

**Model B-C4**  
**Machine Code: D059/D060/D061**  
**Field Service Manual**

31 May, 2010  
Revised



---

# Safety, Conventions, Trademarks

---

## Safety

---

### PREVENTION OF PHYSICAL INJURY

---

1. Before disassembling or assembling parts of the machine and peripherals, make sure that they are unplugged.
2. The plug should be near the machine and easily accessible.
3. Note that some components of the machine 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 machine completes the warm-up period (the [Start] key starts blinking red and green ), keep hands away from the mechanical and the electrical components as the machine 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 machine is operating. Be careful to avoid touching those components with your bare hands.
7. Always connect the power cord directly into a wall outlet. Never use an extension cord.
8. Inspect the power cord for damage. Never cut or attempt to modify the power cord in any way.
9. Keep the machine away from dust and high humidity. Never expose the machine to corrosive gases.
10. Never use flammable liquids or aerosols around the machine.
11. Never handle the power cord or plug with wet hands.

### HEALTH SAFETY CONDITIONS

---

1. Never operate the machine without the ozone filters installed.
2. Always replace the ozone filters with the specified types at the proper intervals.
3. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.
4. This machine employs an LD array in the scanner and image writing unit.

#### **Important**

- This machine is rated as a Class 1 LD Device. It is safe for both office and EDP use.

---

## OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

---

1. The machine 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.
4. Test the breaker switches on the main machine and all peripheral devices at least once a year.

## 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.

### CAUTION

- The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.




---

## Conventions and Trademarks

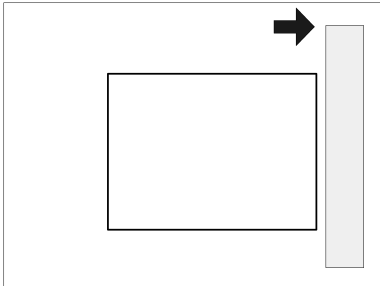
---

### Conventions

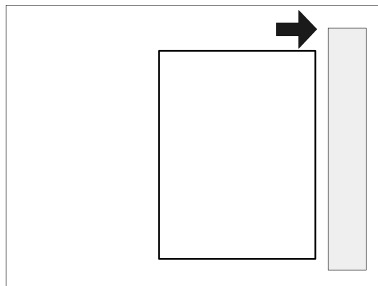
---

Symbol	What it means
	Core Tech Manual
	Screw
	Connector

Symbol	What it means
☉	E-ring
☽	C-ring
☼	Harness clamp



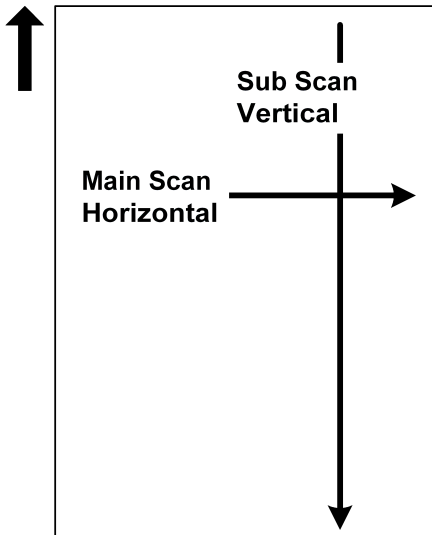
**SEF (Short Edge Feed)**



**LEF (Long Edge Feed)**

C001

The notations "SEF" and "LEF" describe the direction of paper feed. The arrows indicate the direction of paper feed.



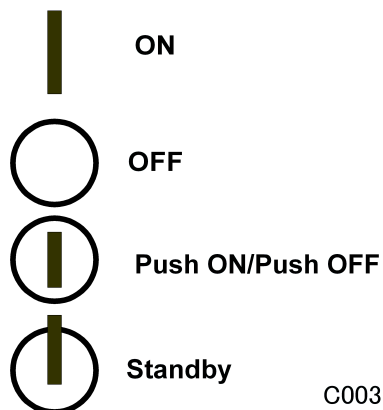
c002

In this manual "Horizontal" means the "Main Scan Direction" and "Vertical" means the "Sub Scan Direction" relative to the paper feed direction.

### Switches and Symbols

---

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



---

## Warnings, Cautions, Notes

---

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

### **WARNING**

- A Warning indicates a potentially hazardous situation. Failure to obey a Warning could result in death or serious injury.

### **CAUTION**

- A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the machine or other property.

### **Important**

- Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine

### **Note**

- This information provides tips and advice about how to best service the machine.

## Points to Confirm with Operators

---

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

- Show operators how to remove jammed paper and troubleshoot other minor problems by following the procedures described in the operating instructions.
- Point out the parts inside the machine that they should never touch or attempt to remove.

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

## Trademarks

---

- Microsoft<sup>®</sup>, Windows<sup>®</sup>, and MS-DOS<sup>®</sup> are registered trademarks of Microsoft Corporation in the United States and /or other countries.
- PostScript<sup>®</sup> is a registered trademark of Adobe Systems, Incorporated.
- PCL<sup>®</sup> is a registered trademark of Hewlett-Packard Company.
- Ethernet<sup>®</sup> is a registered trademark of Xerox Corporation.
- PowerPC<sup>®</sup> is a registered trademark of International Business Machines Corporation.
- Other product names used herein are for identification purposes only and may be trademarks of their respective companies. We disclaim any and all rights involved with those marks.

# Field Service Manual Revision History

## Revision History

### Revision History of Field Service Manual; 8 March, 2010

	Section	Description
1	Installation > Main Machine (D059/D060/D061) > Installation > Pouring Developer	Step 7; correction from "toner" to "developer"
2	"Installation > Main Machine > Completing the Installation > Operating Instructions Holder Attachment"	Added
3	Installation > Main Machine > Installation > Power Cord, Breaker Switch	Test the breaker switch (P.189) --> Test the breaker switch (Installation > Common Adjustments > Breaker Switch Testing).
4	"Installation > Main Machine > Installation > Operation Panel > Completing Operation Panel Installation"	Step 6; revised diagram indicating the modified spacer with felt attached
5	Installation > MFP Options > Printer/Scanner Unit Type 1357 (D451-01)	Step 10; SP5985-1&2 setting change '0' to '1' --> '2' to '1'
6	Installation > MFP Options > Copier Connection Kit (B328)	Added
7	Installation > Decurl Unit DU5000 (D457-17) > Installation > Mylars	Notes on mylar attachment for additional installation of peripherals
8	"Installation > Cover Interposer Tray CI5010 (B835) > Installation > Attaching the Black Mylar to the Downstream Unit"	Notes on mylar attachment for additional installation of peripherals
9	Installation > Multi Folding Unit (D454) > Installation > Docking	Notes on docking screws "M4x20" and "M4x14"



	Section	Description
10	Installation > Multi Folding Unit (D454) > Installation > Power Cord, Breaker Switch Test	Test the breaker switch (P.189) --> Test the breaker switch (Installation > Common Adjustments > Breaker Switch Testing).
11	Installation > High Capacity Stacker > Installation > Power Cord, Breaker Switch	Test the breaker switch (P.189) --> Test the breaker switch (Installation > Common Adjustments > Breaker Switch Testing).
12	Installation > Booklet Finisher > Installation > Power Cord, Breaker Switch	Test the breaker switch (P.189) --> Test the breaker switch (Installation > Common Adjustments > Breaker Switch Testing).
13	Installation > Common Adjustments > LCIT Adjustments	Step 8; Correction of value for CIS adjustment; between 20 and 40 --> Ah and 28h (hexadecimal)
14	Installation > LCIT RT5040 (D453-17) > Coated Paper and NCR > Coated Paper	P/N correction for Feed Rollers and Separation Rollers; AF031041A --> AF031041, AF032041A --> AF032041
15	Installation > Key Counter > Key Counter Interface Board	Installation instructions added
16	Installation > A3/11"x17" Tray Unit TK5010 (B331-14) > Installation	Step 12; diagram added to indicate the 3 screw holes
17	Replacement and Adjustment > Fusing Unit > Fusing Pressure Adjustment	Measurement procedures and value of the nip width corrected
18	Replacement and Adjustment > Boards > BICU	Instructions on BICU board installation revised
19	Details > Overview > Electrical Component Descriptions	Section entirely corrected to correspond with the number/description/location in the Point to Point manual.
20	Appendices > 3. Appendix: Service Program Mode > System SP2- <del>nnn</del> Drum: 2	Substitution of SP2902-001/002 with SP4417
21	Appendices > 3. Appendix: Service Program Mode > System SP5- <del>nnn</del> Mode: 1	SP5182-001/002 not used (not modifiable)
22	Appendices > 3. Appendix: Service Program Mode > Special Operations > Firmware Update	Notes on Ring Binder (D392) firmware version, update procedures for Cover Interposer (B835) and Perfect Binder (D391)

## Revision History of Field Service Manual; 31 May, 2010

	Section	Description
1	"Installation > Main Machine > Installation > Operation Panel > Completing Operation Panel Installation"	Step 1 1; Correction of number of screws; "2" --> "4"
2	Replacement and Adjustment > Development and Toner Supply > Development Unit Removal	Removal procedures have been modified depending on the machine serial number.
3	"Replacement and Adjustment > Fusing Unit > Pressure Roller > Adjustment for Reducing Black Dots on the Output"	Adjustment procedures for reducing "Black Dots" have been added.
4	"Troubleshooting > Troubleshooting Guide > LCIT RT5040 (D453-17) > Problem: Leading edge of NCR bent, or bent leading edge causes a jam"	Step 1 has been corrected; "Swith off Air Assit" --> "Switch on Air Assist"
5	Troubleshooting > Jam Detection	Whole new section describing details on jam codes has been added.
6	Appendices > 2. Appendix: Service Call > SC Tables: 7xx-3 to 7xx-5	Some of the SC descriptions, names of motors, sensors, etc for the Perfect Binder GB 5000 have been modified to correspond with the Perfect Binder GB5000 service manual. (i.e.) SC795-27 Rotate HP Sensor 1 --> SC795-27 Book Rotation HP Sensor 1
7	Appendices > 3. Appendix: Service Program Mode > System SP5-nnn Mode: 1	SP5045 Accounting Counter; description has been corrected.
8	"Appendices > 3. Appendix: Service Program Mode > Special Operations > Firmware Update > Updating Firmware"	Incorrect diagram of the SD card; facing upside down, has been corrected.

---

# What's New?

This is a brief summary about the new features of this system.

---

## Main Machine

---

Here is a list of differences between the new machine (D059) and the previous machine (B234/D101).

---

### General Changes

---

- **New operation panel.** This is a new installation procedure.
- **Board layout.** The rear of the machine has changed to accommodate the re-arrangement of the PCBs at the back of the machine. The shape of the controller box door has also changed. The board removal and replacement procedures are new.
- **Paper weight.** Heavier paper can be used with this machine, up to 300 g/m<sup>2</sup>. Also, coated paper can be used with this machine.
- **Paper size.** Accommodates paper widths of up to 19.2 in.

---

### Detailed Changes

---

#### Paper Feed

- **Feed rollers.** Feed roller replacement has been improved for TCRU. Handles have been redesigned on the paper tray drawers for easier handling during TCRU.
- **Double-feed detection.** To improve detection of double-feeding, the translucence detection sensors have been replaced with ultra-sonic wave sensors.

#### Development Unit

- **Auger.** The angle of the oval plate of the auger screw has been changed to prevent the deterioration of images at the leading edges.
- **TD sensor.** A mylar has been attached to the detection surface of the TD sensor to better control the density of images. This prevents accumulation of residual toner which can cause dark images.

#### ⬇ Note

- The development units of the previous machine and this machine are not compatible because the configuration of the connectors is different.
- If the development unit of the previous machine is installed in this machine, this will cause an error.

#### Around the Drum

- 
- **Drum thickness.** To improve the durability of the drum, the thickness of the drum surface membrane has been increased from 0.035 mm to 0.045 mm (an increase of 0.007 mm). Service life has been extended to 2500K (from 2000K).
  - **Color change.** The color of the plate behind the OPC has been changed from black to gray. This distinguishes the OPC of the new unit from the old unit (which is black).
  - **PTL stay.** The shape of the PTL stay has been changed, so thicker paper can be used in the new machine.

**Note**

- The drum units of the previous machine and this machine are not compatible (the configuration of the connectors is different).
- If the drum unit of the previous machine is installed in this machine, the machine will issue an error.

If the D101 drum is installed in the D059:

- Image density will be unstable. (Processing control is slightly different for these machines.)
- Service life of the drum will be shorter.

If the D059 drum is installed in the D101:

- Image density will be unstable. (Processing control is slightly different for these machines.)
- After 150K drum cleaning will become unstable.

### Drum Cleaning

- **1st cleaning blade.** To improve the efficiency of drum cleaning, the base material of the 1st cleaning blade has been changed to make it harder.

**Note**

- The 1st blade of the D059 can be installed and used in the D101.
- The 1st blade of the D101 machine can be installed in the D059, but dirty backgrounds may appear earlier.

### Fusing Unit

- **Web unit.** In the new machine the web is longer and the web take-up speed is faster. This change was implemented to improve cleaning of A3 paper as well as smaller paper sizes.

**Note**

- The web unit of the previous machine can be installed in the new machine, but its yield will be lower. If the D101 web is installed on the D059 the yield will be 650K, not 750 K. If the D059 web unit is installed on the D101 service life will be extended to 27 m (from 24 m), but the D059 web unit is more expensive.
- The lot numbers for the web units are different. (D101: Green, D059: Black)
- The lot number of an installed unit is visible on the D059 unit but not visible on the D101 unit.

- 
- **Fusing guide.** To improve paper transport the shape of the fusing guide plate has been changed (it has a more convex shape), and the shape of the slot where paper enters the fusing unit has also been changed.
  - **New anti-static brush.** An anti-static brush has been added. This new brush discharges static from the pressure roller to reduce black spotting and other problems caused by static offset.

### Paper Output

- **Transport guide.** The band on the transport guide has been eliminated. (The band scraped coated paper and caused discoloration in prints so it was eliminated.)
- **Better cooling.** To prevent formation of dew, the transport guide is perforated and a fan has been added.
- **Transport rollers, belt.** The material of the transport rollers and belt has been changed from black to gray. This prevents dirty images and roller tracks on printed sheets.
- **Driver rollers.** Polyurethane is used for some of the drive rollers. This prevents roller swelling due to moisture and the high temperature of the paper. (Swollen rollers in the previous machine did not return to their normal size after cooling.)
- **Idle rollers.** The material of the idle rollers has also changed to polyurethane to prevent the rollers from transferring streaks to printed sheets.

### Duplex Unit

- **Transport rollers.** The color of the transport rollers has been changed from black to gray to prevent dirty images and roller tracks on prints.
- **Drive, idle rollers.** Polyurethane material is used on some of the drive rollers and idle rollers. This prevents roller swelling due to moisture and the high temperature of the paper. (Swollen rollers in the previous machine did not return to their normal size after cooling.)
- **Guide plate.** A mylar covers the complete surface of the guide plate to improve paper transport.

### Control

- **Line speed.** The line speed when feeding large sizes has been increased by shortening the gap between sheets to improve PPM with large paper sizes.

---

## Peripheral Units

---

### Legacy Peripheral Units

---

These are the peripheral units that can be used with either the previous machine or the new machine:

- Multi Bypass Tray BY5000 (B833-17)
- Transit Pass Unit Type GB5000 (D391-19)
- Perfect Binder GB5000 (D391-17)
- Cover Interposer Tray Type GB5000 (D391-18) (for Perfect Binder)

- 
- Cover Interposer Tray CI5010 (B835)
  - Ring Binder RB5000 (D392-17)
  - Finisher SR5000 (B830)
  - Punch Unit PU5000 NA, EU, SC (B831-01, -02, -03) (for Finisher SR5000)

## New Peripherals

---

These are new peripherals, but have only minor differences with previous units:

- **LCIT RT5030 (D452-17)**. Nearly identical to the LCIT RT5000 (A4/LT). One cooling fan has been added.
- **LCIT RT5040 (D453-17)**. Nearly identical to the LCIT RT5010 (A3/DLT). Seven cooling fans have been added: 1 fan inside the LCIT, 6 fans for the trays. (Each tray has two fans, one for the front and one for the back.)

These are new peripherals for this system:

- **Decurl Unit DU5000 (D457-17)**. Installed on the left side of the main machine. A nip between a large soft roller and small metal roller removes paper curl. Also, if a paper jam occurs in any downstream peripheral device, this unit drops two plates to shunt paper into a purge tray and stops copying.
- **Multi-Folding Unit FD5000 (D454-17)**. Performs six types of folds on up to three sheets of paper.
- **High Capacity Stacker SK5010 (D477-17)**. Stacks up to 5,000 sheets of large-size paper, or 2,500 sheets of small-size paper on a pull-away cart. Two of these units can be installed in the same line, depending on which other finishing options are installed.
- **Booklet Finisher SR5020 (D434-17)**. Performs booklet center folding and stapling in addition to corner stapling.
- **Punch Unit PU5020 NA, EU, SC (D449-17, -27, 28)** (for Booklet Finisher SR5020). This is a "smart punch" that automatically adjusts its position above the paper before punching.
- **Trimmer Unit TR5020 (D455-17)**. Trims the fore edges of folded/stapled booklets sent from the Booklet Finisher SR5020. The trimmer unit is used with the SR5020 only (it cannot be used with the SR5000).

For more details about the peripheral units, please refer to the descriptions of possible configurations described in the installation procedures.

# TABLE OF CONTENTS

---

- Safety, Conventions, Trademarks..... 1
  - Safety..... 1
  - Conventions and Trademarks..... 2
  - Warnings, Cautions, Notes..... 4
- Field Service Manual Revision History..... 6
  - Revision History..... 6
- What's New?..... 9
  - Main Machine..... 9
  - Peripheral Units..... 11

## 1. Installation

---

- Installation Requirements..... 27
  - Environment..... 27
  - Power Requirements..... 28
  - Machine Level..... 29
  - Configuration Rules..... 29
  - Space Requirements..... 33
  - Before You Begin..... 35
- Main Machine (D059/D060/D061)..... 37
  - Accessories..... 37
  - Installation..... 39
  - Completing the Installation..... 60
  - Controller Box, PSU Box Removal..... 64
  - Transporting the Main Machine..... 68
- A3/11"x17" Tray Unit TK5010 (B331-14)..... 71
  - Accessories..... 71
  - Installation..... 71
- LCIT RT5030 (D452-17) ..... 76
  - Accessories..... 76
  - Installation..... 77
  - Image Position Sensor, Paper Registration Adjustment..... 81
  - LCIT (D452) Tray Heaters..... 81
- LCIT RT5040 (D453-17)..... 86
  - Accessories..... 86

---

Installation.....	87
Image Position Sensor, Paper Registration Adjustment.....	91
Coated Paper and NCR.....	91
LCIT (D453) Tray Heaters.....	93
Multi Bypass Tray BY5000 (B833-17).....	98
Accessories.....	98
Installation.....	99
Decurl Unit DU5000 (D457-17).....	105
Accessories.....	105
Installation.....	106
Perfect Binder (D391).....	111
Cover Interposer Tray CI5010 (B835) .....	112
Accessories.....	112
Installation.....	113
Multi Folding Unit (D454).....	123
Accessories.....	123
Installation.....	124
Ring Binder (D392).....	133
High Capacity Stacker (D447).....	134
Accessories.....	134
Installation.....	135
Booklet Finisher SR5020 (D434-17).....	146
Accessories.....	146
Installation.....	147
Punch Unit PU5020 NA, EU, SC (D449-17, -27, -28).....	156
Installation.....	158
Trimmer Unit TR5020 (D455-17).....	167
Accessories.....	167
Installation.....	167
Finisher SR5000 (B830).....	174
Accessories.....	174
Installation.....	175
Punch Unit PU5000 NA, EU, SC (B831-01, -02, -03) .....	180



---

Key Counter .....	187
Key Counter Bracket.....	187
Key Counter Interface Board.....	194
Common Adjustments.....	196
Height and Level Adjustment.....	196
LCIT Adjustments.....	197
Skew and Side-to-Side Registration.....	199
Breaker Switch Testing.....	210
MFP Options.....	212
Overview.....	212
Merging Applications on One SD Card.....	214
Common Procedures For MFP Options.....	216
Printer/Scanner Unit Type 1357 (D451-01).....	217
IEEE1284 Interface Board Type A (B679-17).....	220
PostScript3 Unit Type 1357 (D451-05).....	220
Data Overwrite Security Unit Type H (D377-06).....	221
Browser Unit Type E (D430-05).....	224
VM Card Type J (D463-01).....	225
File Format Converter Type C (D377-04).....	226
IEEE802.11 a/g Interface Unit Type J (377-01).....	227
Bluetooth Interface Unit Type 3245 (B826-17).....	229
Gigabit Ethernet Type B (D377-21).....	230
Copy Data Security Unit Type F (B829-07).....	230
HDD Encryption Unit Type A (D377-16).....	232
IPDS Unit Type 1357 EX (451-08).....	236
Copier Connection Kit (B328).....	236

## 2. Preventive Maintenance

---

PM Parts.....	241
PM Counter.....	241
PM Counters.....	244
PM Tables: Main.....	251
Main Machine PM Parts.....	251
PM Tables: Options.....	259

---

1. LCIT RT5030 (D452-17).....	259
2. LCIT RT5040 (D453-17).....	259
3. Multi-Bypass Tray (B833).....	260
4. Decurl Unit DU5000 (D457-17).....	261
5. Perfect Binder/Inserter (D391).....	261
6. Cover Interposer Tray CI5000 (B835).....	266
7. Multi-Folding Unit FD5000 (D454).....	267
8. Ring Binder (D392).....	267
9. High Capacity Stacker SK5010 (D447).....	268
10. Booklet Finisher SR5020 (D434).....	268
11. Trimmer Unit TR5020 (D455).....	269
12. Finisher SR5000 (B830).....	270
Lubrication Points.....	271

### 3. Replacement and Adjustment

---

General Cautions.....	275
Drum.....	275
Drum Unit.....	275
Transfer Belt Unit.....	276
Scanner Unit.....	276
Laser Unit.....	276
Charge Corona.....	276
Development.....	277
Cleaning.....	277
Fusing Unit.....	278
Paper Feed.....	278
Used Toner.....	278
Special Tools and Lubricants.....	279
Special Tools.....	279
Lubricants.....	279
Common Procedures.....	280
Development Unit Drawer.....	280
Front Doors.....	285
Right Covers.....	286

---

Left Covers.....	287
Controller Box.....	288
PSU Box.....	291
Rear Upper Cover.....	294
Document Feeder.....	295
ADF Covers.....	295
ADF Original Tray.....	296
Feed Unit and Separation Roller.....	297
Feed Belt.....	298
Pick-Up Roller.....	299
ADF Sensors.....	300
Transport Belt.....	304
ADF Motors.....	305
Feed-In Clutch.....	307
Scanner Unit.....	309
Exposure Glass.....	309
Lens Block.....	309
Original Size Sensors.....	310
Exposure Lamps.....	311
Lamp Regulators.....	313
Optics Dust Filter.....	314
Scanner HP Sensor.....	314
Scanner Motor.....	315
Scanner Drive Wires.....	316
SIB.....	319
Laser Unit.....	320
Caution Decals.....	320
LD Unit.....	320
Polygon Mirror Motor.....	323
Laser Synchronization Detector.....	324
Around The Drum.....	325
Cleaning Unit, PCU, Drum.....	325
PTL (Pre-Transfer Lamp).....	327

---

Pre-Charge Unit.....	328
Charge Corona Unit.....	330
Drum Potential Sensor.....	334
Pick-Off Pawls.....	335
ID Sensor .....	335
Cleaning Brush.....	337
Cleaning Blades.....	338
Cleaning Unit Filters.....	338
Toner Filter.....	339
Quenching Lamp Shield Glass.....	339
Development and Toner Supply.....	341
Development Unit Removal.....	341
Toner Hopper Removal.....	343
Developer Replacement.....	344
Cleaning the Doctor Blade.....	347
Development Entrance, Front, Rear Side Seals.....	350
Toner Density Sensor.....	351
Toner Hopper Sensor.....	352
Toner Suction Bottle.....	353
Toner Suction Motor.....	354
Development Motor Unit.....	354
Toner Pump Motor, Toner Pump Motor Sensor.....	356
Development Roller Shaft Cleaning.....	358
Transfer Belt Unit.....	359
Transfer Belt Unit Removal.....	359
Transfer Belt.....	361
Transfer Belt/Bias Roller Cleaning Blade.....	363
Transfer Belt Bias Brush .....	364
Paper Feed.....	365
Paper Trays.....	365
Paper Feed Rollers.....	367
Paper Feed Units 1, 2, 3.....	368
Paper Feed, Paper End, Tray Lift Sensor.....	370

---

Rear Fence Return Sensor.....	371
Rear Fence HP Sensor.....	372
1st Tray Right Paper Sensor.....	373
Bottom Plate Lift Wire.....	374
Paper Dust Tray, Registration Sensor, Double-feed Sensors.....	375
Lift Motors.....	379
2nd, 3rd Tray Size Switches.....	380
Feed Motors.....	381
Upper Relay Motor.....	383
Registration Motor.....	384
Development Fan Motor.....	385
Registration Unit.....	385
LCT Relay and Relay Sensors.....	386
Image Position Sensors.....	387
Tandem Feed Tray Paper Size Change.....	393
Tandem Tray Side Registration.....	395
Fusing Unit.....	398
Removing the Fusing Unit.....	398
Reinstalling the Fusing Unit.....	399
Fusing Unit Covers.....	400
Fusing Cleaning Unit.....	401
Hot Roller Unit.....	404
Hot Roller.....	406
Pressure Roller.....	411
Cleaning Roller: Pressure Roller.....	413
Hot Roller Strippers.....	414
Pressure Roller Stripper.....	415
Fusing Exit Sensor.....	416
Fusing Unit Thermostats, Thermistor.....	416
Fusing Pressure Adjustment.....	418
Job Time Sensor.....	419
Duplex Unit.....	420
Duplex Unit.....	420

---

Duplex Unit Inner Cover.....	421
Duplex Inverter Motor.....	421
Duplex Switchback and Transport Motors.....	422
Duplex Entrance Guide Unit.....	423
Duplex Entrance Sensor, Inverter Sensor.....	423
Duplex Transport Sensors 1, 2, 3.....	425
Inverter Relay Sensor.....	426
Toner Bank.....	427
Toner Collection Bottle.....	427
Toner Bank Unit.....	427
Access To Inside the Toner Bank.....	433
Boards.....	434
MCU.....	434
OPU.....	435
IOB.....	435
PSU-E (Engine): A, B.....	437
PPG, CGB Power Packs.....	439
AC Drive Board.....	440
Controller Board, NVRAM.....	440
BICU.....	445
HDD.....	448
PSU-C.....	449
URB.....	450
Motors.....	452
Drum Motor.....	452
Duplex Motor.....	455
Fusing Motor.....	456
Exit Motor.....	457
Ozone Filter.....	458
Copy Image Adjustment: Printing/Scanning.....	459
Printing.....	459
Parallelogram Image Adjustment.....	462
Scanning.....	463

---

ADF Image Adjustment.....	465
---------------------------	-----

## **4. Troubleshooting**

---

Program Download.....	467
Service Call Conditions.....	468
PSU Protection Circuits.....	469
Overview.....	469
AC Input Module.....	470
Converter Control Module.....	471
Output Module.....	473
PSU LED Display.....	474
PSU-E Replacement.....	475
Troubleshooting Guide.....	476
Main Machine (D059, D060, D061).....	476
Decurl Unit DU5000 (D457-17).....	481
LCIT RT5030 (D452-17).....	481
LCIT RT5040 (D453-17).....	481
Booklet Finisher SR5010 (D434-17) .....	483
High Capacity Stacker SK5010 (D447-17).....	484
Multi Folding Unit FD5000 (D454-17).....	485
Trimmer Unit TR5020 (D455-17).....	486
Jam Detection.....	488
Paper Jam Display.....	488
Jam Codes and Display Codes.....	489

## **5. Service Tables**

---

Service Tables.....	511
---------------------	-----

## **6. Details**

---

Overview.....	513
Overall Machine Layout.....	513
Paper Path.....	514
Copy Process.....	515
Drive Layout.....	517
Electrical Component Descriptions.....	518
ADF.....	534

---

Overview.....	534
Pick-Up Roller Release.....	535
Bottom Plate Lift.....	536
Pick-Up and Separation.....	537
Original Feed.....	538
Original Size Detection.....	538
Original Transport.....	540
Original Skew Correction.....	541
Original Inversion and Feed-Out.....	542
ADF Jam Conditions.....	544
Scanning.....	546
Scanner Drive.....	549
Original Size Detection.....	550
Auto Image Density (ADS).....	553
Board Structure.....	554
Block Diagrams.....	554
Component Descriptions.....	556
Image Processing.....	558
Image Processing Overview.....	558
Image Processing Flow.....	558
Adjustments.....	560
Original Type Settings.....	560
Laser Exposure.....	563
Overview.....	563
Laser Exposure Mechanism.....	564
LD Safety Switches.....	565
Multi-Beam Line Exposure.....	566
Polygon Mirror Motor.....	567
1200-dpi Resolution.....	568
Optical Path.....	569
Drum Unit.....	570
Overview.....	570
Drum Drive.....	572



---

Drum Charge.....	573
Drum Cleaning.....	576
Air Flow around the Drum.....	582
Drum Pick-Off Pawls.....	583
Drum Quenching.....	584
Process Control.....	584
Development.....	590
Overview.....	590
Development Mechanism.....	591
Drive.....	592
Cross-mixing.....	593
Development Bias.....	594
Development Unit Toner Suction.....	595
Toner Hopper.....	596
Toner Density Control.....	597
Toner Supply and Recycling.....	602
Overview.....	602
Toner Bank.....	603
Supplying Toner to the Development Unit.....	608
Toner Recycling and Toner Collection.....	611
Paper Feed.....	616
Overview.....	616
Drive.....	618
Paper Lift – Trays 2 & 3.....	620
Pick-Up and Feed – Trays 1, 2, 3.....	622
Remaining Paper/Paper End Detection (Tray 2, 3).....	625
Paper Size Detection.....	625
Tray Lock – Tray 2, 3.....	628
Tandem Feed – Tray 1.....	629
Vertical Transport.....	636
LCT Guide Plate.....	637
Paper Registration.....	638
Image Position Correction.....	641

---

Double-Feed Detection.....	642
Anti-Condensation Heaters (Options).....	644
Image Transfer and Paper Separation.....	645
Overview.....	645
Image Transfer and Paper Separation.....	646
Transfer Belt Unit Lift.....	648
Paper Transportation and Belt Drive.....	649
Transfer Belt Cleaning.....	650
Toner Collection.....	651
Drum Anti-Condensation Heater.....	651
Fusing.....	653
Overview.....	653
Fusing Entrance Guide.....	654
Fusing Unit Drive.....	655
Fusing Lamp and Fusing Temperature Control.....	655
Fusing Cleaning Unit .....	663
Paper Cooling.....	667
Fusing Pressure.....	668
Hot Roller Stripper Release.....	669
Paper Exit/Duplex.....	670
Overview.....	670
Inverter/Duplexing Junction Gates.....	675
Duplex Drive Mechanism.....	676
Switchback Idle Roller Operation.....	677
Paper Exit Mechanism.....	678
Basic Duplex Feed Operation.....	678
Boards .....	683
LEDs.....	683
DIP Switches.....	686
Test Points.....	689
Fuses.....	689
Variable Resistors.....	689
Energy Conservation Modes.....	690

Overview.....	690
Energy Saver Mode.....	691
Low Power Mode.....	691
Off Mode.....	692
Sleep Mode.....	693

## 7. Specifications

Specifications: Main.....	695
Main Machine.....	695
Specifications: Options-1.....	703
A3/DLT Tray Kit B331 (Option).....	703
LCIT RT5030 (D452) (Option).....	703
LCIT RT5040 (D453) (Option).....	704
Multi-Bypass Tray (B833) (Option).....	706
De-curl DU5000 Unit (D457) (Option).....	707
Perfect Binder D391.....	709
Cover Interposer Tray CI5010 (B835).....	712
Multi-Folding Unit FD5000 (D454).....	712
Ring Binder RB5000 (D392).....	720
Specifications: Options-2.....	722
High Capacity Stacker SK5010 (D447).....	722
Booklet Finisher SR5020 (D434).....	723
Trimmer Unit TR5020 (D455) (Option).....	728
Finisher SR5000 (3K Finisher B830).....	729



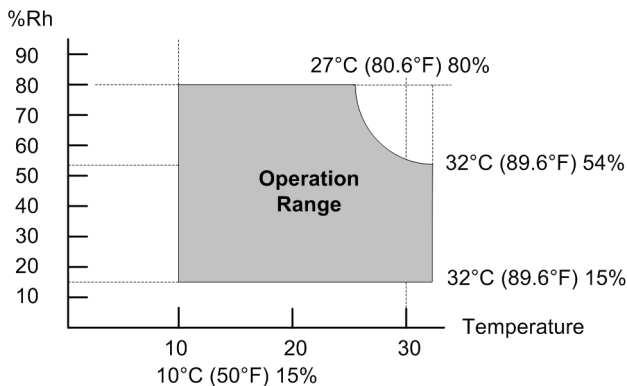
# 1. Installation

## Installation Requirements

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/m<sup>3</sup>
6. If the place of installation is air-conditioned or heated, do not place the machine where it will be:
  - 1) Subjected to sudden temperature changes
  - 2) Directly exposed to cool air from an air-conditioner
  - 3) Directly exposed to heat from a heater
7. Do not place the machine where it will be exposed to corrosive gases.
8. Do not install the machine at any location over 2,000 m (6,500 feet) above sea level.
9. Place the machine 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.

## Power Requirements

### CAUTION

- Make sure that the power outlets are near the main machine and peripherals and are easily accessible.
- Make sure the plugs are firmly inserted in the outlet.
- Avoid multi-wiring.
- Be sure to ground the main machine and peripheral units.
- Never set anything on a power cord.

Separate power cords are provided for the main machine and the following optional peripheral units. Each power cord requires an independent power outlet:

- Perfect Binder (D391)
- Ring Binder (D392)
- Booklet Finisher SR5020 (D434-17)
- High Capacity Stacker SK5010 (D447-17)
- Booklet Finisher SR5020 (D434-17)
- Multi-Folding Unit FD5000 (D454-17)
- Trimmer Unit TR5020 (D455-17)

### Input Voltage Level: Main Machine (and Peripheral Units)

Machine	Area	
	NA	Europe/Asia
D059	208-240V 60 Hz Minimum 20A	220-240V 50/60 Hz Minimum 16A
D060		
D061		
Permissible voltage fluctuation:		10% (Trimmer Unit TR5020 only: -10% to +6%)

### 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 (Ⓢ) lights or flashes at the following times:

- While the platen cover or ADF is open

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

There are two power switches on the machine:

### Main Power Switch

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

### Operation Power Switch

Located on the right side of the operation panel. This is the switch normally used by the customer to power the machine on and off.

## Machine Level

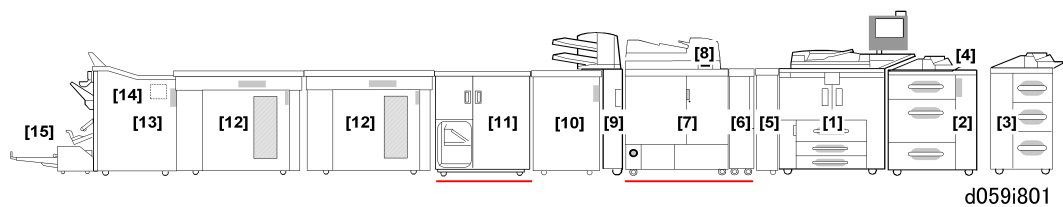
1. Front to back:	Within 5 mm (0.2") of level
2. Right to left:	Within 5 mm (0.2") of level

### Note

- The machine legs can be raised or lowered in order to level the machine. Set a carpenter's level on the exposure glass.

## Configuration Rules

### Configuration 1



[1]	Main Machine (D059/D060/D061)
[2]	LCIT RT5030 (D452-17)
[3]	LCIT RT5040 (D453-17)

[4]	Multi Bypass Tray BY5000 (B833-17) <ul style="list-style-type: none"> <li>The multi bypass tray can be installed on either LCIT.</li> <li>The multi bypass tray must be installed on the LCIT before the LCIT is docked to the mainframe.</li> </ul>
[5]	Decurl Unit DU5000 (D457-17)
[6]	Transit Pass Unit Type GB5000 (D391-19)
[7]	Perfect Binder GB5000 (D391-17)
[8]	Cover Interposer Tray Type GB5000 (D391-18)
[9]	Cover Interposer Tray CI5010 (B835) <ul style="list-style-type: none"> <li>The base of the cover interposer tray is narrow and cannot support the tray unit standing alone. (After installation, the top of the cover interposer tray unit rests on top of the downstream unit.)</li> <li>To prevent the cover interposer tray from falling during installation, dock the next downstream unit to the base of the cover interposer tray before installing the tray unit on top of the cover interposer tray base.</li> </ul>
[10]	Multi-Folding Unit FD5000 (D454-17)
[11]	Ring Binder RB5000 (D392-17)
[12]	High Capacity Stacker SK5010 (D447-17)
[13]	Booklet Finisher SR5020 (D434-17)
[14]	Punch Unit PU5020 NA, EU, SC (D449-17, -27, 28)
[15]	Trimmer Unit TR5020 (D455-17)

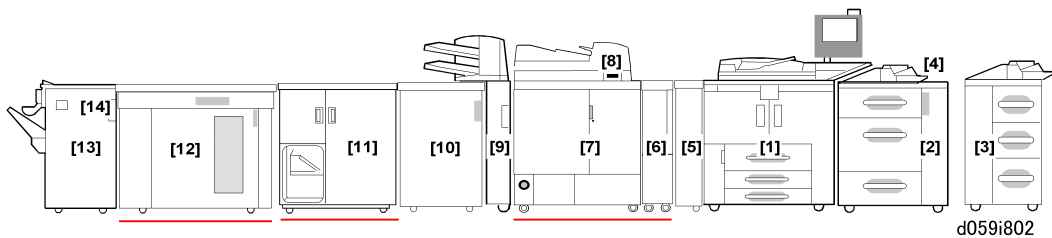
### Rules for This Configuration

- Either LCIT (D452) [2] or LCIT (D453) [3] (not both) can be installed on the right side of the main machine.
- The Multi Bypass Tray BY5000 (B833) [4] can be installed on top of either the LCIT (D452) [2] or LCIT (D453) [3].
- The Decurl Unit (D457) [5], if installed, is the first downstream unit (left side of the main machine).
- Either the Perfect Binder (D391) ([6], [7] [8]) or the Ring Binder (D392) [11] can be installed. **Both cannot be installed in the same line.**
- Two** High Capacity Stacker units (D447) [12] can be installed in the same line, but only one is allowed if Multi Folding Unit (D454) [10] is installed.



6. If two high capacity stackers are to be installed in the same line, the second stacker must be installed on the left side of the first stacker.
7. The High Capacity Stacker (D447) [12] can be installed as the last unit downstream, but only if Multi Folding Unit (D454) [10] is not installed.
8. If Multi Folding Unit (D454) [10] is installed, the Booklet Finisher (D434) [13] must be installed as the last unit downstream.
9. The Trimmer Unit (D455) [15] can be attached only to the Booklet Finisher (D434) [13]

## Configuration 2



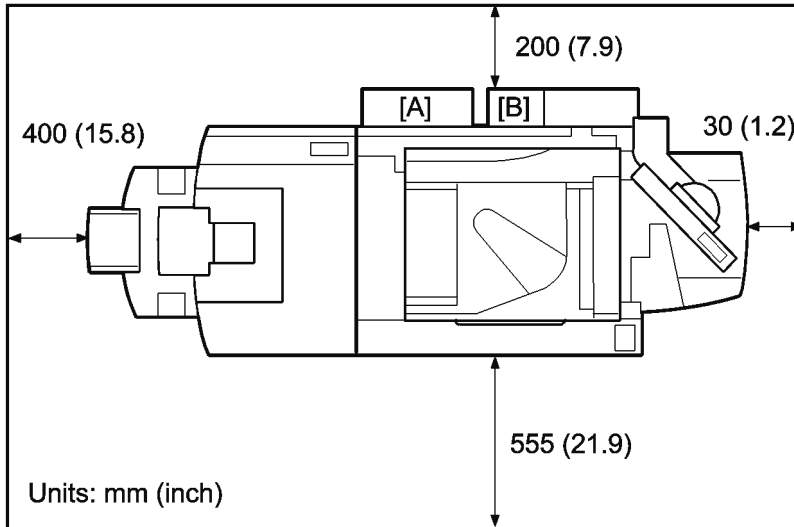
[1]	Main Machine (D059/D060/D061)
[2]	LCIT RT5030 (D452-17)
[3]	LCIT RT5040 (D453-17)
[4]	Multi Bypass Tray BY5000 (B833-17) <ul style="list-style-type: none"> <li>• The multi bypass tray can be installed on either LCIT.</li> <li>• The multi bypass tray must be installed on either LCIT before the LCIT is docked to the mainframe.</li> </ul>
[5]	Decurl Unit DU5000 (D457-17)
[6]	Transit Pass Unit Type GB5000 (D391-19)
[7]	Perfect Binder GB5000 (D391-17)
[8]	Cover Interposer Tray Type GB5000 (D391-18)

[9]	<p>Cover Interposer Tray CI5010 (B835)</p> <ul style="list-style-type: none"> <li>• The base of the cover interposer tray is narrow and cannot support the tray unit standing alone. (After installation, the top of the cover interposer tray unit rests on top of the downstream unit.)</li> <li>• To prevent the cover interposer tray from falling during installation, dock the next downstream unit to the base of the cover interposer tray before installing the tray unit on top of the cover interposer tray base.</li> </ul>
[10]	Multi-Folding Unit FD5000 (D454-17)
[11]	Ring Binder RB5000 (D392-17)
[12]	High Capacity Stacker SK5010 (D447-17)
[13]	Finisher SR5000 (B830)
[14]	Punch Unit PU5000 NA, EU, SC (B831-01, -02, -03)

1. Either LCIT (D452) [2] or LCIT (D453) [3] (not both) can be installed on the right side of the main machine.
2. The Multi Bypass Tray BY5000 (B833) [4] can be installed on top of either the LCIT (D452) [2] or LCIT (D453) [3].
3. The Decurl Unit (D457) [5], if installed, is the first downstream unit (left side of the main machine).
4. Only **one** of the following units can be installed in the same line: Perfect Binder (D391) ([6], [7], [8]), Ring Binder (D392) [11] or High Capacity Stacker (D447) [12].
5. The High Capacity Stacker (D447) [12] can be installed as the last unit downstream, but only if Multi Folding Unit (D454) [10] is not installed.
6. If Multi Folding Unit (D454) [10] is installed, the Finisher SR5000 (B830) [14] must be the last unit downstream.

## Space Requirements

### Space Around



b234i023

The machine requires the minimum amount of space around the installation as shown above.

#### ↓ Note

- The controller box door [A] and PSU door [B] on the back of the main machine swing open and can be removed.
- Both doors can be removed to allow the machine to pass through a narrow doorway.

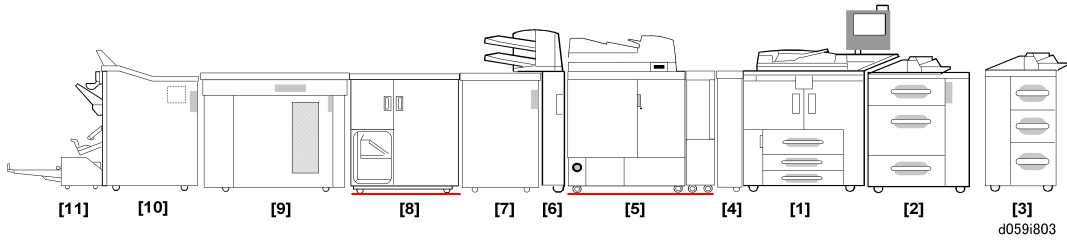
## Total Space Required

In the two tables below:

- The depth (D) and height (H) measurements of the main machine ([1] in the table below) are the minimum depth and height required for the installation of all peripheral units as well as the main machine.
- Determine the number of peripheral units to be installed, then refer to the table below. Add the widths (W) of the main machine and each peripheral device to determine the maximum amount of space to accommodate the entire length of the installation.
- Be sure to add the distance required for "space around" (see the previous section) to determine the total amount of space required.

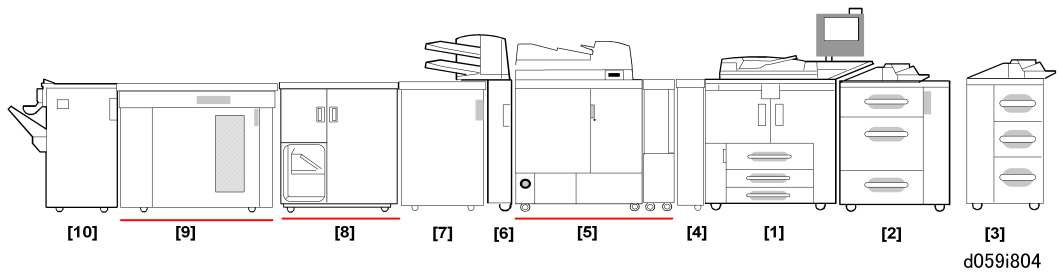
### Configuration 1

1



No.	Dimensions: mm (in.)		
	W	D	H
[1] D059	870 (35)	859 (34)	1476 (59)
[2] D453	850 (34)	---	---
[3] D452	540 (22)	---	---
[4] D457	160 (7)	---	---
[5] D391	1090 (43)	---	---
[6] B835	164 (7)	---	---
[7] D454	460 (19)	---	---
[8] D392	860 (34)	---	---
[9] D447	900 (36)	---	---
[10] D434	650 (26)	---	---
[11] D455	1120 (45)	---	---

Configuration 2



No.		Dimensions: mm (in.)		
		W	D	H
[1]	D059	870 (35)	859 (34)	1476 (59)
[2]	D453	850 (34)	---	---
[3]	D452	540 (22)	---	---
[4]	D457	160 (7)	---	---
[5]	D391	1090 (43)	---	---
[6]	B835	164 (7)	---	---
[7]	D454	460 (19)	---	---
[8]	D392	860 (34)	---	---
[9]	D447	900 (36)	---	---
[10]	B830	800 (32)	---	---

## Before You Begin...

Follow the order of presentation in this installation manual to install the main machine, peripheral units, and MFP options.

### ★ Important

- The installation procedures for the Perfect Binder (D391) and Ring Binder (D392) are not included in this installation guide.
- For more about the installation procedures for these peripheral units, please refer to the "Perfect Binder Machine Code: D391 Service Manual" or "Ring Binder Machine Code: D392 Service Manual".

The table below lists some special points about installation of the peripheral units that you should know before you begin installation.

No.	Name	Skew	S-to-S	Other	Brk SW	PC
D452	LCIT		Yes	IPS S		
D453	LCIT		Yes	IPS S		
D059	Main				Yes	Yes
D457	Decurler					

No.	Name	Skew	S-to-S	Other	Brk SW	PC
D391	Perfect Binder	Yes	Yes			Yes
D835	Cover Interposer	Yes	Yes			
D454	Donau	Yes	Yes		Yes	Yes
D392	Ring binder	Yes	Yes			Yes
D447	Stacker	Yes	Yes		Yes	Yes
D434	Booklet Finisher	Yes	Yes		Yes	Yes
B830	Finisher	Yes	Yes			

### Table Key

- "Yes" indicates that a special procedure is required.
- "Skew", "S-to-S"  
Paper "Skew" and "Side-to-Side Registration". After each peripheral device is installed, test paper output to determine the presence of skew and to make sure that side-to-side registration is correct.
- "IPS S"  
This is "Image Position Sensor Strength" calibration, required for either the LCIT (D452) or LCIT (D453).
- "Brk SW"  
This means "Breaker Switch". The breaker switch must be tested at installation. After installation, the breaker switch must be tested at least once a year.
- "PC"  
"Power Cord". These peripheral units each have a separate power cord that requires an independent power supply.

### MFP Controller Options

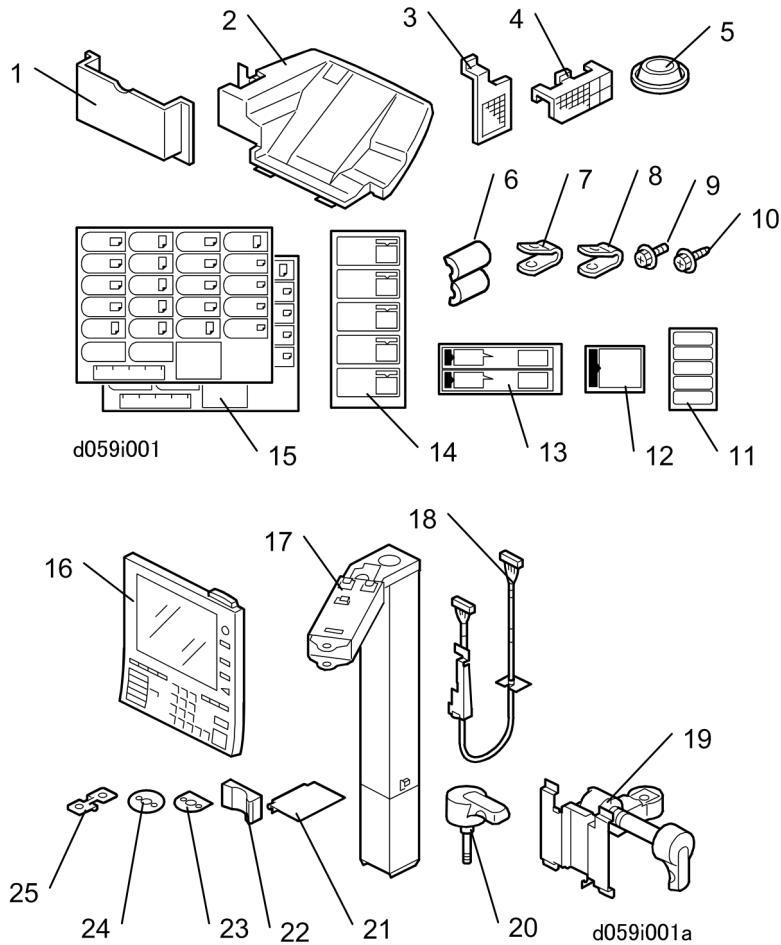
- Only one slot is available for applications. If more than one application is to be installed, all the applications must be moved onto the same SD card.
- If the PS3 option will be installed, the applications must be copied onto the PS3 SD card.
- After an SD card is copied, it cannot be used in another machine. However, copied SD cards serve as proof of purchase by the customer; therefore, copied SD cards must be stored on site inside the main machine.

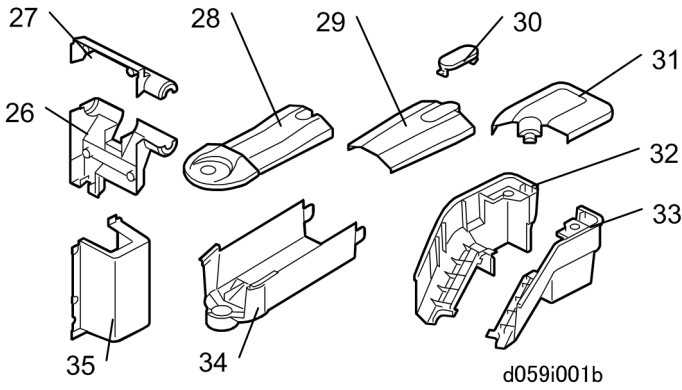
# Main Machine (D059/D060/D061)

## Accessories

1

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





No.	Description	Q'ty
1.	Operating Instructions Holder	1
2.	ADF Exit Tray	1
3.	Dust Filter	1
4.	Optics Dust Filter	1
5.	Leveling Shoes	4
6.	Ferrite Core	1
7.	Cable Clamp (Metal)	1
8.	Cable Clamp (Nylon)	1
9.	Screws M3x10	2
10.	Screws M4x8	37
11.	Face-Up Decals	1
12.	Power Off Instruction Decals	1
13.	Paper Loading Decals	4
14.	Fusing Unit Removal Instruction Decals	1
15.	Paper Size Decals	2
16.	Operation Panel	1
17.	Arm	1
18.	Long Harness	1



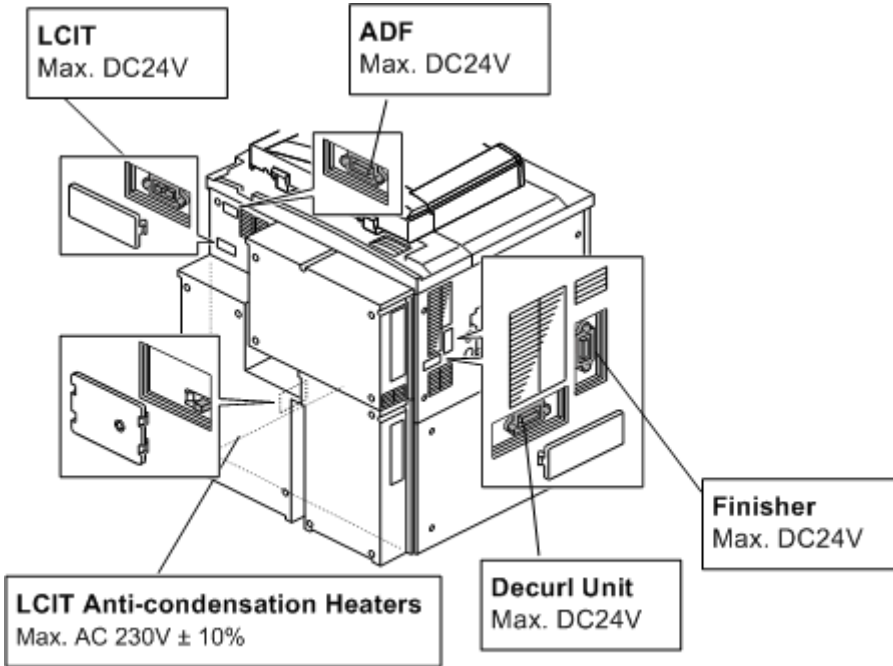
No.	Description	Q'ty
19.	Operation Panel Base	1
20.	Angle Adjustment Lever	1
21.	Connector Cover	1
22.	Spacer	1
23.	Lock Plates	2
24.	Swivel Plate	1
25.	Arm Adjustment Spacer	1
26.	Base Bottom Cover	1
27.	Base Top Cover	1
28.	Arm Cover – Top Front	1
29.	Arm Cover – Top Center	1
30.	Cap	1
31.	Arm Cover – Top Rear	1
32.	Arm Cover – Bottom Left	1
33.	Arm Cover – Bottom Right	1
34.	Arm Cover – Bottom Front	1
35.	Arm Connection Cover	1

## Installation

### Rating Voltage for Peripheral Units at Connection Points

#### CAUTION

- Be sure to plug the cables into the correct sockets.



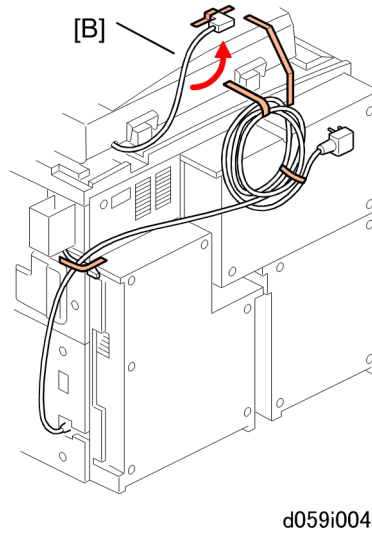
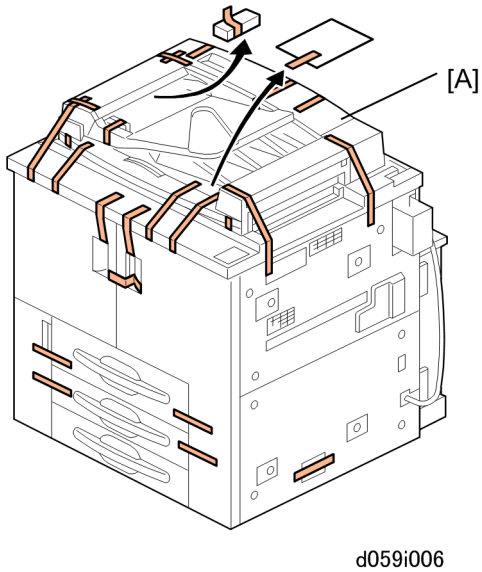
d059i025

## External Tape and Retainers

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

### **⚠ CAUTION**

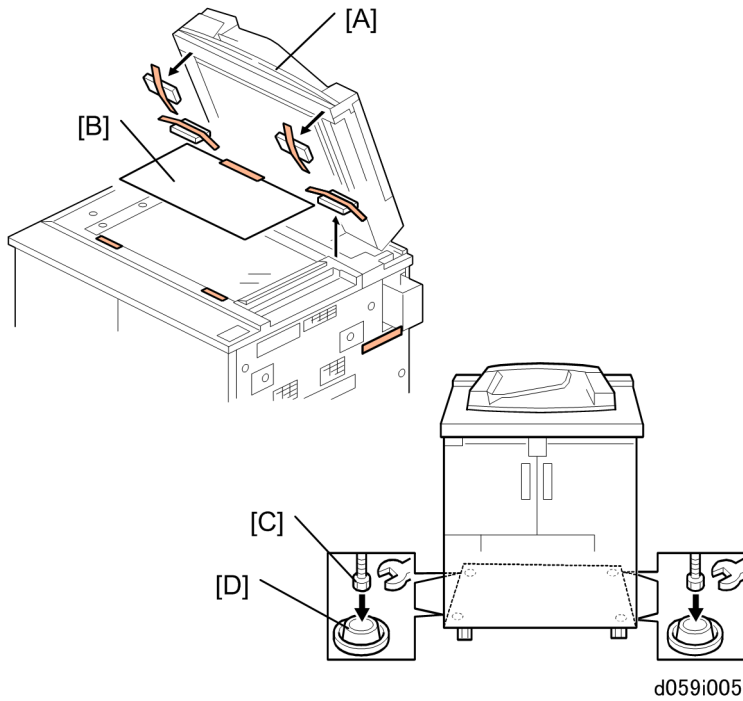
- Before performing the following procedures, make sure that the machine is unplugged from the power source.



1. Remove all tape from the exterior [A].
2. Remove the tape and retainers from the power cord and cables [B].

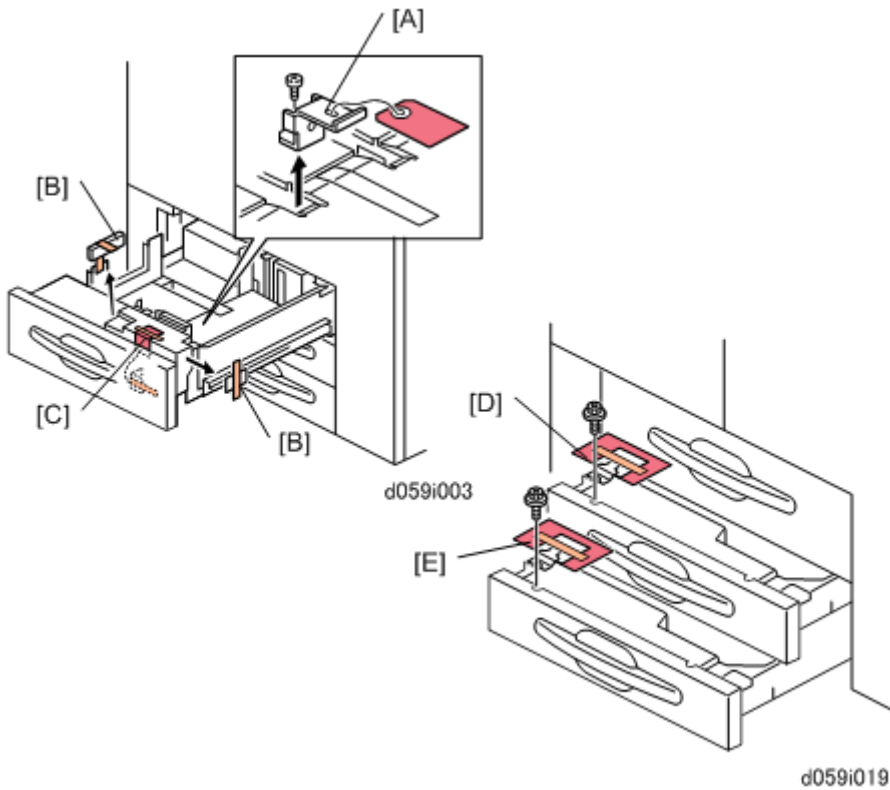
**Note**

- 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 the 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] ( $\varnothing$  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] ( $\varnothing$  x 1).

**Note**

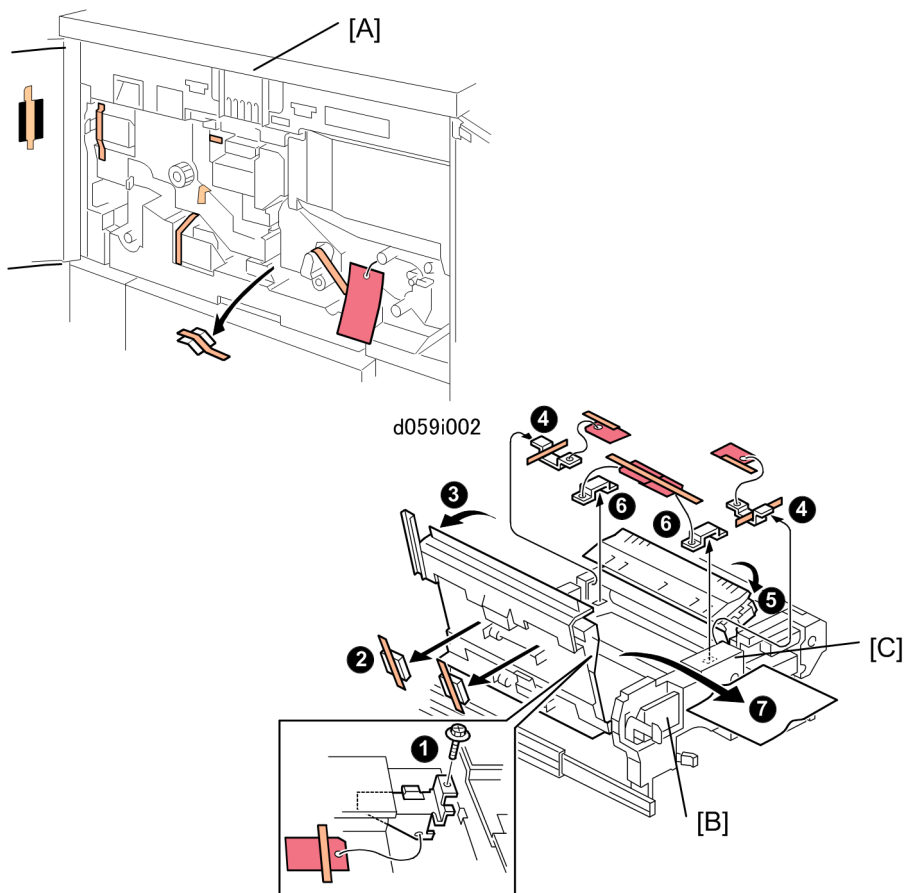
- Be sure to re-attach the screw to the same hole. Do not discard the screw.

4. Pull out the 3rd tray and remove the lock plate [E] ( $\varnothing$  x 1).

**Note**

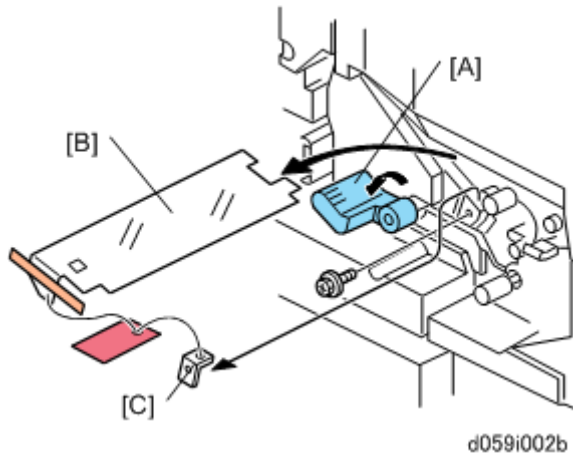
- Be sure to re-attach the screw to the same hole. Do not discard the screw.

## Internal Tape and Retainers: Fusing Unit



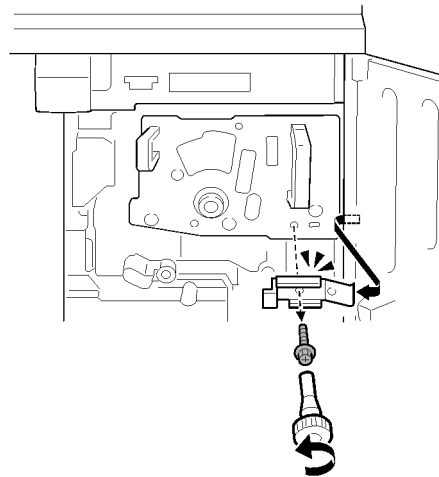
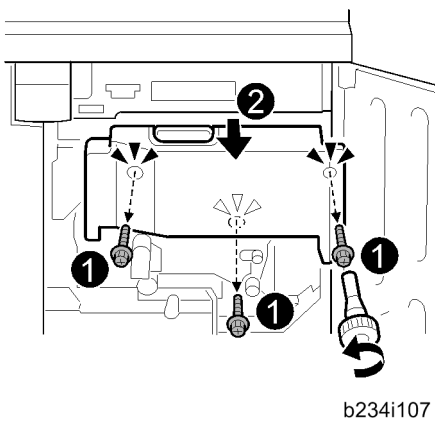
1. Open the front doors and remove all visible tape and retainers from inside the machine [A].
2. Press down lever **D2** [B], pull out the fusing unit [C], and remove all tape and retainers from the fusing unit:
  - (1) Retainer (🔑 x1)
  - (2) Tape, retainers (x2)
  - (3) Raise **D3**.
  - (4) Remove retainer.
  - (5) Raise **D4**.
  - (6) Remove retainer.
  - (7) Protective sheet
3. Push in the fusing unit.

## Internal Tape and Retainers: Transfer Unit



1. Lower the lever C1 [A].
2. Remove all tape, tags [B], and retainers [C] 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) (🔧 x3).
3. Take off the inner cover (2).

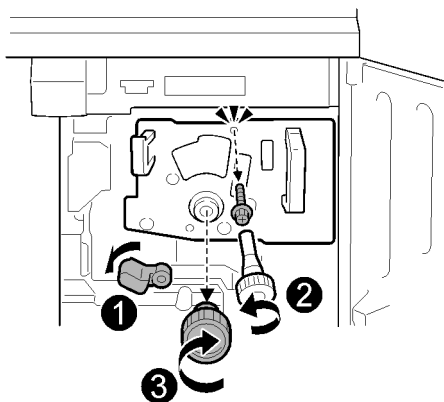
**Note**

- 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.

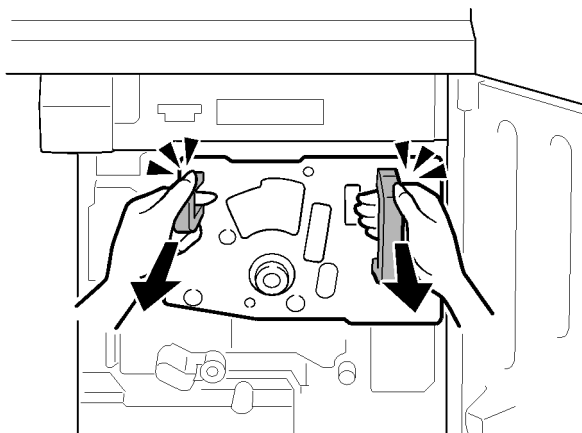
**Important**

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

4. Remove the ground plate (⚡ x1).



b234i110

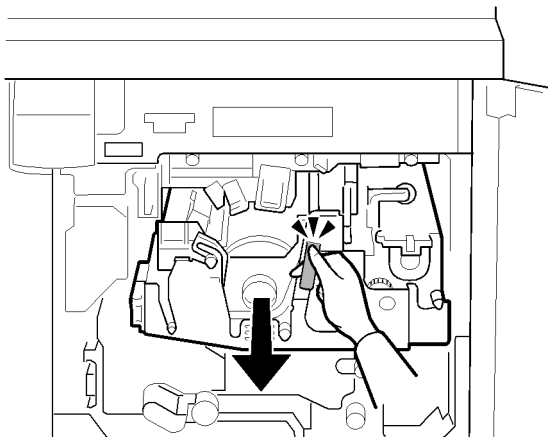


b234i110a

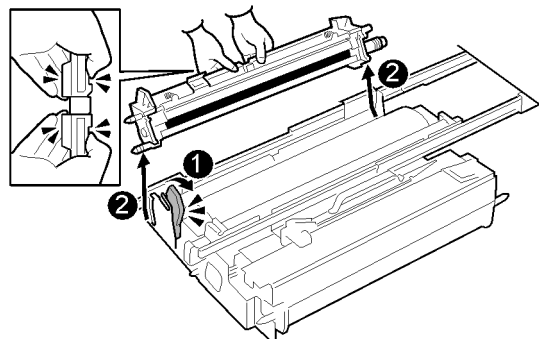
5. Remove the faceplate.

- (1) Lower C1
- (2) Screw (⚡ x1)
- (3) Remove the knob.

6. Remove the faceplate.



b234i111



b234i113



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

**Note**

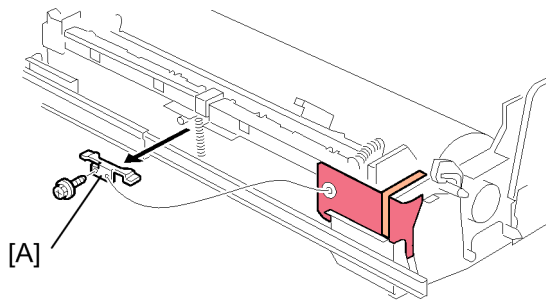
- The development unit (1) will shift slightly to the right as you pull the drawer out.

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**

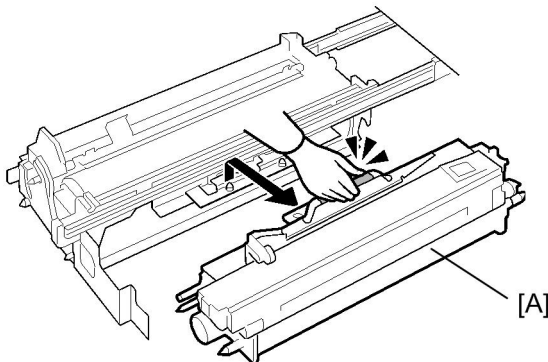
- Grasp the cleaning unit by its handles as shown and lift it straight up.



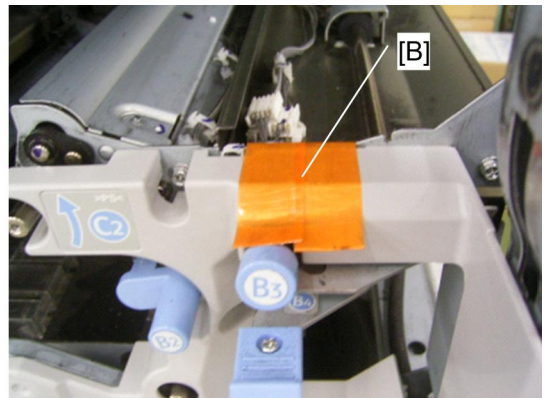
b234i117

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

## Pouring Developer

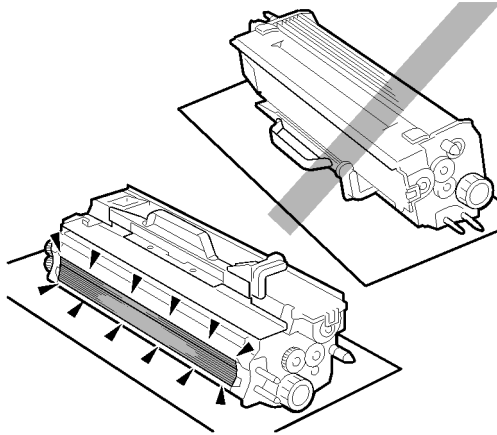


b234i112

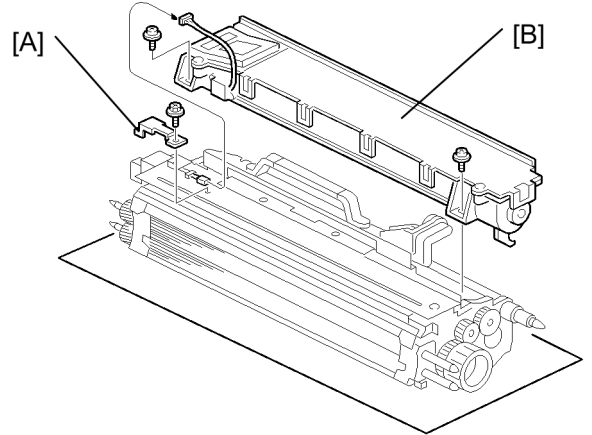


rimgi901

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].

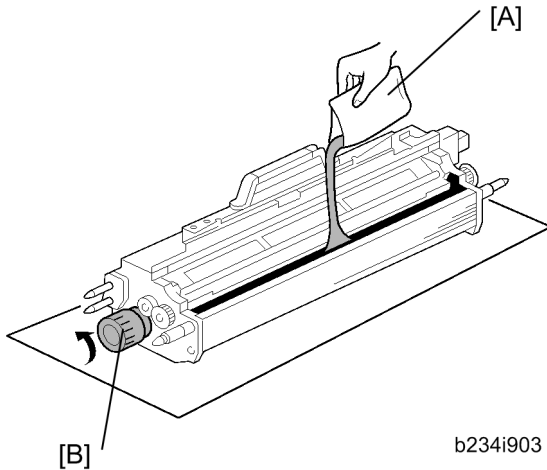


b234i112c



b234i902

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.



b234i903

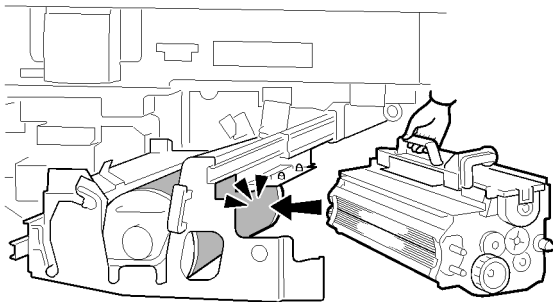
7. Pour the developer into the development unit.
  - Take a note of the developer lot numbers on the developer packet. These numbers will be required for the developer initialization.
  - Move the developer packet [A] from side to side while you pour a small amount of developer across the length of the gap.
  - Stop pouring and turn the knob [B] so that the developer settles into the development unit.
  - Repeat this sequence until the packet is empty.
8. Reattach the hopper to the development unit. (🔧 x1, 🗑️ x2)

**★ Important**

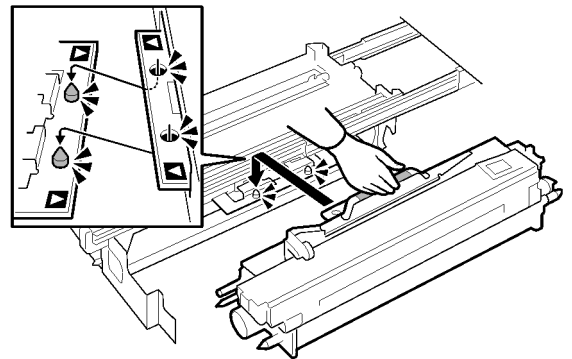
- Confirm that the TD harness is connected properly.
  - Confirm that the harness is not pinched.
9. Set the connected harnesses between the toner hopper and the metal plate.
  10. Re-attach the bracket [A] removed at Step 4 (1 x1).

1

## Reinstalling the Development Unit



b234i112b



b234i112a

**★ Important**

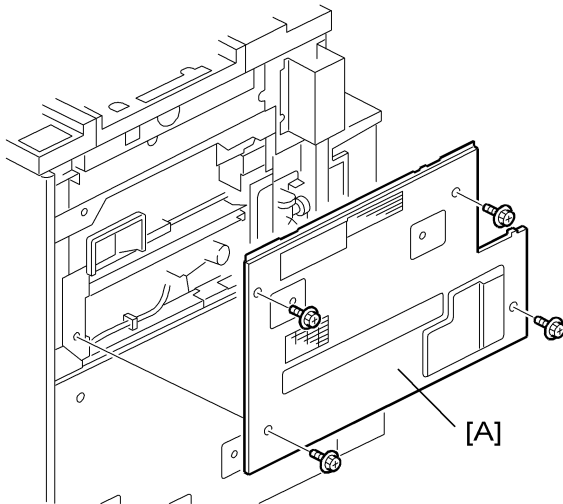
- When you reinstall the development unit, handle it carefully.
  - Never allow the development roller to hit the OPC drum or any other part of the frame of the development unit drawer.
  - Scratches or other damage to either the drum or development roller will adversely affect the operation of the machine.
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, ground plate and inner cover (removed in "Internal Tape and Retainers: Drum Cleaning Unit"), then close the right front door.



## Operation Panel

### Right Upper Cover

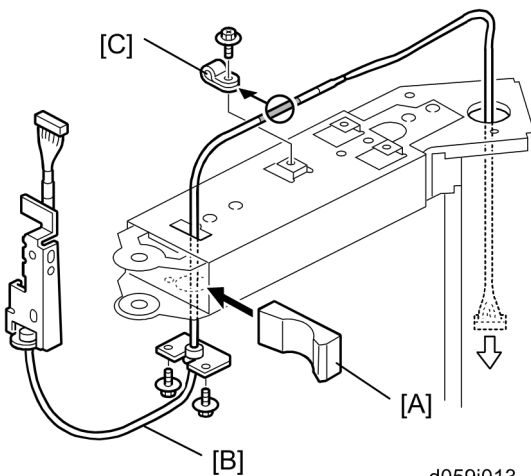
1



d059i012

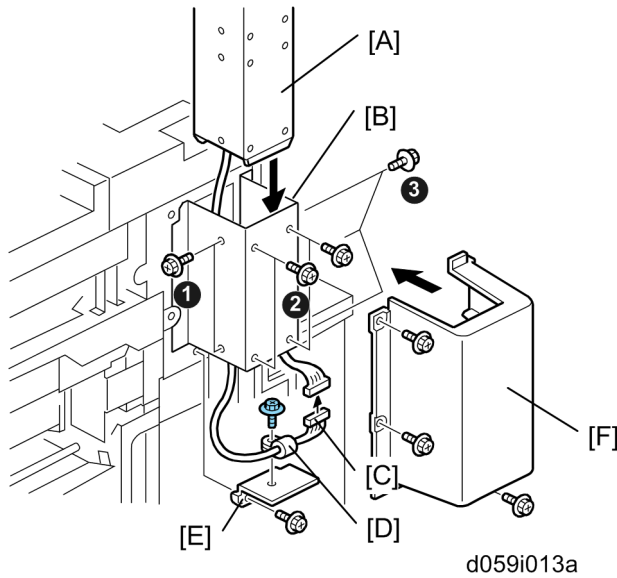
1. Remove the right upper cover [A] (⚙️ x4).

### Operation Panel Arm Installation and Length Adjustment



d059i013

1. Insert spacer [A].
2. Route harness [B] as shown.
3. Attach nylon clamp [C].



4. Set arm [A] in sleeve [B].
5. Fasten the arm:
  - (1) Front (🔩 x2)
  - (2) Side (🔩 x4)
  - (3) Rear (🔩 x3)
6. Connect harness [C] (🔌 x1).
7. Fasten metal clamp [D] (🔩 x1).
8. Attach connector cover [E] (🔩 x1).
9. Attach arm connection cover [F] (🔩 x3).

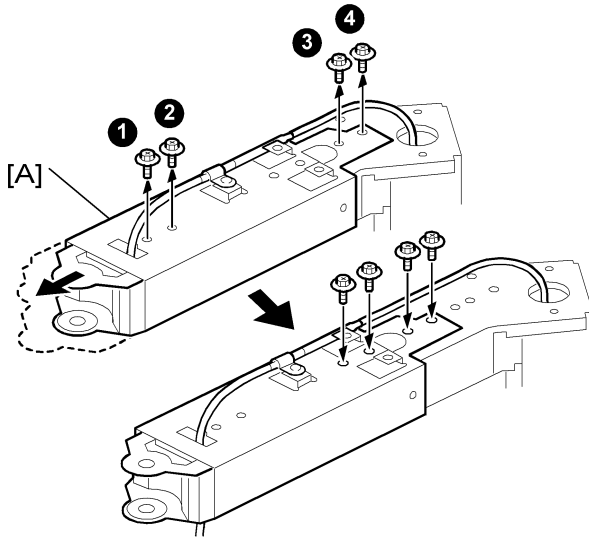
As shown in the next two sections, the length of the operation panel arm can be adjusted:

- The length of the arm has three positions: short, medium, long.
- When the machine is shipped from the factory, the arm is set at the short position.

↓ **Note**

- This adjustment is optional. Discuss this adjustment with the operators before changing the length of the arm.

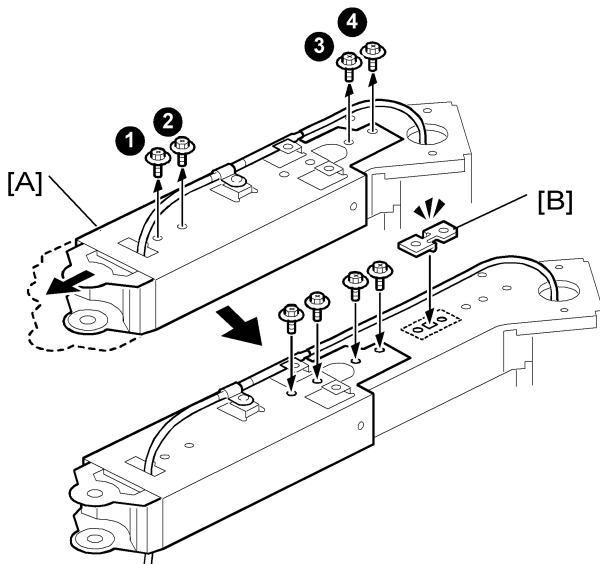
### Medium Extension



d059i013b

1. Remove the four screws.
2. Slide the arm extension [A] forward and set it as shown.
3. Re-attach the four screws.

### Long Extension



d059i013c

1. Remove the four screws.

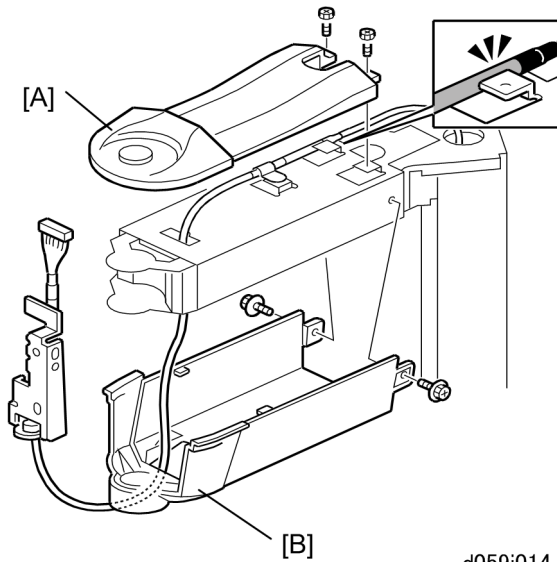
- Slide the arm extension [A] forward and set it as shown.
- Set the arm adjustment spacer [B] over the holes.

**Note**

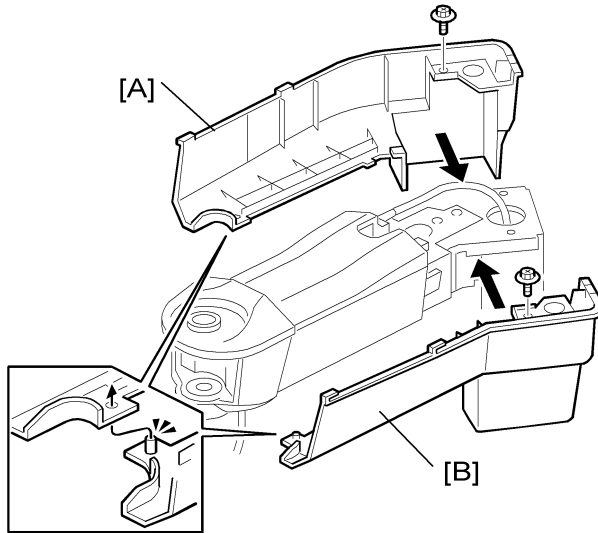
- The long extension requires the spacer. The medium extension does not require the spacer.

- Re-attach the four screws.

### Completing Operation Panel Installation



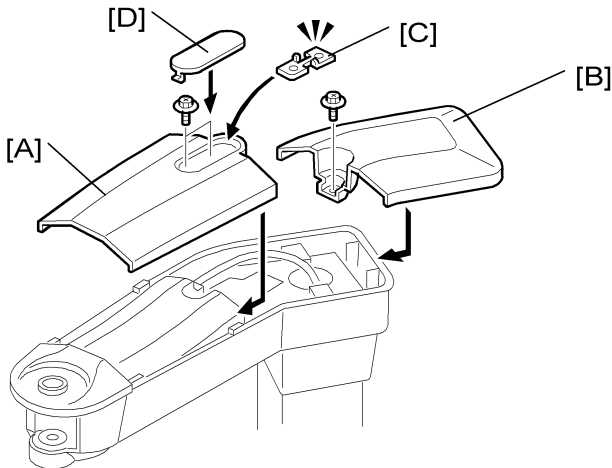
- Attach:
  - [A] Top front arm cover (⚙️ x2)
  - [B] Bottom front arm cover (⚙️ x2)



d059i014a

2. Attach:

- [A] Bottom left arm cover (🔩 x1)
- [B] Bottom right arm cover (🔩 x1)



d005i014b

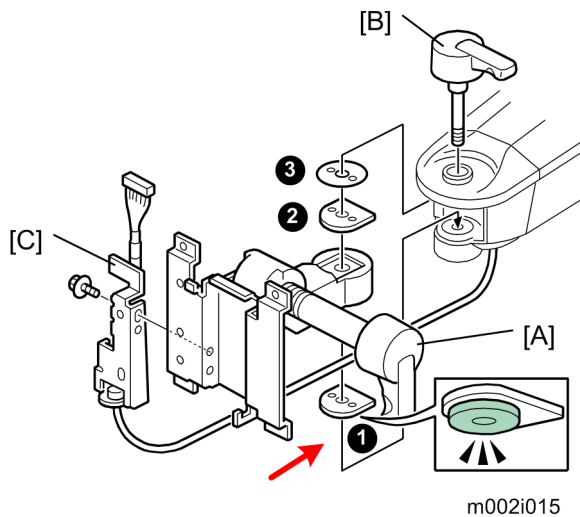
3. Attach:

- [A] Top center arm cover (🔩 x2)
- [B] Top rear arm cover (🔩 x1)

- 4. If the arm adjustment spacer was not used to extend the arm to its maximum length, store the spacer here [C] for future use.



5. Snap on cap [D].



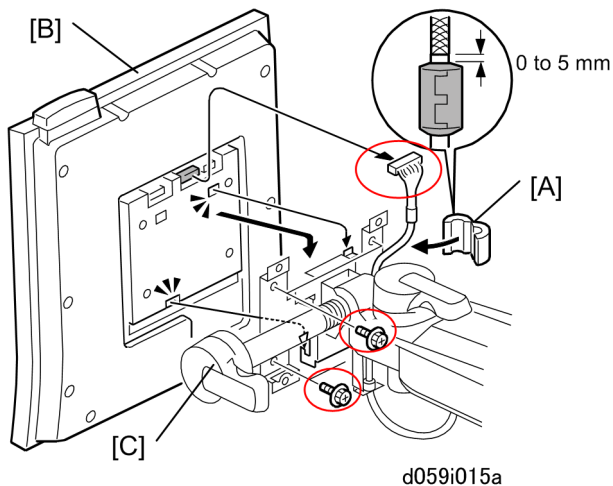
6. Set the spacers (①, ②, ③).

- The spacer ① has been modified from a specified model. If the spacer ① has felt, install this spacer with the felt side facing down.

7. Insert operation panel base [A] into the end of the arm.

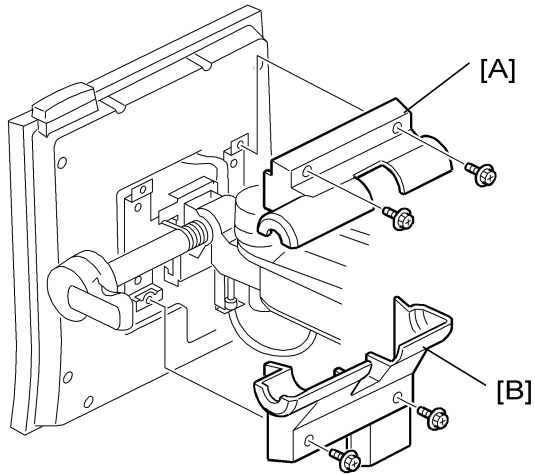
8. Screw on angle adjustment lever [B].

9. Attach long harness bracket [C] to the operation panel base.



10. Attach ferrite core [A].

11. Attach the operation panel [B] to base [C] (⌘ x4, ⌘ x1).



d059i016

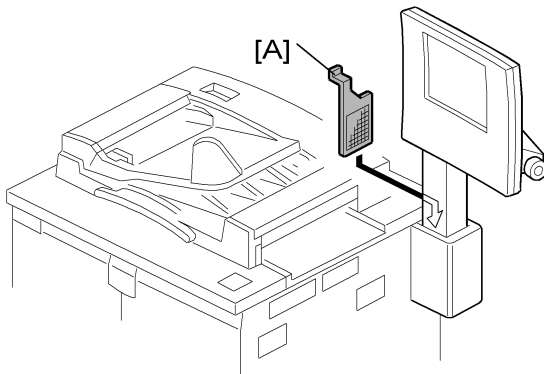
12. Attach:

[A] Base top cover (🔩 x 2)

[B] Base bottom cover (🔩 x 2).

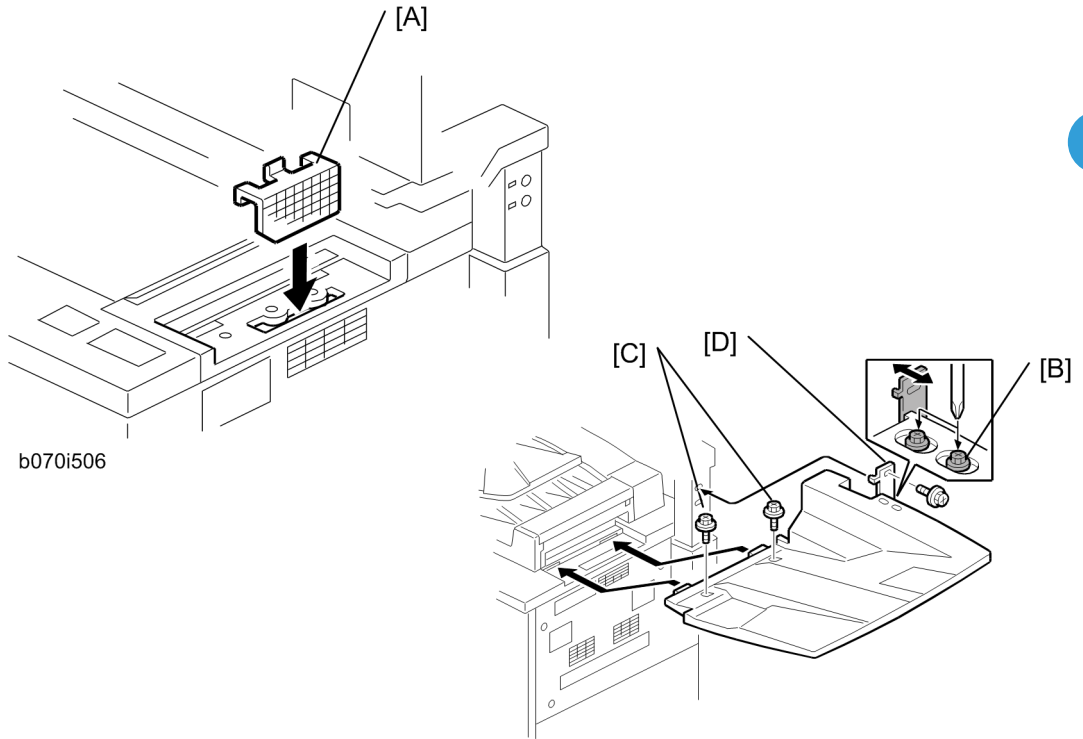
### Filters, Original Exit Tray

---



b234i017

1. Set the drum dust filter [A].
2. Loosen the bottom knob, adjust the view angle of the operation panel, then tighten the knob.
3. Loosen the side knob, adjust the tilt of the operation panel, then tighten the knob.



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

## Initializing the Machine

### ★ Important

- Follow this procedure carefully.
  - Do not switch on the machine until you are instructed to do so.
  - Carefully follow the instructions about opening and closing the front doors.
1. Make sure that the machine is OFF.
  2. Make sure that the ADF is connected.
  3. Open the front doors.

4. Make sure that all tapes, clamps, and other shipping materials have been removed.
5. Connect the main power cord and turn on the machine.
6. Enter the SP mode.

**★ Important**

- The front doors must be open before you turn the machine on and enter the SP mode.
- If you switch on the machine with the front doors closed and do not enter the SP mode, auto processing control will automatically execute and start initialization for conditions around the drum, but initialized settings for the toner density and TD sensor will not be correct.

7. Close the front doors.

**★ Important**

- You must close the front doors now.
- If you fail to close the front doors, the following SP codes (executed in the following steps) will not execute: SP2801-001 (TD Sensor Initial Setting), SP2207-002 (Toner Supply: Toner Bank Setup), SP2962 (Auto Process Control Execution).

8. Do SP2801-002.

- Open the soft keyboard on the operation panel.
- Enter the developer lot numbers and touch [OK]. (Lot numbers are embossed on the top edges of the developer packets.)

**★ Important**

- If you do not enter the 7-digit lot numbers first, you will not be able to execute SP2801-001 (pressing [EXECUTE] will have no effect).

9. Do SP2801-001.

- Touch [EXECUTE] on the operation panel to initialize the TD sensor. Initialization requires about 1 minute after you press [EXECUTE].

**★ Important**

- Do not switch off the machine or open the front doors until you are instructed to do so.

10. Set the toner bottles.

- Do not shake the toner bottles.
- Set the lower toner bottle first then the upper bottle.

11. Do SP2207-002.

- Touch [EXECUTE] on the operation panel.
- If the SP execution ends within about 2 sec., or if the process is interrupted by an SC code alert, execute this SP again. The process should take about 5 min.

12. Do SP2962 and touch [EXECUTE]. This executes auto process control.

13. Do SP6008-003 and execute a free run for at least 3 minutes. Be sure to touch [OFF] before you exit the SP mode.
14. Clean the transport belt above the exposure glass.

## Power Cord, Breaker Switch Test

1. Test the breaker switch (☛ "Installation" > "Common Adjustments" > "Breaker Switch Testing").

## Connecting the Tray Heaters of the Main Machine

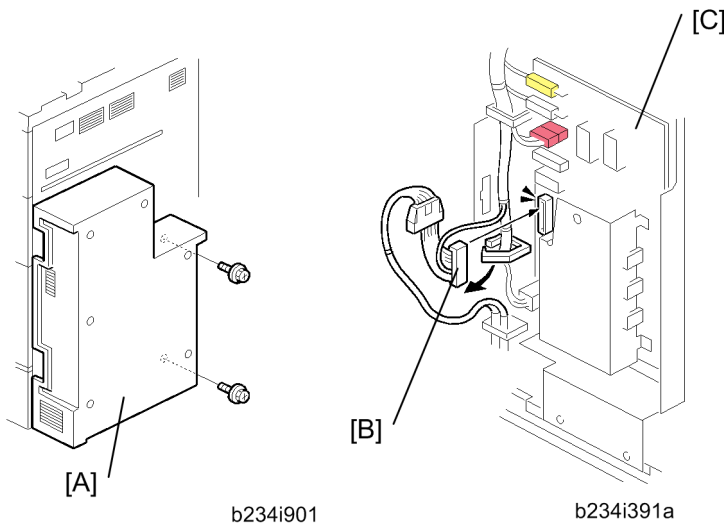


The machine comes from the factory with the tray heaters already installed but disconnected. Tray heater connection is optional. The heaters should be connected if the location has high humidity.

Consult with the customer before connecting the tray heaters.

Doing this procedure connects the following anti-condensation heaters inside the main machine 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 LCIT (if installed)



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

### To set the connector

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

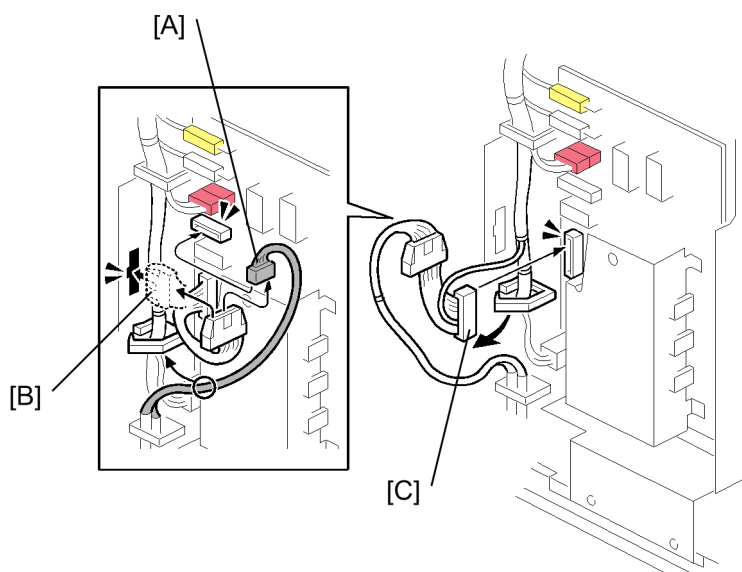
### ↓ Note

- Connect the large connector clamped beneath the board.
- This step is not required if the LCIT 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 main machine 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 main machine is operating.

Another connection can be done so the heaters in the paper tray unit will switch on and off while the main machine is operating. This connection will also allow the LCIT heater (option) to operate while the main machine 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.



b234i391

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.

## Completing the Installation

### Setting Paper Sizes for the Paper Trays

1. Set the required paper sizes for all paper trays.

Unit	Name	No.	Setting
Main Machine	1st Tray	1	SP5019 -2
	2nd Tray	2	Automatic side fence detection.
	3rd Tray	3	Automatic side fence detection.
LCIT (D452)	1st Tray	4	Paper size dial at rear of tray
	2nd Tray	5	Paper size dial at rear of tray.
	3rd Tray	6	SP5019 -7
LCIT (D453)	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)	1st, 2nd Tray	---	Automatic side fence detection.

2. If the customer wants to use a custom size, they must:
  - Press the Tray Paper Settings button.
  - Press the icon for the appropriate tray.
  - Press the "Paper Size" tab, select "Custom Size".
  - Enter the required paper size.
3. Attach the appropriate paper size decal to each tray (decals are provided in the accessories bag).
4. Attach the face-up decal to the ADF.
5. Check copy quality and machine operation.

**Note**

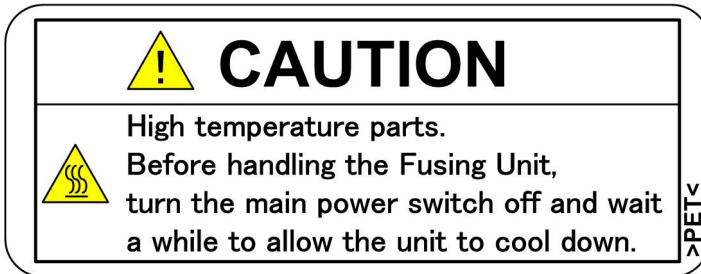
- The first time the ADF is used, dust on the ADF transport belt will transfer to the exposure glass. To remove this dust, perform SP6008-3 (DF Output Check) for 3 minutes, then check the exposure glass for dust and remove it.
6. Input the supply name with SP5841.
  7. Install the stamp data (SP5853).
  8. Input the following telephone numbers with SP 5812.
    - Service technician telephone number: SP5812 -1
    - Service technician fax number: SP5812 -2
    - For ordering consumables: SP5812 -3

- Sales representative: SP5812 -4

9. Install the language firmware if necessary.

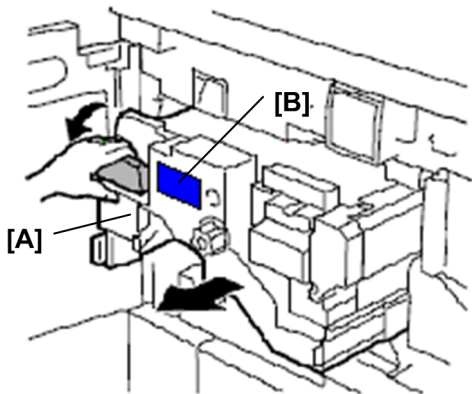
1

### TCRU Safety Label for Fusing Unit



d059i912

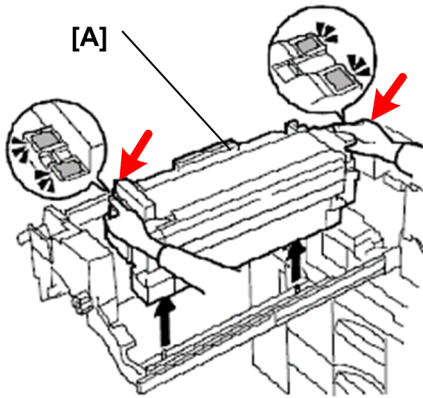
1. Find the safety decal (1 of 7 languages) included with the TCRU material provided at installation.



d059i910

2. Open the front doors.
3. Pull out the fusing unit [A].
4. Attach the safety decal at [B].



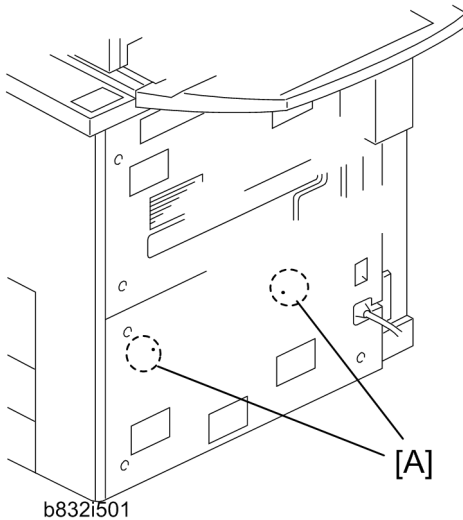


d059i911

Both ends of the fusing unit [A] near the handles become hot during operation. The safety decal cautions the operator about removing the fusing unit for TCRU procedures.



## Operating Instructions Holder Attachment



b832i501

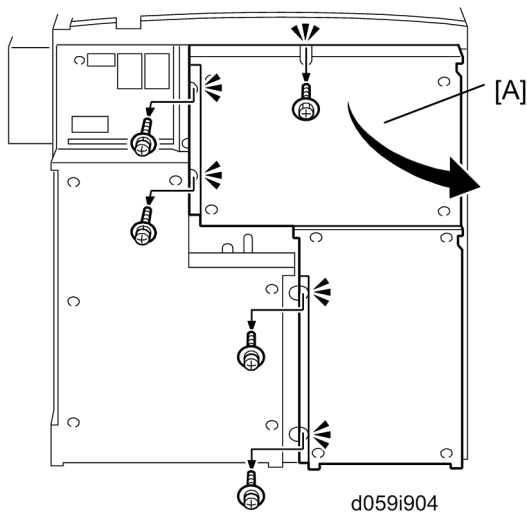
1. If the LCT RT5030 or RT5040 is NOT installed on the right side of the mainframe, the operating instruction holder could be attached to the right hand side of the mainframe with two newly added screws or any location with the double sided tapes. (There are two screw holes [A] for the operation instruction holder on the right side of the mainframe.)
2. If the LCT RT5030 or RT5040 is installed on the right side of the mainframe, operating instruction holder could be attached to any location excluding the right side of the mainframe. Use the double sided tapes on the operation instruction holder to attach it to the mainframe.

## Controller Box, PSU Box Removal

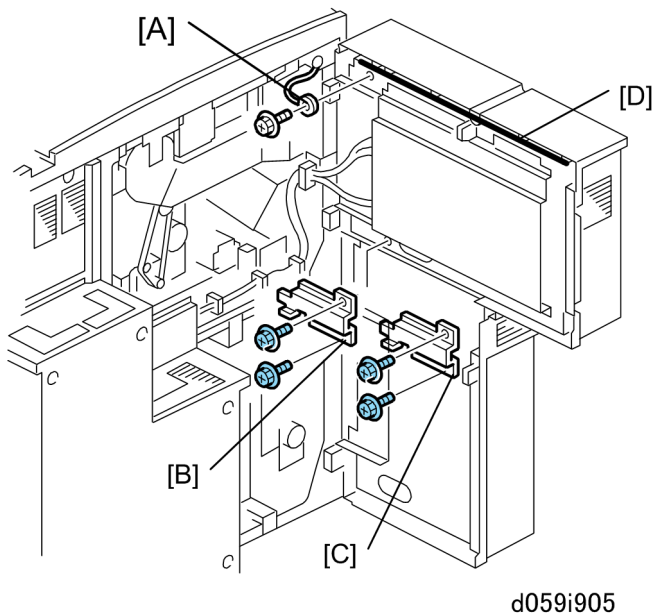
Remove the controller box and PSU box only if the machine is too large to pass through a narrow door or passageway.

1

### Removing the Controller Box

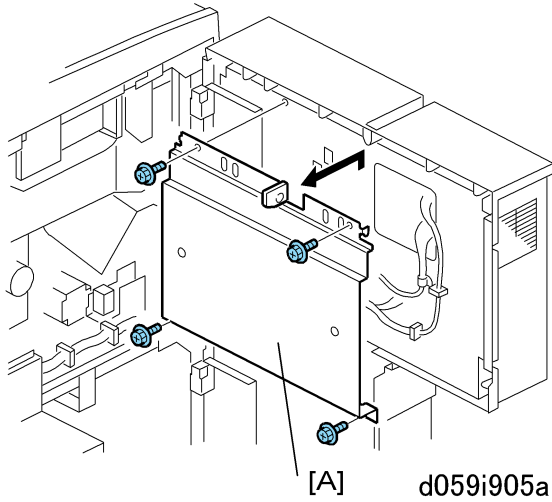


1. Open the controller box [A] (⚙️ x 5).

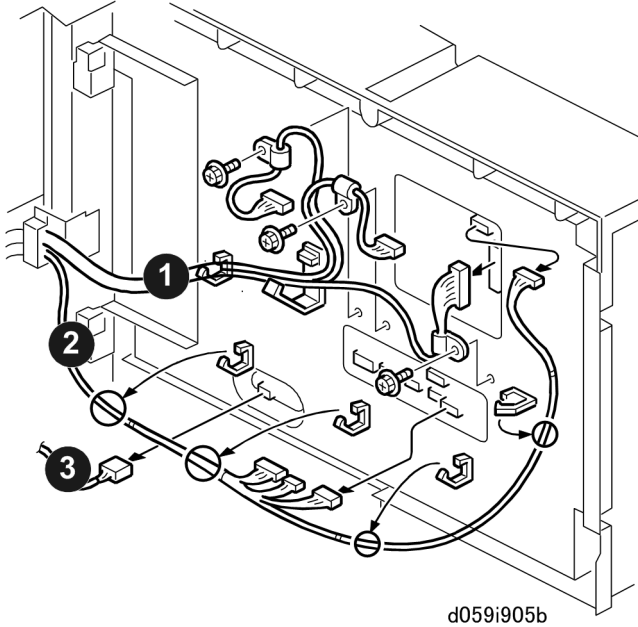


2. Disconnect ground wire [A] (⚙️ x 1).

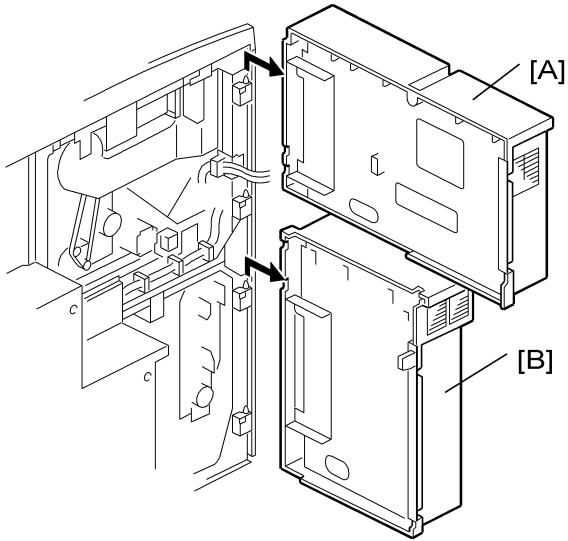
3. Remove plate [B] (🔩 x2).
4. Remove plate [C] (🔩 x2).
5. Remove sponge [D].



