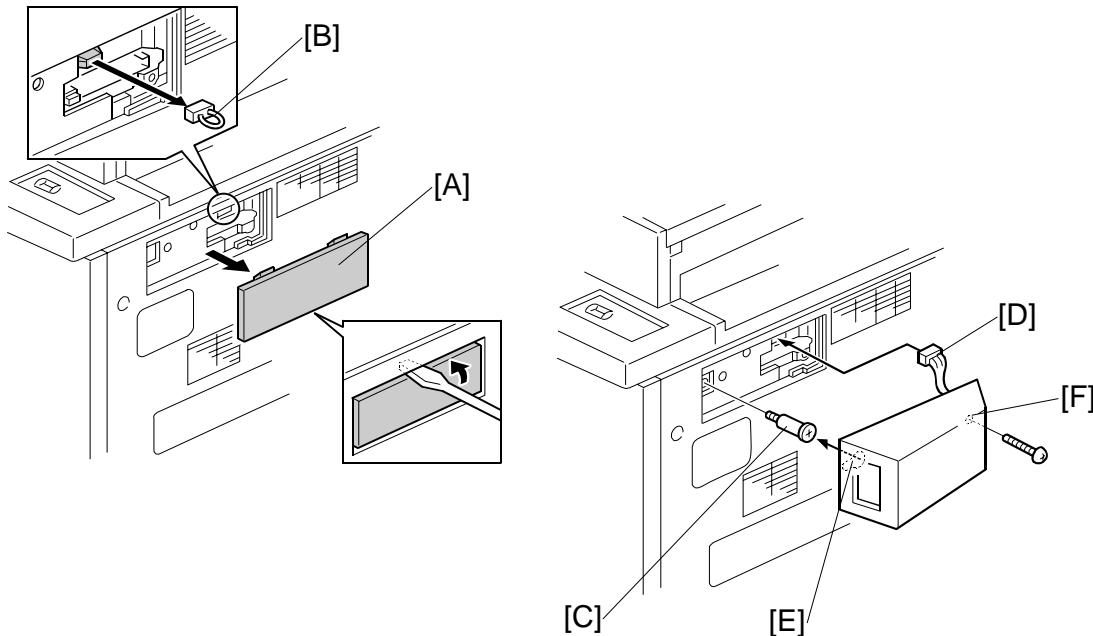
Assembling the Key Counter



1. While holding the key counter plates [A] inside the key counter bracket [B], insert the key counter holder [C]
2. Fasten the key counter holder [C] through the bracket plate to the counter plates [A] ($\frac{1}{4}$ x 2).
3. Fasten the cover [D] to the key counter bracket [B] ($\frac{1}{4}$ x 2).

Attaching the Key Counter to the Copier

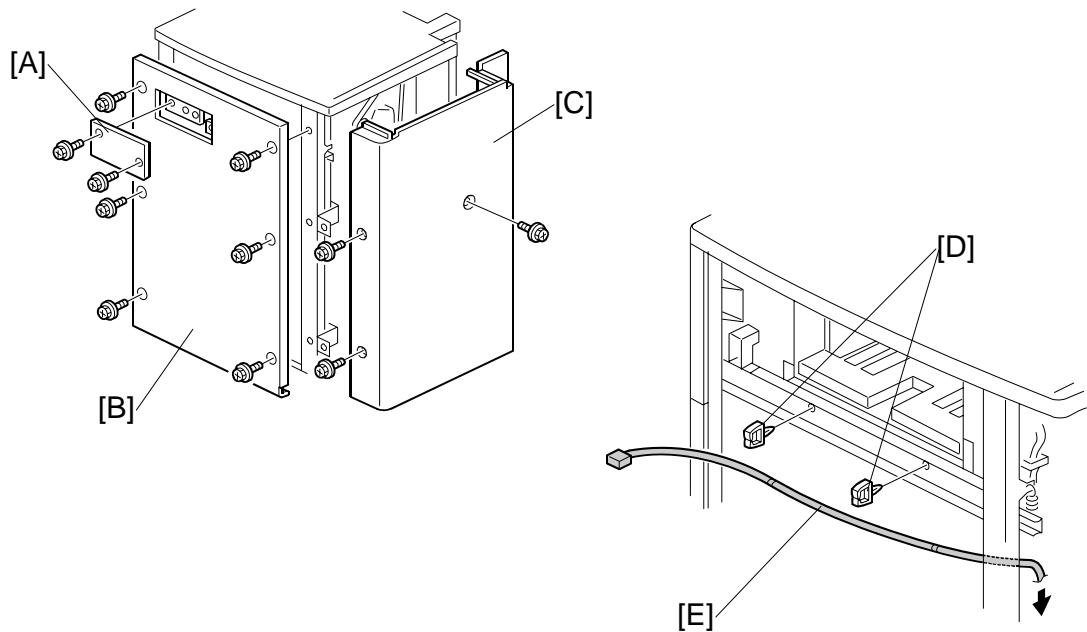
Attach the key counter to the copier if the LCT is not installed.



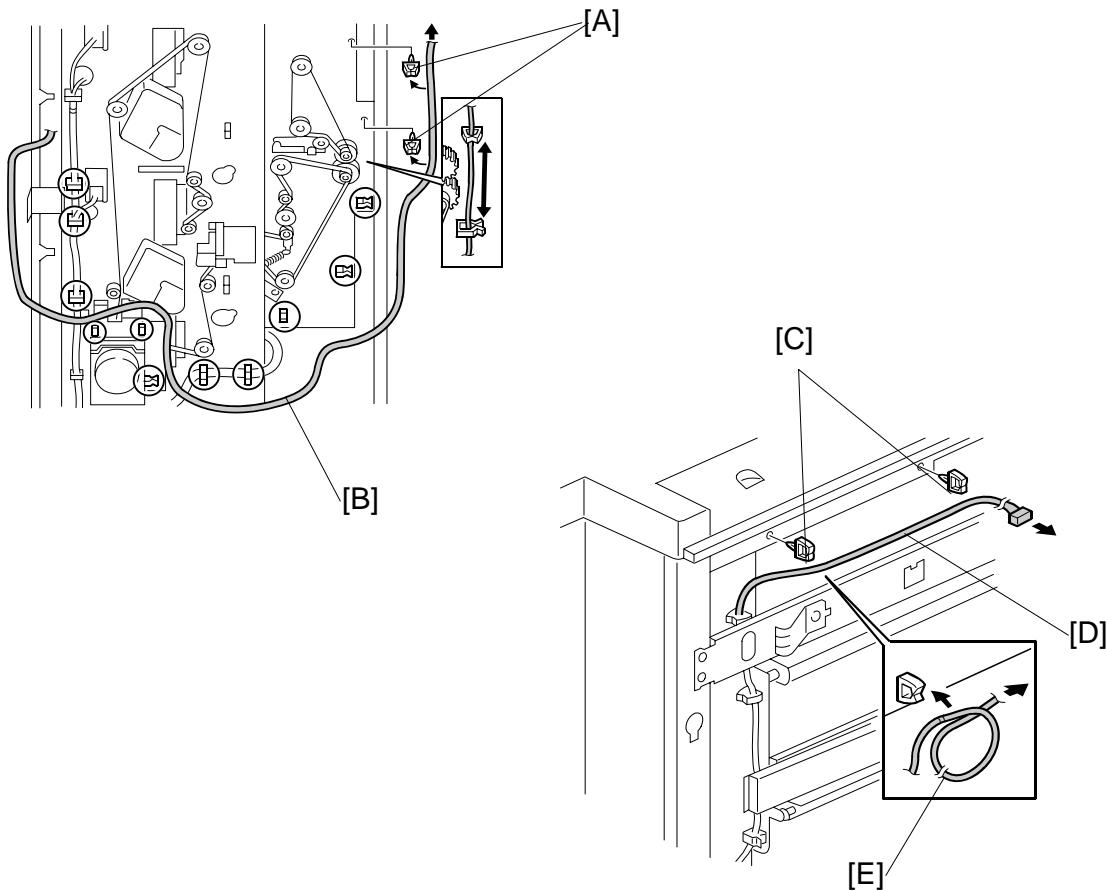
1. On the right side of the copier, remove the small cover [A].
2. Remove the jumper connector [B].
3. Fasten the shoulder screw [C] to the side of the machine.
4. Connect the key counter assembly [D].
5. Fit the keyhole of the key counter bracket [E] over the head of the shoulder screw, then slide it back.
6. Fasten the key counter assembly [F] to the copier (x 1).
7. Do the User Tool and SP mode settings described at the end of this section.

KEY COUNTER

Attaching the Key Counter to the LCT

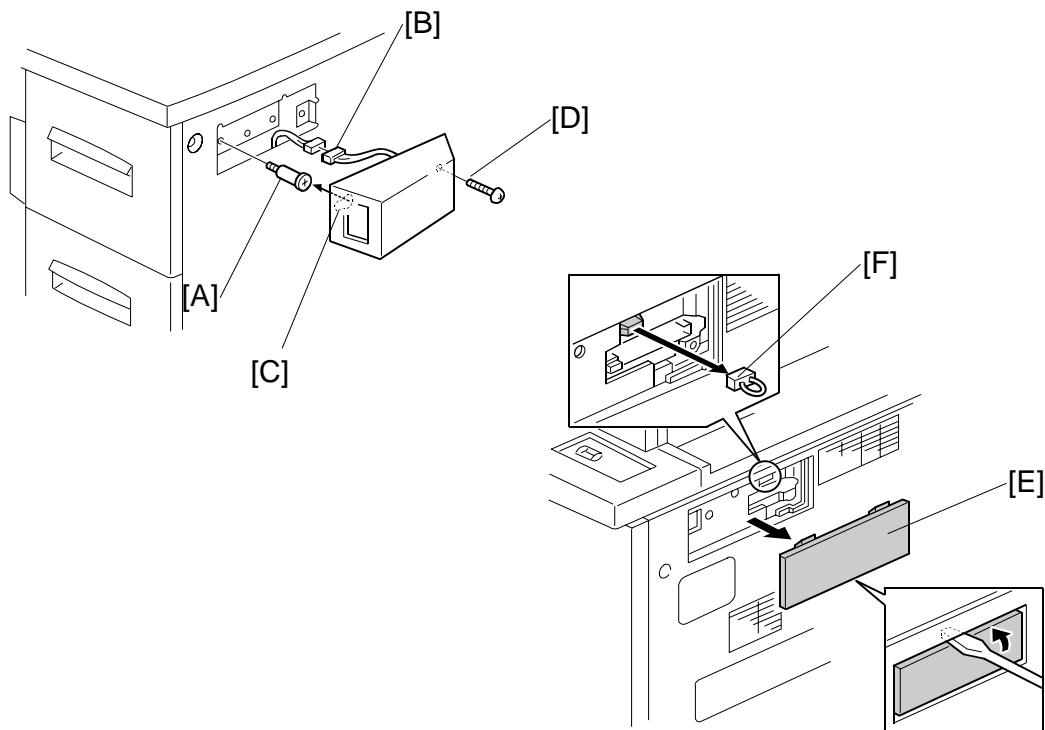


1. On the LCT right cover, remove the cover [A] (x 2).
2. Remove the LCT right cover [B] (x 6).
3. Remove the LCT rear cover [C] (x 3).
4. On the right side of the LCT, attach 2 clamps [D].
5. Attach the extension cable [E] to the 2 clamps.

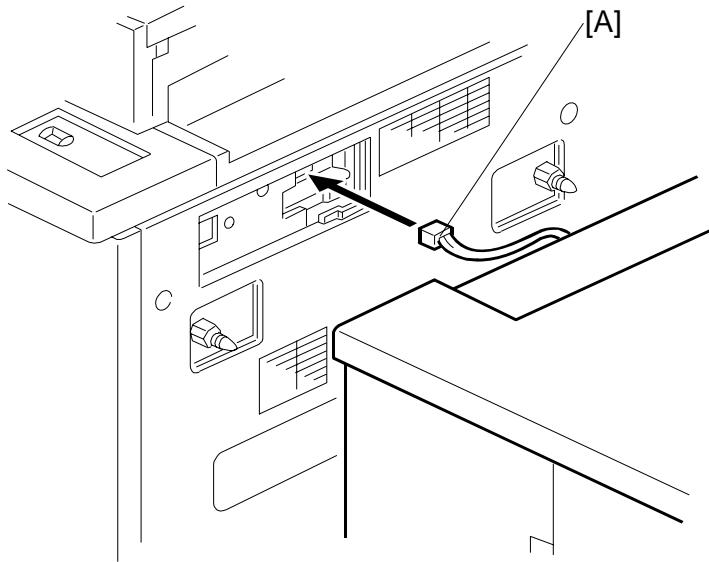


6. On the rear side of the LCT, attach 2 clamps [A].
7. Route the cable [B] as shown.
8. On the left side of the LCT, attach 2 clamps [C].
9. Route the cable [D] as shown.
10. If the cable from the right cover is too long, loop it [E] to make it shorter.

KEY COUNTER



11. Re-attach the right LCT cover.
12. Fasten the shoulder screw [A] to the side of the LCT.
13. Connect the key counter assembly [B].
14. Fit the keyhole of the key counter bracket [C] over the head of the shoulder screw, then slide it back.
15. Fasten the key counter assembly [D] to the LCT ($\frac{1}{8}$ x 1).
16. On the right side of the copier, remove the small cover [E].
17. Remove the jumper connector [F].



18. Connect the extension cable [A] from the LCT to the copier.
19. Dock the LCT to the copier.

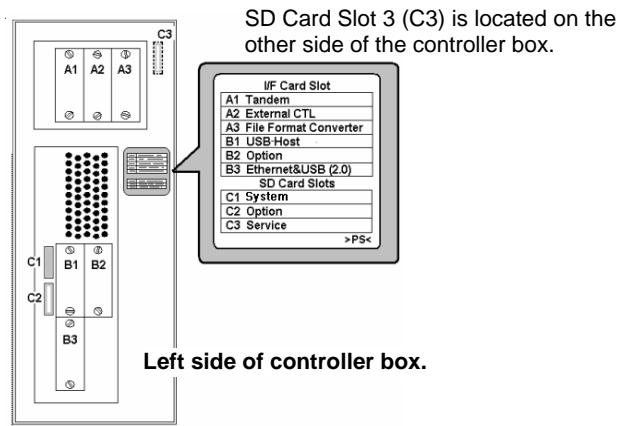
User Tool and SP Mode Settings

1. Instruct the key operator to enable the key counter with the User Tools setting:
User Tools> System Settings> Administrator Tools>
Key Counter Management> ON
Then select and enable the items for the counter (Copier, Document Server,
Printer, Scanner).
2. Enter the SP mode
 - Confirm that the setting for **SP5121** is "0" (Default: Paper Feed Count). This sets the counter for paper feed ("1" sets for paper exit).
 - Confirm that the setting for **SP5113** is "0".

1.15 INSTALLATION OF MFP CONTROLLER OPTIONS

1.15.1 OVERVIEW

Six slots for boards and three slots for SD cards are provided on the controller box. Each board or SC card must be inserted into its assigned slot. The slot assignment of each item is listed in the table below. A decal with the same information is attached to the controller box cover.



MFP Option Slot/Card Assignment

| Slot | Name on Decal | Description |
|------|-----------------------|---|
| A1 | Tandem | Copier Connection Kit B328 |
| A2 | External CTL | EFI (Fiery) Controller G847 |
| A3 | File Format Converter | File Format Converter (MLB) B609 |
| B1 | USB Host | USB Host Type A B825 |
| B2 | Options | <ul style="list-style-type: none"> IEEE 1284 Centronics IEEE 1394 Interface Board Type B (FireWire) B581 IEEE 802.11b Interface Unit Type H G813 (Wireless LAN) Bluetooth Interface Unit B826 Cumin-M B818 <p>NOTE: Only one of these boards can be inserted at a time.</p> |
| B3 | Ethernet & USB (2.0) | Ethernet & USB 2.0 Gigabit Ethernet Type 7300 G381 (includes USB 2.0) <p>NOTE: Only one of these boards can be inserted at a time.</p> |
| C1 | System | System Slot (Holds the system software. Never remove this SD card!) |
| C2 | Option | <ul style="list-style-type: none"> Printer/Scanner Unit Type 1350 B840 Data Overwrite B735 PostScript Unit B613 <p>NOTE: This is the only SD card slot available for applications. If more than one application is to be used, the applications must be merged onto one SD card.</p> |
| C3 | Service | SD card for machine firmware update by the customer engineer. <ul style="list-style-type: none"> Also for Browser Unit B828 Also for VM Card B861 |

1.15.2 MERGING APPLICATIONS ON ONE SD CARD

Overview

The machine has three SD card slots:

- Slot 1 (C1) is used for the system card (never remove the system SD card from Slot 1).
- Slot 2 (C2) is used for application programs
- Slot 3 (C3) is used for servicing (firmware updates)

Only one SD card slot (C2) is available for SD card applications. If the customer wants to use more than one application, the applications must be copied onto the same SD card.

Important

- The data necessary for authentication is transferred with the application program to the target SD card.
- Do not use an SD card if it was used with a computer before this time. Correct operation is not guaranteed if this type of SD card is used.
- The SD card is the only evidence that the customer is licensed to use the application program. Also, the service technician may occasionally need to check the SD card and its data to solve problems. For these reasons SD cards must be stored behind the copier emblem cover. (●Pg. 1-130)
- A licensing agreement prohibits copying of the PostScript SD card. However, you can copy any application from another SD card to the PS3 SD card.
- Once an SD card has been used to combine applications on that card, that SD card cannot be used for a different function.
- Never remove the System SD Card from Slot C1.
- Before uploading to an SD card, always make sure that the write-protect switch is OFF. (It is very easy to accidentally turn on the write-protect switch when inserting or removing an SD card.)

Merging Applications

Do this procedure to put more than one application on one SD card.

1. Turn off the copier.
2. Remove the SD card slot cover ( x1).
3. Put the Source SD card in **Slot 3** (C3). This card contains the application that you want to copy.
NOTE: The PS SD card cannot be the source card (it cannot be copied).
4. Make sure that the target SD write-protect switch is OFF.
5. Put the Target SD card in **Slot 2** (C2). The application on the card in **Slot 3** (C3) will be copied to this card.
6. Open the front door.
7. Turn the copier on.
8. Go into the SP mode and select **SP5873 001**.
9. Touch "Execute".
10. Read the instructions on the display and touch "Execute" to start copying.
11. When the display tells you copying is completed, touch "Exit".
12. Turn the copier off.
13. Remove the Source SD card from **Slot 3** (C3). Keep the target SD card in **Slot 2** (C2).
14. Turn the copier on.
15. Go into the User Tools mode and check that all the applications on the SD card in Slot 2 are enabled:
User Tools> System Settings> Administrator Tools> Firmware Version
16. Turn the copier off again, then:
 - Reattach the SD card slot cover.
 - Attach the rear cover of the machine.
 - Store the SD cards that were copied. ( Pg.1-130)

Important!

- After an SD card has been copied, it cannot be used. However, it must be stored in the machine to serve as proof of purchase by the customer.
- The original card can also be used to perform an undo procedure (SP 5873 002). Before you store an SD card, label it carefully so it can be identified easily if you need to do the undo procedure (see the next page).

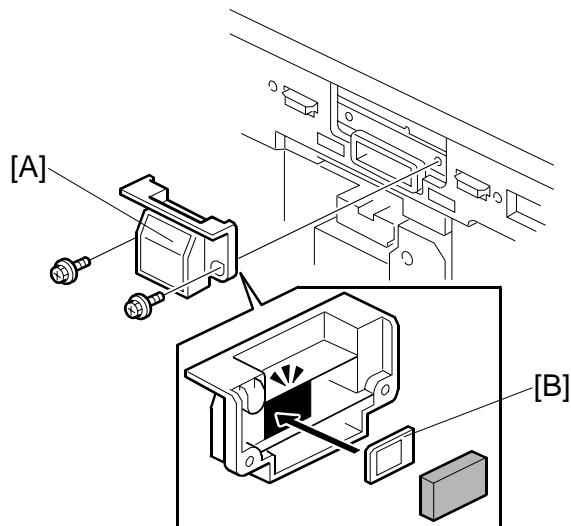
Undo Exec

1. Turn the main switch off.
2. Put the SD card holding the merged applications in SD Card **Slot 2** (C2).
3. Put the original destination SD card (the one removed from storage) into **Slot 3** (C3).
NOTE: The SD card in **Slot 3** must be the original SD card of the application you want to move from **Slot 2** to **Slot 3**. You cannot use any blank SD card in **Slot 3**.
4. Turn the main switch on.
5. Go into the SP mode and do **SP5873-002** (Undo Exec)
6. Follow the messages on the operation panel to complete the procedure.
7. Turn the main switch off.
8. Remove the SD cards from the slots.
9. Turn the main switch on.

1.15.3 COMMON PROCEDURES FOR MFP OPTIONS

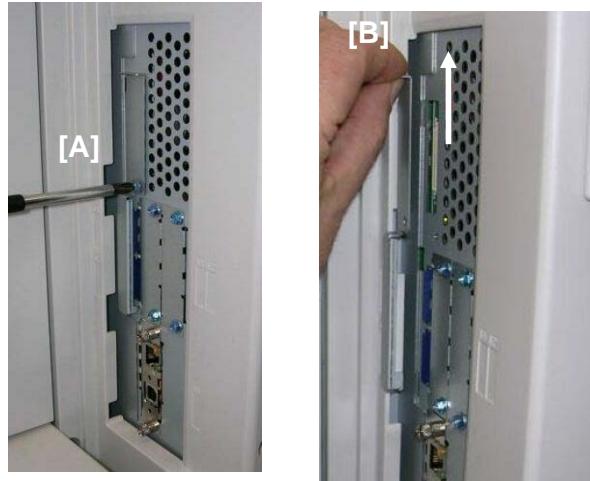
Storing SD Application Cards on Site

1. Open both front doors of the copier.
2. Remove the emblem cover [A] ( x2)
3. Set the copied SD card [B] in one of the compartments.
4. Reattach the emblem cover and close the front doors.



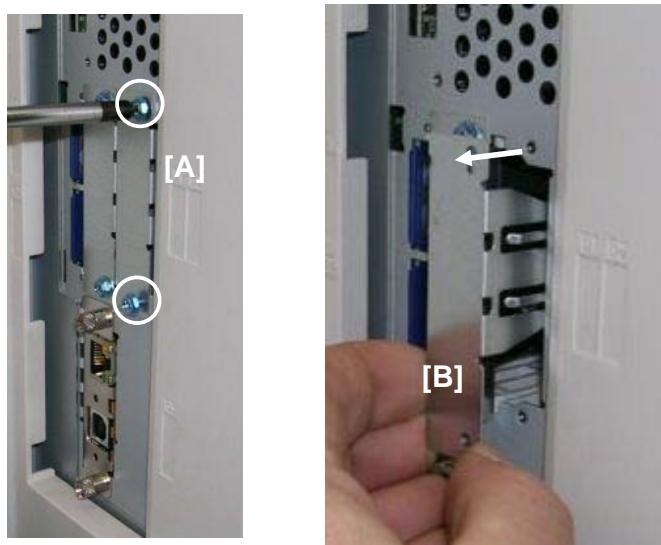
Removing Slot Covers

To remove the SD card slot cover



1. Remove the SD card slot cover screw [A] (\wedge x1)
2. Lift the cover [B] and pull it away to remove it.

To remove a board slot cover



1. Remove the board slot cover screws [A] (\wedge x2)
2. Pull out the cover and bracket [B].

1.15.4 PRINTER/SCANNER KIT (B840)

Accessories

| Description | Q'ty |
|---|------|
| 1. Caution Decal | 1 |
| 2. Printer/Scanner SD Card | 1 |
| 3. Printer Keytops (English/Symbol) | 2 |
| 4. Scanner Keytops (English/Symbol) | 2 |
| 5. EULA Sheet..... | 1 |
| 6. FCC Decal | 1 |
| 7. Memory Chips 128 MB | 2 |
| 8. Memory Chip 256 MB | 1 |

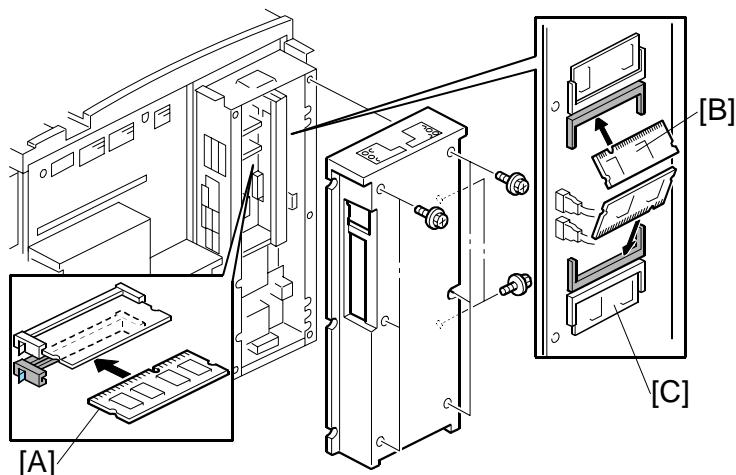
Important

- Only one slot (**C2**) is available for applications on SD cards. If more than one application will be used, the applications must be merged onto one SD card with **SP5873 001**. (☞1.15.2)

Installation**CAUTION**

Before you begin this procedure, switch the machine off and disconnect the power plug from the power source.

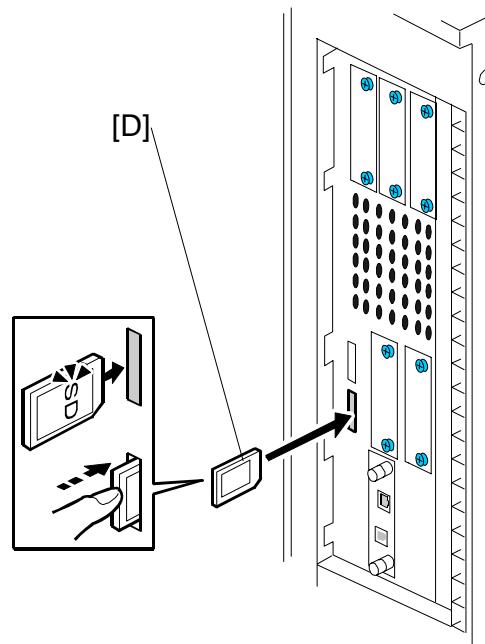
1. Switch the machine off.
2. Remove the controller box cover (x 9).
3. Insert the 256 MB memory DIMM [A].
4. Insert the 128 MB memory DIMMs [B] and [C] (x2) in the mother board.
5. Re-attach the controller box cover.



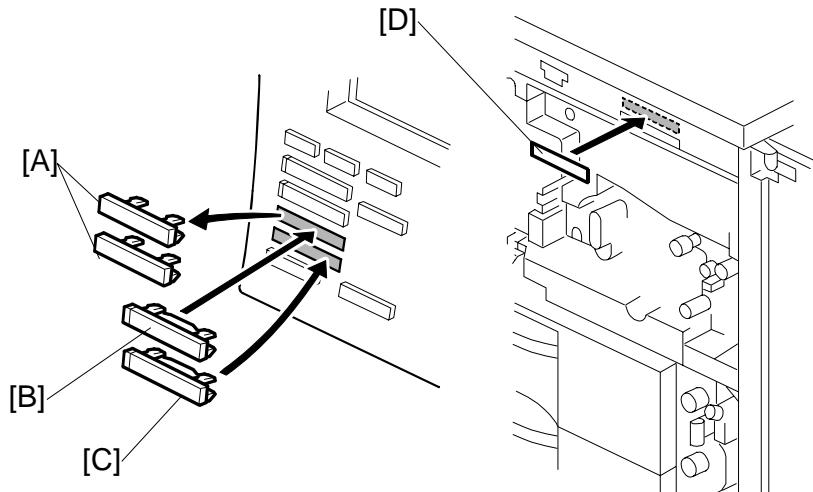
6. Hold the SD Card [D] with its label facing shown, then push it into Slot C2.

Important

- Pushing in the SD Card releases it for removal.
- Make sure the SD Card is inserted and locked in place. If it is partially out of the slot, push it in gently until it locks in place.
- Only one slot (C2) is available for applications on SD cards. If more than one application will be used, the applications must be merged onto one SD card with **SP5873 001**.
(1.15.2)



INSTALLATION OF MFP CONTROLLER OPTIONS



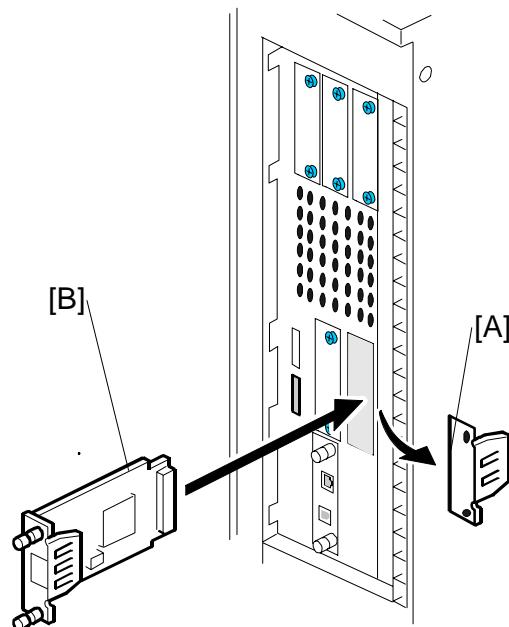
7. On the operation panel, remove the keytops [A] and discard them.
8. Install the “Printer” keytop [B] then the “Scanner” keytop [C]. Select either the English set or Symbol set for installation. The correct order is:
 - Printer (upper)
 - Scanner (lower)
9. Attach the serial number decal [D] to the copier.
10. Plug in the power cable and turn the main power switch on.
11. Change SP 5985 001 and 002 from ‘0’ to ‘1’.
12. Turn the main power switch off and on.
13. Follow the instructions in the Operation Instructions to complete the installation for the printer/scanner option.

1.15.5 IEEE 1284 INTERFACE BOARD (B679)

Accessories

| Description | Q'ty |
|------------------------------------|------|
| 1. IEEE 1284 Centronics Board..... | 1 |

1. Switch the machine off.
2. Remove the cover [A] of Slot **B2** ( x 2).
3. Insert the 1284 Centronics board [B] into Slot **B2** and fasten it with the screws.



1.15.6 PS3 (B613)

Accessories

| Description | Q'ty |
|---------------------------------------|------|
| 1. PostScript3 Emulation SD Card..... | 1 |
| 2. Decal..... | 1 |

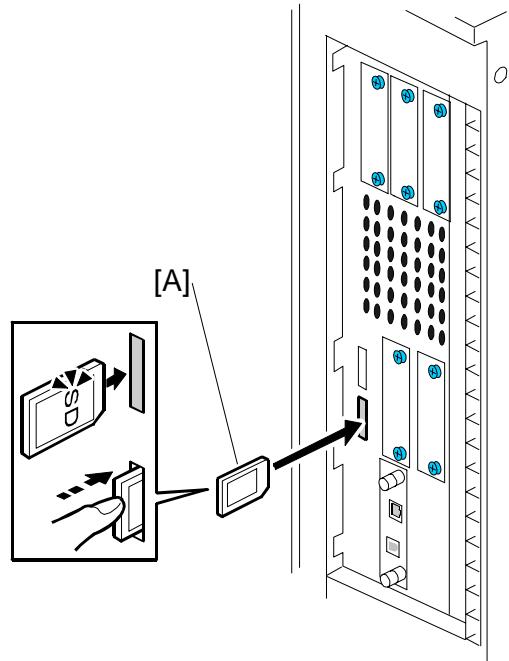
Important

- Only one slot (**C2**) is available for applications on SD cards. If more than one application is will be used, the applications must be merged onto one SD card with **SP5873 001**. (►1.15.2)

Installation

1. Switch the machine off.
2. Remove the SD card slot cover (☞ x 1).
3. Insert the PS3 SD Card [A] into Slot **C2**.

NOTE: Pushing in the SD Card releases it for removal. Make sure the SD Card is inserted and locked in place. If it is partially out of the slot, push it in gently until it locks in place.
4. Switch the machine on.



1.15.7 DATA OVERWRITE SECURITY UNIT F (B735)

Accessories

| Description | Q'ty |
|--|------|
| 1. Data Overwrite Security SD Card | 1 |
| 2. Operating Instructions CD-ROM | 1 |

Before You Begin...

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

Important: Do THIS NOW. IF YOU INSTALL ANY VERSION OTHER THAN TYPE "F", YOU WILL HAVE TO REPLACE THE NVRAM AND DO THIS INSTALLATION PROCEDURE AGAIN.

2. Make sure that the following settings are not at the factory default settings:
 - Supervisor login password
 - Administrator login name
 - Administrator login password

Important: These settings must be set up by the customer before the Data Overwrite Security unit can be installed.

3. Confirm that "Admin. Authentication" is on:

[User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Admin. Authentication"> "On"

If this setting is "Off" tell the customer that this setting must be "On" before you can do the installation procedure.

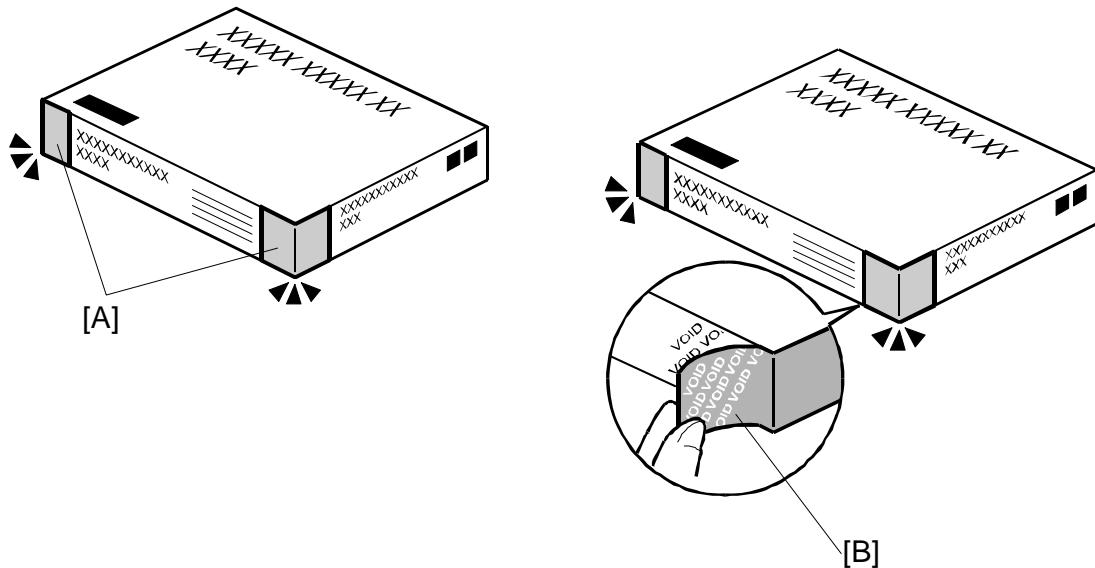
4. Confirm that "Administrator Tools" is selected and enabled:

[User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Available Settings"

NOTE: "Available Settings" is not displayed until Step 2 is done.

If this setting is not selected tell the customer that this setting must be selected before you can do the installation procedure.

Seal Check and Removal



CAUTION

TURN OFF THE MAIN POWER SWITCH AND DISCONNECT THE POWER SUPPLY CORD.

1. Check the two box seals [A] on the corners of the box.
 - Make sure that the seals are attached at both corners.
 - The surfaces of the tapes must be blank. If you see "VOID" on the tapes, do not install the components in the box. Contact your sales division.
2. If the surfaces of the tapes do not show "VOID", remove them from the corners of the box.
3. After you remove each seal, the "VOID" marks [B] become visible. This prevents them from being reattached to the box.

Installation

Important

- The DOS SD card must be inserted in SD card slot **C2**.
- If the PostScript3 option is also installed, you must move the DOS application to the PostScript3 SD card with **SP5873 001**. (→1.15.2)

1. If the machine is ON, turn OFF the main power switch.
2. Disconnect the network cable.
3. Turn the main power switch ON.
4. Turn the operation switch and main power switch OFF.
5. Remove the SD card slot cover [A] ($\wedge \times 1$).
6. Hold the SD card [B] as shown and push it into SD card slot **C2**.
7. Reconnect the network cable.
8. Turn the main power switch ON.
9. Do **SP5878** and push [EXECUTE].
10. Exit out of SP mode.
11. Turn the operation switch OFF, then turn the main power switch OFF.
12. Do **SP5990 005** to print an SMC report.
13. On the SMC report, confirm that the two numbers listed in "ROM No./Firmware Version" ("HDD Format Option") AND the two numbers listed in "Loading Program" ("GW2a_zoffy") are as follows:

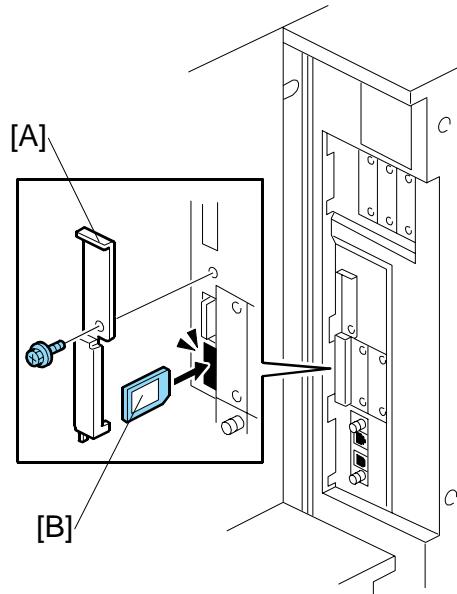
B7355202 Ver.1.05

IMPORTANT: The same two numbers must be listed in both sections mentioned above.

If the numbers are not the same....

If the numbers are not identical, this means the option was not installed correctly.

- Confirm that the label on the box of the DOS option says "F".
- If you have installed the incorrect type, replace the NVRAM.
- Do the Data Overwrite Security unit installation again.



INSTALLATION OF MFP CONTROLLER OPTIONS

14. Turn "Auto Erase Memory Setting" on:
[User Tools]> "System Settings"> "Administrator Tools"> "Auto Erase Memory Setting"> "On"
15. Exit User Tools.
16. Check the display and make sure that the overwrite erase icon is displayed in the lower right area of the operation panel.
17. Make a Sample Copy.
18. Check the overwrite erase icon.
 - The icon [A] changes to [B] when job data is stored in the hard disk.
 - The icon goes back to its usual shape [A] after this function has completed the data overwrite operation on the hard disk.

[A]



[B]



1.15.8 BROWSER UNIT (B828)

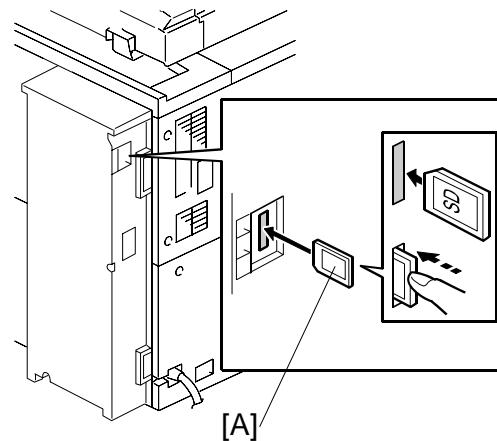
Accessories

| Description | Q'ty |
|------------------------------------|------|
| 1. Browser Unit B828 SD Card | 1 |

Installation

1. Switch the machine off.
2. Push the SD card [A] into Slot **C3**.

NOTE: Pushing in the SD Card also releases it for removal. Make sure the SD Card is inserted and locked in place. If it is partially out of the slot, push it in gently until it locks in place.
3. Turn the machine on.
4. Push [User Tools].
5. Push [Login/Logout] on the operation panel
6. Login with the administrator user name and password.
7. Touch "Extended Feature Settings".
8. Touch "Extended Feature Settings" again.
9. Touch "SD Card".
10. Touch the "Browser" line.
11. Under "Install to:" touch "Machine HDD" and touch "Next"
12. When you see "Ready to Install" check the information on the screen to confirm your previous selection.
13. Touch "OK". You will see "Installing..." then "Completed".
14. Touch "Exit" twice to return to the copy screen.
15. Remove the SD card from slot C3.



1.15.9 VM CARD TYPE C (B861)

Accessories

| Description | Q'ty |
|------------------------------|------|
| 1. VM Card B861 SD Card..... | 1 |
| 2. Decal..... | 1 |

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

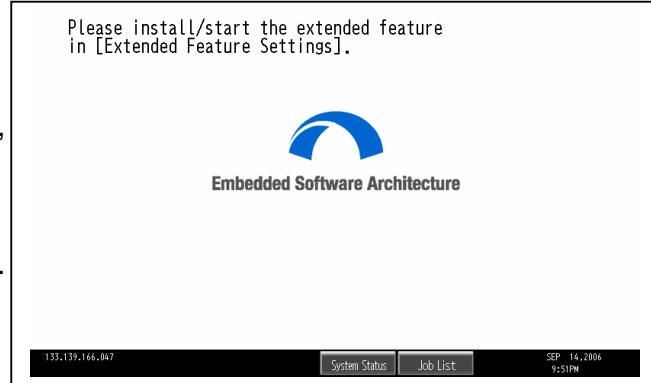
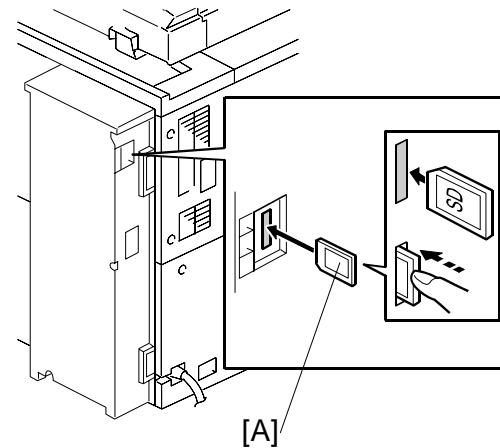
IMPORTANT: Do not remove the SD card from slot 3 after installing the platform.

Installation

1. With the power OFF and the machine unplugged, remove the slot cover from SD card slot 3 (x 1).
2. Insert the VM-Card Type C [A] label face to the rear of the machine. Then push it slowly into slot 3 until you hear a click.
3. Replace the sixth key-slot cover with the "Other function" key (part number B2381576).
4. Plug in and turn ON the main power switch. The installation of the Java VM platform will start automatically.

IMPORTANT: DO NOT turn the main power OFF. Also, do not open any of the covers or do any machine operations. This will damage the SD card. A damaged SD card cannot be repaired.

5. Wait five minutes, and then press the "Other function" key. You will hear two beeps.
 - If the screen does not change, this means the installation is not finished yet. Wait a few more minutes and then press the "Other function" key again.
 - When the installation is finished, the following will be displayed:



6. Set the heap size and stack size for the application. (In User Tools/Extended Features setting, see the Administrator Tools tab.)
7. Install the application using the installation procedure provided with the application.

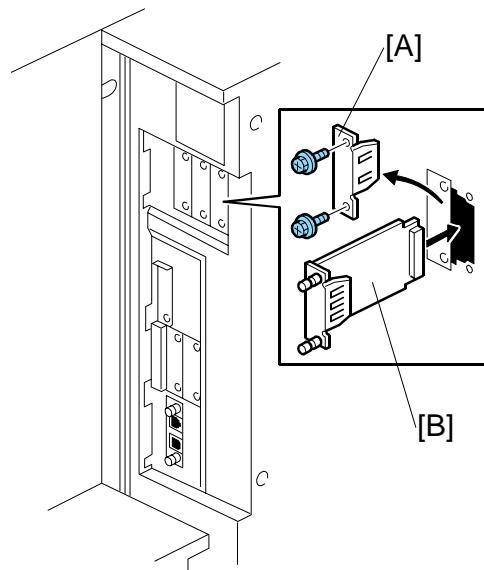
1.15.10 FILE FORMAT CONVERTER (B609)

Accessories

| Description | Q'ty |
|--|------|
| 1. File Format Converter (MLB: Media Link Board) | 1 |

Installation

1. Switch the machine off.
2. Remove the cover [A] of Slot **A3** ( x 2).
3. Insert the file format converter board [B] into Slot **A3** and fasten it with the screws.
4. Switch the machine on.



INSTALLATION OF MFP CONTROLLER OPTIONS

5. Set SP5836 003 to “1” to enable the print backup feature.
6. Confirm or set the following SP codes with the values in the table listed below.

| SP No. | Setting | SP No. | Setting |
|---------------|----------------|---------------|----------------|
| SP5-836 001 | 1 | SP5-836 073 | 0 |
| SP5-836 002 | 0 | SP5-836 085 | 1 |
| SP5-836 003 | 1 | SP5-836 086 | 2 |
| SP5-836 072 | 0 | SP5-836 091 | 50 |

7. Set the following SP codes according to the customer's needs.

| SP No. | Setting | Comment |
|---------------|----------------|---|
| SP5-836 094 | 2 | Selects JPEG2000 file format for documents copied from the document server to Palm2. Note: Files backed up to Palm2 in J2K format cannot be edited by other software applications. |
| | 0 | Selects the TIFF file format for documents copied from the document server to Palm2. Note: Select this so the backed up files can be used with other software applications (editing, OCR, etc.) with only slight loss in image quality. |
| SP-5836 098 | 1 | Applies dot correction and eliminates ghost images transferred from the back sides of double-sided originals when files are copied to Palm2. This selection also reduces the size of the file. Note: This function is applied to both J2K and TIFF files and is particularly useful for copying large J2K documents quickly with only a slight loss in image quality. |
| | 0 | Does not apply the features of the “1” setting when files are copied to Palm2. Note: This setting preserves the quality of the original image, especially with J2K files, but also requires more time for copying and requires more disk space to store the larger files. |

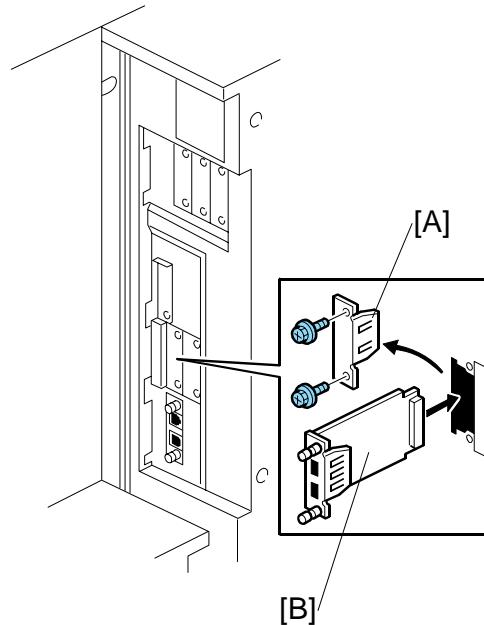
1.15.11 USB 2.0 HOST INTERFACE (B825)

Accessories

| Description | Q'ty |
|------------------------|------|
| 1. USB 2.0 Board..... | 1 |
| 2. Clamp | 1 |
| 3. Cable (2.5 m) | 1 |

Installation

1. Switch the machine off.
2. Remove the cover [A] of Slot **B1** ( x 2).
3. Insert the USB 2.0 board [B] into Slot **B1** and fasten it with the screws.
4. Print a configuration page to confirm that the machine recognizes the installed board for USB2.0:
User Tools > Printer Features >
List/Test Print > Configuration Page



1.15.12 IEEE 802.11B (G813)

Accessories

| Description | Q'ty |
|-----------------------------|------|
| 1. IEEE 801.11b Board | 1 |
| 2. PCI Card..... | 1 |
| 3. Cover Cap..... | 1 |

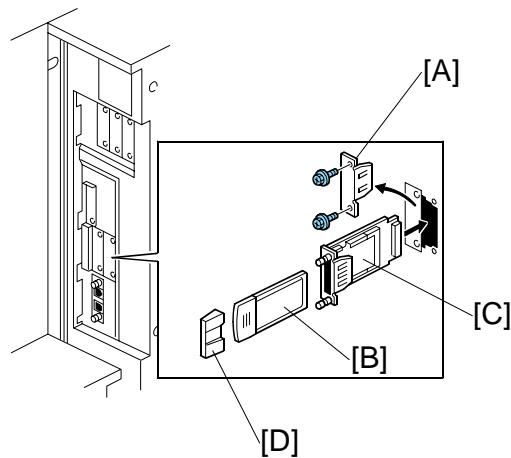
Installation

Only one PCI slot (**B2**) is available for one of these options:

- Centronics 1284
- IEEE 1394 (FireWire)
- IEEE 801.11b (Wireless LAN)
- Bluetooth Interface Unit B826
- Cumin-M B818

Important

- If another card is installed in **B2**, you must remove it before installing this card.



1. Switch the machine off.
2. Remove the cover [A] of Slot **B2** (Phillips screw x 2).
3. Insert the PCI card [B] into the wireless LAN board [C].
4. Insert the wireless LAN board [C] into Slot **B2** and fasten it with the screws.
5. Attach the cap [D].
6. Switch the machine on and print a configuration page to confirm that the machine recognizes the installed board for IEEE 802.11b (Wireless LAN):
User Tools> Printer Features> List/Test Print> Configuration Page

1.15.13 IEEE 1394 KIT (B581)

Accessories

| Description | Q'ty |
|--------------------------|------|
| 1. IEEE 1394 Board | 1 |
| 2. 4-Pin Cable | 1 |
| 3. 5-Pin Cable | 1 |

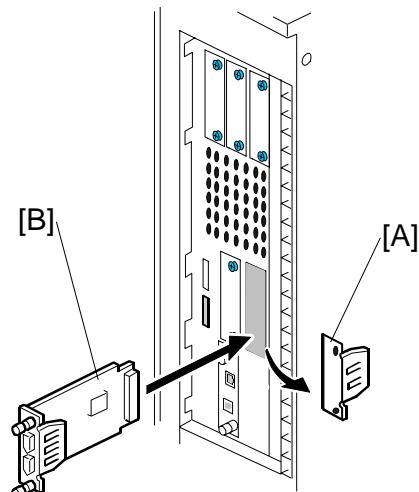
Installation

Only one PCI slot (**B2**) is available for one of these options:

- Centronics 1284
- IEEE 1394 (FireWire)
- IEEE 801.11b (Wireless LAN)
- Bluetooth Interface Unit B826
- Cumin-M B818

Important

- If another card is installed in **B2**, you must remove it before installing this card.
1. Switch the machine off.
 2. Remove the cover [A] of Slot **B2** (× 2)
 3. Insert the IEEE 1394 board [B] into Slot **B2** and fasten it with the screws.
 4. Switch the machine on and print a configuration page to confirm that the machine recognizes the installed board for IEEE 1394 (FireWire):
User Tools> Printer Features> List/Test Print> Configuration Page



1.15.14 BLUETOOTH INTERFACE UNIT (B826)

Accessories

Check the quantity and condition of the accessories.

| No. | Description | Q'ty |
|-----|------------------------|------|
| 1 | Bluetooth card | 1 |
| 2 | Bluetooth card cover | 1 |
| 3 | Bluetooth board | 1 |
| 4 | Bluetooth card adapter | 1 |

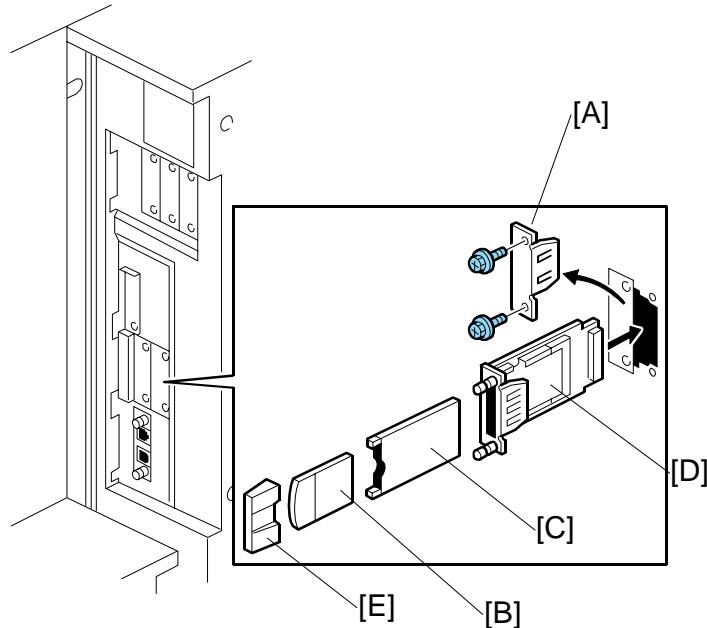
Installation

Only one PCI slot (**B2**) is available for one of these options:

- Centronics 1284
- IEEE 1394 (FireWire)
- IEEE 801.11b (Wireless LAN)
- Bluetooth Interface Unit B826
- Cumin-M B818

Important

- If another board is installed in **B2**, you must remove it before installing this card.

Installation Procedure

1. Switch the machine off.
2. Remove the I/F cover slot [A] of Slot **B2** (x2).
3. Touch a metal surface to remove static charge from your hands before you touch the interface card.
4. With both labels facing up, insert the Bluetooth card [B] into the adapter [C].
5. With the labels facing down, insert the adapter [C] into the Bluetooth board [D].
6. Insert the interface board (with card and adapter inserted) into Slot **B2**.
7. Attach the card cover [E] (used to prevent static electricity).
8. Confirm that Bluetooth is installed correctly:

User Tools> Printer Features> List/Test Print> Configuration Page

1.15.15 CUMIN-M (B818)

Accessories

| Description | Q'ty |
|----------------------|------|
| 1. Cumin-M B818..... | 1 |

Installation

Only one PCI slot (**B2**) is available for one of these options:

- Centronics 1284
- IEEE 1394 (FireWire)
- IEEE 801.11b (Wireless LAN)
- Bluetooth Interface Unit B826
- Cumin-M B818

Important

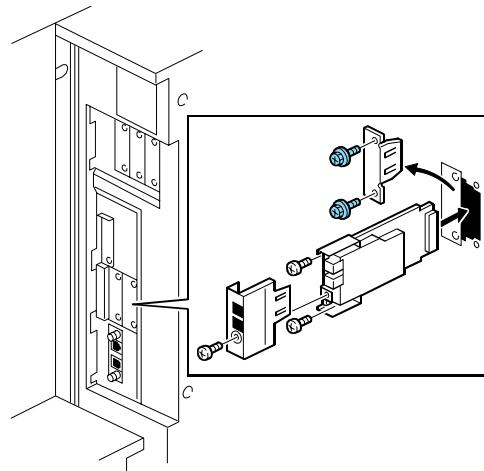
- If another board is installed in **B2**, you must remove it before installing this card.

1. Switch the machine off.

2. Remove the cover [A] of Slot **B2**
(x 2)

3. Attach the connector plate [B] (x 1).

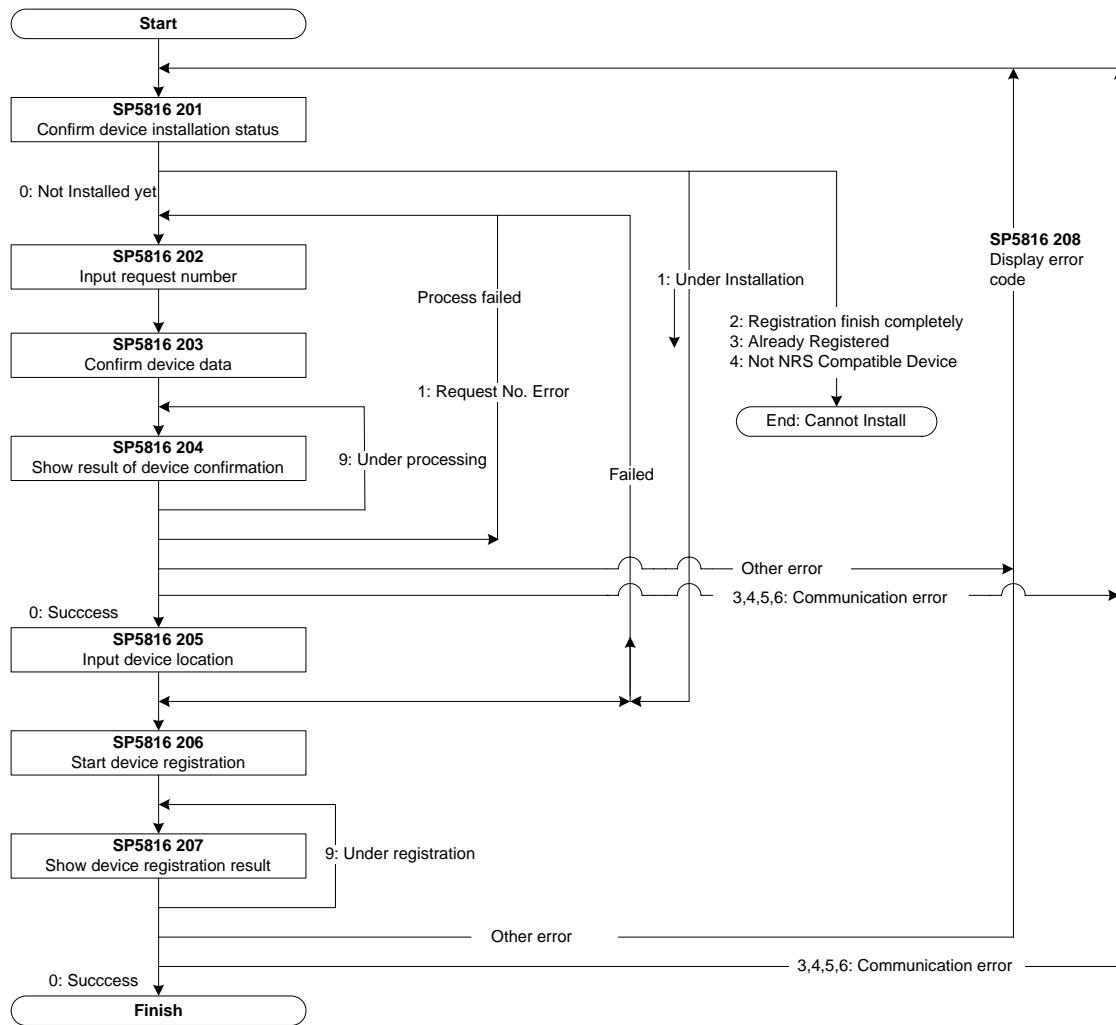
4. Insert the Cumin-M board [C] into Slot **B2** and fasten it with the screws
(x 1).



5. Enter the SP mode and note the settings of the following SP codes:

| SP5816 | Remote Service | Note Setting |
|--------|------------------------------|--------------|
| 150 | Selection Country | |
| 153 | Selection: Dial/Push | |
| 154 | Outside Line/Outgoing Number | |
| 161 | Telephone Number | |

6. Follow the flow chart below to do the SP settings for Cumin-M.



7. Confirm that the Cumin-M modem is installed correctly:

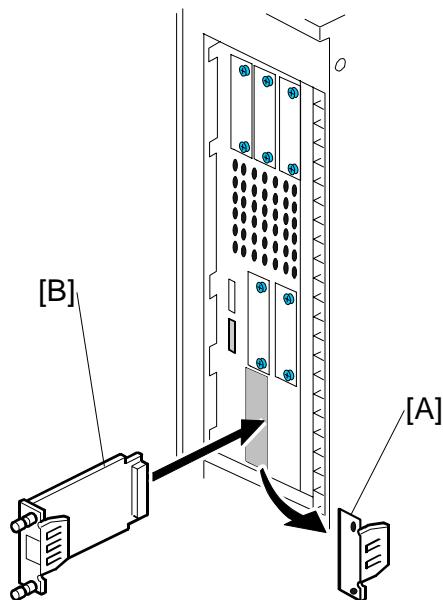
User Tools> Printer Features> List/Test Print> Configuration Page

1.15.16 GIGABIT ETHERNET (G381)

Accessories

| Description | Q'ty |
|---|------|
| 1. Gigabit Ethernet B381..... | 1 |
| 2. Ferrite Core (not used for B234/B235/B236/D101/D102/D103)..... | 1 |

1. Switch the machine off.
2. Remove the cover [A] of Slot **B3** ( x 2).
3. Insert the Gigabit Ethernet Board [B] into Slot **B3** and fasten it with the screws.
4. Print a configuration page to confirm that the machine recognizes the installed board for USB2.0:
User Tools > Printer Features > List/Test
Print > Configuration Page

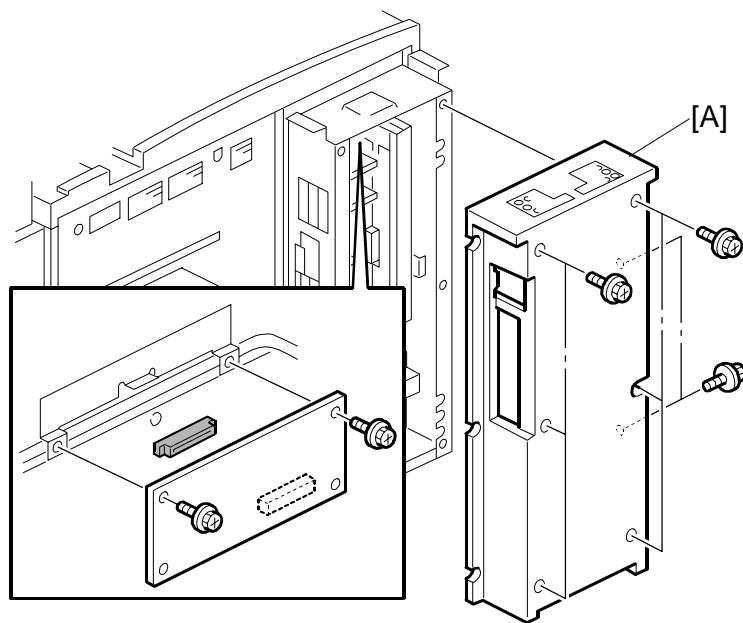


1.15.17 COPY DATA SECURITY UNIT (B829)

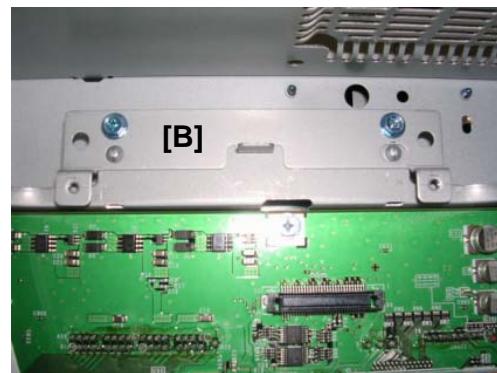
Accessories

| Description | Q'ty |
|--|------|
| 1. Copy Data Security Unit B829 (Board)..... | 1 |
| 2. Screws | 2 |

Installation

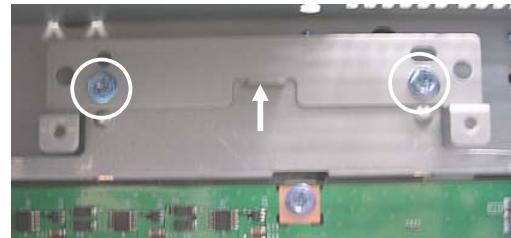


1. Switch the machine off.
2. Remove the controller box cover (x8).
3. Remove the bracket [B] (x2).



INSTALLATION OF MFP CONTROLLER OPTIONS

4. Move the bracket up and reattach it with the same screws ( x2).



5. Insert the edge connector of the ICIB-2 into the slot.
6. Fasten the ICIB-2 [C] to the IPU ( x2).
7. Reattach the rear cover.



Do the Setup Procedure

1. Switch the machine on.
2. Login in as the System Administrator.
3. Push [User Tools].
4. Touch "System Settings".
5. Touch "Administrator Tools".
6. Touch next 2 or 3 times until you see "Data Security for Copying".
7. Touch "ON".
8. Touch "OK" to enable the setting.

Important

- Before removing the ICIB-2 board, repeat the setup procedure above and set "Data Security for Copying" to "OFF".
- The machine will issue an SC error if the machine is powered on with the ICIB-2 removed and the "Data Security for Copying" feature set to "ON".

1.16 CONNECTION KIT B328

1.16.1 INTRODUCTION

The B234 (90 cpm), B235 (110 cpm) and B236 (135 cpm) machines can be connected with the new Copier Connection Kit B328. When two machines are connected, the copy speed is doubled.

The copiers can be used for copy jobs only, not print jobs. However, documents stored on the document server beforehand can be printed with the connected copiers.

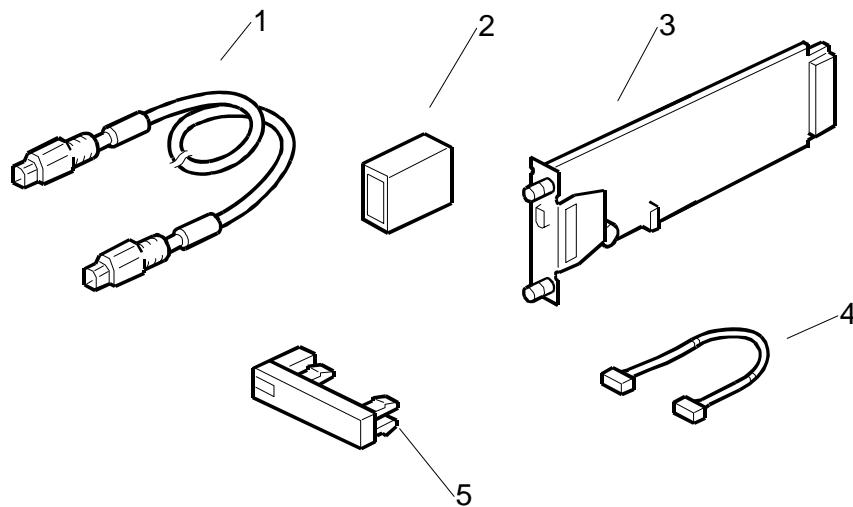
1.16.2 SPECIFICATIONS

| Copy Speed | | |
|-----------------------------------|--|---|
| B234 (90 cpm) | 2 Connected | 180 cpm |
| B235 (110 cpm) | 2 Connected | 220 cpm |
| B236 (135 cpm) | 2 Connected | 270 cpm |
| Operation | | |
| Master Machine | Prints simultaneously while scanning, the same as a stand-alone machine. | |
| Slave Machine | Starts printing after the 2nd set is printed on the master machine. Note: Start time may be slower due to sizes of images. | |
| Document Server (Printing) | | |
| Master Machine | Press the Start key to begin printing, the same as a stand-alone machine. | |
| Slave Machine | Starts printing after the 2nd set is printed on the master machine. Note: Start time may be slower due to sizes of images. | |
| Connection Cables | | |
| Length (x1) | 4. 5 m | 1 cable, no repeater hub |
| Length (x2) | 9 m | 2 cables, 1 repeater hub for connection. |
| Length (x3) | 13.5 m | 3 cables, 2 repeater hubs for connection. |

1.16.3 INSTALLATION

Accessories

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



| Description | Q'ty |
|--|------|
| 7. Interface Cable 1394..... | 3 |
| 8. Repeater Hub 1394 | 2 |
| 9. Connection PCB..... | 2 |
| 10. Power Repeater Cable | 2 |
| 11. "Other Function" Keytops (NA, EU 1 ea.)..... | 2 |

1.16.4 PREPARATION

Before you start the installation procedure, decide how many interface cables and repeater hubs you will need. This will depend on the distance between the two connected machines.

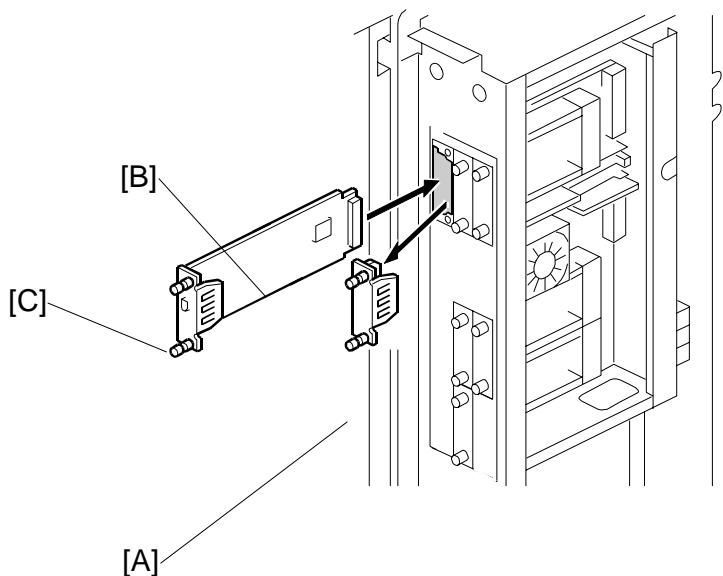
See the following table:

| DISTANCE | POWER REPEATER HUBS | INTERFACE CABLES |
|------------------------------------|---------------------|------------------|
| Up to 4.5 m (14.8 ft.) | None | 1 |
| 4.5 ~ 9.0 m (14.8 ~ 29.5 ft) | 1 | 2 |
| 9.0 ~ 13.5 m (29.5 ~ 112.5 ft.) | 2 | 3 |

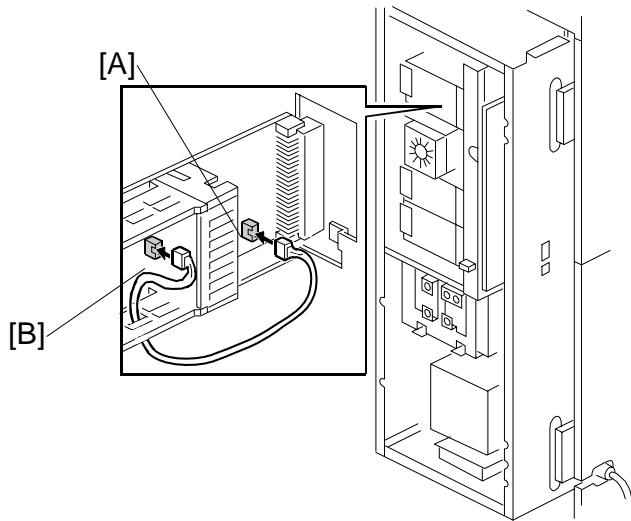
1.16.5 INSTALLATION PROCEDURE

CAUTION

Before you start this procedure, switch the machine off and unplug the machine power cord.

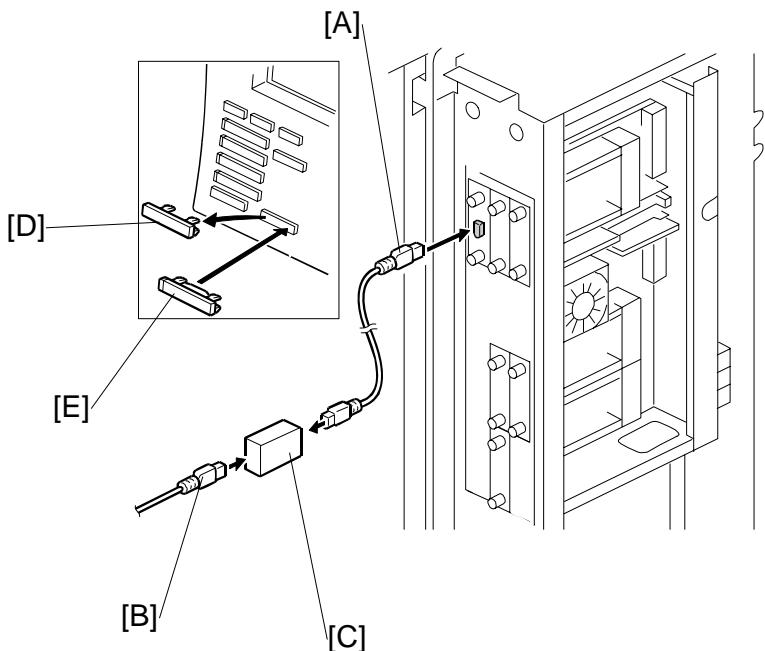


1. Switch the main power switch off.
2. Remove the controller box cover. (x8)
3. Remove the cover [A] from slot A1.
4. Align the PCB with the bottom groove, and push the connection PCB [B] into the slot.
NOTE: Make sure that the edge of the PCB is in the groove before you push the card into the machine.
5. Fasten the PCB with the attached screws [C].



6. Connect the power repeater cable [A] to the motherboard at CN593.
7. Connect the other end of the power repeater cable to the connection PCB [B].
8. Re-attach the controller box cover.
9. Repeat Steps 1 thru 8 to install the connection PCB on the slave machine.

CONNECTION KIT B328



10. Insert one end of the interface cable [A] to the connection PCB (Slot A1).
11. If you need more interface cables, connect the cables [B] with the repeater hubs [C].
12. On the operation panel of the both machines, remove the cover from the bottom [D].
13. Attach the “Other Function” key [E].
IMPORTANT: For EU models, attach the equivalent symbol keytop.
14. Attach the other end of the connection cable to the connection PCB installed in the other machine.
15. Make sure that **SYSTEM Ver. 1.07 or later** is installed on both machines.

For details about the download procedures for this software, **→** Section 5 (“Service Tables”) of the Service Manual.

PREVENTIVE MAINTENANCE

| PREVENTIVE MAINTENANCE REVISION HISTORY | | |
|--|-------------|---------------------------------|
| Page | Date | Added/Updated/New |
| 2 | 09/07/2006 | Updated Information – PM Tables |



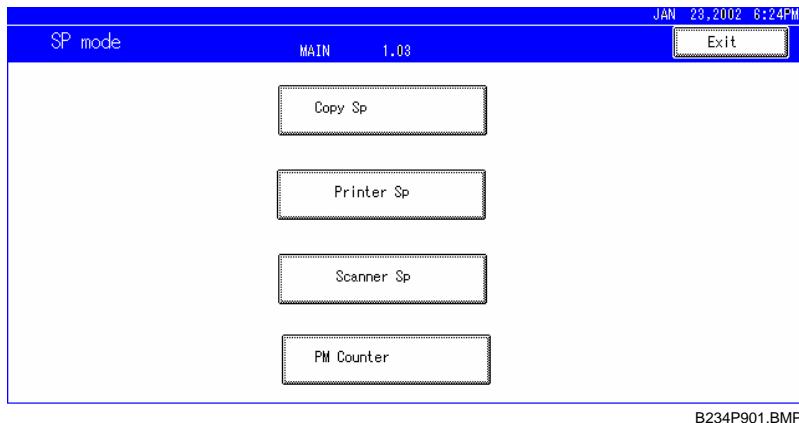
2. PREVENTIVE MAINTENANCE

2.1 PM COUNTER

The PM Counter main menu and submenu allows you to review the PM counts for both units and individual components.

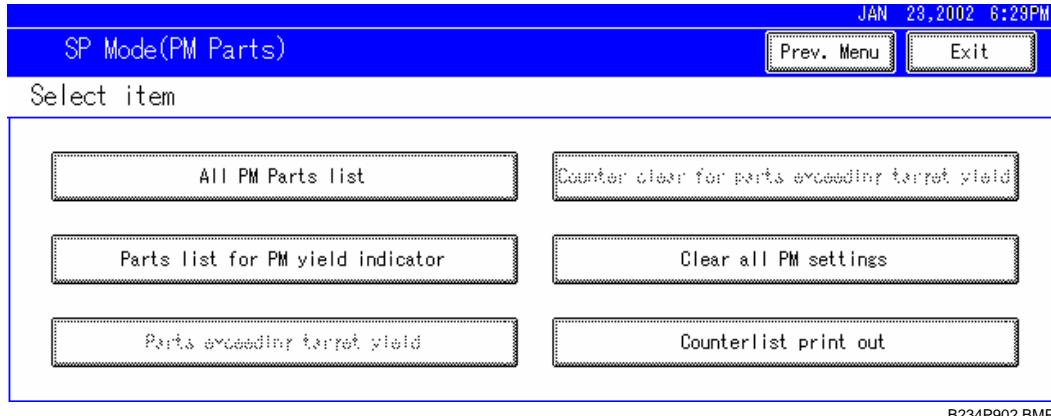
2.1.1 DISPLAYING THE PM COUNTER

- Push [Clear Modes] (◊)> "107"> [Clear/Stop] (◎).



B234P901.BMP

- Touch [PM Counter].



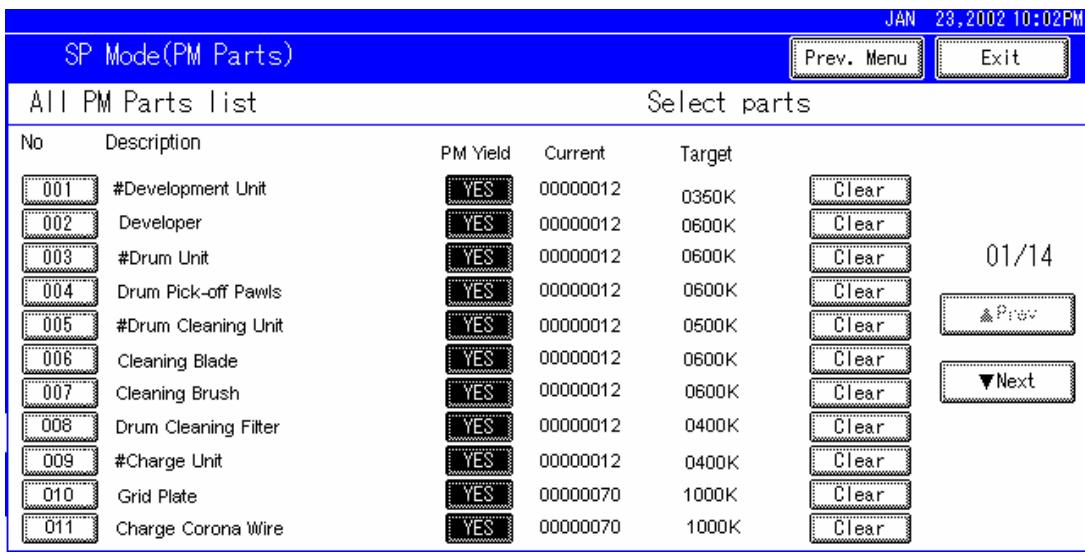
B234P902.BMP

- ① **All PM Parts List.** Displays all PM items (all PM items, not only PM units). Lists all PM items regardless of PM yield indicator settings. (●Pg.2-4)
- ② **Parts list for PM yield indicator.** Displays on the items with their PM yield indicator settings set to "Yes". (●Pg.2-4)
- ③ **Clear all PM settings.** Resets all PM counter settings to "0" at the same time. PM items can be reset one by one with the [Clear] button. (●Pg.2-4)
- ④ **Counter list print out.** Prints the PM counter on paper.

2.1.2 PM PARTS SCREEN DETAILS

All PM Parts list: Main Menu

The "All PM Parts list" displays all PM units and individual items. This list shows all PM items, regardless of their "PM yield indicator settings". (Pg.2-4)



The screenshot shows a software interface titled "SP Mode(PM Parts)" with a timestamp "JAN 23,2002 10:02PM". It displays a list of 11 PM parts, each with a number, description, PM yield (YES), current value, target value, and a "Clear" button. The descriptions include "#Development Unit", "Developer", "#Drum Unit", "Drum Pick-off Pawls", "#Drum Cleaning Unit", "Cleaning Blade", "Cleaning Brush", "Drum Cleaning Filter", "#Charge Unit", "Grid Plate", and "Charge Corona Wire". The current values range from 00000012 to 00000070, and the target values range from 0360K to 1000K. To the right of the list are buttons for "Select parts", "Prev. Menu", and "Exit". Below the list are buttons for "01/14", "&Prev", and "▼Next". At the bottom are buttons for "[A]", "[B]", "[C]", "[D]", "[E]", and "[F]".

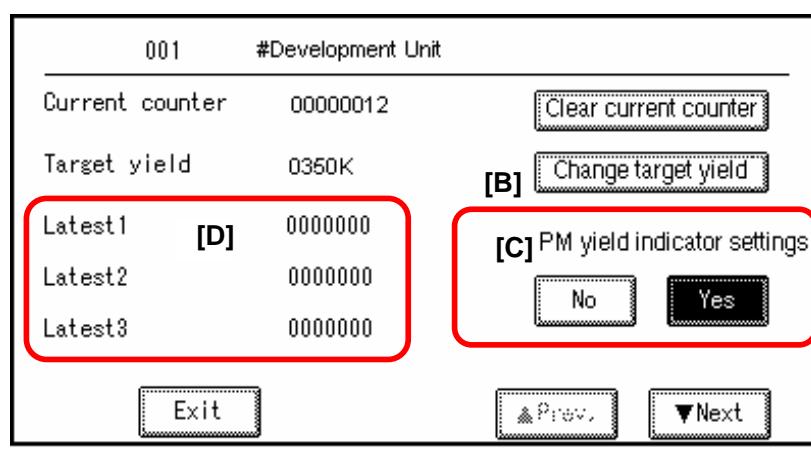
| No | Description | PM Yield | Current | Target | |
|-----|----------------------|----------|----------|--------|--------------------------------------|
| 001 | #Development Unit | YES | 00000012 | 0360K | <input type="button" value="Clear"/> |
| 002 | Developer | YES | 00000012 | 0600K | <input type="button" value="Clear"/> |
| 003 | #Drum Unit | YES | 00000012 | 0600K | <input type="button" value="Clear"/> |
| 004 | Drum Pick-off Pawls | YES | 00000012 | 0600K | <input type="button" value="Clear"/> |
| 005 | #Drum Cleaning Unit | YES | 00000012 | 0600K | <input type="button" value="Clear"/> |
| 006 | Cleaning Blade | YES | 00000012 | 0600K | <input type="button" value="Clear"/> |
| 007 | Cleaning Brush | YES | 00000012 | 0600K | <input type="button" value="Clear"/> |
| 008 | Drum Cleaning Filter | YES | 00000012 | 0400K | <input type="button" value="Clear"/> |
| 009 | #Charge Unit | YES | 00000012 | 0400K | <input type="button" value="Clear"/> |
| 010 | Grid Plate | YES | 00000070 | 1000K | <input type="button" value="Clear"/> |
| 011 | Charge Corona Wire | YES | 00000070 | 1000K | <input type="button" value="Clear"/> |

B234P903.BMP

- [A]: Number buttons. Pressing a number button opens a submenu. (Pg.2-4)
- [B]: Descriptions. The # mark denotes a "unit" (not individual item).
- [C]: PM yield buttons. Function is the same as the "PM yield indicator settings" button. (Pg.2-4).
- [D]: Current PM counter value.
- [E]: Target PM interval. This can be changed by pressing a number button [A].
- [F]: PM counter clear button. Function is the same as the [Clear current counter] button.

Number button submenu

Press any number button to open the submenu for a part. In the example below, the number button [001] #Development Unit was pressed.



B234P904.BMP

- [A]: **Clear current counter.** Press to reset the selected PM counter (in this example 001 #Development Unit) to "0". You can also clear the settings by pressing the [Clear] button on the right side of the PM Counter Main Menu ([F] on the previous page).
- [B]: **Change target yield.** Press the change the target PM yield. To change the setting:
 - Press [Change target yield]
 - Enter the number for the new target with the 10-key pad.
 - Press [#] on the operation panel.
- [C]: **PM yield indicator settings.** [Yes] is the default. Press [No] to remove the current item from the "Parts list for PM yield indicator".
 - When set to "Yes", items marked with the # mark (# = a unit) will not have their individual items displayed automatically in the "Parts list for PM yield indicator list".
 - When set to "No", items marked with the # mark (# = a unit) only the individual components will appear in the list (the units will not appear).
- [D]: **PM counter history.** This is a summary of the most recent counts
 - Latest 1. The latest PM count since the unit (or part) was replaced.
 - Latest 2. The previous PM count since the unit (or part) was replaced.
 - Latest 3. The previous but one PM count since the unit (or part) was replaced.

PM COUNTER

Parts list for PM yield indicator

This list shows the PM Parts Main Menu with only items set to "Yes" displayed.

JAN 23,2002 11:09PM

SP Mode(PM Parts) Prev. Menu Exit

Parts list for PM yield indicator Select parts

| No | Description | Exceed | Current | Target | |
|-----|--------------------------|--------|---------|--------|--------------------------------------|
| 001 | #Development Unit | [A] | 0112 | 0350K | <input type="button" value="Clear"/> |
| 003 | #Drum Unit | | 0112 | 0600K | <input type="button" value="Clear"/> |
| 005 | #Cleaning Unit | | 0112 | 0500K | <input type="button" value="Clear"/> |
| 009 | #Charge Unit | | 0112 | 0400K | <input type="button" value="Clear"/> |
| 014 | #Pre-Charge Unit | | 0011 | 1000K | <input type="button" value="Clear"/> |
| 017 | #Fusing Unit | * | 0011 | 1000K | <input type="button" value="Clear"/> |
| 021 | #Fusing Cleaning Unit | | 0112 | 0350K | <input type="button" value="Clear"/> |
| 025 | #Toner Suction Bottle | | 0112 | 0350K | <input type="button" value="Clear"/> |
| 026 | #Toner Suction Motor | | 0112 | 0350K | <input type="button" value="Clear"/> |
| 027 | #Feed Roller - Tray 1 | | 0112 | 0350K | <input type="button" value="Clear"/> |
| 028 | #Pick-Up Roller - Tray 1 | | 0112 | 0350K | <input type="button" value="Clear"/> |

B234P905.BMP

Note the following:

- The # mark denotes a unit.
- Items without the # (for example, 065 ITB) denote individual components.
- An asterisk * will appear in the Exceed column [A] to show items that have exceeded their target PM yields.

2.2 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 for PM Tables

- I: Inspect. Clean, replace, or lubricate as needed.
- A: Adjust
- C: Cleaning required.
- R: Replacement required.
- L: Lubrication required.
- Exp Expected service life.

Preventive
Maintenance

WARNING

Turn off the main power switch and unplug the machine before performing any procedure in this section. Laser beams can seriously damage the eyes.

2.2.1 MAIN MACHINE

Main Unit PM Parts

| OPTICS | 500K | 1000K | 3000K | Note |
|---------------------------------|------|-------|-------|--------------------------|
| Exposure glass | I | R | | Dry cloth. |
| 1st~3rd mirrors | I | | | Optics cloth. |
| APS sensors | I | | | Dry cloth. |
| Scanner rail | I | | | Dry cloth |
| Optics dust filter | C | | | Blower brush. |
| Toner shield glass | C | | | Optics cloth. |
| Scanner Wire Tension Adjustment | | | A | Scanner Positioning Pin. |

| DEVELOPMENT | 500K | Exp | Note |
|-----------------------------------|------|----------------------------|---|
| Side seals (x2) | C | | Blower brush, dry cloth |
| Development roller | C | | Cleaning required when developer is replaced. Use a dry cloth. * ¹ |
| Development doctor blade | C | | Cleaning required when developer is replaced. Insert the paper dust cleaner behind the blade to rub away the paper dust. |
| Entrance seal | C | | Blower brush or dry cloth |
| Toner hopper (outside) | I | | |
| Gears (all) | I | | Blower brush |
| Developer | R | | SP2801 (TD Sensor Initial Setting). Before execution, be sure to enter the Lot No. for the new developer. |
| Development roller gear: 21Z (X2) | | 4000K | |
| Paddle roller gear: 42Z | | 4000K | |
| Idle gear: 23Z | | 1500K | |
| Toner collection bottle | | 650K * ¹ | Discard the waste toner when a near end or end alert is displayed. |
| Toner suction bottle | | About 3000K * ¹ | Replace when near end or end alert is displayed. |
| Toner suction motor | | About 2500K * ¹ | Replace when near end or end alert is displayed. |

*¹: K count assumes copying and printing on A4 LEF with 6% test chart.

Preventive Maintenance

| AROUND THE DRUM | 500K | 550K | 1100K | Exp | |
|--|-------------|-------------|--------------|------------|---|
| Side seals | | I | | | Blower brush, dry cloth |
| Ground plate screw | I | | | | Conductivity check. Alcohol or water |
| Drum dust filter | | C | | | Blower brush |
| Toner filter | | R | | | |
| Cleaning unit | | I | | | Blower brush, dry cloth |
| Cleaning brush seal | | I | | | |
| Cleaning entrance seal | | C | | | |
| Cleaning brush | | R | | | Section 3.7.8. |
| Main cleaning blade | | R | | | |
| Cleaning unit filters | | R | | | Two filters |
| Pre-transfer lamp | | C | | | Dry cloth |
| ID sensor | | C | | | |
| Drum potential sensor | | C | | | Blower brush |
| Quenching lamp shield glass | | C | | | Blower brush, dry cloth |
| Corona wire casing | C | | | | Dry cloth |
| Grid plate (charge) | R | | | | |
| Charge corona wire | R | | | | |
| Corona wire cleaner (charge) | R | | | | |
| Wire cushion (charge) | R | | | | |
| Pre-charge corona wire | R | | | | |
| Pre-charge grid plate | R | | | | |
| Drum pick-off pawls | | | R | | |
| Transfer unit entrance stay | | C | | | |
| Transfer belt | | | R | | |
| Transfer belt bias brush | | | C | | Blower brush |
| Transfer belt and bias roller cleaning blades | | | R | | Replace at the same time as the transfer belt |
| Rear casing guide | | | C | | Dry cloth |
| Exit bias plate | | | C | | Blower brush when transfer belt is replaced. |
| Belt drive roller | | | C | | Alcohol, when transfer belt is replaced. |
| Belt roller | | | C | | |
| Transfer bias roller | | | C | | Alcohol, when transfer belt is replaced. Apply conductive grease to electrical contacts. |
| Cleaning bias roller | | | C | | Cleaning when Transfer belt cleaning blade is replaced |
| Ozone filter | | | | 15000K | |
| Carrier catcher | | I | | | Dry cloth |

PM TABLES

| FUSING UNIT | | 500K | 700K | 750K | |
|---|---------|------|------|------|--|
| Pressure roller, cleaning roller bearings | | I | | | Inspect only * ¹ |
| Fusing lamps (x3) | | I | | | Inspect only |
| Pressure roller cleaning roller | | C | | | Dry cloth (water or alcohol can also be used if necessary) |
| Fusing entrance guide plate (lower) | | C | | | Water or alcohol |
| Fusing cleaning fabric | NA | | | R | Section 3.11.4 |
| | EU/ASIA | R | | | |
| Fabric pressure roller | NA | | | R | |
| | EU/ASIA | R | | | |
| Supply roller stopper | NA | | | R | |
| | EU/ASIA | R | | | |
| Hot roller | | | R | | |
| Hot roller strippers | | | R | | Dry cloth • Cleaning required when fusing cleaning fabric is replaced. • Should be replaced with hot roller. |
| Hot roller ball bearings | | | I | | Inspect only |
| Hot roller bushings | | | I | | When replacing hot roller, lubricate with Barrierta 55L or S552R on the bushings. |
| Hot roller gears | | C/L | | | Lubricate with Barrierta Grease – JFE5 5/2 (A2579300) |
| Pressure roller | | | | R | When replacing, lubricate with Barrierta 55L or S552R on the bushings. |
| Pressure roller ball bearings | | | | I | |
| Pressure roller bushings | | | | I | Inspect only |
| Pressure roller strippers | | I | | | Dry cloth |
| Fusing exit roller | | I | | | Water, alcohol |
| Fusing exit guide plates (upper, lower) | | I | | | Dry cloth wrapped around a metal scale |
| Cooling entrance guide plate | | I | | | |
| Exit Roller | | C | | | Dry cloth |
| Vertical Relay Roller-Duplex | | C | | | |
| Vertical Relay Roller | | C | | | |
| Horizontal Exit Roller | | C | | | |
| Transport Roller Driven :Horizontal Guide plate | | C | | | |
| Transport Roller-Driven :Entrance Guide | | C | | | |
| Transport Roller-Driven :Guide Plate-Exit | | C | | | |
| Cooling Transport Belt | | C | | | |
| Discharge Brush :Cooling Transport Belt | | I | | | Blower Brush |
| Discharge Brush :Entrance | | I | | | |
| Discharge Brush :Exit Guide Plate | | I | | | |

PM Tables

| FUSING UNIT | 500K | 700K | 750K | |
|-----------------|------|------|------|----------------------------|
| Job Time Sensor | I | | | Blower Brush |
| Exit Sensor | I | | | |
| Drive Shaft | C | | | Dry Cloth |
| Cooling pipe | C | | | |
| Exit Motor | C | | | Grease Barrierta-JFE 5 5/2 |

Preventive
Maintenance

PM TABLES

| | 500K | 1000K | Note |
|--------------------------------------|-------------|--------------|--------------------|
| PAPER FEED | | | |
| Paper feed rollers x3 | | R | |
| Pick-up rollers x3 | | R | |
| Separation rollers x3 | | R | Replace together. |
| Grip rollers | C | | Damp cloth |
| Relay rollers | C | | Damp cloth |
| Paper feed guide plate | I | | Damp cloth |
| Upper and lower registration rollers | C | | Damp cloth |
| Registration sensor | C | | Blower brush |
| Relay sensor | C | | Blower brush |
| Paper dust remover | C | | Remove paper dust. |
| Paper feed sensors | C | | Blower brush |

| DUPLEX UNIT | 500K | Note |
|---|-------------|--|
| Transport rollers | C | Damp cloth |
| Feed rollers | C | |
| Reverse transport roller | C | |
| Reverse feed roller | C | |
| Inverter feed rollers | C | |
| Inverter transport rollers | C | |
| Entrance sensor | C | Blower brush |
| Anti-static brush | I | |
| Duplex inverter sensor | C | Blower brush, inspect feeler movement. |
| Duplex transport sensor | C | Blower brush |
| Horizontal transport feed roller (resin roller) | C | Damp cloth |

| GW CONTROLLER | 500K | |
|--------------------------|-------------|--------------|
| Controller filter | C | Blower brush |

| PSU | 500K | |
|------------|-------------|--------------|
| PSU filter | C | Blower brush |

| Exterior | 500K | |
|------------------------------------|-------------|--------------|
| Heat pipe cooling fan suction duct | C | Blower brush |

| OTHERS | 1 Year | |
|------------------|---------------|---|
| Breaker switches | I | Test the operation of the two breaker switches (main body, z-folder) once every year. |

2.2.2 ADF

The PM interval is for the number of originals that have been fed.

| | 80K | 120K | 140K | Note |
|-------------------|-----|------|------|---|
| Transport belt | | | R | Clean with damp cloth, or alcohol |
| Feed belt | | R | | |
| Separation roller | | R | | |
| Pick-up roller | | R | | |
| Sensors | I | I | | Blower brush |
| Drive gears | I | I | | Lubricate with a very small amount of G501. |

2.2.3 FINISHER SR5000 B830

| | 500K | 2500K | 3000K | Exp | Note |
|--------------------------|------|-------|-------|--------------------|--|
| Driver rollers | I | | | | Alcohol, dry cloth |
| Idle rollers | I | | | | Alcohol, dry cloth |
| Discharge brush | I | | | | Alcohol, dry cloth |
| Alignment brush roller | | R | | | |
| Bushings | | | | | Lubricate with Silicone or Launa oil if noisy. |
| Sensors | I | | | | Blower brush. |
| Jogger fences | I | | | | Make sure screws are tight. |
| Staple unit | | | | 500K Staple Sheets | |
| Positioning roller | | R | | | |
| Shift positioning roller | | | R | | |

2.2.4 PUNCH UNIT PU5000 B831

| | Exp |
|-----------------|-------------------|
| Punch unit B531 | 1 million punches |

2.2.5 LCIT RT5000 B832

The PM interval is for the number of sheets that have been fed.

| | 500K | 1000K | Note |
|------------------------------------|-------------|--------------|-------------|
| Paper feed roller x3 | | R | |
| Pick-up rollers x3 | | R | |
| Separation rollers x3 | | R | |
| Transport guide plate | I | | |
| Grip rollers (drive, idle rollers) | I | | |

2.2.6 MULTI-BYPASS TRAY B833

The PM interval is for the number of sheets that have been fed.

| | 500K | 1000K | Note |
|------------------------------------|-------------|--------------|-------------|
| Paper feed roller | | R | |
| Pick-up roller | | R | |
| Separation roller | | R | |
| Transport guide plate | I | | |
| Grip rollers (drive, idle rollers) | I | | |

2.2.7 LCIT RT5010 B834

The PM interval is for the number of sheets that have been fed.

| | 500K | 1000K | Note |
|------------------------------------|-------------|--------------|-------------|
| Paper feed roller x3 | | R | |
| Pick-up rollers x3 | | R | |
| Separation rollers x3 | | R | |
| Transport guide plate | I | | |
| Grip rollers (drive, idle rollers) | I | | |

2.2.8 COVER INTERPOSER TRAY CI5000 B835

The PM interval is for the number of sheets that have been fed.

| | 60K | As Needed | Note |
|-------------------|-----|-----------|---|
| Drive rollers | | C | Dry cloth |
| Idle rollers | | C | Dry cloth |
| Feed belt | R | | |
| Separation roller | R | | |
| Pick-up roller | R | | |
| Sensors | | C | Blower brush. |
| Drive gears | | I | Lubricate with very small amount of G501. |

Preventive Maintenance

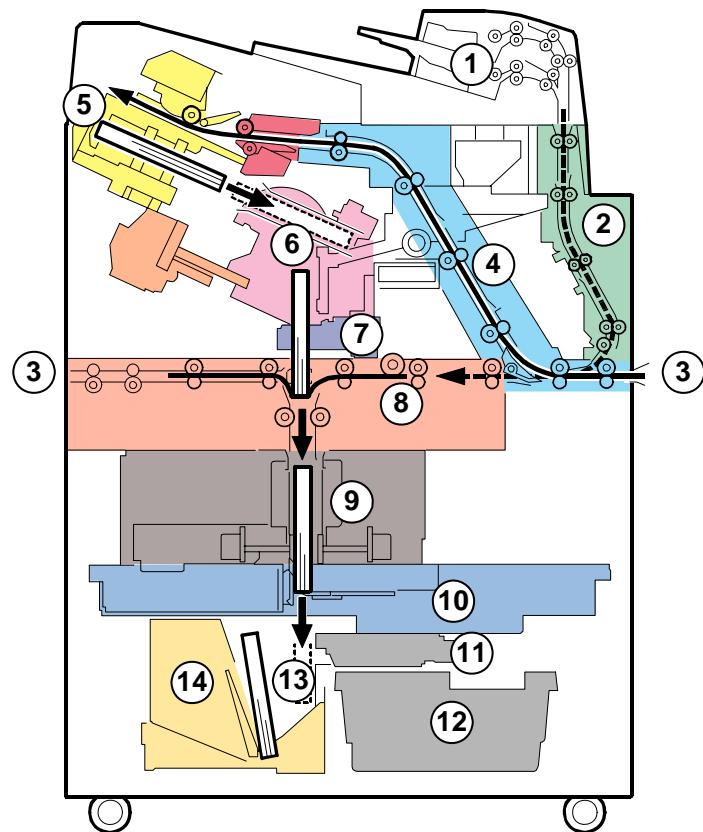
2.2.9 BOOKLET FINISHER BK5000 B836

| | 500K | Note |
|-------------------|------|---|
| Drive Rollers | I | Damp cloth, dry cloth |
| Idle Rollers | I | Damp cloth, dry cloth |
| Anti-Static Brush | I | Dry cloth |
| Bushings | I | Silicone or Launa oil |
| Sensors | I | Blower brush |
| Booklet Stapler | | Replace the unit if the staple count is 200K. |

2.2.10 Z-FOLDING UNIT ZF4000 B660

| | As Needed | Note |
|-------------------|-----------|--------------|
| Drive Rollers | C | Dry cloth. |
| Idle Rollers | C | Dry cloth. |
| Anti-Static Brush | C | Dry cloth. |
| Bushings | L | Silicone Oil |
| Sensors | C | Dry cloth. |

2.2.11 PERFECT BINDER/INSERTER D391



d391p100

| No. | Area |
|-----|--------------------------------------|
| ① | Inserter Unit |
| ② | Vertical Path (Covers from Inserter) |
| ③ | Horizontal Paper Path |
| ④ | Signature Path |
| ⑤ | Stacking Tray |
| ⑥ | Main Grip Unit |
| ⑦ | Gluing Unit |
| ⑧ | Cover Registration Unit |
| ⑨ | Signature Rotation Unit |
| ⑩ | Trimming Unit |
| ⑪ | Trimming Buffer Unit |
| ⑫ | Trimmings Box |
| ⑬ | Book Buffer |
| ⑭ | Book Output |

Inserter Unit

| Part | Clean | PM | Comments |
|-------------------------------------|----------------|------------------------------------|------------------------------|
| Feed Roller | 40 K sheets | 100 K sheets | Spurious noise, feed jams |
| Magnetic Clutch | 1,000 K sheets | 1,000 K sheets | Cover skews, jams |
| Pickup Roller | 40 K sheets | 100 K sheets | Feed slippage, feed jams |
| Separation Roller | 40 K sheets | 100 K sheets | Spurious noise, double feeds |
| Separation Roller Torque Limiter | | 1,000 K sheets | Spurious noise, double feeds |
| Cover Unit Drive Roller 1 | EM | Skew Predicted: 30,000 K Sheets | |
| Cover Unit Drive Roller 2 | EM | Skew Predicted: 30,000 K Sheets | |

Preventive Maintenance

Perfect Binder**Horizontal Paper Path**

| Part | Interval | | | Comments |
|--|----------|-----------------|----------------|---|
| | EM | Predicted | Clean | |
| Anti-Static Brush: Horizontal Path: Small | EM | 2,000 K sheets | | Cover, signature misaligned due to large amount of static charge on cover |
| Drawer Harness (Female Connector) | EM | 20 K books | | Book detected in tray, book stacking tray error |
| Drawer Harness (Male Connector) | EM | 20 K books | | Book detected in tray, book stacking tray error |
| Entrance Roller | EM | 30,000 K sheets | 1,000 K sheets | Jam, skew due to deterioration in feed capability |
| Horizontal Exit Roller 1 | EM | 30,000 K sheets | 1,000 K sheets | Jam, skew due to deterioration in feed capability |
| Horizontal Exit Roller 2 | EM | 30,000 K sheets | 1,000 K sheets | Jam, skew due to deterioration in feed capability |
| Horizontal Transport Roller 1 | EM | 30,000 K sheets | 1,000 K sheets | Jam, skew due to deterioration in feed capability |
| Horizontal Transport Roller 2 | EM | 30,000 K sheets | 1,000 K sheets | Jam, skew due to deterioration in feed capability |
| Horizontal Transport Roller 3 | EM | 30,000 K sheets | 1,000 K sheets | Jam, skew due to deterioration in feed capability |
| Horizontal Transport Roller 4 | EM | 30,000 K sheets | 1,000 K sheets | Jam, skew due to deterioration in feed capability |
| Horizontal Transport Roller 5 | EM | 30,000 K sheets | 1,000 K sheets | Jam, skew due to deterioration in feed |

| Part | Interval | | | Comments |
|---|----------|----------------|----------------|--|
| | EM | Predicted | Clean | |
| | | | | capability |
| Relay Reflective Sensor Mirrors: Large | Clean | 200 K sheets | 200 K sheets | Jams, sensor adjustment error (if not cleaned) |
| Ripple Rollers | EM | 1,000 K sheets | 1,000 K sheets | Pressure on paper becomes loose, paper cannot exit |

Signature Path

| Part | Interval | Predicted | Comments |
|--|----------|----------------|--|
| Anti-Static Brush 1: Signature Path | EM | 2,000 K sheets | Due to large amount of discharge, excessive amount of spill around trimmer unit. Poor stacking in stacking tray. |
| Anti-Static Brush 2: Signature Path | EM | 2,000 K sheets | Due to large amount of discharge, excessive amount of spill around trimmer unit. Poor stacking in stacking tray. |

Stacking Tray

| Part | Interval | Predicted | Clean | Comments |
|-------------------------------------|----------|-----------------|----------------|--|
| Switchback Roller | EM | 1,000 K sheets | | Trailing edge of paper does not return (Trailing edge does not align correctly in stacking tray) |
| TE Press Roller: Large | EM | 1,000 K sheets | | Stack edge does not align correctly |
| TE Press Roller: Small | EM | 1,000 K sheets | | Stack edge does not align correctly |
| Jogger Motors | EM | 15,000 K sheets | | Jogger motor error, signature stack does not align correctly |
| Anti-Static Brush: Stacking Tray | EM | 2,000 K sheets | | Due to large amount of discharge, excessive amount of spill around trimmer unit Poor stacking |
| Rollers: Stacking Tray | Clean | | 1,000 K sheets | Jam, skew due to deterioration in feed capability |

⇒ Main Grip Unit

| Part | Interval | Predicted | Replace | Comments |
|----------------------------------|----------|------------------|-----------------|--|
| Main Grip Motors | EM | 100 K signatures | | Main grip motor error, PCB damaged (blown fuse) |
| Signature Thickness Sensor | EM | | 50 K signatures | Signature thickness sensor error. Use the Service Board DIP switches to adjust the signature thickness for 25 mm. |

⇒ Gluing Unit

| Part | PM | Comments |
|----------------------|-------------|---|
| Glue Vat Unit Heater | 2,000 hours | Heater error, warm-up time not within specification |

Cover Registration Unit

| Part | Interval | Predicted | |
|--|----------|----------------|--|
| Buffer Roller | EM | 1,000 K sheets | Poor paper return, causes jams, skewing |
| Anti-Static Brush: Cover Registration: Horizontal Path | EM | 2,000 K sheets | Increase in amount of trimmings spillover, trimming unit |

Preventive Maintenance

⇒ Signature Rotation Unit

| Part | Interval | Predicted | Replace | |
|---|----------|------------|-----------------|----------------------------------|
| Ball Screw Unit | EM | 20 K times | | Ball screw cannot apply pressure |
| Torque Diode (Signature Rotation Unit for Trimming) | EM | | 50 K signatures | Inaccurate cutting |

⇒ Trimming Unit

| Part | Interval | | Comments |
|------------------------------|----------|------------------|---|
| Blade | PM | 40 K cuts | Set the machine in Replacement Mode for replacement. |
| Blade Cradle | PM | 5.5 K cuts | Note: Blade and cradle are always replaced together. |
| Signature Exit Sensors (E/R) | Clean | 100 K signatures | Jams, sensor adjustment error (if not cleaned) |
| Trimmings Buffer Motor | EM | 50 K signatures | |
| Trimmings Catcher | PM | 40 K cuts | Set the machine in Replacement Mode for replacement. |

Other

| Part | Interval | Predicted | |
|-------------------------------------|----------|----------------|----------------------|
| Deodorization Filters | EM | 1,000 K sheets | Glue odor noticeable |
| Deodorization Filters (Gluing Unit) | EM | 1,000 K sheets | Glue odor noticeable |

2.2.12 RING BINDER D392

Periodically inspect and clean the parts listed in the table below.

| Item | Action |
|-----------------------------------|--------------|
| Horizontal Transport Path | |
| Anti-static brushes | Blower brush |
| Horizontal transport path sensors | Blower brush |
| Drive rollers, idle rollers | Damp cloth |
| Switchback Unit | |
| Anti-static brushes | Blower brush |
| Switchback area sensors | Blower brush |
| Drive rollers, idle rollers | Damp cloth |
| Binder Unit | |
| Paddle roller | Blower brush |
| Transport path sensors | Blower brush |
| Drive rollers, idle rollers | Damp cloth |

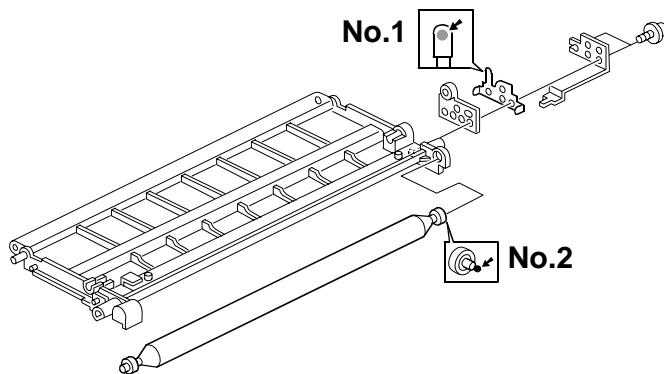
2.3 LUBRICATION POINTS

Types of Grease

| | |
|----------|------------------------------|
| a | Grease – KS660 – SHIN-ETSU |
| b | Grease Barrierta – JFE 5 5/2 |

2.3.1 TRANSFER

Preventive Maintenance



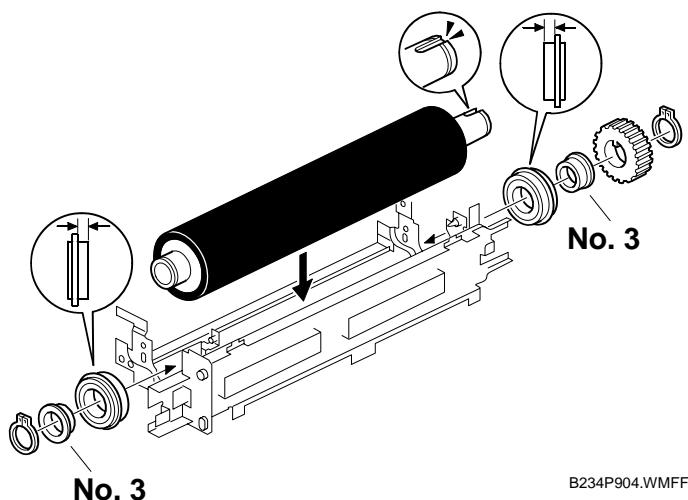
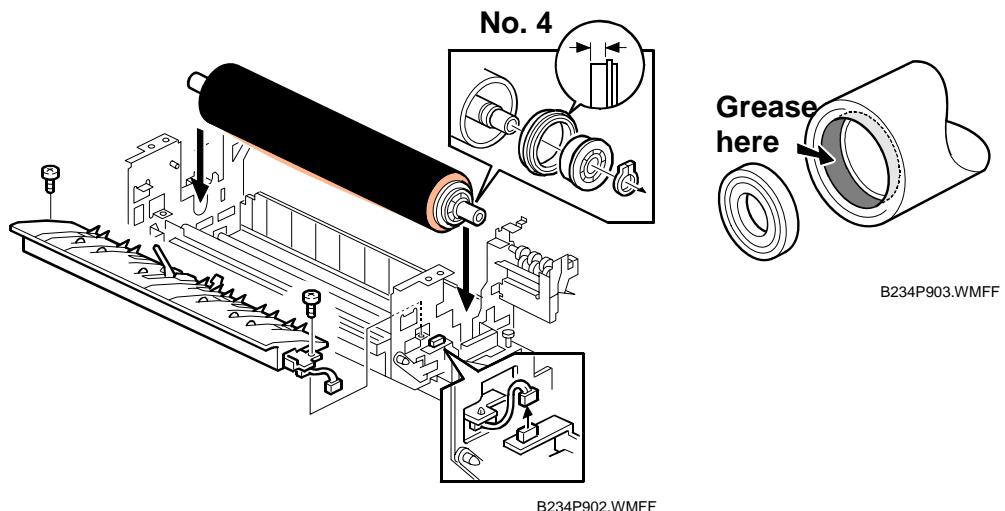
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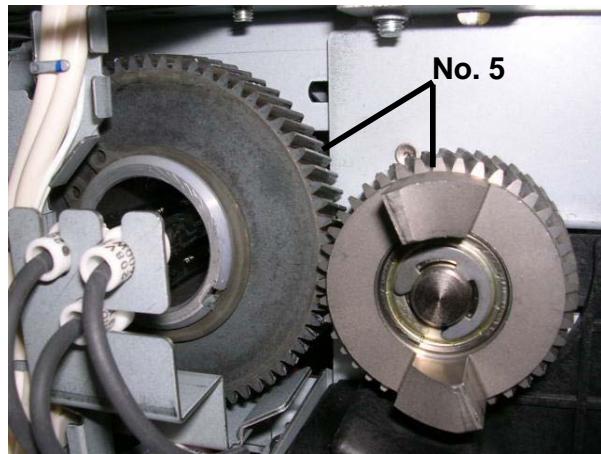
| No. | Lubrication Point | Type of Grease |
|-----|--|----------------|
| 1 | Upper part of the bias roller terminal | a |
| 2 | Rear end of the bias roller | a |

LUBRICATION POINTS

2.3.2 FUSING

| No. | Lubrication Point | Type of Grease |
|-----|--|----------------|
| 3 | Outer, inner surfaces of bushings | b |
| 4 | Inner surface of both ends of the pressure roller where it contacts the ball bearing | b |
| 5 | Fusing unit drive gears | b |





Preventive
Maintenance

B234P906.BMPP



REPLACEMENT AND ADJUSTMENT

| REPLACEMENT AND ADJUSTMENT REVISION HISTORY | | |
|--|-------------|---|
| Page | Date | Added/Updated/New |
| 114 ~ 115 | 10/09/2007 | Updated Information – CIS Image Position Adjustment |
| 147 ~ 192 | 05/19/2006 | Added pages omitted from the original documentation |
| 166 | 09/07/2006 | Updated Information – PPG, CGB Power Packs |



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, because 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. This 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** (Auto Process Control Execution).

Replacement
Adjustment

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.

GENERAL CAUTIONS

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, because 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 or optical cloth to clean the mirrors and lens.
4. Do not bend or crease the exposure lamp flat cable.
5. Do not disassemble the lens unit. This will put the lens and the copy image out of focus.
6. Do not turn any of the CCD positioning screws. This will put 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. This will put the LD unit out of adjustment.
2. Do not adjust the variable resistors on the LD unit, because 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 laser beam pitch adjustment. Otherwise, an SC condition will be generated.

3.1.6 CHARGE CORONA

1. Clean the corona wires with a dry cloth. Never 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 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.

Replacement
Adjustment

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** (Auto Process Control Execution).

GENERAL CAUTIONS

3.1.8 CLEANING

1. When servicing the drum cleaning section, be careful not to damage the edges of the drum cleaning blade and 2nd 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 it is in contact with the hot roller and that it is movable.
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, because 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) |
| A0299387 | Digital Multimeter – FLUKE 87 |
| B6455010 | SD (Secure Digital) Card – 64 MB |
| G0219350 | Loop Back Connector |

3.2.2 LUBRICANTS

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

Replacement
Adjustment

COMMON PROCEDURES

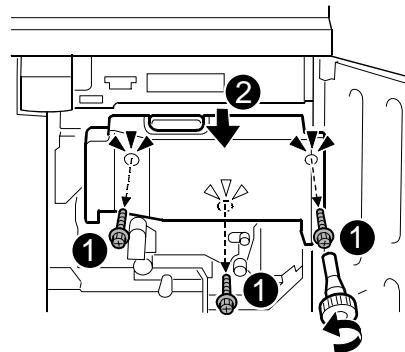
3.3 COMMON PROCEDURES

3.3.1 PULLING THE DEVELOPMENT UNIT DRAWER OUT

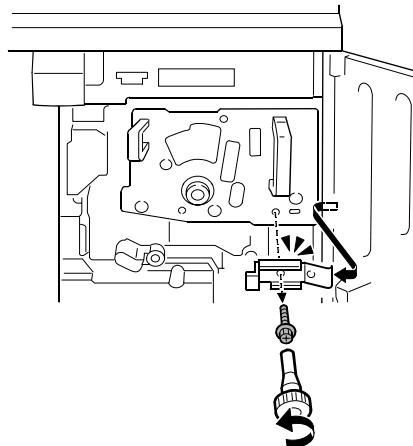
NOTE: These illustrations show removal with the hex driver provided to the customer, but the screws can be removed with any Phillips head (+) screwdriver.

11. Open the right front door.
12. Remove the black screws at ①.
13. Take off the inner cover ②.

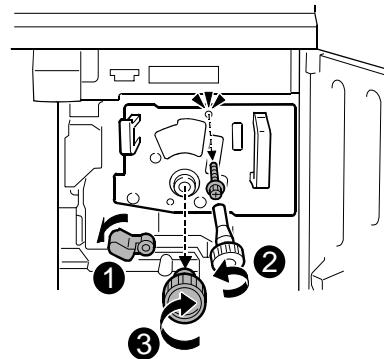
Important! This cover functions as a duct in the ventilation path of the machine. It must always be reinstalled.



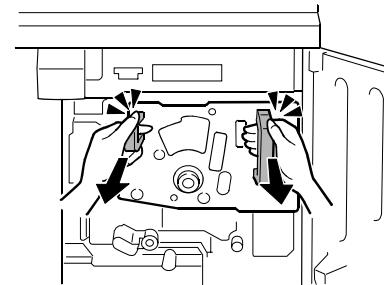
14. Remove the ground plate (⚡ x1).



15. Gently lower Lever C1 ①.
16. Remove the black screw ② (\wedge x1).
17. Rotate the black knob ③ clockwise and remove it.



18. Pull the purple handles toward you and remove the faceplate.

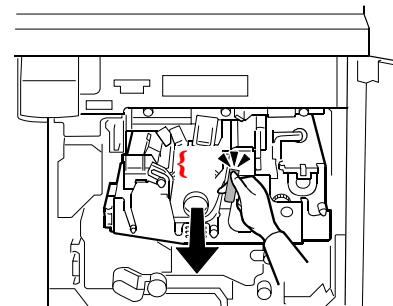


Replacement
Adjustment

19. Pull the purple handle toward you until the drawer stops.

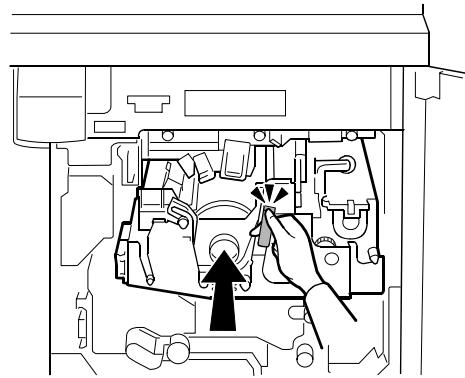
NOTE: The development unit { will shift slightly to the right when you pull the drawer out.

Important: Use a sheet of clean paper to cover the slit in the PCU where the drum is visible. This protects the photo-sensitive surface of the drum from overhead light and direct sunlight.

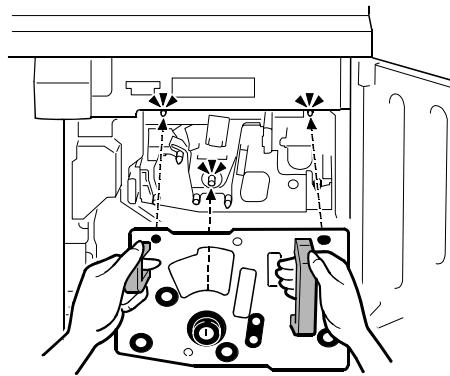


3.3.2 PUTTING THE DEVELOPMENT UNIT DRAWER IN

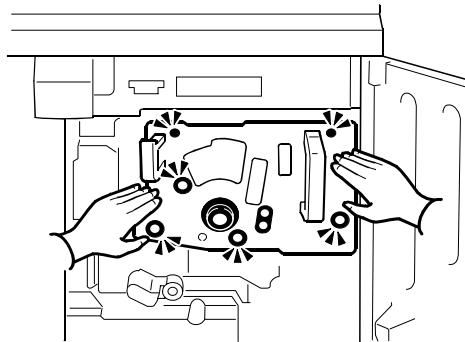
1. Gently and firmly push the purple handle into the machine until the drawer stops and locks.



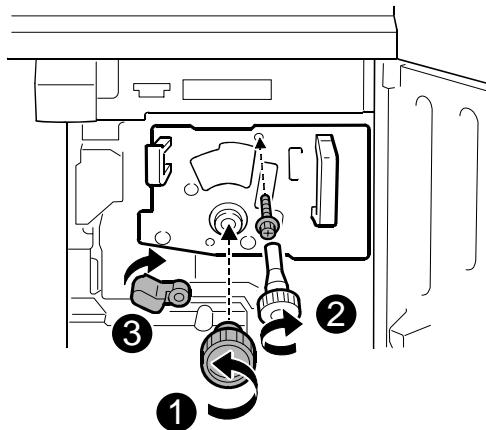
2. Mount the faceplate holes over the pegs.



3. Push in on each corner and edge of the faceplate to make sure that it is locked and mounted correctly.

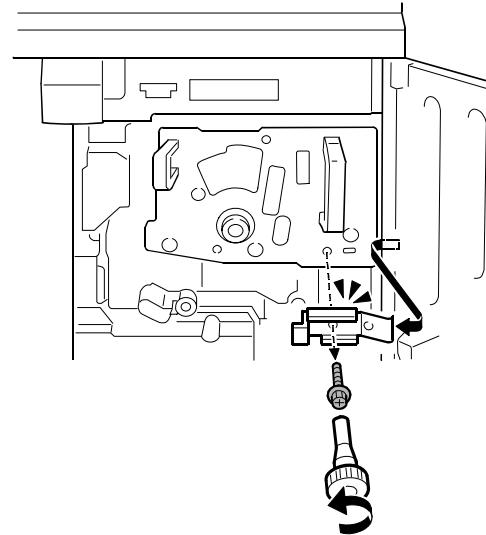


4. In this order:
- Attach knob ①
 - Fasten screw ②
 - Gently rotate lever C1 ③ up.

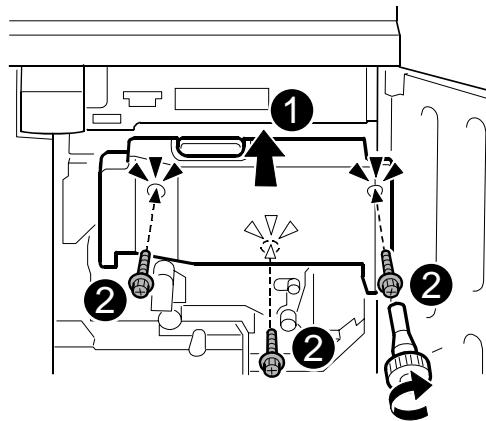


Replacement
Adjustment

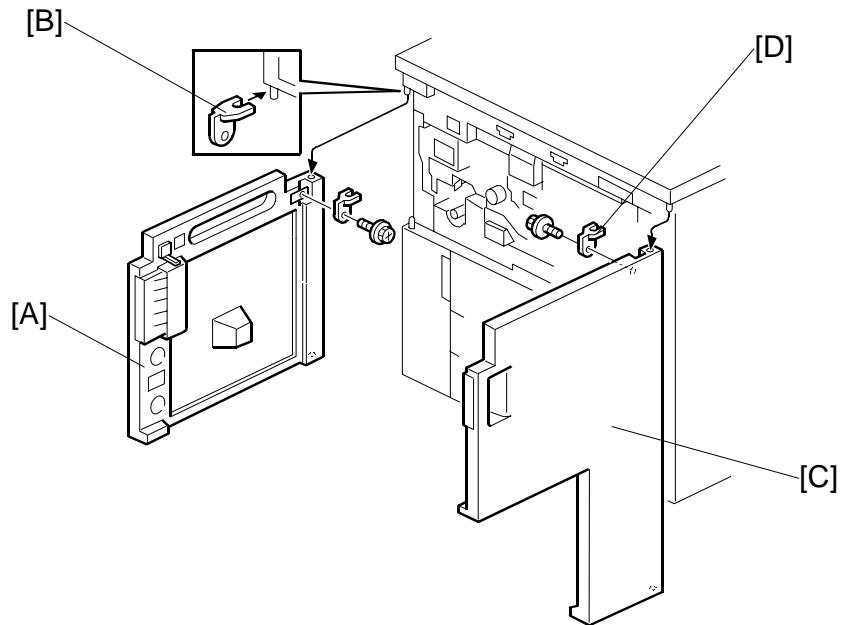
5. Reattach the ground plate (☞ x1).



6. Mount the inner cover.
- Attach screw { first but do not tighten.
 - Attach the other screws.
 - Tighten all the screws.
7. Close the right front door.



3.3.3 FRONT DOORS

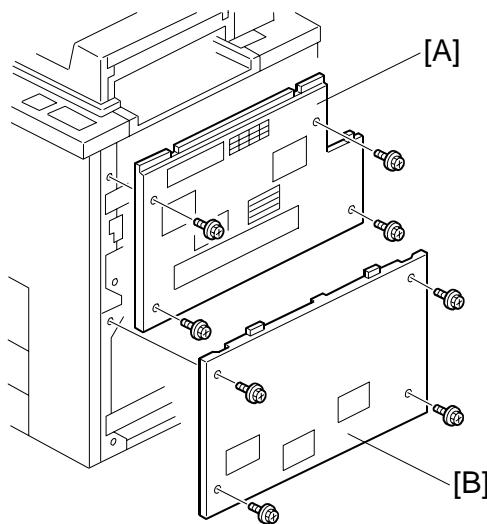


CAUTION

Turn off the main power switch and unplug the machine before attempting any procedure in this section.

1. Open the left door [A].
2. Bracket [B] ($\wedge \times 1$).
3. Lift up the left door and remove it.
4. Open the right door [C].
5. Bracket [D] ($\wedge \times 1$).
6. Lift up the right door and remove it.

3.3.4 RIGHT COVERS

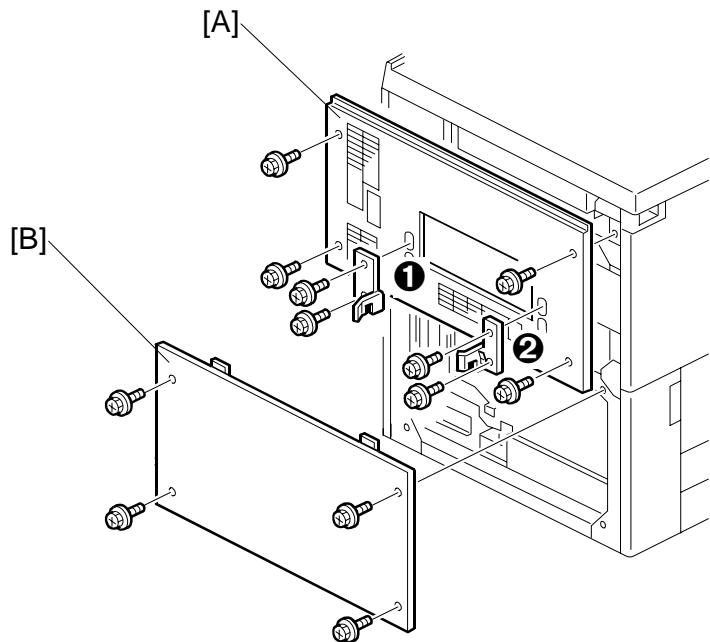


Replacement
Adjustment

1. Right upper cover [A] ($\frac{1}{4}$ x 4).
2. Right lower cover [B] ($\frac{1}{4}$ x 4).

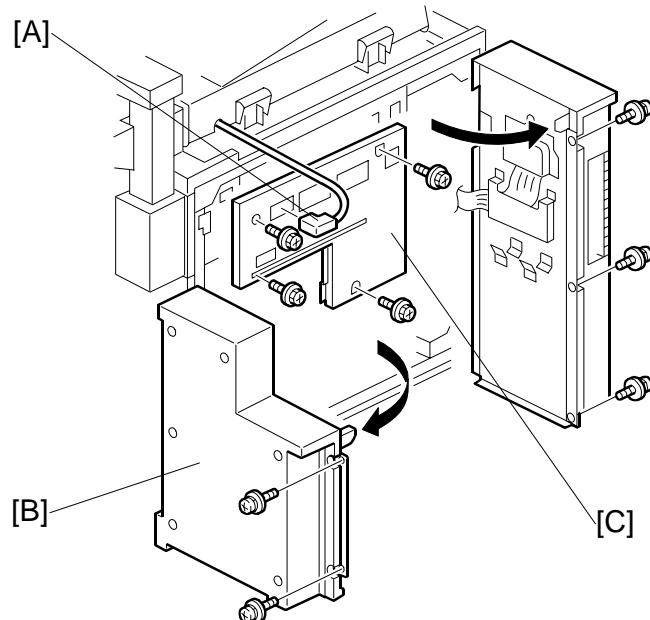
COMMON PROCEDURES

3.3.5 LEFT COVERS



1. Disconnect the optional finisher, if it is installed.
2. If the optional finisher was installed:
 - Remove the front joint bracket ① (\wedge x 2)
 - Remove the and rear joint bracket ② (\wedge x 2).
3. Left upper cover [A] (\wedge x 4)
4. Left lower cover [B] (\wedge x 4).

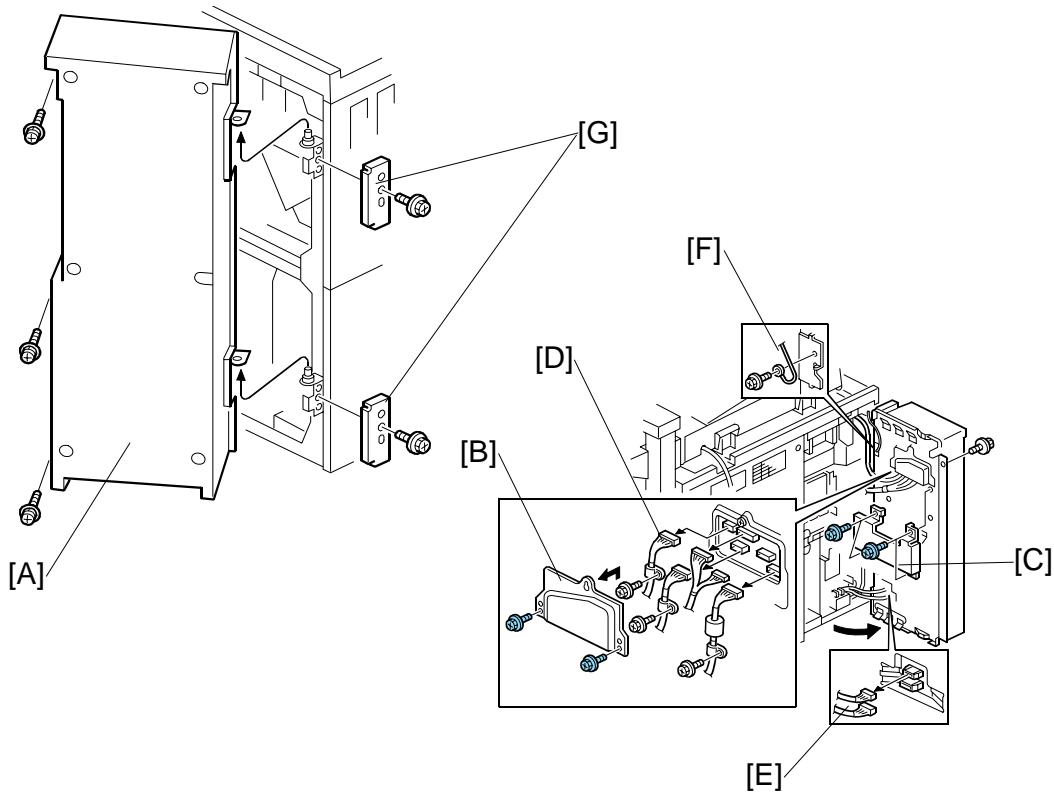
3.3.6 REAR UPPER COVER



Replacement
Adjustment

1. Disconnect the ADF connector [A].
2. Open the PSU box [B] (\wedge x 3)
3. Rear upper cover [C] (\wedge x 3).

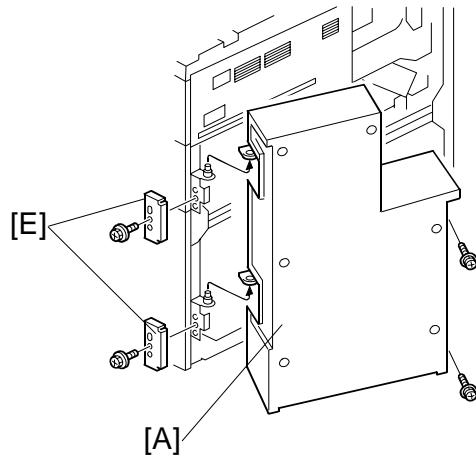
3.3.7 CONTROLLER BOX



8. Open the controller box [A] (\wedge x 3 with washers).
9. Remove 1st connector cover [B] (\wedge x2).
10. Remove 2nd connector cover [C] (\wedge x2)
11. Disconnect [D], [E] (\square x9)
12. Disconnect the ground wire [F] (\wedge x1)
13. Remove the hinge covers (top, bottom) [G] (\wedge x2)
14. Remove the controller box [A].

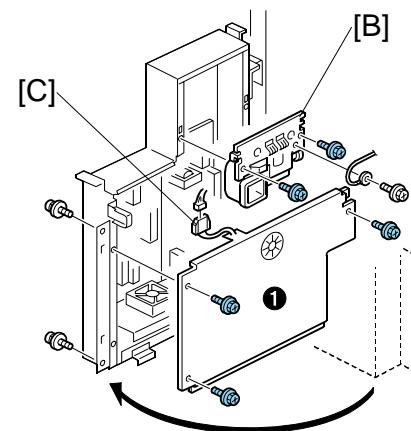
3.3.8 PSU BOX

- Open the PSU box [A] ( x 2).

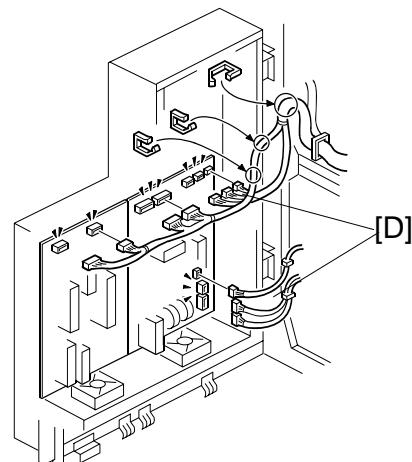


- Duct [B] ( x 3)
- Disconnect [C] ( x1)

NOTE: You do not need to remove the cover **❶** as shown.



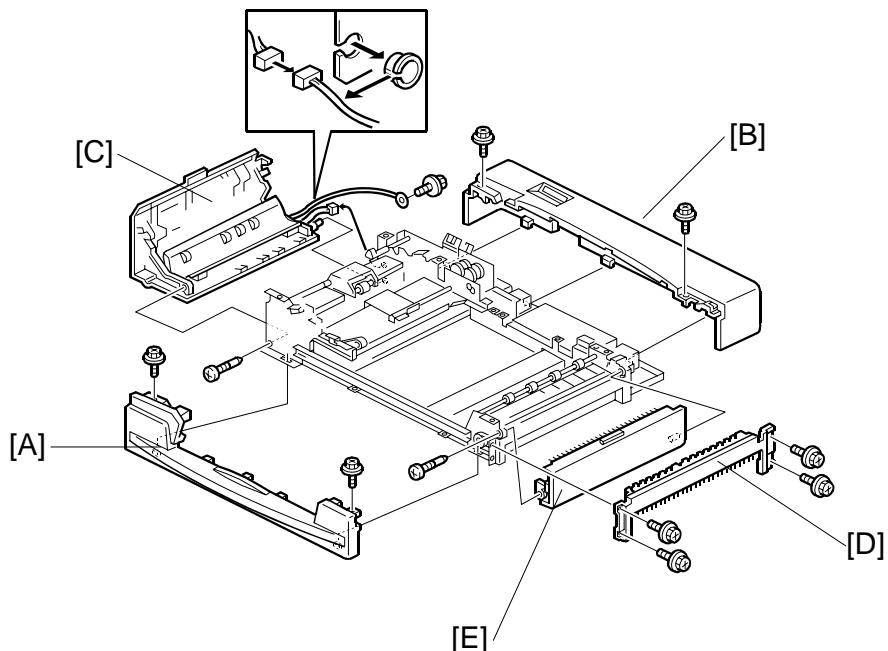
- Disconnect connectors [D] ( x10)
- Remove the hinge covers (top, bottom) [E] ( x 2)
- Remove the PSU door [A]



DOCUMENT FEEDER

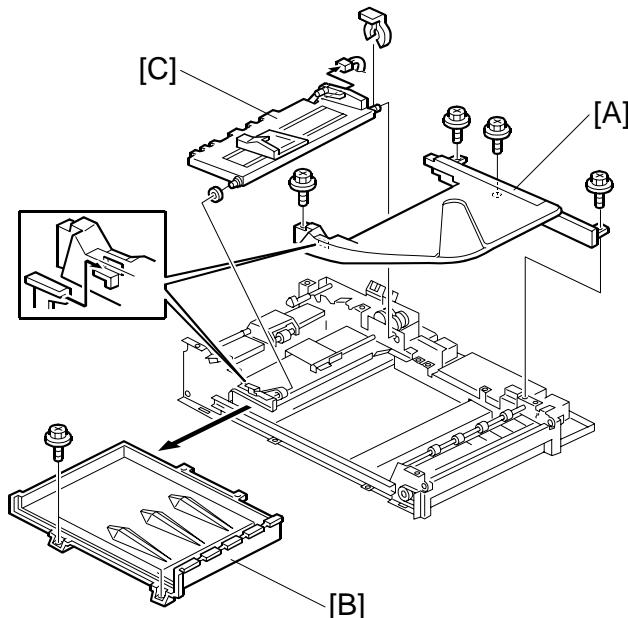
3.4 DOCUMENT FEEDER

3.4.1 ADF COVERS



1. Front cover [A] (\wedge x 2).
2. Rear cover [B] (\wedge x 2).
3. Left cover [C] (\wedge x 2, \square x 2).
4. Original exit tray. (3.5.6)
5. Right cover [D] (\wedge x 4, \square x 2).
6. Upper exit cover [E] (\wedge x 1).

3.4.2 ADF ORIGINAL TRAY



Replacement
Adjustment

Original Tray

1. Remove the ADF front and rear covers. (3.4.1)
2. Original tray [A] (\wedge x 4).

Original Table Cover

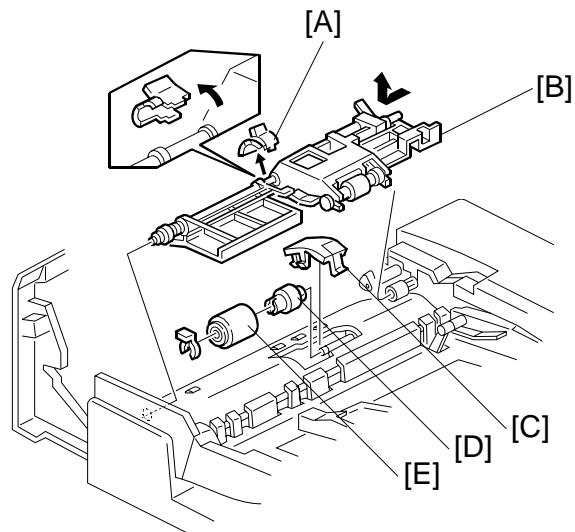
1. Remove the ADF front and rear covers. (3.4.1)
2. Remove the original tray [A].
3. Original table cover [B] (\wedge x 2).

Bottom Plate

1. Remove the ADF front and rear covers. (3.4.1)
2. Remove the original tray [A].
3. Bottom plate [C] (\wedge x 1, \square x 1).

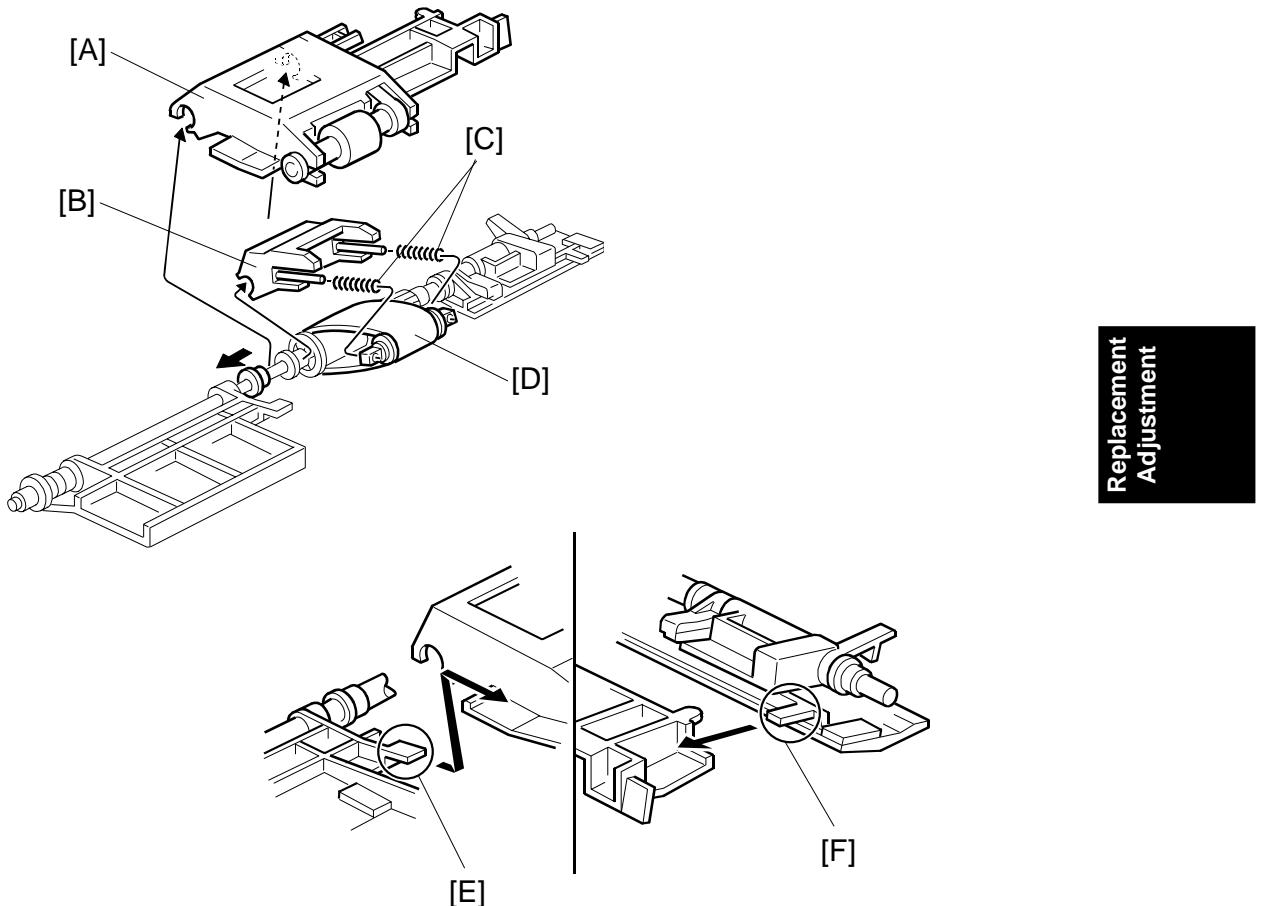
DOCUMENT FEEDER

3.4.3 FEED UNIT AND SEPARATION ROLLER



1. Open the left cover.
2. Clip [A].
3. Remove the feed unit [B]. Pull the feed unit to the front, release the shaft at the rear, and release the front bushing.
4. Separation roller cover [C].
5. Torque limiter [D] and separation roller [E] (\odot x 1).

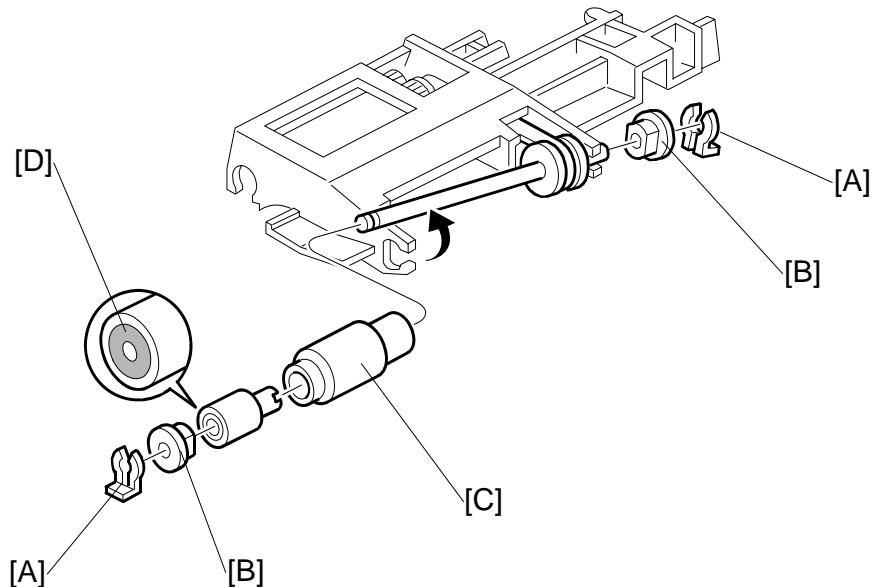
3.4.4 FEED BELT



1. Feed unit. (3.4.3)
2. Pick-up roller unit [A].
3. Feed belt holder [B].
NOTE: The springs [C] come off the feed belt cover easily.
4. Feed belt [D].
NOTE: When reinstalling the pick-up roller unit, make sure that levers [E] and [F] on the front and rear original guides are resting on the pick-up roller unit cover.

DOCUMENT FEEDER

3.4.5 PICK-UP ROLLER

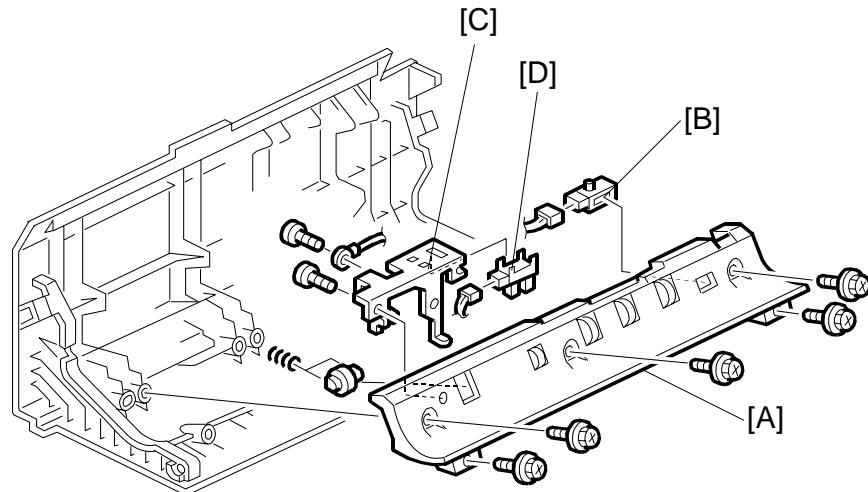


1. Open the left cover.
2. Feed unit (3.4.3)
3. Snap rings [A] (x 2).
4. Two bushings [B].
5. Pick-up roller [C].

NOTE: When reinstalling the pick-up roller, make sure that the one-way clutch [D] is not on the gear side.

3.4.6 ADF SENSORS

Entrance Sensor and Length Sensor

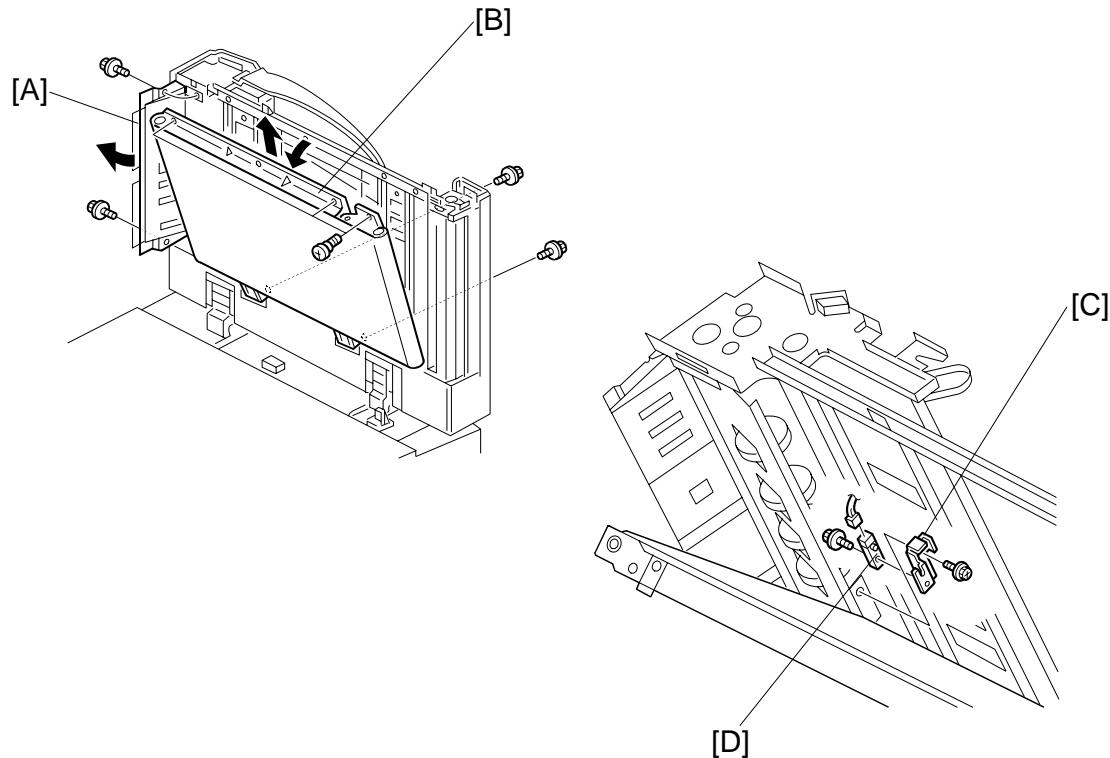


Replacement
Adjustment

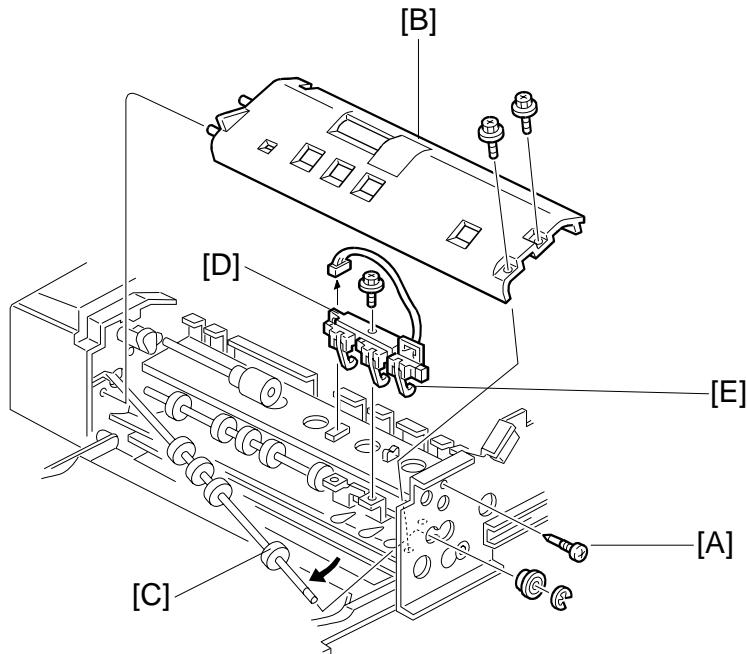
1. Left cover.
2. Guide plate [A] (x 5).
3. Entrance sensor [B] (x 1).
4. Length sensor bracket [C] (x 2).
5. Length sensor [D] (x 1).

DOCUMENT FEEDER

Registration Sensor



1. ADF front cover. (3-4.1)
2. ADF left cover. (3-4.1)
3. Release the entrance guide [A] (\wedge x 2).
4. Release the transport belt unit [B] (\wedge x 3).
5. Sensor bracket [C] (\wedge x 1).
6. Registration sensor [D] (\square x 1, \wedge x 1).

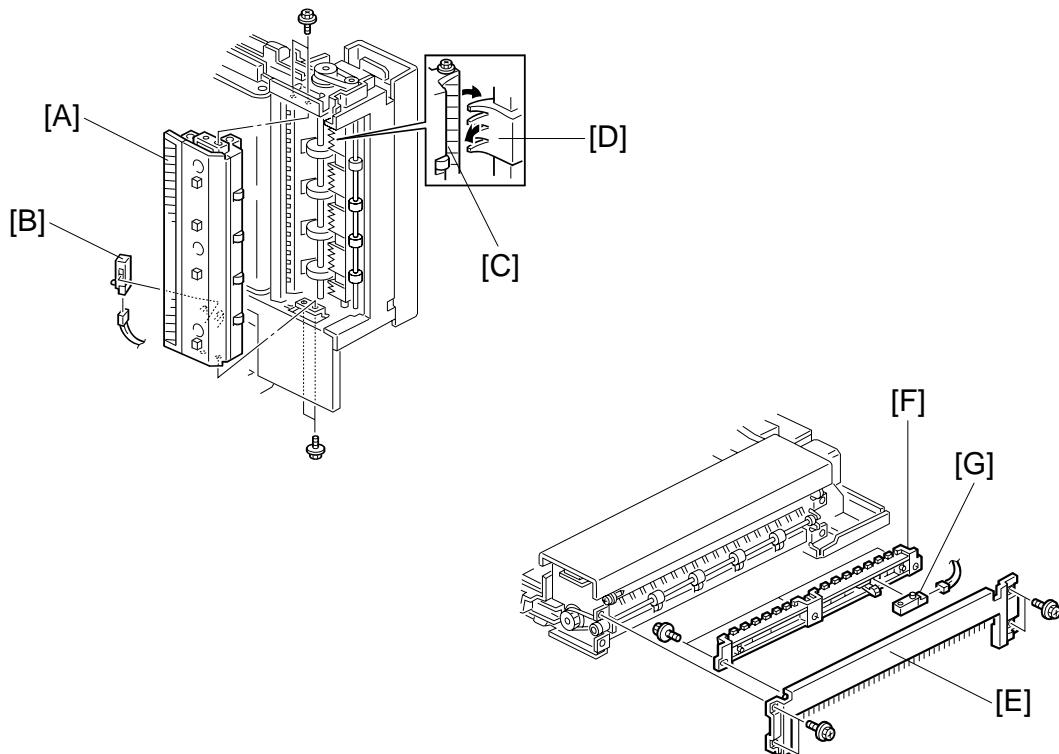
Width Sensors

**Replacement
Adjustment**

1. ADF front cover. (3.4.1)
2. Feed unit. (3.4.3)
3. Stopper screw [A].
4. Guide plate [B] ($\times 2$).
5. Release the front end of the upper transport roller [C] (bushing $\times 1$, $\times 1$).
6. Sensor bracket [D] ($\times 1$).
7. Width sensors [E] ($\times 1$ each).

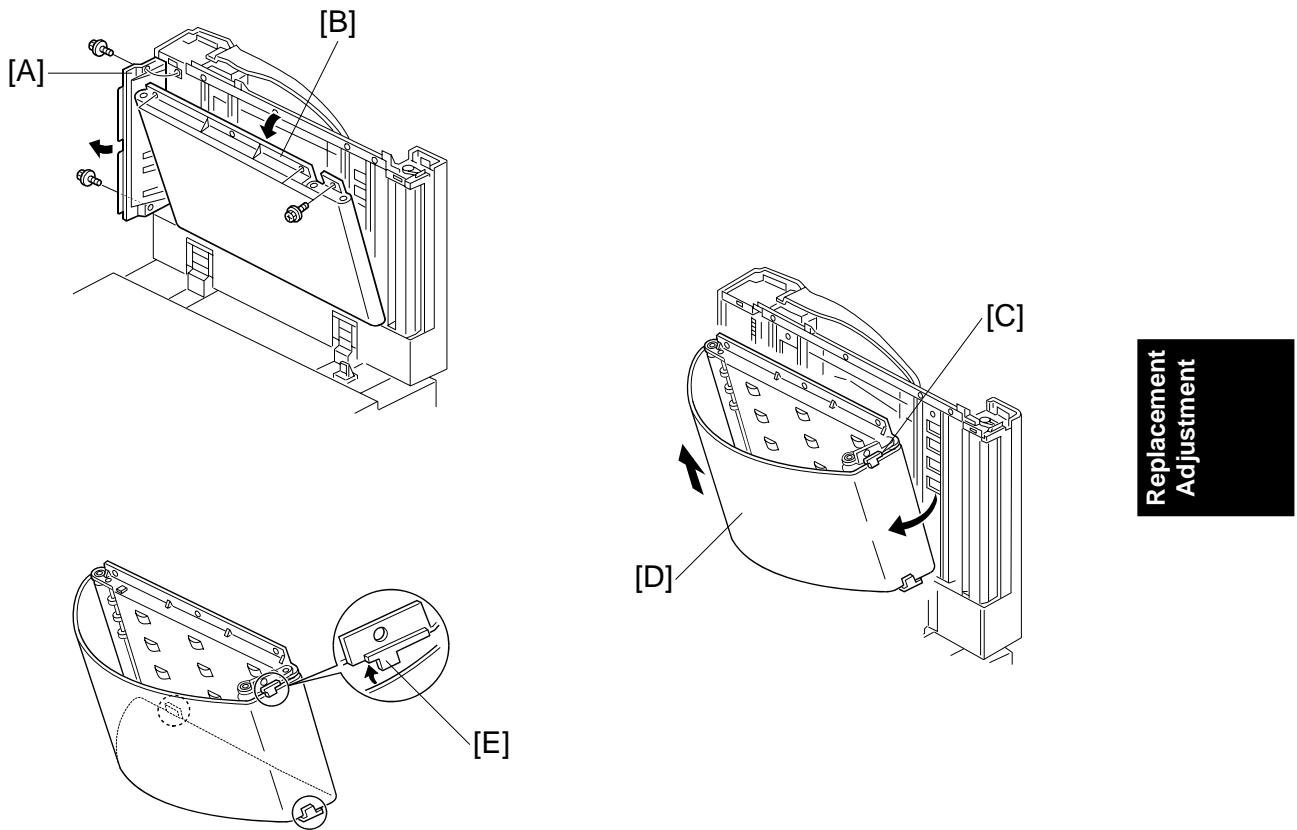
DOCUMENT FEEDER

Exit Sensor, Inverter Sensor



1. Front and rear covers. (●3.4.1)
2. Original tray. (●3.4.2)
3. Exit guide unit [A] ( x 5,  x 1).
4. Exit sensor [B] ( x 1).
5. Right cover [E] (●3.4.1)
6. Guide plate [F] ( x 3).
7. Inverter sensor [G] ( x 1).

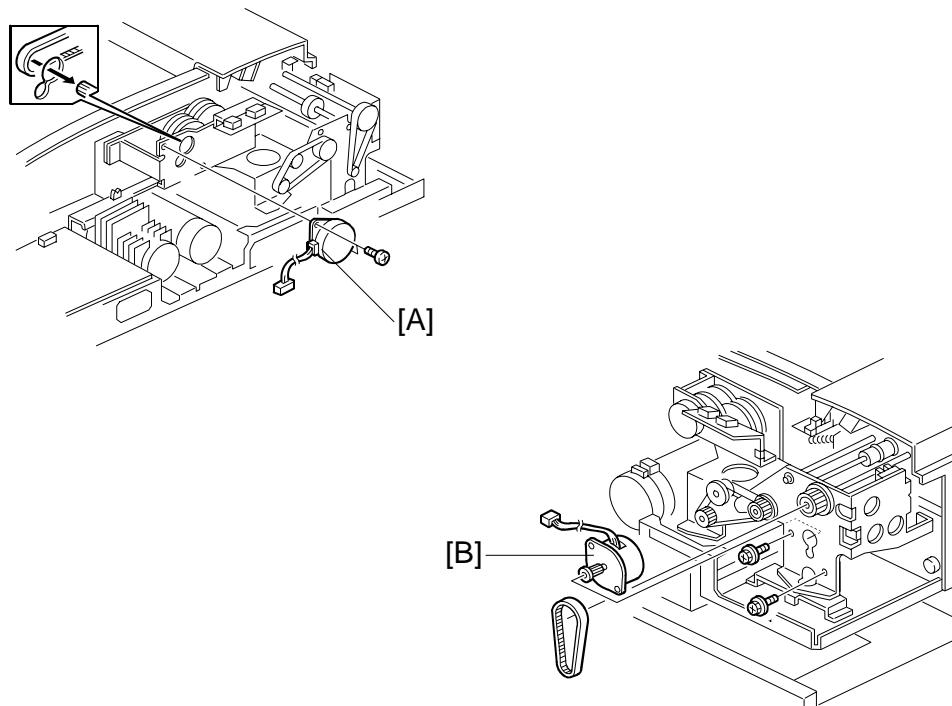
3.4.7 TRANSPORT BELT



1. Front cover. (3.4.1)
2. Release the entrance guide [A] (x 2).
3. Release the transport belt unit [B] (x 3).
4. Fold the transport belt assembly extension [C].
5. Transport belt [D].
NOTE: When installing the transport belt, make sure that the belt passes under the upper and lower belt guide spacers [E].
6. Execute **SP6009** (DF Free Run) to do an ADF free run for 3 minutes. After the free run is finished, clean off any dust on the exposure glass.

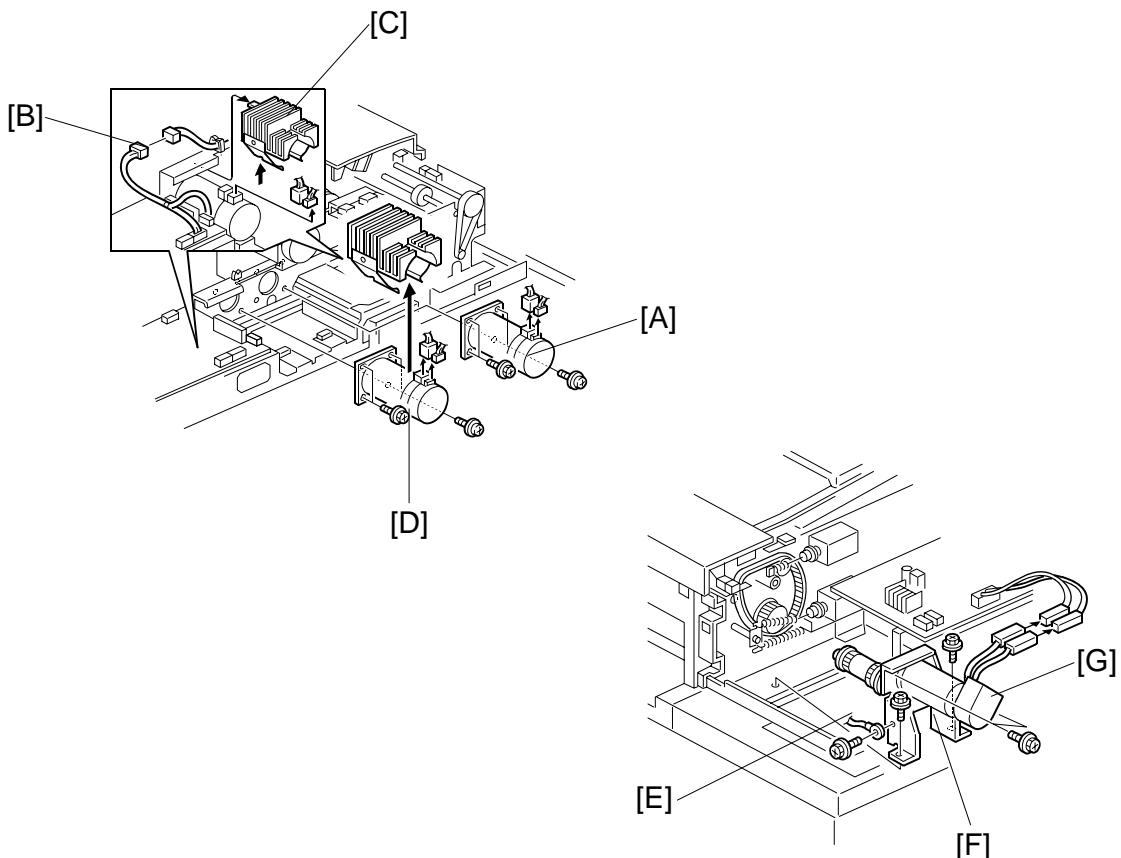
DOCUMENT FEEDER

3.4.8 ADF MOTORS



Bottom Plate Motor, Pick-up Motor

1. Rear cover. (3.4.1)
2. Bottom plate motor [A] (\wedge x 2, \square x 1).
3. Pick-up motor [B] (\wedge x 2, \square x 1).

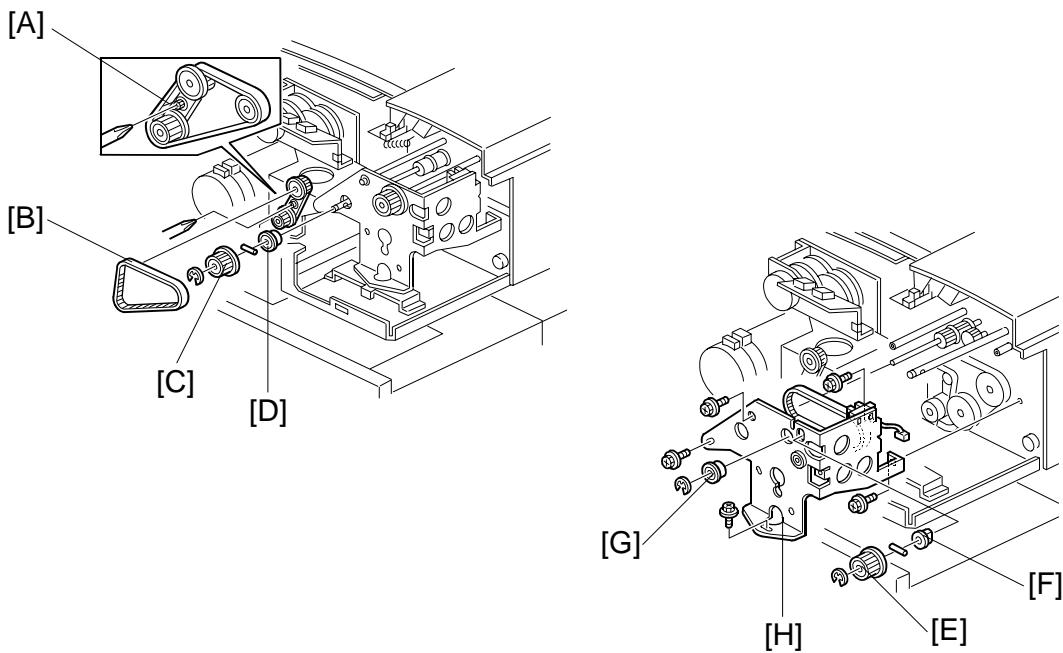


Feed-in, Transport, Feed-out Motors

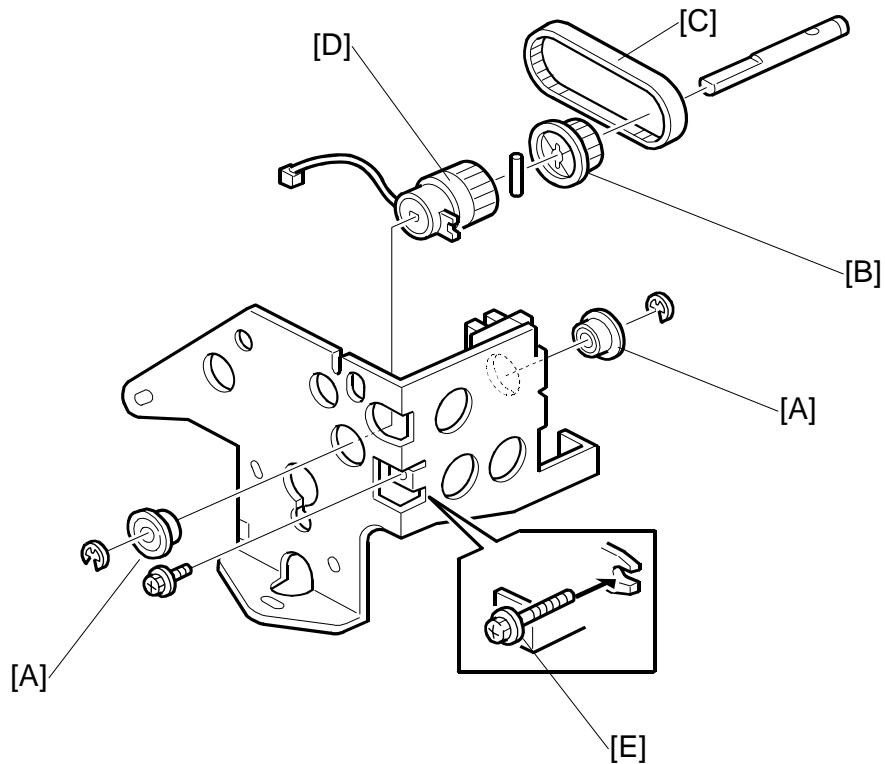
1. Rear cover. (3.4.1)
2. Feed-in motor [A] (x 4, x 2).
3. Connector [B]
4. Fins [C]
5. Transport motor [D] (x 4, x 2).
6. Grounding wire [E] (x 1).
7. Feed-out motor assembly [F] (x 2, x 2).
8. Feed-out motor [G] (x 2).

DOCUMENT FEEDER

3.4.9 FEED-IN CLUTCH



1. Rear cover. (3.4.1)
2. Remove screw [A].
3. Timing belt [B].
4. Pulley [C] and bearing [D] from the feed-in drive shaft (\odot x 1, pin x 1).
5. Pulley [E] and bushing [F] from the pick-up roller cam shaft (\odot x 1, pin x 1)
6. Bearings [G] from the feed belt drive shaft (\odot x 1).
7. Feed-in clutch assembly [H] (\wedge x 5, \square x 1).



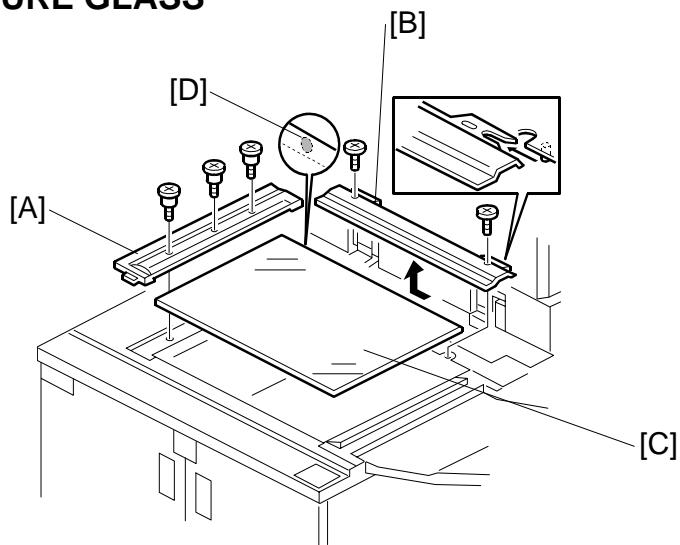
Replacement
Adjustment

8. Two bearings [A] from the feed-in clutch shaft (\odot x 1 each).
 9. Pulley [B] (\odot x 1), pin and timing belt [C].
 10. Feed-in clutch [D].
- NOTE:** When re-installing the feed-in clutch, put the stopper screw [E] in the clutch hook.

SCANNER UNIT

3.5 SCANNER UNIT

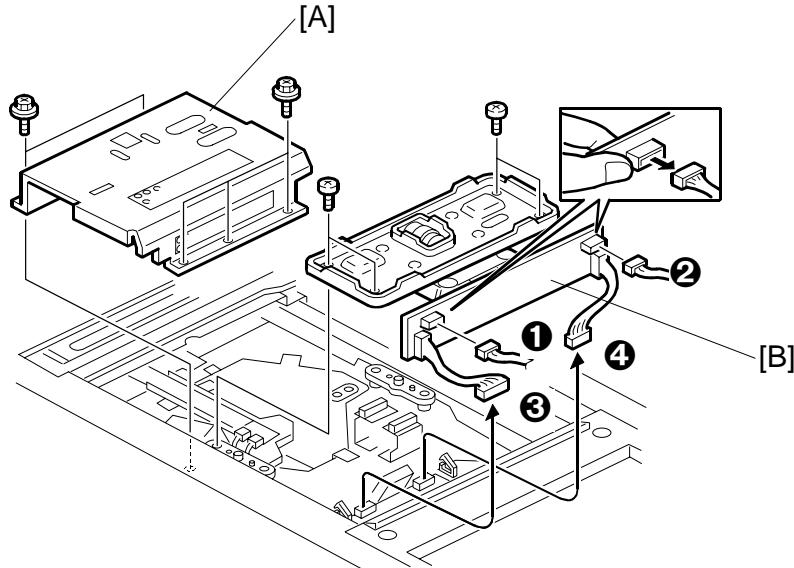
3.5.1 EXPOSURE GLASS



1. Left scale [A] (x 3).
2. Rear scale [B] (x 2). Slide in the direction of the arrow to remove.
3. Exposure glass [C].

NOTE: When positioning the exposure glass for re-installation, make sure that the white dot [D] is at the rear left corner.

3.5.2 LENS BLOCK



Replacement
Adjustment

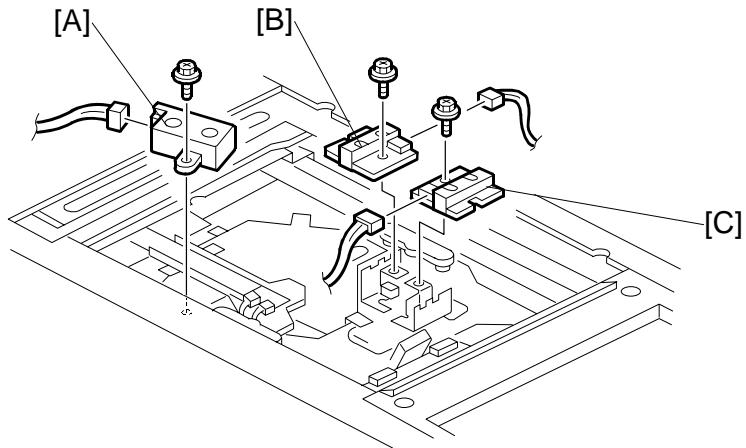
WARNING

Turn off the main power switch and unplug the machine before performing this procedure. Laser beams can seriously damage the eyes.

1. Exposure glass (3.5.1).
2. Lens cover [A] (x 5).
3. Lens block [B] (x 4, x 2, x 4).
 - Hold the board to disconnect connectors ①, ②. (They are difficult to disconnect if you do not hold the board.)
 - Disconnect the connectors from the relay board ③, ④, then remove the lens block.
4. After reassembly, do the scanner and printer copy adjustments. (3.15)

NOTE: There are no field adjustments for the lens block.

3.5.3 ORIGINAL SIZE SENSORS

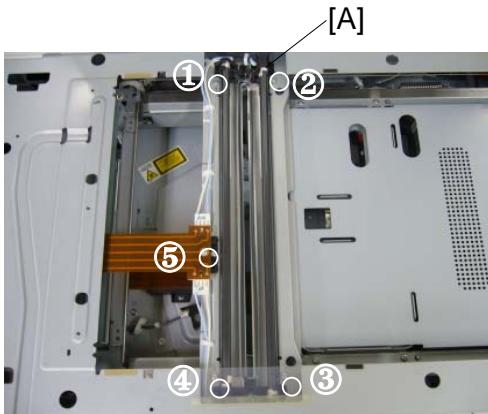


CAUTION

Turn off the main switch and unplug the machine before performing this procedure. Laser beams can seriously damage the eyes.

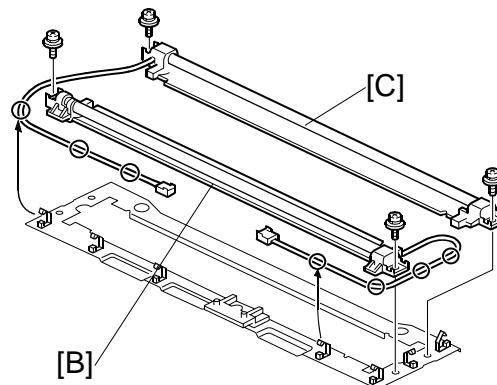
1. Exposure glass. (3.5.1)
2. Lens block. (3.5.2)
3. Original width sensor [A] ($\text{芝} \times 1$, $\text{引} \times 1$).
4. Original length sensor 1 [B] ($\text{芝} \times 1$, $\text{引} \times 1$).
5. Original length sensor 2 [C] ($\text{芝} \times 1$, $\text{引} \times 1$).
6. After re-assembly, do the scanner and printer copy adjustments. (3.15)

3.5.4 EXPOSURE LAMPS

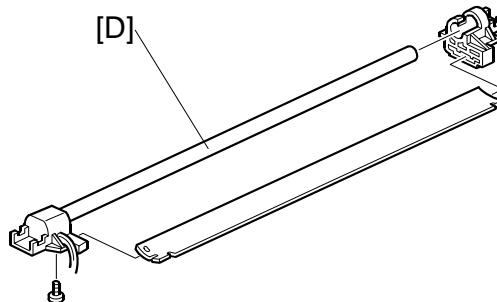


Replacement
Adjustment

1. Exposure glass. (3.5.1).
2. Open the front door, then remove the front upper cover. (3.5.8)
3. Exposure lamp unit [A] (\wedge x 1 to ⑤, \sqcap x 2)
4. 1st exposure lamp [B] (\wedge x 2, \sqcap x 1, \sqcup x4).
5. 2nd exposure lamp [C] (\wedge x 2, \sqcap x 1, \sqcup x3).

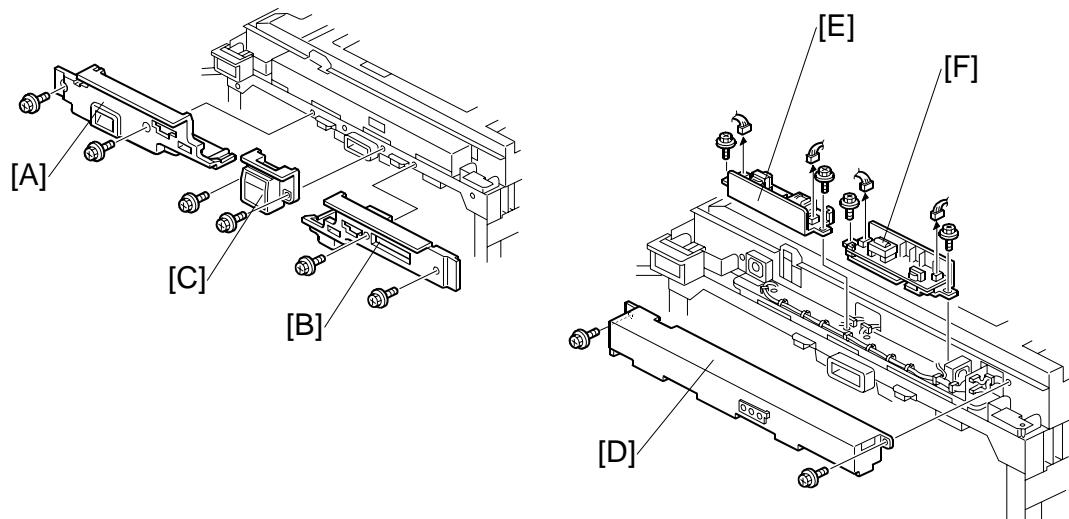


6. Exposure lamps [D] (\wedge x1).



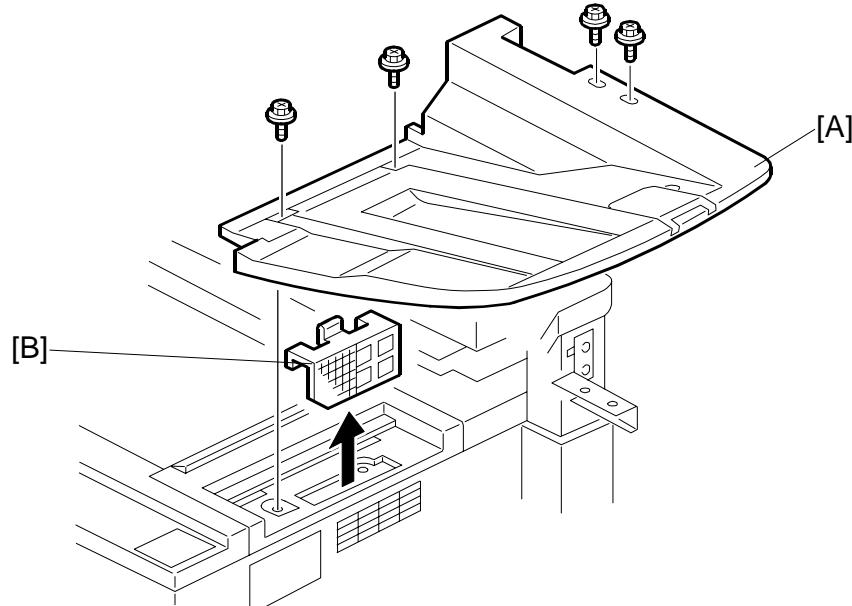
SCANNER UNIT

3.5.5 LAMP REGULATORS



1. Exposure glass. (3.5.1)
2. Open the front door, then remove the top front cover. (3.5.8)
3. Remove
 - [E]: Left inner cover ($\wedge \times 2$)
 - [F]: Right inner cover ($\wedge \times 2$)
 - [G]: Middle inner cover ($\wedge \times 2$)
 - [H]: Lamp regulator cover ($\wedge \times 2$)
 - [I]: Left lamp regulator ($\wedge \times 2$, $\square \times 2$)
 - [J]: Right lamp regulator ($\wedge \times 2$, $\square \times 2$)

3.5.6 OPTICS DUST FILTER

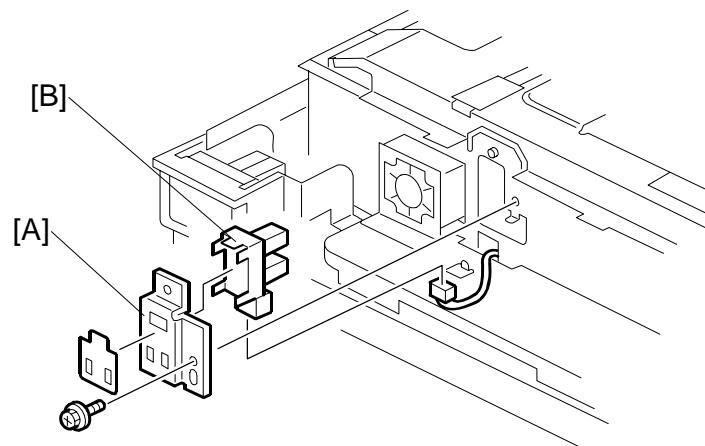


Replacement
Adjustment

1. Original exit tray [A] (x 4).
2. Optics dust filter [B].

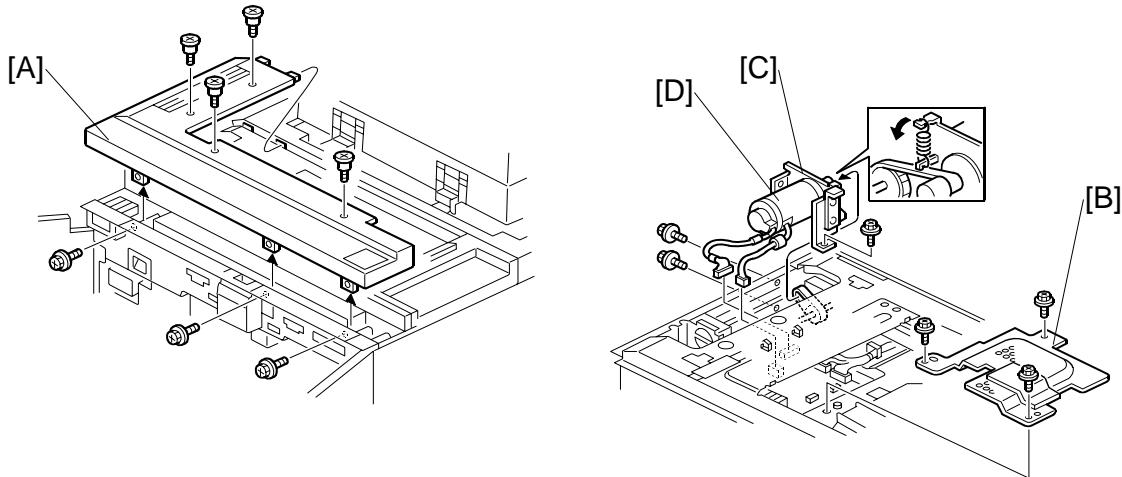
SCANNER UNIT

3.5.7 SCANNER HP SENSOR



10. Front upper cover (3.5.8)
11. Left lamp regulator (3.5.5)
12. Scanner HP sensor bracket [A] (x 1).
13. Scanner HP sensor [B] (x 1, Pawls x4).

3.5.8 SCANNER MOTOR



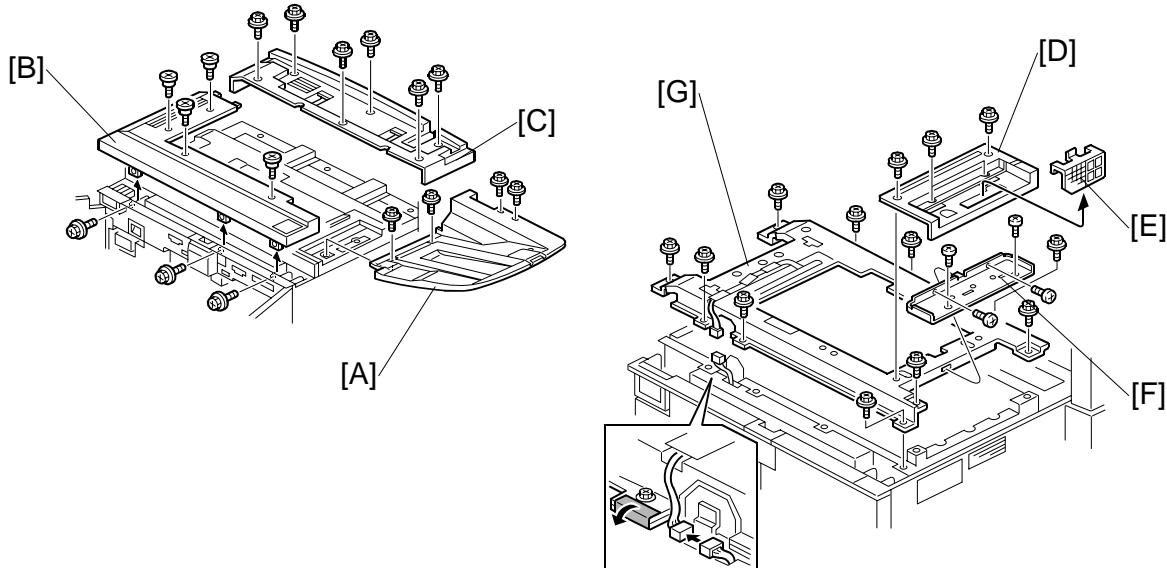
Replacement
Adjustment

1. Exposure glass. (3.5.1).
2. Left upper cover. (3.3.5).
3. Top upper cover [A] (\wedge x 7).
4. Remove the MCU [B] cover (\wedge x 3).
5. Scanner motor assembly [C] (\wedge x 2, \square x 2, \wedge x 3).
6. Scanner motor from the bracket [D] (\wedge x 3).
7. After reassembly, do the copy image adjustments. (3.18)

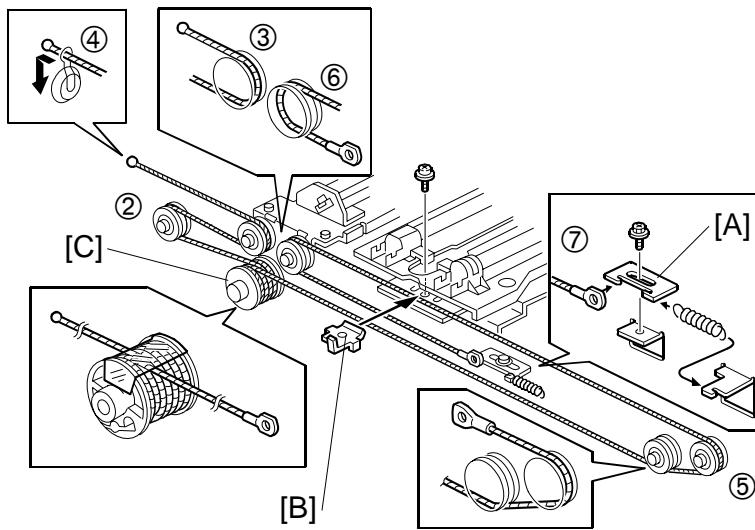
SCANNER UNIT

3.5.9 SCANNER DRIVE WIRES

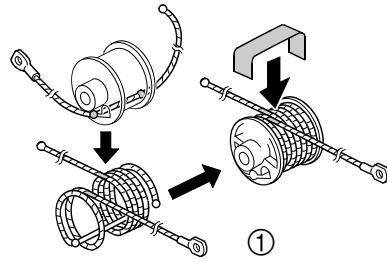
Preparation



1. Remove the ADF (x 2).
2. Original exit tray [A] (x 4).
3. Exposure glass (3.5.1)
4. Top front cover [B] (x 7).
5. Top rear cover [C] (x 6).
6. Top right cover [D] (x 4)
7. Filter [E]
8. Bracket [F] (x 4).
9. Scanner frame [G] (x 12, x1).

Front, Rear Scanner Drive Wires

Replacement
Adjustment

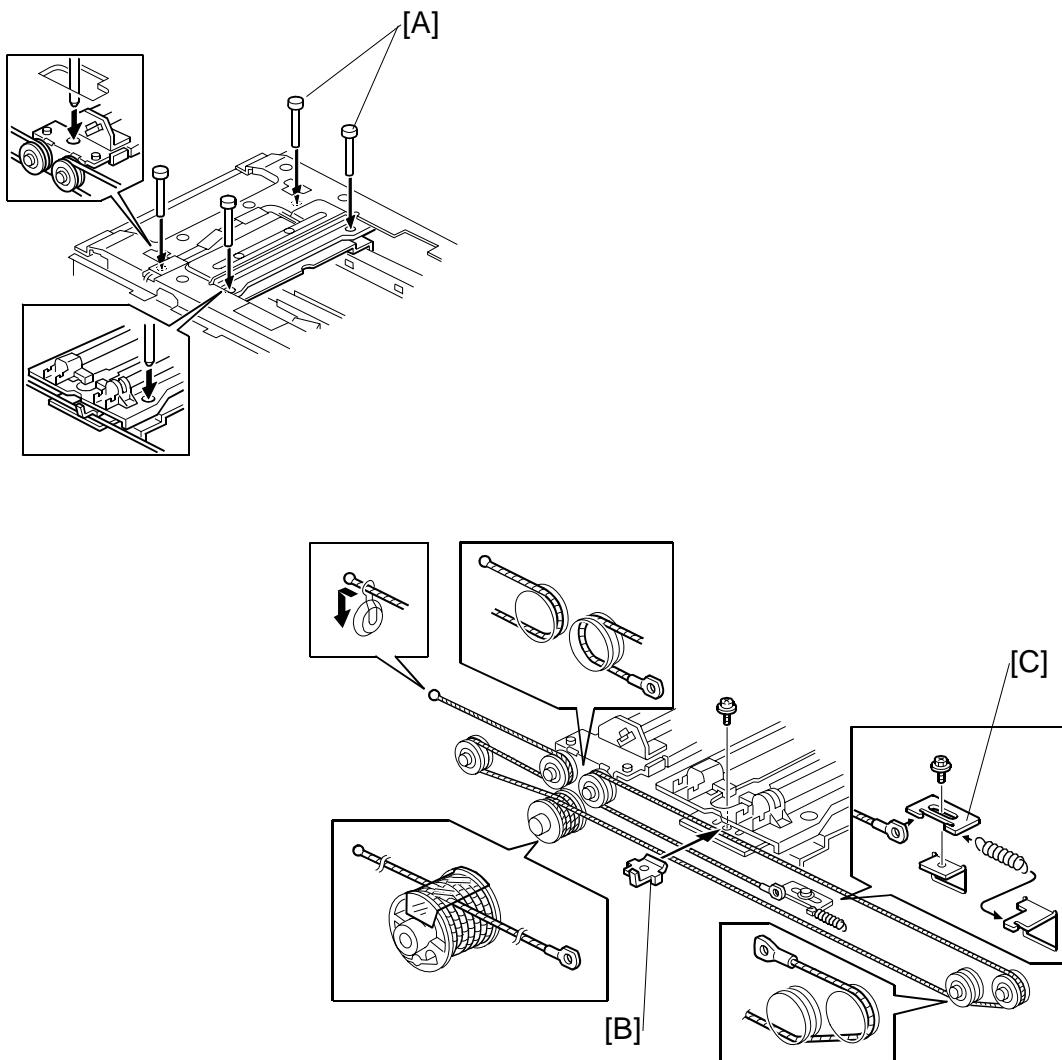


1. Wire tension bracket [A] (x 1).
2. Front scanner wire bracket [B].
3. Front scanner wire.

Reinstallation

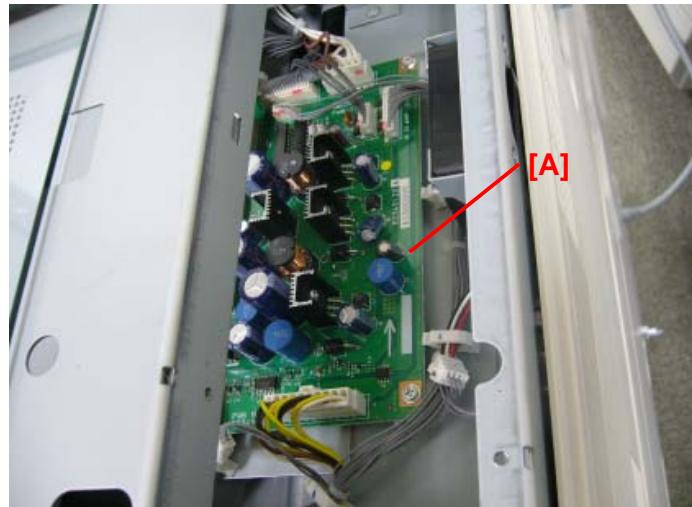
1. Scanner wire pulley [C] (x 1).
2. While making sure of the direction, place the beads on the middle of the wire on the pulley openings. Then wind the wire (ball side) 3 times and the other side (ring side) once as shown ①. Secure the pulley with tape to keep this condition.
3. Install the pulley on the scanner drive shaft (x 1).
4. Wind the end of the wire with the ball as shown (②,③,④).
5. Wind the end of the wire with the ring as shown (⑤,⑥,⑦).
6. Install the tension spring on the tension bracket, and slightly tighten the tension bracket (x 1).

SCANNER UNIT



7. Install the 1st scanner and adjust the position with the positioning tools [A].
8. Secure the 1st scanner with the scanner wire bracket [B] (\wedge x 1).
9. Tighten the tension bracket [C] and remove the tape.
10. Remove the positioning tools. After sliding the scanner to the right and left several times, set the positioning tools to check the scanner wire bracket and the tension bracket again.
11. Reassemble the scanner and do the scanner and copy adjustments (3.15)
NOTE: The tension of the scanner wire must be adjusted every 3000K. To do this adjustment, set the positioning tools [A], then loosen the screw [B] and retighten it.

3.5.10 SIB



Replacement
Adjustment

Remove: (3.5.8)

- Original exit tray
- Top right cover
- Filter
- Bracket

[A] SIB (x4, x9)

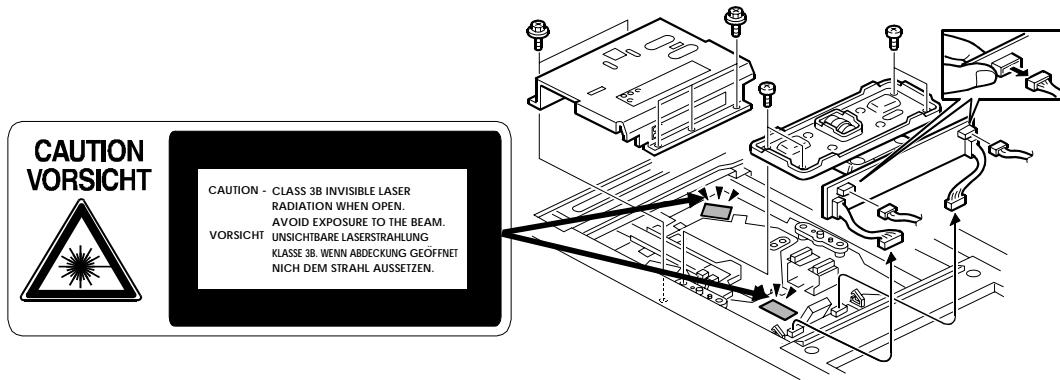
3.6 LASER UNIT

⚠ WARNING

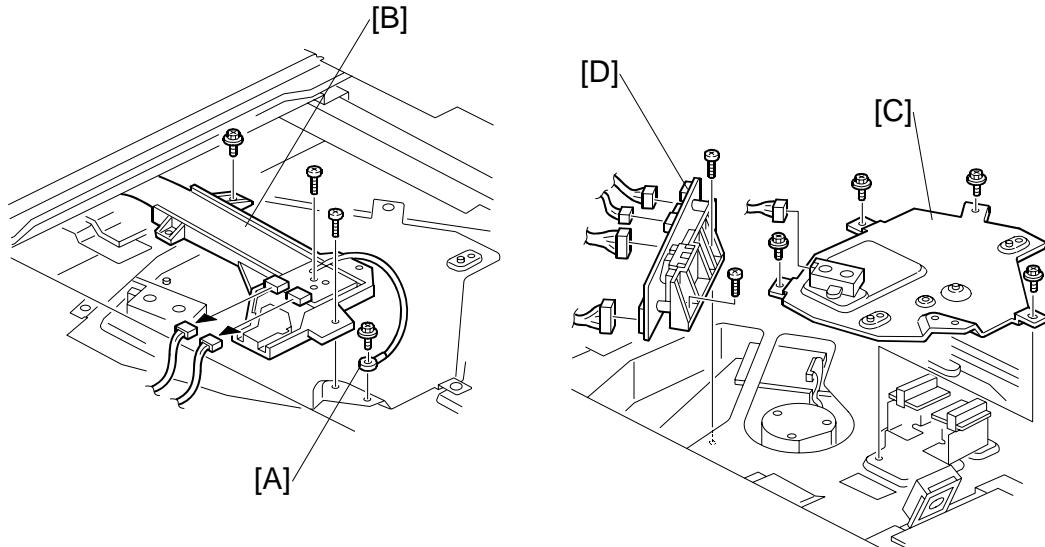
- This laser unit employs 8 laser beams produced by a Class III LDA with a wavelength of 788 nm and intensity of 10 mW. Direct exposure to the eyes could cause permanent blindness.
- Before any performing any replacement or adjustment of the laser unit, press the main power switch to power the machine off then unplug the machine from the power source. Allow the machine to cool for a few minutes. The polygon motor continues to rotate for approximately one to three minutes.
- Never power on the machine with any of these components removed: 1) LD unit, 2) polygon motor cover, 3) synchronization detect sensor.

3.6.1 CAUTION DECALS

Two caution decals are provided for the laser section.



3.6.2 LD UNIT



Replacement
Adjustment

WARNING

Turn off the main power switch and unplug the machine before attempting this procedure. Laser beams can seriously damage the eyes.

NOTE: To avoid damaging the board with static electricity, never touch the printed circuit board.

1. Exposure glass (3.5.1).
2. Lens block cover and lens block. (3.5.2)
3. Ground wire [A] (x 1).
4. Flat film connector guide [B] (x 3, x 2).
5. LD cover [C] (x 4, x 1).
6. LD unit [D] (x 2, x 4).
 - Four spacers, each of a different colour, are placed under the LD unit in the factory in order to do a fine positioning adjustment on the LD unit position. Before you remove the LD unit, take a careful note of where these spacers are. When replacing the LD unit, these spacers must be in exactly the same position.
 - Be sure to remove the mylar from the underside of the old LD unit and attach it to the new one.

LASER UNIT

7. After installing the LD unit, execute **SP2115 001~009** to input the pitch settings for the main scan beams.

NOTE: The correct settings for these SP codes are printed on a decal attached to the mounting bracket [C] of the LD unit.

```
<LD Unit Lot No.>
SP2115 001/SP2115 002/SP2115 003/SP2115 004/SP2115 005/SP2115 006
SP2115 007/SP2115 008/SP2115 009
```

The 9 numbers printed on the label correspond to the correct settings of the SP codes shown in the diagram above.

Here is an example

-10/-2/+10/-100/+0/+100
-10/-10/-10

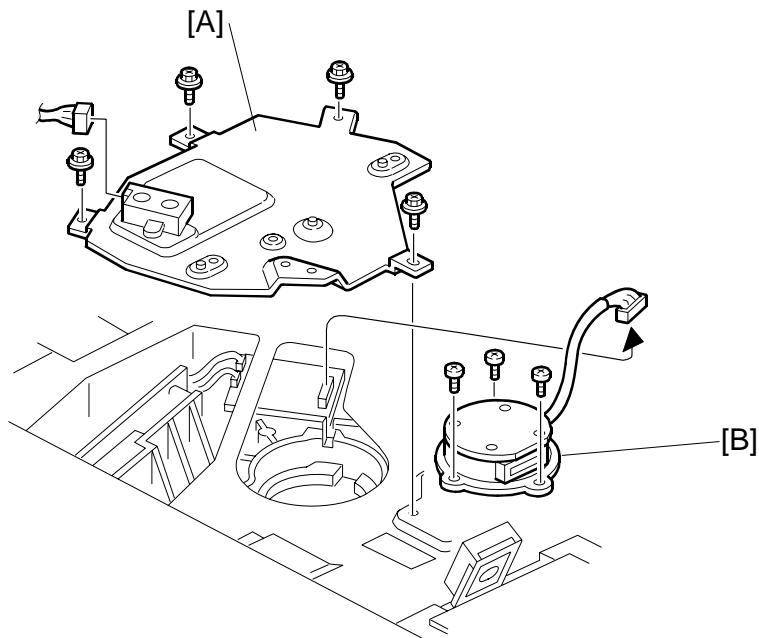
To enter these numbers, you would execute

| | | |
|-------------------|-------|--|
| SP2115 001 | ⊗①①# | • Press ⊗ to enter the minus sign. |
| SP2115 002 | ⊗②# | • Press # after each entry. |
| SP2115 003 | ①①# | • A key press is not required for the plus sign. |
| SP2115 004 | ⊗①①①# | |
| SP2115 005 | ①# | |
| SP2115 006 | ①①①# | |
| SP2115 007 | ⊗①①# | |
| SP2115 008 | ⊗①①# | |
| SP2115 009 | ⊗①①# | |

CAUTION: This example is for instructional purposes only. When you do this adjustment, you must enter the numbers printed on the label attached to the LD unit.

8. Do **SP2962** (Auto Process Control Execution).
9. Make some test copies and check that the magnification is correct. If not correct, please do the printer copy adjustments. (3.15)

3.6.3 POLYGON MIRROR MOTOR



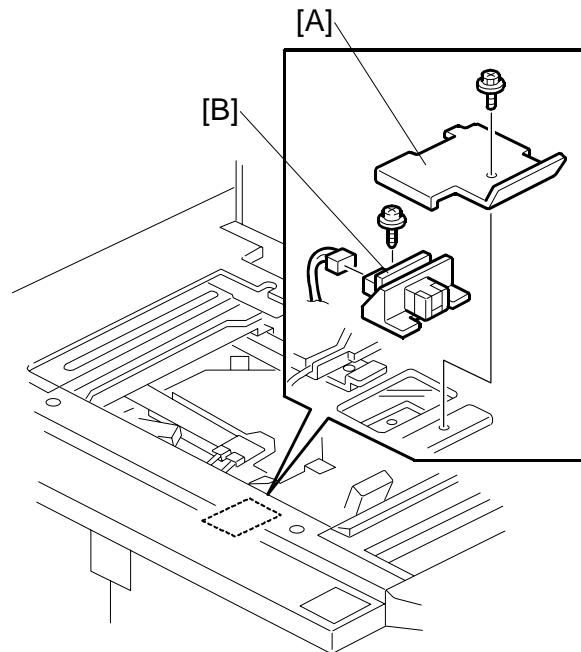
Replacement
Adjustment

NOTE: To avoid damaging the polygon motor, switch the machine off and wait 3 minutes to allow the motor to stop rotating before removing it.

1. Turn off the main power switch and unplug the machine.
 2. Exposure glass (3.5.1).
 3. Lens block cover and lens block. (3.5.2)
- NOTE:** You do not need to remove the lens block completely. Lift it gently and move it to the right.
4. LD cover [A] (\wedge x 4, \square x 1).
 5. Polygon mirror motor [B] (\wedge x 3, \square x 1).
- NOTE:** 1) When reinstalling, make sure that the polygon mirror opening faces the right.
2) Never touch the glass surface of the polygon mirror motor with bare hands.
7. After reassembly, do the scanner and printer copy adjustments. (3.15)

LASER UNIT

3.6.4 LASER SYNCHRONIZATION DETECTOR

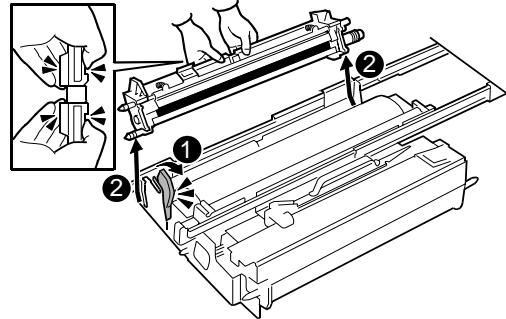


1. Turn off the main power switch and unplug the machine.
2. Exposure glass (3.5.1)
3. Lens block cover and lens block.(3.5.2).
NOTE: You do not need to remove the lens block completely. Lift it gently and move it to the right.
4. Detector cover [A] (\wedge x 1).
5. Laser synchronization detector [B] (\wedge x 1, \square x 1).

3.7 AROUND THE DRUM

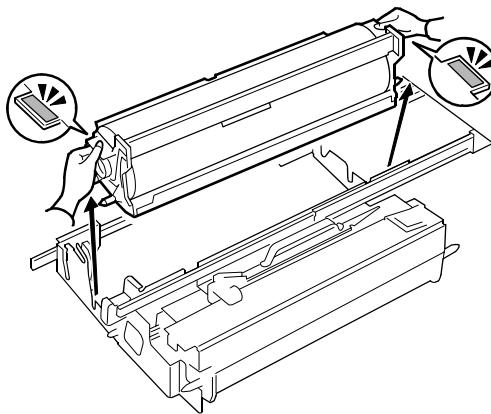
3.7.1 CLEANING UNIT, PCU, DRUM

1. Pull out the development unit drawer.
( 3.3.1)
2. Remove the cleaning unit.
 - Raise the purple lever ① and pull the cleaning unit to the left ② until it disengages the lever
 - Lift the unit out of the drawer
 - Grasp the cleaning unit by its handles as shown and lift it straight up.



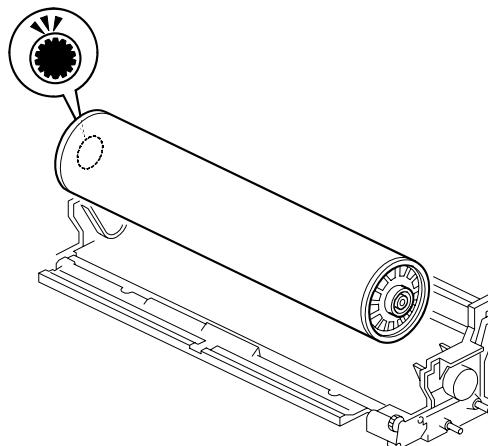
Replacement
Adjustment

3. Lift the PCU by its purple handles and remove it.

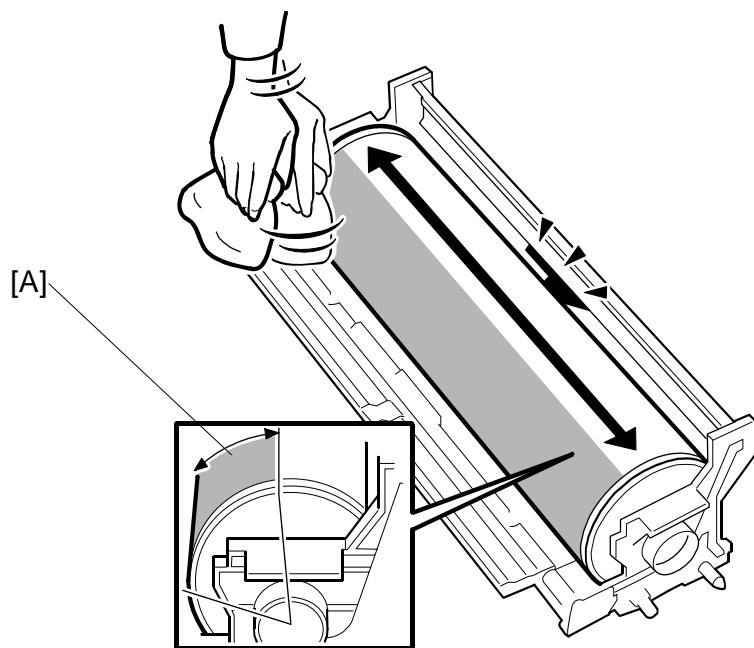


4. Remove the drum.
5. Cover the drum with a sheet of clean paper to protect its photosensitive surface.

Important: If you leave the drum exposed to direct sunlight or strong overhead light, this can cause its photosensitive surface to deteriorate and shorten its service life.



Re-installing the Drum

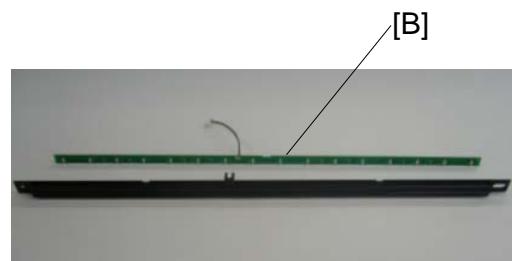


Important

- Apply a sufficient amount of setting powder to the drum as far as the edges.
- You need to only apply the powder where the drum will be exposed to the cleaning blades.
- Use clean toner if drum setting powder is not available.
- Never touch the surface of the drum with bare hands.

1. Set the drum in the PCU.
2. Cover the area of the drum [A] that will be under the cleaning blades with drum setting powder as shown above.
3. Do **SP3905** (OPC drum initial setting) and **SP2962** (Auto process control execution) for the new drum.

3.7.2 PTL (PRE-TRANSFER LAMP)



Replacement
Adjustment

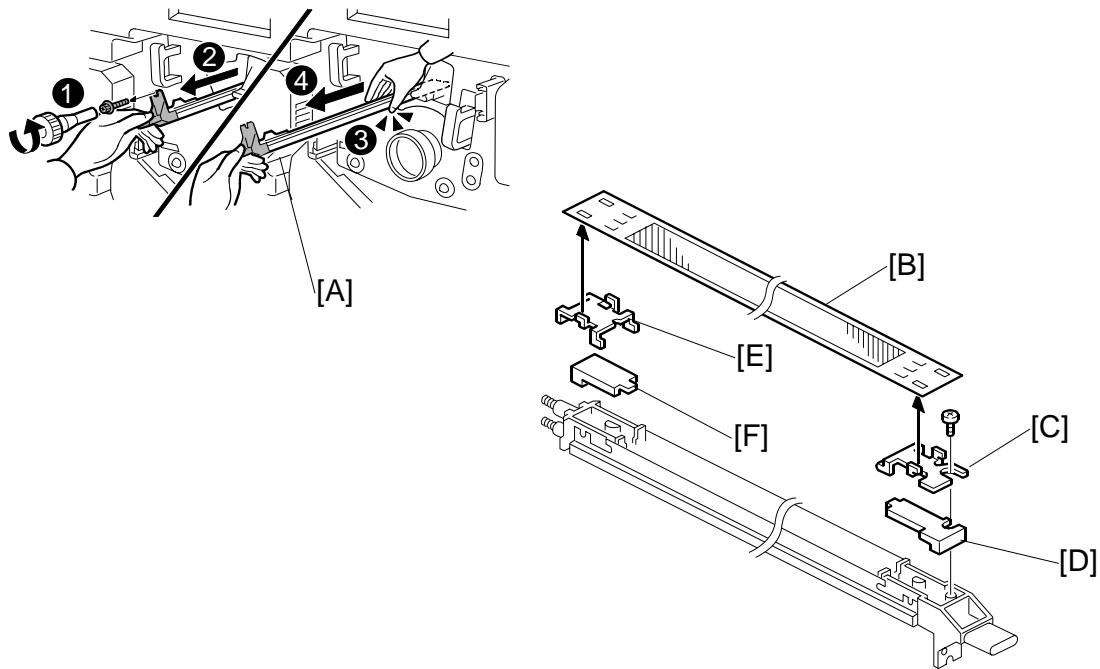
1. Drum. (3.7.1)

NOTE: Wrap a protective sheet or a few sheets of paper around the drum to protect it from light.

2. PTL unit [A] (x2 ①, ②, x1 ③)

3. PTL [B].

3.7.3 PRE-CHARGE UNIT



- Inner cover (3.3.1)

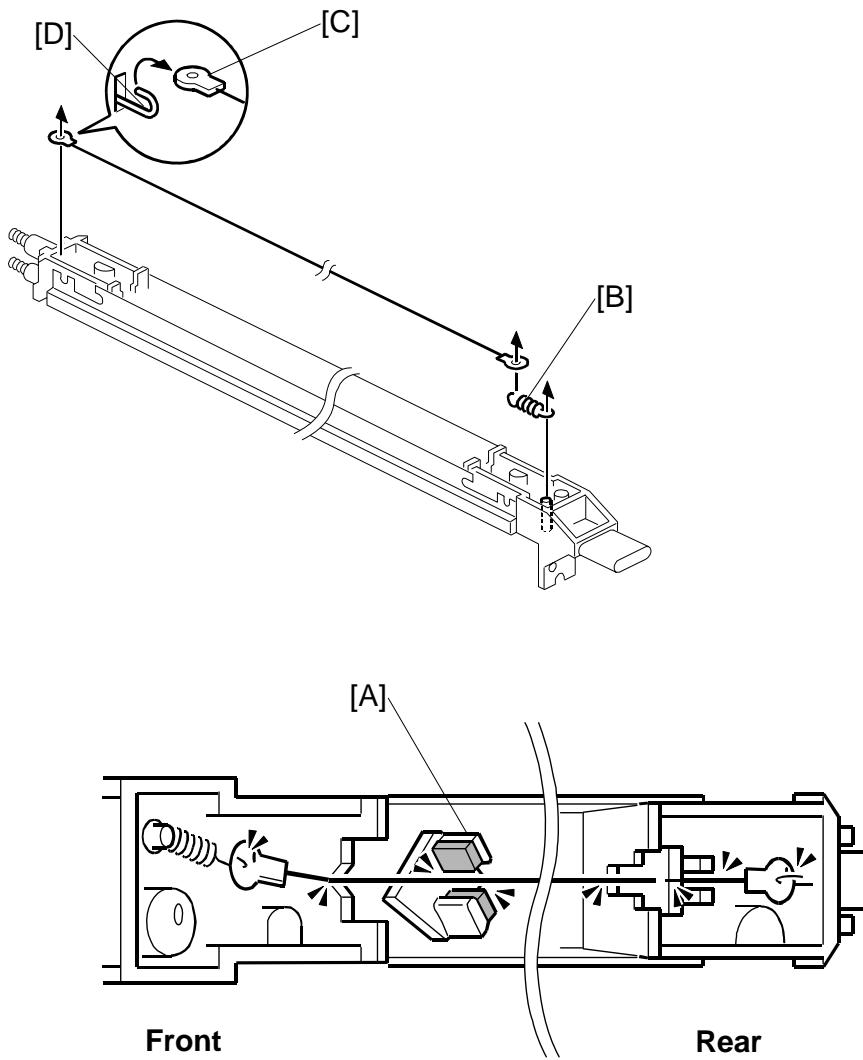
1. Pre-charge unit [A] (\wedge x 1)
2. Grid [B] (\wedge x 1 M4 x 6).

Important

- Hold the grid carefully at both ends.
- Do not touch the wire mesh and avoid bending it.

3. Front lock plate [C] (Pawls x2)
4. Front cover [D].
5. Rear lock plate [E] (Pawls x2).
6. Rear cover [F].

Replacement
Adjustment



7. Move the wire cleaner [A] to the home position.
8. Spring [B].
9. Corona wire [C] from the hook of the rear spring [D].

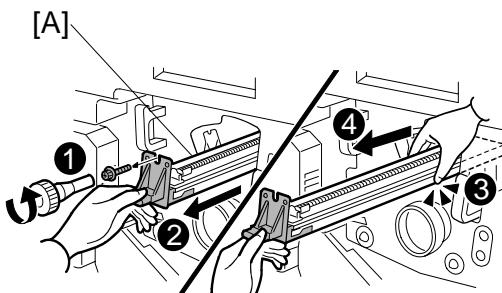
Important:

- Always hold the wire by the eyelets on both ends.
- Never touch any other part of the wire.
- Handle the wire carefully to avoid bending it.

3.7.4 CHARGE CORONA UNIT

- Inner cover (3.3.1)

14. Charge corona unit [A]

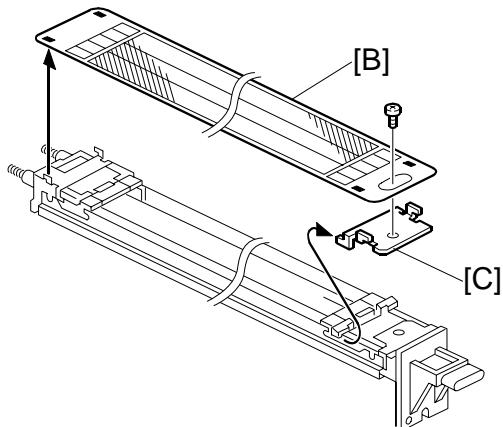


15. Grid [B] ($\frac{7}{8} \times 1$ M4 x 8)

Important:

- Always handle the grid carefully by its edges.
- Never touch any part of the wire mesh. Handle it carefully to avoid bending it.

16. Front lock plate [C] (Pawls x2)

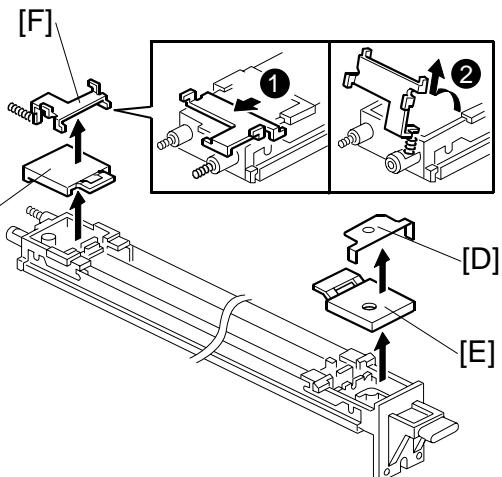


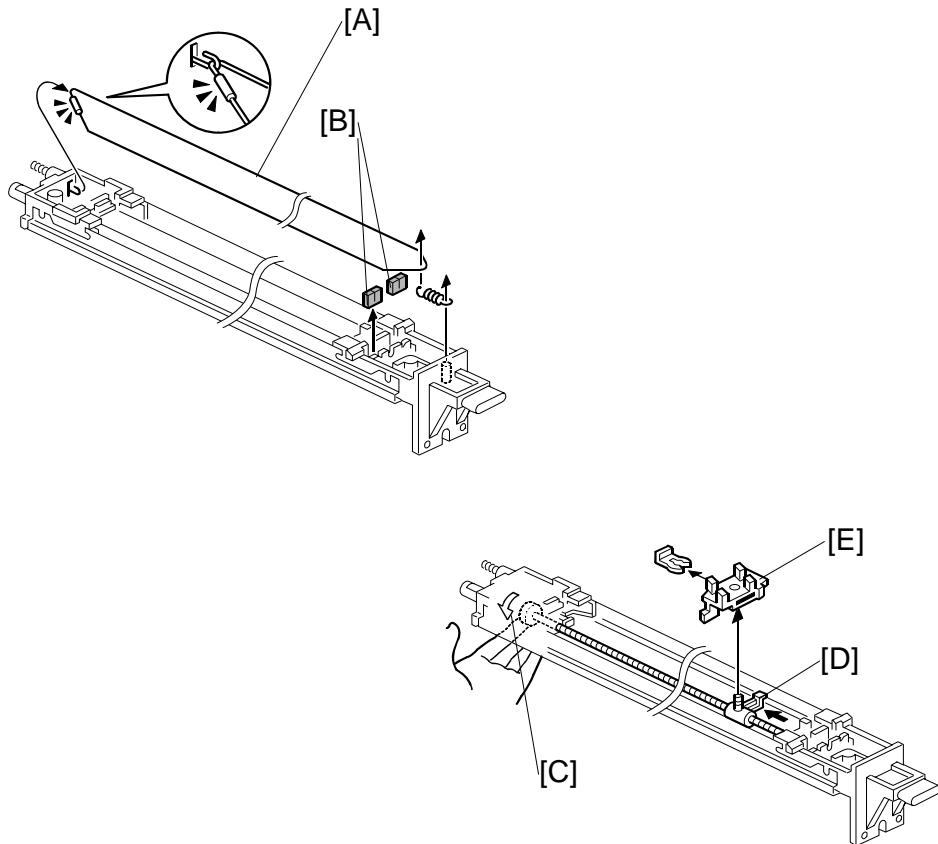
17. Terminal plate [D].

18. Front cover [E].

19. Slide off the rear lock plate ① → ② (Pawls x4) and remove it with the spring [F].

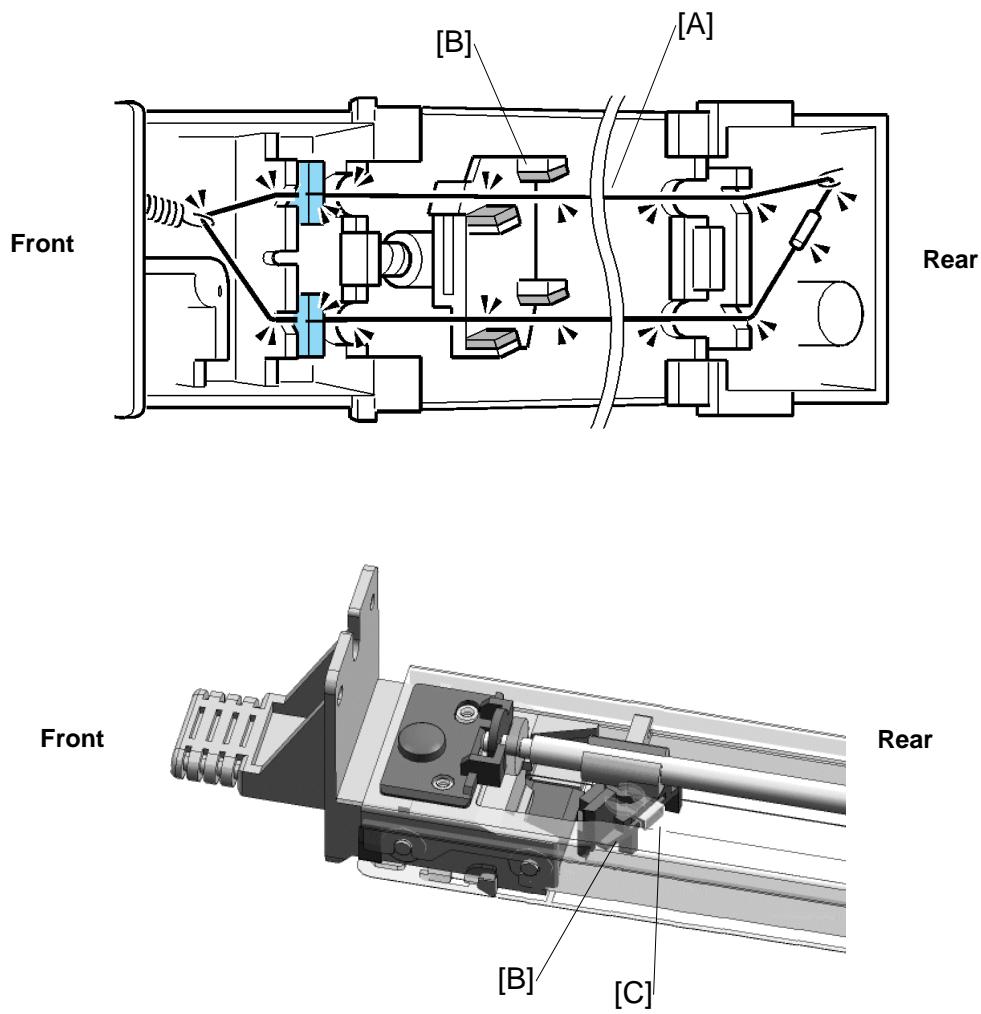
20. Rear cover [G].





1. Corona wire [A] (Spring x1)
2. Two cushions [B].
Important
 - Always hold the wire by its metal fitting and its opposite end.
 - Never touch any other part of the wire.
 - Handle the corona wire carefully to avoid bending it.
3. Turn the gear [C] to move the cleaner assembly [D] to a location where the cleaner is easy to access.
4. Cleaner pad [E] (Ø x1).

AROUND THE DRUM



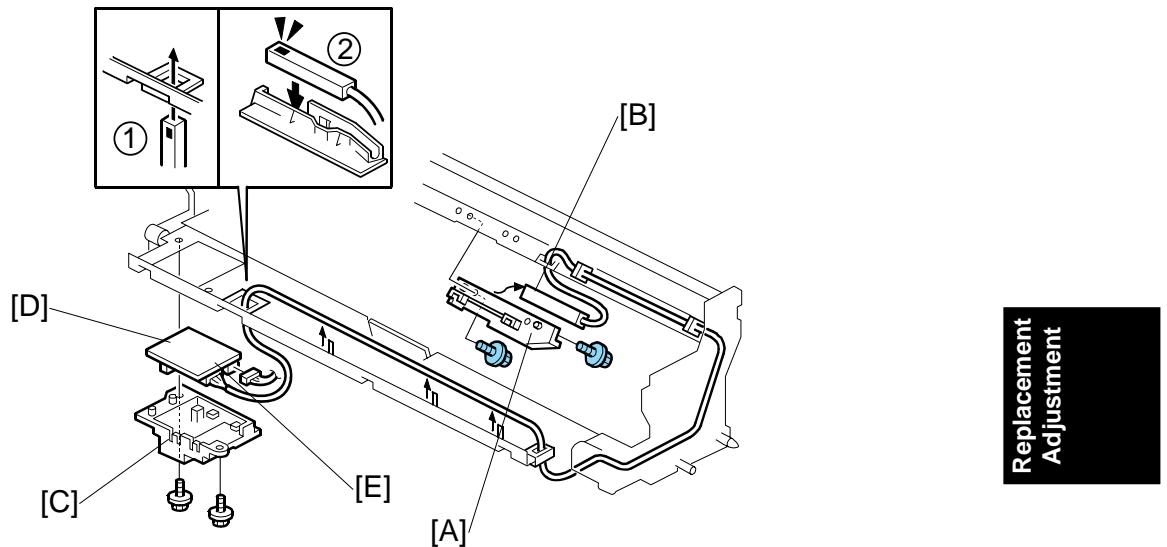
5. Re-assemble the charge corona unit.

Important: Check the following:

- Make sure the corona wire [A] and cleaning pad [B] are positioned as shown.
- Make sure that the lip of the snap ring [C] faces down toward the grid wire.

6. After installing new wires, reset SP codes **SP2001 001** to **2001 006** (Corona Voltage and Current) to their defaults.
7. Execute **SP2962** (Auto Process Control Execution).

3.7.5 DRUM POTENTIAL SENSOR



Remove

- Drum (3.7.1)

Remove:

- [A] Drum potential sensor cover (x2, Hook x1)
- [B] Drum potential sensor
- [C] Drum potential sensor unit (x5, x1)
- [D] Drum potential sensor PCB (x2, Hook x1)

Important: Do not attempt to disconnect the drum potential sensor harness [E] from the PCB.

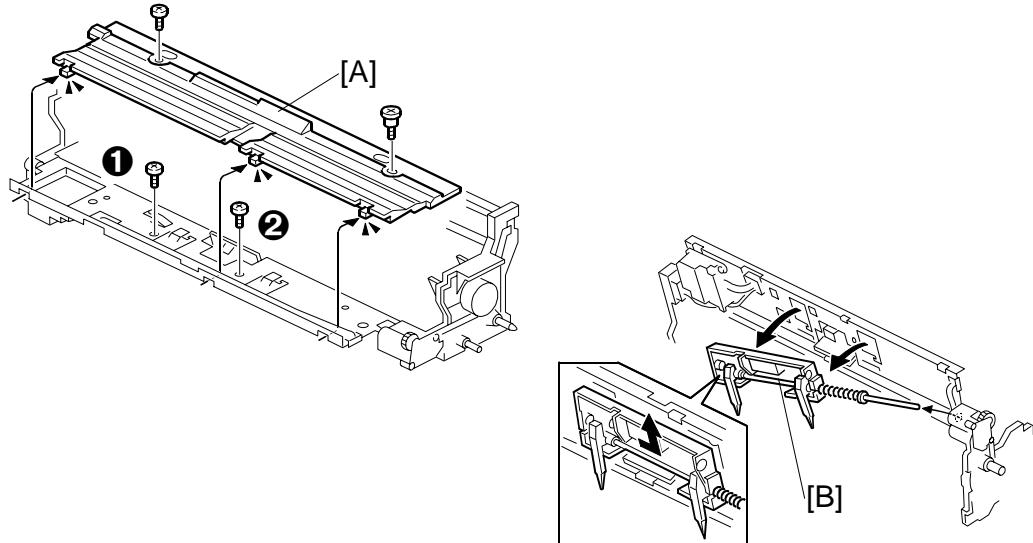
Reinstallation

Important: The drum potential sensor is fragile. Handle it carefully.

- First, insert the drum potential sensor and harness through the hole ①.
- Next, fasten the drum potential sensor to its cover ②.
- Execute **SP2962** (Auto Process Control Execution).

NOTE: After replacing the drum potential sensor, you must always execute **SP2962**.

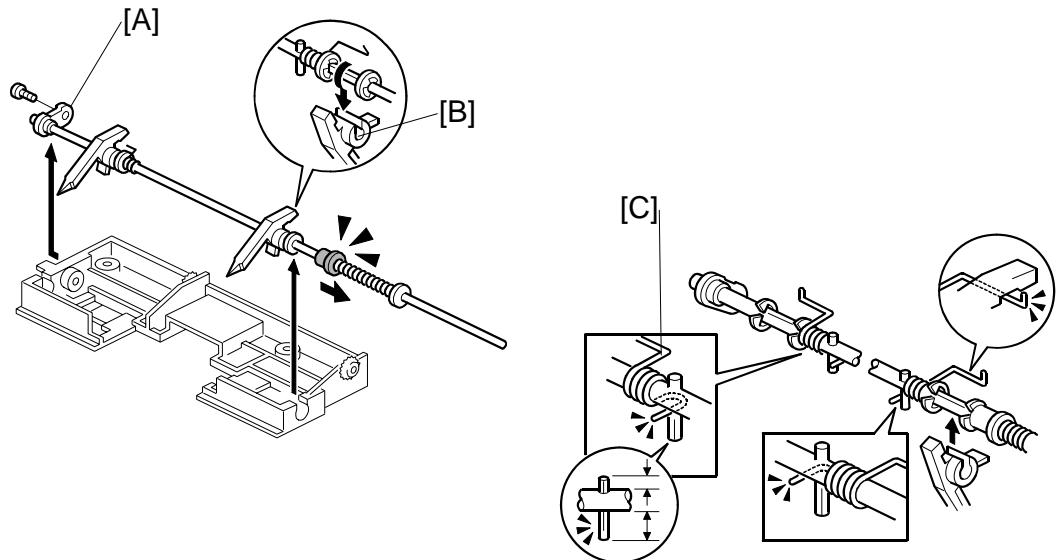
3.7.6 PICK-OFF PAWLS



Remove

- Drum (3.7.1)
- 1. Cover [A] (\wedge x2)
- 2. Pick-off pawl unit screws ①, ② (\wedge x2)
- 3. Pick-off pawl unit [B].

3.7.7 ID SENSOR

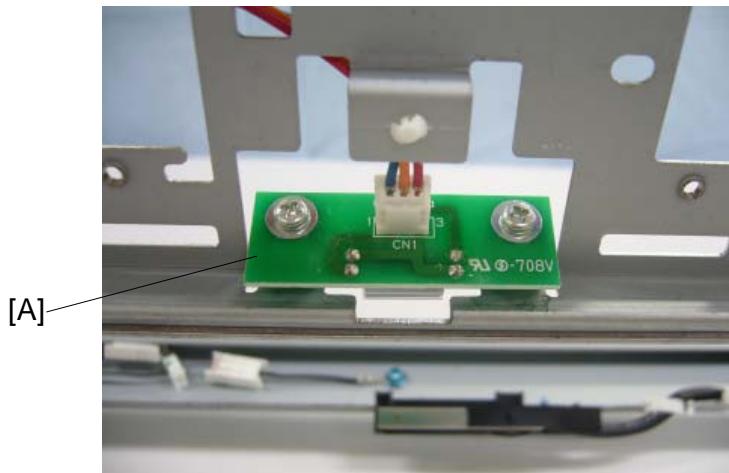


1. Detach the front end of the shaft [A] (x1) then lift the shaft out of the grooves.
2. Rotate the pick-off pawl [B] 45 degrees, then remove it.
3. Install a new pick-off pawl by rotating it onto the shaft.
4. Do not forget to hook the tension springs [C].
5. Follow the same procedure to replace the other pick-off pawl.

Important

- Do not allow the pawl springs to catch inside the pick-off pawl.
- After replacing the pick-off pawls, press down on each one to confirm that it moves freely.

AROUND THE DRUM

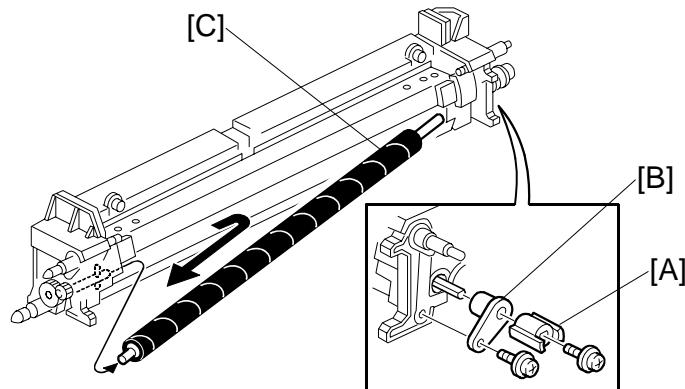


Remove:

- Drum (3.7.1)
 - Cover (3.7.5)
8. Pick-off pawl unit [8 x2]. (3.7.6)
 9. ID sensor [A] (8 x2, 8 x1, 8 x1)

NOTE: After installing a new ID sensor, do **SP3001 002** (ID Sensor Settings – ID Sensor Initialization).

3.7.8 CLEANING BRUSH



Replacement
Adjustment

Remove

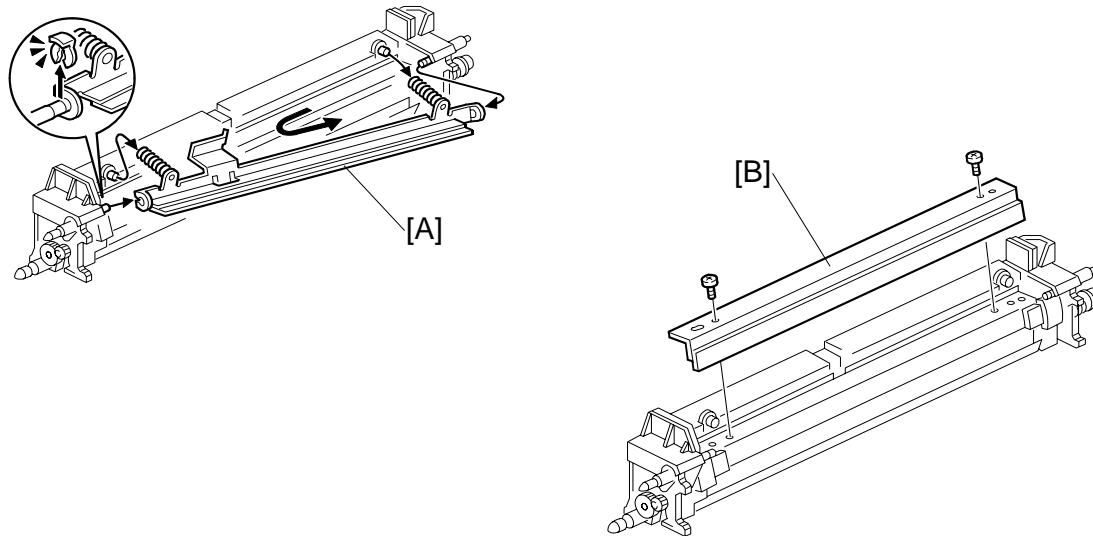
- Cleaning unit (3.7.1)
 1. Coupling [A] (x1)
 2. Bushing [B] (x1)
 3. Pull the cleaning brush shaft to the rear to release the cleaning brush [C], then remove it.

Important

- Never touch the soft surface of the cleaning brush.
- When installing the cleaning brush, avoid bending or damaging the entrance seal with the cleaning brush.

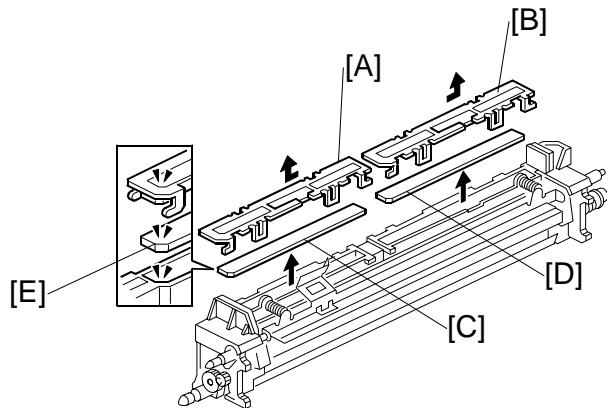
AROUND THE DRUM

3.7.9 CLEANING BLADES



- Remove the drum cleaning unit. (3.7.1)
 1. 2nd cleaning blade [A] (x1).
 2. Cleaning blade [B] (x2).

3.7.10 CLEANING UNIT FILTERS



Replacement
Adjustment

- Cleaning unit. (3.7.1)
 - 2nd cleaning blade (x1) (3.7.9).
1. Front filter bracket [A] (Pawls x2)
 2. Rear filter bracket [B] (Pawls x2)
 3. Front filter [C]
 4. Rear filter [D]

Important: When you install the new filters, confirm that the notched corners [E] of the filters fit tightly to the beveled corners of the plastic below.

AROUND THE DRUM

3.7.11 TONER FILTER



Remove:

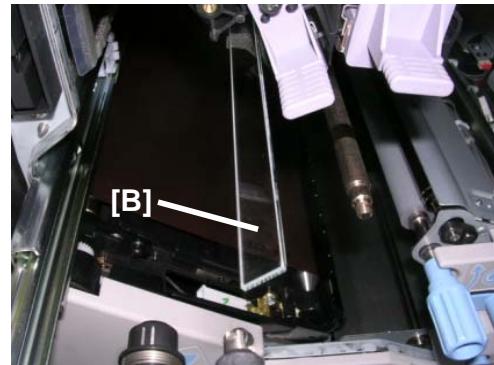
- Inner cover (3.3.1)
- 1. Drum filter [A].

3.7.12 QUENCHING LAMP SHIELD GLASS

1. Pull the development unit drawer out (3.3.1).
2. Stopper [A] ( x1).



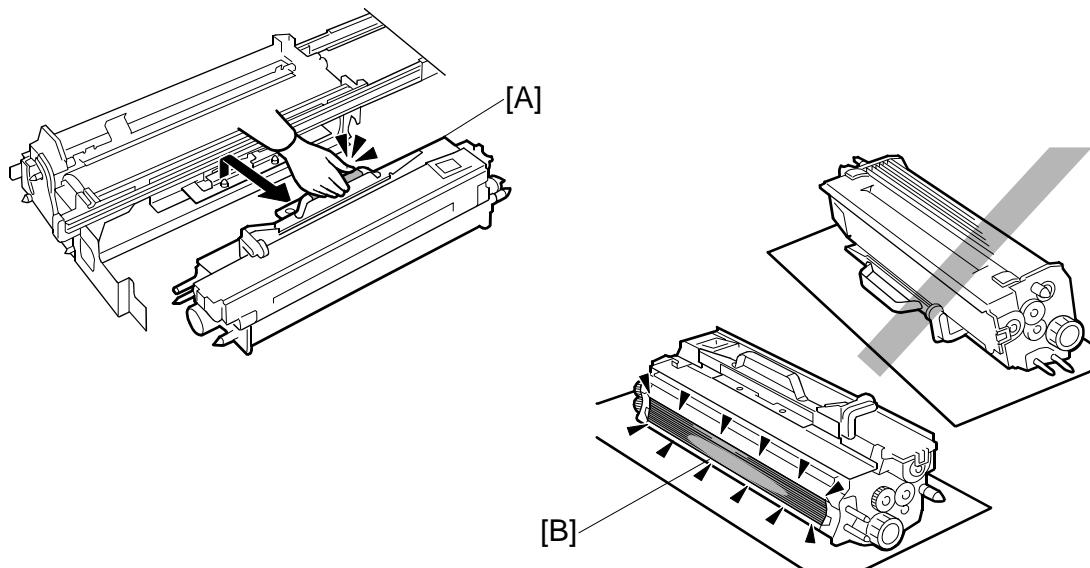
3. Quenching lamp shield glass [B].



Replacement
Adjustment

3.8 DEVELOPMENT AND TONER SUPPLY

3.8.1 DEVELOPMENT UNIT REMOVAL

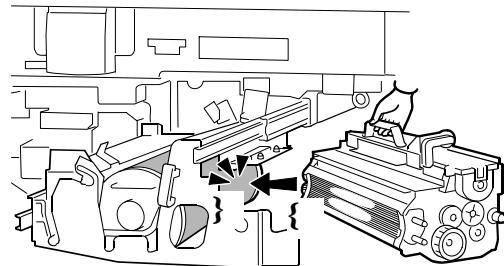


1. Pull out the development unit drawer. (3.3.1)
2. Lift the development unit [A] by its purple handle and hold it level when you remove it.
Important: Hold the development unit level to prevent spillage.
3. Place the development unit on some paper.

Re-installing the Development Unit

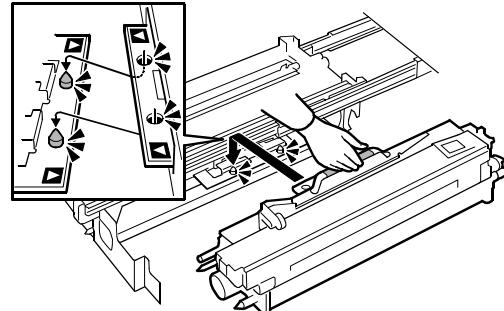
Important: When you reinstall the development unit, handle it carefully.

- Never allow the corner of the development roller { to hit the OPC drum } or any other part of the frame of the development unit drawer.
- Scratches or other damage to either the drum or development roller will adversely affect the operation of the machine.



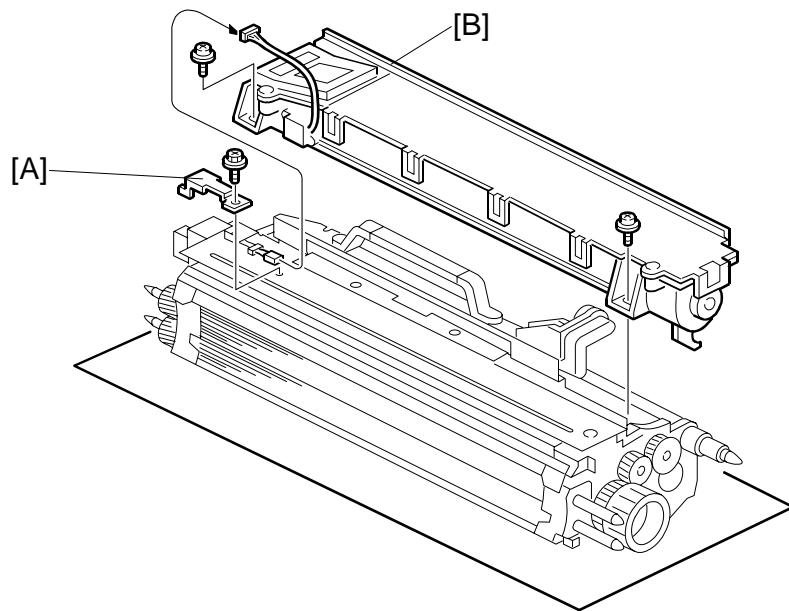
To reinstall the development unit

4. Align the triangular reference marks of the development unit and drawer frame.
5. Place the holes on the edge of the development unit over the pegs on the drawer frame.
6. Push the development unit drawer into the machine, reattach the faceplate and inner cover, then close the right front door. (3.3.2)
7. Reconnect the power cable and other cables.
8. Press the main power switch to turn the machine on and wait for the machine to warm up.



**Replacement
Adjustment**

3.8.2 TONER HOPPER REMOVAL

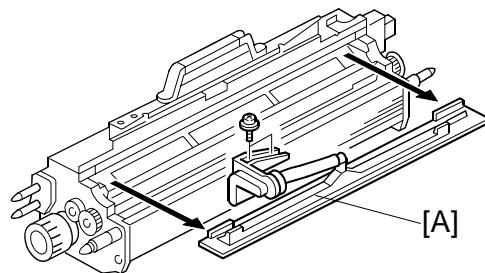


- Development unit (3.8.1)
- [A] Bracket (x1)
- [B] Toner hopper [A] (x2, x1)

3.8.3 DEVELOPER REPLACEMENT

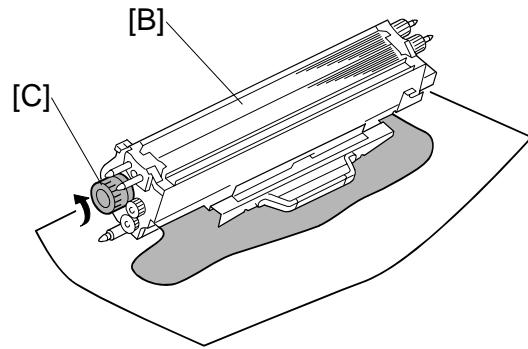
- Development unit (3.8.1)
- Toner hopper (3.8.2)

1. Top cover [A] ( x2)



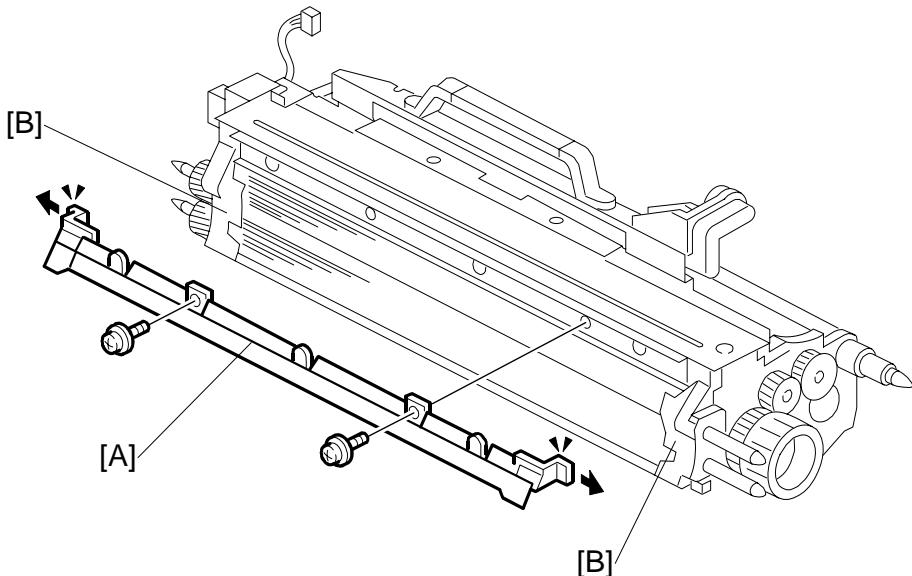
2. Turn the development unit [B] upside down.
3. Rotate the knob [C] counter-clockwise to push out the developer.

Important: When you dispose of the developer, obey the local laws and regulations regarding the disposal of such items.

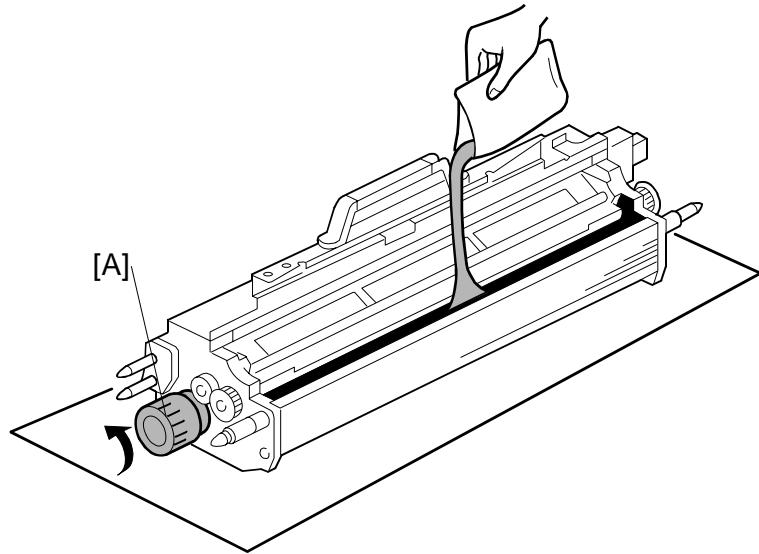


Replacement
Adjustment

DEVELOPMENT AND TONER SUPPLY



4. Remove the entrance seal [A] (x2) and clean it.
5. Clean the side seals [B].
Important: Handle the side seal carefully to avoid twisting or bending it.
6. Clean the development sleeves.
7. If you are installing a new development unit, go to the next step.
—or—
If you are only replacing the developer, clean the doctor blade before you pour in the developer (3.8.4).



Replacement
Adjustment

8. While turning knob [A] pour in one pack of developer evenly across the width of the development unit.
9. Reinstall the top cover and toner hopper.

Initializing the TD Sensor

1. Turn on the main switch and do **SP2801** (TD Sensor Initial Setting).
2. Use the keys on the screen to enter the Developer Lot No, then press **#**. (The Lot No. is embossed on the top edge of the developer packet.)
3. Touch “Execute” on the screen.

This executes the TD initial setting.

After about 1 minute, “Completed” is displayed on the screen, and the operation stops.

Important:

- Do not make copies with new developer until after executing **SP2801**; otherwise, toner density control will be abnormal.
- If the developer initial setting did not complete correctly, you cannot exit the SP mode by pressing the “Quit” key.
- If this problem occurs, turn the main switch off and on, then perform the initial setting again.
- If the result is the same, see “**SC372**” (TD Sensor Error 3) (☞ “4. Troubleshooting”).

3.8.4 CLEANING THE DOCTOR BLADE

The doctor blade must be cleaned:

- At every PM visit.
- When replacing developer.

This procedure may need to be done more often if the customer is using paper that contains a large amount of paper dust.

The dust tends to collect at the front and on the back side of the blade, causing the doctor gap to become narrower. Cleaning is required when:

- There is toner scatter from both ends of the development unit.
- White lines appear on copies.
- Faint reproduction of the image appears around the edges of the paper.

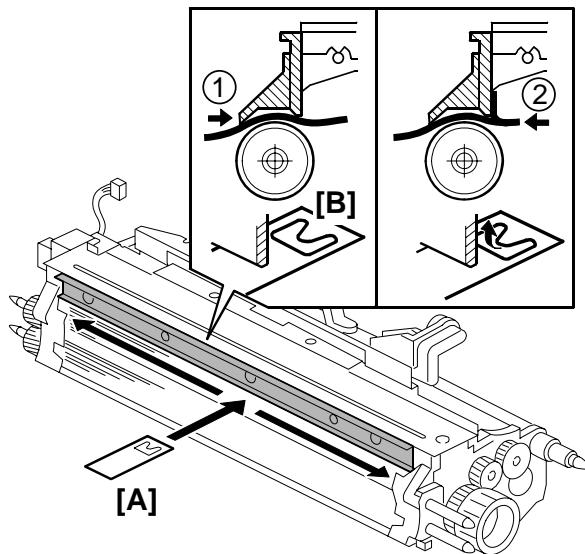
To do this procedure, you need a special tool.

Replacement
Adjustment

| Part Number | Description |
|-------------|-------------------------------|
| A2949560 | Paper Dust Cleaner - 5pcs/set |

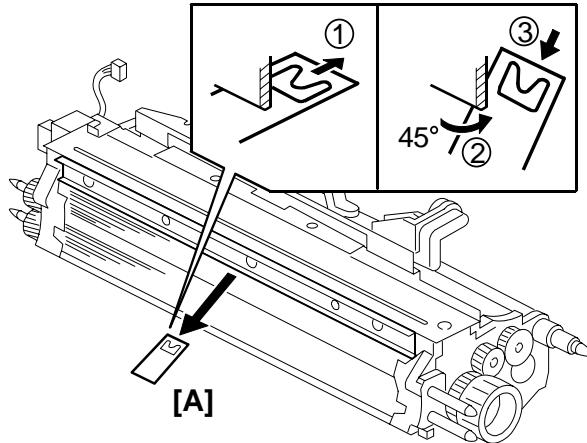
NOTE: The tool is made of flexible plastic and can be re-used. However, before you use it, make sure that it is perfectly flat.

DEVELOPMENT AND TONER SUPPLY



Important:

- Always clean the doctor blade before refilling the development unit with new developer.
 - The paper dust cleaner is made of soft, thin plastic.
 - Always make sure that the dust cleaner is completely horizontal before you use it.
1. Development unit (3.8.1)
 2. Toner hopper (3.8.2)
 3. Entrance seal (3.8.3)
 4. Flatten the paper dust cleaner [A] before you use it.
 5. Hold the paper dust cleaner perfectly level.
 6. Insert the dust cleaner into the gap ① until the flap [B] is not visible.
 7. Gently pull the dust cleaner toward you slowly ② until you feel slight resistance. Then the flap catches and flips up on the rear side of the doctor blade.
Important: If you pull with too much force, the flap will lose contact with the rear side of the blade or could break.
 8. Continue to pull gently on the dust cleaner so that it remains in contact with the back side of the blade. At the same time, slide the cleaning tool 5 times completely to the left and right. This removes paper dust from the back of the blade.



Replacement
Adjustment

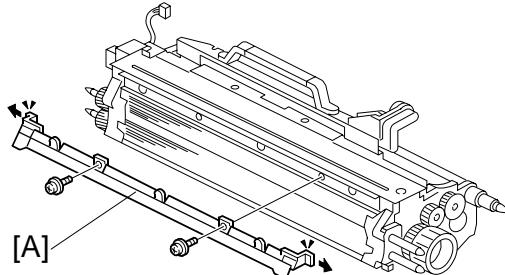
9. When you are ready to remove the dust cleaner [A]:
 - Push in the dust cleaner slightly about 10 mm (1/2") ①. This releases the flap from the back of the blade and allows it to lie flat.
 - Tilt the dust cleaner up to about a 45-degree angle ②, then slowly pull it out of the slit ③.
 - Turn the dust cleaner slightly to the left or right if you feel any resistance.
10. After removing the dust cleaner, rotate the development roller toward you about 10 mm (1/2").
11. Use a vacuum cleaner to remove toner dust or developer.

Important:

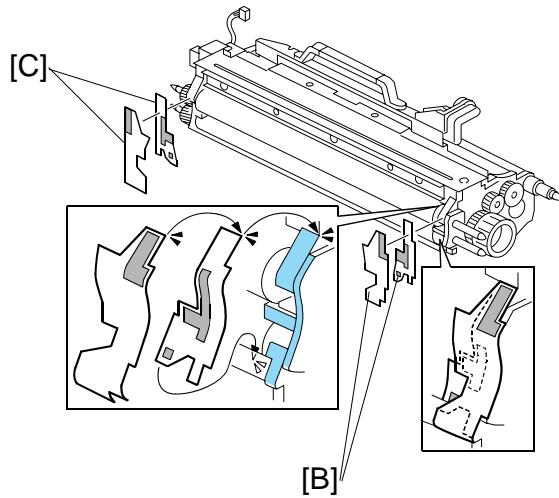
 - Collect all of the paper dust and developer.
 - Never touch the front surface of the development roller.
12. Repeat the cleaning steps 5 or 6 times.
13. Hold the development unit upside down, and shake it gently to remove any remaining paper dust or developer.
14. Clean the work area thoroughly with the vacuum cleaner.
15. To complete the procedure, return to Step 8 in Section 3.8.3.

3.8.5 DEVELOPMENT ENTRANCE, FRONT, REAR SIDE SEALS

1. Remove the developer and save it.
2. Replace the developer entrance seal [A] (x 2, hooks x 2).



3. Replace the front side seals [B].
4. Replace the rear side seals [C].

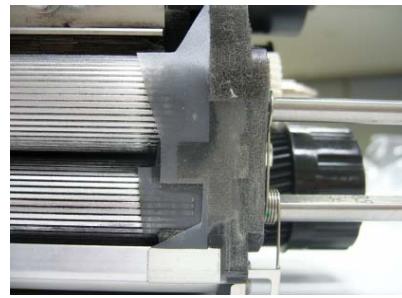


Reassembly

- When re-assembling the development unit, make sure the edges of the new side seals align with the edges.

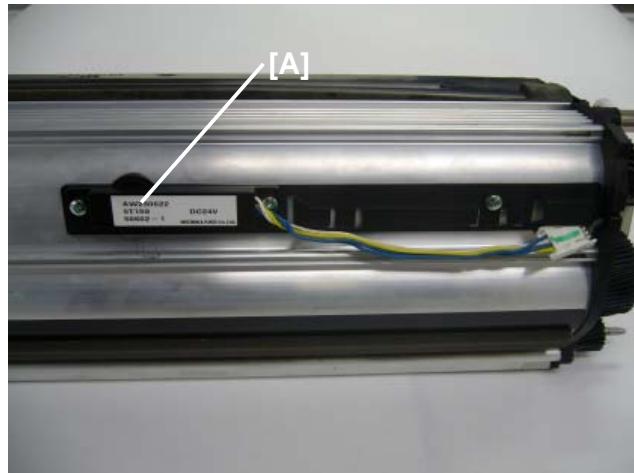


Rear



Front

3.8.6 TONER DENSITY SENSOR

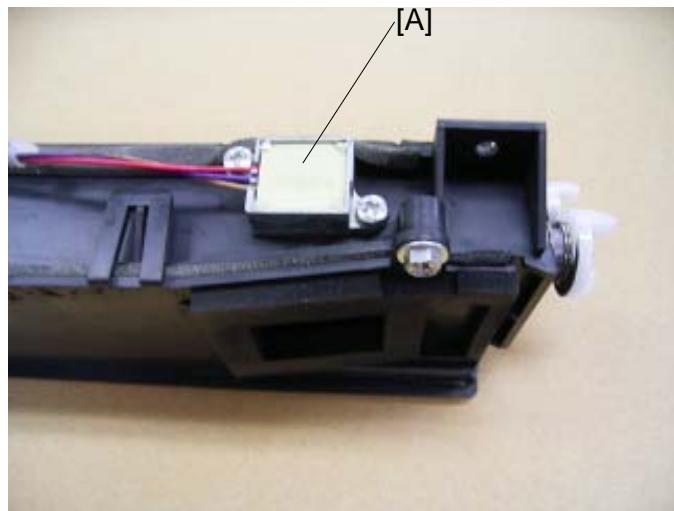


Replacement
Adjustment

- Remove the developer. (3.8.3)
- 1. Remove the TD sensor [A] (x 2, x1).
- 2. Thoroughly clean the development unit, so no carrier particles remain in the gap between the TD sensor and the development unit casing.
- 3. Install the new TD sensor (x1, x 2).
- 4. Install new developer and reassemble the development unit. (3.8.3)
- 5. Execute **SP2801** (TD Sensor Initial Setting).
- 6. Execute **SP2962** (Auto Process Control Execution).

NOTE:Do not make any copies until you have executed **SP2801** (TD Sensor Initial Setting).

3.8.7 TONER HOPPER SENSOR



1. Take out the toner hopper. (3.8.2)
2. Toner hopper sensor [A] (\wedge x 2).

3.8.8 DEVELOPMENT UNIT GEARS

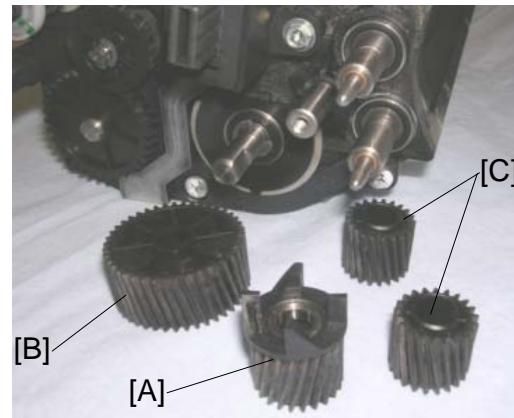
- Development unit (3.8.1)



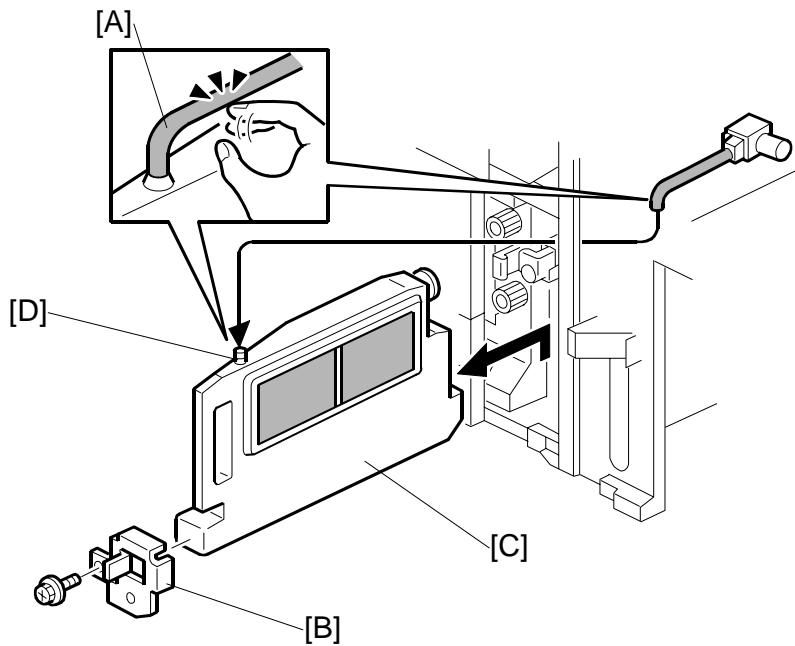
Replacement
Adjustment

Remove:

- [A] Idle gear 23Z (x1)
- [B] Paddle roller gear 42Z
- [C] Development roller gears (x2) 21Z

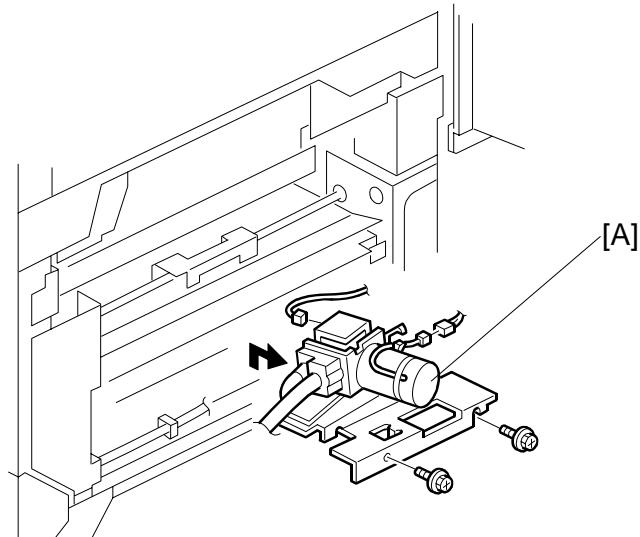


3.8.9 TONER SUCTION BOTTLE



1. Remove the right upper cover. (3.3.4)
2. Open the right front door.
3. Tap the hose [A] to clear toner from the opening of the hose.
4. Bracket [B] (\wedge x 1).
5. Toner suction bottle [C] (hose x 1).
NOTE: During transport and disposal of the used bottle, make sure that toner does not spill from top opening [D].
6. After replacing or emptying the toner suction bottle, do **SP2972** and reset it to "0".

3.8.10 TONER SUCTION MOTOR



Replacement
Adjustment

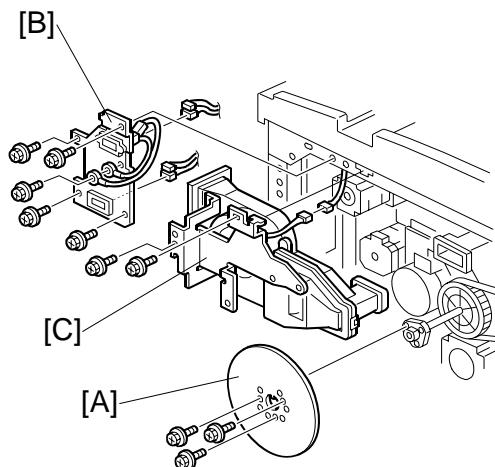
1. Right upper cover (x 4).
2. Toner suction motor unit [A] (x 2, hoses x 2, x 2)
3. After replacing the toner suction motor, do **SP2973** and reset it to "0".

3.8.11 DEVELOPMENT MOTOR UNIT

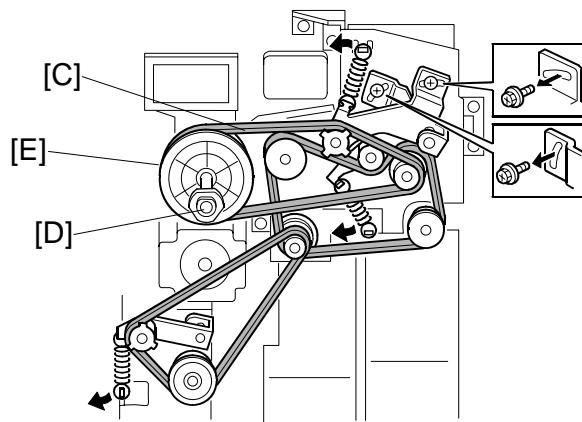
- Open the PSU box (3.3.8)
- Rear cover (x4)

Remove:

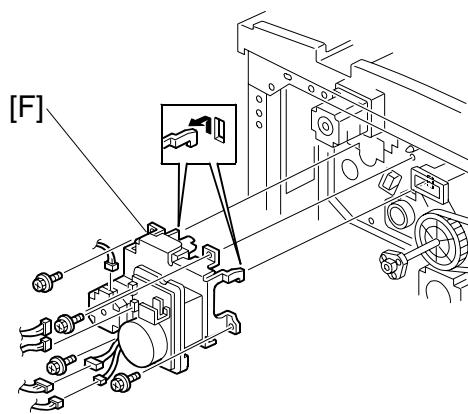
- [A] Flywheel (x3)
- [B] Harness bracket (x4, x5)
- [C] Left duct unit (x2, x1)



- [C] Timing belt (x1)
- [D] Flywheel holder (x2)
- [E] Drum pulley (x3)



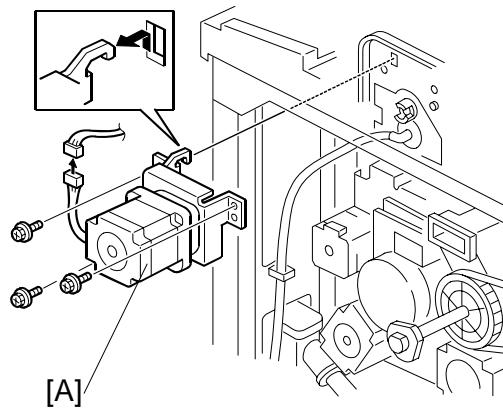
- [F] Development motor unit (x4, x5, x1)



3.8.12 TONER PUMP MOTOR, TONER PUMP MOTOR SENSOR

- Development motor unit (3.8.11)

[A] Toner pump motor unit (x3, x1)

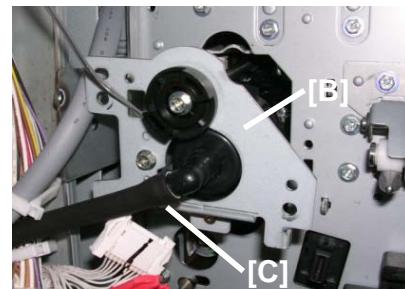


Replacement
Adjustment

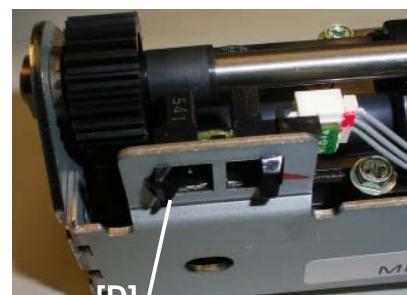
[B] Toner pump unit (x3, x1)

[C] Disconnect the tube.

NOTE: Keep the end of the tube pointing upwards, so that toner does not come out.

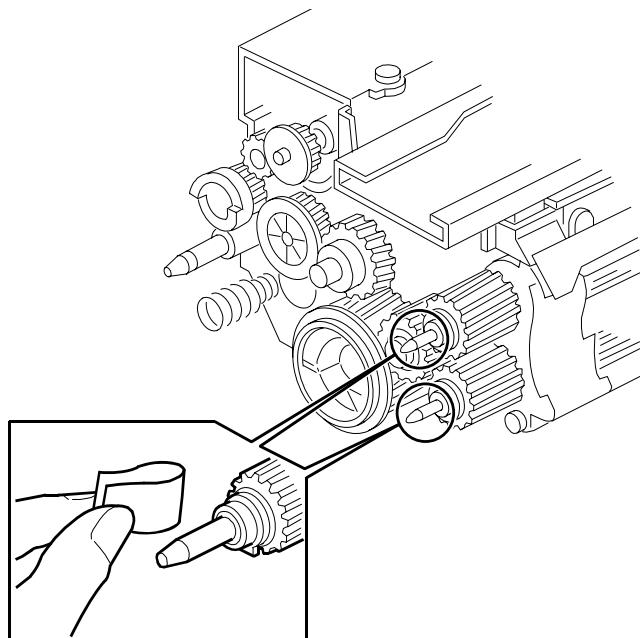


[D] Toner pump motor sensor (x1)



DEVELOPMENT AND TONER SUPPLY

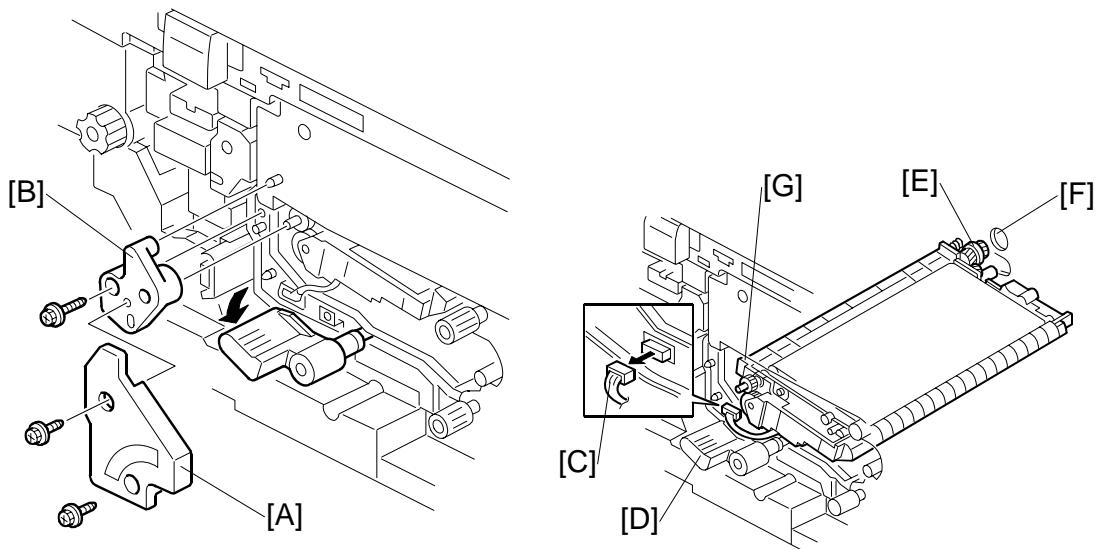
3.8.13 DEVELOPMENT ROLLER SHAFT CLEANING



1. Remove the development unit. (3.1.7)
2. Use Teflon tape to remove toner and developer from the development roller shafts.

3.9 TRANSFER BELT UNIT

3.9.1 TRANSFER BELT UNIT REMOVAL



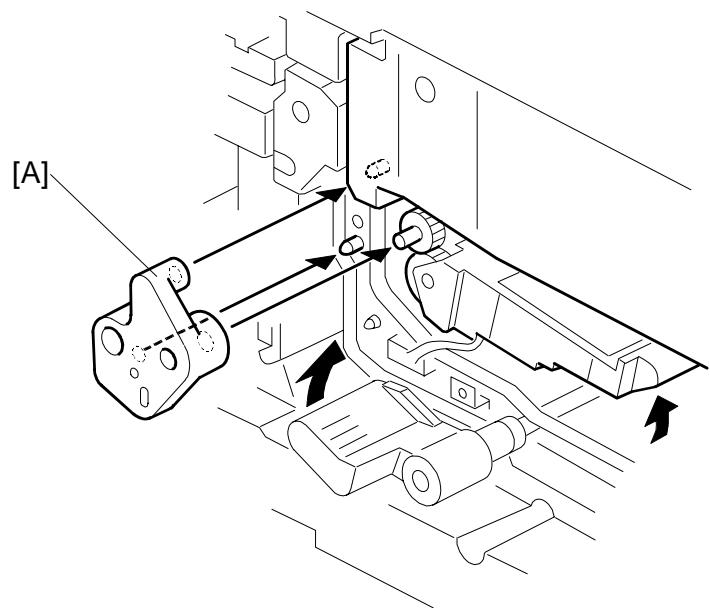
1. Turn off the main switch.
2. Remove the inner cover. (→3.3.1)
3. Remove the transfer belt unit cover [A] (x 2).
4. Remove the transfer belt unit holder [B] (x 1).
5. Connector [C] (x 1).
6. While turning the lever [D] counterclockwise, take out the transfer belt unit.

NOTE 1) Never touch the transfer belt with bare hands.
2) Work carefully to avoid scratching the drum with the transfer belt unit.

Reassembly:

1. Rotate the lever [D] fully counterclockwise, then install the transfer belt unit.
2. Insert the gear [E] into the opening [F] in the rear frame.
3. Place the slot [G] in the transfer belt unit on the rail.
4. Connect the connector [C] (x 1).

TRANSFER BELT UNIT



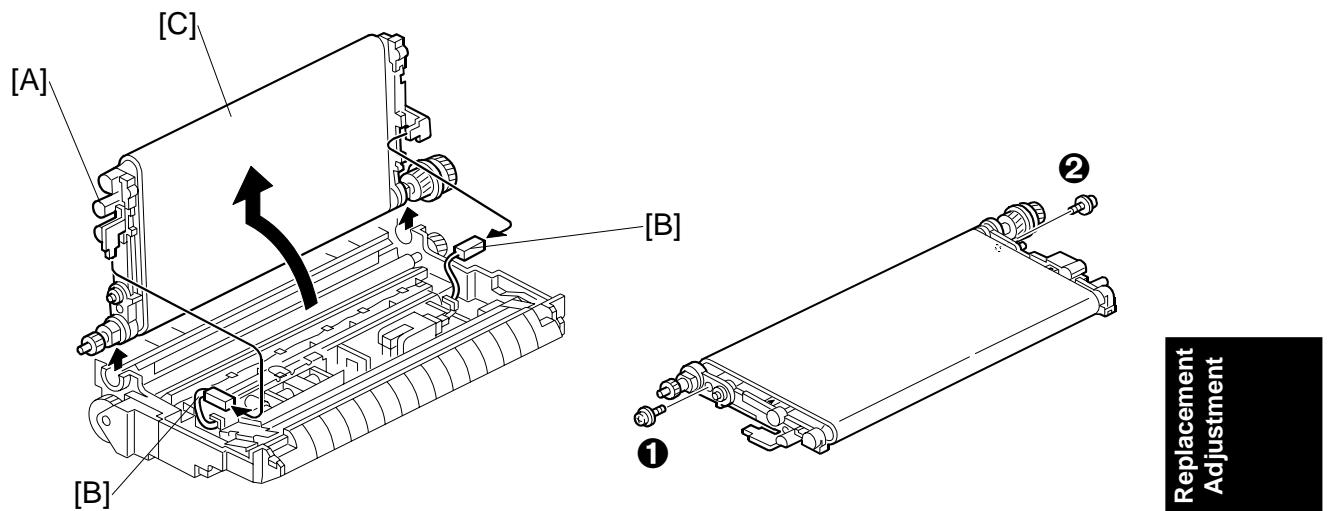
5. Attach the transfer belt unit holder [A] ($\frac{1}{8} \times 1$).

NOTE: Align the three holes with the three projections as shown with the arrows.

6. After installation, check the following points:

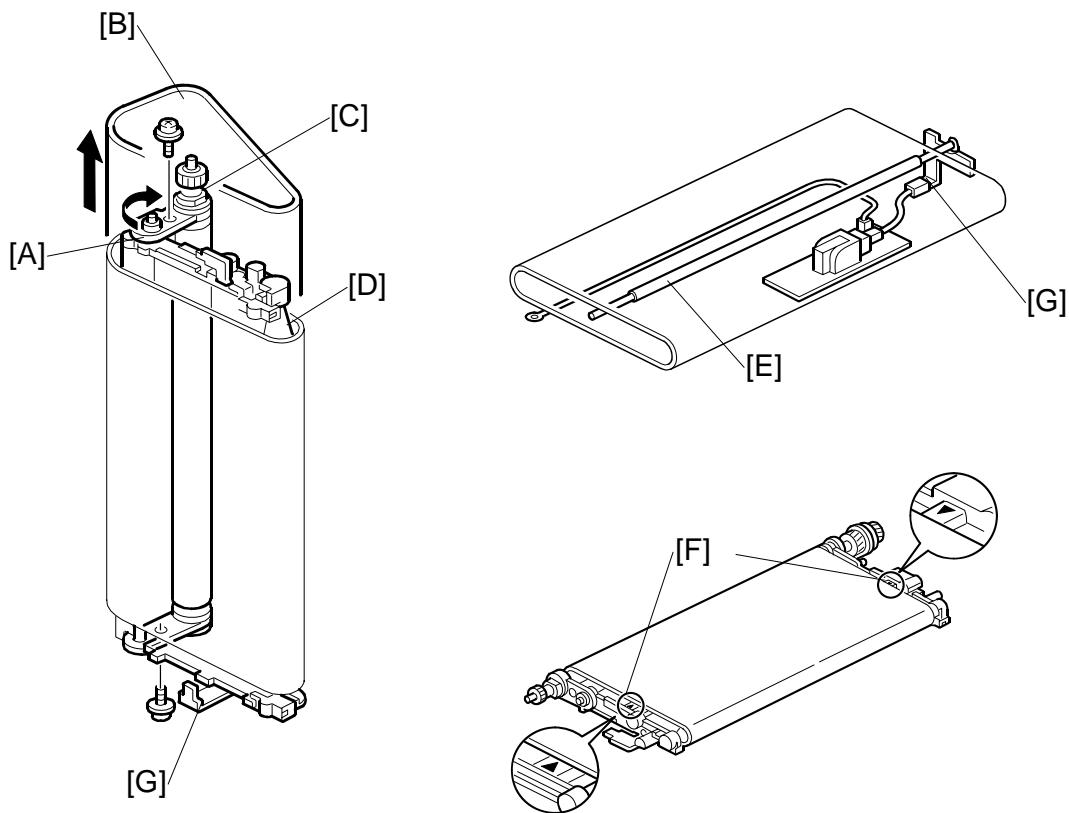
- The transfer belt unit must move up and down smoothly.
- The transfer belt unit must be behind the drum stay.

3.9.2 TRANSFER BELT



1. Remove the transfer belt unit. (3.9.1)
2. Raise knob [A], then disconnect the connectors [B] (x 2).
3. Turn the transfer belt upper unit [C] 90 degrees counterclockwise, then raise and remove it.
4. Remove the screws ①, ② (x 2).

TRANSFER BELT UNIT



5. Turn the belt drive roller holder [A] clockwise (front view) and remove the transfer belt [B].

6. Clean both sides of the transfer belt with a dry cloth.

Important: Do not use alcohol.

Before Installing or Replacing the Transfer Belt

Clean the following items with alcohol:

[C] Belt drive roller

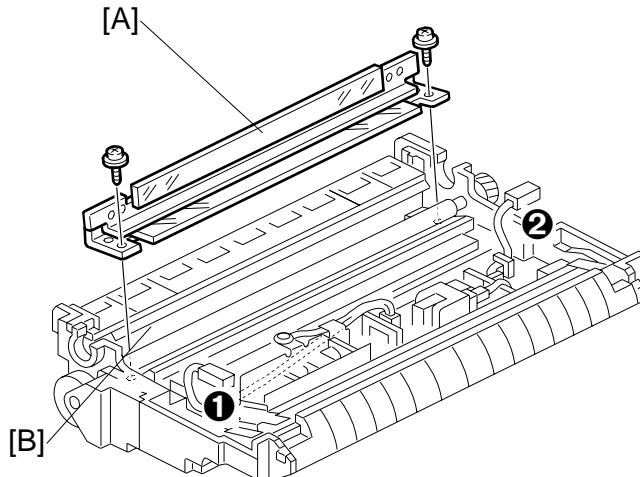
[D] Belt roller

[E] Bias roller

Installing the Transfer Belt

1. Position the transfer belt at the center of the belt roller [D] so both marks [F] are visible.
2. Position the transfer belt under the bias terminals [G].

3.9.3 TRANSFER BELT/BIAS ROLLER CLEANING BLADE

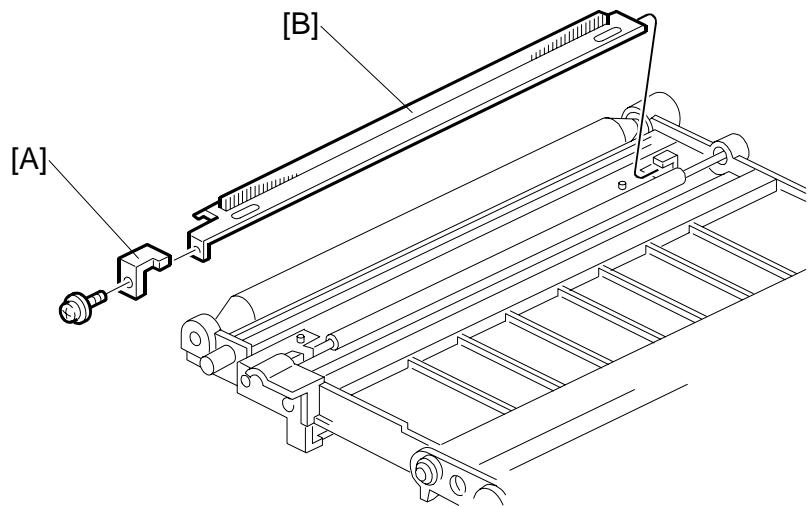


Replacement
Adjustment

- Remove the transfer belt unit. (3.9.1)
- 1. Transfer belt /bias roller cleaning blade [A] ($\wedge \times 2$).
- 2. Clean the cleaning bias roller [B].
NOTE: Before vacuuming, remove the power pack connectors ①, ② to protect the transfer power pack from static electricity.
- 3. Install the new cleaning blade.
NOTE: Never touch the edge of the cleaning blade. If the setting powder on the blade edge is accidentally removed at some point, apply setting powder or toner at that point before installation.

TRANSFER BELT UNIT

3.9.4 TRANSFER BELT BIAS BRUSH



- Remove transfer belt. (3.9.2)

Remove:

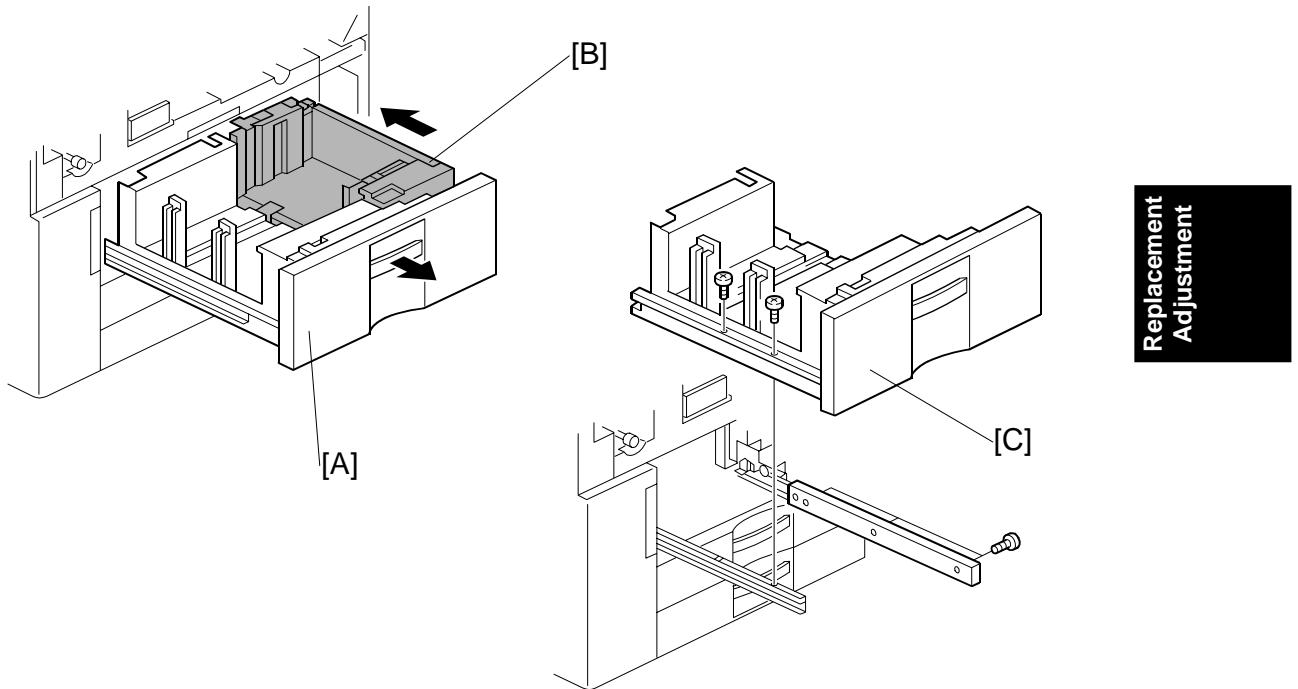
[A] Stopper (x1)

[B] Transfer belt bias brush unit

3.10 PAPER FEED

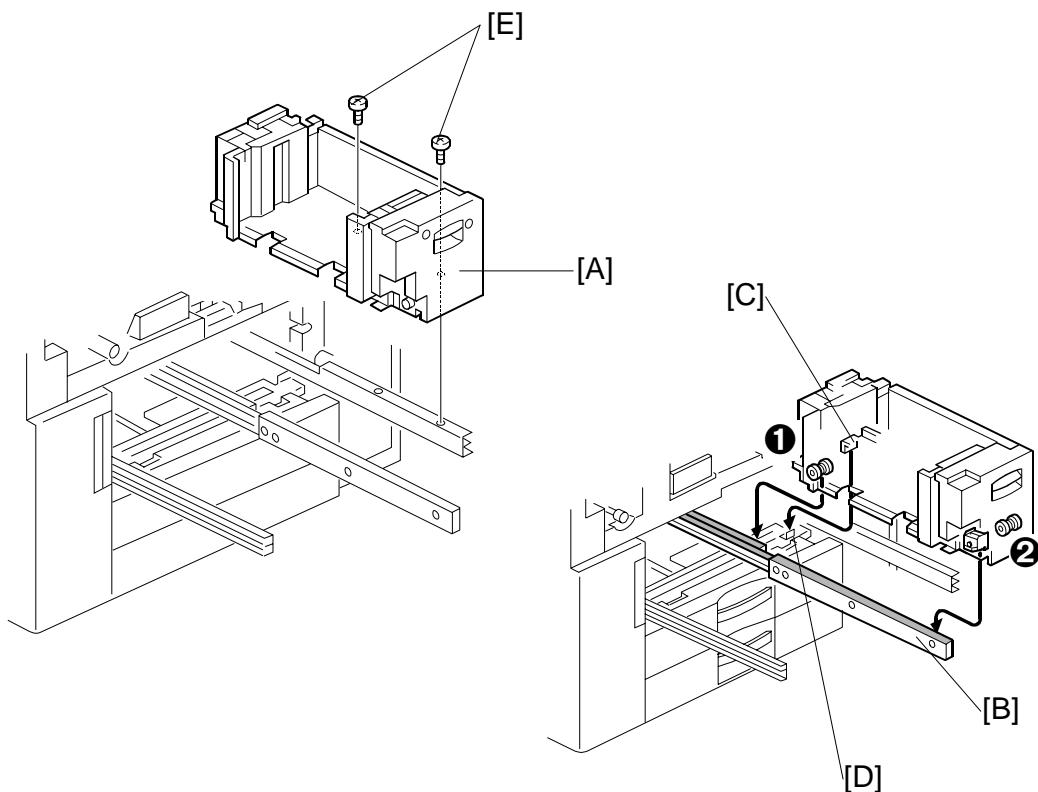
3.10.1 PAPER TRAYS

Tandem Tray



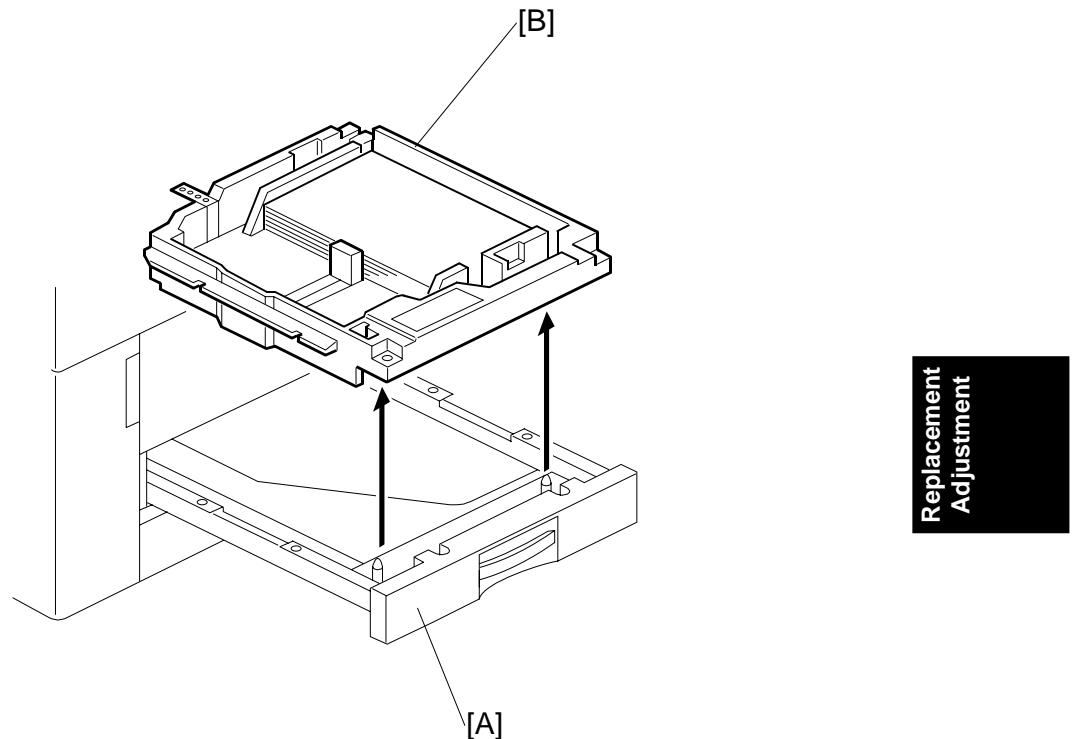
1. Open the front doors.
2. Open the tandem feed tray [A] so the right tandem tray [B] fully separates from the left tray.
3. Push in the right tandem tray.
4. Left tandem tray [C] ($\frac{1}{8} \times 5$).

PAPER FEED



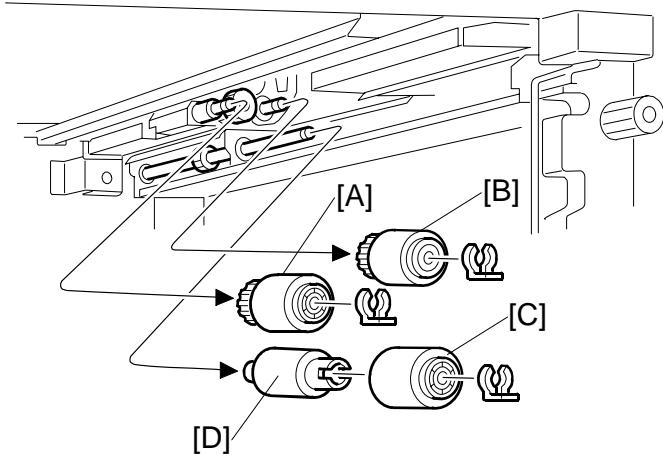
5. Right tandem tray [A] ($\frac{1}{2}$ x 2).

- NOTE:**
- 1) When re-installing the right tandem tray, make sure that the wheels ①, ② ride on the slide rail [B].
 - 2) When re-installing the right tandem tray, make sure that the tandem tray stopper [C] is set behind the stopper [D] on the copier frame.
 - 3) Use M4 x 4 screws [E] to secure the right tandem tray. Screws longer than 4 mm will prevent the right tandem tray from sliding out and in smoothly.

Universal Tray

1. Pull open tray 2 or tray 3 [A].
2. Lift the tray [B] out of the drawer.

3.10.2 PAPER FEED ROLLERS



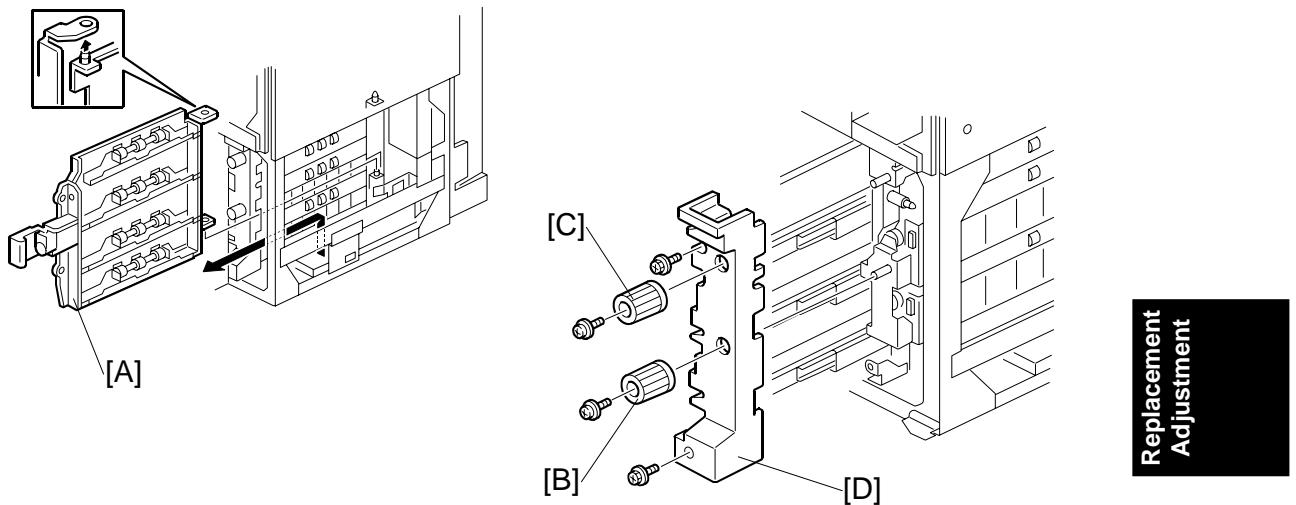
1. Turn off the main switch.
2. Paper tray for the appropriate feed unit. (→3.10.1)
3. Pick-up roller [A] (Ø x 1).
4. Feed roller [B] (Ø x 1).
5. Remove separation roller [C] from the torque limiter [D] (Ø x 1).

Important

- The feed rollers of the main machine and the LCT are not interchangeable because they turn in different directions.
- After replacing a feed roller in the main machine, always make sure that it turns counterclockwise in the direction of paper feed.
- Do not touch the surface of the rollers with your bare hands.

6. Reset the PM count to zero for the new rollers (see section 2.1.2).

3.10.3 PAPER FEED UNITS 1, 2, 3



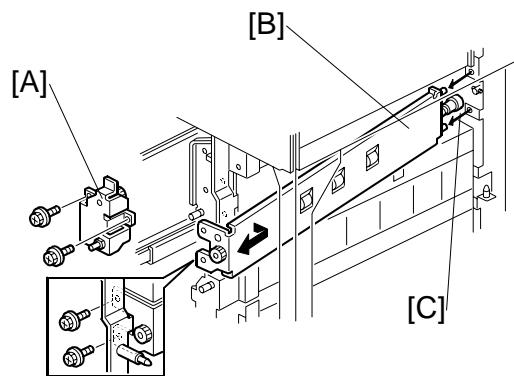
NOTE: This procedure uses the 1st feed unit as an example. The procedures for the 2nd and 3rd trays are the same.

1. Turn off the main switch.
 2. Right front door. (3.3.3)
 3. Right lower cover. (3.3.4)
- NOTE:** If the LCT is installed, disconnect it.
4. Toner collection bottle (3.6.5)
 5. Lift the vertical transport guide [A] and remove it.
 6. Remove knob [B] (\wedge x 1).
 7. Remove knob [C] (\wedge x 1).
 8. Pull out the three trays and remove the paper tray unit inner cover [D] (\wedge x 2).

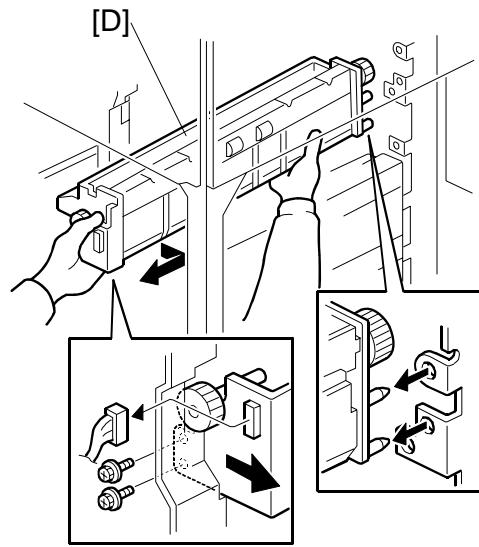
PAPER FEED

9. Upper gear bracket [A] (\wedge x 3)
10. Inner vertical transport guide [B] (\wedge x 2).

NOTE: When re-installing the inner vertical transport guide, set the pin [C] of the inner vertical transport guide into the slot on the main body.

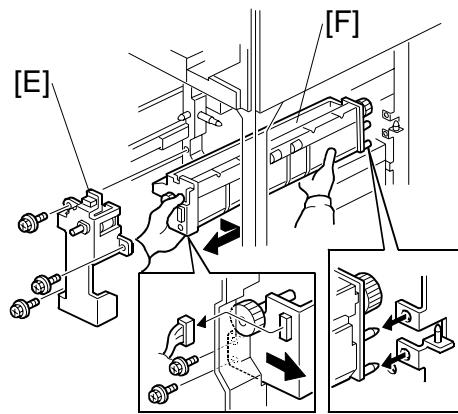


11. 1st paper feed unit [D] (\wedge x 2, \square x1).

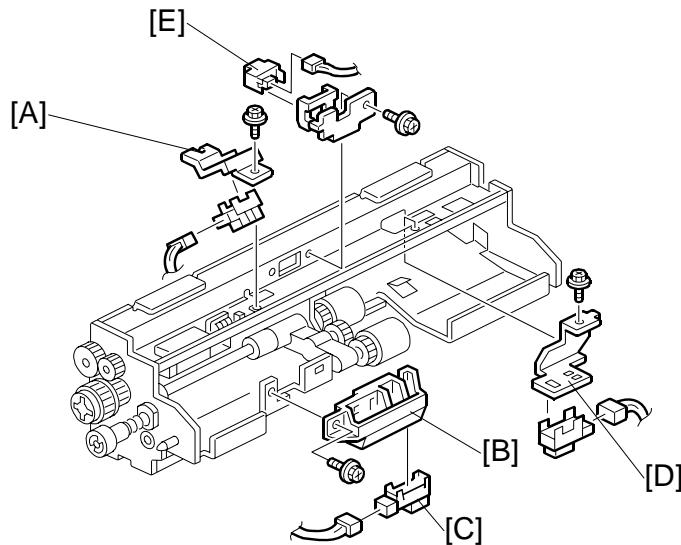


12. Lower gear bracket [E] (\wedge x3, \square x1).

13. 2nd or 3rd paper feed unit [F] (\wedge x 2, \square x1).



3.10.4 PAPER FEED, PAPER END, TRAY LIFT SENSOR

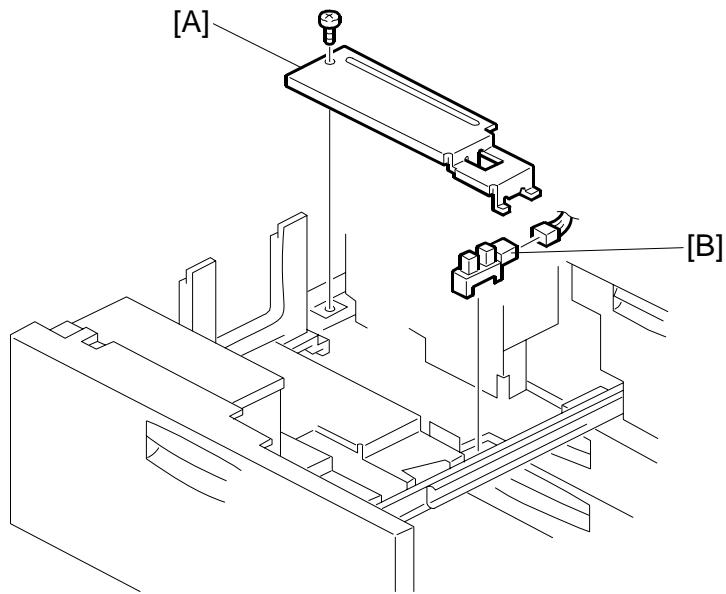


Replacement
Adjustment

1. Remove the paper feed unit (3.10.3)
2. Remove:
 - [K]: Tray lift sensor (x 1, x 1).
 - [L]: Paper end sensor assembly (x 1, x 1)
 - [M]: Paper end sensor
 - [N]: Paper feed sensor (x 1, x 1)
 - [O]: Vertical transport sensor (x 1, x 1)

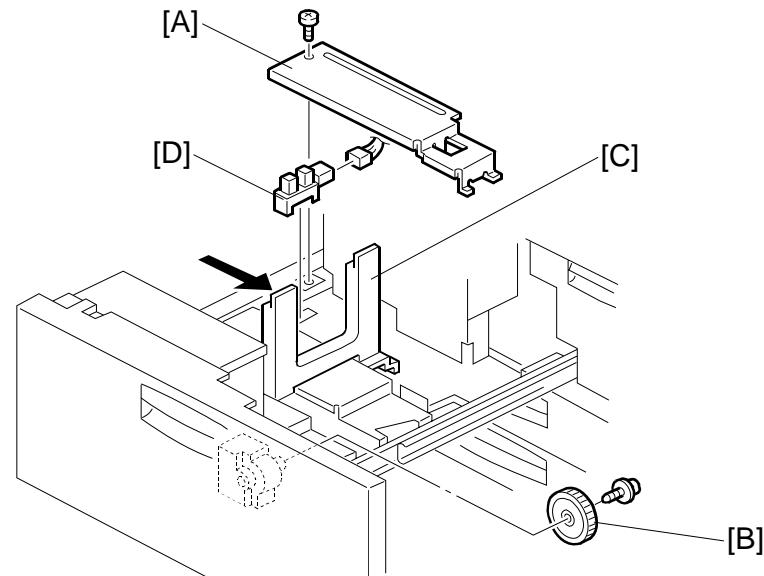
PAPER FEED

3.10.5 REAR FENCE RETURN SENSOR



1. Turn off the main switch.
2. Pull out the left tandem tray.
3. Rear bottom plate [A] (x 1).
4. Rear fence return sensor [B] (x 1).

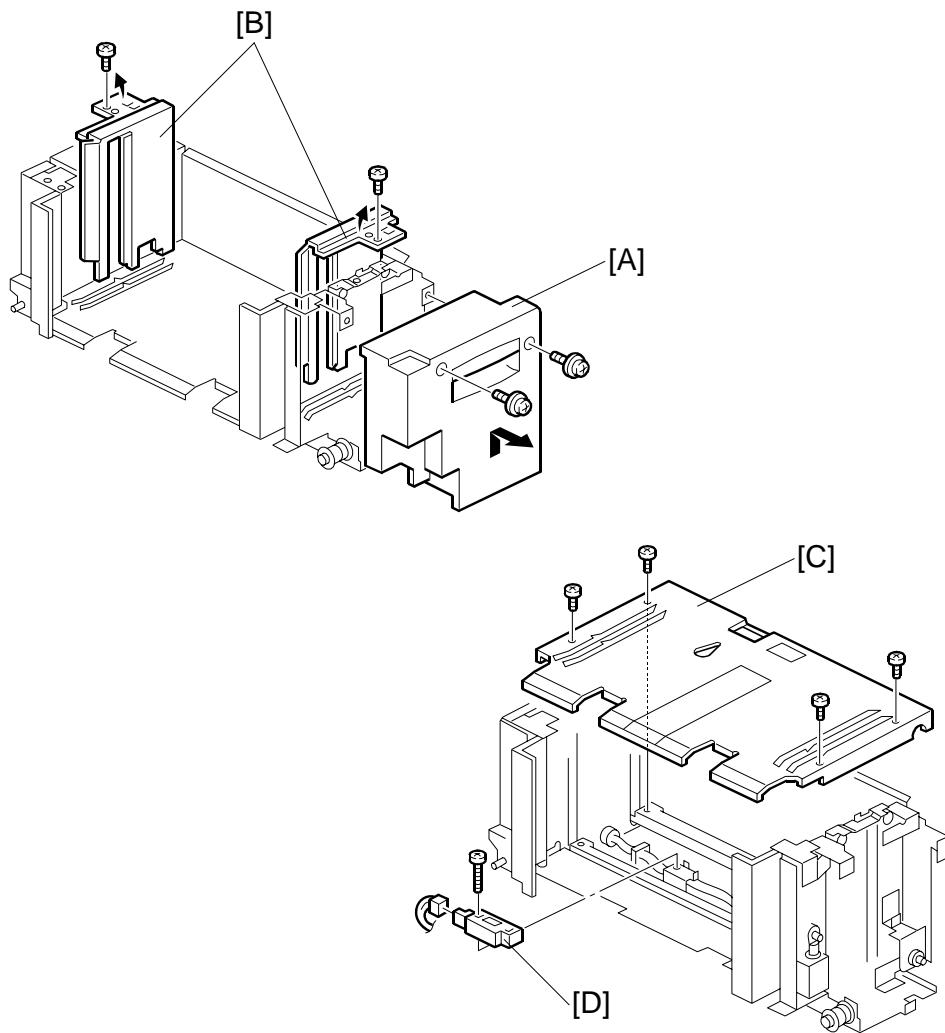
3.10.6 REAR FENCE HP SENSOR



1. Turn off the main switch.
2. Pull out the left tandem tray.
3. Rear bottom plate [A] (\wedge x 1).
4. Rear fence transport gear [B] (\wedge x 1).
5. Move the rear fence [C] to the right.
6. Rear fence HP sensor [D] (\square x 1).

PAPER FEED

3.10.7 1ST TRAY RIGHT PAPER SENSOR



1. Turn off the main switch.
2. Right tandem tray. (3.10.1)
3. Tandem tray cover [A] ($\times 2$).
4. Side fences [B] ($\times 1$ each).

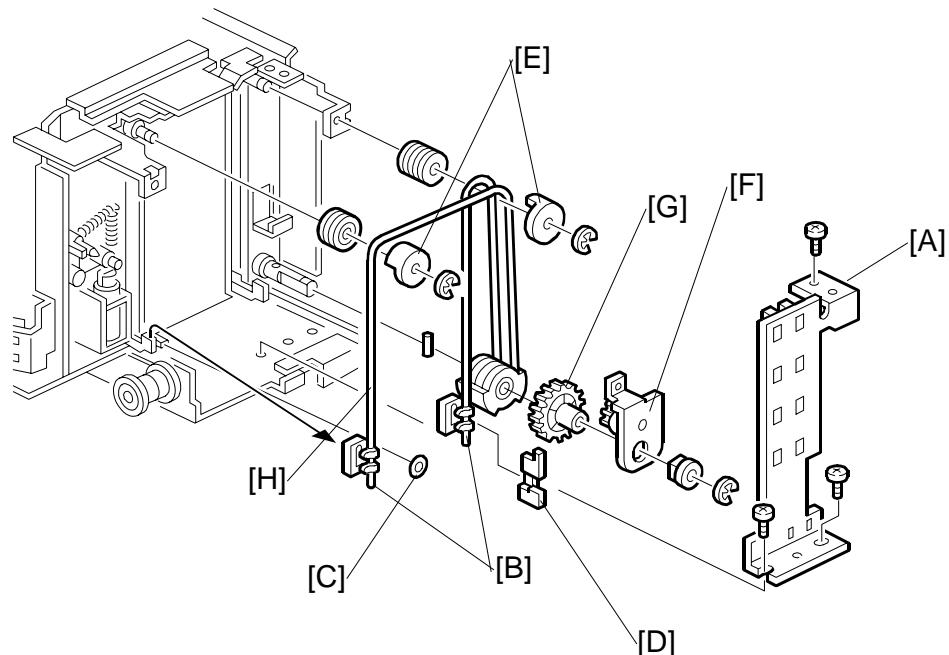
NOTE: When re-installing the side fences, make sure that the position of the side fences is correct.

A4: Outer, LT: Inner

5. Bottom plate [C] ($\times 4$).
6. Right 1st tray paper sensor [D] ($\times 1$, $\times 1$).

3.10.8 BOTTOM PLATE LIFT WIRE

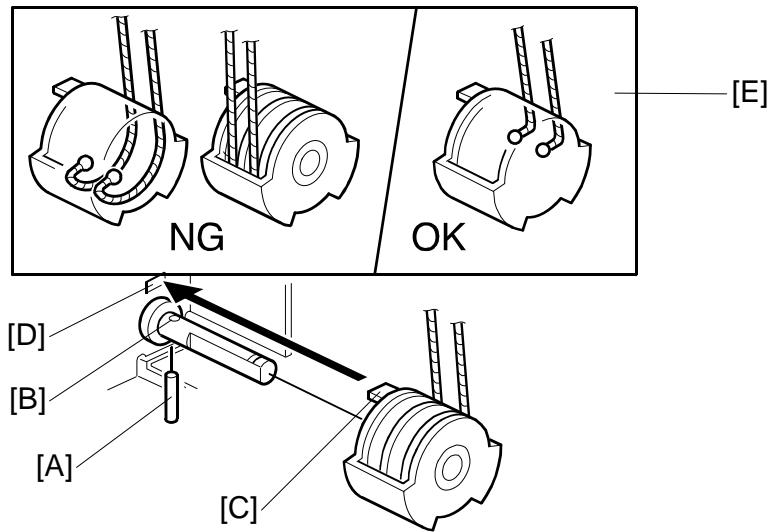
NOTE: Before replacing the rear bottom plate lift wire, remove the front bottom plate lift wire. The procedure for the two wires is the same.



Remove:

- Right tandem tray. (3.10.1)
 - Tandem tray cover (x 2). (3.10.7)
1. Sensor bracket [A] (x 3) (Front Only).
 2. Slightly lift the front bottom plate and unhook the wire stoppers [B], remove stopper [C] and actuator [D].
 3. Wire covers [E] (x 1 each).
 4. Bracket [F] (x 1, C x 1, bushing x 1) (Front Only).
 5. Gear [G] (Front Only).
 6. Bottom plate lift wire [H].

PAPER FEED



Re-installation

When re-installing the bottom plate lift wire:

1. Set the positioning pin [A] in the hole [B].
2. Set the projection [C] in the hole [D].
3. Position the wire as shown [E].

NOTE: Do not cross the wires.

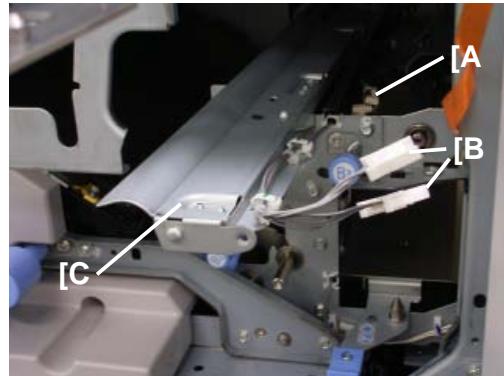
3.10.9 PAPER DUST TRAY, REGISTRATION SENSOR, DOUBLE-FEED SENSOR CLEANING

1. Remove:
 - Development unit (3.7.1)
 - Cleaning unit (3.7.1)
 - PCU (3.7.1)
 - Knob C2, B1 ($\frac{1}{4}$ x 1 ea.)
 - Inner cover

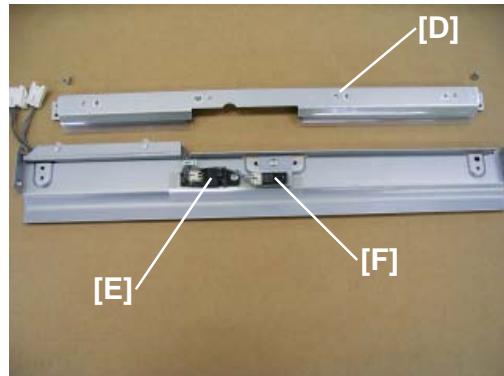


Replacement
Adjustment

2. Release clamp [A].
3. Disconnect [B] ($\square \square$ x 2).
4. Guide plate [C] ($\frac{1}{4}$ x 1)

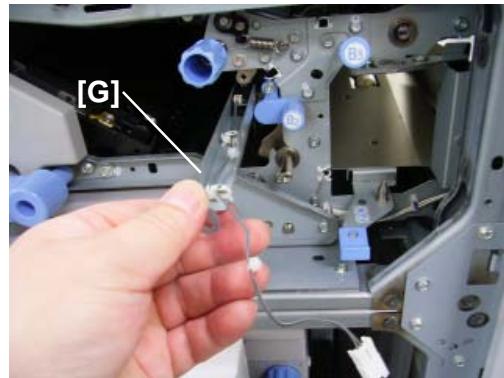


5. Paper dust tray [D] ($\frac{1}{4}$ x 2).
6. Use a clean dry cloth to remove the paper dust.
7. Use a blower brush to clean the double-feed sensor [E] and registration sensor [F].



PAPER FEED

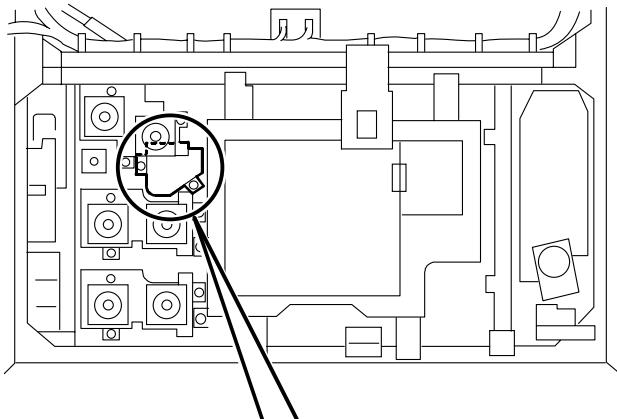
8. Double-feed sensor bracket [G] ( x1,  x1,  x2).



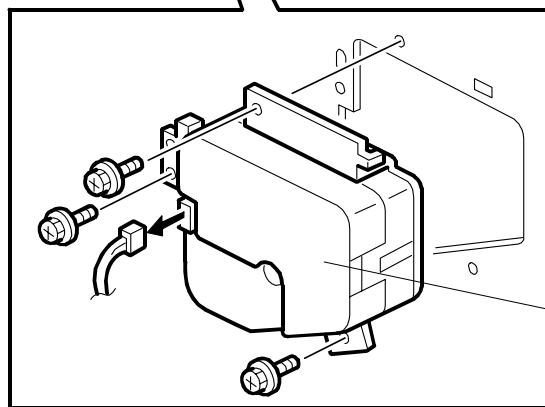
9. Clean the double-feed sensor LED.



3.10.10 LIFT MOTORS



Replacement
Adjustment



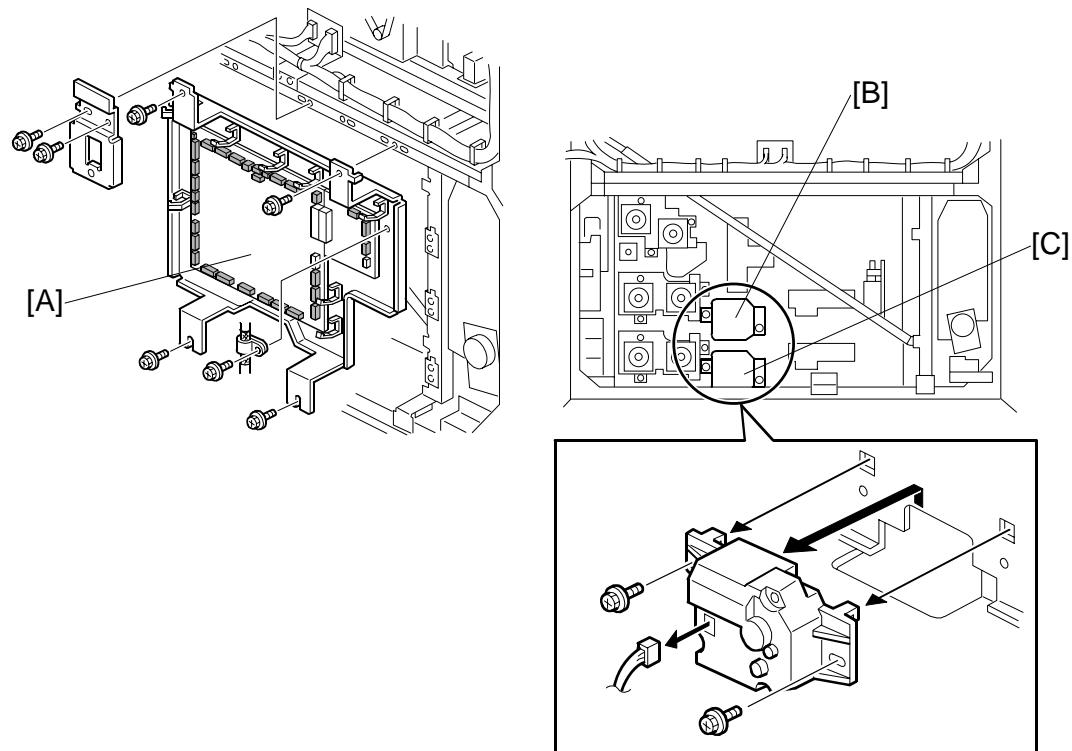
[A]

1st Tray Lift Motor

- Remove AC drive unit (3.14.7)
- 1. 1st feed motor unit (3.10.12)
- 2. 1st tray lift motor [A] (x3, x1)

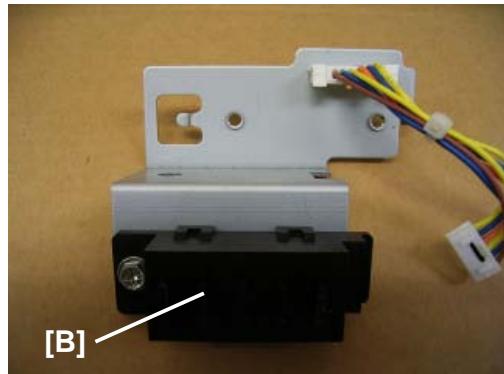
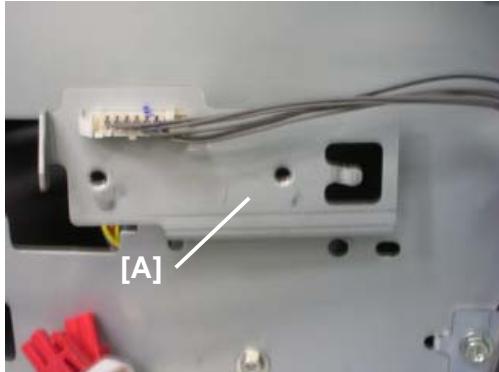
PAPER FEED

2nd, 3rd Tray Lift Motors



1. Remove the BCU/IOB unit [A] (3.14.4)
2. 2nd tray lift motor [B] (x 1, x 2).
3. 3rd tray lift motor [C] (x 1, x 2).

3.10.11 2ND, 3RD TRAY SIZE SWITCHES

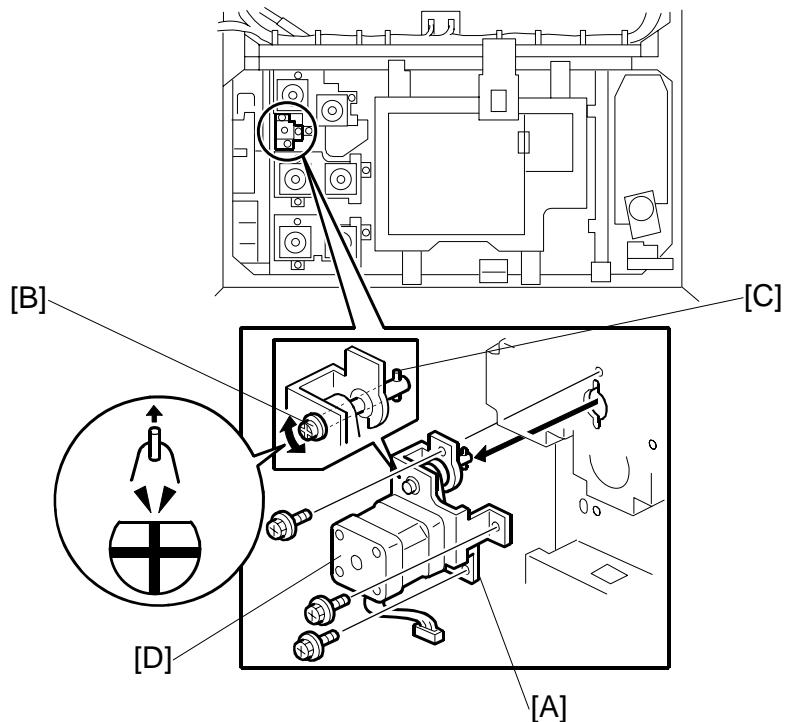


Replacement
Adjustment

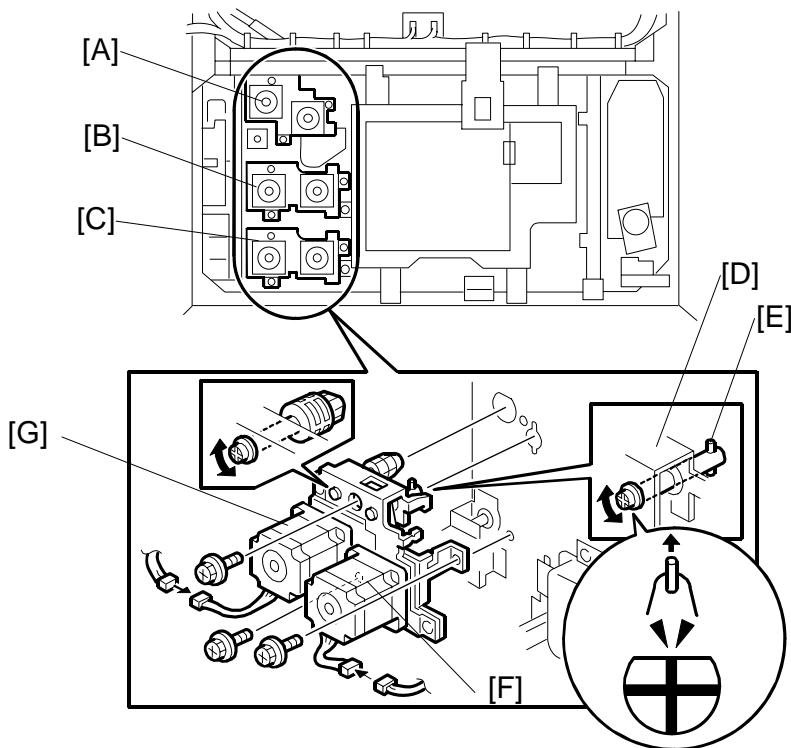
- BCU/IO unit (●)
 1. 2nd/3rd tray size switch bracket [A] (● x2 ● x1)
 2. 2nd/3rd tray size switch [B] (● x1 ● x1)

3.10.12 FEED MOTORS

Vertical Relay Motor



- Remove the AC drive unit (x4, x9, x3) (3.14.7)
 1. Vertical relay motor unit [A] (x3 M4x6, x1)
 2. Rotate the drive shaft [B] until the drive pin [C] is pointing up, then remove the motor unit.
 3. Remove the vertical relay motor [D] (x2, Timing belt x1)

Feed Motor, Grip Motor

Replacement
Adjustment

1. Remove the paper feed unit:

[A] 1st tray (x3, x2)

[B] 2nd tray (x3, x2)

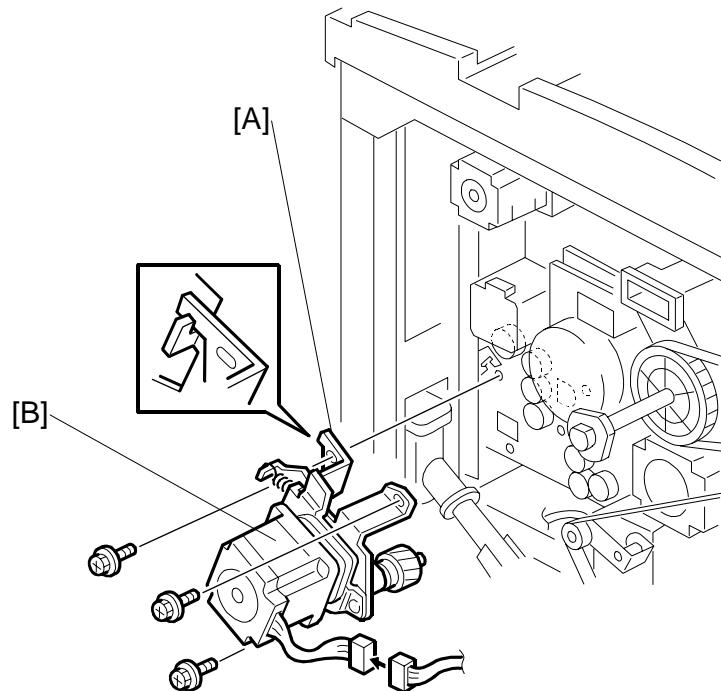
[C] 3rd tray (x3, x2)

NOTE: Rotate the drive shaft [D] until the drive pin [E] is pointing up, then remove the motor unit.

2. Feed motor [F] (x3, Spring x1, Timing belt x1)

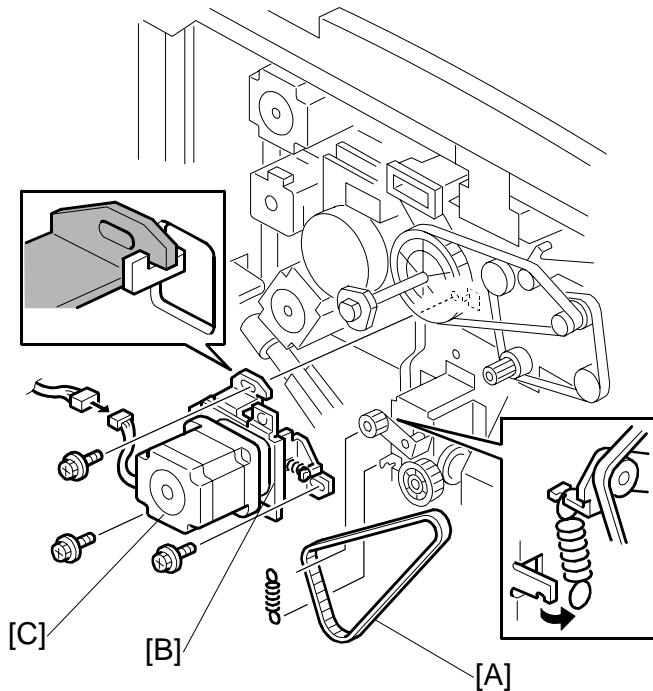
3. Grip motor [G] (x3, Spring x1, Timing belt x1)

3.10.13 UPPER RELAY MOTOR



1. Open the PSU box (扳手 x 2). (3.3.8)
2. Rear upper cover. (3.3.6)
3. Flywheel (扳手 x 3).
4. Upper relay motor unit [A] (扳手 x 3, 插头 x 1).
5. Upper relay motor [B] (扳手 x3, Timing belt x1, Spring x1)

3.10.14 REGISTRATION MOTOR

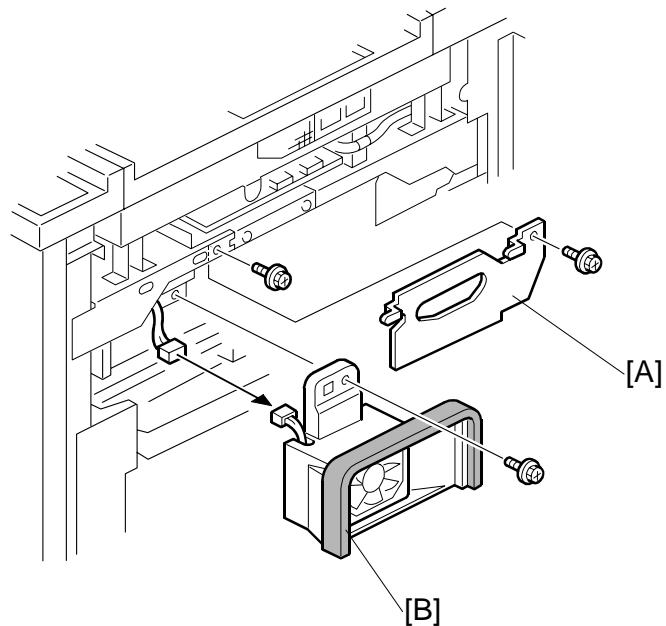


Replacement
Adjustment

1. Open the PSU box. (→3.3.8)
2. Rear upper cover. (→3.3.6)
3. Flywheel (☞ x 3).
4. Timing belt [A].
5. Registration motor unit [B] (Spring x1, ☞ x 3, ☐ x 1).
6. Registration motor [C] (☞ x 3, timing belt x 1, spring x 1).

PAPER FEED

3.10.15 DEVELOPMENT FAN MOTOR

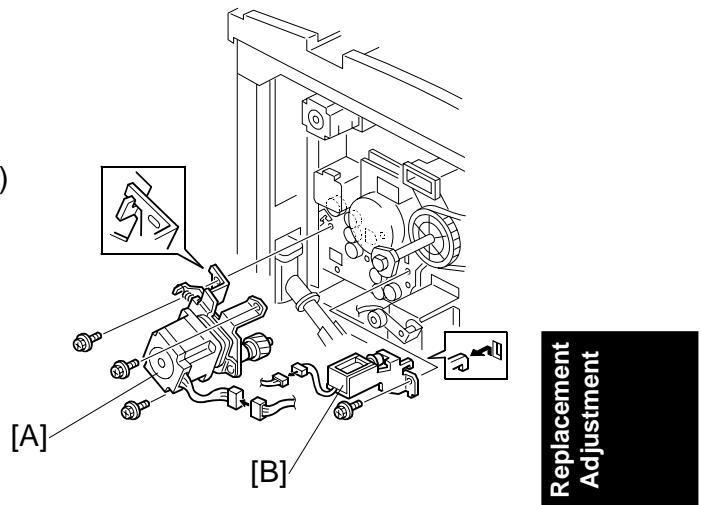


- Right upper cover (☞ x4) (● 3.3.4)
 1. Tube cover [A] (☞ x1).
 2. Fan motor unit [B] (☞ x 1, ☐ x1).
 3. Fan motor (☞ x 2)

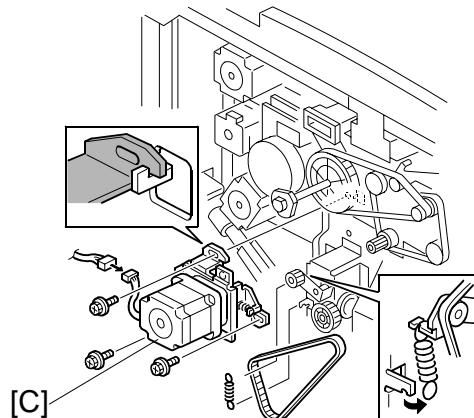
3.10.16 REGISTRATION UNIT

1. Remove:

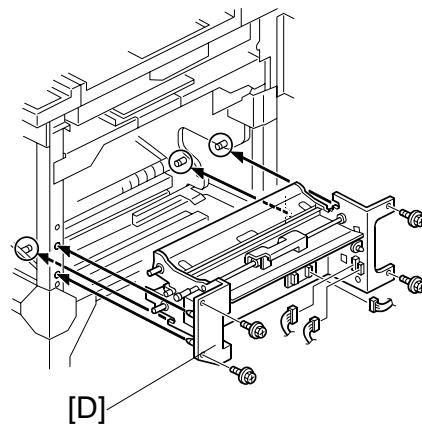
- Development fan motor (3.10.15)
- Toner suction pump motor (3.8.2)
- Upper relay motor [A] (3.10.13)
- Guide plate solenoid [B] (x1, x1)



2. Registration motor [C] (3.10.14)

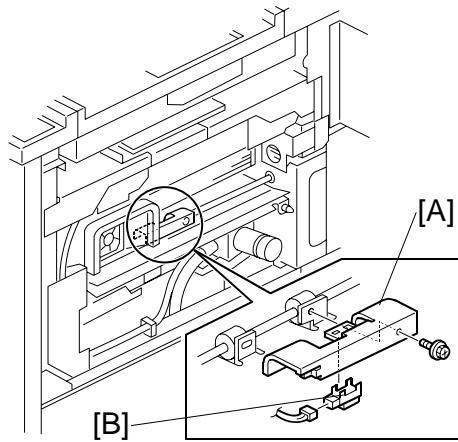


3. Registration unit [D] (x4, x3)

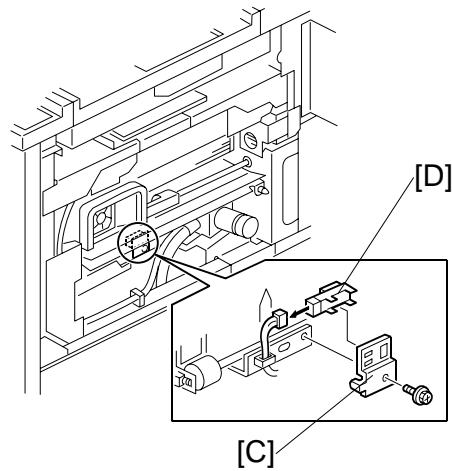


3.10.17 LCT RELAY AND RELAY SENSORS

1. Right upper cover (x 4). (3.3.4)
2. LCT relay sensor bracket [A] (x 1, x 1).
3. LCT relay sensor [B].



4. Upper relay sensor bracket [C] (x 1, x 1).
5. Upper relay sensor [D].



3.10.18 IMAGE POSITION SENSORS

Image position sensor unit (Tray)

- Right upper cover (☞ x 4). (☞ 3.3.4)

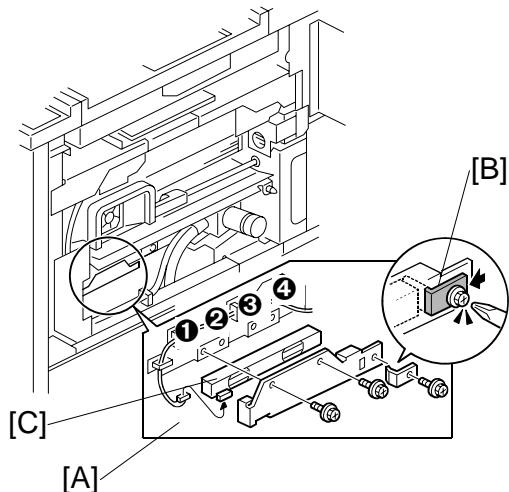
[A]: Image position sensor unit (Tray) (☞ x2, ☞ x1)

[B]: Stopper (☞ x1)

[C]: Image position sensor

NOTE:

- The left screws (❶, ❸) are for paper widths of 140 – 330 mm.
- The right screws (❷, ❹) are for paper widths of less than 140 mm.



Replacement
Adjustment

Image position sensor unit (Duplex)

- Registration unit (☞ 3.10.16)

[D]: Image position sensor unit (duplex) (☞ x2, ☞ x1)

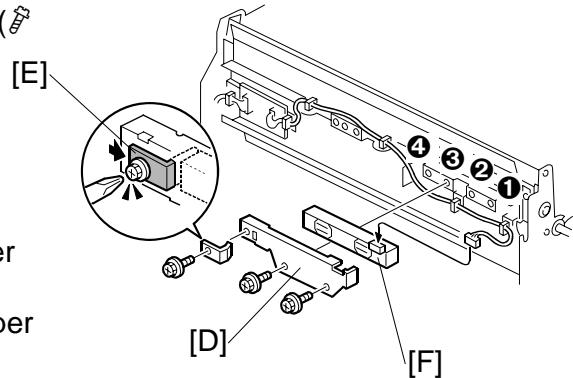
[E]: Stopper (☞ x1)

[F]: Image position sensor

NOTE:

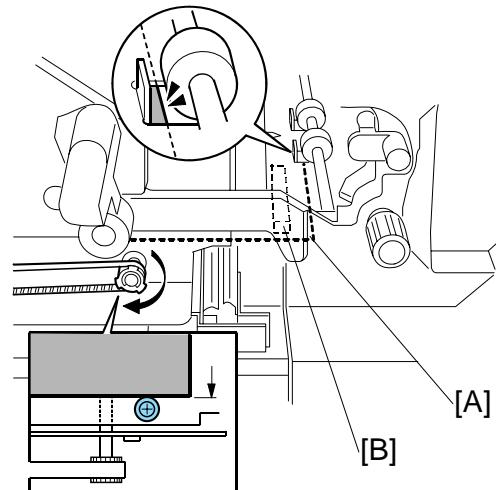
- The left screws (❷, ❹) are for paper widths of 140 – 330 mm.
- The right screws (❶, ❸) are for paper widths of less than 140 mm.

After replacement, the CIS must be calibrated. (See next page.)

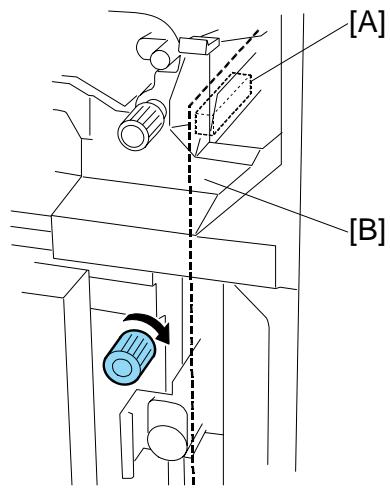


Procedure 3***CIS Image Position Adjustment: LED Strength*****CIS in Duplex Unit**

1. Turn OFF the main power switch.
2. Remove the duplex inner cover. (→3.12.2)
3. Turn ON the main power switch.
4. Continue to step 5

**CIS (Duplex)****CIS in Tray**

1. Turn OFF the main power switch.
2. Remove the right upper cover. (→3.3.4)
3. Turn ON the main power switch.
4. Continue to step 5

**CIS (Tray)**

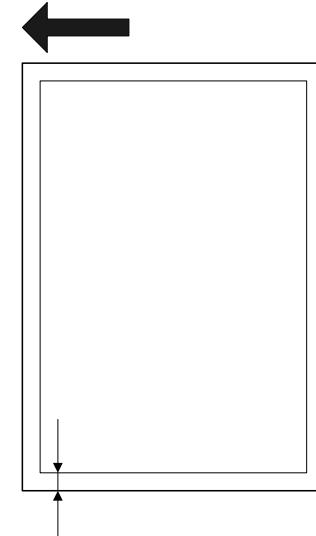
5. Insert one sheet of plain white paper [A] in the paper path.
6. Make sure that the paper covers the entire area below the image position sensor (CIS) [B].
7. Enter the SP mode and do SP1910 001 and 003 (CIS Image Position Adjustment: LED Strength). This calibrates the amount of light to be emitted from the CIS.
8. Do SP1909 001 and 003 (CIS Image Position Adjustment: PWM After Adjustment).
 - If the displayed value is between 20 (14h) and 40 (28h), the CIS is calibrated successfully. (The display is in hexadecimal code.)
 - If the value is outside this range, do SP1910 001 and 003, 1909 001 and 003 again. If the value does not come between 20 and 40, the CIS may be defective.
9. Exit SP Mode.
10. Do CIS Image Position Adjustment: Normal Paper ("Procedure 4")

Procedure 4

CIS Image Position Adjustment: Normal Paper

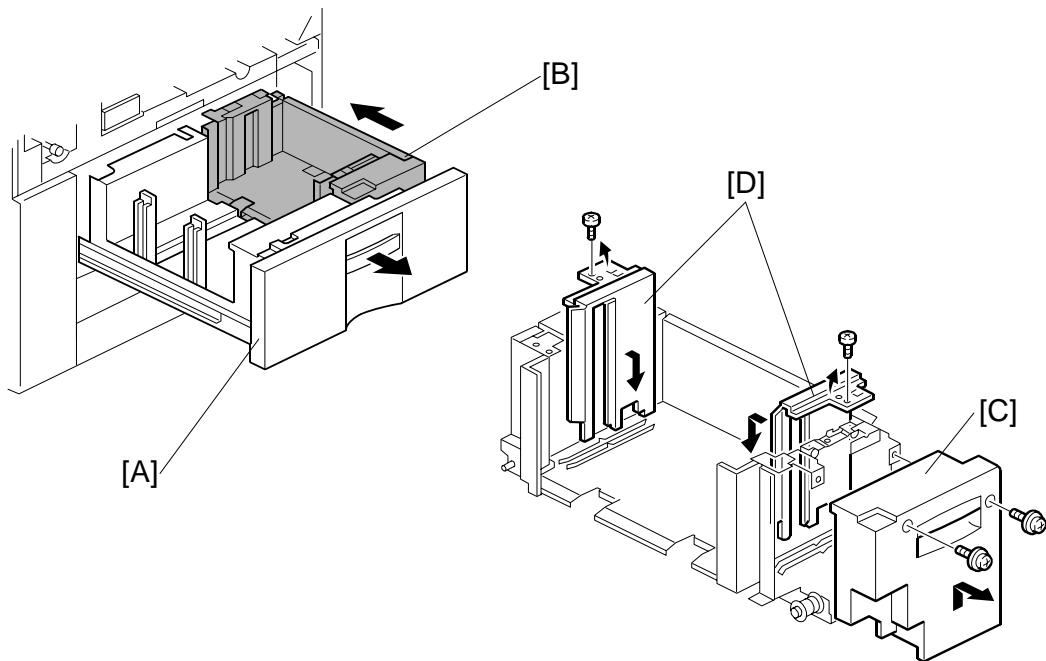
1. Push [User Tools]> [Adjust Settings for Operators].
2. Do **SP1911** for Trays 1, 2, 3, duplex and set the value for each tray to "0" (OFF).
3. Exit from SP 1911 and return to the SP mode menu.
4. Adjust the image positions in the main scan direction (Tray 1, 2, 3).
 - Do **SP2902 003**, select Pattern **27**, then print the trimming pattern.
 - Do **SP1002 001, 002, 003** and **008** and adjust the image position in the main scan direction for Trays 1, 2, 3, and duplex.
 - Print the trimming pattern from each tray and duplex.
 - To do this, touch "Copy Window" in the SP display, select a tray, then push [Start].
 - The distance of the test pattern line from the paper edge for each tray must be 2 mm. If it is not 2 mm, adjust with **SP1002 001, 002, 003** and **008**, depending on which tray is not within the specified 2 mm.
5. Adjust the image positions in the main scan direction (Duplex).
 - Do **SP2902 003**, select Pattern **27**, then print the trimming pattern.
 - Do **SP1002 008** and adjust the image position in the main scan direction for duplex.
 - Print the trimming pattern for duplex from **Tray 1**.
 - To do this, touch "Copy Window" in the SP display, select a tray, then push [Start].
 - The distance of the test pattern line from the paper edge for each tray must be 2 mm. If it is not 2 mm, adjust with **SP1002 008**, depending on which tray is not within the specified 2 mm.
6. Print the duplex print from **Tray 1** one more time.
7. Do **SP1912 001 and 003** (CIS Image Position Adjustment: Normal Paper). This sets the CIS for operation with standard copy paper.
8. Exit the SP mode.
9. Push [User Tools]> [Adjust Settings for Operators].
10. Do **SP1911** again (CIS Image Position Adjustment: Feed Setting), and reset the values for Trays 1, 2, 3, duplex to "1" (ON).

Replacement
Adjustment



PAPER FEED

3.10.19 TANDEM FEED TRAY PAPER SIZE CHANGE

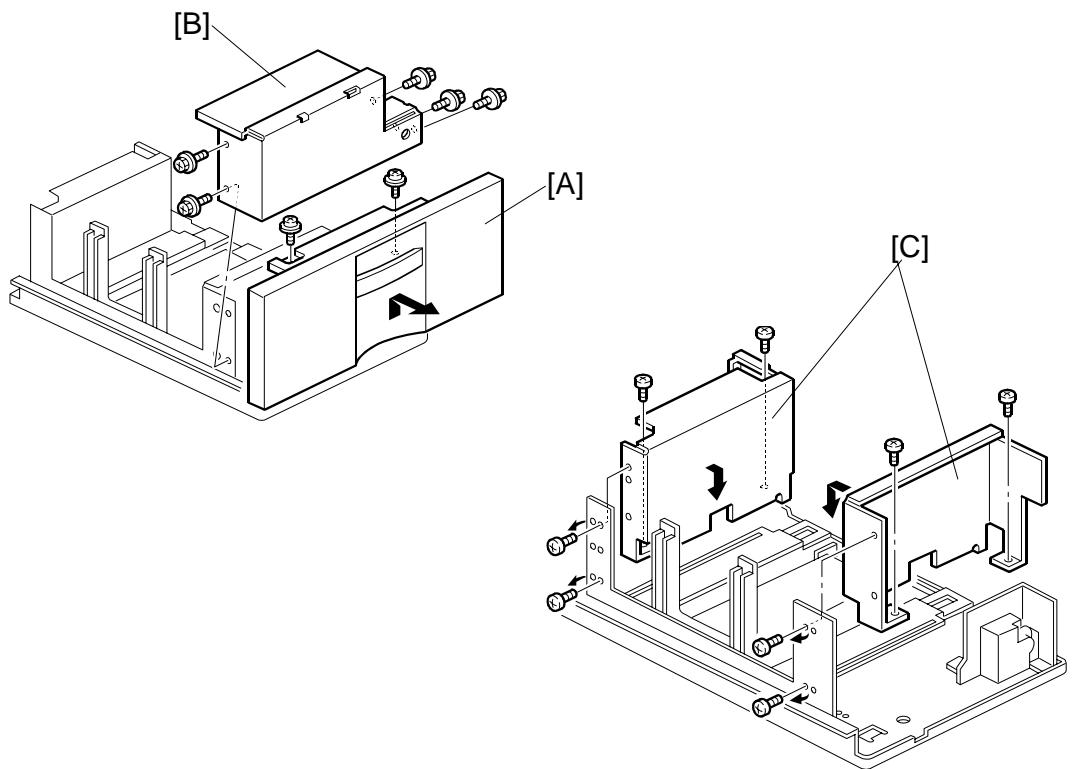


NOTE: This tray is set up for A4 or LT LEF at the factory. Only A4 or LT LEF paper can be used for tandem feed.

1. Open the front cover.
2. Pull out the tandem feed tray [A] and remove the left and right tandem trays. (☞3.10.1)

Setting the Paper Size for the Right Tandem Tray

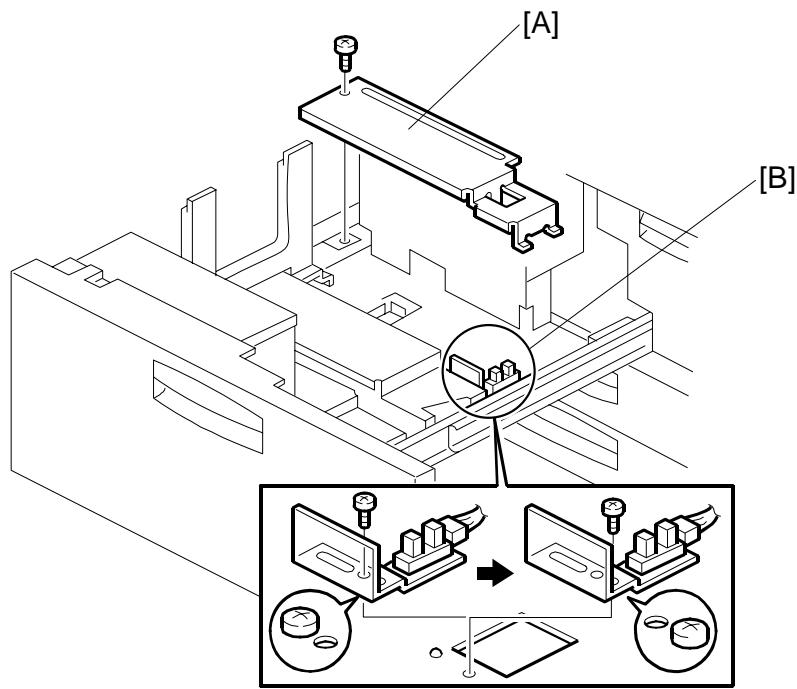
1. Right tandem inner cover [C]. (☞ x 2)
2. Re-position the side fences [D] (☞ x 1 each).
NOTE: Outer: A4, Inner: LT.
3. Re-install the right tandem inner cover [C].



Setting the Paper Size for the Left Tandem Tray

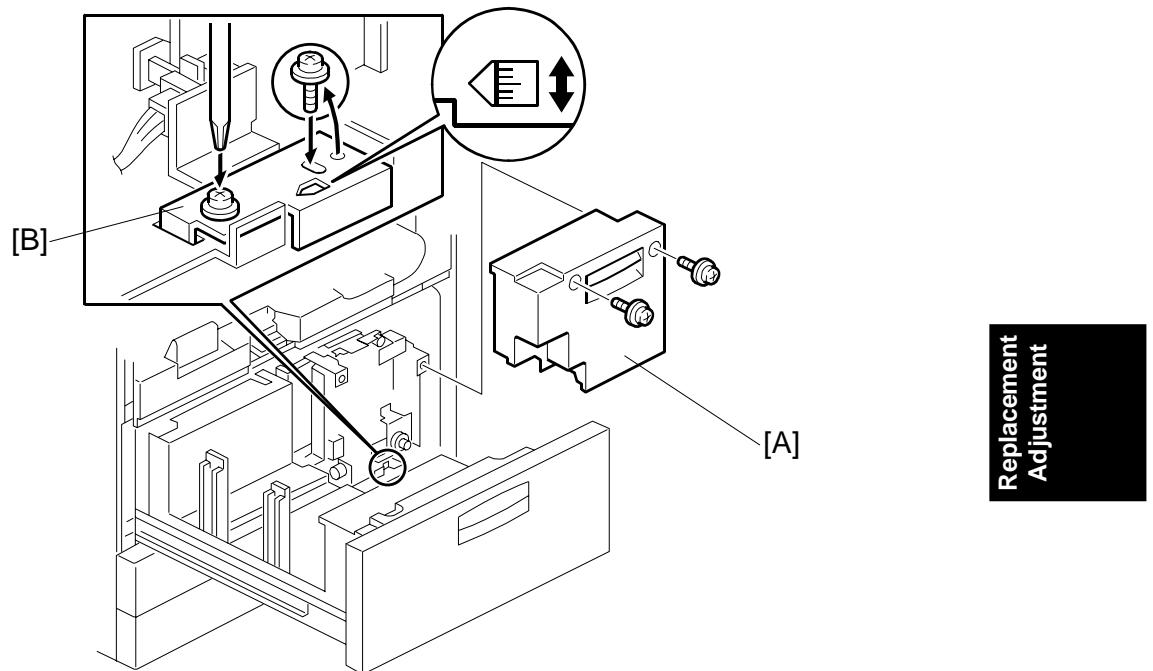
1. Tray cover [A] ($\frac{1}{4}$ x 2).
2. Motor cover [B] ($\frac{1}{4}$ x 5).
3. Re-position the side fences [C] ($\frac{1}{4}$ x 4 each).
NOTE: Outer: A4, Inner: LT.
4. Re-install the motor cover and the tray cover.

PAPER FEED



5. Rear bottom plate [A] ($\frac{1}{8}$ x 1).
6. Re-position the return position sensor bracket [B] ($\frac{1}{8}$ x 1). To use the paper tray for A4 size, put the screw in the left hole.
NOTE: For LT size, the screw should be placed on the right.
7. Re-install the rear bottom plate.
8. Change the paper size for the 1st Tray (Tandem Tray) with **SP5019 002**.

3.10.20 TANDEM TRAY SIDE REGISTRATION



Normally the side registration of the image can be adjusted in the SP mode.

If the punch hole positions are not aligned from a particular feed station, however, you can manually adjust the side registration by changing the tray cover position for that tray, and then adjust the side registration of the image (See 3,10,18)

1. Pull out the tray and remove the right inner cover [A].
2. Loosen the screws and adjust the position of the plate [B].
Adjustment range: 0 ± 2.0 mm adjustment step: 1.0 mm/step

3.11 FUSING UNIT

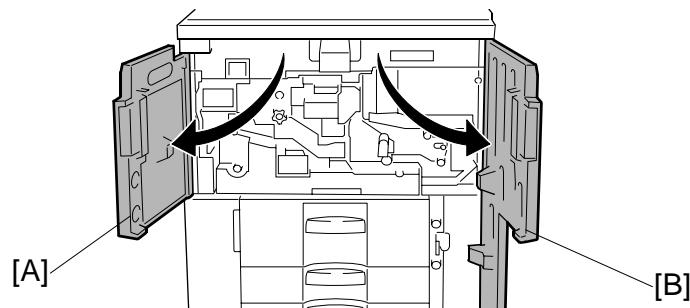
3.11.1 REMOVING THE FUSING UNIT

⚠ CAUTION

- To prevent electrical shock, switch off the main power switch and disconnect the power cord from the power source.
- Disconnect all other cables (USB, network, etc.) if they are connected.
- The fusing unit becomes extremely hot during operation, so to prevent minor burns, switch the machine off and allow it to cool for at least 30 minutes before you remove the fusing unit.
- The fusing unit weighs approximately 14 kg (30.9 lb.) so handle it carefully when you remove it to avoid dropping it and causing damage or minor injuries.

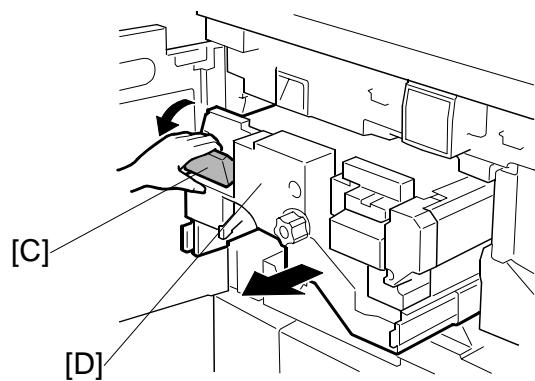
Important

- Confirm that the replacement fusing unit is the correct type for the machine.
- A fusing unit with a black top is for the B234/D101 (90 ppm) or B235/D102 (110 ppm).
- A fusing unit with a yellow top is for the B236/D103 (135 ppm only).
- If you install the incorrect fusing unit for the machine, the machine will display a message and the machine will not operate until a correct fusing unit is installed.



1. Open the left front door [A] and right front door [B].

Replacement
Adjustment

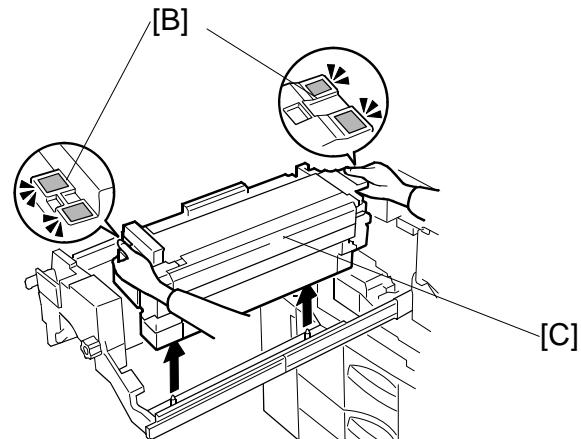


2. Grasp handle **D2** [C] of the fusing unit drawer [D] and pull out the drawer gently until it stops.

FUSING UNIT



3. Raise lever **D3** [A] until it stops.

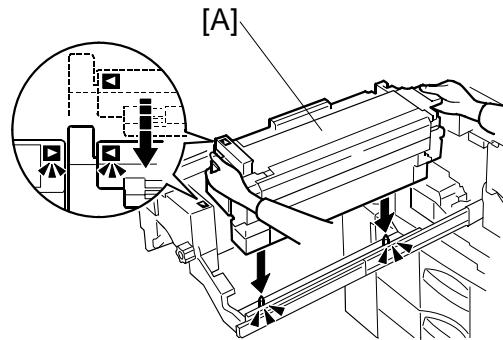


4. Firmly grip the purple handles [B] of the fusing unit [C] with both hands, lift the fusing unit and remove it.

CAUTION: The fusing unit weights approximately 14 kg (30.9 lb.). Handle it carefully when you lift it and set it down.

5. Set the fusing unit down on its bottom.

3.11.2 REINSTALLING THE FUSING UNIT

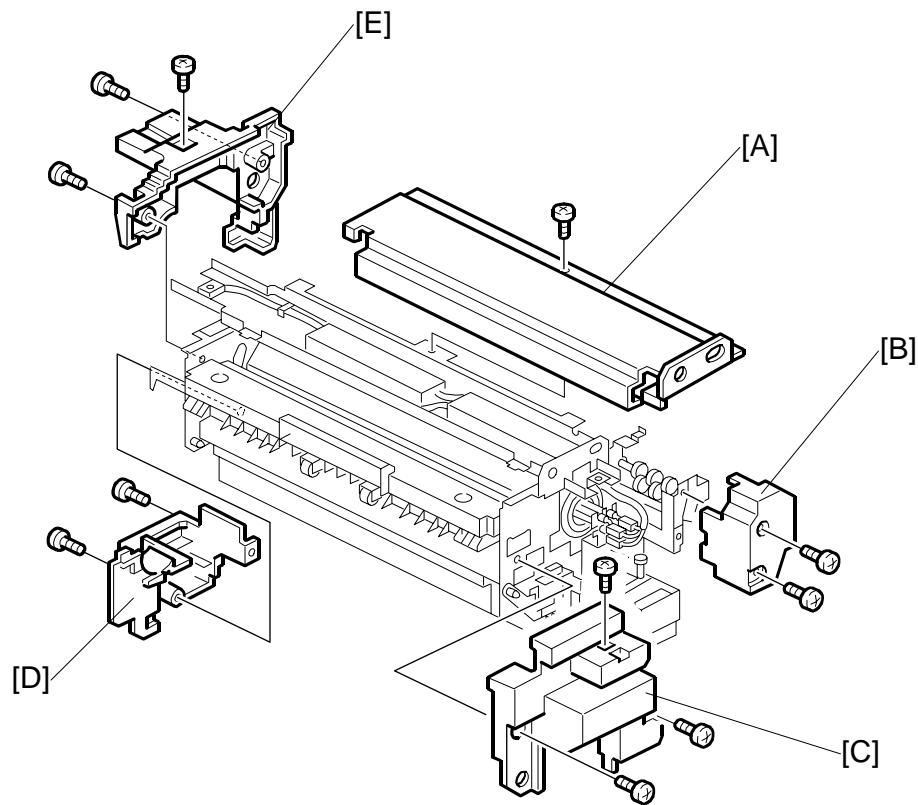


Replacement
Adjustment

1. Raise lever D3.
2. Hold the new fusing unit [A] so the triangular reference marks are aligned as shown
3. Lower the new fusing unit onto the frame.
4. Make sure that holes of the fusing unit are properly mounted onto the pegs below.

FUSING UNIT

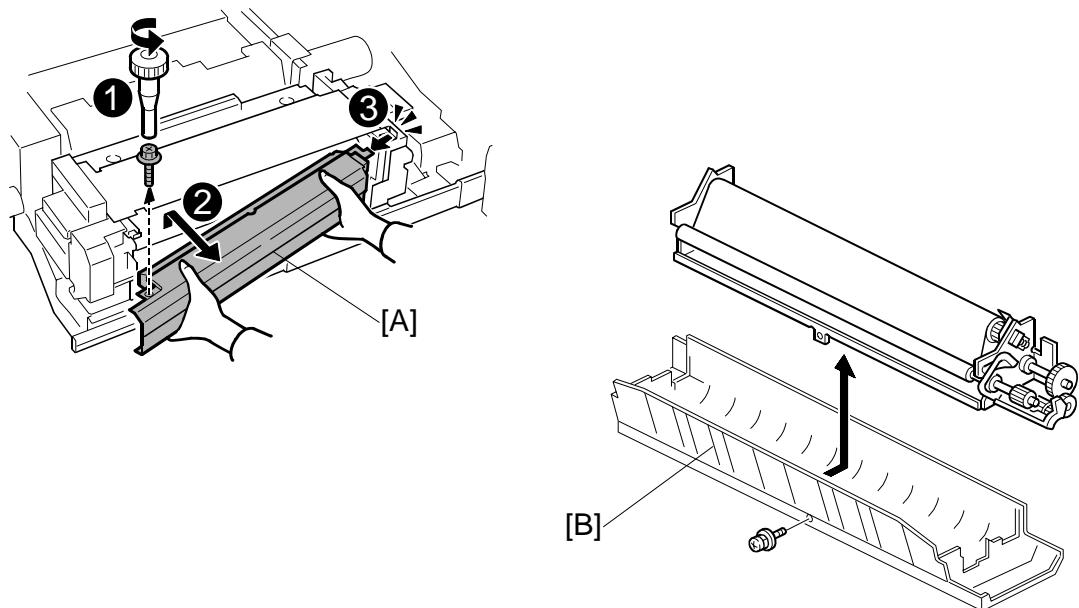
3.11.3 FUSING UNIT COVERS



- [A] Top cover (☞ x1)
- [B] Fusing cleaning unit cover (fabric unit) (☞ x2)
- [C] Front cover (☞ x3)
- [D] Rear lower cover (☞ x3)
- [E] Rear upper cover (☞ x2)

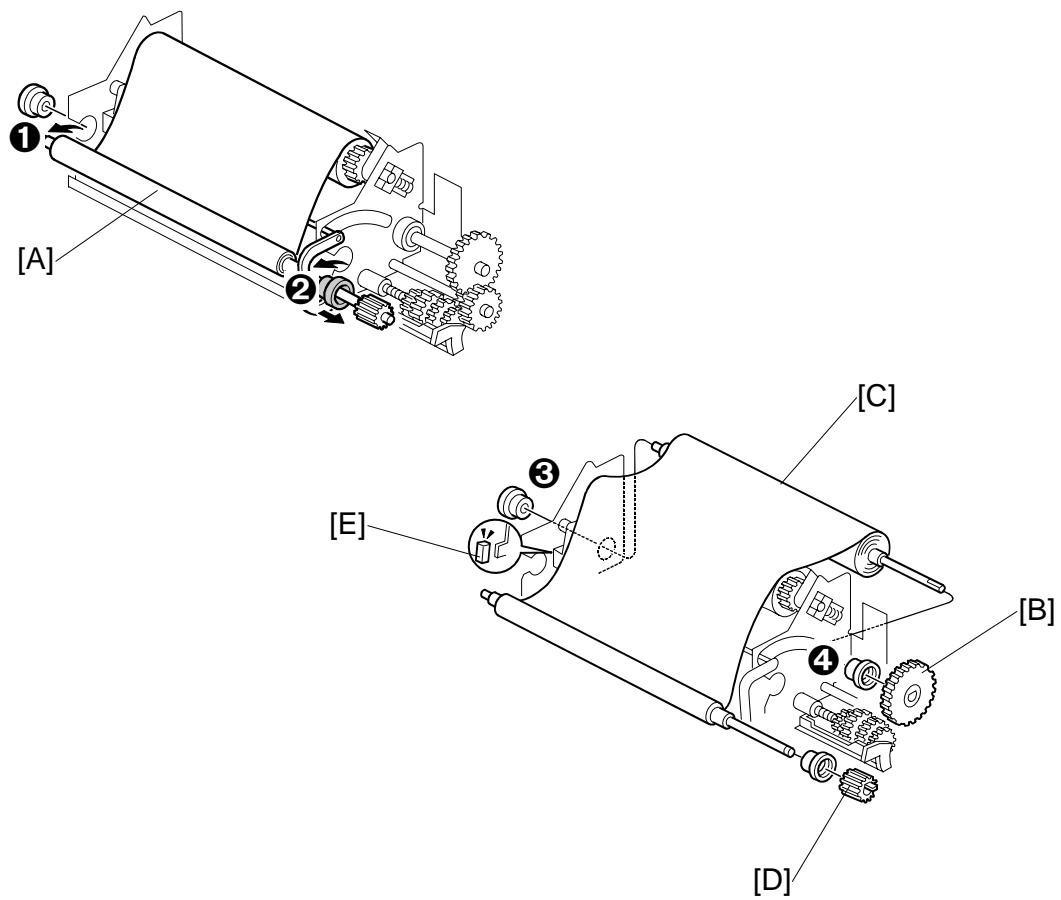
3.11.4 FUSING CLEANING UNIT

Disassembling the Fusing Cleaning Unit



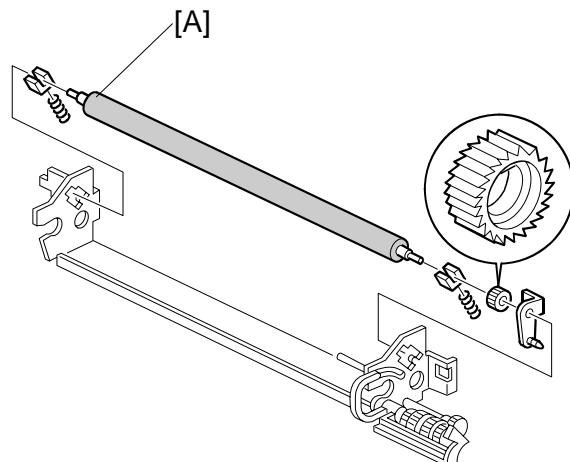
1. Pull out the fusing unit drawer (3.11.1)
2. Remove the fusing cleaning unit [A] (x1).
3. Fusing entrance guide [B] (x1).

FUSING UNIT



4. Bearings **①, ②**.
5. Fusing cleaning fabric supply roller [A].
6. Bushings **③, ④**.
7. Gear Z50 [B].
8. Cleaning fabric take-up roller [C].
9. Gear Z23 [D] off the shaft to remove the gear.
10. Remove the stopper [E].

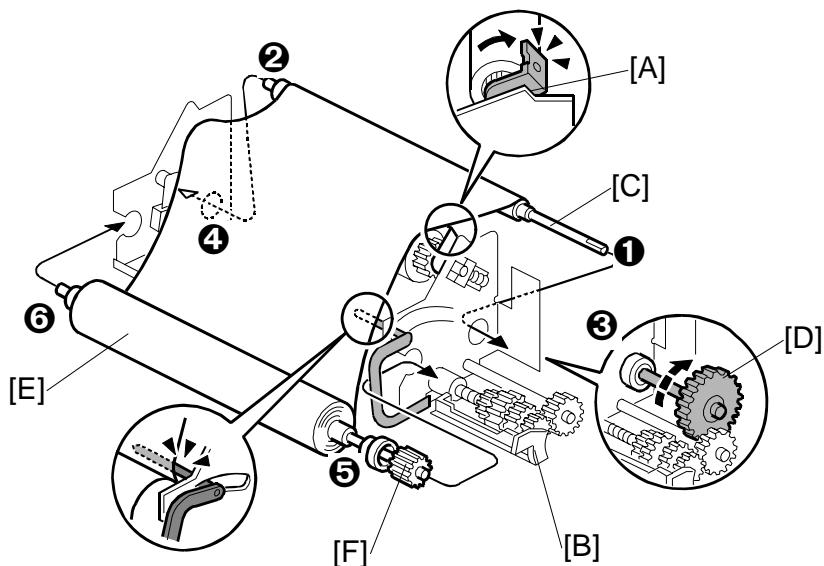
Fabric Pressure Roller



Replacement
Adjustment

Remove:

[A] Fabric pressure roller (Bushing x2, Spring x2)

Reassembling the Fusing Cleaning Unit***Checklist Before You Begin***

- Gear [A] rotates only counter-clockwise?
- Is the plastic [B] straight and not bent?

1. Insert the take-up roller [C]. Insert the front end ① then the rear end ②.

Important: Handle the rollers carefully to keep them clean.

2. Set the bushings ③, ④ on the shaft of the take-up roller.
3. Attach Gear Z50 [D]. Its teeth must mesh with the teeth of the small gear below.
4. Mount the take-up roller shaft (with the bushings attached).
5. Mount the cleaning fabric supply roller [E] (apply some pressure to position it correctly).
6. Set the bearings ⑤, ⑥ on the shaft of the supply roller.
7. Gear Z23 [F]
 - Engage the key of the gear with its groove.
 - Attach it to the notch in the outer plate on the cleaning fabric supply side.
 - Turn the gear to take up the slack of the cleaning fabric.
8. Rotate Gear Z50 [D] clockwise 3 times.

9. Apply a small amount of grease (Barrierta S552R) to Gear Z50 [D].

Checklist

- Cleaning fabric is not riding up on the metal plate?
- Is the pressure lever down on the back of the fabric?
- Gear Z50 clicks normally when it is turned?
- No slack in the cleaning fabric between the supply and take-up rollers?

10. Place the frame unit above the fusing entrance guide plate, push it forward, then attach it ( x1).

Important: Attach the guide plate inside without allowing any of the 4 bearings or bushings to slip off.

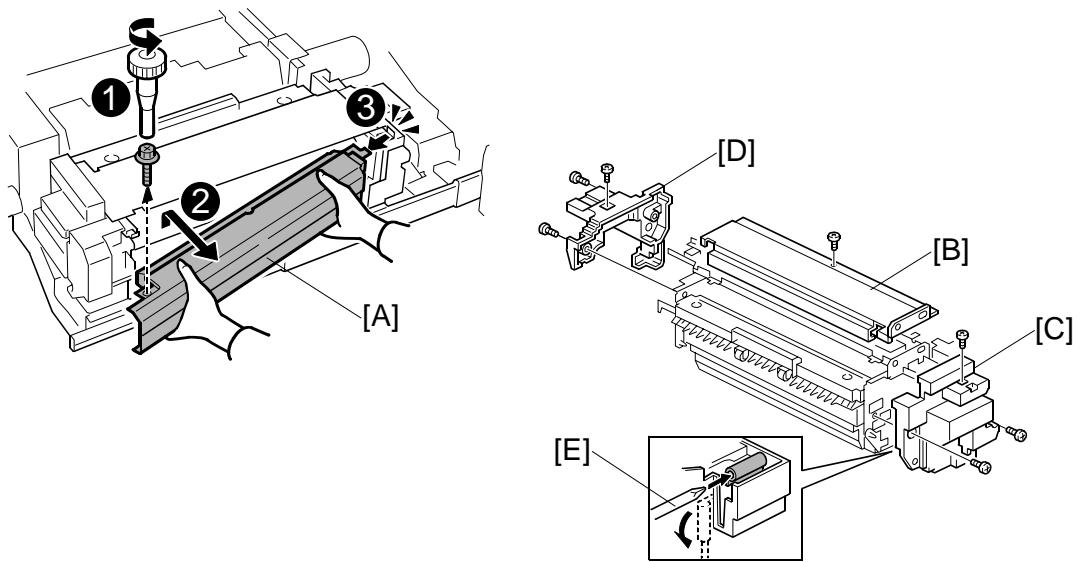
11. Make sure that the fusing entrance guide plate is installed without riding up on the pawls (x2) on the bottom of the plate.

12. If a new fabric is installed:

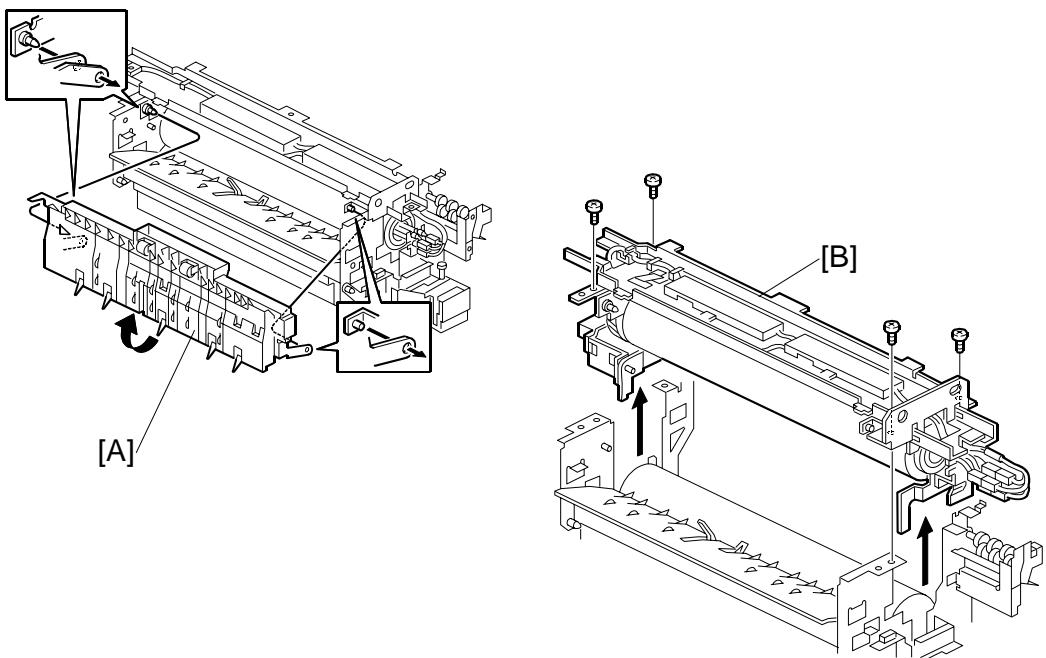
- Execute **SP1902 001** (Fabric Motor Control> Fabric Consumption), and set the value to 0. Switch the machine off/on after changing the setting.

Replacement
Adjustment

3.11.5 HOT ROLLER UNIT



1. Remove the fusing cleaning unit [A] (x1). (3.11.3)
2. Top cover [B] (x1).
Important: The top cover of the B234/B235/D101/D102 is Black, the cover of the B236/D103 is Yellow.
3. Front cover [C] (x3).
4. Rear upper cover [D] (x3).
5. Insert a screwdriver [E] and turn 90 down degrees in the direction of the arrow to release the nip between the hot roller and the pressure roller.

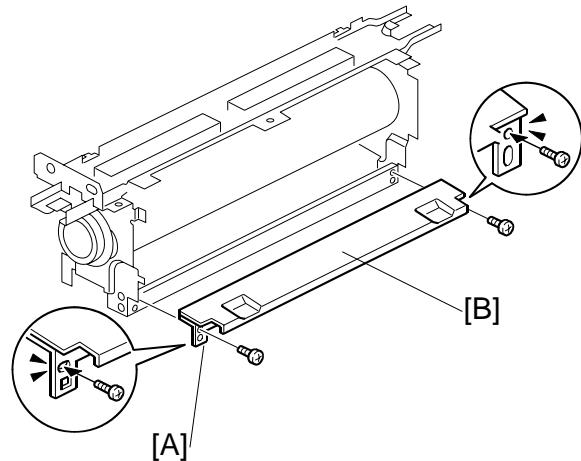


Replacement
Adjustment

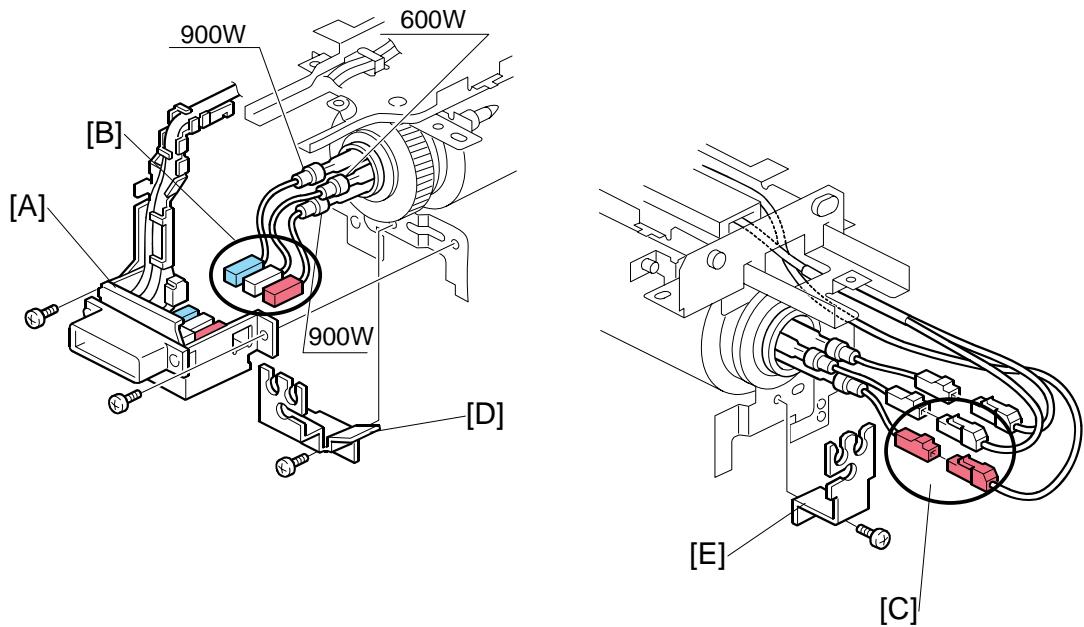
6. Turn the hot roller stripper unit [A] 160 degrees in the direction of the arrow, then slide it to the front and remove it.
7. Hot roller unit [B] ($\wedge \times 4$).

3.11.6 HOT ROLLER

Removing the Fusing Lamps



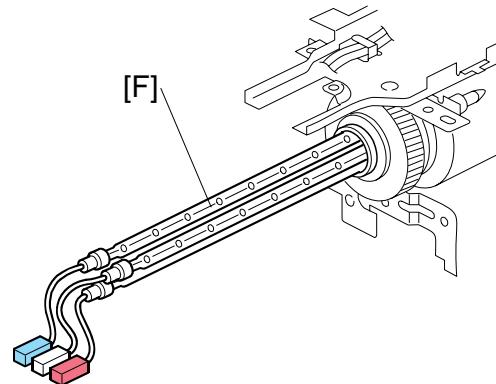
1. Hot roller unit (3.11.5)
2. Entrance plate [A] (\wedge x2).
3. Clean the front surface of the entrance guide plate with a dry cloth.

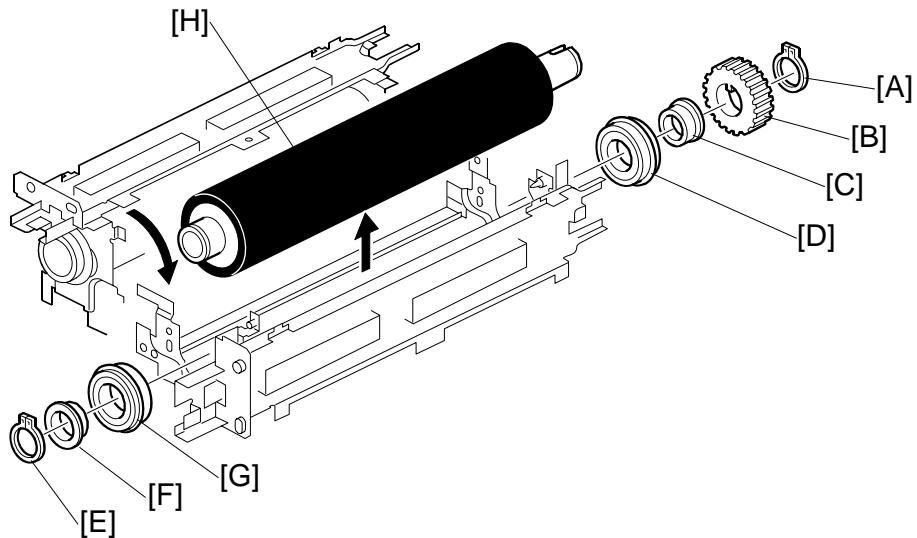


4. Harness terminal bracket [A]. (Phillips x2)
5. Disconnect the rear fusing lamp cables [B]. (x3)
6. Disconnect the front fusing lamp cables [C]. (x3)
7. Front lamp holder [D]. (Phillips x4)
8. Rear lamp holder [E]. (Phillips x1)
9. Fusing lamps [F], one at a time.

Important!:

- Do not touch the glass surfaces of the fusing lamps.
- Handle the lamps carefully to avoid breaking them.



Disassembling the Hot Roller

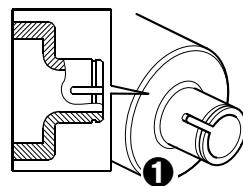
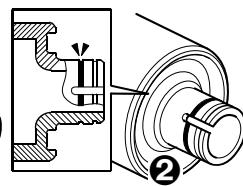
1. Position the hot roller as shown.
2. Remove:
 - [A] C-ring
 - [B] Gear
 - [C] Bushing
 - [D] Bearing
3. Remove:
 - [E] C-ring
 - [F] Bushing
 - [G] Bearing
4. Remove the hot roller [H].

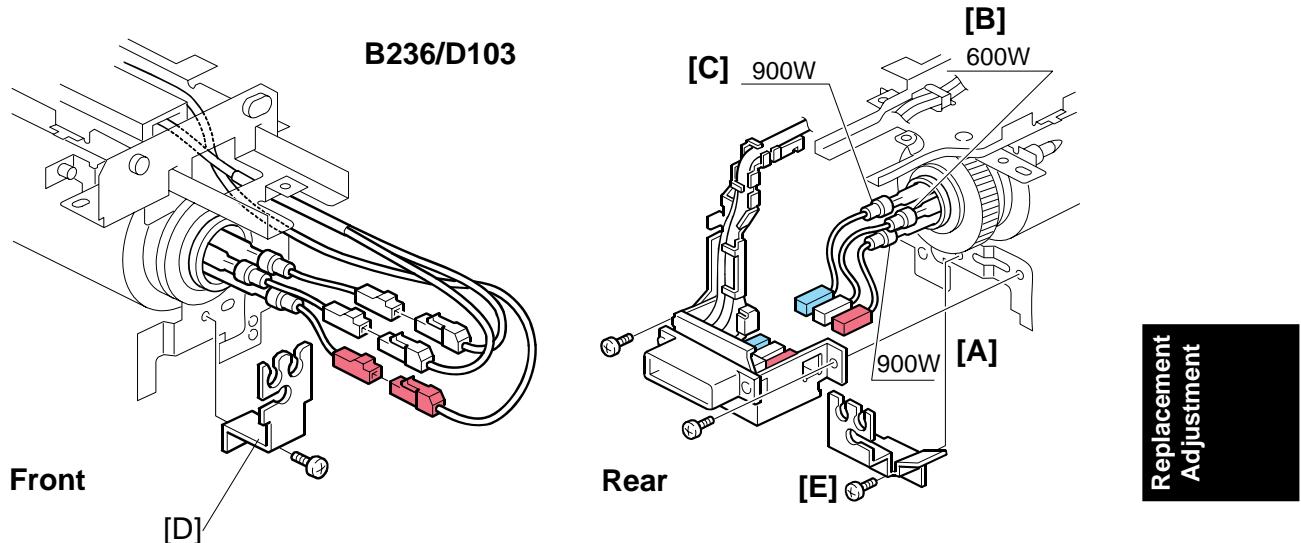
Reinstallation

When you install the new hot roller, make sure that you install the correct type.

- The shape of the end ① of the hot roller for the B234/B235/D101/D102 is different from the B236/D103 ②.

Lubricate the outer and inner surfaces of bushings [C] and [F] with Barrierta – JFE55/2.

B234/B235/D101/D102**B236/D103**

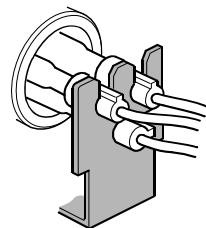
Re-installing the Fusing Lamps

1. Insert each fusing lamp [A], [B], [C] into the rear of the hot roller, then gently push the fusing lamps into the roller.
Important: Never touch the glass surface of a fusing lamp with bare fingers. Handle the lamps carefully to avoid breaking them.
2. Lay the tip of each fusing lamp into any round hole in the front holder [D] and fasten the holder (\wedge x1).
3. Insert the tip of each fusing lamp into a round hole in the rear holder [E] and fasten the holder (\wedge x1).
NOTE: Make sure the lamps are perfectly parallel inside the hot roller.
4. Attach the connectors. Refer to the table below.

Connection Table

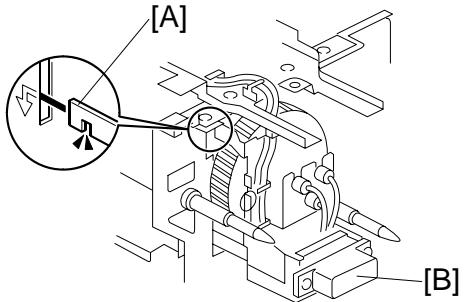
| B234/B235/D101/D102 | | B236/D103 | |
|---------------------|-------|-----------|--------|
| Front | Rear | Front | Rear |
| Red | Red | Red | Red |
| White | White | Yellow | Yellow |
| White | Blue | White | Blue |

5. Make sure the ends of the fusing lamps fit snugly into the holes in the bracket.



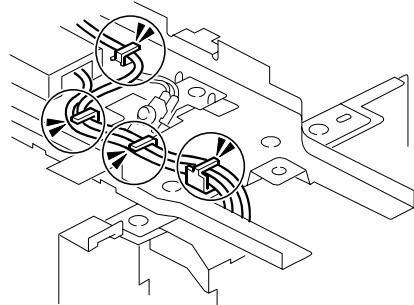
FUSING UNIT

6. Connect hooks [A] of the harness terminal brackets [B] to the slots in the frame at two points and fasten (\wedge x2).



Checklist

- End of each fusing lamp securely inserted into holders at each end?
- Connectors connected properly (refer to previous table)?
- Are all the connectors tightly fastened?
- Are the cables all secured properly by the 4 terminal bracket clamps as shown?



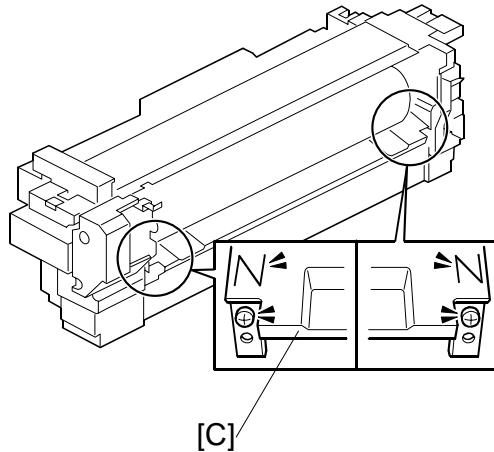
7. Attach the fusing entrance guide [C] (\wedge x2).

8. Clean the entire fusing unit with a blower brush. Rotate the hot roller gear while vacuuming.

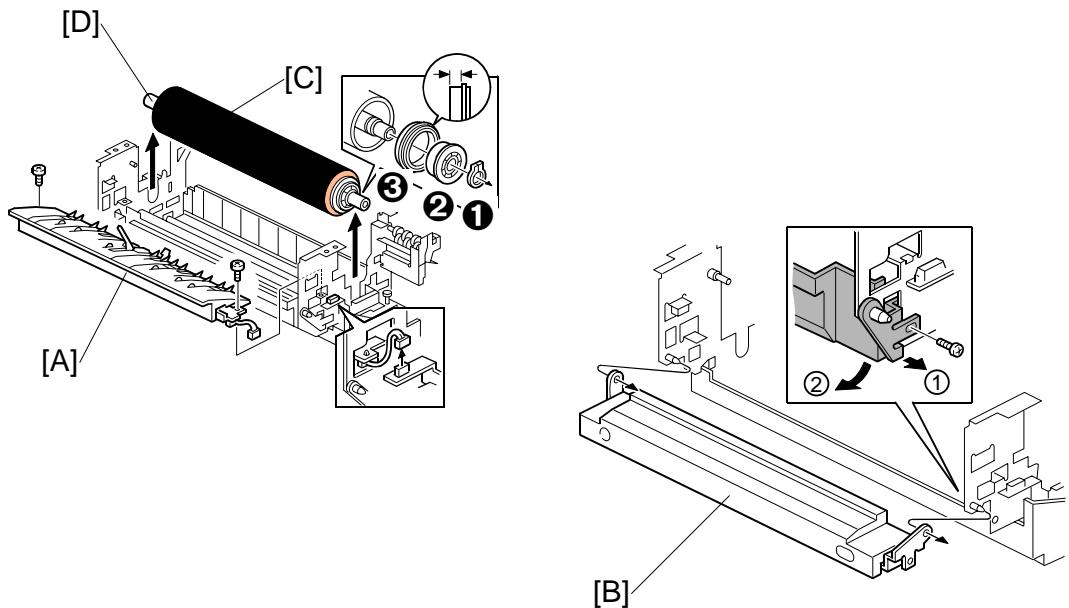
Checklist

- Is the surface of the hot roller clean and free of dirt, scratches, dust?
- Are the holes on the top of the fusing entrance guide plate free?

9. If you change the entrance guide, check for a stamp on both ends of the entrance guide, to make sure that you install the correct type of entrance guide:
 - N: North America
 - No stamp: EU/AA



3.11.7 PRESSURE ROLLER

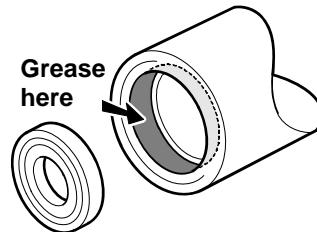


Replacement
Adjustment

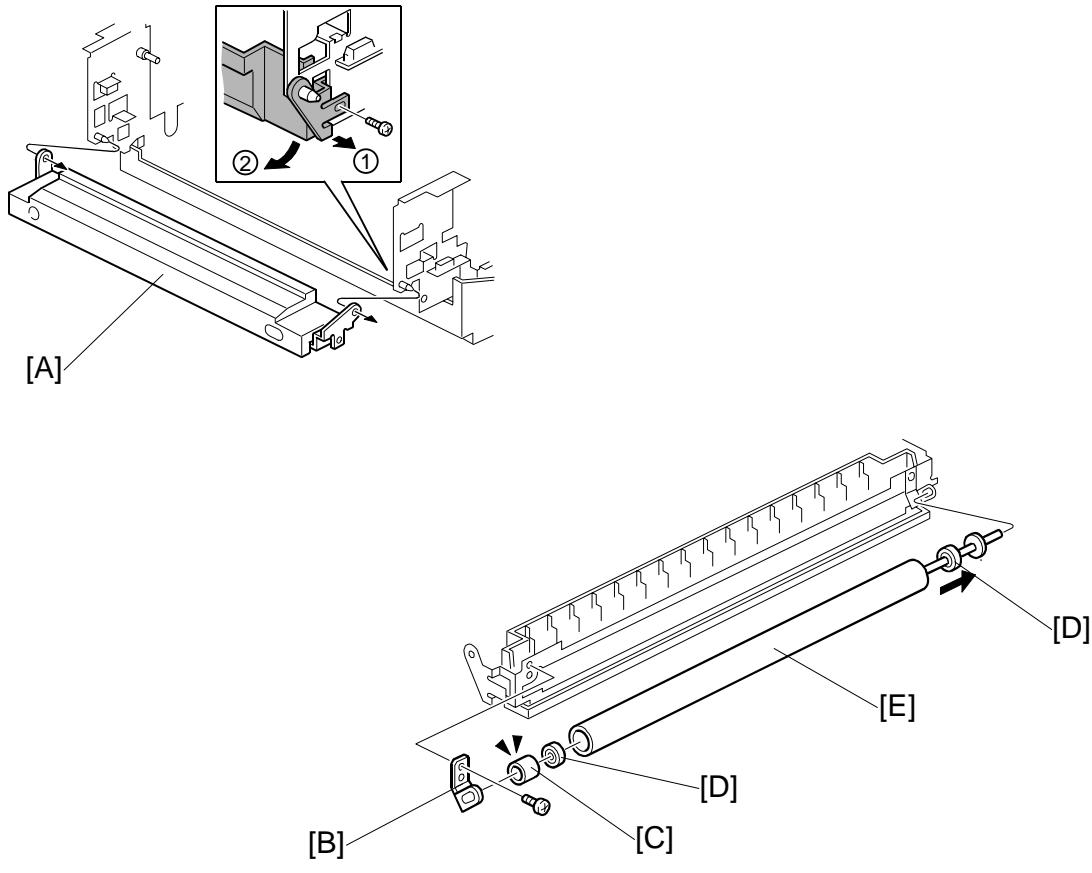
1. Hot roller unit (3.11.5)
2. Pressure roller stripper unit [A] (x1, x2)
3. Pressure roller cleaning unit [B] (x1).
4. Pressure roller [C].
5. On both ends of the pressure roller remove:
 - ① C-rings (1 front/back)
 - ② Bearings (1 front/back)
 - ③ Bushings (1 front/back)

Reinstallation

Lubricate the inner surface at both ends of the pressure roller with Barrierta – JFE55/2.

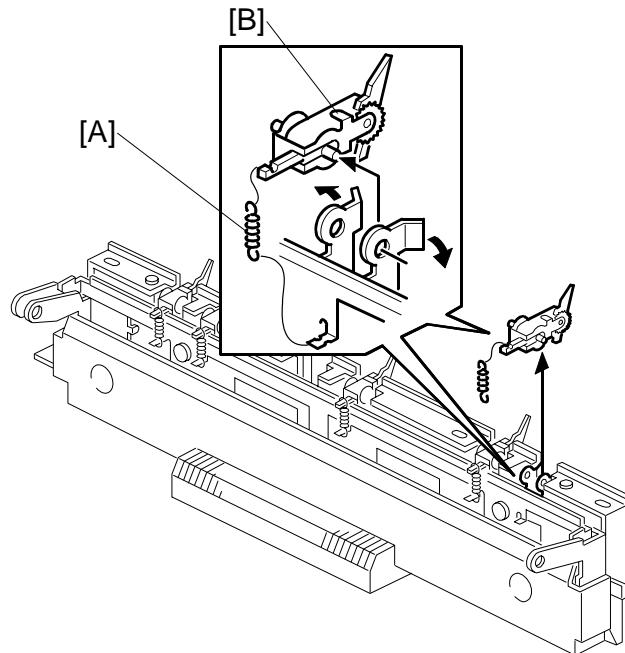


3.11.8 CLEANING ROLLER: PRESSURE ROLLER



1. Pressure roller cleaning unit [A] (x1). (3.11.4)
2. Remove:
 - [B] Plate (x1)
 - [C] Bushing x1
 - [D] Bearings (x2)
 - [E] Cleaning roller
3. Clean the cleaning roller with a clean cloth.

3.11.9 HOT ROLLER STRIPPERS



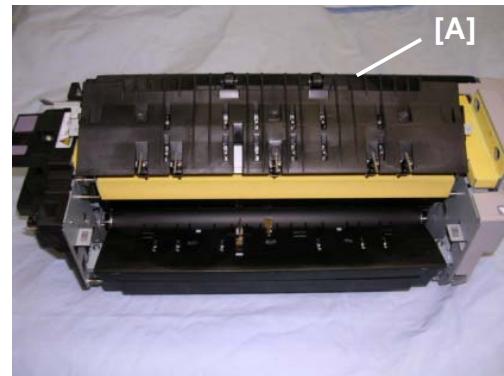
Replacement
Adjustment

- Hot roller stripper unit (3.11.4)
 1. Spring [A].
 2. Spread the left and right sides of the holder as shown, then remove the hot roller stripper [B].
 3. Follow the same procedure to remove the stripper pawls at four other locations.

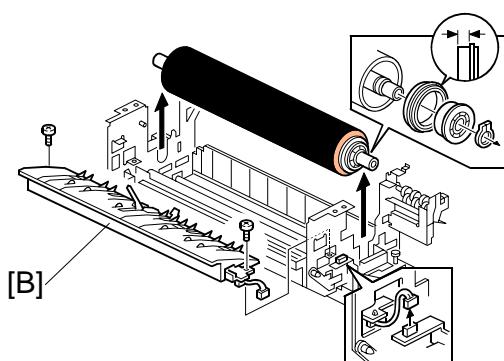
3.11.10 PRESSURE ROLLER STRIPPER

- Fusing unit (3.11.1)
- Front cover (3.11.3)

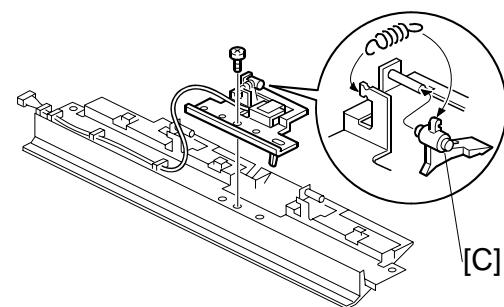
1. Raise the hot roller stripper unit [A].



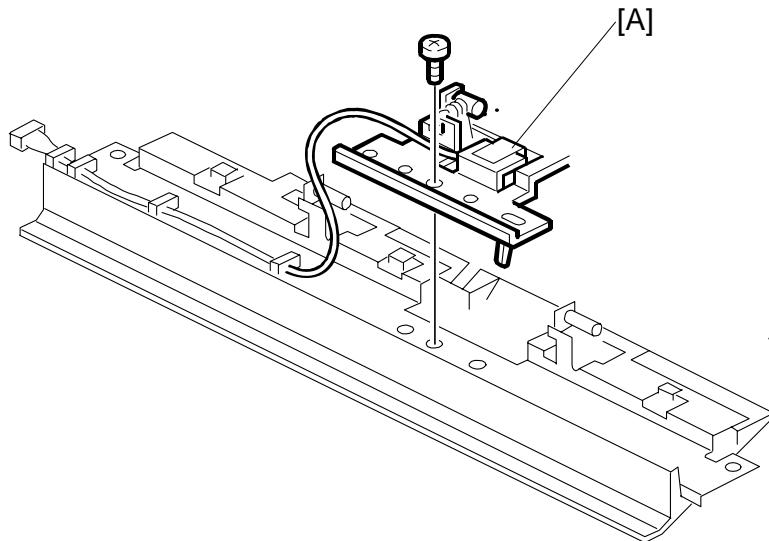
2. Pressure roller stripper unit [B]
(x2, x1).



3. Pressure roller stripper [C]
(x1, Spring x1).



3.11.11 FUSING EXIT SENSOR



Replacement
Adjustment

- Pressure roller stripper unit (3.11.10)
 1. Remove the fusing exit sensor [A] (x1, x1, x4)

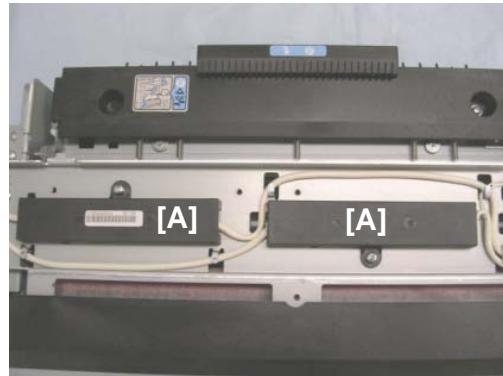
FUSING UNIT

3.11.12 FUSING UNIT THERMOSTATS, THERMISTOR

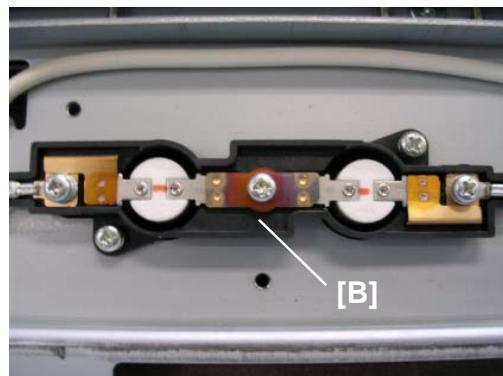
- Fusing unit (3.11.1)
- Fusing unit front cover, rear cover (3.11.3)

Remove:

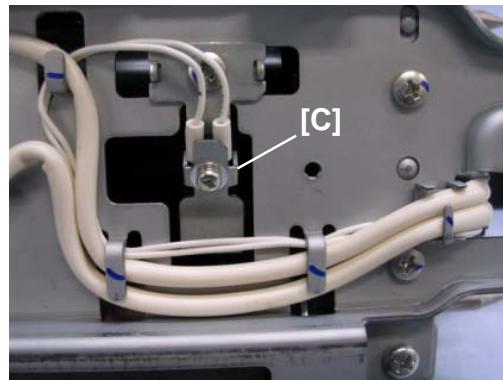
1. Remove thermostat covers [A] (\wedge x1 ea.)



2. Remove thermostat unit [B] (\wedge x3).

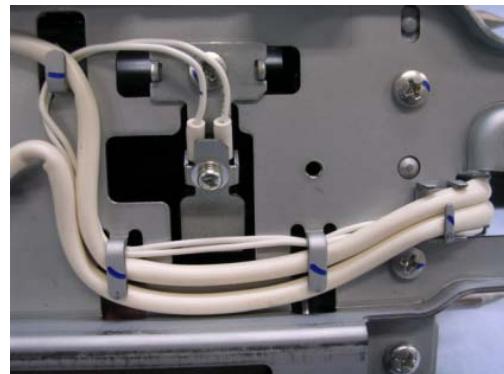
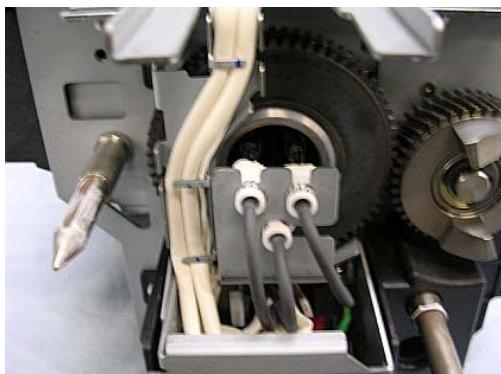


3. Remove thermistor [C] (\wedge x1, \square x1).



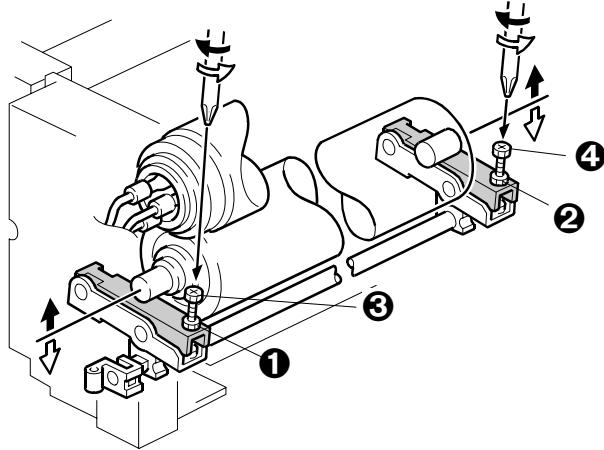
Reinstallation

Make sure the harnesses are positioned as shown below.



Replacement
Adjustment

3.11.13 FUSING PRESSURE ADJUSTMENT



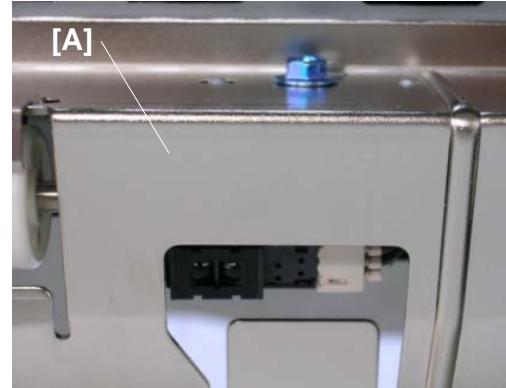
NOTE: The nip width 11.5 ± 0.5 mm (the difference between front and rear measurements should be less than 0.5 mm).

1. Execute **SP1109** (Fusing Check) to enter the fusing nip band check mode.
2. Make a copy using an A4/LT OHP sheet. Copying will start. It will stop in the fusing unit for 30 seconds and then will exit.
NOTE: If an OHP sheet is not available, use a solid black copy on plain paper (make the copy with the ADF open – the copy will be all black).
3. Measure the nip band width (the shiny band) at both ends.
4. If the nip band width is not within specifications at both ends:
 - Loosen the lock nuts ①, ②
 - Turn screws ③, ④ to adjust pressure (clockwise increases the pressure, counterclockwise decreases the pressure).
 - Re-tighten the nuts ①, ② after adjusting.
5. Repeat steps 1 to 4 to check the nip band width.

Important! After doing this procedure, switch off **SP1109**. If this SP remains on, this will cause paper to jam in the fusing unit (SC559).

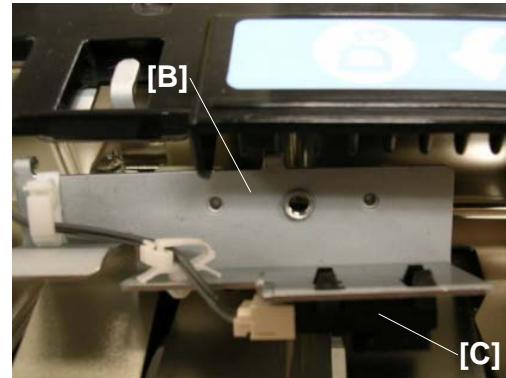
3.11.14 JOB TIME SENSOR

1. Pull out the fusing unit drawer. (3.11.1)
2. Raise the upper guide plate [A].



Replacement
Adjustment

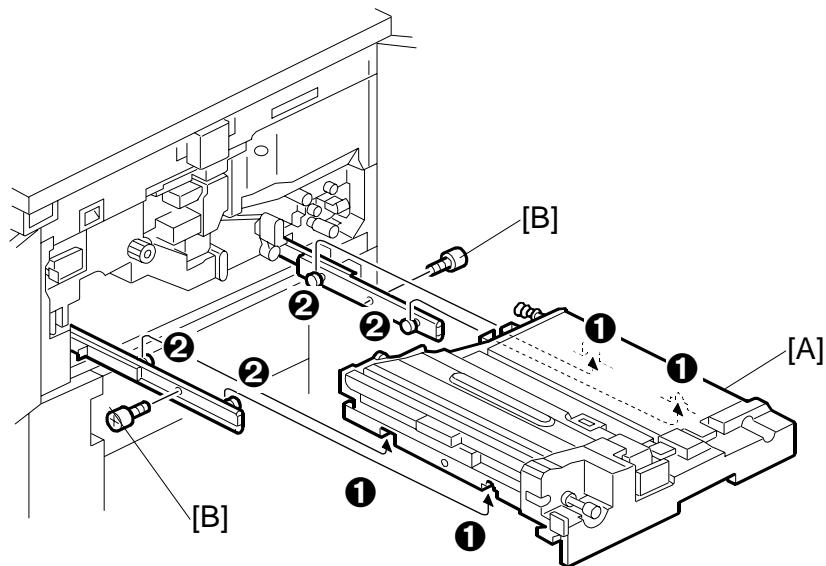
3. Job time sensor bracket [B] (x1)
4. Job time sensor [C] (x1, x1)



DUPLEX UNIT

3.12 DUPLEX UNIT

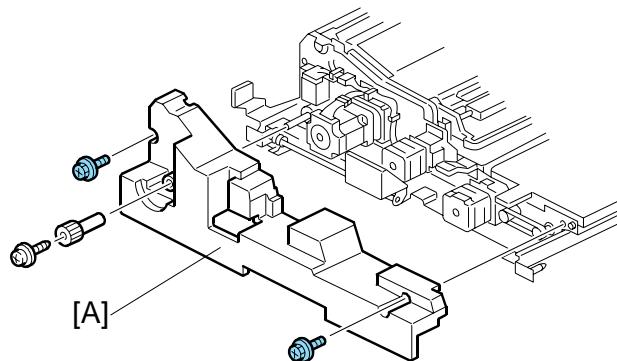
3.12.1 DUPLEX UNIT



1. Open the left and right front doors and pull out the duplex unit [A].
2. Remove the shoulder screws [B] ($\frac{1}{4} \times 2$).
3. Lift up the duplex unit.

NOTE: When re-installing the duplex unit, align the cutouts ① with projections ② on the slide rail.

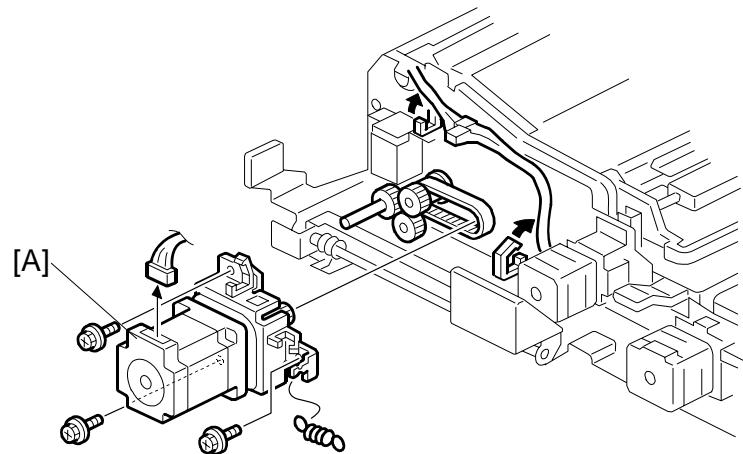
3.12.2 DUPLEX UNIT INNER COVER



Replacement
Adjustment

1. Open both front doors.
2. Pull out the duplex unit.
3. Duplex unit inner cover [A] (\wedge x 3, Knob x 1).

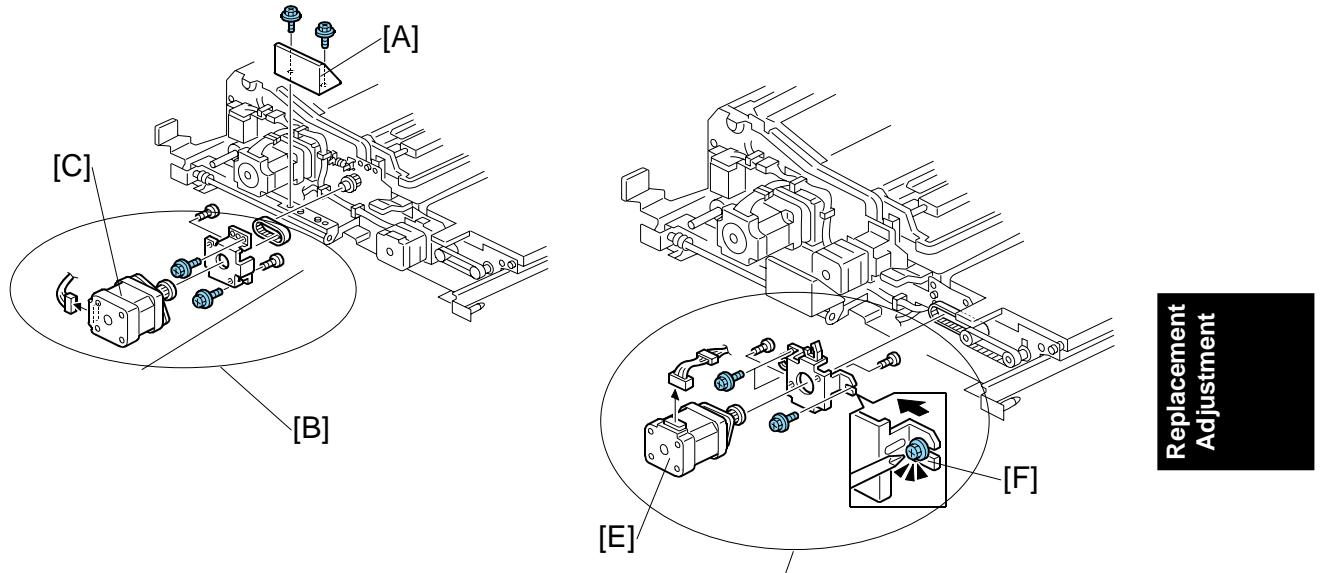
3.12.3 DUPLEX INVERTER MOTOR



Remove:

- Duplex inner cover. (3.12.2)
- [P]: Duplex inverter motor (x3, x4, x2, Spring x1)

3.12.4 DUPLEX SWITCHBACK AND TRANSPORT MOTORS



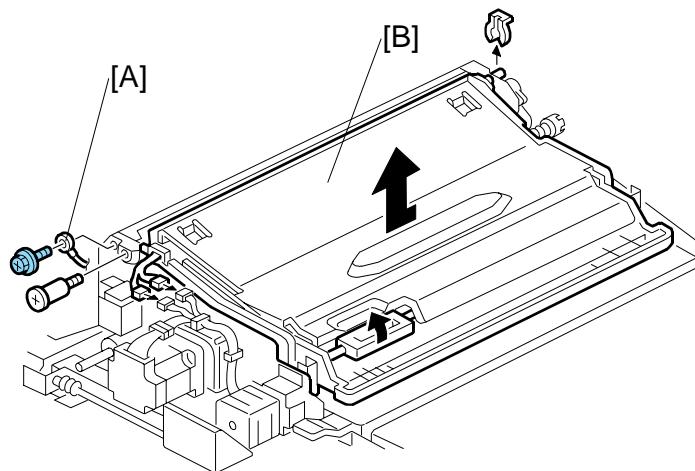
Remove:

- Duplex inner cover. (3.12.2)
- 1. Duplex grip handle [A] (x2)
- 2. Switchback motor unit [B] (x3, x1, Timing belt x1)
- 3. Switchback motor [C] (x2)
- 4. Duplex transport motor unit [D] (x3, x1, Timing belt x1, x2)
- 5. Duplex transport motor [E] (x2)

Re-assembly

- Push the duplex transport motor bracket [F] slightly to the left to put some tension on the timing belt, then tighten the screw.

3.12.5 DUPLEX ENTRANCE GUIDE UNIT



- Duplex inner cover. (3.12.2)
- [Q]: Ground (earth) wire (x1)
- [R]: Duplex entrance guide unit (x1, x1, x2, x2)

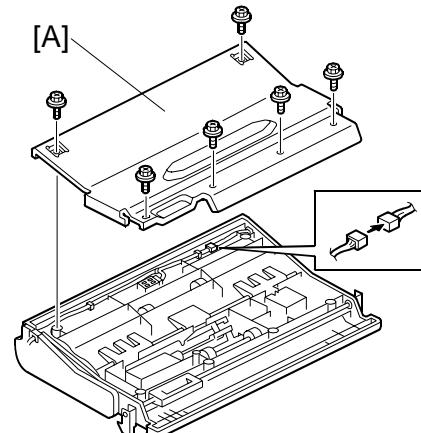
3.12.6 DUPLEX ENTRANCE SENSOR, INVERTER SENSOR

Remove:

- Duplex entrance guide unit (3.12.5)

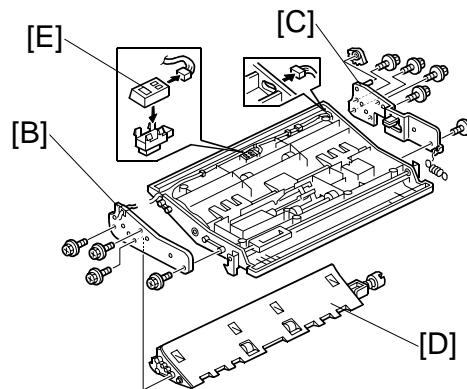
Remove:

- [S]: Cover (x6)

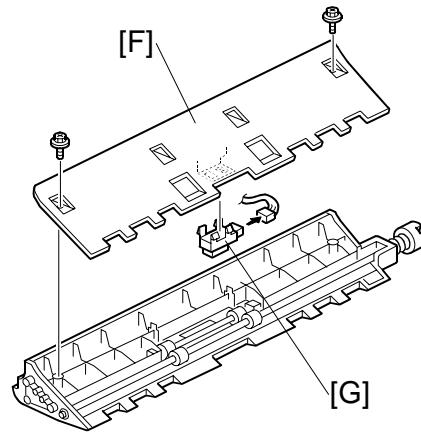


Replacement
Adjustment

- [T]: Front side plate (x4, x1)
- [U]: Rear side plate (x5, Spring x1)
- [V]: Lower entrance guide (x1)
- [W]: Duplex entrance sensor (x1, x1)

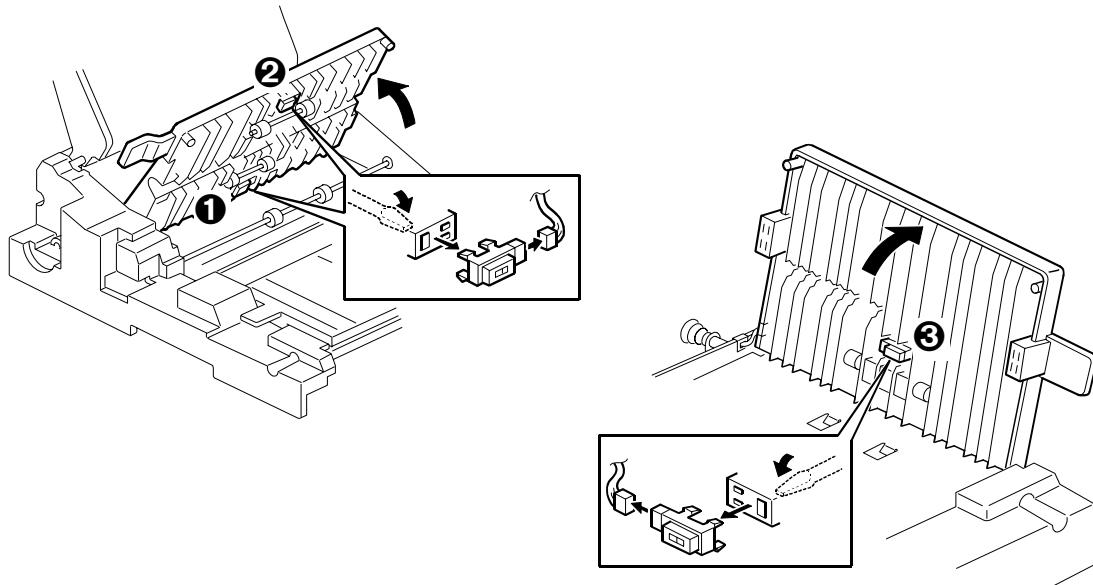


- [X]: Lower entrance guide cover (x2)
- [Y]: Inverter sensor (x1)



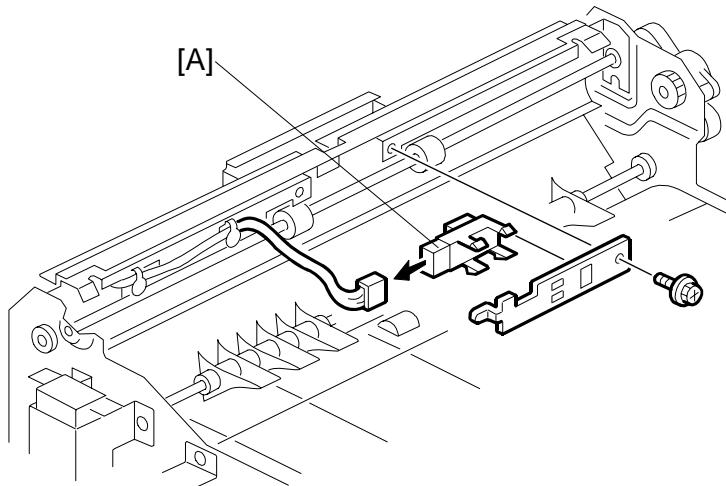
DUPLEX UNIT

3.12.7 DUPLEX TRANSPORT SENSORS 1, 2, 3



1. Open both front doors.
2. Pull out the duplex unit.
3. Remove:
 - ① Duplex transport sensor 1 (☒ x1)
 - ② Duplex transport sensor 2 (☒ x1)
 - ③ Duplex transport sensor 3 (☒ x1)

3.12.8 INVERTER RELAY SENSOR



Replacement
Adjustment

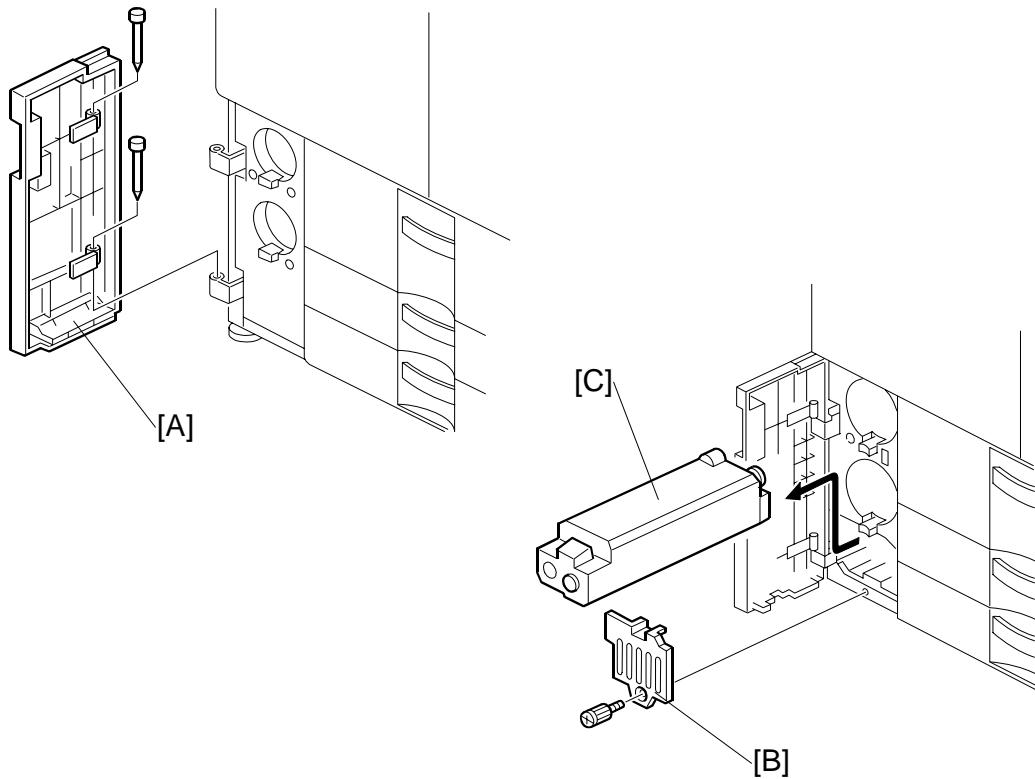
Remove:

- Duplex entrance guide unit (3.12.5)
- [Z]: Relay sensor (x1, x1)

TONER BANK

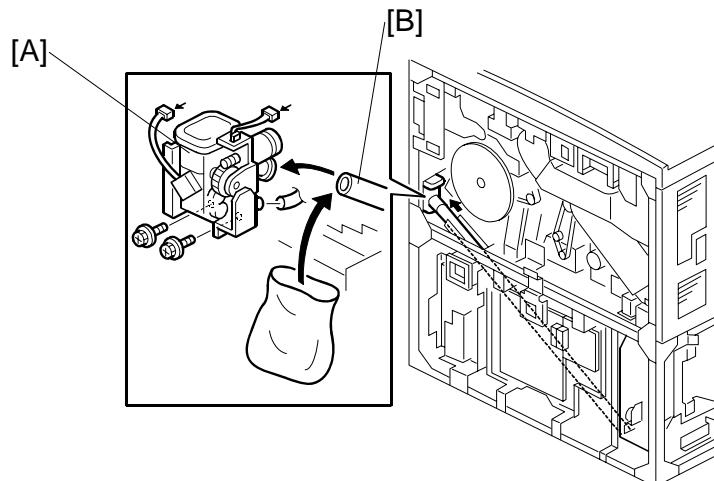
3.13 TONER BANK

3.13.1 TONER COLLECTION BOTTLE



1. Toner bank door [A] (pins x 2).
2. Waste toner bottle cover [B] ($\frac{1}{4}$ x Knob 1).
3. Toner collection bottle [C].

3.13.2 TONER BANK UNIT



Replacement
Adjustment

NOTE: Work carefully to avoid spilling toner during removal.

1. Execute **SP5804 041** (upper bottle) and **042** (lower bottle) to close the caps..
2. Turn off the operation switch on the operation panel.
NOTE: You will not be able to remove the toner bottles if you switch off the main power switch on the front of the machine.
3. Remove the toner bottles from the bank.
4. Remove the rear cover (3.3.6).
5. Open the controller box (x 3). (3.3.7)
6. Open the PSU box (x 2). (3.3.8)
7. Left lower cover, right upper cover (3.3.5, 3.3.4).
8. Remove the toner supply cylinder [A]. (x 2, tubes x 2)
NOTE: Work carefully to avoid spilling toner.
9. Cover the end of the toner transport coil tube [B] with a plastic bag.

Important

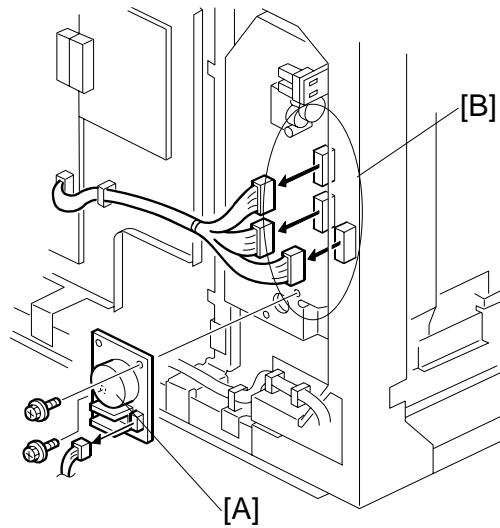
- To avoid toner spillage, hold the end of the disconnected tube up.
- Do not bend the toner transport coil tube [B].
- If it is bent, this could overload, lock, or damage the coil.
- **SC592** (Toner Bank Motor Error) will be displayed, and the coil (screw) inside should be replaced.

10. Turn on the operation switch and execute **SP5804 038** and **039** to discharge toner from the toner bank.
11. Turn off the main switch and unplug the power cord.

TONER BANK

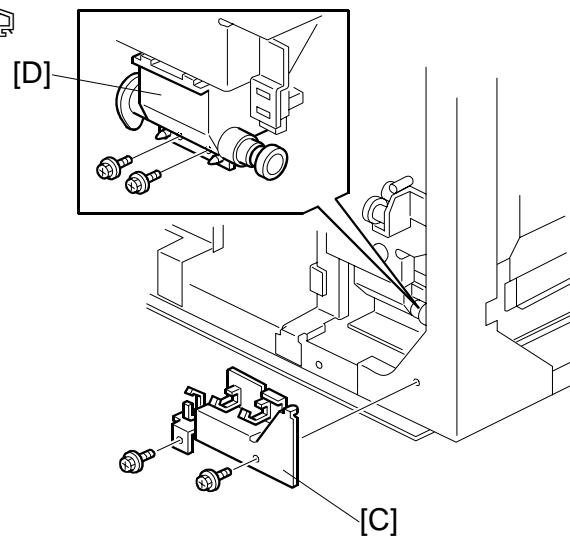
12. Toner bank motor [A] (x 2, x 1)

13. Connectors [B] (x 2, x 3).



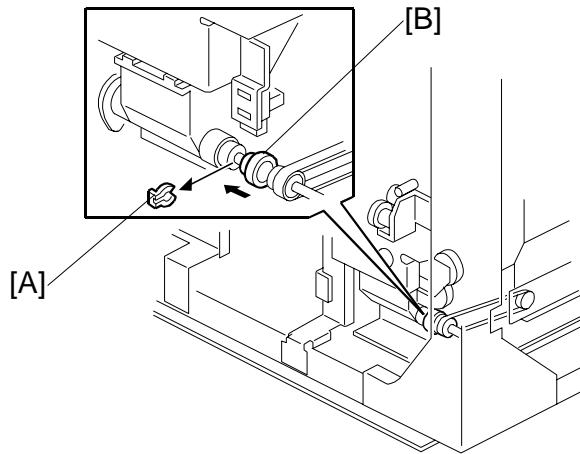
14. Harness clamp bracket [C] (x 2, x 3).

15. Toner transport coil casing [D].



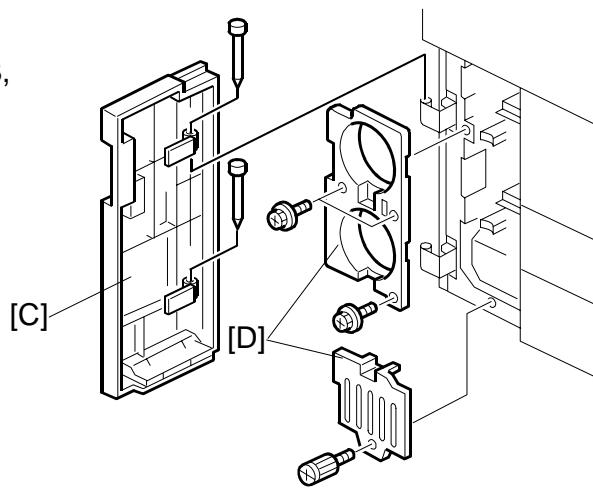
TONER BANK

16. Snap ring [A]
17. Slide coupling [B] to the left.

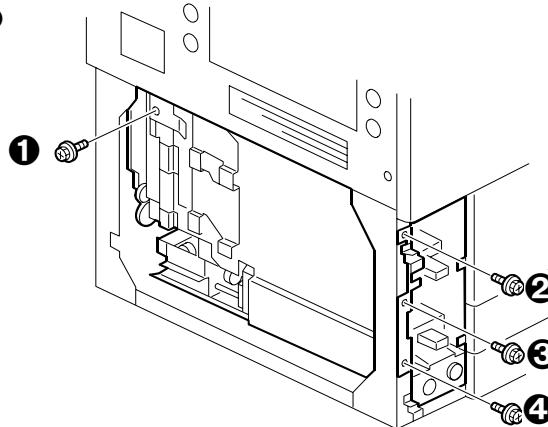


Replacement
Adjustment

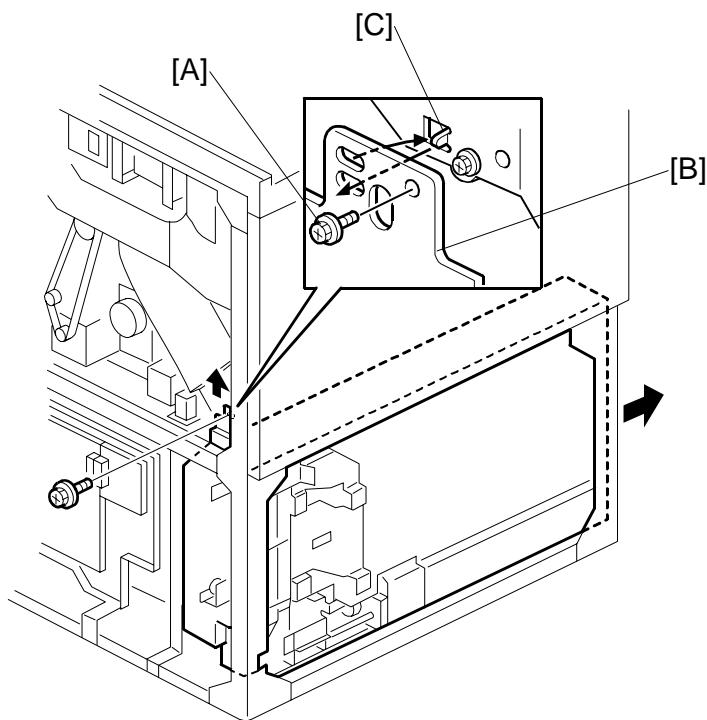
18. Toner bank door [C] (pins x 2).
19. Toner bank inner covers [D] (x 3,
Knob screw x1).



20. Remove screw ① and screws ②, ③, ④ that secure the toner bank unit [E].



TONER BANK



21. Screw [A] securing the toner recycling and collection casing [B].
22. Lift the toner recycling and collection casing [B], pull out the pin [C] from the hole under the case, then pull out the toner bank unit.

Important

- When pulling out the toner bank unit, toner may leak out of the junction between the tube and toner bank.
- Place a cloth on the machine bottom plate so that the plate does not become dirty.
- Set the toner bank unit on a sheet of paper or cloth.

After Re-installing the Toner Bank Unit

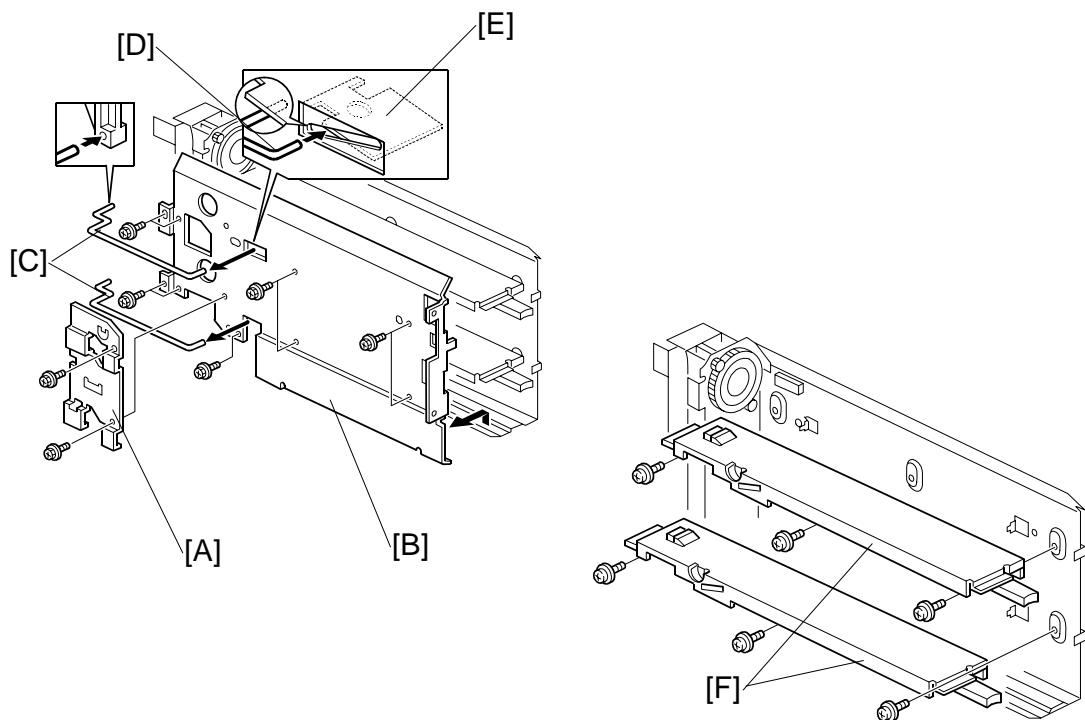
4. Remove the plastic bag from the toner transport coil tube. Re-connect the toner supply cylinder to the toner transport coil tube (☞ x 2, tubes x 3).
5. Turn the main power switch on.
6. Load the toner bottles into the toner bank.
4. Start to supply toner from the toner bank to the toner hopper:
 - 3) Select **SP2207 002** (Toner Bank Toner Setup).
 - 4) Press "Execute" on the LCD.

This procedure supplies toner to the toner hopper and the toner transport path. It will stop automatically in about 6 minutes. If **SP2207 002** fails after **SP2801** is completed (an SC code is displayed), repeat only **SP2207 002**.

Replacement
Adjustment

TONER BANK

3.13.3 ACCESS TO INSIDE THE TONER BANK



NOTE: The toner bottle sensors and toner collection bottle sensor are inside the toner bank.

1. Toner bank. (3.13.2)
2. Toner release link bracket [A] ($\text{ } \times 2$).
3. Left side plate [B], disconnect two links ($\text{ } \times 8$ M4x8, $\text{ } \times 2$ M3x6, $\text{ } \times 1$, $\text{ } \times 1$)
NOTE: When re-attaching the links [C], place the front pin [D] under the lock plate [E].
4. Toner bottle bottom plates [F] ($\text{ } \times 3$ each).

3.14 BOARDS

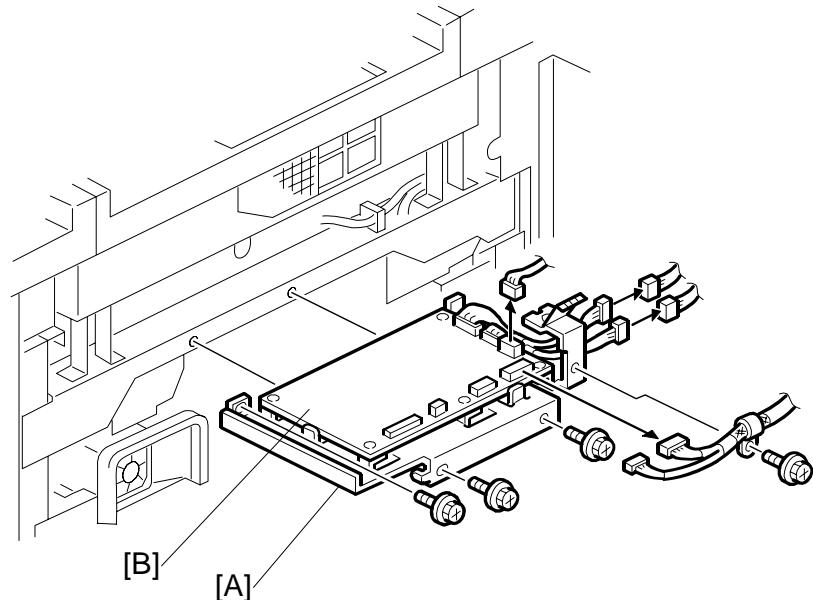
3.14.1 MCU



Replacement
Adjustment

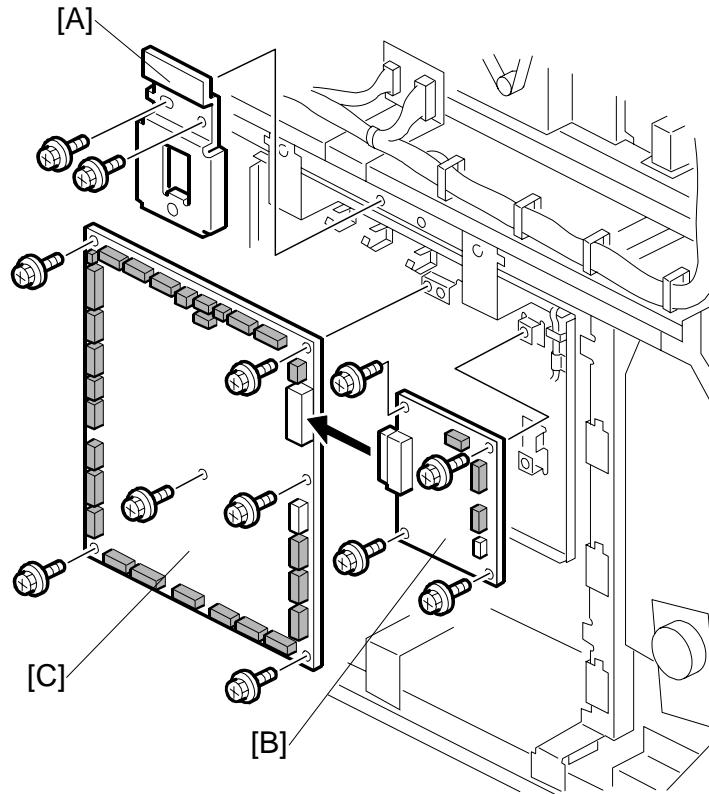
- Exposure glass (3.5.1)
 - Top cover (3.5.8)
 - Remove the MCU cover
- [A] MCU board (x3, x7)

3.14.2 OPU



- Upper right cover (3.3.4)
- [A] OPU unit (x4, x5)
- [B] OPU (x5)

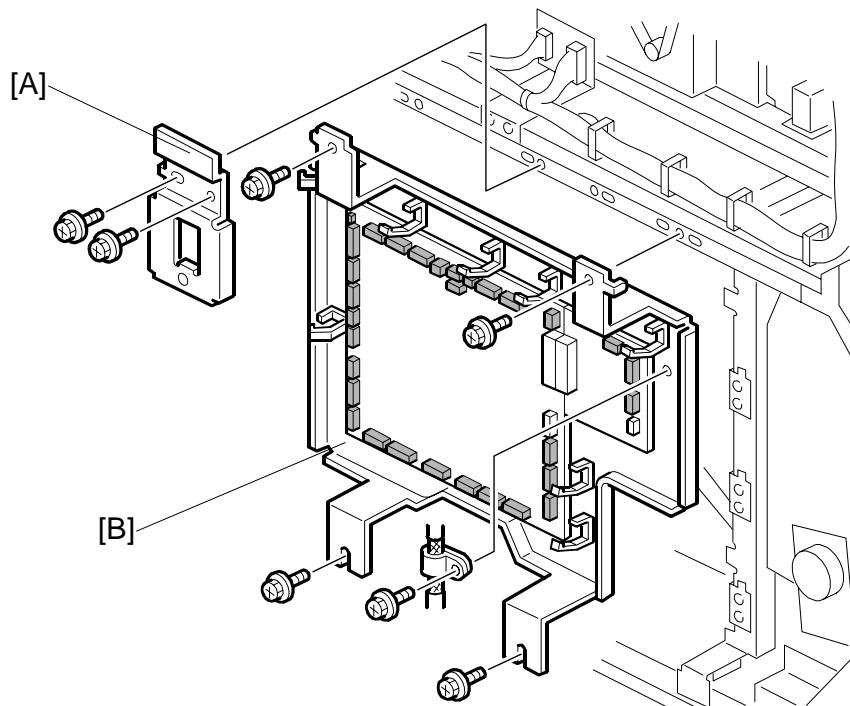
3.14.3 BCU-IOB



Replacement
Adjustment

1. Open:
 - Controller box (☒ x3) (3.3.7)
 - PSU box (☒ x2) (3.3.8)
2. Remove:
 - Rear cover (☒ x4)
 - [AA]:PSU box positioning plate (☒ x2)
 - [BB]:BCU (☒ x3, ☒ x4)
 - [CC]: IOB (☒ x28, ☒ x6)

NOTE: The IOB screws must also be removed in order to remove only the BCU. However, it is not necessary to disconnect the IOB harnesses.

3.14.4 BCU-IOB UNIT

1. Open:
 - Controller box (x3) (3.3.7)
 - PSU box (x2) (3.3.8)
2. Rear cover. (3.3.6)
3. PSU box positioning plate [A] (x2).
4. BCU-IOB unit [B] (x5, x31).

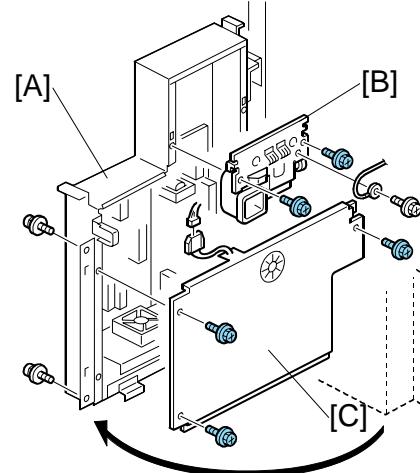
3.14.5 PSU-E (ENGINE): A, B

CAUTION

- Before replacing any part of the PSU (especially PSU Ea, PSU Eb), switch the machine off, disconnect it from the power source, and allow the machine to stand at least 10 minutes before you open the PSU box.
- Letting the machine stand for 10 minutes allows residual charges to dissipate from the large capacity electrolytic condensers on PSU Ea, Eb.

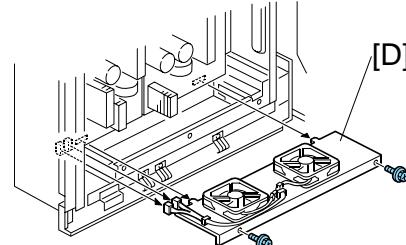
1. Open the PSU box [A] (x 2). (3.3.8)

2. Remove
 [B] Duct, ground wire (x3)
 [C] PSU cover (x3, x1)

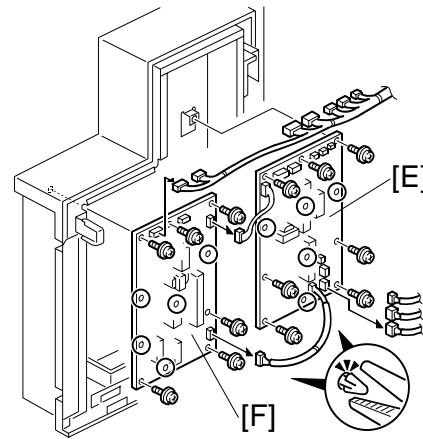


Replacement
Adjustment

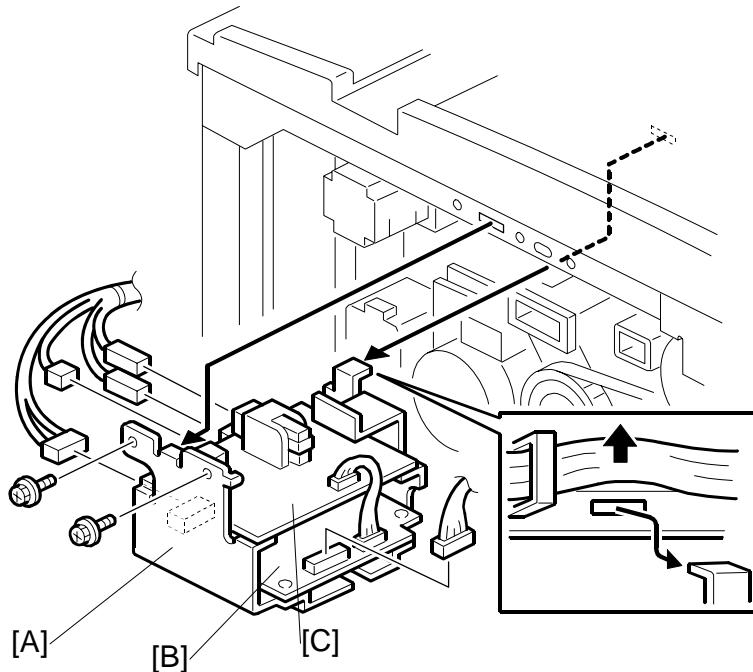
[D] Fan motor unit (x3, x2)



[E] PSU-Ea (x7, x10, Standoffs x5)
 [F] PSU-Eb (x6, Standoffs x4, x2)

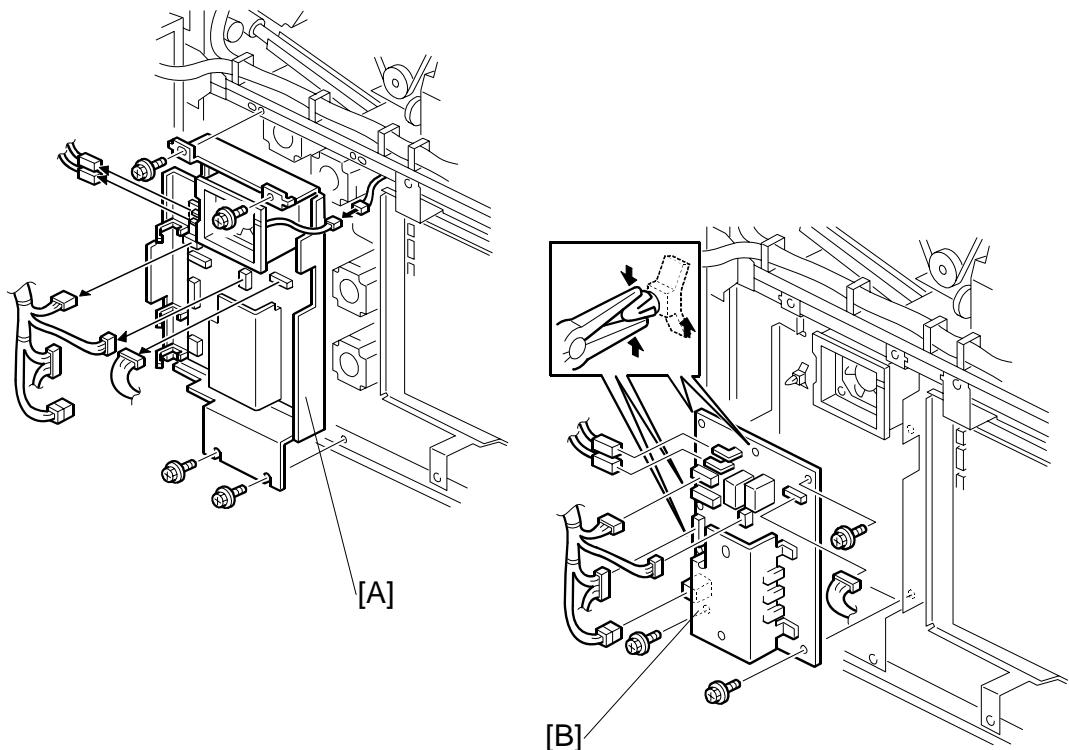


3.14.6 PPG, CGB POWER PACKS



1. Remove the rear upper cover ($\wedge \times 4$). (3.1.4)
2. Power pack unit [A] ($\wedge \times 2$, $\square \times 5$).
3. CBG power pack [B] ($\wedge \times 4$, $\square \times 1$).
4. PPG power pack [C] ($\wedge \times 4$, $\square \times 1$).

3.14.7 AC DRIVE BOARD

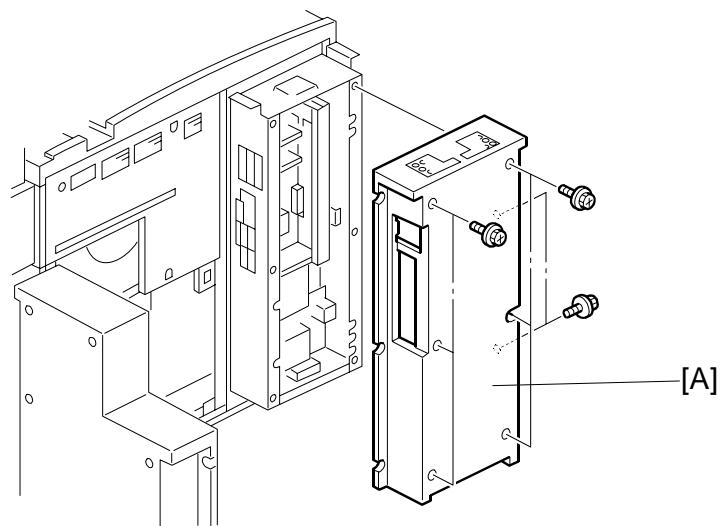


Replacement
Adjustment

1. Open the PSU box (\wedge x 2). (3.3.8)
2. AC drive board unit [A] (\square x7, \wedge x4)
3. AC drive board [B] (\wedge x3, Standoffs x4)

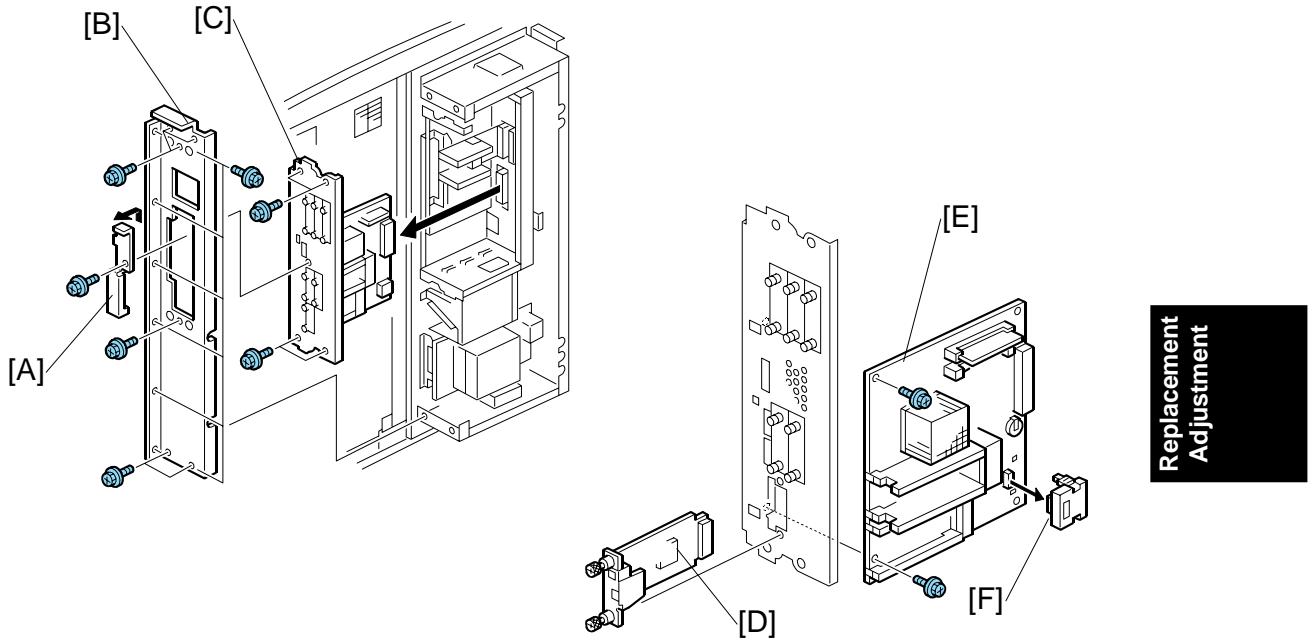
3.15 CONTROLLER BOARDS, HDD

3.15.1 CONTROLLER BOX COVER



1. Remove the controller box cover [A] (x8)

3.15.2 CONTROLLER BOARD, NVRAM



1. Controller box cover. (3.15.1)
2. Open the controller box (x 2). (3.3.8)

3. Remove

- [DD]: Slot cover (x 1)
- [EE]: Left bracket (x 12)
- [FF]: Controller board unit (x 4)

NOTE: When re-installing, make sure that board is between the ground plates.

[GG]: NIB (x 4)

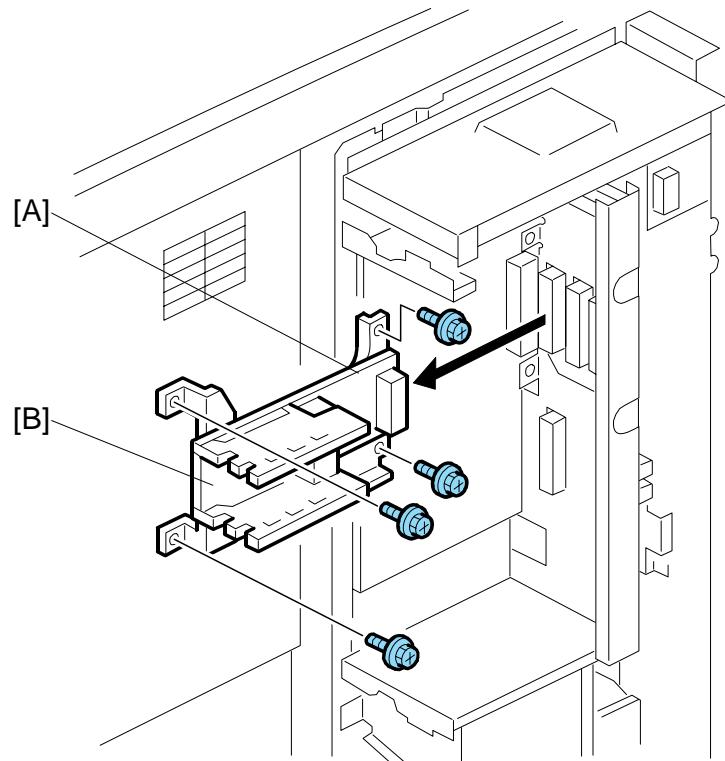
[HH]: Controller board (x 2)

[II]: NVRAM.

NOTE: When installing a new controller board, be sure to remove the NVRAM from the old board and attach it to the new board.

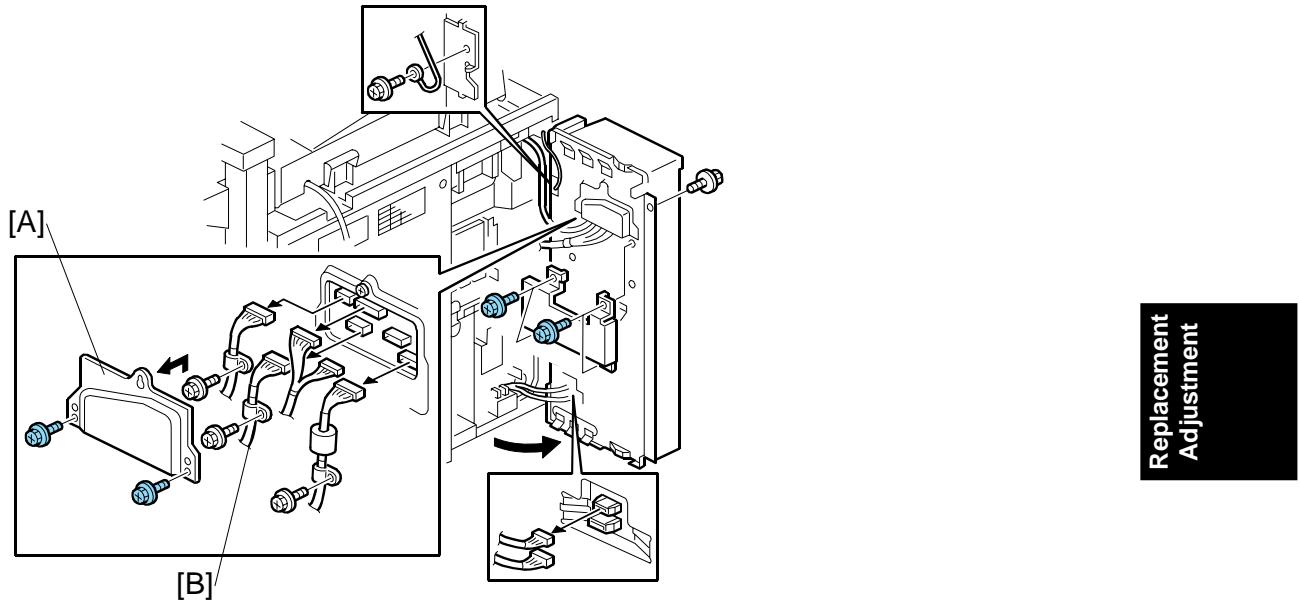
NOTE: If you replace the NVRAM, the Data Overwrite Security Unit will not work. The user must buy a new one.

3.15.3 INTERFACE BOARD



1. Controller board unit (3.15.2)
2. Interface board unit [A] (x 4)
3. Interface board [B] (x 4)

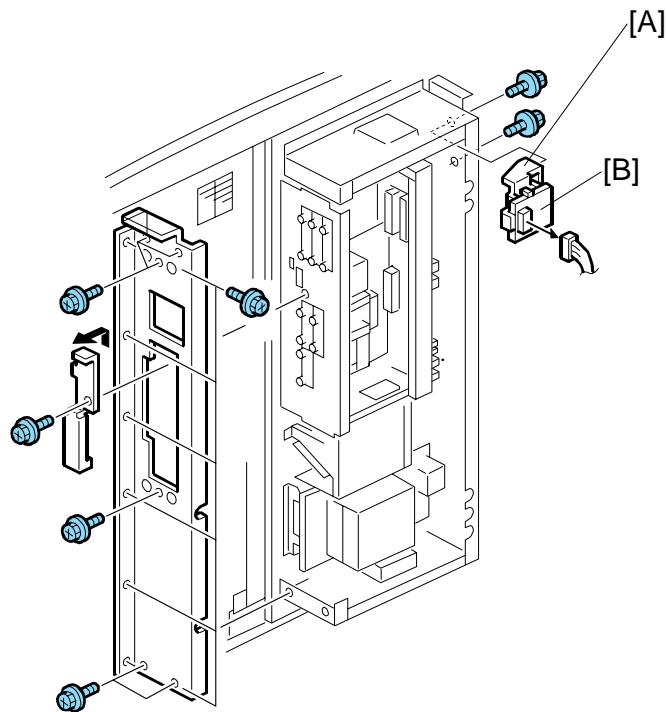
3.15.4 IPU



1. Open the controller box ($\wedge \times 3$). (3.3.7)
2. Remove:
 - Controller box cover (3.15.1)
 - Controller board unit (3.15.2)
 - Interface board unit (3.15.3)
3. Remove connector cover [A] ($\wedge \times 2$).
4. Behind the IPU board, disconnect the connectors [B] ($\square \times 7$).
5. Remove the IPU [C] ($\wedge \times 5$).

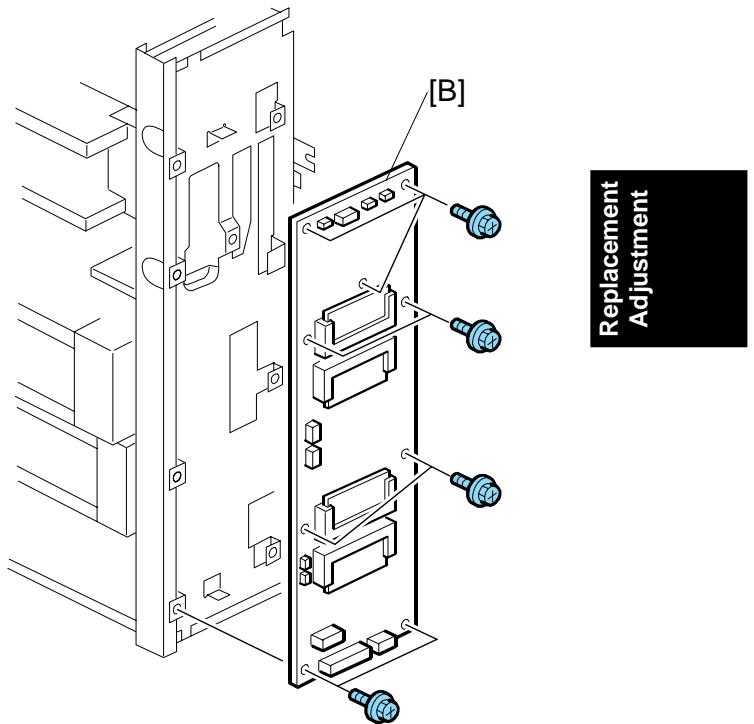


3.15.5 SD CARD UNIT



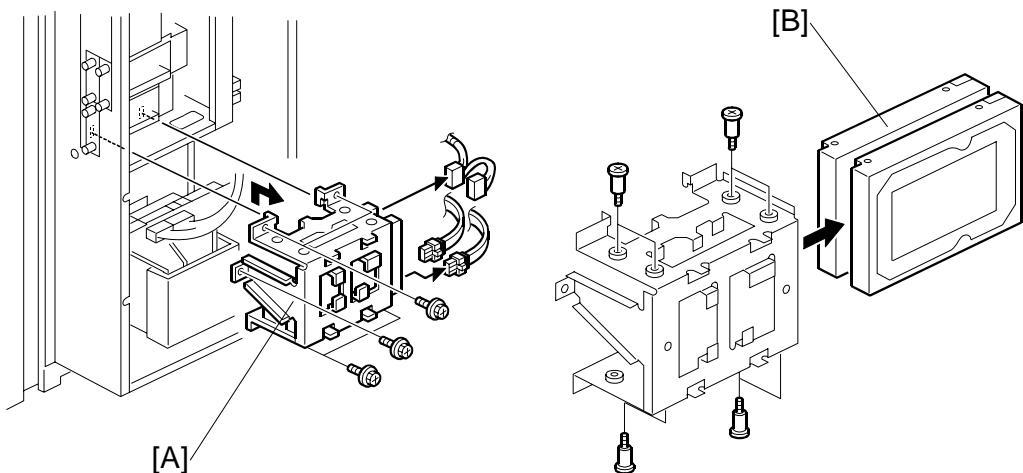
1. Remove the controller box cover. (3.15.1)
2. Remove SD card bracket with SD card board [A] (\wedge x2, \square x1)
3. SD card board [B] (\wedge x4)

3.15.6 MB (MOTHER BOARD)



1. Remove:
 - Controller box cover. (3.15.1)
 - SD card board. (3.15.5)
2. Remove the mother board cover [A]
 - Upper hinge cover (x1)
 - Lower hinge cover (x1)
 - Cover (x10, x3)
3. Remove the mother board [B] (x9, x7).

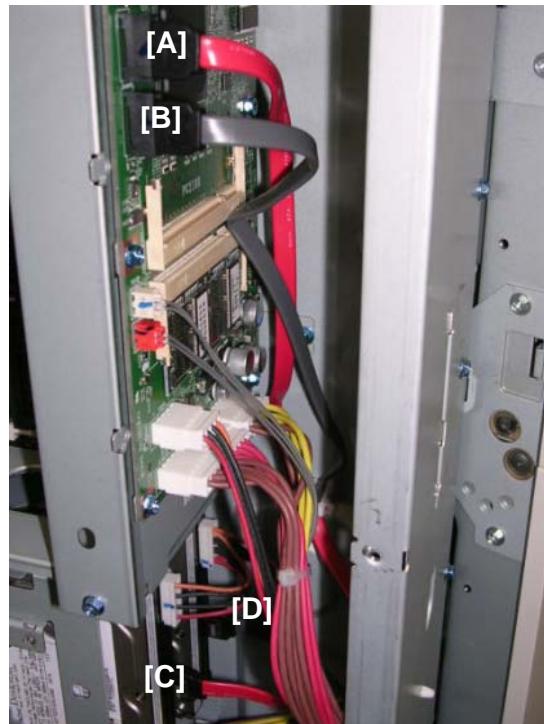
3.15.7 HARD DISKS



NOTE: The controller recognizes both disks as one disk unit. Both disks must always be replaced together, or there will be errors.

1. Remove the controller box cover. (3.15.1)
2. HDD bracket [A] (\wedge x 5, \square x 4).
3. Hard disks [B] (\wedge x 8).
4. If you intend to re-install the same disks in the machine, confirm the correct connections before disconnecting. After the disks have been formatted, they are not identical, and each disk must be connected to the correct connector.
5. Install the new disks.
NOTE: If the disks are new and unformatted, they are both identical, and can be connected in either position.
6. Turn the main switch on and execute **5832 001** (HDD Formatting – All) to format the new disks.
7. Install the stamp data using **SP5853**. (Stamp Data Installation, 5. Service Tables.)
8. Switch the machine off and on to enable the fixed stamps for use.

Reinstallation



Replacement
Adjustment

This photo shows the correction connection of the harnesses.

- [A] Red
- [B] Black
- [C] Red (Front)
- [D] Black (Rear)

Disposal of HDD Units

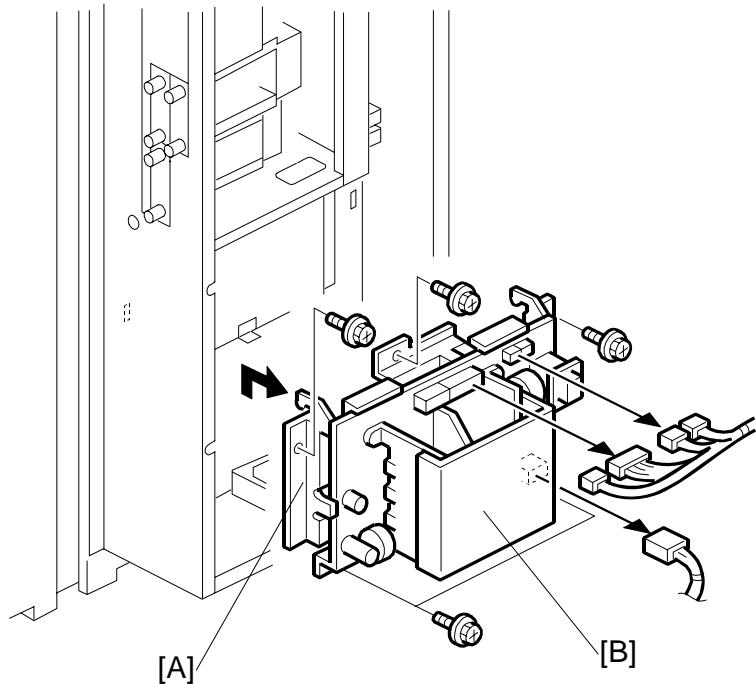
- Never remove an HDD unit from the work site without the consent of the client.
- If the customer has any concerns about the security of any information on the HDD, the HDD must remain with the customer for disposal or safe keeping.
- The HDD may contain proprietary or classified (Confidential, Secret)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

Reinstallation

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

- Document server documents
- Custom-made stamps
- Document server address book
- The address book and document server documents (if needed) must be input again.
- If the customer is using the Data Overwrite Security feature, the DOS function must be set up again. For more, see Section "1. Installation".
- The browser must be installed from the SD card again.

3.15.8 PSU-C (POWER SUPPLY UNIT-CONTROLLER)



1. Remove the controller box cover. (3.15.1)
2. PSU-C unit [A] (\wedge x 5, \square x 5).
3. PSU-C [B] (\wedge x 6).

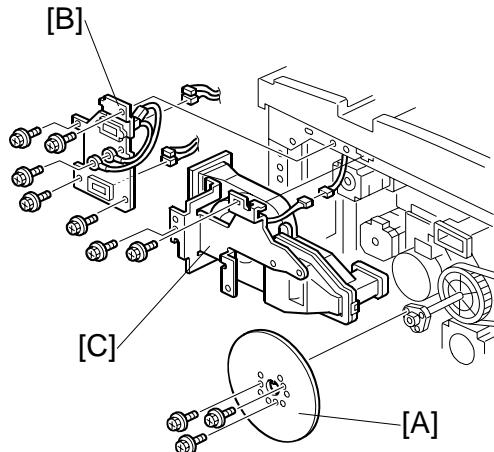
NOTE: Please note that the screw that fastens the ground wire is different. Use the same screw to re-fasten the ground wire.

MOTORS

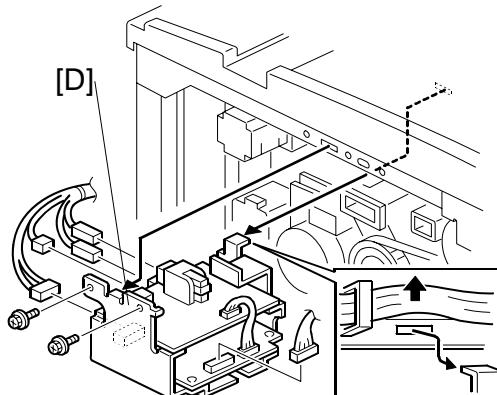
3.16 MOTORS

3.16.1 DRUM MOTOR

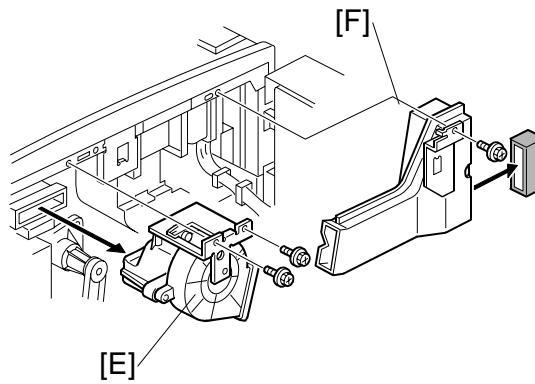
- Open the PSU box (3.3.8)
- Open the controller box (3.3.7)
- Remove the rear cover (3.3.6)
- Fly wheel [A] (3.8.10)
- Harness bracket [B] (3.8.10)
- Duct unit [C] (3.8.10)



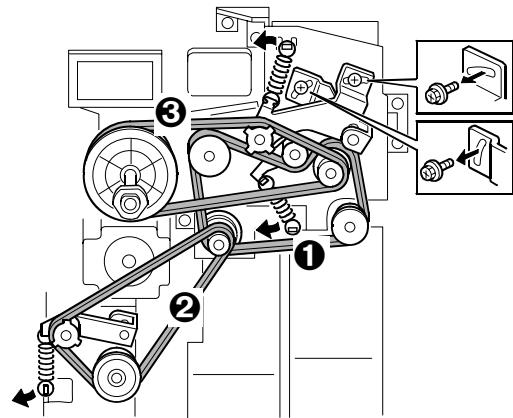
- PPG and CBG power pack unit [D] (3.14.6)



1. Fan motor unit [E] (x2, x1)
2. Right duct unit [F] (x1)

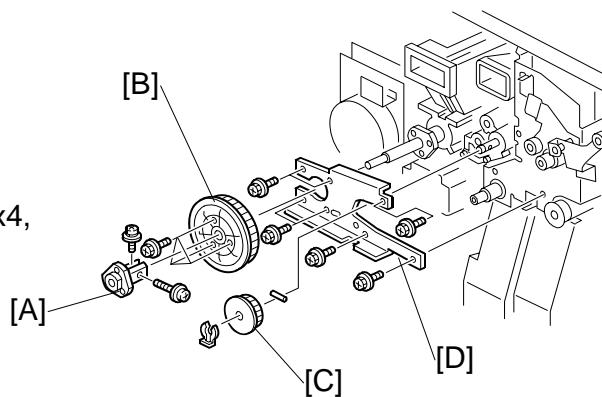


3. Timing belts ①, ②, ③ (Springs x3, \wedge x2)

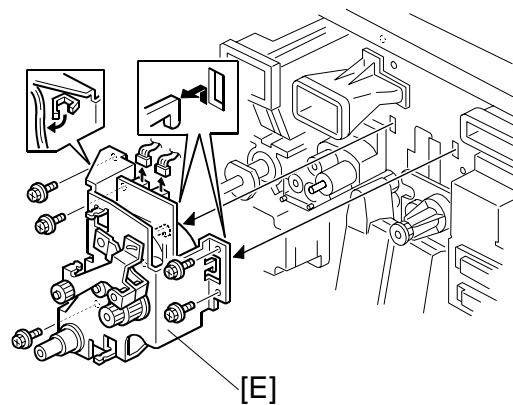


Replacement
Adjustment

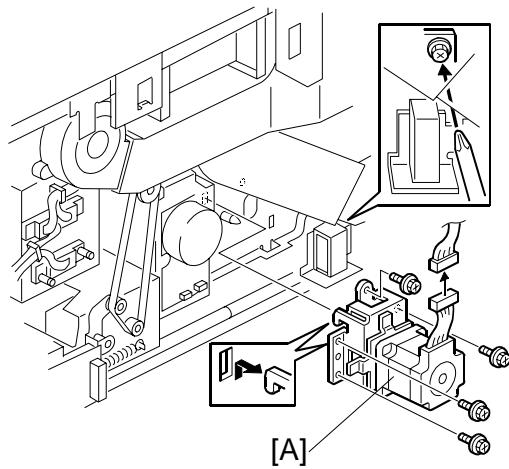
4. Flywheel holder [A] (\wedge x2)
 5. Drum pulley [B] (\wedge x3)
 6. Cleaning drive pulley [C] (\wedge x1, Pin x1)
 7. Drum motor plate [D] (Tapping \wedge x4, \wedge x3)



8. Drum motor unit [E] (\wedge x2, \wedge x1, \wedge x5)
 9. Drum motor (\wedge x4)

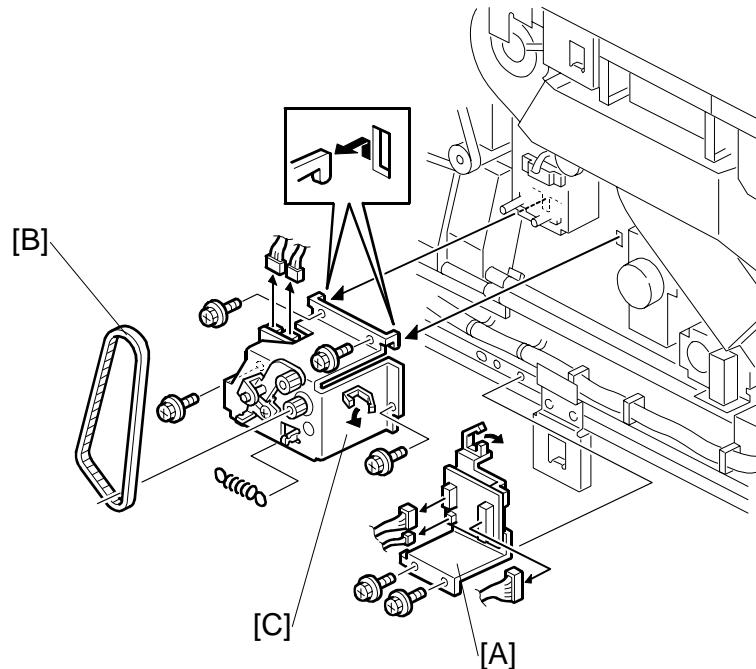


3.16.2 DUPLEX MOTOR



- Open the controller box (3.3.7)
- 1. Remove the duplex motor unit [A] (\wedge x4, \square x1)

3.16.3 FUSING MOTOR

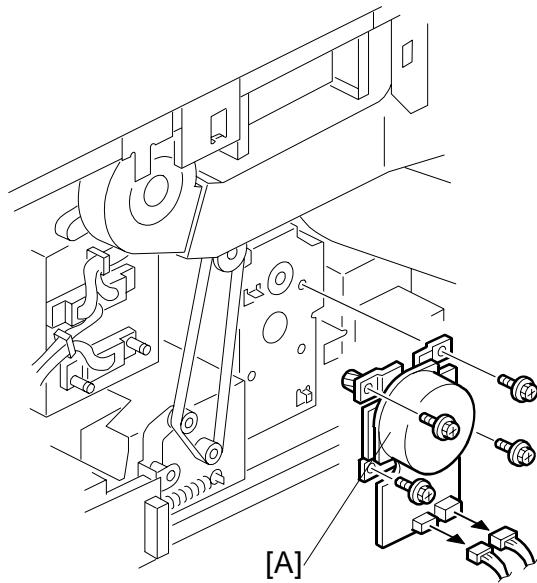


Replacement
Adjustment

- Open the PSU box (3.3.8)
- Open the controller box (3.3.7)
- Remove the rear cover (3.3.6)
 1. Relay board [A] (\wedge x2, \square x3, \vee x1)
 2. Timing belt [B] (Loosen \wedge x1, Spring x1)
 3. Fusing motor unit [C] (\wedge x4, \square x2)

MOTORS

3.16.4 EXIT MOTOR



- Open the controller box (3.3.7)

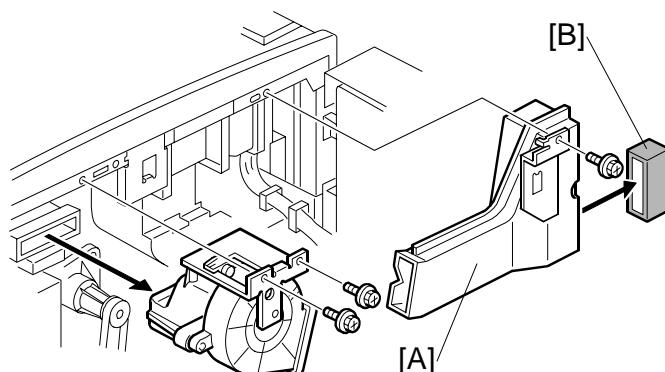
[A] Exit motor (x4, x2)

3.17 OZONE FILTER

- Open the controller box (3.3.7)
- Open the PSU box.
- Remove the rear cover.

[A]: Right duct unit ( x1)

[B]: Ozone filter



Replacement
Adjustment

3.18 COPY IMAGE ADJUSTMENT: PRINTING/SCANNING

NOTE: 1) You need to perform these adjustment(s) after replacing any of the following parts:

- Scanner Wires
- Lens Block
- Scanner Motor
- Polygon Mirror Motor
- Paper Side Fences
- Memory All Clear

2) For more details about accessing SP modes, refer to section 4.

3.18.1 PRINTING

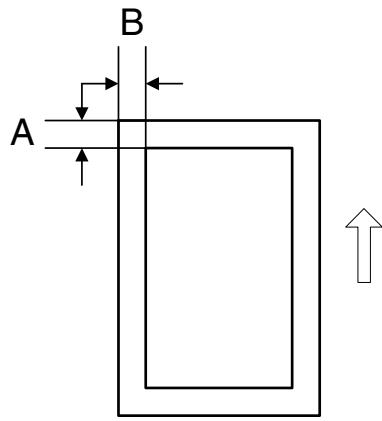
NOTE: 1) Make sure the paper is installed correctly in each paper tray before you start these adjustments.
2) Use the Trimming Area Pattern (**SP2902 003**, No. **27**) to print the test pattern for the following procedures.
3) Set SP2902 003 to 0 again after completing these printing adjustments.

Registration – Leading Edge

1. Check the leading edge registration using the Trimming Area Pattern, and adjust it using **SP1001** if necessary. The specification is: 0 ± 3 mm.

Registration – Side-to-Side

Do the parallel image adjustment after the side-to-side registration adjustment.

Using SP Mode

Replacement
Adjustment

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

1. Check the side-to-side registration for each paper feed station using the Trimming Area Pattern. Adjust them using the following SP modes if necessary. For more details, refer to "Image Position Sensors" (●3.10.18)

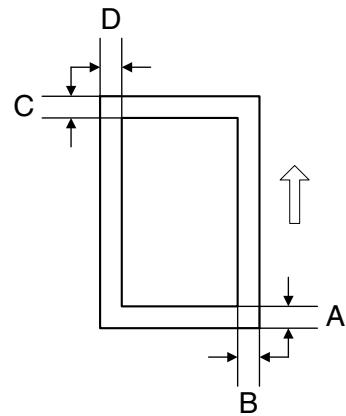
| | SP mode | Specification |
|---|-------------------|------------------------|
| 1st paper feed | SP1002 001 | SP1912 001 |
| 2nd paper feed | SP1002 002 | |
| 3rd paper feed (Optional PFU tray 1) | SP1002 003 | |
| 4th paper feed (LCT) | SP1002 004 | SP1912 002 |
| 5th paper feed (LCT) | SP1002 005 | |
| 6th paper feed (LCT) | SP1002 006 | $2 \pm 1.5 \text{ mm}$ |
| 7th Tray (Bypass) | SP1002 007 | |
| Duplex | SP1002 008 | SP1912 003 |

Blank Margin

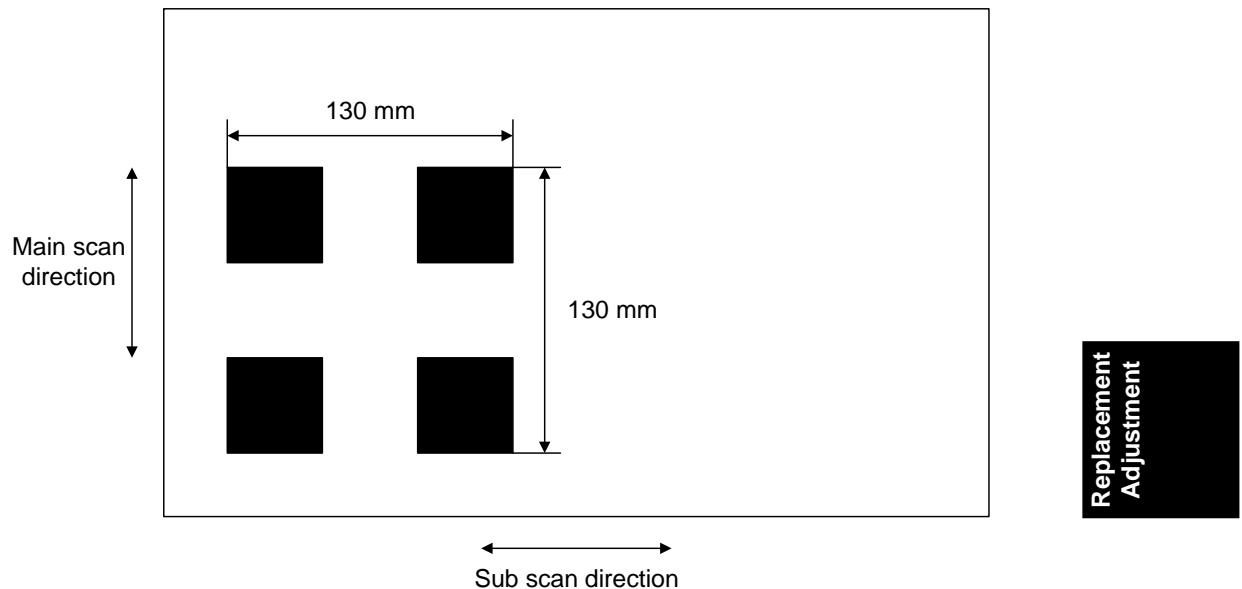
NOTE: If the leading edge/side-to-side registration cannot be adjusted within the specifications, adjust the leading/left side edge blank margin.

1. Check the trailing edge and right side edge blank margins using the Trimming Area Pattern, and adjust them using the following SP modes if necessary.

| | SP mode | Specification |
|---------------|-------------------|----------------------|
| Trailing edge | SP2101 002 | 3 ± 2 mm |
| Right edge | SP2101 004 | 2 ± 1.5 mm |
| Leading edge | SP2101 001 | 4 ± 2 mm |
| Left edge | SP2101 003 | 2 ± 1.5 mm |



A: Trailing Edge Blank Margin
 B: Right Edge Blank Margin
 C: Leading Edge Blank Margin
 D: Left Edge Blank Margin

Magnification Adjustment

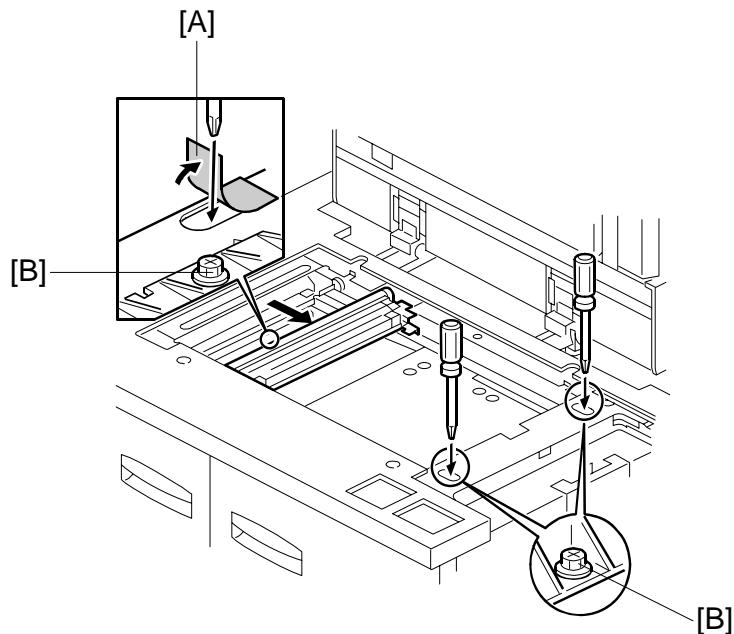
1. Enter SP mode and access **SP2902 003**.
2. Select pattern 4 (Alternating Dot pattern – 1024 dots) and make a print using A3 (DLT) paper.
3. Check the length between the edges of the black squares. The length should be 130 mm in the sub scan direction.
 - 1) If the magnification in the sub scan direction is not within $100 \pm 1.0\%$, adjust using **SP2910**.
 - 2) After main scan adjustment, use **SP2909** (Main Scan Magnification) **001** (Copy), **002** (Printer) to adjust main scan magnification for the copy and print images.
 - 3) Next, use **SP4008** (Scanner Sub Scan Magnification) to adjust magnification in the sub scan direction.
 - 4) If the magnification in the main scan direction is not within $100 \pm 0.5\%$, adjust using **SP2910**.

NOTE: Check the magnification after the paper cools.

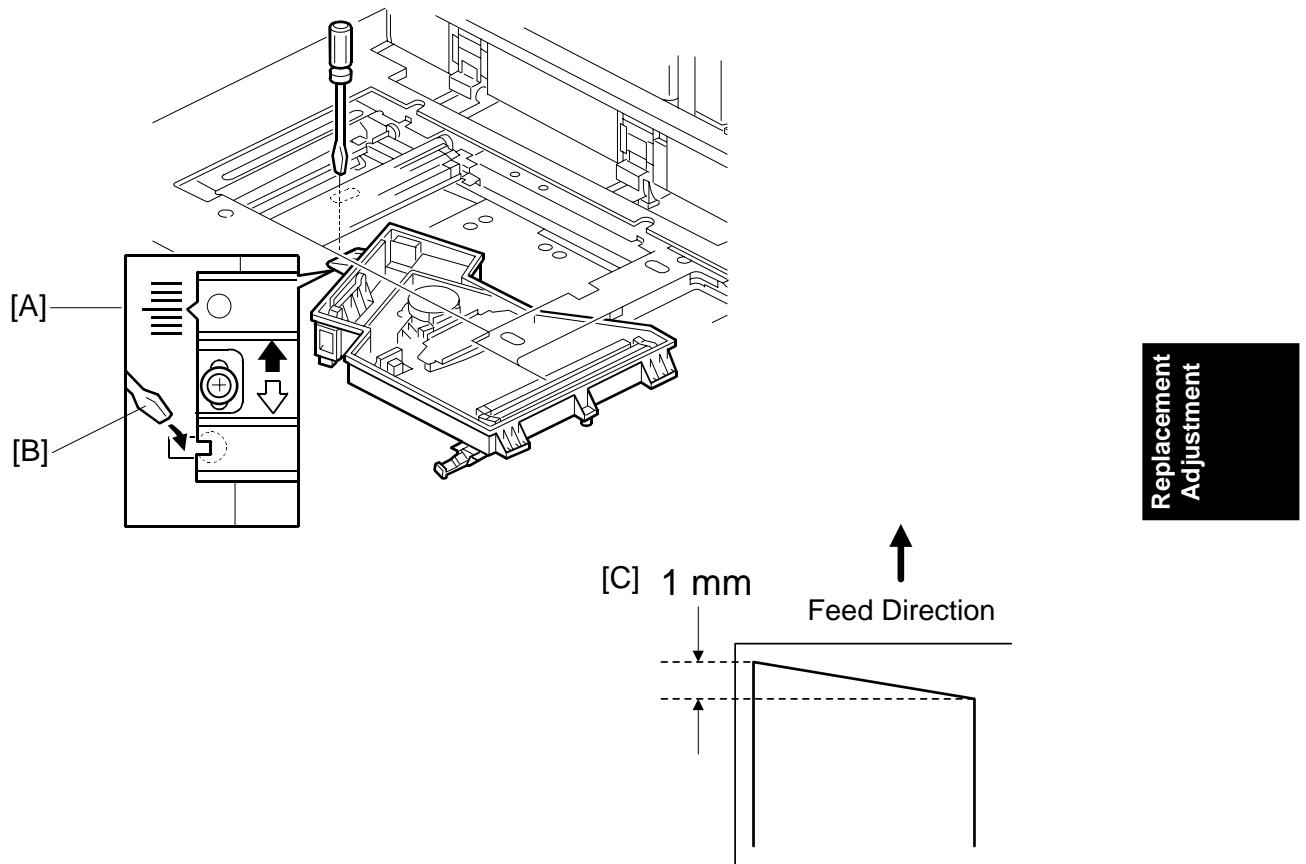
3.18.2 PARALLELOGRAM IMAGE ADJUSTMENT

If a parallelogram type image is printed while using a trimming area pattern, do the following to adjust the printing registration or the printing margin.

- NOTE:** 1) The following procedure should be done after adjusting the side-to-side registration for each paper tray.
2) This adjustment is only effective for a parallelogram image caused by the printer. It should not be applied if the skew is caused by the scanner.



1. Check whether a parallelogram image appears as shown on the next page when printing a trimming area pattern (**SP2902 003**, No. 27). If it appears, do the following.
2. Remove the exposure glass (see Replacement and Adjustment – Exposure Glass Removal).
3. Remove the original exit tray and the scanner right cover. (See Replacement and Adjustment – Scanner Drive Wires)
4. Peel away the mylar [A] covering the opening in the frame.
5. Loosen the three screws [B] that hold the laser unit.



6. Make a note of the position of the laser unit using the scale [A].
7. Adjust the laser unit position using a flat screwdriver [B] as shown. If the right side of the trimming area pattern is down by about 1 mm as shown [C], the laser unit should be rotated about one graduation in the direction of the black arrow. If the opposite side is down, adjust in the opposite direction.
8. Tighten the three screws to secure the laser unit.
9. Print the trimming area pattern to check the image. If it is still the same, repeat steps 2 to 7.

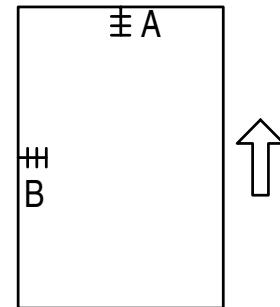
3.18.3 SCANNING

NOTE: 1) Before doing the following scanner adjustments, check the printing registration/side-to-side adjustment and the blank margin adjustment.
 2) Use an OS-A3 test 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 using the following SP modes if necessary.

| | SP mode |
|--------------|---------------|
| Leading Edge | SP4010 |
| Side-to-side | SP4011 |



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

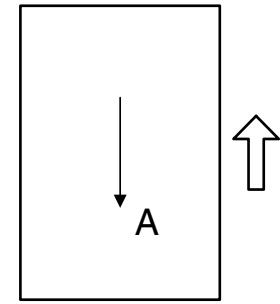
Magnification

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

Scanner 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, and adjust it using the following SP mode if necessary. The specification is within ±1%.

| | SP mode |
|--------------------------------|---------------|
| Scanner Sub Scan Magnification | SP4008 |



A: Sub Scan Magnification

3.18.4 ADF IMAGE ADJUSTMENT

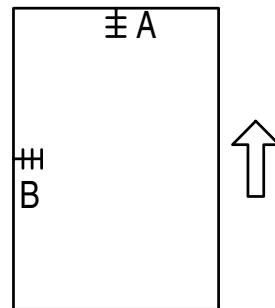
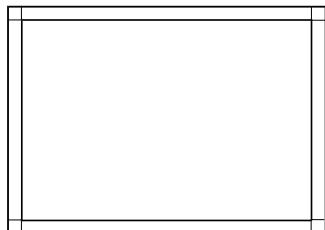
Registration

NOTE: Make a temporary test chart as shown below left, using A3/DLT paper.

1. Place the temporary test chart on the ADF and make a copy from one of the feed stations.
2. Check the registration, and adjust using the following SP modes if necessary.

| | SP mode |
|--|-------------------|
| Side-to-side Registration | SP6006 001 |
| Leading Edge Registration (Thin original mode) | SP6006 003 |
| Leading Edge Registration (Single-sided/Duplex: front) | SP6006 005 |
| Leading Edge Registration (Duplex: rear) | SP6006 006 |

Replacement
Adjustment



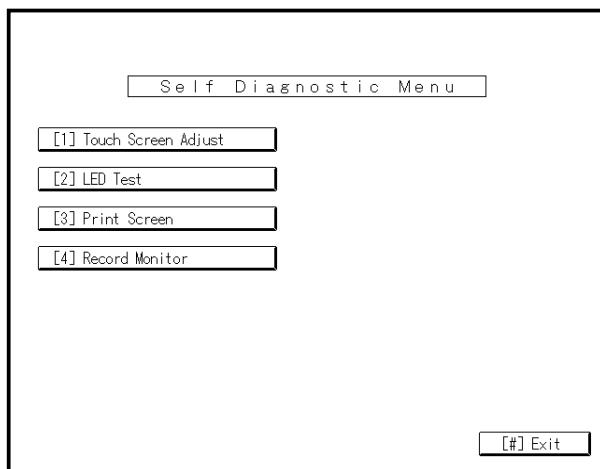
A: Leading Edge Registration
B: Side-to-side Registration

TOUCH SCREEN CALIBRATION

3.19 TOUCH SCREEN CALIBRATION

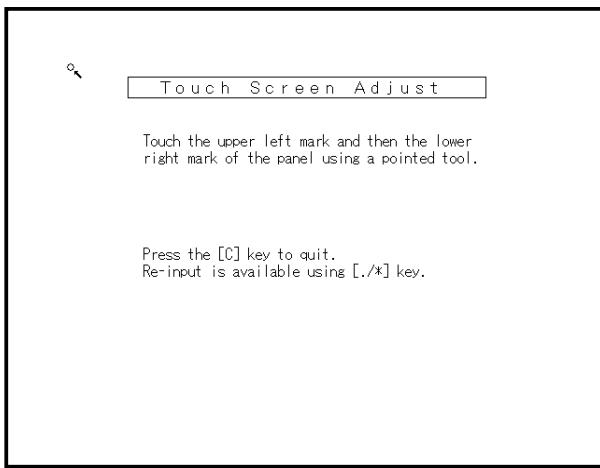
When the touch panel detection mechanism is not working properly, calibrate the touch screen as follows:

1. Push [Clear] ()^{Clear}, push **1993**, and then press [Clear] 5 times.



2. Select "[1] Touch Screen Adjust".

NOTE: [2] tests the LEDs on the operation unit, not the machine's main operation panel. Keys [3] [4] [5] [6] [7] are for factory use only. Do not use unless directed by senior technical staff.



3. The “Touch Screen Adjustment” calibration screen will appear. Touch the center of the circle in the upper left corner then the lower right corner of the panel using a pointer (but not sharp!) tool.
4. Touch a few spots on the LED touch panel, and confirm that the marker appears on the screen at exactly the same location as where it is touched. If it does not, touch “Re-input” (or press the  key) and repeat the calibration procedure.
5. Touch “OK” on the adjustment screen.
6. Touch “Exit” to exit the self diagnostic mode.

Replacement
Adjustment



TROUBLESHOOTING

| TROUBLESHOOTING REVISION HISTORY | | |
|----------------------------------|------------|---|
| Page | Date | Added/Updated/New |
| 5 | 09/07/2006 | Updated Information – Paper Jam Codes |
| 26 ~ 27 | 11/21/2006 | Updated Information – Service Call Conditions |
| 36 | 6/9/2011 | SC725 |
| 51 ~ 52 | 09/07/2006 | Updated Information – Service Call Conditions |



4. TROUBLESHOOTING

4.1 PROGRAM DOWNLOAD

4.1.1 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 SD 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 SD 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.

Trouble-
shooting

4.1.2 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.

4.1.3 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. | <ul style="list-style-type: none"> • Use the correct card |
| 02 | Download Error E02 Power off/on | Controller ROM update error 2. Error occurs during ROM update program initialization. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • 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) | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Cycle the machine off/on • Set DIP SW 1 to ON and retry • Replace RAM DIMM • Replace controller board |
| 06 | Download Error E06 Power off/on | Controller ROM update error 6 CPU clock error. | <ul style="list-style-type: none"> • Turn the machine power off/on. • Set controller DIPSW-1 to ON to force the machine to write to ROM. • If you cannot force the machine to write, replace the controller board. |
| 19 | Download Error E19 Power off/on | Controller ROM update error 7 Schedule data is unclear. | <ul style="list-style-type: none"> • Software defective |
| 20 | Down Error E20 Power Off/On | System error 1 (+SC991) The physical address cannot be mapped. Software/hardware is defective | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Cycle the machine off/on and re-try. • Replace RAM • Replace the controller board |

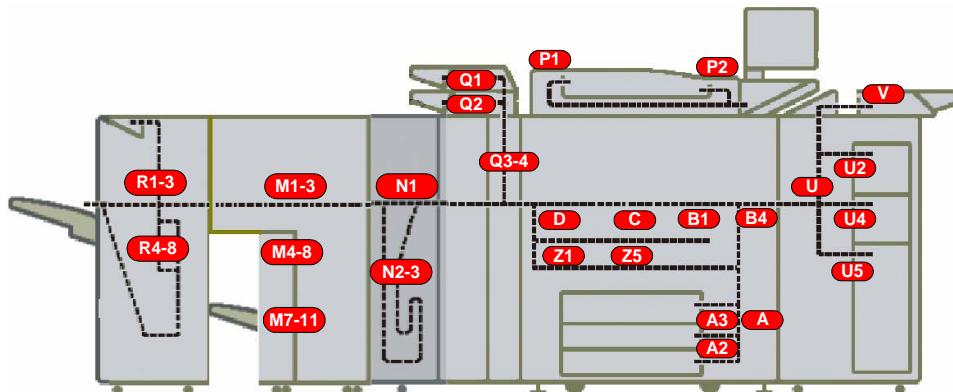
| | Display | Details | Recovery |
|----|---|--|--|
| 22 | Download Error E22 Module ID Card No xx/xx | System error 3 (+SC991) Data fails to decompress. Card defective. | <ul style="list-style-type: none"> • Cycle the machine off/on and re-try. • Replace card • Replace controller board |
| | SC991 | System error 4 “Selfupdate” does not execute. Software defective. | <ul style="list-style-type: none"> • Cycle the machine off/on and re-try • Set DIP SW 1 to ON and re-try • Replace the controller board |
| 23 | Download Error E24 Power Off/On | System error 5 Card read/write error. Software or card defective. | <ul style="list-style-type: none"> • Cycle the machine off/on and re-try • Replace the card • Replace the controller board |
| 30 | No Valid Data E30 | Download dysfunction 1 Print download is not possible. Cannot download to HDD because HDD not installed or defective. | <ul style="list-style-type: none"> • HDD defective • HDD harness disconnected, defective |
| 31 | Reboot After Card Insert E31 Module ID Card No. xx/xx | Download dysfunction 2 Download continuity error with more than one card. The second or later card is not compatible. | <ul style="list-style-type: none"> • Set the correct cards in the correct order |
| 32 | Reboot After Card Insert E32 Module ID Card No. xx/xx | Download dysfunction 3 Download interrupted because card is not correct, or power failure interrupted download. | <ul style="list-style-type: none"> • Use the correct card • If power failure caused the failure, remove the card and insert another. |
| 33 | No Valid Data E33 | Download dysfunction 4 Card version error. Attempted to download program using a card with the wrong version number. | <ul style="list-style-type: none"> • Use the correct card |
| 34 | No Valid Data E34 | Download dysfunction 5 Specification error. DOM card set in EXP machine, or vice versa. | <ul style="list-style-type: none"> • Use the correct card |
| 35 | No Valid Data E35 | Download dysfunction 6 Wrong model. The inserted card is for another model. | <ul style="list-style-type: none"> • Use the correct card |
| 36 | No Valid Data E36 | Download dysfunction 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. | <ul style="list-style-type: none"> • Use the correct card, inserted correctly • Install a ROM DIMM if none is installed |
| 37 | No Valid Data E37 | Download dysfunction 8 Edit option card error. You attempted to employ a used card. | <ul style="list-style-type: none"> • Use an unused card |
| 40 | Download Error E40 Module ID Card No. xx/xx | Download result failure 1 Engine download failure. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Cycle the machine off/on and re-try |

Trouble-
shooting

PROGRAM DOWNLOAD

| | Display | Details | Recovery |
|----|---|---|--|
| 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. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Cycle the machine off/on and re-try |
| 44 | Download Error E44 Module ID Card No. | Download result failure 5 The data targeted for the write operation could not be accessed. | <ul style="list-style-type: none"> • Turn the machine power off/on. • Replace the SD card with the start-up SD card that has the source data. • Set controller DIPSW-1 to ON to force the machine to write • If you cannot force the machine to write, replace the controller board. |
| 50 | No Valid Data E50 | Download invalid The source data for the update could not be authenticated. | <ul style="list-style-type: none"> • Use the correct SD card. |
| 51 | (no display) | Remote ROM update failure 1 The source data for the ROM update is corrupted because the machine is operating and an SC code has been issued. | <ul style="list-style-type: none"> • Turn the machine power off/on and try again. |
| 52 | (no display) | Remote ROM update failure 2 The source data received for the ROM update is corrupted; it failed a SUM check due to its abnormal length. | <ul style="list-style-type: none"> • Try again with the correct data. |
| 53 | (no display) | Download result failure 6 The previous download in progress was cancelled. | <ul style="list-style-type: none"> • Do the download procedure again. |

4.1.4 PAPER JAM CODES



B234T050.WMF

When a jam occurs, a graphic illustration of the main machine, finisher, booklet finisher, Z-fold unit, cover interposer tray, LCT, and bypass tray appears on the operation panel screen.

The location of the jammed paper becomes lit (does not flash) in the graphic illustration.

A jam code is displayed on the operation panel to indicate the cause and location of the jam. For more details, please refer to the tables on the following pages.

Trouble-
shooting

Note concerning the tables

- Late: Paper should be at the sensor, but it is not.
- Lag: There should be no paper at the sensor, but paper is present.

PROGRAM DOWNLOAD

Copier B234/B235/B236

| Display | No. | Jam Cause |
|---------|-----|-------------------------------------|
| A | 3 | 1st Paper Feed Sensor – Late |
| A3 | 4 | 2nd Paper Feed Sensor – Late |
| A2 | 5 | 3rd Paper Feed Sensor – Late |
| U2 | 6 | 4th Paper Feed Sensor – Late |
| U4 | 7 | 5th Paper Feed Sensor – Late |
| U5 | 8 | 6th Paper Feed Sensor – Late |
| V | 9 | 7th Paper Feed Sensor – Late |
| B1 | 10 | 1st Transport Sensor - Late |
| B1 | 11 | 2nd Transport Sensor - Late |
| B1 | 12 | 3rd Transport Sensor - Late |
| U | 13 | 4th Transport Sensor - Late |
| U | 14 | 5th Transport Sensor - Late |
| U | 15 | 6th Transport Sensor - Late |
| U | 16 | 7th Transport Sensor - Late |
| B4 | 17 | LCT Relay Sensor - Late |
| B4 | 18 | LCT Exit Sensor - Late |
| B1 | 19 | Upper Relay Sensor - Late |
| C | 20 | Registration Sensor - Late |
| D | 21 | Job Time Sensor - Late |
| D | 22 | Exit Sensor - Late |
| Z1 | 23 | Duplex Entrance Sensor - Late |
| Z4 | 24 | Duplex Transport Sensor 1 – Late |
| Z4 | 25 | Duplex Transport Sensor 2 – Late |
| Z4 | 26 | Duplex Transport Sensor 3 – Late |
| Z1 | 27 | Duplex Inverter Sensor - Late |
| Z1 | 28 | Duplex Inverter Relay Sensor - Late |
| A | 53 | 1st Paper Feed Sensor – Lag |
| A3 | 54 | 2nd Paper Feed Sensor – Lag |
| A2 | 55 | 3rd Paper Feed Sensor – Lag |
| U2 | 56 | 4th Paper Feed Sensor – Lag |
| U4 | 57 | 5th Paper Feed Sensor – Lag |
| U5 | 58 | 6th Paper Feed Sensor – Lag |
| V | 59 | 7th Paper Feed Sensor – Lag |
| U | 60 | 1st Transport Sensor - Lag |
| U | 61 | 2nd Transport Sensor - Lag |
| U | 62 | 3rd Transport Sensor - Lag |
| U | 63 | 4th Transport Sensor - Lag |
| U | 64 | 5th Transport Sensor - Lag |
| U | 65 | 6th Transport Sensor - Lag |
| U | 66 | 7th Transport Sensor - Lag |
| B4 | 67 | LCT Relay Sensor – Lag |
| U | 68 | LCT Exit Sensor - Lag |
| B1 | 69 | Upper Relay Sensor - Lag |
| C | 70 | Registration Sensor - Lag |
| D | 71 | Job Time Sensor – Lag |
| D | 72 | Exit Sensor - Lag |
| Z1 | 73 | Duplex Entrance Sensor - Lag |
| Z4 | 74 | Duplex Transport Sensor 1 – Lag |
| Z4 | 75 | Duplex Transport Sensor 2 – Lag |
| Z4 | 76 | Duplex Transport Sensor 3 – Lag |
| Z1 | 77 | Duplex Inverter Sensor - Lag |
| Z1 | 78 | Duplex Inverter Relay Sensor - Lag |
| B1 | 99 | Double-Feed Sensor |

Paper Jam Locations – Finisher B830

| Display | No. | Jam Cause |
|---------|-----|--------------------------------|
| R1~3 | 101 | Entrance Sensoor - Late |
| R1~3 | 102 | Entrance Sensor – Lag |
| R1~3 | 103 | Upper Tray Exit Sensor – Late |
| R1~3 | 104 | Upper Tray Exit Sensor – Lag |
| R1~3 | 105 | Shift Tray Exit Sensor – Late |
| R1~3 | 106 | Shift Tray Exit Sensor – Lag |
| R4~8 | 107 | Staple Tray Exit Sensor – Late |
| R4~8 | 108 | Staple Tray Exit Sensor – Lag |
| R4~8 | 109 | Pre-Stack Paper Sensor - Late |
| R4~8 | 110 | Pre-Stack Paper Sensor – Lag |
| R4~8 | 111 | Stack Feed-Out Belt HP Sensor |
| R1~3 | 112 | Transport Motors |
| R1~3 | 113 | Shift Tray Lift Motor |
| R4~8 | 114 | Jogger Motor |
| R1~3 | 115 | Shift Motor |
| R4~8 | 116 | Staple Motor |
| R4~8 | 117 | Stack Feed-Out Belt Motor |
| R1~3 | 118 | Punch Motor |
| R4~8 | 119 | |
| R4~8 | 120 | Pre-Stack Transport Motor |
| R1~3 | 121 | |

Cover Interposer Tray B835

| Display | No. | Jam Cause |
|---------|-----|--------------------------------------|
| Q1 | 130 | 1st Paper Feed Sensor – Late |
| Q1 | 131 | 1st Paper Feed Sensor – Lag |
| Q2 | 132 | 2nd Paper Feed Sensor – Late |
| Q2 | 133 | 2nd Paper Feed Sensor – Lag |
| Q3~4 | 134 | 1st Transport Sensor – Late |
| Q3~4 | 135 | 1st Transport Sensor – Lag |
| Q3~4 | 136 | 2nd Transport Sensor – Late |
| Q3~4 | 137 | 2nd Transport Sensor – Lag |
| Q3~4 | 138 | 1st Vertical Transport Sensor - Late |
| Q3~4 | 139 | 1st Vertical Transport Sensor - Lag |
| Q3~4 | 140 | 2nd Vertical Transport Sensor - Late |
| Q3~4 | 141 | 2nd Vertical Transport Sensor - Lag |
| Q3~4 | 142 | Vertical Exit Sensor – Late |
| Q3~4 | 143 | Vertical Exit Sensor - Lag |
| Q3~4 | 144 | Entrance Sensor – Late |
| Q3~4 | 145 | Entrance Sensor – Lag |
| Q3~4 | 146 | Exit Sensor – Late |
| Q3~4 | 147 | Exit Sensor – Lag |
| Q1 | 148 | 1st Lift Motor |
| Q2 | 149 | 2nd Lift Motor |
| Q1 | 150 | 1st Pick-Up Motor |
| Q2 | 151 | 2nd Pick-Up Motor |

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PROGRAM DOWNLOAD

Booklet Finisher B836

| Display | No. | Jam Cause |
|---------|-----|-----------------------------------|
| M1~M3 | 160 | Entrance Sensor – Late |
| M1~M3 | 161 | Entrance Sensor – Lag |
| M4~M6 | 162 | Stapling Tray Paper Sensor – Late |
| M4~M6 | 163 | Stapling Tray Paper Sensor – Lag |
| M7~11 | 164 | Stack Present Sensor – Late |
| M7~11 | 165 | Stack Present Sensor – Lag |
| M7~11 | 166 | Fold Unit Entrance Sensor – Late |
| M7~11 | 167 | Fold Unit Entrance Sensor – Lag |
| M7~11 | 168 | Fold Unit Exit Sensor – Late |
| M7~11 | 169 | Fold Unit Exit Sensor – Lag |
| M7~11 | 170 | Exit Sensor – Late |
| M7~11 | 171 | Exit Sensor – Lag |
| M7~11 | 174 | Jogger Fence |
| M7~11 | 175 | Stack Feed-Out Belt |
| M7~11 | 176 | Booklet Stapler – Front |
| M7~11 | 177 | Booklet Stapler – Rear |
| M7~11 | 178 | Stack Junction Gate Motor |
| M7~11 | 179 | Clamp Roller Retraction Motor |
| M7~11 | 180 | Bottom Fence Lift Motor |
| M7~11 | 181 | Fold Plate Motor |

Paper Jam Locations – Z-Fold Unit B660

| Display | No. | Jam Cause |
|---------|-----|--------------------------------|
| N1 | 200 | Feed Sensor – Late |
| N1 | 201 | Feed Sensor – Lag |
| N2~N3 | 202 | Fold Timing Sensor – Late |
| N2~N3 | 203 | Fold Timing Sensor – Lag |
| N2~N3 | 204 | Leading Edge Sensor – Late |
| N2~N3 | 205 | Leading Edge Sensor – Lag |
| N2~N3 | 206 | Upper Stopper HP Sensor – Late |
| N2~N3 | 207 | Upper Stopper HP Sensor – Lag |
| N1 | 208 | Upper Exit Sensor 1 – Late |
| N1 | 209 | Upper Exit Sensor 1- Lag |
| N2~N3 | 210 | |
| N2~N3 | 211 | |
| N2~N3 | 212 | Lower Exit Sensor 2 – Late |
| N2~N3 | 213 | Lower Exit Sensor 2 – Lag |
| N1 | 214 | Feed Motor |
| N2~N3 | 215 | Lower Stopper Motor |
| N2~N3 | 216 | Upper Stopper Motor |
| N2~N3 | 217 | Fan Motor |

4.2 SERVICE CALL CONDITIONS

4.2.1 SERVICE MODE LOCK/UNLOCK

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

1. If you cannot go into the SP mode, ask the Administrator to log in with the Operator Tool and then set “Service Mode Lock” to OFF. After he or she logs in:
Operator Tools > System Settings > Administrator Tools > Service Mode Lock > OFF
 - This unlocks the machine and lets you get access to all the SP codes.
 - The CE can do servicing on the machine and turn the machine off and on. It is not necessary to ask the Administrator to log in again each time the machine is turned on.
2. If you must use the printer bit switches, go into the SP mode and set **SP 5169** to “1”.
3. After machine servicing is completed:
 - Change **SP 5169** from “1” to “0”.
 - Turn the machine off and on. Tell the administrator that you completed servicing the machine.
 - The Administrator will then set the “Service Mode Lock” to ON.

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4.2.2 SERIES SERVICE CALL CONDITIONS

There are 4 levels of service call conditions.

| Level | Definition | Reset Procedure |
|-------|---|--|
| A | Fusing unit SCs displayed on the operation panel. The machine is disabled. The operator cannot reset the SC. | Enter SP mode, then turn the main power switch off and on. |
| B | SCs that disable only the features that use the defective item. These SCs are not shown to the operator under normal conditions. They are displayed on the operation panel only when the defective feature is selected. | Turn the main power switch off and on. |
| C | SCs that are not shown on the operation panel. They are internally logged. | Logging only |
| D | Turning the operation switch (or main power switch) off then on resets these SCs. These SCs are displayed on the operation panel and displayed again if the error reoccurs. | Turn the operation switch (or main power switch) off and on. |

4.2.3 SC CODE DESCRIPTIONS

Important

- If a problem concerns a circuit board, disconnect and reconnect the connectors and then test the machine. Often a loose or disconnected harness is the cause of the problem. Always do this before you decide to replace the PCB.
- If a motor lock error occurs, check the mechanical load before you decide to replace the motor or sensors.
- When a Level "A" or "B" SC occurs while in an SP mode, the machine cannot display the SC number. If this occurs, check the SC number after leaving the SP mode.
- If you set SP 5875 to 'on', the machine reboots automatically when the machine issues a Level "B&D" SC code.
-

⚠ 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 switch to switch the power off, wait for the power LED to go off, and then switch the main power switch off.

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NOTE: The main power LED (ledon) lights or flashes while the platen cover or ARDF is open, while the main machine is communicating with a facsimile or the network server, or while the machine is accessing the hard disk or memory for reading or writing data.

SC Code Group Designations

| Group | SC | System |
|------------------------------------|-----------|--------------------------|
| Scanning | 100 | Lamp Control |
| | 120 | Scanning |
| | 140 | Magnification |
| | 160 | Filter Processing |
| | 190 | Other |
| Image Creation | 300 | Charge |
| | 320 | Image Writing (Exposure) |
| | 340 | Development |
| | 360 | Image Memory |
| | 400 | Transfer |
| | 410 | Separation |
| | 420 | Cleaning |
| | 430 | Quenching |
| | 440 | Drum |
| | 490 | Other |
| Feed, Transport, Duplexing, Fusing | 500 | Feed, Transport |
| | 520 | Duplexing |
| | 540 | Fusing |
| | 590 | Other |
| Communication | 600 | Internal Communication |
| | 620 | External Communication |
| | 690 | Other |
| Peripheral Devices | 700 | ADF |
| | 720 | Finishers |
| | 790 | Other |
| Other | 900 | Counters |
| | 920 | Memory |
| | 990 | Other |

4.2.4 SC CODE DESCRIPTIONS

| | | | |
|--------------|----------|--|--|
| SC101 | B | <p>Exposure Lamp Error</p> <p>The standard white level was not detected properly when scanning the white plate.</p> <ul style="list-style-type: none"> • Exposure lamp defective • Lamp stabilizer defective • Exposure lamp connector defective • Scanner motor control unit (MCU board) defective • SBU board defective • Dirty standard white plate • Dirty scanner mirror or scanner mirror or lens block out of position | |
| SC120 | B | <p>Scanner Home Position Error 1</p> <p>The scanner home position sensor does not detect the OFF condition during initialization or copying</p> <ul style="list-style-type: none"> • Scanner home position sensor defective • Poor connection between HP sensor and MCU board • Scanner motor control unit (MCU board) defective • Scanner wire, timing belt, pulleys, or carriage out of position • Scanner motor defective • Poor connection or defective harness between MCU board and scanner motor | |
| SC121 | B | <p>Scanner Home Position Error 2</p> <p>Scanner home position sensor does not detect ON.</p> <ul style="list-style-type: none"> • Scanner home position sensor defective • Poor connection between MCU board and scanner home position sensor • Harness between MCU board and sensor defective • MCU board defective • Scanner wire, timing belt, pulleys, or carriage out of position • Scanner drive motor defective • Harness between MCU board and scanner motor disconnected | |

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SERVICE CALL CONDITIONS

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|--------------|----------|---|
| SC124 | B | <p>Encoder Signal Error</p> <p>The scanner motor encoder connector is not set correctly, or the encoder signal was not input.</p> <ul style="list-style-type: none"> • Scanner motor encoder connector disconnected • Scanner motor lead connector disconnected • Scanner motor defective • MCU board defective (scanner motor control unit) • Scanner wire, timing belt, pulleys, or carriage installation incorrect • Power supply connector disconnected (+38V ±24V) • Power supply unit (PSU-E board) defective |
| SC125 | B | <p>Scanner Motor Error 1</p> <p>Scanner motor stopped before feedback from scanner HP sensor detected, or motor speed too slow when detected at scanner HP sensor.</p> <ul style="list-style-type: none"> • Scanner motor defective (high torque) • Overload on scanner drive mechanism • MCU board defective (scanner motor unit control) |
| SC126 | B | <p>Scanner Motor Error 2</p> <p>The scanner motor does not stop within 15 mm after the scanner home position sensor turns on when the scanner returns.</p> <ul style="list-style-type: none"> • Scanner motor defective (low torque) • Overload on scanner drive mechanism • MCU board defective (scanner motor control unit) |
| SC127 | B | <p>Scanner Motor Error 3</p> <p>The scanner motor rotates in the opposite direction to the signal from the MCU board.</p> <ul style="list-style-type: none"> • Scanner motor defective (motor lead connected incorrectly) • MCU board defective (scanner motor control unit) |
| SC128 | C | <p>Scanner Motor Error 4</p> <p>The scanner motor speed does not reach the target speed by the time the scanning start point is reached.</p> <ul style="list-style-type: none"> • Scanner motor defective • Overload on scanner mechanism • PSU-Eb board defective • MCU board defective (scanner motor control unit) |

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| SC129 | C | Scanner Motor Error 5 The scanner motor speed is abnormal. The machine will not stop scanning even after the machine detects that motor speed is abnormal. | <ul style="list-style-type: none"> • Scanner motor defective • Scanner drive mechanism defective • PSU-Eb board defective • MCU board defective (scanner motor control unit) |
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|--------------|----------|--|---|
| SC141 | B | Black level detection error When the scanner was turned on, AGC (automatic gain control) failed to achieve the target value of 10 ± 3 . | <ul style="list-style-type: none"> • SBU \leftrightarrow IPU harnesses defective • BCU \leftrightarrow IPU harnesses defective • SBU defective • IPU defective • BCU defective |
|--------------|----------|--|---|

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| SC142 | B | White level detection error When the scanner was turned on, the second sampling by AGC (automatic gain control) failed to achieve a value within the range -7 to 0 of the target value 128. | <ul style="list-style-type: none"> • Standard white plate defective, dirty • Moisture inside the scanner unit • SBU \leftrightarrow IPU harnesses defective • BCU \leftrightarrow IPU harnesses defective • SBU defective • IPU defective • BCU defective |
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| SC143 | C | SBU Error 1 When the scanner was turned on, the SBU (Sensor Board Unit) level adjustment, black level check, and final SBU white level check failed. | <ul style="list-style-type: none"> • SBU defective • IPU defective • BCU defective • Harness between the SBU and IPU defective • Harness between the BCU-IPU defective • Standard white plate not installed correctly, or is dirty • Scanner mirrors and/or lenses are dirty or installed incorrectly |
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| SC144 | B | SBU Error 2 At power on: <ul style="list-style-type: none"> • The SYDI terminal signal did not go HIGH within 1 s • The specified SBU (Sensor Board Unit) ID (GASBUP and LM98513) could not be read after 3 tries | <ul style="list-style-type: none"> • SBU defective • BCU defective • Harness between SBU and IPU defective |
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SERVICE CALL CONDITIONS

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| SC161 | B | <p>IPU Error</p> <p>At power on, or when the machine returns from an energy save mode, the self-diagnostic program returned an IPU error.</p> <ul style="list-style-type: none"> • IPU defective • Connection between SBU and IPU is loose, broken, or defective |
| SC165 | A | <p>Illegal Copy Data Security Error</p> <p>The "Data Security for Copying Feature" in the User Tools is set to "ON" without the ICIB-2 installed.</p> <ul style="list-style-type: none"> • Copy Data Security Unit option board is not installed • Copy Data Security Unit board is defective <p>Note:</p> <ul style="list-style-type: none"> • The "Data Security for Copying" feature in the User Tools must be set to "OFF" before the ICIB-2 is removed. • To switch this feature off/on: [User Tools]> System Settings> Administrator Tools> Next.> Data Security for Copying> Select Off/On. |
| SC180 | B | <p>Scanner Unit Fan Error: Scanner Intake Fan</p> <p>The MCU issued a lock signal fro the scanner intake fan (rear, right).</p> <ul style="list-style-type: none"> • Fan, MCU, SIB harnesses loose or defective • Scanner intake fan motor defective • MCU defective • SIB defective |
| SC181 | B | <p>Scanner Unit Fan Error: Lamp Regulator Fan (Right)</p> <p>The MCU issued a lock signal for the lamp regulator fan (front, right).</p> <ul style="list-style-type: none"> • Fan, MCU harness loose, defective • Lamp regulator (right) fan motor defective • MCU defective • SIB defective |
| SC182 | B | <p>Scanner Unit Fan Error: SBU Cooling Fan</p> <p>The MCU issued a motor lock signal for the SBU cooling fan in the scanner unit</p> <ul style="list-style-type: none"> • Scanner unit harness loose, defective • Fan, MCU harness loose, defective • SBU Fan motor defective • MCU defective • SIB defective |
| SC183 | B | <p>Scanner Unit Fan Error: Lamp Regulator Fan (Left)</p> <p>The MCU issued a lock signal for the lamp regulator fan (front, left).</p> <ul style="list-style-type: none"> • Scanner unit harness loose, defective • Fan, MCU harness loose, defective • Lamp regulator (left) fan motor defective • MCU defective • SIB defective |

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|--------------|----------|---|---|
| SC185 | B | Exposure Lamp 1 Lamp Regulator (Right) Error The MCU detected a defect in the lamp regulator (right) when the 1st exposure lamp lit. . | <ul style="list-style-type: none"> • 1st exposure lamp defective • 1st lamp FFC (flat film cable) loose or defective • MCU ↔ lamp regulator (left) harness defective • Lamp regulator (left) is defective • MCU defective • SIB defective |
|--------------|----------|---|---|

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| SC186 | B | Exposure Lamp 2 Lamp Regulator (Left) Error The MCU detected a defect in the lamp regulator (left) when the 2nd exposure lamp lit. . | <ul style="list-style-type: none"> • 2nd exposure lamp defective • 2nd lamp FFC (flat film cable) loose or defective • MCU ↔ lamp regulator (left) harness defective • Lamp regulator (left) is defective • MCU defective • SIB defective |
|--------------|----------|---|---|

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| SC187 | B | Scanner Unit Fan Error: Scanner Unit Exhaust Fan The MCU issued a lock signal for the the scanner unit exhaust fan (rear, left). | <ul style="list-style-type: none"> • Scanner unit harness loose, defective • Fan, MCU harness loose, defective • Scanner unit exhaust fan motor defective • MCU defective • SIB defective |
|--------------|----------|---|--|

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| SC188 | B | Scanner Unit Fan Error: Scanner Motor Cooling Fan The MCU issued a lock signal for the scanner motor cooling fan. | <ul style="list-style-type: none"> • Scanner unit harness loose, defective • Fan, MCU harness loose, defective • Scanner unit exhaust fan motor defective • MCU defective • SIB defective |
|--------------|----------|--|--|

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| SC202 | B | Polygon Motor Error 1: ON Timeout The polygon mirror motor did not reach its operating speed within 20 s after the polygon motor switched on. | <ul style="list-style-type: none"> • Connection between the polygon mirror motor control board and the motor is loose, broken, or defective • Polygon mirror motor defective • Polygon mirror motor control board defective • IPU defective • BCU defective |
|--------------|----------|--|--|

Trouble-shooting

SERVICE CALL CONDITIONS

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|--------------|----------|---|--|
| SC203 | B | Polygon Motor Error 2: OFF Timeout The polygon mirror motor did not go off within 3 s after the motor was switched off. | <ul style="list-style-type: none"> • Connection between the polygon mirror motor control board and the motor is loose, broken, or defective • Polygon mirror motor defective • Polygon mirror motor control board defective • IPU defective • BCU defective |
| SC204 | B | Polygon Motor Error 3: XSCRDY Signal Error The machine detected that the polygon mirror motor XSCRDY signal went inactive : <ul style="list-style-type: none"> • While an image was being created • During the output of a synchronous laser detection signal | <ul style="list-style-type: none"> • Switch the machine off/on (problem was probably due to electronic noise) • Replace the harness if cycling the machine off/on does not solve the problem • Polygon motor defective • Polygon mirror motor control board defective • IPU defective • BCU defective |
| SC205 | B | Polygon Motor Error 4: Unstable Timeout The machine detected that the polygon mirror motor signal went inactive at some time other than: <ul style="list-style-type: none"> • While an image was being created • During the output of a synchronous laser detection signal | <ul style="list-style-type: none"> • Switch the machine off/on (problem was probably due to electronic noise) • Replace the harness if cycling the machine off/on does not solve the problem • Polygon motor defective • Polygon mirror motor control board defective • IPU defective |
| SC220 | B | Synchronization Detector Error 1: LD0 When LD0 fired with the polygon mirror motor rotating at normal speed, an synchronous detection signal was not output within 250 ms. This can occur when the machine recovers from the energy save mode and there is no paper available | <ul style="list-style-type: none"> • Make sure there is paper in the trays • Cycle the machine off/on • Harness connector of the laser synchronization detector board is loose, broken, defective • Laser synchronization detection board defective or installed improperly • LD unit defective • IPU defective • BCU defective |

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|--------------|----------|--|--|
| SC221 | B | Synchronization Detection Error 2: Other Than LD0 | |
| | | When a laser diode (other than LD0) fired with the polygon mirror motor rotating at normal speed, an synchronous detection signal was not output within 250 ms. This can occur when the machine recovers from the energy save mode and there is no paper available | <ul style="list-style-type: none"> • Make sure there is paper in the trays • Cycle the machine off/on • Harness connector of the laser synchronization detector board is loose, broken, defective • Laser synchronization detection board defective or installed improperly • LD unit defective • IPU defective • BCU defective |
| SC230 | B | FGATE Error 1: Signal Failed to Turn On | |
| | | The FGATE signal did not switch on within 1 s of when the lasers were supposed to start writing the image. | <ul style="list-style-type: none"> • Cycle the machine off/on • Check the harnesses, connectors of the IPU, Controller, BCU • GAVD on the IPU board defective • Controller defective • BCU defective |
| SC231 | B | FGATE Error 2: Signal Failed to Turn Off | |
| | | The FGATE signal did not switch off within 7 s of when the lasers started writing the image, or remained off at the beginning of the next job. | <ul style="list-style-type: none"> • Cycle the machine off/on • Check the harnesses, connectors of the IPU, Controller, BCU • GAVD on the IPU board defective • Controller defective • BCU defective |
| SC240 | B | LD Error | |
| | | The LD error terminal of the LDB asserted an error. | <ul style="list-style-type: none"> • Cycle the machine off/on • LDB harness connectors loose, broken, defective • LDB defective • IPU defective • BCU defective |
| SC300 | B | Charge Corona Error 1: Charge Leak | |
| | | A abnormal detection signal (H) was detected for more than 60 ms. Also, during this time, the detected voltage remained below -4V for more than 50 ms.) | <ul style="list-style-type: none"> • Cycle the machine off/on • CGB power pack harness connectors loose, broken, defective • Corona wire caps loose, missing • CGB power pack defective • Charge corona unit connectors loose, broken, defective |

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SERVICE CALL CONDITIONS

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| SC304 | B | Charge Corona Error 2: Grid Leak | |
| | | A high feedback voltage (H) for the charge corona 60 ms. Also, during this time, the voltage of the charge grid remained less than -400V | <ul style="list-style-type: none"> • Cycle the machine off/on • Charge unit set incorrectly (not locked in place) • Charge unit connector loose, broken, defective |
| SC305 | C | Charge Corona Wire Cleaner Error 1 | |
| | | One of these occurred after the charge corona cleaner motor was switched on: <ul style="list-style-type: none"> • The charge corona wire cleaner motor remained locked within 10 sec after the motor switched on. • The charge corona wire cleaner motor failed to lock within 45 s after the start of cleaning. | <ul style="list-style-type: none"> • Cycle the machine off/on • Charge corona wire cleaner motor defective |
| SC306 | D | Charge Corona Wire Cleaner Error 2 | |
| | | The cleaning pad of the charge corona wire cleaner mechanism failed to return to its home position. | <ul style="list-style-type: none"> • Connectors between motor and IOB loose, broken, defective • Charge wire dirty, defective, broken • Wire cleaning pad defective • Motor or motor board in motor unit defective |
| SC312 | C | Pre-Charge Output Error 1: Leak | |
| | | An abnormal signal (H) was detected continuously for 60 ms. During this time the pre-charge unit voltage remained less than -3 kV for more than 50 ms. | <ul style="list-style-type: none"> • Pre-charge unit set incorrectly. • Pre-charge unit contact is broken or defective. |
| SC313 | C | Pre-Charge Output Error 1: Grid Output | |
| | | An abnormal signal (H) was detected continuously for 60 ms. During this time the pre-charge grid voltage remained less than -400V for more than 50 ms. | <ul style="list-style-type: none"> • Pre-charge unit set incorrectly • Pre-charge unit contact is broken or defective |
| SC320 | B | Development Bias Error | |
| | | An abnormal detection signal (H) was detected continuously for 60 ms. During this time the voltage exceeded -90µA for more than 50 ms. | <ul style="list-style-type: none"> • Development power pack connectors loose, broken, defective • Development unit connectors loose, broken, defective • Development power pack defective |

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| SC344 | C | Development Unit Set Error |
| | | <p>The development is not installed, or it is installed incorrectly. The development unit set switch is checked every time the machine is turned on and when the front doors are closed.</p> <p>1. Pull out the development unit. 2. Install it again. 3. Close the front doors 4. Cycle the machine off/on</p> |

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| SC360 | C | TD Sensor Output Error 1: Vt Above Upper Limit |
| | | <p>The result of the check of the TD sensor output (Vt) after every copy for 10 continuous copies was $Vt \geq 4.0V$ (out of range).</p> <ul style="list-style-type: none"> • TD sensor dirty or defective • TD sensor connector to BCU loose, broken, defective • IOB defective • BCU defective |

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| SC364 | C | TD Sensor Output Error 2: Vt Below Lower Limit |
| | | <p>The result of the check of the TD sensor output (Vt) after every copy for 10 continuous copies was $Vt \leq 0.5V$ (out of range).</p> <ul style="list-style-type: none"> • TD sensor dirty or defective • TD sensor connector to BCU loose, broken, defective • IOB defective • BCU defective |

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| SC368 | B | TD Sensor Adjustment Error 1 |
| | | <p>The value for Vref could not be set because:</p> <ul style="list-style-type: none"> • The target voltage could not reach 2.5V with maximum PWM (255) application • The target voltage exceeded 2.5V with minimum PWM (0) application. <ul style="list-style-type: none"> • TD sensor connector or harness to the IOB loose, broken, defective • TD sensor defective • IOB defective • BCU defective |

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| SC372 | B | TD Sensor Adjustment Error 2 |
| | | <p>The TD sensor output voltage is not adjusted to $2.5 \pm 0.1 V$ within 60 s during initialization of the TD sensor with SP2801.</p> <p>Note: When an abnormal condition occurs, "0" is displayed for SP2906 (Vcont Manual Setting).</p> <ul style="list-style-type: none"> • TD sensor connector, harness loose, broken, defective • TD sensor defective • IOB defective |

SERVICE CALL CONDITIONS

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| SC396 | B | Drum Motor Error |
| | | <p>The drum motor lock signal is longer than 2 s while the drum motor is on.</p> <ul style="list-style-type: none"> • Drum motor connector, harness loose, broken, defective • Drum motor defective • Mechanical problem with the drum unit, transfer belt, toner collection unit |

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| SC400 | C | ID Sensor Error 1: Background Adjustment Error |
| | | <p>One of the following ID sensor output voltages was detected for Vsg (the reading of the bare drum surface) at ID sensor initialization.</p> <ul style="list-style-type: none"> • The reading was less than 4V at PWM=255 (Maximum PWM). • The reading was over 4V at PWM=0 (Minimum PWM) <ul style="list-style-type: none"> • ID sensor harness, connector was loose, broken, defective • ID sensor dirty • ID sensor defective • IOB defective • BCU defective • LD unit defective • CGB/PPG power pack defective |

NOTE

- The most recent correct PWM value is used for control.
- The value displayed by **SP3103** (ID Sensor Output Display) is the actual, incorrect value.

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| SC401 | C | ID Sensor Error 2: Background Output Error |
| | | <p>One of the following conditions were detected when checking the ID sensor pattern:</p> <ul style="list-style-type: none"> • $V_{sg} \leq 2.5$ V • $V_{sg} = 0$ V • The ID sensor output voltage = 5.0 V and PWM signal input to ID sensor = 0 <p>Note: Vsg is the ID sensor output after checking the bare drum surface in the ID sensor pattern.</p> <ul style="list-style-type: none"> • ID sensor harness, connector is loose, broken, or defective • ID sensor dirty • ID sensor defective • IOB defective • LD Unit defective • BCU defective • CGB/PPG power pack defective |

NOTE

- The SC code is not displayed; only the logging data is incremented.
- When this SC is issued, only the toner density sensor output (Vt) (even for jobs less than 10 copies) and Vref is not updated.
- After an abnormal condition is detected, **SP3103** (ID Sensor Output Display) shows "Vsp = Vsg = 0" (or "5.0V").
- If the next ID sensor pattern check is normal, this restores normal operation.

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| SC402 | C | ID Sensor Error 3: ID Sensor Pattern Error |
| | | <p>One of the following ID sensor output voltages was detected when checking the covered area of the ID sensor pattern:</p> <ul style="list-style-type: none"> • $V_{sp} \geq 2.5$ V • $V_{sp} = 0$ V <ul style="list-style-type: none"> • ID sensor harness, connector is loose, broken, or defective • ID sensor dirty • ID sensor defective • IOB defective • LD Unit defective • BCU defective • Development power pack defective |

NOTE

- The SC code is not displayed; only the logging data is incremented.
- When this SC is issued, only the toner density sensor output (V_t) (even for jobs less than 10 copies) and V_{ref} is not updated.
- After an abnormal condition is detected, **SP3103** (ID Sensor Output Display) shows " $V_{sp} = V_{sg} = 0$ " (or "5.0V").
- If the next ID sensor pattern check is normal, this restores normal operation.

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| SC406 | C | ID Sensor Error 4: ID Sensor Pattern Not Detected |
| | | <p>At the ID sensor pattern check of the covered area of the ID sensor pattern, the value of the edge voltage was not 2.5 V for 1.5 seconds.</p> <ul style="list-style-type: none"> • ID sensor harness, connector is loose, broken, or defective • ID sensor dirty • ID sensor defective • IOB defective • LD Unit defective • BCU defective • Development power pack defective |

Trouble-
shooting

NOTE

- The SC code is not displayed; only the logging data is incremented.
- When this SC is issued, only the toner density sensor output (V_t) (even for jobs less than 10 copies) and V_{ref} is not updated.
- After an abnormal condition is detected, **SP3103** (ID Sensor Output Display) shows " $V_{sp} = V_{sg} = 0$ " (or "5.0V").
- If the next ID sensor pattern check is normal, this restores normal operation.

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| SC420 | C | Drum Potential Sensor Error 1: Vd Adjustment Error |
| | | <p>When V_d (drum potential of the latent ID sensor pattern before exposure) was adjusted during auto process control:</p> <p>After 5 adjustments by V_g (voltage output of the charge corona unit) V_d failed to attain the value of SP2001 006 (total corona voltage for Photo Mode at normal speed) or V_d failed to attain the value of SP2001 012 for the CPM down mode (but not Photo Mode).</p> <ul style="list-style-type: none"> • Drum potential sensor harness, connector is loose, broken, defective • Drum potential sensor dirty • Drum potential sensor defective • Drum connector, harness loose, broken, defective • Development power pack defective • BCU defective |

SERVICE CALL CONDITIONS

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| SC424 | C | <p>Drum Potential Sensor Error 2: VI Error</p> <p>At auto process control initialization, the VL detected after creation of the ID sensor pattern is greater than 400.</p> <p>Note: VI is the drum potential after maximum laser exposure, determined by reading the white patches of the potential sensor pattern. To change VI, the machine adjusts the input current of the laser diodes.</p> | <ul style="list-style-type: none"> • Drum worn • LD unit dirty • Poor drum ground connection |
| SC428 | C | <p>Drum Potential Sensor Error 3: Vh Adjustment Error</p> <p>The correct value for Vh (standard drum potential for halftones) could not be detected after 45 consecutive adjustments of LD power:</p> <ul style="list-style-type: none"> • The value for SP3904 001 could not be attained for normal speed, or the value of SP3904 002 could not be attained for low speed mode. • The LD power adjustments exceeded the upper and lower limits (+185 and -70). | <ul style="list-style-type: none"> • Drum potential sensor harness, connector is loose, broken, defective • Drum potential sensor dirty • Drum potential sensor defective • Drum unit connector, harness loose, broken, defective • Poor drum ground connection • LD unit defective • BCU defective |
| SC435 | C | <p>PCU Set Error</p> <p>The PCU is not installed, or it is installed incorrectly. The PCU unit set switch is checked every time the machine is turned on and when the front doors are closed.</p> | <ol style="list-style-type: none"> 1. Pull out the PCU unit. 2. Install it again. 3. Close the front doors 4. Cycle the machine off/on |
| SC437 | C | <p>Drum Potential Sensor Error 4: Vd Detection Error</p> <p>During execution of auto process control for normal speed and CPM down mode when VD was detected VG= -900V</p> | <ul style="list-style-type: none"> • Do SP3902 001 to determine if auto process control has been turned off. If this SP is off, turn it on. |

SERVICE CALL CONDITIONS

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| SC438 | B | <p>Drum Potential Sensor Error 5: ID Sensor Pattern Potential</p> <p>When the ID sensor potential (V_p) was measured after a cold start, or at the end of a job, the total of this reading and the value of the setting of SP2201 004 did not exceed 800V (development unit power pack output) after 10 continuous samplings.</p> <ul style="list-style-type: none"> • Drum potential sensor defective • BCU defective • IOB defective • Poor drum unit connection or connectors defective • Poor drum ground connection • LD defective • Poor drum cleaning ground connection • Drum worn • Dirty laser optics | |
| SC439 | B | <p>Drum Potential Sensor Error 6: Vh Abnormal</p> <p>When the LD power was adjusted during auto process control, the first value detected for the V_h pattern (used to set standard drum potential for halftones) exceeded -730V.</p> <ul style="list-style-type: none"> • Drum potential sensor harness, connector loose, broken, defective • Drum potential sensor defective • LD unit defective (pattern could not be created) | |
| SC440 | B | <p>Transfer Output Error</p> <p>One of the following conditions was detected for 17 counts (about 100 ms) when the transfer voltage was applied with the main motor operating:</p> <ul style="list-style-type: none"> • The value for the transfer current was set for 70uA, but the feedback voltage was less than 0.75V (less than 1.5 KV). • When the feedback current was less than 0.16V (10uA), the feedback voltage was less than 0.15V (less than 300V) due to a poor input connection. • When the feedback current was less than 0.16V (10uA), the feedback voltage was less than 3.05V (over 6.1 KV) due to a poor output connection. | <ul style="list-style-type: none"> • Transfer power pack harness, connectors loose or broken • Transfer power pack harness or connectors have short circuited • Transfer power pack is defective |
| SC441 | B | <p>Development Motor Lock</p> <p>While the motor is operating, the motor lock signal remained LOW for 2 s</p> <ul style="list-style-type: none"> • Development motor lock due to overload • IOB defective | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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|--------------|----------|---|---|
| SC487 | B | Toner Collection Unit Lock The toner collection coil rotation sensor did not detect rotation of the coil within 5 s after the drum motor turned on due to toner clumping in the collection unit. | <ul style="list-style-type: none"> Empty or replace the toner collection bottle. Enter "0" in SP2-950-001 and cycle the machine OFF/ON. |
|--------------|----------|---|---|

NOTE:

- The drive gear that drives the cleaning and toner transport mechanism is equipped with a torque limiter. If the rotation of the toner collection coil becomes overloaded, the torque limiter disengages the drive gear.
- The sensor (a photo interrupter) detects the change in the position of the gear, which triggers the error.
- SC487 code will occur after 8K pages have been fed after a message alerts the operator that the toner collection unit needs to be replaced. After the 8K pages have fed, the machine will stop.

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| SC488 | C | 2nd Cleaning Blade Operation Error The push-switch signal from the cleaning blade solenoid was incorrect. The signal is detected 1 sec. after the solenoid operates. | <ul style="list-style-type: none"> 2nd blade solenoid connector loose, broken defective 2nd blade solenoid defective Release mechanism defective |
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| SC489 | C | Drum Cleaning Unit Set Error The drum cleaning unit is not set properly. The drum cleaning unit set switch is set every time the machine is turned on and when the front doors are closed. | <ol style="list-style-type: none"> Remove the drum cleaning unit Install it again. Close the front doors Cycle the machine off/on |
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| SC491 | B | Polygonal Mirror Motor Cooling Fan Motor Lock The polygonal mirror motor cooling fan motor lock signal remains HIGH for 5 s while the polygonal mirror motor cooling fan motor is on. | <ul style="list-style-type: none"> Drive mechanism overload Obstruction has stopped the fan Fan connector loose, broken, defective |
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| SC492 | B | Development Unit Suction Motor Lock While the development unit toner suction motor is operating, the lock sensor output did not change for 1 s An electrical overload in the PCB inside the motor unit has caused the motor to malfunction. | <ul style="list-style-type: none"> Replace the motor. |
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| SC494 | B | Toner Transport Unit Error |
| | | <p>One of the following has occurred during toner transport from the toner bank to the toner supply cylinder:</p> <ul style="list-style-type: none"> • An obstruction (clumped toner, other foreign material) is blocking the toner supply coil • The coil torque limiter is broken • Toner bottle end sensor is broken <ul style="list-style-type: none"> • Cycle the machine off/on • Clean the toner transport coil, tubing, toner supply clutch, torque limiter • Defective toner supply coil • Defective toner supply tube • Defective toner supply clutch • Defective torque limiter |

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| SC495 | B | Toner Bottle Unit Error |
| | | <p>During toner transport from the toner supply cylinder to the toner hopper, the toner hopper sensor cannot detect toner even after the toner supply pump switches on for 2 s and switches off 10 times during copying.</p> <ul style="list-style-type: none"> • Toner supply pump motor harness, connector loose, broken, defective • Toner supply pump motor defective • Blockage in the toner supply tube • Toner supply tube disconnected • Blockage in the toner supply cylinder • Toner-end sensor in the toner supply cylinder defective • Agitator in the toner supply cylinder defective • Toner supply cylinder agitator motor defective |

Trouble-
shooting

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| SC496 | B | Toner Collection Bottle Error |
| | | <p>The toner collection bottle sensor set sensor remained off for 3 s.</p> <ul style="list-style-type: none"> • Used toner collection bottle is set incorrectly • Used toner collection bottle harness, connector loose, broken, defective |

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| SC497 | B | Development Unit Toner Suction Bottle Error |
| | | <p>During machine operation, the development unit toner suction bottle set sensor goes off for 3 s.</p> <ul style="list-style-type: none"> • Toner suction bottle is not installed • Toner suction bottle set sensor connector is loose, broken, defective |

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| SC501 | D | 1st Tray Lift Mechanism |
| | | <p>One of the following conditions is detected in the 1st tray (tandem tray) of the main machine:</p> <ul style="list-style-type: none"> • The 1st tray lift sensor is not activated for 10 s after the 1st tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The 1st tray lift sensor is already activated when the 1st tray is placed in the machine. <ul style="list-style-type: none"> • Poor 1st tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • 1st pick-up solenoid connector is loose • 1st pick-up solenoid is blocked by an obstruction |

SERVICE CALL CONDITIONS

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| SC502 | D | <p>2nd Tray Lift Malfunction</p> <p>One of the following conditions is detected in the 2nd tray of the main machine:</p> <ul style="list-style-type: none"> • The 2nd tray lift sensor is not activated for 10 s after the 2nd tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The 2nd tray lift sensor is already activated when the 2nd tray is placed in the machine. | <ul style="list-style-type: none"> • Poor 2nd tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • 2nd pick-up solenoid connector is loose • 2nd pick-up solenoid is blocked by an obstruction |
| SC503 | D | <p>3rd Tray Lift Malfunction</p> <p>One of the following conditions is detected in the 3rd tray of the main machine:</p> <ul style="list-style-type: none"> • The 3rd tray lift sensor is not activated for 10 s after the 3rd tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The 3rd tray lift sensor is already activated when the 3rd tray is placed in the machine | <ul style="list-style-type: none"> • Poor 3rd tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • 3rd pick-up solenoid connector is loose • 3rd pick-up solenoid is blocked by an obstruction |
| SC504 | D | <p>4th Tray (LCT Tray 1) Lift Malfunction</p> <p>One of the following conditions is detected in the 4th tray:</p> <ul style="list-style-type: none"> • The LCT 1st lift sensor is not activated for 10 s after the LCT 1st tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The LCT 1st lift sensor is already activated when the LCT 1st tray is placed in the machine. | <ul style="list-style-type: none"> • Poor LCT 1st tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • LCT 1st pick-up solenoid connector is loose • LCT 1st pick-up solenoid is blocked by an obstruction |
| SC505 | D | <p>5th Tray (LCT Tray 2) Lift Malfunction</p> <p>One of the following conditions is detected in the 5th tray:</p> <ul style="list-style-type: none"> • The LCT 2nd lift sensor is not activated for 10 s after the LCT 2nd tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The LCT 2nd lift sensor is already activated when the LCT 2nd tray is placed in the machine. | <ul style="list-style-type: none"> • Poor LCT 2nd tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • LCT 2nd pick-up solenoid connector is loose • LCT 2nd pick-up solenoid is blocked by an obstruction |

SERVICE CALL CONDITIONS

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| SC506 | D | 6th Tray (LCT Tray 3) Lift Malfunction | |
| | | <p>One of the following conditions is detected in the 6th tray.</p> <ul style="list-style-type: none"> • The LCT 3rd lift sensor is not activated for 20 s after the LCT 3rd tray lift motor turned on. • Upper limit is not detected within 20 s while the paper tray is lifting during paper feed. • The LCT 3rd lift sensor is already activated when the LCT 3rd tray is placed in the machine. | |
| SC507 | D | 7th Tray (Bypass Tray) Lift Mechanism | |
| | | <p>One of the following conditions is detected in the optional bypass tray.</p> <ul style="list-style-type: none"> • The bypass tray lift sensor is not activated for 10 s after the tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The bypass tray lift sensor is already activated paper is placed in the 7th tray. | |
| SC529 | C | Exit Junction Gate HP Sensor Error | |
| | | The exit junction gate did not return to its home position. | <ul style="list-style-type: none"> • Cycle the machine off/on |
| SC531 | B | Fusing Motor Lock | |
| | | A fusing motor lock signal is detected for more than 2 s during operation due to an electrical overload in the motor driver board. | <ul style="list-style-type: none"> • Motor driver board defective. Replace motor. |
| SC541 | A | Fusing Thermister Open | |
| | | The fusing temperature detected by the thermistor was below 7°C for 15 s. | <ul style="list-style-type: none"> • Fusing thermistor defective or out of position • Poor thermistor terminal connection |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC542 | A | Fusing Temperature Warm-up Error |
| | | <p>One of the following occurred:</p> <ul style="list-style-type: none"> • B234/B235/D101/D102: Hot roller did not reach target operation temperature within 360 sec. after the machine was powered or 360 sec. minutes after the doors were closed. • B236/D103: Hot roller did not reach target operation temperature within 465 sec. after the machine was powered or 465 sec. minutes after the doors were closed. • Fusing temperature rose only 5°C toward the fusing temperature within 20 s after the machine was powered on, or after the doors were closed. • Fusing temperature rose only 5°C toward the fusing temperature within 20 s after thermistor started monitoring hot roller temperature. (The thermistors starts monitoring 25 s after the hot roller starts rotating.) |
| SC543 | A | Fusing Overheat Error 1: Software |
| | | <p>A fusing temperature of over 210°C is detected for 5 s by the fusing thermistor. This prevents the fusing lamps from switching on without a fusing lamp trigger signal.</p> <ul style="list-style-type: none"> • AC drive board defective (TRIAC short) • BCU defective • BCU firmware defective |
| SC544 | A | Fusing Overheat Error 2: Hardware |
| | | <p>The fusing temperature monitoring circuit detects abnormal fusing temperature.</p> <ul style="list-style-type: none"> • AC drive board defective (TRIAC short) • BCU defective • BCU firmware defective |
| SC545 | A | Fusing Overheat Error 3: Continuous Lamp On |
| | | <p>After warm-up and while the hot roller is not rotating, the fusing lamps remain on at full power for 45 s (B234/B235/D101/D102) & 90 s (B236/D103).</p> <ul style="list-style-type: none"> • Fusing thermistor out of position • One or more fusing lamp is disconnected |
| SC547 | A | Zero-Cross Signal Not Detected |
| | | <p>The applied bandwidth is detected above 66 Hz or below 45 Hz, and no zero-cross signal detected for 5 s with the power relay ON.</p> <ul style="list-style-type: none"> • Noise on the ac power line • Cycle the machine off/on • If the problem continues, install a noise filter |

SERVICE CALL CONDITIONS

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| SC557 | C | <p>Zero-Cross Signal Over</p> <p>Noise was detected on the power supply line.</p> <ul style="list-style-type: none"> • Cycle the machine off/on • If the problem continues, install a noise filter | |
| SC559 | A | <p>Fusing Unit Jam Error</p> <p>The paper cooling job time sensor detected paper late for 3 counts. This SC only occurs if SP1159 is on, and a jam occurred in the fusing unit for three consecutive sheets of paper.</p> <ul style="list-style-type: none"> • Remove the paper that is jammed in the fusing unit. Then make sure that the fusing unit is clean and has no obstacles in the paper feed path. | |
| SC585 | C | <p>Double-Feed LED Adjustment Error</p> <p>The calibration of the double-feed LED for the paper type failed reach the target voltage. The print job completed without the double-feed detection operating. The target voltages are:</p> <ul style="list-style-type: none"> • Normal paper 3.0V±1% • Translucent paper: 3.8V±2% • OHP: 4.0V±2% <ul style="list-style-type: none"> • Double-feed sensor/LED dirty • Clean the sensor and the paper registration area • Sensor/LED connector loose, broken, defective | |
| SC592 | B | <p>Toner Bank Motor Error</p> <p>An abnormal signal was received from the toner bank motor.</p> <ul style="list-style-type: none"> • Toner bank motor defective • Bank motor connector loose • Mechanical overload on the drive mechanism | |
| SC593 | B | <p>Toner Suction Motor Replace Alert</p> <p>The total operation time of the motor exceeded 600 hours. Note: A near-end message appears on the operation panel when the service life of the motor exceeds 570 hours.</p> <ul style="list-style-type: none"> • The toner suction motor has reached the end of its service life. | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC601 | B | Communication Error Between BCU and MCU | |
| One or more of the following occurred: | | <ul style="list-style-type: none"> • The BCU cannot communicate with the MCU within 100 ms after power on after 3 tries. • A BREAK signal was detected after connection between the BCU and MCU. • After a communication error, three tries to communicate with the MCU failed. | |
| <ul style="list-style-type: none"> • Poor connection between BCU and MCU • BCU defective • MCU defective | | | |
| SC620 | B | Communication Error Between BCU and ADF 1 | |
| There was no response from the ADF 100 ms after the ACK signal was sent to the ADF. Three attempts to resend the data failed. | | <ul style="list-style-type: none"> • Poor connection between the BCU board and the ADF main board • Interference from external noise on the harness between the BCU and ADF | |
| SC621 | B | Communication Error Between BCU and ADF 2 | |
| The machine detected a break signal (LOW) from the line connection between the BCU and ADF. | | <ul style="list-style-type: none"> • Serial line connection unstable • Harness, connectors between ADF and BCU loose, broken, defective | |
| SC622 | B | Communication Error Between BCU and ADF 3 | |
| Software error after improper user operation. | | <ul style="list-style-type: none"> • Software error • Cycle the machine off/on | |
| SC625 | B | Communication Error Between BCU and Finisher | |
| The BCU cannot communicate with the finisher properly. There was no response from the ADF 100 ms after the ACK signal was sent to the ADF. Three attempts to resend the data failed. | | <ul style="list-style-type: none"> • Finisher door was opened while stacking/stapling was in progress. • Poor connection between the BCU board and the finisher main board | |
| SC626 | B | Communication Error Between BCU and Finisher | |
| A break signal (LOW) was detected. | | <ul style="list-style-type: none"> • Poor connection between the BCU board and the finisher main board • Finisher main board defective • BCU board defective • External electrical noise on the interface cable caused the serial line to become unstable | |

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| SC630 | B | CSS Communication |
| | | Japan Only |

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| SC632 | B | Charge Unit Device Error 1 |
| | | Japan Only |

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| SC633 | B | Charge Unit Device Error 2 |
| | | Japan Only |

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| SC650 | D | NRS Modem Communication Error |
| | | <p>One of the following factors could be the cause of this error:</p> <ul style="list-style-type: none"> • In the User Tools, check the settings for the dial-up user name and dial up password. • Modem has been disconnected. • Modem board disconnected. |

Check the following for a machine that is using Cumin (NRS modem):

- An error was returned during the dialup connection
- A network was detected at startup
- At startup the machine detected that the NIB was disabled, or did not detect a modem board

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

| Error | Problem | Solution |
|-------|--|--|
| 1 | Failure to certify dial-up | In the User Tools, check the dial-up user and dial-up password settings |
| 4 | Illegal modem setting | Check the setting of SP5816 160 to determine whether the setting for the AT command is correct. If this SP setting is correct, then the problem is a bug in the software. |
| 5 | Poor connection due to low power supply on the line. | The problem is on the external power supply line, so there is no corrective action on the machine. |
| 11 | Data in the NVRAM became corrupted when the network enable switch and Cumin-M were enabled at the same time. | Use SP5985 1 and set the NIC to "0" (Disable) to disable the network board. |
| 12 | The modem board could not enable the NIB. | Replace the modem board. |

Trouble-
shooting

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| SC651 | C | Illegal Remote Service Dial-up |
| | | An expected error occurred when Cumin-M dialed up the NRS Center. |

- Software bug
- No action is required because only the count is logged

SERVICE CALL CONDITIONS

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| SC670 | B | Engine Startup Error |
| | | <p>At power on or after the machine leaves the energy conservation mode:</p> <ul style="list-style-type: none"> • ENGRDY signal does not assert • IPURDY signal does not assert <p>After power on and the prescribed time has elapsed:</p> <ul style="list-style-type: none"> • No EC response from the engine • No PC response from the engine • No SC response from the engine <p>During machine operation mode:</p> <ul style="list-style-type: none"> • Write to Rapi drive failure (could not locate destination on the PCI) • After the /ENGRDY signal asserts with no effect. |
| SC672 | B | Controller Startup Error |
| | | <p>The line between the controller board and the operation panel does not open correctly when the machine is powered on, or after the machine was powered on communication between the controller and operation panel is suspended.</p> <p>The controller board and operation panel could not exchange the handshake (FDH) and acknowledge (FEH) signals within 15 s of the operation panel reset after power on, or after 2 retries there was no response to the transmission line confirmation command issued every 30 s from the operation panel to the controller board.</p> |
| SC701 | B | ADF Pickup Roller Release Malfunction |
| | | <p>The pick-up roller HP sensor does not activate or de-activate when the pick-up motor turns on.</p> <ul style="list-style-type: none"> • HP sensor connector, harness loose, broken, defective • Pick-up motor connector, harness loose, broken defective • Pick-up roller HP sensor defective • Pick-up motor defective • ADF main control board defective |
| SC702 | B | ADF Feed-In Motor Error |
| | | <p>While the feed motor is operating, the encoder pulse signal is not received within the specified time, or the paper size length encoder signal cannot be detected within the specified time (the encoder is built into the feed-in motor).</p> <ul style="list-style-type: none"> • Feed-in motor connector, harness loose, broken, defective • Paper length sensor connector, harness loose, broken, defective • Feed-in motor defective • Paper length sensor or encoder is defective • ADF main control board defective |

SERVICE CALL CONDITIONS

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| SC703 | B | ADF Transport Belt Motor Error |
| | | While the motor is operating, the encoder pulse signal is not received within the specified time and the transport belt motor does not turn properly. |
| SC704 | B | ADF Feed-Out Motor Error |
| | | While the feed-out motor is operating, the encoder pulse signal is not received within the specified time, and the feed-out motor does not turn properly |
| SC705 | B | ADF Original Table Lift Malfunction |
| | | One of the following conditions was detected. <ul style="list-style-type: none"> • The bottom plate position sensor does not activate when the bottom plate motor lifts the original table. • The bottom plate HP sensor does not activate when the bottom plate motor lowers the original table. |
| SC720 | B | Finisher Upper Transport Motor Error |
| | | The encoder pulse signal of the upper transport motor in the 3000-Sheet Finisher B830 did not change within the specified time. The upper transport motor did not rotate properly. |
| SC721 | B | Finisher Lower Transport Motor Error |
| | | The encoder pulse signal of the lower transport motor in the 3000-Sheet Finisher B830 did not change within the specified time. The lower transport motor did not rotate properly. |
| SC723 | D | Positioning Roller Motor Error (3K Finisher B830) |
| | | The positioning roller motor of the 3K Finisher is not operating correctly. |

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| SC724 | D | Finisher Staple Hammer Motor Error |
| | | <p>Stapling does not finish within the specified time (450 ms) after the staple hammer motor turned on.</p> <ul style="list-style-type: none"> • Positioning roller HP sensor loose, broken, defective • Positioning mechanism overloaded • Positioning roller motor overloaded due to obstruction • Main control board connectors loose, broken, defective • Main control board defective |

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| ⇒ | SC725 | D | Exit Guide Motor Error |
| | | | <p>The motor that opens and closes the exit guide at the shift tray exit is not operation correctly.</p> <ul style="list-style-type: none"> • Motor harness or connector loose, broken, defective • Check for and remove any obstruction that interferes with the operation of the exit guide • Exit guide plate HP sensor dirty • Exit guide plate HP sensor harness or connector loose, broken, defective • Motor defective • Sensor defective • Finisher main board defective |

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| SC726 | D | Finisher Shift Motor Error: 3K Finisher B830 |
| | | <p>The state of the shift tray half-turn sensor status did not change after the shift motor turns on.</p> <ul style="list-style-type: none"> • Positioning roller HP sensor loose, broken, defective • Positioning mechanism overloaded • Positioning roller motor overloaded due to obstruction • Main control board connectors loose, broken, defective • Main control board defective |

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| SC728 | D | Shift Jogger Retraction Motor Error: 3K Finisher B830 |
| | | <p>The side fences do arrive at the home position within the specified time. -or- The side fences did not leave the home position within the specified time.</p> <p>Note: The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • If the motor is rotating, positioning roller HP sensor loose, broken, defective • If the motor is not rotating: <ul style="list-style-type: none"> • Positioning mechanism overloaded • Positioning roller motor overloaded due to obstruction • Positioning roller motor disconnected, defective • Main control board connectors loose, broken, defective • Main control board defective |

SERVICE CALL CONDITIONS

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| SC730 | D | <p>Lower Transport Motor Error: 3K Finisher B830</p> <p>No encoder pulse signal is detected for the lower transport motor within 600 ms. The 1st failure issues an original jam message, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • Lower transport motor disconnected, defective • Finisher connection to lower transport motor loose, defective • Lower transport motor blocked by an obstruction • Lower transport motor defective • Finisher main board defective | |
| SC731 | B | <p>Upper Transport Motor Error (Proof Tray): 3K Finisher B830</p> <p>No encoder pulse signal is detected for the upper transport motor within 600 ms. The 1st failure issues this SC code.</p> <ul style="list-style-type: none"> • Upper transport motor disconnected, defective • Finisher connection to upper transport motor loose, defective • Upper transport motor blocked by an obstruction • Upper transport motor defective • Finisher main board defective | |
| SC732 | D | <p>Shift Tray Exit Motor: 3K Finisher B830</p> <p>The shift tray exit motor is not operating.</p> <ul style="list-style-type: none"> • Motor harness loose, broken, defective • Motor is blocked by an obstruction • Motor defective • Finisher main control board defective | |
| SC733 | D | <p>Stapler Exit Motor: 3K Finisher B830</p> <p>The stapler exit motor is not operating.</p> <ul style="list-style-type: none"> • Motor harness loose, broken, defective • Motor is blocked by an obstruction • Motor defective • Finisher main control board defective | |
| SC734 | B | <p>Upper Tray Junction Gate Motor: 3K Finisher B830</p> <p>The upper tray junction gate HP sensor did not detect the gate at the home position within 200 ms after two attempts. -or- The HP sensor twice detected the gate at the home position for more than 200 ms after it was supposed to open.</p> <ul style="list-style-type: none"> • Junction gate did not arrive at the home position within the specified time • Junction gate did not leave the home position within the specified time | |

**Trouble-
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SERVICE CALL CONDITIONS

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| SC735 | B | <p>Staple Junction Gate Motor Error: 3K Finisher B830</p> <p>The staple tray junction gate HP sensor did not detect the gate at the home position within 200 ms after two attempts.</p> <p>-or-</p> <p>The HP sensor twice detected the gate at the home position for more than 200 ms after it was supposed to open.</p> <ul style="list-style-type: none"> • Junction gate did not arrive at the home position within the specified time • Junction gate did not leave the home position within the specified time |
| SC736 | D | <p>Pre-Stack Junction Gate Motor Error: 3K Finisher B830</p> <p>The pre-stack junction gate HP sensor did not detect the gate at the home position for within 200 ms after two attempts.</p> <p>-or-</p> <p>The HP sensor twice detected the gate at the home position for more than 200 ms after it was supposed to open.</p> <ul style="list-style-type: none"> • Junction gate did not arrive at the home position within the specified time • Junction gate did not leave the home position within the specified time |
| SC737 | D | <p>Pre-Stack Transport Motor Error: 3K Finisher B830</p> <p>The pre-stack transport motor is not operating.</p> <ul style="list-style-type: none"> • Motor harness loose, broken, defective • Motor is blocked by an obstruction • Motor defective • Finisher main control board defective |
| SC738 | D | <p>Pre-Stack Junction Gate Release Motor Error: 3K Finisher B830</p> <p>The pre-stack junction gate release HP sensor did not detect the gate at the home position within 200 ms after two attempts.</p> <p>-or-</p> <p>The HP sensor twice detected the gate at the home position for more than 200 ms after it was supposed to open.</p> <ul style="list-style-type: none"> • Junction gate did not arrive at the home position within the specified time • Junction gate did not leave the home position within the specified time |

SERVICE CALL CONDITIONS

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| SC740 | D | <p>Finisher Corner Stapler Motor Error: 3K Finisher B830</p> <p>The stapler motor did not switch off within 600 ms after operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • Number of sheets in the stack exceeded the limit for stapling • If error occurred during stapling, stapler rotation sensor 1 defective (replace stapler) • If error did not occur during stapling: staple jam: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Stapler motor harness loose, broken, defective 3 Corner stapler motor defective 4 Main control board defective |
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| SC741 | D | <p>Finisher Corner Stapler Rotation Motor Error: 3K Finisher B830</p> <p>The stapler did not return to its home position within the specified time after stapling. -or- The stapler failed to leave the home position within the specified time.</p> <p>The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • If the motor is running, <ol style="list-style-type: none"> 1 Stapler rotation home position sensor harnesses are broken, loose, or defective 2 Stapler rotation home position sensors are defective • If the motor is not running: <ol style="list-style-type: none"> 1 Motor is blocked by an obstruction 2 Motor harness is loose, broken, defective 3 Motor is defective |
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Trouble-
shooting

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| SC742 | D | <p>Finisher Stapler Movement Motor Error: 3K Finisher B830</p> <p>The stapler did not return to its home position within the specified time after stapling. -or- The stapler failed to leave the home position within the specified time</p> <p>The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • If the motor is running, <ol style="list-style-type: none"> 1 Stapler home position sensor harness is broken, loose, or defective 2 Stapler home position sensor is defective • If the motor is not running: <ol style="list-style-type: none"> 1 Motor is blocked by an obstruction 2 Motor harness is loose, broken, defective 3 Motor is defective |
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| SC743 | D | <p>Booklet Stapler Motor Error 1: Front Motor (Booklet Finisher)</p> <p>The front stapler unit saddle-stitch motor does not start operation within 600 ms. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • Front motor harness loose, broken, defective • Front motor overloaded due to obstruction • Front motor defective • Booklet finisher control board defective |
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SERVICE CALL CONDITIONS

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| SC744 | D | <p>Booklet Stapler Motor Error 2: Rear Motor (Booklet Finisher)</p> <p>The rear stapler unit saddle-stitch motor does not start operation within 500 ms. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • Rear motor harness loose, broken, defective • Rear motor overloaded due to obstruction • Rear motor defective • Booklet finisher control board defective |
| SC745 | D | <p>Feed-Out Belt Motor Error (Booklet Finisher)</p> <p>The stack feed-out belt HP sensor does not activate within the specified time after the stack feed-out belt motor turns on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • If the motor is operating <ol style="list-style-type: none"> 1 Stack feed-out HP sensor harness loose, broken, defective 2 Stack feed-out HP sensor defective • If the motor is not operating: <ol style="list-style-type: none"> 1 Feed-out motor blocked by an obstruction 2 Feed-out motor harness loose, broken, defective 3 Feed-out motor defective 4 Booklet finisher main board defective |
| SC746 | D | <p>Stack Plate Motor Error 1: Front Motor (3K Finisher B830)</p> <p>The stack plate HP sensor (front) does not activate within 500 ms after the motor turns on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • If the motor is operating <ol style="list-style-type: none"> 1 Front stack plate HP sensor harness loose, broken, defective 2 Front stack plate HP sensor defective • If the motor is not operating: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Booklet finisher main board defective |
| SC747 | D | <p>Stack Plate Motor Error 2: Center Motor (3K Finisher B830)</p> <p>The stack plate HP sensor (center) does not activate within 500 ms after the motor turns on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • If the motor is operating <ol style="list-style-type: none"> 1 Center stack plate HP sensor harness loose, broken, defective 2 Center stack plate HP sensor defective • If the motor is not operating: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Booklet finisher main board defective |

SERVICE CALL CONDITIONS

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| SC748 | D | <p>Stack Plate Motor Error 3: Rear Motor (3K Finisher B830)</p> <p>The stack plate HP sensor (rear) does not activate within 500 ms after the motor turns on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • If the motor is operating <ul style="list-style-type: none"> 1 Rear stack plate HP sensor harness loose, broken, defective 2 Rear stack plate HP sensor defective • If the motor is not operating: <ul style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Booklet finisher main board defective | |
| SC750 | D | <p>Tray 1 (Upper Tray Lift) Motor Error: 3K Finisher B830</p> <p>The upper tray paper height sensor does not change its status within 20 sec. after the tray raises or lowers. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • Tray lift motor disconnected, defective • Upper tray paper height sensor disconnected, defective • Finisher main board connection to motor loose • Finisher main board defective | |
| SC753 | D | <p>Stacking Roller Motor Error: 3K Finisher B830</p> <p>The return drive HP sensor did not detect the stacking roller at the HP sensor within 1 sec. -or- The stacking roller did not leave the home position at the specified time.</p> <ul style="list-style-type: none"> • If the motor is operating <ul style="list-style-type: none"> 1 Return drive HP sensor harness loose, broken, defective 2 Return drive HP sensor defective • If the motor is not operating: <ul style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective | |
| SC754 | D | <p>Stacking Roller Drag Motor Error: 3K Finisher B830</p> <p>The stacking roller drag motor did not turn on.</p> <ul style="list-style-type: none"> • Motor harness loose, broken, defective • Motor defective • Finisher control board defective | |

Trouble-
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SERVICE CALL CONDITIONS

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| SC755 | D | <p>Shift Motor Error: 3K Finisher B830</p> <p>The shift tray half-turn sensors: Failed twice to detect the shift tray at the home position at the specified time. -or- Failed twice to detect that the shift tray had left the home position.</p> <ul style="list-style-type: none"> • If the motor is operating <ol style="list-style-type: none"> 1 Half-turn sensor 1, 2 harnesses loose, broken, defective 2 One of the half-turn sensors defective • If the motor is not operating: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective |
| SC760 | B | <p>Punch Motor Error: 3K Finisher B830</p> <p>The punch HP sensor is not activated within the specified time after the punch motor turned on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • If the motor is operating: <ol style="list-style-type: none"> 1 Punch HP sensor loose, broken, defective 2 Punch HP sensor defective • If the motor is not operating: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective |
| SC761 | D | <p>Fold Plate Motor Error: Booklet Finisher</p> <p>The fold plate moves but: The fold plate HP sensor did not detect it at the home position within the specified time. -or- The plate remained at the home position longer than the specified time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • If the motor is operating: <ol style="list-style-type: none"> 1 Punch HP sensor loose, broken, defective 2 Punch HP sensor defective • If the motor is not operating: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective |
| SC765 | D | <p>Fold Unit Bottom Fence Lift Motor Error</p> <p>The fold unit bottom fence did not return to the home position within the specified time.</p> <ul style="list-style-type: none"> • Fold bottom fence mechanism overloaded due to an obstruction • Fold bottom fence HP sensor connector loose, broken, defective • Fold bottom fence HP sensor defective • Fold bottom fence lift motor connector loose, broken, defective • Fold bottom fence lift motor defective • Main control board defective |

SERVICE CALL CONDITIONS

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| SC766 | D | <p>Clamp Roller Retraction Motor</p> <p>The clamp roller did not return to the home position within the specified time.</p> <ul style="list-style-type: none"> • Clamp roller mechanism overloaded due to an obstruction • Clamp roller HP sensor connector loose, broken, defective • Clamp roller HP sensor defective • Clamp roller retraction motor connector loose, broken, defective • Clamp roller retraction motor defective • Main control board defective |
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| SC767 | D | <p>Stack Junction Gate Motor</p> <p>The stack junction gate did not return to the home position within the specified time.</p> <ul style="list-style-type: none"> • Stack junction mechanism overloaded due to an obstruction • Stack junction gate HP sensor connector loose, broken, defective • Stack junction gate HP sensor defective • Stack junction gate motor connector loose, broken, defective • Stack junction gate motor defective • Main control board defective |
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Trouble-
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| SC770 | D | <p>Cover Interposer Lift Motor 1 Error</p> <p>In the first tray:</p> <ul style="list-style-type: none"> • The upper limit sensor did not detect the bottom plate within the specified time after the lift motor switched on to lift the bottom plate. • The lower limit sensor did not direct the bottom plate within the specified time after the lift motor switched on to lower the bottom plate. <p>Note: In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.</p> <ul style="list-style-type: none"> • Lift motor, upper limit sensor, lower limit sensor harnesses, connectors loose, broken, defective • Lift motor defective • Upper limit sensor defective • Lower limit sensor defective |
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| SC771 | D | <p>Cover Interposer Lift Motor 2 Error</p> <p>In the second tray:</p> <ul style="list-style-type: none"> • The upper limit sensor did not detect the bottom plate within the specified time after the lift motor switched on to lift the bottom plate. • The lower limit sensor did not direct the bottom plate within the specified time after the lift motor switched on to lower the bottom plate. <p>Note: In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.</p> <ul style="list-style-type: none"> • Lift motor, upper limit sensor, lower limit sensor harnesses, connectors loose, broken, defective • Lift motor defective • Upper limit sensor defective • Lower limit sensor defective |
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SERVICE CALL CONDITIONS

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| SC772 | D | <p>Cover Interposer Pickup Motor 1 Error</p> <p>In the first tray:</p> <ul style="list-style-type: none"> • While the pick-up roller motor was on, the pick-up roller HP sensor did not detect the pick-up roller at the home position <u>within</u> the specified number of pulses. • While the pick-up roller motor was on, the pick-up roller HP sensor did not detect the pick-up roller at the home position <u>above</u> the specified number of pulses. <p>Note: In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.</p> <ul style="list-style-type: none"> • The pick-up motor, pick-up roller HP sensor harnesses, connectors were loose, broken, defective • Pick-up motor overload due to an obstruction • Pick-up motor defective • Pick-up roller HP sensor defective | |
| SC773 | D | <p>Cover Interposer Pickup Motor 2 Error</p> <p>In the second tray:</p> <ul style="list-style-type: none"> • While the pick-up roller motor was on, the pick-up roller HP sensor did not detect the pick-up roller at the home position <u>within</u> the specified number of pulses. • While the pick-up roller motor was on, the pick-up roller HP sensor did not detect the pick-up roller at the home position <u>above</u> the specified number of pulses. <p>Note: In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.</p> <ul style="list-style-type: none"> • The pick-up motor, pick-up roller HP sensor harnesses, connectors were loose, broken, defective • Pick-up motor overload due to an obstruction • Pick-up motor defective • Pick-up roller HP sensor defective | |
| SC775 | D | <p>Jogger Top Fence Motor: 3K Finisher B830</p> <p>The top fence HP sensor detected that: The top fence did not arrive at the home position within the specified number of pulses. -or- The top fence failed to leave the home position within the specified number of pulses.</p> <ul style="list-style-type: none"> • If the jogger top fence motor is operating: <ol style="list-style-type: none"> 1 Top fence HP sensor harness loose, broken, defective 2 Top fence HP sensor defective • If the jogger top fence motor is not operating: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective | |

SERVICE CALL CONDITIONS

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| SC776 | D | <p>Jogger Bottom Fence Motor: 3K Finisher B830</p> <p>The bottom fence HP sensor detected that: The bottom fence did not arrive at the home position at the specified time. -or- The bottom fence failed to leave the home position at the specified time.</p> <ul style="list-style-type: none"> • If the jogger bottom fence motor is operating: <ol style="list-style-type: none"> 1 Bottom fence HP sensor harness loose, broken, defective 2 Bottom fence HP sensor defective • If the jogger bottom fence motor is not operating: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective | |
| SC780 | D | <p>Z-Fold Feed Motor Error</p> <p>The feed motor that drives the feed rollers and exit rollers in the Z-fold unit is not operating. The 1st alert signals a jam, the 2nd alert triggers this SC.</p> <ul style="list-style-type: none"> • Motor harness loose, broken, defective • Motor blocked by an obstruction • Motor defective | |
| SC781 | D | <p>Z-Fold Lower Stopper Motor Error</p> <p>The lower stopper failed to leave the home position with the specified number of motor pulses.</p> <p>Note: The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • Lower stopper motor disconnected, defective • Lower stopper motor overloaded due to obstruction • Lower stopper HP sensor disconnected, defective | |
| SC782 | D | <p>Z-fold Upper Stopper Motor</p> <p>The upper stopper failed to leave the home position with the specified number of motor pulses.</p> <p>Note: The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.</p> <ul style="list-style-type: none"> • Upper stopper motor disconnected, defective • Upper stopper motor overloaded due to obstruction • Upper stopper HP sensor disconnected, defective | |
| SC784 | D | <p>Z-Fold Timing Sensor Adjustment Error 1</p> <p>The output voltage light emitted from the sensor changed, but the return input was not sufficient to attain V0.</p> <ul style="list-style-type: none"> • Sensor, mirror dirty from paper dust, other particles • Harness loose, broken, defective • Mirror out of position | |

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| SC785 | D | Z-Fold Timing Sensor Adjustment Error 2 The output voltage light emitted from the sensor changed, but the return input was not sufficient to attain V0. | <ul style="list-style-type: none"> • Sensor, mirror dirty from paper dust, other particles • Harness loose, broken, defective • Mirror out of position |
| SC786 | D | Z-Fold Memory Error Several attempts to write to the Z-fold memory failed. | <ul style="list-style-type: none"> • Cycle the machine off/on • EEPROM defective |
| SC790 | D | Booklet Stapler Jogger Motor Error The jogger fence HP sensor failed to detect the jogger fence at the home position within the specified time. | <ul style="list-style-type: none"> • If the booklet stapler jogger motor is operating: <ol style="list-style-type: none"> 1 Jogger fence HP sensor harness loose, broken, defective 2 Jogger fence HP sensor defective • If the jogger bottom fence motor is not operating: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective |
| SC791 | D | Booklet Stapler Output Motor The stack feed out belt HP sensor failed to detect the feed out belt at the home position within the specified time. | <ul style="list-style-type: none"> • If the booklet stapler output motor is operating: <ol style="list-style-type: none"> 1 Stack feed out belt HP sensor harness loose, broken, defective 2 Stack feed out belt HP sensor defective • If the booklet stapler output motor is not operating: <ol style="list-style-type: none"> 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective |

SERVICE CALL CONDITIONS

Important: The S792-** SC Codes apply to the Ring Binder D392.