6. Remove harness cover [A] (🔩 x4).



7. Disconnect the three harnesses (🔩 x3, 📡 x6, 📡 x8).



d059i905c

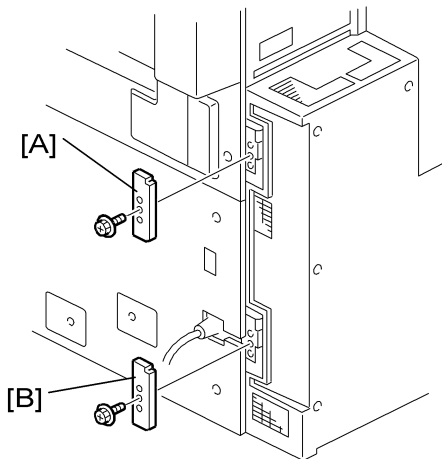
8. Lift off the following parts:

[A] Upper half of the controller box

[B] Lower half of the controller box

## Removing the PSU Box

---

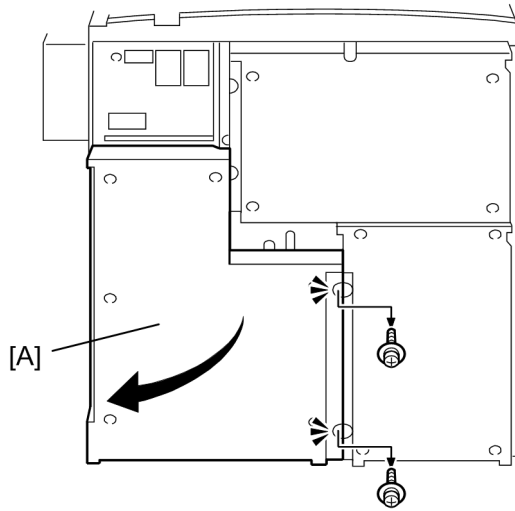


d059i906

1. Remove:

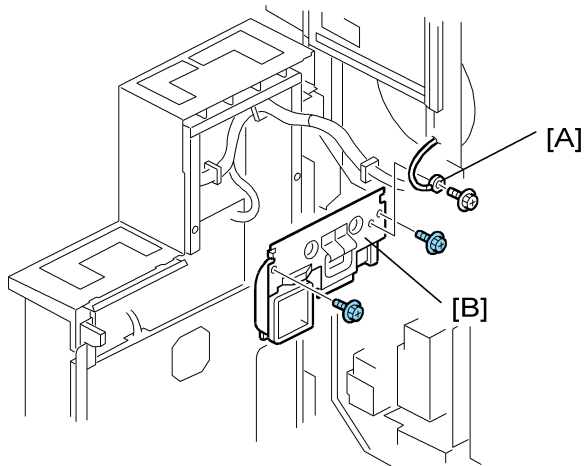
[A] Upper hinge cover (🔩 x1)

[B] Lower hinge cover (🔩 x1)



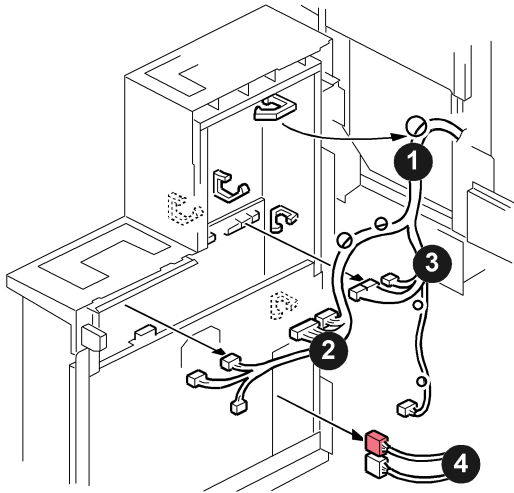
d059i906a

2. Open the PSU box [A] (🔧 x2)



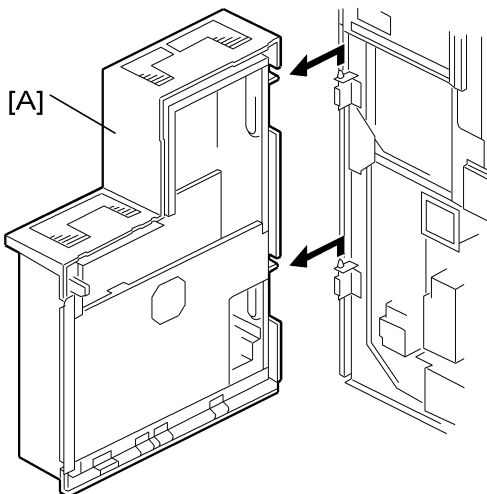
d059i907

3. Disconnect ground wire [A] (🔧 x 1).
4. Remove duct [B] (🔧 x 2)



d059i908

5. Disconnect the four harnesses (🔌 x 8, 📡 x 11).



d059i908a

6. Lift the PSU box [A] off its hinges.

---

## Transporting the Main Machine

---

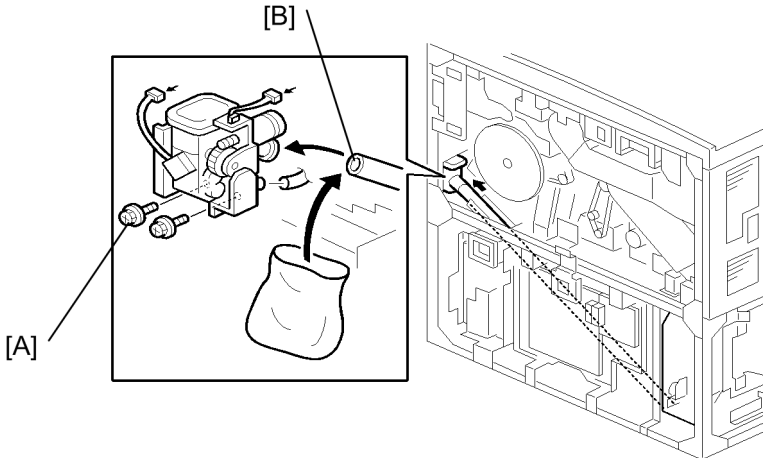
To prevent blockages in the toner supply path, always follow the procedure below before transporting the main machine. If this procedure is not done, SC592 (Toner Bank Motor Error) or SC495 (Toner Bottle Unit Error) may be displayed, requiring replacement of the toner transport hose and screw.

## ⚠ CAUTION

- To prevent damaging the toner supply coil inside the toner hose, never bend the toner hose. If the coil is bent, SC592 will be displayed and the hose must be replaced.

1

### Before Moving the Main Machine



b234i909

- Use SP5804-41 (Upper Bottle) and SP5804-42 (Lower Bottle) to close the toner caps.
- Turn off the operation switch.

#### ↓ Note

- If you turn off the main power switch, you cannot remove the toner bottles.

- Then remove the toner bottles from the bank.
- Remove the rear cover.
- Open the PSU box and controller box (do not remove them!).
- Remove the left upper cover, left lower cover, and right upper cover.
- Remove the two screws [A] securing the toner supply cylinder.
- Cover the end of the toner transport coil tube [B] with a plastic bag.
- Turn on the operation switch.
- Execute SP5804-38 and SP5804-39 to actuate the toner bank motor and toner supply coil clutch for 2 minutes and remove all toner in the supply hose.
- Re-install all removed parts except the toner bottles.
- Make sure that three tubes are connected to the toner supply cylinder when putting it back.

## After Moving the Main Machine

---

1

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 SP2207-2.
  - 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.

### **Important**

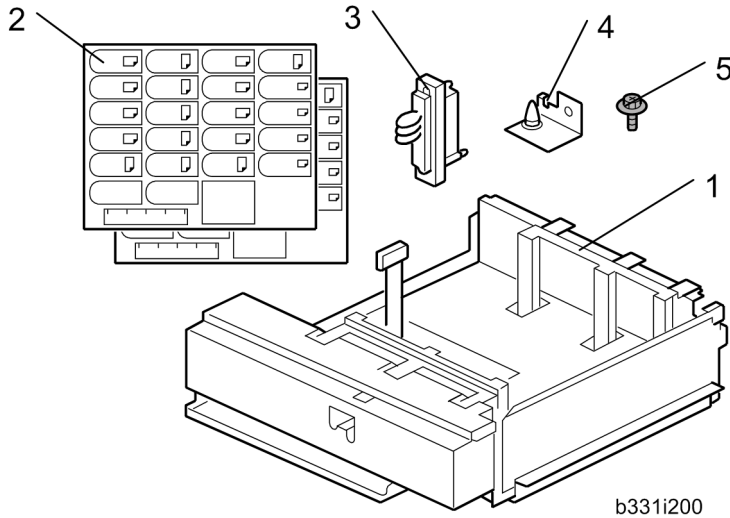
- If SP2207-2 fails after SP2801 is completed (an SC code is displayed), repeat only SP2207-2.



# A3/11"x17" Tray Unit TK5010 (B331-14)

## Accessories

1



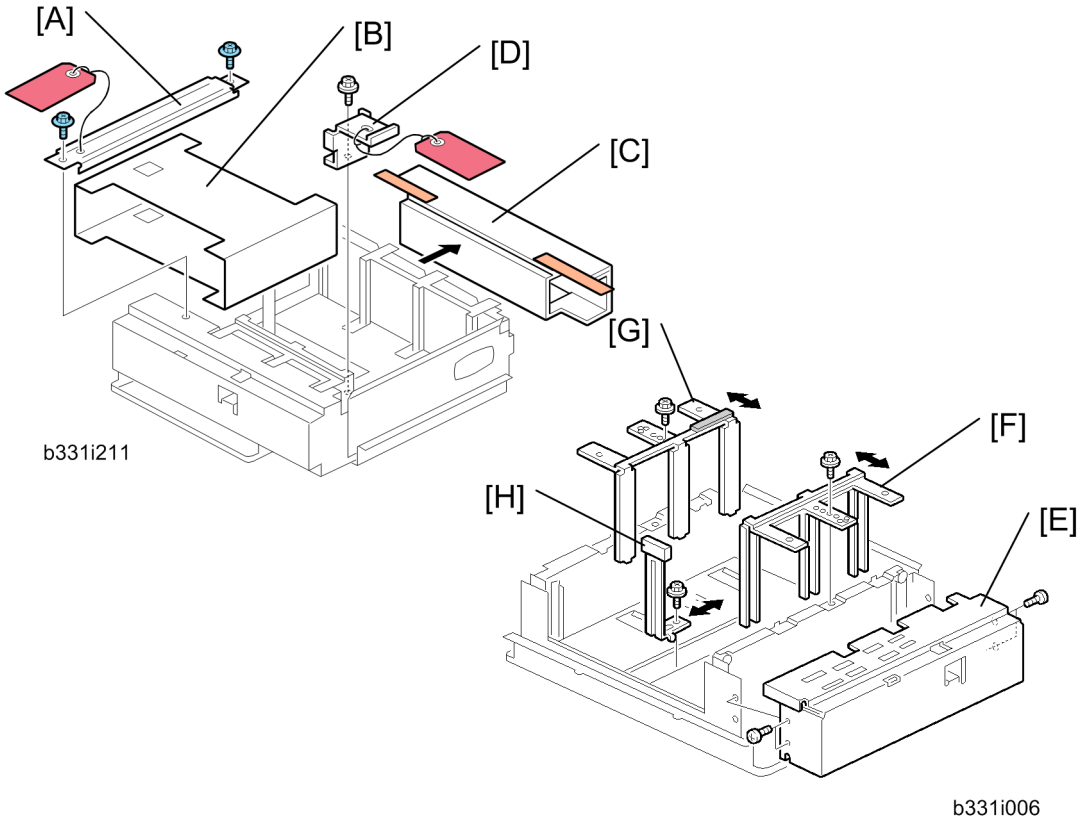
Check the quantity and condition of the accessories in the box against the following illustration and list.

No.	Description	Q'ty
1.	A3/DLT Tray	1
2.	Paper Size Decal	2
3.	Short Connector	1
4.	Pin Bracket	1
5.	Screw	2

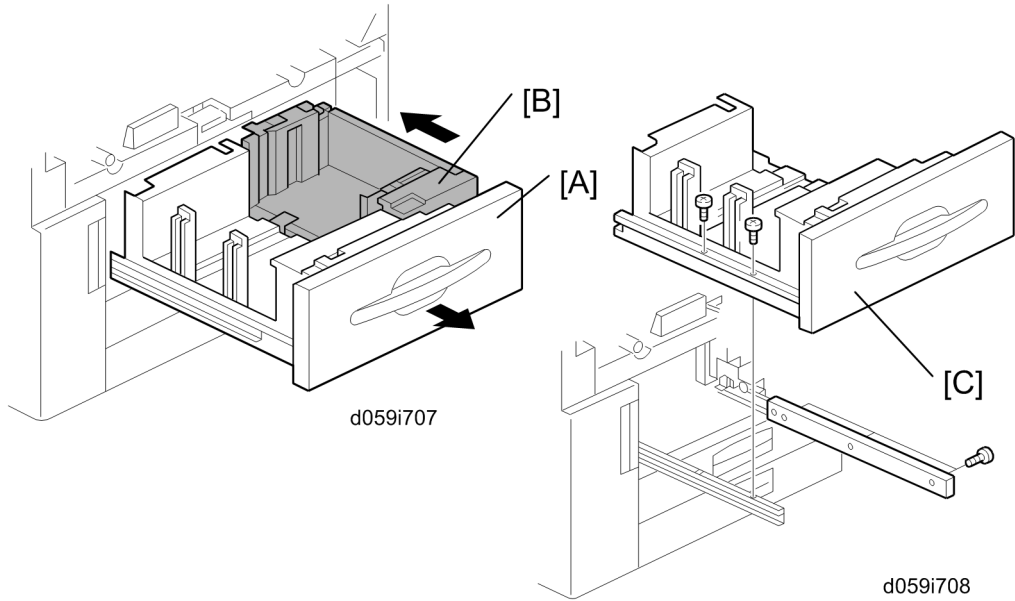
## Installation

### **⚠ CAUTION**

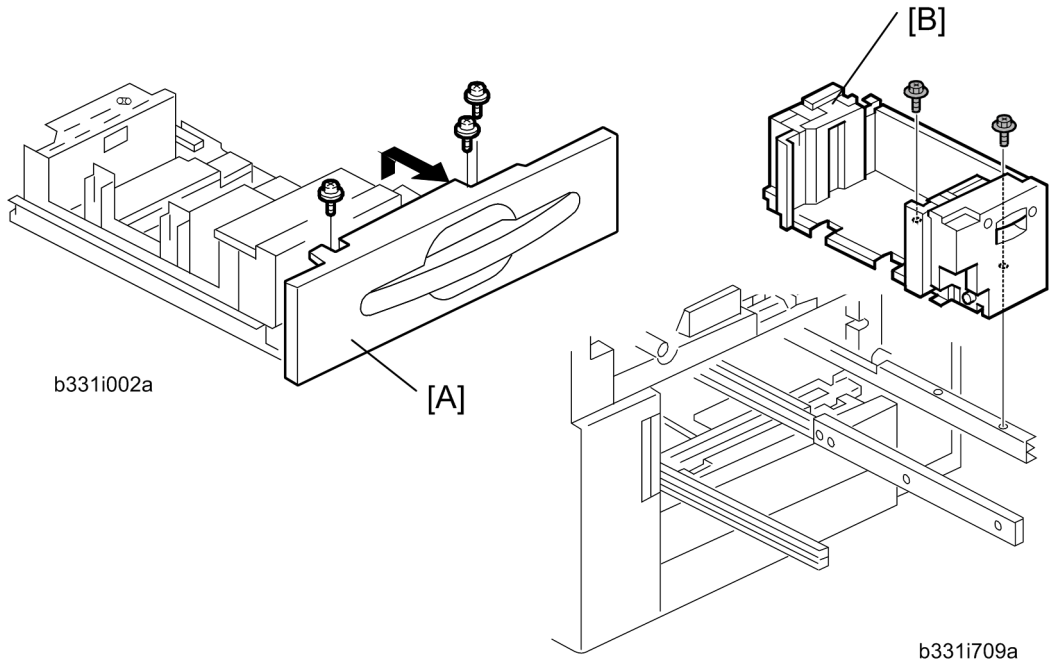
- Switch the machine off and unplug it from the power source before starting the following procedure.



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



6. Open the front doors.
7. Pull out the tandem feed tray [A] completely.
8. Push the right tandem tray [B] into the machine.
9. Remove the left tandem tray [C] (⚠ x 2 left, ⚠ x 3 right).

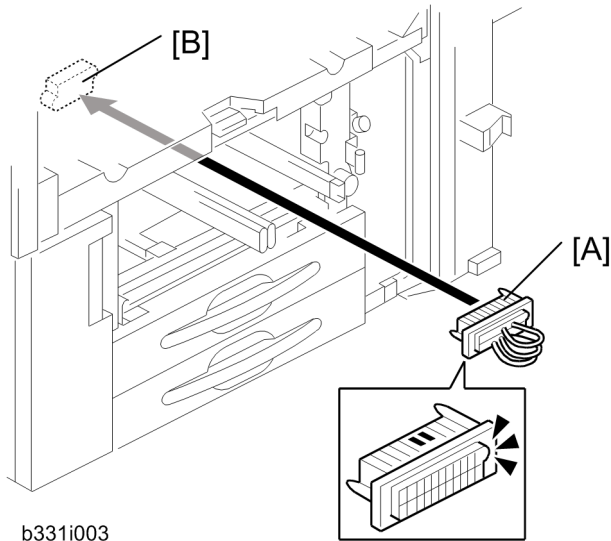


10. From the left tandem tray, remove the front cover [A] (⚠ x 3).



1

11. Pull out the right tandem tray [B] then remove it (⌀ x 2).

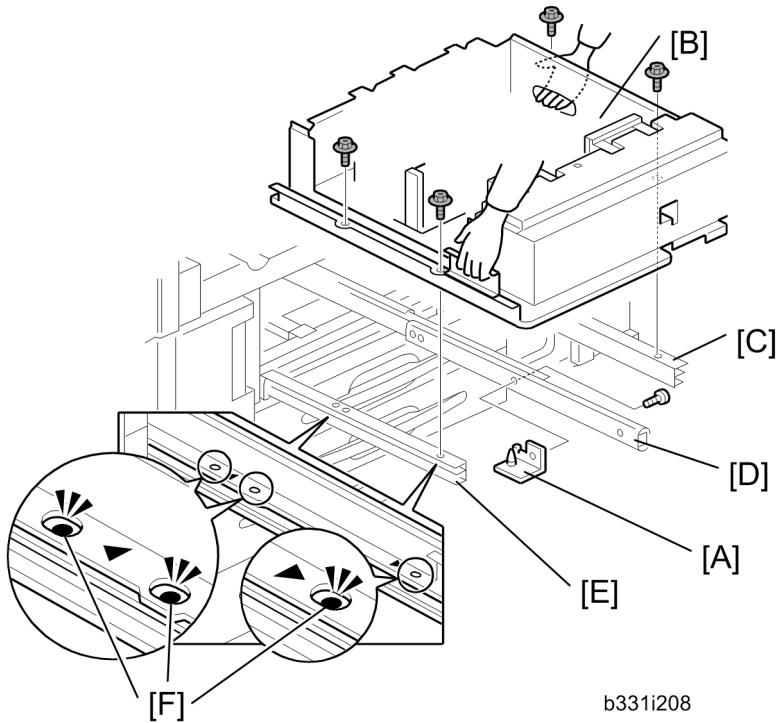


b331i003

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

**Note**

- Hold the connector as shown in the illustration.

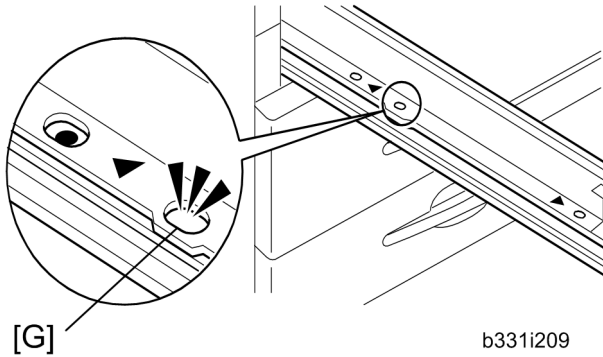


b331i208

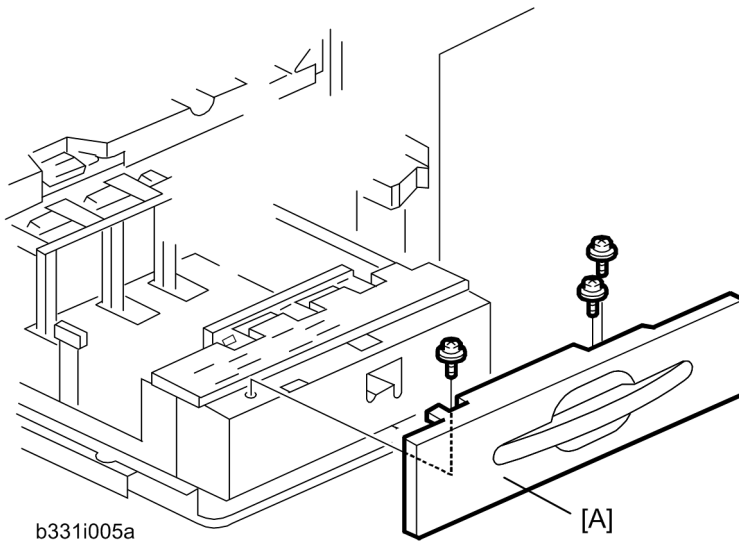
13. Using the screw removed in Step 9, attach the pin bracket [A] to the center rail.

14. Using the screws removed in Steps 11 for the right rail and screws provided in the accessories for the left rail, install the tray [B] on the right rail [C], center rail [D], left rail [E].

- Make sure that three screw holes [F] are visible before tightening the tray.



- If one [G] of three screw holes is not visible, the paper tray cannot be opened once the paper tray is closed.
- Tighten the screw holes indicated by triangle marks.
- Make sure that the pin on the bracket [C] is put through the hole in the bottom plate of the tray [D].



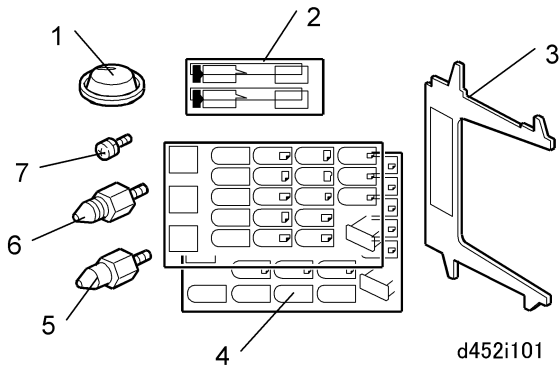
15. Re-install the front cover [A] (3 x).
16. Use SP5019-2 to select the paper size for Tray 1 (A3 or DLT).
17. After selecting the paper size, switch the machine off and on to change the indicator on the operation panel.

# LCIT RT5030 (D452-17)

## 1

### Accessories

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



No.	Description	Q'ty
1.	Leveling Shoes	3
2.	Decal – Paper Set	3
3.	Tab Paper End Fence	1
4.	Decal – Paper Size	2
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 LCIT unit, mounted on hooks behind the front door.

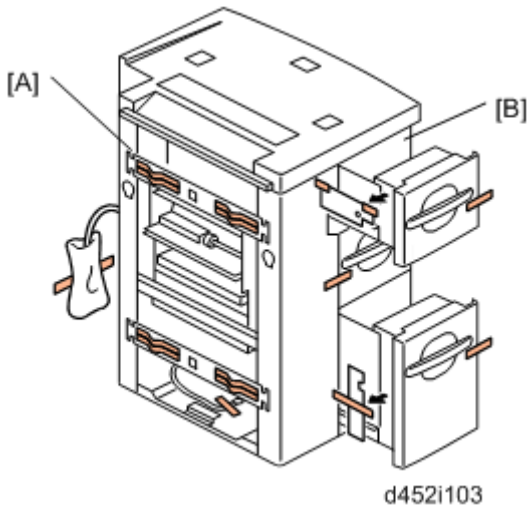
## Installation

### ⚠ CAUTION

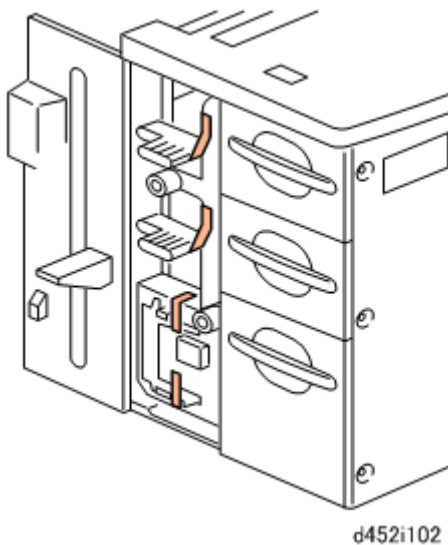
- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

1

### Tapes, Retainers



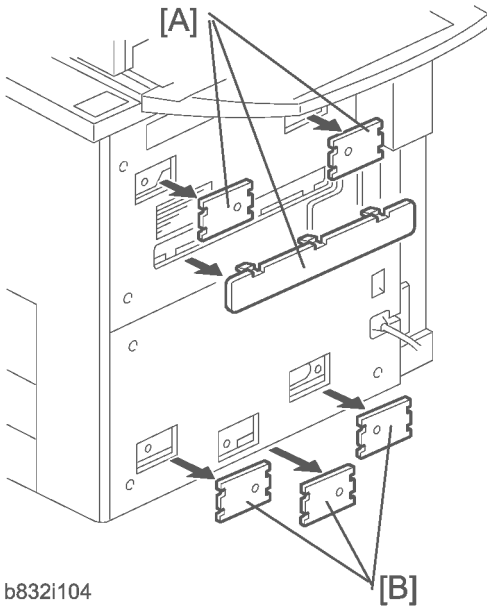
1. From the left side [A], remove the visible tape and other items.
2. At the front [B], open the trays and remove the tapes and retainers.



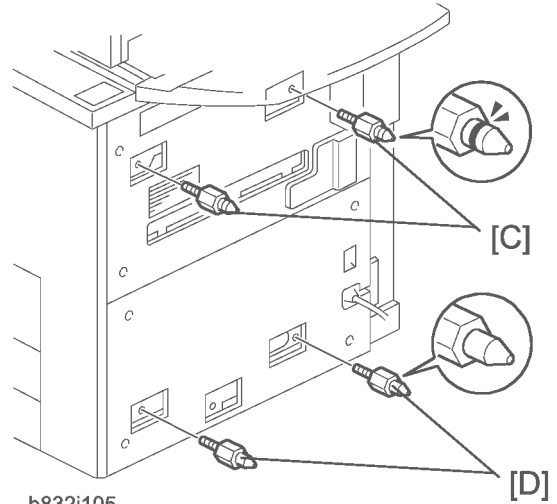
3. Open the front door and remove the tapes attached to the levers.

## Docking

1



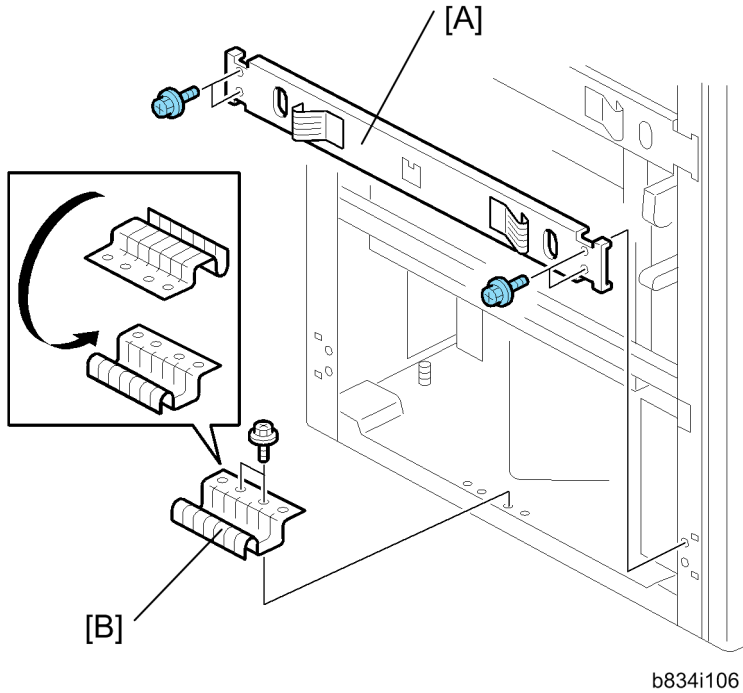
b832i104



b832i105

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

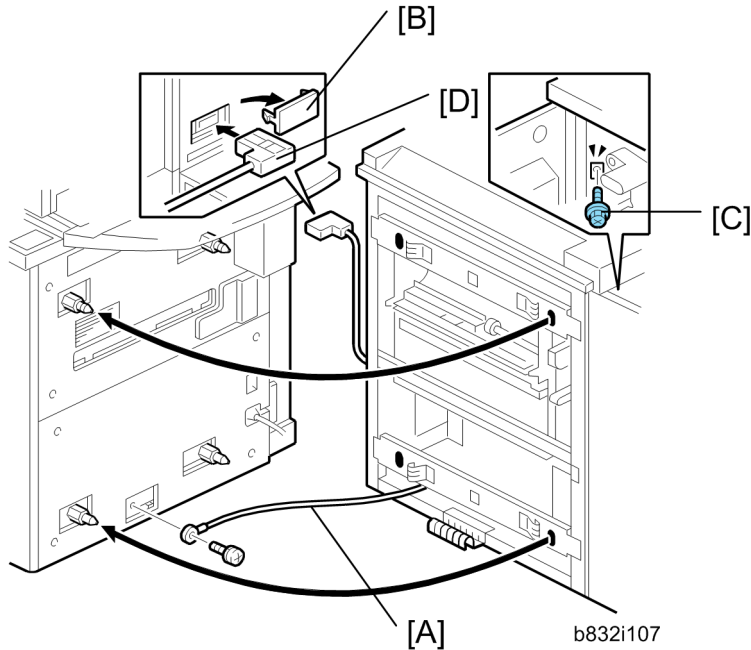




5. Remove the lower stay [A] (🔩 x 4).
6. Remove the two screws that secure the ground plate [B].
7. Turn over the ground plate and use the screws to fasten it to the same holes as shown (🔩 x 2).

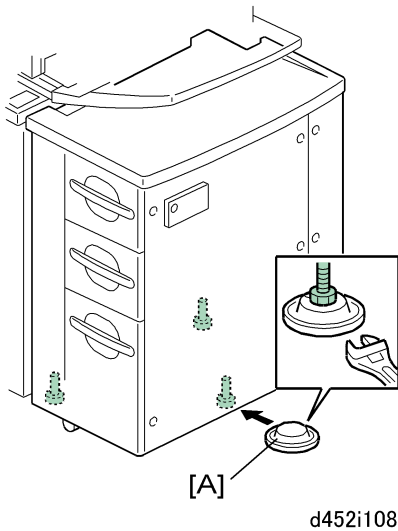
**★ Important**

- If you are going to install the Multi Bypass Tray B833, it must be installed before the LCIT is docked to the mainframe.



8. Move the LCIT to the right side of the main machine.
9. Fasten the ground wire [A] ( $\varnothing$  x 1).
10. Remove cover [B].
11. Open the LCIT front door and remove screw [C] ( $\varnothing$  x 1).
12. Align the LCIT on the joint pins, and dock the LCIT with the right side of the main machine.
13. Fasten screw [C] to lock the LCIT to the side of the main machine.
14. Attach connector [D].

## Height Adjustment



1. Set the leveling shoes [A]. (☛ p.196 "Common Adjustments")
2. Adjust the height of the unit and make sure that it is level.

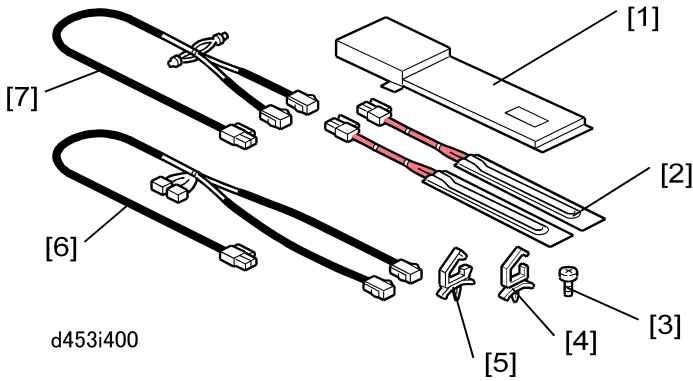
## Image Position Sensor, Paper Registration Adjustment

1. Calibrate the image position sensor. (☛ p.196 "Common Adjustments")
2. Check side-to-side registration and adjust if necessary.

## LCIT (D452) Tray Heaters

### Accessories

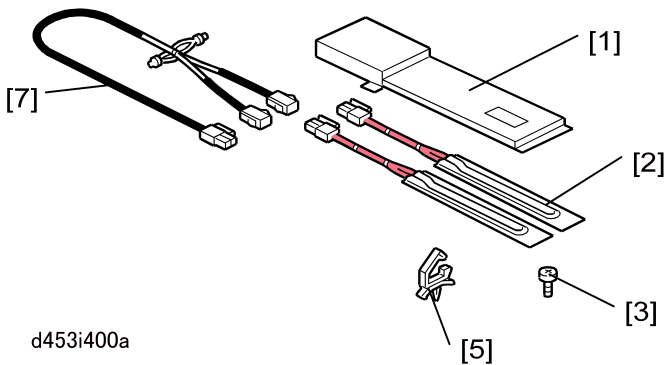
Check the accessories against the list below.



No.	Description	Qty
1.	Cover Plate	1
2.	Heaters (230V 18W)	2
3.	Screws (M4x6)	7
4.	Harness Clamps (small)	2
5.	Harness Clamps (large)	2
6.	Relay Harness (long)	1
7.	Relay Harness (short)	1

**★ Important**

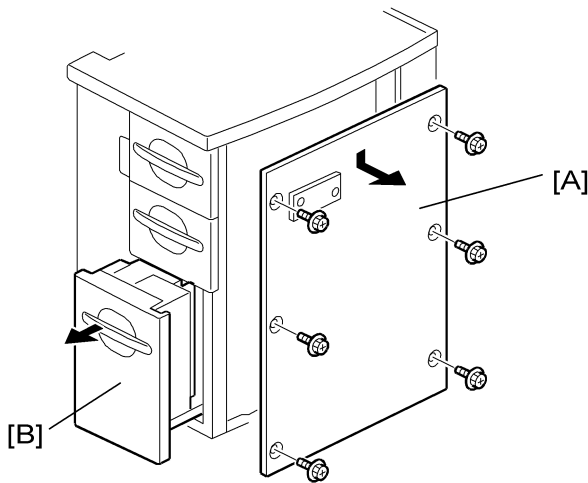
- The accessory kit contains the accessories for both the LCIT D452 and LCIT D453. Only the items shown below are required for the LCIT D452.



## Installation

### ⚠ CAUTION

- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.
1. If the LCIT is already installed, disconnect the LCIT:
    - Lock bar (🔑 x1)
    - Interface cable
    - Ground wire (🔑 x1)

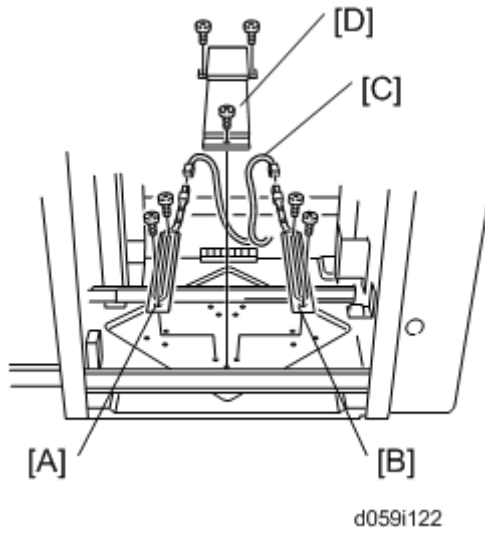


d452i121

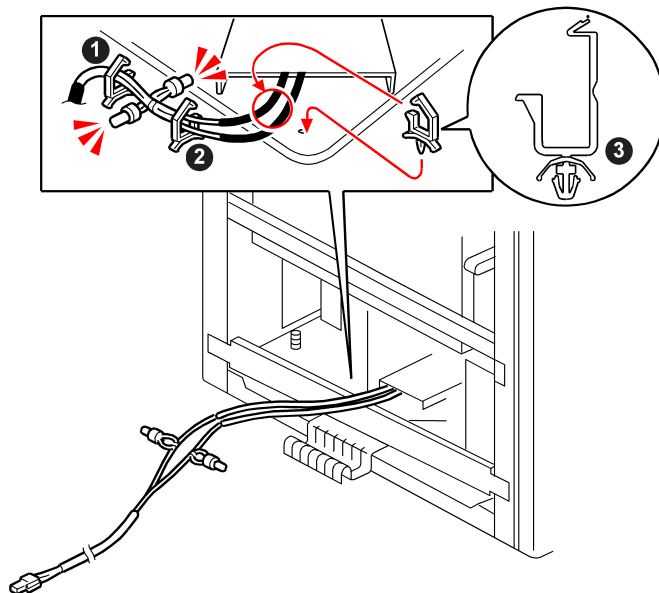
2. Remove the right cover [A] (🔑 x6).
3. Open the bottom tray [B], remove all the paper, then pull out the tray completely.

### ★ Important

- Do not remove either tray.



4. Attach the front heater [A] (⚙️ x2).
5. Attach the rear heater [B] (⚙️ x2).
6. Pass the relay harness [C] through the right side of the LCIT and connect it to the heaters (🔌 x2).
7. Attach the cover plate [D] (⚙️ x3).
8. Load paper in the bottom paper tray.
9. Push the bottom paper tray into the LCIT.
10. Reattach the right cover (🔧 x6).



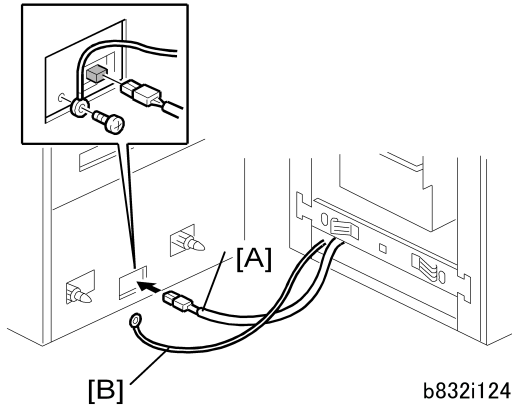
d453i401

11. Attach the three harness clamps.

**Note**

- Harness clamps ① and ② are already attached to the unit. Harness clamp ③ is provided with the accessory kit.

12. Set the harnesses in the clamps, then close them (🔧 x3).



13. Attach the LCIT relay harness [A] to the mainframe.

14. Reconnect the ground wire [B] to the mainframe (🔧 x1).

15. Dock the LCIT to the mainframe.

- Lock bar (🔧 x1)
- Interface cable

**Note**

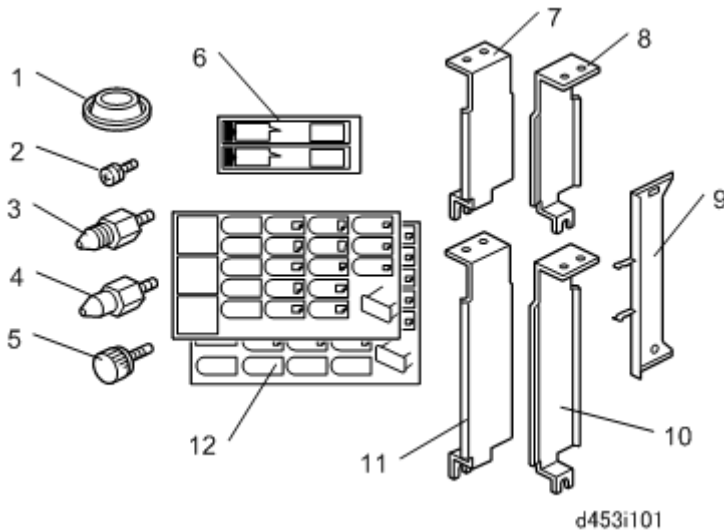
- Confirm that the relay harness and the ground wire are not pinched between the mainframe and the LCIT.

# LCIT RT5040 (D453-17)

## 1

### Accessories

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



No.	Description	Q'ty
1.	Leveling Shoes	4
2.	Philips 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 (with the main machine)	1
8.	Postcard fence – tray 4 or 6 (with the main machine)	1
9.	Tab Paper End Fence	1
10.	Postcard fence – tray 5 (with the main machine)	1
11.	Postcard fence – tray 5 (with the main machine)	1



No.	Description	Q'ty
12.	Decals – Paper Size	2
	Installation Procedure – English (not shown)	1

#### ↓ Note

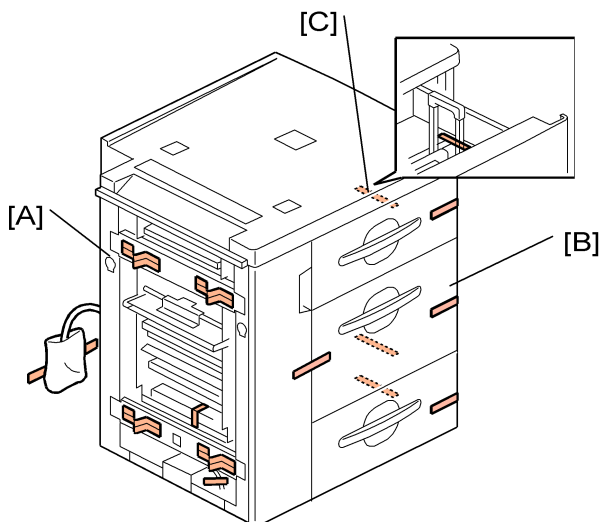
- The tab paper end fence (9) is located in the LCIT unit, mounted on hooks behind the front door.

## Installation

### ⚠ CAUTION

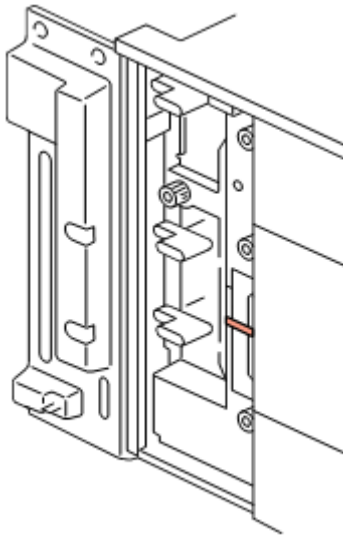
- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

### Tapes, Retainers



d453i102

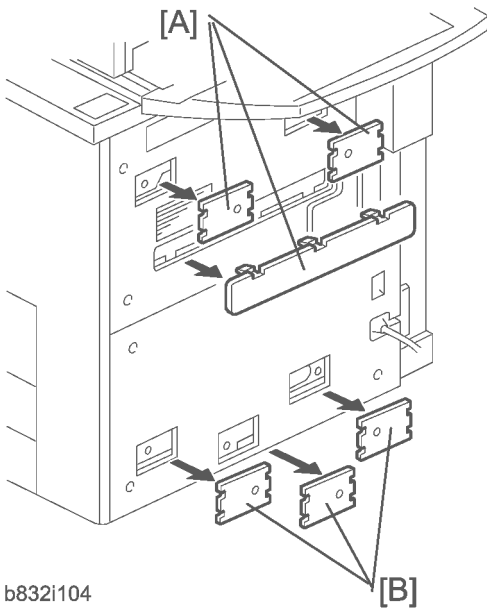
1. On the left side [A], remove all the visible and packing materials.
2. At the front [B], remove all visible tapes.
3. Open the top tray [C] and remove the tape inside.



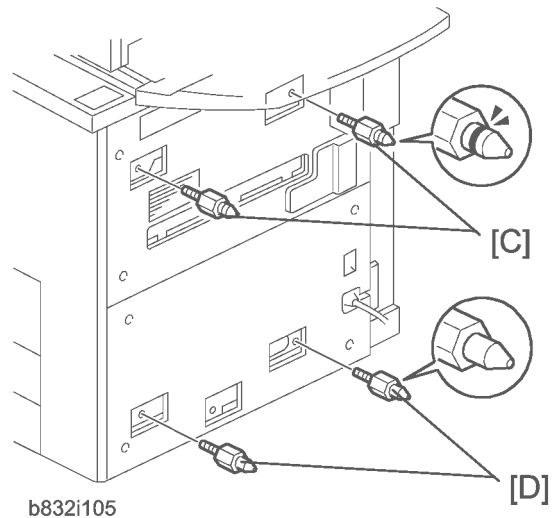
d453i103

4. Open the front door and remove the tape.

## Docking

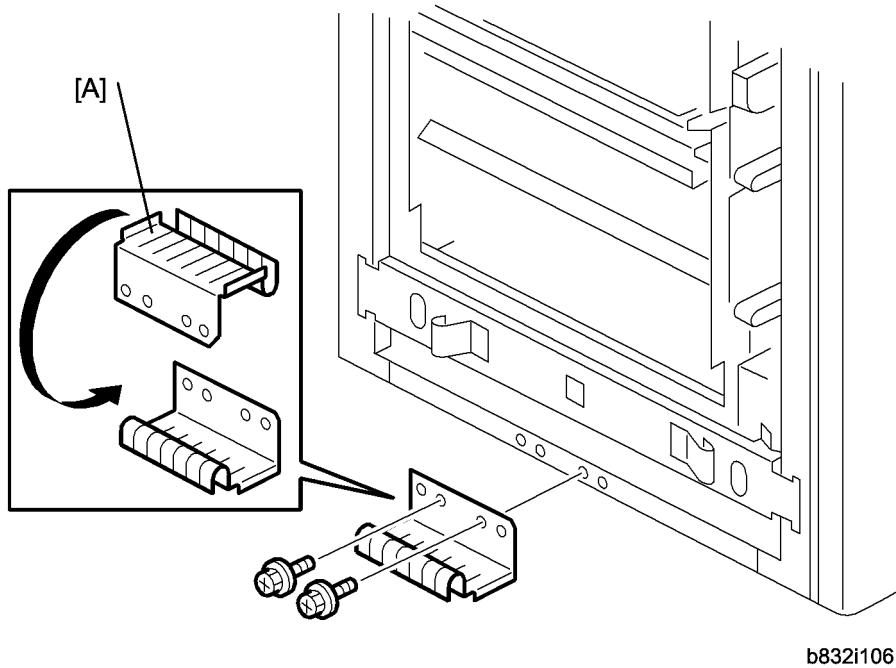


b832i104



b832i105

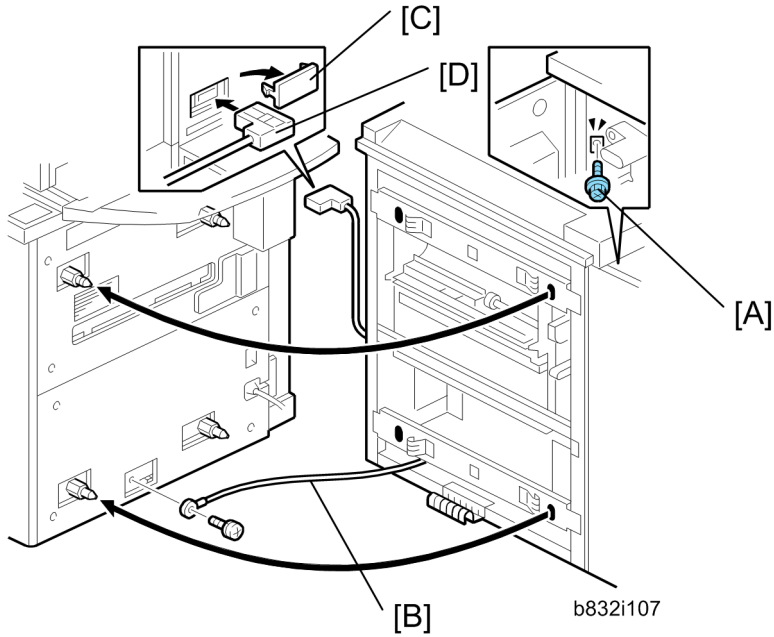
1. Remove the covers [A] from the right upper side.
2. Remove the covers [B] from the right lower side.
3. Install the pins with the grooved rings [C] on the right upper cover.
4. Install the other pins [D] on the right lower cover.



5. Remove the two screws that secure the ground plate [A].
6. Turn over the ground plate and use the screws to fasten it to the same holes as shown (⚙ x 2).

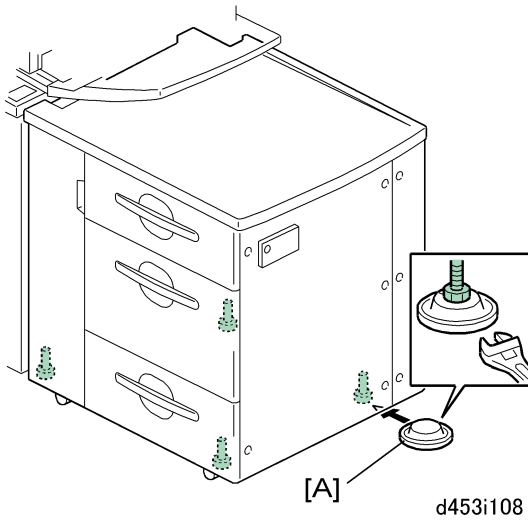
**★ Important**

- If you are going to install the Multi Bypass Tray B833, it must be installed before the LCIT is docked to the mainframe.



7. Move the LCIT to the right side of the main machine.
8. Open the LCIT front cover and remove screw [A] ( $\varnothing \times 1$ ).
9. Fasten the ground wire [B] ( $\varnothing \times 1$ ).
10. Remove cover [C] from the back side of the mainframe.
11. Attach connector [D].
12. Align the LCIT on the joint pins, and dock the LCIT with the right side of the main machine.
13. Fasten screw [A] to lock the LCIT to the side of the main machine.

## Height Adjustment



1. Set the leveling shoes [A] (☛ p.196 "Common Adjustments").
2. Adjust the height of the unit and make sure that it is level.

## Image Position Sensor, Paper Registration Adjustment

1. Calibrate the image position sensor. (☛ p.196 "Common Adjustments")
2. Check side-to-side registration and adjust if necessary.

## Coated Paper and NCR

### Coated Paper

If operators intend to use coated paper for the first time, replace the parts listed below at installation. Replace the following three parts at the feed station in the A3/DLT LCIT where coated paper is being fed.

Name	Part Number
Pick-up roller	AF030071
Feed roller	AF031041
Separation roller	AF032041

**★ Important**

- Please remember that the durability and service lives of these rollers for coated paper is lower than the replaced rollers.

**1**

**NCR**

---

If operators intend to use NCR paper for the first time, install the auxiliary guide plate.



d453i411

Name	Part Number
Guide Plate: Reverse Auxiliary	D4532552

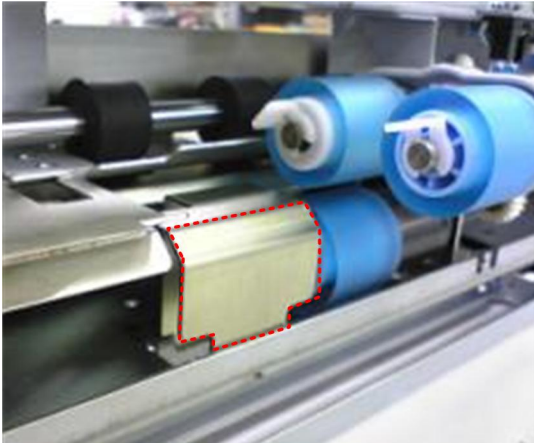
The auxiliary plate ensures smooth feeding of NCR.

1. The plate is installed near the feed rollers.
2. Consult the customer and determine which feed tray will be used to feed NCR.
3. Do the procedure for feed roller replacement on the tray where the plate will be installed (do not remove the rollers). Please refer to the LCIT replacement instructions, or TCRU guide for details.



d453i412

4. Install the plate [A] as shown above.



d453i413

5. The illustration above shows the plate installed correctly.

---

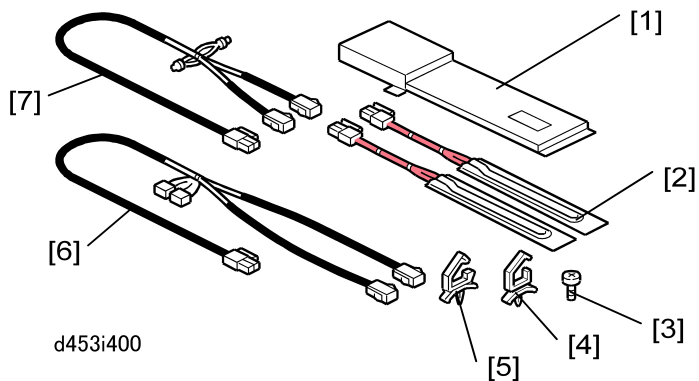
## LCIT (D453) Tray Heaters

---

### Accessories

---

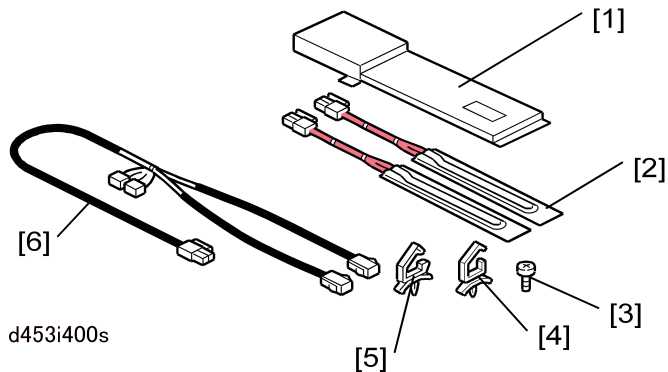
Check the accessories against the list below.



No.	Description	Qty
1.	Cover Plate	1
2.	Heaters (230V 18W)	2
3.	Screws (M4x6)	7
4.	Harness Clamps (small)	2
5.	Harness Clamps (large)	2
6.	Relay Harness (long)	1
7.	Relay Harness (short)	1

**★ Important**

- The accessory kit contains the accessories for both the LCIT D452 and LCIT D453. Only the items shown below are required for the LCIT D453.

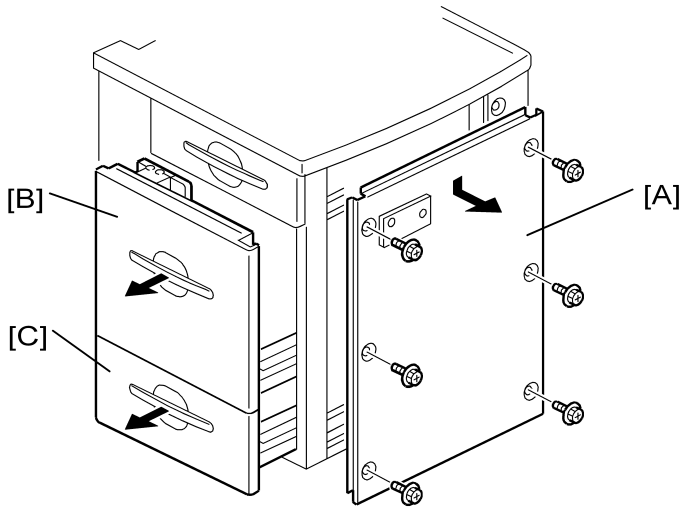




## Installation

### ⚠ CAUTION

- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.
1. If the LCIT is already installed, disconnect the LCIT:
    - Lock bar (🔩 x1)
    - Interface cable
    - Ground wire (🔩 x1)

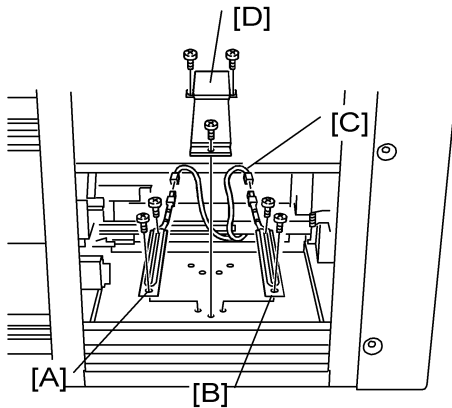


d453i121

2. Remove the right cover [A] (🔩 x6).
3. Open the top tray [B] and bottom tray [C], remove all the paper, then pull out the trays until they stop.

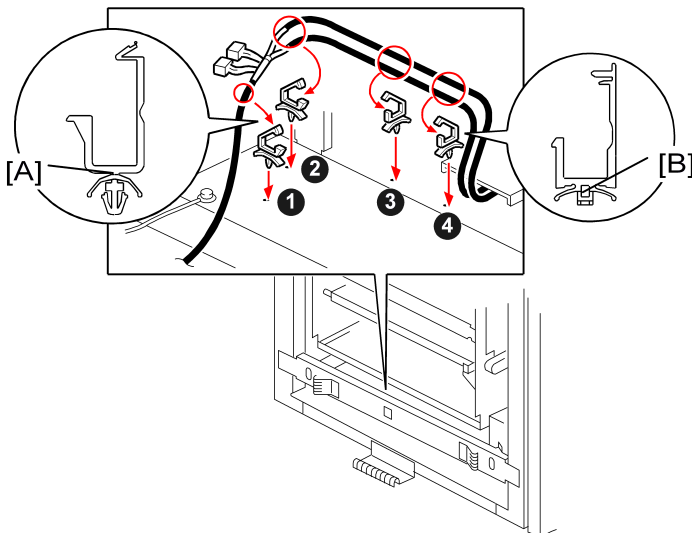
### ★ Important

- Do not remove either tray.



d453i122

4. Attach the front heater [A] (⚙️ x2).
5. Attach the rear heater [B] (⚙️ x2).
6. Pass the relay harness [C] through the right side of the LCIT and connect it to the heaters (⚙️ x2).
7. Attach the cover plate [D] (⚙️ x3).
8. Load paper in the paper trays.
9. Push the trays into the LCIT.
10. Reattach the right cover (⚙️ x6).



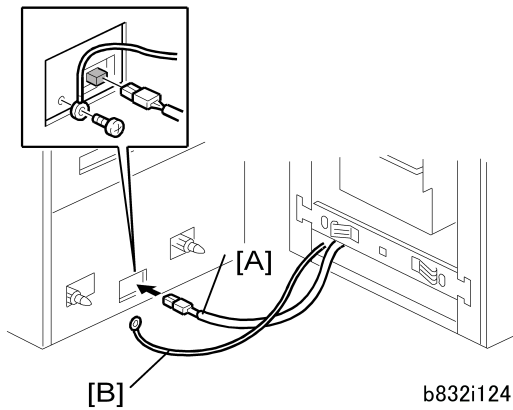
d453i401a

11. Attach the four harness clamps to the LCIT.

**Note**

- Be sure to use the correct type of clamps. On the left use type [A], and on the right use type [B].

12. Set the harnesses in the clamps, then close them (🔧 x4).



13. Attach the LCIT relay harness [A] to the mainframe.
14. Reconnect the ground wire [B] to the mainframe (🔧 x1).
15. Dock the LCIT to the mainframe.
- Lock bar (🔧 x1)
  - Interface cable

↓ **Note**

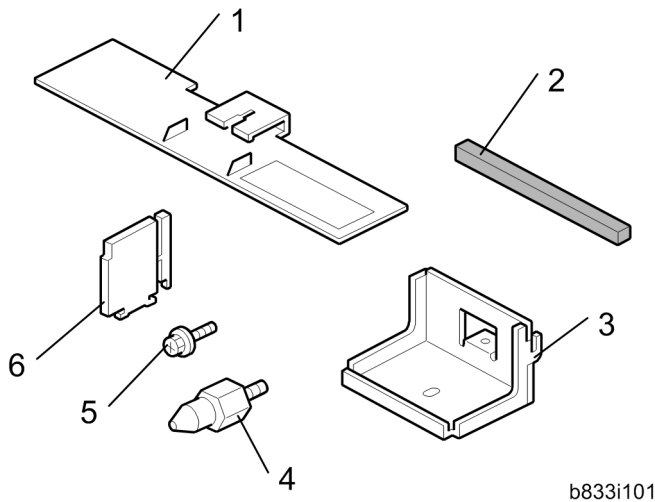
- Confirm that the relay harness and the ground wire are not pinched between the mainframe and the LCIT.

# Multi Bypass Tray BY5000 (B833-17)

## 1

### Accessories

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



b833i101

No.	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 LCIT D453 or D452 before the LCIT is docked to the mainframe.
- If the LCIT is already installed, it must be disconnected from the mainframe before installation of the Multi Bypass Unit B833.

## Installation

The Multi Bypass Tray B833 can be installed on either the LCIT RT5000 D452 or the LCIT RT5010 D453.

### **⚠ CAUTION**

- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

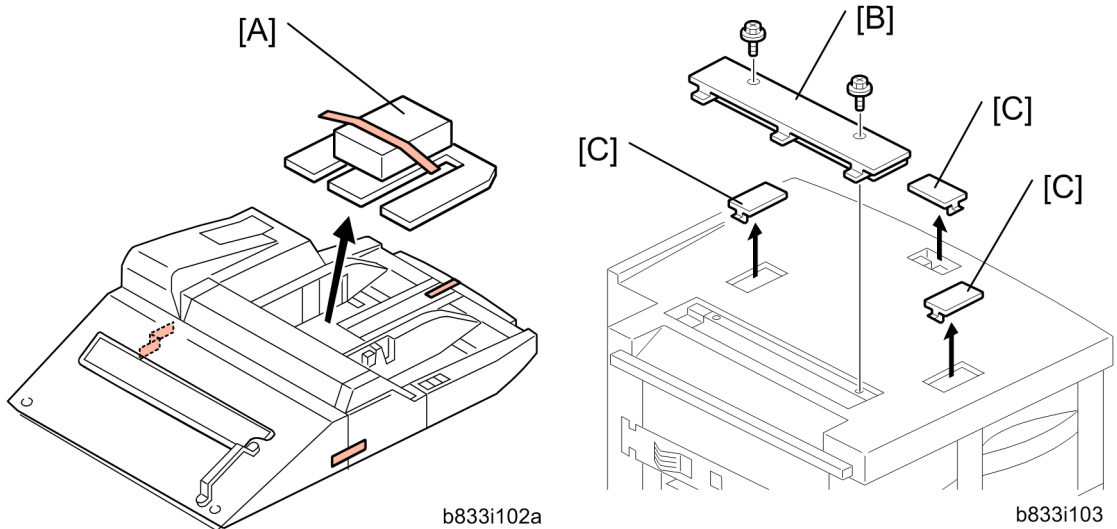
### Before Installing the Multi Bypass Tray

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

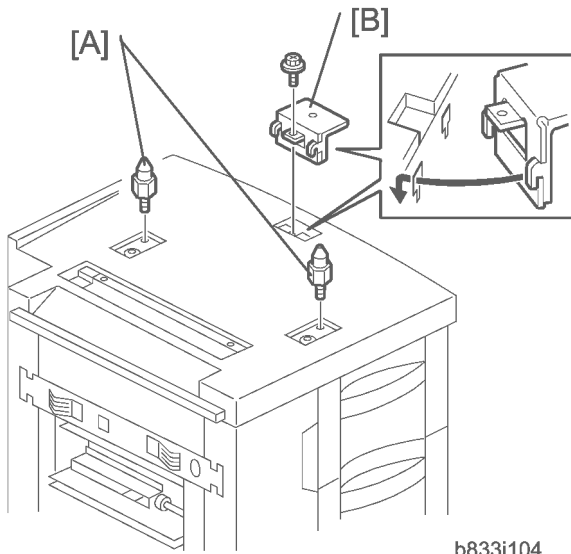
To prevent damage to the connectors and ground wire, before pulling the LCIT away from the mainframe:

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

### LCIT (D452)

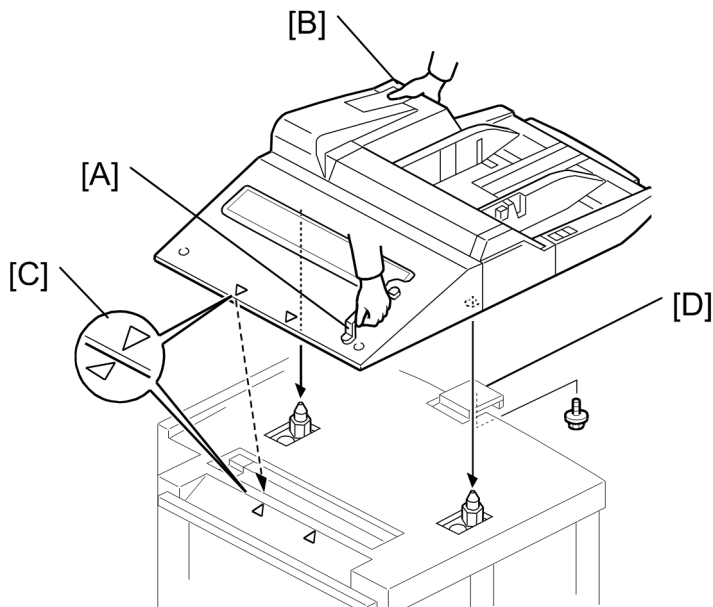


1. Remove the accessory packet [A].
2. Remove all other tape and shipping materials.
3. Remove the paper slot cover [B] (⚡ x 2) and discard the screws.
4. Use the edge of a fine tip flathead screwdriver to remove the smaller three covers [C].



b833i104

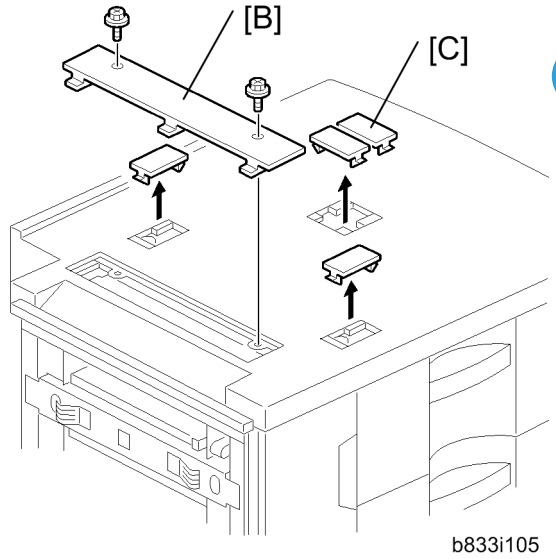
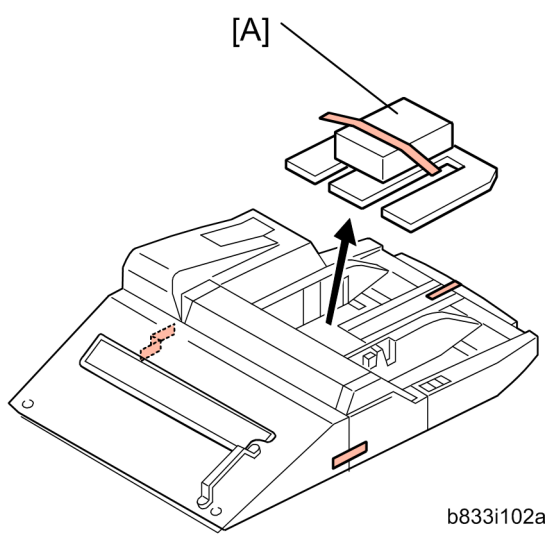
5. Screw in the guide pins [A].
6. Attach the bracket [B] (⚙ x 1).



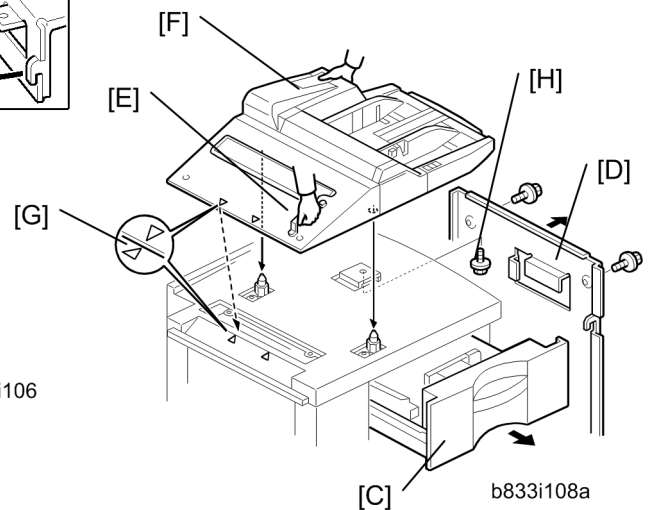
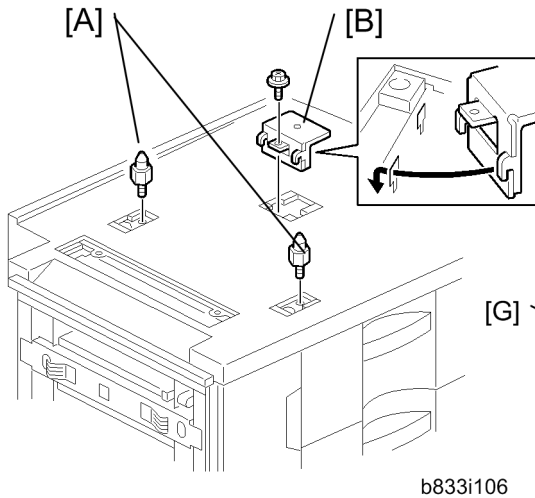
b833i107a

7. Grip the bypass tray unit handle [A] and place your hand under the corner [B] diagonal to the handle, lift the unit and set it on top of the LCIT.
8. Align the embossed arrows on the top left cover [C] of the bypass tray with the arrows on the LCIT top.
9. Fasten the bypass tray to the right bracket [D] (⚙ x 1).

## LCIT (D453)



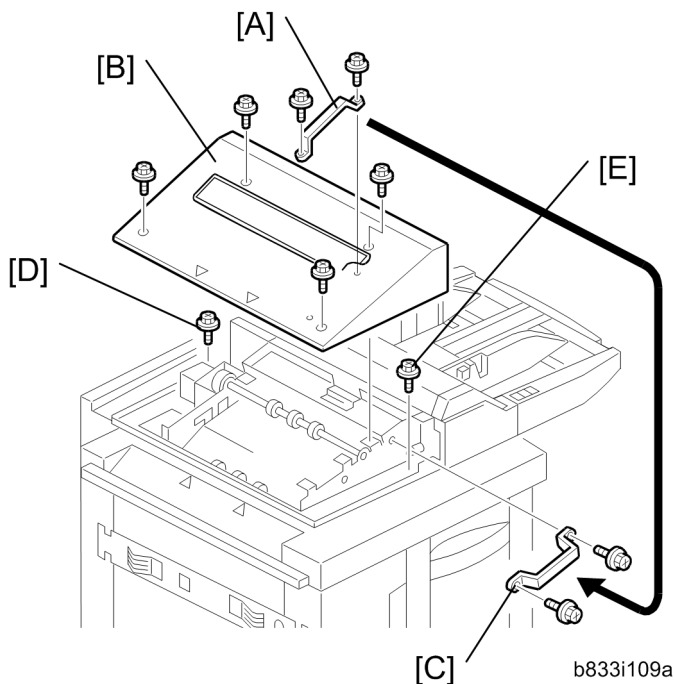
1. Remove the accessory packet [A].
2. Remove all other tape and shipping materials.
3. Remove the paper slot cover [B] (⌀ x 2) and discard the screws.
4. Use the edge of a fine tip flathead screwdriver to remove the smaller four covers [C].



5. Screw in the guide pins [A].
6. Attach the bracket [B] (⌀ x 1).

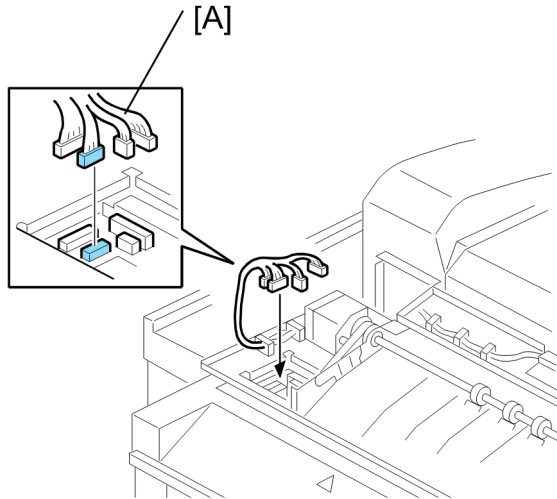
7. Open Tray 1 [C].
8. Remove the right cover [D] (⌀ x 6).
9. Grip the bypass tray unit handle [E]. Then place your hand under the corner [F] diagonal to the handle, then lift the unit and set it on top of the LCIT.
10. Align the embossed arrows on the top left cover [G] of the bypass tray with the arrows on the LCIT top.
11. Under the top of the LCIT, attach the lock screw [H].
12. Close Tray 1, then reattach the right cover.

### Both LCIT Units



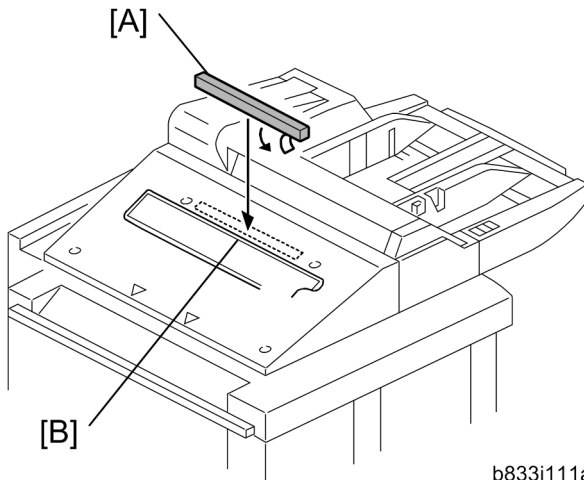
1. Remove the handle [A] (⌀ x 2). **Keep these screws.**
2. Remove the cover [B] (⌀ x 4).
3. Use the screws removed above to attach the handle [C] to the front frame.
4. Fasten the bypass tray rear frame [D] to the LCIT (⌀ x 1).
5. Fasten the bypass tray front frame [E] to the LCIT (⌀ x 1).





b833i110

6. Connect the bypass tray harness [A] to the LCIT (x4).
7. Re-attach cover [B] removed at Step 2.



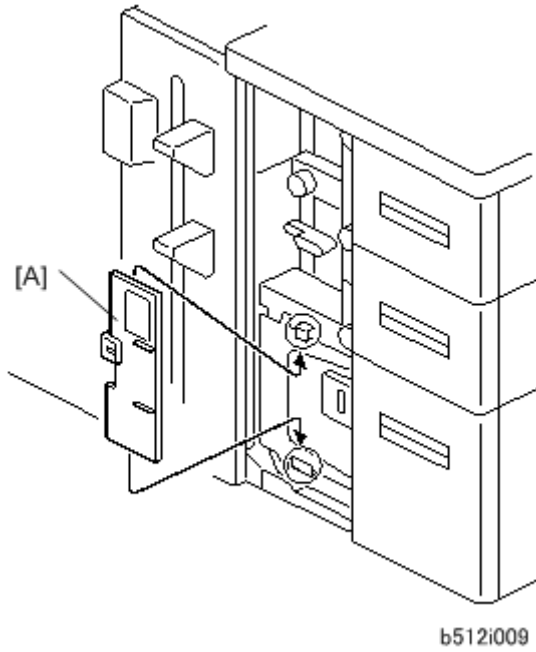
b833i111a

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 LCIT front door. Hang the tab sheet fence on the hooks [A] on top of the LCIT tab fence. When feeding tab sheets from the bypass tray, follow the decal instructions on the tab fence to install the fence.

# Decurl Unit DU5000 (D457-17)

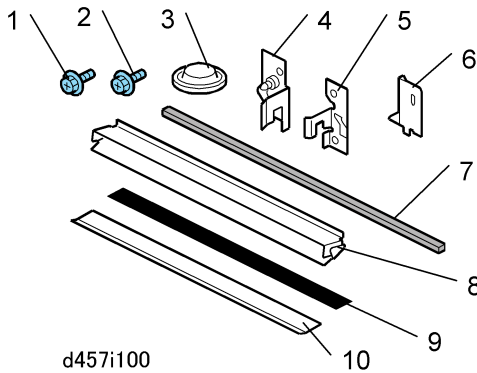
## ⚠ CAUTION

- The decurl unit is top heavy and has an extremely narrow base. It can fall over easily. Work carefully to avoid knocking it over.
- Do not set this unit upright until you are ready to install it and dock it to the side of the main machine.
- Never leave this unit standing upright and unattended in the work area during installation.

1

## Accessories

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



No.	Description	Q'ty
1.	Screws M3x6	3
2.	Screws M4x8	5
3.	Leveling Shoes	3
4.	Joint Bracket – L	1
5.	Joint Bracket – R	1
6.	Small Bracket	1
7.	Sponge Strip	1
8.	Paper Guide	1
9.	Mylar – Black	1

No.	Description	Q'ty
10.	Mylar – Transparent	1

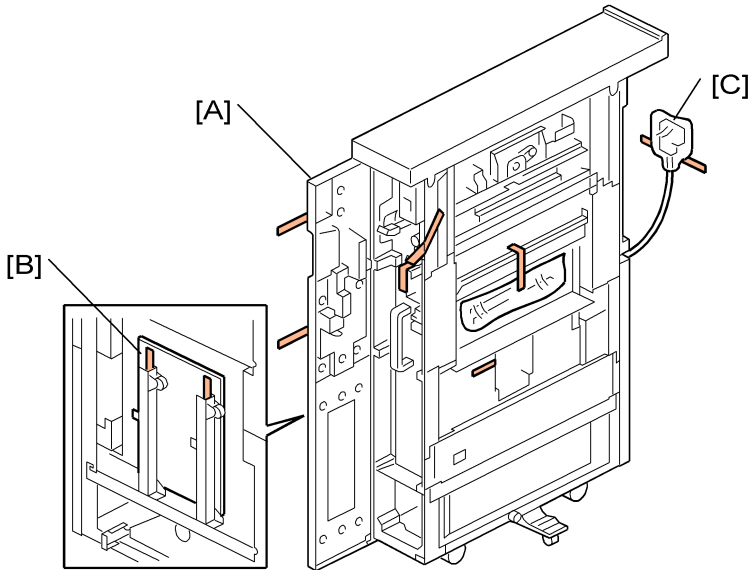
1

## Installation

### ⚠ CAUTION

- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

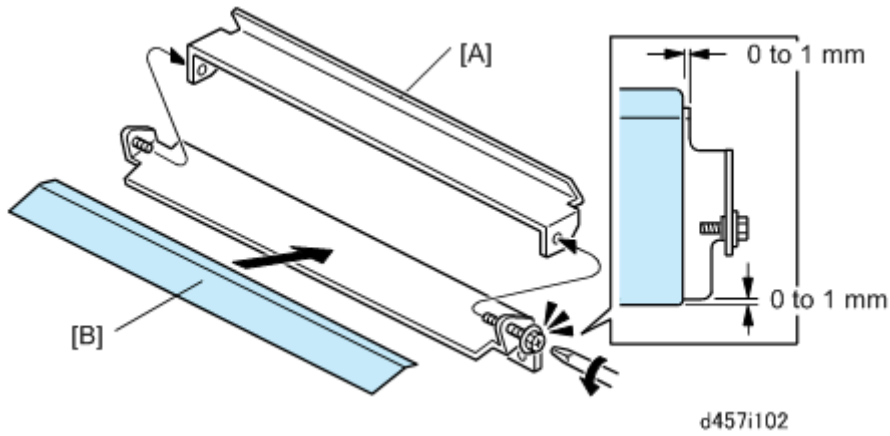
## Tapes



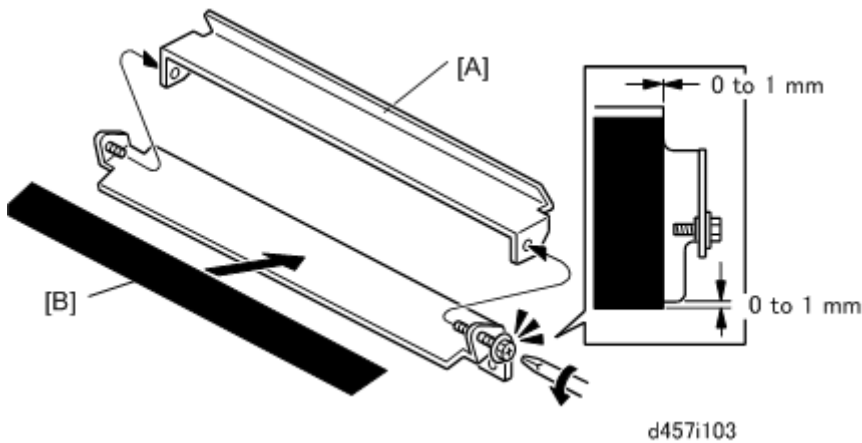
d457i101

1. Open the front door [A].
2. Remove tape and retainer [B].
3. Remove tape and cover [C].

## Mylars



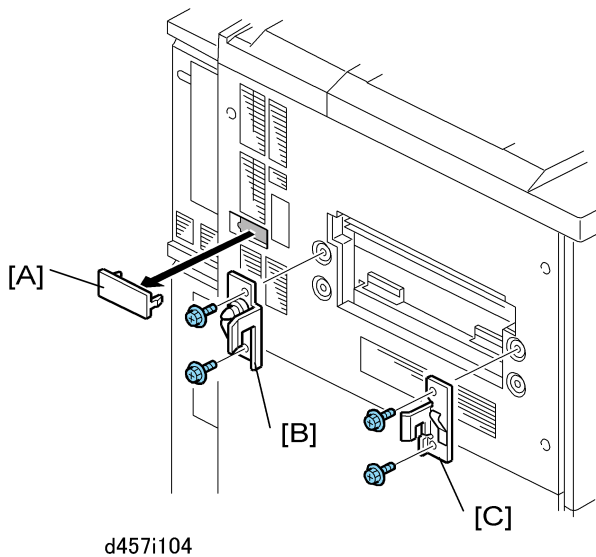
1. Disassemble the paper guide for this peripheral unit [A] (🔧 x2).
2. Attach transparent mylar [B].



3. Remove the paper guide of the downstream peripheral device.
4. Disassemble the paper guide [A] (🔧 x2).
5. Attach the black mylar [B].
  - If a new peripheral is to be installed between the Decurl Unit and installed downstream unit, prepare an additional mylar and then use it for a new peripheral. Never remove and reuse the attached mylar from the installed downstream unit.
6. Reassemble the paper guide (🔧 x2).

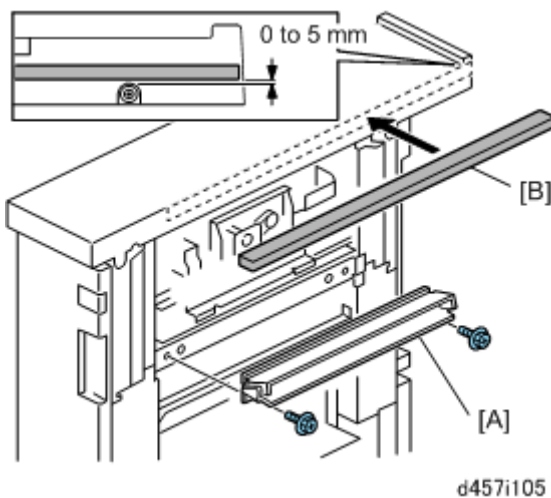
## Docking

1

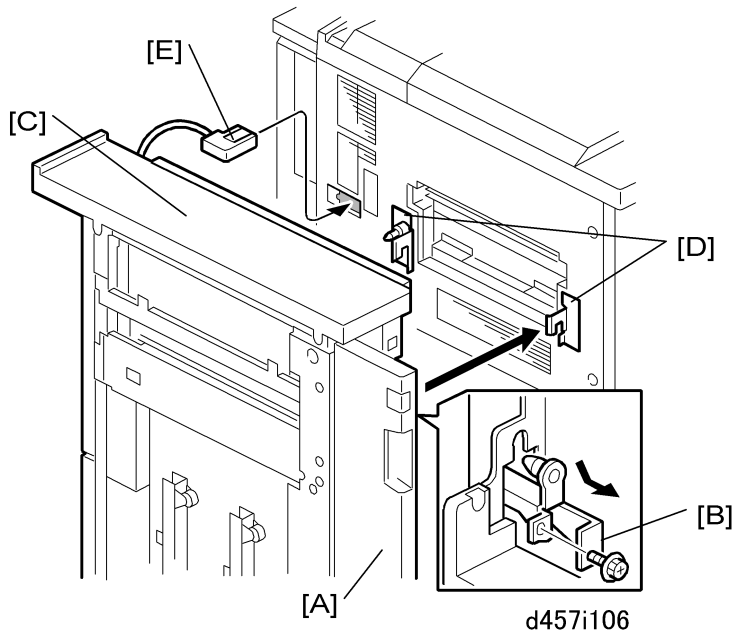


### ★ Important

- This peripheral unit must be connected to the main machine.
1. Remove the interface connector cover [A] from the main machine.
  2. Attach the following to the main machine:
    - [B] Left joint bracket, marked "L" (⌀ x2, M4x8).
    - [C] Right joint bracket, marked "R" (⌀ x2, M4x8)



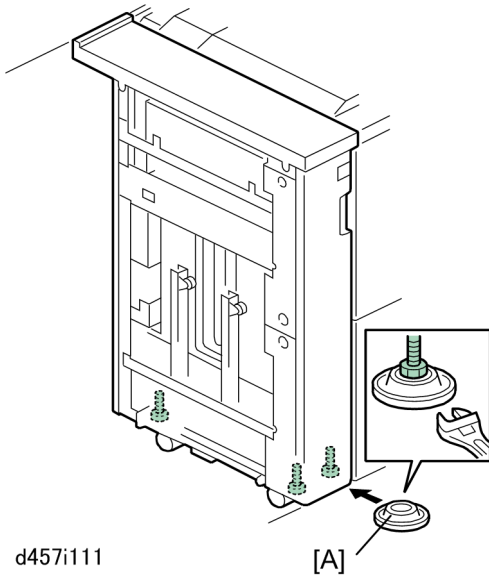
3. Attach the paper guide [A] (⌀ x2 M3x6).
4. Peel the tape from the sponge strip [B] and attach it to the top right edge of the unit.



5. Open the front door [A].
6. Remove the screw of the lock bar [B]. **Keep this screw.**
7. Pull out the lock bar until it stops.
8. Push the finisher [C] against the main machine so that the lock bar is below the joint brackets [D].
9. Connect the I/F cable [E] to the main machine.
10. Push in the lock bar and fasten it with the screw removed in **Step 6**.

## Height Adjustment

---



d457i111

[A]

1. Set the leveling shoes [A] (☛ p.196 "Common Adjustments").
2. Adjust the height of the unit and make sure that it is level.



# Perfect Binder (D391)

These units are installed the Perfect Binder installation:

- Perfect Binder (D391)
- Transit Pass Unit Type GB5000 (D391-19)
- Cover Interposer Tray Type GB5000 (D391-18)

The installation procedures for these units are not described in this service manual. For more about how to install the Perfect Binder, see this manual: "Perfect Binder Machine Code: D391 Service Manual".

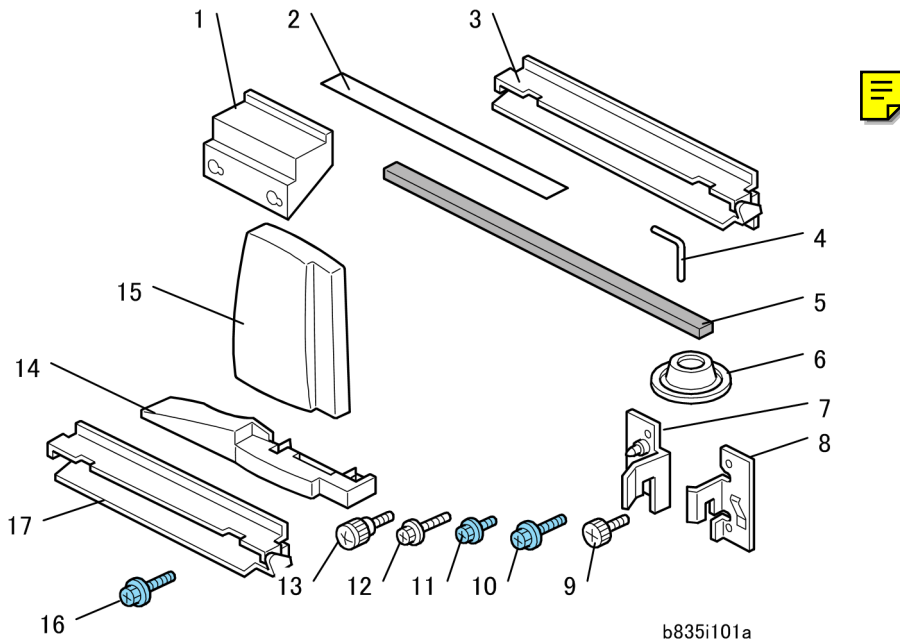


# Cover Interposer Tray CI5010 (B835)

## 1

## Accessories

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



No.	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 Joint bracket	1
8.	Front Joint bracket	1
9.	Flat Knob Screw	1

No.	Description	Q'ty
10.	Screw (M4 x 8)	4
11.	Screw (M3 x 6)	2
12.	Screw (M4 x 14)	4
13.	Knob Screw	3
14.	Base Cover (Tray Unit)	1
15.	Rear Cover	1
16.	Screw (M3 x 8) Not used	1
17.	Relay Guide Plate Not used	1

---

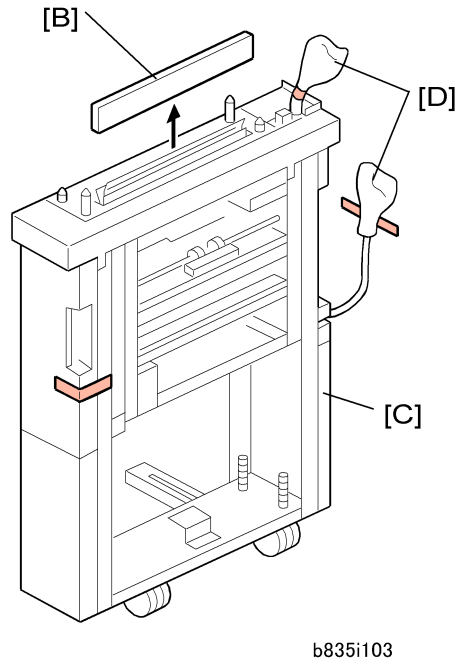
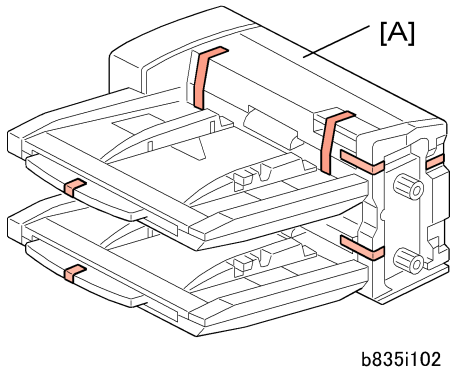
## Installation

---

### CAUTION

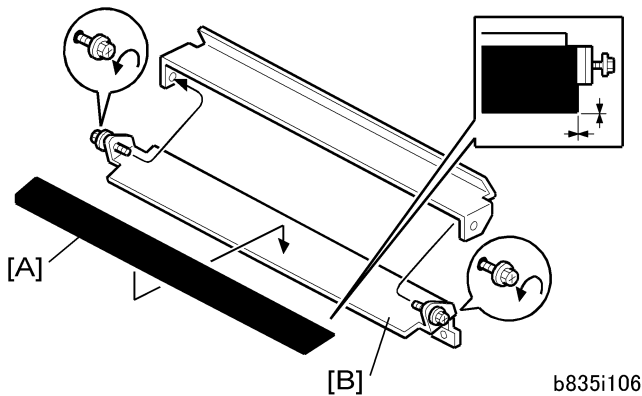
- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

## Tapes



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].
4. Remove tape and covers from both connectors [D].

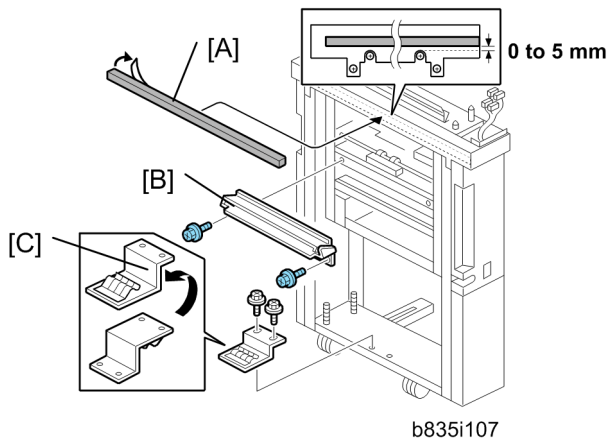
## Attaching the Black Mylar to the Downstream Unit



1. Remove the paper guide of the downstream unit and disassemble it (🔧 x2).
2. Attach the black mylar [A] to the relay guide plate [B].
  - If a new peripheral is to be installed between the Cover Interposer Tray and installed downstream unit, prepare an additional mylar and then use it for a new peripheral. Never remove and reuse the attached mylar from the installed downstream unit.
3. Re-attach the paper guide to the downstream unit.

1

### Sponge Strip, Paper Guide, Ground Plate

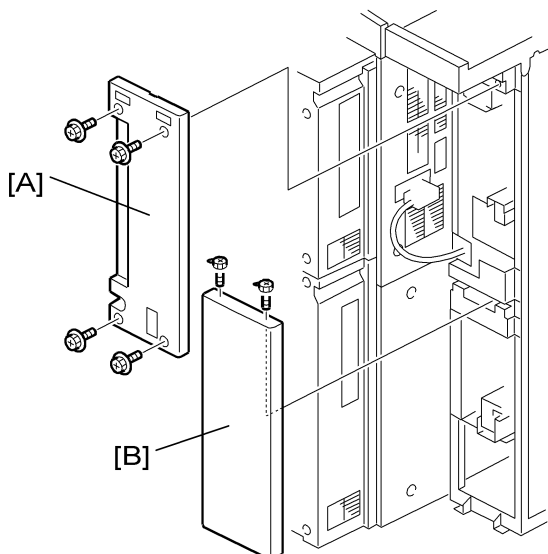


1. Peel the tape from the back of the sponge strip [A] and attach it as shown.
2. Attach the paper guide [B] (🔧 x2).
  - If this unit is to be installed on the left side of the Decurl Unit (D457), attach the black mylar to the paper guide [B]. For details about attaching the black mylar, see "Attaching the Black Mylar to the Downstream Unit" above.
3. Remove the ground plate [C] from the bottom cross-piece (🔧 x2).
4. Turn the ground plate over.
5. Reattach the ground plate with the same screws as shown (🔧 x2).

### Docking the Tray Transport Unit to the Decurl Unit (D457)

Skip this section and go to the next section if you are docking directly to the main machine. This section shows docking to the decurler as an example. It is also possible to have the Perfect Binder at this location. The procedure in this case is basically the same.

1

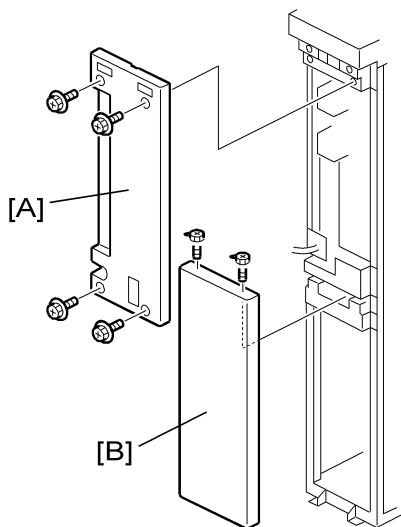


d457i107

1. At the back of the docked de-curler unit, remove:

[A] Rear upper cover (⚙️ x2)

[B] Rear lower cover (⚙️ x2)

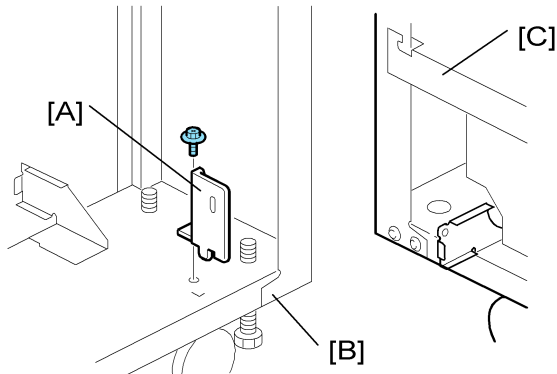


d457i108

2. At the back of the cover interposer tray, remove:

[A] Upper cover (⚙️ x4)

[B] Lower cover (⚙️ x2)



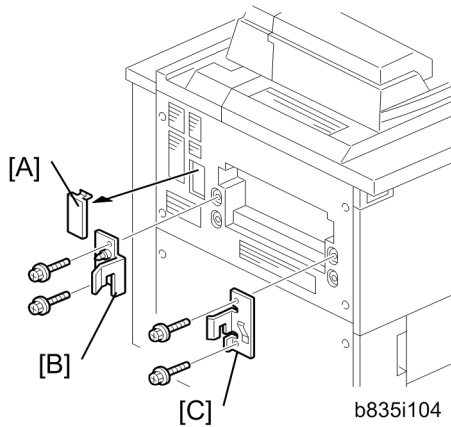
d457i109

3. Attach the small bracket [A] to the cover interposer tray [B].
4. Dock the cover interposer tray (see the next section).

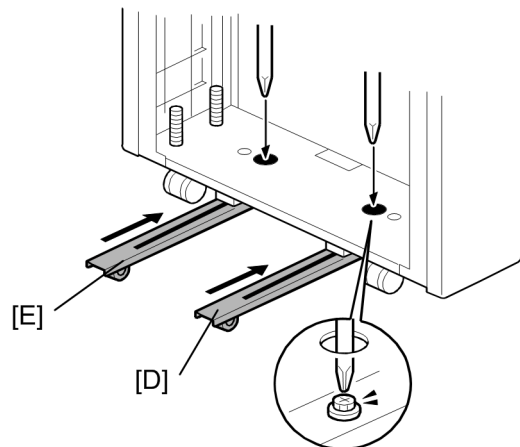
**★ Important**

- Do not re-attach the rear covers yet.

## Docking



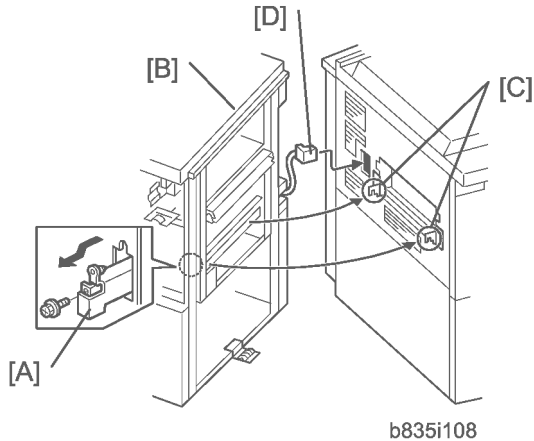
b835i104



b835i109

1. If the upstream unit is the main machine, remove the interface connector cover [A].
2. To the upstream unit (main machine or de-curler unit), attach:
  - [B] Left bracket (🔩 x2).
  - [C] Right bracket (🔩 x2).

3. Loosen the screws for the rear runner [D] and front runner [E].
4. Push the runners in and re-fasten them again with the screws.



5. Open the front door of the cover interposer tray.
6. Remove the screw of the lock bar [A]. **Keep this screw.**
7. Pull out the lock bar until it stops.
8. Push the finisher [B] against the upstream unit so that the lock bar is below the joint brackets [C].
9. Connect the finisher cable [D] to the decurl unit or main machine.
10. Push in the lock bar [A] and fasten it with the screw removed in **Step 6**.
11. Close the front door.

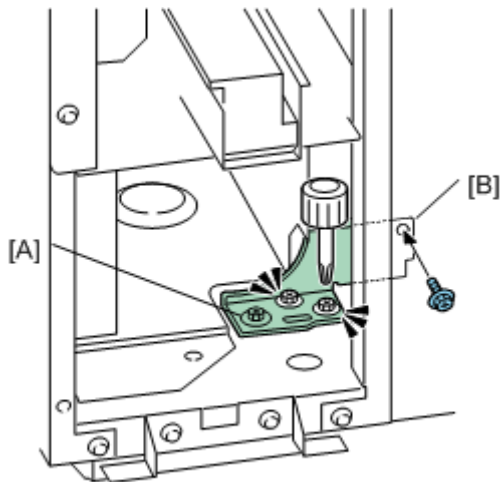
This completes the procedure for docking to the main unit.

If you have docked to the Decurl Unit (D457), do the steps below to complete the procedure.

**★ Important**

- The following steps are required only if the upstream unit is the decurl unit.





d457i110

12. With the rear covers of both the decurl unit and cover interposer unit removed, use a short screwdriver to loosen bracket [A] (⚙️ x2).
13. Fasten the bracket to the de-curler unit at [B] (⚙️ x1).
14. Tighten the screws (⚙️ x3).
15. Re-attach the rear covers.

## Dock the Downstream Peripheral Device

The tray unit of the cover interposer tray is supported by the cover interposer transport unit and the top of the downstream peripheral unit. The next peripheral device downstream must be docked to the cover interposer tray relay unit (the base) before the tray unit can be installed.

Go to the appropriate section to dock the next downstream peripheral unit before installing the tray unit of the cover interposer tray:

- Multi Folding Unit (D454)
- Ring Binder (D392)
- High Capacity Stacker (D447)
- Booklet Finisher (D434)
- Finisher SR5000 (B830)

### **⚠️ CAUTION**

- Never attempt to mount the cover interposer tray until the next downstream peripheral unit 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 at the following times: 1) Before disconnecting either

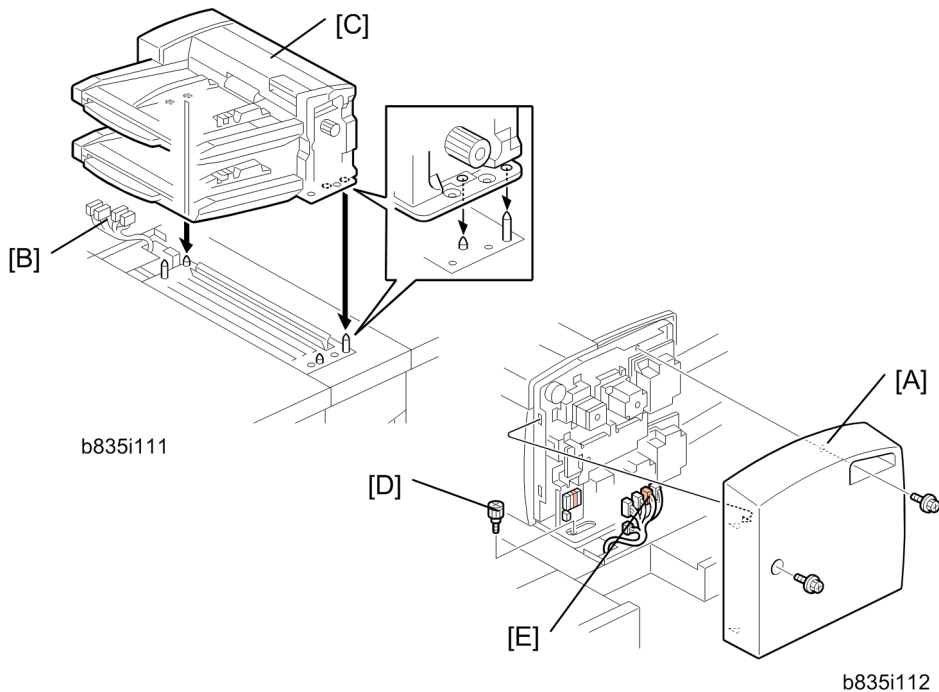
the cover interposer tray or the next downstream peripheral unit, or 2) Before doing any maintenance on either the cover interposer tray or the next downstream peripheral unit.

## 1

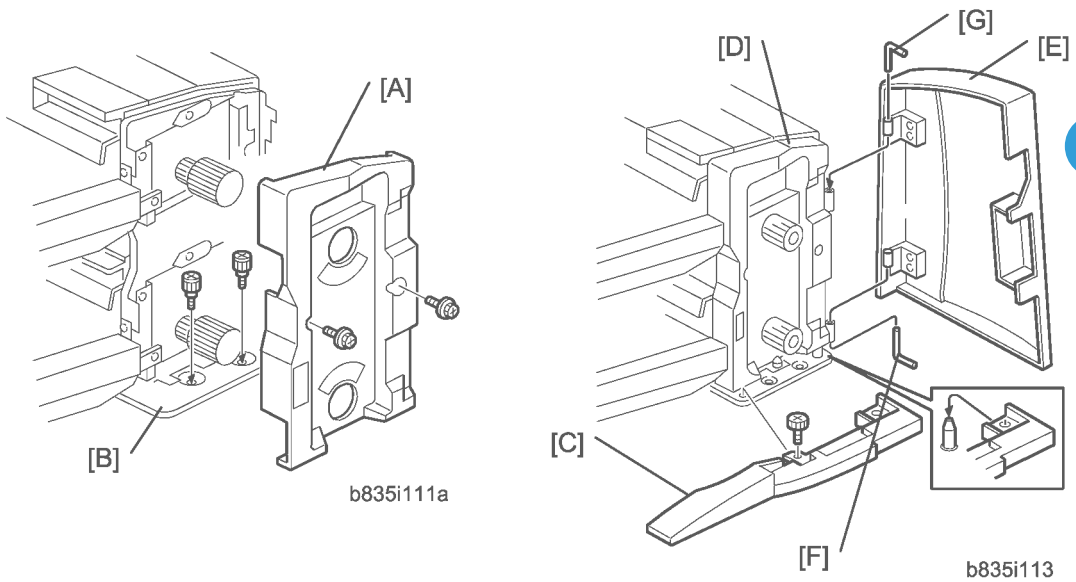
## Mounting the Tray Unit

### ★ Important

- If the next downstream unit is the Multi Folding Unit (D454), three parts must be removed from the Multi Folding Unit before the tray unit of the cover interposer tray can be installed. (➡ Multi Folding Unit (D454)). Do this now.