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| 792-1 | D | <p>Junction gate error</p> <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 36 pulses) (1st detection, jam, twice detected, SC error)</p> <p>-or-</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 22 pulses) (1st detection, jam, twice detected, SC error)</p> | <ul style="list-style-type: none"> • Path JG motor (M201) defective • Motor connector loose, broken, defective • Motor overload • Path JG sensor (S203) connector loose, broken, defective • Sensor (S203) defective |
| 792-2 | D | <p>Pre-punch side fence HP error</p> <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 pulses) (1st detection, jam, 2nd detection, SC error)</p> <p>-or-</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 600 pulses) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Side jogger motor (M302) connector loose, broken, defective • Motor overload • Motor defective • Pre-punch jogger HP sensor (S301) connector loose, broken, defective • Sensor (S301) defective |
| 792-3 | D | <p>Pre-punch jogger roller HP error</p> <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 36 pulses) (1st detection, jam, 2nd detection, SC error)</p> <p>-or-</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 22 pulses) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Jog roller lift motor (M305) connector loose, broken, defective • Motor overload • Motor defective • Jog roller lift HP sensor (S309) connector loose, broken, defective • Sensor defective |
| 792-4 | D | <p>Punch defective</p> <p>One or more of the following occurred:</p> <p>Punch unit not detected at initialization.</p> <p>No motor rotation detected at HP at 30 ms after the DC motor turned on</p> <p>No encoder pulse detected at HP at 5 ms after the DC motor turned on</p> <p>Not detected at HP at 400 ms after the DC motor turned on</p> | <ul style="list-style-type: none"> • Punch motor (M304) connector loose, broken, defective • Motor overload • Motor defective • Punch HP sensor (S302) connector loose, broken, defective, or sensor defective • Punch encoder sensor (S303) connector loose, broken, defective, or sensor defective |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| 792-5 | D | Paddle roller HP error | |
| | | <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> <p>-or-</p> <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Paddle roller lift motor (M603) connector loose, broken, defective • Motor overload • Motor defective • Paddle roller HP sensor (S602) connector loose, broken, defective • Sensor defective |
| 792-6 | D | Jogger fence 1 error | |
| | | <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> <p>-or-</p> <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Jog fence 1 motor (M604) connector, loose, broken, defective • Motor defective • Motor overload • Side fence 1 HP sensor (S601) connector, loose, broken, defective • Sensor defective |
| 792-7 | D | Jogger fence 2 error | |
| | | <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> <p>-or-</p> <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Jog fence 2 motor (M606) connector, loose, broken, defective • Motor defective • Motor overload • Side fence HP sensor 1 (S611) connector loose, broken, defective • Sensor defective |
| 792-8 | D | Stack tamper HP error | |
| | | <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> <p>-or-</p> <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Stack tamper motor (M607) connector, loose, broken, defective • Motor defective • Motor overload • Stack tamper HP sensor (S612) connector loose, broken, defective • Sensor defective |

SERVICE CALL CONDITIONS

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| 792-9 | D | <p>Pre-bind jogger clamp HP error</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error) -or- Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> <ul style="list-style-type: none"> • Spine clamp motor (M605) connector loose, broken, defective • Motor defective • Motor overload • Clamp HP sensor (S603) connector loose, broken, defective • Sensor defective | |
| 792-10 | D | <p>Binder unit runout error</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error) -or- Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> <ul style="list-style-type: none"> • Runout press roller motor (M610) connector loose, broken, defective • Motor defective • Motor overload • Runout roller HP sensor (S614) connector loose, broken, defective • Sensor defective | |
| 792-11 | D | <p>Clamp thickness error</p> <p>50-sheet detection sensor (S606) went OFF during pre-bind jogging when a 100-sheet thickness was detected. (1st detection jam, 2nd detection SC error) -or- 50-sheet detection sensor went OFF at initialization when the clamp moved to the open position.</p> <ul style="list-style-type: none"> • 50-sheet detection sensor (S606) connector loose, broken, defective • Sensor defective | |
| 792-12 | D | <p>Alignment pin error</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error) -or- Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> <ul style="list-style-type: none"> • Alignment pin motor (M602) connector loose, broken, defective • Motor overload • Motor defective • Alignment pin HP sensor (S604) connector loose, broken, defective • Sensor defective | |

**Trouble-
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SERVICE CALL CONDITIONS

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| 792-13 | D | <p>Pre-bind jogger shutter error</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error) -or- Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Shutter motor (M608) connector loose, broken, defective • Motor overload • Motor defective • Shutter HP sensor (S605) connector loose, broken, defective • Sensor defective |
| 792-14 | D | <p>50/100 clamp adjustment error</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error) -or- Detected at HP after the time prescribed to leave the HP had elapsed (more than 400 ms) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • 50/100 adjustment motor (M702) connector loose, broken, defective • Motor overload • Motor defective • Ring switch HP sensor (S706) connector loose, broken, defective, or sensor defective • Ring switch timing sensor (S707) connector loose, broken, defective, or sensor defective |
| 792-15 | D | <p>Timing sensor interval error</p> <p>The bind timing sensor (S702) remained ON or OFF longer than the prescribed time (1500 ms) during initialization or ring binding (1st detection: jam, 2nd detection: SC error)</p> | <ul style="list-style-type: none"> • Clamp unit motor (M701) connector loose, broken, defective • Motor overload • Motor defective • Bind timing sensor (S702) connector loose, broken, defective • Sensor defective |
| 792-16 | D | <p>Clamp unit HP error</p> <p>At initialization or during ring binding, did not arrive at the home position within the prescribed time (1500 ms) (1st detection: jam, 2nd detection: SC error) -or- Detected at HP after the time prescribed to leave the HP had elapsed (more than 1500 ms) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Clamp unit motor (M701) connector loose, broken, defective • Motor overload • Motor defective • Clamp unit HP sensor (S701) connector loose, broken, defective • Sensor defective |

SERVICE CALL CONDITIONS

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| 792-17 | D | Spine alignment error | | |
| | | During pin alignment operation, the pin did not reach the up position or return to the home position with the prescribed time (400 ms), and one retry failed within the same time limit. | <ul style="list-style-type: none"> • Alignment pin motor (M602) connector loose, broken, defective • Motor overload • Motor defective • Alignment pin HP sensor (S604) connector loose, broken, defective, or sensor defective • Alignment pin up sensor (S610) connector loose, broken, defective, or sensor defective • Stack not jogged correctly, or not punched correctly | |
| 792-18 | D | Binder unit not detected | | |
| | | The binder unit could not be detected at initialization. | <ul style="list-style-type: none"> • Drawer connector loose, broken, defective • Drawer connector defective | |
| 792-19 | D | Output belt unit rotation error | | |
| | | <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 800 pulses) (1st detection, jam, 2nd detection, SC error)</p> <p>-or-</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 2300 pulses) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Output belt rotation motor (M403) connector loose, broken, defective • Motor overload • Motor defective • Output belt rotation HP sensor (S403) connector loose, broken, defective • Sensor defective | |
| 792-20 | D | Output belt 1 HP error | | |
| | | <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 200 pulses) (1st detection, jam, 2nd detection, SC error)</p> <p>-or-</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 2125 pulses) (1st detection, jam, 2nd detection, SC error)</p> | <ul style="list-style-type: none"> • Output belt 1 motor (M401) connector loose, broken, defective • Motor overload • Motor defective • Output belt 1 HP sensor (S401) connector loose, broken, defective • Sensor defective | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| 792-21 | D | <p>Output belt 2 HP error</p> <p>Detected at HP after the time prescribed to leave the HP had elapsed (more than 200 pulses) (1st detection, jam, 2nd detection, SC error)</p> <p>-or-</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 3130 pulses) (1st detection, jam, 2nd detection, SC error)</p> | | <ul style="list-style-type: none"> • Output belt 2 motor (M402) connector loose, broken, defective • Motor overload • Motor defective • Output belt 2 HP sensor (S402) connector loose, broken, defective • Sensor defective |
| 792-22 | D | <p>Stack height error</p> <p>Stack height sensor remained ON while moving toward the top.</p> <p>-or-</p> <p>The sensor did not go ON within 6 sec. after the motor turned on.</p> | | <ul style="list-style-type: none"> • Stacker motor (M501) connector loose, broken, defective • Motor overload • Stack height sensor (S502) connector loose, broken, defective • Sensor defective |
| 792-23 | D | <p>Stacker error</p> <p>Although the stacker was full at the start and end of stacker operation with the stacker full (stacker sensors ON together), no documents were detected (also when documents were leaning)</p> <p>-or-</p> <p>Although the stacker was detected full with the stacker stopped, no documents were detected within 2 sec.</p> <p>(1st detection jam, 2nd detection SC error)</p> | | <ul style="list-style-type: none"> • Stacker HP sensor (S501) connector loose, broken, defective, or sensor defective • Stacker height HP sensor (S502) connector loose, broken, defective, or sensor defective • Stacker detect sensor (S504) loose, broken, defective, or sensor defective |

Important: The SC795-** series SC codes apply to the Perfect Binder D391.

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| SC795-1 | A | Master-to-Slave Board Communication Errors |
| | | Master/Slave Control Board Communication Error 1 |
| | | Master control board could not communicate with the slave control board for over 5 sec. and issued the communication alarm. |
| | | <ul style="list-style-type: none"> • Slave board connector loose, broken, defective • Slave board defective |
| | | Master/Slave Control Board Communication Error 2 |
| | | Slave control board could not communicate with the master control board for over 5 sec. and issued the communication alarm. |
| | | <ul style="list-style-type: none"> • Received data corrupted • Cycle the machine power off/on • Slave control board defective |
| | | Download Error |
| | | The version of the slave control board could not be detected at power on. Communication between the master and slave control boards is not possible if the slave board firmware cannot be written to the board. |
| | | <ul style="list-style-type: none"> • Slave board firmware not written • Cycle the machine power off/on • Slave control board defective |

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| SC795-2 | A | Master-to-Relay Board Communication Error |
| | | The master control board could not communicate with the relay control board. |
| | | <ul style="list-style-type: none"> • Master control board, relay control board connectors loose, broken, defective • Master control board defective • Relay control board defective |
| | | Download Error |
| | | The version of the master control board could not be detected at power on |
| | | <ul style="list-style-type: none"> • Master control board firmware not written |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC795-3 | A | Slave-to-Cutter Control Board Communication Error |
| | | Slave-to-Cutter Board Communication Error 1 |
| | | Slave control board could not communicate with the cutter control board (it detected the communication alarm for over 5 sec.) |
| | | <ul style="list-style-type: none"> • Cutter board connector loose, broken, defective • Cutter control board defective |
| SC795-4 | A | Slave-to-Cutter Board Communication Error 2 |
| | | Cutter control board could not communicate with the slave control board and detected the communication alarm for over 5 sec. More than twice the maximum allowed alarm recovery time (2 to 3 sec.) |
| | | <ul style="list-style-type: none"> • Slave control board connectors loose, broken, defective • Cutter control board connectors loose, broken, defective • Slave control board defective • Cutter control board defective |
| | | Download Error |
| SC795-4 | A | The version of the firmware on the cutter control board could not be detected at power on. Communication between the slave and cutter control boards is not possible if the cutter board firmware cannot be written to the board. |
| | | <ul style="list-style-type: none"> • Cutter control board connection loose, broken, defective • Cutter control board defective |
| | | Bookbinder EEPROM Error |
| | | EEPROM Read Error |
| SC795-4 | A | After EEPROM write operation was completed, the data was read from the same address. |
| | | <ul style="list-style-type: none"> • Master control board EEPROM not installed, not installed correctly • EEPROM defective |
| | | EEPROM Write Error |
| | | When data was written to the EEPROM, the EEPROM signaled that it was busy for longer than 25 ms and did not recover. The error time exceeded three times the maximum time allowed for recovery (8 ms) |
| SC795-4 | A | <ul style="list-style-type: none"> • Master control board EEPROM not installed, not installed correctly • EEPROM defective |

SERVICE CALL CONDITIONS

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| SC795-5 | A | Master-to-Inserter Board Communication Error | |
| | | Communication Error at Initialization | |
| | | After the ConfigSet (parallel signal) went ON while the inserter connection status was being checked, the initialization did not end successfully within 5 sec. The error time exceeded three times the maximum time allowed for the initialization communication (1.5 ms). | |
| | | Bookbinder-to-Inserter Communication Error | |
| SC795-6 | A | A command response for the inserter was not issued within the time prescribed for the timeout. There was an overflow in memory where information required for paper feed is stored. (Master control board detection.) | <ul style="list-style-type: none"> • Inserter control board defective • Inserter control board connector loose, broken, defective |
| | | Download Error | <ul style="list-style-type: none"> • Inserter control board defective • Inserter control board connector loose, broken, defective |
| | | The version of the firmware on the inserter control board could not be detected at power on. | <ul style="list-style-type: none"> • Inserter control board defective • Inserter control board connector loose, broken, defective |
| SC795-7 | A | 24V Check Signal Error 1 | |
| | | The 24V1 monitor signal of the master control board did not go off even though the front door switch was closed. (Relay circuit failed to go ON.) | <ul style="list-style-type: none"> • Front cover switch error • 24V1 monitor signal error • 24V1 power supply error |
| | | 24V Check Signal Errors | |
| SC795-8 | A | 24V Check Signal Error 1 | |
| | | The top cover switch is open or the master control board 24V2 monitor signal failed to go OFF within 5 sec., even though the front door switch and top cover sensor are closed. | <ul style="list-style-type: none"> • Top cover switch error • Front cover switch error • Stacking cover switch error • Master control board connection loose, broken, defective • Master control board defective |
| | | 24V Check Signal Error 2 | <ul style="list-style-type: none"> • Top cover switch error • Front cover switch error • Slave control board connection loose, broken, defective • Slave control board defective |
| SC795-8 | A | 24V Check Signal Error | |
| | | The 24V3 check signal of the slave control board failed to go OFF within 5 sec. even though the front door and top cover are closed. | <ul style="list-style-type: none"> • Front cover switch error • Slave control board connection loose, broken, defective • Slave control board defective |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC795-9 | A | Power Supply Fan Lock Errors | |
| | | Power Supply Fan (R) Lock | |
| | | Power Supply Fan (C) Lock | |
| | | Power Supply Fan (L) Lock | |
| | | A fan lock signal was detected during rotation of the power supply fan motor in one of the power supply fans (Right, Center, Left). Two retries were attempted at 12 sec. intervals after detection of the first lock signal. | <ul style="list-style-type: none"> • Fan overload • Confirm that there are no obstacles interfering with operation of the fan • Fan motor defective |
| SC795-10 | A | Spine Plate Lower Fan Errors | |
| | | Spine Plate Lower Fan (F) Lock | |
| | | Spine Plate Lower Fan (R) Lock | |
| | | A fan lock signal was detected for 1 sec. during rotation of one of the lower spine plate fan motors. Two retries were attempted at 12 sec. intervals after detection of the first lock signal. | <ul style="list-style-type: none"> • Fan overload • Confirm that there are no obstacles interfering with operation of the fan • Fan motor defective |
| SC795-11 | A | Spine Plate Upper Fan Errors | |
| | | Spine Plate Upper Fan (F) Lock | |
| | | Spine Plate Upper Fan (R) Lock | |
| | | A fan lock signal was detected for 1 sec. during rotation of one of the upper spine plate fan motors. Two retries were attempted at 12 sec. intervals after detection of the first lock signal. | <ul style="list-style-type: none"> • Fan overload • Confirm that there are no obstacles interfering with operation of the fan • Fan motor defective |
| SC795-12 | A | Signature Fan 2 Error | |
| | | Signature Fan 2F Lock | |
| | | Signature Fan 2R Lock | |
| | | A fan lock signal was detected for 1 sec. during rotation of one of the signature fan 2 motors (Front/Rear). Two retries were attempted at 12 sec. intervals after detection of the first lock signal. | <ul style="list-style-type: none"> • Fan overload • Confirm that there are no obstacles interfering with operation of the fan • Fan motor defective |
| SC795-13 | A | Signature Fan 1 Errors | |
| | | Signature Fan 1F Lock | |
| | | Signature Fan 1R Lock | |
| | | A fan lock signal was detected for 1 sec. during rotation of one of the signature fan 1 motors (Front/Rear). Two retries were attempted at 12 sec. intervals after detection of the first lock signal. | <ul style="list-style-type: none"> • Fan overload • Confirm that there are no obstacles interfering with operation of the fan • Fan motor defective |

SERVICE CALL CONDITIONS

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| SC795-14 | A | Glue Supply Fan H Lock | |
| | | A fan overload/lock signal was detected for 1 sec. during rotation of the upper side glue supply fan motor. Two retries were attempted at 12 sec. intervals after the detection of the first lock signal. | <ul style="list-style-type: none"> • Fan overload • Confirm that there are no obstacles interfering with operation of the fan • Fan motor defective |
| SC795-15 | A | Glue Supply Fan L Lock | |
| | | A fan overload/lock signal was detected for 1 sec. during rotation of the lower glue supply fan motor. Two retries were attempted at 12 sec. intervals after the detection of the first lock signal. | <ul style="list-style-type: none"> • Fan overload • Confirm that there are no obstacles interfering with operation of the fan • Fan motor defective |
| SC795-16 | A | Grip HP Sensor (S93) Error | |
| | | <p>The grip unit did not pull away from the HP sensor during operation. -or-</p> <p>The grip unit did not arrive at the HP sensor</p> | <ul style="list-style-type: none"> • Book grip motor (M43) connection loose, broken, defective • Motor defective • Grip HP sensor harness loose, broken, defective • Sensor defective |
| SC795-17 | A | Main Grip Signature Sensor (S55) | |
| | | <p>The main grip signature sensor did not go off after the main grip unit released the signature and moved the prescribed distance. -or-</p> <p>The grip unit did not arrive at the sensor.</p> | <ul style="list-style-type: none"> • Front and rear main grip motors (M23, M24) connection loose, broken, defective • Motor defective • Main grip signature sensor harness loose, broken, defective • Sensor defective |
| SC795-18 | A | Trimming Buffer HP Sensor: Left (S103) Error | |
| | | <p>The trimmings buffer sensor (S103):</p> <ul style="list-style-type: none"> • Did not go ON within 3 sec. when it was supposed to move to the right to its home position. • Did not go OFF within 5 sec. when it was supposed to move to the left away from its home position. | <ul style="list-style-type: none"> • Clear jammed trimming scraps away from the trimmings buffer • Trimmings buffer motor (M37) connections loose, broken, defective • Motor defective • Sensor harness loose, broken, defective • Sensor defective |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC795-19 | A | Trimming Buffer HP Sensor: Right (S100) Error | |
| | | The trimmings buffer failed to move away from the dump port on top of the trimmings box or failed to arrive at the port. <ul style="list-style-type: none"> • The trimmings buffer sensor: right (S100) did not go OFF within 3 sec. when the trimmings buffer was supposed to move away from the sensor. • The trimmings buffer sensor: right (S100) did not go ON within 5 sec. when the trimmings buffer was supposed to arrive at the sensor. | <ul style="list-style-type: none"> • Clear jammed trimming scraps away from the trimmings buffer • Trimmings buffer motor (M37) connections loose, broken, defective • Motor defective • Sensor harness loose, broken, defective • Sensor defective |
| SC795-20 | A | Trimmings Buffer Motor (M37) Error | |
| | | The trimmings buffer motor is not rotating. | <ul style="list-style-type: none"> • Clear jammed trimming scraps away from the trimmings buffer • Trimmings buffer motor (M37) connections loose, broken, defective • Motor defective • Trimmings buffer sensor: left/right (S103/S100) harness loose, broken, defective • Sensor defective |
| SC795-21 | A | Book Press Plate Sensor (S104) Error | |
| | | The trimmings buffer and book press plate did not move after the trimmings buffer motor turned on. The book press plate sensor did not go OFF with 3 sec.. -or- The book press plate sensor did not go ON within 3 sec.. | <ul style="list-style-type: none"> • Clear jammed trimming scraps away from the trimmings buffer • Trimmings buffer motor (M37) connections loose, broken, defective • Motor defective • Trimmings buffer sensor: left/right (S103/S100) harness loose, broken, defective • Sensor defective |
| SC795-22 | A | Book Buffer Tray HP Sensor (S78) | |
| | | The book buffer tray failed to move to the rear or failed to move to the front. <ul style="list-style-type: none"> • The book buffer tray HP sensor failed to go ON within 3 sec. when the tray was supposed to move front to rear. • The book buffer tray HP sensor failed to go OFF within 3 sec. when the tray was supposed to move rear to front. | <ul style="list-style-type: none"> • Book jammed on the rail of the book buffer tray • Book buffer tray overloaded • Book buffer tray motor (M39) connections loose, broken, defective • Motor defective • Book buffer tray HP sensor (M78) harness loose, broken, defective • Sensor defective |

SERVICE CALL CONDITIONS

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| SC795-23 | A | <p>Edge Press Plate HP Sensor (S90) Error</p> <p>During edge press plate operation during trimming:</p> <ul style="list-style-type: none"> • The edge press plate HP sensor did not go OFF within the prescribed time because it failed to pull away from the HP sensor. • The edge press plate HP sensor did not ON within the prescribed time because it failed to arrive at the HP sensor. • The edge press motor (M36) stopped when the press HP sensor (S90) switched ON, but after the motor stopped the HP sensor went OFF. <ul style="list-style-type: none"> • Edge press motor (M36) connections loose, broken, defective • Motor defective • Edge press plate HP sensor (S90) harness loose, broken, defective • Sensor defective | |
| SC795-24 | A | <p>Press End Sensor (S87) Error</p> <p>The press end sensor did not detect the release of the edge press plate (END of operation) against the book in the trimming unit. The sensor did not go ON within 8 sec.</p> <p>-or-</p> <p>The press end sensor went ON the edge press plate motor (M36) stopped, but the sensor went OFF again after the motor stopped.</p> <ul style="list-style-type: none"> • Edge press plate motor (M36) connections loose, broken, defective • Motor defective • Press end sensor (S87) harness loose, broken, defective • Sensor defective | |
| SC795-25 | A | <p>Press Limit Sensor (S89) Error</p> <p>The press limit sensor went ON and detected the edge press plate beyond its maximum position.</p> <ul style="list-style-type: none"> • Edge press plate motor (M36) connections loose, broken, defective • Motor defective • Press limit sensor harness loose, broken, defective • Sensor defective • Plate out of position (see below) <p>Note: For a detailed description about how to correct this problem, please refer to the replacement and adjustment procedures in the Perfect Binder manual under "Trimming Unit" in the "Common Procedures" section.</p> | |
| SC795-26 | A | <p>Slide HP Sensor (S82) Error</p> <p>The slide motor (M44) did not leave the home position. When the slide was raised, the slide HP sensor did not go OFF within 180 mm of movement..</p> <p>-or-</p> <p>The slide motor (M44) did not reach the home position. The slide HP sensor did not go ON within 180 mm of movement after the slide was lowered.</p> <ul style="list-style-type: none"> • Signature has jammed during transport. • Slide motor (M44) connections loose, broken, defective • Motor defective • Slide HP sensor (S82) harness loose, broken, defective • Sensor defective | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC795-27 | A | <p>Rotate HP Sensor 1 (S95) Error</p> <p>Rotate motor 1 (M42) did not leave the home position and the HP sensor did not go OFF after enough time elapsed for rotation through an arc of 50°. -or- The motor did not arrive at the HP sensor. When rotate motor 1 (M42), rotate motor 2 (M41) were both initialized, their HP sensors did not turn ON after enough time elapsed for rotation through an arc of 440°.</p> | <ul style="list-style-type: none"> • Jam or overload during book rotation. • Rotate motor 1 (M42) connections loose, broken, defective • Motor defective • Rotate HP sensor 1 (S95) harness loose, broken, defective • Rotate HP sensor (S95) defective |
| SC795-28 | A | <p>Rotate HP Sensor 2 (S91)</p> <p>Rotate motor 2 (M41) did not leave the home position and the HP sensor did not go OFF after enough time has elapsed for rotation through an arc of 30°. -or- Rotate motor 2 (M41) did not reach the home position and the HP sensor did not go ON after enough time had elapsed for rotation through an arc of 400°.</p> | <ul style="list-style-type: none"> • Jam or overload during book rotation. • Rotate motor 2 (M41) connections loose, broken, defective • Motor defective • Rotate HP sensor (S91) harness loose, broken, defective • Sensor defective |
| SC795-29 | A | <p>Cutter Motor (M35) Error</p> <p>One of the following occurred:</p> <ul style="list-style-type: none"> • The cutter blade did not move after it was moved to the rear (it did not leave home position). • The blade did not move away from the cutting point on the blade cradle (it did not arrive at the home position). • The blade did not move for a rear-to-front cut. • The blade did not move away from the blade cradle to the front within 10 sec. • When moving from the front the blade did not reach the blade cradle within 10 sec. • When moving from the rear, the blade did not reach the blade cradle. | <ul style="list-style-type: none"> • Cutter motor (M35) connections loose, broken, defective • Motor defective • Blade sensor 1, 2 (S84, S85) sensor harness loose, broken, defective • Sensor defective • Blade is dull, cutting poorly • Note: Sensors S84, S85 are on the cutter area PCB. |
| SC795-30 | A | <p>Trimmer Limit Sensor (S86) Error</p> <p>The blade reached the limit position and the trimmer limit sensor went ON.</p> | <ul style="list-style-type: none"> • Cutter motor (M35) connections loose, broken, defective • Motor defective • Trimmer limit sensor (S86) harness loose, broken, defective • Sensor defective • Plate out of position (see below) |
| | | <p>Note: For a detailed description about how to correct this problem, please refer to the replacement and adjustment procedures in the Perfect Binder manual under "Trimming Unit" in the "Common Procedures" section.</p> | |

SERVICE CALL CONDITIONS

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| SC795-31 | A | Book Lift Tray HP Sensor (S79) Error <p>The book lift tray did not go up because the book tray lift HP sensor did not go OFF within 1 sec. after the book tray lift motor (M38) turned on to raise the tray. -or- The book lift tray did not go down because the book tray lift HP sensor did not go ON within 1.5 sec. after the book tray lift motor (M38) turned on to lower the tray.</p> <ul style="list-style-type: none"> • Book tray lift motor (M38) connections loose, broken, defective • Motor defective • Book lift tray HP sensor (S79) harness loose, broken, defective • Sensor defective | |
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| SC795-32 | A | Book Lift Tray Motor (M38) Error <p>The motor is not rotating. The encoder is checked for motor lock at 50 ms intervals.</p> <ul style="list-style-type: none"> • Book lift tray motor (M38) locked, blocked by the book press plate or a jammed book. • Motor connections loose, broken, defective • Motor defective • Book lift tray HP sensor (S79) harness loose, broken, defective • Sensor defective | |
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| SC795-33 | A | Book Buffer Tray HP Sensor (S78) Error <p>The book buffer tray did not leave the home position. The book collection buffer tray HP sensor did not go OFF within 1 sec. after the book buffer tray motor (M39) turned on. -or- The book buffer tray did not reach the home position. After the book buffer tray motor (M39) turned on, the book buffer tray did not reach the HP sensor within 3.5 sec.</p> <ul style="list-style-type: none"> • Book collection buffer tray overloaded. • Book buffer tray motor (M39) connections loose, broken, defective • Motor defective • Book buffer tray HP sensor (S78) harness loose, broken, defective • Sensor defective | |
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Trouble-
shooting

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| SC795-34 | A | Blade Cradle HP Sensor (S83) Error <p>The blade cradle did not go up after the trimming blade cradle motor (M40) turned on long enough to raise the blade cradle 12 mm to switch the blade cradle HP sensor OFF. -or- The blade cradle did not go down after the trimming blade cradle motor (M40) turned on long enough to lower the cradle 21 mm to turn the blade cradle HP sensor ON.</p> <ul style="list-style-type: none"> • Blade cradle motor (M40) connections loose, broken, defective • Motor defective • Blade cradle HP sensor (S83) harness loose, broken, defective • Sensor defective • Book press plate or cutter has interfered with the blade cradle movement. | |
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SERVICE CALL CONDITIONS

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| SC795-35 | A | Book Stacker Door Lock Solenoid (SOL5) Error | |
| | | The book stacker door is locked but the book stacker door sensor (S98) did not go OFF. | <ul style="list-style-type: none"> • Book stacker door lock solenoid (SOL5) connections loose, broken, defective • Solenoid defective • Book stacker door sensor harness loose, broken, defective • Sensor defective |
| SC795-36 | A | Glue Heater (HTR1) Errors | |
| | | Heater failed to start: Error 1 600 sec. after the bookbinder left the energy save mode, the glue thermistor could not detect the target temperature (+-5). | |
| | | <ul style="list-style-type: none"> • Heater (HTR1), glue temperature thermistor (S56) defective | |
| | | Heater failed to start: Error 2 After the glue thermistor detected a glue temperature of 50°C, it could not detect a temperature above 140°C within 200 sec. | |
| | | <ul style="list-style-type: none"> • Heater, glue temperature thermistor (S56) defective | |
| SC795-37 | A | Electrical Short in the Gluing Unit | |
| | | <ul style="list-style-type: none"> • Heater short. The glue unit thermistor detected a temperature higher than 200C for longer than 1 sec. • Heater wire break or short circuit. The gluing unit thermistor detected a temperature of less than 5C for more than 1 sec. (more than 10 sec. after power on). • Glue level thermistor (S58) broken • The AD value of the glue level thermistor (S58) remained at 1023 for 10 sec. | |
| SC795-38 | A | Temperature Detection Error | |
| | | Low temperature detected while regulating glue temperature. | |
| | | After adjustment of the glue temperature, the glue temperature thermistor (S56) detected a temperature lower than 135°C for more than 10 sec. | |
| | | <ul style="list-style-type: none"> • Heater, glue temperature thermistor (S56) defective | |
| | | Glue level thermistor: Error 1 The glue level thermistor detected a temperature higher than 170°C for longer than 10 sec. after the glue had warmed up. | |
| | | <ul style="list-style-type: none"> • Glue level thermistor (S58) defective | |
| | | Glue level thermistor: Error 2 The glue level thermistor detected a temperature higher than 100°C for longer than 10 sec. after the glue had warmed up. | |
| | | <ul style="list-style-type: none"> • Glue level thermistor (S58) defective | |

SERVICE CALL CONDITIONS

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| SC795-39 | A | Protective Circuit Error | |
| | | The thermostat (THSW1) inside the gluing unit detected an abnormally high temperature. | <ul style="list-style-type: none"> • Glue heater defective |
| SC795-40 | A | Glue Surface Error 1 | <ul style="list-style-type: none"> • Glue has clogged in the vat • Glue supply defective • Glue level thermistor (S58) defective |
| | | The surface of the glue in the vat did not reach the lower limit position. This error is issued when the glue surface was detected below the lower limit position 4 times in succession during the glue re-supply cycle. | |
| SC795-41 | A | Glue Surface Error 2 | <ul style="list-style-type: none"> • Glue has clogged the vat • Glue level thermistor (S58) defective • The glue level thermistor could not detect the glue surface at the upper limit position: 1) After glue was detected above the low limit mark, and 2) After 12 glue packets were supplied, and 3) No glue had been recently applied. |
| | | The glue surface has not dropped below the upper limit mark. Without a glue vat refill, the glue level thermistor could not detect the level of the glue below the upper limit (full) level, even after the application of 25.42 g of glue. | |
| SC795-42 | A | Glue Level Thermistor (S58) Adjustment Error | |
| | | One of the following errors occurred in the adjustment data for the glue level thermistor: | <ul style="list-style-type: none"> • Slave control board connection loose, broken, defective • Slave control board defective |
| | | <ul style="list-style-type: none"> • Glue level thermistor 1 value (low limit) was out of the range: $128^{\circ}\text{C} \pm 14^{\circ}\text{C}$ • Glue level thermistor 2 value (high limit) was out of the range: $142^{\circ}\text{C} \pm 10^{\circ}\text{C}$ • Glue level thermistor adjustment value 1 was larger than for adjustment 1. • The difference between the values for adjustment 1 and 2 was less than 5°C. | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC795-43 | A | <p>Timing Sensor (S5) Adjustment Error</p> <p>The value for the adjustment of the timing sensor exceeded the upper limit. When the A/D input for the timing sensor is lower than 3.0V to 3.5V, even if the timing sensor D/A output is as high as 3.5V, the A/D input value will not fall within the 3.0-to-3.5V range.</p> <p>-or-</p> <p>The value for the adjustment of the timing sensor was lower than the lower limit. When the A/D input for the timing sensor is higher than 3.0V to 3.5V, even if the timing sensor D/A output is as low as 0.1V, the A/D input value will not fall within the 3.0-to-3.5V range.</p> | | <ul style="list-style-type: none"> • Timing sensor defective • D/A converter defective • A/D converter defective |
| SC795-44 | A | <p>Cover Registration Sensor (S21) Error</p> <p>The value for the adjustment of the cover registration sensor was higher than or lower than the target range: 3V to 3.5V</p> | | <ul style="list-style-type: none"> • Cover registration sensor (S21) defective • D/A converter defective • A/D converter defective |
| SC795-45 | A | <p>Cover Horizontal Registration Sensor: Small (S71)</p> <p>The value for the adjustment of the cover registration sensor was higher than or lower than the target range: 3.2V to 3.5V</p> | | <ul style="list-style-type: none"> • Cover horizontal registration sensor: small (S71) defective • D/A converter defective • A/D converter defective |
| SC795-46 | A | <p>Cover Horizontal Registration Sensor: Large (S72) Error</p> <p>The value for the adjustment of the cover horizontal registration sensor (for large covers) was higher than or lower than the target range: 3.2V to 3.54V</p> | | <ul style="list-style-type: none"> • Cover Horizontal Registration Sensor: Large (S72) defective • D/A converter defective • A/D converter defective |
| SC795-47 | A | <p>Book Exit Sensor (S64) Error</p> <p>The value for the adjustment of the book exit sensor was higher than or lower than the target range: 3.2V to 3.54V</p> | | <ul style="list-style-type: none"> • Signature exit sensor defective • D/A converter defective • A/D converter defective |
| SC795-48 | A | <p>Leading Edge Sensor (S65) Error</p> <p>The value for the adjustment of the leading edge sensor was higher than or lower than the target range: 3.2V to 3.54V</p> | | <ul style="list-style-type: none"> • Leading edge sensor S65) defective • D/A converter defective • A/D converter defective |
| SC795-49 | A | <p>Trim Unit Entrance Sensor (S92) Error</p> <p>The value for the adjustment of the sensor was out of range.</p> | | <ul style="list-style-type: none"> • Trim unit entrance sensor (S92) harness loose, broken, defective • Sensor defective |

SERVICE CALL CONDITIONS

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| SC795-50 | A | Book Registration Sensor (S88) Error | |
| | | The value for the adjustment of the book registration sensor was out of range. | <ul style="list-style-type: none"> • Slide motor (M44) connections loose, broken, defective • Motor defective • Book registration sensor (S88) harness loose, broken, defective • Sensor defective |
| SC795-51 | A | LE Detection Sensor (S65) Error | |
| | | No book could be detected in the path for trimming (the sensor could not detect a leading edge of a book). | <ul style="list-style-type: none"> • The book has slipped out of the grip of the book rotation plates |
| SC795-52 | A | Book Exit Sensor (S64) Error | |
| | | <p>No book could be detected at the entrance of the trimming unit. -or-</p> <p>The book did not arrive in the trimming unit because it jammed. (The trim unit entrance sensor (S92) did not go ON.)</p> | <ul style="list-style-type: none"> • Main grip lift motor (M22) connections loose, broken, defective • Motor defective • Book exit sensor (S64) harness loose, broken, defective • Sensor defective |
| SC795-53 | A | Book Registration Sensor (S88) Error | |
| | | A book was not detected at the book registration sensor pair (the book registration did not go ON). | <ul style="list-style-type: none"> • Book jammed, failed to arrive at book registration sensor • Slide motor (M44) connections loose, broken, defective • Motor defective • Book registration sensor (S88) harness loose, broken, defective • Sensor defective • Sensor flag error, overload |
| SC795-54 | A | Book Exit Sensor (S64) Error | |
| | | The book exit sensor went ON when the system was turned ON, indicating that a book was at the book exit sensor above the book grip and rotation unit. | <ul style="list-style-type: none"> • Book jammed at the entrance of the book grip and rotation unit. • Book exit sensor (S64) defective |
| SC795-55 | A | Exit Exit Sensor (S64) Error | |
| | | The slave control board could detect no paper at the entrance of the trimming unit. The entrance sensor did not detect the signature within 6860 ms from when the signature exited the gluing unit. | <ul style="list-style-type: none"> • Trim unit entrance sensor (S92) defective |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC795-56 | A | <p>Main Grip Signature Sensor (S55) Error</p> <p>No signature was detected in the gripper of the main grip unit. -or- No signature was detected in the main grip unit after the signature passed from the sub grip to the main grip.</p> <ul style="list-style-type: none"> • Main grip signature sensor (S55) defective | |
| SC795-57 | A | <p>Book Exit Sensor (S64) Error</p> <p>The trim unit entrance sensor remained ON (when no book should have been present). -or- The trim unit entrance sensor (S92) went ON when the system was turned on. -or- The book exit sensor (S64) remained ON after jam removal.</p> | |
| SC795-58 | A | <p>Book Registration Sensor (S92) Lag Error</p> <p>The book registration sensor remained ON because the book did not move from the sensor location. -or- The book registration sensor went on when the system was turned on.</p> | |
| SC795-59 | A | <p>Book Arrival Sensor (S76) Lag Error</p> <p>The book arrival sensor remained ON because the book did not leave the sensor location. The book remained in the book buffer area and failed to fall onto the book output tray.</p> | |
| SC795-60 | A | <p>Trimming Scrap Error</p> <p>The trimming scraps did not fall from the trimmings buffer, or trimmings were jammed between the trimmings buffer and the book press plate. After retrieving the scraps after the 2nd cut (top edge) or 3rd cut (fore edge), the edge press plate sensor did not go ON.</p> | |

SERVICE CALL CONDITIONS

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| SC795-61 | A | Sub Grip Signature Lag Error The sub grip signature sensor remained ON because the signature failed to move out of the sub grip unit. <ul style="list-style-type: none"> • Signature jam in the sub grip unit • Sub grip signature sensor (S39) defective (did not go OFF even with sub grip unit open and the signature removed) | |
| SC795-62 | A | Main Grip Lag Jam The main grip signature sensor remained ON because the book failed to move from the main grip unit to the trimming unit. <ul style="list-style-type: none"> • Book jam in the main grip unit • Main grip signature sensor (S39) defective (did not go OFF even with the book removed) | |
| SC795-63 | A | Signature Thickness Error Signature thickness reading is smaller than the allowed minimum size. -or- Signature thickness reading is larger than the allowed maximum size. -or- The signature thickness reading did not change after the main grippers opened and closed. <ul style="list-style-type: none"> • Signature thickness sensor (S50) defective. | |

Important: The SC796-** series SC codes apply to the Perfect Binder D391.

Trouble-shooting

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| SC796-1 | A | Glue Vat HP Sensor (S73) Error The glue vat HP sensor at the rear of the bookbinder failed to go ON within the prescribed time. -or- The glue vat HP sensor at the rear of the bookbinder failed to go OFF. <ul style="list-style-type: none"> • Glue vat motor (M32) defective • Glue vat HP sensor (S73) defective • Sensor connector loose, broken, defective | |
| SC796-2 | A | Glue Vat Roller Rotation Error The glue vat roller did not start rotating within the prescribed time. <ul style="list-style-type: none"> • Glue vat roller motor (M25) defective • Glue vat roller rotation sensor (S59) defective • Sensor connector loose, broken, defective | |
| SC796-3 | A | Glue Supply Motor (M33) Error The glue supply motor did not arrive at its home position. The glue supply HP sensor (S75) did not turn ON within the prescribed time after the glue supply motor (S33) turned on. -or- The glue supply motor did not leave its home position. <ul style="list-style-type: none"> • Glue pellet supply lock • Glue supply motor (M33) defective • Glue supply HP sensor (S75) defective • Sensor connector loose, broken, defective | |

SERVICE CALL CONDITIONS

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| SC796-4 | A | <p>Spine Fold HP Sensor: Left (S60) Error</p> <p>The spine fold plate did not reach the left HP sensor (the sensor did not go ON) within the prescribed time after the left spine fold plate motor turned on.</p> <p>-or-</p> <p>The spine fold plate did not leave the left HP sensor position (the sensor did not go OFF within the prescribed time).</p> | <ul style="list-style-type: none"> • Spine fold plate motor: left (M28) defective • Spine fold HP sensor: left (S60) defective • Sensor connector loose, broken, defective |
| SC796-5 | A | <p>Spine Fold Close Sensor: Left (S61) Error</p> <p>The sensor did not turn ON within the prescribed time, or the sensor was already OFF when the spine fold plate was supposed to move from the closed to the open position.</p> <p>-or-</p> <p>The sensor did not go OFF within the prescribed time after the spine fold plate motor: left turned on to open the spine fold plate, or the sensor was already ON when the spine fold plate was supposed to move from the open to the closed position.</p> | <ul style="list-style-type: none"> • Spine fold plate motor: left (M28) defective • Spine fold close sensor: left (S61) defective • Sensor connector loose, broken, defective |
| SC796-6 | A | <p>Dual Spine Plate Sensor Error: Left</p> <p>The spine plate HP sensor (S60) and spine plate close sensor (S63) turned ON at the same time.</p> | <ul style="list-style-type: none"> • Spine fold HP sensor: left (S60) defective • Spine fold close sensor (S63) defective • A sensor connector loose, broken, defective |
| SC796-7 | A | <p>Spine Fold HP Sensor: Right (S66) Error</p> <p>The spine fold plate did not reach the right HP sensor within the prescribed time (sensor did not go ON) after the spine fold plate motor (M29) turned on to open the fold plate, or the right HP sensor was already OFF when the spine fold plate was supposed to move from the open to the closed position.</p> <p>-or-</p> <p>The spine fold plate did not leave the right HP sensor position (sensor did not go OFF) within the prescribed time after the spine fold motor: right turned on to close the fold plate.</p> | <ul style="list-style-type: none"> • Spine fold motor: right (M29) defective • Spine fold HP sensor: right (S66) defective • Connector loose, broken, defective |

SERVICE CALL CONDITIONS

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| SC796-8 | A | <p>Spine Fold Close Sensor: Right (S69) Error</p> <p>The right fold plate close sensor did not go ON within the prescribed time after the spine fold plate motor: right turned on to close the fold plate, or the close sensor on the right was already OFF when the spine fold plate was supposed to close the plate.</p> <p>-or-</p> <p>The right spine fold plate close sensor did not go OFF within the prescribed time after the spine fold plate motor: right turned on to open the plate, or the spine fold page close sensor on the right was already ON when the spine fold plate was supposed to move from the open to the closed position.</p> <ul style="list-style-type: none"> • Spine fold motor: right (M29) defective • Spine fold close sensor: right (S69) defective • Sensor connector loose, broken, defective | |
| SC796-9 | A | <p>Dual Spine Plate Sensor Error: Right</p> <p>The spine fold HP sensor: right (S66) and spine fold close sensor: right (S69) turned ON at the same time.</p> <ul style="list-style-type: none"> • Spine fold HP sensor: right (S66) defective • Spine fold close sensor: right (S69) defective • Sensor connector loose, broken, defective | |
| SC796-10 | A | <p>Spine Plate Open Sensor (S62) Error</p> <p>The spine plate open sensor did not go ON within the prescribed time after the spine plate motor turned on to open the plate.</p> <p>-or-</p> <p>The spine plate open sensor did not go OFF within the prescribed time after the spine plate motor turned on to close the plate.</p> <ul style="list-style-type: none"> • Spine plate motor (M26) defective • Spine plate open sensor (S62) defective • Sensor or motor connector loose, broken, defective | |
| SC796-11 | A | <p>Spine Plate Closed Sensor (S63) Error</p> <p>The spine plate close sensor did not go ON within the prescribed time after the spine plate motor turned on to close the plate.</p> <p>-or-</p> <p>The spine plate close sensor did not go OFF within the prescribed time after the spine plate motor turned on to open the plate.</p> <ul style="list-style-type: none"> • Spine plate motor (M26) defective • Spine plate closed sensor (S63) defective • Motor or sensor connector loose, broken, defective | |
| SC796-12 | A | <p>Front Door Lock Error</p> <p>The right front door sensor did not go OFF even though the front doors closed and locked.</p> <p>-or-</p> <p>The right front door sensor did not go ON even though the front doors released and opened.</p> <ul style="list-style-type: none"> • The right front door solenoid (SOL3) defective • Right front door sensor (S30) defective • One or more of the front door switches (MSW1, 2, 4, 5, 6, 7) is defective • Solenoid, sensor, or MSW connector loose, broken, defective | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC796-13 | A | Switchback Flapper HP Sensor (S10) Error The switchback flapper HP sensor in the stacking tray did not go ON after the motor turned on long enough to raise the flapper through an arc of 50 degrees. -or- The switchback flapper HP sensor did not go OFF after the motor remained on long enough to lower the flapper through an arc of 150 degrees. | <ul style="list-style-type: none"> • Switchback flapper HP sensor (S10) defective • Switchback flapper motor (M8) defective • Sensor or motor connector loose, broken, defective |
| SC796-14 | A | TE Press Lever HP Sensor (S3) Error The TE press lever HP sensor in the stacking tray did not go ON the TE press lever motor remained on long enough to move the lever through an arc of 30 degrees to release the lever. -or- The TE press lever HP sensor did not go OFF when the TE press lever motor remained on long enough to move the lever through an arc of 20 degrees to close the lever. | <ul style="list-style-type: none"> • TE press lever HP sensor (S3) defective • TE press lever motor (M3) defective • Sensor or motor connector loose, broken, defective |
| SC796-15 | A | Jog Fence HP Sensor: Front/Small (S12) Error The front jog fence HP sensor in the stacking tray for small size paper did not go ON within the prescribed time after the front jogger motor turned on long enough to move the fence front jog fence. -or- The front jog fence HP sensor for small size paper did not go OFF within the prescribed time after the front jogger motor turned on to move the front fence. | <ul style="list-style-type: none"> • Jog fence HP sensor: front/small (S12) defective • Jogger motor: front (M4) defective • Sensor or motor connector loose, broken, defective |
| SC796-16 | A | Jog Fence HP Sensor: Front/Large (S14) Error The front jog fence HP sensor for large size paper in the stacking tray did not go ON within the prescribed time after the front jogger motor turned on to move the front fence. -or- The front jog fence HP sensor for large size paper in the stacking tray did not go OFF within the prescribed time after the front jogger motor turned on to move the front fence. | <ul style="list-style-type: none"> • Jog fence HP sensor: front/large (S14) defective • Jogger motor: front (M4) defective • Sensor or motor connector loose, broken, defective |

SERVICE CALL CONDITIONS

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| SC796-17 | A | <p>Jog Fence HP Sensor: Rear/Small (S13) Error</p> <p>The rear jog fence HP sensor for small size paper in the stacking tray did not go ON within the prescribed time after the rear jogger motor turned on to move the rear fence.</p> <p>-or-</p> <p>The rear jog fence HP sensor for small size paper in the stacking tray did not go OFF within the prescribed time after the rear jogger motor turned on to move the rear fence.</p> | |
| SC796-18 | A | <p>Jog Fence HP Sensor: Rear/Large (S15) Error</p> <p>The rear jog fence HP sensor for large size paper in the stacking tray did not go ON after the rear jogger motor turned on to move the rear fence.</p> <p>-or-</p> <p>The rear jog fence HP sensor for large size paper in the stacking tray did not go OFF after the rear jogger motor turned on to move the rear fence.</p> | |
| SC796-19 | A | <p>Switchback Roller HP Sensor (S11) Error</p> <p>The switchback roller HP sensor in the stacking tray did not go ON after the motor turned on long enough to raise the roller through an arc of 40 degrees.</p> <p>-or-</p> <p>The switchback roller HP sensor in the stacking tray did not go OFF after the motor turned on long enough to lower the roller through an arc of 20 degrees.</p> | |
| SC796-20 | A | <p>Stacking Tray Lower Limit Sensor (S7) Error</p> <p>Stacking tray lower limit sensor did not go ON within the prescribe time after the stacking tray lift motor turned to lower the tray.</p> <p>-or-</p> <p>Stacking tray lower limit sensor did not go OFF within the prescribed time after the stacking tray lift motor turned on to raise tray.</p> | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC796-21 | A | Paper Detection Sensor: Fron/Reart (S1/S2) Errors The paper detection sensor at the front of the stacking tray did not go ON within the prescribed time after the stacking tray overflow sensor (S6) went ON and the stacking tray lift motor turned on to raise the tray. -or- The paper detection sensor at the front of the stacking tray did not go OFF within the prescribed time after the stacking tray lift motor turned on to lower the tray. -or- The paper detection sensor at the rear of the stacking tray did not go ON within the prescribed time after the stacking tray overflow sensor (S6) went ON and the stacking tray lift motor turned on to raise the tray. -or- The paper detection sensor at the rear of the stacking tray did not go OFF within the prescribed time after the stacking tray lift motor turned on to lower the tray | |
| | | <ul style="list-style-type: none"> • Paper Detect Sensor: Front (S1) defective • Stacking Tray Lift Motor (M2) defective • Sensor or motor connector loose, broken, defective | |
| SC796-22 | A | <p>Stacking Tray Overflow Sensor (S6) Error</p> <p>The stacking tray overflow sensor did not go ON within the prescribed time after the stacking tray lift motor turned on to raise the tray. -or- The stacking tray overflow sensor did not go OFF within the prescribed time after the stacking tray lift motor turned on to lower the tray.</p> | <ul style="list-style-type: none"> • Stacking Tray Overflow Sensor (S6) defective • Stacking Tray Lift Motor (M2) defective • Sensor or motor connector loose, broken, defective |
| SC796-23 | A | <p>Dual Stacking Tray Errors</p> <p>The Stacking Tray Lower Limit Sensor (S7) and Stacking Tray Overflow Sensor (S6) went ON at the same time.</p> <p> <ul style="list-style-type: none"> • Stacking Tray Lower Limit Sensor (S7) defective • Stacking Tray Overflow Sensor (S6) defective • Sensor connector loose, broken, defective </p> <p>The Stacking Tray Overflow Sensor (S6) went OFF when the stacking tray was raised to its upper limit. When the tray was raised, the stacking tray overflow sensor (S6) went OFF and: (1) the stacking tray empty sensor (S8) was OFF and (2) one or both the paper detect sensors (S1: Front/S2: Rear) were ON.</p> <p> <ul style="list-style-type: none"> • Stacking Tray Empty Sensor (S8) defective • Paper Detect Sensors: Front/Rear (S1/S2) defective • Stacking Tray Overflow Sensor (S6) defective • Stacking Tray Lift Motor (M2) defective • Sensor or motor connector loose, broken, defective </p> | |

SERVICE CALL CONDITIONS

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| SC796-24 | A | <p>Stacking Tray HP Sensor (S9) Error</p> <p>The stacking tray HP sensor did not go ON within the prescribed time after the stacking tray motor turned on to move the tray toward the sensor. -or- The stacking tray HP sensor did not go ON within the prescribed time after the stacking tray motor turned on to move the tray away from the sensor.</p> <ul style="list-style-type: none"> • Stacking HP Sensor (S9) defective • Stacking Tray Motor (M9) defective • Sensor or motor connector loose, broken, defective | |
| SC796-25 | A | <p>Stacking Weight HP Sensor (S16) Error</p> <p>The stacking weight HP sensor did not go ON within the prescribed time the stacking weight motor turned on to move the tray toward the sensor. -or- The stacking tray HP sensor did not go OFF within the prescribed time when the stacking tray motor turned on to move the tray away from the sensor.</p> <ul style="list-style-type: none"> • Stacking weight HP sensor did not go ON. • Stacking Weight HP Sensor (S16) defective • Stacking Weight Motor (M6) defective • Sensor or motor connector loose, broken, defective | |
| SC796-26 | A | <p>Left Cover Guide Error</p> <p>The left cover guide HP sensor did not go ON within the prescribed time after the left cover guide motor turned on.</p> <p>The left cover guide open sensor did not go ON within the prescribed time after the left cover guide motor turned on to retract the left cover guide.</p> <ul style="list-style-type: none"> • Cover Guide HP Sensor: Left (S27) defective • Cover Guide Motor: Left (M15) defective • Sensor or motor connector loose, broken, defective • Cover Guide Open Sensor: Left (S28) defective • Cover Guide Motor: Left (M15) defective • Sensor or motor connector loose, broken, defective | |
| SC796-27 | A | <p>Left Cover Guide Dual Sensor Errors</p> <p>Cover Guide HP Sensor: Left (S27) and Cover Guide Open Sensor: Left (S28) went ON at the same time.</p> <ul style="list-style-type: none"> • Cover Guide HP Sensor: Left (S27) defective • Cover Guide Open Sensor: Left (S28) defective • Sensor connector loose, broken, defective | |
| SC796-28 | A | <p>Right Cover Guide Error</p> <p>The right cover guide HP sensor did not go ON within the prescribed time after the right cover guide motor turned on.</p> <p>The cover guide open sensor: right did not go ON within the prescribed time after the right cover guide motor turned on to move the right cover guide to the home position.</p> <ul style="list-style-type: none"> • Cover Guide HP Sensor: Right (S22) defective • Cover Guide Motor: Right (M16) defective • Cover Guide HP Sensor: Right (S23) defective • Cover Guide Motor: Right (M16) defective | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC796-29 | A | Right Cover Guide Dual Sensor Errors | |
| | | Cover Guide HP Sensor: Right (S22) and Cover Guide Open Sensor: Right (S23) went ON at the same time. | <ul style="list-style-type: none"> • Cover Guide HP Sensor: Right (S23) defective • Cover Guide Open Sensor: Right (S23) defective • Sensor connector loose, broken, defective |
| SC796-30 | A | Cover Registration HP Error | |
| | | <p>Cover Registration HP Sensor: Small/Large (S71, S72) did not go ON within the prescribed time after the cover horizontal registration motor turned on.</p> <p>-or-</p> <p>Cover Registration HP Sensor: Small/Large (S71, S72) did not go OFF within the prescribed time after the cover horizontal registration motor turned on.</p> | |
| SC796-31 | A | Sub Grip HP Sensor (S37) Error | |
| | | <p>The sub grip HP sensor did not go ON within the prescribed time after the sub grip lift motor turned on to raise the sub grip unit.</p> <p>-or-</p> <p>The sub grip HP sensor did not go OFF within the prescribe time after the sub grip lift motor turned on to lower the sub grip unit.</p> | |
| SC796-32 | A | Sub Grip Size HP Sensor (S38) Error | |
| | | <p>The sub grip size HP sensor did not go ON within the prescribed time after the sub grip size motor turned on for horizontal adjustment to the paper size.</p> <p>-or-</p> <p>The sub grip size HP sensor was already OFF when the sub grip size horizontal adjustment started (from the open to closed position).</p> | |
| | | <ul style="list-style-type: none"> • Sub Grip Size Motor (S19) defective • Sub Grip Size HP Sensor (S38) defective • Motor or sensor connector loose, broken, defective | |
| | | <p>The sub grip size HP sensor did not go OFF within the prescribed time after the sub grip size motor turned on to close sub grippers for horizontal adjustment of the paper size.</p> <p>-or-</p> <p>The sub grip size HP sensor was already ON when the sub grip size horizontal adjustment started (from the close to open position).</p> | |
| | | <ul style="list-style-type: none"> • Sub Grip Size Motor (S19) defective • Sub Grip Size HP Sensor (S38) defective • Motor or sensor connector loose, broken, defective | |

SERVICE CALL CONDITIONS

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| SC796-33 | A | <p>Sub Grip Open Sensor (S40) Error</p> <p>The sub grip open sensor did not go ON within the prescribed time after the sub grip lift motor turned on to open the sub grip unit.</p> <p>-or-</p> <p>The sub grip open sensor did not go OFF within the prescribed time after the sub grip lift motor turned on to close the sub grip unit.</p> <ul style="list-style-type: none"> • Sub Open Motor (S20) defective • Sub Grip Open Sensor (S40) defective • Motor or sensor connector loose, broken, defective | | | |
| SC796-34 | A | <p>Sub Grip Close Sensor (S41) Error</p> <p>The sub grip close sensor did not go ON within the prescribed time after the sub grip lift motor turned on to close the sub grip unit.</p> <p>-or-</p> <p>The sub grip close sensor did not go OFF within the prescribed time after the sub grip open motor turned on to open the sub grip unit.</p> <ul style="list-style-type: none"> • Sub Grip Open Motor (S20) defective • Sub Grip Open Close (S41) defective • Motor or sensor connector loose, broken, defective | | | |
| SC796-35 | A | <p>Sub Grip Dual Sensor Error</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">The Sub Grip Open Sensor (S40) and Sub Grip Close Sensor (S41) went ON at the same time.</td> <td style="width: 50%;">Sub Grip Open Sensor (S40) defective Sub Grip Close Sensor (S41) defective A sensor connector loose, broken, defective</td> </tr> </table> | | The Sub Grip Open Sensor (S40) and Sub Grip Close Sensor (S41) went ON at the same time. | Sub Grip Open Sensor (S40) defective Sub Grip Close Sensor (S41) defective A sensor connector loose, broken, defective |
| The Sub Grip Open Sensor (S40) and Sub Grip Close Sensor (S41) went ON at the same time. | Sub Grip Open Sensor (S40) defective Sub Grip Close Sensor (S41) defective A sensor connector loose, broken, defective | | | | |
| SC796-36 | A | <p>Signature HP Sensor (S34) Error</p> <p>The signature HP sensor did not go ON within the prescribed time after the signature move motor turned on to move the sub grip to the home position.</p> <p>-or-</p> <p>The signature HP sensor did not go OFF within the prescribed time after the signature move motor turned on to move the sub grip to the signature transfer position (from sub grip to main grip).</p> <ul style="list-style-type: none"> • Signature Move Motor (M18) defective • Signature HP Sensor (S34) defective • Connector loose, broken, defective | | | |
| SC796-37 | A | <p>Signature Main Grip Position Sensor (S35) Error</p> <p>The signature main grip position sensor did not go ON within the prescribed time after the signature move motor turned for delivery of the signature from the sub grip to the main grip.</p> <p>-or-</p> <p>Due to incorrect timing during delivery of the signature from sub grip to main grip, the signature was gripped at the main grip HP sensor position.</p> <ul style="list-style-type: none"> • Signature Move Motor (M18) defective • Signature Main Grip Position Sensor (M35) defective • Motor or sensor connector loose, broken, defective <p>The signature HP sensor did not go OFF within the prescribed time after the signature move motor turned on to move the sub grip to the home position.</p> <ul style="list-style-type: none"> • Signature Move Motor (M18) defective • Signature Main Grip Position Sensor (M35) defective • Motor or sensor connector loose, broken, defective | | | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC796-38 | A | <p>Main Grip Rotate Enable Sensor (S36) Error</p> <p>The main grip rotate enable sensor did not go ON within the prescribe time after the signature move motor turned on to move the sub grip to the home position. -or- The main grip rotate enable sensor did not go OFF within the prescribed time after the signature move motor turned on to move the sub grip to the signature transfer position (from sub grip to main grip).</p> <ul style="list-style-type: none"> • Signature Move Motor (M18) defective • Main Grip Rotate Enable Sensor (S36) defective • Motor or sensor connector loose, broken, defective |
| SC796-39 | A | <p>Sub Grip Dual Sensor Error</p> <p>The Signature HP Sensor (S34) and Signature Main Grip Position Sensor (S35) went ON at the same time.</p> <ul style="list-style-type: none"> • Signature HP Sensor (S34) defective • Signature Main Grip Position Sensor (M35) defective • A sensor connector loose, broken, defective |
| SC796-40 | A | <p>Main Grip HP Sensor (S44) Error</p> <p>The main grip HP sensor did not go ON within the prescribe time after the main grip lift motor turned on to raise the main grip unit, or the main grip HP sensor was already ON when the motor started to lower the main grip unit. -or- The main grip HP sensor did not go OFF within the prescribed time after the main grip lift motor turned on to lower the main grip unit, or the main grip HP sensor was already ON when the motor started to lower the main grip unit.</p> <ul style="list-style-type: none"> • Main Grip Lift Motor (M22) defective • Main Grip HP Sensor (S44) Error • Motor or sensor connector loose, broken, defective |
| SC796-41 | A | <p>Main Grip Press Sensor 1 (M48)Error</p> <p>The main grip press sensor 1 did not go ON within the prescribed time after the main grip lift motor turned on to raise the main grip unit from the main grip signature registration position. -or- The main grip press sensor 1 did not go OFF within the prescribed time after the main grip lift motor turned on to lower the main grip unit to the main grip signature registration position.</p> <ul style="list-style-type: none"> • Main Grip Lift Motor (M22) defective • Main Grip Press Sensor 1 (S48) defective • Connector loose, broken, defective |

SERVICE CALL CONDITIONS

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| SC796-42 | A | <p>Main Grip Press Sensor 2 (S49) Error</p> <p>The main grip press sensor 2 did not go ON within the prescribed time after the main grip lift motor turned on to lower the main grip unit and signature to the point where the signature was to be pressed into the center of the cover.</p> <p>-or-</p> <p>The main grip press sensor 2 did not go OFF within the prescribed time after the main grip lift motor turned on to raise the main grip unit away from the point where the signature was pressed into the center of the cover.</p> | <ul style="list-style-type: none"> • Main Grip Lift Motor (M22) defective • Main Grip Press Sensor 2 (S49) defective • Motor or sensor connector loose, broken, defective |
| SC796-43 | A | <p>Main Grip Signature Exit Error</p> <p>The signature exit sensor did not go ON after the main grip lift motor moved the signature to the delivery point when the signature was passed from the main grip unit to the signature exit roller.</p> | <ul style="list-style-type: none"> • Main Grip Lift Motor (M22) defective • Signature Exit Sensor (S64) defective • Signature broken, bent • Signature stuck in the main grip unit |
| SC796-44 | A | <p>Main Grip HP Sensor: High (S45) Error</p> <p>The main grip high HP sensor did not go ON within the prescribed time after the main grip lift motor turned on to raise the main grip unit.</p> <p>-or-</p> <p>The main grip high HP sensor did not go OFF within the prescribed time after the main grip lift motor turned on to lower the main grip unit.</p> | <ul style="list-style-type: none"> • Main Grip Lift Motor (M22) defective • Main Grip HP Sensor: High (S45) defective • Motor or sensor connector loose, broken, defective |
| SC796-45 | A | <p>Main Grip Rotate HP Sensor (S43) Error</p> <p>The main grip rotate HP sensor did not go ON within the prescribed time after the main grip rotation motor turned to rotate the main grip unit for delivery of the signature from the sub grip unit.</p> <p>-or-</p> <p>The main grip rotate HP sensor did not go OFF with the prescribed time after the main grip rotation motor turned on to rotate the grip unit and signature to the vertical.</p> | <ul style="list-style-type: none"> • Main Grip Rotation Motor (M21) defective • Main Grip Rotate HP Sensor (S43) defective • Motor or connector loose, broken, defective |
| SC796-46 | A | <p>Rotate-to-Binding Position Sensor (S42) Error</p> <p>The main grip rotate-to-binding position sensor did not go ON within the prescribed time after the main grip rotation motor turned on to rotate the grip unit and signature to the vertical.</p> <p>-or-</p> <p>The main grip rotate to binding position sensor did not go OFF within the prescribed time after the main grip rotation motor turned to rotate the main grip unit to the left for delivery of the signature from the sub grip unit.</p> | <ul style="list-style-type: none"> • Main Grip Rotation Motor (M21) defective • Rotate to Binding Position Sensor (S42) defective • Motor or sensor connector loose, broken, defective |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC796-47 | A | <p>Main Grip Rotation Dual Sensor Errors</p> <p>Main Grip Rotate HP Sensor (S43) and Rotate-to-Binding Position Sensor (S42) went ON at the same time.</p> <ul style="list-style-type: none"> • Main Grip Rotate HP Sensor (S43) defective • Rotate to Binding Position Sensor (S42) defective • Sensor connector loose, broken, defective |
| SC796-48 | A | <p>Main Grip Open/Close Sensor: Rear (S47, S48) Errors</p> <p>The rear main grip open sensor did not go ON within the prescribed time after the rear grip motor turned on to open the main grip unit. -or-</p> <p>The rear main grip open sensor did not go OFF within the prescribed time after the rear grip motor turned on to close the main grip unit.</p> <ul style="list-style-type: none"> • Grip Motor: Rear (M23) defective • Main Grip Open Sensor: Rear (S47) defective • Motor or sensor connector loose, broken, defective <p>The rear main grip close sensor did not go ON within the prescribed time after the rear grip motor turned on to close the main grip unit. -or-</p> <p>The rear main grip close sensor did not go OFF within the prescribed time after the rear grip motor turned on to open the main grip unit.</p> <ul style="list-style-type: none"> • Grip Motor: Rear (M23) defective • Main Grip Close Sensor: Rear (S54) defective • Motor or sensor connector loose, broken, defective |
| SC796-49 | A | <p>Main Grip Encoder: Rear Sensor (S46) Error</p> <p>The rear main grip encoder sensor could not be detected ON/OFF within the prescribed time after the rear grip motor turned on to open and close the main grip unit.</p> <ul style="list-style-type: none"> • Grip Motor: Rear (M23) defective • Main Grip Encoder: Rear Sensor (S46) defective • Motor or sensor connector loose, broken, defective |
| SC796-50 | A | <p>Rear Main Group Dual Sensor Error</p> <p>Main Grip Open Sensor: Rear (S47) and Main Grip Close Sensor: Rear (S48) went ON at the same time.</p> <ul style="list-style-type: none"> • Main Grip Open Sensor: Rear (S47) defective • Main Grip Close Sensor: Rear (S48) defective • A sensor connector loose, broken, defective |

SERVICE CALL CONDITIONS

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| SC796-51 | A | Main Grip Open/Close Sensor: Front (S51, S53) Errors |
| | | <p>The front main grip open sensor did not go ON within the prescribed time after the front grip motor turned on to open the main grip unit.</p> <p>-or-</p> <p>The front main grip open sensor did not go OFF within the prescribed time after the front grip motor turned on to close the main grip unit.</p> <ul style="list-style-type: none"> • Grip Motor: Front (M24) defective • Main Grip Open Sensor: Front (S51) defective • Motor or sensor connector loose, broken, defective |
| <p>The front main grip close sensor did not go ON within the prescribed time after the front grip motor turned on to close the main grip unit.</p> <p>-or-</p> <p>The front main grip close sensor did not go OFF within the prescribed time after the front grip motor turned on to open the main grip unit.</p> <ul style="list-style-type: none"> • Grip Motor: Front (M24) defective • Main Grip Close Sensor: Front (S53) defective • Motor or sensor connector loose, broken, defective | | |

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| SC796-52 | A | Main Grip Encoder: Front Sensor (S52) Error |
| | | <p>The front main grip encoder sensor could not be detected ON/OFF within 200 ms after the front grip motor turned on to open/close the main grip unit.</p> <ul style="list-style-type: none"> • Main Grip Encoder: Front Sensor (S52) defective • Grip Motor: Front (M24) defective • Main Grip Encoder: Front Sensor (S52) defective • Sensor or motor connector loose, broken, defective |

Trouble-
shooting

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| SC796-53 | A | Front Main Group Dual Sensor Error |
| | | <p>Main Grip Open Sensor: Front (S51) and Main Grip Close Sensor: Front (S53) went ON at the same time.</p> <ul style="list-style-type: none"> • Main Grip Open Sensor: Front (S51) defective • Main Grip Close Sensor: Front (S53) defective • Sensor connector loose, broken, defective |

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| SC796-54 | A | Signature Exit Path HP Sensor (S67) Error |
| | | <p>The signature exit path HP sensor did not go ON within the prescribed time after the signature exit path motor turned on to retract the signature exit roller.</p> <p>-or-</p> <p>The signature exit path HP sensor did not go OFF within the prescribed time after the signature exit path motor turned on to move the signature exit roller.</p> <ul style="list-style-type: none"> • Signature Exit Path Motor (M30) defective • Signature Exit Path HP Sensor (S67) defective • Motor or sensor connector loose, broken, defective |

SERVICE CALL CONDITIONS

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| SC796-55 | A | <p>Signature Exit Path Press Sensor (S68) Error</p> <p>The signature exit path press sensor did not go ON within the prescribed time after the signature exit path motor turned on to feed the book into the nip of the signature exit roller.</p> <p>-or-</p> <p>The signature exit path press sensor did not go OFF within the prescribed time after the signature exit path motor turned on to retract the signature exit roller.</p> | | <ul style="list-style-type: none"> • Signature Exit Path Motor (M30) defective • Signature Exit Path Press Sensor (S68) defective • Motor or sensor connector loose, broken, defective |
| SC796-56 | A | <p>Signature Exit Roller Error</p> <p>The leading edge sensor did not go ON within the time prescribed for the signature exit roller to reverse feed the signature during signature exit.</p> | | <ul style="list-style-type: none"> • Signature Roller Exit Motor (M27) defective • Leading Edge Sensor (S65) defective • Signature torn, bent |
| SC796-57 | A | <p>Inserter EEPROM Error</p> <p>CHECKSUM error at power on.</p> <p>-or-</p> <p>EEPROM write error.</p> | | <ul style="list-style-type: none"> • EEPROM not installed, or not installed correctly • EEPROM defective |
| SC796-58 | A | <p>Inserter Drive Switch Sensor (S16) Error</p> <p>The drive switch sensor in the inserter did not go OFF within the time prescribed after the drive switch motor (M2) turned on.</p> <p>-or-</p> <p>The drive switch sensor in the inserter did not go ON within the time prescribed after the drive switching motor (M2) turned on.</p> | | <ul style="list-style-type: none"> • Drive switch motor (M2) defective • Drive switch sensor (S16) defective • Motor or sensor connector loose, broken, defective • Connector loose, broken, defective |
| SC796-59 | A | <p>Inserter Tray A Error</p> <p>Inserter Tray A (upper tray) failed to leave its lower limit sensor within the prescribed time after Tray A lift motor turned on.</p> | | <ul style="list-style-type: none"> • Lift Motor: Tray A (M3) defective • Lower Limit Sensor: Tray A (S11) defective • Motor or sensor connector loose, broken, defective |
| | | <p>Inserter Tray A (upper tray) failed to arrive at its paper feed sensor within the prescribed time after the Tray A lift motor turned on.</p> | | <ul style="list-style-type: none"> • Lift Motor: Tray A (M3) defective • Paper Feed Sensor: Tray A (S4) defective • Motor or sensor connector loose, broken, defective |

SERVICE CALL CONDITIONS

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| SC796-60 | A | Inserter Tray B Error |
| | | Inserter Tray B (lower tray) failed to leave its lower limit sensor within the prescribed time after the Tray B lift motor turned on. |
| | | Inserter Tray B (lower tray) failed to arrive at its paper feed sensor within the prescribed time after the Tray B lift motor turned on. |
| | | <ul style="list-style-type: none"> • Lift Motor: Tray B (M4) defective • Lower Limit Sensor: Tray B (S12) defective • Motor or sensor connector loose, broken, defective <ul style="list-style-type: none"> • Lift Motor: Tray B (M4) defective • Paper Feed Sensor: Tray B (S10) defective • Motor or sensor connector loose, broken, defective |
| SC796-61 | A | Relay Unit EEPROM Error |
| | | EEPROM write error (successful completion of data write operation not detected within the prescribed time). |
| SC796-62 | A | Relay<-> Bookbinder Communication Error |
| | | Communication error between relay unit and bookbinder. |
| SC796-63 | D | Lower Performance Mode Error |
| | | <p>These are the conditions that must be met before the bookbinder enters low performance mode:</p> <ol style="list-style-type: none"> 1. The location where the error occurred has no effect on the operation of the horizontal feed path for downstream delivery. 2. The jam has occurred in the horizontal feed path but it can be removed easily. 3. The unit where the error occurred allows use of the horizontal feed path. 4. These conditions determine whether downstream delivery is possible after an error occurs in the bookbinder. <p>Correct the problem and release the bookbinder from the low performance mode. See Section 3 of the Perfect Binder manual for more about how to release the Perfect Binder from the lower performance mode.</p> |

Trouble-
shooting

SERVICE CALL CONDITIONS

Important: The SC797-** series SC codes apply to the Perfect Binder D391.

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| SC797-1 | B | <p>Grip HP Sensor (S93) Error</p> <p>The grip HP sensor did not go OFF within the prescribed time because the main grip did not leave its home position. -or- The main grip unit did go ON because it did not arrive at the HP position after signature release.</p> | <ul style="list-style-type: none"> • Book grip motor (M43) defective • Grip HP sensor (S93) defective • Sensor or motor harness loose, broken, defective |
| SC797-2 | B | <p>Grip End Sensor (S94) Error</p> <p>The grip end sensor (S94) did not go OFF after the grip unit released the signature and moved the prescribed distance.</p> <p>The grip end sensor (S94) did not go ON because the grip unit did arrive at the sensor position.</p> | <ul style="list-style-type: none"> • Book grip motor (M43) defective • grip end sensor (S94) defective • Sensor or motor harness loose, broken, defective <ul style="list-style-type: none"> • Book grip motor (M43) defective • grip end sensor (S94) defective • Sensor or motor harness loose, broken, defective • Data received for signature data was incorrect. |
| SC797-3 | B | <p>Trimmings Buffer HP Sensor: Left (S103) Error</p> <p>The trimmings buffer sensor: left (S103) did not go OFF within the prescribed time because it failed to leave the HP sensor. -or- The trimmings buffer sensor: left (S103) did not go ON within the prescribed time because it failed to arrive at the HP sensor.</p> | <ul style="list-style-type: none"> • Trimmed scraps in or around the trimmings buffer • Trimmings buffer motor (M37) defective • Left trimmings buffer sensor (S103) defective • Sensor or motor harness loose, broken, defective |
| SC797-4 | B | <p>Trimmings Buffer HP Sensor: Right (S100) Error</p> <p>Trimmings buffer did not reach the trimmings dump port because: The trimmings buffer sensor: right (S100) did not go OFF within the prescribed time because it failed to leave the HP sensor. -or- The trimmings buffer sensor: right (S103) did not go ON within the prescribed time because it failed to arrive at the HP sensor.</p> | <ul style="list-style-type: none"> • Trimmed scraps in or around the trimmings buffer • Trimmings buffer motor (M37) defective • Right trimmings buffer sensor (S100) defective • Sensor or motor harness loose, broken, defective |
| SC797-5 | B | <p>Trimmings Buffer Motor (M37) Error</p> <p>Trimmings buffer motor (M37) is not running.</p> | <ul style="list-style-type: none"> • Trimming scrap jam • Trimmings buffer motor (M37) defective • Right or left trimmings buffer sensor (S100, S103) defective • Motor or sensor connections loose, broken, defective |

SERVICE CALL CONDITIONS

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| SC797-6 | B | Failure to Detect Book Press Plate Position <p>The book press plate sensor (S104) did not go OFF because the trimmings buffer left the HP sensor position. -or- The book press plate sensor (S104) did not go ON because the trimmings buffer did not arrive at the HP sensor position.</p> <ul style="list-style-type: none"> • Trimming scraps jammed in or around the trimmings buffer • Trimmings buffer motor (M37) defective • Book press plate sensor (S104) defective • Sensor or motor harness loose, broken, defective | |
| SC797-7 | B | Book Buffer Tray HP Sensor (S78) Error <p>The HP sensor did not go OFF within the prescribed time after the buffer tray the book buffer tray motor turned on to pull the tray to the rear. -or- The HP sensor did not go ON within the prescribed time after the book buffer tray motor turned on to push the tray to the front.</p> <ul style="list-style-type: none"> • Book has jammed on the rail of the buffer • Buffer tray overloaded • Book buffer tray motor (M39) defective • Book buffer tray HP sensor (S78) defective • Motor or sensor connection loose, broken, defective | |
| SC797-8 | B | Edge Press Plate HP Sensor (S90) <p>The edge press plate did not go OFF within the prescribed time after the edge press plate motor turned on to press the plate against the spine of the book. -or- The edge press plate did not go ON within the prescribed time after the edge press plate motor turned on to pull the plate away the spine of the book.</p> <ul style="list-style-type: none"> • Edge press plate motor (M36) defective • Edge press plate HP sensor (S90) defective • Motor or sensor connection loose, broken, defective | |
| SC797-9 | B | Press end Sensor (S87) Error <p>The press end HP sensor did not go OFF within the time prescribed for press END. -or- Press end sensor went OFF after press end sensor went ON and stopped the press motor (M36).</p> <ul style="list-style-type: none"> • Edge press plate motor (M36) defective • Press end sensor (S87) defective • Data received for signature data was incorrect because signature thickness sensor (S50) defective • Motor or sensor harness loose, broken, defective | |
| SC797-10 | B | Slide HP Sensor (S82) Error <p>The HP sensor did not go OFF within the prescribed time because the slide motor did not leave the home position. -or- The HP sensor did not go ON within the prescribed time because the slide motor did not arrive at the home position.</p> <ul style="list-style-type: none"> • Signature jam, overload • Slide motor (M44) defective • Slide HP sensor (S82) defective • Motor or sensor harness loose, broken, defective | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC797-11 | B | <p>Book Rotation HP Sensor 1 (S95) Error</p> <p>Book rotation sensor 1 did not go OFF because the book rotation motor 1 (M41) did not leave the home position. -or- Book rotation sensor 1 did not go ON because the book rotation motor 1 (M41) did not arrive at the home position. -or- At power on, book rotation motor 1 failed to rotate the left plate through the prescribed arc for initialization.</p> <ul style="list-style-type: none"> • Jam or overload during book rotation • Book rotation motor 1 (M41) defective • Book rotation HP sensor 1 (S95) defective • Motor or sensor harness loose, broken, defective | | | | |
| SC797-12 | B | <p>Book Rotation HP Sensor 2 (S91)</p> <p>Book rotation sensor 2 did not go OFF because the book rotation motor 1 (M42) did not leave the home position. -or- Book rotation sensor 1 did not go ON because the book rotation motor 1 (M42) did not arrive at the home position. -or- At power on, book rotation motor 1 failed to rotate the left plate through the prescribed arc for initialization.</p> <ul style="list-style-type: none"> • Jam or overload during book rotation • Book rotation motor 1 (M42) defective • Book rotation HP sensor 1 (S91) defective • Motor or sensor harness loose, broken, defective | | | | |
| SC797-13 | B | <p>Cutter Motor (M35) Error</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; vertical-align: top;"> The blade in the trimming unit did not move from the home position or reach the blade cradle during cutting. </td><td style="padding: 5px; vertical-align: top;"> <ul style="list-style-type: none"> • Blade is dull, cutting poorly • Cutter motor (M35) defective • Blade sensor 1, blade sensor 2 defective • Motor or sensor harness loose, broken, defective </td></tr> <tr> <td colspan="2" style="padding: 5px;"> Note: Blade sensors 1 and 2 (S84, S85) are mounted on the cutter control board. </td></tr> </table> | The blade in the trimming unit did not move from the home position or reach the blade cradle during cutting. | <ul style="list-style-type: none"> • Blade is dull, cutting poorly • Cutter motor (M35) defective • Blade sensor 1, blade sensor 2 defective • Motor or sensor harness loose, broken, defective | Note: Blade sensors 1 and 2 (S84, S85) are mounted on the cutter control board. | |
| The blade in the trimming unit did not move from the home position or reach the blade cradle during cutting. | <ul style="list-style-type: none"> • Blade is dull, cutting poorly • Cutter motor (M35) defective • Blade sensor 1, blade sensor 2 defective • Motor or sensor harness loose, broken, defective | | | | | |
| Note: Blade sensors 1 and 2 (S84, S85) are mounted on the cutter control board. | | | | | | |
| SC797-14 | B | <p>Book Lift Tray HP Sensor (S79) Error</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; vertical-align: top;"> The book tray lift HP sensor did not go OFF within the prescribed time after the book tray lift motor (M38) turned on to raise the tray and receive a finished book from the trimming unit. -or- The book tray lift HP sensor did not go ON within the prescribed time after the book tray lift motor (M38) turned on to lower the tray and book. </td><td style="padding: 5px; vertical-align: top;"> <ul style="list-style-type: none"> • Book jammed under the tray • Book tray lift motor (M38) defective • Book lift tray HP sensor (S79) defective • Motor or sensor harness loose, broken, defective </td></tr> </table> | The book tray lift HP sensor did not go OFF within the prescribed time after the book tray lift motor (M38) turned on to raise the tray and receive a finished book from the trimming unit. -or- The book tray lift HP sensor did not go ON within the prescribed time after the book tray lift motor (M38) turned on to lower the tray and book. | <ul style="list-style-type: none"> • Book jammed under the tray • Book tray lift motor (M38) defective • Book lift tray HP sensor (S79) defective • Motor or sensor harness loose, broken, defective | | |
| The book tray lift HP sensor did not go OFF within the prescribed time after the book tray lift motor (M38) turned on to raise the tray and receive a finished book from the trimming unit. -or- The book tray lift HP sensor did not go ON within the prescribed time after the book tray lift motor (M38) turned on to lower the tray and book. | <ul style="list-style-type: none"> • Book jammed under the tray • Book tray lift motor (M38) defective • Book lift tray HP sensor (S79) defective • Motor or sensor harness loose, broken, defective | | | | | |

SERVICE CALL CONDITIONS

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| SC797-15 | B | Book Lift Tray Motor (M38) Error | |
| | | The book lift tray motor was not rotating. | <ul style="list-style-type: none"> • Book lift tray motor (M38) locked, blocked by the press plate or a jammed book • Motor defective • Book lift tray HP sensor (S79) defective • Motor or sensor harness loose, broken, defective |
| SC797-16 | B | Book Buffer Tray HP Sensor (S78) Error | |
| | | <p>The book collection buffer tray HP sensor did not go OFF within the prescribed time after the book buffer tray motor (M39) turned on to raise the tray.</p> <p>-or-</p> <p>The book collection buffer tray HP sensor did not go ON within the prescribed time after the book buffer tray motor (M39) turned on to lower the tray.</p> | <ul style="list-style-type: none"> • Book buffer tray overloaded. • Book buffer tray motor (M39) defective • Book buffer tray HP sensor (M78) defective • Motor or sensor harness loose, broken, defective |
| SC797-17 | B | Blade Cradle HP Sensor (S83) Error | |
| | | <p>The blade cradle HP sensor did not go OFF within the prescribed time after the blade cradle motor (M40) turned on to raise it.</p> <p>-or-</p> <p>The blade cradle HP sensor did not go ON within the prescribed time after the blade cradle motor (M40) turned on to lower it.</p> | <ul style="list-style-type: none"> • Edge press plate or cutter interfered with movement of the blade cradle • Blade cradle motor (M40) defective • Blade cradle HP sensor (S83) defective • Motor or sensor harness loose, broken, defective |
| SC797-18 | B | Book Door Lock Solenoid (SOL5) Error | |
| | | <p>The book stack door is locked but the book door sensor (S98) did not go OFF.</p> | <ul style="list-style-type: none"> • Book door sensor (S98) defective • Book door lock solenoid (SOL5) defective • Solenoid or sensor harness loose, broken, defective |
| SC797-19 | B | Glue Heater (HTR1) Error | |
| | | <p>The heater failed to start because: 600 sec. after the bookbinder left the energy save mode, the glue thermistor did not detect the target temperature (153°C±5).</p> <p>-or-</p> <p>After the glue thermistor detected a glue temperature of 50°C, it did not detect a temperature above 140°C within 200 sec.</p> | <ul style="list-style-type: none"> • Heater (HTR1) defective • Glue thermistor (S56) defective |
| SC797-20 | B | Electrical Short in the Gluing Unit | |
| | | <p>A short circuit or wire breakage occurred in the gluing unit.</p> <p>The glue thermistor (S56) detected:</p> <ul style="list-style-type: none"> • A temperature over 200°C more than 1 sec. (short circuit) • A temperature of less than 5°C for more than 1 sec. or more than 10 sec. after power on (wire breakage) • The AD value of the glue level thermistor (S58) remained at 1023 for 10 sec (wire breakage). • Heater (HTR1) defective • Glue thermistor (S56) defective | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC797-21 | B | Temperature Detection Error | |
| | | After adjustment of the glue temperature, the glue temperature thermistor (S56) detected a temperature lower than 135C for more than 10 sec. | <ul style="list-style-type: none"> • Heater (HTR1) defective • Glue thermistor (S56) defective |
| | | The glue level thermistor detected a temperature higher than 170C for longer than 10 sec. after the glue had warmed up. -or- The glue level thermistor detected a temperature higher than 100C for longer than 10 sec. after the glue had warmed up. | <ul style="list-style-type: none"> • Glue level thermistor (S58) defective |
| SC797-22 | B | Protection Circuit Error | <ul style="list-style-type: none"> • Glue heater (HTR1) defective • Thermostat (THSW1) defective |
| SC797-23 | B | Glue Surface Error 1 | <ul style="list-style-type: none"> • Glue has clogged in the vat • Glue supply defective • Glue level thermistor (S58) defective |
| | | The glue level thermistor could not detect the glue surface at the upper limit position: 1) After glue was detected above the low limit mark, and 2) After 12 glue packets were supplied, and 3) No glue had been recently applied. | <ul style="list-style-type: none"> • Glue has clogged in the vat • Glue level thermistor (S58) defective |
| SC797-24 | B | Glue Surface Error 2 | <ul style="list-style-type: none"> • Glue application abnormal (not applying correctly) • Glue level thermistor (S58) defective |
| SC797-25 | B | Glue Level Thermistor (S58) Adjustment Error | <ul style="list-style-type: none"> One of the following errors occurred in the adjustment data for the glue level thermistor: <ol style="list-style-type: none"> 1. Glue level thermistor 1 value (low limit) was out of the range: 128C±14C) 2. Glue level thermistor 2 value (high limit) was out of the range: 142C±10C) 3. Glue level thermistor adjustment value 1 was larger than for adjustment 1. • Replace the EEPROM on the slave control board |
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SERVICE CALL CONDITIONS

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| SC797-26 | B | Timing Sensor (S5) Adjustment Error |
| | | The value for the adjustment of the timing sensor was out of range (3.0V to 3.5V) |
| SC797-27 | B | Cover Registration Sensor (S21) Error |
| | | The value for the adjustment of the cover registration sensor was out of range (3.0V to 3.5V) |
| SC797-28 | B | Cover Horizontal Registration Sensor: Small (S71) |
| | | The value for the adjustment of the cover horizontal registration sensor: small was out of range (3.0V to 3.5V) |
| SC797-29 | B | Cover Horizontal Registration Sensor: Large (S72) Error |
| | | The value for the adjustment of the cover horizontal registration sensor: large was out of range (3.0V to 3.5V) |
| SC797-30 | B | Book Exit Sensor (S64) Error |
| | | The value for the adjustment of the book exit sensor (S64) was out of range (3.2V to 3.54V) |
| SC797-31 | B | Leading Edge Sensor (S65) Error |
| | | The value for the adjustment of the LE sensor (S65) was out of range (3.2V to 3.54V) |
| SC797-32 | B | Trim Unit Entrance Sensor (S92) Error |
| | | The adjusted value for the trim unit entrance sensor was higher or lower than the target range. |
| SC797-33 | B | Book Registration Sensor (S88) Error |
| | | The adjusted value for the book registration was higher or lower than the target range. |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC797-34 | B | Leading Edge Sensor (S65) Error A book was not detected in the path for trimming when the slave control board received the signal for transport end. The book has fallen past the sensor. <ul style="list-style-type: none"> • Main grip motors: front/rear (M24/M23) defective. • Leading edge sensor (S65) defective • Motor or sensor connector loose, broken, defective | |
| SC797-35 | B | Book Exit Sensor (S64) Error The book exit sensor (S64) did not turn ON, even after the book transport end signal was received when the book was passed from the gluing unit to the trimming unit. No book was detected at the entrance of the trimming unit. <ul style="list-style-type: none"> • Failure to deliver the signature (due to a jam) • Signature path exit motor (M30) defective • Book exit sensor (S64) defective • Motor or sensor harness loose, broken, defective | |
| SC797-36 | B | Book Exit Sensor (S64) Late Error A book was not detected in the trimming unit because the book registration sensor failed to go ON. <ul style="list-style-type: none"> • Main grip lift motor (M22) defective • Book exit sensor (S64) defective • Motor or sensor harness loose, broken, defective | |
| SC797-37 | B | Book Exit Sensor (S64) Lag Error The book exit sensor detected a book at power on. The cover path was closed and there was no book at the LE sensor (S65) <ul style="list-style-type: none"> • Book exit sensor (S64) defective • Sensor harness loose, broken, defective | |
| SC797-38 | B | Book Exit Sensor (S64) Error The book exit sensor did not detect the signature within the prescribed time after the glued signature exited the gluing unit. <ul style="list-style-type: none"> • Book exit sensor (S64) connector loose, broken, defective • Sensor defective | |
| SC797-39 | B | Main Grip Signature Sensor (S55) Error No signature was detected in the main grip unit after the signature passed from the sub grip to the main grip. <ul style="list-style-type: none"> • Main grip signature sensor (S55) defective • Sensor connector loose, broken, defective | |
| SC797-40 | B | Cutter Entrance Sensor Error The cutter entrance sensor (S65) went ON at power on after the finisher initialized. -OR- The signature exit sensor remained ON after the power on jam recovery. <ul style="list-style-type: none"> • Detected a signature jam at power on. | |

SERVICE CALL CONDITIONS

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| SC797-41 | B | Signature Registration Sensor Lag Error The signature registration sensor went ON at warm-up after power on. -or- When the signature exited and the lift tray lowered, the sensor went ON. | | <ul style="list-style-type: none"> • Detected a jammed book at power on. • Motor or sensor harness loose, broken, defective |
| SC797-42 | B | Book Arrival Sensor (S76) After the book output operation ended, the book arrival sensor remained ON because the book failed to move from the buffer tray to the output tray. | | <ul style="list-style-type: none"> • Trimmings buffer motor (M37) defective • Book arrival sensor (S76) defective • Motor or sensor harness loose, broken, defective |
| SC797-43 | B | Trimming Jam Scrap Error The strips cut from the book could not be dumped into the trimmings box or the strips jammed between the trimmings buffer and edge press plate and trimming stopped. Three attempts failed to restore operation, then the jam alert was issued. | | <ul style="list-style-type: none"> • Strips jammed between the edge press plate and trimmings buffer. • Trimmings buffer motor (M37) defective • Trimmings buffer HP sensors: right or left (S100, S103) defective • Motor or sensor harness loose, broken, defective <p>Note: Trimming strips wider than 29 mm at the bottom and top edges (1st and 2nd cuts) and wider than 41 mm at the fore edge (3rd cut) will cause the trimming unit to jam.</p> |
| SC797-44 | B | Sub Grip Signature Sensor (S39) Lag Error The sub grip signature sensor did not go OFF after the sub grippers released the signature to the main grip because the signature did not move. | | <ul style="list-style-type: none"> • Signature jammed in sub grip unit • Sub grip signature sensor defective • Sensor connector loose, broken, defective |
| SC797-45 | B | Main Grip Signature Sensor (S55) Lag Jam The main grip signature sensor did not go OFF after the main grippers released the signature to the trimming unit because the book did not move. | | <ul style="list-style-type: none"> • Book jammed in main grip unit • Main grip signature sensor (S55) defective • Sensor connector loose, broken, defective |
| SC797-46 | B | Signature Thickness Sensor (S50) Error The size of the signature measured by the signature thickness sensor was smaller than the minimum. | | <ul style="list-style-type: none"> • Signature thickness sensor (S50) defective • Sensor connector loose, broken, defective |
| SC797-47 | B | Glue Vat Roller Rotation Error The glue vat roller sensor did not detect any rotation at the glue vat roller within the prescribed time after the glue vat roller motor turned on. | | <ul style="list-style-type: none"> • Glue vat roller motor (M25) defective • Glue vat roller rotation sensor (S59) defective • Motor or sensor connector loose, broken, defective |

Trouble-
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SERVICE CALL CONDITIONS

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| SC797-48 | B | <p>Glue Supply Motor (M33) Error</p> <p>The glue supply HP sensor (S75) did not turn ON within the prescribed time after the glue supply motor (S33) turned on. The motor did not arrive at its home position.</p> <ul style="list-style-type: none"> • Glue pellet jam in the glue feeder • Glue supply motor (M33) defective • Glue supply HP sensor (S75) defective • Motor or sensor connector loose, broken, defective | |
| SC797-49 | B | <p>Front Door Lock Error</p> <p>The right front door sensor did not go OFF even though the front doors were closed and locked. -or-</p> <p>The right front door sensor did not go ON even though the front doors released and opened. -or-</p> <p>Front doors are detected open even though the front doors are closed and locked.</p> | |
| SC797-50 | B | <p>Switchback Flapper HP Sensor (S10) Error</p> <p>The switchback flapper HP sensor did not go ON within the prescribed time after the motor turned on long enough to raise the flapper through an arc of 50 degrees. -or-</p> <p>The switchback flapper HP sensor did not go OFF within the prescribed time after the motor turned on long enough to lower the flapper through an arc of 150 degrees.</p> | |
| SC797-51 | B | <p>TE Press Lever HP Sensor (S3) Error</p> <p>The TE press lever HP sensor did not go ON when the TE press lever motor turned on to move the lever through an arc of 30 degrees to release the lever. -or-</p> <p>The TE press lever HP sensor did not go OFF when the TE press lever motor turned on to move the lever through an arc of 20 degrees to close the lever.</p> | |
| SC797-52 | B | <p>Jog Fence HP Sensor: Front/Small (S12) Error</p> <p>The front jog fence HP sensor for small size paper did not go ON within the prescribed time when the front jogger motor turned on to move the fence. -or-</p> <p>The front jog fence HP sensor for small size paper did not go OFF within the prescribed time when the front jogger motor turned on to move the fence.</p> | |

Important: The SC798-** series SC codes apply to the Perfect Binder D391.

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| SC798-1 | B | Jog Fence HP Sensor: Front/Large (S14) Error The front jog fence HP sensor for large size paper did not go ON within the prescribed time when the front jogger motor turned on to move the fence. -or- The front jog fence HP sensor for large size paper did not go OFF within the prescribed time when the front jogger motor turned on to move the fence. | | <ul style="list-style-type: none"> • Jog fence HP sensor: front/large (S14) defective • Jogger motor: front (M4) defective • Sensor or motor connector loose, broken, defective |
| SC798-2 | B | Jog Fence HP Sensor: Rear/Small (S13) Error The rear jog fence HP sensor for small size paper did not go ON within the prescribed time when the rear jogger motor turned on to move the fence. -or- The rear jog fence HP sensor for small size paper did not go OFF within the prescribed time when the rear jogger motor turned on to move the fence. | | <ul style="list-style-type: none"> • Jog fence HP sensor: rear/small (S13) defective • Jogger motor: rear (M5) defective • Sensor or motor connector loose, broken, defective |
| SC798-3 | B | Jog Fence HP Sensor: Rear/Large (S15) Error The rear jog fence HP sensor for large size paper did not go ON within the prescribed time when the rear jogger motor turned on to move the fence. -or- The rear jog fence HP sensor for large size paper did not go OFF within the prescribed time when the rear jogger motor turned on to move the fence. | | <ul style="list-style-type: none"> • Jog fence HP sensor: rear/large (S15) defective • Jogger motor: rear (M5) defective • Sensor or motor connector loose, broken, defective |
| SC798-4 | B | Switchback Roller HP Sensor (S11) Error The switchback roller HP sensor did not go ON within the prescribed time after the motor turned on to raise the roller through an arc of 40 degrees. -or- The switchback roller HP sensor did not go OFF within the prescribed time when the motor turned on to lower the roller through an arc of 20 degrees. | | <ul style="list-style-type: none"> • Switchback Roller HP Sensor (S11) defective • Switchback Roller Motor (M7) defective • Sensor or motor connector loose, broken, defective |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC798-5 | B | <p>Stacking Tray Lower Limit Sensor (S7) Error</p> <p>The stacking tray lower limit sensor did not go ON within the prescribed time when the stacking tray lift motor turned on to lower the tray.</p> <p>-or-</p> <p>The stacking tray lower limit sensor did not go OFF within the prescribed time when the stacking tray lift motor turned on to raise the tray 30 mm.</p> <ul style="list-style-type: none"> • Stacking Tray Lower Limit Sensor (S7) defective • Stacking Tray Lift Motor (M2) defective • Sensor or motor connector loose, broken, defective |
| SC798-6 | B | <p>Paper Detection Sensor: Front/Rear (S1/S2) Errors</p> <p>The paper detection sensor at the front of the stacking tray did not go ON within the prescribed time after the stacking tray overflow sensor (S6) went ON and the stacking tray lift motor turned on to raise the tray.</p> <p>-or-</p> <p>The paper detection sensor at the front of the stacking tray did not go OFF within the prescribed time when the stacking tray lift motor turned on to lower the tray.</p> <p>-or-</p> <p>The paper detection sensor at the rear of the stacking tray did not go ON within the prescribed time after the stacking tray overflow sensor (S6) went ON and the stacking tray lift motor turned on to raise the tray.</p> <p>-or-</p> <p>The paper detection sensor at the rear of the stacking tray did not go OFF within the prescribed time when the stacking tray lift motor turned on to lower the tray.</p> <ul style="list-style-type: none"> • Paper Detect Sensor: Front (S1) defective • Stacking Tray Lift Motor (M2) defective |
| SC798-7 | B | <p>Stacking Tray Overflow Sensor (S6) Error</p> <p>The stacking tray overflow sensor did not go ON within the prescribed time when the stacking tray lift motor turned on to raise the tray 70 mm.</p> <p>-or-</p> <p>The stacking tray overflow sensor did not go OFF within the prescribed time after the stacking tray lift motor turned on to lower the tray so paper could be removed from the tray by the operator.</p> <ul style="list-style-type: none"> • Stacking Tray Overflow Sensor (S6) defective • Stacking Tray Lift Motor (M2) defective • Sensor or motor connector loose, broken, defective |
| SC798-8 | B | <p>Stacking Tray HP Sensor (S9) Error</p> <p>The stacking tray HP sensor did not go ON within the prescribed time when the stacking tray motor turned on to move the tray toward the sensor.</p> <p>-or-</p> <p>The stacking tray HP sensor did not go OFF when the stacking tray motor turned on to move the tray away from the sensor.</p> <ul style="list-style-type: none"> • Stacking HP Sensor (S9) defective • Stacking Tray Motor (M9) defective • Sensor or motor connector loose, broken, defective |

SERVICE CALL CONDITIONS

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| SC798-9 | B | <p>Stacking Weight HP Sensor (S16) Error</p> <p>The stacking weight HP sensor did not go ON within the prescribed time when the stacking weight motor turned on to move the tray toward the sensor.</p> <p>-or-</p> <p>The stacking weight HP sensor did not go OFF within the prescribed time when the stacking tray motor turned on to move the tray away from the sensor.</p> | |
| SC798-10 | B | <p>Sub Grip HP Sensor (S37) Error</p> <p>The sub grip HP sensor did not go ON within the prescribed time after the sub grip lift motor turned on to raise the sub grip unit.</p> <p>-or-</p> <p>The sub grip HP sensor did not go OFF within the prescribed time after the sub grip lift motor turned on to lower the sub grip unit.</p> | |
| SC798-11 | B | <p>SUB GRIP SIZE HP SENSOR (S38)</p> <p>The sub grip size HP sensor did not go ON within the prescribed time after the sub grip size motor turned on for horizontal adjustment to the paper size, or the sub grip size HP sensor was already OFF when the sub grip size horizontal adjustment started.</p> <p>-or-</p> <p>The sub grip size HP sensor did not go OFF within the prescribed time after the sub grip size motor turned on to close for horizontal adjustment to the paper size, or the sub grip size HP sensor was already ON when the sub grip size horizontal adjustment started.</p> <ul style="list-style-type: none"> • Sub Grip Size Motor (S19) defective • Sub Grip Size HP Sensor (S38) defective • Sensor or motor connector loose, broken, defective | |
| SC798-12 | B | <p>Sub Grip Open Sensor (S40) Error</p> <p>The sub grip open sensor did not go ON within the prescribed time after the sub grip lift motor turned on to open the sub grip unit.</p> <p>-or-</p> <p>The sub grip open sensor did not go OFF within the prescribed time after the sub grip lift motor turned on to close the sub grip unit.</p> | |
| SC798-13 | B | <p>Sub Grip Close Sensor (S41) Error</p> <p>The sub grip close sensor did not go ON within the prescribed time after the sub grip lift motor turned on to close the sub grip unit.</p> <p>-or-</p> <p>The sub grip close sensor did not go OFF within the prescribed time after the sub grip open motor turned on to open the sub grip unit.</p> | |

Trouble-
shooting

SERVICE CALL CONDITIONS

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| SC798-14 | B | <p>Main Grip HP Sensor (S44) Error</p> <p>The main grip HP sensor did not go ON within the prescribed time after the main grip lift motor turned on to raise the main grip unit, or the main grip HP sensor was already ON when the motor started to lower the main grip unit.</p> <p>-or-</p> <p>The main grip HP sensor did not go OFF within the prescribed time after the main grip lift motor turned on to lower the main grip unit, or the main grip HP sensor was already ON when the motor started to lower the main grip unit.</p> | <ul style="list-style-type: none"> • Main Grip Lift Motor (M22) defective • Main Grip HP Sensor (S44) Error • Sensor or motor connector loose, broken, defective |
| SC798-15 | B | <p>Main Grip Press Sensor 1 (S48) Error</p> <p>The main grip press sensor 1 did not go ON within the prescribed time after the main grip lift motor turned on to raise the main grip unit from the main grip signature registration position.</p> <p>-or-</p> <p>The main grip press sensor 1 did not go OFF within the prescribed time after the main grip lift motor turned on to lower the main grip unit to the main grip signature registration position.</p> | <ul style="list-style-type: none"> • Main Grip Lift Motor (M22) defective • Main Grip Press Sensor 1 (S48) defective • Sensor or motor connector loose, broken, defective |
| SC798-16 | B | <p>Main Grip Press Sensor 2 (S49) Error</p> <p>The main grip press sensor 2 did not go ON within the prescribed time after the main grip lift motor turned on to lower the main grip unit and signature to the point where the signature was to be pressed into the center of the cover.</p> <p>-or-</p> <p>The main grip press sensor 2 did not go OFF within the prescribed time after the main grip lift motor turned on to raise the main grip unit away from the point where the signature was pressed into the center of the cover.</p> | <ul style="list-style-type: none"> • Main Grip Lift Motor (M22) defective • Main Grip Press Sensor 2 (S49) defective • Sensor or motor connector loose, broken, defective |
| SC798-17 | B | <p>Main Grip Signature Exit Error</p> <p>The book exit sensor did not go ON within the prescribed time after the main grip lift motor moved the signature to the delivery point when the signature was passed from the main grip unit to the book exit roller.</p> | <ul style="list-style-type: none"> • Signature broken, bent • Signature jammed in the main grip unit • Main Grip Lift Motor (M22) defective • Book Exit Sensor (S64) defective • Sensor or motor connector loose, broken, defective |

SERVICE CALL CONDITIONS

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|----------|---|---|--|
| SC798-18 | B | <p>Main Grip HP Sensor: High (S45) Error</p> <p>The main grip high HP sensor did not go ON within the prescribed time after the main grip lift motor turned on to raise the main grip unit.</p> <p>-or-</p> <p>The main grip high HP sensor did not go OFF within the prescribed time after the main grip lift motor turned on to lower the main grip unit.</p> <ul style="list-style-type: none"> • Main Grip Lift Motor (M22) defective • Main Grip HP Sensor: High (S45) defective • Sensor or motor connector loose, broken, defective | |
| SC798-19 | B | <p>Main Grip Open Sensor: Rear/Front (S47, S48) Errors</p> <p>The rear main grip open sensor did not go ON within the prescribed time after the rear grip motor turned on to open the main grip unit.</p> <p>-or-</p> <p>The rear main grip open sensor did not go OFF within the prescribed time after the rear grip motor turned on to close the main grip unit.</p> <p>The rear main grip close sensor did not go ON within the prescribed time after the rear grip motor turned on to close the main grip unit.</p> <p>-or-</p> <p>The rear main grip close sensor did not go OFF within the prescribed time after the rear grip motor turned on to open the main grip unit.</p> <ul style="list-style-type: none"> • Grip Motor: Rear (M23) defective • Main Grip Open Sensor: Rear (S47) defective • Grip Motor: Rear (M23) defective • Main Grip Close Sensor: Rear (S54) defective • Sensor or motor connector loose, broken, defective | |
| SC798-20 | B | <p>Main Grip Encoder: Rear Sensor (S46) Error</p> <p>The rear main grip encoder sensor could not be detected ON/OFF within the prescribed time after the rear grip motor turned on to open and close the main grip unit.</p> <ul style="list-style-type: none"> • Main Grip Encoder: Rear Sensor (S46) defective • Grip Motor: Rear (M23) defective • Main Grip Encoder: Rear Sensor (S46) defective • Sensor or motor connector loose, broken, defective | |

Trouble-
shooting

SERVICE CALL CONDITIONS

| | | |
|----------|---|---|
| SC798-21 | B | Main Grip Open/Close Sensor: Front (S51,S53) Errors |
| | | <p>The front main grip open sensor did not go ON within the prescribed time after the front grip motor turned on to open the main grip unit.</p> <p>-or-</p> <p>The front main grip open sensor did not go OFF within the prescribed time after the front grip motor turned on to close the main grip unit.</p> |
| | | <p>The front main grip close sensor did not go ON within the prescribed time after the front grip motor turned on to close the main grip unit.</p> <p>-or-</p> <p>The front main grip close sensor did not go OFF within the prescribed time after the front grip motor turned on to open the main grip unit.</p> |
| | | <ul style="list-style-type: none"> • Grip Motor: Front (M24) defective • Main Grip Open Sensor: Front (S51) defective • Sensor or motor connector loose, broken, defective <ul style="list-style-type: none"> • Grip Motor: Front (M24) defective • Main Grip Close Sensor: Front (S53) defective • Sensor or motor connector loose, broken, defective |
| SC798-22 | B | Main Grip Encoder: Front Sensor (S52) Error |
| | | <p>The front main grip encoder sensor could not be detected ON/OFF within the prescribed time after the front grip motor turned on to open/close the main grip unit.</p> |
| SC798-23 | B | Signature Exit Path HP Sensor (S67) Error |
| | | <p>The signature exit path HP sensor did not go ON within the prescribed time after the signature exit path motor turned on to retract the signature exit roller.</p> <p>-or-</p> <p>The signature exit path HP sensor did not go OFF within the prescribed time after the signature exit path motor turned on to move the signature exit roller.</p> |
| SC798-24 | B | Signature Exit Path Press Sensor (S68) Error |
| | | <p>The signature exit path press sensor did not go ON within the prescribed time after the signature exit path motor turned on to feed the book into the nip of the signature exit roller.</p> <p>-or-</p> <p>The signature exit path press sensor did not go OFF within the prescribed time after the signature exit path motor turned on to retract the signature exit roller.</p> |
| | | |

SERVICE CALL CONDITIONS

| | | | | |
|----------|---|--|--|---|
| SC798-25 | B | <p>Inserter Drive Switch Sensor (S16)</p> <p>The drive switch sensor in the inserter unit did not go OFF within the time prescribed for the drive switching motor (M2) to switch drives.</p> <p>-or-</p> <p>The drive switch sensor in the inserter unit did not go ON within the prescribed time.</p> | | <ul style="list-style-type: none"> • Drive switch motor (M2) defective • Drive switch sensor (S16) defective • Sensor or motor connector loose, broken, defective |
| SC798-26 | B | <p>Inserter Tray A Error</p> <p>Inserter Tray A (upper tray) failed to leave its lower limit sensor (S11) within the prescribed time after the Tray A lift motor turned on.</p> <p>-or-</p> <p>Inserter Tray A (upper tray) failed to arrive at its paper feed sensor (S4) within the prescribed time after the Tray A lift motor turned on.</p> | | <ul style="list-style-type: none"> • Lift Motor: Tray A (M3) defective • Lower limit sensor: Tray A (S11) defective • Paper feed sensor (S4) defective • Sensor or motor connector loose, broken, defective |
| SC798-27 | B | <p>Inserter Tray B Error</p> <p>Inserter Tray B (lower tray) failed to leave its lower limit sensor (S12) within the prescribed time after the Tray B lift motor turned on.</p> <p>-or-</p> <p>Inserter Tray B (lower tray) failed to arrive at its paper feed sensor (S10) within the prescribed time after the Tray B lift motor turned on.</p> | | <ul style="list-style-type: none"> • Lift Motor: Tray B (M4) defective • Lower Limit Sensor: Tray B (S12) defective • Sensor or motor connector loose, broken, defective |

Trouble-
shooting

SERVICE CALL CONDITIONS

| | | | |
|--------------|----------|--|--|
| SC817 | D | Monitor Error | |
| | | This is a file detection and electronic file signature check error when the boot loader attempts to read the self-diagnostic module, system kernel, or root system files from the OS Flash ROM, or the items on the SD card in the controller slot are false or corrupted. | <ul style="list-style-type: none"> • OS Flash ROM data defective; change the controller firmware • SD card data defective; use another SD card |

Error Codes

| Code | Meaning |
|-------------|---|
| 0x0000 0000 | BIOS boot error |
| 0x0000 0001 | Primary boot start load error |
| 0x0000 0002 | Secondary boot load error (Boot3.Elf) |
| 0x0000 0003 | Self-diagnostic module error (Diag.Elf) |
| 0x0000 0004 | Kernel start error (Netbsd) |
| 0x0000 0005 | Root file system file read error (Rootfs) |
| 0xffff ffff | Other error |

Example: Data in the self-diagnostic module, system kernel, or root system files are corrupted or do not exist in OS flash ROM or on the SD card

Files in the self-diagnostic module, kernel, or root file system on the SD card have been falsified or altered

- Before discarding the SD card, try to update the data on the card. If the error occurs again, the card may be defective.
- Be sure to use an SD card that contains the correct electronic signature.

| | | | |
|--------------|----------|---|---|
| SC833 | | Self-Diagnostic Error 7: Engine I/F ASIC | |
| | C | A read/write verify error done on the resident RAM on the mother board (Engine I/F board failed). | <ul style="list-style-type: none"> • Replace RAM DIMM on the mother board. • Replace mother board |

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

| | | | |
|--------------|----------|--|---|
| SC834 | D | Self-Diagnostic Error: Memory/RAM/DIMM | |
| | | An error occurred while the machine was performing the write/verify check for the optional RAM chip on the engine motherboard. | <ul style="list-style-type: none"> • The memory on the motherboard is defective. • The motherboard itself is defective. |

| | | | |
|--------------|----------|--|--|
| SC851 | D | IEEE 1394 I/F Error | |
| | | Driver setting incorrect and cannot be used by the 1394 I/F. | <ul style="list-style-type: none"> • NIB (PHY), LINK module defective; change the Interface Board • Controller board defective |

SERVICE CALL CONDITIONS

| | | | |
|--------------|----------|--|--|
| SC853 | D | <p>Wireless LAN Error 1</p> <p>The board that holds the wireless LAN card can be accessed, but the wireless LAN card (802.11b/Bluetooth) itself could not be accessed while the machine was starting up.</p> <ul style="list-style-type: none"> • Wireless LAN card has been removed | |
| SC854 | D | <p>Wireless LAN Error 2</p> <p>The board that holds the wireless LAN card can be accessed, but the wireless LAN card (802.11b/Bluetooth) itself cannot be could not be accessed while the machine was operating.</p> <ul style="list-style-type: none"> • Wireless LAN card has been removed | |
| SC855 | D | <p>Wireless LAN Error 3</p> <p>An error is detected for the wireless LAN card (802.11b or Bluetooth).</p> <ul style="list-style-type: none"> • Wireless LAN card defective • Wireless card connection not tight | |
| SC856 | D | <p>Wireless LAN Error 4</p> <p>An error is detected for the wireless LAN board (802.11b or Bluetooth).</p> <ul style="list-style-type: none"> • Wireless LAN card board defective • PCI connector loose (External controller interface board) | |
| SC857 | D | <p>USB I/F Error 1</p> <p>The USB driver is unstable and generated an error. The USB I/F cannot be used.</p> <ul style="list-style-type: none"> • USB board or controller board defective | |

Trouble-
shooting

SERVICE CALL CONDITIONS

| | | | |
|--------------|----------|--|--|
| SC860 | D | HDD Error 1 | |
| | | The driver could not acquire the status of the hard disks within 30 s, or the HDD is connected, but the driver detected one of the following errors: | |
| | | SS_NOT_READY | One or both HDDs are not ready. |
| | | SS_BAD_LABEL | Partition types are different |
| | | SS_READ_ERROR | Error returned during label read or label check |
| | | SS_WRITE_ERROR | Error returned during label write or label check |
| | | SS_FS_ERROR | File system repair failed |
| | | SS_MOUNT_ERROR | File system mount failed |
| | | SS_COMMAND_ERROR | Drive does not answer the command |
| | | SS_KERNEL_ERROR | Kernel internal error |
| | | SS_SIZE_ERROR | Driver size is too small |
| | | SS_NO_PARTITION | Specified partition does not exist |
| | | SS_NO_FILE | Device files do not exist |

| | | | |
|--------------|----------|---|--|
| SC861 | B | HDD Error b2: HDD Startup | |
| | | The hard disks were detected at power on, but the disks were not detected within 30 s after recovery from the energy conservation mode. | <ul style="list-style-type: none"> • Cable between the hard disks and controller board disconnected or loose • Hard disk power connector loose • One of the hard disks is defective • Controller or mother board defective |

| | | | |
|--------------|----------|--|---|
| SC862 | A | HDD Error 3: Bad Sectors | |
| | | The number of bad sectors on the HDD in the area for storing images exceeds 101. | <ul style="list-style-type: none"> • Too many bad sectors accumulated on the HDDs. • Execute SP5832 002 (HDD Formatting – IMH) to format the HDD and replace the bad sectors; copy the stamp data after doing this (use SP 5853). • HDD replacement is recommended because an HDD unit that generates bad sectors is probably of poor quality and performs poorly. |

| | | | |
|--------------|----------|--|---|
| SC863 | B | HDD Error 4: HDD Read Error | |
| | | The system cannot read the data written on the hard disks. | <ul style="list-style-type: none"> • Sectors on the disks have become corrupted during operation; replace the hard disks |

| | | | |
|--------------|----------|---|--|
| SC864 | B | HDD Error 5: Data CRC Error | |
| | | During HDD operation, the HDD could not respond to a CRC error query. | <ul style="list-style-type: none"> • Mother board defective |

SERVICE CALL CONDITIONS

| | | | |
|--------------|----------|---|---|
| SC865 | B | HDD Error 6: Access Error | |
| | | HDD responded to an error during operation for a condition other than those for SC863, SC864. | <ul style="list-style-type: none"> • HDD defective |

| | | | |
|--------------|----------|---|--|
| SC866 | B | SD Card Error 1: Confirmation | |
| | | <p>The machine detects an electronic license error in the application on the SD card inserted in the controller slot when the machine is powered on.</p> <p>The program stored on the SD card contains electronic confirmation license data. If the program does not contain this license data, or if the result of the check reveals the license data in the program on the SD card is incorrect, then the checked program cannot execute and this SC code is displayed.</p> | <ul style="list-style-type: none"> • Required program missing or incorrect • Download the correct program for this machine onto the SD card. |

| | | | |
|--------------|----------|---|--|
| SC867 | B | SD Card Error 2: SD Card Removal | |
| | | <p>The SD card inserted in the system slot when the machine was powered on was removed while the machine was still switched on.</p> | <ul style="list-style-type: none"> • SD card removed from boot slot on the controller • Cycle the machine off/on |

Trouble-
shooting

| | | | |
|--------------|----------|---|--|
| SC868 | B | SD Card Error 3: SD Card Access | |
| | | <p>An error is returned during an operation using an SD card. Debug console acquires more detailed information about the error.</p> | <ul style="list-style-type: none"> • SD card not inserted completely • SD card defective • Controller board defective <p>Note: If this SC code is displayed again after cycling the machine off and on, use another SD card. If this does not solve the problem, replace the controller board.</p> |

SERVICE CALL CONDITIONS

| | | | |
|--------------|----------|---|---|
| SC870 | B | <p>Address Book Data Error</p> <p>Address book data stored on the hard disk was detected as abnormal when it was accessed from either the operation panel or the network.</p> <p>The address book data cannot be read from the HDD or SD card where it is stored, or the data read from the media is defective.</p> | <ul style="list-style-type: none"> • Software defective; switch off/on, and change the controller firmware if the problem is not solved • HDD defective |
| | | <p>Recommended Recovery</p> <ul style="list-style-type: none"> • Execute SP5846 050 (UCS Settings – Initialize all Directory Info.) to initialize all address book data. • Initialize the user information with SP5832 006 (HDD Formatting– User Information 1) and SP5832 007 (HDD Formatting – User Information 2). • Replace the HDDs. • Boot the machine from the SD card. | |

| | | | |
|-----------------|----------------|---|--|
| SC876 | D | <p>Log Data Error</p> <p>The log data has been corrupted at power on, while the machine was operating, or when the machine was powered off during a print or copy cycle. The machine should never be switched off while it is printing or copying.</p> | |
| | SC876-1 | Log data file was corrupted at power on or while the machine was operating. | <ul style="list-style-type: none"> • Format the HDD with SP5832-004. |
| | SC876-2 | The log was set for encryption without the encryption module installed: <ul style="list-style-type: none"> • At power on • While the machine was operating • When the log encryption setting was changed. | <ul style="list-style-type: none"> • Install or replace and set the encryption module. • Enable the log encryption setting. |
| | SC876-3 | At power on the log encryption key was disabled, causing an NVRAM malfunction. | <ul style="list-style-type: none"> • Format the disk with SP5832-004. |
| | SC876-4 | At power on the machine attempted log data encryption with the log encryption setting disabled (NVRAM malfunction). <p>-or-</p> At power on log encryption was attempted with the log encryption setting disabled (NVRAM malfunction). | <ul style="list-style-type: none"> • Format the disk with SP5832-004. |
| | SC876-5 | Error occurred at power on. Only the NVRAM was replaced with an NVRAM from another machine. -or- Only the HDD was replaced with an HDD unit from another machine. | <ul style="list-style-type: none"> • Replace NVRAM with original NVRAM. • Replace HDD with original HDD. • If the error persists, format the HDD with SP5832-004. |
| SC876-99 | | Cause unknown. The error occurred at power on or while the machine was operating. | <ul style="list-style-type: none"> • Contact Ricoh design section. |

SC876: More

If the error persists after doing the procedure described in the table above, do this procedure.

1. Switch the machine off, remove the HDD, then switch the machine on.

SERVICE CALL CONDITIONS

2. Do SP5801-019 then switch the machine OFF.
3. Install the HDD again and switch the machine ON.
4. Do SP5832-004.
5. Cycle the machine OFF/ON.
6. Do SP9730-002 and set to "1" (ON).
7. Do SP9730-003 and set to "1" (ON).
8. Do SP9730-004 and set to "1" (ON).
9. Cycle the machine OFF/ON.

| | | | |
|--------------|----------|--|--|
| SC880 | D | Media Link Board Error A request for access to the Media Link Board was not answered within the specified time. | <ul style="list-style-type: none"> • Media Link Board defective |
| SC900 | C | Electrical Total Counter Error The total counter contains data that is not a number. | <ul style="list-style-type: none"> • NVRAM disturbed unexpectedly • NVRAM defective • NVRAM data corrupted |
| SC901 | B | Mechanical Total Counter Error The mechanical total counter is disconnected. | <ul style="list-style-type: none"> • User removed the counter while it was operating • Poor connection • Mechanical total counter defective |
| SC910 | D | External Controller Error 1 | |
| SC911 | D | External Controller Error 2 | |
| SC912 | D | External Controller Error 3 | |
| SC913 | D | External Controller Error 4 | |
| SC914 | D | External Controller Error 5 The external controller alerted the machine about an error. | <ul style="list-style-type: none"> • Please refer to the instructions for the external controller. |
| SC919 | B | External Controller Error 6 While EAC (External Application Converter), the conversion module, was operating normally, the receipt of a power line interrupt signal from the FLUTE serial driver was detected, or BREAK signal from the other station was detected. | <ul style="list-style-type: none"> • Power outage at the EFI controller • EFI controller was rebooted • Connection to EFI controller loose |
| SC920 | D | Printer Error 1 An internal application error was detected and operation cannot continue. | <ul style="list-style-type: none"> • Software defective; switch off/on, or change the controller firmware if the problem is not solved • Insufficient memory |
| SC921 | D | Printer Error 2 When the printer application started, the font to use could not be found on the SD card. | <ul style="list-style-type: none"> • The font is not on the SD card |

Trouble-
shooting

SERVICE CALL CONDITIONS

| | | | |
|-------|----------|--|---|
| SC925 | B | NetFile Function Error <ul style="list-style-type: none"> • The NetFile file management on the HDD cannot be used, or a NetFile management file is corrupted and operation cannot continue. • The HDDs are defective and they cannot be debugged or partitioned, so the Scan Router functions (delivery of received faxes, document capture, etc.), Fabric services, and other network functions cannot be used.(HDD status codes displayed on the debug console are described below.) | <ul style="list-style-type: none"> • HDD defective • Power supply to machine cut occurred while writing data to HDD • Software error • Please refer to the detailed descriptions below for recovery procedures. |
|-------|----------|--|---|

HDD Status Codes Displayed on Debug Console

| Display | Meaning |
|---------|---|
| (-1) | HDD not connected |
| (-2) | HDD not ready |
| (-3) | No level |
| (-4) | Partition type incorrect |
| (-5) | Error returned during level read or check |
| (-6) | Error returned during level read or check |
| (-7) | "filesystem" repair failed |
| (-8) | "filesystem" mount failed |
| (-9) | Drive does not answer command |
| (-10) | Internal kernel error |
| (-11) | Size of drive is too small |
| (-12) | Specified partition does not exist |
| (-13) | Device file does not exist |

Recovery Procedure 1

If the machine returns SC codes for HDD errors (SC860 ~ SC865), please follow the recovery procedures described for these SC codes.

Recovery Procedure 2

If the machine does not return one of the five HDD errors (SC860 ~ SC865), cycle the machine off and on. If this does not solve the problem, then initialize the NetFile partition on the HDD with **SP5832 011** (HDD Formatting – Ridoc I/F).

NetFiles: Jobs printed from the document server using a PC and DeskTopBinder

Before initializing the NetFile partition on the HDD please inform the client that:

1. Received faxes on the delivery server will be lost
2. All captured documents will be lost
3. DeskTopBinder/Print Job Manager/Desktop Editor job history will be cleared
4. Documents stored on the document server, included scanned documents, will not be lost.
5. The first time the network accesses the machine, the management information must be reconfigured (this will require a significant amount of time).

Before initializing the Netfile partition with **SP5823 011**, do the following:

6. Enter the User Tools mode and execute “Delivery Settings” to print all received fax documents scheduled for delivery and delete them.
7. In the User Tools mode, execute Document Management> Batch Delete Transfer Documents.
8. Execute **SP5832 011** then cycle the machine off and on.

Recovery Procedure 3

If “Procedure 2” does not solve the problem, execute **SP5832 001** (HDD Formatting – All), then cycle the machine off and on.

Executing **SP5832 001** erases all document and address book data stored on the hard disks. Be sure to consult with the customer before executing this SP code.

Recovery Procedure 4

If “Recovery Procedures 1 to 3” fail to correct the problem, replace the HDD.

Trouble-
shooting

| | | |
|--------------|----------|--|
| SC951 | B | F-Gate Signal Error |
| | | <p>When the IPU has already received the F-GATE signal (laser writing start trigger signal), the IPU receives another F-GATE signal.</p> <ul style="list-style-type: none"> • Firmware defective • Update the BCU firmware. • BCU defective |

| | | |
|--------------|----------|---|
| SC953 | B | Scanner Image Setting Error |
| | | <p>The settings required for image processing using the scanner are not sent from the IPU.</p> <ul style="list-style-type: none"> • Check the harnesses, connectors between the MCU and BCU • Update the BCU, MCU firmware • MCU defective • BCU defective • IPU defective |

| | | |
|--------------|----------|--|
| SC954 | B | Printer Image Setting Error |
| | | <p>The settings that are required for image processing using the printer controller are not sent from the IPU.</p> <ul style="list-style-type: none"> • Check the harnesses, connectors to the LDB and IPU • Check the harnesses, connectors between IPU/LDB, LDB/Polygon Mirror Motor PCB • Update the BCU firmware • LD defective • IPU defective • Polygon mirror motor or polygon mirror motor PCB defective |

SERVICE CALL CONDITIONS

| | | | |
|--------------|----------|--|---|
| SC955 | B | Memory Setting Error | |
| | | The settings that are required for image processing using the memory are not sent from the IPU. | <ul style="list-style-type: none"> • Software bug • Hard disk unit defective • Controller defective • MCU defective • IPU defective |
| SC964 | B | Scanner Start Error | |
| | | During scanned image processing, another command to start scanning was received. | <ul style="list-style-type: none"> • Software bug |
| SC965 | B | Print Start Error | |
| | | During print processing, another command to start printing was received. | <ul style="list-style-type: none"> • Software bug |
| SC966 | B | Polygon Mirror Motor Ready Error | |
| | | The polygon mirror motor does not reach ready status within 15 s after the copy paper is detected by the registration sensor. (15 s after the write request was issued for the IPU, the F-GATE signal remained LOW.) | <ul style="list-style-type: none"> • Polygon mirror motor harness, connections to BCU loose, broken, defective • Polygon mirror motor drive board harness, connector to BCU loose, broken, defective • Polygon mirror motor defective • Polygon mirror motor drive board defective • BCU defective |
| SC970 | B | Scanner Ready Error | |
| | | The scan ready signal is not generated by the MCU for more than 10 s after the read start signal is sent to the MCU. | <ul style="list-style-type: none"> • Software bug • Harnesses, connectors to the MCU loose, broken, defective • MCU defective • BCU defective |

| | | | |
|--------------|----------|---|--|
| SC990 | B | Software Performance Error 1 An unexpected operation was encountered by the software. | <ul style="list-style-type: none"> • Software crash; reboot the machine |
| | | <p>Procedure 1 If the HDDs have just been replaced, be sure to download the stamp data (SP 5853).</p> <p>Procedure 2 With SP5990 004 (SMC Report – Logging Data), print the most recent information for SC990. The SC990 information displays the file name, line number, and value. Report this information to your technical supervisor. For example: Function.c LINE: 123 VAL:0</p> | |

| | | | |
|--------------|----------|---|--|
| SC991 | C | Software Error The software performs an unexpected function and the program cannot continue. Recovery processing allows the program to continue. | <ul style="list-style-type: none"> • Software defective, re-boot^{*1} |
| | | | |

^{*1}: In order to get more details about 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 SC991, including the software file name, line number, and so on. Of these two methods "1)" is the recommended method, because another SC could write over the information for the previous SC.

Trouble-
shooting

| | | | |
|--------------|----------|---|--|
| SC994 | C | Operation Panel Management Records Exceeded An error occurred because the number of records exceeded the limit for images managed in the service layer of the firmware. This can occur if there if there are too many application screens open on the operation panel. | <ul style="list-style-type: none"> • No action required because this SC does not interfere with operation of the machine. |
| | | | |

| | | | |
|--------------|----------|--|--|
| SC997 | B | Application Selection Error An application did not start after pressing the appropriate key on the operation panel. | <ul style="list-style-type: none"> • Software bug; change the firmware for the application that failed • A RAM or DIMM option required by the application is not installed or not installed correctly. |
| | | | |

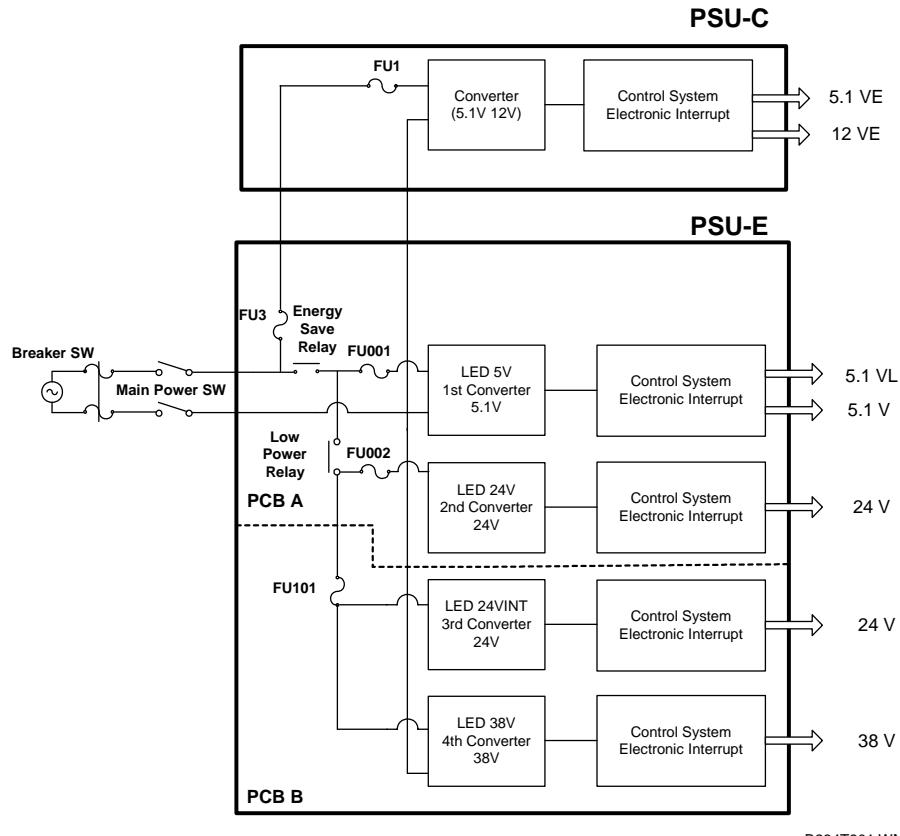
| | | | |
|--------------|----------|---|--|
| SC998 | B | Application Start Error Register processing does not execute for any application within 60 s after the machine is powered on. No application starts correctly, and all end abnormally. | <ul style="list-style-type: none"> • Software defective; change the firmware for the application that failed • A RAM or DIMM option required by the application is not installed or not installed correctly. |
| | | | |

SERVICE CALL CONDITIONS

| SC999 | B | Program Download Error |
|-------|---|--|
| | | <p>The program download from the SD card does not execute normally. This SC is not logged.</p> <ul style="list-style-type: none">• Card installed incorrectly• BCU defective• SD card defective• Controller board defective• Power down during program downloading• Wrong type of card inserted (see Section 5 "Service Tables" for downloading procedures) |

4.2.5 PSU PROTECTION CIRCUITS

Overview



Trouble-
shooting

B234T901.WMF

The diagram above shows the outputs of each converter listed in Table 1.

PSU-C and PSU-E comprise the PSU. PSU-E consists of two PCBs: PCB A and PCB B. There is a total of five converters:

- PSU-C contains the energy save converter.
- PCB A of PSU-E contains the 1st and 2nd converter.
- PCB B of PSU-E contains the 3rd and 4th converter.

The PSU contains several protective circuits that will cut power to prevent damage to the machine and dangerous fire hazards that could be caused by harness short circuits or damage to the PSU circuits due an accidental power overload. These protective circuits are provided at three locations:

- AC input
- Converter control points
- Output points

Even if one or more of these protective circuits should fail, the others will act as backup to cut power to the machine if a problem occurs,

The output points are provided with electronic interrupt circuits, so fuses are not required at these locations.

SERVICE CALL CONDITIONS

Table 1: PSU Converters and Output System

| Converter | Output Name | Output Voltage | Output Connector |
|-------------|-------------|----------------|------------------|
| Energy Save | VccE | 5.1V | CN733-1p~5p |
| | VcaE | 12.0V | CN734-1p~3p |
| 1st | VccL | 5.1V | CN711-1p~3 |
| | Vcc | 5.1V | CN12-1p~3p |
| 2nd | Vaa1 | 24.0V | CN713-1p~2p |
| | Vaa2 | 24.0V | CN713-3p~6p |
| | Vaa3 | 24.0V | CN714-1p~6p |
| 3rd | Vaa4 | 24V.0 | CN715-1p~2p |
| | Vaa5 | 24.0V | CN7153p~4p |
| 4th | Vmm1 | 38.0V | CN716-1p |
| | Vmm2 | 38.0V | CN716-2p |

AC Input Module

The AC input module has the following 5 fuses.

| Input Fuse | Rating |
|-------------------|---------------|
| FU1 | 3.15A/250V |
| FU3 | 4A/250V |
| FU001 | 3.15A/250V |
| FU002 | 6.3A/250V |
| FU101 | 6.3A/250V |

The AC input area of the PSU has fuses to cut AC power to the board in case of damage to the PSU board or one or more short circuits in the output area.

The location of the board where output is interrupted is different, depending on which fuse blows. Table 2 shows which areas of the PSU are affected by each fuse.

As shown in Table 2, FU1 cuts all circuits if damage or short circuits occur at PSU-C, which operates independently of the other circuits while the machine is in the sleep (energy conservation) mode. A short circuit in an input harness or other problem on PSU-C will also cause FU3 to blow and will cut all power output from the PSU.

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Table 2: PSU Fuses and Related Power Output Interrupts

| Converter | Output Name | FU1 | FU3 | FU001 | FU002 | FU101 |
|------------------|--------------------|------------|------------|--------------|--------------|--------------|
| Energy Save | VccE | O | O | | | |
| | VcaE | O | O | | | |
| 1st | VccL | O | O | O | | |
| | Vcc | O | O | O | | |
| 2nd | Vaa1 | O | O | O | O | |
| | Vaa2 | O | O | O | O | |
| | Vaa3 | O | O | O | O | |
| 3rd | Vaa4 | O | O | O | O | O |
| | Vaa5 | O | O | O | O | O |
| 4th | Vmm1 | O | O | O | O | O |
| | Vmm2 | O | O | O | O | O |

If there is damage or a short circuit inside the 1st converter of the control system in PSU-E, FU001 blows and power is interrupted in the output of the 1st, 2nd, 3rd, and 4th converters.

If there is damage or a short circuit inside the 2nd converter of the control system in PSU-E, FU002 blows and power is interrupted in the output of the 2nd, 3rd, and 4th converters.

If there is damage or a short circuit inside the 3rd or 4th converter of the control system in PSU-E, FU101 blows and power is interrupted in the output of the 3rd and 4th converters.

SERVICE CALL CONDITIONS

Converter Control Module

The following devices provide primary protection against current surges:

- Energy save converter
- 1st Converter
- 2nd Converter
- 3rd Converter
- 4th Converter

Each converter generates the dc currents that are used by the CPU, motor drive boards, and other parts of the mainframe. Each converter is provided with a protection circuit to detect power surges.

As shown in Table 3, the power supply to the mainframe that is interrupted depends on which protection circuit is opened as a result of a power surge:

- The protection circuit of the energy save converter cuts all power if a problem occurs in the energy save converter.
- If the problem occurs in the 1st converter, power to the 1st, 2nd, 3rd, and 4th converters is interrupted.
- If the problem occurs in the 2nd converter, power to the 2nd, 3rd, and 4th converters is interrupted.
- If the problem occurs in the 3rd converter, power to only the 3rd converter is interrupted.
- If the problem occurs in the 4th converter, power to only the 4th converter is interrupted.

Table 3: Converter Protection Circuits and Related Output Power Interrupts

| Converter | Output Name | Energy Save | 1st | 2nd | 3rd | 4th |
|-------------|-------------|-------------|-----|-----|-----|-----|
| Energy Save | VccE | O | | | | |
| | VcaE | O | | | | |
| 1st | VccL | O | O | | | |
| | Vcc | O | O | | | |
| 2nd | Vaa1 | O | O | O | | |
| | Vaa2 | O | O | O | | |
| | Vaa3 | O | O | O | | |
| 3rd | Vaa4 | O | O | O | O | |
| | Vaa5 | O | O | O | O | |
| 4th | Vmm1 | O | O | O | | O |
| | Vmm2 | O | O | O | | O |

Important!

To reset the machine after a protection circuit has opened:

1. Switch off the operation switch.
2. Switch off the main power switch.
3. Allow the machine to remain off for at least 5 minutes.
4. Turn on the main power switch.

Output Module

The PSU output module is provided with the following interrupt devices:

- Control system electronic interrupt: 5.1V, 12V
- Drive system electronic interrupt: 24V, 38V

The output fuses of previous models have been replaced by electronic interrupt circuits. These electronic interrupt circuits hav protect the machine from excessive current, excessive voltages, and overheating.

- Excessive current can be caused by a short at the power supply.
- Excessive voltage can be caused by damage to the PSU board, short circuits in external harnesses, or an unexpected surge in the external power supply.
- Overheating occurs when the temperature level of the elements in the control circuits of the converters becomes too high due to the failure of the PSU cooling fan, for example.

Table 4 shows how the electronic interrupt circuits react to these three problems.

Table 4: Electronic Interrupt Detection Locations

| Converter | Output Name | Over Current | Over Voltage | Over Heating |
|-------------|-------------|--------------|--------------|--------------|
| Energy Save | VccE | O | O | O |
| | VcaE | O | O | O |
| 1st | VccL | O | O | |
| | Vcc | O | O | |
| 2nd | Vaa1 | O | O | O |
| | Vaa2 | O | O | O |
| | Vaa3 | O | O | O |
| 3rd | Vaa4 | O | O | O |
| | Vaa5 | O | O | O |
| 4th | Vmm1 | O | O | O |
| | Vmm2 | O | O | O |

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Important!

To reset the machine after a protection circuit has opened:

1. Switch off the operation switch.
2. Switch off the main power switch.
3. Allow the machine to remain off for at least 5 minutes.
4. Turn on the main power switch.

SERVICE CALL CONDITIONS

PSU LED Display

Four converters are built into PSU-E. Each converter is provided with one LED that lights when the converter is activated.

PSU-E Converter LEDs

| Converter | LED Name |
|---------------|----------|
| 1st Converter | 5V |
| 2nd Converter | 24V |
| 3rd Converter | 24VINT |
| 4th Converter | 38V |

With the PSU box door open:

- LED 5V (1st Converter) and LED 24V (2nd Converter) are on PCB A on the right.
- LED 24VINT (3rd Converter) and LED 38V (4th Converter) are on PCB B on the left.

You can see which system is operating abnormally by checking whether these LEDs are on or off. If an LED is off, the converter for that LED is defective (see the above table).

The table below shows what will interrupt the output from a converter.

Converter On/Off States According to Mode

| Converter | Output Name | Copy | Standby | Door Open | Energy Saver | Low Power | Off/Sleep |
|-------------|-------------|------|---------|-----------|--------------|-----------|-----------|
| Energy Save | VccE | ON | ON | ON | ON | ON | ON |
| | VcaE | ON | ON | ON | ON | ON | ON |
| 1st | VccL | ON | ON | ON | ON | ON | OFF |
| | Vcc | ON | ON | ON | ON | OFF | OFF |
| 2nd | Vaa1 | ON | ON | ON | ON | OFF | OFF |
| | Vaa2 | ON | ON | ON | ON | OFF | OFF |
| | Vaa3 | ON | ON | ON | ON | OFF | OFF |
| 3rd | Vaa4 | ON | ON | OFF | OFF | OFF | OFF |
| | Vaa5 | ON | ON | OFF | OFF | OFF | OFF |
| 4th | Vmm1 | ON | ON | ON | OFF | OFF | OFF |
| | Vmm2 | ON | ON | ON | OFF | OFF | OFF |

PSU-E Replacement

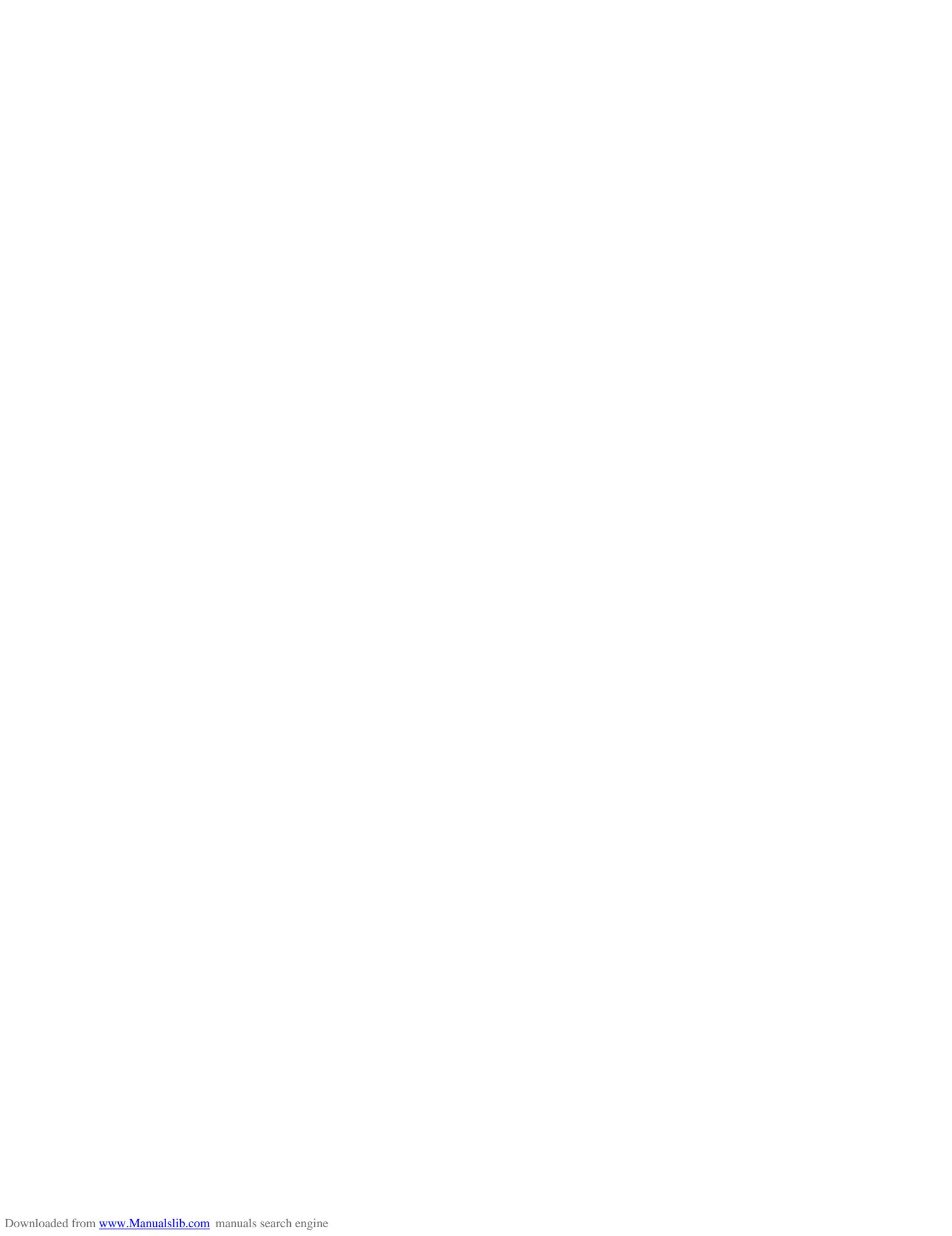
Before replacing any part of the PSU (especially PCB A, PCB B):

- Switch the machine off.
- Disconnect it from the power source.
- Allow the machine to stand at least 10 minutes before you open the PSU box door.

PCB-A and PCB B of the PSU-E are both provided with a large capacity electrolytic condenser.

Such large condensers store a large residual charge that can cause electrical shock if a board is handled too soon after the machine is turned off.

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SERVICE TABLES

| SERVICE TABLES REVISION HISTORY | | |
|---------------------------------|------------|---|
| Page | Date | Added/Updated/New |
| 34 | 09/09/2008 | Update Information – SP2975-001 Toner Recycle Cut Counter |
| 55 | 09/07/2006 | Updated Information – SP5257 Page Numbering (Bates) |
| 56 ~ 57 | 10/18/2006 | Updated Information – SP5401 |
| 61 | 07/09/2009 | Updated Information – SP5801 |
| 70 | 07/09/2009 | Updated Information – SP5824 |
| 144 | 02/23/2009 | Updated Information – Printer Service Tables |
| 159 | 11/21/2006 | Updated Information - Printing Test Pattern SP2-902-003 |
| 205 ~ 206 | 07/09/2009 | Updated Information – NVRAM Data Upload/Download |
| 218 ~ 221 | 02/23/2009 | Updated Information – Printer Bit Switch Settings |



5. SERVICE TABLES

5.1 SERVICE PROGRAM MODE OPERATION

The service program (SP) mode is used to check electrical data, change modes, and adjust values.

⚠ 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 switch to switch the power off, wait for the power LED to go off, and then switch the main power switch off.

Service Mode Lock/Unlock

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

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

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To Enter and Exit the SP Mode

1. Press Clear Modes key .
2. On the operation panel keypad, press .
3. Hold down Clear key  more than 3 seconds.
The Copy SP or PM Counter items are displayed. If the printer or scanner/printer option is installed, the Printer SP and Scanner SP items are also available.
4. Press Copy SP.
5. To exit the SP mode, just press Exit in the upper right corner of the SP mode screen.

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 key  to execute the test print.
4. Press SP Mode (highlighted) to return to the SP mode screen and repeat from step 1.

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

If you know all seven digits of the SP code, enter the seven numbers and press Enter key $\textcircled{#}$.

However, if you do not know all the numbers, enter only the first four numbers of the seven-digit SP and press Enter key $\textcircled{#}$. 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

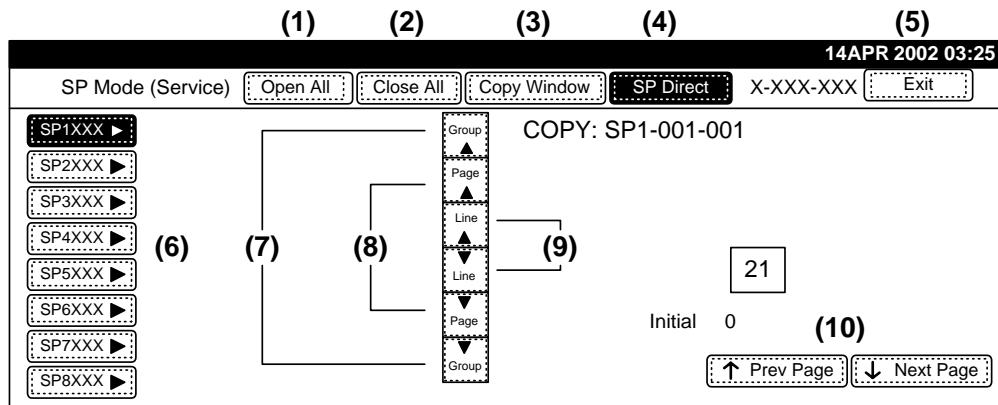
1. Refer to the SP Mode Tables at the end of this section to find the SP that you want to adjust.
2. Press the Group number on the left side SP Mode window that contains the SP that you want to adjust.
3. Use the scrolling buttons in the center of the SP mode window to display the SP number that you 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 Enter key $\textcircled{#}$. The small entry box on the right is activated and displays the default or the current setting below.
5. To enter a setting
 - Press $\textcircled{-}$ key 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 $\textcircled{#}$ to enter the setting. (If you enter a number that is out of range, the key press is ignored.)
 - Press Clear key  to cancel the data.
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 $\textcircled{\text{S}}$ key.
7. Press SP Mode (highlighted) in the copy window to return to the SP mode display.
8. When you are finished, press Exit twice to return to the copy window.

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SERVICE PROGRAM MODE OPERATION

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 Enter key #. (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. |

User, Super User SP Mode

The new user and super user SP modes allow everyday users and trained users (super users) to adjust the machine operation for variable conditions such as paper type, changes in temperature and humidity around the machine, the effects of wear on machine parts over time, and so on.

There are two types of users:

- **Users:** Individuals who use the machine every day for copying and printing and are familiar with the operation of the machine.
- **Super Users:** Individuals who also use the machine for copying and printing. However, super users are also trained in basic replacement procedures for key components such as the development unit, charge corona unit, and so on. All the replacement procedures in the TCRU (Trained Customer Replacement Unit) manual require opening the Super User Program Mode tables and doing important adjustments after a component is replaced.

Access to the Super User Program Mode tables is restricted:

- A "Super User" is assigned an access code that allows access to all the features in the Super User Program Mode service tables.
- A user is not assigned an access code, but he or she can use the User Program Mode.

Most of the User/Super User SP codes duplicate the functions of the SP codes in the main service tables. The table below is a list of the "Engine SP" codes in the main service tables that have equivalent SP codes in the User/Super User SP service tables.

| Engine SP | Engine SP Name | User SP | User SP Name | User | Super |
|-----------------------|--|-------------|-------------------------|------|-------|
| 1001 | Leading Edge Registration | 1710 | Shift Image With Feed | O | O |
| 1002 | Side-to-Side Registration | 1720 | Shift Image Across Feed | O | O |
| 1003 | Paper Buckle Adjustment | 1730 | Adjust Paper Skew | X | O |
| 1005 | Fusing Temperature Adjustment | 1740 16 | Set Fusing Temperature | X | O |
| 1902 1 | Web Motor Control | 1750 | Initialize Unit | X | O |
| --- | | 2710 | Adjust Image Density | X | O |
| 3902 | Process Control Data Display | 001 | Step 1 | X | O |
| 2201 | Development Bias Adjustment | 002 | Step 2 | X | O |
| 2207 2 | Toner Supply | 003 | Step 3 | X | O |
| --- | | 2720 | Adjust Image Quality | X | O |
| 2301 1 | Transfer Current Adjustment – 1st Side | 001 | Front | X | O |
| 2301 5 | Transfer Current Adjustment – 2nd Side | 002 | Back | X | O |
| --- | Charge Corona Cleaner On | 003 | Reduce Halftone | X | O |
| None | | 004 | No White Spots | X | O |
| --- | | 2730 | Set Unit Default | X | O |
| 2801 1, 2207 2 | TD Sensor Initial Setting | 001 | Development | X | O |

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Tables

SERVICE PROGRAM MODE OPERATION

| Engine SP | Engine SP Name | User SP | User SP Name | User | Super |
|--------------|---|---------|--|------|-------|
| 2962 1 | Auto Process Control Execution | 002 | Drum/Charge | X | O |
| 2985 1 | Coat Drum With Toner | 003 | Drum/Cleaning | X | O |
| 2909 | Main Scan Magnification | 2750 | Magnification Across Feed | X | O |
| 2910 1 | Writing Sub Scan Magnification | 2760 | Magnification With Feed | X | O |
| 2913 | Temp/Humidity | 2770 | Temperature/Humidity | X | O |
| --- | | 3710 | Sensor Settings | X | O |
| 3103 1 | ID Sensor Output Display – Vsg (Present) | 001 | 1 ID Sensor 1 | X | O |
| 3103 2 | ID Sensor Output Display – Vsg (Initial) | 002 | 2 ID Sensor 2 | X | O |
| 3902 1 | Process Control Data Display – Auto Process Control | 003 | 3 Procon On/Off | X | O |
| 2220 1 | Vref Manual Setting | 004 | 4 TD Sensor 1 | X | O |
| 2223 1 | Vt Display | 005 | 5 TD Sensor 2 | X | O |
| 7617 | Parts PM Counter Display | 3720 | PM Counts | X | O |
| 7618 | Parts PM Counter Reset | 3730 | Clear PM Counts | X | O |
| 2902 | Test Pattern | 3740 | Select Pattern | X | O |
| None | | 3750 | Reset to Defaults | X | O |
| 6100 | Staple Position Adjustment | 6700 | Staple Position Adjustment | O | O |
| 6101 | Punch Hole Position Adjustment | 6705 | Adj Punch Hole: With Feed | O | O |
| 6102 | Fine Adjust Stapler Jogger Fences | 6710 | Staple Jog Adjust: Across Feed | X | O |
| 6103 | Adjust Output Jog Position | 6715 | Jogger Adjustment: Across Feed | X | O |
| 6105 | Adjust Leading Edge Stopper Pressure | 6720 | Staple Jog Adjust: With Feed | X | O |
| 6200 | Adjust Booklet Stapling Position | 6730 | Adjust Booklet Stapling Position | O | O |
| 6201 | Adjust Booklet Fold Position | 6735 | Adjust Booklet Fold Position | O | O |
| 6202 | Fine Adjust Staple Jogger Fence Position | 6740 | Fine Adj Booklet Stapling: Across Feed | O | X |
| 6203 | Set Number of Folds | 6745 | Book Fold Repetitions | O | O |
| 6301 1 ~ 9 | Fine Adjust Z-Fold | 6755 | Fine Adjust Z-Fold 1 | O | X |
| 6302 10 ~ 16 | Fine Adjust Z-Fold | 6760 | Fine Adjust Z-Fold 2 | O | X |

O: In the menu, X: Not in the menu

5.2 MAIN SERVICE PROGRAM MODE TABLES

NOTE: The Service Program Mode is for use only by customer engineers so that they can properly maintain product quality. If this mode is used by anyone other than a customer engineer for any reason, data might be deleted or settings might be changed. In such a case image quality can no longer be guaranteed.

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. |
| 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 |
| NIA | No Information Available |
| User SP | This SP is part of the user/super user SP mode. |
| Super User Only | This denotes that the SP will be visible only to super users who have opened the Super User Program Mode with their access code. These SP codes are not available to users who display the SP codes by touching the [User Program] button. All the SP codes described below are available to super users. |

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

5.2.1 COPIER SERVICE PROGRAM MODE TABLES

SP1-nnn Feed

| | | |
|------|--|--|
| 1001 | Leading Edge Registration | |
| | Adjusts the printing leading edge registration for feeding from the trays and duplex tray using the trimming area pattern (SP2-902-3, No.15). Use the “• / *key to enter the minus (–) before entering the value. The specification is 4 ± 2 mm | |
| 001 | Copier/LCT Paper Tray | |
| | [-9.0~+9.0 / 0 / 0.5 mm] | |
| 002 | Duplex Tray | |
| | [-9.0~+9.0 / 0 / 0.5 mm] | |
| 003 | Copier/LCT Paper Tray (Low Speed) | |
| | [-9.0~+9.0 / 0 / 0.5 mm] | |
| 004 | Duplex Tray (Low Speed) | |
| | [-9.0~+9.0 / 0 / 0.5 mm] | |

| | | |
|------|---|------------------------------------|
| 1002 | Side-to-side Registration | |
| | Adjusts the printing side-to-side registration from the 1st paper feed station using the trimming area pattern (SP2-902-3, No.15). Use the “• / *key to enter the minus (–) before entering the value. Specification: 0 ± 2.0 mm. | |
| 001 | 1st Tray (Copier Tandem Tray) | [-9.0~+9.0 / -0.1 / 0.5 mm] |
| 002 | 2nd Tray (Copier) | [-9.0~+9.0 / -0.6 / 0.5 mm] |
| 003 | 3rd Tray (Copier) | [-9.0~+9.0 / -0.3 / 0.5 mm] |
| 004 | 4th Tray (LCT Tray 1) | [-9.0~+9.0 / -0.8 / 0.5 mm] |
| 005 | 5th Tray (LCT Tray 2) | [-9.0~+9.0 / -0.8 / 0.5 mm] |
| 006 | 6th Tray (LCT Tray 3) | [-9.0~+9.0 / +0.3 / 0.5 mm] |
| 007 | 7th Tray (Bypass Tray) | [-9.0~+9.0 / -0.3 / 0.5 mm] |
| 008 | Duplex Tray (Copier) | [-9.0~+9.0 / 0 / 0.5 mm] |

| | | |
|------|--|----------------------------|
| 1003 | Paper Buckle Adjustment (Registration) | |
| | Adjusts the relay clutch timing at registration. The relay clutch timing determines the amount of paper buckle at registration. (A plus or minus setting increases or decreases the amount of buckle.) | |
| 001 | Copier Paper Tray | [-9~+9 / +4 / 1 mm] |
| 002 | LCT | [-9~+9 / +4 / 1 mm] |
| 003 | Duplex Tray | [-9~+9 / +4 / 1 mm] |
| 004 | Adjust Buckle Amount | Manual adjustment |

| | |
|------|---|
| 1016 | Fine Adjust Reg Roller Speed |
| | This SP adjusts the speed of the registration roller. The speed can be adjusted independently for paper feed 1) when the paper is fed for 1st side printing and 2) when paper is fed for 2nd side printing after the 1st side has been printed. |
| 001 | Font Side -3 to +3/0/0.1 mm |
| 002 | Back Side |

| | |
|------|--|
| 1105 | Fusing Temperature Adjustment |
| 001 | Standby (Normal Temp Mode) |
| | Sets standby temperature for normal temperature mode. [140~190/*1 deg C] * B234/D101: 153 * B235/D102: 165 * B236/D103: 178 |
| 002 | Standby (Low Temp Mode) |
| | Sets standby temperature for low temperature mode. [140~190/*1 deg C] * B234/D101: 163 * B235/D102: 175 * B236/D103: 188 |
| 003 | Standby (High Temp Mode) |
| | Sets standby temperature for high temperature mode. [140~190/*1 deg C] * B234/D101: 148 * B235/D102: 160 * B236/D103: 173 |
| 004 | Low Limit (Normal Temp Mode) |
| | Sets the low limit for the fusing temperature in normal temperature mode. If the fusing temperature falls below this temperature while operating in the normal temperature mode, the machine will stop. After the fusing temperature rises above this temperature, the machine resumes operation in normal temperature mode. [120~180/*1 deg C] * B234/D101: 133 * B235/D102: 145 * B236/D103: 158 |
| 005 | Low Limit (Low Temp Mode) |
| | Sets the low limit for the fusing temperature in low temperature mode. If the fusing temperature falls below this temperature while operating in the low temperature mode, the machine will stop. After the fusing temperature rises above this temperature, the machine resumes operation in low temperature mode. [120~180/*1 deg C] * B234/D101: 143 * B235/D102: 155 * B236/D103: 168 |

MAIN SERVICE PROGRAM MODE TABLES

| | |
|-----|---|
| 006 | Low Limit (High Temp Mode) |
| | Sets the low limit for the fusing temperature in high temperature mode. If the fusing temperature falls below this temperature while operating in the high temperature mode, the machine will stop. After the fusing temperature rises above this temperature, the machine resumes operation in high temperature mode. [120~180/*1 deg C] * B234/D101: 128 * B235/D102: 140 * B236/D103: 153 |
| 007 | Fusing Temp Correction: Small |
| | Sets the amount to raise the fusing temperature above the standby temperature to print on paper sizes smaller than A4/LT LEF. [0~20/ 10 / 1 deg C] Note: You can use SP1105 011 to lower the threshold for the small size to B5. |
| 008 | Fusing Temp Correction: Normal |
| | Sets the amount to raise the fusing temperature above the standby temperature to print on paper sizes A4/LT and wider. [0~10/ 5 /1] Note: If the threshold paper size is lowered to B5 with SP1105 013, this 008 takes effect for paper sizes wider than B5. |
| 009 | Fusing Temp Correction (Translucent Sheets) |
| | Specifies the amount to raise or lower the fusing from the standby temperature to print on translucent paper. [-10 ~ +10/ 0 / 1 deg C] |
| 010 | Fusing Lamp Switching (at Warm-up) |
| | Specifies the fusing temperature at which 1 lamp of the 3 fusing lamps is switched off. The lamp that is switched off is the one heating the center of the hot roller. Switching this lamp off prevents overshooting the warm-up temperature. [20~190/*1 deg C] * B234/D101: 99 * B235/D102: 99 * B236/D103: 95 |
| 011 | Fusing Temp Adjustment (Low Power Mode) |
| | Sets the target temperature of the hot roller for low power mode. The hot roller remains at this temperature until the machine leaves low power mode. [20~170/*1 deg C] * B234/D101: 95 * B235/D102: 107 * B236/D103: 107 |
| 012 | Fusing Idling Start Temp |
| | Sets the temperature at which fusing idling starts. Fusing idling rotates the hot roller with no paper feed to ensure that the hot roller heats uniformly. [100~160/ 160 /1 deg C] |
| 013 | Select Paper Size for Temp Correction (0:LT,1:B5) |
| | Sets the paper size used to define "small paper" for SP codes 1105 007, SP1105 008. [0~1/ 1 /1] 0: LT/A4 LEF 1: B5 LEF (257 mm wide) |

| | |
|-----|---|
| 014 | Fusing Lamp Switching After Low Power Mode |
| | <p>Specifies the temperature at which 1 of the 3 fusing lamps is switched off before reaching the target standby temperature when the machine returns from the low power mode. The 3rd lamp is switched off before reaching the target standby temperature to prevent overshooting the target temperature.</p> <p style="text-align: center;">SP1105-1 – SP1104 14 = Actual Temperature</p> <p>[-20 ~ 0/ */1 deg C] * B234/D101: -10 * B235/D102: -10 * B236/D103: -20</p> |
| 015 | 1st Print After Low Power Mode |
| | <p>Sets the temperature at which the first sheet is allowed to print before the hot roller reaches the target standby temperature after returning from low power mode.</p> <p>[-50 ~ 0/ */ 1 deg C] * B234/D101: -20 * B235/D102: -20 * B236/D103: -5</p> |
| 016 | Fusing Temp Switch |
| | <p>This SP can be adjusted for the paper type, efficiency of fusing, and to reduce paper curl.</p> <p>0: Medium 1: Low 2: High</p> <ul style="list-style-type: none"> • Raise the temperature setting if you see loose toner, indicating that the toner has not fused completely with the surface of the paper. • Lower the temperature setting if the paper is excessively curled after it leaves the machine. <p>Note: This SP is equivalent to Super User SP Mode SP1740 001. [0~2/0/1]</p> |
| 017 | Small Size (2 Copies) |
| | <p>This SP adjusts the fusing temperature for "#2 Copies". These are small paper sizes (B5 SEF and smaller). The value entered here is added to the "Ready" temperature (standby temperature). The job will begin when the hot roller reaches: Standby Temp. + SP1105 17 setting. [0~20/10/1 degrees]</p> |
| 018 | Small Size (Switch to 1 Lamp) |
| | <p>This SP selects one fusing lamp for small paper sizes (B5 SEF and smaller). [0~2/1/1]</p> |
| 019 | Small Size (Switch to 2 Lamps) |
| | <p>This SP selects two fusing lamps for small paper sizes (B5 SEF and smaller). [0~2/1/1]</p> |

Service Tables

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|------|----------------------------------|--|
| 1106 | Fusing Temperature Display | |
| | Displays the fusing temperature. | |

| | | |
|------|----------------------------|--|
| 1107 | Fusing Idling Time Setting | |
| 001 | Normal/High Temp Mode | Sets the length of time the hot roller is allowed to rotate before the first sheet is fed. This idling time allows the hot roller to heat up faster. [0~60 / 10 / 1 s] |
| 002 | Low Temp Mode | |

MAIN SERVICE PROGRAM MODE TABLES

| | |
|------|---|
| 1109 | Fusing Nip Band Check |
| | <p>Use OHP to execute this SP and feed 1 sheet between the hot roller and pressure roller where it remains for 30 s and is then fed out so you can measure the nip band width.</p> <p>[OFF, ON]</p> <p>Note: This SP must be switched off after the nip band check is completed. If this SP remains on, this will cause paper to jam in the fusing unit (SC559).</p> |

| | |
|------|--|
| 1159 | Fusing Jam: SC Setting |
| | <p>This SP determines what the machine does if paper jams occur in the fusing unit for three consecutive sheets of paper.</p> <p>0 (default): A jam alert is shown on the screen. The customer can remove the jam and the machine works normally after that.</p> <p>1: SC559 occurs. The technician must remove the jam.</p> |

| 1902 | Web Motor Control | | | | | | | | | | | | | | |
|-----------|---|-------------|--|-------|----|---------|-----------|-------------|-------------|-----------|-------------|-------------|-----------|-------------|-------------|
| 001 | Web Consumption | | | | | | | | | | | | | | |
| | <p>Displays how much of the web has been used, expressed as a percentage of the roll consumed. Switch the machine off/on after changing this setting.</p> <p>[0~107 / 0 / 1%]</p> <p><i>When you install a partially used roll from another machine, read this SP before removal, then input that value with this SP on the next machine. Otherwise, the machine has no way of knowing how much of the partially used roll has been consumed.</i></p> | | | | | | | | | | | | | | |
| 002 | Web Motor Drive Interval | | | | | | | | | | | | | | |
| | <p>Determines how often the web motor turns on.</p> <p>[3 to 130/*/0.1 sec.]</p> <p>Note: The default setting is different depending on the area and model (see below).</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Model</th> <th>NA</th> <th>EU/Asia</th> </tr> </thead> <tbody> <tr> <td>B234/D101</td> <td>19.8</td> <td>13.2</td> </tr> <tr> <td>B235/D102</td> <td>16.2</td> <td>10.8</td> </tr> <tr> <td>B236/D103</td> <td>12.9</td> <td>8.6</td> </tr> </tbody> </table> | | | Model | NA | EU/Asia | B234/D101 | 19.8 | 13.2 | B235/D102 | 16.2 | 10.8 | B236/D103 | 12.9 | 8.6 |
| Model | NA | EU/Asia | | | | | | | | | | | | | |
| B234/D101 | 19.8 | 13.2 | | | | | | | | | | | | | |
| B235/D102 | 16.2 | 10.8 | | | | | | | | | | | | | |
| B236/D103 | 12.9 | 8.6 | | | | | | | | | | | | | |
| 003 | Web Motor Drive Time | | | | | | | | | | | | | | |
| | <p>Changes the time that the web motor is driven.</p> <p>[0.3~3.5 / 2.8 / 0.1 s]</p> | | | | | | | | | | | | | | |
| 004 | Web Near End Setting | | | | | | | | | | | | | | |
| | <p>Changes the web consumption ratio at which web near end is displayed.</p> <p>EUR/A: [0~100 / 90 / 1%] NA: [0~100 / 92 / 1%]</p> | | | | | | | | | | | | | | |
| 005 | Web Motor Drive Interval (Low Speed) | | | | | | | | | | | | | | |
| | <p>Determines how often the web motor turns on in Low Speed mode.</p> <p>[3~130/*/0.1s]</p> <p>Note: The default setting is different depending on the area and model (see below).</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Model</th> <th>NA</th> <th>EU/Asia</th> </tr> </thead> <tbody> <tr> <td>B234/D101</td> <td>19.8</td> <td>13.2</td> </tr> <tr> <td>B235/D102</td> <td>19.8</td> <td>13.2</td> </tr> <tr> <td>B236/D103</td> <td>16.2</td> <td>10.8</td> </tr> </tbody> </table> | | | Model | NA | EU/Asia | B234/D101 | 19.8 | 13.2 | B235/D102 | 19.8 | 13.2 | B236/D103 | 16.2 | 10.8 |
| Model | NA | EU/Asia | | | | | | | | | | | | | |
| B234/D101 | 19.8 | 13.2 | | | | | | | | | | | | | |
| B235/D102 | 19.8 | 13.2 | | | | | | | | | | | | | |
| B236/D103 | 16.2 | 10.8 | | | | | | | | | | | | | |

| | |
|--|-----------------------------------|
| 1903 | Web Drive Time |
| 001 | Web Total Time Display (x 200ms) |
| Displays the total amount of time (seconds) elapsed during web roll feed. | |
| 002 | Web Actual Time Display (x 100ms) |
| Displays the total amount of web roll motor operation time (seconds) for feeding the current web roll. | |

| | |
|--|--|
| 1909 | CIS Image Position Adj: PWM Duty After Adj |
| Displays the results of the settings done with SP1910. | |
| 001 | Tray 1, 2, 3 |
| 002 | LCT |
| 003 | Duplex |

| | |
|---|---|
| 1910 | CIS Image Pos Adj: LED Strength |
| | Press [Execute] to do the adjustment. Note: |
| <ul style="list-style-type: none"> For more about adjustment of the CIS components in the copier, see Section "3. Replacement and Adjustment". The CIS of the LCT should be adjusted at installation. For more see Section "1. Installation". | |
| 001 | Tray 1, 2, 3 |
| 002 | LCT |
| 003 | Duplex |

| | |
|---|---|
| 1912 | CIS Image Pos Adj: Normal Paper |
| | There are three image position sensors units (1 in the LCT and 2 in the copier). Each image position sensor unit contains a CIS. Each CIS can be adjusted independently for normal paper. Note: |
| <ul style="list-style-type: none"> For more about adjustment of the CIS components in the copier, see Section "3. Replacement and Adjustment". The CIS of the LCT should be adjusted at installation. For more see Section "1. Installation". | |
| 001 | Tray 1, 2, 3 |
| 002 | LCT |
| 003 | Duplex |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|---|---------------|
| 1914 | CIS Image Pos Adj: Get Pixels | |
| | Displays the dot (pixel) data resulting from the execution of SP1912. | |
| 001 | Tray 1, 2, 3 | Range: 0~1216 |
| 002 | LCT | |
| 003 | Duplex | |

| | |
|------|----------------------------|
| 1915 | Fine Adjust CIS DFU |
|------|----------------------------|

| | |
|------|--------------------------------------|
| 1916 | Adjust Duplex/Invert Tray DFU |
|------|--------------------------------------|

SP2-nnn Drum

| | |
|------|---|
| 2001 | Charge Corona Bias Adjustment |
| 001 | Grid Voltage in Imaging Area (Auto Process Control OFF) Adjusts the voltage applied to the grid plate during copying when auto process control is off . [-600--1800 / -900 / 10 V] Normally, there is no need to adjust this. However, if there is an ID or TD sensor problem, the machine goes into fixed toner supply mode. After replacing the drum or charge corona wire, reset this value to the default. |
| 002 | Grid Voltage in ID Sensor Pattern (Auto Process Control OFF) Adjusts the voltage applied to the grid plate when making the ID sensor pattern, when auto process control is switched off . [-600--1800 / -770 / 10 V] Normally, there is no need to adjust this. If the user wants high-density copies, the sensor pattern must be lighter, so this voltage must be a higher negative voltage. |
| 003 | Grid Voltage in Imaging Area (Auto Process Control ON) Adjusts the voltage applied to the grid plate during copying when auto process control is switched on . [-600--1800 / -1000 / 10 V] This voltage changes every time auto process control starts up (every time the machine is switched on) |
| 004 | Total Current – Normal Mode Adjusts the amount of current used to apply voltage to the grid plate during normal operation mode (Text, Text/Photo, Pale, Generation copies). [-1000--1800 / -1550 / 10 μ A] |
| 005 | Total Corona Current (Photo Mode) Adjusts the current applied to the charge corona wire for Photo mode. [-1000--1800 / -1600 / 10 μ A] |
| 006 | Vd (Auto Process Control) Adjusts the target VD voltage for Process Control Initial Setting. [-700--950 / -800 / 5 V] |
| 007 | Grid Voltage in Imaging Area (Auto Process Control off/Low Speed) Adjusts the voltage applied to the grid plate during copying when auto process control is switched off and the machine is in the low speed mode. [-600--1800 / -850 / 10 V] |
| 008 | Grid Voltage in ID Sensor Pattern (Auto Process Control off/Low Speed) Adjusts the voltage applied to the grid plate when making the ID sensor pattern, when auto process control is switched off and the machine is in the low speed mode. [-600--1800 / -710 / 10 V] |
| 009 | Grid Voltage Correction in Auto Process Control (Low Speed) Adjusts the voltage applied to the grid plate when auto process control is on and the machine is in the low speed mode. [-600 ~ -1800 / -900 / 10 V] |
| 010 | Total Corona Current (Low Speed) Adjusts the current applied to the charge corona wire when the machine is in the low speed mode and normal copy mode (any mode except Photo Mode). [-1000--1800 / -1550 / 10 μ A] |
| 011 | Total Corona Current for Photos Adjusts the current applied to the charge corona wire when the machine is in the low speed mode and Photo Mode. [-1000--1800 / -1600 / 10 μ A] |
| 012 | Vd (Auto Process Control) [700~950/ 800 /5 V] |

MAIN SERVICE PROGRAM MODE TABLES

| | |
|------|---|
| 2002 | Charge Corona Bias Adj: Pre-Charge |
| | <p>These SP code allow you to display and change the settings for the operation mode of the pre-charge unit.</p> <p>Note: The pre-charge unit supplements the function of the charge unit by reducing latent images and preventing low drum potential sensor readings in the first copy cycle.</p> |
| 001 | <p>Set Pre-Charge Mode</p> <p>Determines how the pre-charge unit operates after it is cycled off/on for a reset in response to pre-charge unit SC code SC312 or SC313.</p> <p>[0~2/1/1]</p> <p>0: Off. Pre-charge unit does not operate after the machine is cycled off/on. 1: On. Pre-charge unit operates after the machine is cycled off/on. 2: Pre-charge unit operates only after the main motor turns on.</p> <p>Notes</p> <p>This display is turned off If the machine returns a pre-charge related SC code when this SP code is set to "0" (Off).</p> |
| 002 | <p>Pre-Charge Total Current</p> <p>Sets the total amount of current used to apply a charge to the drum when the pre-charge unit turns on for normal copy jobs. This setting does not apply to low speed mode copying.</p> <p>[500~1500/600/10 μ]</p> |
| 003 | <p>Pre-Charge Current (Low Speed)</p> <p>Sets the total amount of current used to apply a charge to the drum when the pre-charge unit turns on for low speed copy jobs. This setting applies to low speed only.</p> <p>[500~1500/600/10 μ]</p> |

| | |
|------|---|
| 2101 | Printing Erase Margin |
| 001 | <p>Leading Edge</p> <p>Adjusts the leading edge erase margin.</p> <p>[0~9.0/ 3.5 / 0.1 mm]</p> |
| 002 | <p>Trailing Edge</p> <p>Adjusts the trailing edge erase margin.</p> <p>[0~9.0/ 2.5 / 0.1 mm]</p> |
| 003 | <p>Left edge</p> <p>Adjusts the left side erase margin.</p> <p>[0~9.0/ 2.0 / 0.1 mm]</p> |
| 004 | <p>Right edge</p> <p>Adjusts the right side erase margin.</p> <p>[0~9.0/ 2.0 / 0.1 mm]</p> |

| | | |
|------|--|---|
| 2103 | LD Power Adjustment | |
| | This SP mode corrects the banding caused by: 1) changes in drum characteristics over time, and 2) LD power fluctuations. | |
| 001 | LD0 Power Adjustment | Adjusts 1200 dpi. |
| 002 | LD1 Power Adjustment | [-70 to +185 / 0/1] |
| 003 | LD2 Power Adjustment | If you adjust one or more of these SP codes, you must select the appropriated SP (009 to 016 below) to enable adjustment. |
| 004 | LD3 Power Adjustment | |
| 005 | LD4 Power Adjustment | |
| 006 | LD5 Power Adjustment | |
| 007 | LD6 Power Adjustment | |
| 008 | LD7 Power Adjustment | |
| | The SP codes below switch SP2103 001 to 008 on and off. For example, after adjusting SP2103 001, set SP2103 009 to "1". | |
| 009 | LD0 Power Adjustment Start/End | [0~1 / 0/1] |
| 010 | LD1 Power Adjustment Start/End | 0: Off 1: On (enables adjustment) |
| 011 | LD2 Power Adjustment Start/End | |
| 012 | LD3 Power Adjustment Start/End | |
| 013 | LD4 Power Adjustment Start/End | |
| 014 | LD5 Power Adjustment Start/End | |
| 015 | LD6 Power Adjustment Start/End | |
| 016 | LD7 Power Adjustment Start/End | |

| | | |
|------|--|-------------------------|
| 2104 | LD Power Adjustment (for ID Sensor Pattern DFU) | |
| | This SP sets the LD power level for the creation of the ID sensor pattern and the Vh pattern when process control is on and operating (enabled with SP3901). These SP codes are automatically reset to their defaults after: | |
| | <ul style="list-style-type: none"> • Leaving the SP mode. • The copier is switched off and on. | |
| | LD Power Adjustment – ID Sensor Pattern | |
| 001 | Normal Speed | [0~15 / 6 / 1] |
| 002 | Low Speed | |
| | LD Power Adjustment – Vh Pattern | |
| 003 | Normal Speed | [0~15 / 6 / 1] |
| 004 | Low Speed | |

MAIN SERVICE PROGRAM MODE TABLES

| | |
|------|---|
| 2105 | LD Power Correction |
| | These SP codes correct the banding caused by: 1) changes in drum characteristics over time, and 2) LD power fluctuations. |
| 001 | Correction in Printer Mode |
| | If switched ON, this allows each channel to be adjusted for 1200 dpi print output with the SP settings below (LD0 ~ LD7). [0~1 / 1 / 1] 0: OFF, 1: ON |
| 002 | Correction in Copy Mode |
| | If switched ON, this allows each channel to be adjusted for copy output with the SP settings below (LD0 ~ LD7). [0~1 / 0 / 1] 0: OFF, 1: ON |
| 003 | LD0 Power Correction |
| | Correct the power of LD0 after either SP2105-001 or -002 is switched on. [-40~+40 / -2 /1] |
| 004 | LD1 Power Correction |
| | Corrects the power of LD1 after either SP2105-001 or -002 is switched on. [-40~+40 / -2 /1] |
| 005 | LD2 Power Correction |
| | Corrects the power of LD2 after either SP2105-001 or -002 is switched on. [-40~+40 / +2 /1] |
| 006 | LD3 Power Correction |
| | Corrects the power of LD3 after either SP2105-001 or -002 is switched on. [-40~+40 / +2 /1] |
| 007 | LD4 Power Correction |
| | Corrects the power of LD4 after either SP2105-001 or -002 is switched on. [-40~+40 / +2 /1] |
| 008 | LD5 Power Correction |
| | Corrects the power of LD5 after either SP2105-001 or -002 is switched on. [-40~+40 / +2 /1] |
| 009 | LD6 Power Correction |
| | Corrects the power of LD6 after either SP2105-001 or -002 is switched on. [-40~+40 / -2 /1] |
| 010 | LD7 Power Correction |
| | Corrects the power of LD7 after either SP2105-001 or -002 is switched on. [-40~+40 / -2 /1] |

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|------|--|-----------------------------------|
| 2111 | FCI Shade Detection | |
| | 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 printer mode output only. | |
| 001 | Matrix Size (600 dpi) | [0~128 / 18 / 1] 0: OFF |
| 002 | Threshold Value (600 dpi) | [0~128 / 4 / 1] 0: OFF |
| 003 | Matrix Size (400 dpi) | [0~128 / 18 / 1] 0: OFF |
| 004 | Threshold Value (400 dpi) | [0~128 / 4 / 1] 0: OFF |

| | | |
|------|--|------------------------|
| 2114 | Printer Dot Edge Parameter Setting | |
| | Allows setting a parameter for binary edge processing for the printer application with FCI switched off. This SP allows adjustment of image quality if the desired effect cannot be achieved with the default settings for edge processing. In general, increasing the values produces thicker lines and decreasing them produces thinner lines. However, some settings could cause defective images on white paper. | |
| 001 | Leading Dot Level Setting (1200 dpi) | [2~8 / 5 / 1] |
| 002 | Trailing Dot Level Setting (1200 dpi) | [2~8 / 5 / 1] |
| 003 | Multiple Dot Level Setting (1200 dpi) | [2~8 / 8 / 1] |
| 004 | Independent Dot Level Setting (1200 dpi) | [2~8 / 6 / 1] |
| 005 | Leading Dot Level Setting (600 dpi) | [2~16 / 12 / 1] |
| 006 | Trailing Dot Level Setting (600 dpi) | [2~16 / 12 / 1] |
| 007 | Multiple Dot Level Setting (600 dpi) | [2~16 / 16 / 1] |
| 008 | Independent Dot Level Setting (600 dpi) | [2~16 / 12 / 1] |

MAIN SERVICE PROGRAM MODE TABLES

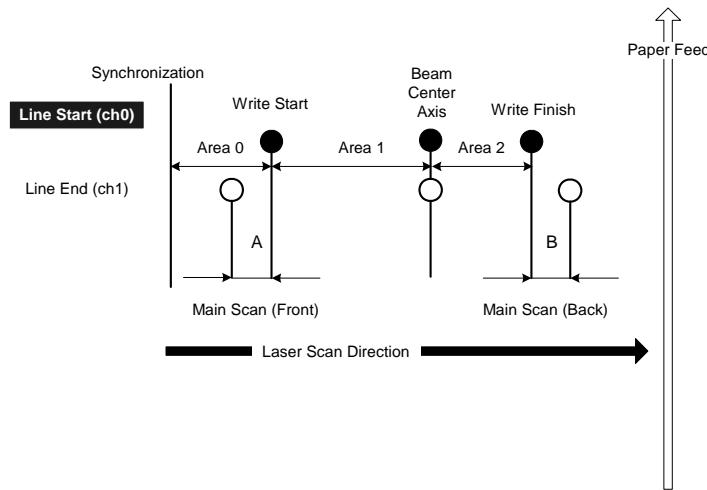
| | | |
|------|--|------------------------------|
| 2115 | Main Scan Beam Pitch Adjustment | |
| | A label attached to the LD unit service part lists the correct settings. | |
| 001 | Pitch Adjustment Between LD0 and LD2 (LD0) | [-100~100 / 0 / 1 µm] |
| 002 | Pitch Adjustment Between LD0 and LD4 (LD0) | [-100~100 / 0 / 1 µm] |
| 003 | Pitch Adjustment Between LD0 and LD6 (LD0) | [-100~100 / 0 / 1 µm] |
| 004 | Pitch Adjustment Between LD1 and LD3 (LD1) | [-100~100 / 0 / 1 µm] |
| 005 | Pitch Adjustment Between LD1 and LD5 (LD1) | [-100~100 / 0 / 1 µm] |
| 006 | Pitch Adjustment Between LD1 and LD7 (LD1) | [-100~100 / 0 / 1 µm] |
| 007 | Pitch Adjustment Between LD0 and LD1 (Ch0 ~ Ch1) | [-99~99 / 0 / 1 µm] |
| 008 | Between LD0 and LD1 (Ch0 ~ Ch1 – Front Main Scan) | [-99~99 / 0 / 1 µm] |
| 009 | Between LD0 and LD1 (Ch0 ~ Ch1 – Rear Main Scan) | [-99~99 / 0 / 1 µm] |

Two adjustments have been added to adjust:

- The timing of the clock that controls image writing in the sub scan direction
- The speed of the revolution of the polygon mirror motor that affects image writing in the sub scan direction.

There are three new SP codes for laser beam pitch adjustment: SP2115 007, 008, 009. These new SPs are provided to correct errors in the rate of magnification from the time the line scan starts until it ends.

The rate of the main scan magnification error is the amount of correction to be done for the magnification rate based on the length of the distance in the main scan direction for line end LD1 (ch1) with reference to line start LD0 (ch1). These are the lengths of the distances "A" and "B" in the illustration below.



With SP2115 007 set to "0", there can be as much variation in the pitch as shown above in the front area ("A") and the rear area ("B"). To correct this problem the pitches of Area 1 and Area 2 can be adjusted independently with two SP codes.

SP2115 008 is used to adjust the pitch of Area 1. SP2115 009 is used to adjust the pitch of Area 2.

| 2201 | Development Bias Adjustment | | |
|-----------|--|-----------|--|
| 001 | Image Area (Normal Speed) Adjusts the development bias for copying. [-200~-800 / -550 / 10 V] <i>This can be adjusted as a temporary measure if faint copies appear due to an aging drum.</i> | | |
| 002 | ID Sensor Pattern (Auto Process Control OFF) Adjusts the development bias for making the ID sensor pattern for VSP measurement when the auto process control is set to off. [-200~-800 / -400 / 10 V] <i>This should not be used in the field, because it affects ID sensor pattern density, which affects toner supply.</i> | | |
| 003 | Transparencies Adjusts the development bias for copying on Transparencies. [-200~-800 / -240 / 10 V] | | |
| 004 | ID Sensor Development Potential Adjusts the development potential for making the ID sensor pattern for the Vsp measurement when the auto process control is set on. [140~380 / -480 / 10 V] | | |
| 005 | Image Area (Low Speed) Adjusts the development bias for copying in low speed mode. [200~800 / -370 / 10 V] | | |
| 006 | ID Sensor Pattern (Auto Process Control OFF/Low Speed) Adjusts the development bias for making the ID sensor pattern for VSP measurement when the auto process control is set to off and the machine is in low speed mode. [0~200 / * / 10 V] Note: The default setting is different depending on the model and geographical area. | | |
| Model | NA | EU/ASIA | |
| B234/D101 | 0 | 0 | |
| B235/D102 | 0 | 0 | |
| B236/D103 | 30 | 30 | |

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

| | |
|------|--|
| 2207 | <p>Toner Supply</p> <p>Forced Toner Supply</p> |
| 001 | <p>Touch [Execute]. Touching [Execute] switches on the drum motor, development motor, development bias, and charge unit to operate toner supply for 10 consecutive 1 sec. intervals from the toner bank to the toner hopper.</p> <p>This mode finishes automatically after the toner supplied 10 times. 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.</p> |
| 002 | <p>Toner Bank Toner Setup</p> <p>Touch [Execute]. Touching [Execute] checks the toner lever in the toner supply cylinder and the toner hopper. The toner transport mechanism then supplies toner to the cylinder or hopper (or both) if the toner level is low.</p> <p>The 1) toner bank motor, 2) toner supply clutch, and 3) cylinder agitator motor turn on to supply toner to the toner supply cylinder, then switch off with the toner reaches a sufficient level.</p> <p>To supply toner to the toner hopper, in addition to the 3 items above that turn on to supply toner to the toner supply cylinder, the 4) development agitator motor, and 5) toner pump motor turn on. This requires about 4 minutes.</p> <p>Note: Use this SP to fill the toner transport path with toner after cleaning the toner supply unit, or at installation.</p> |
| 2208 | <p>Toner Supply Mode</p> <p>Selects the toner supply mode: Sensor Control or Image Pixel Count. [0~1 / 0 / 1] 0: Sensor Control 1: Pixel Count</p> <p><i>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.</i></p> |
| 2209 | <p>Toner Supply Rate</p> <p>Adjust the toner supply amount from the hopper for the normal operation. [100~2000 / 1300 / 10 mg/s]</p> <p><i>Increasing this value reduces the toner supply roller clutch on time. Use a lower value if the user tends to make lots of copies that have a high proportion of black.</i></p> |
| 2210 | <p>ID Sensor Pattern Interval</p> <p>Changes the interval for making the ID sensor pattern (VSP/VSG detection). [1~500 / 10 / 1 copy]</p> <p><i>If the user normally makes copies with a high proportion of black, reduce the interval.</i></p> |

| | |
|------|--|
| 2220 | Vref Manual Setting |
| | <p>Adjusts the TD sensor reference voltage (Vref) manually. [0~5.0 / 2.5 / 0.01 V]</p> <p>Change this value after replacing the development unit with another one that already contains toner. To use a development unit from another machine for test purposes:</p> <ol style="list-style-type: none"> 1) Check the value of SP2220 and SP2906 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 SP2220 and the Vcont for this unit into SP2906. 3) After the test, put back the old development unit, and change SP2220 and SP2906 back to the original value. |
| 2223 | Vt Display |
| | <p>Displays the current TD sensor output voltage. [0~5.0 / 2.5 / 0.01 V]</p> |
| 2226 | Toner Bank Toner Discharge |
| | <p>This SP removes toner from the toner bank and sends it to the toner hopper. After turning the toner supply motor and the toner bank motor on, the toner supply coil clutch turns on and off at 2 second intervals. The motors and clutch stop when the toner near-end sensor (in the toner bank unit) detects no toner. Even if the sensor continues to detect toner, this operation stops when the clutch has been turned on and off 10 times, so this SP may have to be repeated to clean out the system completely.</p> |
| 2227 | Toner Supply Mode Display |
| | <p>Displays the toner supply mode used for the last copy.</p> <ol style="list-style-type: none"> 1: ID Sensor and TD Sensor (from the 11th copy, using VT – VREF) 2: ID Sensor and TD Sensor (using VSP/VSG) – before the 10th copy of a job 3: TD Sensor – temporary mode when ID sensor output is abnormal 4: Image Pixel Count |

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Tables

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|---|---|
| 2301 | Transfer Current Adjustment | |
| | Adjusts the current applied to the transfer belt during copying, depending on the side, media type, and operation mode (normal or low speed). | |
| 001 | 1st Copy Side | B234: [10~200 / * / 10 µA] * B234/D101: 100 |
| 002 | Thick Paper | * B235/D102: 110 * B236/D103: 130 |
| 003 | Transparencies | [10~200 / 140 / 1 µA] |
| 004 | Translucent Sheets | B234: [10~200 / * / 10 µA] |
| 005 | 2nd Copy Side | * B234/D101: 100 * B235/D102: 110 * B236/D103: 130 |
| 006 | Between Papers | [10~200 / 20 / 1 µA] |
| 007 | Postcard | [10~200 / 140 / 1 µA] |
| 008 | 1st Copy Side (Low Speed) | [10~200 / * / 1 µA] |
| 009 | Thick Paper (Low Speed) | * B234/D101: 100 * B235/D102: 100 * B236/D103: 110 |
| 010 | Transparencies (Low Speed) | [10~200 / 140 / 1 µA] |
| 011 | Translucent Sheets (Low Speed) | [10~200 / * / 1 µA] |
| 012 | 2nd Copy Side (Low Speed) | * B234/D101: 100 * B235/D102: 100 * B236/D103: 110 |
| 013 | Between Papers (Low Speed) | [10~200 / 20 / 1 µA] |
| 014 | Postcard (Low Speed) | [10~200 / 140 / 1 µA] |

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| 2506 | Cleaning Interval-Multiple Copy | |
| 001 | On / Off | |
| | Selects whether multiple jobs are stopped at regular intervals in order to 1) reverse the drum to clean the cleaning blade edge, or 2) create an ID sensor pattern to correct toner density control. This SP switches this feature on and off. SP2506 002 sets the interval. [0~1 / 1/1] 0: OFF, 1: ON <i>Use if the drum gets dirty or images get too pale or too dark during long copy jobs.</i> | |
| 002 | Interval | |
| | Selects the interval at which multi copy jobs are stopped for blade cleaning. [1~100 / 30 / 1 min] <i>Reduce the value if a large amount of paper dust is causing black lines on the copy.</i> | |

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| 2507 | Pattern During Jobs | |
| 001 | Set Operation | This On/Off setting determines whether the toner entry patterns are created on the drum during and at the end of jobs. Default: OFF (no patterns) |
| 002 | Set Interval | This SP sets the count for the number of sheets to print before the patterns are created on the drum. When the count exceeds this setting, the machine retracts the transfer belt from the drum, creates the patterns, resets the transfer belt against the drum and continues the job. [1~2000/ 50 /1 K sheets] |
| 003 | Set Number of Patterns | This setting determines the number of patterns to be created on the drum. [1~200/ 10 /1] |

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|--------|--|---|
| SP2602 | PTL Settings | |
| | Use this SP to adjust the on/off timing of the PTL (pre-transfer lamp). Note: <ul style="list-style-type: none">This PTL light emitted from the PTL is intended to reduce charge on the drum and improve image transfer from drum to paper.However, adjusting the on/off of the PTL can cause blurred images appear at the leading edges of the paper. Therefore, the default setting for SP2602 001 is set to "Off". | |
| 001 | Front – On/Off Setting | Switches the PTL on and off for the front side of the paper passing through the fusing unit at normal speed. Note: When feeding thick paper or OHP transparencies, this setting is always off. [0~1/ 0 /1] 0: Off 1: On PTL timing can be adjusted with SP2602 002. |
| 002 | Front – Off Timing Adj. | This SP adjusts the length of the space from the leading edge where the PTL quenching is applied to the front side at normal speed. For example, if you set +5, 5 mm from the leading edge will be quenched. [-5~10/ 2 /0.1 mm] |
| 003 | Back – On/Off Setting | Switches the PTL on and off for the rear side of the paper passing through the fusing unit in the duplex mode at normal speed. [0~1/ 0 /1] 0: Off 1: On Note: <ul style="list-style-type: none">When this setting is switched on, make sure that the setting of SP2940 008 is the same as the default setting of SP2940 001.When feeding thick paper or OHP transparencies, this setting is always off. |
| 004 | Back – On/Off Timing Adj. | This SP adjusts the length of the space from the leading edge where the PTL quenching is applied to the rear side at normal speed. For example, if you set +5, 5 mm from the leading edge will be quenched. [-5~10/ 2 /0.1 mm] |

MAIN SERVICE PROGRAM MODE TABLES

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| 005 | Front – On/Off Setting: Low Speed Mode Switches the PTL on and off for the front side of the paper passing through the fusing unit in the low speed mode. Note: When feeding thick paper or OHP transparencies, this setting is always off. [0~1/0/1] 0: Off 1: On |
| 006 | Front – Off Timing Adj.: Low Speed Mode This SP adjusts the length of the space from the leading edge where the PTL quenching is applied to the front side in low speed mode. For example, if you set +5, 5 mm from the leading edge will be quenched. [-5~10/2/0.1 mm] |
| 007 | Back– On/Off Setting: Low Speed Mode Switches the PTL on and off for the rear side of the paper passing through the fusing unit in the duplex mode in low speed mode. [0~1/0/1] 0: Off 1: On Note: <ul style="list-style-type: none"> When this setting is switched on, make sure that the setting of SP2940 016 is the same as the default setting of SP2940 009. When feeding thick paper or OHP transparencies, this setting is always off. |
| 008 | Back – Off Timing Adj.: Low Speed Mode This SP adjusts the length of the space from the leading edge where the PTL quenching is applied to the rear side in slow speed mode. For example, if you set +5, 5 mm from the leading edge will be quenched. [-5~10/2/0.1 mm] |

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| 2801 | TD Sensor Initial Setting Performs the TD sensor initial setting. This SP mode controls the voltage applied to the TD sensor to make the TD sensor output about 2.5 V. After finishing this, the TD sensor output voltage is displayed. Press Start to execute. You must enter the developer lot number. (The lot number is stenciled on the top edge of the developer package.) <i>Use this mode only after changing the TD sensor or the developer.</i> |
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| 2803 | Charge Corona Cleaner On Turns on the corona wire cleaner manually. Press Start to execute. <i>When copy density across the paper is uneven, clean the wire with this SP.</i> |
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| 2804 | Charge Corona Cleaner Setting |
| 001 | Corona Wire Cleaner Operation Setting |
| | Selects when automatic corona wire cleaning is done. [0~2 / 2 / 1] 0: OFF 1: At the beginning process control and at intervals selected with SP2804 002 2: At intervals selected with SP2804 002 only (not at the beginning of process control). |
| 002 | Corona Wire Cleaner Interval |
| | Selects the interval for automatic corona wire cleaning. [100~10000 / 5000 / 100 copies] |

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| 2902 | Test Pattern |
| 001 | IPU Scanning Test Pattern |
| | Prints the scan test patterns for the IPU chip. Prints 17 patterns for selection. [0~17 / 0 / 1] |
| 002 | IPU Printing Test Pattern |
| | Prints the print test pattern for the IPU chip. Presents 4 selections for selection. [0~8 / 0 / 1] |
| 003 | Printing Test Pattern |
| | Presents 42 selections for selection. |
| 004 | Select SBU Pattern |
| | [0~4/ 0 /1] |
| 005 | SBU Pattern Output Level |
| | [0~1023/ 0 /1] |

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| 2906 | Vcont Manual Setting |
| | Adjusts the TD sensor control voltage (Vcont) manually. [4.0~24.0 / 9.7 / 0.1 V] <i>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.(See SP2220.)</i> |

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| 2909 | Main Scan Magnification |
| 001 | Copy |
| | Adjusts the magnification in the main scan direction for copy mode. (●3-18) [-2.0~+2.0 / 0 / 0.1%] <i>Use the “• / *key to enter the minus (–) before entering the value.</i> |
| 002 | Printer |
| | Adjusts the magnification in the main scan direction for printing mode. (●3-18) [-2.0~+2.0 / 0 / 0.1%] <i>Use the “• / *key to enter the minus (–) before entering the value.</i> |

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Tables

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|------|---|
| 2910 | Writing Sub Scan Magnification |
| | Fine adjusts the magnification in the sub scan direction. (●3-18) [-1.0~+1.0 / 0 / 0.1%] <i>Use the “• / *key to enter the minus (–) before entering the value.</i> Note: Normally this SP adjustment is done at the factory. However, this SP may require adjustment in the field after replacement of the polygon mirror motor or LD unit. |

MAIN SERVICE PROGRAM MODE TABLES

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|------|---|
| 2911 | Transfer Current On / Off Timing |
| 001 | La (ON) |
| | Adjusts the transfer current on timing at the leading edge. [-30~+30 / 0 / 1 mm] |
| 002 | Lb (Switch) |
| | Adjusts the transfer current on/off exchange timing. [0~60 / 45 / 1 mm] |
| 003 | Lc (OFF) |
| | Adjusts the transfer current off timing (for example: -5 mm is 5 mm after the trailing edge). [-30~+30 / 0 / 1 mm] |
| 004 | Med Thick La (Switch) |
| | For medium thick paper. [-15 to +20/ 0 / 1 mm] |
| 005 | Med Thick Lb (Switch) |
| | For medium thick paper. [0 to 45/ 0 / 1 mm] |
| 006 | Med Thick Lc (Switch) |
| | For medium thick paper. [-40 to +40/ 0 / 1 mm] |
| 007 | After Punch La (Switch) |
| | For punched paper. [-15 to +20/ 1 / 1 mm] |
| 008 | After Punch Lb (Switch) |
| | For punched paper [0 to 45/ * / 1 mm] * B234/D101: 20 * B235/D102: 20 * B236/D103: 26 |
| 009 | After Punch Lc (Switch) |
| | For punched paper. [-40 to +40/ * / 1 mm] * B234/D101: -25 * B235/D102: -30 * B236/D103: -38 |

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| 2912 | Drum Reverse Rotation Interval |
| 001 | 1st Reverse Rotation |
| | Sets the length of time the drum is reversed to clean the drum cleaning blade. [0~7 / 2 / 20 ms] |
| 002 | Forward Rotation After 1st Reverse Rotation |
| | Sets the length of time the drum is rotated forward after the 1st reverse rotation. [0~7 / 0 / 20 ms] |
| 003 | 2nd Reverse Rotation |
| | Sets the length of time the drum is reversed for the 2nd reverse rotation to clean the drum cleaning blade again. [0~7 / 0 / 20 ms] |

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| 2913 | Temp/Humidity | Display the Temperature and Humidity Levels Inside the Machine |
| This SP displays readings of the current temperature and humidity inside the machine. | | |
| 001 | Internal Temp | Displays current temperature inside the machine. [-20 to 60/ None /1°C] |
| 002 | Internal Humid | Current humidity level inside the machine. [0 to 100/None/1% rH] |

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| 2920 | LD Off Check |
| | Checks whether the LD turns off or on when the front door is opened. DFU [0~1 / 0 / 0] 0: ON 1: OFF |

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| 2930 | 2nd Cleaning Blade Operation |
| | Use this SP to set up how the 2nd cleaning blade operates. The temperature/humidity sensor measures the temperature and humidity, then the machine calculates the absolute humidity. Based on this calculation of absolute humidity: <ul style="list-style-type: none"> If the absolute humidity is above the critical level set with SP2930 008 below, the settings of SP2930 001-003 control the operation of the 2nd cleaning blade. If the absolute humidity below the critical level set with SP2930 008, the settings of SP2930 004-007 control the operation of the 2nd cleaning blade. |
| 001 | Condition 1 |
| | This SP setting determines when 2nd blade cleaning is done. Note: This setting takes effect only when the calculated absolute humidity is above the level of SP2930 008. [0~2/1/1] <ul style="list-style-type: none"> 0: Off. 2nd blade cleaning is never done. However, the 2nd blade cleaning can be done manually with SP2930 004. 1: After process control execution but only when SP3901 is set to ON to enable process control and: <ul style="list-style-type: none"> The temperature of the machine is less than 100°C when it is powered on. SP2966 is ON. This SP sets process control to execute if the machine remains on and idle for longer than 24 hours. 2: After the prescribed number of pages has printed. The number of pages is prescribed by SP2930 002. If the count exceeds the number of pages during a job, process control does not execute until the job has finished. |
| 002 | Interval 1 |
| | This SP sets the number of pages to count before 2nd blade cleaning. 2nd blade cleaning is done when the count exceeds this value, but only if SP2930 001 is set to "2". [1~100/ 10 /1K] Note: This setting takes effect only when the calculated absolute humidity is above the level of SP2930 008. |
| 003 | Time 1 |
| | This SP sets the length of time the 2nd cleaning blade is held against the drum. At the end of this time, the 2nd cleaning blade is retracted and does not touch the drum until the next cleaning. [10~90/ 20 /1 s] Note: This setting takes effect only when the calculated absolute humidity is above the level of SP2930 008. |

MAIN SERVICE PROGRAM MODE TABLES

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| 004 | Force 2nd Blade Cleaning |
| | Press [Start] to force cleaning the drum with the 2nd cleaning blade. |
| 005 | Condition 2 |
| | <p>This SP setting determines when 2nd blade cleaning is done. Note: This setting takes effect only when the calculated absolute humidity is below the level of SP2930 008.</p> <p>[0~2/1/1]</p> <p>0: Off. 2nd blade cleaning is never done. However, the 2nd blade cleaning can be done manually with SP2930 004.</p> <p>1: After process control execution but only when SP3901 is set to ON to enable process control and:</p> <ul style="list-style-type: none"> • The temperature of the machine is less than 100°C when it is powered on. • SP2966 is ON. This SP sets process control to execute if the machine remains on and idle for longer than 24 hours. <p>2: After the prescribed number of pages has printed. The number of pages is prescribed by SP2930 002. If the count exceeds the number of pages during a job, process control does not execute until the job has finished.</p> |
| 006 | Interval 2 |
| | <p>This SP sets the number of pages to count before 2nd blade cleaning. 2nd blade cleaning is done when the count exceeds this value, but only if SP2930 001 is set to "2".</p> <p>[1~100/10/1K]</p> <p>Note: This setting takes effect only when the calculated absolute humidity is below the level of SP2930 008.</p> |
| 007 | Time 2 |
| | <p>This SP sets the length of time the 2nd cleaning blade is held against the drum. At the end of this time, the 2nd cleaning blade is retracted and does not touch the drum until the next cleaning.</p> <p>[10~90/20/1 s]</p> <p>Note: This setting takes effect only when the calculated absolute humidity is below the level of SP2930 008.</p> |
| 008 | Set Level |
| | <p>This SP sets the critical level of the absolute humidity that determines which SP codes above are used to control the operation of 2nd blade cleaning.</p> <p>[0~3/1/ 1]</p> <p>0: No switching (calculated absolute humidity is ignored)</p> <p>1: 0.0022</p> <p>2: 0.0040</p> <p>3: 0.0060</p> |
| 009 | Operation Display |
| | <p>This SP displays a number that tells you which mode is controlling the operation of the 2nd cleaning blade.</p> <p>[0~1/1] Default: None</p> <p>0: Normal. Absolute humidity is above the level set for SP2930 008 (SP2930 001-003 control operation of 2nd blade cleaning.)</p> <p>1: Low. Absolute humidity is below the level set for SP2930 008 (SP2930 005-007 control operation of 2nd blade cleaning.)</p> |

Main Service Program Mode Tables

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| 2940 | Leading Edge Transfer Current | |
| | Adjusts the leading edge transfer current for each paper feed station at normal and low speed. | |
| 001 | Tray 1 | Tandem Tray – Copier, Normal Speed B234/D101: [10~200 / 25 / 1 µA] B235/D102: [10~200 / 30 / 1 µA] B236/D103: [10~200 / 35 / 1 µA] |
| 002 | Tray 2 | Universal Tray – Copier, Normal Speed B234/D101: [10~200 / 25 / 1 µA] B235/D102: [10~200 / 30 / 1 µA] B236/D103: [10~200 / 35 / 1 µA] |
| 003 | Tray 3 | Universal Tray – Copier, Normal Speed B234/D101: [10~200 / 25 / 1 µA] B235/D102: [10~200 / 30 / 1 µA] B236/D103: [10~200 / 35 / 1 µA] |
| 004 | Tray 4 | LCT 1st Tray, Normal Speed B234/D101: [10~200 / 25 / 1 µA] B235/D102: [10~200 / 30 / 1 µA] B236/D103: [10~200 / 35 / 1 µA] |
| 005 | Tray 5 | LCT 2nd Tray, Normal Speed B234/D101: [10~200 / 25 / 1 µA] B235/D102: [10~200 / 30 / 1 µA] B236/D103: [10~200 / 35 / 1 µA] |
| 006 | Tray 6 | LCT 3rd Tray, Normal Speed B234/D101: [10~200 / 25 / 1 µA] B235/D102: [10~200 / 30 / 1 µA] B236/D103: [10~200 / 35 / 1 µA] |
| 007 | Tray 7 (Bypass) | Bypass Tray, Normal Speed B234/D101: [10~200 / 25 / 1 µA] B235/D102: [10~200 / 30 / 1 µA] B236/D103: [10~200 / 35 / 1 µA] |
| 008 | Duplex Tray | Duplex Tray – Copier, Normal Speed B234/D101: [10~200 / 100 / 1 µA] B235/D102: [10~200 / 110 / 1 µA] B236/D103: [10~200 / 130 / 1 µA] |
| 009 | Tray 1 (Low Speed) | Tandem Tray – Copier, Low Speed [10~200 / 80 / 1 µA] |
| 010 | Tray 2 (Low Speed) | Universal Tray – Copier, Low Speed [10~200 / 80 / 1 µA] |
| 011 | Tray 3 (Low Speed) | Universal Tray – Copier, Low Speed [10~200 / 80 / 1 µA] |
| 012 | Tray 4 (Low Speed) | LCT 1st Tray, Low Speed [10~200 / 80 / 1 µA] |
| 013 | Tray 5 (Low Speed) | LCT 2nd Tray, Low Speed [10~200 / 80 / 1 µA] |
| 014 | Tray 6 (Low Speed) | LCT 3rd Tray, Low Speed [10~200 / 80 / 1 µA] |
| 015 | Tray 7 (Low Speed) | Bypass Tray, Low Speed [10~200 / 80 / 1 µA] |
| 016 | Duplex Tray (Low Speed) | Duplex Tray –Copier, Low Speed [10~200 / 80 / 1 µA] |

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Tables

MAIN SERVICE PROGRAM MODE TABLES

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| 2950 | Pages Allowed After Toner Collection Unit Lock | |
| This SP displays the number of sheets allowed after the Toner Collection Unit Lock is detected. After detection, the "Replacement of Toner Recycling Unit will soon be necessary" message is displayed at the bottom of the operation panel. When this number reaches 8K, SC487 is issued and the machine stops. Enter "0" and cycle the machine off/on to reset this symptom. [0~8/0/1 K] | | |
| 2961 | Developer Initialization (Factory) | DFU |
| | | |
| 2962 | Auto Process Control Execution | |
| <p>Press Start to execute and automatically adjust the following:</p> <ol style="list-style-type: none"> 1. Drum potential sensor 2. ID sensor 3. Charge grid voltage Vg (by changing Vd) 4. LD power (by changing Vh) 5. VL detection. <p>Note: Before using this SP, auto process control should be on (SP3-901). After changing the drum, ID sensor, drum potential sensor, LD unit, charge corona wires, or toner density sensor, this SP should be executed.</p> | | |
| 2966 | Periodical Auto Process Control | |
| <p>Selects whether auto process control is done after 24 hours have elapsed after the last copy job.</p> <p>[0~1 / 0/ 1] 0: OFF 1: ON</p> <p><i>This setting is required for a customer who keeps the main switch on all day.</i></p> | | |
| 2967 | Auto Image Density Adjustment | |
| <p>Selects whether auto image density adjustment is done during machine warm up. This mode is to counter dirty background that occurs when a machine is used in an area that contains ammonia.</p> <p>[0~1 / 0/ 1] 0: OFF 1: ON</p> <p>If Periodical Auto Process Control (SP2-966) is used, this adjustment is done also after the auto process control is finished.</p> | | |
| 2968 | Toner Density Correction | |
| <p>To prevent the image density dropping during continuous copying after a long interval (this is caused by a sudden increase of Q/M), VREF is changed by -0.06 V every (100 X [SP2-974 value + 1]) prints. This correction is applied from when the auto process control is done, until "(the number of prints set in this SP mode) X (SP2-974 value +1)" has been made.</p> <p>[0~20 / 0 / 1K copies]</p> | | |

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| 2969 | ID Sensor Pattern Interval-Multiple Copy Twenty ID patterns are made in an interval of about 1 minute during a continuous copy process just after process control is completed. Image density will be stabilized. However, printing productivity will be reduced. [0~1 / 0 / 1] 0: OFF 1: ON |
| 2972 | Toner Suction Collection Bottle Operation Time Displays the total operation time of the development unit toner collection bottle. [0~600 / 0 / 1 hour] Need to replace soon: 580 hours Need to replace now: 600 hours After the bottle is replaced, reset the value to "0" by pressing 0 and # (Enter). |
| 2973 | Toner Suction Motor Operation Time Displays the total operation time of the development toner suction motor. [0~600 / 0 / 1 hour] Need to replace soon: 570 hours Need to replace now: 600 hours <i>After the motor is replaced, reset the value to 0 (zero) by pressing 0 and #.</i> |
| 2974 | Toner Supply Interval Adjusts how often toner is supplied [0~3 / 0 / 1] 0: 1/1 (every print) 1: ½ (every 2 prints) 2: 1/3 (every 3 prints) 3: ¼ (every 4 prints) <i>The operation of SP2968 now depends on this SP mode setting. In this machine, the Vref update interval has been changed from "every 100 prints" to "every [100X(SP2-974 value +1)] prints". For example, if set to 1, toner is supplied every 2 prints, and SP 2-974 value + 1 = 3.</i> |

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| 2975 | Toner Recycle Cut Counter |
| 001 | ON Counter |
| | Determines how often all recycled toner is discarded. The purpose of this feature is to periodically remove all recycled toner contaminated with paper dust. [0~999 / * / 1 K copies] *B234 / D101: 25 *B235 / D102: 25 *B236 / D103: 12 <i>This setting determines when the toner separation solenoid closes the shutter and shunts all toner to the waste toner collection bottle. For details, see "Toner Recycling" in Section 6.</i> |
| 002 | OFF Counter |
| | This setting determines how long all toner is shunted to the waste toner collection bottle (no recycling). [0~255 / 25 / 1 K copies] <i>This setting determines when the toner separation solenoid opens the shutter and toner recycling starts.</i> |
| 003 | Level Setting |
| | Adjusts recycling according to ambient conditions. [0~4/1/1] |

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| 2977 | Toner Supply/Transport Display | |
| | This SP displays information about toner supply operation. | |
| 001 | Toner Bank Mtr: Total On Time | [0~999/0/1 Hour] |
| 002 | Toner Supply CL: On/Off Times | [0~999/0/1 K Prints] |
| 003 | TCB Agitator: Total On Time | [0~999/0/1 Hour] |
| 004 | TS Cylinder: Total On Time | [0~999/0/1 Hour] |
| 005 | Toner Pump: Total On Time | [0~999/0/1 Hour] |

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| 2978 | Recycle Status Display | |
| 001 | Status | This SP displays whether recycling is on or off. [0~1/0] 0: On 1: Off |
| 002 | Page Count | Displays the number of K (1,000) pages printed with recycling on. |

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| 2981 | Toner Hopper Agitator | |
| | This SP displays information about operation of the toner hopper agitator. | |
| 001 | Standard On time | [2~5000/ 500 /1 ms] |
| 002 | On Time | [2~5000/ 500 /1 ms] |
| 003 | Total On Time | [0~9999/0/1 hour] |
| 004 | Page Count | [10~1000/ 100 /1 page] |

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| 2985 | Coat Drum With Toner | |
| | Touch [Execute] to coat the drum with toner. | |

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| 2986 | Refresh Mode |
| | This SP code is used periodically to discard toner in the developer/toner mixture and replenish it with fresh toner. Over a long period of time the quality of the toner in the developer/toner mixture may deteriorate. This can occur with machines that are used infrequently or on machines where the average copy or print is of very low density. |
| 001 | Interval |
| | Sets the interval between refresh executions. The toner refresh is done when the count exceeds this number. [0~25/0/1 K] Note: <ul style="list-style-type: none">• "KMAI" Means K sheets (1,000 sheets).• The machine will execute the refresh mode immediately as soon as the count exceeds this setting, even if this occurs during a print job. When the count is exceeded during a print job the job will pause and a message tell the operator to wait while the machine makes the adjustment. |
| 002 | Level |
| | Selects the Vsp value that will trigger toner refresh. Toner is refreshed if the value of Vsp drops below the selected level. [0~4/2/ 1] 0: Vsp = 0.8 1: Vsp = 1.0 2: Vsp = 1.2 3: Vsp = 1.5 4: Vsp = 1.8 Note: Vsp is the ID sensor output after it measures the toner density of the ID sensor pattern. |
| 003 | Repetitions |
| | Sets the number of times the refresh cycle is repeated for one refresh execution. [1~3/2/1 times] |

Service Tables

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|------|---|
| 2990 | Adjust Start Timing |
| | This SP adjusts the timing of the first copy or print to ensure the quality of the first copy. Clean toner is occasionally consumed when the drum starts to rotate. This can lead to poor cleaning and other poor conditions on the drum. [0~2/0/1] 0: Normal timing 1: Timing Adjustment 1. The transfer belt separation from the drum is delayed for the 1st rotation of the drum to keep the belt against the drum in order to counter the effects of a possible faulty reading by the drum potential sensor. 2: Timing Adjustment 2. The transfer belt separation from the drum is delayed for two drum rotations to keep the belt against the drum to counter the effects of faulty readings by the drum potential sensor or poor drum cleaning. |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|---|-------------------------|---|
| 2987 | Toner Consumption | |
| 2987-1 | Operation Setting | Determines whether a toner pattern is created on the OPC drum during heavy use of the ring binder in a low temperature environment. The pattern is created to prevent the occurrence of dirty background. [OFF] [ON] 1: Pattern created at the level specified by SP2987-2. 0: No pattern is created. The setting of SP2987-2 is ignored. |
| 2987-2 | Operation Level Setting | |
| Determines the temperature/humidity level at which the toner pattern is created on the OPC drum (only when SP3987-1 is enabled). [0 to 3/1/1] | | |
| Ring Binder Run | | |
| Up to 200 books | | 10°C 20% rH |
| Up to 400 books | | 10°C 30% rH |
| Up to 600 books | | 10°C 40% rH |

SP3-nnn Processing

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|------|--|
| 3001 | ID Sensor Initial Setting |
| 001 | ID Sensor PWM Setting |
| | This SP mode recovers the machine when an SC condition occurs because 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 / 62 / 1] The PWM data is stored when ID Sensor Initial Setting is done. |
| 002 | ID Sensor Initialization |
| | Performs the ID sensor initial setting. The ID sensor output for the bare drum (VSG) is adjusted to 4.0 ± 0.2 V. This SP mode should be performed: 1) After replacing or cleaning the ID sensor, 2) After replacing the NVRAM or doing an NVRAM clear. |

| | |
|------|---|
| 3103 | ID Sensor Output Display |
| 001 | Vsg |
| | Displays the current value of the ID sensor output after checking the bare drum surface. |
| 002 | Vsg Initial |
| | Displays Vsg when the Vsp adjustment is done. |
| 003 | Vsp |
| | Displays the current value of the ID sensor output after checking the ID sensor pattern image. |
| 004 | Vsdp |
| | Displays the 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. DFU |

| | |
|------|--|
| 3901 | Auto Process Control Setting |
| 001 | Auto Process Control Setting |
| | Determines whether machine checks and corrects drum potential (Vd) and LD power when the fusing temperature is lower than 100°C at power-on. [0~1 / 1 / 1] 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. |
| 002 | VL Correction Control Setting |
| | Determines whether VL detection and correction are performed during process control every 1K copies. [0~1 / 0 / 1] DFU 0: OFF 1: ON Even with this SP switched ON, VL detection and correction will not be performed if SP3901 001 is OFF. |

MAIN SERVICE PROGRAM MODE TABLES

| | |
|------|---|
| 3902 | Process Control Data Display |
| 001 | Auto Process Control |
| | Displays whether auto process control is switched on or off [0:Off, 1:On] When auto process control is on and the potential sensor is calibrated correctly, "ON" appears on the operation panel. Auto process control is not executed when this SP is switched off. After RAM is cleared, this SP setting goes off. |
| 002 | VD |
| | Displays the drum potential. |
| 003 | VH |
| | Displays the standard halftone drum potential, used for laser power adjustment. |
| 004 | VG |
| | Displays the charge grid voltage resulting from the latest Vd adjustment. |
| 005 | LD Power (Correction) |
| | Displays the LD power correction value as a result of the latest Vh adjustment. |
| 006 | V ID |
| | Displays the latest drum surface voltage measured on the ID sensor pattern. |
| 009 | VD Correction |
| | Shows whether VD correction is being done or not 0: Not being done; process control is using the value of SP2001 007 only 1: Being done; process control is using the value of SP2001 007 + 50V |
| 008 | VL (Auto Process Control) |
| | Displays the value of VL at auto process control initialization. |
| 009 | VL Correction (Auto Process Control) |
| | Displays the amount of correction ($\Delta VLref$) according to results of the VL detection at auto process control. |
| 010 | VL |
| | Displays the latest value of VL. |
| 011 | VL Correction |
| | Displays the amount of correction ($\Delta VLref$) according to the latest VL detection results. |
| 012 | VB (Latest) |
| | Displays the value of the current image development bias output, determined by the results of VL detection. |
| 013 | VG |
| | Displays the value of Vg (charge corona grid voltage). |
| 014 | Line Speed |
| | Displays the line speed. |

| | |
|------|---|
| 3903 | VD Correction Counter |
| | Adjusts the starting point for the VD Correction. Displays whether the VD correction is being performed. The target value is "the value of SP2-001-7 + 50". [0~999 / 200 / 1 K copies] Reduce the setting if dirty background occurs. The counter is automatically reset to 0 (zero) when SP2-801 is performed. |

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|--|---------------------------|---|
| 3904 | VH Adjustment | |
| These SP codes allow adjustment of the target Vh (standard drum potential for halftone) for process control. Adjust setting for a drum that has been in use for a long period of time if the text is not sharp. This problem can occur with drums designed for longer service life. Raising the value reduces the amount of light fired from the LD unit. However, if the adjust is set too high, this can lower image density and cause poor reproduction of low contrast images. Note: Changing this SP resets the standard for SC428 (Drum Potential Sensor Error 3: Vh Adjustment Error). If the target is adjusted to 300V, for example, the standard for drum potential sensor sampling of Vh will be reset to 300V±20. | | |
| 001 | VH Adjustment | This resets the target Vh for machine operation (but not low speed mode). [100~500/ 300 /10V] |
| 002 | VH Adjustment (Low Speed) | This resets the target Vh for low speed mode only. [100~500/ 300 /10V] |

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| 3905 | OPC Drum Initial Setting | |
| Press [Execute] This sets the initial count for the drum to zero. This SP must be executed after the OPC is replaced. | | |

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|---|--------------------|--|
| 3906 | VB Correction | |
| Vb (development bias) is used during process control to control drum potential. Normally, VB is recalibrated every 11,400 minutes (about every 8 days). | | |
| 001 | On/Off Setting | Switches periodic calibration of Vb off on. [0~1/ 1 /1] 0: Off 1: On |
| 002 | Correction Counter | When SP3906 1 is on, use this SP to adjust the interval between VB calibrations. [3800~9999999/ 11400 /1 min.] |

MAIN SERVICE PROGRAM MODE TABLES

SP4-nnn Scanner

| | | |
|------|--|--|
| 4008 | Scanner Sub Scan Magnification | |
| | <p>Adjusts the magnification in the sub scan direction for scanning. If this value is changed, the scanner motor speed is changed. (●3-18) [-0.9~+0.9 / 0 / 0.1 percent]</p> <p><i>Use the “• / *key to enter the minus (–) before entering the value.</i> <i>Setting a lower value reduces the motor speed and lengthens the image in the sub scan direction (paper direction). Setting a larger value increases the motor speed and shortens the image in the sub scan direction.</i></p> | |
| 4010 | Scanner Leading Edge Registration | |
| | <p>Adjusts the leading edge registration for scanning. (●3-18) [-9.0~+9.0 / 0 / 0.1 mm]</p> <p><i>Use the “• / *key to enter the minus (–) before entering the value.</i> <i>A minus setting moves in the direction of the leading edge. A larger value shifts the image away from the leading edge, and a smaller value shifts the image toward the leading edge.</i></p> | |
| 4011 | Scanner Side-to-Side Registration | |
| | <p>Adjusts the side-to-side registration for scanning. (●3-18) [-3.0~+3.0 / 0 / 0.1 mm]</p> <p>(–): The image disappears at the left side. (+): The image appears at the left side.</p> <p><i>Use the “• / *key to enter the minus (–) before entering the value.</i></p> | |
| 4012 | Set Scale Mask | |
| | <p>Adjusts the erase margin for scanning. The leading, trailing, right and left margins can be set independently. Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin.</p> <p>[0~3.0 / 0.5 / 0.1 mm]</p> | |
| 001 | Sub:LEdge | Leading edge, sub scan direction |
| 002 | Sub:TEdge | Trailing edge, sub scan direction |
| 003 | Main:LEdge | Front, main scan direction |
| 004 | Main:TEdge | Back, main scan direction |
| 4013 | Scanner Free Run | |
| 001 | Scanner Free Run: Lamp OFF | Allows scanner free running with exposure lamp off. |
| 002 | Scanner Free Run: Lamp ON | Allows scanner free running with the exposure lamp on. |

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|------|---|
| 4015 | Scanner Speed Adjustment |
| | <p>Displays the value of the scanner speed fine adjustment. [-20~+20 / 0 / 1]</p> <p><i>Scanner speed fine adjustment is automatically done when the main switch is turned on, and the current setting is overwritten.</i></p> |

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| 4301 | APS Sensor Output Display |
| | Displays the APS sensor output signals when an original is placed on the exposure glass. |

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| 4303 | APS A5 / HLT Size Detection |
| | <p>Selects whether or not the machine detects the original as A5 or HLT size when the APS sensor does not detect the size. [0~1 / 0 / 1]</p> <p>0: Not detected 1: A5 length/51/2" x 81/2"</p> <p><i>If 1 is selected, the paper size is determined as A5 length/51/2" X 81/2" even if the paper size is too small to be detected on the exposure glass.</i></p> |

| | |
|------|---|
| 4400 | Original Edge Mask |
| | <p>This SP sets the mask area to remove shadows when scanning originals from the exposure glass in Book mode.</p> <p>Note: "LE" denotes "leading edge" and "TE" denotes "trailing edge".</p> |
| 001 | Sub:LEdge |
| 002 | Sub:TEdge |
| 003 | Main:LEdge |
| 004 | Main:TEdge |

| | |
|------|----------------------|
| 4429 | ICI Output Level DFU |
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Service
Tables

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|------|--|
| 4460 | Scanner Digital AE Setting |
| | <p>This SP sets the lower limit and level for background removal when background removal is selected with a scanner application.</p> |
| 001 | Set Low Limit |
| 002 | Background Level |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|------------------------------|--|
| 4550 | Scanner:Text/ | |
| 4551 | Scanner: Text | |
| 4552 | Scanner: Dropout Color: Text | |
| 4553 | Scanner: Text/Photo | |
| 4554 | Scanner: Photo | |
| 4565 | Scanner: Grayscale | |
| 4570 | Scanner: Color: Text/Photo | |
| 4571 | Scanner: Color: Photo | |
| 4572 | Scanner: Auto Color | |
| 005 | MTF Filter:0-15 | Sets the MTF level (Modulation Transfer Function) designed to improve image contrast. Set higher for stronger effect, lower for weaker effect. [0~15/1] |
| 006 | Smoothing Filter:0-7 | Use to remove "jaggies" if they appear. Set higher for smoother. [0~7/1] |
| 007 | Brightness:1-255 | Set higher for darker, set lower for lighter. [1~255/1] |
| 008 | Contrast:1-255 | Set higher for more contrast, set lower for less contrast. [1~255/1] |
| 009 | Isolated Dot Removal:0-7 | This SP sets the level for removing dots when a color original is scanned with a scanner software application. The higher the setting, the greater the effect applied for removing background dots. [0~7/0/1] |

| | | |
|------|---|--|
| 4600 | Read SBU ASIC ID | |
| | Displays the SBU ID code confirmed by reading the SBU after the SBU adjusts automatically at power on. DFU [0~FFFF / B550 / 0] | |

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| 4605 | Scanner Adjustment | |
| 001 | Display Flag | |
| | Displays a flag to indicate whether density control adjustment was executed with the standard white board for the CCD. DFU [0~1 / 0 / 1] 0: Not executed. 1: Executed | |
| 002 | Factory Start | |
| | Starts the density adjustment for the CCD using the standard white board. Place 10 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. DFU | |

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| 4609 | Standard White Level Adjustment 1 |
| 4610 | Standard White Level Adjustment 2 |
| 4611 | Standard White Level Adjustment 3 |
| 4615 | Standard White Level Adjustment 4 |
| 4616 | Standard White Level Adjustment 5 |
| 4617 | Standard White Level Adjustment 6 |
| 4628 | Gain Range Adj Value (Next) 1 |
| 4629 | Gain Range Adj Value (Next) 2 |
| 4630 | Gain Range Adj Value (Next) 3 |
| 4631 | Gain Adjust Value (Next) 1 |
| 4632 | Gain Adjust Value (Next) 2 |
| 4633 | Gain Adjust Value (Next) 3 |
| 4641 | White Adjust Loop |
| 4646 | SBU Adjustment Error Flag |
| 4647 | SBU Hard Error Flag |
| 4677 | Gain Range Adj Value 1 (Factory Setting) |
| 4678 | Gain Range Adj Value 2 (Factory Setting) |
| 4679 | Gain Range Adj Value 3 (Factory Setting) |
| 4680 | Gain Adj Value 1 (Factory Setting) |
| 4681 | Gain Adj Value 2 (Factory Setting) |
| 4682 | Gain Adj Value 3 (Factory Setting) |
| 4690 | White Level Peak Reading |
| 4691 | White Level Peak Reading 2 |
| 4692 | White Level Peak Reading 3 |
| 4693 | Black Level Reading 1 |
| 4694 | Black Level Reading 2 |
| 4695 | Black Level Reading 3 |
| 4800 | FL Differential Calibration Setting |
| 4803 | FL Diff Cal Detection Result 1 |
| 4804 | FL Diff Cal Detection Result 2 |
| 4820 | Lamp Malfunction Detection |
| 4830 | Scanner Image Test |

DFUService
Tables

MAIN SERVICE PROGRAM MODE TABLES

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|------|--|
| 4901 | 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] |
| 002 | Shading Correction: Shading Data Output |
| | Changes the AEREF (Automatic Exposure Reference) value used in digital A/E processing. DFU [0~1 / 0 / 1] 0: Normal 1: Output |
| 003 | Digital AE: AEREF Setting |
| | Changes the AEREF (Automatic Exposure Reference) value used in digital A/E processing for the image data. DFU [-63~+63 / -12 / 1] |
| 004 | Digital AE: Low Limit |
| | Sets the low limit at 120 for the value used in digital A/E processing for the image data. DFU [0~1 / 1 / 1] 0 : No low limit 1: Low limit set |
| 020 | Background Erase: Blue Original (Lighter) |
| | Sets the strength of background blue erase when orange original mode is selected. [168~255 / 180 / 1] <i>A higher setting erases more background and a lower setting less.</i> |
| 021 | Background Erase: Blue Original (Normal) |
| | Sets the strength of background blue erase when the green original mode is selected. [131~167 / 155 / 1] <i>A higher setting erases more background and a lower setting less.</i> |
| 022 | Background Erase: Blue Original (Darker) |
| | Sets the strength of background blue erase when blue original mode is selected [25~130 / 105 / 1] <i>A higher setting erases more background and a lower setting less.</i> |

| | | |
|------|---|--|
| 4903 | Image Quality Adjustment | |
| 001 | Text Mode (25.0-55.0%) | 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 (Default) 6: ↓ 7: ↓ 8: ↓ 9: Sharp Mode 10: Sharpest |
| 002 | Text Mode (55.5-75.0%) | |
| 003 | Text Mode (75.5-160.0%) | |
| 004 | Text Mode (160.5-400.0%) | |
| 005 | Photo Mode Dithering (25.0-55.0%) | 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 (Default) 4: ↓ 5: ↓ 6: Sharpest |
| 006 | Photo Mode Dithering (55.5-75.0%) | |
| 007 | Photo Mode Dithering (75.5-160.0%) | |
| 008 | Photo Mode Dithering (160.5-400.0%) | |
| 009 | Photo Mode Error Diffusion (25.0-55.0%) | Adjusts the sharpness and texture of images processed in Photo mode with error diffusion. [0~6 / 1 / 1] 10 Softest 1: ↑ 2: ↑ 3: Normal (Default) 4: ↑ 5: ↑ 6: Sharpest |
| 010 | Photo Mode Error Diffusion (55.5-75.0%) | |
| 011 | Photo Mode Error Diffusion (75.5-160.0%) | |
| 012 | Photo Mode Error Diffusion (160.5-400.0%) | |
| 013 | Text / Photo Mode (25.0-55.0%) | Adjusts the sharpness and texture of images processed in Text/Photo mode. [0~10 / 5 / 1] 0: Softest 1: Photo Priority 2: ↑ 3: ↑ 4: ↑ 5: Normal (Default) 6: ↓ 7: ↓ 8: ↓ 9: Text Priority 10: Sharpest |
| 014 | Text / Photo Mode (55.5-75.0%) | |
| 015 | Text / Photo Mode (75.5-160.0%) | |
| 016 | Text / Photo Mode (160.5-400.0%) | |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|-----|--|--|
| 017 | Pale Mode (25.0-55.0%) | Adjusts the sharpness and texture of images processed in Pale mode. [0~10 / 5 / 1] 1: Softest 2: Soft Mode↑ 3: ↑ 4: ↑ 5: Normal (Default) 6: ↓ 7: ↓ 8: ↓ 9: Sharp 10: Sharpest |
| 021 | Generation Mode (25.0-55.0%) | 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 (75.5-160.0%) | |
| 024 | Generation Mode (160.5-400.0%) | |
| 060 | Independent Dot Erase: Text Mode | Sets the level for independent dot erasure. [0~14 / 8 / 1] 0: Off The higher the setting, the stronger the effect. |
| 061 | Independent Dot Erase: Photo Mode | [0~14 / 0 / 1] 0: Off |
| 062 | Independent Dot Erase: Text / Photo Mode | |
| 063 | Independent Dot Erase: Pale Mode | |
| 064 | Independent Dot Erase: Generation Mode | [0~14 / 8 / 1] 0: Off |
| 070 | Background Erase: Text Mode | Sets the level for background erase. [0~255 / 0 / 1] |
| 071 | Background Erase: Photo Mode | The higher the setting, the stronger the effect. |
| 072 | Background Erase: Text / Photo Mode | |
| 073 | Background Erase: Pale Mode | |
| 074 | Background Erase: Generation Mode | |

Main Service Program Mode Tables

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|-----|--|---|
| 080 | Line Width Correction: Text Mode Select | Selects the level of line width correction for Text mode. [0~8 / 2 / 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. [0~1 / 1 / 1] 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. [0~1 / 1 / 1] 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. [0~1 / 1 / 1] 0: Line width correction OFF 1 : Line width correction ON |
| 085 | Line Width Correction: Photo Mode (Sub Scan) | Switches on line width correction in the sub scan direction in Photo mode. [0~1 / 1 / 1] 0: Line width correction OFF 1 : Line width correction ON |
| 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. [0~1 / 1 / 1] 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. [0~1 / 1 / 1] 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. [0~1 / 1 / 1] 0: Line width correction OFF 1 : Line width correction ON |

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|-----|--|--|
| 091 | Line Width Correction: Pale Mode (Sub Scan) | Switches on line width processing for the sub scan direction in pale mode [0~1 / 1 / 1] 0: Line width correction OFF 1 : Line width correction ON |
| 092 | Line Width Correction: Generation Mode Select | Selects the level of line width processing for generation mode. [0~8 / 1 / 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. [0~1 / 1 / 1] 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. [0~1 / 1 / 1] 0: Line width correction OFF 1 : Line width correction ON |

| | | |
|------|------------------------------------|--|
| 4904 | Image Quality / Exposure Thin Line | |
| 002 | Image Process Setting: Photo Mode | Selects the image processing mode for Photo Mode. [0~3 / 3 / 1] 0: 106 line dither processing 1: 141 line dither processing 2: 212 line dither processing 3: Error diffusion processing |
| 005 | User Stamp Binarization | This SP determines whether an original user stamp is digitized as black-and-white or whether error diffusion is used when it is stored on the HDD. [0~1/ 0 /1] 0: Off (error diffusion) 1: On (black-and-white digitization) |
| 020 | Text Mode | Selects the line width correction level for Text mode. [0~2 / 0 / 1] 0: No processing 1: Low (thin) 2: High (thick) |
| 021 | Photo Mode | Selects the line width correction level for Photo mode. [0~2 / 0 / 1] 0: No processing 1: Low (thin) 2: High (thick) |
| 022 | Text / Photo Mode | Selects the line width correction level for Text/Photo mode. [0~2 / 0 / 1] 0: No processing 1: Low (thin) 2: High (thick) |

Main Service Program Mode Tables

| | | |
|-----|-----------------|--|
| 023 | Pale Mode | Selects the line width correction level for Pale mode. [0~2 / 0 / 1] 0: No processing 1: Low (thin) 2: High (thick) |
| 024 | Generation Mode | Selects the line width correction level for Generation mode. [0~2 / 0 / 1] 0: No processing 1: Low (thin) 2: High (thick) |

| | | |
|------|-------------------------------------|------------------------|
| 4909 | Image Processing Through DFU | |
| 001 | IPU Scan Image Module | [0~15 / 0 / 1] |
| 002 | IPU Plotter Image Module | [0~127 / 0 / 1] |

| | | |
|------|----------------------|--|
| 4993 | Highlight Correction | |
| 001 | Sensibility | Sets the level of sensitivity for the removal of shadows that can be caused with originals that have been marked up with highlighter pens. [0~9/ 4 /1] Lowering the setting reduces the removal effect, and raising the setting increases the removal effect. |
| 002 | Region | Sets the region where highlight removal is applied. [0~9/ 4 /1] A lower setting increases the size of the region, and a higher setting reduces the size of the region. |

Service
Tables

| | | |
|------|-----------------------------|--|
| 4994 | Scanner Text/Photo Judgment | |
| | | Use this SP to adjust the copier capability to distinguish between text and photo areas of images. This adjustment applies only to scanner applications using the high compression PDF mode. [0~2/1/1] 0: Nearer text 1: Default 2: Nearer photo |

MAIN SERVICE PROGRAM MODE TABLES

SP5-nnn Mode

| | |
|------|--|
| 5019 | Tray Paper Size Selection |
| | Selects the paper size for the trays. [LT LEM]: USA version A4 LEM: Other versions |
| 002 | Tray 1 |
| 005 | Tray 4 |
| 006 | Tray 5 |
| 007 | Tray 6 |

| | |
|------|---|
| 5024 | mm/inch Selection |
| | Selects whether mm or inches are used in the display. Note: After selecting the number, you must turn the main power switch off and on. Europe/Asia model: [0 = mm / 1 = inch] American model: [0 = mm / 1 = inch] |

| | |
|------|--|
| 5040 | Custom Size: Vertical |
| | Adjusts the vertical dimension of custom size paper for Tray 1. 'Custom size' must be selected with SP 5019-2. |
| 002 | Tray 1 [210.0~305.0 / 297.0 / 0.1 mm] |
| 005 | Tray 4 |
| 006 | Tray 5 |
| 007 | Tray 6 |

| | |
|------|--|
| 5041 | Custom Size: Horizontal |
| | Adjusts the horizontal dimension of custom size paper for Tray 1. 'Custom size' must be selected with SP 5019-2. |
| 002 | Tray 1 [210.0~305.0 / 297.0 / 0.1 mm] |
| 005 | Tray 4 |
| 006 | Tray 5 |
| 007 | Tray 6 |

| | |
|------|--|
| 5045 | Accounting Counter |
| | Selects the counting method if the meter charge mode is enabled with SP5-930-001. Note: You can change the setting only one time. [0 to 1/ 1] 0: Development counter. Shows the total counts for color (Y,M,C) and black (K). 1: Paper counter. Shows the total page counts for: Color Total, Black Total, Color Copies, Black Copies, Color Prints, Black Prints. |

| | | |
|------|-----------------------|---|
| 5047 | Reverse Display | |
| 001 | Reverse Paper Display | Determines whether the tray loaded with paper printed on one side is displayed on the operation panel. [0~1/0/1] 0: Not displayed 1: Displayed |
| 002 | Punched Paper | Determines whether the tray loaded with punched paper is displayed on the operation panel. [0~1/1/1] 0: Disable 1: Enable |
| 003 | Heavy Paper | Determines whether the tray loaded with heavy paper is displayed on the operation panel. [0~1/1/1] 0: Disable 1: Enable |

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| 5055 | Display IP Address |
| | Switches the banner display of MFP device display on and off. [OFF] ON |

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| 5056 | Coverage Counter Display |
| | NIA [0~1/0/1] 0: Display off 1: Display on |

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| 5057 | Assign Eye-Catch Icons |
| | Determines whether the eye-catch icons are displayed in the color mode for copying and scanning. [0~1/0/1] 0: Display off 1: Display on |

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| 5062 | Parts PM Display Setting |
| | Switches the banner of the PM parts display screen off and on. [ON] OFF |

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| 5104 | <p>A3/DLT Double Count</p> <p>Specifies whether the counter is doubled for A3/DLT. "Yes" counts except from the bypass tray. When "Yes" is selected, A3 and DLT paper are counted twice, that is A4 x2 and LT x2 respectively.</p> | | | | |
| 5112 | <p>Non-Std. Paper Sel.</p> <p>Determines whether a non-standard paper size can be input for the universal cassette trays (Tray 2, Tray 3)</p> <p>[0~1/1]</p> <p>0: No 1: Yes. If "1" is selected, the customer will be able to input a non-standard paper size using the UP mode.</p> | | | | |
| 5113 | <p>Optional Counter Type</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">1</td><td> <p>Default Optional Counter Type</p> <p>Selects the type of counter:</p> <p>0: None 1: Key Card (RK3, 4) Japan only 2: Key Card Down 3: Pre-paid Card 4: Coin Lock 5: MF Key Card 11: Exp Key Card (Add) 12: Exp Key Card (Deduct)</p> </td></tr> <tr> <td style="width: 10%;">2</td><td> <p>External Optional Counter Type</p> <p>Enables the SDK application. This lets you select a number for the external device for user access control.</p> <p>Note: "SDK" refers to software on an SD card.</p> <p>[0~3/1]</p> <p>0: None 1: Expansion Device 1 2: Expansion Device 2 3: Expansion Device 3</p> </td></tr> </table> | 1 | <p>Default Optional Counter Type</p> <p>Selects the type of counter:</p> <p>0: None 1: Key Card (RK3, 4) Japan only 2: Key Card Down 3: Pre-paid Card 4: Coin Lock 5: MF Key Card 11: Exp Key Card (Add) 12: Exp Key Card (Deduct)</p> | 2 | <p>External Optional Counter Type</p> <p>Enables the SDK application. This lets you select a number for the external device for user access control.</p> <p>Note: "SDK" refers to software on an SD card.</p> <p>[0~3/1]</p> <p>0: None 1: Expansion Device 1 2: Expansion Device 2 3: Expansion Device 3</p> |
| 1 | <p>Default Optional Counter Type</p> <p>Selects the type of counter:</p> <p>0: None 1: Key Card (RK3, 4) Japan only 2: Key Card Down 3: Pre-paid Card 4: Coin Lock 5: MF Key Card 11: Exp Key Card (Add) 12: Exp Key Card (Deduct)</p> | | | | |
| 2 | <p>External Optional Counter Type</p> <p>Enables the SDK application. This lets you select a number for the external device for user access control.</p> <p>Note: "SDK" refers to software on an SD card.</p> <p>[0~3/1]</p> <p>0: None 1: Expansion Device 1 2: Expansion Device 2 3: Expansion Device 3</p> | | | | |
| 5118 | <p>Disable Copying</p> <p>Temporarily denies access to the machine. Japan Only</p> <p>[0~1/1]</p> <p>0: Release for normal operation 1: Prohibit access to machine</p> | | | | |

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| 5120 | Mode Clear Opt. Counter Removal |
| | <p>Do not change. Japan Only [0~2/1]</p> <p>0: Yes. Normal reset 1: Standby. Resets before job start/after completion 2: No. Normally no reset</p> |
| 5121 | Counter Up Timing |
| | <p>Determines whether the optional key counter counts up at paper feed-in or at paper exit. [0~1/1]</p> <p>0: Feed count 1: No feed count</p> |
| 5126 | Original Size: Set F-Size |
| | <p>There are presently three F-type sizes (8½ x 13, 8 ¼ x 13, 8 x 13) and the APS sensors are not sensitive enough to distinguish between these types. Use this SP to select the F-type size that the customer uses most frequently so the ASP sensors can detect an F-type size accurately. [0~2/0/1]</p> <p>0: 8 ½ x 13 1: 8 ¼ x 13 2: 8 x 13</p> |
| 5127 | APS OFF Mode |
| | <p>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. [0~1/1]</p> <p>0: On 1: Off</p> |
| 5131 | Paper Size Type Selection |
| | <p>Selects the paper size type (for originals and copy paper). (The default setting depends on the setting of DIP SW 1 and 2 on BCU.)</p> <p>[JP]: Japan [NA]: North America [EU]: Europe [CH]: China</p> <p>After changing the value, turn the main power switch off and on.</p> |

MAIN SERVICE PROGRAM MODE TABLES

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| 5148 | Size Detection Off | |
| | This SP switches off paper size detection for the paper feed trays in the LCT. Each tray scan be selected independently. The number of trays displayed will depend on whether the LCT and bypass unit are installed. | |
| 005 | Tray 4 (0 :ON 1:OFF) | |
| 006 | Tray 5 (0 :ON 1:OFF) | |
| 007 | Tray 6 (0 :ON 1:OFF) | |

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| 5158 | Cover Feeder Size Change | |
| | This SP sets the priority paper size setting for the cover interposer tray. | |
| 001 | Priority (All) | 0: A3 1: 12"x18" |
| 002 | EU/CH | 0: 8½" x 13" 1: 8½" x 13" 2: 8¼" x 13" |
| 003 | NA | 0: 8½" x 14" 1: 8½" x 13" |
| 004 | NA | 0: LT LEF 1: 10½" x 7¼" |
| 005 | NA | 0: LT SEF 1: 8" x 10" |
| 006 | EU/CH | 0: Taiwan 8-Kai 1: DLT |
| 007 | EU/CH | 0: Taiwan 16-Kai 1: LT SEF |
| 008 | EU/CH | 0: Taiwan 16-Kai 1: LT LEF |

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| 5162 | App. Switch Method |
| | Controls if the application screen is changed with a hardware switch or a software switch. [0~1/1] 0: Soft Key Set 1: Hard Key Set |
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| 5169 | CE Login |
| | If you will change the printer bit switches, you must 'log in' to service mode with this SP before you go into the printer SP mode. [0~1/1] 0: Off. Printer bit switches cannot be adjusted. 1: On. Printer bit switches can be adjusted. |

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| 5182 | HDD Page Mgmt |
| | These SP codes are used to change the configuration of the TEMP partition for raw data on the HDD so the local storage (LS) area can be expanded. The SP codes below cannot be set together. If one is selected that SP is enabled and the other reset to its default value. For example, if 002 is set to on (1) while 001 set to on (1), 002 is set to and 001 is automatically reset to its default (0: Normal). |
| 001 | Release LS Limit |
| | Normally LS can handle up to 15,000 pages. Use this SP code to select expansion of the page storage area. [0~1/0/1] 0: Normal 1: Allow Expansion |
| 002 | Change Pages/Doc |
| | The configuration of the TEMP area on the HDD must be changed in order to increase the number of pages that 1 document can hold when it is stored on the HDD. If the size of the LS area is increased, the size of the TEMP area must be decreased. Changing this SP increases the default value for the size of the LS area from 5,000 pages to 20,000 pages. A larger setting is not possible. [0~1/0/1] 0: Normal 1: Allow Expansion |

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| 5185 | TCRU: Set Machine DFU |
| | NIA [Asymmetrical] Symmetrical |

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Tables

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| 5187 | PM Counter Print Out in UP |
| | This setting determines whether parts without standard counts print in addition to the normal counter list [0~1/0/1] 0: No 1: Yes |

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| 5212 | Page Numbering | |
| 003 | Duplex Printout Left/Right Position | Horizontally positions the page numbers printed on both sides during duplexing. [-10~+10/1 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~+10/1 mm] 0 is center, minus is down, + is up. |

MAIN SERVICE PROGRAM MODE TABLES

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| 5227 | Page Numbering (Bates Stamp) |
| 220 | Change Page No. Display This SP code determines whether the page number adjustment display is on or off. [0~1/0/1] 0: Display off 1: Display on |
| 221 | Allow Page No. Entry This SP specifies the number of digits to display for the entry of the starting page number. [2~9/9/1] |
| 222 | Zero Surplus Setting This setting determines whether page numbers are prefixed with excess zeros when the number is smaller than the number of assigned digits. For example, with this setting on and 3 digits have been specified, the number "3" appears as "003". With this setting off, the number "3" will appear as a "3" without the zeros. [0~1/0/1] 0: No excess zeros 1: Excess zeros displayed |

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| 5302 | Set Time DFU Sets the time clock for the local time. This setting is done at the factory before delivery. The setting is GMT expressed in minutes. [-1440~1440/1 min.] JA: +540 (Tokyo) NA: -300 (NY) EU: +6- (Paris) CH: +480 (Peking) TW: +480 (Taipei) AS: +480 (Hong Kong) |
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| 5305 | Auto Off Function Release Setting This SP prevents the user from easily disabling the auto off timer. This is done to conform with international Energy Star standards that specifically state that the user shall not be able to easily switch off the auto off feature. 0: On (Auto Off cannot be released) 1: Off (Auto Off can be released) |
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| 5307 | Summer Time | |
| | Lets you set the machine to adjust its date and time automatically with the change to Daylight Savings time in the spring and back to normal time in the fall. This SP lets you set these items: | |
| | <ul style="list-style-type: none"> • Day and time to go forward automatically in April. • Day and time to go back automatically in October. • Set the length of time to go forward and back automatically. | |
| | The settings for 002 and 003 are done with 8-digit numbers: | |
| | Digits | Meaning |
| | 1st, 2nd | Month. 4: April, 10: October (for months 1 to 9, the first digit of 0 cannot be input, so the eight-digit setting for 002 or 003 becomes a seven-digit setting) |
| | 3rd | Day of the week. 0: Sunday, 1: Monday |
| | 4th | The number of the week for the day selected at the 3rd digit. If "0" is selected for "Sunday", for example, and the selected Sunday is the start of the 2nd week, then input a "2" for this digit. |
| 001 | Setting | Enables/disables the settings for 002 and 003. [0~1] 0: Disable 1: Enable |
| 003 | Rule Set (Start) | The start of summer time. |
| 004 | Rule Set (End) | The end of summer time. |

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| 5401 | Access Control DFU | |
| | This SP stores the settings that limit uses access to SDK application data. | |
| | 103 | Default Document ACL NOTE1: This is only available using Windows/LDAP/Integration Server Authentication. NOTE2: This default will only apply to new users. It will not affect existing users. |
| | | Assign default access privileges of users to their own documents on the Document Server. 0: Read only (default) 1: Edit 2: Edit/delete 3: Full control |
| | 200 | SDK1 Unique ID |
| | 201 | SDK1 Certification Method |
| | 210 | SDK2 Unique ID |
| | 211 | SDK2 Certification Method |
| 220 | SDK3 Unique ID | "SDK" is the "Software Development Kit". This data can be converted from SAS (VAS) when installed or uninstalled. DFU |
| 221 | SDK3 Certification Method | |

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| 5404 | User Code Count Clear | |
| | Clears the counts for the user codes assigned by the key operator to restrict the use of the machine. Press [Execute] to clear. | |

MAIN SERVICE PROGRAM MODE TABLES

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| 5501 | PM Alarm Sets the count level for the PM alarm. [0~9999 / 0 / 1] 0: Alarm disabled <i>The PM alarm goes off when the print count reaches this value multiplied by 1,000.</i> |
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| 5504 | Jam Alarm Japan Only Sets the alarm to sound for the specified jam level (document misfeeds are not included). RSS use only [0~3 / 3 / 1 step] 0:Zero (Off) 1:Low (2.5K jams) 2:Medium (3K jams) 3:High (6K jams) |
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| 5505 | Error Alarm Sets the error alarm level. Japan only DFU [0~255 / 50 / 100 copies per step] |
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| 5507 | Supply Alarm | |
| 001 | Paper Supply Alarm (0:Off 1:On) | Switches the control call on/off for the paper supply. DFU 0: Off , 1: On 0: No alarm. 1: Sets the alarm to sound for the specified number transfer sheets for each paper size (A3, A4, B4, B5, DLT, LG, LT, HLT) |
| 002 | Staple Supply Alarm (0:Off 1:On) | Switches the control call on/off for the stapler installed in the finisher. DFU 0: Off , 1: On 0: No alarm 1: Alarm goes off for every 1K of staples used. |
| 003 | Toner Supply Alarm (0:Off 1:On) | Switches the control call on/off for the toner end. DFU 0: Off , 1: On If you select "1" the alarm will sound when the copier detects toner end. |
| 128 | interval: Others | The "Paper Supply Call Level: nn" SPs specify the paper control call interval for the referenced paper sizes. DFU [00250 ~ 10000 / 1000 / 1 Step] |
| 132 | Interval: A3 | |
| 133 | Interval: A4 | |
| 134 | Interval: A5 | |
| 141 | Interval: B4 | |
| 142 | Interval: B5 | |
| 160 | Interval: DLT | |
| 164 | Interval: LG | |
| 166 | Interval: LT | |
| 172 | Interval: HLT | |

| 5508 CC Call Japan Only | | |
|--------------------------------|---------------------------------|---|
| 001 | Jam Remains | Enables/disables initiating a call. [0~1/1] |
| 002 | Continuous Jams | 0: Disable 1: Enable |
| 003 | Continuous Door Open | |
| 004 | Low Call Mode | Enables/disables the new call specifications designed to reduce the number of calls. [0~1/1] 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. [03~30/1] 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. [02~10/1] 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. [03~30/1] This setting is enabled only when SP5508-004 is enabled (set to 1). |
| 021 | Jam Operation: Time Length | Determines what happens when a paper jam is left unattended. [0~1/1] 0: Automatic Call 1: Audible Warning at Machine |
| 022 | Jam Operation: Continuous Count | Determines what happens when continuous paper jams occur. [0~1/1] 0: Automatic Call 1: Audible Warning at Machine |
| 023 | Door Operation: Time Length | Determines what happens when the front door remains open. [0~1/1] 0: Automatic Call 1: Audible Warning at Machine |

MAIN SERVICE PROGRAM MODE TABLES

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| 5513 | Parts Alarm Level Count Japan Only | |
| 001 | Normal | |
| | Sets the parts replacement alarm counter to sound for the number of copies. [1~9999 / 350 / 1] | |
| 002 | DF | |
| | Sets the parts replacement alarm counter to sound for the number of scanned originals. [1~9999 / 350 / 1] | |

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| 5514 | Parts Alarm Level | Japan Only |
| 001 | Normal | [0~1 / 1 / 1] |
| 002 | DF | [0~1 / 0 / 1] |

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| 5515 | SC/Alarm Setting | |
| | With NRS (New Remote Service) in use, these SP codes can be set to issue an SC call when an SC error occurs. If this SP is switched off, the SC call is not issued when an SC error occurs. | |
| 001 | SC Call | [0~1/1/1] 0: Off 1: On |
| 002 | Near End Call | |
| 003 | End Call | |
| 004 | User Call | |
| 005 | Not Used | [0~1/1/1] |
| 006 | TX Test | |
| 007 | Device Information | |
| 008 | Alarm | |
| 009 | Illegal Toner | |
| 010 | Auto Order Supplies | [0~1/ 0 /1] |
| 011 | Supply Management Report | |
| 012 | Jam/Door Open | [0~1/1/1] |

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| 5516 | Individual PM Alarm Call | |
| | This SP sets an alarm to send a notice to the service center when one of the seven service parts covered by the TCRU replacement procedures has reached the end or near end of service life. | |
| | Note: The service parts covered in the TCRU replacement procedures are: 1) development unit, 2) pre-charge unit, 3) charge unit, 4) drum cleaning unit, 5) PCU, 6) fusing unit, 7) fusing cleaning unit | |
| 001 | Disable/Enable Setting (0:Not Send 1:Send) | This SP switches this feature on/off. Default 0 : Not send. |
| 002 | Alarm Flag (0: Ready 1: Already Sent) | Displays the status of the most recent alarm. |
| 003 | Alarm Flag Clear [Execute] | Clears the most recent alarm. |

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| 5801 | Memory Clear (Refer to IMPORTANT NOTE in Sect. 5.10.6) | |
| | Resets NVRAM data to the default settings. Before executing any of these SP codes, print an SMC Report. | |
| 001 | All Clear | Initializes items 2 ~ 15 below. |
| 002 | Engine Clear | Initializes all registration settings for the engine and copy process settings. |
| 003 | SCS | Initializes default system settings, SCS (System Control Service) settings, operation display coordinates, and ROM update information. |
| 004 | IMH Memory Clear | Initializes the image file system. (IMH: Image Memory Handler) |
| 005 | MCS | Initializes the automatic delete time setting for stored documents. (MCS: Memory Control Service) |
| 006 | Copier application | Initializes all copier application settings. |
| 008 | Printer application | Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter. |
| 009 | Scanner application | Initializes the defaults for the scanner and all the scanner SP modes. |
| 010 | Web Service/Network application | Deletes the Netfile (NFA) management files and thumbnails, and initializes the Job login ID. Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software |
| 011 | NCS | Initializes the system defaults and interface settings (IP addresses also), the SmartNetMonitor for Admin settings, WebStatusMonitor settings, and the TELNET settings. (NCS: Network Control Service) |
| 014 | Clear DCS Setting | Initializes the DCS (Delivery Control Service) settings. |
| 015 | Clear UCS Setting | Initializes the UCS (User Information Control Service) settings. |
| 016 | MIRS Setting | Initializes the MIRS (Machine Information Report Service) settings. |
| 017 | CCS | Initializes the CCS (Certification and Charge-control Service) settings. |
| 018 | SRM Clear | Initializes the SRM (System Resource Manager) settings. |
| 019 | LCS Clear | Initializes the LCS (Log Count Service) settings. |
| 020 | Web Uapl | NIA |

MAIN SERVICE PROGRAM MODE TABLES

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| 5802 | Printer Free Run | |
| | Makes a base engine free run [0~1/0/1] 0: Release free run mode 1: Enable free run mode <i>Return this setting to off (0) after testing is completed.</i> <i>Finisher connectors should be disconnected and duplex mode should be off.</i> | |
| 5803 | Input Check | |
| | Displays signals received from sensors and switches. This is the input check for the main machine. (●5.4.1) | |
| 5804 | Output Check | |
| | Turns on the electrical components individually for testing. This is the output check for the main machine. (●5.5.1) | |
| 5807 | Option Connection Check | |
| | This SP displays whether the devices listed below are connected or not: 1: Connected 0: Not connected. 001 ADF (1:Connect) 002 LCT (1:Connect) 003 FIN (1:Connect) | |
| 5811 | Machine No. Setting | |
| | This SP presents the soft keyboard used to enter the 11-digit number of the machine. The allowed entries are "A" to "Z" and "0" to "9". The setting is done at the factory, and should not be changed in the field. DFU | |
| 5812 | Service Tel. No. Setting | |
| 001 | Service | Inputs the telephone number of the CE (displayed when a service call condition occurs.) |
| 002 | Facsimile | Use this to input the fax number of the CE printed on the Counter Report (UP mode). |
| 003 | Supply | Displayed on the initial SP screen. |
| 004 | Operation | Sales representative telephone number. |

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| 5816 | Remote Service |
| 001 | <p>I/F Setting</p> <p>Turns the remote diagnostics off and on. [0~2/1] 0: Remote diagnostics off. 1: Serial (CSS or NRS) remote diagnostics on. 2: Network remote diagnostics.</p> |
| 002 | <p>CE Call</p> <p>Lets the customer engineer start or end the remote machine check with CSS or NRS; to do this, push the center report key</p> |
| 003 | <p>Function Flag</p> <p>Enables and disables remote diagnosis over the NRS network. [0~1/1] 0: Disables remote diagnosis over the network. 1: Enables remote diagnosis over the network.</p> |
| 007 | <p>SSL Disable</p> <p>Controls if RCG (Remote Communication Gate) confirmation is done by SSL during an RCG send for the NRS over a network interface. [0~1/1] 0: Yes. SSL not used. 1: No. SSL used.</p> |
| 008 | <p>RCG Connect Timeout</p> <p>Sets the length of time (seconds) for the time-out when the RCG (Remote Communication Gate) connects during a call via the NRS network. [1~90/1 sec.]</p> |
| 009 | <p>RCG Write to Timeout</p> <p>Sets the length of time (seconds) for the time-out when sent data is written to the RCG during a call over the NRS network. [0~100/1 sec.]</p> |
| 010 | <p>RCG Read Timeout</p> <p>Sets the length of time (seconds) for the timeout when sent data is written from the RCG during a call over the NRS network. [0~100/1 sec.]</p> |
| 011 | <p>Port 80 Enable</p> <p>Controls if permission is given to get access to the SOAP method over Port 80 on the NRS network. [0~1/1] 0: No. Access denied 1: Yes. Access granted.</p> |
| 021 | <p>RCG – C Registered</p> <p>This SP displays the Cumin installation end flag. 1: Installation completed 2: Installation not completed</p> |
| 022 | <p>RCG – C Registered Detail</p> <p>This SP displays the Cumin installation status. 0: Basil not registered 1: Basil registered 2: Device registered</p> |
| 023 | <p>Connect Type (N/M)</p> <p>This SP displays and selects the Cumin connection method. 0: Internet connection 1: Dial-up connection</p> |

MAIN SERVICE PROGRAM MODE TABLES

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| 061 | Cert. Expire Timing DFU Proximity of the expiration of the certification. | | | | | | | | | | | | | | | | | | | | |
| 062 | Use Proxy This SP setting determines if the proxy server is used when the machine communicates with the service center. | | | | | | | | | | | | | | | | | | | | |
| 063 | HTTP Proxy Host This SP sets the address of the proxy server used for communication between Cumin-N and the gateway. Use this SP to set up or display the customer proxy server address. The address is necessary to set up Cumin-N. Note: <ul style="list-style-type: none"> • The address display is limited to 127 characters. Characters beyond the 127th character are ignored. • This address is customer information and is not printed in the SMC report. | | | | | | | | | | | | | | | | | | | | |
| 064 | HTTP Proxy Port Number This SP sets the port number of the proxy server used for communication between Cumin-N and the gateway. This setting is necessary to set up Cumin-N. Note: This port number is customer information and is not printed in the SMC report. | | | | | | | | | | | | | | | | | | | | |
| 065 | HTTP Proxy Certification User Name This SP sets the HTTP proxy certification user name. Note: <ul style="list-style-type: none"> • The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored. • This name is customer information and is not printed in the SMC report. | | | | | | | | | | | | | | | | | | | | |
| 066 | HTTP Proxy Certification Password This SP sets the HTTP proxy certification password. Note: <ul style="list-style-type: none"> • The length of the password is limited to 31 characters. Any character beyond the 31st character is ignored. • This name is customer information and is not printed in the SMC report. | | | | | | | | | | | | | | | | | | | | |
| 067 | CERT: Up State Displays the status of the certification update. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">0</td> <td>The certification used by Cumin is set correctly.</td> </tr> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">1</td> <td>The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated.</td> </tr> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">2</td> <td>The certification update is completed and the GW URL is being notified of the successful update.</td> </tr> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">3</td> <td>The certification update failed, and the GW URL is being notified of the failed update.</td> </tr> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">4</td> <td>The period of the certification has expired and new request for an update is being sent to the GW URL.</td> </tr> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">11</td> <td>A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection.</td> </tr> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">12</td> <td>The rescue certification setting is completed and the GW URL is being notified of the certification update request.</td> </tr> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">13</td> <td>The notification of the request for certification update has completed successfully, and the system is waiting for the certification update request from the rescue GW URL.</td> </tr> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">14</td> <td>The notification of the certification request has been received from the rescue GW controller, and the certification is being stored.</td> </tr> <tr> <td style="width: 20px; vertical-align: top; padding: 2px;">15</td> <td>The certification has been stored, and the GW URL is being notified of the successful completion of this event.</td> </tr> </table> | 0 | The certification used by Cumin is set correctly. | 1 | The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated. | 2 | The certification update is completed and the GW URL is being notified of the successful update. | 3 | The certification update failed, and the GW URL is being notified of the failed update. | 4 | The period of the certification has expired and new request for an update is being sent to the GW URL. | 11 | A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection. | 12 | The rescue certification setting is completed and the GW URL is being notified of the certification update request. | 13 | The notification of the request for certification update has completed successfully, and the system is waiting for the certification update request from the rescue GW URL. | 14 | The notification of the certification request has been received from the rescue GW controller, and the certification is being stored. | 15 | The certification has been stored, and the GW URL is being notified of the successful completion of this event. |
| 0 | The certification used by Cumin is set correctly. | | | | | | | | | | | | | | | | | | | | |
| 1 | The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated. | | | | | | | | | | | | | | | | | | | | |
| 2 | The certification update is completed and the GW URL is being notified of the successful update. | | | | | | | | | | | | | | | | | | | | |
| 3 | The certification update failed, and the GW URL is being notified of the failed update. | | | | | | | | | | | | | | | | | | | | |
| 4 | The period of the certification has expired and new request for an update is being sent to the GW URL. | | | | | | | | | | | | | | | | | | | | |
| 11 | A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection. | | | | | | | | | | | | | | | | | | | | |
| 12 | The rescue certification setting is completed and the GW URL is being notified of the certification update request. | | | | | | | | | | | | | | | | | | | | |
| 13 | The notification of the request for certification update has completed successfully, and the system is waiting for the certification update request from the rescue GW URL. | | | | | | | | | | | | | | | | | | | | |
| 14 | The notification of the certification request has been received from the rescue GW controller, and the certification is being stored. | | | | | | | | | | | | | | | | | | | | |
| 15 | The certification has been stored, and the GW URL is being notified of the successful completion of this event. | | | | | | | | | | | | | | | | | | | | |

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| | 16 | The storing of the certification has failed, and the GW URL is being notified of the failure of this event. |
| | 17 | The certification update request has been received from the GW URL, the GW URL was notified of the results of the update after it was completed, but an certification error has been received, and the rescue certification is being recorded. |
| | 18 | The rescue certification of No. 17 has been recorded, and the GW URL is being notified of the failure of the certification update. |
| 068 | CERT: Error | |
| | | Displays a number code that describes the reason for the request for update of the certification. |
| | 0 | Normal. There is no request for certification update in progress. |
| | 1 | Request for certification update in progress. The current certification has expired. |
| | 2 | An SSL error notification has been issued. Issued after the certification has expired. |
| | 3 | Notification of shift from a common authentication to an individual certification. |
| | 4 | Notification of a common certification without ID2. |
| | 5 | Notification that no certification was issued. |
| | 6 | Notification that GW URL does not exist. |
| | 069 | CERT: Up ID The ID of the request for certification. |
| 083 | Firmware Up Status | |
| | | Displays the status of the firmware update. |
| 084 | Non-HDD Firm Up | |
| | | This setting determines if the firmware can be updated, even without the HDD installed. |
| 085 | Firm Up User Check | |
| | | This SP setting determines if the operator can confirm the previous version of the firmware before the firmware update execution. If the option to confirm the previous version is selected, a notification is sent to the system manager and the firmware update is done with the firmware files from the URL. |
| 086 | Firmware Size | |
| | | Allows the service technician to confirm the size of the firmware data files during the firmware update execution. |
| 087 | CERT: Macro Version | |
| | | Displays the macro version of the NRS certification |
| 088 | CERT: PAC Version | |
| | | Displays the PAC version of the NRS certification. |
| 089 | CERT: ID2 Code | |
| | | Displays ID2 for the NRS certification. Spaces are displayed as underscores (_). Asterisks (*) indicate that no NRS certification exists. |
| 090 | CERT: Subject | |
| | | Displays the common name of the NRS certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks (*) indicate that no DESS exists. |
| 091 | CERT: Serial Number | |
| | | Displays serial number for the NRS certification. Asterisks (*) indicate that no DESS exists. |
| 092 | CERT: Issuer | |
| | | Displays the common name of the issuer of the NRS certification. CN = the following 30 bytes. Asterisks (*) indicate that no DESS exists. |

MAIN SERVICE PROGRAM MODE TABLES

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|------------|---|--|----------|----------|--------|----------------|-----------|------------|-------|---------------|------------|-----------|-----------|--|
| 093 | CERT: Valid Start | | | | | | | | | | | | | |
| | Displays the start time of the period for which the current NRS certification is enabled. | | | | | | | | | | | | | |
| 094 | CERT: Valid End | | | | | | | | | | | | | |
| | Displays the end time of the period for which the current NRS certification is enabled. | | | | | | | | | | | | | |
| 200 | Manual Polling | | | | | | | | | | | | | |
| | No information is available at this time. | | | | | | | | | | | | | |
| 150 | Selection Country | | | | | | | | | | | | | |
| | <p>Select from the list the name of the country where Cumin-M is installed in the machine. After selecting the country, you must also set the following SP codes for Cumin-M:</p> <ul style="list-style-type: none"> • SP5816-153 • SP5816-154 • SP5816-161 <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">0: Japan</td> <td style="width: 50%;">6: Italy</td> </tr> <tr> <td>1: USA</td> <td>7: Netherlands</td> </tr> <tr> <td>2: Canada</td> <td>8: Belgium</td> </tr> <tr> <td>3: UK</td> <td>9: Luxembourg</td> </tr> <tr> <td>4: Germany</td> <td>10: Spain</td> </tr> <tr> <td>5: France</td> <td></td> </tr> </table> | | 0: Japan | 6: Italy | 1: USA | 7: Netherlands | 2: Canada | 8: Belgium | 3: UK | 9: Luxembourg | 4: Germany | 10: Spain | 5: France | |
| 0: Japan | 6: Italy | | | | | | | | | | | | | |
| 1: USA | 7: Netherlands | | | | | | | | | | | | | |
| 2: Canada | 8: Belgium | | | | | | | | | | | | | |
| 3: UK | 9: Luxembourg | | | | | | | | | | | | | |
| 4: Germany | 10: Spain | | | | | | | | | | | | | |
| 5: France | | | | | | | | | | | | | | |
| 151 | Line Type Authentication Judgment | | | | | | | | | | | | | |
| | <p>Touch [Execute].</p> <p>Setting this SP classifies the telephone line where Cumin-M is connected as either dial-up or push type, so Cumin-M can automatically distinguish the number that connects to the outside line.</p> <ul style="list-style-type: none"> • The current progress, success, or failure of this execution can be displayed with SP5816 152. • If the execution succeeded, SP5816 153 will display the result for confirmation and SP5816 154 will display the telephone number for the connection to the outside line. | | | | | | | | | | | | | |
| 152 | Line Type Judgment Result | | | | | | | | | | | | | |
| | Displays a number to show the result of the execution of SP5816 151. Here is a list of what the numbers mean. | | | | | | | | | | | | | |
| | 0: Success | | | | | | | | | | | | | |
| | 1: In progress (no result yet). Please wait. | | | | | | | | | | | | | |
| | 2: Line abnormal | | | | | | | | | | | | | |
| | 3: Cannot detect dial tone automatically | | | | | | | | | | | | | |
| | 4: Line is disconnected | | | | | | | | | | | | | |
| | 5: Insufficient electrical power supply | | | | | | | | | | | | | |
| | 6: Line classification not supported | | | | | | | | | | | | | |
| | 7: Error because fax transmission in progress – ioctl() occurred. | | | | | | | | | | | | | |
| | 8: Other error occurred | | | | | | | | | | | | | |
| | 9: Line classification still in progress. Please wait. | | | | | | | | | | | | | |

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| 153 | Selection Dial/Push |
| | This SP displays the classification (tone or pulse) of the telephone line to the access point for Cumin-M. The numbered displayed (0 or 1) is the result of the execution of SP5816 151. However, this setting can also be changed manually. [0~1/ 0/1] 0: Tone Dialing Phone 1: Pulse Dialing Phone Inside Japan "2" may also be displayed: 0: Tone Dialing Phone 1: Pulse Dialing Phone 10PPS 2: Pulse Dialing Phone 20PPS |
| 154 | Outside Line/Outgoing Number |
| | The SP sets the number that switches to PSTN for the outside connection for Cumin-M in a system that employs a PBX (internal line). <ul style="list-style-type: none">• If the execution of SP5816 151 has succeeded and Cumin-M has connected to the <u>external</u> line, this SP display is completely blank.• If Cumin-M has connected to an <u>internal</u> line, then the number of the connection to the external line is displayed.• If Cumin-M has connected to an external line, a comma is displayed with the number. The comma is inserted for a 2 sec. pause.• The number setting for the external line can be entered manually (including commas). |
| 155 | Remove Service: PPP Recognition Timeout |
| | Sets the length of the timeout for the Cumin-M connection to its access point. The timeout is the time from when the modem sends the ATD to when it receives the result code. [1~65536/ 60/1] |
| 156 | Dial Up User Name |
| | Use this SP to set a user name for access to remote dial up. Follow these rules when setting a user name: <ul style="list-style-type: none">• Name length: Up to 32 characters• Spaces and # allowed but the entire entry must be enclosed by double quotation marks ("). |
| 157 | Dial Up Password |
| | Use this SP to set a password for access to remote dial up. Follow these rules when setting a user name: <ul style="list-style-type: none">• Name length: Up to 32 characters• Spaces and # allowed but the entire entry must be enclosed by double quotation marks ("). |
| 159 | Remote Service: Carrier Send Level |
| | This SP sets the level of the carrier signal for Cumin-M data transmissions. [0~15/ 3/1] |
| 160 | Remote Service: AT command |
| | This SP allows you to add an AT command to the initialization of the Cumin-M modem. This SP sets the AT command for both initialization and wait time of and outgoing call. It also includes the NULL instruction. Default: 0, up to 8 characters allowed. |
| 161 | Local Phone Number |
| | Use this SP to set the telephone number of the line where Cumin-M is connected. This number is transmitted to and used by the Call Center to return calls. Limit: 24 numbers (numbers only) |

MAIN SERVICE PROGRAM MODE TABLES

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| 162 | Connection Timing Adjustment: Incoming |
| | <p>When the Call Center calls out to a Cumin-M modem, it sends a repeating ID tone (*#1#). This SP sets the line remains open to send these ID tones after the number of the Cumin-M modem is dialed up and connected. [0~24/1/1]</p> <p>The actual amount of time is this setting x 2 sec. For example, if you set "2" the line will remain open for 4 sec.</p> |
| 163 | Access Point |
| | <p>This is the number of the dial-up access point for Cumin-M. If no setting is done for this SP code, then a preset value (determined by the country selected) is used.</p> <p>Default: 0</p> <p>Allowed: Up to 16 alphanumeric characters</p> |
| 164 | Line Connecting |
| | <p>This SP sets the connection conditions for the customer. This setting dedicates the line to Cumin-M only, or sets the line for sharing between Cumin-M and a fax unit. [0~1/0/1]</p> <p>0: Line shared by Cumin-M/Fax 1: Line dedicated to Cumin-M only</p> <p>Note:</p> <ul style="list-style-type: none"> • If this setting is changed, the copier must be cycled off and on. • SP5816 187 determines whether the off-hook button can be used to interrupt a Cumin-M transmission in progress to open the line for fax transaction. |
| 173 | Modem Serial Number |
| | This SP displays the serial number registered for the Cumin-M. |
| 174 | Retransmission Limit |
| | <p>Normally, it is best to allow unlimited time for certification and ID2 update requests, and for the notification that the certification has been completed. However, Cumin-M generates charges based on transmission time for the customer, so a limit is placed upon the time allowed for these transactions. If these transactions cannot be completed within the allowed time, do this SP to cancel the time restriction.</p> |
| 187 | FAX/TX Priority |
| | <p>This SP determines whether pushing the off-hook button will interrupt a Cumin-M transmission in progress to open the line for fax transaction. This SP can be used only if SP5816 164 is set to "0". [0~1/0/1]</p> <p>0: Disable. Setting the fax unit off-hook does not interrupt a fax transaction in progress. If the off-hook button is pushed during a Cumin-M transmission, the button must be pushed again to set the fax unit on-hook after the Cumin-M transmission has completed.</p> <p>1: Enable. When Cumin-M shares a line with a fax unit, setting the fax unit off-hook will interrupt a Cumin-M transmission in progress and open the line for a fax transaction.</p> |
| 201 | Regist: Status |
| | Displays a number that indicates the status of the NRS service device. |
| | 0 Neither the NRS device nor Cumin device are set. |
| | 1 The Cumin device is being set. Only Box registration is completed. In this status the Basil unit cannot answer a polling request. |
| | 2 The Cumin device is set. In this status the Basil unit cannot answer a polling request. |
| | 3 The NRS device is being set. In this status the Cumin device cannot be set. |
| | 4 The NRS module has not started. |

| 202 | Letter Number Allows entry of the number of the request needed for the Cumin device. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|--|---|-------|-----------|---------|--------------------------|--------|-----------------------------|--------|------------------------------|--------|---|------------------------------------|---|--|----------------------------|--|----------------------------|---|--------------------------------------|-------|---|-------|-------------------------------------|-------|-------------------------|-------|------------------------|
| 203 | Confirm Execute Executes the inquiry request to the NRS GW URL. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 204 | Confirm Result Displays a number that indicates the result of the inquiry executed with SP5816 203. <table border="1"><tr><td>0</td><td>Succeeded</td></tr><tr><td>1</td><td>Inquiry number error</td></tr><tr><td>2</td><td>Registration in progress</td></tr><tr><td>3</td><td>Proxy error (proxy enabled)</td></tr><tr><td>4</td><td>Proxy error (proxy disabled)</td></tr><tr><td>5</td><td>Proxy error (Illegal user name or password)</td></tr><tr><td>6</td><td>Communication error</td></tr><tr><td>7</td><td>Certification update error</td></tr><tr><td>8</td><td>Other error</td></tr><tr><td>9</td><td>Inquiry executing</td></tr></table> | | 0 | Succeeded | 1 | Inquiry number error | 2 | Registration in progress | 3 | Proxy error (proxy enabled) | 4 | Proxy error (proxy disabled) | 5 | Proxy error (Illegal user name or password) | 6 | Communication error | 7 | Certification update error | 8 | Other error | 9 | Inquiry executing | | | | | | |
| 0 | Succeeded | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Inquiry number error | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Registration in progress | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Proxy error (proxy enabled) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Proxy error (proxy disabled) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Proxy error (Illegal user name or password) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Communication error | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Certification update error | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Other error | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Inquiry executing | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 205 | Confirm Place Displays the result of the notification sent to the device from the GW URL in answer to the inquiry request. Displayed only when the result is registered at the GW URL. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 206 | Register Execute Executes Cumin Registration. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 207 | Register Result Displays a number that indicates the registration result. <table border="1"><tr><td>0</td><td>Succeeded</td></tr><tr><td>2</td><td>Registration in progress</td></tr><tr><td>3</td><td>Proxy error (proxy enabled)</td></tr><tr><td>4</td><td>Proxy error (proxy disabled)</td></tr><tr><td>5</td><td>Proxy error (Illegal user name or password)</td></tr><tr><td>6</td><td>Communication error</td></tr><tr><td>7</td><td>Certification update error</td></tr><tr><td>8</td><td>Other error</td></tr><tr><td>9</td><td>Registration executing</td></tr></table> | | 0 | Succeeded | 2 | Registration in progress | 3 | Proxy error (proxy enabled) | 4 | Proxy error (proxy disabled) | 5 | Proxy error (Illegal user name or password) | 6 | Communication error | 7 | Certification update error | 8 | Other error | 9 | Registration executing | | | | | | | | |
| 0 | Succeeded | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Registration in progress | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Proxy error (proxy enabled) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Proxy error (proxy disabled) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Proxy error (Illegal user name or password) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Communication error | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Certification update error | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Other error | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Registration executing | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 208 | Error Code Displays a number that describes the error code that was issued when either SP5816 204 or SP5816 207 was executed. <table border="1"><thead><tr><th>Cause</th><th>Code</th><th>Meaning</th></tr></thead><tbody><tr><td rowspan="3">Illegal Modem Parameter</td><td>-11001</td><td>Chat parameter error</td></tr><tr><td>-11002</td><td>Chat execution error</td></tr><tr><td>-11003</td><td>Unexpected error</td></tr><tr><td rowspan="3">Operation Error, Incorrect Setting</td><td>-12002</td><td>Inquiry, registration attempted without acquiring device status.</td></tr><tr><td>-12003</td><td>Attempted registration without execution of an inquiry and no previous registration.</td></tr><tr><td>-12004</td><td>Attempted setting with illegal entries for certification and ID2.</td></tr><tr><td rowspan="4">Error Caused by Response from GW URL</td><td>-2385</td><td>Attempted dial up overseas without the correct international prefix for the telephone number.</td></tr><tr><td>-2387</td><td>Not supported at the Service Center</td></tr><tr><td>-2389</td><td>Database out of service</td></tr><tr><td>-2390</td><td>Program out of service</td></tr></tbody></table> | | Cause | Code | Meaning | Illegal Modem Parameter | -11001 | Chat parameter error | -11002 | Chat execution error | -11003 | Unexpected error | Operation Error, Incorrect Setting | -12002 | Inquiry, registration attempted without acquiring device status. | -12003 | Attempted registration without execution of an inquiry and no previous registration. | -12004 | Attempted setting with illegal entries for certification and ID2. | Error Caused by Response from GW URL | -2385 | Attempted dial up overseas without the correct international prefix for the telephone number. | -2387 | Not supported at the Service Center | -2389 | Database out of service | -2390 | Program out of service |
| Cause | Code | Meaning | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Illegal Modem Parameter | -11001 | Chat parameter error | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -11002 | Chat execution error | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -11003 | Unexpected error | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operation Error, Incorrect Setting | -12002 | Inquiry, registration attempted without acquiring device status. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -12003 | Attempted registration without execution of an inquiry and no previous registration. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -12004 | Attempted setting with illegal entries for certification and ID2. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Error Caused by Response from GW URL | -2385 | Attempted dial up overseas without the correct international prefix for the telephone number. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -2387 | Not supported at the Service Center | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -2389 | Database out of service | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -2390 | Program out of service | | | | | | | | | | | | | | | | | | | | | | | | | | |

Service
Tables

| | | | |
|-----|--|-------|-----------------------------------|
| | | -2391 | Two registrations for same device |
| | | -2392 | Parameter error |
| | | -2393 | Basil not managed |
| | | -2394 | Device not managed |
| | | -2395 | Box ID for Basil is illegal |
| | | -2396 | Device ID for Basil is illegal |
| | | -2397 | Incorrect ID2 format |
| | | -2398 | Incorrect request number format |
| 209 | Remote Setting Clear | | |
| | Releases a machine from its Cumin setup. | | |
| 250 | CommLog Print | | |
| | Prints the communication log. | | |

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

⇒ 5824 NVRAM Data Upload (Refer to **IMPORTANT NOTE** in Sect. 5.10.6)

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| 5824 | Uploads the UP and SP mode data (except for counters and the serial number) from NVRAM on the control board to an SD card. Note: While using this SP mode, always keep the front cover open. This prevents a software module accessing the NVRAM during the upload. |
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| 5825 | NVRAM Data Download |
| | Downloads data from an SD card to the NVRAM in the machine. After downloading is completed, remove the SD card and turn the machine power off and on. |

| 5828 Network Setting | | | | | | | | | | | | | | | | | | | |
|----------------------|----------------------------------|--|----------------------|-----|---|----------------------|---|----------------|---|---------|---|-----|---|---------------------|---|-----|---|---------------------|--|
| 050 | 1284 Compatibility (Centro) | Enables and disables bi-directional communication on the parallel connection between the machine and a computer. [0~1/1] 0:Off 1: On | | | | | | | | | | | | | | | | | |
| 052 | ECP (Centro) | Disables and enables the ECP feature (1284 Mode) for data transfer. [0~1/1] 0: Disabled 1: Enabled | | | | | | | | | | | | | | | | | |
| 065 | Job Spool Setting | Switches job spooling spooling on and off. 0: No spooling 1: Spooling enabled | | | | | | | | | | | | | | | | | |
| 066 | Job Spool Clear | This SP determines whether the job interrupted at power off is resumed at the next power on. This SP operates only when SP5828 065 is set to 1. 1: Resumes printing spooled jog. 0: Clears spooled job. | | | | | | | | | | | | | | | | | |
| 069 | Job Spool Protocol | This SP determines whether job spooling is enabled or disabled for each protocol. This is a 8-bit setting. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>0</td><td>LPR</td><td>4</td><td>BMLinks (Japan Only)</td></tr> <tr> <td>1</td><td>FTP (Not Used)</td><td>5</td><td>DIPRINT</td></tr> <tr> <td>2</td><td>IPP</td><td>6</td><td>Reserved (Not Used)</td></tr> <tr> <td>3</td><td>SMB</td><td>7</td><td>Reserved (Not Used)</td></tr> </table> | 0 | LPR | 4 | BMLinks (Japan Only) | 1 | FTP (Not Used) | 5 | DIPRINT | 2 | IPP | 6 | Reserved (Not Used) | 3 | SMB | 7 | Reserved (Not Used) | |
| 0 | LPR | 4 | BMLinks (Japan Only) | | | | | | | | | | | | | | | | |
| 1 | FTP (Not Used) | 5 | DIPRINT | | | | | | | | | | | | | | | | |
| 2 | IPP | 6 | Reserved (Not Used) | | | | | | | | | | | | | | | | |
| 3 | SMB | 7 | Reserved (Not Used) | | | | | | | | | | | | | | | | |
| 084 | Print Settings List | Prints a list of the NCS parameter settings. | | | | | | | | | | | | | | | | | |
| 090 | TELNET (0:OFF 1:ON) | Disables or enables Telnet operation. If this SP is disabled, the Telnet port is closed. [0~1/1] 0: Disable 1: Enable | | | | | | | | | | | | | | | | | |
| 091 | Web (0:OFF 1:ON) | Disables or enables the Web operation. [0~1/1] 0: Disable 1: Enable | | | | | | | | | | | | | | | | | |
| 092 | Primary WINS Server IPv4 Address | This SP is used to set and later refer to the WINS IPv4 primary address used by the Ethernet or the wireless LAN (802.11b). The current address is displayed and printed in the SMC report as aaa.bbb.ccc.ddd and is entered as 8-bit data. For example, if the number "192.168.000.001" is entered, it is recorded as "0C0A80001h". | | | | | | | | | | | | | | | | | |

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| 096 | | This SP disables/enables Rendezvous operation. This is a set of protocols that allows a device on an IP network to automatically recognize and connect with other devices (such as a printer) on a network. Once a new device is connected to the network, it can be used immediately by every computer on the network. No special setup procedures or configuration settings are required 1: Enable 0: Disable |
| 145 | Operation IPv6 Link Local Address | This is the IPv6 local address link referenced on the Ethernet or wireless LAN (802.11b) in the format: "Link Local Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. |
| 147 | Operation IPv6 Status Address 1 | These SPs are the IPv6 status addresses (1 to 5) referenced on the Ethernet or wireless LAN (802.11b) in the format: "Status Address" + "Prefix Length" |
| 149 | Operation IPv6 Status Address 2 | The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. |
| 151 | Operation IPv6 Status Address 3 | |
| 153 | Operation IPv6 Status Address 4 | |
| 155 | Operation IPv6 Status Address 5 | |
| 156 | IPv6 Manual Setting Address | This SP is the IPv6 manually set address referenced on the Ethernet or wireless LAN (802.11b) in the format: "Manual Set Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. |
| 157 | Operation IPv6 Manual Setting Address | This SP is the operation IPv6 manually set address referenced on the Ethernet or wireless LAN (802.11b) in the format: "Operation Set Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. |
| 158 | IPv6 Gateway Address | This SP is the IPv6 gateway address referenced on the Ethernet or wireless LAN (802.11b). The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. |
| 159 | Operation IPv6 Gateway Address | This SP is the IPv6 operation gateway address referenced on the Ethernet or wireless LAN (802.11b). The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. |
| 162 | IPv6 Access Control Display | This SP enables the display for access control of the IPv6 addresses. |

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| 5831 | Initial Setting Mode Clear Push [Execute] to restore the initial settings of all SP codes to their initial (factory) settings. Note: This SP does not reset time settings or user tool settings. |
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| 5832 | HDD |
| | Enter the SP number for the partition to initialize, then press #. When the execution ends, cycle the machine off and on. |
| 001 | HDD Formatting (All) |
| 002 | HDD Formatting (IMH) |
| 003 | HDD Formatting (Thumbnail) |
| 004 | HDD Formatting (Job Log) |
| 005 | HDD Formatting (Printer Fonts) |
| 006 | HDD Formatting (User Info1) |
| 007 | HDD Formatting (User Info2) |
| 008 | HDD Formatting (Scanner Initial) |
| 009 | HDD Formatting (Data for Design) |
| 010 | HDD Formatting (Log) |
| 011 | HDD Formatting (Ridoc I/F) (for Ridoc Desk Top Binder) |

| | | |
|------|--|---|
| 5836 | Capture Setting | |
| 001 | Capture Function (0:Off 1:On) | |
| | With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected. [0~1/1] 0: Disable 1: Enable | |
| 002 | Panel Setting | |
| | Determines whether each capture related setting can be selected or updated from the initial system screen. [0~1/1] 0: Disable 1: Enable The setting for SP5836-001 has priority. | |
| 003 | Print Back-up Function | |
| | Determines whether the print back-up function setting can be changed. [0~1/0/1] 0: Disable 1: Enable | |
| 071 | Reduction for Copy Color | [0~3/1] 0:1 1:1/2 2:1/3 3:1/4 DFU |
| 072 | Reduction for Copy B&W Text | [0~6/1] 0:1 1:1/2 2:1/3 3:1/4 6:2/3 |
| 073 | Reduction for Copy B&W Other | [0~6/1] 0:1 1:1/2 2:1/3 3:1/4 6:2/3 |
| 074 | Reduction for Printer Color | [0~3/1] 0:1 1:1/2 2:1/3 3:1/4 DFU |
| 075 | Reduction for Printer B&W | [0~6/1] 0:1 1:1/2 2:1/3 3:1/4 6:2/3 |
| 076 | Reduction for Printer B&W HQ | [1~5/1] 1:1/2 3:1/4 4:1/6 5:1/8 |
| 077 | Reduction for Printer Col 1200 dpi | |

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Tables

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| | | |
|-----|---|--|
| 078 | Reduction for Printer B&W 1200 dpi | |
| 081 | Format for Copy Color DFU | [0~3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 082 | Format for Copy B&W Text | [0~3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 083 | Format Copy B&W Other | [0~3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 084 | Format for Printer Color DFU | [0~3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 085 | Format for Printer B&W | [0~3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 086 | Format for Printer B&W HQ | [0~3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 091 | Default for JPEG | [5~95/1] |
| | Sets the JPEG format default for documents sent to the document management server with the MLB, with JPEG selected as the format. <i>Enabled only when optional File Format Converter (MLB: Media Link Board) is installed.</i> | |
| 092 | Capture Setting: Page Quality for JPEG (High Quality) | |
| | Determines the quality level of JPEG images for high quality sent to the Document Server via the MLB (Media Link Board). [5~95/60/1] | |
| 093 | Capture Setting: Page Quality for JPEG (Low Quality) | |
| | Determines the quality level of JPEG images for low quality sent to the Document Server via the MLB (Media Link Board). [5~95/40/1] | |
| 094 | Default Format for Backup Files | |
| | Sets the format for backup files created when the print backup function is used. [0~4/0/1] 0: TIFF 1: JPEG 2: J2K 3: PDF Single 4: PDF Multi | |
| 095 | Default Resolution for Backup Files | |
| | Sets the resolution for backup files (JPEG, TIFF) when the print backup function is used. This SP can be used only after JPEG or TIFF is selected for SP583f6 094. [0~6/2/1] 0: 1/1 1: 1/2 3: 1/4 6: 2/3 (Unavailable for some models) | |
| 096 | Default User Name for Backup Files | |
| | Sets the user name when the print backup function is used. Limit: 8 alphanumeric characters. | |
| 097 | Default Compression for Backup Files | |
| | This SP sets the compression rate for JPEG backup files when the print backup function is used. This SP operates only after SP5826 0094 has been set for "1" (JPEG). [0~2/0/1] | |

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| 098 | Capture Setting: Gamma SW for Backup File Removes the ghost images transferred from the back sides of double-sided originals. 1: Enable 0: Disable |
| 5839 | IEEE 1394 This SP is displayed only when an IEEE 1394 (firewire) card is installed. |
| 007 | Cycle Master Enables or disables the cycle master function for the 1394 bus standard. [0~1/1] 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) [Always Effective] |
| 009 | IRM 1394a Check Conducts a 1394a check of IRM when the independent node is in any mode other than IRM. [0~1/1] 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. Bit0: Off Bit1: On OFM: 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. ON: The Node_Unique_ID assigned by the system administrator is used, and the Source_ID of the GASP header in the ARP is ignored. Also, when the serial bus is reset, extra bus transactions are opened for the enumeration. |
| 011 | Logout Handles the login request of the login initiator for SBP-2. (1-bit) Bit0: Off Bit1: On OFM: Disable (refuse login). Initiator retry during login. Login refusal on arrival of login request (standard operation) ON: Enable (force logout). Initiator retry during login. Login refusal on arrival of login request, and the initiator forces the login. |
| 012 | Login Enables or disables the exclusive login feature (SBP-2 related). Bit0: Off Bit1: On OFM: Disables. The exclusive login (LOGIN ORB exclusive it) is ignored. ON: Enables. Exclusive login is in effect. |

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| 013 | Login MAX Sets the maximum number of logins from the initiator (6-bits) [0~63/1] 0: Reserved 63: Reserved |
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| 5840 | IEEE 802.11b |
| 006 | Channel MAX Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries. [1~14/1] |
| 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] |
| 011 | WEP Key Select Determines how the initiator (SBP-2) handles subsequent login requests. [0~1/1] 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. Note: Displayed only when the wireless LAN card is installed. |

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| 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 |
| 011 | Staple Std 1 |
| 012 | Staple Std 2 |
| 013 | Staple Std 3 |
| 014 | Staple Std 4 |
| 021 | StapleBind 1 |
| 022 | StapleBind 2 |
| 023 | StapleBind 3 |

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| 5842 | GWS Analysis Mode Setting DFU This settings select the output mode for debugging information as each network file is processed. |
| 001 | Setting 1 |
| 002 | Setting 2 |

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

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| 5845 | Delivery Server Setting |
| | These are delivery server settings. |
| 001 | <p>FTP Port No.</p> <p>[0~65535/1]</p> |
| 002 | <p>IP Address</p> <p>Use this SP to set the Scan Router Server address. The IP address under the transfer tab can be used with the initial system setting. [0~FFFFFF/1]</p> |
| 005 | <p>Capture Server IP Address</p> <p>Sets the IP address that is assigned to the PC that the capture server (eCabinet or Scan Router) operates. This IP address is set remotely when the delivery server (Scan Router) IO device is registered. This SP only enables the IP address permit access to the DNS browser names.</p> |
| 006 | <p>Delivery Error Display Time</p> <p>Use this setting to set the length of time that the message is shown when a test error occurs during document transfer with the NetFile application and an external device. [0~999/1]</p> |
| 008 | <p>IP Address (Secondary)</p> <p>Sets the IP address that is given to the computer that is the secondary delivery server for Scan Router. This SP lets you set only the IP address, and does not refer to the DNS setting.</p> |

MAIN SERVICE PROGRAM MODE TABLES

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| 009 | Delivery Server Model Lets you change the model of the delivery server that is registered by the I/O device. [0~4/1] 0: Unknown 1: SG1 Provided 2: SG1 Package 3: SG2 Provided 4: SG2 Package |
| 010 | Delivery Srv. Capability Changes the functions that the registered I/O device can do. [0~255/1] Bit7 = 1 Comment information exists Bit6 = 1 Direct specification of mail address possible Bit5 = 1 Mail RX confirmation setting possible Bit4 = 1 Address book automatic update function exists Bit3 = 1 Fax RX delivery function exists Bit2 = 1 Sender password function exists Bit1 = 1 Function to link MK-1 user and Sender exists Bit0 = 1 Sender specification required (if set to 1, Bit6 is set to "0") |
| 011 | Delivery Srv.Capability (Ext) These settings are for future use. They will let you increase the number of registered devices (in addition to those registered for SP5845 010). There are eight bits (Bit 0 to Bit 7). All are unused at this time. |
| 013 | Delivery Server Scheme (Primary) NIA |
| 014 | Delivery Server Port Number (Primary) NIA |
| 015 | Delivery Server URL Path (Primary) NIA |
| 016 | Delivery Server Scheme (Secondary) NIA |
| 017 | Delivery Server Port Number (Secondary) NIA |
| 018 | Delivery Server URL Path (Secondary) NIA |
| 019 | Capture Server Scheme NIA |
| 020 | Capture Server Port Number NIA |
| 021 | Capture Server URL Path NIA |

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|------|---|
| 5846 | UCS Setting |
| 001 | <p>Machine ID (for Delivery Server)</p> <p>Displays the unique device ID in use by the delivery server directory. The value is only displayed and cannot be changed.</p> <p>This ID is created from the NIC MAC or IEEE 1394 EUI.</p> <p>The ID is displayed as either 6-byte or 8-byte binary.</p> <p>6-byte %02X.%02X.%02X.%02X.%02X.%02X</p> <p>8-byte %02X.%02X.%02X.%02X.%02X.%02X.%02X.%02X</p> |
| 002 | <p>Machine ID Clear (Delivery Server)</p> <p>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.</p> |
| 003 | <p>Maximum Entries</p> <p>Changes the maximum number of entries that UCS can handle. [2000~50000/1]</p> <p>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.</p> |
| 006 | <p>Delivery Server Retry Timer</p> <p>Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book. [0~255/1 s] 0: No retries</p> |
| 007 | <p>Delivery Server Retry Times</p> <p>Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book. [0~255/1]</p> |
| 008 | <p>Delivery Server Maximum Entries</p> <p>Lets you set the maximum number of account entries and information about the users of the delivery server controlled by UCS. [20000~50000/1]</p> |
| 010 | <p>LDAP Search Timeout</p> <p>Sets the length of the time-out for the search of the LDAP server. [1~255/1]</p> |

MAIN SERVICE PROGRAM MODE TABLES

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| 040 | <p>Addr Book Migration (SD -> HDD)</p> <p>This SP moves the address book data from an SD card to the HDD. You must cycle the machine off and on after executing this SP.</p> <ol style="list-style-type: none"> 1. Turn the machine off. 2. Install the HDD. 3. Insert the SD card with the address book data in SD card Slot. 4. Turn the machine on. 5. Do SP5846 040. 6. Turn the machine off. 7. Remove the SD card from SD card Slot. 8. Turn the machine on. <p>Notes:</p> <ul style="list-style-type: none"> • Executing this SP overwrites any address book data already on the HDD with the data from the SD card. • We recommend that you back up all directory information to an SD card with SP5846 051 before you execute this SP. • After the address book data is copied to HDD, all the address book data is deleted from the source SD card. If the operation fails, the data is not erased from the SD card. |
| 041 | <p>Fill Addr Acl Info.</p> <p>This SP must be executed immediately after installation of an HDD unit in a basic machine that previously had no HDD. The first time the machine is powered on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it onto the new HDD. However, the new address book on the HDD can be accessed only by the system administrator at this stage. Executing this SP by the service technician immediately after power on grants full address book access to all users.</p> <p>Procedure</p> <ol style="list-style-type: none"> 1. Turn the machine off. 2. Install the new HDD. 3. Turn the machine on. 4. The address book and its initial data are created on the HDD automatically. However, at this point the address book can be accessed by only the system administrator or key operator. 5. Enter the SP mode and do SP5846 041. After this SP executes successfully, any user can access the address book. |
| 046 | <p>Initialize All Settings & Address Book DFU</p> <p>The SP clears all the setting information managed in UCS and address book information (local, delivery, LDAP) and restores these settings to their default values. Use this SP to initial the account information (user codes and passwords) for system managers and users as well.</p> <p>Note:</p> <ul style="list-style-type: none"> • Be sure to cycle the machine off and on after you execute this SP code. • Once this SP has been executed, a message on the screens of applications that use the address book will prompt users that the address book is being updated. This prevents the machine from issuing SC870. • The machine initializes to determine if the address book is stored on the HDD or on an SD card. In order for the machine to determine whether to recognize an address book on the HDD or the SD card, the machine must be cycled off and on once more to determine whether the machine should recognize the address book on the HDD or the SD card. |

| 047 | Initialize Local Address Book Clears all of the address information from the local address book of a machine managed with UCS. | | | | | | | | | | | | | | | | | | |
|-----|---|-----|---------|---|---|---|------------|---|--|---|--|---|------------------|---|------------------|---|------------------|---|------------------|
| 048 | Initialize Delivery Addr Book Push [Execute] to delete all items (this does not include user codes) in the delivery address book that is controlled by UCS. | | | | | | | | | | | | | | | | | | |
| 049 | Initialize LDAP Addr Book Push [Execute] to delete all items (this does not include user codes) in the LDAP address book that is controlled by UCS. | | | | | | | | | | | | | | | | | | |
| 050 | Initialize All Addr Book Clears everything (including users codes) in the directory information managed by UCS. However, the accounts and passwords of the system administrators are not deleted. | | | | | | | | | | | | | | | | | | |
| 051 | Backup All Addr Book Uploads all directory information to the SD card. | | | | | | | | | | | | | | | | | | |
| 052 | Restore All Addr Book Downloads all directory information from the SD card. | | | | | | | | | | | | | | | | | | |
| 053 | Clear Backup Info. Deletes the address book uploaded from the SD card in the slot. Deletes only the files uploaded for that machine. This feature does not work if the card is write-protected. Note: After you do this SP, go out of the SP mode, turn the power off. Do not remove the SD card until the Power LED stops flashing. | | | | | | | | | | | | | | | | | | |
| 060 | Search Option This SP uses bit switches to set up the fuzzy search options for the UCS local address book. <table border="1"><thead><tr><th>Bit</th><th>Meaning</th></tr></thead><tbody><tr><td>0</td><td>Checks both upper/lower case characters</td></tr><tr><td>1</td><td>Japan Only</td></tr><tr><td>2</td><td></td></tr><tr><td>3</td><td></td></tr><tr><td>4</td><td>--- Not Used ---</td></tr><tr><td>5</td><td>--- Not Used ---</td></tr><tr><td>6</td><td>--- Not Used ---</td></tr><tr><td>7</td><td>--- Not Used ---</td></tr></tbody></table> | Bit | Meaning | 0 | Checks both upper/lower case characters | 1 | Japan Only | 2 | | 3 | | 4 | --- Not Used --- | 5 | --- Not Used --- | 6 | --- Not Used --- | 7 | --- Not Used --- |
| Bit | Meaning | | | | | | | | | | | | | | | | | | |
| 0 | Checks both upper/lower case characters | | | | | | | | | | | | | | | | | | |
| 1 | Japan Only | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | --- Not Used --- | | | | | | | | | | | | | | | | | | |
| 5 | --- Not Used --- | | | | | | | | | | | | | | | | | | |
| 6 | --- Not Used --- | | | | | | | | | | | | | | | | | | |
| 7 | --- Not Used --- | | | | | | | | | | | | | | | | | | |
| 062 | Complexity Option 1 Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to <u>upper case</u> and sets the length of the password. [0~32/1] Note: <ul style="list-style-type: none">• This SP does not normally require adjustment.• This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. | | | | | | | | | | | | | | | | | | |

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| 063 | <p>Complexity Option 2</p> <p>Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to <u>lower case</u> and defines the length of the password.</p> <p>[0~32/1]</p> <p>Note:</p> <ul style="list-style-type: none"> • This SP does not normally require adjustment. • This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. |
| 064 | <p>Complexity Option 3</p> <p>Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to <u>numbers</u> and defines the length of the password.</p> <p>[0~32/1]</p> <p>Note:</p> <ul style="list-style-type: none"> • This SP does not normally require adjustment. • This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. |
| 065 | <p>Complexity Option 4</p> <p>Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to <u>symbols</u> and defines the length of the password.</p> <p>[0~32/1]</p> <p>Note:</p> <ul style="list-style-type: none"> • This SP does not normally require adjustment. • This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. |
| 091 | <p>FTP Auth. Port Settings</p> <p>Sets the FTP port to get the delivery server address book that is used in the individual authorization mode.</p> <p>[0~65535/1]</p> |
| 094 | <p>Encryption Start</p> <p>Shows the status of the encryption function of the address book on the LDAP server.</p> <p>[0~255/1] No default</p> |

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|------|---|---------|--|--|
| 5847 | Repository Resolution Reduction | | | |
| | 5847 1 through 5847 6 changes the default settings of image data sent externally by the Net File page reference function. [0~2/1] | | | |
| | 5847 21 sets the default for JPEG image quality of image files controlled by NetFile. | | | |
| | "Repository" refers to jobs to be printed from the document server with a PC and the DeskTopBinder software. | | | |
| | 002 Rate for Copy B&W Text | [0~6/1] | 0: 1x 1: 1/2x 2: 1/3x 3: 1/4x 4: 1/6x 5: 1/8x 6: 2/3x ¹ | |
| | 003 Rate for Copy B&W Other | [0~6/1] | | |
| | 005 Rate for Printer B&W | [0~6/1] | | |
| | 006 Rate for Printer B&W HQ | [0~6/1] | | |
| 021 | Network Quality Default for JPEG | | | |
| | Sets the default value for the quality of JPEG images sent as NetFile pages. This function is available only with the MLB (Media Link Board) option installed. [5~95/1] | | | |

| | | | |
|------|--|---|--|
| 5848 | Web Service | | |
| | 5847 2 sets the 4-bit switch assignment for the access control setting. Setting of 0001 has no effect on access and delivery from Scan Router. 5847 100 sets the maximum size of images that can be downloaded. The default is equal to 1 gigabyte. | | |
| 001 | Access Control. : NetFile (Lower 4 Bits Only) | | |
| | Bit switch settings. 0000: No access control 0001: Denies access to Desk Top Binder. Access and deliveries from Scan Router have no effect on capture. | | |
| 002 | Acc. Ctrl.: Repository (only Lower 4 Bits) | 0000: No access control 0001: Denies access to DeskTop Binder. | |
| 003 | Acc. Ctrl.: Doc. Svr. Print (Lower 4 Bits) | Switches access control on and off. 0000: OFF, 0001: ON | |
| 004 | Acc. Ctrl.: User Directory (Lower 4 Bits) | | |
| 005 | Acc. Ctrl.: Delivery Input (Lower 4 Bits) | | |
| 007 | Acc. Ctrl Comm. Log Fax (Lower 4 Bits) | | |
| 009 | Acc. Ctrl.: Job Control (Lower 4 Bits) | | |
| 011 | Acc. Ctrl: Device Management (Lower 4 Bits) | | |
| 013 | Acc. Ctrl: Fax (Lower 4 Bits) | | |
| 021 | Acc. Ctrl: Delivery (Lower 4 Bits) | | |
| 022 | Acc. Ctrl: User Administration (Lower 4 Bits) | | |
| 041 | Acc. Ctrl: Security Setting (Lower 4 Bits only) | | |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|-----|--------------------------------------|--------------|
| 100 | Repository: Download Image Max. Size | [1~1024/1 K] |
| 210 | Setting: Log Type: Job 1 | |
| 211 | Setting: Log Type: Job 2 | |
| 212 | Setting: Log Type: Job 3 | |

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

| | | |
|------|-----------------------|---|
| 5850 | Address Book Function | |
| 001 | Switch Module | Selects the module for managing user information. [0~1/1] 0: SCS 1: UCS |
| 002 | Select Title | Selects the default heading of the address book. [2~4/1] 2: Heading 1 3: Heading 2 4: Heading 3 |

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

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

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

| | |
|------|--|
| 5857 | Save Debug Log |
| 001 | On/Off (1:ON 0:OFF) Switches on the debug log feature. The debug log cannot be captured until this feature is switched on. [0~1/1] 0: OFF 1: ON |
| 002 | Target (2: HDD 3: SD Card) Selects the destination where the debugging information generated by the event selected by SP5858 will be stored if an error is generated [2~3 /1] 2: HDD 3: SD Card |
| 005 | Save to HDD Specifies the decimal key number of the log to be written to the hard disk. |
| 006 | Save to SD Card Specifies the decimal key number of the log to be written to the SD Card. |
| 009 | Copy HDD to SD Card (Latest 4 MB) Takes the most recent 4 MB of the log written to the hard disk and copies them to the SD Card. A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card. |
| 010 | Copy HDD to SD Card Latest 4 MB Any Key) Takes the log of the specified key from the log on the hard disk and copies it to the SD Card. A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4 MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card. This SP does not execute if there is no log on the HDD with no key specified. |
| 011 | Erase HDD Debug Data Erases all debug logs on the HDD |
| 012 | Erase SD Card Debug Data Erases all debug logs on the SD Card. If the card contains only debugging files generated by an event specified by SP5858, the files are erased when SP5857 010 or 011 is executed. To enable this SP, the machine must be cycled off and on. |
| 013 | Free Space on SD Card Displays the amount of space available on the SD card. |
| 014 | Copy SD to SD (Latest 4MB) Copies the last 4MB of the log (written directly to the card from shared memory) onto an SD card. |
| 015 | Copy SD to SD (Latest 4MB Any Key) This SP copies the log on an SD card (the file that contains the information written directly from shared memory) to a log specified by key number. |
| 016 | Make HDD Debug This SP creates a 32 MB file to store a log on the HDD. |
| 017 | Make SD Debug This SP creates a 4 MB file to store a log on an SD card. |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|--|--|
| 5858 | Debug Save When | |
| | These SPs select the content of the debugging information to be saved to the destination selected by SP5857 002. SP58583 stores one SC specified by number. | |
| 001 | Engine SC Error (0:OFF 1:ON) | Stores SC codes generated by copier engine errors. |
| 002 | Controller SC Error (0:OFF 1:ON) | Stores SC codes generated by GW controller errors. |
| 003 | Any SC Error (0:OFF 1:ON) | [0~65535 / 0 / 1] |
| 004 | Jam (0:OFF 1:ON) | Stores jam errors. |

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

| | | |
|------|---|--|
| 5860 | SMTP/POP3/IMAP4 | |
| 020 | Partial Mail Receive Timeout [1~168/72/1] | Sets the amount of time to wait before saving a mail that breaks up during reception. The received mail is discarded if the remaining portion of the mail is not received during this prescribed time. |
| 021 | MDN Response RFC2298Compliance Determines whether RFC2298compliance is switched on for MDN reply mail. [0~1/1] 0: No 1: Yes | |
| 022 | SMTP Auth. From Field Replacement Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated. [0~1/1] 0: No. "From" item not switched. 1: Yes. "From" item switched. | |

| | | | |
|------|--|--|--|
| 025 | SMTP Auth Direct Sending | | |
| | <p>Occasionally, all SMTP certifications may fail with SP5860 006 set to "2" to enable encryption during SMTP certification for the SMTP server. This can occur if the SMTP server does not meet RFC standards. In such cases you can use this SP to set the SMTP certification method directly. However, this SP can be used only after SP5860 003 has been set to "1" (On).</p> <p>Bit0: LOGIN Bit1: PLAIN Bit2: CRAM_MD5 Bit3: DIGEST_MD5 Bit4 to Bit 7: Not Used</p> | | |
| 5864 | Mail Text Clear | | |
| | <p>This SP clears mail text information. When this SP is called at the request to write the SP mode data, the mail text information stored on the DCS server is reset to its default value. This is used as a trigger to clear mail text information when the system is initialized with the User Tools.</p> | | |
| 5866 | E-Mail Report | | |
| | <p>This SP controls operation of the email notification function.</p> | | |
| 001 | NIA | Disables and re-enables the email notification feature. [0~1/ 0 /1] 0: Enable 1: Disable | |
| 005 | NIA | Disables and re-enables the addition of a date field to the email notification. [0~1/ 0 /1] | |
| 5870 | Common Key Info Writing | | |
| | <p>Writes to flash ROM the common proof for validating the device for NRS specifications.</p> | | |
| 001 | Writing | Note: These SPs are for future use and currently are not used. | |
| 003 | Initialize | | |
| 5873 | SD Card Apli. | | |
| | <p>Allows you to move applications from one SD card another. For more, see "Mergining Applications on One SD Card" in Section "1. Installation".</p> | | |
| 001 | Move Exec | Executes the move from one SD card to another. | |
| 002 | Undo Exec | This is an undo function. It cancels the previous execution. | |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|---|--|
| 5875 | SC Auto Reboot | |
| | <p>This SP determines whether the machine reboots automatically when an SC error occurs.</p> <p>Note: The reboot does not occur for Type A and C SC codes.</p> | |
| 001 | Reboot Setting | <p>[0~1/0/1] 0: On, 1: Off On: default: 0 (Reboots automatically) The machine reboots automatically when the machine issues an SC error and logs the SC error code. If the same SC occurs again, the machine does not reboot. OFF: 1 (Does not reboot automatically. Changing this setting to "0" sets the machine to reboot automatically after an SC occurs.</p> |
| 002 | Reboot Type | <p>This setting determines how the machine reboots after an SC code is issued. [0~1/0/1] 0: Allows manual reboot, 1: Automatic reboot</p> |

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| 5878 | Option Setup |
| | <p>This SP enables the DOS application (Data Overwrite Security). Do this SP after installing Data Overwrite Security Unit C B735.</p> |

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|------|---------|
| 5881 | NIA DFU |
|------|---------|

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|------|----------------------------------|---------------------------------------|
| 5885 | WIM Settings DFU | |
| 020 | This SP is a bit switch setting. | |
| | Bit | Meaning |
| | 0 | Forbid all document server access (1) |
| | 1 | Forbid user mode access (1) |
| | 2 | Forbid print function (1) |
| | 3 | Forbid fax TX (1) |
| | 4 | Forbid scan sending (1) |
| | 5 | Forbid downloading (1) |
| | 6 | Forbid delete (1) |
| | 7 | Reserved |

| | |
|------|--|
| 5886 | Permit ROM Update DFU |
| | <p>This SP determines whether the ROM can be updated. [0~1/0/1] 0: On 1: Off</p> |

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|------|--|
| 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. |

| | |
|------|---|
| 5915 | Mechanical Counter Detection |
| | Displays whether the mechanical counter is installed in the machine. [0~2] 0: Not detected 1: Detected 2: Unknown |

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

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|------|---|
| 5974 | Cherry Server |
| | Selects which version of the Scan Router application program, "Light" or "Full (Professional)", is installed. [0 ~ 1 / 0 / 1 /step] 0: Light version (supplied with this machine) 1: Full version (optional) |

Service
Tables

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|------|--|-----------------------------|
| 5985 | Device Setting | |
| | The NIC and USB support features are built into the GW controller. Use this SP to enable and disable these features. In order to use the NIC and USB functions built into the controller board, these SP codes must be set to "1". | |
| 001 | On Board NIC | 0: Disable 1: Enable |
| 002 | On Board USB | |

MAIN SERVICE PROGRAM MODE TABLES

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

SP6-nnn Peripherals

| | |
|------|--|
| 6006 | DF Registration Adjustment |
| 001 | Side-to-Side Adjusts the printing side-to-side registration in the ADF mode. [-3~+3 / 0 / 0.1 mm] <i>Use the “•/*” key to toggle between + and –.</i> |
| 003 | Leading Edge (Thin Original) Adjusts the original stop position. [-10~+10 / 0 / 0.13 mm] <i>Use the “•/*” key to toggle between + and –.</i> |
| 005 | Leading Edge (Duplex 1st) Adjusts the original stop position against the original left scale in one-sided original mode, and the first side of duplex originals. [-29~+29 / 0 / 0.13 mm] <i>Use the “•” key to toggle between + and –.</i> |
| 006 | Leading Edge (Duplex-2nd) Adjusts the original stop position against the original left scale for the second side of duplex originals. [-29~+29 / 0 / 0.13 mm] <i>Use the “•” key to toggle between + and –.</i> |

| | |
|------|--|
| 6007 | ADF Input Check (●5.4.2) |
| 001 | Group 1 Displays the signals received from sensors and switches of the ADF. |
| 002 | Group 2 Displays the signals received from sensors and switches of the ADF. |
| 003 | Group 3 Displays the signals received from sensors and switches of the ADF. |

Service
Tables

| | |
|------|---|
| 6008 | ADF Output Check Turns on the ADF electrical components individually for testing. (●5.5.2) |
|------|---|

| | |
|------|---|
| 6009 | DF Free Run Performs an ADF free run in two-sided original mode. Press “1” to start. <i>This is a general free run controlled from the copier</i> |
|------|---|

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|------|---|
| 6019 | ADF Motor Speed Auto Adjustment After pressing the Start key, the machine automatically adjusts the speeds of the ADF motors in the following order: Feed-in motor → Transport Motor → Feed-out Motor (High) → Feed-out Motor (Low) |
|------|---|

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|---|--|
| 6100 | Staple Position Adjustment | |
| | <p>Use this SP to shift the position of the stapling done by the corner stapler of the finisher (B830). This SP shifts the staple position forward and back across the direction of paper feed.</p> <ul style="list-style-type: none"> • Use the “•” key to toggle between + and –. • A larger value shifts the stapling position to shift forward. • A smaller value shifts the stapling position backward. | |
| 001 | A3 SEF | The settings are done for each paper size. SEF denotes "Short Edge Feed". |
| 002 | B4 SEF | |
| 003 | A4 SEF | LEF denotes "Long Edge Feed". [-2 to +2 / 0 / 0.5 mm] |
| 004 | A4 LEF | |
| 005 | B5 SEF | |
| 006 | B5 LEF | |
| 007 | DLT | |
| 008 | LG | |
| 009 | LT SEF | |
| 010 | LT LEF | |
| 011 | Custom Size | |

| | | |
|------|---|--------------------------------|
| 6101 | Punch Hole Position Adjustment | |
| | <p>Use this SP to shift the position of the punching done by the Punch Unit B831. This SP shifts the punching position left and right in the direction of paper feed. There are three versions of the Punch Unit B831 1) NA 2/3 (2 or 3 hole punching selectable for the job), 2) NA 4 (4 hole punching only), and 3) EU 2/4 (2 or 4 hole punching selectable for the job)</p> <p style="margin-left: 20px;">[-7.5~+7.5 / 0 / 0.5 mm]</p> <ul style="list-style-type: none"> • Use the “•/*” key to toggle between + and –. • A larger value shifts the punch holes away from the edge of the paper. • A smaller value shifts the punch holes toward the edge of the paper. | |
| 001 | 2-Hole: JPN | Japan Only |
| 002 | 3-Hole: NA | North America, 3-hole punching |
| 003 | 4-Hole: Europe | Europe, 4-hole punching |
| 004 | 4-Hole: NA | North America, 4-hole punch |
| 005 | 2-Hole: NA | North America, 2-hole punching |
| 006 | 1-Hole: JPN | Japan Only |

| | | |
|------|--|--|
| 6102 | Fine Adjust Stapler Jogger Fences | |
| | <p>Use this SP code to adjust the positions of the jogger fences when the pages are aligned (jogged) horizontally in the stapling tray for corner stapling in the Finisher B830. These jogger fences close in on the sides of the stack on the paper tray. These side fences move in and out perpendicular to the direction of paper feed.</p> <ul style="list-style-type: none"> • The higher the setting, the narrower the jogger span and the smaller the gaps between the fences and the edges of the paper. Stacking is tighter. • The lower the setting, the wider the jogger span and the wider the gaps between the fences and the edges of the paper. Stacking is not as precise. | |
| 001 | A3 SEF | The settings are done for each paper size. SEF denotes "Short Edge Feed". |
| 002 | B4 SEF | |
| 003 | A4 SEF | LEF denotes "Long Edge Feed". |
| 004 | A4 LEF | [-2.0 to +1.5 / 0 / 0.5 mm] |
| 005 | B5 SEF | |
| 006 | B5 LEF | |
| 007 | DLT | |
| 008 | LG | |
| 009 | LT SEF | |
| 010 | LT LEF | |
| 011 | Custom Size | |

| | | |
|------|--|--|
| 6103 | Adjust Output Jog Position | |
| | <p>Use this SP code to adjust the positions of the jogger fences when the pages are aligned (jogged) horizontally in the stapling tray for stapling in the Booklet Finisher B836. The jogger fences close in on the sides of the stack on the paper tray. These side fences move in and out perpendicular to the direction of paper feed.</p> <p>[-3 to +3 / 0 / 0.1 mm]</p> <ul style="list-style-type: none"> • The higher the setting, the narrower the jogger span and the smaller the gaps between the fences and the edges of the paper. Stacking is tighter. • The lower the setting, the wider the jogger span and the wider the gaps between the fences and the edges of the paper. Stacking is not as tight. | |
| 001 | A3 SEF | The settings are done for each paper size. SEF denotes "Short Edge Feed". |
| 002 | B4 SEF | |
| 003 | A4 SEF | LEF denotes "Long Edge Feed". |
| 004 | A4 LEF | |
| 005 | B5 SEF | |
| 006 | B5 LEF | |
| 007 | DLT | |
| 008 | LG | |
| 009 | LT SEF | |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|---------------------------|--|
| 6104 | Pre-Stack Adjustment | |
| | [-3 to +3/ 0 /0.1] | |
| 001 | A4 LEF | |
| 002 | B5 LEF | |
| 003 | LT LEF | |
| 004 | Other | |

| | | |
|------|-----------------------------------|-----------------------------|
| 6105 | Adj Leading Edge Stopper Pressure | |
| 001 | A4 LEF | [-5.0~+10.0/ 0 /0.1] |
| 002 | B5 LEF | [-5.0~+2.0/ 0 /0.11] |
| 003 | LT LEF | [-5.0~+10.0/ 0 /0.1] |
| 004 | Other | [-5.0~+10.0/ 0 /0.1] |

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|------|---|--|
| 6106 | Staple Jogging Repeat Settings | |
| | Allows you to increase by 1 the number of times the stack is jogged on the stapling tray. [DEFAULT] +1 | |

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|------|--|---|
| 6107 | Staple Tray Jog Off/On | |
| | Allows you to switch jogging on the stapling tray off and on for the paper sizes listed below. | |
| 001 | A3 SEF 0:On 1:Off | The default for each paper size is 0 (On) |
| 002 | B4 SEF 0:On 1:Off | |
| 003 | A4 SEF 0:On 1:Off | |
| 004 | A4 LEF 0:On 1:Off | |
| 005 | A5 SEF 0:On 1:Off | |
| 006 | B5 SEF 0:On 1:Off | |
| 007 | B5 LEF 0:On 1:Off | |
| 008 | DLT SEF 0:On 1:Off | |
| 009 | LG SEF 0:On 1:Off | |
| 010 | LT SEF 0:On 1:Off | |
| 011 | LT LEF 0:On 1:Off | |
| 012 | HLT SEF 0:On 1:Off | |
| 013 | Other 0:On 1:Off | |

| | | |
|------|---|--|
| 6112 | Finisher Input Check | |
| | Displays the signals received from sensors and switches of the finisher. (●5.4.3) | |

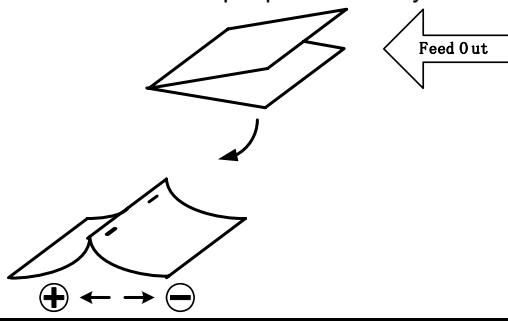
| | | |
|------|--|--|
| 6113 | Finisher Output Check | |
| | Turn on the electrical components of the finisher individually for test purposes. (●5.5.3) | |

| | | |
|------|-------------------|--|
| 6114 | Finisher Free Run | |
| 001 | Free Run 1 | System free run. A4 LEF at 90 ppm, with simulated staple mode. |
| 002 | Free Run 2 | Free run for durability testing. All motors and solenoids operate to simulate full staple mode run for durability testing. |
| 003 | Free Run 3 | Shipping free run. Simulates standby conditions during shipping. |
| 004 | Free Run 4 | Shift free run. A4 LEF at 90 ppm with simulated output jogging with the shift jogger unit mounted on the side of the finisher. |

| | |
|------|---|
| 6116 | Sheet Conversion (Thick Paper) |
| | Divide the normal limit for stapling by this number to determine the staple limit number for thick paper mode. [1~3 / 3 / 1] |

| | |
|------|---|
| 6119 | Punch Function Enabled (Thick Paper) |
| | Determines whether punch mode is enabled in thick paper mode. [0~1 / 0 / 1] 0: Disabled 1: Enabled |

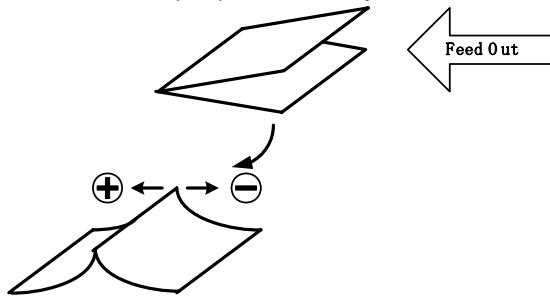
| | | |
|------|---|--|
| 6200 | Adj Booklet Stapling Position | |
| | Use this SP to adjust the stapling position of the booklet stapler when paper is stapled and folded in the Booklet Finisher B836. | |
| 001 | A3 SEF | [-3.0 to +3.0/0/0.2 mm] + Value: Shifts staple position toward the crease. - Value: Shifts staple position away from the crease. |
| 002 | B4 SEF | |
| 003 | A4 SEF | |
| 004 | B5 SEF | |
| 005 | 12" x 18" SEF | |
| 006 | DLT | |
| 007 | LG | |
| 008 | LT SEF | |
| 009 | Custom Size | |



Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|--|---|
| 6201 | Adjust Booklet Fold Position | |
| | This SP corrects the folding position when paper is stapled and folded in the Booklet Finisher B836. | |
| 001 | A3 SEF | [$-3 \sim +3$ /0/0.2 mm] |
| 002 | B4 SEF | + Value: Shifts staple position toward the crease. |
| 003 | A4 SEF | - Value: Shifts staple position away from the crease. |
| 004 | B5 SEF | |
| 005 | 12"x18" SEF | |
| 006 | DLT SEF | |
| 007 | LG SEF | |
| 008 | LT SEF | |
| 009 | Custom Size | |



| | | |
|------|--|---|
| 6202 | Fine Adjust Staple Jogger Fence Position | |
| | This SP adjusts the distance between the jogger fences and the sides of the stack on the finisher stapling tray in the Booklet Finisher B836. The adjustment is done perpendicular to the direction of paper feed. | |
| 001 | A3 SEF | [$-1.5 \sim +1.5$ /0/0.5 mm] |
| 002 | B4 SEF | + Value: Increases distance between jogger fences and the sides of the stack. |
| 003 | A4 SEF | - Value: Decreases the distance between the jogger fences and the sides of the stack. |
| 004 | A4 LEF | |
| 005 | B5 SEF | |
| 006 | B5 LEF | |
| 007 | DLT SEF | |
| 008 | LG SEF | |
| 009 | LT SEF | |
| 010 | LT LEF | |
| 011 | 12"x18" | |
| 012 | Custom Size | |

| | | |
|------|---|--|
| 6203 | Set Number of Folds | |
| | This SP sets the number of times the folding rollers are driven forward and reverse to sharpen the crease of a folded booklet before it exits the folding unit of the Booklet Finisher B836. When set at the default (0): | |
| | <ul style="list-style-type: none"> The folding blade pushes the center of the stack into the nip of the folding roller. The folding rollers rotate ccw to crease the booklet, reverse cw, then rotate ccw again to crease the booklet fold twice before feeding to the folding unit exit rollers. | |
| | <p>$[-1 \sim 28]/0/1$</p> <p>0: 2 folds</p> | |

| | |
|------|------------------------------|
| 6204 | Thick Paper Count (Book Fin) |
| | NIA 10/29 [1~3/3/1] |

| | |
|------|--|
| 6206 | Booklet Finisher Input Check |
| | Displays the signals received from sensors and switches of the booklet finisher. (5.4.4) |

| | |
|------|--|
| 6207 | Booklet Finisher Output Check |
| | Turn on the electrical components of the booklet finisher individually for test purposes. (5.5.4) |

| | |
|------|---|
| 6301 | Fine Adj Z-Fold 1 |
| | Use this SP code to adjust the position of the first fold [A]. This adjustment decreases or increases the distance (A) between the leading edge [B] and the crease of the 2nd fold [C]. [-2 to +4/ 0 / 0.2 mm] |
| 001 | A3 (1st Fold Position) |
| 002 | B4 (1st Fold Position) |
| 003 | A4 (1st Fold Position) |
| 004 | DLT (1st Fold Position) |
| 005 | LG (1st Fold Position) |
| 006 | LT (1st Fold Position) |
| 008 | Others (1st Fold Position) |
| 009 | A3 (2nd Fold Position) |
| 010 | B4 (2nd Fold Position) |
| 011 | A4 (2nd Fold Position) |
| 012 | DLT (2nd Fold Position) |
| 013 | LG (2nd Fold Position) |
| 014 | LT (2nd Fold Position) |
| 016 | Others (2nd Fold Position) |

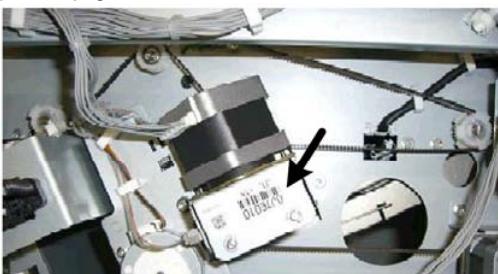
The diagram illustrates a paper fold. It shows a vertical line segment labeled **L1** at the top. Below it, a diagonal line segment labeled **A** extends downwards and to the right, representing the distance between the leading edge [B] and the crease of the 2nd fold [C].

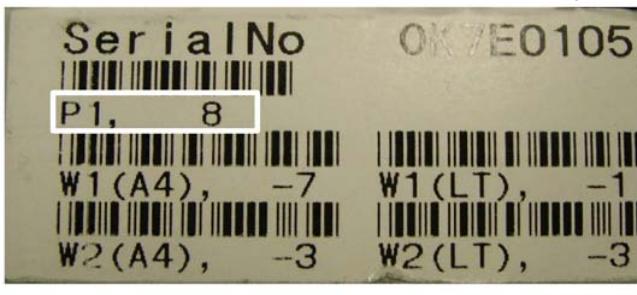
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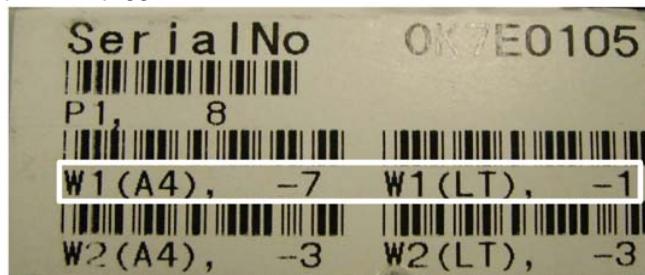
| | |
|------|---|
| 6400 | Cvr Inserter Input Check |
| | Displays the signals received from sensors and switches of the cover interposer tray. (5.4.5) |

| | |
|------|---|
| 6401 | Cvr Inserter Output Check |
| | Turn on the electrical components of the cover interposer tray individually for test purposes. (5.5.5) |

MAIN SERVICE PROGRAM MODE TABLES

| | | | |
|------|--------|---|------------------|
| 6504 | | Adj Jog: Punching | Ring Binder D392 |
| 1 | A4 LEF | <p>Shifts the punch hole position horizontally (front-to-rear, rear-to-front) [-4 to +4/0/0.1 mm]</p> <p>This SP must be adjusted after replacement of one or more of the following items:</p> | |
| 2 | LT LEF | <ul style="list-style-type: none"> • Ring binder main board • Binder unit control board • Pre-punch side jogger assembly • Pre-punch jogger HP sensor (S301) <p>Notes: The correct value for this setting is written on the label attached to the pre-punch jog unit.</p>  <p>d392r0407a</p> <p>The value must be divided by "10". For example, "19" is actually "1.9 mm)</p> | |

| | | | |
|------|--|---|------------------|
| 6505 | | Adj Jog: Paddle | Ring Binder D392 |
| | | <p>Adjusts the height of the paddle roller at initialization. If the correct number is not entered, the stack will not be jogged correctly before binding. [-3 to +3/0/0.1 mm]</p> <p>This SP must be adjusted after replacement of one or more of the following items:</p> <ul style="list-style-type: none"> • Ring binder main board • Binder unit control board • Pre-bind jogger unit <p>The correct value to be entered for the adjustment is written in the first line of the label. This label is attached to the front cover of the pre-bind jogger unit.</p>  <p>d392s901</p> <p>Note: The value must be divided by "10". For example, "8" is actually "0.8 mm)</p> | |

| | | | |
|------|--------|--|------------------|
| 6506 | | Adj Jog: Binding 1 | Ring Binder D392 |
| 1 | A4 LEF | <p>Adjusts the stop position of the front jog fence. If the correct number is not entered, the stack will not be jogged correctly before binding. [-2 to +2/0/0.1 mm]</p> <p>This SP must be adjusted after replacement of one or more of the following items:</p> <ul style="list-style-type: none"> • Ring binder main board • Binder unit control board • Pre-bind jogger unit | |
| 2 | LT LEF | <p>The correct value to be entered for the adjustment is written in the second line of the label. This label is attached to the front cover of the pre-bind jogger unit.</p>  <p>d392s902</p> <p>Note: The value must be divided by "10". For example, "-7" is actually "-0.7 mm")</p> | |

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Tables

| | | | |
|------|--------|---|------------------|
| 6507 | | Adj Jog: Binding 2 | Ring Binder D392 |
| 1 | A4 LEF | <p>Shifts the operating position of the rear jog fence. If the correct number is not entered, the stack will not be jogged correctly before binding. [-2 to +2/0/0.1 mm]</p> <p>This SP must be adjusted after replacement of one or more of the following items:</p> <ul style="list-style-type: none"> • Ring binder main board • Binder unit control board • Pre-bind jogger unit | |
| 2 | LT LEF | <p>The correct value to be entered for the adjustment is written in the third line of the label. This label is attached to the front cover of the pre-bind jogger unit.</p>  <p>d392s903</p> <p>Note: The value must be divided by "10". For example, "-3" is actually "-0.3 mm")</p> | |

MAIN SERVICE PROGRAM MODE TABLES

INPUT Check: Ring Binder D392

| | |
|------|--------------------------------|
| 6508 | Input Check: Ring Binder D392 |
| 001 | Entrance Sensor |
| 002 | Transport Sensor |
| 003 | Exit Sensor |
| 004 | Punch Reference Sensor |
| 005 | Binder Delivery Base Sensor |
| 006 | Path JG HP Sensor |
| 007 | Paper Jog HP Sensor |
| 008 | Jog Roller Lift HP Sensor |
| 009 | Punch HP Sensor |
| 010 | Punch Encoder Sensor |
| 011 | Unit Detect Sensor |
| 012 | Punch Size A4/LT Sensor |
| 013 | Punch Type Sensor |
| 014 | Full Sensor |
| 015 | Chad Box Sensor |
| 016 | Output Belt 1 HP Sensor |
| 017 | Output Belt 2 HP Sensor |
| 018 | Output Belt Rotation HP Sensor |
| 019 | Output Unit Entrance Sensor |
| 020 | Booklet Pass Sensor |
| 021 | Stack HP Sensor |
| 022 | Stack Height Sensor 1 |
| 023 | Stack Height Sensor 2 |
| 024 | Stacker Paper Detect Sensor |
| 025 | Tray Detect Sensor |
| 026 | Obstacle Detect Sensor |
| 027 | Book Position Sensor |
| 028 | Binder Unit Sensor |
| 029 | Width Align HP Sensor 1 |
| 030 | Paddle Roller HP Sensor |
| 031 | Clamp HP Sensor |
| 032 | Alignment Pin HP Sensor |
| 033 | Shutter HP Sensor |
| 034 | 50-Sheet Detect Sensor |
| 035 | Paper Thickness Sensor |
| 037 | Paper LE Detect Sensor |
| 038 | Alignment Pin Top Edge Sensor |
| 039 | Width Align HP Sensor 2 |
| 040 | De-curler Motor HP Sensor |
| 041 | Shutter Motor HP Sensor |

| | |
|-----|-----------------------------|
| 042 | Roller Lift Motor HP Sensor |
| 043 | Binder HP Sensor |
| 044 | Bind Timing Sensor |
| 045 | Ring Replace HP Sensor |
| 046 | Ring Replace Timing Sensor |
| 047 | Ring Supply Detect Sensor |
| 048 | Cartridge Reversed Sensor |
| 049 | Ring Near-End Sensor |
| 050 | Ring 50/100 Sensor |
| 051 | Ring A4/LT Sensor |

Output Check: Ring Binder D392

| | |
|------|--------------------------------|
| 6509 | Output Check: Ring Binder D392 |
| 001 | Entrance Motor |
| 002 | Transport Motor |
| 003 | Exit Motor |
| 004 | Path JG Motor |
| 005 | Jog Roller Motor |
| 006 | Side Jogger Motor |
| 007 | After-Punch Output Motor |
| 008 | Jog Roller Lift Motor |
| 009 | Hole Clear Motor |
| 010 | Top Fence SOL |
| 011 | Output Belt 1 Motor |
| 012 | Output Belt 2 Motor |
| 013 | Output Belt Rotation Motor |
| 014 | Stacker Motor |
| 015 | De-curler Motor |
| 016 | Shutter Motor |
| 017 | Paddle Roller Motor |
| 018 | Alignment Pin Motor |
| 019 | Paddle Roller Lift Motor |
| 020 | Width Align Motor 1 |
| 021 | Clamp Motor |
| 022 | Width Align Motor 2 |
| 023 | Roller Motor |
| 024 | Roller Lift Motor |
| 025 | Main Lift Motor |
| 026 | 50/100 Adjustment Motor |

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Tables

Input Check Perfect Binder D391

| | |
|------|---|
| 6526 | Input Check: Perfect Binder D391 |
| 001 | Entrance sensor |
| 002 | Timing Sensor |
| 003 | Jog Sensor HP: Front |
| 004 | Jog Sensor HP: Rear |
| 005 | Jog Sensor HP: Front Large |
| 006 | Jog Sensor HP: Rear Large |
| 007 | Cover Path: Sensor 1 |
| 008 | Cover Path: Sensor 2 |
| 009 | Signature Path: Sensor 1 |
| 010 | Signature Path: Sensor 2 |
| 011 | Insertor Communication Sensor: Before Joining |
| 012 | Switchback Flapper HP Sensor |
| 013 | Switchback Roller HP Sensor |
| 014 | Cover Registration Sensor |
| 015 | Straight-Through Exit Sensor |
| 016 | TE Press Lever HP Sensor |
| 017 | Stack Overflow Sensor |
| 018 | Tray Lower Limit Sensor |
| 019 | Paper Detect Sensor: Front |
| 020 | Paper Detect Sensor: Rear |
| 021 | Cover Guide HP Sensor: Right |
| 022 | Cover Guide HP Sensor: Left |
| 023 | Cover Guide Open Sensor: Right |
| 024 | Cover Guide Open Sensor: Left |
| 025 | Stack Weight Move HP Sensor |
| 026 | Stack Tray HP Sensor |
| 027 | Front Door SW |
| 028 | Top Cover Sensor |
| 029 | Top Cover Switch |
| 030 | Glue Tank Cover Sensor |
| 031 | Temperature Start Switch |
| 032 | Insertor Connect Signal |
| 033 | Glue Tank Empty Sensor |
| 034 | Glue Tank Full Sensor |
| 035 | 24 V Guard 1 |
| 036 | 24 V Guard 2 |
| 037 | Stack Tray Empty Sensor |
| 038 | Front Door Lock Sensor |
| 039 | Power Supply Fan Lock: Left |
| 040 | Sub Grip Upper HP Sensor |
| 041 | Signature Exit Sensor |
| 042 | Size Move HP Sensor |
| 043 | Registration Unit HP Sensor |
| 044 | Post Main Grip Encoder Sensor |
| 045 | 24V 2 Check Signal |
| 046 | Spine Fold Press Sensor: Right |

Main Service Program Mode Tables

| | |
|-----|---|
| 047 | Main Grip HP Sensor: Left |
| 048 | Cover Horizontal Registration Sensor: Small |
| 049 | Cover Horizontal Registration Sensor: Large |
| 050 | Glue Tank HP Sensor |
| 051 | Main Grip HP Sensor |
| 052 | Main Grip Front Encoder Sensor |
| 053 | 24V 3 Check Signal |
| 054 | Main Grip Press Sensor: Left |
| 055 | Main Grip Press Sensor: Small |
| 056 | Sub Grip Paper Sensor |
| 057 | Sub Grip Open Sensor |
| 058 | Sub Grip Close Sensor |
| 059 | Spine Fold Close Sensor: Left |
| 060 | Spine Plate Open Sensor |
| 061 | Spine Plate Closed Sensor |
| 062 | Spine Fold HP Sensor: Left |
| 063 | Spine Fold HP Sensor: Right |
| 064 | Cutter LE Detect Sensor |
| 065 | Main Grip Rotate Enable Sensor |
| 066 | Main Grip Rotate Bind Position Sensor |
| 067 | Main Grip Rotate HP Sensor |
| 068 | Rear Main Grip Open Sensor |
| 069 | Rear Main Grip Close Sensor |
| 070 | Front Main Grip Open Sensor |
| 071 | Front Main Grip Close Sensor |
| 072 | Main Grip Signature Sensor |
| 073 | Thermostat Abnormal |
| 074 | Glue Heater Thermistor |
| 075 | Glue Unit HP Sensor |
| 076 | Book Output Path HP Sensor |
| 077 | Book Output Path Push Sensor |
| 078 | Sub Grip HP Sensor |
| 079 | Signature Main Grip Position Sensor |
| 080 | Signature Fan 2 Lock: Rear |
| 081 | Signature Fan 2 Lock: Front |
| 082 | Signature Fan 1 Lock: Rear |
| 083 | Signature Fan 1 Lock: Front |
| 084 | Power Supply Fan Lock: Center |
| 085 | Power Supply Fan Lock: Rear |
| 086 | Spine Plate Fan Lock: Upper Rear |
| 087 | Spine Plate Fan Lock: Front |
| 088 | Spine Plate Fan Lock: Lower Rear |
| 089 | Spine Plate Fan Lock: Lower Front |
| 090 | Glue Tank Roller: Rotate Detect Sensor |
| 091 | Glue Tank HP Sensor: Front |
| 092 | Glue Supply Fan: Lock 1 |
| 093 | Glue Supply Fan Lock 2 |
| 094 | Book Catch Fence HP Sensor |
| 095 | Output Stack Door Sensor |

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Tables

MAIN SERVICE PROGRAM MODE TABLES

| | |
|-----|------------------------------------|
| 096 | Output Stack Door Switch |
| 097 | Book Buffer Tray HP Sensor |
| 098 | Trim Scrap Buffer HP Sensor: Right |
| 099 | Press HP Sensor |
| 100 | Blade Cradle HP Sensor |
| 101 | Cutter Limit Sensor |
| 102 | Cutter Area Sensor 1 |
| 103 | Entrance Path Sensor |
| 104 | Book Registration Sensor |
| 105 | Cutter Area Sensor 2 |
| 106 | LE Detect Sensor |
| 107 | Grip End Sensor |
| 108 | Book Rotate HP Sensor 1: Right |
| 109 | Press End Sensor |
| 110 | Slide HP Sensor |
| 111 | Grip HP Sensor |
| 112 | Book Rotate HP Sensor 2: Left |
| 113 | Press Limit Sensor |
| 114 | Trim Scrap Box Sensor |
| 115 | Book Arrival Sensor |
| 116 | Book Detect Sensor: Output Tray |
| 117 | Output Tray HP Sensor |
| 118 | Trim Scrap Buffer HP Sensor |
| 119 | Trim Scrap Box Full Sensor |
| 120 | Front Door SW: Center |
| 121 | Front Door SW: 36V |
| 122 | Thrust Plate Sensor |
| 123 | Upper Tray Empty Sensor |
| 124 | Lower Tray Empty Sensor |
| 125 | Upper Tray Pickup Sensor |
| 126 | Lower Tray Pickup Sensor |
| 127 | Inserter Cover Sensor |
| 128 | Lower Tray Paper Out Sensor |
| 129 | Lower Tray Registration Sensor |
| 130 | Upper Tray Registration Sensor |
| 131 | Upper Tray: Large Paper Sensor |
| 132 | Upper Tray: Small Paper Sensor |
| 133 | Lower Tray Lower Limit Sensor |
| 134 | Transport Sensor: Midway |
| 135 | Inserter Unit Sensor |
| 136 | Upper Tray Lower Limit Sensor |
| 137 | Drive Gear Switching Sensor |
| 138 | Transport Sensor 1 |
| 139 | Transport Sensor 2 |
| 140 | Relay Unit Transport Sensor |
| 141 | Relay Unit Front Door Sensor |

Main Service Program Mode Tables

| | |
|------|---|
| 6904 | Punch Function Enabled (Z-Fold) |
| | This SP enables and disables the punch unit when Z-folding is used. [DISABLE] ENABLE |

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

SP7-nnn Data Logs

| | |
|---|---------------------------|
| 7001 | Main Motor Operation Time |
| Displays the total drum rotation time in minutes. | |

| | | |
|--|------------------|------------------|
| 7401 | Total SC Counter | Total SC Counter |
| Displays the total number of SCs logged. | | |

| | |
|---|------------|
| 7403 | SC History |
| Displays the latest 10 service call codes | |
| 001 | Latest |
| 002 | Latest 1 |
| 003 | Latest 2 |
| 004 | Latest 3 |
| 005 | Latest 4 |
| 006 | Latest 5 |
| 007 | Latest 6 |
| 008 | Latest 7 |
| 009 | Latest 8 |
| 010 | Latest 9 |

| | |
|---|-------------------------|
| 7502 | Total Paper Jam Counter |
| Displays the total number of copy jams. | |

| | |
|---|----------------------------|
| 7503 | Total Original Jam Counter |
| Displays the total number of copy jams. | |

| 7504 | Paper Jam Counter by Jam Location – Copier B234/B235/B236/D101/D102/D103 | |
|-----------------------------------|--|--|
| | <p>Displays the list of possible locations where a jam could have occurred. These jams are caused by the failure of a sensor to activate. These are jams when the paper does not activate the sensor.</p> <ul style="list-style-type: none"> • Paper late error: Paper failed to arrive at prescribed time. • Paper lag error: Paper failed to leave at prescribed time. | |
| On Screen | What It Means | |
| 1 At Power On | Jam att Power On | |
| 3 1st Paper Tray | | |
| 4 2nd Paper Tray | | |
| 5 3rd Paper Tray | | |
| 6 4th Paper Tray | | |
| 7 5th Paper Tray | | |
| 8 6th Paper Tray | | |
| 9 7th Paper Tray | | |
| 10 1st Transport Sensor | | |
| 11 2nd Transport Sensor | | |
| 12 3rd Transport Sensor | | |
| 13 4th Transport Sensor | | |
| 14 5th Transport Sensor | | |
| 15 6th Transport Sensor | Paper late error | |
| 16 7th Transport Sensor | | |
| 17 LCT Relay Sensor | | |
| 18 LCT Exit Sensor | | |
| 19 Relay Sensor | | |
| 20 Registration Sensor | | |
| 21 Heat Pipe Exit Sensor | | |
| 22 Exit Sensor | | |
| 23 Duplex Entrance Sensor | | |
| 24 Duplex Transport Sensor 1 | | |
| 25 Duplex Transport Sensor 2 | | |
| 26 Duplex Transport Sensor 3 | | |
| 27 Inverter Tray Paper Sensor | | |
| 28 Registration Sensor | | |
| 53 1st Paper Tray (Stay On) | Paper lag error | |
| 54 2nd Paper Tray (Stay On) | | |
| 55 3rd Paper Tray (Stay On) | | |
| 56 4th Paper Tray (Stay On) | | |
| 57 5th Paper Tray (Stay On) | | |
| 58 6th Paper Tray (Stay On) | | |
| 59 7th Paper Tray (Stay On) | | |
| 60 1st Transport Sensor (Stay On) | | |
| 61 2nd Transport Sensor (Stay On) | | |
| 62 3rd Transport Sensor (Stay On) | | |
| 63 4th Transport Sensor (Stay On) | | |
| 64 5th Transport Sensor (Stay On) | | |
| 65 6th Transport Sensor (Stay On) | | |
| 66 7th Transport Sensor (Stay On) | | |
| 67 LCT Relay Sensor (Stay On) | | |
| 68 LCT Exit Sensor (Stay On) | | |

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

| | |
|----|--------------------------------------|
| 69 | Relay Sensor (Stay On) |
| 70 | Registration Sensor (Stay On) |
| 71 | Heat Pipe Exit Sensor (Stay On) |
| 72 | Exit Sensor (Stay On) |
| 73 | Duplex Entrance Sensor (Stay On) |
| 74 | Duplex Transport Sensor 1 (Stay On) |
| 75 | Duplex Transport Sensor 2 (Stay On) |
| 76 | Duplex Transport Sensor 3 (Stay On) |
| 77 | Inverter Tray Paper Sensor (Stay On) |
| 78 | Registration Sensor (Stay On) |
| 99 | Double-Feed Sensor |

| | | |
|------|--|--|
| 7504 | Paper Jam Loc | Paper Jam Locations – Finisher B830 |
| | | 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. |
| | | <ul style="list-style-type: none"> • Paper late error: Paper failed to arrive at prescribed time. • Paper lag error: Paper failed to leave at prescribed time. |
| | On Screen | What It Means |
| 101 | Entrance Sensor – Fin. | Paper late error |
| 102 | Entrance Sensor – Fin. (Stay On) | Paper lag error |
| 103 | Upper Tray Exit Sensor – Fin | Paper late error |
| 104 | Upper Tray Exit Sensor – Fin (Stay On) | Paper lag error |
| 105 | Shift Tray Exit Sensor – Fin | Paper late error |
| 106 | Shift Tray Exit Sensor – Fin (Stay On) | Paper lag error |
| 107 | Staple Tray Exit Sensor – Fin | Paper late error |
| 108 | Staple Tray Exit Sensor – Fin (Stay On) | Paper lag error |
| 109 | Staple Tray Paper Sensor – Fin | Paper late error |
| 110 | Staple Tray Paper Sensor – Fin (Stay On) | Paper lag error |
| 111 | Stack Feed-Out Belt HP Sensor | |
| 112 | Transport Motors | |
| 113 | Shift Tray Lift Motor | |
| 114 | Jogger Motor | |
| 115 | Shift Motor | |
| 116 | Staple Motor | |
| 117 | Stack Feed-Out Belt Motor | Malfunction |
| 118 | Punch Motor | |
| 119 | Z-Fold Jam – Fin | |
| 120 | Pre-Stack Transport Motor | |
| 121 | Abnormal Signal – Fin | |
| 122 | Upper Stopper Motor Lock | |
| 123 | Not Used | |

| 7504 | Paper Jam Loc | Paper Jam Locations – Cover Interposer B835 |
|------|--|---|
| | 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. | |
| | <ul style="list-style-type: none"> • Paper late error: Paper failed to arrive at prescribed time. • Paper lag error: Paper failed to leave at prescribed time. | |
| | On Screen | What It Means |
| 130 | 1st Paper Feed Sensor – Late | Paper late error |
| 131 | 1st Paper Feed Sensor – Lag | Paper lag error |
| 132 | 2nd Paper Feed Sensor – Late | Paper late error |
| 133 | 2nd Paper Feed Sensor – Lag | Paper lag error |
| 134 | 1st Transport Sensor – Late | Paper late error |
| 135 | 1st Transport Sensor – Lag | Paper lag error |
| 136 | 2nd Transport Sensor – Late | Paper late error |
| 137 | 2nd Transport Sensor – Lag | Paper lag error |
| 138 | 1st Vertical Transport Sensor - Late | Paper late error |
| 139 | 1st Vertical Transport Sensor - Lag | Paper lag error |
| 140 | 2nd Vertical Transport Sensor - Late | Paper late error |
| 141 | 2nd Vertical Transport Sensor - Lag | Paper lag error |
| 142 | Vertical Exit Sensor – Late | Paper late error |
| 143 | Vertical Exit Sensor - Lag | Paper lag error |
| 144 | Entrance Sensor – Late | Paper late error |
| 145 | Entrance Sensor – Lag | Paper lag error |
| 146 | Exit Sensor – Late | Paper late error |
| 147 | Exit Sensor – Lag | Paper lag error |
| 148 | 1st Lift Motor | Malfunction |
| 149 | 2nd Lift Motor | |
| 150 | 1st Pick-Up Motor | |
| 151 | 2nd Pick-Up Motor | |

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

| 7504 | Paper Jam Loc | Paper Jam Locations – Booklet Finisher B836 |
|------|--|---|
| | 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. | |
| | <ul style="list-style-type: none"> • Paper late error: Paper failed to arrive at prescribed time. • Paper lag error: Paper failed to leave at prescribed time. | |
| | On Screen | What It Means |
| 160 | Entrance Sensor – Late | Paper late erro |
| 161 | Entrance Sensor – Lag | Paper lag error |
| 162 | Stapling Tray Paper Sensor – Late | Paper late erro |
| 163 | Stapling Tray Paper Sensor – Lag | Paper lag error |
| 164 | Stack Present Sensor – Late | Paper late erro |
| 165 | Stack Present Sensor – Lag | Paper lag error |
| 166 | Fold Unit Entrance Sensor – Late | Paper late erro |
| 167 | Fold Unit Entrance Sensor – Lag | Paper lag error |
| 168 | Fold Unit Exit Sensor – Late | Paper late erro |
| 169 | Fold Unit Exit Sensor – Lag | Paper lag error |
| 170 | Exit Sensor – Late | Paper late erro |
| 171 | Exit Sensor – Lag | Paper lag error |
| 174 | Jogger Fence | Malfunction |
| 175 | Stack Feed-Out Belt | |
| 176 | Booklet Stapler – Front | |
| 177 | Booklet Stapler – Rear | |
| 178 | Stack Junction Gate Motor | |
| 179 | Clamp Roller Retraction Motor | |
| 180 | Bottom Fence Lift Motor | |
| 181 | Fold Plate Motor | |

| | | |
|------|--|--|
| 7504 | Paper Jam Loc | Paper Jam Locations – Z-Fold Unit B660 |
| | 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. | |
| | • Paper late error: Paper failed to arrive at prescribed time. | |
| | • Paper lag error: Paper failed to leave at prescribed time. | |
| 200 | Feed Sensor – Late | Paper late error |
| 201 | Feed Sensor – Lag | Paper lag error |
| 202 | Fold Timing Sensor – Late | Paper late error |
| 203 | Fold Timing Sensor – Lag | Paper lag error |
| 204 | Leading Edge Sensor – Late | Paper late error |
| 205 | Leading Edge Sensor – Lag | Paper lag error |
| 206 | Upper Stopper HP Sensor – Late | Paper late error |
| 207 | Upper Stopper HP Sensor – Lag | Paper lag error |
| 208 | Upper Exit Sensor 1 – Late | Paper late error |
| 209 | Upper Exit Sensor 1- Lag | Paper lag error |
| 210 | Exit Sensor 2 | Paper late error |
| 211 | Exit Sensor 2 | Paper lag error |
| 212 | Lower Exit Sensor 2 – Late | Paper late error |
| 213 | Lower Exit Sensor 2 – Lag | Paper lag error |
| 214 | Feed Motor | Feed Motor |
| 215 | Lower Stopper Motor | Lower Stopper Motor |
| 216 | Upper Stopper Motor | Upper Stopper Motor |
| 217 | Fan Motor | Fan Motor |

| | |
|------|--|
| 7505 | Original Jam Counter by Jam Location |
| | Displays the list of possible locations where an original jam could have occurred. These jams are caused by the failure of a sensor to activate. |
| 003 | ADF Feed-in Sensor |
| 004 | ADF Feed-out Sensor |

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Tables

| | |
|------|--|
| 7506 | Jam Count by Paper Size |
| | Displays the total number of jams by paper size. |
| 005 | A4 LEF |
| 006 | A5 LEF |
| 014 | B5 LEF |
| 038 | LT LEF |
| 044 | HLT LEF |
| 132 | A3 |
| 133 | A4 SEF |
| 134 | A5 SEF |
| 141 | B4 SEF |
| 142 | B5 SEF |
| 160 | DLT SEF |
| 164 | LG SEF |
| 166 | LT SEF |
| 172 | HLT SEF |
| 255 | Others |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|---------------------|---|
| 7507 | Plotter Jam History | |
| 001 | Last | Displays the copy jam history (the most recent 10 jams) Sample Display: CODE:007 SIZE:05h TOTAL:0000334 DATE:Mon Mar 15 11:44:50 2000 where: CODE is the SP7504-* number (see above). SIZE is the ASAP paper size code in hex. TOTAL is the total jam error count DATE is the date the jams occurred. |
| 002 | Latest 1 | |
| 003 | Latest 2 | |
| 004 | Latest 3 | |
| 005 | Latest 4 | |
| 006 | Latest 5 | |
| 007 | Latest 6 | |
| 008 | Latest 7 | |
| 009 | Latest 8 | |
| 010 | Latest 9 | |

| Size | Code | Size | Code | Size | Code |
|---------|------|--------|------|---------|------|
| A4 (S) | 05 | A3 (L) | 84 | DLT (L) | A0 |
| A5 (S) | 06 | A4 (L) | 85 | LG (L) | A4 |
| B5 (S) | 0E | A5 (L) | 86 | LT (L) | A6 |
| LT (S) | 26 | B4 (L) | 8D | HLT (L) | AC |
| HLT (S) | 2C | B5 (L) | 8E | Others | FF |

| | |
|------|---|
| 7508 | Original Jam History |
| | Displays the original jam history of the transfer unit in groups of 10, starting with the most recent 10 jams. Display contents are as follows: CODE is the SP7-505-* number. SIZE is the paper size code in hex. (See "Paper Size Hex Codes" below.) TOTAL is the total jam error count (SP7-003) DATE is the date the previous jam occurred |
| 001 | Last |
| 002 | Latest 1 |
| 003 | Latest 2 |
| 004 | Latest 3 |
| 005 | Latest 4 |
| 006 | Latest 5 |
| 007 | Latest 6 |
| 008 | Latest 7 |
| 009 | Latest 8 |
| 010 | Latest 9 |

Paper Size Hex Codes

These codes are displayed by SP7507 and SP7508.

| Paper Size | Code (hex) | Paper Size | Code (hex) |
|------------|------------|------------|------------|
| A4 LEF | 05 | B4 SEF | 8D |
| A5 LEF | 06 | B5 SEF | 8E |
| B5 LEF | 0E | DLT SEF | A0 |
| LT LEF | 26 | LG SEF | A4 |
| HLT LEF | 2C | LT SEF | A6 |
| A3 SEF | 84 | HLT SEF | AC |
| A4 SEF | 85 | Others | FF |
| A5 SEF | 86 | | |

Main Service Program Mode Tables

| | | |
|------|--------------------------|--|
| 7617 | Parts PM Counter Display | |
| 001 | Copy Paper Standard | |
| 002 | Original Paper Standard | |

| | | |
|------|------------------------|---|
| 7618 | Parts PM Counter Reset | |
| 001 | Copy Paper Standard | Clears the counter of SP7617- 001. Japan Only |
| 002 | Copy Paper Standard | Clears the counter of SP7617- 002 Japan Only |

| | | |
|------|--|--|
| 7622 | Clear PM Count | |
| | This SP clears the PM counts for the components below. | |
| 001 | Development Unit | |
| 003 | Drum Unit | |
| 005 | Drum Cleaning Unit | |
| 009 | Charge Corona Unit | |
| 014 | Pre-Charge Unit | |
| 017 | Fusing Unit | |

| | | |
|------|--------------------|--|
| 7623 | PM Standard Count | |
| | NIA | |
| 001 | Development Unit | |
| 003 | Drum Unit | |
| 005 | Drum Cleaning Unit | |
| 009 | Charge Corona Unit | |
| 014 | Pre-Charge Unit | |
| 017 | Fusing Unit | |

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MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|---------------------|--|
| 7801 | ROM Version | |
| 001 | System/Copy | Displays the ROM versions for these items. |
| 002 | Engine | |
| 003 | LCDC | |
| 004 | PL | |
| 005 | ADF | |
| 007 | Finisher | |
| 015 | Scanner | |
| 018 | NIB | |
| 020 | Cover Interposer | |
| 022 | BIOS | |
| 100 | Language-1 | |
| 101 | Language-2 | |
| 150 | RPCS | |
| 151 | PS | |
| 152 | RPDL | |
| 153 | R98 | |
| 154 | R16 | |
| 155 | RPGL | |
| 156 | R55 | |
| 157 | RTIFF | |
| 158 | PCL | |
| 159 | PCLXL | |
| 160 | MSIS | |
| 161 | MSIS (Option) | |
| 180 | FONT | |
| 181 | FONT1 | |
| 182 | FONT2 | |
| 183 | FONT3 | |
| 201 | Copy Application | |
| 202 | NetFile Application | |
| 204 | Printer Application | |
| 205 | Scanner Application | |
| 211 | Web System | |
| 212 | WebDocBox | |

| | |
|------|--|
| 7803 | PM Counter Display |
| | Displays the PM counter since the last PM. |

| | |
|------|------------------------|
| 7804 | PM Counter Reset |
| | Resets the PM counter. |

| | | |
|------|---|---|
| 7807 | SC/Jam Counter Reset | |
| | Resets the SC and jam counters. To reset, press [1]. This SP does not reset the jam history counters: SP7-507, SP7-508. | |
| 7826 | MF Error Counter Japan Only | |
| | Displays the number of counts requested of the card/key counter. | |
| 001 | Error Total | A request for the count total failed at power on. This error will occur if the device is installed but disconnected. |
| 002 | Error Staple | The request for a staple count failed at power on. This error will occur if the device is installed but disconnected. |
| 7827 | MF Error Counter Clear Press Execute to reset to 0 the values of SP7826. Japan Only | |
| 7832 | Self-Diagnostic Report Details Push [#] to display a list of error codes. Nothing is displayed if no errors have occurred. | |
| 7836 | Total Memory Size Displays the contents of the memory on the controller board. | |
| 7901 | Assert Info. . DFU | |
| 001 | Filename | Used for debugging. |
| 002 | Line No. | |
| 003 | Value | |
| 7999 | Engine Debug Log Switch DFU This SP sets the debug log switch for one of the settings listed below. [0~100/0/1] | |
| 00 | Rapi Commands | 10 Toner Supply Motor |
| 01 | Queue Check | 11 Semaphore |
| 02 | Plotter Queue | 12 Registration REP |
| 03 | Scanner Queue | 13 Exit REP |
| 04 | Block I/F | 14 Transfer SC |
| 05 | IPU I/F | 15 Drum Charge SC |
| 06 | ASAP I/F* ¹ | 16 Charge Grid SC |
| 07 | Task | 17 Development Bias SC |
| 08 | Memory Pool | 18 LCT (B832) Tray Lift |
| 09 | Watchdog Cycle | 19 Serial Signal Send/Receive |
| | * ¹ : Finisher, ADF, MCU | |

MAIN SERVICE PROGRAM MODE TABLES

SP8-nnn: Data Log

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

NOTE: This machine does not have a fax function.

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

Specifically, the following questions can be answered:

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

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

| PREFIXES | WHAT IT MEANS | |
|-----------------|---|--|
| T: | Total: (Grand Total). | Grand total of the items counted for all applications (C, F, P, etc.).. |
| C: | Copy application. | |
| P: | Print application. | |
| S: | Scan application. | |
| L: | Local storage (document server) | Totals (jobs, pages, etc.) for the document server. The L: counters work differently case by case. Sometimes, they count jobs/pages stored on the document server; this can be in document server mode (from the document server window), or from another mode, such as from a printer driver or by pressing the Store File button in the Copy mode window. Sometimes, they include occasions when the user uses a file that is already on the document server. Each counter will be discussed case by case. |
| O: | Other applications (external network applications, for example) | Refers to network applications such as Web Image Monitor. Utilities developed with the SDK (Software Development Kit) will also be counted with this group in the future. |

The Group 8 SP codes are limited to 17 characters, forced by the necessity of displaying them on the small LCDs of printers and faxes that also use these SPs. Read over the list of abbreviations below and refer to it again if you see the name of an SP that you do not understand.

Key for Abbreviations

| ABBREVIATION | WHAT IT MEANS |
|--------------|--|
| / | "By", e.g. "T:Jobs/Apl" = Total Jobs "by" Application |
| > | More (2> "2 or more", 4> "4 or more" |
| AddBook | Address Book |
| Apl | Application |
| B/W | Black & White |
| Bk | Black |
| C | Cyan |
| ColCr | Color Create |
| ColMode | Color Mode |
| Comb | Combine |
| Comp | Compression |
| Deliv | Delivery |
| DesApl | Designated Application. The application (Copy, Fax, Scan, Print) used to store the job on the document server, for example. |
| Dev Counter | Development Count, no. of pages developed. |
| Dup, Duplex | Duplex, printing on both sides |
| Emul | Emulation |
| FC | Full Color |
| FIN | Post-print processing, i.e. finishing (punching, stapling, etc.) |
| Full Bleed | No Margins |
| GenCopy | Generation Copy Mode |
| GPC | Get Print Counter. For jobs 10 pages or less, this counter does not count up. For jobs larger than 10 pages, this counter counts up by the number that is in excess of 10 (e.g., for an 11-page job, the counter counts up 11-10 =1) |
| IFax | Internet Fax |
| ImgEdt | Image Edit performed on the original with the copier GUI, e.g. border removal, adding stamps, page numbers, etc. |
| K | Black (YMCK) |
| LS | Local Storage. Refers to the document server. |
| LSize | Large (paper) Size |
| Mag | Magnification |
| MC | One color (monochrome) |
| NRS | New Remote Service, which allows a service center to monitor machines remotely. "NRS" is used overseas, "CSS" is used in Japan. |
| Org | Original for scanning |
| OrgJam | Original Jam |
| Palm 2 | Print Job Manager/Desktop Editor: A pair of utilities that allows print jobs to be distributed evenly among the printers on the network, and allows files to be moved around, combined, and converted to different formats.. |
| PC | Personal Computer |
| PGS | Pages. A page is the total scanned surface of the original. Duplex pages count as two pages, and A3 simplex count as two pages if the A3/DLT counter SP is switched ON. |
| PJob | Print Jobs |

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MAIN SERVICE PROGRAM MODE TABLES

| ABBREVIATION | WHAT IT MEANS |
|---------------------|---|
| Ppr | Paper |
| PrtJam | Printer (plotter) Jam |
| PrtPGS | Print Pages |
| R | Red (Toner Remaining). Applies to the wide format model A2 only. This machine is under development and currently not available. |
| Rez | Resolution |
| SC | Service Code (Error SC code displayed) |
| Scn | Scan |
| Sim, Simplex | Simplex, printing on 1 side. |
| S-to-Email | Scan-to-E-mail |
| SMC | SMC report printed with SP5990. All of the Group 8 counters are recorded in the SMC report. |
| Svr | Server |
| TonEnd | Toner End |
| TonSave | Toner Save |
| TXJob | Send, Transmission |
| YMC | Yellow, Magenta, Cyan |
| YMCK | Yellow, Magenta, Cyan, Black |

NOTE: All of the Group 8 SPs are reset with SP5 801 1 Memory All Clear, or the Counter Reset SP7 808.

| | | |
|------|--------------|--|
| 8001 | T:Total Jobs | These SPs count the number of times each application is used to do a job. [0-9999999 / 0 / 1] Note: The L: counter is the total number of times the other applications are used to send a job to the document server, plus the number of times a file already on the document server is used. |
| 8002 | C:Total Jobs | |
| 8004 | P:Total Jobs | |
| 8005 | S:Total Jobs | |
| 8006 | L:Total Jobs | |

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

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MAIN SERVICE PROGRAM MODE TABLES

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

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

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

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

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

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

| | | |
|------|--------------|---|
| 8041 | T:TX Jobs/LS | These SPs count the applications that stored files on the document server that were later accessed for transmission over the telephone line or over a network (attached to an e-mail). [0~9999999/ 0 / 1] Note: Jobs merged for sending are counted separately. The L: counter counts the number of jobs scanned from within the document server mode screen at the operation panel. |
| 8042 | C:TX Jobs/LS | |
| 8044 | P:TX Jobs/LS | |
| 8045 | S:TX Jobs/LS | |
| 8046 | L:TX Jobs/LS | |
| 8047 | O:TX Jobs/LS | |

- When a stored copy job is sent from the document server, the C: counter increments.
- When images stored on the document server by a network application or Palm2 are sent as an e-mail, the O: counter increments.

| | | |
|------|------------------|---|
| 8051 | T:TX Jobs/DesApl | These SPs count the applications used to send files from the document server over the telephone line or over a network (attached to an e-mail). Jobs merged for sending are counted separately. [0~9999999/ 0 / 1] The L: counter counts the number of jobs sent from within the document server mode screen at the operation panel. |
| 8052 | C:TX Jobs/DesApl | |
| 8054 | P:TX Jobs/DesApl | |
| 8055 | S:TX Jobs/DesApl | |
| 8056 | L:TX Jobs/DesApl | |
| 8057 | O:TX Jobs/DesApl | |

- If the send is started from Desk Top Binder or Web Image Monitor, for example, then the O: counter increments.

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|--------|--|---|
| 8061 | T:FIN Jobs | [0~9999999/ 0 / 1] |
| | These SPs total the finishing methods. The finishing method is specified by the application. | |
| 8062 | C:FIN Jobs | [0~9999999/ 0 / 1] |
| | These SPs total finishing methods for copy jobs only. The finishing method is specified by the application. | |
| 8064 | P:FIN Jobs | [0~9999999/ 0 / 1] |
| | These SPs total finishing methods for print jobs only. The finishing method is specified by the application. | |
| 8065 | S:FIN Jobs | [0~9999999/ 0 / 1] |
| | These SPs total finishing methods for scan jobs only. The finishing method is specified by the application. Note: Finishing features for scan jobs are not available at this time. | |
| 8066 | L:FIN Jobs | [0~9999999/ 0 / 1] |
| | These SPs total finishing methods for jobs output from within the document server mode screen at the operation panel. The finishing method is specified from the print window within document server mode. | |
| 8067 | O:FIN Jobs | [0~9999999/ 0 / 1] |
| | These SPs total finishing methods for jobs executed by an external application, over the network. The finishing method is specified by the application. | |
| 806x 1 | Sort | Number of jobs started in Sort mode. When a stored copy job is set for Sort and then stored on the document server, the L: counter increments. (See SP8066 1) |
| 806x 2 | Stack | Number of jobs started out of Sort mode. |
| 806x 3 | Staple | Number of jobs started in Staple mode. |
| 806x 4 | Booklet | Number of jobs started in Booklet mode. If the machine is in staple mode, the Staple counter also increments. |
| 806x 5 | Z-Fold | Number of jobs started In any mode other than the Booklet mode and set for folding (Z-fold). |
| 806x 6 | Punch | Number of jobs started in Punch mode. When Punch is set for a print job, the P: counter increments. (See SP8064 6.) |
| 806x 7 | Other | Reserved. Not used. |

| | | | |
|---|-------------|----------------------------|----------------|
| 8071 | T:Jobs/PGS | [0~9999999/ 0 / 1] | |
| These SPs count the number of jobs broken down by the number of pages in the job, regardless of which application was used. | | | |
| 8072 | C:Jobs/PGS | [0~9999999/ 0 / 1] | |
| These SPs count and calculate the number of copy jobs by size based on the number of pages in the job. | | | |
| 8074 | P:Jobs/PGS | [0~9999999/ 0 / 1] | |
| These SPs count and calculate the number of print jobs by size based on the number of pages in the job. | | | |
| 8075 | S:Jobs/PGS | [0~9999999/ 0 / 1] | |
| These SPs count and calculate the number of scan jobs by size based on the number of pages in the job. | | | |
| 8076 | L:Jobs/PGS | [0~9999999/ 0 / 1] | |
| These SPs count and calculate the number of jobs printed from within the document server mode window at the operation panel, by the number of pages in the job. | | | |
| 8077 | O:Jobs/PGS | [0~9999999/ 0 / 1] | |
| These SPs count and calculate the number of "Other" application jobs (Web Image Monitor, Palm 2, etc.) by size based on the number of pages in the job. | | | |
| 807x 1 | 1 Page | 807x 8 | 21~50 Pages |
| 807x 2 | 2 Pages | 807x 9 | 51~100 Pages |
| 807x 3 | 3 Pages | 807x 10 | 101~300 Pages |
| 807x 4 | 4 Pages | 807x 11 | 301~500 Pages |
| 807x 5 | 5 Pages | 807x 12 | 501~700 Pages |
| 807x 6 | 6~10 Pages | 807x 13 | 701~1000 Pages |
| 807x 7 | 11~20 Pages | 807x 14 | 1001~ Pages |

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- For example: When a copy job stored on the document server is printed in document server mode, the appropriate L: counter (SP8076 0xx) increments.
- Interrupted jobs (paper jam, etc.) are counted, even though they do not finish.
- If a job is paused and re-started, it counts as one job.
- If the finisher runs out of staples during a print and staple job, then the job is counted at the time the error occurs.
- For copy jobs (SP 8072) and scan jobs (SP 8075), the total is calculated by multiplying the number of sets of copies by the number of pages scanned. (One duplex page counts as 2.)
- The first test print and subsequent test prints to adjust settings are added to the number of pages of the copy job (SP 8072).
- When printing the first page of a job from within the document server screen, the page is counted.

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|--|-------------------|----------------------------|
| 8131 | T:S-to-Email Jobs | [0~9999999/ 0 / 1] |
| These SPs count the total number of jobs scanned and attached to an e-mail, regardless of whether the document server was used or not. | | |
| 8135 | S:S-to-Email Jobs | |
| These SPs count the number of jobs scanned and attached to an e-mail, without storing the original on the document server. | | |

- These counters count jobs, not pages.
- If the job is stored on the document server, after the job is stored it is determined to be color or black-and-white then counted.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- If several jobs are combined for sending to the Scan Router, Scan-to-Email, or Scan-to-PC, or if one job is sent to more than one destination, each send is counted separately. For example, if the same document is sent by Scan-to-Email as well as Scan-to-PC, then it is counted twice (once for Scan-to-Email and once for Scan-to-PC).

| | | |
|--|------------------|----------------------------|
| 8141 | T:Deliv Jobs/Svr | [0~9999999/ 0 / 1] |
| These SPs count the total number of jobs scanned and sent to a Scan Router server. | | |
| 8145 | S:Deliv Jobs/Svr | |
| These SPs count the number of jobs scanned in scanner mode and sent to a Scan Router server. | | |

- These counters count jobs, not pages.
- The jobs are counted even though the arrival and reception of the jobs at the Scan Router server cannot be confirmed.
- If even one color image is mixed with black-and-white images, then the job is counted as a "Color" job.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be delivered, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

| | | |
|--|-----------------|---------------------------|
| 8151 | T:Deliv Jobs/PC | [0~9999999/ 0 / 1] |
| These SPs count the total number of jobs scanned and sent to a folder on a PC (Scan-to-PC). Note: At the present time, 8151 and 8155 perform identical counts. | | |
| 8155 | S:Deliv Jobs/PC | |
| These SPs count the total number of jobs scanned and sent with Scan-to-PC. | | |

- These counters count jobs, not pages.
- If the job is cancelled during scanning, it is not counted.
- If the job is cancelled while it is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

| | | |
|------|------------------|--|
| 8191 | T:Total Scan PGS | These SPs count the pages scanned by each application that uses the scanner to scan images. [0~9999999/ 0 / 1] |
| 8192 | C:Total Scan PGS | |
| 8195 | S:Total Scan PGS | |
| 8196 | L:Total Scan PGS | |

- SP 8191 to 8196 count the number of scanned sides of pages, not the number of physical pages.
- These counters do not count reading user stamp data, or reading color charts to adjust color.
- Previews done with a scanner driver are not counted.
- A count is done only after all images of a job have been scanned.
- Scans made in SP mode are not counted.

Examples:

- If 3 B5 pages and 1 A3 page are scanned with the scanner application but not stored, the S: count is 4.
- If both sides of 3 A4 sheets are copied and stored to the document server using the Store File button in the Copy mode window, the C: count is 6 and the L: count is 6.
- If both sides of 3 A4 sheets are copied but not stored, the C: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|---|----------------------------|
| 8201 | T:LSize Scan PGS | [0~9999999/ 0 / 1] |
| | These SPs count the total number of large pages input with the scanner for scan and copy jobs. Note: These counters are displayed in the SMC Report, and in the User Tools display. | |
| 8205 | S:LSize Scan PGS | [0~9999999/ 0 / 1] |
| | These SPs count the total number of large pages input with the scanner for scan jobs only. Note: These counters are displayed in the SMC Report, and in the User Tools display.. | |

| | | |
|------|---------------|--|
| 8211 | T:Scan PGS/LS | These SPs count the number of pages scanned into the document server . [0~9999999/ 0 / 1] |
| 8212 | C:Scan PGS/LS | |
| 8215 | S:Scan PGS/LS | |
| 8216 | L:Scan PGS/LS | The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen |

- Reading user stamp data is not counted.
- If a job is cancelled, the pages output as far as the cancellation are counted.
- If the scanner application scans and stores 3 B5 sheets and 1 A4 sheet, the S: count is 4.
- If pages are copied but not stored on the document server, these counters do not change.
- If both sides of 3 A4 sheets are copied and stored to the document server, the C: count is 6 and the L: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.

| | | |
|--------|---|--|
| 8221 | ADF Org Feeds [0~9999999/ 0 / 1] | |
| | These SPs count the number of pages fed through the ADF for front and back side scanning. | |
| 8221 1 | Front | Number of front sides fed for scanning: With an ADF that can scan both sides simultaneously, the Front side count is the same as the number of pages fed for either simplex or duplex scanning. With an ADF that cannot scan both sides simultaneously, the Front side count is the same as the number of pages fed for duplex front side scanning. (The front side is determined by which side the user loads face up.) |
| 8221 2 | Back | Number of rear sides fed for scanning: With an ADF that can scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex scanning. With an ADF that cannot scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex rear-side scanning. |

- When 1 sheet is fed for duplex scanning the Front count is 1 and the Back count is 1.
- If a jam occurs during the job, recovery processing is not counted to avoid double counting. Also, the pages are not counted if the jam occurs before the first sheet is output.

| | | |
|--------|---|---|
| 8231 | Scan PGS/Mode [0~9999999/ 0 / 1] | |
| | These SPs count the number of pages scanned by each ADF mode to determine the work load on the ADF. | |
| 8231 1 | Large Volume | Selectable. Large copy jobs that cannot be loaded in the ADF at one time. |
| 8231 2 | SADF | Selectable. Feeding pages one by one through the ADF. |
| 8231 3 | Mixed Size | Selectable. Select "Mixed Sizes" on the operation panel. |
| 8231 4 | Custom Size | Selectable. Originals of non-standard size. |
| 8231 5 | Platen | Book mode. Raising the ADF and placing the original directly on the platen. |

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- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.
- If the user selects "Mixed Sizes" for copying in the platen mode, the Mixed Size count is enabled.
- In the SADF mode if the user copies 1 page in platen mode and then copies 2 pages with SADF, the Platen count is 1 and the SADF count is 3.

MAIN SERVICE PROGRAM MODE TABLES

| 8241 | T:Scan PGS/Org | [0~9999999/ 0 / 1] | | | |
|-------------------------|--|----------------------------|-------------|-------------|-------------|
| | These SPs count the total number of scanned pages by original type for all jobs, regardless of which application was used. | | | | |
| 8242 | C:Scan PGS/Org | [0~9999999/ 0 / 1] | | | |
| | These SPs count the number of pages scanned by original type for Copy jobs. | | | | |
| 8245 | S:Scan PGS/Org | [0~9999999/ 0 / 1] | | | |
| | These SPs count the number of pages scanned by original type for Scan jobs. | | | | |
| 8246 | L:Scan PGS/Org | [0~9999999/ 0 / 1] | | | |
| | These SPs count the number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen | | | | |
| | 8241 | 8242 | 8243 | 8245 | 8246 |
| 824x 1: Text | Yes | Yes | Yes | Yes | Yes |
| 824x 2: Text/Photo | Yes | Yes | Yes | Yes | Yes |
| 824x 3: Photo | Yes | Yes | Yes | Yes | Yes |
| 824x 4: GenCopy, Pale | Yes | Yes | No | Yes | Yes |
| 824x 5: Map | Yes | Yes | No | Yes | Yes |
| 824x 6: Normal/Detail | Yes | No | Yes | No | No |
| 824x 7: Fine/Super Fine | Yes | No | Yes | No | No |
| 824x 8: Binary | Yes | No | No | Yes | No |
| 824x 9: Grayscale | Yes | No | No | Yes | No |

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.

| | | |
|------|-------------------|--|
| 8251 | T:Scan PGS/ImgEdt | These SPs show how many times Image Edit features have been selected at the operation panel for each application. Some examples of these editing features are: <ul style="list-style-type: none"> • Erase> Border • Erase> Center • Image Repeat • Centering • Positive/Negative [0~9999999/ 0 / 1] Note: The count totals the number of times the edit features have been used. A detailed breakdown of exactly which features have been used is not given. |
| 8252 | C:Scan PGS/ImgEdt | |
| 8256 | L:Scan PGS/ImgEdt | |
| 8257 | O:Scan PGS/ImgEdt | |

The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen.

| | | |
|------|------------------|---|
| 8281 | T:Scan PGS/TWAIN | These SPs count the number of pages scanned using a TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions. [0~99999999/ 0 / 1] Note: At the present time, these counters perform identical counts. |
| 8285 | S:Scan PGS/TWAIN | |

| | | |
|------|------------------|--|
| 8291 | T:Scan PGS/Stamp | These SPs count the number of pages stamped with the stamp in the ADF unit. [0~99999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen |
| 8295 | S:Scan PGS/Stamp | |
| 8296 | L:Scan PGS/Stamp | |

| | | |
|--|------------------|-----------------------------|
| 8301 | T:Scan PGS/Size | [0~99999999/ 0 / 1] |
| These SPs count by size the total number of pages scanned by all applications. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-441]. | | |
| 8302 | C:Scan PGS/Size | [0~99999999/ 0 / 1] |
| These SPs count by size the total number of pages scanned by the Copy application. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-442]. | | |
| 8305 | S:Scan PGS/Size | [0~99999999/ 0 / 1] |
| These SPs count by size the total number of pages scanned by the Scan application. Use these totals to compare original page size (scanning) and output page size [SP 8-445]. | | |
| 8306 | L:Scan PGS/Size | [0~99999999/ 0 / 1] |
| These SPs count by size the total number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen. Use these totals to compare original page size (scanning) and output page size [SP 8-446]. | | |
| 830x 1 | A3 | |
| 830x 2 | A4 | |
| 830x 3 | A5 | |
| 830x 4 | B4 | |
| 830x 5 | B5 | |
| 830x 6 | DLT | |
| 830x 7 | LG | |
| 830x 8 | LT | |
| 830x 9 | HLT | |
| 830x 10 | Full Bleed | |
| 830x 254 | Other (Standard) | |
| 830x 255 | Other (Custom) | |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|--------|--|-----------------------------|
| 8311 | T:Scan PGS/Rez | [0~9999999 / 0 / 1] |
| | These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings. | |
| 8315 | S:Scan PGS/Rez | [0~9999999 / 0 / 1] |
| | These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings. Note: At the present time, 8311 and 8315 perform identical counts. | |
| 831x 1 | 1200dpi ~ | |
| 831x 2 | 600dpi~1199dpi | |
| 831x 3 | 400dpi~599dpi | |
| 831x 4 | 200dpi~399dpi | |
| 831x 5 | ~199dpi | |

- Copy resolution settings are fixed so they are not counted.

| | | |
|------|----------------|---|
| 8381 | T:Total PrtPGS | These SPs count the number of pages printed by the customer. The counter for the application used for storing the pages increments. [0~9999999 / 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter. |
| 8382 | C:Total PrtPGS | |
| 8384 | P:Total PrtPGS | |
| 8385 | S:Total PrtPGS | |
| 8386 | L:Total PrtPGS | |
| 8387 | O:Total PrtPGS | |

- When the A3/DLT double count function is switched on with SP5104, 1 A3/DLT page is counted as 2.
- When several documents are merged for a print job, the number of pages stored are counted for the application that stored them.
- These counters are used primarily to calculate charges on use of the machine, so the following pages are not counted as printed pages:
 - Blank pages in a duplex printing job.
 - Blank pages inserted as document covers, chapter title sheets, and slip sheets.
 - Reports printed to confirm counts.
 - All reports done in the service mode (service summaries, engine maintenance reports, etc.)
 - Test prints for machine image adjustment.
 - Error notification reports.
 - Partially printed pages as the result of a copier jam.

| | | |
|--|--------------|---------------------------|
| 8391 | LSize PrtPGS | [0~9999999/ 0 / 1] |
| These SPs count pages printed on paper sizes A3/DLT and larger. Note: In addition to being displayed in the SMC Report, these counters are also displayed in the User Tools display on the copy machine. | | |

| | | |
|------|-------------|---|
| 8401 | T:PrtPGS/LS | These SPs count the number of pages printed from the document server. The counter for the application used to print the pages is incremented. The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel. [0~9999999/ 0 / 1] |
| 8402 | C:PrtPGS/LS | |
| 8404 | P:PrtPGS/LS | |
| 8405 | S:PrtPGS/LS | |
| 8406 | L:PrtPGS/LS | |

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the L: count.

| | | |
|------|---------------|---|
| 8411 | Prints/Duplex | This SP counts the amount of paper (front/back counted as 1 page) used for duplex printing. Last pages printed only on one side are not counted. [0~9999999/ 0 / 1] |
|------|---------------|---|

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|---------|--|----------------------------|
| 8421 | T:PrtPGS/Dup Comb | [0~9999999/ 0 / 1] |
| | These SPs count by binding and combine, and n-Up settings the number of pages processed for printing. This is the total for all applications. | |
| 8422 | C:PrtPGS/Dup Comb | [0~9999999/ 0 / 1] |
| | These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the copier application. | |
| 8424 | P:PrtPGS/Dup Comb | [0~9999999/ 0 / 1] |
| | These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the printer application. | |
| 8425 | S:PrtPGS/Dup Comb | [0~9999999/ 0 / 1] |
| | These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the scanner application. | |
| 8426 | L:PrtPGS/Dup Comb | [0~9999999/ 0 / 1] |
| | These SPs count by binding and combine, and n-Up settings the number of pages processed for printing from within the document server mode window at the operation panel. | |
| 8427 | O:PrtPGS/Dup Comb | [0~9999999/ 0 / 1] |
| | These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by Other applications | |
| 842x 1 | Simplex> Duplex | |
| 842x 2 | Duplex> Duplex | |
| 842x 3 | Book> Duplex | |
| 842x 4 | Simplex Combine | |
| 842x 5 | Duplex Combine | |
| 842x 6 | 2> | 2 pages on 1 side (2-Up) |
| 842x 7 | 4> | 4 pages on 1 side (4-Up) |
| 842x 8 | 6> | 6 pages on 1 side (6-Up) |
| 842x 9 | 8> | 8 pages on 1 side (8-Up) |
| 842x 10 | 9> | 9 pages on 1 side (9-Up) |
| 842x 11 | 16> | 16 pages on 1 side (16-Up) |
| 842x 12 | Booklet | |
| 842x 13 | Magazine | |

- These counts (SP8421 to SP8427) are especially useful for customers who need to improve their compliance with ISO standards for the reduction of paper consumption.
- Pages that are only partially printed with the n-Up functions are counted as 1 page.

- Here is a summary of how the counters work for Booklet and Magazine modes:

| Booklet | |
|----------------|-------|
| Original Pages | Count |
| 1 | 1 |
| 2 | 2 |
| 3 | 2 |
| 4 | 2 |
| 5 | 3 |
| 6 | 4 |
| 7 | 4 |
| 8 | 4 |

| Magazine | |
|-----------------|-------|
| Original Pages | Count |
| 1 | 1 |
| 2 | 2 |
| 3 | 2 |
| 4 | 2 |
| 5 | 4 |
| 6 | 4 |
| 7 | 4 |
| 8 | 4 |

| | | |
|--------|--|---|
| 8431 | T:PrtPGS/ImgEdt | [0~9999999/ 0 / 1] |
| | These SPs count the total number of pages output with the three features below, regardless of which application was used. | |
| 8432 | C:PrtPGS/ImgEdt | [0~9999999/ 0 / 1] |
| | These SPs count the total number of pages output with the three features below with the copy application. | |
| 8434 | P:PrtPGS/ImgEdt | [0~9999999/ 0 / 1] |
| | These SPs count the total number of pages output with the three features below with the print application. | |
| 8436 | L:PrtPGS/ImgEdt | [0~9999999/ 0 / 1] |
| | These SPs count the total number of pages output from within the document server mode window at the operation panel with the three features below. | |
| 8437 | O:PrtPGS/ImgEdt | [0~9999999/ 0 / 1] |
| | These SPs count the total number of pages output with the three features below with Other applications. | |
| 843x 1 | Cover/Slip Sheet | Total number of covers or slip sheets inserted. The count for a cover printed on both sides counts 2. |
| 843x 2 | Series/Book | The number of pages printed in series (one side) or printed as a book with booklet right/left pagination. |
| 843x 3 | User Stamp | The number of pages printed where stamps were applied, including page numbering and date stamping. |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|----------|---|---------------------------|
| 8441 | T:PrtPGS/Ppr Size | [0~9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by all applications. | |
| 8442 | C:PrtPGS/Ppr Size | [0~9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by the copy application. | |
| 8444 | P:PrtPGS/Ppr Size | [0~9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by the printer application. | |
| 8445 | S:PrtPGS/Ppr Size | [0~9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by the scanner application. | |
| 8446 | L:PrtPGS/Ppr Size | [0~9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed from within the document server mode window at the operation panel. | |
| 8447 | O:PrtPGS/Ppr Size | [0~9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by Other applications. | |
| 844x 1 | A3 | |
| 844x 2 | A4 | |
| 844x 3 | A5 | |
| 844x 4 | B4 | |
| 844x 5 | B5 | |
| 844x 6 | DLT | |
| 844x 7 | LG | |
| 844x 8 | LT | |
| 844x 9 | HLT | |
| 844x 10 | Full Bleed | |
| 844x 254 | Other (Standard) | |
| 844x 255 | Other (Custom) | |

- These counters do not distinguish between LEF and SEF.

| | | |
|---------|--|----------------------------|
| 8451 | PrtPGS/Ppr Tray | [0~9999999/ 0 / 1] |
| | These SPs count the number of sheets fed from each paper feed station. | |
| 8451 1 | Bypass | Bypass Tray |
| 8451 2 | Tray 1 | Copier |
| 8451 3 | Tray 2 | Copier |
| 8451 4 | Tray 3 | Paper Tray Unit (Option) |
| 8451 5 | Tray 4 | Paper Tray Unit (Option) |
| 8451 6 | Tray 5 | LCT (Option) |
| 8451 7 | Tray 6 | Currently not used. |
| 8451 8 | Tray 7 | Currently not used. |
| 8451 9 | Tray 8 | Currently not used. |
| 8451 10 | Tray 9 | Currently not used. |

| | | |
|--------|--|----------------------------|
| 8461 | T:PrtPGS/Ppr Type | [0~9999999/ 0 / 1] |
| | These SPs count by paper type the number pages printed by all applications. <ul style="list-style-type: none"> • These counters are not the same as the PM counter. The PM counter is based on feed timing to accurately measure the service life of the feed rollers. However, these counts are based on output timing. • Blank sheets (covers, chapter covers, slip sheets) are also counted. • During duplex printing, pages printed on both sides count as 1, and a page printed on one side counts as 1. | |
| 8462 | C:PrtPGS/Ppr Type | [0~9999999/ 0 / 1] |
| | These SPs count by paper type the number pages printed by the copy application. | |
| 8464 | P:PrtPGS/Ppr Type | [0~9999999/ 0 / 1] |
| | These SPs count by paper type the number pages printed by the printer application. | |
| 8466 | L:PrtPGS/Ppr Type | [0~9999999/ 0 / 1] |
| | These SPs count by paper type the number pages printed from within the document server mode window at the operation panel. | |
| 846x 1 | Normal | |
| 846x 2 | Recycled | |
| 846x 3 | Special | |
| 846x 4 | Thick | |
| 846x 5 | Normal (Back) | |
| 846x 6 | Thick (Back) | |
| 846x 7 | OHP | |
| 846x 8 | Other | |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|--------|--|---------------------|
| 8471 | PrtPGS/Mag | [0~9999999 / 0 / 1] |
| | These SPs count by magnification rate the number of pages printed. | |
| 8471 1 | ~49% | |
| 8471 2 | 50%~99% | |
| 8471 3 | 100% | |
| 8471 4 | 101%~200% | |
| 8471 5 | 201% ~ | |

- Counts are done for magnification adjusted for pages, not only on the operation panel but performed remotely with an external network application capable of performing magnification adjustment as well.
- Magnification adjustments done with printer drivers with PC applications such as Excel are also counted.
- Magnification adjustments done for adjustments after they have been stored on the document server are not counted.
- Magnification adjustments performed automatically during Auto Reduce/Enlarge copying are counted.
- The magnification rates of blank cover sheets, slip sheets, etc. are automatically assigned a rate of 100%.

| | |
|------|---|
| 8481 | T:PrtPGS/TonSave |
| 8484 | P:PrtPGS/TonSave |
| | These SPs count the number of pages printed with the Toner Save feature switched on. Note: These SPs return the same results as this SP is limited to the Print application. [0~9999999 / 0 / 1] |

| | | |
|---------|--|---------------------------|
| 8511 | T:PrtPGS/Emul | [0~9999999/ 0 / 1] |
| | These SPs count by printer emulation mode the total number of pages printed. | |
| 8514 | P:PrtPGS/Emul | [0~9999999/ 0 / 1] |
| | These SPs count by printer emulation mode the total number of pages printed. | |
| 8514 1 | RPCS | |
| 8514 2 | RPDL | |
| 8514 3 | PS3 | |
| 8514 4 | R98 | |
| 8514 5 | R16 | |
| 8514 6 | GL/GL2 | |
| 8514 7 | R55 | |
| 8514 8 | RTIFF | |
| 8514 9 | PDF | |
| 8514 10 | PCL5e/5c | |
| 8514 11 | PCL XL | |
| 8514 12 | IPDL-C | |
| 8514 13 | BM-Links | Japan Only |
| 8514 14 | Other | |

- SP8511 and SP8514 return the same results as they are both limited to the Print application.
- Print jobs output to the document server are not counted.

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Tables

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|--------|---|---------------------------|
| 8521 | T:PrtPGS/FIN | [0~9999999/ 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by all applications. | |
| 8522 | C:PrtPGS/FIN | [0~9999999/ 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Copy application. | |
| 8524 | P:PrtPGS/FIN | [0~9999999/ 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Print application. | |
| 8525 | S:PrtPGS/FIN | [0~9999999/ 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Scanner application. | |
| 8526 | L:PrtPGS/FIN | [0~9999999/ 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed from within the document server mode window at the operation panel. | |
| 852x 1 | Sort | |
| 852x 2 | Stack | |
| 852x 3 | Staple | |
| 852x 4 | Booklet | |
| 852x 5 | Z-Fold | |
| 852x 6 | Punch | |
| 852x 7 | Other | |

- NOTE:**
- 1) If stapling is selected for finishing and the stack is too large for stapling, the unstapled pages are still counted.
 - 2) The counts for staple finishing are based on output to the staple tray, so jam recoveries are counted.

| | | |
|------|---------|--|
| 8531 | Staples | This SP counts the amount of staples used by the machine. [0~9999999/ 0 / 1] |
|------|---------|--|

| | | |
|------|----------------|-------------------|
| 8541 | T: GPC Counter | Japan Only |
| 8544 | C: GPC Counter | |

| | | |
|------|--|---------------------------|
| 8581 | T:Counter | [0~9999999/ 0 / 1] |
| | These SPs count the total output broken down by color output, regardless of the application used. In addition to being displayed in the SMC Report, these counters are also displayed in the User Tools display on the copy machine. | |

Note: This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.

| | | |
|--------|---|---------------------------|
| 8591 | O:Counter | [0~9999999/ 0 / 1] |
| | These SPs count the totals for A3/DLT paper use, number of duplex pages printed, and the number of staples used. These totals are for Other (O:) applications only. | |
| 8591 1 | A3/DLT | |
| 8591 2 | Duplex | |
| 8591 3 | Staple | |

| | | |
|------|--|---------------------------|
| 8651 | T:S-to-Email PGS | [0~9999999/ 0 / 1] |
| | These SPs count by color mode the total number of pages attached to an e-mail for both the Scan and document server applications. Note: This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only. | |
| 8655 | S:S-to-Email PGS | [0~9999999/ 0 / 1] |

NOTE:

- The count for B/W and Color pages is done after the document is stored on the HDD. If the job is cancelled before it is stored, the pages are not counted.
- If Scan-to-Email is used to send a 10-page document to 5 addresses, the count is 10 (the pages are sent to the same SMTP server together).
- If Scan-to-PC is used to send a 10-page document to 5 folders, the count is 50 (the document is sent to each destination of the SMB/FTP server).
- Due to restrictions on some devices, if Scan-to-Email is used to send a 10-page document to a large number of destinations, the count may be divided and counted separately. For example, if a 10-page document is sent to 200 addresses, the count is 10 for the first 100 destinations and the count is also 10 for the second 100 destinations, for a total of 20.).

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|--|-----------------|----------------------------|
| 8661 | T:Deliv PGS/Svr | [0~9999999/ 0 / 1] |
| <p>These SPs count by color mode the total number of pages sent to a Scan Router server by both Scan and LS applications.</p> <p>Note: This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.</p> | | |
| 8665 | S:Deliv PGS/Svr | [0~9999999/ 0 / 1] |
| <p>These SPs count by color mode the total number of pages sent to a Scan Router server by the Scan application.</p> <p>Note: This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.</p> | | |

- NOTE:** 1) The B/W and Color counts are done after the document is stored on the HDD of the Scan Router server.
- 2) If the job is canceled before storage on the Scan Router server finishes, the counts are not done.
- 3) The count is executed even if regardless of confirmation of the arrival at the Scan Router server.

| | | |
|--|----------------|----------------------------|
| 8671 | T:Deliv PGS/PC | [0~9999999/ 0 / 1] |
| <p>These SPs count by color mode the total number of pages sent to a folder on a PC (Scan-to-PC) with the Scan and LS applications.</p> <p>Note: This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.</p> | | |
| 8675 | S:Deliv PGS/PC | [0~9999999/ 0 / 1] |
| <p>These SPs count by color mode the total number of pages sent with Scan-to-PC with the Scan application.</p> <p>Note: This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.</p> | | |

| | | |
|------|-------------|---|
| 8691 | T:TX PGS/LS | <p>These SPs count the number of pages sent from the document server. The counter for the application that was used to store the pages is incremented. [0~9999999/ 0 / 1]</p> <p>The L: counter counts the number of pages stored from within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter.</p> |
| 8692 | C:TX PGS/LS | |
| 8694 | P:TX PGS/LS | |
| 8695 | S:TX PGS/LS | |
| 8696 | L:TX PGS/LS | |

- NOTE:** 1) Print jobs done with Web Image Monitor and Desk Top Binder are added to the count.
- 2) If several documents are merged for sending, the number of pages stored are counted for the application that stored them.

| | | |
|--------|--|----------------------------|
| 8701 | TX PGS/Port | [0~9999999/ 0 / 1] |
| | These SPs count the number of pages sent by the physical port used to send them. For example, if a 3-page original is sent to 4 destinations via ISDN G4, the count for ISDN (G3, G4) is 12. | |
| 8701 1 | PSTN-1 | |
| 8701 2 | PSTN-2 | |
| 8701 3 | PSTN-3 | |
| 8701 4 | ISDN (G3,G4) | |
| 8701 5 | Network | |

| | | |
|--------|---|------------------------|
| 8711 | T:Scan PGS/Comp | [0~9999999/ 1] |
| | These SPs count the number of compressed pages scanned into the document server, counted by the formats listed below. | |
| 8711 1 | JPEG/JPEG2000 | |
| 8711 2 | TIFF (Multi/Single) | |
| 8711 3 | PDF | |
| 8711 4 | Other | |

| | | |
|--------|--|------------------------|
| 8715 | S:Scan PGS/Comp | [0~9999999/ 1] |
| | These SPs count the number of compressed pages scanned by the scan application, counted by the formats listed below. | |
| 8715 1 | JPEG/JPEG2000 | |
| 8715 2 | TIFF (Multi/Single) | |
| 8715 3 | PDF | |
| 8715 4 | Other | |

| | | |
|--------|---|----------------------------|
| 8741 | RX PGS/Port | [0~9999999/ 0 / 1] |
| | These SPs count the number of pages received by the physical port used to receive them. | |
| 8741 1 | PSTN-1 | |
| 8741 2 | PSTN-2 | |
| 8741 3 | PSTN-3 | |
| 8741 4 | ISDN (G3,G4) | |
| 8741 5 | Network | |

| | | |
|------|---|----------------------------|
| 8771 | Dev Counter | [0~9999999/ 0 / 1] |
| | These SPs count the frequency of use (number of rotations of the development rollers) for black and other color toners. | |
| | Note: For machines that do not support color, the Black toner count is the same as the Total count. | |

| | | |
|------|---|--|
| 8781 | Pixel Coverage Ratio | |
| | This SP displays the number of toner bottles used. The count is done based on the equivalent of 1,000 pages per bottle. | |

MAIN SERVICE PROGRAM MODE TABLES

| | | | |
|--------|------------------------------------|---------------|--|
| 8791 | LS Memory Remain | | This SP displays the percent of space available on the document server for storing documents. [0~100/ 0 / 1] |
| 8801 | Toner Remain [0~100/ 0 / 1] | | This SP displays the percent of toner remaining for each color. This SP allows the user to check the toner supply at any time. Note: <ul style="list-style-type: none"> • This precise method of measuring remaining toner supply (1% steps) is better than other machines in the market that can only measure in increments of 10 (10% steps). • This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only. |
| 8851 | Toner Coverage 0-10% [0~9999999] | | These SPs count the percentage of dot coverage for black other color toners. |
| 8851 1 | K | Black toner | |
| 8851 2 | M | Magenta toner | Do not display for this machine. |
| 8851 3 | C | Cyan toner | |
| 8851 4 | Y | Yellow toner | |
| 8861 | Toner Coverage 11-20% [0~9999999] | | These SPs count the percentage of dot coverage for black other color toners. |
| 8861 1 | K | Black toner | |
| 8861 2 | M | Magenta toner | Do not display for this machine. |
| 8861 3 | C | Cyan toner | |
| 8861 4 | Y | Yellow toner | |
| 8871 | Toner Coverage 21-30% [0~9999999] | | These SPs count the percentage of dot coverage for black other color toners. |
| 8871 1 | K | Black toner | |
| 8871 2 | M | Magenta toner | Do not display for this machine. |
| 8871 3 | C | Cyan toner | |
| 8871 4 | Y | Yellow toner | |
| 8881 | Toner Coverage 31 -% [0~9999999] | | These SPs count the percentage of dot coverage for black other color toners. |
| 8881 1 | K | Black toner | |
| 8881 2 | M | Magenta toner | Do not display for this machine. |
| 8881 3 | C | Cyan toner | |
| 8881 4 | Y | Yellow toner | |

| | | |
|------|-------------------|---|
| 8891 | Page/Toner Bottle | Total number of pages per toner bottle. |
| 8921 | Cvr Cnt/Total | Total number of pages to date. |

| | |
|------|---|
| 8901 | Coverage Display (Toner Bottle: Previous) DFU |
| 8911 | Coverage Display (Toner Bottle: Before Previous) DFU |

| | | |
|--------|--|--|
| 8941 | Machine Status | [0~99999999/ 0 / 1] |
| | These SPs count the amount of time the machine spends in each operation mode. These SPs are useful for customers who need to investigate machine operation for improvement in their compliance with ISO Standards. | |
| 8941 1 | Operation Time | Engine operation time. Does not include time while controller is saving data to HDD (while engine is not operating). |
| 8941 2 | Standby Time | Engine not operating. Includes time while controller saves data to HDD. Does not include time spent in Energy Save, Low Power, or Off modes. |
| 8941 3 | Energy Save Time | Includes time while the machine is performing background printing. |
| 8941 4 | Low Power Time | Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing. |
| 8941 5 | Off Mode Time | Includes time while machine is performing background printing. Does not include time machine remains powered off with the power switches. |
| 8941 6 | SC | Total down time due to SC errors. |
| 8941 7 | PrtJam | Total down time due to paper jams during printing. |
| 8941 8 | OrgJam | Total down time due to original jams during scanning. |
| 8941 9 | Supply PM Wait End | Total down time due to toner end. |

Service
Tables

| | | | |
|---------|--|--|-----------------------------|
| 8951 | AddBook Register | | |
| | These SPs count the number of events when the machine manages data registration. | | |
| 8951 1 | User Code | User code registrations. | [0~99999999/ 0 / 1] |
| 8951 2 | Mail Address | Mail address registrations. | |
| 8951 4 | Group | Group destination registrations. | |
| 8951 6 | F-Code | F-Code box registrations. | |
| 8951 7 | Copy Program | Copy application registrations with the Program (job settings) feature. | [0~255 / 0 / 255] |
| 8951 9 | Printer Program | Printer application registrations with the Program (job settings) feature. | |
| 8951 10 | Scanner Program | Scanner application registrations with the Program (job settings) feature. | |

5.2.2 PRINTER SERVICE TABLE



| | | | |
|------|---|-----|----------------------------------|
| 1001 | Bit Switch (☞ Section 5.13 Printer Bit Switch settings) | | |
| 001 | Bit SW 1 | 00H | Adjusts the bit switch settings. |
| 002 | Bit SW 2 | 00H | |
| 003 | Bit SW 3 | 00H | |
| 004 | Bit SW 4 | 00H | |
| 005 | Bit SW 5 | 00H | |
| 006 | Bit SW 6 | 00H | |
| 007 | Bit SW 7 | 00H | |
| 008 | Bit SW 8 | 00H | |

NOTE: ☞ **Section 5.13 Printer Bit Switch settings.**

| | | | |
|------|--|--|--|
| 1003 | Clear setting | | |
| 001 | Initialize Printer System | | |
| | Initializes the settings in the printer feature settings of UP mode. | | |
| 002 | Clear CSS Counter DFU | | |
| 003 | Delete Program DFU | | |

| | | | |
|------|------------------------------------|--|--|
| 1004 | Print Summary | | |
| | Prints the printer summary sheets. | | |
| 001 | Print Summary 1 | | |
| 002 | Print Summary 2 | | |

| | | | |
|------|-----------------------------|--|--|
| 1005 | Display Version. | | |
| 002 | Printer Application Version | Displays the version of the controller firmware. | |

| | | | |
|------|---|--|--|
| 1006 | Sample/Proof Print | | |
| | This SP disables/enables use of the document server. [0~1/0/1] 0: Enabled. Document server can be used. 1: Disabled. Document server cannot be used. | | |

| | | | |
|------|---|--|--|
| 7910 | PDL No. Information | | |
| | Returns the character string for the PDL version. | | |

| | | | |
|------|---|--|--|
| 7911 | PDL Version Information | | |
| | Returns the character string for the PDL version. | | |

5.2.3 SCANNER SERVICE TABLE

| | | |
|------|--------------------------|--|
| 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. |
| 1004 | Compression Type | Selects the compression type for binary picture processing. [1-3/1/1] 1: MH, 2: MR, 3: MMR |
| 1005 | Erase Margin | Creates an erase margin for all edges of the scanned image. <i>If the machine has scanned the edge of the original, create a margin.</i> [0 – 5/0/1mm] |
| 1006 | Auto Reset Timer | Adjusts the auto reset timer for the scanner function. <i>If this is “0”, the auto reset function is disabled.</i> [0, 10 – 99/60/1s] |
| 1007 | Store Priority | Selects the default setting of the store priority when the main switch is turned on. [1 – 3/1/1] 1: Send only 2: Store only 3: Send + Store |

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|------|---------------------------------------|---|
| 2002 | Text Mode Setting | |
| 001 | MTF Filter Coefficient (Main scan) | Selects the MTF filter coefficient in the main scan direction for Text mode. <i>Select a higher number for a stronger filter.</i> <i>If this is "0", the MTF filter is not applied.</i> [0~13/7/1] |
| 002 | MTF Filter Coefficient (Sub scan) | Selects the MTF filter coefficient in the sub scan direction for Text mode. <i>Select a higher number for a stronger filter.</i> <i>If this is "0", the MTF filter is not applied</i> [0~13/7/1] |
| 003 | MTF Filter Strength (Main scan) | Selects the MTF filter strength in the main scan direction for Text mode. <i>Select a higher number for a stronger filter.</i> [0~7/2/1] |
| 004 | MTF Filter Strength (Sub scan) | Selects the MTF filter strength in the sub scan direction for Text mode. <i>Select a higher number for a stronger filter.</i> [0~7/2/1] |
| 005 | Smoothing Filter | Selects the smoothing pattern for Text mode. <i>A larger value is smoother. A smaller value could cause moiré to appear in the image.</i> [0~7/0/1] |
| 006 | Scanner Gamma | Selects the scanner gamma type for Text mode. [0~7,11/4/1] 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 6:Text/Photo, 7: Photo, 11: Grayscale 4~7 is used for delivery scanner mode. |
| 007 | Notch 7(Lighter): Brightness | The following SPs adjust the image density (brightness, contrast, and thresholds) for each image density level (from 7 to 1) for Text mode. The settings are reflected in the gamma table. [1~255/128/1] |
| 008 | Notch 7(Lighter): Contrast | |
| 009 | Notch 7(Lighter): Threshold | |
| 010 | Notch 6: Brightness | |
| 011 | Notch 6: Contrast | |
| 012 | Notch 6: Threshold | |
| 013 | Notch 5: Brightness | |
| 014 | Notch 5: Contrast | |
| 015 | Notch 5: Threshold | |
| 016 | Notch 4(Middle): Brightness | |
| 017 | Notch 4 (Middle): Contrast | |
| 018 | Notch 4 (Middle): Threshold | |
| 019 | Notch 3: Brightness | |
| 020 | Notch 3: Contrast | |
| 021 | Notch 3: Threshold | |

Main Service Program Mode Tables

| | | |
|-----|-----------------------------|---|
| 022 | Notch 2: Brightness | |
| 023 | Notch 2: Contrast | |
| 024 | Notch 2: Threshold | |
| 025 | Notch 1(Darker): Brightness | |
| 026 | Notch 1 (Darker): Contrast | |
| 027 | Notch 1(Darker): Threshold | |
| 028 | Independent Dot Erase | Select the independent dot erase type for Text mode. A larger value is stronger erase. [0~7/ 0/1] |
| 029 | Unevenness Correction | Selects the unevenness correction. [0~1/ 0/1] 0: OFF 1: ON |

| | | |
|------|---------------------------------------|--|
| 2003 | Text/Photo Mode Setting | |
| 001 | MTF Filter Coefficient (Main scan) | Selects the MTF filter coefficient in the main scan direction for Text/Photo mode. <i>Select a higher number for a stronger filter.</i> <i>If this is "0", the MTF filter is not applied.</i> [0~13/ 6/1] |
| 002 | MTF Filter Coefficient (Sub scan) | Selects the MTF filter coefficient in the sub scan direction for Text/Photo mode. <i>Select a higher number for a stronger filter.</i> <i>If this is "0", the MTF filter is not applied</i> [0~13/ 6/1] |
| 003 | MTF Filter Strength (Main scan) | Selects the MTF filter strength in the main scan direction for Text/Photo mode. <i>Select a higher number for a stronger filter.</i> [0~7/ 2/1] |
| 004 | MTF Filter Strength (Sub scan) | Selects the MTF filter strength in the sub scan direction for Text/Photo mode. <i>Select a higher number for a stronger filter.</i> [0~7/ 2/1] |
| 005 | Smoothing Level | Selects the smoothing pattern for Text/Photo mode. <i>A larger value is smoother. A smaller value could cause moiré to appear in the image.</i> [0~7/ 0/1] |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|-----|--|--|
| 006 | Gamma Setting | |
| | Selects the scanner gamma type for Text/Photo mode. [0~7,11/ 6 /1] 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 6:Text/Photo, 7: Photo, 11: Grayscale <i>4~7 is used for delivery scanner mode.</i> | |
| 007 | Notch 7(Lighter): Brightness | The following SPs adjust the image density (brightness, contrast, and thresholds) for each image density level (from 7 to 1) for Text/Photo mode. The settings are reflected in the gamma table. [1~255/ 128 /1] |
| 008 | Notch 7(Lighter): Contrast | |
| 009 | Notch 7(Lighter): Threshold | |
| 010 | Notch 6: Brightness | |
| 011 | Notch 6: Contrast | |
| 012 | Notch 6: Threshold | |
| 013 | Notch 5: Brightness | |
| 014 | Notch 5: Contrast | |
| 015 | Notch 5: Threshold | |
| 016 | Notch 4(Middle): Brightness | |
| 017 | Notch 4 (Middle): Contrast | |
| 018 | Notch 4 (Middle): Threshold | |
| 019 | Notch 3: Brightness | |
| 020 | Notch 3: Contrast | |
| 021 | Notch 3: Threshold | |
| 022 | Notch 2: Brightness | |
| 023 | Notch 2: Contrast | |
| 024 | Notch 2: Threshold | |
| 025 | Notch 1(Darker): Brightness | |
| 026 | Notch 1 (Darker): Contrast | |
| 027 | Notch 1 (Darker): Threshold | |

| | | |
|------|---|---|
| 2004 | Photo Mode Setting | |
| 001 | MTF Filter Coefficient (Main scan) | |
| | <p>Selects the MTF filter coefficient in the main scan direction for Photo mode. <i>Select a higher number for a stronger filter.</i> <i>If this is "0", the MTF filter is not applied.</i> [0~13/0/1]</p> | |
| 002 | MTF Filter Coefficient (Sub scan) | |
| | <p>Selects the MTF filter coefficient in the sub scan direction for Photo mode. <i>Select a higher number for a stronger filter.</i> <i>If this is "0", the MTF filter is not applied</i> [0~13/0/1]</p> | |
| 003 | MTF Filter Strength (Main scan) | |
| | <p>Selects the MTF filter strength in the main scan direction for Photo mode. <i>Select a higher number for a stronger filter.</i> [0~7/0/1]</p> | |
| 004 | MTF Filter Strength (Sub scan) | |
| | <p>Selects the MTF filter strength in the sub scan direction for Photo mode. <i>Select a higher number for a stronger filter.</i> [0~7/0/1]</p> | |
| 005 | Smoothing Level | |
| | <p>Selects the smoothing pattern for Photo mode. <i>A larger value is smoother. A smaller value could cause moiré to appear in the image.</i> [0~7/7/1]</p> | |
| 006 | Gamma Setting | |
| | <p>Selects the scanner gamma type for Text/Photo mode. [0~7,11/7/1] 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 6:Text/Photo, 7: Photo, 11: Grayscale <i>4~7 is used for delivery scanner mode.</i></p> | |
| 007 | Dither Pattern | |
| | <p>Selects the dither pattern. [1~11/5/1] 1: 8 x 4 45° 2: 6 x 6 90° 3: 4 x 4 spiral 4: 8 x 8 90°, 5: 70 line 6: 95 line 7: 140 line 8: 180 line 9: 16 x 16 90° 10: 8x8 spiral 11: 106 line</p> | |
| 008 | Notch 7(Lighter): Brightness | The following SPs adjust the image density (brightness, contrast, and thresholds) for each |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|-----|--------------------------------|---|
| 009 | Notch 7(Lighter): Contrast | image density level (from 7 to 1) for Photo mode. The settings are reflected in the gamma table. [1~255/ 128 /1] |
| 010 | Notch 7(Lighter): Threshold | |
| 011 | Notch 6: Brightness | |
| 012 | Notch 6: Contrast | |
| 013 | Notch 6: Threshold | |
| 014 | Notch 5: Brightness | |
| 015 | Notch 5: Contrast | |
| 016 | Notch 5: Threshold | |
| 017 | Notch 4(Middle): Brightness | |
| 018 | Notch 4 (Middle): Contrast | |
| 019 | Notch 4 (Middle): Threshold | |
| 020 | Notch 3: Brightness | |
| 021 | Notch 3: Contrast | |
| 022 | Notch 3: Threshold | |
| 023 | Notch 2: Brightness | |
| 024 | Notch 2: Contrast | |
| 025 | Notch 2: Threshold | |
| 026 | Notch 1(Darker): Brightness | |
| 027 | Notch 1 (Darker): Contrast | |
| 028 | Notch 1 (Darker): Threshold | |

| | | |
|------|------------------------|---|
| 2005 | Grayscale Mode Setting | |
| | 001 | MTF Filter Coefficient (Main scan) |
| | | Selects the MTF filter coefficient in the main scan direction for Grayscale mode. <i>Select a higher number for a stronger filter.</i> <i>If this is "0", the MTF filter is not applied.</i> [0~13/ 0/1] |
| | 002 | MTF Filter Coefficient (Sub scan) |
| | | Selects the MTF filter coefficient in the sub scan direction for Grayscale mode. <i>Select a higher number for a stronger filter.</i> <i>If this is "0", the MTF filter is not applied</i> [0~13/ 0/1] |
| | 003 | MTF Filter Strength (Main scan) |
| | | Selects the MTF filter strength in the main scan direction for Grayscale mode. <i>Select a higher number for a stronger filter.</i> [0~7/ 0/1] |
| | 004 | MTF Filter Strength (Sub scan) |
| | | Selects the MTF filter strength in the sub scan direction for Grayscale mode. <i>Select a higher number for a stronger filter.</i> [0~7/ 0/1] |
| | 005 | Smoothing Level |
| | | Selects the smoothing pattern for Grayscale mode. <i>A larger value is smoother. A smaller value could cause moiré to appear in the image.</i> [0~7/ 0/1] |
| | 006 | Gamma Setting |
| | | Selects the scanner gamma type for Grayscale mode. [0~7,11/ 11/1] 0:Normal, 1:Smooth, 2:Distinct, 3:Sharp, 4:Text, 6:Text/Photo, 7: Photo, 11: Grayscale <i>4~7 is used for delivery scanner mode.</i> |
| | 007 | Notch 7(Lighter): Brightness |
| | 008 | Notch 7(Lighter): Contrast |
| | 009 | Notch 7(Lighter): Threshold |
| | 010 | Notch 6: Brightness |
| | 011 | Notch 6: Contrast |
| | 012 | Notch 6: Threshold |
| | 013 | Notch 5: Brightness |
| | 014 | Notch 5: Contrast |
| | 015 | Notch 5: Threshold |
| | 016 | Notch 4(Middle): Brightness |
| | 017 | Notch 4 (Middle): Contrast |
| | 018 | Notch 4 (Middle): Threshold |
| | 019 | Notch 3: Brightness |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|-----|-----------------------------|--|
| 020 | Notch 3: Contrast | |
| 021 | Notch 3: Threshold | |
| 022 | Notch 2: Brightness | |
| 023 | Notch 2: Contrast | |
| 024 | Notch 2: Threshold | |
| 025 | Notch 1(Darker): Brightness | |
| 026 | Notch 1 (Darker): Contrast | |
| 027 | Notch 1 (Darker): Threshold | |

| | | |
|------|-----------------------|--|
| 2006 | Grayscale Compression | |
| | 001 | Standard |
| | | 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 | 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 | Low Quality |
| | | Sets the rate of compression when Low is selected for handling JPEG files. [5~95/ 40 /1] 95: Low compression (larger file) 5: High compression (smaller file) |

5.2.4 USER SERVICE PROGRAM MODE TABLES

Do either procedure to display the SP codes for operators or skilled operators (Super Users).

Adjustment Settings for Operators

1. Push [User Tools].
2. Touch [Adjustment Settings for Operators].
The operator SP codes are displayed.
 - You will not see the SP codes marked "Super User Only" in the SP tables below.
 - These "Super User" SP codes are displayed only after you enter the user SP mode with the procedure below.

Adjustment Settings for Skilled Users

To open the user SP mode with this procedure, you must have an assigned user name and password.

The user name and password must be assigned by the system administrator.

For more details, please refer to the TCRU (Trained Customer Replacement Units) manuals.

1. Push [User Tools].
2. Touch [Adjustment Settings for Skilled Operators].
3. Touch [Enter] to the right of "Login User Name".
4. On the soft keyboard enter your assigned user name and touch [OK].
5. Touch [Enter] to the right of "Login Password".
6. On the soft keyboard enter your assigned password and touch [OK].
The operator and skilled operator SP codes are displayed.

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

SPxxx Feed

| | | |
|----------------|---|--|
| 1710 | Shift Image With Feed | |
| User SP | Adjusts the printing leading edge registration for feeding from the copier trays and the duplex tray. Use the trimming area pattern printed with SP3740 . Press ./* to enter a minus sign (-) before you enter the value with number keys. [-2 to +2/0/0.1 mm] | |
| 001 | Front Side | Image on front side of a copy. |
| 002 | Back Side | Image on back side of a copy (duplex copied) |
| 003 | Front Side (Low Speed Mode) | Image on back side of a copy (duplex copied in low speed mode) |
| 004 | Back Side (Low Speed Mode) | Image on front side of a copy (copied in low speed mode) |

| | | |
|----------------|--|---------------------|
| 1720 | Shift Image Across Feed | |
| User SP | Adjusts the printing side-to-side registration for sheets printed on paper from the feed sources listed below. The adjustment is done with the trimming pattern printed with SP3740 . Press ./* to enter a minus sign (-) before you enter the value with number keys. | |
| 001 | Tray 1 | [-2 to +2/0/0.1 mm] |
| 002 | Tray 2 | |
| 003 | Tray 3 | |
| 004 | Tray 4 LCT | |
| 005 | Tray 5 LCT | |
| 006 | Tray 6 LCT | |
| 007 | Tray 7 Bypass | |
| 008 | Duplex | |

| | | |
|----------------|--|------------------------|
| 1730 | Adjust Paper Skew | Super User Only |
| User SP | Paper skew in the paper path is corrected by switching off the registration motor for a very short time. The paper continues to feed and then straightens by buckling against the stopper roller. This SP adjusts the amount of time the registration roller motor remains off to create the buckle that straightens the paper. <ul style="list-style-type: none"> • A positive value increases the amount of buckle for more correction. The registration roller motor and roller remain idle for a longer time. • A minus value decreases the amount of buckle for less correction. The registration roller motor and roller remain idle for a shorter time. • Press ./* to enter a minus sign (-) before you enter the value with number keys. | |
| 001 | Tray 1,2,3 | [0 to 3 / 0 / 1 mm] |
| 002 | Tray 4,5,6 LCT | |
| 003 | Duplex | |
| 004 | Tray 7 (Bypass) | |

| | | |
|----------------|---|------------------------|
| 1740 | Set Fusing Temperature | Super User Only |
| User SP | <p>This SP allows you to raise or lower the fusing temperature. Three fusing lamps inside the hollow hot roller generate enough heat to fuse toner when each sheet passes between the hot roller above and pressure roller below. The copier will not start copying unit the hot roller reaches the temperature prescribed for the job.</p> <p>[0 to 2/0/1 step]</p> <p>0: Medium 1: Low 2: High</p> <ul style="list-style-type: none"> • Raise the temperature setting if you see loose toner, indicating that the toner has not fused completely with the surface of the paper. • Lower the temperature setting if the paper is excessively curled after it leaves the machine. | |

| | | |
|----------------|---|------------------------|
| 1750 | Unit Initialization | Super User Only |
| User SP | <p>After you replace the fusing unit, do this SP and press [Execute].</p> <p>Use this SP code to initialize the control mechanism of the web cleaner inside the fusing unit.</p> <p>The web cleaner (a web supply roller and a take-up roller) is mounted above and slightly to the right of the hot roller. The roll (24 m long), a soft web material saturated with silicone oil, touches the surface of the hot roller as it rotates. The soft, lubricating surface of the web cleans the surface of the hot roller by scavenging toner, paper dust, and other foreign matter that collects on the hot roller.</p> | |

| | | |
|-------------|---|--|
| 1908 | Double-Feed Detection | Super User Only |
| | <p>This SP code switches double-feed detection off/on for the trays listed below.</p> <p>[0~1/1/1]</p> <p>1: On, 0: Off</p> | |
| 001 | Tray 1 | |
| 002 | Tray 2 | |
| 003 | Tray 3 | |
| 004 | Tray 4 (LCT Tray 1) | |
| 005 | Tray 5 (LCT Tray 2) | |
| 006 | Tray 6 (LCT Tray 3) | |
| 007 | Tray 7 (Bypass) | |
| 008 | After Double-Feed Detection | <p>This SP setting determines what happens when a double-feed is detected.</p> <p>[0~1/0/1]</p> <p>0: Sends the double-feed sheet to the upper tray. 1: Signals a jam alert.</p> |

MAIN SERVICE PROGRAM MODE TABLES

| | | |
|-------------|-------------------------------|------------------------|
| 1911 | CIS Img Pos Adj: Feed Setting | Super User Only |
| | NIA | |
| 001 | Tray 1 | |
| 002 | Tray 2 | |
| 003 | Tray 3 | |
| 004 | Tray 4 (LCT Tray 1) | |
| 005 | Tray 5 (LCT Tray 2) | |
| 006 | Tray 6 (LCT Tray 3) | |
| 007 | Tray 7 (Bypass) | |
| 008 | Duplex Tray | |

SP2xxx Drum

| | | |
|----------------|---|------------------------|
| 2710 | Adjust Image Density | Super User Only |
| User SP | Use this SP code to improve the appearance of images that are either too light or too dark. Do these SP codes in order. Between each Step do some test prints to determine if the image density has become better or worse. | |
| 001 | Step 1 | |
| | Adjusts Vb (development bias) and Vg (voltage supplied to the charge unit) to lighten or darken density. [0 to 3/1/1 step] 0: Light, 1: Normal, 2: Darker, 3: Darkest | |
| 002 | Step 2 | |
| | Adjusts the development bias used to develop the ID sensor pattern for Vsp measurement. Changing this setting affects the amount of toner supplied to the development unit. [0 to 3/1/1 step] 0: Light, 1: Normal, 2: Darker, 3: Darkest | |
| 003 | Step 3 | |
| | After you replace the development unit, do this SP and press [Execute]. This SP executes two important tasks: <ul style="list-style-type: none"> • It forces toner supply for 10 seconds from the toner bank through the toner hopper to the development unit. Press Start to force toner supply. If forcing toner supply with this SP does not darken the image, then toner supply is not operating correctly. Replace the development unit. • It turns on the drum motor, development motor, development bias, toner supply motor and charge corona. Then it turns on the toner supply coil motor to supply toner to the toner hopper (no toner is supplied to the development unit). This SP requires about 7 minutes to complete. | |

| 2720 | Adjust Image Quality | | Super User Only |
|----------------|---|--|------------------------|
| User SP | <p>These SP codes adjust the amount of current applied to the transfer belt. When the paper on the transfer belt passes between the belt and drum above, the charge roller below the transfer belt applies a positive (+) charge to the belt above. This positive charge attracts the negatively charged toner of the image from the drum above, effectively transferring the image from drum to paper.</p> <p>The image transfer current can be adjusted separately for four separate items: Front, Back, Reduce Halftone, No White Spots.</p> | | |
| 001 | Front Side | Adjusts transfer current for images on the front side of copies. [0 to 3/1/1 step] 0: Light, 1: Normal, 2: Darker, 3: Darkest | |
| 002 | Back Side | Adjusts transfer current for images on the back side of copies during duplexing. [0 to 3/1/1 step] 0: Light, 1: Normal, 2: Darker, 3: Darkest | |
| 003 | Reduce Halftone Streaks | Do this SP and press [Execute] to reduce the density of halftone areas of images on both the front and back sides of copies. | |
| 004 | Reduce White Spots | Do this SP and press [Execute] to reduce the occurrence of white spots (so-called <i>medaka</i>) in areas of dark coverage on both the front and back sides of copies. To accomplish this, the machine thoroughly cleans the surface of the drum with the 2nd cleaning blade. | |

| 2730 | Unit Initialization | Super User Only |
|----------------|--|------------------------|
| User SP | | |
| 001 | Development Unit | |
| | <p>Use this SP code to initialize the TD sensor of a new development unit. After you touch [Execute] this SP performs two tasks:</p> <ul style="list-style-type: none"> Initializes the TD sensor to control the voltage applied to the TD sensor to make its about 2.5V. Press [Start] after you see the voltage displayed. Supplies toner to the toner hopper (but not the development unit). <p>Note: The machine requires about 7 minutes to complete this SP adjustment.</p> | |
| 002 | Drum/Charge Unit | |
| | <p>After you touch [Execute] to do this SP, it does important adjustments that affect the operation of the machine to ensure that the supply of toner to develop each image remains constant. Always do this SP after replacing:</p> <ul style="list-style-type: none"> Pre-charge unit Charge unit Development unit | |
| 003 | Drum/Cleaning Unit | |
| | <p>Do this SP before you remove the drum cleaning unit or the PCU unit. After you touch [Execute], the drum rotates and is coated with a light coat of toner.</p> <p>Note: Coating the surface of the drum with toner before removing the drum cleaning unit ensures that the drum will not be damaged against the edge of a new drum cleaning blade.</p> | |

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

| 2750 | Magnification Across Feed | | Super User Only |
|----------------|---|--|------------------------|
| User SP | These SP codes fine adjust the magnification of the copy image across the page at a right-angle to the direction of paper feed. These magnification adjustments are done separately for 1) Copy mode, and 2) Print mode and from the front/backside of pages. [-0.3~+0.3 / 0 / 0.1%] Note: <ul style="list-style-type: none"> • To enter a negative value, press [./*] on the keypad. • "Copy mode" denotes copying images from originals and printing them. • "Print mode" denotes doing a print job with a software application and using the printer driver to print them on the machine. | | |
| 001 | Copy Image: Front Side | Copy Mode: Image copied onto the front side of the sheet | |
| 002 | Copy Image: Back Side | Copy Mode: Image copied onto the back side of the machine (duplexing) | |
| 003 | Print Image: Front Side | Print Mode: Image printed onto the front side of the sheet | |
| 004 | Print Image: Back Side | Print Mode: Image printed onto the back side of the sheet (duplexing). | |

| 2760 | Magnification Adjustment With Feed | Super User Only |
|----------------|---|------------------------|
| User SP | This SP code fine adjusts the magnification of the copy image along the direction of paper feed. [-0.3~+0.3 / 0 / 0.1%] Note: <ul style="list-style-type: none"> • To enter a negative value, press [./*] on the keypad. | |
| | | |

| 2770 | Temperature/Humidity Display | Super User Only |
|----------------|---|---|
| User SP | This SP displays readings of the current temperature and humidity inside the machine. | |
| 001 | Internal Temperature | Displays current temperature inside the machine. [-20 to 60/ None /1°C] |
| 002 | Internal Humidity | Current humidity level inside the machine. [0 to 100/None/1% rH] |

SP3xxx Process

| 3710 | Sensor Settings | Super User Only |
|----------------|------------------------|--|
| User SP | | |
| 001 | ID Sensor 1 | ID sensor reading: Bare drum (Vsg) Displays the present value of the ID sensor output (Vsg) after the ID sensor reads the bare surface of the drum in the ID sensor pattern. |
| 002 | ID Sensor 2 | ID sensor reading: Vsg when Vsp adjustment was done Displays the value of ID sensor reading of the bard drum surface (Vsg) when the Vsp reading was done. |
| 003 | Process Control On/Off | Displays "On" or "Off" to indicate the present status of the auto process control operation. <ul style="list-style-type: none"> • "ON" is displayed when auto process control is on and the drum potential sensor has been calibrated correctly. • "OFF" is displayed when auto process control has been switched off with SP3901 001. |
| 004 | TD Sensor Reference | Use this SP to adjust the TD sensor reference voltage (Vref) manually. After you replace the development unit, set the reference voltage to 2.5. [0~5.0 / 2.5 / 0.01 V] |
| 005 | TD Sensor Output | Use this SP to display the present output of the TD sensor (Vt). Do this SP after you replace the development unit and execute SP3710 004 to confirm that the TD sensor is set for 2.5V (the correct reference voltage). [0~5.0 / 2.5 / 0.01 V] |

| 3720 | PM Counts | Super User Only |
|----------------|--|--|
| User SP | Use these SP codes to display the PM counts for the TCRU units. The PM count gradually increases as the unit reaches the end of its service life. These counts are for the TCRU units only. The TCRU units are the units designated for removal and replacement at the work site by trained users. | |
| 001 | Development | Development unit |
| 002 | PCU | PCU unit |
| 003 | Cleaning | Drum cleaning unit on the left side of the drum |
| 004 | Charge | Main charge unit above the drum and to the right of the pre-charge unit. The charge unit is larger than the pre-charge unit. |
| 005 | Pre-Charge | Pre-charge unit above the drum and to the left of the charge unit. The pre-charge unit is smaller than the charge unit. |
| 006 | Fusing Unit | Fusing unit. This is the entire fusing unit, including the fusing cleaning unit (web roll). |
| 007 | Fusing Cleaning | The web roller and web take-up roller comprise the fusing cleaning unit. |

Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

| 3730 | Clear PM Counts | Super User Only |
|----------------|--|---|
| User SP | Use these SP codes to clear the PM count of each TCRU unit after it is replaced. These SP codes clear the PM counts for the TCRU units only. The PM count must be set to "0" for each replacement unit so the machine can maintain an accurate record for its service lift. The TCRU units are the units designated for removal and replacement at the work site by trained users. | |
| 001 | Development Unit | Clears PM count for a new development unit |
| 002 | PCU | Clears PM count for a new PCU unit |
| 003 | Drum Cleaning Unit | Clears PM count for a new drum cleaning unit on the left side of the drum |
| 004 | Charge Corona Unit | Clears PM count for a new charge unit. The charge unit is above the drum and to the right of the pre-charge unit. The charge unit is larger than the pre-charge unit. |
| 005 | Pre-Charge Unit | Clears PM count for a new pre-transfer unit. The Pre-charge unit is above the drum and to the left of the charge unit. The pre-charge unit is smaller than the charge unit. |
| 006 | Fusing Unit | Clears PM count for a new fusing unit only. The fusing unit includes the fusing cleaning unit so you must also reset the PM count for the fusing cleaning unit with SP3730 007. |
| 007 | Fusing Cleaning Web Unit | The web roller and web take-up roller comprise the fusing cleaning unit. You must do this SP 1) after replacing only the fusing cleaning unit and 2) after replacing the fusing unit. |

| 3740 | Select Test Pattern | Super User Only |
|----------------|--|--|
| User SP | In the image adjustment mode, the machine prints the Trim Pattern when the [Start] key is pressed. The trim pattern prints a very large rectangle with a narrow margin between each side of the rectangle and each edge of the paper. The trim pattern is used to measure the margins and determine whether the side-to-side registration and other adjustments are set correctly. [0 to 1/0/1 step] 0: Copy Image (normal operation) 1: Trim Pattern (prints trim pattern) | |
| 001 | Trim Pattern [] | To do a trim pattern: 1. Do this SP and select "1". 2. Touch [Copy Screen] on the display to open the normal copier screen. 3. Select the paper size and color then press the [Start] key to print the trim pattern. 4. After the trim pattern prints, touch [SP Screen]. 5. Check the margins of the trim pattern and do the required adjustments. 6. Repeat Steps 2 to 3 to print more patterns to check the effect of the adjustments. 7. After completing all adjustments, do SP3740 again and select "0" to reset the machine for normal operation. |

| | | |
|----------------|--|---|
| 3750 | Reset to Defaults | Super User Only |
| User SP | Do this SP and touch [Execute] to reset all the settings for the TCRU units and their components. <ul style="list-style-type: none"> The TCRU units are the units designated for removal and replacement at the work site by trained users. The reset done with this SP does not affect the PM counters. The PM counters must be reset with SP3730 | |
| 001 | Reset to Defaults | Resets all the settings for the TCRU units to their factory defaults. |

SP6xxx Peripherals

| | | |
|----------------|---|--|
| 6700 | Staple Position Adjustment | |
| User SP | Use this SP to shift the position of the stapling done by the corner stapler of the 3K finisher (B830). This SP shifts the staple position forward and back across the direction of paper feed. <ul style="list-style-type: none"> Use the “•” key to toggle between + and –. A larger value shifts the stapling position to shift forward. A smaller value shifts the stapling position backward. | |
| 001 | A3 SEF | The settings are done for each paper size. SEF denotes "Short Edge Feed". LEF denotes "Long Edge Feed". [-2 to +2 / 0 / 0.5 mm] |
| 002 | B4 SEF | |
| 003 | A4 SEF | |
| 004 | A4 LEF | |
| 005 | B5 SEF | |
| 006 | B5 LEF | |
| 007 | DLT SEF | |
| 008 | LG SEF | |
| 009 | LT SEF | |
| 010 | LT LEF | |
| 011 | Custom Size | |

Service
Tables

| | | |
|----------------|---|--------------------------------|
| 6705 | Adj Punch Hole: With Feed | |
| User SP | Use this SP to shift the position of the punching done by the Punch Unit B831 installed in the 3K finisher. This SP shifts the punching position left and right in the direction of paper feed. There are three versions of the Punch Unit B831 1) NA 2/3 (2 or 3 hole punching selectable for the job), 2) NA 4 (4 hole punching only), and 3) EU 2/4 (2 or 4 hole punching selectable for the job) [-7.5~+7.5 / 0 / 0.5 mm] <ul style="list-style-type: none"> Use the “•/*” key to toggle between + and –. A larger value shifts the punch holes away from the edge of the paper. A smaller value shifts the punch holes toward the edge of the paper. | |
| 001 | 2-Hole: JPN | Japan Only |
| 002 | 3-Hole: NA | North America, 3-hole punching |
| 003 | 4-Hole: Europe | Europe, 4-hole punching |
| 004 | 4-Hole: NA | North America, 4-hole punch |
| 005 | 2-Hole: NA | North America, 2-hole punching |
| 006 | 1-Hole: JPN | Japan Only |

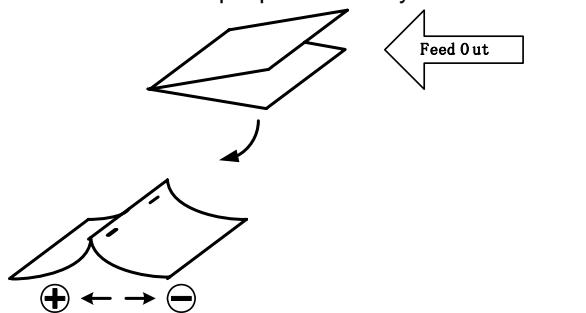
MAIN SERVICE PROGRAM MODE TABLES

| 6710 | Staple Jog Adjust Across Feed | Super User Only |
|----------------|--|---|
| User SP | <p>Use this SP code to adjust the positions of the jogger fences when the pages are aligned (jogged) horizontally in the stapling tray for corner stapling in the Finisher B830. These jogger fences close in on the sides of the stack on the paper tray. These side fences move in and out perpendicular to the direction of paper feed.</p> <ul style="list-style-type: none"> • The higher the setting, the narrower the jogger span and the smaller the gaps between the fences and the edges of the paper. Stacking is tighter. • The lower the setting, the wider the jogger span and the wider the gaps between the fences and the edges of the paper. Stacking is not as precise. | |
| 001 | A3 SEF | The settings are done for each paper size. SEF denotes "Short Edge Feed". LEF denotes "Long Edge Feed". [-2 to +1.5 / 0 / 0.5 mm] |
| 002 | B4 SEF | |
| 003 | A4 SEF | |
| 004 | A4 LEF | |
| 005 | B5 SEF | |
| 006 | B5 LEF | |
| 007 | DLT SEF | |
| 008 | LG SEF | |
| 009 | LT SEF | |
| 010 | LT LEF | |
| 011 | Custom Size | |

| 6715 | Jogger Adjustment Across Feed | Super User Only |
|----------------|--|---|
| User SP | <p>Use this SP code to adjust the positions of the jogger fences when the pages are aligned (jogged) horizontally in the stapling tray for stapling in the 3K Finisher B830. The jogger fences close in on the sides of the stack on the paper tray. These side fences move in and out perpendicular to the direction of paper feed.</p> <p>[-3 to +3 / 0 / 0.1 mm]</p> <ul style="list-style-type: none"> • The higher the setting, the narrower the jogger span and the smaller the gaps between the fences and the edges of the paper. Stacking is tighter. • The lower the setting, the wider the jogger span and the wider the gaps between the fences and the edges of the paper. Stacking is not as tight. | |
| 001 | A3 SEF | The settings are done for each paper size. SEF denotes "Short Edge Feed". LEF denotes "Long Edge Feed". |
| 002 | B4 SEF | |
| 003 | A4 SEF | |
| 004 | A4 LEF | |
| 005 | A5 SEF | |
| 006 | A5 LEF | |
| 007 | B5 SEF | |
| 008 | B5 LEF | |
| 009 | DLT | |
| 010 | LG | |
| 011 | LT SEF | |
| 012 | LT LEF | |
| 013 | HLT SEF | |
| 014 | HLT LEF | |
| 015 | Custom Size | |

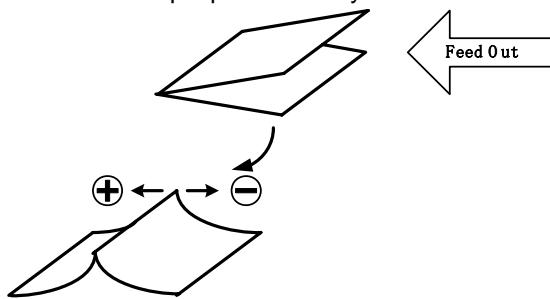
| | | |
|----------------|---|--|
| 6720 | Staple Jog Adjust With Feed | Super User Only |
| User SP | Use this SP code to adjust the position of the jogger fence when the pages are aligned (jogged) vertically in the stapling tray for corner stapling in the Finisher B830. The jogger fences close in on the sides of the stack on the paper tray. These side fences move in and out perpendicular to the direction of paper feed. [-5 to +10 / 0 / 0.1 mm] | |
| | <ul style="list-style-type: none"> The higher the setting, the narrower the jogger span and the smaller the gaps between the fences and the edges of the paper. Stacking is tighter. The lower the setting, the wider the jogger span and the wider the gaps between the fences and the edges of the paper. Stacking is not as precise. | |
| 001 | A4 LEF | The settings are done for each paper size. |
| 002 | B5 LEF | SEF denotes "Short Edge Feed". |
| 003 | LT LEF | LEF denotes "Long Edge Feed". |
| 004 | Custom Size | |

| | | |
|----------------|---|---|
| 6730 | Adjust Booklet Stapling Position | |
| User SP | Use this SP to adjust the stapling position of the booklet stapler when paper is stapled and folded in the Booklet Finisher B836. | |
| 001 | A3 SEF | [-3.0 to +3.0 / 0 / 0.2 mm] |
| 002 | B4 SEF | + Value: Shifts staple position toward the crease. |
| 003 | A4 SEF | - Value: Shifts staple position away from the crease. |
| 004 | B5 SEF | |
| 005 | 12" x 18" SEF | |
| 006 | DLT SEF | |
| 007 | LG SEF | |
| 008 | LT SEF | |
| 009 | Custom Size | |



Service
Tables

| | | |
|----------------|--|---|
| 6735 | Adjust Booklet Fold Position | |
| User SP | This SP corrects the folding position when paper is stapled and folded in the Booklet Finisher B836. | |
| 001 | A3 SEF | [-3~+3 / 0 / 0.2 mm] |
| 002 | B4 SEF | + Value: Shifts staple position toward the crease. |
| 003 | A4 SEf | - Value: Shifts staple position away from the crease. |
| 004 | B5 SEF | |
| 005 | DLT SEF | |
| 006 | LG SEF | |
| 007 | LT SEF | |
| 008 | 12"x18" | |
| 009 | Custom Size | |

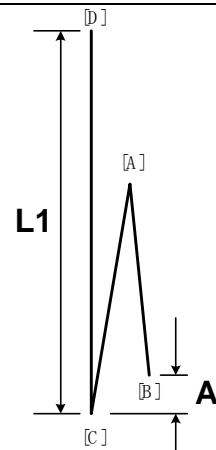


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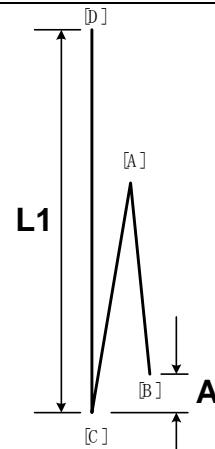
| | | | |
|----------------|--|--|------------------------|
| 6740 | Fine Adjust Booklet: Adjust Across Feed | | Super User Only |
| User SP | This SP adjusts the distance between the jogger fences and the sides of the stack on the finisher stapling tray in the Booklet Finisher B836. The adjustment is done perpendicular to the direction of paper feed. 001 A3 SEF [-1.5 to +1.5/ 0 /0.5 mm] 002 B4 SEF + Value: Increases distance between jogger fences and the sides of the stack. 003 A4 SEF - Value: Decreases the distance between the jogger fences and the sides of the stack. 004 A4 LEF 005 12"x18" SEF 006 DLT SEF 007 LG SEF 008 LT SEF 009 Custom Size | | |

| | | | |
|----------------|--|-------|--|
| 6745 | Book Fold Repetitions | | |
| User SP | This SP sets the number of times the folding rollers are driven forward and reverse to sharpen the crease of a folded booklet before it exits the folding unit of the Booklet Finisher B836. When set at the default (0): <ul style="list-style-type: none"> The folding blade pushes the center of the stack into the nip of the folding roller. The folding rollers rotated counter-clockwise to crease the booklet, reverse clock-wise, then rotate counter-clockwise again crease the booklet fold twice before feeding to the folding unit exit rollers. [0~6/ 0 /1 Step] Each number represents the number 1 cycle of forward/reverse feed between the rollers. | | |
| | 0: 2 | 4: 20 | |
| | 1: 5 | 5: 25 | |
| | 2: 10 | 6: 30 | |
| | 3: 15 | | |

| | | |
|----------------|--|------------------------|
| 6755 | Fine Adjust Z-Fold 1 | Super User Only |
| User SP | Use this SP code to adjust the position of the first fold [A]. This adjustment decreases or increases the distance (A) between the leading edge [B] and the crease of the 2nd fold [C]. [-2 to +4/0/ 0.2 mm] | |
| 001 | 1st Fold: A3 SEF | |
| 002 | 1st Fold: B4 SEF | |
| 003 | 1st Fold: A4 SEF | |
| 004 | 1st Fold: DLT SEF | |
| 005 | 1st Fold: LG SEF | |
| 006 | 1st Fold: LT SEF | |
| 007 | 1st Fold: 12" x 18" | |
| 008 | 1st Fold: Custom Size | |



| | | |
|----------------|---|------------------------|
| 6760 | Fine Adjust Z-Fold 2 | Super User Only |
| User SP | Use this SP code to adjust the position of the 2nd fold [C] to decrease or increase the length (L1) of the sheet between the trailing edge [D] and the 2nd fold. [-2 to +2/0/ 0.2 mm] | |
| 001 | 2nd Fold: A3 SEF | |
| 002 | 2nd Fold: B4 SEF | |
| 003 | 2nd Fold: A4 SEF | |
| 004 | 2nd Fold: DLT SEF | |
| 005 | 2nd Fold: LG SEF | |
| 006 | 2nd Fold: LT SEF | |
| 007 | 2nd Fold: 12" x 18" | |
| 008 | 2nd Fold: Custom Size | |



Service
Tables

MAIN SERVICE PROGRAM MODE TABLES

SP7xxx Data Log

| | | |
|-------------|----------------------|--|
| 7620 | PM Parts Clear | Super User Only |
| | | Clears the PM count for the units listed below. Note: These are the units covered by the TCRU replacement procedures for replacement and adjustment. |
| 001 | Development Unit | |
| 003 | Drum Unit | |
| 005 | Drum Cleaning Unit | |
| 009 | Charge Unit | |
| 014 | Pre-Charge Unit | |
| 017 | Fusing Cleaning Unit | |

| | | |
|-------------|----------------------|--|
| 7621 | Display PM Count | Super User Only |
| | | Displays the PM count for the units listed below. Note: These are the units covered by the TCRU replacement procedures for replacement and adjustment. |
| 001 | Development Unit | |
| 003 | Drum Unit | |
| 005 | Drum Cleaning Unit | |
| 009 | Charge Unit | |
| 014 | Pre-Charge Unit | |
| 017 | Fusing Cleaning Unit | |

5.3 PRINTING TEST PATTERNS

NOTE: Do not operate the machine until the test pattern is printed out completely. Otherwise, an SC may occur.

1. Access the SP mode which contains the test pattern you need.
2. Touch the “Copy Window” key on the operation panel to access the copy mode display.
3. Select the paper size.
4. Press the “Start” key to print the test pattern.
5. After checking the test pattern, exit copy mode by touching the “SP Mode” key.
6. Exit the SP mode.

5.3.1 IPU SCANNING TEST PATTERN (SP2-902-001)

| No. | Test Pattern |
|-----|----------------------------|
| 0 | OFF |
| 1 | Vertical 1-dot Line |
| 2 | Vertical 2-dot Line |
| 3 | Horizontal 1-dot Line |
| 4 | Horizontal 2-dot Line |
| 5 | Independent 1-dot |
| 6 | Cross Stripes 1-dot Lines |
| 7 | Vertical Stripes |
| 8 | Horizontal Grayscale |
| 9 | Vertical Grayscale |
| 10 | 16-step Grayscale |
| 11 | Cross |
| 12 | Slant Cross Stripes |
| 13 | 256-Color Density Pattern |
| 14 | 64-Color Density Pattern |
| 15 | Trimming Region |
| 16 | Vertical Frequency Spec. |
| 17 | Horizontal Frequency Spec. |

5.3.2 IPU PRINTING TEST PATTERN (SP2-902-002)

| No. | Test Pattern |
|-----|--------------------|
| 0 | OFF |
| 1 | 1200 Date Image 1 |
| 2 | 1200 Date Image 2 |
| 3 | Vertical Grayscale |
| 4 | Caterpillar |

5.3.3 PRINTING TEST PATTERN (SP2-902-003)

| No. | Test Pattern |
|-----|--|
| 0 | None |
| 1 | 1-dot Independent Pattern |
| 2 | 2-dot Independent Pattern |
| 3 | 4-dot Independent Pattern |
| 4 | 2048-dot Independent Pattern |
| 5 | Grid 1-dot Line (0ch) |
| 6 | Grid 1-dot Line (1ch) |
| 7 | Grid 1-dot Line (2ch) |
| 8 | Grid 1-dot Line (3ch) |
| 9 | Grid 1-dot Line (4ch) |
| 10 | Grid 1-dot Line (5ch) |
| 11 | Grid 1-dot Line (6ch) |
| 12 | Grid 1-dot Line (7ch) |
| 13 | Vertical 1-dot Line |
| 14 | Vertical 2-dot Line |
| 15 | Horizontal 1-dot Line |
| 16 | Horizontal 2-dot Line |
| 17 | Grid 1-dot Parallel Lines |
| 18 | Checker Flag |
| 19 | Slanted Grid 1-dot Line |
| 20 | Slanted Grid 2-dot Line |
| 21 | Argyle 670 |
| 22 | Argyle 012 |
| 23 | All Black |
| 24 | Grid 2-dot Line |
| 25 | Vertical Belt Pattern |
| 26 | Horizontal Belt Pattern |
| 27 | Trim 1-dot Line |
| 28 | Trim 2-dot Line |
| 29 | Stair Pattern |
| 30 | Grayscale Horizontal (20 mm Wide) |
| 31 | Grayscale Horizontal (40 mm Wide) |
| 32 | Grayscale Vertical (20 mm Wide) |
| 33 | Grayscale Vertical (40 mm Wide) |
| 34 | Grayscale Horizontal (20 mm Wide Without Loop) |
| 35 | White Paper (Test: No Output) |
| 36 | Grid 1-dot Line (0ch) OR External |
| 37 | Trim 1-dot Line OR External |
| 38 | Slanted Grid Pattern OR External |
| 39 | LD Channel Adjust 1 |
| 40 | LD Channel Adjust 2 |
| 41 | LD Channel Adjust 3 |
| 42 | LD Channel Adjust 4 |

5.4 INPUT CHECK

5.4.1 MAIN MACHINE 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 class 3 number 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 where "0" means "Off" and "1" means "On". The bits are arrayed as shown below.

| | |
|---------|-----------------|
| 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] | | [2] | | [3] | |
|-------|-------------------------------|-------|----------------------------------|-------|-------------------------------------|
| bit-7 | Exit Unit Set Sensor | bit-7 | Cleaning Unit Set | bit-7 | - |
| bit-6 | Exit Sensor | bit-6 | Pre-Charge Grid | bit-6 | - |
| bit-5 | Job Time Sensor | bit-5 | Pre-Charge Corona | bit-5 | - |
| bit-4 | Exit Junction Gate HP Sensor | bit-4 | Total Counter Set | bit-4 | - |
| bit-3 | Abnormal Development Bias | bit-3 | Polygon Mirror Motor Cooling Fan | bit-3 | - |
| bit-2 | Abnormal Charge Grid | bit-2 | - | bit-2 | - |
| bit-1 | Abnormal Charge Corona | bit-1 | - | bit-1 | - |
| bit-0 | Drum Motor Overload | bit-0 | - | bit-0 | Front Door Safety Switch |
| [4] | | [5] | | [6] | |
| bit-7 | - | bit-7 | Fusing Exit Sensor | bit-7 | - |
| bit-6 | - | bit-6 | Fusing Unit Set (Lower Drawer) | bit-6 | Paper Remains: 2nd Tray 2 |
| bit-5 | - | bit-5 | ADF Open/Close | bit-5 | Paper Remains: 2nd Tray 1 |
| bit-4 | Fusing Unit Set: B236 | bit-4 | Original Set | bit-4 | Development Toner Bottle Set Sensor |
| bit-3 | Fusing Unit Set: B234/B235 | bit-3 | Key Counter Set | bit-3 | Paper Remains: 3rd Tray 2 |
| bit-2 | Toner Collection Coils Sensor | bit-2 | - | bit-2 | Paper Remains: 3rd Tray 1 |
| bit-1 | Cleaning Web End Sensor | bit-1 | - | bit-1 | Lower Limit Sensor |
| bit-0 | Fusing Motor Overload | bit-0 | - | bit-0 | - |

Service
Tables

INPUT CHECK

| [7] | | [8] | | [9] | |
|-------|-------------------------------------|-------|--|-------|---|
| bit-7 | Tray 3 Paper Size Detection 1 | bit-7 | Paper Remains: 1st Tray 4 | bit-7 | Rear Fence Return Sensor |
| bit-6 | Tray 3 Paper Size Detection 2 | bit-6 | Paper Remains: 1st Tray 2 | bit-6 | Left Tandem Tray Paper Sensor |
| bit-5 | Tray 3 Paper Size Detection 3 | bit-5 | Paper Remains: 1st Tray 3 | bit-5 | Upper Toner Bottle Sensor |
| bit-4 | Tray 3 Paper Size Detection 4 | bit-4 | Paper Remains: 1st Tray 4 | bit-4 | Toner Collection Bottle Agitator Sensor |
| bit-3 | Tray 3 Paper Size Detection 5 | bit-3 | Rear Side Fence Closed Sensor | bit-3 | Upper Toner Bottle Inner Cap Sensor |
| bit-2 | Front Side Fence Open Sensor | bit-2 | Right Tandem Tray Paper Sensor | bit-2 | Toner Bank TE Sensor |
| bit-1 | Front Side Fence Closed Sensor | bit-1 | Tandem Left Tray Set Sensor | bit-1 | Toner Collection Bottle Set Sensor |
| bit-0 | Rear Side Fence Open Sensor | bit-0 | Rear Fence HP Sensor | bit-0 | Toner Collection Bottle Overflow Sensor |
| [10] | | [11] | | [12] | |
| bit-7 | Lower Toner Bottle Sensor | bit-7 | - | bit-7 | Right Tandem Tray Set Sensor |
| bit-6 | Toner Bank Motor Solenoid Overload | bit-6 | - | bit-6 | - |
| bit-5 | Lower Toner Bottle Inner Cap Sensor | bit-5 | - | bit-5 | - |
| bit-4 | - | bit-4 | - | bit-4 | - |
| bit-3 | - | bit-3 | Toner Collection Bottle Near Full Sensor | bit-3 | - |
| bit-2 | - | bit-2 | - | bit-2 | - |
| bit-1 | - | bit-1 | - | bit-1 | Key Card Set |
| bit-0 | - | bit-0 | - | bit-0 | - |
| [13] | | [14] | | [15] | |
| bit-7 | - | bit-7 | Duplex Transport Sensor 3 | bit-7 | - |
| bit-6 | - | bit-6 | Duplex Inverter Relay Sensor 2 | bit-6 | - |
| bit-5 | - | bit-5 | Duplex Entrance Sensor | bit-5 | Guide Plate Open Sensor |
| bit-4 | - | bit-4 | Duplex Transport Sensor 1 | bit-4 | IOB Board Type 1 |
| bit-3 | - | bit-3 | Duplex Inverter Relay Sensor 1 | bit-3 | IOB Board Type 2 |
| bit-2 | - | bit-2 | Model Detect 2 | bit-2 | IOB Board Type 3 |
| bit-1 | - | bit-1 | Model Detect 1 | bit-1 | Drum Unit Set |
| bit-0 | Duplex Transport Sensor 2 | bit-0 | Duplex Unit Set | bit-0 | - |

| [16] | | [17] | | [18] | |
|-------|-------------------------------|-------|---------------|-------|-----------------------------|
| bit-7 | DIP SW1 | bit-7 | Exit Motor OL | bit-7 | - |
| bit-6 | DIP SW2 | bit-6 | - | bit-6 | - |
| bit-5 | DIP SW3 | bit-5 | - | bit-5 | - |
| bit-4 | DIP SW4 | bit-4 | - | bit-4 | - |
| bit-3 | DIP SW5 | bit-3 | - | bit-3 | - |
| bit-2 | DIP SW6 | bit-2 | - | bit-2 | Toner End Sensor |
| bit-1 | DIP SW7 | bit-1 | - | bit-1 | Development Unit Set |
| bit-0 | DIP SW8 | bit-0 | - | bit-0 | Toner Suction Motor Sensor |
| [19] | | [20] | | [21] | |
| bit-7 | Toner Pump Motor Sensor | bit-7 | - | bit-7 | 3rd Tray Lift Sensor |
| bit-6 | Toner Cylinder TE Sensor | bit-6 | - | bit-6 | 2nd Tray Lift Sensor |
| bit-5 | Development Motor Overload | bit-5 | - | bit-5 | Vertical Transport Sensor 2 |
| bit-4 | 1st Paper Feed Sensor | bit-4 | - | bit-4 | 3rd Paper End Sensor |
| bit-3 | 1st Paper End Sensor | bit-3 | - | bit-3 | 3rd Paper Feed Sensor |
| bit-2 | 1st Tray Lift Sensor | bit-2 | - | bit-2 | - |
| bit-1 | Vertical Transport Sensor 1 | bit-1 | - | bit-1 | - |
| bit-0 | - | bit-0 | - | bit-0 | - |
| [22] | | [23] | - | [24] | - |
| bit-7 | - | bit-7 | - | bit-7 | - |
| bit-6 | Tray 2 Paper Size Detection 5 | bit-6 | - | bit-6 | - |
| bit-5 | Tray 2 Paper Size Detection 4 | bit-5 | - | bit-5 | - |
| bit-4 | Tray 2 Paper Size Detection 3 | bit-4 | - | bit-4 | - |
| bit-3 | Tray 2 Paper Size Detection 2 | bit-3 | - | bit-3 | - |
| bit-2 | Tray 2 Paper Size Detection 1 | bit-2 | - | bit-2 | - |
| bit-1 | - | bit-1 | - | bit-1 | - |
| bit-0 | - | bit-0 | - | bit-0 | - |

INPUT CHECK

| [35] | | [36] | | [37] | |
|-------|---------------------------------------|-------|---------------------------------------|-------|---------------------------------|
| bit-7 | - | bit-7 | 3rd Vertical Transport Sensor 1 (LCT) | bit-7 | 1st Paper Width Sensor 1 (LCT) |
| bit-6 | - | bit-6 | 1st Vertical Transport Sensor 2 (LCT) | bit-6 | 1st Paper Width Sensor 2 (LCT) |
| bit-5 | - | bit-5 | 1st Vertical Transport Sensor 1 (LCT) | bit-5 | 1st Paper Width Sensor 3 (LCT) |
| bit-4 | LCT Front Door Safety Switch | bit-4 | - | bit-4 | 1st Paper Length Sensor (LCT) |
| bit-3 | - | bit-3 | - | bit-3 | 1st Paper Feed Sensor (LCT) |
| bit-2 | - | bit-2 | - | bit-2 | 1s Paper End Sensor (LCT) |
| bit-1 | 2nd Vertical Transport Sensor 1 (LCT) | bit-1 | - | bit-1 | 1st Tray Lift Sensor (LCT) |
| bit-0 | LCT Exit Sensor | bit-0 | - | bit-0 | 1st Transport Sensor (LCT) |
| [38] | | [39] | | [40] | |
| bit-7 | 1st Paper Height Sensor 1 (LCT) | bit-7 | 2nd Paper Width Sensor 1 (LCT) | bit-7 | 2nd Paper Height Sensor 1 (LCT) |
| bit-6 | 1st Paper Height Sensor 2 (LCT) | bit-6 | 2nd Paper Width Sensor 2 (LCT) | bit-6 | 2nd Paper Height Sensor 2 (LCT) |
| bit-5 | 1st Paper Height Sensor 3 (LCT) | bit-5 | 2nd Paper Width Sensor 3 (LCT) | bit-5 | 2nd Paper Height Sensor 3 (LCT) |
| bit-4 | 1st Paper Height Sensor 4 (LCT) | bit-4 | 2nd Paper Length Sensor (LCT) | bit-4 | 2nd Paper Height Sensor 4 (LCT) |
| bit-3 | - | bit-3 | 2nd Paper Feed Sensor (LCT) | bit-3 | - |
| bit-2 | - | bit-2 | 2nd Paper End Sensor (LCT) | bit-2 | - |
| bit-1 | - | bit-1 | 2nd Tray Lift Sensor (LCT) | bit-1 | - |
| bit-0 | - | bit-0 | 2nd Transport Sensor (LCT) | bit-0 | - |
| [41] | | [42] | | [43] | |
| bit-7 | 3rd Paper Width Sensor 1 (LCT) | bit-7 | 3rd Paper Height Sensor 1 (LCT) | bit-7 | Bypass Paper Width Sensor 1 |
| bit-6 | 3rd Paper Width Sensor 2 (LCT) | bit-6 | 3rd Paper Height Sensor 2 (LCT) | bit-6 | Bypass Paper Width Sensor 2 |
| bit-5 | 3rd Paper Width Sensor 3 (LCT) | bit-5 | 3rd Paper Height Sensor 3 (LCT) | bit-5 | Bypass Paper Width Sensor 3 |
| bit-4 | 3rd Paper Length Sensor (LCT) | bit-4 | 3rd Paper Height Sensor 4 (LCT) | bit-4 | Bypass Paper Width Sensor 4 |
| bit-3 | 3rd Paper Feed Sensor (LCT) | bit-3 | - | bit-3 | Bypass Paper Width Sensor 5 |
| bit-2 | 3rd Paper End Sensor (LCT) | bit-2 | - | bit-2 | Bypass Paper Length Sensor |
| bit-1 | 3rd Tray Lift Sensor (LCT) | bit-1 | - | bit-1 | - |
| bit-0 | 3rd Transport Sensor (LCT) | bit-0 | - | bit-0 | - |

| [44] | | [45] | | [46] | - |
|-------|--------------------------|-------|------------------------------|-------|---|
| bit-7 | - | bit-7 | Bypass Paper Height Sensor 1 | bit-7 | - |
| bit-6 | - | bit-6 | Bypass Height Sensor 2 | bit-6 | - |
| bit-5 | - | bit-5 | - | bit-5 | - |
| bit-4 | - | bit-4 | Bypass Lower Limit Sensor | bit-4 | - |
| bit-3 | Bypass Paper Feed Sensor | bit-3 | Bypass Tray Lift | bit-3 | - |
| bit-2 | Bypass Paper End Sensor | bit-2 | - | bit-2 | - |
| bit-1 | Bypass Tray Lift Sensor | bit-1 | Bypass Connection Detection | bit-1 | - |
| bit-0 | Bypass Transport Sensor | bit-0 | Bypass Slide Open | bit-0 | - |

INPUT CHECK

5.4.2 ADF INPUT CHECK: SP6007

| Class 3 No. | Bit No. | Description | Reading | |
|----------------|------------|-----------------------------------|--|-------------------|
| | | | 0 | 1 |
| 1 | 7 | Inverter Sensor | No original | Original detected |
| | 6 | Exit Sensor | No original | Original detected |
| | 5 | Registration Sensor | No original | Original detected |
| | 4 | Entrance Sensor | No original | Original detected |
| | 3 | Original Width Sensor 3 | No original | Original detected |
| | 2 | Original Width Sensor 2 | No original | Original detected |
| | 1 | Original Width Sensor 1 | No original | Original detected |
| | 0 | Original Set Sensor | No original | Original detected |
| 2 | 7 | ADF Feed-in Motor Encoder Pulse | Change the "0" and "1" during rotation | |
| | 6 | Pick-up Roller HP Sensor | At home position | Not home position |
| | 5 | Bottom Plate Position Sensor | Detected | Not detected |
| | 4 | Bottom Plate HP Sensor | At home position | Not home position |
| | 3 | Exit Cover Sensor | Close | Open |
| | 2 | Feed Cover Sensor | Close | Open |
| | 1 | APS Start Sensor | Start | Off |
| | 0 | DF Position Sensor | Down | Up |
| 3 | 7 | Not Used | | |
| | 6 | Not Used | | |
| | 5 | Not Used | | |
| | 4 | Not Used | | |
| | 3 | Not Used | | |
| | 2 | Original Length Sensor | No original | Original detected |
| | 1 | ADF Feed-out Motor Encoder Pulse | Change the "0" and "1" during rotation | |
| | 0 | ADF Transport Motor Encoder Pulse | Change the "0" and "1" during rotation | |

5.4.3 FINISHER INPUT CHECK: SP6112 (B830)

| | | | |
|-----|--------------------------------------|-----|---|
| 001 | Entrance Sensor | 026 | Exit Guide Open Sensor |
| 002 | Upper Exit Tray Sensor | 027 | Stapler Rotation Sensor 2 |
| 003 | Shift Tray Exit Sensor 1 | 028 | Staple Ready Sensor |
| 004 | Stapler Tray Exit Sensor | 029 | Stack Plate HP Sensor (Front) |
| 005 | Shift Tray Lower Limit Sensor | 030 | Stack Plate HP Sensor (Back) |
| 006 | Shift Tray Near Full Sensor | 031 | Positioning Roller HP Sensor |
| 007 | Feed-Out Belt HP Sensor | 032 | Return Drive HP Sensor |
| 008 | Jogger HP Sensor | 033 | Stapling Paper Height Sensor |
| 009 | Shift Tray Half-Turn Sensor 1 | 034 | Shift Lower Limit Sensor (Large Paper) |
| 010 | Stapler HP Sensor (Front/Rear) | 035 | Punch HP Sensor 2 |
| 011 | Stapler HP Sensor | 036 | Shift Jogger Sensor |
| 012 | Staple Out Sensor | 037 | Shift Jogger HP Sensor |
| 013 | Staple Tray Paper Sensor | 038 | Shift Jogger Retraction HP Sensor |
| 014 | Front Door Open Switch] | 039 | Emergency Stop Switch |
| 015 | Punch Detection Sensor | 040 | Top Fence HP Sensor |
| 016 | Punch HP Sensor 1 | 041 | Bottom Fence HP Sensor |
| 017 | Punch-out Hopper Full Sensor | 042 | LowerTray Full Sensor (Z-Folded Paper) |
| 018 | Stapling Paper Height Sensor | 043 | Shift Tray Exit Sensor 2 |
| 019 | Staple Mode HP Sensor | 044 | Upper Tray Junction Gate HP Sensor |
| 020 | Jam Detection Sensor | 045 | Staple Junction Gate HP Sensor |
| 021 | Upper Tray Full Sensor | 046 | Pre-Stack Junction Gate HP Sensor |
| 022 | Stapler Rotation Sensor 1 | 047 | Pre-Stack Sensor (Right) |
| 023 | Stapler Trimmings Hopper Full Sensor | 048 | Pre-Stack Junction Gate Release HP Sensor |
| 024 | Pre-Stack Sensor | 049 | Shift Tray Half-Turn Sensor 2 |
| 025 | Stack Plate HP Sensor (Center) | 050 | Staple Trimmings Hopper Set Sensor |

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5.4.4 BOOKLET FINISHER INPUT CHECK (B836): SP6206

| No. | Description |
|-----|-------------------------------------|
| 001 | Fold Unit Exit Sensor |
| 002 | Stack Present Sensor |
| 003 | Upper Tray Exit Sensor |
| 004 | Fold Unit Entrance Sensor |
| 005 | Jogger Fence HP Sensor |
| 006 | Clamp Roller HP Sensor |
| 007 | Stack Junction Gate HP Sensor |
| 008 | Fold Bottom Fence HP Sensor |
| 009 | Fold Plate HP Sensor |
| 010 | Fold Plate Cam HP Sensor |
| 011 | Stack Feed-Out Belt HP Sensor |
| 012 | Lower Tray Full Sensor - Front |
| 013 | Lower Tray Full Sensor - Rear |
| 014 | Front Door Safety Switch |
| 015 | Stapling Tray Paper Sensor |
| 016 | Finisher Entrance Sensor |
| 017 | Pre-Stack Tray Exit Sensor |
| 018 | Left Front Door Sensor |
| 019 | Booklet Stapler Motor: Front |
| 020 | Booklet Stapler Staples: Front |
| 021 | Booklet Stapler Leading Edge: Front |
| 022 | Booklet Stapler Motor: Rear |
| 023 | Booklet Stapler Staples: Rear |
| 024 | Booklet Stapler Leading Edge: Rear |

5.4.5 COVER INTERPOSER B835 INPUT CHECK: SP6400

| No. | Description |
|-----|---------------------------------|
| 001 | 1st Paper Feed Sensor |
| 002 | 2nd Paper Feed Sensor |
| 003 | 1st Transport Roller |
| 004 | 2nd Transport Roller |
| 005 | 1st Vertical Transport Sensor |
| 006 | 2nd Vertical Transport Sensor |
| 007 | Output Sensor |
| 008 | Entrance Sensor |
| 009 | Exit Sensor |
| 010 | 1st Pick-up Roller HP Sensor |
| 011 | 2nd Pick-up Roller HP Sensor |
| 012 | 1st Upper Limit Sensor |
| 013 | 2nd Upper Limit Sensor |
| 014 | 1st Lower Limit Sensor |
| 015 | 2nd Lower Limit Sensor |
| 016 | 1st Paper Near End Sensor |
| 017 | 2nd Paper Near End Sensor |
| 018 | 1st Paper End Sensor |
| 019 | 2nd Paper End Sensor |
| 020 | 1st Paper Length Sensor |
| 021 | 2nd Paper Length Sensor |
| 022 | 1st Paper Width Sensor 1 |
| 023 | 1st Paper Width Sensor 2 |
| 024 | 1st Paper Width Sensor 3 |
| 025 | 1st Paper Width Sensor 4 |
| 026 | 1st Paper Width Sensor 5 |
| 027 | 2nd Paper Width Sensor 1 |
| 028 | 2nd Paper Width Sensor 2 |
| 029 | 2nd Paper Width Sensor 3 |
| 030 | 2nd Paper Width Sensor 4 |
| 031 | 2nd Paper Width Sensor 5 |
| 032 | 1st Feed Cover Sensor |
| 033 | 2nd Feed Cover Sensor |
| 034 | Cover Vertical Transport Switch |
| 035 | Front Door Open Switch |

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5.5 OUTPUT CHECK

5.5.1 MAIN MACHINE OUTPUT CHECK: SP5804

NOTE: Motors keep turning in this mode regardless of upper or lower limit sensor signals. To prevent mechanical or electrical damage, do not keep an electrical component on for a long time.

Main Machine Output Check (SP5-804)

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.

| No. | Description | No. | Description |
|-----|-------------------------------|-----|--|
| 001 | 1st Pick-up SOL | 043 | Toner Collection Bottle Agitator Motor |
| 002 | 2nd Pick-up SOL | 044 | Hopper Agitator Motor |
| 003 | 3rd Pick-up SOL | 045 | Toner Cylinder Agitator Motor |
| 004 | LCT 1st Pick-up SOL | 051 | Guide Plate Solenoid |
| 005 | LCT 2nd Pick-up SOL | 052 | LCT Guide Plate Solenoid |
| 006 | LCT 3rd Pick-up SOL | 053 | Duplex Inverter Gate Solenoid |
| 007 | Bypass Pick-up SOL | 054 | Reverse Roller Solenoid |
| 008 | 1st Separation Roller SOL | 055 | Inverter Guide Plate Solenoid |
| 009 | 2nd Separation Roller SOL | 056 | Toner Recycling Shutter Solenoid |
| 010 | 3rd Separation Roller SOL | 057 | 2nd Cleaning Blade Solenoid |
| 011 | LCT 1st Separation Roller SOL | 058 | Transfer Belt Lift Solenoid] |
| 012 | LCT 2nd Separation Roller SOL | 061 | ID Sensor LED |
| 013 | LCT 3rd Separation Roller SOL | 062 | Quenching Lamp |
| 014 | Bypass Separation Roller SOL | 063 | Charge Corona |
| 015 | 1st Tray Lift Motor | 064 | Grid Plate |
| 016 | 2nd Tray Lift Motor | 065 | Development Bias |
| 017 | 3rd Tray Lift Motor | 066 | Transfer Belt Bias |
| 018 | Rear Fence Drive Motor | 067 | Pre-Charge Grid |
| 019 | Tandem Tray Connect Solenoid | 068 | Charge Corona Grid |
| 020 | Front Side Fence Solenoid | 069 | ID Sensor |
| 021 | Rear Side Fence Solenoid | 070 | PTL |
| 022 | Left 1st Tray Lock Solenoid | 081 | Polygonal Motor Mirror Cooling Fan |
| 031 | Drum Motor | 082 | Exhaust Fan (Low) |
| 032 | Fusing/Exit Motor | 083 | Exhaust Fan (High) |
| 033 | Fusing Motor | 084 | Drum Cooling Fan (Low) |
| 034 | Web Motor | 085 | Drum Cooling Fan (High) |
| 035 | Development Motor | 086 | Paper Cooling Pipe Fan1 |
| 036 | Upper Toner Bottle Motor | 087 | Paper Cooling Pipe Fan2 |
| 037 | Lower Toner Bottle Motor | 088 | Steam Removal Fan (Low) |
| 038 | Toner Bank Motor | 089 | Steam Removal Fan (High) |
| 039 | Toner Supply Coil Clutch | 090 | Development Unit Cooling Fan1 |
| 040 | Toner Suction Motor | 091 | Development Unit Cooling Fan2 |
| 041 | Upper Bottle Cap Motor | 092 | Duplex Entrance Cooling Fan |
| 042 | Lower Bottle Cap Motor | 093 | Duplex Cooling Fan |

| No. | Description | No. | Description |
|-----|------------------------------------|-----|----------------------------------|
| 094 | Cleaning Unit Cooling Fan | 132 | 5th Grip Motor (High Speed) |
| 095 | Toner Collection Cooling Fan | 133 | 6th Grip Motor (Low Speed) |
| 098 | Laser Diode | 134 | 6th Grip Motor (High Speed) |
| 099 | Total Counter | 135 | 7th Grip Motor (Low Speed) |
| 101 | 1st Paper Feed Motor (Low Speed) | 136 | 7th Grip Motor High Speed) |
| 102 | 1st Paper Feed Motor (High Speed) | 137 | 4th Transport Motor (Low Speed) |
| 103 | 2nd Paper Feed Motor (Low Speed) | 138 | 4th Transport Motor (High Speed) |
| 104 | 2nd Paper Feed Motor (High Speed) | 139 | 5th Transport Motor (Low Speed) |
| 105 | 3rd Paper Feed Motor (Low Speed) | 140 | 5th Transport Motor (High Speed) |
| 106 | 3rd Paper Feed Motor (High Speed) | 141 | 6th Transport Motor (Low Speed) |
| 107 | 1st Transport Motor (Low Speed) | 142 | 6th Transport Motor (High Speed) |
| 108 | 1st Transport Motor (High Speed) | 143 | 7th Transport Motor (Low Speed) |
| 109 | 2nd Transport Motor (Low Speed) | 144 | 7th Transport Motor High Speed) |
| 110 | 2nd Transport Motor (High Speed) | 145 | LCT Exit Motor (Low) |
| 111 | 3rd Transport Motor (Low Speed) | 146 | LCT Exit Motor (High) |
| 112 | 3rd Transport Motor (High Speed) | 151 | 1st Vertical Transport Clutch |
| 113 | Upper Relay Motor (Low Speed) | 152 | 2nd Vertical Transport Clutch |
| 114 | Upper Relay Motor (High Speed) | 153 | 3rd Vertical Transport Clutch |
| 115 | Vertical Relay Roller (Low Speed) | 154 | LCT 1st Grip Clutch |
| 116 | Vertical Relay Roller (High Speed) | 155 | LCT 2nd Grip Clutch |
| 117 | Registration Motor | 156 | LCT 3rd Grip Clutch |
| 118 | Registration Motor | 157 | Bypass Grip Clutch |
| 121 | 4th Paper Feed Motor (Low Speed) | 158 | Relay Clutch |
| 122 | 4th Paper Feed Motor (High Speed) | 159 | LCT Relay Clutch |
| 123 | 5th Paper Feed Motor (Low Speed) | 161 | Inverter Gate Solenoid |
| 124 | 5th Paper Feed Motor (High Speed) | 162 | Duplex Transport Motor1 |
| 125 | 6th Paper Feed Motor (Low Speed) | 163 | Toner Supply Pump Motor |
| 126 | 6th Paper Feed Motor (High Speed) | 164 | Toner Supply Roller Motor |
| 127 | 7th Paper Feed Motor (Low Speed) | 202 | Fusing Lamp 1 |
| 128 | 7th Paper Feed Motor (High Speed) | 203 | Fusing Lamp 2 |
| 129 | 4th Grip Motor (Low Speed) | 204 | Lamp Regulator Far (Left) |
| 130 | 4th Grip Motor (High Speed) | 205 | Scanner Motor Cooling Fan |
| 131 | 5th Grip Motor (Low Speed) | 206 | Scanner Unit Intake Fan |

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OUTPUT CHECK

5.5.2 ADF OUTPUT CHECK: SP6008

| No. | Description | 0 | 1 |
|-----|---------------------------|-----|----|
| 1 | Feed-in Motor (High) | OFF | ON |
| 2 | Feed-in Motor (Low) | OFF | ON |
| 3 | Transport Motor (Forward) | OFF | ON |
| 4 | Transport Motor (Reverse) | OFF | ON |
| 5 | Feed-out Motor | OFF | ON |
| 6 | Exit Gate Solenoid | OFF | ON |
| 7 | Inverter Solenoid | OFF | ON |
| 8 | LEDs (Operation Panel) | OFF | ON |
| 9 | Pick-up Motor | OFF | ON |
| 10 | Bottom Plate Motor | OFF | ON |
| 11 | Feed-in Clutch | OFF | ON |

5.5.3 FINISHER OUTPUT CHECK SP6113 (B830)

| No. | Description |
|-----|---------------------------------------|
| 001 | OFF (Stop) |
| 002 | Upper Transport Motor |
| 003 | Shift Tray Exit Motor |
| 004 | Upper Tray Junction Gate Motor |
| 005 | Shift Tray Lift Motor |
| 006 | Jogger Motor |
| 007 | Shift Jogger Motor |
| 008 | Staple Hammer Motor |
| 009 | Punch Motor |
| 010 | Staple Junction Gate Motor |
| 011 | Positioning Roller Motor |
| 012 | Stack Feed-Out Belt Motor |
| 013 | Shift Motor |
| 014 | Stapler Rotation Motor |
| 015 | Lower Transport Motor |
| 016 | Exit Guide Motor |
| 017 | Stack Plate Motor (Center) |
| 018 | Pre-Stack Junction Gate Motor |
| 019 | Pre-Stack Junction Gate Release Motor |
| 020 | Stack Plate Motor (Front) |
| 021 | Stack Plate Motor (Rear) |
| 022 | Stacking Roller Motor |
| 023 | Stacking Roller Drag Motor |
| 024 | Shift Jogger Motor |
| 025 | Shift Jogger Lift Motor |
| 026 | Jogger Top Fence Motor |
| 027 | Jogger Bottom Fence Motor |
| 028 | Lower Transport Motor |
| 029 | Upper Tray Exit Motor |
| 030 | Positioning Transport Motor |
| 031 | Pre-Stack Transport Motor |
| 032 | Staple Trimming Shooter Solenoid |

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OUTPUT CHECK

5.5.4 BOOKLET FINISHER OUTPUT CHECK: SP6207

| No. | Description |
|-----|---|
| 001 | OFF (Stop) |
| 002 | Finisher Engrance Motor |
| 003 | Lower Transport Motor |
| 004 | Upper Tray Exit Motor |
| 005 | Positioning Roiller Motor |
| 006 | Jogger Fence Motor |
| 007 | Feed-Out Belt Motor |
| 008 | Stack Junction Gate Motor |
| 009 | Fold Unit Bottom Fence Lift Motor |
| 010 | Clamp Roller Retraction Motor |
| 011 | Fold Plate Motor |
| 012 | Fold Roller Motor |
| 013 | Stapling Tray Junction Gate Solenoid 1 |
| 014 | Stapling Edge Pressure Plate Solenoid |
| 015 | Positioning Roller Solenoide |
| 016 | Booklet Pressure Roller Solenoid |
| 017 | Booklet Stapler Motor - Front |
| 018 | Booklet Stapler Motor - Rear |

5.5.5 COVER INTERPOSER (B835) OUTPUT CHECK: SP6401

| No. | Description |
|-----|--------------------------|
| 001 | OFF (Stop) |
| 002 | 1st Pick-up Motor |
| 003 | 2nd Pick-up Motor |
| 004 | 1st Paper Feed Motor |
| 005 | 2nd Paper Feed Motor |
| 006 | 1st Transport Motor |
| 007 | 2nd Transport Motor |
| 008 | Vertical Transport Motor |

Output Check

| | |
|-----|----------------------------|
| 009 | Horizontal Transport Motor |
|-----|----------------------------|

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SM

5-183

B234/B235/B236/D101/D102/D103

5.6 SMC LISTS

The SMC list prints system parameters and report data.

1. Access the SP mode corresponding to the list that you wish to print.

| | |
|-------------|--|
| SP5-990-1: | All (Data List) |
| SP5-990-2: | SP (Mode Data List) |
| SP5-990-3: | User Program Data |
| SP5-990-4: | Logging Data |
| SP5-990-5: | Diagnostic Report |
| SP5-990-7: | Non-Default (Prints only SPs set to values other than defaults.) |
| SP5-990-8: | NIB Summary |
| SP5-990-21: | Capture Log |
| SP5-990-22: | Copier User Program |
| SP5-990-23: | Scanner SP |

2. Touch the “Copy Window” key to access the copy mode display.
3. Select the paper size and press the “SP Mode” key to retune the SP mode.
4. Press the “Execute” key to print the list.
5. Exit SP mode.

5.7 MEMORY ALL CLEAR: SP5801

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:

| | |
|------------|--|
| 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 SP5801.
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. |
| 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. |
| 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 | Initializes all service-mode settings about access to the document server from the DeskTopBinder software on a PC. For example, initializes the resolution of images the PC gets using the image converter board option. |
| 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. |

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MEMORY ALL CLEAR: SP5801

4. Press Execute, then follow the prompts on the display to complete the procedure.
5. Make sure that you perform the following settings:
 - Do the printer and scanner registration and magnification adjustments.
( 3-17).
 - Execute SP2115 – Main Scan Beam Pitch Adjustment
 - 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
 - Switch SP 3901 001 (Auto Process Control Setting) to 1 (On), if you wish auto process control to be used.
6. Check the copy quality and the paper path, and do any necessary adjustments.

5.8 SOFTWARE AND COPY SETTING RESET (UP MODE)

5.8.1 SOFTWARE RESET

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

Turn the main power switch off and 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.

5.8.2 RESETTING THE SYSTEM

The system settings in the UP mode can be reset to their defaults using the following procedure.

1. Make sure that the machine is in the copier standby mode.
2. Press the User Tools key.
3. Hold down the "#" key and touch the "System Setting" key.
4. A confirmation message will be displayed, then press "Yes".

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5.8.3 RESETTING COPY/DOCUMENT SERVER FEATURES ONLY

The copy/document server settings in the UP mode can be reset to their defaults using the following procedure.

1. Make sure that the machine is in the copier standby mode.
2. Press the User Tools key.
3. Hold down the "#" key and touch "Copy/Document Server Features" key.
4. A confirmation message will be displayed, then press "Yes".

5.8.4 RESETTING SCANNER FEATURES ONLY

The scanner settings in the UP mode can be reset to their defaults using the following procedure

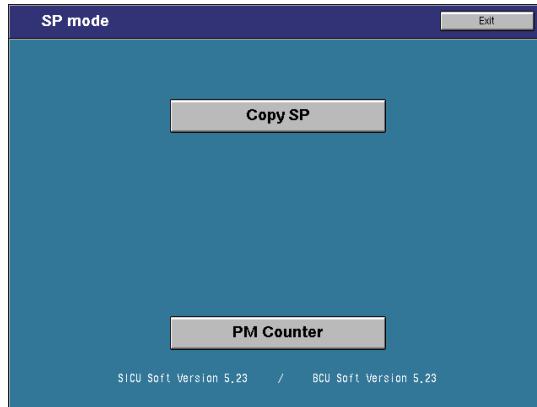
1. Make sure that the machine is in the copier standby mode.
2. Press the User Tools key.
3. Hold down the “#” key and touch “Scanner Features” key.
4. A confirmation message will be displayed, then press “Yes

5.9 PM COUNTER

5.9.1 ACCESSING THE PM COUNTERS

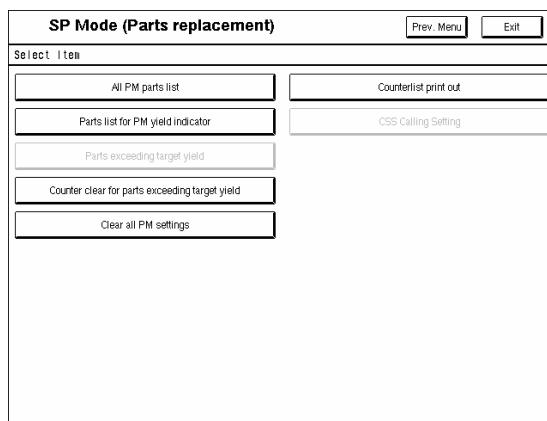
Each PM part has a counter which counts up at the appropriate time. (For example, the counter for the hot roller counts up every copy, and the counter for a feed roller counts up when paper is fed from the corresponding tray.) These counters should be used as references for part replacement timing.

- 1) Press the following keys in sequence.
[Clear Modes]> 1 0 7 > [Clear] for 3 sec.
Hold the [Clear] key for more than 3 seconds
The SP mode menu is displayed.



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Tables

- 2) Press [PM Counter] on the display.
- 3) The following menu appears on the display.



PM COUNTER

All PM Parts List

Displays all the counters for PM parts.

| SP Mode (Parts replacement) | | | | | Prev. Menu | Exit |
|-----------------------------|---------------------------------|----------|----------|--------|--------------------------------------|--|
| All PM parts list | | | | | | |
| No | Description | PM yield | Current | Target | | |
| 001 | Developer | Yes | 0000236 | 0000K | <input type="button" value="Clear"/> | |
| 002 | Oil Supply & Cleaning Web | Yes | 0000236 | 0300K | <input type="button" value="Clear"/> | |
| 003 | Web Cleaning Roller | Yes | 0000236 | 0300K | <input type="button" value="Clear"/> | |
| 004 | Hot Roller | Yes | 0000236 | 0450K | <input type="button" value="Clear"/> | |
| 005 | Pressure Roller | Yes | 0000236 | 0450K | <input type="button" value="Clear"/> | |
| 006 | Pressure Roller Cleaning Roller | Yes | 0000236 | 0300K | <input type="button" value="Clear"/> | |
| 007 | Hot Roller Strippers | Yes | 0000236 | 0300K | <input type="button" value="Clear"/> | |
| 008 | Development Filter | Yes | 0000236 | 0300K | <input type="button" value="Clear"/> | |
| 009 | Toner Hopper Filter - Center | Yes | 0000236 | 0300K | <input type="button" value="Clear"/> | |
| 010 | Toner Hopper Filter - Front | Yes | 0000236 | 0300K | <input type="button" value="Clear"/> | |
| 011 | Feed Roller - Tray 1 | Yes | 0000228 | 0300K | <input type="button" value="Clear"/> | |
| 012 | Pick-up Roller - Tray 1 | Yes | 0000228 | 0300K | <input type="button" value="Clear"/> | |
| 013 | Separation Roller - Tray 1 | Yes | 0000228 | 0300K | <input type="button" value="Clear"/> | |
| 014 | Feed Roller - Tray 2 | Yes | 00000000 | 0300K | <input type="button" value="Clear"/> | 01/03 |
| 015 | Pick-up Roller - Tray 2 | Yes | 00000000 | 0300K | <input type="button" value="Clear"/> | |
| 016 | Separation Roller - Tray 2 | Yes | 00000000 | 0300K | <input type="button" value="Clear"/> | |
| 017 | Feed Roller - Tray 3 | Yes | 00000000 | 0300K | <input type="button" value="Clear"/> | |
| 018 | Pick-up Roller - Tray 3 | Yes | 00000000 | 0300K | <input type="button" value="Clear"/> | <input type="button" value="Next page"/> |

On this screen, the current counter and the target yield of each PM part can be checked.

Additionally, the PM yield indicator setting can be changed. To change the setting press [Yes/No] key in the “PM yield” column.

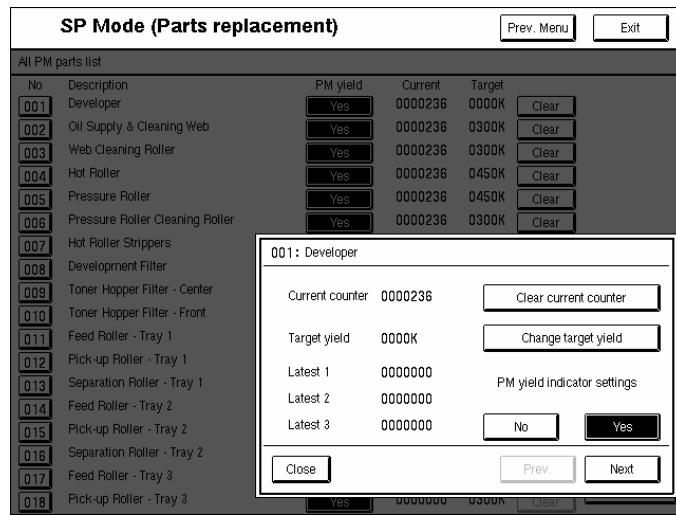
When “Parts list for PM yield” is selected in the parts replacement menu, only the parts with [Yes] in the “PM yield” are listed.

To clear a counter, press [Clear] on the display. The following appears.

| SP Mode (Parts replacement) | | | | | Prev. Menu | Exit |
|-----------------------------------|----------------------------|--------|----------|--------|--------------------------------------|--|
| Parts list for PM yield indicator | | | | | | |
| No | Description | Exceed | Current | Target | | |
| 001 | Developer | | 0000236 | 0000K | <input type="button" value="Clear"/> | |
| 002 | Oil Supply & Cleaning Web | | 0000236 | 0300K | <input type="button" value="Clear"/> | |
| 003 | | | | | | |
| 004 | | | | | | |
| 005 | | | | | | |
| 006 | | | | | | |
| 007 | | | | | | |
| 008 | | | | | | |
| 009 | | | | | | |
| 010 | | | | | | |
| 011 | | | | | | |
| 012 | | | | | | |
| 013 | Separation Roller - Tray 1 | | 0000228 | 0300K | <input type="button" value="Clear"/> | |
| 014 | Feed Roller - Tray 2 | | 00000000 | 0300K | <input type="button" value="Clear"/> | 01/01 |
| 015 | Pick-up Roller - Tray 2 | | 00000000 | 0300K | <input type="button" value="Clear"/> | |
| 016 | Separation Roller - Tray 2 | | 00000000 | 0300K | <input type="button" value="Clear"/> | |
| 017 | Feed Roller - Tray 3 | | 00000000 | 0300K | <input type="button" value="Clear"/> | |
| 018 | Pick-up Roller - Tray 3 | | 00000000 | 0300K | <input type="button" value="Clear"/> | <input type="button" value="Next page"/> |

Then press [Yes] to clear the counter.

If one of the keys in the “No” column is pressed, the following appears on the display.



On this screen, the records of the last three part replacements are displayed. When ‘Clear current counter’ is pressed, the current counter is cleared, the current counter is overwritten to “Latest 1”, the Latest 1 counter is overwritten to “Latest 2”, and the Latest 2 counter is overwritten to “Latest 3”.

Additionally, the target yield can be changed on this screen. To change the target yield setting, do the following:

- 1) Press [Change target yield] on the screen.
- 2) Input the target yield using the ten-key pad.
- 3) Press the # key.

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PM COUNTER

Parts List for PM Yield Indicator

| SP Mode (Parts replacement) | | | | Prev. Menu | Exit |
|-----------------------------------|---------------------------------|--------|---------|----------------------------|-----------------------|
| Parts list for PM yield indicator | | | | | |
| No | Description | Exceed | Current | Target | |
| 001 | Developer | | 0000236 | 0000K | Clear |
| 002 | Oil Supply & Cleaning Web | | 0000236 | 0300K | Clear |
| 003 | Web Cleaning Roller | | 0000236 | 0300K | Clear |
| 004 | Hot Roller | | 0000236 | 0450K | Clear |
| 005 | Pressure Roller | | 0000236 | 0450K | Clear |
| 006 | Pressure Roller Cleaning Roller | | 0000236 | 0300K | Clear |
| 007 | Hot Roller Strippers | | 0000236 | 0300K | Clear |
| 008 | Development Filter | | 0000236 | 0300K | Clear |
| 009 | Toner Hopper Filter - Center | | 0000236 | 0300K | Clear |
| 010 | Toner Hopper Filter - Front | | 0000236 | 0300K | Clear |
| 011 | Feed Roller - Tray 1 | | 0000228 | 0300K | Clear |
| 012 | Pick-up Roller - Tray 1 | | 0000228 | 0300K | Clear |
| 013 | Separation Roller - Tray 1 | | 0000228 | 0300K | Clear |
| 014 | Feed Roller - Tray 2 | | 0000000 | 0300K | Clear |
| 015 | Pick-up Roller - Tray 2 | | 0000000 | 0300K | Clear |
| 016 | Separation Roller - Tray 2 | | 0000000 | 0300K | Clear |
| 017 | Feed Roller - Tray 3 | | 0000000 | 0300K | Clear |
| 018 | Pick-up Roller - Tray 3 | | 0000000 | 0300K | Clear |

01/01

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On this screen, only the parts selected in the “All PM parts list” screen are displayed. Normally, the PM parts counters should be checked on this screen.

If the current counter exceeds the target yield, there is a * mark in the “Exceed” column.

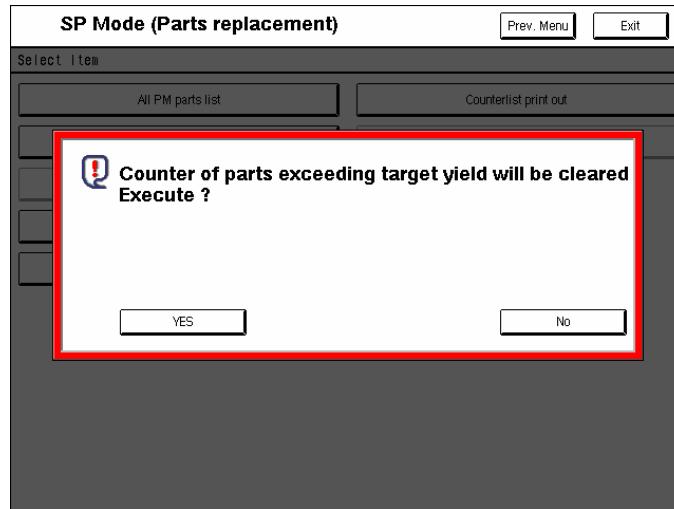
Each counter can also be cleared on this screen. To clear all counters on this screen at once, see ‘Counter Clear for Parts Exceeding Target Yield’ on the next page.

Parts Exceeding Target Yield

Only the parts whose counters are exceeding the target yield are displayed. If none of the PM counters is exceeding the target yield, this item cannot be selected from the parts replacement menu.

Counter Clear for Parts Exceeding Target Yield

Clears all the counters which are exceeding the target yield. When this item is selected, the following appears on the display.

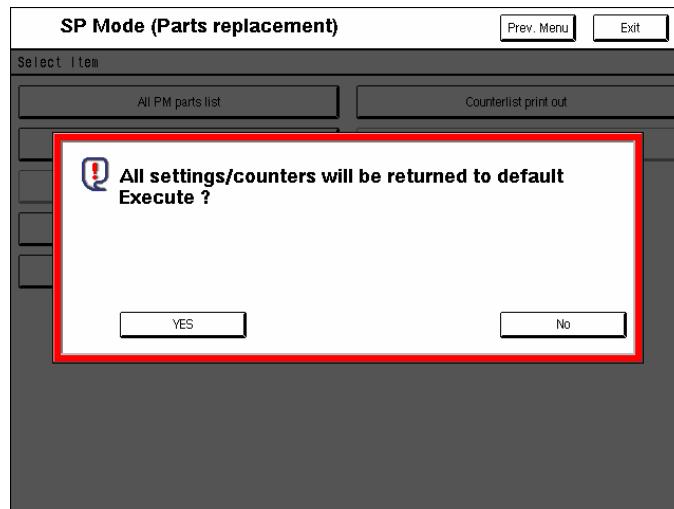


Press [Yes] to clear the counters.

Clear All PM Settings

Clears all the PM counters and returns all the settings (PM parts list and target yield) to the defaults. When this item is selected, the following appears.

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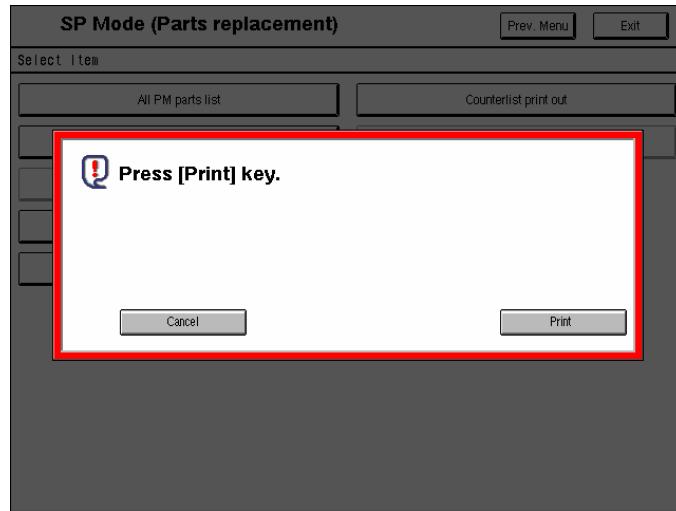


Press [Yes] to clear the settings.

PM COUNTER

Counter List Print Out

Prints a list of all the PM part counters. When this item is selected, the following appears on the display.



Press [Print] to print out the counter list.

CSS Calling Setting (RSS Function)

This function is for Japanese machines only.

5.10 FIRMWARE UPDATE

To update the firmware for this machine, you must have the new version of the firmware downloaded onto an SD (Secure Digital) Card. The SD Card is inserted into the C3 slot on the right side of the controller box, viewed from the back of the machine.

5.10.1 BEFORE YOU BEGIN...

An SD card is a precision device, so always observe the following precautions when handling SD cards:

- Always switch the machine off before inserting an SD card. Never insert the SD card into the slot with the power on.
- After the power has been switched on, never remove the SD card from the service slot.
- Never switch the machine off while the firmware is downloading from the SD card.
- Store SD cards in a safe location where they are not exposed high temperature, high humidity, or exposure to direct sunlight.
- Always handle SD cards with care to avoid bending or scratching them. Never drop an SD card or expose it to other shock or vibration.

Keep the following points in mind while you are using the firmware update software:

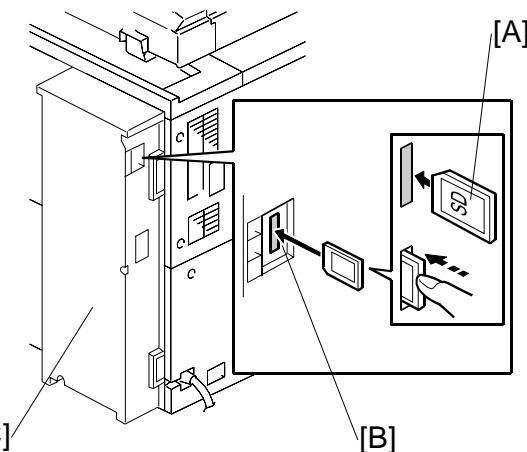
- “Upload” means to send data from the machine to the SD card, and “download” means to send data from the SD card to the machine.
- To select an item on the LCD, touch the appropriate button on the soft touch-screen of the LCD, or press the appropriate number key on the 10-key pad of the operation panel. For example, “Exit (0)” displayed on the screen means you can touch the Exit button on the screen, or press the  button on the operation panel of the copier.
- Before starting the firmware update procedure, always make sure that the machine is disconnected from the network to prevent a print job for arriving while the firmware update is in progress.

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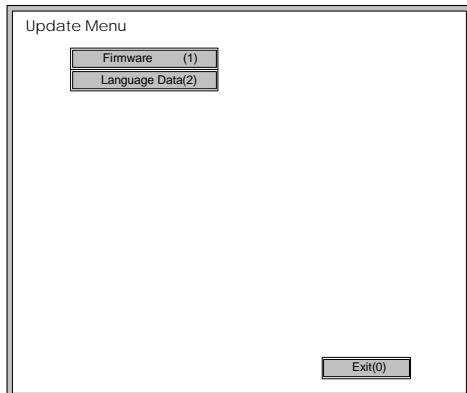
5.10.2 UPDATING FIRMWARE

1. On the machine, switch off the main power switch.
2. With the label on the SD card [A] facing as shown in the diagram, insert the SD card into service slot C3 [B] on the right side of the controller box [C]. Slowly push the SD card once into the slot so it locks in place.
3. Make sure the SD card is locked in place.

NOTE: To remove the SD, push it in to unlock the spring lock and then release it so it pops out of the slot.



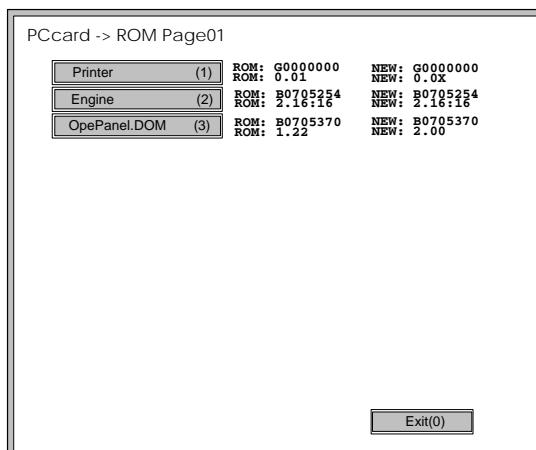
4. If the machine is connected to a network, disconnect the network cable from the copier.
5. Switch the main power switch on. After about 10 seconds, the initial version update screen appears on the LCD in English.



| KEY | WHAT IT DOES |
|-------------------|--|
| Firmware (1) | Press this button on the touch-screen (or ① on the 10-key pad) to open the firmware update screen. |
| Language Data (2) | Press this button on the touch-screen (or ② on the 10-key pad) to open the language update screen. |
| Exit (0) | Press this key on the touch-screen (or ③ on the 10-key pad) to quit the update procedure and return to normal machine operation. |

NOTE: The firmware update and language update cannot be performed during the same session. If you need to do both, do the firmware update, switch the machine off and on to confirm the successful update of the firmware, then do the language update.

6. Touch “Firmware (1)” to open the firmware update screen.



| ROM/NEW | WHAT IT MEANS |
|---------|--|
| ROM: | Tells you the number of the module and name of the version presently installed. The first line is the module number, the second line the version name. |
| NEW: | Tells you the number of the module and name version on the SD card. The first line is the module number, the second line the version name. |

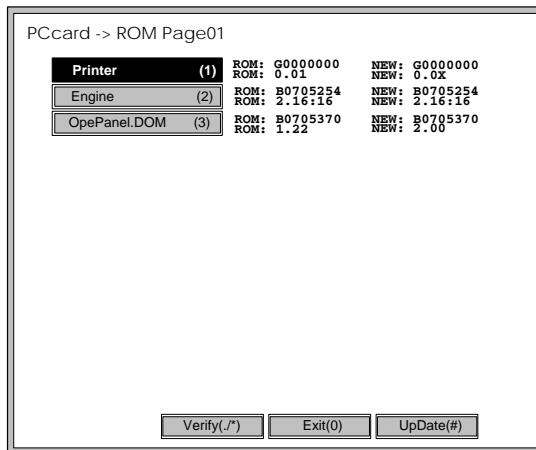
7. On the screen, touch the button or press the corresponding number key on the operation panel to select the item in the menu that you want to update.

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FIRMWARE UPDATE

8. After pressing the module button, or entering the appropriate number with the 10-key pad to select the module, the “Update” keys appear at the bottom of the screen.

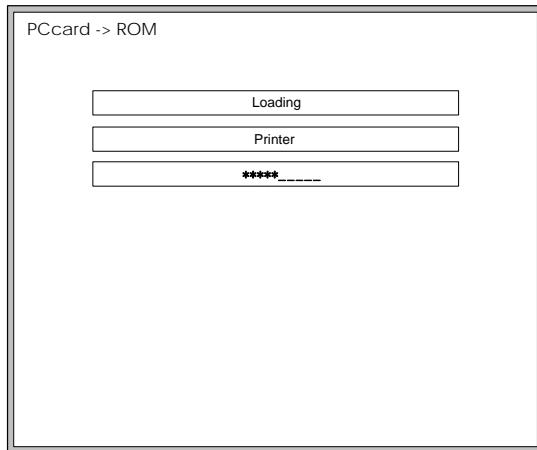
NOTE: The screen below shows only the “Printer” option selected for update.



| KEY | WHAT IT DOES |
|-----------|---|
| Update(#) | Press this button (or $\#$) to upgrade the selected module. |
| Exit(0) | Press this button (or $\textcircled{0}$) to return to the previous screen. |

9. To start the update, touch “UpDate (#)” (or $\#$).

After selecting “Update”, three lines are displayed on the screen:

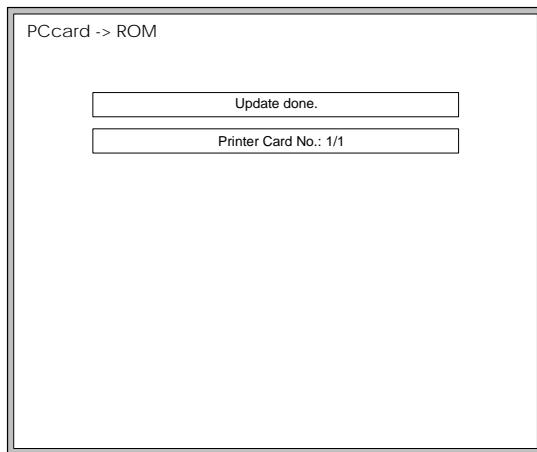


The first line tells you what is happening, the second line is the name of the module, and the third line tells you about the progress of the operation. As the update progresses, the underscores (_) in the progress bar are replaced by asterisks.

The update is finished after all 10 underscores are replaced by asterisks.

NOTE: The progress bar (*_) is not displayed for the operation panel firmware after you touch “Op-Panel”. While the LCDC firmware is updating, the power on key flashes on and off at 0.5 s intervals. When the update is finished, the power key flashes on and off slower at 3 s intervals.

When the update is finished, you will see a screen like the one below:



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The first line prompts you that the update is finished, and the second line tells you the name of the module that has just been updated.

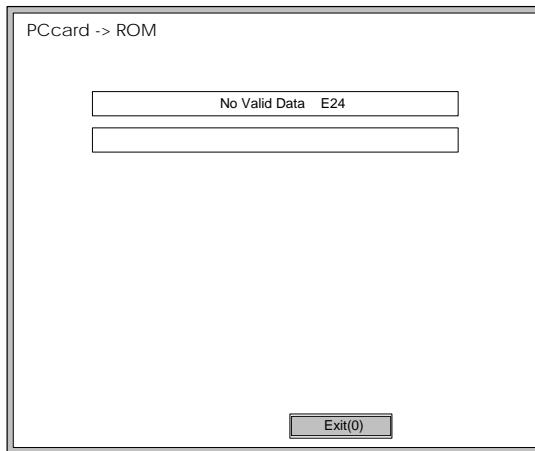
NOTE: If you have selected more than one module for updating, only the screen for the last module updated will be displayed.

FIRMWARE UPDATE

10. When you see the “Update Done” message, switch the copier main power switch off.
11. Press in the SD card to release it, then remove it from the slot.
12. Switch the copier on for normal operation.

Error Messages

If an error occurs during the download, an error message will be displayed in the first line.



The error code consists of the letter “E” and a number. The example above shows error “E24” displayed. For details, refer to the Error Message Table. (☞①)

5.10.3 UPDATING BROWSER FIRMWARE

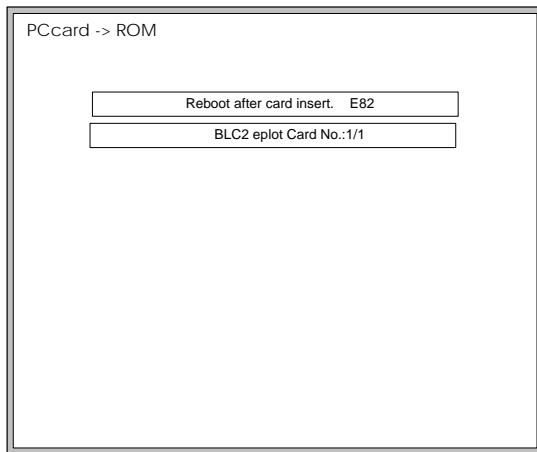
1. Remove the SD card slot cover.
2. Insert the SD card with the new firmware into the SD card slot.
Important: Push the card in slowly until you hear a click.
3. Turn ON the main power switch.
4. Push the "User Tools" key.
5. Touch "Extended Feature Settings" twice on the LCD.
6. Touch "Uninstall" on the LCD.
7. Touch the "Browser" line.
Note: A confirmation message is displayed on the LCD.
8. Touch "Yes".
Note: Another confirmation message is displayed on the LCD.
9. Touch "Yes" to uninstall the browser unit.
10. You will see "Uninstalling the extended feature... Please wait.", and then "Completed".
11. Touch "Exit" to go back to the settings screen.
12. Exit "User/Tools", and then turn OFF the main power switch.
13. Remove the SD card from the SD card slot.
14. Save the "sdk" folder that contains the new firmware for the Browser Option in the HDD of the PC.
15. Insert the SD card into the SD card reader connected to the PC.
16. Upload (overwrite) the new "sdk" folder to the SD card.
17. Install the new Browser Unit firmware in the machine. ([1.15.8](#))

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FIRMWARE UPDATE

Firmware Update Error

If a firmware update error occurs, this means the update was cancelled during the update because the module selected for update was not on the SD card.



Recovery After Power Loss

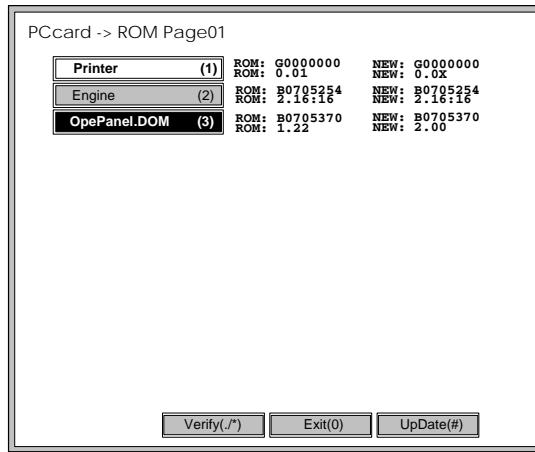
If the ROM update is interrupted as a result of accidental loss of power while the firmware is updating, then the correct operation of the machine cannot be guaranteed after the machine is switched on again. If the ROM update does not complete successfully for any reason, then in order to ensure the correct operation of the machine, the ROM update error will continue to be displayed until the ROM is updated successfully.

In this case, just insert the card once again and switch on the machine to continue the firmware download automatically from the card without the menu display.

5.10.4 UPDATING THE LCDC FOR THE OPERATION PANEL

Follow this procedure to update the LCDC (LCD Control Board).

1. Turn the copier main switch off.
2. Insert the SD card into service slot C3.
3. Switch the copier main switch on.
4. After about 10 seconds the initial screen opens in English.
5. Touch “OpePanel”.



6. Touch “UpDate(#) (or #)” to start the update.

After about 9 seconds, the downloading starts and a progress bar appears.

- While the data is downloading, the [Start] key LED flashes RED slowly then rapidly near completion.
 - When the update is finished, the [Start] key flashes GREEN.
 - The LCDC update requires about 15 minutes to complete.
7. Switch the copier main power switch off, remove the SD card, then switch the copier on again.

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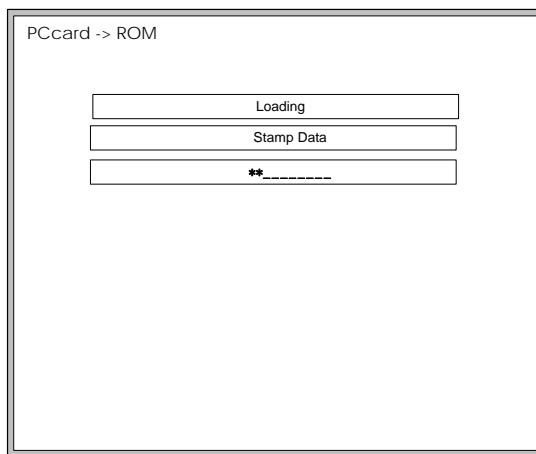
5.10.5 DOWNLOADING STAMP DATA

The stamp data should be downloaded from the controller firmware to the hard disks:

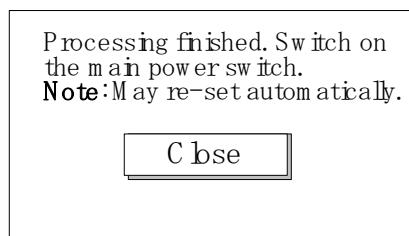
- When the machine is installed.
- After the hard disks have been replaced.

The print data contains the controller software, so execute SP5853 to download the fixed stamp data required by the hard disks.

1. Enter the SP mode.
2. Select SP5853 then press "Execute". The following screen opens while the stamp data is downloading.



The download is finished with the message prompts you to close.



3. Press the "Close" button then cycle the copier off and on again.

5.10.6 NVRAM DATA UPLOAD/DOWNLOAD

The content of the NVRAM can be uploaded to and downloaded from an SD card.

⇒ **IMPORTANT NOTE:**

The following data stored in the NVRAM will not be saved on the SD Card when performing an NVRAM Data Upload (SP5824):

- Total count categories (SP7-003-*** Copy Counter)
- C/O, P/O Counter (SP7-006-*** C/O, P/O Count Display)
- Dupelx, A3/DLT/Over 420 mm, Stapler and Scanner application scanning counters (system settings).
- Engine SP Data

Therefore, whenever an NVRAM Upload/Download is performed, make sure to print out the SP Data List before performing SP5801-001 (Memory Clear: All Clear) or SP5801-002 (Memory Clear: Engine).

NVRAM Upload/Download Procedure:

- 1) Print out the SP Data list from SP5990-002.
- 2) Perform the NVRAM Data Upload (to the SD Card) according to the procedure below.
- 3) Perform the Memory Clear (SP5801-001 or 002).
- 4) Perform the NVRAM Data Download (from the SD Card) according to the procedure below.
- 5) Manually input the data listed above.

Uploading Content of NVRAM to an SD Card

Follow this procedure to upload SP code settings from NVRAM to an SD card.

NOTE: This data should always be uploaded to an SD card before the NVRAM is replaced.

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1. Before switching the machine off, execute SP5990 001 (SMC Print). You will need a record of the NVRAM settings if the upload fails.
2. Switch the copier main power switch OFF.
3. Insert the SD card into service slot C3, then switch the copier ON.
4. Execute SP5824 001 (NVRAM Data Upload) then press the “Execute” key
When uploading is finished, the following files are copied to an NVRAM folder on the SD card. The file is saved to the path and filename:

NVRAM\<serial number>.NV

Here is an example with Serial Number “B0700017”:

NVRAM\B0700017.NV

5. In order to prevent an error during the download, be sure to mark the SD card that holds the uploaded data with the number of the machine from which the data was uploaded.

NOTE: NVRAM data from more than one machine can be uploaded to the same SD card.

⇒ **Downloading an SD Card to NVRAM**

Follow this procedure to download SP data from an SD card to the NVRAM in the machine.

- If the SD card with the NVRAM data is damaged, or if the connection between the controller and BCU is defective, the NVRAM data down load may fail.
- If the download fails, repeat the download procedure.
- If the second attempt fails, enter the NVRAM data manually using the SMC print you created before uploading the NVRAM data. (→ Uploading Content of NVRAM to an SD Card)

1. Switch the copier main power switch off.
2. Insert the SD card with the NVRAM data into service slot C3.
3. Switch the copier main power switch on.
4. Execute SP5825 001 (NVRAM Data Download) and press the “Execute” key.

NOTE: In order for the NVRAM data to download successfully, the serial number of the file on the SD card must match the serial number of the machine. If the serial numbers do not match, the download will fail.

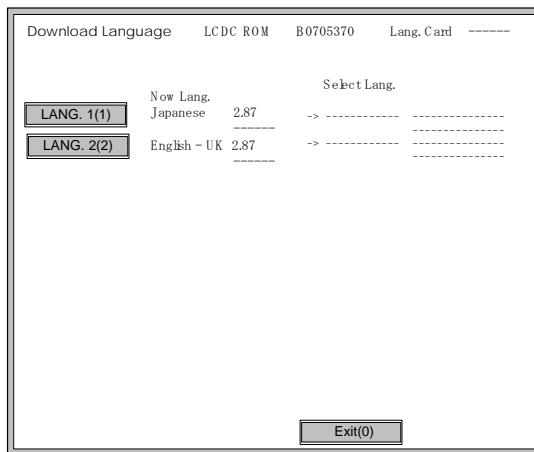
This procedure does not download the following data to the NVRAM:

- Total Count
- C/O, P/O Count
- Dupelx, A3/DLT/Over 420 mm, Stapler and Scanner application scanning counters (system settings).
- Engine SP Data

5.10.7 INSTALLING ANOTHER LANGUAGE

Many languages are available for selection, but only two can be selected for switching. Follow this procedure to select the two languages, either of which can be selected for the user interface on the operation panel.

1. Switch the copier main power switch off.
2. Insert the SD card with the language data into service slot C3.
3. Switch the copier main power switch on. The initial screen opens after about 10 seconds.
4. Touch the “Language (2)” on the screen (or press ②).



5. Touch “LANG. 1(1)” or “LANG 2(2)”

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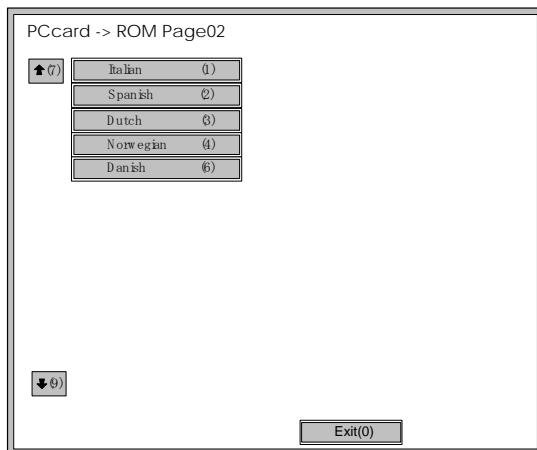
| Key | What it does |
|------------|--|
| LANG. 1(1) | Touch this button on the screen (or press ① on the 10-key pad) to open the next screen so you can select the 1st language. |
| LANG. 1(2) | Touch this button on the screen (or press ② on the 10-key pad) to open the next screen so you can select the 2nd language. |
| Exit(0) | Touch this key on the screen (or press ③ on the 10-key pad) to quit the update procedure and return to normal screen. |

FIRMWARE UPDATE

6. To select the 1st Language, touch “LANG 1(1)”.

-or-

To select the 2nd Language, touch “LANG(2)”.



7. Touch the appropriate button on the screen (or press the number on the 10-keypad) to select a language as the 1st (or 2nd) Language.

If a language is already selected, it will be displayed in reverse.

Touching “Exit(0)” also returns the previous screen.

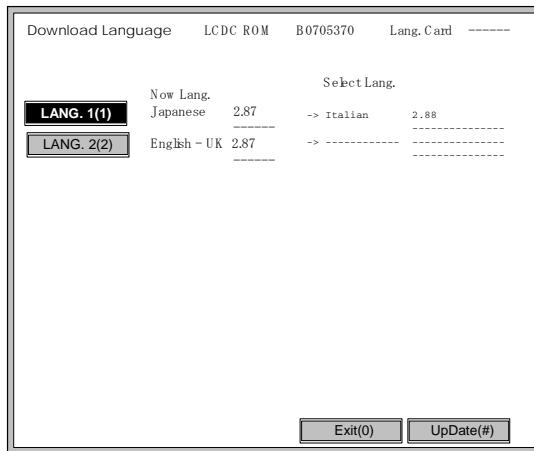
8. If you do not see the language that you want to select, touch “↑(7)” or “↓(9)” on the screen (or press ⑦ or ⑨) to display more choices.

After you select a language, the Download Screen opens.

The 1st or 2nd language selected for updating is displayed.

To the right of the selection, the first column displays the language currently selected and the 2nd column displays the language selected to replace that language.

The example below shows that the download will replace “Japanese” with “Italian” as the 1st language.



9. Touch “Update(#)” on the screen (or press #) to start the download.

Another screen with a progress bar is not displayed while the language is downloading.

While the language is downloading:

- The operation panel switches off.
- The LED on the power on key flashes rapidly.

10. After the Start LED begins to flash slowly, switch the copier main power switch off, then remove the SD card from the slot.

11. Switch the copier main power switch on to resume normal operation.

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5.10.8 HANDLING FIRMWARE UPDATE ERRORS

If an error occurs during a download, an error message will be displayed in the first line. The error code consists of the letter “E” and a number (“E20”, for example).

Error Message Table

| CODE | MEANING | SOLUTION |
|------|---|--|
| 20 | Cannot map logical address | Make sure SD card inserted correctly, or use another SD card. |
| 21 | Cannot access memory | HDD connection incorrect or replace hard disks. |
| 22 | Cannot decompress compressed data | Incorrect ROM data on the SD card, or data is corrupted. |
| 23 | Error occurred when ROM update program started | Controller program abnormal. If the second attempt fails, replace controller board. |
| 24 | SD card access error | Make sure SD card inserted correctly, or use another SD card. |
| 30 | No HDD available for stamp data download | HDD connection incorrect or replace hard disks. |
| 31 | Data incorrect for continuous download | Insert the SD card with the remaining data required for the download, the re-start the procedure. |
| 32 | Data incorrect after download interrupted | Execute the recovery procedure for the intended module download, then repeat the installation procedure. |
| 33 | Incorrect SD card version | Incorrect ROM data on the SD card, or data is corrupted. |
| 34 | Module mismatch - Correct module is not on the SD card) | SD update data is incorrect. Acquire the correct data (Japan, Overseas, OEM, etc.) then install again. |
| 35 | Module mismatch – Module on SD card is not for this machine | SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again. |
| 36 | Cannot write module – Cause other than E34, E35 | SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again. |
| 40 | Engine module download failed | Replace the update data for the module on the SD card and try again, or replace the BCU board. |
| 42 | Operation panel module download failed | Replace the update data for the module on the SD card and try again, or replace the LCDC. |
| 43 | Stamp data module download failed | Replace the update data for the module on the SD card and try again, or replace the hard disks. |
| 44 | Controller module download failed | Replace the update data for the module on the SD card and try again, or replace controller board. |
| 50 | Electronic confirmation check failed | SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again. |

5.11 USER PROGRAM MODE

5.11.1 ENTERING AND EXITING USER PROGRAM MODE

The user program (UP) mode is accessed by users, and by sales and service staff. UP mode is used to input the copier's default settings.

Press the User Tools/Counter button, then select the UP mode program. After finishing the UP mode program, touch "Exit" key to exit UP mode.



5.12 USING THE DEBUG LOG

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

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

The Save Debug Log feature provides two main features:

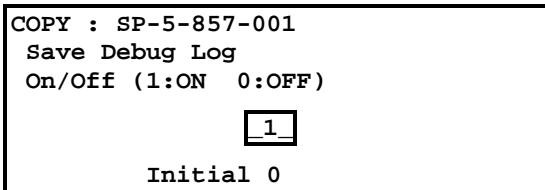
- Switching on the debug feature so error information is saved directly to the HDD for later retrieval.
- Copying the error information from the HDD to an SD card.

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

5.12.1 SWITCHING ON AND SETTING UP SAVE DEBUG LOG

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

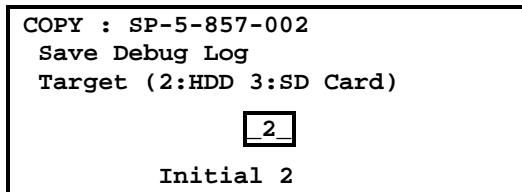
1. Enter the SP mode and switch the Save Debug Log feature on.
 - Press  then use the 10-key pad to enter **①①⑦**.
 - Press and hold down  for more than 3 seconds.
 - Touch “Copy SP”.
 - On the LCD panel, open SP5857.
2. Under “5857 Save Debug Log”, touch “1 On/Off”.



3. On the control panel keypad, press “1” then press . This switches the Save Debug Log feature on.

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

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



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

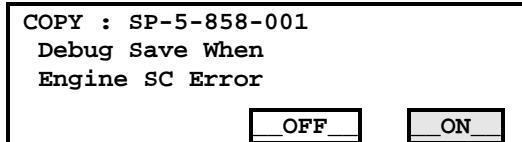
5. Now touch “5858” and specify the events that you want to record in the debug log. SP5858 (Debug Save When) provides the following items for selection.

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

NOTE: More than one event can be selected.

Example 1: To Select Items 1, 2, 4

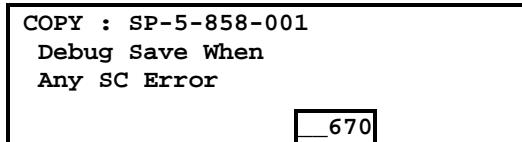
Touch the appropriate items(s). Press “ON” for each selection. This example shows “Engine SC Error” selected.



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Example 2: To Specify an SC Code

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



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

USING THE DEBUG LOG

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

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

Enter the appropriate 4-digit number, then press .

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

The example below shows “Key 1” with “2222” entered.



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

4-Digit Entries for Keys 1 to 10

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

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

Key to Acronyms

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

The machine is now set to record the debugging information automatically on the HDD (the target selected with SP5-857-002) for the events that you selected SP5-858 and the memory modules selected with SP5-859.

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

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

5.12.2 RETRIEVING THE DEBUG LOG FROM THE HDD

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

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

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5.12.3 RECORDING ERRORS MANUALLY

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

NOTE: In order to use this feature, the customer engineer must have previously switched on the Save Debug Feature (SP5857-001) and selected the hard disk as the save destination (SP5857-002).

1. When the error occurs, on the operation panel, press  (Clear Modes).
2. On the control panel, enter “01” then hold down  for at least 3 sec. until the machine beeps then release. This saves the debug log to the hard disk for later retrieval with an SD card by the service representatives.
3. Switch the machine off and on to resume operation.

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

5.12.4 NEW DEBUG LOG CODES

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

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

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

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

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

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



5.13 PRINTER BIT SWITCH SETTINGS

| 1001 Bit Switch | | | |
|------------------------|--|------------|-----------|
| 001 | Bit Switch 1 | 0 | 1 |
| bit 0 | DFU | - | - |
| bit 1 | DFU | - | - |
| bit 2 | DFU | - | - |
| bit 3 | No I/O Timeout | 0: Disable | 1: Enable |
| | Enable: The MFP I/O Timeout setting will have no effect. I/O Timeouts will never occur. | | |
| bit 4 | SD Card Save Mode | 0: Disable | 1: Enable |
| | Enable: Print jobs will be saved to an SD Card in the GW SD slot (☞ "Card Save Function" in "System Maintenance Reference" section of the Field Service Manual). | | |
| bit 5 | DFU | - | - |
| bit 6 | DFU | - | - |
| bit 7 | [RPCS,PCL]: Printable area frame border | 0: Disable | 1: Enable |
| | Enable: The machine prints all RPCS and PCL jobs with a border on the edges of the printable area. | | |



| 1001 Bit Switch | | | | |
|------------------------|---|---------------|----------------|--|
| 002 | Bit Switch 2 | 0 | 1 | |
| | bit 0 DFU | - | - | |
| | bit 1 DFU | - | - | |
| | bit 2 Applying a collation Type | Shift Collate | Normal Collate | |
| | A collation type (shift or normal) will be applied to all jobs that do not already have a 'Collate Type' configured. | | | |
| | ↓ Note <ul style="list-style-type: none"> ▪ If #5-0 is enabled, this Bit Switch has no effect. | | | |
| | bit 3 [PCL5e/c,PS]: PDL Auto Switching | 0: Enable | 1: Disable | |
| | Disable: The MFPs ability to change the PDL processor mid-job. Some host systems submit jobs that contain both PS and PCL5e/c. If Auto PDL switching is disabled, these jobs will not be printed properly. | | | |
| | bit 4 DFU | - | - | |
| | bit 5 DFU | - | - | |
| | bit 6 DFU | - | - | |
| | bit 7 DFU | - | - | |

| 1001 Bit Switch | | | | |
|------------------------|--|------------|-----------|--|
| 003 | Bit Switch 3 | 0 | 1 | |
| | bit 0 DFU | - | - | |
| | bit 1 DFU | - | - | |
| | bit 2 [PCL5e/c]: Legacy HP compatibility | 0: Disable | 1: Enable | |
| | Enable: Uses the same left margin as older HP models such as HP4000/HP8000. In other words, the left margin defined in the job (usually "<ESC>*r0A") will be changed to "<ESC>*r1A" | | | |
| | bit 3 DFU | - | - | |
| | bit 4 DFU | - | - | |
| | bit 5 DFU | - | - | |
| | bit 6 DFU | - | - | |
| | bit 7 DFU | - | - | |

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| | | | |
|-------------|-------------------------|---|---|
| 1001 | Bit Switch | | |
| 004 | Bit Switch 4 DFU | - | - |

| | | | |
|-------------|---|---------------|---------------|
| 1001 | Bit Switch | | |
| 005 | Bit Switch 5 | 0 | 1 |
| | Show "Collate Type", "Staple Type" and "Punch Type" buttons on the operation panel. | Disable | Enable |
| bit 0 | If enabled, users will be able to configure a Collate Type, Staple Type, and Punch Type from the operation panel. The available types will depend on the device and configured options. After enabling the function, the settings will appear under: "User Tools > Printer Features > System" | | |
| bit 1 | DFU | - | - |
| bit 2 | DFU | - | - |
| bit 3 | [PS] PS Criteria | Pattern3 | Pattern1 |
| | Change the number of PS criterion used by the PS interpreter to determine whether a job is PS data or not. Pattern3: includes most PS commands. Pattern1: A small number of PS tags and headers | | |
| bit 4 | Increase max number of the stored jobs to 1000 jobs. | Disable (100) | Enable (1000) |
| | Enable: Changes the maximum number of jobs that can be stored on the HDD via Job Type settings to 1000. The default is 100. | | |
| bit 5 | DFU | - | - |
| bit 6 | DFU | - | - |
| bit 7 | DFU | - | - |

| | | | |
|-------------|-------------------------|---|---|
| 1001 | Bit Switch | | |
| 006 | Bit Switch 6 DFU | - | - |

| | | | |
|-------------|-------------------------|---|---|
| 1001 | Bit Switch | | |
| 007 | Bit Switch 7 DFU | - | - |



| 1001 Bit Switch | | | |
|--|---|---------|--------|
| 008 | Bit Switch 8 | 0 | 1 |
| | bit 0 DFU | - | - |
| | bit 1 DFU | - | - |
| | bit 2 DFU | - | - |
| | bit 3 [PCL,PS]: Allow BW jobs to print without requiring User Code | Disable | Enable |
| | Enable: BW jobs submitted without a user code will be printed even if usercode authentication is enabled. | | |
| | ↓ Note <ul style="list-style-type: none"> ▪ Color jobs will not be printed without a valid user code. | | |
| | bit 4 DFU | - | - |
| | bit 5 DFU | - | - |
| bit 6 | [PS]: Orientation Auto Detect Fuction | Disable | Enable |
| | Automatically chooses page orientations of PostScript jobs (Landscape or Portrait) based on the content. | | |
| ↑ Note <p>Applied to PS firmware ver 1.01</p> | | | |
| bit 7 | DFU | - | - |

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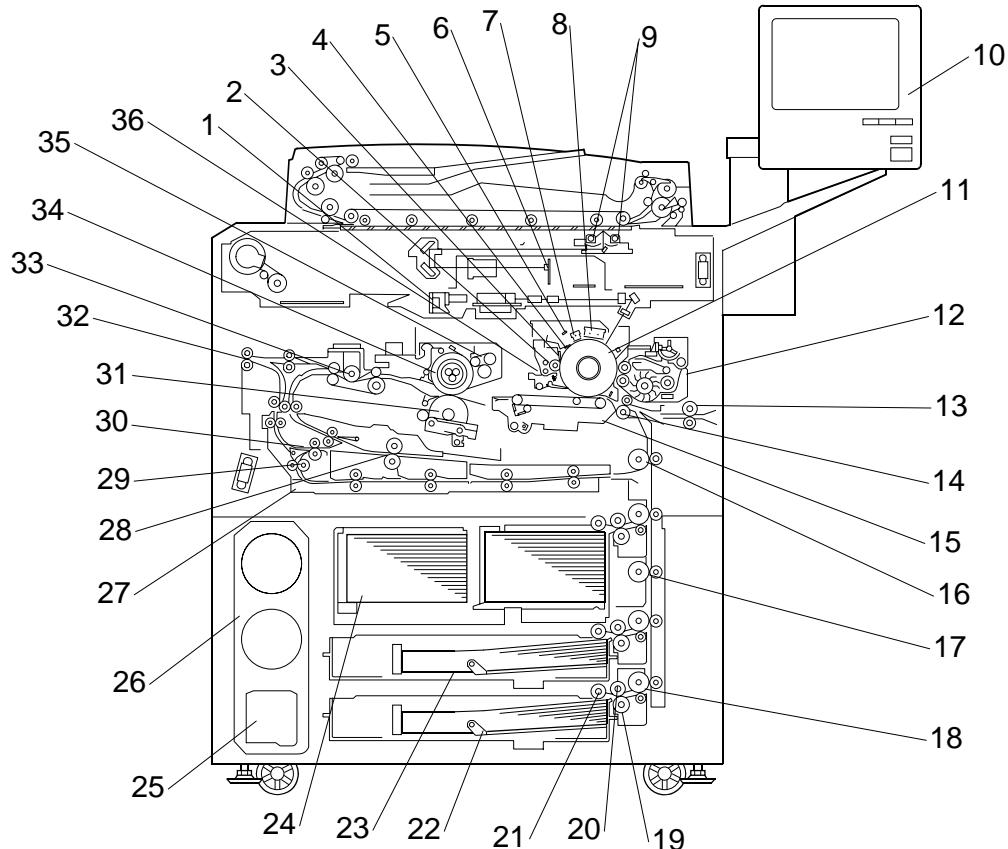
DETAILED DESCRIPTIONS

| DETAILED DESCRIPTIONS REVISION HISTORY | | |
|--|------|-------------------|
| Page | Date | Added/Updated/New |
| | | None |



6. DETAILED DESCRIPTIONS

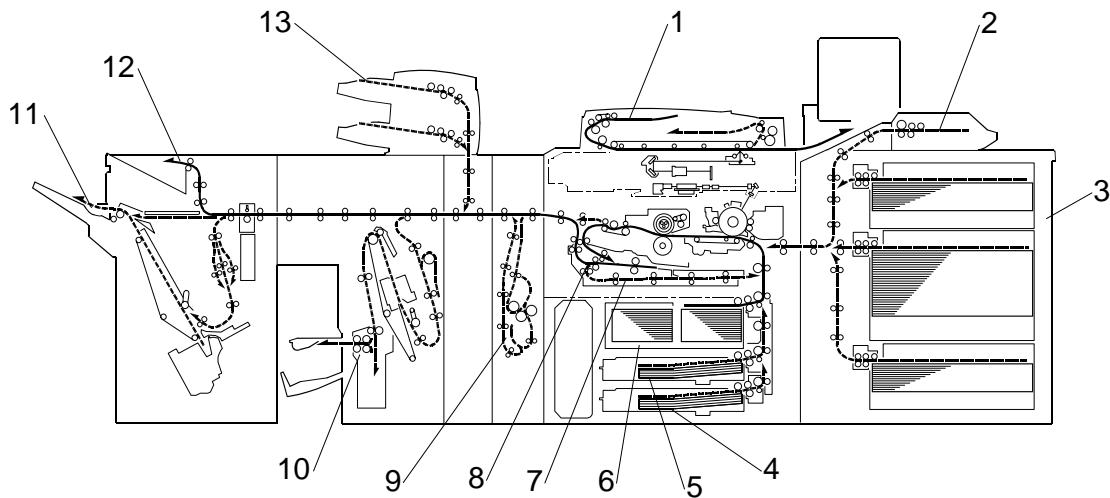
6.1 COMPONENT LAYOUT



- | | |
|----------------------------|---|
| 1. Laser Diode Board | 19. 3rd Separation Roller |
| 2. Cleaning Brush | 20. 3rd Paper Feed Roller |
| 3. Cleaning Blade | 21. 3rd Pickup Roller |
| 4. 2nd Cleaning Blade | 22. 3rd Tray (500 Sheets) |
| 5. Quenching Lamp | 23. 2nd Tray (500 Sheets) |
| 6. SBU (Sensor Board Unit) | 24. 1st Tray (Tandem Tray, 1,000 Sheets Each) |
| 7. Pre-Charge Unit | 25. Toner Collection Bottle |
| 8. Charge Corona Unit | 26. Toner Bank Unit |
| 9. Exposure Lamps x2 | 27. Duplex Tray |
| 10. Operation Panel | 28. Switchback Roller |
| 11. Drum | 29. Inverter Roller 2 |
| 12. Development Unit | 30. Inverter Roller 1 |
| 13. LCT Relay Roller | 31. Pressure Roller |
| 14. Registration Roller | 32. Exit Roller |
| 15. Transfer Belt Unit | 33. Paper Cooling Pipe |
| 16. Upper Relay Roller | 34. Hot Roller |
| 17. Vertical Relay Roller | 35. Cleaning Fabric |
| 18. 3rd Grip Roller | 36. Drum Cleaning Unit |

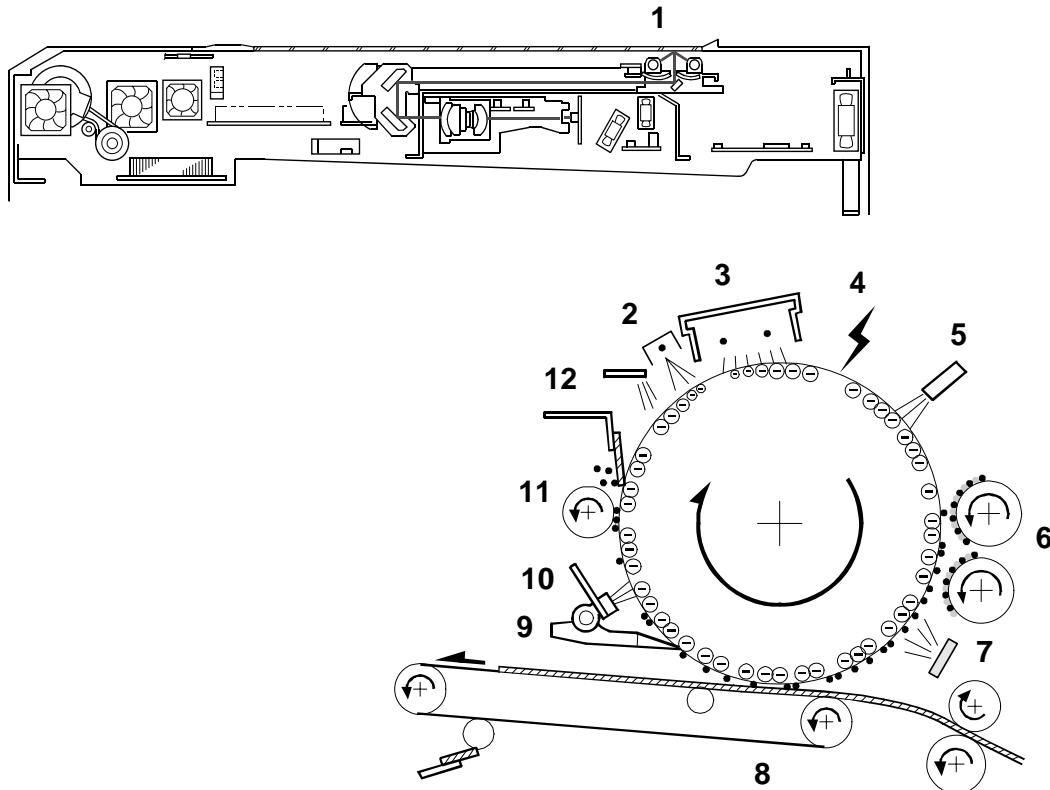
Detailed
Descriptions

6.2 PAPER PATH



- | | |
|-----------------|----------------------|
| 1. ADF | 8. Inverter Unit |
| 2. Bypass Tray | 9. Z-Folder |
| 3. Optional LCT | 10. Booklet Finisher |
| 4. Tray 3 | 11. Shift Tray |
| 5. Tray 2 | 12. Proof Tray |
| 6. Tray 1 | 13. Cover Interposer |
| 7. Duplex Unit | |

6.3 COPY PROCESS



EXPOSURE

A pair of Xenon lamps [1] expose 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 only and stored to the hard disk.

Detailed Descriptions

DRUM CHARGE

An OPC (organic photoconductor) drum is used in this machine. In the dark, first the pre-charge unit [2] then the charge corona unit [3] give a negative charge to the 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.

LASER EXPOSURE

The processed 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 intensity, which is controlled by the LDB [4] (laser diode board).

COPY PROCESS

DRUM POTENTIAL MEASUREMENT

The drum potential sensor [5] detects the electric potential on the drum to correct various process control elements.

DEVELOPMENT

The development rollers [6] turn and carry the developer to the drum. When the magnetic developer brush on the development rollers contacts the drum surface, the high negative charge of the white areas in the latent image force the toner with its low negative charge into the black areas. This forced migration of toner over the latent image forms the copy image on the drum.

PRE-TRANSFER

Light from the pre-transfer lamp [7] reduces the amount of charge on the drum surface to improve the ease of image transfer.

IMAGE TRANSFER

Paper is fed to the area between the drum surface and the transfer belt [8] at the proper time to align the copy paper and the developed image on the drum. Then, the transfer bias roller and brush apply 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. At the same time, the paper is electrically attracted to the transfer belt.

PAPER SEPARATION

Paper separates from the drum as a result of the electrical attraction between the paper and the transfer belt. The pick-off pawls [9] also help separate the paper from the drum.

ID SENSOR PATTERN WRITING/DETECTION

The laser projects a sensor pattern on the drum surface. The ID sensor [10] measures the reflectivity of this pattern. The output signal from this measurement is one of the factors used for toner supply control.

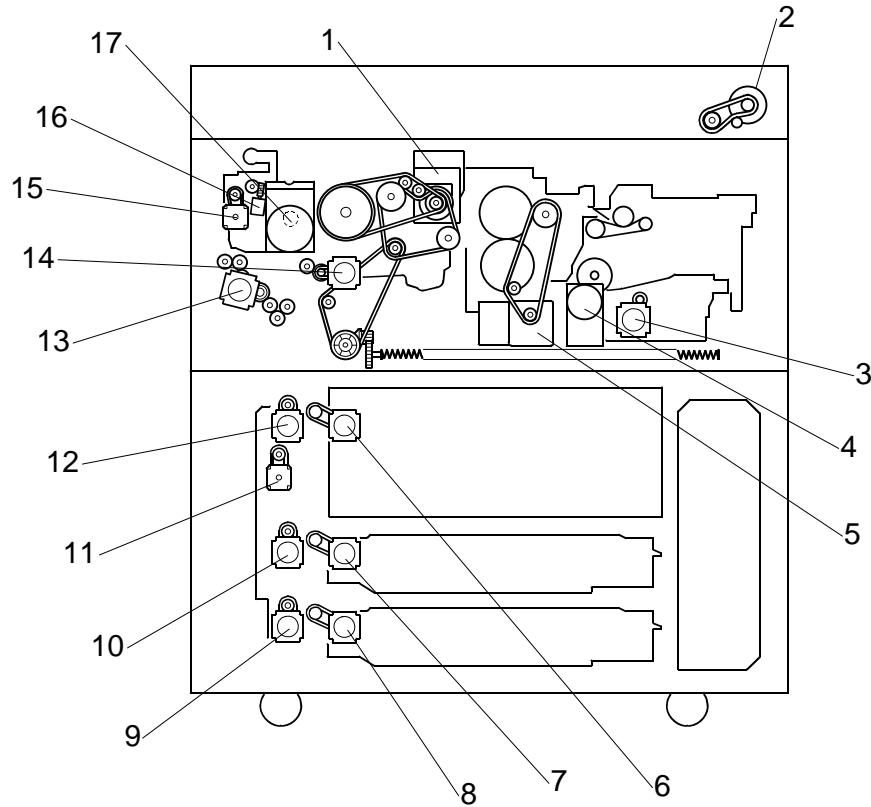
DRUM CLEANING

The cleaning brush [11] removes toner remaining on the drum after image transfer. The cleaning blade and a retractable 2nd clean toner from the surface of the drum.

QUENCHING

The light from the quenching lamp [12] electrically neutralizes the charge on the drum surface.

6.4 DRIVE LAYOUT



- | | |
|--------------------------|---------------------------|
| 1. Drum Motor | 9. 3rd Grip Motor |
| 2. Scanner Motor | 10. 2nd Grip Motor |
| 3. Duplex Inverter Motor | 11. Vertical Relay Motor |
| 4. Exit Motor | 12. 1st Grip Motor |
| 5. Fusing Motor | 13. Upper Relay Motor |
| 6. Paper Feed Motor | 14. Registration Motor |
| 7. 2nd Paper Feed Motor | 15. Toner Supply Motor |
| 8. 3rd Paper Feed Motor | 16. Hopper Agitator Motor |

Detailed
Descriptions

ELECTRICAL COMPONENT DESCRIPTIONS

6.5 ELECTRICAL COMPONENT DESCRIPTIONS

Refer to the electrical component layout on the reverse side of the point-to-point diagram for the location of the components using the symbols and index numbers.

6.5.1 COPIER ENGINE

| Number | Name | Description |
|-----------------|---|--|
| Clutches | | |
| CL1 | Toner Supply Coil Clutch | Transfers drive from the toner bank motor to the toner transport coil, to transport toner towards the toner supply cylinder. |
| Heaters | | |
| H1 | Optics Anti-condensation Heater | Turns on when the main switch is off to keep the scanner unit dry. |
| H2 | Transfer Anti-Condensation Heater | Turns on when the main switch is off to keep the transfer unit dry. |
| H3 | Tray Anti-Condensation Heater 1 (Upper) | Turns on when the main switch is off to keep paper dry in the paper trays. |
| H4 | Tray Anti-Condensation Heater 2 (Lower) | Turns on when the main switch is off to keep paper dry in the paper trays. |
| Lamps | | |
| L1 | Exposure Lamp 1 | Applies high intensity light to the original for exposure. |
| L2 | Exposure Lamp 2 | Applies high intensity light to the original for exposure. |
| L3 | Fusing Lamp 1 | Provides heat to the hot roller. |
| L4 | Fusing Lamp 2 | Provides heat to the hot roller. |
| L5 | Fusing Lamp 3 | Provides heat to the hot roller. |
| L6 | PTL | Pre-Transfer Lamp. Just before image transfer, the PTL flashes light on the drum to weaken the attraction between the toner and the drum. This makes the toner transfer to the paper easier. |
| QL1 | Quenching Lamp | Neutralizes any charge remaining on the drum surface after cleaning. |

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|---------------|--------------------------------------|--|
| Motors | | |
| M1 | 1st Paper Feed Motor | Performs two functions: 1) Drives the pick-up roller in the 1st tray, and 2) Drives the grip roller that feeds paper from the 1st tray to the grip roller. |
| M2 | 1st Grip Motor | Performs two functions: 1) Drives the separation roller in the 1st tray, and 2) Drives the grip roller that feeds paper from the 1st tray into the vertical feed path. |
| M3 | 1st Tray Lift Motor | Raises and lowers the bottom plate in the 1st paper tray. |
| M4 | 2nd Paper Feed Motor | Performs two functions: 1) Drives the pick-up roller in the 2nd tray, and 2) Drives the grip roller that feeds paper from the 2nd tray to the grip roller. |
| M5 | 2nd Grip Motor | Performs two functions: 1) Drives the separation roller in the 2nd tray, and 2) Drives the grip roller that feeds paper from the 2nd tray into the vertical feed path. |
| M6 | 2nd Tray Lift Motor | Raises and lowers the bottom plate in the 2nd paper tray. |
| M7 | 3rd Paper Feed Motor | Performs two functions: 1) Drives the pick-up roller in the 3rd tray, and 2) Drives the grip roller that feeds paper from the 3rd tray to the grip roller. |
| M8 | 3rd Grip Motor | Performs two functions: 1) Drives the separation roller in the 3rd tray, and 2) Drives the grip roller that feeds paper from the 3rd tray into the vertical feed path. |
| M9 | 3rd Tray Lift Motor | Raises and lowers the bottom plate in the 3rd paper tray. |
| M10 | Charge Corona Wire Cleaner Motor | Drives the charge corona wire cleaner. |
| M11 | Cleaning Unit Cooling Fan | Cools the area around the cleaning unit. |
| M12 | Cleaning Fabric Motor | Drives the oil supply/cleaning fabric. |
| M13 | Development Motor | Drives the development unit. |
| M14 | Development Unit Cooling Fan Motor 1 | Removes heat from the development unit. |
| M15 | Development Unit Cooling Fan Motor 2 | Removes heat from the development unit. |
| M16 | Drum Cooling Fan | Blows cool air around the drum. |
| M17 | Drum Exhaust Fan | Draws hot air from around the drum and the charge corona unit. |
| M18 | Drum Motor | Drives the drum, cleaning unit, and transfer belt unit. |
| M19 | Duplex Cooling Fan | Removes heat from the horizontal paper path of the duplex/inverter unit. Note: Number of duplex fans has increased to 3 |
| M20 | Duplex Entrance Cooling Fan 1 | Removes heat from around the entrance to the duplex/inverter unit. Note: Number of duplex fans has increased to 3 |
| M21 | Duplex Entrance Cooling Fan 2 | Removes heat from around the entrance to the duplex/inverter unit. Note: Number of duplex fans has increased to 3 |

Detailed Descriptions

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|---------------|--|---|
| Motors | | |
| M22 | Duplex Entrance Motor | Feeds paper to the duplex unit. |
| M23 | Duplex Transport Motor | Drives the transport rollers of the duplex unit. |
| M24 | Duplex Inverter Motor | Drives these rollers in the duplex unit: (1) Duplex transport roller 2, (2) Duplex transport roller 1, (3) Inverter roller 1, (4) Inverter roller 2, (5) Inverter relay roller. |
| M25 | Exit Junction Gate Motor | Operates the duplex junction gate which guides paper straight out of the machine or sends it down into the inverter/duplexer. |
| M26 | Exit Motor | Drives the exit rollers that feed the paper out of the machine. |
| M27 | Fusing Motor | Drives the fusing unit. |
| M28 | Hopper Agitator Motor | Drives the agitator that agitates the toner in the toner hopper to prevent clumping. |
| M29 | Lamp Regulator Fan (Left) | Cools the area around the left lamp regulator. |
| M30 | Lamp Regulator Fan (Right) | Cools the area around the right lamp regulator. |
| M31 | Lower Bottle Cap Motor | Opens and closes the inner cap of the lower toner bottle. |
| M32 | Lower Toner Bottle Motor | Rotates the lower toner bottle to supply toner to the toner entrance tank. |
| M33 | Moisture Removal Fan | Removes water vapor from around the fusing unit. |
| M34 | PSU Box Fan 1 | Cools the PSU-E board. |
| M35 | PSU Box Fan 2 | Cools the PSU-E board. |
| M36 | PSU Box Fan 3 | Cools the PSU-E board. |
| M37 | Paper Cooling Pipe Fan 1 | Cools the paper cooling pipe. |
| M38 | Paper Cooling Pipe Fan 2 | Cools the paper cooling pipe. |
| M39 | Polygon Mirror Motor | Drives the polygon mirror in the laser optics unit |
| M40 | Polygon Mirror Motor Cooling Fan | Removes heat from around the polygon mirror motor. |
| M41 | Rear Fence Drive Motor | Moves the paper stack in the left tandem tray to the right tandem tray. |
| M42 | Registration Motor | Drives the registration rollers. |
| M43 | Cleaning Collection Pipe Cooling Fan | .Cools the pipe that carries collected toner away from the development unit. |
| M44 | SBU Cooling Fan | Removes heat from around the SBU. |
| M45 | Scanner Intake Fan | Cools the scanner optics. Not: "optics fan" |
| M46 | Scanner Motor | Drives the 1st and 2nd scanners. |
| M47 | Scanner Motor Cooling Fan | Cools the scanner motor. |
| M48 | Scanner Unit Exhaust Fan | Cools the scanner optics. Not: "optics exhaust fan". |
| M49 | Switchback Motor | Drives the switchback roller in the duplex unit. |
| M50 | Toner Bank Motor | Drives the toner transport coil, which feeds fresh toner from the toner bank to the toner supply cylinder. |
| M51 | Toner Collection Bottle Agitator Motor | Drives the coil that agitates the used toner in the toner collection bottle. |
| M52 | Toner Cylinder Agitator Motor | Drives the agitator inside the toner supply cylinder to prevent clumping inside the |

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|---------------|----------------------------------|---|
| Motors | | |
| | | cylinder. |
| M53 | Toner Suction Motor | Drives the air pump that creates the vacuum to draw loose toner from the development unit to the development unit toner collection bottle. |
| M54 | Toner Supply Motor | An independent stepper motor that drives the toner supply roller. |
| M55 | Toner Supply Pump Motor | Mounted between the toner hopper and the toner supply cylinder, this pumps the toner that the supply cylinder has received from the toner bank into the toner hopper. |
| M56 | Toner Transport Pipe Cooling Fan | Cools the toner transport pipe between the toner entrance bank and the toner cylinder. |
| M57 | Upper Bottle Cap Motor | Opens and closes the inner cap of the upper toner bottle. |
| M58 | Upper Relay Motor | Drives the upper relay rollers that transport paper to the registration rollers, the duplex exit roller, and the LCT relay roller. |
| M59 | Upper Toner Bottle Motor | Rotates the upper toner bottle to supply toner to the toner entrance tank. |
| M60 | Vertical Relay Motor | Feeds paper between the 2nd transport rollers below and the 1st transport rollers below. This motor is needed due to the height of the 1st tray. |
| M61 | Controller Box Cooling Fan | Cools the controller box interior. |

| Number | Name | Description |
|-------------|------------------|--|
| PCBs | | |
| PCB1 | AC Drive Board | Drives the ac components (fusing lamps, anti-condensation heaters). |
| PCB2 | BCU | BCU (Base-Engine Control Unit): Main control board, controls the engine sequence, timing for peripherals, image processing, and the video data path |
| PCB3 | Interface Board | Sorts and routes signals to electrical components. |
| PCB4 | Controller Board | Controls the memory and all peripheral devices. The GW architecture allows the board to control all applications, i.e. copying, printing, and scanning. In order to add an option (printer, scanner), the appropriate ROM DIMM must be installed on the controller. |
| PCB5 | IOB | IOB (Input/Output Board): The IOB handles the following functions: (1) Drive control for the sensors, motors, and solenoids of the main unit, (2) PWM (pulse width modulation) control for the high voltage supply board, (3) Serial interface with peripherals, (4) Fusing control. |

Detailed Descriptions

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|-------------|--------------------------------------|---|
| PCBs | | |
| PCB6 | IPU | IPU (Image Processing Unit): Contains large-scale integrated circuits that process the digital data sent from the SBU. Some processes may require enough working memory to store a page of image data. |
| PCB7 | Interlock Relay Board | The microswitches that toggle the power to the laser unit off/on when the doors are open/closed are mounted on this small board. |
| PCB8 | LDB | LDB (Laser Diode Board): The LDB contains and controls the laser diodes.. |
| PCB9 | Lamp Regulator (Left) | Controls the Xenon exposure lamp in the flat bed scanner |
| PCB10 | Lamp Regulator (Right) | Controls the Xenon exposure lamp in the flat bed scanner |
| PCB11 | Laser Synchronization Detector Board | Detects when the laser is about to start another main scan line across the OPC |
| PCB12 | MCU | MCU (Motor Control Unit). Controls the scanner motor. |
| PCB13 | Mother Board | Controls the memory and all peripheral devices. The GW architecture allows the board to control all applications, i.e. copying, printing, and scanning. In order to add an option (printer, scanner), the appropriate ROM DIMM must be installed on the controller. |
| PCB14 | PSU-Ea | PSU-E (Power Supply Unit-Engine A): Supplies DC power for the IOB, LCT, OPU, IPU. |
| PCB15 | PSU-Eb | PSU-E (Power Supply Unit-Engine B): Supplies DC power for the two PSU fans, the MCU and the Relay Interlock Switch. |
| PCB16 | PSU-c | PSU-C (Power Supply Unit-Controller): Supplies DC power for the controller. |
| PCB17 | Polygon Mirror Motor Control Board | Controls the polygon motor. |
| PCB18 | SBU | SBU (Sensor Board Unit): Contains the CCD. Converts the CCD output to digital before sensing it to the IPU (Image Processing Unit). |
| PCB19 | SIB | The SIB (Scanner Interface Board) controls the scanner, and serves as the signal I/F board for the IPU and MCU. |
| PCB20 | OPU | The operation panel unit interfaces with the CPU and runs the copier user interface. |
| PCB21 | Image Position Sensor Board (Tray) | The image position sensor in the paper bank that detects the edges of paper fed from the copier paper bank (trays 1, 2, 3) for image position correction during simplex printing. |
| PCB22 | Image Position Sensor Board (Duplex) | The image position sensor in the paper bank that detects the edges of paper fed from the copier paper bank (trays 1, 2, 3) for image position correction of during duplex printing.. |
| PCB23 | SD Slot Board (Service) | The board for the service slot (C3). |
| PCB24 | Operation Panel | The board that controls the operation of the |

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|---------------|-----------------|-------------------------------------|
| PCBs | | |
| | | operation panel keys. |
| PCB25 | Connector Board | Interfaces between the SBU and SIB. |
| PCB26 | Relay Board | Interlock switch relay. |

| Number | Name | Description |
|--------------------|---------------------|--|
| Power Packs | | |
| PP1 | CGB Power Pack | Provides high voltage for the charge corona wires, grid plate, and the development roller. |
| PP2 | PPG Power Pack | Provides high voltage for the corona wires and grid plate in the pre-charge unit. |
| PP3 | Transfer Power Pack | This power pack supplies the charge to the image transfer roller that pulls the image off the drum and onto the paper. |

| Number | Name | Description |
|----------------|--------------------------------|--|
| Sensors | | |
| S1 | 1st Paper End Sensor | Informs the CPU when tray 1 runs out of paper. |
| S2 | 1st Paper Feed Sensor | Controls the 1st paper feed motor on/off timing and the 1st pick-up solenoid off timing. |
| S3 | 1st Tray Lift Sensor | Detects the correct paper height for feeding in the 1st tray. |
| S4 | 1st Tray Paper Height 1 Sensor | Detects the paper height in the 1st tray (tandem tray), stage 1. |
| S5 | 1st Tray Paper Height 2 Sensor | Detects the paper height in the 1st tray (tandem tray), stage 2. |
| S6 | 1st Tray Paper Height 3 Sensor | Detects the paper height in the 1st tray (tandem tray), stage 3. |
| S7 | 1st Tray Paper Height 4 Sensor | Detects the paper height in the 1st tray (tandem tray), stage 4. |
| S8 | 2nd Paper End Sensor | Informs the CPU when tray 2 runs out of paper. |
| S9 | 2nd Paper Feed Sensor | Controls the 2nd paper feed motor on/off timing and the 1st pick-up solenoid off timing. |
| S10 | 2nd Tray Lift Sensor | Detects the correct paper height for feeding in the 2nd tray. |
| S11 | 3rd Paper End Sensor | Informs the CPU when tray 3 runs out of paper. |
| S12 | 3rd Paper Feed Sensor | Controls the 3rd paper feed motor on/off timing and the 1st pick-up solenoid off timing. |
| S13 | 3rd Tray Lift Sensor | Detects the correct paper height for feeding in the 3rd tray. |
| S14 | Cleaning Fabric End Sensor | Detects when the oil supply/cleaning fabric has been used up. |
| S15 | Double-Feed Detection LED | The paper detection LED and sensor are used in the new automatic double-feed detection feature. This LED emits light which is reflected from the paper to the double-feed detection sensor to test the translucence of each sheet. |
| S16 | Double-Feed Detection Sensor | Receives the light emitted from the double- |

Detailed Descriptions

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|----------------|--------------------------------|---|
| Sensors | | |
| | | feed detection LED and reflected from the surface of each sheet in the paper path. Signals an error if the thickness of the paper (due to a double-feed) is not the same as the previous sheet. |
| S17 | Drum Potential Sensor | Detects the drum surface potential. |
| S18 | Duplex Entrance Sensor | Detects the leading and trailing edges of the paper to determine the reverse roller solenoid on or off timing. |
| S19 | Duplex Inverter Relay Sensor | Monitors timing of sheets in the vertical paper path and detects paper jams. |
| S20 | Duplex Inverter Sensor | Detects when to turn the inverter gate and exit gate solenoids off and checks for misfeeds. |
| S21 | Duplex Transport Sensor 1 | Detects the position of paper in the duplex unit. |
| S22 | Duplex Transport Sensor 2 | Detects the position of paper in the duplex unit. |
| S23 | Duplex Transport Sensor 3 | Detects the position of paper in the duplex unit. |
| S24 | Exit Junction Gate HP Sensor | Detects the home position of the exit junction gate. |
| S25 | Exit Sensor | Detects misfeeds. |
| S26 | Front Side Fence Closed Sensor | Detects whether the tandem tray front side fence is closed. |
| S27 | Front Side Fence Open Sensor | Detects whether the tandem tray front side fence is opened. |
| S28 | Fusing Exit Sensor | Detects misfeeds. |
| S29 | ID Sensor | Image density sensor detects the density of the ID sensor pattern on the drum. |
| S30 | Image Position Sensor (Duplex) | A CIS located in the duplex path where the inverted sheets reenter the paper feed path for printing on the 2nd side. Detects the edges of the paper and corrects the side-to-side image position within 1 mm. |
| S31 | Image Position Sensor (Tray) | A CIS located in the vertical feed path before the last pair of transport rollers before the registration roller. Detects the edges of the paper and corrects the side-to-side image position within 1 mm. |
| S32 | Job Time Sensor | Mounted above the paper path to the left of the cooling pipe. This photo sensor switches off when it detects the leading edge of the first sheet of a job, then switches on 2 sec. after the trailing edge of the last sheet exits from under the cooling pipe. This sensor measures the time between its off/on state. The machine uses this time count to calculate the rate of consumption of the fusing fabric. |
| S33 | LCT Relay Sensor | Detects misfeeds. |
| S34 | Left 1st Tray Paper Sensor | Detects whether there is paper in the left side |

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|----------------|---|---|
| Sensors | | |
| | | of the 1st tray. |
| S35 | Lower Bottle Inner Cap Sensor | Detects when the inner cap of the upper toner bottle is opened. |
| S36 | Lower Limit Sensor | After the tandem tray is empty, the tray lowers until this sensor detects the tray. |
| S37 | Lower Toner Bottle Sensor | Detects when the lower toner bottle is set. |
| S38 | Original Length Sensor 1 | Detects the original length. |
| S39 | Original Length Sensor 2 | Detects the original length. |
| S40 | Original Width Sensors | APS1 (a board) holds 3 original width sensors under the exposure glass. The detection combinations of these sensors are sent to the CPU to determine the width of the original on the exposure glass positioned for LEF. Each sensor consists of an LED and receptor pair to detect the width of paper on the exposure glass above. APS2, APS3 (boards) each hold 1 original length sensor under the exposure glass. The detection combinations of these sensors are sent to the CPU to determine the length of the original on the exposure glass positioned for SEF. Each sensor consists of an LED and receptor pair to detect the width of paper on the exposure glass above. |
| S41 | Rear Fence HP Sensor | Informs the CPU when the tandem tray rear fence is in the home position. |
| S42 | Rear Fence Return Sensor | Informs the CPU when the tandem tray rear fence is in the return position. |
| S43 | Rear Side Fence Closed Sensor | Detects whether the tandem tray rear side fence is closed. |
| S44 | Rear Side Fence Open Sensor | Detects whether the tandem tray rear side fence is opened. |
| S45 | Registration Sensor | Detects misfeeds and controls registration motor on/off timing. |
| S46 | Right Tray Paper Set Sensor | Detects paper in the right side of the tandem tray (Tray 1). |
| S47 | Scanner HP Sensor | Informs the CPU when the 1st and 2nd scanners are at home position. |
| S48 | TD Sensor | The Toner Density sensor measures the concentration of toner in the toner-developer mixture. |
| S49 | Temperature/Humidity Sensor | Monitors the temperature and humidity inside the machine. |
| S50 | Toner Bottle End Sensor | Located in the toner entrance bank, this sensor detects toner falling from the toner supply bottle. When the bottle runs out of toner, this sensor signals the machine to switch to the other toner bottle. |
| S51 | Toner Collection Bottle Agitator Sensor | Detects when the toner collection bottle agitator motor locks. |
| S52 | Toner Collection Bottle Overflow Sensor | Detects when the toner collection bottle is full. |
| S53 | Toner Collection Coil Sensor | Detects whether the coil of the toner |

Detailed Descriptions

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|----------------|--------------------------------------|---|
| Sensors | | |
| | | collection unit is rotating. |
| S54 | Toner Cylinder TE Sensor | Signals toner end (TE) when the toner supply cylinder is empty. |
| S55 | Toner Hopper Sensor | Monitors the level of toner in the toner supply unit. |
| S56 | Toner Pump Motor Sensor | Detects whether the toner supply pump motor is rotating. |
| S57 | Upper Relay Sensor | Detects misfeeds. |
| S58 | Upper Toner Bottle Inner Cap Sensor | Detects when the inner cap of the lower toner bottle is opened. |
| S59 | Upper Toner Bottle Sensor | Detects when the upper toner bottle is set. |
| S60 | Vertical Transport Sensor 1 | Detects misfeeds in the vertical feed path. |
| S61 | Vertical Transport Sensor 2 | Detects misfeeds in the vertical feed path. |
| S62 | Vertical Transport Sensor 3 | Detects misfeeds in the vertical feed path. |
| S63 | Toner Suction Bottle Rotation Sensor | Monitors the rotation of the toner suction bottle motor. |

| Number | Name | Description |
|------------------|--|--|
| Solenoids | | |
| SOL1 | 1st Pick-up Solenoid | Controls the up-down movement of the pick-up roller in tray 1. |
| SOL2 | 1st Separation Roller Solenoid | Controls the up-down movement of the separation roller in tray 1. |
| SOL3 | 2nd Cleaning Blade Solenoid | Controls the operation of the 2nd cleaning blade. |
| SOL4 | 2nd Pick-up Solenoid | Controls the up-down movement of the pick-up roller in tray 2. |
| SOL5 | 2nd Separation Roller Solenoid | Controls the up-down movement of the separation roller in tray 2. |
| SOL6 | 3rd Pick-up Solenoid | Controls the up-down movement of the pick-up roller in tray 3. |
| SOL7 | 3rd Separation Roller Solenoid | Controls the up-down movement of the separation roller in tray 3. |
| SOL8 | Duplex/Inverter Junction Gate Solenoid | In duplex mode, after the sheet is jogged and fed out of the inverter this solenoid energizes to open the duplex inverter gate to guide the paper to the duplex unit below. In invert mode, the solenoid remains closed and the paper goes face-down out to the output tray or the finisher. |
| SOL9 | Front Side Fence Solenoid | Opens and closes the front side fence in the tandem tray. |
| SOL10 | Guide Plate Solenoid | Opens the guide plate when a paper misfeed occurs around this area. |
| SOL11 | LCT Guide Plate Solenoid | Opens and closes the LCT guide plate between the LCT and the bypass tray. |
| SOL12 | Left Tandem Tray Lock Solenoid | Locks the left tandem tray while paper is being transported from left tray to right tray. |
| SOL13 | Rear Side Fence Solenoid | Opens and closes the rear side fence in the tandem tray. |
| SOL14 | Switchback Idle Roller Solenoid | Controls the contact of the switchback idle |

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|------------------|-----------------------------------|--|
| Solenoids | | |
| SOL15 | Switchback Junction Gate Solenoid | Operates the switchback junction gate. Raises the gate to allow paper to enter the inverter tray. Lowers the gate to prevent paper from re-entering the vertical path after the switchback roller reverses to send the paper out of inverter tray. |
| SOL16 | Tandem Tray Connect Solenoid | Connects/disconnects the two halves of the tandem tray. |
| SOL17 | Toner Recycling Shutter Solenoid | Controls the shutter mechanism in the toner recycling system. |
| SOL18 | Transfer Belt Lift Solenoid | Controls the up-down movement of the transfer belt unit. |

| Number | Name | Description |
|-----------------|------------------------------------|---|
| Switches | | |
| SW1 | Circuit Breaker | Provides back-up high current protection for the electrical components. |
| SW2 | Cleaning Unit Set SW | A push switch that detects when the cleaning unit is set correctly. |
| SW3 | Fusing Unit Set Detection Pins | These are the pins that complete a circuit to tell whether the fusing unit is installed or set correctly. |
| SW4 | Left Front Door Safety Switch | Cuts the +5 LD dc power to disable the LD unit when the front left door is open. |
| SW5 | Left Front Door Safety Switch 2 | Cuts the 24V power from the PSU-E to the IOB when the front left door is opened. |
| SW6 | Main Power Switch | Provides power to the machine. If this is off, there is no power supplied to the machine. |
| SW7 | Right Front Door Safety Switch | Cuts the 24V power from the PSU-E to the IOB when the front right door is opened. |
| SW8 | Right Front Door Safety Switch 2 | Cuts the 24V power from the PSU-E to the IOB when the front left door is opened. |
| SW9 | Toner Suction Bottle Set Switch | Detects whether the toner suction bottle is installed or set correctly. |
| SW10 | 2nd Tray Paper Size Switches | Determines the size of paper in tray 2. Also detects when the tray has been placed in the machine. |
| SW11 | 3rd Tray Paper Size Switches | Determines the size of paper in tray 3. Also detects when the tray has been placed in the machine. |
| SW12 | Toner Collection Bottle Set Switch | Detects when the toner collection bottle is set. |
| SW13 | 2nd Cleaning Blade Release Switch | Monitors the operation of the release mechanism of the 2nd cleaning blade. |

Detailed Descriptions

ELECTRICAL COMPONENT DESCRIPTIONS

| Number | Name | Description |
|--------------|---------------|--|
| TC | | |
| TC1 | Total Counter | Counts the total number of copies. |
| TH | | |
| TH1 | Thermistor | Touches the hot roller and measures its temperature. These temperature readings are used to control operation of the fusing lamps. |
| TS | | |
| TS1 | Thermostat 1 | One of a pair of wafer thermostats mounted directly above the center of the hot roller to monitor the temperature of the hot roller and signal the CPU to switch it off if it overheats. |
| TS2 | Thermostat 2 | A pair of wafer thermostats (198°C, 199°C) mounted directly above the center of the hot roller to monitor the temperature of the hot roller and signal the CPU to switch it off if it overheats. |
| Other | | |
| HDD | HDD 1 | Scanned image data is compressed and held here temporarily. |
| HDD | HDD 2 | Scanned image data is compressed and held here temporarily. |
| NF1 | Noise Filter | Filters noise from the ac power supply. |

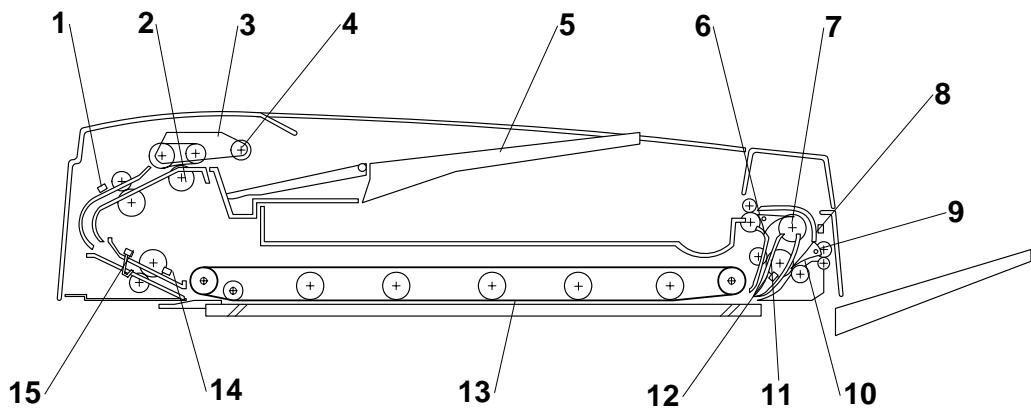
6.5.2 ADF

| Symbol | Name | Function |
|--------------------------|-----------------------|--|
| Motors | | |
| M1 | Pick-up | Moves the pick-up roller up and down. |
| M2 | Feed-in | Drives the feed belt, and the separation, pick-up, and transport rollers. |
| M3 | Transport Belt | Drives the transport belt. |
| M4 | Feed-out | Drives the exit and inverter rollers. |
| M5 | Bottom Plate | Moves the bottom plate up and down. |
| Sensors | | |
| S1 | APS Start | Informs the CPU when the DF is opened and closed (for platen mode) so that the original size sensors in the copier can check the original size. |
| S2 | DF Position | Detects whether the DF is lifted or not. |
| S3 | Original Set | Detects whether an original is on the table. |
| S4 | Bottom Plate HP | Detects whether the bottom plate is in the down position or not. |
| S5 | Bottom Plate Position | Detects when the original is at the correct position for feeding. |
| S6 | Pick-up Roller HP | Detects whether the pick-up roller is up or not. |
| S7 | Entrance | Detects when to restart the pick-up motor to lift up the pick-up roller, detects when to change the feed motor direction, detects the trailing edge of the original to finish checking the original length, and checks for misfeeds. |
| S8 | Registration | Detects the leading edge of the original to check the original length, detects when to stop the original on the exposure glass, and checks for misfeeds. |
| S9 | Original Width 1 | Detects the original width. |
| S10 | Original Width 2 | Detects the original width. |
| S11 | Original Width 3 | Detects the original width. |
| S12 | Original Length | Detects the original length. |
| S13 | Exit | Detects when to stop the transport belt motor and checks for misfeeds. |
| S14 | Inverter | Detects when to turn the inverter gate and exit gate solenoids off and checks for misfeeds. |
| S15 | Feed Cover | Detects whether the feed cover is open or not. |
| S16 | Exit Cover | Detects whether the exit cover is open or not. |
| Solenoids | | |
| SOL1 | Exit Gate | Opens and closes the exit gate. |
| SOL2 | Inverter Gate | Opens and closes the inverter gate. |
| Magnetic Clutches | | |
| MC1 | Feed-in | Drives the feed belt, separation roller, and pick-up roller. |
| PCBs | | |
| PCB1 | DF Main | Controls the DF and communicates with the main copier boards. |
| PCB2 | DF Indicator | Indicates whether an original has been placed in the feeder, and indicates whether SADF mode has been selected. |

Detailed Descriptions

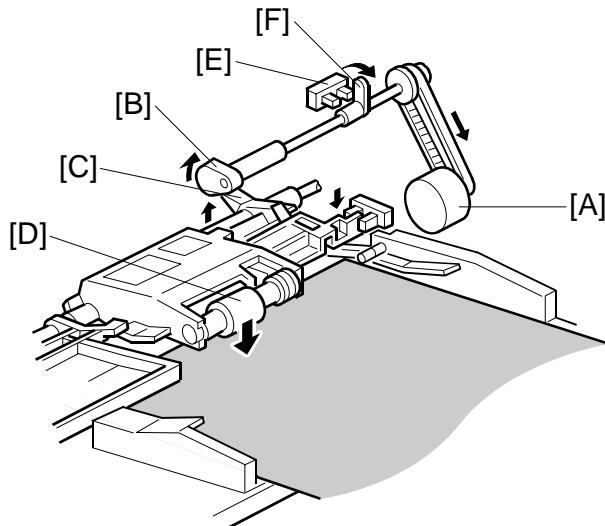
6.6 ADF

6.6.1 OVERVIEW



- | | |
|---------------------------|-------------------------|
| 1. Entrance Sensor | 9. Feed-out Roller |
| 2. Separation Roller | 10. Exit Junction Gate |
| 3. Feed Belt | 11. Inverter Roller |
| 4. Pick-up Roller | 12. Exit Sensor |
| 5. Original Tray | 13. Transport Belt |
| 6. Inverter Junction Gate | 14. Registration Sensor |
| 7. Inverter Guide Roller | 15. Width Sensors (x3) |
| 8. Inverter Sensor | |

6.6.2 PICK-UP ROLLER RELEASE



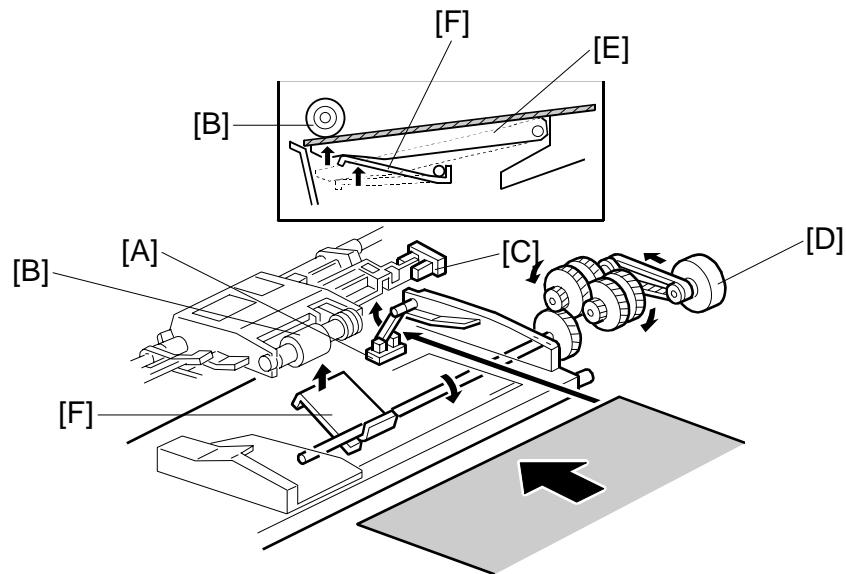
When the original set sensor is off (no original on the original tray), the pick-up roller stays in the up position.