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 and the downstream unit.
4. Attach the knob screw [D] (⚙️ x1).
5. Connect the harness connectors [E] (🔌 x5)
6. Reattach the rear cover.

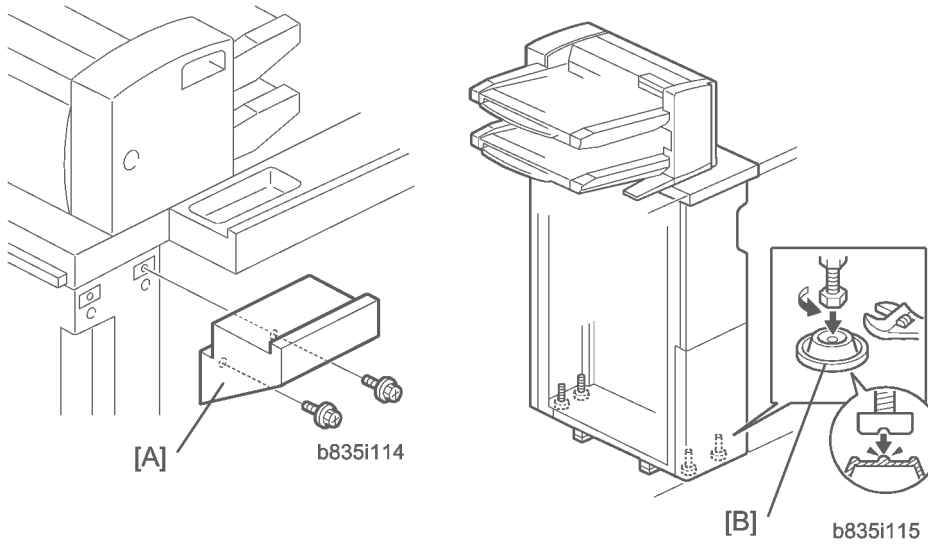


7. Remove the front inner cover [A] from the dual tray (⚙️ x2).
8. Fasten the tray unit to the top of the transport unit with the knob screws [B] (⚙️ x2).
9. Attach the base cover [C] (⚙️ x1).

**★ 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.



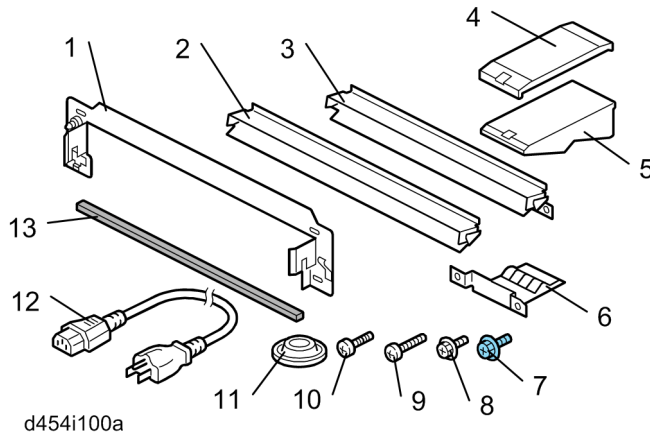
14. Attach the spacer [A] to the rear of the transport unit (🔩 x2).
15. Set the leveling shoes [B].
16. Adjust the height of the unit and make sure that it is level.

# Multi Folding Unit (D454)

## Accessories

1

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



No.	Description	Q'ty
1.	Joint Bracket	1
2.	Paper Guide – Long (for D059/D060/D061)	1
3.	Paper Guide – Short (for D062/D064/D065/D066)	1
4.	Proof Tray Auxiliary Plate - Top	1
5.	Proof Tray Auxiliary Plate - Bottom	1
6.	Ground Plate	1
7.	Screws M3x6	2
8.	Screws M3x6	2
9.	Screws M4x20	4
10.	Screws M4x14	4
11.	Leveling Shoes	5
12.	Power Cord* <sup>1</sup>	1
13.	Sponge Strip	1

\*1: In case of using this unit in China, do not use this power cord in the accessories of the Multi Folding Unit (D454). Ask your supervisor and use a power cord specified for China's usage.

# 1

---

## Installation

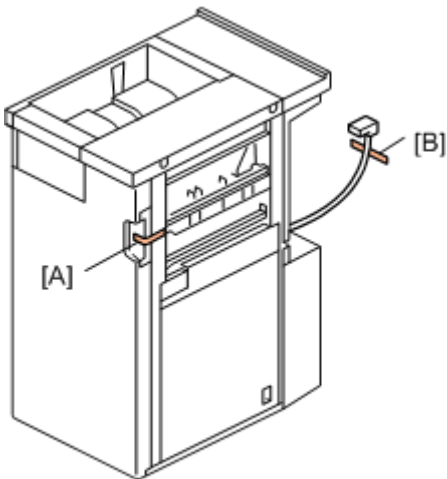
---

### CAUTION

- The unit must be connected to a power source that is close to the unit and easily accessible.
- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

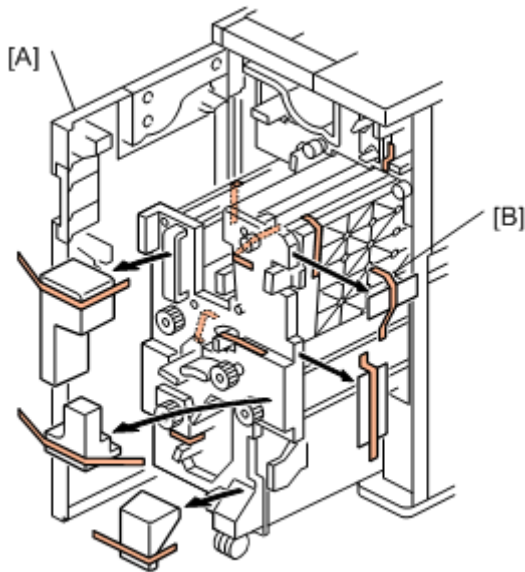
## Tapes

---



d454i101

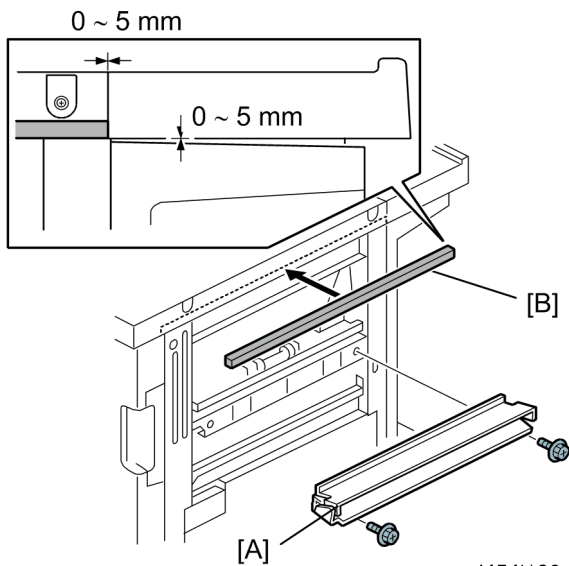
1. Remove tape from front [A] and rear [B].



d454i102

2. Open the front door [A].
3. Remove all tape from inside [B].

### Paper Guide, Sponge Strip



d454i103

1. Select the long paper guide for this installation.
  - Two paper guides are provided.

- The short paper guide is for another machine (D062/D063/D065/D066).

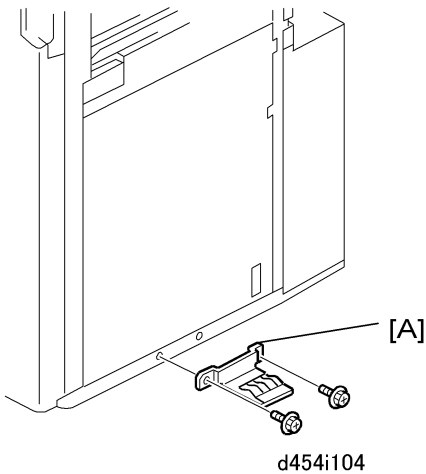
**★ Important**

- If the upstream peripheral device is the Cover Interposer Tray (B835) or the Decurl Unit DU5000 (D457), attach the black mylar provided with the cover interposer tray or decurl unit to this paper guide.

2. Attach the long paper guide [A] (🔩 x2 M3x6).
3. Peel the tape from the sponge strip [B] and attach the strip to the top right edge of the unit.

## Ground Plate

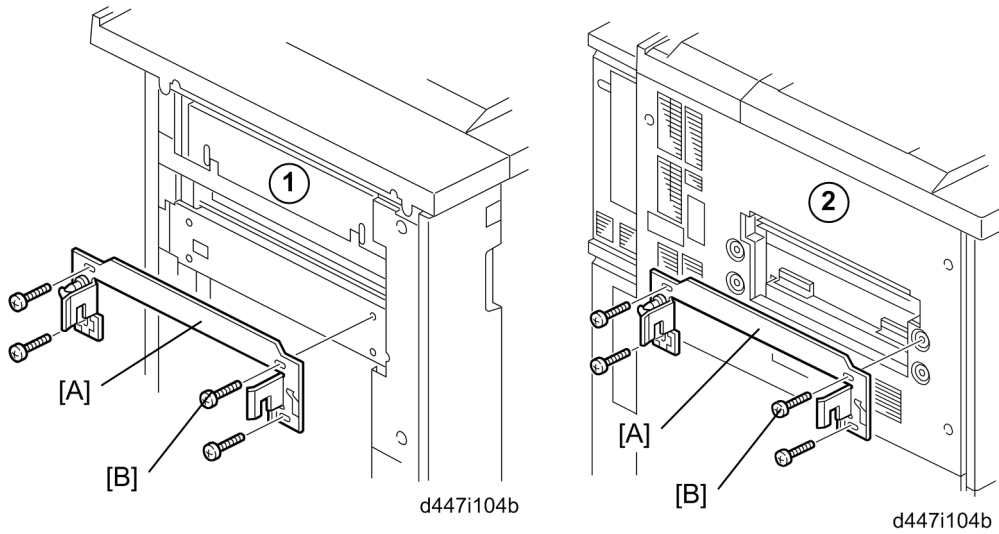
---



1. Attach the ground plate [A] to the lower right edge of the unit (🔩 x2 M3x6).



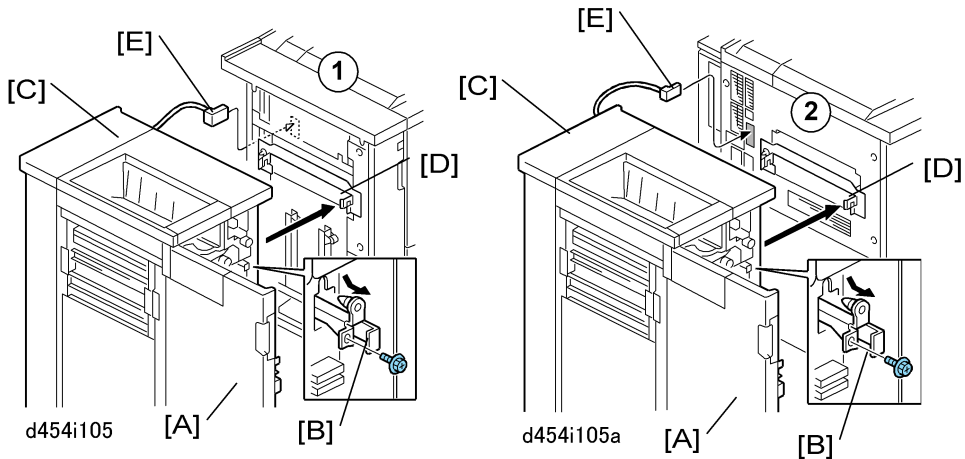
## Docking



1. Fasten the joint bracket [A] to the left side of the upstream unit ( ① is the decurl unit, as an example, ② is the main machine) (⚙ x4: M4x14 x 3 and M4x20 x 1).

### ★ Important

- The screw [B] (front-upper) must be "M4x20". The other three screws must be "M4x14". Otherwise, these screws may interfere with the upstream unit.



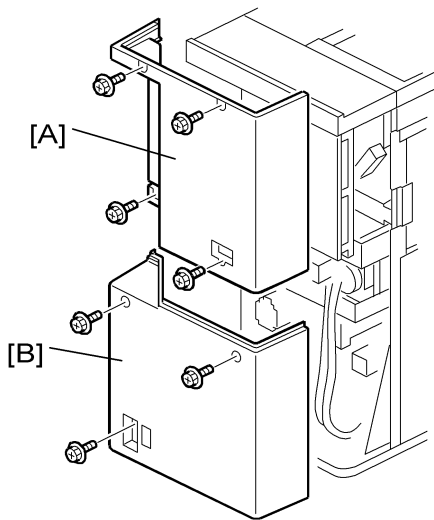
### ↓ Note

- In the illustration above, ① is the Decurl Unit (D457) and ② is the main machine.
1. Open the front door [A].
  2. At the front right corner, remove the screw of the lock bar [B] (⚙ x1 M3x6). **Keep this screw.**

3. Push in the lock bar.
4. Slowly push the unit [C] against the left side of the upstream unit (or main machine) so that the lock bar is directly and squarely under the arms of the joint bracket.
5. Pull out the lock bar so it slides up into the notches in the arms on both ends of the joint bracket [D].
6. Fasten the lock bar by re-attaching the screw removed in **Step 3** (⚙️ x1).
7. Connect the I/F cable [E] to the upstream unit (or main machine).

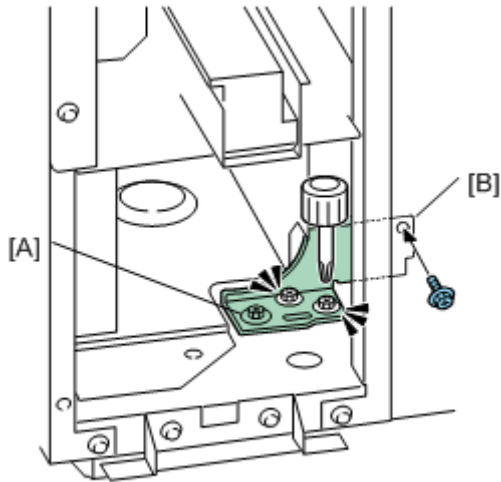
↓ **Note**

- If you are connecting to the main machine, you must first remove the plastic cap on the I/F cable connection point.



d454i106

8. Remove:  
[A] Rear upper cover (⚙️ x4)  
[B] Rear lower cover (⚙️ x3)



d457i110

9. Use a short screwdriver to loosen bracket [A] (⚙️ x2).
10. Fasten the bracket to the upstream unit at [B] (⚙️ x1).
11. Tighten the screws (⚙️ x3).
12. Re-attach the rear covers.

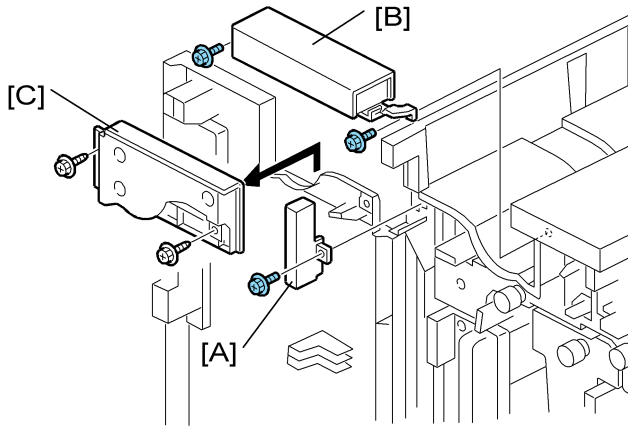
### Removing Parts for the Cover Interposer Tray (B835)

Three parts must be removed before the tray unit of the cover interposer tray can be mounted on top of the Multi Folding Unit.

1. Open the front door.

#### ★ Important

- The following parts require removal only if the upstream unit is the Cover Interposer Tray (B835).
- These parts must be removed so that the tray unit of the Cover Interposer Tray will fit on top of the Multi Folding Unit.



d454i109

2. Remove:

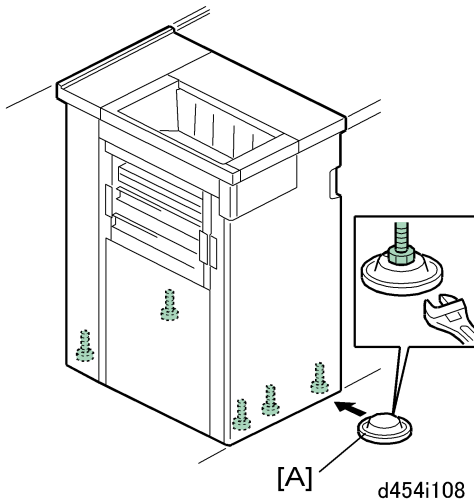
[A] Bracket (🔧 x1)

[B] Cross-piece (🔧 x2)

[C] Metal plate from the door (🔧 x2)

3. After removing [B] and [C], reattach [A].

## Height Adjustment

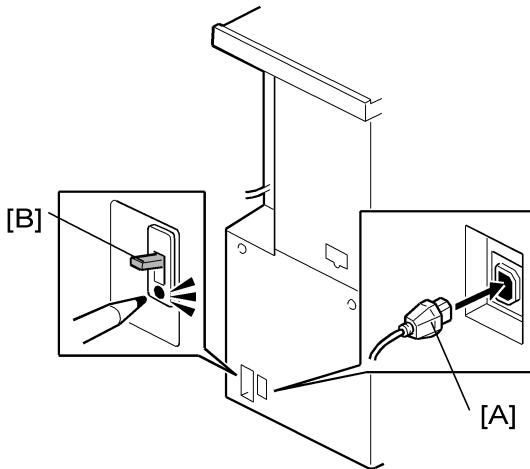


d454i108

1. Set the leveling shoes [A] (🔧 p.196 "Common Adjustments").

2. Adjust the height of the unit and make sure that it is level.

## Power Cord, Breaker Switch Test



d454i107

1. Insert the power cord socket [A] into the power connection point.

### ★ Important

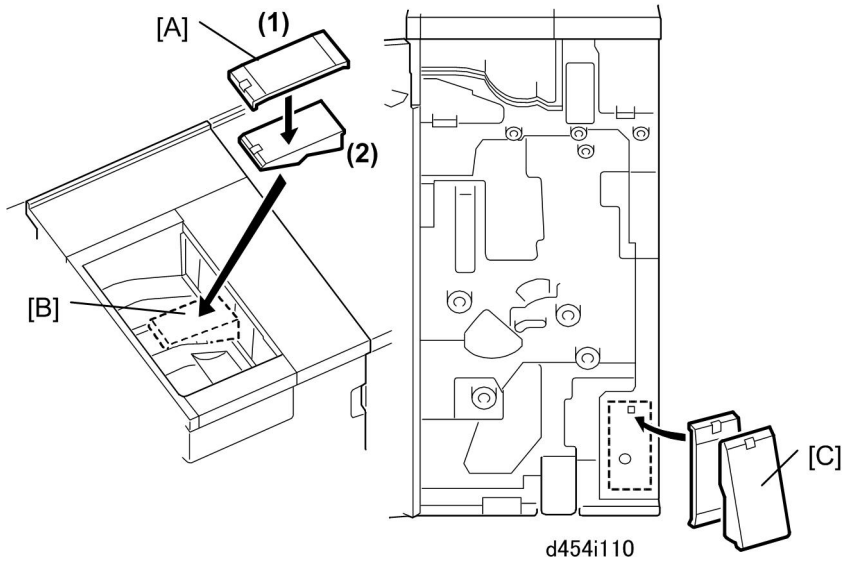
- In case of using this unit in China, do not use this power cord in the accessories of the Multi Folding Unit (D454). Ask your supervisor and use a power cord specified for China's usage.

2. Connect the power supply cord plug into a power outlet.
3. Test the breaker switch [B] (☛ "Installation" > "Common Adjustments" > "Breaker Switch Testing").

## Check for Skew and Correct Side-to-Side Registration

1. Load some B4 paper in Tray 2 of the main machine.
2. Make several copies that will exit to the upper tray.
3. Watch each sheet as it exits the machine to check for the presence of skew, and check that the side-to-side registration is correct. (☛ p.196 "Common Adjustments")

## Proof Tray Auxiliary Plate



1. Install the proof tray auxiliary plate.
  - Assemble the top (1) and bottom (2) of the plate [A].
  - Set the assembled plate in the center aligned with the diagonal groove at [B].
  - The back should be flat against the end fence.
2. When the plate is not being used, open the front door and store the assembled plate at [C] inside the inner cover.
  - The plate should be used when Z-folded paper (all sizes) is output to the proof tray.
  - If the plate is not used with Z-folded output, the pages could mix and overlap.

## Ring Binder (D392)

Installation of the Ring Binder (D392) is not described in this manual.

For more about installation of the Ring Binder, see this manual: "Ring Binder Machine Code: D392 Service Manual".

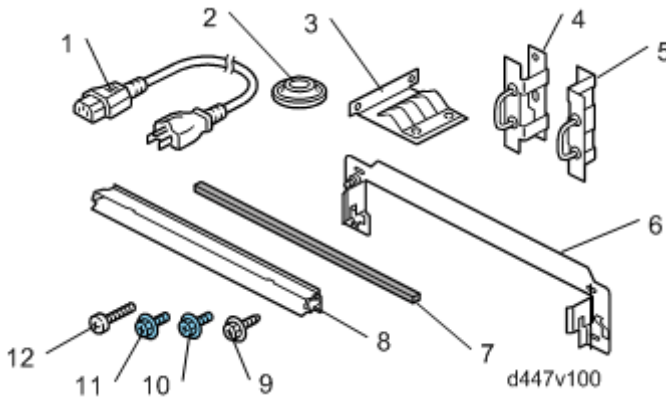
# High Capacity Stacker (D447)

## 1

### Accessories

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

#### High Capacity Stacker (D447)



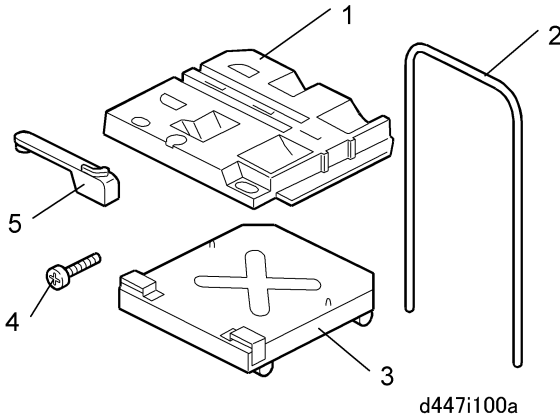
No.	Description	Q'ty
1.	Power Cord*1	1
2.	Leveling Shoes	4
3.	Ground Plate	1
4.	Lock Hasp – Left*2	1
5.	Lock Hasp – Right	1
6.	Joint Bracket	1
7.	Sponge Strip	1
8.	Paper Guide	1
9.	Screws M4x8	2
10.	Screws M3x6	4
11.	Screws M4x6	2
12.	Screws M4x14	4



\*1: In case of using this unit in China, do not use this power cord in the accessories of the High Capacity Stacker (D447). Ask your supervisor and use a power cord specified for China's usage.

\*2: A lock is not provided.

### Roll-Away Cart Type 5010 (456-17)



No.	Description	Q'ty
1.	Paper Tray	1
2.	Tray Cart Handle	1
3.	Tray Cart Base	1
4.	Screws M10x25	2
5.	Paper Press Lever	1

#### ★ Important

- If two high capacity stackers are to be installed in the same line, the second stacker must be installed on the left side of the first stacker.

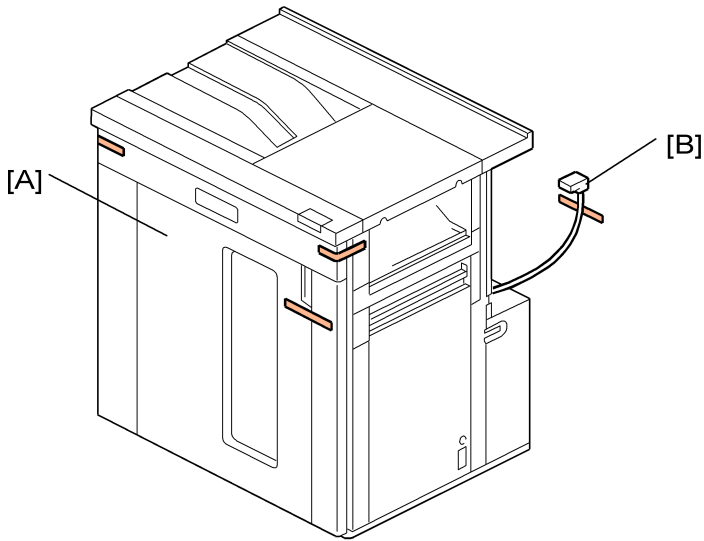
## Installation

### ⚠ CAUTION

- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

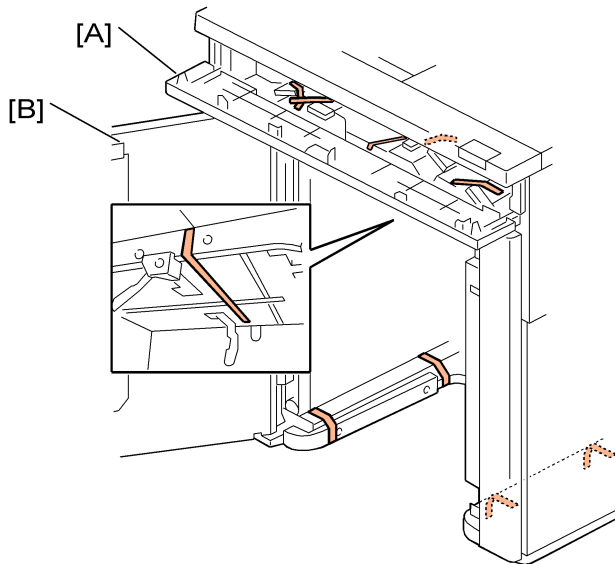
## Shipping Tapes

1



d447i101

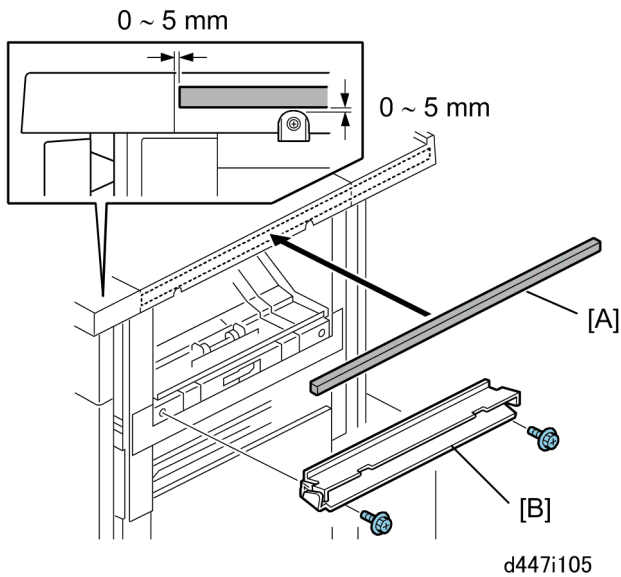
1. Remove all visible tape from the front [A] and back [B].



d447i102

2. Open the front panel [A] and remove all visible tapes.
3. Open the front door [B] and remove all visible tapes.

## Paper Guide, Sponge Strip, Ground Plate



1. Remove the tape from the sponge strip [A] and attach the strip to the top right edge of the unit.

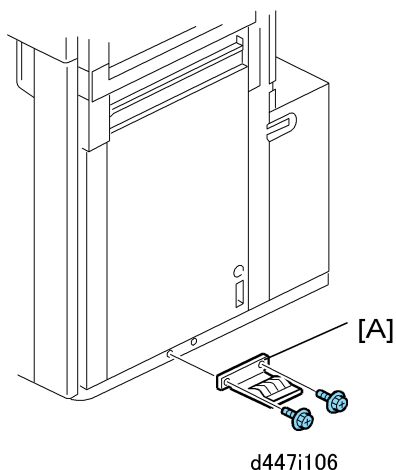
### ↓ Note

- The sponge strip closes the gap between the D447 and the upstream unit to prevent paper or other objects from falling between the units.

2. Fasten the paper guide [B] to the right side of the unit (⚙️ x2).

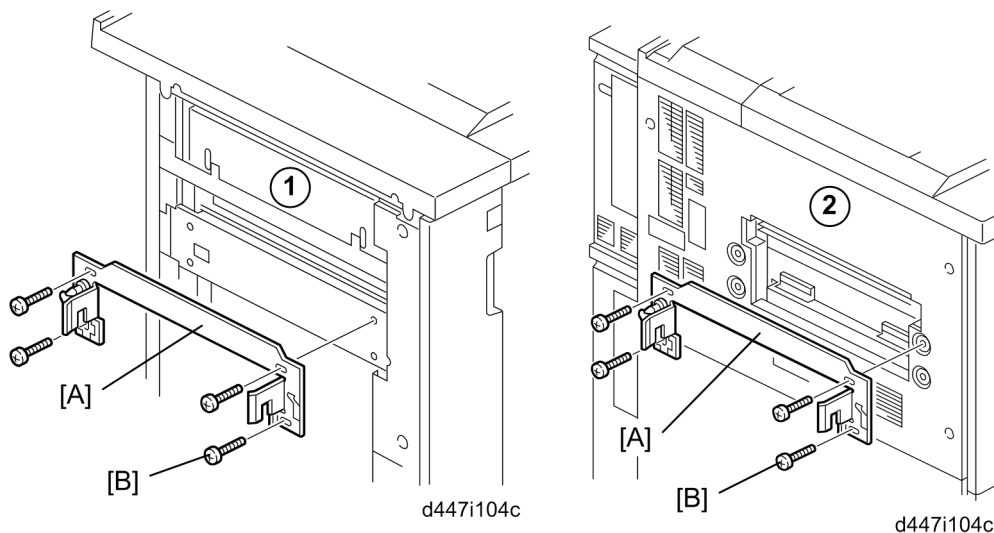
### ★ Important

- If the upstream peripheral device is the Cover Interposer Tray (B835) or the Decurl Unit DU5000 (D457), attach the black mylar provided with the cover interposer tray or decurl unit to this paper guide.



3. Attach the ground plate [A] to the bottom right edge of the unit (⌀ x2 M3x6).

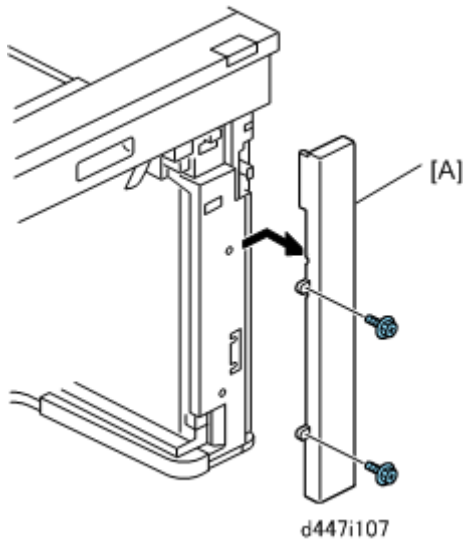
## Docking



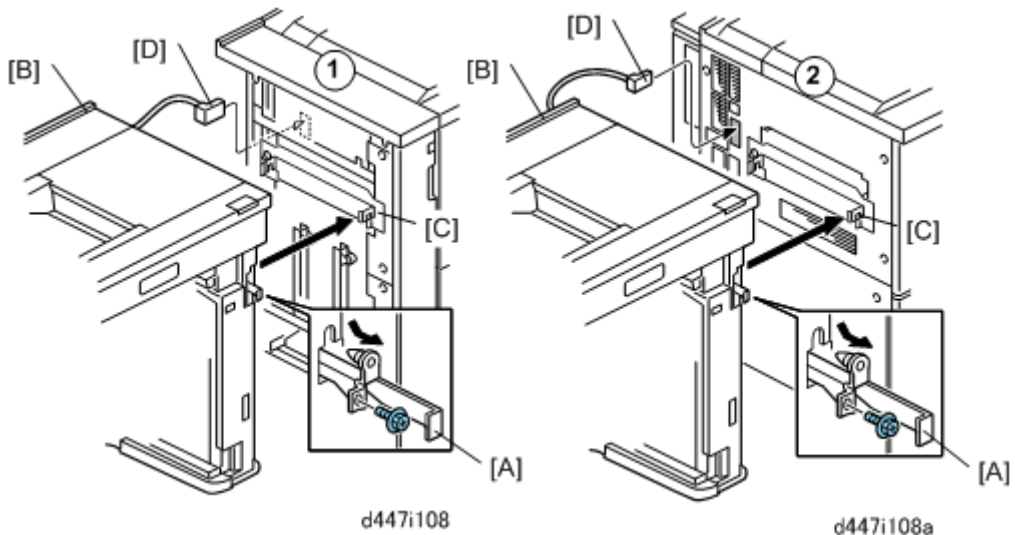
1. Fasten the joint bracket [A] to the upstream unit (① is the de-curler/purge unit, as an example, and ② is the main machine) (⌀ x4).
  - If this unit is to be installed on the left side of the Multi Folding Unit (D454), use three M4x20 screws and one M4x14 screw. M4x20 screws are provided with the Multi Folding Unit (D454).

### ★ Important

- The screw [B] (front-lower) must be "M4x14". The other three screws must be "M4x20". Otherwise, these screws may interfere with the upstream unit.
2. Open the front door.



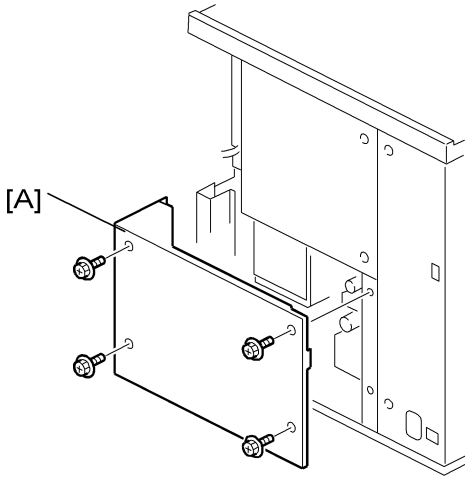
3. Remove the front right cover [A] (🔩 x2).



↓ **Note**

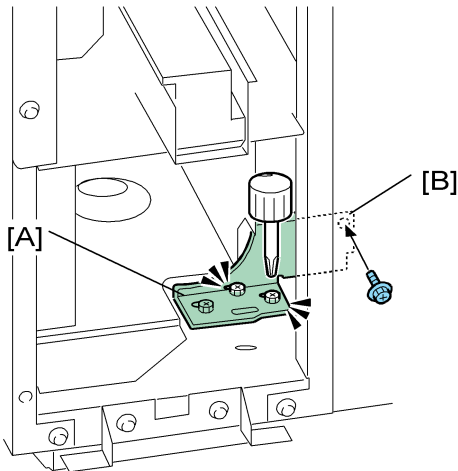
- In the illustration above, ① is the Decurl Unit (D457) and ② is the main machine.
4. At the front right corner, remove the screw of the lock bar [A] (🔩 x1 M3x6). **Keep this screw.**
  5. Pull the lock bar toward you until it stops.
  6. Slowly push the unit [B] against the left side of the upstream unit (or main machine) so that the lock bar is directly and squarely under the arms of the joint bracket [C].
  7. Push the lock bar in completely so that it slides up into the notches in the arms on both ends of the joint bracket.
  8. Fasten the lock bar by re-attaching the screw removed in **Step 4.** (🔩 x1).

9. Attach the I/F cable [D] to the upstream unit.



d447i109

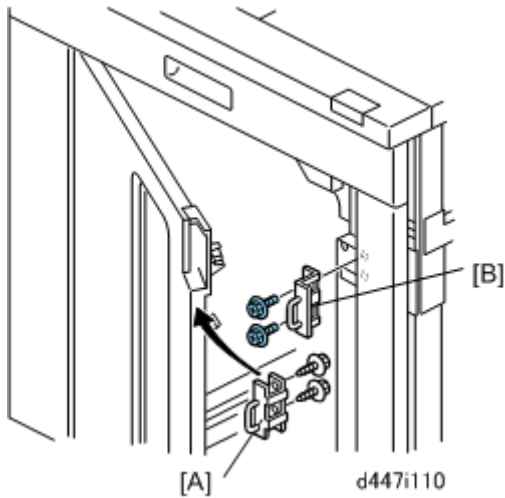
10. Remove the right rear lower cover [A] (⚙️ x4).



d447i109a

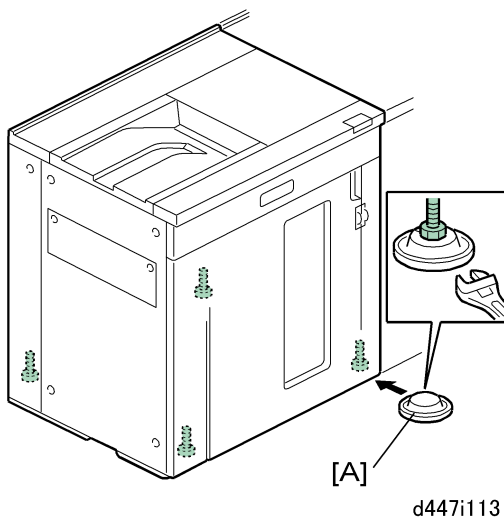
11. Use a short screwdriver to loosen bracket [A] (⚙️ x2).
12. Fasten the bracket to the upstream unit at [B] (⚙️ x1).
13. Tighten the screws (⚙️ x3).
14. Re-attach the rear covers.

## Lock Hasps



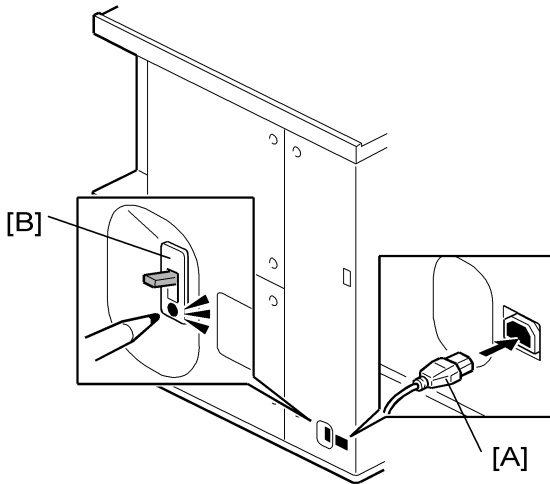
1. Fasten left lock hasp [A] (⚙️ x2) to the door.
2. Fasten right lock hasp [B] to the door frame (⚙️ x2).

## Height Adjustment



1. Set the leveling shoes [A] (➡️ p.196 "Common Adjustments").
2. Adjust the height of the unit and make sure that it is level.

## Power Cord, Breaker Switch Test



d447i114

1. Insert the socket of the power cord [A] into the power connection point.

### ★ Important

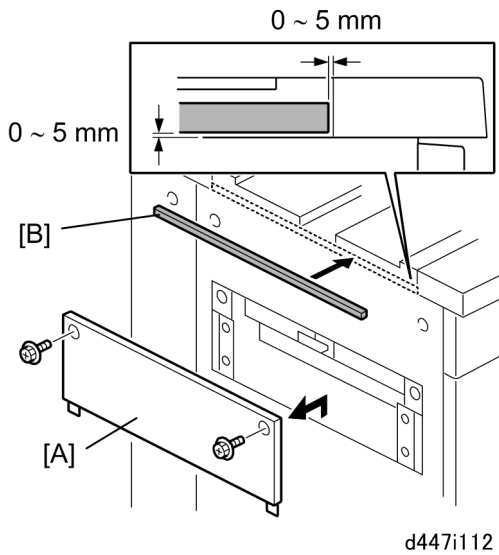
- In case of using this unit in China, do not use this power cord in the accessories of the High Capacity Stacker (D447). Ask your supervisor and use a power cord specified for China's usage.
2. Connect the power supply cord plug into a power outlet.
  3. Test the breaker switch [B] (☛ "Installation" > "Common Adjustments" > "Breaker Switch Testing").

## Check for Skew and Correct Side-to-Side Registration

1. Load some A3/DLT paper in Tray 2 of the main machine.
2. Make several copies that will exit to the top tray.
3. Watch each sheet as it exits the machine to check for the presence of skew, and check that the side-to-side registration is correct. (☛ p.196 "Common Adjustments")



## Docking: Downstream

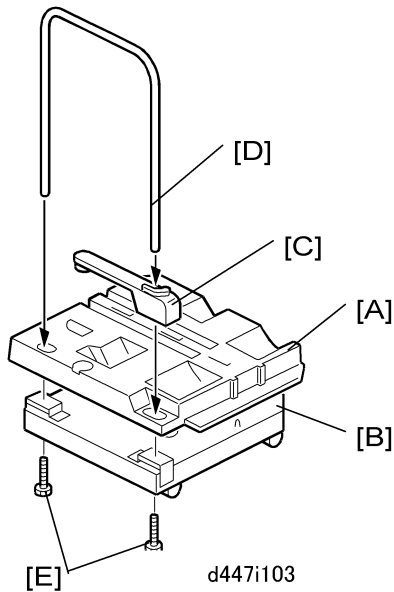


### ★ Important

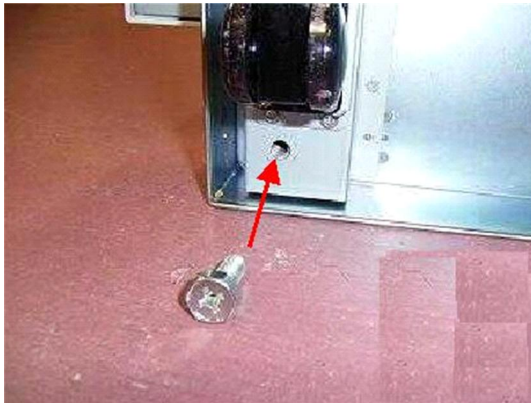
- Do this procedure only if another a second high capacity stacker unit will be installed..
1. Remove the left exit cover [A] from the left side of the unit (🔩 x2).
    - The joint bracket of the downstream unit will be attached here (🔩 x4).
  2. Peel the tape from the back of the sponge strip [B] and attach the strip as shown above.

## Roll-Away Cart (D456)

1

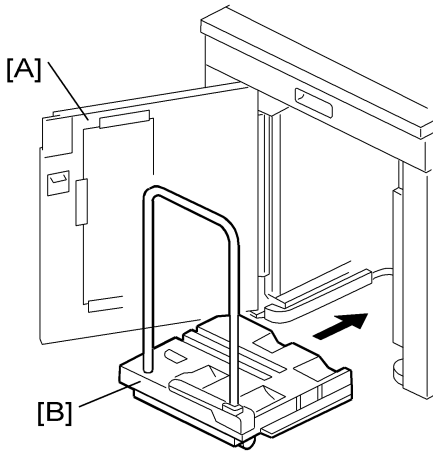


1. Align the holes in the brackets of the paper tray [A] with the studs of the tray base [B].
2. Set the holes over the studs.
3. Set the paper press lever [C] into the recessed cut-out in the paper tray.
4. Insert the ends of the tray cart handle [D] into the handle holes. One end of the handle passes through the paper press lever on the paper tray.



5. Lay the assembly down with the handles on the floor.
6. Fasten the end of each handle (⚙ x1 each M10x25).
7. Make sure that both screws [E] are fastened securely.

8. Set the cart upright on its casters.



d447i111

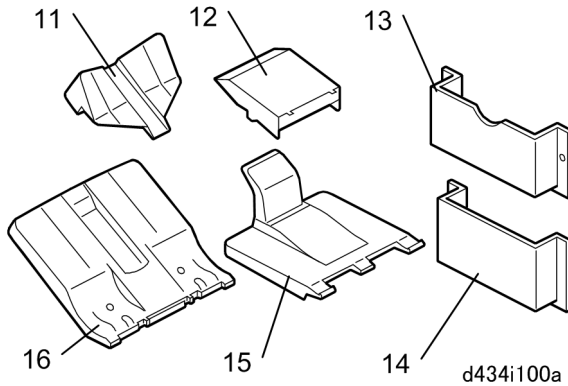
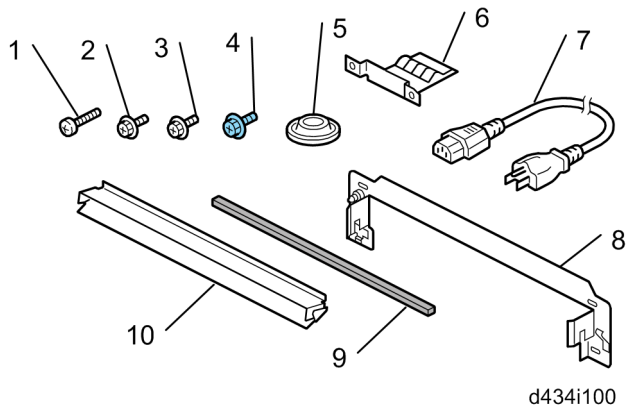
9. Open the front door [A].
10. Push the tray cart [B] into the unit and close the door.

# Booklet Finisher SR5020 (D434-17)

## 1

### Accessories

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



No.	Description	Q'ty
1.	Screws M4x14 (Joint Bracket)	4
2.	Screws M3x8 (Shift Tray)	4
3.	Screws M3x6 (Ground Plate)	2
4.	Screws M3x6 (Paper Guide)	2
5.	Leveling Shoes	4
6.	Ground Plate	1

No.	Description	Q'ty
7.	Power Cord* <sup>1</sup>	1
8.	Joint Bracket	1
9.	Sponge Strip	1
10.	Paper Guide	1
11.	Auxiliary Tray – Glossy Paper	1
12.	Auxiliary Tray – Z-Fold Paper	1
13.	Auxiliary Tray Holder – Glossy Paper	1
14.	Auxiliary Tray Holder – Z-Fold Paper	1
15.	Booklet Tray	1
16.	Shift Tray	1

\*<sup>1</sup>: In case of using this unit in China, do not use the power cord in the accessories of the Booklet Finisher SR5020 (D434). Ask your supervisor and use a power cord specified for China's usage.

## Installation

### CAUTION

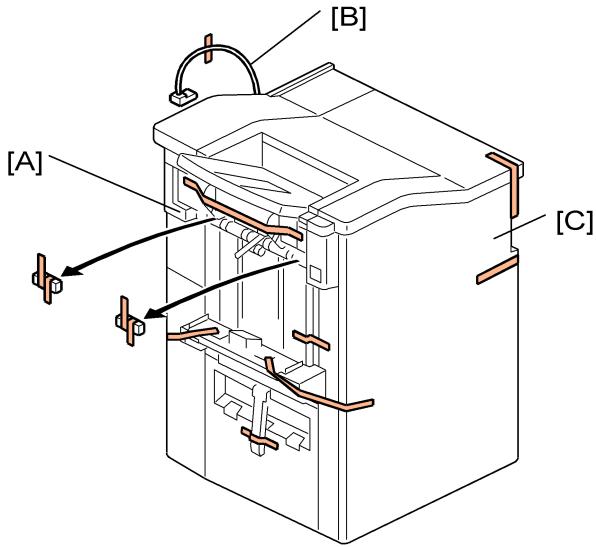
- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

## Tapes, Retainers, Shipping Plates

### Important

- The shipping plates prevent the staple unit from moving during transport. The plates should be kept and re-attached before the unit is transported to another location.

1



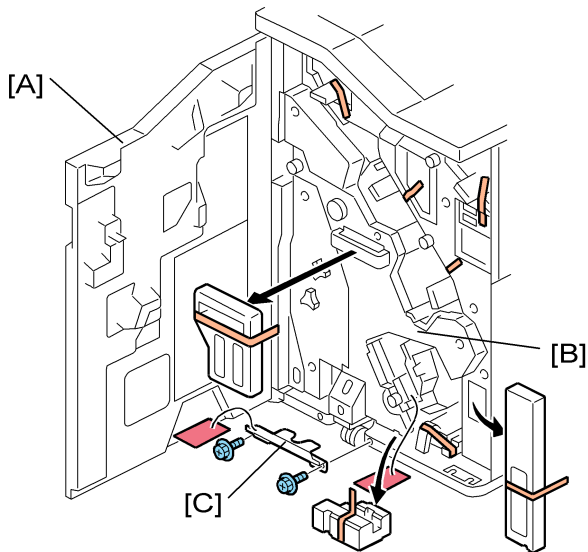
d434i101

1. Remove tapes:

[A] Left

[B] Rear

[C] Front



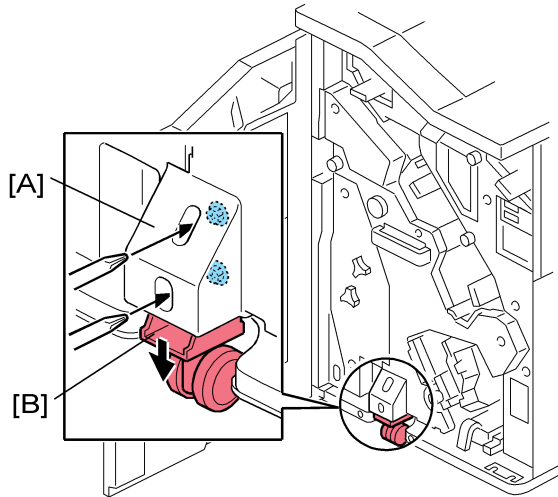
d434i102

2. Open the front door [A].

3. Remove:

[B] Tapes, retainers inside

[C] Tag, wire, shipping plate (⚙️ x2)

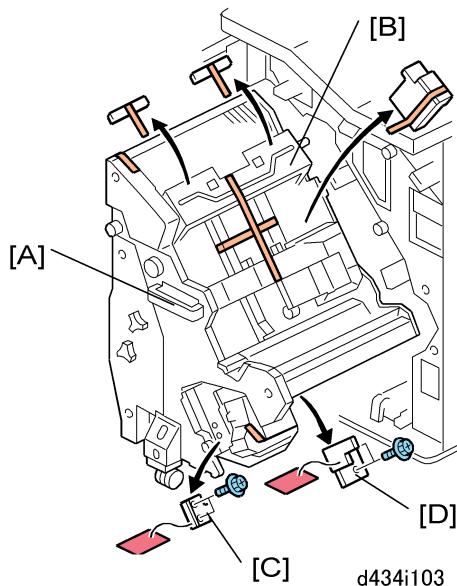


d434i102a

4. Loosen the screws of the caster cover [A] (⚙️ x2).
5. Push the caster [B] down until it touches the floor.
6. With the caster touching the floor, tighten the caster cover screws.

### **⚠️ CAUTION**

- This prevents the unit from tipping over when you pull out the staple unit.



d434i103

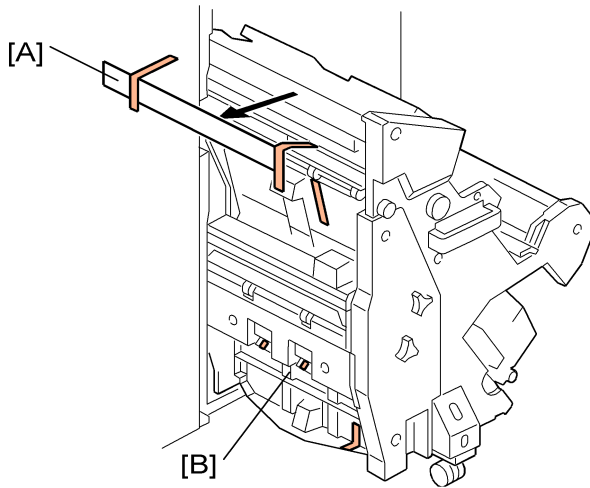
7. Grip handle [A] and slowly pull the staple unit out until it stops.

8. Remove:

[B] All tapes, retainers

[C] Tag, wire, shipping plate (⚙️ x2)

[D] Tag, wire, shipping plate (⚙️ x2)



d434i104

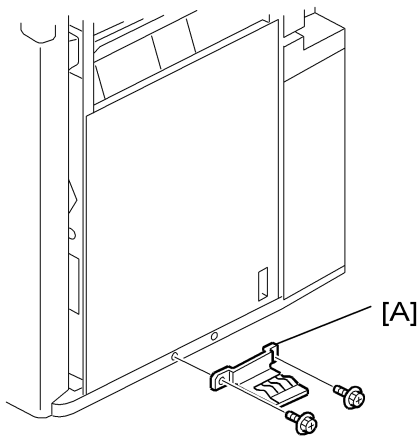
9. Remove:

[A] Tapes, retainer

[B] Tapes

## Ground Plate, Sponge Strip

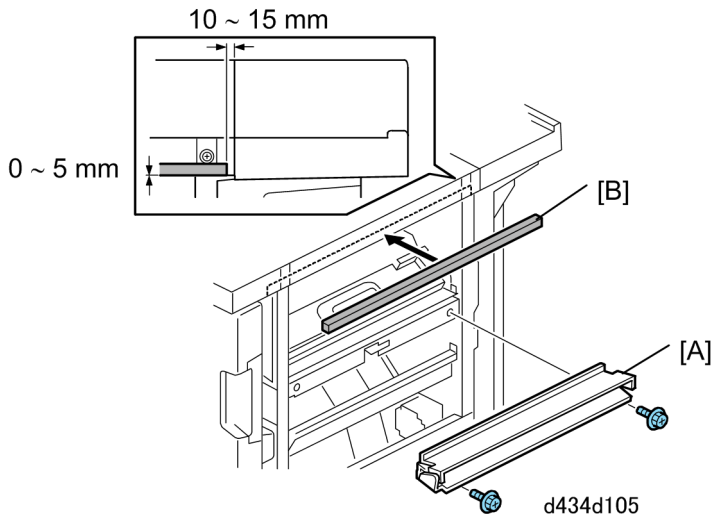
---



d434i106



1. Attach the ground plate [A] to the bottom right edge of the unit (⌀ x2).



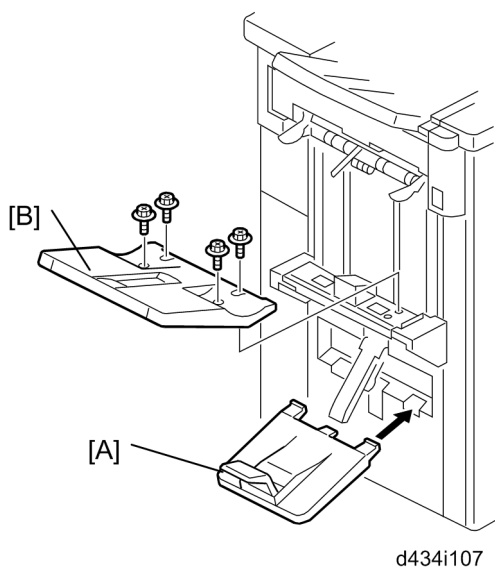
2. Attach paper guide [A] (⌀ x2).

**★ Important**

- If the upstream peripheral device is the Cover Interposer Tray (B835) or the Decurl Unit DU5000 (D457), attach the black mylar provided with the cover interposer tray or decurl unit to this paper guide.

3. Peel the tape from the sponge strip [B] and attach the strip to the top right edge of the unit.

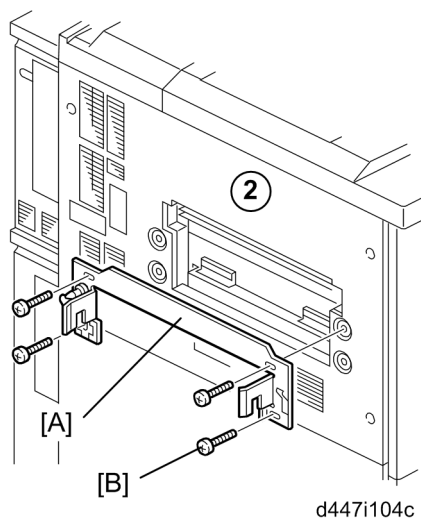
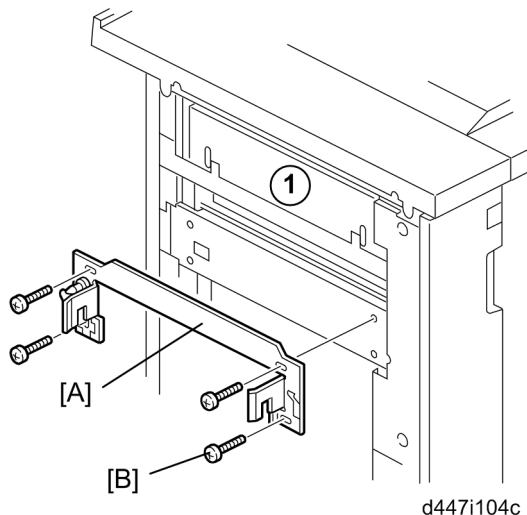
## Booklet Tray, Shift Tray



1. Attach the booklet tray [A] to the notch in the left cover (no screws).
2. Attach the shift tray [B] to the left side of the unit (⚙ x4 M3x8).

1

Docking

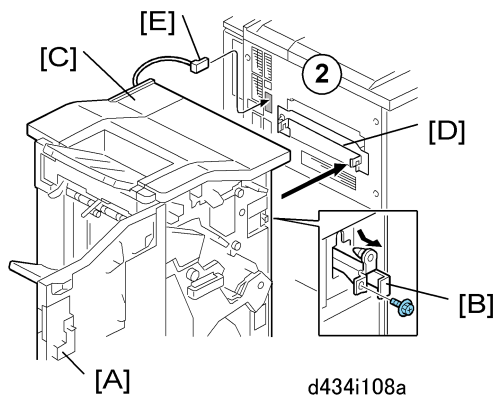
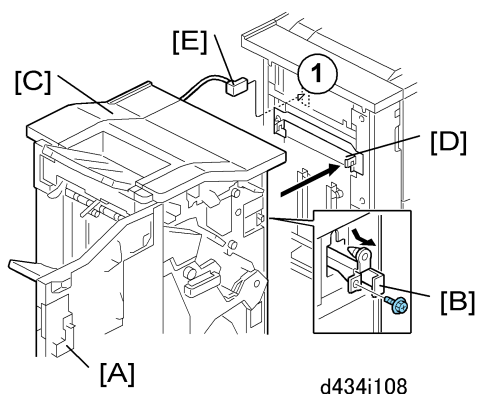


Note

- In the illustration above, ① is the Decurl Unit (D457) and ② is the main machine.
1. Fasten the joint bracket [A] to the upstream unit (⚙ x4).
    - If this unit is to be installed on the left side of the Multi Folding Unit (D454), use three M4x20 screws and one M4x14 screw. M4x20 screws are provided with the Multi Folding Unit (D454).

★ Important

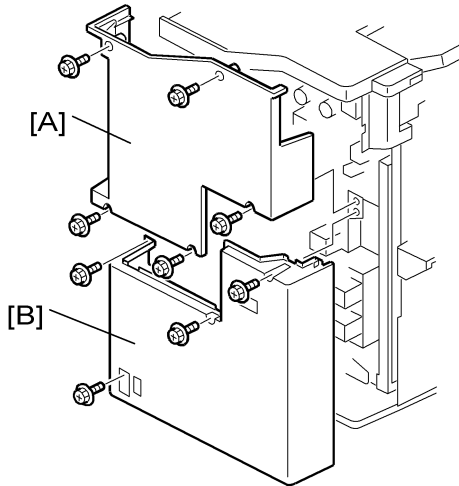
- The screw [B] (front-lower) must be "M4x14". The other three screws must be "M4x20". Otherwise, these screws may interfere with the upstream unit.



↓ **Note**

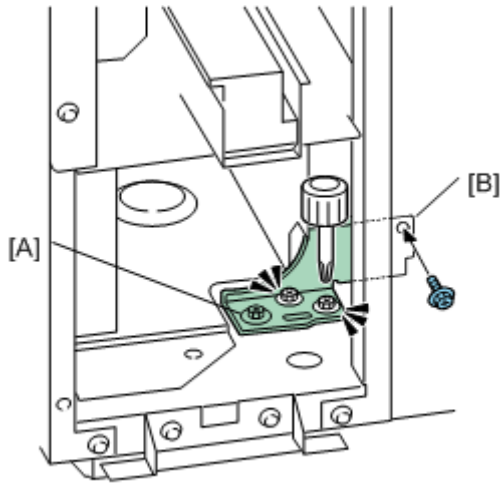
- In the illustration above, ① is the Decurl Unit (D457) and ② is the main machine.

2. Open the front door [A] of the unit.
3. At the front right corner, remove the screw of the lock bar [B] (⌀ x1 M3x6). **Keep this screw.**
4. Pull the lock bar toward you until it stops.
5. Slowly push the unit [C] against the left side of the upstream unit (or main machine) so that the lock bar is directly and squarely under the arms of the joint bracket [D].
6. Push the lock bar in completely so that it slides up into the notches in the arms on both ends of the joint bracket.
7. Fasten the lock bar by re-attaching the screw removed in **Step 2.** (⌀ x1)
8. Attach the I/F cable [E] to the upstream unit.



d434i109

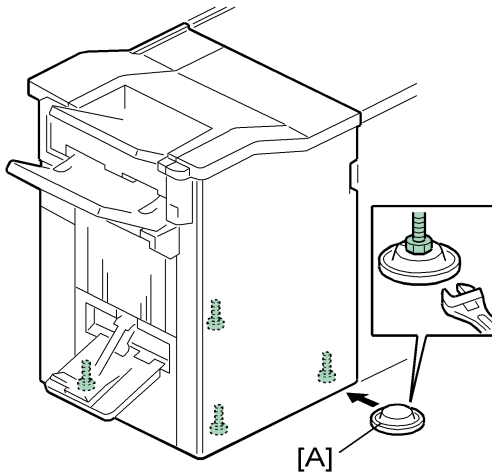
9. Remove:
  - [A] Rear upper cover (⌀ x5)
  - [B] Rear lower cover (⌀ x4)



d457i110

10. Use a short screwdriver to loosen bracket [A] (⚙ x3).
11. Fasten the bracket to the upstream unit at [B] (⚙ x1).
12. Tighten the screws (⚙ x3).
13. Re-attach the rear covers.

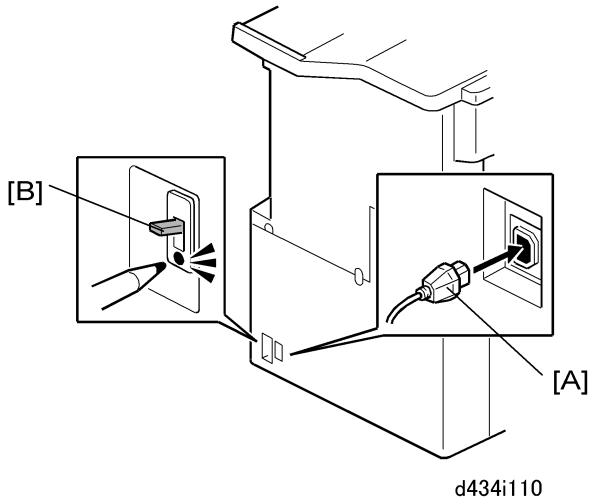
## Height Adjustment



d434i111

1. Set the leveling shoes [A] (☛ p.196 "Common Adjustments").
2. Adjust the height of the unit and make sure that it is level. .

## Power Cord, Breaker Switch Test



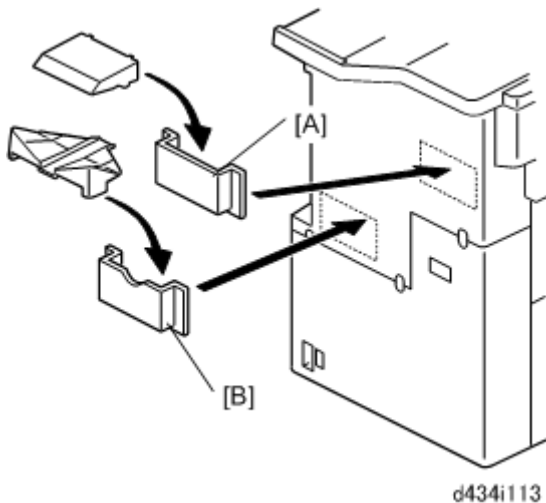
1. Insert the socket of the power cord [A] into the power connection point.

### ★ Important

- In case of using this unit in China, do not use the power cord in the accessories of the Booklet Finisher SR5020 (D434). Ask your supervisor and use a power cord specified for China's usage.

2. Connect the power supply cord plug into a power outlet.
3. Test the breaker switch [B] (☛ "Installation" > "Common Adjustments" > "Breaker Switch Testing").

## Auxiliary Trays



1. Attach to the rear cover:

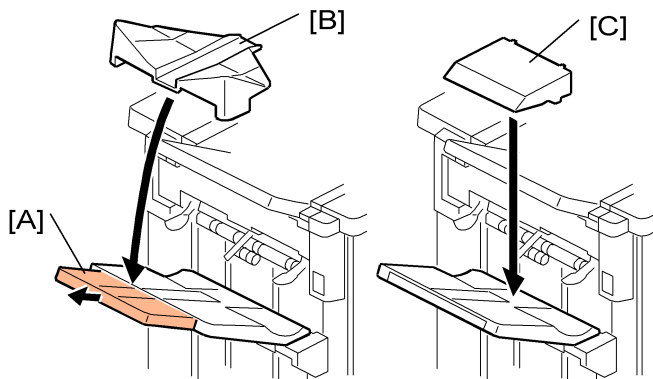
[A] Z-fold auxiliary tray holder, and tray

[B] Glossy paper auxiliary tray holder, and tray

**Note**

- These tray holders can be installed on the front door if the auxiliary trays will be used frequently.

2. Instruct the operator about when to use these auxiliary trays, as explained below.



- Before feeding glossy paper, pull out the extension [A] of the shift tray and mount the glossy paper auxiliary tray [B].
- Before feeding Z-folded paper from the Multi Folding Unit (D454), set the Z-fold auxiliary tray [C] on the shift tray.

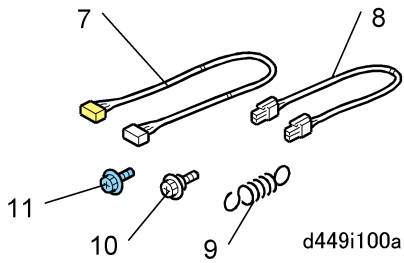
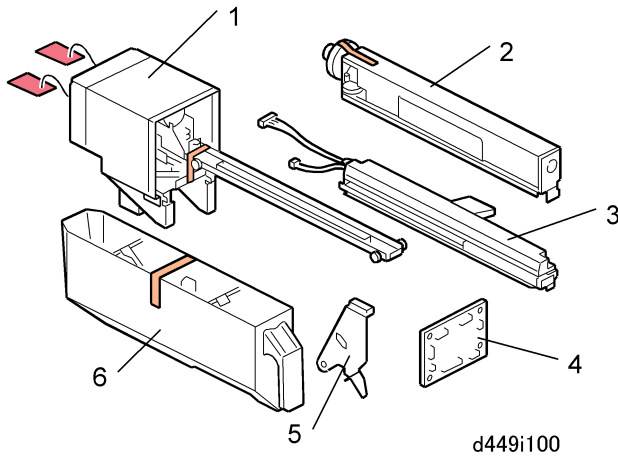
### Check for Skew and Correct Side-to-Side Registration

1. Load some A3/DLT paper in Tray 2 of the main machine.
2. Make several copies that will exit to the shift tray.
3. Watch each sheet as it exits the machine to check for the presence of skew, and check that the side-to-side registration is correct. (☛ p.196 "Common Adjustments")

### Punch Unit PU5020 NA, EU, SC (D449-17, -27, -28)

#### Accessories

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



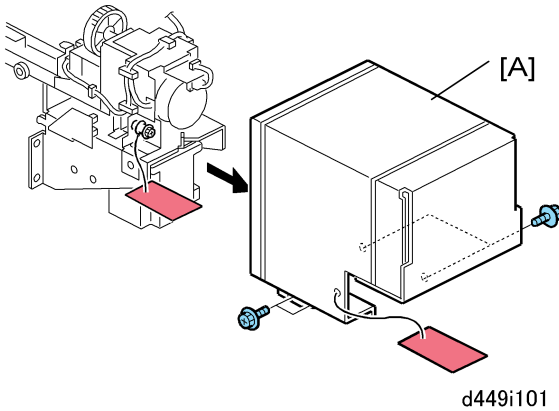
No.	Description	Q'ty
1.	Punch Drive Unit	1
2.	Punch Unit	1
3.	Punch Registration Unit	1
4.	Punch Control Board	1
5.	Sensor Arm and Sensor	1
6.	Punch-out Hopper	1
7.	Harness: Long	1
8.	Harness: Board Relay	1
9.	Spring	1
10.	Step Screw	1
11.	Screws M3x6	9

## Installation

### ⚠ CAUTION

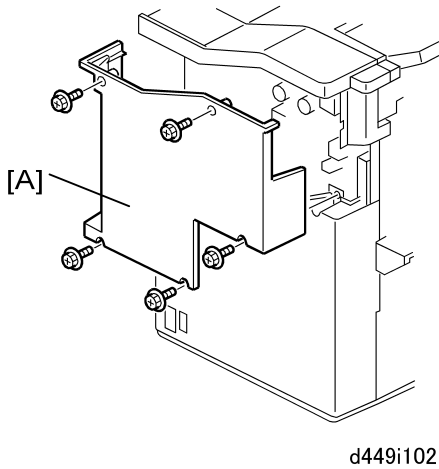
- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

### Shipping Materials



1. Remove motor protector plate [A] (⚙ x4).

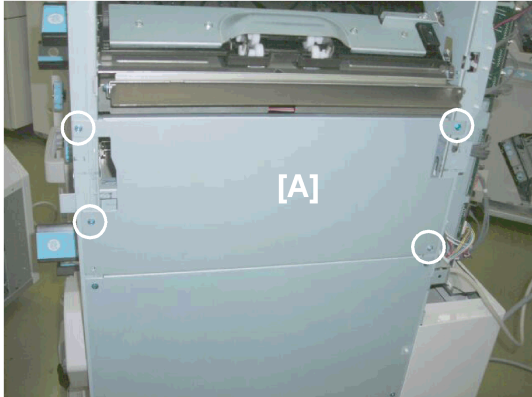
### Rear Cover



1. Remove upper rear cover [A] (⚙ x4).



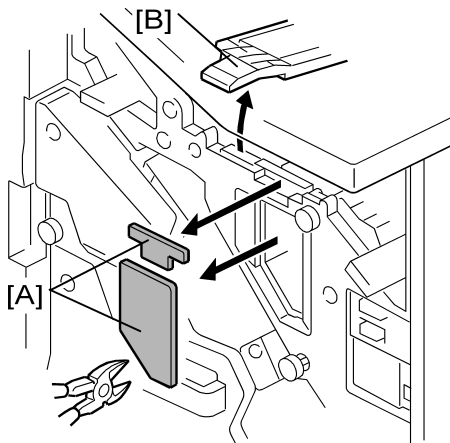
## Right Upper Panel



d449i117

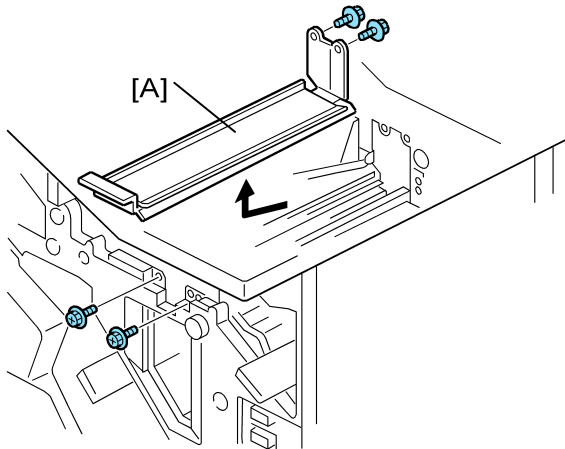
1. Remove the right upper panel [A] (⚙️ x4).

## Punch Registration Unit



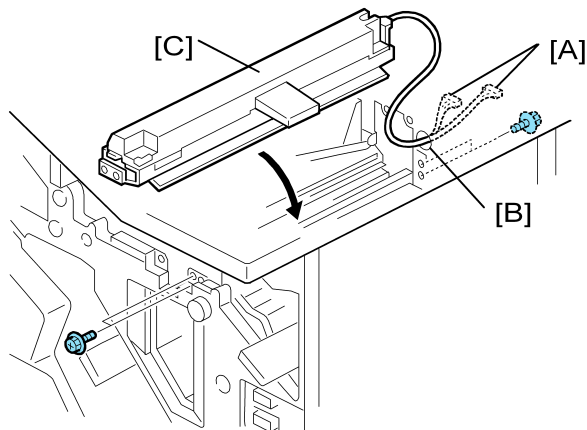
d449i103

1. Use a pair of nippers to remove knockouts [A].
2. Raise and open lever "RB3" [B].



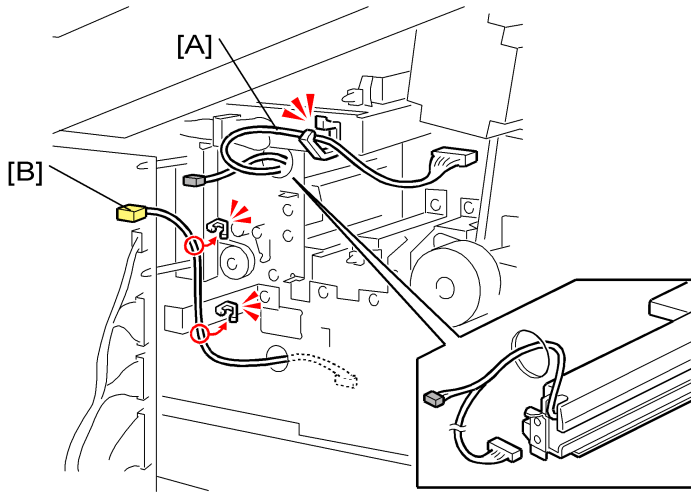
d449i104

3. Remove plate [A] and discard it (⚠ x4).



d449i105

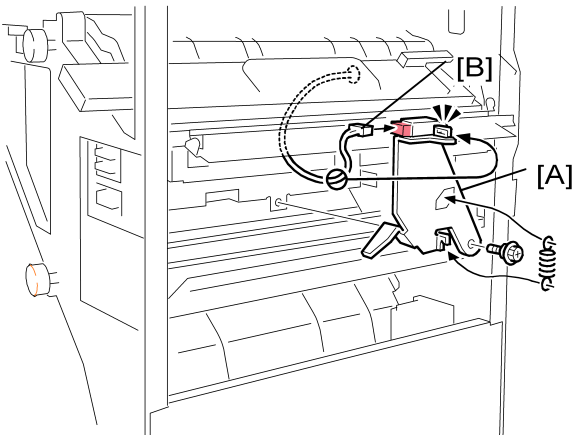
4. Insert the harness connectors [A] through the hole [B].
5. Make sure the harness connectors are through the hole completely and visible at the rear of the machine.
6. Set and fasten the punch registration unit [C] (⚠ x4, 2 screws each at front and back).



d449i106

7. Clamp harness [A] (🔧 x1).
8. Clamp harness [B] (🔧 x2).

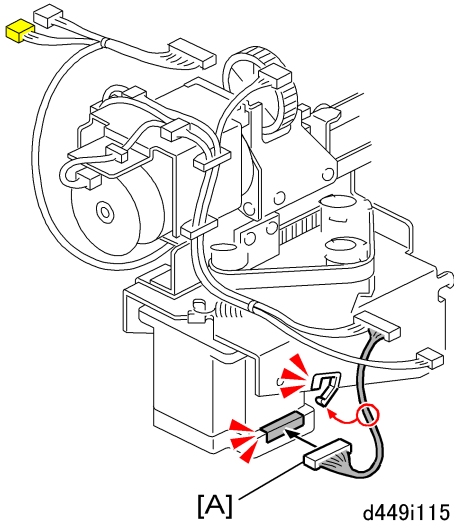
### Sensor Arm



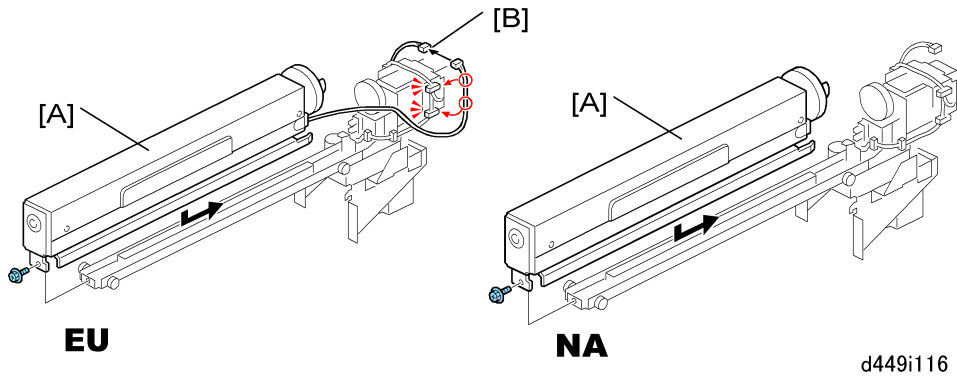
d449i107

1. Attach sensor arm [A] (🔩 x1 Step Screw, Spring x1).
2. Make sure the sensor arm swings freely on the step screw and spring.
3. Attach harness [B] to the sensor on top of the arm.

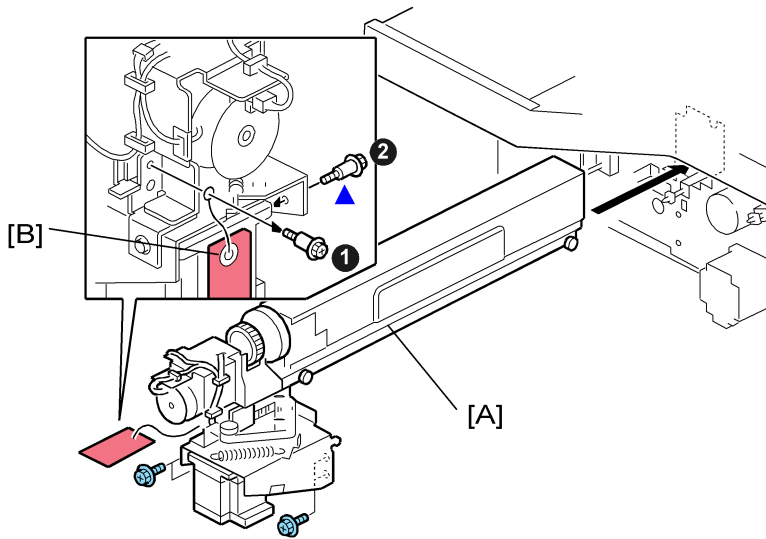
## Punch Drive Unit, Punch Unit



1. On the punch unit, connect harness [A] (🔌 x1, 🗑️ x1).



2. Attach the punch mechanism [A] to the rails of the punch unit (🔧 x1).
  - If you are installing the punch unit for Europe, connect the harness [B] (🔌 x1, 🗑️ x2).
  - The punch unit for North America has no punch switching motor, so this harness is not required.

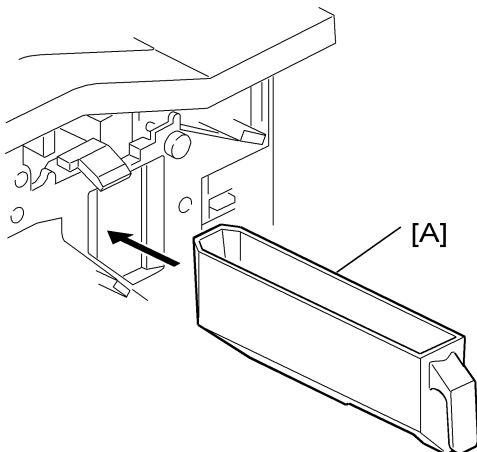


d449i108

3. At the front, insert the punch unit [A] into the finisher and fasten it (⚙ x4).
4. Remove the shoulder screw with red tag [B], and detach the tag and wire.
5. After removing the screw from hole ①, re-attach it at hole ②.

#### ★ Important

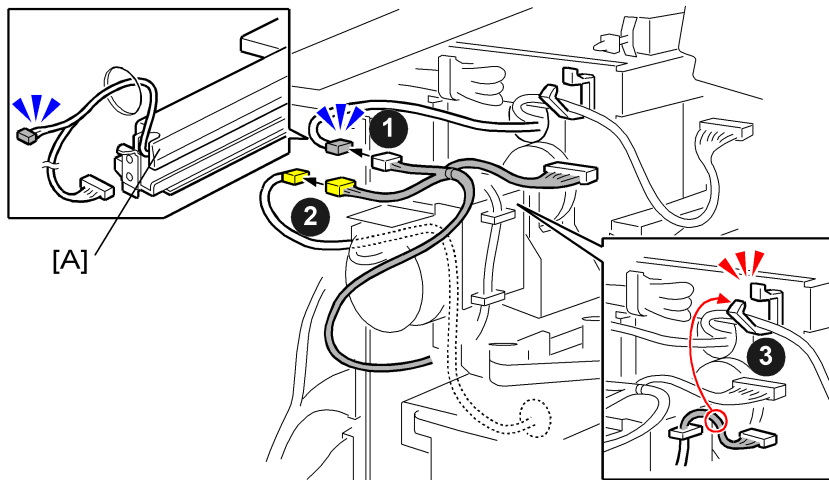
- This screw must remain attached to the punch unit.
- Before removing the punch unit from the finisher, the screw must be removed from hole ② and re-attached at hole ①. This stabilizes the punch unit and prevents it from wobbling from side to side while it is being removed and handled after removal.



d449i109

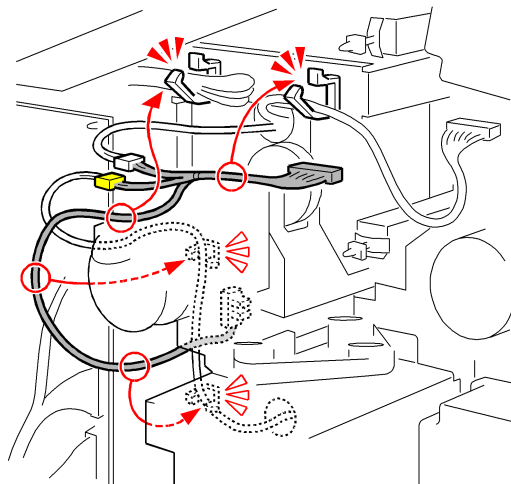
6. At the front, slide the punch-out hopper [A] into the finisher.

1



d449i110

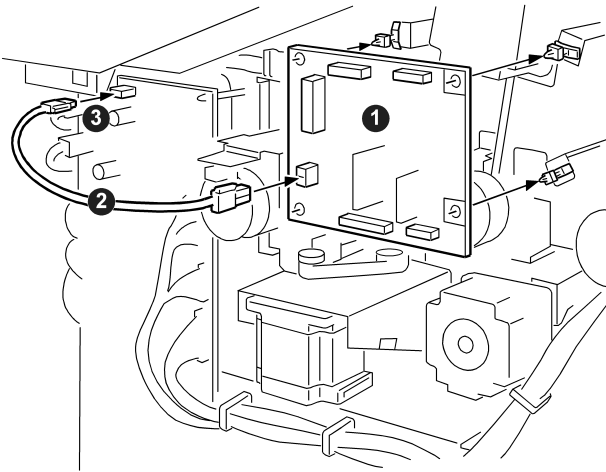
7. Route the harnesses from the CIS unit [A] through the hole.
8. Connect the harnesses at ① and ② (🔌 x2).
9. If you are installing the punch unit for North America, fasten the extra connector (not used) at ③ (🔌 x1).



d449i110a

10. Finish clamping the harnesses as shown above.

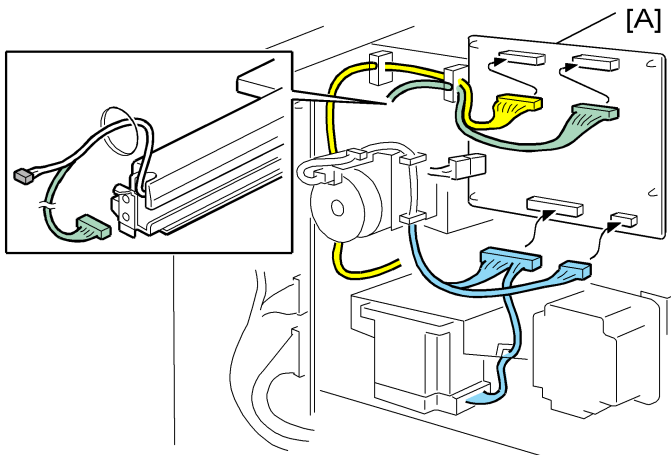
## Punch Control Board



d449i111

1. Install the punch control board ① (Standoffs x4, no screws).
2. Connect the punch relay harness ② to the punch control board and punch main control board ③.

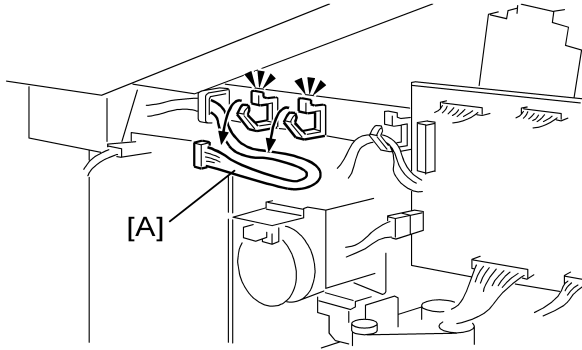
## Final Connection



d449i112

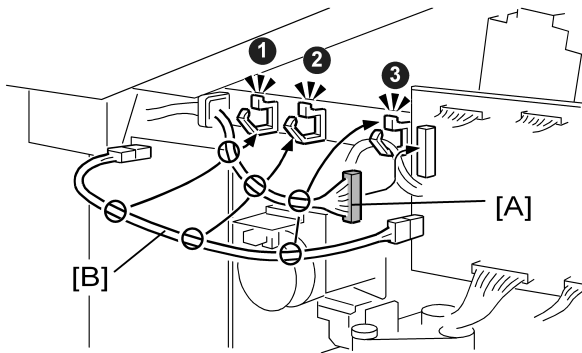
1. Fasten the connectors to the punch unit PCB [A] (Ⓜ x2).

1



449i113

2. Release harness [A] from the frame (🔧 x2).



d449i114

3. Connect harness [A] to the punch control board (🔧 x1).

4. Gather harness [A] and the board relay harness [B] and clamp them (🔧 x3).

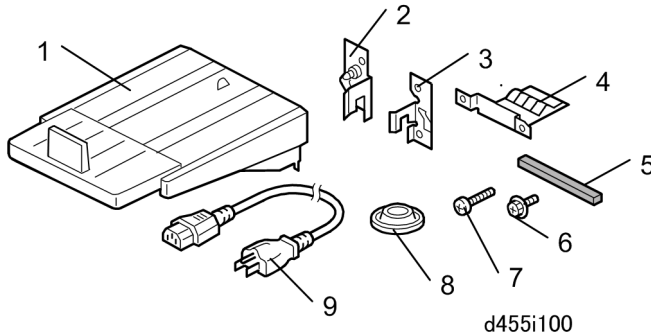


# Trimmer Unit TR5020 (D455-17)

## Accessories

1

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



No.	Description	Q'ty
1.	Output Tray* <sup>1</sup>	1
2.	Joint Bracket – Left (Marked "L")	1
3.	Joint Bracket – Right (Marked "R")	1
4.	Ground Plate	1
5.	Sponges	2
6.	Screws (M3x6 for Ground Plate)	2
7.	Screws (M4x10 for Joint Bracket)	4
8.	Leveling Shoes	4
9.	Power Cord	1

\*1: Screws (x2) for the output tray are attached to the left side of the unit.

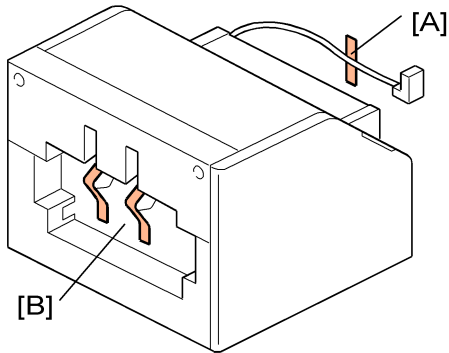
## Installation

### **⚠ CAUTION**

- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

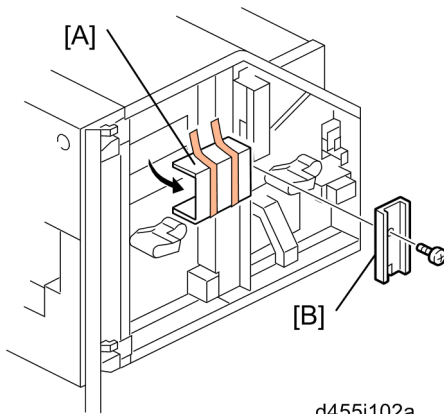
## Tapes, Stopper Plate

1



d455i101

1. Remove the tape on the right side to free the I/F cable [A].
2. Remove the tape from the left side [B].



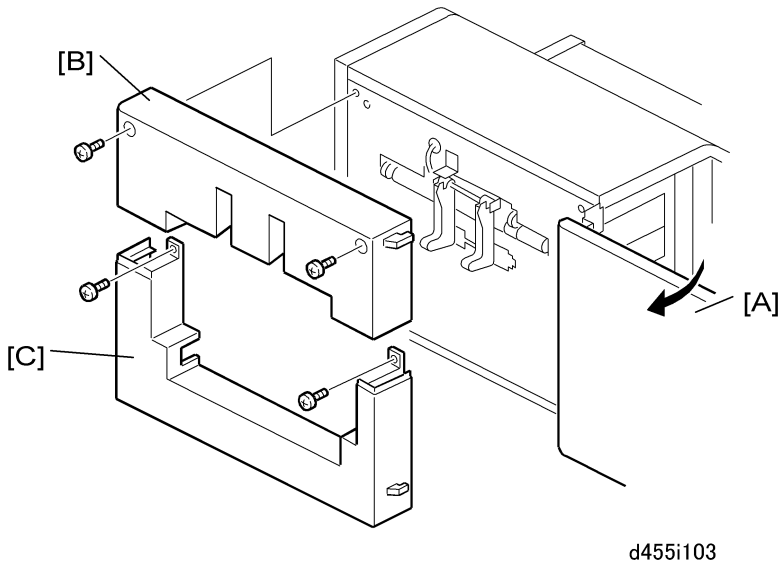
d455i102a

3. Open the front door and remove the retainer [A].
4. Remove the stopper plate [B] (⚙️ x1).

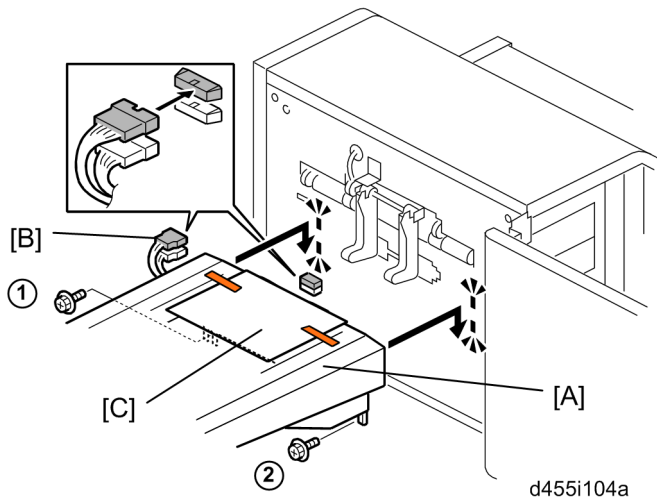
### ⚠️ Note

- Keep the stopper plate. It should be re-installed before transporting the unit to a new location.

## Output Tray



1. Make sure that the front door [A] is open.
2. Remove:
  - [B] Left upper cover ( ① x2)
  - [C] Left lower cover ( ① x2)



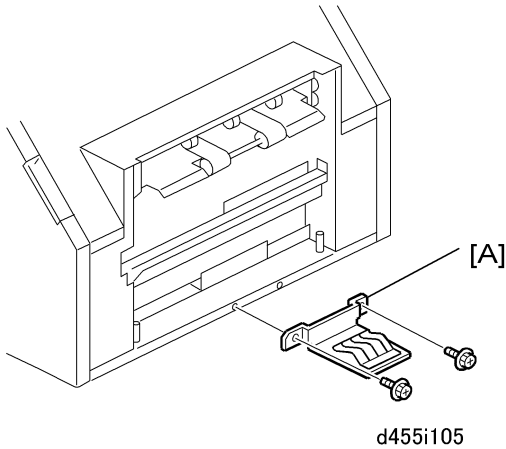
3. Remove the screws ① and ② from the left side.
4. Use the removed screws to attach the output tray [A].
5. Connect the output tray at [B].
6. Remove the sheet [C] of paper.

- Do not remove this sheet [C] of paper before connecting the output tray to the trimmer unit.
7. Reattach the left lower cover and left upper cover.

# 1

## Ground Plate

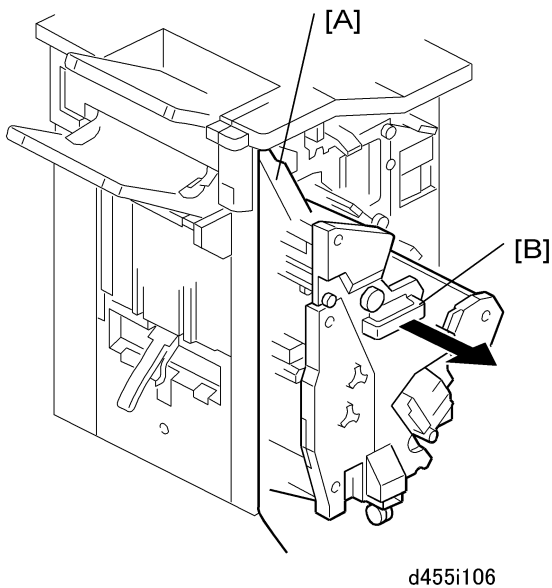
---



1. Attach the ground plate [A] to the right bottom edge (⚙ x2 M3x6).

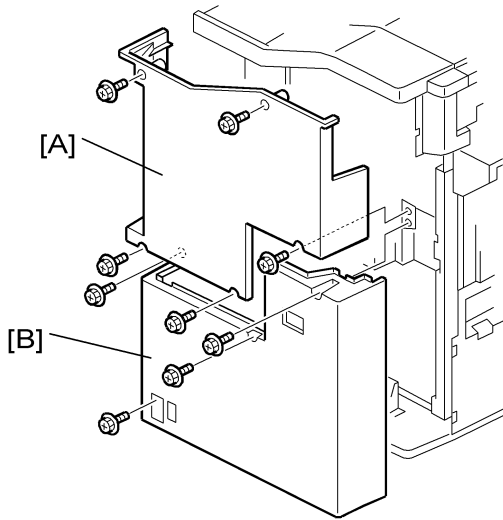
## Preparing the Booklet Finisher (D434) for Docking

---



1. Open the front door [A] of the finisher.

2. Pull out the staple unit [B].

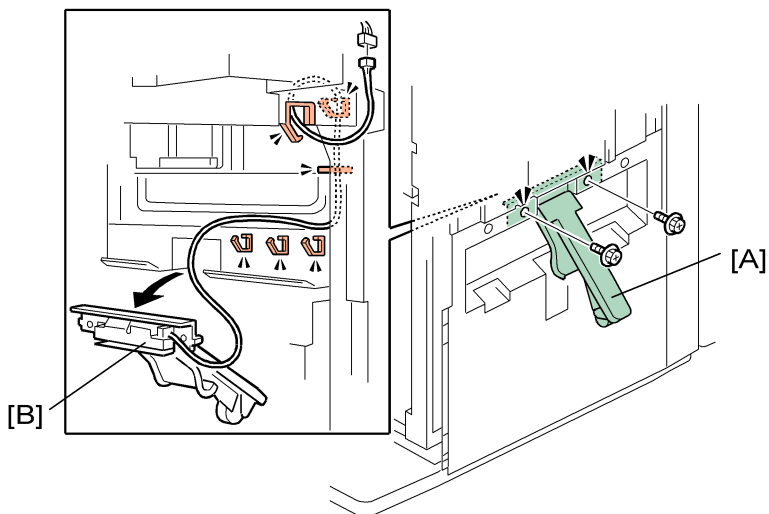


d455i107

3. At the rear of the finisher, remove:

[A] Rear upper cover (⚙️ x5)

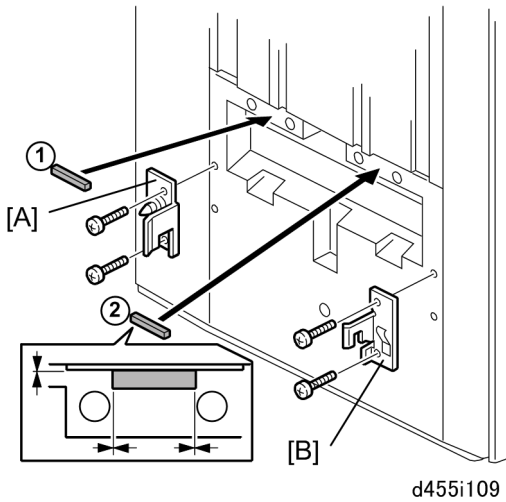
[B] Rear lower cover (⚙️ x4)



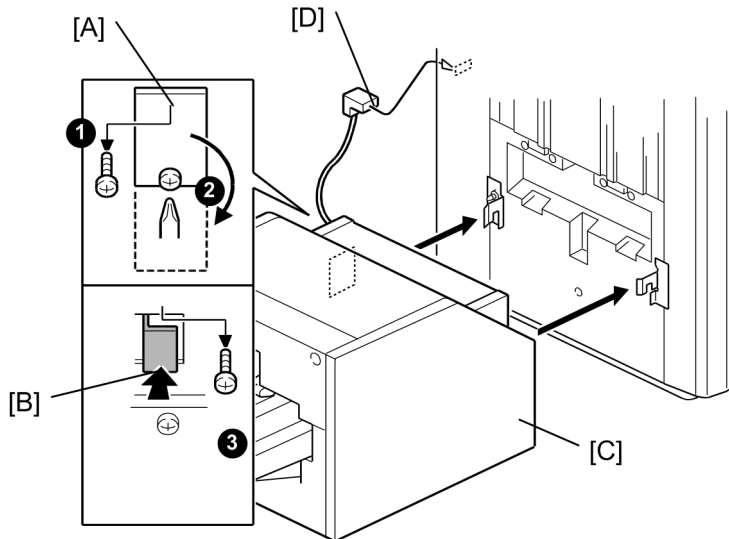
d455i108

4. Unfasten the booklet tray sensor actuator arm [A] (⚙️ x2).
5. Disconnect the actuator arm [B] and remove it (⚙️ x5, 🛠️ x1).
6. Store the actuator arm in a safe location for future use.
7. Reinstall the rear upper and lower cover.

## Docking

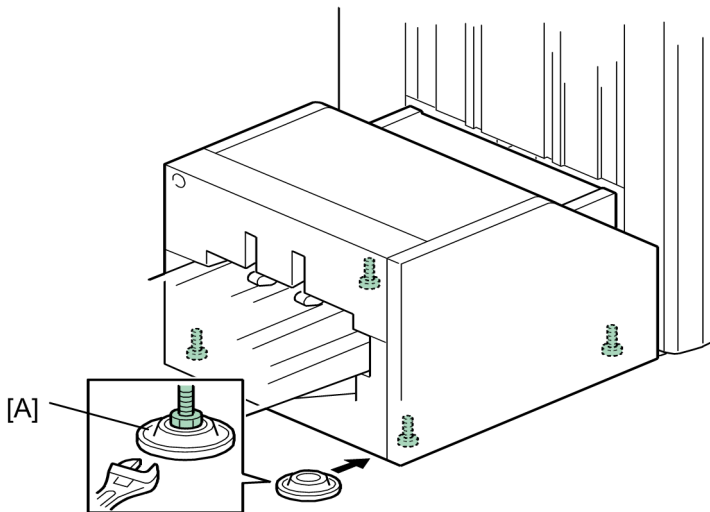


1. Attach:
  - [A] Left joint bracket, marked "L" (🔩 x2, M4x10)
  - [B] Right joint bracket, marked "R" (🔩 x2, M4x10)
2. Peel the tape from the back of the sponges and attach sponge ① and ②.



3. At the rear, remove screw ① from plate [A].
4. Loosen screw ② and lower the plate so you can see the lock bar [B].
5. Remove lock bar screw ③ (🔩 x1 M3x6). **Keep this screw.**

6. Push the lock bar [B] until it is unlocked.
7. Slowly push the unit [C] against the left side of the finisher so that the lock bar is directly and squarely under the arms of the joint brackets.
8. At the rear, pull lock bar [B] toward you so that it slides up into the notches in the arms of the joint brackets.
9. Fasten the lock bar by re-attaching the screw removed in Step 5. (⚙ x 1).
10. Connect the unit I/F cable [D] to the finisher.
11. Connect the plug of the power cord to the power source.



d455i111

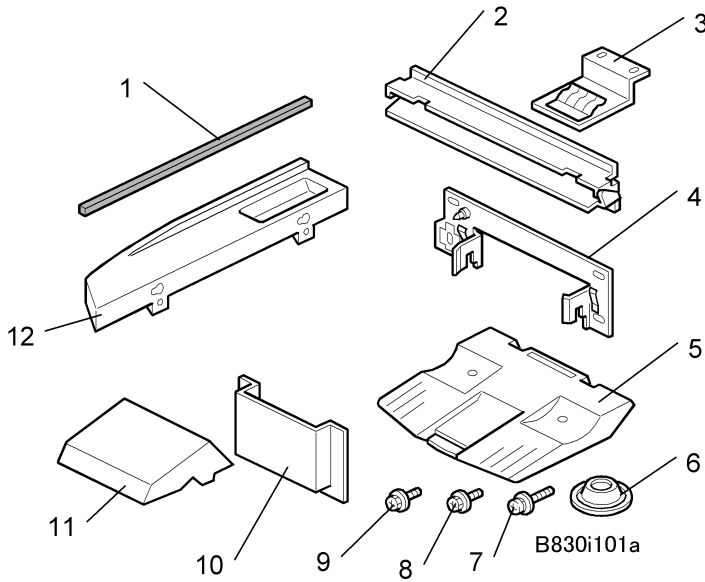
1. Set a leveling shoe [A] under each corner of the unit.
2. At each corner, turn the nut to lower the bolt onto each shoe.
3. Use a level to check each side of the unit.
4. Turn each nut to adjust the height of each corner until each side is level.

# Finisher SR5000 (B830)

## 1

### Accessories

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



No.	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



No.	Description	Q'ty
11.	Support Plate	1
12.	Side Tray	1
-	Support Plate for Proof Tray	1

---

## Installation

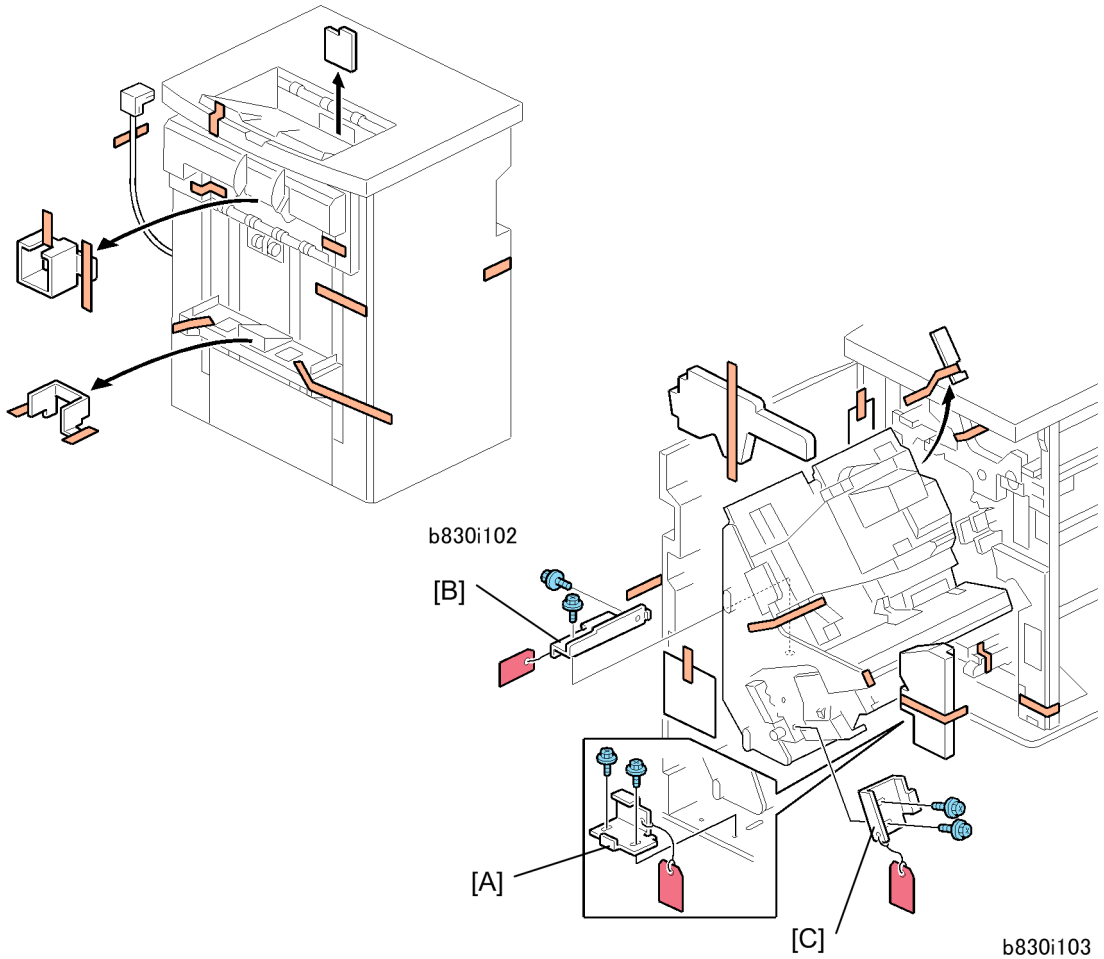
---

### CAUTION

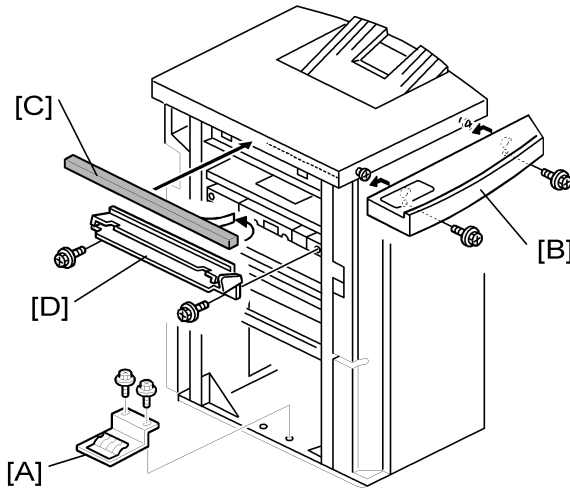
- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

## Preparing the Finisher

1



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] (🔩 x 2 each).



b830i105

4. Install the ground plate [A] (🔩 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 [B] (🔩 x 2) (M4 x 8).

↓ **Note**

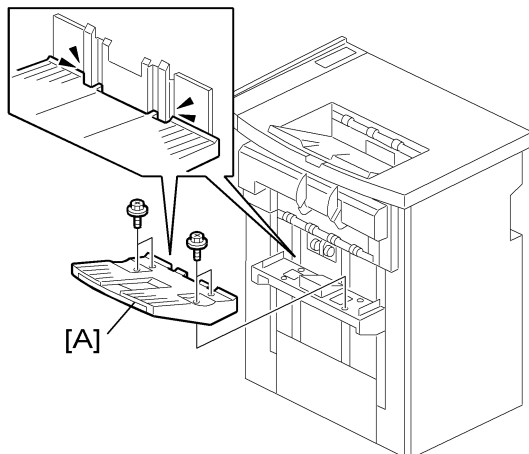
- The edge of the table extension should be aligned with the edge of the finisher.