When the original set sensor turns on (or when the trailing edge of a page passes the entrance sensor while pages remain on the original tray), the pick-up motor [A] turns on. The cam [B] rotates away from the pick-up roller release lever [C]. The lever then rises and the pick-up roller [D] drops onto the original.

When the original reaches the entrance sensor, the pick-up motor turns on again. The cam pushes the lever down, and the pick-up roller rises until the pick-up roller HP sensor [E] detects the actuator [F].

Detailed Descriptions

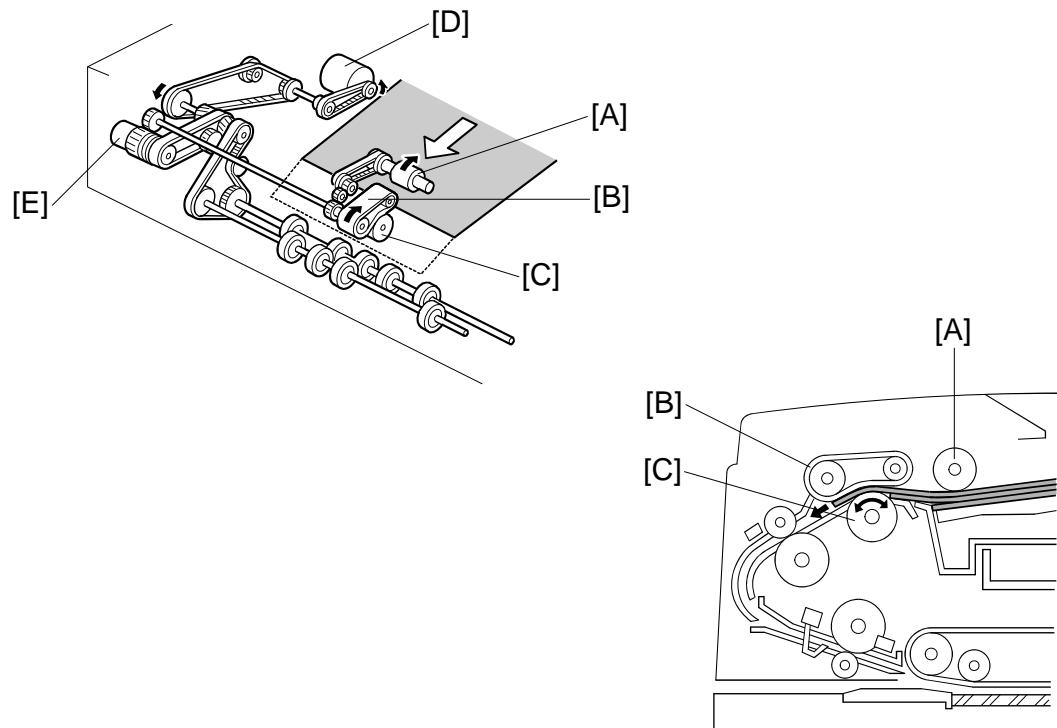
6.6.3 BOTTOM PLATE LIFT



When an original is placed on the original tray, the original set sensor [A] turns on, the pick-up roller [B] drops on to the original, and the bottom plate position sensor [C] turns off. Then the bottom plate motor [D] turns on and lifts the bottom plate [E] by raising the lift lever [F] until the bottom plate position sensor turns on.

The level of the pick-up roller drops as the stack of originals becomes smaller, and eventually, the bottom plate position sensor [C] turns off. Then, the bottom plate motor turns on and lifts the bottom plate until the bottom plate position sensor turns on. This keeps the original at the correct height for feeding.

6.6.4 PICK-UP AND SEPARATION



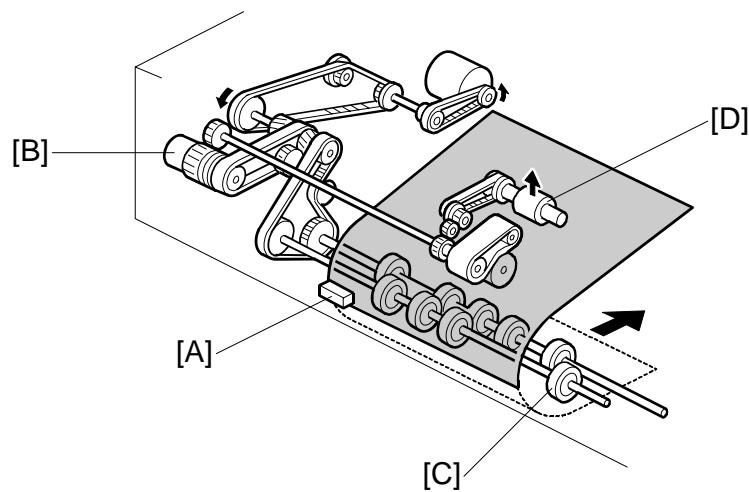
The original separation system is a Feed and Reverse Roller (FRR) system. The pick-up roller [A], feed belt [B], and separation roller [C] are driven by the feed-in motor [D].

To drive this mechanism, the feed-in motor [D] and feed-in clutch [E] turn on.

(Handling Paper> Handling Originals> Document Feed> **FRR with Feed Belt**)

Detailed Descriptions

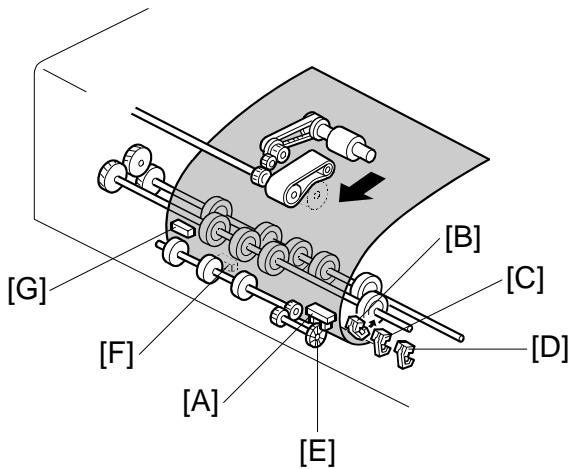
6.6.5 ORIGINAL FEED



When the leading edge of the original turns the entrance sensor [A] on, the feed-in clutch [B] turns off and the drive for the feed belt is released. The original is fed by the transport rollers [C].

At the same time, the pick-up motor starts again and the pick-up roller [D] is lifted up. When the pick-up roller HP sensor turns on, the pick-up motor stops (see Pick-up Roller Release).

6.6.6 ORIGINAL SIZE DETECTION



The ADF detects the original size by combining the readings of original length sensor [A], and original width sensors-1 [B], -2 [C], and -3 [D].

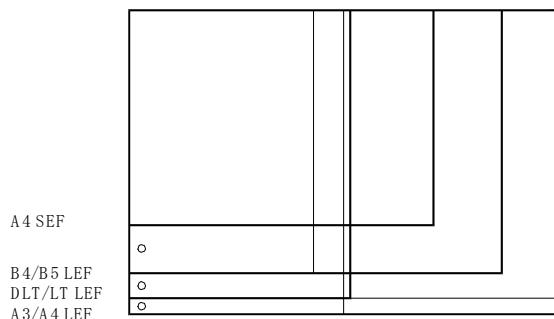
Original Length

The original length sensor and the disk [E] (connected to the transport roller) generate a pulse signal. The CPU counts pulses, starting when the leading edge of the original turns on the registration sensor [F], until the trailing edge of the original turns off the entrance sensor [G].

Original Width

The CPU detects original width using three original width sensors -1, -2, -3 as shown above. Three small circles on the diagram indicate the positions of the sensors.

Original Width Sensor Location

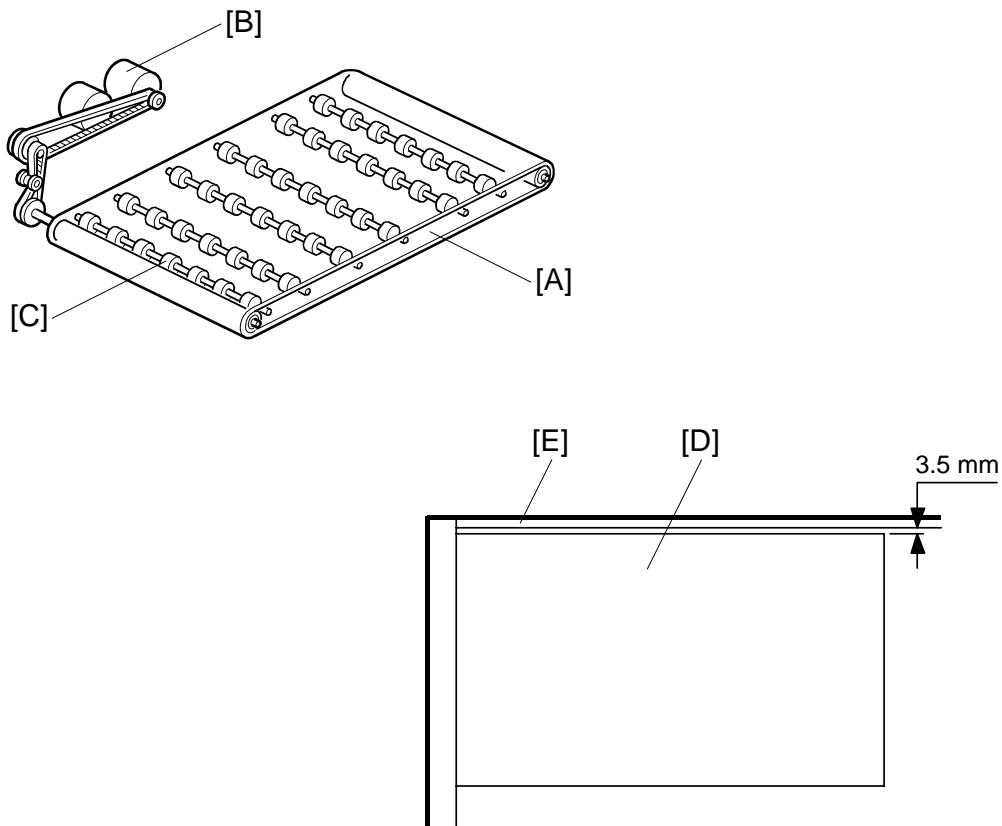


Detailed
Descriptions

Detectable Paper Sizes

Please refer to the “1.2 ADF” table in “Specifications”.

6.6.7 ORIGINAL TRANSPORT



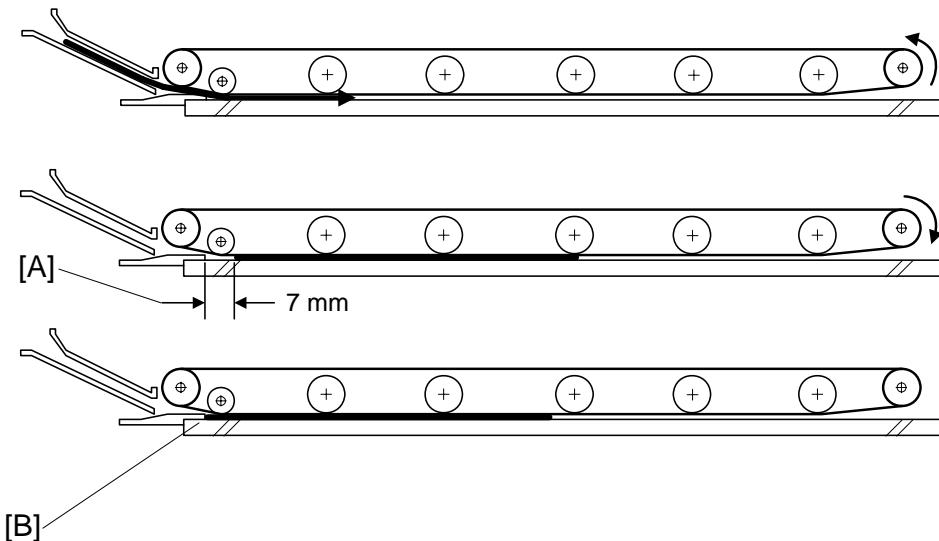
The transport belt [A] is driven by the transport belt motor [B]. The transport belt motor starts when the copier sends an original feed-in signal.

The pressure rollers inside the transport belt maintain the correct pressure between belt and original. The pressure roller [C] closest to the left original scale is made of rubber for the stronger pressure needed for thick originals. The other rollers are sponge rollers.

Normally, originals are manually placed at the left rear corner, so an original [D] fed from the ADF must also be at this position. But if the original touches the rear scale [E] as it feeds, original skew, jam, or wrinkling may occur.

To prevent such problems, the original transfer position is set to 3.5 mm away from the rear scale as shown. The 3.5 mm gap is compensated for by changing the starting position of the main scan for when the image is exposed on the drum.

6.6.8 ORIGINAL SKEW CORRECTION



The transport belt motor remains energized to carry the original to the right about 7 mm past the left scale [A]. Then the motor stops and reverses to feed the original 12 mm to the left against the left scale to correct skew. This forces the original to hit the left scale, which aligns the trailing edge to minimize original skew on the exposure glass.

If thin original mode is selected, the original is not forced back against the left scale. This is to prevent damage to the original.

After a two-sided original has been inverted to copy the 2nd side, it is fed in from the inverter against the left scale [B] without skew correction.

NOTE: The bottom drawing applies to duplex scanning; the top two drawings do not apply in this mode.

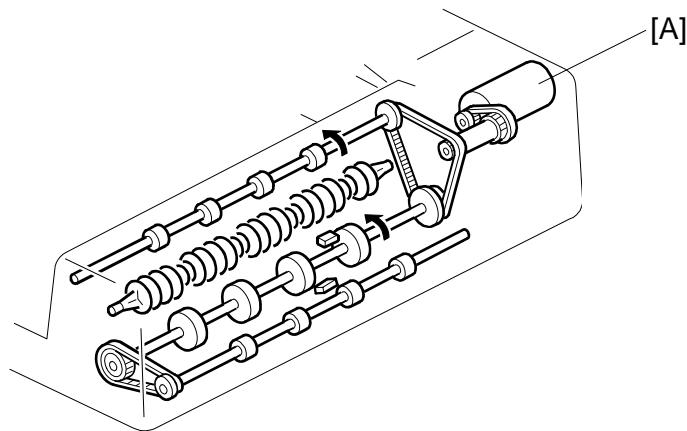
The amount of reverse feed against the left scale can be adjusted as follows:

- One-sided originals, and side 1 of two-sided originals: **SP6006-3** (DF Registration Adjustment – Leading Edge Duplex 1st)
- Side 2 of two-sided originals: **SP6006-4** (DF Registration Adjustment – Leading Edge Duplex 2nd).

Detailed Descriptions

6.6.9 ORIGINAL INVERSION AND FEED-OUT

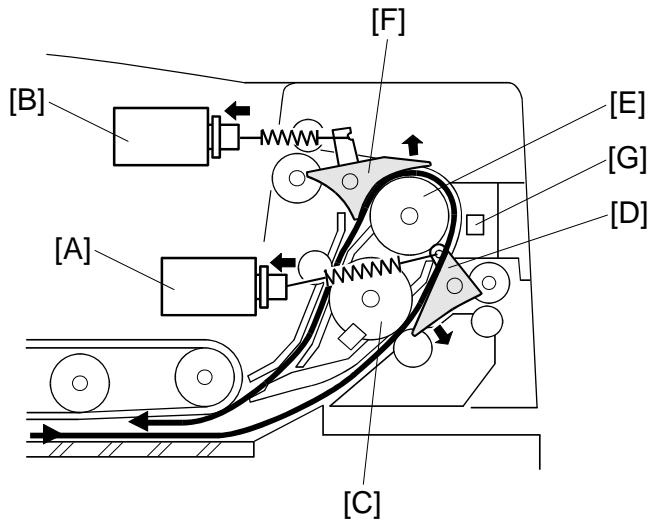
General Operation



When the scanner reaches the return position, the copier CPU sends the feed-out signal to the ADF. When the ADF receives the feed-out signal, the transport belt motor and feed-out motor [A] turn on. The original is then fed out to the exit tray or fed back to the exposure glass after reversing in the inverter section.

This ADF has two exit trays. For single-sided original mode, the original is fed out straight out to the right exit tray, but for double-sided original mode, the original is fed out to the upper exit tray.

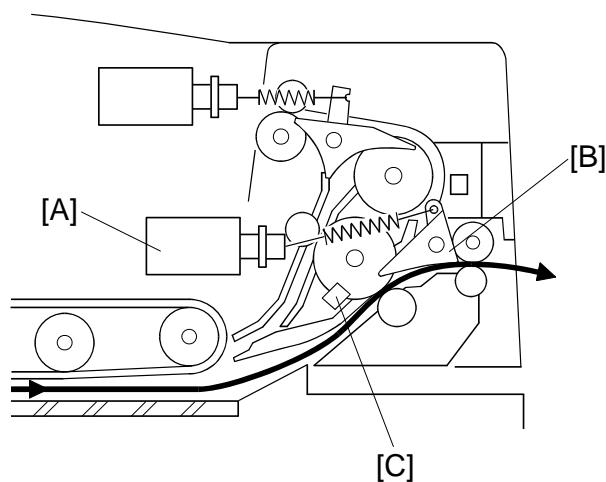
This causes the originals to be fed out in the correct order on the exit trays and allows the maximum one-to-one copy speed for each mode.

Original Inversion

When the ADF receives the original invert signal from the copier, the transport belt motor, feed-out motor, exit gate solenoid [A], and inverter gate solenoid [B] turn on and the original is fed back to the exposure glass through the inverter roller [C], exit gate [D], inverter guide roller [E], inverter gate [F], and inverter roller.

The transport belt motor reverses shortly after the leading edge of the original turns on the inverter sensor [G], and feeds the original to the left scale.

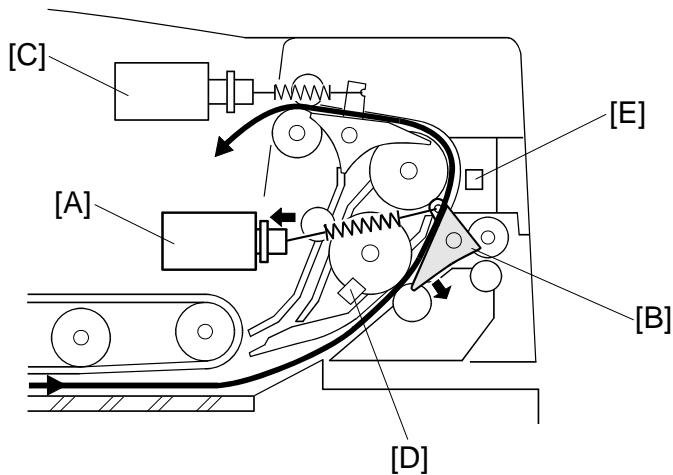
Detailed
Descriptions

Original Exit (Single-Sided Original Mode)

The exit gate solenoid [A] remains off, the exit gate [B] remains closed, and the original is fed out to the right exit tray.

The speed of the motor is reduced about 30 mm from the trailing edge of the original to ensure the originals stack neatly on the exit tray. This timing is determined by the length of the original, and the time since the exit sensor [C] detected the leading edge.

The transport belt motor turns off after the exit sensor [C] turns off.

Original Exit (Double-Sided Original Mode)

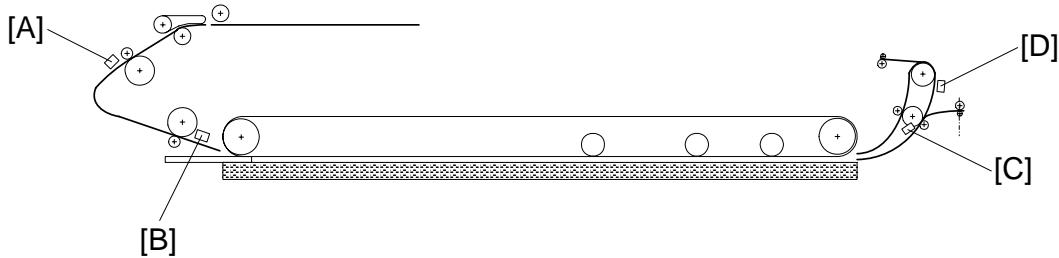
The exit gate solenoid [A] turns on and the exit gate [B] opens.

The inverter gate solenoid [C] remains off, and the original is fed out to the upper tray. The transport belt motor turns off when the trailing edge of the original passes the exit sensor [D].

To stack the originals neatly on the upper tray, the feed-out motor speed is reduced shortly after the trailing edge of the original turns off the inverter sensor [E].

Detailed
Descriptions

6.6.10 ADF JAM CONDITIONS



Feed-in

1. The entrance sensor [A] is still off 500 ms after the feed-in motor turned on.
2. The registration sensor [B] is still not off 300 ms after the feed-in motor speed increased.
3. The entrance sensor is still on when the feed-in and transport motors have fed the original 442 mm after the registration sensor turned on.

Feed-out

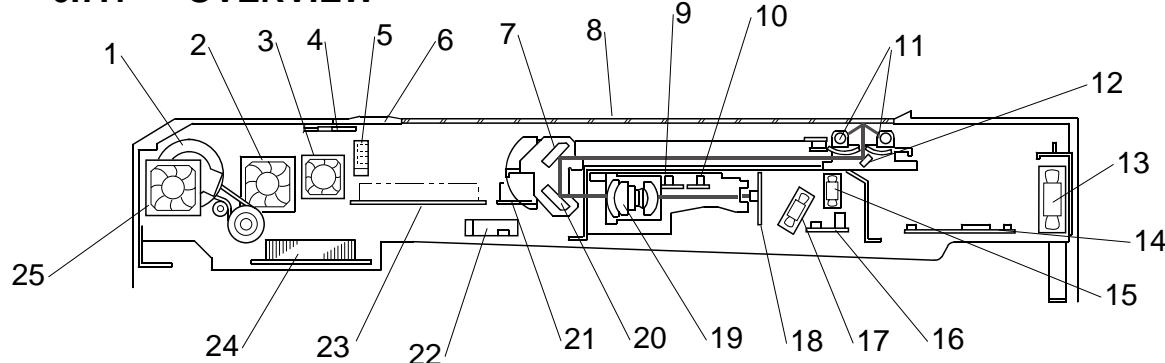
4. The registration sensor is still on when the feed-in and transport motors have fed the original 751 mm after the registration sensor turned on.
5. The exit sensor [C] is still off when the transport and feed-out motors have fed the original 129 mm after the feed-out motor turned on.
6. The exit sensor is still on when feed-out motor has fed the original X mm ($X = \text{original length} \times 1.3$) after the exit sensor turned on.

Inversion

7. The exit sensor is still off when the transport and exit motors have fed the original 198 mm after the transport motor turned on to feed the original to the inverter section.
8. The exit sensor is still on when the feed-out motor has fed the original X mm ($X = \text{original length} \times 1.3$) after the exit sensor turned on.
9. The inverter sensor [D] is still off when the transport and feed-out motors have fed the original 96 mm after the exit sensor turned on.
10. The inverter sensor is still off when the transport and feed-out motors have fed the original 96 mm to the exposure glass after the exit sensor turned off.

6.7 SCANNING

6.7.1 OVERVIEW



- | | |
|-------------------------------------|--|
| 1. Scanner Motor | 14. SIB (Scanner Interface Board) |
| 2. Optics Exhaust Fan | 15. Lamp Regulator Fan (Right) |
| 3. Lamp Regulator Fan (Left) | 16. Connector Board |
| 4. Thermistor | 17. SBU (CCD) Cooling Fan |
| 5. Scanner HP Sensor | 18. SBU (CCD) |
| 6. White Plate (on exposure glass) | 19. Scanner Lens |
| 7. 2nd Mirror | 20. 3rd Mirror |
| 8. Exposure Glass | 21. Lamp Regulator (Right) |
| 9. Original Length Sensors 1 (APS) | 22. Original Width Sensors 1, 2, 3 (APS) |
| 10. Original Length Sensors 2 (APS) | 23. Lamp Regulator (Left) |
| 11. Exposure Lamps (x2 Xenon) | 24. MCU |
| 12. 1st Mirror | 25. Scanner Motor Cooling Fan |
| 13. Optics Intake Fan | |

Detailed
Descriptions

SCANNING

Two xenon lamp (30W, 57,600 lux) as the exposure lamp [4] illuminates the original. Two lamps reduce the occurrence of dirty background caused if there is a gap between the original and the exposure glass. The two lamps also improve color registration for color scanning.

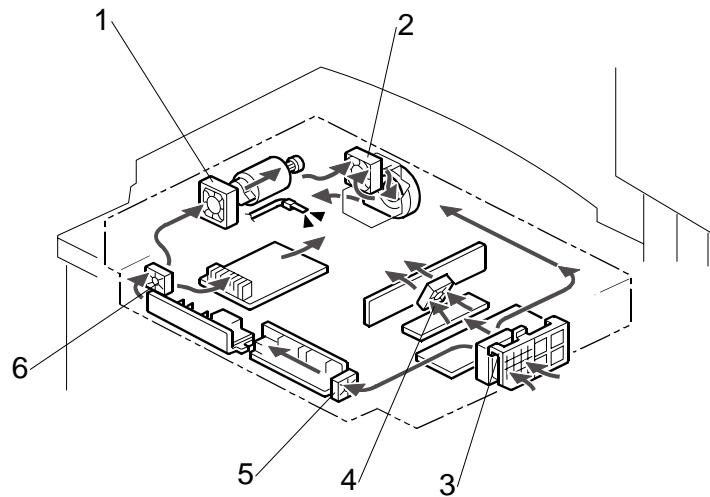
The image is reflected onto the CCD [11] (600 dpi resolution) via the 1st, 2nd, and 3rd mirrors, and through the lens [13].

The CCD (10 µm 600 dpi, 4 ch, 3-line) can scan in color as well as black and white. The scanned color documents can be used with Palm (Auto Document Link, Desk Top Editor for Production, Print Job Manager Professional) or with Scan-to-Email.

The lens, CCD, and SBU are in a single unit, the lens block. The optical axis, focus, and MTF are pre-adjusted, so this lens block requires no adjustment in the field. The 1st scanner consists of the exposure lamp [4], the lamp regulator [7] and the 1st mirror.

| | Exposure lamp | | Scanner Motor | | Low power mode |
|----------------------------|---------------|-----------------------|---------------|-----------------------|----------------|
| | On | Off (after 60 sec) | On | Off (after 60 sec) | |
| Scanner Motor Cooling Fan | - | - | Full | Off | Off |
| Optics Exhaust Fan | Full | Half | - | - | Off |
| Lamp Regulator Fan (Right) | Full | Off | - | - | Off |
| Lamp Regulator Fan (Left) | Full | Off | - | - | Off |
| Optics Intake Fan (Right) | Full | Half | - | - | Off |
| SBU (CCD) Cooling Fan | Full | Full | - | - | Off |

Full: Full power, **Half:** Half power



1. Scanner Motor Cooling Fan
2. Optics Exhaust Fan
3. Optics Intake Fan
4. SBU Cooling Fan
5. Lamp Regulator Fan (Right)
6. Lamp Regulator Fan (Left)

The optics fan intake [3] and the SBU cooling fan [4], draw cool air into the scanning unit.

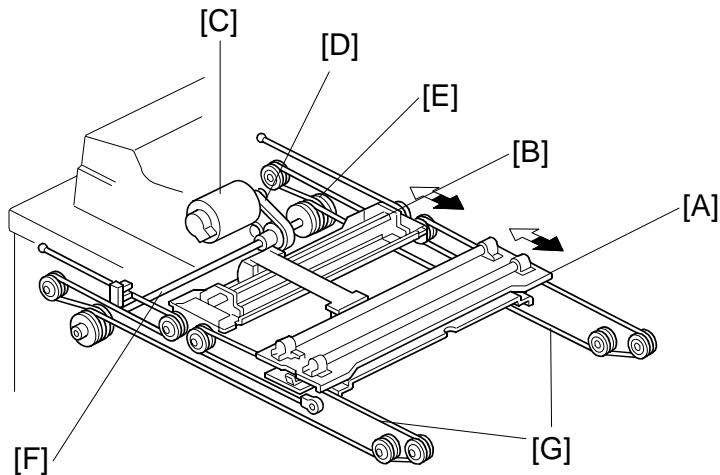
The right lamp regulator [5] fan draws cool air over the lamp regulators.

The left lamp regulator fan [6], the scanner motor cooling fan [1], and the optics exhaust fan [2] expel warm air.

NOTE: The optional optics anti-condensation heater (not shown) turns on while the main switch is off to prevent moisture from forming on the optics.

Detailed
Descriptions

6.7.2 SCANNER DRIVE



The scanner motor is a dc servo motor. The 1st and 2nd scanners [A, B] are driven by the scanner motor [C] through the timing belt [D], scanner drive pulley [E], scanner drive shaft [F], and two scanner wires [G].

The MCU (Motor Control Unit) board controls the scanner motor.

Scanner speed (A4/ LT LEF, 100%)

Forward: 515 mm/sec

Return: 2500 mm/sec

Magnification and Reduction

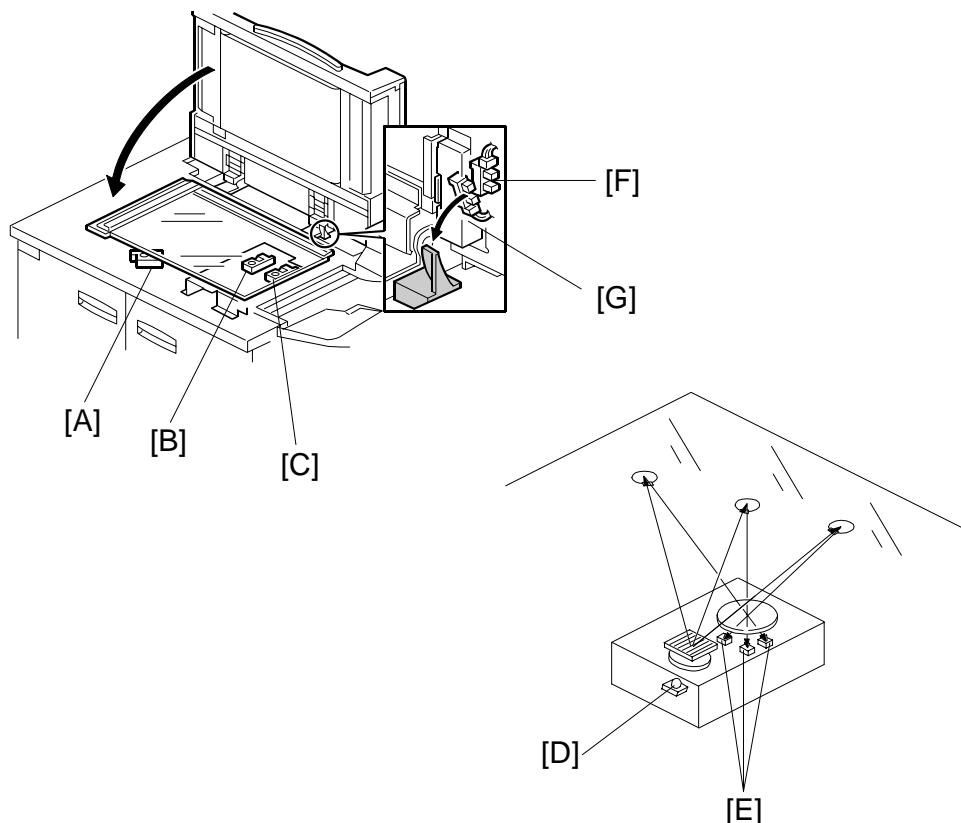
Magnification and reduction in the main scan direction are done in the IPU board.

Magnification and reduction in the sub scan direction are done by controlling the speed of the scanner motor in sync with the main scan processing done in the IPU.

- Magnification above 101% is done in the IPU. For example, at 200% magnification, the IPU doubles magnification while the scanner motor speed remains at 100%.
- Reduction in the range 51% to 100% is done by the scanner motor.
- Reduction in the range 25% to 50% is done by the scanner motor, assisted by IPU processing. For example, at 40% reduction, the scanner motor speed is 80% and the IPU reduces the image by 1/2.
- Reduction below 25% is done by the scanner motor, assisted by IPU processing. For example, at 24% reduction the scanner motor speed is 96% and the IPU reduces the image by 1/4.

NOTE: Magnification in the sub scan direction can be adjusted by changing the scanner motor speed with **SP4008** (Scanner Sub Scan Magnification).

6.7.3 ORIGINAL SIZE DETECTION



There are three reflective sensors at three locations in the optics cavity for original size detection.

The original width sensor [A] detects the original width, and the original length sensor 1 [B] and original length sensor 2 [C] detect the original length. These are the APS (Auto Paper Select) sensors.

Inside each APS sensor, there is an LED [D] and either three photoelectric devices [E] (for the width sensor) or one photoelectric device (for each length sensor). In the width sensor, the light generated by the LED is separated into three beams and each beam scans a different point of the exposure glass (in each length sensor, there is only one beam). If the original or ADF cover is present over the scanning point, the beam is reflected and each reflected beam exposes a photoelectric device and activates it.

While the main switch is on, these sensors are active and the original size data is always sent to the main CPU. However, the main CPU checks the data only when the ADF is being closed.

The ADF functions as the platen. The DF position sensor [F] (attached to the ADF) detects whether the ADF is open or closed.

The APS start sensor [G] triggers auto paper size detection.

Detailed
Descriptions

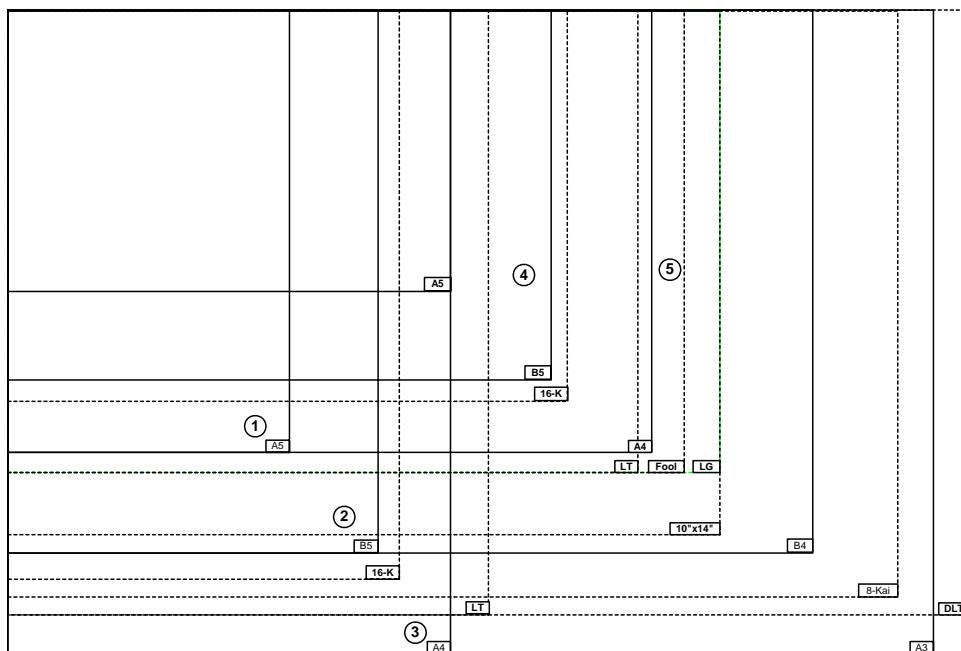
SCANNING

The original size data is taken by the main CPU when the APS start sensor is activated. This is when the ADF is positioned about 12 cm above the exposure glass. At this time, only the sensors underneath the original receive the reflected light and switch on. The other sensors are off. The main CPU recognizes the original size from the on/off signals from the five sensors.

If the copy is made with the ADF open (book mode), the main CPU decides the original size from the sensor outputs when the [Start] key is pressed.

This original size detection method eliminates the necessity for a pre-scan and increases the machine productivity.

The tables on the next pages show the outputs of the sensors for each original size.



North America

| Original | | APS 3 | APS 2 | APS 1 | | | SP4301 Display |
|----------|---------------|-------|-------|-------|-----|-----|----------------|
| Name | Size | L2 | L1 | W1 | W2 | W3 | |
| DLT SEF | 11 x 17 in. | Yes | Yes | Yes | Yes | Yes | 0001 1111 |
| LG SEF | 8½ x 14 in. | Yes | Yes | Yes | — | — | 0001 1100 |
| LT SEF | 8½ x 11 in. | — | Yes | Yes | — | — | 0000 1100 |
| LT LEF | 11 x 8½ x in. | — | — | Yes | Yes | Yes | 0000 0111 |
| HLT SEF | 5½ x 8½ | — | — | — | — | — | ● |
| HLT LEF | 8½ x 5½ | Yes | — | — | — | — | 0001 0000 |

Yes: Detected

—: Not detected

●: Default: Size not detected. However, SP4303 can be set to recognize HLT SEF.

Europe, Oceania, Asia

| Original | | APS 3 | APS 2 | APS 1 | | | SP4301 Display |
|--------------|--------------|-------|-------|-------|-----|-----|-------------------------|
| Name | Size | L2 | L1 | W1 | W2 | W3 | |
| A3 SEF | 297 x 420 mm | Yes | Yes | Yes | Yes | Yes | 0001 1111 |
| B4 SEF | 257 x 364 mm | Yes | Yes | Yes | Yes | — | 0001 1110 |
| A4 SEF | 219 x 297 mm | — | Yes | Yes | — | — | 0000 1100 |
| A4 LEF | 297 x 210 mm | — | — | Yes | Yes | Yes | 0000 0111 |
| B5 SEF | 182 x 257 mm | — | Yes | — | — | — | 0000 1000 |
| B5 LEF | 257 x 182 mm | — | — | Yes | Yes | — | 0000 0110 |
| A5 SEF | 148 x 210 mm | — | — | — | — | — | ● |
| Foolscap SEF | 8½ x 13 in. | Yes | Yes | Yes | — | — | 0001 1100* ¹ |
| Folio SEF | 8¼ x 13 in. | Yes | Yes | Yes | — | — | 0001 1100* ¹ |
| F SEF | 8 x 13 in. | Yes | Yes | Yes | — | — | 0001 1100* ¹ |

Yes: Detected

—: Not detected

●: Default: Size not detected. However, SP4303 can be set to recognize A5 SEF.

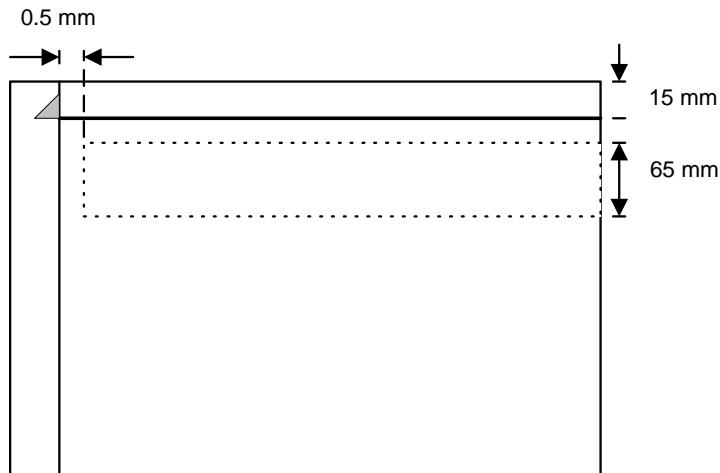
*¹: With SP 5126, you can select 1 from 3 paper sizes of very similar dimensions. The default is 8½ x" 13", and the other choices are 8¼" x 13", 8" x 13".**Important**

- Occasionally, the APS sensors cannot detect the original size accurately if there is a large amount of black coverage in the original.
- In such cases, the detection of the innermost APS width sensor is ignored and the detection of the outermost is used to detect the original size.
- When this occurs, the APS readings appear with double underlines when displayed on the operation panel display with **SP4301**.
- APS can detect the only the paper sizes in the table above.

Detailed Descriptions

6.7.4 AUTO IMAGE DENSITY (ADS)

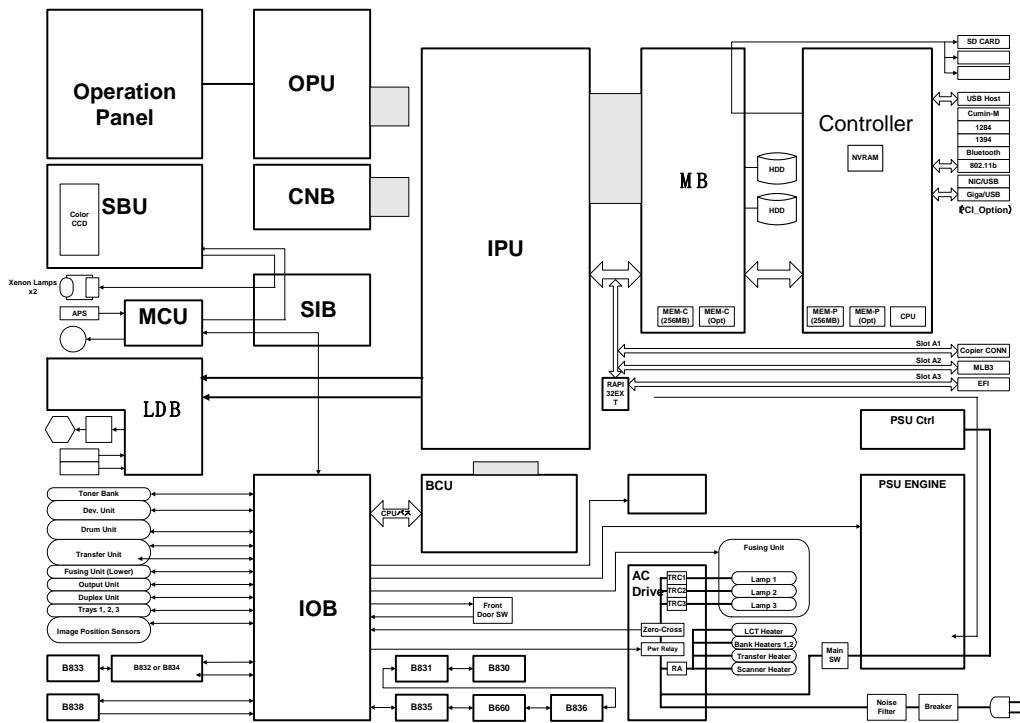
The area that the CCD uses as a reference for ADS is shown in the following diagram.



- Digital Processes> Image Processing> Black and White CCD Systems> Analog Signal Processing> Automatic Image Density
- Digital Processes> Image Processing> Color Systems> Analog Signal Processing

6.8 BOARD STRUCTURE

6.8.1 BLOCK DIAGRAM



Detailed
Descriptions

6.8.2 COMPONENT DESCRIPTIONS

This machine has a GW controller board.

PCBs

Here is a summary of the main parts of the board structure.

Important:

- This machine uses a system SD card (Slot **C1**). This SD card should never be removed from the machine.
 - The DIP switch settings and the board should not be changed. For details, please refer to “Specifications”, the last section of this manual.
1. BCU (Base Engine Control Unit): This is the main control board that controls the engine sequence, timing for peripherals. The BCU also controls:
 - High voltage
 - Duplexing
 - Paper feed
 - Paper registration
 - Fusing
 - Peripheral interfaces
 - Drive
 - Toner supply
 2. Controller Board: The controller board controls all devices for memory DIMMs, HDD, copying, printing, and scanning. The controller board also provides all the connection points for easy installation of the options (printer, scanner, FireWire, wireless LAN, and so on). The controller board also controls:
 - Printer/scanner
 - Document server
 - Image rotation
 - Conversion of all image formats
 - Image compression and decompression
 3. Mother Board: Interfaces the controller and the IPU, and installed options.
 4. IPU (Image Processing Unit): Contains large-scale integrated circuits that perform image processing on the digital data sent from the SBU, then sends the processed data to the controller and then to the LD unit. Also relays data transmissions between the controller and LCDC.
 5. SBU (Sensor Board Unit): The SBU receives analog signals from the CCD and converts them into the digital signals that are used for image processing. A/D conversion divides the range between black and white into 256 levels and digitizes the analog signal based on these levels. The 256 levels are called grayscales.

6. IOB (Input/Output Board): Performs three functions:
 - Converts sensor output from the paper bank, toner bank unit, and LCT then sends it to the BCU.
 - Converts serial data from the BCU to parallel data for control of the paper bank, toner bank unit, and LCT components (motors, solenoids, clutches).
 - Supplies the 24V power supply from the PSU to the BCU, LCT, and interlock system for the development motor, drum motor, and paper feed motor.
7. LCDC (LCD Control): The LCDC controls the operation panel and relays the internal signals of the optical system (SBU, MCU↔IPU, BCU)
8. LDB (LD Board): The LDB controls the laser diodes. It also contains the laser diodes.
9. AC Drive Board: The AC drive board controls AC power for the fusing lamps and the anti-condensation heaters.
10. MCU (Motor Control Unit): Controls the scanner motor with the commands from the BCU. Also controls exposure lamp on/off timing, APS detection, the fan motors, generation of gate signals, and transmission of serial data.
11. Lamp Regulators: Control the exposure lamps in the flat bed scanner
12. Operation Panel: Controls the operation panel and LCD display panel.
13. Operation Switch Board: Switches main power to the machine on/off.
14. Polygon Mirror Motor Control Board: Controls the polygon motor.
15. PSU-C (Power Supply Unit-Controller): Supplies DC power for the controller.
16. PSU-Ea, PSU-Eb (Power Supply Unit-Engine): Supplies DC power for the machine.

Detailed
Descriptions

Board LEDs**Normal Operation**

With the exception of the controller board, relay board, and the PCBs of the three CIS image position sensors, the LEDs of the other boards light GREEN while they are operating (supplied with power).

In the low power mode, the PSU shuts down boards that are not essential for running the machine in lower power mode, to conserve energy.

The shaded areas of the table below show the circuits that are shut down by the PSU in the low power mode.

| | CTL | MB | HDD | IPU | BCU | IOB | AC | PP | MCU | LDB | OPU | SIB | SBU | ADF | FN | LCT |
|--------|-----|----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|----|-----|
| 5VE | o | o | o | o | | | | | | | | | | | | |
| 12VE | | o | o | | | | | | | | | | | | | |
| 5VL | | | | o | o | o | o | | | | o | | | | | |
| 5VLINT | | | | | | o | o | | | o | | | | | | |
| 5V | | | | o | o | | | | | o | | | | | | |
| 24V | | | | | | o | | | o | o | o | o | o | o | o | o |
| 24VINT | | | | | | o | | o | | | | | | | | |
| 24VCNT | | | | | | o | | | | | | | | | | |
| 38V | | | | | | | | | o | | | | o | | | |

In the low power mode, power is supplied to parts of the controller, BCU, IOB, AC boards, and the operation panel, so that the controller, operation panel and fusing temperature control can continue to operate. All other operations of the mainframe and finishers are shut down.

Recovery From Low Power Mode

Only two actions awaken the machine from low power mode: 1) pressing a key on the operation panel, and 2) setting an original on the ADF.

HDD (Hard Disk Drive)

The combined capacity of the HDD's is 320 GB (160 GB x2) for image storage. They can store up to approximately 3,000 copy images, based on the ITU-T No. 4 Chart.

The ASIC on the controller handles data by dividing each 32-bit word into 16-bit units and writes the high-end bits to one hard disk and the low-end bits to the other hard disk. This effectively reduces the write speed by 50% because each half of each 32-bit word is saved simultaneously. Because the data is divided between the two hard disks, replacing only one of the hard disks will cause errors. Therefore, both disks must always be replaced together.

| Area | Power Off | Capacity (MB) | Control | Comment |
|---------------------|-----------|---------------|---------------|--|
| Object | Store | 256 | 256 files | GBD store, version up |
| Swap | Store | 256 | | Debug |
| Local image storage | Delete | 131250 | 15,000 Copies | Doc. server storage |
| Temporary images | Delete | 2625 | 300 pages | Shared file |
| | | 26250 | 3000 pages | Copy |
| | | 2100 | 3000 pages | Printer |
| | | 2100 | 3000 pages | Printer (secure) |
| | | 1290 | 300 pages | NFA |
| | | 7500 | 3000 pages | Scanner |
| Image over lay | Store | 930 | 100 pages | Image overlay |
| File system 1 | Store | 2000 | 10000 files | Print font download, Form registration |
| File system 2 | Store | 500 | 5000 files | Job spool area |
| File system 3 | Store | 2000 | 30000 files | Thumbnails (NCS) |
| File system 4 | Store | 1200 | 10000 files | SDK |
| File system 5 | Store | 300 | 256 files | Address storage area |
| File system 6 | Store | 200 | 16000 | Email (send) |
| File system 7 | Store | 1000 | 26000 | Email (Receive) |
| File system 8 | Store | 500 | 10100 files | Netfile |
| File system 9 | Delete | 500 | 1000 files | PDF, PCL, RTIFF |

Detailed Descriptions

Note the following important points regarding HDD replacement:

- Both HDD's must always be replaced together as one set.
- Replacing the HDD loses all document server documents, and user stamps.
- When the HDD is replaced, the default user stamps must be re-installed, so use **SP5853** to copy these files from the controller firmware onto the hard disk.
- The "Scan to Email" addresses are also lost by HDD replacement. However, addresses can be backed up with Smart Net Monitor.
- Print fonts must also be re-entered after HDD replacement.

6.9 IMAGE PROCESSING

6.9.1 IMAGE PROCESSING STEPS AND RELATED SP MODES

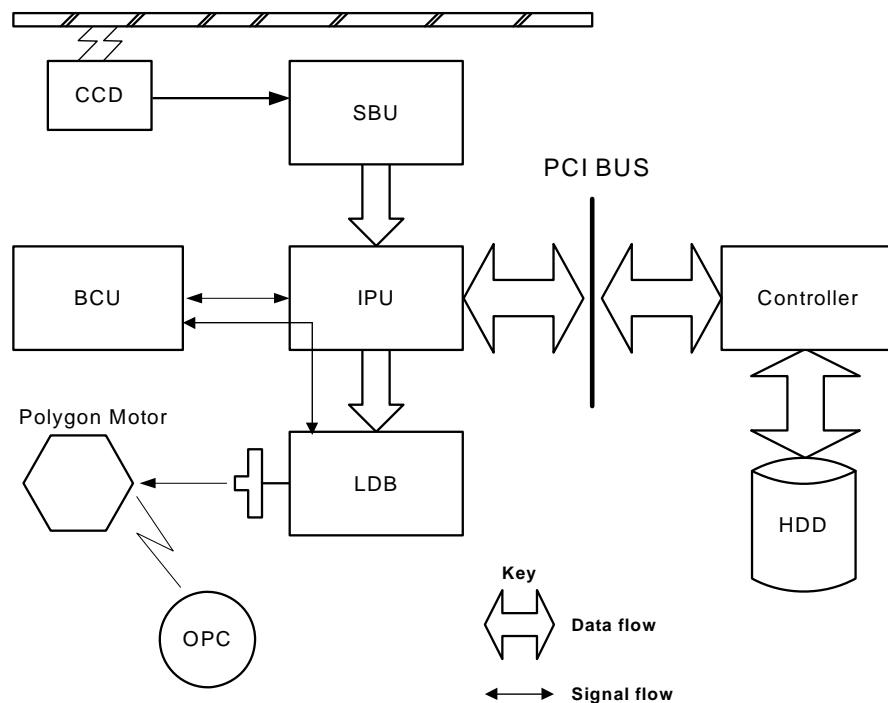
The following tables describe the image processing path and the related SP modes used for each image processing mode.

The user can adjust many of the image processing parameters with a UP mode (Copy/Document Server Features> General Features) >[Copy Quality], using fixed settings such as Sharp, Normal, and Soft. Each of these fixed settings have different parameters, but user changes do not affect the relevant SP mode settings.

If the user is not satisfied with any of the available settings for this UP mode, the technician can adjust the SP modes. However, the SP mode settings are not used unless the user selects 'Service Mode' with the UP Mode.

| | | | | |
|--------------|------------------|--------|---------------|--------------|
| ► Text | Soft | Normal | Sharp | Service Mode |
| ► Text/Photo | Photo Priority | Normal | Text Priority | Service Mode |
| ► Photo | Screened Printed | Normal | Glossy Phot | Service Mode |
| ► Pale | Soft | Normal | Sharp | Service Mode |
| ► Generation | Soft | Normal | Sharp | Service Mode |

6.9.2 IMAGE PROCESSING OVERVIEW



- SBU:** Photoelectric conversion, Odd/even allocation, Amplification, A/D Conversion (analog to digital), Light intensity detection (scanning)
- BCU:** Engine control, Scanner control, SBU settings, IPU settings, LDB settings
- IPU:** Shading correction, Image Processing, Main/Sub scan magnification, Video path switching, Image Compression/Decompression. The GAVD on this board performs density conversion processing, FCI processing, and edge processing, and also generates the test patterns.
- Controller:** System control, software application control, image storage control, file compression/decompression
- LDB:** 8-beam laser exposure, binary-to-grayscale conversion, synchronization detection

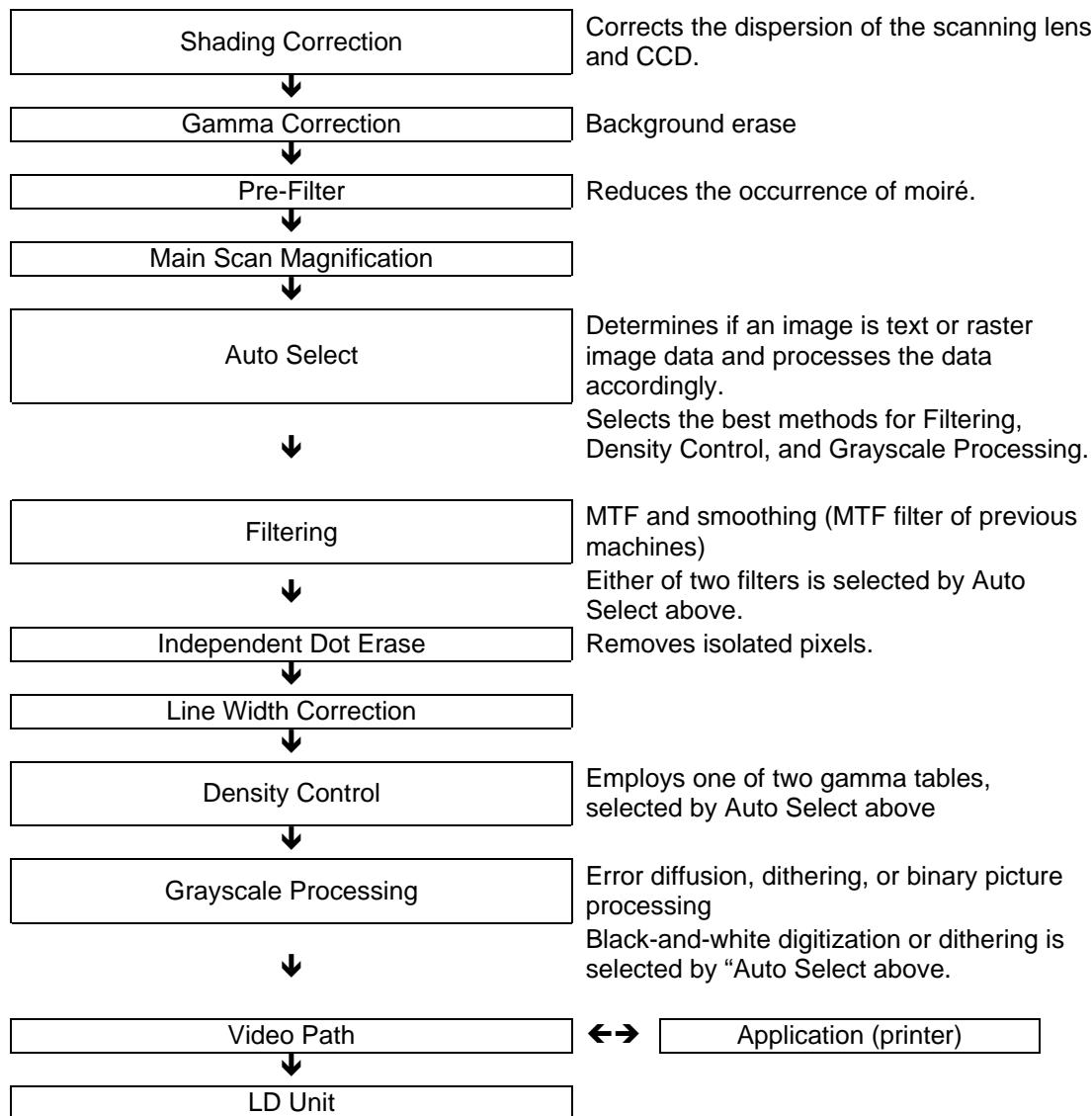
Detailed Descriptions

6.9.3 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



6.9.4 IMAGE PROCESSING MODES

The user can select one of the following six modes. 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.

To see these settings, push [User Tools] > [Copier/Document Server] > [General Features] > [Text, Text/Photo, Photo, Pale, or Generation] > [Copy Quality].

| Mode | Setting | Function |
|-----------------|-----------------|--|
| Text | Soft | Rough texture background drops out. |
| | Normal | Used for black-and-white printed material and documents that contain mainly text. Easily reads lines as well as text. |
| | Sharp | Use for newspapers, time schedules, or any type of printed material with fine print. Emphasizes black over white. |
| | Custom Setting | Stores SP command settings. |
| Text/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 | Better than Text/Photo mode for copying smooth photographs or graphics. Employs error diffusion for sharper reproduction. |
| | Glossy Photo | Used for best results in copying standalone smooth, glossy photographs. Employs dithering. |
| | 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. |
| Dark Background | On | Drops out the background color of originals with dark background (for example, tab sheets). Auto image density mode is disabled but manual image density adjustment is possible. |
| | Off | Auto image density mode |

Detailed Descriptions

To use Dark Background mode, you must change some user tool settings. See 'Selecting the Original Type Setting' in 'Operating Instructions - Copy/Document Server Reference'.

6.9.5 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

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

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.

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 **SP4904 002**. The possible settings are:

| | |
|---|-------------------|
| 0 | Dither (106 line) |
| 1 | Dither (141 line) |
| 2 | Dither (212 line) |
| 3 | Error Diffusion |

Custom Setting: Photo Mode (Dithering) Image Quality

| Item | Range | Default | SP No. |
|-------|------------|---------------------------|------------|
| Photo | 25~55% | 0~6 2 Printed 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 3 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 text and photographs on the same page. Uses error diffusion. 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 can 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.

Detailed Descriptions

IMAGE PROCESSING

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 | 2 | 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 |

Detailed Descriptions

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 | 1 | 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.

Settings Adjustable for Each Original Mode**Independent Dot Erase**

| Item | Range | Default | SP No. |
|-----------------|-------|---------|-------------------|
| Text | 0~14 | 8 | SP4903 060 |
| Photo | | 0 | SP4903 061 |
| Text/Photo | | 0 | SP4903 062 |
| Pale | | 0 | SP4903 063 |
| Generation Copy | | 8 | 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.

Detailed
Descriptions

6.9.6 RELATION BETWEEN THE SP AND UP SETTINGS

The tables below illustrate the relationship between the UP and SP settings for each of the original modes. The scale across the top of the table is the range of settings for the SP modes.

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 in 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 | | | | | | 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 | | | | | | 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 |

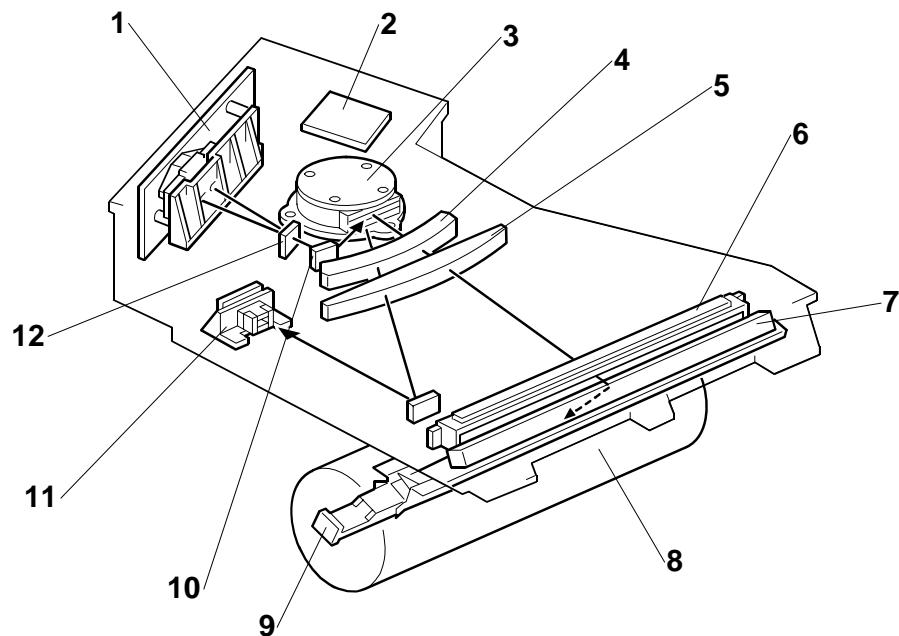
Background Color Dropout

| SP NO. | MODE NAME | TARGETED COLOR | VALUES |
|---------------|-----------------------------|-----------------------|--------------------------|
| 4901 020 | Background Dropout – Weak | Orange | 165 ~ 255 (Default: 180) |
| 4901 021 | Background Dropout – Medium | Green | 115 ~164 (Default: 155) |
| 4901 022 | Background Dropout - Strong | Blue | 15 ~ 144 (Default: 105) |

Detailed Descriptions

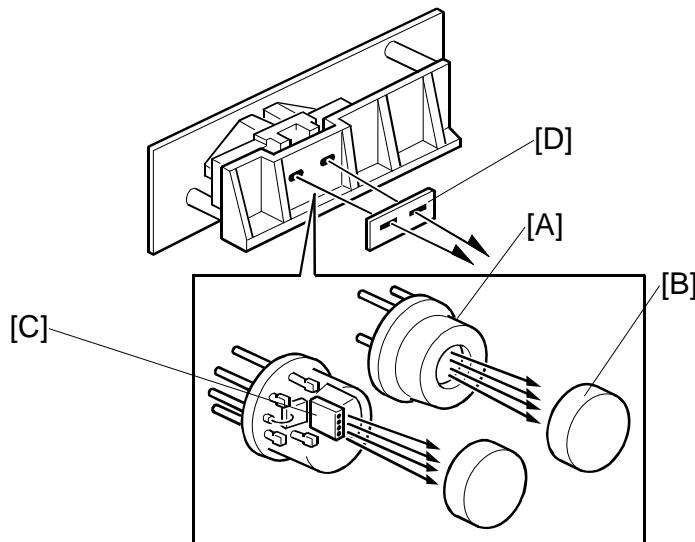
6.10 LASER EXPOSURE

6.10.1 OVERVIEW



- | | |
|---------------------------------------|------------------------------------|
| 1. LD Unit | 7. 2nd Mirror |
| 2. Polygon Mirror Motor Control Board | 8. Drum |
| 3. Polygon Mirror Motor | 9. Toner Shield Glass |
| 4. F-Theta Lens 1 | 10. 1st Mirror |
| 5. F-Theta Lens 2 | 11. Laser Synchronization Detector |
| 6. BTL Lens | 12. Cylindrical Lens |

6.10.2 LASER EXPOSURE MECHANISM



The LD unit consists of two 4-channel LDA's (Laser Diode Arrays) and two collimating lenses.

Each LDA produces 4 beams [A]. Each collimating lens [B] is a fixed lens, seated in a V-groove and held in place by a spring and a screw.

Four beams from each LDA [C] pass through the collimating lenses, though the apertures [D], then strike the polygonal mirror. Due to this multi-beam writing, the polygonal mirror motor speed can be reduced, thus the noise generated by the polygon mirror motor and the wear on the motor can be reduced.

Auto Power Control (APC)

A built-in photo diode detects the light emitted from the LD unit. When the photo diode detects this light, it generates a signal and the feedback of this signal to the LD control board is used to adjust the strength and amount of light in the laser beams.

Detailed Descriptions

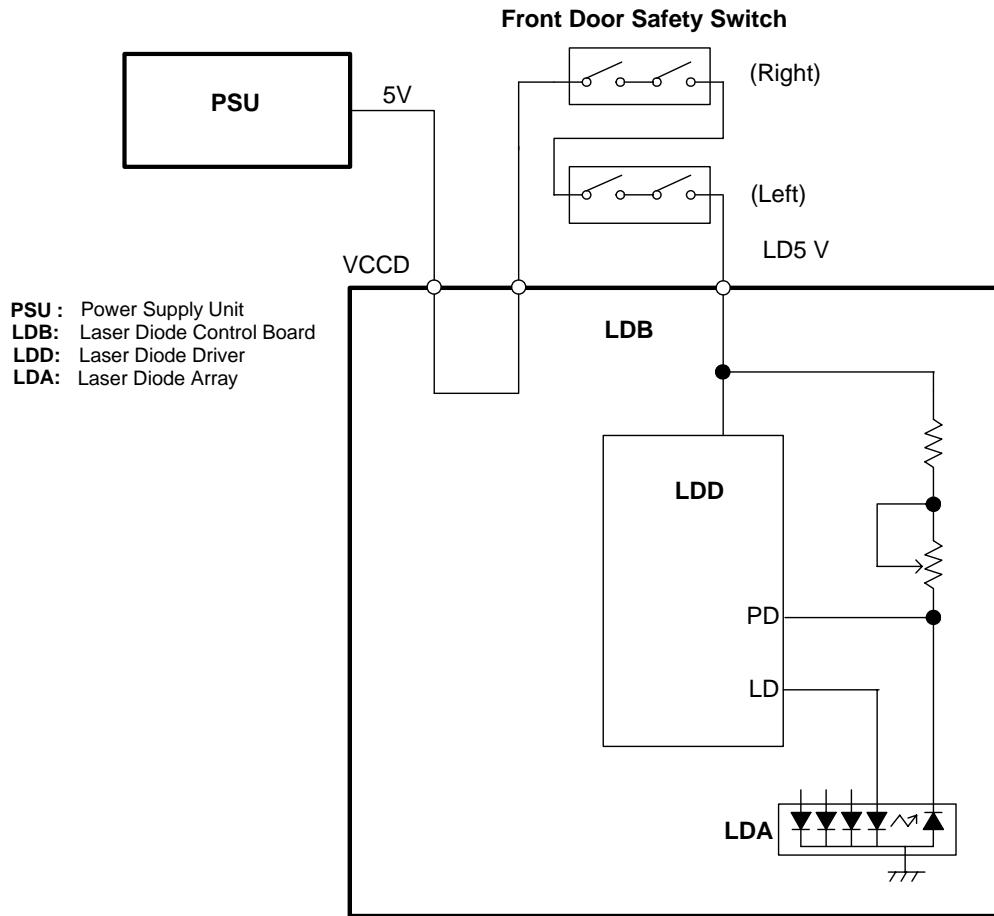
NOTE: The laser diode array is assembled and adjusted in the factory, and does not require position adjustment in the field.

LD drivers control the power output from the laser diodes.

(Digital Processes > Printing > Laser Printing > **Laser Diode Power Control**)

NOTE: The reference levels are adjusted on the production line. Never touch the variable resistors on the LD unit.

6.10.3 LD SAFETY SWITCHES

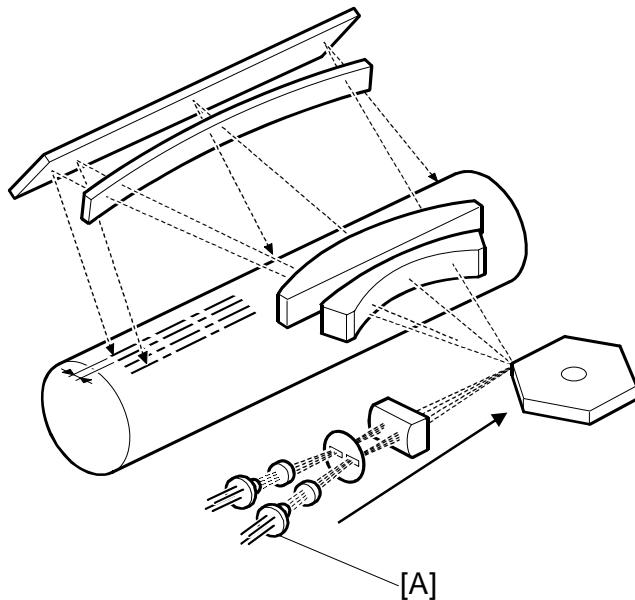


The laser unit generates laser beams that are extremely dangerous to the eyes.

To ensure the safety of the operators and service technicians, two safety switches are connected in series to the inside of both the left front door and right front door.

Either switch breaks the power supply circuit of the LD unit (the laser diode drive board) every time the left front door or the right front door is opened. This prevents the LD unit from switching on automatically when either the left front door or right front door is open.

6.10.4 MULTI-BEAM LINE EXPOSURE



The LD unit contains two laser diode arrays (LDA) [A], each with one 4-channel array, allowing the LD unit to produce a total of eight beams. This multi-beam exposure mechanism has the following advantages:

- Reduces the number of rotations required of the polygon mirror motor.
- Reduces the amount of noise generated by the polygon mirror motor because it is rotating at lower speed.
- Reduces the need for LD unit replacement.
- Allows production of a more precision beam on a stable platform.

The laser synchronization detector detects only Channel 0 and Channel 1, the uppermost beams of each parallel array.

The main scan pitch of Channels 2 to 7 is determined by setting **SP2115 001~006** (Main Scan Beam Pitch Adjustment) at the factory. For this reason, when the LD unit is replaced, these SP codes must be input for the new unit. The correct SP settings are printed on a label attached to the LD unit.

Detailed Descriptions

An SC code is issued for a laser synchronization detector error if the LD unit malfunctions and does not emit the laser beams.

6.10.5 POLYGON MIRROR MOTOR

The polygon mirror reflects the laser beam onto the OPC drum to expose the image line by line in the main scan direction. The polygon mirror motor rotates at a constant speed, even while the copier is in standby mode, but shuts off when the copier enters the energy conservation mode.

Polygon Mirror Motor Rotation Speed

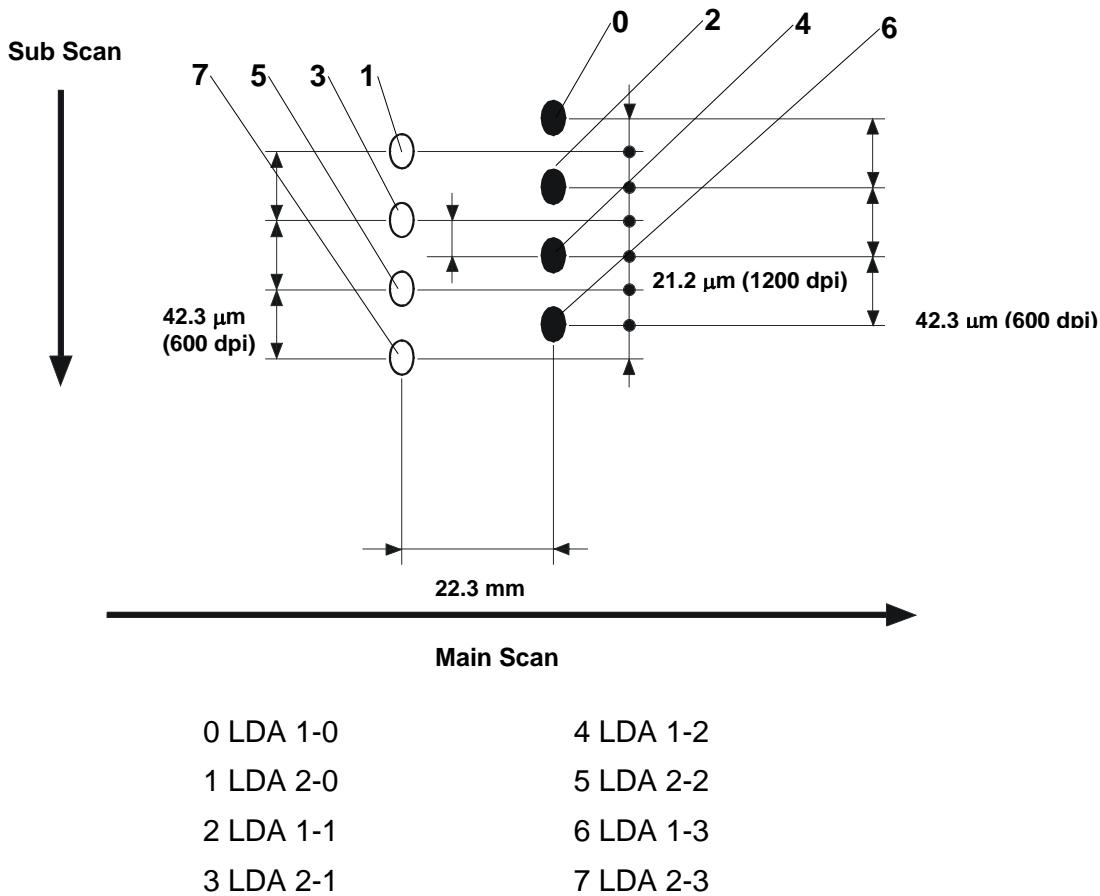
| B234/D101: 90 ppm | B235/D102: 110 ppm | B236/D103: 135 ppm |
|-------------------|--------------------|--------------------|
| 24,803 rpm | 29,528 rpm | 37,205 rpm |

Important:

- The polygon mirror motor has no brake mechanism, so it requires about 3 minutes to stop rotating.
- Before moving the machine or before servicing the motor or the area around the polygon mirror motor, you should switch off the copier main power switch, disconnect the machine, and wait at least three minutes for the motor to stop rotating.

NOTE: The polygon mirror motor requires about 10 seconds to reach full speed after the machine awakes from the energy conservation mode, or after the machine is switched from the normal mode to low speed mode for printing on thick paper. The machine cannot print during this 10 second interval until it reaches full rotation speed.

6.10.6 1200-DPI RESOLUTION



The original is scanned at 600 dpi, then the 600 dpi output is boosted to 1200 dpi 1-bit data during image processing in the IPU.

This machine can produce an image at 1200 dpi by writing each dot twice, possibly with two different values, depending on the results of image processing. This is achieved with the LD unit, which has two laser diode arrays, each with 4 channels which together produce 8 beams. As shown in the illustration above, the beams from each laser diode are emitted in two parallel lines.

For copying, 1200 dpi is used. For printing, the default is 600 dpi, but 1200 dpi can be selected.

The diagram shows how the two sets of four beams are interlaced to produce a sub scan resolution of 1200 dpi.

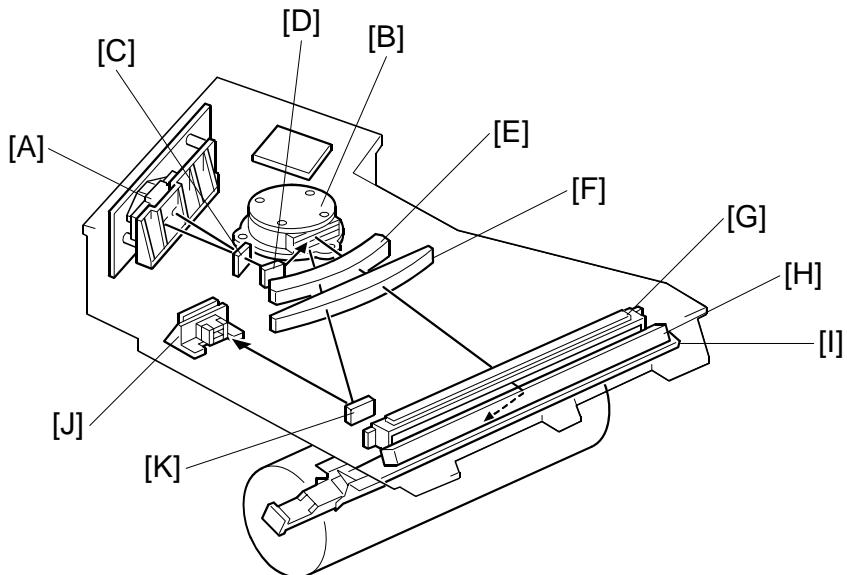
There are two parallel rows of four beams, separated by 22.3 mm in the main scan direction. In each of these rows, the beams are spaced at 42.3 micrometer intervals (this is the same as 600 dpi).

The rows are also offset in the sub scan direction by 21.2 micrometers.

The net result is that we have dots at 21.2 micrometer intervals, which is the same as 1200 dpi.

Detailed Descriptions

6.10.7 OPTICAL PATH



The output path from the laser diode to the drum is shown above.

The LD unit [A] outputs eight laser beams to the polygonal mirror [B] (six mirror surfaces) through the cylindrical lens [C] and the 1st mirror [D].

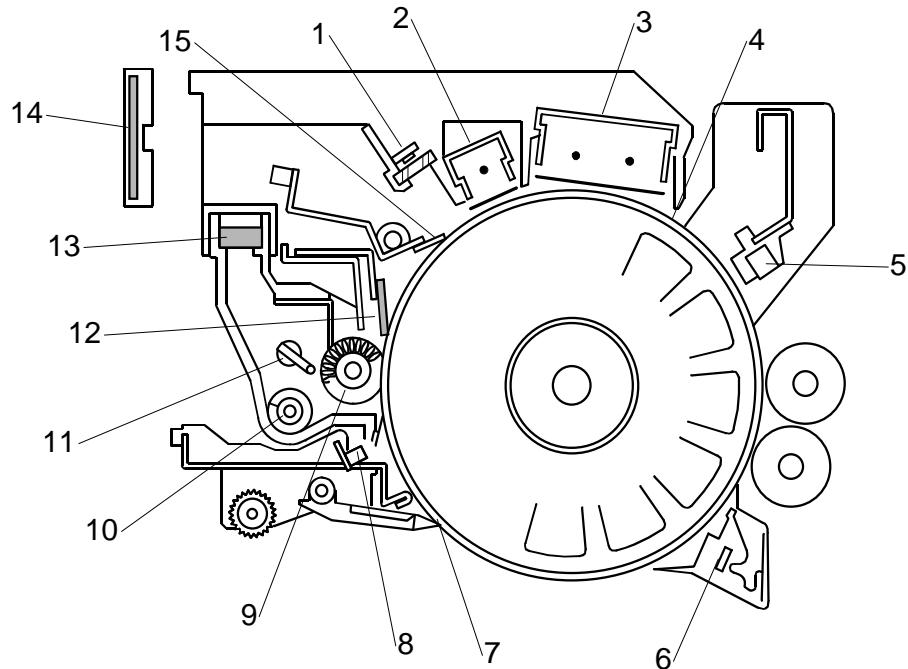
Each surface of the polygon mirror reflects eight full main scan lines. The laser beams go to the F-theta lens 1 [E], F-theta lens 2 [F], BTL (barrel toroidal lens) [G], and mirror [H]. Then these laser beams go to the drum through the toner shield glass [I].

The laser synchronizing detector [J] determines the main scan starting position. This sensor sends a synchronization signal when the laser synchronization detector mirror [K] reflects the laser beam to the detector as the laser beam starts its sweep across the drum.

The laser synchronization detector detects only the beams emitted from Channels 1 and 0, the uppermost beams of each parallel array.

6.11 DRUM UNIT

6.11.1 OVERVIEW



The drum unit consists of the components shown. An organic photoconductor drum (diameter: 100 mm) is used for this model.

- | | |
|----------------------------|---------------------------------|
| 1. Quenching Lamp | 9. Cleaning Brush |
| 2. Pre-Charge Unit | 10. Toner Collection Coil |
| 3. Charge Corona Unit | 11. Drum Cleaning Unit Agitator |
| 4. OPC Drum | 12. Cleaning Blade |
| 5. Drum Potential Sensor | 13. Cleaning Unit Filters |
| 6. PTL (Pre-Transfer Lamp) | 14. Toner Filter |
| 7. Pick-Off Pawls | 15. 2nd Cleaning Blade |
| 8. ID Sensor | |

Detailed
Descriptions

DRUM UNIT

Pre-charge unit (2):

Supplements the function of the charge unit. Because of the high speed of the drum, the main charge corona does not give the drum enough charge, especially for the first copy cycle. This is especially important for the B236/D103 (135 ppm) due to its high speed.

Cleaning brush (9):

Rotates forward (ccw) with the drum (not against the direction of drum rotation). This reduces wear on the surface of the drum and extends the life of the drum.

Ventilation duct:

Between the cleaning unit and the fusing unit. Reduces the effects of heat from the fusing unit, which would cause toner clumping during toner transport and cleaning. This is especially important for the B236/D103 (135 ppm) due to its high speed.

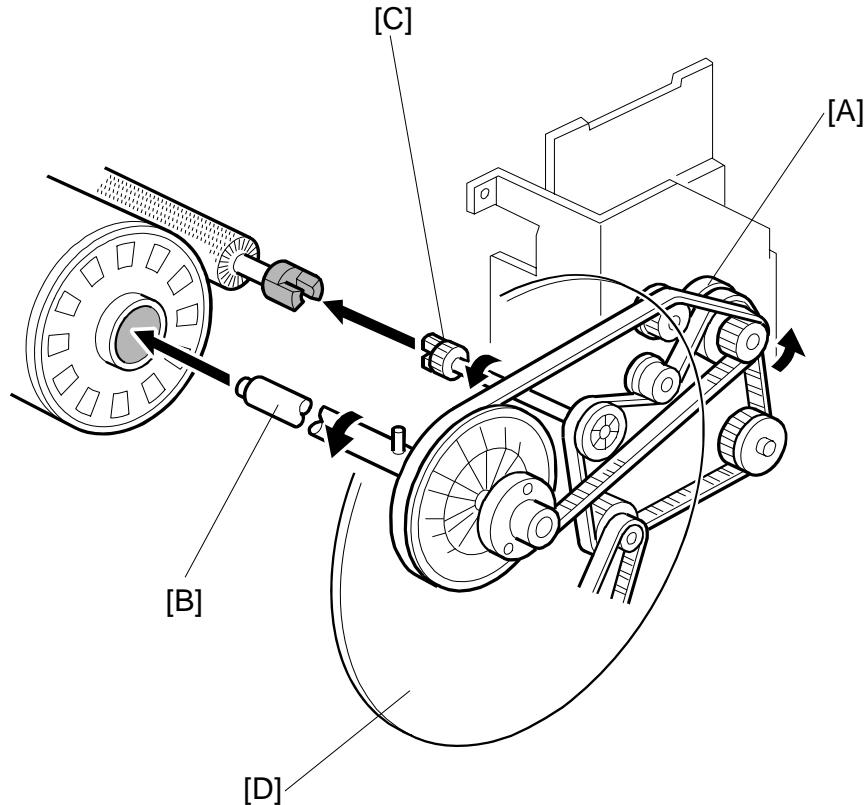
Second cleaning blade (15):

Added specifically to reduce *medaka*, (white tear-drop shapes that appear in the solid backgrounds of copies and prints).

NOTE:

- After training, super users (trained operators) can replace the following components around the drum:
 - 1) Pre-Charge Unit
 - 2) Charge Corona Unit
 - 3) Cleaning Unit.
- Two sensors have been added: a cleaning unit sensor and drum unit sensor. When the machine is switched on or when the front door is closed, these sensors detect whether the cleaning unit and drum unit are set correctly. If either or both units are set incorrectly, a message appears on the operation panel. The machine cannot be used until the problem has been corrected.

6.11.2 DRUM DRIVE



The drive from the drum motor [A] is transmitted to the drum and the cleaning unit through timing belts, gears, the drum drive shaft [B], and the cleaning unit coupling [C].

The drum motor has a drive controller, which outputs a motor lock signal when the rotation speed is out of the specified range.

Drum Speeds

| | |
|---------------------|----------|
| B234/D101 (90 cpm) | 420 mm/s |
| B235/D102 (110 cpm) | 500 mm/s |
| B236/D103 (135 cpm) | 630 mm/s |

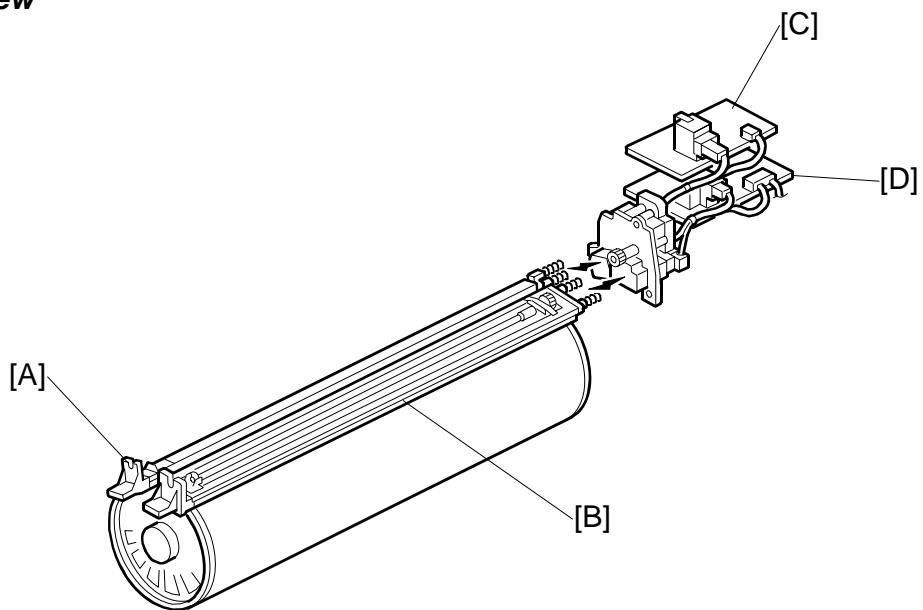
Detailed
Descriptions

The flywheel [D] on the end of the drum drive shaft stabilizes the rotation speed.

DRUM UNIT

6.11.3 DRUM CHARGE

Overview

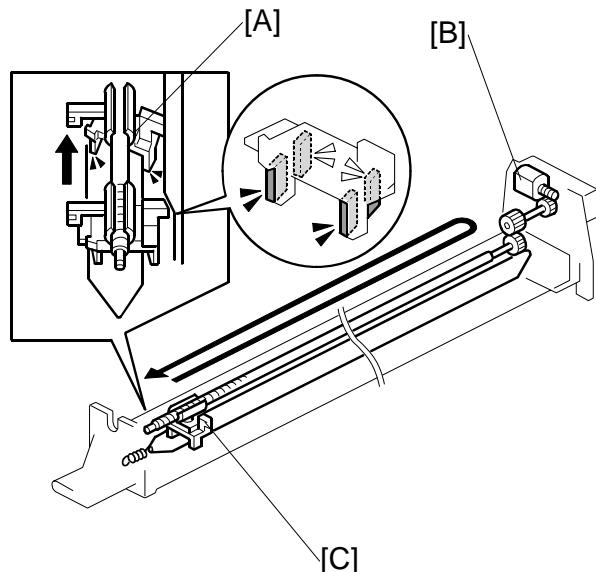


This copier uses a corona wire Scrotron system to charge the drum.

| | Unit | |
|---|-----------------------|-------------------------|
| | Pre-Charge Corona [A] | Charge Corona [B] |
| Corona Wire | Single | Double |
| Grid | Plate | Plate |
| Power pack | PPG Power pack [C] | CGB Power pack [D] |
| Charge current (Text, Text/Photo Pale, Generation Copy) | Constant: 600 μ A | Constant: 1,550 μ A |
| Charge current (Photo mode) | Constant: 600 μ A | Constant: 1,600 μ A |
| Grid voltage | Not controlled | - 900 V |
| Corona wire cleaning | Manually | Automatic mechanism |

This is a high-speed copier, so two corona wires are needed inside the charge corona unit [B] to give a sufficient, uniform negative charge to the drum surface. The stainless steel grid plate makes the corona charge uniform and controls the amount of negative charge on the drum surface by applying a negative voltage to the grid.

Cleaning the Corona Wires



Charge Corona Unit

Air flowing around the charge corona wire may deposit toner particles on the corona wires. These particles can interfere with charging and cause low density bands on copies.

The wire cleaner pads [A] automatically clean the wires to prevent such a problem.

The wire cleaner is driven by a dc motor [B]. Normally the wire cleaner [C] is at the front end (the home position). Just after the main switch is turned on, the wire cleaner motor turns on to bring the wire cleaner to the rear and then back to the home position. When the wire cleaner moves from the rear to the home position, the wire cleaner pads swivel, bringing the pads into contact with the wires, and clean the wires as it moves forward.

Cleaning is executed when:

- The machine is switched on and the fusing temperature is less than 100°C while auto process control executes.
- Every 24 hours.
- After every 5,000 copies. This can be adjusted with **SP2804 002** (Charge Corona Cleaner Setting – Corona Wire Cleaning Interval).

Detailed Descriptions

Pre-Charge Unit

There is no mechanism to clean the pre-charge unit corona wire automatically.

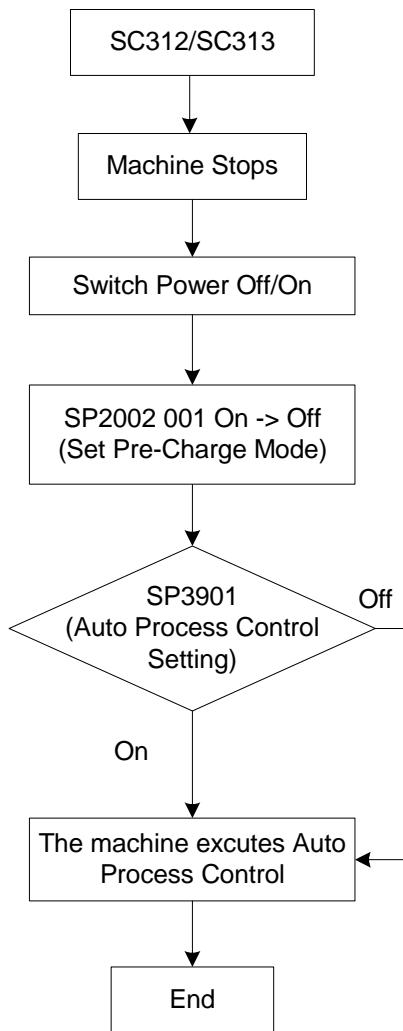
However, the pre-charge unit corona wire can be cleaned manually. After the pre-charge unit has been removed, its cleaning pad can be pushed to the rear and front several times to clean the corona wire.

SC312 and SC313 signal a problem with the pre-charge unit. After either SC is issued, operation halts and the machine must be cycled off and on.

When this occurs, the setting of SP2002 001 is automatically switched from "1" (On) or "2" (ON) to "0" (Off). The operator can use the machine, but the machine is

DRUM UNIT

allowed to operate with only the (main) charge unit operating. This will not seriously hinder operation of the machine. However, if **SP3901** (Auto Process Control Setting) is switched on, auto process control will execute to adjust the new conditions around drum because the pre-charge unit is not operating.

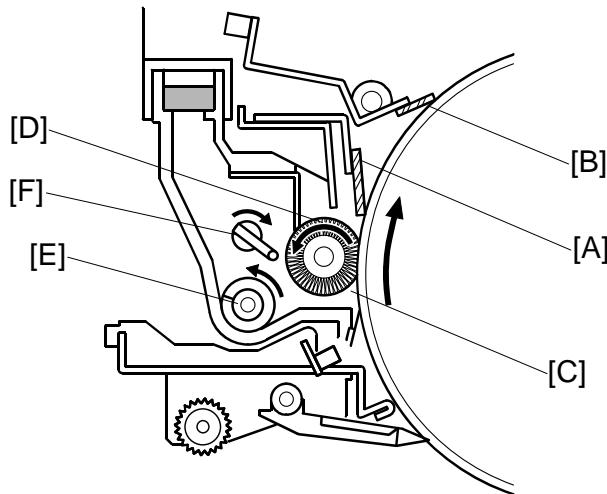


NOTE:

- When auto process control is executed under these conditions, the ID sensor adjustment is not done.
- After you repair the pre-charge unit, to recover from **SC312** or **SC313**, you must change the setting of **SP2002 001** from "0" (Off) to "1" (On).

6.11.4 DRUM CLEANING

Overview



This copier has two drum cleaning blades: a main drum cleaning blade [A] and a 2nd cleaning blade [B].

Main Cleaning Blade

The main cleaning blade is a counter blade angled against the direction of drum rotation. The counter blade system has the following advantages:

- Less wearing of the cleaning blade edge
- High cleaning efficiency

The cleaning brush [C] removes toner from the drum surface. Any remaining toner is scraped off by the cleaning blade. The cleaning brush rotates counter-clockwise, not against the rotation direction of the drum. This reduces wear on the surface of the drum.

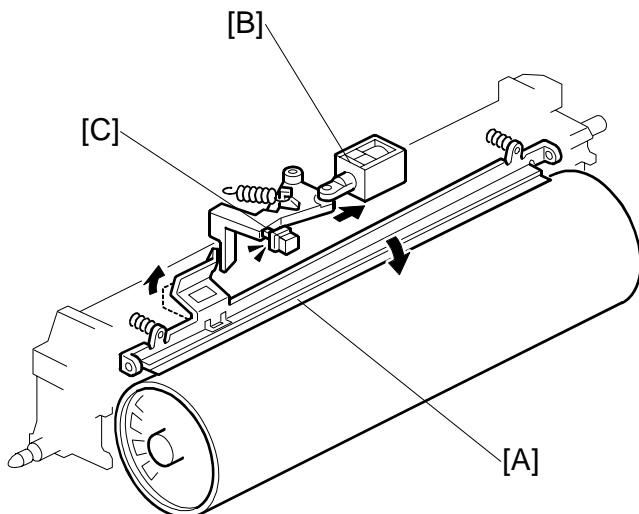
Toner on the cleaning brush is scraped off by the scraper [D] and falls onto the toner collection coil [E]. The coil transports the toner to back to the toner entrance tank in the toner bank unit for recycling.

The agitator [F] agitates the toner to prevent clumping in the toner returned to the toner entrance tank.

To remove any accumulated toner at the edge of the cleaning blade, the drum turns in reverse for about 40 ms at the end of every copy job. This is also done every 30 minutes during long copy jobs. If any accumulated toner is deposited on the drum, it is removed by the cleaning brush. For more, refer to **SP2506 002** (Cleaning Interval – Multiple Copy - Interval) in Section “5. Service Tables”.

Detailed Descriptions

2nd Cleaning Blade



The 2nd cleaning blade [A] removes paper dust and other particles from the surface of the drum, especially in work areas that are very humid.

The 2nd cleaning blade solenoid [B] operates the 2nd cleaning blade.

- During copying and when the machine is not being used, the 2nd cleaning blade does not touch the drum.
- At the end of the process control sequence, or at times prescribed with **SP2930**, the solenoid activates and locks the 2nd cleaning blade against the drum to clean the drum surface.

Detecting the Status of the 2nd Cleaning Blade

The solenoid moves the 2nd cleaning blade release arm to the contact position and locks the blade against the drum. The release mechanism of the 2nd cleaning blade has a "push-switch" [C] which confirms whether the 2nd cleaning blade release arm is operating correctly. This push-switch is set so it is under pressure when the blade is against the drum.

If an abnormal condition is detected, the machine issues SC488.

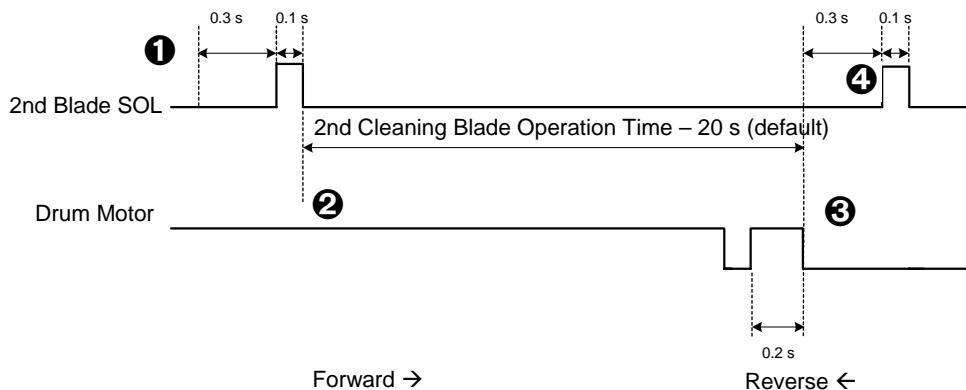
SP 2930 Adjustments

SP2930 controls the operation of the 2nd cleaning blade. There are two modes of operation: 'normal humidity', and 'low humidity'. The threshold between these two humidity modes is set with SP 2930 008.

| SP2930 008 | | |
|---------------|------------|------------|
| Humidity Mode | Normal | Low |
| Condition | SP2902 001 | SP2930 005 |
| Interval | SP2930 002 | SP2930 006 |
| Time | SP2930 003 | SP2930 007 |

Detailed Descriptions

- SP 2930 004 provides a command that allows you to manually clean the drum with the 2nd cleaning blade.

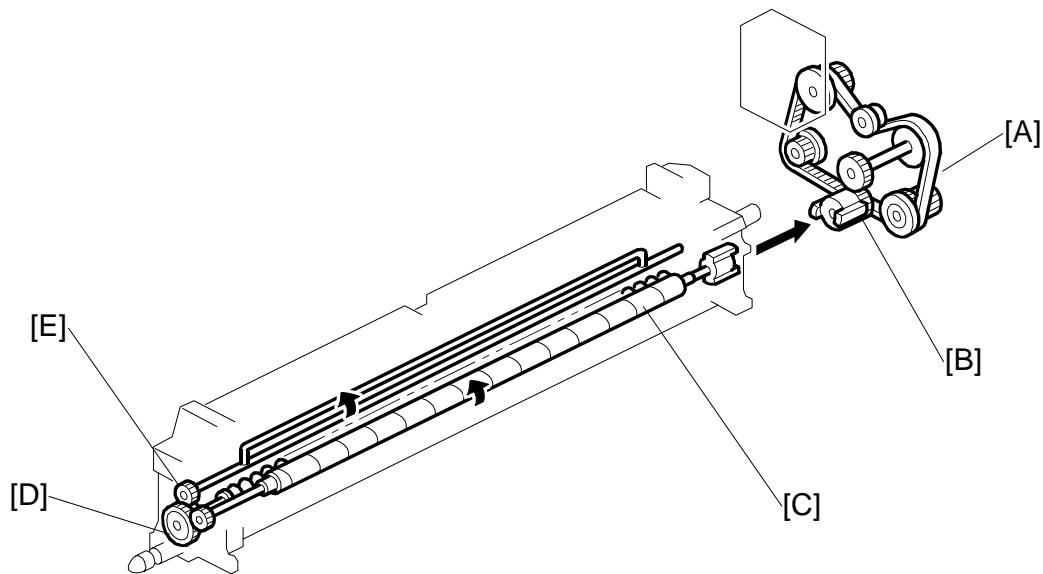
Timing Sequence for Operation of the 2nd Cleaning Blade

At the end of a job:

- ① 2nd blade solenoid (a magnetic latching solenoid) activates and pushes a lever that locks the 2nd cleaning blade against the drum.
- ② Drum motor rotates forward for 20 s and reverse for 0.2 s. The length of time that the blade is held against the drum can be adjusted with **SP2930 003**.
- ③ Drum motor stops.
- ④ 2nd blade solenoid pushes the lever that pulls the 2nd cleaning blade away from the drum surface and locks it in the release position.

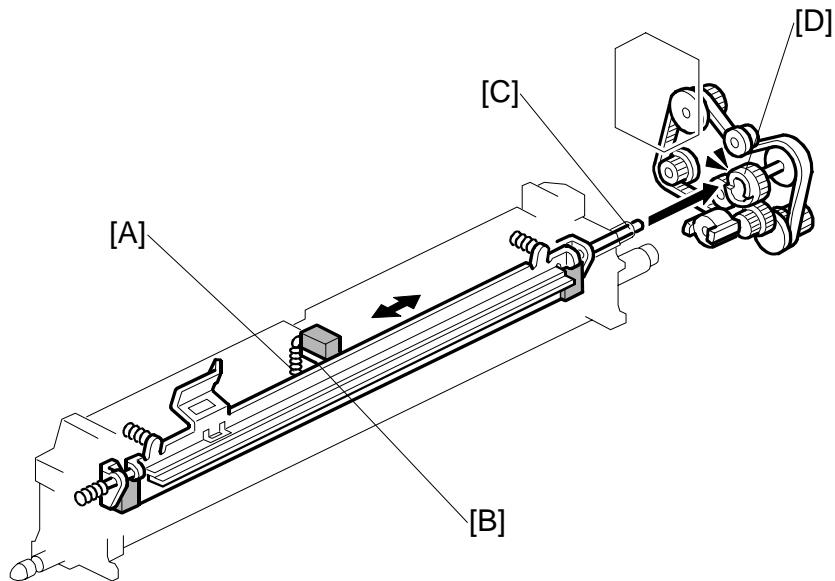
At the following times, current is applied to the 2nd cleaning blade solenoid for 0.1 s to make sure that the solenoid is restored to its normal state (released and away from the drum):

- Immediately after the machine is turned on
- When either front door is closed
- At the beginning of every job

Cleaning Unit Drive

Drive from the drum motor is transmitted to the cleaning unit drive gear via the timing belt [A] and the cleaning unit coupling [B]. This coupling drives the cleaning brush [C] directly. The cleaning brush then transmits the drive to the gear at the front, which drives the toner collection coil gear [D] and agitator gear [E].

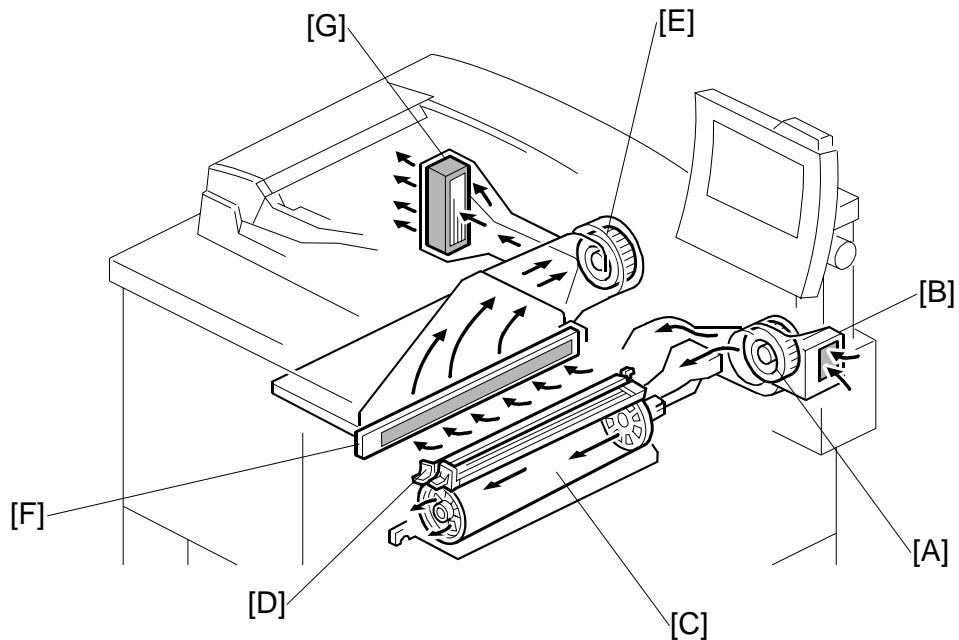
Detailed
Descriptions

Cleaning Blade Pressure and Side-to-Side Movement

The spring [A] always pushes the cleaning blade against the drum. The cleaning blade pressure can be manually released by pushing up the release lever [B].

The guide roller [C] at the rear end of the cleaning blade holder touches the cam gear [D] that moves the blade from side to side. This movement disperses accumulated toner and prevents uneven blade wear.

6.11.5 AIR FLOW AROUND THE DRUM



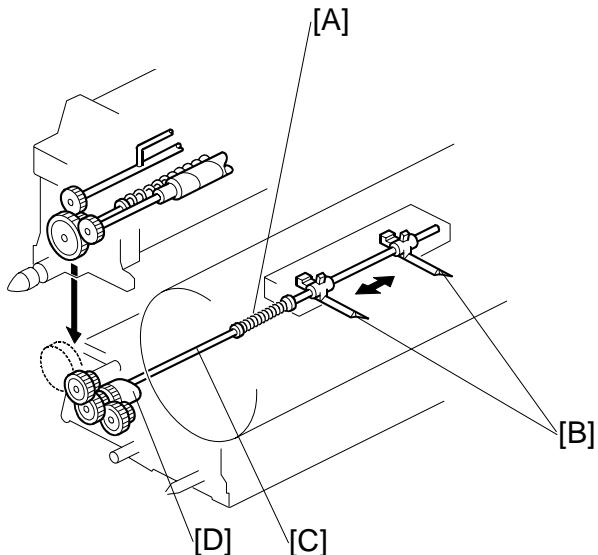
The drum cooling fan [A] draws cool air through the drum dust filter [B] and sends it to the center of the drum [C], then over the charge units [D] (charge corona unit and pre-charge unit).

Holes in the flanges on both ends of the drum allow air to pass through the drum to cool it. After the air has passed through the center of the drum, the exhaust fan [E] draws the air out of the interior of the machine, through the toner filter [F] to remove free floating toner, through the ozone filter [G] to remove ozone, then finally out of the machine.

To keep the temperature inside the machine constant, the drum cooling fan turns slowly during standby, but turns faster during copying.

Detailed Descriptions

6.11.6 DRUM PICK-OFF PAWLS

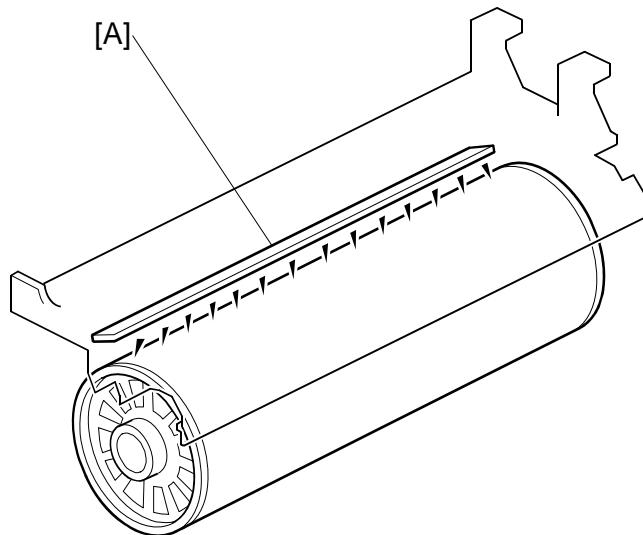


If the paper does not separate from the drum after image transfer, the drum pick-off pawls strip the paper from the drum.

Pressure from small springs [A] press the pick-off pawls [B] against the surface of the drum.

The shaft [C] and the cam [D] move the pick-off pawls from side to side to ensure that they never remain at the same location (this prevents wear on the drum).

6.11.7 DRUM QUENCHING



In preparation for the next copy cycle, light from the quenching lamp [A] neutralizes any charge remaining on the drum.

The quenching lamp consists of an array of 28 red LEDs extending across the full width of the drum.

Detailed
Descriptions

6.11.8 PROCESS CONTROL

Drum potential gradually changes for the following reasons:

- Dirty optics, exposure glass
- Dirty charge corona casing, grid plate
- Deterioration of drum sensitivity

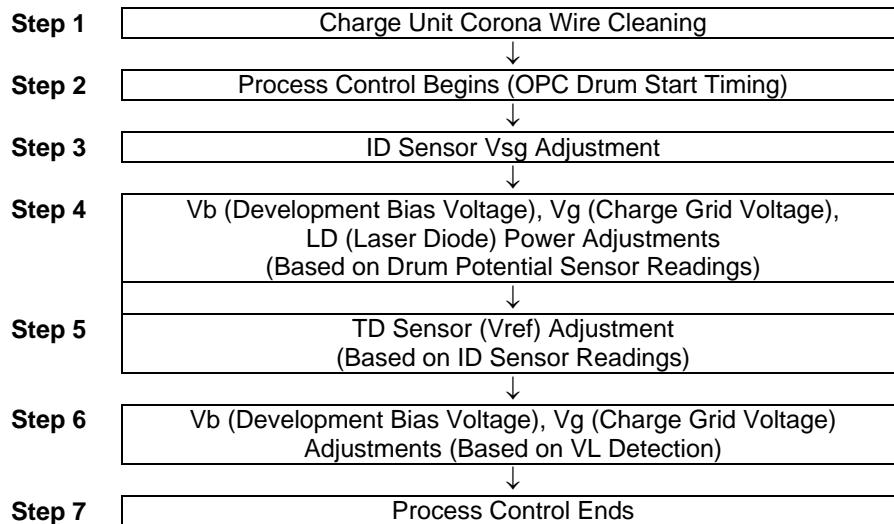
When Does Auto Process Control Execute?

Process control is executed under the following conditions:

- When the machine is turned on with the fusing temperature at less than 100°C and automatic process control is enabled (**SP3901 001** switched on).
- After the machine has remained on and idle for over 24 hours (SP2966 001) and automatic process control is enabled (**SP3901 001** switched on).
- When the service technician executes **SP2962** to force process control execution manually.
- After the power is turned off/on to reset the machine after a pre-charge unit related SC code has occurred (**SC312, SC313**). (**SP2002 001** is set to "0" (Off) and the ID sensor is not adjusted.)
- When the speed of the rotation of the drum is changed (Normal → Low Speed, Low Speed → Normal Speed) after pressing the [Start] key. (The ID is not adjusted.)

However, if auto process control fails (**SP3902 001** displays a "0"), the auto process control will not execute even if the drum speed changes.

Auto Process Control Flow



| | |
|-------|---|
| Vsg | Reflectivity of the bare surface of the drum. This reading is used with Vsp (the reflectivity of the ID sensor pattern where it is covered with toner) to calculate Vref (V_{sp}/V_{sg}). |
| Vb | Development bias. A charge applied to the drum to prevent dirty backgrounds on copies. Backgrounds emerge dirty if the residual potential (V_r) remains high. |
| Vg | Voltage output of the charge corona unit. Vg is used to adjust Vd, the drum potential of the unexposed areas of the drum. |
| Vh | Standard drum potential for halftone. |
| VL | Light potential, the drum potential after maximum laser exposure. The drum potential sensor measures VL by reading the white patches of the potential sensor pattern. To change VL, the machine adjusts input current of the laser diode. |
| Vd | Detected by the drum potential sensor, this is the reading of the drum surface before it is exposed by the laser. This is the "dark potential". |
| Vdref | The target value of Vd, the dark potential of the drum before it is exposed by the laser. |
| LD PM | Laser Diode Pulse Modulation. This is strength (intensity, amount of light) of the laser beams. |

Detailed Descriptions

Step 1: Charge Unit Corona Wire Cleaning

The machine executes charge corona wire cleaning at the beginning of every auto process control cycle if **SP2804 001** (Charge Corona Cleaner Setting) is set to "1".

Step 2: Process Control Begins (OPC Drum Start Timing)

Process control starts after the machine is turned on with the fusing temperature below 100°C (regardless of the number of lamps that are on).

Step 3: ID Sensor Vsg Adjustment

V_{sg} (reflectivity of the bare surface of the drum) is automatically set:

$$V_{sg} = 4.0 \pm 2V$$

After this is done, you can display and confirm the V_{sg} setting with **SP3103 002**. You can also display and confirm the PWM (Pulse Width Modulation) setting with **SP3001 001**.

NOTE: If process control executes in response to a change in the drum rotation speed (low to high speed, high to low speed mode), the V_{sg} adjustment is not done. Therefore, **SP3103 002**, **SP3001 001** will not reflect any changes.

Step 4: V_b (Development Bias Voltage), V_g (Charge Grid Voltage), LD (Laser Diode) Power Adjustments (Based on Drum Potential Sensor Readings)**1. Determining ΔVL : $\Delta VL = (Target VL) - 200$**

The difference between the value of VL read by the drum potential sensor and the previous target VL value of -200V is obtained. ΔVL is then used to update VLref. If the following result of the calculation is less than ΔVL , the lower value between $\Delta VL1$ and VL2 is used to update VLref.

- $V_b = V_b$ setting of **SP2201 001** + $\Delta VL > 800$
 $\Delta VL1 = 800 - (\text{Value of SP2201 001})$
- $V_{Dref} = V_d$ setting of **SP2001 006** + $\Delta VL > 950$
 $\Delta VL2 = 950 - (\text{Vd setting of SP2001 006})$

The purpose of the calculations is to set V_b and V_{Dref} at the high limit of their ranges to prevent over compensation during adjustment.

At the beginning of the process control cycle, the following components remain turned on: drum motor, fusing motor, QL, charge unit, charge grid (using the previous voltage, or the voltage set with **SP2001 003** if the machine has just been powered on), and development motor.

The development motor switches off, the laser creates the VL pattern on the surface of the drum, and the drum potential sensor reads the VL pattern.

VL Pattern

| | |
|----------------|--|
| Size | Width: 30 mm Length: 40 mm |
| Exposure Level | 15 |
| Laser PM | Same value as previous process control execution |

NOTE:

- If $\Delta VL < 0$, ΔVL is set to 0.
- If VL detection is abnormal, **SC424** is issued and VLref is not updated.
- If the VL detection at this step is displayed by **SP3902 008**, and the $\Delta VLref$ is displayed by **SP3902 009**.
- If process control is switched off (SP3901 set to "0") then $\Delta VLref$ is set to "0" and the drum potential sensor does not detect VL.

2-1. Determining Vb: $Vb = (\text{Value of SP2201}) + \Delta VL$

The development bias value applied from **SP2201** depends on the line speed.

| Line Speed | SP No. | SP Name |
|--------------|------------|---------------------------|
| Normal Speed | SP2201 001 | Image Area (Normal Speed) |
| Low Speed | SP2201 004 | Image Area (Low Speed) |

NOTE:

- Even if the result of the calculation is $Vb > 800$, the voltage applied by the power pack is 800V.
- The value of Vb is displayed by **SP3902 012**.

2-2. Determining VdrefM: $VDref = (\text{Value of SP2001}) + \Delta VLref + Vd \text{ Calibration}$

The value of Vd applied from **SP2001** depends on the line speed.

| Line Speed | SP No. |
|--------------|------------|
| Normal Speed | SP2201 001 |
| Low Speed | SP2201 005 |

NOTE:

- Even if the result of the calculation is $VDref > 950$, $VDref$ is set to 950.
- When $\Delta VLref$ is determined, $Vdref$ should be value of $SP2001 + \Delta VL \leq 950$. So, $Vdref > 950$ only when Vd is corrected.
- Count "A" is cleared only when SP2801 (TD Sensor Initial Setting) is executed:
 - If "A" < SP3903 (VD Correction Counter), there is no VD correction.
 - If "A" > SP3903, the value is corrected by +50.

Detailed Descriptions

2-3. Determining VHreM: $VHref = (\text{value of VH from SP3904}) + \Delta VLref$

The value of VH applied from **SP3904** depends on the line speed.

| Line Speed | SP No. |
|--------------|------------|
| Normal Speed | SP3904 001 |
| Low Speed | SP3904 002 |

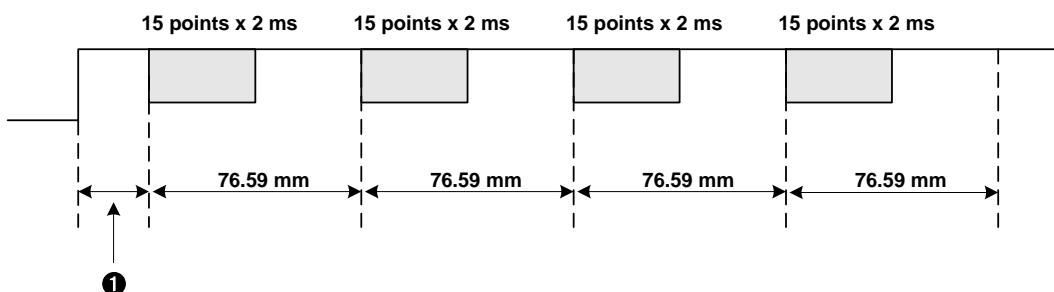
NOTE:

- If $VB = 800$, then $VHref = VH \text{ of SP3904} + (800 - Vb \text{ of } \mathbf{SP2201})$ for the value of development bias on image areas.

3. Determining Vg with the detected Vd: $VD = (-VDref) \pm 20$

The development motor turns on.

15 VD readings are taken at 2 ms intervals from each quarter section of the drum as it rotates. For each quarter section, the maximum and minimum values are discarded. The remaining 13 readings for each of the 4 sections are averaged. Next, the four averages (one from each section of the drum) are once again averaged to determine VD.



VD detection begins at ① 50 ms from the time the power pack switches at a point 69.9 mm distant from the area between the pre-charge unit and the drum potential sensor.

② $VD = VDref \pm 20V$?

If $VD = VDref \pm 20V$ is not achieved, the grid voltage is adjusted ($VD + VDref$) and the VD samplings are done again. This cycle is repeated 5 times. If a satisfactory result is not obtained ($VD = VDref \pm 20V$), then **SC420** is issued.

③ $VD = - VDref \pm 20V$?

If $VD = - VDref \pm 20V$ is achieved, VG is determined. The determined value of VG is displayed by SP3902 004. VD is displayed by SP3902 002.

4. LD PM is determined with the detected V_h: **V_H = (-V_{Href}) ± 20**

- ❶ The development motor turns off and the laser creates a VH pattern 30 mm wide and 80 mm long.

The laser power that creates the pattern is adjusted for the line speed.

| Line Speed | SP No. | SP Name |
|--------------|------------|---------------------------|
| Normal Speed | SP2104 003 | VH Pattern (Normal Speed) |
| Low Speed | SP2104 004 | VH Pattern (Low Speed) |

NOTE: The laser power is set to different levels for creation of the VH pattern and ID sensor pattern.

- ❷ 15 VH readings are taken at 2 ms intervals. The maximum and minimum values are discarded. The remaining 13 readings are averaged to determine V_H.

- ❸ $V_H = V_{Href} \pm 20V$?

If $V_H = V_{Href} \pm 20V$ is not achieved, the laser power is adjusted for creation of the pattern.

- ❹ If $V_H > V_{Href}$ then laser power is raised 5 steps above the setting for SP2103.

If $V_H < V_{Href}$ then laser power is lowered 5 steps below the setting for SP1203.

- ❺ The VH pattern created with the adjusted laser power is sampled again. This cycle (❷ and ❻) is repeated until a satisfactory result is achieved. If a satisfactory result is not achieved after the 45th attempt, **SC428** is issued.

- ❻ The correct value for the level of the laser power (PM) is obtained. The result can be displayed with **SP3902 005**. VH can be displayed with **SP3902 003**.

Step 5 TD Sensor Adjustment (Based on ID Sensor Readings)

The laser projects the ID sensor pattern onto the drum.

The ID sensor reads the patterns and obtains a value for V_{sp} (covered area of the pattern) and a value for V_{sg} (bare surface of the drum in the pattern).

The machine takes these values and calculates a new value for V_{ref} ($V_{ref} = V_{sp}/V_{sg}$). The voltage that was used to make the sensor pattern can be displayed with **SP3902 006**.

Detailed Descriptions

Step 6 Update V_b, V_g (Based on VL Detection)

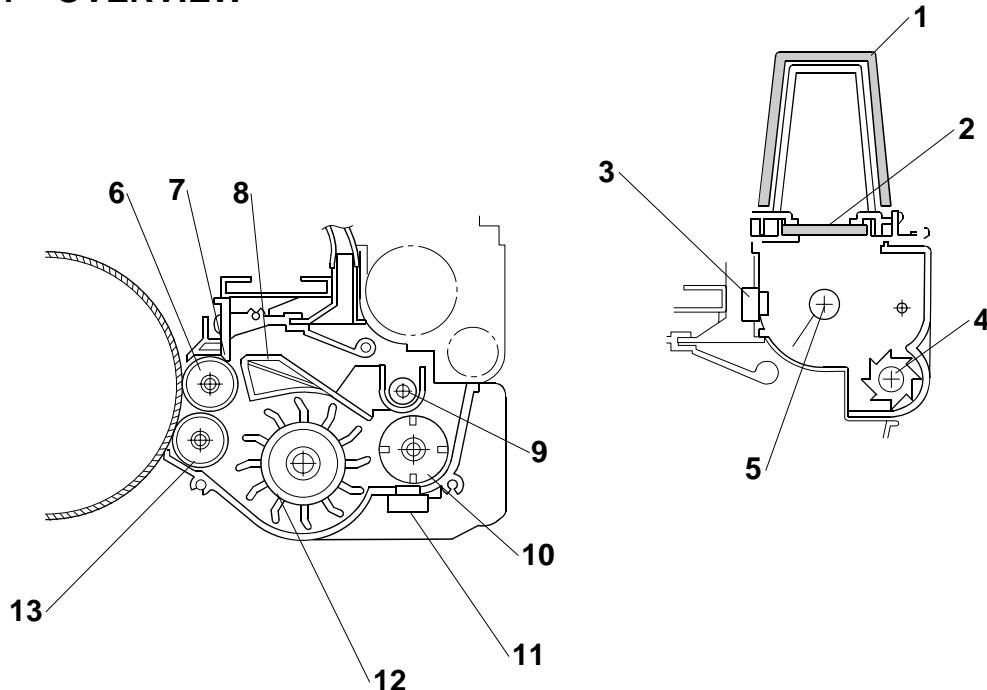
V_b (Development Bias Voltage) and V_g (Charge Grid Voltage) are finally updated.

Step 7 Process Control Ends

All motors shut off in the same sequence as any job end.

6.12 DEVELOPMENT

6.12.1 OVERVIEW



- | | |
|-----------------------------|------------------------------|
| 1. Hopper Filter | 8. Separator |
| 2. Hopper Center Filter | 9. Toner Transport Coil |
| 3. Toner Hopper Sensor | 10. Cross-mixing Roller |
| 4. Agitator | 11. TD Sensor |
| 5. Toner Supply Roller | 12. Paddle Roller |
| 6. Upper Development Roller | 13. Lower Development Roller |
| 7. Doctor Blade | |

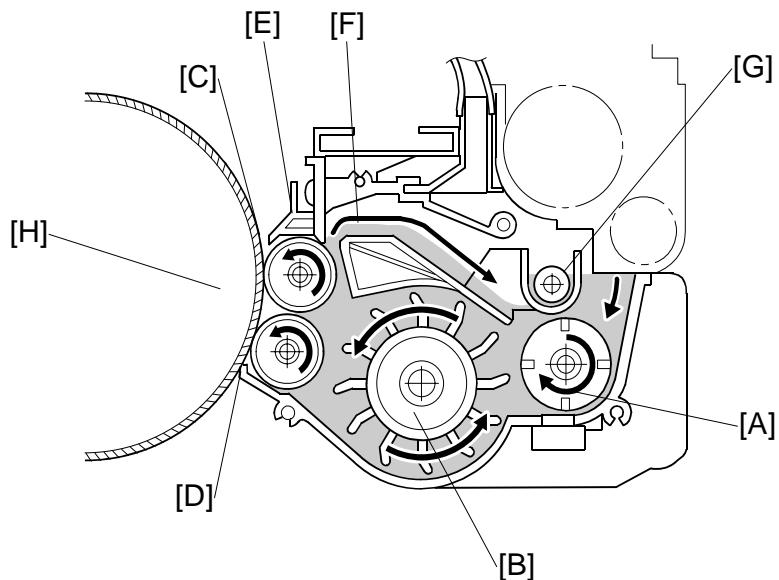
This copier uses a double roller development system and a dual component development process with toner particles 6.8 µm and developer particles 50 µm. To improve image quality, the width of the magnetic area on the lower development roller has been reduced.

This system differs from single roller development systems in that:

- It develops the image in a narrower area
- It develops the image twice
- The relative speed of each development roller against the drum is reduced.

This machine contains a toner recycling system. Toner collected from the drum by the drum cleaning unit is transported to the toner entrance tank, where it mixes with fresh toner from the toner bottle.

6.12.2 DEVELOPMENT MECHANISM



Toner and developer are mixed in the toner agitator by the cross-mixing roller [A]. The paddle roller [B] picks up the developer and sends it to the upper development roller [C]. Internal permanent magnets in the development rollers attract the developer to the development roller sleeve. Developer from the upper development roller sleeve is also attracted to the lower development roller [D].

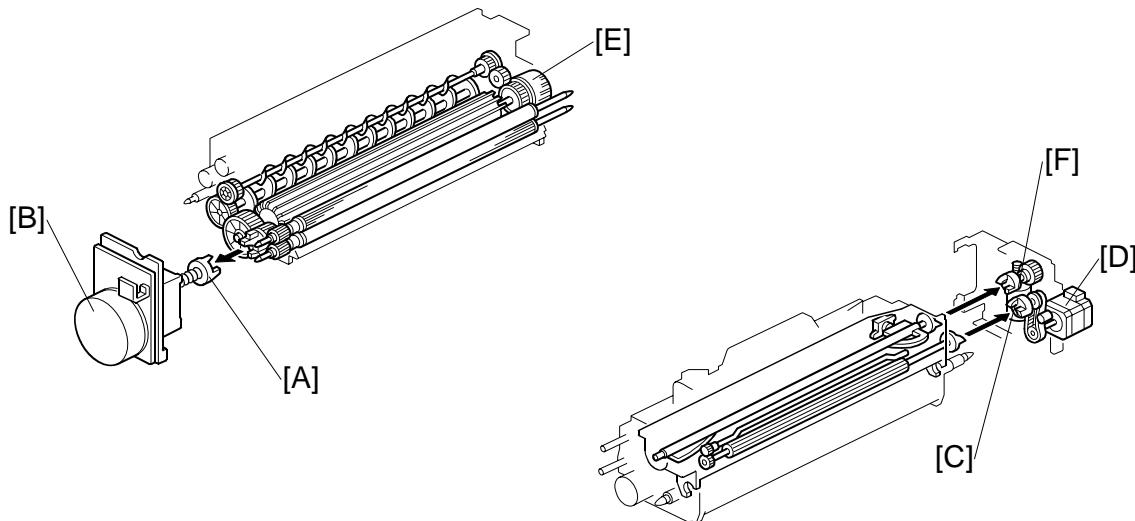
The upper development roller carries the developer past the doctor blade [E] which trims the developer to the desired thickness. Excess developer spills over the separator [F] to the toner transport coil [G]. The coil transports the developer from back to front as far as the cross-mixing roller.

In this machine, black areas of the latent image are at a low negative charge (about -150 V) and white areas are at a high negative charge (about -800 V).

The development rollers continue to turn and carry the developer to the drum [H].

Detailed Descriptions

6.12.3 DRIVE



The gears in the development unit are driven by the development drive gear [A] when the development motor [B] (a dc servomotor) turns.

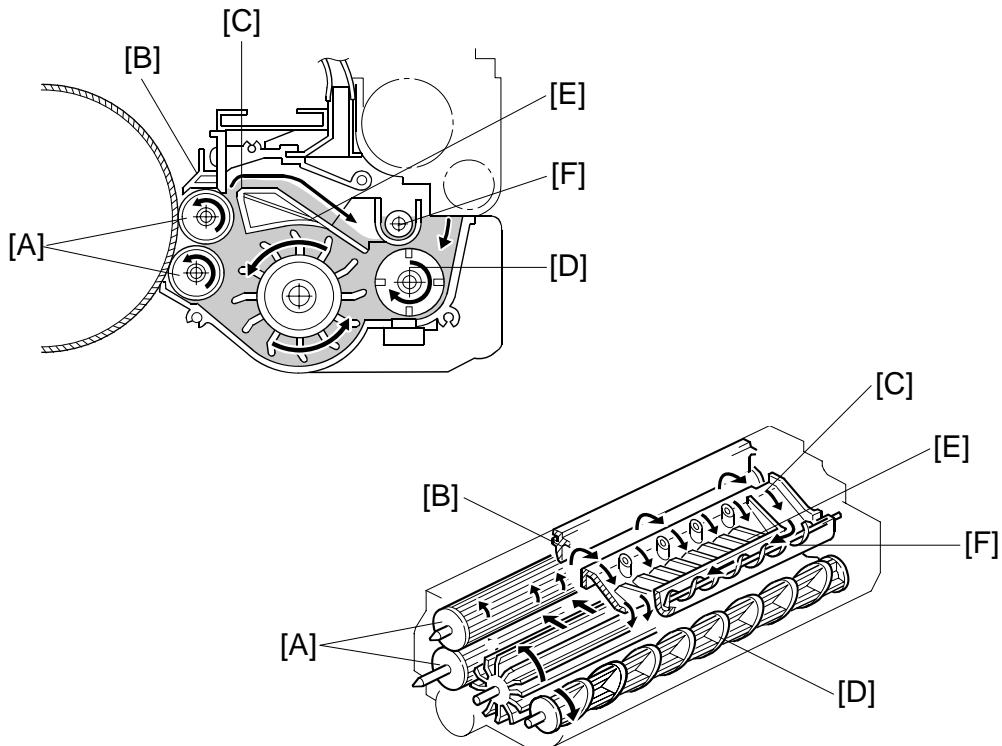
The gears in the toner hopper are driven by the toner supply roller drive gear [C], which is connected to the toner supply motor [D].

A one-way clutch on the paddle roller knob [E] prevents counter-clockwise rotation of the paddle roller.

A dedicated dc motor [F] (hopper agitator motor) is provided for the agitator to:

- Reduce the amount of time for toner filling after development unit replacement
- Reduce the load on the drive components
- To better control toner transport by the toner supply pump in the toner hopper

6.12.4 CROSMIXING



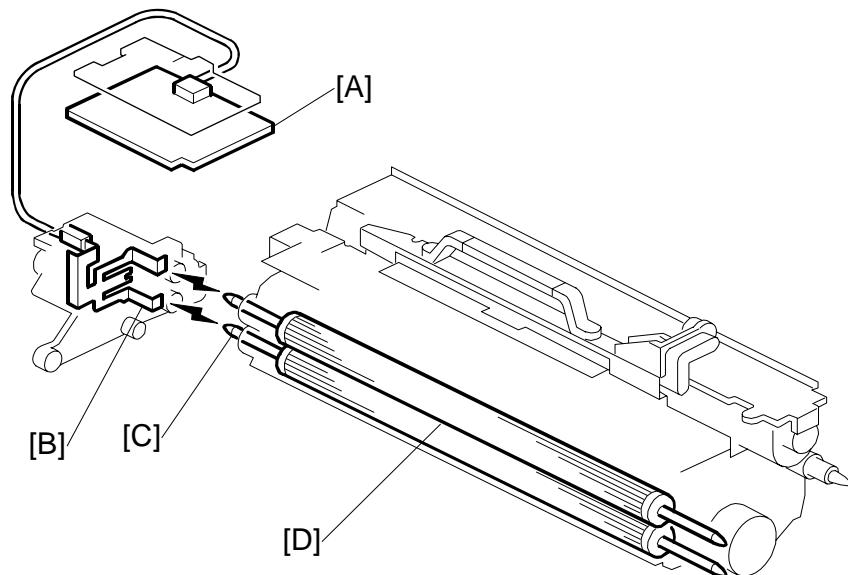
This copier uses a standard cross-mixing mechanism to keep the toner and developer evenly mixed. It also helps agitate the developer to prevent developer clumps from forming and helps create the triboelectric charge.

The developer on the turning development rollers [A] is split into two parts by the doctor blade [B]. The part that stays on the development rollers forms the magnetic brush and develops the latent image on the drum. The part that is trimmed off by the doctor blade goes to the back-spill plate [C].

As the developer slides down the back-spill plate to the agitator [D], the mixing vanes [E] move it slightly toward the rear of the unit. Part of the developer falls into the auger inlet and is transported to the front of the unit by the auger [F].

Detailed Descriptions

6.12.5 DEVELOPMENT BIAS

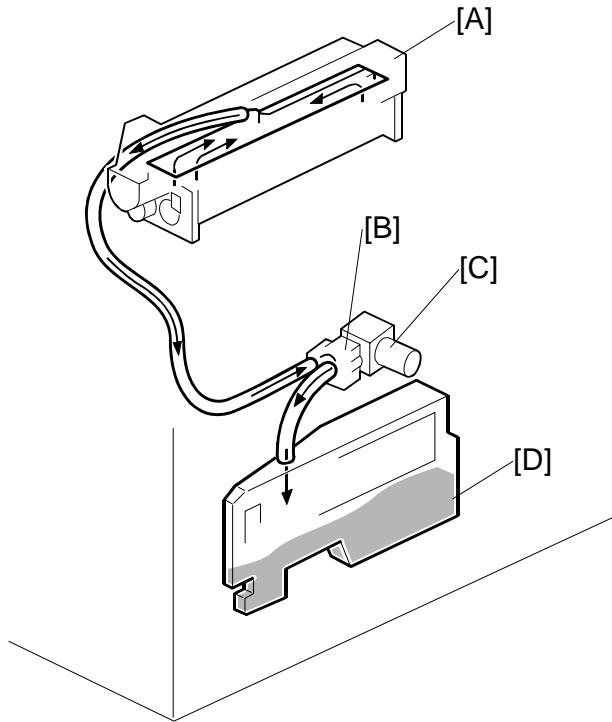


The CGB (Charge Grid Bias) power pack [A] applies the negative development bias (-550V) to both the lower sleeve roller and upper sleeve roller through the receptacles [B] and the sleeve roller shafts [C].

The development bias prevents toner from being attracted to the non-image areas on the drum where there is residual voltage. In addition, the development bias changes with the image density setting chosen for the copy job by the user.

The development rollers [D] employ fixed shafts that do not rotate. This eliminates friction on the shafts so they never require lubrication.

6.12.6 DEVELOPMENT UNIT TONER SUCTION



To ensure that the fine-grained toner does not scatter and blacken the interior of the machine, a toner suction assembly reduces the pressure inside the development unit.

Below the development unit [A] the toner suction pump [B], driven by the toner suction motor [C], draws air out of the development unit along with any airborne toner. The toner is sent to the toner suction bottle [D] on the right side of the machine.

The toner suction motor switches on and off with the development motor.

The service life of both the toner suction bottle and toner suction motor are limited.

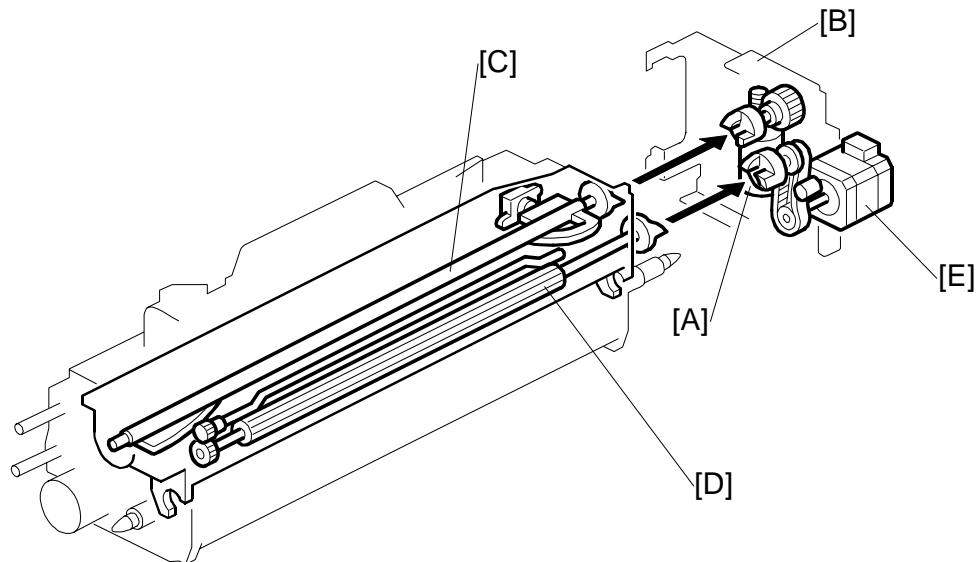
- The service life of the bottle is set with SP 2972 ('near-full' is at 680 hours, and 'full' is at 720 hours – 3000K: A4 6%).
- The service life of the motor is set with SP 2973 ('near-end' is at 570 hours, and 'end' is at 600 hours).

When an end alert is issued for the toner suction motor, a message is displayed on the copier LCD panel.

Detailed
Descriptions

6.12.7 TONER HOPPER

Toner Supply



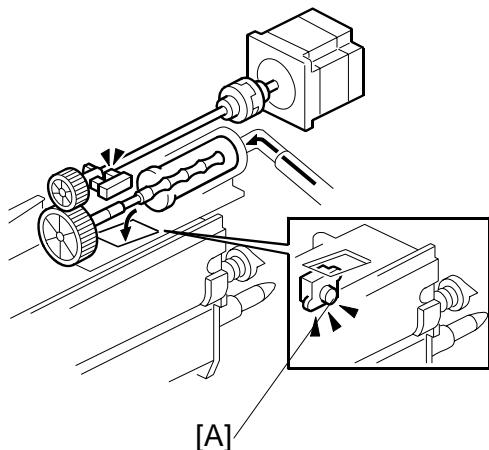
The toner supply pump motor pumps toner from the toner supply cylinder into the hopper (6.13). This toner is new toner mixed with recycled toner.

When the hopper agitator motor [A] (inside the development motor unit [B]) turns on, the agitator [C] mixes the toner. Then it moves the toner from rear to front and sends it to the toner supply roller.

Toner is caught in the grooves in the toner supply roller [D]. Then, as the grooves turn past the opening, the toner falls into the development unit.

The toner supply motor [E] drives the toner supply roller.

Toner supply is controlled by the ID sensor and the toner density sensor. (6.12.8)

Toner Hopper Empty Detection

The toner hopper sensor [A] detects whether there is enough toner in the toner hopper.

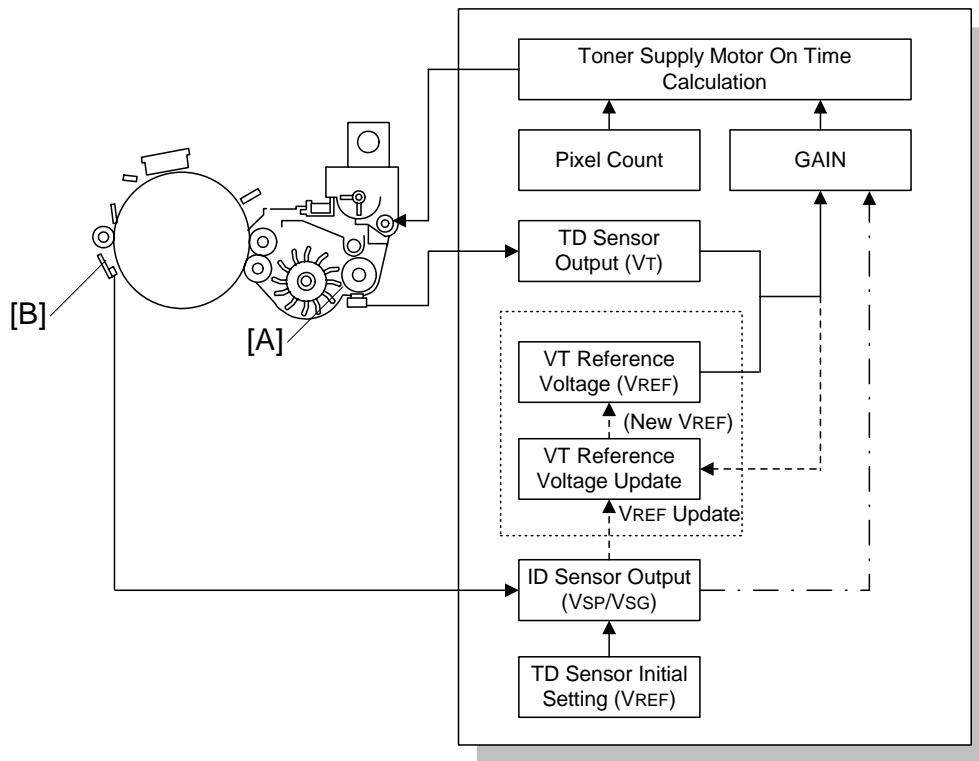
The toner hopper sensor checks for toner once when the toner supply roller clutch turns on. When there is only a small amount of toner inside the toner hopper and pressure on the toner hopper sensor becomes low, the toner hopper sensor outputs a pulse signal for each copy. Then the toner supply pump supplies more toner to the toner hopper.

Detailed
Descriptions

6.12.8 TONER DENSITY CONTROL

Overview

There are two modes for controlling toner supply: sensor control mode and image pixel count control mode. The mode can be selected with **SP2208**. The factory setting is sensor control mode. Image pixel count mode should only be used if the TD or ID sensor is defective and cannot be replaced immediately.



Toner Supply Timing

After the trailing edge of the image leaves the development area, the machine calculates how long the toner supply motor should be switched on (based on the TD sensor reading). Then, the toner supply motor switches on for the time prescribed by the calculation. Until the toner supply motor switches off, the development motor, drum motor, charge, and development bias all remain on.

Regardless of whether the machine is in the sensor control or pixel count toner supply mode, toner is supplied based on the setting for the toner supply interval entered with **SP2974** (Toner Supply Interval); the default is every print.

- If the TD sensor malfunctions, then toner is supplied for each copy and the setting for **SP2974** is ignored.
- The **SP2974** setting has no effect on the ID sensor pattern interval; the ID sensor pattern interval is set with **SP2210** (ID Sensor Pattern Interval)

Sensor Control Mode

In sensor control mode, the machine varies toner supply for each copy to maintain the correct proportion of toner in the developer and to account for changes in drum reflectivity over time. The adjustment depends on two factors.

- Amount of toner needed to print the page (based on the black pixel amount for the page).
- Readings from the TD sensor and ID sensor.

Sensor control mode has two phases, called ‘ID sensor control’ and ‘TD sensor control’. In ID sensor control, VSP/VSG from the most recent ID sensor pattern check determines the GAIN factor in the toner supply calculation (see later in this section). In TD sensor control mode, GAIN depends on the current TD sensor output also ($VT - VREF$ is used).

The phase that is used depends on the number of copies since the start of the job. See the table below for details.

| Number of copies in the job | Copy no. | Control method |
|-----------------------------|----------|-------------------|
| 10 or fewer | 1 to 10 | ID Sensor Control |
| More than 10 | From 11 | TD Sensor Control |

Vref Decision

When new developer is installed, TD sensor initial setting must be done using **SP2801**. This sets the sensor output to $2.5 \pm 0.1V$. This value is used as the TD sensor reference voltage (VREF). Thereafter, a new reference value for the TD sensor is calculated from the ID sensor output (every time the ID sensor pattern is read) and the current TD sensor reading (Vt).

If the sensor output cannot be adjusted to within the standard, **SC368** or **SC372** is logged and the toner density control is set to the pixel count control.

VSP and VSG Detection

The ID sensor detects the following voltages.

- VSG: The ID sensor output when checking the drum surface
- VSP: The ID sensor output when checking the ID sensor pattern

Detailed
Descriptions

In this way, the reflectivity of both the drum and the pattern on the drum are checked.

The ID sensor pattern is made on the drum with the charge corona and laser diode.

VREF Update

To update VREF (the TD sensor reference voltage), VSP/VSG is detected at the end of the copy job, if 10 or more copies have been made since the last VREF update. This compensates for any variations in the reflectivity of the pattern on the drum or the reflectivity of the drum surface. The 10-copy interval can be changed using **SP2210**.

VREF is also updated during process control initial setting.

If the reading of the ID sensor becomes abnormal while checking the ID sensor pattern, **SC400**, **SC401**, **SC402**, or **SC406** is logged and the toner density control is done using TD sensor only.

VT Detection

The toner density in the developer is detected once every copy cycle, after the trailing edge of the image passes the development roller.

If the reading from the TD sensor, done for every page in the copy job, becomes abnormal ($V_t \leq 0.5V$ or $V_t \geq 4.0V$), then the machine holds the GAIN factor constant to allow toner supply to vary with only the pixel count for the rest of the copy job. Then at the end of the job, **SC360** (Vt Above Upper Limit) or **SC364** (Vt Below Lower Limit) is generated and the machine must be repaired.

If the TD sensor needs to be replaced and none is available, the toner supply mode can be set to image pixel count mode using **SP2208**.

Image Pixel Count

For each copy, the CPU adds up the value of each pixel and converts the sum to a value between 0 and 255. (The value would be 255 if the page was all black.)

Gain Determination

GAIN is another factor in the toner supply motor on time calculation. Its value can be 0, 1, 1.5, 2, 3, or 4. It is calculated either using VSP/VSG if ID sensor control is being used, or every copy using “VT – VREF” if TD sensor control is being used (see Sensor Control Mode – Overview for more on TD and ID sensor control).

| ID Sensor Control | |
|--------------------------|------|
| VSP/VSG | GAIN |
| $\leq 3/40$ | 0 |
| $\leq 9/100$ | 0 |
| $\leq 21/200$ | 1 |
| $\leq 1/8$ | 1 |
| $\leq 4/25$ | 2 |
| $\leq 41/200$ | 3 |
| $\leq 1/2$ | 4 |
| $> 1/2$ | 1 |

| TD Sensor Control | |
|--------------------------|------|
| $a = VT - VREF$ | GAIN |
| $a < 0.00$ | 0 |
| $0.00 \leq a < 0.06$ | 1 |
| $0.06 \leq a < 0.10$ | 2 |
| $0.10 \leq a < 0.20$ | 3 |
| $0.20 \leq a$ | 4 |

Toner Supply Motor On Time Calculation

The toner supply motor on time for each copy is decided using the following formula: (GAIN x Image pixel count x 0.7mg/cm²/Toner Supply Rate) + 50 ms

When GAIN is “0”, the above 50 ms is set to “0”.

The toner supply rate can be changed using **SP2209**.

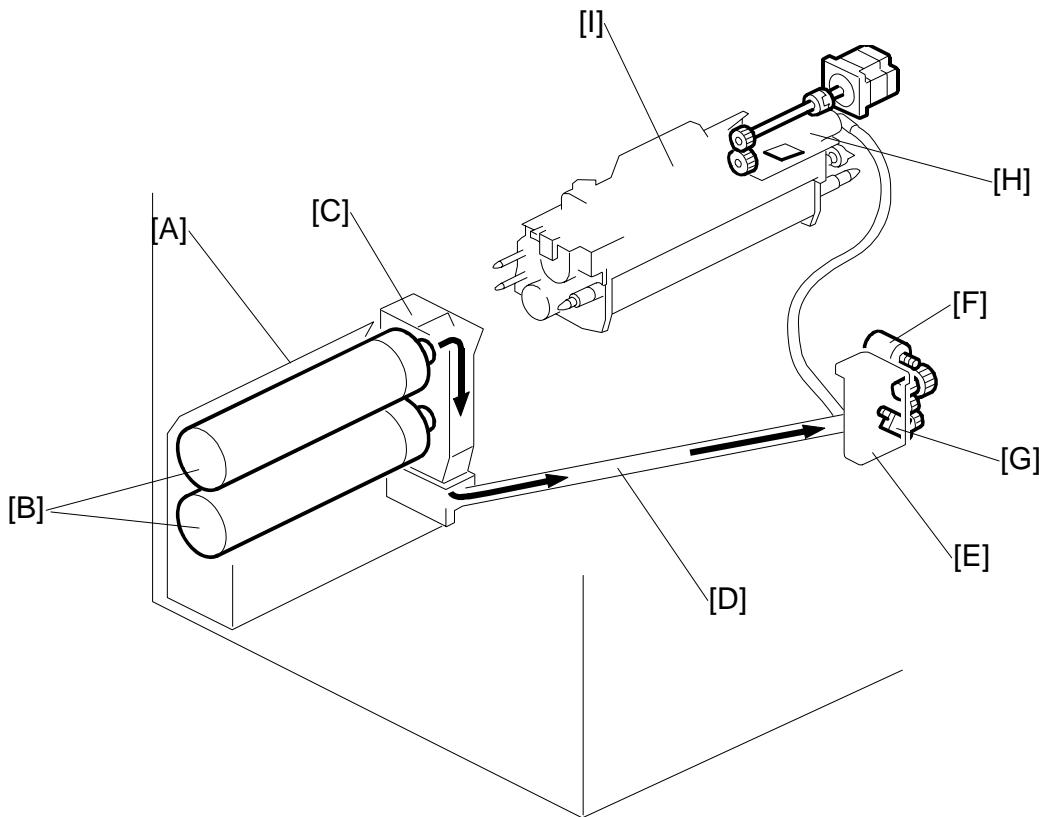
Image Pixel Count Control

This mode should only be used as a temporary countermeasure while waiting for replacement parts, such as a TD sensor. This mode controls the toner supply using the same formula for the toner supply motor on time. However, the GAIN value is fixed at 0.7.

Detailed
Descriptions

6.13 TONER SUPPLY AND RECYCLING

6.13.1 OVERVIEW



Toner is supplied from a toner bank [A] on the left side of the machine. The toner bank holds two bottles. Only one bottle operates at a time.

A small toner bottle motor turns the bottle [B]. This spills toner into the toner entrance tank [C].

The toner transport coil in the toner transport tube [D] transports toner to the toner supply cylinder [E]. The toner supply cylinder contains a small agitator motor [F] and toner end sensor [G]. The agitator prevents the toner from clumping. The sensor monitors the level of toner in the toner supply cylinder.

Due to the length of the toner supply path (400 mm), a toner supply pump [H] is needed to draw the toner into the toner hopper [I].

Toner Bottle Capacity: 1650 g A4 6%: About 60K prints

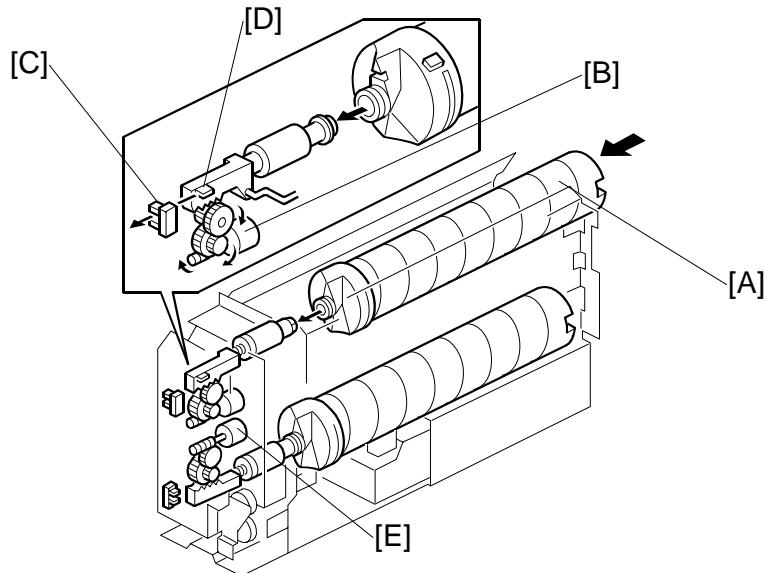
Here are some important points to remember about the toner bank:

- The toner bank contains the toner bottles, the toner collection bottle below the bottles. The toner entrance tank comprises the back side of the toner bank.
- The toner bank holds two toner bottles. This doubles the toner supply capacity for the machine and allows replacement of an empty toner bottle while the machine is operating.
- The machine works even if there is only one bottle installed.
- Toner can be supplied from either the upper or lower toner bottle, but not from both at the same time. When toner runs out in one bottle, toner supply from the other bottle starts automatically.
- After the toner near-end message is displayed for both toner bottles, the toner bottle still has enough toner for about **200** copies.
- The lower toner bottle is loaded first, then the upper toner bottle is loaded. If the upper toner bottle is loaded first, a message will be displayed on the operation panel to request loading the lower toner bottle.
- Toner bottles should always be handled carefully to avoid shaking them.

Detailed
Descriptions

6.13.2 TONER BANK

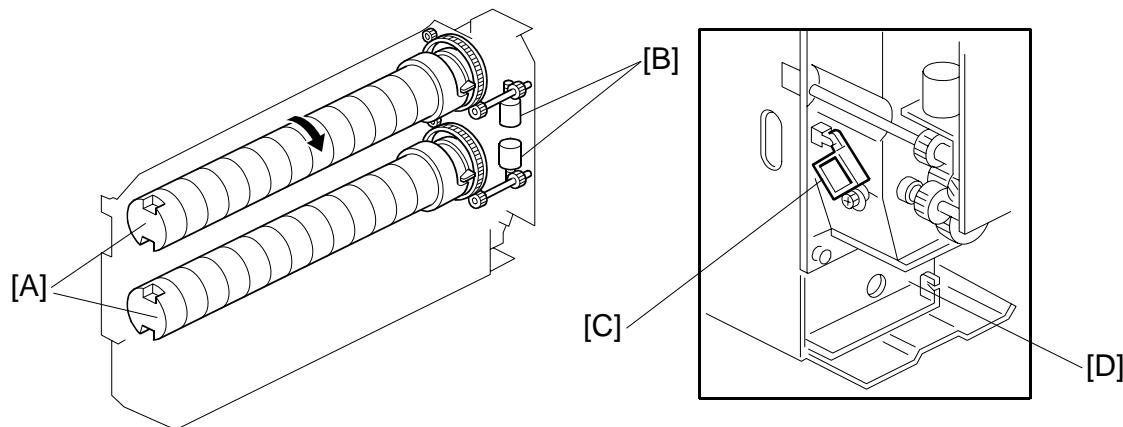
Toner Bottle Switching Mechanism



When the upper toner bottle [A] is supplying toner, the upper bottle cap motor [B] pulls out the toner bottle cap. The upper bottle cap sensor [C] detects the actuator [D] of the toner bottle opening rod, then the motor shuts off.

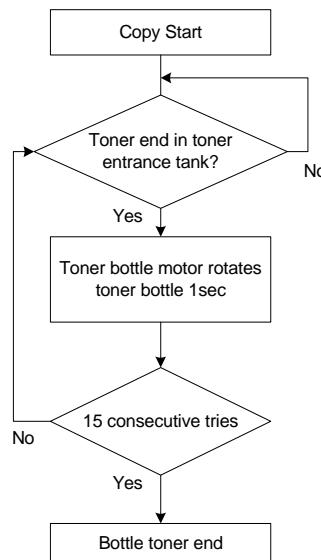
Toner is supplied from the toner bottle to the toner entrance tank where a toner end sensor (see the next page) checks for the presence of toner in the toner entrance tank.

When the toner end sensor (not shown) can no longer detect any toner, it signals the machine that it is time to switch bottles. The upper bottle cap motor switches on and closes the cap of the top bottle, while the lower bottle cap motor [E] switches on and opens the cap of the lower bottle so it can start supplying toner.

Toner Near-end, Toner End, Bottle Replacement

Each toner bottle [A] has an independent toner bottle motor [B]. An empty toner bottle can be replaced during printing. The toner bottle end sensor [C] detects toner when it falls from the toner bottle into the toner entrance tank [D]. If the sensor detects that no toner has come out of the toner bottle, the toner bottle enters the toner end condition.

- The toner bottle motor rotates the toner bottle 1 sec to try to supply toner to the toner entrance tank.
- If the sensor detects toner end condition 15 consecutive times, the machine judges the bottle to be empty.



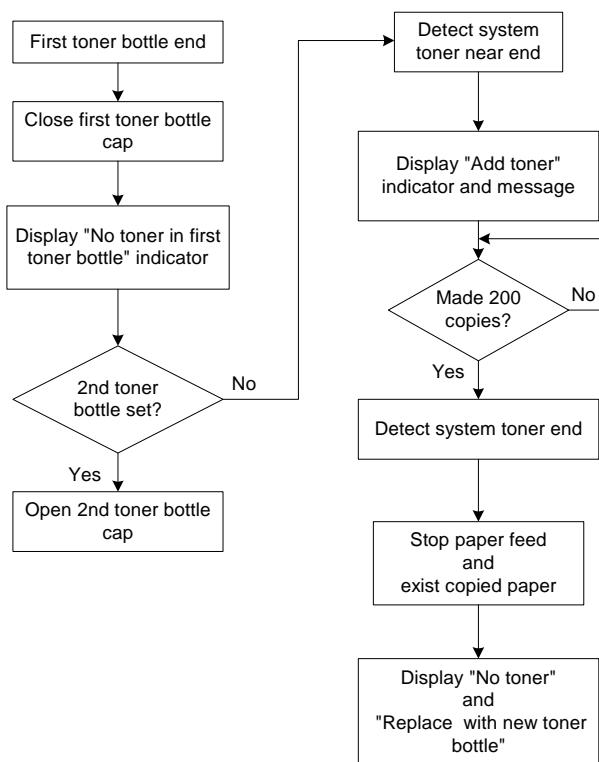
Detailed Descriptions

TONER SUPPLY AND RECYCLING

When the first toner bottle is empty, the machine switches to the second toner bottle.

The first toner bottle cap motor closes the bottle cap and the second toner bottle cap motor pulls out the second bottle cap. The motors operate until the first bottle inner cap sensor does not detect the actuator and the second bottle inner cap sensor does detect the actuator.

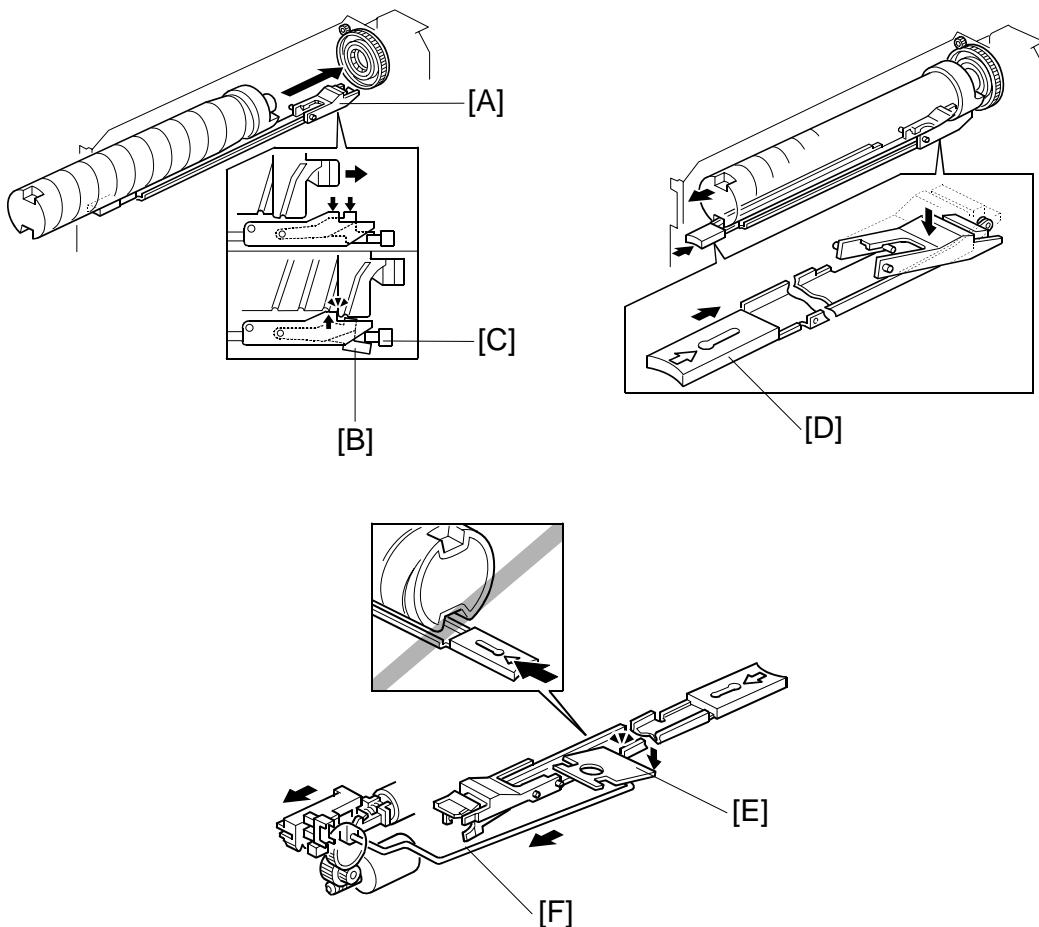
The second toner bottle is then rotated.



When the operator takes out the old bottle, and puts in a new one, this is detected by the toner bottle sensor. However, this bottle is not tested until the second bottle is empty. When the second bottle is empty, the machine switches back to the first bottle.

If an empty bottle is not replaced, and the other bottle becomes empty (toner end condition detected 15 consecutive times, as described above), **200** more copies can be made. Then the machine enters the system toner end condition (both bottles are empty), and this is indicated in the operation panel display.

The system toner end condition continues and printing is not possible.

Toner Bottle Sensors

When a toner bottle is placed in the toner bank, the toner bottle pushes the lock arm [A] down. Then the lock arm catches the toner bottle and also pushes down lever [B]. This causes toner bottle sensor [C] to detect that a bottle has been installed (the actuator leaves the toner bottle sensor while the bottle is being inserted in the holder).

Detailed Descriptions

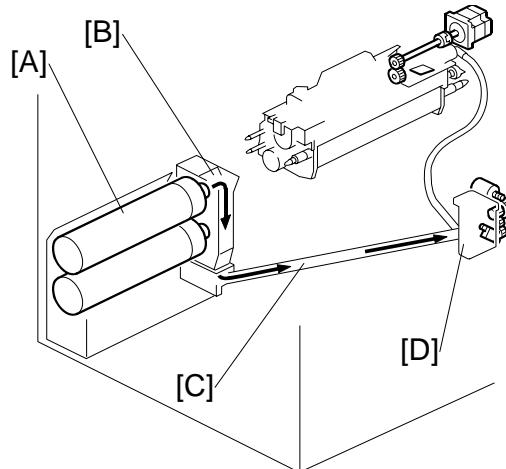
When replacing a toner bottle, push the toner bottle release lever [D] to release the lock mechanism. While a toner bottle is supplying toner, the toner bottle opening rod is pulled to the rear and the lock plate [E] is lowered by the link [F] so that the toner bottle release lever cannot be pushed. Therefore, the toner bottle that is supplying toner is always locked in place, and the user cannot pull out the bottle until it is empty.

6.13.3 SUPPLYING TONER TO THE DEVELOPMENT UNIT

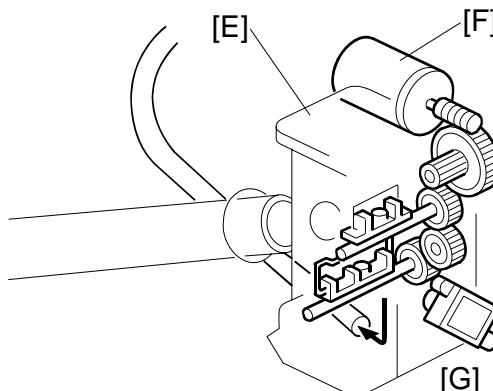
The toner bottle motor turns the toner bottle [A]. This spills toner into the toner entrance tank [B].

Toner collected from the drum cleaning unit is also sent to the toner entrance tank where it mixes with fresh toner (see page 6-105).

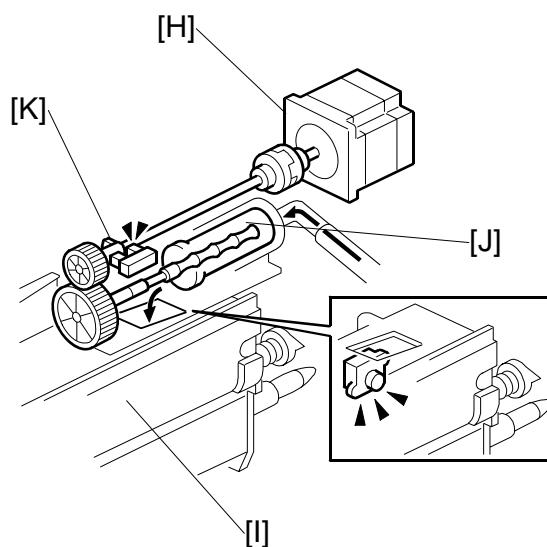
The toner bank motor drives the toner transport coil via the toner supply coil clutch (see page 6-106). The revolving coil [C] inside the transport tube transports the toner to the toner supply cylinder [D].



The toner supply cylinder [E] contains a small agitator motor [F] and a toner end sensor [G]. The agitator prevents toner clumping in the cylinder. The sensor monitors the level of toner in the cylinder.



The toner supply pump motor [H] pumps toner from the toner supply cylinder to the toner hopper [I]. The toner supply pump [J] is a "dry" powder pump driven by an impeller. There is no problem with an increase in pressure inside the toner hopper. One filter is sufficient to vent pressure from the hopper. The toner pump motor sensor [K] checks that the motor is working.



When the machine enters the toner supply mode, the toner supply cylinder and toner hopper are checked for toner, by following the pattern described in the table below step by step.

In the table below, the levels are monitored by the toner cylinder toner-end sensor in the toner supply cylinder and by the toner hopper sensor in the toner hopper.

| Pattern | TS Cylinder Toner? | Hopper Toner? | Step | Operation Panel Message |
|---------|--------------------|---------------|-----------------|-----------------------------|
| A | NO | NO | Step 1 → Step 2 | Starting toner supply. |
| B | YES | NO | No Step 2 | Starting toner supply. |
| C | NO | YES | No Step 1 | Starting toner supply. |
| D | YES | YES | TS Mode End | Toner present, canceling... |

Step 1: Toner transported from toner entrance bank → toner supply cylinder

Step 2: Toner transported from toner supply cylinder → toner hopper

1 Toner Bottle → Toner Entrance Bank

The toner bottle end sensor in the toner entrance bank controls the operation of two toner bottles motors. This sensor checks for the presence of toner:

- 2 s after the bottle chuck opens
- 500 ms after the toner bottle motor goes off
- Every 200 ms while the toner supply clutch is on

If the sensor detects insufficient toner at any one of these checks, the sensor signals the machine to turn on the toner bottle motor.

2 Toner Entrance Bank → Toner Supply Cylinder

The toner bank motor and toner supply clutch drive the transport coil inside the diagonal transport tube that carries toner from the toner entrance bank to the toner supply cylinder.

The toner cylinder toner-end sensor monitors the level of toner in the toner cylinder every 100 ms and signals the machine to turn on the toner bank motor for 2 sec. when toner runs low (toner end) in the toner cylinder. If the sensor detects insufficient toner for longer than 2 sec., it signals the machine to issue **SC494** because toner transport has stopped due to an obstruction or some other problem.

Detailed Descriptions

3 Toner Supply Cylinder Agitator, Toner End Sensor Cleaning

A small toner cylinder agitator motor drives the agitator inside the toner cylinder. This motor turns on when the toner hopper sensor signals insufficient toner and turns off as soon as the toner hopper sensor signals sufficient toner.

The toner cylinder TE (toner end) sensor checks the toner level 1 s after the agitator motor turns off and thereafter checks at 200 ms intervals. It does not check the toner level while the agitator motor is on.

4 Toner Supply Cylinder → Toner Hopper

The toner hopper sensor controls the operation of the toner pump motor. The toner hopper sensor checks the level of the toner 1 sec. after the hopper agitator turns off, and 1 sec. after the toner pump motor turns off. If the sensor detects insufficient toner, it waits for 1 sec. then signals the pump motor to switch on for 2 s.

If the sensor detects insufficient toner for more than 2 sec., it signals the machine to issue **SC495** because toner supply has stopped due to a blockage in the toner supply path below, a defective toner pump, or some other problem.

5 Toner Hopper → Development Unit

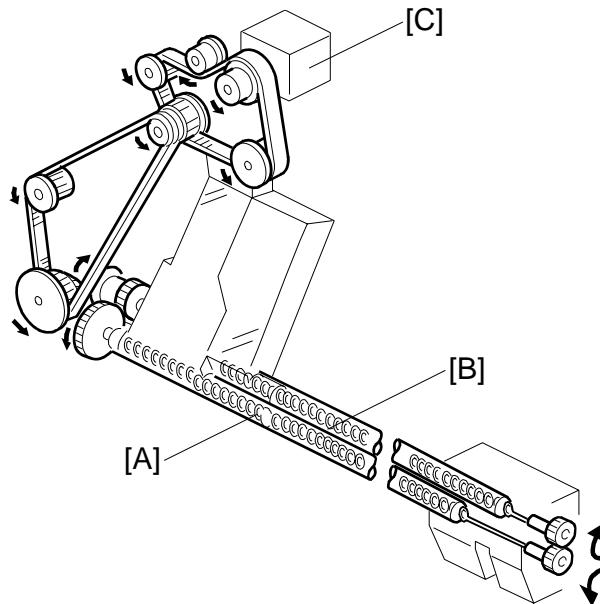
The toner hopper agitator motor turns on with the toner supply pump motor.

The machine maintains a running count for the time the hopper supply clutch remains on. For every 500 ms the hopper supply clutch remains on, the agitator motor is turned on for 500 ms. The count is reset every time the hopper agitator motor turns on, or is reset as soon as the toner hopper sensor signals "toner present".

SP2977 (Toner Supply/Transport Display) logs the total on time of key components in the toner supply system (toner bank motor, toner supply clutch, toner collection bottle agitator, toner supply cylinder agitator motor, and the toner pump motor). For more, please refer to Section "5. Service Tables".

6.13.4 TONER RECYCLING AND TONER COLLECTION

Overview

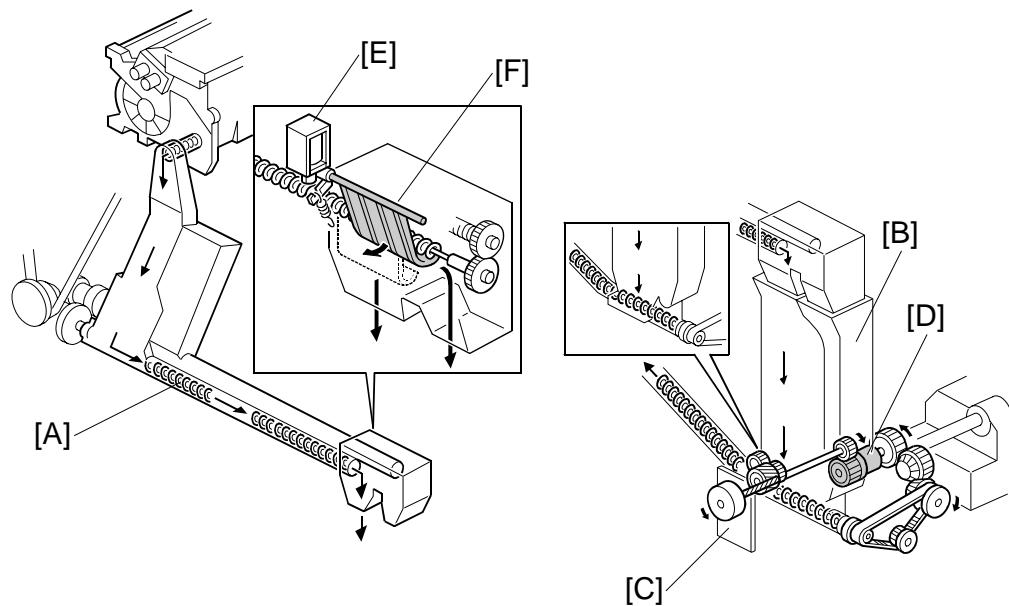


To recycle used toner for re-use, the toner recycling coil in the tube [A] transports the toner collected by the drum cleaning to the toner entrance tank for recycling.

The toner collection coil in the tube [B] transports the toner collected from the transfer belt unit to the toner collection bottle. The toner cleaned from the transfer belt cannot be recycled.

The drum motor [C] drives the toner recycling coil [A] via timing belts and gears, whose rotation in return drives the toner collection coil [B] via gears.

Detailed
Descriptions

Toner Recycling

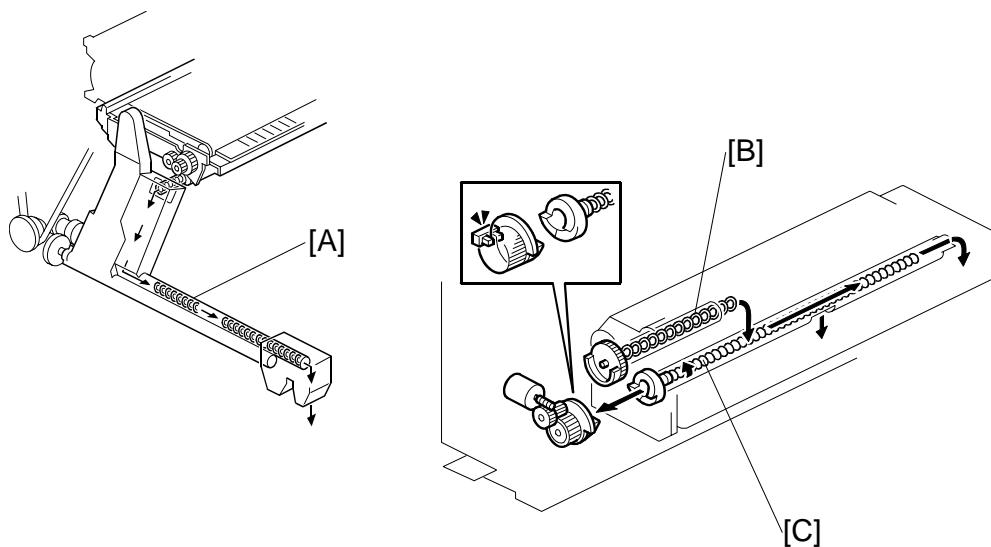
The toner recycling coil in the tube [A] transports the toner collected by the drum cleaning unit to the toner entrance tank [B] for recycling. This toner is dropped into the toner entrance tank and mixed with fresh toner from the toner bottle. The toner bank motor [C] drives the toner transport coil via the toner supply coil clutch [D].

The new toner separation shutter mechanism (toner recycling shutter solenoid [E] and shutter [F]) reduces the amount of paper dust in the toner. During recycling, paper dust gradually collects in the toner, which can cause black dots to appear on copies. At the prescribed interval, the toner separation mechanism purges all toner from the toner supply system and replaces it with new toner, as described below.

Normally during toner recycling, the toner recycling shutter solenoid remains on and the shutter remains open, but when the number of copies exceeds 25K, the toner recycling shutter solenoid switches off and the shutter closes.

After the solenoid switches off, no toner recycling is done for the next 25K copies, and all used toner is sent to the toner collection bottle without recycling. Toner from the toner hopper takes about 20K copies to pass through the recycling path cleaning and collection tubes, so during the 25K copies after the solenoid switches off, all the toner in the toner supply path is purged from the system and replaced with fresh toner.

NOTE: The timing of this operation can be adjusted with **SP2975 001, 002** (Toner Recycle Cut Counter – ON Counter/OFF Counter). **SP2975 001** determines how often the toner is purged (default: 25K), and **SP2975 002** determines how long the purge is done for (default: 25k copies)

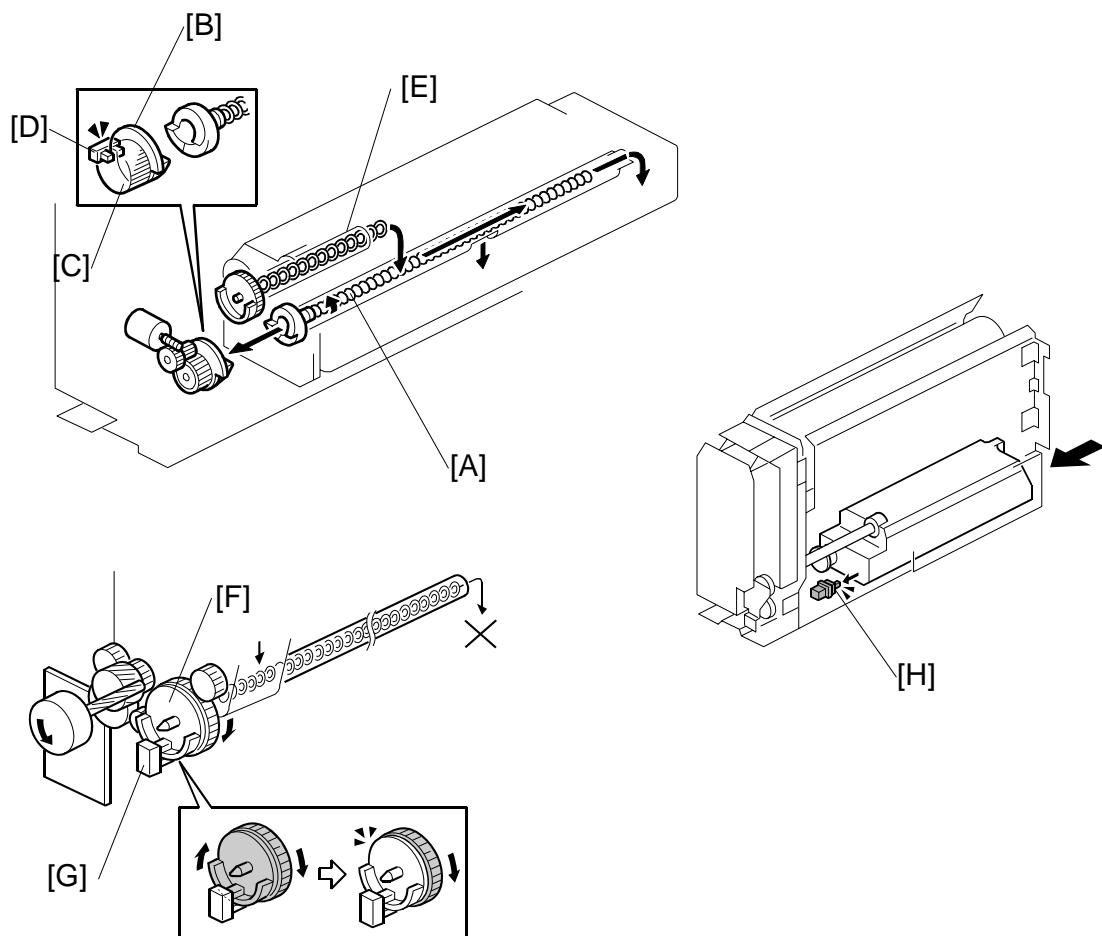
Toner Collection Bottle

The toner collection coil in the tube [A] transports the toner collected by the transfer belt unit to the toner collection bottle. This toner contains paper dust and cannot be recycled.

The toner falls from the collection coil [B] onto the toner agitator coil [C]. The agitator coil distributes toner evenly across the length of the bottle. As a result, toner does not build up on one end and trigger the full alert before the bottle is actually full.

Detailed
Descriptions

TONER SUPPLY AND RECYCLING



The capacity of the toner collection bottle is approximately 1800 grams (A4 6%: 650K).

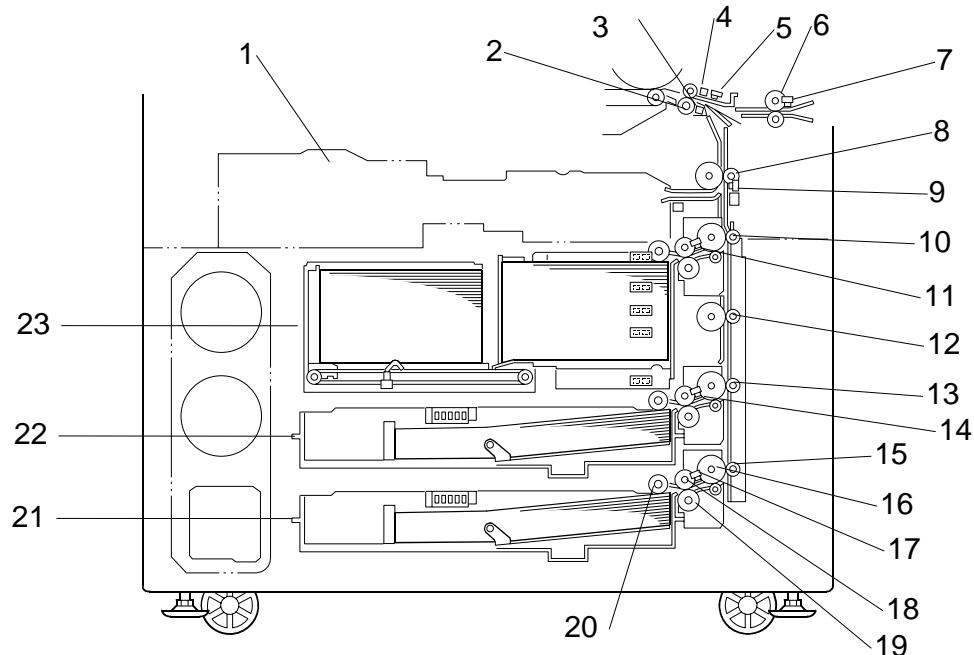
When the toner collection bottle starts to fill up, the toner agitator coil [A] becomes harder to turn. When this occurs, the actuator plate [B] does not rotate because the agitator coil drive gear [C] has a torque limiter, and the output of the toner collection bottle agitator sensor [D] becomes constant. At this time, the operation panel indicates that the toner collection bottle is nearly full. After this, about 200K sheets can be printed until the bottle becomes full.

When the toner collection bottle is full, the toner collection coil [E] becomes harder to turn. When this occurs, the actuator plate [F] does not rotate, and the output of the toner collection bottle overflow sensor [G] becomes constant. In this condition, the operation panel LCD indicates "Toner Full", all copy paper in the paper feed path is fed out, and printing stops.

If the toner bottle is not properly installed inside the toner bank, the toner collection bottle sensor [H] detects this condition and the operation panel LCD displays error messages (used toner bottle is not set correctly).

6.14 PAPER FEED

6.14.1 OVERVIEW



Detailed
Descriptions

PAPER FEED

This model has three paper tray feed stations:

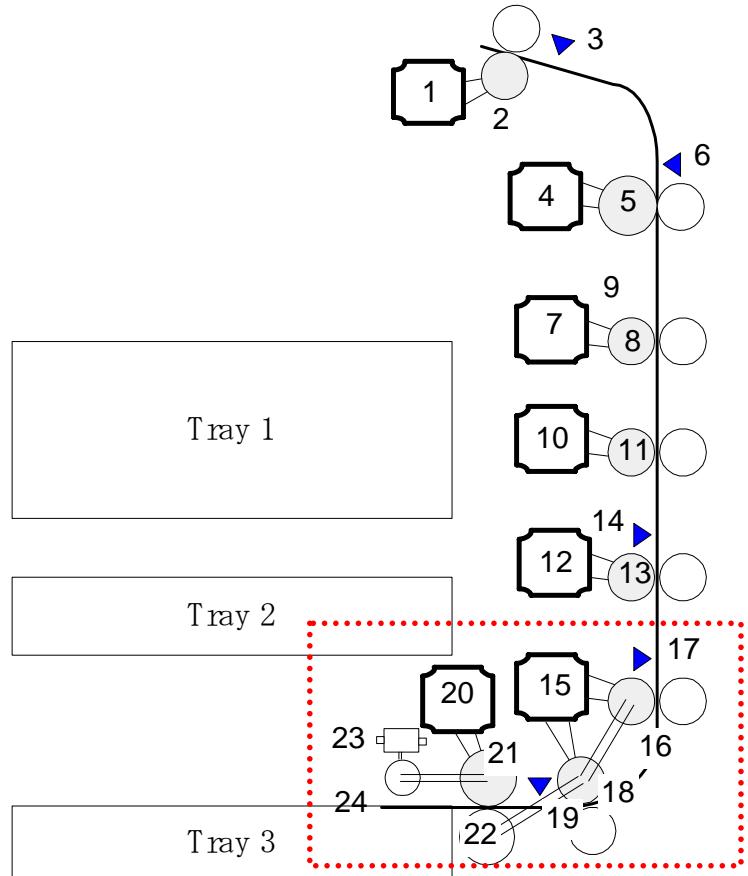
- 1st Tray (23). The tandem tray holds 2,000 sheets of paper (1,000 sheets x 2 stacks). The tandem tray also can be converted to a 1,000-sheet tray for larger paper sizes with the optional A3/DLT Feed Kit B331.
- 2nd Tray (22). This is a universal tray. It holds 500 sheets of paper. To allow easy removal, the paper cassette is not fastened to the tray with screws.
- 3rd Tray (21). Identical to the 2nd tray.

All feed stations use the FRR feed system, shown at (17)~(20) above for the 3rd tray.

The arrangement of the rollers is identical for each paper tray:

- Rotation of the pick-up roller (20) drives the top sheet of paper to the paper feed roller (18) and separation roller (19).
- The grip roller (17) feeds the sheet to the transport roller (15).
- The transport roller feeds the paper into the vertical paper path and to the transport and relay rollers above.

6.14.2 DRIVE



Detailed
Descriptions

- | | |
|---------------------------|---------------------------|
| 1. Registration Motor | 13. 2nd Transport Roller |
| 2. Registration Roller | 14. 2nd Transport Sensor |
| 3. Registration Sensor | 15. 3rd Grip Motor |
| 4. Upper Relay Motor | 16. 3rd Transport Roller |
| 5. Upper Relay Roller | 17. 3rd Transport Sensor |
| 6. Upper Relay Sensor | 18. 3rd Grip Roller |
| 7. 1st Grip Motor | 19. 3rd Paper Feed Sensor |
| 8. 1st Transport Roller | 20. 3rd Paper Feed Motor |
| 9. 1st Transport Sensor | 21. 3rd Paper Feed Roller |
| 10. Vertical Relay Motor | 22. 3rd Separation Roller |
| 11. Vertical Relay Roller | 23. 3rd Pick-up Solenoid |
| 12. 2nd Grip Motor | 24. 3rd Pick-up Roller |

Note:

- Items 18-24 are shown for Tray 3 only. These components are duplicated in Tray 1 and Tray 2 but do not appear in the illustration above.

Tray Components (Example: 3rd Tray)

The 3rd paper feed motor (20) drives both the 3rd paper feed roller (21) and 3rd pick-up roller (24).

The 3rd grip motor (15) drives the 3rd grip roller (18), the 3rd transport roller (16), and the 3rd separation roller.

The 3rd paper feed sensor times the paper feed and signals jams if they occur.

The pick-up roller picks the sheet off the top of the stack, the paper feed motor feeds the sheet to the grip roller. The grip roller pulls the sheet out of the cassette and sends to the transport roller. The transport roller feeds the sheet into the vertical feed path.

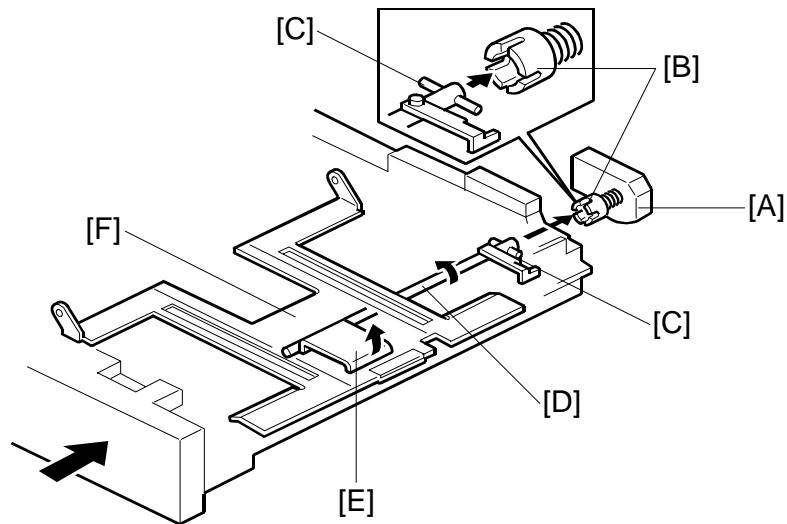
NOTE: This arrangement of motors and rollers is duplicated in tray 1 and tray 2.

Vertical Paper Path

After the sheet leaves the 3rd tray, it feeds to the 3rd transport roller (16) → 2nd Transport roller (13) → Vertical relay roller (10) → 1st transport roller (8) → Upper relay roller → Registration roller.

- Each paper tray has a transport roller paired with one transport sensor.
- The grip motors (one in each tray) drive the transport rollers, which feed the paper past the paper trays. Their sensors check the timing of each sheet when it passes, and signal jams if they occur.
- The vertical relay motor (10) is positioned between the 1st transport roller (7) and 2nd transport roller (12). This motor is necessary due to the greater distance between transport rollers, due to the greater height of the 1st tray.
- All the rollers are driven by stepper motors only.
- The stepper motors were added for the feed and transport rollers on separate drive shafts to improve the accuracy of control in the paper path.

6.14.3 PAPER LIFT – TRAYS 2 & 3

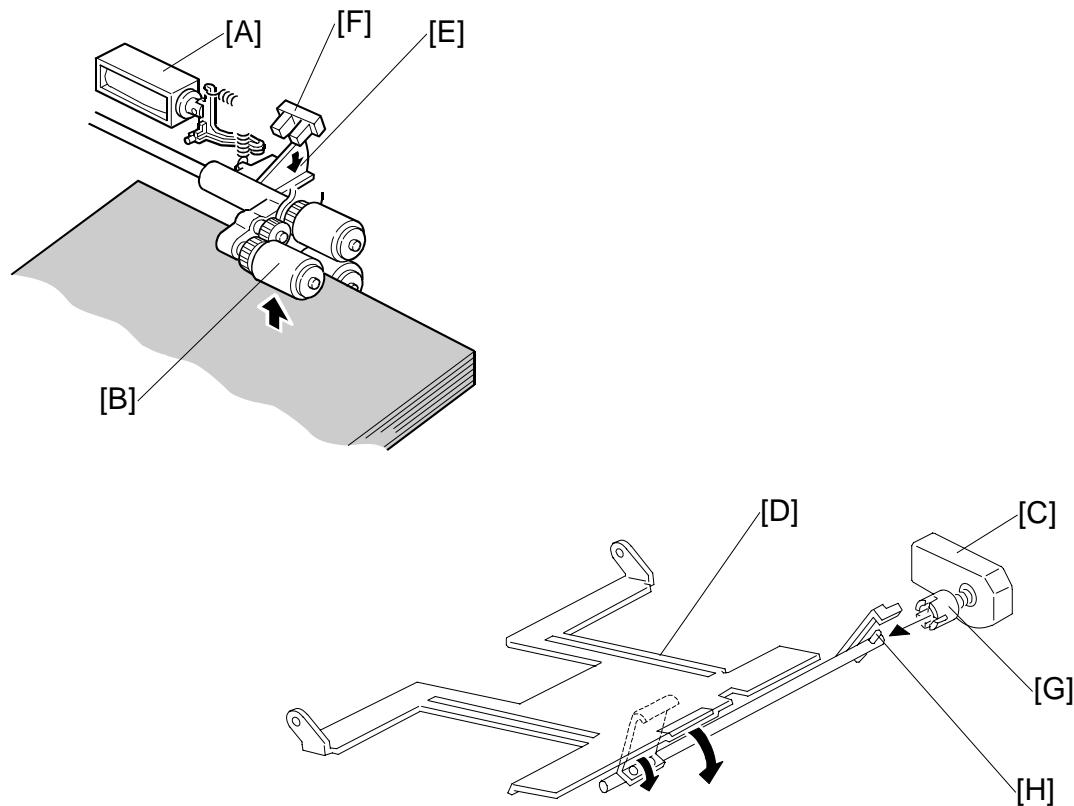


The machine detects when a tray has been placed in the machine by a signal from the paper size switch. When this is detected, the tray lift motor [A] turns on. The coupling gear [B] on the tray lift motor engages the pin [C] on the lift arm shaft [D], then it turns the tray lift arm [E] to lift the tray bottom plate [F].

For tray 1, an electrical signal from the tray connector automatically informs the cpu when the tray has been placed in the machine.

Detailed
Descriptions

PAPER FEED



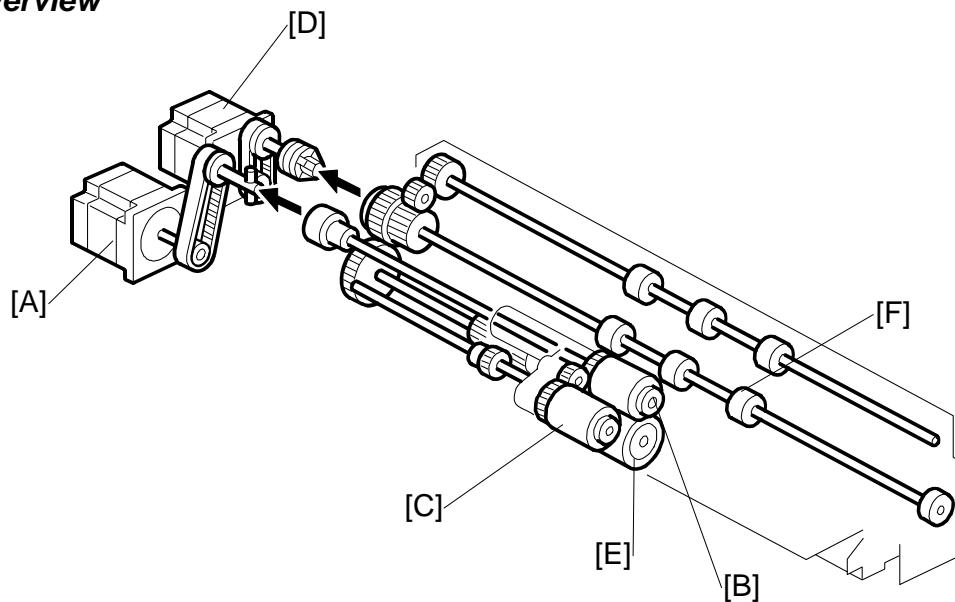
When a stack of paper is loaded in the tray, the paper end sensor below the stack (not shown) activates and switches on the pick-up solenoid [A] to lower the pick-up roller [B]. At the same time, the tray lift motor [C] switches on and lifts the bottom plate [D]. This plate pushes the top of the stack up against the pick-up roller until the actuator [E] descends and leaves the tray lift sensor [F] slot. This de-activates the tray lift sensor; the tray is now at the correct feed position so the machine switches off the tray lift motor.

The pick-up roller descends gradually with each sheet fed, so the tray lift sensor actuator ascends until it activates the tray lift sensor. This signals the machine to switch on the tray lift motor to raise the stack to the correct feed height. The tray lift sensor again deactivates to switch off the tray lift motor. This process is repeated to position the top of the stack at the correct feed height.

When the tray is drawn out of the feed unit, the lift motor coupling gear [G] disengages the pin [H] of the lift arm shaft, then the tray bottom plate drops under its own weight.

6.14.4 PICK-UP AND FEED – TRAYS 1, 2, 3

Overview



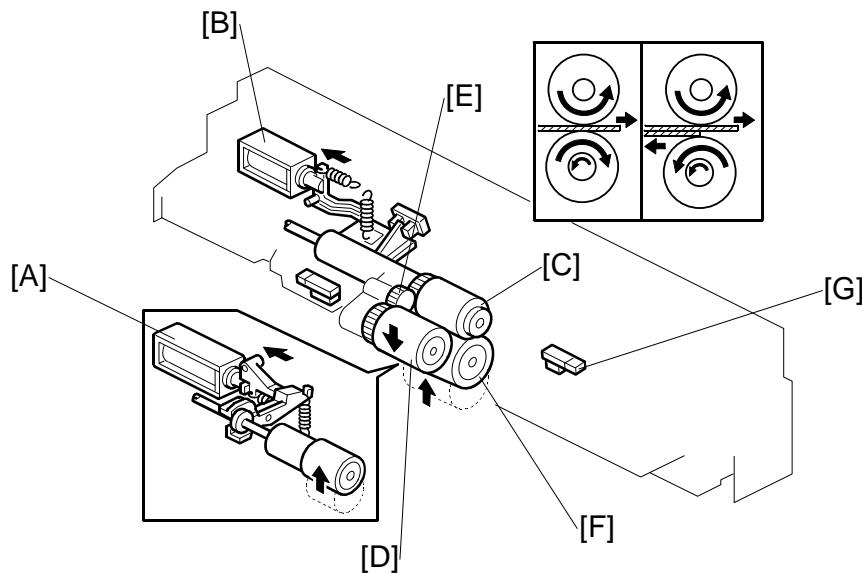
Drive from the paper feed motor [A] is transmitted to the paper feed roller [B] and pick-up roller [C].

The grip motor [D] drives the separation roller [E] and grip roller [F].

Detailed
Descriptions

PAPER FEED

Pick-up and Feed



If a paper feed station is not selected, its separation roller solenoid [A] de-activates.

When the paper feed station is selected and the start key is pressed, the paper feed motor, grip motor, separation roller solenoid, and the pick-up solenoid [B] all turn on.

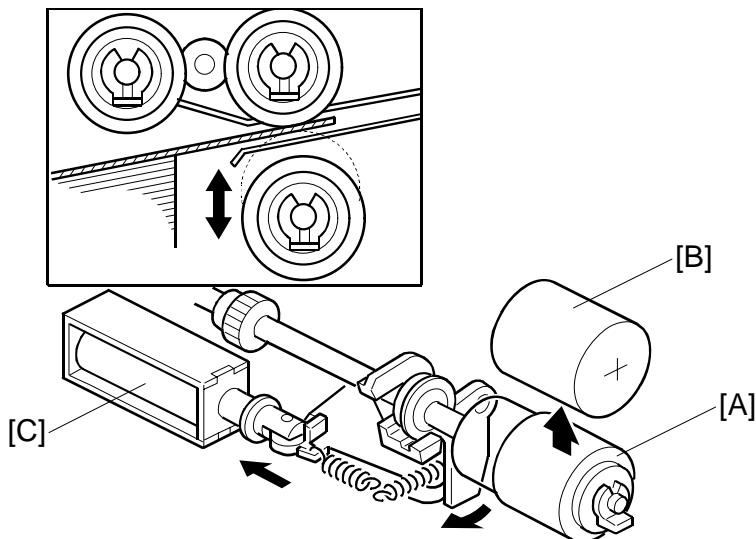
Paper feed motor: This rotates the feed roller [C], and the pick-up roller [D] linked to the feed roller by an idle gear [E].

Grip motor: Rotates the grip roller and separation roller [F].

Separation roller solenoid [A]: When this solenoid turns on, the separation roller [F] contacts the paper feed roller [C].

Pick-up solenoid [B]: When this solenoid turns on, the pick-up roller [D] lowers to contact the top sheet of the paper stack and sends it to the nip of the paper feed and separation rollers.

When the paper feed sensor [G] detects the leading edge of the paper, the pick-up solenoid de-energizes to lift the pick-up roller. The grip motor turns on and the grip roller and the transport roller pull the paper out of the tray and feed it into the vertical feed path.

Separation Roller Release

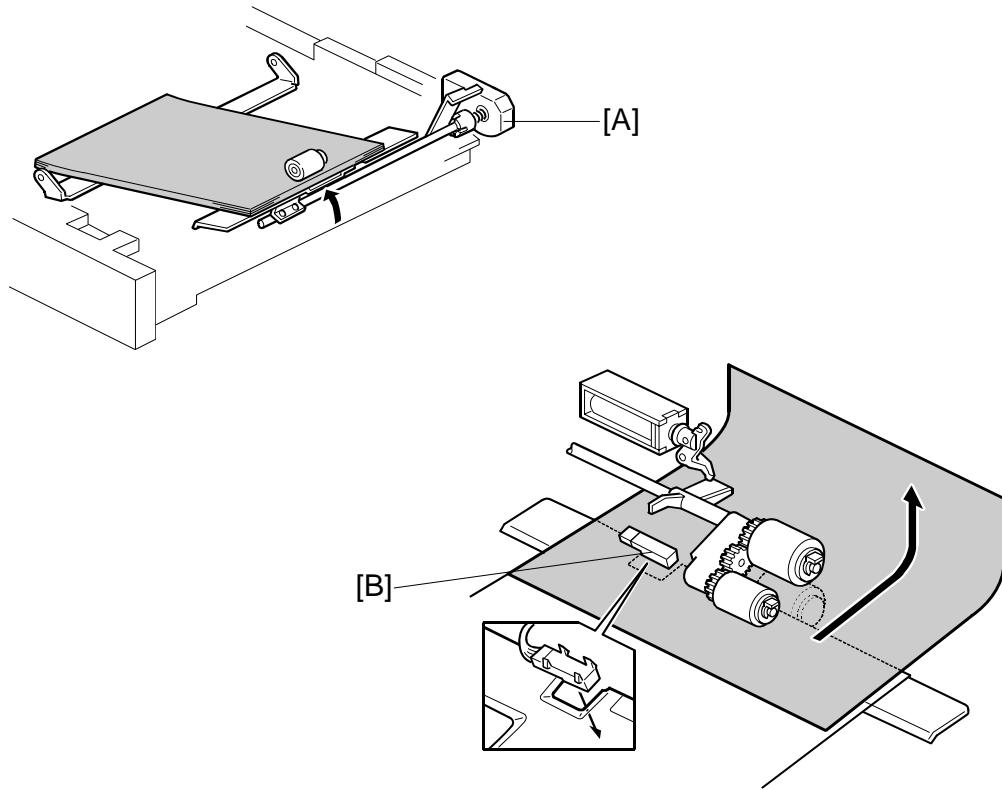
The separation roller [A] is normally away from the feed roller [B]. When the paper feed station is selected, the separation roller solenoid [C] pushes the separation roller up so it touches the paper feed roller.

This contact/release mechanism has the following two advantages:

- After paper feed is completed, paper sometimes remains between the feed and separation rollers. If the feed tray is pulled out in this condition, this paper might be torn. When the separation roller is away from the feed roller, the remaining paper can be removed from between the rollers.
- When paper misfeeds occur around this area, the operator can easily pull out the jammed paper between the feed and the separation rollers if the separation roller is away from the feed roller.

Detailed
Descriptions

6.14.5 REMAINING PAPER/PAPER END DETECTION (TRAY 2, 3)



Remaining Paper Detection

The tray lift motor [A] rotates when the tray is pushed in. The CPU detects the remaining paper by monitoring the lift motor rotation angle (4 levels).

End Detection

The paper end sensor [B] is a photo-reflective sensor. While there is paper in the tray, light is reflected back to the sensor, but after the last sheet feeds, the sensor deactivates and signals paper out.

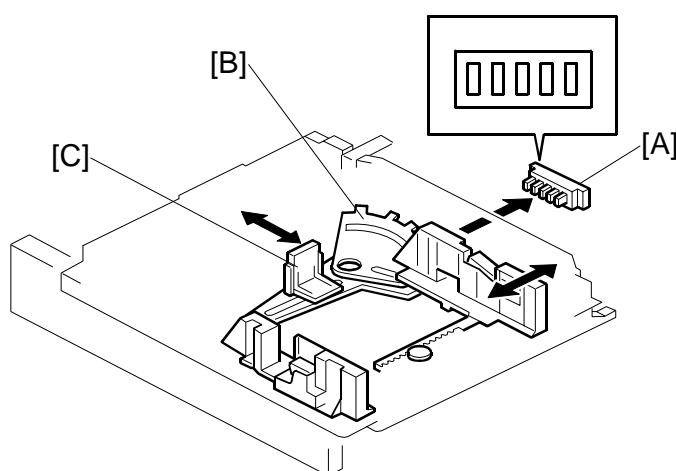
6.14.6 PAPER SIZE DETECTION

Tandem Tray (Tray 1)

The tandem tray does not have paper size switches. Every time the paper size is changed by moving the front and back fences, you must enter the selected paper size with **SP5019-002**.

If you set SP 5019 002 to 'custom size', then you can input a custom size for the tandem tray with SP 5040 and 5041.

Universal Cassettes (Tray 2, 3)



The output from the switch depends on the position of the dial (see the table on the following page)

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, and the side fence [C] changes position.

Detailed
Descriptions

PAPER FEED

Paper Size Switch Output

| Paper | Size | Switch |
|---------------|--------------|--------|
| 12" x 18" SEF | 12" x 18" | 11111 |
| A3 SEF | 297 x 420 mm | 11001 |
| B4 SEF | 257 x 394 mm | 10011 |
| A4 SEF | 210 x 297 mm | 01001 |
| A4 LEF | 210 x 297 mm | 11000 |
| B5 SEF | 182 x 257 mm | 10101 |
| B5 LEF | 182 x 257 mm | 00011 |
| A5 SEF | 148 x 210 mm | 11101 |
| A5 LEF | 148 x 210 mm | 01101 |
| DLT | 11" x 17" | 11100 |
| LG SEF | 8½" x 14" | 10110 |
| LT SEF | 8½" x 11" | 11010 |
| LT LEF | 8½" x 11" | 01100 |
| HLT SEF | 5½" x 8½ " | 01110 |
| HLT LEF | 5½" x 8½ " | 11110 |
| F4 | 8½" x 13" | 11011 |
| Folio | 8¼" x 13" | 01011 |
| F | 8" x 13" | 01111 |
| Executive LEF | 7¼" x 10 ½" | 10100 |
| Executive SEF | 7¼" x 10 ½" | 00111 |
| 8-Kai | 267 x 390 mm | 00110 |
| 16-Kai LEF | 267 x 195 mm | 10010 |
| 16-Kai SEF | 195 x 267 mm | 10111 |

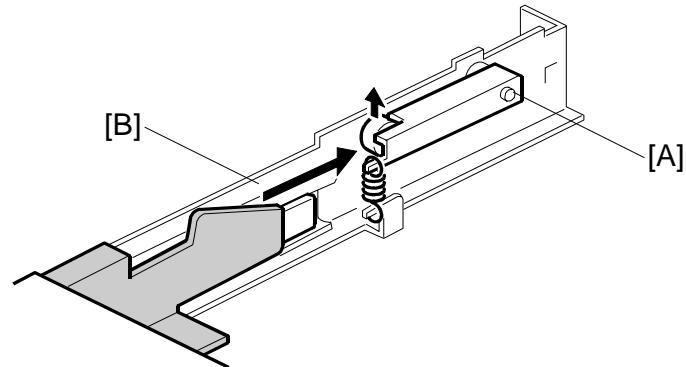
0: OFF (Sensor Output HIGH)

1: ON (Sensor Output LOW)

If the user does not put the fences at the correct position, a jam can occur.

To use a paper size that is not in this table, select the size with the Tray Paper Settings button. If the paper size is not the same as the setting, a jam can occur. Note that SP 5112 must be set to 'enabled' or non-standard sizes cannot be selected for trays 2 and 3.

6.14.7 TRAY LOCK – TRAY 2, 3

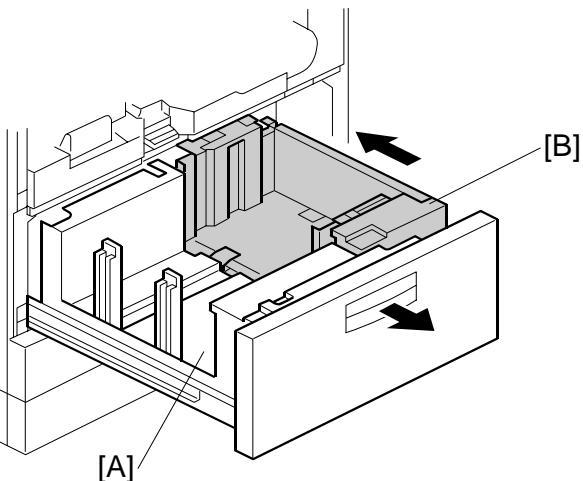


When the tray is placed in the paper feed unit, the lock lever [A] drops behind the lock plate [B] on the support bracket to lock the tray in the proper position.

Detailed
Descriptions

6.14.8 TANDEM FEED – TRAY 1

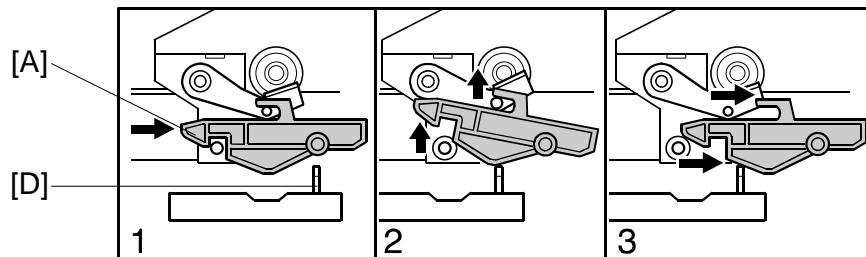
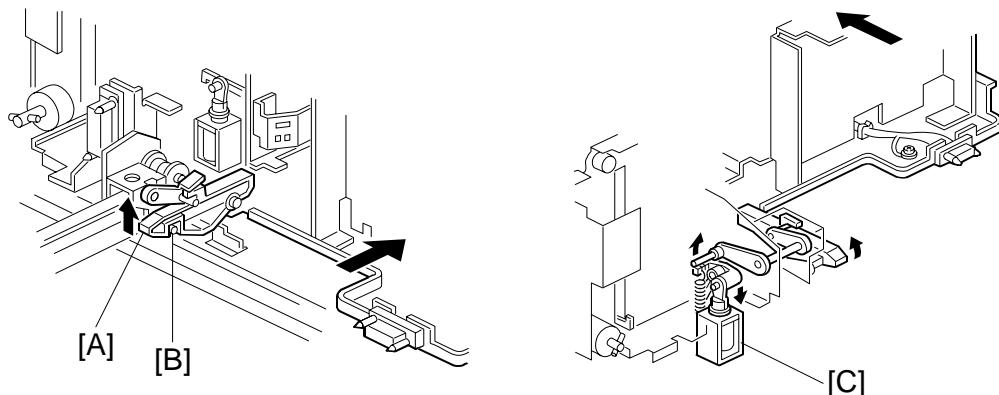
Overview



1,000 sheets of paper can be set in the left tray [A] and right tray [B] of tray 1, the tandem paper tray. Paper is fed from the right tray. When the paper in the right tray runs out, the paper stack in the left tray automatically is pushed to the right tray. After the stack is moved from the left tray to the right tray, paper feeding resumes.

Normally both the right and the left trays are joined. However, during copying, if there is no paper in the left tray, the left tray can be pulled out to load paper while the right tray stays in the machine so paper feed can continue.

NOTE: After moving the adjustable side fences for a different paper size, be sure to execute **SP5019 002** (Tray Paper Size Selection – 1st Tray) to select the correct setting for the paper size loaded in the tandem tray. (The tandem tray cannot detect the paper size automatically.)

Connecting the Left and Right Sides of the Tray

Normally the left tray lock lever [A] catches the pin [B] in the right tandem tray. During copying, if there is no paper in the left tray, the tandem tray connect solenoid [C] turns on to release the tray lock lever so the left tray separates from the right tray. Therefore, the left tray can be pulled out to load paper while paper is still being fed into the machine from the right tray.

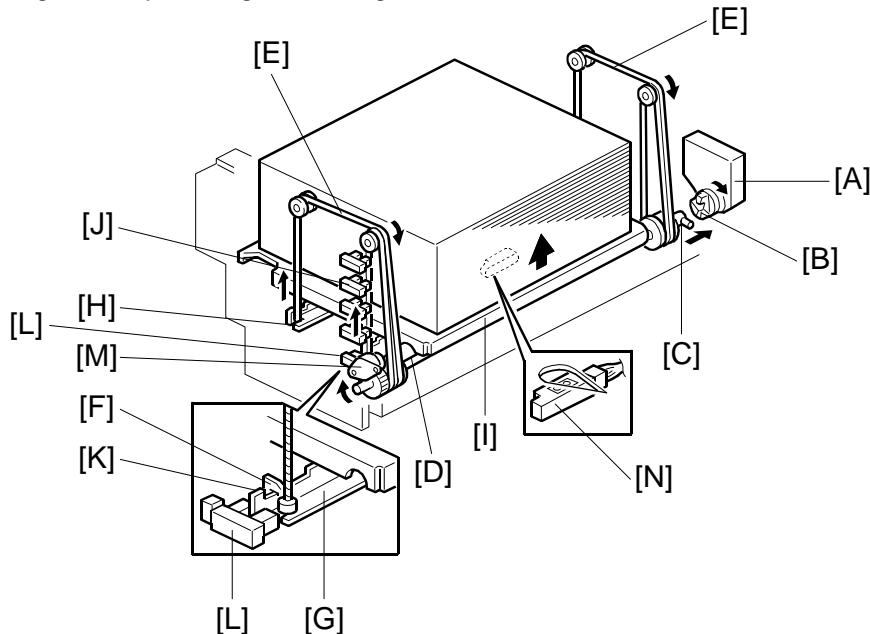
When the tandem tray is drawn out fully, the projection [D] pushes up the left tray lock lever [A] so that both trays separate for easier paper loading.

Detailed
Descriptions

PAPER FEED

Paper Lift/Remaining Paper Detection: Tray 1

The machine detects when the 1st tray has been placed in the machine by monitoring the tray set signal through the connector.



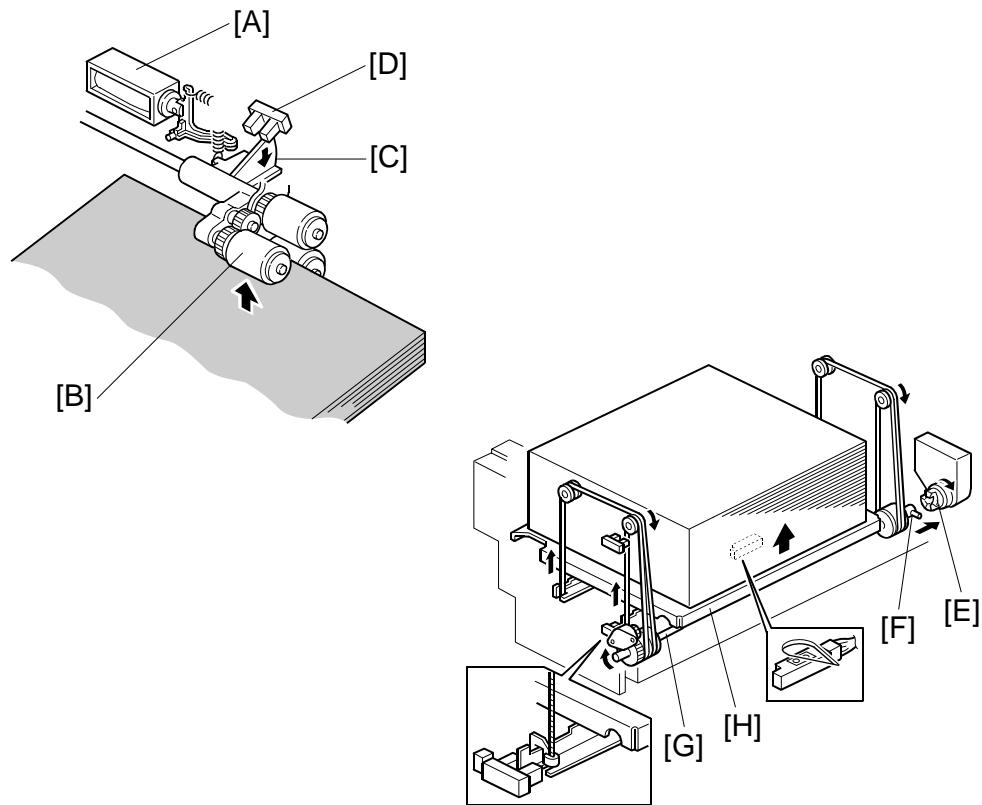
When the machine detects the 1st paper tray, the right 1st tray paper sensor [N] (under the tray) checks whether there is paper in the right tandem tray. When paper is detected, the tray lift motor [A] rotates and the coupling gear [B] on the tray lift motor engages the pin [C] of the lift shaft [D].

The tray wires [E] are fixed in the slots [F] at the ends of the tray support rods [G, H]. When the tray lift motor rotates clockwise, the tray support rods and the tray bottom plate [I] rise. The tray rises until stack pushes up the pick-up roller until the tray lift sensor de-activates and switches off the tray lift motor.

As the actuator [K] on the right support rod [G] rises, it de-activates each of the 4 paper height sensors [J] to trigger 5 levels of paper remaining alerts on the operation panel.

| Paper Height Sensor | Remaining Paper | Comment |
|---------------------|-----------------|---|
| None | 100% | Bottom position, no sensors de-activated. |
| 1 | 75% | Each sensor de-activates as the actuator rises. |
| 2 | 50% | |
| 3 | 25% | |
| 4 | Near End | Detected by the paper sensor [N] below the stack when the last sheet feeds. |
| | Paper Out | |

When the tray is removed, the coupling gear [B] separates from pin [C], so the tray bottom plate descends. The tray descends until the actuator activates the lower limit sensor [L]. The damper [M] provides resistance so the tray bottom plate descends slowly.

Feed and Lift: Tray 1

When the tray lift motor turns on, the pick-up solenoid [A] actuates and lowers the pick-up roller [B]. When the top of the stack reaches the correct height for paper feed, it pushes up the pick-up roller and lowers the actuator [C]. This actuator de-activates the tray lift sensor [D] when it leaves the sensor slot, and this stops the tray lift motor.

After several paper feeds, the pick-up roller descends and the actuator rises and enters the tray lift sensor and activates it. This switches on the tray lift motor again, which raises the stack once again to the correct paper height.

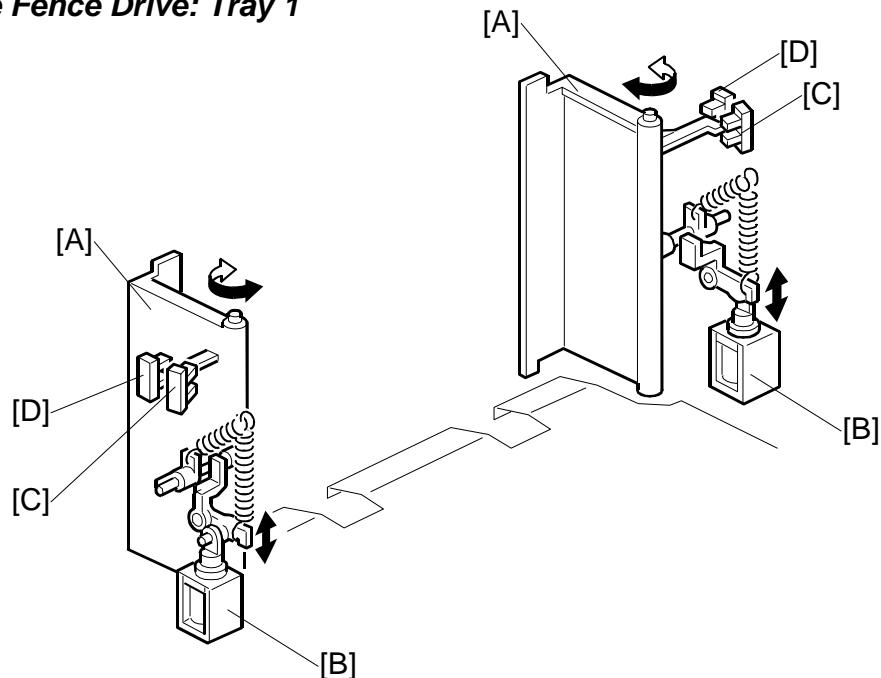
When the tray is pulled out of the feed unit, the lift motor coupling gear [E] disengages the pin [F] on the lift shaft [G], then the tray bottom plate [H] drops. The damper provides resistance so the tray descends slowly.

There is also a paper end sensor for the 1st tray, which works in the same way as the sensor in the 2nd and 3rd trays.

Detailed Descriptions

PAPER FEED

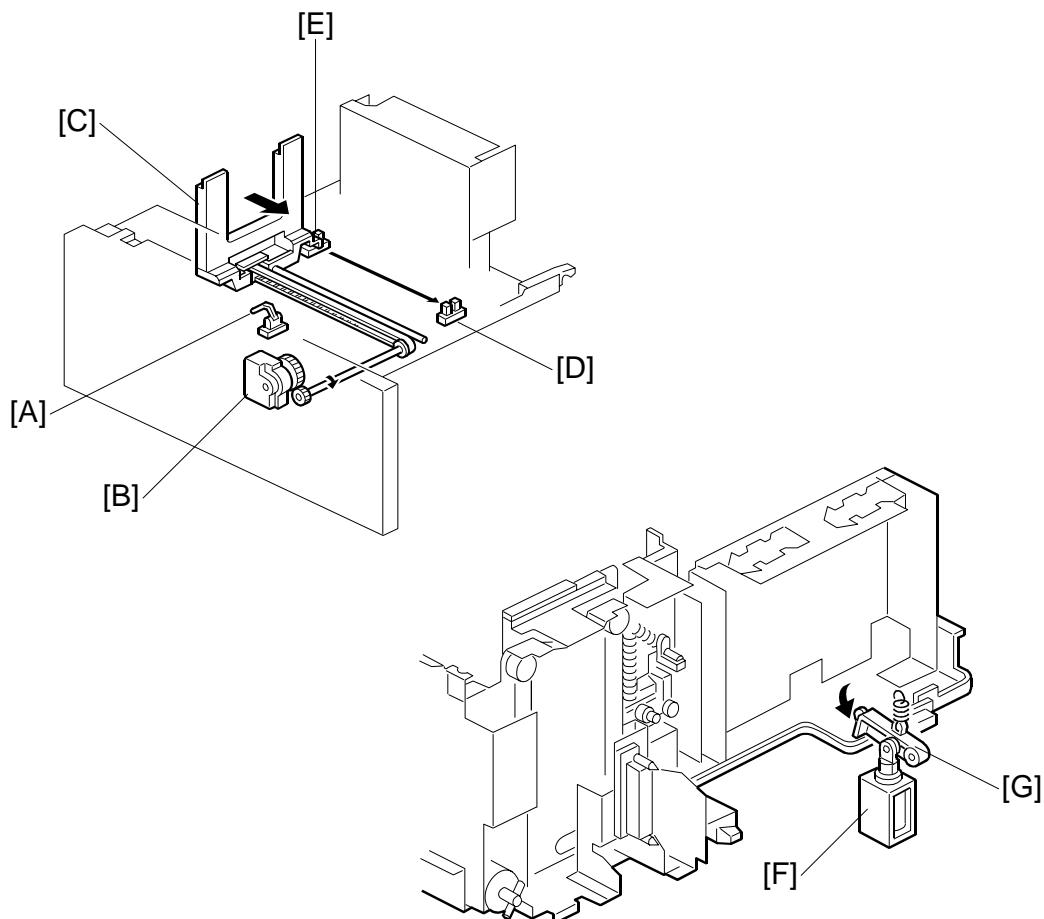
Side Fence Drive: Tray 1



The side fences [A] of the right tray are normally closed. They open only when paper in the left tray is moving to the right tray.

The side fence solenoids [B] drive the side fences. When the paper loaded in the left tray transfers to the right tray, the side fence solenoids turn on to open the side fences until the side fence open sensors [C] activate.

When the rear fence in the left tray has pushed the stack of paper into the right tray, the side fence solenoids turn off to close the side fences. Then, when the side fence closed sensors [D] activate, the LCD displays a message advising the user to load some paper into the left side of the tandem tray.

Rear Fence Drive

When the left 1st tray paper sensor [A] detects paper but the right 1st tray paper sensor does not, the rear fence drive motor [B] (a DC motor) in the left tray turns counter-clockwise causing the rear fence [C] to push the paper stack into the right tray.

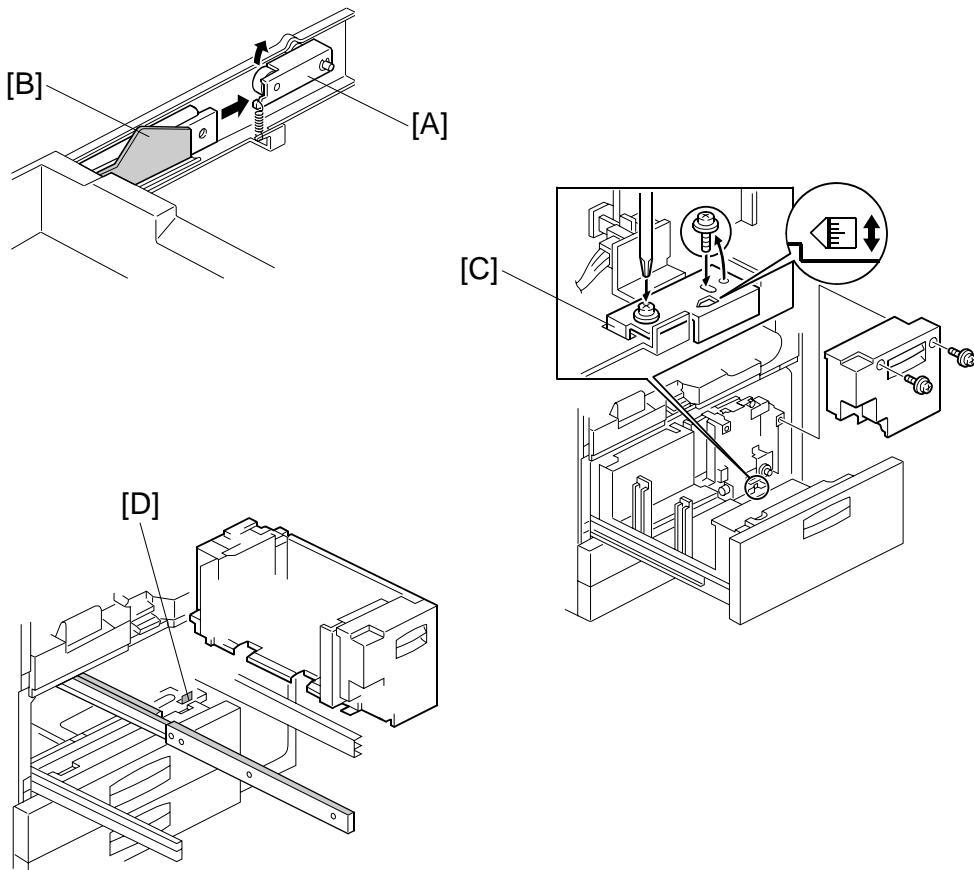
Detailed Descriptions

When the actuator on the rear fence activates the rear fence return sensor [D], the rear fence drive motor turns clockwise until the actuator activates the rear fence HP sensor [E].

While the rear fence is moving, the left 1st tray lock solenoid [F] turns on and the lock lever [G] locks the left tray.

PAPER FEED

Tray Positioning



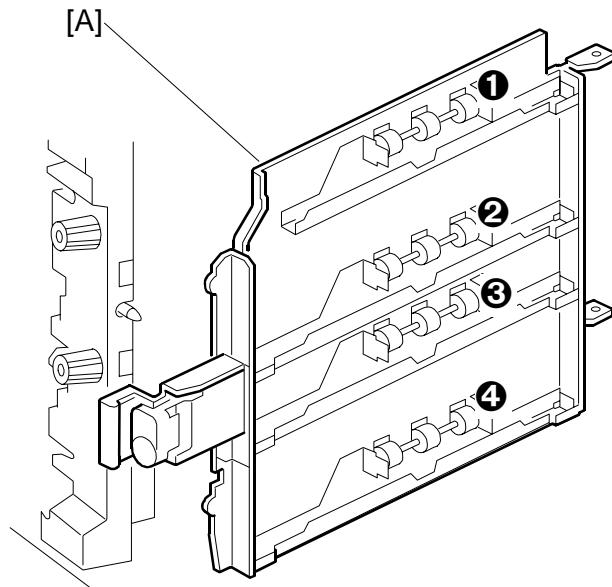
Tray Lock

When the feed tray is set in the paper feed unit, the lock lever [A] drops behind the lock plate [B] on the Accuride support bracket to lock the tray in the proper position.

Side-to-side Positioning

When the feed tray is set in the paper feed unit, the side-to-side positioning plate [C] presses the feed tray against the stopper [D]. By moving the positioning plate, the tray position can be changed to adjust the side-to-side registration.

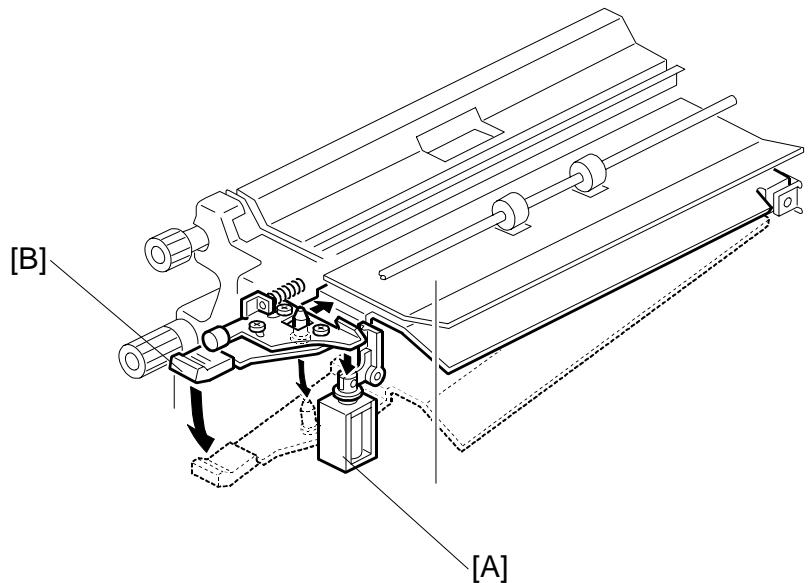
6.14.9 VERTICAL TRANSPORT



The vertical transport rollers in each feed unit are each driven by a separate stepper motor. The vertical transport rollers and the vertical transport idle rollers ①, ②, ③, ④, on the inner and outer vertical guide plates, transport the paper up from each feed unit towards the relay and registration rollers.

The vertical transport guides [A] can be opened to remove jammed paper in the vertical transport area.

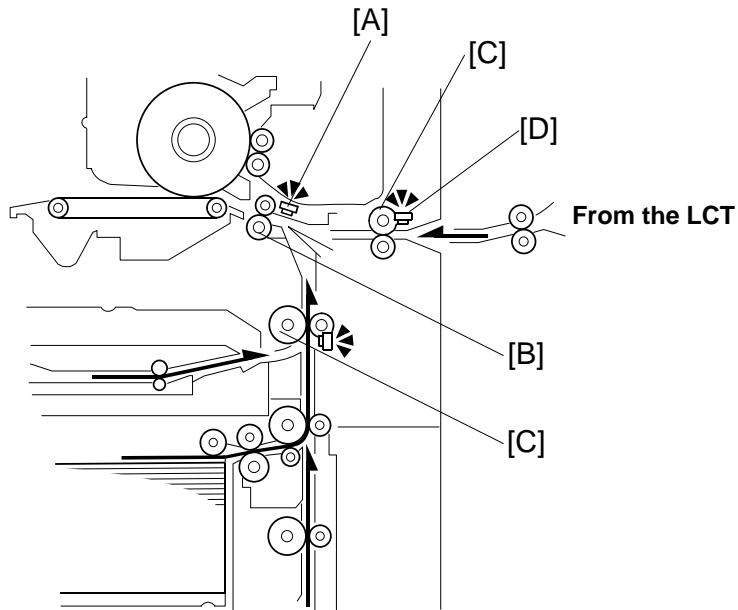
Detailed
Descriptions

6.14.10 LCT GUIDE PLATE

When the machine detects a jam at the LCT exit, paper feed stops, and the LCT guide plate solenoid [A] releases the guide plate (labeled 'B5') [B] so that the user can easily remove the jammed paper. After removing the jam, the user must return the B5 lever to its normal position.

6.14.11 PAPER REGISTRATION

Overview

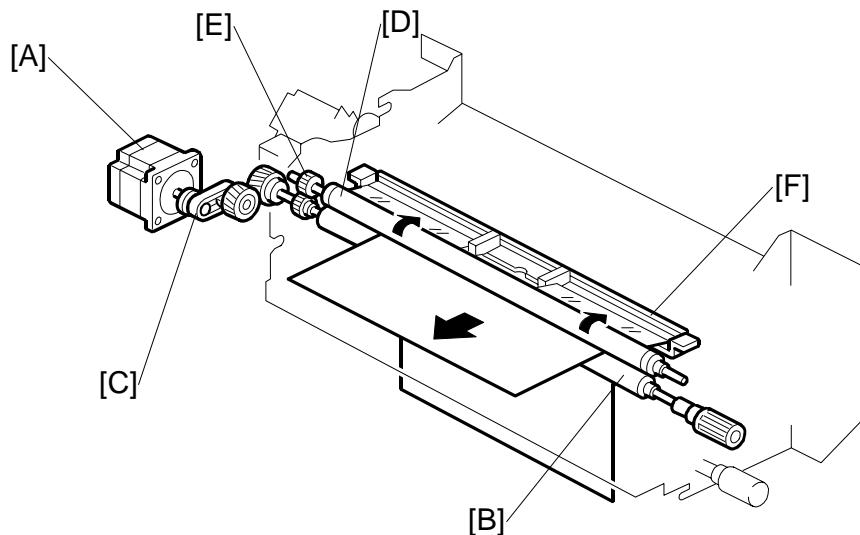


The registration sensor [A] is positioned just before the registration rollers [B]. When the paper leading edge activates the registration sensor, the registration motor is off and the registration rollers are not turning. However, the upper relay roller (or LCT relay roller for feed from the LCT) [C] stays on for a bit longer.

This delay allows time for the paper to press against the registration rollers and buckle slightly to correct skew. Next, the registration motor energizes and the upper relay motor re-energizes at the proper time to align the paper with the image on the drum. The registration and relay rollers feed the paper to the image transfer section.

The registration sensor is also used for paper misfeed detection, and the LCT relay sensor [D] detects jams at the LCT roller.

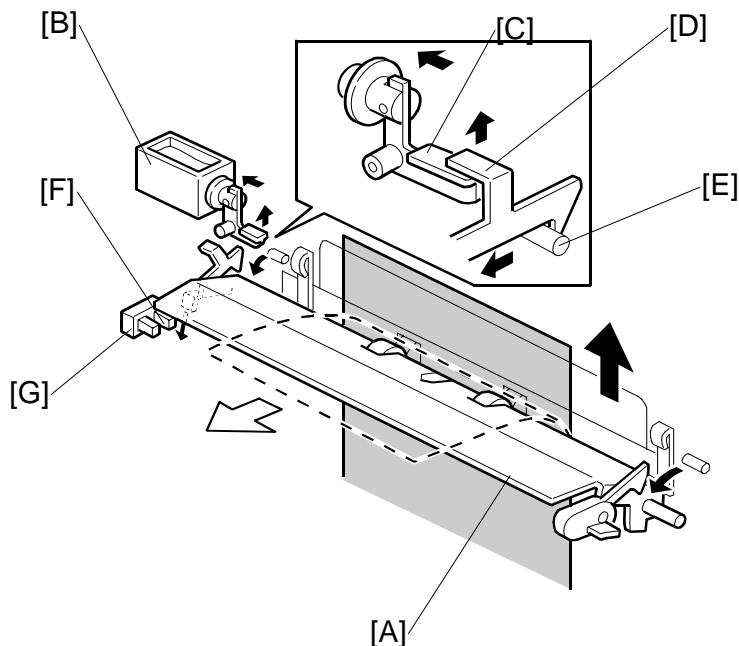
Detailed Descriptions

Registration Drive

The registration motor [A] drives the lower registration roller [B] through a timing belt [C] and some gears. Drive is transmitted to the upper registration roller [D] via two gears [E] at the front.

The paper dust remover [F] extends across the length of the paper registration roller [D], where most paper dust is generated.

NOTE: Clean the dust remover every PM visit.

Jam Removal at Paper Registration

If a sheet misfeeds 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.

To prevent this, when the registration sensor is not activated at a certain jam check timing, the lower paper guide plate [A] automatically opens.

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 to the duplex tray.

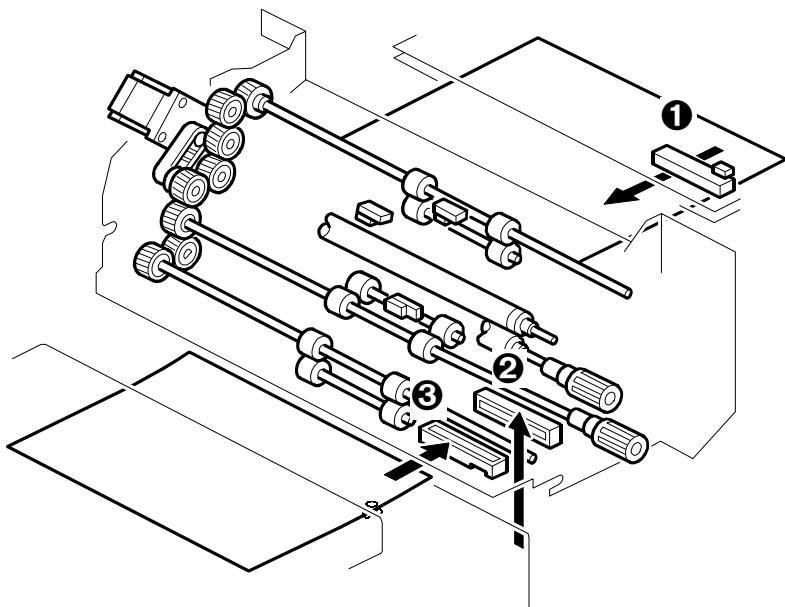
Actuator [F] on the guide plate activates the guide plate position sensor [G] when the guide plate opens.

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.

Detailed
Descriptions

6.14.12 IMAGE POSITION CORRECTION



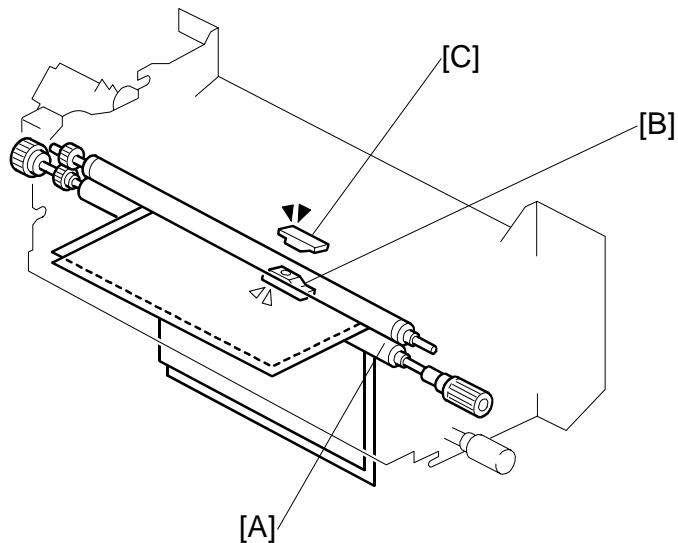
There are three image position sensors:

- ① One in the LCT paper path above the paper path and in front of the LCT exit rollers. (This sensor is mounted on its own control board.)
- ② One to the right of the vertical feed path in front of the last pair of transport rollers.
- ③ One in the duplex unit of the copier in front of the duplex exit roller and below the last pair of duplex transport rollers.

Each sensor is a CIS (Contact Image Sensor). Each sensor checks the side edges of each sheet as it passes, and feeds this information back to the machine.

If the side-to-side registration of the paper is slightly out of alignment, the machine will correct the image position when the laser writes the image on the surface of the drum. This function does not correct the position of the paper.

6.14.13 DOUBLE-FEED DETECTION



[A]: Registration Rollers

[B]: Double-Feed Sensor 1 (LED)

[C]: Double-Feed Sensor 2 (Receptor)

After skew correction at the registration rollers [A], a sensor pair checks the translucence of each sheet.

After buckle adjustment, double-feed sensor 1 [B] (an LED) emits light that passes through the sheet above. The light is received by double-feed sensor 2 [C]. This function detects double-feeds.

If the machine detects a double-feed at the registration rollers, this page and the pages being fed are fed out of the machine (to the finisher's proof tray) or a jam alert is issued, depending how the User Tool feature is set:

User Tools > Adjustment Settings for Operators > SP 1908 008

Next, the machine stops the job and a copy jam error message appears.

Detailed
Descriptions

PAPER FEED

The amount of light received by the double-feed sensor is referred to a lookup table that stores the values of the translucence of paper types.

Double-feed check. The translucence of the paper at the registration roller is compared to the reading of the previous sheet. If the translucence of the sheet at the registration rollers is less than that of the previous sheet (greater opacity), the CPU determines that a double-feed has occurred and stops the job.

UP Mode Settings

The operator can select "Double-Feed Detection" in the Operator Tools (UP) mode for each paper feed station (default: ON).

[User Tools/Counter]> Adjustment Setting Operators> **SP 1908 Double-Feed**

- **SP1908 001-007: Double feed detection.** Enables/disables double-feed detection for the paper feed sources (trays 1 to 3), the LCT (trays 4 to 6), and bypass tray (tray 7).
- **SP1908 008: After double-feed detection.** Auto continue or jam selection after double-feed detection

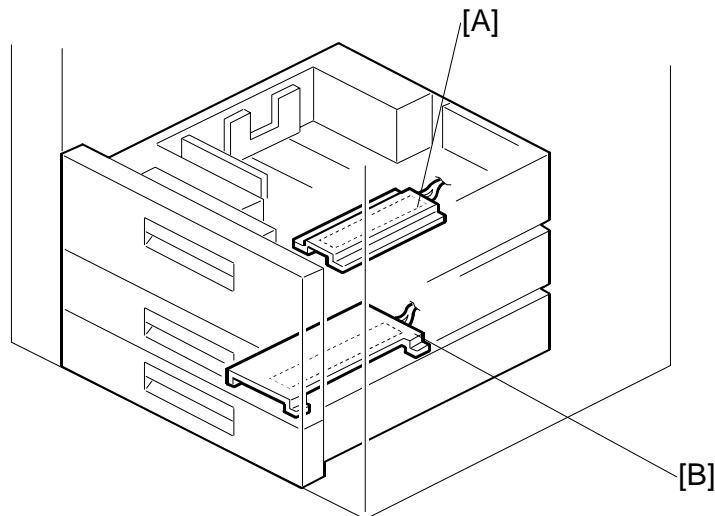
Double-feed detection does not operate when feeding paper shorter than 160 mm from the from the bypass tray.

For slip sheet mode, the tray that contains the slip sheets must be set to 'OFF' with the user tools for "Double-Feed Detection".

The measurements from the double-feed sensor are reset when:

- The machine is switched off and on.
- The tray is set.
- Paper is set in the bypass tray.
- The front door is opened and closed
- The rear fence return sensor in the left tandem tray activates.
- The double feed sensor correction is done. (This is done automatically by the machine at a set interval.)

6.14.14 ANTI-CONDENSATION HEATERS (OPTIONS)



Two optional anti-condensation heaters can be installed below the 1st tray [A] and below the 3rd tray [B].

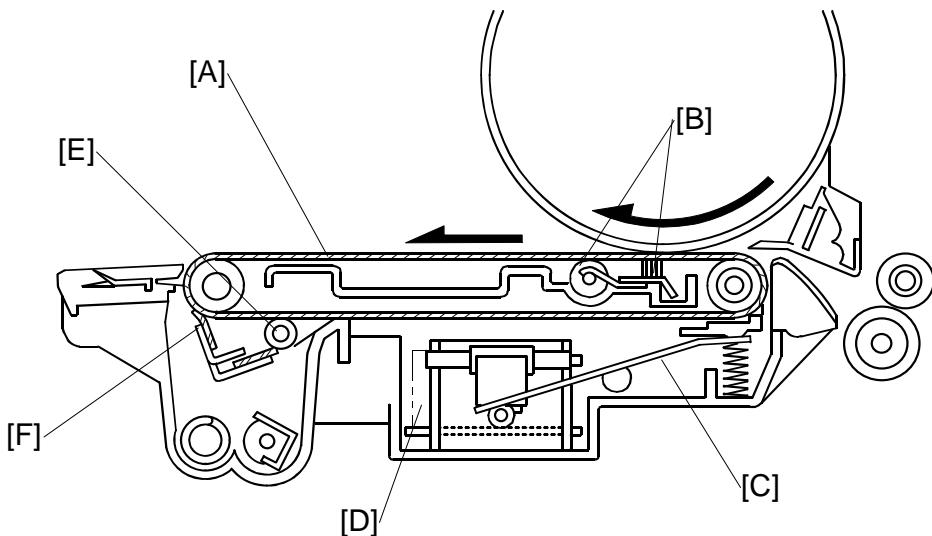
The anti-condensation heaters switch on when the main switch or operation switch are switched off. The anti-condensation trays prevent moisture from collecting in and around the paper trays when the machine is not in use.

NOTE: The anti-condensation heater connectors are not pre-set at the factory and must be connected correctly before use. For details, see "1. Installation" in the main service manual.

Detailed
Descriptions

6.15 IMAGE TRANSFER AND PAPER SEPARATION

6.15.1 OVERVIEW

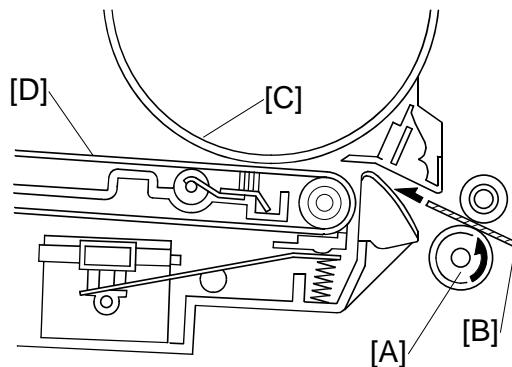


The transfer belt unit consists of the following parts:

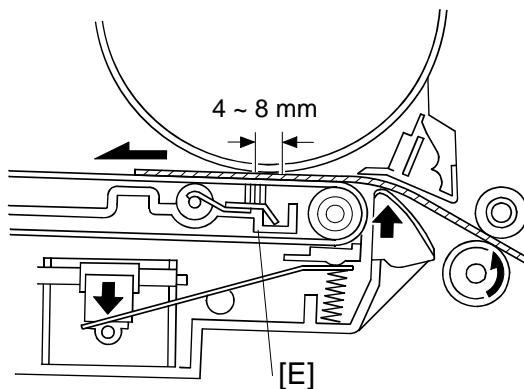
- [A]: Transfer belt
A belt (length: 321 mm) with high electrical resistance which holds a high positive electrical potential to attract toner from the drum to the paper. Also, the electrical potential attracts the paper itself and helps the paper to separate from the drum.
- [B]: Transfer bias roller and transfer belt bias brush
Applies transfer voltage to the transfer belt.
- [C]: Transfer belt lift lever (driven by a magnetic latching solenoid)
Lifts the transfer belt into contact with the drum.
- [D]: Transfer power pack
Generates a constant transfer current.
- [E]: Cleaning bias roller and cleaning roller cleaning blade
Removes toner remaining on the transfer belt to prevent the rear side of the paper from getting dirty.
- [F]: Transfer belt cleaning blade
Removes toner from the transfer belt. Any toner that is not removed by this blade is removed by the cleaning roller [E].

6.15.2 IMAGE TRANSFER AND PAPER SEPARATION

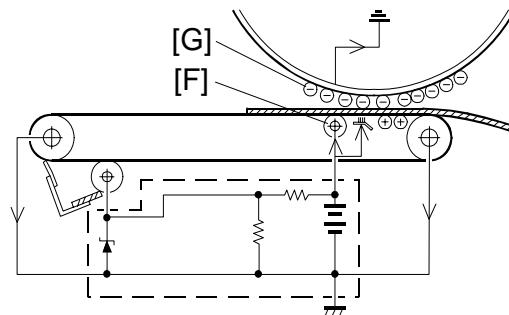
The registration rollers [A] feed the paper [B] to the gap between the drum [C] and the transfer belt [D].



As soon as the leading edge of the first sheet reaches the gap between the transfer belt and the drum, the transfer belt lift lever [E] raises the transfer belt into contact with the drum. The lift lever is driven by a solenoid.



Then a positive charge is applied to the transfer bias roller [F] and transfer belt bias brush to attract the negatively charged toner [G] from the drum. It also attracts the paper and separates it from the drum.



Detailed Descriptions

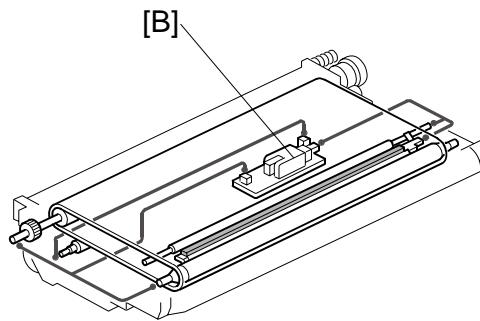
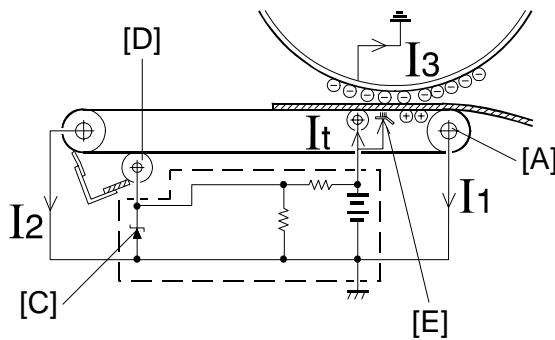
After the image transfer is completed, the charge on the transfer belt holds the paper to the transfer belt. After separating the paper from the transfer belt, the transfer belt is discharged by the transfer belt drive roller [A].

The transfer power pack [B] inside the transfer belt unit monitors the current (I_1 and I_2) fed back from the drive rollers at each end of the transfer belt to adjust the transfer current.

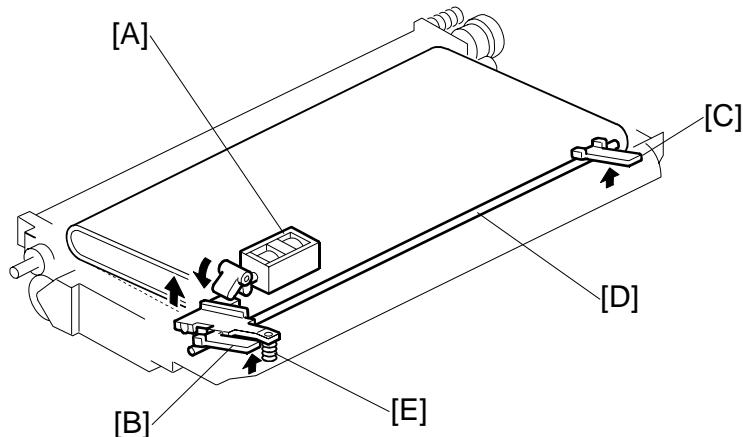
The power pack then adjusts " I_t " to keep the current through the drum (I_3) constant, even if the paper, environmental conditions, or transfer belt surface resistance change.

The varistor [C] keeps the voltage at the cleaning bias roller [D] constant.

To apply a higher current to the transfer belt without a higher voltage, the bias brush [E] has been incorporated near the nip between drum and belt. This ensures that enough transfer current is applied for this machine, which has a higher copy volume.



6.15.3 TRANSFER BELT UNIT LIFT



The transfer belt lift solenoid [A] (a magnetic latching solenoid inside the transfer belt unit) turns on to raise the transfer belt into contact with the drum.

The front lever [B] and the rear lever [C] are connected to the solenoid by links [D], and they push up the stays when the solenoid turns on.

The support spring [E] helps the solenoid to raise the transfer belt.

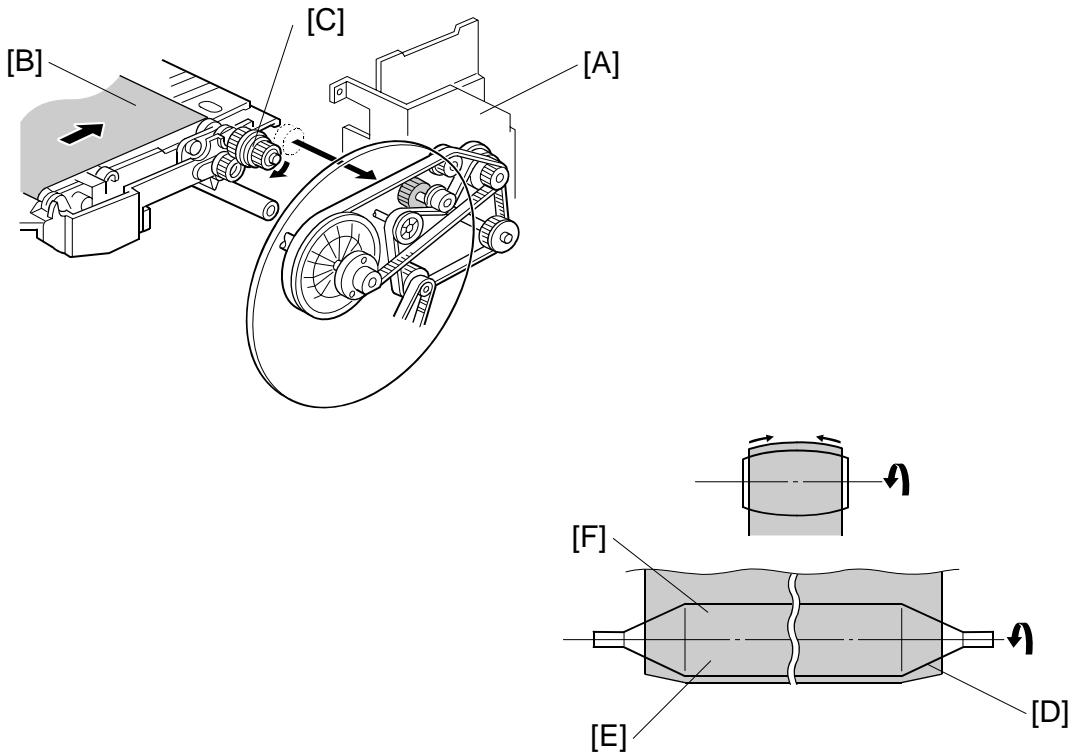
The solenoid turns off after the copy job is finished.

The transfer belt must be released from the drum for the following reasons:

1. To prevent the ID sensor pattern on the drum from being rubbed off by the transfer belt, because the transfer belt is located between the development unit and the ID sensor.
2. To decrease the load on the bias roller cleaning blade, it is better to prevent toner on non-image areas (for example VD, VH, ID sensor patterns developed during process control data initial setting) from being transferred onto the transfer belt.
3. To prevent drum characteristics from being changed by remaining in contact with the rubber belt.

Detailed
Descriptions

6.15.4 PAPER TRANSPORTATION AND BELT DRIVE

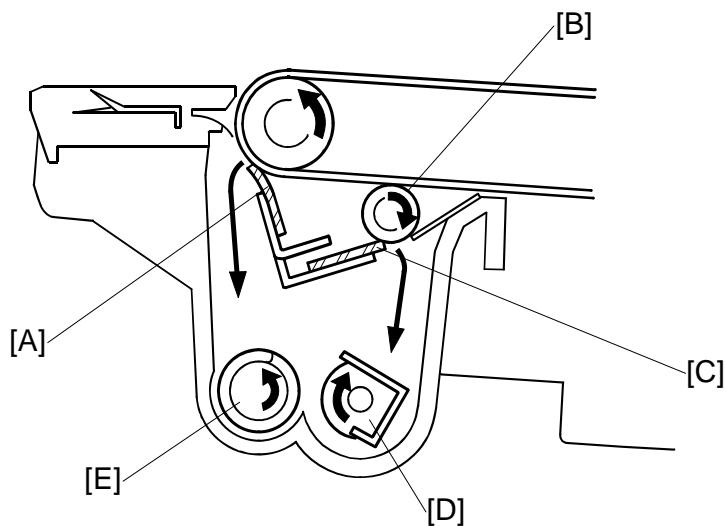


The drum motor [A] drives the transfer belt through belts and gears. Since the transfer belt electrically attracts the paper [B], a transport fan is not required.

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.

6.15.5 TRANSFER BELT CLEANING



Some toner may adhere to the transfer belt when paper jams occur. The adhered toner must be removed to prevent the rear side of the copy paper from getting dirty.

The cleaning blade [A] scrapes off any toner remaining on the transfer belt. This is a counter blade system.

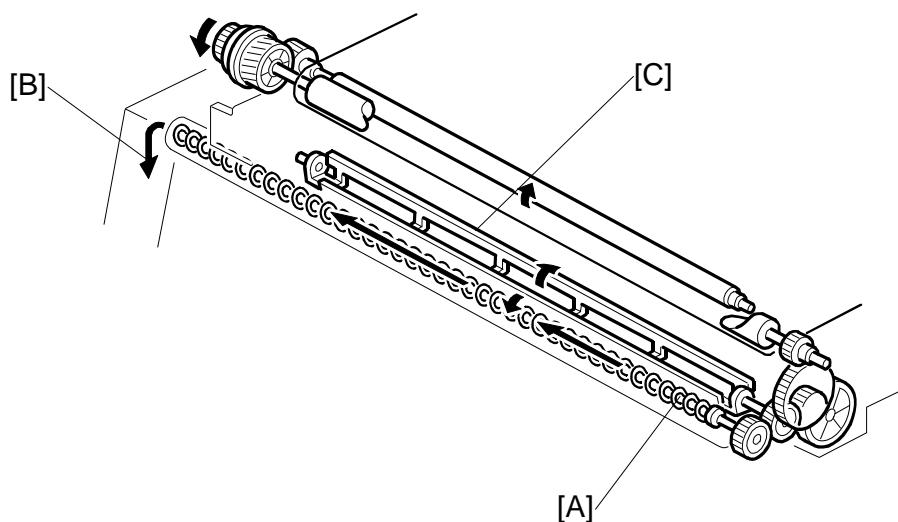
Even if the toner is not completely removed due to paper dust stuck on the transfer belt cleaning blade [A], the positively charged cleaning bias roller [B] attracts the remaining toner. The bias roller cleaning blade [C] scrapes toner off the cleaning bias roller.

The surface of the transfer belt is coated to make it smooth and prevent the transfer belt from flipping the cleaning blade.

The toner collection coil [E] transports toner cleaned from the transfer belt to the waste toner collection bottle. The agitator [D] moves the toner to the collection coil, and prevents the toner in the cleaning unit from forming clumps.

Detailed
Descriptions

6.15.6 TONER COLLECTION

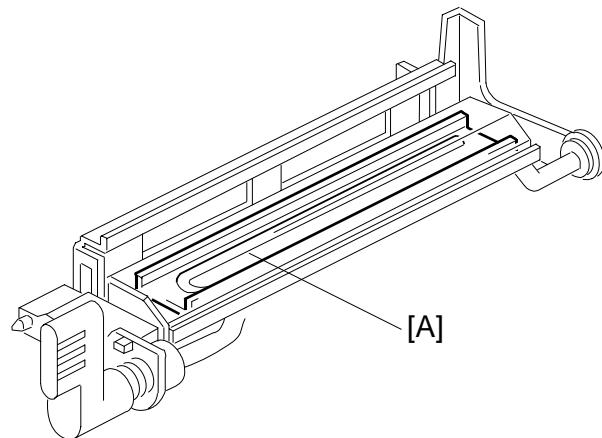


Transfer belt drive is transmitted to the toner collection coil [A] through idle gears. The toner collection coil transports the collected toner to the toner recycling unit [B] and from there it goes to the waste toner collection bottle.

An agitator [C] in the transfer belt cleaning unit, below the cleaning blade and to the right of the toner transport coil, keeps the toner loose. This increases the speed of the toner collection mechanism.

See Toner Supply and Recycling for details.

6.15.7 DRUM ANTI-CONDENSATION HEATER



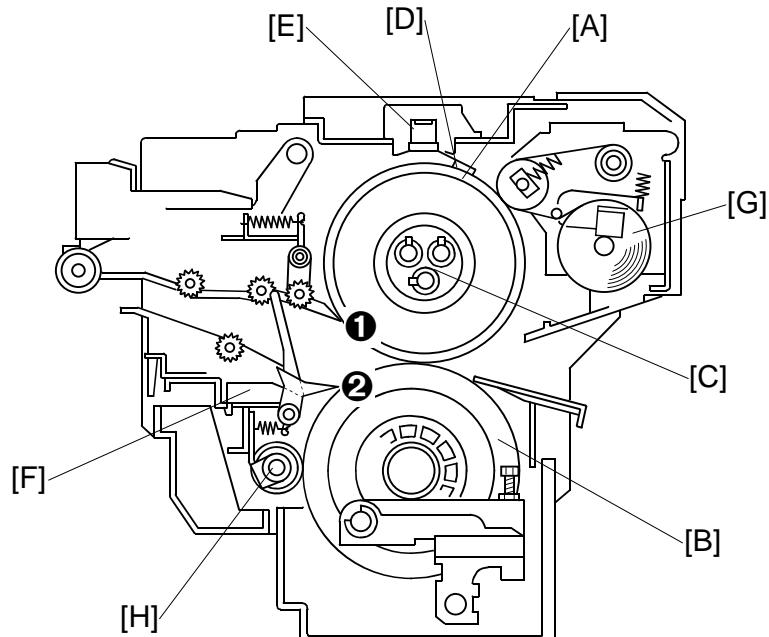
The drum anti-condensation heater [A] is located under the transfer belt unit. It turns on when the main switch is off to prevent moisture from forming on the transfer belt.

The heater is included in the machine at the factory, but the connector is not connected.

Detailed
Descriptions

6.16 FUSING

6.16.1 OVERVIEW



After transferring the image, the copy paper enters the fusing unit. A heat and pressure process using a hot roller [A] and a pressure roller [B] fuses the image to the copy paper. There are three fusing lamps of different wattage [C] inside the hot roller. They are turned on and off to maintain the target fusing temperature. (6.16.4)

The CPU monitors the hot roller surface temperature through a thermistor [D], which is in contact with the hot roller surface. Four thermostats [E] protect the fusing unit from overheating.

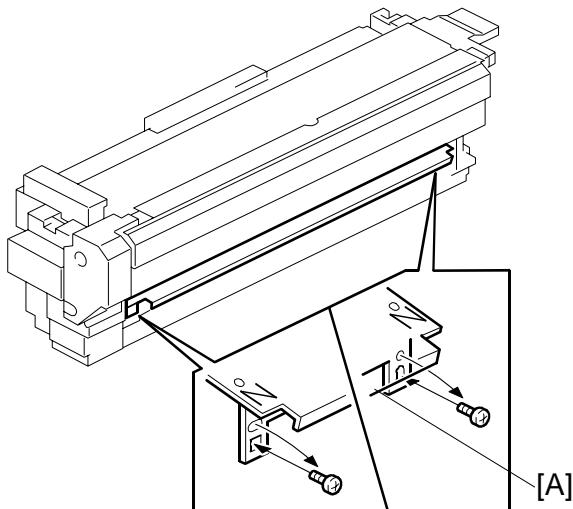
The fusing exit sensor [F] monitors the progress of the copy paper through the fusing unit and also detects paper jams while the exit rollers drive the copy paper to the inverter section.

The oil supply roller and cleaning fabric [G] applies a light coat of silicone oil to the hot roller. It also removes the paper dust and toner from the hot roller.

The hot roller and pressure roller have stripper pawls ①, ② to prevent wrap-around jams.

The pressure roller is cleaned by a steel cleaning roller [H]. Toner adheres to steel more readily than to silicone rubber.

6.16.2 FUSING ENTRANCE GUIDE



The entrance guide [A] for this machine is adjustable for thick or thin paper by changing the screw position from the upper to the lower.

With thin paper, set the entrance guide in the upper position. This slightly lengthens the paper path, which prevents the paper from creasing in the fusing unit.

With thick paper, set the entrance guide in the lower position. This is because thick paper does not bend as easily, and is therefore less prone to creasing. In addition, the lower setting allows more direct access to the gap between the hot and pressure rollers. This prevents thick paper from buckling against the hot roller, which can cause blurring at the leading edge of the copy.

In this model, the transfer belt improves paper transport and stabilizes the paper path to the fusing entrance. This reduces the chance of paper creasing due to paper skews in the fusing unit.

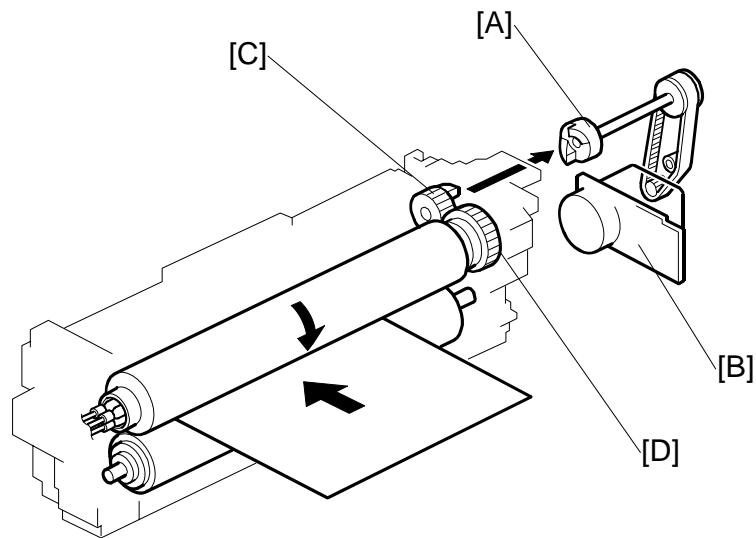
Use the screws to adjust the guide plate position. Since there are very few reasons to change the guide plate position, there is no guide plate position adjustment lever for customer use.

Detailed
Descriptions

The markings on the entrance guide are different for different regions. Each entrance guide is designed for the paper width that is normally used in each region, for optimum prevention of creasing.

| | |
|-------------|------------------------------|
| NA: | With 'N' mark (inch version) |
| EU/AA (A4): | No 'N' mark |

6.16.3 FUSING UNIT DRIVE



The fusing drive gear [A] transmits drive from the fusing motor [B] to the gear [C], which drives the hot roller gear [D]. The pressure roller is driven by the friction between the hot and pressure rollers.

6.16.4 FUSING LAMP AND FUSING TEMPERATURE CONTROL

Overview

A thermistor in permanent contact with the hot roller monitors the temperature of the hot roller as it rotates. These temperature readings are used to control the temperature of the hot roller by switching the fusing lamps on and off.

NOTE: The current temperature detected by the thermistor can be displayed with **SP1106**.

Four thermostats mounted very close to the surface of the hot roller also monitor the hot roller temperature. The thermostats trigger an SC code if the hot roller overheats and the fusing unit shuts down.

There are three types of fusing lamps. Each is classified by which portion of the hot roller it heats:

There are three fusing lamps inside the hot roller.

| Fusing Lamps | B234/B235/D101/D102 Fusing Lamps | B236/D103 Fusing Lamps |
|--------------|----------------------------------|------------------------|
| 1 | —WWWWWWWWWWWWWWWW— | —WWWWWWWWWWWWWWWW— |
| 2 | ~WWWWWW~—WWWWWW~ | ~WWWWWWWWWWWWWWWW~ |
| 3 | ~WWWWWWWWWWWWWWWW~ | ~WWWWWWWWWWWWWWWW~ |

The wattages of the fusing lamps are as shown below.

| NAME | VOLTAGE/WATTAGE | |
|---------------|--------------------------------------|---------------------------|
| | B234/B235/D101/D102 | B236/D103 |
| Fusing Lamp 1 | 900 W (M: Red, R: Red) ^{*1} | 900 W (M: Red, R: Red) |
| Fusing Lamp 2 | 600 W (F/R: White) | 600 W (F/R: Yellow) |
| Fusing Lamp 3 | 900 W (M: White, R: Blue) | 900 W (M: White, R: Blue) |

^{*1}: F=Front, R=Rear

Detailed Descriptions

FUSING

Normal, High, and Low Temp Modes

The operator can use a User Tool to modify the operation of the fusing unit to respond to changes in the operating environment and improve fusing or reduce paper curl.

User Tools> Adjustment Setting for Operators> **SP1740**

SP1740 Settings

| | |
|------------------|-------------------------------------|
| Normal Temp Mode | Default |
| Low Temp Mode | Raise temperature to improve fusing |
| High Temp Mode | Lower temperature to reduce curl |

The table below shows which SP codes control the standby temperature, fusing temperature lower limit, and hot roller idling time depends on the selected temperature mode.

If the fusing unit temperature falls below the lower limit, then the machine stops printing until the fusing unit temperature recovers to the standby temperature.

The fusing idling time is the length of time that the fusing unit idles at start up (just after the main switch is turned on or after recovery from energy saver mode), if the fusing unit temperature is too low.

Normal Temperature Mode (Default)

| Default Values | B234/ D101 | B235/ D102 | B236/ D103 | SP No. | |
|-------------------------|---------------|---------------|---------------|-------------------|-------------|
| Standby Temp. | 153°C | 165°C | 178°C | SP1105 001 | 140 ~ 190°C |
| Fusing Lower Limit | 133°C | 145°C | 158°C | SP1105 004 | 120 ~ 180°C |
| Fusing Unit Idling Time | 40 sec | 50 sec | 60 sec | SP1107 001 | 0 ~ 120 sec |

Low Temperature Mode (Improves Fusing)

| Default Values | B234/ D101 | B235/ D102 | B236/ D103 | SP No. | |
|-------------------------|---------------|---------------|---------------|-------------------|-------------|
| Standby Temp. | 163°C | 175°C | 188°C | SP1105 002 | 140 ~ 190°C |
| Fusing Lower Limit | 143°C | 155°C | 168°C | SP1105 005 | 120 ~ 180°C |
| Fusing Unit Idling Time | 60 sec | 70 sec | 90 sec | SP1107 002 | 0 ~ 120 sec |

High Temperature Mode (Reduces Paper Curl)

| Default Values | B234/ D101 | B235/ D102 | B236/ D103 | SP No. | |
|-------------------------|---------------|---------------|---------------|-------------------|-------------|
| Standby Temp. | 148°C | 160°C | 173°C | SP1105 003 | 140 ~ 190°C |
| Fusing Lower Limit | 123°C | 140°C | 153°C | SP1105 006 | 120 ~ 180°C |
| Fusing Unit Idling Time | 40 sec | 50 sec | 70 sec | SP1107 001 | 0 ~ 120 sec |

The SP settings and ranges below are the same for every temperature mode.

| Default Values | B234/ D101 | B235/ D102 | B236/ D103 | SP No. | |
|--|---------------|---------------|---------------|-------------------|--------------|
| Correction for Small Paper Size (default: narrow than LT LEF/257 mm) | 10°C | 10°C | 10°C | SP1105 007 | 0 to +20°C |
| Correction for Normal Paper Size (default: LT LEF/257 mm or wider) | 5°C | 5°C | 5°C | SP1105 008 | 0 to +10°C |
| Correction for Tracing Paper | 0°C | 0°C | 0°C | SP1105 009 | -10 to +10°C |
| Fusing Idling Start Temperature | 130°C | 130°C | 160°C | SP1105 012 | 100 to 160°C |

Detailed
Descriptions

FUSING

Fusing Temperature Control and Machine Status - Overview

Fusing temperature control operates differently depending on the status of the machine:

- At power on (cold/warm starts)
- During standby
- During machine operation (low limit, paper sizes)
- Low power mode (during and immediately after)
- In Energy Saver mode

Fusing control in each operation mode is described below.

NOTE:

- In the descriptions below, the "1", "2", "3" notations refer to the fusing lamp number (6.16.4 - Overview).

Fusing Temperature Control at Power On (Cold/Warm Starts)

1. After the machine power is turned off/on

If the fusing unit temperature is below the temperature set with **SP1105 010**, three fusing lamps switch on in this order: 3 → 2 → 1.

-or-

If the fusing temperature is above the temperature set with **SP1105 010**, two lamps (2 and 3) switch on in this order: 3 → 2

| Default Values | B234/ D101 | B235/ D102 | B236/ D103 | SP No. | |
|--------------------------------------|---------------|---------------|---------------|-------------------|-------------|
| Fusing Lamp Switching for warm-up | 99°C | 99°C | 95°C | SP1105 010 | 20 to 190°C |

2. When the temperature rises to the temperature set with SP1105 010, fusing lamp 1 switches off.
3. When the temperature reaches the standby temperature, fusing lamps 3 and 2 switch off in this order: 3 → 2

Fusing Temperature Control During Standby and in Energy Saver Mode

In standby mode, the operation control of the fusing lamps is different for the B234/B235/D101/D102 and B236/D103.

| Model | Lamps Used | Comment |
|-------------------------|------------|--|
| B234/B235/ D101/D102 | Lamp 2 | Only 1 lamp is used: |
| B236/D103 | Lamp 2, 3 | Two lamps keep the hot roller at the correct standby temperature: These lamps light on and off alternately so only one lamp is on at a time. |

The fusing lamps heat the hot roller to keep the temperature as follows:

- The lamps are switched ON when the thermistor detects the temperature of the hot roller surface is lower than the standby temperature (**SP1105 001, 002, 003**)
- The lamps are switched OFF when the thermistor detects the temperature of the hot roller surface is higher than the standby temperature (**SP1105 001, 002, 003**) +2°C

Fusing Temperature Control During Machine Operation

When the Fusing Temperature Falls below the Lower Limit

During long jobs, some images may not fuse correctly, depending on variables such as paper and image type, and room temperature.

To prevent poor image fusing:

- If the fusing unit thermistor detects that the temperature of the hot roller has dropped lower than the lower limit (set SP1105 004 – 006), a message appears and the job halts temporarily.
- The machine restarts the job once the fusing temperature rises again to the target operating temperature.

NOTE

- The low limit temperature is different, depending on the temperature mode currently selected for operation: normal, low, and high temperature mode.

Detailed
Descriptions

Fusing Temperature Control for Normal Size Paper

"Normal size paper" is defined as LT LEF or wider paper (297 mm or wider).

NOTE: The definition of "normal size paper" can be changed to 'B5 or wider (257 mm or wider)' with **SP1105 013**.

The fusing lamp control with normal paper sizes is different for the B234/B235/D101/D102 and B236/D103.

Lamps Used

| Model | Lamps Used | ON Order | OFF Order |
|---------------------|------------|-----------|-----------|
| B234/B235/D101/D102 | 1, 3 | 1 → 3 | 3 → 1 |
| B236/D103 | 1, 2, 3 | 1 → 3 → 2 | 2 → 3 → 1 |

Lamps Operation Immediately Before/After Job Start

| Model | | Status Before Job Start | Status After Job Start |
|---------------------|---|-------------------------|------------------------|
| B234/B235/D101/D102 | 1 | 2 On | After 2 Off, On 1 → 3 |
| | 2 | 1, 2, 3 Off | On 1 → 3 |
| B236/D103 | 1 | 2 On | 2 remains On, On 1 → 3 |
| | 2 | 3 On | 3 remains On, On 1 → 2 |
| | 3 | 1, 2, 3 Off | On 1 → 3 → 2 |

'Status Before Job Start' column, there are two (B234/B235/D101/D102) or three (B236/D103) possible statuses. Then, for each of these, the 'Status After Job Start' column shows what happens after the job starts.

During the job, the lamps are switched ON when the thermistor detects the temperature of the hot roller surface is lower than:

SP1105 001 (002, 003) + SP1105 008

During the job, the lamps are switched OFF when the thermistor detects the temperature of the hot roller surface is higher than:

SP1105 001 (002, 003) + SP1105 008 +2°C

Fusing Temperature Control for Small Size Paper

Small size paper is defined as:

- Paper less wide than (not including) LT LEF (less wide than 297 mm). This definition can be changed to 'less wide than B5 (less wide than 257 mm)' with SP1105 013.
- Any paper size less wide than B5 SEF

Two Fusing Lamps: Lamps 1 and 2

When fusing lamps 1 and 2 are used, the lamps light in order 1 → 2 and go off in order 2 → 1. In the table below B236/D103 (4) is the only time in the fusing lamp cycle that the 3 lamps come on. Thereafter, only 2 lamps (1 and 2) are used.

Lamps Operation Immediately Before/After Job Start

| Model | | Status Before Job Start | Status After Job Start |
|----------------------------|-----|-------------------------|------------------------|
| B234/B235/D101/D102 | (1) | 2 on | 2 remains on → 1 |
| | (2) | 1, 2, 3 off | 1 → 2 |
| B236/D103 | (3) | 2 On | 2 remains on → 1 on |
| | (4) | 3 On | 3 remains on, 2 → 1 |
| | (5) | 1, 2, 3 off | 1 → 2 |

Two Lamps: Lamps 1 and 3

When fusing lamps 1 and 3 are used, the lamps light in order 1 → 3 and go off 3 → 1. In the table below B236/D103 (3) is the only time in the fusing lamp cycle that the 3 lamps come on. Thereafter, only 2 lamps (1 and 3) are used.

Lamps Operation Immediately Before/After Job Start

| Model | | Status Before Job Start | Status After Job Start |
|----------------------------|-----|-------------------------|------------------------|
| B234/B235/D101/D102 | (1) | 2 on | 2 goes off → 1 → 3 |
| | (2) | 1, 2, 3 off | 1 → 3 |
| B236/D103 | (3) | 2 On | 2 remains on → 1 → 3 |
| | (4) | 3 On | 3 remains on → 1 |
| | (5) | 1, 2, 3 off | 1 → 3 |

Detailed
Descriptions

FUSING

One Fusing Lamp: Lamp 1 Only

In the table below B236/D103 (3) is the only time in the fusing lamp cycle that the 2 lamps (1 and 2) come on. Thereafter, only 1 lamp (lamp 1) is used. Also, 2 lamps (1 and 3) come on at (4). Thereafter, only 1 lamp (lamp 1) is used.

Lamps Operation Immediately Before/After Job Start

| Model | | Status Before Job Start | Status After Job Start |
|----------------------------|-----|-------------------------|------------------------|
| B234/B235/D101/D102 | (1) | 2 on | 2 off → 1 |
| | (2) | 1, 2, 3 off | 1 |
| B236/D103 | (3) | 2 on | 2 remains on → 1 |
| | (4) | 3 on | 3 remains on → 1 |
| | (5) | 1, 2, 3 off | 1 |

During the job, the lamps are switched ON when the thermistor detects the temperature of the hot roller surface is lower than:

SP1105 001 (002, 003) + SP1105 007

During the job, the lamps are switched OFF when the thermistor detects the temperature of the hot roller surface is higher than:

SP1105 001 (002, 003) + SP1105 007 +2°C

Tracing Paper

When tracing paper is fed from a tray (if the user selects 'Translucent Paper'), the fusing lamps are not controlled based on the size of the paper. The control method, however, is nearly the same as that for normal paper.

During the job, the lamps are switched ON when the thermistor detects the temperature of the hot roller surface is lower than:

SP1105 001 (002, 003) + SP1105 009

During the job, the lamps are switched OFF when the thermistor detects the temperature of the hot roller surface is higher than:

SP1105 001 (002, 003) + SP1105 009 +2°C

Fusing Temperature Control for Low Power Mode (During and Immediately After)

During Low Power Mode

Only one fusing lamp is used while the machine is in the low power mode.

| Model | Lamps On | Lamps Used |
|---------------------|-----------|--|
| B234/B235/D101/D102 | Lamp 3 | Only 1 lamp is used: |
| B236/D103 | Lamp 2, 3 | Two lamps are used. The lamps turn on and off alternately so that only one lamp at a time is on. |

The fusing lamps heat the hot roller to keep the temperature as follows:

- On: Fusing Temperature Adjustment in Low Power (SP1105 011)
- OfM: Fusing Temperature Adjustment in Low Power (SP1105 011) +2°C

Returning from Low Power Mode

1. After returning the low power mode

If the fusing unit temperature is below the temperature set with **SP1105 001-003 + SP1105 014**, three fusing lamps switch on in this order: 3 → 2 → 1.

-or-

If the fusing temperature is above the temperature set with **SP1105 001-003 + SP1105 014**, two lamps (2 and 3) switch on in this order: 3 → 2

| Default Values | B234/ D101 | B235/ D102 | B236/ D103 | SP No. | |
|--|---------------|---------------|---------------|-------------------|------------|
| Fusing Lamp Switching after Low Power Mode | -10°C | -10°C | -20°C | SP1105 014 | 0 to -20°C |

2. When the temperature rises to the temperature set with SP1105 001-003, fusing lamp 1 switches off.
3. When the temperature reaches the standby temperature, fusing lamps 3 and 2 switch off in this order: 3 → 2

Low Speed Mode (CPM Down)

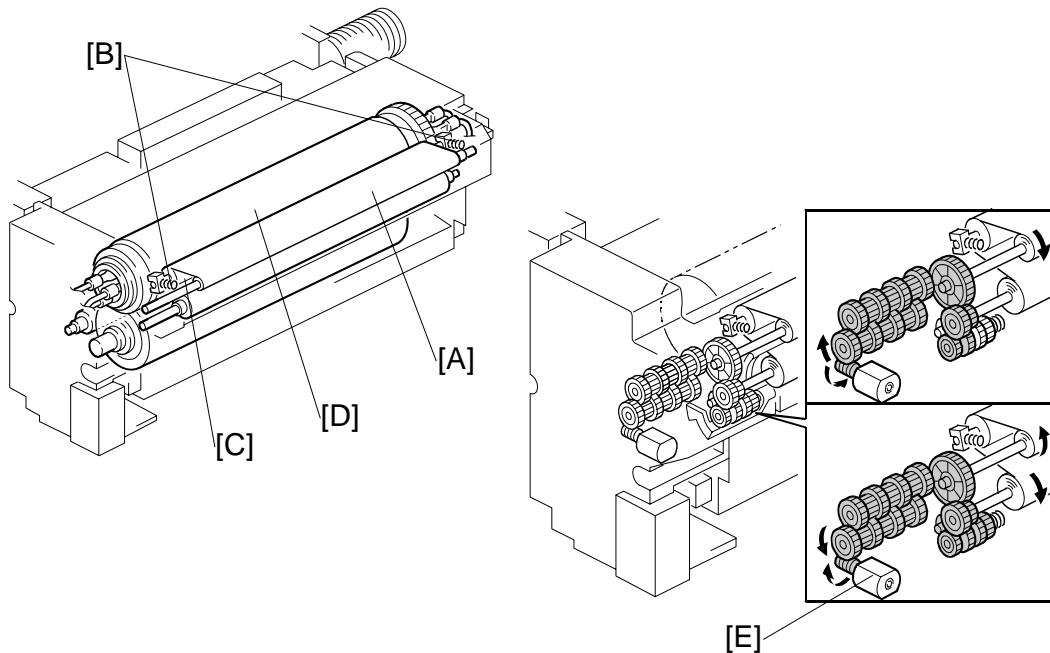
The User Tools has a selection (System Settings> General Features> Optimum for Thick Paper: Set to 'On') that allows the customer to improve the fusing of images and text on thick paper and tracing paper by reducing the cpm (this is done by reducing the drum speed).

Detailed Descriptions

The speed reductions are as follows:

- B234/D101: No speed reduction (stays at 90 cpm)
- B235/D102: Reduced from 110 cpm to 90 cpm
- B236/D103: Reduced from 135 cpm to 110 cpm

6.16.5 FUSING CLEANING UNIT



The fusing cleaning unit [A] feeds the cleaning fabric. Springs [B] hold a roller under the fabric [C] against the hot roller [D].

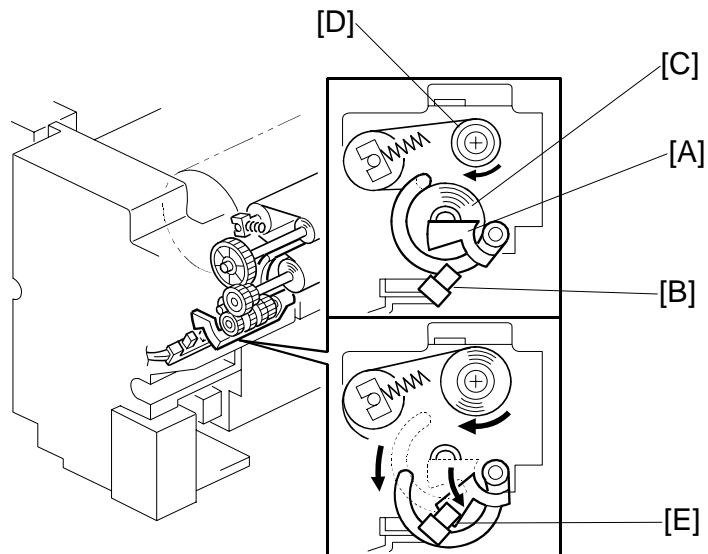
This intermediate roller applies a light coat of silicone oil to the hot roller and removes paper dust and toner from the hot roller.

A spring clutch inside the mechanism pulls the fabric to take up the slack, to prevent it getting pulled in between the fusing rollers.

At prescribed intervals during printing, the fabric motor [E] switches on for a fixed period of time to move the cleaning fabric.

SP1902 002 and 1902 003 can be used to adjust the motor rotation time and rotation interval. SP1902 004 is used to adjust the near end timing for the web.

The web is 24 m long and lasts for about 750K copies for NA, or 500K copies for EUR/A.



SP1902 001 displays the cleaning fabric consumption. When the consumption exceeds the value set with **SP1902 004**, the machine indicates near-end on the operation display.

The machine still operates while the actuator [A] remains above the fabric end sensor [B] undetected. The actuator arm of the actuator remains in contact with the supply roller [C] and gradually lowers as the amount of fabric on the supply roller grows smaller as it is fed to the take-up roller [D] above.

When the fabric runs out, the actuator drops into the fabric end sensor at [E] and the sensor signals the machine to issue the fabric end message.

At fabric end, the fusing cleaning unit must be replaced by either the service technician or a trained 'super user'.

Detailed
Descriptions

Additional Notes about Fusing Cleaning Unit Operation

- Opening either front door (or both doors) shuts down operation of the fusing fabric unit.
- When the fusing temperature reaches the temperature 10°C below the temperature where the hot roller starts to idle, the fabric take-up operation executes twice.
- When the fabric motor operates while the hot roller is idling. After the hot roller starts to idle, the fabric motor turns on at 10 sec. intervals up to a maximum of 10 times.
- The fusing fabric unit shuts down completely when the machine is turned off with the main power switch.
- When the operation power switch is pressed to turn on the machine, the fusing fabric unit starts to operate as soon as the hot roller starts to idle. The fabric motor rotates the take-up roller at 10 sec. intervals up to a maximum of 10 times.
- When the operation power switch is pressed to turn the machine off, the fabric take-up roller turns on/off twice. However, this does not occur if the fusing temperature when the machine is turned off is 10°C less than the temperature set for hot roller idling to start.
- When the machine enters auto off mode, the fabric take-up motor turns on/off twice. However, this does not occur if the fusing temperature when the machine is turned off is 10°C less than the temperature set for hot roller idling to start.

Calculating Cleaning Fabric Service Life

The fusing cleaning fabric is a roll of heat-resistant fabric 24 m log saturated with silicone oil. It is mounted on a supply roller and take-up roller. The part of the cleaning fabric that touches the hot roller both lubricates and removes paper dust and other particles from the surface of the hot roller.

At prescribed intervals, the fabric motor (a dc motor) switches on and rotates the take-up roller. This feeds a fresh portion of the fabric from the supply roller to clean and lubricate the surface of the hot roller.

The job time sensor (a photo-sensor) measures the length of time that it takes for all the sheets of each job to pass.

- The job time sensor is on when there is no paper present.
- It turns off when it detects the leading edge of the first sheet of a job, and at that time, the machine starts to measure the job time.
- At 2 sec after the trailing edge of the last sheet of the job passes below the sensor, the machine stops measuring the job time.
- The length of the job is then added to the accumulated count for the cleaning fabric.
- When this calculated total equals the time prescribed for the service life of the cleaning fabric, the machine issues the fusing fabric near-end alert.

NOTE

- When a paper jam occurs, cleaning fabric operation stops, and the job time sensor stops measuring paper throughput. These functions resume after the jam has been removed and the job restarted.
- When a job stops temporarily because the fusing temperature has fallen below its lower limit, the machine waits until 2 sec. after the last sheet leaves the cooling pipe exit. Then the job time sensor switches on and the machine stops counting (fabric unit operation also stops).
- When the fusing temperature reaches the operating temperature, the job restarts, the first sheet feed switches off the fabric near-end sensor, and the job time sensor resumes its count.

Fabric Near-End

When the fabric near-end message appears, the message is displayed on the operation panel but the job does not stop. The operator should have a replacement fabric unit on hand or get one as soon as possible. The cleaning fabric is near the end of its service life and must be replaced soon.

SP1902 004 (Fabric Near End) can be adjusted to change the near-end period.

The table below shows approximately how adjustment of **SP1902 002** affects the near-end and end displays of the B234/D101 (90 ppm), B235/D102 (110 ppm) and B236/D103 (135 ppm).

| SP1902 002 ¹ | | | SP1902 004 ² | Near-End Display (Sheets) ³ | End Display (Sheets) | Comments |
|-------------------------|-----------|-----------|-------------------------|--|----------------------|---------------|
| B234/D101 | B235/D102 | B236/D103 | | | | |
| 19.8 s | 16.2 s | 12.9 s | 92% | 750K | 820K | NA Default |
| 13.2 s | 10.8 s | 8.6 s | 90% | 500K | 550K | EUR/A Default |

¹: **SP1902 002** (Fabric Motor Control – Fabric Motor Drive Interval)

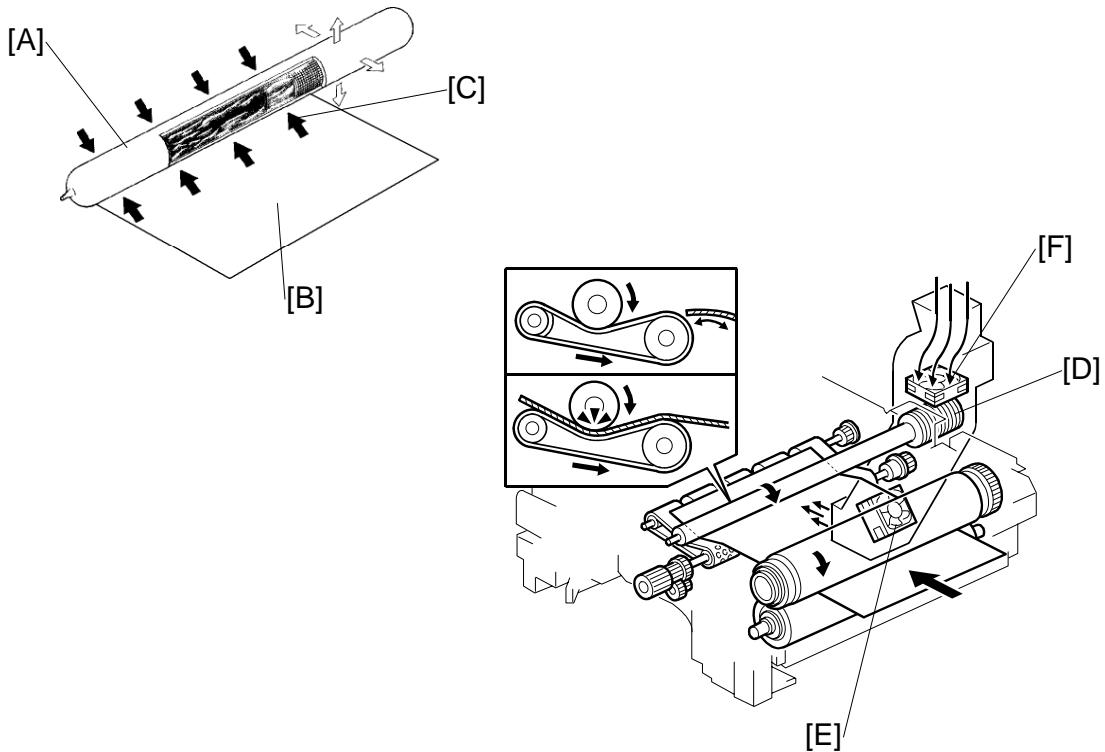
²: **SP1902 004** (Fabric Motor Control – Fabric Near End Setting)

³: Calculated based on A4 LEF at 100% magnification, and the default settings of SP 1902 004.

NOTE: **SP1902 003** (Fabric Motor Control – Fabric Motor Drive Time) not adjusted.

Detailed Descriptions

6.16.6 PAPER COOLING



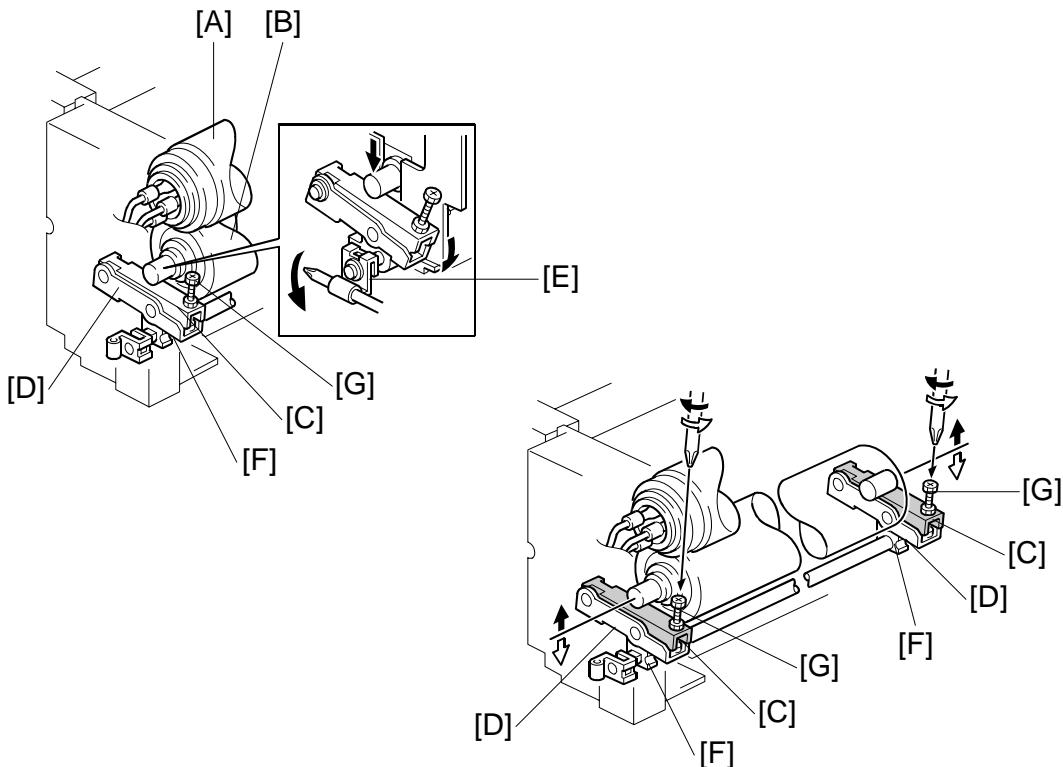
The paper cooling pipe [A] cools the copy paper [B] after it has gone through the fusing unit. This prevents the temperature around the drum from increasing in duplex mode.

The paper cooling pipe has a hollow metal tube inside. Water capillary tubes run along the inside of the paper cooling pipe, and these transfer heat within the pipe.

The hot paper leaving the fusing unit heats the parts of the cooling pipe that it touches at [C] (black arrows), causing the water in the pipe to vaporize. This creates a high-speed flow of steam to the ends of the pipe, which are cooler, especially to the rear, which is well away from the paper feed path, and has the cooling fins [D] attached to it. When the steam reaches this area, it cools and condenses. Capillary action returns the condensation to the heated part of the pipe.

This heat transfer cycle (vaporization → steam transfer → condensation) repeats continuously. Paper cooling pipe fan 1 [E] in the duct at the machine rear side cools the fins and paper cooling fan 2 [F] pulls the air around the fins out of the fusing unit.

6.16.7 FUSING PRESSURE

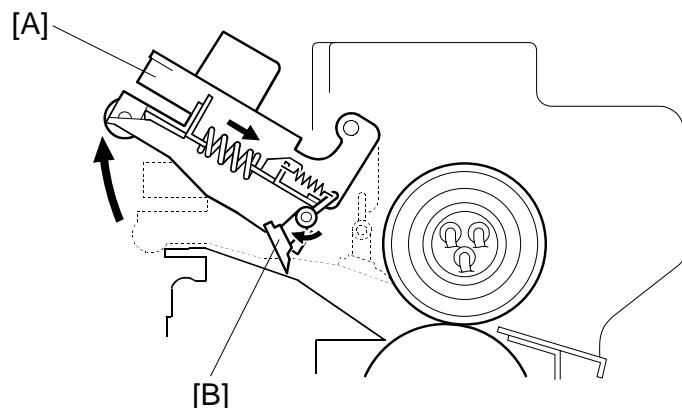


Fusing pressure is constantly applied between the hot roller [A] and pressure roller [B] by the upper pressure lever [C] and lower pressure lever [D], which are lifted by the fusing unit release lever [E] via the pressure cam [F]. The pressure can be adjusted by using the pressure adjustment screw [G].

The fusing pressure is released by turning the fusing unit release lever counterclockwise.

Detailed
Descriptions

6.16.8 HOT ROLLER STRIPPER RELEASE

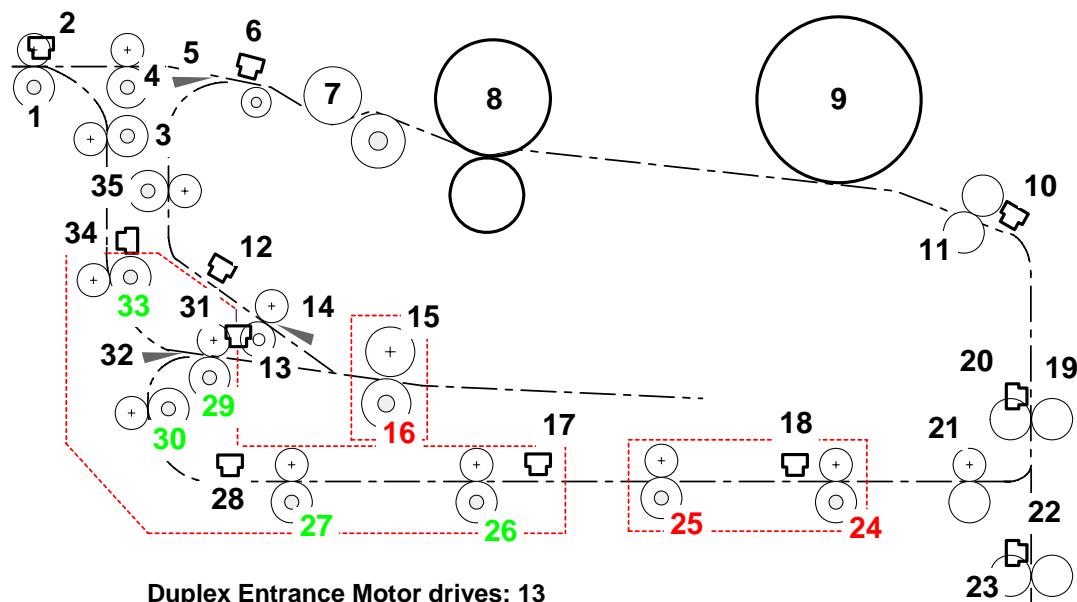


For easier jam removal, when the hot roller stripper unit [A] is opened, the stripper pawls [B] turn clockwise to expand the jam removal area.

6.17 PAPER EXIT/DUPLEX

6.17.1 OVERVIEW

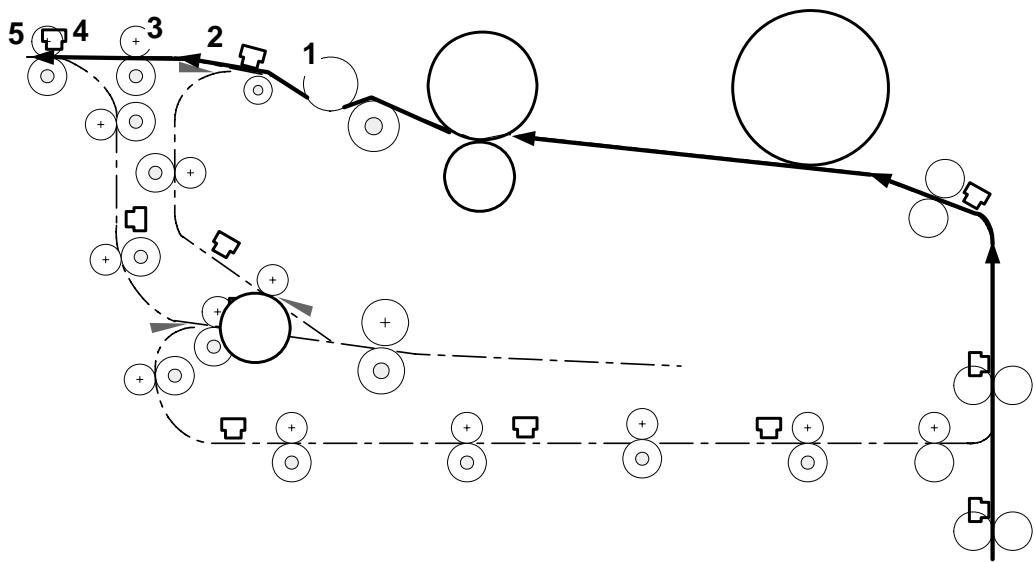
Inversion/Duplex Components



- | | |
|-------------------------------|------------------------------------|
| 1. Exit Roller | 19. Upper Relay Roller |
| 2. Exit Sensor | 20. Upper Relay Sensor |
| 3. Vertical Relay Roller | 21. Duplex Exit Roller |
| 4. Horizontal Exit Roller | 22. 1st Transport Sensor |
| 5. Exit Junction Gate | 23. 1st Transport Roller |
| 6. Job Time Sensor | 24. Duplex Transport Roller 4 |
| 7. Cooling Pipe | 25. Duplex Transport Roller 3 |
| 8. Hot Roller/Pressure Roller | 26. Duplex Transport Roller 2 |
| 9. Drum | 27. Duplex Transport Roller 1 |
| 10. Registration Sensor | 28. Duplex Transport Sensor 1 |
| 11. Registration Roller | 29. Inverter Roller 1 |
| 12. Duplex Entrance Sensor | 30. Inverter Roller 2 |
| 13. Duplex Entrance Roller | 31. Duplex Inverter Sensor |
| 14. Switchback Junction Gate | 32. Duplex/Inverter Junction Gate |
| 15. Switchback Idle Roller | 33. Inverter Relay Roller |
| 16. Switchback Roller | 34. Inverter Relay Sensor |
| 17. Duplex Transport Sensor 2 | 35. Vertical Relay Roller - Duplex |
| 18. Duplex Transport Sensor 3 | |

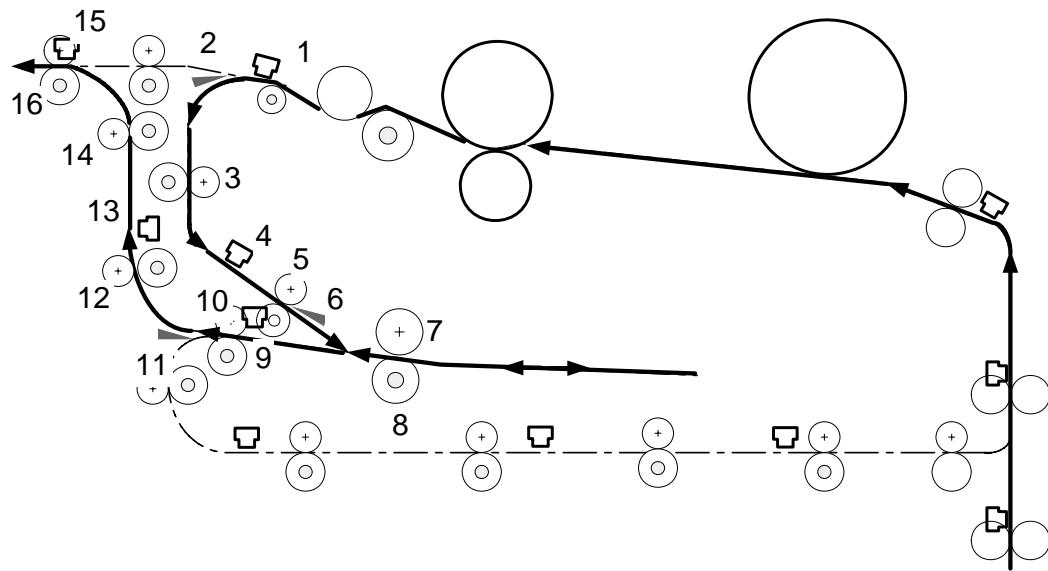
Detailed Descriptions

Straight-Through Path (No Inversion, No Duplexing)



During straight-through feed (with neither inverting nor duplexing selected) the paper goes:

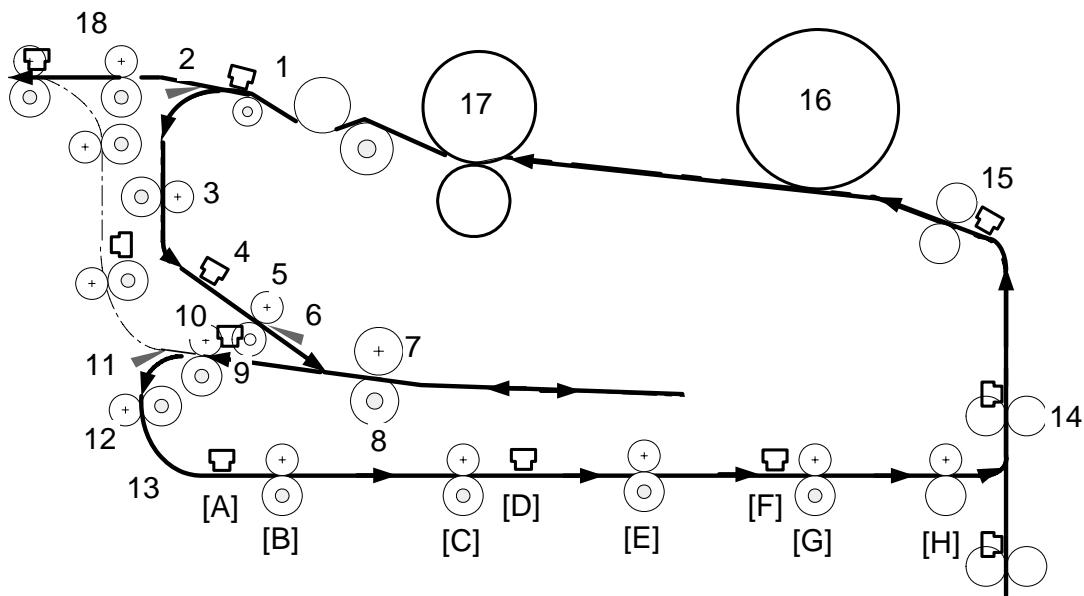
- 1 From under the cooling pipe
- 2 Over the closed exit junction gate
- 3 Through the horizontal exit rollers
- 4 Under the exit sensor
- 5 Through the exit rollers and out of the machine

Inversion Path (Face-down Output, No Duplexing)

When inversion has been selected for the job for face-down output, the paper goes:

- 1 Out from under the cooling pipe
- 2 Down into the inverter/duplexer path at the open exit junction gate
- 3 Through the nip of the vertical relay rollers
- 4 Under the duplex entrance sensor
- 5 Through the duplex entrance rollers
- 6 Through the open switchback junction gate
- 7 Through the switchback rollers
- 8 Between the switchback rollers again after the switchback junction gate closes and the switchback roller reverses
- 9 Under the duplex/inverter sensor
- 10 Through inverter rollers 1
- 11 Over the closed duplex/inverter junction gate
- 12 Through the inverter relay rollers
- 13 Under the inverter relay sensor
- 14 Through the vertical relay rollers
- 15 Under the exit sensor
- 16 Through the exit rollers and out of the machine

Detailed
Descriptions

Inverting/Duplexing Path

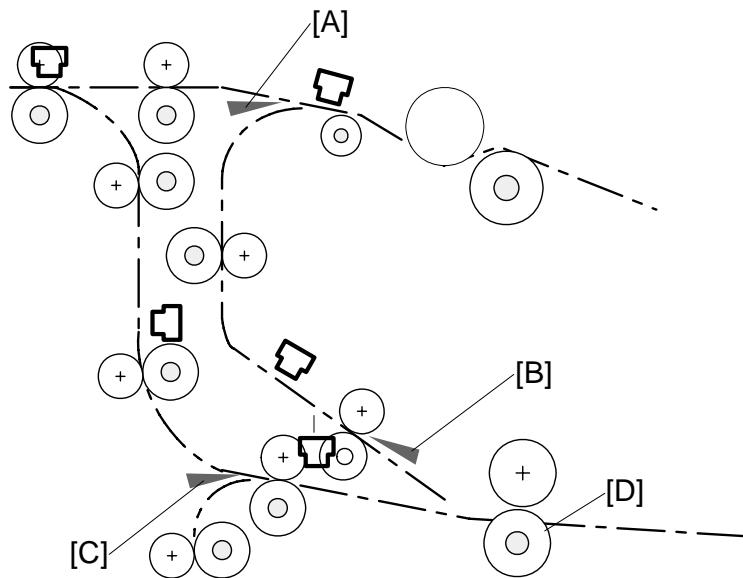
When duplexing has been selected for the job, the paper goes:

- 1 Out from under the cooling pipe
- 2 Down into the inverter/duplexer path at the open exit junction gate
- 3 Through the nip of the vertical relay rollers
- 4 Under the duplex entrance sensor
- 5 Through the duplex entrance rollers
- 6 Through the open switchback junction gate
- 7 Through the switchback rollers
- 8 Between the switchback rollers again after the switchback junction gate closes and the switchback roller reverses
- 9 Under the duplex/inverter sensor
- 10 Through inverter rollers 1
- 11 Through the open inverter/duplex junction gate down into the duplex unit
- 12 Through inverter rollers 2

- 13 Through horizontal transport path: [A] Duplex transport sensor 1 → [B] Duplex transport roller 1 → [C] Duplex transport roller 2 → [D] Duplex transport sensor 2 → [E] Duplex transport roller 3 → [F] Duplex transport sensor 3 → [G] Duplex transport roller 4 → [H] Duplex exit rollers
- 14 Up past the upper relay rollers, upper relay sensor
- 15 Under the registration sensor, registration sensor
- 16 Under the drum where the image is transferred to the 2nd side
- 17 Through the nip of the hot roller/pressure roller where the image is fused
- 18 Out from under the cooling pipe, over the closed exit junction gate, through the exit rollers and out of the machine.

Detailed
Descriptions

6.17.2 INVERTER/DUPLEXING JUNCTION GATES



This inverter/duplexer unit has three junction gates:

- [JJ]: Exit junction gate
- [KK]: Switchback junction gate
- [LL]: Invert/duplex junction gate

The exit junction gate [A]:

- Closes for straight-through feed (neither face-up nor duplexing selected) and the paper goes out of the machine face-up.
- Opens to feed paper down into the inversion tray for inversion/duplexing

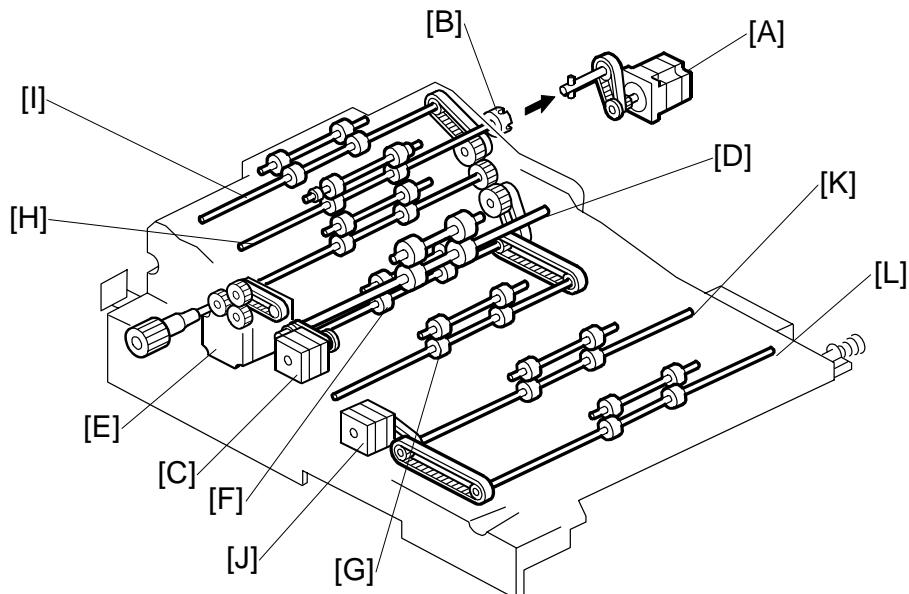
The switchback junction gate [B]:

- Opens before paper arrives so it can feed onto the inversion tray and into the switchback rollers [D]
- Closes to keep the paper down and horizontal so that it will feed out properly after the switchback roller reverses.

The invert/duplex junction gate [C]:

- Closes so that paper passes over it and into the vertical feed path for face-down output only (no duplexing).
- Opens to guide paper down into the duplex unit so that the paper can return to the main feed path for printing the 2nd side of the sheet.

6.17.3 DUPLEX DRIVE MECHANISM



The duplex entrance motor [A] drives the duplex entrance roller [B].

The duplex switchback motor [C] drives the switchback roller [D].

The duplex inverter motor [E] drives the duplex transfer roller 1 [F], duplex transfer roller 2 [G], inverter roller 1 [H], and inverter roller 2 [I].

The duplex transport motor [J] drives the duplex transfer roller 3 [K] and duplex transfer roller 4 [L].

Detailed
Descriptions

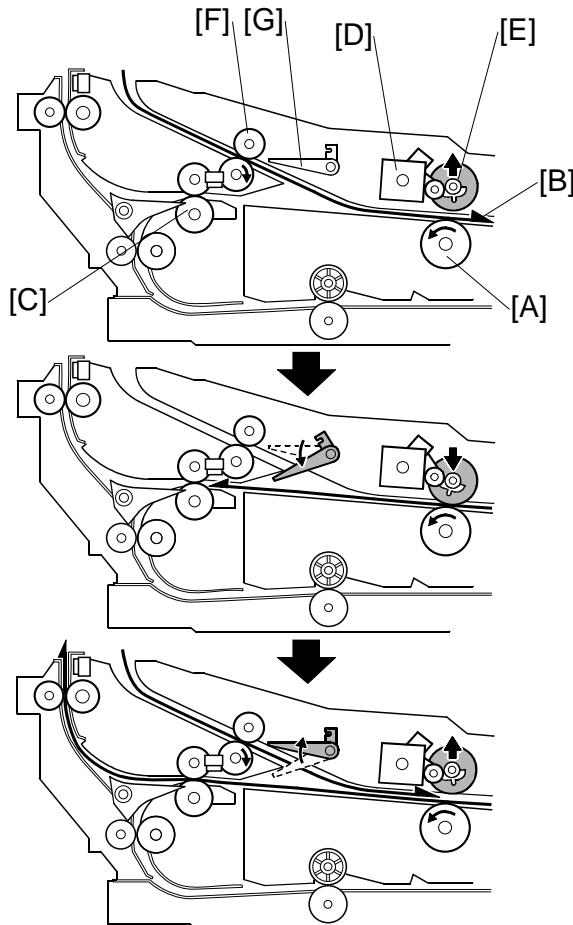
6.17.4 SWITCHBACK IDLE ROLLER OPERATION

For paper longer than A4/LT, the first sheet [B] feeds out of the inverter at the same time that the second sheet feeds in. (This only happens for a fraction of a second)

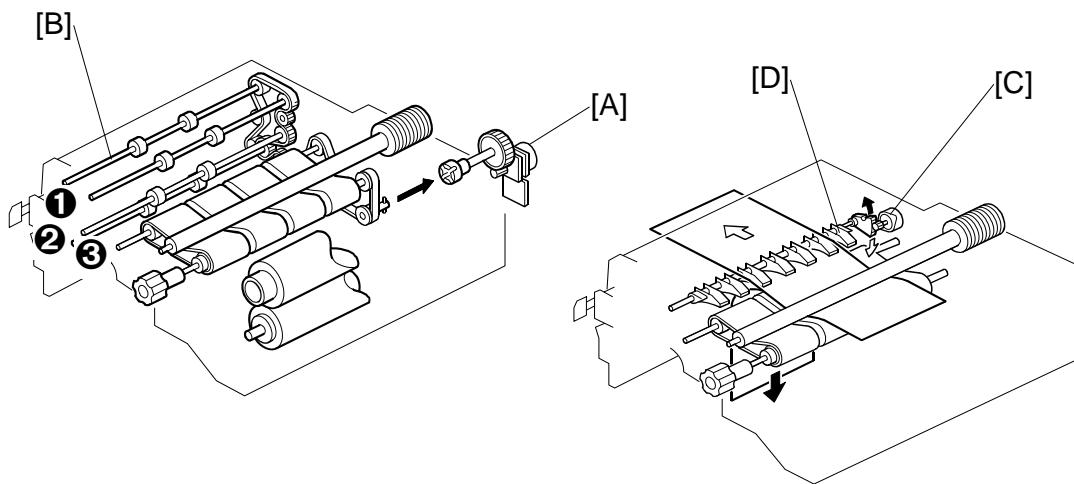
To let this happen, a solenoid lifts the switchback idle roller.

To feed the first sheet out of the inverter, the switchback roller [A] reverses and feeds the first sheet [B] to the inverter rollers 1 [C]. At about the same time, the switchback idle roller solenoid [D] energizes and raises the switchback idle roller [E].

The next sheet feeds into the inverter tray through the duplex entrance rollers [F] and under the open switchback junction gate [G].



6.17.5 PAPER EXIT MECHANISM



The exit motor [A] drives the paper exit roller [B] and transport rollers ①, ②, ③.

To feed the printed page from the fusing unit straight through and out of the machine, the exit junction gate motor [C] stays off and the exit junction gate [D] remains closed.

To feed the page to the inverter and duplex unit below, the motor turns on to open the exit junction gate and guide the paper down.

Detailed
Descriptions

6.17.6 BASIC DUPLEX FEED OPERATION

To improve the productivity of duplex copying, a non-stacking style duplex mechanism is adopted. This type of mechanism allows more than one page to be processed at once, in a process called 'interleaving'. Examples of this are given below.

For paper lengths up to A4/Letter LEF, the top duplex speed is possible, with the duplex unit processing four sheets of copy paper at the same time.

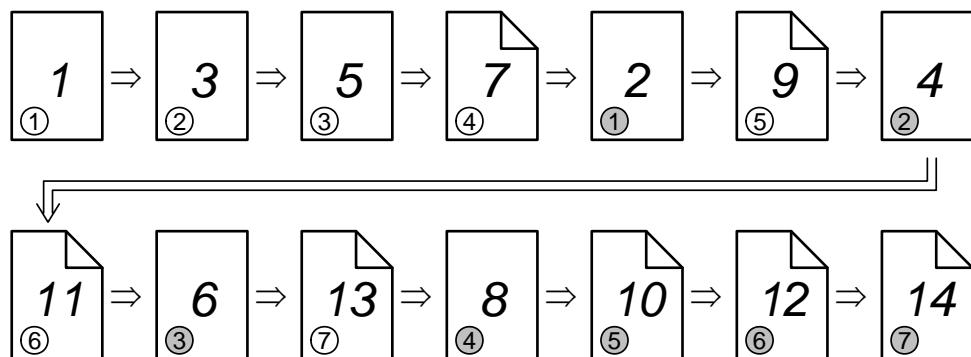
For paper longer than this, the duplex tray can process two sheets of copy paper at once.

For a single-set duplex copy job, the duplex unit stores only one sheet of copy paper. For a multi-set duplex job, the job is stored first, then the first set is made using interleaving.

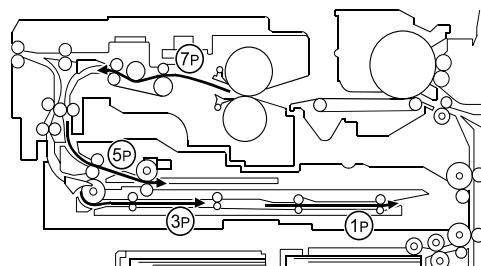
Length up to A4/Letter LEF

The duplex unit can process four sheets of copy paper

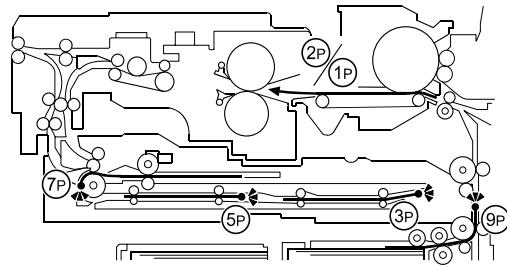
Example: A 14-page copy. The large numbers in the illustration show the order of pages. The small numbers in circles show the order of sheets of copy paper (if shaded, this indicates the second side).



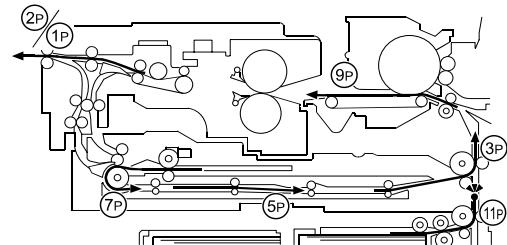
1. The first 4 sheets are fed and printed.
 - 1) 1st sheet printed (1st page)
 - 2) 2nd sheet printed (3rd page)
 - 3) 3rd sheet printed (5th page)
 - 4) 4th sheet printed (7th page)



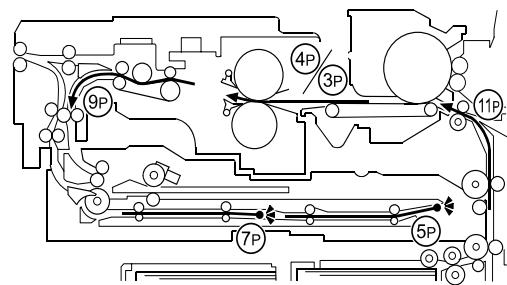
2. The back of the 1st sheet is printed (2nd page).
3. The 2nd, 3rd, 4th sheets (3rd, 5th, and 7th pages) go into the duplex unit.
4. The 5th sheet (9th page) is fed in.



5. The 5th sheet is printed (9th page).
6. The 1st sheet is fed out (1st and 2nd pages printed).

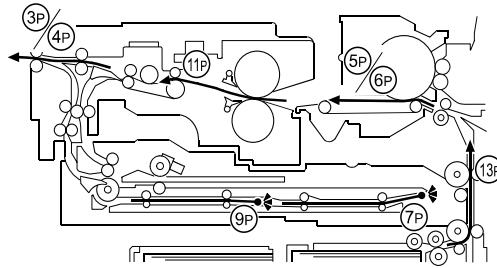


7. The 5th sheet (9th page) is directed to the duplex unit.
8. The 6th sheet (11th page) is fed.
9. The back of the 2nd sheet is printed (4th page).



Detailed Descriptions

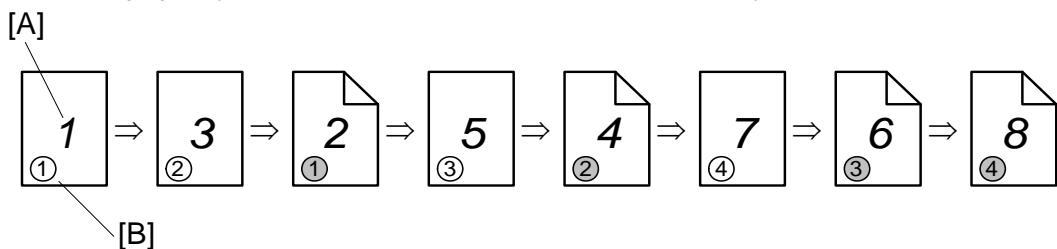
10. The 2nd sheet is fed out (3rd and 4th pages printed).
11. The 6th sheet is printed (11th page) and directed to the duplex unit.
12. The back of the 3rd sheet (6th page) is printed.
13. The 7th sheet is fed and printed (13th page).
14. The back of the 4th sheet is printed (8th page) and fed out (7th and 8th page).
15. The back of the 5th sheet is printed (10th page) and fed out (9th and 10th pages).
16. The back of the 6th sheet is printed (12th page) and fed out (11th and 12th pages).
17. The back of the 7th sheet is printed and fed out (13th and 14th pages).



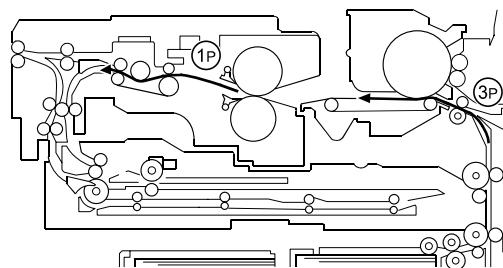
Longer than A4/Letter LEF

The duplex unit can process two sheets of copy paper

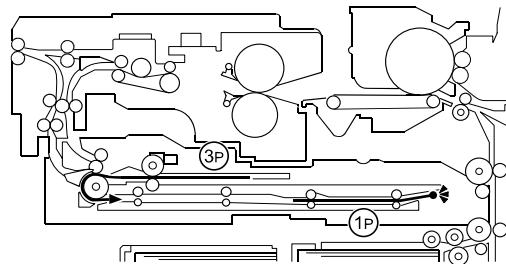
Example: 8 pages. The number [A] in the illustration shows the order of pages.
The number [B] in the illustration shows the order of sheets of copy paper (if shaded, this indicates the second side).



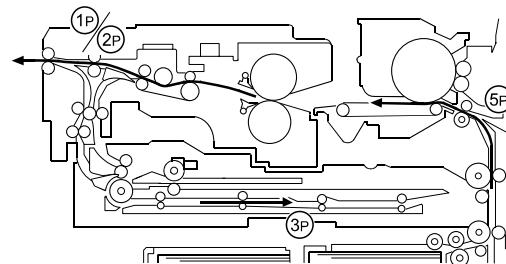
1. The first 2 sheets are fed and printed.
 - 1) 1st sheet printed (1st page)
 - 2) 2nd sheet printed (3rd page)



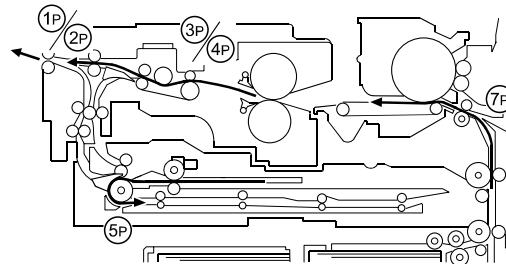
2. The first 2 sheets go into the duplex unit.



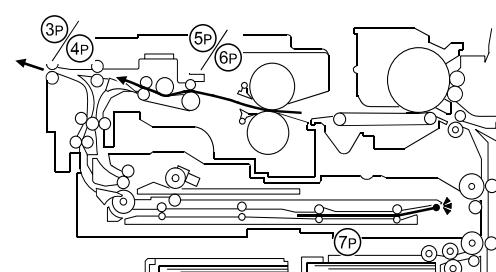
3. The back of the 1st sheet (2nd page) is printed.
4. The 3rd sheet (5th page) is fed and printed.



5. The 1st sheet (1st and 2nd pages) is fed out.
6. The back of the 2nd sheet (4th page) is printed.
7. The 4th sheet (7th page) is fed and printed.



8. The 2nd sheet (3rd and 4th pages) is fed out.
9. The back of the 3rd sheet (6th page) is printed.



10. The 3rd sheet (5th and 6th pages printed) is fed out.
11. The back of the 4th sheet (8th page) is printed.
12. The 4th sheet (7th and 8th pages) is fed out.

Detailed Descriptions

6.18 BOARDS

6.18.1 LEDS

BCU

| Number | Monitored Signal |
|-----------------|--|
| LED101 (Green) | Monitors +5VL operating. On: Normal |
| LED102 (Orange) | Monitors firmware downloading On: Downloading Off: Normal |
| LED103 (Red) | Monitors firmware operating. Blinks Slowly: Normal Blinks Rapidly: Firmware error |

MCU

| Number | Monitored Signal |
|--------------|---------------------------------------|
| LED1 (Green) | DC24V monitoring On: Normal |

IOB

| Number | Monitored Signal |
|----------------|--|
| LED101 (Green) | +5VL monitoring Blinks: Normal |
| LED102 (Green) | +24V monitoring On: Normal |

SIB

| Number | Monitored Signal |
|--------|---------------------------------------|
| LED1 | DC24V monitoring On: Normal |

OPU

| Number | Monitored Signal |
|--------------|---|
| LED1 (Red) | Monitors firmware downloading On: Downloading Off: Normal, Completed downloading Flashing (50ms On; 50ms Off): Download error |
| LED2 (Green) | Monitors firmware downloading Flashing (200ms On+200ms Off+200ms On+500ms Off): Normal Flashing (200ms On+200ms Off): Downloading Flashing: 1s On+1s Off: Completed downloading Off: Download error |

IPU

| Number | Monitored Signal |
|---------------|--|
| LED 1 (Green) | Monitors Printer |
| LED 2 (Green) | Flashes: ICs operating normally for image processing. Off: Operation failure. |
| LED 3 (Red) | Monitors Scanner |
| LED 4 (Red) | Flashes: ICs operating normally for image processing. |
| LED 5 (Red) | Off: Operation failure. |
| LED 6 (Green) | DC5VL monitoring On: Normal |
| LED 7 (Red) | DC5VE monitoring On: Normal |

Controller Board

| LED | Color | Comments |
|-----|-------|---|
| 10 | Green | Power on. |
| 9 | Red | Flashing: Stand by On: Operating BIOS Off: Operating OS |
| 8 | Red | |
| 7 | Red | |
| 6 | Red | |
| 5 | Red | |
| 4 | Red | |
| 3 | Red | |
| 2 | Red | |
| 1 | Red | While upgrading the firmware from the SD card inserted in the controller slot, each LED lights red as the download progresses. All LEDs light and remain on after the download is completed. |

ADF Main Board LEDs**O: ON ☆: Blinking**

| LED100 | LED101 | LED102 | |
|--------|--------|--------|--|
| ○ | — | — | Entrance Sensor Jam |
| — | ○ | — | Registration Sensor Jam |
| ○ | ○ | — | Exit Sensor Jam |
| — | — | ○ | Inverter Sensor Jam |
| ○ | — | ○ | Jammed paper not removed: Between entrance sensor + registration sensor |
| ○ | ○ | ○ | Jammed paper not removed: On the exposure glass |
| ☆ | — | — | Feed-in Motor Abnormal |
| — | ☆ | — | Transport Motor Abnormal |
| — | — | ☆ | Feed-out Motor Abnormal |
| ☆ | ☆ | — | Pick-up Motor Abnormal |
| — | ☆ | ☆ | Bottom Plate Motor Abnormal |
| ☆ | ☆ | ☆ | DF Position (Open) |
| ☆ | — | ☆ | APS Sensor ON |
| ☆ | — | — | Normal |

Detailed Descriptions

6.18.2 DIP SWITCHES

MCU

SW1

| NO. | | COMMENTS |
|-----|-----|-------------------------------|
| 1 | OFF | Do not change these settings. |
| 2 | OFF | |
| 3 | OFF | |
| 4 | OFF | |

IOB

SW101

| NO. | NA | EUR/ASIA | COMMENTS |
|-----|-----|----------|---|
| 1 | ON | OFF | NA: Only SW1 set to ON, Others OFF. EUR/ASIA: Only SW2 set to ON, Others OFF |
| 2 | OFF | ON | |
| 3 | OFF | OFF | |
| 4 | OFF | | |
| 5 | OFF | | |
| 6 | OFF | | |
| 7 | ON | | |
| 8 | OFF | | |

ADF Main Board

| DPS100 | | | | Description |
|--------|---|---------------|---|---|
| 4 | 3 | 2 | 1 | |
| 0 | 0 | 0 | 0 | Normal operating mode |
| 0 | 0 | 0 | 1 | Motor Test: Transport motor – Forward |
| 0 | 0 | 1 | 0 | Motor Test: Transport motor – Reverse |
| 0 | 0 | 1 | 1 | Motor Speed Adjustment (Automatic) |
| 0 | 1 | 0 | 0 | Original stop position adjustment – Single-sided original mode (No original skew correction) |
| 0 | 1 | 0 | 1 | Original stop position adjustment – Double sided original mode |
| 1 | 0 | 0 | 0 | Free Run: Single-sided original mode with skew correction |
| 1 | 0 | 1 | 0 | Free Run: Single-sided original mode without skew correction |
| 0 | 1 | 1 | 0 | Free Run: Double-sided original mode |
| Others | | Do not select | | |

"SADF" LED turns on when one of DIP switch turns on.

Controller Board**DIP SW1**

| NO. | | COMMENTS |
|-----|-----|----------------------------|
| 1 | OFF | Never change this setting. |
| 2 | OFF | Never change this setting. |
| 3 | OFF | Never change this setting. |
| 4 | OFF | Design Use Only |
| 5 | OFF | Design Use Only |
| 6 | OFF | Not used. |
| 7 | OFF | Not used. |
| 8 | OFF | Not used. |

DIP SW2

| NO. | | COMMENTS |
|-----|-----|---|
| 1 | OFF | Boot Block Switching ON: Top Block OFF: Recovery Block |
| 2 | OFF | Not used. |
| 3 | OFF | CMOS RAM Clear |
| 4 | ON | Not used. |

DIP SW3

| NO. | | COMMENTS |
|-----|-----|---|
| 1 | OFF | Not used. |
| 2 | OFF | Not used. |
| 3 | OFF | Not used. |
| 4 | ON | Watchdog Reset ON: Enable OFF: Disable |

6.18.3 TEST POINTS**ADF Main Board**

| Number | Label | Monitored Signal |
|--------|-------|---------------------|
| TP100 | TXD | TXD to the copier |
| TP101 | RXD | RXD from the copier |
| TP102 | GND | Ground |
| TP103 | 12 V | +12 V |
| TP104 | 5 V | +5 V |

Detailed Descriptions

6.18.4 FUSES

ADF Main Board

| Number | Description |
|--------|------------------------|
| FU100 | Protects the 38 V line |
| FU101 | Protects the 24 V line |

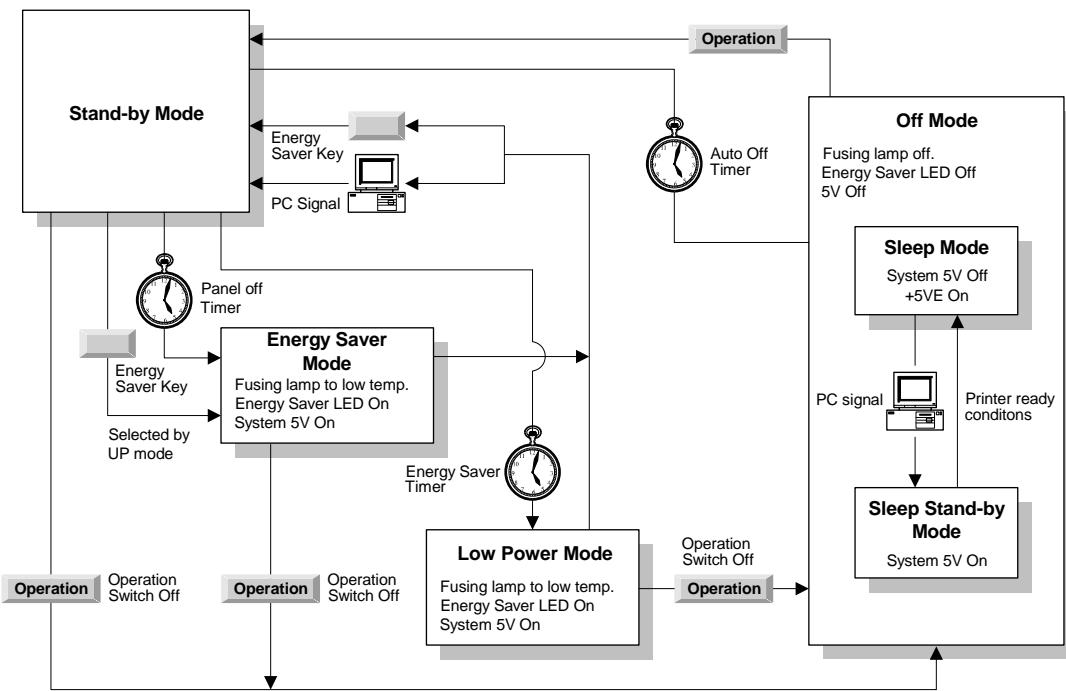
6.18.5 VARIABLE RESISTORS

ADF Main Board

| Number | Function |
|--------|--|
| VR100 | Adjusts the original stop position for the single-sided original at no skew correction mode. |
| VR101 | Adjusts the original stop position for the double-sided original. |

6.19 ENERGY CONSERVATION MODES

6.19.1 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) Off mode (copier configuration only)
- 4) Sleep mode (copier/printer/scanner configuration only)

Detailed Descriptions

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).

6.19.2 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 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
- An SC occurs
- A hard key on the operation panel, or a soft key on the display panel is touched
- Front door is opened

| Operation Switch | Energy Saver LED | Fusing Temp. | Approx. Recovery Time | System +5V |
|------------------|------------------|--|-----------------------|------------|
| On | On | B234/B235/D101/D102: Stays at the standby temperature <ul style="list-style-type: none"> • B234/D101: 153 °C • B235/D102: 165 °C B236/D103: Stays at the standby temperature minus 5 °C (178 °C – 5 °C) | 3 s | On |

6.19.3 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 | Standby temperature - 10 °C (B234/D101, B235/D102) Standby temperature - 20 °C (B236/D103) | Depends on the model and the region: See 'Energy Star' in the Specifications. | On |

Detailed Descriptions

6.19.4 OFF MODE

Off mode is used only if no optional printer/scanner unit is installed.

Entering the off mode

The machine enters 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 60 min)
- The operation switch is pressed to turn the power off

What happens in the off mode

When the machine enters off mode, the fusing lamps and all dc supplies except +5VE/12VE (+5V/12V for energy saver mode) turn off.

Returning to stand-by mode

The machine returns to stand-by mode when the main operation switch is pressed.

| Operation Switch | Energy Saver LED | Fusing Temp. | Approx. Recovery Time | System +5V | Note |
|------------------|------------------|---------------------------------|---|------------|--|
| Off | Off | Room Temp. (Fusing lamp off) | Depends on the model and the region: See 'Energy Star' in the Specifications. | Off | Only +5VE and +12VE are supplied to the Controller, MB, HDD. |

Disabling the off mode

If the user wishes to disable the off mode, use the following user tool: User Tools – System Settings – Administrator Tools – AOF (change the setting to 'OFF').

6.19.5 SLEEP MODE

This is used instead of off mode when an optional scanner/printer unit is installed.

There are two types of sleep mode: Sleep Stand-by Mode and Sleep Mode. The difference between sleep stand-by mode and sleep mode is the machine's condition when the machine enters off mode.

Entering sleep stand-by and sleep modes

The machine enters the sleep stand-by mode and sleep 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 sleep stand-by mode. If not, the machine enters sleep 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 sleep stand-by and sleep 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.

Sleep stand-by mode

The system +5V and +24 V are supplied to all components.

Sleep mode

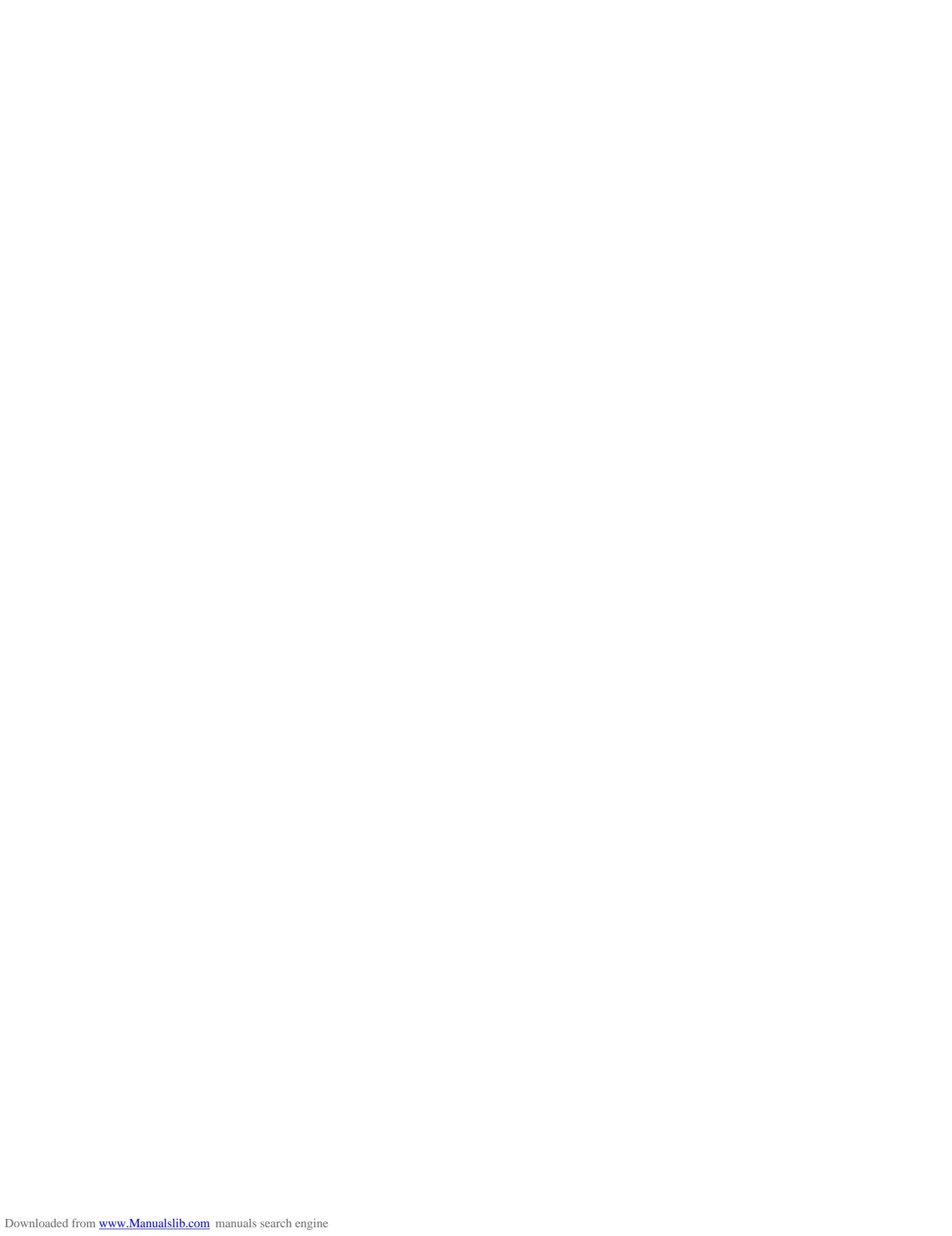
The system +5V supply is also turned off. However, +5VE (+5V for energy saver mode) is still activated. When the machine detects a signal from the PC, the machine goes back to sleep stand-by mode and the system +5V and +24V supplies are activated. Then the machine receives the incoming message and prints it.

Detailed
Descriptions

Returning to stand-by mode

The machine returns to stand-by mode when the operation switch is pressed.

| Mode | Operation Switch | Energy Saver LED | Fusing Temp. | System +5V | Note |
|---------------------|------------------|------------------|---------------------------------|------------|---|
| Sleep stand-by mode | Off | Off | Room Temp. (Fusing lamp off) | On | |
| Sleep mode | Off | Off | Room Temp. (Fusing lamp off) | Off | Only +5VE/+12VE is supplied to the controller, MB, HDD. |



SPECIFICATIONS

| SPECIFICATIONS REVISION HISTORY | | |
|---------------------------------|------|-------------------|
| Page | Date | Added/Updated/New |
| | | None |



7. SPECIFICATIONS

7.1 GENERAL SPECIFICATIONS

7.1.1 COPIER ENGINE

| | |
|--------------------------------------|--|
| Configuration: | Console |
| Copy Process: | Dry electrostatic transfer system |
| Originals: | Sheet/Book/Object |
| Original Size: | Max.: A3, 11" x 17" Min.: A5, 5 1/2" x 8 1/2" (with ADF) |
| Original Alignment: | Rear left corner (for platen mode, ADF mode) |
| Paper Weight: | Tray 1~3: 52 to 216 g/m ² Tray 4~5(B832): Bond: 16 to 40 lb. Tray 4,6 (B834) Cover: 50 to 80 lb. Tray 7 (Bypass): Index: 90 to 110 lb. Tray 6 (B832): 52 to 163 g/m ² Bond: 16 to 40 lb. Cover: 50 to 60 lb. Index: 90 lb. Tray 5 (B834): 52 to 216 g/m ² Bond: 16 to 40 lb. Cover: 50 to 60 lb. Index: 90 lb. |
| Duplex Tray (Possible Weight): | 52 to 216 g/m ² Bond: 16 to 40 lb. Cover: 50 to 80 lb. Index: 90 to 110 lb. |
| Paper Size: | Tray 1 (Tandem): 8 1/2" x 11" LEF, A4 LEF Tray 2, Tray 3: 5 1/2" x 8 1/2" to 11" x 17", 12" x 18" A5 to A3 Duplex Tray (Possible Sizes): A5 to A3, 5 1/2" x 8 1/2" to 11" x 17", 12" x 18", 13" x 18" |
| Reproduction Ratios: | 7 reduction and 5 enlargement |

| | Metric Version | Inch Version |
|-------------|---|---|
| Enlargement | 400% 200% 141% 122% 115% | 400% 200% 155% 129% 121% |
| Full Size | 100% | 100% |
| Reduction | 93% 82% 75% 71% 65% 50% 25% | 93% 85% 78% 73% 65% 50% 25% |

Specifications

GENERAL SPECIFICATIONS

| Zoom: | 25 ~ 400% (allows manual adjustment in 1% steps vertically, horizontally) | | | | | | | | | | | | | | |
|-------------------------------|--|---|--|--------|--|---|-------------------------|---|---|-------------------------|---|---|---------|---------|---|
| Image Density: | Automatic, Manual (9 notches) | | | | | | | | | | | | | | |
| Copy Speed: | B234/D101 | 90 ppm | Copying with image stored in memory with A4/LT LEF feeding from the same tray. | | | | | | | | | | | | |
| | B235/D102 | 110 ppm | | | | | | | | | | | | | |
| | B236/D103 | 135 ppm | | | | | | | | | | | | | |
| Note: | The speed in this mode is 80 ppm for all three models. When using ADF 1-to-1 with A4/LT LEF magnification feeding from the same tray. | | | | | | | | | | | | | | |
| Resolution | Scanning | 600 dpi | | | | | | | | | | | | | |
| | Printing | 1200 dpi | | | | | | | | | | | | | |
| Grayscale (per pixel): | 256 Levels Scaning: 8-bit/pixel Printing: 1-bit/pixel 32 values | | | | | | | | | | | | | | |
| Warm-up Time: | Less than 360 s from Off mode at 23°C (73.4°F) | | | | | | | | | | | | | | |
| First Copy Time | Copy Tray 1, A4, 8 1/2" x 11" LEF | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th><th>B234 (90 cpm)</th><th>B236 (110 cpm)</th><th>B236 (135 cpm)</th></tr> </thead> <tbody> <tr> <td>Face-up</td><td><3.5 s</td><td><3.2 s</td><td><3.0 s</td></tr> <tr> <td>Face-down</td><td>< 5.0 s</td><td>< 4.5 s</td><td>< 4 s</td></tr> </tbody> </table> | | | | B234 (90 cpm) | B236 (110 cpm) | B236 (135 cpm) | Face-up | <3.5 s | <3.2 s | <3.0 s | Face-down | < 5.0 s | < 4.5 s | < 4 s |
| | B234 (90 cpm) | B236 (110 cpm) | B236 (135 cpm) | | | | | | | | | | | | |
| Face-up | <3.5 s | <3.2 s | <3.0 s | | | | | | | | | | | | |
| Face-down | < 5.0 s | < 4.5 s | < 4 s | | | | | | | | | | | | |
| Multiple Copies: | Up to 9,999 | | | | | | | | | | | | | | |
| Copy Paper Capacity (Sheets): | <table border="1"> <tbody> <tr> <td>Copier</td><td>3,000</td><td>Tray 1: (Tandem) 1000 x 2 Tray 2: 500 Tray 3: 500</td></tr> <tr> <td>LCT(B832)</td><td>4,550</td><td>Tray 4: 1,000, Tray 5: 1,000, Tray 6: 2,550</td></tr> <tr> <td>LCT(B834)</td><td>4,000</td><td>Tray 4: 1,000, Tray 5: 2,000, Tray 6: 1,000</td></tr> <tr> <td>Bypass</td><td>500</td><td>Tray 7, 500 (Optional Bypass Tray B833)</td></tr> </tbody> </table> | | | Copier | 3,000 | Tray 1: (Tandem) 1000 x 2 Tray 2: 500 Tray 3: 500 | LCT(B832) | 4,550 | Tray 4: 1,000, Tray 5: 1,000, Tray 6: 2,550 | LCT(B834) | 4,000 | Tray 4: 1,000, Tray 5: 2,000, Tray 6: 1,000 | Bypass | 500 | Tray 7, 500 (Optional Bypass Tray B833) |
| Copier | 3,000 | Tray 1: (Tandem) 1000 x 2 Tray 2: 500 Tray 3: 500 | | | | | | | | | | | | | |
| LCT(B832) | 4,550 | Tray 4: 1,000, Tray 5: 1,000, Tray 6: 2,550 | | | | | | | | | | | | | |
| LCT(B834) | 4,000 | Tray 4: 1,000, Tray 5: 2,000, Tray 6: 1,000 | | | | | | | | | | | | | |
| Bypass | 500 | Tray 7, 500 (Optional Bypass Tray B833) | | | | | | | | | | | | | |
| Memory Capacity: | RAM: 256 MB (128 x 2) Standard 512 MB (128x2,256x1) (Optional, Required for Scanner/Printer Option) HDD: 320 GB (160 GB x2), approximately 1,735 copies | | | | | | | | | | | | | | |
| Toner Replenishment: | Cartridge exchange (1,650 g/cartridge) | | | | | | | | | | | | | | |
| Toner Yield: | 60 K copies, (A4 LEF, 6% chart, B234/D101 (90 cpm) 1 to 25 Repeat Copying, B235/D102 (110 cpm), 1 to 50 Repeat Copying B236/D103 (135 cpm), 1 to 100 Repeat Copying) | | | | | | | | | | | | | | |
| Power Source: | North America; 208 to 240 V, 60 Hz, 20 A Europe/Asia; 220 to 240 V, 50/60 Hz, 16 A | | | | | | | | | | | | | | |
| Dimensions (W x D x H) | <table> <tbody> <tr> <td>Copier</td><td>870 x 858.5 x 1476 mm 32.3" x 33.8" x 58.1"</td><td></td></tr> <tr> <td>Full System (with B834)</td><td>3461 x 858.5 x 1476 mm 136.3 x 33.8 x 58 in.</td><td></td></tr> <tr> <td>Full System (with B832)</td><td>3151 x 858.5 x 1476 mm 124 x 33.8 x 58 in.</td><td></td></tr> </tbody> </table> | | | Copier | 870 x 858.5 x 1476 mm 32.3" x 33.8" x 58.1" | | Full System (with B834) | 3461 x 858.5 x 1476 mm 136.3 x 33.8 x 58 in. | | Full System (with B832) | 3151 x 858.5 x 1476 mm 124 x 33.8 x 58 in. | | | | |
| Copier | 870 x 858.5 x 1476 mm 32.3" x 33.8" x 58.1" | | | | | | | | | | | | | | |
| Full System (with B834) | 3461 x 858.5 x 1476 mm 136.3 x 33.8 x 58 in. | | | | | | | | | | | | | | |
| Full System (with B832) | 3151 x 858.5 x 1476 mm 124 x 33.8 x 58 in. | | | | | | | | | | | | | | |
| Weight: | Less than 299 kg (660 lb.) including ADF, and no options | | | | | | | | | | | | | | |

Space Requirements:

Copier (w x d) 1202 x 860 mm

| | | | |
|---|------|------------------------------------|---|
| Full System^{*1} (w x d) | Max. | 3520 x 860 mm 138.6 x 33.9 in. | Finisher + Bypass with bypass tray extended for A3 SEF |
| | Min. | 3420 x 860 mm 134.6 x 33.9 in." | Finisher + Bypass with bypass tray extended for A4 LEF. |

Full System Mainframe + ADF + LCT B834 (or B832) + Multi-Bypass Tray
 B833 + Cover Interposer Tray B835 + Z-Fold Unit B660 +
 Booklet Finisher B836 + 3000-Sheet Finisher B830

Power Consumption: North America Version (Unit: W)

| | Mainframe Only | | | Full System* | | |
|----------|----------------|---------------|---------------|---------------|---------------|---------------|
| | B234/ D101 | B235/ D102 | B236/ D103 | B234/ D101 | B235/ D102 | B236/ D103 |
| Warm-up | 2210 | 2190 | 2240 | 2290 | 2250 | 2310 |
| Stand-by | 367 | 403 | 431 | 420 | 457 | 479 |
| Copying | 1680 | 1890 | 2160 | 1830 | 2110 | 2340 |
| Maximum | 2940 | 2960 | 3730 | 3060 | 3080 | 3850 |

Full System Mainframe + ADF + LCT B834 (or B832) + Multi-Bypass Tray
 B833 + Cover Interposer Tray B835 + Z-Fold Unit B660 +
 Booklet Finisher B836 + 3000-Sheet Finisher B830

Power Consumption: Europe Version (Unit: W)

| | Mainframe Only | | | Full System* | | |
|----------|----------------|---------------|---------------|---------------|---------------|---------------|
| | B234/ D101 | B235/ D102 | B236/ D103 | B234/ D101 | B235/ D102 | B236/ D103 |
| Warm-up | 1860 | 1810 | 1850 | 1910 | 1880 | 1890 |
| Stand-by | 372 | 404 | 433 | 427 | 455 | 490 |
| Copying | 1660 | 1860 | 2167 | 1850 | 2100 | 2360 |
| Maximum | 2610 | 2400 | 3300 | 2720 | 2760 | 3410 |

Full System Mainframe + ADF + LCT B834 (or B832) + Multi-Bypass Tray
 B833 + Cover Interposer Tray B835 + Z-Fold Unit B660 +
 Booklet Finisher B836 + 3000-Sheet Finisher B830

GENERAL SPECIFICATIONS

Energy Star

| | North America | | | | | |
|-------------------------|-----------------------|-------|------------------------|-------|------------------------|-------|
| | B234/D101 (90 cpm) | | B235/D102 (110 cpm) | | B236/D103 (135 cpm) | |
| | Basic | MFP | Basic | MFP | Basic | MFP |
| Low Power Mode | | | | | | |
| Power Consumption (W) | 113.8 | 119.7 | 129.4 | 132.4 | 121.2 | 127.1 |
| Default Interval (Min.) | 15 | 15 | 15 | 15 | 15 | 15 |
| Recovery Time (Sec.) | 32 | 29 | 29 | 30 | 66 | 65.8 |
| Off Mode | | | | | | |
| Power Consumption (W) | 4.2 | --- | 4.2 | --- | 4.2 | --- |
| Default Interval (Min.) | 90 | --- | 120 | --- | 120 | --- |
| Sleep Mode | | | | | | |
| Power Consumption (W) | --- | 35.5 | --- | 35 | --- | 35.9 |
| Default Interval (Min.) | --- | 90 | --- | 120 | --- | 120 |

| | Europe | | | | | |
|-------------------------|-----------------------|-------|------------------------|-------|------------------------|-------|
| | B234/D101 (90 cpm) | | B235/D102 (110 cpm) | | B236/D103 (135 cpm) | |
| | Basic | MFP | Basic | MFP | Basic | MFP |
| Low Power Mode | | | | | | |
| Power Consumption (W) | 113.3 | 120.1 | 129.7 | 134.5 | 121.1 | 127.1 |
| Default Interval (Min.) | 15 | 15 | 15 | 15 | 15 | 15 |
| Recovery Time (Sec.) | 36 | 36 | 37 | 34 | 81 | 82 |
| Off Mode | | | | | | |
| Power Consumption (W) | 4.1 | --- | 4.0 | --- | 4.0 | --- |
| Default Interval (Min.) | 90 | --- | 120 | --- | 120 | --- |
| Sleep Mode | | | | | | |
| Power Consumption (W) | --- | 35.3 | --- | 35.3 | --- | 35.6 |
| Default Interval (Min.) | --- | 90 | --- | 120 | --- | 120 |

Noise Emission

| B234/D101 (90 cpm) | | Sound Power Level dB (A) | Sound Pressure Level dB (A) |
|----------------------------|-------------------|---------------------------------|------------------------------------|
| Mainframe | Stand-by | < 60 | - |
| | Copying | < 74 | - |
| | Operator position | - | < 68 |
| | Passers-by | - | < 68 |
| Full System | Stand-by | < 64 | |
| | Copying | < 78 | |
| B235/D102 (110 cpm) | | Sound Power Level dB (A) | Sound Pressure Level dB (A) |
| Mainframe | Stand-by | < 66 | - |
| | Copying | < 76 | - |
| | Operator position | - | < 70 |
| | Passers-by | - | < 70 |
| Full System | Stand-by | < 70 | - |
| | Copying | < 80 | - |
| B236/D103 (135 cpm) | | Sound Power Level dB (A) | Sound Pressure Level dB (A) |
| Mainframe | Stand-by | < 74 | -- |
| | Copying | < 79 | -- |
| | Operator position | - | < 73 |
| | Passers-by | - | < 73 |
| Full System | Stand-by | < 78 | - |
| | Copying | < 83 | - |

Specifications

GENERAL SPECIFICATIONS

7.1.2 ADF

| | | |
|-----------------------------|---|---|
| Original Size: | Normal Original Mode: | A3 to B5, 11" x 17" to 51/2" x 81/2" |
| | Thin Original Mode | A3 to B5, 11" x 17" to 51/2" x 81/2" |
| | Duplex Original Mode: | A3 to B5, 11" x 17" to 51/2" x 81/2" |
| Original Weight: | Normal Original Mode: | 52~128 g/m ² (Note 1) |
| | Thin Original Mode | 40~128 g/m ² (Note 1) |
| | Duplex Original Mode: | 52~105 g/m ² (Note 2) |
| Table Capacity: | 100 sheets (80 g/m ² , 20 lb) | |
| Original Feeding Speed: | 80 cpm (A4/81/2" x 11" LEF, 1 to 1) | |
| Original Standard Position: | Rear left corner (Face-up) | |
| Separation: | FRR | |
| Original Transport: | One flat belt | |
| Original Feed Order: | From the top original | |
| Power Source: | DC24V±10%, DC38V±10%, DC5V±5% (from the copier) | |
| Power Consumption: | Less than 130 W | |
| Dimensions (W x D x H): | 680 x 560 x 150 mm (26.8" x 22" x 5.9") | |
| Weight | Less than 17.5 kg (38.5 lb.) | |

Note 1:156 g/m² possible, but not guaranteed.

Note 2:128 g/m² possible, but not guaranteed.

7.1.3 PAPER SIZES BY FEED STATION

The tables on the next three pages describe how paper size detection operates, depending on the geographical area, namely, North American, Europe/Asia, and China. Here are important notes and the key for reading these tables.

General Notes

| Symbol | Meaning |
|-----------|------------------------------|
| 1 | Tandem Tray |
| 1+ | A3/DLT Kit B Installed |
| 2 | Main Machine Universal Trays |
| 3 | |
| 4 | |
| 5 | LCT B832 |
| 6 | |
| 4 | |
| 5 | LCT B834 |
| 6 | |
| 7 | Multi Bypass Tray |
| 8 | Cover Interposer Tray(1st) |
| 9 | Cover Interposer Tray(2nd) |

Here is the symbol key for the tables on the following pages.

| | |
|-----|---|
| (○) | Detects and feeds fixed paper sizes. |
| (□) | Automatically detects and feeds standard paper sizes. |
| * | Paper size can be selected (registered) beforehand. |
| × | Paper size cannot be fed.. |
| ★ | Custom size can be registered. |

GENERAL SPECIFICATIONS

North America(1/2)

| | | | 1 | 1+ | 2 | 3 | B832 | | |
|--------------------------|--------|----------------|---|------------|-------|-------|------------|------------|------------|
| | | | 4 | 5 | 6 | | | | |
| A3 | SEF | 297 x 420 mm | X | ◎ | □ | □ | | | |
| B4 | SEF | 257 x 364 mm | X | * | □ | □ | | | |
| A4 | LEF | 297 x 210 mm | ◎ | * | □ | □ | □ | □ | * |
| A4 | SEF | 210 x 297 mm | X | * | □ | □ | | | |
| B5 | LEF | 257 x 182 mm | X | X | □ | □ | □ | □ | * |
| B5 | SEF | 182 x 257 mm | X | X | □ | □ | | | |
| A5 | LEF | 210 x 148 mm | X | X | □ | □ | □ | □ | * |
| A5 | SEF | 148 x 210 mm | X | X | □ | □ | □ | □ | * |
| B6 | SEF | 128 x 182 mm | X | X | X | X | | | |
| A6 | SEF | 105 x 148 mm | X | X | X | X | | | |
| DLT | SEF | 11" x 17" | X | ◎ | □ | □ | | | |
| LG | SEF | 81/2" x 14" | X | * | □ | □ | | | |
| LT | LEF | 11" x 81/2" | ◎ | * | □ | □ | □ | □ | * |
| LT | SEF | 81/2 " x 11" | X | * | □ | □ | | | |
| HLT | SEF | 81/2 " x 51/2" | X | X | □ | □ | □ | □ | * |
| HLT | LEF | 51/2" x 81/2" | X | X | □ | □ | □ | □ | * |
| Foolscap (F4) | SEF | 81/2" x 13" | X | X | □ | □ | | | |
| Folio | SEF | 81/4" x 13" | X | X | □ | □ | | | |
| F | SEF | 8" x 13" | X | X | □ | □ | | | |
| Executive | LEF | 101/2" x 71/4" | X | X | □ | □ | | | |
| Executive | SEF | 71/4" x 101/2" | X | X | □ | □ | | | |
| | SEF | 11" x 15" | X | X | * | * | | | |
| | SEF | 11" x 14" | X | X | * | * | | | |
| | SEF | 10" x 15" | X | X | * | * | | | |
| | SEF | 10" x 14" | X | X | * | * | | | |
| | SEF | 81/4" x 14" | X | X | * | * | | | |
| | SEF | 8" x 10" | X | X | * | * | | | |
| 8-K | SEF | 390 x 267 mm | X | X | □ | □ | | | |
| 16-K | SEF | 267 x 195 mm | X | X | □ | □ | | | |
| 16-K | LEF | 195 x 267 mm | X | X | □ | □ | | | |
| Custom Size (mm) | Width | Min★ | X | 210.0 ★ | 139.7 | 139.7 | 210.0 ★ | 210.0 ★ | 210.0 ★ |
| | | Max★ | X | 305.0 ★ | 330.2 | 330.2 | 305.0 ★ | 305.0 ★ | 305.0 ★ |
| | Length | Min★ | X | 210.0 ★ | 139.7 | 139.7 | 139.0 ★ | 139.0 ★ | 139.0 ★ |
| | | Max★ | X | 439.0 ★ | 458.0 | 458.0 | 230.0 ★ | 230.0 ★ | 230.0 ★ |
| Custom Size (inch) | Width | | X | ★ | 5.50 | 5.50 | ★ | ★ | ★ |
| | | | X | ★ | 13.00 | 13.00 | ★ | ★ | ★ |
| | Length | | X | ★ | 5.50 | 5.50 | ★ | ★ | ★ |
| | | | X | ★ | 18.03 | 18.03 | ★ | ★ | ★ |

North America(2/2)

| | | | B834 | | | 7 | 8 | 9 |
|--------------------|--------|----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | | | 4 | 5 | 6 | | | |
| A3 | SEF | 297 x 420 mm | <input type="checkbox"/> |
| B4 | SEF | 257 x 364 mm | <input type="checkbox"/> |
| A4 | LEF | 297 x 210 mm | <input type="checkbox"/> |
| A4 | SEF | 210 x 297 mm | * | * | * | * | * | * |
| B5 | LEF | 257 x 182 mm | <input type="checkbox"/> |
| B5 | SEF | 182 x 257 mm | * | * | * | * | * | * |
| A5 | LEF | 210 x 148 mm | * | * | * | * | * | * |
| A5 | SEF | 148 x 210 mm | <input type="checkbox"/> |
| B6 | SEF | 128 x 182 mm | * | * | * | * | * | * |
| A6 | SEF | 105 x 148 mm | * | * | * | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DLT | SEF | 11" x 17" | <input type="checkbox"/> |
| LG | SEF | 81/2" x 14" | * | * | * | * | * | * |
| LT | LEF | 11" x 81/2" | <input type="checkbox"/> |
| LT | SEF | 81/2 " x 11" | <input type="checkbox"/> |
| HLT | SEF | 81/2 " x 51/2" | <input type="checkbox"/> |
| HLT | LEF | 51/2" x 81/2" | <input type="checkbox"/> |
| Foolscap (F4) | SEF | 81/2" x 13" | * | * | * | * | * | * |
| Folio | SEF | 81/4" x 13" | * | * | * | * | * | * |
| F | SEF | 8" x 13" | <input type="checkbox"/> |
| Executive | LEF | 101/2" x 71/4" | * | * | * | * | * | * |
| Executive | SEF | 71/4" x 101/2" | * | * | * | * | * | * |
| | SEF | 11" x 15" | * | * | * | * | * | * |
| | SEF | 11" x 14" | X | X | X | X | X | X |
| | SEF | 10" x 15" | X | X | X | X | X | X |
| | SEF | 10" x 14" | * | * | * | * | * | * |
| | SEF | 81/4" x 14" | * | * | * | * | * | * |
| | SEF | 8" x 10" | X | X | X | * | * | * |
| 8-K | SEF | 267 x 390 | * | * | * | * | * | * |
| 16-K | LEF | 267 x 195 | * | * | * | * | * | * |
| 16-K | SEF | 195 x 267 | * | * | * | * | * | * |
| Custom Size (mm) | Width | Min | 100 | 100 | 100 | 100 | 139.7 | 139.7 |
| | | Max | 330.2 | 330.2 | 330.2 | 330.2 | 330.2 | 330.2 |
| | Length | Min | 139.7 | 139.7 | 139.7 | 139.7 | 139.7 | 139.7 |
| | | Max | 458.0 | 458.0 | 458.0 | 458.0 | 458.0 | 458.0 |
| Custom Size (inch) | Width | Min | 3.94 | 3.94 | 3.94 | 3.94 | 5.50 | 5.50 |
| | | Max | 13.00 | 13.00 | 13.00 | 13.00 | 13.00 | 13.00 |
| | Length | Min | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| | | Max | 18.03 | 18.03 | 18.03 | 18.03 | 18.03 | 18.03 |

Specifications

GENERAL SPECIFICATIONS

Europe/Asia(1/2)

| | | | 1 | 1+ | 2 | 3 | B832 | | |
|--------------------------|--------|----------------|---|------------|-------|-------|------------|------------|------------|
| | | | 4 | 5 | 6 | | | | |
| A3 | SEF | 297 x 420 mm | X | ◎ | □ | □ | | | |
| B4 | SEF | 257 x 364 mm | X | * | □ | □ | | | |
| A4 | LEF | 297 x 210 mm | ◎ | * | □ | □ | □ | □ | * |
| A4 | SEF | 210 x 297 mm | X | * | □ | □ | | | |
| B5 | LEF | 257 x 182 mm | X | X | □ | □ | □ | □ | * |
| B5 | SEF | 182 x 257 mm | X | X | □ | □ | | | |
| A5 | LEF | 210 x 148 mm | X | X | □ | □ | □ | □ | * |
| A5 | SEF | 148 x 210 mm | X | X | □ | □ | □ | □ | * |
| B6 | SEF | 128 x 182 mm | X | X | X | X | | | |
| A6 | SEF | 105 x 148 mm | X | X | X | X | | | |
| DLT | SEF | 11" x 17" | X | ◎ | □ | □ | | | |
| LG | SEF | 81/2" x 14" | X | * | □ | □ | | | |
| LT | LEF | 11" x 81/2" | ◎ | * | □ | □ | □ | □ | * |
| LT | SEF | 81/2" x 11" | X | * | □ | □ | | | |
| HLT | SEF | 81/2" x 51/2" | X | X | □ | □ | □ | □ | * |
| HLT | LEF | 51/2" x 81/2" | X | X | □ | □ | □ | □ | * |
| Foolscap (F4) | SEF | 81/2" x 13" | X | X | □ | □ | | | |
| Folio | SEF | 81/4" x 13" | X | X | □ | □ | | | |
| F | SEF | 8" x 13" | X | X | □ | □ | | | |
| Executive | LEF | 101/2" x 71/4" | X | X | □ | □ | | | |
| Executive | SEF | 71/4" x 101/2" | X | X | □ | □ | | | |
| | SEF | 11" x 15" | X | X | * | * | | | |
| | SEF | 11" x 14" | X | X | * | * | | | |
| | SEF | 10" x 15" | X | X | * | * | | | |
| | SEF | 10" x 14" | X | X | * | * | | | |
| | SEF | 81/4" x 14" | X | X | * | * | | | |
| | SEF | 8" x 10" | X | X | * | * | | | |
| 8-K | SEF | 267 x 390 | X | X | □ | □ | | | |
| 16-K | LEF | 267 x 195 | X | X | □ | □ | | | |
| 16-K | SEF | 195 x 267 | X | X | □ | □ | | | |
| Custom Size (mm) | Width | Min | X | 210.0 ★ | 139.7 | 139.7 | 210.0 ★ | 210.0 ★ | 210.0 ★ |
| | | Max | X | 305.0 ★ | 330.2 | 330.2 | 305.0 ★ | 305.0 ★ | 305.0 ★ |
| Custom Size (inch) | Length | Min | X | 210.0 ★ | 139.7 | 139.7 | 210.0 ★ | 210.0 ★ | 210.0 ★ |
| | | Max | X | 439.0 ★ | 458.0 | 458.0 | 439.0 ★ | 439.0 ★ | 439.0 ★ |
| Custom Size (inch) | Width | Min | X | ★ | 5.50 | 5.50 | ★ | ★ | ★ |
| | | Max | X | ★ | 13.00 | 13.00 | ★ | ★ | ★ |
| | Length | Min | X | ★ | 5.50 | 5.50 | ★ | ★ | ★ |
| | | Max | X | ★ | 18.03 | 18.03 | ★ | ★ | ★ |

Europe/Asia(2/2)

| | | | B834 | | | 7 | 8 | 9 |
|--------------------------|--------|----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | | | 4 | 5 | 6 | | | |
| A3 | SEF | 297 x 420 mm | <input type="checkbox"/> |
| B4 | SEF | 257 x 364 mm | <input type="checkbox"/> |
| A4 | LEF | 297 x 210 mm | <input type="checkbox"/> |
| A4 | SEF | 210 x 297 mm | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | * | * |
| B5 | LEF | 257 x 182 mm | <input type="checkbox"/> |
| B5 | SEF | 182 x 257 mm | * | * | * | * | * | * |
| A5 | LEF | 210 x 148 mm | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | * | * |
| A5 | SEF | 148 x 210 mm | <input type="checkbox"/> |
| B6 | SEF | 128 x 182 mm | * | * | * | * | * | * |
| A6 | SEF | 105 x 148 mm | * | * | * | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DLT | SEF | 11" x 17" | <input type="checkbox"/> |
| LG | SEF | 81/2" x 14" | * | * | * | * | * | * |
| LT | LEF | 11" x 81/2" | <input type="checkbox"/> |
| LT | SEF | 81/2 " x 11" | * | * | * | * | <input type="checkbox"/> | <input type="checkbox"/> |
| HLT | SEF | 81/2 " x 51/2" | * | * | * | * | <input type="checkbox"/> | <input type="checkbox"/> |
| HLT | LEF | 51/2" x 81/2" | <input type="checkbox"/> |
| Foolscap (F4) | SEF | 81/2" x 13" | * | * | * | * | * | * |
| Folio | SEF | 81/4" x 13" | * | * | * | * | * | * |
| F | SEF | 8" x 13" | <input type="checkbox"/> |
| Executive | LEF | 101/2" x 71/4" | * | * | * | * | * | * |
| Executive | SEF | 71/4" x 101/2" | * | * | * | * | * | * |
| | SEF | 11" x 15" | * | * | * | * | * | * |
| | SEF | 11" x 14" | | | | | | |
| | SEF | 10" x 15" | | | | | | |
| | SEF | 10" x 14" | * | * | * | * | * | * |
| | SEF | 81/4" x 14" | * | * | * | * | * | * |
| | SEF | 8" x 10" | | | | * | * | * |
| 8-K | SEF | 267 x 390 | * | * | * | * | * | * |
| 16-K | LEF | 267 x 195 | * | * | * | * | * | * |
| 16-K | SEF | 195 x 267 | * | * | * | * | * | * |
| Custom Size (mm) | Width | Min | 100 | 100 | 100 | 100 | 139.7 | 139.7 |
| | | Max | 330.2 | 330.2 | 330.2 | 330.2 | 330.2 | 330.2 |
| Custom Size (inch) | Length | Min | 139.7 | 139.7 | 139.7 | 139.7 | 139.7 | 139.7 |
| | | Max | 458.0 | 458.0 | 458.0 | 458.0 | 458.0 | 458.0 |
| Custom Size (inch) | Width | Min | 3.94 | 3.94 | 3.94 | 3.94 | 3.94 | 3.94 |
| | | Max | 13.00 | 13.00 | 13.00 | 13.00 | 13.00 | 13.00 |
| | Length | Min | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| | | Max | 18.03 | 18.03 | 18.03 | 18.03 | 18.03 | 18.03 |

Specifications

GENERAL SPECIFICATIONS

7.1.4 A3/DLT TRAY KIT B331

| | |
|---------------------------|---|
| Paper Size | A3 SEF, B4 SEF, 11"x17" SEF, 81/2"x14" SEF, A4 SEF, A4 LEF, 81/2"x11" SEF, 11"x81/2" LEF, 305 mm x 439 mm |
| Paper Weight | 52 ~ 163 g/m ² |
| Tray Capacity | 1,000 sheets |
| Remaining Paper Detection | 5-Step: 100%, 75%, 50%, 25%, End |

7.1.5 LCIT RT5000 (A4/LT LCT B832)

| | | |
|----------------------------|--|--|
| Compatible Machines | B234/B235/B236/D101/D102/D103 | |
| Speed | B234/D101 (90 cpm) | 420~555 mm/s |
| | B235/D102 (110 cpm) | 500~720 mm/s |
| | B236/D103 (135 cpm) | 630~985 mm/s |
| Paper Feed System: | FRR-CF (no air-knife separation) | |
| Tray Capacity: | Tray 1, 2 | 1,000 sheets (Paper thickness: 0.11 mm) |
| | Tray 3 | 2,550 sheets (Paper thickness: 0.11 mm) |
| Paper Weight | Tray 1, 2 | 52 to 216 g/m ² |
| | Tray 3 | 52 to 163 g/m ² |
| Paper Size | Tray 1,2,3 | A5 LEF, A5 SEF, 51/2"x81/2" LEF, B5 LEF, 51/2"x81/2" SEF, A4 LEF, 81/2"x11" LEF |
| Paper Size Switching | Tray 1, 2 | Fixed position side, end fences, adjusted for other paper sizes by the operator. |
| | Tray 3 | Fixed position side, end fences, adjusted by service technician. |
| Anti-Condensation Heater | Available as option | |
| Dimensions (w x d h) | 540 x 730 x 980 mm (21.3 x 28.7 x 38.6 in.) | |
| Weight | Less than 88 kg (193.6 lb.) | |
| Power Source | DC 24 V ±10% (from copier) | |
| Power Consumption: | Less than 132 W | |
| I/F | Serial | |
| Tab Sheet: | Feed possible from Tray 4 or Tray 5. Requires installation of tab sheet fence. Note: Only A4 LEF, 81/2" x 11" LEF tab sheets can be fed. | |
| Remaining Paper Detection: | 5-Step including Near-End for Trays 4, 5, 6 | |

7.1.6 LCIT RT5010 (A3/DLT LCT B834)

| | | |
|---|---|--|
| Compatible Machines | B234/B235/B236/D101/D102/D103 | |
| Speed | B234/D101 (90 cpm) | 420~555 mm/s |
| | B235/D102 (110 cpm) | 500~720 mm/s |
| | B236/D103 (135 cpm) | 630~985 mm/s |
| Expected Service Life | 5 Years or 55,000K | |
| Paper Feed System: | Tray 1, 2, 3 | FRR-CF |
| Tray Capacity: | Tray 1, 3 | 1,000 sheets (Paper thickness: 0.11 mm) |
| | Tray 2 | 2,000 sheets (Paper thickness: 0.11 mm) |
| Remaining Paper Detection (Accuracy: ±30 sheets) | 5-Step including Near-End for Trays 4, 5, 6 | |
| Paper Weight | Tray 1, 3 | 52 to 216 g/m ² |
| | Tray 2 | 52 to 216 g/m ² |
| Paper Size | Tray 1,2,3 | A5 to A3 5 1/2" x 8 1/2" to 13" x 18" |
| Paper Size Switching | Side fence, end fence adjustment. | |
| Paper Size Detection | Automatic | |
| Anti-Condensation Heater | Available as option | |
| Dimensions (w x d h) | 880 x 730 x 980 mm (33.5 x 28.7 x 38.6 in.) | |
| Weight | Less than 165 kg (363 lb.) | |
| Power Source | DC 24 V ±10% (from copier) | |
| Power Consumption: | Less than 150 W | |
| I/F | Serial | |
| Tab Sheet: | Feed possible from all Tray. Requires installation of tab sheet fence. Note: Only A4 LEF, 8 1/2" x 11" LEF tab sheets can be fed. | |

GENERAL SPECIFICATIONS

7.1.7 MULTI-BYPASS TRAY (B833)

NOTE: The Bypass Tray is attached to the top of either the A4/LT LCT B832 or A3/DLT LCT B834.

| | | |
|---------------------------|--|--------------|
| Compatible Machines | B234/B235/B236/D101/D102/D103 | |
| Speed | B234/D101 (90 cpm) | 420~555 mm/s |
| | B235/D102 (110 cpm) | 500~720 mm/s |
| | B236/D103 (135 cpm) | 630~985 mm/s |
| Paper Feed System | FRR-CF | |
| Tray Capacity | 500 sheets (Paper thickness: 0.11 mm) | |
| Paper Weight | 52~216 g/m ² | |
| Paper Size | A5 LEF, A5 SEF to A3 SEF, HLT LEF HLT SEF to 13"x18" SEF | |
| Paper Size Switching | Operator adjustable side fences allow variety of paper sizes | |
| Paper Size Detection | Automatic (standard sizes only) | |
| Anti-Condensation Heater | No | |
| Remaining Paper Detection | 4-Step: Including Near-End (Accuracy ±50) | |
| Weight | Less than 18 kg (39.6 lb). | |
| Power Source | 24 Vdc (from Copier), 5 Vdc (from LCT) | |
| Power Consumption | Less than 50 W | |
| Dimensions (W x D x H) | 710 x 560 x 210 mm (30 x 22 x 8.3 in.) | |
| Tab Sheets | A4 LEF, 8 1/2" x 11" LEF (requires attachment of tab fence) | |

7.1.8 FINISHER SR5000 (3K FINISHER B830)

| UPPER TRAY | | | | |
|---------------------------------------|------------|---|---|--|
| Paper Capacity (80 g/m ²) | | 500 sheets (A4, 8 1/2" x 11" and smaller) 250 sheets (B4, 8 1/2" x 14" and larger) | | |
| Paper Size | | A3 to A6 SEF, B6 SEF, 11" x 17" to 51/2" x 81/2", 12" x 18", 13" x 18" | | |
| Paper Weight | | 52 to 216 g/m ² | | |
| Upper Tray Full Detection | | Provided | | |
| SHIFT TRAY | | | | |
| Paper Capacity (80 g/m ²) | | 3000 sheets (A4 LEF, B5 LEF, 8 1/2" x 11" LEF) 1500 sheets (A3, A4 SEF, B4 and B5 SEF, 11" x 17" SEF, 8 1/2" x 14", 8 1/2" x 11" SEF) 1000 sheets 12" x 18" 500 sheets (A5 LEF, 5 1/2" x 8 1/2" LEF) 100 sheets (A5 SEF, 5 1/2" x 8 1/2" SEF) | | |
| Paper Size | | A3 to A5, 11" x 17" to 51/2" x 81/2", 12" x 18" (including tab paper) | | |
| Paper Weight | | 52 to 216 g/m ² | | |
| Shift Tray Full Detection | | Provided | | |
| STAPLER | | | | |
| Stapling Stack Size | | A4, B5, 8 1/2" x 11" (Max. 100 Sheets) A3, B4, 11" x 17", 8 1/2" x 14" (Max. 50 sheets) | | |
| Stapling Paper Size | | A3 to B5, 11" x 17" to 8 1/2" x 11" Z fold paper A3, B4, 11" x 17" | | |
| Stapling Paper Weight | | 64 to 90 g/m ² Z fold paper 64 to 80 g/m ² | | |
| Staple Position | | 4 Modes 1 Staple: Front, Rear, Rear-Oblique 2 Staples: 2 locations | | |
| Staple Capacity | | 5000 staples/cartridge | | |
| Staple Supply | | Cartridge or Staple Replacement | | |
| Stapled Stack Size | No Folding | Sheets | Sets | |
| | | 10 ~ 100 | 200 ~ 30 | |
| | | 2 ~ 9 | 150 | |
| | | 10 ~ 50 | 150 ~ 30 | |
| | | 2 ~ 9 | 150 | |
| | Folding | Sheets | Sizes | |
| | | 1 ~ 10 | A3 Z fold + A4, B4 Z fold + B5 11" X 17" Z-Fold + 8 1/2" x 11" | |
| Trim Waste Staple Capacity | | 15,000 or more | | |
| Waste Staple Hopper Full Detection | | Provided | | |
| Power Consumption | | Less than 120 W | | |
| Power Source | | DC 24 V (From Mainframe) | | |
| Size (W x D x H) | | 800 x 730 x 980 mm 31.5 x 28.7 x 38.6 in. | | |
| Weight | | Less than 75 kg (165 lb.) | | |
| Compatible Machines | | B234/D101 (90 cpm), B235/D102 (110 cpm), B236/D103 (135 cpm) | | |

Specifications

GENERAL SPECIFICATIONS

7.1.9 PUNCH UNIT PU5000 (B831)

The punch unit is installed in the Finisher SR5000 (B830).

| | |
|-----------------------------|--|
| Punch Hole Positions | 2/3-hole (North America) 2/4-hole (Europe) |
| Punch Paper Size | |
| 2-Hole (NA) | A6 ~ A3 SEF, 11" x 17"~5 1/2" x 8 1/2" SEF A5 ~ A4 LEF, 8 1/2" x 11" LEF, 5 1/2" x 8 1/2" LEF |
| 3-Hole (NA) | A3 SEF, B4 SEF, 11" x 17" SEF A4 LEF, B5 LEF, 8 1/2" x 11" LEF |
| 4-Hole (EUR/A) | A3 SEF, B4 SEF, 11" x 17" SEF A4 LEF,B5 LEF, 8 1/2" x 11" LEF |
| Paper Weight | |
| 2-Hole (NA) | 52 g/m ² ~ 163 g/m ² |
| 3-Hole (NA) | 52 g/m ² ~ 163 g/m ² |
| 4-Hole (EUR/A) | 52 g/m ² ~ 128 g/m ² |
| Punch Waste Hopper Capacity | |
| 2-Hole (NA) | 10K |
| 3-Hole (NA) | 10K |
| 4-Hole (EUR/A) | 15K |
| Operation Modes | All (Shift, Proof, Staple) |

7.1.10 COVER INTERPOSER TRAY CI5000 (B835)

| | | |
|------------------------|---|----------|
| Compatible Machines | B234/B235/B236/D101/D102/D103 | |
| Speed | B234/D101 (90 cpm) | 432 mm/s |
| | B235/D102 (110 cpm) | 515 mm/s |
| | B236/D103 (135 cpm) | 649 mm/s |
| Paper Separation | FRR System with Feed Belt | |
| Paper Sizes | Width: A5 SEF/5 1/2" x 8 1/2" SEF ~ 13" Length: A5 LEF/5 1/2" x 8 1/2" LEF ~ 18" | |
| Paper Weight | 64 ~ 216 g/m ² | |
| Capacity | 400 sheets (80 g/m ²) (2 trays 200-sheets each) | |
| Paper Size Detection | Yes | |
| Paper Size Switching | Operator adjustable side fences | |
| Side Registration | Yes | |
| Power Supply | 24 V ± 5% (from mainframe) | |
| Power Consumption | Less than 50 W | |
| Dimensions (w x d x h) | Less than 540 x 730 x 1200 mm 21.2" x 28.7" x 47.2" | |
| Weight | Less than 45 kg (99 lb.) | |

7.1.11 BOOKLET FINISHER BK5000 (B836)

General Specifications

| Booklet Staple | | | | |
|-------------------------|--|----------|------|--|
| Paper Size | A4 SEF, A3 SEF, B5 SEF, B4 SEF DLT SEF, DLT SEF, LG, 12"x18" | | | |
| Paper Weight | 64 g/m ² -90 g/m ² , 17 lb Bond-24 lb Bond | | | |
| Staple Position | Center (x2) | | | |
| Booklet staples | 2,000 staples per cartridge | | | |
| Booklet Staple Capacity | All size | Sheets | Sets | |
| | | 2 to 5 | 30 | |
| | | 6 to 10 | 15 | |
| | | 11 to 15 | 10 | |
| Dimension W x D x H | 600 x 730 x 980 mm (23.6 x 30 x 38.6") | | | |
| Weight | Less than 70 kg | | | |
| Power Consumption | Less than 100 W | | | |
| Configuration | Console type attached base-unit | | | |
| Power Supply | 24 V (from mainframe) | | | |

Booklet Staple Paper Specifications

| Paper Size | Plain Paper | | | Paper Type | |
|---------------|-------------|------------|----------------|---------------|-----------------------|
| | Copier PPC | Used Paper | Recycled Paper | Colored Paper | Translucent Blueprint |
| A3 SEF | ● | — | ● | ● | |
| B4 SEF | ● | | ● | ● | |
| A4 SEF | ● | | ● | ● | |
| A4 LEF | ● | | ● | ● | |
| B5 SEF | ● | | ● | ● | |
| B5 LEF | ● | | ● | ● | |
| A5 SEF | | — | — | — | — |
| A5 LEF | | — | — | — | — |
| B6 SEF | | — | — | — | — |
| B6 LEF | | — | — | — | — |
| 12" x 18" SEF | ● | — | ● | ● | — |
| 11" x 17" SEF | ● | — | ● | ● | |
| 8½" x 14" | ● | — | ● | ● | |
| 8½" x 11" SEF | ● | — | ● | ● | |
| 8½" x 11" LEF | ● | — | ● | ● | |
| 5½" x 8½" | | — | — | — | — |
| 5½" x 8½" | | — | — | — | — |

- Booklet stapling/folding, Shift, YES
- Not available

Specifications

GENERAL SPECIFICATIONS

7.1.12 PERFECT BINDER (D391)

| | | | |
|--|--|--|--|
| Compatible Host Machines | D101/D102/D103 | | |
| Paper Positioning | Center aligned | | |
| Delivery | Face-down | | |
| Signature Thickness | 10 to 200 sheets (64 to 80 g/m ²) 10 to 150 sheets (81 to 105 g/m ²) Max. thickness: Up to 23 mm (0.9 in.) | | |
| Paper Size | Signature | Width: 182 to 228.6 mm Length: 257 to 320 mm | |
| | Cover | Width: 257 to 330.2 mm Length: 364 to 487.7 mm | |
| Paper Thickness | Signature | 64 to 163 g/m ² | |
| | Cover | 90 to 300 g/m ² | |
| Finished Size | Width | 139.7 mm to 216 mm | |
| | Length | 201 to 297 mm | |
| Trimming Range | Top | 6 to 28 mm | |
| | Bottom | 6 to 28 mm | |
| | Fore Edge | 6 to 40 mm | |
| Recommended Cover/Signature Size Ratios | | | |
| | Target | Signature | Cover |
| | A4 | SR A4 (225 x 320 mm) | 13"x19.2" 13"x19" 13"x18" SRA3 (320x450 mm) |
| | B5 | A4 | A3 |
| | A5 | B5 | B4 |
| | LT | 9"x12" | 13"x19.2" 13"x19" |
| Trimming Modes | 3 cuts: Bottom, top, fore edge 1 cut: Fore edge (Limit: 297 mm) No cuts | | |
| Downstream Delivery | Straight-through, no binding | | |
| | Size | Width: 98.4 to 330.2 mm Length: 139.7 to 500 mm | |
| | Paper Weight | 52 to 300 g/m ² | |
| Book Output Tray | Max.: 25 mm (80g/m ²) Book door locked during operation | | |
| Warm-up Time | Less than 380 sec. (6.3 min.) | | |
| Glue Capacity | Glue vat 380 g (continuous pellet supply) Approximately A4 to B5 100 books | | |
| Trimmings Box Capacity | More than 15 books Approx. A4 to B5 of 100 sheets each, 80 g/m ² | | |
| Dimensions (w x d x h) | 1090 x 791 x 1387 mm (43 x 31 x 53.5 in.) | | |
| Weight | 335 kg (737 lb.) | | |
| Power Supply | EU: 220 to 240V 50/60 Hz NA: 208 60 Hz | | |
| Power Consumption | Less than 623 W (with inserter) | | |

7.1.13 COVER INTERPOSER (INSERTER) D391

| | | |
|------------------------|--|---|
| Feed System | Automatic Paper Feed | |
| Trays | Two. Tray A (upper), Tray B (lower) | |
| Cover Setting | Face-up stacking | |
| Feed | Top to bottom | |
| Transport Mode | Simplex | |
| Cover Paper Type | Standard PPC, Color Paper, Coated Paper Paper type mixing not recommended | |
| Cover Size | Standard: | A4 SEF, A4 LEF, B5 SEF, B5 LEF, LT SEF, LT LEF, EXE SEF |
| | Width | 257 to 330.2 mm |
| | Length | 182 to 487.7 mm |
| | Recommended | 13"x19.2", 13"x19", 13"x18", A3, B4 |
| Tray A, B Capacity | Up to 200 covers (80 g/m ²) Maximum stack thickness: 24 mm | |
| Paper Weight | 64 g/m ² to 300 g/m ² | |
| Paper Positioning | Center aligned | |
| Paper Size Detection | Width | Adjustable slide-fence contact sensors Tray A, Tray B: 1 sensor each |
| | Length | Pulse count photo-sensors |
| Dimensions (w x d x h) | 621 x 679 x 213 mm (24.5 x 26.7 x 8.4 in.) | |
| Weight | Approximately 17 kg (37.4 lb.) | |
| Power Supply | DC 24V (supplied from host machine via Perfect Binder) | |
| Power Consumption | Less than 103 W (maximum at operation) | |

Specifications

GENERAL SPECIFICATIONS

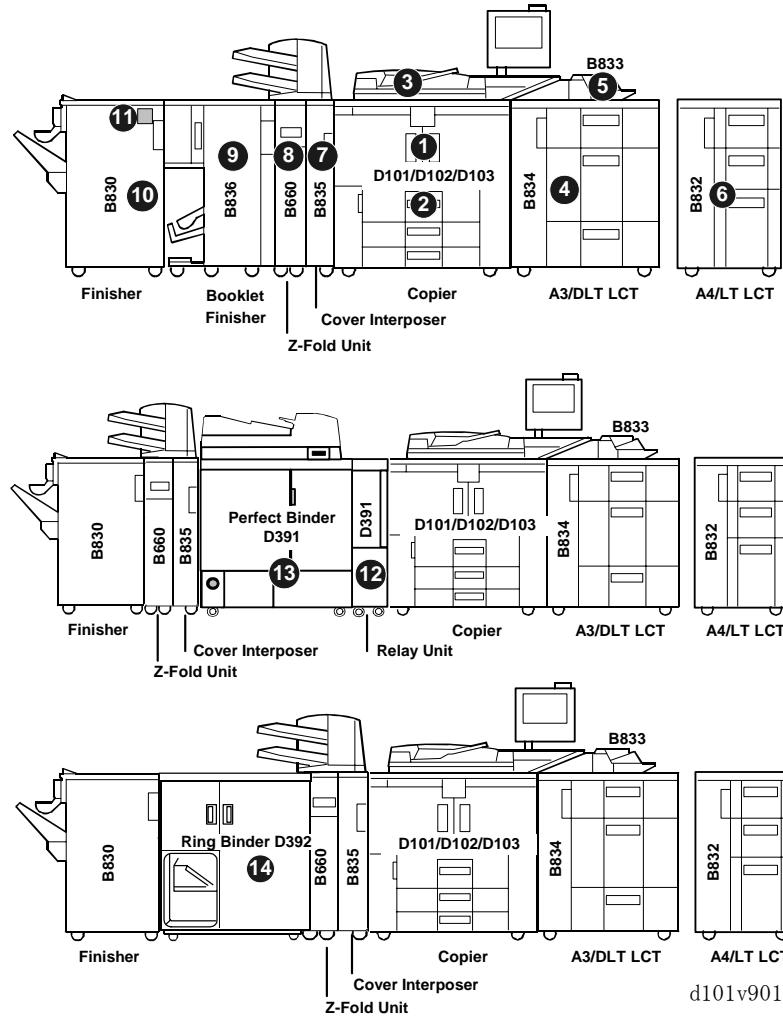
7.1.14 RING BINDER RB5000 (D392)

| Compatible Host Machines | D101/D102/D103 | | |
|--------------------------|--|---|---------|
| Configuration | Console | | |
| Paper Transport | Centered in paper path | | |
| Operation Modes | Punching + ring binding Punching only Straight-through (downstream delivery) | | |
| Signature Thickness | 2 to 100 sheets | | |
| Paper Size | Punching, binding | A4 LEF, LT LEF | |
| | Straight-through (no punching) | | |
| | Unfolded | A6 to A3 SEF, DLT, HLT, 12"x18", 13"x19", 12.6"x19.2", 13"x19.2", Tab sheets (A4, LT, LG) | |
| | Z-Folded | A3, B4, A4 SEF, DLT, LG, LT SEF 12"x18" (from upstream Z-Folder unit). | |
| Paper Weight | 64 to 216 g/m ² | | |
| Ring Sizes | 2 (50-sheet, 100-sheet) | | |
| Punching | A4 LEF: 23 holes LT LEF: 21 holes | | |
| Ring Supply | Cartridge feed: capacity: 80 rings max. | | |
| Output Tray Capacity | 11 documents (100-ring bound, A4 SEF) | | |
| | Thickness | Ring | On Tray |
| | 2 to 10 | 50 | 25 |
| | 11 to 50 | 50, 100 | 20 |
| | 51 to 100 | 100 | 11 |
| Punching Only | Up to 50 sheets | | |
| Dimensions | 870 x 730 x 980 mm (34.3 x 28.7 x 38.6 in.) | | |
| Weight | 140 kg (308 lb.) | | |
| Power Supply | North America | 120 V, 60 Hz, 5A | |
| Power Consumption | Less than 400 W | | |

7.1.15 Z-FOLDING UNIT ZF4000 (B660)

| | | |
|---------------------------------------|---|---------------------------|
| Paper Size | | |
| No Folding (52-300 g/m ²) | A3, A4, A5, A6 SEF, B4, B5, B6 SEF 11" x 17", 81/2"x14", 81/2"x11" SEF, 51/2"x81/2", 12" x 18" | |
| Folding (64-80 g/m ²) | A3, B4, A4 SEF 11" x 17", 81/2"x14", 81/2"x11" SEF, 12" x 18" | |
| Dimensions (w x d x h) | 177 x 620 x 960 mm 7 x 24.5 x 37.8 in. | |
| Weight | Less than 55 kg (121 lb.) | |
| Power Consumption | 100 W max. | |
| Power Supply | North America | 120 V, 60 Hz, 1A |
| | Europe/Asia | 220-240 V, 50/60 Hz, 0.5A |

7.1.16 D101/D102/D103 MACHINE CONFIGURATION



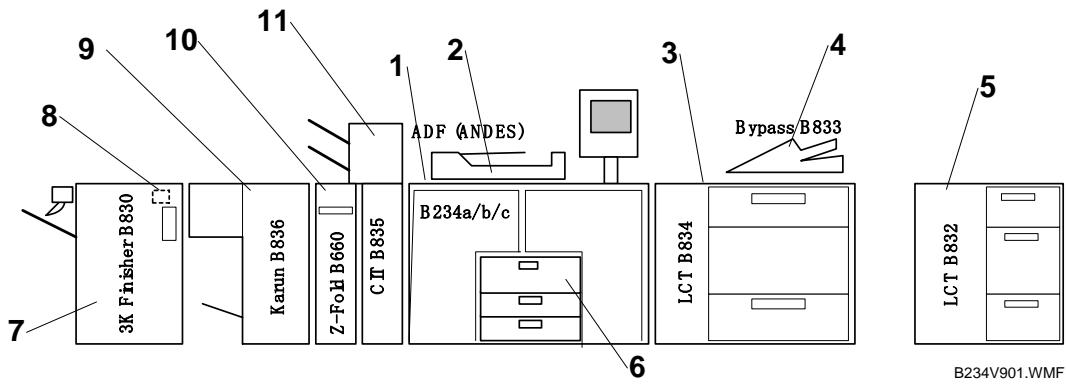
d101v901

| No. | Item | Machine Code | Comments |
|-----|------------------------------|----------------|----------------------------------|
| 1 | Mainframe | D101/D102/D103 | 90 cpm/110 cpm/135 cpm) |
| 2 | A3/11"x17" Tray Unit | B331 | Replaces 1st Tray (tandem tray) |
| 3 | ADF | B301 | Document Feeder |
| 4 | LCIT RT5010 | B834 | B834 or B823 |
| 5 | Multi-Bypass Tray | B833 | Alternate paper feed source |
| 6 | LCIT RT5000 | B832 | B832 or B834 |
| 7 | Cover Interposer Tray CI5000 | B835 | Inserts cover sheets (2 trays). |
| 8 | Z-Folding Unit | B660 | Z-Folds large sheets |
| 9 | Finisher SR5000 | B830 | Corner stapling, edge stapling |
| 10 | Booklet Finisher BK5000 | B836 | Booklet stapling/folding |
| 11 | Punch Unit PU5000 | B831 | Inside B830 |
| --- | Copier Connection Kit | B328 | Not shown. |
| 12 | Transit Path Unit | D391 | Required for Perfect Binder B391 |
| 13 | Perfect Binder | D391 | Cannot be used with B836 or D392 |
| 14 | Ringer Binder | D392 | Cannot be used with B836 or D391 |

Specifications

GENERAL SPECIFICATIONS

7.1.17 B234/B235/B236 MACHINE CONFIGURATION



B234V901.WMF

| No. | Item | Machine Code | Comments |
|-----|------------------------------|----------------|---------------------------------|
| 1 | Mainframe | B234/B235/B236 | 90 cpm/110 cpm/135 cpm) |
| 2 | ADF | B301 | Document Feeder |
| 3 | LCIT RT5010 | B834 | B834 or B823 |
| 4 | Multi-Bypass Tray | B833 | Alternate paper feed source |
| 5 | LCIT RT5000 | B832 | B832 or B834 |
| 6 | A3/11"x17" Tray Unit | B331 | Replaces 1st Tray (tandem tray) |
| 7 | Finisher SR5000 | B830 | Corner stapling, edge stapling |
| 8 | Punch Unit PU5000 | B831 | Inside B830 |
| 9 | Booklet Finisher BK5000 | B836 | Booklet stapling/folding |
| 10 | Z-Folding Unit | B660 | Z-Folds large sheets |
| 11 | Cover Interposer Tray CI5000 | B835 | Inserts cover sheets (2 trays). |
| --- | Copier Connection Kit | B328 | Not shown. |



Z-FOLDING UNIT ZF4000

B660

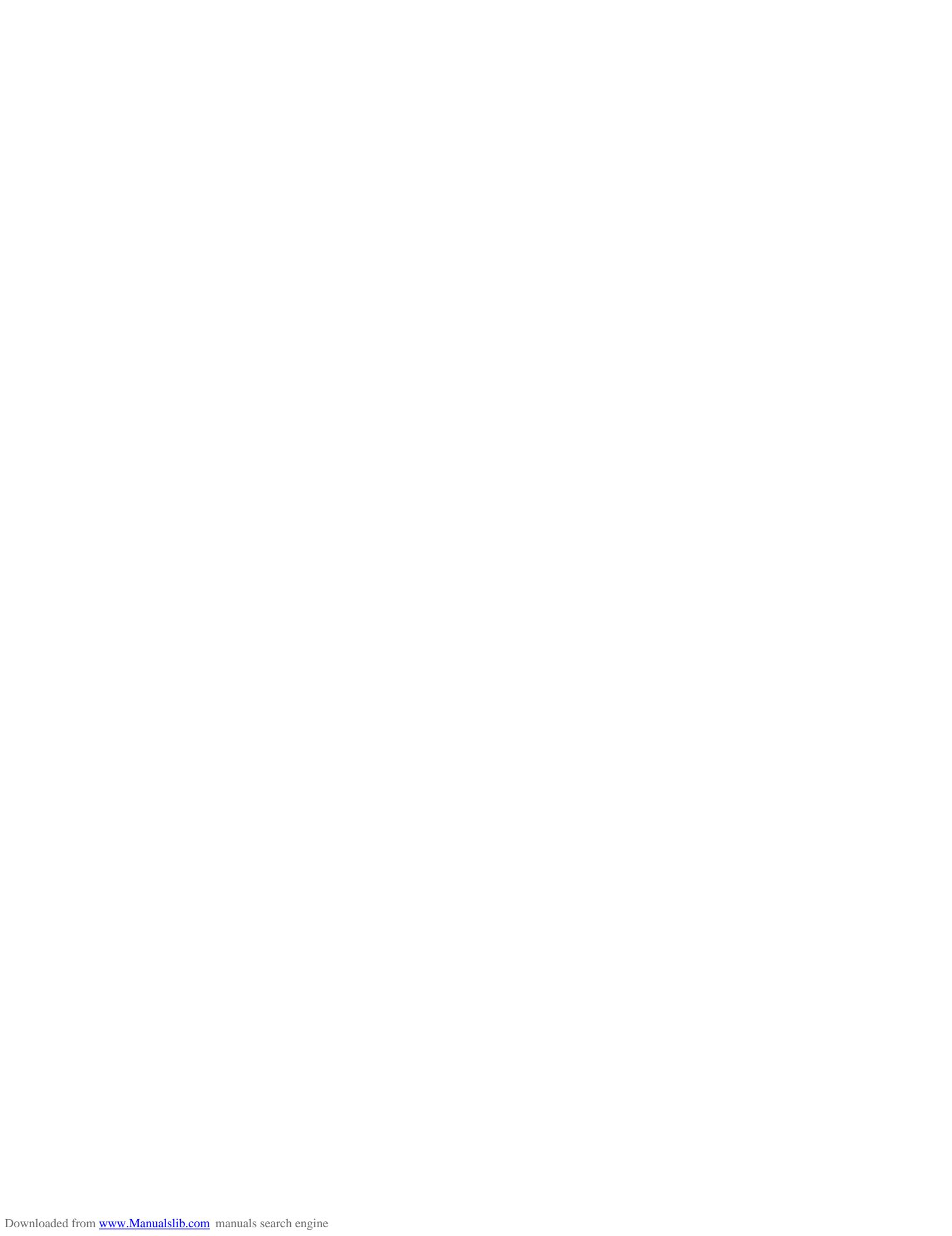
| Z-FOLDING UNIT ZF4000 (B660) REVISION HISTORY | | |
|--|-------------|--------------------------|
| Page | Date | Added/Updated/New |
| | | None |



Z-FOLDING UNIT B660

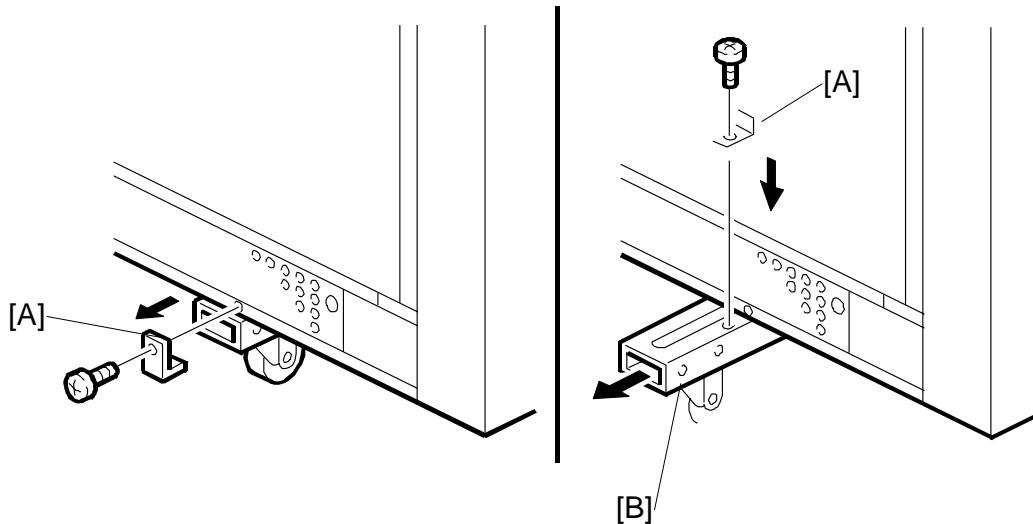
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1. REPLACEMENT AND ADJUSTMENT

1.1 BEFORE YOU BEGIN



Z-Folding Unit
B660

1. Disengage the Z-folding unit from the machine.
2. Disengage the Z-folding unit from the finisher (or cover sheet feeder).
3. At the bottom on the sides of the Z-folding unit:
 - Remove the lock bracket [A] (x 1).
 - Pull out the foot extension [B].
 - Re-attach the bracket [A] to lock the foot in the open position (x 1).

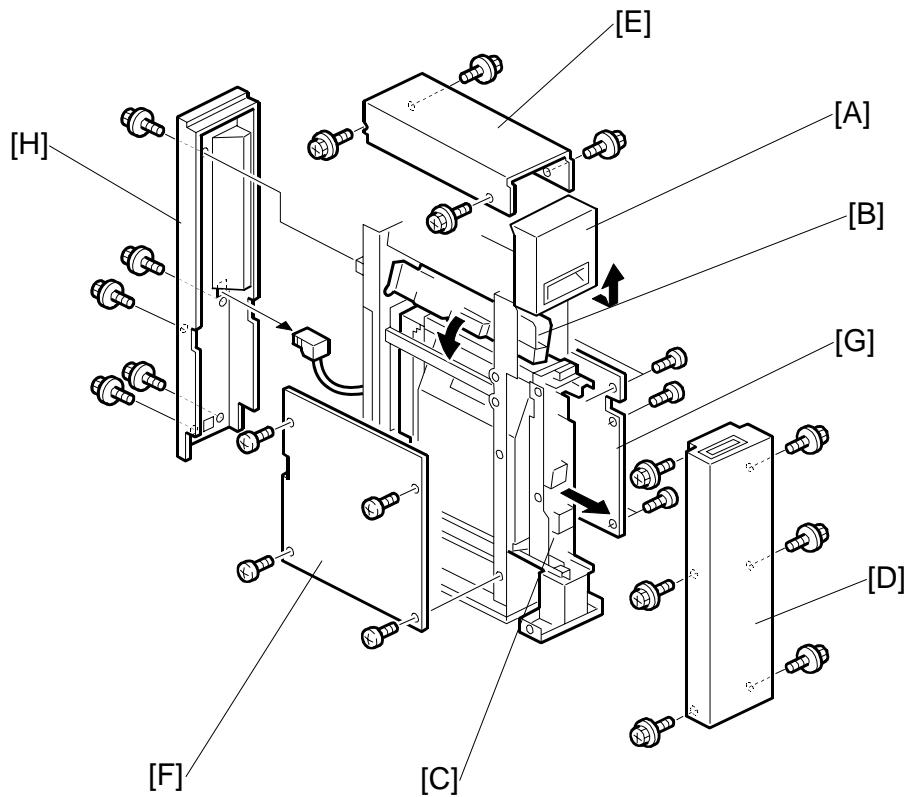
Reinstallation

Do this procedure in the opposite sequence to retract and lock the extensions below the Z-folding unit.

CAUTION

The Z-folding unit is not stable, with or without the feet extended. Do your work carefully; do not tilt the unit.

1.2 COVERS



- Open the front door [A].
- Lift the horizontal transport plate [B] to the left until it locks on the left side.
- Pull out the Z-fold mechanism [C].

[D] Front cover ($\frac{1}{2}$ x 6)

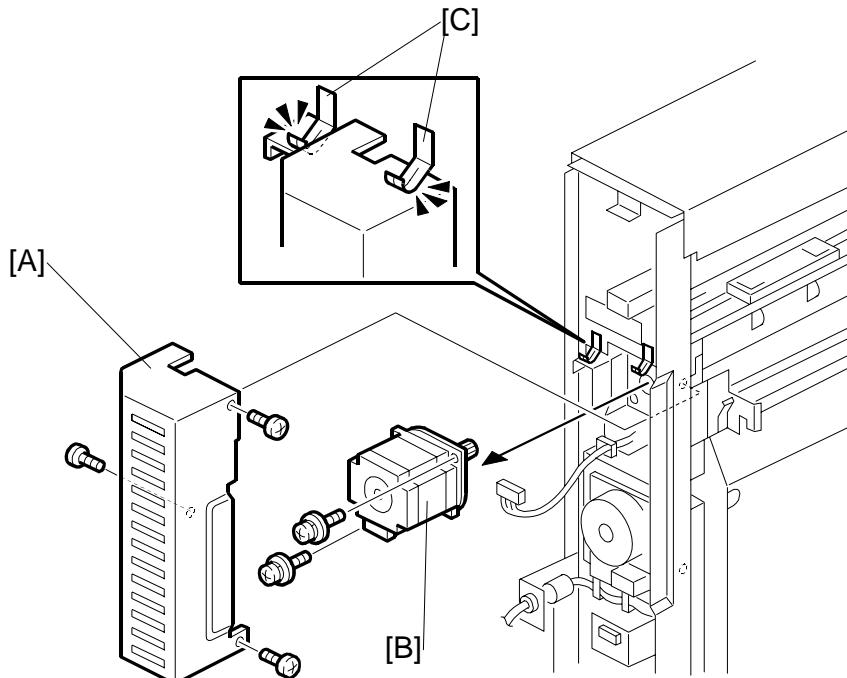
[E] Top cover ($\frac{1}{2}$ x 4)

[F] Left cover ($\frac{1}{2}$ x 4)

[G] Right cover ($\frac{1}{2}$ x 5)

[H] Rear cover ($\frac{1}{2}$ x 6)

1.3 FEED MOTOR



Z-Folding Unit
B660

1. Pull the Z-folding mechanism out of the unit, but not fully.
2. Remove: (1.2)
 - Left cover
 - Right cover
 - Rear cover

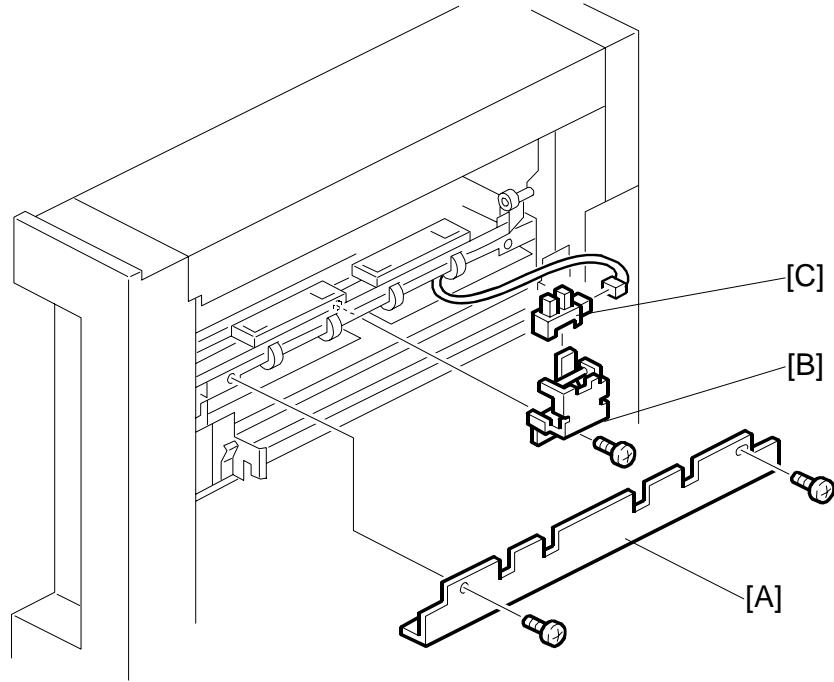
[A]: Motor cover ($\times 3$)

[B]: Feed Motor ($\times 2$, $\times 1$, timing belt $\times 1$)

Reinstallation

- Confirm that the motor cover is below the leaf springs at [C].

1.4 UPPER EXIT SENSOR



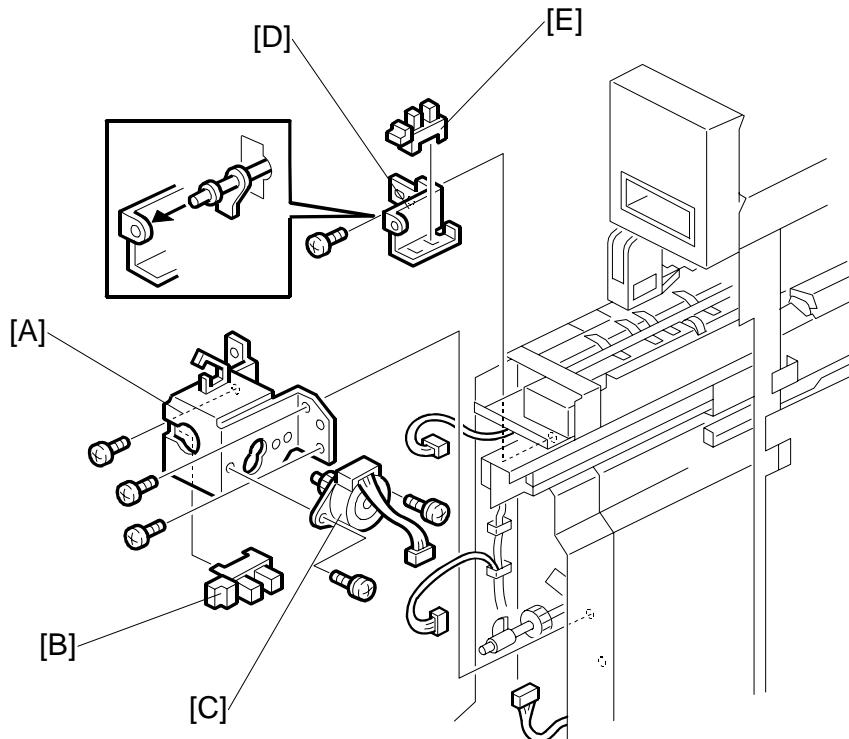
Left cover (❶1.2)

[A]: Bracket (❷ x 2)

[B]: Upper exit sensor unit (❸ x 1, ❹ x 1, ❺ x 1)

[C]: Upper exit sensor

1.5 UPPER STOPPER MOTOR/HP SENSOR, FEED SENSOR

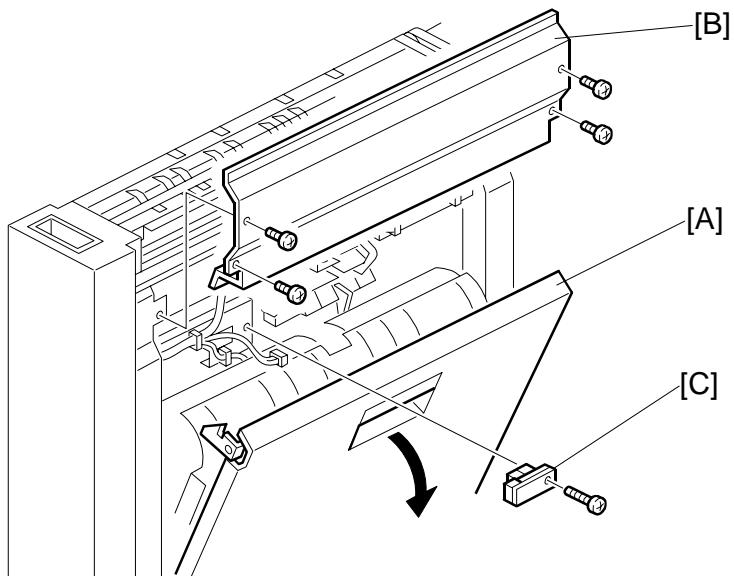


Z-Folding Unit
B660

Front cover (☞1.2)

- [A]: Upper stopper motor unit (☞ x 3, ☞ x 2, ☞ x 2)
- [B]: Upper stopper motor HP sensor
- [C]: Upper stopper motor (☞ x 2)
- [D]: Feed sensor unit (☞ x 1, ☞ x 1)
- [E]: Feed sensor

1.6 FOLD TIMING SENSOR



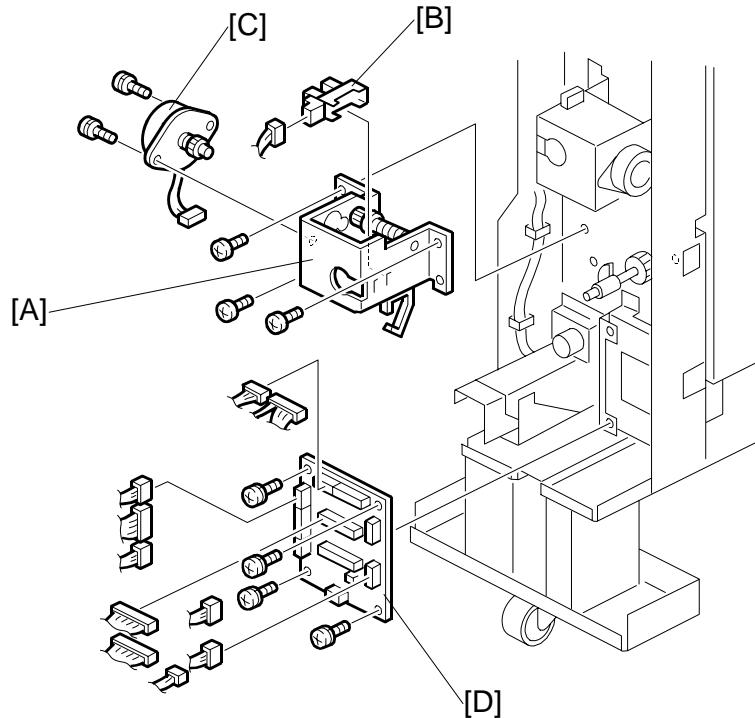
Pull the Z-fold mechanism out of the unit.

[A]: Open the right vertical transport unit cover.

[B]: Plate (x 4)

[C]: Fold timing sensor (x 1, x 1)

1.7 LOWER STOPPER MOTOR/HP SENSOR, RELAY BOARD

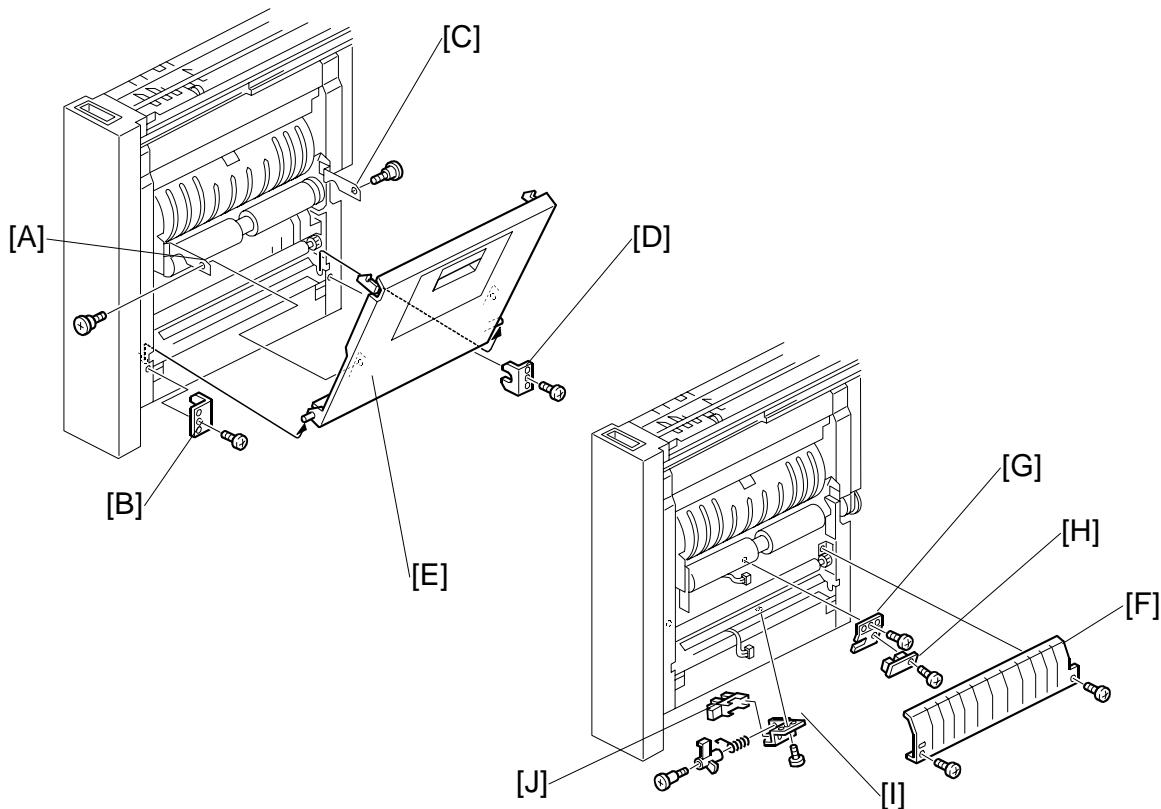


Z-Folding Unit
B660

Front cover (►1.2)

- [A]: Lower stopper motor unit (bolt x 3, nut x 2, cable x 2),
- [B]: Lower stopper HP sensor
- [C]: Lower stopper motor (motor x 2)
- [D]: Relay board (bolt x 4, nut x 3, cable x 10)

1.8 LEADING EDGE SENSOR, LOWER EXIT SENSOR

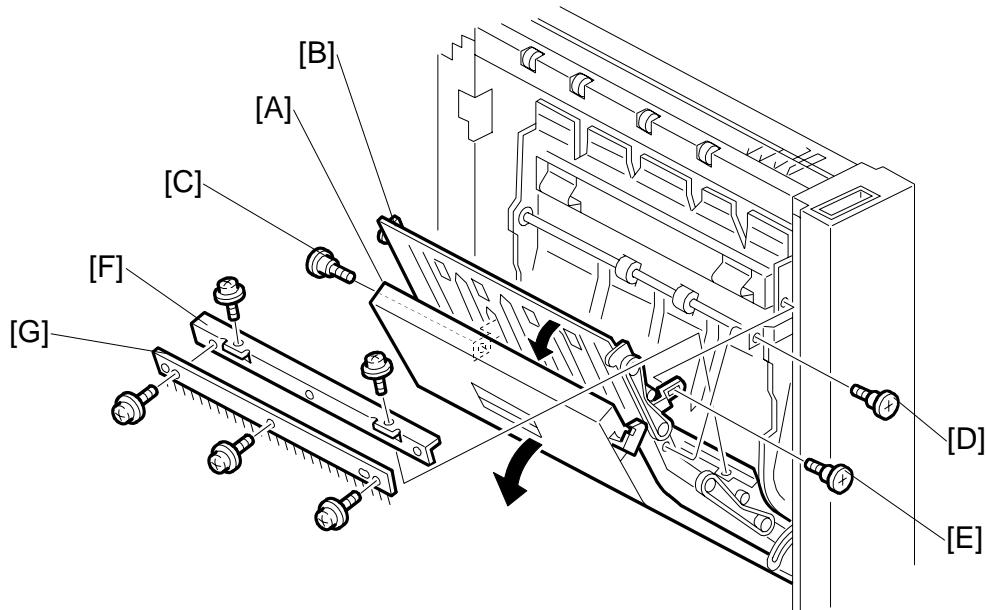


Pull out the Z-folding mechanism.

Open the right vertical transport cover [E].

- [A]: Left link arm (掣子 x 1)
- [B]: Left corner bracket (掣子 x 1)
- [C]: Right link arm (掣子 x 1)
- [D]: Right corner bracket (掣子 x 1)
- [E]: Vertical transport cover.
- [F]: Lower fold roller cover (掣子 x 2)
- [G]: Leading edge sensor unit (掣子 x 1, 线缆 x 1)
- [H]: Leading edge sensor (掣子 x 1)
- [I]: Lower exit sensor unit (掣子 x 1, 线缆 x 1)
- [J]: Lower exit sensor

1.9 ANTI-STATIC BRUSH



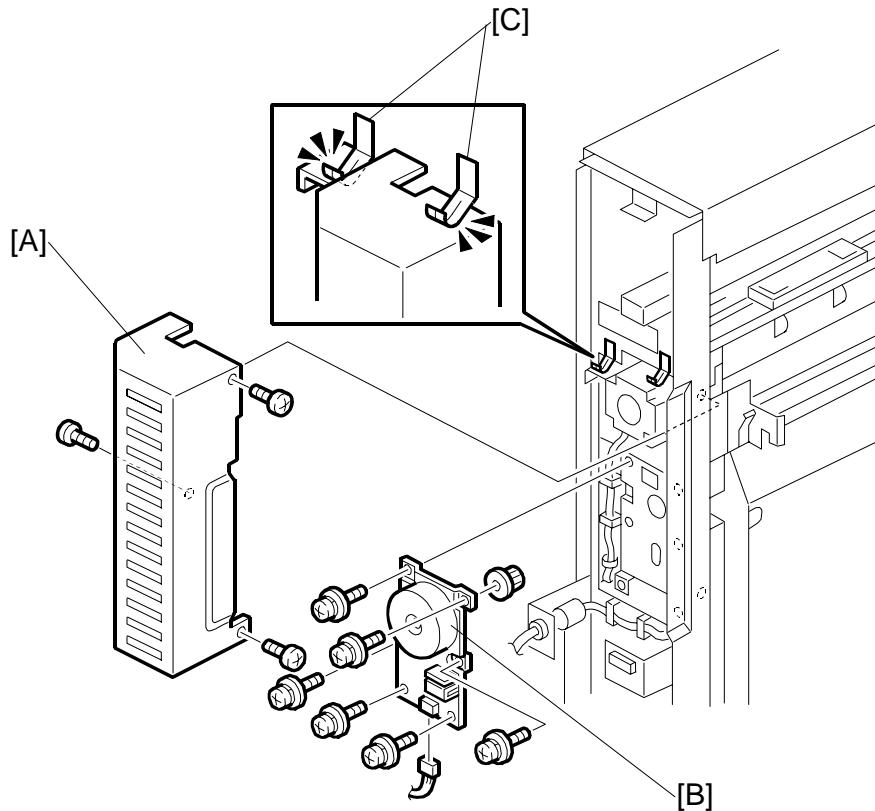
Z-Folding Unit
B660

1. Pull out the Z-folding mechanism.
2. Open the left vertical transport cover [A].
3. Open the vertical transport assembly [B].

Remove:

- [C] Left link screw
- [D] Right link screw
- [E] Link screw [E]
- [F] Bracket
- [G] Anti-static brush

1.10 FOLD ROLLER MOTOR



1. Pull the Z-folding mechanism out of the unit, but not fully.
2. Remove: (1.2)
 - Left cover
 - Right cover
 - Rear cover

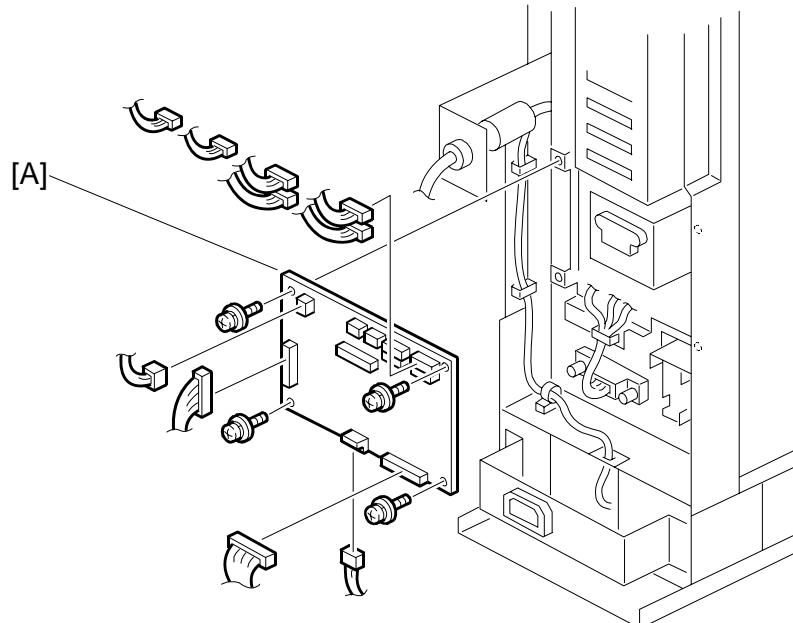
[A]: Motor cover (x 3)

[B]: Fold roller motor (x 6, x 1, timing belt x 1)

Reinstallation

Make sure that the motor cover is below the leaf springs [C].

1.11 MAIN CONTROL BOARD

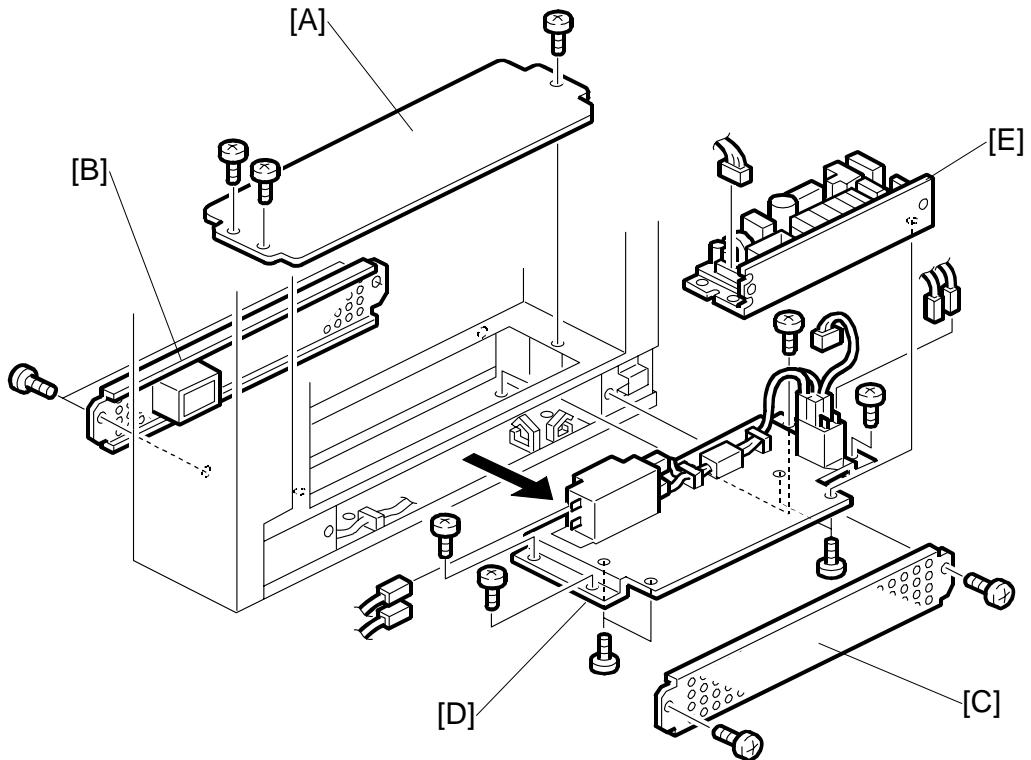


Z-Folding Unit
B660

Remove:

- Rear cover. (☞1.2)
- [A] Main control board [A] (x 4, x 10)

1.12 PSU



- Open the front door.
- Pull the Z-fold mechanism out of the unit.

Remove:

- Left cover and right cover. (☞1.2)

[A] Base top cover (\wedge x 3).

[B] Base left cover (\wedge x 2).

[C] Base right cover (\wedge x 2).

- Make a mark at the positions of the connectors, then disconnect them.

NOTE: These connectors do not have different colors. To help you connect them again correctly, make marks on them.

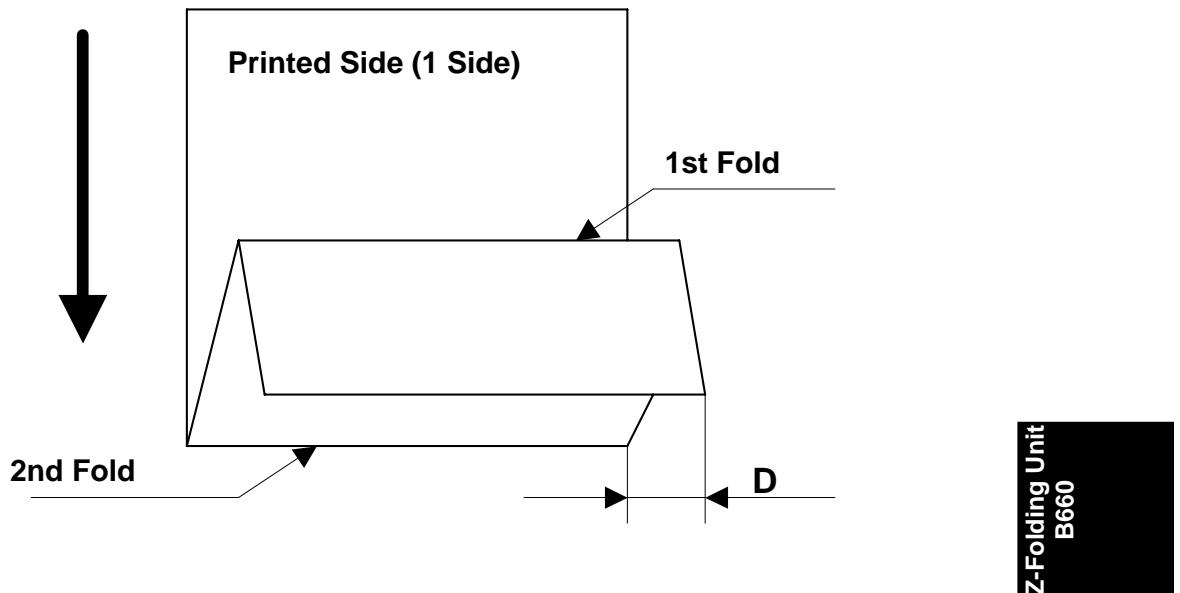
[D] Power supply unit (PSU) (\square x 4, \wedge x 4).

- Pull the PSU out of the right side of the bottom.

[E] Power supply board (\wedge x 4, \square x 1).

1.13 UNEVEN FOLDING ADJUSTMENT

1.13.1 OVERVIEW



This procedure describes how to correct uneven folding (D) in paper folded with the Z-Fold unit. Before doing this procedure, please note the names and positions of the 1st and 2nd Fold.

Section 3.2.2 provides a full description of how Z-folding is done.

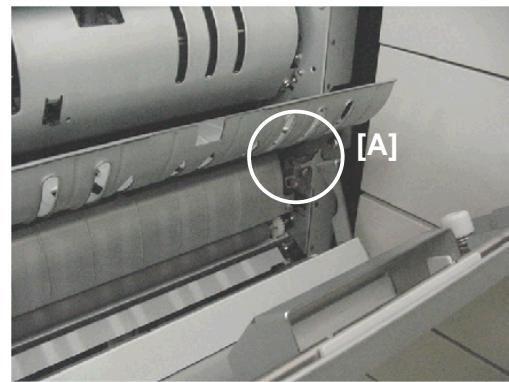
1.13.2 Z-FOLD ADJUSTMENT SCREWS

The adjustment of the 1st fold is done by turning an adjustment screw linked to the paper stopper.

Pull out the Z-fold mechanism.

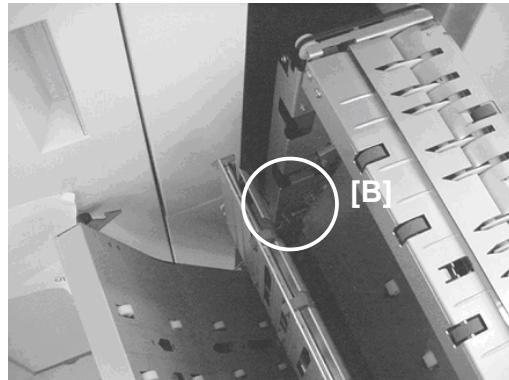
Open the right cover to see the adjustment screw located at [A].

This is the screw used to adjust the 1st fold.



Open the left cover to see the screw located at [B].

This is the screw used to adjust the 2nd fold.



1.13.3 Z-FOLD ADJUSTMENT PROCEDURE

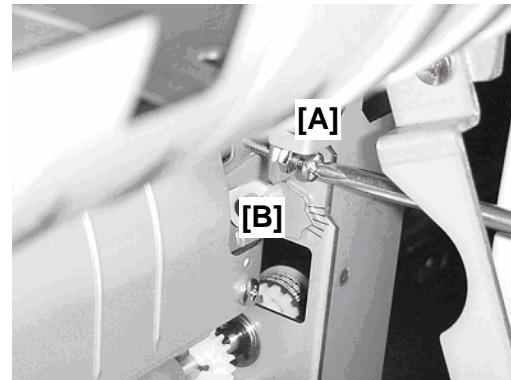
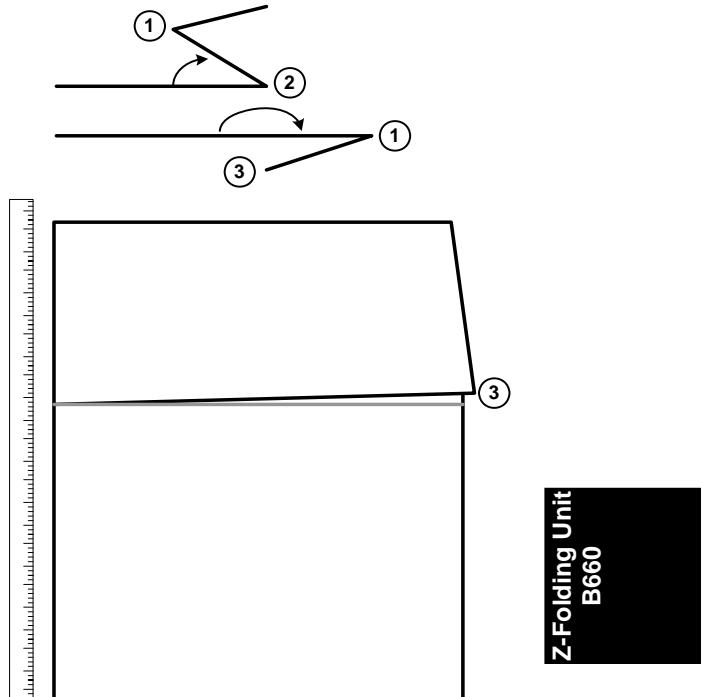
1st Fold Adjustment

1. Print one A3 copy and send it through the Z-fold unit.
2. Open the 2nd fold ②.
3. Turn the paper over so the edge ③ is aligned with the crease of the 2nd fold.
4. Open the right door and locate the screw that adjusts the 1st fold (see previous page).
5. Use a plus screwdriver to turn the screw [A] to the left to loosen the nut.
 - If the corner is over the right edge, turn the screw to the right.
 - If the corner is over the left edge, turn the screw to the left.

NOTE:

- The illustration above shows the corner over the right edge.
- You can see the pointer [B] change position on the notches of the adjustment scale as you turn the screw.

6. Close the Z-Fold unit.
7. Do another test print.
8. If the 1st fold is still misaligned, repeat this procedure until the alignment is correct.
9. After the adjustment is completed, use a screw driver to hold the screw in position, then retighten the nut you loosened in Step 2. Do not turn the screw.



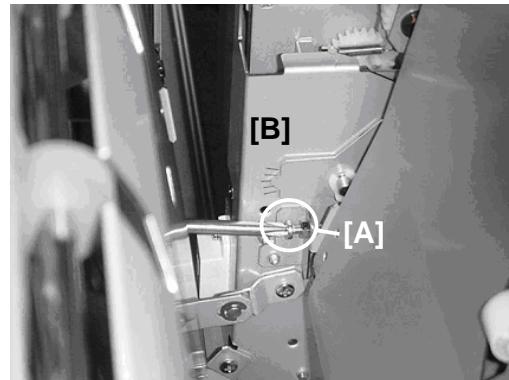
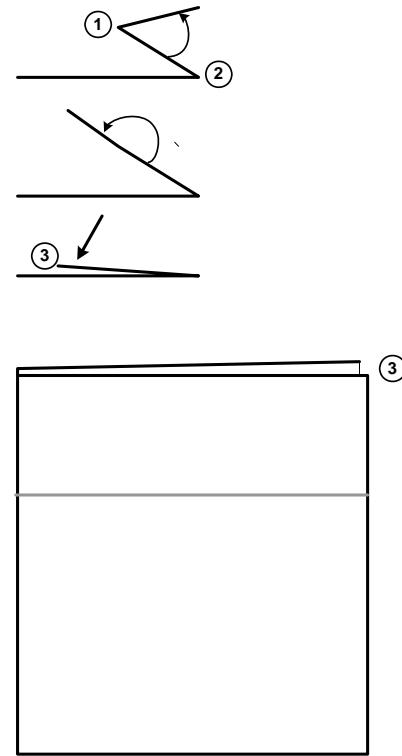
2nd Fold Adjustment

1. Print one A3 copy and send it through the Z-fold unit.
2. Open the folded sheet at the 1st fold ① then lay it down flat.
3. Stand the sheet on its end so the edge ③ is up and the crease of the 1st fold is facing out.
4. Open the left door and locate the screw that adjusts the 2nd fold (see previous page).
5. Use a plus screwdriver to turn the screw [A] to the left to loosen the nut.
 - If the corner is over the right edge, turn the screw to the right.
 - If the corner is over the left edge, turn the screw to the left.

NOTE:

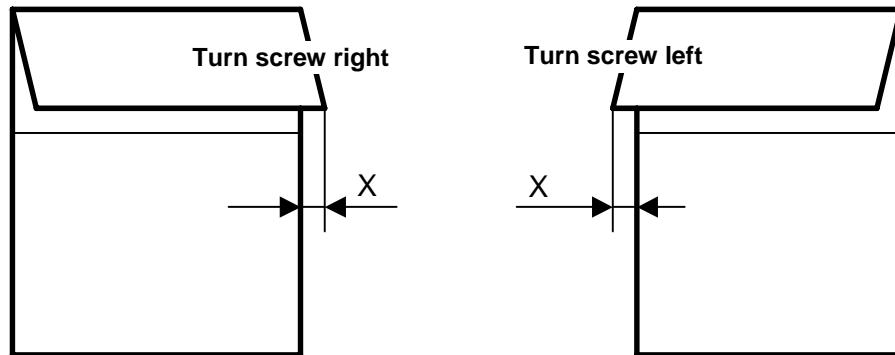
- The illustration shows the corner over the right edge.
- You can see the pointer [B] change position on the notches of the adjustment scale as you turn the screw.

6. Close the Z-Fold unit.
7. Do another test print.
8. If the 1st fold is still misaligned, repeat this procedure until the alignment is correct.
9. After the adjustment is completed, use a screw driver to hold the screw in position, then retighten the nut you loosened in Step 2. Do not turn the screw.

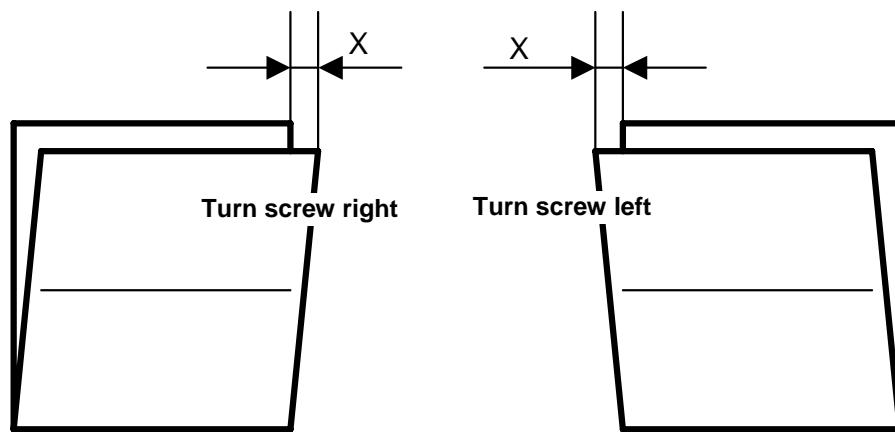


1.13.4 Z-FOLD ADJUSTMENT REFERENCE TABLE

1st Fold Adjustment



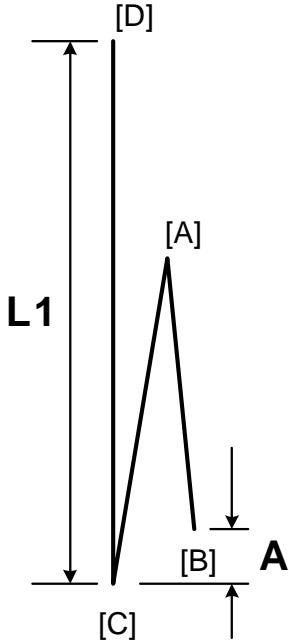
2nd Fold Adjustment



NOTE: A one-notch adjustment on the scale means the alignment is corrected by about 1 mm.

2. SERVICE TABLES

Two SP codes have been added for the Z-folding unit, to adjust the positions of the folds.



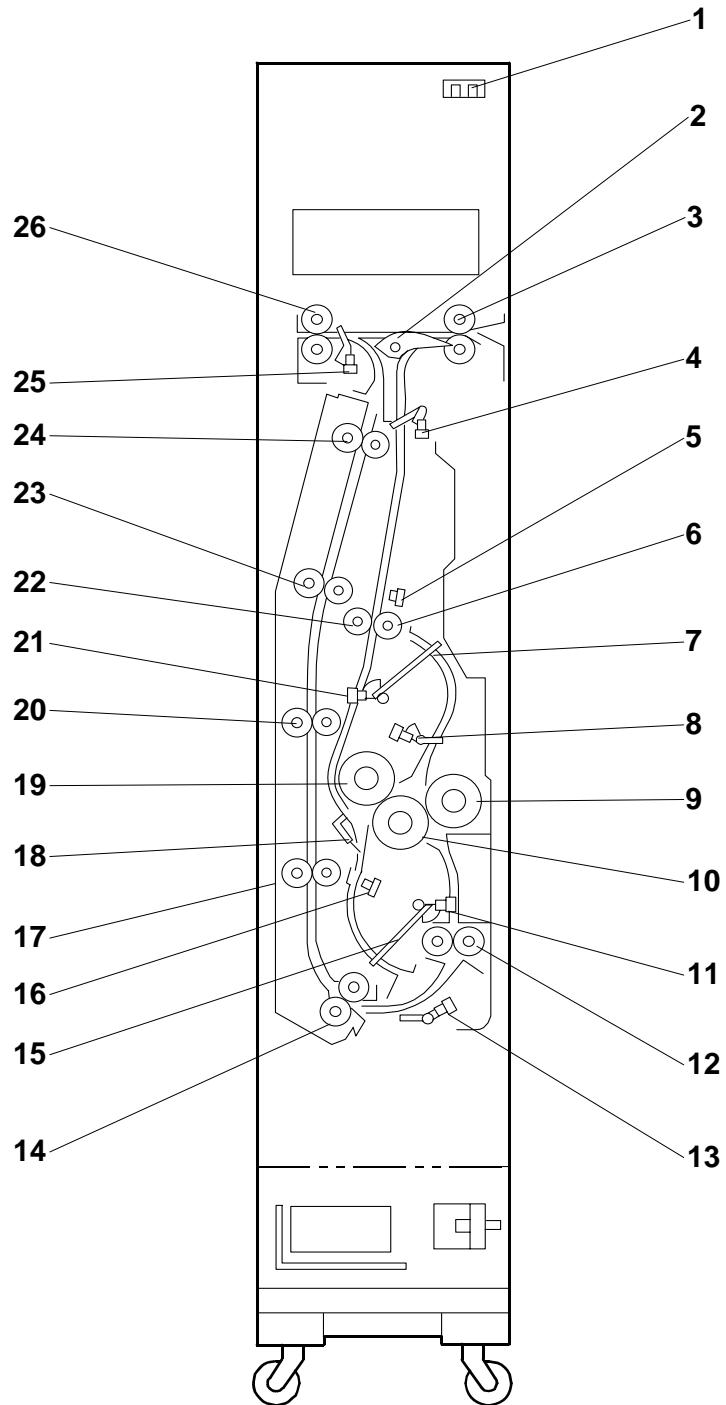
Use these SPs to adjust the locations of the first fold and the second fold.

The illustration shows the position of the sheet while it goes through the lower exit rollers after it has been folded.

| | |
|--------------------------|---|
| SP6301 001 to 008 | Fine Adjustment – 1st Fold Position [-4 ~ +4/0/ 0.2 mm] Adjusts the position of the first fold [A] to decrease or increase the distance (A) between the leading edge [B] and the crease of the 2nd fold [C]. |
| SP6301 009 to 016 | Fine Adjustment – 2nd Fold Position [-4 ~ +4/0/ 0.2 mm] Adjusts the position of the 2nd fold [C] to decrease or increase the length (L1) of the sheet between the trailing edge [D] and the 2nd fold. |

3. DETAILS

3.1 OVERVIEW



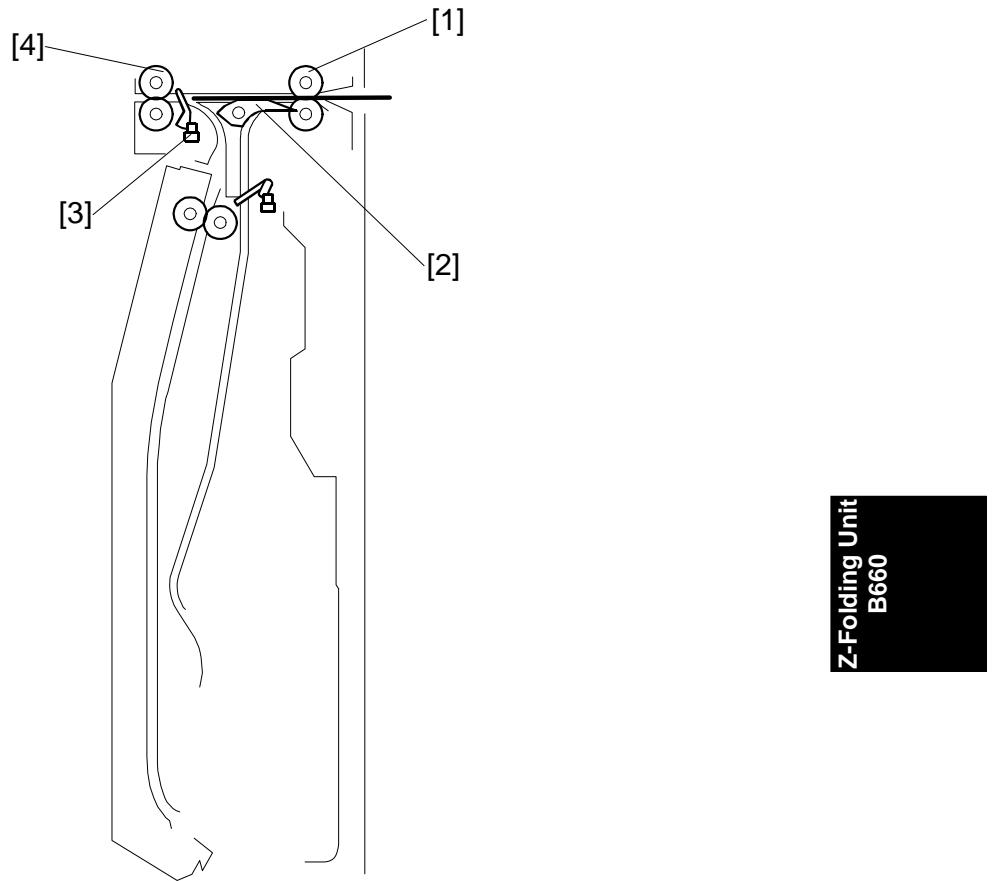
Z-Folding Unit
B660

DETAILS

- | | |
|------------------------------|-------------------------------|
| 1. Front Door Sensor | 14. Grip Rollers |
| 2. Junction Gate | 15. Lower Stopper |
| 3. Feed Rollers | 16. Leading Edge Sensor |
| 4. Feed Sensor | 17. Vertical Feed Rollers – 1 |
| 5. Fold Timing Sensor | 18. Anti-Static Brush |
| 6. Pinch Idle Roller | 19. 1st Fold Roller |
| 7. Upper Stopper | 20. Vertical Feed Rollers – 2 |
| 8. Upper Stopper Path Sensor | 21. Upper Stopper HP Sensor |
| 9. 3rd Fold Roller | 22. Pinch Feed Roller |
| 10. 2nd Fold Roller | 23. Vertical Feed Rollers – 3 |
| 11. Lower Stopper HP Sensor | 24. Vertical Feed Rollers – 4 |
| 12. Lower Exit Rollers | 25. Upper Exit Sensor |
| 13. Lower Exit Sensor | 26. Upper Exit Rollers |

3.2 Z-FOLDING UNIT PAPER PATH

3.2.1 PAPER PATH WITH NO FOLDING



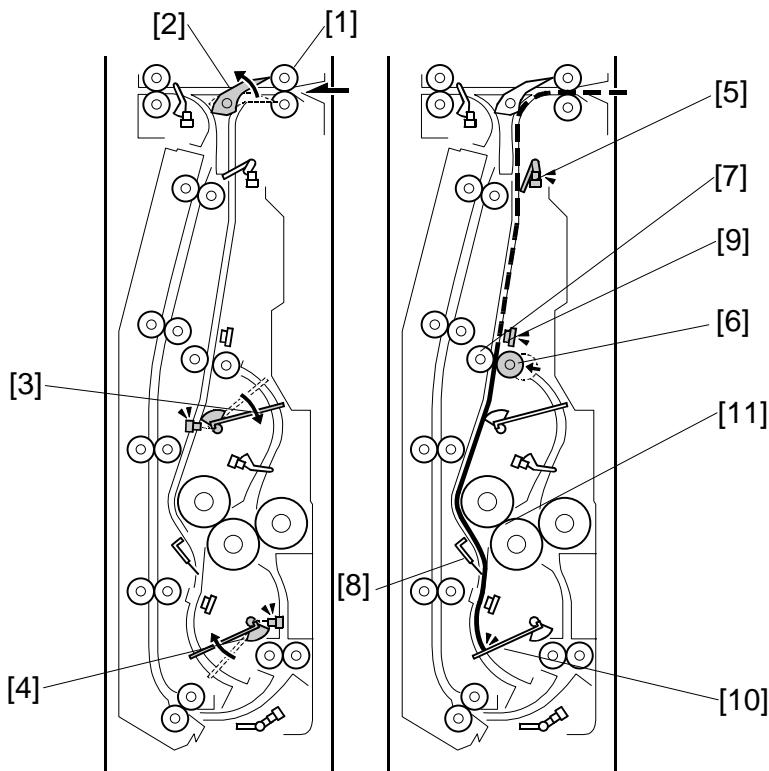
The feed rollers [1] feed the paper from the main machine into the Z-folding unit.

If Z-folding was not used for the job, the sheet feeds above the closed junction gate [2].

The upper exit sensor [3] detects the leading and trailing edge of the unfolded sheet.

The upper exit rollers [4] feed the unfolded sheet out of the Z-folding unit and into the finisher.

3.2.2 PAPER PATH WITH Z-FOLDING



The feed rollers [1] feed the paper from the main machine into the Z-folding unit.

The junction gate solenoid energizes and opens the junction gate [2]. The junction gate sends the sheet down into the Z-folding paper path.

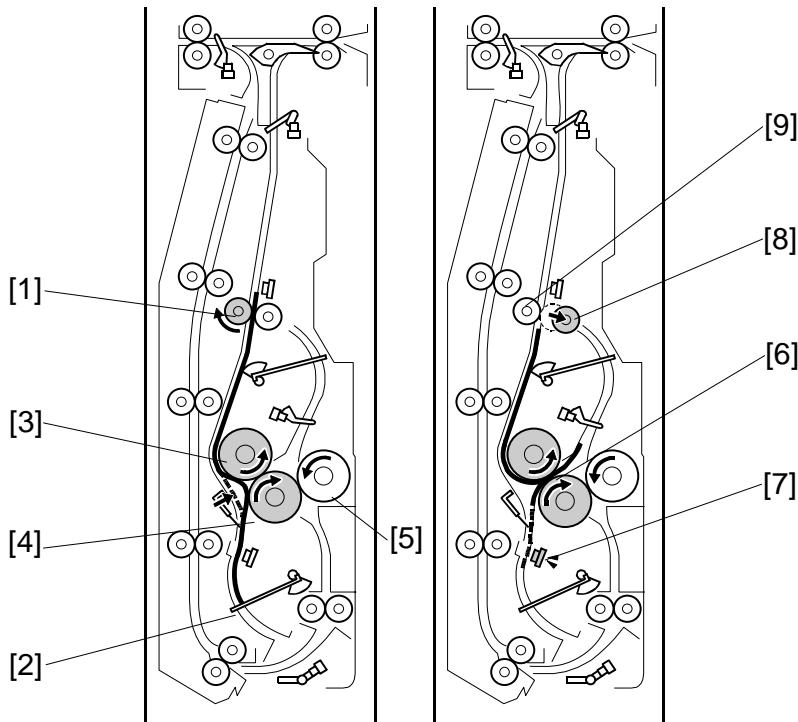
The upper and lower stopper motors move the upper stopper [3] and lower stopper [4] to the positions for the paper size that was used for the job.

The feed sensor [5] detects the leading edge and trailing edge of the sheet. The pinch idle roller solenoid (upper) pulls the pinch idle roller [6] away from the pinch feed roller [7] and the paper can fall between the pinch rollers.

The anti-static brush [8] removes static electricity from the sheet.

When the fold timing sensor [9] detects the trailing edge of the sheet, it energizes the pinch idle roller solenoid (lower). This pushes the pinch idle roller [6] against the opposite pinch feed roller [7].

The lower stopper [10] stops the sheet and buckles it slightly toward the nip [11] of the 1st and 2nd fold rollers.



Z-Folding Unit
B660

The pinch feed roller [1] turns and feeds the sheet down against the lower stopper [2]

At the correct time, the fold roller motor switches on and turns the:

- 1st fold roller [3]
- 2nd fold roller [4]
- 3rd fold roller [5]

The sheet continues to buckle until it feeds into the nip [6] of the 1st and 2nd fold rollers. These two rollers fold the sheet.

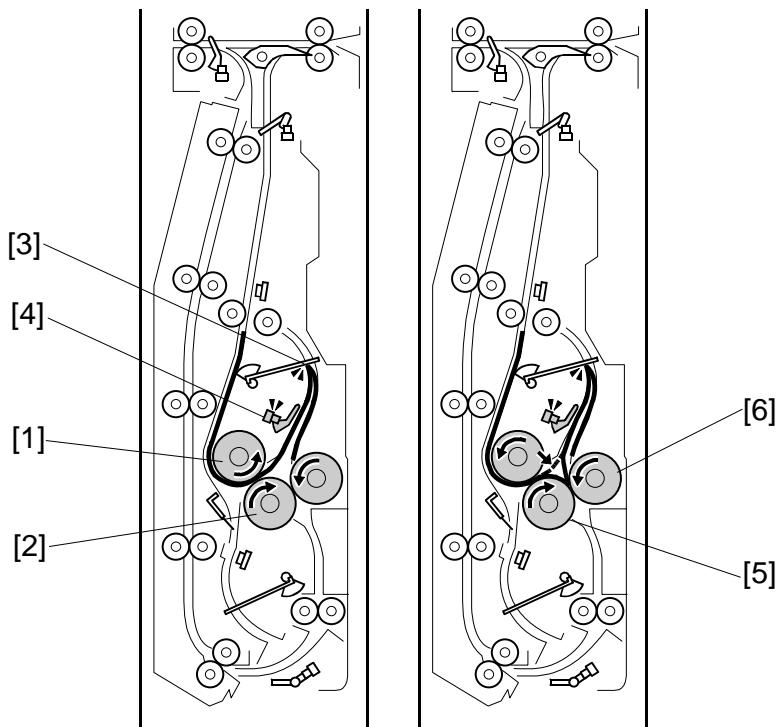
The leading edge sensor [7] detects the leading edge of the sheet:

- When the leading edge goes by while the paper feeds down (to the lower stopper).
- When the leading edge goes by again while the paper feeds up into the nip of the 1st and 2nd fold rollers.

If the leading edge sensor does not detect the leading edge at the correct time, this sensor signals a jam.

At the correct time, the pinch idle roller [8] is pulled away from the pinch feed roller [9] by the pinch idle roller solenoid (upper).

DETAILS



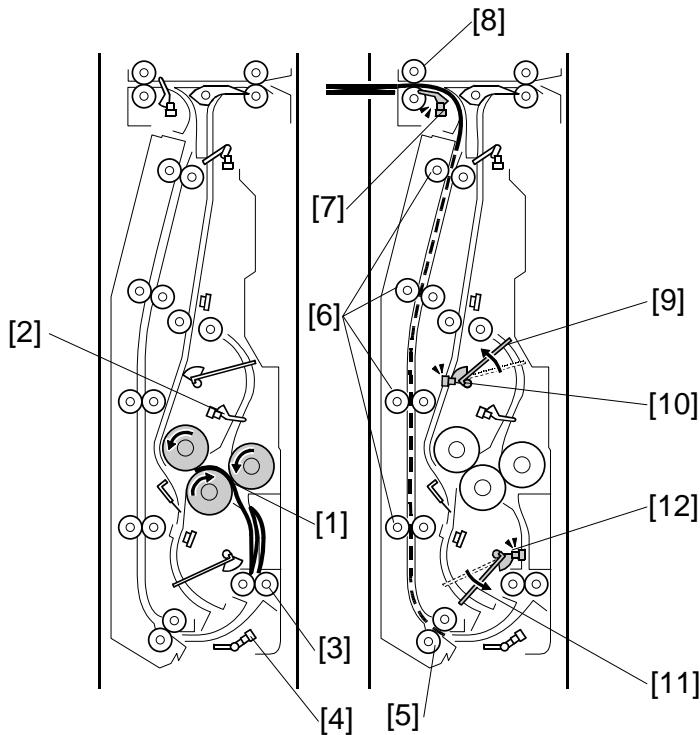
The 1st fold roller [1] and 2nd fold roller [2] continue to turn. This feeds the edge of the 1st fold up until it hits the upper stopper [3].

The sheet lifts the feeler of the upper stopper path sensor [4]. This sensor:

- Detects when the sheet comes to the upper stopper path.
- Detects when the sheet goes out of the upper stopper path.

The upper stopper sensor detects a jam if it does not detect that the sheet comes and goes at the correct times.

When the sheet feeds between the 1st and 2nd fold rollers, this pushes the first fold against the upper stopper. The sheet buckles down into the gap between the 2nd fold roller [5] and 3rd fold roller [6]. The second fold is made when the sheet feeds between the 2nd and 3rd feed rollers.



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The 2nd and 3rd fold rollers [1] continue to turn and feed the sheet down.

The feeler of the upper stopper path sensor [2] falls and the sensor detects that the sheet is gone. The fold rollers feed the folded sheet to the lower exit rollers [3].

The lower exit sensor [4] detects the leading edge and trailing edge of the sheet. If the trailing edge is not detected during the correct time interval, the sensor detects a jam.

The grip rollers [5] feed the folded sheet to the four pairs of vertical feed rollers [6].

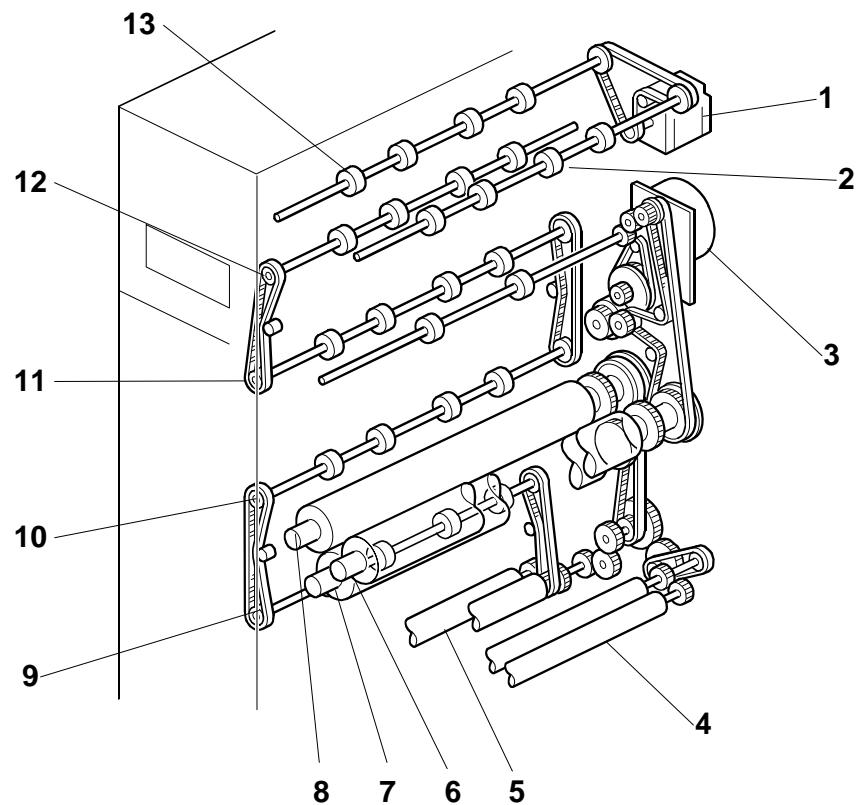
The upper exit sensor [7] detects the leading edge and trailing edge of each folded sheet. If the leading and trailing edge are not detected during the correct time interval, this sensor detects a jam.

The upper exit rollers [8] feed the folded sheet into the finisher.

At the correct time:

- The upper stopper motor lifts the upper stopper [9] until the upper stopper sensor [10] detects that the upper stopper is at its home position. This stops the motor.
- The lower stopper motor lowers the lower stopper [11] until the lower stopper sensor [12] detects that the lower stopper is at its home position. This stops the motor.

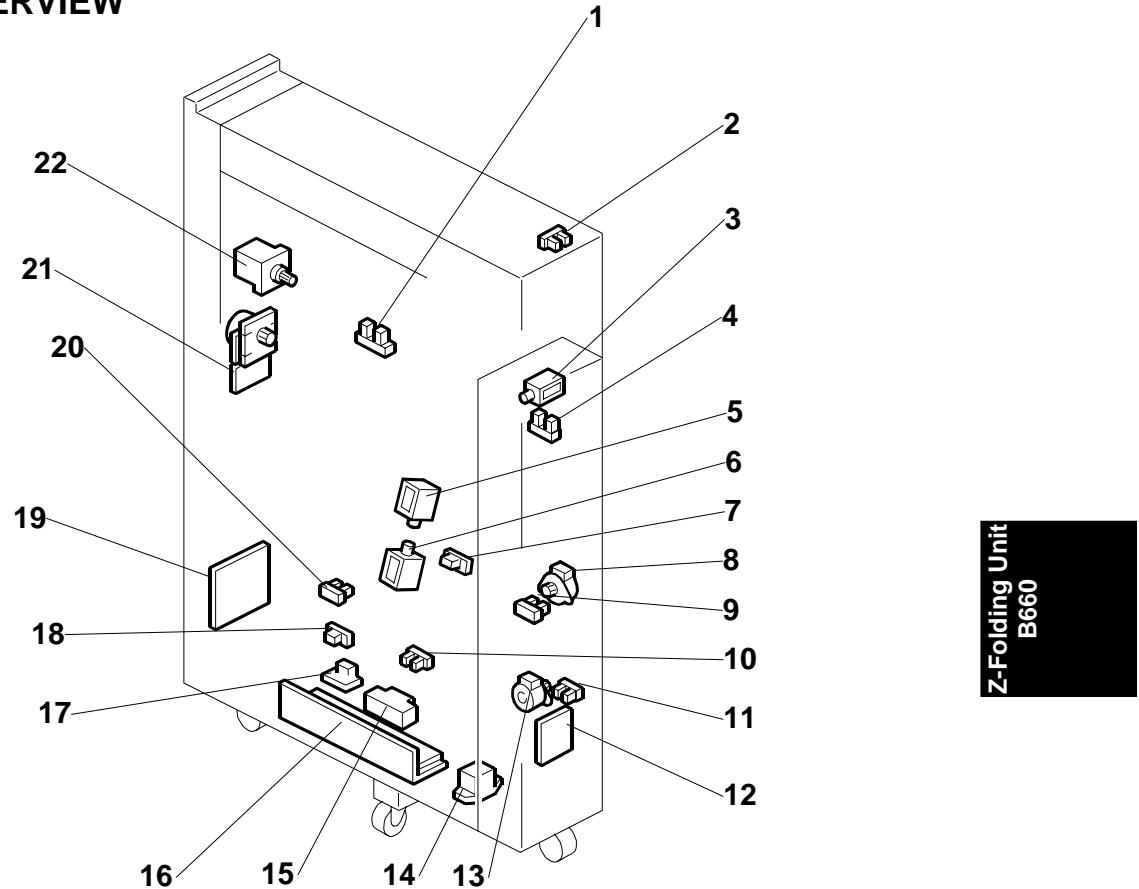
3.3 DRIVE LAYOUT



- | | |
|-----------------------|-------------------------------|
| 1. Feed Motor | 8. 1st Fold Roller |
| 2. Feed Rollers | 9. Vertical Feed Rollers – 1 |
| 3. Fold Roller Motor | 10. Vertical Feed Rollers – 2 |
| 4. Lower Exit Rollers | 11. Vertical Feed Rollers – 3 |
| 5. Grip Rollers | 12. Vertical Feed Rollers – 4 |
| 6. 3rd Fold Roller | |
| 7. 2nd Fold Roller | 13. Upper Exit Rollers |

3.4 ELECTRICAL COMPONENTS

3.4.1 OVERVIEW



- | | |
|---------------------------------------|-------------------------------|
| 1. Upper Exit Sensor | 12. DC Relay Board |
| 2. Front Door Sensor | 13. Lower Stopper Motor |
| 3. Junction Gate Solenoid | 14. Relay |
| 4. Feed Sensor | 15. Breaker |
| 5. Pinch Idle Roller Solenoid – Upper | 16. Power Supply Unit |
| 6. Pinch Idle Roller Solenoid – Lower | 17. Surge Protector Board |
| 7. Fold Timing Sensor | 18. Leading Edge Sensor |
| 8. Upper Stopper Motor | 19. Main Control Board |
| 9. Upper Stopper HP Sensor | 20. Upper Stopper Path Sensor |
| 10. Lower Exit Sensor | 21. Fold Roller Motor |
| 11. Lower Stopper HP Sensor | 22. Feed Motor |

DETAILS

3.4.2 ELECTRICAL COMPONENT SUMMARY

| Motors | | |
|--------|---------------------|--|
| No. | Name | Description |
| M1 | Feed Motor | Drives the feed rollers and exit rollers of the Z-folding unit. |
| M2 | Fold Roller Motor | Drives the 1st, 2nd, and 3rd fold rollers. |
| M3 | Lower Stopper Motor | Raises and lowers the lower stopper. It 1) Raises the upper stopper to the proper position for the size of the paper selected for the job, and 2) Lowers the lower stopper until the lower stopper sensor detects that the lower stopper is at its home position where it remains until the start of the next job. |
| M4 | Upper Stopper Motor | Lowers and raises the upper stopper. It 1) Lowers the upper stopper to the proper position for the size of the paper selected for the job, and 2) Raises the upper stopper until the upper stopper sensor detects that the upper stopper is at its home position where it remains until the start of the next job. |

| PCBs | | |
|------|-----------------------|---|
| No. | Name | Description |
| PCB1 | Main Control Board | Controls the operation of the Z-folding unit. |
| PCB2 | PSU | Supplies the dc power for the Z-folding unit. |
| PCB3 | Surge Protector Board | AC input and breaker relay board. |
| PCB4 | DC Relay Board | PSU DC output and DC motors and sensor relay board. |

| Sensors | | |
|---------|-------------------------|---|
| No. | Name | Description |
| S1 | Feed Sensor | Detects the leading edge and trailing edge of the sheet at the top of the paper path before Z-Folding. When the feed sensor detects the leading edge, it energizes the pinch idle roller solenoid. The solenoid pulls the pinch idle roller away from the pinch feed roller so the paper can fall below these opposing rollers. |
| S2 | Fold Timing Sensor | (1) Detects the leading edge of the sheet and energizes the pinch idle roller solenoid (upper) to pull the pinch idle roller away from the pinch feed roller so the sheet falls through the gap between these rollers. (2) Detects the trailing edge of the sheet and energizes the pinch idle roller solenoid (lower) to push the pinch idle roller against the pinch feed roller. |
| S3 | Front Door Sensor | Detects when the top cover of the Z-folding unit is closed and signals an alert that the cover is open. The unit cannot be used until this cover is closed. |
| S4 | Leading Edge Sensor | Mounted above the lower stopper. The leading edge sensor 1) detects the leading edge of the sheet when drops onto the lower stopper, 2) detects the leading edge again when the paper is pulled up into the nip of the 1st and 2nd fold rollers. If the leading edge sensor does not detect the edge at the prescribed times, it will signal an error. |
| S5 | Lower Exit Sensor | Mounted below the lower exit rollers. Detects the leading/trailing edges of the folded sheet as it passes below. If these edges do not pass at the times prescribed for the selected paper size, the sensor will signal a jam alert. |
| S6 | Lower Stopper HP Sensor | Detects the lower stopper when it reaches its home position and turns off the lower stopper motor. |
| S7 | Upper Exit Sensor | 1) Detects the leading/trailing edges of each sheet unfolded sheet after it passes over the closed junction gate, 2) Detects the leading/trailing edge of each folded sheet as it leaves the vertical feed path below. If the edges do not go by for the time prescribed for the paper size, the sensor will send a jam alert. |
| S8 | Upper Stopper HP | Detects the upper stopper when it reaches its home position and |

DETAILS

| Sensors | | |
|----------------|---------------------------|--|
| No. | Name | Description |
| S9 | Upper Stopper Path Sensor | Mounted below the upper stopper. 1) When the feeler of the upper stopper path sensor detects the paper when the crease of the first fold stops at the upper stopper, it delays long enough so the 1st/2nd feed rollers can continue to rotate and buckle the trailing edge of the paper below at the nip of the 2nd/3rd feed rollers, then the sensor switches off the 1st/2nd feed rollers and switches on the 2nd/3rd feed roller pair. The 2nd/3rd feed rollers pull the buckle into the nip and create the 2nd crease. 2) Detects the paper when it leaves the upper stopper path and signals an error if the paper does not leave at the prescribed time. |

| Solenoids | | |
|------------------|------------------------------------|---|
| No. | Name | Description |
| SOL1 | Junction Gate Solenoid | Opens and closes the junction gate solenoid. When not energized, the junction gate remains closed and paper passes over the back of the closed junction gate and through the Z-folding unit. When energized it opens the junction gate which guides paper down and into the paper path of the Z-folding unit. |
| SOL2 | Pinch Idle Roller Solenoid (Lower) | Attached to the pinch idle roller, this solenoid pushes the pinch idle roller and closes the gap between the pinch idle/pinch feed rollers when the fold timing sensor at the above the pinch idle roller detects the trailing edge of the sheet so the rollers can pinch and stop the paper in the paper path. |
| SOL3 | Pinch Idle Roller Solenoid (Upper) | Attached to the pinch idle roller, this solenoid pulls the pinch idle roller away from the pinch feed roller when the feed sensor at the top of the Z-fold paper path detects the leading edge of the sheet so the paper can drop between these opposing rollers. |

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| Switches | | |
|-----------------|---------|---|
| No. | Name | Description |
| SW1 | Breaker | Opens and breaks the power circuit if the Z-folding unit overheats. |

| Relays | | |
|---------------|-------|--------------|
| No. | Name | Description |
| RA1 | Relay | Switch relay |



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Finisher SR5000 (B830) REVISION HISTORY

| Page | Date | Added/Updated/New |
|-------------|-------------|--------------------------|
| | | None |



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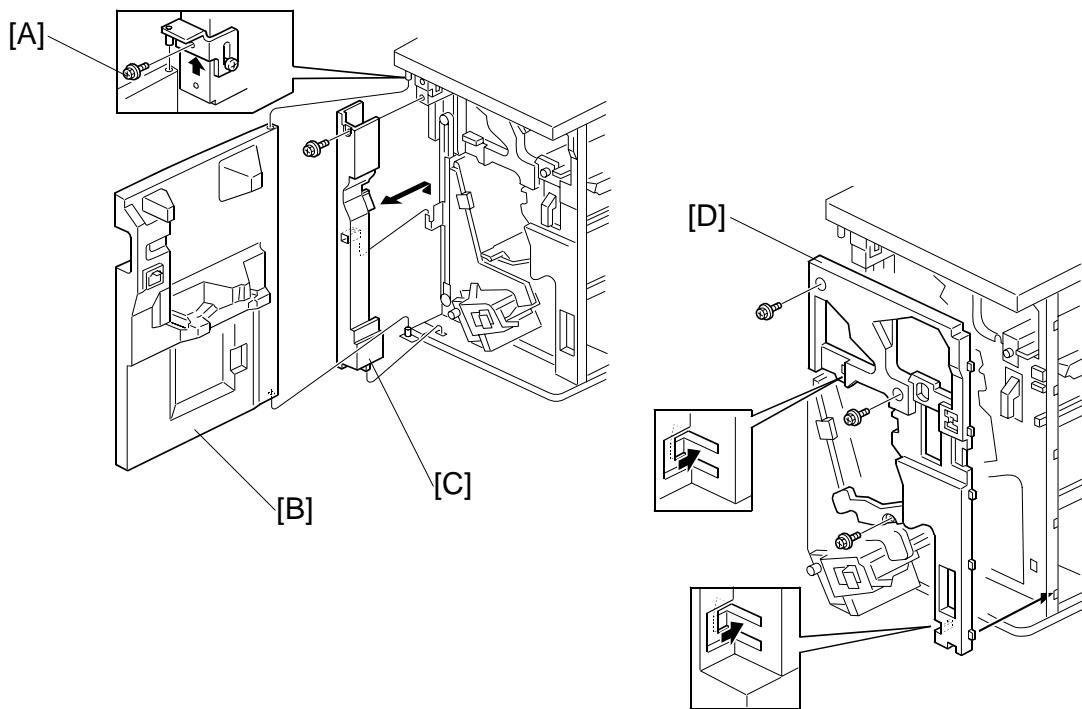
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1. REPLACEMENT AND ADJUSTMENT

1.1 COVERS



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1.1.1 FRONT DOOR, INNER COVER

Front Door

1. Remove the front door screw [A] ($\frac{1}{4}$ x 1).
2. Remove the front door [B].

Left Inner Cover

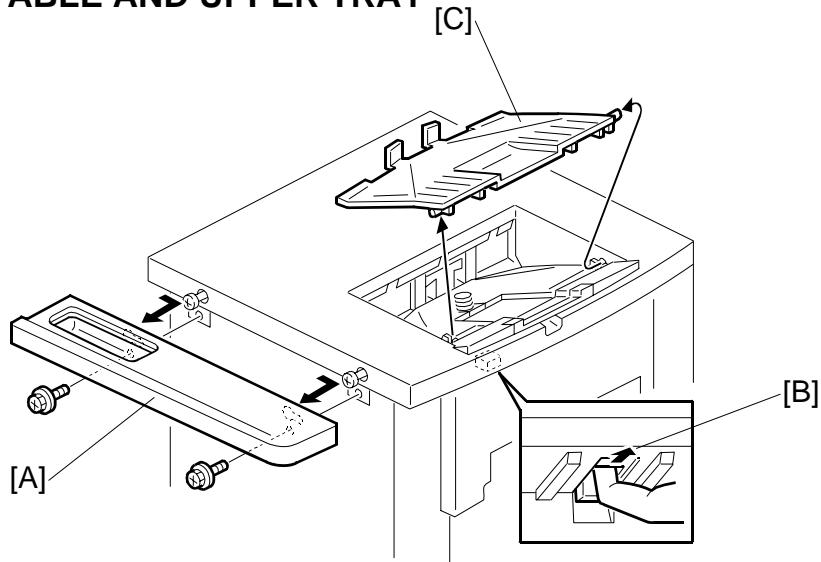
1. Remove the front door.
2. Remove the left inner cover [C] ($\frac{1}{4}$ x 1).

Inner Cover

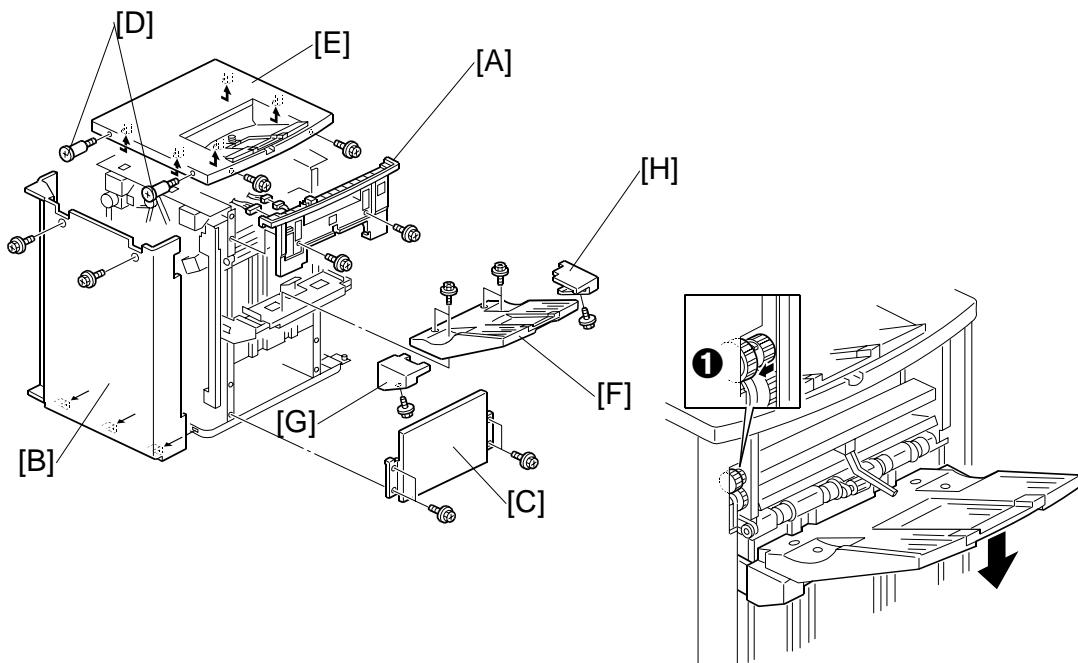
1. Remove the inner cover [D] ($\frac{1}{4}$ x 3).

REPLACEMENT AND ADJUSTMENT

1.1.2 SIDE TABLE AND UPPER TRAY



1. Remove the side table [A] ($\wedge \times 2$). Slide to the right to remove it.
2. Click the release lever [B] and remove the upper tray [C].

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1.1.3 LEFT COVERS, REAR COVER

Remove:

- Shift tray jogger unit (1.8.1)
- Remove the door and left inner cover. (1.1.1)
- [A] Remove the left upper cover (\wedge x 2, \square x 2).
- [B] Remove the rear cover (\wedge x 2).
- [C] Remove the left lower cover (\wedge x 4).

1.1.4 TOP COVER

Remove:

- Side table, upper tray (1.1.2)
- [D] Step screws (\wedge x 2).
- [E] Top cover (\wedge x 2). Slide to the right to remove.

1.1.5 SHIFT TRAY

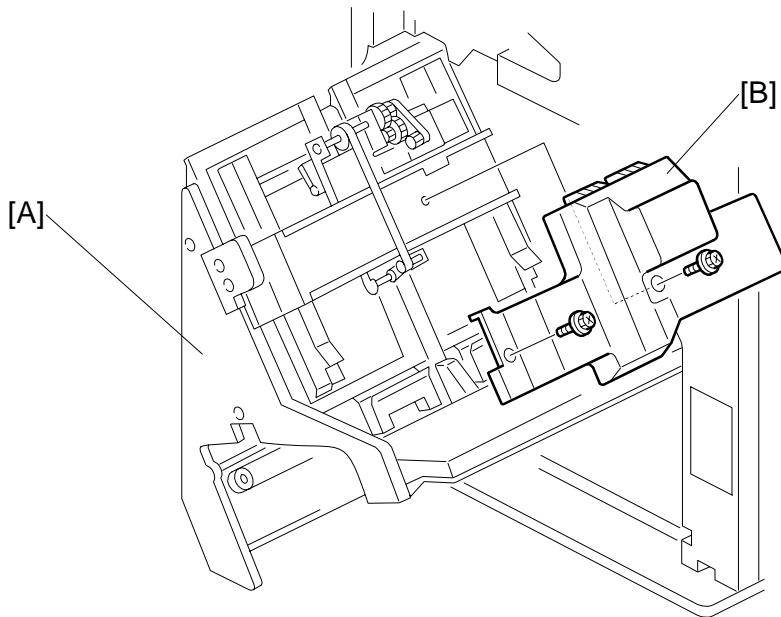
- If you need to lower the shift tray, support the bottom of the tray with your hand, then pull the gear toward you ① to release the tray and lower it.

Remove:

- [F] Remove the shift tray (\wedge x 4).
- [G] Shift tray rear cover (\wedge x 1)
- [H] Shift tray front cover [H] (\wedge x 1).

REPLACEMENT AND ADJUSTMENT

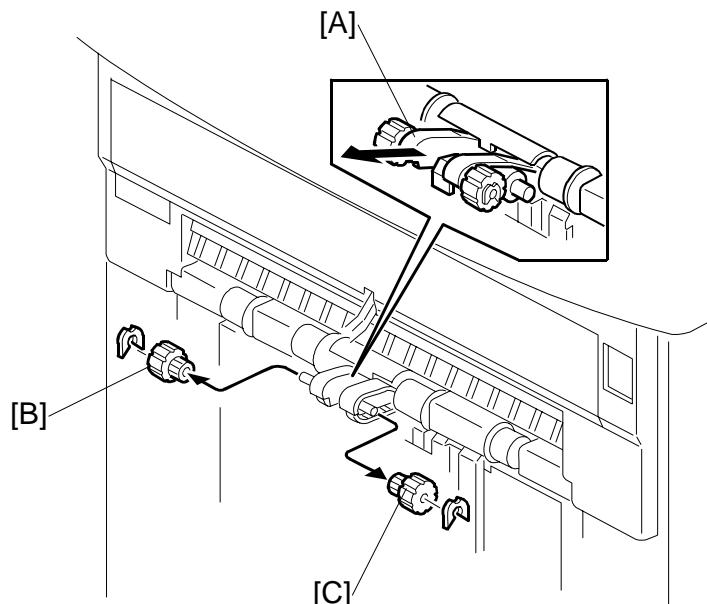
1.1.6 JOGGER UNIT COVER



1. Open the front door.
2. Pull out the stapler tray unit [A].
3. Remove the jogger unit cover [B] (\wedge x2)

1.2 ROLLERS

1.2.1 DRAG ROLLER

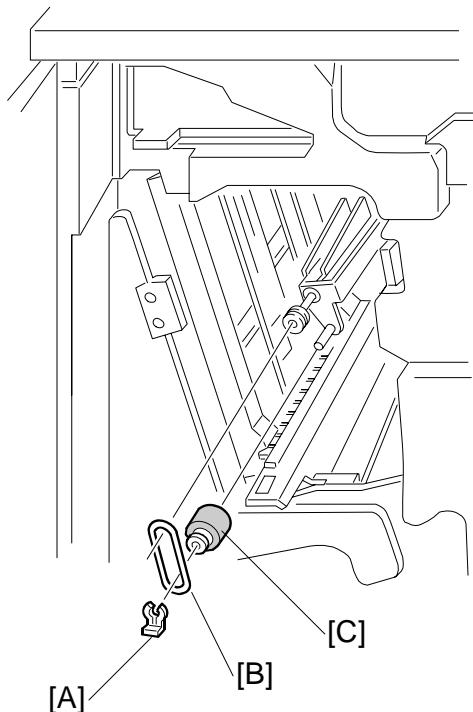


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1. Above the shift tray, pull the roller mount [A] out.
2. Remove the rollers [B] and [C] (\varnothing x 1 each)

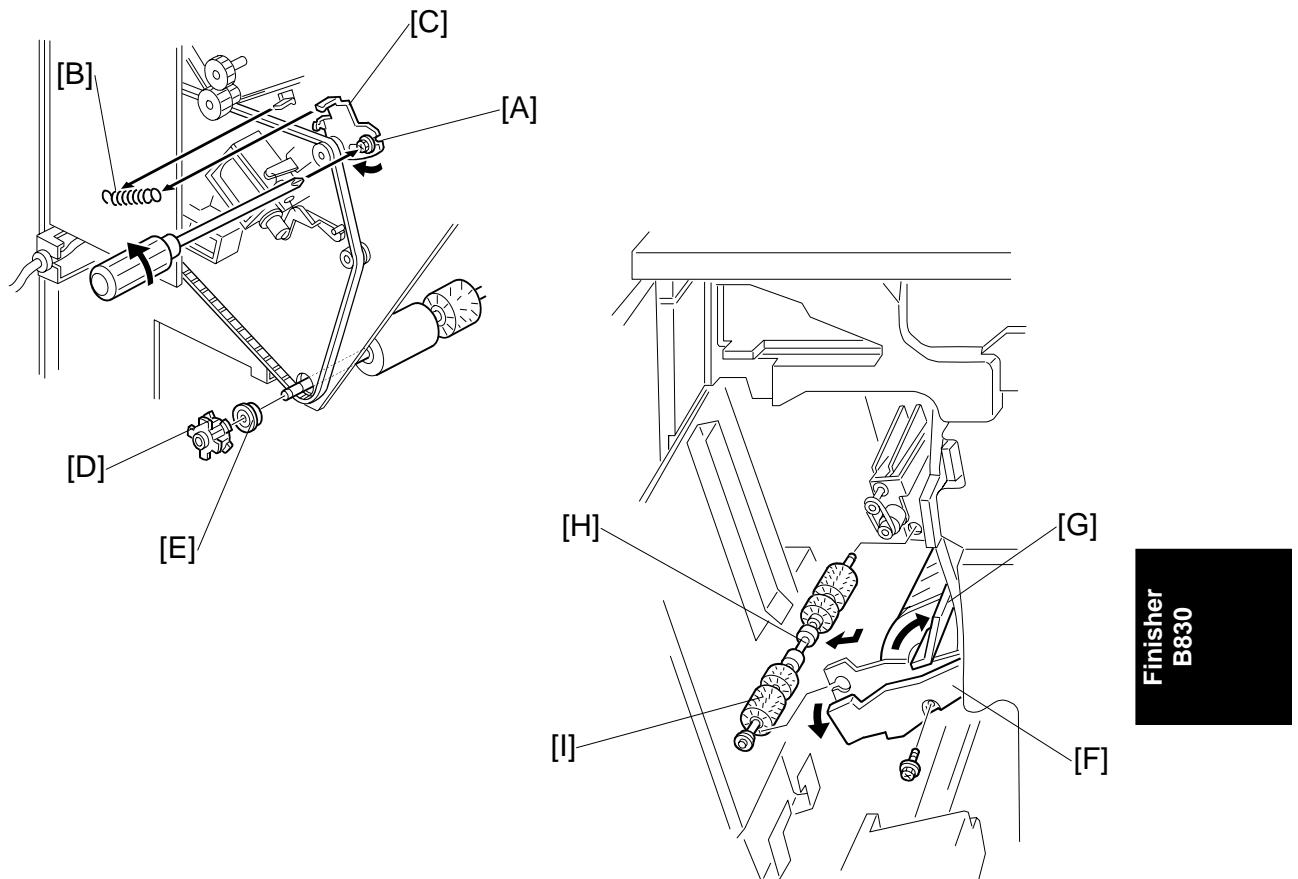
REPLACEMENT AND ADJUSTMENT

1.2.2 POSITIONING ROLLER



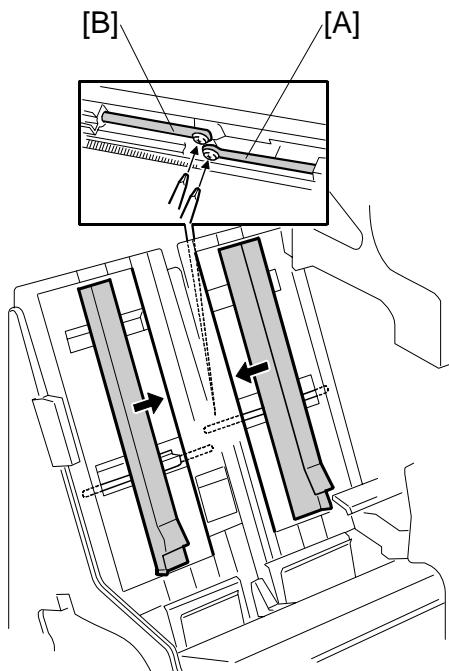
1. Remove the jogger unit cover (1.1.6)
2. Remove the snap ring [A].
3. Release the rubber belt [B].
4. Replace the positioning roller [C].

1.2.3 ALIGNMENT BRUSH ROLLER



1. Open the front door and pull out the staple unit.
2. Remove the rear cover.
3. Remove the main board bracket and all connectors (\wedge x 8). (●1.4.6)
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 bearing [E].
6. Remove the inner cover [F] (\wedge x 1).
7. Open the guide [G], then remove the alignment brush roller assembly [H].
8. Remove the alignment brush roller [I] (\odot x2, Bearing x 1 front/back, \odot x1).

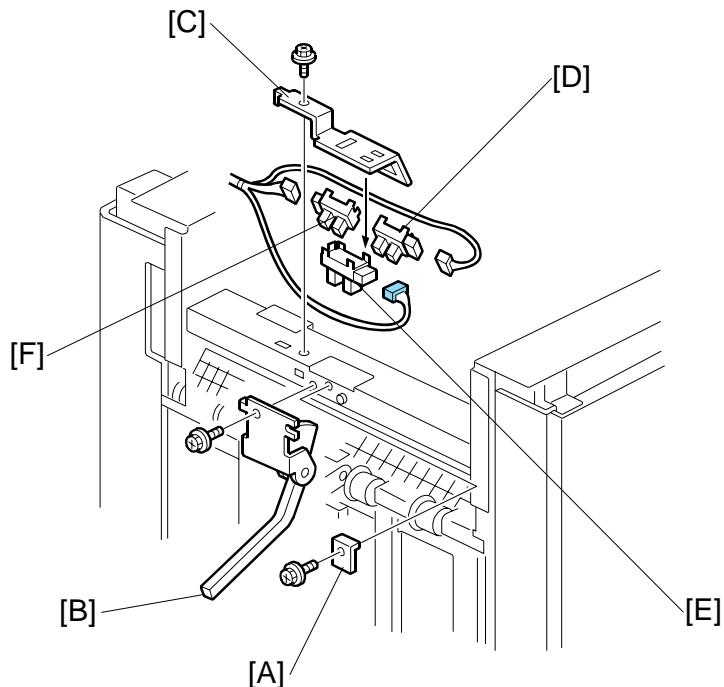
1.3 JOGGER FENCE



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] ($\text{Screw} \times 1$)
 5. Remove the right jogger fence [B] ($\text{Screw} \times 1$).
- NOTE:** If the screws are difficult to remove or re-attach, remove the jogger fence belt and spring plate.

1.4 SENSORS

1.4.1 PAPER HEIGHT SENSORS



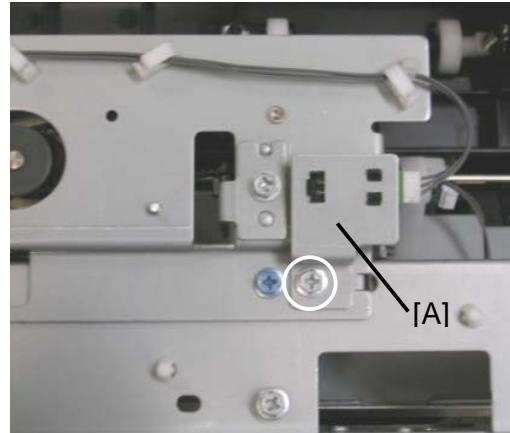
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Remove:

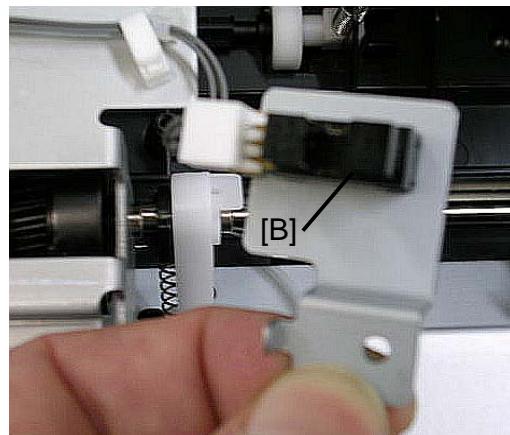
- Top cover. (1.1.1)
- Left upper panel and left upper cover (x 2, x 2) (1.1.3)
- [A] Protector plate (x 1).
- [B] Feeler (x 1).
- [C] Sensor bracket (x 1).
- [D] Paper height sensor – staple mode (x 1, Pawls x4)
- [E] Paper height sensor – standby mode (x 1, Pawls x4)
- [F] Paper height sensor – shift/Z-Fold(x 1, Pawls x4).

1.4.2 EXIT GUIDE HP SENSOR

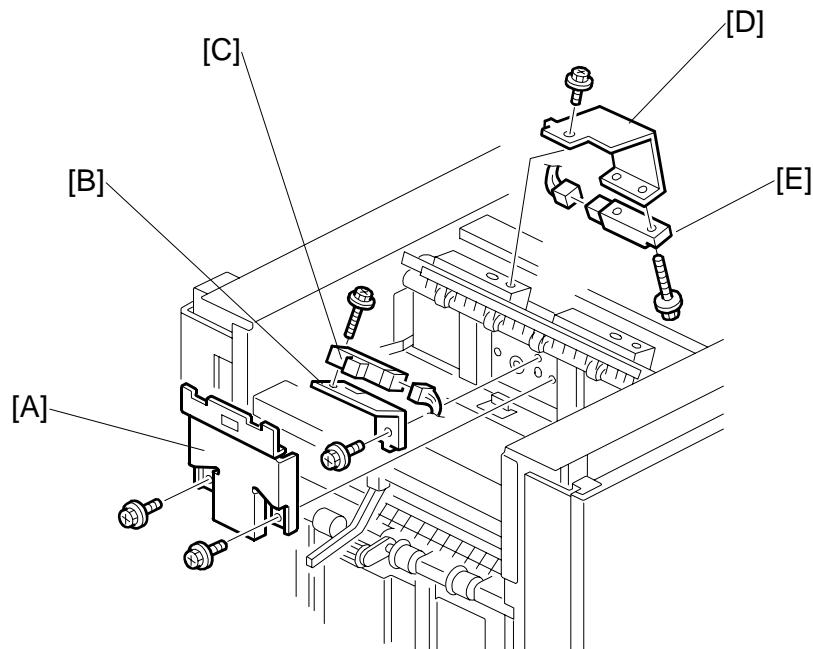
1. Remove the top cover. (1.1.1)
2. Remove the left upper panel and left upper cover (\wedge x 2, \square x 2).
3. Remove:
[A] Sensor bracket [A] (\wedge x 1).



[B] Exit guide HP sensor (\square x 1,
Pawls x3).



1.4.3 UPPER TRAY FULL AND EXIT SENSORS

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Upper Tray Full Sensor

1. Remove the top cover.
2. Remove the sensor cover [A] (\wedge x 2).
3. Remove the sensor bracket [B] (\wedge x 1).
4. Replace the upper tray full sensor [C] (\square x 1, \wedge x 1).

Upper Tray Exit Sensor

5. Remove the sensor bracket [D] (\wedge x 1).
6. Replace the upper tray exit sensor [E] (\square x 1, \wedge x 1).

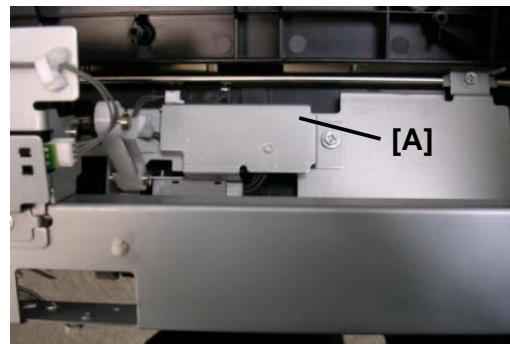
REPLACEMENT AND ADJUSTMENT

1.4.4 SHIFT TRAY EXIT SENSOR

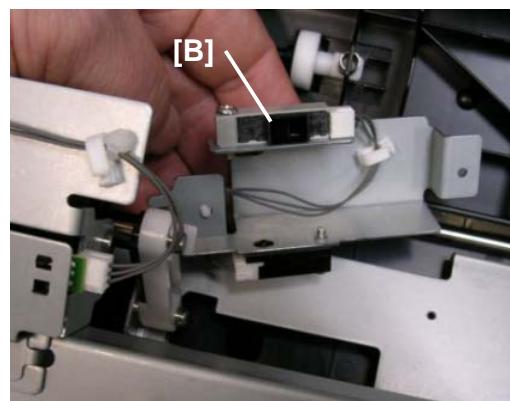
Remove the top cover (☞1.1.4)

Remove:

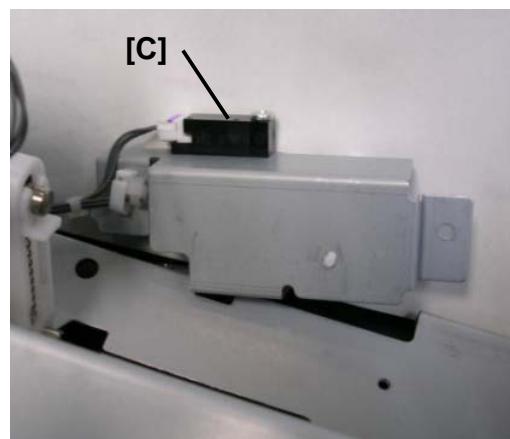
[A] Sensor bracket (☞ x1)



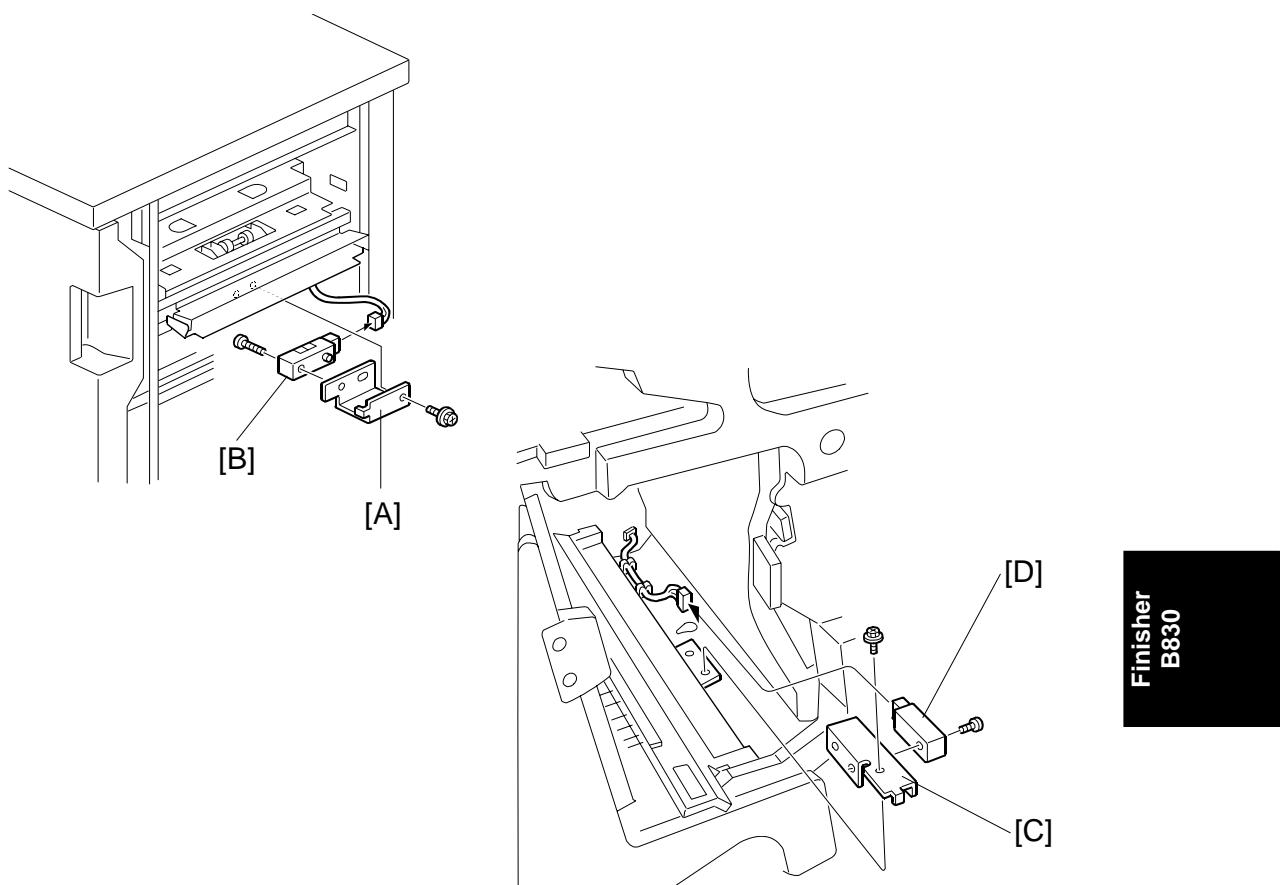
[B] Shift tray exit sensor 1 (☞ x1, ☎ x1)



[C] Shift tray exit sensor 2 (☞ x1, ☎ x1)



1.4.5 ENTRANCE AND STAPLER TRAY ENTRANCE SENSORS



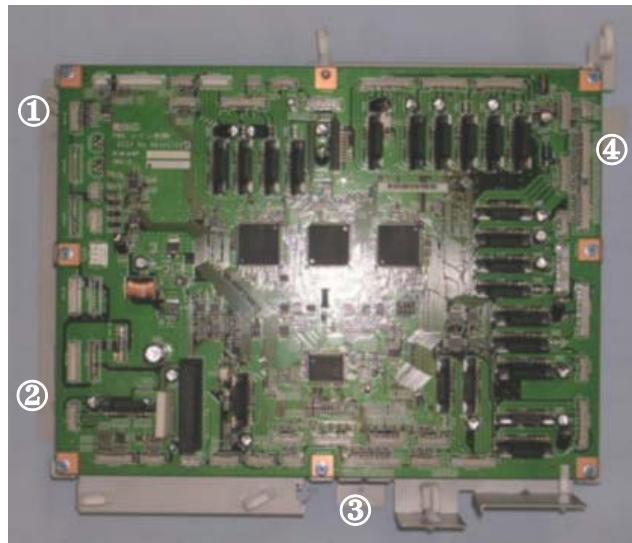
Entrance Sensor

1. Disconnect the finisher from the copier.
2. Remove the sensor bracket [A] (\wedge x 1).
3. Replace the entrance sensor [B] (\wedge x 1) (\square x 1).

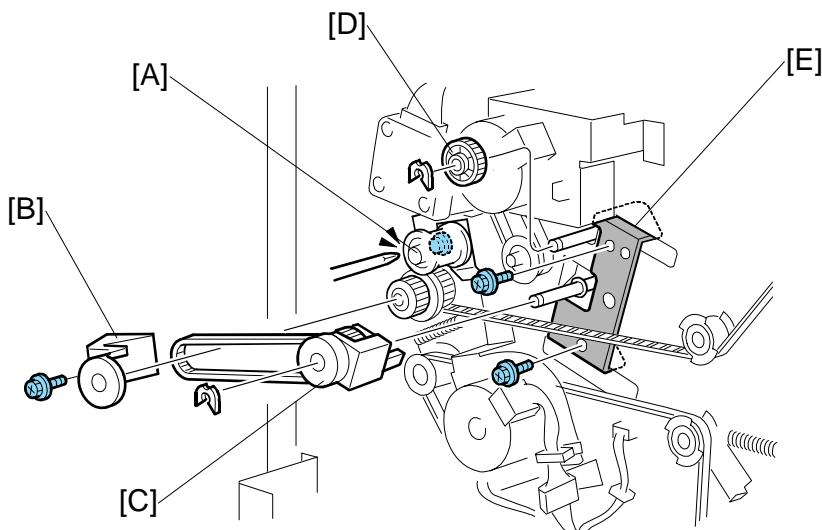
Stapler Tray Entrance Sensor

1. Open the front door.
2. Remove the sensor bracket [C] (\wedge x 1).
3. Replace the stapler tray entrance sensor [D] (\wedge x 1) (\square x 1).

1.4.6 MAIN BOARD, PRE-STACK PAPER SENSOR



1. Remove the rear cover. (☞1.1.4)
2. Remove the main board bracket (x 4, x 8, x All).
3. Open the front door.

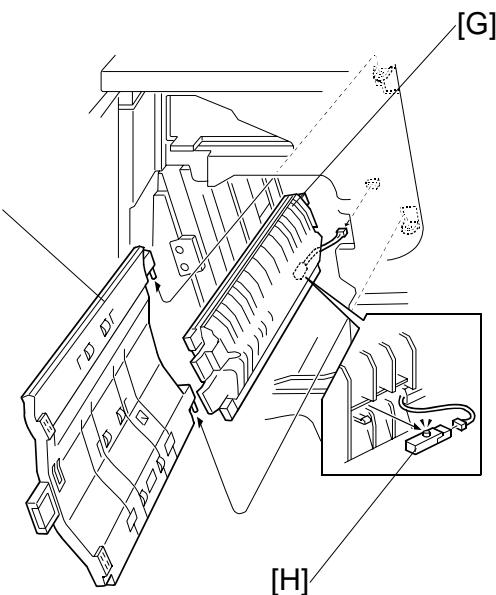


Loosen the screw [A] (x1)

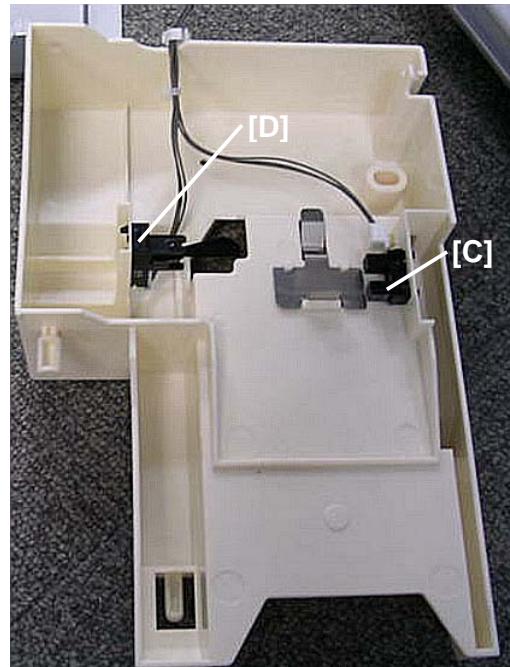
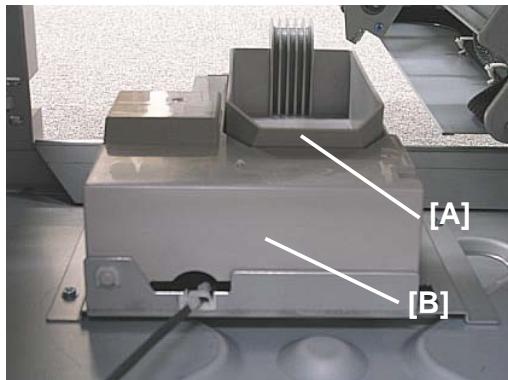
Remove:

- [B] Gear cover (x1)
- [C] Gear (x1, Timing belt x1)
- [D] Gear (x1)
- [E] Plate (x2)
- [F] Left vertical transport guide
- [G] Middle vertical transport guide
- [H] Pre-stack paper sensor (x1)

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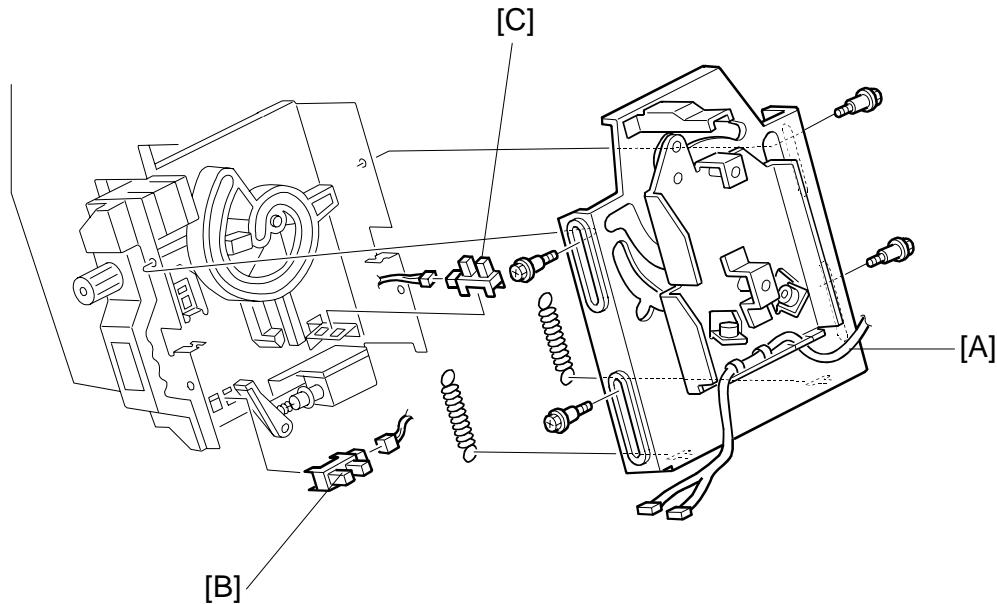
1.4.7 STAPLE TRIMMINGS HOPPER FULL SENSOR



- Open the front door
- Pull out the stapler unit
- Remove the rear cover (扳手 x 2).

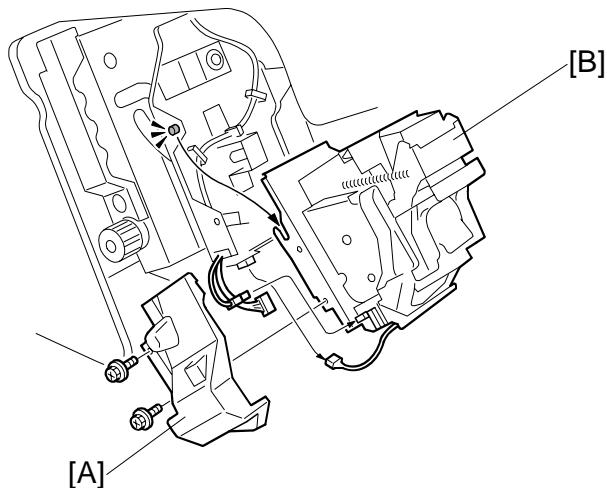
Remove:

- [A] Staple trimmings hopper
- [B] Hopper holder (扳手 x1, Hook x1, 螺栓 x1)
- [C] Hopper full sensor (传感器 x 1)
- [D] Hopper set sensor (传感器 x 1)

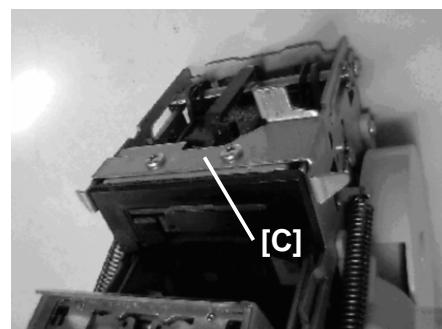
1.4.8 STAPLER ROTATION HP AND STAPLER RETURN SENSORSFinisher
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1. Remove the stapler unit. (See next page.)
2. Remove the stapler mount bracket [A] (\wedge x 4) (Springs x 2).
3. Replace the stapler rotation HP sensor [B] (\square x 1).
4. Replace the stapler return sensor [C] (\square x 1).

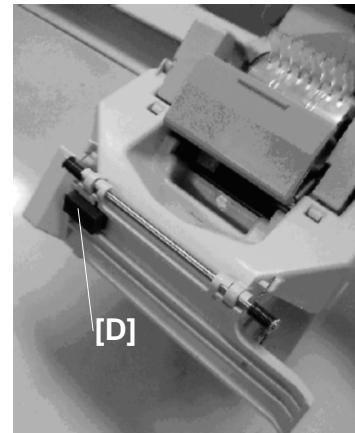
1.5 STAPLER



1. Open the front door and pull out the staple tray.
2. Remove the stapler unit harness cover [A] (\wedge x 2).
3. Lift the stapler [B] off of its pegs (\square x 2)
4. Remove plate [C] (\wedge x 2).
5. Attach this plate to the new stapler with the same screws (\wedge x 2)

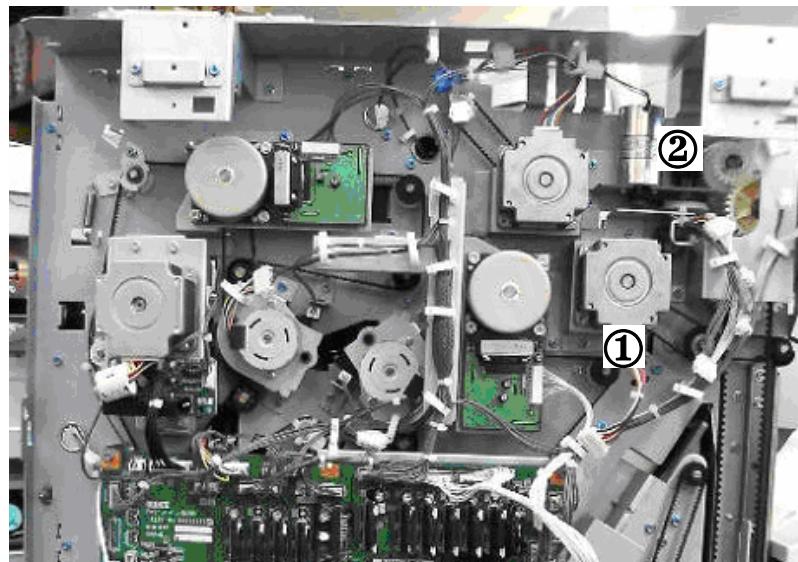


6. Replace the frame guard [D] with the one provided with the new stapler.



1.6 SHIFT TRAY

1.6.1 SHIFT TRAY EXIT, SHIFT TRAY LIFT MOTOR



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(1) Shift Tray Exit Motor

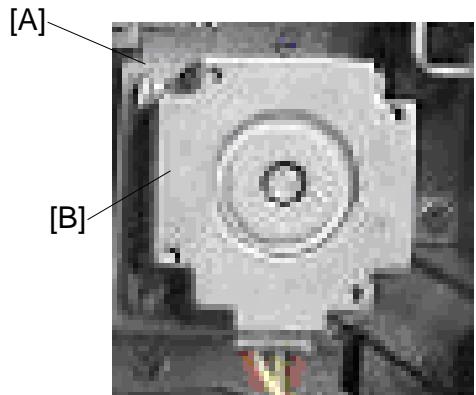
(2) Shift Tray Lift Motor

Shift Tray Exit Motor

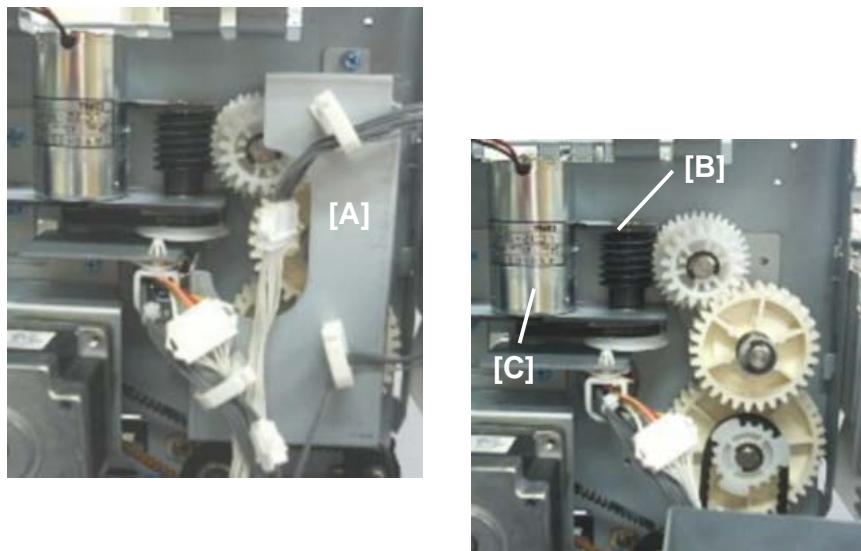
- Rear cover (1.1.4)

[A] Shift tray exit motor bracket
(\wedge x2, \square x1, \triangle X1, Timing belt x1)

[B] Shift tray exit motor (\wedge x2)



Shift Tray Lift Motor



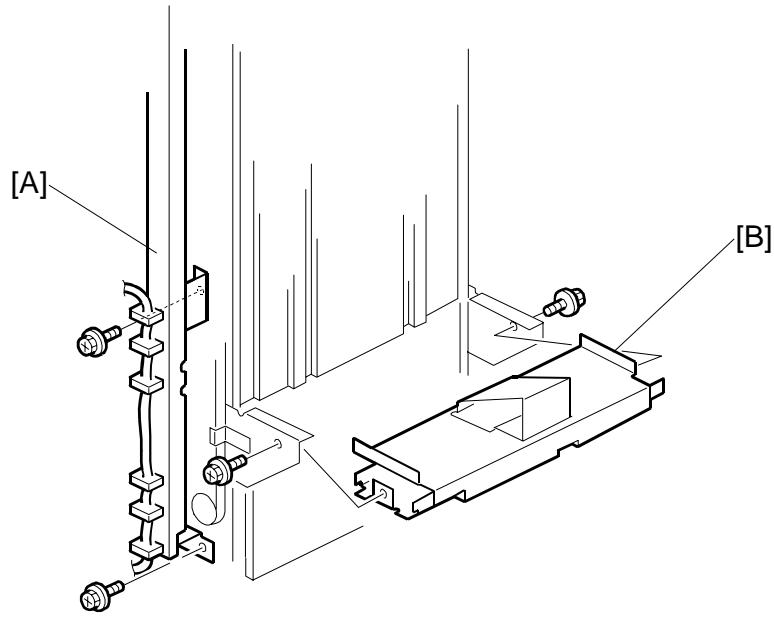
- Rear cover (☞1.1.4)

[A] Gear cover (☞ x2)

[B] Shift tray lift motor bracket (☞ x2)

[C] Shift tray lift motor (☞ x2, ☎ x1, Timing belt x1)

1.6.2 DRAG ROLLER/DRAG DRIVE MOTORS, DRAG DRIVE HP SENSOR



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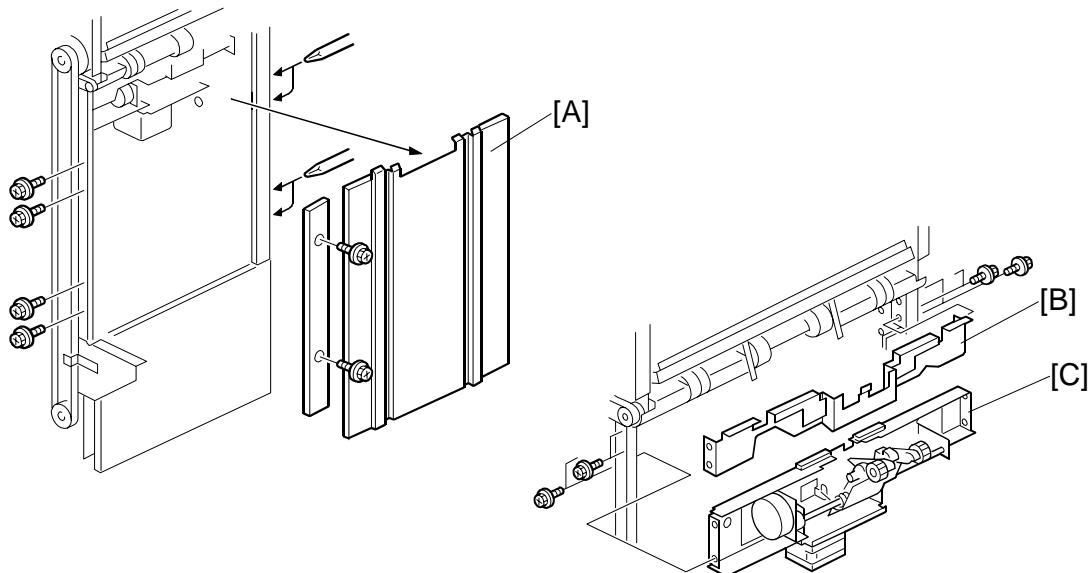
Remove:

- Front door and all covers, except the left lower cover, top cover (1.1)

NOTE: Be sure to lower the shift tray by pulling the gear toward you. The shift tray must be down.

1. Remove the left stay [A] ($\frac{1}{8}$ x 2)
2. Remove the shift tray mounting plate [B] ($\frac{1}{8}$ x 2).

REPLACEMENT AND ADJUSTMENT

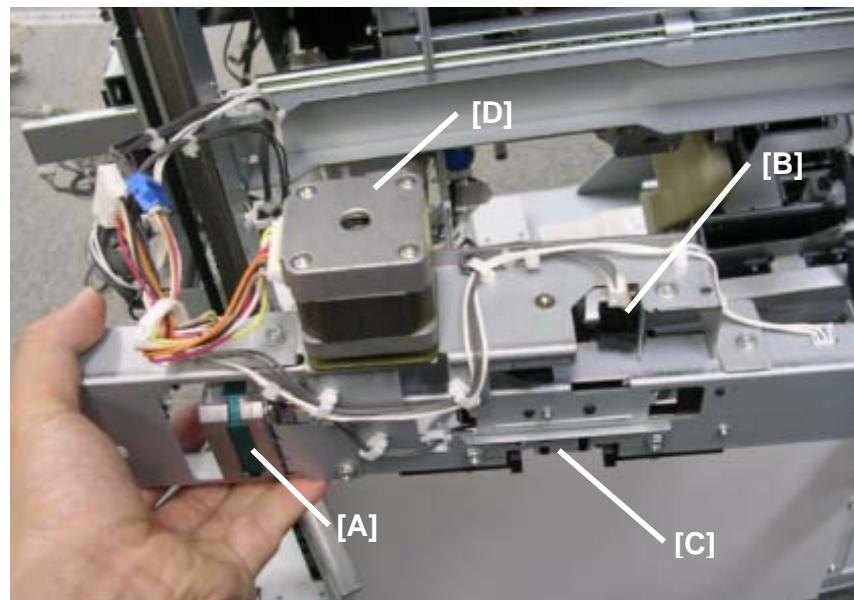


3. Remove the end fence [A] and plate (\wedge x8, \square x6, $\square\!\square$ x2).

4. Remove cover [B] (\wedge x 4).

5. Remove the motor stay [C] (\wedge x4, \square x7, $\square\!\square$ x4).

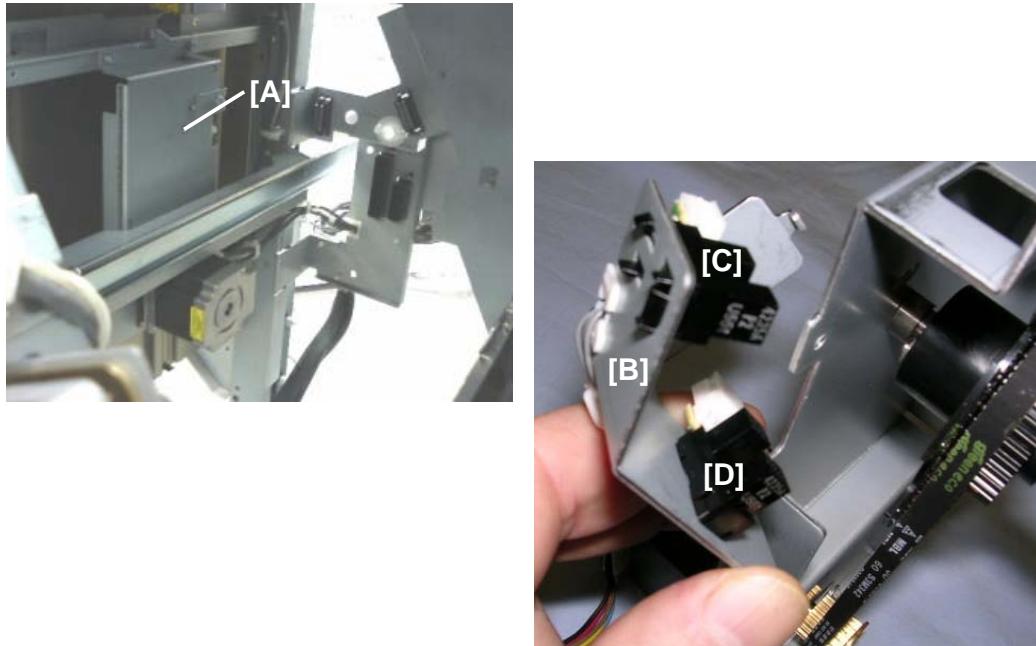
NOTE: Make sure the motor and sensor connectors are disconnected before removing.



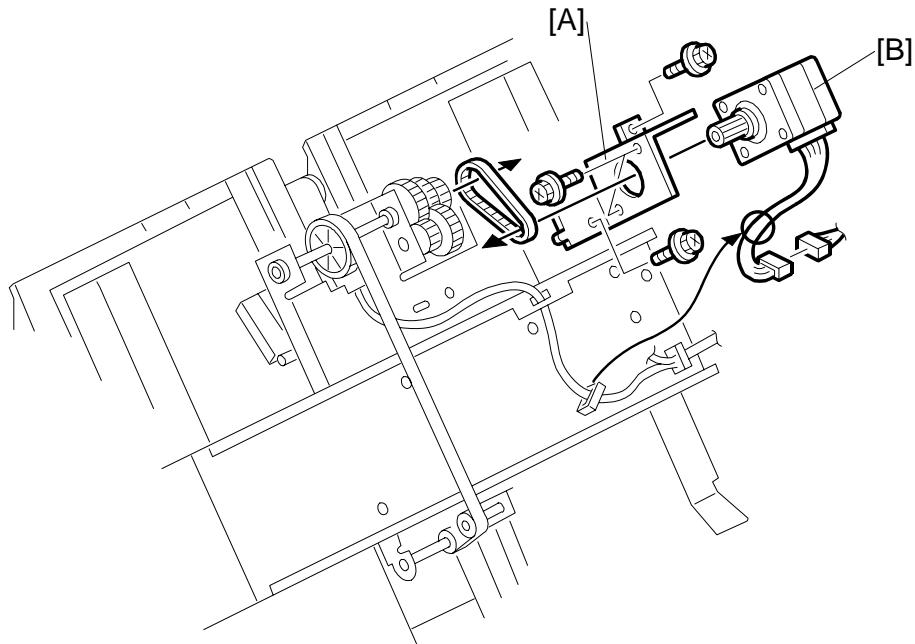
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6. Remove the drag roller motor unit [A] (Bearing x1, ⚡ x2, 📈 x1)
7. Remove the drag roller motor (⚡ x2)
8. Remove the drag roller HP sensor unit [B] (⚡ x1)
9. Remove the drag roller HP sensor (📘 x1, Pawls x3)
10. Remove the paper height sensor – shift/Z-fold unit [C] (⚡ x2, 📈 x2)
11. Remove the paper height sensor shift/Z-fold (📘 x1, Pawls x3)
12. Remove the drag drive motor unit (📘 x4, 📈 x2)
13. Remove the drag drive motor (📘 x2)

1.6.3 SHIFT MOTOR AND SENSORS



1. Remove the end fence (1.6.2)
2. Remove the shift motor bracket [A] (with motor) (\wedge x 4, \square x 1, \square x 1)
3. Remove the shift motor (\wedge x 4)
4. Remove the half-turn sensor bracket [B] (\wedge x 1)
5. Remove half-turn sensor 1 [C] (\square x 1, Pawls x3)
6. Remove half-turn sensor 2 [D] (\square x 1, Pawls x3)

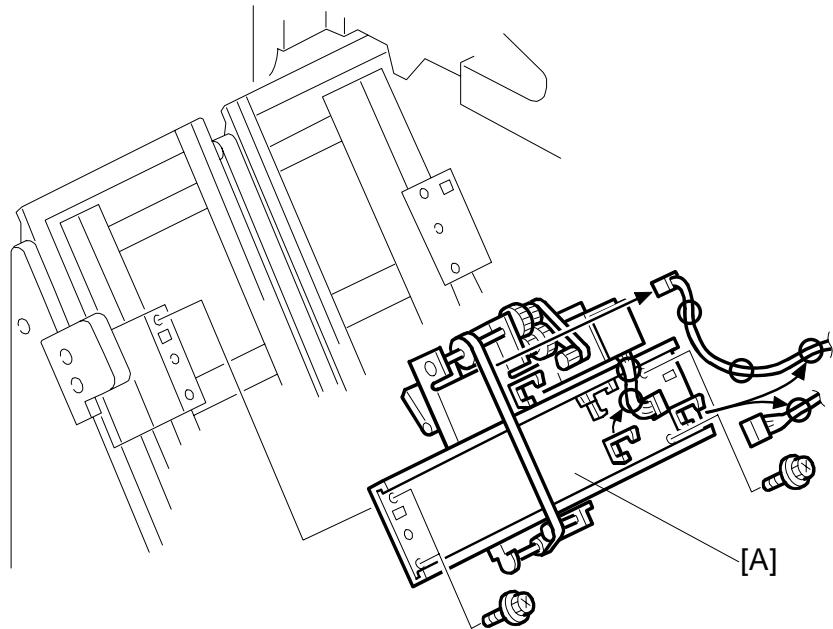
1.6.4 JOGGER TOP FENCE MOTOR

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1. Open the front door and pull out the stapler tray unit. (→1.1.6)
2. Remove the jogger unit cover (撬 x2)
3. Remove the motor bracket [A] (撬 x2, timing belt x1)
4. Remove the jogger top fence motor [B] (撬 x2 螺 x1 断线 x1)

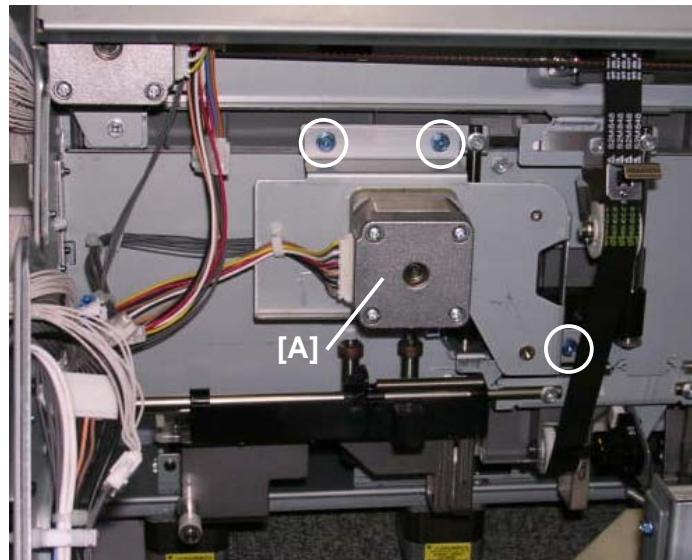
REPLACEMENT AND ADJUSTMENT

1.6.5 JOGGER UNIT



1. Open the front door and pull out the stapler tray unit.
2. Remove the jogger unit cover (x2)
3. Remove the jogger unit [A] (x4, x5, x5)

1.6.6 JOGGER BOTTOM FENCE MOTOR

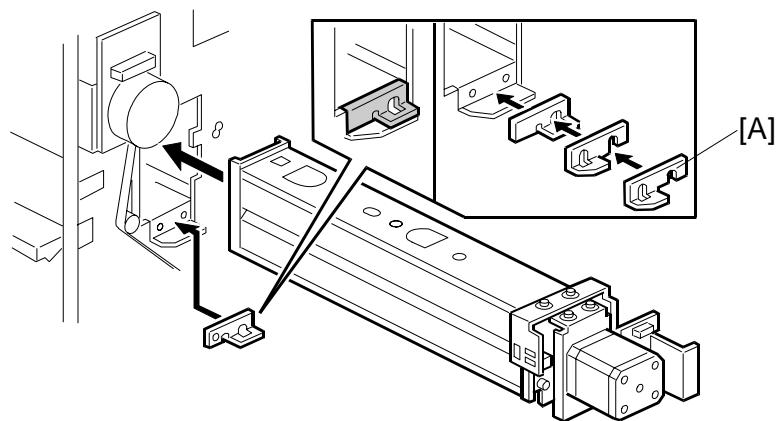


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1. Open the front door and pull out the stapler tray unit.
2. Remove the jogger bottom fence motor unit [A] (x3, timing belt x1, x1, x1).

1.7 PUNCH UNIT

1.7.1 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:

- 2 mm (x 1)
- 1 mm (x 2)

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.

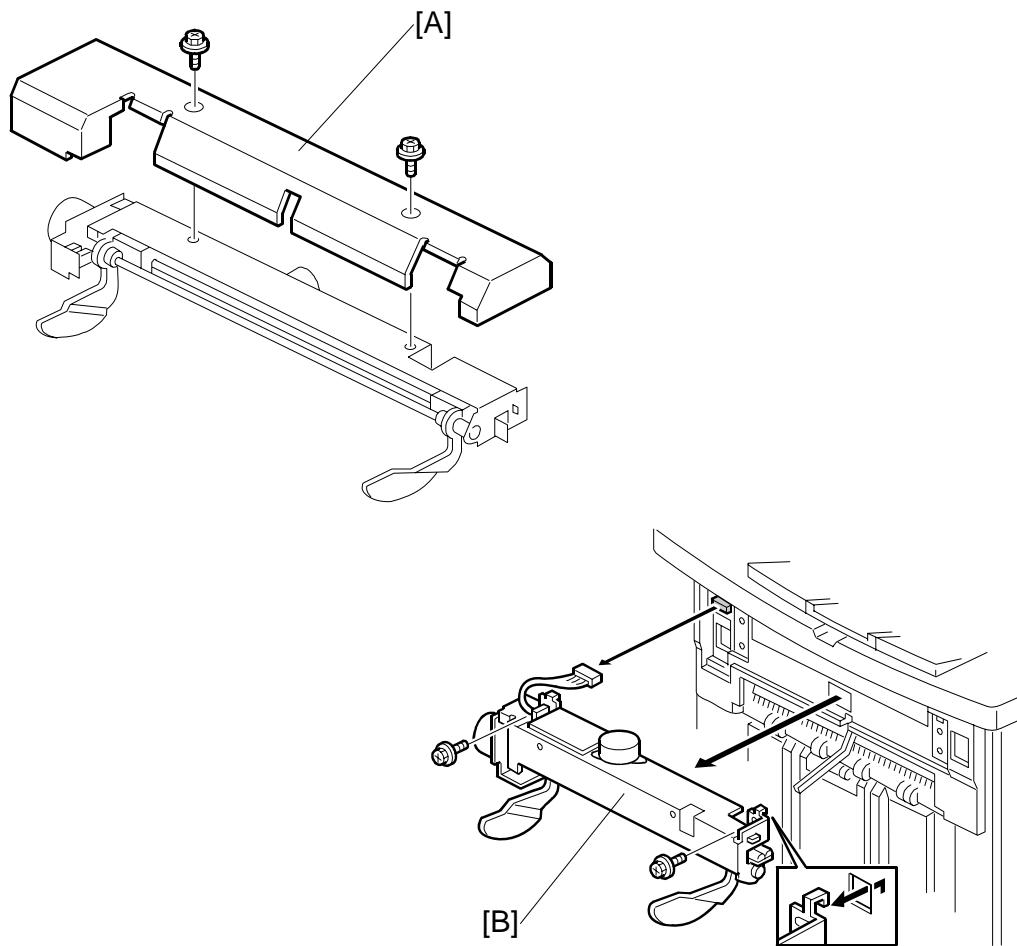
Right to Left Adjustment

The position of the punched holes can be adjusted right to left in the sub scan direction with **SP6101** Punch Hole Position 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 \pm selection. A +ve value shifts the punch holes left toward the edge of the paper, and a -ve value shifts the holes right away from the edge.

1.8 SHIFT TRAY JOGGER UNIT

1.8.1 SHIFT TRAY JOGGER UNIT

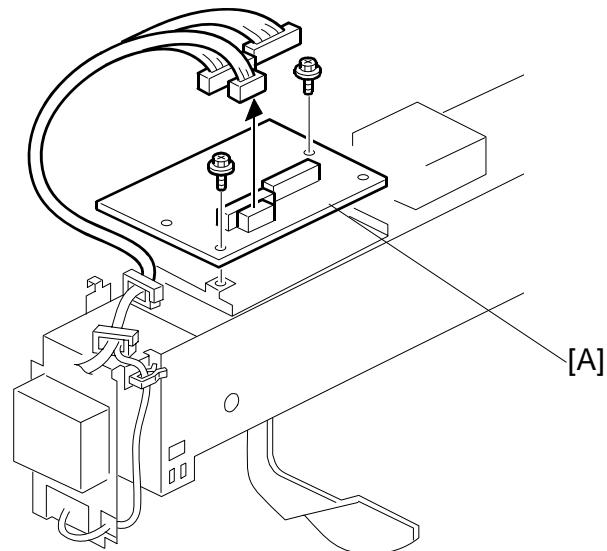


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1. Remove the jogger unit cover [A] (\wedge x 2).
2. Remove the jogger unit [B] (\wedge x 2, \square x 1).

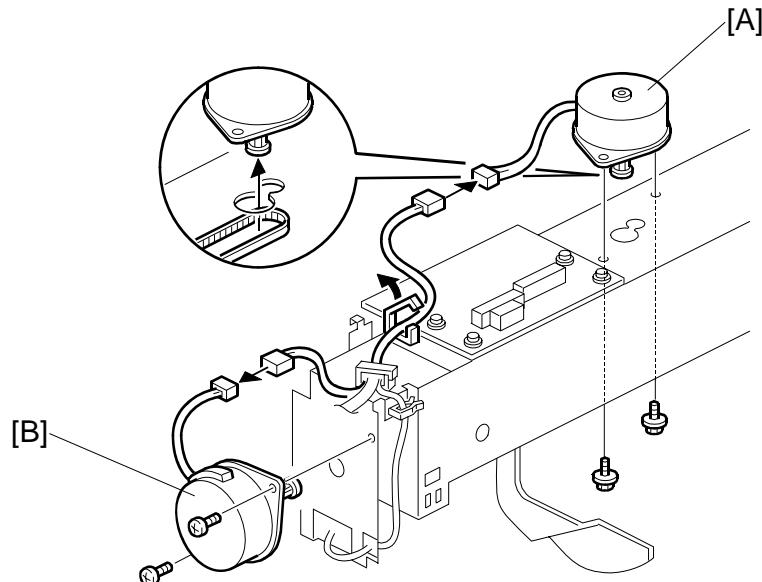
REPLACEMENT AND ADJUSTMENT

1.8.2 SHIFT TRAY JOGGER UNIT PCB



1. Remove the jogger unit from the finisher. (☞ 1.8.1)
2. Remove the jogger unit control PCB [A] (x 2, x 3)

1.8.3 SHIFT TRAY JOGGER UNIT MOTORS

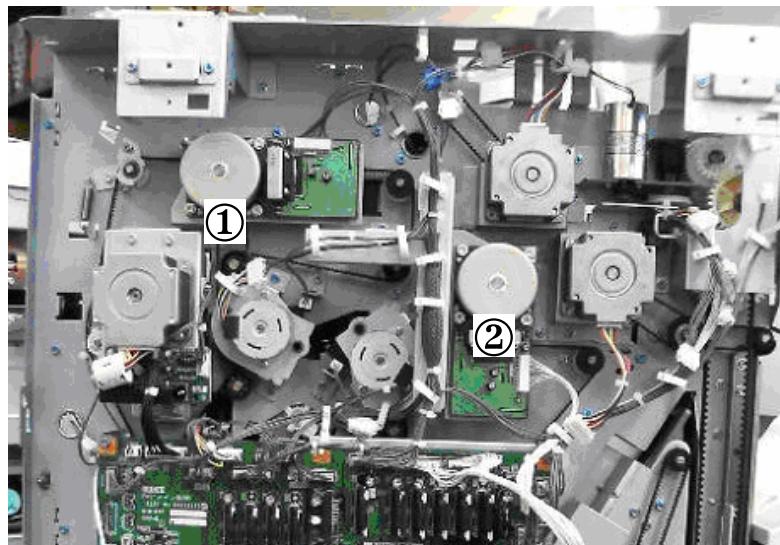


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1. Remove the jogger unit from the finisher. (☞ 1.8.1)
2. Remove the shift tray jogger motor [A] (x 2, x 1).
3. Remove the shift tray jogger retraction motor [B] (x 2, x 1).

1.9 MOTORS

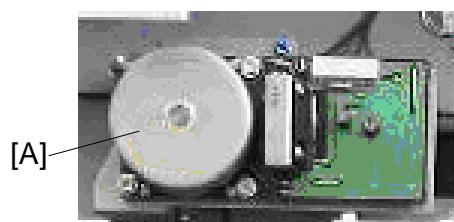
1.9.1 TRANSPORT MOTORS, EXIT GUIDE MOTOR



| | |
|-----|-----------------------|
| (1) | Upper Transport Motor |
| (2) | Lower Transport Motor |

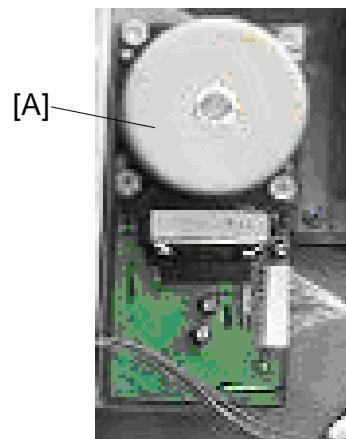
Upper Tray Transport Motor

- Rear cover (1.1.4)
- [A] Upper transport motor (x4, x1)

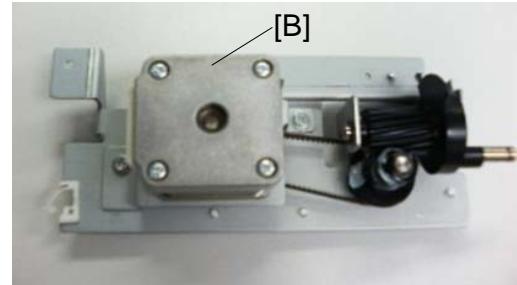
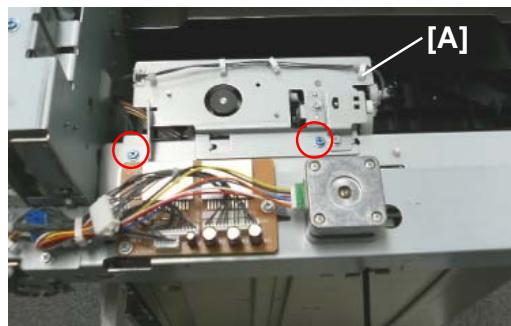


Lower Transport Motor

- Rear cover (●-1.1.4)
- [A] Lower transport motor (掣 x4, 纸 x1)



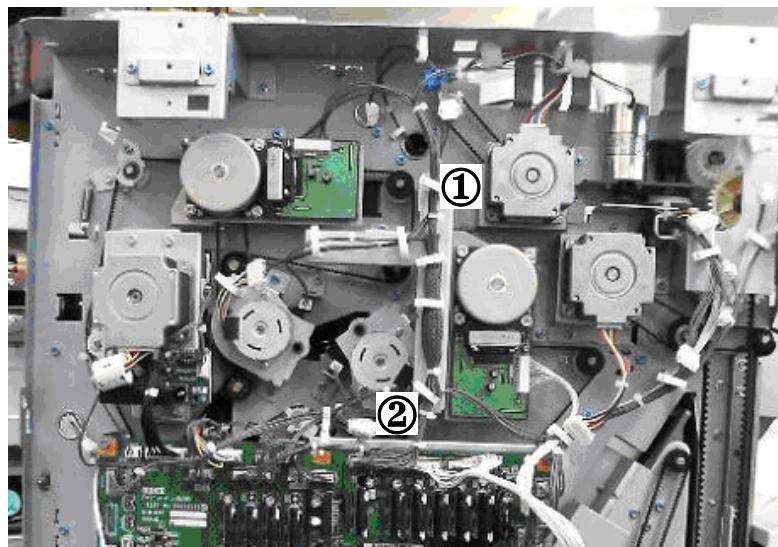
Exit Guide Motor



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- Top cover (●-1.1.4)
- [A] Bracket (掣 x2, 纸 x1)
- [B] Exit guide motor (掣 x2, 纸 x1, Timing belt x1)

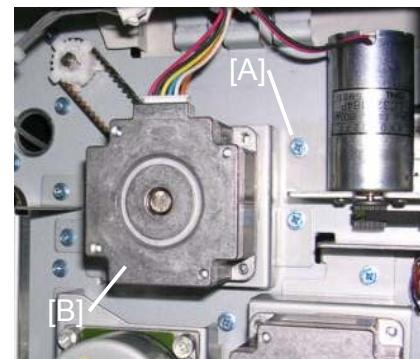
1.9.2 UPPER TRAY MOTORS



| | |
|-----|--------------------------------|
| (1) | Upper Tray Exit Motor |
| (2) | Upper Tray Junction Gate Motor |

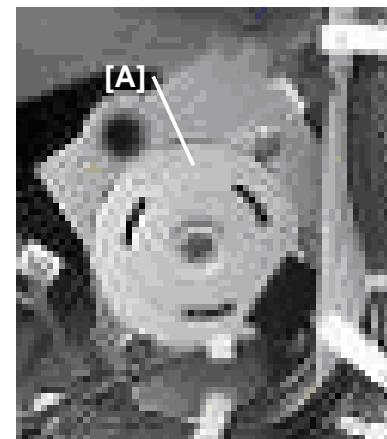
Upper Tray Exit Motor

- ⇒ • Rear cover (1.1.4)
[A] Motor bracket (x2, x1)
[B] Upper tray exit motor (x2, Timing belt x1)



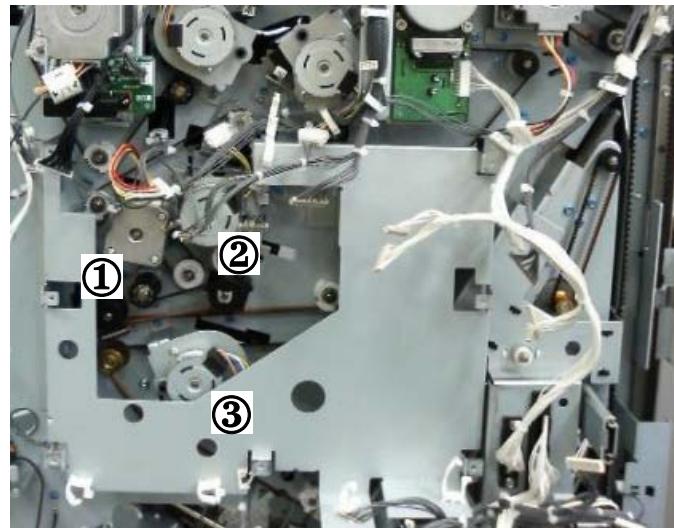
Upper Tray Junction Gate Motor

- Rear cover (1.1.4)
- [A] Upper tray junction gate motor(x2, x1)



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1.9.3 PRE-STACK MOTORS

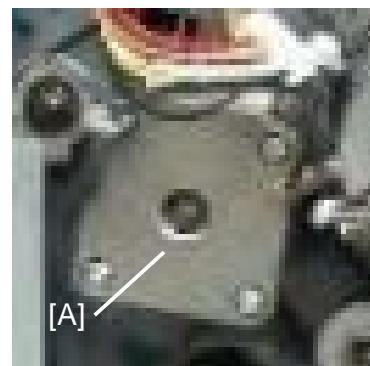


The photograph above shows the main control board removed ($\text{ }\times 4$, $\text{ }\times \text{ All}$).

| | |
|-----|-------------------------------|
| (1) | Pre-Stack Transport Motor |
| (2) | Pre-Stack Junction Gate Motor |
| (3) | Pre-Stack Stopper Motor |

Pre-Stack Transport Motor

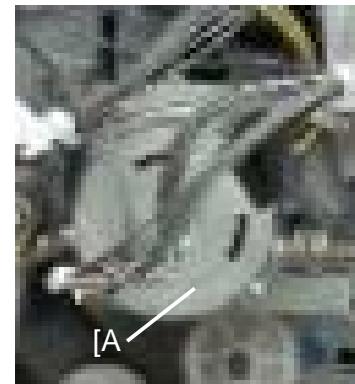
- Rear cover ($\text{ }\times 1.4$)
 - Main control board bracket ($\text{ }\times 4$, $\text{ }\times \text{ All}$, $\text{ }\times 8$)
 - Motor unit ($\text{ }\times 2$, $\text{ }\times 1$)
- [A] Pre-stack transport motor ($\text{ }\times 2$)



Pre-Stack Junction Gate Motor

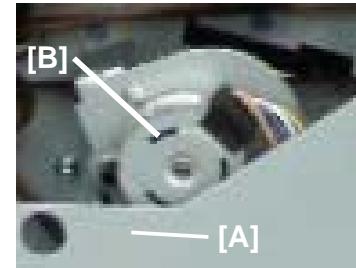
- Rear cover (1.1.4)
- Main control board bracket (x4, xAll, x8)

[A] Pre-stack junction gate motor (x2, x1, x1)

**Pre-Stack Stopper Motor**

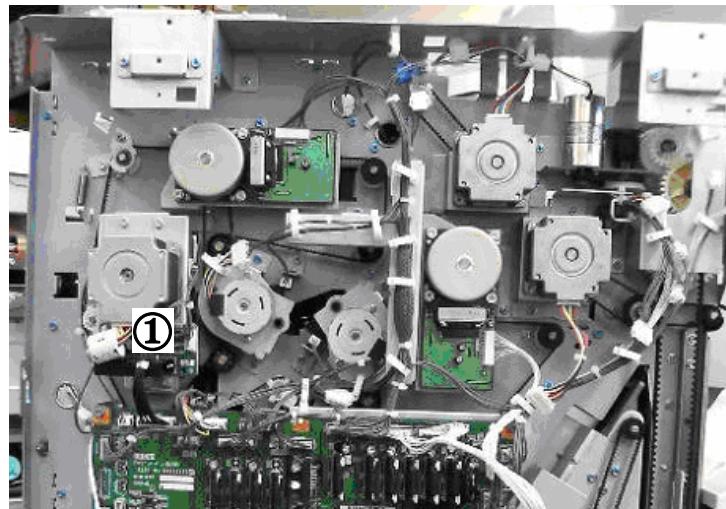
- Rear cover (1.1.4)
- Main control board bracket (x4, xAll, x8)

[A] Pre-stack stopper motor (x2, x1, x1)



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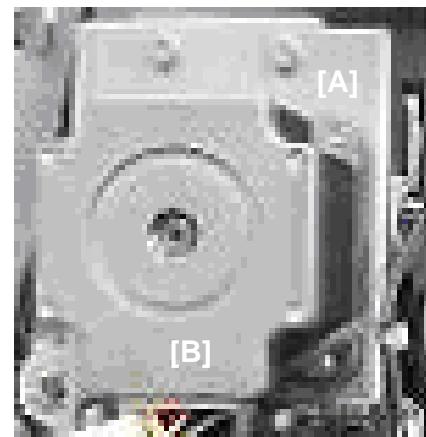
1.9.4 PUNCH MOTOR



| | |
|---|-------------|
| ① | Punch Motor |
|---|-------------|

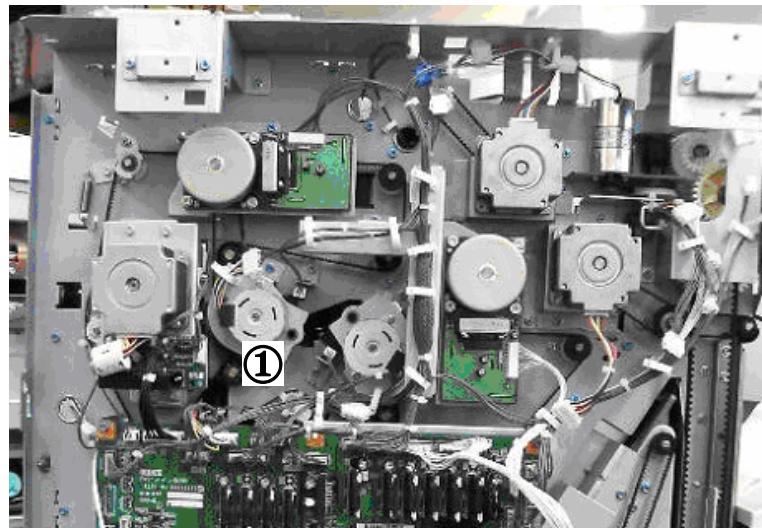
Punch Motor

- Rear cover (☞1.1.4)
- [A] Punch motor bracket (☞ x3, ↗ x2, ↘ x1,
Timing belt x1)
- [B] Punch motor (☞ x2)



1.9.5 STAPLE MOTORS

*



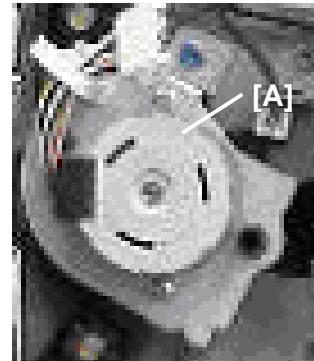
①

Staple Junction Gate Motor

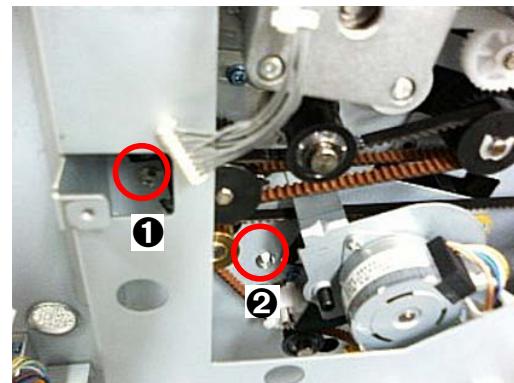
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Staple Junction Gate Motor

- Rear cover (1.1.4)
- [A] Staple junction gate motor (x2, x1, x1)



Stapler Exit Motor



| | |
|---|--------------------|
| ① | Stapler Exit Motor |
|---|--------------------|

- Main control board bracket (镙 x4, 銀 x 8, 鋼 x All)
 1. Remove the stapler exit motor ① (镙 x2 ①, ②, 鋼 x2, Timing belt x1)

2. SERVICE TABLES

For details about 3000-Sheet Finisher B830 SP codes, please refer to “5. Service Tables” in the main machine service manual.

2.1 DIP SWITCHES

DIP SW100

This DIP SW100 settings are for designer and factory use only. Do not change them.

DIP SW 101: 1 to 4

| DPS100 | | | | Description |
|--------|---|---|---|--|
| 1 | 2 | 3 | 4 | |
| 0 | 0 | 0 | 0 | Default |
| 1 | 0 | 0 | 0 | Free run: 135 ppm (649 mm/s) A4 LEF, 5 sheets |
| 0 | 1 | 0 | 0 | Proof tray free run for durability testing: proof tray + punch + junction gate operation + proof tray output.: |
| 0 | 0 | 1 | 0 | Shift free run: Shift mode simulation 136 ppm (649 mm/s) A4 SEF, 5 sheets, continuous punching 110 ppm (515mm/s) |
| 0 | 0 | 0 | 1 | Sensor check before shipping, lowering the tray before shipping. DFU . Do not change. |



2.2 TEST POINTS

100 to 110

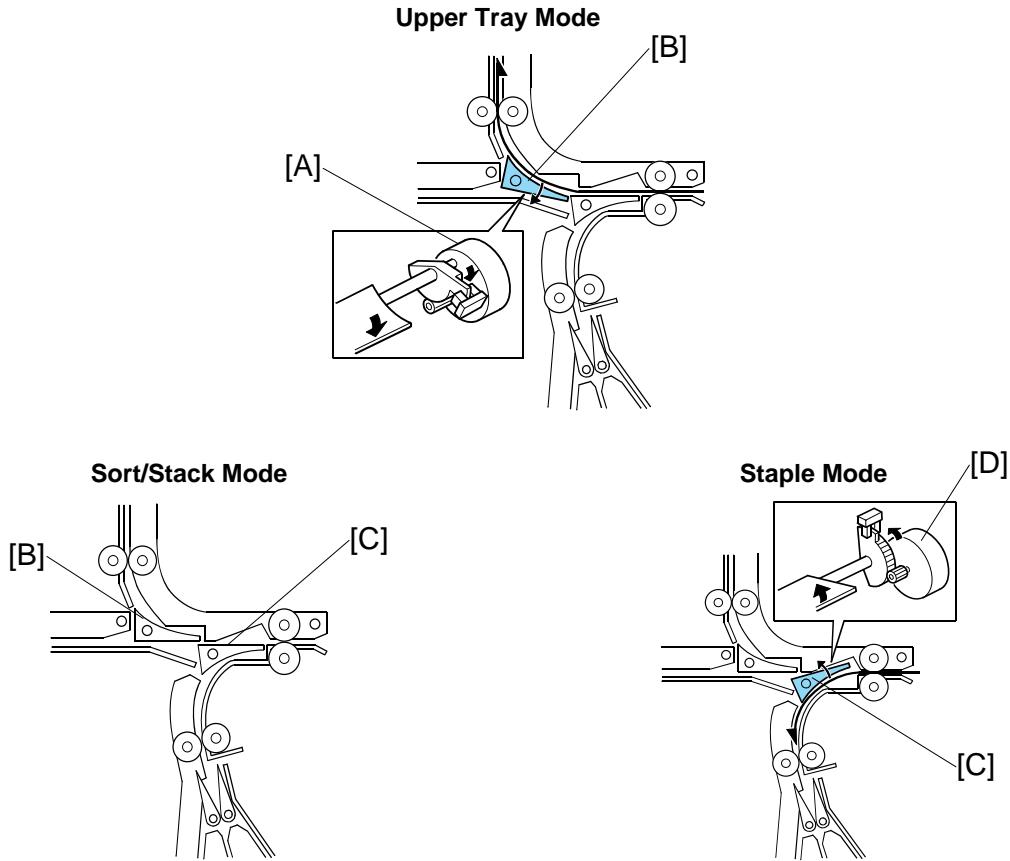
| No. | Label | Monitored Signal | Comment |
|-------|-------|------------------|---|
| TP100 | (5V) | +5 V | Used for sensor point testing, lowering the tray to shipping position. DFU . |
| TP101 | (GND) | Ground | |
| TP102 | (RXD) | RXD | |
| TP103 | (TXD) | TXD | |

2.3 FUSES

| No. | Function |
|-------|----------------|
| FU100 | Protects 24 V. |

3. DETAILS

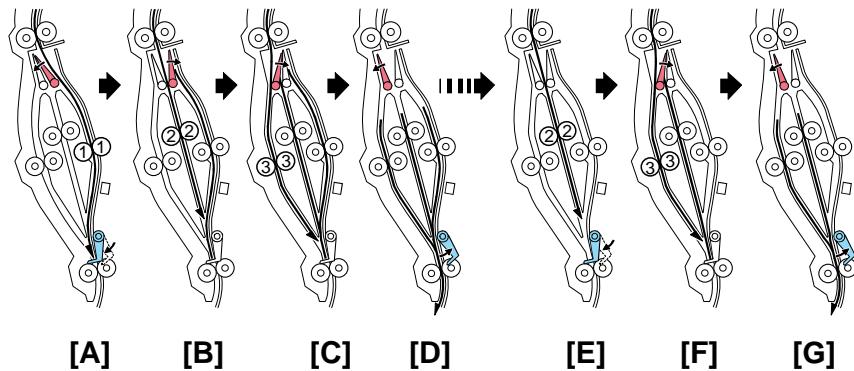
3.1 UPPER TRAY AND STAPLER JUNCTION GATES



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] | Upper tray junction gate motor | ON | Off | Off |
| [B] | Upper tray junction gate | OPEN | Closed | Closed |
| [C] | Stapler junction gate | Closed | Closed | OPEN |
| [D] | Stapler junction gate motor | Off | Off | ON |

3.2 PAPER PRE-STACKING



Sequence 1

The first three sheets of each job feed to trays ① → ② → ③ ([A], [B], [C]), then the first three sheets feed together to the staple tray [D].

Sequence 2

Thereafter, the remaining sheets feed to trays ② → ③ ([E], [F]), then the two sheets feed together to the staple tray [G]. Sequence 2 continues until the end of the job.

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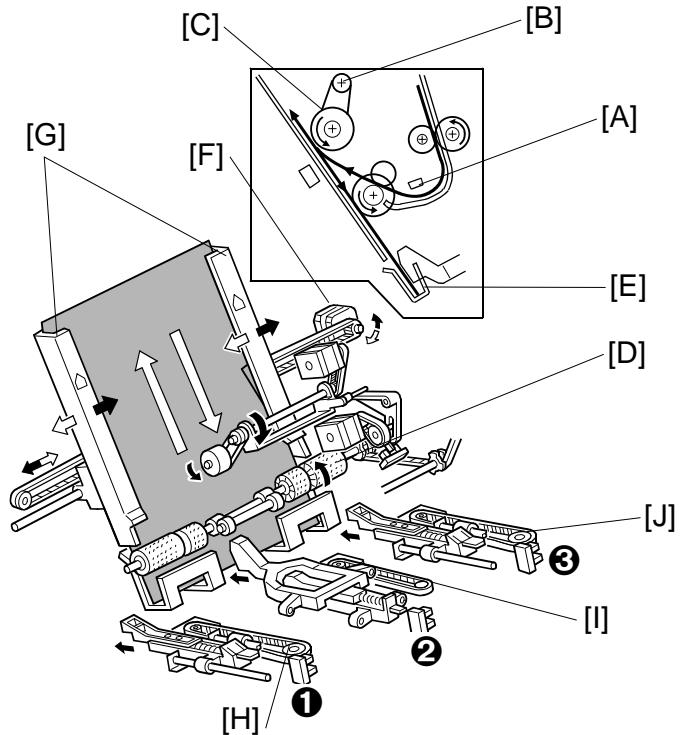
Junction gate mechanism:

- Three junction gates at the top of the pre-stack tray send the sheet of paper down path ①, ②, or ③.
- The pre-stack junction gate motor controls the junction gates.
- The pre-stack junction gate HP sensor detects when the junction gates are at home position.
- The pre stack paper sensor – left detects paper jams in path ③.
- The pre stack paper sensor – right detects paper jams in path ①.

Stopper mechanism:

- The pre-stack stopper releases the three sheets of paper from the pre-stack tray after the previous set is stapled.
- The pre-stack stopper motor controls the stopper at the bottom of the tray.
- The pre-stack stopper HP sensor detects when the stopper is at home position.

3.3 JOGGER UNIT PAPER POSITIONING



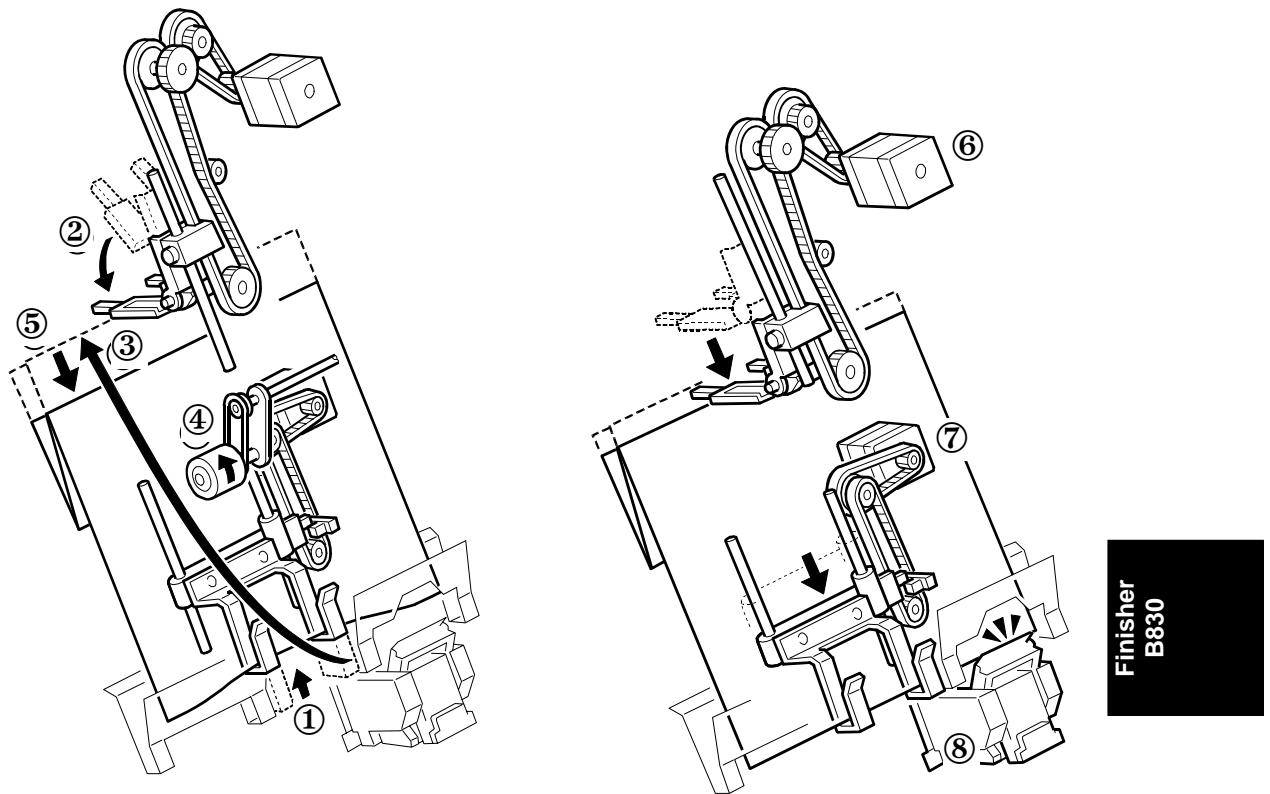
In the staple mode, as every sheet of paper arrives in the jogger unit, it is vertically and horizontally aligned, then the staple edge is pressed flat to ensure the edge of the stack is aligned correctly for stapling.

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 7.2 mm wider than the selected paper size on both sides. When the trailing edge of the paper passes the staple tray entrance sensor, the jogger motor moves the jogger fences 3.7 mm towards the paper. Next, the jogger motor turns on again for 3.5 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 [H], center [I], and right [J] 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 entrance sensor, the stack plate motors turn on and return to their home positions. The home positions are detected by stack plate HP sensors ①, ②, ③.

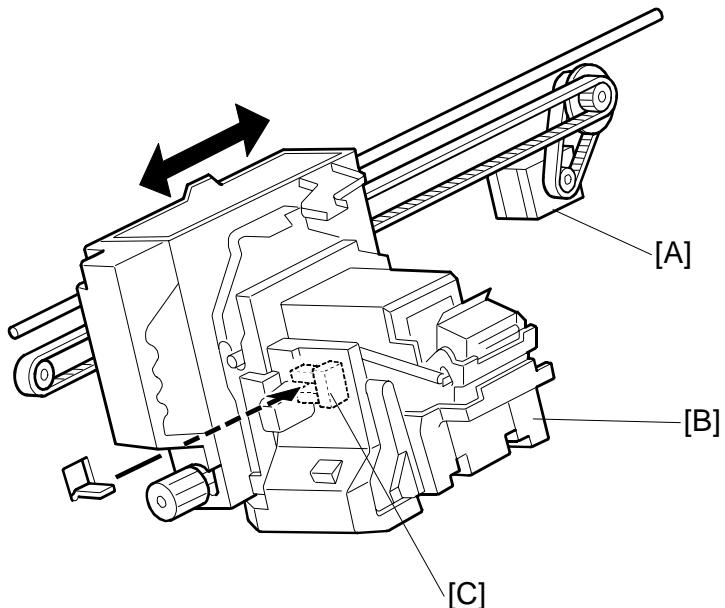
3.4 STAPLING



Here is the operation sequence for jogging and stapling:

- ① The lower jogger fence lifts to receive the sheets.
- ② The top fence moves down, to the horizontal position.
- ③ A sheet of paper goes into the stapler tray.
- ④ The positioning roller turns when each sheet is fed to the stapler tray.
- ⑤ Each sheet is fed down against the lower jogger fence to align the bottom edge.
- ⑥ After the set number of sheets come in, the top fence motor switches on and lowers the top fence against the top of the stack. This aligns the stack for stapling.
- ⑦ The bottom fence motor lowers the aligned stack to the stapling position.
- ⑧ The stapler staples the stack.