6. Attach the cushion [C] to the right side of the upper cover.

7. Install the entrance guide plate [D] (🔩 x 2) (M3 x 6).

★ **Important**

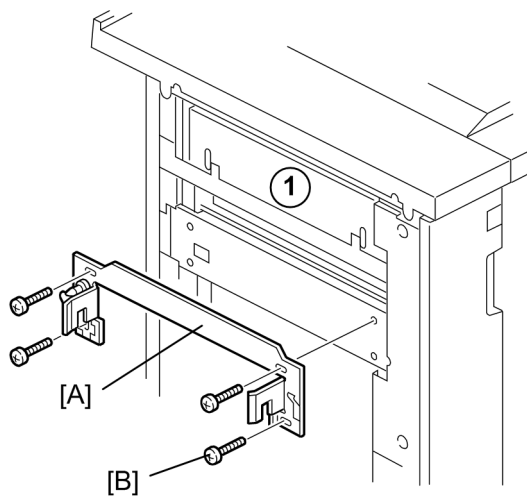
- If the upstream peripheral device is the Cover Interposer Tray (B835) or the Decurl Unit DU5000 (D457), attach the black mylar provided with the cover interposer tray or decurl unit to this paper guide.



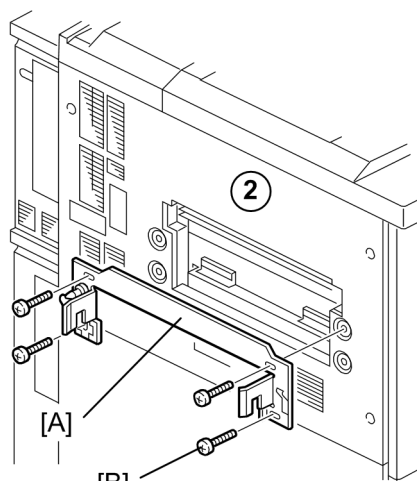
b830i109

8. Insert the shift tray [A] into the grooves and fasten it (⌀ x 4) (M3 x 6).

## Docking



d447i104c



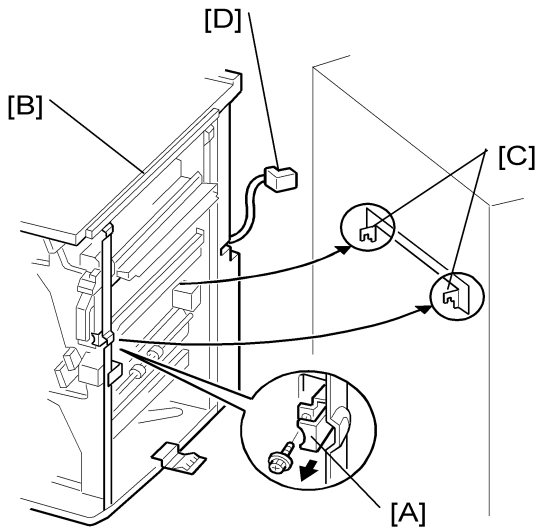
d447i104c

1. Fasten the joint bracket [A] to the upstream peripheral unit (① is the decurl unit, as an example, and ② is the main unit).

- If this unit is to be installed on the left side of the Multi Folding Unit (D454), use three M4x20 screws and one M4x14 screw. M4x20 screws are provided with the Multi Folding Unit (D454).

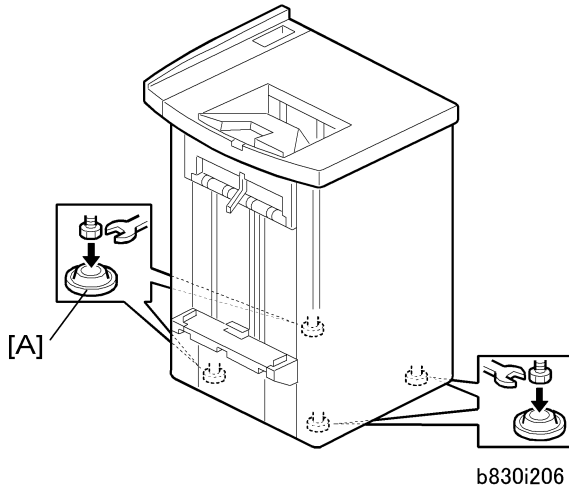
### ★ Important

- The screw [B] (front-lower) must be "M4x14". The other three screws must be "M4x20". Otherwise, these screws may interfere with the upstream unit.



b830i202

2. Open the front door of the unit.
3. At the front right corner, remove the screw of the lock bar [A] (⌀ x1 M3x6). **Keep this screw.**
4. Pull the lock bar toward you until it stops.
5. Slowly push the unit [B] against the left side of the upstream unit (or main machine) so that the lock bar is directly and squarely under the arms of the joint bracket [C].
6. Check that the top edges of the finisher are parallel with edges of the upstream unit (or main machine) to the right.
7. Push the lock bar in completely so that it slides up into the notches in the arms on both ends of the joint bracket.
8. Fasten the lock bar by re-attaching the screw removed in **Step 3.** (⌀ x1)
9. Connect the finisher I/F cable [D] to the main machine
10. Close the front door.



11. Set the leveling shoes [A] (☛ p.196 "Common Adjustments").
12. Adjust the height of the unit and make sure that it is level (☛ p.196 "Common Adjustments").

---

### Check for Skew and Correct Side-to-Side Registration

---

1. Load some A3/DLT paper in Tray 2 of the main machine.
2. Make several copies that will exit to the shift tray.
3. Watch each sheet as it exits the machine to check for the presence of skew, and check that the side-to-side registration is correct. (☛ p.196 "Common Adjustments")

---

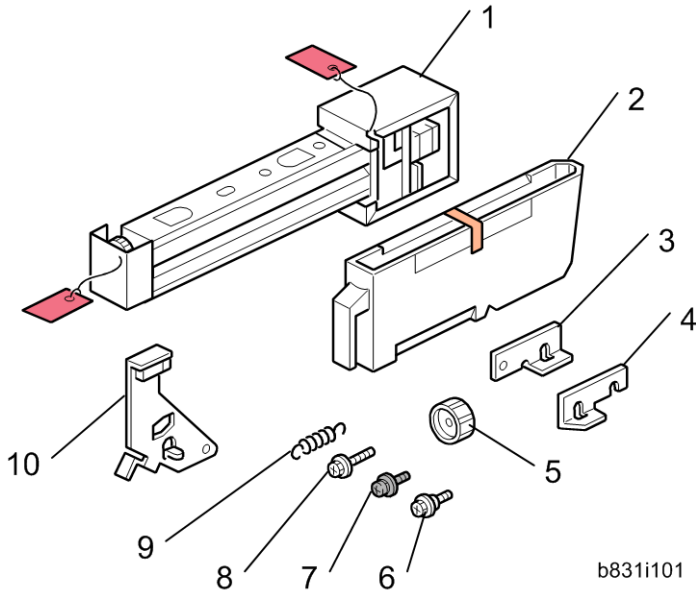
### Punch Unit PU5000 NA, EU, SC (B831-01, -02, -03)

---

#### Accessories

---

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



No.	Description	Q'ty
1.	Punch Unit	1
2.	Punch-out 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

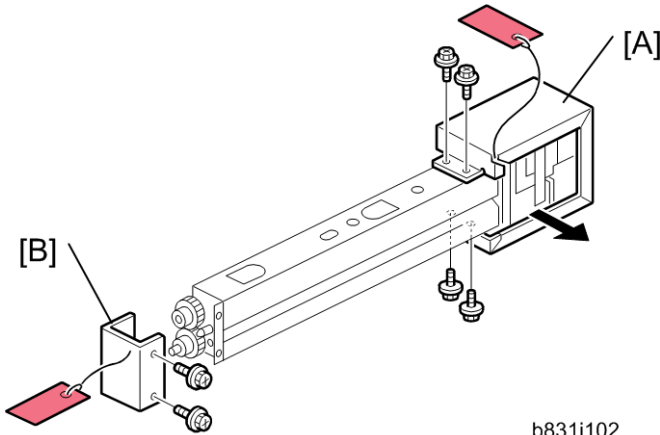
## Installation

### **⚠ CAUTION**

- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

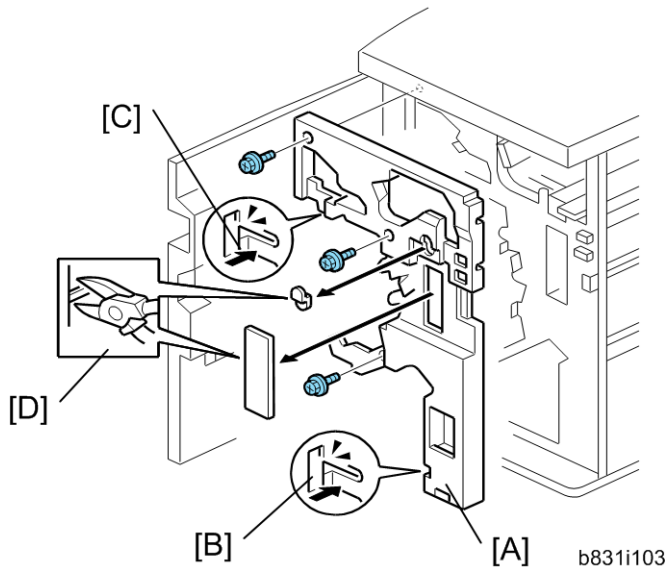
**★ Important**

- This punch unit cannot be used with the D061 main machine (135 cpm).



b831i102

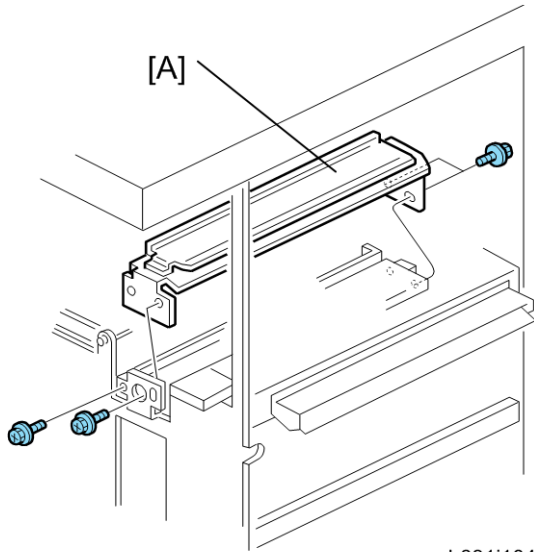
1. If the finisher is connected to the machine, disconnect it.
2. Open the front door and remove the rear cover (⚙️ x 2).
3. Unpack the punch unit and remove the motor protector plate [A] (⚙️ x 4).
4. Remove the cam lock plate [B] (⚙️ x 2).



b831i103

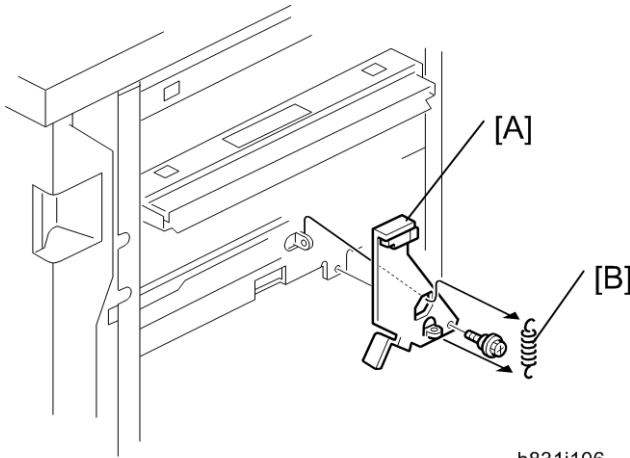
5. Remove the inner cover [A] (⚙️ x 3).
6. Behind the inner cover at [B] and [C], press the lock tab to the right to release the inner cover from the frame.
7. Remove the plastic knockouts [D].





b831i104

8. Remove the paper guide [A] (4).



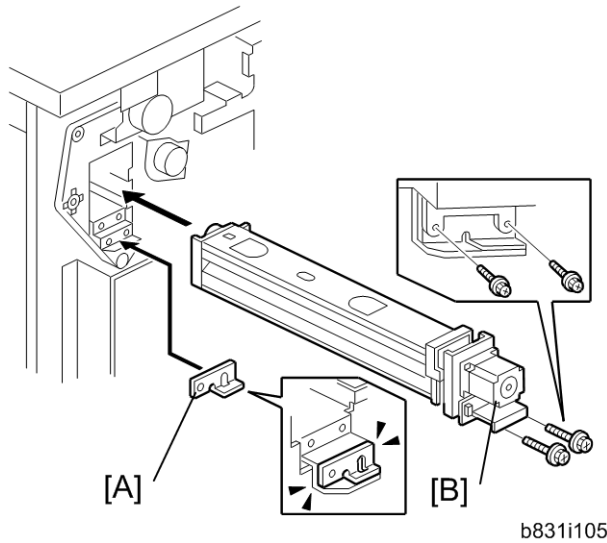
b831i106

9. Install the sensor arm [A] (1, small step screw M3 x 4).

**Note**

- Make sure that the sensor arm swings freely on the step screw.

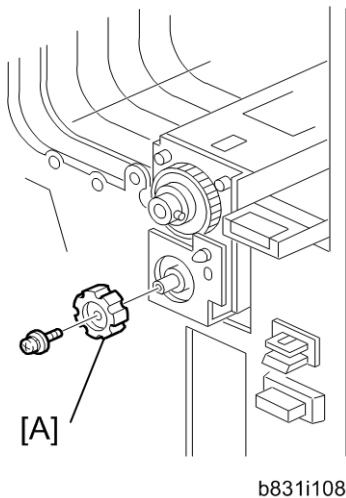
10. Attach the spring [B].



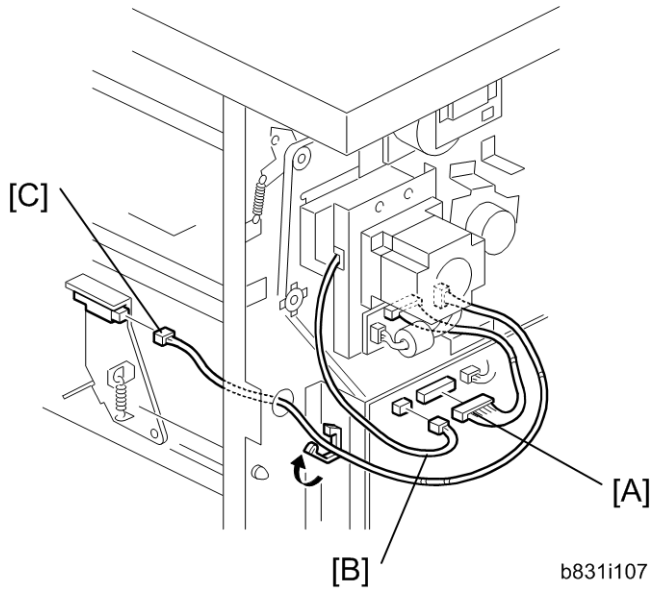
11. Position the 2 mm spacer [A] and attach the punch unit [B] ( $\varnothing$  x 2, M3 x 10).
12. Use one of the screws removed from the motor protector plate to fasten the remaining two spacers to the frame as shown.

**Note**

- These extra spacers can be used to adjust the position of the punch holes (front to rear, across the page).



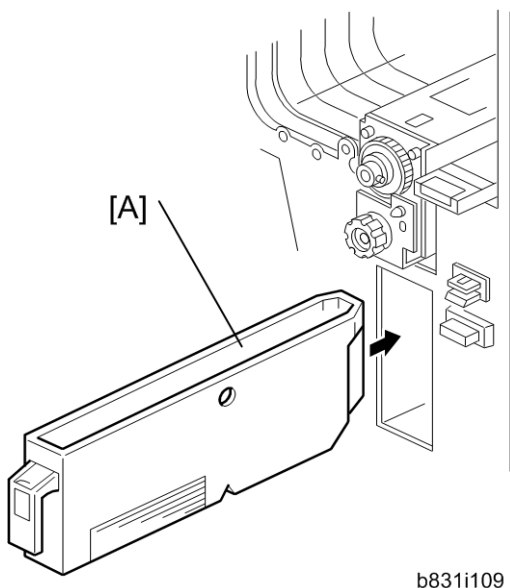
13. At the front, fasten the punch unit knob [A] ( $\varnothing$  x 1).



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 main machine.



17. Slide the punch-out hopper [A] 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.
20. **Only for D061 (135 cpm) model**, the following settings must be done to enable the punch unit:
  - Change the setting value of the SP6-980-001 ("Punch Enable Setting for 135 cpm model) from "0 (OFF)" to "1 (ON)".
  - Select "Slower" or "Slow" in the "Adjust Paper Feed Speed" with "User Tools".

# Key Counter

## Key Counter Bracket

1

### Accessories

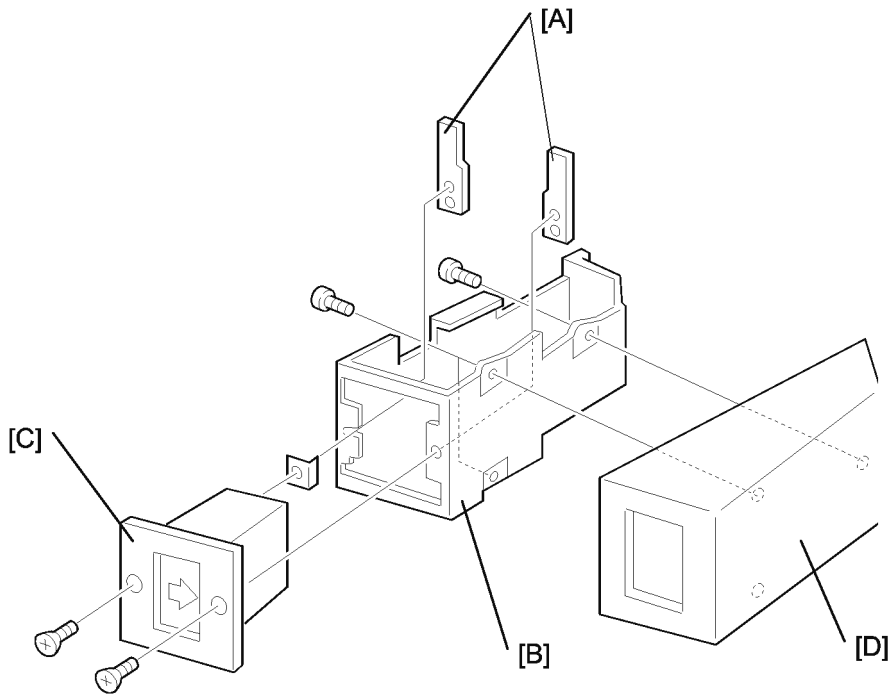
No.	Description	Q'ty
1.	Key Counter Cover	1
2.	Key Counter Plates	2
3.	Key Counter Bracket	1
4.	Machine Screw M3 x 6	1
5.	Shoulder Screw M3 x 4	1
6.	Tapping Screws M4 x 8	3
7.	Machine Screws M3 x 20	2
8.	External Screw M3 x 20	1
9.	Machine Screw (Flathead) M4 x 16	1
10.	Extension Cable (for LCIT Installation)	1
11.	Extension Cable Clamps (for LCIT Installation)	6

### Installation

#### CAUTION

- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

#### Assembling

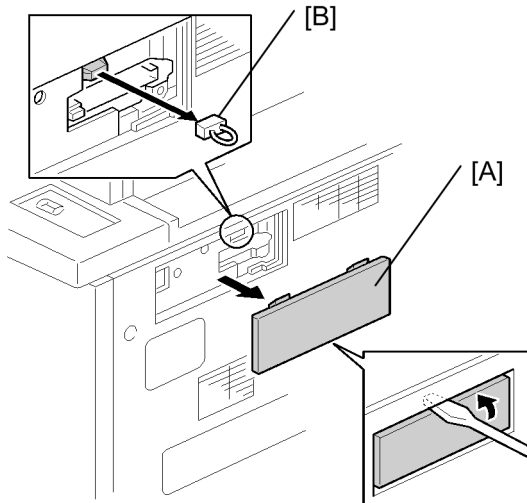


b070i532

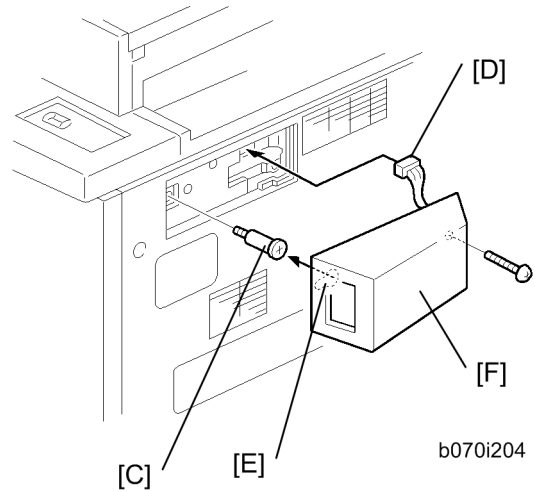
1. While holding the key counter plates [A] inside the key counter bracket [B], insert the key counter holder [C]
2. Fasten the key counter holder [C] through the bracket plate to the counter plates [A] (⌀ x 2).
3. Fasten the cover [D] to the key counter bracket [B] (⌀ x 2).

### Installing the Key Counter

1. Attach the key counter to the main machine if the LCIT is not installed.



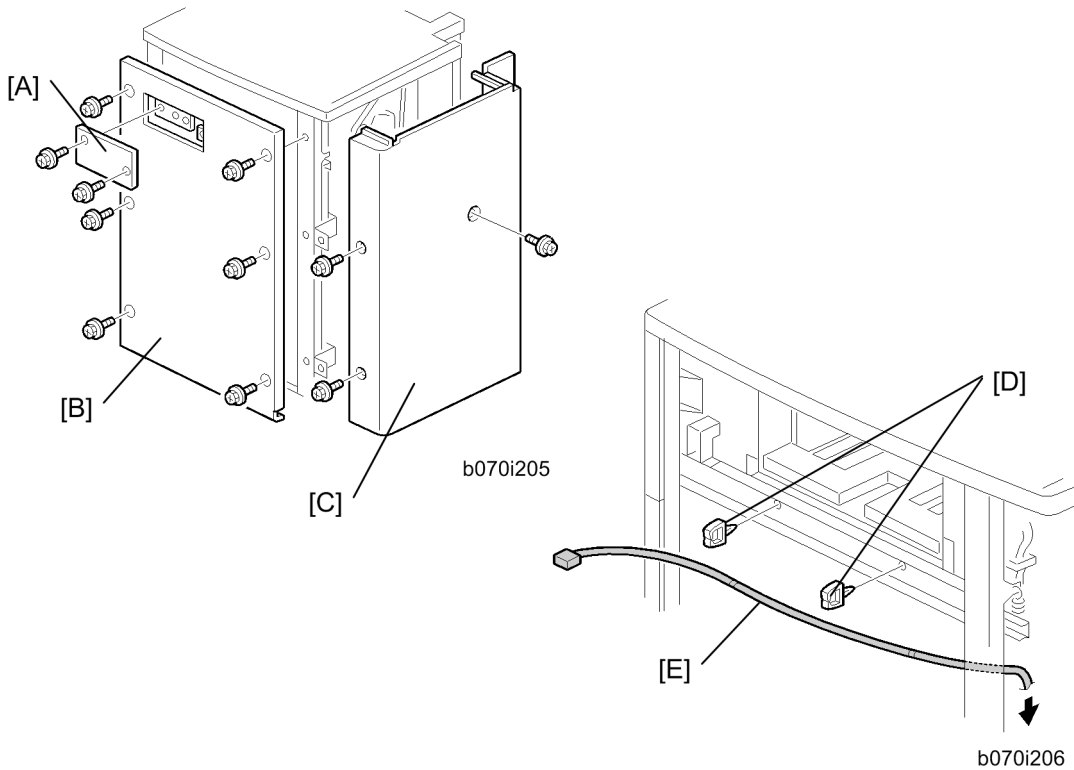
b070i203



b070i204

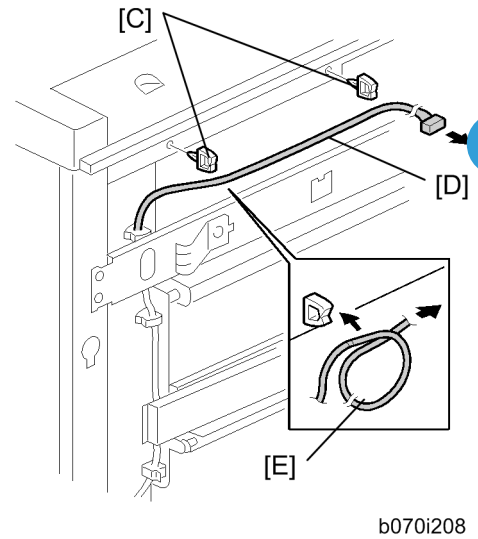
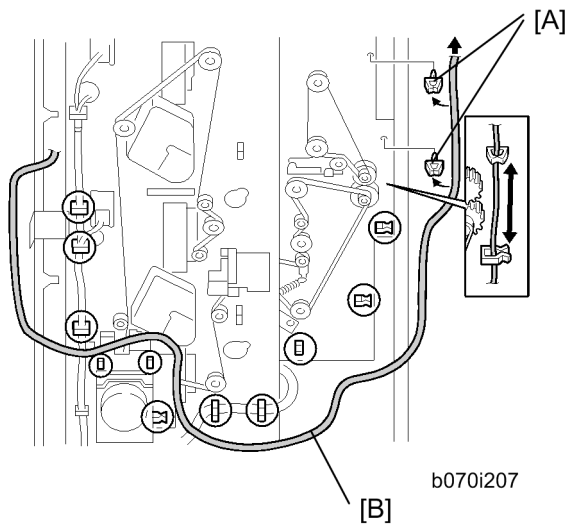
1. On the right side of the main machine, remove the small cover [A].
2. Remove the jumper connector [B].
3. Fasten the shoulder screw [C] to the side of the machine.
4. Connect the key counter assembly [D].
5. Fit the keyhole of the key counter bracket [E] over the head of the shoulder screw, then slide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

### Attaching the Key Counter to the LCIT

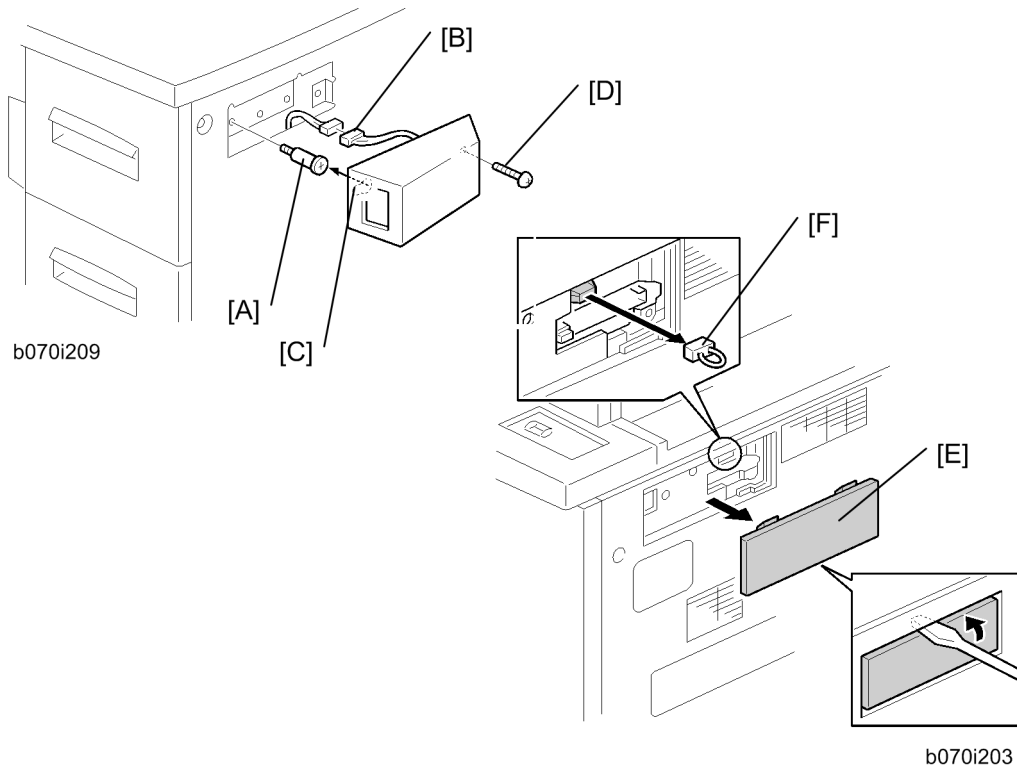


1. On the LCIT right cover, remove the cover [A] (⚙️ x 2).
2. Remove the LCIT right cover [B] (⚙️ x 6).
3. Remove the LCIT rear cover [C] (⚙️ x 3).
4. On the right side of the LCIT, attach 2 clamps [D].
5. Attach the extension cable [E] to the 2 clamps.

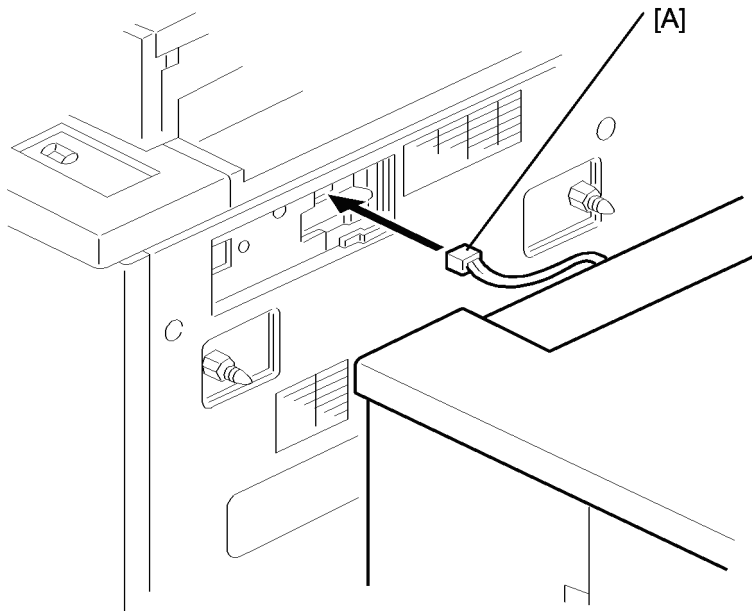




6. On the rear side of the LCIT, attach 2 clamps [A].
7. Route the cable [B] as shown.
8. On the left side of the LCIT, attach 2 clamps [C].
9. Route the cable [D] as shown.
10. If the cable from the right cover is too long, loop it [E] to make it shorter.



11. Re-attach the right LCIT cover.
12. Fasten the shoulder screw [A] to the side of the LCIT.
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 LCIT (⌀ x 1).
16. On the right side of the main machine, remove the small cover [E].
17. Remove the jumper connector [F].



b070i210

18. Connect the extension cable [A] from the LCIT to the main machine.

19. Dock the LCIT to the main machine.

### 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

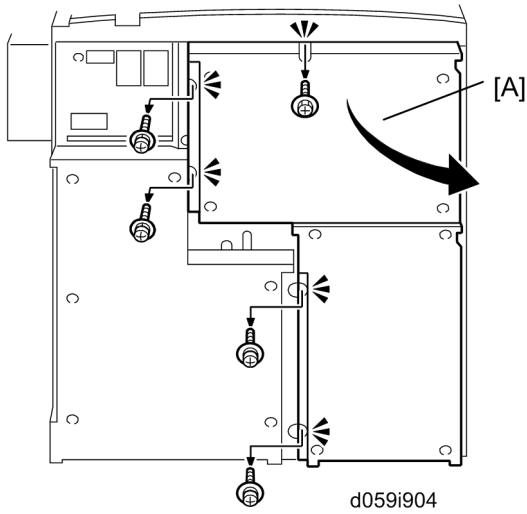
Then select and enable the items for the counter (Main machine, Document Server, Printer, Scanner).

2. Enter the SP mode

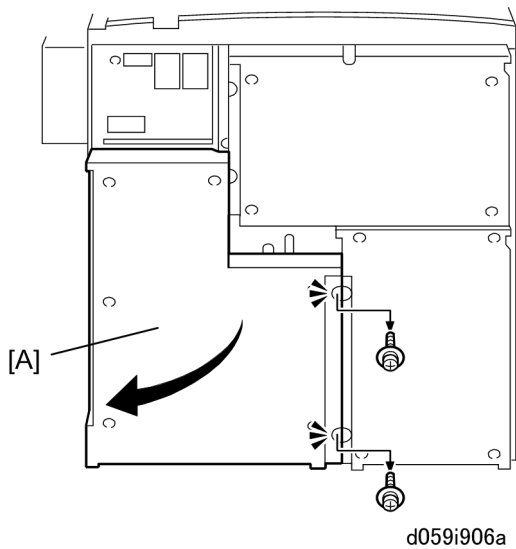
- Confirm that the setting for SP5121 is "0" (Default: Paper Feed Count). This sets the counter for paper feed ("1" sets for paper exit).
- Confirm that the setting for SP5113 is "0".

## Key Counter Interface Board

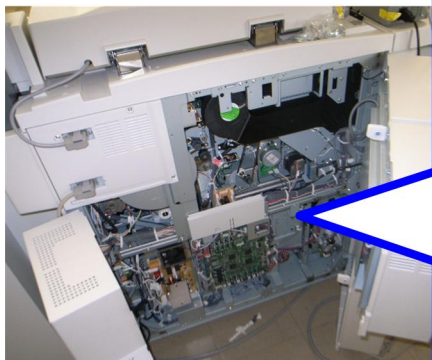
1



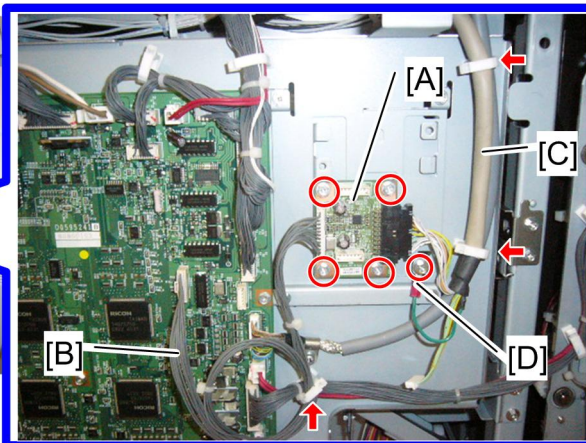
1. Remove the screws (🔩 x5).
2. Swing open the controller box [A] in the direction of the arrow.



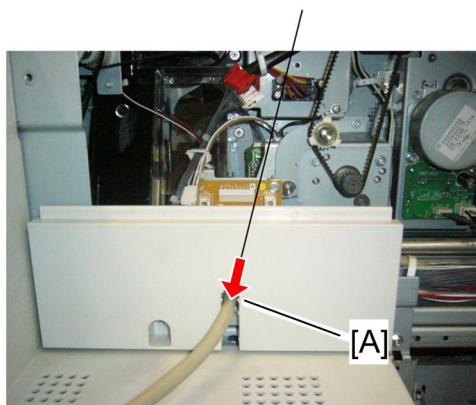
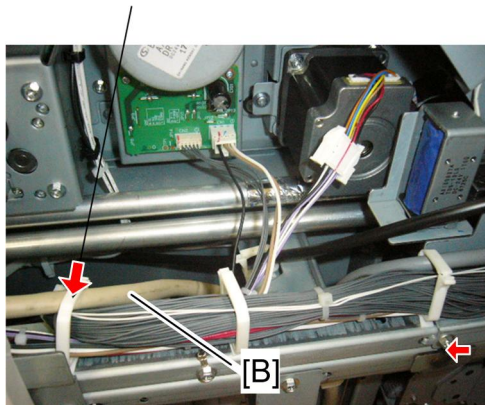
3. Remove the screws (🔩 x2).
4. Swing open the PSU box [A] in the direction of the arrow.



b870i501



5. Install the key counter interface board [A] onto the rear of the mainframe (⚙️ x4: M3x6).
6. Connect the harness [B] to CN333 on the IOB.
7. Make a loop with the harness [B], and then clamp it.
8. Connect the harness [B] to CN3 on the key counter interface board.
9. Route a key counter cable [C], and then connect the key counter cable to CN4 on the key counter interface board (⚙️ x2).
10. Attach the ground cable [D] (⚙️ x1: M4x6).



b870i502

11. Remove the cutout [A] from cover, and route the key counter cable [B] (⚙️ x1).
  - If the cable cannot be put through the hole on the cover, remove the cover first (⚙️ x1).

1

# Common Adjustments

## 1

### Height and Level Adjustment

#### Before you begin:

- The main machine should be installed first and adjusted to level within less than 5 mm front-to-back, and side-to-side.
- Due to the length of the paper path with all optional peripheral units installed, it is extremely important that every unit be level.
- The height and level of each peripheral unit must be adjusted at installation.
- The height and level of each unit must be adjusted before testing for the presence of skew and checking that side-to-side registration is correct.

#### Setting the Leveling Shoes

##### ★ Important

- Do this procedure near each caster where an adjustable bolt is provided.
- The number of leveling shoes will differ, depending on which unit you are leveling.



d059i821

1. Turn the **lower** nut to lower the bolt.

##### ↓ Note

- The upper bold is spot-welded to the frame and does not move.

2. Set a leveling shoe below the bolt.



d059i822

3. Continue to turn the lower nut until it stops against the shoe.
4. Set a level on the front, rear, and side edges to determine if the unit is level.
5. Adjust the height at each corner until the unit is level.

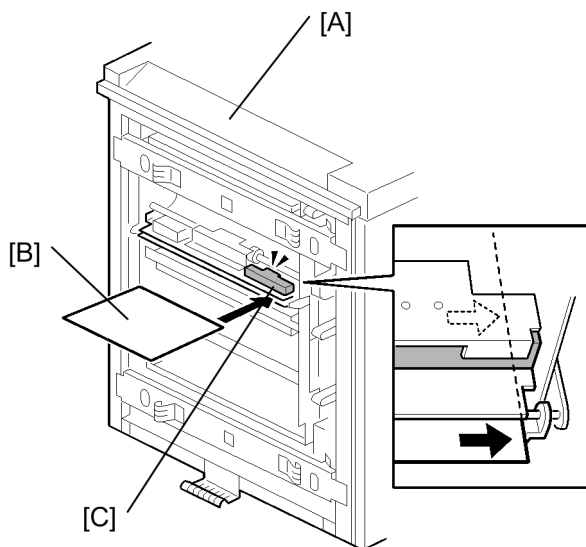


## LCIT Adjustments

The CIS (Contact Image Sensor) above the paper path of the LCIT must be calibrated at installation. This must be done for the LCIT (D452 or D453) at installation.

### ↓ Note

- The two CIS assemblies inside the main machine are calibrated at the factory. This is not possible for the LCIT because the LCIT and main machine are not together at the factory.
1. Turn off the main power switch.
  2. Disconnect the LCIT from the mainframe.



b834i125

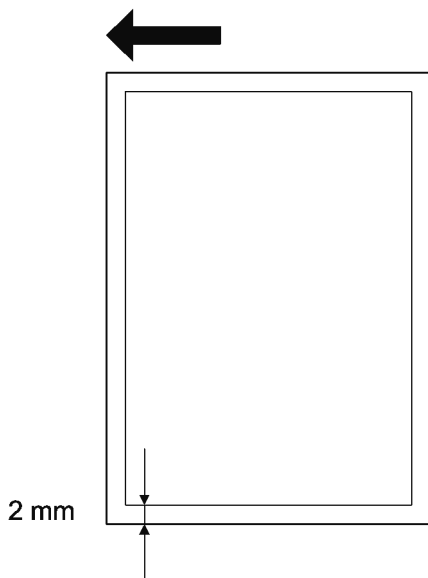
3. With the LCIT [A] separated from the mainframe, reconnect the LCIT cable to the mainframe.
4. Turn on the main power switch.
5. Insert one sheet of plain white paper [B] in the paper path.
6. Make sure that the paper covers the entire area below the image position sensor (CIS) [C].
7. Enter the SP mode and do SP1910 -2 (CIS Image Position Adjustment: LED Strength - LCIT). This calibrates the amount of light to be emitted from the CIS.
8. Do SP1909 -2 (CIS Image Position Adjustment: PWM After Adjustment - LCIT).
  - If the displayed value is between Ah (10) and 28h (40), the CIS is calibrated successfully.

**Note**

- A value is displayed in hexadecimal code on the operation panel. Values shown in brackets are decimal code for reference.
  - If the value is outside this range, do SP 1910 -2 and 1909 -2 again. If the value does not come between Ah and 28h, 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 LCIT to the side of the main machine.
  12. Turn on the main power switch.
  13. Push [User Tools]> [Adjust Settings for Operators].
  14. Do [0111] 4 to 7 for Trays 4, 5, 6, 7 and set the value for each tray to "Off".
  15. Enter the SP mode menu.



16. Adjust the image positions in the main scan direction.
  - Do SP2902 -3, 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 LCIT 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 SP1002-4 to -7, depending on which tray is not within the specified 2 mm.
17. Print the trimming pattern (Pattern 27) one more time from Tray 4.
18. Do SP1912 -2 (CIS Image Position Adjustment: Normal Paper). This sets the CIS for operation with standard copy paper.
19. Exit the SP mode.
20. Push [User Tools]> [Adjust Settings for Operators].
21. Do [0111] 4 to 7 again and reset the values for Trays 4, 5, 6, and 7 to "On".

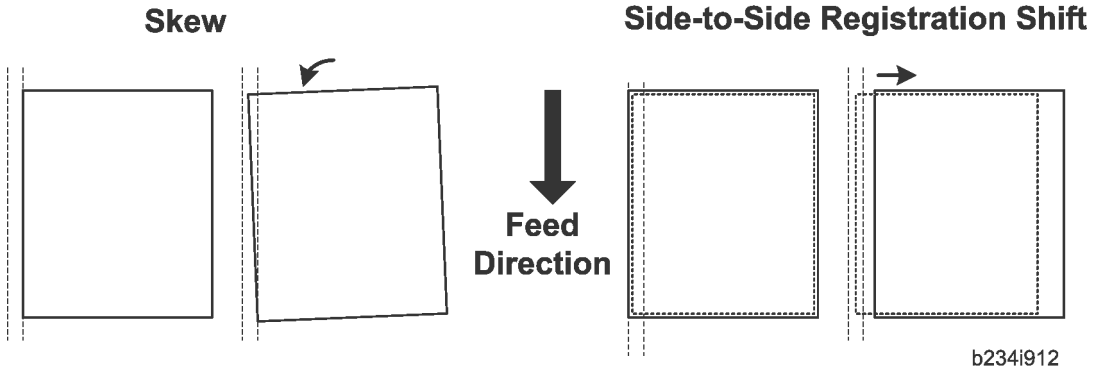


b234i999

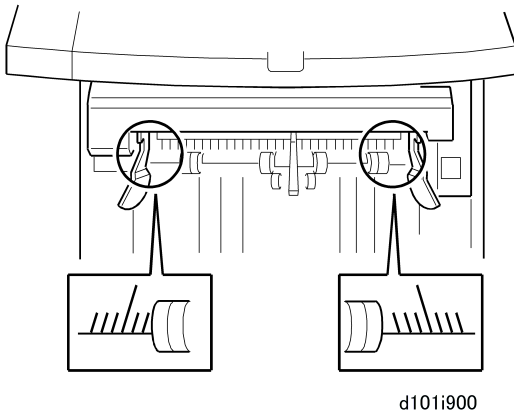
## Skew and Side-to-Side Registration

### Overview

The paper feed path is extremely long when many peripheral units are installed. In such a long path, the cumulative effect of paper skew or deviation in side-to-side registration may require adjustment.



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

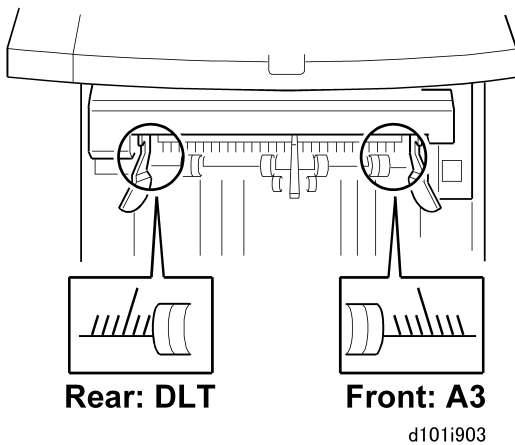


Skew and side-to-side registration are checked with graduated scales (shown above) where paper exits the units. The scales are provided so that you can visually check and measure the amount of skew or deviation in side-to-side registration.

A scale for detecting skew and checking side-to-side registration ("S-to-S") is provided on the following peripheral units.

Name	Skew	S-to-S	Comment
LCIT (D452)	X	○	Side-to-side registration only; CIS adjustment
LCIT (D453)	X	○	

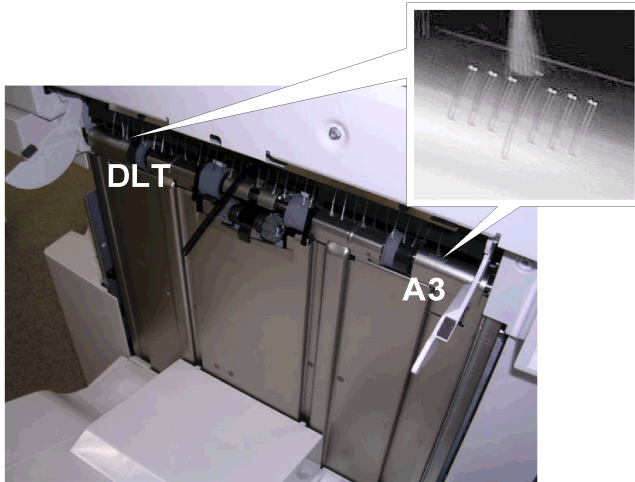
Perfect Binder (D391)	○	○	Correction for both skew and side-to-side registration are possible.
Cover Interposer (B835)	○	○	
Multi Folding Unit (D454)	○	○	
Ring Binder (D392)	○	○	
High Capacity Stacker (D447)	○	○	
Booklet Finisher (D434)	○	○	
Finisher (B830)	○	○	



Use either the rear scale or front scale, depending on the type of paper used in your area:

- Rear: DLT SEF (LT LEF for Ring Binder (D392))
- Front: A3 SEF (A4 LEF for Ring Binder (D392))

The illustrations below show where the scale for each peripheral unit is located:



The illustration above shows the scale on the left side of the Booklet Finisher tray. The same scale is at approximately the same position (paper exit) for the following units:

- Multi Folding Unit (D454): Proof Tray
- Ring Binder (D392): Left Exit
- High Capacity Stacker (D447): Proof Tray
- Booklet Finisher (D434): Shift Tray Exit

In the illustration below, the red lines indicate the joint brackets where adjustments are done to eliminate skew and to correct side-to-side registration.

Config. 1	Config. 2	
LCIT	LCIT	LCIT D452 or D453
Host	Host	Main Machine D059/D060/D061
D457	D457	De-Curler/Purge Unit
D391-19	D391-19	Relay Unit for Perfect Binder
D391	D391	Perfect Binder
B835	B835	Cover Interposer Tray
D454	D454	Multi-Folding Unit
D392	D392	Ring Binder
D447	D447	Stacker
D434	B830	Booklet Finisher (D434), Finisher (B830)
D455		Trimmer

d059i806

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

- After installation of each peripheral device, do some test prints and check for the presence of skew, and check that side-to-side registration is correct.
  - LCIT (D452)
  - LCIT (D453)
  - Multi Folding Unit (D454)
  - Ring Binder (D392)
  - High Capacity Stacker (D447)
  - Booklet Finisher (D434)
  - Finisher SR5000 (B830)
- If you detect a problem with skew or side-to-side registration, do the adjustment on the joint bracket attached to the peripheral unit **upstream of the unit where the problem occurred**.
- There is no adjustable joint bracket upstream of the following peripheral units. No adjustment is possible upstream of these units:
  - Decurl Unit (D457)
  - Transit Pass Unit Type (D391-19)
  - Cover Interposer (B835)

- Trimmer Unit TR5020 (D455-17)
4. Side-to-side registration is corrected by shifting the upstream joint bracket left or right.
  5. Skew is eliminated by inserting spacers (shims) under the rear or front end of the joint bracket. These spacers are provided with the peripheral units, attached by screws to the units at the factory.

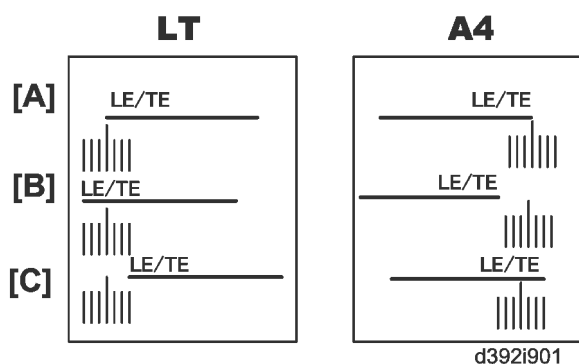
## Checking Side-to-Side Registration

Do this procedure to confirm that the paper is centered in the paper path.

1. Make sure that the I/F cable of the unit is connected to the upstream unit.
2. Disconnect the unit to the left of the unit to be tested.
3. Execute a run by feeding paper from Tray 2 of the host machine.

### Note

- If you are testing the Ring Binder (D392), execute the run by feeding paper (A4 or LT LEF) from Tray 2 of the host machine (punching only, no ring binding).
  - Feed A3 SEF for other units.
4. When each sheet exits, check the position of the paper on the scale to see if the paper is centered.
    - Read the rear scale for DLT-size paper
    - Read the front scale for A3-size paper.
    - If you are testing the ring binder, read the rear scale for LT LEF paper and the front scale for A4 LEF paper. The paper does not exit. It will switch back and feed to the punch unit.
    - The scale lines are spaced 2 mm apart.
  5. The paper must not deviate more than  $\pm 2$  mm on the scale.



[A]	Leading/trailing edges centered. No adjustment necessary.
[B]	Leading/trailing edges offset to the rear by more than 2 mm. Adjustment required.
[C]	Leading/trailing edges offset to the front by more than 2 mm. Adjustment required.

If the edge of the paper is on the scale at the center [A], no adjustment is required.

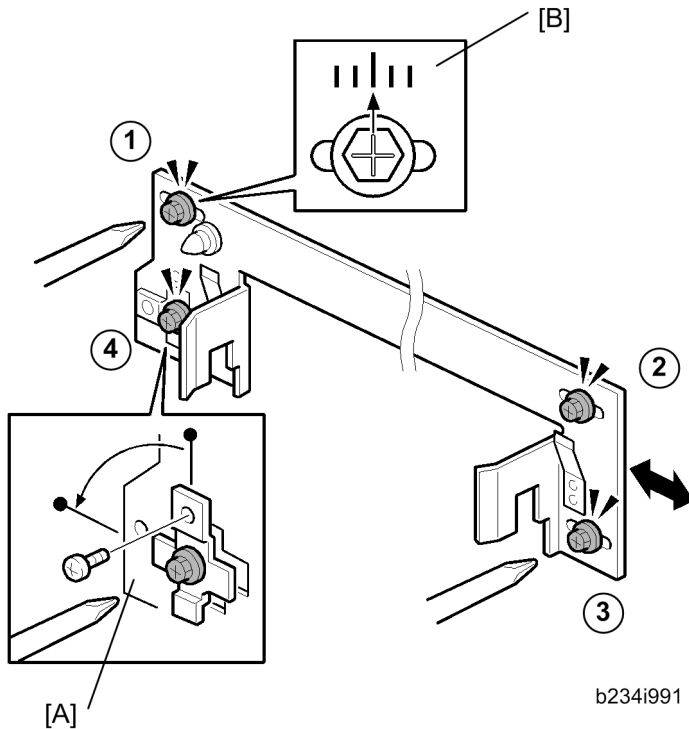
-or-

If the edge of the paper is  $\pm 2$  mm off the center line on the scale, adjustment is required. Do the procedure in the next section.

1

## Correcting Side-to-Side Registration

1. Disconnect the peripheral unit from the upstream unit.



2. On the joint bracket attached to the upstream unit, loosen screws ①, ②, ③, and ④.
  3. Remove bracket [A] (⌀ x1), rotate it 90 degrees, and re-fasten the screw. Changing the position of this bracket aligns the oval cut-out horizontally and frees the joint bracket so it can slide from side to side.
  4. Look at the scale [B].
  5. Slide the bracket to the left or right and tighten the screw.
  6. If the deviation from center was toward the front, slide the bracket to the rear and tighten the screw ①.
- or-
- If the deviation from center was toward the rear, slide the bracket to the front and tighten the screw ①.

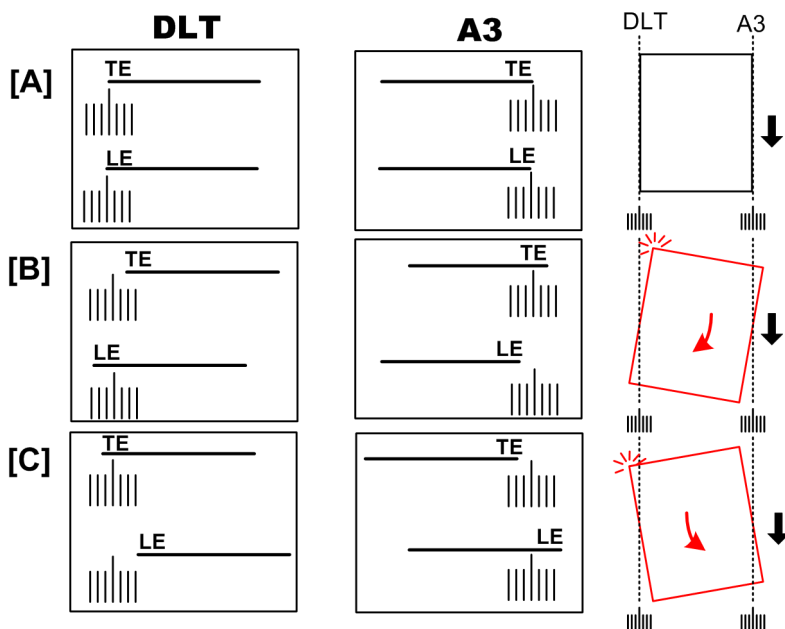
7. Tighten screws ②, ③, and ④
8. Do another test run, so that you can check the results of the adjustment.

1

## Detecting Paper Skew

Do this check to detect the presence of skew in the paper path.

1. Make sure that the I/F cable of the unit is connected to the upstream unit.
2. If a peripheral unit is connected on the left side, disconnect it and pull it away.
3. Execute a straight-through run.
4. Check the scale where each sheet exits.
  - The rear scale is for DLT-size paper.
  - The front scale [2] is for A3-size paper.
  - Be sure to read the correct scale for the paper size in use.



d392i904

[A]	Centered. No adjustment necessary.
[B]	Trailing edge skew to the front, total skew more than $\pm 2$ mm. Adjustment required.
[C]	Trailing edge skew to the rear, total skew more than $\pm 2$ mm. Adjustment required.



## Correcting Skew

1. Disconnect the peripheral unit from the upstream unit.
2. Locate and remove the spacers from the peripheral unit where the problem occurred.

### Locating and Removing Spacers

The photos below show where you can find the spacers for each unit.

#### Multi Folding Unit (D454)



d454i111

#### Ring Binder (D392)



d059i816

1. Look at the right side.
2. Remove the spacers (⌀x2).

## High Capacity Stacker (D447)



d059i817

1. Open the front door.
2. Remove the right lock hasp [A] (🔧 x2).
3. Remove right front cover [B] (🔧 x2).
4. Remove the spacers (🔧 x1).

**Booklet Finisher (D434)**

d059i818

1. Open the front door (🔧 x1).
2. Remove the spacers (🔧 x1).

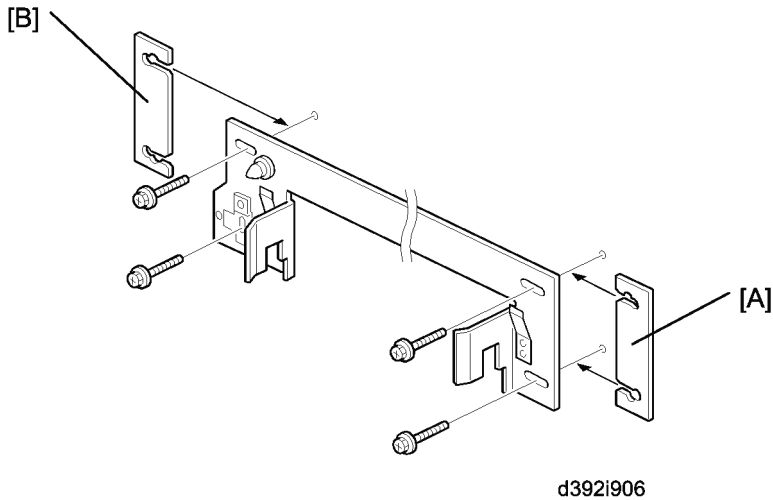
**Finisher SR5000 (B830)**

d059i819

1. Look at the right side (🔧 x1).

2. Remove the spacers (🔧 x1).

### Inserting Spacers



1. Loosen the screws (🔧 x4) of the joint bracket attached to the peripheral upstream of the unit where the problem occurred.
2. Insert a spacer and tighten the screws.  
If the trailing edge of the paper is **skewing toward the front** of the machine, insert a spacer [A] under the **rear end of the bracket** and tighten the screws.  
-or-  
If the trailing edge is **skewing toward the rear** of the machine, insert a spacer [B] under the **front end of the bracket** and tighten the screws.
3. Do another run to check the adjustment. If skew is still present, insert another spacer.
  - Each spacer is 2 mm thick.
  - Only two spacers are provided, so the maximum adjustment is 4 mm (using two spacers).

---

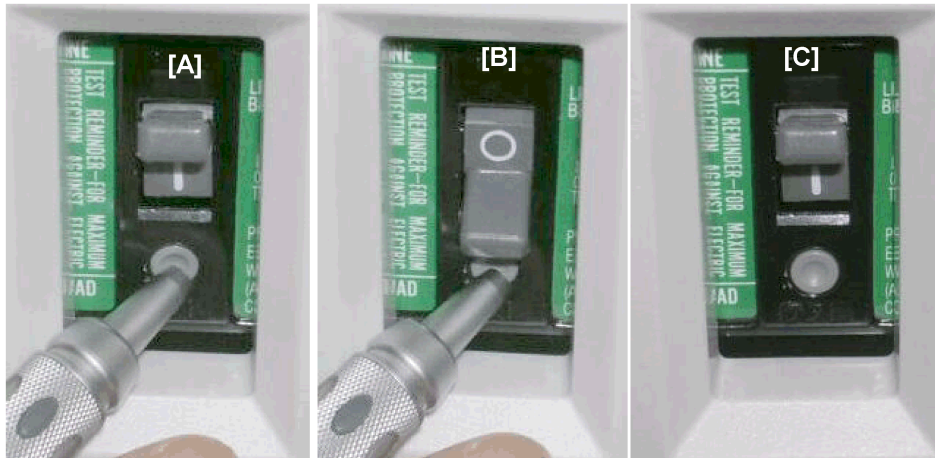
## Breaker Switch Testing

---

1. Plug the power cord of the main machine or peripheral unit to be tested into its power source.

**★ Important**

- Do not turn on the main machine or the peripheral to be tested.
- The main machine and the peripheral to be tested must be off.



d059i820

2. Use the tip of a small screwdriver or pen to push the breaker test button [A].
  - The breaker switch should flip to the "O" position [B]. 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. Return the switch to the "I" position [C] for normal operation.

**★ Important**

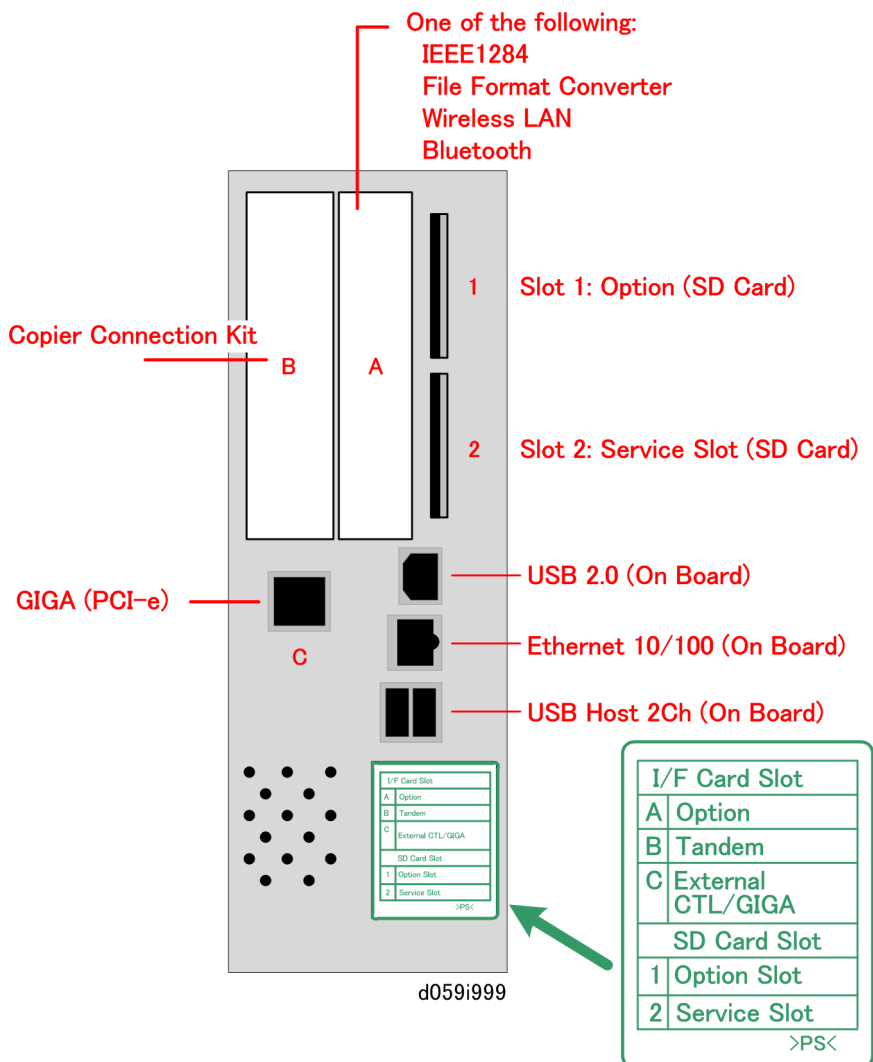
- The main machine will not turn on if the breaker switch is not returned to the "I" position.
- All breaker switches must be checked at installation, and once a year.

# MFP Options

## 1

### Overview

Two slots for boards and two 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
A	Option	<ul style="list-style-type: none"> <li>• IEEE1284 Interface Board Type A (B679-17)</li> <li>• File Format Converter Type C (D377-04)</li> <li>• IEEE 802.11a/g Interface Unit Type J (377-01)</li> <li>• Bluetooth Interface Unit Type 3245 (B826-17)</li> </ul> <p><b>Note:</b> Only one of these boards can be inserted at a time.</p>
B	Tandem	<ul style="list-style-type: none"> <li>• Copy Connector Type 3260 (B328-11)</li> </ul>
C	External CTL/GIGA	<ul style="list-style-type: none"> <li>• Gigabit Ethernet Type B (D377-21)</li> </ul>
1	Option	<ul style="list-style-type: none"> <li>• Printer/Scanner Unit Type 1357 (D451-01)</li> <li>• PostScript3 Unit Type 1357 (D451-05)</li> <li>• HDD Encryption Unit Type A (D377-16)</li> <li>• Data Overwrite Security Unit Type H (D377-06)</li> <li>• IPDS Unit Type 1357EX (451-12)</li> </ul> <p><b>Note:</b> 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>
2	Service	<ul style="list-style-type: none"> <li>• VM Card Type J (D463-01)</li> <li>• For machine firmware update by the technician.</li> <li>• Also for installing Browser Unit Type E (D430-05)</li> </ul>
	Other Connection Points	<ul style="list-style-type: none"> <li>• USB 2.0 (On Board)</li> <li>• Ethernet (10/100 On Board)</li> <li>• USB Host 2 Ch (On Board)</li> </ul>

**Note**

- The Copy Data Security Unit is a separate PCB. It is attached directly to the controller board. There is no system SD card used with this machine.

---

## Merging Applications on One SD Card

---

### 1

### Overview

---

The machine has two SD card slots:

- Slot 1 is used for application programs
- Slot 2 is used for servicing (firmware updates)

Only one SD card slot 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.

- 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 technician may occasionally need to check the SD card and its data. For these reasons, store the unused SD cards in the front cover of the main machine.
- 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.
- After an SD card has been used to move other applications onto that card, that SD card cannot be used for a different function.
- 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 main machine.
2. Remove the SD card slot cover (1 x1).
3. Put the Source SD card in Slot 2 (service slot). This card contains the application that you want to copy.

 **Note**

- The PS3 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 1. The application on the card in Slot 1 will be copied to this card.
  6. Open the front door.
  7. Turn the main machine on.
  8. Go into the SP mode and select SP5873 -1.



9. Touch "Execute".
10. Follow 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 main machine off.
13. Remove the Source SD card from Slot 2. Keep the target SD card in Slot 1.
14. Turn the main machine on.
15. Go into the User Tools mode and make sure that all the applications on the SD card in Slot 1 are enabled:  
User Tools> System Settings> Administrator Tools> Firmware Version
16. Turn the main machine off again, then:
  - Reattach the SD card slot cover.
  - Attach the rear cover of the machine.
  - Store the SD cards that were copied.

### ★ 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 -2). Before you store an SD card, label it carefully so it can be identified easily if you need to do the undo procedure (see below).

## Undo Exec

1. Turn the main switch off.
2. Put the SD card holding the merged applications in SD Card Slot 2.
3. Put the original destination SD card (the one removed from storage) into Slot 1.

### ↓ Note

- The SD card in Slot 1 must be the original SD card of the application you want to move from Slot 2 to Slot 1. You cannot use a blank SD card in Slot 1.
4. Turn the main switch on.
  5. Go into the SP mode and do SP5873-2 (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.

---

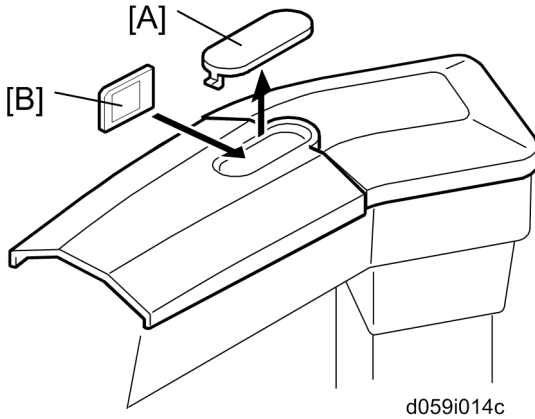
## Common Procedures For MFP Options

---

### 1

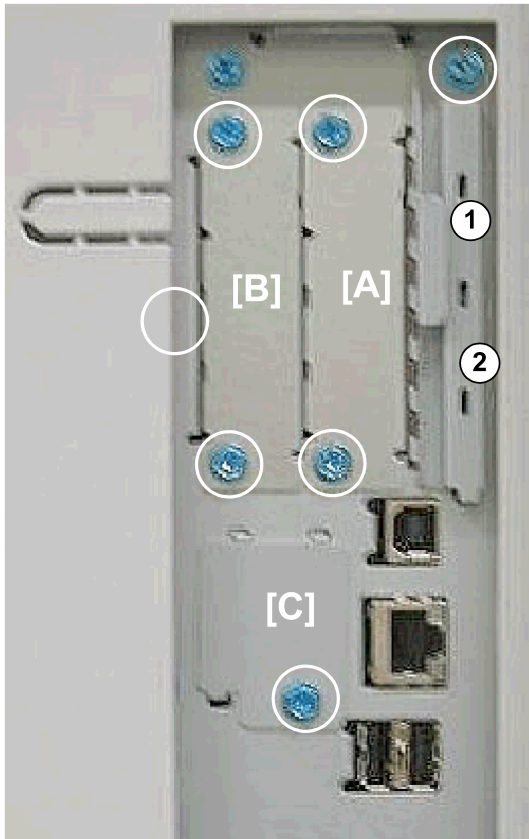
#### Storing SD Application Cards on Site

---



1. Remove the cap [A] on the arm cover (hooks).
2. Set the copied SD card [B] in the compartment.
3. Reattach the cap [A].

## Removing Slot Covers



d059i207

The slot covers on the side of the controller board box are held in place by screws:

- Slot [A] (🔩 x2)
- Slot [B] (🔩 x2)
- Slot [C] (🔩 x1)
- SD card slots ① and ② (🔩 x1)

## Printer/Scanner Unit Type 1357 (D451-01)

### Accessories

No.	Description	Q'ty
1.	Caution Decal	1

1

No.	Description	Q'ty
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 Chip 1 GB	1

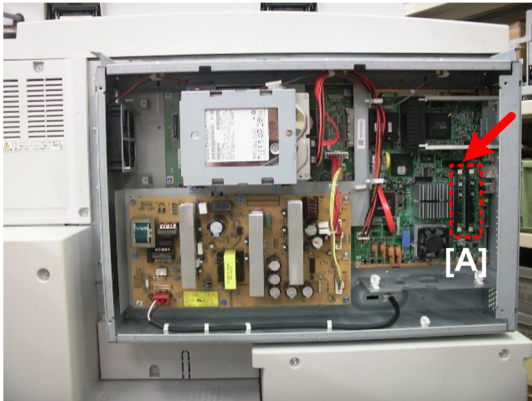
### ★ Important

- Only one Slot 1 is available for applications on SD cards. If more than one application is will be used, the applications must be moved onto one SD card with SP5873 -1.

## Installation

### ⚠ CAUTION

- Make sure that the main machine is switched off and that its power cord is disconnected before doing the following procedure.

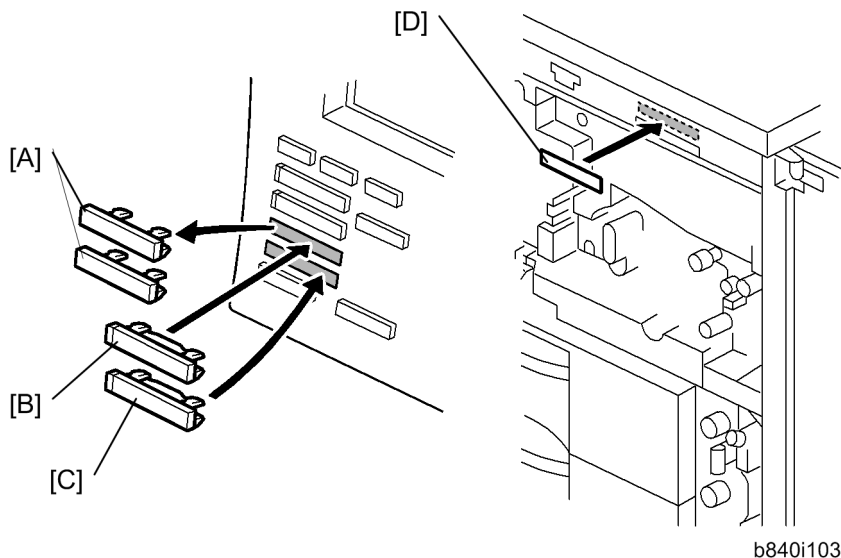


b840i100a

1. Switch the machine off.
2. Remove the controller box cover.
3. Insert the memory DIMMs in either slot [A].
4. Re-attach the controller box cover.
5. Insert the SD Card into Slot 1.

★ Important

- Push the SD Card in to release 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.



6. On the operation panel, remove the dummy keytops [A] and discard them.
7. 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)
8. Attach the serial number decal [D] to the main machine.
9. Plug in the power cable and turn the main power switch on.
10. Change **SP5985 -1** and **-2** from '2: Limited Enable' to '1: **Enable**'.
11. Turn the main power switch off and on.
12. Follow the procedures in the Operation Instructions to complete the installation for the printer/scanner option.

## IEEE1284 Interface Board Type A (B679-17)

1

### Accessories

No.	Description	Q'ty
1.	IEEE 1284 Centronics Board	1

1. Switch the machine off.
2. Remove the cover from Slot A (⚙ x 2).
3. Insert the board and fasten it with the screws.

## PostScript3 Unit Type 1357 (D451-05)

### Accessories

No.	Description	Q'ty
1.	PostScript3 Emulation SD Card	1
2.	Decal	1

### ★ Important

- Only Slot 1 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 -1.

### Installation

1. Switch the machine off.
2. Remove the SD card slot cover (⚙ x 1).
3. Insert the PS3 SD Card into Slot 1.

#### ↓ 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.

## Data Overwrite Security Unit Type H (D377-06)

### Accessories

No.	Description	Q'ty
1.	Data Overwrite Security SD Card	1
2.	Operating Instructions CD-ROM	1
3.	Comments Sheet (17 languages)	2

### 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 "H".
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:
 

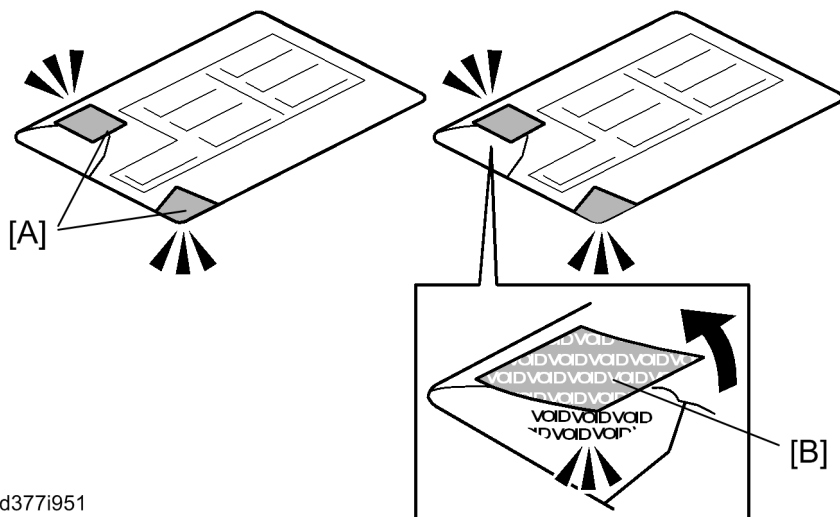
```
[User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Admin. Authentication"> "On"
```

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:

#### ↓ 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



d377i951

### ⚠ 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 1.
  - If the PostScript3 option is also installed, you must move the DOS application to the PostScript3 SD card with SP5873 -1.
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 (🔧 x1).



6. Insert the SD card into SD card Slot 1.
7. Reconnect the network cable.
8. Turn the main power switch on.
9. Do **SP5878-001** and push [EXECUTE].
10. Go out of the SP mode.
11. Turn the operation switch off, then turn the main power switch off.
12. Do **SP5990-5** to print an SMC report.
13. Make sure the ROM number and firmware version in area [a] of the diagnostic report are the same as those in area [b].
  - Area [a]: "ROM Number/Firmware Version" – "HDD Format Option"
  - Area [b]: "Loading Program" - "GW4a\_zoffyx"

Diagnostic Report:	"ROM No. / Firmware Version" [a]	"Loading Program" [b]
DataOverwriteSecurity Unit	HDD Format Option: <b>D3775902A / 1.01x</b>	<b>GW4a_zoffyx:</b> <b>D3775902A / 1.01x</b>

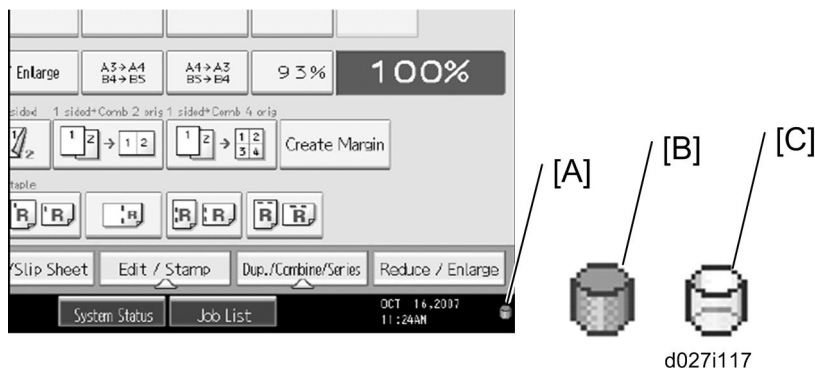
### ★ Important

- **The same two numbers must be listed in both sections of the SMC report**

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 "H".
- Do the Data Overwrite Security unit installation again.

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 [A] is displayed.



17. Make a Sample Copy.
18. Check the overwrite erase icon.
  - The icon [2]: This icon is lit when there is temporary data to be overwritten, and blinks during overwriting.
  - The icon [3]: This icon is lit when there is no temporary data to be overwritten.

## Browser Unit Type E (D430-05)

### Accessories

No.	Description	Q'ty
1.	Browser Unit D430 SD Card	1

### Installation

1. Switch the machine off.
2. Remove the SD card slot cover (⑧ x1).
3. Insert the SD card into SD card Slot 1.
 

**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.
4. Turn the machine on.
5. Push [User Tools].
6. Push [Login/Logout] on the operation panel
7. Login with the administrator user name and password.
8. Touch "Extended Feature Settings".
9. Touch "Extended Feature Settings" again.
10. Touch "SD Card".
11. Touch the "Browser" line.
12. Under "Install to:" touch "Machine HDD" and touch "Next"
13. When you see "Ready to Install" check the information on the screen to confirm you previous selection.
14. Touch "OK". You will see "Installing..." then "Completed".

15. Touch "Exit" twice to return to the copy screen.
16. Switch the machine off.
17. Replace the 6th key slot cover with the "Other Function" key cover.
18. Switch the machine on.
19. After the Copy screen appears, wait 30 sec. then press the "Other Function" key.
20. When you see this message: "The MFP Browser was successfully installed", switch the machine off and remove the SD card.

## VM Card Type J (D463-01)

### Accessories

No.	Description	Q'ty
1.	VM Card B861 SD Card	1
2.	Decal	1

### Installation

1. Switch the machine off.
2. Remove the SD card slot cover.
3. Insert the SD card into Slot 2.

#### ↓ Note

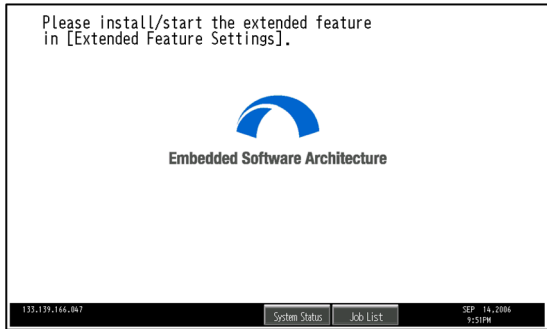
- Pushing in the SD Card releases it for removal.
- Make sure the SD Card is inserted and locked in place.
- If it is partially out of the slot, push it in gently until it locks in place.

4. Switch the machine on. The installation will start automatically.

#### ↓ Note

- The installation will take 5 to 10 minutes.

5. Replace the sixth key-slot cover with the "Other function" key.
6. 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 screen will appear:



b861i101

7. Set the heap size and stack size for the application.
8. Install the application using the installation procedure provided with the application.

## File Format Converter Type C (D377-04)

### Accessories

No.	Description	Q'ty
1.	File Format Converter (MLB: Media Link Board)	1

### Installation

1. Switch the machine off.
2. Remove the cover of Slot A (ⓧ x 2).
3. Insert the file format converter board into Slot A and fasten it with the screws.
4. Switch the machine on.
5. Set **SP5836-3** 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
5-836-1	1	5-836-73	0
5-836-2	0	5-836-85	1
5-836-3	1	5-836-86	2
5-836-72	0	5-836-91	50

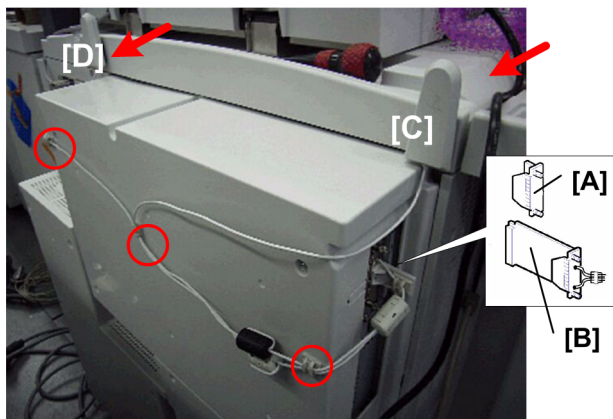
7. Set the following SP codes according to the customer's needs.

SP No.	Setting	Comment
SP5-836-94	2	Selects JPEG2000 file format for documents copied from the document server to Palm2. <b>Note:</b> 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. <b>Note:</b> 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-5836-98	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. <b>Note:</b> 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. <b>Note:</b> 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.

## IEEE802.11a/g Interface Unit Type J (377-01)

### Accessories

	Description	Qty
1.	Wireless LAN PCB (GW-WLAN)	1
2.	Card (GW-WLAN)	1
3.	Wireless LAN Instructions	1



d377i001

1. Remove the cover of Slot A [A] (⚙ x 2).
2. Touch a metal surface to discharge any static electricity from your hands.
3. Put the interface board [B] in Slot A.
4. Confirm that the board is inserted completely, then fasten it (⚙ x 2).
5. Pull the antennas away from machine and make sure that they are not tangled.
6. Look at the markings on the antenna bracket.
  - **ANT1.** Antenna 1 transmits and receives. The ferrite core on the Antenna 1 cable is black.) It must be installed on the left rear corner of the main machine where it will not be obstructed by the operation panel.
  - **ANT2.** Antenna 2 only receives. It is installed on the right rear corner of the machine.
7. Attach ANT1 [C] to the left rear corner.
8. Attach ANT2 [D] to the right rear corner.
9. Route the cables and use the clamps to attach them as shown.

## SP Mode Settings for 802.11a/g Wireless LAN

The following SP commands can be set for 802.11a/g

1. Go into the SP mode
2. Touch "Copy SP" on the touch-panel to open the SP command selection screen.
3. Do SP5840-11.

SP No.	Name	Function
5840 011	WEP Key Select	Used to select the WEP key (Default: 00).

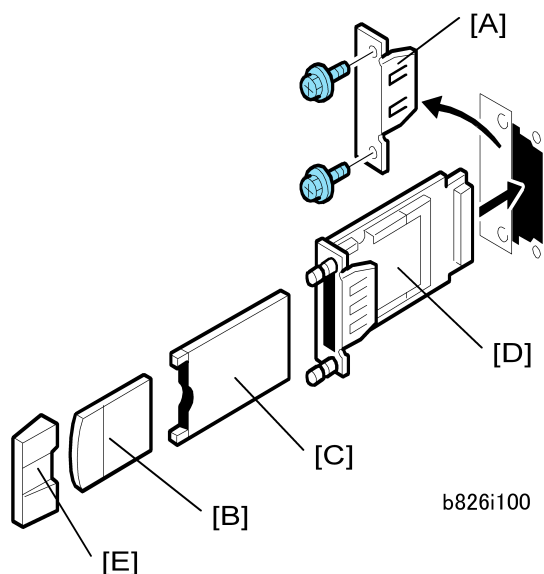
## Bluetooth Interface Unit Type 3245 (B826-17)

### 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



1. Switch the machine off.
2. Remove the cover of Slot A [A] ( $\phi$  x2).
3. Touch a metal surface to discharge any static charge from your hands.
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

## Gigabit Ethernet Type B (D377-21)

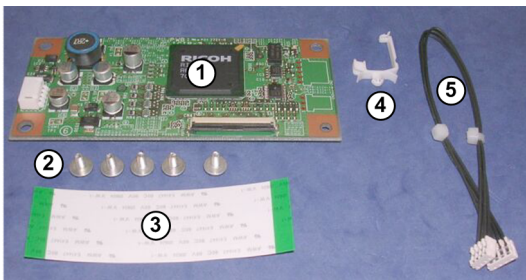
### Accessories

No.	Description	Q'ty
1.	Gigabit Ethernet B381	1
2.	Ferrite Core (not used for D059/D060/D061)	1

1. Switch the machine off.
2. Remove the cover Slot A (E x 2).
3. Insert the Gigabit Ethernet Board [B] into Slot A 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

## Copy Data Security Unit Type F (B829-07)

### Accessories



b829i001

No.	Description	Q'ty
1.	Copy Data Security Unit Type F (B829-07)	1



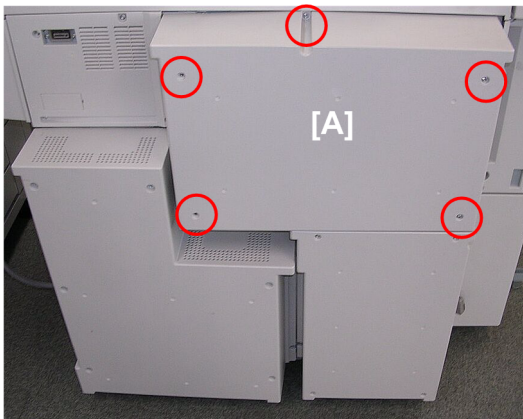
No.	Description	Q'ty
2.	Screws	5
3.	FFC	1
4.	Harness Clamp	1
5.	Harness	1

### ★ Important

- For this installation you need only items (1) and (2) (各 x2).

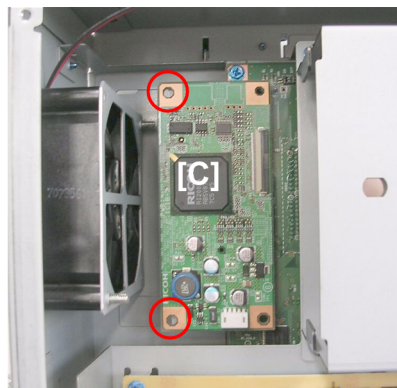
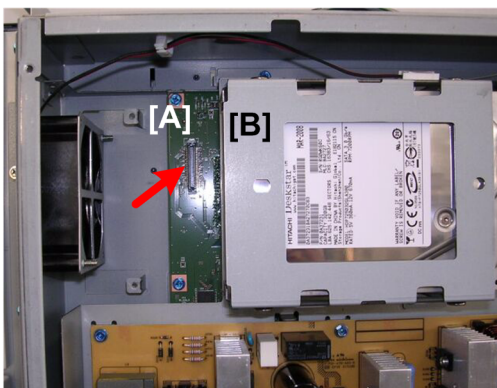
## Installation

### Board Attachment



b828i002

1. Remove cover [A] (各 x5).



b829i003

2. The board connector is at [A] to the left of the HDD unit [B].
3. Attach the board [C] to the connector and fasten (🔩 x2).

### 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".

## HDD Encryption Unit Type A (D377-16)

### Accessories

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

No.	Description	Q'ty
1.	SD Card	1

### Before You Begin the Procedure

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

#### ↓ Note

- These settings must be set up by the customer before the encryption option can be installed.

2. 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.

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

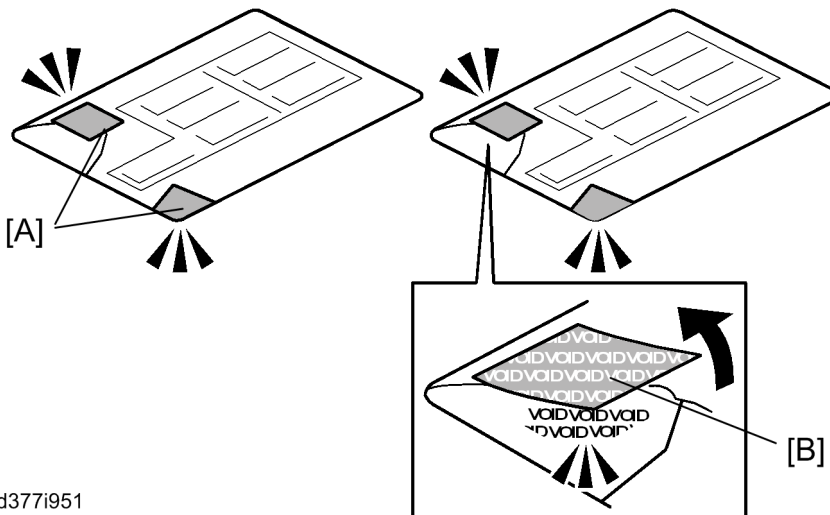
[User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Available Settings"

**Note**

- "Available Settings" is not displayed until "Admin. Authentication" is switched on.

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**

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

1. Check the box seals [A] on each corner of the box.
  - Make sure that a tape is attached to each corner.
  - The surfaces of the tapes must be blank. If you see "VOID" on the tapes, do not install the components in the box.
2. If the surfaces of the tapes do not show "VOID", remove them from the corners of the box.

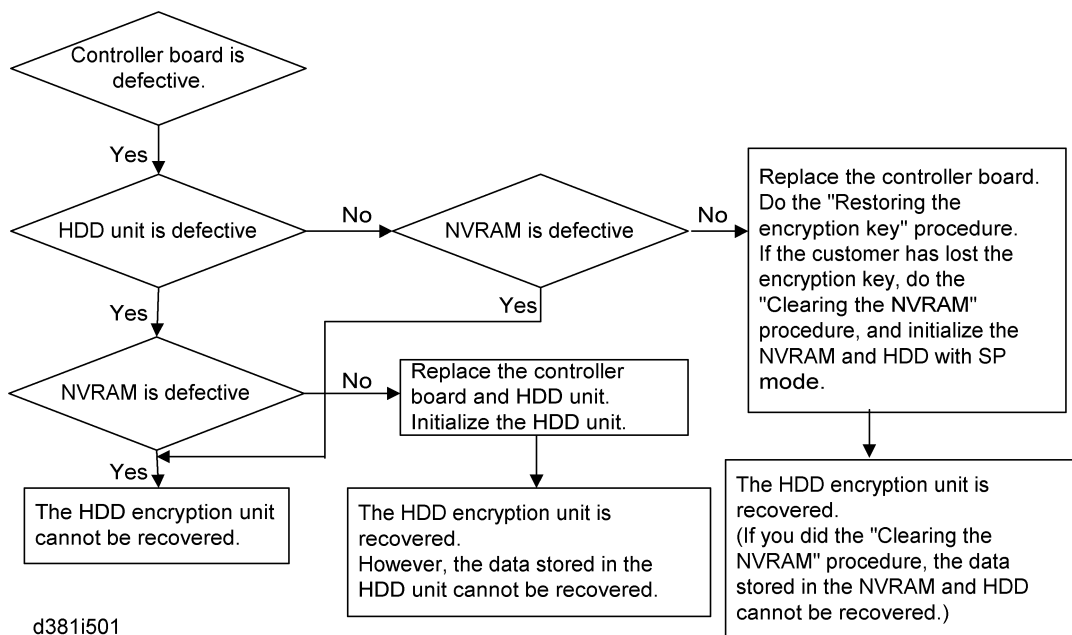
- You can see the "VOID" marks [B] when you remove each seal. In this condition, they cannot be attached to the box again.

# 1

## Installation Procedure

- Remove the SD card slot cover (A) (x 1).
- Insert the SD in SD Slot 1.
- Turn on the main power switch.
- Enter the SP mode.
- Select **SP5878-2** (Option Setup – Encryption Option), and then touch [Execute].
- Turn off the main power switch.
- Remove the SD card.
- Attach the slot cover [A] (x 1).
- Switch the machine on.

## Recovery from a Device Problem



## Restoring the encryption key

When replacing the controller board for a model in which the HDD encryption unit has been installed, updating the encryption key is required.

1. Prepare an SD card which is initialized.
2. Make the "restore\_key" folder in the SD card.
3. Make an "nvram\_key.txt" file in the "restore\_key" folder in the SD card.
4. Ask an administrator to input the encryption key (this has been printed out earlier by the user) into the "nvram\_key.txt" file.
5. Remove only the HDD unit.
6. Turn on the main power switch.
7. Confirm that the prompt on the LCD tells you to install the SD card (storing the encryption key) in the machine.
8. Turn off the main power switch.
9. Insert the SD card that contains the encryption key into slot 2.
10. Turn on the main power switch, and the machine automatically restores the encryption key in the flash memory on the controller board.
11. Turn off the main power switch after the machine has returned to normal status.
12. Remove the SD card from slot 2.
13. Reinstall the HDD unit.

## Clearing the NVRAM

When replacing the controller board for a model in which the HDD encryption unit has been installed and a customer has lost the encryption key, clearing the NVRAM is required to recover the HDD encryption unit.

1. Prepare an SD card which is initialized.
2. Make the "restore\_key" folder in the SD card.
3. Make an "nvram\_key.txt" file in the "restore\_key" folder in the SD card.
4. Input "nvclear" into the "nvram\_key.txt" file.
5. Turn on the main power switch.
6. Confirm that the prompt on the LCD tells you to install the SD card (storing the encryption key) in the machine.
7. Turn off the main power switch.
8. Insert the SD card that contains "nvclear" into slot 2.
9. Turn on the main power switch, and the machine automatically restores the encryption key in the flash memory on the controller board.
10. Turn off the main power switch after the machine has returned to normal status.
11. Remove the SD card from slot 2.
12. Turn on the main power switch.

13. Initialize the NVRAM (SP5801-1) and HDD unit (SP5832-1) with SP mode.

14. The user must enable the HDD encryption unit with a user tool.

1

## IPDS Unit Type 1357 EX (451-08)

### Accessories

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

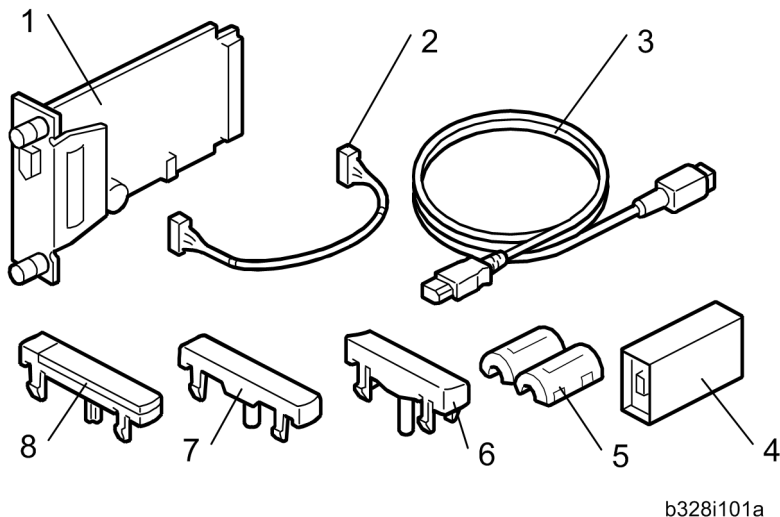
No.	Description	Q'ty
1	SD Card	1

The IPDS Unit SD card is inserted in Slot 2 (Service Slot).

## Copier Connection Kit (B328)

### Accessories

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



	Description	Q'ty
1.	Connection PCB	2

	Description	Q'ty
2.	Power Repeater Cable	2
3.	Interface Cable 1394	3
4.	Repeater Hub 1394	2
5.	Ferrite Core	1
6.	"Other Function" Keytops: Short (NA, EU 1 ea.)	2
7.	"Printer/Other Function" Keytops (NA, EU 1 ea.) Not used for this model	2
8.	"Other Function" Keytops: Long (NA, EU 1 ea.) Not used for this model	2

## Preparation

Before you begin the installation procedure, you must first:

- Determine the distance between the machines to be connected.
- Determine whether the printer/scanner option is installed on the machines.

Measure the distance between the machines, then decide how many cables and repeater hubs are required.

Distance	Power Repeater Hubs	Interface Cables
Up to 4.5 m (14.8 ft.)	None	1
4.5 to 9.0 m (14.8 to 29.5 ft)	1	2
9.0 to 13.5 m (29.5 to 112.5 ft.)	2	3

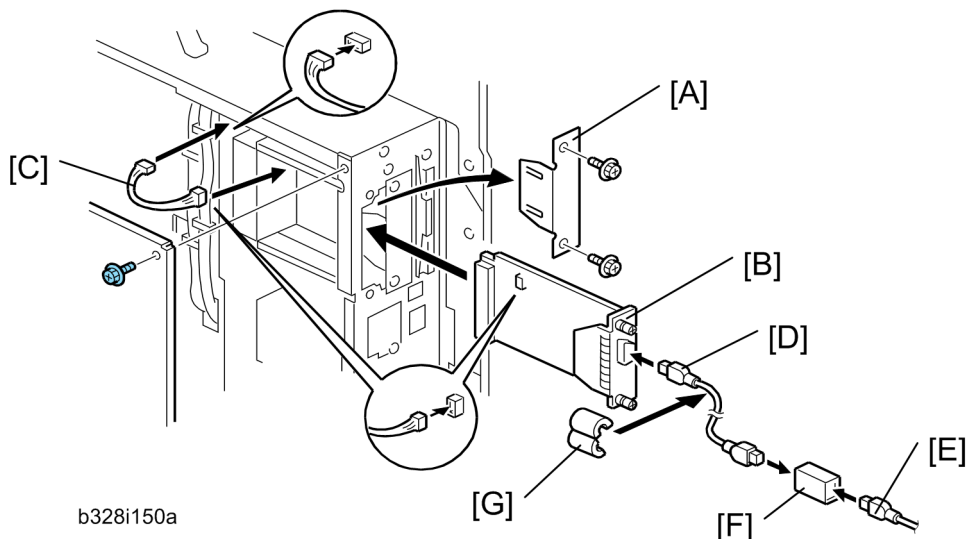
Two sets of keytops (2 per set, 1 for NA, 1 for EU) are provided for each machine, but you need to install only one keytop on each machine.

- Install the key labeled "Other Function" (or its equivalent symbol keytop for EU) on a machine without the printer/scanner option.

## Installation Procedure

### ⚠ CAUTION

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

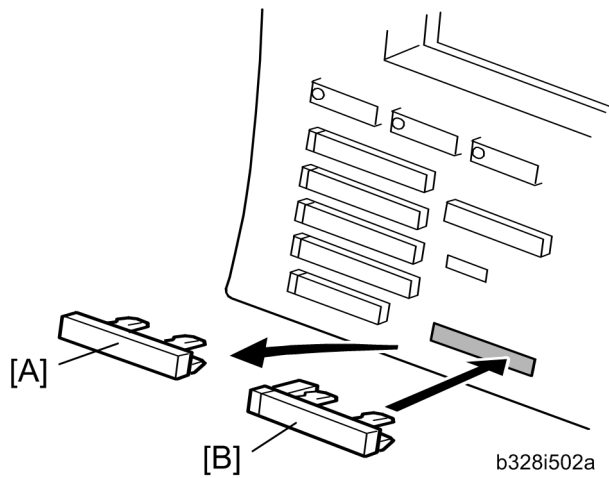


1. Switch the main power switch off.
2. Remove the controller box upper cover (⚙ x5).
3. Remove the cover [A] from slot B (⚙ x2).
4. Align the PCB [B] with the bottom groove, and push the connection PCB into the slot.

#### ⬇ 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.
  6. Connect the power repeater cable [C] to the mother board at CN149.
  7. Connect the other end of the power repeater cable the connection PCB [B].
  8. Re-attach the controller box upper cover (⚙ x5).
  9. Repeat Steps 1 to 8 to install the connection PCB on the slave machine.
  10. Insert one end of the interface cable [D] to the connection PCB inserted in slot B.
  11. If additional interface cables are required, connect the cables [E] with the repeater hubs [F].
  12. Attach the ferrite core [G] to the interface cable [D].





13. On the operation panel of the both machines, remove the right-bottom cover [A] (or Printer key).
14. Install an appropriate key for each machine:
  - Attach the "Other Function" key [B] (or its equivalent symbol keytop for EU) if the printer/scanner is not installed in the machine.
15. Attach the other end of the connection cable to the connection PCB installed in the other machine.



# 2. Preventive Maintenance

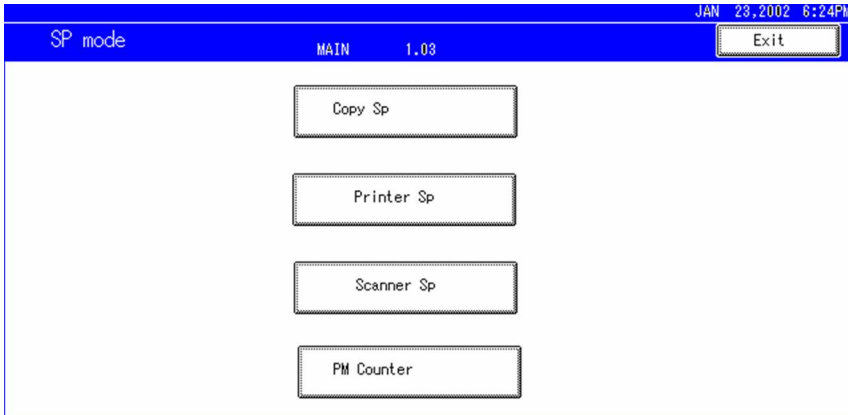
## PM Parts

### PM Counter

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

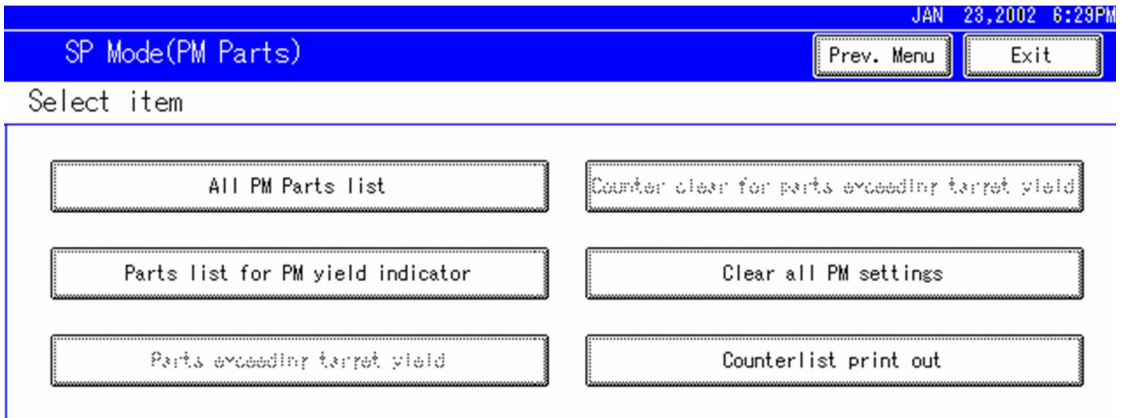
### Displaying the PM Counter

- 1. Enter the SP mode.



b234p901

- 2. Touch [PM Counter].



b234p902

**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.

**Parts list for PM yield indicator.** Displays on the items with their PM yield indicator settings set to "Yes".

**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.

**Counter list print out.** Prints the PM counter on paper.

**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".

SP Mode(PM Parts)						Prev. Menu	Exit
All PM Parts list			Select parts				
No	Description	PM Yield	Current	Target			
[001]	#Development Unit	[YES]	00000012	0350K	[Clear]		
[002]	Developer	[YES]	00000012	0600K	[Clear]		
[003]	#Drum Unit	[YES]	00000012	0600K	[Clear]		01/14
[004]	Drum Pick-off Pawls	[YES]	00000012	0600K	[Clear]		
[005]	#Drum Cleaning Unit	[YES]	00000012	0500K	[Clear]	[▲]Prev	
[006]	Cleaning Blade	[YES]	00000012	0600K	[Clear]		
[007]	Cleaning Brush	[YES]	00000012	0600K	[Clear]		[▼]Next
[008]	Drum Cleaning Filter	[YES]	00000012	0400K	[Clear]		
[009]	#Charge Unit	[YES]	00000012	0400K	[Clear]		
[010]	Grid Plate	[YES]	00000070	1000K	[Clear]		
[011]	Charge Corona Wire	[YES]	00000070	1000K	[Clear]		
[A]	[B]	[C]	[D]	[E]	[F]		b234p903

- [A]: Number buttons. Pressing a number button opens a submenu.
- [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.
- [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.

001	#Development Unit	
Current counter	00000012	[A] Clear current counter
Target yield	0350K	[B] Change target yield
Latest1	0000000	[C] PM yield indicator settings No Yes
Latest2 [D]	0000000	
Latest3	0000000	
Exit		Prev. Next

b234p904

[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] in the previous section).

[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.

## Parts list for PM Yield Indicator

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

SP Mode(PM Parts)						JAN 23, 2002 11:09PM	
Parts list for PM yield indicator						Select parts	
No	Description	Exceed	Current	Target			
001	#Development Unit	[A]	0112	0350K	Clear		
003	#Drum Unit		0112	0600K	Clear		
005	#Cleaning Unit		0112	0500K	Clear	01/02	
009	#Charge Unit		0112	0400K	Clear		
014	#Pre-Charge Unit		0011	1000K	Clear	▲ Prev	
017	#Fusing Unit		0011	1000K	Clear		
021	#Fusing Cleaning Unit		0112	0350K	Clear	▼ Next	
025	#Toner Suction Bottle		0112	0350K	Clear		
026	#Toner Suction Motor		0112	0350K	Clear		
027	#Feed Roller - Tray 1		0112	0350K	Clear		
028	#Pick-Up Roller - Tray 1		0112	0350K	Clear		

b234p905

Note the following:

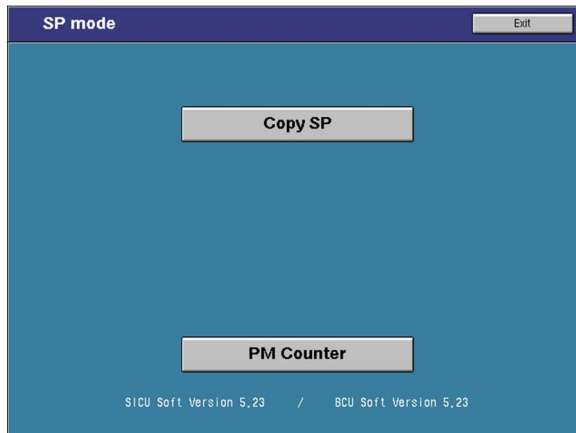
- The # mark denotes a unit.
- Items without the # (for example, 065 ITB) denote individual components.
- An asterisk \* will appear in the Exceed column [A] to show items that have exceeded their target PM yields.

## PM Counters

### Accessing the PM Counters

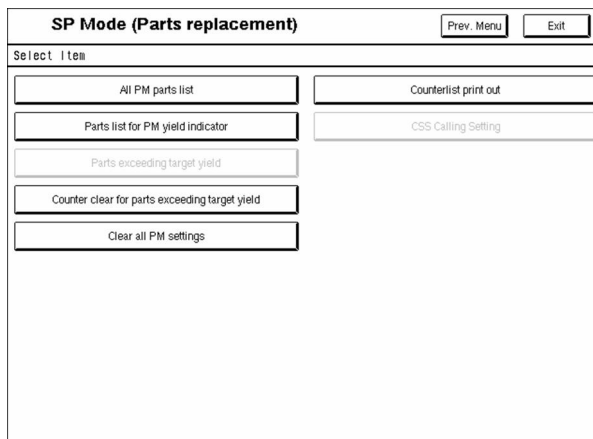
Each PM part has a counter which counts up at the appropriate time. (For example, the counter for the hot roller counts up every copy, and the counter for a feed roller counts up when paper is fed from the corresponding tray.) These counters should be used as references for part replacement timing.