3.5 STAPLER UNIT MOVEMENT



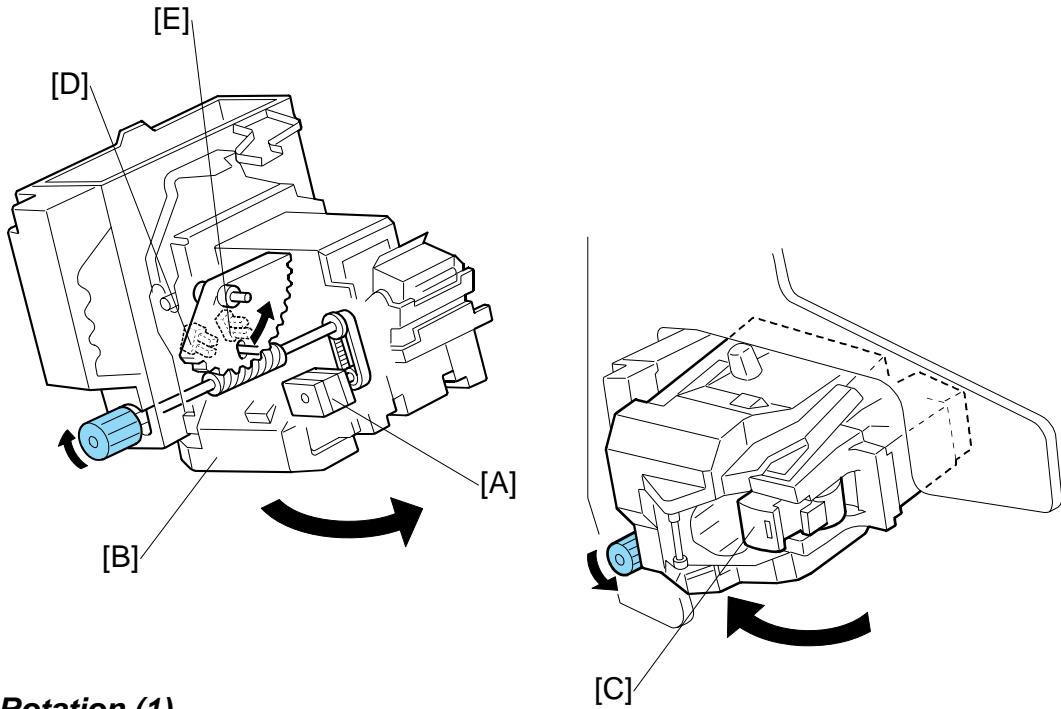
Side-to-Side

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 unit [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.

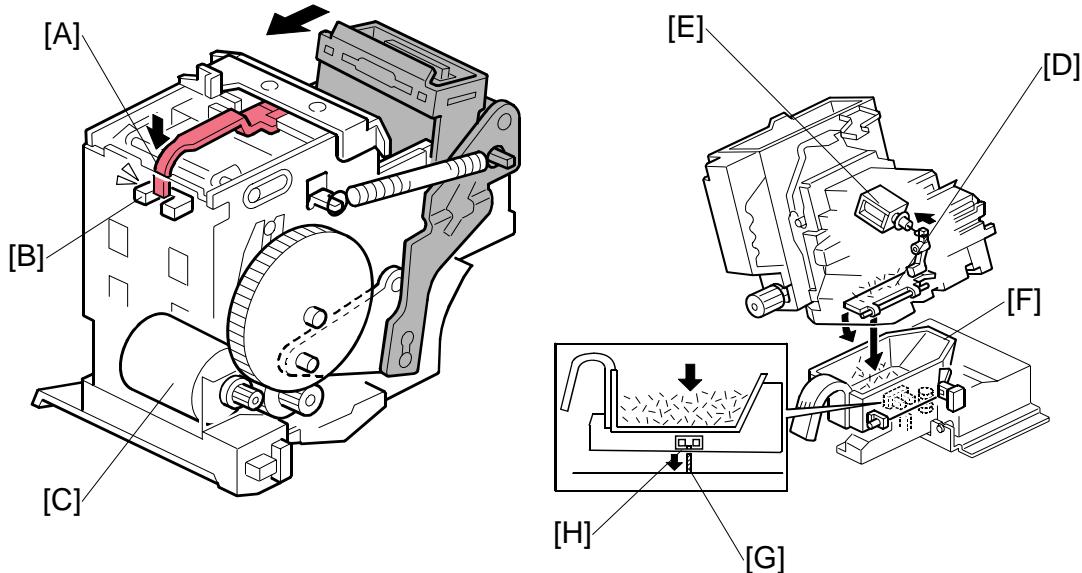
Once the staples have been installed, and the front door closed, the stapler unit returns to its home position.

Sensors

Two sensors [D] and [E] detect the angle of the stapler. There are three positions: horizontal, 45 degrees, 75 degrees.

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3.6 STAPLER



When the stapler cartridge is locked and in position, actuator [A] deactivates the cartridge set sensor [B] and the stapler is ready for operation.

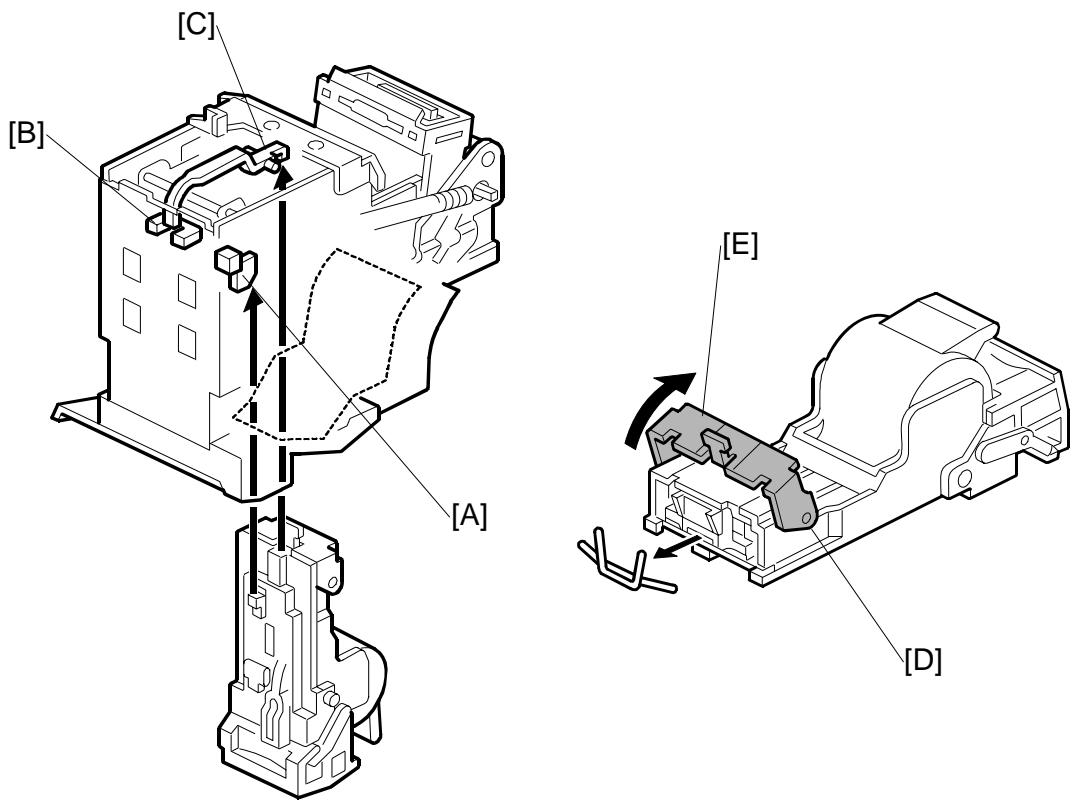
When aligned copies are brought to the stapling position by the positioning roller and jogger fences, the staple hammer motor [C] starts stapling.

During stapling, the stapler trims off the excess length of the staples. This length of the trimmings depends on the number of copies in the set. They will be very small for a stack containing 100 sheets.

The staple trimmings drop into the trap door [D] inside the stapler. When the stapler unit returns to its home position, solenoid {E} energizes opens the trap door.

The staple trimmings drop into the staple trimmings hopper [F].

The staple trimmings hopper descends as it fills, until actuator [G] activates the staple trimmings hopper full sensor [H]. A message asks the user to empty the staple trimmings.



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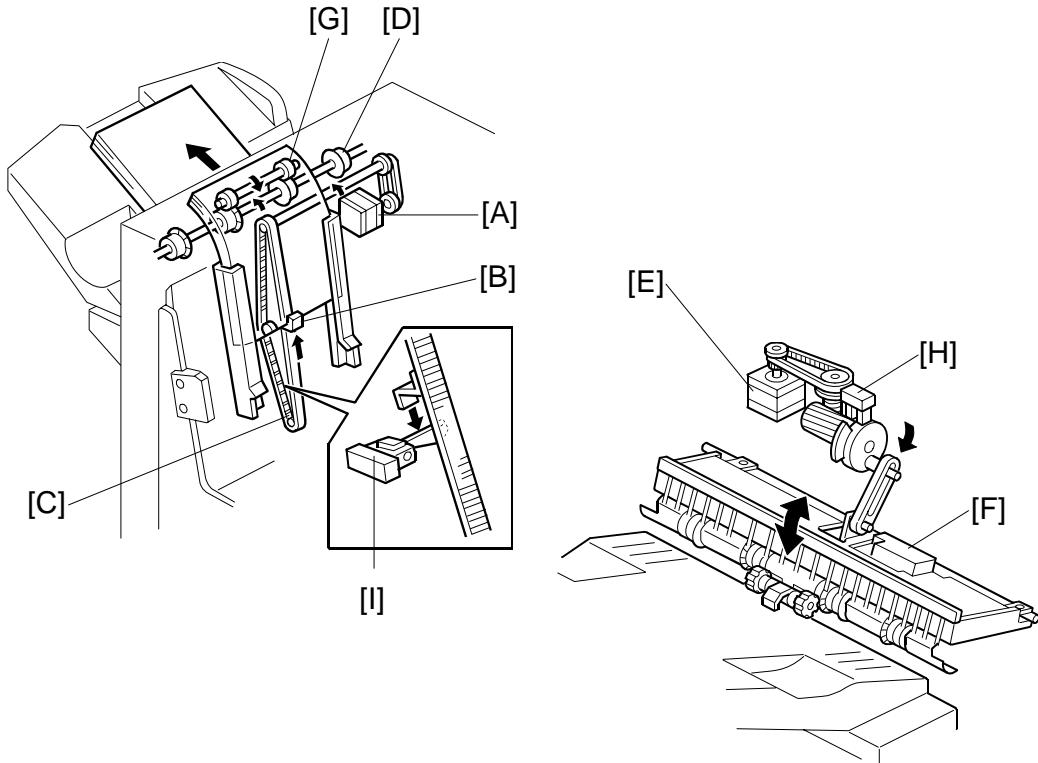
The stapler has a staple end sensor [A] and cartridge set sensor [B]. When the staple cartridge is inserted, it pushes the actuator [C] into the gap of the cartridge set sensor. This tells the machine the stapler is ready for operation.

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 raising and lowering bracket lever [E].

DETAILS

3.7 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].

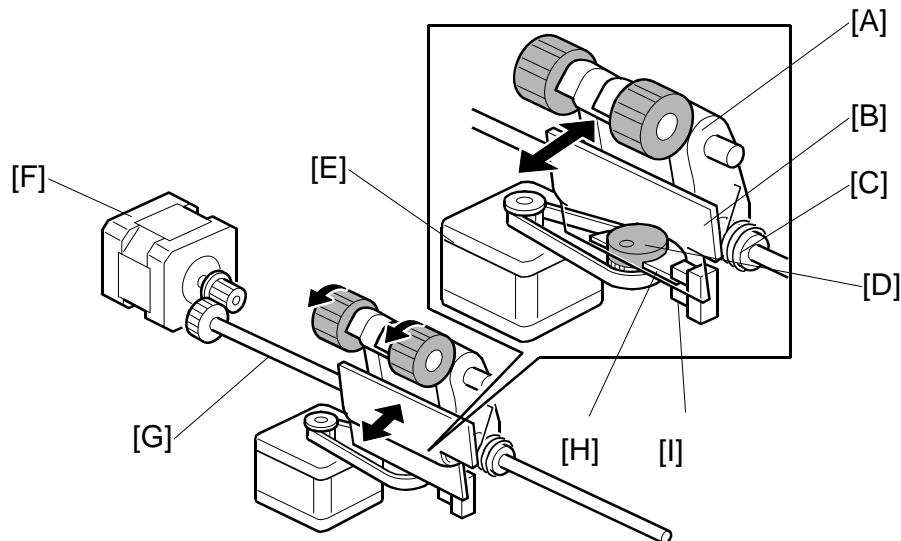
When stapling starts, the exit guide motor [E] opens the upper exit guide [F], which includes the upper shift tray exit roller [G], in order to feed out the leading edge of the copy set smoothly.

The exit guide motor turns on again at the prescribed time after stapling finishes, 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].

3.8 PAPER EXIT STACKING



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The drag roller assembly [A] is fastened to a plate [B] on a shaft by a spring [C]. The cam [D], in contact with the bottom of the plate, is connected to the drag drive motor [E] via a timing belt.

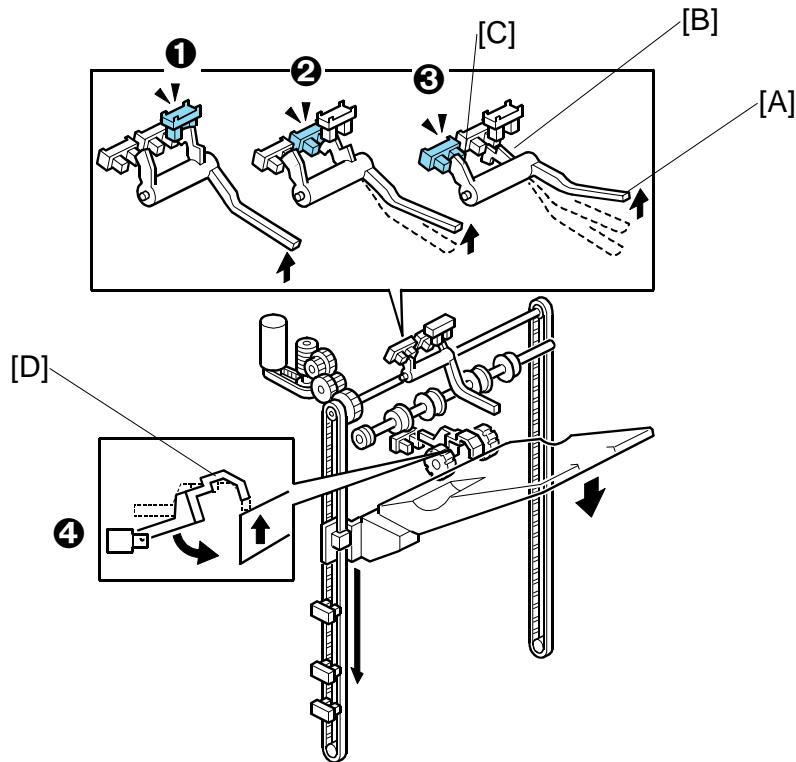
The drag drive motor and timing belt rotate the cam against the bottom of the plate to move the rollers forward and back with each sheet ejected onto the shift tray.

The drag roller motor [F] drives the shaft [G] that rotates the drag rollers counter-clockwise as the rollers move back. The simultaneous rotation and backward movement of the roller assembly pulls each sheet back toward the copier to align the edges of the stack on the shift tray.

The actuator [H] is mounted on the cam and rotating with both rotating clockwise) and detects the roller assembly home position when the actuator leaves the gap of the drag drive HP sensor [I] and signals the machine that the rollers are at the home position. The machine uses this information to control paper feed timing and confirm that the mechanism is operating correctly. The cam and actuator make one complete rotation for every sheet fed out of the machine onto the shift tray.

3.9 SHIFT TRAY OPERATION

3.9.1 OVERVIEW



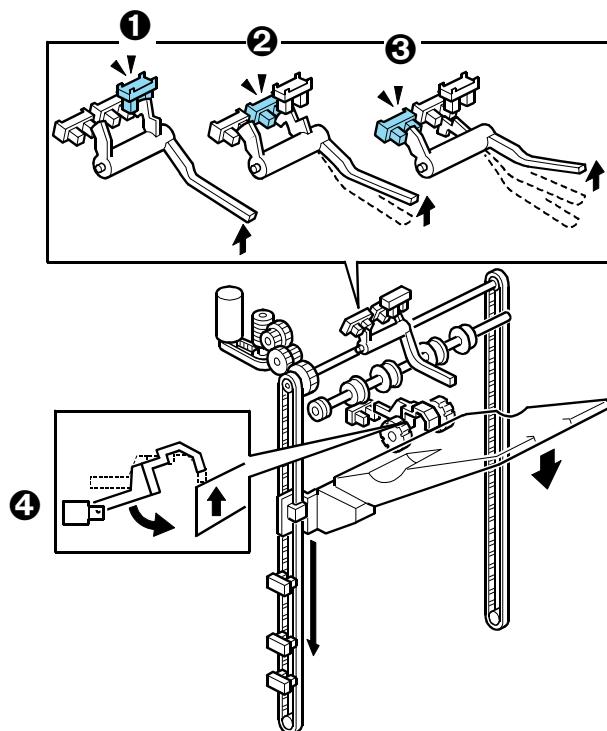
The movement of the shift tray is controlled by four sensors ①, ②, ③, and ④ and a feeler [A] with two actuators [B] and [C].

- The notched actuator [B] is used with sensors ① and ②.
- The flat actuator [C] is used with sensor ③.
- Sensor ④ is provided with its own actuator [D].

The operation mode determines which parts are used to control the movement of the shift tray.

Sensor Names

| No. | Name |
|-----|------------------------------------|
| ① | Paper Height Sensor – Staple Mode |
| ② | Paper Height Sensor – Standby Mode |
| ③ | Paper Height Sensor – Z-Fold Full |
| ④ | Paper Height Sensor – Shift/Z-Fold |



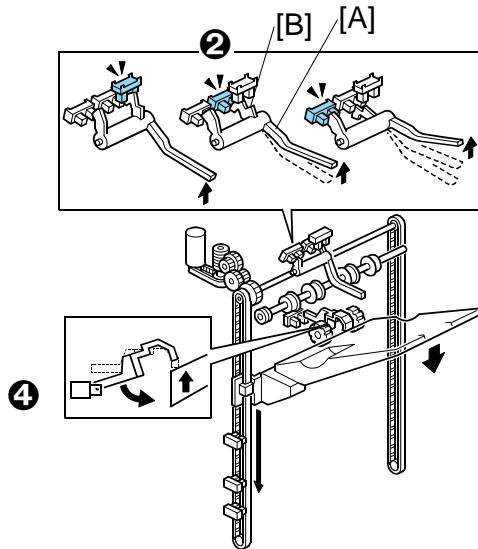
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Sensors and Operation Modes

| Mode | Function |
|-----------------------|---|
| Shift | Sensor ② detects the amount of paper on the shift tray in shift mode to control operation of the tray lift motor. |
| Staple | Sensor ① detects the amount of paper on the shift tray in staple mode to control the tray lift motor. |
| Standby | <ul style="list-style-type: none"> When the machine is turned on, Sensor ② is used to position the tray at the standby position and keep it there when the shift is not in use or when the upper tray (proof tray) is used. If the shift tray is not attached to the machine (if it has been removed for servicing, for example), if the machine is switched on the tray mount will push up the feeler and switch off Sensor ② to switch off the tray lift motor. (Sensor ④ cannot operate if the tray has been removed.) |
| Z-Fold, Z-Fold Staple | <ul style="list-style-type: none"> Sensor ④ detects the height of the tray when the output includes Z-folded sheets with and without stapling. Sensor ③ detects when the tray is full when the output includes Z-folded sheets with and without stapling. |

These operations are described in more detail in the following sections.

3.9.2 SHIFT TRAY OPERATION: STAND-BY MODE



Standby Mode

When the machine is switched on:

1. The shift tray lift motor switches on and lowers the tray.
2. The feeler [A] descends and raises the hooked actuator [B] out of the gap of Sensor 2 and switches Sensor 2 ON.
3. When Sensor 2 switches ON this reverses the shift tray motor.
4. The shift tray motor raises the shift tray and pushes up the feeler, the actuator descends into the gap of Sensor 2, and switches Sensor 2 OFF
5. When Sensor 2 switches OFF, this stops the shift tray lift motor with the shift tray at the standby position.

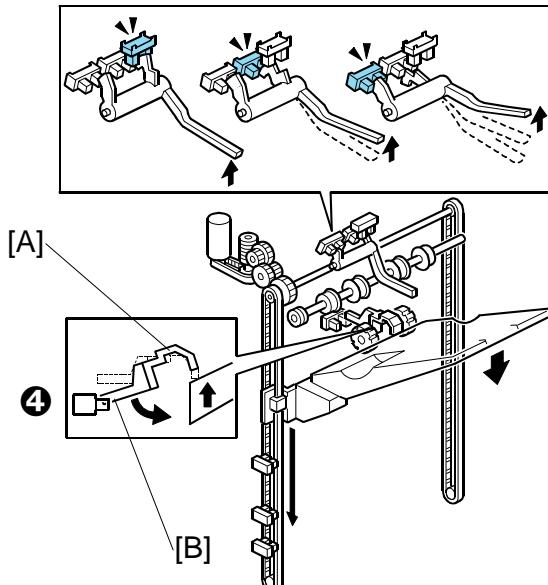
This sequence repeats every time the machine is powered on.

Sensor 2 also switches off the shift tray lift motor when the machine is switched on with the shift tray removed for servicing. When the machine is switched on without the shift tray attached to the side of the finisher:

1. The shift tray mount will push the feeler [A] up until the actuator [B] enters the gap of Sensor 2 and switches Sensor 2 ON.
2. When Sensor 2 switches ON this switches the shift tray motor OFF and stops the tray.

NOTE: Sensor 2 cannot operate with the shift tray removed so Sensor 2 is used to switch off the shift tray motor and stop the shift tray mount.

3.9.3 SHIFT TRAY OPERATION: SHIFT MODE



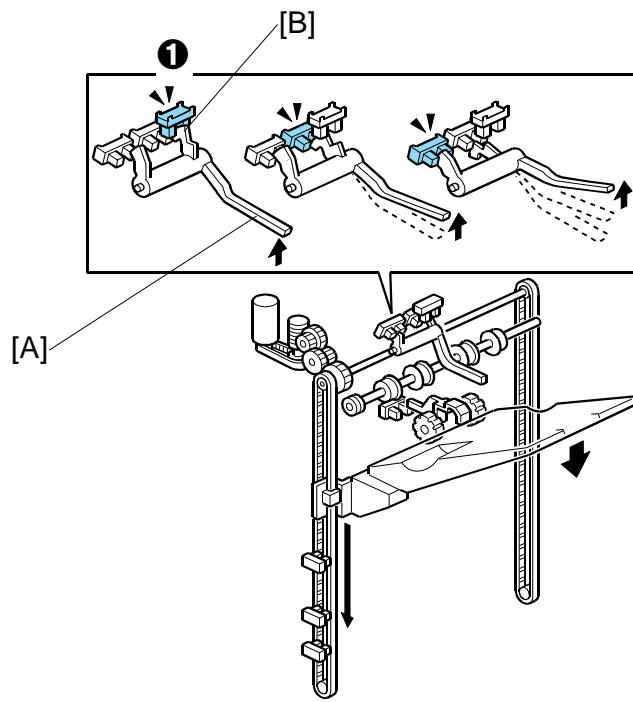
Finisher
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Sensor ④ and its feeler [A] and actuator [B] control the movement of the shift tray when paper is output in the sort/stack mode:

1. Paper is output to the tray.
2. As the height of the stack increases, this pushes up the feeler [A].
3. When the actuator [B] of the ascending feeler actuates Sensor ④, this switches the sensor OFF and switches the tray lift motor ON.
4. The tray lift motor lowers the tray until the feeler descends far enough to raise the actuator out of the gap of Sensor ④.
5. When the actuator leaves the gap of Sensor ④, this switches Sensor ④ ON, switches the motor OFF, and stops the tray.

The sequence repeats until the end of the job or until the tray becomes full.
(3.9.6)

3.9.4 SHIFT TRAY OPERATION: STAPLE MODE

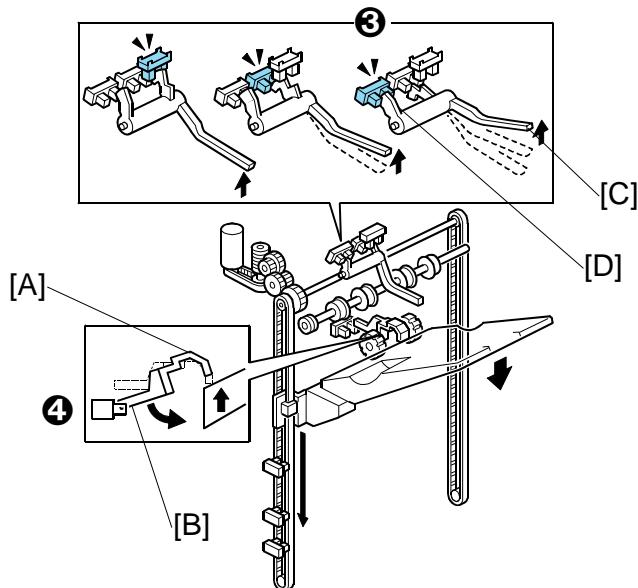


Sensor ①, feeler [A] and its notched actuator [B] control the movement of the shift tray when paper is output to the shift tray in the staple mode:

1. A stapled stack is output to the tray.
2. The tray lift motor switches ON and lowers the tray the prescribed distance.
3. Next, the tray lift motor raises the tray and feeler [A] until actuator [B] leaves the gap of Sensor ①.
4. When the actuator [B] leaves the gap of sensor ①, this switches Sensor ① OFF and switches the tray lift motor OFF.

This sequence repeats every time a stack is output to the tray until the end of the job or until the tray becomes full. (→3.9.6)

3.9.5 SHIFT TRAY OPERATION: Z-FOLDED PAPER

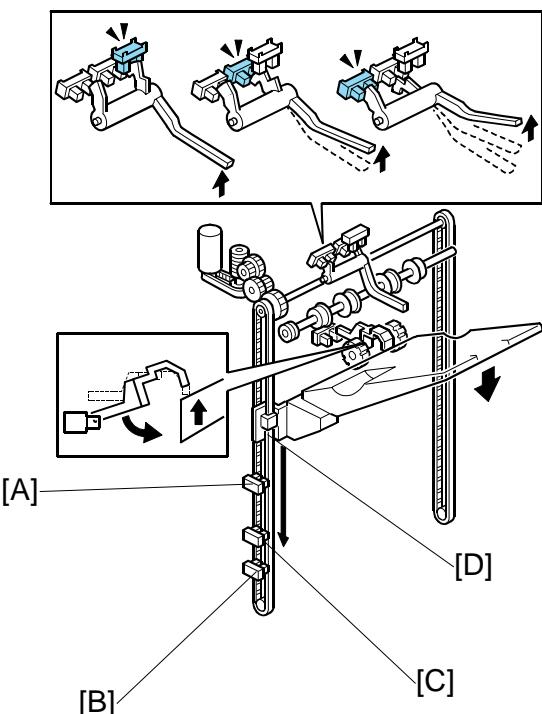


Finisher
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Sensor ④ and its feeler [A] and actuator [B], and Sensor ③ with its feeler [C] and flat actuator [D] control the movement of the shift tray when Z-folded paper is output to the shift tray.

1. Z-folded paper is output to the tray.
2. As the height of the stack increases, this pushes up feeler [A] of Sensor ④.
3. When the actuator [B] of the ascending feeler enters the gap of Sensor ④, this switches the sensor OFF and switches the tray lift motor ON.
4. The tray lift motor lowers the tray until the feeler descends far enough to raise the actuator out of the gap of Sensor ④.
5. When the actuator leaves the gap of Sensor ④, this switches Sensor ④ ON, switches the motor OFF, and stops the tray.
6. Steps 1 to 5 repeat until the top of the paper stack pushes feeler [C] up and actuator [C] into the gap of Sensor ③.
7. When the actuator enters the gap of Sensor ③, this switches the sensor off and switches Sensor ③ OFF, signals that the tray is full and stops the job.

3.9.6 SHIFT TRAY FULL AND NEAR-FULL DETECTION



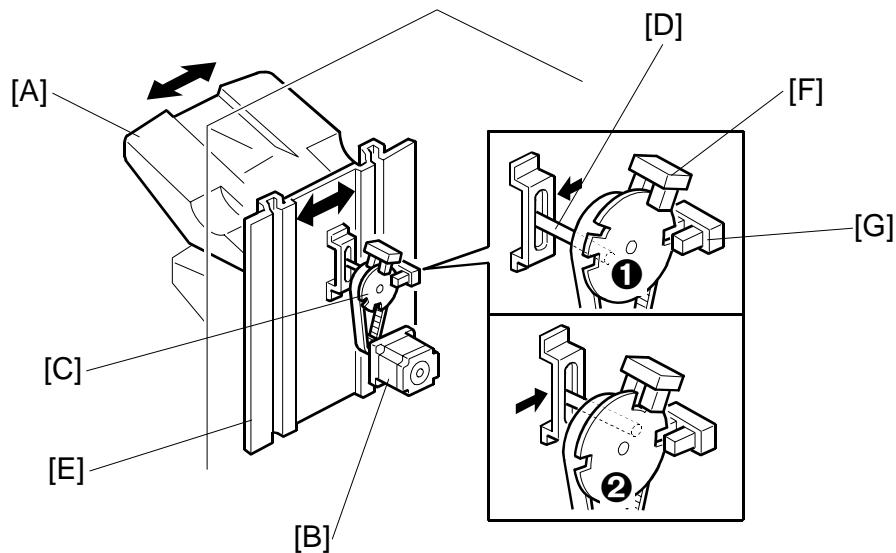
This machine has two shift tray full sensors: the shift tray full sensor (large paper) [A] for B4 and larger, and the shift tray full sensor [B] for small paper (smaller than B4).

NOTE: Sensor [C] (S20) is the near-full sensor.

When the actuator [D] enters sensor [A] while using large paper (about 1500 sheets are on the tray), a message will be displayed and copying will stop.

When the actuator [D] enters sensor [B] while using small paper (about 3,000 sheets are on the tray), a message will be displayed and copying will stop.

3.10 SHIFT TRAY SIDE-TO-SIDE MOVEMENT



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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.

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.

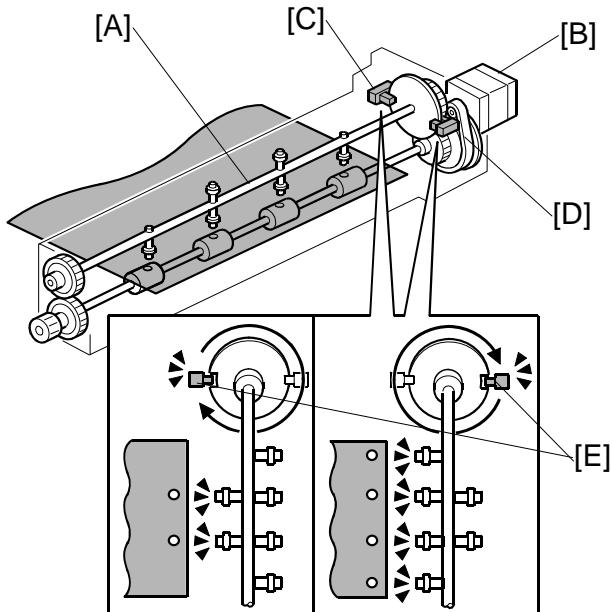
The disk is rotated alternately clockwise and counter-clockwise through an arc of 180 degrees.

The notches cut into the shift gear disk control the operation of the shift motor, using shift tray half-turn sensors [F] and [G].

If the job ends with the disk at ① with only one sensor deactivated, the motor rotates the disk to the ② position where both sensors are deactivated. This is the home position.

3.11 PUNCH UNIT

3.11.1 PUNCH UNIT DRIVE



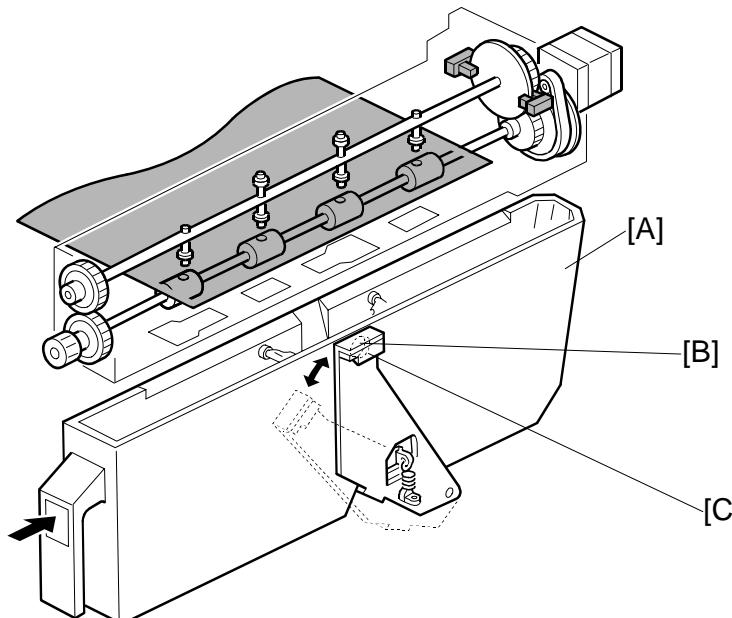
The punch unit makes 2 or 3 holes at the trailing edge of the paper. The number of holes depends on a selection made on the operation panel.

The cam [A] has 2 punches on one side and 3 punches on the other, and is turned by the punch motor [B]. The punch motor turns on immediately after the trailing edge of the paper passes the entrance sensor. The punches on the cam rotate downward and punch holes in the paper.

After punching a sheet of paper, the cam returns to home position and stops. Home position depends on whether 2 holes or 3 holes are being made, so there are two punch HP sensors. Punch HP sensor 1 [C] is used when 2-hole punching is selected, and punch HP sensor 2 [D] is used when 3-hole punching is selected. When the cut-out [E] enters the slot of the punch HP in use (sensor 1 or 2-hole punching) the 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.

3.11.2 PUNCH WASTE COLLECTION



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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 hopper full 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.

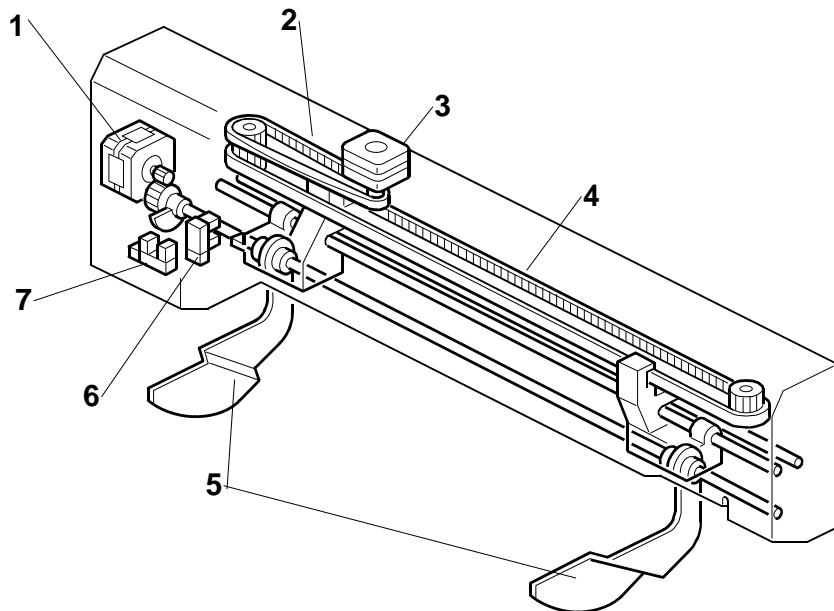
The job resumes automatically after the hopper is emptied and returned to the finisher.

The punch hopper full 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.

DETAILS

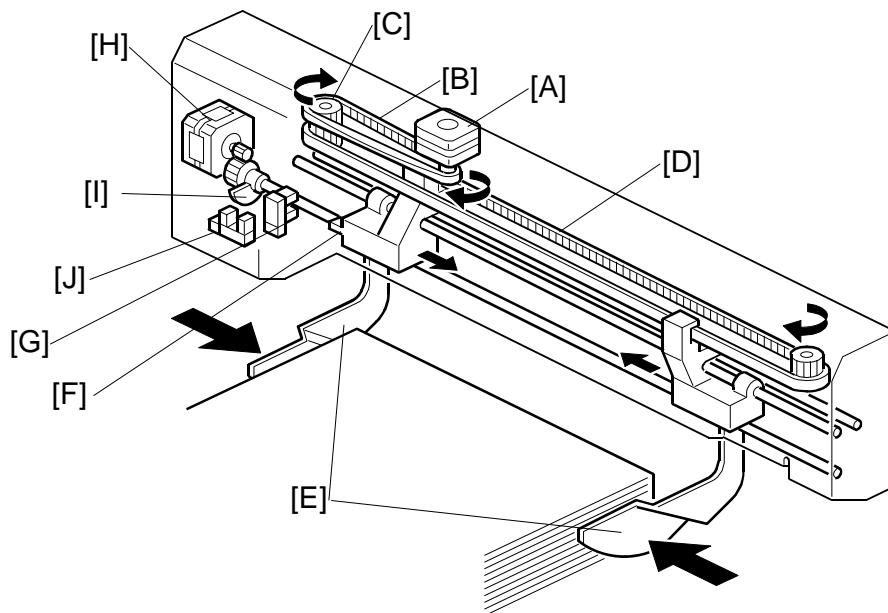
3.12 SHIFT TRAY JOGGER UNIT

3.12.1 JOGGER UNIT MECHANICAL LAYOUT



1. Shift Tray Jogger Retraction Motor
2. Shift Tray Jogger Motor Timing Belt
3. Shift Tray Jogger Motor
4. Shift Tray Jogger Fence Timing Belt
5. Shift Tray Jogger Fences
6. Shift Tray Jogger HP Sensor
7. Shift Tray Jogger Lift HP Sensor

3.12.2 JOGGER UNIT DRIVE



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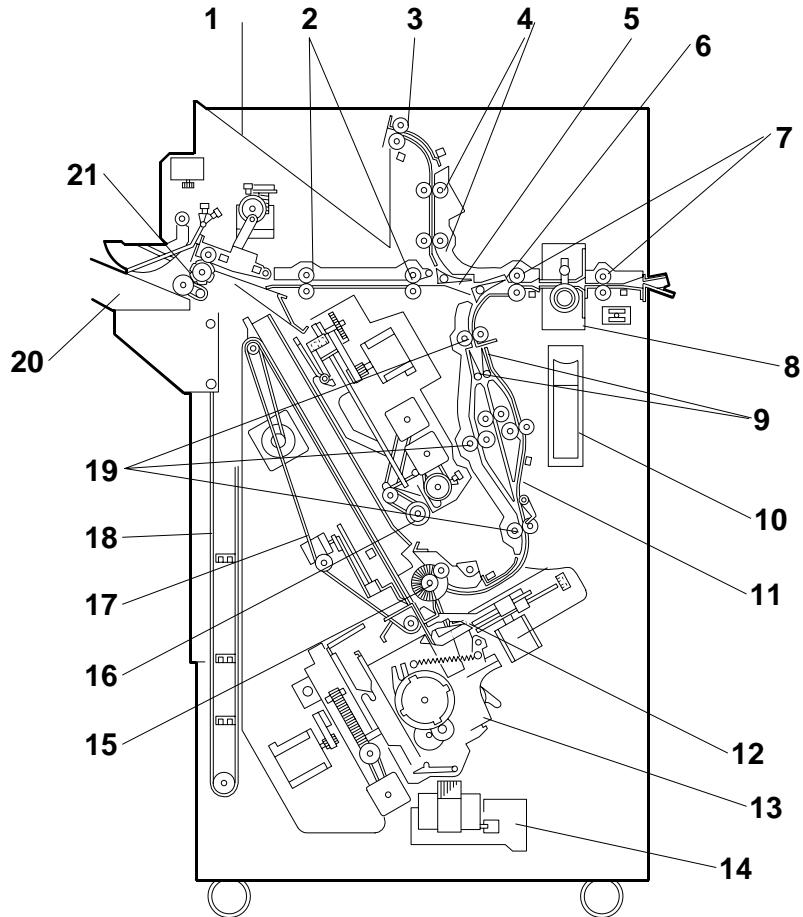
After the first sheet exits, the shift tray jogger motor [A] switches on and rotates the jogger timing belt [B], gear [C] and jogger fence timing belt [D]. This closes the jogger fences [E] against the sides of the first sheet to align it and stops. Next, the motor reverses to open the fences for the next sheet. The jogger motor alternates its direction of rotation to open and close the jogger fences. The timing is prescribed by the width of the paper selected for the job.

At the end of the job, the actuator [F] activates the shift tray jogger HP sensor [G] which shuts off the jogger motor and starts the jogger fence retraction motor [H].

The jogger fence retraction motor rotates the shaft which raises the jogger fences and lowers the actuator [I] into the slot of the jogger fence retraction HP sensor [J]. The activated sensor turns off the jogger fence retraction motor and the jogger fences remain at the raised position.

4. OVERALL MACHINE INFORMATION

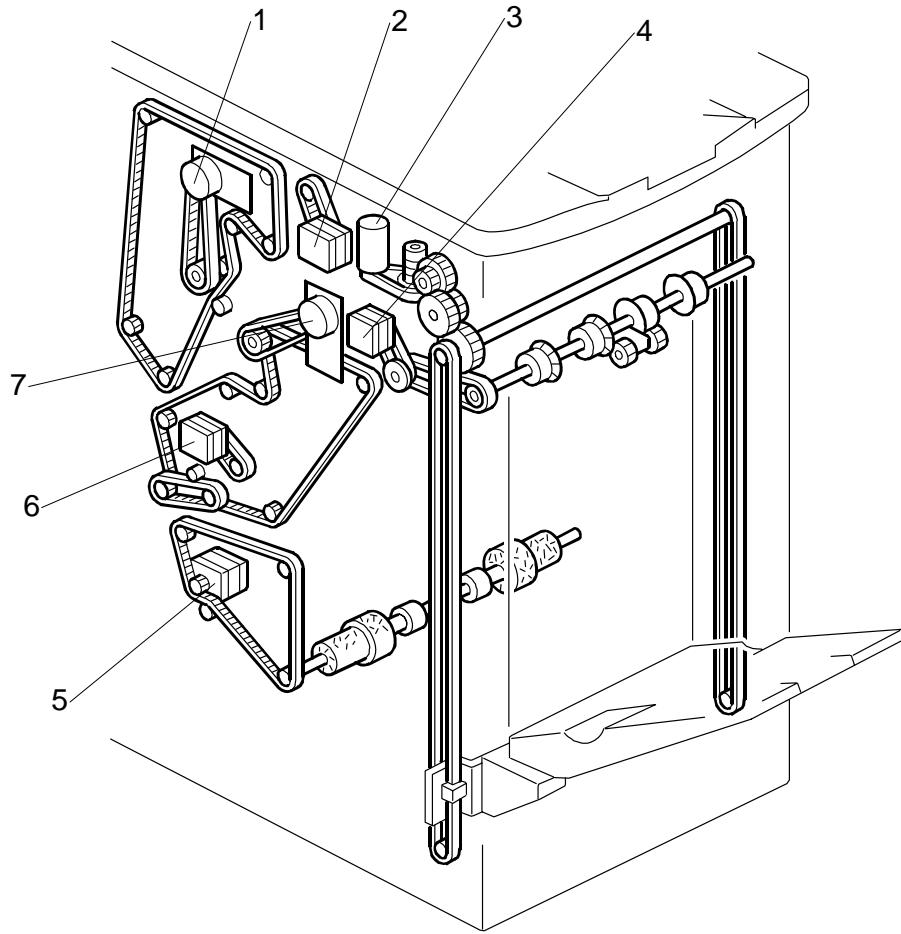
4.1 MECHANICAL COMPONENT LAYOUT



- | | |
|----------------------------------|-----------------------------|
| 1. Upper Tray | 12. Stack Plate |
| 2. Middle Transport Rollers | 13. Stapler |
| 3. Upper Tray Exit Roller | 14. Staple Trimmings Hopper |
| 4. Upper Transport Rollers | 15. Alignment Brush Roller |
| 5. Upper Tray Junction Gate | 16. Positioning Roller |
| 6. Stapler Junction Gate | 17. Stack Feed-out Belt |
| 7. Entrance Rollers | 18. Shift Tray Drive Belt |
| 8. Punch Unit | 19. Lower Transport Rollers |
| 9. Pre-stack Junction Gates (x2) | 20. Shift Tray |
| 10. Punch Waste Hopper | 21. Shift Tray Exit Roller |
| 11. Pre-stack Tray | |

4.2 DRIVE LAYOUT

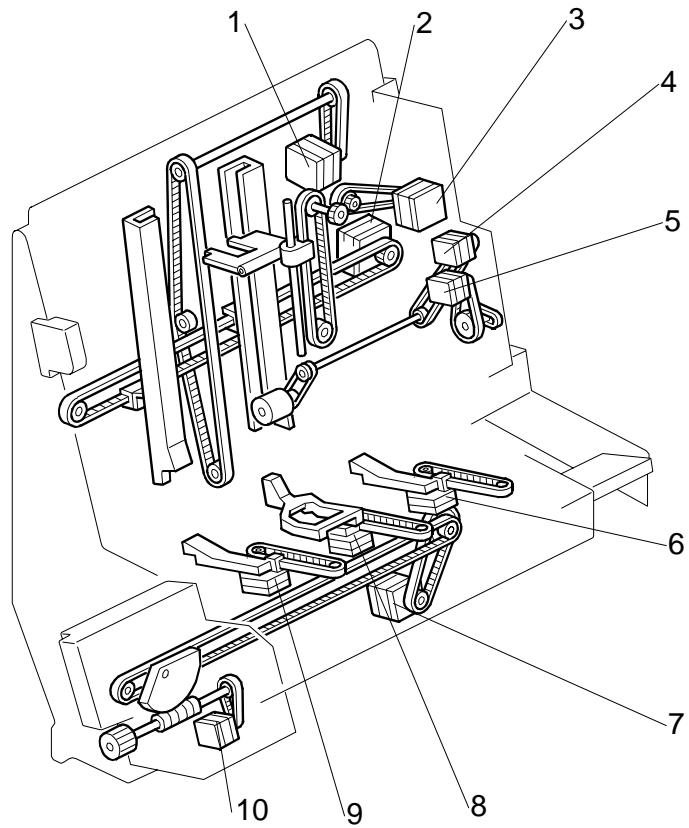
4.2.1 MAIN DRIVE



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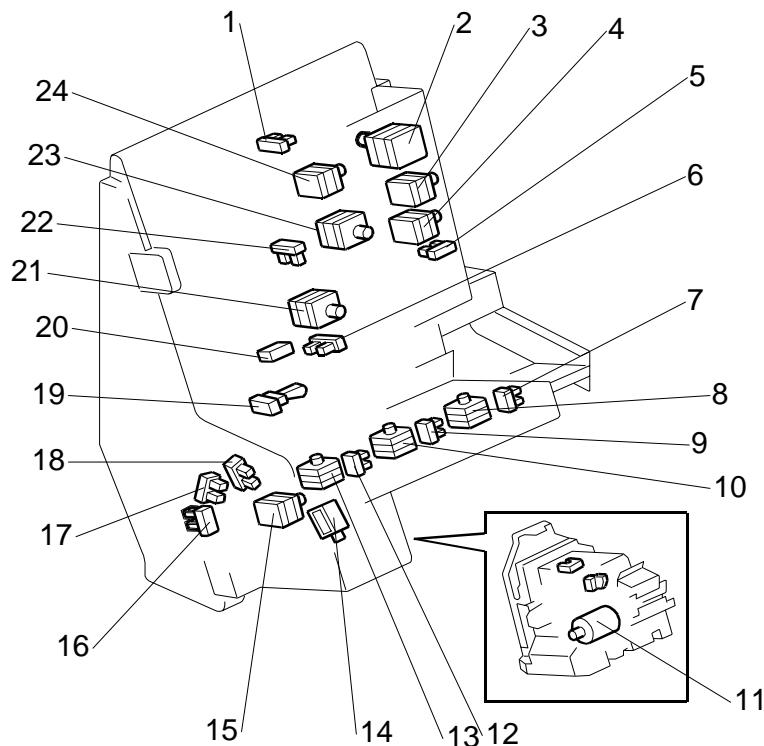
1. Upper Transport Motor
2. Upper Tray Exit Motor
3. Shift Tray Lift Motor
4. Shift Tray Exit Motor
5. Stapler Exit Motor
6. Pre-Stack Transport Motor
7. Lower Transport Motor

4.2.2 STAPLING TRAY DRIVE



1. Stack Feed-Out Belt Motor
2. Jogger Motor
3. Top Fence Motor
4. Positioning Roller Drive Motor
5. Positioning Roller Motor
6. Stack Plate Motor (Rear)
7. Stapler Movement Motor
8. Stack Plate Motor (Center)
9. Stack Plate Motor (Front)
10. Stapler Rotation Motor

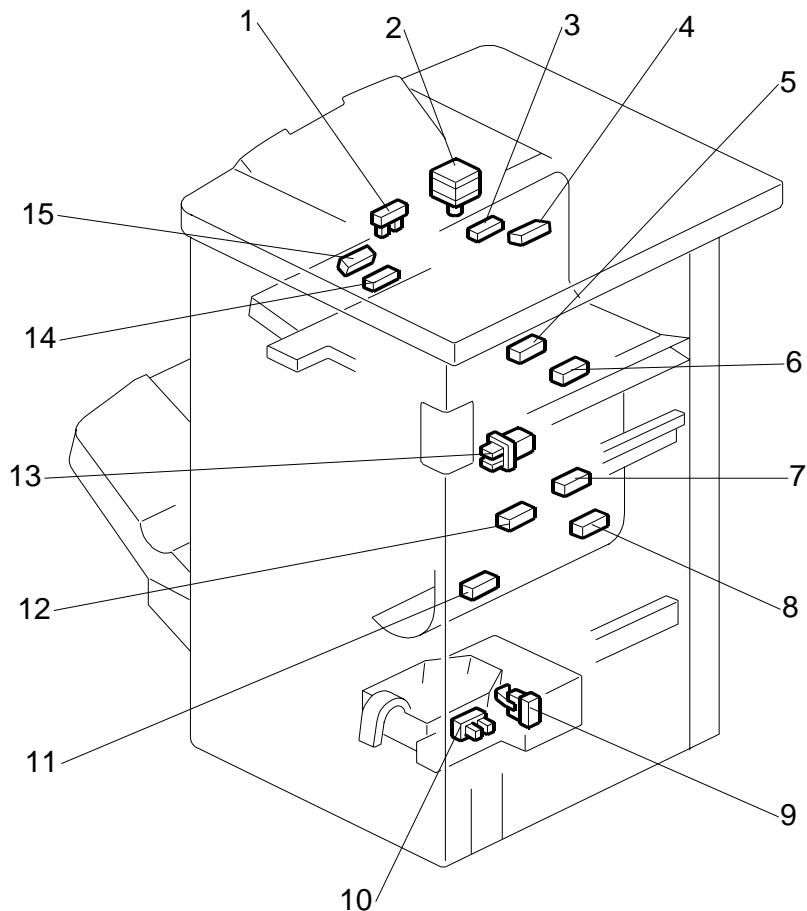
4.3 ELECTRICAL COMPONENTS



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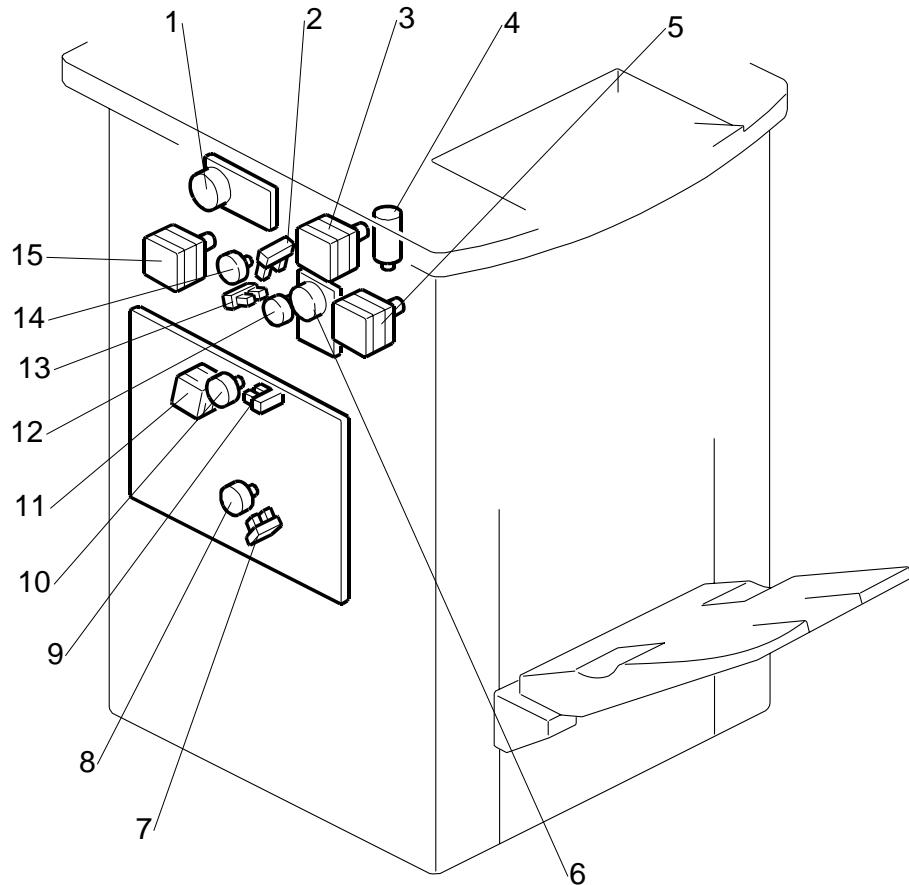
- 1. Top Fence HP Sensor
- 2. Top Fence Motor
- 3. Positioning Roller Drive Motor
- 4. Positioning Roller Motor)
- 5. Positioning Roller HP Sensor
- 6. Bottom Fence HP Sensor
- 7. Stack Plate HP Sensor (Rear)
- 8. Stack Plate Motor (Rear)
- 9. Stack Plate HP Sensor (Center)
- 10. Stack Plate Motor (Center)
- 11. Staple Hammer Motor
- 12. Stack Plate HP Sensor (Front)
- 13. Stack Plate Motor (Front)
- 14. Staple Trimming Chute Solenoid
- 15. Stapler Rotation Motor
- 16. Stapler HP Sensor (Front/Rear)
- 17. Stapler Rotation Sensor 2
- 18. Stapler Rotation Sensor 1
- 19. Stack Feed-Out Belt HP Sensor
- 20. Staple Tray Full Sensor
- 21. Bottom Fence Motor
- 22. Jogger HP Sensor
- 23. Jogger Motor
- 24. Stack Feed-Out Belt Motor

OVERALL MACHINE INFORMATION



- | | |
|---------------------------------------|---|
| 1. Exit Guide HP Sensor | 9. Staple Trimmings Hopper Set Sensor |
| 2. Exit Guide Motor | 10. Staple Trimmings Hopper Full Sensor |
| 3. Upper Tray Full Sensor | 11. Stapler Tray Exit Sensor |
| 4. Upper Tray Exit Sensor | 12. Pre-Stack Tray Paper Sensor (Right) |
| 5. Stapler Tray Entrance Sensor | 13. Front Door Safety Switch |
| 6. Entrance Sensor | 14. Shift Tray Exit Sensor 2 |
| 7. Punch-Out Hopper Full Sensor | 15. Shift Tray Exit Sensor 1 |
| 8. Pre-Stack Tray Paper Sensor (Left) | |

OVERALL MACHINE INFORMATION



Finisher
B830

1. Upper Transport Motor
2. Stapler Junction Gate HP Sensor
3. Upper Tray Exit Motor
4. Shift Tray Lift Motor
5. Shift Tray Exit Motor
6. Lower Transport Motor
7. Pre-Stack Stopper HP Sensor
8. Pre-Stack Stopper Motor
9. Pre-Stack Junction Gate HP Sensor
10. Pre-Stack Junction Gate Motor)
11. Pre-Stack Transport Motor
12. Upper Tray Junction Gate Motor
13. Upper Tray Junction Gate HP Sensor
14. Stapler Junction Gate Motor
15. Punch Motor

4.4 ELECTRICAL COMPONENT SUMMARY

| Motors | | |
|---------------|--------------------------------|--|
| No. | Name | Description |
| M01 | Shift Tray Exit Motor | Drives the exit roller for the shift tray. |
| M02 | Shift Tray Lift Motor | Moves the shift tray up or down. |
| M03 | Exit Guide Motor | Opens and closes the upper exit guide. When stapling starts, the exit guide motor opens the upper exit guide, which includes the upper shift tray exit roller, 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 HP sensor. |
| M04 | Stapler Exit Motor | Drives the rollers that feed stapled stacks out of the stapling unit. |
| M05 | Upper Tray Exit Motor | Drives the rollers that output paper to the proof tray (top tray). |
| M06 | Shift Motor | Moves the shift tray from side to side. |
| M07 | Upper Tray Junction Gate Motor | Operates the upper tray junction gate. |
| M08 | Stapler Junction Gate Motor | Operates the staple junction gate that directs paper into the stapling path. |
| M09 | Pre-Stack Junction Gate Motor | Operates the pre-stack junction gates that direct paper into path 1, 2, or 3 of the pre-stack unit. |
| M10 | Pre-Stack Transport Motor | Drives the rollers that feed paper into the pre-stack paper paths. |
| M11 | Pre-Stack Stopper Motor | Controls the stopper that stops the sheets in the pre-stack unit and then releases them to the staple tray. |
| M12 | Positioning Roller Motor | Moves the positioning roller into contact with the paper. |
| M13 | Positioning Roller Drive Motor | Rotates the positioning roller. |
| M14 | Drag Drive Motor | Extends the sponge roller that drags the stapled stack on the shift tray toward the finisher so that the edge of the stack is aligned against the back of the shift tray. |
| M15 | Drag Roller Motor | Rotates the drag roller counter-clockwise to pull the ejected paper toward the machine so that the edge of the stack on the shift tray is aligned against the back of the shift tray. |
| M16 | Jogger Motor | Moves the jogger fences of the stapling tray. |
| M17 | Stack Feed-Out Belt Motor | Drives the stack feed-out belt which lifts the stapled stack and feeds it out of the finisher. The stack-feed-out motor turns off when the pawl actuates the stack feed-out belt home position sensor. |
| M18 | Stack Plate Motor (Center) | Presses down the center of the edge for stapling. |
| M19 | Stack Plate Motor (Front) | Presses down the front corner of the edge for stapling. |
| M20 | Stack Plate Motor (Rear) | Presses down the rear corner of the edge for stapling. |
| M21 | Stapler Movement Motor | Moves the staple unit side-to-side. |
| M22 | Stapler Rotation Motor | Rotates the stapler 45 degrees for oblique stapling. |
| M23 | Staple Hammer Motor | Drives the staple hammer. |
| M24 | Top Fence Motor | After the specified number of sheets has been fed, this motor lowers the top fence against the leading edges of the sheets to align them for stapling and then raises the top fence to its home position after stapling. Operates the top fence that jogs pre-stacked paper vertically (in the direction of paper feed). |
| M25 | Bottom Fence Motor | After the specified number of sheets has been fed, this motor lowers the bottom fence to position the stack for stapling and then raises the bottom fence to its home position after stapling. |
| M27 | Upper Transport Motor | Feeds paper in the upper transport area. Drives the rollers that transport paper toward the proof tray (top tray). |

OVERALL MACHINE INFORMATION

| Motors | | |
|---------------|------------------------------------|---|
| No. | Name | Description |
| M28 | Lower Transport Motor | Drives the rollers that transport paper in the shift and stapling paper path. |
| M29 | Punch Motor | Drives the punch shaft and roller. |
| M30 | Shift Tray Jogger Motor | Drives the shift tray jogger fences against the sides of the sheets to align the stack, then reverses to return them to the home position |
| M31 | Shift Tray Jogger Retraction Motor | Raises the shift tray jogger fences after aligning the stack, then reverses and lowers them to them to the home position. |

| PCBs | | |
|-------------|----------------------------|---|
| No. | Name | Description |
| PCB | Main Board (Output Jogger) | Controls operation of the shift and output jogger mechanisms. |
| PCB | Main Board | Controls the finisher and communicates with the copier. |

| Sensors | | |
|----------------|--------------------------------------|---|
| No. | Name | Description |
| S01 | Entrance Sensor | Detects the copy paper entering the finisher and checks for misfeeds. |
| S02 | Upper Tray Exit Sensor | Checks for misfeeds at the upper tray. |
| S03 | Upper Tray Full Sensor | Detects when the upper tray is full. |
| S04 | Shift Tray Exit Sensor 1 | Controls the output timing of stapled stacks and detects jams. |
| S05 | Shift Tray Exit Sensor 2 | Controls the timing of paper in the shift path and detects paper jams. |
| S06 | Exit Guide HP Sensor | Detects whether the guide plate is opened or not. |
| S07 | Paper Height Sensor – Standby Mode | Detects the height of the tray when the machine is turned on to position the tray at the standby position. |
| S08 | Paper Height Sensor – Staple Mode | Detects the height of the paper output on the shift tray and adjusts the height of the tray in the staple mode. |
| S09 | Paper Height Sensor – Z-Fold Full | Detects the height of the paper output on the shift tray and signals when the tray is full when Z-folded paper is output to the shift tray. |
| S10 | Paper Height Sensor – Shift/Z-Fold | Detects the amount of paper on the shift tray 1) in shift mode to control operation of the tray lift motor, and 2) when Z-folded paper is output to the shift tray. |
| S11 | Drag Drive HP Sensor | Controls the push and pull movement of the drag roller when it extends and drags paper back against the back of the shift tray to keep the edge of the stack aligned on the shift tray. |
| S12 | Shift Tray Half-Turn Sensor 1 | Detects whether the shift tray is at either the front or back position. Controls the side-to-side movement of the shift tray. (This pair of sensors is used to detect the positions of the leading and trailing edges of the sheets controls operation of the shift mechanism.) |
| S13 | Shift Tray Half-Turn Sensor 2 | Detects whether the shift tray is at either the front or back position. Controls the side-to-side movement of the shift tray. |
| S14 | Upper Tray Junction Gate HP Sensor | Detects the upper tray junction gate at its home position. |
| S15 | Stapler Junction Gate HP Sensor | Detects the staple junction gate at its home position. |
| S16 | Pre-Stack Junction Gate HP Sensor | Detects the pre-stack junction gate mechanism at its home position. |
| S17 | Pre-Stack Tray Paper Sensor (Right) | Detects paper feed in the right side of the pre-stack unit and detects jams. |
| S18 | Shift Tray Full Sensor | Detects when the shift tray is full for paper smaller than B4. The tray is at its lower limit. |
| S19 | Shift Tray Full Sensor (Large Paper) | Detects when the shift tray is full for large size paper (B4 or larger). |
| S20 | Shift Tray Near-Full Sensor | Detects when the shift tray is nearly full. |
| S21 | Stapler Tray Exit Sensor | Detects jams at the staple tray exit. |
| S22 | Staple Trimmings Hopper | Detects when the staple trimmings hopper is full. |



| Sensors | | |
|----------------|--|--|
| No. | Name | Description |
| | Full Sensor | |
| S23 | Staple Trimmings Hopper Set Sensor | Detects if the hopper that holds stapling trimmings is set correctly or incorrectly. |
| S24 | Pre-Stack Stopper HP Sensor | Detects the pre-stack stopper mechanism at its home position. |
| S25 | Pre-Stack Tray Paper Sensor (Left) | Detects paper feed in the right side of the pre-stack unit. Controls the release timing of the pre-stack stopper, and starts the pre-stack transport motor. Also detects paper jams. |
| S26 | Stapler Tray Entrance Sensor | Detects a paper jam if there is paper at the entrance of the stapler unit junction gate when the machine is turned on or after the door is closed. |
| S27 | Stack Feed-Out Belt HP Sensor | Detects the home position of the stack feed-out belt. |
| S28 | Staple Tray Full Sensor | Detects paper in the stapler tray. |
| S29 | Jogger HP Sensor | Detects the home position of the jogger fence in the stapler tray. |
| S30 | Bottom Fence HP Sensor | Detects the bottom fence at its home position. |
| S31 | Top Fence HP Sensor | Detects the top fence at its home position. |
| S32 | Positioning Roller HP Sensor | Detects the home position of the positioning roller. |
| S33 | Stack Plate HP Sensor (Center) | Detects the home position of the center stack plate. |
| S34 | Stack Plate HP Sensor (Front) | Detects the home position of the front stack plate. |
| S35 | Stack Plate HP Sensor (Rear) | Detects the home position of the rear stack plate. |
| S36 | Stapler HP Sensor (Front/Rear) | Detects the home position of the staple unit for side-to-side movement. |
| S37 | Stapler Rotation Sensor 1 | Paired with Stapler Rotation Sensor 2. This sensor pair controls the positioning of the corner stapler for the horizontal, 45° angle, and 75° angle stapling positions. |
| → S38 | Stapler Rotation Sensor 2 | Paired with Stapler Rotation Sensor 1. This sensor pair controls the positioning of the corner stapler for the horizontal and 45° angle stapling positions. |
| S39 | Punch-out Hopper Full Sensor | Detects when the punch-out hopper is full and detects when the punch tray is set. |
| S40 | Punch HP Sensor 1 | Detects the cam home position for the 2-hole punch. After punching a sheet of paper, the cam returns to home position and stops. Home position depends on whether 2 holes or 3 holes are being made, so there are two punch HP sensors. Punch HP sensor 1 is used when 2-hole punching is selected, and punch HP sensor 2 is used when 3-hole punching is selected. When the cut-out enters the slot of the punch HP in use (sensor 1 or 2-hole punching) the motor stops. |
| S41 | Punch HP Sensor 2 | Detects the cam home position for 3-hole punch. After punching a sheet of paper, the cam returns to home position and stops. Home position depends on whether 2 holes or 3 holes are being made, so there are two punch HP sensors. Punch HP sensor 1 is used when 2-hole punching is selected, and punch HP sensor 2 is used when 3-hole punching is selected. When the cut-out enters the slot of the punch HP in use (sensor 1 or 2-hole punching) the motor stops. |
| S42 | Shift Tray Jogger HP Sensor | Detects the actuator on the rear shift tray jogger fence and switches off the shift tray jogger motor, and signals the machine to turn on the shift tray jogger retraction motor to raise the fences at the end of a job. |
| S43 | Shift Tray Jogger Retraction HP Sensor | Detects the jogger fences of the shift tray jogger unit at their home positions. |

OVERALL MACHINE INFORMATION

| Solenoids | | |
|------------------|--------------------------------|--|
| No. | Name | Description |
| SOL | Staple Trimming Chute Solenoid | Opens and closes the trap door that drops staple trimmings into the stapling trimmings hopper. |

| Switches | | |
|-----------------|-------------------------------|--|
| No. | Name | Description |
| SW | Front Door Safety Switch | Detects when the front door is open. The finisher does not operate until the front door has been closed. |
| SW | Emergency Stop Switch | Switches the current job off and on to allow time for the operator to remove paper from the shift tray. |
| SW | Shift Tray Upper Limit Switch | Cuts the power to the shift tray lift motor when the shift tray position is at its upper limit. |

Finisher
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| LCIT RT5000 (B832) REVISION HISTORY | | |
|--|-------------|--------------------------|
| Page | Date | Added/Updated/New |
| | | None |

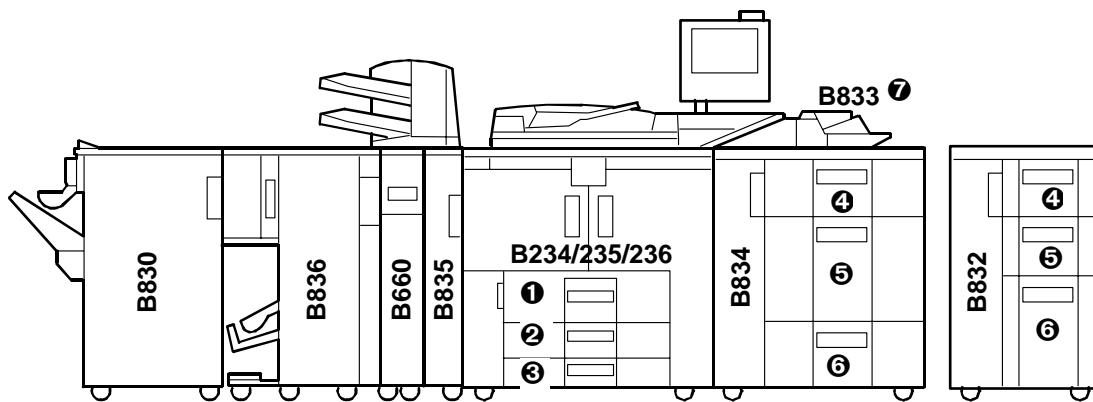


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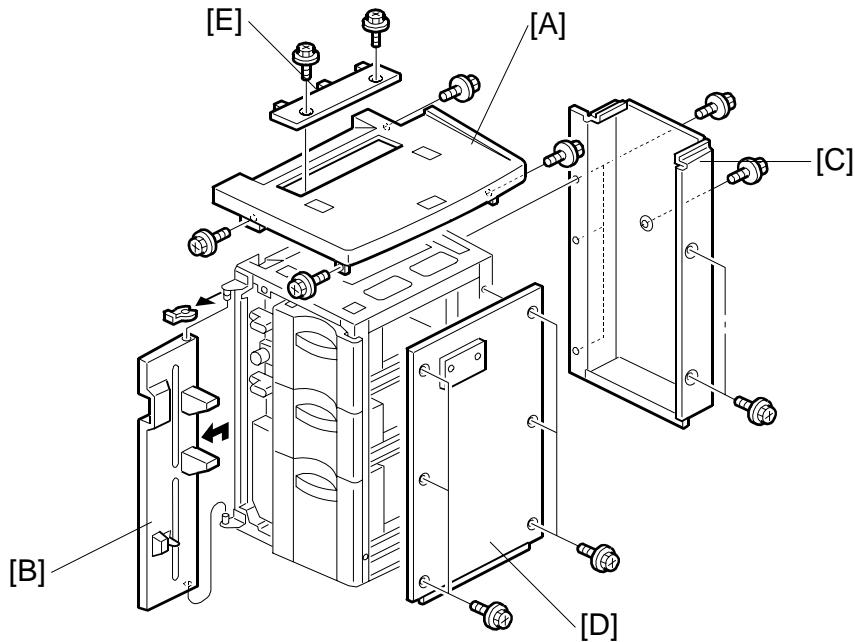
Tray Naming



| | | |
|---|-------------------------|----------|
| ① | Copier (B234/B235/B236) | 1st Tray |
| ② | | 2nd Tray |
| ③ | | 3rd Tray |
| ④ | LCT (B832 or B834) | 4th Tray |
| ⑤ | | 5th Tray |
| ⑥ | | 6th Tray |
| ⑦ | Bypass Tray (B833) | 7th Tray |

1. REPLACEMENT AND ADJUSTMENT

1.1 FRONT DOOR AND COVERS

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[A] Top cover (7 x 4).

[B] Front door (1 x 1).

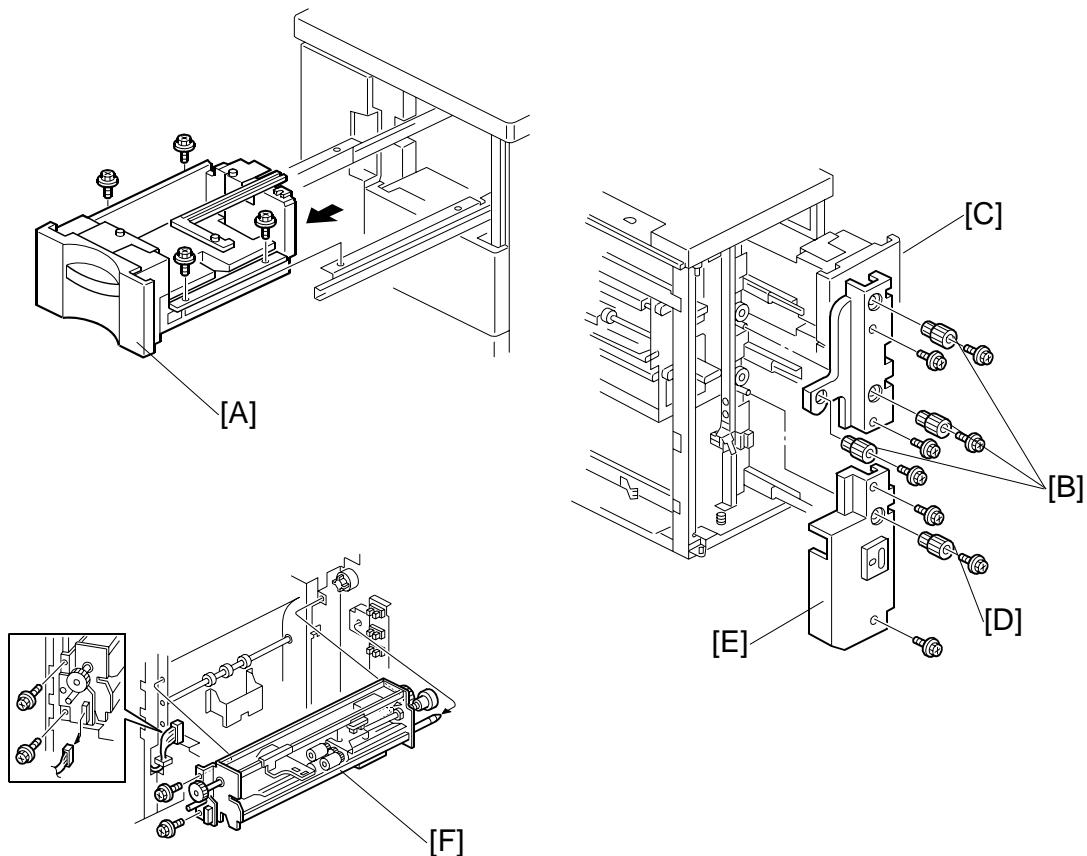
NOTE: While lifting the top cover, remove the snap ring and front door.

[C] Rear cover (7 x 6).

[D] Right cover (7 x 6).

[E] Paper slot cover (7 x 2).

1.2 INNER COVER, PAPER FEED UNIT

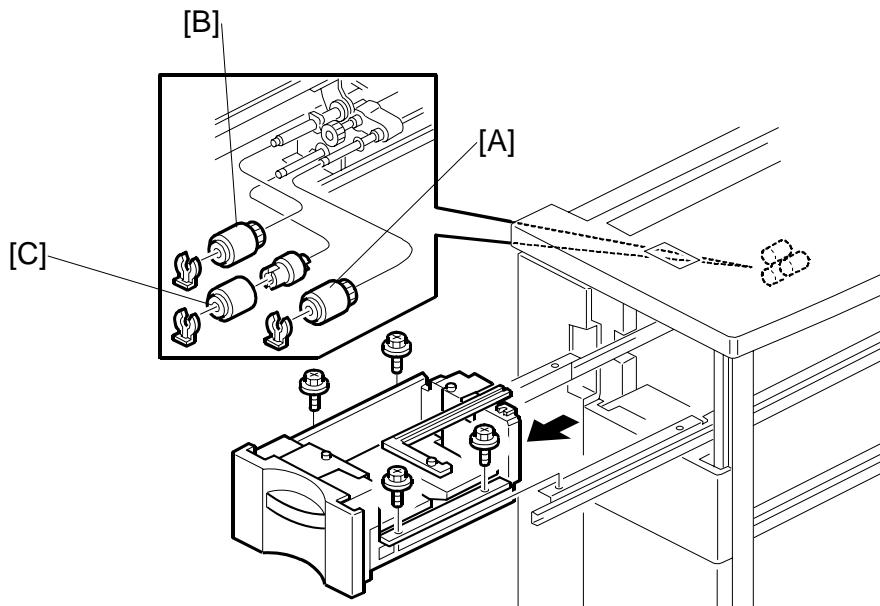


- Open the front door.
- Remove right cover (☞1.1)

Remove:

- [A] Pull out tray and remove it (\wedge x 4)
- [B] Knobs (x3) (\wedge x 1 each)
- [C] Upper inner cover (\wedge x2)
- [D] Knob (\wedge x1)
- [E] Lower inner cover (\wedge x1)
- [F] Paper feed unit (\square x1, \wedge x2)

1.3 PAPER FEED ROLLER



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Remove:

- Remove the right cover (☞1.1)
- Remove the paper trays. (☞1.2)

[A] Pick-up roller (Ø x 1).

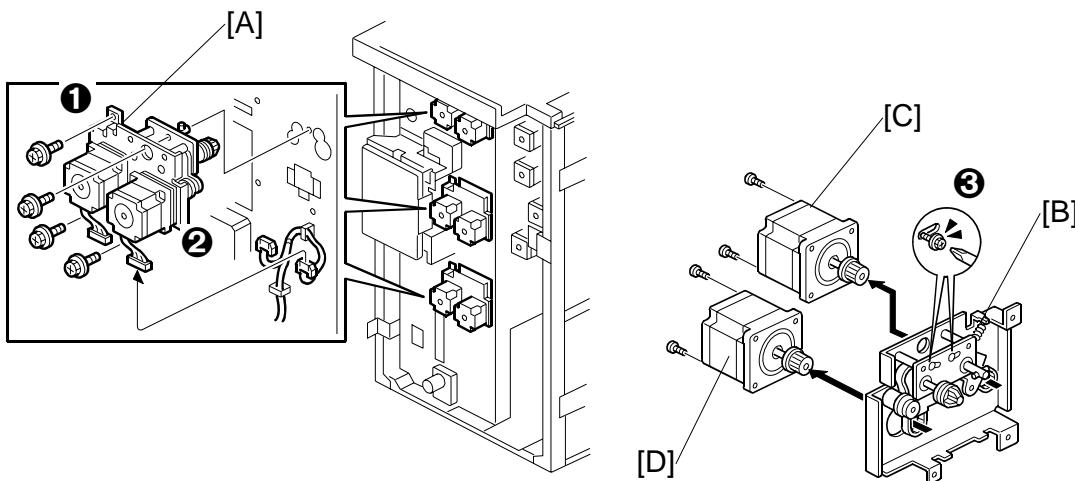
[B] Feed roller (Ø x 1).

[C] Separation roller (Ø x 1).

- NOTE:**
- 1) The LCT pick-up and separation rollers are the same as pick-up and separation rollers of the main machine. These rollers are interchangeable.
 - 2) The feed rollers of the LCT and main machine are different because they are designed to rotate in opposite directions. The feed rollers of the LCT and main machine are not interchangeable.
 - 3) Never touch the surface of the rollers with bare hands.
- Clear the PM counters for the new rollers (see Section "2. Preventive Maintenance").

1.4 LCT MOTORS

1.4.1 PAPER FEED, GRIP MOTORS



Each paper feed unit has a paper feed motor ① and a grip motor ②. The removal procedure is the same for each feed tray.

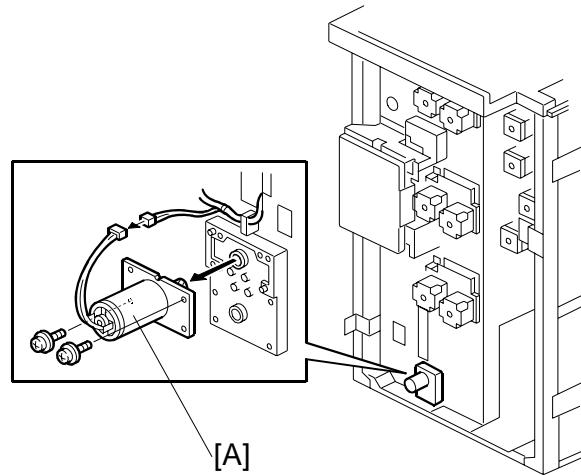
Remove:

- Rear cover (☞1.1)
- [A] Motor unit (☞ x4, ☞ x2)
- [B] Springs (x2). First, loosen the screws (x2) ③
- [C] Paper feed motor (☞ x2)
- [D] Grip motor (☞ x2)

Reinstallation

- Attach the tension spring, then tighten the screws ③ to tighten the belts.

1.4.2 6TH LIFT MOTOR

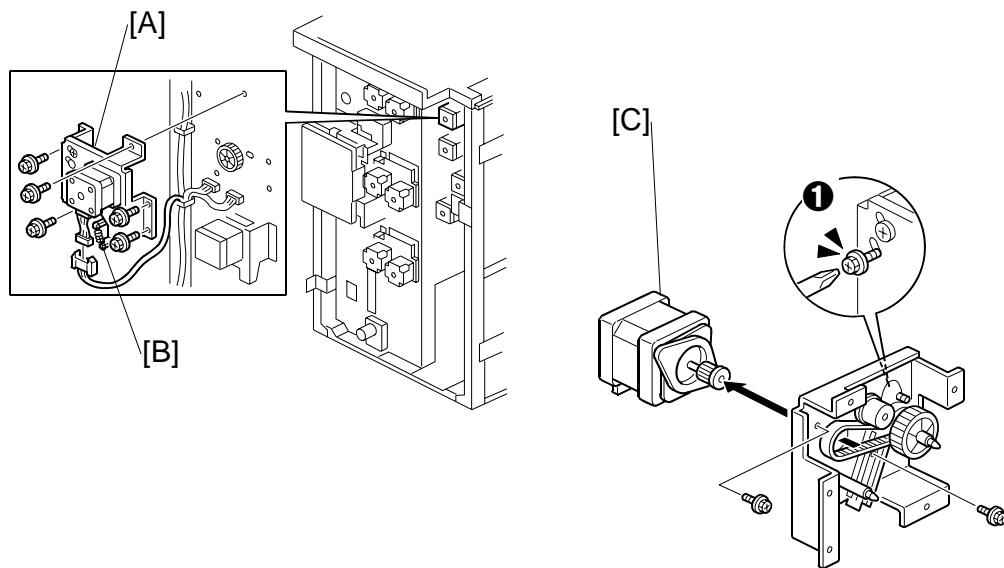


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Remove:

- Rear cover (☞1.1)
- [A] 6th lift motor (☞ x2, ☞ x1)

1.4.3 4TH TRANSPORT MOTOR



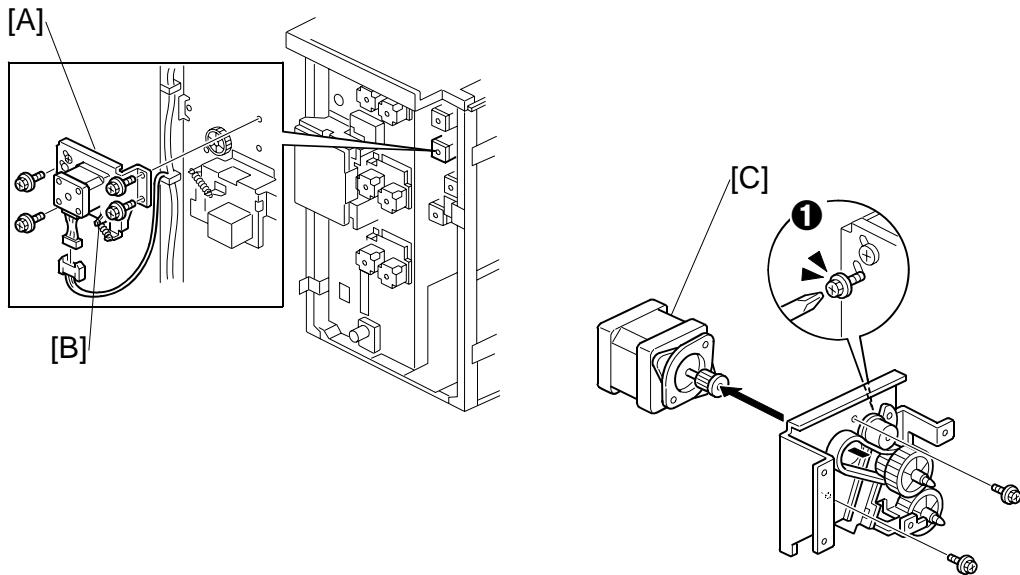
Remove:

- Rear cover. (1.1)
- [A] 4th Transport motor unit (x 5, x 1).
- [B] Spring (x1). First, loosen screw ① (x 1).
- [C] 4th transport motor (x2, Timing belt x1)

Reinstallation

- Be sure that the tension spring is connected, then tighten the screw ①.

1.4.4 5TH TRANSPORT MOTOR

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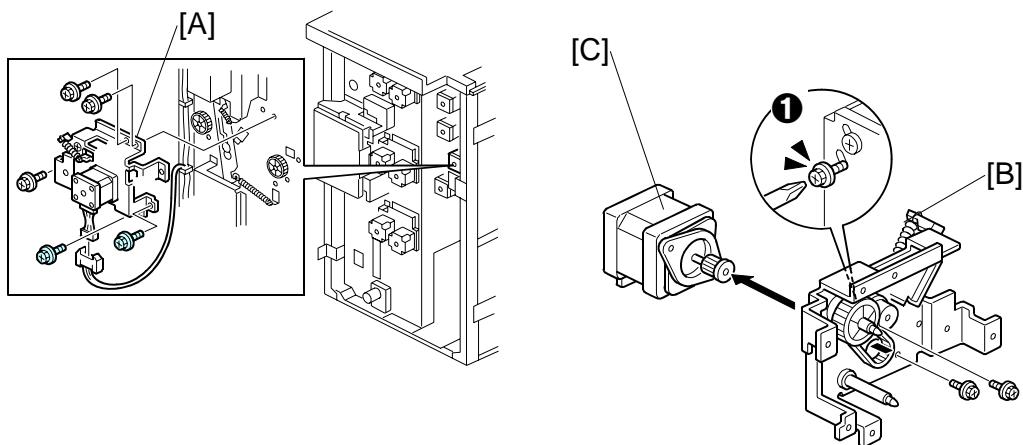
Remove:

- Rear cover. (1.1)
- [A] Motor unit (x4, x1).
- [B] Spring (x1). First, loosen screw ① (x 1).
- [C] 5th Transport motor (x2, Timing belt x1)

Reinstallation

- Be sure that the tension spring is connected, then tighten the screw ①.

1.4.5 LCT EXIT MOTOR



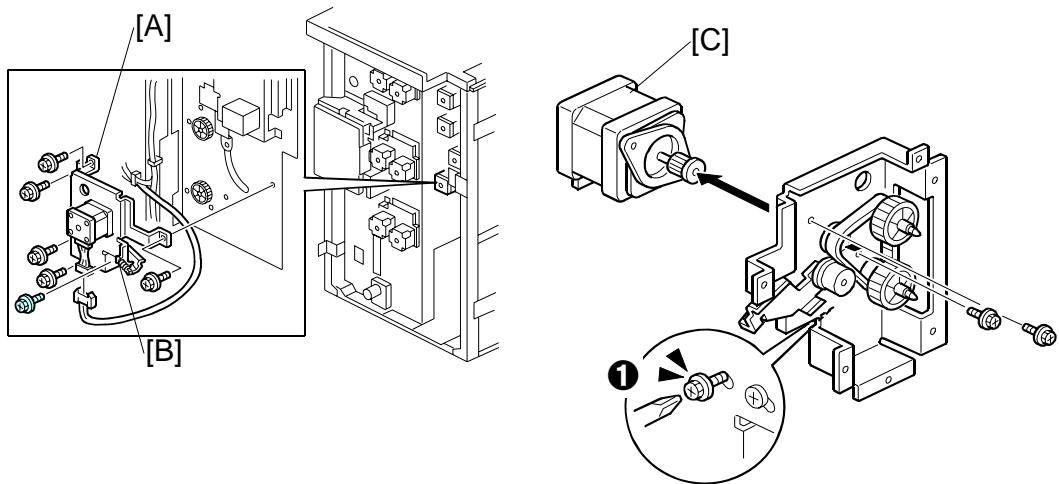
Remove:

- Remove the rear cover. (1.1)
- [A] Motor unit (\wedge x6, \square x 1).
- [B] Spring (x1). First, loosen screw ① (\wedge x 1).
- [C] LCT exit motor (\wedge x2, Timing belt x1)

Reinstallation

- Be sure that the tension spring is connected, then tighten the screw ①.

1.4.6 6TH TRANSPORT MOTOR



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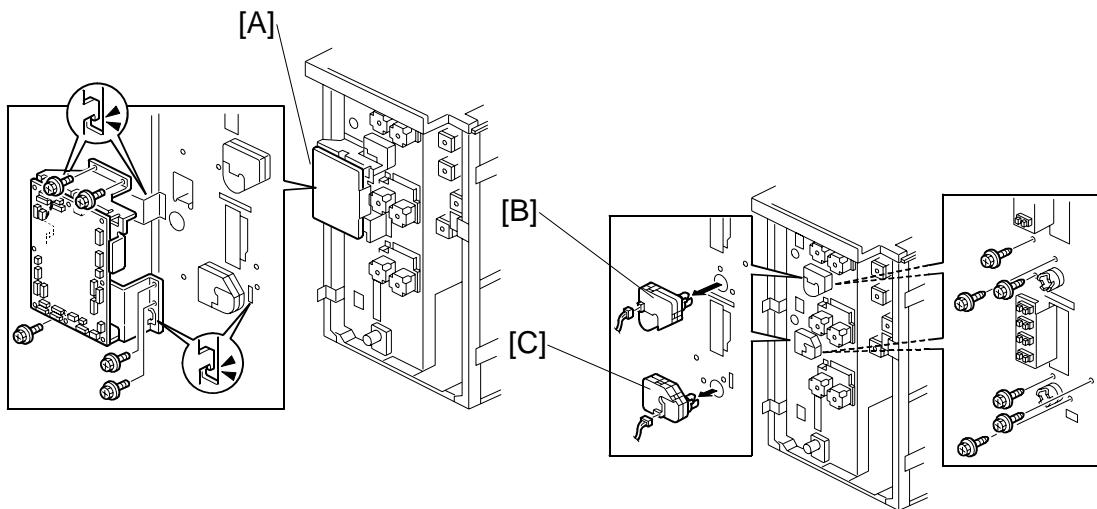
Remove:

- Rear cover. (☞1.1)
- [A] Motor unit (\wedge x6, \square x1).
- [B] Spring (x1). First, loosen screw ① (\wedge x 1).
- [C] LCT exit motor (\wedge x2, Timing belt x1)

Reinstallation

- Be sure that the tension spring is connected, then tighten the screw ①.

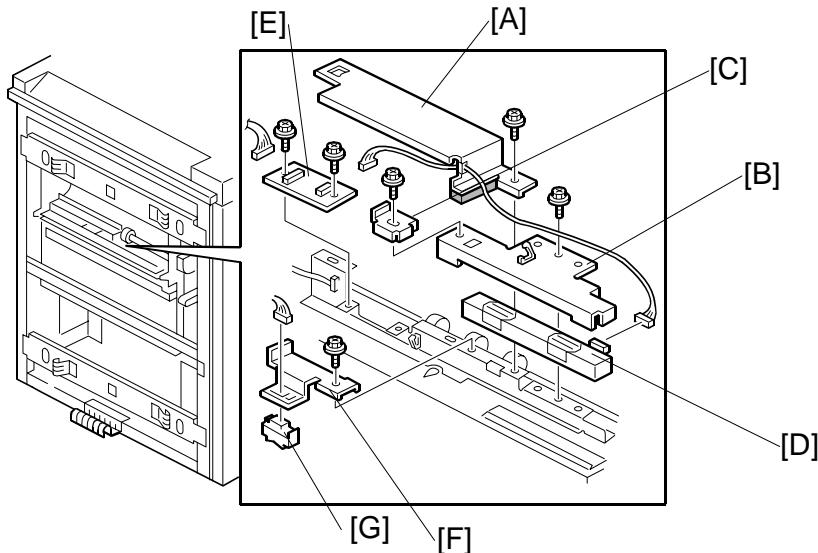
1.4.7 4TH, 5TH LIFT MOTORS



Remove:

- Rear cover. (1.1)
- [A] Main control board bracket (x5, x All)
- [B] 4th lift motor (x3, x 1)
- [C] 5th lift motor (x3, x 1)

1.5 IMAGE POSITION SENSOR BOARD, EXIT SENSOR



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Image Position Sensor

Disconnect the LCT from the copier.

- [A] Harness cover (x1, x1)
- [B] Image position sensor unit
(x1, x1, x1)
- [C] Stopper (x1)
- [D] Image position sensor
- After replacing the image position sensor,
do the procedure for image position sensor adjustment. (●1.9)

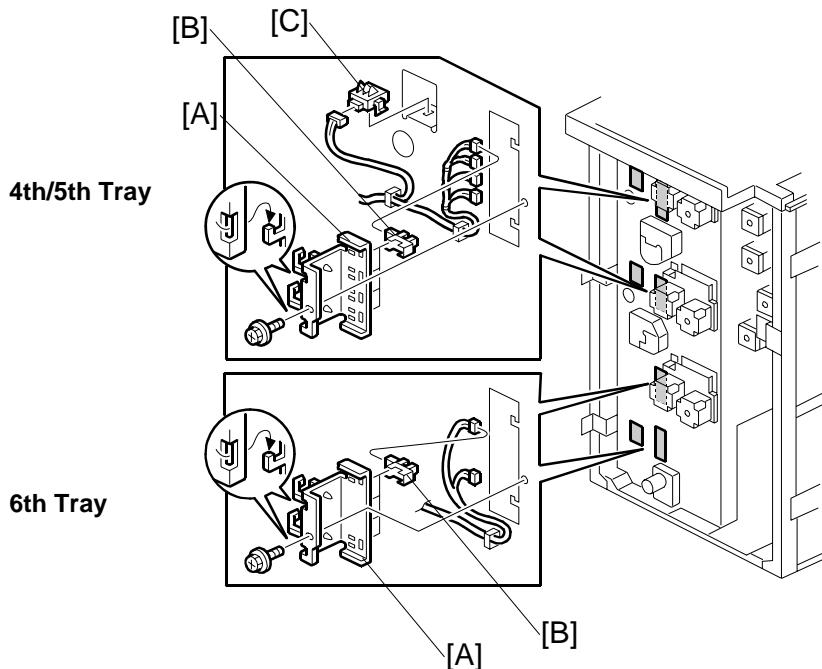
Image Position Sensor Board

- [E] Image position sensor board
(x2, x1, x2)

Exit Sensor

- [F] Exit sensor unit (x1, x1, x1)
- [G] Exit sensor

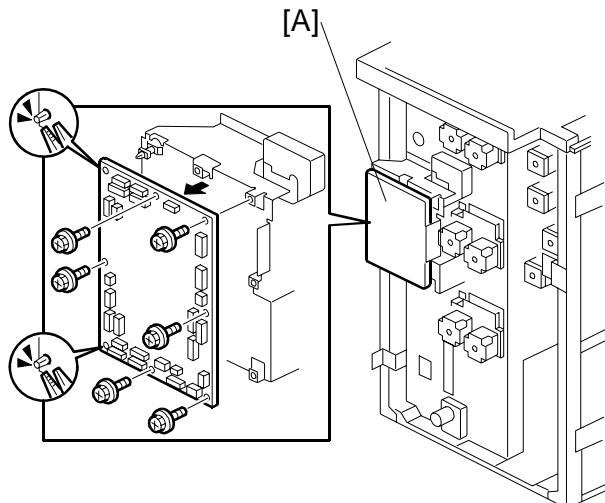
1.6 PAPER HEIGHT SENSORS, PAPER SIZE SENSORS



Remove:

- Rear cover. (☞1.1)
 - Right cover. (☞1.1)
- [A] Paper height sensor unit (☞ x2, ☞ x 1, ☞ x 4).
[B] Paper height sensors (Hooks x 4 each)
[C] Paper size sensors (☞ x 1 each)

1.7 MAIN CONTROL BOARD



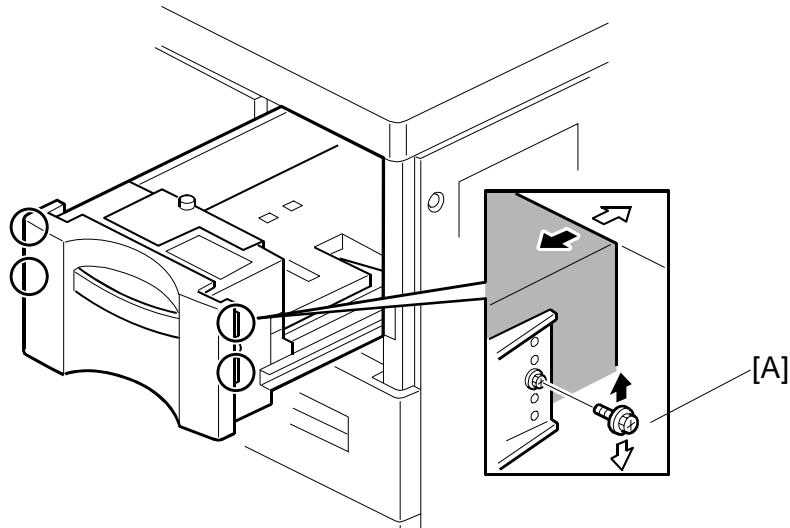
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Remove:

- Rear cover. (1.1)

[A] Main control board (x6, Standoffs x2, x All)

1.8 SIDE REGISTRATION ADJUSTMENT



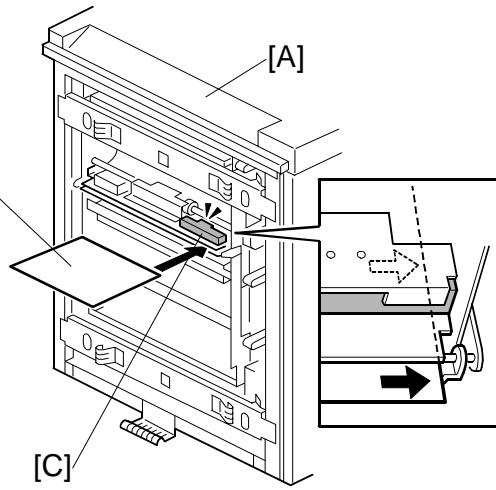
Normally the side registration of the image can be adjusted with SP1002 004~006 (Side-to-Side Registration – Tray 4, 5, 6). When the punch hole positions are not aligned from a particular feed station, adjust the side registration by changing the tray cover position for the tray, as described below. Then adjust the side registration of the image with the SP1002.

1. Pull out the tray.
2. Change the screw positions [A] at both the right and left sides as shown.

NOTE: Adjustment range: 0 ± 2.0 mm adjustment step: 1.0 mm/step

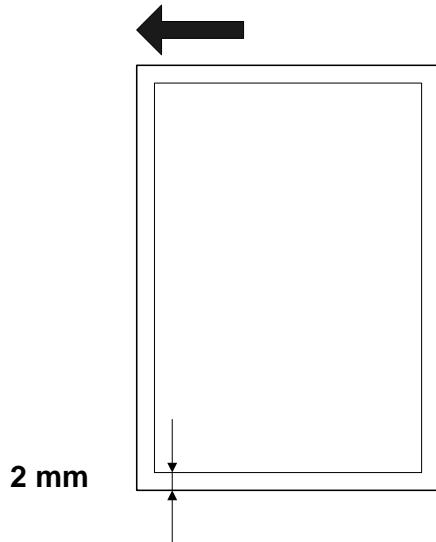
1.9 ADJUSTING IMAGE POSITION SENSOR STRENGTH AND SIDE-TO-SIDE REGISTRATION

1. Turn off the main power switch.
2. Disconnect the LCT from the mainframe.
3. With the LCT [A] separated from the mainframe, reconnect the LCT cable to the mainframe.
4. Turn on the main power switch.
5. Insert one sheet of plain white paper [B] [B] in the paper path.
6. Make sure that the paper covers the entire area below the image position sensor (CIS) [C].
7. Enter the SP mode and do **SP1910 002** (CIS Image Position Adjustment: LED Strength - LCT). This calibrates the amount of light to be emitted from the CIS.
8. Do **SP1909 002** (CIS Image Position Adjustment: PWM After Adjustment - LCT).
 - If the displayed value is between 20 (14h) and 40 (28h), the CIS is calibrated successfully. (The display is in hexadecimal code.)
 - If the value is outside this range, do **SP 1910 002** and **1909 002** again. If the value does not come between 20 and 40, the CIS may be defective.
9. Exit the SP mode.
10. Reinstall the LCT to the side of the copier.
11. Push [User Tools]> [Adjust Settings for Operators].
12. Do **SP1911** for Trays 4, 5, 6, 7 and set the value for each tray to "0" (OFF).
13. Exit from SP 1911 and return to the SP mode menu.



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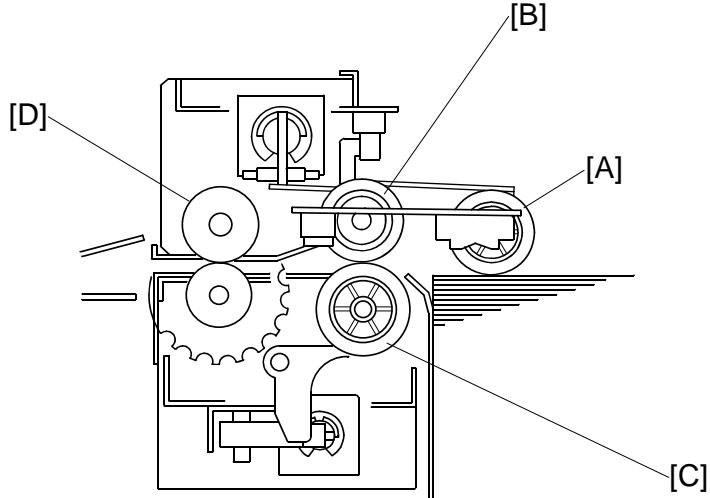
14. Adjust the image positions in the main scan direction.
 - Do **SP2902 003**, select Pattern **27**, then print the trimming pattern.
 - Do **SP1002** and adjust the image position in the main scan direction for Trays 4, 5, 6, and 7.
 - Print the trimming pattern from each tray of the LCT and from the bypass tray (if installed).
 - To do this, touch "Copy Window" in the SP display, select a tray, then push [Start].
 - The distance of the test pattern line from the paper edge for each tray must be 2 mm. If it is not 2 mm, adjust with **SP1002 004** to **007**, depending on which tray is not within the specified 2 mm.
15. Do **SP1912 002** (CIS Image Position Adjustment: Normal Paper). This sets the CIS for operation with standard copy paper.
16. Exit the SP mode.
17. Push [User Tools]> [Adjust Settings for Operators].
18. Once again, do **SP1911** (CIS Image Position Adjustment: Feed Setting) and reset the values for Trays 4, 5, 6, and 7 to "1" (ON).



2. DETAILED DESCRIPTIONS

2.1 PAPER FEED

2.1.1 PAPER FEED ROLLERS



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This LCT has three paper tray feed stations:

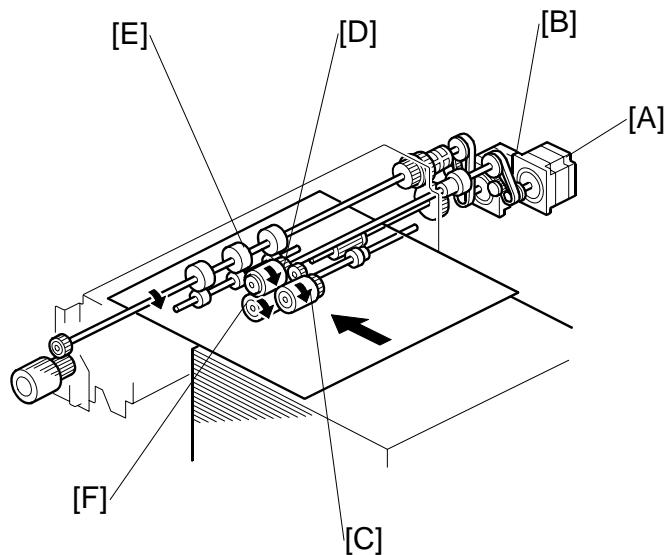
The 4th and 5th tray each hold 1,000 sheets of paper. The 6th tray holds 2,550 sheets of paper. Total: 4,550 sheets

Each tray contains four rollers:

- [A] Pick-up roller
- [B] Paper feed roller
- [C] Separation roller
- [D] Grip roller

NOTE: The pick-up roller, paper feed roller, and separation roller are a standard FRR paper feed system.

2.1.2 PAPER FEED MOTORS



Two stepper motors control the paper feed drive:

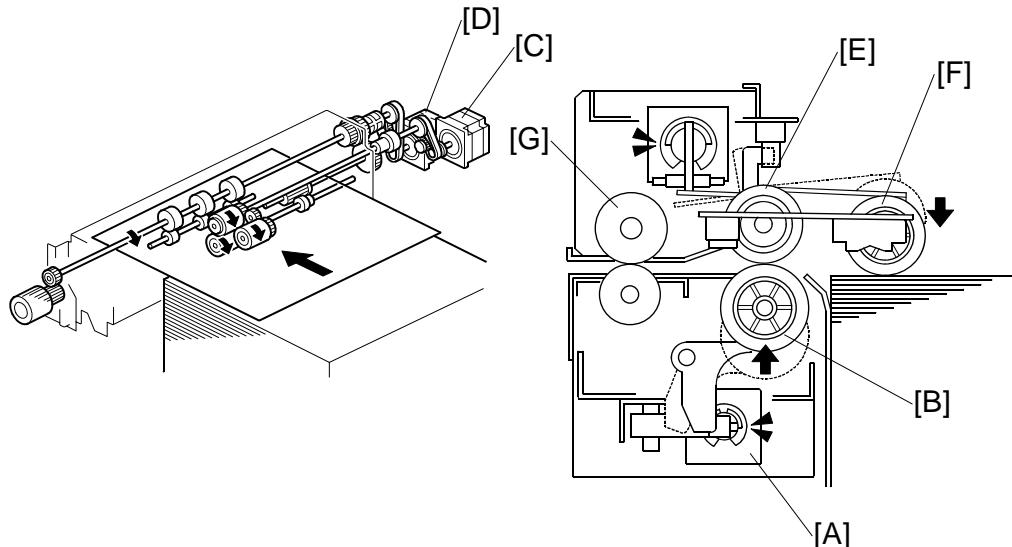
[A] Paper feed motor

[B] Grip motor

The paper feed motor drives the pick-up roller [C] and the paper feed roller [D].

The grip motor drives the grip roller [E] that feeds the paper out of the tray, and the separation roller [F].

2.1.3 PICK-UP AND FEED



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When a paper feed station is not selected:

- Separation roller solenoid [A] is de-activated
- Separation roller [B] turns freely.

When the paper feed station is selected for a job:

- Paper feed motor [C] and grip motor [D] turn on.

When the feed motor [C] turns on, it drives the feed roller [E]. It also drives the pick-up roller [F] because the pick-up roller is linked to the feed roller by an idle gear..

When the separation solenoid [A] turns on, the separation roller [B] contacts the paper feed roller [E] and turns with the feed roller, unless more than one sheet of paper is fed. The three trays of the LCT unit use the standard FRR mechanism.

When the paper feed motor turns on, the pick-up solenoid turns on and the pick-up roller [F] lowers until it contacts the top sheet of the paper stack and then sends it to the paper feed and separation rollers.

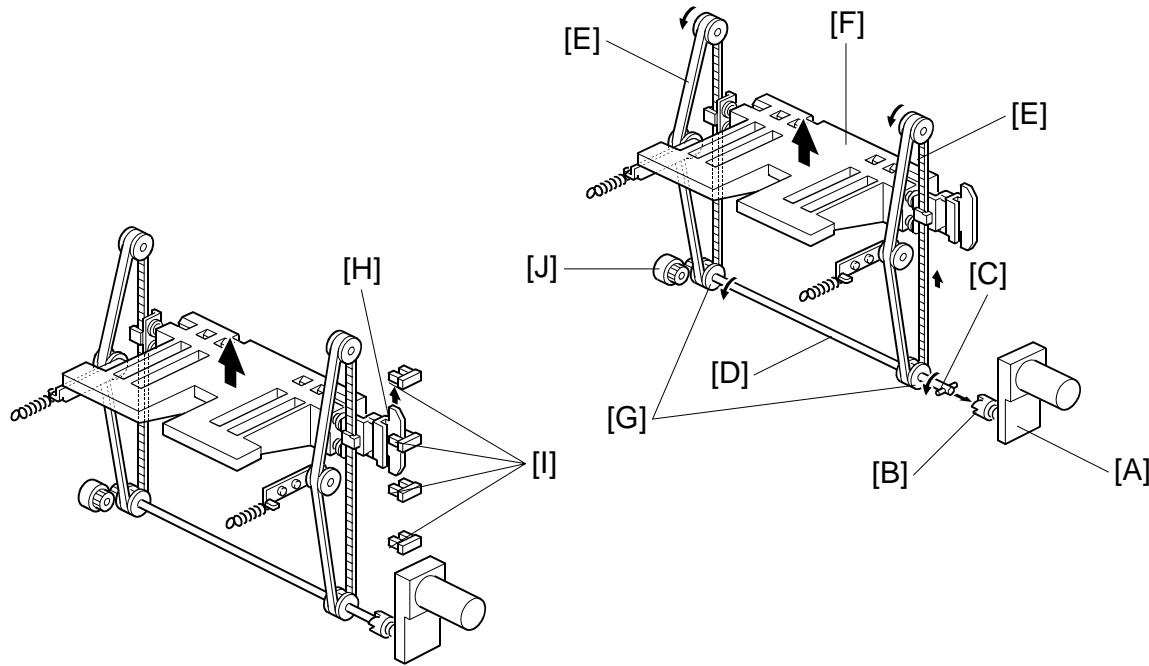
When the paper feed sensor detects the leading edge of the paper, the paper feed motor switches off, the pick-up roller lifts, and the grip rollers [G] feed the paper out of the tray.

2.2 PAPER LIFT

2.2.1 TRAY DETECTION

When a tray is set in the machine, the tray detection method used depends on the tray:

- The upper tray and middle tray are detected when any one of the paper size switch signals is low.
- The lower tray is detected when the switch 1 signal of the paper size switch is low.



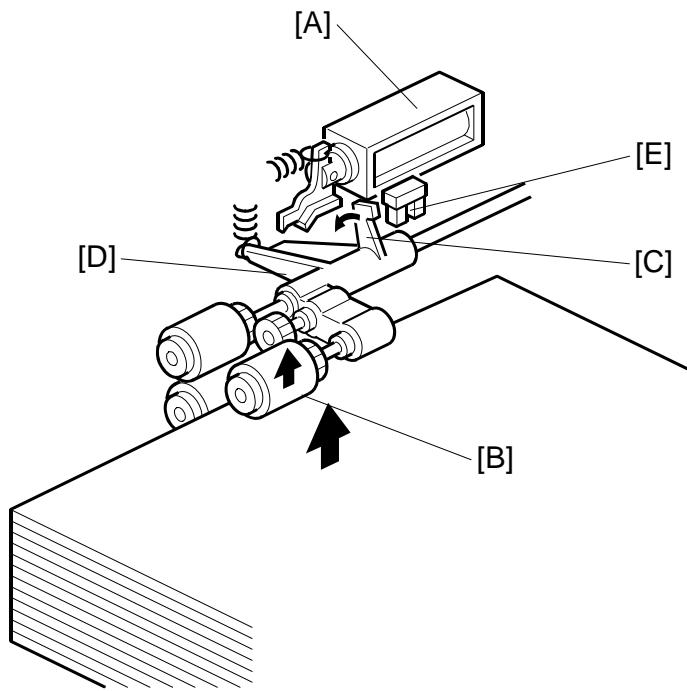
2.2.2 LIFT MECHANISM

When the machine detects that the paper tray is set in the machine, the tray lift motor [A] rotates and the coupling gear [B] on the tray lift motor engages the pin [C] of the lift drive shaft [D]. The tray drive belts [E] are connected to the tray bottom plate [F] and are driven by the tray lift motor via the lift drive shaft [D] and tray drive pulleys [G]. When the lift motor turns counterclockwise, the tray bottom plate [F] moves up. The tray goes up until the top of the paper stack pushes up the pick-up roller and the lift sensor in the feed unit is de-activated.

When the actuator [H] on the rear end of the bottom plate activates the paper height sensors [I], the remaining paper capacity is detected. (●2.4)

When pulling out the tray, the coupling gear [B] separates from the pin [C], so that the tray bottom plate moves downward. In the bottom tray, the damper [J] lets the tray bottom plate drop slowly.

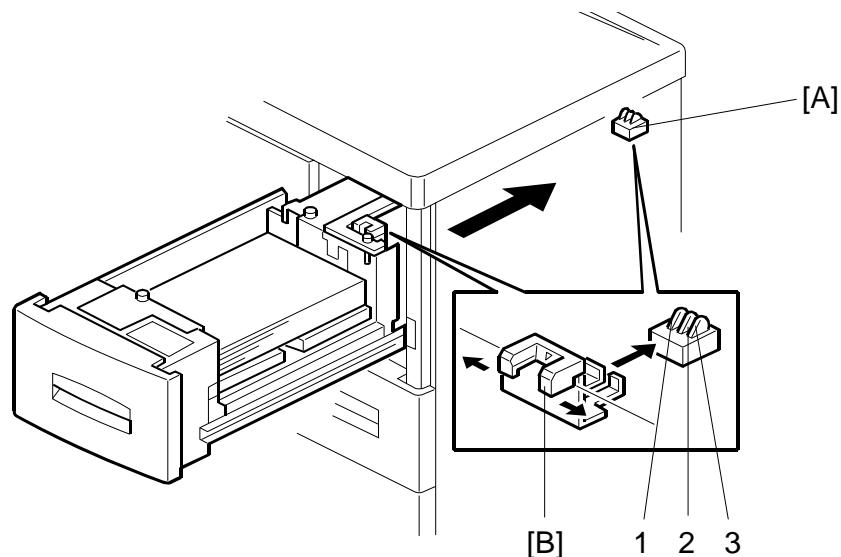
2.2.3 LIFT SENSOR

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When the lift motor turns on, the pick-up solenoid [A] activates to lower the pick-up roller [B]. When the top sheet of paper reaches the proper paper feed level, the paper pushes up the pick-up roller and the actuator [C] on the pick-up roller supporter [D] de-activates the lift sensor [E] to stop the lift motor.

After several paper feeds, the paper level gradually lowers, then the lift sensor is activated and the lift motor turns on again until the lift sensor is de-activated again.

2.3 PAPER SIZE DETECTION



| | A4-LEF | B5-LEF | A5-LEF | A5-SEF | LT-LEF | HLT-LEF | HTL-SEF |
|-----|--------|--------|--------|--------|--------|---------|---------|
| SW1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| SW2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| SW3 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |

1: HI 0: LOW

Top Tray (Tray 4) and Middle Tray (Tray 5)

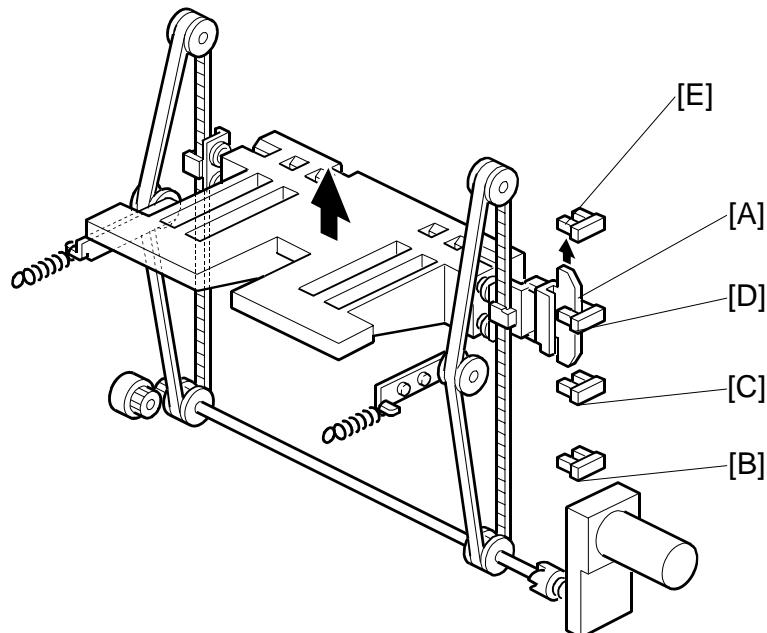
For the top and middle trays, the paper size switch [A] detects the paper size. The paper size switch contains three microswitches. The paper size switch is actuated by an actuator plate [B] at the rear of the tray. Each paper size has its own unique combination as shown in the table and the CPU determines the paper size by the combination.

Bottom Tray (Tray 6)

The bottom tray has the same switch as the top and middle trays. However, it is only used for detecting when the tray is pushed in.

For the bottom tray, the paper size must be selected in the SP5019-007:

2.4 REMAINING PAPER DETECTION



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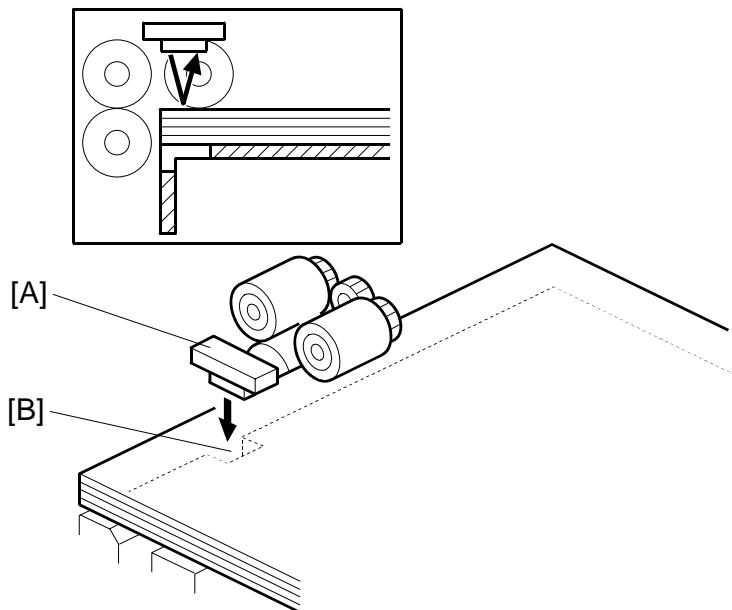
The amount of paper remaining in the tray is detected by the three paper height photo-interrupter sensors on the left rail as the bottom plate rises. Five states, determined by the position of the actuator are possible.

1. With the actuator [A] below paper height sensor 1 [B], no sensor is actuated and the display indicates 100%.
2. When the actuator passes paper height sensor 1 [B], the display indicates 75% of the paper supply remaining.
3. When the actuator passes paper height sensor 2 [C], the display indicates 50% of the paper supply remaining.
4. When the actuator passes paper height sensor 3 [D], the display indicates 25% of the paper supply remaining.

NOTE: When the actuator enters the gap of the near end sensor [E], the machine signals near end.

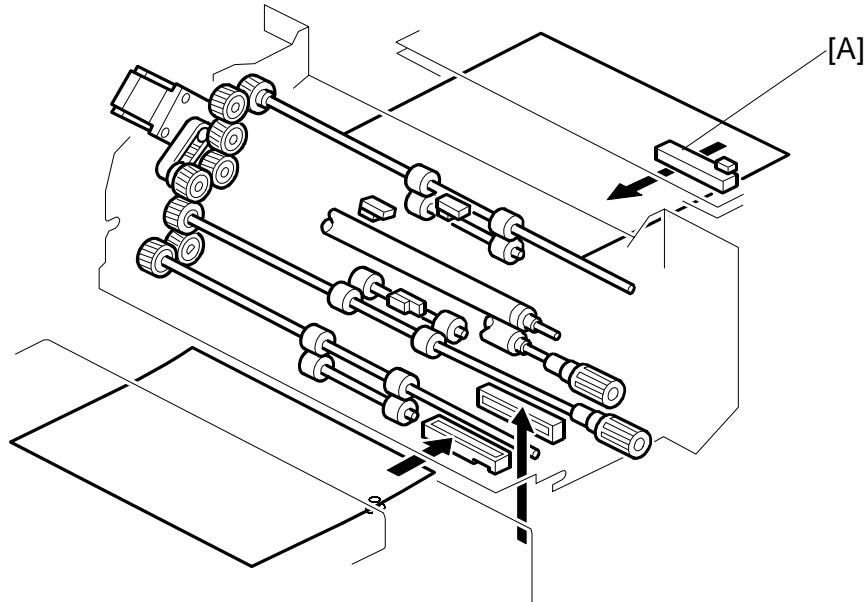
Finally, when the last sheet feeds, the paper end sensor signals that the tray is empty. (2.5)

2.5 PAPER END DETECTION



The paper end sensor [A] detects the top sheet of the paper in the tray by monitoring the reflected light. When the paper tray runs out of paper, the paper end sensor does not receive the reflected light due to the cutout [B]. Then, the tray lift motor rotates backwards 2 seconds to drop the tray bottom plate.

2.6 IMAGE POSITION CORRECTION



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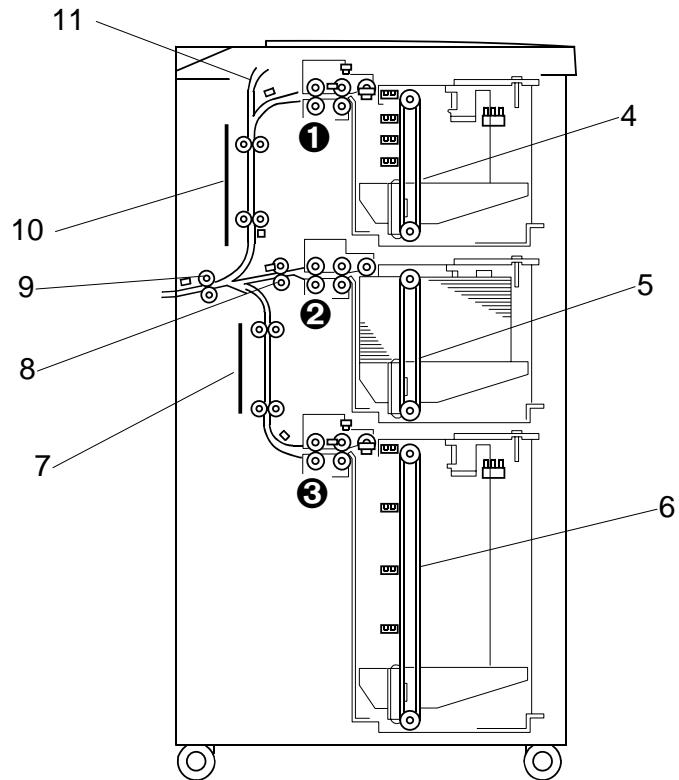
The image position sensor [A] is located in the LCT paper path above the paper path and in front of the LCT exit rollers. (This sensor is mounted on its own control board.)

The sensor is a CIS (Contact Image Sensor). It checks the side edges of each sheet as it passes, and feeds this information back to the machine.

If the side-to-side registration of the paper is slightly out of alignment, the machine will correct the image position when the laser writes the image on the surface of the drum. This function does not correct the position of the paper.

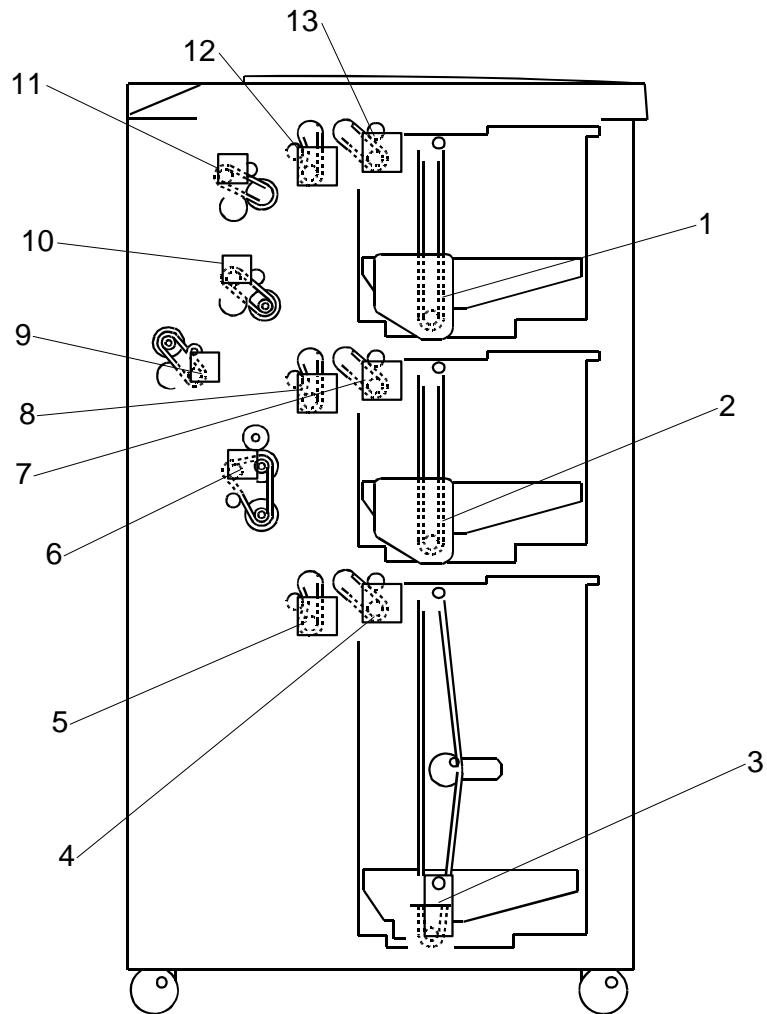
3. OVERALL MECHANICAL INFORMATION

3.1 MECHANICAL COMPONENT LAYOUT



- | | |
|--------------------------------------|----------------------------------|
| 1. 4th Paper Feed Unit ^{*1} | 7. Lower Transport Rollers |
| 2. 5th Paper Feed Unit | 8. Horizontal Transport Roller |
| 3. 6th Paper Feed Unit | 9. LCT Exit roller |
| 4. 4th Tray Drive Belt | 10. Upper Transport Rollers |
| 5. 5th Tray Drive Belt | 11. Feed Slot (from Bypass Tray) |
| 6. 6th Tray Drive Belt | |

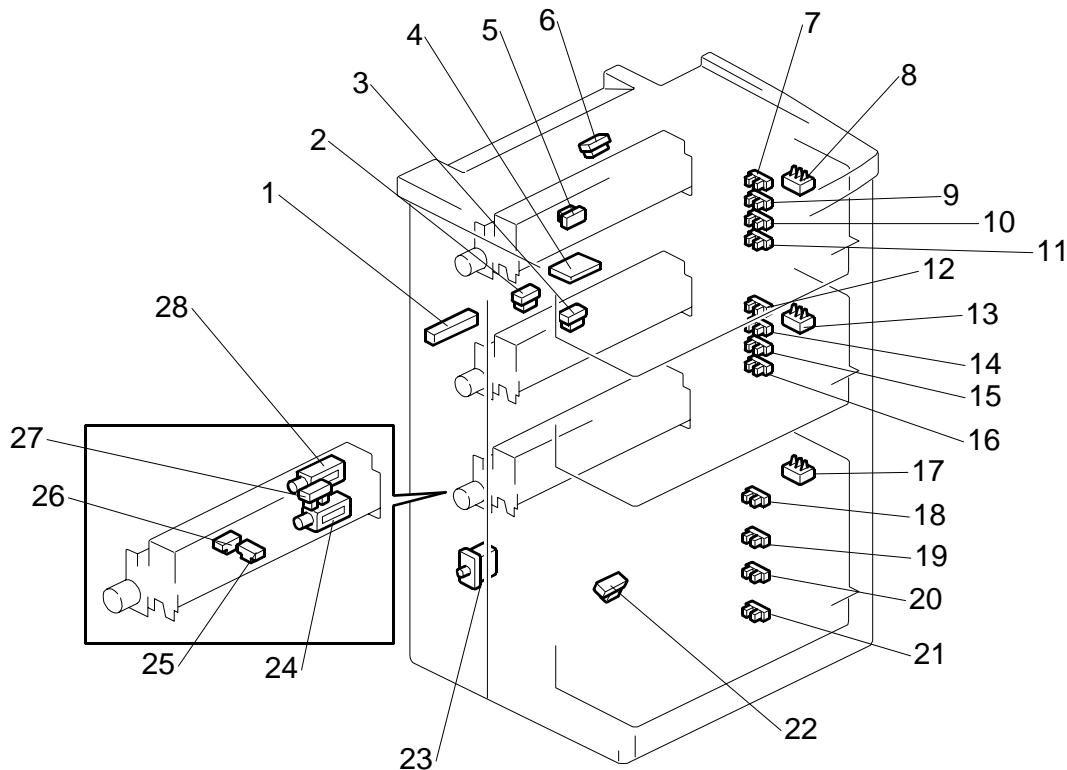
3.2 DRIVE LAYOUT



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- | | |
|-------------------------|--------------------------|
| 1. 4th Lift Motor | 8. 5th Grip Motor |
| 2. 5th Lift Motor | 9. LCT Exit Motor |
| 3. 6th Lift Motor | 10. 5th Transport Motor |
| 4. 6th Paper Feed Motor | 11. 4th Transport Motor |
| 5. 6th Grip Motor | 12. 4th Grip Motor |
| 6. 6th Transport Motor | 13. 4th Paper Feed Motor |
| 7. 5th Paper Feed Motor | |

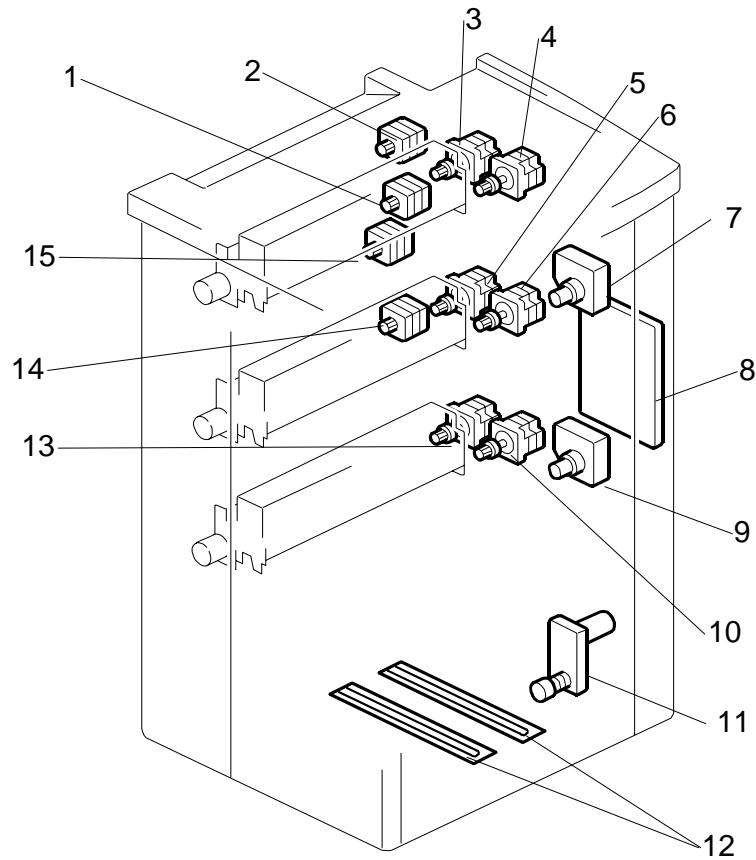
3.3 ELECTRICAL COMPONENTS



- | | |
|--------------------------------|-------------------------------|
| 1. LCT Image Position Sensor | 15. 5th Paper Height Sensor 2 |
| 2. Exit Sensor | 16. 5th Paper Height Sensor 1 |
| 3. 5th Transport Sensor | 17. 6th Paper Size Sensors |
| 4. Image Position Sensor Board | 18. 6th Paper Height Sensor 4 |
| 5. 4th Relay Sensor | 19. 6th Paper Height Sensor 3 |
| 6. 4th Transport Sensor | 20. 6th Paper Height Sensor 2 |
| 7. 4th Paper Height Sensor 4 | 21. 6th Paper Height Sensor 1 |
| 8. 4th Paper Size Sensors | 22. 6th Transport Sensor |
| 9. 4th Paper Height Sensor 3 | 23. Door Safety Switch |
| 10. 4th Paper Height Sensor 2 | 24. 6th Separation Solenoid |
| 11. 4th Paper Height Sensor 1 | 25. 6th Paper End Sensor |
| 12. 5th Paper Height Sensor 4 | 26. 6th Paper Feed Sensor |
| 13. 5th Paper Size Sensors | 27. 6th Lift Sensor |
| 14. 5th Paper Height Sensor 3 | 28. 6th Pick-up Solenoid |

NOTE: Items 24, 25, 26, 27 and 28 are duplicated in the 4th and 5th units.

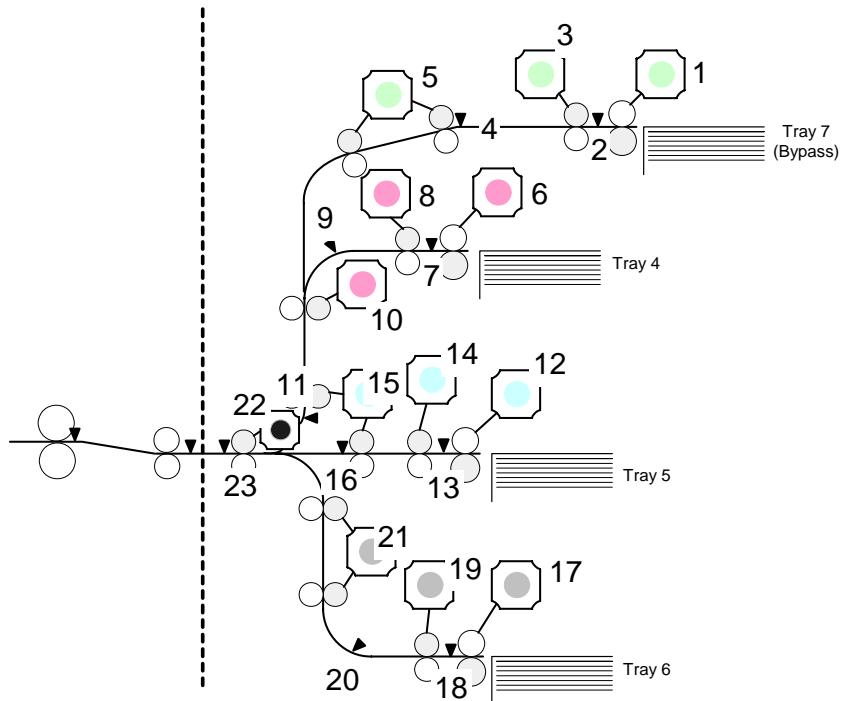
OVERALL MECHANICAL INFORMATION



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- 1. 5th Transport Motor
- 2. 4th Transport Motor
- 3. 4th Grip Motor
- 4. 4th Paper Feed Motor
- 5. 5th Grip Motor
- 6. 5th Paper Feed Motor
- 7. 4th Lift Motor
- 8. Main Control Board
- 9. 5th Lift Motor
- 10. 6th Paper Feed Motor
- 11. 6th Lift Motor
- 12. Anti-Condensation Heaters (Options)
- 13. 6th Grip Motor
- 14. 6th Transport Motor
- 15. LCT Exit Motor

3.4 A4/LT LCT B832 LAYOUT (WITH BYPASS)



- | | |
|------------------------------|---------------------------|
| 1. Paper Feed Motor Bypass) | 13. 5th Paper Feed Sensor |
| 2. Paper Feed Sensor Bypass) | 14. 5th Grip Motor |
| 3. Grip Motor Bypass) | 15. 5th Transport Motor |
| 4. Transport Sensor Bypass) | 16. 5th Transport Sensor |
| 5. Transport Motor Bypass) | 17. 6th Paper Feed Motor |
| 6. 4th Paper Feed Motor | 18. 6th Paper Feed Sensor |
| 7. 4th Paper Feed Sensor | 19. 6th Grip Motor |
| 8. 4th Grip Motor | 20. 6th Transport Sensor |
| 9. 4th Transport Sensor | 21. 6th Transport Motor |
| 10. 4th Transport Motor | 22. LCT Exit Motor |
| 11. 4th Relay Sensor | 23. LCT Exit Sensor |
| 12. 5th Paper Feed Motor | |

3.5 ELECTRICAL COMPONENT SUMMARY

| Motors | | |
|---------------|----------------------|--|
| No. | Name | Description |
| M1 | 4th Grip Motor | Drives the separation roller and the grip roller of the 4th tray. |
| M2 | 4th Lift Motor | Drives the bottom plate of the 4th tray up and down. |
| M3 | 4th Paper Feed Motor | Drives the pick-roller and feed roller that picks up each sheet and starts to feed it out of the 4th tray. |
| M4 | 4th Transport Motor | Drives the rollers in the vertical feed path that feed the paper from the 4th tray to the LCT exit motor. |
| M5 | 5th Grip Motor | Drives the separation roller and the grip roller of the 5th tray. |
| M6 | 5th Lift Motor | Drives the bottom plate of the 5th tray up and down. |
| M7 | 5th Paper Feed Motor | Drives the pick-roller and feed roller that picks up each sheet and starts to feed it out of the 5th tray. |
| M8 | 5th Transport Motor | Drives the transport rollers in the vertical feed path that feed the paper from the 4th tray and the 5th tray to the LCT exit motor. |
| M9 | 6th Grip Motor | Drives the separation roller and the grip roller of the 6th tray. |
| M10 | 6th Lift Motor | Drives the 5th tray up and down. |
| M11 | 6th Paper Feed Motor | Drives the pick-roller and feed roller that picks up each sheet and starts to feed it out of the 6th tray. |
| M12 | 6th Transport Motor | Drives the rollers in the vertical feed path that feed the paper from the 6th tray to the LCT exit motor. |
| M13 | LCT Exit Motor | Feeds the paper out the LCT and into the entrance of the copier. |

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| PCBs | | |
|-------------|-----------------------------|---|
| No. | Name | Description |
| PCB1 | Main Control Board | Controls the operation of all motors and sensors in the LCT unit. |
| PCB2 | Image Position Sensor Board | Operates the CIS sensor (performs waveform correction) the LCT. The CRB (CIS Relay Board) and CIS sensor perform side-to-side image correction. The CRB and CIS are a single unit. The CRB is not a separate board. |

| Sensors | | |
|----------------|---------------------------------|---|
| No. | Name | Description |
| S1 | 4th Lift Sensor | Detects when the paper in the 4th tray is at the correct height for paper feed and switches the 4th lift motor off. |
| S2 | 4th Paper End Sensor | Detects when the last sheet feeds from the 4th tray. |
| S3 | 4th Paper Feed Sensor | Detects the paper when it arrives at the 4th paper feed roller and checks for misfeeds. |
| S4 | 4th Paper Height Sensor 1 | 4th from the bottom of the 4th tray, detects stack height: 100% |
| S5 | 4th Paper Height Sensor 2 | 5th from the bottom of the 4th tray, detects stack height: 75% |
| S6 | 4th Paper Height Sensor 3 | 6th from the bottom of the 4th tray, detects stack height: 50% |
| S7 | 4th Paper Height Sensor 4 | 4th from the bottom of the 4th tray, detects stack height: 25% and signals near-end. |
| S8 | 4th Paper Length Sensor (B834) | Detects the length of the paper in the 4th tray (used in combination with the paper width sensors). |
| S9 | 4th Paper Width Sensor 1 (B834) | 1 of a set of 3 sensors that detect the width of the |

OVERALL MECHANICAL INFORMATION

| Sensors | | |
|---------|---------------------------------|---|
| No. | Name | Description |
| | | paper in the 4th tray. |
| S10 | 4th Paper Width Sensor 2 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S11 | 4th Paper Width Sensor 3 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S12 | 4th Paper Size Sensor 1 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S13 | 4th Paper Size Sensor 2 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S14 | 4th Paper Size Sensor 3 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S15 | 4th Relay Sensor | Detects the leading and trailing edges of the paper in the paper path near the bottom of the 4th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location. |
| S16 | 4th Relay Sensor - Upper (B834) | Detects the leading and trailing edges of the paper in the paper path near the top of the 4th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location. |
| S17 | 4th Transport Sensor | Detects jams in the paper path where the transport motor feeds the paper from the 4th tray. |
| S18 | 5th Lift Sensor | Detects when the paper in the 5th tray is at the correct height for paper feed and switches the 4th lift motor off. |
| S19 | 5th Paper End Sensor | Detects when the last sheet feeds from the 5th tray. |
| S20 | 5th Paper Feed Sensor | Detects the paper when it arrives at the 5th paper feed roller and checks for misfeeds. |
| S21 | 5th Paper Height Sensor 1 | 4th from the bottom of the 5th tray, detects stack height: 100% |
| S22 | 5th Paper Height Sensor 2 | 5th from the bottom of the 5th tray, detects stack height: 75% |
| S23 | 5th Paper Height Sensor 3 | 6th from the bottom of the 5th tray, detects stack height: 50% |
| S24 | 5th Paper Height Sensor 4 | 4th from the bottom of the 5th tray, detects stack height: 25% and signals near-end. |
| S25 | 5th Paper Length Sensor (B834) | Detects the length of the paper in the 5th tray (used in combination with the paper width sensors). |
| S26 | 5th Paper Width Sensor 1 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S27 | 5th Paper Width Sensor 2 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S28 | 5th Paper Width Sensor 3 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S29 | 5th Paper Size Sensor 1 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S30 | 5th Paper Size Sensor 2 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S31 | 5th Paper Size Sensor 3 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S32 | 5th Relay Sensor (B834) | Detects the leading and trailing edges of the paper in the paper path near the 5th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location. |
| S33 | 5th Transport Sensor | Detects jams in the paper path where the transport motor feeds the paper from the 5th tray. |
| S34 | 6th Lift Sensor | Detects when the paper in the 6th tray is at the correct height for paper feed and switches the 4th |

OVERALL MECHANICAL INFORMATION

| Sensors | | |
|----------------|---------------------------------|---|
| No. | Name | Description |
| | | lift motor off. |
| S35 | 6th Paper End Sensor | Detects when the last sheet feeds from the 6th tray. |
| S36 | 6th Paper Feed Sensor | Detects the paper when it arrives at the 6th paper feed roller and checks for misfeeds. |
| S37 | 6th Paper Height Sensor 1 | 4th from the bottom of the 6th tray, detects stack height: 100% |
| S38 | 6th Paper Height Sensor 2 | 5th from the bottom of the 6th tray, detects stack height: 75% |
| S39 | 6th Paper Height Sensor 3 | 6th from the bottom of the 6th tray, detects stack height: 50% |
| S40 | 6th Paper Height Sensor 4 | 4th from the bottom of the 6th tray, detects stack height: 25% and signals near-end. |
| S41 | 6th Paper Length Sensor (B834) | Detects the length of the paper in the 6th tray (used in combination with the paper width sensors). |
| S42 | 6th Paper Width Sensor 1 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S43 | 6th Paper Width Sensor 2 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S44 | 6th Paper Width Sensor 3 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S45 | 6th Paper Size Sensor 1 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S46 | 6th Paper Size Sensor 2 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S47 | 6th Paper Size Sensor 3 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S48 | 6th Relay Sensor (B834) | Detects the leading and trailing edges of the paper in the paper path near the 6th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location. |
| S49 | 6th Transport Sensor | Detects jams in the paper path where the transport motor feeds the paper from the 6th tray. |
| S50 | LCT Exit Sensor | Detects jams at the exit of the LCT unit. |
| S51 | LCT Image Position Sensor | Mounted on the CRB (CIS Relay Board), this contact image sensor detects the side-to-side edges of the paper in the paper path. The machine uses this information to correct the position of the image when the lasers fire. |

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OVERALL MECHANICAL INFORMATION

| Solenoids | | |
|------------------|-------------------------|---|
| No. | Name | Description |
| SOL1 | 4th Pick-up Solenoid | Engages/disengages rotation of the pick-up roller in the 4th tray. |
| SOL2 | 4th Separation Solenoid | Controls up-down movement of the separation roller in the 4th tray. |
| SOL3 | 5th Pick-up Solenoid | Engages/disengages rotation of the pick-up roller in the 5th tray. |
| SOL4 | 5th Separation SOL | Controls up-down movement of the separation roller in the 5th tray. |
| SOL5 | 6th Pick-up Solenoid | Engages/disengages rotation of the pick-up roller in the 6th tray. |
| SOL6 | 6th Separation Solenoid | Controls up-down movement of the separation roller in the 6th tray. |

| Switches | | |
|-----------------|--------------------|---|
| No. | Name | Description |
| SW1 | Door Safety Switch | An interlock safety switch that detects when the front door is opened and closed. |

| Other | | |
|--------------|---------------------------|---|
| No. | Name | Description |
| H1, H2 | Anti-Condensation Heaters | Evaporates moisture around the trays in the LCT (230V 18W). This is an option |

MULTI BYPASS TRAY BY5000

B833

| MULTI BYPASS TRAY BY5000 (B833) REVISION HISTORY | | |
|---|-------------|--------------------------|
| Page | Date | Added/Updated/New |
| | | None |



MULTI BYPASS TRAY B833

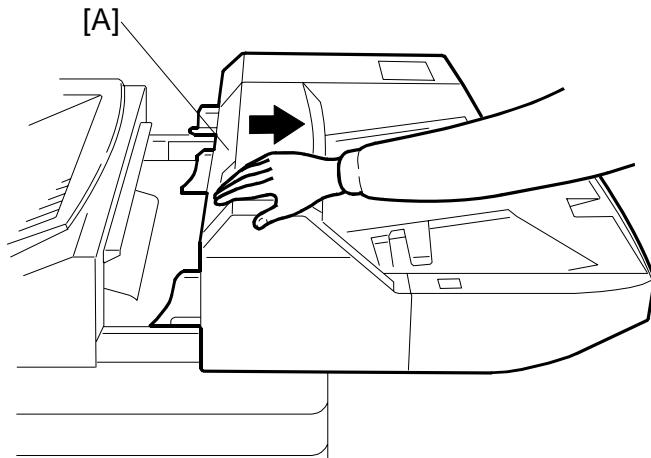
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1. REPLACEMENT AND ADJUSTMENT

1.1 OPENING THE BYPASS TRAY



1. Pull in the direction indicated by the arrow at the front left cover.

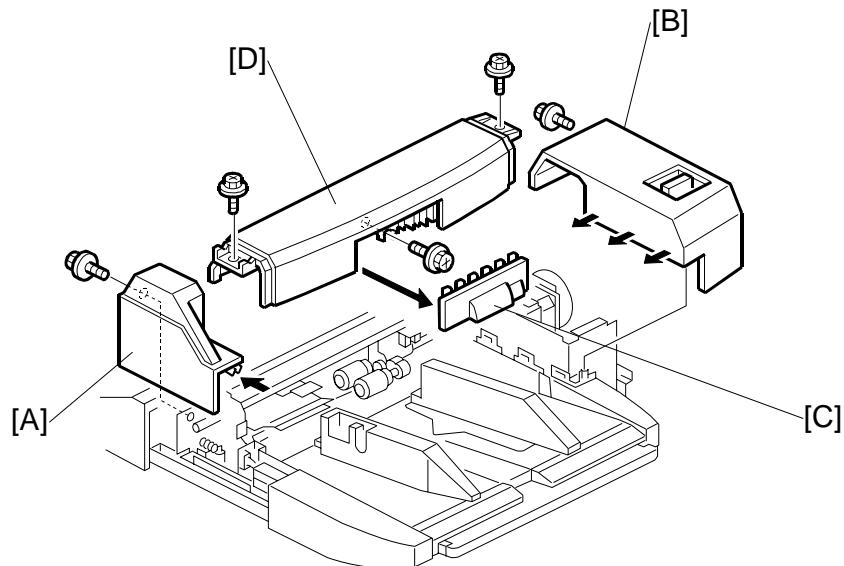
⚠ CAUTION

When moving the LCT with the bypass unit attached, grip and push the body of the LCT unit. To avoid damaging the bypass tray, never attempt to push or rotate the assembled units by pulling or pushing on the bypass tray.

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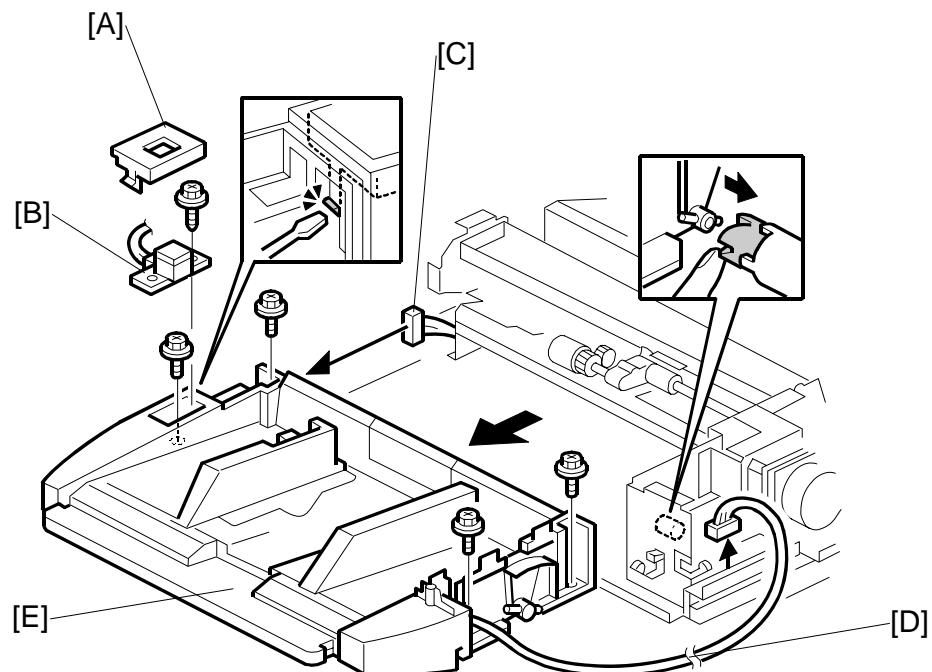
REPLACEMENT AND ADJUSTMENT

1.2 BYPASS TRAY COVERS



1. Open the bypass tray. (☞1.1)
2. Front cover [A] (\wedge x 1).
3. Rear cover [B] (\wedge x 1).
4. Pull off the pick-up roller cover [C].
5. Top cover [D] (\wedge x 2).

1.3 TRAY LIFT SWITCH, FEED TRAY



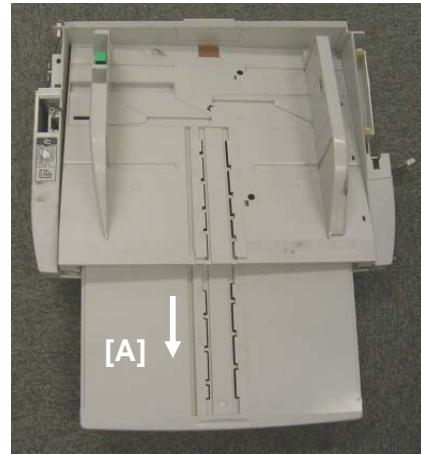
1. Open the bypass tray. (☞1.1)
2. Remove the covers. (☞1.2)
3. Use the tip of a screwdriver to remove the tray lift switch cover [A].
4. Remove the tray lift switch [B] (\wedge x 1, hook x 1, standoff x 1, \square x 1).
5. Disconnect the tray lift switch connector [C].
6. Disconnect the paper width switch [D] (\square x 2, harness clamp x 1).
7. Remove the feed tray [E] (\wedge x 4).

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REPLACEMENT AND ADJUSTMENT

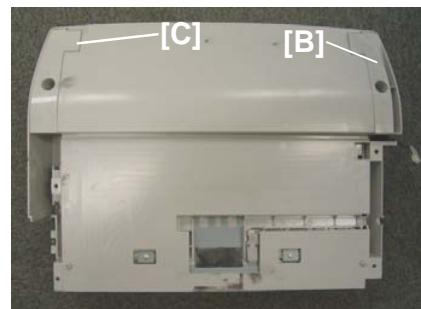
8. Pull out the extension tray [A].

NOTE: The extension tray must be removed to separate the top and bottom of the bypass feed tray.



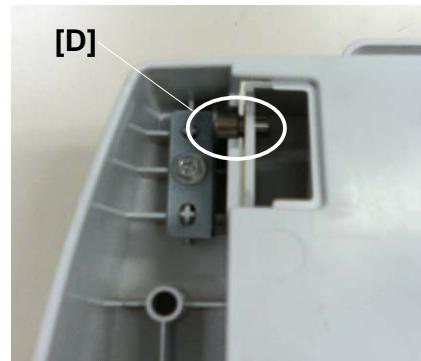
9. Remove the bottom plate rear right cover [B] (x1)

10. Remove the bottom plate rear left cover [C]

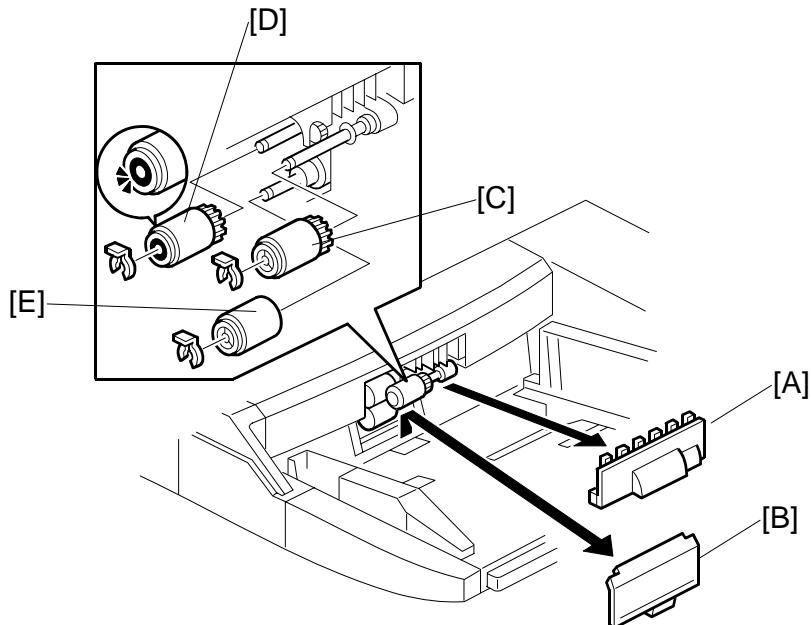


11. Remove the plate [D] and shaft (x1, x1).

12. Separate the top and bottom of the feed tray (x2, x1).



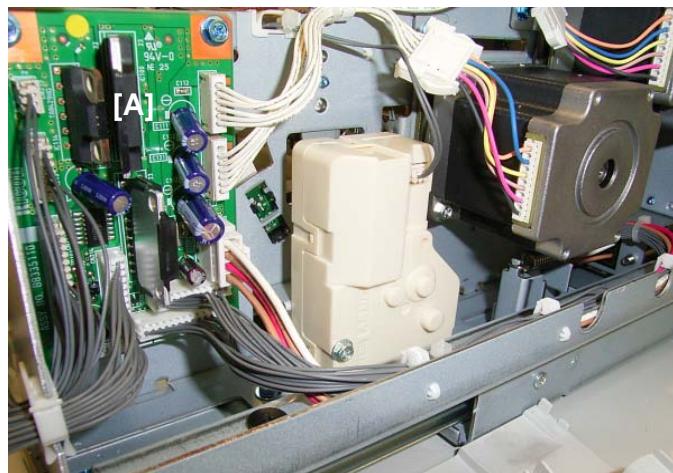
1.4 FEED ROLLERS



1. Pull off the pick-up roller cover [A].
2. Pull off the separation roller cover [B].
3. Remove the pick-up roller [C] (\varnothing x 1).
4. Remove the feed roller [D] (\varnothing x 1).
5. Remove the separation roller [E] (\varnothing x 1).
NOTE: After re-installing the feed roller, make sure that it rotates clockwise.
6. Reset the PM count to zero for the new rollers.

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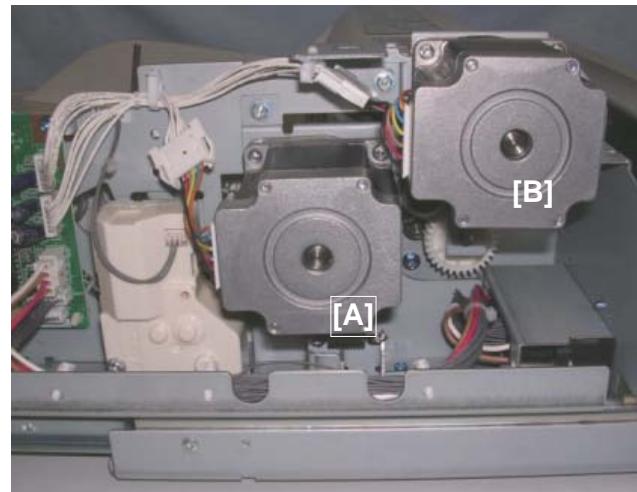
1.5 BYPASS TRAY PCB



1. Remove the rear cover. (☞1.2)
2. Remove the bypass tray PCB [A] (□ x 9, ▲ x 2, standoffs x 2).

NOTE: Before disconnecting CN210 and CN211, mark either connector with a marker to make sure that you re-connect them correctly. The shapes of these connectors are the same and the wires are the same color.

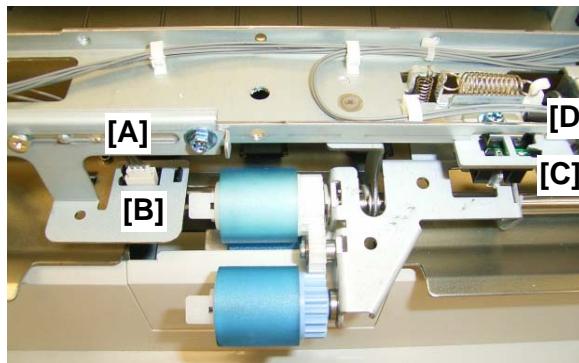
1.6 PAPER FEED MOTOR, TRANSPORT MOTOR



1. Remove the rear cover. (☞1.2)
2. Remove the paper feed motor [A] (☞ x3, Spring x1, Timing belt x1, ☞ x1)
3. Remove the transport motor [B] (☞ x3, Spring x1, Timing belt x1, ☞ x1)

Multi Bypass
Tray
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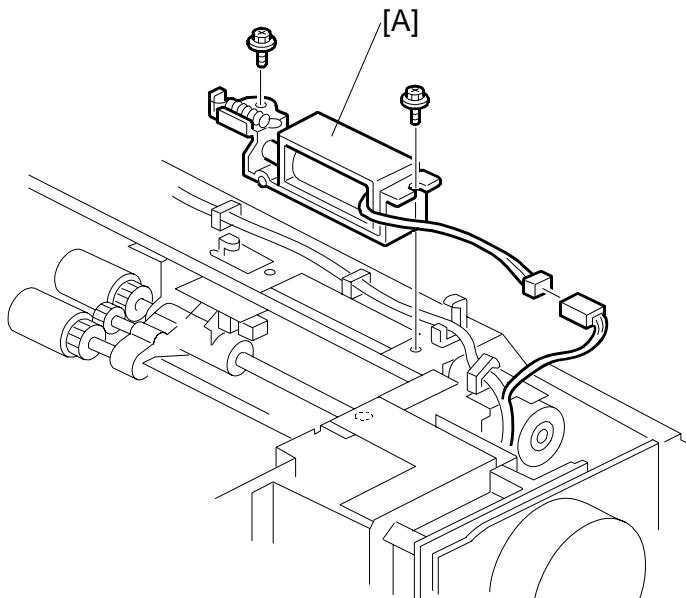
1.7 PAPER FEED AND LIFT SENSORS



Sensor Removal

1. Remove the rear, front, and top covers. (☞1.2)
2. Remove the paper feed bracket [A] (Step ⚡ x 1, ⚡ x 1).
3. Remove the paper feed sensor [B] (Hooks x 3, ⚡ x 1)
4. Remove the lift sensor bracket [C] (⚡ x 1).
5. Remove the lift sensor [D] (Hooks x 3, ⚡ x 1).

1.8 PICK-UP SOLENOID

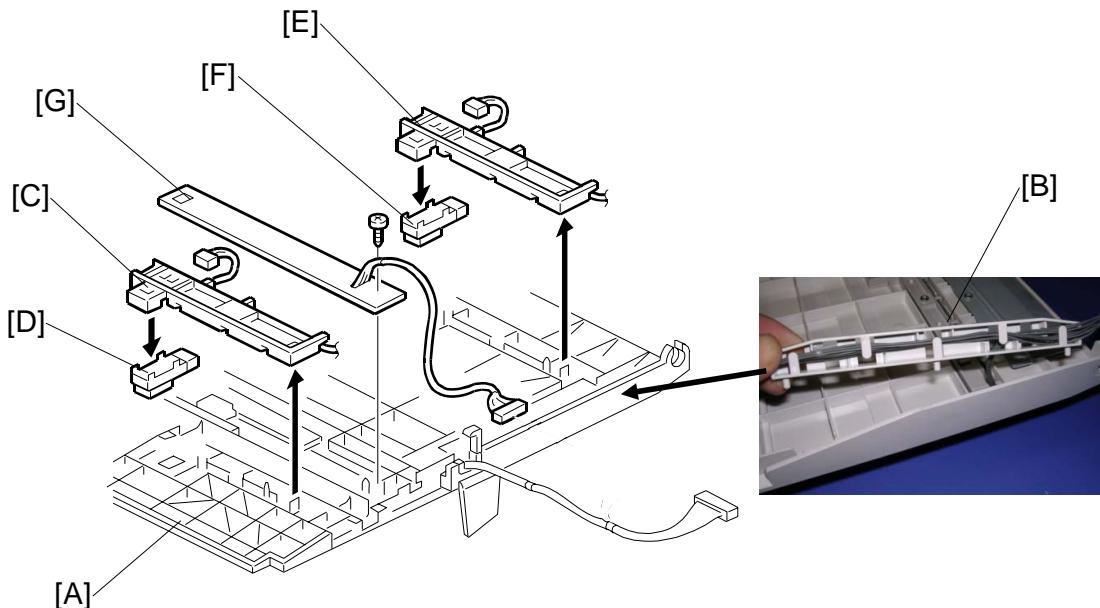


1. Remove the rear, front, and top covers. (1.2)
2. Remove the pick-up solenoid [A] (\wedge x 2, \square x 1, harness clamp x 1)

NOTE: When re-installing the solenoid, make sure that the arm of the solenoid is positioned above and in contact with the plate of the pick-up roller shaft below. To confirm correct installation, manually move the solenoid to the left and right. When the solenoid plunger is moved, the pick-up roller should move up and down smoothly.

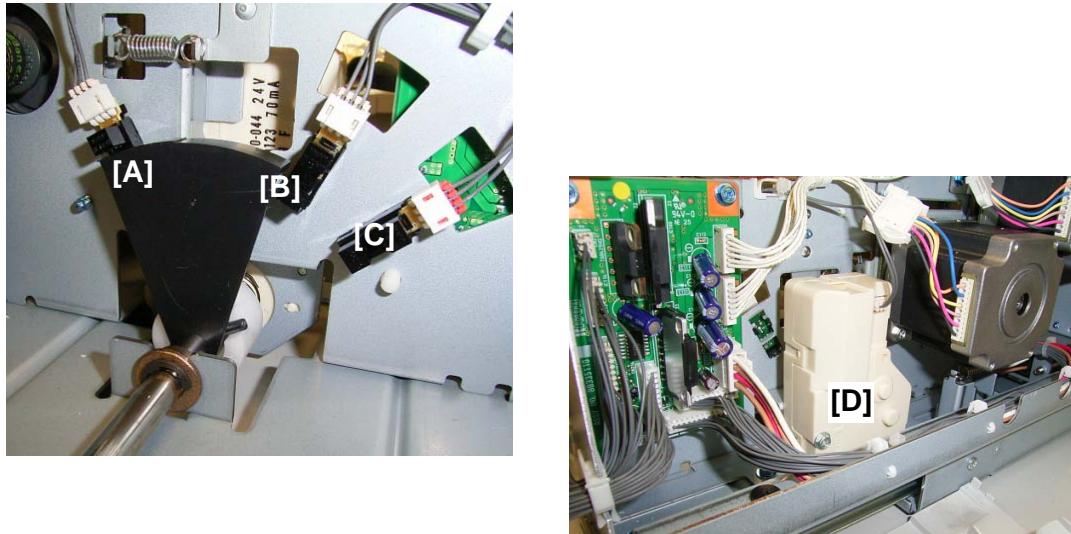
Multi Bypass
Tray
B833

1.9 PAPER WIDTH SWITCH, PAPER END AND PAPER LENGTH SENSORS



1. Remove the feed tray and separate the top and bottom. (☞1.3)
2. Turn over the top half of the feed tray [A] then lay it on a flat surface.
3. Remove the cable cover [B] (Hooks x2)
4. Paper end sensor bracket [C] (Hook x1).
5. Paper end sensor [D] (Hooks x 2,  x 1).
6. Paper length sensor bracket [E] (Hook x 1,  x 1).
7. Paper length sensor [F] (Hooks x 2,  x 1).
8. Paper width switch [G] ( x 1, Harness clamp x 1,  x 1).

1.10 PAPER HEIGHT SENSORS, LIFT MOTOR



1. Open the bypass tray. (☞1.1)
2. Remove the bypass tray covers. (☞1.2)
3. Remove the feed tray. (☞1.3)

Paper Height Sensors

1. Paper Height Sensor 1 [A] (Hooks x 3, x 1)
2. Paper Height Sensor 2 [B] (Hooks x 3, x 1)
3. Paper Height Sensor 3 [C] (Hooks x 3, x 1)

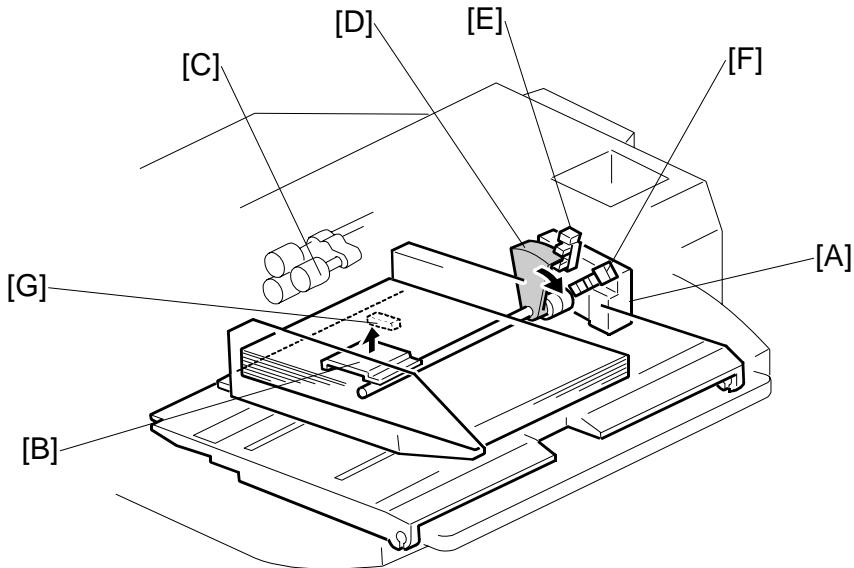
Lift Motor

1. Remove screws (x6) then push lift motor [D] to loosen its frame.
2. Raise the loosened frame slightly to remove the lift motor (x2, x1)

Multi Bypass
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B833

2. DETAILS

2.1 TRAY LIFT



When the tray lift switch is pressed, the lift motor [A] switches on and pushes the lift plate [B] against the bottom of the feed tray until the top of the stack is at the correct feed position.

NOTE: If there is paper in the bypass tray when the main machine has just been switched on, the lift motor will turn on and lift the stack to the feed position.

As paper is fed, the pick-up roller [C] lowers until it activates the lift sensor which switches on the lift motor again to raise the stack to the feed level again. (●0)

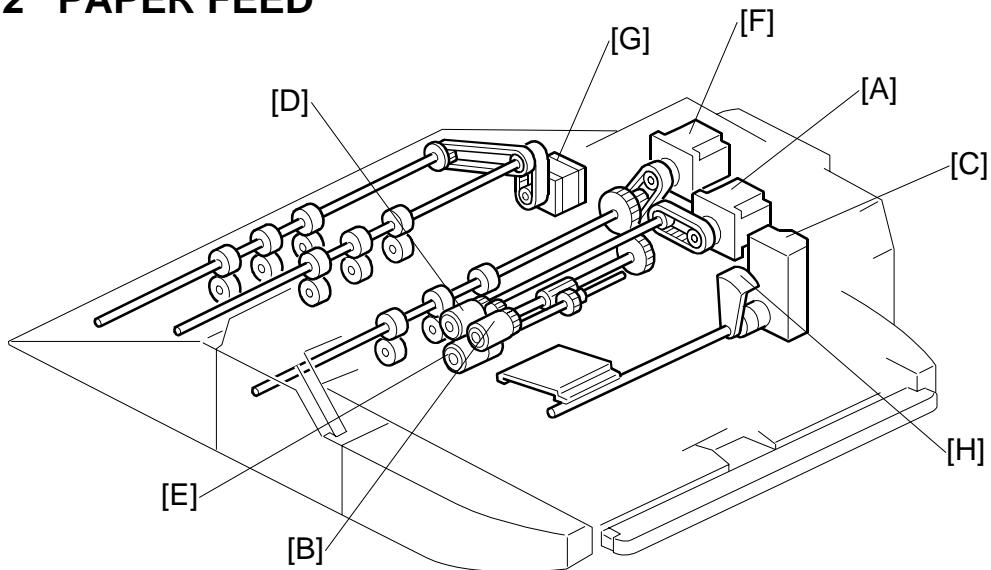
As the bottom plate shaft rotates and raises the bottom plate, the actuator [D] lowers and activates paper height sensor 1 [E] and then paper height sensor 2 [F] as the bottom plate continues to rise. With the tray full, the actuator remains upright and deactivates neither paper height sensor. During continuous feed, the actuator rotates downward through three positions, deactivating the first sensor, then both sensors, then only the second sensor. These states are used to report the amount of paper on the operation panel.

| SN1 | SN2 | Paper Remaining Status |
|-----|-----|------------------------|
| OFF | OFF | 100% (Full) |
| ON | OFF | 90% |
| ON | ON | 50% |
| OFF | ON | 25% |

After the last sheet feeds, the paper end sensor [G] below the feed tray detects that the tray is empty.

NOTE: When you re-load the tray with paper, be sure to press the tray lift button to raise the bottom of the tray so the stack is at the correct feed position.

2.2 PAPER FEED



Feed

The bypass tray can hold 500 sheets of standard weight paper.

The bypass tray uses the standard FRR (Feed and Reverse Roller) feed system.

☛ **Handling Paper > Paper Feed Methods > Forward and Reverse Roller (FRR)**

When the job starts, the feed motor [A] switches on and rotates the pick-up roller [B]. At the same time, the pick-up solenoid [not shown] switches on and lowers the pick-up roller. The lift motor [C] switches on to raise the stack until the top of the stack reaches the correct feed level. At that time, the paper pushes the pick-up roller down. When the actuator [not shown] goes out of the lift sensor [not shown], the lift motor stops.

The pick-up roller picks up and feeds the first sheet to the feed roller [D] and separation roller [E]. When the feed sensor [not shown] detects the leading edge of the sheet, the pick-up solenoid raises the pick-up roller and the feed roller feeds the sheet.

NOTE: Unlike the separation rollers in the LCT, the separation roller always remains in contact with the feed roller above.

The transport motor [F] then feeds the paper into the bypass tray, and the relay motor [G] feeds the paper out of the bypass tray, and into the machine through the LCT.

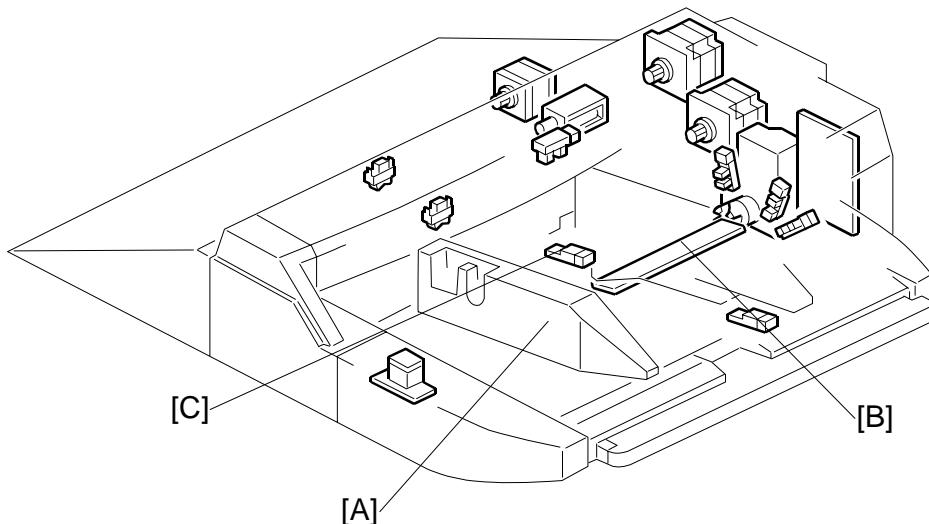
**Multi Bypass
Tray
B833**

Tray Lift

When the pick-up roller [B] lowers far enough to go into the lift sensor, the lift motor switches on to raise the bottom plate until the actuator goes out of the lift sensor again and switches off the lift motor. This movement is repeated to maintain the correct height of the stack for paper feed.

Actuator [H] is used by the height sensors, to detect the amount of remaining paper.

2.3 PAPER SIZE DETECTION



The side fences [A] can be adjusted to standard and non-standard paper sizes.

Paper size is measured with the paper width switch [B] and the paper length sensor [C].

When the side fences are moved to match the paper width, four feelers inside the paper width switch [B] slide along the wiring patterns on the paper width switch terminal plate. The status of each feeler is read to determine whether it is High (in contact with a pattern wire) or Low (not in contact with a wire).

The paper length sensor reading (ON or OFF) is used with the paper width reading to determine the paper size. For more details about how the paper size is determined, see the paper size detection table on the next page.

The paper end sensor [C] de-activates when the last sheet is fed, reports that the paper tray is empty, and halts the job.

Paper Size Detection Table

| Paper Size | | Paper Width SW | | | | | Length Sensor | Area | |
|------------|--------------|----------------|---|---|---|---|---------------|------|----|
| | | 1 | 2 | 3 | 4 | 5 | | NA | EU |
| Large | 12" x 18" | H | H | H | H | L | L | ● | ● |
| | 13" x 19" | | | | | | | ○ | ○ |
| | 320 x 340 mm | | | | | | | ○ | ○ |
| A3 | SEF | 297 x 420 mm | H | H | H | L | L | ● | ● |
| A4 | LEF | 297 x 210 mm | H | H | L | L | H | ● | ● |
| DLT | SEF | 11" x 17" | H | H | H | L | L | ● | ● |
| LT | LEF | 11" x 81/2" | H | H | L | L | H | ● | ● |
| B4 | SEF | 257 x 364 mm | H | H | L | L | L | ● | ● |
| B5 | LEF | 257 x 182 mm | H | H | L | L | H | ● | ● |
| A4 | SEF | 210 x 297 mm | H | H | | | L | ○ | ● |
| LT | SEF | 81/2" x 11" | H | H | L | H | | ● | ○ |
| A5 | LEF | 210 x 148 mm | H | H | L | H | | ○ | ● |
| HLT | LEF | 81/2" x 51/2" | H | H | | | L | ● | ○ |
| B5 | SEF | 182 x 257 mm | H | L | L | H | H | ○ | ○ |
| F | SEF | 8" x 13" | H | L | H | H | L | ● | ● |
| A5 | SEF | 148 x 210 mm | H | L | H | H | H | ● | ● |
| HLT | SEF | 51/2" x 81/2" | L | L | H | H | H | ● | ● |
| B6 | SEF | 128 x 182 mm | L | H | H | H | H | ○ | ○ |
| A6 | SEF | 105 x 148 mm | | H | H | H | | ● | ● |
| Post-card | | 100 x 148 mm | L | | H | H | | ○ | ○ |

Table Key

| | |
|-------------------|--|
| 1, 2, 3, 4, and 5 | The paper size switch consists of 5 feelers that slide along the wiring patterns of the paper width switch terminal plate when the side fences are manually adjusted to fit the size of the paper loaded in the tray. The H, L status of each feeler is determined by whether the feeler is in contact with the wire of a pattern. |
| H | High (5 V) (Inactive) |
| L | Low (0 V) (Active) |
| ● | The machine determines the paper size automatically by reading the output of the paper size switches and the paper length sensor. |
| ○ | The machine cannot detect the paper size automatically. The user must select the paper size manually before starting the job. See below. |

Multi Bypass
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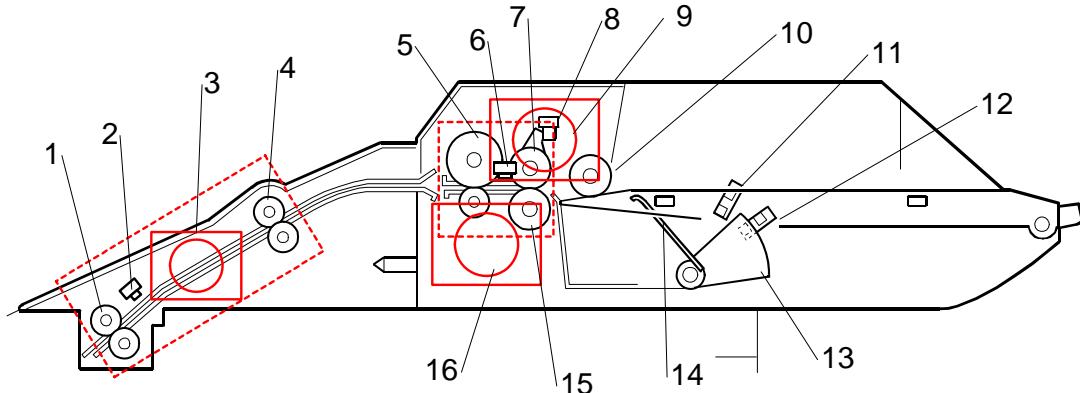
Selecting the Paper Size for Undetectable Sizes

Press the [Tray Paper Settings] key on the operation panel to select paper sizes that are not detected automatically by the combination of paper size and paper length sensor readings (marked "○" in the table above and any other paper size not listed that requires pulling out the paper tray extension).

NOTE: Mixed paper sizes cannot be loaded into the bypass tray. Loading paper of different sizes will cause a paper jam.

3. OVERALL MACHINE INFORMATION

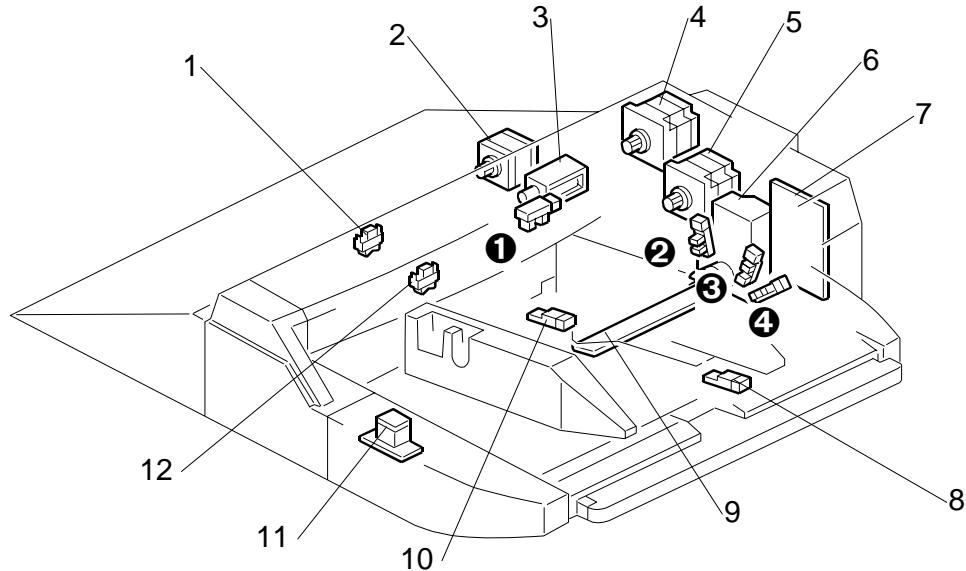
3.1 MECHANICAL COMPONENT LAYOUT



- | | |
|-----------------------|---------------------------|
| 1. Transport Roller 3 | 9. Transport motor |
| 2. Relay Sensor | 10. Pick-up Roller |
| 3. Relay Motor | 11. Paper Height Sensor 1 |
| 4. Transport Roller 2 | 12. Paper Height Sensor 2 |
| 5. Transport Roller 1 | 13. Lift Plate Actuator |
| 6. Paper Feed Sensor | 14. Lift Plate |
| 7. Paper Feed Roller | 15. Separation Roller |
| 8. Lift Sensor | 16. Paper Feed Motor |

3.2 ELECTRICAL COMPONENTS

3.2.1 LAYOUT



1. Relay Sensor
 2. Relay Motor
 3. Pick-up Solenoid
 4. Transport Motor
 5. Feed Motor
 6. Lift Motor
 7. Bypass Unit Control Board
 8. Paper Length Sensor
 9. Paper Width Switch
 10. Paper End Sensor
 11. Tray Lift Switch
 12. Paper Feed Sensor
- ① Lift Sensor
 - ② Tray Lower Limit Sensor
 - ③ Paper Near End Sensor
 - ④ Paper End Sensor

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OVERALL MACHINE INFORMATION

3.2.2 ELECTRICAL COMPONENT SUMMARY

| Motors | | |
|--------|-----------------|---|
| No. | Name | Description |
| M1 | Feed Motor | Drives the paper feed roller in the feed mechanism. |
| M2 | Lift Motor | Raises and lowers the bottom plate below the paper stack. |
| M3 | Relay Motor | Drives the relay rollers that feed the paper from the bypass tray into the feed path of the LCT below. |
| M4 | Transport Motor | Drives the transport roller of the bypass tray that pulls the paper out of the tray and sends it to the relay roller. |

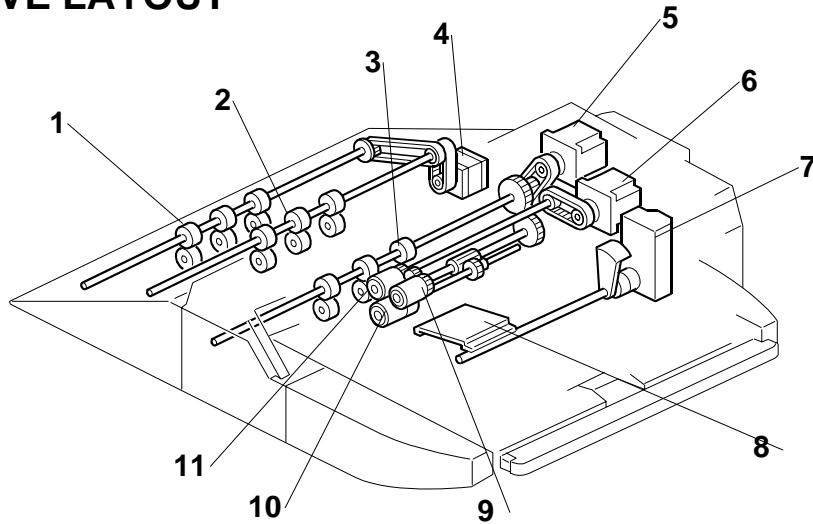
| PCB | | |
|------|---------------------------|--|
| No. | Name | Description |
| PCB1 | Bypass Unit Control Board | Controls operation of all bypass unit electrical components. |

| Sensors | | |
|---------|-------------------------|--|
| No. | Name | Description |
| S1 | Lift Sensor | Detects when the paper in the bypass tray is at the proper height for paper feed. |
| S2 | Tray Lower Limit Sensor | Detects when the tray is at its lowest possible position. |
| S3 | Paper End Sensor | Informs the copier when the paper in the bypass tray has run out. |
| S4 | Paper Feed Sensor | Detects the copy paper coming to the 4th paper feed roller and checks for misfeeds. |
| S5 | Paper Height Sensor 1 | Paper end sensor. The paper height sensor pair (1 and 2) work together to monitor the height of the paper stack in the bypass tray. |
| S6 | Paper Height Sensor 2 | Paper near end sensor. The paper height sensor pair (1 and 2) work together to monitor the height of the paper stack in the bypass tray. |
| S7 | Paper Length Sensor | Used with the paper width switch to determine paper size. This sensor is activated when paper is set for short edge feed. For example, when the paper width switch detects A4 width and this sensor is off, the machine determines A4 is set for long edge feed. When A4 width is detected and the paper length sensor is on, then the machine determines that A3 is loaded for short edge feed. |
| S8 | Relay Sensor | Detects jams in the paper path after paper is fed from the feed roller.. |

| Solenoids | | |
|-----------|------------------|---|
| No. | Name | Description |
| SOL1 | Pick-up Solenoid | Controls up-down movement of the pick-up roller in the bypass tray. |

| Switches | | |
|----------|----------------------|--|
| No. | Name | Description |
| SW1 | Tray Lift Switch | Switches the tray lift motor on and off to raise and lower the bottom plate of the tray to the feed position. This switch must be pressed to start paper feed. |
| SW2 | Paper Width Switches | A slide switch connected to the side fences. When the side fences are moved to match the paper width, four feelers inside the paper size switch slide along wiring patterns of a terminal plate. The wire pattern detected determines the paper width. |

3.3 DRIVE LAYOUT



1. Transport Roller 2
2. Transport Roller 1
3. Grip Roller
4. Relay Motor
5. Transport Motor
6. Feed Motor
7. Lift Motor
8. Lift Plate
9. Pick-up Roller
10. Separation Roller
11. Feed Roller

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| LCIT RT5010 (B834) REVISION HISTORY | | |
|--|-------------|--------------------------|
| Page | Date | Added/Updated/New |
| | | None |

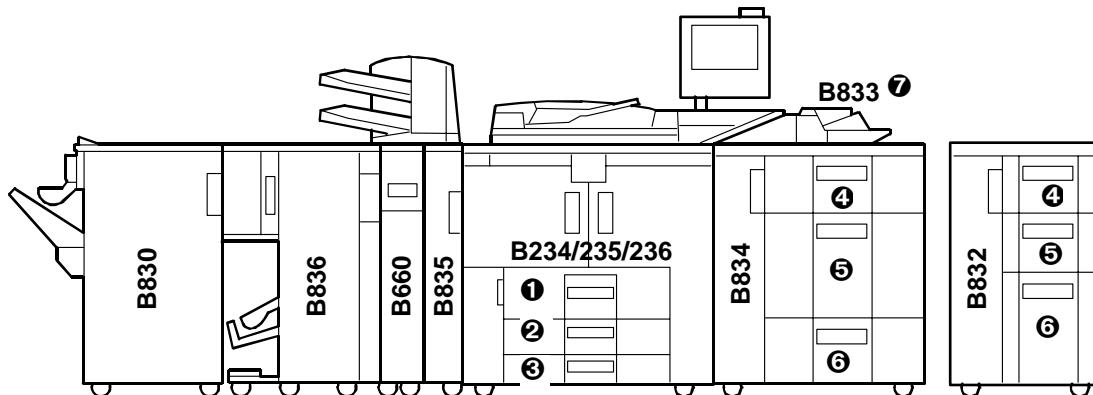


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Tray Naming



| | | |
|---|-------------------------|----------|
| ① | Copier (B234/B235/B236) | 1st Tray |
| ② | | 2nd Tray |
| ③ | | 3rd Tray |
| ④ | LCT (B832 or B834) | 4th Tray |
| ⑤ | | 5th Tray |
| ⑥ | | 6th Tray |
| ⑦ | Bypass Tray (B833) | 7th Tray |

1. REPLACEMENT AND ADJUSTMENT

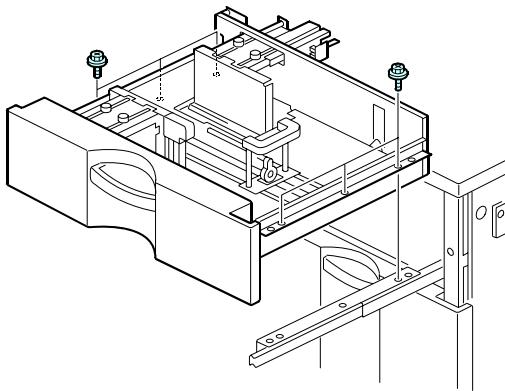
1.1 REMOVING TRAYS

⚠ CAUTION

- Tray 5 weighs 27 kg (60 lb.) empty. Trays 4 and 6 weigh 20 kg (44 lb.) each empty.
- To prevent damage to the tray and personal injury, never attempt to lift a tray alone or without attaching the carrying handles, especially if a tray is loaded with paper.
- Two people on each side of the tray should lift the carrying handles together to lift and move the tray.
- Never remove the tray if the LCT has not been docked to the copier. Removing the tray while the LCT is standing alone can unbalance the LCT and cause it to fall over.

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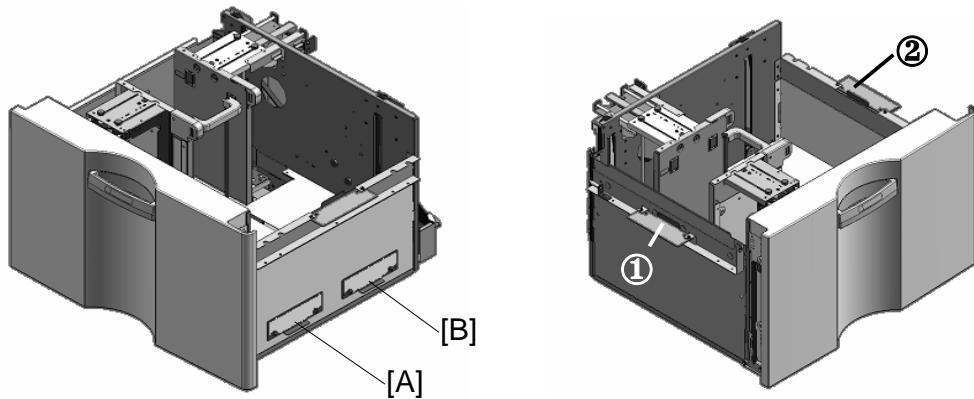
Important: Only one set of carrying handles is attached to the side of Tray 5. Follow the procedure below to attach and use these handles to move Tray 4, 5, or 6.



1. Pull the tray [A] out of the LCT until it stops.
2. Remove the screws from the right rail [B] (\wedge x3)
3. Remove the screws from the left rail [D] (\wedge x3)

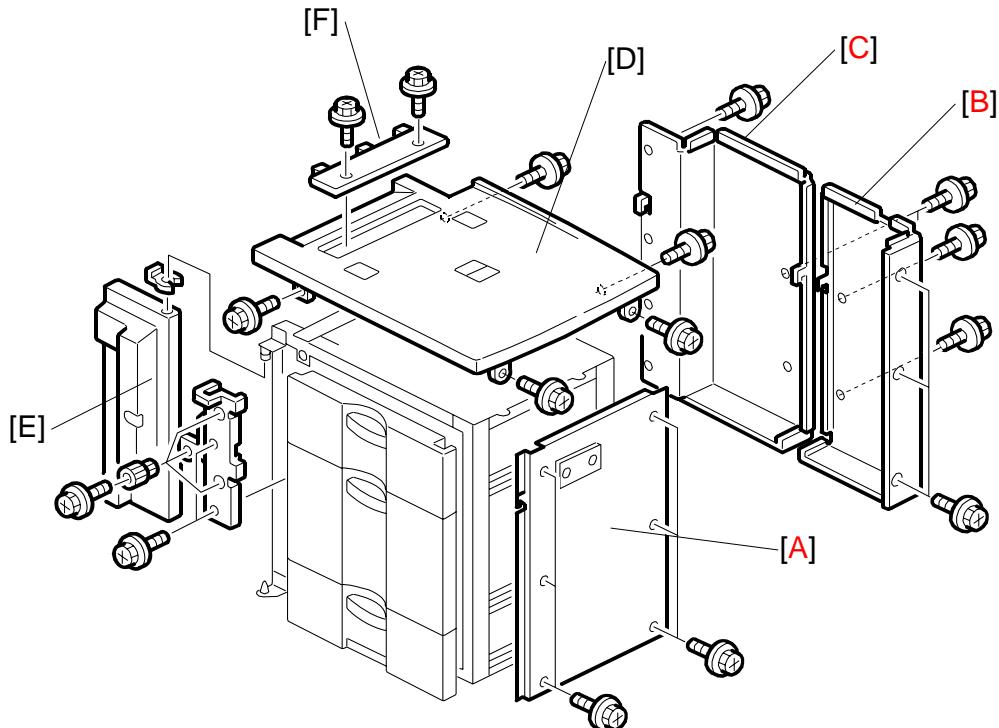
NOTE: You do not need to remove screw for the stopper pin bracket at the back of the left rail.

REPLACEMENT AND ADJUSTMENT



4. Remove carrying handles [A] and [B] from the right side of the tray (x 2 ea.)
5. Use the same screws to attach the carrying handles at ① and ②.
6. With one person on each side of the tray, lift it carefully and remove it from the rails.

1.2 FRONT DOOR AND COVERS

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Important:

- The frame is held together by 8 blue screws.
- To avoid weakening or warping the shape of the frame, never remove these blue screws.

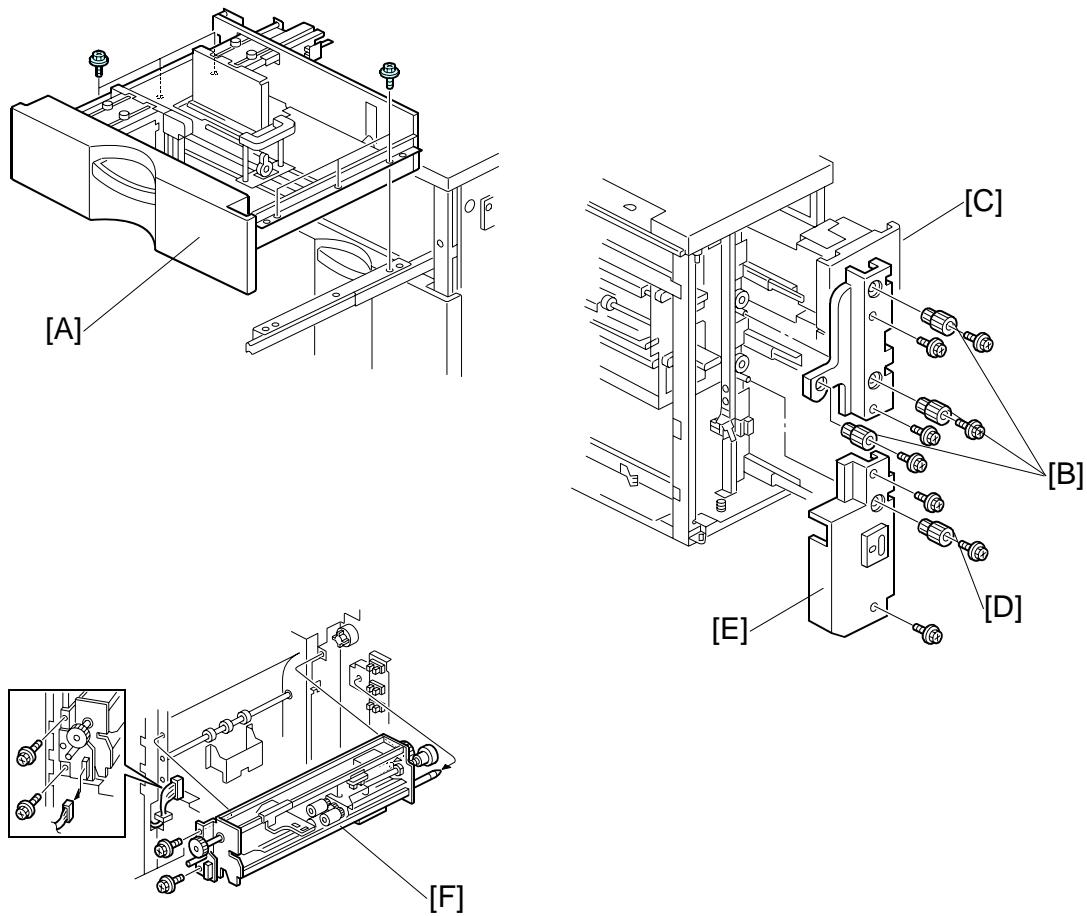
NOTE: The upper inner cover must be removed before the top cover.

• Remove:

- [A]: Right cover (x 6).
- [B]: Right rear cover (x 6).
- [C]: Left rear cover (x 6)
- [D]: Top cover (x 5).
- [E]: Front door (x 1).

NOTE: While lifting the top cover, remove the snap ring and front door.
 [F]: Paper slot cover (x 2).

1.3 INNER COVER, PAPER FEED UNIT

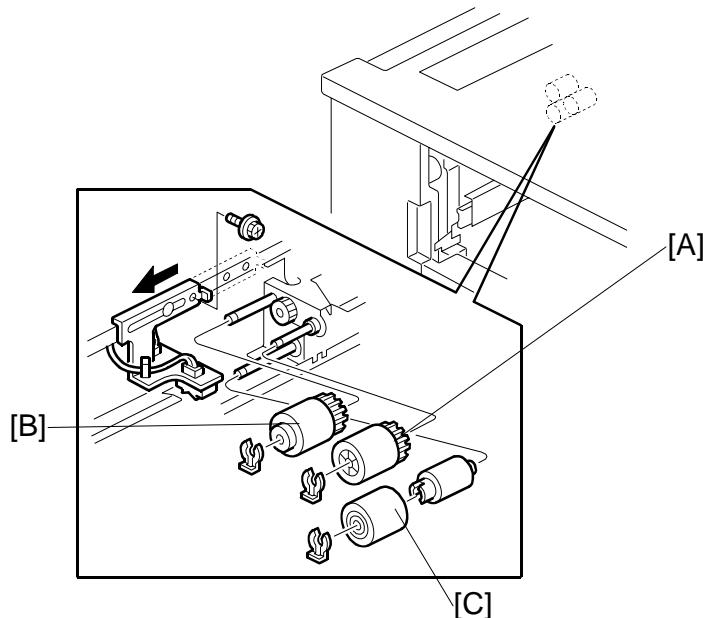


- Open the front door.
- Remove right cover (→1.2)
- Pull out tray [A]

Remove:

- [A] Tray (→1.1)
- [B] Knobs (x3) (☞ x 1ea.)
- [C] Upper inner cover (☞ x2)
- [D] Knob (☞ x1)
- [E] Lower inner cover (☞ x1)
- [F] Paper feed unit (☞ x1, ☞ x2)

1.4 PAPER FEED ROLLER



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Remove:

- Remove the right cover (☞1.2)
- Remove the paper trays. (☞1.1)

[A] Pick-up roller (Ø x 1).

[B] Feed roller (Ø x 1).

[C] Separation roller (Ø x 1).

NOTE: 1) The LCT pick-up and separation rollers are the same as pick-up and separation rollers of the main machine. These rollers are interchangeable.

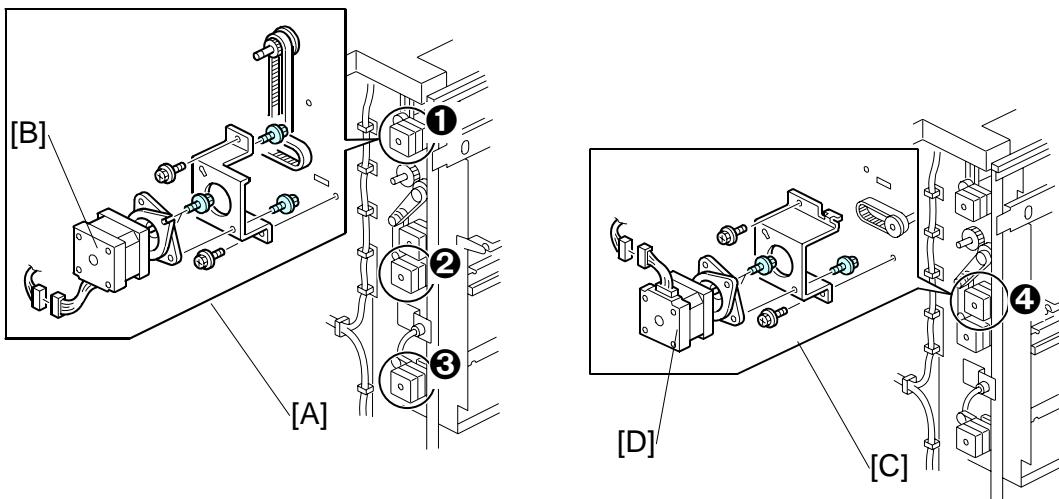
2) The feed rollers of the LCT and main machine are different because they are designed to rotate in opposite directions. The feed rollers of the LCT and main machine are not interchangeable.

3) Never touch the surface of the rollers with bare hands.

- Clear the PM counters for the new rollers (see Section "2. Preventive Maintenance").

1.5 LCT MOTORS

1.5.1 TRANSPORT MOTORS, LCT EXIT MOTOR



4th, 5th, and 6th Transport Motors ①, ②, ③

Remove:

- Left rear cover (☞1.2)

[A] Motor unit (☒ x1, Timing belt x1, ⚡ x2)

[B] Motor (⚡ x2)

LCT Exit Motor ④

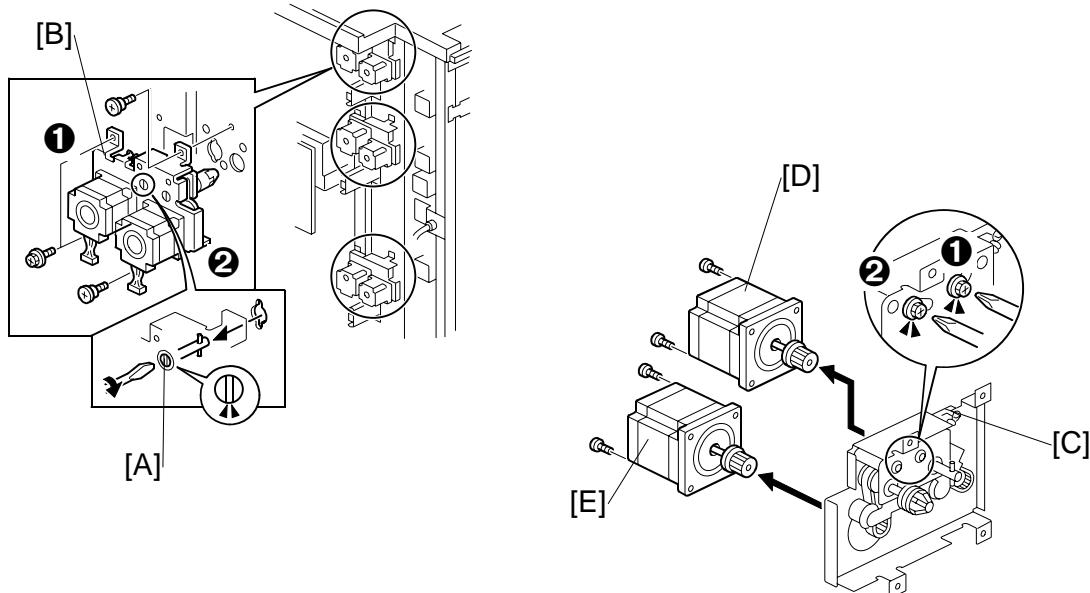
Remove:

- Left rear cover (☞1.2)

[C] Motor unit (☒ x1, Timing belt x1, ⚡ x3)

[D] Motor (⚡ x2)

1.5.2 FEED MOTORS/GRIP MOTORS



Each paper feed unit has a pick-up feed motor ❶ and a grip motor ❷. The removal procedure is the same for each feed tray.

1. Remove the left rear cover (→1.2)
2. Use a small screwdriver to turn the shaft [A] so the pin can slip out of the keyhole.

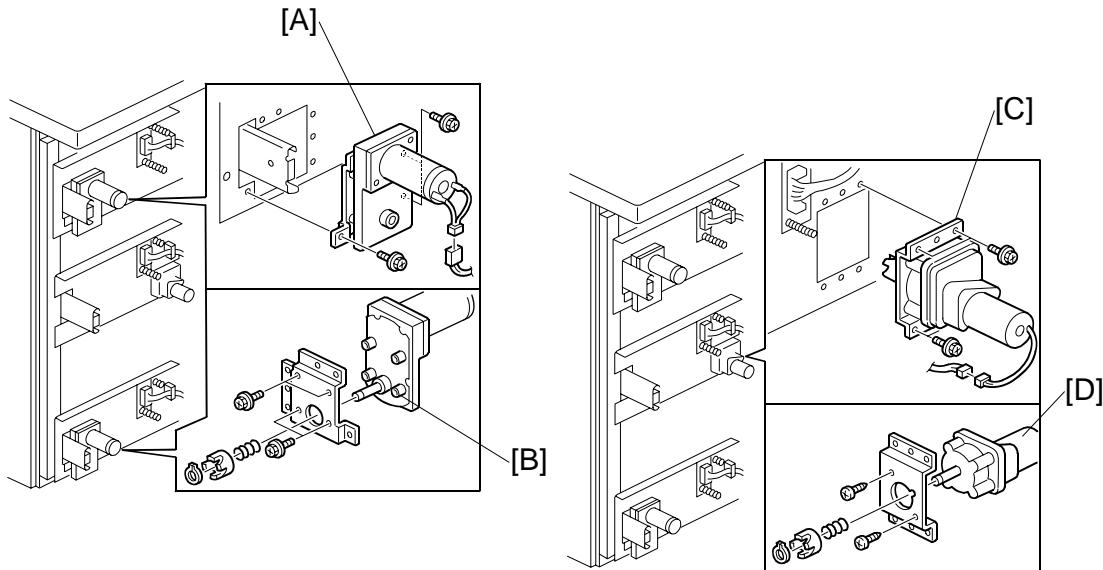
Remove:

- [B] Motor unit (x4, x2, x2)
- [C] Springs (x2). First, loosen the screws (x2) ❶, ❷.
- [D] Paper feed motor (x2, Timing belt x1)
- [E] Grip motor (x2, Timing belt x1)

Reinstallation

- Attach the tension spring, then tighten the screws ❸ to tighten the belts.

1.5.3 LIFT MOTORS



4th, 6th Lift Motors

The procedure for removing the 4th and 6th lift motors is the same.

Remove:

- Rear cover. (☞1.2)

[A]: Motor unit (☞ x2, ☎ x1).

[B]: 4th (or 6th) lift motor (☞ x4, Clip x1, Coupling x1, Spring x1)

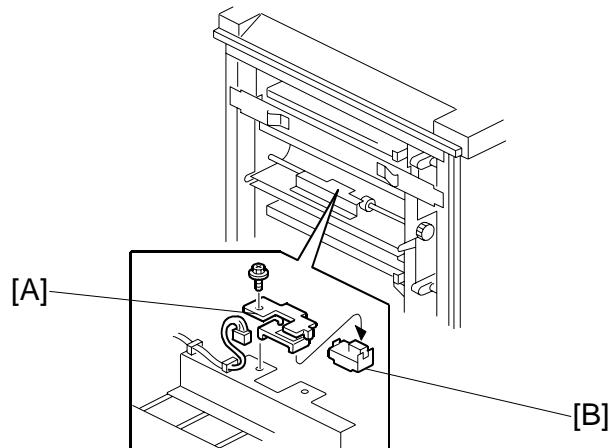
5th Lift Motor

- Rear cover. (☞1.2)

[C]: Motor unit (☞ x4, ☎ x1)

[D]: 5th lift motor (☞ x2, Clip x1, Coupling x1, Spring x1)

1.6 LCT EXIT SENSOR



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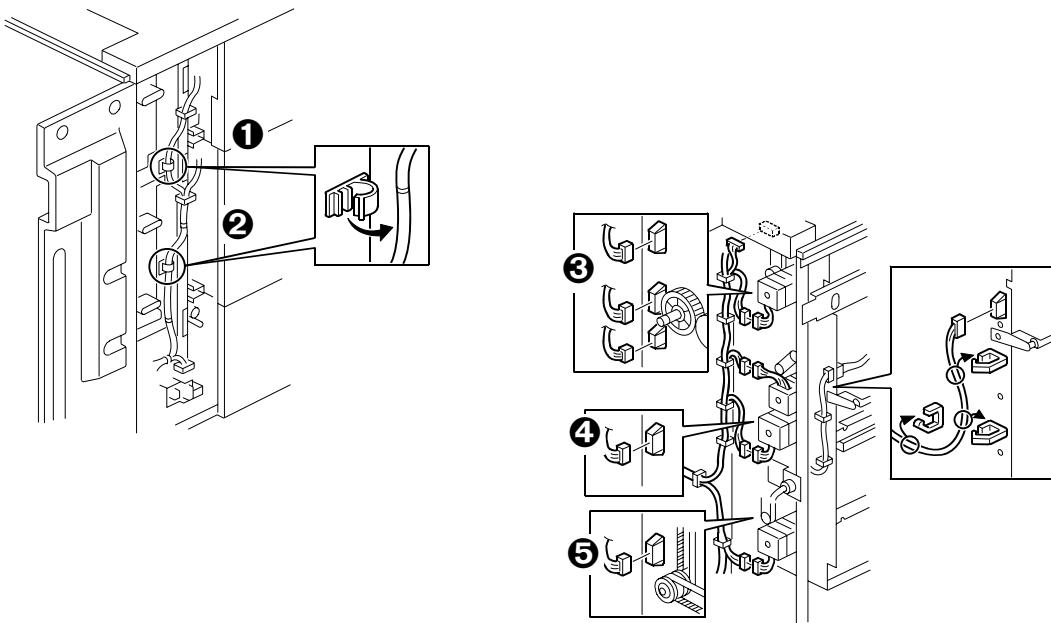
- Disconnect the LCT from the copier.

[A] Exit sensor unit( x 1,  x 1).

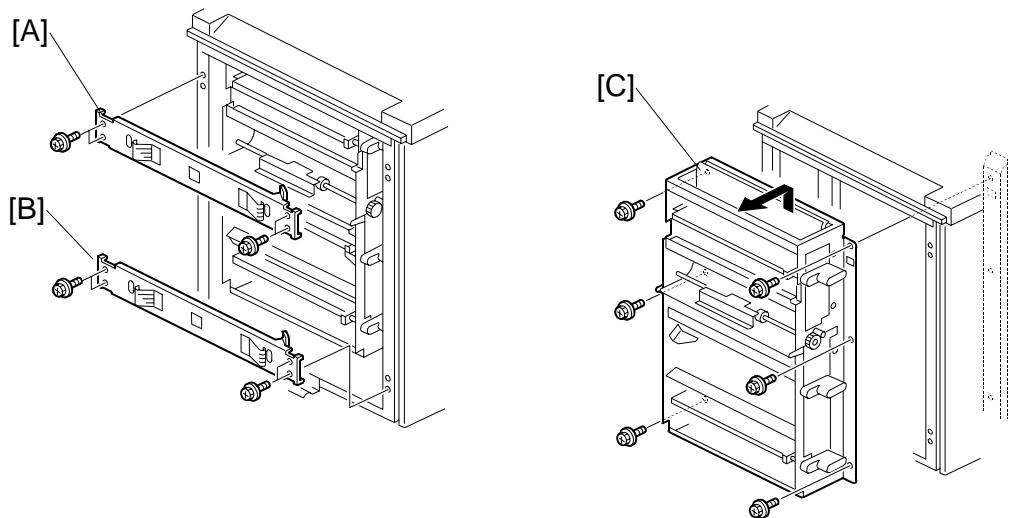
[B] Exit sensor

1.7 PAPER PATH SENSORS

1.7.1 REMOVING THE VERTICAL FEED UNIT



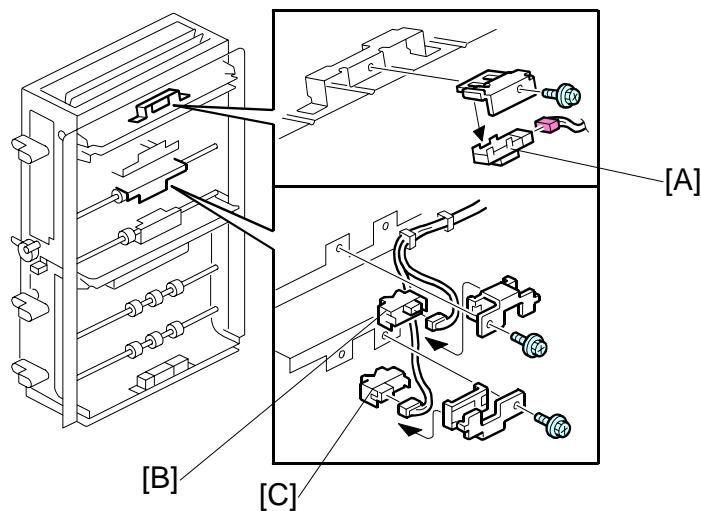
- Open the front door.
 - Remove:
 - Upper inner cover (1.3)
 - Lower inner cover (1.3)
 - Left rear cover (1.2)
1. Disconnect the harness clamps ① and ② (x2).
 2. Disconnect the motor harnesses ③, ④, ⑤ (x3, x11).



3. Remove:

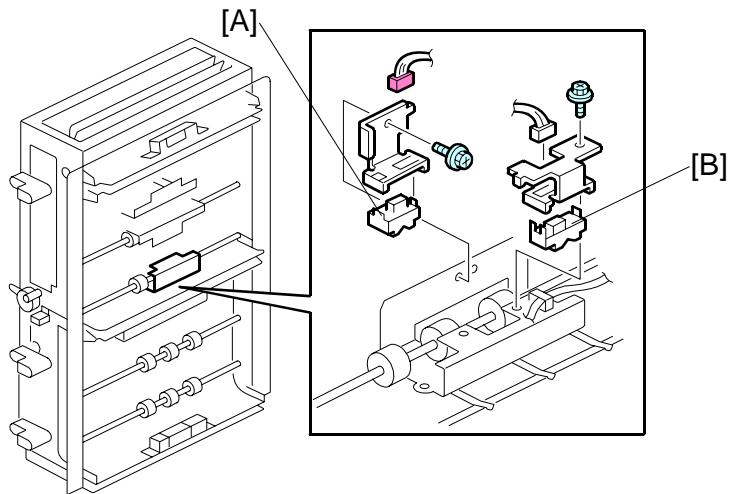
- [A]: Upper stay (\wedge x2)
- [B]: Lower stay (\wedge x2)
- [C]: Vertical feed unit (\wedge x6)

1.7.2 4TH TRANSPORT, 4TH RELAY UPPER, LOWER SENSORS



1. Remove the vertical feed unit. (1.7.1)
2. Remove:
 - [A]: 4th Transport sensor (x1, x1)
 - [B]: 4th Relay sensor – upper (x1, x1)
 - [C]: 4th Relay sensor – lower (x1, x1)

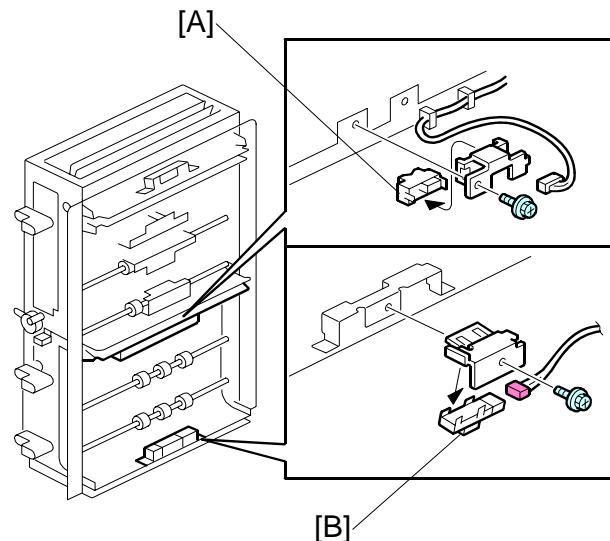
1.7.3 5TH RELAY SENSOR, 5TH TRANSPORT SENSOR



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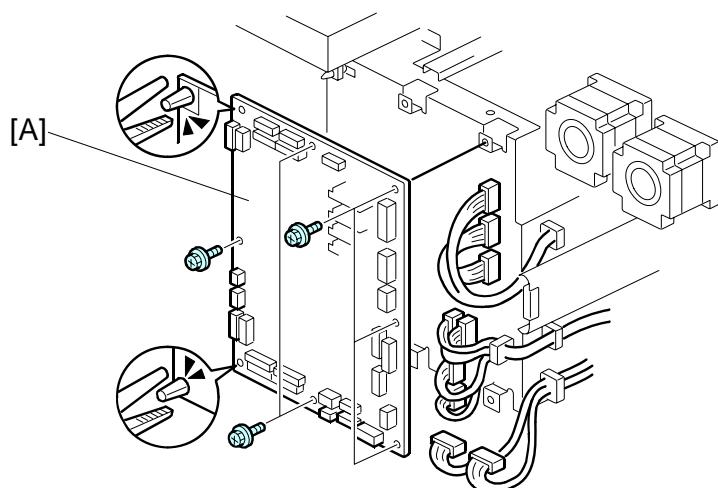
1. Remove the vertical feed unit. (→1.7.1)
2. Remove:
 - [A] 5th Relay sensor (掣 x1, 线 x1)
 - [B] 5th Transport sensor (掣 x1, 线 x1)

1.7.4 6TH RELAY SENSOR, 6TH TRANSPORT SENSOR



- Remove the vertical feed unit. (1.7.1)
[A] 6th Relay sensor (x1, x1)
[B] 6th Transport sensor (x1, x1)

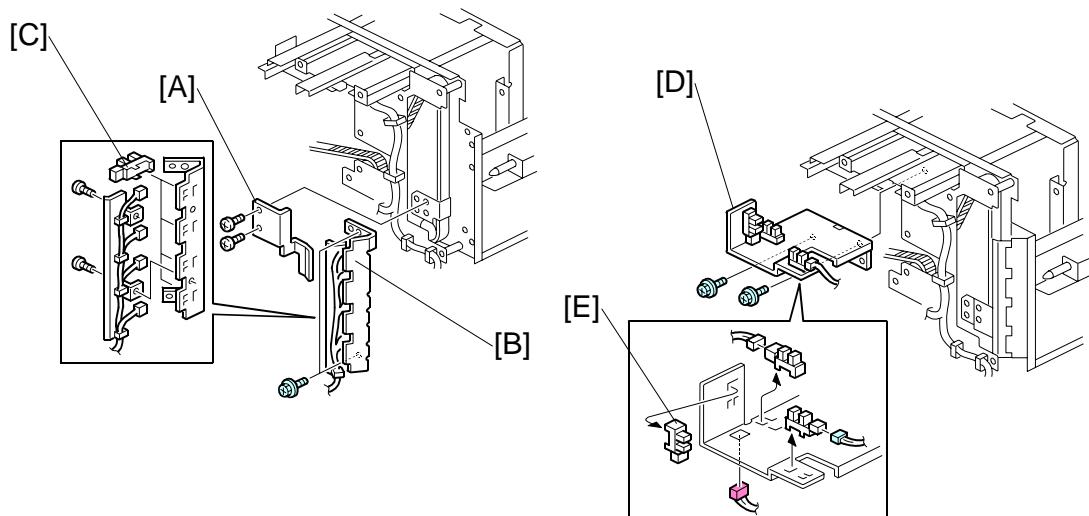
1.8 MAIN CONTROL BOARD



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- Remove the rear covers. (1.2)
- [A] Main control board (x6, Standoffs x2, x All).

1.9 PAPER HEIGHT, PAPER WIDTH SENSORS



Paper Height Sensors

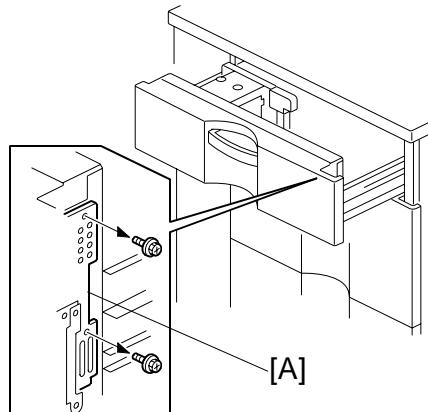
Remove:

- Rear left cover. (1.2)
 - [A] Paper height sensor unit (x2, x4)
 - [B] Clamp bracket (x2)
 - [C] Paper height sensors (x4) (Hooks x 2 each)

Paper Width Sensors

- Rear left cover. (1.2)
 - [D] Paper width sensor unit (x2, x3)
 - [E] Paper width sensors (x3) (Hooks x2 each)

1.10 SIDE REGISTRATION ADJUSTMENT

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Normally the side registration of the image can be adjusted with SP1002 004~006 (Side-to-Side Registration – Tray 4, 5, 6). When the punch hole positions are not aligned from a particular feed station, adjust the side registration by changing the tray cover position for the tray, as described below. Then adjust the side registration of the image with the SP1002.

1. Pull out the tray.
2. Change the screw positions [A] at both the right and left sides as shown.

NOTE: Adjustment range: 0 ± 2.0 mm adjustment step: 1.0 mm/step

1.11 IMAGE POSITION BOARD AND SENSOR

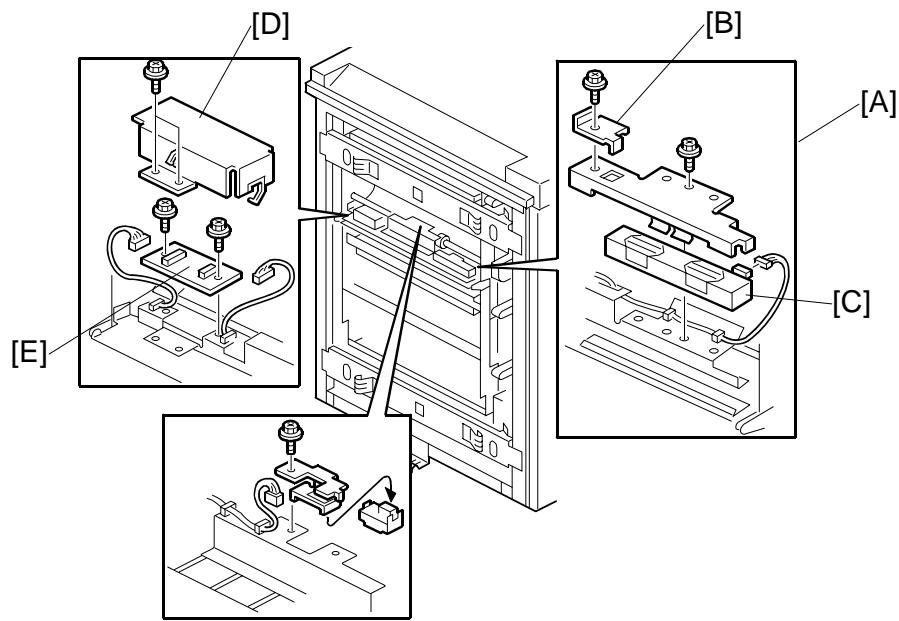


Image Position Sensor

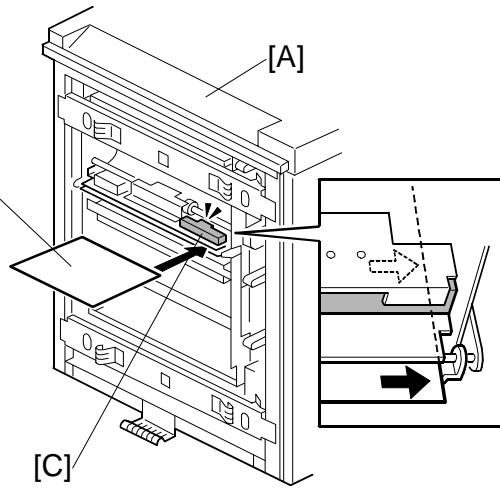
- Disconnect the LCT from the copier.
- [A] Image position sensor unit (x2, x1)
- [B] Stopper (x1)
- [C] Image position sensor
- After replacing the image position sensor do the procedure for image position sensor adjustment. (→1.12)

Image Position Sensor Board

- Disconnect the LCT from the copier.
- [D] Cover (x2, x2)
- [E] Image position sensor board (x2, x2, x2)

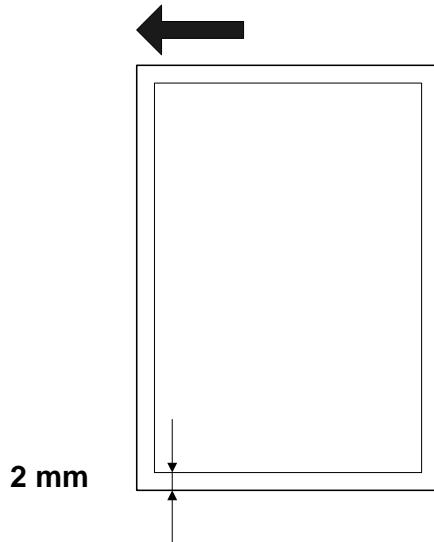
1.12 ADJUSTING IMAGE POSITION SENSOR STRENGTH AND SIDE-TO-SIDE REGISTRATION

1. Turn off the main power switch.
2. Disconnect the LCT from the mainframe.
3. With the LCT [A] separated from the mainframe, reconnect the LCT cable to the mainframe.
4. Turn on the main power switch.
5. Insert one sheet of plain white paper [B] [B] in the paper path.
6. Make sure that the paper covers the entire area below the image position sensor (CIS) [C].
7. Enter the SP mode and do **SP1910 002** (CIS Image Position Adjustment: LED Strength - LCT). This calibrates the amount of light to be emitted from the CIS.
8. Do **SP1909 002** (CIS Image Position Adjustment: PWM After Adjustment - LCT).
 - If the displayed value is between 20 (14h) and 40 (28h), the CIS is calibrated successfully. (The display is in hexadecimal code.)
 - If the value is outside this range, do **SP 1910 002** and **1909 002** again. If the value does not come between 20 and 40, the CIS may be defective.
9. Exit the SP mode.
10. Reinstall the LCT to the side of the copier.
11. Push [User Tools]> [Adjust Settings for Operators].
12. Do **SP1911** for Trays 4, 5, 6, 7 and set the value for each tray to "0" (OFF).
13. Exit from SP 1911 and return to the SP mode menu.



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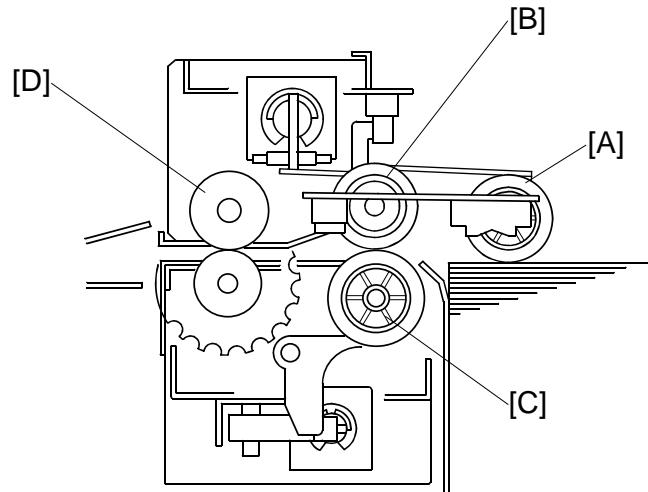
14. Adjust the image positions in the main scan direction.
 - Do **SP2902 003**, select Pattern **27**, then print the trimming pattern.
 - Do **SP1002** and adjust the image position in the main scan direction for Trays 4, 5, 6, and 7.
 - Print the trimming pattern from each tray of the LCT and from the bypass tray (if installed).
 - To do this, touch "Copy Window" in the SP display, select a tray, then push [Start].
 - The distance of the test pattern line from the paper edge for each tray must be 2 mm. If it is not 2 mm, adjust with **SP1002 004** to **007**, depending on which tray is not within the specified 2 mm.
15. Do **SP1912 002** (CIS Image Position Adjustment: Normal Paper). This sets the CIS for operation with standard copy paper.
16. Exit the SP mode.
17. Push [User Tools]> [Adjust Settings for Operators].
18. Once again, do **SP1911** (CIS Image Position Adjustment: Feed Setting) and reset the values for Trays 4, 5, 6, and 7 to "1" (ON).



2. DETAILED DESCRIPTIONS

2.1 PAPER FEED

2.1.1 PAPER FEED ROLLERS



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This LCT has three paper tray feed stations:

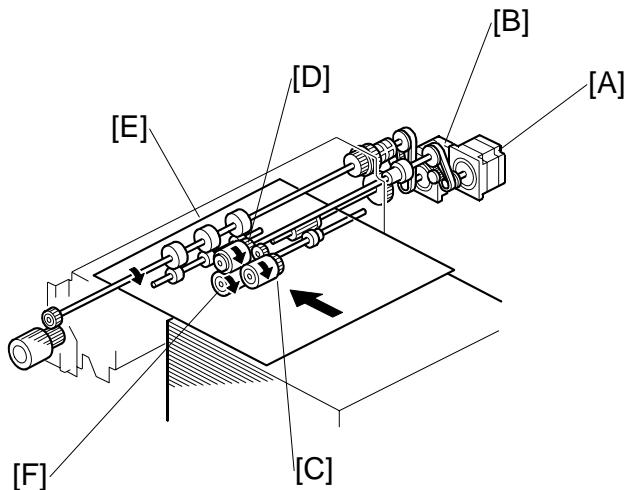
The 4th and 6th tray each hold 1,000 sheets of paper. The 5th tray holds 2,000 sheets of paper. Total: 4,000 sheets

Each tray contains four rollers:

- [A] Pick-up roller
- [B] Paper feed roller
- [C] Separation roller
- [D] Grip roller

NOTE: The pick-up roller, paper feed roller, and separation roller are a standard FRR paper feed system.

2.1.2 PAPER FEED MOTORS



Two stepper motors control the paper feed drive:

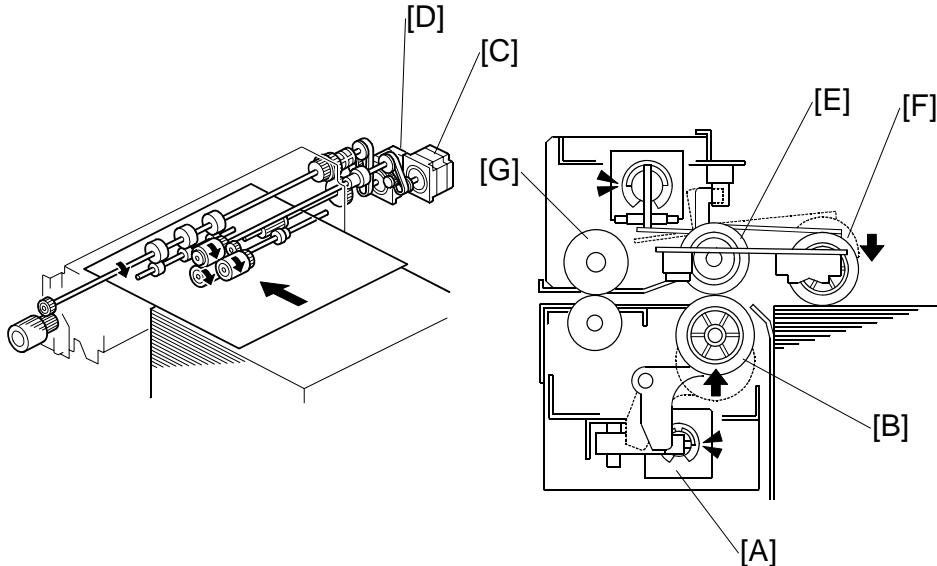
[A] Paper feed motor

[B] Grip motor

The paper feed motor drives the pick-up roller [C] and the paper feed roller [D].

The grip motor drives the grip roller [E] that feeds the paper out of the tray, and the separation roller [F].

2.1.3 PAPER SEPARATION

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When a paper feed station is not selected:

- Separation roller solenoid [A] is de-activated
- Separation roller [B] turns freely.

When the paper feed station is selected for a job:

- Paper feed motor [C] and grip motor [D] turn on.

When the feed motor [C] turns on, it drives the feed roller [E]. It also drives the pick-up roller [F] because the pick-up roller is linked to the feed roller by an idle gear.

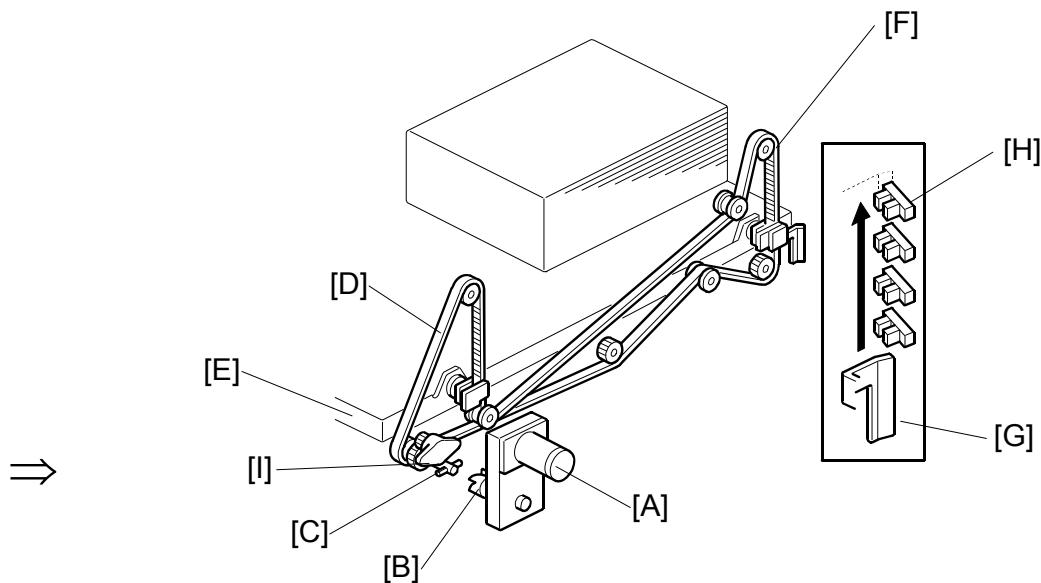
When the separation solenoid [A] turns on, the separation roller [B] contacts the paper feed roller [E] and turns with the feed roller, unless more than one sheet of paper is fed. The three trays of the LCT unit use the standard FRR mechanism.

When the paper feed motor turns on, the pick-up solenoid turns on and the pick-up roller [F] lowers until it contacts the top sheet of the paper stack and then sends it to the paper feed and separation rollers.

When the paper feed sensor detects the leading edge of the paper, the paper feed motor switches off, the pick-up roller lifts, and the grip rollers [G] feed the paper out of the tray.

2.2 PAPER DETECTION/LIFT

2.2.1 MECHANISM



Detection

When the tray set in the machine, the tray is detected by the drawer connector on the back side of the tray.

Lift

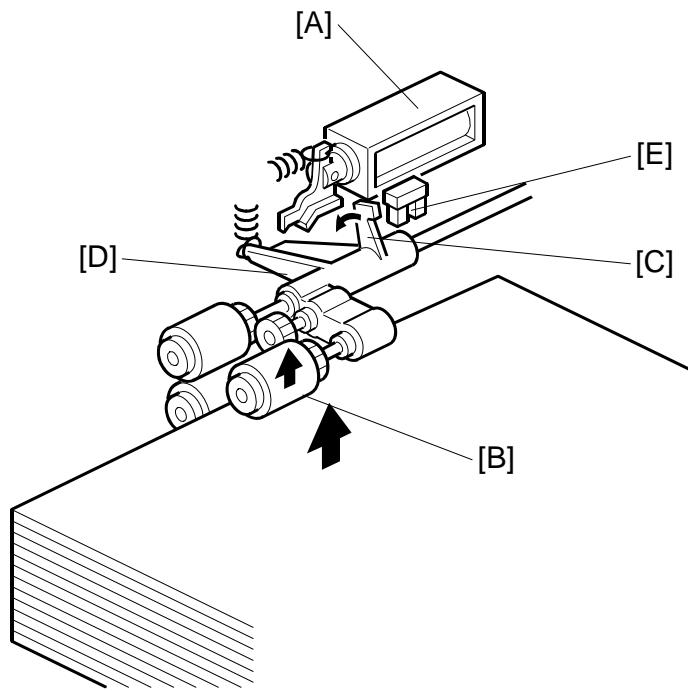
When the machine detects that the paper tray is set in the machine:

- The tray lift motor [A] rotates forward
- Coupling gear [B] on the tray lift motor engages pin [C] of the lift drive shaft.
- The tray drive belts [D], connected to the tray bottom plate [E], are driven by the tray lift motor via the lift drive shaft and tray lift pulleys [F].
- When the lift motor rotates forward, the tray bottom plate [E] rises. The tray rises until the top of the paper stack pushes up the pick-up roller and the lift sensor in the feed unit is de-activated.
- When the actuator [G] on the rear end of the bottom plate activates the paper height sensors [H], the remaining paper capacity is detected.

When the tray is pulled out:

- Coupling gear [B] separates from pin [C] and the tray bottom plate goes down.
- A damper [I] slows the descent of the bottom plate. For the B834, all three trays have this damper.

2.2.2 LIFT SENSOR

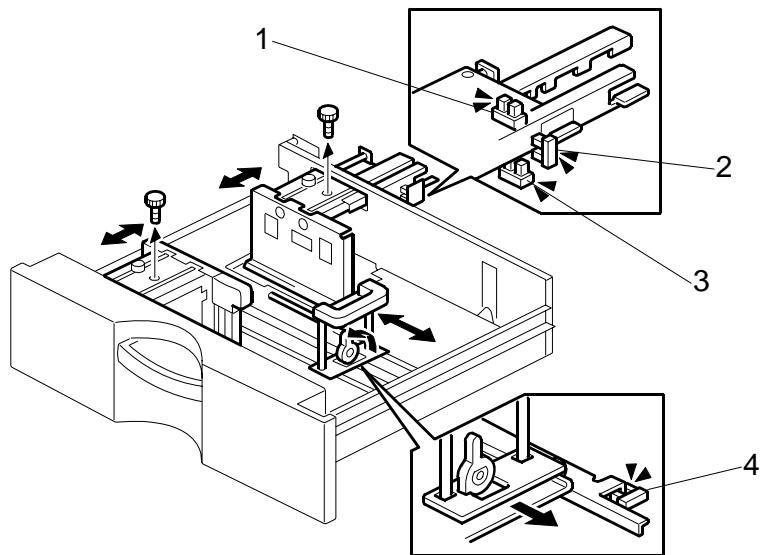


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When the lift motor turns on, the pick-up solenoid [A] activates to lower the pick-up roller [B]. When the top sheet of paper reaches the proper paper feed level, the paper pushes up the pick-up roller and the actuator [C] on the pick-up roller supporter [D] de-activates the lift sensor [E] to stop the lift motor.

After several paper feeds, the paper level gradually lowers, then the lift sensor is activated and the lift motor turns on again until the lift sensor is de-activated again.

2.3 PAPER SIZE DETECTION



1. 4th Paper Width Sensor 3
2. 4th Paper Width Sensor 2
3. 4th Paper Width Sensor 1
4. 4th Paper Length Sensor

The 4th, 5th, and 6th trays have three paper width sensors and one paper length sensor. The illustration above shows how these sensors are arranged in the 4th tray.

DETAILED DESCRIPTIONS

This table describes how the three width sensors and one length sensor are used to determine the paper size in the 4th, 5th, and 6th paper trays.

| Paper Size | | Width Sensors | | | Length Sensor | Area | |
|------------|------------|---------------|----|----|---------------|------|-----|
| | | W1 | W2 | W3 | | NA | EU |
| Large Size | 12"×18" | L | L | L | H | YES | YES |
| | 13"×19" | | | | | NO | NO |
| | 320×450 mm | | | | | NO | NO |
| A3 SEF | 297×420 mm | L | L | H | H | YES | YES |
| A4 LEF | 297×210 mm | L | L | H | L | YES | YES |
| DLT SEF | 11"×17" | L | H | L | H | YES | YES |
| LT LEF | 11"×8½" | L | H | L | L | YES | YES |
| B4 SEF | 257×364 mm | L | H | H | H | YES | YES |
| B5 LEF | 257×182 mm | L | H | H | L | YES | YES |
| A4 SEF | 210×297 mm | H | L | L | H | NO | YES |
| LT SEF | 8½"×11" | H | L | L | H | YES | NO |
| A5 LEF | 210×148 mm | H | L | L | L | NO | YES |
| HLT LEF | 8½"×5½" | H | L | L | L | YES | NO |
| B5 SEF | 182×257 mm | H | L | H | H | NO | NO |
| F SEF | 8"×13" | H | L | H | H | YES | YES |
| A5 SEF | 148×210 mm | H | H | L | L | YES | YES |
| HLT SEF | 5½"×8½" | H | H | H | L | YES | YES |

YES: Detected automatically

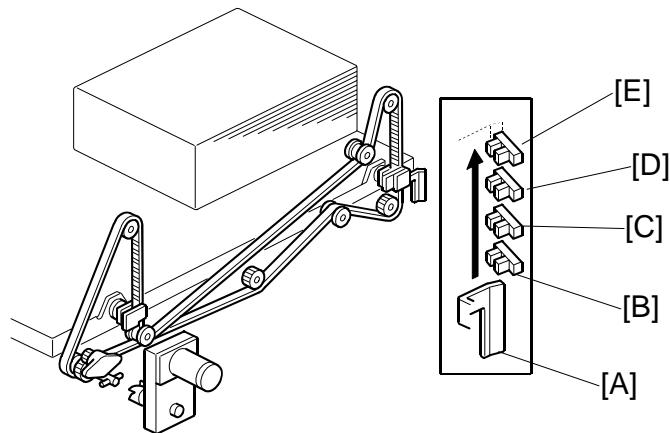
NO: Not detected automatically. Requires size setting change with the "Tray Paper Setting" key on the copier operation panel to detect the desired paper size.

H: Sensor OFF

L: Sensor ON



2.4 REMAINING PAPER DETECTION



- [A] Paper Height Sensor Actuator
- [B] 4th Paper Height Sensor 4
- [C] 4th Paper Height Sensor 3
- [D] 4th Paper Height Sensor 2
- [E] 4th Paper Height Sensor 1 (Near End)

Each tray has four paper height sensors. The illustration above shows the paper height sensors in the 4th tray. This arrangement is duplicated in the 5th and 6th trays.

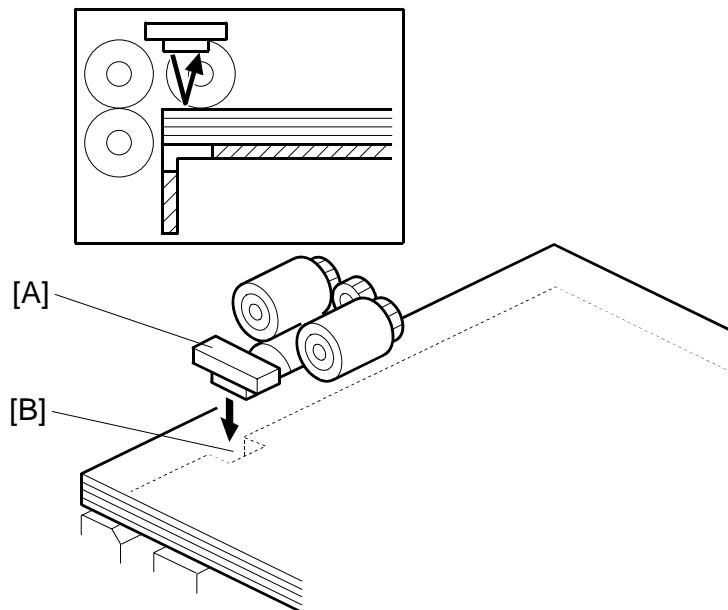
The amount of paper remaining in the tray is detected by the three paper height photo-interrupter sensors on the left rail as the bottom plate rises. Five states, determined by the position of the actuator [A] are possible.

1. With the actuator [A] below paper height sensor 4 [B], no sensor is actuated and the display indicates 100%.
2. When the actuator passes paper height sensor 4 [B], the display indicates 70% of the paper supply remaining.
3. When the actuator passes paper height sensor 3 [C], the display indicates 30% of the paper supply remaining.
4. When the actuator passes paper height sensor 2 [D], the display indicates 10% of the paper supply remaining.

NOTE: When the actuator enters the gap of the near end sensor [E], the machine signals near end.

Finally, when the last sheet feeds, the paper end sensor signals that the tray is empty.

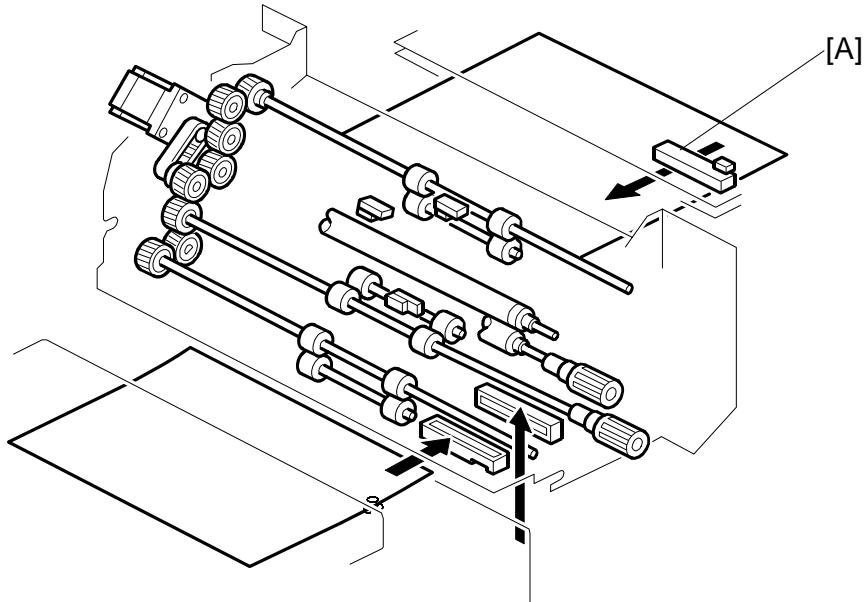
2.5 PAPER END DETECTION



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The paper end sensor [A] detects the top sheet of the paper in the tray by monitoring the reflected light. When the paper tray runs out of paper, the paper end sensor does not receive the reflected light due to the cutout [B]. Then, the tray lift motor rotates backwards 2 seconds to drop the tray bottom plate.

2.6 IMAGE POSITION CORRECTION



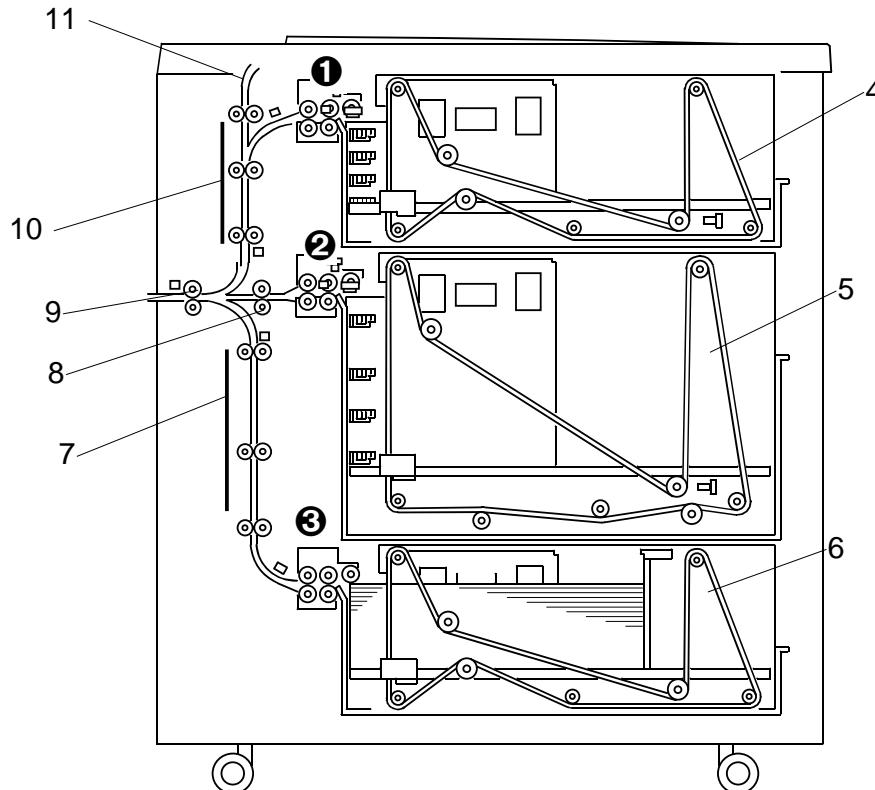
The image position sensor [A] is located in the LCT paper path above the paper path and in front of the LCT exit rollers. (This sensor is mounted on its own control board.)

The sensor is a CIS (Contact Image Sensor). It checks the side edges of each sheet as it passes, and feeds this information back to the machine.

If the side-to-side registration of the paper is slightly out of alignment, the machine will correct the image position when the laser writes the image on the surface of the drum. This function does not correct the position of the paper.

3. OVERALL MECHANICAL INFORMATION

3.1 MECHANICAL COMPONENT LAYOUT

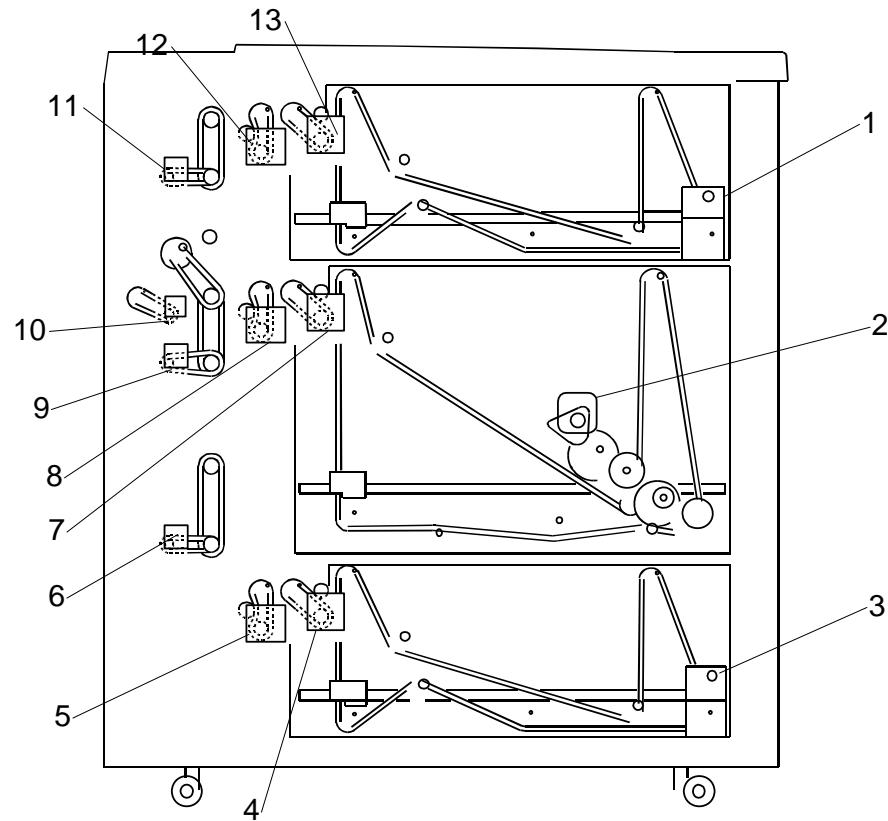


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- | | |
|--------------------------------------|----------------------------------|
| 1. 4th Paper Feed Unit ^{*1} | 7. Lower Transport Rollers |
| 2. 5th Paper Feed Unit | 8. Horizontal Transport Roller |
| 3. 6th Paper Feed Unit | 9. LCT Exit roller |
| 4. 4th Tray Drive Belt | 10. Upper Transport Rollers |
| 5. 5th Tray Drive Belt | 11. Feed Slot (from Bypass Tray) |
| 6. 6th Tray Drive Belt | |

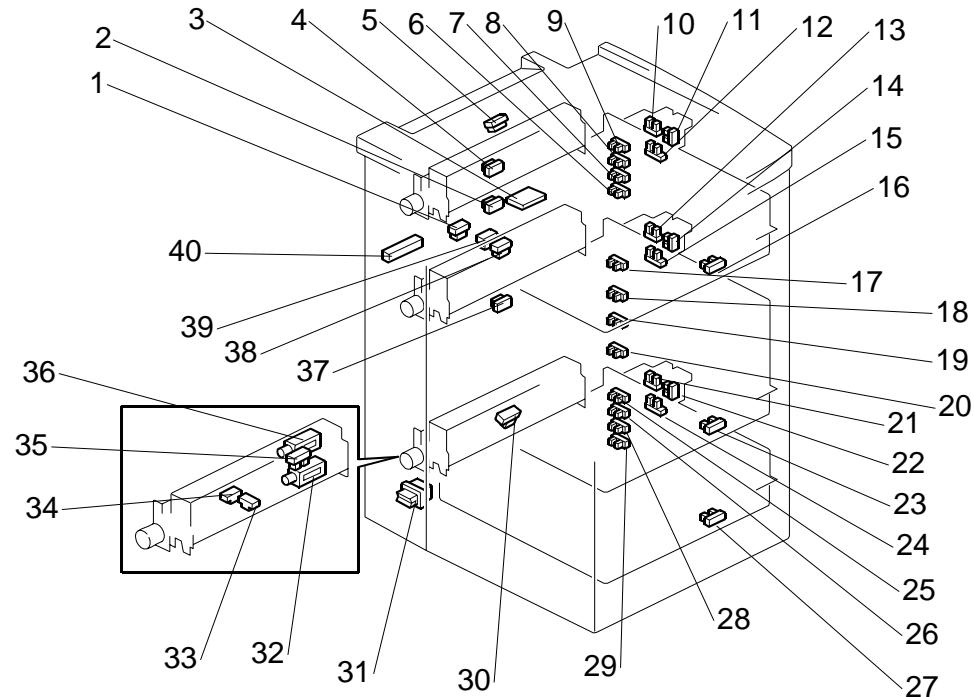
^{*1} Each feed unit has 1 paper feed motor that drives the pick-up roller and paper feed roller, and 1 grip motor that drives the separation roller and grip roller.

3.2 DRIVE LAYOUT



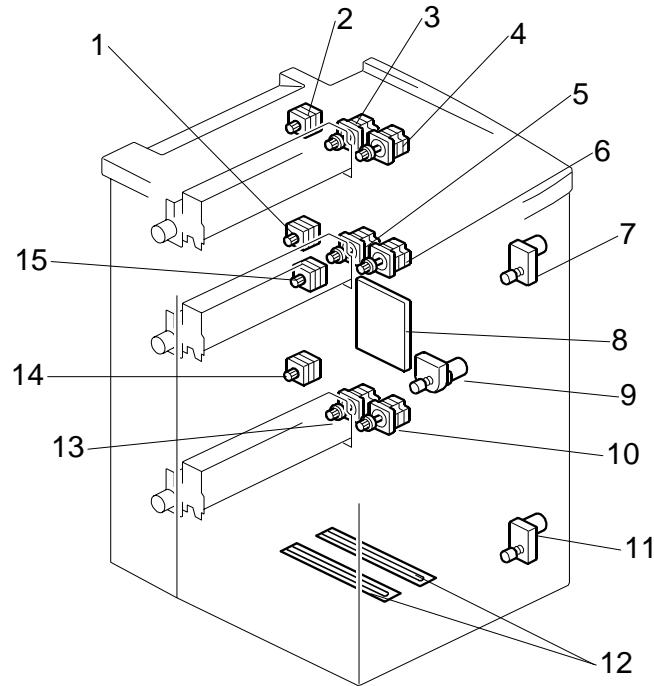
- | | |
|-------------------------|--------------------------|
| 1. 4th Lift Motor | 8. 5th Grip Motor |
| 2. 5th Lift Motor | 9. 5th Transport Motor |
| 3. 6th Lift Motor | 10. LCT Exit Motor |
| 4. 6th Paper Feed Motor | 11. 4th Transport Motor |
| 5. 6th Grip Motor | 12. 4th Grip Motor |
| 6. 6th Transport Motor | 13. 4th Paper Feed Motor |
| 7. 5th Paper Feed Motor | |

3.3 ELECTRICAL COMPONENTS



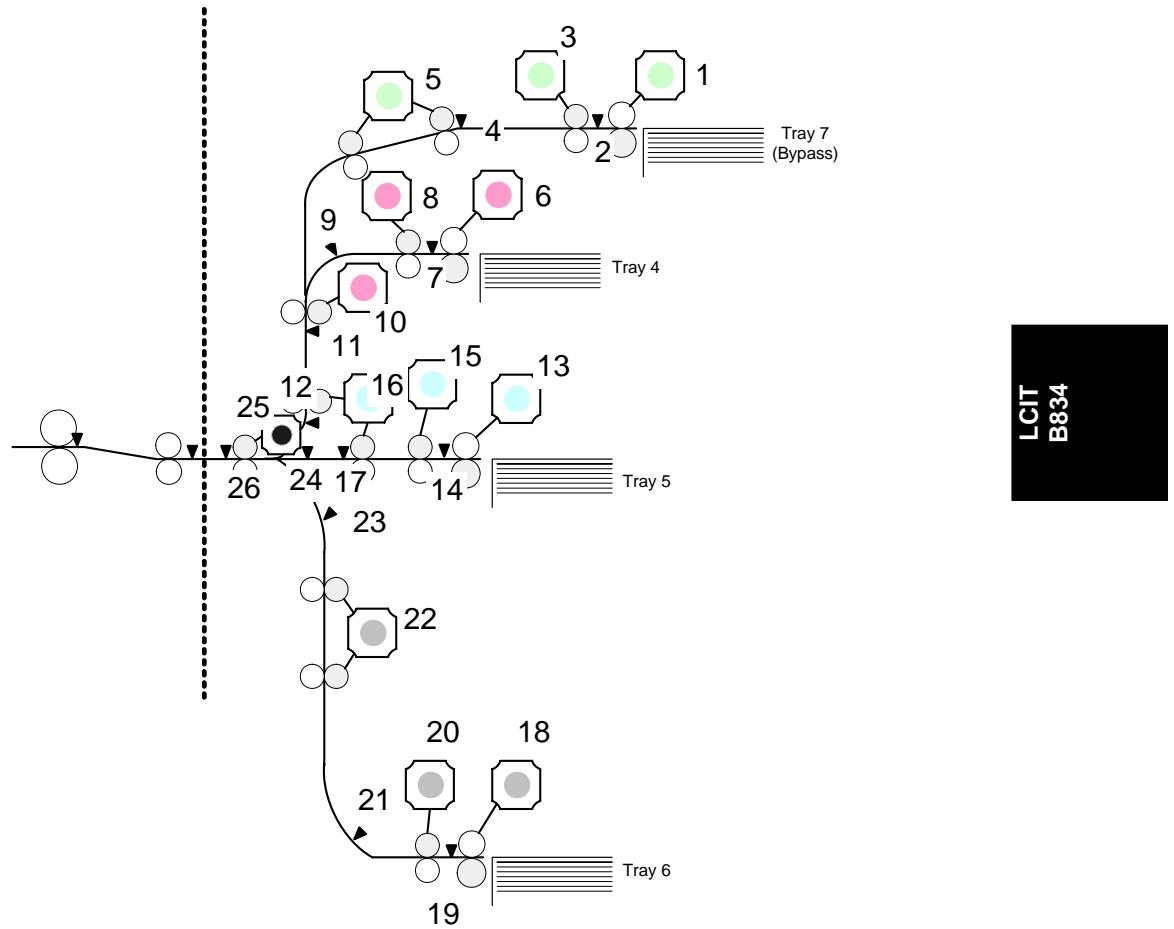
- 1. LCT Exit Sensor
- 2. 4th Relay Sensor
- 3. Image Position Sensor Board
- 4. 4th Relay Sensor - Upper
- 5. 4th Transport Sensor
- 6. 4th Paper Height Sensor 4
- 7. 4th Paper Height Sensor 3
- 8. 4th Paper Height Sensor 2
- 9. 4th Paper Height Sensor 1
- 10. 4th Paper Width Sensor 3
- 11. 4th Paper Width Sensor 2
- 12. 4th Paper Width Sensor 1
- 13. 5th Paper Width Sensor 3
- 14. 5th Paper Width Sensor 2
- 15. 5th Paper Width Sensor 1
- 16. 4th Paper Length Sensor
- 17. 5th Paper Height Sensor 4
- 18. 5th Paper Height Sensor 3
- 19. 5th Paper Height Sensor 2
- 20. 5th Paper Height Sensor 1
- 21. 6th Paper Width Sensor 3
- 22. 6th Paper Width Sensor 2
- 23. 5th Paper Length Sensor
- 24. 6th Paper Width Sensor 1
- 25. 6th Paper Height Sensor 4
- 26. 6th Paper Height Sensor 3
- 27. 6th Paper Length Sensor
- 28. 6th Paper Height Sensor 2
- 29. 6th Paper Height Sensor 1
- 30. 6th Transport Sensor
- 31. Door Safety Switch
- 32. 6th Separation Solenoid
- 33. 6th Paper End Sensor
- 34. 6th Paper Feed Sensor
- 35. 6th Lift Sensor
- 36. 6th Pick-up Solenoid
- 37. 6th Relay Sensor
- 38. 5th Transport Sensor
- 39. 5th Relay Sensor
- 40. LCT Image Position Sensor

OVERALL MECHANICAL INFORMATION



- | | |
|-------------------------|---|
| 1. 5th Transport Motor | 9. 5th Lift Motor |
| 2. 4th Transport Motor | 10. 6th Paper Feed Motor |
| 3. 4th Grip Motor | 11. 6th Lift Motor |
| 4. 4th Paper Feed Motor | 12. Anti-Condensation Heaters (Options) |
| 5. 5th Grip Motor | 13. 6th Grip Motor |
| 6. 5th Paper Feed Motor | 14. 6th Transport Motor |
| 7. 4th Lift Motor | 15. LCT Exit Motor |
| 8. Main Control Board | |

3.4 A3/DLT LCT B834 LAYOUT (WITH BYPASS)



- | | |
|------------------------------|---------------------------|
| 1. Paper Feed Motor Bypass) | 14. 5th Paper Feed Sensor |
| 2. Paper Feed Sensor Bypass) | 15. 5th Grip Motor |
| 3. Grip Motor Bypass) | 16. 5th Transport Motor |
| 4. Transport Sensor Bypass) | 17. 5th Transport Sensor |
| 5. Transport Motor Bypass) | 18. 6th Paper feed Motor |
| 6. 4th Paper Feed Motor | 19. 6th Paper Feed Sensor |
| 7. 4th Paper Feed Sensor | 20. 6th Grip Motor |
| 8. 4th Grip Motor | 21. 6th Transport Sensor |
| 9. 4th Transport Sensor | 22. 6th Transport Motor |
| 10. 4th Transport Motor | 23. 6th Relay Sensor |
| 11. 4th Relay Sensor – Upper | 24. 5th Relay Sensor |
| 12. 4th Relay Sensor – Lower | 25. LCT Exit Motor |
| 13. 5th Paper feed Motor | 26. LCT Exit Sensor |

OVERALL MECHANICAL INFORMATION

3.5 ELECTRICAL COMPONENT SUMMARY

| Motors | | |
|--------|----------------------|--|
| No. | Name | Description |
| M1 | 4th Grip Motor | Drives the separation roller and the grip roller of the 4th tray. |
| M2 | 4th Lift Motor | Drives the bottom plate of the 4th tray up and down. |
| M3 | 4th Paper Feed Motor | Drives the pick-roller and feed roller that picks up each sheet and starts to feed it out of the 4th tray. |
| M4 | 4th Transport Motor | Drives the rollers in the vertical feed path that feed the paper from the 4th tray to the LCT exit motor. |
| M5 | 5th Grip Motor | Drives the separation roller and the grip roller of the 5th tray. |
| M6 | 5th Lift Motor | Drives the bottom plate of the 5th tray up and down. |
| M7 | 5th Paper Feed Motor | Drives the pick-roller and feed roller that picks up each sheet and starts to feed it out of the 5th tray. |
| M8 | 5th Transport Motor | Drives the transport rollers in the vertical feed path that feed the paper from the 4th tray and the 5th tray to the LCT exit motor. |
| M9 | 6th Grip Motor | Drives the separation roller and the grip roller of the 6th tray. |
| M10 | 6th Lift Motor | Drives the 5th tray up and down. |
| M11 | 6th Paper Feed Motor | Drives the pick-roller and feed roller that picks up each sheet and starts to feed it out of the 6th tray. |
| M12 | 6th Transport Motor | Drives the rollers in the vertical feed path that feed the paper from the 6th tray to the LCT exit motor. |
| M13 | LCT Exit Motor | Feeds the paper out the LCT and into the entrance of the copier. |

| PCBs | | |
|------|-----------------------------|---|
| No. | Name | Description |
| PCB1 | Main Control Board | Controls the operation of all motors and sensors in the LCT unit. |
| PCB2 | Image Position Sensor Board | Operates the CIS sensor (performs waveform correction) the LCT. The CRB (CIS Relay Board) and CIS sensor perform side-to-side image correction. The CRB and CIS are a single unit. The CRB is not a separate board. |

| Sensors | | |
|---------|---------------------------------|---|
| No. | Name | Description |
| S1 | 4th Lift Sensor | Detects when the paper in the 4th tray is at the correct height for paper feed and switches the 4th lift motor off. |
| S2 | 4th Paper End Sensor | Detects when the last sheet feeds from the 4th tray. |
| S3 | 4th Paper Feed Sensor | Detects the paper when it arrives at the 4th paper feed roller and checks for misfeeds. |
| S4 | 4th Paper Height Sensor 1 | 4th from the bottom of the 4th tray, detects stack height: 100% |
| S5 | 4th Paper Height Sensor 2 | 5th from the bottom of the 4th tray, detects stack height: 75% |
| S6 | 4th Paper Height Sensor 3 | 6th from the bottom of the 4th tray, detects stack height: 50% |
| S7 | 4th Paper Height Sensor 4 | 4th from the bottom of the 4th tray, detects stack height: 25% and signals near-end. |
| S8 | 4th Paper Length Sensor (B834) | Detects the length of the paper in the 4th tray (used in combination with the paper width sensors). |
| S9 | 4th Paper Width Sensor 1 (B834) | 1 of a set of 3 sensors that detect the width of the |

OVERALL MECHANICAL INFORMATION

| Sensors | | |
|----------------|---------------------------------|---|
| No. | Name | Description |
| | | paper in the 4th tray. |
| S10 | 4th Paper Width Sensor 2 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S11 | 4th Paper Width Sensor 3 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S12 | 4th Paper Size Sensor 1 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S13 | 4th Paper Size Sensor 2 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S14 | 4th Paper Size Sensor 3 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 4th tray. |
| S15 | 4th Relay Sensor | Detects the leading and trailing edges of the paper in the paper path near the bottom of the 4th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location. |
| S16 | 4th Relay Sensor - Upper (B834) | Detects the leading and trailing edges of the paper in the paper path near the top of the 4th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location. |
| S17 | 4th Transport Sensor | Detects jams in the paper path where the transport motor feeds the paper from the 4th tray. |
| S18 | 5th Lift Sensor | Detects when the paper in the 5th tray is at the correct height for paper feed and switches the 4th lift motor off. |
| S19 | 5th Paper End Sensor | Detects when the last sheet feeds from the 5th tray. |
| S20 | 5th Paper Feed Sensor | Detects the paper when it arrives at the 5th paper feed roller and checks for misfeeds. |
| S21 | 5th Paper Height Sensor 1 | 4th from the bottom of the 5th tray, detects stack height: 100% |
| S22 | 5th Paper Height Sensor 2 | 5th from the bottom of the 5th tray, detects stack height: 75% |
| S23 | 5th Paper Height Sensor 3 | 6th from the bottom of the 5th tray, detects stack height: 50% |
| S24 | 5th Paper Height Sensor 4 | 4th from the bottom of the 5th tray, detects stack height: 25% and signals near-end. |
| S25 | 5th Paper Length Sensor (B834) | Detects the length of the paper in the 5th tray (used in combination with the paper width sensors). |
| S26 | 5th Paper Width Sensor 1 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S27 | 5th Paper Width Sensor 2 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S28 | 5th Paper Width Sensor 3 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S29 | 5th Paper Size Sensor 1 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S30 | 5th Paper Size Sensor 2 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S31 | 5th Paper Size Sensor 3 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 5th tray. |
| S32 | 5th Relay Sensor (B834) | Detects the leading and trailing edges of the paper in the paper path near the 5th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location. |
| S33 | 5th Transport Sensor | Detects jams in the paper path where the transport motor feeds the paper from the 5th tray. |
| S34 | 6th Lift Sensor | Detects when the paper in the 6th tray is at the correct height for paper feed and switches the 4th |

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OVERALL MECHANICAL INFORMATION

| Sensors | | |
|---------|---------------------------------|---|
| No. | Name | Description |
| | | lift motor off. |
| S35 | 6th Paper End Sensor | Detects when the last sheet feeds from the 6th tray. |
| S36 | 6th Paper Feed Sensor | Detects the paper when it arrives at the 6th paper feed roller and checks for misfeeds. |
| S37 | 6th Paper Height Sensor 1 | 4th from the bottom of the 6th tray, detects stack height: 100% |
| S38 | 6th Paper Height Sensor 2 | 5th from the bottom of the 6th tray, detects stack height: 75% |
| S39 | 6th Paper Height Sensor 3 | 6th from the bottom of the 6th tray, detects stack height: 50% |
| S40 | 6th Paper Height Sensor 4 | 4th from the bottom of the 6th tray, detects stack height: 25% and signals near-end. |
| S41 | 6th Paper Length Sensor (B834) | Detects the length of the paper in the 6th tray (used in combination with the paper width sensors). |
| S42 | 6th Paper Width Sensor 1 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S43 | 6th Paper Width Sensor 2 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S44 | 6th Paper Width Sensor 3 (B834) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S45 | 6th Paper Size Sensor 1 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S46 | 6th Paper Size Sensor 2 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S47 | 6th Paper Size Sensor 3 (B832) | 1 of a set of 3 sensors that detect the width of the paper in the 6th tray. |
| S48 | 6th Relay Sensor (B834) | Detects the leading and trailing edges of the paper in the paper path near the 6th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location. |
| S49 | 6th Transport Sensor | Detects jams in the paper path where the transport motor feeds the paper from the 6th tray. |
| S50 | LCT Exit Sensor | Detects jams at the exit of the LCT unit. |
| S51 | LCT Image Position Sensor | Mounted on the CRB (CIS Relay Board), this contact image sensor detects the side-to-side edges of the paper in the paper path. The machine uses this information to correct the position of the image when the lasers fire. |

OVERALL MECHANICAL INFORMATION

| Solenoids | | |
|------------------|-------------------------|---|
| No. | Name | Description |
| SOL1 | 4th Pick-up Solenoid | Engages/disengages rotation of the pick-up roller in the 4th tray. |
| SOL2 | 4th Separation Solenoid | Controls up-down movement of the separation roller in the 4th tray. |
| SOL3 | 5th Pick-up Solenoid | Engages/disengages rotation of the pick-up roller in the 5th tray. |
| SOL4 | 5th Separation SOL | Controls up-down movement of the separation roller in the 5th tray. |
| SOL5 | 6th Pick-up Solenoid | Engages/disengages rotation of the pick-up roller in the 6th tray. |
| SOL6 | 6th Separation Solenoid | Controls up-down movement of the separation roller in the 6th tray. |

| Switches | | |
|-----------------|--------------------|---|
| No. | Name | Description |
| SW1 | Door Safety Switch | An interlock safety switch that detects when the front door is opened and closed. |

| Other | | |
|--------------|---------------------------|---|
| No. | Name | Description |
| H1, H2 | Anti-Condensation Heaters | Evaporates moisture around the trays in the LCT (230V 18W). This is an option |

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COVER INTERPOSER TRAY CI5000

B835

| COVER INTERPOSER TRAY CL5000 (B835) REVISION HISTORY | | |
|---|-------------|--------------------------|
| Page | Date | Added/Updated/New |
| | | None |



COVER INTERPOSER TRAY B835

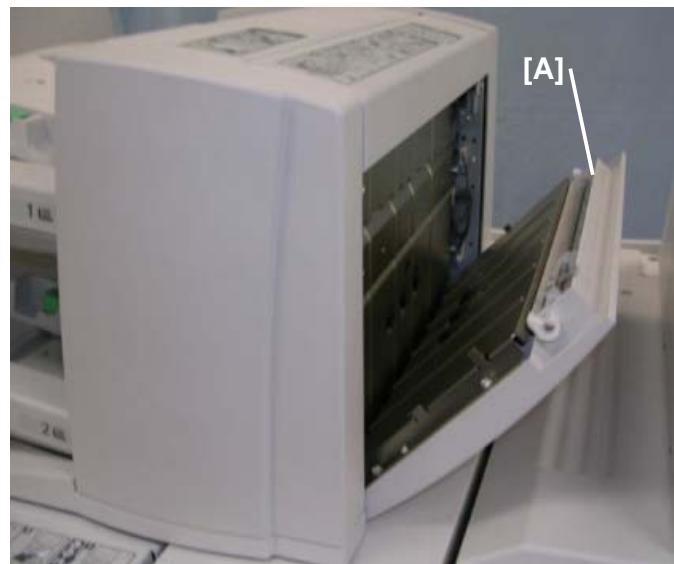
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1. REPLACEMENT AND ADJUSTMENT

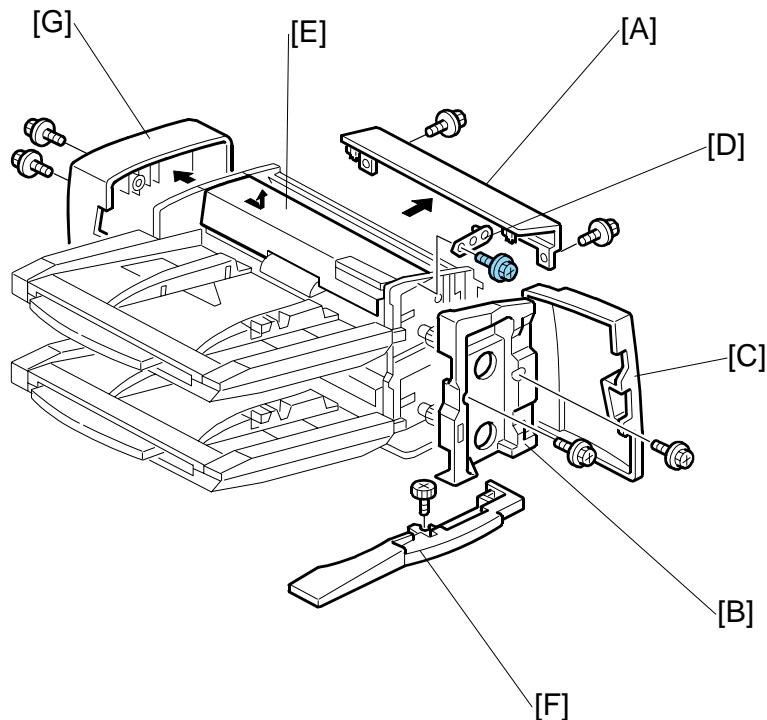
1.1 COVERS



1. Open the vertical feed cover [A].

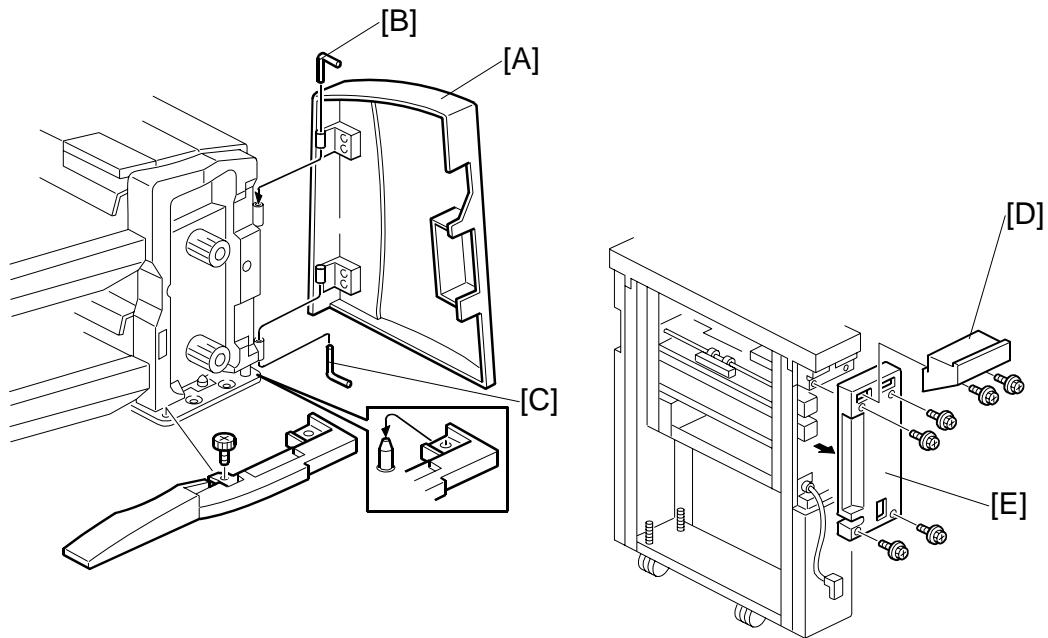
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REPLACEMENT AND ADJUSTMENT



2. Remove:

- [A] Top cover (2 x2)
- [B] Inner cover with front door [C] (2 x2)
- [D] 1st tray cover holder (1 x1)
- [E] 1st tray cover. Slide the cover toward you to remove it from the inside pins.
- [F] Base cover (Knob 1 x1)
- [G] Tray unit rear cover (2 x2)

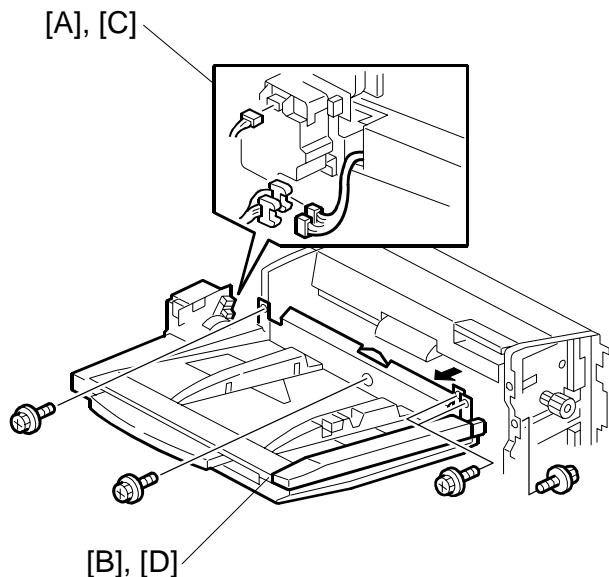


3. Remove:

- [A] Front door (L-pins x2)
- Swing the upper L-pin [B] out of its groove and pull it up.
 - Swing the lower L-pin [C] out of its groove and pull it down.
- [D] Rear top cover of the feed unit (☞ x2)
- [E] Feed unit rear upper cover (☞ x4)

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1.2 1ST, 2ND TRAYS



Remove:

- Inner cover with tray unit front door (☞1.1)
- Tray unit rear cover (☞1.1)

1st Tray

[A] Disconnect:

- 1st lift motor (☞ 1x, ☞x1)
- White connectors (☞x2)

[B] 1st tray (☞ x5)

2nd Tray

Remove:

- Inner cover with tray unit front door (☞1.1)
- Tray unit rear cover (☞1.1)

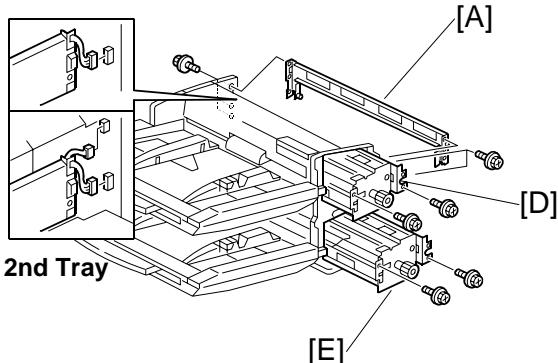
[C] Disconnect:

- 2nd lift motor (☞ 1x, ☞x1)
- Red, blue connectors (☞x2)

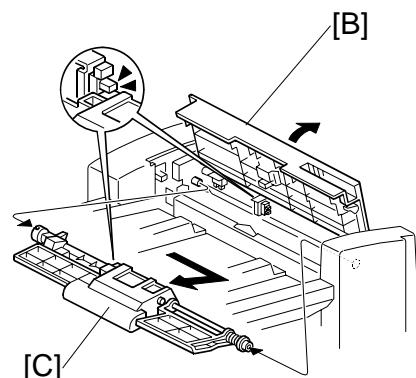
[D] 2nd tray (☞ x5)

1.3 FEED UNITS

1st Tray



2nd Tray



1st Feed Unit

Remove:

- Top cover (☞1.1)
- Inner cover with front door (☞1.1)
- Tray unit rear cover (☞1.1)

[A] Stay (☞ x5)

[B] Open the 1st tray cover and hold it open

[C] 1st feed belt unit

[D] 1st feed unit (☞ x, ☎ x)

2nd Feed Unit

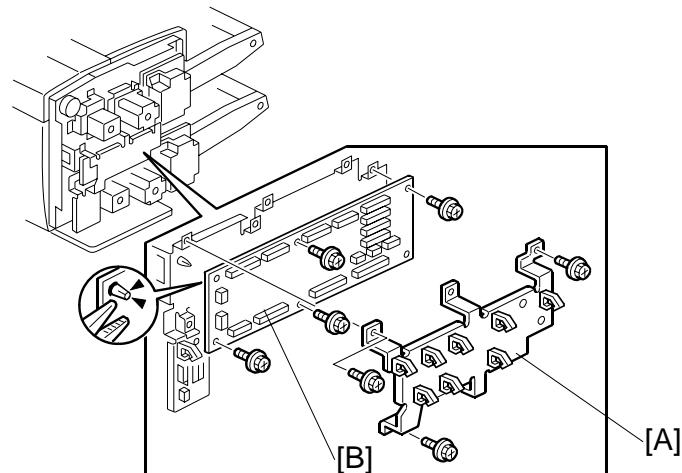
- Open the vertical feed cover (☞1.1)
- Remove inner cover with tray unit front door (☞1.1)
- 2nd feed belt unit (same as [C])

[E] 2nd feed unit (☞ x2, ☎ x2)

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1.4 BOARDS

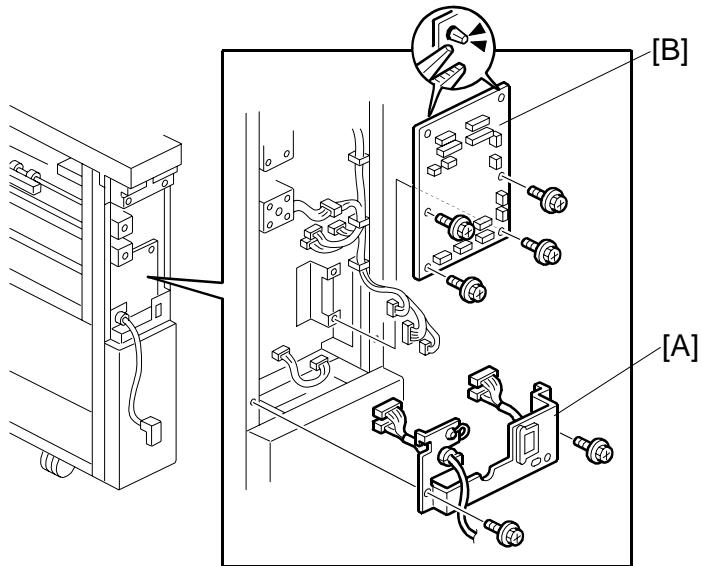
1.4.1 TRAY UNIT CONTROL BOARD



Remove:

- Tray unit rear cover (x2) (1.1)
 - [A] Board cover (x3, x8)
 - [B] Tray unit control board (x 17, x5, Standoff x1)

1.4.2 MAIN CONTROL BOARD

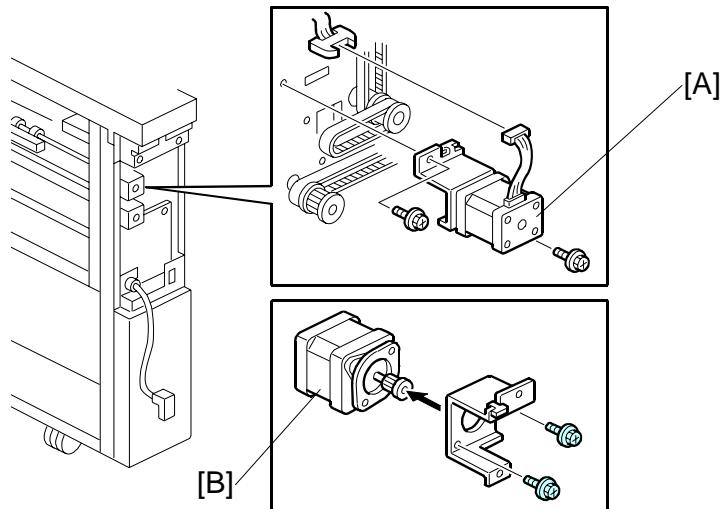


- Transport unit rear upper cover (☞1.1)
[A] Connector bracket (☞ x2)
[B] Main control board (☞ x4, ☞ x2, ☞ x14, Standoff x2)

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1.5 MOTORS

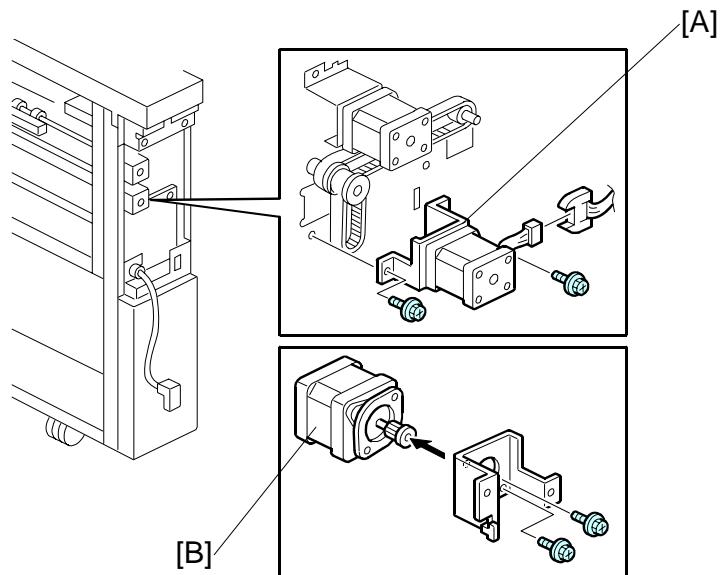
1.5.1 VERTICAL TRANSPORT MOTOR



Remove:

- Transport unit rear cover (☞1.1)
- [A] Motor unit (☞ x2, ☎ x1, Timing belt x1)
- [B] Vertical transport motor (☞ x2)

1.5.2 HORIZONTAL TRANSPORT MOTOR

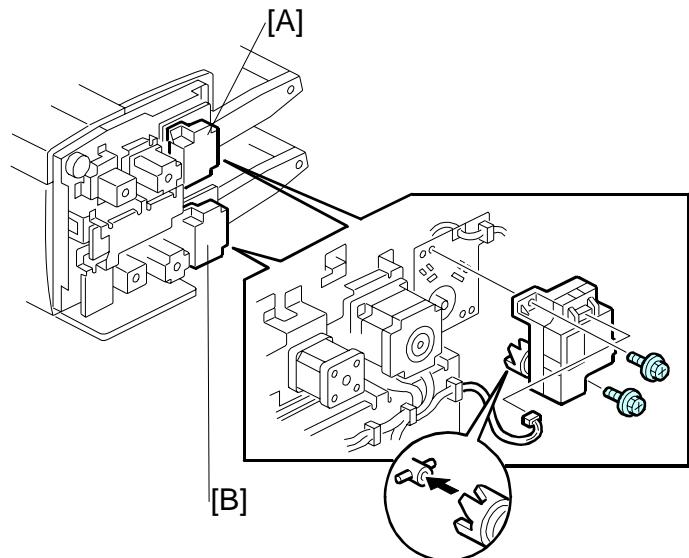


Remove:

- Transport unit rear cover (☞1.1)
- [A] Motor unit (☞ x2, ☐ x1, Timing belt x1)
[B] Horizontal transport motor (☞ x2)

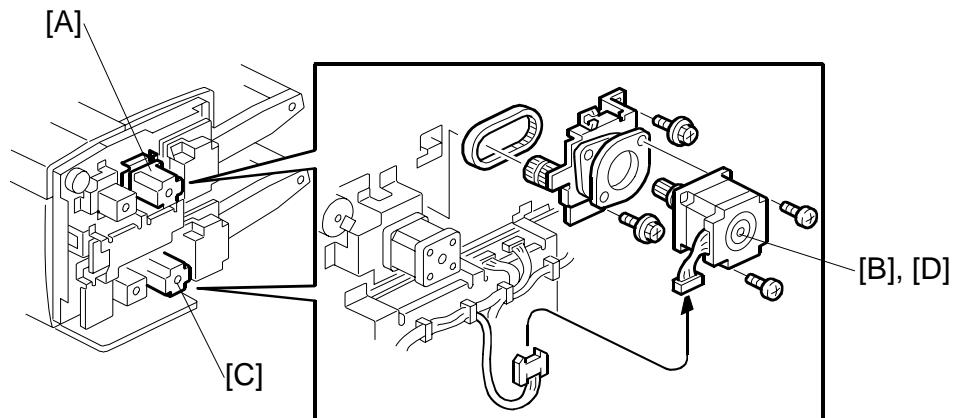
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1.5.3 1ST, 2ND LIFT MOTORS



- Tray unit rear cover (☞1.1)
[A] 1st lift motor (☞ x2, ☞ x1)
[B] 2nd lift motor (☞ x2, ☞ x1)

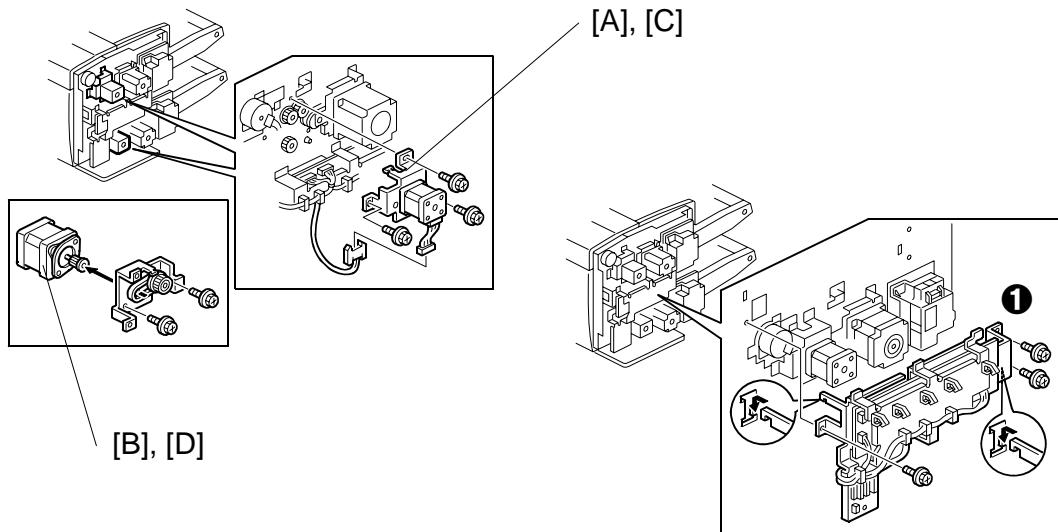
1.5.4 1ST, 2ND FEED MOTORS



- Tray unit rear cover (☞1.1)
 - [A] 1st feed motor unit (☞ x3, ☛ x2, ☐ x1)
 - [B] 1st feed motor (☞ x2, Timing belt x1)
 - [C] 2nd feed motor unit (☞ x3, ☐ x1)
 - [D] 2nd feed motor unit (☞ x2, Timing belt x1)

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1.5.5 1ST, 2ND TRANSPORT MOTORS



- Tray unit rear cover (☞1.1)

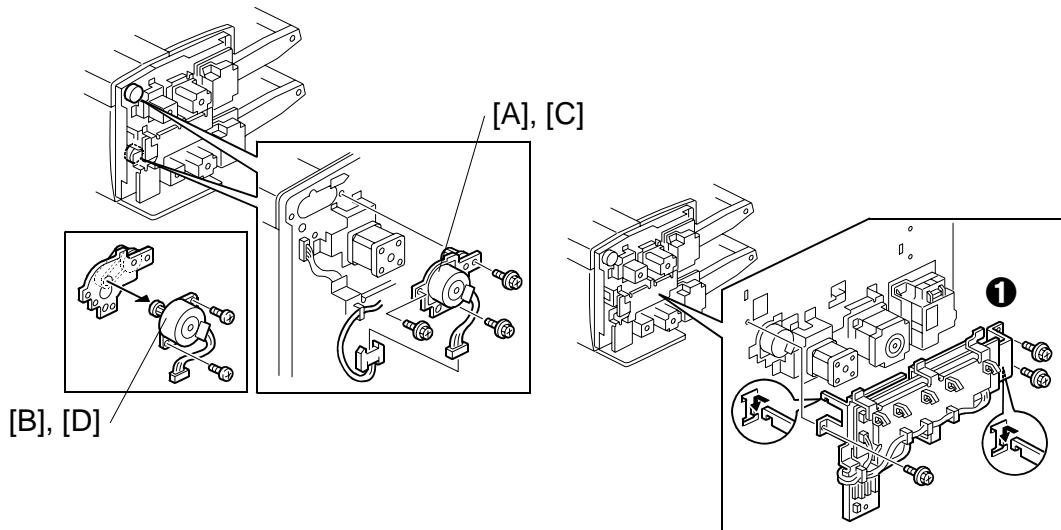
1st Transport Motor

- [A] 1st transport motor unit (☞ x3, ☎ x1)
- [B] 1st transport motor (☞ x2, Timing belt x1)

2nd Transport Motor

- ① Tray unit control board unit (Hooks, ☞ x3, ☎ x9 (Motor x8, CN216))
- [C] 2nd transport motor unit (☞ x3)
- [D] 2nd transport motor (☞ x2, Timing belt x1)

1.5.6 1ST, 2ND PICK-UP MOTORS



- Tray unit rear cover (☞1.1)

1st Pick-up Motor

- [A] 1st pick-up motor unit (☞ x1, ⚡ x3)
- [B] 1st pick-up motor (⚡ x2, Timing belt x1)

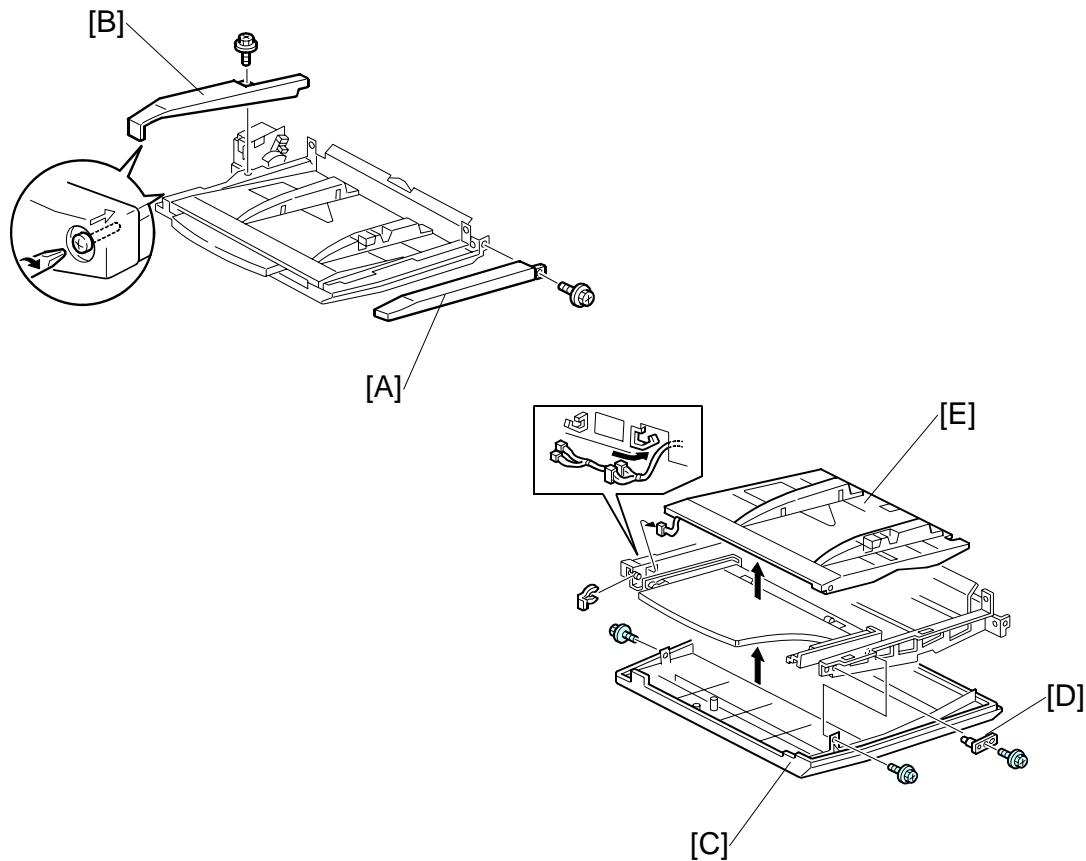
2nd Pick-up Motor

- ① Tray unit control board unit (Hooks, ⚡ x3, ☞ x9 (Motor x8, CN216))
- [C] 2nd pick-up motor unit (☞ x1, ⚡ x3)
- [D] 2nd pick-up motor (⚡ x2, Timing belt x1)

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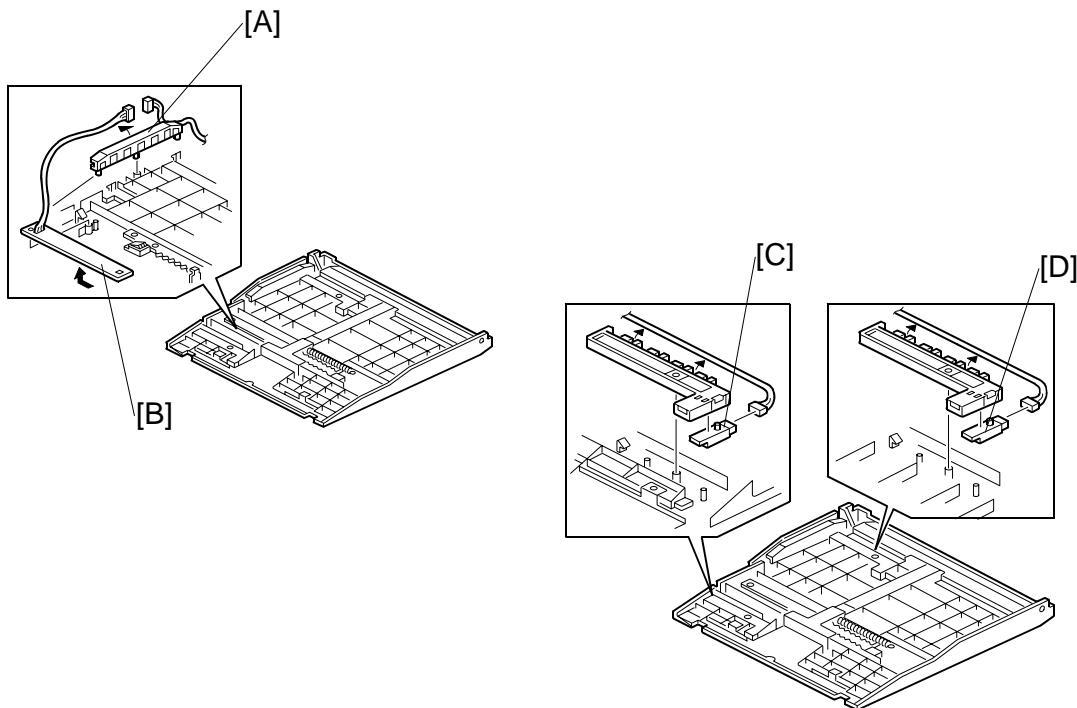
1.6 SENSORS

1.6.1 PAPER WIDTH SWITCH, SET SENSORS, LENGTH SENSOR



Remove:

- 1st or 2nd paper tray (☞1.2)
- [A] Front cover (☞x1)
- [B] Rear cover (☞x1)
- [C] Bottom cover (☞x2)
- [D] Holder pin (☞x1, Spring x1)
- [E] Bottom plate (☞x1)
- Turn over the bottom plate so it is facing up.