1. Enter the SP mode.



a29fgh4m001

2. Press [PM Counter] on the display.
3. The following menu appears on the display.



a294m013

## 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	Clear	
002	Oil Supply & Cleaning Web	Yes	0000236	0300K	Clear	
003	Web Cleaning Roller	Yes	0000236	0300K	Clear	
004	Hot Roller	Yes	0000236	0450K	Clear	
005	Pressure Roller	Yes	0000236	0450K	Clear	
006	Pressure Roller Cleaning Roller	Yes	0000236	0300K	Clear	
007	Hot Roller Strippers	Yes	0000236	0300K	Clear	
008	Development Filter	Yes	0000236	0300K	Clear	
009	Toner Hopper Filter - Center	Yes	0000236	0300K	Clear	
010	Toner Hopper Filter - Front	Yes	0000236	0300K	Clear	
011	Feed Roller - Tray 1	Yes	0000228	0300K	Clear	
012	Pick-up Roller - Tray 1	Yes	0000228	0300K	Clear	
013	Separation Roller - Tray 1	Yes	0000228	0300K	Clear	
014	Feed Roller - Tray 2	Yes	0000000	0300K	Clear	01/03
015	Pick-up Roller - Tray 2	Yes	0000000	0300K	Clear	Previous page
016	Separation Roller - Tray 2	Yes	0000000	0300K	Clear	
017	Feed Roller - Tray 3	Yes	0000000	0300K	Clear	Next page
018	Pick-up Roller - Tray 3	Yes	0000000	0300K	Clear	


a294m014

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	Clear	
002	Oil Supply & Cleaning Web		0000236	0300K	Clear	
003	<div style="border: 2px solid red; padding: 10px;"> <p> 001: Developer  <b>Current settings will be cleared</b>  <b>Execute ?</b></p> <p>YES <span style="margin-left: 200px;">No</span></p> </div>					
004						
005						
006						
007						
008						
009						
010						
011						
012						
013	Separation Roller - Tray 1		0000228	0300K	Clear	01/01
014	Feed Roller - Tray 2		0000000	0300K	Clear	
015	Pick-up Roller - Tray 2		0000000	0300K	Clear	Previous page
016	Separation Roller - Tray 2		0000000	0300K	Clear	
017	Feed Roller - Tray 3		0000000	0300K	Clear	Next page
018	Pick-up Roller - Tray 3		0000000	0300K	Clear	

a294m016

Then press [Yes] to clear the counter.

If one of the keys in the "No" column is pressed, the following appears on the display.



Prev. Menu    Exit

**SP Mode (Parts replacement)**

All PM parts list

No	Description	PM yield	Current	Target	
001	Developer	Yes	0000236	0000K	Clear
002	Oil Supply & Cleaning Web	Yes	0000236	0300K	Clear
003	Web Cleaning Roller	Yes	0000236	0300K	Clear
004	Hot Roller	Yes	0000236	0450K	Clear
005	Pressure Roller	Yes	0000236	0450K	Clear
006	Pressure Roller Cleaning Roller	Yes	0000236	0300K	Clear
007	Hot Roller Strippers				
008	Development Filter				
009	Toner Hopper Filter - Center				
010	Toner Hopper Filter - Front				
011	Feed Roller - Tray 1				
012	Pick-up Roller - Tray 1				
013	Separation Roller - Tray 1				
014	Feed Roller - Tray 2				
015	Pick-up Roller - Tray 2				
016	Separation Roller - Tray 2				
017	Feed Roller - Tray 3				
018	Pick-up Roller - Tray 3				

001 : Developer

Current counter 0000236   

Target yield 0000K   

Latest 1 0000000    PM yield indicator settings

Latest 2 0000000   

Latest 3 0000000

a294m017

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.

## 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 01/01
015	Pick-up Roller - Tray 2		0000000	0300K	Clear
016	Separation Roller - Tray 2		0000000	0300K	Clear Previous page
017	Feed Roller - Tray 3		0000000	0300K	Clear
018	Pick-up Roller - Tray 3		0000000	0300K	Clear Next page

a294m015

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.

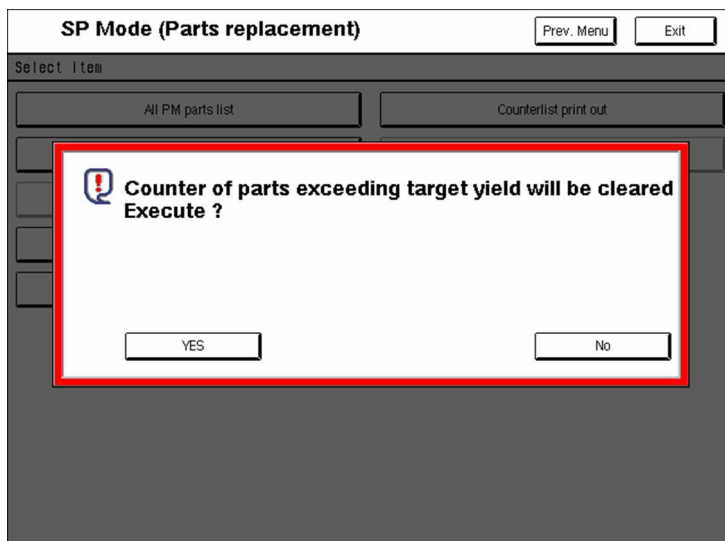
Each counter can also be cleared on this screen. To clear all counters on this screen at once, see 'Counter Clear for Parts Exceeding Target Yield' on the next page.

### 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.

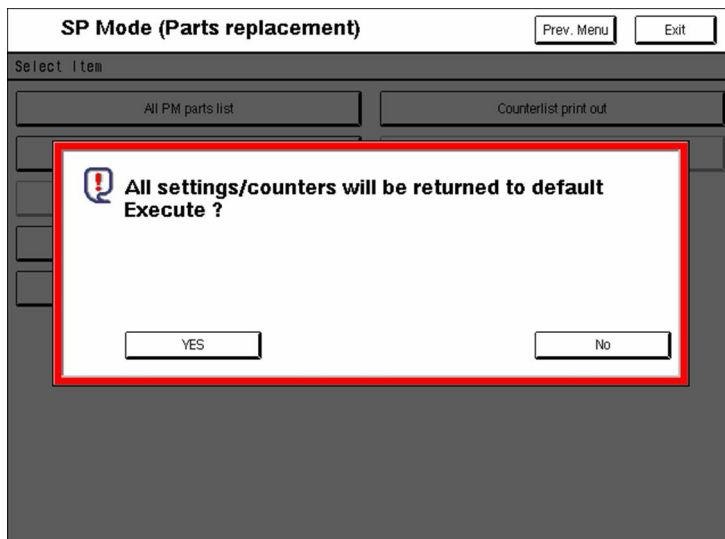


a294m018

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.



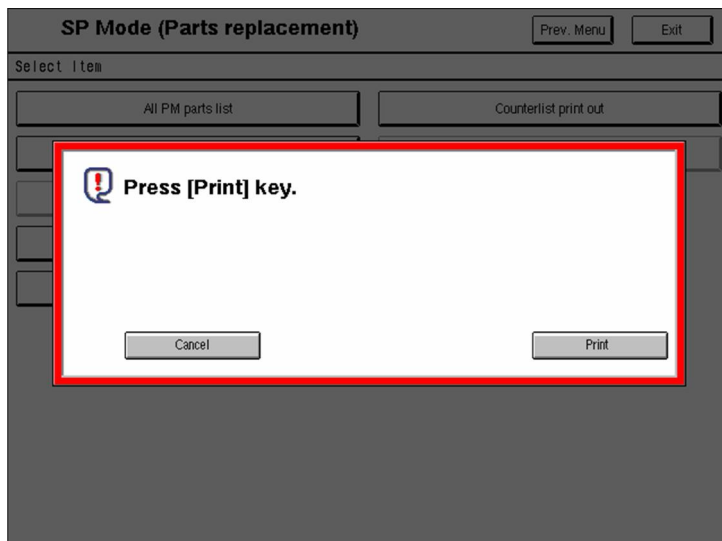
a294m019

Press [Yes] to clear the settings.

## Counter List Print Out

---

Prints a list of all the PM part counters. When this item is selected, the following appears on the display.



a294m010

Press [Print] to print out the counter list.

# PM Tables: Main

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.

## 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.

## Main Machine 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	500K	Exp	Note
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.
Toner collection bottle		650K * 1	Discard the waste toner when a near end or end alert is displayed.
Toner suction bottle		About 3000 K * 1	Replace when near end or end alert is displayed.
Toner suction motor		About 2500 K * 1	Replace when near end or end alert is displayed.

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

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			

AROUND THE DRUM	500K	550K	1100K	Exp	
Cleaning brush		R			☛ Replacement and Adjustment – Around the Drum – Cleaning Brush.
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

AROUND THE DRUM	500K	550K	1100K	Exp	
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				15000 K	
Carrier catcher		I			Dry cloth

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	 Replacement and Adjustment – Fusing Unit – Fusing Cleaning Unit
	EU/ASIA	R			
Fabric pressure roller	NA			R	
	EU/ASIA	R			
Supply roller stopper	NA			R	
	EU/ASIA	R			
Hot roller			R		



FUSING UNIT		500K	700K	750K	
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 Grease Barrierta – JFE5 5/2 (A2579300)
Pressure roller				R	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			

FUSING UNIT		500K	700K	750K	
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			
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

PAPER FEED	500K	1000K	Note
Paper feed rollers x3		R	Replace together.
Pick-up rollers x3		R	
Separation rollers x3		R	
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.

**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.

# PM Tables: Options

## 1. LCIT RT5030 (D452-17)

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

Part	500K	1000K	Note
Transport guide plate	IC		Clean with damp, clean cloth
Grip rollers (drive, idle rollers)	IC		
Paper feed rollers x3	IC	R	
Pick-up rollers x3	IC	R	
Separation rollers x3	IC	R	
CIS	IC	IC	

Part	1000K	3000K	5000K	Notes
Pickup Solenoids		IR		4th, 5th, 6th Tray
Separation Solenoids		IR		4th, 5th, 6th Tray
Lift Motors	IR			4th, 5th Tray
Lift Motor			IR	6th Tray

1. Inspect the solenoids and motors.
2. Display the PM Counters for these solenoids and motors.
3. Replace if "Target" has been exceeded.

## 2. LCIT RT5040 (D453-17)

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

Part	500K	1000K	Note
Transport guide plate	IC		Clean with damp, clean cloth
Grip rollers (drive, idle rollers)	IC		
Transport rollers	IC		
Pick-up rollers (4th, 5th, 6th tray)	IC	IR	
Paper feed roller (4th, 5th, 6th tray)	IC	IR	
Separation rollers (4th, 5th, 6th tray)	IC	IR	
CIS	IC	IC	

1. At 1000K, display the PM Counts for the pick-up, feed, and separation rollers.
2. Replace if "Target" has been exceeded.

### 3. Multi-Bypass Tray (B833)

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

Part	500K	1000K	Note
Transport guide plate	IC		
Grip rollers (drive, idle rollers)	IC		
Pick-up roller	IC	IR	
Paper feed roller	IC	IR	
Separation roller	IC	IR	

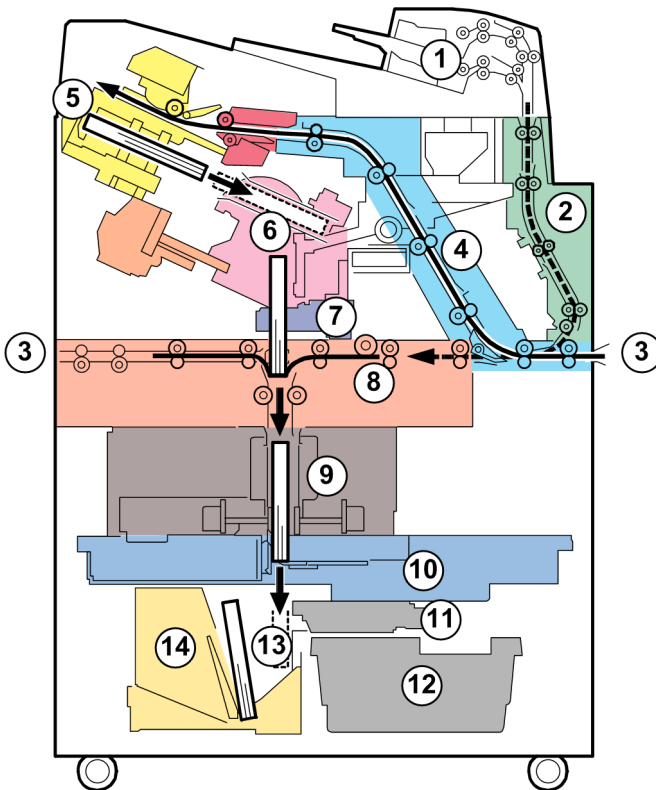
1. At 1000K, display the PM Counts for the pick-up, feed, and separation rollers.
2. Replace if "Target" has been exceeded.

#### 4. Decurl Unit DU5000 (D457-17)

Part	500K	Note
Transport guide plate	IC	Clean with damp (alcohol or water) cloth
De-curl rollers (drive, idle roller)	IC	
Transport rollers (drive, idle roller)	IC	
Purge tray paper sensors (x3)	IC	

2

#### 5. 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	Trimming Box
13	Book Buffer
14	Book Output

**Inserters 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	



## 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 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)

Part	Interval	Predicted	Replace	Comments
Signature Thickness Sensor	PM		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	Comments
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

## Signature Rotation Unit

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

### Trimming Unit

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

### 6. Cover Interposer Tray CI5000 (B835)

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

Part	60K	As Needed	Note
Drive rollers		C	Dry cloth
Idle rollers		C	
Feed belt	R		
Separation roller	R		
Pick-up roller	R		
Sensors		C	Blower brush.

Part	60K	As Needed	Note
Drive gears		I	Lubricate with very small amount of G501.

## 7. Multi-Folding Unit FD5000 (D454)

2

Part	PM Visit	Notes
Rollers (drive, idle rollers)	IC	Alcohol, clean cloth
Anti-static brush	IC	
Shafts	IC	Lubricate with silicone oil if noisy.
Sensors	IC	Blower brush
Positioning roller	IC	Inspect for scratches or nicks
Fold rollers (1st, 2nd, 3rd)	IC	Alcohol, clean cloth
Crease rollers (drive, idle roller)	IC	

## 8. Ring Binder (D392)

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

Item	Action
<b>Horizontal Transport Path</b>	
Anti-static brushes	Blower brush
Horizontal transport path sensors	Blower brush
Drive rollers, idle rollers	Damp cloth
<b>Switchback Unit</b>	
Anti-static brushes	Blower brush
Switchback area sensors	Blower brush
Drive rollers, idle rollers	Damp cloth

Item		Action
<b>Binder Unit</b>		
	Paddle roller	Blower brush
	Transport path sensors	Blower brush
	Drive rollers, idle rollers	Damp cloth

### 9. High Capacity Stacker SK5010 (D447)

Part	500K	PM Visit	
Rollers (drive, idle rollers)	IC	IC	Alcohol, clean cloth
Anti-static brush	IC	IC	
Shafts	IC	IC	Lubricate with silicone oil if noisy.
Sensors	IC	IC	Blower brush
Sub jogger fences	IC	IC	Alcohol, clean cloth
Main jogger fences	IC	IC	
LE stopper	IC	IC	

### 10. Booklet Finisher SR5020 (D434)

#### Main

Part	5000K	25000K	
Rollers (drive, idle)	IC		Alcohol, clean cloth
Discharge brush	IC		
Shafts	IC		Lubricate with silicone oil if noisy
Sensors	IC		Blower brush
Jogger fences	IC		Tighten screws

Part	5000K	25000K	
Staple trimmings hopper	IC		Empty hopper
Alignment brush roller		IR	See below
Positioning roller		IR	
Drag roller (sponge)* 1		IR	

- At 25000K, display the PM Counts for the alignment brush roller, positioning roller, and drag sponge roller.
- Replace if "Target" has been exceeded.

## Punch Unit

Part	20000K	
Punch unit	IC	<ul style="list-style-type: none"> <li>Display PM Count for punch unit.</li> <li>Replace if "Target" has been exceeded.</li> </ul>

## Staplers

Part	50000K	200000K	
Corner stapler	IR		<ul style="list-style-type: none"> <li>Display PM Count.</li> </ul>
Booklet Staplers (x2)		IR	<ul style="list-style-type: none"> <li>Replace if "Target" exceeded.</li> </ul>

## 11. Trimmer Unit TR5020 (D455)

Part	PM Visit	
Rollers (drive, idle rollers)	IC	Water, clean cloth
Belts	IC	
Discharge brush	IC	Cloth, blower brush
Roller shafts		Lubricate with silicone oil if noisy
Sensors	IC	Blower brush

Part	PM Visit	
Paper trimmings hopper	IC	Empty, make sure the operator knows how to empty the hopper
Trimming Blade	R	Replace the blade after 400K. SP7989 (Trim Count) displays the total count.

## 12. Finisher SR5000 (B830)

	500K	2500 K	3000 K	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		

## Punch Unit PU5000 B831

	Exp
Punch unit B531	1 million punches



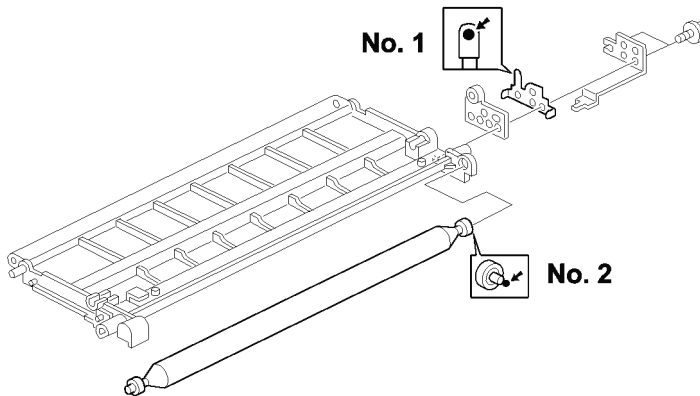
## Lubrication Points

### Types of Grease

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

2

### Transfer



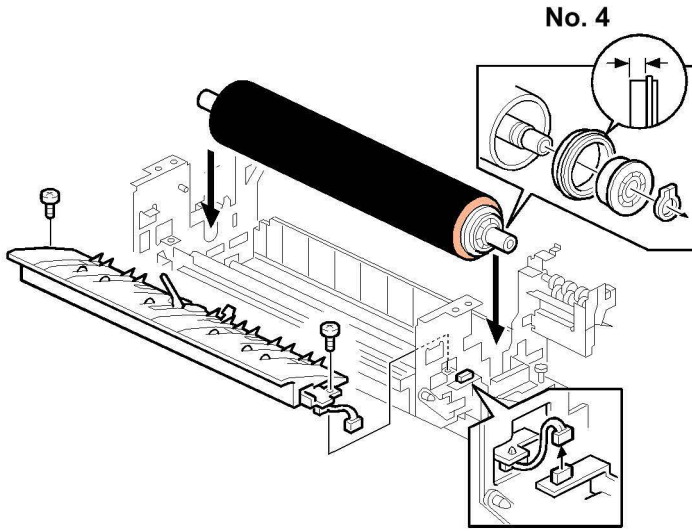
b234p901

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

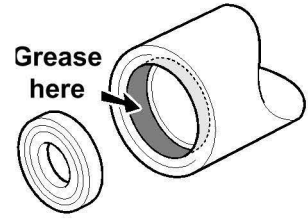
### Fusing

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

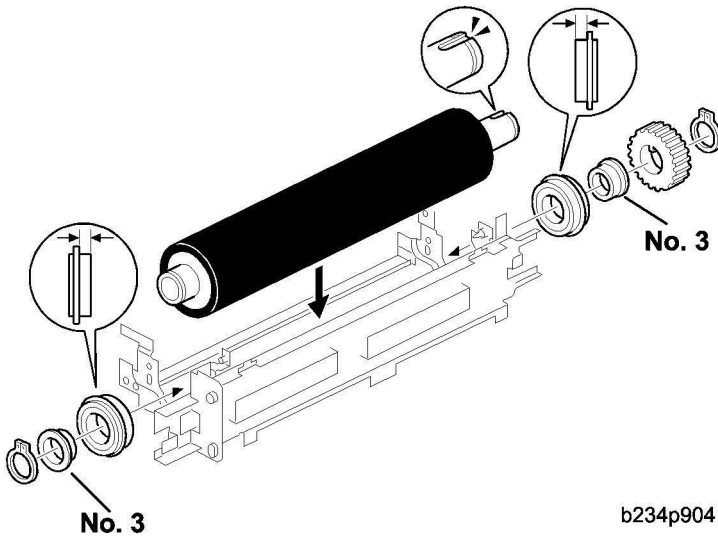
2



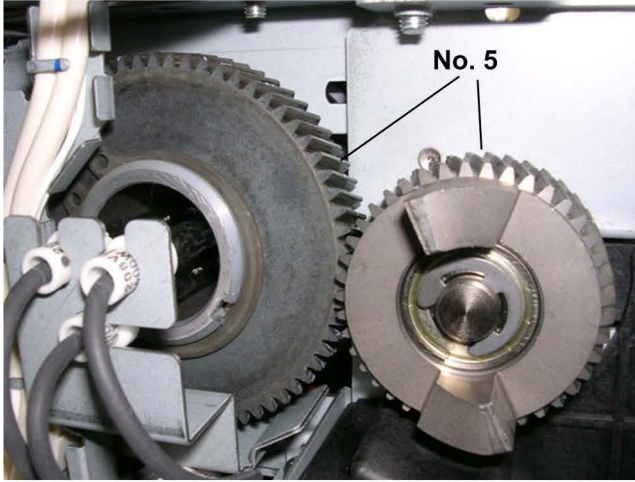
b234p902



b234p903



b234p904



b234p906



# 3. Replacement and Adjustment

---

## 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 main machine.

3

---

### 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 main machine. This 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).

---

### 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.

---

## 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

---

## 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.

---

## 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.

---

## 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.

---

## Development

---

3

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 main machine.
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 main machine. 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).

---

## 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.

---

## 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

---

## 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.

---

## 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.



# Special Tools and Lubricants

## 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

## Lubricants

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

## Common Procedures

### ⚠ CAUTION

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

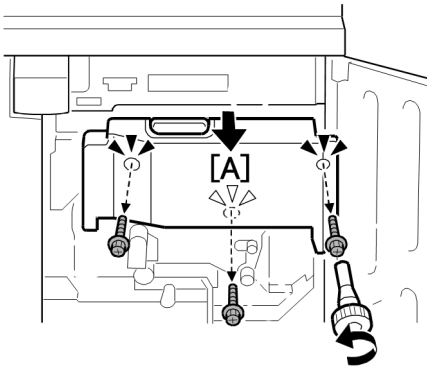
## Development Unit Drawer

3

### Pulling the 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.

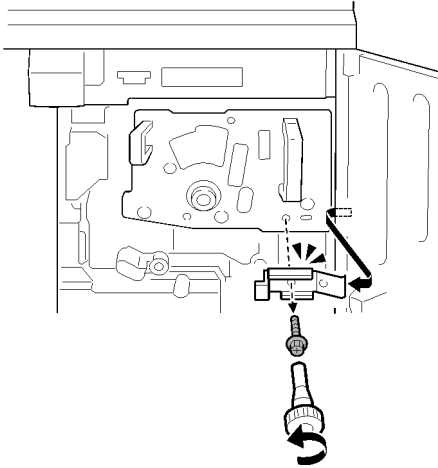


b234r903

1. Open the right front door.
2. Remove the black screws (⚙ x 3).
3. Remove inner cover [A].

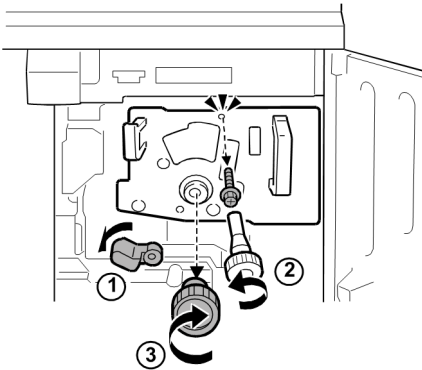
#### ★ Important

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



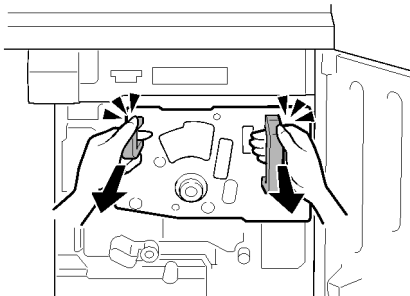
b234i110e

4. Remove the ground plate (① x 1).



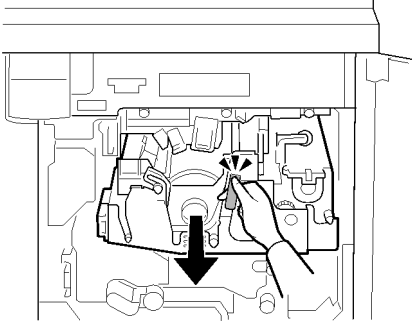
b234r904

5. Gently lower Lever C1 ①.
6. Remove the black screw ② (① x 1).
7. Rotate the black knob ③ clockwise and remove it.



b234r913

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



b234r914

3

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

**Note**

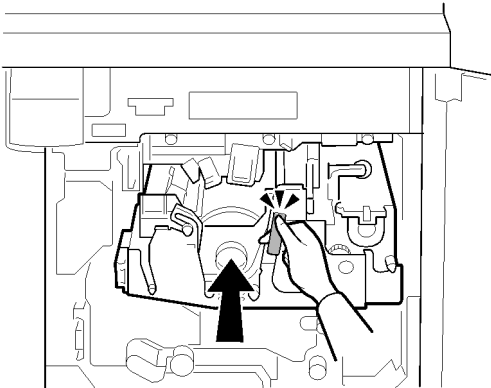
- The development unit will shift slightly to the right when you pull the drawer out.

**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.

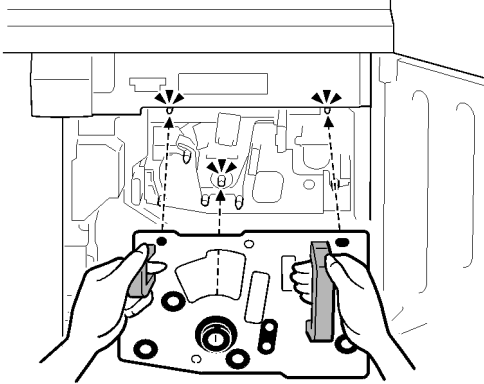
### Closing the Drawer

---



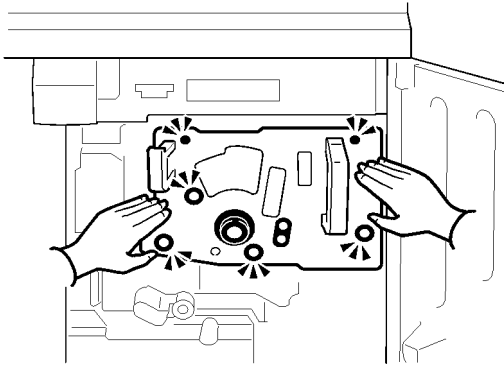
b234r915

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



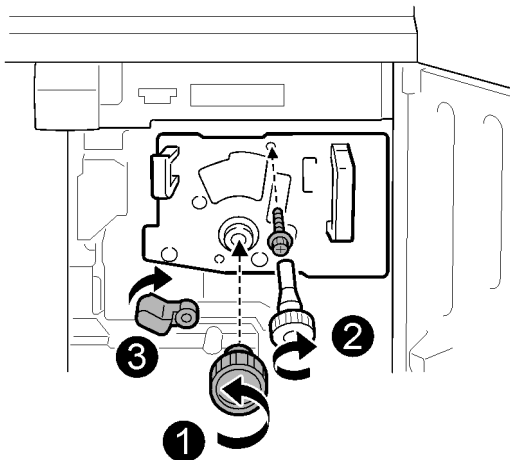
b234r916

2. Mount the faceplate holes over the pegs.



b234r917

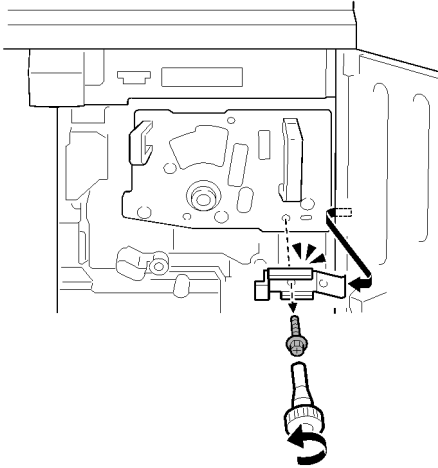
3. Push in on each corner and edge of the faceplate to make sure that it is locked and mounted correctly.



b234r918

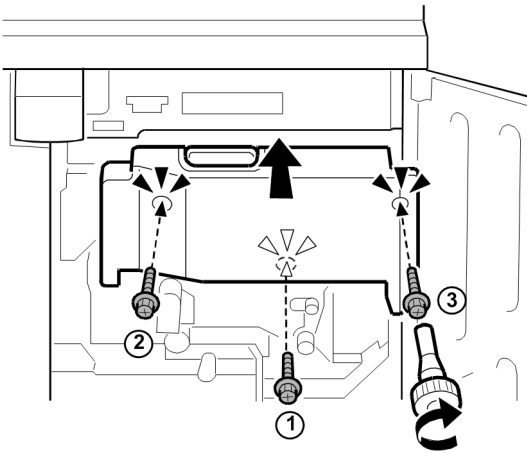
4. In this order:

- Attach knob ①
- Fasten screw ②
- Gently rotate lever C1 ③ up.



b234i110e

5. Reattach the ground plate (④ x 1).



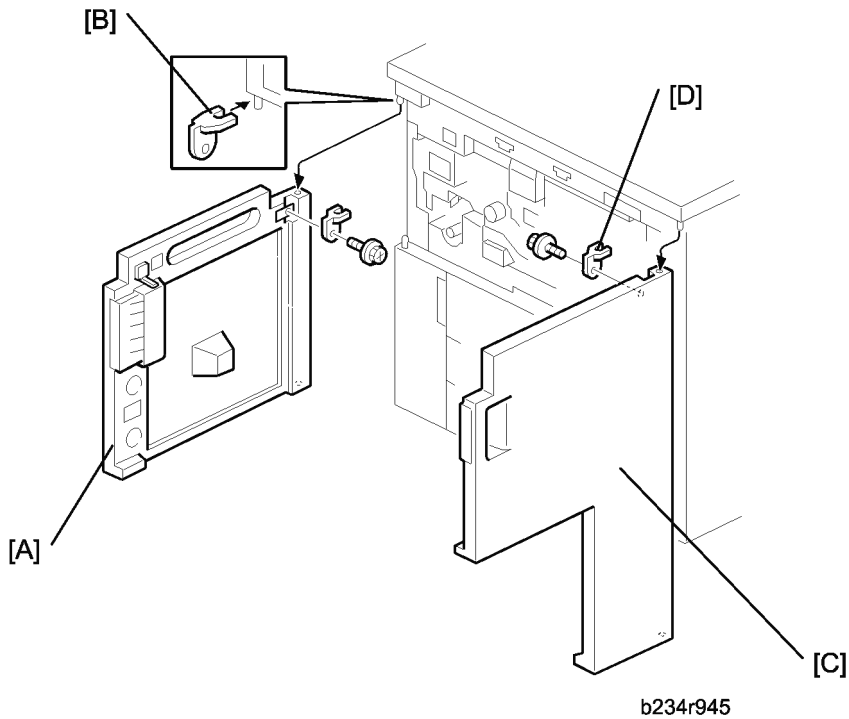
b234r920

6. Mount the inner cover.
- Attach screw ① first but do not tighten.
  - Attach the other screws ②, ③.
  - Tighten all the screws.
7. Close the right front door.

---

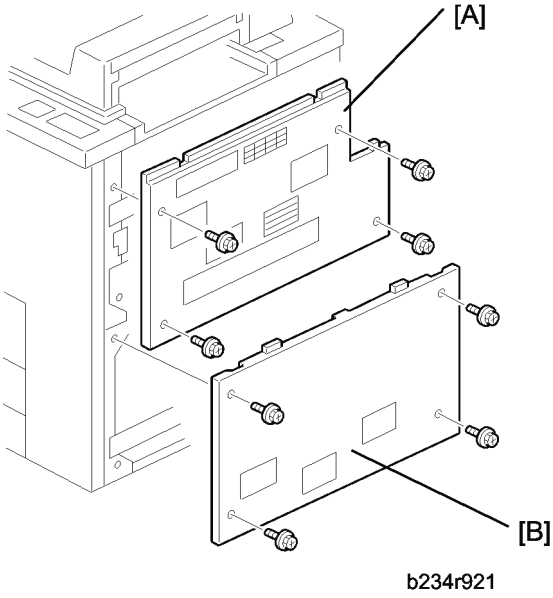
**Front Doors**

---



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

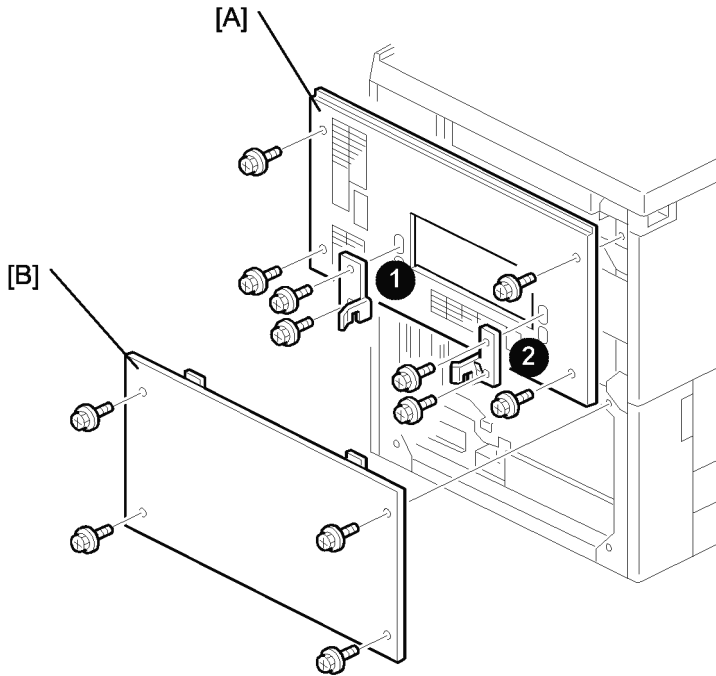
## Right Covers



1. Right upper cover [A] (🔩 x 4).
2. Right lower cover [B] (🔩 x 4).



## Left Covers



b234r910

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

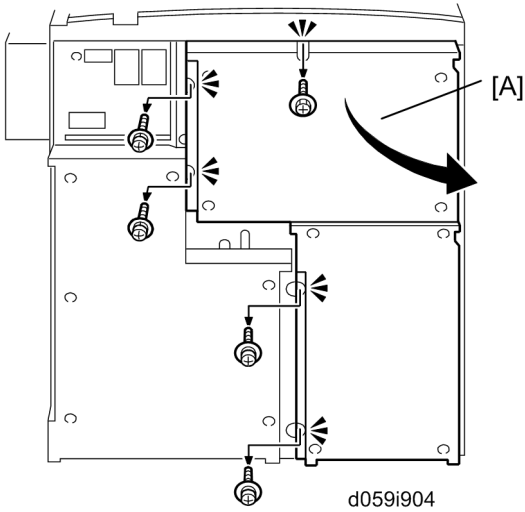
---

## Controller Box

---

### Opening the Controller Box

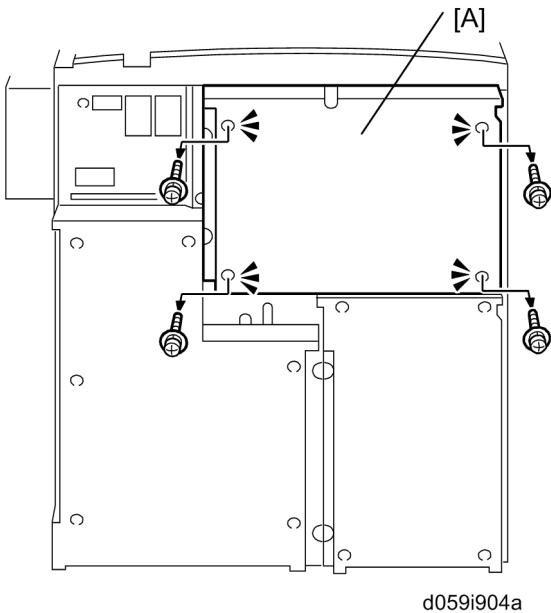
---



1. Remove the screws (⌀ x 5).
2. Swing open the controller box [A] in the direction of the arrow.

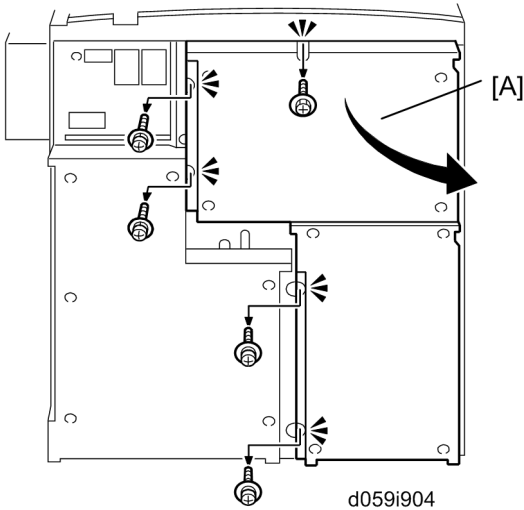
### Removing the Controller Box Upper Cover

---

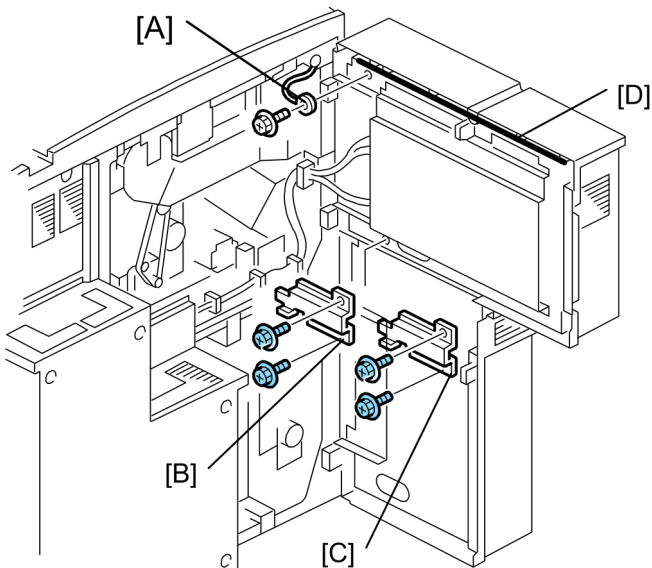


1. Remove the screws (⚙️ x 5).
2. Remove the controller box upper cover [A].

## Removing the Controller Box

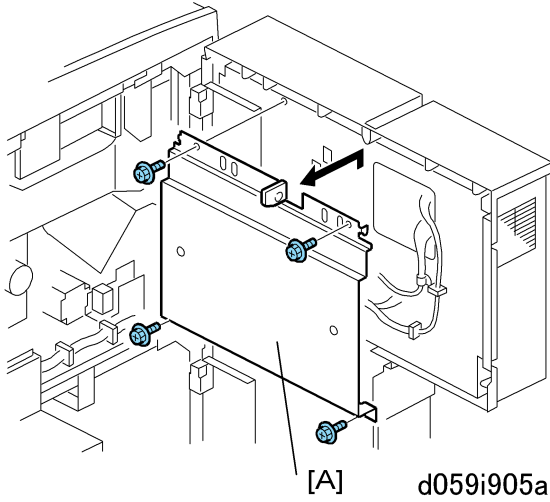


1. Open the controller box [A] (⚙️ x 5).

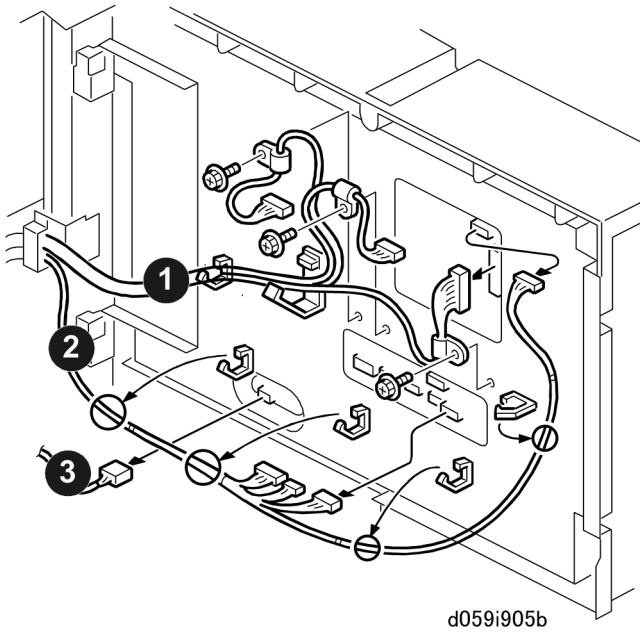


2. Disconnect ground wire [A] (⚙️ x 1).
3. Remove plate [B] (⚙️ x 2).
4. Remove plate [C] (⚙️ x 2).

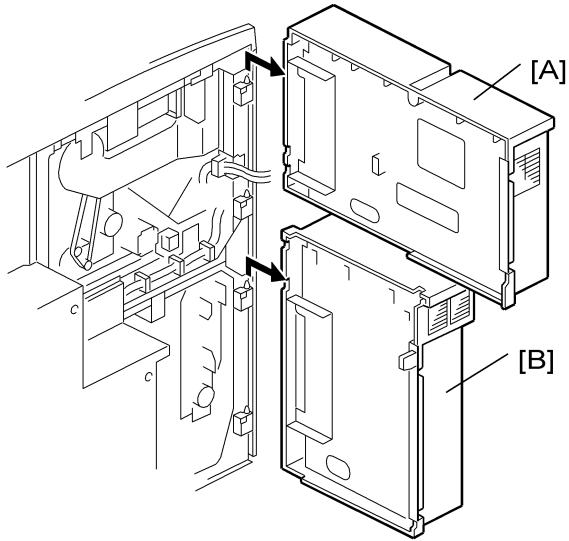
5. Remove sponge [D].



6. Remove harness cover [A] (⚙️ x4).



7. Disconnect the three harnesses (⚙️ x3, ⚙️ x6, ⚙️ x8).



d059i905c

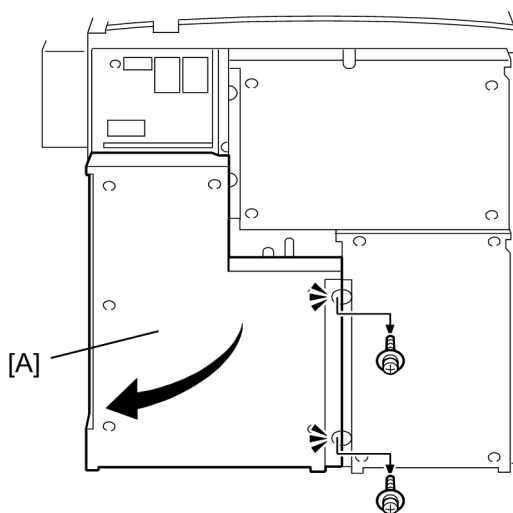
8. Lift off the following parts:

[A] Upper half of the controller box

[B] Lower half of the controller box

## PSU Box

### Opening the PSU Box

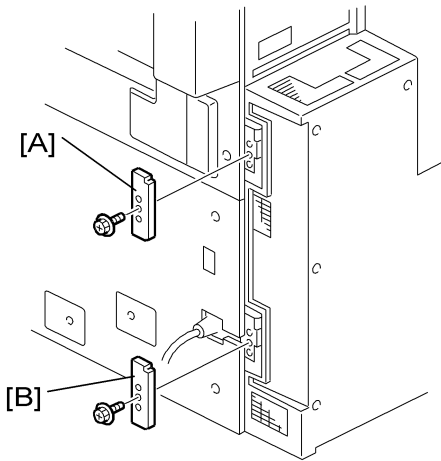


d059i906a

1. Remove the screws (🔩 x2).
2. Swing open the PSU box [A] in the direction of the arrow.

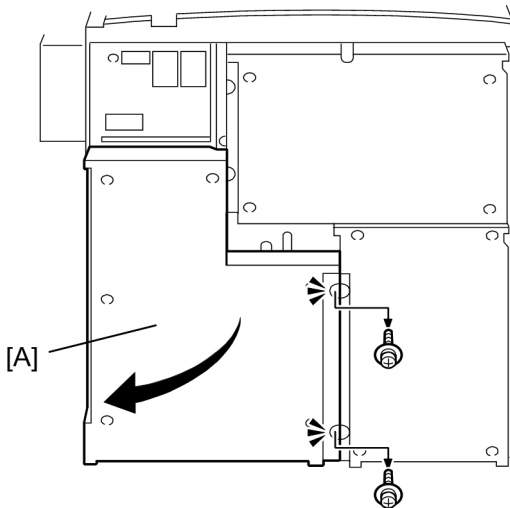
### Removing the PSU Box

3



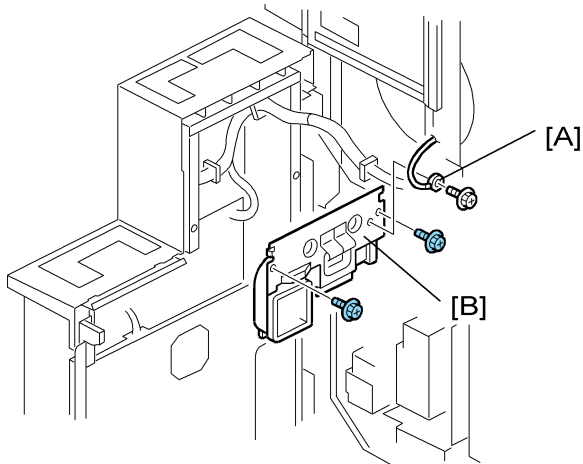
d059i906

1. Remove:
  - [A] Upper hinge cover (🔩 x1)
  - [B] Lower hinge cover (🔩 x1)



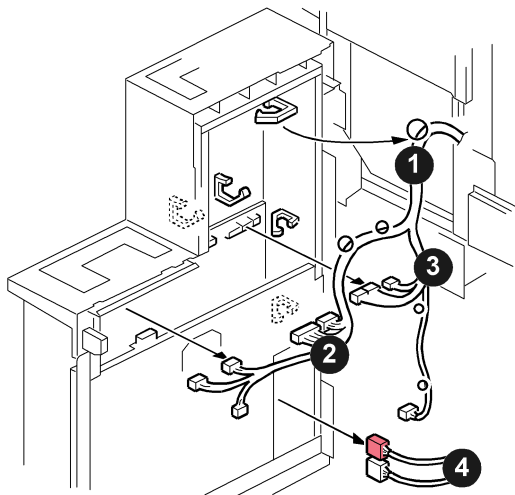
d059i906a

2. Open the PSU box [A] (🔩 x2)



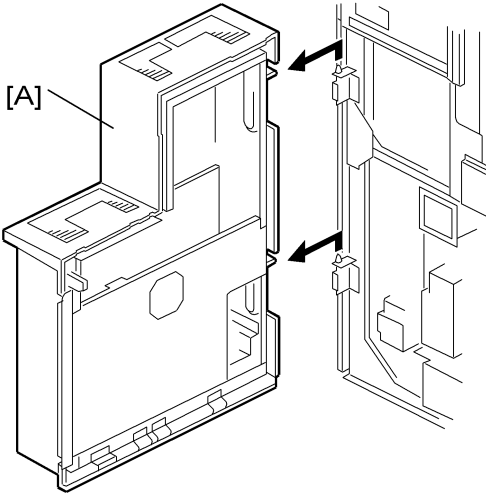
d059i907

3. Disconnect ground wire [A] (🔧 x 1).
4. Remove duct [B] (🔧 x 2)



d059i908

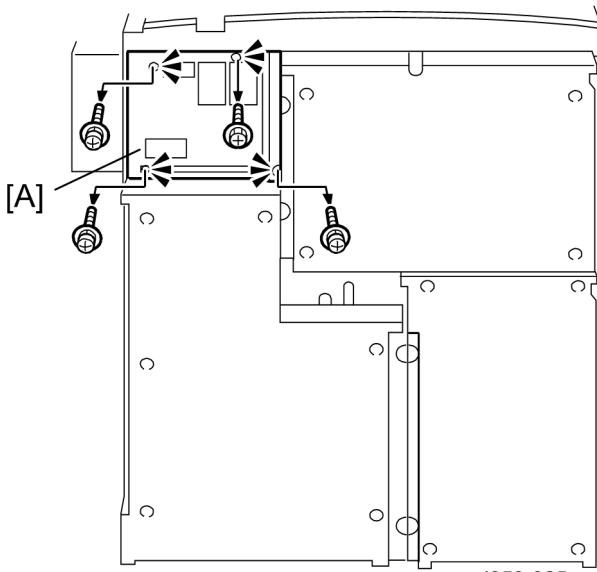
5. Disconnect the four harnesses (🔧 x 8, 📏 x 11).



d059i908a

6. Lift the PSU box [A] off its hinges.

## Rear Upper Cover



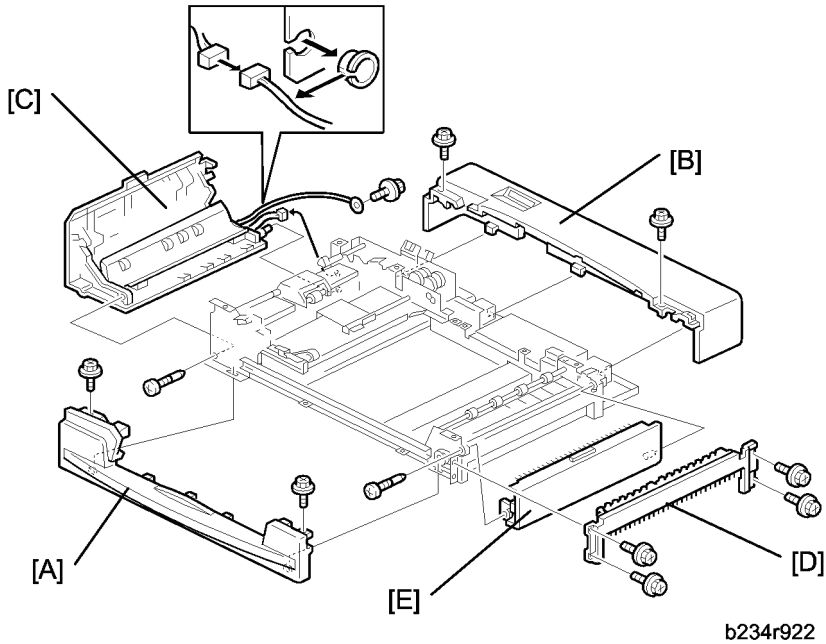
d059r925

1. Rear upper cover [A] (⚙️ x4)



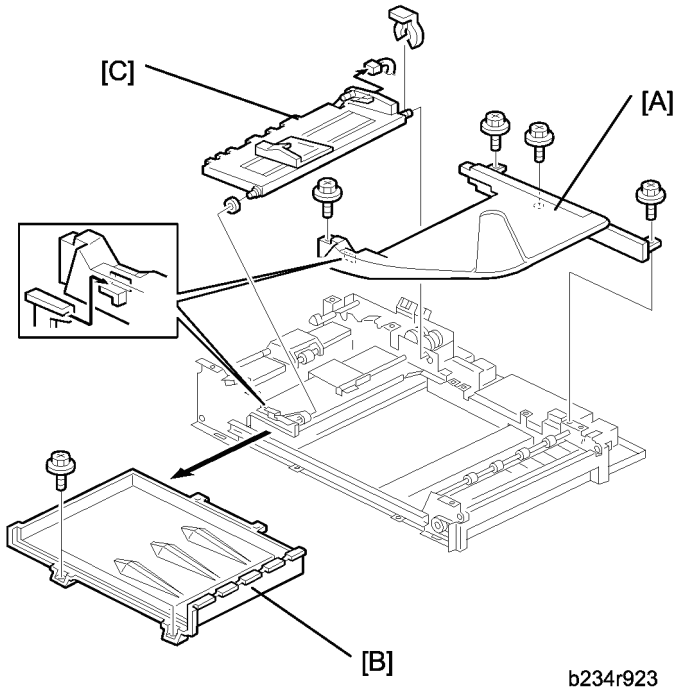
# Document Feeder

## ADF Covers



1. ADF front cover [A] (🔩 x 2).
2. ADF rear cover [B] (🔩 x 2).
3. Left cover [C] (🔩 x 2, 📏 x 2).
4. Original exit tray. (📄 p.314 "Optics Dust Filter")
5. Right cover [D] (🔩 x 4, 📏 x 2).
6. Upper exit cover [E] (🔩 x 1).

## ADF Original Tray



### Original Tray

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

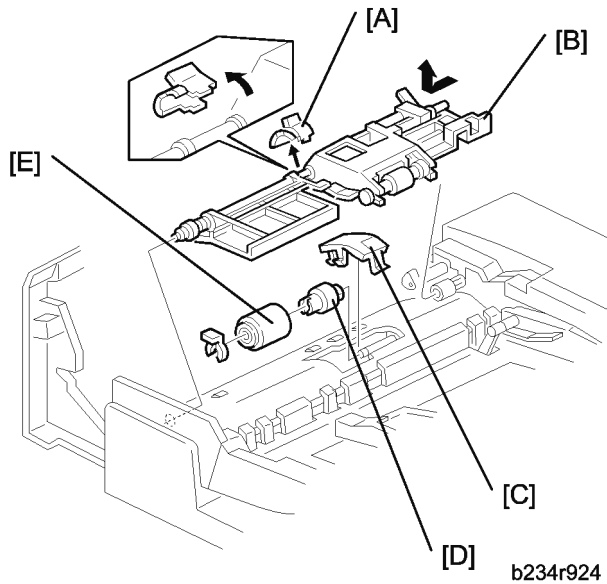
### Original Table Cover

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

### Bottom Plate

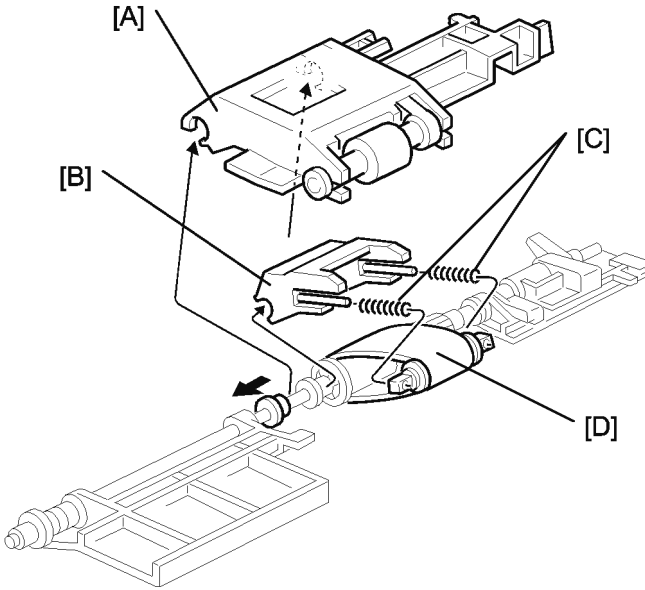
1. Remove the ADF front and rear covers.
2. Remove the original tray [A].
3. Bottom plate [C] (🔩 x 1, 📦 x 1).

## 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] (⌀ x 1).

## Feed Belt



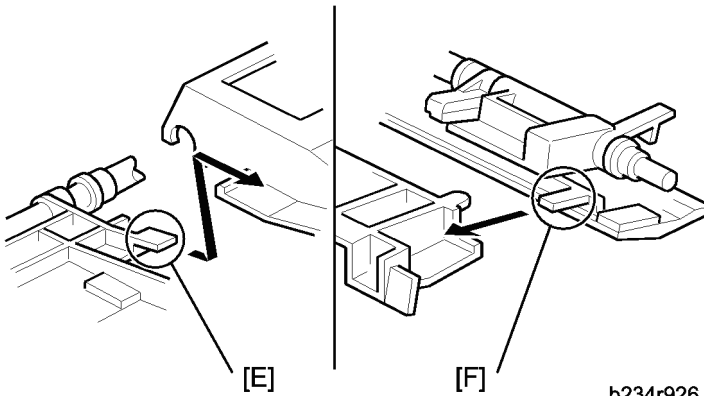
b234r925

1. Feed unit (▶ p.297)
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].

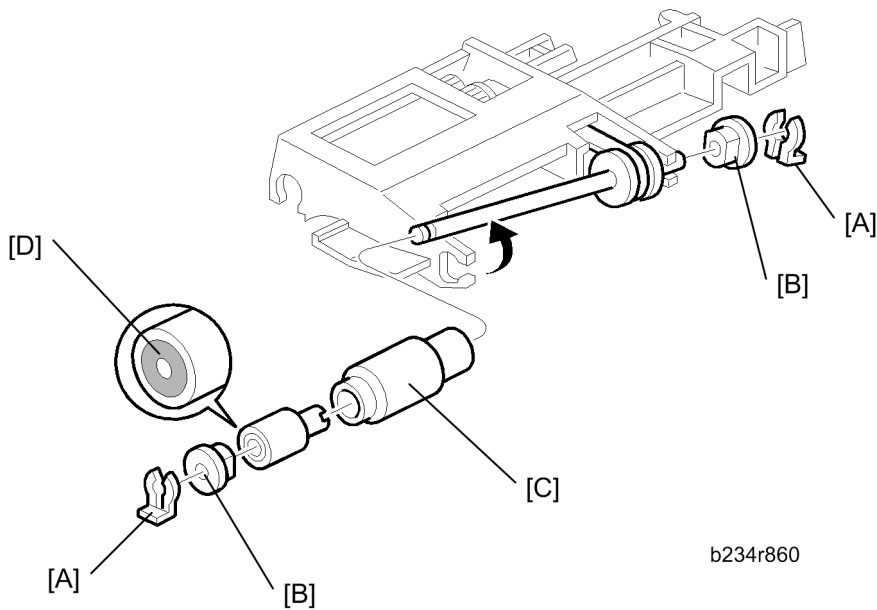


b234r926

**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.

## Pick-Up Roller



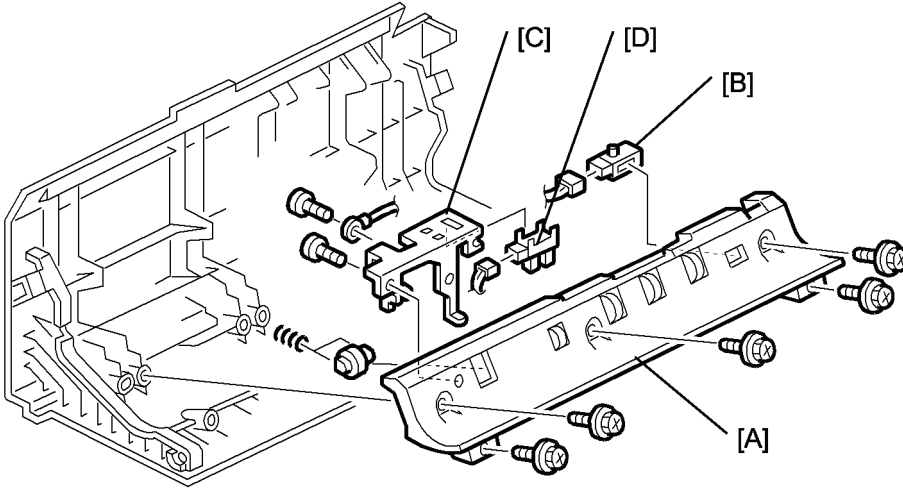
1. Open the left cover.
2. Feed unit ( p.297)
3. Snap rings [A] ( x 2).
4. Two bushings [B].
5. Pick-up roller [C].

**Note**

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

## ADF Sensors

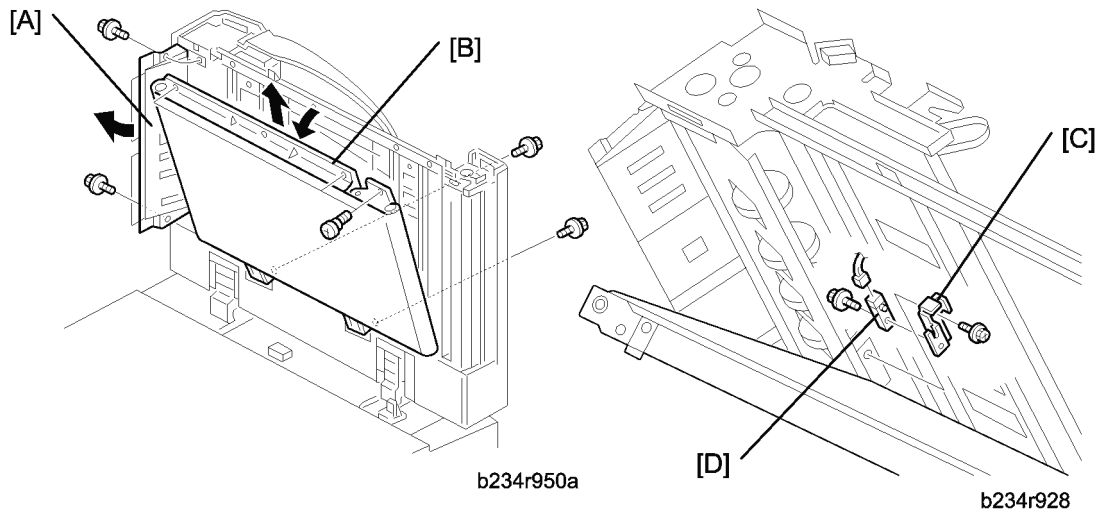
### Entrance Sensor and Length Sensor



b234r861

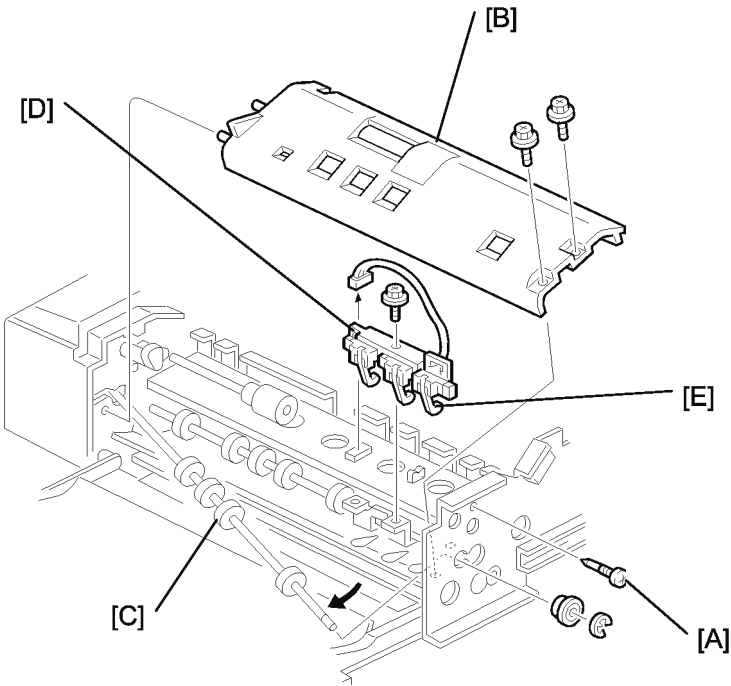
1. Left cover.
2. Guide plate [A] (🔩 x 5).
3. Entrance sensor [B] (🔩 x 1).
4. Length sensor bracket [C] (🔩 x 2).
5. Length sensor [D] (🔩 x 1).

## Registration Sensor



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

## Width Sensors

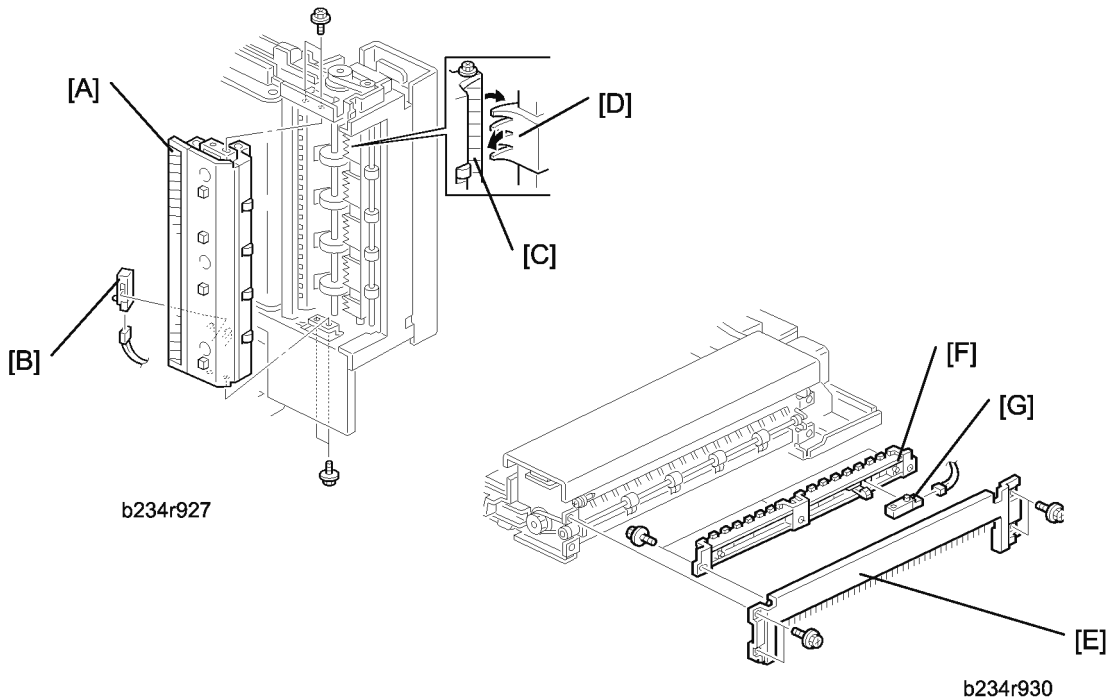


b234r929

1. ADF front cover.
2. Feed unit. (p.297)
3. Stopper screw [A].
4. Guide plate [B] (x 2).
5. Release the front end of the upper transport roller [C] (bushing x 1, x 1).
6. Sensor bracket [D] (x 1).
7. Width sensors [E] (x 1 each).



## Exit Sensor, Inverter Sensor



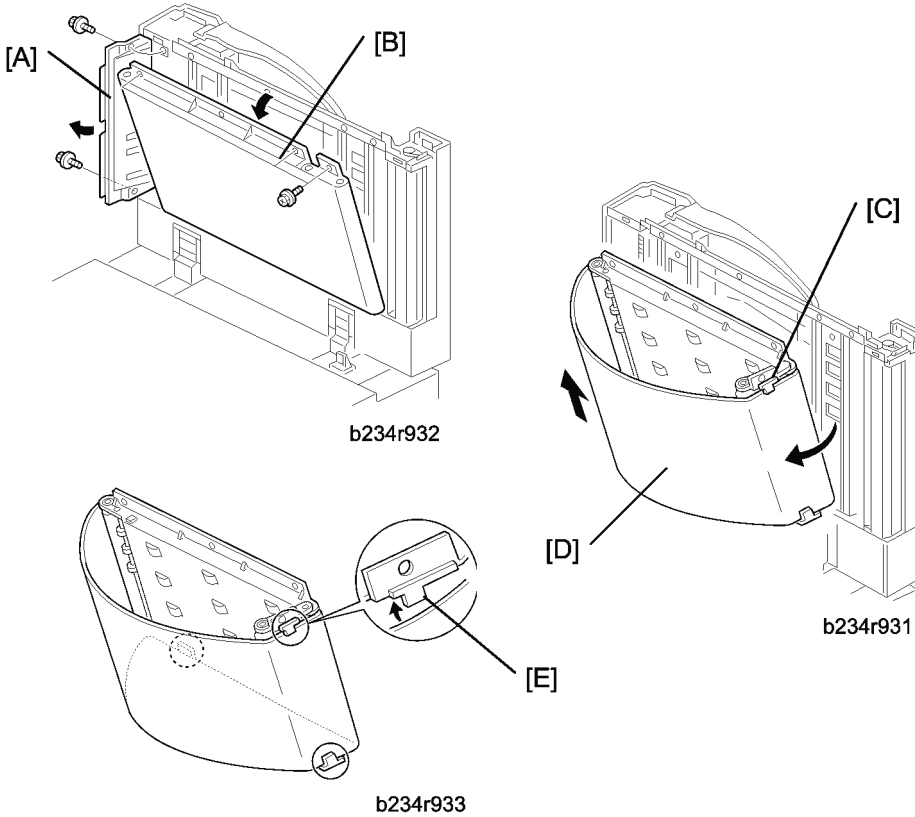
1. Front and rear covers.
2. Original tray. (☛ p.296)
3. Exit guide unit [A] (☛ x 5, ☛ x 1).
4. Exit sensor [B] (☛ x 1).

### ⬇ Note

- When reinstalling the exit guide unit, make sure that the guide plate [C] on the exit unit is over the exit gate [D].

5. Right cover [E]
6. Guide plate [F] (☛ x 3).
7. Inverter sensor [G] (☛ x 1).

## Transport Belt



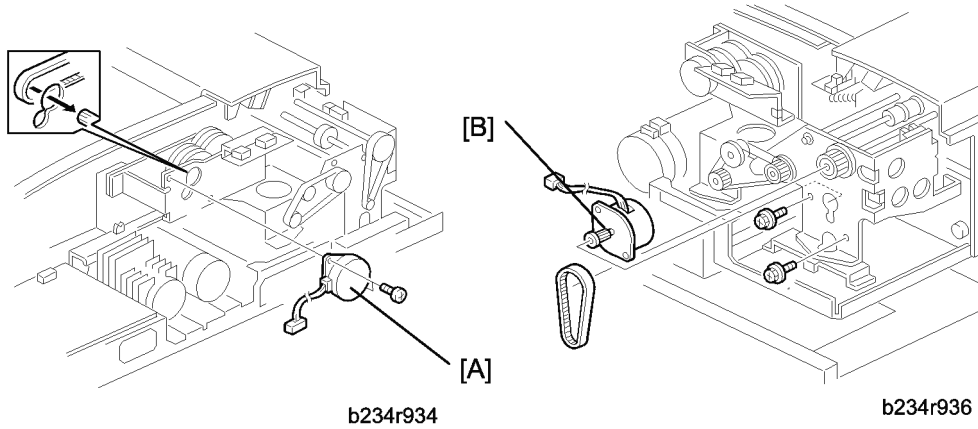
1. ADF front cover.
2. Release the entrance guide [A] (⚙️ x 2).
3. Release the transport belt unit [B] (⚙️ x 3).
4. Fold the transport belt assembly extension [C].
5. Transport belt [D].

⬇️ **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.

## ADF Motors

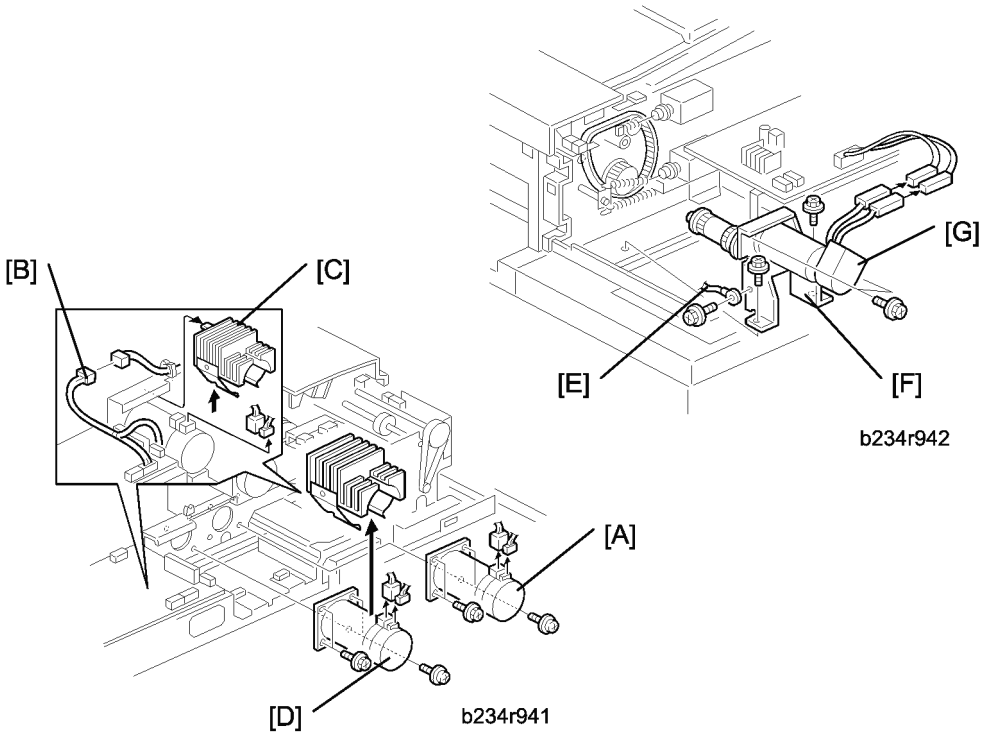
### Bottom Plate Motor, Pick-up Motor



1. ADF rear cover.
2. Bottom plate motor [A] (🔧 x 2, 🛠️ x 1).
3. Pick-up motor [B] (🔧 x 2, 🛠️ x 1).

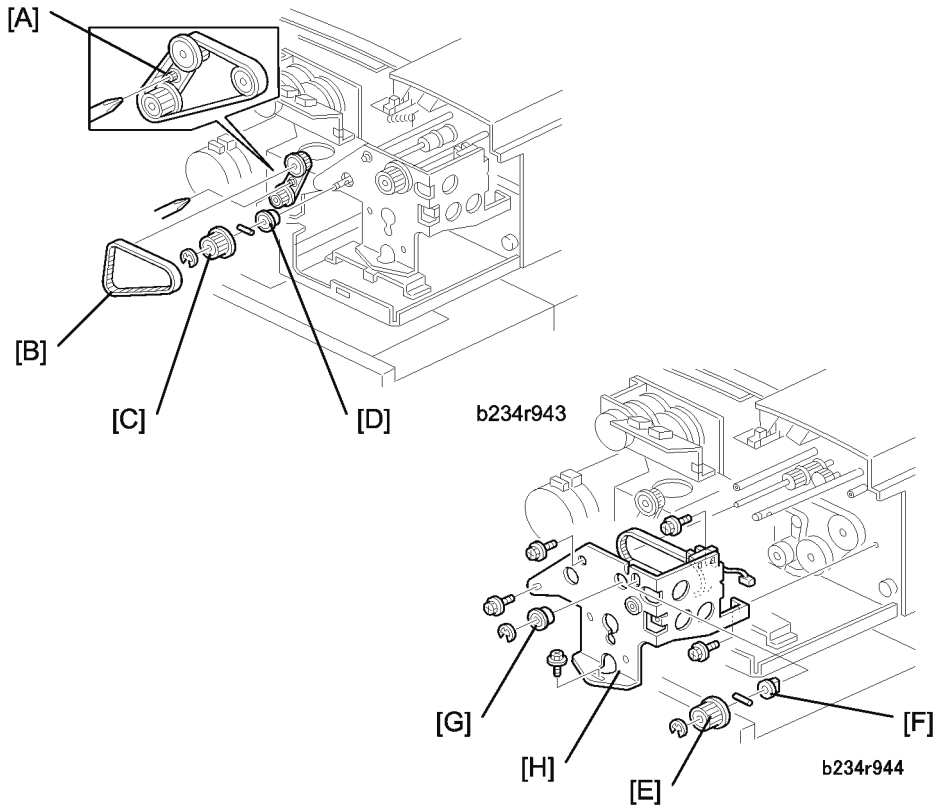
## Feed-in, Transport, Feed-out Motors

3

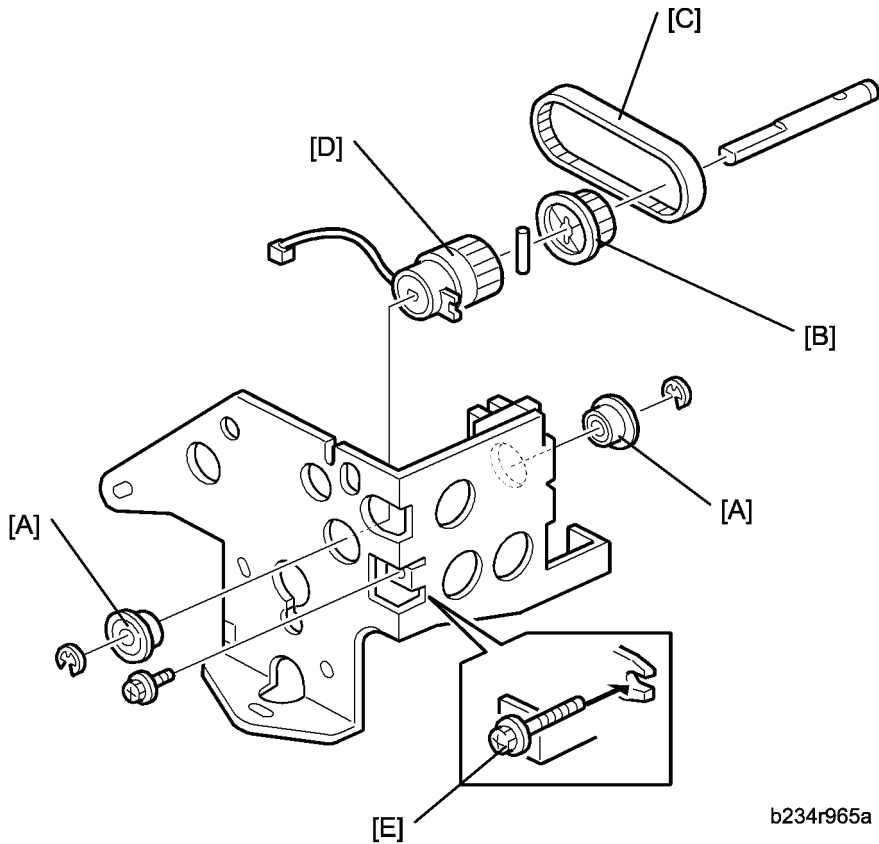


1. ADF rear cover.
2. Feed-in motor [A] (⚙️ x 4, 📦 x 2).
3. Connector [B]
4. Fins [C]
5. Transport motor [D] (⚙️ x 4, 📦 x 2).
6. Grounding wire [E] (🔌 x 1).
7. Feed-out motor assembly [F] (⚙️ x 2, 📦 x 2).
8. Feed-out motor [G] (⚙️ x 2).

## Feed-In Clutch



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



b234r965a

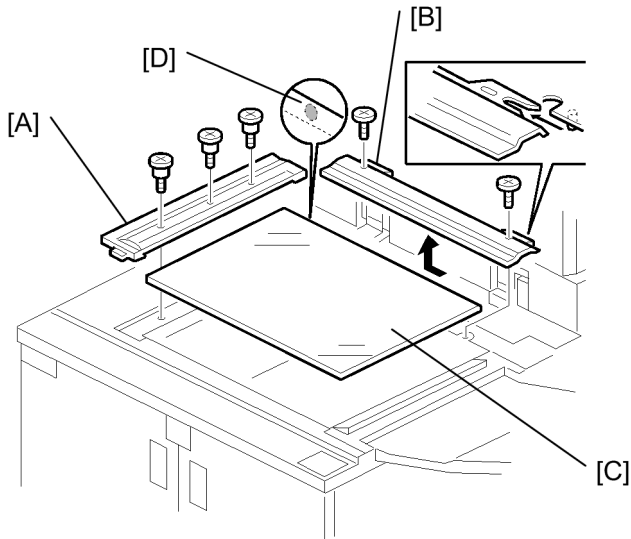
1. Two bearings [A] from the feed-in clutch shaft (Ⓢ x 1 each).
2. Pulley [B] (Ⓢ x 1), pin and timing belt [C].
3. Feed-in clutch [D].

**Note**

- When re-installing the feed-in clutch, put the stopper screw [E] in the clutch hook.

# Scanner Unit

## Exposure Glass



b234r001

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].

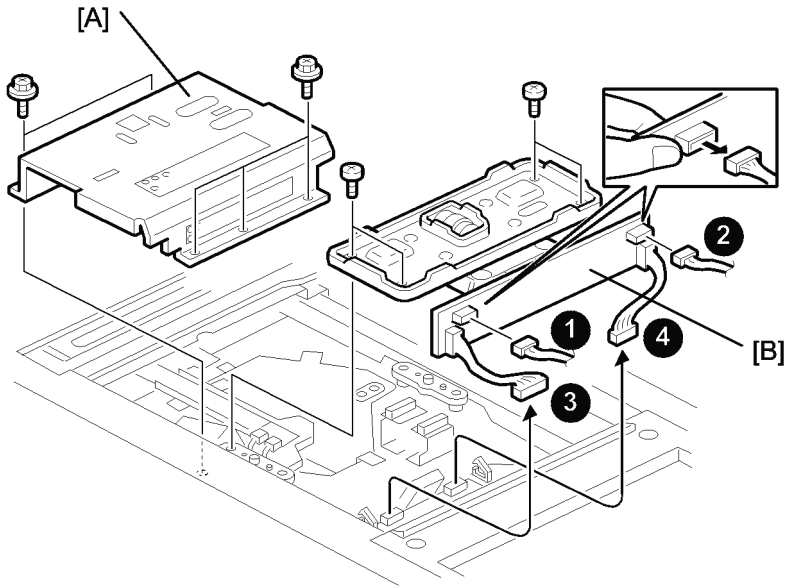
### ⚠ Note

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

## Lens Block

### ⚠ WARNING

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



b234r003

1. Exposure glass (☛ p.309).
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. (☛ p.459 "Copy Image Adjustment: Printing/Scanning")

↓ **Note**

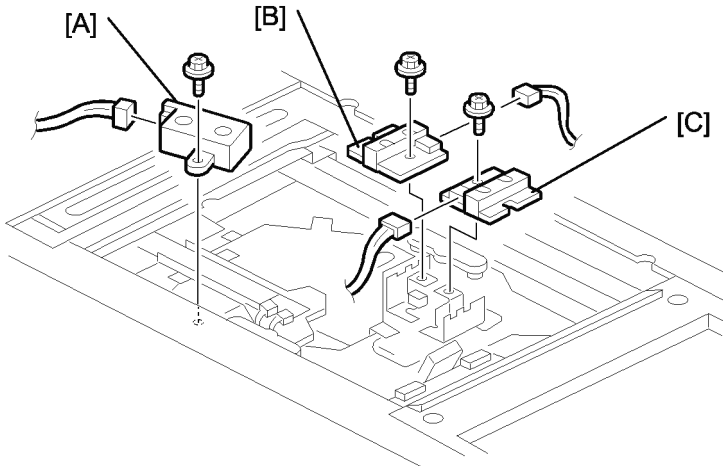
- There are no field adjustments for the lens block.

## Original Size Sensors

### ⚠ CAUTION

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

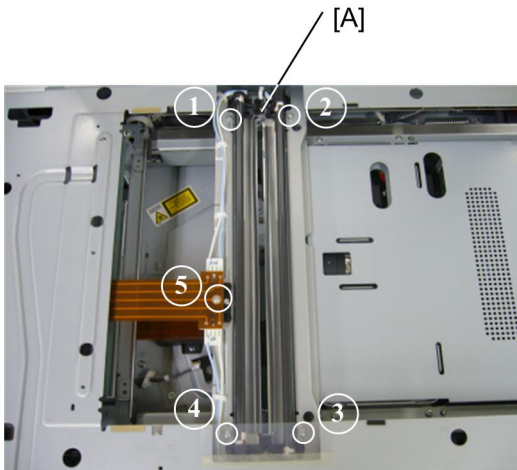




b234r052

1. Exposure glass. (☛ p.309)
2. Lens block. (☛ p.309)
3. Original width sensor [A] (☛ x 1, ☛ x 1).
4. Original length sensor 1 [B] (☛ x 1, ☛ x 1).
5. Original length sensor 2 [C] (☛ x 1, ☛ x 1).
6. After re-assembly, do the scanner and printer copy adjustments. (☛ p.459 "Copy Image Adjustment: Printing/Scanning")

## Exposure Lamps

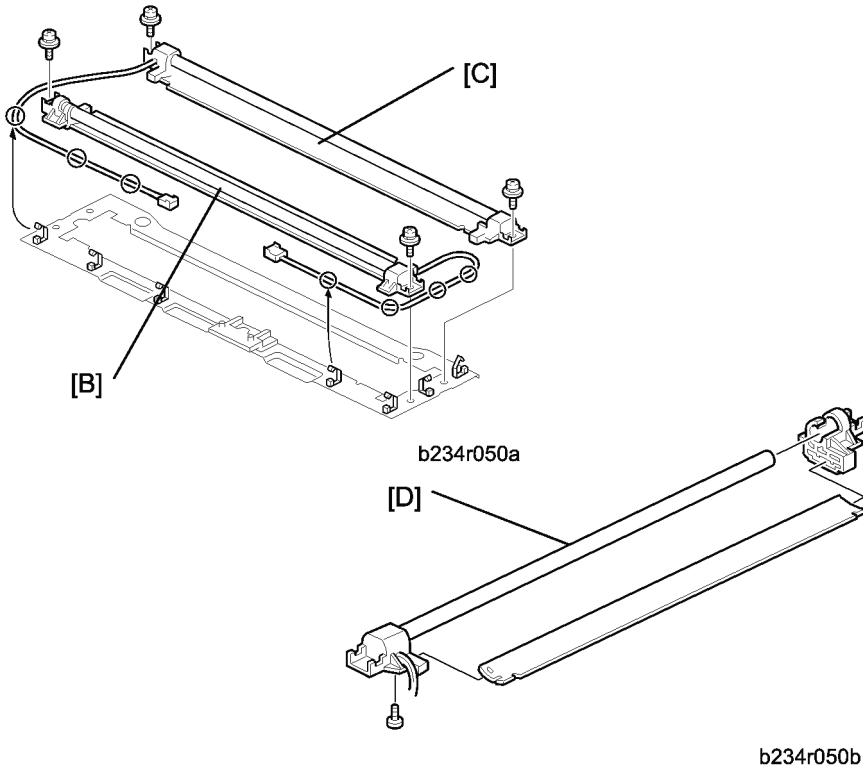


b234r943



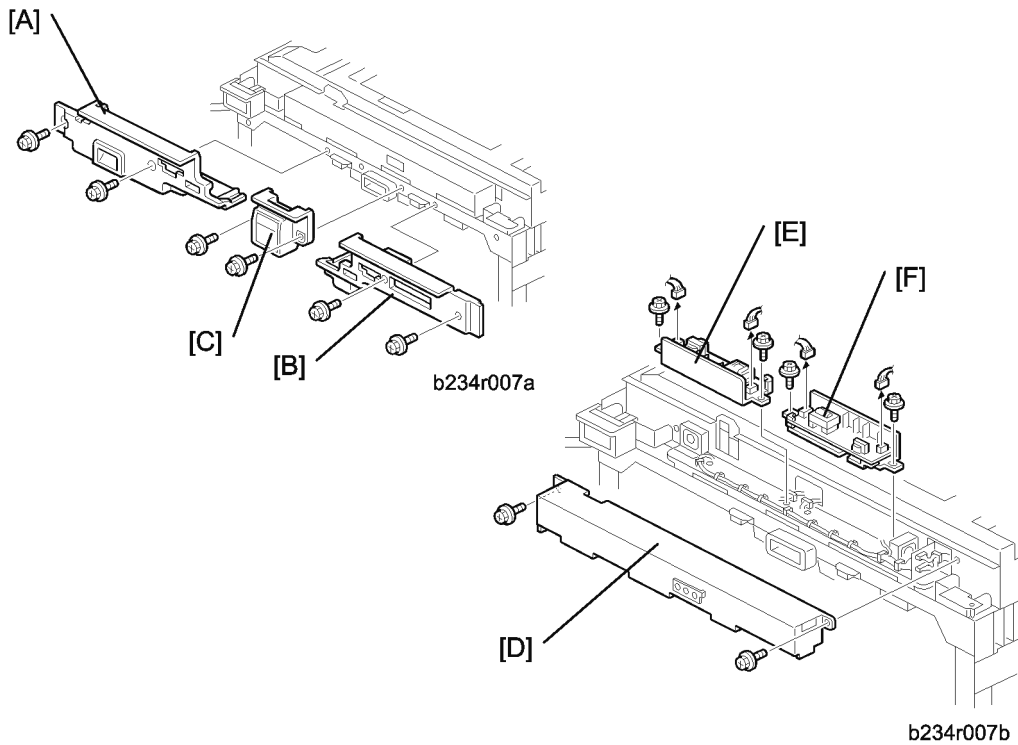
b234r902

3



1. Exposure glass. (☛ p.309).
2. Open the front door, then remove the front upper cover. (☛ p.315 "Scanner Motor")
3. Exposure lamp unit [A] (☛ x ① to ⑤, ☛ x 2)
4. 1st exposure lamp [B] (☛ x 2, ☛ x 1, ☛ x4).
5. 2nd exposure lamp [C] (☛ x 2, ☛ x 1, ☛ x3).
6. Exposure lamps [D] (☛ x1).

## Lamp Regulators

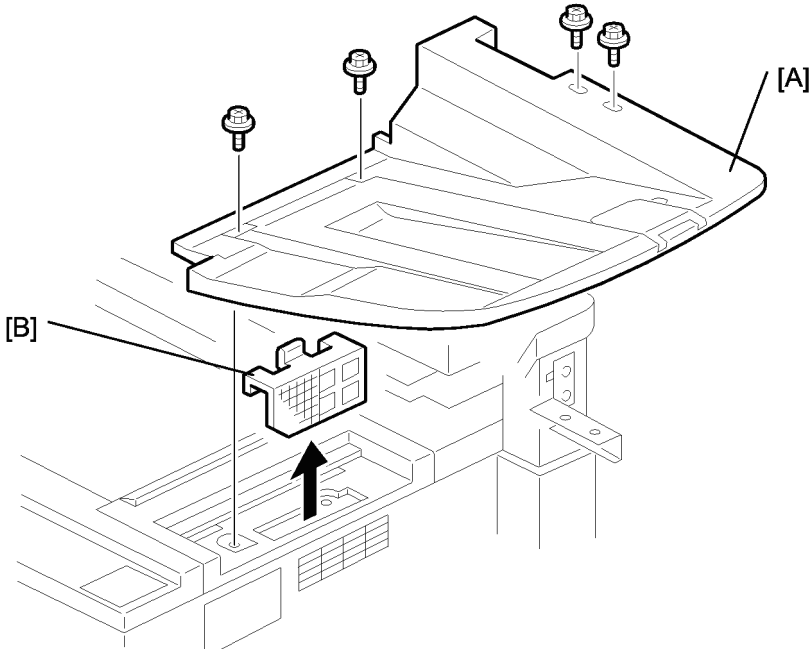


3

1. Exposure glass. (🔧 p.309)
2. Open the front door, then remove the top front cover. (🔧 p.315 "Scanner Motor")
3. Remove
  - [A]: Left inner cover (🔧 x 2)
  - [B]: Right inner cover (🔧 x 2)
  - [C]: Middle inner cover (🔧 x 2)
  - [D]: Lamp regulator cover (🔧 x 2)
  - [E]: Left lamp regulator (🔧 x 2, 📦 x 2)
  - [F]: Right lamp regulator (🔧 x 2, 📦 x 2)

## Optics Dust Filter

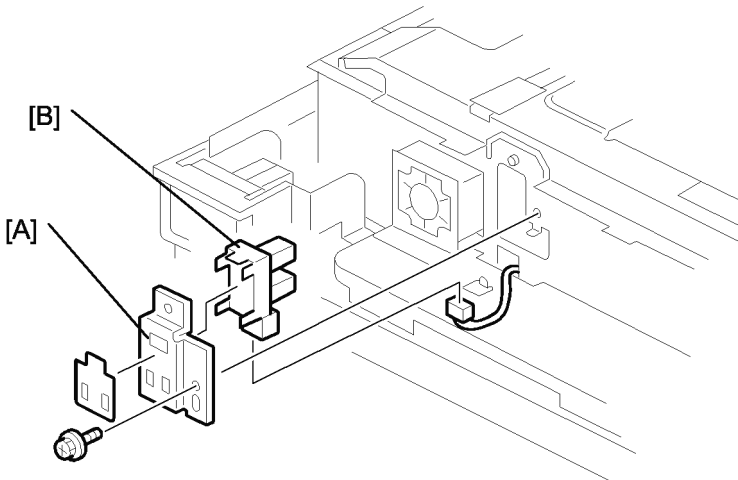
3



b234r006

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

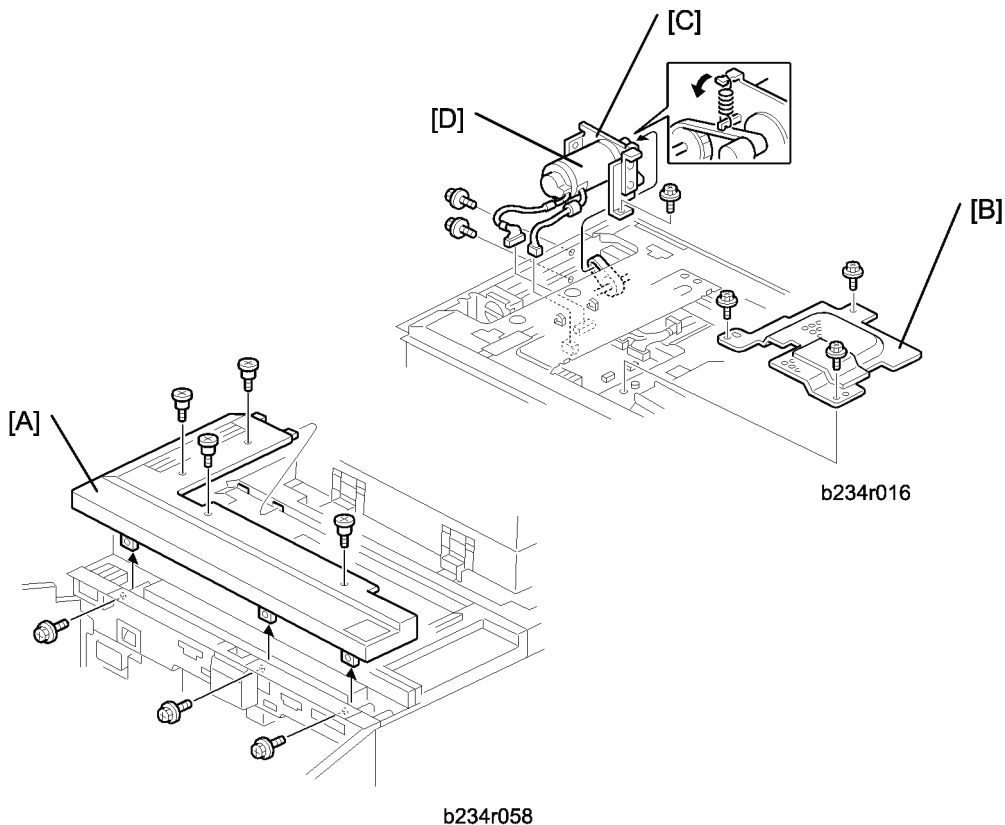
## Scanner HP Sensor



b234r017

1. Front upper cover (☛ p.315 "Scanner Motor")
2. Left lamp regulator (☛ p.313)
3. Scanner HP sensor bracket [A] (🔩 x 1).
4. Scanner HP sensor [B] (🔩 x 1, Pawls x4).

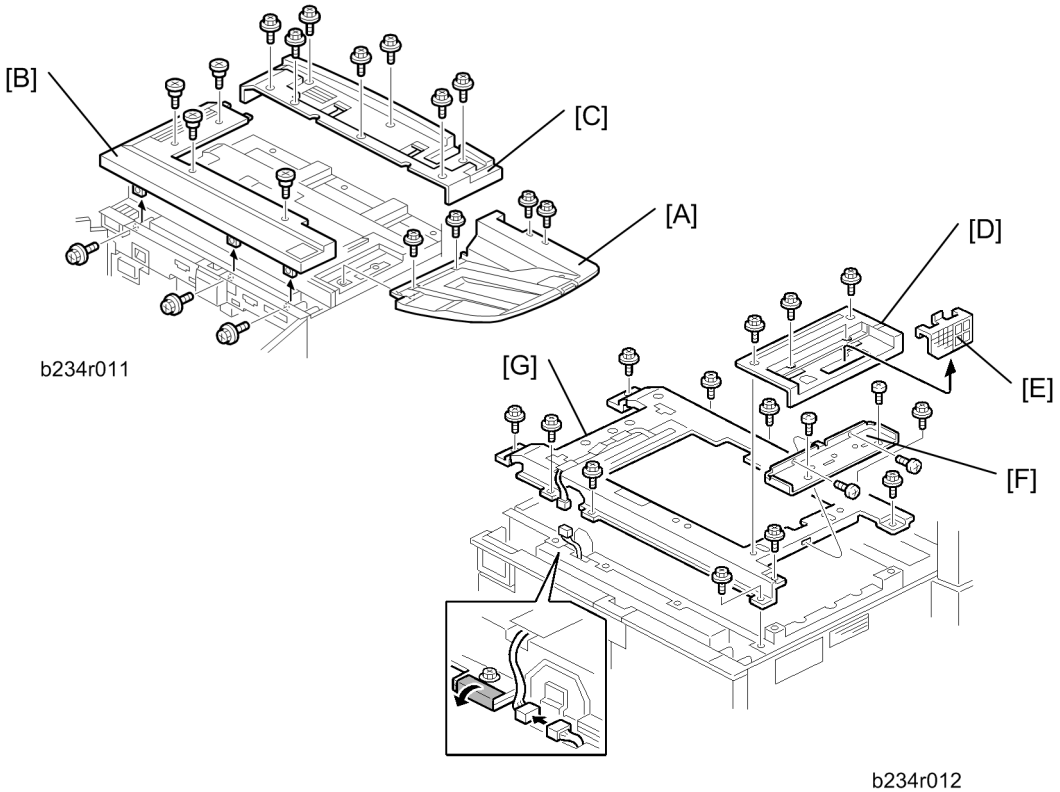
## Scanner Motor



1. Exposure glass. (☛ p.309)
2. Left upper cover. (☛ p.313 "Lamp Regulators").
3. Top upper cover [A] (🔩 x 7).
4. Remove the MCU [B] cover (🔩 x 3).
5. Scanner motor assembly [C] (🔩 x2, 🛠 x 2, 🛠 x 3).
6. Scanner motor from the bracket [D] (🔩 x 3).
7. After reassembly, do the copy image adjustments. (☛ p.459 "Copy Image Adjustment: Printing/ Scanning")

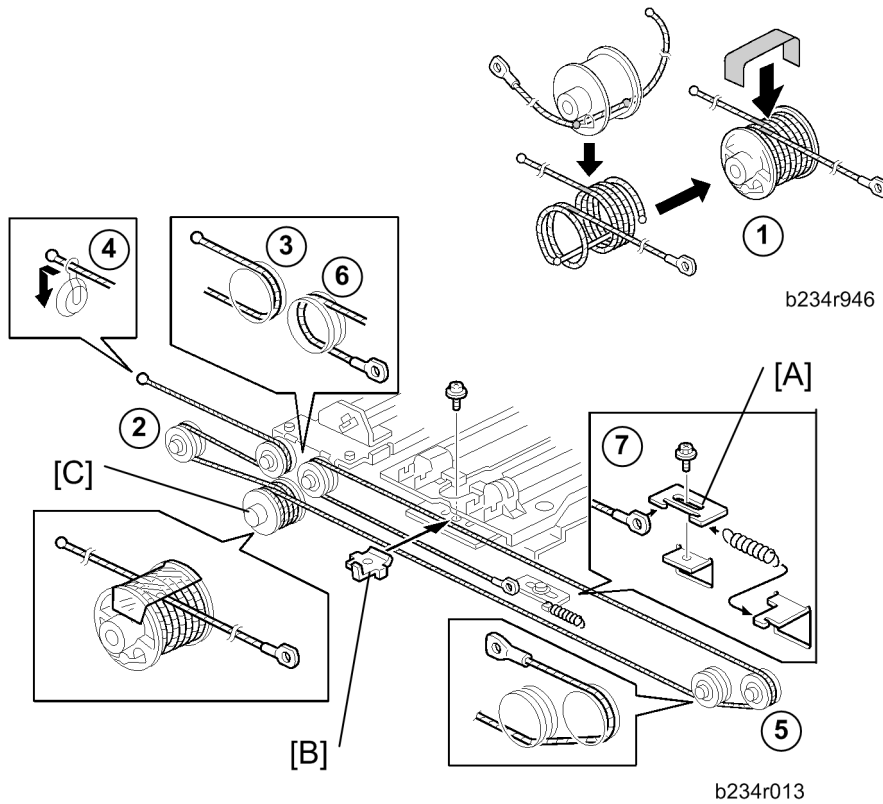
## Scanner Drive Wires

### Preparation



1. Remove the ADF (🔧 x 2).
2. Original exit tray [A] (🔧 x 4).
3. Exposure glass (👉 p.309)
4. Top front cover [B] (🔧 x 7).
5. Top rear cover [C] (🔧 x 7).
6. Top right cover [D] (🔧 x 4)
7. Filter [E]
8. Bracket [F] (🔧 x 4).
9. Scanner frame [G] (🔧 x 12, 📏 x 1).

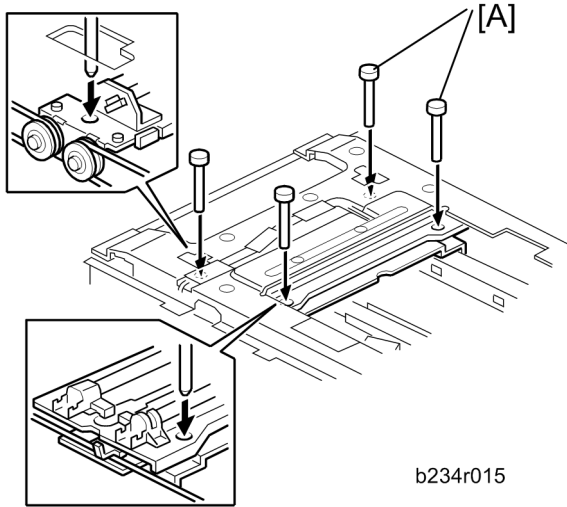
## Front, Rear Scanner Drive Wires



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).



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] (1 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 (▶ p.459 "Copy Image Adjustment: Printing/Scanning")

**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.



**SIB**

b234r903

Remove: (☛ p.315 "Scanner Motor")

- Original exit tray
- Top right cover
- Filter
- Bracket
- SIB [A] (☛ x4, ☛ x9)

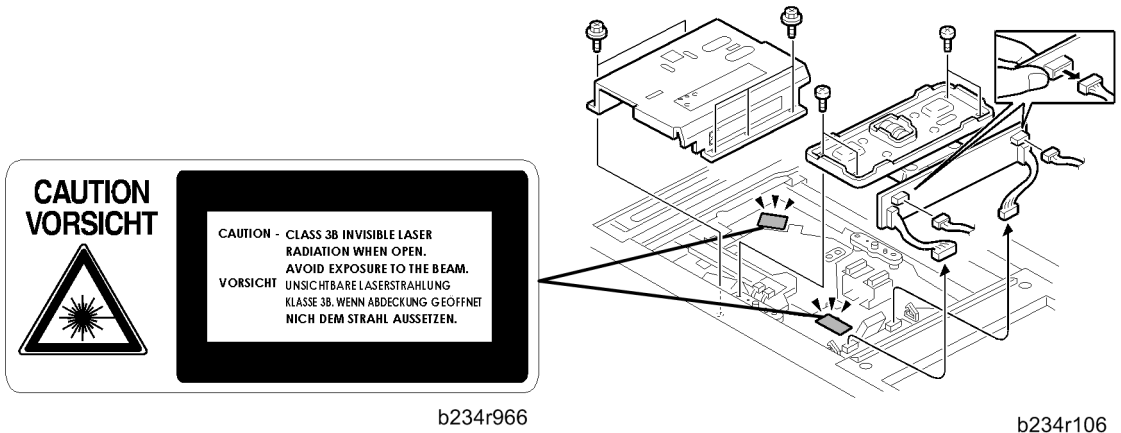
# Laser Unit

**★ Important**

- This laser unit employs 8 laser beams produced by two Class III LDA with a wavelength of 788 nm and intensity of 15 mW. Direct exposure to the eyes could cause permanent blindness.
- Before doing 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.

## Caution Decals

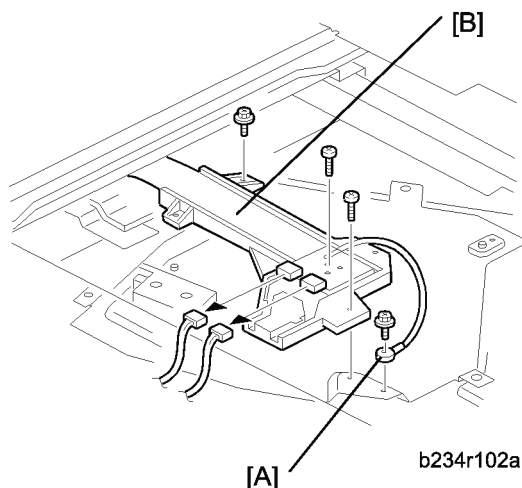
Two caution decals are provided for the laser section.



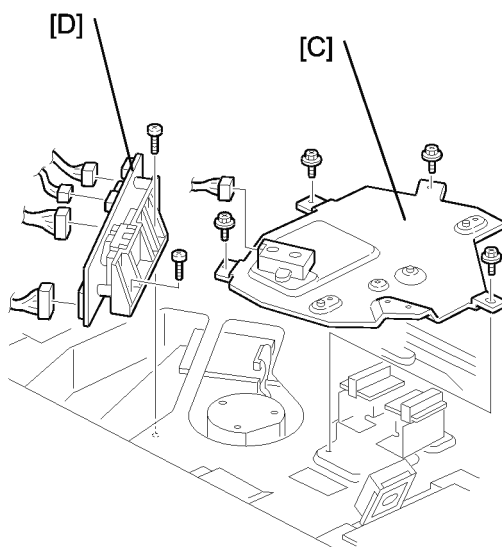
## LD Unit

**⚠ WARNING**

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



b234r102a



b234r102b

3

#### ↓ Note

- To avoid damaging the board with static electricity, never touch the printed circuit board.
- Exposure glass (☛ p.309).
  - Lens block cover and lens block. (☛ p.309 "Lens Block")
  - Ground wire [A] (🔩 x 1).
  - Flat film connector guide [B] (🔩 x 3, 🛠️ x 2).
  - LD cover [C] (🔩 x 4, 🛠️ x 1).
  - 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.
  - After installing the LD unit, execute SP2115 001 ~ 009 to input the pitch settings for the main scan beams.
    - 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

b234r901



The 7 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/

To enter these numbers, you would execute

SP2115 001	[*] 1 0 [#]
SP2115 002	[*] 2 [#]
SP2115 003	1 0 [#]
SP2115 004	[*] 1 0 0 [#]
SP2115 005	0 [#]
SP2115 006	1 0 0 [#]
SP2115 007	[*] 1 0 [#]

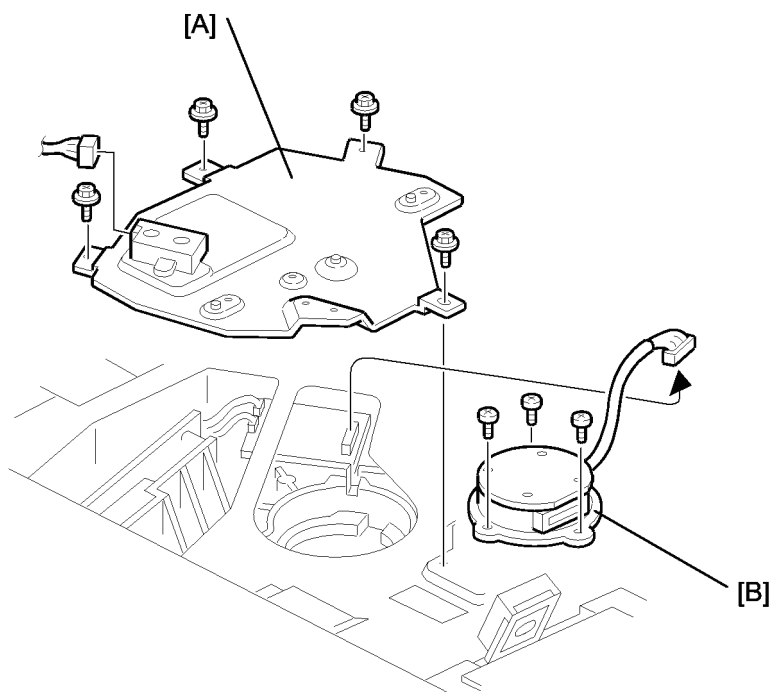
- Press  to enter the minus sign.
- Press  after each entry.
- A key press is not required for the plus sign.

### 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.

- Do SP2962 (Auto Process Control Execution).
- Make some test copies and check that the magnification is correct. If not correct, please do the printer copy adjustments. (☛ p.459 "Copy Image Adjustment: Printing/Scanning")

## Polygon Mirror Motor



b234r101

### ↓ 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 (☛ p.309).
  3. Lens block cover and lens block. (☛ p.309 "Lens Block")

### ↓ Note

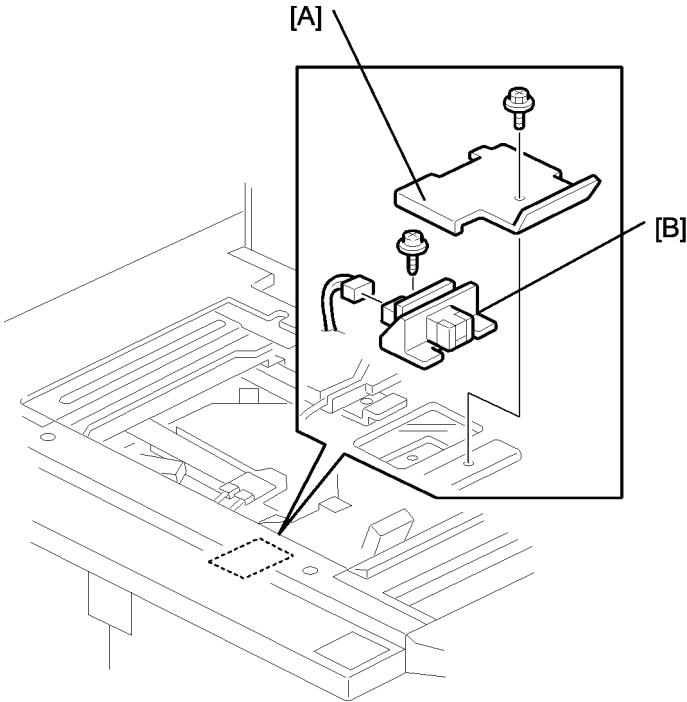
- You do not need to remove the lens block completely. Lift it gently and move it to the right.

4. LD cover [A] (🔧 x 4, 🛠️ x 1).
5. Polygon mirror motor [B] (🔧 x 3, 🛠️ x 1).

### ↓ Note

- When reinstalling, make sure that the polygon mirror opening faces the right.
  - Never touch the glass surface of the polygon mirror motor with bare hands.
6. After reassembly, do the scanner and printer copy adjustments. (☛ p.459 "Copy Image Adjustment: Printing/Scanning")

## Laser Synchronization Detector



b234r105

1. Turn off the main power switch and unplug the machine.
2. Exposure glass (☛ p.309)
3. Lens block cover and lens block. (☛ p.309 "Lens Block").

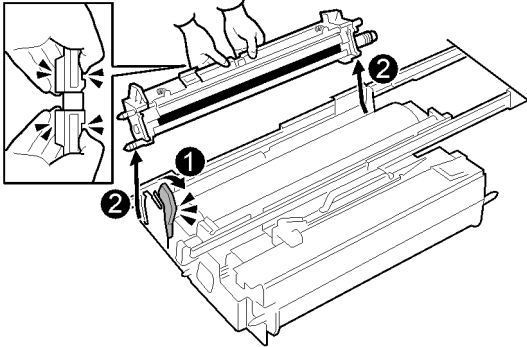
**Note**

- You do not need to remove the lens block completely. Lift it gently and move it to the right.

4. Detector cover [A] (🔩 x 1).
5. Laser synchronization detector [B] (🔩 x 1, 📏 x 1).

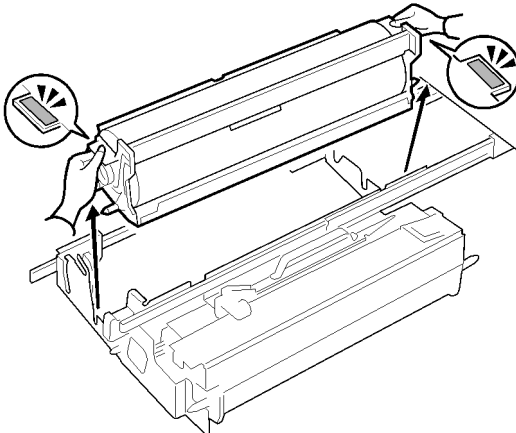
# Around The Drum

## Cleaning Unit, PCU, Drum



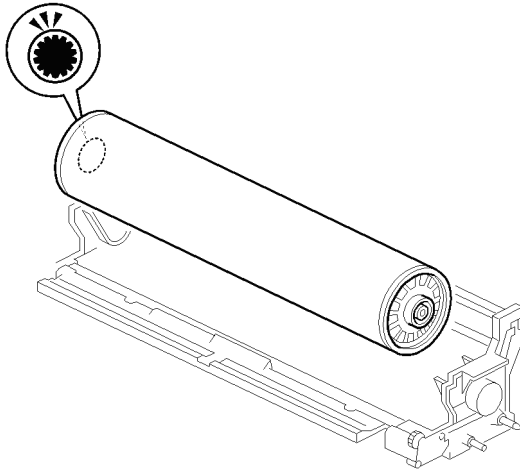
b234r948

1. Pull out the development unit drawer.
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.



b234r949

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



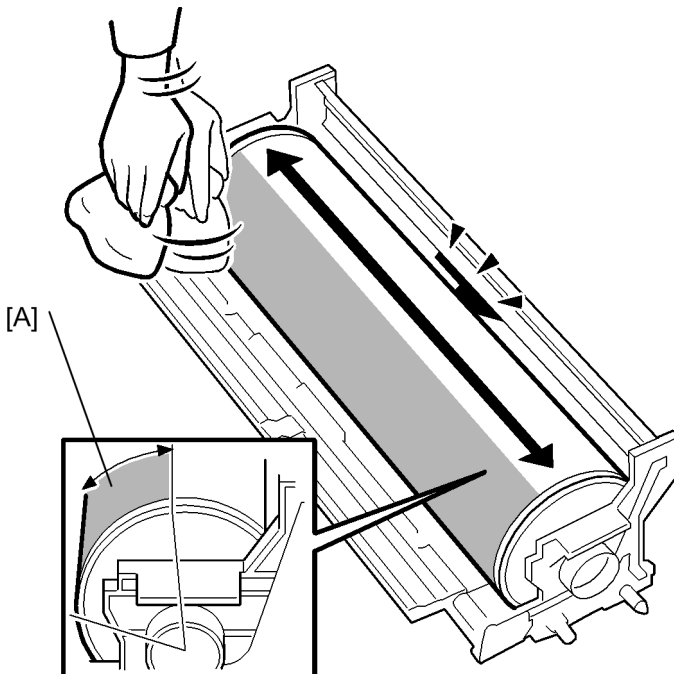
b234r201

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



b234r977



### ★ 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.

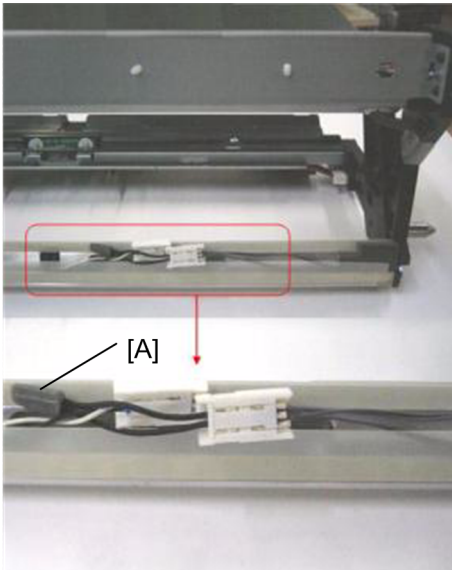
3

## PTL (Pre-Transfer Lamp)

1. Remove the cleaning unit, PCU, and drum (☛ p.325 "Cleaning Unit, PCU, Drum")

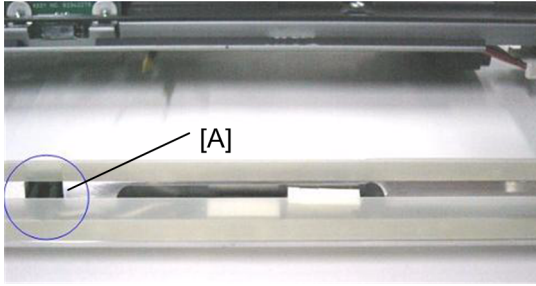
### ↓ Note

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



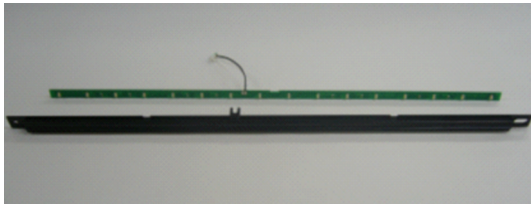
d059r904a

2. Remove the screws from both ends of the PTL holder (🔩 x2).
3. Disconnect the PTL connector [A] and separate it from the thermistor connectors.



d059r904b

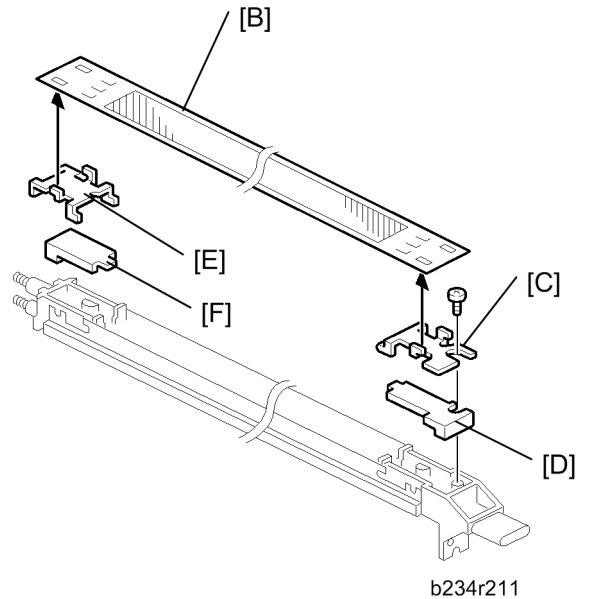
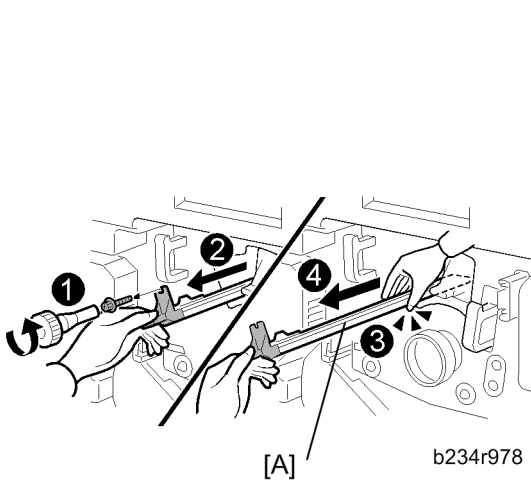
- 3 4. Push the harnesses [A] down through the gap between the stay and mylar.



d059r904c

5. Remove the PTL.

## Pre-Charge Unit



- Remove the inner cover.
1. Pre-charge unit [A] (1 x 1)

2. Grid [B] (1/8" x 1 M4 x 6).

**★ Important**

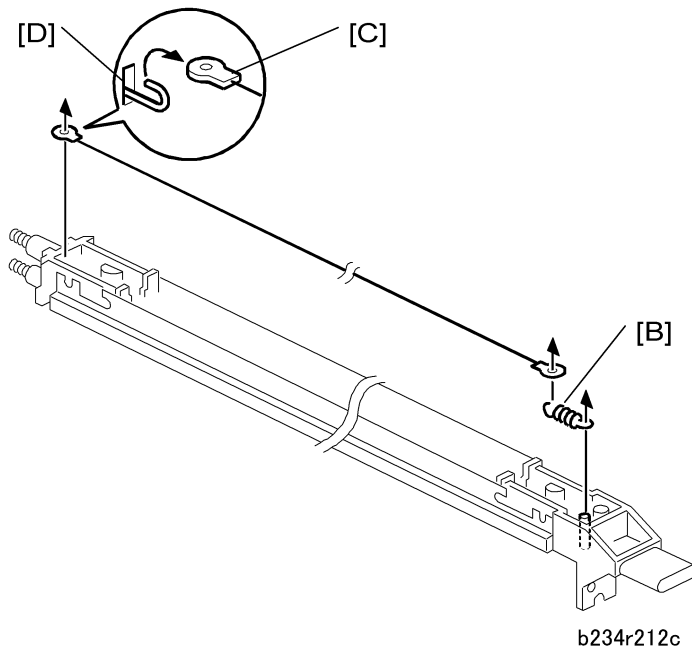
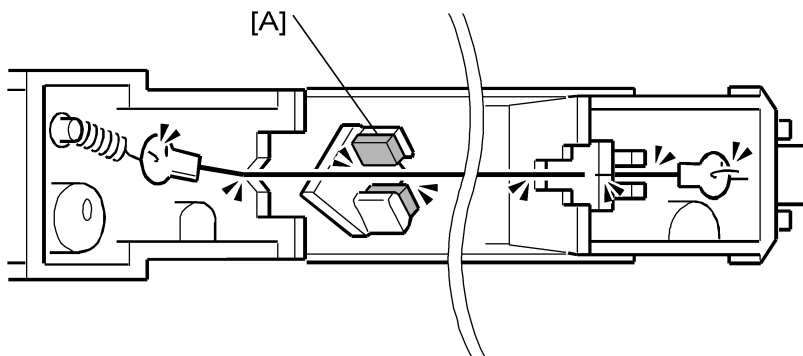
- Hold the grid carefully at both ends.
- Do not touch the wire mesh and avoid bending it.

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

4. Front cover [D].

5. Rear lock plate [E] (Pawls x2).

6. Rear cover [F].



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**

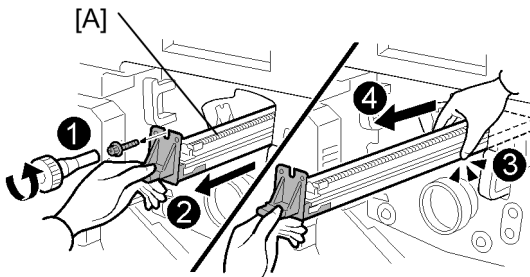
- Always hold the wire by the eyelets on both ends.
- Never touch any other part of the wire.
- Handle the wire carefully to avoid bending it.

10. Do SP2962 after replacing the Pre-Charge Unit.

**3**

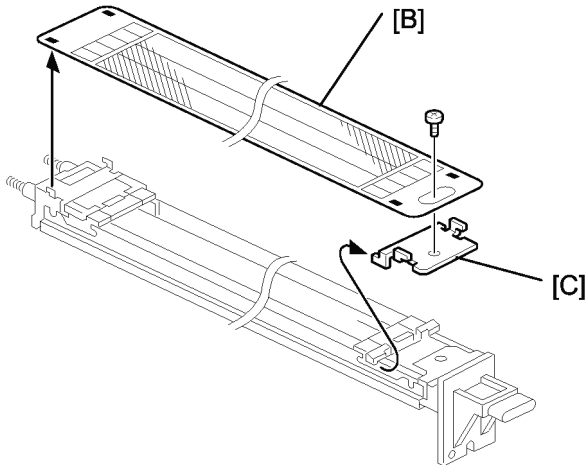
**Charge Corona Unit**

- Inner cover (☞ p.280 "Pulling the Drawer Out")



b234r979

1. Charge corona unit [A]



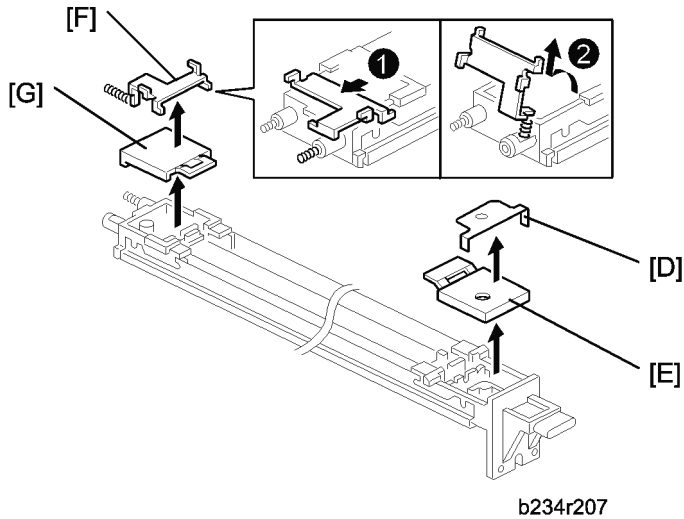
b234r206

2. Grid [B] (☞ x 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.

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

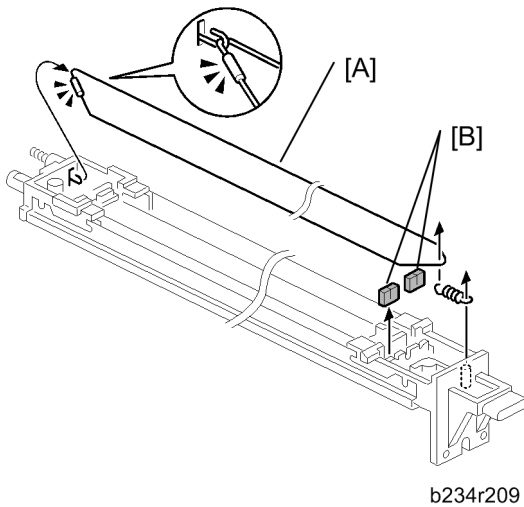


4. Terminal plate [D].

5. Front cover [E].

6. Slide off the rear lock plate, (1) to (2) above, (Pawls x4) and remove it with the spring [F].

7. Rear cover [G].



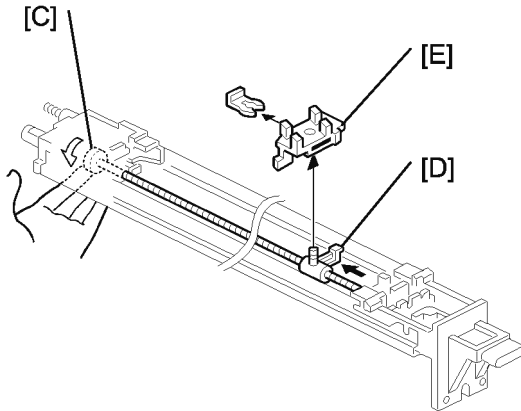
8. Corona wire [A] (Spring x1)

9. Two cushions [B].

**★ Important**

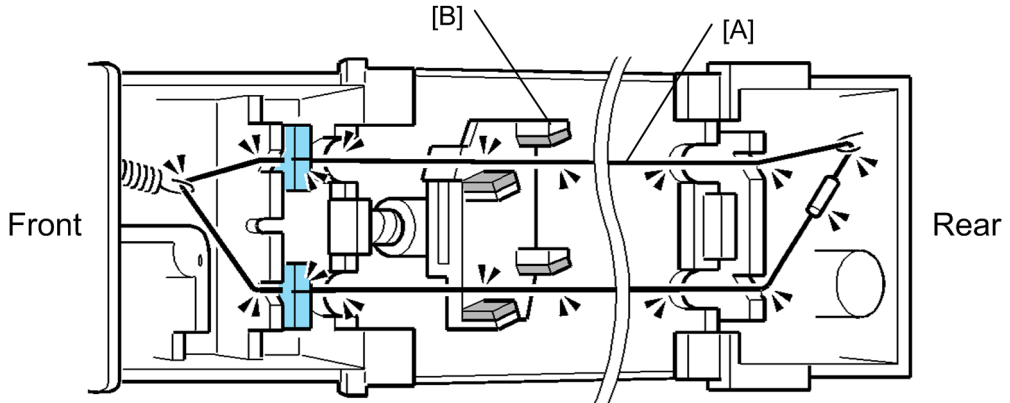
- Always hold the wire by its metal fitting and its opposite end.
- Never touch any other part of the wire.

- Handle the corona wire carefully to avoid bending it.

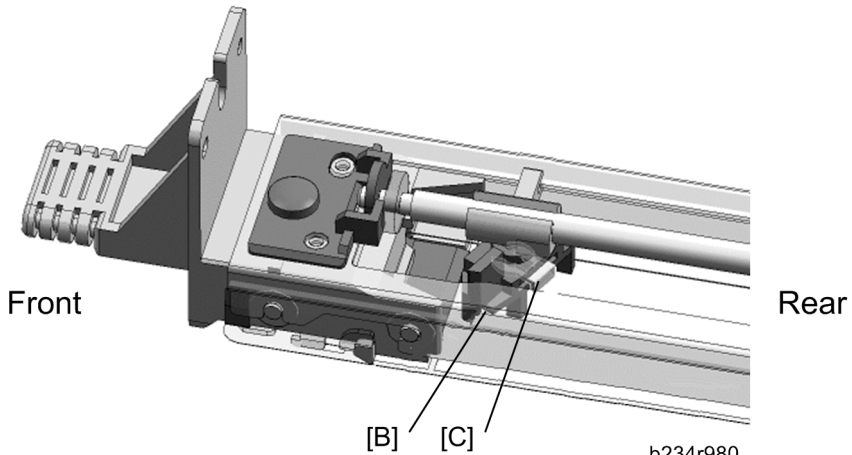


b234r210

10. Turn the gear [C] to move the cleaner assembly [D] to a location where the cleaner is easy to access.
11. Cleaner pad [E] (🌀 x1).



b234r209a



b234r980

12. Re-assemble the charge corona unit.

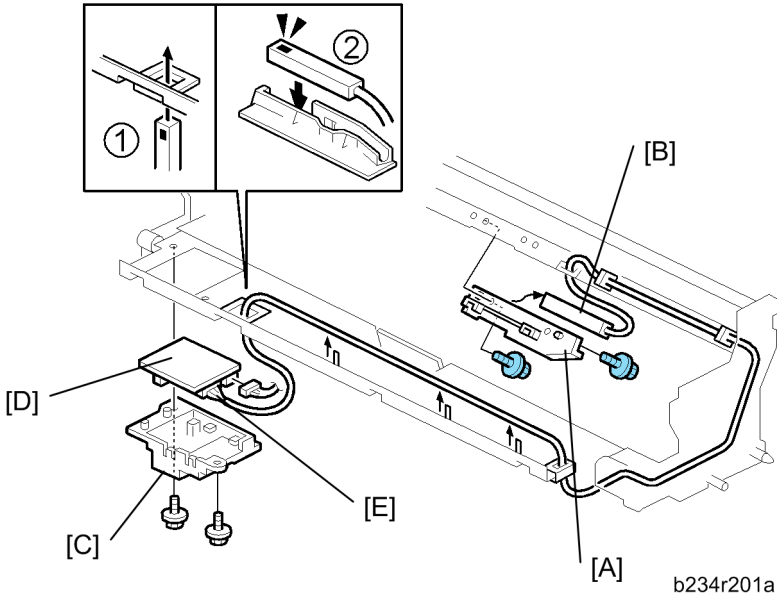
**★ Important**

- 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.

13. After installing new wires, reset SP codes SP2001 001 to 2001 006 (Corona Voltage and Current) to their defaults.

14. Execute SP2962 (Auto Process Control Execution).

## Drum Potential Sensor



1. Remove the drum (☞ p.325)
2. 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

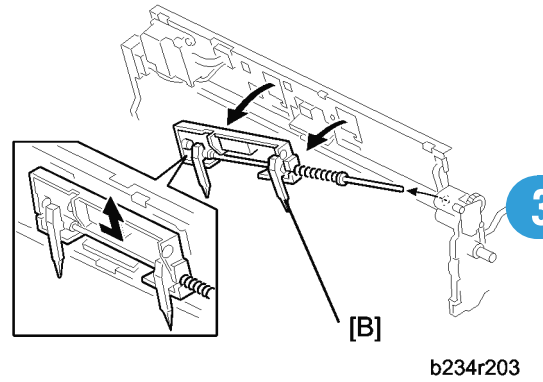
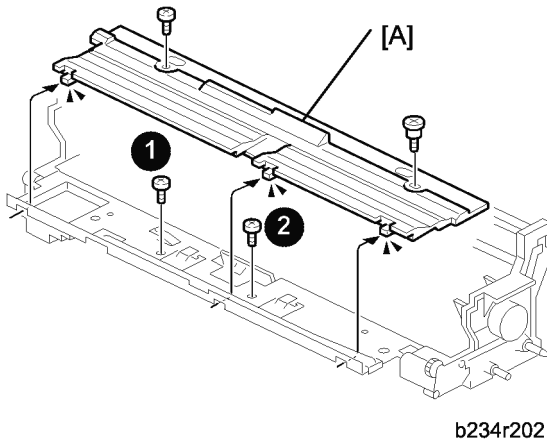
- The drum potential sensor is fragile. Handle it carefully.
- First, insert the drum potential sensor and harness through the hole (1).
- Next, fasten the drum potential sensor to its cover (2).
- Execute SP2962 (Auto Process Control Execution).

### ↓ Note

- After replacing the drum potential sensor, you must always execute SP2962.



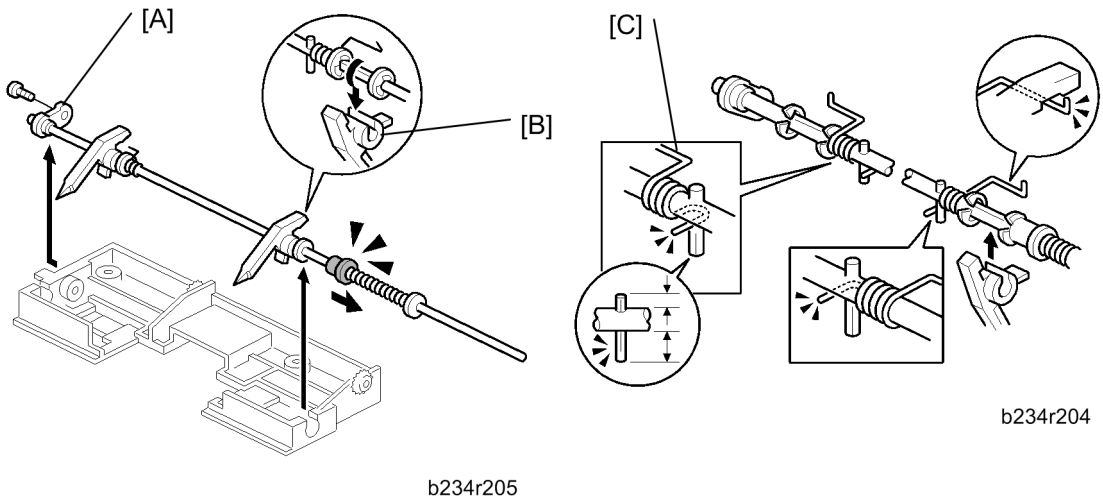
## Pick-Off Pawls



Remove:

- Drum (☛ p.325)
- 1. Cover [A] (🔩 x2)
- 2. Pick-off pawl unit screws (1), (2) (🔩 x2)
- 3. Pick-off pawl unit [B].

## 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.

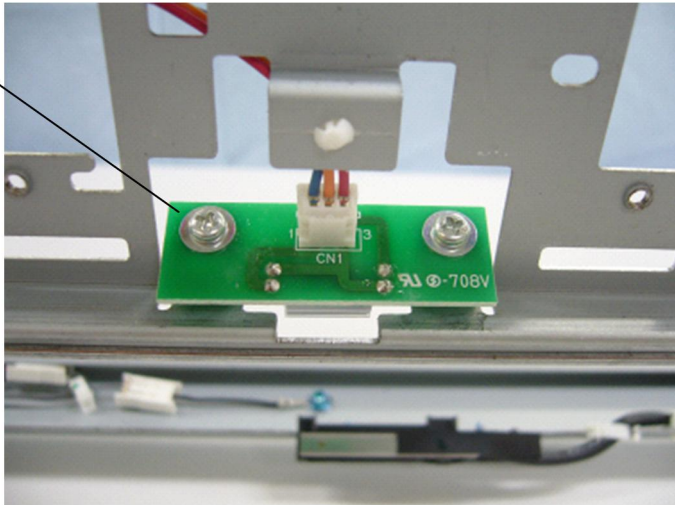
3. Install a new pick-off pawl by rotating it onto the shaft.
4. Do not forget to hook the tension springs [C].
5. Follow the same procedure to replace the other pick-off pawl.

**★ 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.

3

[A]



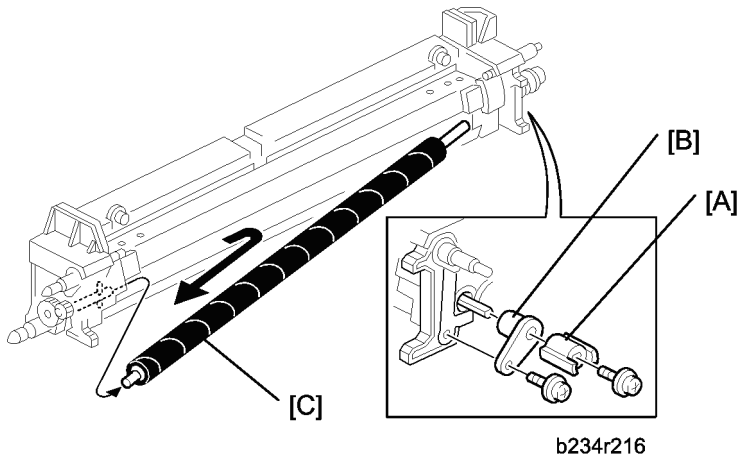
b234r906

6. Drum (☛ p.325)
7. Cover (☛ p.334 "Drum Potential Sensor")
8. Pick-off pawl unit [☛ x2].
9. ID sensor [A] (☛ x2, ☛ x1, ☛ x1)

**↓ Note**

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

## Cleaning Brush



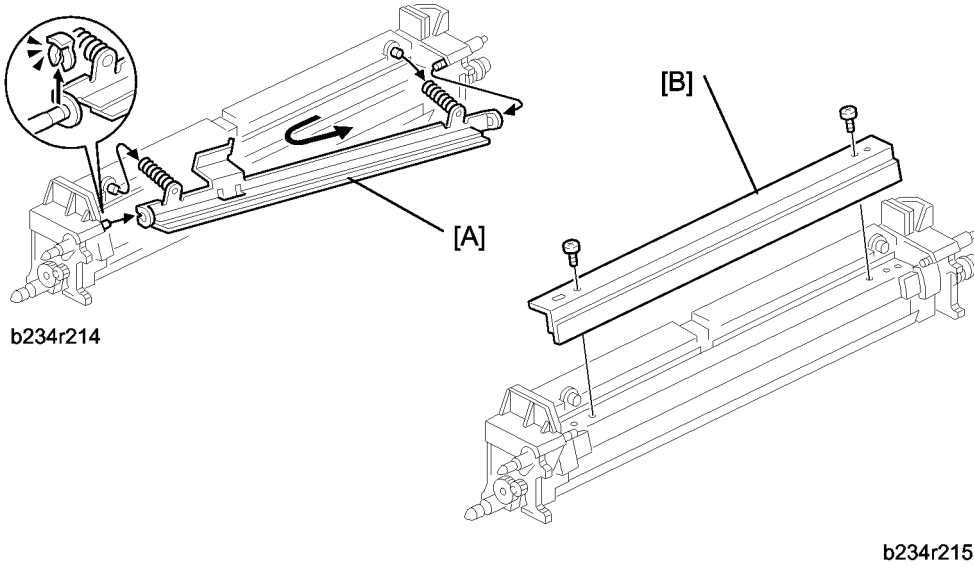
### Remove

- Cleaning unit (☛ p.325 "Cleaning Unit, PCU, Drum")
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

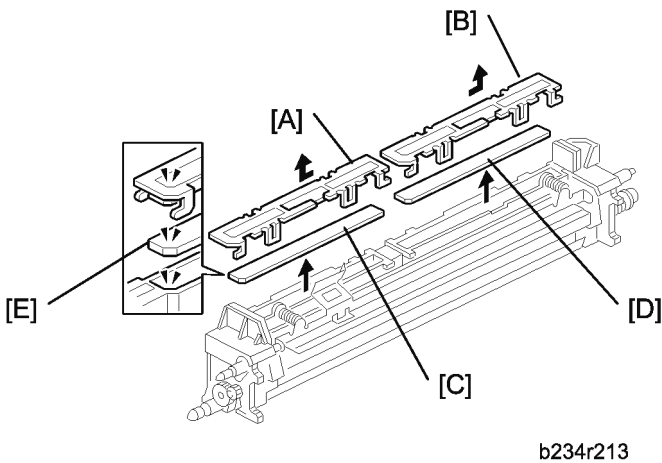
- Never touch the soft surface of the cleaning brush.
- When installing the cleaning brush, avoid bending or damaging the entrance seal with the cleaning brush.

## Cleaning Blades



- Remove the drum cleaning unit. (☛ p.325 "Cleaning Unit, PCU, Drum")
- 1. 2nd cleaning blade [A] (☞ x1).
- 2. Cleaning blade [B] (☞ x2).

## Cleaning Unit Filters



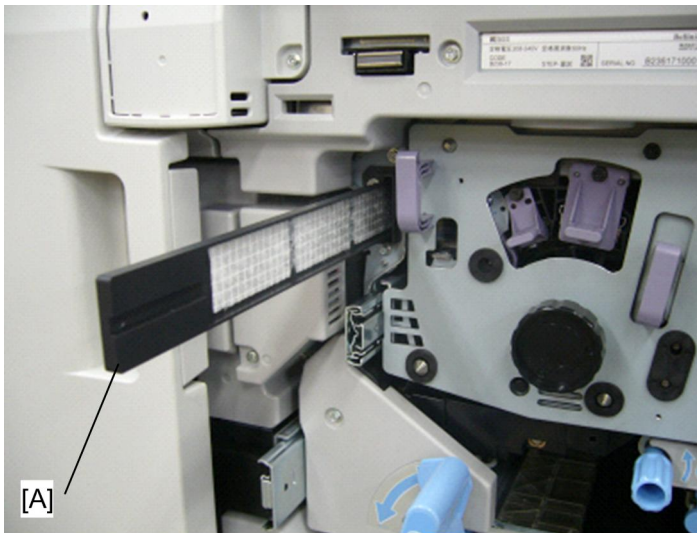
- Drum cleaning unit. (☛ p.325 "Cleaning Unit, PCU, Drum")
- 2nd cleaning blade (☞ x1) (☛ p.338 "Cleaning Blades").
- 1. Front filter bracket [A] (Pawls x2)

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.

## Toner Filter

**3**

b234r907

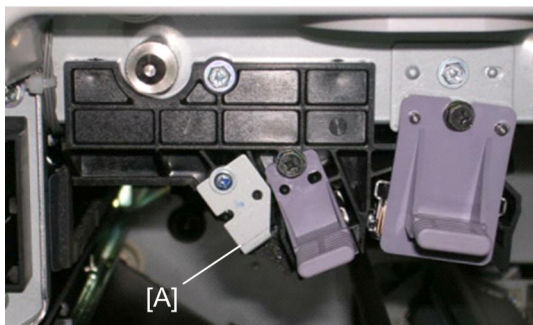
Remove:

- Remove the inner cover.
1. Drum filter [A].

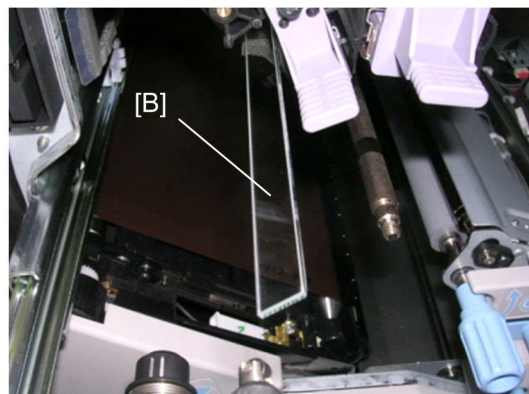
## Quenching Lamp Shield Glass

1. Pull the development unit drawer out.

3



b234r908

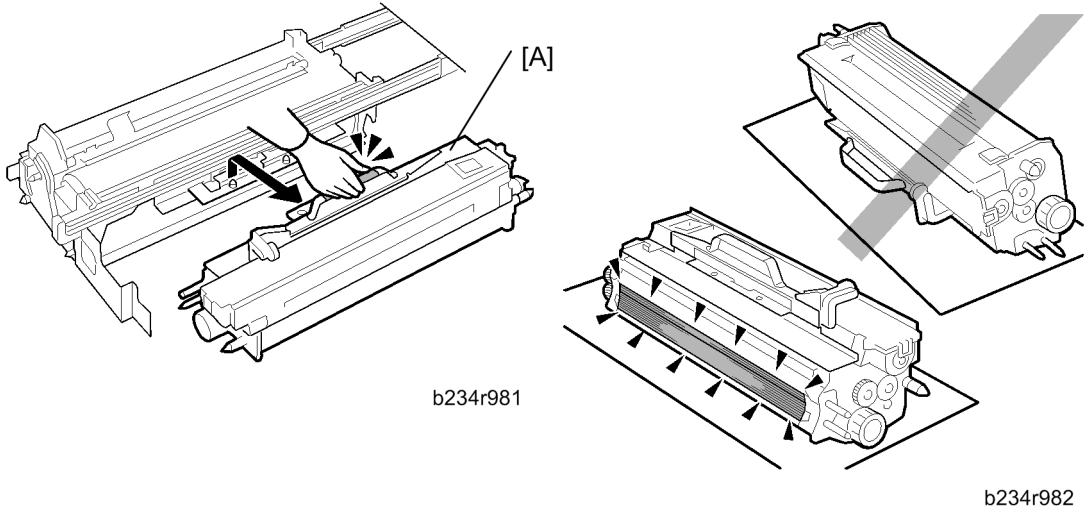


b234r909

2. Stopper [A] (1 x1).
3. Quenching lamp shield glass [B].

# Development and Toner Supply

## Development Unit Removal



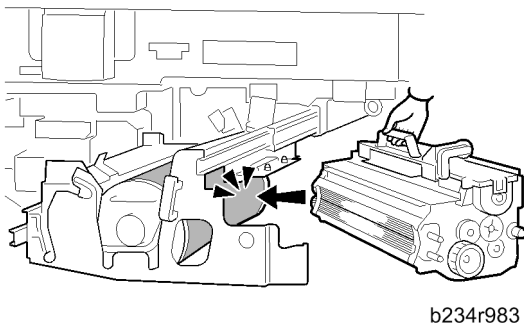
1. Pull out the development unit drawer.
2. Lift the development unit [A] by its purple handle and hold it level when you remove it.

### ★ Important

- Hold the development unit level to prevent spillage.

3. Place the development unit on some paper.

### Re-installing the Development Unit

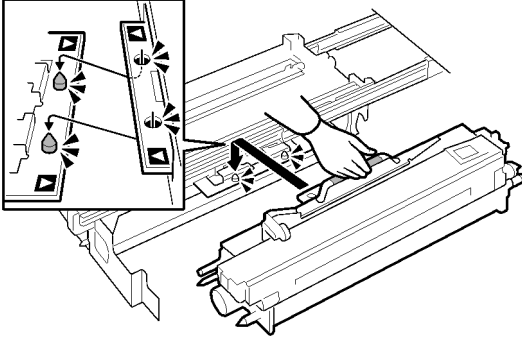


### ★ Important

- 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

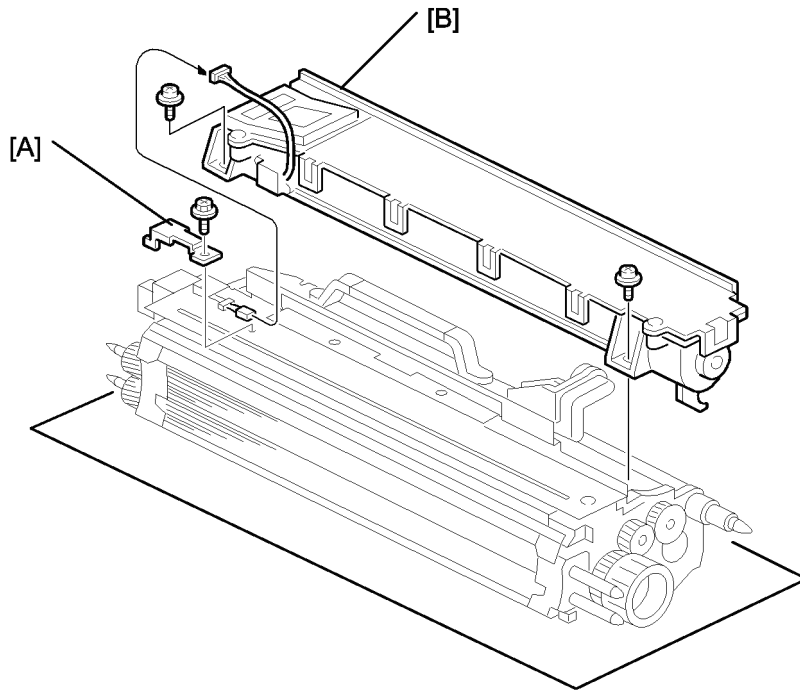


b234r984

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.



## Toner Hopper Removal

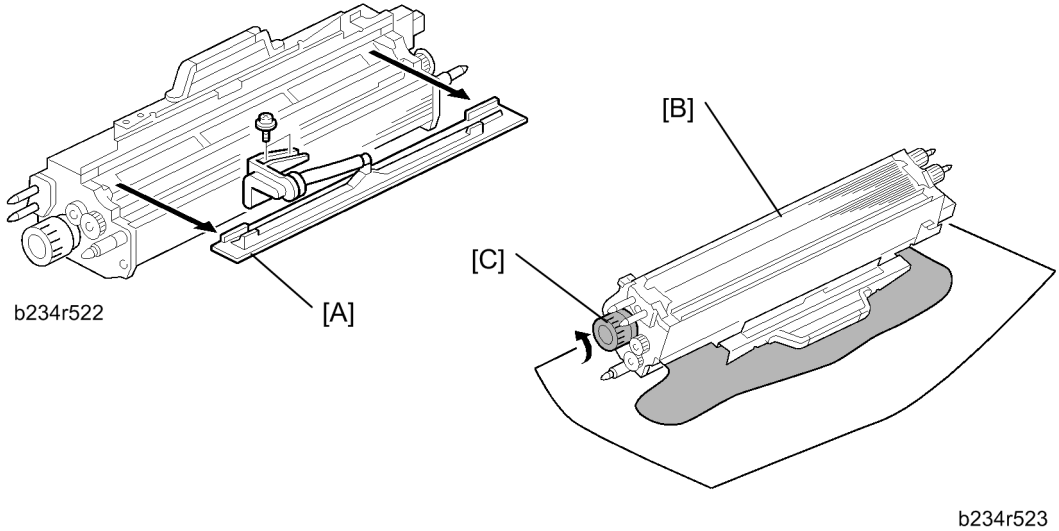


b234r516

- Development unit (☛ p.341 "Development Unit Removal")
- [A]: Bracket (🔧 x1)
- [B]: Toner hopper (🔧 x2, 🛠️ x1)

## Developer Replacement

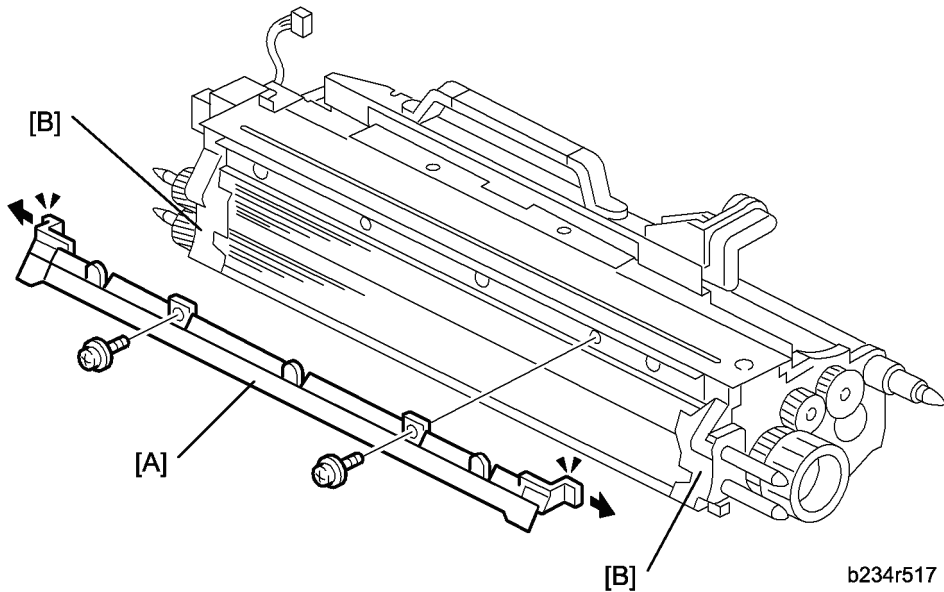
3



- Development unit (☞ p.341)
  - Toner hopper (☞ p.343)
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.



4. Remove the entrance seal [A] (⚠ x2) and clean it.
5. Clean the side seals [B].

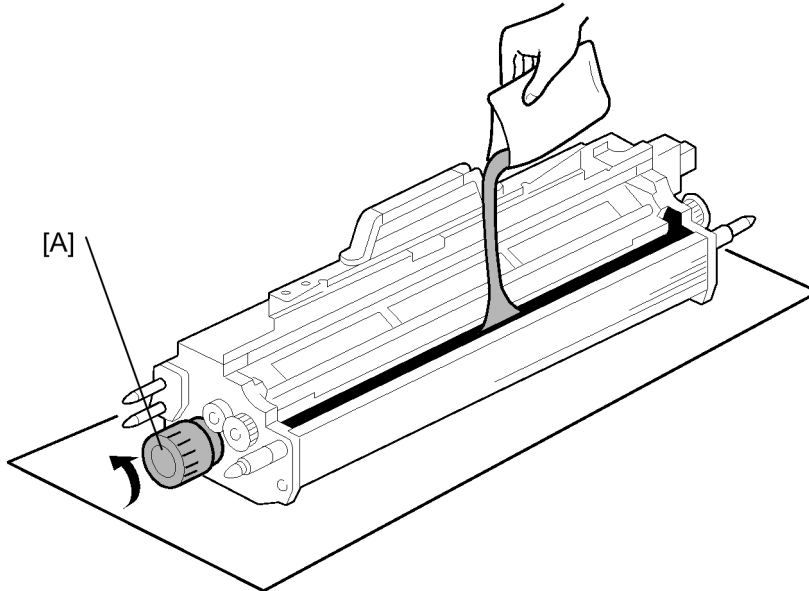
**★ Important**

- 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 (☛ p.347 "Cleaning the Doctor Blade").



b234r521

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 Machine

**★ Important**

- Follow this procedure carefully.
  - Do not switch on the machine until you are instructed to do so.
  - Carefully follow the instructions about opening and closing the front doors.
1. Make sure that the machine is OFF.
  2. Open the front doors.
  3. Make sure that all tapes, clamps, and other shipping materials have been removed.
  4. Connect the main power cord and turn on the machine.
  5. Enter the SP mode.

**★ Important**

- The front doors must be open before you turn the machine on and enter the SP mode.
- If you switch on the machine with the front doors closed and do not enter the SP mode, auto processing control will automatically execute and start initialization for conditions around the drum, but initialized settings for the toner density and TD sensor will not be correct.

6. Close the front doors.

**★ Important**

- You must close the front doors now.
- If you fail to close the front doors, the following SP codes (executed in the following steps) will not execute: SP2801-001 (TD Sensor Initial Setting), SP2207-002 (Toner Supply: Toner Bank Setup), SP2962 (Auto Process Control Execution).

7. Do SP2801-002.

- Open the soft keyboard on the operation panel.
- Enter the developer lot numbers and touch [OK]. (Lot numbers are embossed on the top edges of the developer packets.)

**★ Important**

- If you do not enter the 7-digit lot numbers first, you will not be able to execute SP2801-001 (pressing [EXECUTE] will have no effect).

8. Do SP2801-001.

- Touch [EXECUTE] on the operation panel to initialize the TD sensor. Initialization requires about 1 minute after you press [EXECUTE].

**★ Important**

- Do not switch off the machine or open the front doors until you are instructed to do so.

9. Set the toner bottles.

- Do not shake the toner bottles.
- Set the lower toner bottle first then the upper bottle.

10. Do SP2207-002.

- Touch [EXECUTE] on the operation panel.
- If the SP execution ends within about 2 sec., or if the process is interrupted by an SC code alert, execute this SP again. The process should take about 5 min.

11. Do SP2962 and touch [EXECUTE]. This executes auto process control.

12. Clean the transport belt above the exposure glass.

---

## 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:

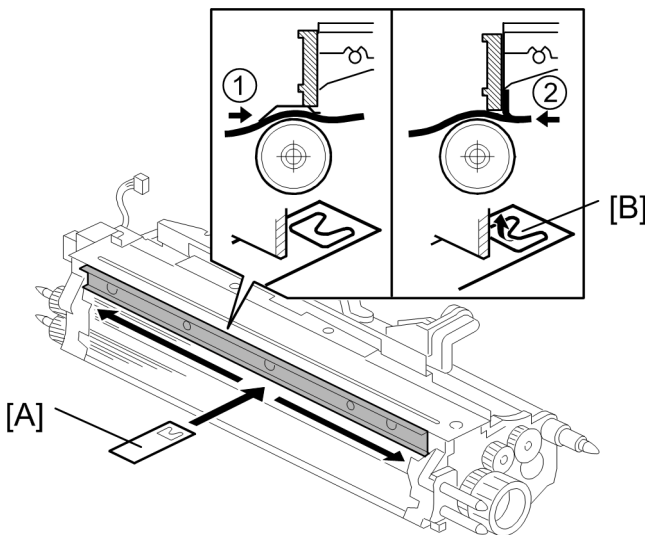
- There is toner scatter from both ends of the development unit.
- White lines appear on copies.
- Faint reproduction of the image appears around the edges of the paper.

To do this procedure, you need a special tool.

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.



d059r518

#### ★ 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.

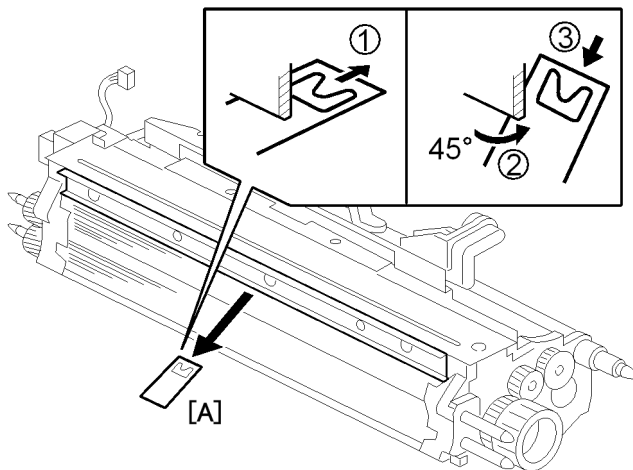
1. Development unit (☞ p.341)
2. Toner hopper (☞ p.343)
3. Entrance seal (☞ p.344 "Developer Replacement")
4. Flatten the paper dust cleaner [A] before you use it.

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.



b234r519

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.

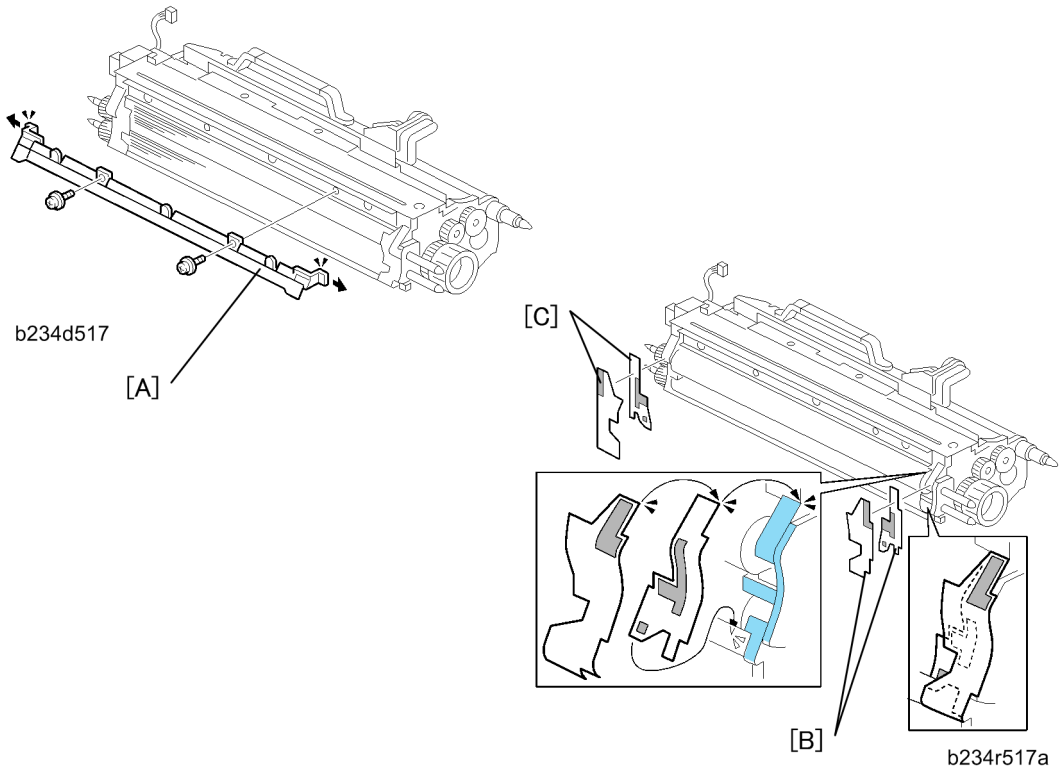
**★ Important**

- 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.

## Development Entrance, Front, Rear Side Seals

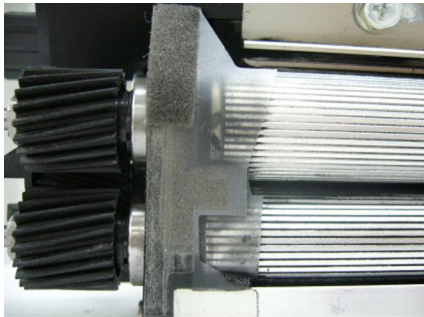


1. Remove the developer and keep it.
2. Replace the developer entrance seal [A] ( $\frac{1}{2}$  x 2, hooks x 2).
3. Replace the front side seals [B].
4. Replace the rear side seals [C].

### Reassembly

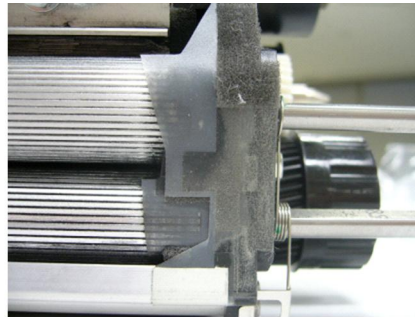
- When re-assembling the development unit, make sure the edges of the new side seals align with the edges.





Rear

b234r911

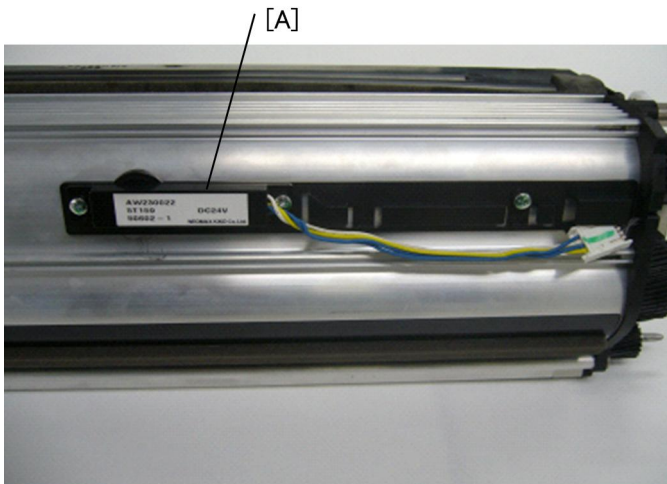


Front

b234r910

3

## Toner Density Sensor



b234r912

- Remove the developer. (☛ p.344)
1. Remove the TD sensor [A] (🔧 x 2, 📏 x 1).
  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 (📏 x 1, 🔧 x 2).
  4. Install new developer and reassemble the development unit. (☛ p.344)
  5. Use the keys on the screen to enter the Developer Lot No with SP2801-002, and "Execute" the TD initial setting with SP2801-001
  6. Execute SP2962 (Auto Process Control Execution).

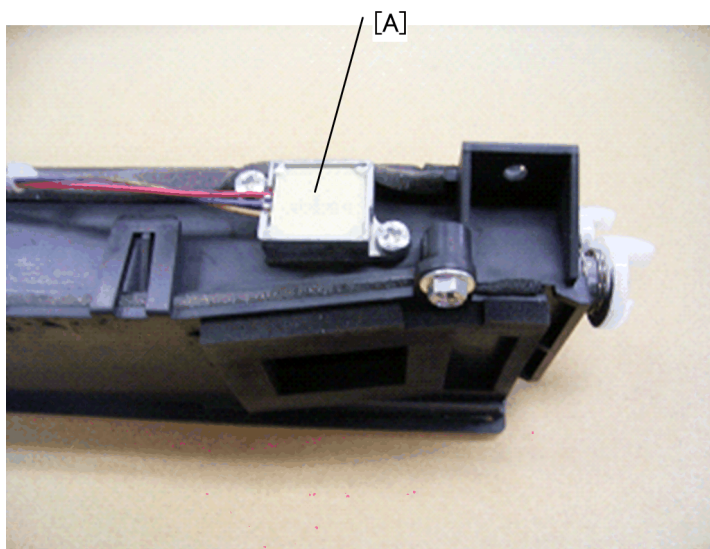
**Note**

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

---

## Toner Hopper Sensor

---



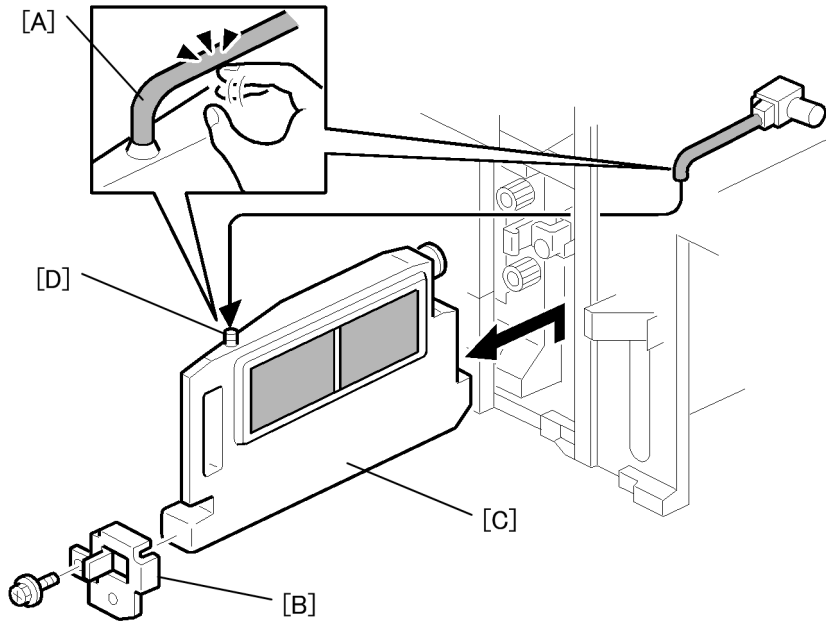
b234r913

1. Take out the toner hopper. (☛ p.343)
2. Toner hopper sensor [A] (☞ x 2).

**Note**

- Keep the toner hopper level.
- Clean the mounting location of the toner hopper before installing it.

## Toner Suction Bottle



b234r165

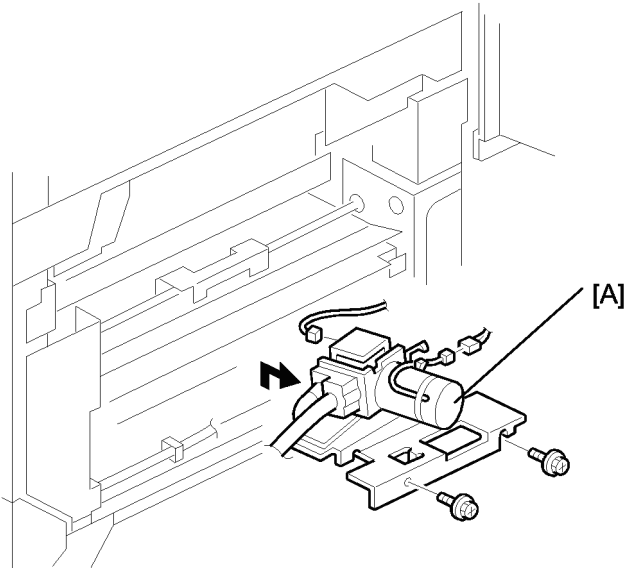
1. Remove the right upper cover.
2. Open the right front door.
3. Tap the hose [A] to clear toner from the opening of the hose.
4. Bracket [B] (1 x 1).
5. Toner suction bottle [C] (hose x 1).

### ↓ 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".

## Toner Suction Motor

3



b234r163

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".

## Development Motor Unit

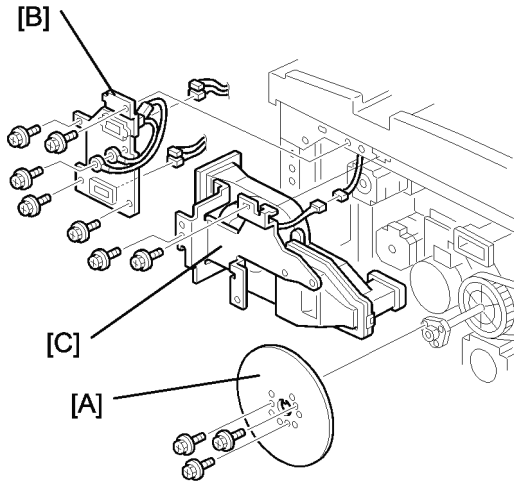
There are two categorized models for this model in the field. The replacement or removal procedure is slightly different between two categorized models.

Refer to the following table and check which categorized model the machine is.

Model No.	Serial No.:	
	Non-modified Models	Modified Models
D05927	Before V5000100015	V5000100015 or later
D06017	Before V5100100038	V5100100038 or later
D06021	Before V5100200071	V5100200071 or later
D06027	Before V5100100056	V5100100056 or later
D06117	Before V5200100020	V5200100020 or later

D06121	Before V5200200022	V5200200022 or later
D06127	Before V5200100037	V5200100037 or later

- Open the PSU box (☛ p.291)
- Rear upper cover (☛ "Rear Upper Cover")



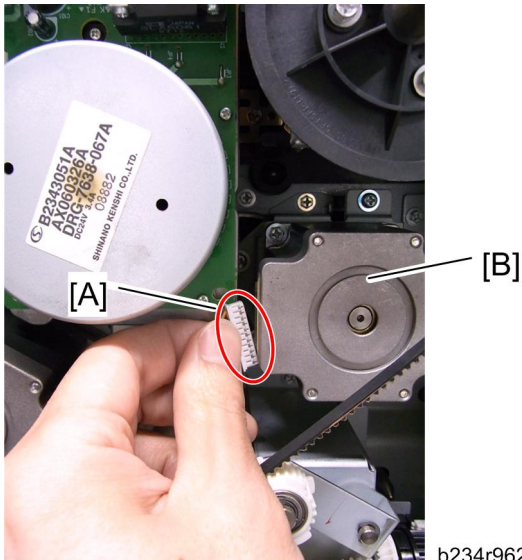
b234r919a

## 1. Remove:

[A]: Flywheel (🔩 x3)

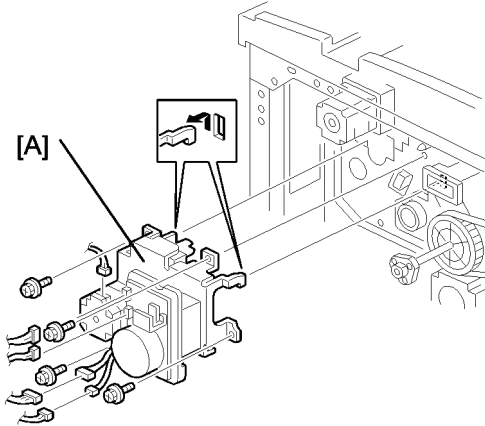
[B]: Harness bracket (🔩 x5, 🛠️ x4)

[C]: Left duct unit (🔩 x2, 🛠️ x1)



b234r962a

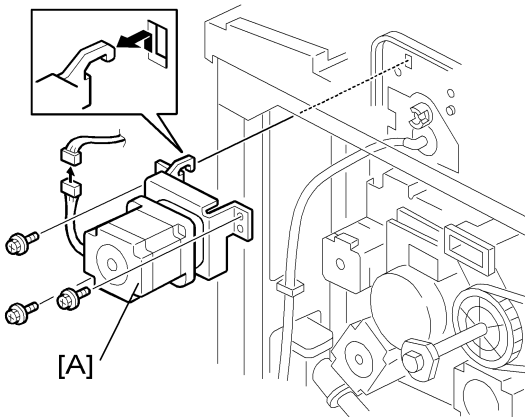
2. For non-modified Models, disconnect the harness [A] from the registration motor [B].
  - For modified models, this step is not required.



b234r919b

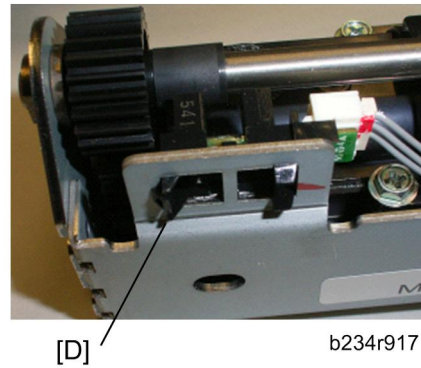
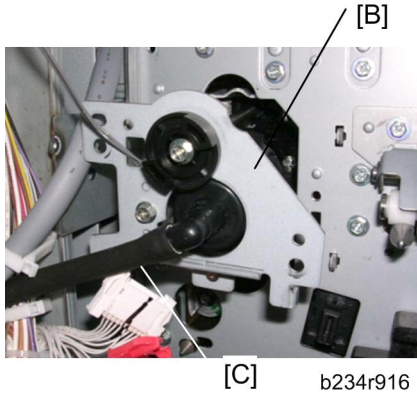
3. Remove development motor unit [A] (⚙️ x4, 🛠️ x5, 📏 x1)

## Toner Pump Motor, Toner Pump Motor Sensor



d234r958

- Development motor unit (📄 p.354)
1. Remove toner pump motor unit [A] (⚙️ x3, 🛠️ x1)



## 2. Remove:

[B]: Toner pump unit (🔧 x3, 📏 x1)

[C]: Disconnect the tube.

### ⚠ Note

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

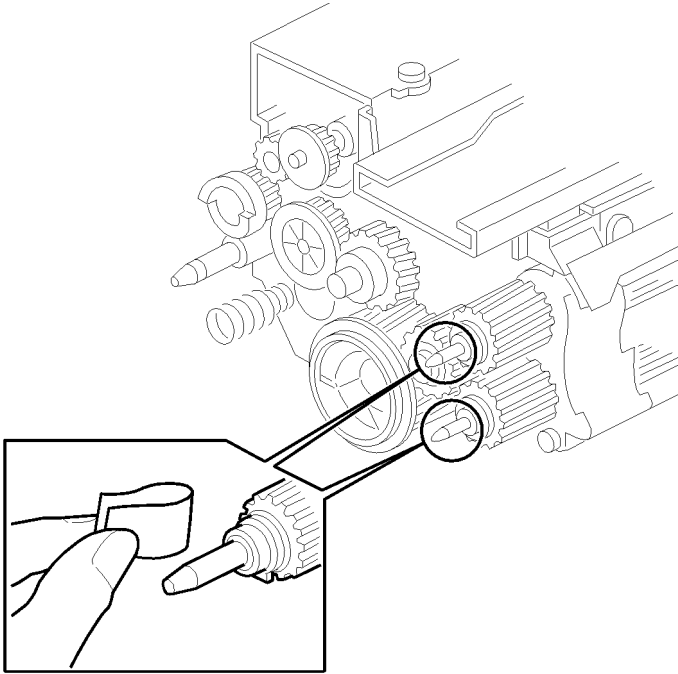
[D]: Toner pump motor sensor (🔧 x1)

---

## Development Roller Shaft Cleaning

---

3



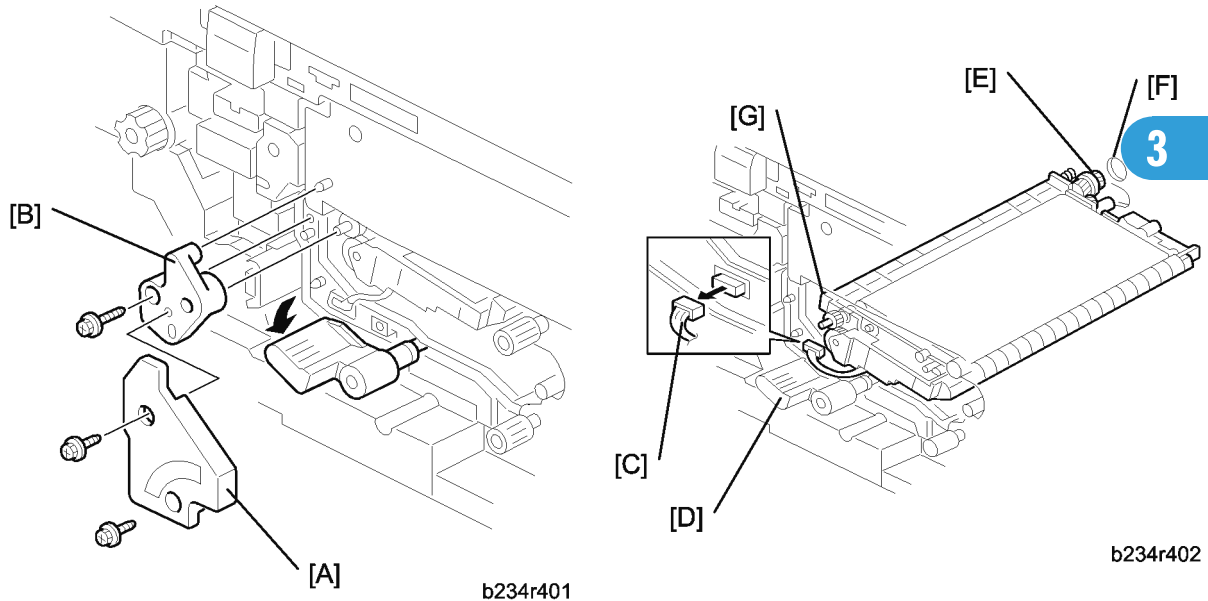
b234r985

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



# Transfer Belt Unit

## Transfer Belt Unit Removal



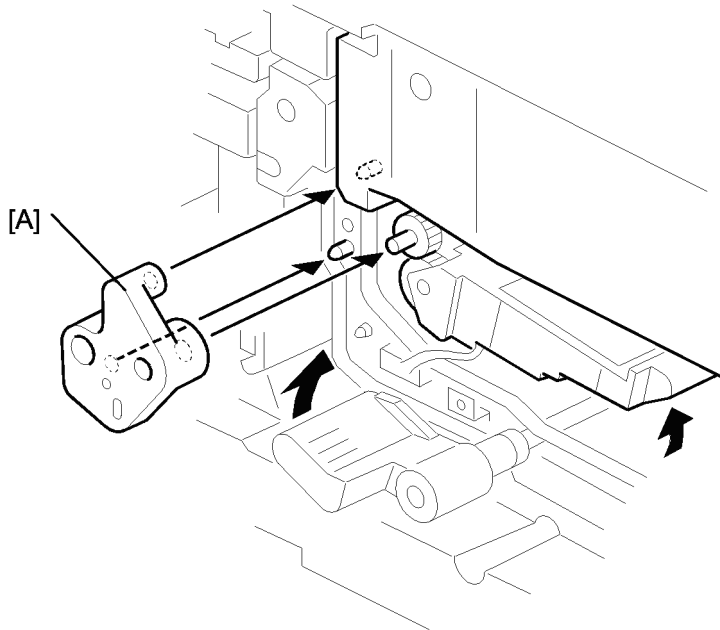
1. Turn off the main switch.
2. Remove the inner cover.
3. Remove the transfer belt unit cover [A] (⚙️ x 2).
4. Remove the transfer belt unit holder [B] (⚙️ x 1).
5. Connector [C] (🔌 x 1).
6. While turning the lever [D] counterclockwise, take out the transfer belt unit.

### ⚠️ Note

- Never touch the transfer belt with bare hands.
- 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).



b234r403

5. Attach the transfer belt unit holder [A] (1 x 1).

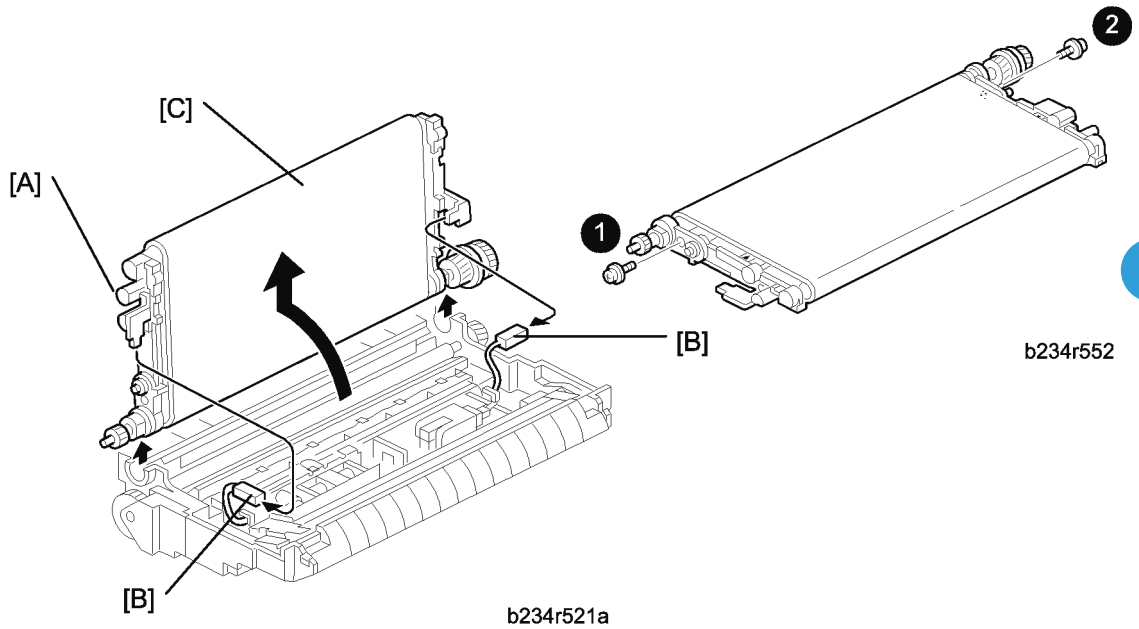
**Note**

- Align the three holes with the three projections as shown with the arrows.

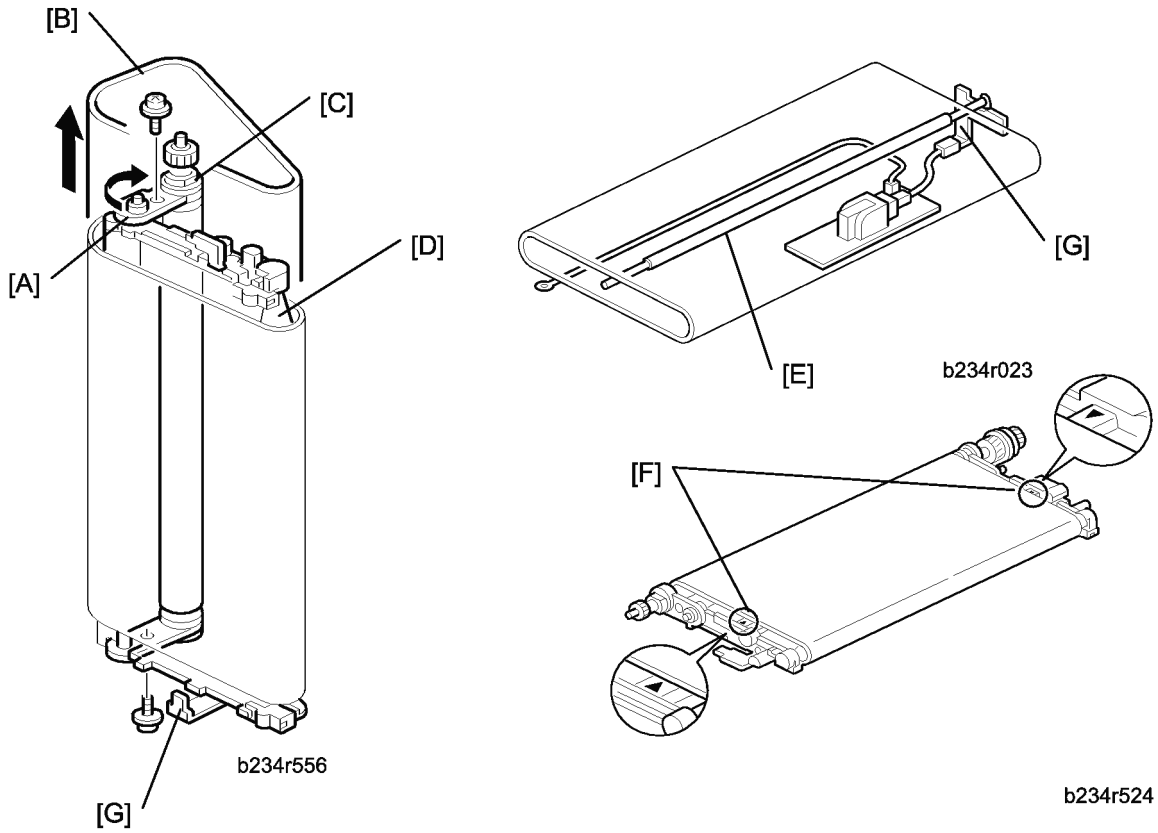
6. After installation, check the following points:

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

## Transfer Belt



1. Remove the transfer belt unit. (☛ p.359)
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).



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.

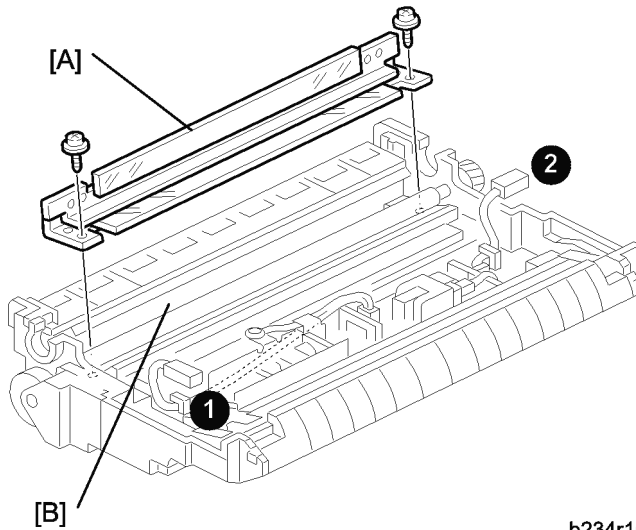
**Before Installing or Replacing the Transfer Belt**

1. 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].

## Transfer Belt/Bias Roller Cleaning Blade



b234r108

- Remove the transfer belt unit. (☛ p.359)
- 1. Transfer belt /bias roller cleaning blade [A] (☛ x 2).
- 2. Clean the cleaning bias roller [B].

### ↓ Note

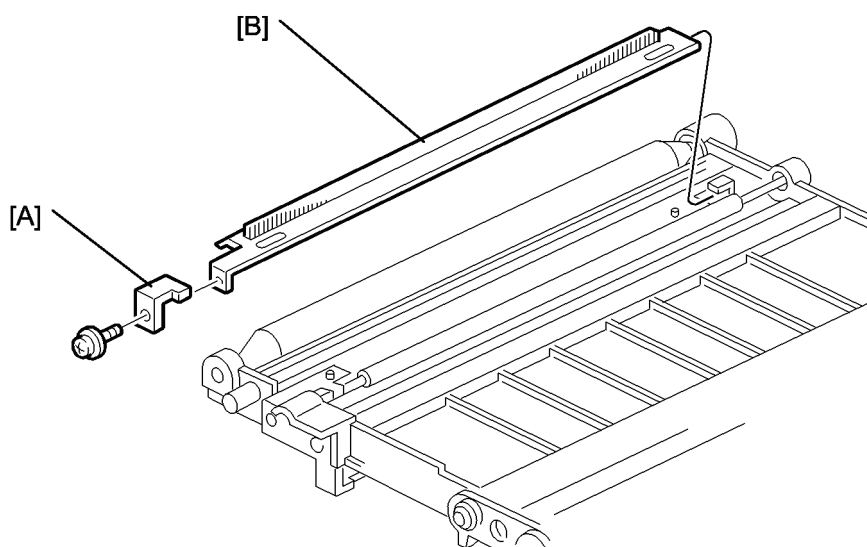
- Before vacuuming, remove the power pack connectors (1), (2) to protect the transfer power pack from static electricity.

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 Bias Brush



b234r455

- Remove the transfer belt. (☛ p.361)

1. Remove:

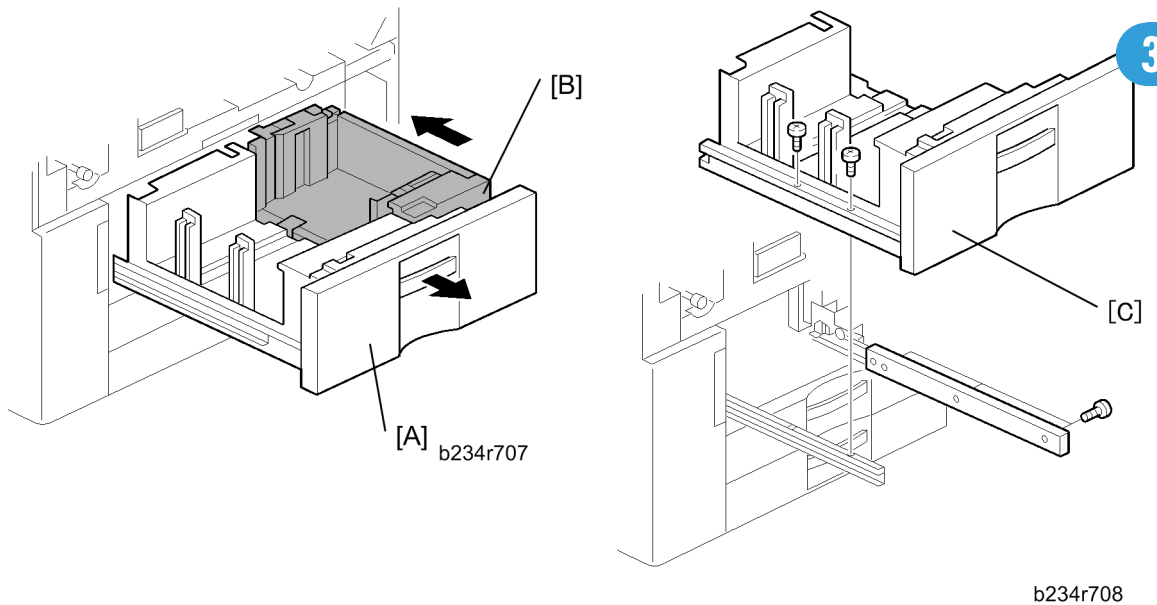
[A] Stopper (☛ x1)

[B] Transfer belt bias brush unit

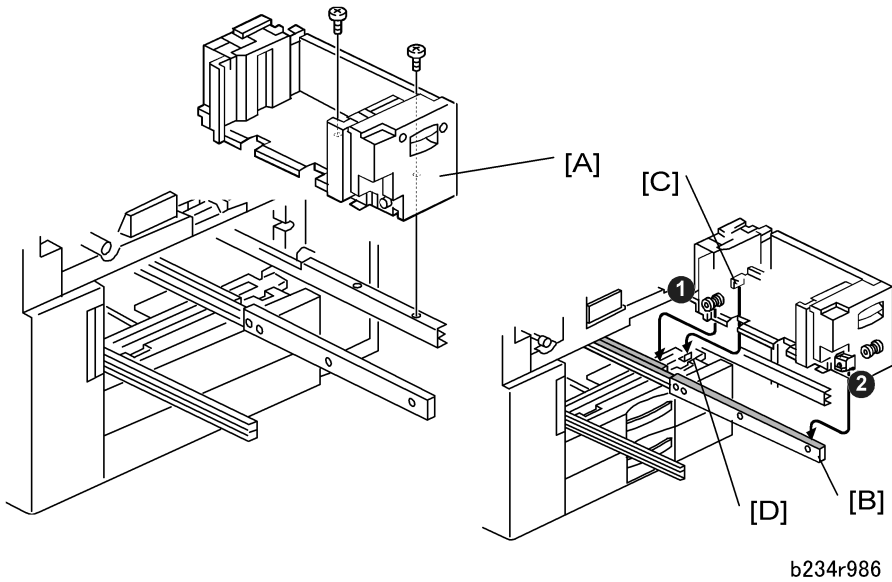
# Paper Feed

## 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] (⚙ x 5).



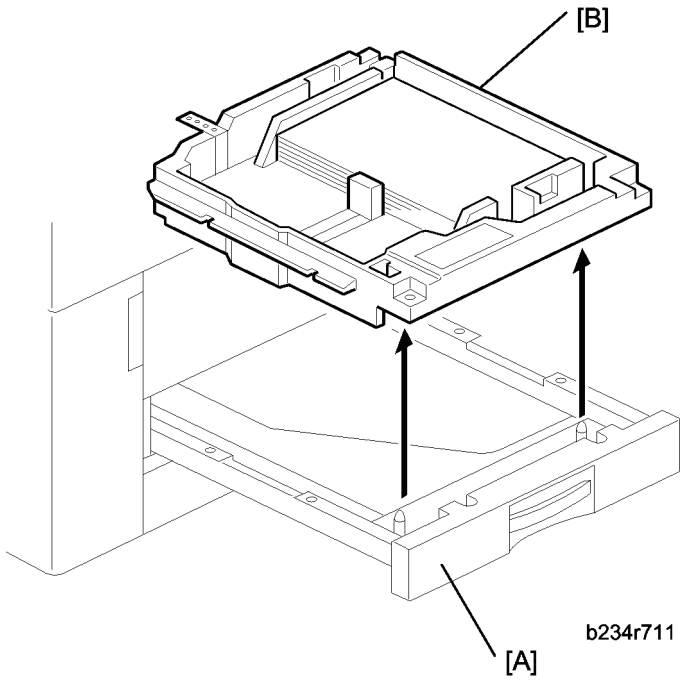
5. Right tandem tray [A] (2).

**Note**

- When re-installing the right tandem tray, make sure that the wheels (1), (2) ride on the slide rail [B].
- When re-installing the right tandem tray, make sure that the tandem tray stopper [C] is set behind the stopper [D] on the main machine frame.
- Use M3 x 4 screws to secure the right tandem tray. Screws longer than 4 mm will prevent the right tandem tray from sliding out and in smoothly.

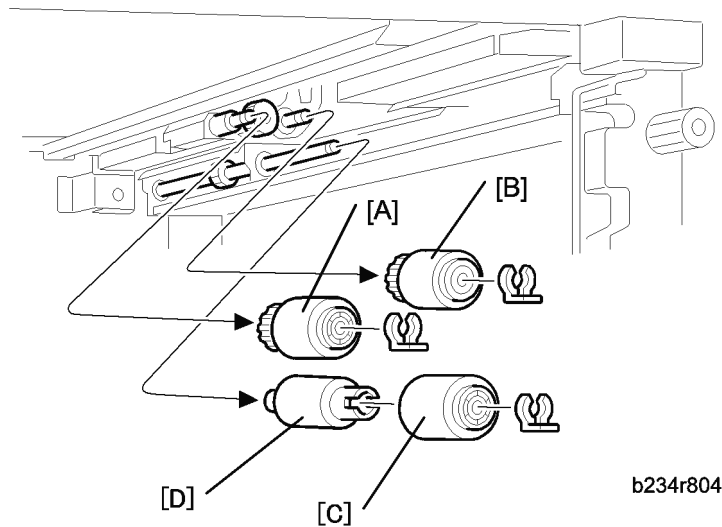


## Universal Tray



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

## Paper Feed Rollers

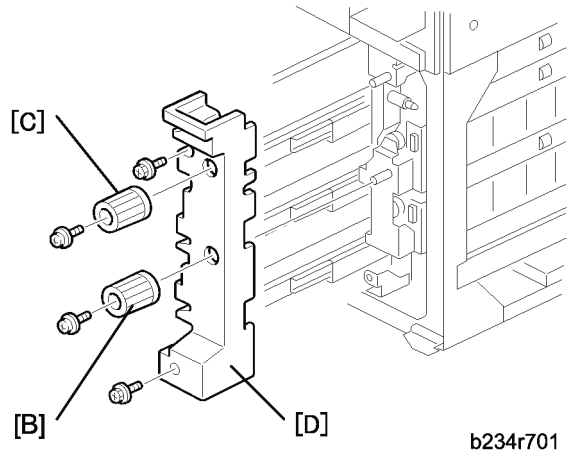
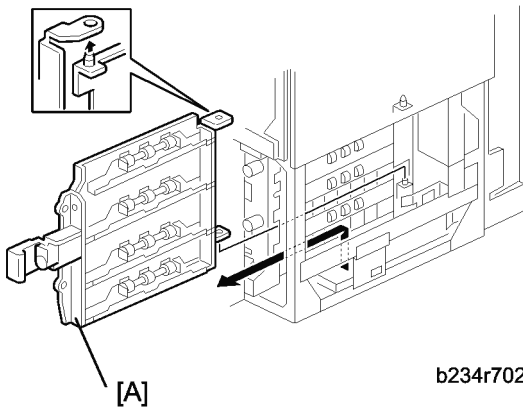


1. Turn off the main switch.
2. Remove the paper tray for the appropriate feed unit. (☛ p.365 "Paper Trays")
3. Pick-up roller [A] (☞ x 1).
4. Feed roller [B] (☞ x 1).
5. Remove separation roller [C] from the torque limiter [D] (☞ x 1).

**★ 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 (☛ p.241 "PM Counter").

**Paper Feed Units 1, 2, 3**



**↓ Note**

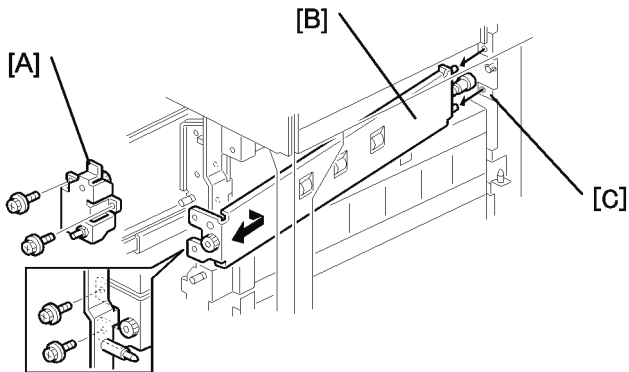
- This procedure uses the 1st feed unit as an example. The procedures for the 2nd and 3rd trays are the same.

1. Turn off the main switch.
2. Remove right front door.
3. Remove right lower cover.

**↓ Note**

- If the LCT is installed, disconnect it.

4. Toner collection bottle (☛ p.427)
5. Lift the vertical transport guide [A] and remove it.
6. Remove knob [B] (🔧 x 1).
7. Remove knob [C] (🔧 x 1).
8. Pull out the three trays and remove the paper tray unit inner cover [D] (🔧 x 2).

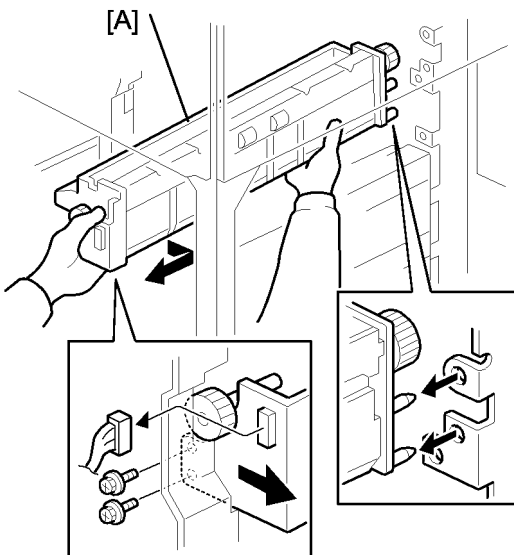


b234r703a

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

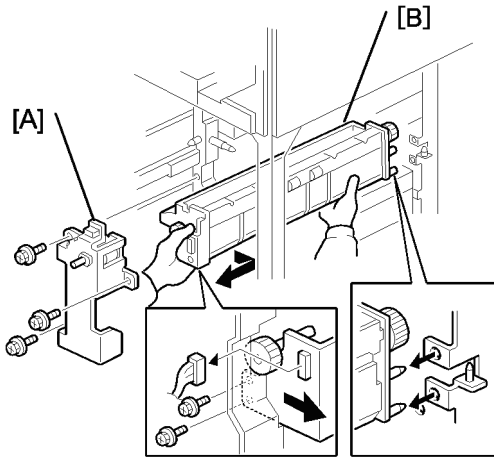
↓ **Note**

- 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.



b234r703b

11. 1st paper feed unit [A] (⚙️ x 2, 📄 x 1).

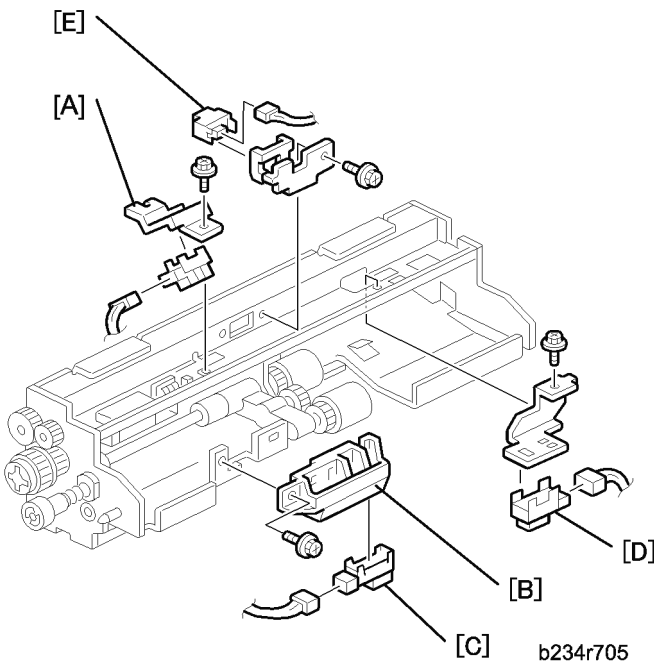


b234r704

12. Lower gear bracket [A] (⚙️ x3, 📄 x1).

13. 2nd or 3rd paper feed unit [B] (⚙️ x 2, 📄 x1).

### Paper Feed, Paper End, Tray Lift Sensor



b234r705

1. Remove the paper feed unit (☛ p.368)

## 2. Remove:

[A]: Tray lift sensor (⚙️ x 1, 🛠️ x 1).

[B]: Paper end sensor assembly (⚙️ x 1, 🛠️ x 1)

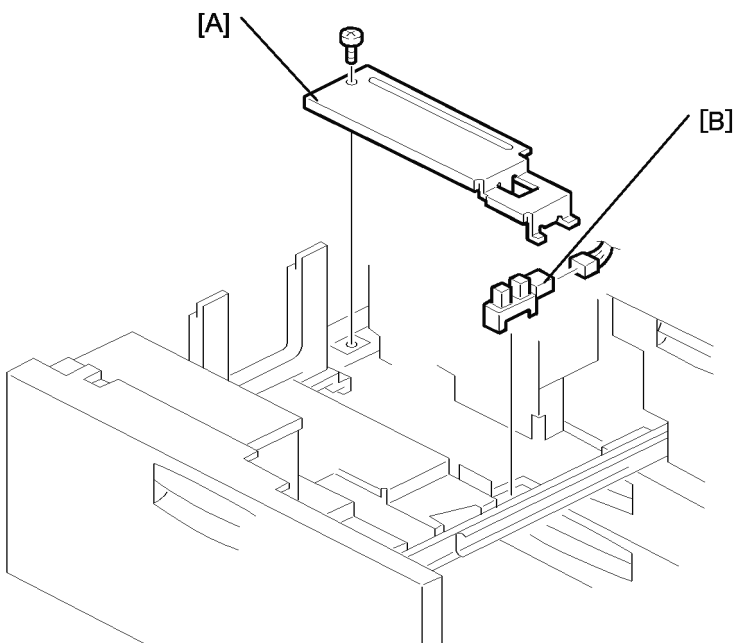
[C]: Paper end sensor

[D]: Paper feed sensor (⚙️ x 1, 🛠️ x 1)

[E]: Vertical transport sensor (⚙️ x 1, 🛠️ x 1)

## Rear Fence Return Sensor

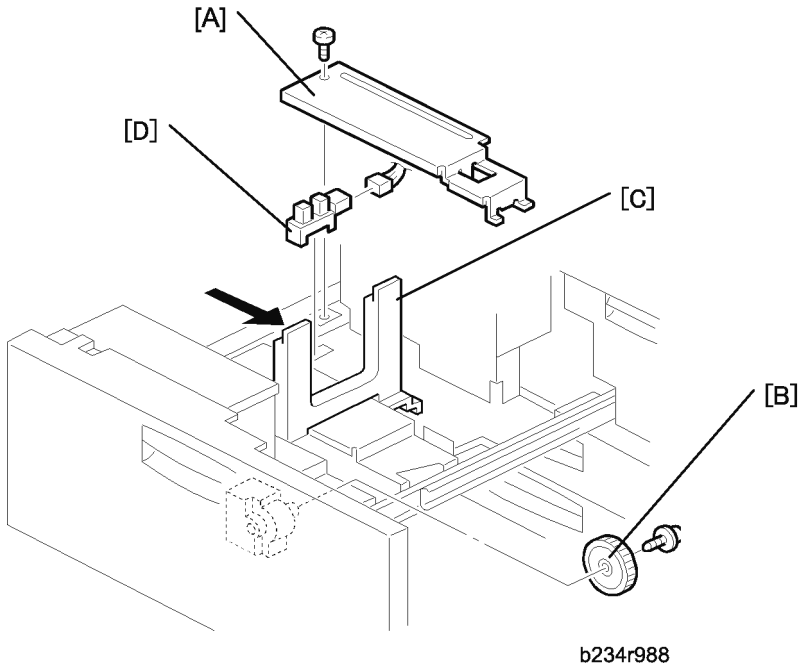
3



b234r987

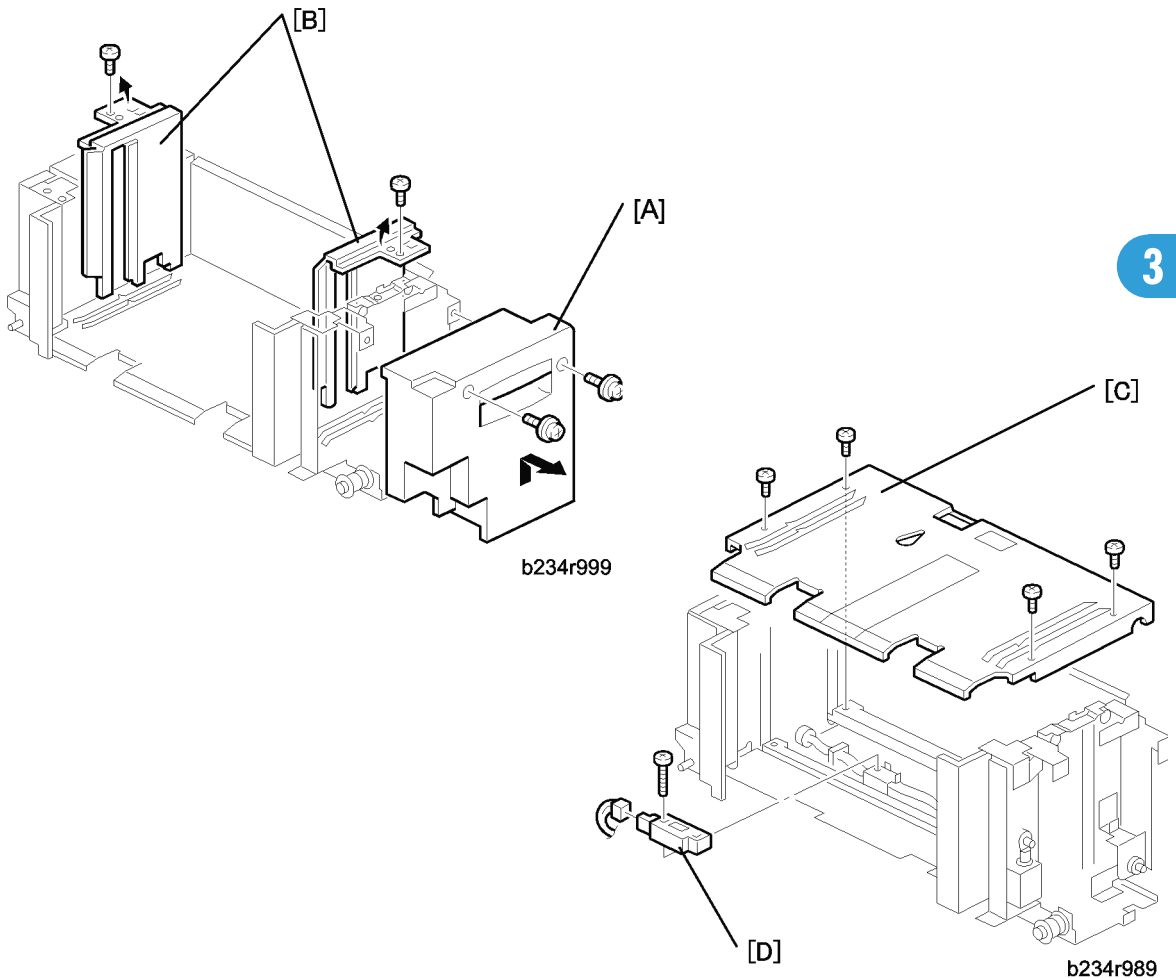
1. Turn off the main switch.
2. Pull out the left tandem tray.
3. Rear bottom plate [A] (⚙️ x 1).
4. Rear fence return sensor [B] (🛠️ x 1).

## Rear Fence HP Sensor



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

## 1st Tray Right Paper Sensor

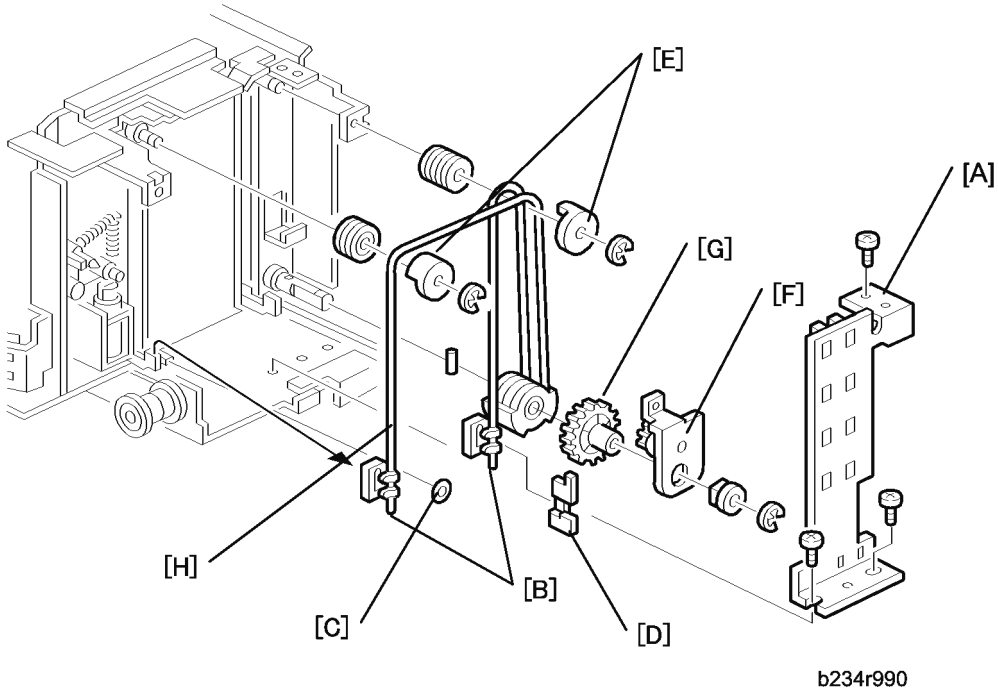


1. Turn off the main switch.
2. Right tandem tray. (☛ p.365 "Paper Trays")
3. Tandem tray cover [A] (🔩 x 2).
4. Side fences [B] (🔩 x 1 each).

### ⬇ 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] (🔩 x 4).
  6. Right 1st tray paper sensor [D] (🔩 x 1, 📏 x 1).

## Bottom Plate Lift Wire



### Note

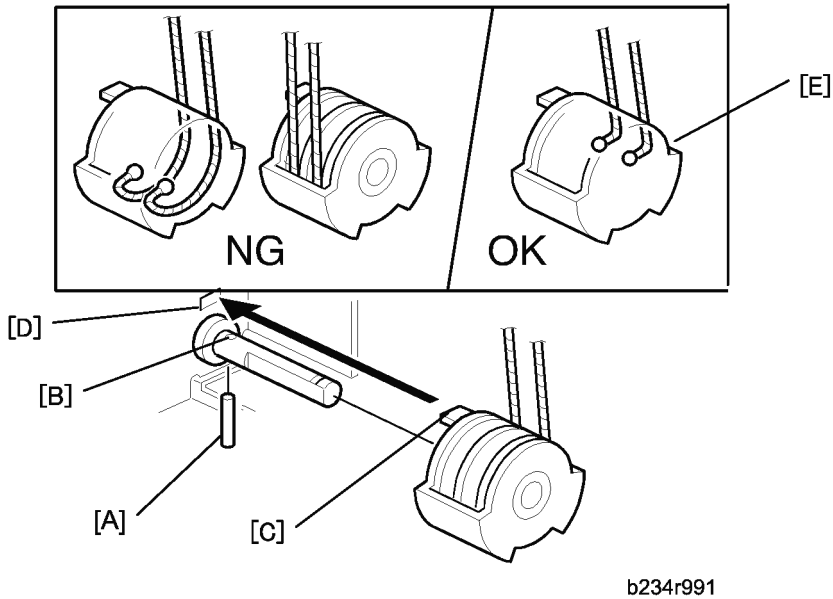
- Before replacing the rear bottom plate lift wire, remove the front bottom plate lift wire. The procedure for the two wires is the same.