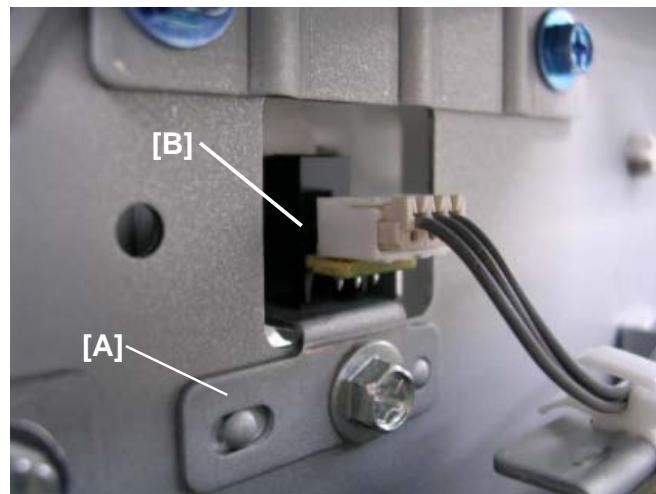


Remove:

- [A] Harness cover (Hooks x2)
- [B] Paper width switch (Hooks x2, x4, x1)
- [C] Paper set sensor (Hook x1, x1)
- [D] Paper length sensor (Hooks x1, x1)

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1.6.2 TRAY COVER SENSORS



1st Tray Cover Sensor

- Remove the tray unit rear cover (→1.1)
- Open the 1st tray cover

Remove:

- [A] Sensor unit (☞ x1, ↗ x1)
- [B] Tray cover sensor (Pawls x2)

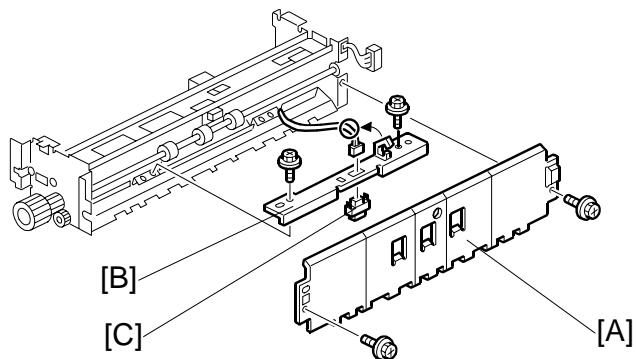
2nd Tray Cover Sensor

Remove the tray unit control board unit (→1.5.5)

Remove:

- [A] Sensor unit (☞ x1, ↗ x1). Remove with the 2nd tray cover open.
- [B] Tray cover sensor (Pawls x2)

1.6.3 1ST TRANSPORT SENSOR



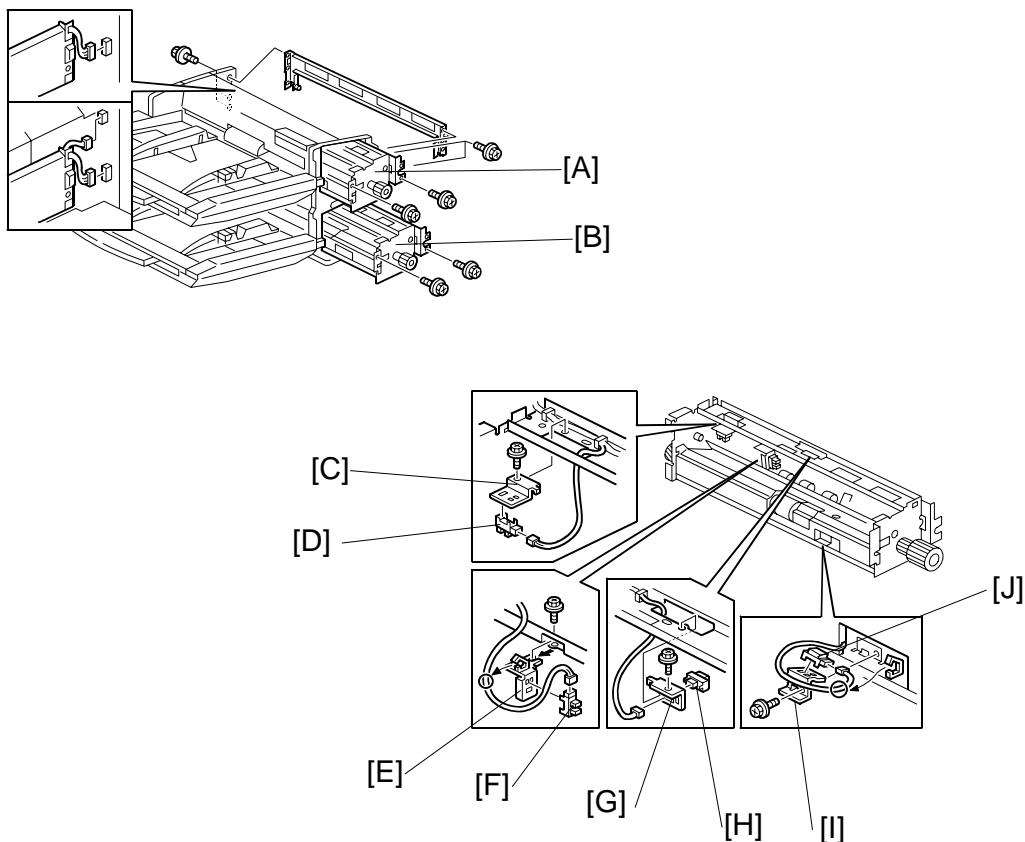
- Top cover
- Vertical feed cover
- Stay (Ø1.5)

Remove:

- [A] Upper paper guide (2 x2)
- [B] Sensor unit (2 x2, 2 x1, 2 x1)
- [C] 1st transport sensor (Pawls x2)

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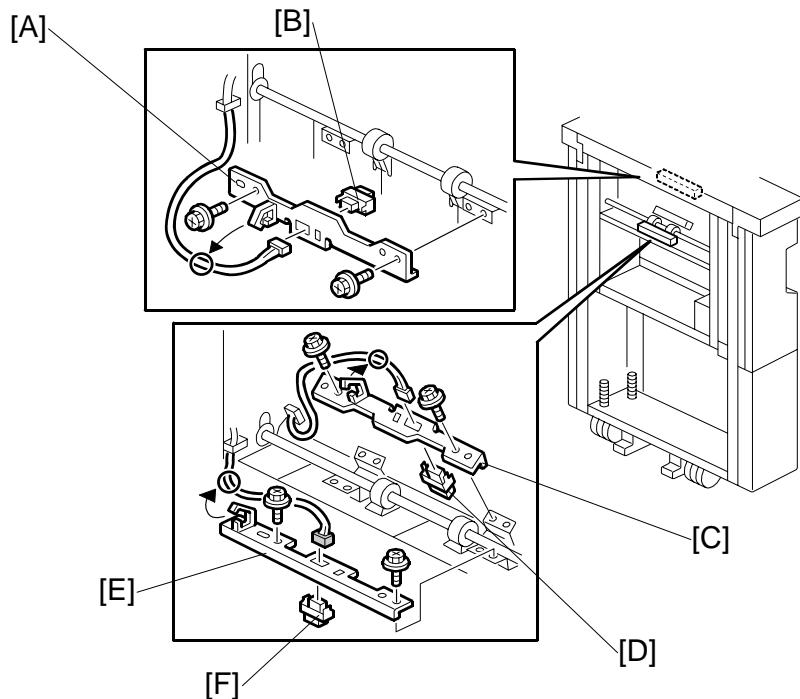
1.6.4 FEED UNIT SENSORS



Remove:

- [A] 1st feed unit (●1.3)
- [B] 2nd feed unit (●1.3)
- [C] Sensor bracket (↗ x1, ↘ x1)
- [D] Pick-up roller HP sensor (Pawls x2)
- [E] Sensor bracket (↗ x1, ↘ x1, ↙ 1x)
- [F] Bottom plate position sensor (Pawls x2)
- [G] Sensor bracket (↗ x1, ↘ x1) (2nd feed unit only)
- [H] 1st Vertical transport sensor (Pawls x2) (2nd feed unit only)
- [I] Sensor bracket (↗ x1, ↘ x1, ↙ 1x)
- [J] Paper Feed sensor (Pawls x2)

1.6.5 2ND VERTICAL TRANSPORT, EXIT SENSORS

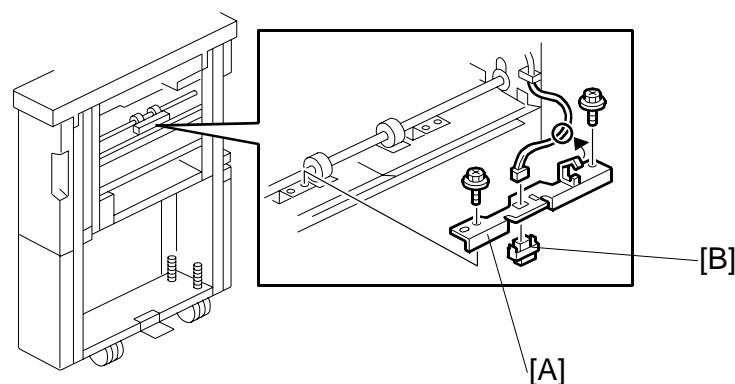


Remove:

- [A] Sensor unit (x1, x1, x1)
- [B] 2nd vertical transport sensor (Pawls x2)
- [C] Sensor unit (x2, x1, x1)
- [D] Vertical exit sensor (Pawls x2)
- [E] Sensor unit (x2, x1, x1)
- [F] Exit sensor (Pawls x2)

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1.6.6 ENTRANCE SENSOR

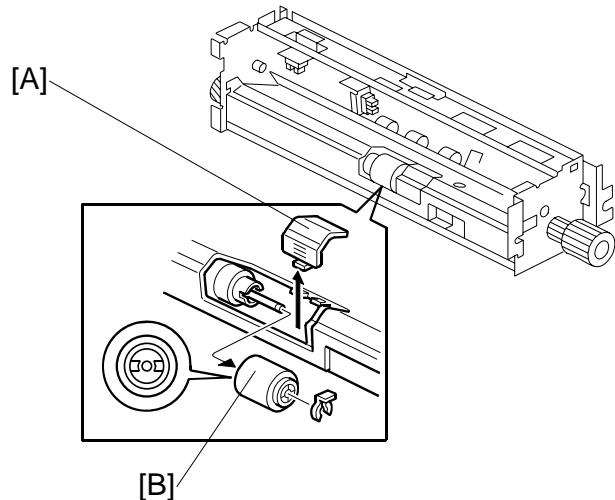


[A] Sensor unit ( x2,  x1,  x1)

[B] Entrance sensor (Pawls x2)

1.7 ROLLERS

1.7.1 SEPARATION ROLLER



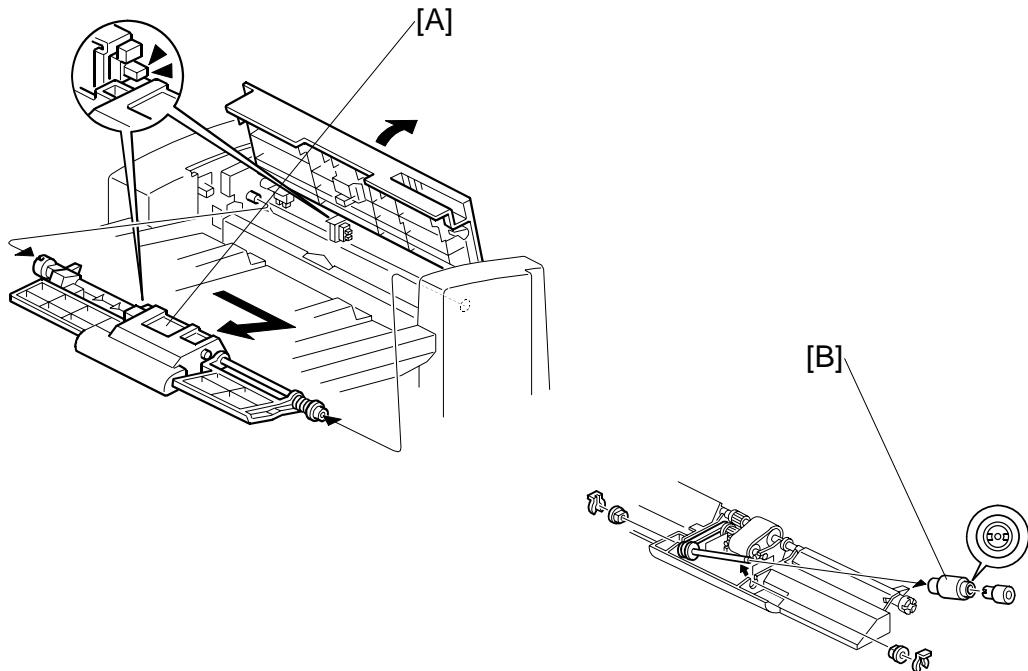
- 1st (or 2nd) feed unit (☞1.3)

[A] Cover

[B] Separation Roller (Ø x1)

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1.7.2 FEED BELT UNIT AND PICK-UP ROLLER



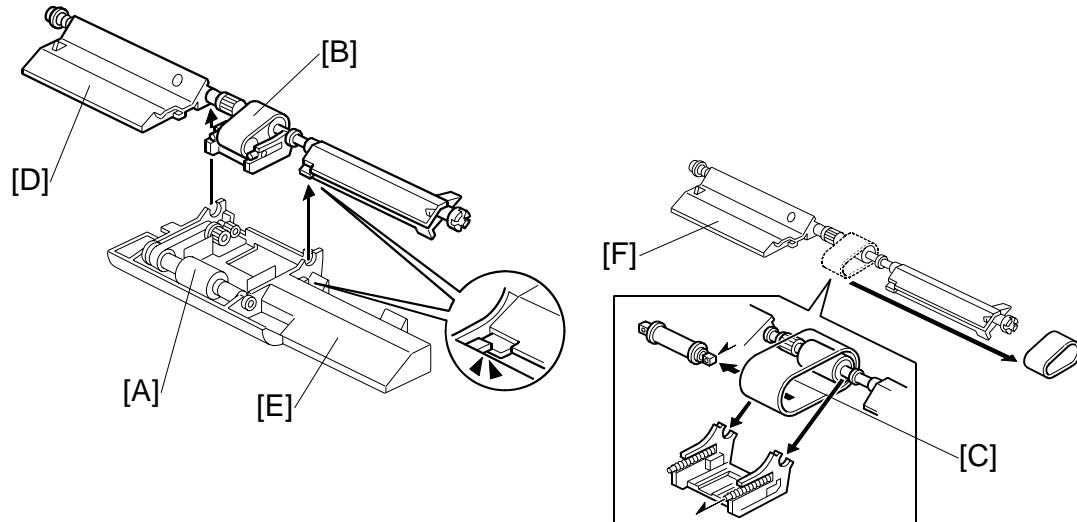
- Open the 1st tray cover.

[A]: Feed belt unit

- The unit is spring loaded. Push it to the right to release it, then lift it out.

[B]: Pick-up roller (Ø x 2, bushings x 2)

1.7.3 FEED BELT



- Feed belt unit (1.7.2)

[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.

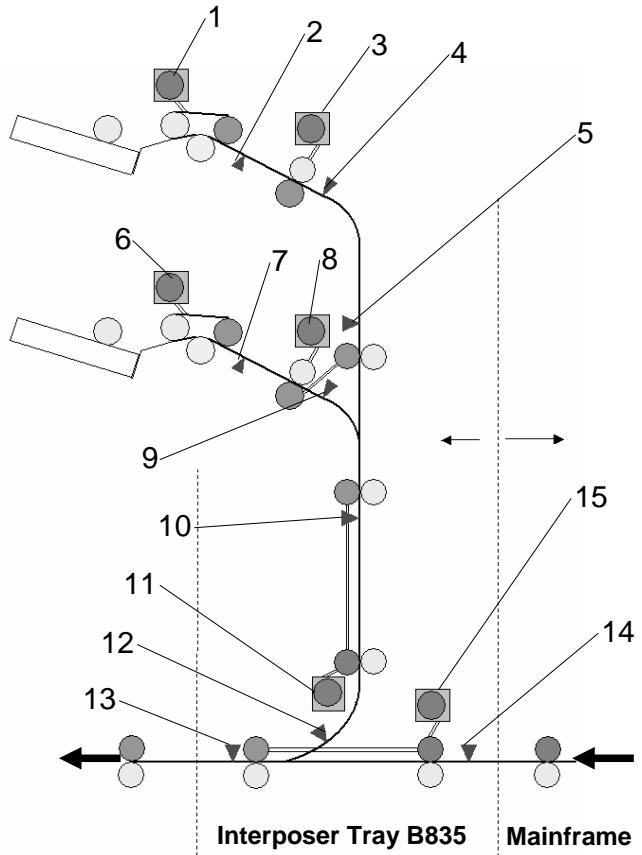
Re-assembly

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 guide plate [D] until its stepped side attaches at [E] as shown above, then snap the guide plate on.
3. On the front side, rotate guide plate [F] until its flat side is parallel with [D], then snap it on. Viewed from the bottom, the plates must be aligned.

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2. DETAILS

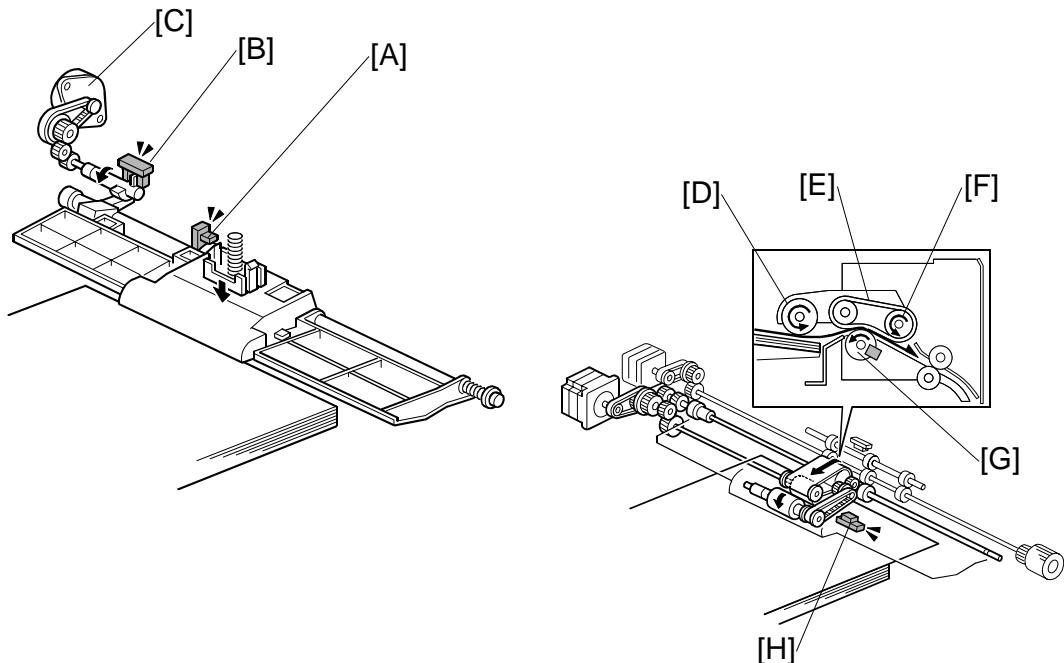
2.1 PAPER PATH



- | | |
|----------------------------------|-----------------------------------|
| 1. 1st Paper Feed Motor | 9. 2nd Transport Sensor |
| 2. 1st Paper Feed Sensor | 10. 2nd Vertical Transport Sensor |
| 3. 1st Transport Motor | 11. Vertical Transport Motor |
| 4. 1st Transport Sensor | 12. Vertical Exit Sensor |
| 5. 1st Vertical Transport Sensor | 13. Interposer Exit Sensor |
| 6. 2nd Paper Feed Motor | 14. Interposer Entrance Sensor |
| 7. 2nd Paper Feed Sensor | 15. Horizontal Transport Motor |
| 8. 2nd Transport Motor | |

2.2 PAPER FEED

2.2.1 FEED MECHANISM



When paper is placed on the tray, the 1st paper set sensor in the tray actuates and switches on the 1st tray lift motor. The pick-up roller unit drops and the top of the stack in the tray pushes up the pick-up roller unit until its actuator actuates the 1st bottom plate position sensor [A] and switches the motor 1st tray lift motor off.

The 1st pick-up roller HP sensor [B] controls the operation of the 1st pick-up motor [C]. The 1st pick-up motor is off when the actuator is up and there is no paper in the tray. This is the pick-up roller home position. When the actuator de-actuates the sensor after the tray lifts, this switches on the 1st pick-up roller motor. At the end of the job, the actuator descends with the bottom plate and switches the motor off.

The pick-up roller [D] picks up the sheet, and the feed belt [E] feeds the sheet to the paper feed roller [F]. The separation roller [G] reverses if more than one sheet is fed. This is a standard FFR device.

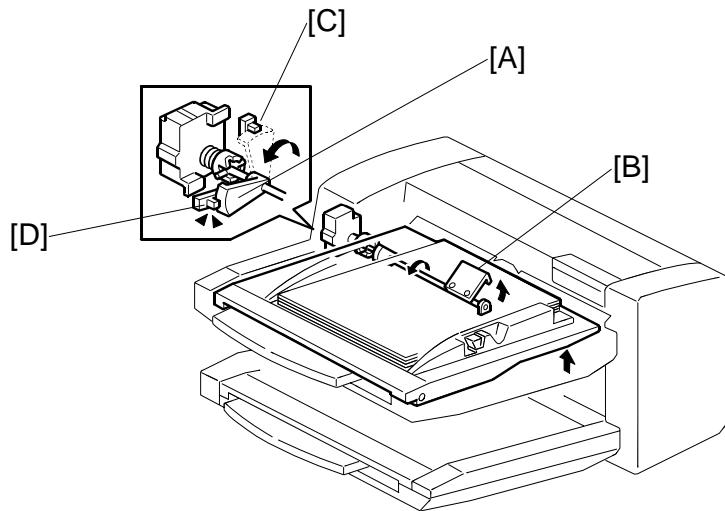
The paper feed sensor [H] detects the timing of the feed and signals a jam if the paper does not arrive or if the paper stops.

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 1st bottom plate position sensor [A]. This activates the 1st tray lift motor.
- The 1st tray lift motor switches on to raise the stack until the actuator enters the pick-up roller unit position sensor again and switches the lift motor off.
- This cycle repeats until the end of the job or until paper runs out.

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2.2.2 PAPER NEAR END/PAPER END

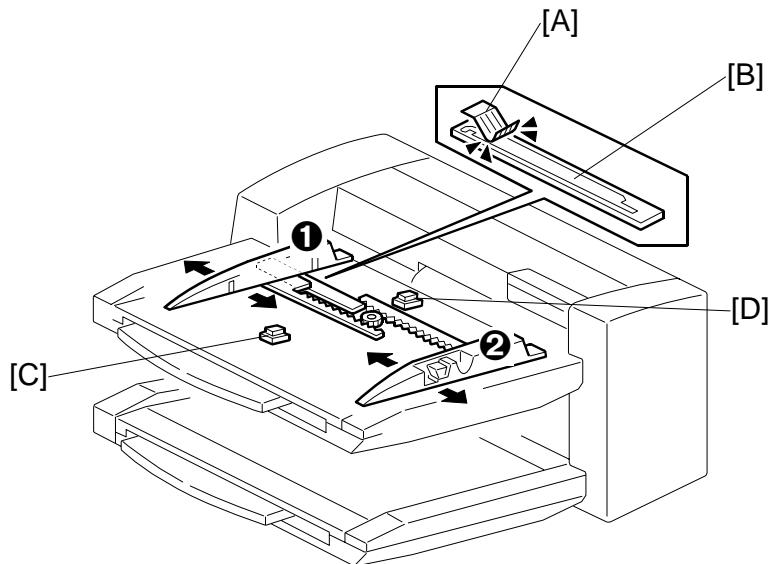


When feed starts with a full tray, the actuator [A] on the rotating shaft of the bottom plate lift arm [B] is at the 1st tray lower limit sensor [C].

As paper feeds and the stack grows smaller, the lift arm rises and the actuator descends until the actuator reaches the 1st tray upper limit sensor [D]. At this time the operation panel signals near-end for the 1st tray.

When the last sheet feeds, the paper feed sensor, a photosensor (not shown) signals that paper has run out.

2.2.3 PAPER SIZE DETECTION



The side fences ① and ② can be adjusted to standard and non-standard paper sizes.

When the side fences are moved to match the paper width, a feeler [A] slides along the wiring patterns on the paper width switch terminal plate [B].

The combination of the following two factors determines the paper size:

- The position where the feeler activates the terminal
- The status of the paper length sensor [C] (ON or OFF).

The paper end sensor [D] de-activates when the last sheet is fed and reports that the paper tray is empty.

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DETAILS

The paper size is detected by six sensors whose combined readings are used to detect the following paper sizes.

| Paper Size Detection Bits | | | | | | | Area | |
|--|----|----|----|----|----|----|------|-----|
| Paper Size | W1 | W2 | W3 | W4 | W5 | L1 | NA | EU |
| Large Size 12×18 in. | H | H | H | H | L | L | YES | YES |
| Large Size 13×19 in. | H | H | H | H | L | L | * | * |
| Large Size 320×450 mm | H | H | H | H | L | L | * | * |
| A3 SEF 297×420 mm | H | H | H | L | L | L | YES | YES |
| A4 LEF 297×210 mm | H | H | H | L | L | H | YES | YES |
| DLT SEF 11×17 in. | H | H | H | L | H | L | YES | YES |
| LT LEF $11 \times 8\frac{1}{2}$ in. | H | H | H | L | H | H | YES | YES |
| B4 SEF 257×364 mm | H | H | L | L | H | L | YES | YES |
| B5 LEF 257×182 mm | H | H | L | L | H | H | YES | YES |
| A4 SEF 210×297 mm | H | H | L | H | H | L | YES | YES |
| LT SEF $8\frac{1}{2} \times 11$ in. | H | H | L | H | H | L | YES | * |
| A5 LEF 210×148 mm | H | H | L | H | H | H | * | YES |
| HLT LEF $8\frac{1}{2} \times 5\frac{1}{2}$ in. | H | H | L | H | H | H | YES | * |
| B5 SEF 182×257 mm | H | L | L | H | H | L | * | * |
| F SEF 8×13 in. | H | L | L | H | H | L | YES | YES |
| A5 SEF 148×210 mm | H | L | H | H | H | H | YES | YES |
| HLT SEF $5\frac{1}{2} \times 8\frac{1}{2}$ in. | L | L | H | H | H | H | YES | YES |

Yes: Width and length sensors can detect paper sizes automatically.

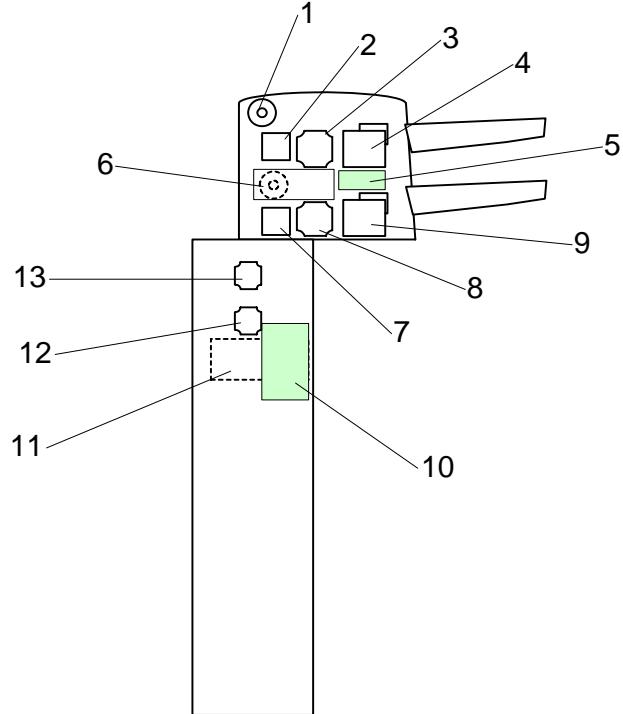
*: Accurate paper size detection requires setting with the "Tray Paper Setting" key on the operation panel.

H: 5V

L: 0V

3. OVERALL MACHINE INFORMATION

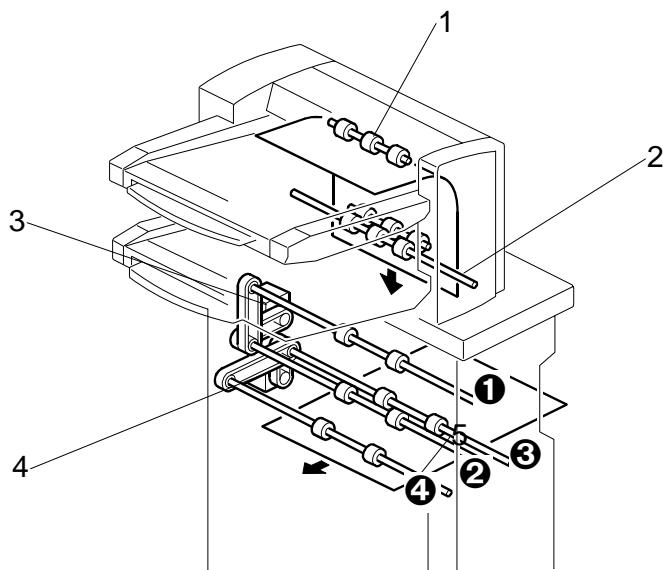
3.1 MAIN LAYOUT



- | | |
|-------------------------|----------------------------------|
| 1. 1st Pick-up Motor | 8. 2nd Paper Feed Motor |
| 2. 1st Transport Motor | 9. 2nd Lift Motor |
| 3. 1st Paper Feed Motor | 10. Control Board |
| 4. 1st Lift Motor | 11. Door Open Switch (Interlock) |
| 5. Driver Board | 12. Horizontal Transport Motor |
| 6. 2nd Pick-up Motor | 13. Vertical Transport Motor |
| 7. 2nd Transport Motor | |

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3.2 DRIVE LAYOUT



1. 1st Transport roller
2. 2nd Transport roller
3. Vertical Transport Motor
4. Horizontal Transport Motor

The 1st transport roller [1] (driven by the 1st transport motor) pulls the paper from the 1st tray and feeds it into the vertical paper path.

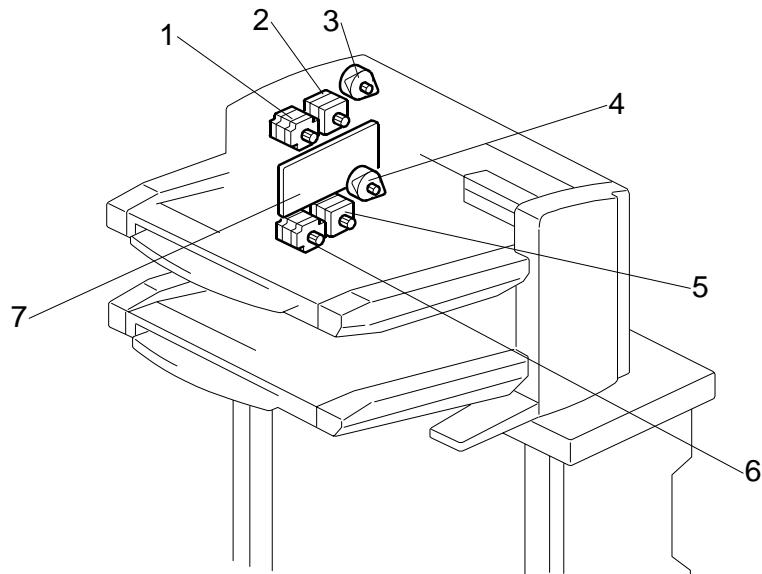
The 2nd transport roller [2] (driven by the 2nd transport motor) pulls the paper from the 2nd tray and feeds it into the vertical path.

The vertical transport motor [3] drives the vertical transport rollers ❶ and ❷ that feed the sheets into the horizontal feed path.

The horizontal transport motor [4] drives the horizontal transport rollers ❸ and ❹ that feed the covers (and paper passing straight through) out of the cover interposer tray.

3.3 ELECTRICAL COMPONENTS

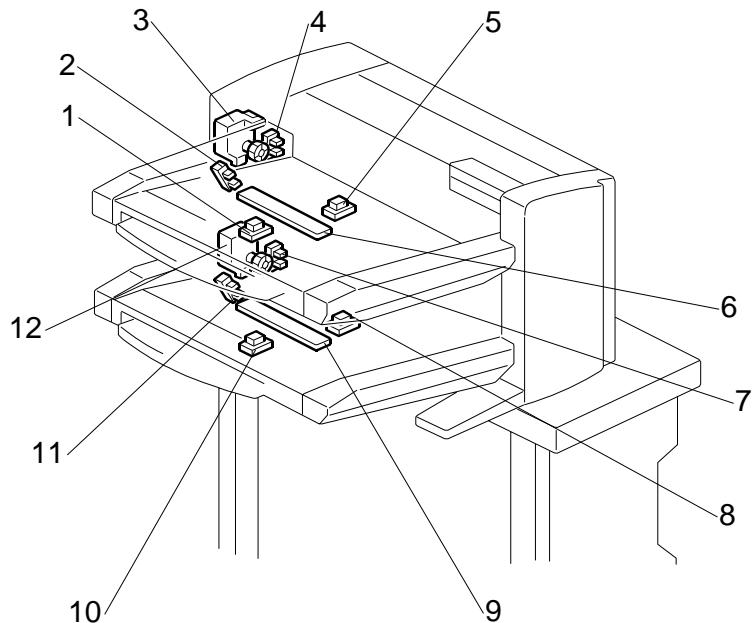
3.3.1 FEED MOTORS, PCB



1. 1st Paper Feed Motor
2. 1st Transport motor
3. 1st Pick-Up Motor
4. 2nd Pick-Up Motor
5. 2nd Transport motor
6. 2nd Paper Feed Motor
7. Tray Unit Control Board

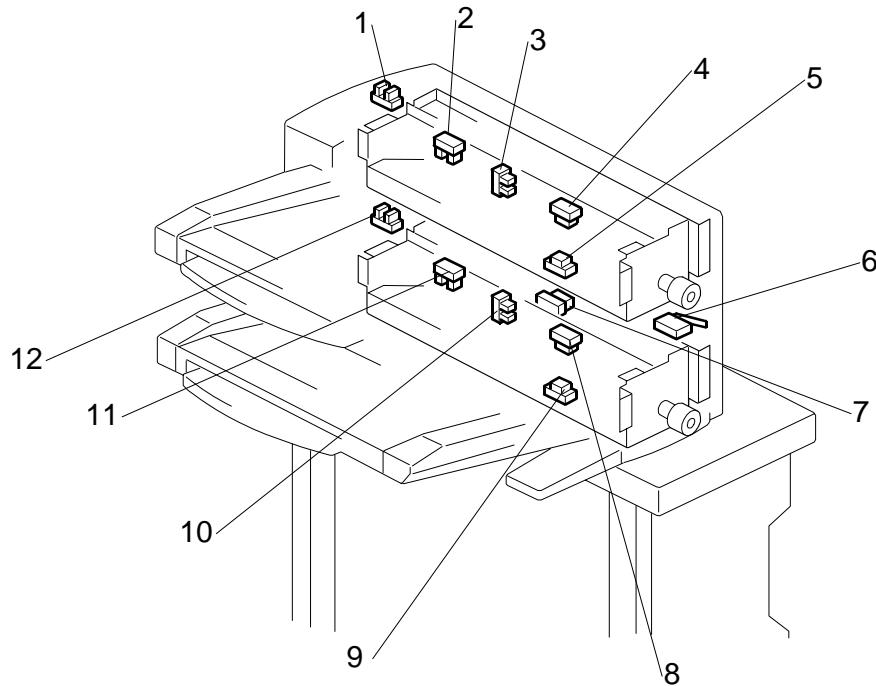
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3.3.2 LIFT MOTORS, TRAY SENSORS



- | | |
|---------------------------------|----------------------------------|
| 1. 1st Paper Length Sensor | 7. 2nd Lower Limit Sensor |
| 2. 1st paper upper limit sensor | 8. 2nd paper set sensor |
| 3. 1st Lift Motor | 9. 2nd Paper Width Sensor |
| 4. 1st Lower Limit Sensor | 10. 2nd Paper Length Sensor |
| 5. 1st paper set sensor | 11. 2nd paper upper limit sensor |
| 6. 1st Paper Width Sensor | 12. 2nd Lift Motor |

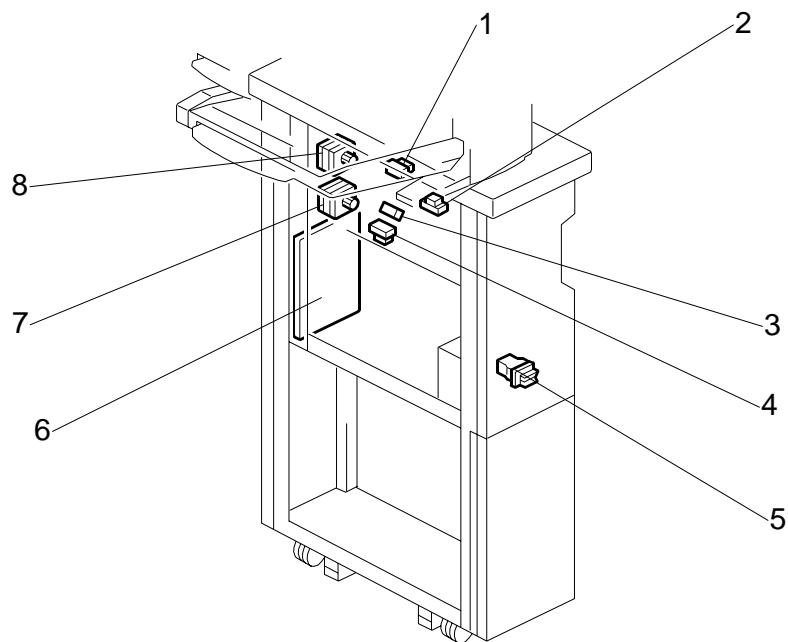
3.3.3 PAPER PATH SENSORS 1



- | | |
|-------------------------------------|--------------------------------------|
| 1. 1st Tray Cover Sensor | 7. 1st Vertical Transport Sensor |
| 2. 1st Pick-Up Roller HP Sensor | 8. 2nd Transport Sensor |
| 3. 1st bottom plate position sensor | 9. 2nd Paper Feed Sensor |
| 4. 1st Transport Sensor | 10. 2nd bottom plate position sensor |
| 5. 1st Paper Feed Sensor | 11. 2nd Pick-Up Roller HP Sensor |
| 6. Vertical Feed Cover Switch | 12. 2nd Tray Cover Sensor |

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3.3.4 PAPER PATH SENSORS 2, PCB



1. 2nd Vertical Transport Sensor
2. Entrance Sensor
3. Vertical Exit Sensor
4. Exit Sensor
5. Feed Unit Front Door Safety Switch
6. Main Control Board
7. Horizontal Transport Motor
8. Vertical Transport Motor

3.3.5 ELECTRICAL COMPONENT SUMMARY

| Motors | | |
|---------------|----------------------------|---|
| No. | Name | Description |
| M1 | 1st Lift Motor | Drives the bottom plate of the 1st tray up and down. |
| M2 | 1st Paper Feed Motor | Rotates the feed rollers that feed paper from the 1st tray. |
| M3 | 1st Pick-up Motor | Moves the 1st pick-up roller up and down. |
| M4 | 1st Transport Motor | Drives the 1st Transport roller that takes the paper fed from the 1st feed roller and feeds it to the vertical path. |
| M5 | 2nd Feed Motor | Rotates the feed rollers that feed paper from the 2nd tray. |
| M6 | 2nd Lift Motor | Drives the bottom plate of the 2nd tray up and down. |
| M7 | 2nd Pick-up Motor | Moves the 2nd pick-up roller up and down. |
| M8 | 2nd Transport Motor | Drives the 2nd Transport roller that takes the paper fed from the 1st feed roller and feeds it to the vertical path. |
| M9 | Horizontal Transport Motor | Drives the rollers in the horizontal path that feed paper from the copier and covers from the vertical path out of the cover interposer tray. |
| M10 | Vertical Transport Motor | Drives the rollers in the vertical path that feed the covers down to the horizontal path. |

| PCBs | | |
|-------------|--------------------|---|
| No. | Name | Description |
| PCB1 | Driver Board | Controls operation of the unit. (All DIP SWs should be set to OFF.) |
| PCB2 | Main Control Board | |

| Sensors | | |
|----------------|------------------------------|--|
| No. | Name | Description |
| S1 | 1st Tray Cover Sensor | Detects when the 1st tray cover is open/closed. |
| S2 | 1st Lower Limit Sensor | Detects 1) whether the 1st tray is down or not when the tray is not operating, and 2) detects when the tray is full when the 1st tray is operating. |
| S3 | 1st paper set sensor | Detects paper end after the last sheet feeds from the 1st tray. |
| S4 | 1st Paper Feed Sensor | Detects paper placed on the tray and starts the 1st lift motor to raise the bottom plate. This sensor also detects a jam if the paper stops and does not leave the 1st tray. |
| S5 | 1st Paper Length Sensors | Used in combination with 1st tray width sensors to determine the size of paper in the 1st tray. |
| S6 | 1st paper upper limit sensor | When an actuator falls into the gap of this sensor, this signals paper near end in the 1st tray. |
| S7 | 1st Pick-up Roller HP Sensor | Detects whether the 1st pick-up roller is up or not. |
| S8 | 1st Transport Sensor | Detects jams at the point where the 1st Transport roller pulls paper from the 1st tray. |
| S9 | 1st Transport Sensor | Detects jams in the path of the 1st tray. |

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OVERALL MACHINE INFORMATION

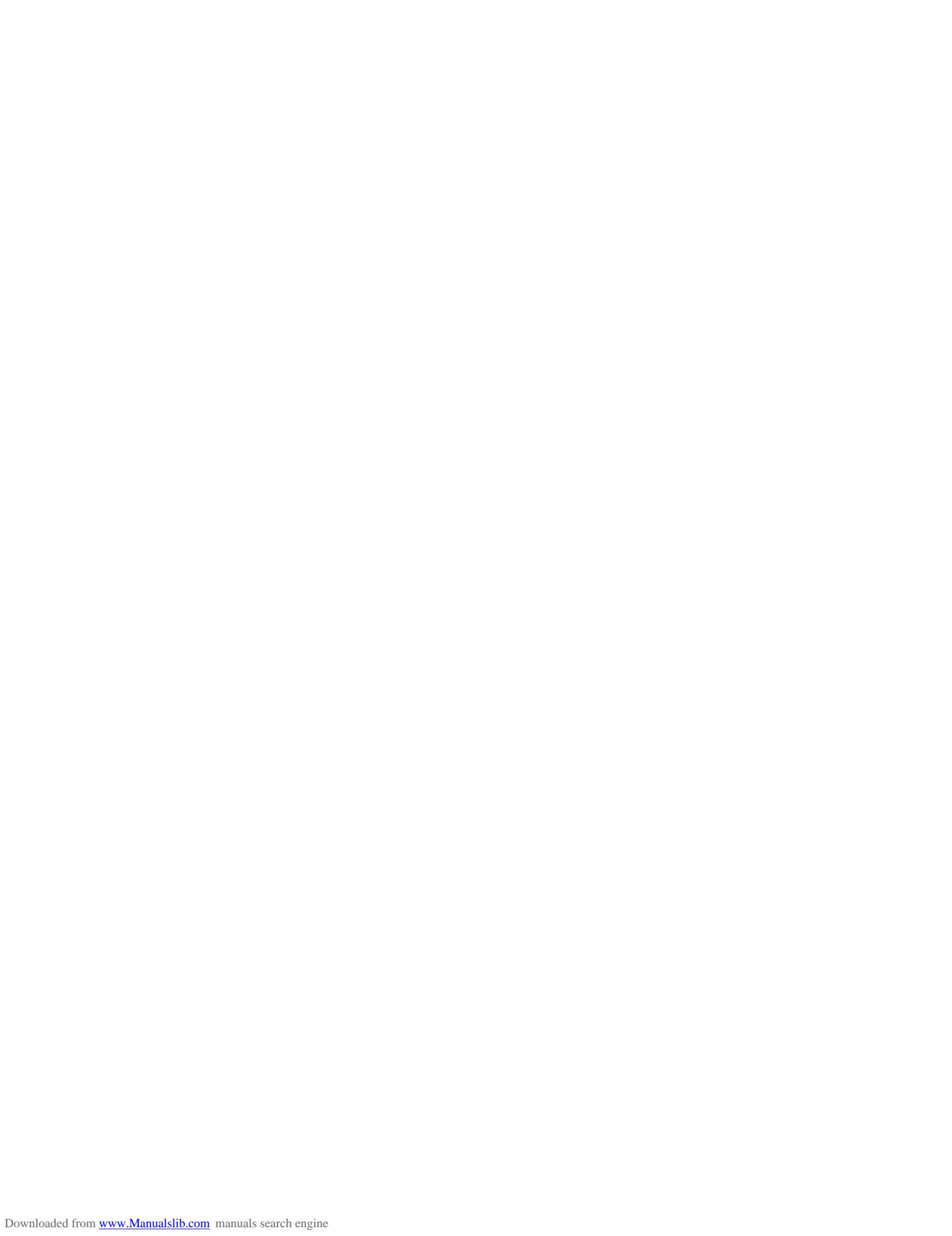
| Sensors | | |
|----------------|----------------------------------|---|
| No. | Name | Description |
| S10 | 1st bottom plate position sensor | Detects the top of the paper stack in the 1st tray when it is at the proper height for feeding and stops the 1st lift motor. |
| S11 | 2nd Lower Limit Sensor | Detects 1) whether the 2nd tray is down or not when the tray is not operating, and 2) detects when the tray is full when the 2nd tray is operating. |
| S12 | 2nd tray cover sensor | Detects when the 2nd tray cover is open/closed. |
| S13 | 2nd paper set sensor | Detects paper placed on the tray and starts the 2nd lift motor to raise the bottom plate. This sensor also detects a jam if the paper stops and does not leave the 2nd tray |
| S14 | 2nd Paper Feed Sensor | Detects jams when the feed roller feeds paper from the 2nd tray. |
| S15 | 2nd Paper Length Sensor | Used in combination with 1st tray width sensors to determine the size of paper in the 1st tray. |
| S16 | 2nd paper upper limit sensor | When an actuator falls into the gap of this sensor, this signals paper near end in the 2nd tray. |
| S17 | 2nd Pick-up Roller HP Sensor | Detects whether the 2nd pick-up roller is up or not. |
| S18 | 2nd Transport Sensor | Detects jams at the point where the 2nd Transport roller pulls paper from the 1st tray. |
| S19 | 2nd bottom plate position sensor | Detects the top of the paper stack in the 2nd tray when it is at the proper height for feeding and stops the 2nd lift motor. |
| S20 | 2nd Vertical Transport Sensor | Detects jams in the vertical path after a sheet is fed from the 2nd tray. |
| S21 | Entrance Sensor | Detects paper jams where paper from the copier enters the unit in the horizontal feed path. |
| S22 | Exit Sensor | Detects jams where through-paper and covers exit the unit. |
| S23 | Vertical Exit Sensor | Detects jams where through-paper and covers exit the vertical feed path. |

| Switches | | |
|-----------------|------------------------|---|
| No. | Name | Description |
| SW1 | Front Door Switch | Detects whether the front door is properly closed. The unit will not operate when the front door is open. |
| SW2 | Transport Cover Switch | This is the cover on the right side of the tray unit. Detects whether the cover is opened or closed. |
| SW3 | 1st Paper Width Switch | Used in combination with the length sensors to determine the size of paper in the 1st tray. |
| SW4 | 2nd Paper Width Switch | Used in combination with the length sensors to determine the size of paper in the 2nd tray. |

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| BOOKLET FINISHER BK5000 (B836) REVISION HISTORY | | |
|--|-------------|-------------------------------|
| Page | Date | Added/Updated/New |
| 22 | 09/01/2006 | Updated Electrical Components |



BOOKLET FINISHER B836

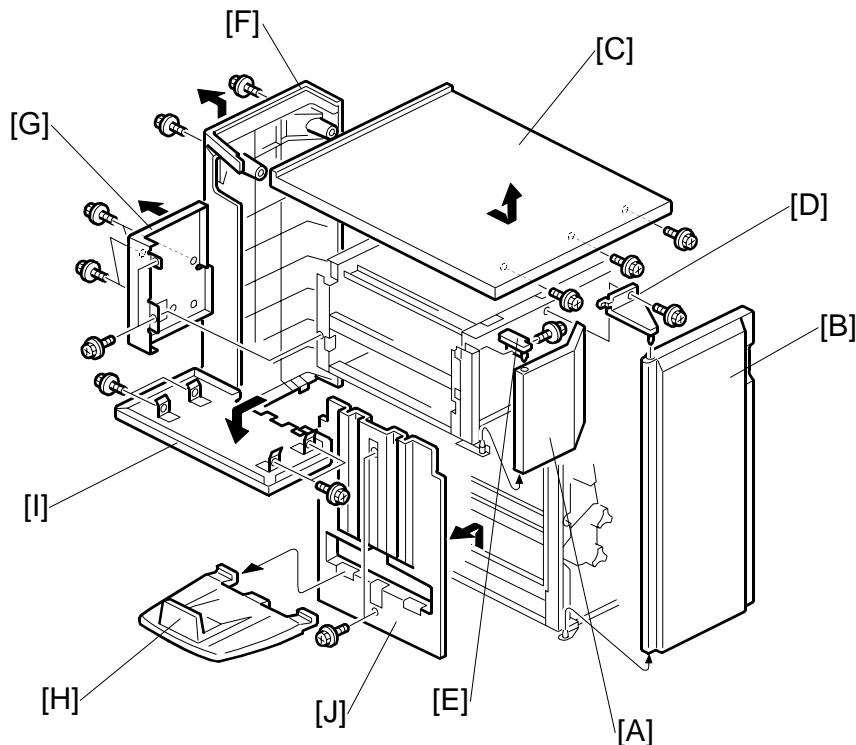
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1. REPLACEMENT AND ADJUSTMENT

1.1 DOORS, COVERS, OUTPUT TRAY



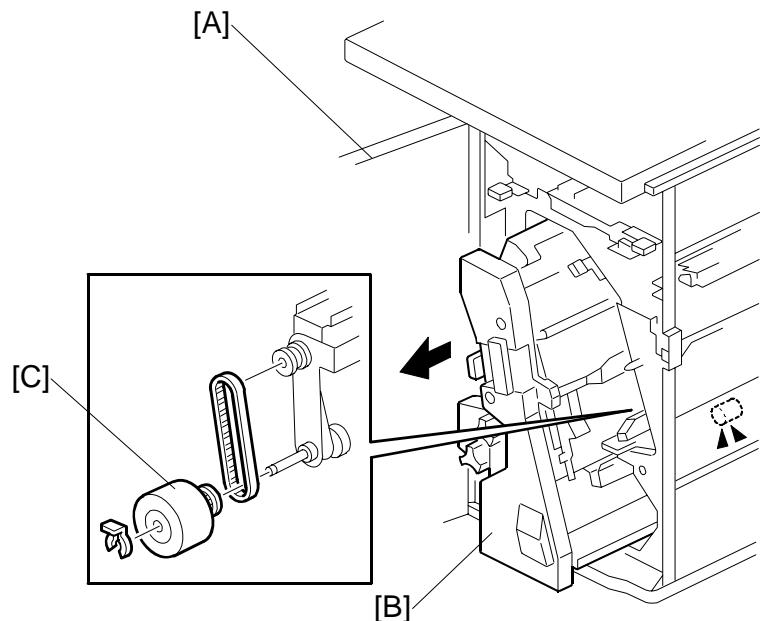
Booklet
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1. Open the left front door [A].
2. Open the right front door [B].

Remove:

- [C] Top cover (x3)
 - Slide the top cover toward the front of the finisher and lift it off.
- [D] Front right door bracket (x1) and remove the door.
- [E] Front left door bracket (x1) and remove the door.
- [F] Rear left cover (x2)
- [G] Rear right cover (x6)
- [H] Output tray
- [I] Bottom cover (x4)
- [J] Left cover (x2)

1.2 POSITIONING ROLLER

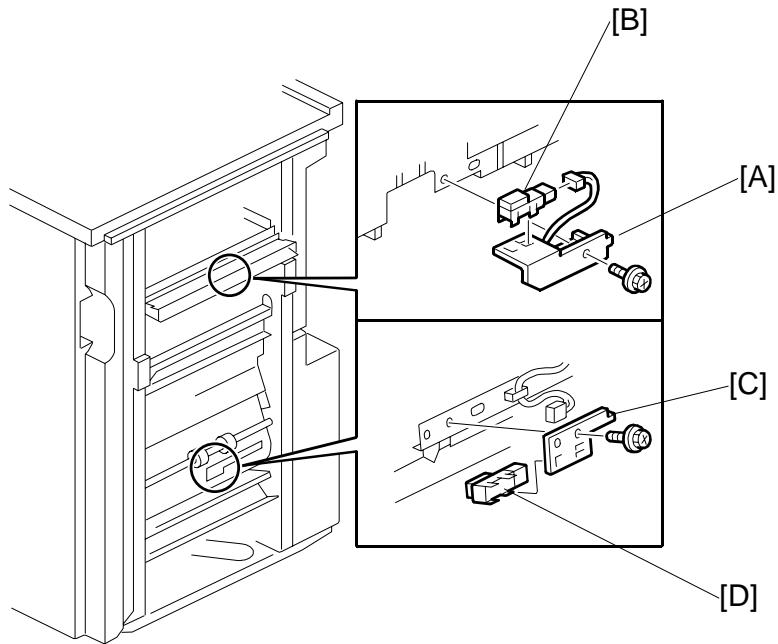


[A]: Open the front door.

[A]: Pull out the stapling unit.

[B]: Positioning roller (Ø x1, timing belt x1)

1.3 ENTRANCE SENSOR, STACK TRAY EXIT SENSOR



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- Disconnect the finisher if it is connected to the copier.

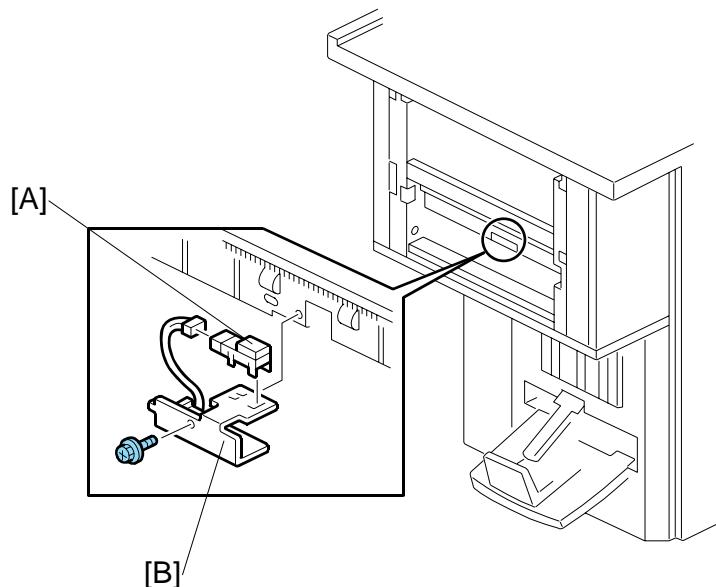
Finisher Entrance Sensor

- [A]: Sensor bracket (φ x1)
[B]: Finisher entrance sensor (□ x1)

Stack Tray Exit Sensor

- [C]: Sensor bracket (φ x1, □ x1)
[D]: Finisher entrance sensor

1.4 FINISHER EXIT SENSOR



Remove:

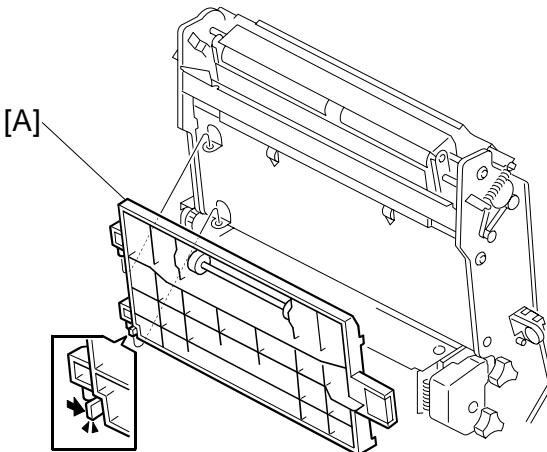
- [A]: Sensor bracket (x1)
- [B]: Finisher exit sensor (x1)

1.5 FOLD UNIT EXIT SENSOR

- Open the front door.

- Pull out the stapling tray.

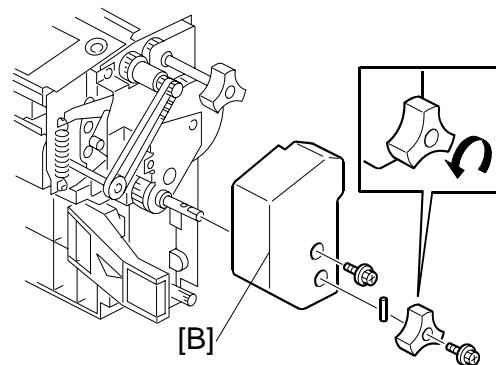
[A]: Fold unit vertical guide plate



[B]: Fold unit inner cover

(x2, Pin x1)

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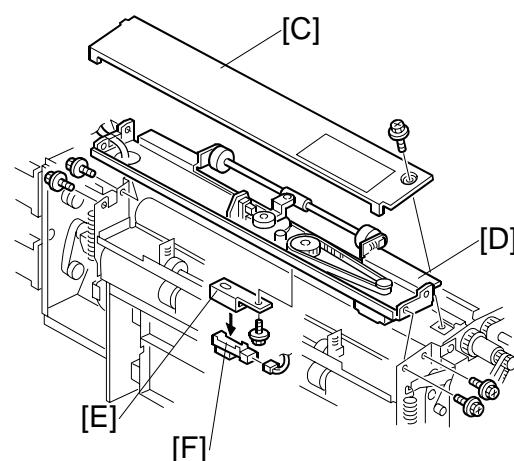


[C]: Fold unit upper cover (x1)

[D]: Paper clamp unit (x4)

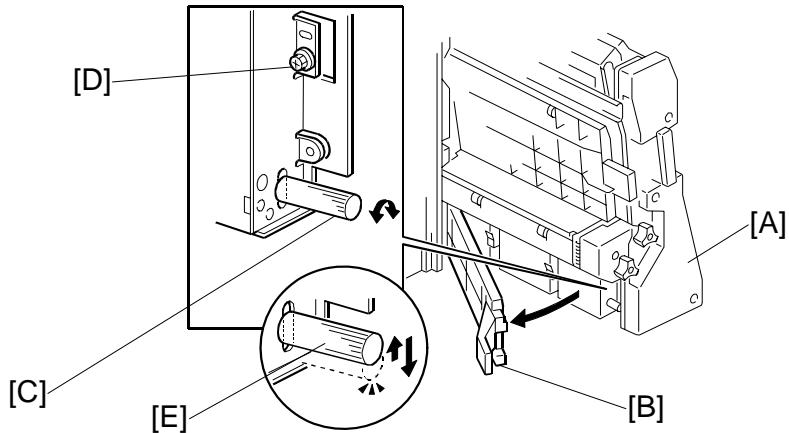
[E]: Fold unit exit sensor bracket
(x1, x1)

[F]: Fold unit exit sensor



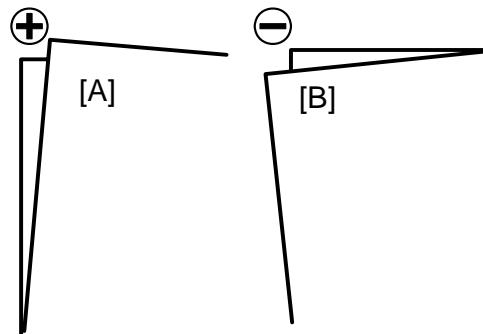
1.6 FOLD ADJUSTMENTS

1.6.1 FOLDING HORIZONTAL SKEW ADJUSTMENT



Important

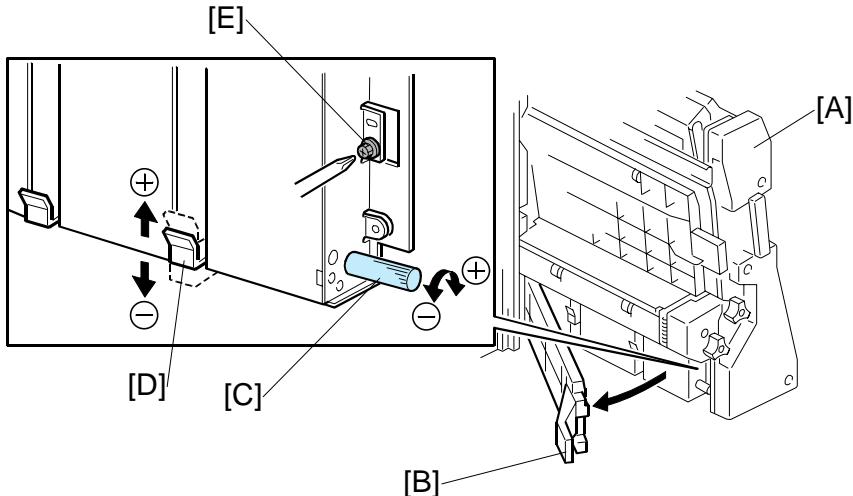
- The fold unit is adjusted for optimum performance before the finisher is shipped from the factory. Do this adjustment only if the edges of folded booklets are not even.
1. Switch the copier on and enter the SP mode.
 2. Europe, Asia: Use **SP 6201 001** (this is for A3 paper).
North America: Use **SP 6201 006** (this is for DLT paper).
[A]: If the original setting of **SP6201 001** or **006** is not 0, then you must do the vertical skew adjustment (☞1.6.2) after you finish this horizontal skew procedure.
 3. Use the 10-key pad to input "**-2**" (mm) for the SP value.
[B]: (Press [**·/***] to enter the minus sign.)
 4. Press [**#**] then exit the SP mode.
 5. Open the front door and pull the stapling unit [A] out of the finisher.
 6. Open the guide plate [B].
 7. Loosen the adjustment screw [C] and then tighten until it stops. (Do not over tighten.)
 8. Remove the lock screw [D].
 9. Raise the tip [E] of the adjustment screw very slightly and allow it to descend under its own weight.



10. Push the stapling unit into the finisher and close the front door.
11. Do a folding test.
 - Switch the copier on.
 - Put one page of A3 or DLT paper in the ARDF.
 - On the copier operation panel, select booklet stapling.
 - Press [Start]. One sheet is folded.
12. Remove the sheet from the booklet output tray.
13. Hold the folded sheet with the creased side pointing down and face-up (the same way that it came out of the finisher).
14. Referring to the diagram, determine if the skew is + [A] or - [B].

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REPLACEMENT AND ADJUSTMENT



15. Open the front door of the finisher and pull the stapling unit [A] out.
16. Open the guide plate [B].
17. Turn the adjustment screw [C] to correct the amount of skew you measured from the test sheet.
 - For + skew ([A] on the previous page), turn the adjustment screw (clockwise).
 - For – skew ([B] on the previous page), turn the adjustment screw to the left (counter-clockwise).
 - Every click in the +/- direction adjusts the fold position by 0.1 mm by moving the bottom fence [D]
18. Raise the tip of the adjustment screw [C] and allow it to lower under its own weight.
19. Attach and tighten the lock screw [E].
20. Push the stapling unit into the machine, close the front door, then turn the copier on.
21. Europe, Asia: Do **SP 6201 001** (this is for A3 paper).
North America: Do **SP 6201 006** (this is for DLT paper).
22. Reset it to "0".
23. Do the test again.
24. If the result is satisfactory, this completes the adjustment.
-Or-
If some skew remains, repeat this adjustment.
[C]: After doing this adjustment, adjust for vertical skew, if necessary. (→1.6.2).

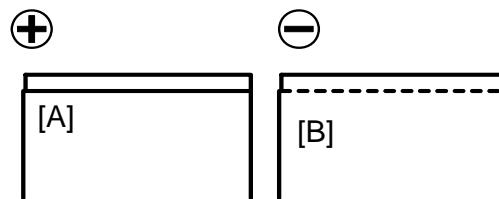
1.6.2 FOLD VERTICAL SKEW ADJUSTMENT

Important

- The fold unit is adjusted for optimum performance before the finisher is shipped from the factory. Do this adjustment only if the edges of folded booklets are not even.

- Switch the copier on.
- Do a folding test.
 - Switch the copier on.
 - Put one page of A3 or DLT paper in the ARDF.
 - On the copier operation panel, select booklet stapling.
 - Press [Start]. One sheet is folded.

- Hold the folded sheet with the creased side pointing down, and face-up (the same way that it came out of the finisher).



- Referring to the diagram, determine if the skew is positive [A] or negative [B].
- Measure the amount of skew.
- Enter the SP mode
 - Europe, Asia: Use **SP 6201 001** (this is for A3 paper).
 - North America: Use **SP 6201 006** (this is for DLT paper).

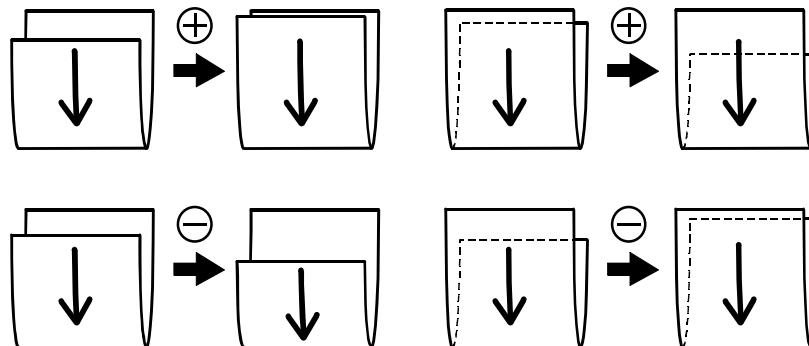
- Enter one-half the measured amount of skew.

Example: If the measure amount of skew is -1.2 mm, enter -0.6 mm

[D]: The range for measurement is -3.0 mm to +3.0 mm in 0.2 mm steps for every notch adjustment.

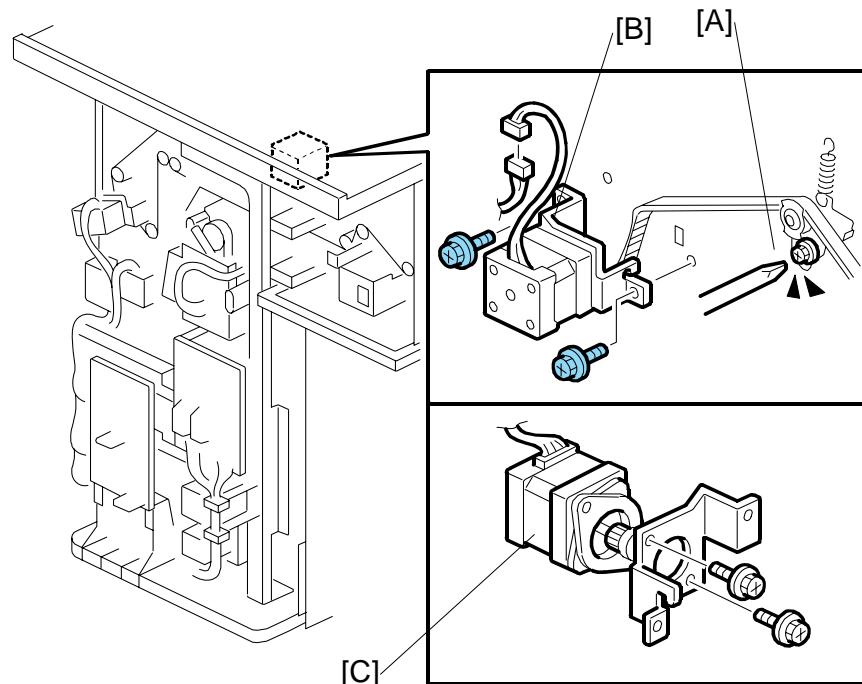
- Exit the SP mode and do the test again (steps 2 to 5).
- Repeat this procedure until the skew is corrected.

The illustration below shows the effects of +/- adjustment with **SP6201**. (The vertical arrows show the direction of paper feed.)



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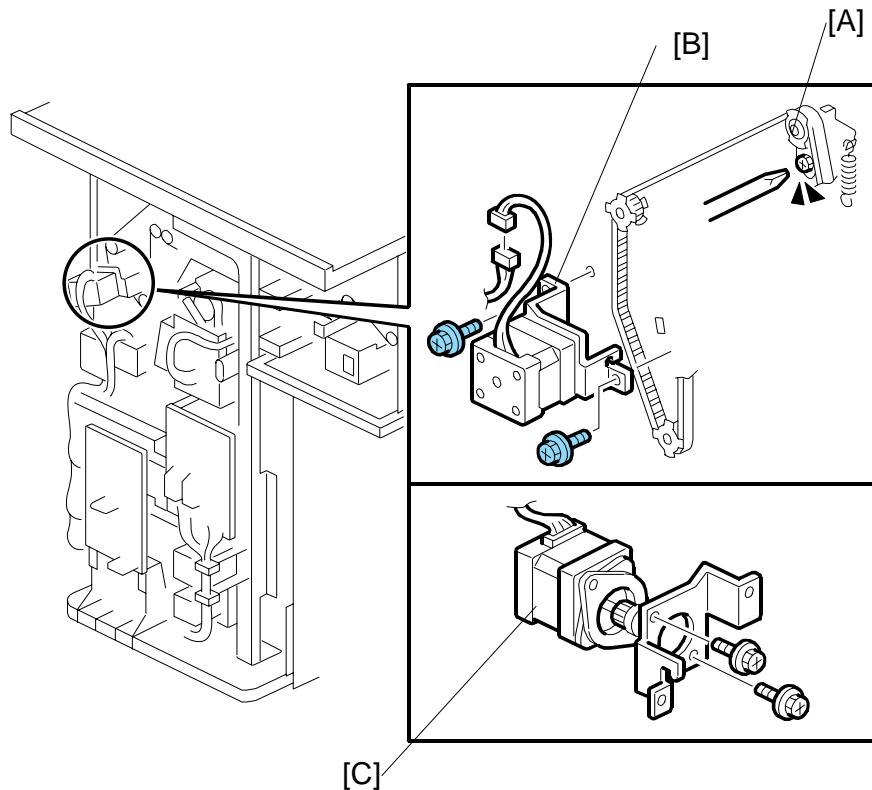
1.7 ENTRANCE MOTOR



Remove:

- Rear left cover (1.1)
 - Rear right cover (1.1)
- [A] Loosen the screw to release the belt tension.
[B] Motor bracket (x2, x1, Timing belt x1)
[C] Entrance motor (x2)

1.8 UPPER TRANSPORT MOTOR



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Remove:

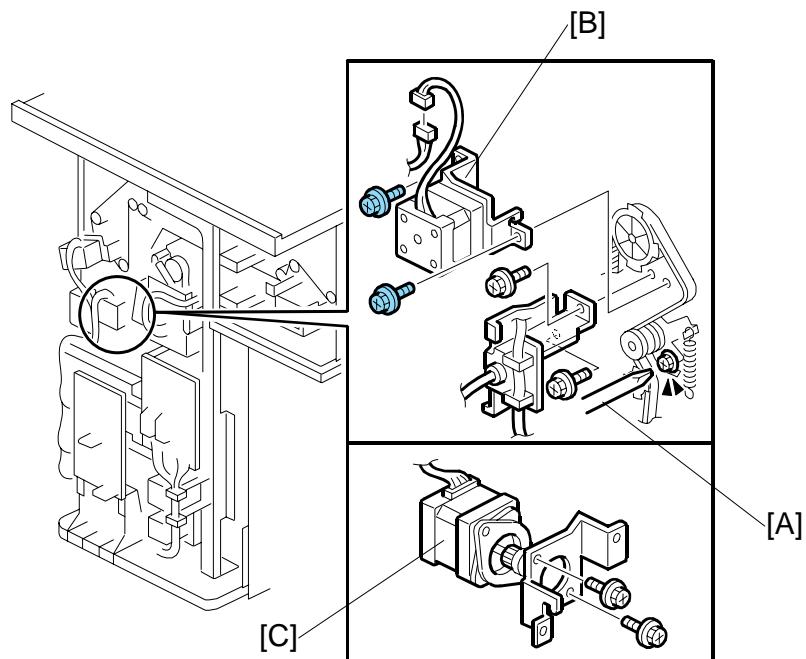
- Rear left cover (☞1.1)
- Rear right cover (☞1.1)

[A] Loosen the screw to release the belt tension.

[B] Motor bracket (☞ x2, ☜ x1, Timing belt x1)

[C] Upper transport motor (☞ x2)

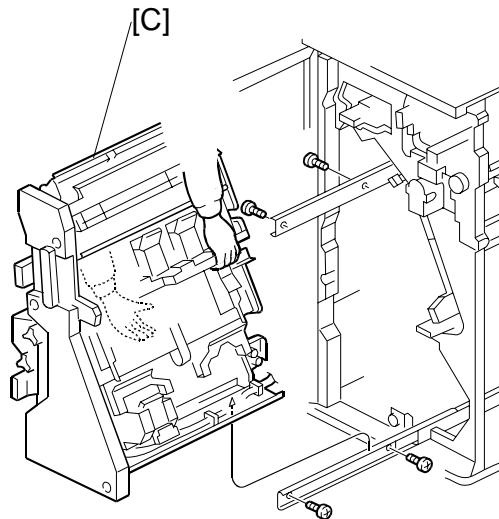
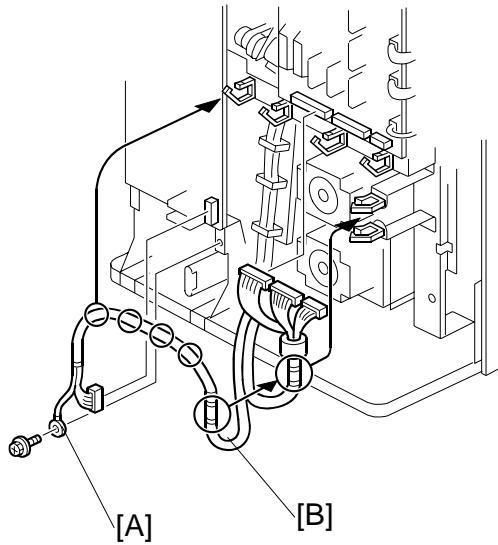
1.9 LOWER TRANSPORT MOTOR



Remove:

- Rear left cover (☞1.1)
 - Rear right cover (☞1.1)
- [A] Loosen the screw to release the belt tension.
[B] Motor bracket (☞ x2, ☞ x1, Timing belt x1)
[C] Lower transport motor (☞ x2)

1.10 FOLD UNIT



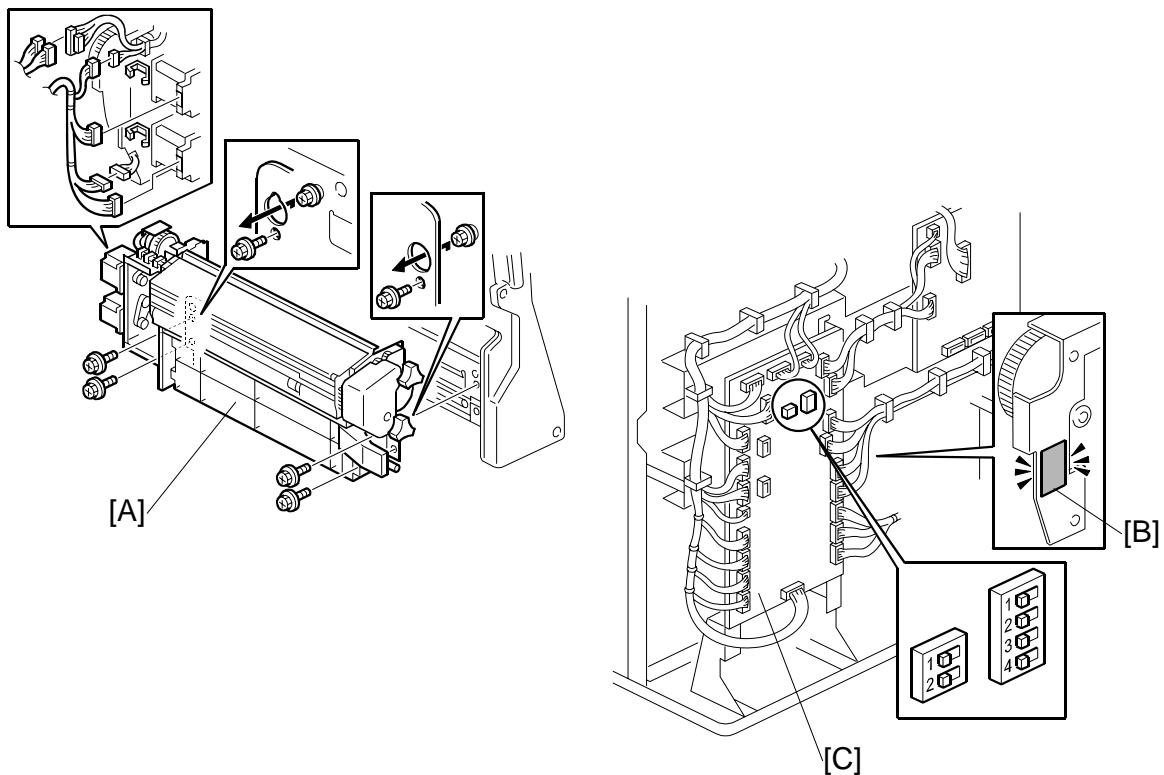
Booklet
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- Remove the back cover (1.1)
- Open the front door.

CAUTION: The stapling unit is heavy.

- [A]: Ground screw (x1)
- [B]: Harness (x6, x6)
- [C]: Stapling unit (x4)

REPLACEMENT AND ADJUSTMENT



Important: Support the fold unit with your hand to prevent it from falling.

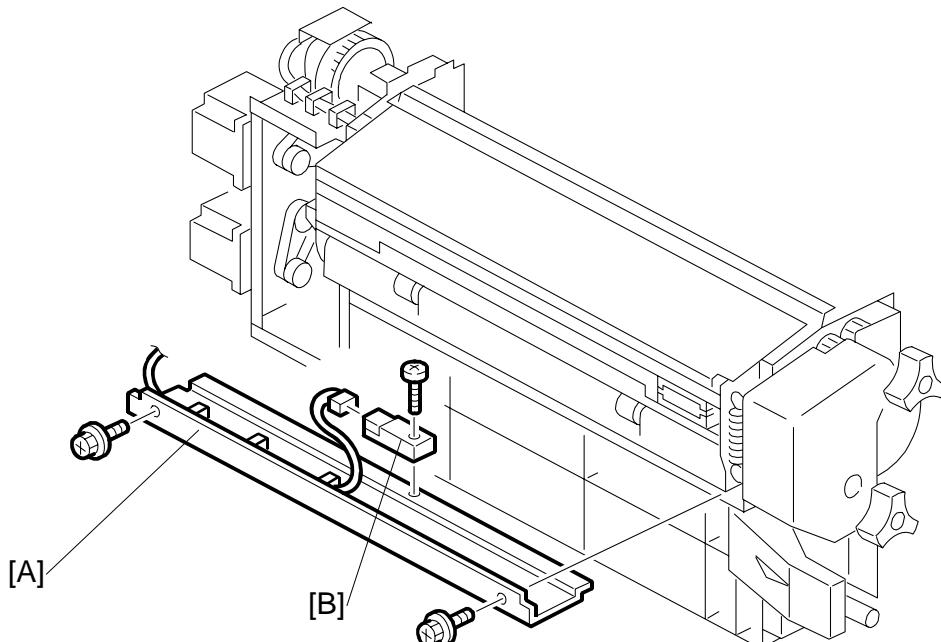
CAUTION: The fold unit is heavy.

[A]: Folding unit (x4, x2, x6)

If you have replaced the folding unit:

1. Read the DIP switch settings on the decal [B] attached to the back of the new folding unit.
2. Check the DIP switch settings on the main board [C] of the finisher.
3. If these settings are different, change these settings to match settings printed on the seal attached to the folding unit.
[B]: Set DIP switches 1 to 4 (the switch set on the right). Do not touch the other DIP switches.

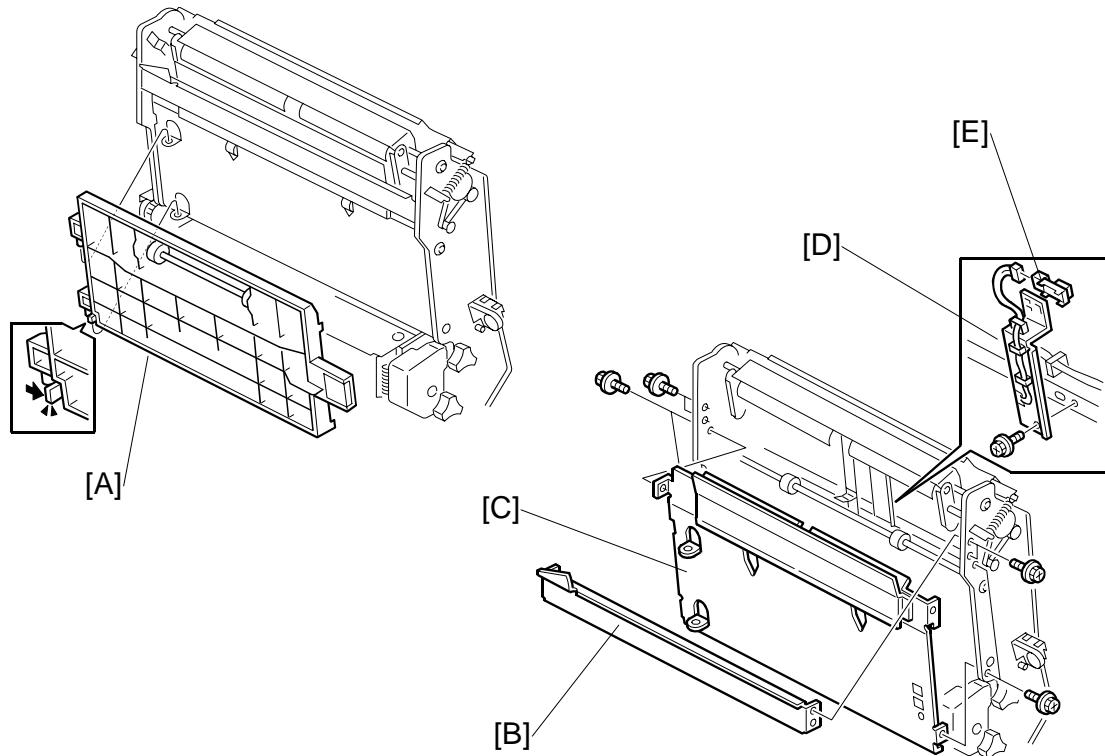
1.11 FOLD UNIT ENTRANCE SENSOR



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- Pull out the stapling unit.
- [A]: Fold unit entrance sensor bracket (φ x2)
[B]: Fold unit entrance sensor (φ x1, □ x1)

1.12 STACK PRESENT SENSOR



Important: If you intend to correct the horizontal and vertical skew for the fold unit at the same time, do those adjustments first, then replace the sensor. (1.6.1, 1.6.2)

- Remove the stapling unit (1.10)

[A]: Guide plate.

[B]: Stay ($\frac{1}{8}$ x4)

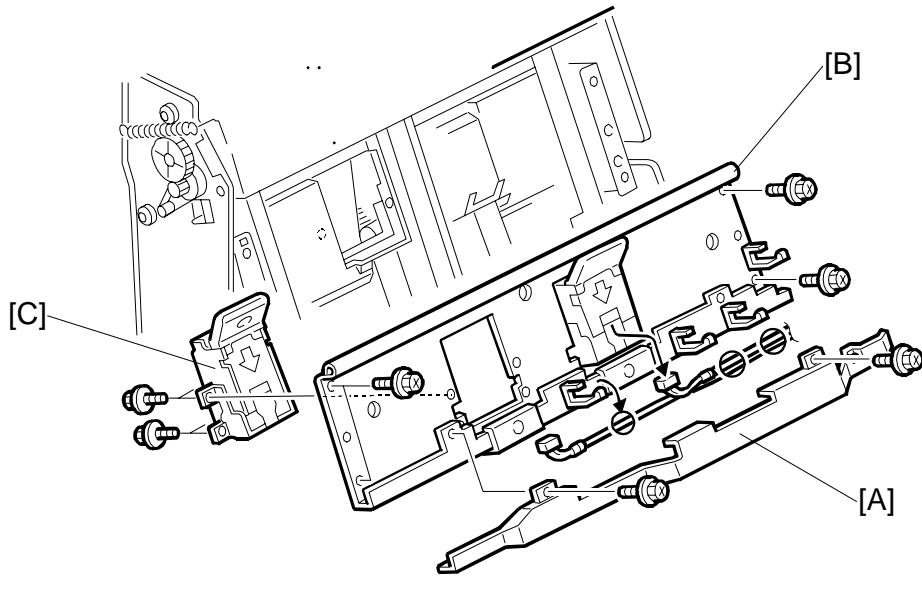
[C]: Left plate ($\frac{1}{8}$ x4)

[D]: Sensor bracket ($\frac{1}{8}$ x1)

[E]: Stack present sensor ($\frac{1}{8}$ x1)

1.13 BOOKLET STAPLER, BOOKLET STAPLER MOTOR

1.13.1 BOOKLET STAPLER



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- Open the front door.
- Pull out the stapling unit.

[A]: Harness cover (☞ x2)

[B]: Booklet stapler support stay (☞ x4, ☐ x2, ☐ x4)

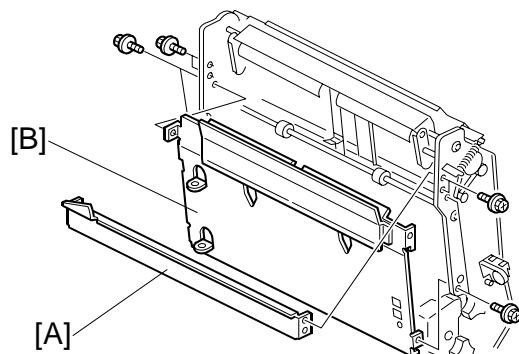
[C]: Stapler (☞ x4)

1.13.2 BOOKLET STAPLER MOTOR

- Open the front door.
- Remove the stapling unit. (☞1.10)

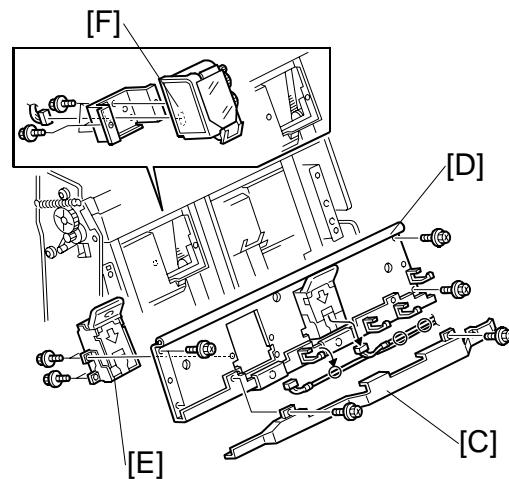
1. Remove:

- [A]: Stay (☞ x4).
[B]: Left plate (☞ x4).



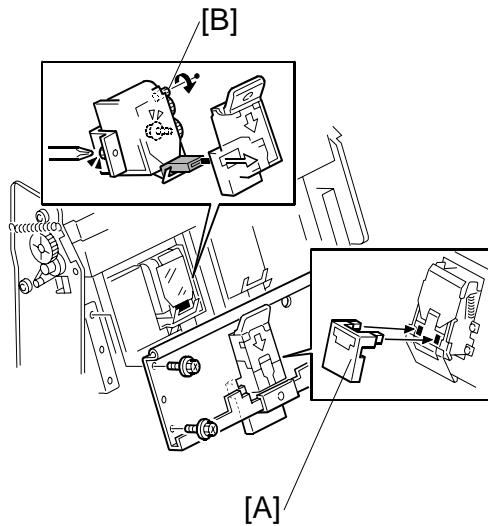
2. Remove:

- [C]: Harness cover (☞ x2)
[D]: Booklet stapler support stay
(☞ x4, ☎ x2, ☎ x4)
[E]: Booklet stapler (☞ x4)
[F]: Booklet stapler motor (☞ x2, ☎ x1)



To Reattach the Booklet Stapler Motor

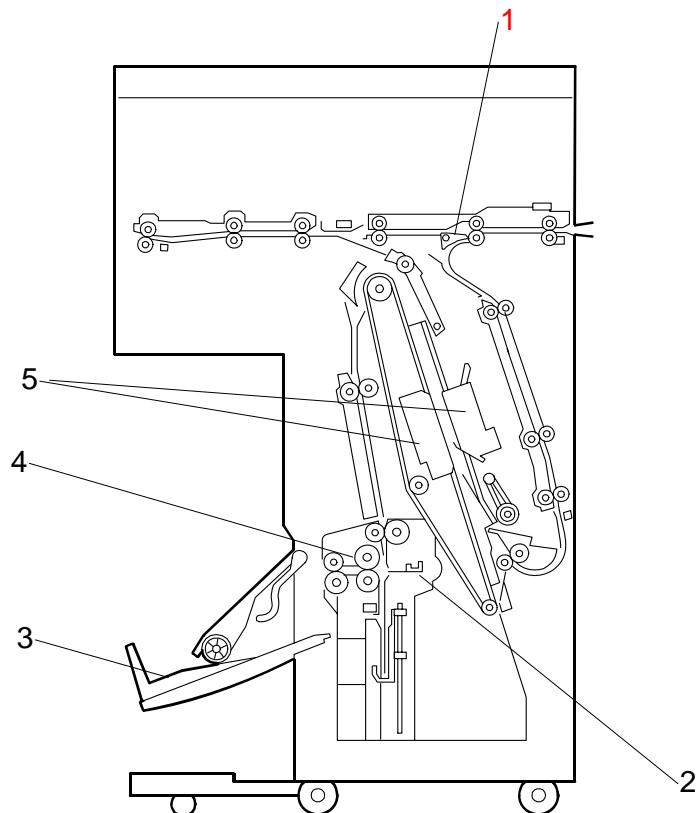
1. Reattach the booklet stapler motor.
Important: Do not tighten the screws.
2. Attach the special tool [A] and reattach the booklet stapler stay.
[G]: This tool is included with the stapler spare part.
3. Turn the gear [B] with your finger until it stops.
4. Tighten the screws to attach to the booklet stapler motor.
5. Remove the stay again and remove the special tool.
6. Reattach the booklet stapler stay.
7. Push the stapling unit into the machine.



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2. DETAILS

2.1 GENERAL LAYOUT



- | | |
|--------------------------------|--------------------|
| 1. Stapling Tray Junction Gate | 4. Folder Rollers |
| 2. Folder Plate | 5. Booklet Stapler |
| 3. Booklet Output Tray | |

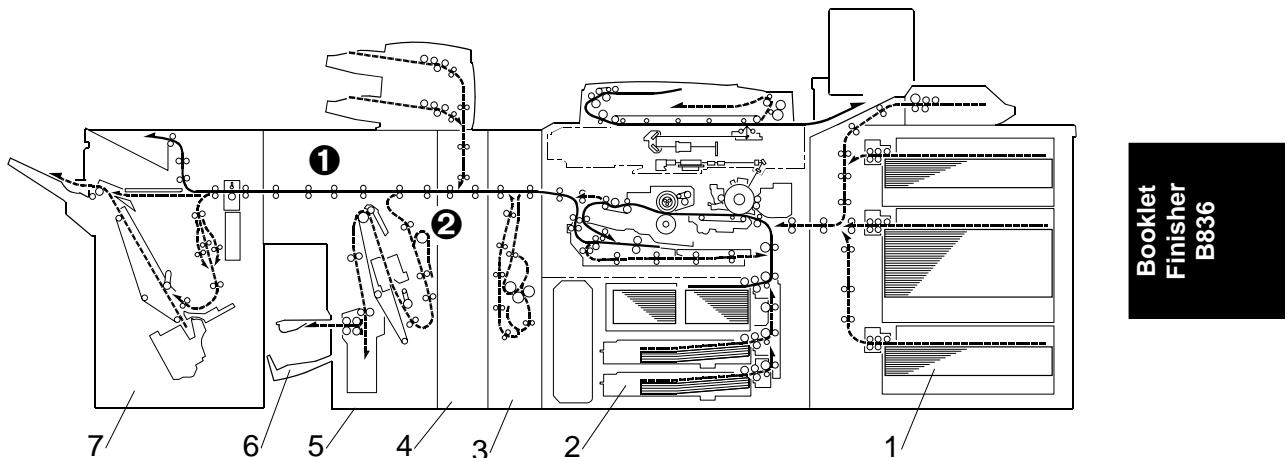
Paper direction

The operation of the stapling tray junction gate [1] (previous page) directs the paper once it enters the finisher:

| Junction Gate | Paper Feeds |
|---------------|--|
| Closed | Paper feeds straight through ① (see below) |
| Open | Paper feeds to the staple tray ② (see below) |

Booklet output tray

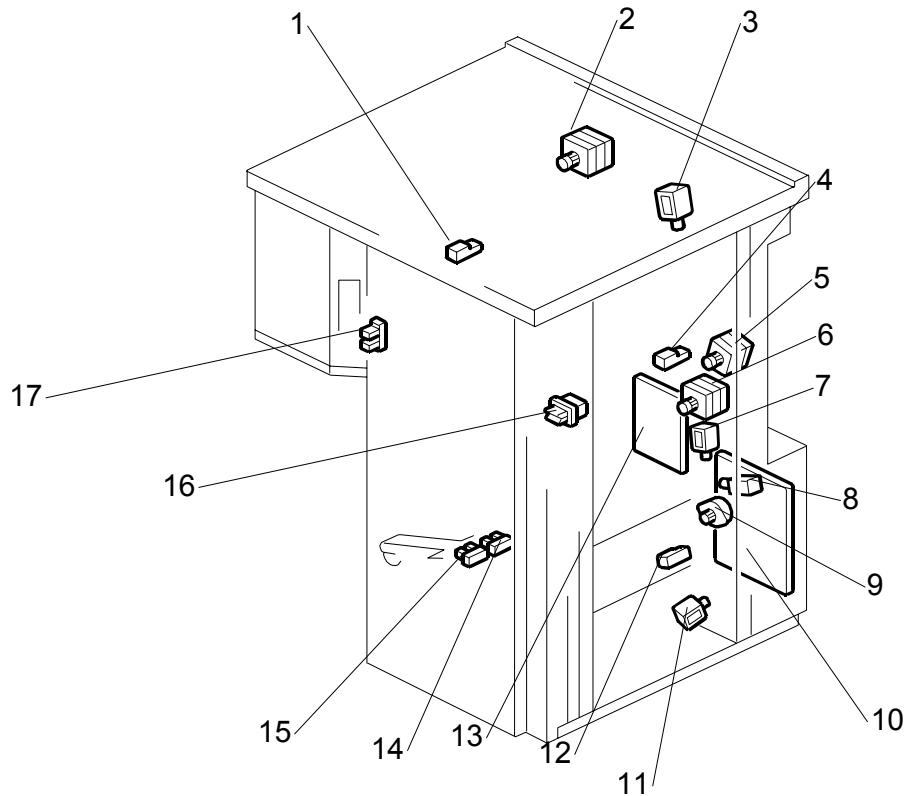
The booklet output tray [6] receives copies that have been center folded and stapled (booklet stapling).



1. Optional LCT (B832 or B834)
2. Copier (B234/B235/B236)
3. Z-Folder (B660)
4. Cover Interposer Tray (B835)
5. Booklet Finisher (B836)
6. Booklet Finisher Output Tray
7. Finisher (B830)

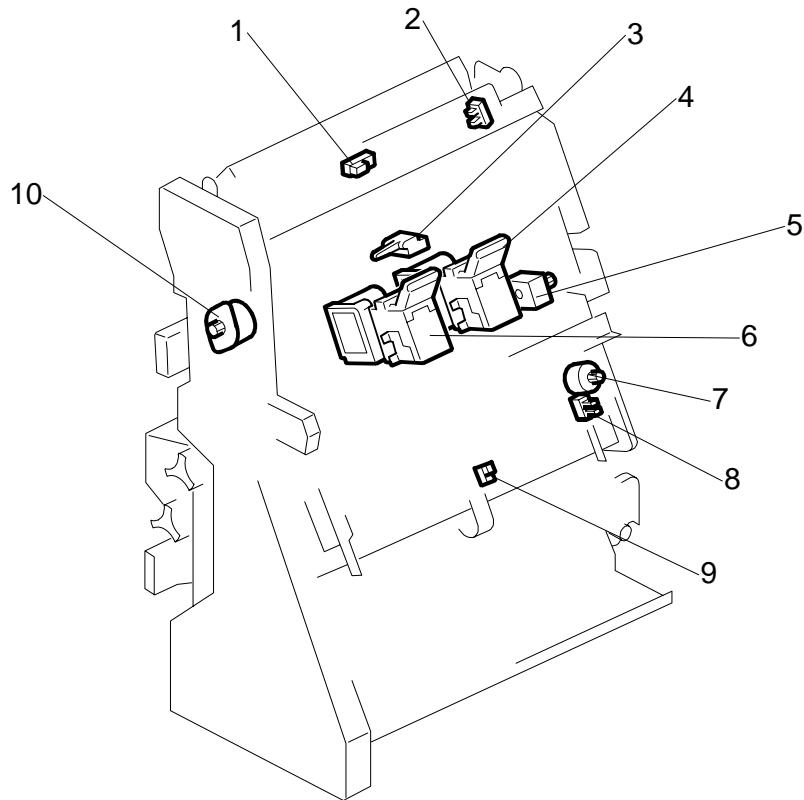
2.2 ELECTRICAL COMPONENTS

2.2.1 FEED PATH, PCBS



- ⇒ 1. Horizontal Transport Sensor
2. Upper Transport Motor
3. Stapling Tray Junction Gate Solenoid
4. Finisher Entrance Sensor
5. Entrance Motor
6. Lower Transport Motor
7. Booklet Pressure Roller Solenoid
8. Positioning Roller Solenoid
9. Positioning Roller Motor
10. Main Board (PCB)
11. Edge Pressure Plate Solenoid
12. Stack Tray Exit Sensor
13. Booklet Stapler Board
14. Booklet Output Tray Full Sensor
- Rear
15. Booklet Output Tray Full Sensor
- Front
16. Front Door Safety Switch
17. Small Front Door Open Sensor

2.2.2 STACKER/STAPLER

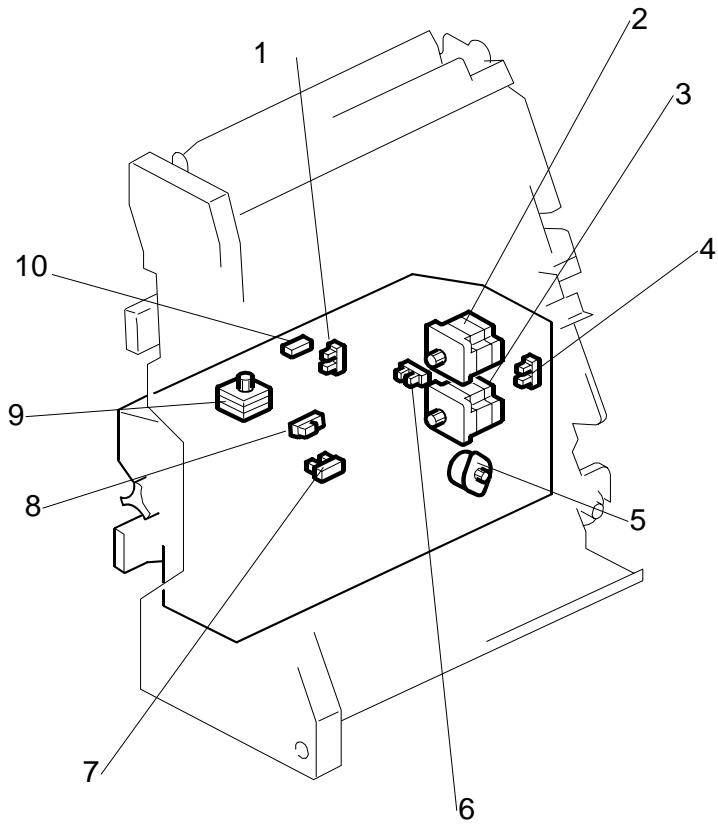


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- | | |
|----------------------------------|-----------------------------------|
| 1. Stack Present Sensor | 6. Booklet Stapler EH185R – Front |
| 2. Stack Junction Gate HP Sensor | 7. Jogger Fence Motor |
| 3. Stack Feed Out Belt HP Sensor | 8. Jogger Fence HP Sensor |
| 4. Booklet Stapler EH185R – Rear | 9. Stapling Tray Paper Sensor |
| 5. Feed Out Belt Motor | 10. Stack Junction Gate Motor |

DETAILS

2.2.3 FOLD UNIT



- | | |
|--------------------------------------|----------------------------------|
| 1. Clamp Roller HP Sensor | 6. Fold Plate Cam HP Sensor |
| 2. Fold Roller Motor | 7. Fold Bottom Fence HP Sensor |
| 3. Fold Plate Motor | 8. Fold Unit Entrance Sensor |
| 4. Fold Plate HP Sensor | 9. Clamp Roller Retraction Motor |
| 5. Fold Unit Bottom Fence Lift Motor | 10. Fold Unit Exit Sensor |

2.2.4 ELECTRICAL COMPONENT SUMMARY

Here is a general summary of all the electrical components.

| Motors | | |
|---------------|-----------------------------------|---|
| No. | Name | Description |
| M1 | Entrance Motor | Controls the rollers that feed paper into the booklet finisher. |
| M2 | Upper Transport Motor | Controls the rollers that feed paper out of the booklet finisher. |
| M3 | Clamp Roller Retraction Motor | Drives a large cam that alternately clamps and unclamps the clamp retraction roller, the idle roller of the clamp roller pair. When these rollers are clamped, they are part of the paper feed path and feed the stack toward the bottom fence of the fold unit. When the idle roller is retracted, the stacks falls a very short distance (3 mm) onto the fold unit bottom fence below. These rollers remain unclamped while the bottom fence positions the stack for folding and while the stack is folded by the fold rollers. |
| M4 | Feed Out Belt Motor | Drives the feed out belt that moves the stapled stacks out of the stapling tray after stapling. |
| M5 | Fold Plate Motor | Drives the fold plate that pushes the center of the stack into the nip of the fold rollers to start the fold. |
| M6 | Fold Roller Motor | Rotates forward and drives the fold rollers that fold the stack and feed it out of the fold unit, reverses to feed the fold once more into the fold unit, and then rotates forward again to feed the fold out of the fold unit. |
| M7 | Fold Unit Bottom Fence Lift Motor | Raises the bottom fence and stops when the center of the vertical stack is opposite the edge of the horizontal fold blade. The distance for raising the blade is prescribed as one-half the size of the paper selected for the job. For large paper, (A3, B4) the bottom fence first lowers the stack 10 mm below the fold position, and then raises it to the fold position. |
| M8 | Jogger Fence Motor | Drives the jogger fences in the stapling tray to jog both sides of the stack before stapling. |
| M9 | Lower Transport Motor | Drives paper feed rollers forward and reverse in the stack tray for the switchback, and drives the other rollers in the lower transport area. |
| M10 | Positioning Roller Motor | Drives the positioning roller in the stapling tray. |
| M11 | Stack Junction Gate Motor | Controls the junction gate at the entrance of the booklet finisher |

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| PCBs | | |
|-------------|-----------------------|---|
| No. | Name | Description |
| PCB1 | Booklet Stapler Board | A separate board that controls booklet finishing. |
| PCB2 | Main Board | The main board that controls the finisher |

DETAILS

| Sensors | | |
|---------|---|---|
| No. | Name | Description |
| S1 | Booklet Output Tray Full Sensor – Front | This front sensor is the higher sensor of the booklet tray full sensor pair. Two actuators are attached to the actuator arm that touches the top of stapled and folded booklets as they feed out. The on/off combinations of the two sensors are used to detect when the tray is full and stop the job. (The booklet tray is stationary. At tray full, the job halts until booklets are removed from the booklet tray.) |
| S2 | Booklet Output Tray Full Sensor – Rear | This rear sensor is the lower sensor of the booklet tray full sensor pair. Two actuators are attached to the actuator arm that touches the top of stapled and folded booklets as they feed out. The on/off combinations of the two sensors are used to detect when the tray is full and stop the job. (The booklet tray is stationary. At tray full, the job halts until booklets are removed from the booklet tray.) |
| S3 | Clamp Roller HP Sensor | Controls the movement of the clamp retraction roller (the idle roller of the clamp roller pair). |
| S4 | Finisher Entrance Sensor | Provides two functions: (1) Detects paper entering the finisher from the copier, and (2) Signals a jam if it detects paper at the entrance when the copier is switched on. |
| S5 | Fold Bottom Fence HP Sensor | Controls the movement of the bottom fence in the folding unit using pulse counts based on the size of the paper selected for the job to position the stack correctly for feeding. |
| S6 | Fold Plate Cam HP Sensor | Along with the fold plate HP sensor (S29), this sensor controls the movement of the fold plate. The actuator mounted on the end of the roller that drives the folder plate forward and back makes three full rotations, i.e. the actuator passes the sensor gap twice and stops on the 3rd rotation and reverses. This accounts for the left and right movement of fold plate. |
| S7 | Fold Plate HP Sensor | Along with the fold plate cam HP sensor (S30) this sensor controls the movement of the fold plate. The fold plate has arrived at the home position when the edge of the plate enters the gap of this sensor. |
| S8 | Fold Unit Entrance Sensor | Detects 1) the leading edge of the stack during booklet stapling, and 2) also used to signal an alarm if a paper is detected at the entrance of the fold unit when the copier is turned on. |
| S9 | Fold Unit Exit Sensor | 1) Detects the folded edge of the stack as it feeds out from the nip of the fold rollers, stops the rollers, and reverses them so the fold feeds back into the nip, 2) when the folded booklet finally emerges from the nip of the fold rollers, detects the leading and trailing edge of the booklet to make sure that it feeds out correctly. |
| S10 | Jogger Fence HP Sensor | Detects the home position of the jogger fences. When the actuator on the jogger fence interrupts this sensor, the jogger fence is in its home position and the jogger fence motor (M15) stops. |
| S11 | Stack Tray Exit Sensor | Detects 1) paper fed from the stack tray to the stapling tray, and detects 2) paper in the stack when the copier is switched on. (This sensor performs no timing function. The entire flow of paper through the stacking mechanism is controlled by motor pulse counts.) |
| S12 | Stack Feed-Out Belt HP Sensor | Controls the position of the stack feed-out pawl on the stack feed-out belt. Once the actuator on the feed belt nudges the feeler of this sensor near the top of the stapling unit, the feed out belt motor (M5) remains on for the time prescribed to position the pawl at the home position to catch the next stack. |
| S13 | Stack Junction Gate HP Sensor | Controls the opening and closing of the stack junction gate. Switches on when the stack junction gate is open and at the home position. |
| S14 | Stack Present Sensor | This sensor determines whether there is paper at the turn junction gate when the machine is turned on. If a stack is present, this triggers a jam alert. (This sensor performs no dynamic function such as pulse counting, etc. It only detects whether paper is at the top of the folding unit when power is turned on.) |

DETAILS

| Sensors | | |
|----------------|------------------------------|---|
| No. | Name | Description |
| S15 | Stapling Tray Paper Sensor | A photo sensor that detects whether paper is in the stapling tray. When this sensor detects paper, the bottom fence motor raises or lowers the bottom fence to position the selected paper size for booklet stapling. |
| S16 | Horizontal Transport Sensor | Monitors paper feed through the finisher |
| S17 | Small Front Door Open Sensor | Detects when the small front door at the front left is open. |

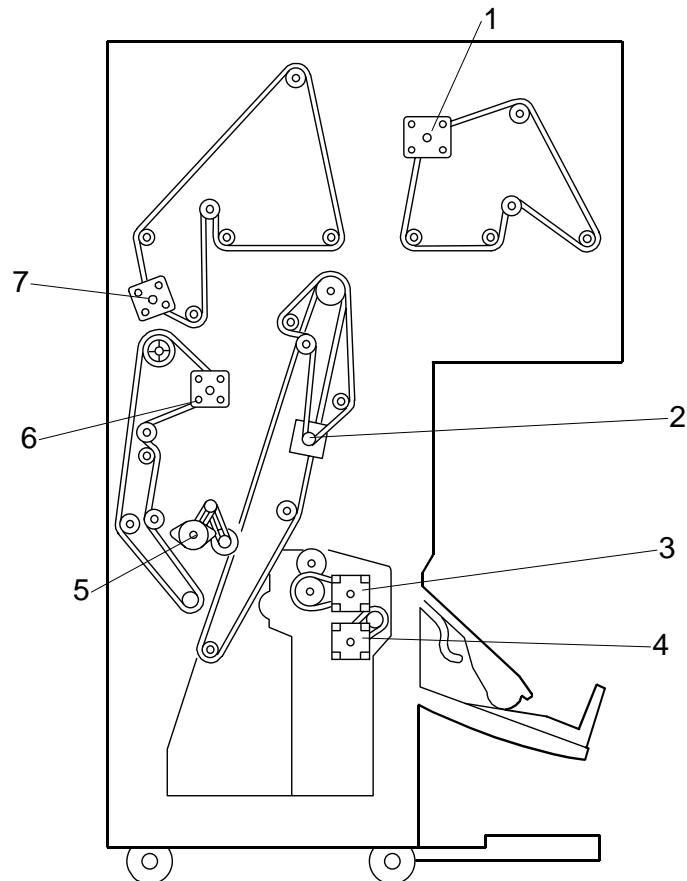
| Solenoids | | |
|------------------|--------------------------------------|--|
| No. | Name | Description |
| SOL1 | Booklet Pressure Roller Solenoid | When the paper stack in the stapling tray feeds to the folding unit, this solenoid turns on and operates the roller that pushes on the surface of the stack to flatten it. |
| SOL2 | Positioning Roller Solenoid | Engages the stapler transport motor and the positioning roller of the stapling tray. The positioning roller pushes each sheet down against the bottom fence to align the bottom the stack for stapling. (The jogger fences align the sides.) |
| SOL3 | Edge Pressure Plate Solenoid | Operates the pressure plate of the stapling unit. The pressure plate presses down the edge of stack in the stapling tray so it is tight for stapling. |
| SOL4 | Stapling Tray Junction Gate Solenoid | Directs paper to the stapling tray. When this solenoid is on, paper feeds straight through. When this solenoid is off, paper feeds to the stapling tray below. |

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| Switches | | |
|-----------------|--------------------------|---|
| No. | Name | Description |
| SW1 | Front Door Safety Switch | The safety switch that cuts the dc power when the front door is opened. |

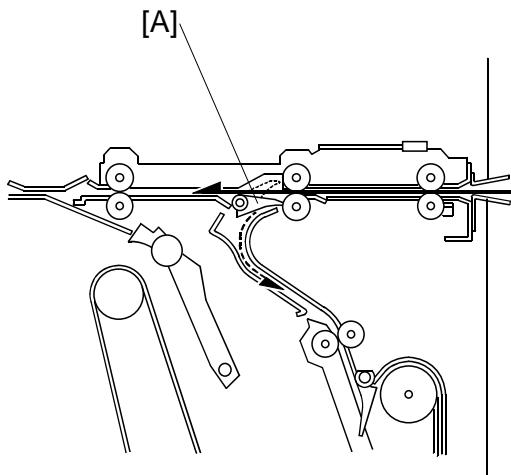
| Other | | |
|--------------|-------------------------|---|
| No. | Name | Description |
| ST1 | Booklet Stapler - Front | Booklet stapler. Staples paper stacks in the center before they are folded. |
| ST2 | Booklet Stapler - Rear | Booklet stapler. Staples paper stacks in the center before they are folded. |

2.3 DRIVE LAYOUT



1. Upper Transport Motor
2. Feed Out Belt Motor
3. Fold Roller Motor
4. Folder Plate Motor
5. Positioning Roller Motor
6. Lower Transport Motor
7. Entrance Motor

2.4 JUNCTION GATE



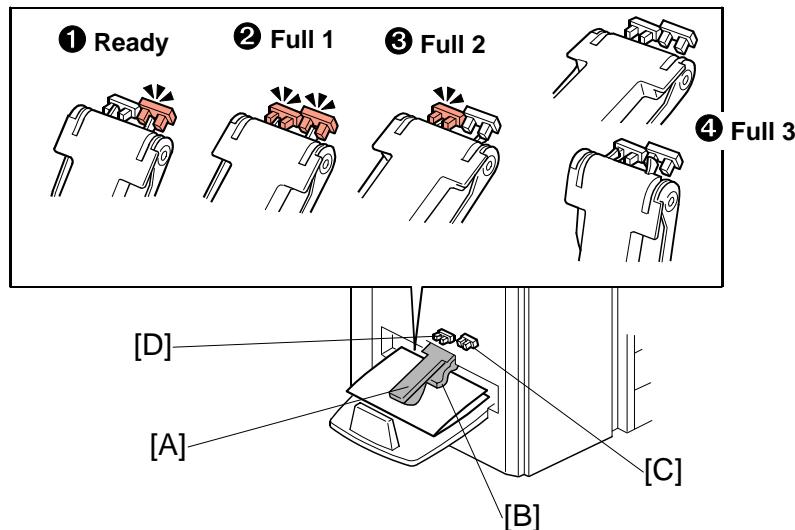
The position of the junction gate [A] determines the direction of paper feed after paper enters the finisher.

The junction gate remains closed when booklet stapling is not selected for the job. The paper passes over the junction gate and straight through the finisher.

The junction gate opens and guides the paper down to the staple tray when booklet stapling is selected for the job.

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2.5 BOOKLET OUTPUT TRAY



The booklet output tray sensor actuator arm [A] rests on the top of the stack of stapled booklets as they are output to the booklet output tray. A flap depressor [B] keeps the open ends of the booklets down.

The front booklet output tray full sensor [C] and rear booklet output tray full sensor [D] detect when the booklet output tray is full of booklets.

Important

- The front booklet output tray full sensor is mounted higher than the rear booklet output tray full sensor.
- The booklet output tray is stationary. When it becomes full, the stapling and folding job stops until booklets are removed from the tray.
- If the booklet output tray is not installed (this is detected if the front and rear sensors remain OFF), the machine will not operate in the booklet staple and fold mode. When booklet mode is selected, the tray full message appears on the operation panel.

The combinations of the two actuators and two sensors as the actuator arm rises determines the number of booklets that the booklet output tray can hold before the job stops.

The tray full detection depends on the size of the paper and the number of sheets in one stapled and folded booklet.

In the table below, the conditions (❶ Ready ❷ Full 1, ❸ Full 2 ❹ Full 3: See the illustration on the previous page) refer to the states of the sensors described on the previous page.

| Condition | Front Sensor | Rear Sensor |
|---|--------------|-------------|
| Ready | ON | OFF |
| Full 1 | ON | ON |
| Full 2 | OFF | ON |
| Full 3 (or booklet output tray not installed) | OFF | OFF |

In the tables below:

- "Sht" denotes "sheets in a stack".
- "Cnt" denotes "Count" (see below for an explanation).

After a booklet is feed out, the fold roller motor stops the exit roller. The machine then monitors the tray full sensors every 100 ms. The machine checks for a certain condition, based on the size of the paper and the number of sheets in the booklet.

An example is shown below. Tell the operators that the number of sheets that the booklet output tray can hold will vary greatly.

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Booklet Output Tray Full Condition Table

A3 (DLT)

| | 1 Sht | 2 Sht | 3 Sht | 4 Sht | 5 Sht | 6 Sht | 7 Sht | 8 Sht | 9 Sht | ... |
|---------------|-------|-------|--------|-------|--------|-------|-------|-------|-------|-----|
| Full 1 | 3 Cnt | — | — | — | — | — | — | — | — | ... |
| Full 2 | — | 5 Cnt | 15 Cnt | — | — | — | — | — | — | ... |
| Full 3 | — | — | — | 7 Cnt | 13 Cnt | 4 Cnt | 2 Cnt | 2 Cnt | 2 Cnt | ... |

A4 (LT)

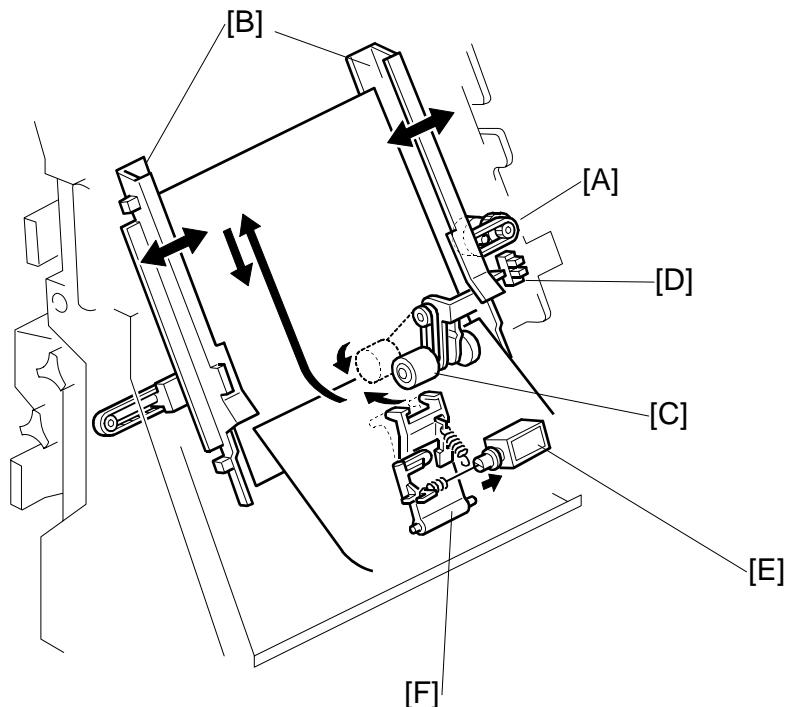
| | 1 Sht | 2 Sht | 3 Sht | 4 Sht | 5 Sht | 6 Sht | 7 Sht | 8 Sht | 9 Sht | ... |
|---------------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-----|
| Full 1 | 16 Cnt | — | — | — | — | — | — | — | — | ... |
| Full 2 | — | 10 Cnt | 10 Cnt | 15 Cnt | 20 Cnt | 15 Cnt | 10 Cnt | 8 Cnt | 8 Cnt | ... |
| Full 3 | — | — | — | — | — | — | — | — | — | ... |

Examples

After the copier makes a booklet with 1 sheet of A3/DLT paper, the machine checks every 100 ms for the 'Full 1' condition. If the Full 1 condition occurs 3 times (shaded block in the table above), the machine detects that the tray is full.

After the copier makes a booklet with 5 sheets of A4/LT paper, the machine checks every 100 ms for the 'Full 2' condition. If the Full 2 condition occurs 20 times (shaded block in the table above), the machine detects that the tray is full.

2.6 STACKING AND JOGGING



- [A]: Jogger Fence Motor
- [B]: Jogger Fences
- [C]: Positioning Roller
- [D]: Jogger Fence HP Sensor
- [E]: Edge Pressure Plate Solenoid
- [F]: Pressure Plate

At the beginning of the job, the jogger fence motor [A] switches on and moves the jogger fences [B] to the standby position (7.5 mm from the sides of the selected paper size).

When each sheet enters the stapling tray:

- The jogger fence motor switches on and moves the jogger fences to within 5.5 mm of the sides of the selected paper size.
- The positioning roller solenoid switches on for the time prescribed for the paper size. This pushes the positioning roller [C] onto the sheet and pushes it down onto bottom fence. This aligns the edge of the stack.

Next, the jogger fence motor:

- Switches on again and moves the jogger fences to within 2.6 mm of the sides of the stack to align the sides of the stack.
- Reverses and moves the fences to the standby position (7.5 mm away for the sides) and waits for the next sheet.
- The jogger fence HP sensor [D] switches off the jogger motor at the end of the job.

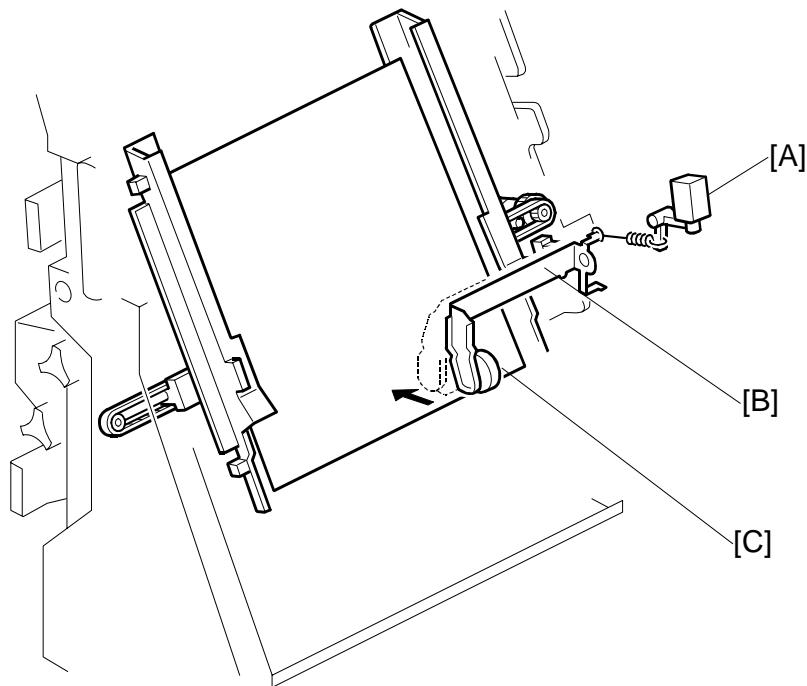
After the last sheet feeds:

- The edge pressure plate solenoid [E] switches on and pushes the pressure plate [F] onto the stack to press down the edge for stapling.

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2.7 BOOKLET STAPLING

2.7.1 BOOKLET PRESSURE MECHANISM



[A]: Booklet Pressure Roller Solenoid

[B]: Booklet Pressure Roller Arm

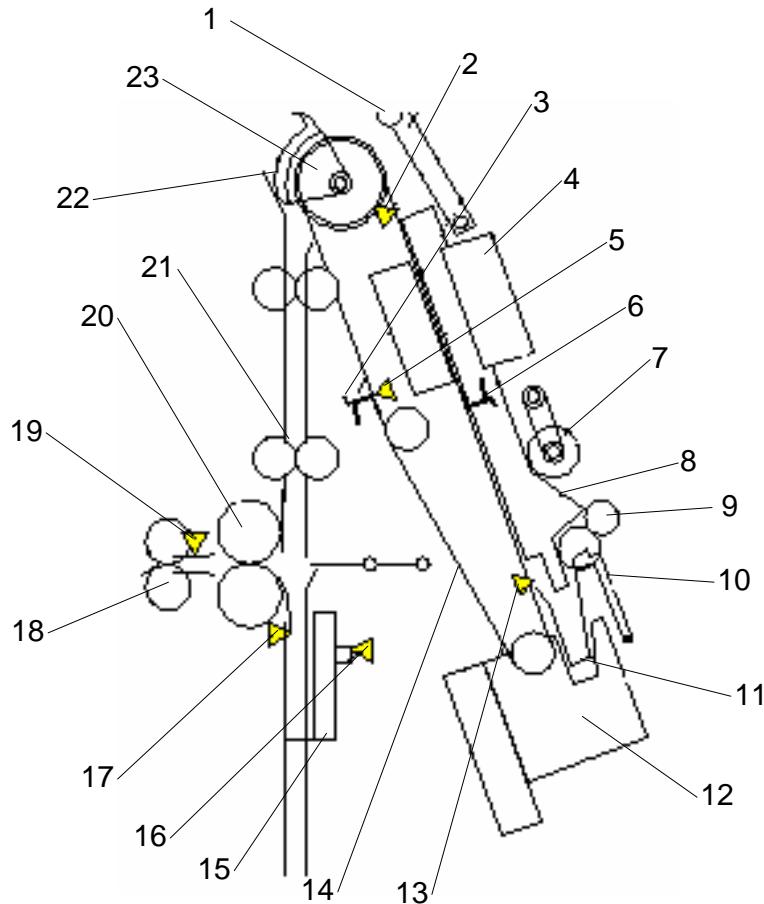
[C]: Booklet Pressure Roller

As soon as the edges are aligned by the positioning roller and the jogger fences, the stack feed out belt moves.

In booklet mode, immediately after the edges are aligned by the positioning roller and jogger fences, the booklet pressure solenoid switches on and the booklet pressure roller presses down on the stack until booklet stapling is finished. This prevents the stack from shifting during stapling.

2.7.2 BOOKLET STAPLING AND FOLDING

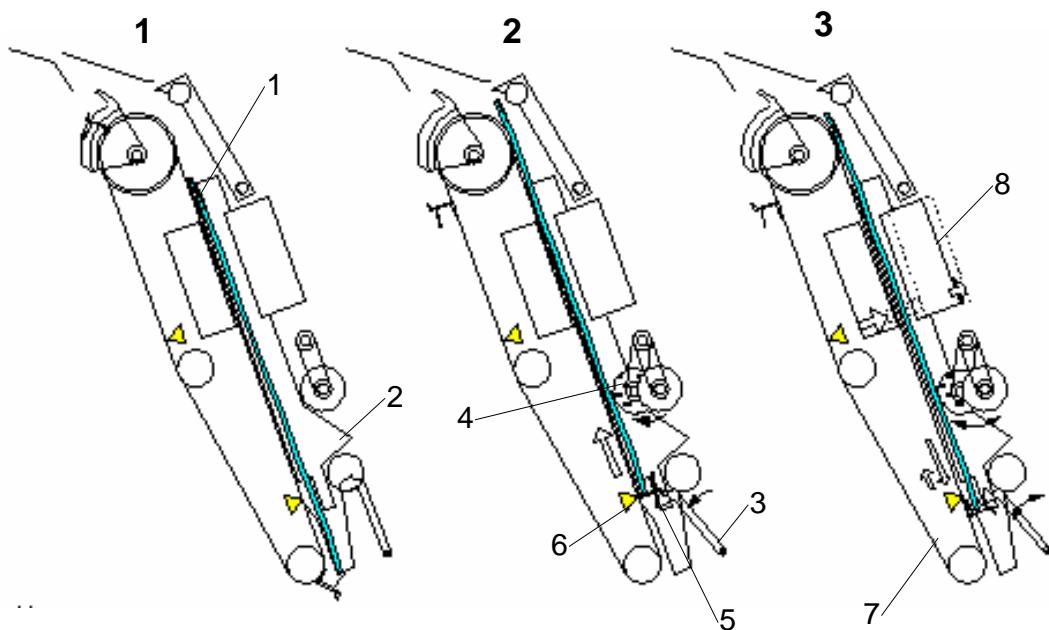
Overview



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- | | |
|----------------------------------|---------------------------------|
| 1. Leading Edge Pressure Roller | 12. Corner Stapler |
| 2. Stack Present Sensor | 13. Stapling Tray Paper Sensor |
| 3. Feed Out Belt Pawl 1 | 14. Feed Out Belt |
| 4. Booklet Staplers x2 | 15. Fold Unit Bottom Fence |
| 5. Stack Feed Out Belt HP Sensor | 16. Fold Bottom Fence HP Sensor |
| 6. Feed Out Belt Pawl 2 | 17. Fold Unit Entrance Sensor |
| 7. Positioning Roller | 18. Fold Unit Exit Rollers x2 |
| 8. Jogger Fences x2 | 19. Fold Unit Exit Sensor |
| 9. Stack Exit Roller | 20. Fold Rollers x2 |
| 10. Pressure Plate | 21. Clamp Rollers x2 |
| 11. Stapling Tray Bottom Fence | 22. Stack Junction Gate |
| | 23. Stack Transport Roller |

DETAILS



1

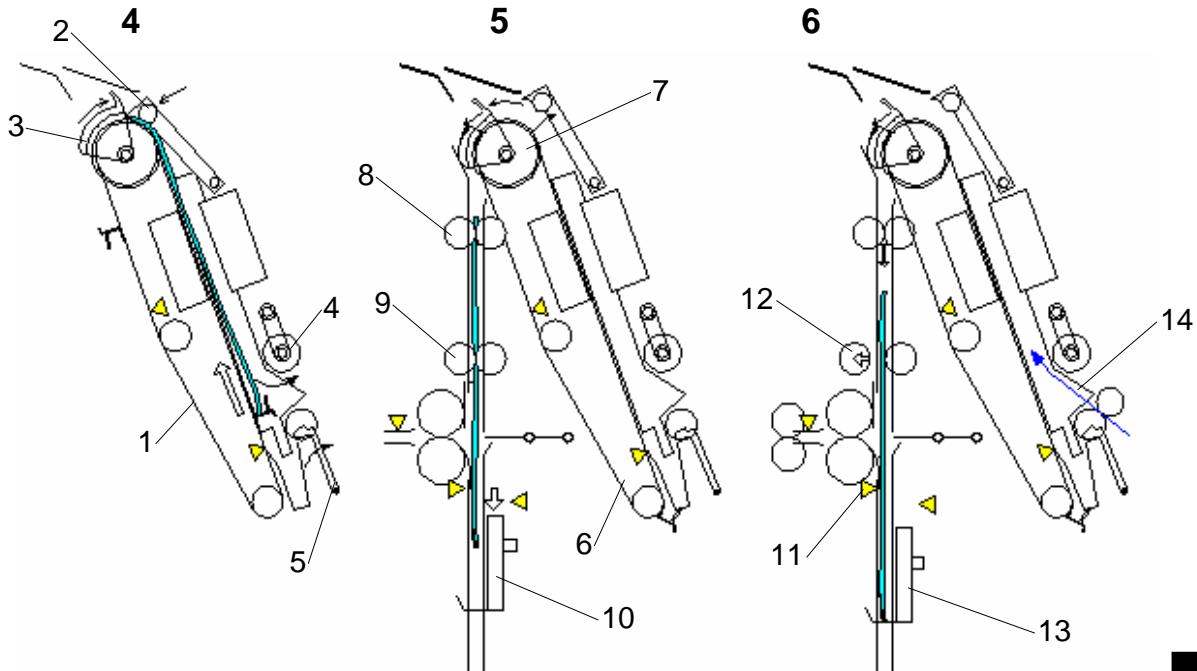
The last sheet of the stack [1] enters the stapling tray. The jogger fences [2] jog the last sheet into position (based on the width of the selected paper size) and then retract and stop 1 mm away from the sides of the stack.

2

The pressure plate [3] and booklet pressure roller [4] press down on the sheet. The stack feed out belt switches on and the pawl [5] on the feed out belt catches the bottom of the stack and raises it. The stapling tray sensor [6] detects the trailing edge of the paper stack.

3

The feed out belt [7] raises the stack to the prescribed stapling position and stops. The jogger fences move to the sides of the stack and the booklet staplers [8] staple the stack.



Booklet
Finisher
B836

4

The jogger fences remain 1 mm away from the sides of the stack. The feed out belt [1] raises the stack until the top of the stack is 10 mm past the leading edge pressure roller [2] and stops. The leading edge pressure roller descends and applies pressure to the top of the stack. The stack junction gate [3] (normally open) closes. The pressure roller [4] and pressure plate [5] retract.

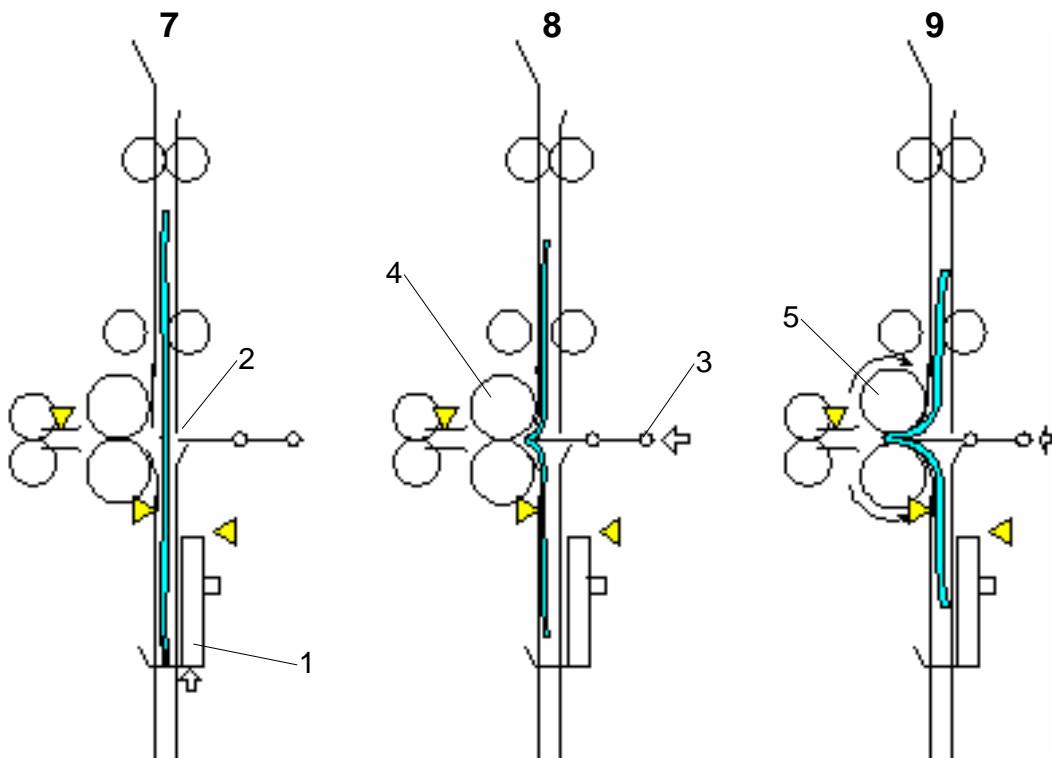
5

The feed out belt [6], transport rollers [7], [8], and clamp rollers [9] rotate and feed the stack past the closed stack junction, over the top and down toward the bottom fence [10]. At the same time, the fold unit bottom fence descends from its home position and stops 10 mm below the fold position.

6

The rollers feed the leading edge of the stack to within 3 mm of the stack stopper of the bottom fence [13]. The fold unit entrance sensor [11] detects the stack and opens the clamp rollers [12]. The stack drops 3 mm onto the fold unit bottom fence [13]. At this time, the first sheet [14] of the next stack feeds to the stapling tray.

DETAILS



7

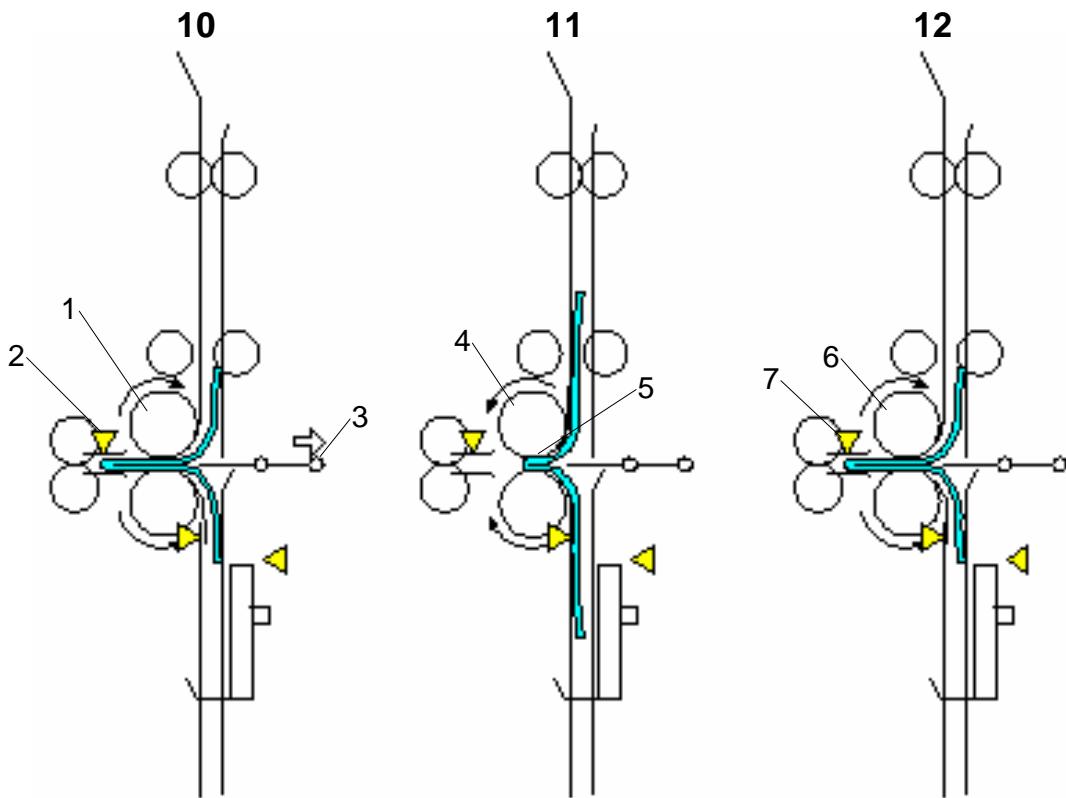
The bottom fence [1] raises the stack to the prescribed fold position [2].

8

The fold plate [3] moves to the left and advances 1/3 its maximum horizontal stroke and exerts 20 kg (44 lb.) of pressure at the fold rollers [4].

9

With the fold plate pushing the stack into the nip of the fold rollers [5], the fold rollers begin to rotate and fold the stack as it feeds out.



Booklet
Finisher
B836

10

When the fold rollers [1] feed the stack 10 mm past the nip, the fold plate retracts until it no longer touches the stack. The fold unit exit sensor [2] detects the folded edge of the stack and stops the fold rollers.

11

The rotation of the fold rollers [4] reverses and feeds the folded edge back until only 3 mm of the fold [5] remains at the nip.

12

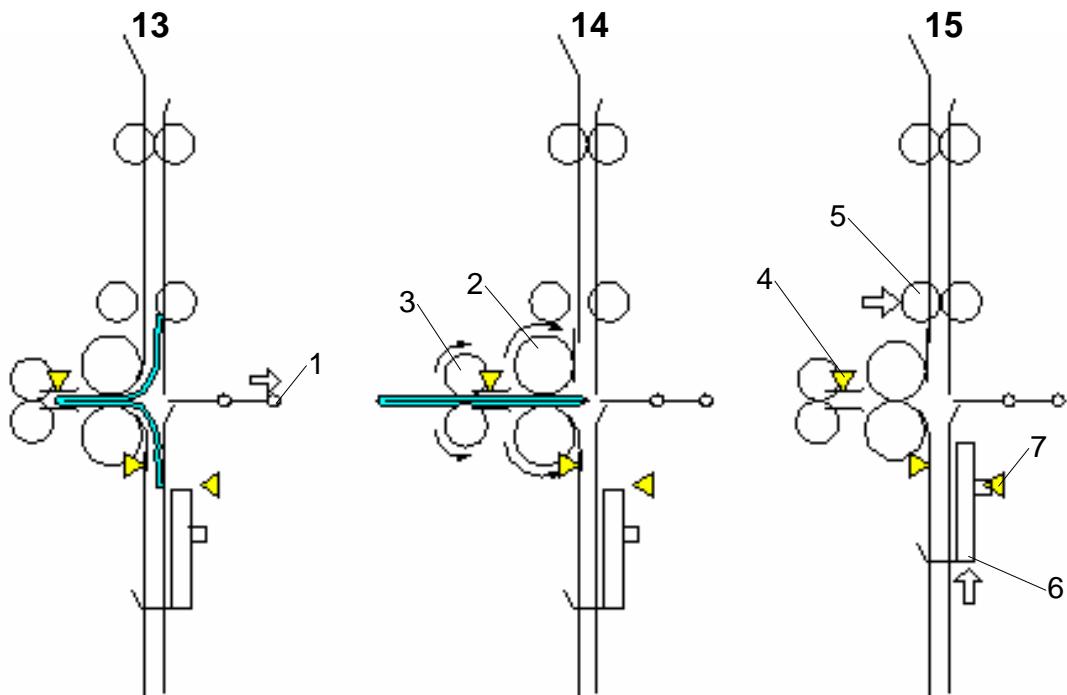
The fold rollers [6] rotate forward once again feed out. The fold unit exit sensor [7] once again detects the edge of the fold.

NOTE: You can do **SP6203 001** to increase the sharpness of the fold. The number of forward and reverse feeds of the fold rollers can be set in the range of -1 to +28. The machine repeats Steps **11** and **12**. For more, please refer to Section "5 Service Tables".

0 (default, as explained above): The rollers rotate forward and in reverse one time, then forward to feed out the booklet.

- 1: The rollers rotate forward and in reverse two times (default plus 1)
- 1: The rollers rotate forward but not in reverse

DETAILS



13

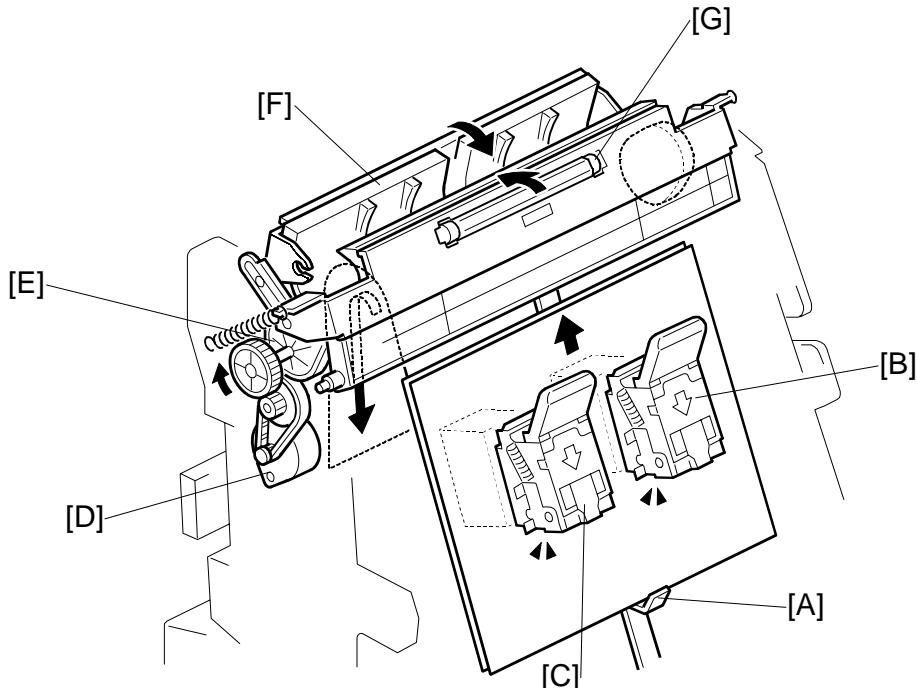
With the feed of the stack halted, the fold plate [1] retracts. The fold plate HP sensor (not shown) detects the fold plate and stops it at its home position.

14

The fold rollers [2] and fold unit exit rollers [3] begin to rotate together and feed out the folded booklet to the booklet output tray.

15

Once the trailing edge of the stack passes the fold unit exit sensor [4], the clamp rollers [5] close to be ready to feed the next stack. The fold unit bottom fence [6] descends. The bottom fence HP sensor [7] stops the bottom fence when it detects the actuator on the bottom fence.

Booklet Stapling and Folding Mechanisms

Booklet
Finisher
B836

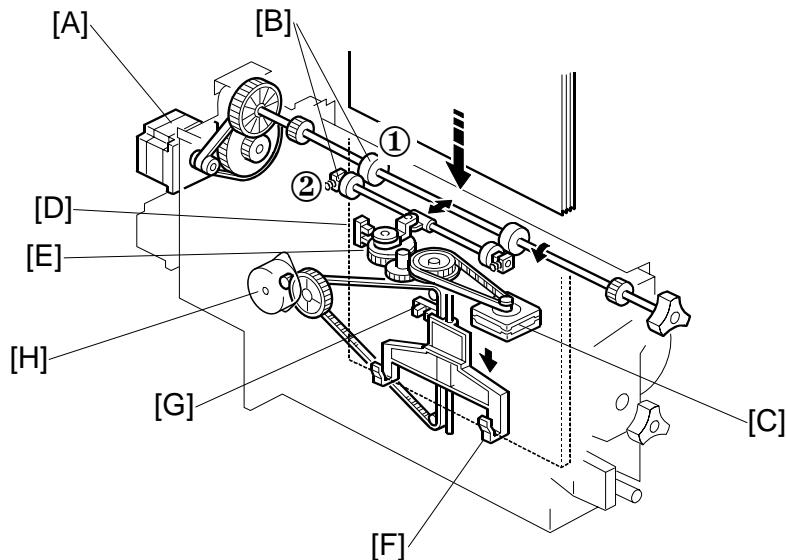
Booklet Stapler

- [A]: Feed Out Belt Pawl. Raises the stack to stapling position.
- [B]: Booklet Stapler EH185R – Rear
- [C]: Booklet Stapler EH185R – Front

Stack Junction Gate

- [D]: Stack Junction Gate Motor. Drives a timing belt and stack junction gate cam.
- [E]: Stack Junction Gate Cam. Opens and closes the stack junction gate.
- [F]: Stack Junction Gate. The stack junction gate motor and stack junction gate cam close the stack junction gate. The feed out belt pawl raises the stapled stack and sends it over the top and down to the fold unit.
- [G]: Leading Edge Pressure Roller. Presses down on the leading edge of the stack after booklet stapling.

DETAILS

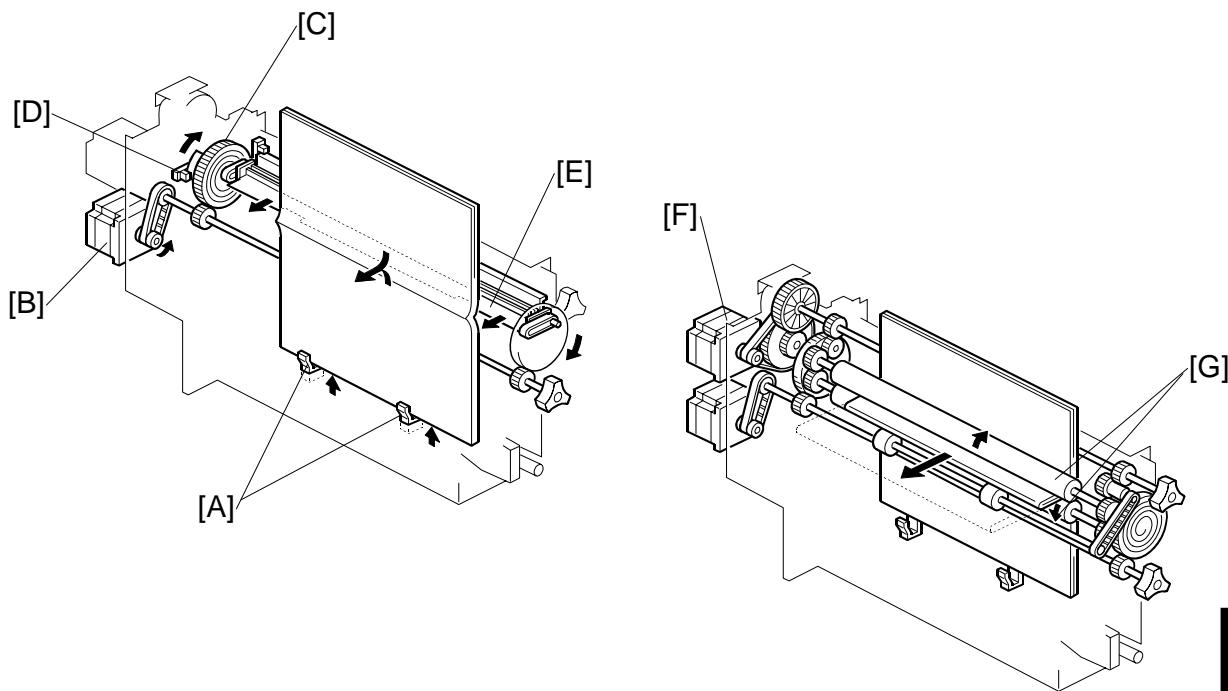


Clamp Roller

- [H]: Fold Roller Motor. Drives the stationary clamp drive roller ① as well as the fold rollers (see next page).
- [I]: Clamp Rollers.
 - ① Clamp Roller – Drive. Rotated by the fold roller motor, this stationary roller feeds the stack down with the retracting roller closed.
 - ② Clamp Roller – Retracting. Opened and closed by the retraction motor [C].
- [J]: Clamp Roller Retraction Motor. Operates the clamp roller cam that retracts the retracting clamp roller. The clamp rollers feed the stack to within 3 mm of the bottom fence when closed and then open to drop the stack onto the bottom fence.
- [K]: Clamp Roller HP Sensor. Controls the rotation of the clamp roller retraction motor and cam that open and close the retracting clamp roller.
- [L]: Clamp Roller Cam. Forces open the spring loaded retracting clamp roller.

Bottom Fence

- [M]: Bottom Fence. Raises the booklet stapled stack to the fold position.
- [N]: Bottom Fence HP Sensor. Detects the actuator on the bottom fence and stops it at the home position after folding.
- [O]: Bottom Fence Lift Motor. Raises the bottom fence and stapled stack to the fold position prescribed for the paper size.



Booklet
Finisher
B836

Fold Plate

- [A]: Bottom Fence Stack Stoppers. Catches the stack after it is released by the clamp rollers.
- [B]: Fold Plate Motor. Drives the timing belt and gears that move the fold plate.
- [C]: Fold Plate Cam. Controls the movement of the fold plate to the left (into the nip of the fold rollers) and right (toward the fold plate home position).
- [D]: Fold Plate HP Sensor. Controls operation of the fold plate motor.
- [E]: Fold Plate. Moves left and pushes the stack into the nip of the fold rollers and then moves right to retract.

Fold Rollers

- [F]: Fold Roller Motor. Drives forward to feed out the stack at the fold and then reverses to feed the fold in to sharpen the crease, and then drives forward again to feed out the folded stack. This reverse/forward cycle is done once.

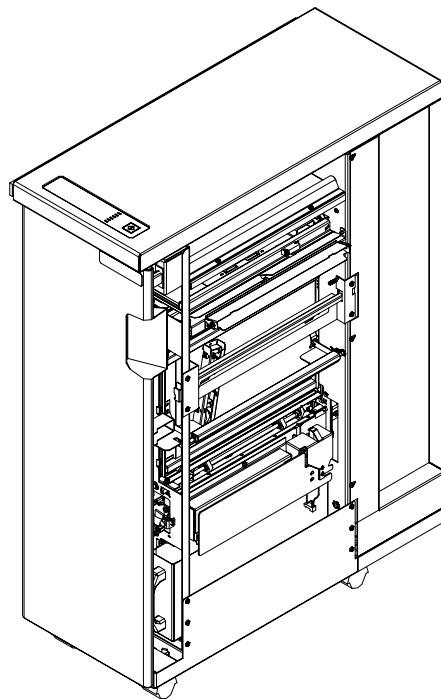
NOTE: This cycle can be repeated by changing the setting of **SP6203**.

- [G]: Fold Rollers. Driven by the fold roller motor, this roller pair feeds out the stack at its fold, reverses to feed in the stack to, and then feeds forward again (assisted by the fold unit exit rollers – not shown) to feed out the stack to the booklet output tray.



StreamPunch III

Technical Service Manual



Document # 7708972, Rev. 03-14-06

Visit GBC at www.gbccconnect.com



COMMERCIAL PRODUCTS GROUP

712 W. Winthrop Avenue
Addison, IL 60101-4395
USA
800-772-9281

www.gbccconnect.com

GBC Canada
49 Railside Road
Don Mills, ON M3A 1B3 CANADA
800-463-2545

www.gbccanada.com

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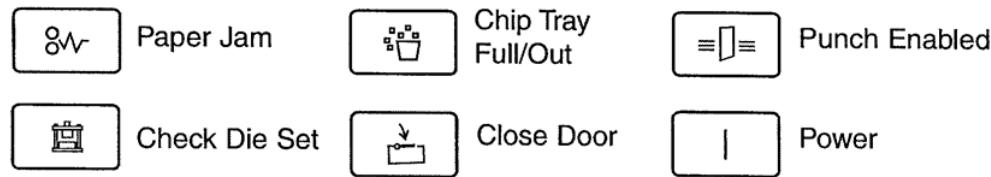
1. INTRODUCTION

1.1 INTRODUCTION

Thank you for purchasing the **StreamPunch**. It is a versatile production system that will enable you to punch documents for a variety of binding styles with a simple die change. It has also been designed for easy operation.

The **StreamPunch** is an innovative solution for punching paper and offers the following design features:

- Quick-change die sets that are self-latching without tools or levers.
- All **StreamPunch** die sets include an Identifying Label providing user with the hole pattern and name.
- Convenient storage area for three extra Die Sets located above the sheet bypass.
- Convenient LED's indicate:

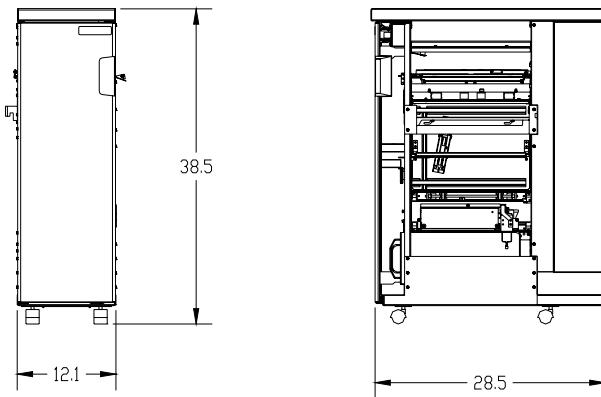


- PAPER JAM: Indicates there is a paper jam.
- CHIP TRAY FULL/OUT: Indicates the chip tray should be emptied, is missing or improperly installed.
- PUNCH ENABLED: Indicates the system is in the punch mode.
- CHECK DIE SET: Indicates a Die Set is not installed properly.
- CLOSE DOOR: Indicates the access door is not properly closed.
- POWER: Indicates the machine is plugged in, the POWER is on.

These instructions have been prepared to acquaint you with the **StreamPunch** punch and its operation. Please read them carefully. Keep this complete operating instruction for future reference.

2. INSTALLATION

2.1 PRE-INSTALLATION



If a GBC StreamPunch II system is inline with a SR840 finisher, a Finisher punch must not be installed. The Finisher punch is compatible with the SR 841.

INSTALLATION KIT CONTENTS – MT-C3 & VENUS

- E-PROM (new version for SR 841 Finisher) P/N C6847007
- Finisher Communication Cable Assembly P/N C6847002
- Finisher to Printer Cable (longer version) P/N C6847001
- GBC StreamPunch Interconnect Communication Cable (Gray) P/N VRC51278

INSTALLATION KIT CONTENTS – BC-3

- E-PROM for Venus only P/N C6847001
- Finisher to Printer Cable (long version) P/N
- GBC StreamPunch Interconnect Communication Cable (Gray) P/N

UNPACKING

- Inspect the outside of the package for shipping damage. If there is evidence of shipping damage, contact the shipping carrier immediately.
- Remove the punch from its shipping carton.
- Inspect for any concealed damage to unit. If there is evidence of concealed shipping damage, contact the shipping carrier immediately.
- Remove all shipping tape from doors and levers.

2.2 INSTALLATION AND SET-UP OF GBC STREAMPUNCH III

RECOMMENDATIONS:

- Use Jogger Unit Type 1075 – EDP 411206. This will improve the stack quality.

INSTALLATION KIT CONTENTS – FOR MT-C3 AND VENUS

| | |
|--|--|
| <ul style="list-style-type: none">• EPROM (For SR841 Finisher) P/N C6847007• Finisher Communication Cable Assembly, P/N C6847002A• Finisher to Printer Cable (longer version) P/N C6847101• GBC StreamPunch Interconnect Communication Cable, P/N VRC51278• Power Cable• Warning Label (to be added to printer)• Wire Tie Wraps included• Instruction sheet P/N 7706304 (Repeated here for the convenience of the technician) |  |
|--|--|

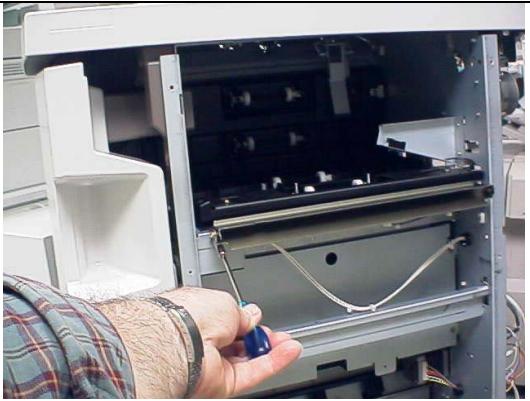
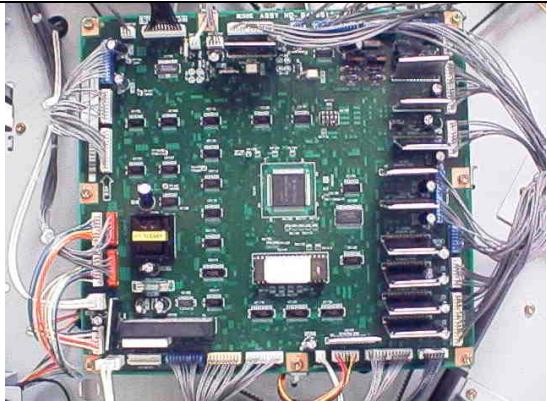
UNPACKING

- Inspect the outside of the package for shipping damage. If there is evidence of shipping damage, contact the shipping carrier immediately.
- Remove the punch from its shipping carton. Three people are recommended, one lifting at the casters while two lift at the top cover. DO NOT lift using the front door panel.
- Inspect for any concealed damage to unit. If there is evidence of concealed shipping damage, contact the shipping carrier immediately.
- Remove all shipping tape from doors and levers.

UNIT SET-UP

Reference the following pages to assist you in identifying the proper location of the cables, sound deadening foam and finisher docking brackets. Improper connection of any of the following cables will result in improper communication between the Printer, Finisher and StreamPunch which result in one or more problems.

FINISHER PREPARATION

| Remove the Input Guide from the Finisher. | Install new EPROM for the Finisher. |
|---|--|
|  |  |

FINISHER DOCKING BRACKET INSTALLATION

| | |
|--|--|
|  | <p>The docking brackets are shipped in a separate bag to avoid shipping damage.</p> |
|  | <p>Install as shown with the bracket marked "R" on the right side facing you as you look at the exit side of the StreamPunch. Install the bracket marked "L" on the left side facing you. Both brackets should be oriented with the arrow facing up.</p> |

SOUND DEADENING FOAM STRIPS

| | |
|---|---|
|  | <p>Supplied with the StreamPunch you will find six strips of sound deadening foam are shipped loose for field installation. These are not attached at the factory to avoid compression and/or damage during shipping.</p> |
|  | <p>To install, simply peel the back off to reveal the adhesive using the following steps as a reference.</p> |

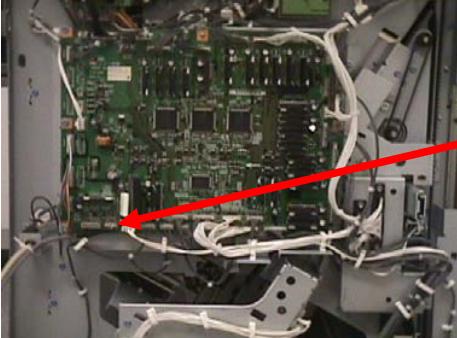
PAPER EXIT SIDE (FINISHER SIDE)

| | |
|---|--|
|  | Apply the wide strip to the right side as shown. |
|  | Apply one of the two shorter pieces to the side of the top cover as shown. |
|  | Apply one of the three longer strips to the left rear panel as shown. |
|  | Exit side complete |

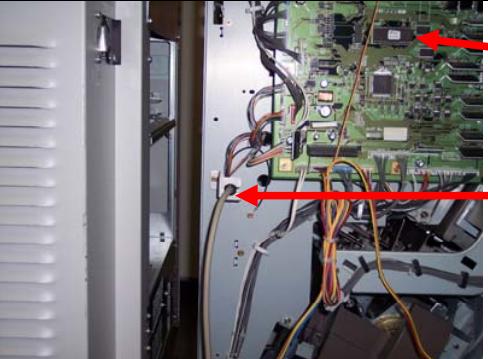
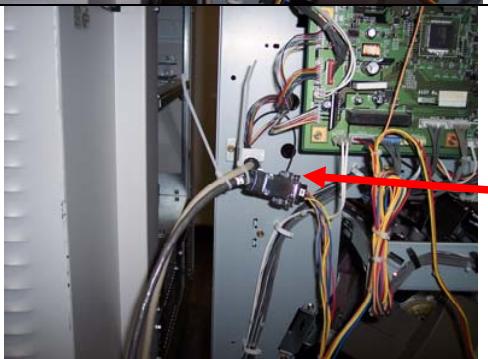
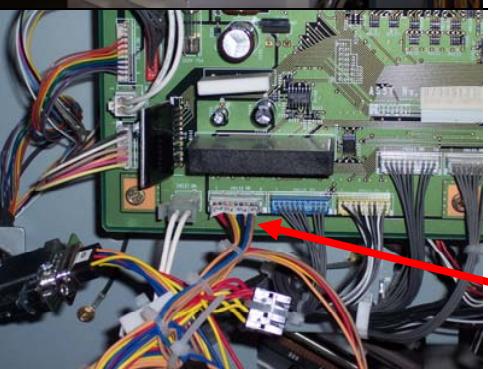
PAPER ENTRANCE SIDE (PRINTER SIDE)

| | |
|--|---|
|  | Apply one of the two remaining long strips to the right side of the printer side of the StreamPunch as shown. |
|  | Apply the last remaining short strip to the top cover edge of the printer side of the StreamPunch as shown. |
|  | Apply the last remaining long strip to the left side of the printer side of the StreamPunch as shown. |

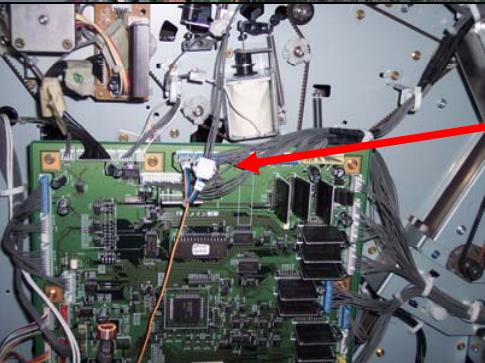
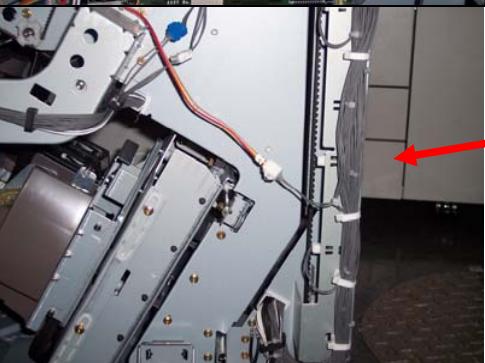
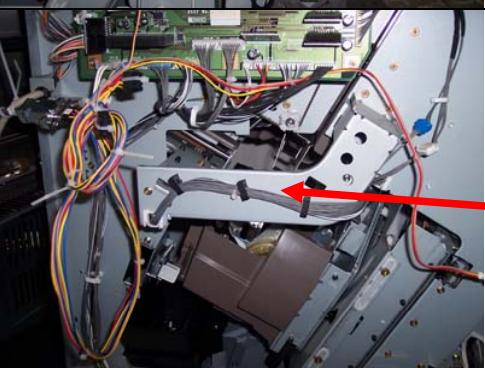
FINISHER PREPARATION – BC-3

| | |
|---|---|
|  | <ol style="list-style-type: none">1. Attach connection to Finisher board2. Replace Finisher to Printer cable3. Attach 2 cables together4. Connect Finisher to Printer5. Connect Finisher to StreamPunch |
|---|---|

FINISHER PREPARATION – FOR MT-C3, VC-1

| | |
|---|--|
|  | <p>Install the new finisher E-Prom provided.</p> |
|  | <p>Replace the Finisher to Printer Cable with the longer version supplied with the StreamPunch,</p> |
|  | <p>The Finisher Communication Cable and Gray Inter Connect Cable have been connected and pre-numbered to assist in installation.</p> |
|  | <p>Begin the installation of these cables by first using wire ties to secure the area labeled "0" to the new longer Finisher Cable as shown.</p> |
| | <p>Connect the other end of the gray cable (labeled "1") to the StreamPunch. NOTE: Be sure the "D" shaped connector is properly oriented as it is possible to force it on upside down resulting in no communication.</p> |
|  | <p>Attach the 9-pin connector labeled "2" to the bottom of the finisher board plug CN132(W).</p> |

FINISHER PREPARATION – FOR MT-C3, VC-1 (Continued)

| | |
|---|---|
|  | <p>Harness to Harness Connection:</p> <p>Unplug connector attached to board CN113(C) and attach this connector to the new 4-pin female adapter plug on the newly supplied cable labeled #3.</p> <p>IMPORTANT – Confirm that this end of the harness contains three wires. If this jumper is reversed, the StreamPunch Motors will not start.</p> |
|  | <p>New Harness to Board Connection:</p> <p>Attach the 4-pin male connector (labeled #4) of the newly supplied cable to plug CN113(C) on the board.</p> <p>IMPORTANT – Confirm that this end of the harness contains four wires. One will be the long BURNT ORANGE wire.</p> |
|  | <p>Unplug middle sensor wire and attach 3-pin connector of wire to female adapter plug on cable.</p> <p>Note that the Sensor is no longer used in the circuit. If the new harness is connected to the Sensor instead of the finisher, the Cover Interposer communications will not work.</p> |
|  | <p>Bundle and tie-wrap remaining cable.</p> <p>NOTE: Be sure that you do not attach the cable to the stapler drawer as this will pull the harness loose the first time this drawer is opened.</p> |

TEST OPERATION

- Check to ensure that the paper chip tray is securely in place.
- Check to ensure that a Die Set is installed properly and that any extra Die Sets are securely stored in the Die Storage Area.
- Run a small test job in "Bypass" mode. Check to ensure that the job is not punched and bypasses properly.
- Run a small job with Punch Enabled. Check the punched holes of the job.

GBC STREAMPUNCH INSTALLATION AND SET-UP REFERENCE ILLUSTRATION – FOR MT-C3 & VC-1 ONLY

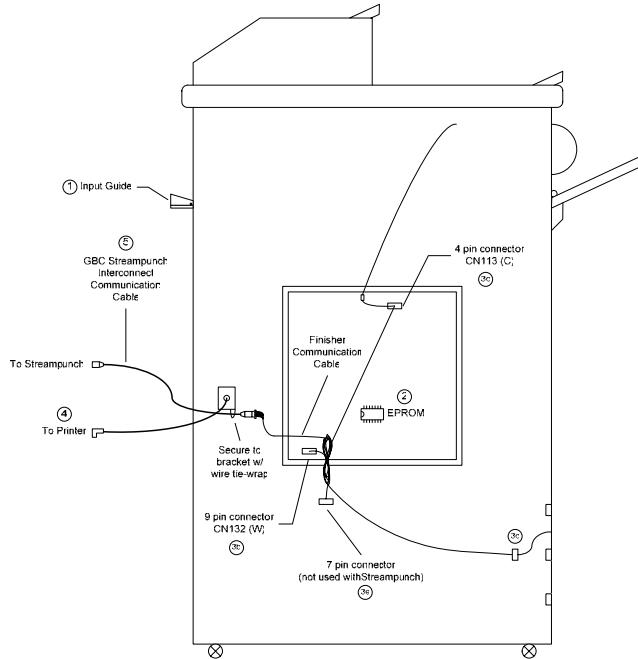
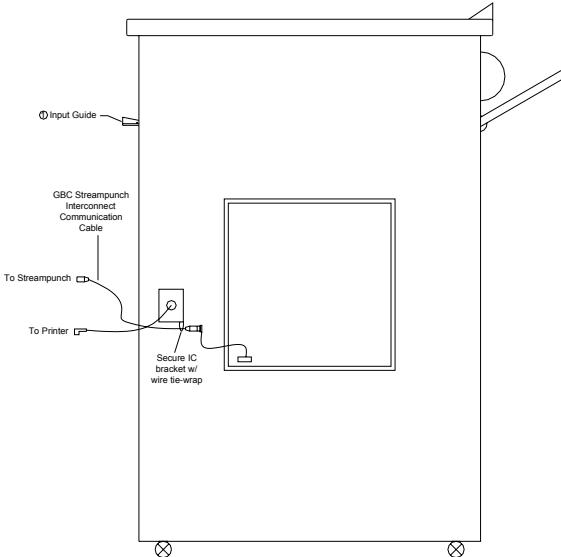


Fig. 8.

GBC STREAMPUNCH INSTALLATION AND SET-UP REFERENCE ILLUSTRATION - FOR BC-3



GBC STREAMPUNCH DIE SET - INFORMATION SHEET

IMPORTANT NOTICE REGARDING THE DIE SETS PLEASE READ

Your GBC StreamPunch die set (C4, W2 and W3 versions), is supplied with a felt pad containing oil, a pad retaining magnet and shield*. **Do not throw these items away!**

The felt pad will provide lubrication to the punch pins under normal usage and will help to keep the punch pins clean. The magnet is intended to keep the felt pad in place during typical handling. If the pad and magnet came off of this die set during shipping or unpacking, please replace them as indicated in the accompanying diagram.

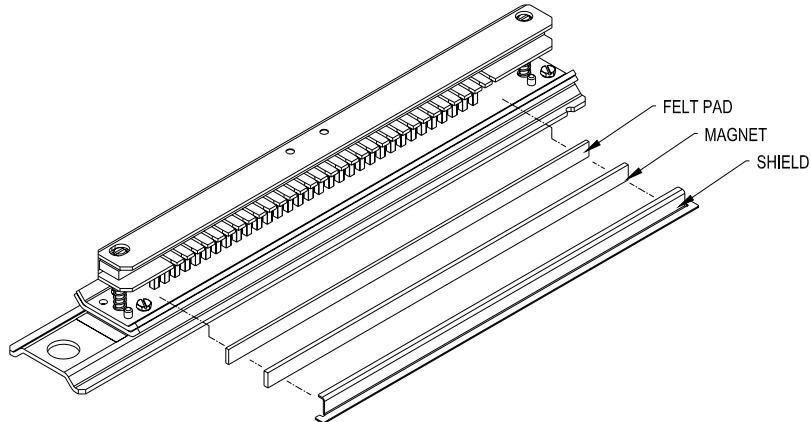
Keep this sheet as a reference in the event that the pad and magnet are removed or replaced.

3. MAINTENANCE

3.1 DIE SET PRODUCT NUMBER LISTING (DIE SET NOT SHOWN)

Die Set repair is not recommended other than to clean and lubricate the Punch Pins. Punch pins are listed here as a service item only in the event that some may be lost.

If a Die Set produces poor hole quality over time, it is more likely a result of Die Plate wear. In this case the Die Set should be replaced with a new one.



NOTE: Felt Pad and Retaining Magnet are not required or included with the 3-Hole, PB or VB die sets.

3.2 INSPECTION, CLEANING AND LUBRICATION

The following maintenance should be performed once annually, under normal use.

Operational Inspection

1. If operating properly, the **StreamPunch** will punch the same types of copy paper and cover materials handled by the copier/printer. It will run at the speed of the printer.
2. Hole quality will vary between different grades of paper.

External Cleaning

1. Make sure you disconnect the **StreamPunch** from its power source before cleaning. The cover may be cleaned with a soft cloth moistened with mild detergent and warm water.
2. Do not use chemical cleaners or solvents as these may have a harmful effect. Use detergent sparingly to avoid contact with electrical components.

Internal Cleaning

Before internal cleaning, be sure to disconnect power to the StreamPunch and ensure that you retain control of the power cord.

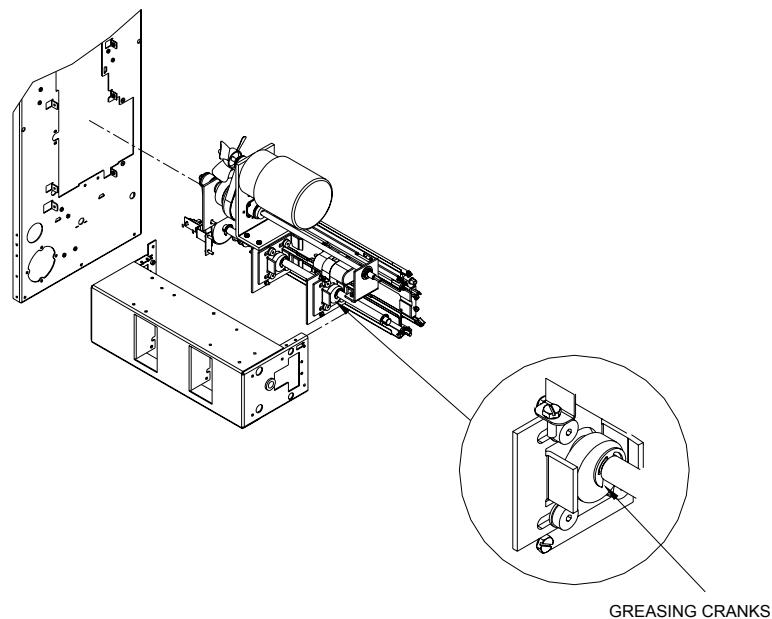
Occasionally, it will be necessary to remove the rear cover and remove paper dust built up around the motor and other electrical components. Use a vacuum cleaner if possible. A small paintbrush can also be used but extreme care should be used around electrical components.

Internal Inspection

Whenever the cover has been removed for corrective maintenance, visually inspect for defects such as loose screws or nuts, abraded wire insulation, loose terminals, etc. Correct any defects before returning the machine to service.

Lubrication Points and Recommended Lubricant

- Lubricate the punch pins and/or the felt pad once every 50,000-punch cycles with oil (3-in-one Oil or better is recommended). Method; depress the Pin Guide so that the Punch Pins protrude from the bottom plate, oil the ends of the pins and wipe clean.
- If Punch Drive Module Assembly is ever removed for service, check for sufficient grease on the cranks.



Die Sets

StreamPunch Die Sets have an average expected life of approximately 500,000 sheets of paper. This life may vary depending on variables such as following the lubrication schedule described above, the type of paper being punched, the cover stocks being punched and the typical length of the average job.

3.3 GBC SERIAL NUMBER, DATE CODE EXPLANATION

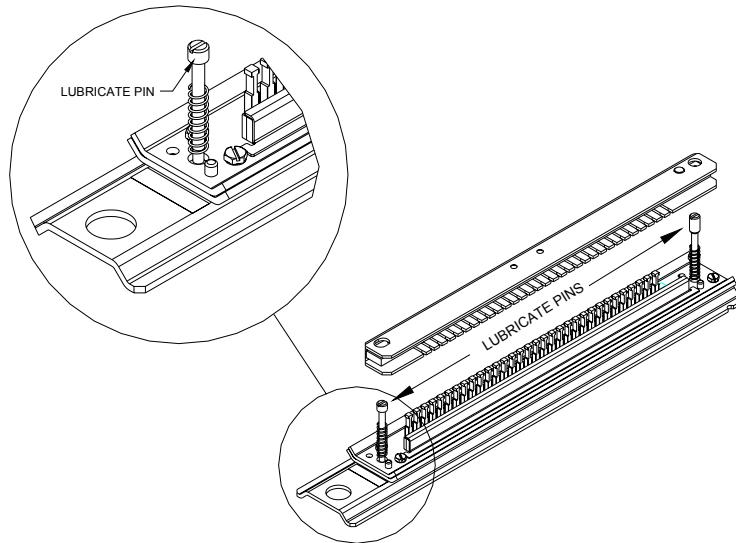
The first two characters of the serial number tagged on GBC StreamPunch as well as the GBC Die Sets indicate the month and year of manufacture. The first letter indicates the year and the second letter indicates the month.

| First Letter (Year) | Second Letter (Month) | Built |
|------------------------|--------------------------|----------------|
| P | J | October 2003 |
| P | K | November 2003 |
| P | L | December 2003 |
| Q | A | January 2004 |
| Q | B | February 2004 |
| Q | C | March 2004 |
| Q | D | April 2004 |
| Q | E | May 2004 |
| Q | F | June 2004 |
| Q | G | July 2004 |
| Q | H | August 2004 |
| Q | I | September 2004 |
| Q | J | October 2004 |
| Q | K | November 2004 |
| Q | L | December 2004 |
| R | | 2005 |
| S | | 2006 |
| T | | 2007 |
| U | | 2008 |
| V | | 2009 |
| W | | 2010 |

Example: A serial number of PJ012345 on a Die Set would indicate that it was manufactured in October of 2003. A serial number of TG00765 on a StreamPunch would indicate that it was manufactured in July of 2007.

3.4 DIE SET MAINTENANCE

Die sets have a minimum life expectancy of 500,000 cycles depending on application, environmental factors and maintenance. Periodic lubrication of the punch pins can extend the life significantly. GBC recommends use of a high quality machine oil (3 in One Oil or better – do not use spray oils) every 50,000-punch cycles. The customer/operator should perform this maintenance between Technician inspects (below).



3.5 PREVENTATIVE MAINTENANCE SCHEDULE

The following preventative maintenance should be performed during the regular printer inspection intervals (350K & 600K etcetera).

- Check web site for any bulletins; bring StreamPunch up-to-date as required.
- Disconnect the main cord set and retain it in your control for your safety.
- Remove the rear cover.
- Perform a visual inspection; clean, adjust and replace components as required.
- Vacuum Paper Chad out of Back Gage Mechanism and Die Guide as well as base.
- Optical Sensors; Remove dust and particles from the lens using a soft cloth.
- Inspect Timing Belts for wearing or fraying.
- Inspect any Latching Mechanisms, clear any jams paper debris.
- Inspect and clean Rollers.
- Inspect Left / Right Punch alignment by running paper with each die set, check for even hole alignment by folding the paper in half. If adjustment is required, ensure that the Die Latch is properly adjusted.
- Inspect the Door closing latch for proper alignment, if bent, instructs the operator to avoid closing the door with paper path latches out of place.
- Lubrication of the Die Set Pins (see note above)
- Cams (when punch is pulled), lubricate with high quality grease
- Inspect the Idler Rollers, clean if necessary.
- Inspect the Drive Rollers, clean if necessary.
- Inspect the Paper Path Panels, clean if necessary.
- Inspect each Die Set for wear. Run at least 100 sheets of paper. Look for signs of excess paper jamming. Inspect the hole quality. Hanging chad or ragged holes can lead to paper jams. If the hole is cut sharp enough that there is no hanging chad and the paper passes through the system without catching and jamming, the die set still has life.

As with any electro-mechanical device, isolated component failures may occur. GBC does not recommend preventative replacement of components until the printer has reached the two million-impression milestone

REPLACE THE FOLLOWING COMPONENTS EVERY 2 MILLION IMPRESSIONS

| P/N | Description | Qty Per Unit |
|----------|-------------------------------|--------------|
| VRC51049 | Aligner Idler Roller Assembly | 4 |

REPLACE THE FOLLOWING COMPONENTS EVERY 4 MILLION IMPRESSIONS

| P/N | Description | Qty Per Unit |
|----------|-------------------------------|--------------|
| VRC51275 | Bypass Kit | 1 |
| VRC51044 | Roller Energy Drive | 1 |
| VRC51019 | Belt, Aligner (Green Belts) | 2 |
| VRC51053 | Solenoid, Back Gage | 1 |
| VRC51049 | Aligner Idler Roller Assembly | 4 |

3.6 STREAMPUNCH FAQ'S

The GBC StreamPunch will perform best when used for applications that it was designed to perform. To ensure complete satisfaction, operate the StreamPunch within the following design parameters.

Specifications:

| | |
|---------------------|---|
| Printers Supported: | AFICIO- 2105, 2090, MT-C3, VC-1, BC-3 GESTETNER- GBC STREAMPUNCH for 6002/7502/DSm660/675 /660sp/675sp/651/651sp/9002/10512 LANIER- GBC STREAMPUNCH for LD060/075/160/175 /160 SP/175 SP/151/151 SP/LD090/LD0105 RICOH- GBC STREAMPUNCH for AFICIO 1060/1075/2060 /2075/2060 SP/2075 SP/ 2051/2051 SP/2090/2105 SAVIN- GBC STREAMPUNCH for 2560/2575/4060/4075 /4060 SP/4075 SP/4051/4051 SP/4090/40105 |
|---------------------|---|

Finisher Supported: SR840 & SR841 Finisher Only and Color Finisher Victoria - E

Sheet Sizes Supported:

| | |
|-----------------------------|---|
| Punching: | 8.5" x 11" (11" edge only) North America 8.27" x 11.69" (11.69" edge only) Europe, Australia |
| Bypass Mode (not punching): | 5.5" x 8.5" up to 13" x 19" Supports all stocks and weights that the printer supports (in bypass mode). |

Paper Weights Supported:

| | |
|-----------------------------|---|
| Punching: | 75 gsm (20lb Bond) to 216 gsm (80lb Cover) |
| Bypass Mode (not punching): | 52 gsm (16lb Bond) to 216 gsm (80lb Cover) |
| Physical Dimensions: | 12" width x 38.5" height x 28.5" depth |
| Physical Weight: | StreamPunch System: 154 lbs. Shipping Weight: 235 lbs. |

Power Consumption:

| | | |
|------------|--------|---|
| USA/Canada | Punch: | 115 V, 60 Hz 3.0 A, 340 W, 1160 BTU/Hr |
|------------|--------|---|

3.7 SETTING THE RIGHT EXPECTATIONS

Product Positioning:

StreamPunch provides a flexible, cost effective punching solution for light to medium level production oriented customers.

- Designed for customers that have the need to punch their documents at a maximum of 60-70% of their overall workflow.
 - Recommended punching limit to 200k sheets per month. (600k sheets in bypass mode)
- Die Sets will decrease in performance over time based on the types of stocks and weights that are being punched.
 - GBC guarantees a minimum of 500k punches per die set. However, if paper stock punched is typically 20lb bond, then up to 2 million punches can be achieved.
- Should be regarded as a long-term supply item.

Interposer:

Improved communication has now been developed to allow for use with the interposer when the StreamPunch is in-line.

SR841 Finisher Stack Capacity:

The Finisher has a stack capacity of 3000 sheets.

- Some Die Set patterns can create larger stacked output.
- GBC recommends offloading stacker output at around 2000 sheets.

8.5" x 11" (LEF) Only:

StreamPunch is designed to punch this size only (LEF) no exceptions. Attempting to punch a sheet size other than 8.5" x 11" (LEF) will cause a jam.

- StreamPunch cannot punch tabs. Tabs will have to be run, punched and inserted offline.
- Use a colored sheet insert (instead of the tab) in the job workflow for easier tab insertion after the job has been run.

Running Jobs:

StreamPunch is currently activated manually by the touch of a button.

- Cannot be activated from the Printer Touch Panel Display.
- It cannot be activated from the driver at your PC.
- For the Aficio 1060, 1075, 2051, 2060 & 2075, MT-C3, VC-1, BC-3 the document will need to be rotated 180 degrees to allow for punching on the correct side of the document.
- Jobs sent to the StreamPunch from the desktop currently have 4 minutes to begin printing from manual punch activation.
 - Complex jobs may need to be sent to the Document Server first and then punched.

Die Sets:

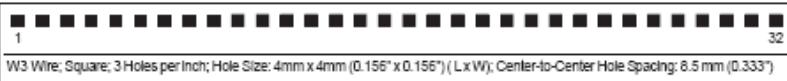
The GBC StreamPunch is capable of punching a variety of hole-punch patterns by simply changing the Die Set. Die sets can be changed in seconds without tools. The Die Sets currently available are listed below.

| North America | Europe / Australia |
|--|--|
| 3 hole | 4 hole |
| VeloBind 11 hole | VeloBind 12 hole |
| WireBind (2 Types) - 21 hole WireBind - 32 hole WireBind | WireBind (2 Types) - 23 hole WireBind - 34 hole WireBind |
| ColorCoil 44 hole | ColorCoil 47 hole |
| ProClick 32 Hole | ProClick 34 Hole |
| Plastic Comb 19 Hole | Plastic Comb 20 Hole & 21 Hole |

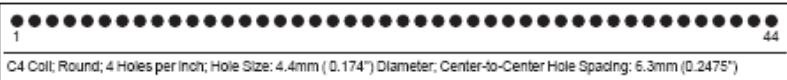
For Plastic Comb Binding choose from:



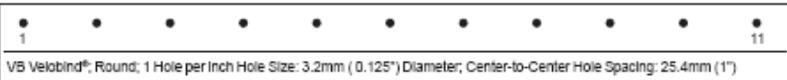
For Twin Loop™ Binding choose from:



For Color Coil™ Binding choose from:



For Velo® Bind choose from:



For Looseleaf Binding choose from:



For Proclick® Binding choose from:



Customized Die Sets can be ordered from GBC for an additional price.

GBC SALES CONTACT INFO:

GBC greatly welcomes the opportunity to connect with the Ricoh Family Group at the field level to support a variety of sales activities.

- Support local trade shows or open houses.
- Joint sales calls to add value to selling the Ricoh Printer, GBC StreamPunch and GBC finishing solutions.
- Attend local sales meetings to connect with branch reps.

To get connected with a local GBC sales representative, call **Greg Milam, Business Development Manager – GBC at 281-395-9949.**

4. ADJUSTMENT AND SPECIAL PROCEDURES

4.1 TOOL RECOMMENDATIONS

What you need to service the GBC StreamPunch:

1. Standard Measure Tools (English as opposed to metric)
 - a. Open End Ignition Wrench – $\frac{1}{4}$ " (required only for Chad Kit installation)
 - b. Nut Driver, $\frac{5}{16}$ " (optional use Phillips head)
 - c. Nut Driver, $\frac{1}{4}$ " (optional use Phillips head)
 - d. Allen Wrench, $\frac{3}{32}$ " (comes with Chad Control Kit)
 - e. Allen Wrench, $\frac{5}{64}$ "
 - f. Allen Wrench, $\frac{9}{64}$ "
2. Other recommended tools
 - a. Needle Nose Pliers (Side Cutters)
 - b. E-Prom Extractor Tool – Order under Ricoh P/N **VRC11186** (Also used for Plockmatic) or can be purchased from the following supplier:

SupplierDigi-Key.com
Digi-Key Part Number: K293-ND
Manufacturer Part Number: EX-5
Description: TOOL EXTRACTOR IC PLCC UNIVERSAL

- c. Wire Cutters
 - d. Screw Driver, Phillips Head
 - e. Screw Driver, Flat Head, Small
3. Supply of Wire Tie Wraps
- NOTE:** A nut driver head of $\frac{1}{4}$ " is the most common size for the barrel of a Magnetic or interchangeable tip screwdriver.

4.2 DIE SET POSITION CRADLE ADJUSTMENT, CENTERING PUNCHED HOLES

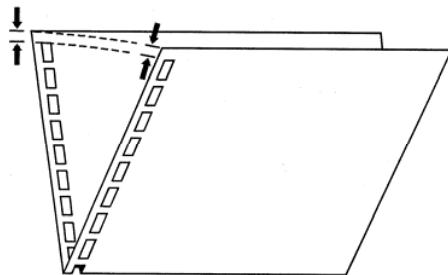
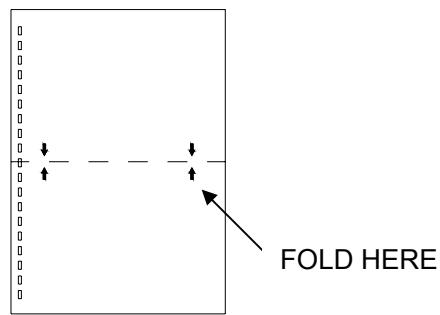
The die set position cradle is set in the factory; however, because of the punched-hole spacing on the PB die sets, there is a minimal amount of paper on each edge of the punched paper. The die set position cradle may have to be fine adjusted to center the punched-hole pattern in the paper.

Listed below are the step-by-step instructions to adjust the die set to the proper position:

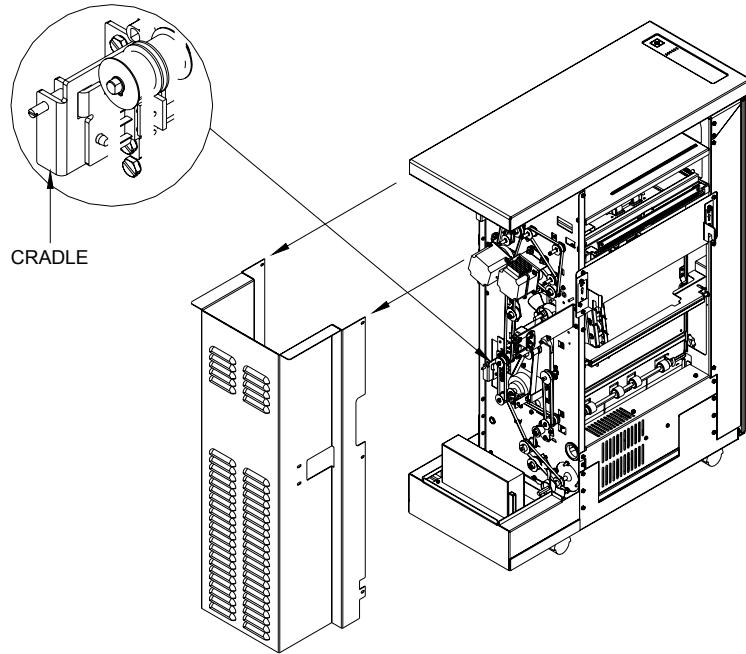
- The punched-hole alignment must be checked on a piece of punched paper. Fold the punched sheet of paper in half and the punched-holes should be aligned. If the punched-holes are not aligned, then the die set cradle must be adjusted to align the punched holes.

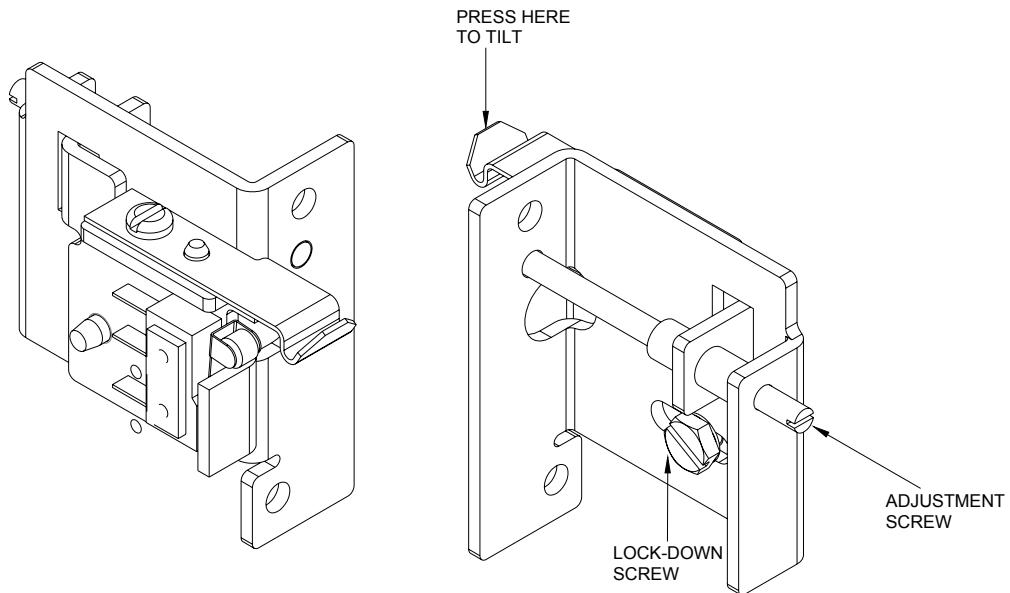
NOTE: The paper path is always constant, if the holes are not centered, you must adjust the die set cradle.

PUNCHED HOLE ALIGNMENT CHECKING

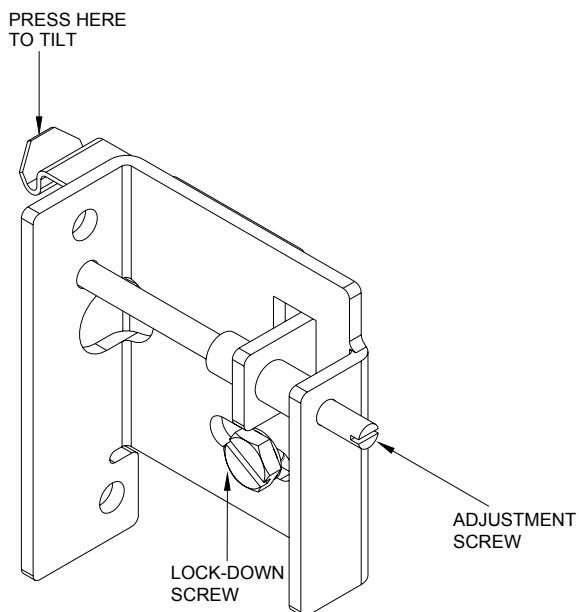


- The back cover on the StreamPunch must be removed to access the die set position cradle.

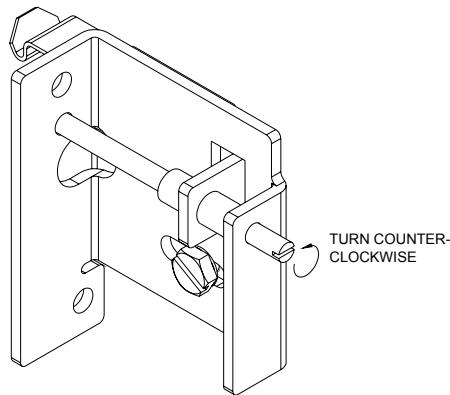




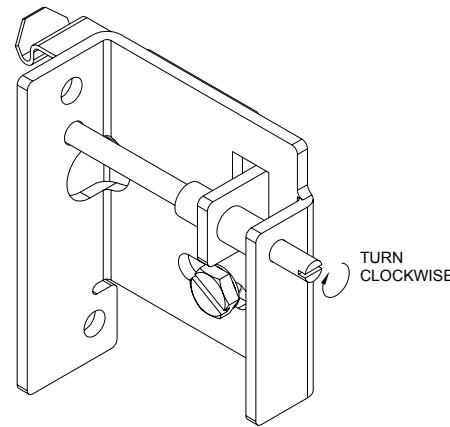
- Before adjusting the die set position cradle, you must first note what direction the die set cradle must move.
- Before you adjust the die set position cradle, you must loosen the lock-down screw.



- Observe the punched paper; if the punched-holes are too close to the rear of the machine, then you must turn the adjustment screw counter-clockwise.



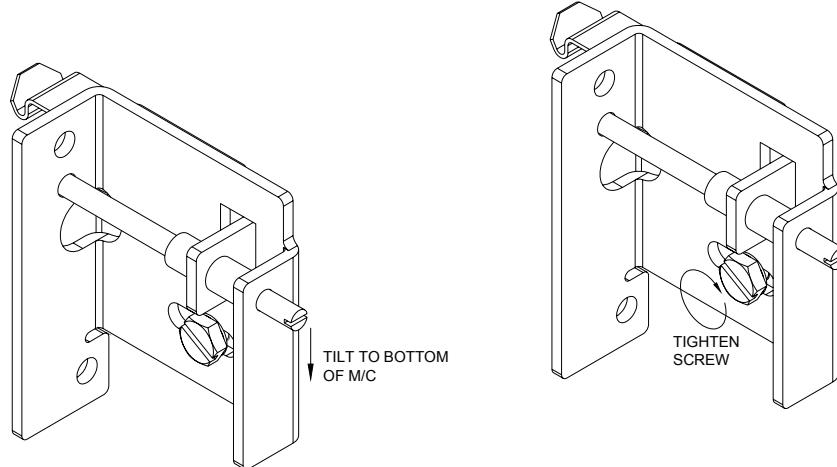
- If the punched-holes are too close to the front of the machine, then you must turn the adjustment screw clockwise.



- Using a flat-head screwdriver, turn the adjustment screw clockwise or counter-clockwise to move the die set position cradle.

NOTE: Seven full turns of the adjustment screw result in a $\frac{1}{4}$ " change in the punched hole position.

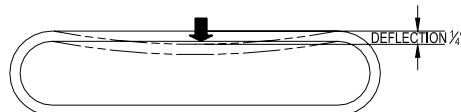
- Before tightening the lock-down screw, tilt or bias the assembly towards the bottom of the machine and tighten the lock-down screw. This will ensure positive engagement between the locking lever and the die set.



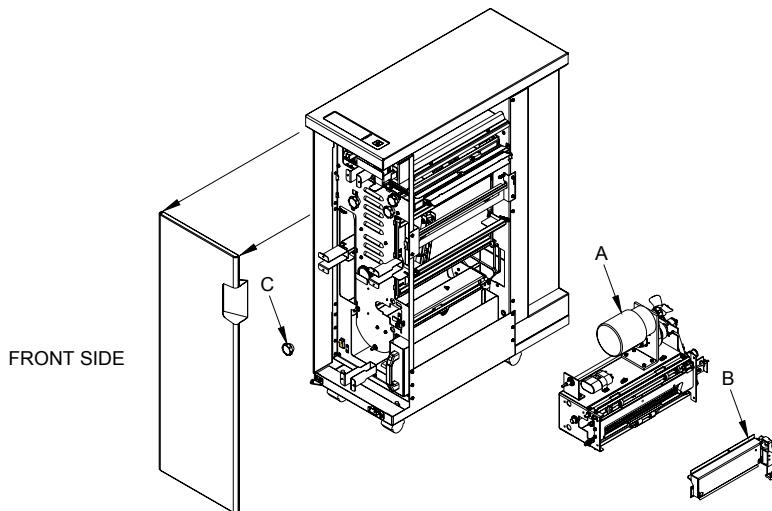
- Run a test sample of punched paper and recheck paper alignment. Re-adjust if necessary.

4.3 REMOVAL OF PUNCH MODULE

1. Examine the Drive Belts. Note the consistency in tightness of the belts. They should all have approximately $\frac{1}{4}$ " of deflection; remove the four drive belts items 1, 2, 3, 4.



2. Disconnect the Sensor Wire Connection
3. Remove 4 screws in front and 2 in back
4. Cut any wire ties that may prevent freedom of movement to slide the Punch Module (A) outward



5. Remove the Back Gauge Assembly (B).
6. Remove the black Knob (C) at the front (customer side) of the Punch Module Drive Shaft.
7. Slide the Punch Module unit part way out to reach and unplug the Punch Sensor Harness (Red, Black, White wires)
8. Slide the entire Punch Assembly (C) out and lay it beside the StreamPunch. Take care not to damage wires or Rollers as you do so.
9. To replace any component of the punch Module, disassemble components as required.

4.4 GREEN BELT REPLACEMENT, ALIGNER PANEL REMOVAL, EXPLANATION

The following procedure explains how to remove the Entrance Side Aligner Panel and the Exit Side Aligner Panel.

The basic intent of this procedure is to access and replace the Green Aligner Belts, but once you know how to follow this procedure you are now able to access other components as well.

SYMPTOM

Paper will stop moving through the Punch paper path.

CAUSE

One or both of the Green Aligner Belts have broken. If this break occurs, it would usually occur at the Weld Splice.

ACTION IN THE FIELD

Replace the Green Belt of the Belt Aligner Assembly using the following procedure.

PROCEDURE TO REPLACE ALIGNER BELTS

Replacement of the Green Belt from the Aligner, Paper Entrance Side.

Replacement of the Green Belt from the Aligner, Paper Exit Side.

4.5 GREEN BELT REPLACEMENT, PAPER ENTRANCE SIDE

The following step-by-step directions inform you how to remove and then assembly the components necessary to access the Paper Entrance Side Aligner **Green Belt**.

It will help you to reference your StreamPunch Service Manual part drawings as you follow this process.

Special Tools Required:

- Twelve inch metal ruler or similar straight edge.
- Phillips Head Screw Driver 7" or less in total length.
- Alan wrenches (5/64" & 9/64").
- Nut Driver (1/4" & 5/16").
- Rare Earth Magnet Snake Neck (optional – good for retrieving any hardware that happens to fall in hard to reach spots).
- Snap Ring pliers.
- E-Ring tool

NOTE: During assembly, be sure not to over tighten any of the mounting screws.

Step 1: Disconnect the StreamPunch from Power. Retain the power cord in your possession for your safety.

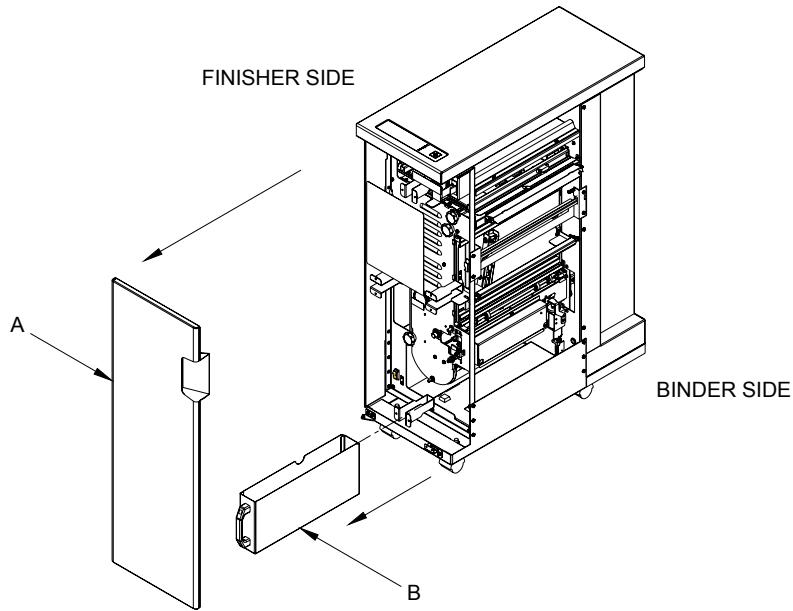
Step 2: Disconnect the Communication Cable to the Finisher.

Step 3: Unlatch the GBC StreamPunch from both the Finisher and the Printer.

NOTE: You must first remove the screw that secures the latch in place (if so equipped).

Step 4: Open the Front Door (A) of the StreamPunch.

Step 5: Remove the Paper Chip Tray (B), empty it and replace it. This is to prevent difficulty in finding any small parts that you may drop into the chad.



Step 6: To remove the Rear Cabinet/Cover (C) of the StreamPunch,

1. Remove the "5" screws on Exit side and "3" screws on Entrance side.

2. **Slide** the Rear Sheet Metal Cabinet/Cover off of the StreamPunch.

NOTE: You do not need to lift upward and you do not need to remove the Top Cover.

Step 7: Disconnect the Entrance Sensor Wire from the Side Frame.

Step 8: Remove the "4" screws that secure the Front Paper Chute (D), set aside.

Step 9: To remove the J2 Flipper, Door Latch (E).

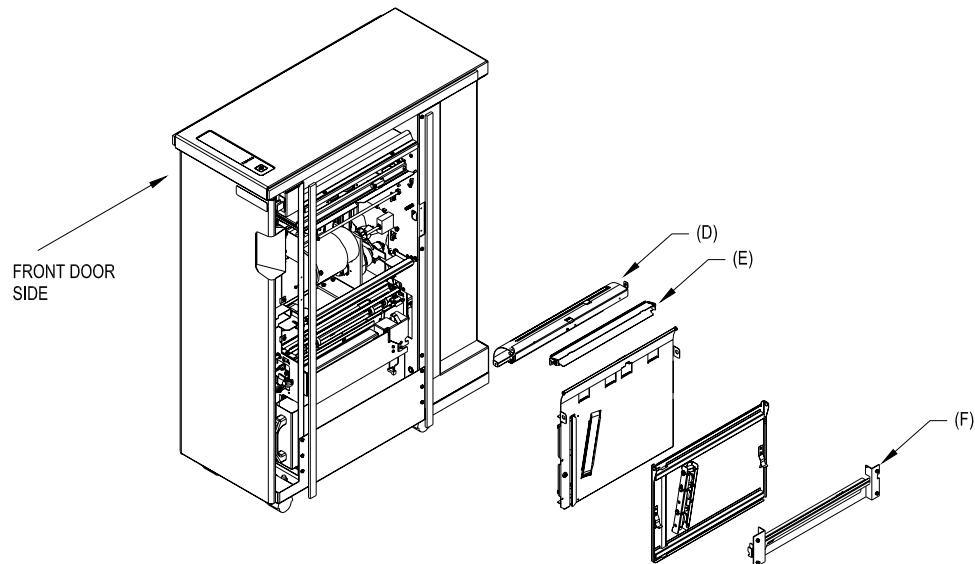
A. Unhook the spring of the J2 Flipper on the right end.

B. Remove only one (the one closest to the frame) of the "E" Rings of the J2 Flipper on the left end (front Door side).

C. Push the J2 Flipper in toward the front Door until it clears the rear frame.

D. Pull the entire J2 Flipper, Door Latch out and set it aside.

Step 10: Remove the "4" screws that secure the Docking Bracket (F). Remove, and set aside.



Step 11: To remove Entrance Aligner Panel, Idler Paper Guide Assembly (item 19)

a. Remove "2" E-Rings from the Pivot Shaft (G).

b. Slide the Shaft (G) all the way out through the front of the StreamPunch.

c. Remove the Fan (H) that prevents access to the Flexible Cable. To remove it simply pull it off of the Shaft.

d. Remove the Flexible Cable using an Alan Wrench.

e. Remove the rear top Pulley (I).

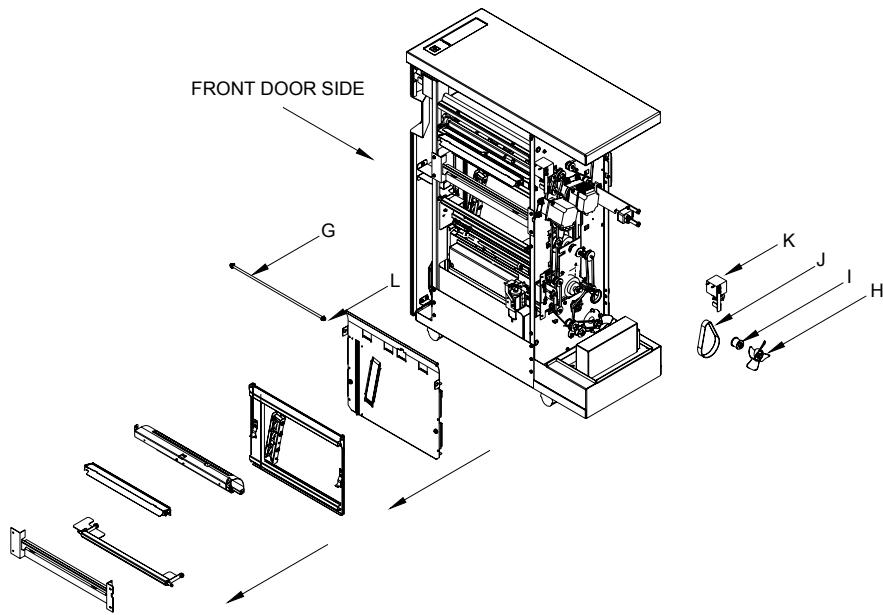
f. Loosen the Belt Idler (J).

g. Remove the Belt and Pulley.

h. Loosen screw from the Solenoid Link.

i. Remove the Solenoid Assembly (K) and link from the Diverter Shaft, leave it hang.

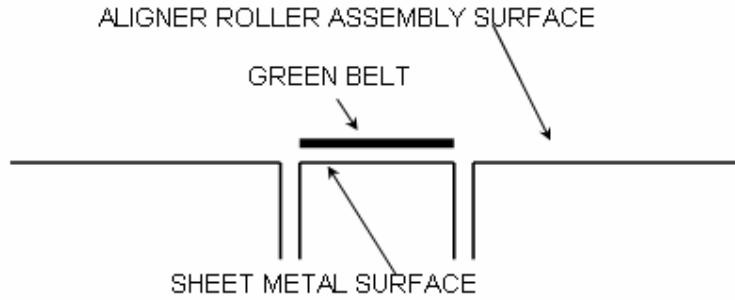
j. Remove the two E-Rings of the Entrance Diverter Assembly, slide the Diverter out and set it aside.



- Step 12:** To remove the Drive Side, Paper Entrance Guide Aligner Assembly (L), which is the large sheet metal Assembly that actually, contains the Green Belt and Aligner.
- Remove the "6" Screws that secure the face of this Assembly.
 - Remove the "2" screws that secure this Assembly from the Side Frame.
 - Pull and walk the entire sheet metal assembly of the Paper Guide Aligner Assembly up and outward. You can grab the Assembly at the Roller cut out with your fingers.

IMPORTANT: As you do this, disconnect the Sensor harness behind the Assembly as soon as you are able to reach it.

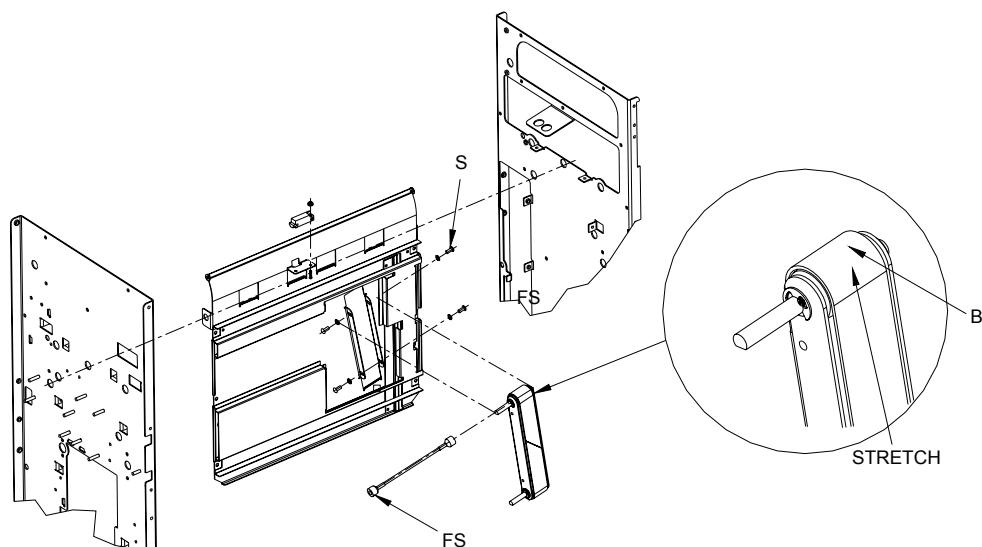
- Step 13:** Before you remove the Green Belt Aligner Roller Assembly from the sheet metal paper guide, observe the perfectly flush surfaces of the Green Belt Aligner Roller Assembly to the sheet metal surface of the Rear, Drive Side, Paper Guide Aligner Assembly. Hold a straight edge like a 12"metal ruler across the surface of the sheet metal face and the metal (w/o a belt) Green Belt Aligner Roller itself. Note that the two metal surfaces are flush.



- Step 14:** Remove the Green Belt Aligner Roller Assembly by removing the "4" screws (S).

IMPORTANT: Leave the Flex Shaft (FS) attached.

- Step 15:** Stretch the new Belt (B) onto the Aligner Roller Assembly, green side out. Rotate the Shaft (S) to confirm that the belt tracks properly.

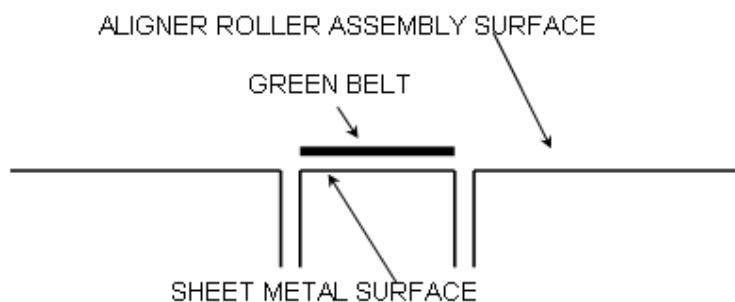


Step 16: Slide the Aligner into place, loosely attach the "4" Pan Head Screws with the "4" Lock Washers.

Check that the metal surface of the Aligner Roller Assembly is flush with the Sheet Metal surface of the Paper Guide. A 12" metal ruler works well to check this adjustment. Slip the ruler under the green belt and press it flat against the two surfaces. Adjust the Aligner and snug the screws when perfectly flush.

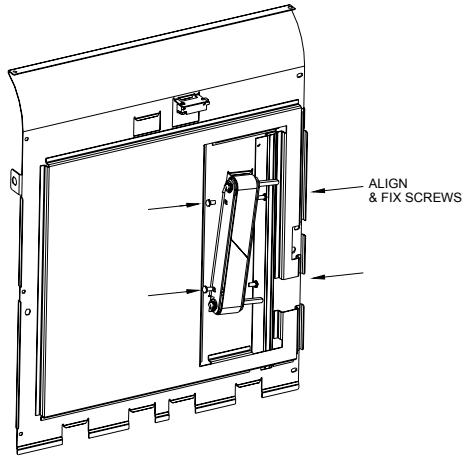
NOTE: The green belt should look like the drawing shown after step 11.

As a double check, hold the entire Paper Guide assembly up so that you can visually inspect the alignment between the sheet metal surface and the metal surface of the Aligner. The Green Belt should appear to be even or parallel, and just floating above the surface of the sheet metal.

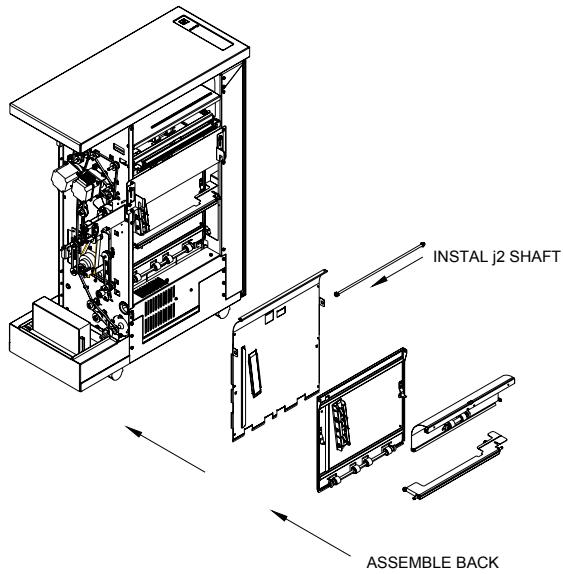


Step 17: To install the Paper Guide Assembly into the StreamPunch.

1. As you slide the Paper Guide Assembly into place,
 - a. Hook up the Sensor Harness to the Sensor on the back.
 - b. Lift it up slightly to clear the lower Transition Paper Guide.
 - c. Be sure to clear the Sensor Bracket at the top left.
 - d. Be sure that the Flex Coupling Shaft is sticking out of the rear of the StreamPunch properly.
2. Visually check all around the mounting area of the Paper Guide Assembly and that the Sensor Harness is properly connected.
3. Loosely secure it in place with "3" screws on the left and "3" on the right.
4. Loosely install the "2" top screws.
5. Once all "8" mounting screws have been properly started you have good alignment. You may now go back and tighten the screws until they are snug.



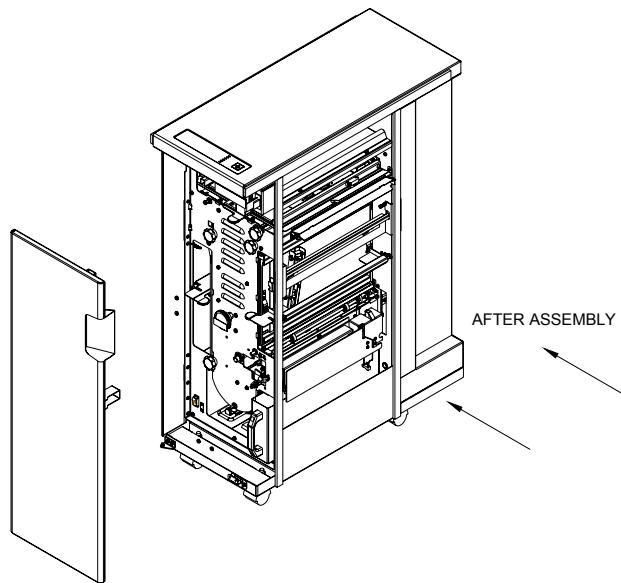
- Step 18:** Install the Flexible Shaft (item 5).
- Step 19:** Install the curved sheet metal Exit Paper Guide (item 7) with Idler Roller "4" Screws. Start all "4" screws, (2 on front and 2 on back) then tighten.
- Step 20:** Connect the Sensor Wire Harness at the top rear of the Exit Paper Guide.
- Step 21:** Install the J2 Shaft back into place by inserting it first into the front, then the back.



- Step 22:** Close the J2 Flipper Latch.
Repeat the test of rotating the pulleys to ensure smooth rotation of the Idler Rollers.
- Step 23:** Attach the J2 Shaft Spring
Install the front E-Ring to secure J2.
- Step 24:** To install the Idler Aligner Paper Guide.
 - Hold it loosely in place.
 - Press the Nylon Flange Bearings into place, through both pieces of sheet metal, with the Flange to the inside.
 - Slide the Shaft through the front of the machine, while holding the Nylon Flange Bearing in place.
 - Secure with "2" E-Rings on the inside of the bearing.
 - Inspect by pressing in on the bottom area of the sheet metal for:
#1 should see a slight deflection of each Idler Roller as you press,
#2 as you press, you can turn the Pulley's at the rear of the StreamPunch and see the Idler Rollers rotate smoothly.

- Step 25:** Attach the Docking Plate using “4” Screws.
- Step 26:** Attach the Back Rear Cover using the 7 screws (2 for the Entrance and 5 for the Exit side).
- Test the StreamPunch by running 10 copies in bypass mode,
Then 1 sheet in punch mode,
Then 10 sheets in punch mode,
Then 100 sheets in punch model

This entire process takes approximately 60 minutes. First time maybe a little longer.



4.6 GREEN BELT REPLACEMENT, PAPER EXIT SIDE

The following step-by-step directions inform you how to remove and then assembly the components necessary to access the Paper Exit Side Aligner **Green Belt, P/N VRC51019**.

It will help you to reference your StreamPunch Service Manual part drawings as you follow this process.

Special Tools Required:

- Twelve inch metal ruler or similar straight edge.
- Phillips Head Screw Driver 7" or less in total length.
- Alan wrenches.
- Nut Driver
- Rare Earth Magnet Snake Neck (optional – good for retrieving any hardware that happens to fall in hard to reach spots)
- Snap Ring pliers
- E-Ring tool

NOTE: During assembly, be sure not to over tighten any of the mounting screws.

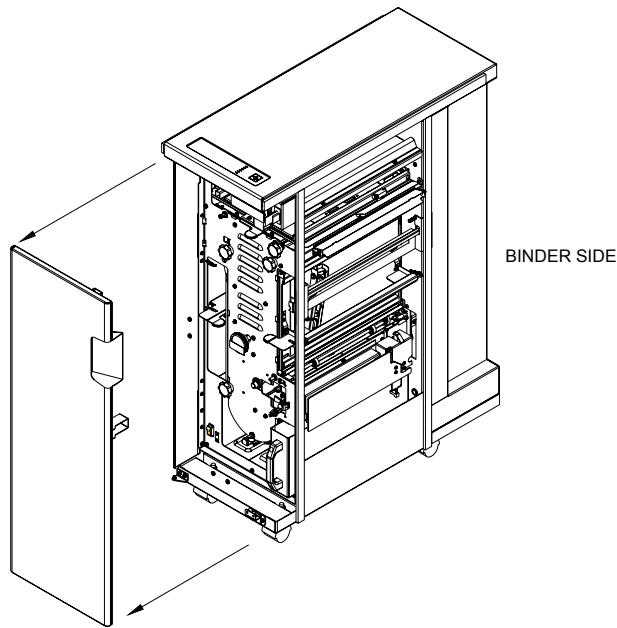
Step 1: Disconnect the StreamPunch from Power. Retain the power cord in your possession for your safety.

Step 2: Disconnect the Communication Cable to the Finisher.

Step 3: Unlatch the GBC StreamPunch from both the Finisher and the Printer.

NOTE: You must first remove the screw that secures the latch in place (if so equipped).

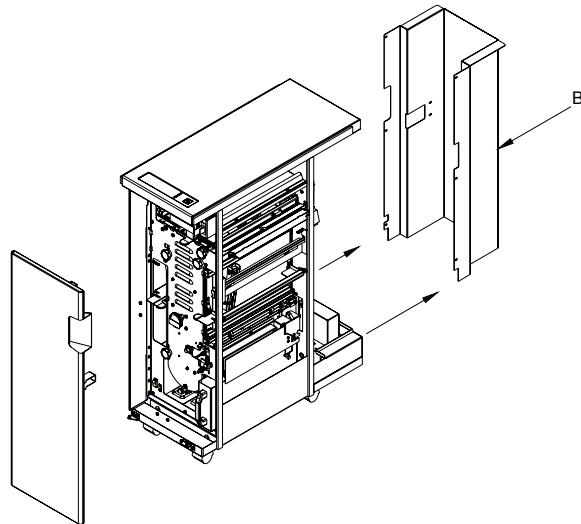
Step 4: Open the front door (A) of the StreamPunch.



Step 5: To remove the Rear Cabinet/Cover (B) of the StreamPunch,

- Remove the 5 screws on Exit side and 2 screws on Entrance side.
- Slide the Rear Sheet Metal Cabinet/Cover off of the StreamPunch.

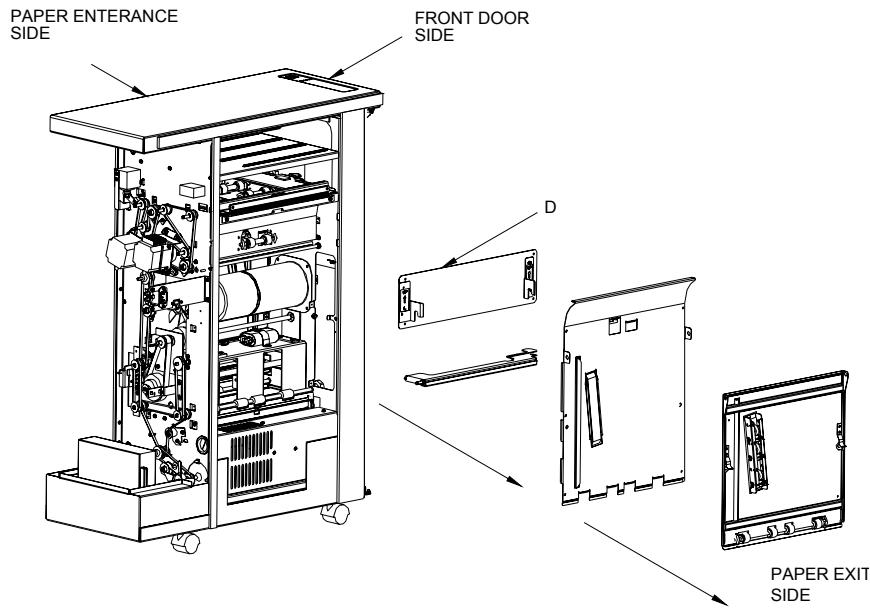
NOTE: You do not need to lift upward and you do not need to remove the Top Cover.



Step 6: To remove the J2 Flipper (C), Door Latch.

- Remove only one (the one closest to the frame) of the "E" Rings of the J2 Flipper on the right end (front Door side).
- Push the J2 Flipper in toward the front Door until it clears the rear frame.
- Pull the entire J2 Flipper, Door Latch out and set it aside.

Step 7: Unhook spring from the Docking Plate (D) and Door. Remove the "4" screws that secure the Docking Bracket. Remove, and set aside.

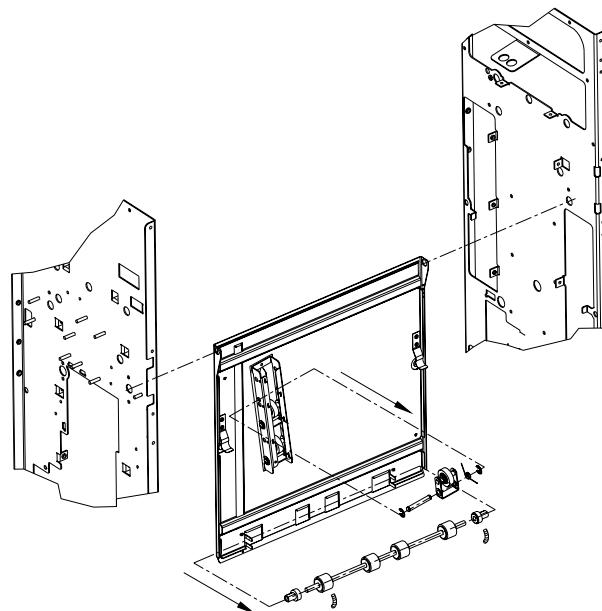


Step 8: To remove the Rear Aligner, Idler Paper Guide Assembly

- Remove "2" E-Rings from the Pivot Shaft.
- Slide the Shaft all the way out through the front of the StreamPunch.
- Remove the "2" Nylon Bearings.
- Remove and set aside the Rear Aligner, Idler Paper Guide Assembly.

Step 9: To remove the curved sheet metal Exit Paper Guide Assembly

- Remove the "4" Screws (2 rear and 2 front) of the curved sheet metal Exit Paper Guide Assembly
- Unplug the Sensor
- Pull the entire sheet metal Exit Paper Guide Assembly out, set aside.



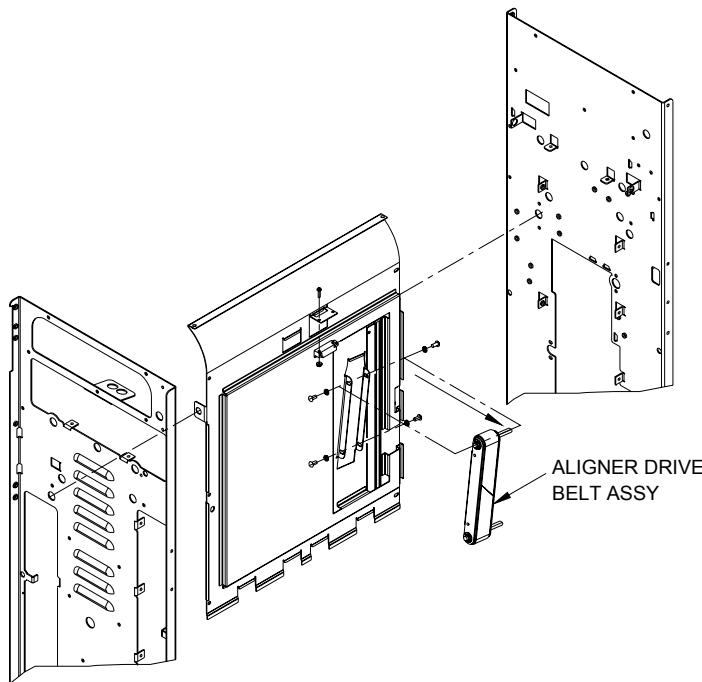
Step 10: To remove the Rear, Drive Side, and Paper Guide Aligner Assembly. This is the large Sheet Metal Assembly within the StreamPunch that actually contains the Green Belt Aligner itself.

IMPORTANT: Walk the Belt off of the Aligner Pulley at the rear.

- A. Remove the "2" screws that hold the Block to the Frame. Now – the Coupler is loose and the Rear Panel will come out.
- B. Remove the "6" Screws that secure the face of this Assembly.
- C. Remove the "2" Screws that secure this Assembly from the top.
- D. Pull and walk the entire sheet metal assembly of the Paper Guide Aligner up and outward. You can grab the Assembly at the Roller cut out with your fingers.

NOTE: The Helical coupling is very delicate, be gentle.

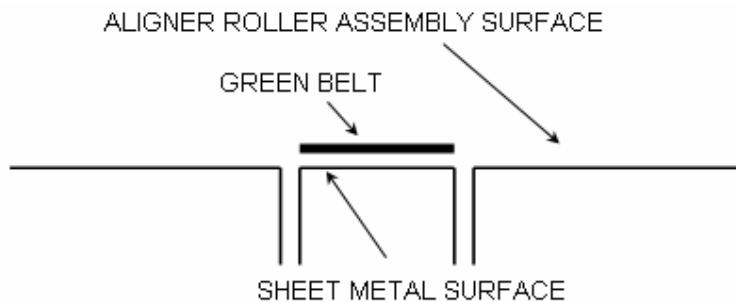
NOTE: In order to access these screws, you must first remove the Die Set Storage Shelf and the Cable Shield attached to the Die Storage Shelf at the paper entrance side. Moving the Die Storage Shelf aside will enable better access to the "2" screws with a short (7" or less) Phillips Screw Driver.



- E. Bend in the Tab of the frame near the middle, front area to allow enough clearance to work the sheet metal Paper Guide Aligner Assembly out.

IMPORTANT: As you do this, disconnect the Sensor harness behind the Assembly as soon as you are able to reach it.

Step 11: Before you remove the Green Belt Aligner Roller Assembly from the sheet metal paper guide, observe the perfectly flush surfaces of the Green Belt Aligner Roller Assembly to the sheet metal surface of the Rear, Drive Side, Paper Guide Aligner Assembly. Hold a straight edge like a 12" metal ruler across the surface of the sheet metal face and the metal (w/o a belt) Green Belt Aligner Roller itself. Note that the two metal surfaces are flush.



Step 12: Remove the Green Belt Aligner Roller Assembly by removing the "4" screws.

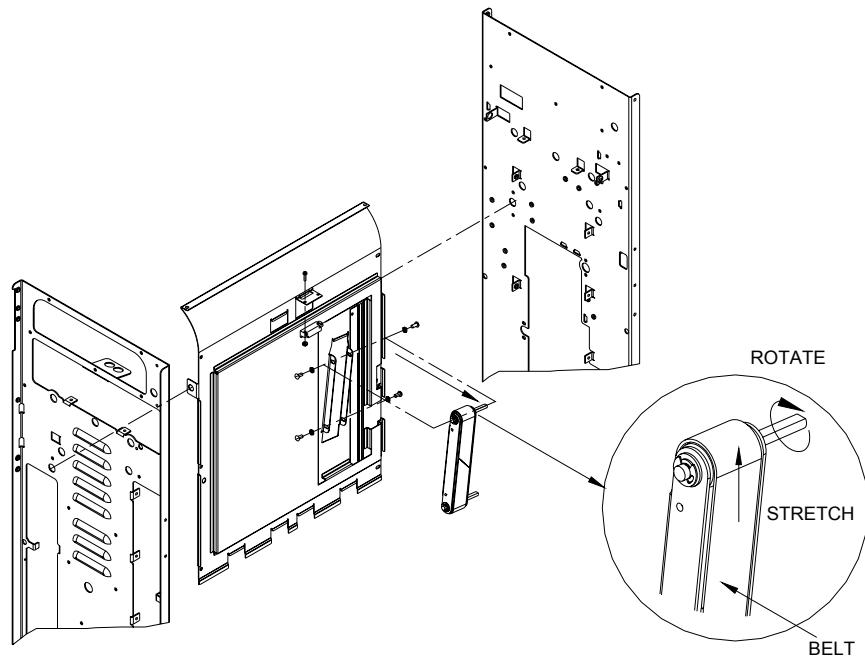
Important: Leave the Coupler attached.

Assembly Process

Step 13: Stretch the new green belt onto the Aligner Roller Assembly, green side out.

- Take care when handling the Aligner Roller Assembly so as not to damage the Flex Coupling.
- Rotate the shaft to confirm that the belt tracks properly.

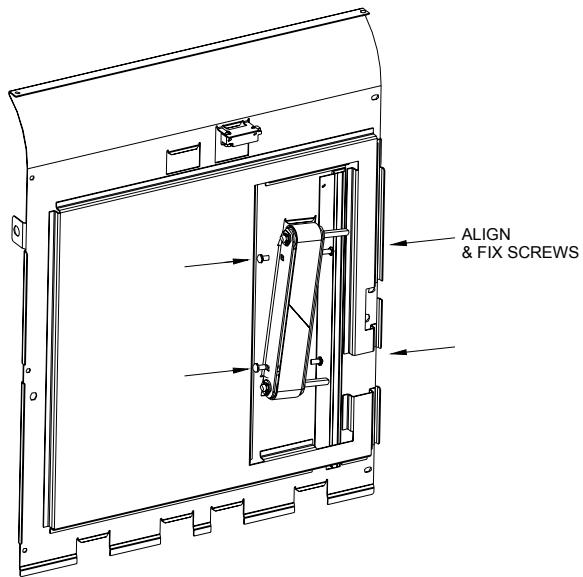
Step 14: Slide the Aligner into place, loosely attach the "4" Pan Head Screws with the "4" Lock Washers.



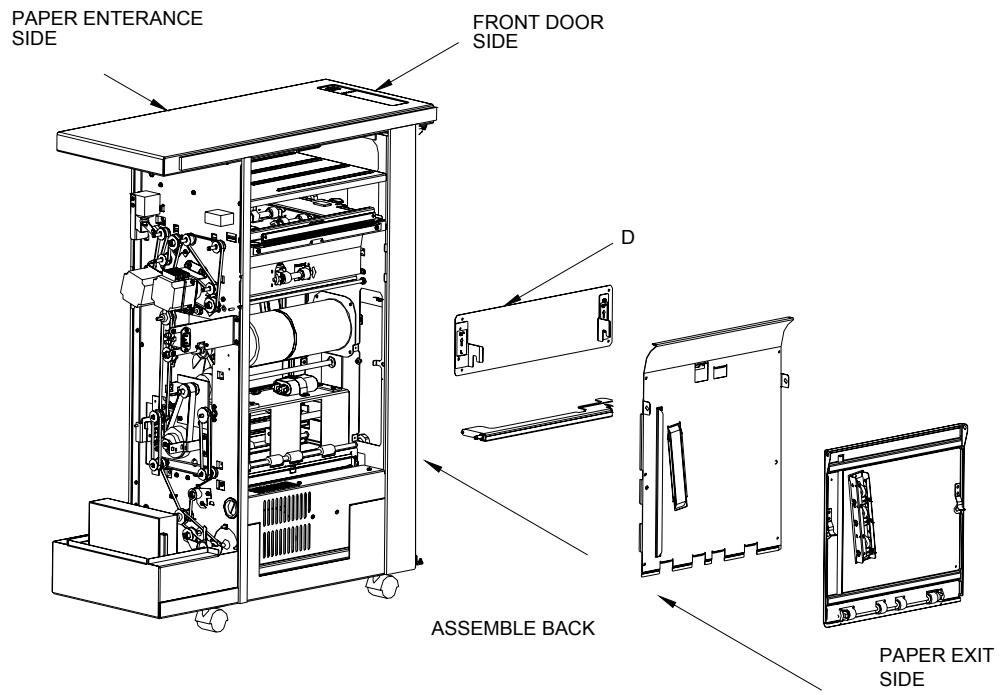
Check that the metal surface of the Aligner Roller Assembly is flush with the Sheet Metal surface of the Paper Guide. A 12" metal ruler works well to check this adjustment. Slip the ruler under the green belt and press it flat against the two surfaces. Adjust the Aligner and snug the screws when perfectly flush.

NOTE: The green belt should look like the drawing shown after step 11.

As a double check, hold the entire Paper Guide assembly up so that you can visually inspect the alignment between the sheet metal surface and the metal surface of the Aligner. The Green Belt should appear to be even and just floating above the surface of the sheet metal.



Step 15: To install the Paper Guide Assembly into the StreamPunch.



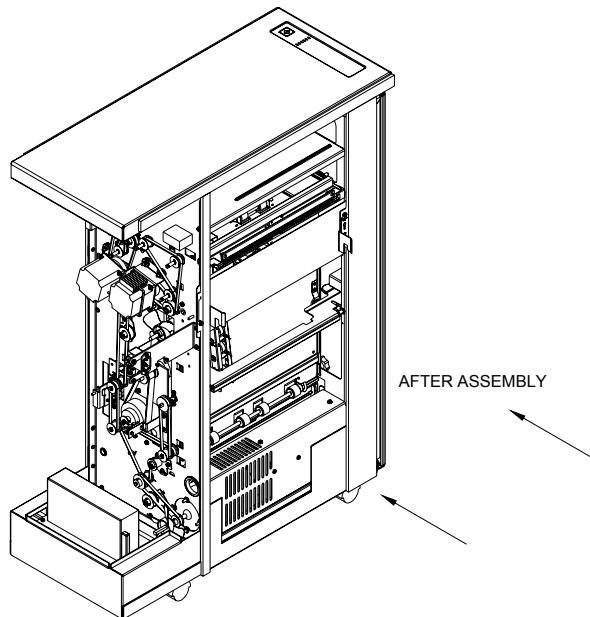
A. As you slide the Paper Guide Assembly into place,

- Hook up the Sensor Harness to the Sensor on the back.
- Lift it up slightly to clear the lower Transition Paper Guide.
- Be sure to clear the Sensor Bracket at the top left.
- Be sure that the Flex Coupling Shaft is sticking out of the rear of the StreamPunch properly.

B. Visually check all around the mounting area of the Paper Guide Assembly and that the Sensor Harness is properly connected.

- C. Loosely secure it in place with “3” screws on the left and “3” on the right.
 - D. Loosely install the “2” top screws. A useful tip might be to secure the Screw to the tip of your Screwdriver with a small piece of masking tape to assist you in finding the hole.
 - E. Once all “8” mounting screws have been properly started you have good alignment. You may now go back and tighten the screws until they are snug. **Do not over tighten the “2” screws on top!**
- Step 16:** Install the “2” Screws to secure the Bearing Block for the Pulley arrangement at the rear of the StreamPunch. Press the block to the top of the punch before tightening
- Step 17:** Install the Pulley and Belt onto the Pulley Block. Once properly aligned, **check Belt and Pulley movement.** Tighten the Set Screw.
- Step 18:** Install the Die Set Storage Rack with “3” screws front and “3” screws back. Remember to attach the Ground Strap at the middle screw on the rear (belt side). Start each screw to achieve proper alignment, then go back over each screw and tighten it.
- Step 19:** Install the Cable Guard on top of the Die Set Storage Rack (“2” Screws).
- Step 20:** Install the curved sheet metal Exit Paper Guide with Idler Roller “4” Screws.
Start all “4” screws, (2 on front and 2 on back) then tighten.
- Step 21:** Connect the Sensor Wire Harness at the top rear of the Exit Paper Guide.
- Step 22:** To install the Idler Aligner Paper Guide.
 - A. Hold it loosely in place.
 - B. Press the Nylon Flange Bearings into place, through both pieces of sheet metal, with the Flange to the inside
 - C. Slide the Shaft through the front of the machine, while holding the Nylon Flange Bearing in place.
 - D. Secure with “2” E-Rings on the inside of the bearing.
 - E. Inspect by pressing in on the bottom area of the sheet metal for:
#1 should see a slight deflection of each Idler Roller as you press,
#2 as you press, you can turn the Pulley’s at the rear of the StreamPunch and see the Idler Rollers rotate smoothly.
- Step 23:** Bend the small metal tab back into place.
- Step 24:** Install the J2 Shaft back into place by inserting it first into the front, then the back.
- Step 25:** Close the J2 Flipper Latch.
Repeat the test of rotating the pulleys to ensure smooth rotation of the Idler Rollers.
- Step 26:** Attach the J2 Shaft Spring
Install the front E-Ring to secure J2.
- Step 27:** Attach the Docking Plate using “4” Screws and install spring from Plate to Door.
- Step 28:** Attach the Back Rear Cover using the 7 screws (2 for the Entrance and 5 for the Exit side).
 - Test the StreamPunch by running 10 copies in bypass mode,
 - Then 1 sheet in punch mode,
 - Then 10 sheets in punch mode,
 - Then 100 sheets in punch model

This entire process takes approximately 60 minutes. First time maybe a little longer.



4.7 BACK GAGE AND CHAD CONTROL MECHANISM - ADJUSTMENT, ASSEMBLY / DISASSEMBLY PROCEDURE

General Description:

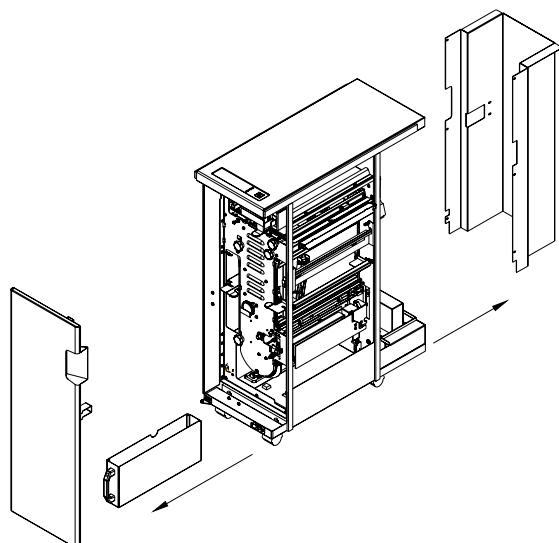
The StreamPunch Chad Control Mechanism directs Paper Chad into the Chad Disposal Container, significantly reducing the amount of Chad that could flow through the paper path. There will be some Chad that falls outside the Chad Container. In one circumstance, when the customer changes their Die Set, some Chad always comes with the Die and falls to the bottom of the machine or to the floor. As a general practice, it is a good Preventative Maintenance practice to vacuum the inside of the StreamPunch periodically.

4.8 INSTALLATION STEPS

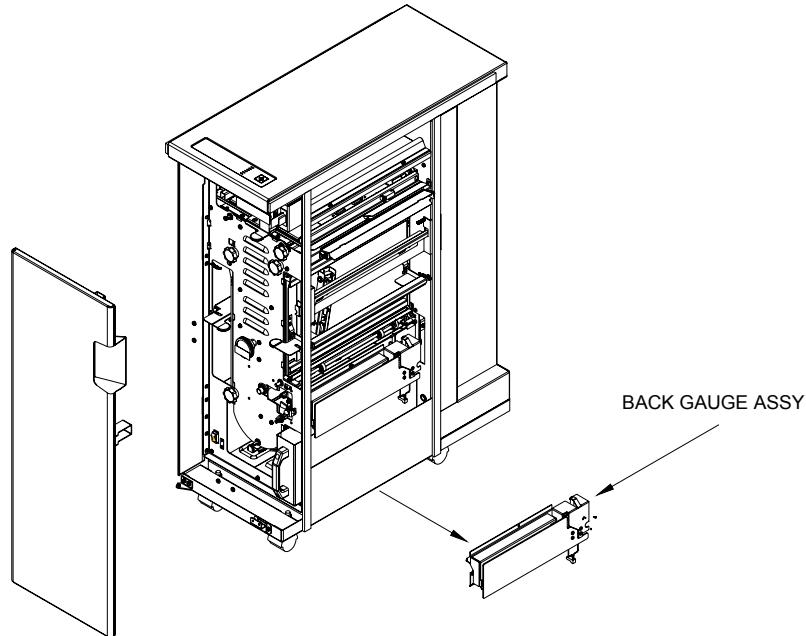
Step 1: Disconnect power and communication cable.

Step 2: Open door and remove Die Set, chad bin, and rear cover (opposite the door).

NOTE: Once you remove the screws that secure the rear cover, it will slide out from under the top cover. You do not need to remove the top cover.



- Step 3:** Remove the two screws holding the Die rail at the front of the StreamPunch.
- Step 4:** Remove the four screws holding the Die rail at the rear of the StreamPunch.
- Step 5:** Remove the wire that attaches the solenoid to the PC board. After all the screws and the wire are removed you can now remove the back gage and rail as an assembly.



- Step 6:** Facing the back gauge pull the rail from the right side first and slide out the assembly.
- Step 7:** Install the new back gage. Also, when replacing the two screws that hold the die rail make sure you install the brush that is provided in the kit.
- Step 8:** Replace the E-Prom with the new E-Prom provided. Be sure to orient the E-Prom correctly with the notch. The new E-Prom not only provides software to work with the new Back Gage mechanism, it also contains new software that changes the default time to 4 minutes. This provides the customer sufficient time to clear a jam without returning to by-pass mode.
- Step 9:** Reattach the wire harnesses using wire ties. Add a small loop to the new wires coming from the new Solenoid to the PCB and using a wire tie, secure the harness so that it is not in the path of the Chip Tray.
- Step 10:** Install the chad bin.
- Step 11:** Install the new (see footnote below) die set. Test the StreamPunch system running first one page at a time, then two pages then 5 pages, then 10 pages and lastly run 50 test pages.
- Step 12:** Replace the cover and run a few more test jobs.
- Step 13:** **Skew Adjustment:** Check for proper hole alignment to paper edge.

The back gage is designed to give you some adjustment when the three screws are loosened.

It will give you up and down play, which allows you to remove skew.

The ideal situation is to have the back gage all the way to the top position.

If not, paper can slip past the paper stops and give you a deep punch. This may occur if the back gage is tightened into place in its bottom most position. This situation is most likely to occur when using the VeloBind or PB die sets, which are at one end of the Back Gage tolerance spectrum.

Three-Hole Die Set: At the other end of the Back Gage tolerance is the Three-Hole Die Set. If the customer owns a Three-Hole Die, check this die to see if it is easy to insert and remove. If the die is too tight you will need to lower the back gage slightly to achieve the tightness you desire, while still retaining the PB and VeloBind functionality mentioned above.

Now you need to run some paper and check for skew, at this point you can now use the three screws to adjust skew if needed. After the adjustment is made re test with the three-hole die. If all is well re test with the VeloBind die to make sure there are no deep punches.

Step 14: **Back Gage Adjustment to eliminate Deep Punching:** Check for proper operation with PB Die Set: In some cases, using a PB Die Set, you may have an occurrence of a "Deep Punch" symptom. If this shows up during testing, loosen the three main screws that secure the entire Back Gage Assembly, push the entire mechanism upward, taking up all play, tighten the three screws securely. Test approximately 200 to 500 sheets of paper through the PB die. Check for no deep punching and no paper jamming in the Die Set area

4.9 TO CLEAR A PAPER JAM

To clear a jam, first press the stop button on the printer, then check the printer screen to see the area of the jam.

If the jam is in the printer or finisher only, follow the information on the screen to clear the jam.

If the screen shows a jam in the punch, try to follow this sequence.

1. Open punch door.
2. Turn off the power
3. Turn punch knob J3 to home position.
4. Open top cover J1.
5. Open front paper door lever J2.
6. Open exit paper door lever J8.
7. Open bottom U-channel J7 by pressing in lever J6 and lower.
8. Clear paper from all these areas by turning knobs as shown.
9. When all the paper is cleared turn on power shut the door make sure the jam light is out if not go back to step 1. And find the paper that is not clear.
10. When all the paper is cleared from the punch and the light is out follow the steps used above to clear the printer and finisher.
11. Hit the punch green button and then the resume button on the printer, operation should start.
12. If by chance you do not hit the green button the punch will go into bypass mode at this time you will have to hit the stop button on the printer hit the green button on the punch then the resume button on the printer.
13. This is only my way to clear a jam after you become more familiar with the punch this procedure can change to your own refinement.

5. TECHNICAL TROUBLESHOOTING

5.1 THEORY OF OPERATION

The GBC Stream Punch is a machine that punches various die set hole patterns into single sheets of paper. The machine is placed between a printer / copier and a finisher. There are two paper paths. One is the bypass section, which does not punch paper. The other is the punch path. The punch path can be selected by pressing the green button on the top of the Stream Punch.

The Stream Punch consists of several input / output devices to operate the machine functions. The system intelligence is a Microchip micro-controller PIC17C752. The present code is written in Microchip assembler. The list of I/O devices is:

Refer to the electrical wiring information, when reading the following material.

INPUTS:

| | | |
|-----------|--------------|---|
| Sensor 1 | Optical | Sheet speed measurement, Jam detect |
| Sensor 2 | Optical | Stepper 1 control, Sheet speed measurement, Jam detect |
| Sensor 3 | Optical | Punch mechanism control, Backstop raiser, Jam detect |
| Sensor 4 | Optical | Jam detect at entrance of U-Channel |
| Sensor 5 | Optical | No longer used |
| Sensor 6 | Optical | Stepper 2 Control, Jam detect |
| Sensor 7 | Optical | Exit sensor, Jam detect |
| Sensor 8 | Optical | Bypass sensor, Sheet speed measurement, Jam detect |
| Sensor 9 | Optical Vane | Monitors rotation of punch mechanism, Controls clutch and brake |
| Switch 1 | Keypad | Selects punch mode in MT-C3 & VC-1 only |
| Switch 2A | Mechanical | Interlock Voltage, no machine movement if door is open |
| Switch 2B | Mechanical | Door open signal |
| Switch 3 | Mechanical | Chip tray switch |
| Switch 4 | Mechanical | Die Set switch |

OUTPUTS:

| | | |
|-----------|-------------|---|
| Divertor | DC Solenoid | Diverts paper from bypass to punch sections |
| Brake | DC Brake | Stops the punch mechanism, keeps it in correct position |
| Clutch | DC Clutch | Clutches the punch mechanism to drive through paper |
| Backstop | DC Solenoid | Provides stop for paper to rest against during punching |
| Transport | AC Motor | Provides paper movement through machine |
| Punch | AC Motor | Provides power to punch the paper |
| Stepper 1 | PWM Signal | Controls Stepper Motor 1 |
| | Winding | On / Off signal for stepper holding current |
| Stepper 2 | PWM Signal | Controls Stepper Motor 2 |
| | Winding | On / Off signal for stepper holding current |
| LED 1 | Chip Tray | ON: Chip Tray missing, FLASHING: Chip Tray may be full |
| LED 2 | Die Set | ON: Die Set not installed properly |
| LED 3 | Door | ON: Door is Open |
| LED 4 | Jam | ON: Paper Jammed in Machine |
| LED 5 | Punch On | ON: Punch Enabled |

PRINTER COMMUNICATION:

| | | |
|------------|--------|--|
| Punch | Input | Printer turns on Punch enabled mode |
| Motor | Input | Printer turns on Stream Punch Motor MT-C3 & VC-1 |
| Jam | Output | Punch signals a jam or the door is open (no operation allowed) |
| Tray / Die | Output | Punch indicates tray or die set missing (bypass only allowed) |
| Motor | Input | Printer turns on StreamPunch motor BC-3 only |

SERIAL EEPROM CONTROL:

| | | |
|---------|-----------|--|
| 1 Input | 3 Outputs | Counts number of punches for die set full, Saves value |
|---------|-----------|--|

For the Stream Punch to operate, all optical sensors must be clear. Any blocked sensor or open door will prevent operation. The machine may operate in bypass mode with or without a chip tray or die set. Both of these must be present to punch.

Stepper #1 Control:

If punch is not enabled, the StreamPunch will run in bypass mode (no punching). Either the printer or the first sheet entering the machine will turn on both stepper motors. The time is measured for the leading edge of the first sheet to pass sensor 8. Knowing the distance between sensors and the time it takes for the sheet to pass both sensors, we can determine the speed of the paper. The time is compared to a list and Stepper 1 and stepper 2 are adjusted to closely match the incoming speed.

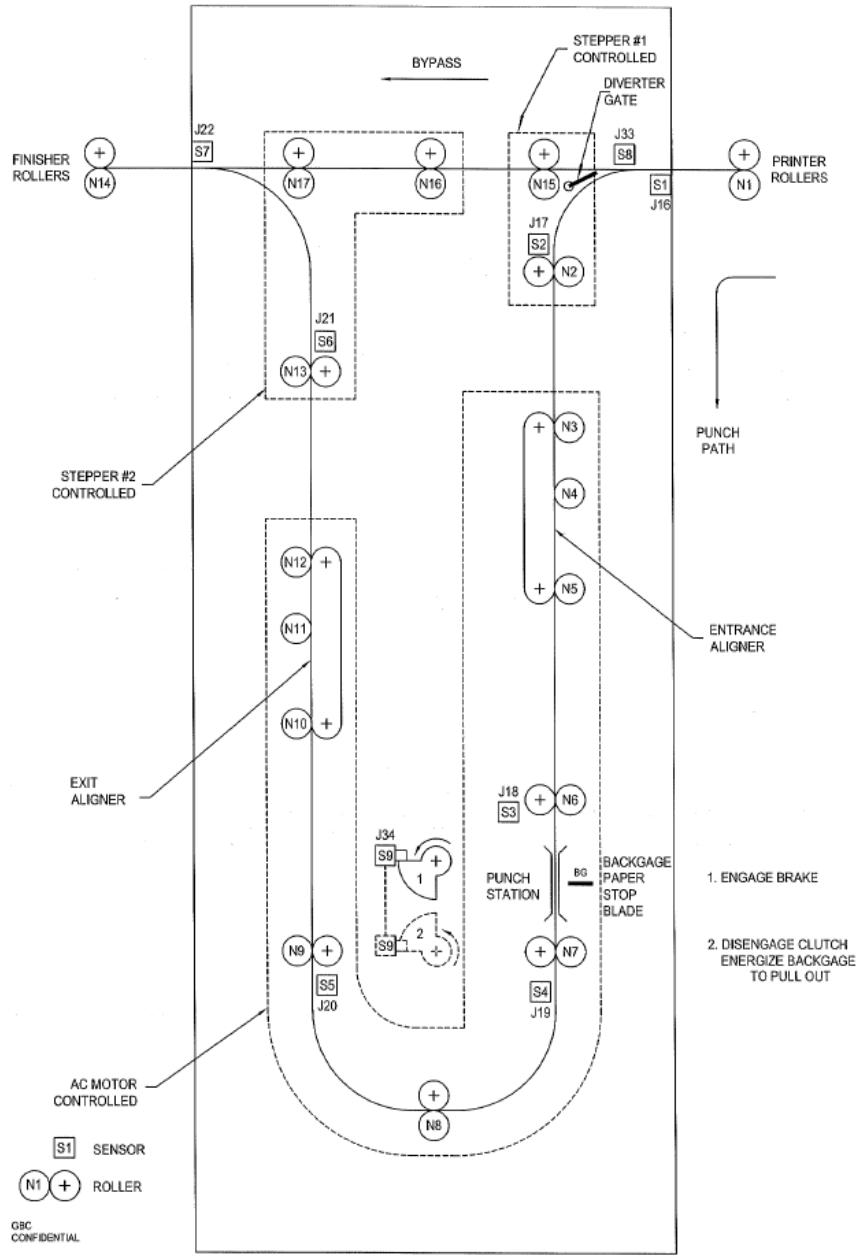
If the punch is enabled, the backstop is raised, the brake is engaged, and both the transport and punch motors are started. Also, the divert solenoid is activated to direct the sheets into the punch path. As above, the input speed is measured, this time using Sensor 1 and 2. Stepper 1 is adjusted to meet the measured input speed; Stepper 2 is accelerated to the speed of the transport motor. Sensor 2 now delays for a time period based on the input speed to ensure that the sheet has cleared the printer exit roller. After this delay, stepper 1 accelerates the sheet to match the transport speed. 19 msec after the sheet's trailing edge passes sensor 2, Stepper 1 is decelerated to match the previously measured input speed.

Punch Control:

The punch cycle begins 40 msec after the leading edge of the sheet reaches Sensor 3. The brake is released, and the clutch is engaged. Sensor 9 now looks for the leading edge of its flag, and when seen, the clutch is disengaged, and the backstop is lowered. When the trailing edge of the flag is seen, the brake is engaged. When Sensor 3 sees the trailing edge of the sheet, the backstop is raised.

Stepper #2 Control:

72 msec after the leading edge of the sheet passes Sensor 6, Stepper 2 is decelerated to match the measured input speed from the printer. This delay ensures that the sheet exits from the transport rollers. When the trailing edge of the sheet passes Sensor 6, Stepper 2 is accelerated to match the speed of the transport motor.



GENERAL TROUBLESHOOTING:

One of the first rules of troubleshooting is to first understand the normal operating sequence of the machine. Then carefully listen to the key operator's description of the problem or complaint. Follow this by your own visual observation. The cause of the problem can be determined by noting at which point in the operating cycle the problem occurred. To pinpoint the problem to a defective electrical component or mechanical part, use the Troubleshooting Guide and the Electrical Schematic Diagram. During any service call, it is a good practice to check the cable connections for fit and alignment.

5.2 TROUBLESHOOTING GUIDE CHART

The Troubleshooting Guide Chart that follows is arranged in order of the normal operational sequence. When a malfunction occurs, read down the SYMPTOM column until you reach the appropriate description for your symptom. Read the corresponding PROBABLE CAUSE and then perform the recommended procedure in the CORRECTIVE ACTION column.

| SYMPTOM | PROBABLE CAUSE | CORRECTIVE ACTION |
|--|--|---|
| No indication of power | Not plugged in | Check to ensure that power cord is properly connected to the machine as well as the supply voltage. Check the power supplied from the outlet |
| No indication of power, Unit is plugged in | Main Control Board, a minimum of 2 of the 3 LED's on this board should be lit, if not, board is bad Display Panel or Cable Door not making interlocks Die Set not making switch Jumper on the Main Control Board is not set to the proper line voltage | Replace Main Control Board Inspect or replace Inspect or replace Inspect or replace Change the jumper to the proper line voltage |
| No indication of power, Unit is plugged in | Main Control Board, a minimum of 2 of the 3 LED's on this board should be lit, if not, board is bad Display Panel or Cable Door not making interlocks Die Set not making switch Jumper on the Main Control Board is not set to the proper line voltage | Replace Main Control Board Inspect or replace Inspect or replace Inspect or replace Change the jumper to the proper line voltage |
| Machine will not start, READY LED is ON | Check Power Supply Board LED, if not lit, board is bad Check Main Control Board LED's, if a minimum of two of the three are not lit, board is bad Door is not closed or properly making the interlock | Inspect cable connections, replace board as needed Inspect cable connections, replace board as needed Inspect and correct |
| Paper Jam LED is lit, customer / operator has been unable to locate the jam Paper Jam, not able to find any large sheets, removed sheets are torn | A small piece of chad or torn paper is blocking a sensor and/or the paper path Suspect a small piece of paper is hidden somewhere in the paper path | Separate the StreamPunch from the Printer and the Finisher, clean out the entire paper path Run a heavy cover stock through the system by hand. This process may drive any small torn pieces out of the paper path |

TROUBLESHOOTING GUIDE CHART (Continued)

| SYMPTOM | PROBABLE CAUSE | CORRECTIVE ACTION |
|--|---|---|
| Machine will not start, READY LED is ON | Check Power Supply Board LED, if not lit, board is bad Check Main Control Board LED's, if a minimum of two of the three are not lit, board is bad Door is not closed or properly making the interlock | Inspect cable connections, replace board as needed Inspect cable connections, replace board as needed Inspect and correct |
| Paper Jam LED is lit, customer / operator has been unable to locate the jam Paper Jam, not able to find any large sheets, removed sheets are torn | A small piece of chad or torn paper is blocking a sensor and/or the paper path Suspect a small piece of paper is hidden somewhere in the paper path | Separate the StreamPunch from the Printer and the Finisher, clean out the entire paper path Run a heavy cover stock through the system by hand. This process may drive any small torn pieces out of the paper path |
| Punch does not cycle | Punch Clutch Main Control Board AC Punch Motor | Adjust or replace Adjust or replace Adjust or replace |
| Paper Jam and/or Punch shaft does not return to the "HOME" position | Punch Brake is not performing properly | Adjust or replace |
| Paper Jam and/or Punch continues to cycle | Flag Sensor is broken or misaligned | Adjust or replace |
| Paper will not enter the punch area, runs through bypass only | Divert Solenoid malfunction | Adjust or replace |
| Paper is punched in the middle of the sheet | Back stop (back gauge) solenoid is malfunctioning | Adjust or replace |
| Punch paper path is not operable, system will only bypass | Transport Motor not functioning Main Control Board not functioning properly Stepper Motor #1 or #2 is not functioning correctly Stepper Motor #1 or #2 Driver Boards are not functioning correctly | Adjust or replace Check connections, replace Adjust or replace Check connections, replace |
| Punched holes are not centered | Die Set positioning bracket is out of adjustment | Inspect and adjust as required, see adjustment procedure |
| Punched holes are not parallel to the edge of the paper | Back Stop (Back Gauge) is not functioning properly | Inspect and adjust as required, see adjustment procedure |

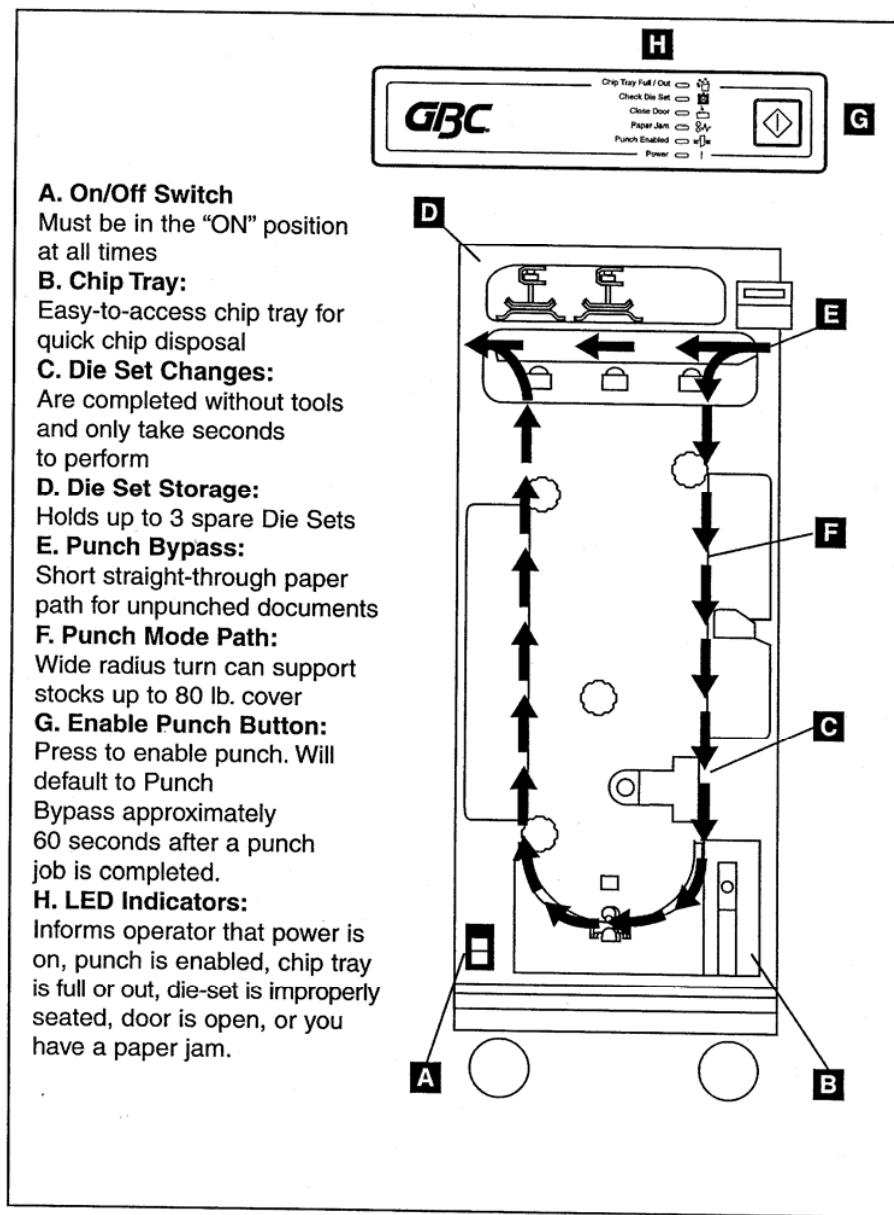
5.3 ELECTRICAL SCHEMATIC

The StreamPunch Electrical Schematic is also posted on the Ricoh WEB site as a stand-alone file. Please see the TSC Web Site at <http://www.tscweb.net>

Note: Please check [***StreamPunch III - Schematic.pdf***](#), for Electrical Schematic of StreamPunch.

6. OPERATION

6.1 OPERATING CONTROLS



6.2 PUNCHING PATTERNS

The **StreamPunch** uses a variety of easily interchangeable die sets that allow you to punch documents in line for several different binding styles. By selecting the appropriate die set, you can use your **StreamPunch** to punch documents in any of the binding styles indicated.

| North America | Europe / Australia |
|--|--|
| 3 hole | 4 hole |
| VeloBind 11 hole | VeloBind 12 hole |
| WireBind (2 Types) - 21 hole WireBind - 32 hole WireBind | WireBind (2 Types) - 23 hole WireBind - 34 hole WireBind |
| ColorCoil 44 hole | ColorCoil 47 hole |
| ProClick 32 Hole | ProClick 34 Hole |
| Plastic Comb 19 Hole | Plastic Comb 20 Hole & 21 Hole |

Please note that each punching style listed above requires a separate die set for the **StreamPunch**. The **StreamPunch** can hold up to four Die Sets within its cabinet (one in the operating slot and three in the storage area).

To purchase additional or separate Die Sets, contact your authorized reseller.

6.3 CHANGING THE PUNCH DIE SETS

Your **StreamPunch** offers the convenience of interchangeable die sets, allowing you to economically punch documents for a wide variety of binding styles. Changing the machines die sets is both quick and easy, as the following instructions illustrate:

Removing Die Sets from the Machine: The interchangeable die set slot of the **StreamPunch** is located on the right front side of the machine. If a die set "M" is already installed in your **StreamPunch**, you can easily remove the die set by following these instructions:

- Step 1:** Stop the printer/copier.
- Step 2:** Open the **StreamPunch** access door panel.
- Step 3:** Set **StreamPunch** to the OFF (O) mode.
- Step 4:** Securely grasp the handle and tug firmly. This firm tug disengages the Automatic Latching Mechanism, and allows the die set to slide out.
- Step 5:** Continue pulling on the handle until the Die Set is fully removed.
- Step 6:** Properly store the removed Die Set in the Die Set storage area of the StreamPunch (keep away from dust, dirt, accidental falls from the edge of counters etc.).
- Step 7:** Select the desired Die Set for your new job and slide it into the Die Set slot. Push Die Set in firmly until it latches.
- Step 8:** Set the **StreamPunch** to the ON (I) mode.
- Step 9:** Close the Access Door Panel.
- Step 10:** Enable punch and proceed with your printing and punching job.



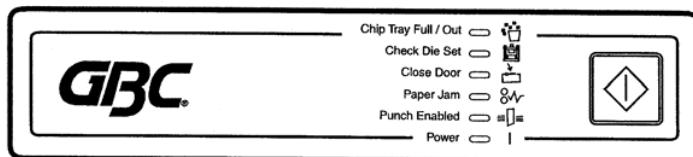
CAUTION: POSSIBLE PINCH POINT HAZARD. WHEN INSTALLING DIE SETS INTO YOUR StreamPunch, ALWAYS KEEP FINGERS AND BODY PARTS OUT OF THE MACHINE'S DIE SET SLOT AND AWAY FROM ALL AREAS OF THE DIE SET EXCEPT FOR THE FINGER HOLE IN THE DIE SET. FAILURE TO OBSERVE THESE PRECAUTIONS MAY RESULT IN INJURY.

6.4 PUNCHING OPERATIONS

After installing the correct die set in your StreamPunch, you are ready to begin punching. The following sections indicate how to activate the machine. Read these sections completely and become familiar with the various machine and Die Set components.

The **POWER LED** should be illuminated. If not, apply power with the Power On/Off (I/O) switch located at the front of the StreamPunch module.

To activate the Automatic Punch Mode of the Stream Punch simply press the green button. The **PUNCH ENABLED** LED will illuminate for MT-C3 & Venus.



PUNCH ENABLED: You may also activate the punch by using the Ricoh Printer interface screen on printers so equipped for BC-3.

Once punch is enabled, the LED will remain illuminated and the punch will remain enabled for one full minute after the run has ended. After that time, the system will default to the bypass mode and the next run will not be punched.

CLOSE DOOR and PAPER JAM: If either of these LED's are on, no bypass and no punch can occur until these areas have been checked and corrected.

CHIP TRAY FULL/OUT and CHECK DIE SET: If either of these LED's are on, you can run in bypass mode but not punch mode.

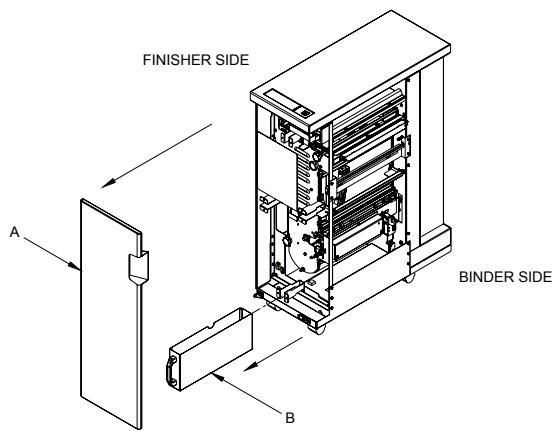
CHIP TRAY FULL/OUT: If this LED is flashing the Chip Tray is FULL. If this LED is shinning solid, the Chip Tray is OUT.

POWER: If this LED is not on, paper can not run through the GBC StreamPunch in either bypass or punch mode. The paper will jam entering the GBC StreamPunch.

6.5 PAPER CHIP DRAWER

The paper chip drawer for your StreamPunch is located at the front of the machine's base. The drawer should be periodically pulled out and emptied. The StreamPunch incorporates microprocessor technology to inform the operator when the Chip Tray needs to be emptied. When the Punch has cycled a certain number of times, the Check Chip Tray LED will begin to flash on and off. You may continue to use the StreamPunch for a short period longer if you wish, but it is not recommended.

You must empty the Chip Tray with the Power On so that the sensors are able to identify this action. This will ensure that the LED will reset itself.



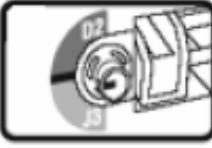
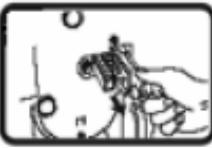
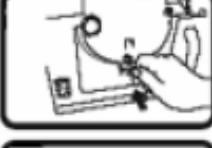
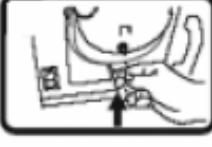
6.6 SERVICE

- Should your StreamPunch require service contact your local authorized service representative.
- There are NO user-serviceable parts inside the machine. To avoid potential personal injury and/or property damage, DO NOT REMOVE THE MACHINE'S COVER.
- It is recommended that your StreamPunch receives preventative maintenance every 6 months or sooner depending on usage.

6.7 PROBLEM SOLVING, OPERATOR LEVEL STREAMPUNCH

| Problem | Probable Cause |
|---|---|
| No power, won't punch | Power cord not attached to back of machine or not properly plugged into the wall Power On/Off Switch not activated |
| Die Set will not come out using a moderate pull | The Die Set is in partial cycle. Turn the Die Set knob to the HOME position. The Die Set should now slide out easily. Also see PAPER JAMS. |

6.8 PAPER JAM

| Area | Description |
|--|--|
|  | <p>If paper is jammed in the Punch Bypass, lift the paper guide plate located just inside, reach in and remove the jammed paper.</p> |
|  | <p>If paper is jammed in the downward paper path chute, move the door to the right, reach in and remove the jammed paper.</p> |
|  | |
|  | <p>If paper is jammed or the Die Set is jammed, turn Knob to the HOME position, (arrows line up) slide the Die Set out and remove paper.</p> |
|  | |
|   | <p>If paper is jammed in the bottom chute of the Punch Paper path, press the bottom chute latch, reach in and remove any jammed paper.</p> |
|  | <p>If paper is jammed in the upward paper path chute, move the door to the left, reach in and remove the jammed paper.</p> |

7. SPECIFICATIONS

| | 115V MACHINES | 230V MACHINES |
|---------------------------------|---|---|
| Speed | Up to 105 sheets per minute | Up to 135 sheets per minute |
| Punch Sheet Size | 8 ½" x 11" | A4 – 21.59cm x 29.74cm |
| Punch Edge | 11" edge of 8.5" x 11" | 29.74 cm edge of A4 |
| Paper Stock | 20 lb bond to 80 lb cover | 75 g/m ² bond to 216 g/m ² cover |
| Paper Bypass Mode Sheet size | Paper sizes and stocks same as printer | Paper sizes and stocks same as printer |
| Punch Capacity | Single Sheet | Single Sheet |
| Power Supply | 115VAC 60 Hz Single Phase Amps – 3.0 A Watts – 340W BTU's/Hour – 1160 BTU/HR | 230VAC 50 Hz Single Phase Amps – 1.6 A Watts – 340W BTU's/Hour – 1160 BTU/HR |
| Safety | CSA certified to UL and CSA standards | TUV/GS, CE |
| Dimensions | 12"(W) 38.5" (H) 28.5" (D) | 30.5cm (12") (W) 97.8cm (38.5") (H) 72.3cm (28.5") (D) |
| Weight | 154 lbs. | 70 Kg (154 lbs.) |
| Shipping Weight | 235 lbs. | 115.5 Kg (254 lbs.) |
| Manufactured | Made in the U.S.A. | Made in the U.S.A. |

Specifications are subject to change without notification.

8. GLOSSARY OF TERMS

TABBING

When a hole is not punched cleanly through the material leaving a piece of paper hanging from the edge.

PLASTIC BINDING

The name used to describe GBC's most common binding method. The 19 and 21 rectangular hole, Plastic Comb type.

CERLOX

The trade name GBC uses for its Plastic Binding

FLUSH-CUT COVERS

Covers stock that is the same size as the paper contents and has round corners.

TWIN LOOP

Looped wire element that is feed into square or round holes in the document in a similar fashion to Plastic Binding. The holes are either 2:1 or 3:1 (2 holes per inch or 3 holes per inch). It is then squeezed together or crimped to create an attractive bind that lays flat.

COLOR COIL

A plastic coil that looks like a spring which is threaded through round holes punched in the document then the ends are cut off and crimped. The holes are either 4:1 or 5:1 (4 holes per inch or 5 holes per inch). This type of bind lays flat and even folds around for easy handling of the document.

VELOBIND

A heat seal plastic bind that is best known for it's security and it's attractive look. The one drawback for VeloBind is that it is not a lay-flat bind style. It is most often used in the Legal market for it's security feature.

Visit GBC at www.gbcconnect.com



COMMERCIAL PRODUCTS GROUP

712 W. Winthrop Avenue

Addison, IL 60101-4395

USA

800-772-9281

www.gbcconnect.com

GBC Canada

49 Railside Road

Don Mills, ON M3A 1B3 CANADA

800-463-2545

www.gbcconnect.com

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