Remove:

- Right tandem tray. (☛ p.365 "Paper Trays")
  - Tandem tray cover (🔧 x 2). (☛ p.373 "1st Tray Right Paper Sensor")
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, 🔧 x 1, bushing x 1) (Front Only).
  5. Gear [G] (Front Only).
  6. Bottom plate lift wire [H].

**Re-installation**





b234r991

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].

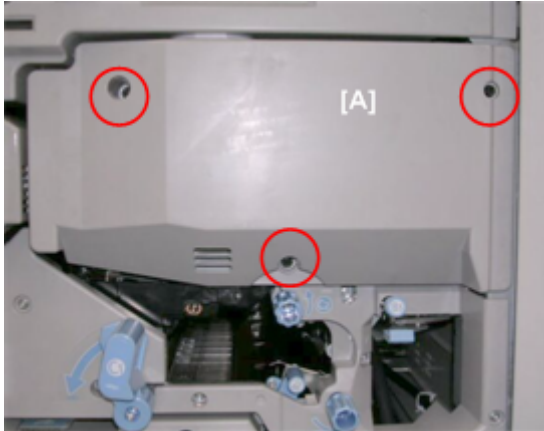
**Note**

- Do not cross the wires.

## Paper Dust Tray, Registration Sensor, Double-feed Sensors

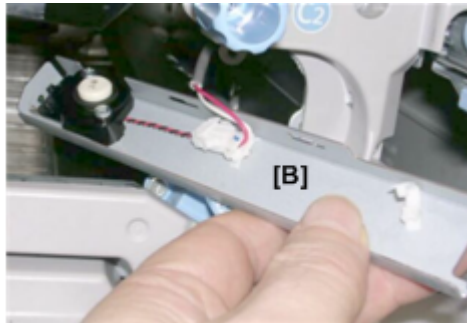
1. Open the right front door.

3



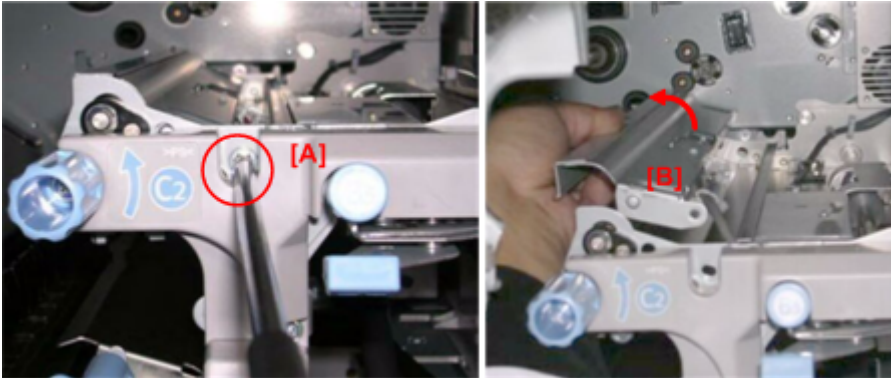
d049r901

2. Remove cover [A] (🔩 x 3)
3. Open the development unit drawer and remove (👉 p.325 "Cleaning Unit, PCU, Drum")
  - Cleaning unit
  - Development unit
  - PCU



d049r902

4. Remove:
  - [A] Screw (🔩 x 1)
  - [B] Lower double-feed sensor bracket

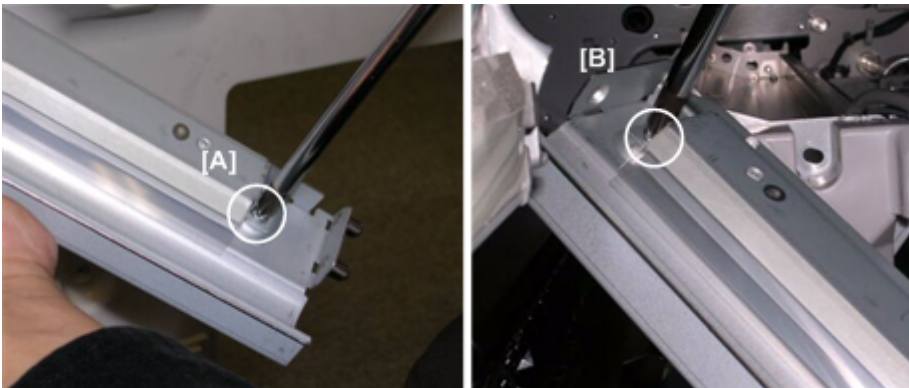


d049r903

5. Remove:

[A] Screw (⌀ x 1)

[B] Upper double-feed sensor bracket



d049r904

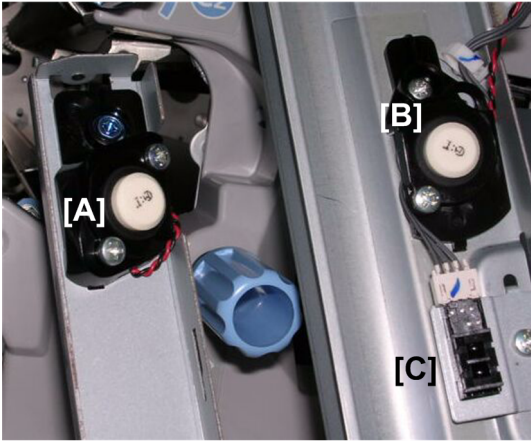
6. From the upper double-feed sensor bracket, remove the paper dust tray.

[A] Front (⌀ x 1)

[B] Rear (⌀ x 1)

7. Use a clean dry cloth to remove paper dust from the paper dust tray.

3



d049r905

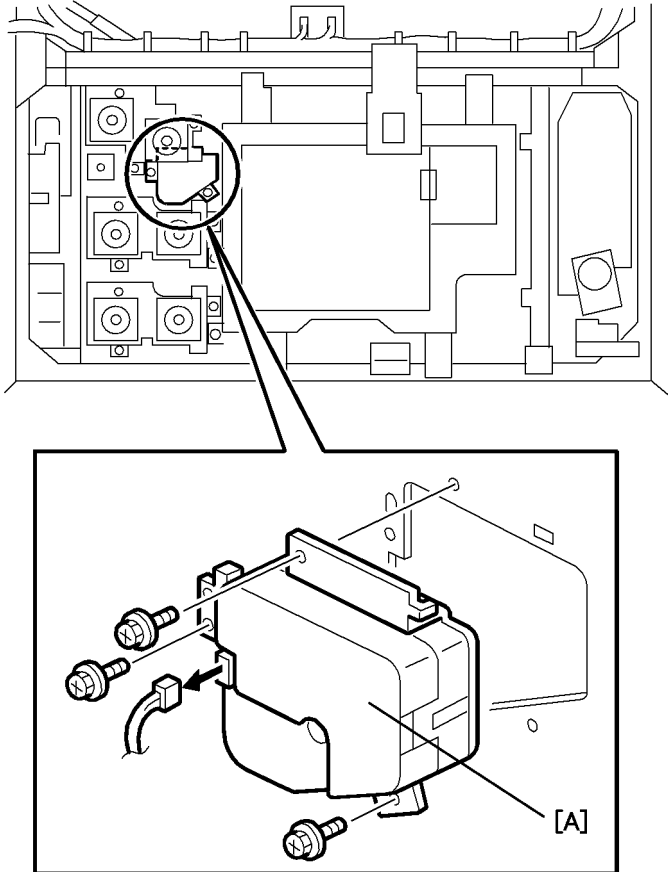
8. Use a blower brush to clean:
- [A] Lower double-feed sensor
  - [B] Upper double-feed sensor
  - [C] Registration sensor

**★ Important**

- The lower double-feed sensor is the LED (emitter) of the sensor pair.
- The upper double-feed sensor is the receptor of the sensor pair.
- If you need to replace one or both sensors, replace them with the correct type.

## Lift Motors

### 1st Tray Lift Motor

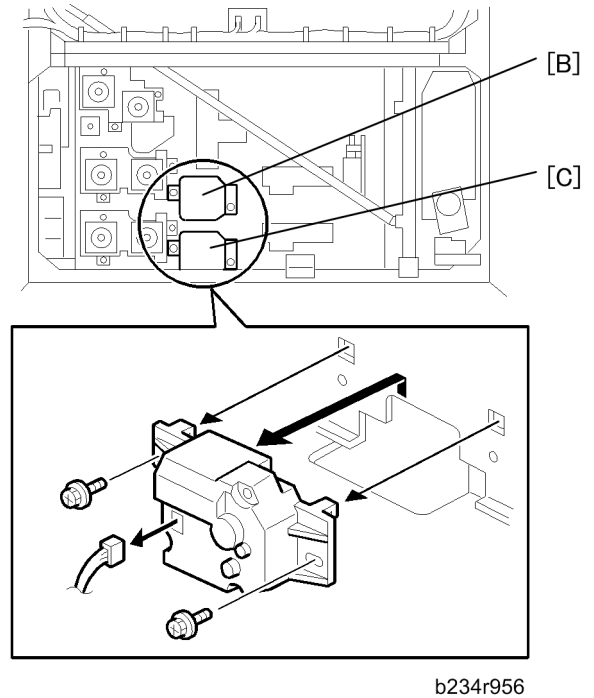
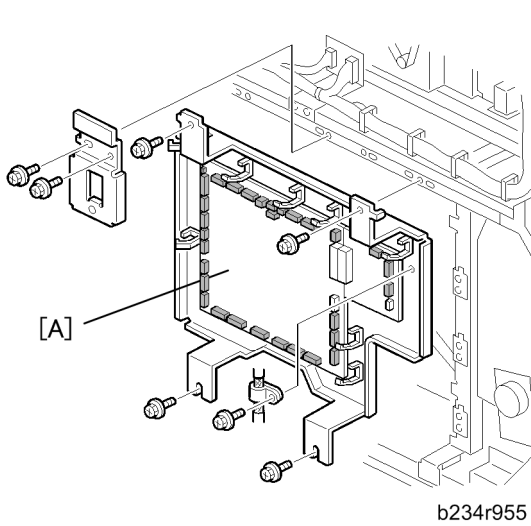


b234r593

- Remove AC drive unit (☛ p.440 "AC Drive Board")
- 1. 1st feed motor unit (☛ p.381 "Feed Motors")
- 2. 1st tray lift motor [A] (🔩 x3, 🛠️ x1)

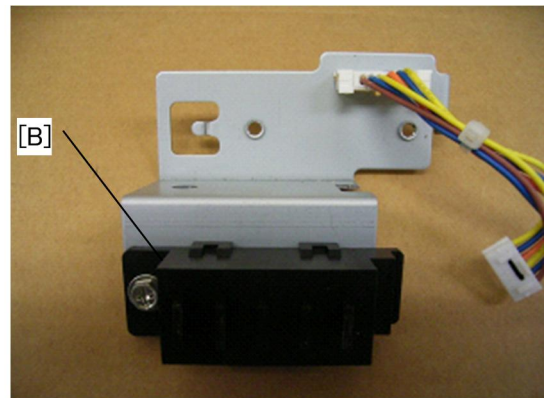
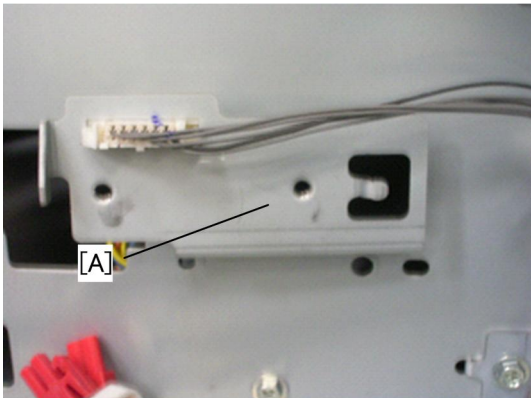
## 2nd, 3rd Tray Lift Motors

3



1. Remove the IOB unit [A] (☛ p.435 "IOB")
2. 2nd tray lift motor [B] (☛ x 1, ⚙ x 2).
3. 3rd tray lift motor [C] (☛ x 1, ⚙ x 2).

## 2nd, 3rd Tray Size Switches

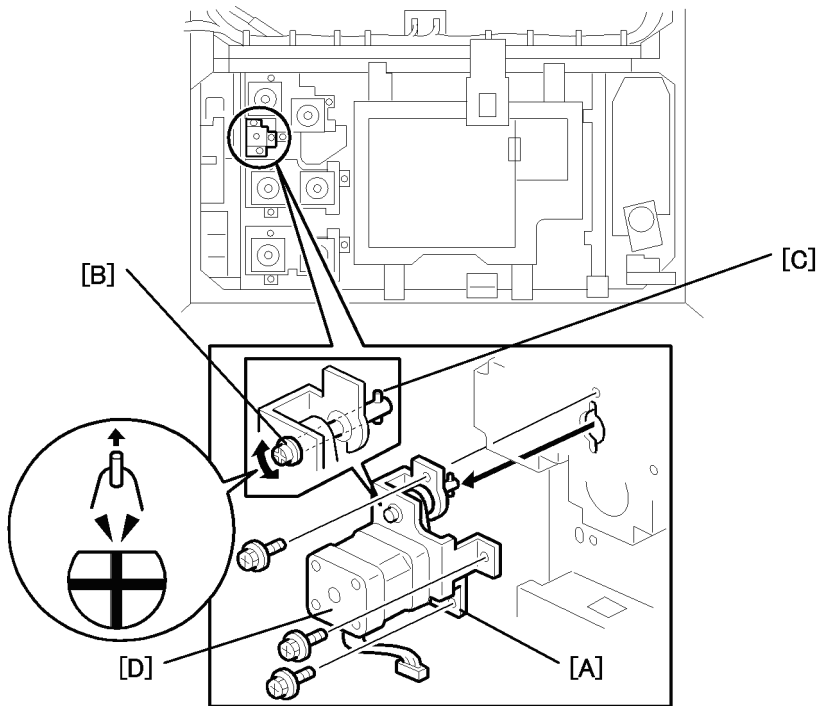


- Take the IOB Unit out (☛ p.435 "IOB")

1. 2nd/3rd tray size switch bracket [A] (🔩 x2, 🛠️ x1)
2. 2nd/3rd tray size switch [B] (🔩 x1, 🛠️ x1)

## Feed Motors

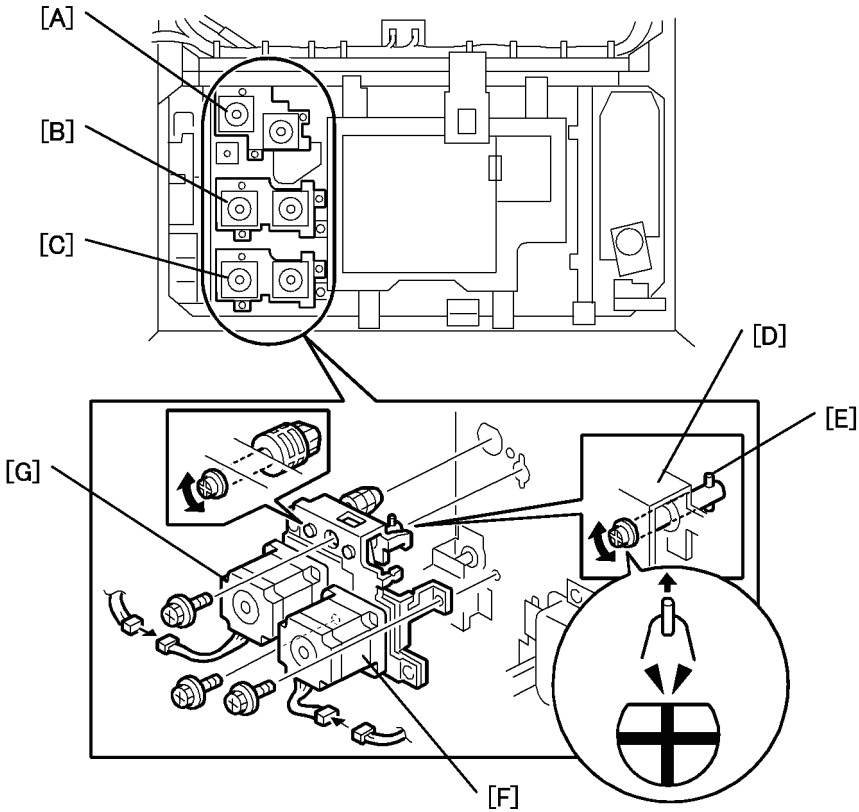
### Vertical Relay Motor



b234r954

- Remove the AC drive unit (🔩 x4, 🛠️ x9, 🛠️ x3) (👉 p.440 "AC Drive Board")
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



b234r952

1. Remove the paper feed unit:

[A]: 1st tray (⚙️ x3, 📄 x2)

[B]: 2nd tray (⚙️ x3, 📄 x2)

[C]: 3rd tray (⚙️ x3, 📄 x2)

**Note**

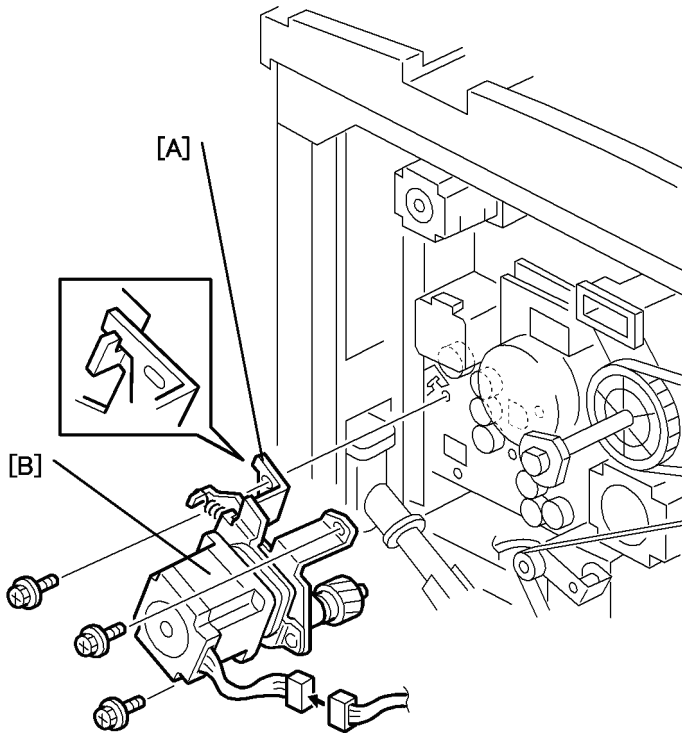
- Rotate the drive shaft [D] until the drive pin [E] is pointing up, then remove the motor unit.

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

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



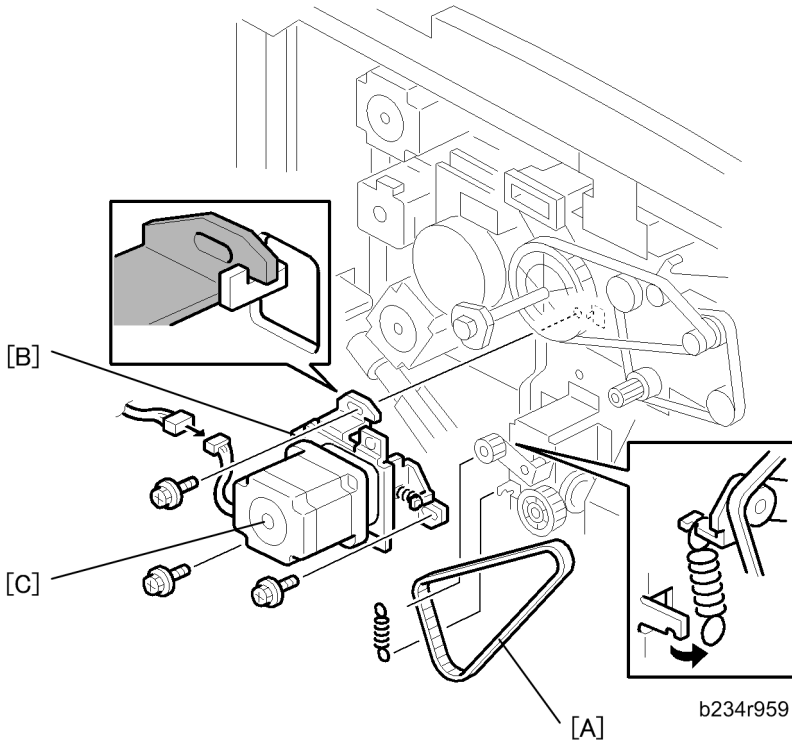
## Upper Relay Motor



b234r957a

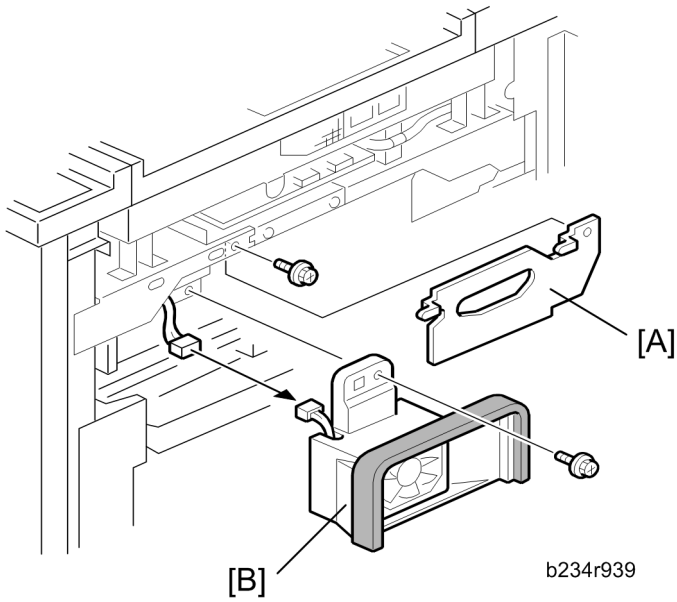
1. Open the PSU box (⌀ x 2). (▶ p.291 "PSU Box")
2. Remove the rear upper cover.
3. Flywheel (⌀ x 3).
4. Upper relay motor unit [A] (⌀ x 3, □ x 1).
5. Upper relay motor [B] (⌀ x3, Timing belt x1, Spring x1)

## Registration Motor



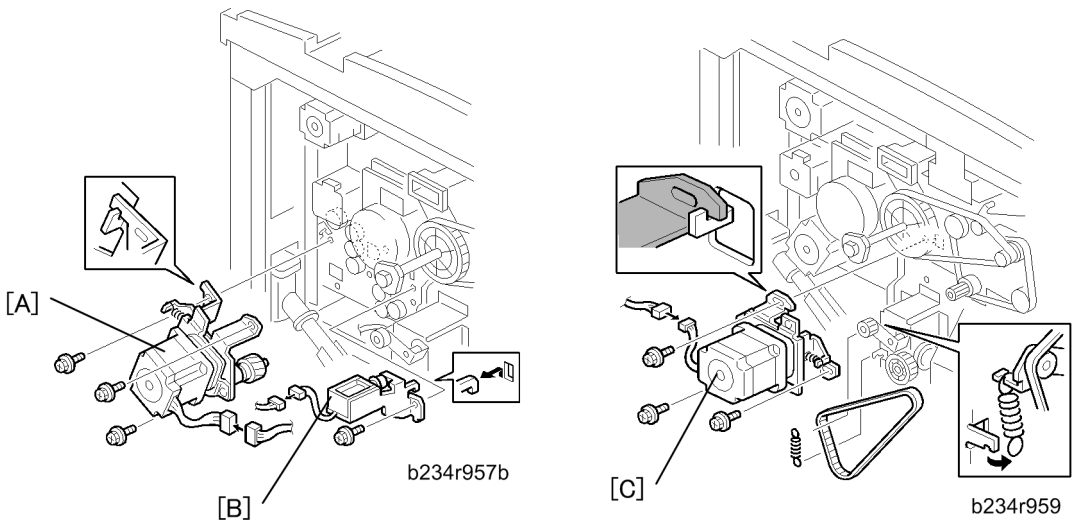
1. Open the PSU box. (⚙️ x 2). (➡️ p.291)
2. Remove the rear upper cover.
3. Flywheel (⚙️ x 3).
4. Timing belt [A].
5. Registration motor unit [B] (Spring x1, ⚙️ x 3, 📏 x 1).
6. Registration motor [C] (⚙️ x 3, timing belt x 1, spring x 1).

## Development Fan Motor



- Right upper cover (⚙️ x 4)
- 1. Tube cover [A] (⚙️ x 1)
- 2. Fan motor unit [B] (⚙️ x 1, 📡 x 1)
- 3. Fan motor (⚙️ x 2)

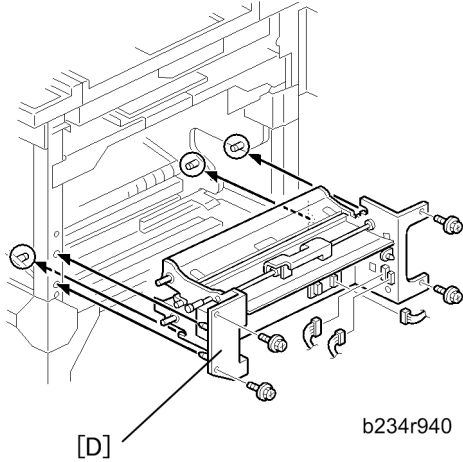
## Registration Unit



1. Remove:

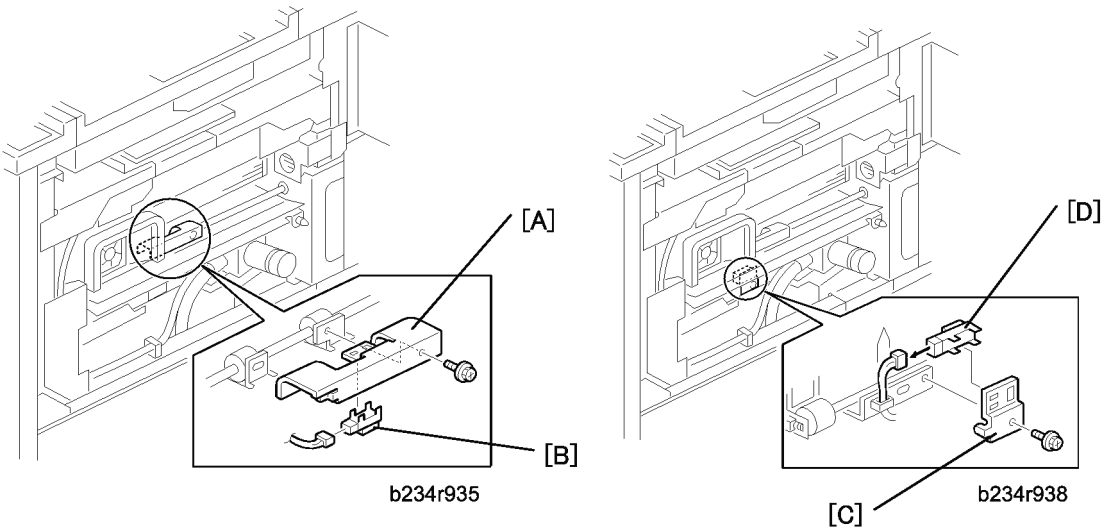
- Development fan motor (☛ p.385)
- Toner suction pump motor (☛ p.343 "Toner Hopper Removal")
- Upper relay motor [A] (☛ p.383)
- Guide plate solenoid [B] (🔩 x1, 📌 x1)

2. Registration motor [C] (☛ p.384)



3. Registration unit [D] (🔩 x4, 📌 x3)

### LCT Relay and Relay Sensors



1. Remove right upper cover (🔩 x 4).

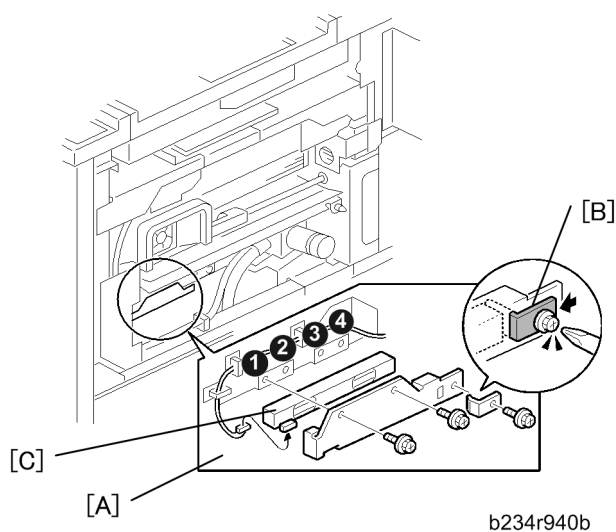
2. LCT relay sensor bracket [A] (🔩 x 1, 🛠️ x 1).
3. LCT relay sensor [B].
4. Upper relay sensor bracket [C] (🔩 x 1, 🛠️ x 1).
5. Upper relay sensor [D].

## Image Position Sensors

### Image position sensor unit (Tray)

3

- Remove right upper cover (🔩 x 4).



[A]: Image position sensor unit (Tray) (🔩 x 2, 🛠️ x 1)

[B]: Stopper (🔩 x 1)

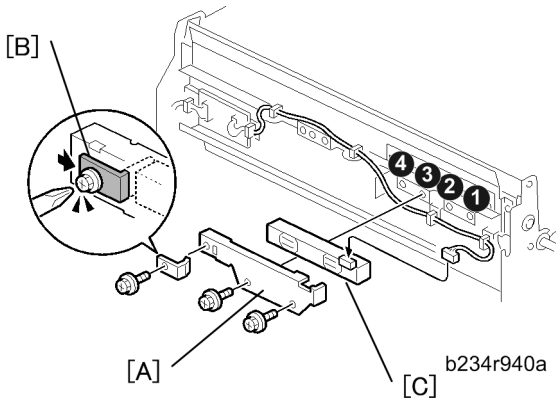
[C]: Image position sensor

#### ⚠️ Note

- The left screws (1), (3) are for paper widths of 140 – 330 mm.
- The right screws (2), (4) are for paper widths of less than 140 mm.

### Image position sensor unit (Duplex)

- Registration unit (👉 p.385)



1. Remove:

[A]: Image position sensor unit (duplex) (🔧 x2, 📄 x1)

[B]: Stopper (🔧 x1)

[C]: Image position sensor

⬇️ **Note**

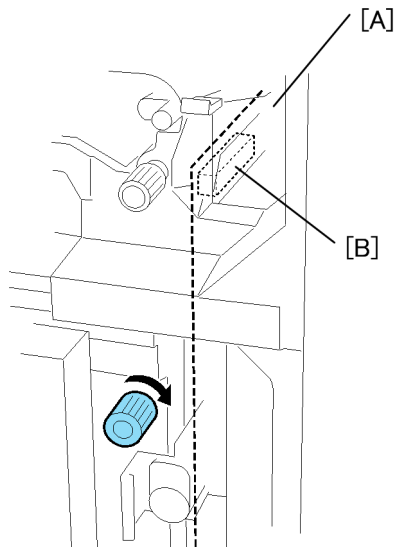
- The left screws (2), (4) are for paper widths of 140 to 330 mm.
- The right screws (1), (3) are for paper widths of less than 140 mm.

2. After replacement, the CIS must be calibrated. (See below.)

### CIS Image Position Adjustment: LED Strength

---

1. Turn off the main power switch.
2. Remove the right upper cover.
3. Turn on the main power switch.

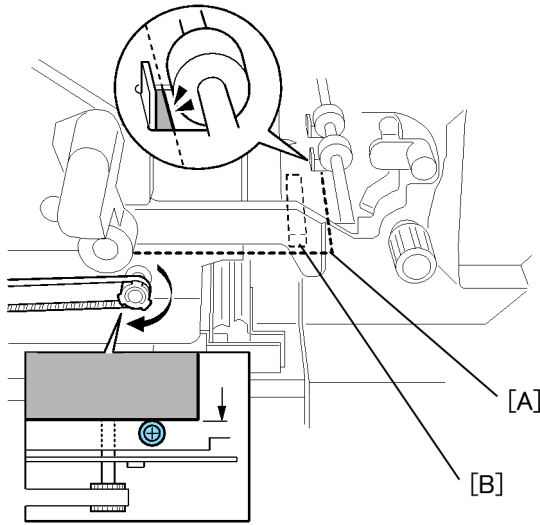


b234r976

4. Insert one sheet of plain white paper [A] in the paper path.
5. Make sure that the paper covers the entire area below the image position sensor (CIS) [B].
6. Enter SP mode and do SP1910 001 (CIS Image Position Adjustment: LED Strength). This calibrates the amount of light to be emitted from the CIS.
7. Do SP1909 (CIS Image Position Adjustment: PWM After Adjustment).
8. If the displayed value is between 10 (0Ah) and 40 (28h), the CIS was calibrated successfully. (The display is in hexadecimal code.)
9. If the value is outside this range, do SP1910 001, 1909 001 again. If the value does not come between 10 and 40, the CIS may be defective.
10. Exit SP mode.
11. Do the "CIS Image Position Adjustment: Normal Paper" (described below).

### CIS in the Duplex Unit

1. Turn off the main power switch.
2. Remove the duplex inner cover. (➡ p.421)



b234r975

3. Turn on the main power switch.
4. Insert one sheet of plain white paper [A] in the paper path.
5. Make sure that the paper covers the entire area below the image position sensor (CIS) [B].
6. Enter SP mode and do SP1910 003 (CIS Image Position Adjustment: LED Strength). This calibrates the amount of light to be emitted from the CIS.
7. Do SP1909 003 (CIS Image Position Adjustment: PWM After Adjustment).
  - If the displayed value is between 10 (0Ah) and 40 (28h), the CIS was calibrated successfully. (The display is in hexadecimal code.)
  - If the value is outside this range, do SP1910 003, 1909 003 again. If the value does not come between 10 and 40, the CIS may be defective.
8. Exit SP mode.
9. Do "CIS Image Position Adjustment: Normal Paper" (see the next section below).

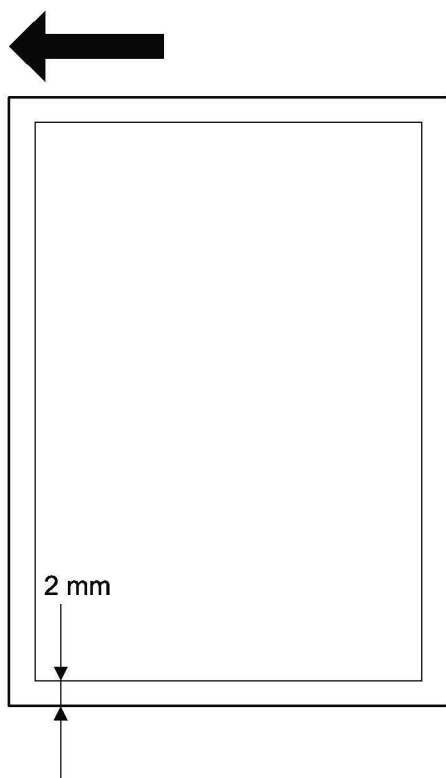
### CIS Image Position Adjustment: Normal Paper

1. Push [User Tools]> [Adjust Settings for Operators].
2. Do "0111-04 to -07" for Trays 1, 2, 3, duplex and set the value for each tray to "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 and 003 and adjust the image position in the main scan direction for Trays 1, 2, 3.



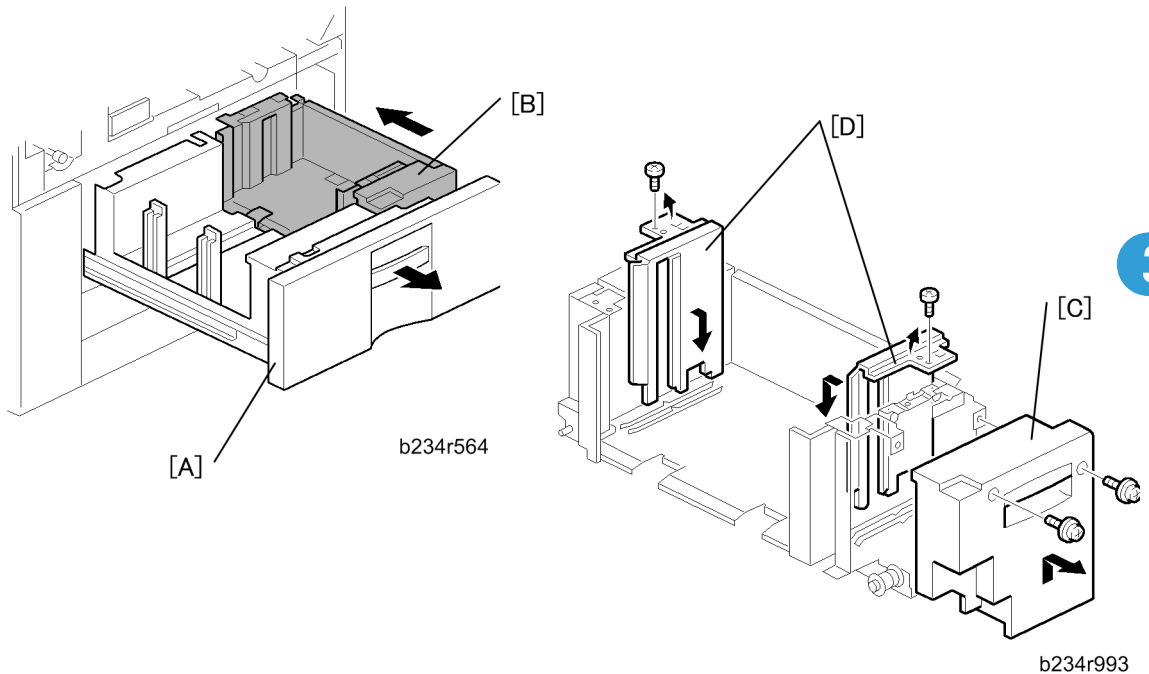
- Print the trimming pattern from each tray.
  - To do this, touch "Copy Window" in the SP display, select a tray, then push [Start].
  - The distance of the test pattern line from the paper edge for each tray must be 2 mm. If it is not 2 mm, adjust with SP1002 001, 002 and 003, depending on which tray 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 SP mode.
  9. Push [User Tools]> [Adjust Settings for Operators].
  10. Do "0111-04 to -07" again (CIS Image Position Adjustment: Feed Setting), and reset the values for Trays 1, 2, 3, duplex to "On".

3



b234r992

## 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.
- Open the front cover.
  - Pull out the tandem feed tray and remove the left [A] and right [B] tandem trays. (☛ p.365 "Paper Trays")

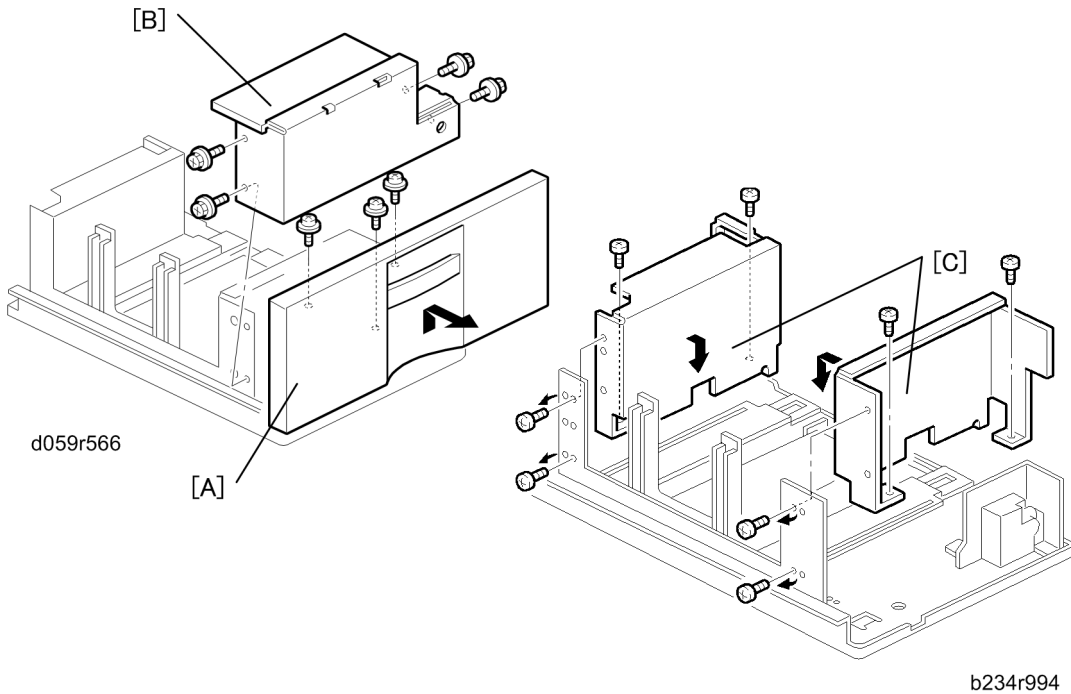
## Setting the Paper Size for the Right Tandem Tray

- Right tandem inner cover [C]. (🔩 x 2)
- Re-position the side fences [D] (🔩 x 1 each).

### Note

- Outer: A4, Inner: LT.
- Re-install the right tandem inner cover [C].

## Setting the Paper Size for the Left Tandem Tray

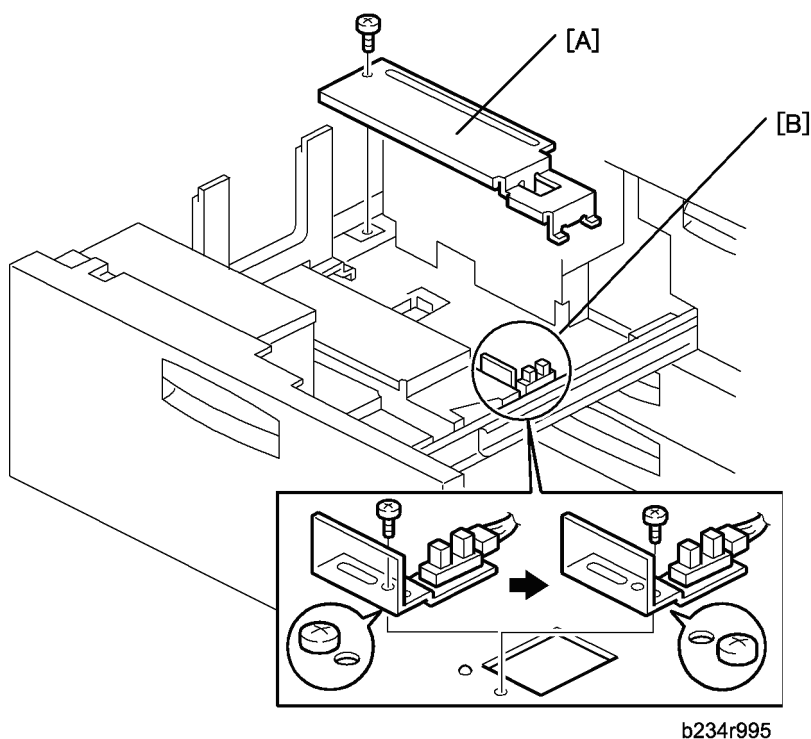


1. Tray cover [A] (⚙️ x 3).
2. Motor cover [B] (⚙️ x 4).
3. Re-position the side fences [C] (⚙️ x 4 each).

⬇️ **Note**

- Outer: A4, Inner: LT.

4. Re-install the motor cover and the tray cover.



5. Rear bottom plate [A] (1 x 1).
6. Re-position the return position sensor bracket [B] (1 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.

## 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 (☛ p.387 "Image Position Sensors")

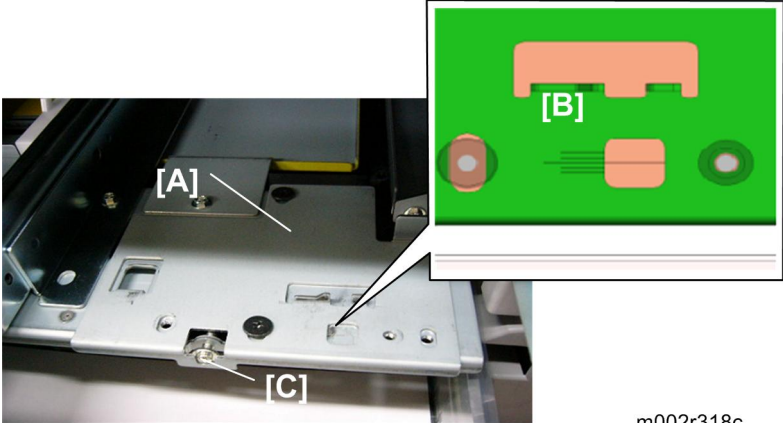
1. Remove the right tandem tray (☛ p.365). (You do not need to remove the left tandem tray.)

3



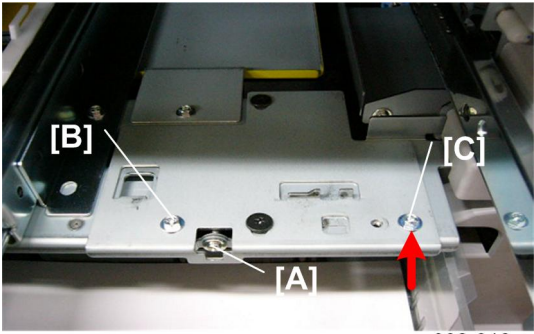
m002r318a

2. Use a stubby driver to remove the screws (🔩 x 2)



m002r318c

- 3. Open Tray 2 slightly.
- 4. Slide the plate [A] to the front or rear and set it at the mark on the scale [B].
- 5. You may need to turn screw [C] clockwise so the plate pointer as full range of movement on the scale.
- 6. Position the plate pointer on the scale [B].



m002r318e

7. Turn screw [A] counter-clockwise until it stops and holds the new plate position.
8. Re-attach the screws removed in Step 2.
  - Re-attach the left screw [B] at its original position.
  - Re-attach the right screw [C] through the oval hole (not the original round hole) and tighten it.

# Fusing Unit

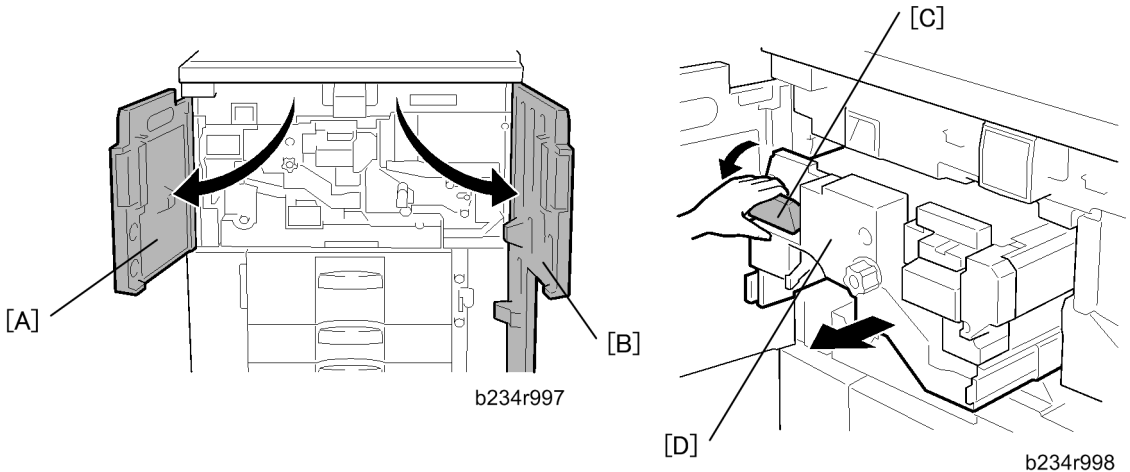
## Removing the Fusing Unit

### ⚠ 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 D059 (90 ppm) or D060 (110 ppm).
- A fusing unit with a yellow top is for the D061 (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.

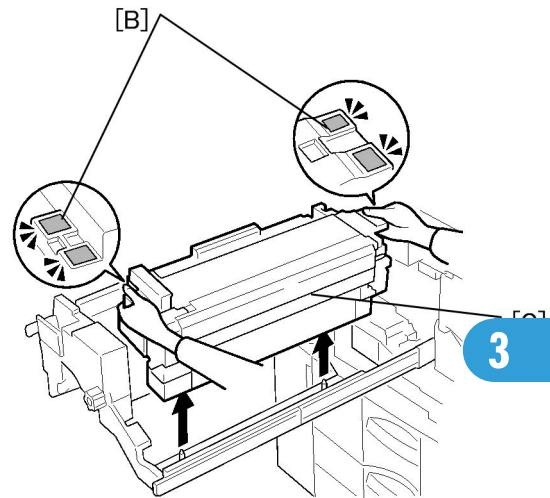


1. Open the left front door [A] and right front door [B].
2. Grasp handle D2 [C] of the fusing unit drawer [D] and pull out the drawer gently until it stops.





B234r925



b234r899

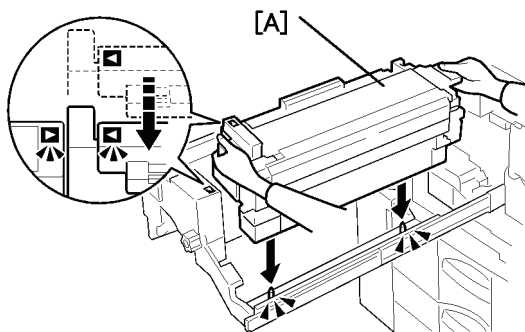
3. Raise lever D3 [A] until it stops.
4. Firmly grip the purple handles [B] of the fusing unit [C] with both hands, lift the fusing unit and remove it.

### CAUTION

- The fusing unit weighs approximately 14 kg (31 lb.). Handle it carefully when you lift it and set it down.

5. Set the fusing unit down on its bottom.

## Reinstalling the Fusing Unit

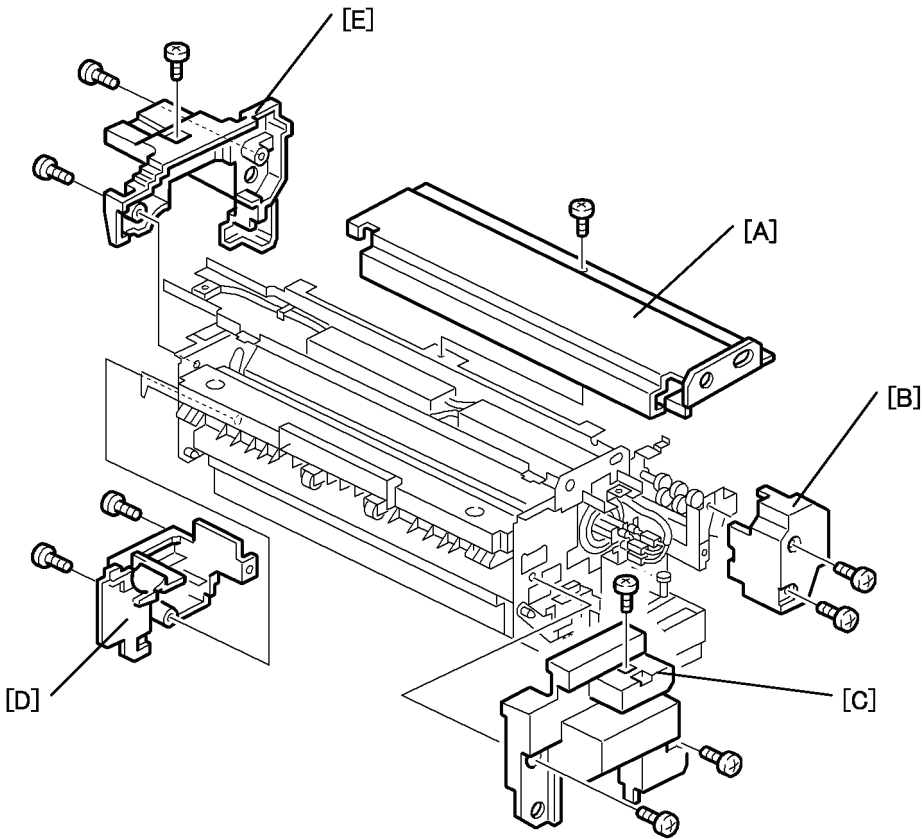


b234r898

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 Covers



b234r501

1. Remove:

[A]: Top cover (🔩 x1)

[B]: Fusing cleaning unit cover (fabric unit) (🔩 x2)

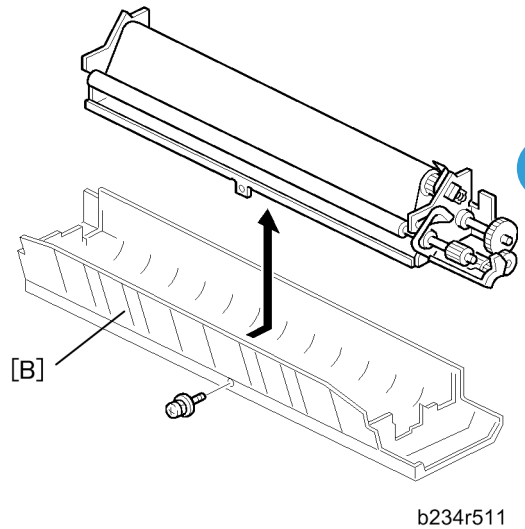
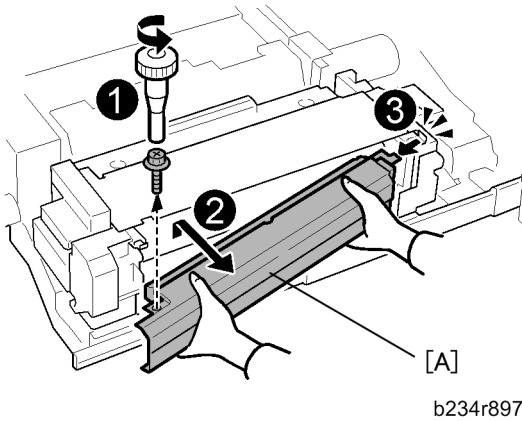
[C]: Front cover (🔩 x3)

[D]: Rear lower cover (🔩 x2)

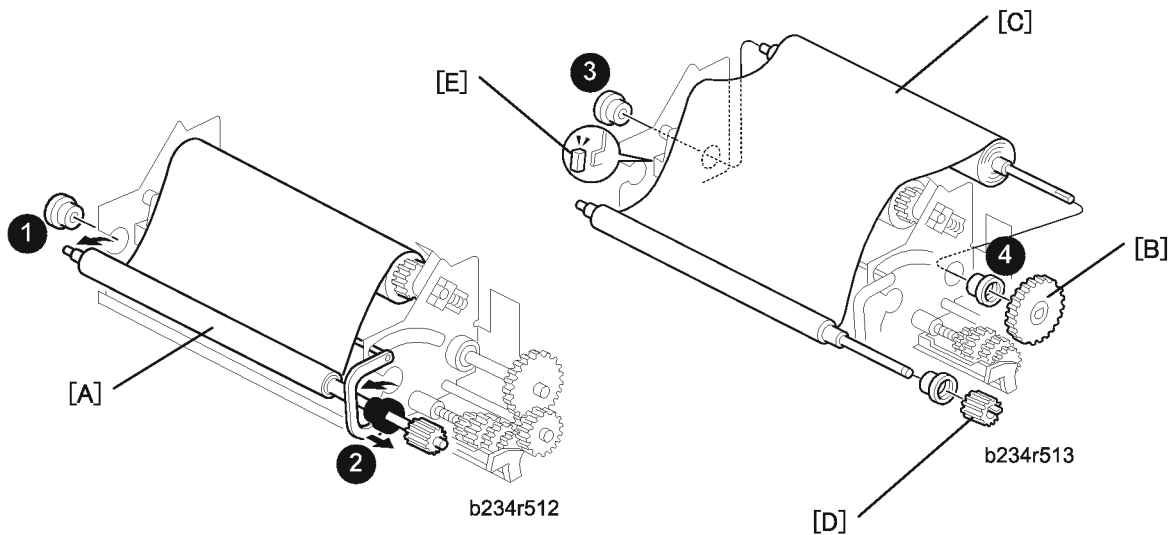
[E]: Rear upper cover (🔩 x3)

## Fusing Cleaning Unit

### Disassembling the Fusing Cleaning Unit



1. Pull out the fusing unit drawer (☛ p.398 "Removing the Fusing Unit")
2. Remove the fusing cleaning unit [A] (☛ x1).
3. Fusing entrance guide [B] (☛ x1).



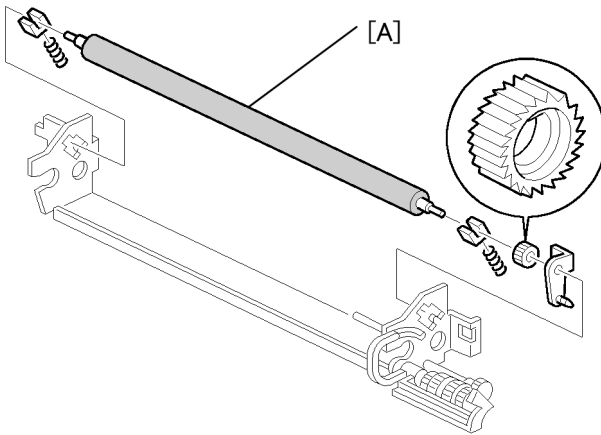
4. Bearings (1), (2).
5. Fusing cleaning fabric supply roller [A].

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

---

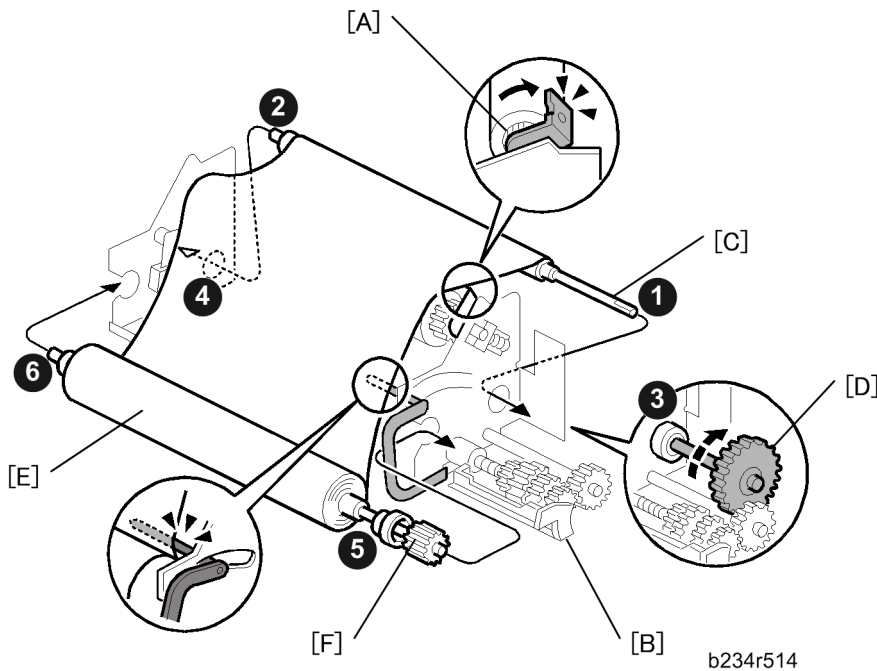
3



b234r896

1. Remove:  
[A]: Fabric pressure roller (Bushing x2, Spring x2)

## Reassembling the Fusing Cleaning Unit



3

### 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 ❶ end then the rear end ❷.

#### ★ Important

- **Handle the rollers carefully to keep them clean.**

2. Set the bushings ❸, ❹ 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 ❺, ❻ 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

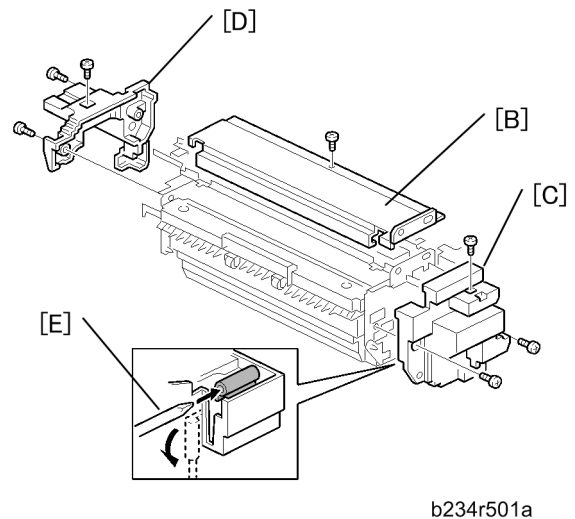
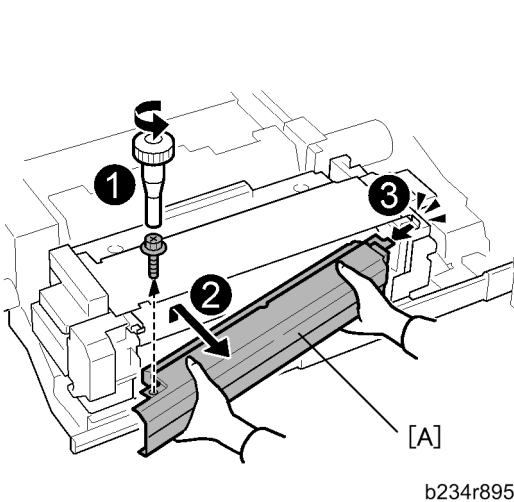
- Attach the guide plate inside without allowing any of the 4 bearings or bushings to slip off.

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.

## Hot Roller Unit



1. Remove the fusing cleaning unit [A] (🔩 x1). (👉 p.400 "Fusing Unit Covers")

2. Top cover [B] (🔩 x1).

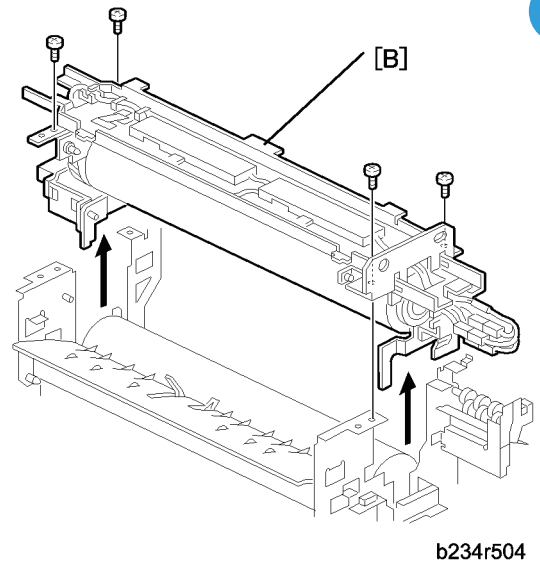
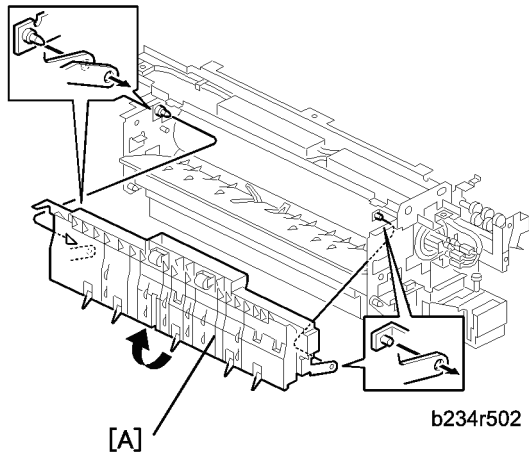
### ★ Important

- The top cover of the D059/D060 is Black, the cover of the D061 is Yellow.

3. Front cover [C] (🔩 x3).

4. Rear upper cover [D] (🔩 x3).

5. Insert a screwdriver [E] and turn 90 degrees in the direction of the arrow to release the nip between the hot roller and the pressure roller.

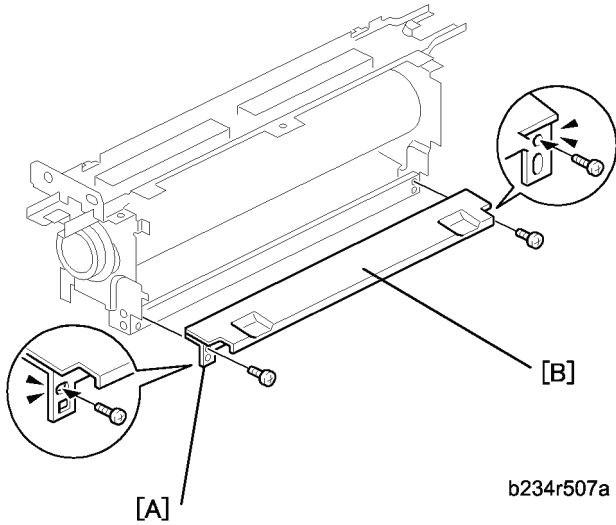


6. Turn the hot roller stripper unit [A] 90 degrees in the direction of the arrow, then slide it to the front and remove it.
7. Remove the metal clamp at the front.
8. Hot roller unit [B] (⚙ x4).

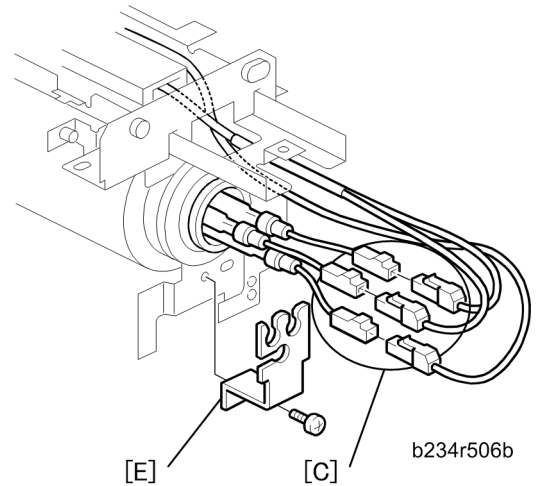
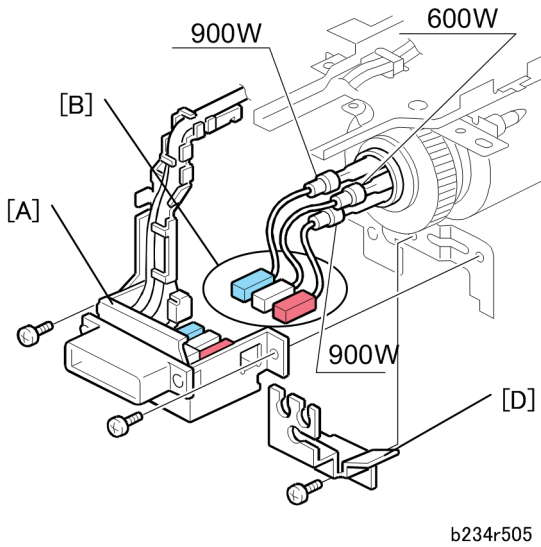
## Hot Roller

### Removing the Fusing Lamps

3



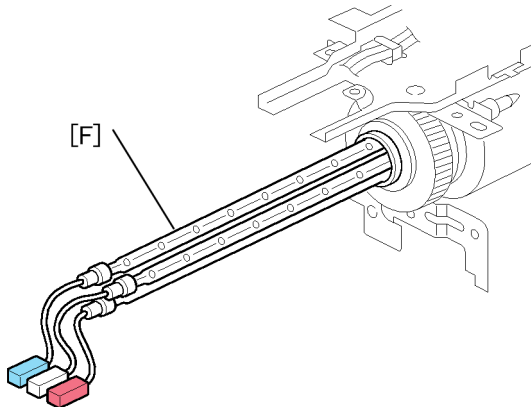
1. Hot roller unit (☛ p.404)
2. Entrance plate [A] (🔩 x2).
3. Clean the front surface of the entrance guide plate [B] with a dry cloth.



4. Harness terminal bracket [A]. (🔩 x2)
5. Disconnect the rear fusing lamp cables [B]. (Red, White [(D061): Yellow], Blue x 1 each)



6. Disconnect the front fusing lamp cables [C]. (White x 3)
7. Front lamp holder [D]. (⚙️ x4)
8. Rear lamp holder [E]. (⚙️ x1)



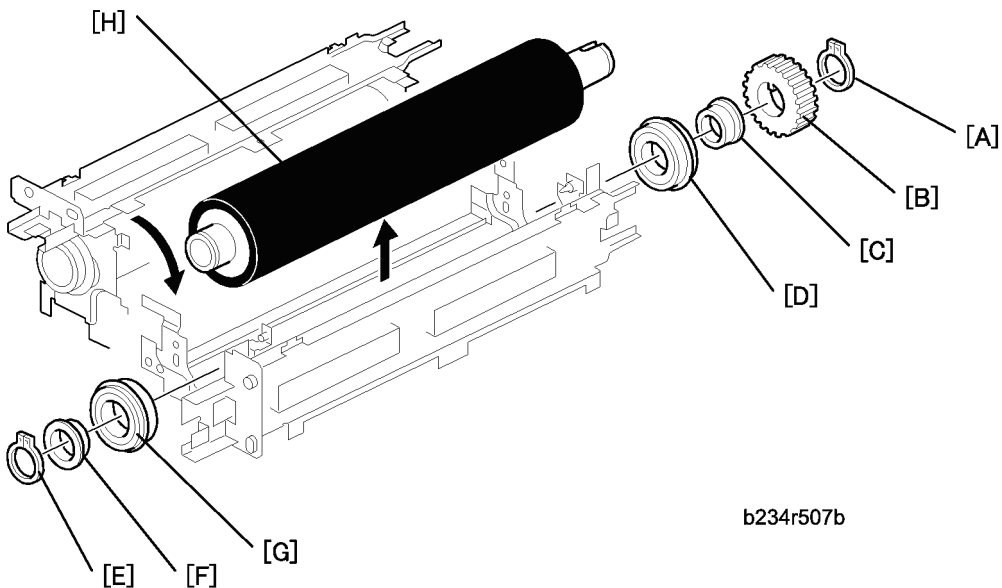
b234r505a

9. Fusing lamps [F], one at a time.

**★ Important**

- Never touch the glass surface of a fusing lamp with bare fingers. Handle the lamps carefully to avoid breaking them.

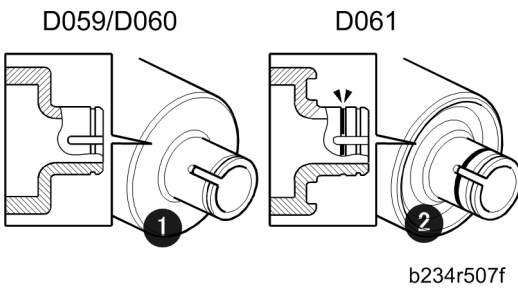
### Disassembling the Hot Roller



b234r507b

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**

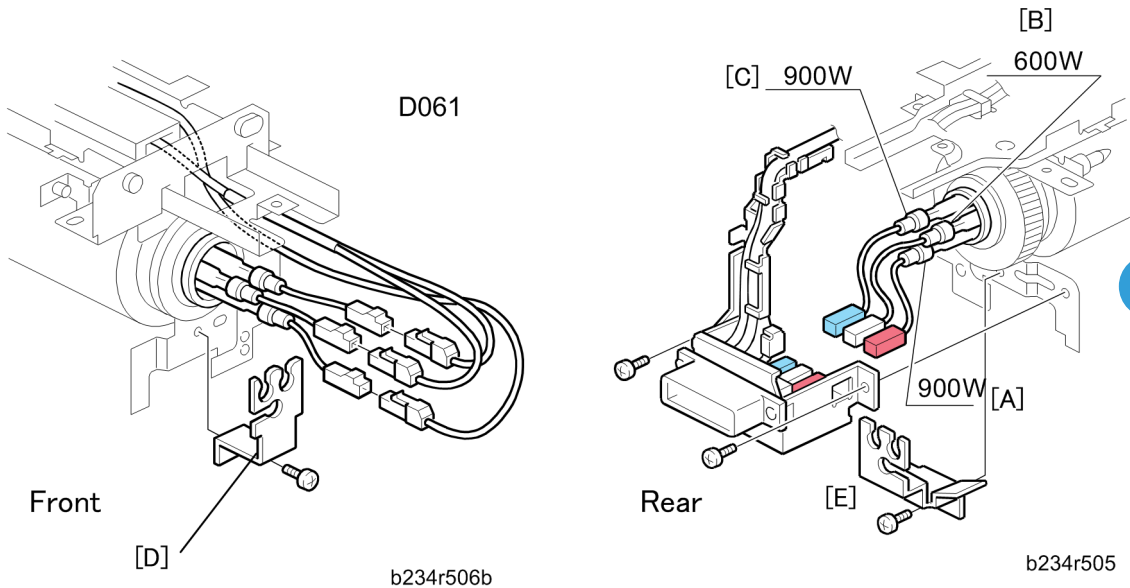


When you install the new hot roller, make sure that you install the correct type.

- The shape of the end (1) of the hot roller for the D059/D060 is different from the D061 (2).

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

## 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

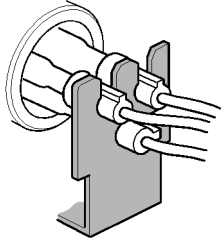
- Never touch the glass surface of a fusing lamp with bare fingers. Handle the lamps carefully to avoid breaking them.
2. Lay the tip of each fusing lamp into any round hole in the front holder [D] and fasten the holder (⚙ x1).
  3. Insert the tip of each fusing lamp into a round hole in the rear holder [E] and fasten the holder (⚙ x1).

### ↓ Note

- Make sure the lamps are perfectly parallel inside the hot roller.
4. Attach the connectors. Refer to the table below.



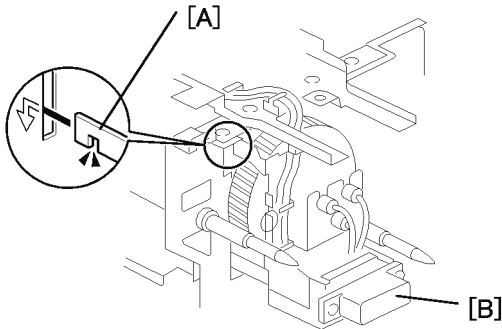
D059/D060		D061	
Front	Rear	Front	Rear
White	Red	White	Red
White	White	White	Yellow
White	Blue	White	Blue



b234r505b

3

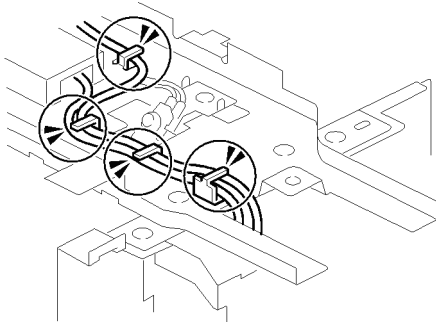
5. Make sure the ends of the fusing lamps fit snugly into the holes in the bracket.



b234r510b

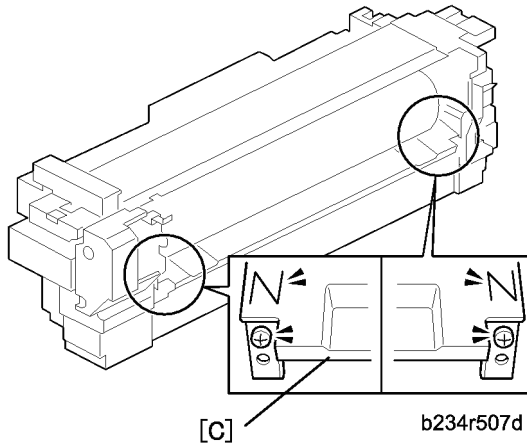
6. Connect hooks [A] of the harness terminal brackets [B] to the slots in the frame at two points and fasten (⚙ x2).

**Checklist**



b234r510a

- 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?

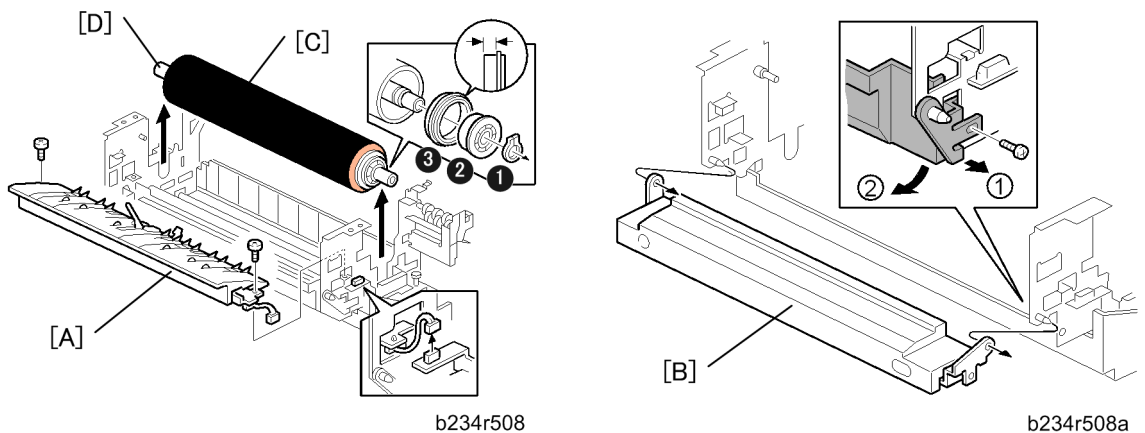


7. Attach the fusing entrance guide [C] (🔩 x2).
8. Clean the entire fusing unit with a blower brush. Rotate the hot roller gear while vacuuming.

#### 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

## Pressure Roller

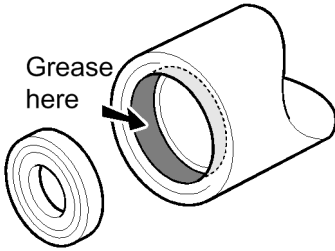


1. Hot roller unit (🔩 p.404)
2. Pressure roller stripper unit [A] (🔩 x1, 🛠️ x2)

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

### Reinstallation

3



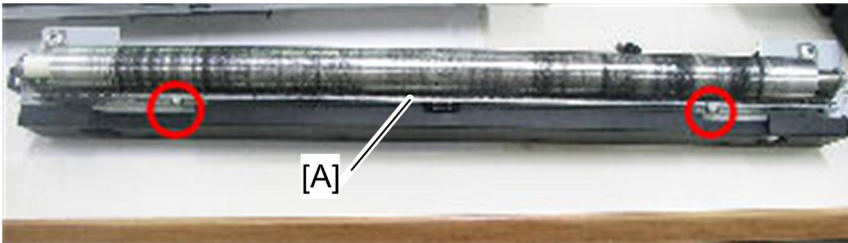
b234r894

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

### Adjustment for Reducing Black Dots on the Output

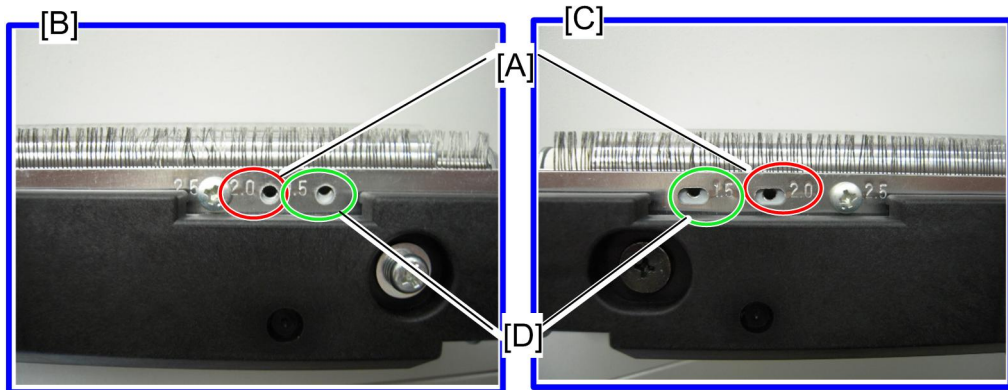
---

1. Pressure roller cleaning unit (🔧 "Pressure Roller" described above)



d059r567

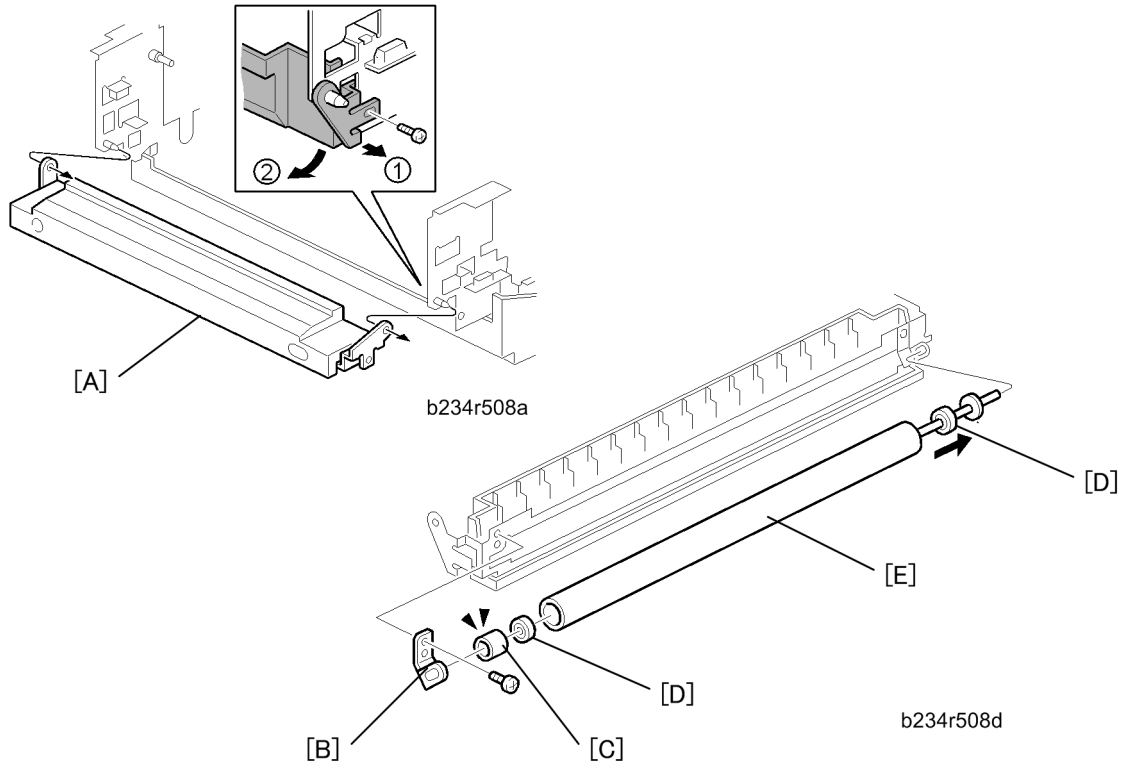
2. Remove the discharge brush [A] (🔧 x 2).



d059r568

3. Install the screw in the hole (marked 2.0) [A] for each edge (front [B] and rear [C]), and then tighten it when attaching the discharge brush to the pressure roller cleaning unit.
- If this adjustment is not satisfactory, install the screw in the hole (marked 1.5) [D] for each edge (front [B] and rear [C]), and then tighten it again.

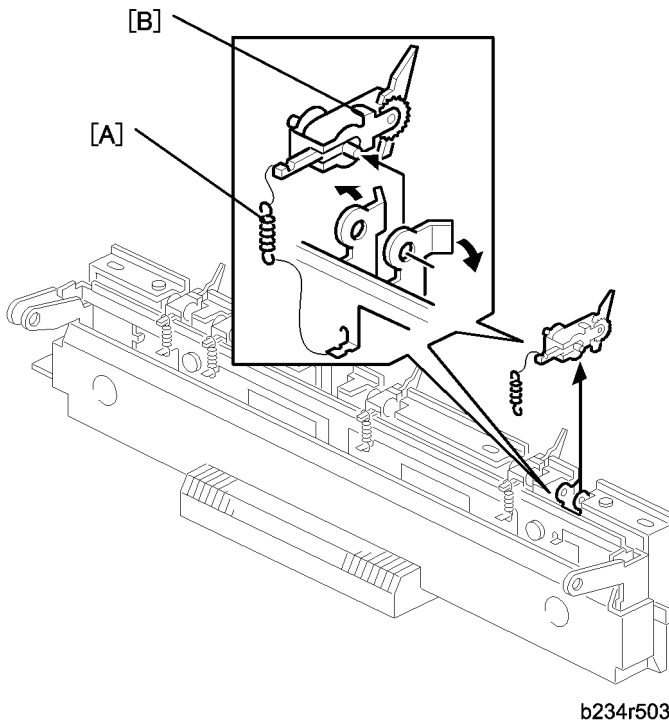
## Cleaning Roller: Pressure Roller



1. Pressure roller cleaning unit [A] (🔧 x1). (☛ p.401 "Fusing Cleaning Unit")
2. Remove:
  - [A] Cover and anti-static brush.
  - [B]: Plate (🔧 x1)
  - [C]: Bushing x1
  - [D]: Bearings (x2)
  - [E]: Cleaning roller
3. Clean the cleaning roller with a clean cloth.

3

## Hot Roller Strippers

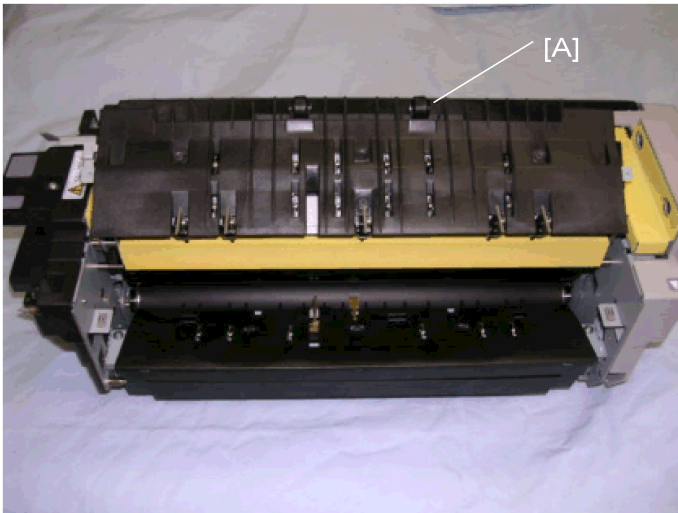


- Hot roller stripper unit (☛ p.401 "Fusing Cleaning Unit")
1. Spring [A].
  2. Spread the left and right sides of the holder as shown, then remove the hot roller stripper [B].
  3. Follow the same procedure to remove the stripper pawls at four other locations.



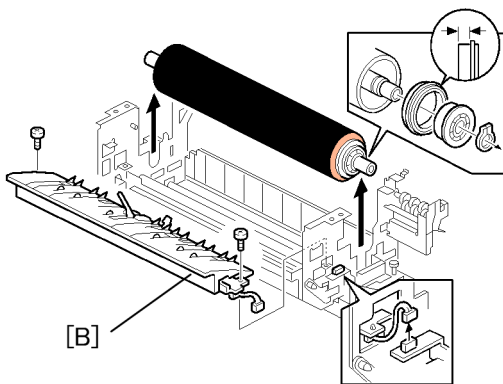
## Pressure Roller Stripper

- Fusing unit
- Front cover
- Fusing Unit Covers

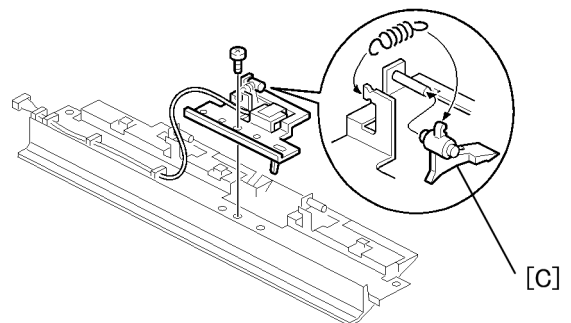


b234r926a

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



b234r508



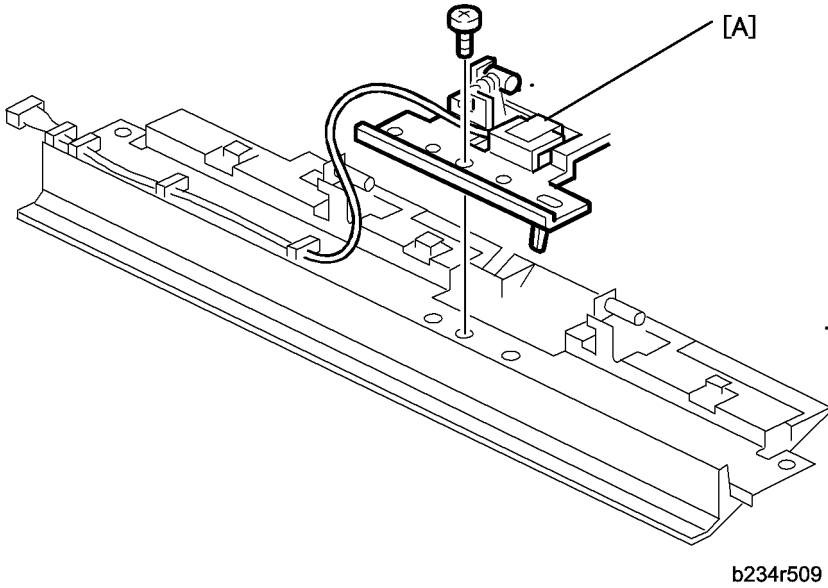
b234r509a

2. Pressure roller stripper unit [B] (⚙️ x2, 🌀 x1).
3. Pressure roller stripper [C] (⚙️ x1, Spring x1).

### ⬇️ Note

- Make sure that the spring is not deformed.
- Make sure the spacer is attached on the other side.

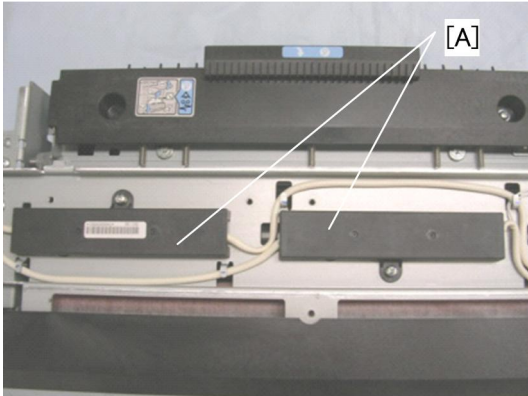
## Fusing Exit Sensor



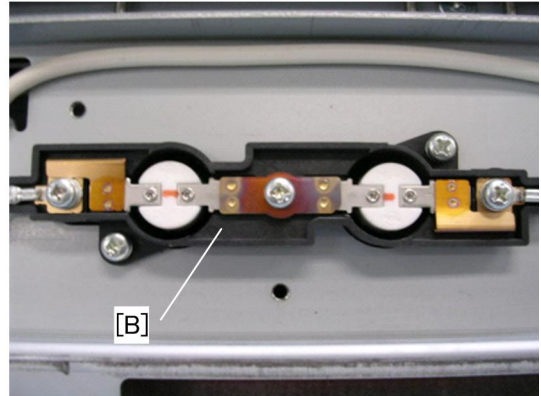
- Pressure roller stripper unit (☛ p.415 "Pressure Roller Stripper")
1. Remove the fusing exit sensor [A] (🔧 x1, 🛠️ x1, 📦 x4)

## Fusing Unit Thermostats, Thermistor

- Fusing unit (☛ p.398)
- Hot roller unit (☛ p.404)
- Fusing unit front cover, rear cover (☛ p.400 "Fusing Unit Covers")

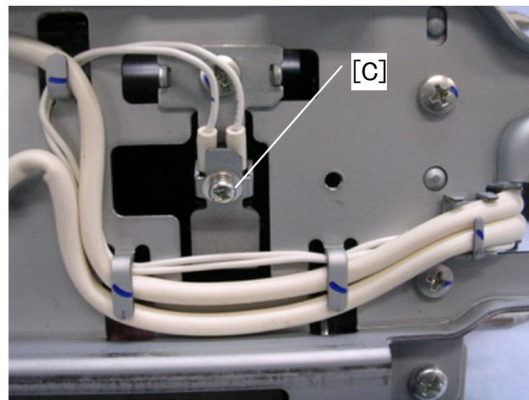


b234r927



b234r928

3



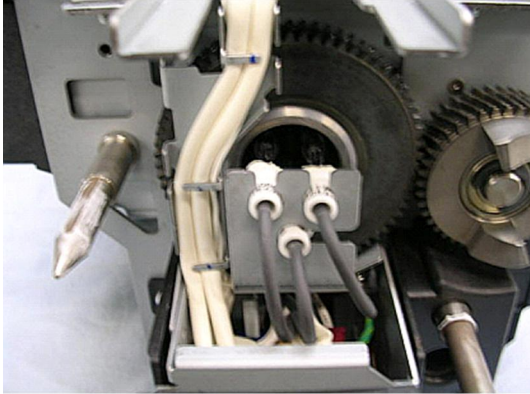
b234r929

1. Remove thermostat covers [A] (🔧 x1 each)
2. Remove thermostat unit [B] (🔧 x3).
3. Remove thermistor [C] (🔧 x1, 🛠️ x1).

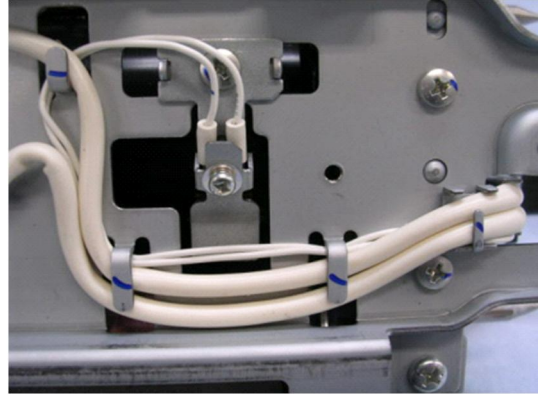
### Reinstallation

Make sure the harnesses are positioned as shown below.

3

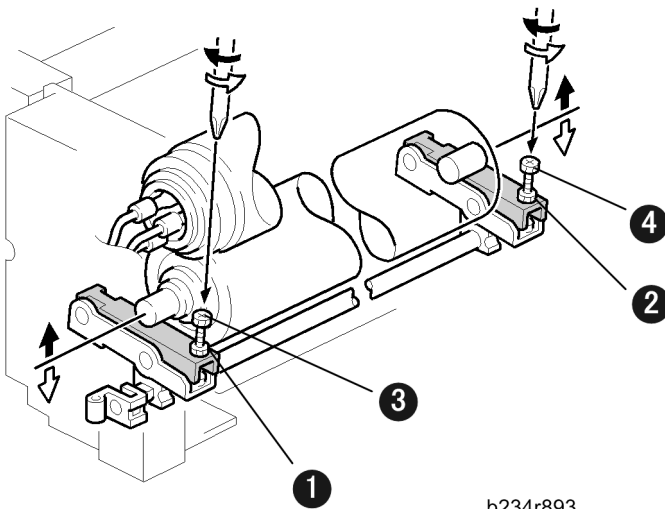


b234r931



b234r930

### Fusing Pressure Adjustment



b234r893

#### Note

- The nip width  $12.0 \pm 0.5$  mm (the difference between front and rear measurements should be less than 0.5 mm).
1. Execute SP1 109 (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.
  3. Measure the nip band widths (the shiny band) at center and both ends.
  4. If one of the nip band widths is not within specifications at center and 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 widths.

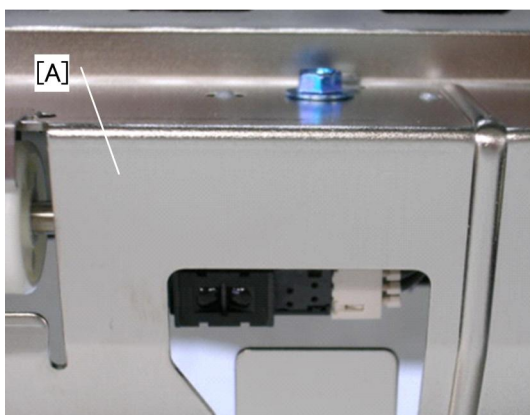
**★ Important**

- **After doing this procedure, switch off SP1 109. If this SP remains on, this will cause paper to jam in the fusing unit (SC559).**

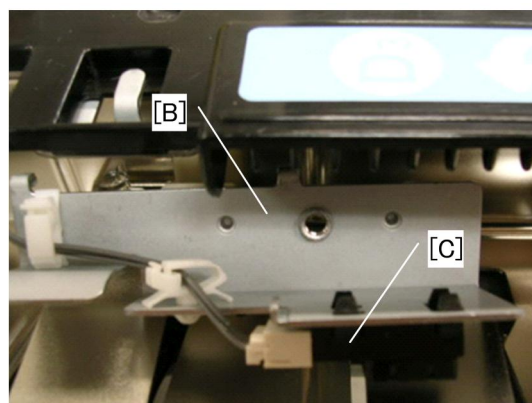
**3**

## Job Time Sensor

1. Pull out the fusing unit drawer. (☞ p.398 "Removing the Fusing Unit")



b234r932



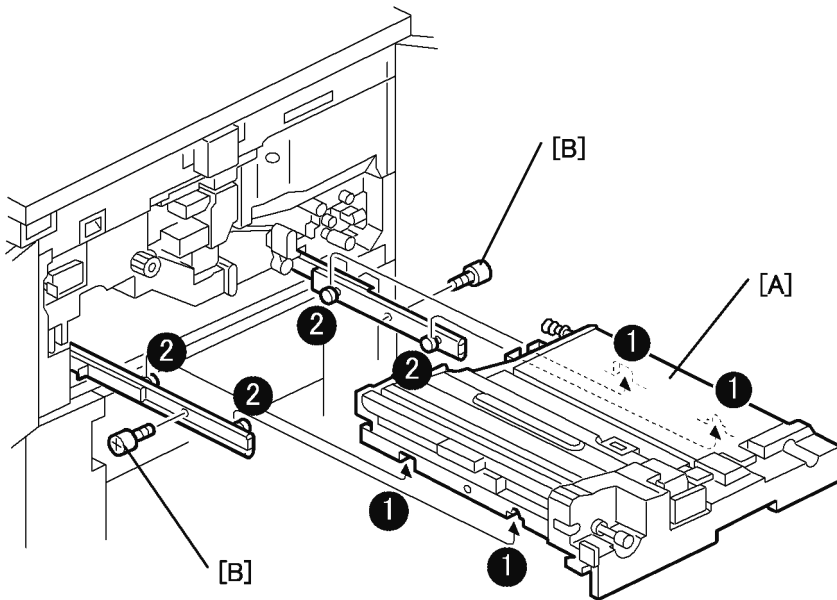
b234r933

2. Raise the upper guide plate [A].
3. Job time sensor bracket [B] (🔧 x1)
4. Job time sensor [C] (🔌 x1, 📡 x1)

# Duplex Unit

## Duplex Unit

3



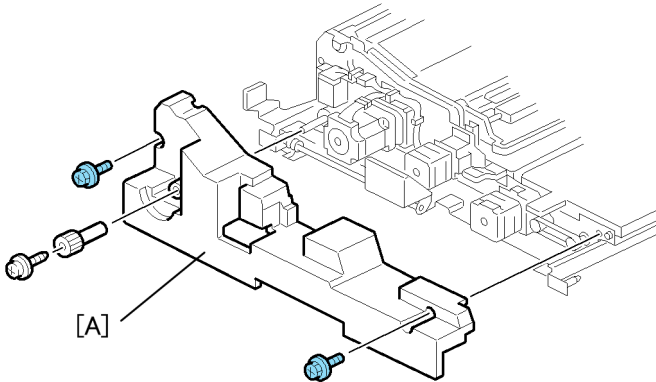
b234r801

1. Open the left and right front doors and pull out the duplex unit [A].
2. Remove the shoulder screws [B] (⌀ x 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.

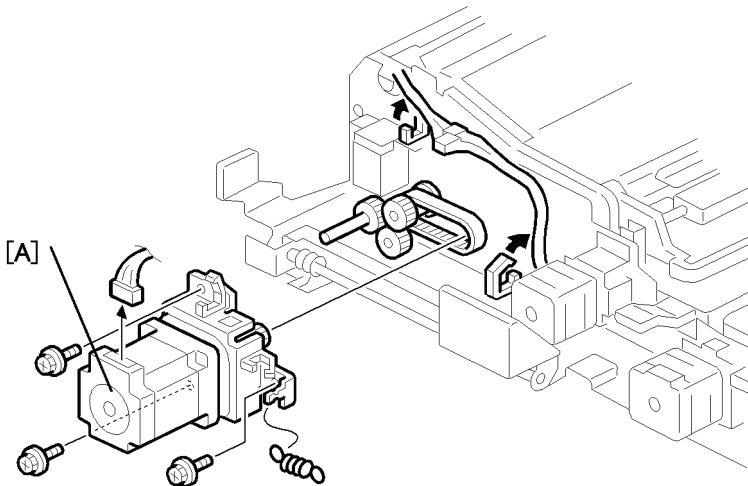
## Duplex Unit Inner Cover



b234r802

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

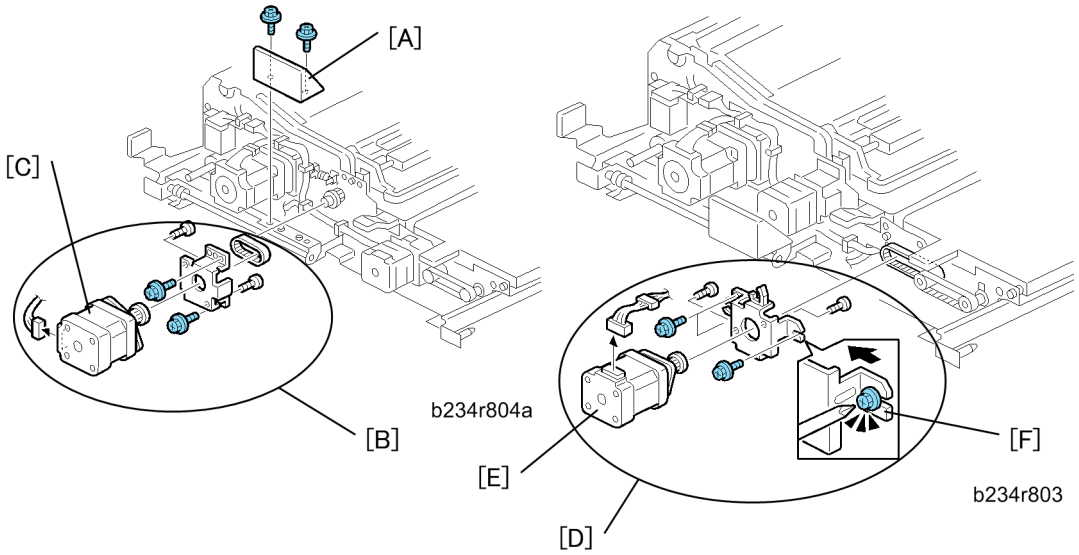
## Duplex Inverter Motor



b234r805

1. Remove:
    - Duplex inner cover. (🔩 p.421 "Duplex Unit Inner Cover")
- [A]: Duplex inverter motor (🔩 x3, 🌀 x4, 🛡️ x2, Spring x1)

## Duplex Switchback and Transport Motors



Remove:

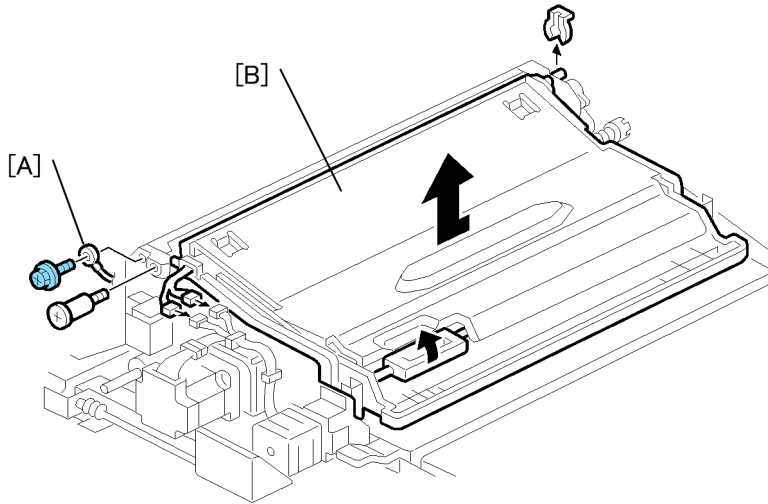
- Duplex inner cover. (☛ p.421)
1. Duplex grip handle [A] (🔩 x2)
  2. Duplex transport motor unit [B] (🔩 x3, 🌀 x1, Timing belt x1, 🛠️ x2)
  3. Duplex transport motor [C] (🔩 x2)
  4. Switchback motor unit [D] (🔩 x3, 🌀 x1, Timing belt x1)
  5. Switchback motor [E] (🔩 x2)

### 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.



## Duplex Entrance Guide Unit



b234r806

Remove:

- Duplex inner cover. (☛ p.421 "Duplex Unit Inner Cover")

[A]: Ground (earth) wire (🔩 x1)

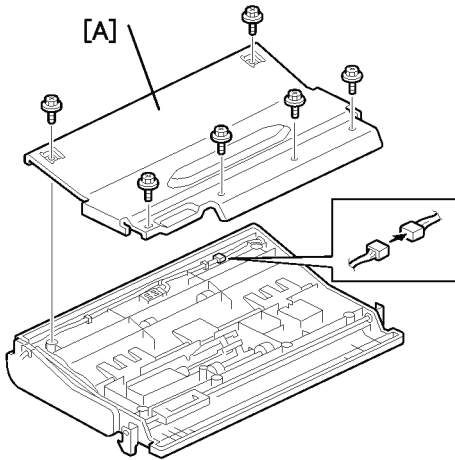
[B]: Duplex entrance guide unit (🔩 x1, 🌀 x1, 🛠️ x2, 🛠️ x2)

## Duplex Entrance Sensor, Inverter Sensor

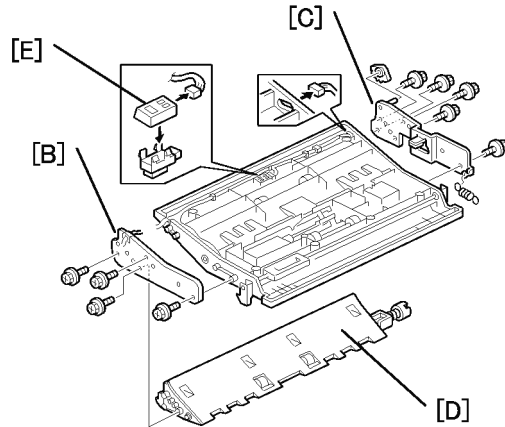
Remove:

- Duplex entrance guide unit (☛ p.423)

3



b234r807



b234r808

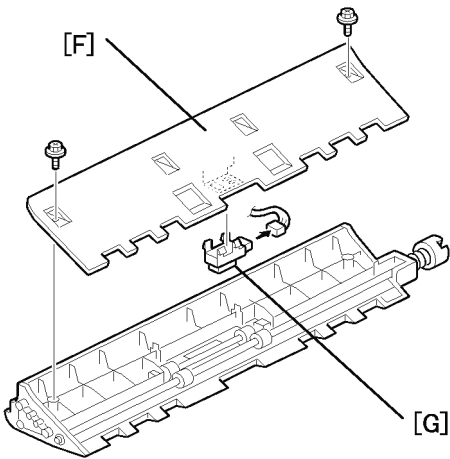
[A]: Cover (🔩 x8)

[B]: Front side plate (🔩 x5, 📺 x1)

[C]: Rear side plate (🔩 x6, Spring x1)

[D]: Lower entrance guide (📺 x1)

[E]: Duplex entrance sensor (📺 x1, 📺 x1)

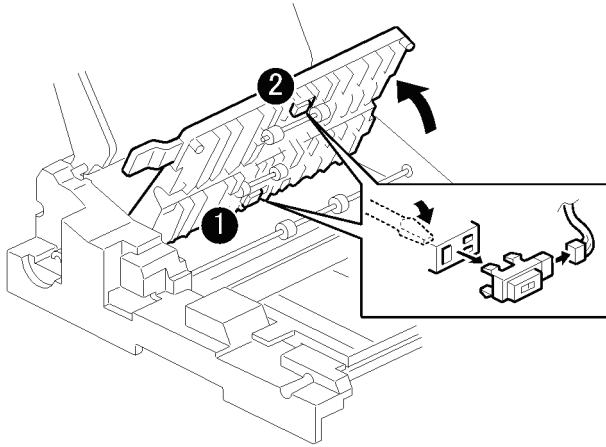


b234r809

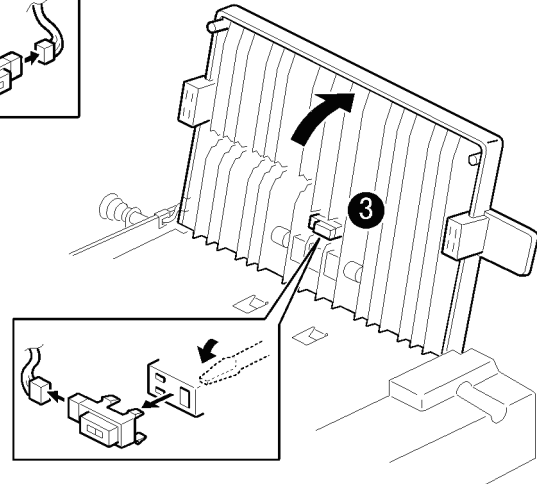
[F]: Lower entrance guide cover (🔩 x2)

[G]: Inverter sensor (📺 x1)

## Duplex Transport Sensors 1, 2, 3



b234r811

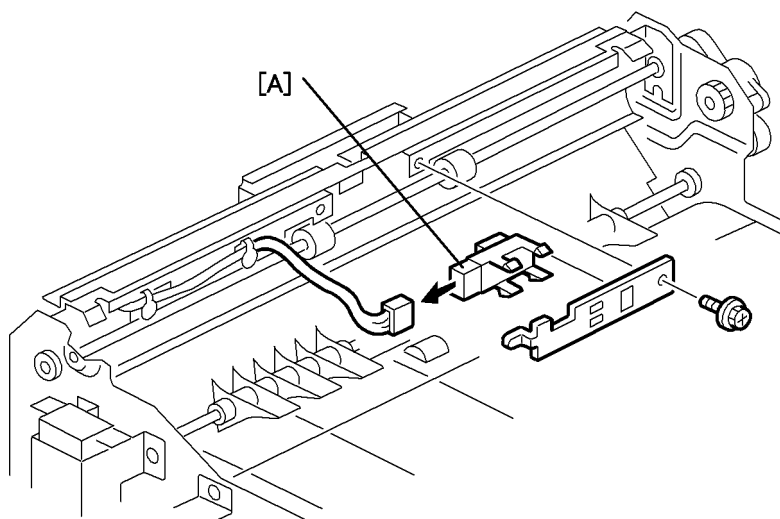


b234r812

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)

## Inverter Relay Sensor

3



b234r810

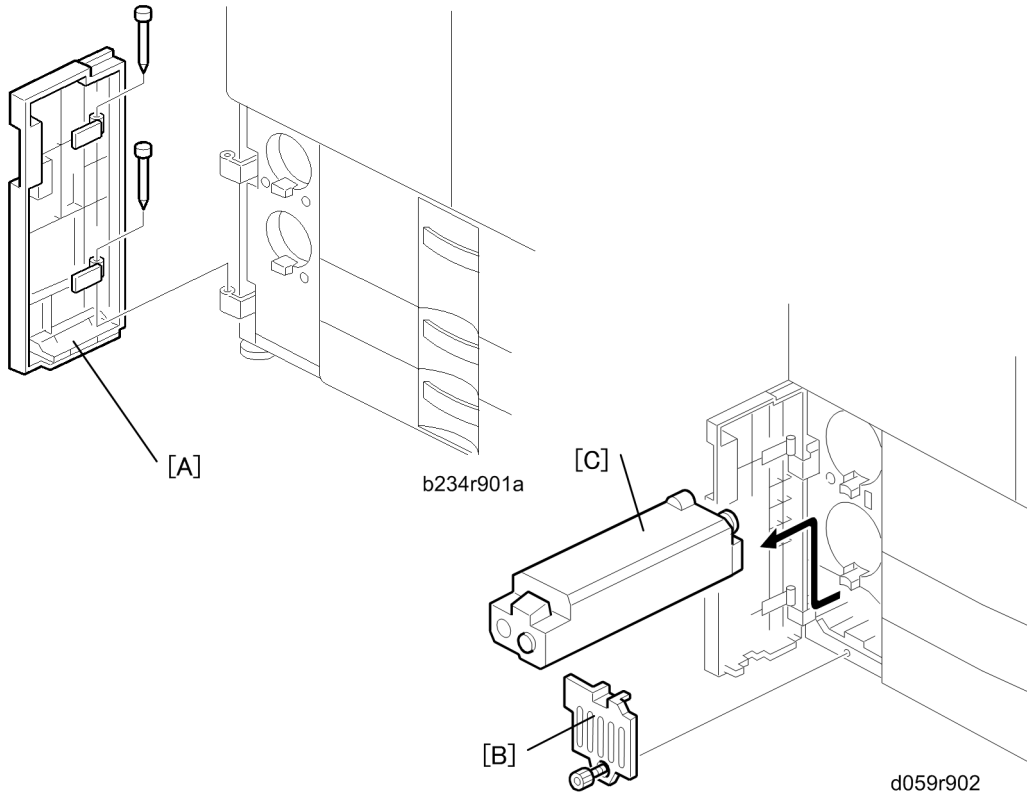
Remove:

- Duplex entrance guide unit (☛ p.423)

[A]: Relay sensor (🔧 x1, 📏 x1)

# Toner Bank

## Toner Collection Bottle



3

1. Toner bank door [A] (pins x 2).
2. Waste toner bottle cover [B] (🔑 x Knob 1).
3. Toner collection bottle [C].

## Toner Bank Unit

### ⬇️ Note

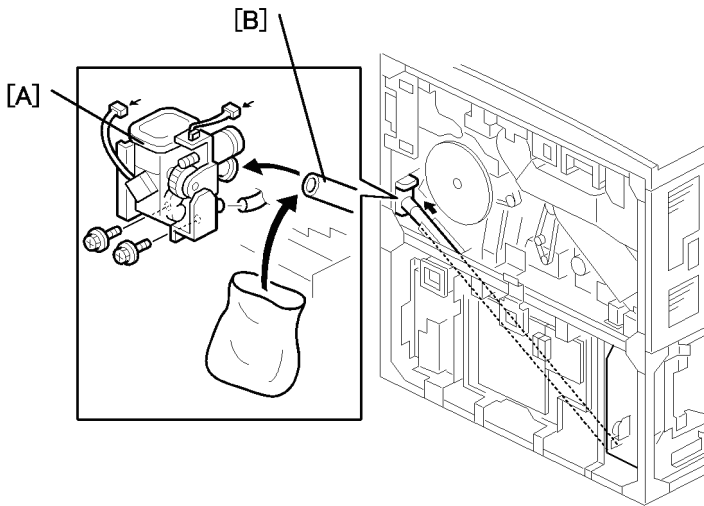
- Work carefully to avoid spilling toner during removal.
1. Execute SP5804 041 (upper bottle) and 042 (lower bottle) to close the caps,.
  2. Turn off the operation switch on the operation panel.

**Note**

- You will not be able to remove the toner bottles if you switch of the main power switch on the front of the machine.

- Remove the toner bottles from the bank.
- Remove the rear cover.
- Open the controller box (⚙ x 3).
- Open the PSU box (⚙ x 2).
- Left lower cover, right upper cover.

3



b234r974

- Remove the toner supply cylinder [A]. (⚙ x 2, tubes x 2)

**Note**

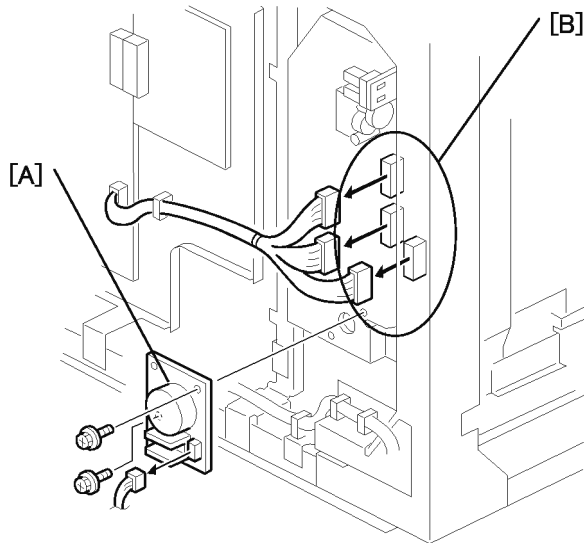
- Work carefully to avoid spilling toner.

- Cover the end of the toner transport coil tube [B] with a plastic bag.

**Important**

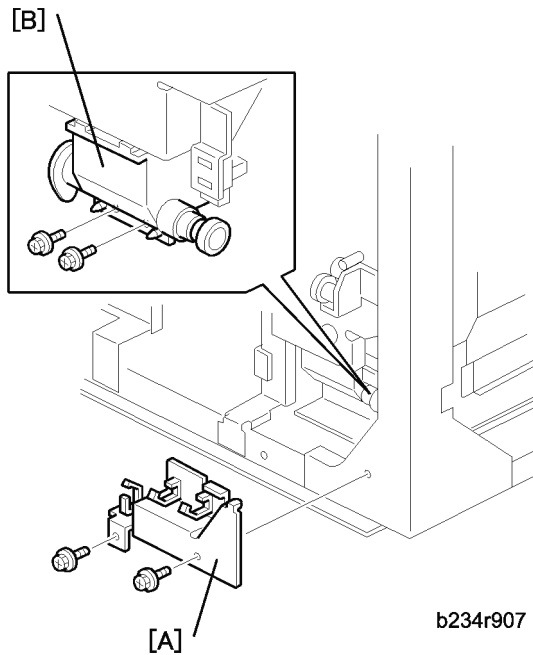
- To avoid toner spillage, hold the end of the disconnected tube up.
- Do not to bend the toner transport coil tube [B].
- If it is bent, this could overload, lock, or damage the coil.
- SC592 (Toner Bank Motor Error) will be displayed, and the coil (screw) inside should be replaced.

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



b234r905

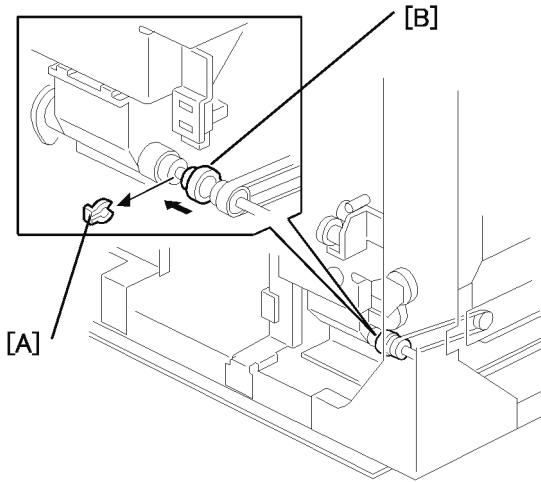
12. Toner bank motor [A] (⚙️ x 2, 🛠️ x 1)
13. Connectors [B] (🔌 x 2, 🛠️ x 3).



b234r907

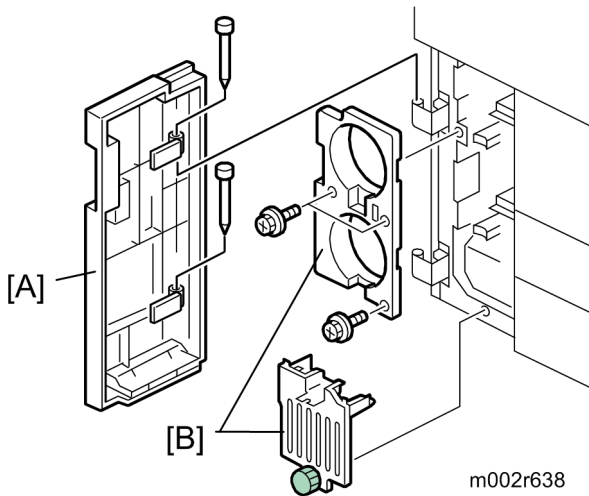
14. Harness clamp bracket [A] (⚙️ x 2, 🛠️ x 3).
15. Toner transport coil casing [B].

3



b234r906

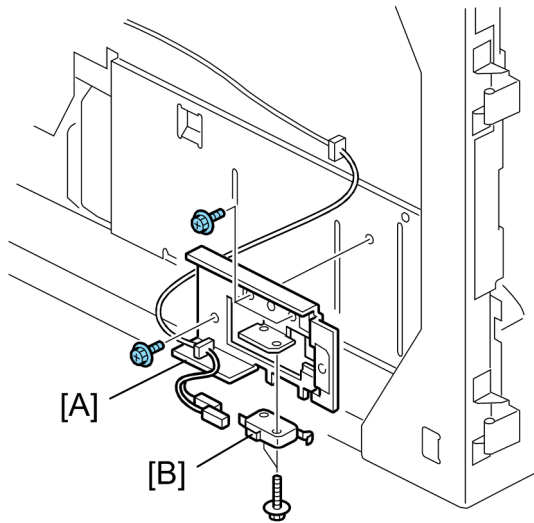
- 16. Snap ring [A]
- 17. Slide coupling [B] to the left.



m002r638

- 18. Toner bank door [A] (pins x 2)
- 19. Toner bank inner covers [B] (🔩 x 3, Knob screw x 1)



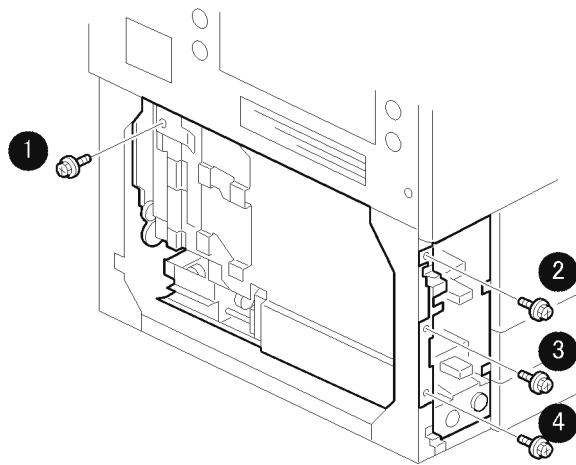


m002r908a

20. Remove:

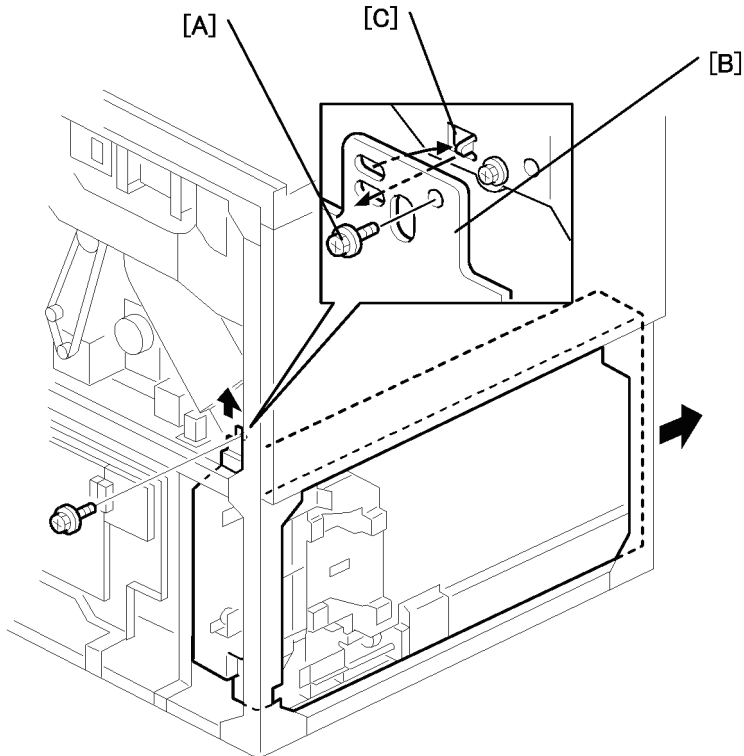
[A] Switch bracket (🔩 x 2)

[B] Microswitch (🔩 x 2, 📏 x 2)



b234r908

21. Remove screw (1) and screws (2), (3), (4) that secure the toner bank unit.



b234r909

22. Screw [A] securing the toner recycling and collection casing [B]
23. Remove the interlock switch unit (🔧 x 1, 🛠️ x 1, 🛠️ x 1).
24. 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.
- Make sure that the clamp is not released when pulling out the toner bank unit.
- Pull out the paper tray about 20 cm before pulling out the toner bank unit.

**After Re-installing the Toner Bank Unit**

1. 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).
2. Turn the main power switch on.
3. Load the toner bottles into the toner bank.

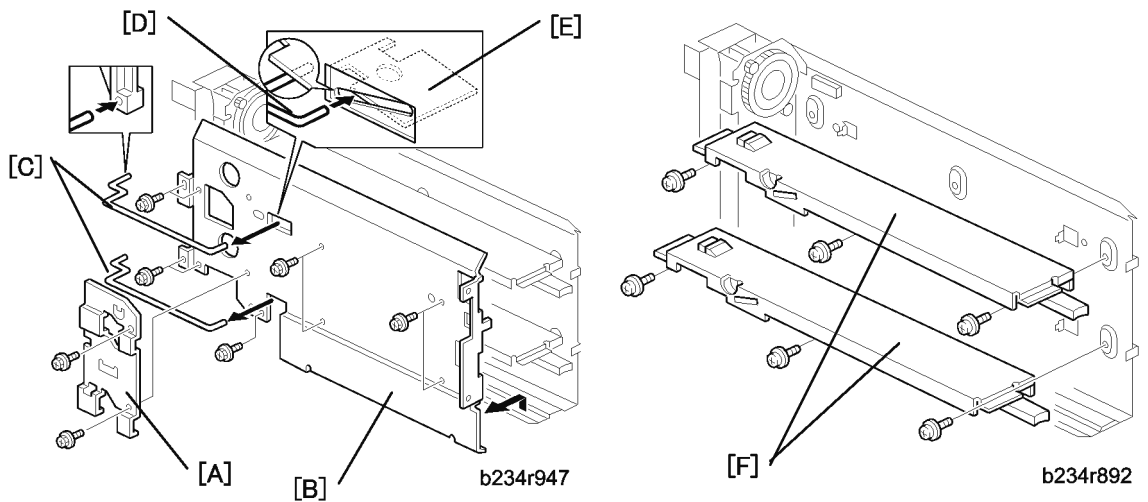
4. Start to supply toner from the toner bank to the toner hopper:

- 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.

## Access To Inside the Toner Bank

3



### Note

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

1. Toner bank. (☛ p.427)
2. Toner release link bracket [A] (☛ x 2).
3. Left side plate [B], disconnect two links (☛ x8 M4x8, ☛ x2 M3x6, ☛ x1, ☛ x1)

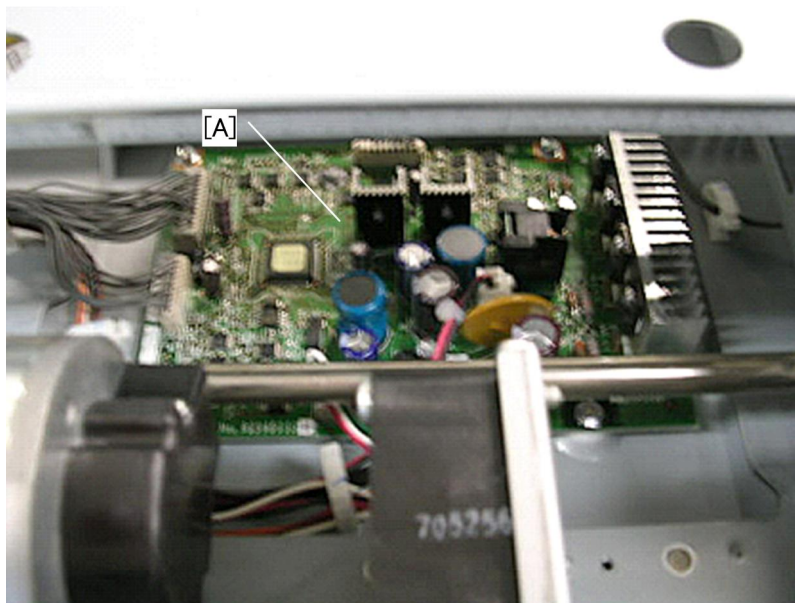
### Note

- When re-attaching the links [C], place the front pin [D] under the lock plate [E].
4. Toner bottle bottom plates [F] (☛ x 3 each).

# Boards

## MCU

3



b234r934

1. Remove:

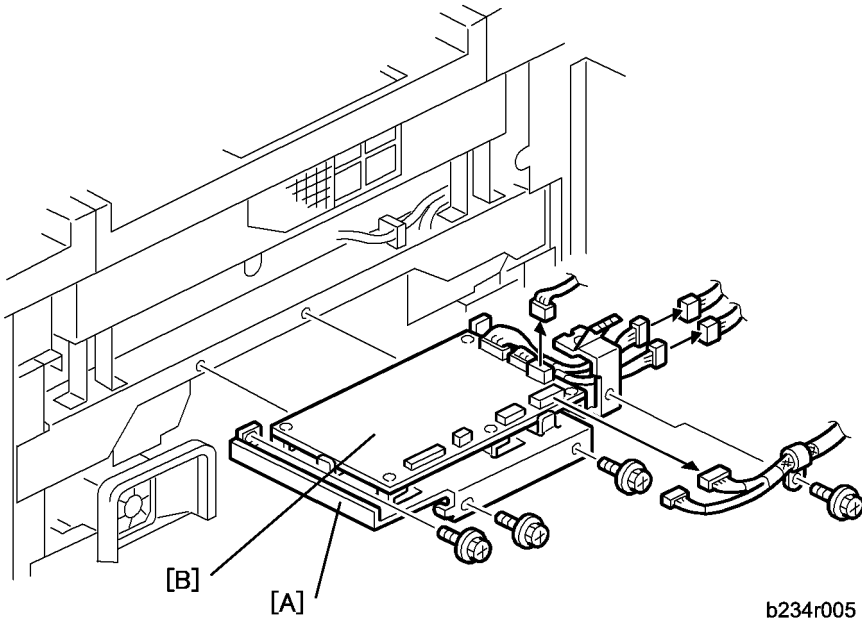
- Remove the exposure glass (☛ p.309)
- Remove the top cover.
- Remove the MCU cover

[A]: MCU board (🔧 x3, 🛠️ x7)

---

**OPU**


---



## 1. Remove:

- Upper right cover

[A]: OPU unit (🔩 x4, 🛠️ x5)

[B]: OPU (🔩 x5)

---

**IOB**


---



---

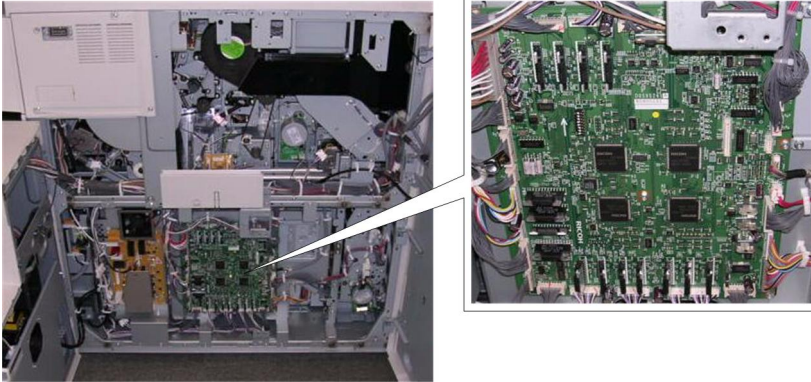
**IOB**


---

## 1. Open:

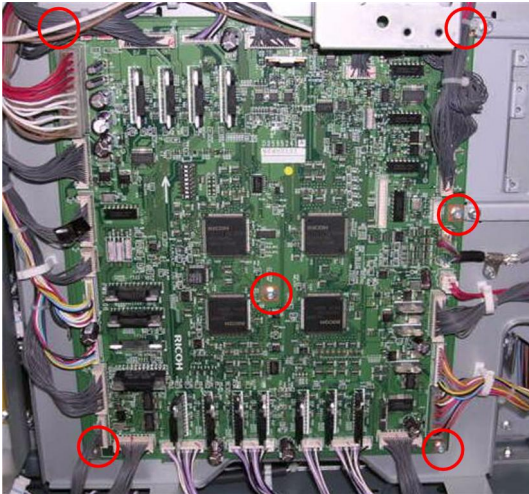
- Controller box (👉 p.288)
- PSU box (👉 p.291)

3



d059r901

The IOB is at the bottom center.

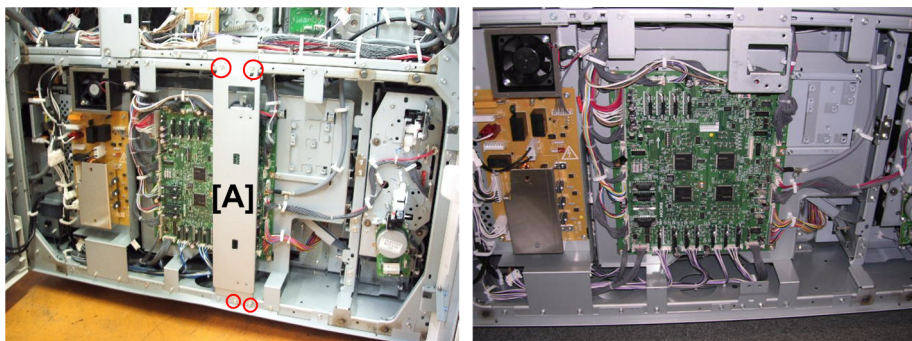


d059r902

1. Remove the IOB (🔧 x31, 🛠️ x6)

### IOB Unit

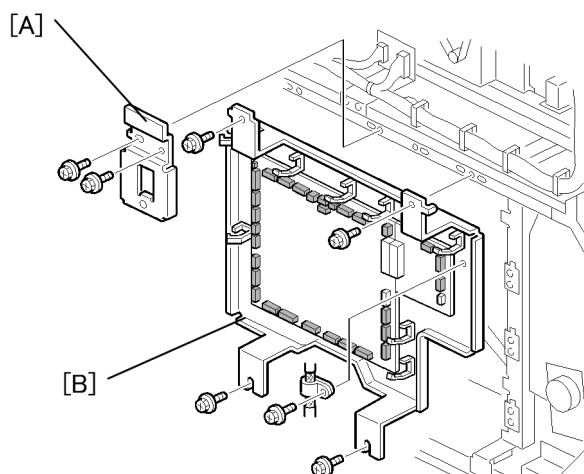
1. Open:
  - Controller box (🔧 p.288)
  - PSU box (🔧 p.291)



d059r924

3

2. Remove center stay [A] (⚙️ x4).



b234r955a

3. Remove:

[A] PSU box positioning plate (⚙️ x2)

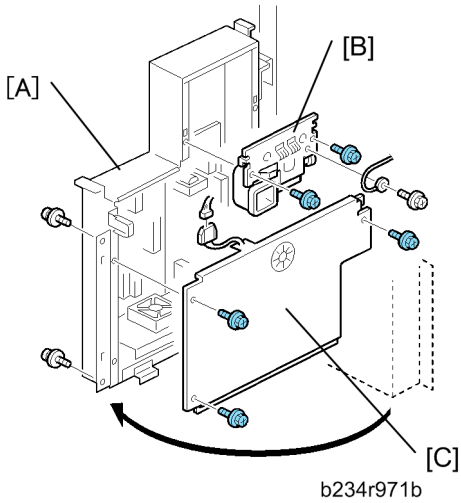
[B] IOB bracket (⚙️ x5, 📏 x3 1)

## PSU-E (Engine): A, B

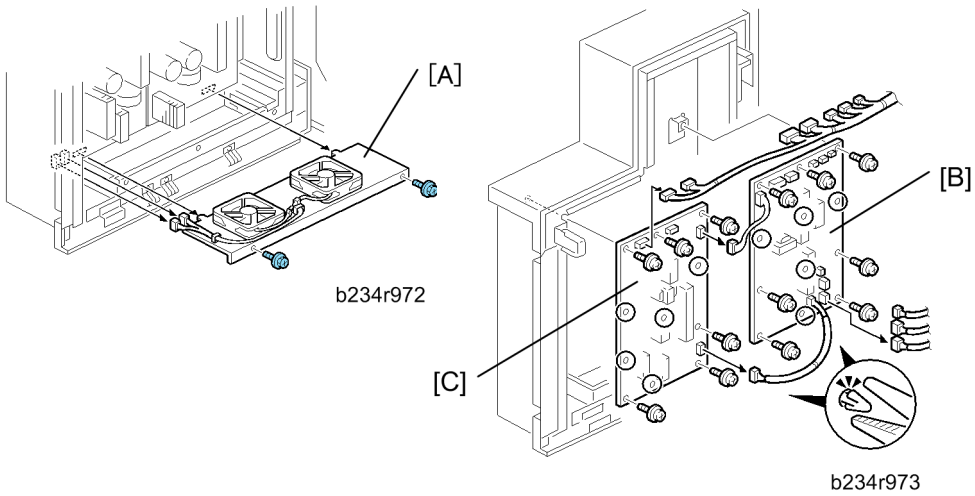
### ⚠️ CAUTION

- 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.

3



1. Open the PSU box [A] (⚙️ x 2). (➡️ p.291)
2. Remove
  - [B]: Duct, ground wire (⚙️ x3)
  - [C]: PSU cover (⚙️ x3, 🛠️ x1)



- [A]: Fan motor unit (⚙️ x3, 🛠️ x2)
- [B]: PSU-Ea (⚙️ x7, 🛠️ x10, Standoffs x5)
- [C]: PSU-Eb (⚙️ x6, Standoffs x4, 🛠️ x2)



## PPG, CGB Power Packs

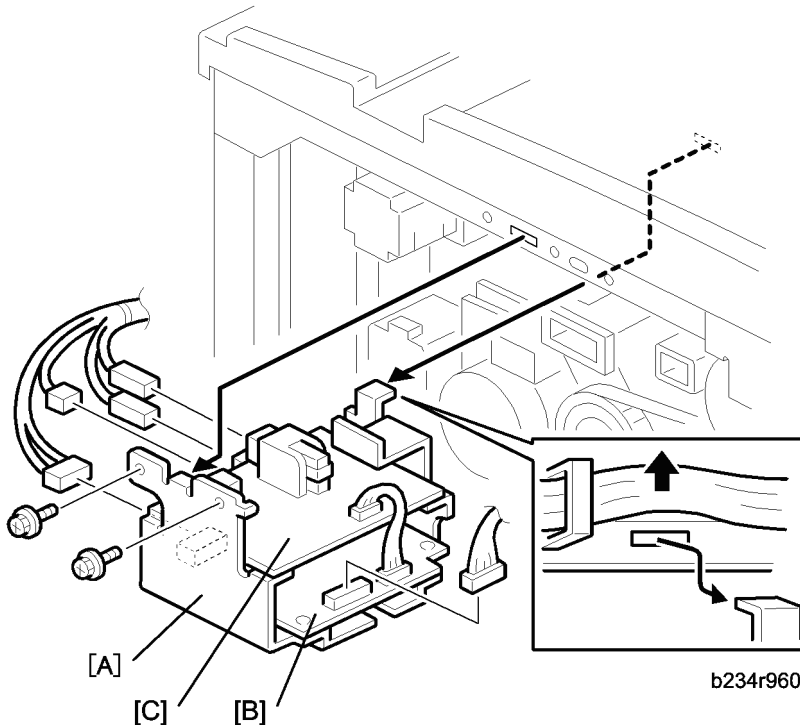
### Preparation

- Open the controller box (🔧 x5) (👉 p.288)
- Open the PSU box (👉 p.291)
- Remove rear upper cover (🔧 x4)
- Remove rear lower cover (🔧 x5)



d059r960

1. Remove bracket [A] (🔧 x4).
2. Remove power pack fan [B] (🔧 x2, 🛠️ x1)



b234r960

3. Remove:

[A] Power pack unit (🔩 x2, 🛠️x5)

[B] CGB power pack (🔩 x4, 🛠️x1)

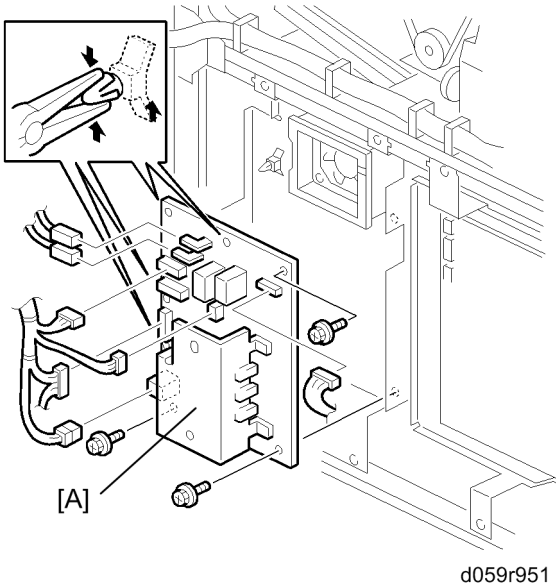
[C] PPG power pack (🔩 x4, 🛠️x1)

---

## AC Drive Board

---

3



1. Open the PSU box (🔩 x 2). (👉 p.291)
2. AC drive board [A] (🛠️ x6, 🔩 x3, Standoffs x3)

---

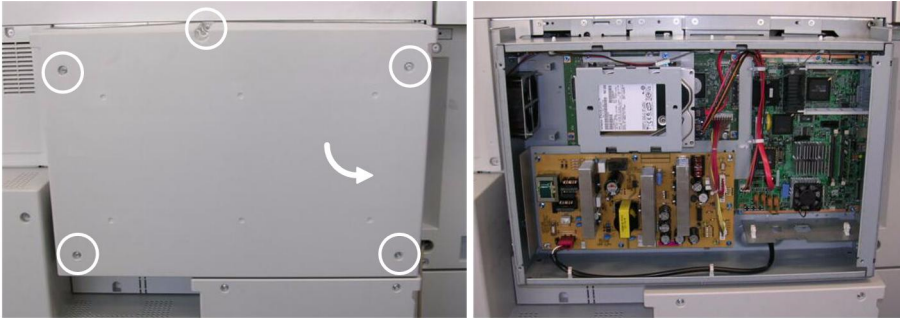
## Controller Board, NVRAM

---

★ **Important**

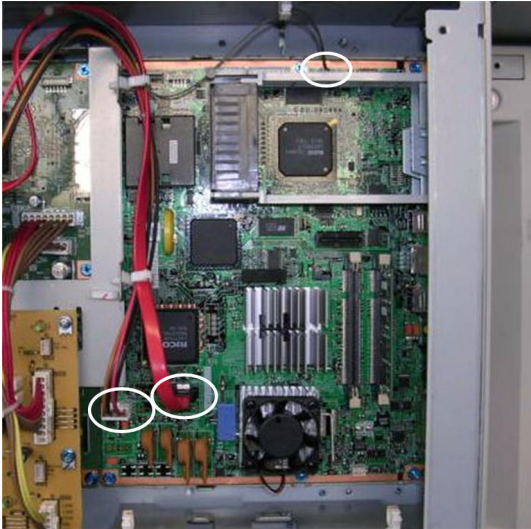
- When replacing the old controller board with a new controller board, make sure that the type of the new controller board corresponds with the machine type (D059: type a/ D060: type b/ D061: type c).

## Board Removal



d059r903

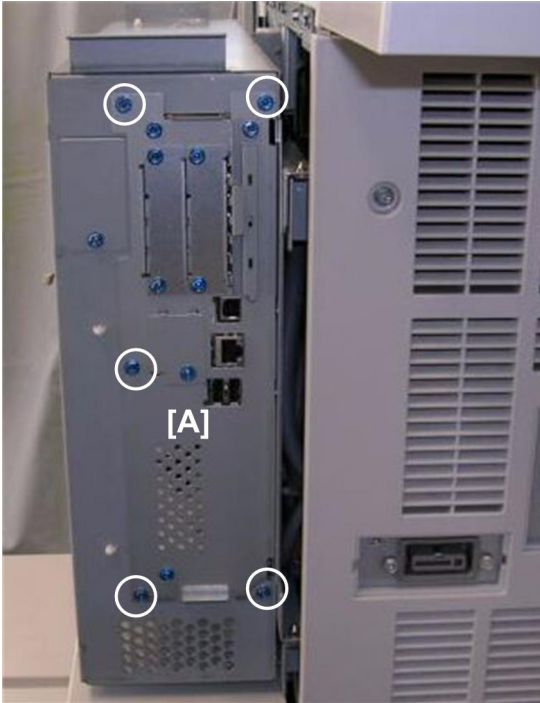
1. Remove the controller box upper cover (🔩 x5).



d059r904

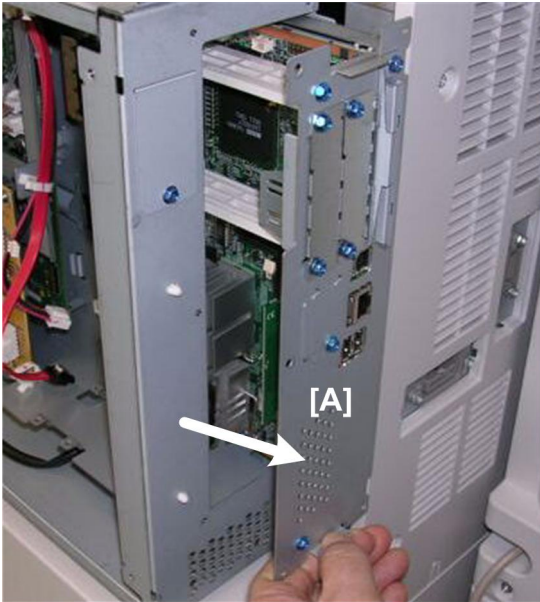
2. Disconnect the board (🔌 x3).

3



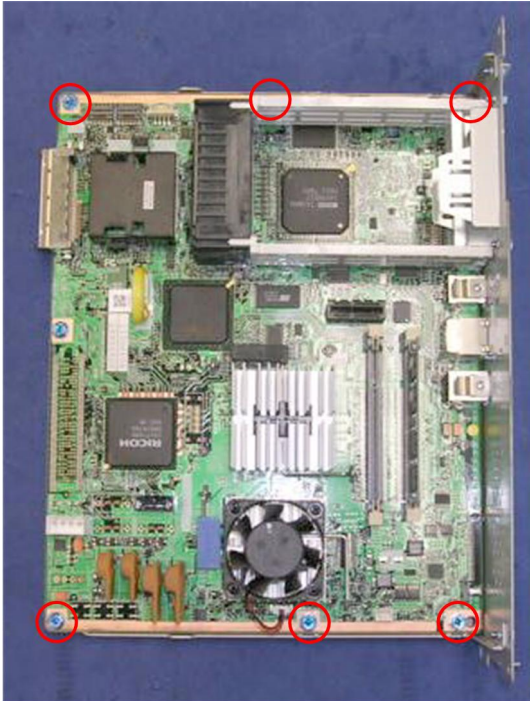
d059r905

3. Disconnect faceplate [A] (⚙ x5).



d059r906

4. Slowly remove the faceplate [A] with the board attached.

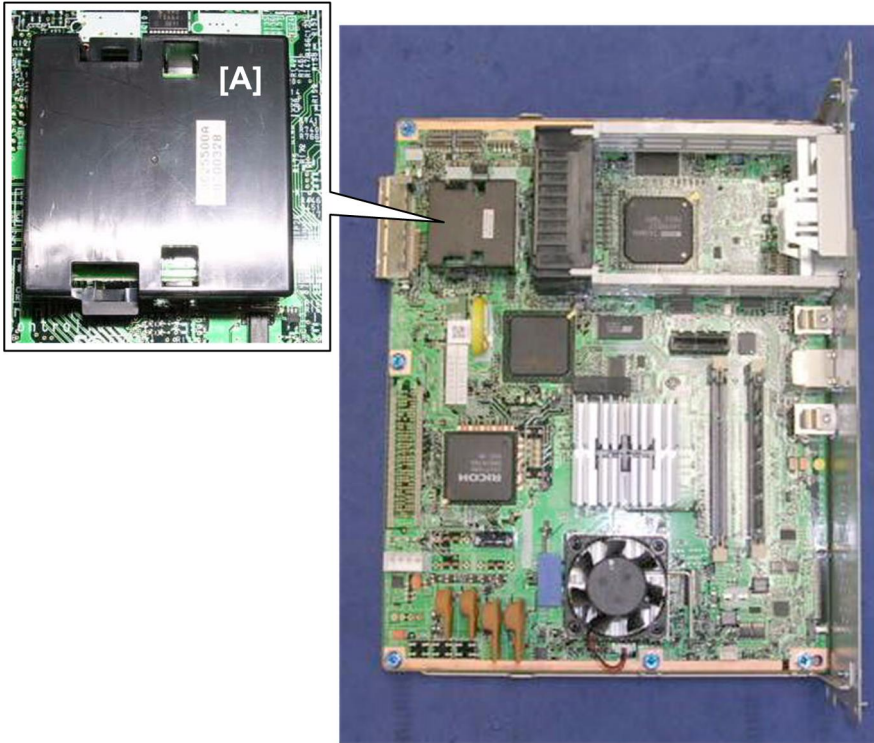


d059r907

5. Disconnect the board from the faceplate (⚠ x6).

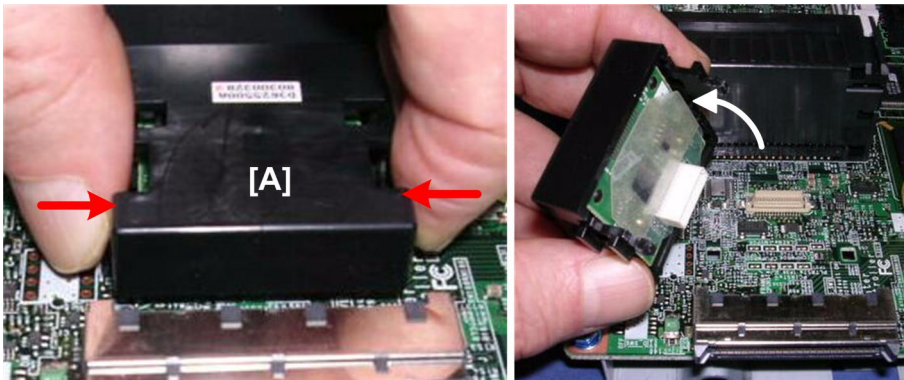
### NVRAM Replacement

3



d059r908

The NVRAM [A] is located at the corner.



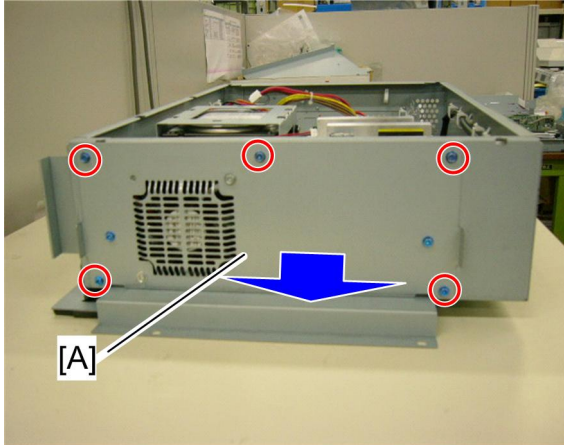
d059r909

1. Press both sides of the NVRAM [A] to release the tabs and remove it.



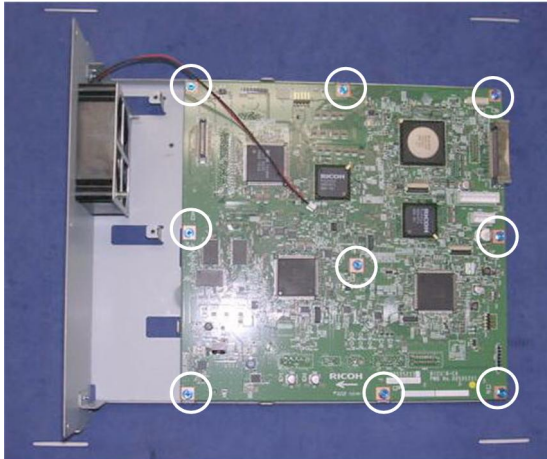
## BICU

1. Remove the upper half of the controller box (see p.289 "Removing the Controller Box").



d059r964

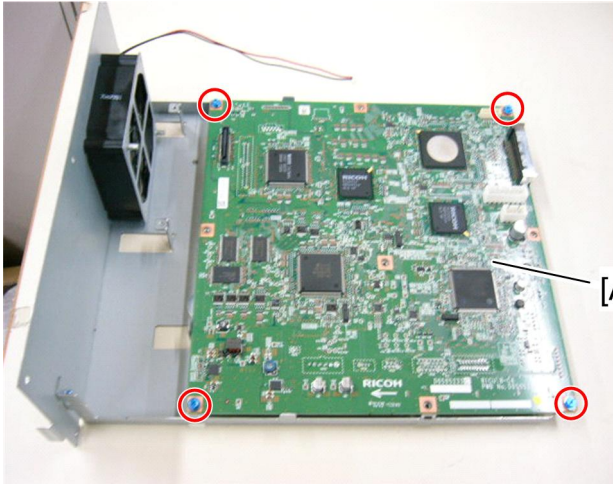
2. Pull out the faceplate [A] (⚙️ x 5).



d059r915

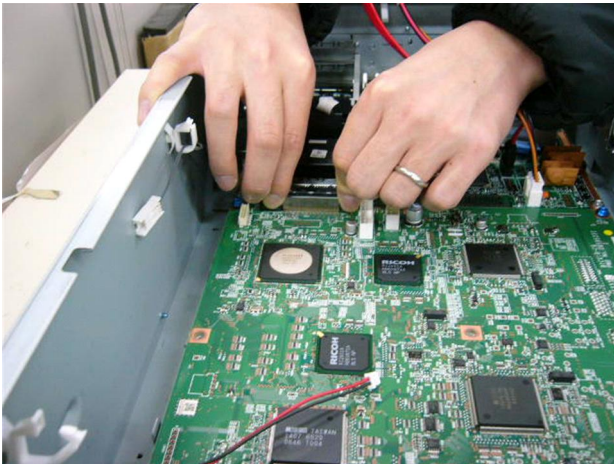
3. Disconnect the BICU from the bracket (⚙️ x9).

### When reinstalling the BICU



d059r965

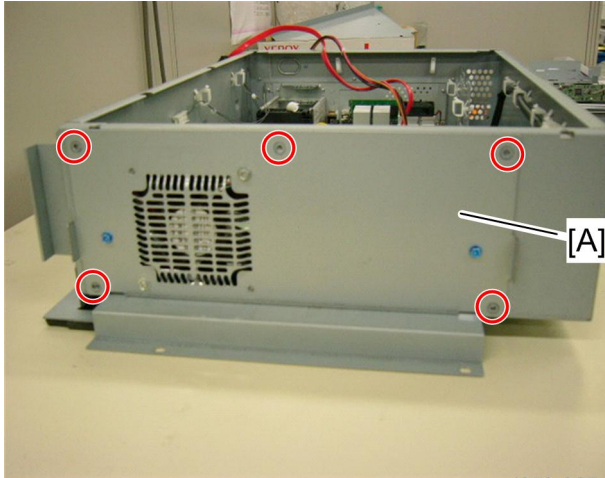
1. Fasten four screws indicated in circles halfway on the BICU [A].
  - Do not fasten screws completely. Fasten halfway so that the board has room to move. Screw heads should appear above the board.



d059r966

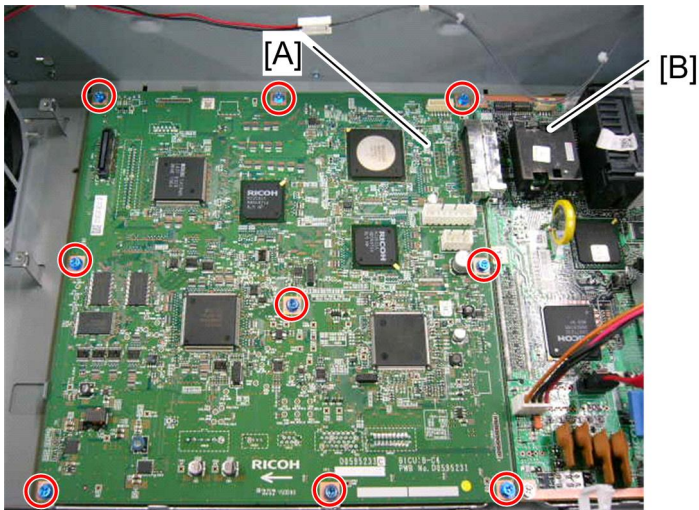
2. While maintaining the previous condition (step 1), insert the face plate of the BICU into the controller box.
3. Attach the BICU board connector to the controller board connector by hands.





d059r967

4. Fasten the faceplate [A] with screws indicated in circles (🔩 x5).
  - There is no order for fastening screws on the faceplate.

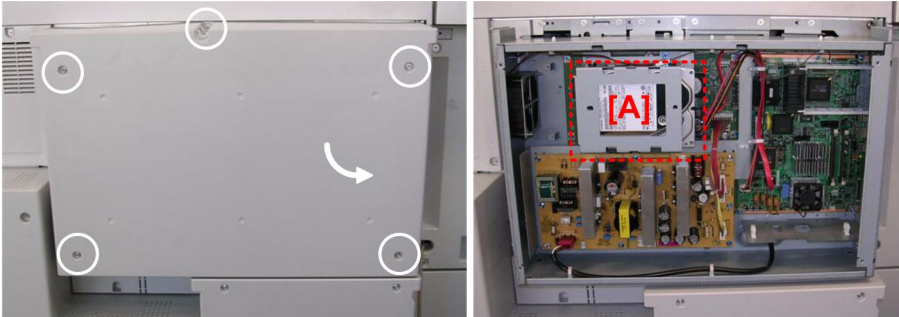


d059r968

5. Completely fasten the BICU board [A] with screws indicated in circles (🔩 x8).
  - Make sure that both connectors (BICU [A] and controller board [B]) are firmly connected.
6. Reassemble the removed parts and harness and install the controller box into the mainframe.

## HDD

3

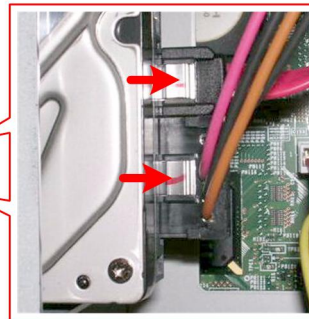


d059r916

1. Remove the controller box upper cover (🔩 x5). The HDD is at [A].



d059r917

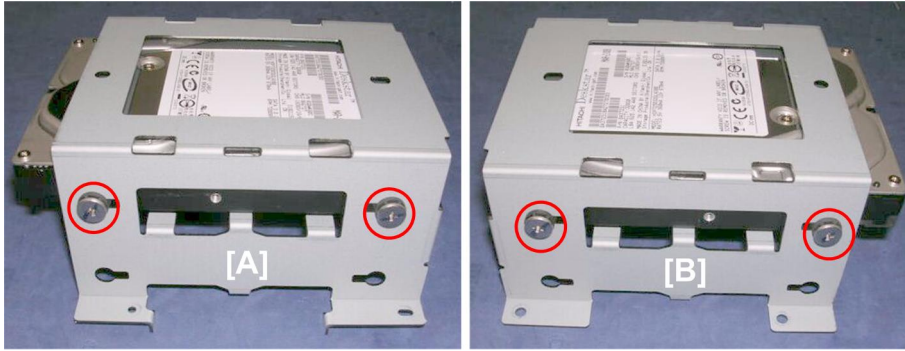


2. Disconnect the HDD bracket (🔩 x4, 📏 x2).



d059r918

3. Lift the bracket off its hooks and remove it.



d059r919

3

4. Remove the HDD from the bracket:

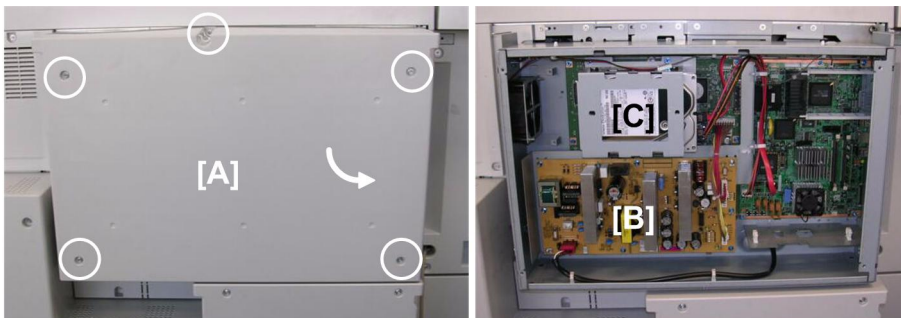
[A] Top (⚙️ x2)

[B] Bottom (⚙️ x2)



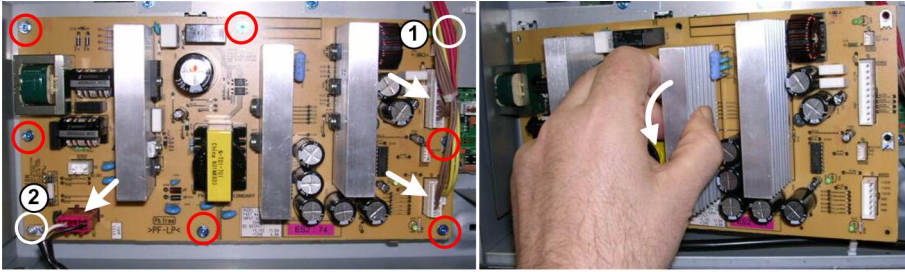
d059r920

## PSU-C



d059r921

1. Remove the controller box upper cover [A] (⚙️ x5). The PSU-C [B] is below the HDD [C].



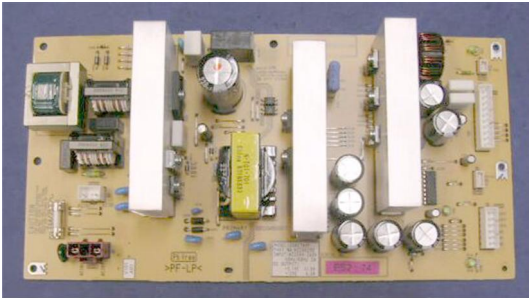
d059r922

3

2. Disconnect and remove the board (🔧 x8, 🛠️ x3).

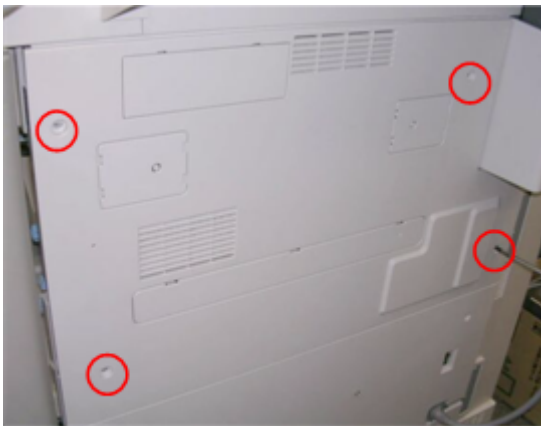
★ Important

- The screws at ① and ② are silver screws.
- These are ground screws and must be re-attached at the same positions.



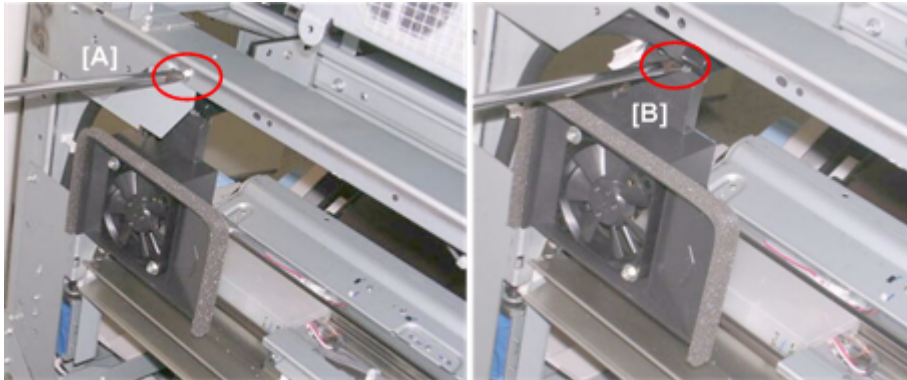
d059r923

URB



d049r911

1. Remove right upper cover (🔩 x4).

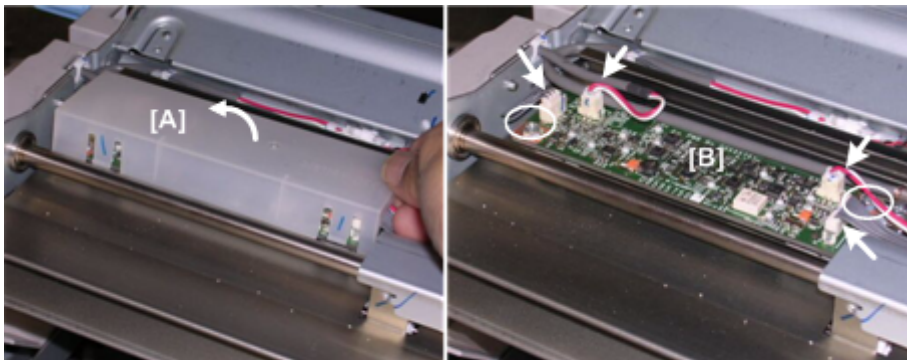


d049r912

2. Remove:

[A] Plate (🔩 x1)

[B] Fan (🔩 x1, 📡 x1)



d049r913

3. Remove:

[A] Cover (Hooks x4)

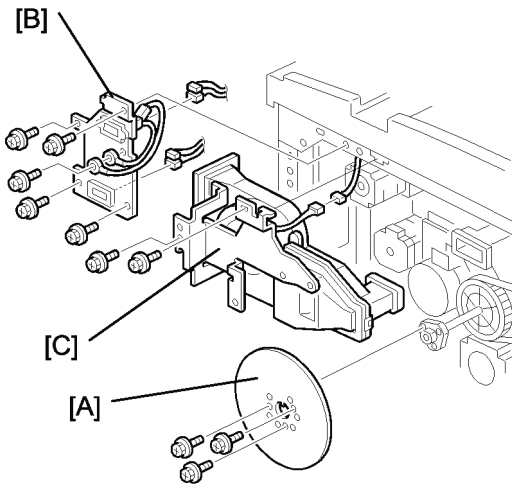
[B] URB (📡 x4, 🔩 x1)

# Motors

## Drum Motor

- Open the PSU box (☞ p.291)
- Open the controller box (☞ p.288)
- Remove the rear cover

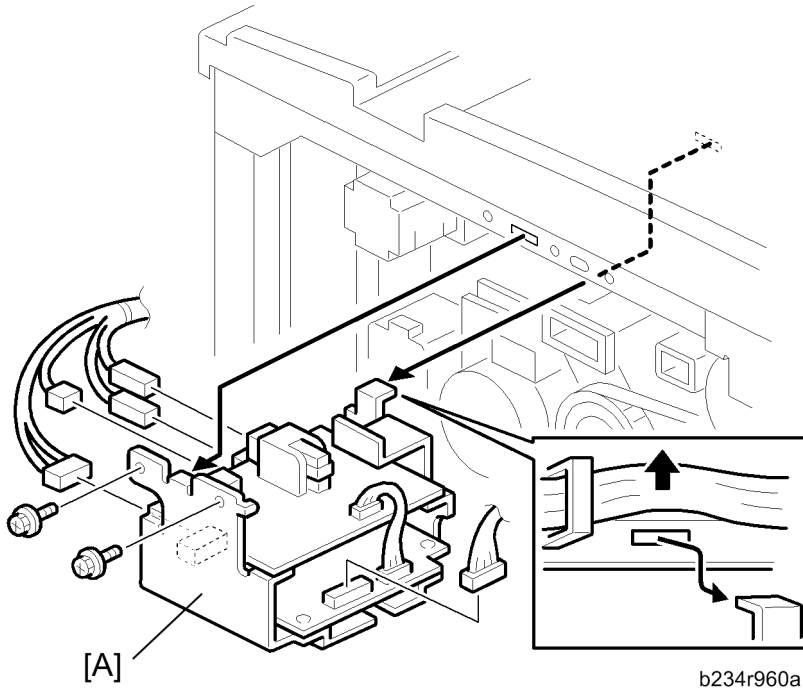
3



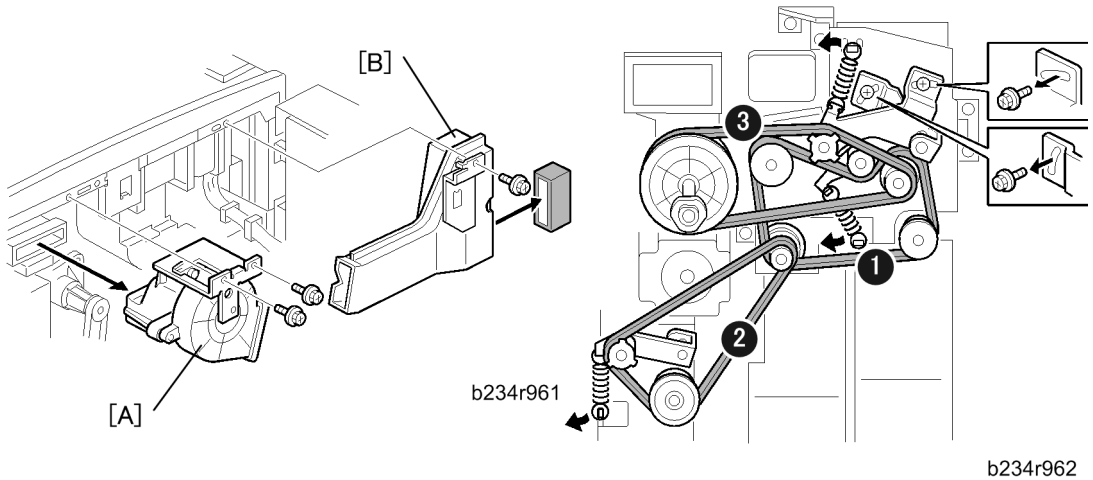
b234r919a

1. Remove:

- Fly wheel [A]
- Harness bracket [B]
- Duct unit [C]

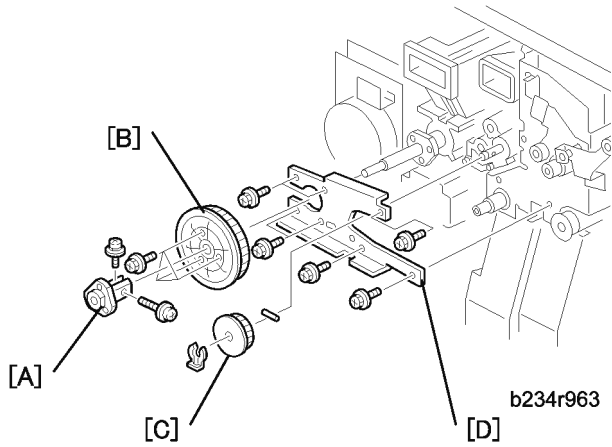


- Remove PPG and CBG power pack unit [A] (☛ p.439)

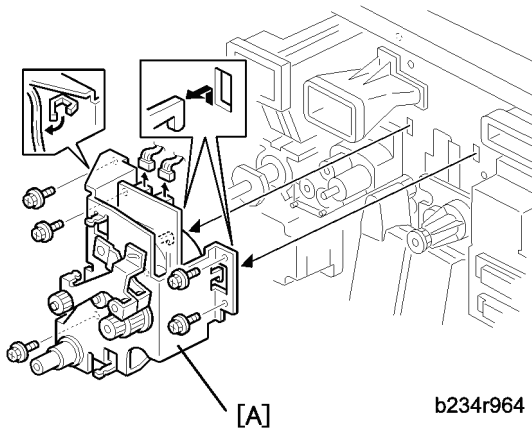


2. Fan motor unit [A] (☛ x2, ☛ x1)
3. Right duct unit [B] (☛ x1)
4. Timing belts (1), (2), (3) (Springs x3, ☛ x2)

3



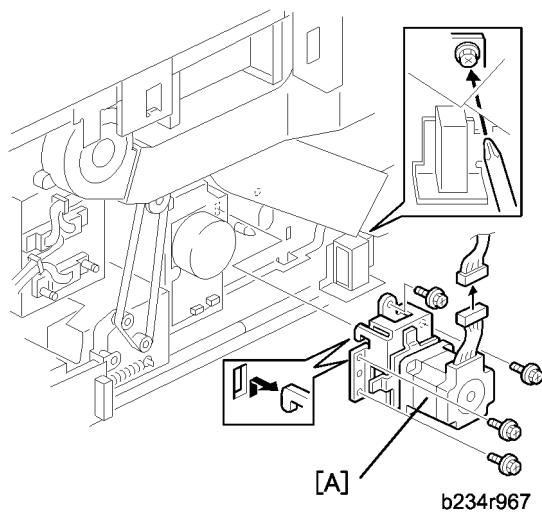
- 5. Flywheel holder [A] (⚙️ x2)
- 6. Drum pulley [B] (⚙️ x3)
- 7. Cleaning drive pulley [C] (⚙️ x1, Pin x1)
- 8. Drum motor plate [D] (Tapping ⚙️ x4, ⚙️ x3)



- 9. Drum motor unit [A] (⚙️ x2, ⚙️ x2, ⚙️ x5)
- 10. Drum motor (⚙️ x4)

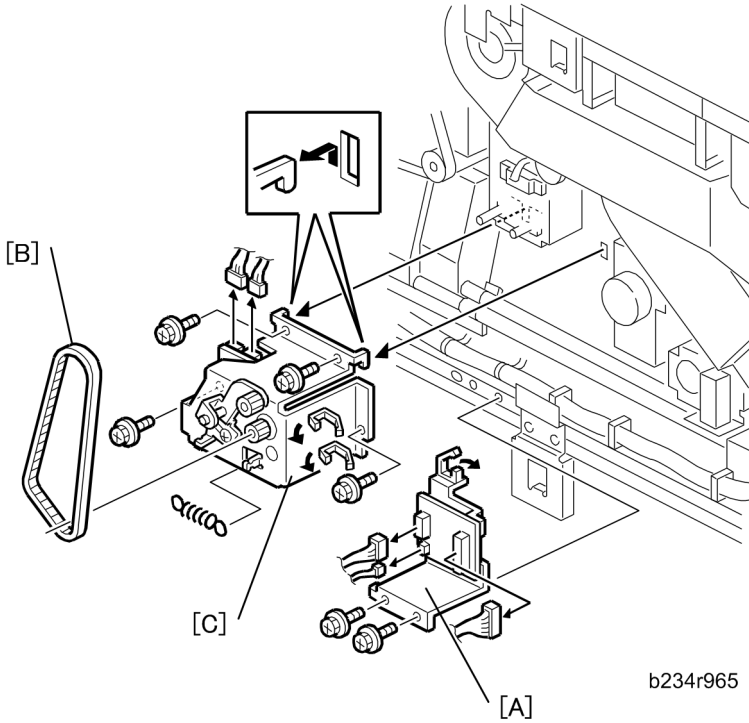


## Duplex Motor



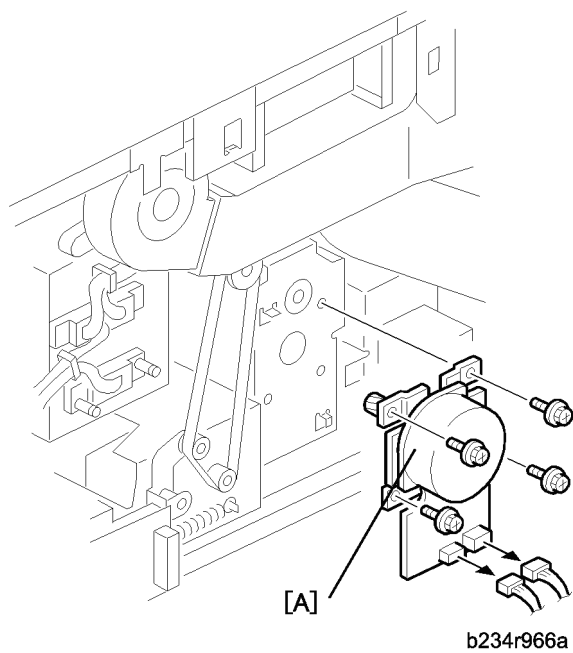
- Open the controller box (☛ p.288)
1. Remove the duplex motor unit [A] (🔩 x4, 📡 x1)

## Fusing Motor



- Controller box upper cover (☛ Removing the Controller Box Upper Cover under p.288 "Controller Box")
  - Open the controller box. (☛ p.288)
1. Relay board [A] (🔩 x2, 🛠️ x3, 🛠️ x1)
  2. Timing belt [B] (Loosen 🔩 x1, Spring x1)
  3. Fusing motor unit [C] (🔩 x4, 🛠️ x2, 🛠️ x2)

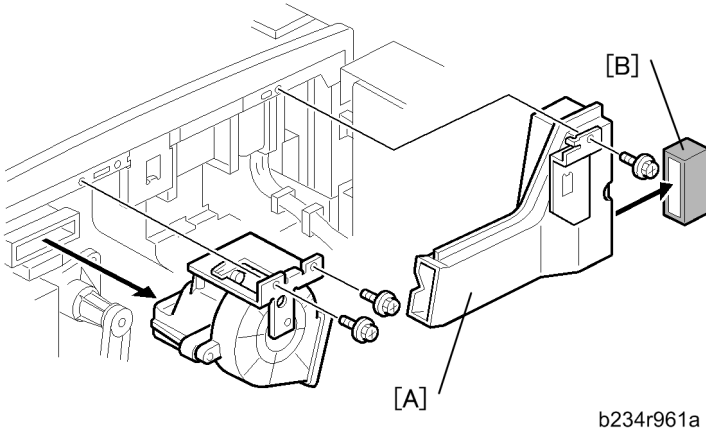
## Exit Motor



- Open the controller box (➔ p.288)
- [A]: Exit motor (🔩 x4, 🧶 x2)

## Ozone Filter

- Open the controller box (☛ p.288)
- Open the PSU box. (☛ p.291)
- Remove the rear cover.



[A]: Right duct unit (☛ x1)

[B]: Ozone filter

# Copy Image Adjustment: Printing/Scanning

## ↓ Note

- You need to perform these adjustments after replacing any of the following parts: Scanner Wires, Lens Block, Scanner Motor, Polygon Mirror Motor, Paper Side Fences, Memory All Clear. For more details about accessing SP modes, refer to section 4.

## Printing

3

## ↓ Note

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

## Registration – Leading Edge

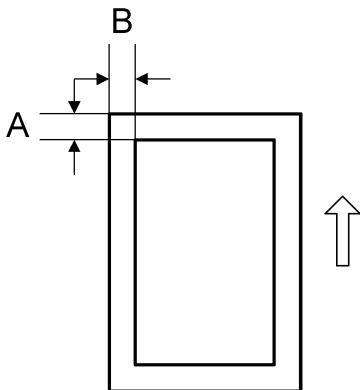


- Check the leading edge registration using the Trimming Area Pattern, and adjust it using SP1001 if necessary. The specification is:  $0 \pm 3$  mm.

## Registration – Side-to-Side

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

### Using SP Mode



b195r827

A: Leading Edge Registration

B: Side-to-side Registration

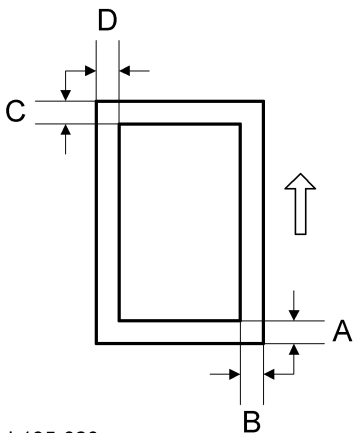
1. Check the side-to-side registration for each paper feed station using the Trimming Area Pattern. Adjust them using the following SP modes if necessary. For more details, refer to "Image Position Sensors" (\* Paper Feed - Image Position Sensors)

	SP mode		Specification
1st paper feed	SP1002 001	SP1912 001	2 ± 1.5 mm
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		
7th Tray (Bypass)	SP1002 007	SP1912 003	
Duplex	SP1002 008		

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.



A: Trailing Edge Blank Margin

B: Right Edge Blank Margin

C: Leading Edge Blank Margin

D: Left Edge Blank Margin

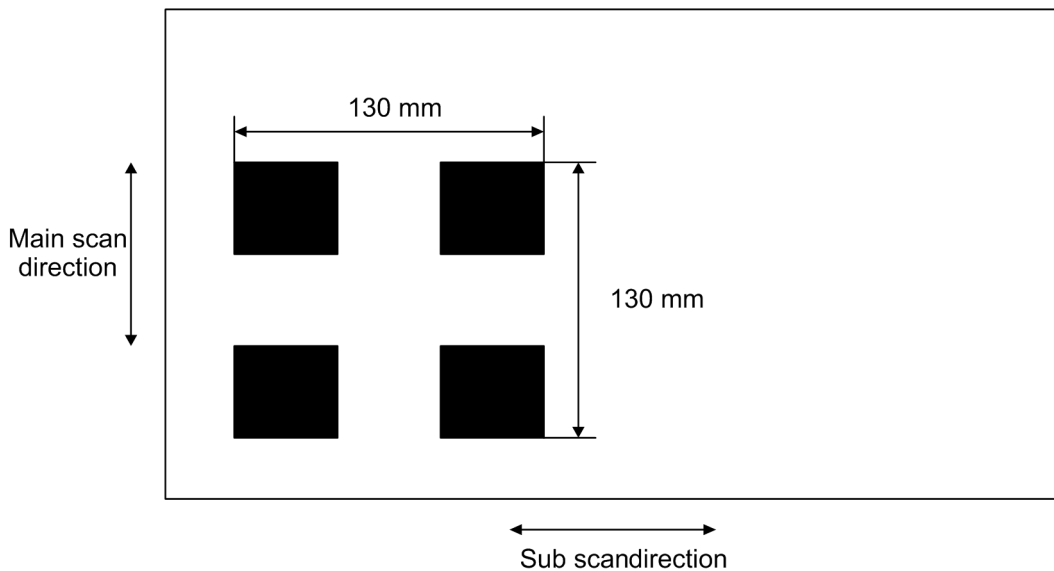
1. Check the trailing edge and right side edge blank margins using the Trimming Area Pattern, and adjust them using the following SP modes if necessary.



	SP mode	Specification
Trailing edge	SP2101 002	$3 \pm 2$ mm
Right edge	SP2101 004	$2 \pm 1.5$ mm
Leading edge	SP2101 001	$4 \pm 2$ mm
Left edge	SP2101 003	$2 \pm 1.5$ mm

3

## Magnification Adjustment



b234r888

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.
  - If the magnification in the sub scan direction is not within  $100 \pm 1.0\%$ , adjust using SP2910.
  - After main scan adjustment, use SP2909 (Main Scan Magnification) 001 (Copy), 002 (Printer) to adjust main scan magnification for the copy and print images.

- Next, use SP4008 (Scanner Sub Scan Magnification) to adjust magnification in the sub scan direction.
- 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.

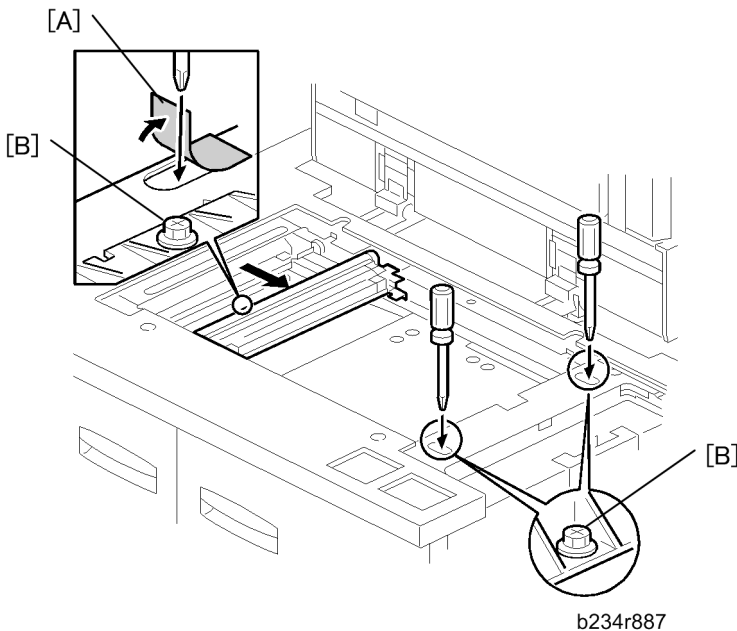
## Parallelogram Image Adjustment

3

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**

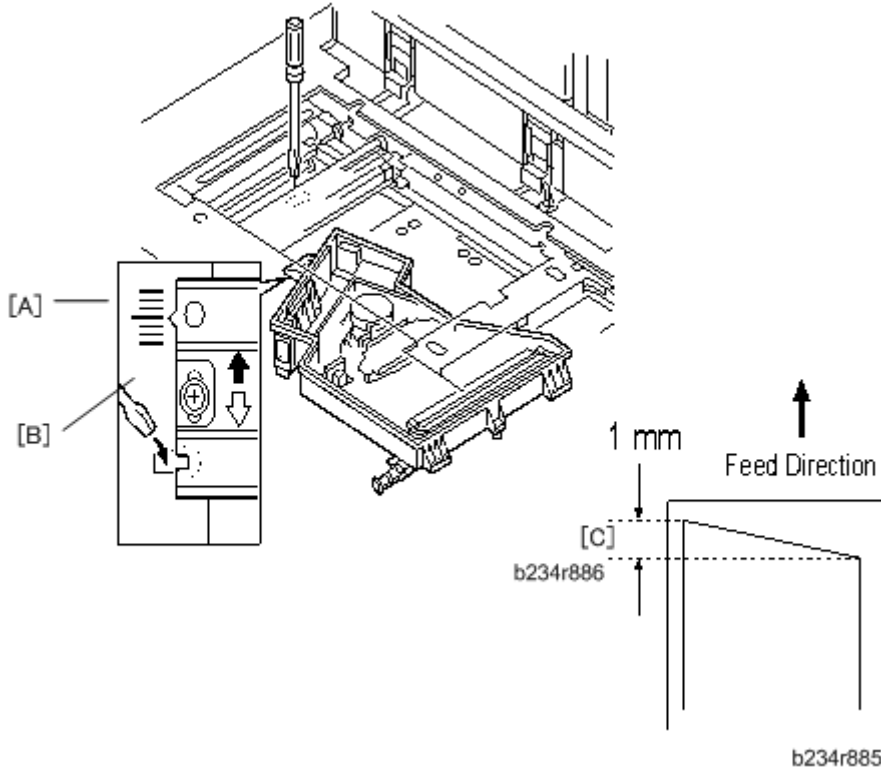
- The following procedure should be done after adjusting the side-to-side registration for each paper tray.
- This adjustment is only effective for a parallelogram image caused by the printer. It should not be applied if the skew is caused by the scanner.



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.



3

Make a note of the position of the laser unit using the scale [A].

6. 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.

7. Tighten the three screws to secure the laser unit.
8. Print the trimming area pattern to check the image. If it is still the same, repeat steps 2 to 7.

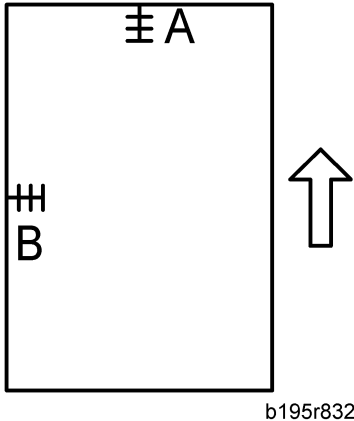
## Scanning

### ↓ Note

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



A: Leading Edge Registration

B: Side-to-side Registration

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

Leading Edge (SP4010):

Use the  $\ominus$  key to enter the minus (-) before entering the value.

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.

Side-to-side (SP4011):

(-): The image disappears at the left side.

(+): The image appears at the left side.

Use the  $\ominus$  key to enter the minus (-) before entering the value.

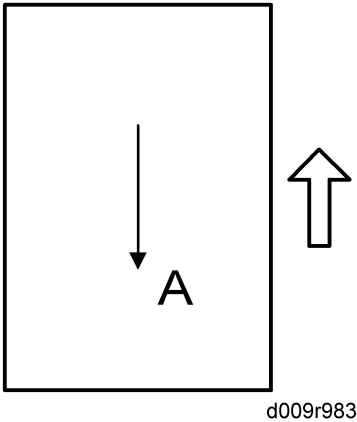
## Magnification

### ↓ 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.



A: Sub Scan Magnification

2. Check the magnification ratio, and adjust it using the following SP mode if necessary. The specification is within  $\pm 1\%$ .

	SP mode
Scanner Sub Scan Magnification	SP4008

## ADF Image Adjustment

### Registration

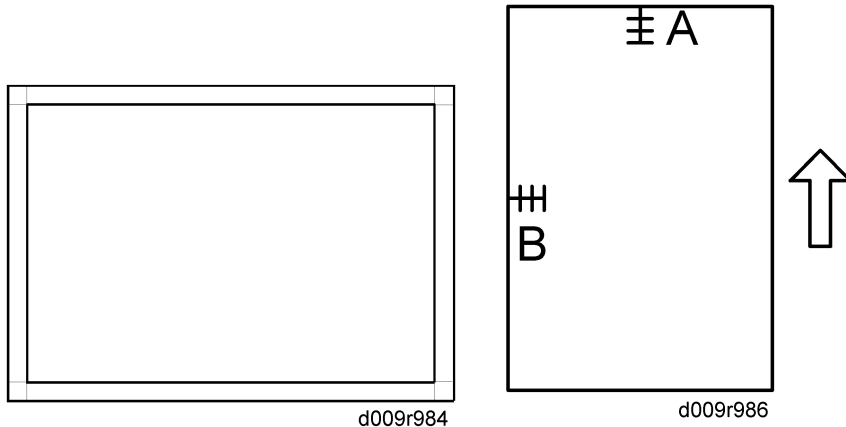
#### ↓ Note

- 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

	SP mode
Leading Edge Registration (Duplex: rear)	SP6006 006

3



A: Leading Edge Registration

B: Side-to-side Registration

# 4. Troubleshooting

---

## Program Download

For details, see "Program Download" in the Appendices.

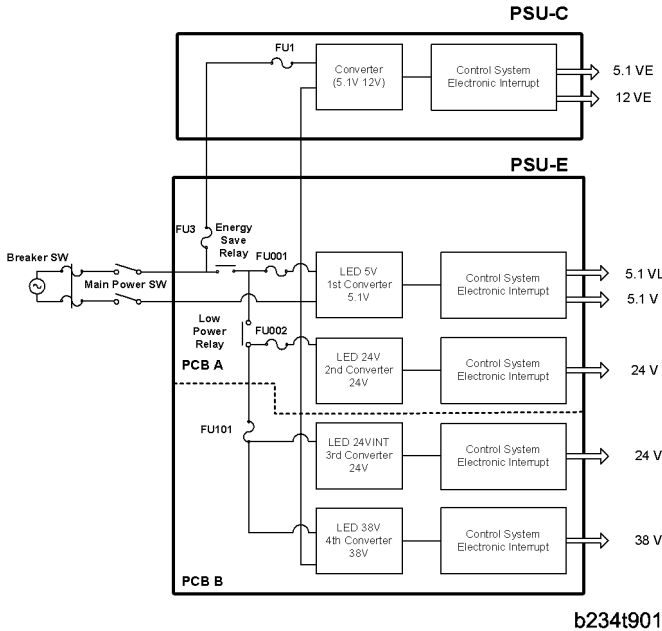
## Service Call Conditions

See "Appendices" for the following information:

- Service Call Conditions and SC Tables

# PSU Protection Circuits

## Overview



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 to 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.

**Table 1: PSU Converters and Output System**

Converter	Output Name	Output Voltage	Output Connector
Energy Save	VccE	5.1V	CN763-1p-5p
	VcaE	12.0V	CN764-1p-3p
1st	VccL	5.1V	CN711-1p-3p
	Vcc	5.1V	CN712-1p-3p
2nd	Vaa1	24.0V	CN713-1p-2p
	Vaa2	24.0V	CN713-3p-6p
	Vaa3	24.0V	CN714-1p-6p
3rd	Vaa4	24.0V	CN715-1p-2p
	Vaa5	24.0V	CN715-3p-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	4A/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.

**Table 2: PSU Fuses and Related Power Output Interrupts**

Converter	Output Name	FU1	FU3	FU001	FU002	FU101
Energy Save	VccE	○	○			
	VcaE	○	○			
1st	VccL	○	○	○		
	Vcc	○	○	○		
2nd	Vaa1	○	○	○	○	
	Vaa2	○	○	○	○	
	Vaa3	○	○	○	○	
3rd	Vaa4	○	○	○	○	○
	Vaa5	○	○	○	○	○
4th	Vmm1	○	○	○	○	○
	Vmm2	○	○	○	○	○

- 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.

## 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.

**4** Table 3: Converter Protection Circuits and Related Output Power Interrupts

Converter	Output Name	Energy Save	1st	2nd	3rd	4th
Energy Save	VccE	○				
	VcaE	○				
1st	VccL	○	○			
	Vcc	○	○			
2nd	Vaa1	○	○	○		
	Vaa2	○	○	○		
	Vaa3	○	○	○		
3rd	Vaa4	○	○	○	○	
	Vaa5	○	○	○	○	
4th	Vmm1	○	○	○		○
	Vmm2	○	○	○		○

### 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 have 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	○	○	○
	VcaE	○	○	○
1st	VccL	○	○	
	Vcc	○	○	
2nd	Vaa1	○	○	○
	Vaa2	○	○	○
	Vaa3	○	○	○
3rd	Vaa4	○	○	○
	Vaa5	○	○	○
4th	Vmm1	○	○	○
	Vmm2	○	○	○

**To reset the machine after a 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

## PSU LED Display

Four converters are built into PSU-E. Each converter is provided with one LED that lights when the converter is activated.

Converter	LED Name
1st Converter	5V
2nd Converter	24V
3rd Converter	24VINT
4th Converter	38V

4

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

Converter	Output Name	Copy	Standby	Door Open	Energy Saver	Low Power	Off/Sleep
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.

# Troubleshooting Guide

---

## Main Machine (D059, D060, D061)

---

**Problem**                      **Spotting and dirty edges**

**Solution**

1. Raise the image transfer voltage with SP2301-1, -2 (Transfer Current Adjustment, 1 1st Copy Side, 2 Thick Paper): D059: 100 to 120, D060: 110 to 130, D061: 130 to 150
2. Raise Vpp (ID sensor pattern development potential) with SP2201-3: 200 to 270
3. Raise SP2201-6: 200 to 270. Raise SP2201- (Development Bias Adjustment – ID Sensor Development Potential (Low Speed 2)): 200 to 270.

**Comments**

- When the V-I value of the transfer belt is low (i.e. high resistance), the attraction between the paper and the belt is increased in order to hold the paper on the belt.
- When paper that requires a large amount of charge to separate at the paper exit, spotting can occur because of the discharge used to separate belt and paper. Residual toner can cause this problem in filled or halftone areas.
- Also, toner scattered in the direction of paper feed on the transfer exit guide caused by the aforementioned spotting can collect on the side edges of upstream paper.

**Problem**                      **Vertical white stripes on coated paper**

**Solution**

Replace the hot roller and paper separation pawls

**Comments**

- Over time, the fusing separation pawls in contact with the hot roller become worn due to friction.
- This can cause white stripes to appear in the halftone, or black fill areas of images on coated paper.

**Problem**                      **EVOLVE paper does not feed**

**Solution**

Clean the feed rollers with a damp, clean cloth.

**Comments**

EVOLVE and similar paper that contains a large amount of paper dust can cause paper dust to adhere to the feed rollers which leads to failures to feed.

**Problem**                    **Images on large-size paper dirty after feeding small-size paper.**

**Solution**

1. Clean the transfer exit guide plate.
2. Clean the fusing exit guide plate.

**Comments**

- Toner scatter (caused by the electrical discharge when paper is peeled from the transfer belt during continuous feed of small-size paper) falls onto the transfer exit guide and fusing exit guide plate.
- This toner scattered on the guide plates will stick to the wider paper the next time large-size paper is fed.

4

**Problem**                    **Scattered toner, dirty images on coated paper**

**Solution**

Raise Vpp with SP mode settings to reduce the toner density by adjusting these SP codes:

- SP2201-3: 200V to 240V
- SP2201-6 : 200V to 240V
- SP2201-9 : 200V to 240V

**Comments**

- The front and cut sides of coated paper is extremely smooth, and in a low temperature/low humidity environment dirty background can occur easily on the surface of the OPC.
- Under such conditions, during toner density control toner scatter and dirty edges can occur easily with coated paper (compared with normal paper).

**Problem**                    **Incorrect double-feed detection**

**Solution**

1. Avoid using coated paper that has absorbed moisture, do not re-use OHP.
2. Do not use perforated paper where the holes may appear at the position of the double-feed sensors. If you need to use long-edge feed (LEF) loose-leaf paper with holes on only one edge, feed the paper so that the holes are on the trailing edges.
3. Avoid using multi-layered paper or label sheets with labels that may flutter.

### Comments

The ultra-sound sensors used to detect double-feed cannot accurately detect double feeding with the following types of paper.

- Adhesive paper media (Examples: damp coated paper, used OHP)
- Paper with holes near the leading edges
- Paper with loose labels, multi layered sheets (pasted up for layout).

**Problem**                      **Failure to feed, double feed**

### Solution

1. Fan the paper to remove static.
2. Remove the paper from the tray and turn the stack upside down.

### Comments

If the paper has rough cut edges:

- Bits of paper on the rough edges facing down can wrap around the separation roller and cause poor feeding.
- The paper can stick together and double feed.

**Problem**                      **Jam 21 occurs with A5 LEF on the D061 (135 ppm)**

### Solution

Change these User Tool Settings:

- Line speed mode setting (135 ppm to 110 ppm)
- High Temperature Mode 2 setting (178 to 163) (both settings are in User Tools)

### Comments

- The strength of the spring on the feeler may have weakened and is not retracting the feeler.
- The timing interval between sheets in the D061 (135 ppm) machine is short, and if the spring is weak the leading edge of the next sheet may arrive before the feeler of the fusing exit sensor retracts.
- If this occurs, the leading edge of the next sheet hits the feeler before it can return to its home position and the sheet deviates from the paper path.
- However, this problem does not occur with paper larger than A5 LEF because the leading edges of the larger sheets are guided by the stripper pawls on both sides of the leading edge.



**Problem** Copying cannot be done with two machine connected by the copier connection kit and the High Capacity Stacker (D447) connected to the slave machine.

**Solution**

Disconnect the High Capacity Stacker from the slave machine.

**Comments**

- Dual copying is not possible with the High Capacity Stacker connected to the slave machine.
- The dual copy key on the operation panel does not light.
- Dual copying is possible only if High Capacity Stacker is disconnected from the slave machine.

**Problem** Fusing temperature setting

**Solution**

Wait for the machine to reach the adjusted target temperature.

**Comments**

- When the fusing temperature setting is changed, the machine needs about 5 minutes to reach the target temperature.
- If the fusing temperature is lowered for the next job after the machine has been running at the default fusing temperature for a long period, and if paper passes through the fusing unit before the unit can reach the lower target temperature, this can cause the paper to curl and the paper may jam at the fusing exit.

**Problem** Granular black spotting occurs on the back side of paper

**Solution**

Clean the fusing unit carefully after paper jams in the fusing unit.

**Comments**

- Black spotting on the back sides of paper can occur after jams have occurred in the fusing unit.
- When black spotting on the back sides of paper occurs, the spotting can cause the paper to stick to the surface of the pressure roller.

**Problem** Dotted vertical lines

**Solution**

Improve fusing by raising the fusing temperature. You can further improve fusing by adjusting the line speed for thick paper.

**Comments**

- The fusibility of 2-by-2 half-tone and other images can be unfavorable.
- The exit rollers of downstream peripheral units can cause white tracks (dotted lines) in images by picking off unfused toner which the rollers then transfer into the white areas of sheets that follow.

**Problem**            **Dirty stacked edges after printing**

**Solution**

Improve fusing by raising the fusing temperature. You can further improve fusing by adjusting the line speed for thick paper.

**Comments**

- The conditions for fusing images that contain half-tones can be unfavorable.
- When this occurs, this can contribute to the black appearance of stacked edges.
- The poor fusibility of such images extends to the rollers, makes them dirty, and causes dirty corners.

**Problem**            **Black edges, vertical lines on thin, large size paper**

**Solution**

Follow the PM list and perform the periodic inspection and cleaning of the fusing unit.

**Comments**

- The guide plate at the fusing unit exit can become dirty when feeding large-size thin paper (sizes larger than B4).
- This can cause the stacked edges to become black or cause black vertical lines at the trailing edges

**Problem**            **Controller board replacement in the field**

**Solution**

Always replace the controller board with the correct type for the machine.

**Comments**

- Be sure to replace a controller board with the correct type for the machine: D059 (90 ppm), D060 (110 ppm), D061 (135 ppm).
- The controller board of each machine is different; the controller board specifically designed for the machine must be installed. If the wrong type of controller board is installed in a machine, this will cause the machine to issue an SC error.

---

## Decurl Unit DU5000 (D457-17)

---

**Problem**            **Black streak 8 mm pitch on paper edges**

**Solution**

Disconnect the unit downstream of the Decurl Unit and clean the anti-static brush at the exit of the De-Curl Unit.

**Comments**

After a long period of time, the brush can transfer stray toner, paper dust, etc. to the paper.

---

## LCIT RT5030 (D452-17)

---

**Problem**            **Failure to feed, double feed**

**Solution**

1. Fan the paper to remove static.
2. Remove it from the tray and turn the stack upside down.

**Comments**

The following undesirable conditions can occur with rough cut edges:

- Bits of paper on rough edges facing down can wrap around the separation roller and cause poor feeding.
- Paper can stick together and double feed.

---

## LCIT RT5040 (D453-17)

---

**Problem**            **Failure to feed, double feed**

**Solution**

1. Fan the paper to remove static.
2. Remove it from the tray and turn the stack upside down.

### Comments

The following undesirable conditions can occur with rough cut edges:

- Bits of paper on rough edges facing down can wrap around the separation roller and cause poor feeding.
- Paper can stick together and double feed.

## 4

**Problem** SC586

### Solution

Clean paper dust from the CIS (Contact Image Sensor) during PM and after the machine issues SC 586 (CIS registration error).

### Comments

The CIS does not function correctly if it is contaminated with paper dust.

**Problem** Poor feed with coated paper

### Solution

If the customer intends to use coated paper, replace the three feed rollers (pickup, feed, separation rollers) with the EPDM feed rollers.

### Comments

The urethane feed rollers installed in the LCIT at the factory can pick up paper dust and coating material from the surfaces of coated paper, causing less friction between the roller and paper surface which can lead to poor feeding.

**Problem** Leading edge of NCR bent, or bent leading edge causes a jam

### Solution

1. Switch on Air Assist (ON Duty 30%).
2. Switch off Pickup Assist.
3. Install the NCR auxiliary plate near the feed rollers in the tray where NCR is being fed.

### Comments

NCR media is not stiff and easily jams.

---

## Booklet Finisher SR5010 (D434-17)

---

**Problem**            **Stapled booklet remains on the exit roller**

**Solution**

If this occurs, set the auxiliary Z-fold tray (intended for use with for the shift tray) on the booklet tray. Leave the auxiliary tray on the booklet tray only when needed (remove it when not needed).

**Comments**

When paper without stiffness is stapled at two places and output to the booklet tray, the booklet may droop and not feed out, causing the trailing edge of the paper to stop at the exit rollers.

**Problem**            **Paper not aligned vertically by top fence and bottom fence**

**Solution**

Use SP6217 to adjust the position of the top fence where it contacts the high edge of the paper stack.

**Comments**

The top fence may not be able to touch the trailing edge of a large stack if the paper has curled.

**Problem**            **Poor stacking of a large number of Z-folded sheets in the proof tray**

**Solution**

1. Set the auxiliary Z-fold tray (intended for use with for the shift tray) on the proof tray.
2. Removing the paper from the feed tray of the main machine, turning it over, and setting it in the tray again may also solve the problem.

**Comments**

When paper without stiffness is Z-folded, it will sag on the proof tray and make it difficult for the proof tray full sensor to detect when the tray is full, causing too many sheets to stack up on the proof tray.

**Problem**            **Black streaks on the edges of large stapled booklets (50 sheets or more) using small-size paper**

**Solution**

Clean the brush roller in the stacker/stapler unit.

**Comments**

Toner or other material picked up and held in the brush roller is being transferred to paper in the stack/staple unit before it goes to the booklet unit.

---

## High Capacity Stacker SK5010 (D447-17)

---

4

**Problem**            **Black streaks 5 mm wide on paper edges output to the shift tray**

**Solution**

Clean the shaft of the shift tray exit roller, and clean the rubber paddles.

**Comments**

- After a long period of time, the rubber paddles can transfer stray toner, paper dust, etc. to the paper.
- The shaft of the exit roller can pass stray toner, etc. to the paddles which can then pass dirt on to the paper.

**Problem**            **Black streak 8 mm wide on paper edges output to the shift tray**

**Solution**

Clean the anti-static brush at the shift tray exit.

**Comments**

After a long period of time, the brush can transfer stray toner, paper dust, etc. to the paper.

**Problem**            **Incorrect paper alignment by the jogger unit**

**Solution**

Lower the de-curl setting on the Decurl Unit next to the main machine.

**Comments**

The paper is skewing due to face curl when the leading edge stopper pushes to the right, causing side fences to catch on the paper or miss it.

**Problem**            **Last (top) sheet of every stack misaligned**

**Solution**

Correct paper curl at the Decurl Unit.

**Comments**

When the unit begins aligning the next stack, one side fence (front or rear) is catching on the last sheet of the stack below when it passes over the sheet below to start aligning the first sheet of the next stack.

**Problem**      **Stacks of coated paper misaligned after tray lowering****Solution**

After the job ends, wait 15 to 30 seconds before pushing the tray down button on the unit operation panel.

**Comments**

Waiting 15 to 30 sec. before lower the tray allows more time for air between the sheets to dissipate, making it easier for the stacked sheets to cling together and not move.

**Problem**      **Stacker cannot detect cart tray****Solution**

Make sure that the cart is perfectly level when pushing it into the stacker.

**Comments**

If the cart is not straight, or if it is tilted, the cart set sensor inside the stacker will not be able to detect the cart at its correct position.

---

**Multi Folding Unit FD5000 (D454-17)**

---

**Problem**      **Z-folded paper not output, page output out of order****Solution**

Set the auxiliary tray on the fold (top) tray.

**Comments**

Transport and exit of Z-folded paper that is thick or heavy can become erratic.

---

## Trimmer Unit TR5020 (D455-17)

---

**Problem**            **Folded booklet out of position**

**Solution**

Adjust the center stapling unit of the Booklet Finisher.

**Comments**

Do the skew adjustment procedures described in the Booklet Finisher (D434) replacement and adjustment manual.

4

**Problem**            **Leading edge (folded edge) of the booklet burred, crumbled, broken**

**Solution**

1. Do the skew adjustment for the booklet unit of the Booklet Finisher.
2. Length: Less than 3 mm, Width: Less than 1 mm (specified standards).

**Comments**

The cut at the trailing edge of the booklet is not clean or is torn due to skew that occurred when the booklet was folded in the fold mechanism of the booklet unit.

**Problem**            **Trailing edges A3, DLT or larger paper are not aligned correctly**

**Solution**

Do the skew adjustments described in the Book Finisher replacement and adjustment procedures manual.

**Comments**

Standard specification: The fore edges of a booklet comprised of large-size sheets, 16 to 20 sheet sheets should be aligned within 2.5 mm.

There may be some variation in the alignment of the fore edges when folding large-size sheets to make booklets of 16 to 20 sheets.

**Problem**            **Adjoining pages not aligned**

**Solution**

Do the skew adjustments described in the Book Finisher replacement and adjustment procedures manual.

**Comments**



Standard specification: Adjacent pages should be aligned within 0.5 mm.

The standard has been revised in consideration that some skew may occur.

**Problem**            **Booklet too thick**

**Solution**

Use SP6727 to increase the number of passes made by the crease roller before the booklet leaves the booklet finisher to flatten the leading edge of the booklet. Specification: Booklet height must be less than 30 mm.

**Comments**

If the leading edge of the booklet is too thick, it will jam at the trimmer exit.

# Jam Detection

## Paper Jam Display

SP7-507 shows the paper jam history.

```
CODE :011
SIZE  :05h
TOTAL:000034
DATE  :Fri Feb 20 11:44:50 2009
```

d016t503

- **CODE:** Indicates the jam code.
- **SIZE:** Indicates the paper Size Code.
- **TOTAL:** Indicates the total counter (SP7-502-001).
- **DATE:** indicates the date when the jam occurred.

## Paper Size Code

Size Code	Paper Size	Size Code	Paper Size
05	A4 LEF	141	B4 SEF
06	A5 LEF	142	B5 SEF
14	B5 LEF	160	DLT SEF
38	LT LEF	164	LG SEF
44	HLT LEF	166	LT SEF
132	A3 SEF	172	HLT SEF
133	A4 SEF	255	Others
134	A5 SEF	-	-

## Jam Codes and Display Codes

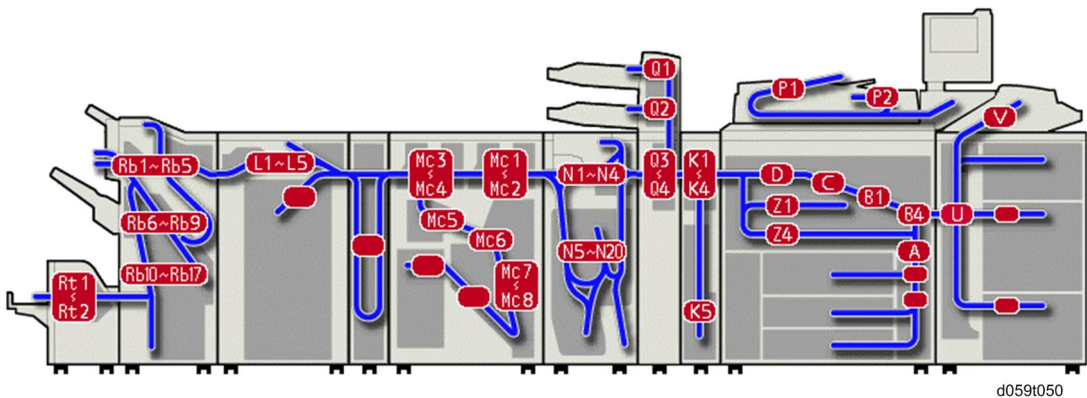
SP7-504 and SP7-509 show how many jams occurred at each location. Jam codes from 001 to 255 correspond with the suffix number of SP7-504 (e.g. Jam code 001 corresponds with SP7-504-001) and Jam codes from 256 to 396 correspond with the suffix number of SP7-509 by the following formula.

- Suffix number of SP7-509 = Jam code (256 to 396) - 255 (e.g. Jam code 256 corresponds with SP7-509-001)

### ↓ Note

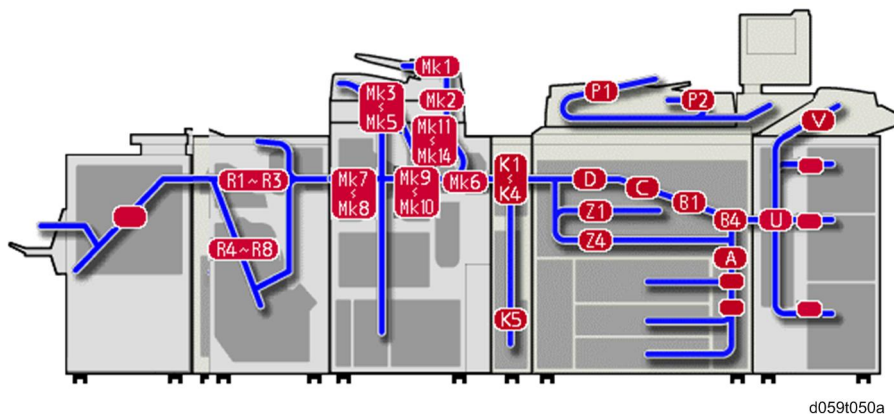
- Late: Paper should be at the sensor, but it is not
- Lag: There should be no paper at the sensor, but paper is present

### Display Code Location 1



- Mainframe with Trimmer Unit, Booklet Finisher, High Capacity Stacker, GBC, Ring Binder, Multi-Folding Unit, Cover Interposer Tray, Decurl Unit, LCIT and Multi Bypass Tray.

### Display Code Location 2



- Mainframe with Plockmatic, Finisher, Perfect Binder, Decurl Unit, LCIT and Multi Bypass Tray.

## Mainframe

Jam Code	Display	Description	LCD Display
-001	At power on	Initial paper jam	-
-003	1st Tray Feed Sensor: Late Error	Paper is not fed from tray 1.	A
-004	2nd Tray Feed Sensor: Late Error	Paper is not fed from tray 2.	A3
-005	3rd Tray Feed Sensor: Late Error	Paper is not fed from tray 3.	A2
-006	4th Tray Feed Sensor: Late Error	Paper is not fed from the upper tray of the A4 LCT.	U2
-007	5th Tray Feed Sensor: Late Error	Paper is not fed from the middle tray of the A4 LCT.	U4
-008	6th Tray Feed Sensor: Late Error	Paper is not fed from the lower tray of the A4 LCT.	U5
-009	7th Tray Feed Sensor: Late Error	Paper is not fed from the by-pass tray.	V
-010	1st Tray Transport Sensor: Late Error	Vertical transport sensor 1 does not detect paper from tray 1.	B1
-011	2nd Tray Transport Sensor: Late Error	Vertical transport sensor 2 does not detect paper from tray 2.	B1
-012	3rd Tray Transport Sensor: Late Error	Vertical transport sensor 3 does not detect paper from tray 3.	B1
-013	4th Tray Transport Sensor: Late Error	4th transport sensor (LCT) does not detect paper from tray 4.	U
-014	5th Tray Transport Sensor: Late Error	5th transport sensor (LCT) does not detect paper from tray 5.	U
-015	6th Tray Transport Sensor: Late Error	6th transport sensor (LCT) does not detect paper from tray 6.	U
-016	7th Tray Transport Sensor: Late Error	Relay sensor (Multi Bypass Tray) does not detect paper from tray 7.	U

Jam Code	Display	Description	LCD Display
-017	LCIT Relay Sensor: Late Error	LCT relay sensor (Mainframe) does not detect paper from LCT.	B4
-018	LCIT Exit Sensor: Late Error	LCT exit sensor (LCT) does not detect paper from LCT.	B4
-019	Paper Bank Relay Sensor: Late Error	Upper relay sensor does not detect paper from the tray.	B1
-020	Registration Sensor: Late Error	Registration sensor does not detect paper.	C
-021	Paper Cooling Pipe Exit Sensor: Late Error	Job time sensor does not detect paper.	D
-022	Exit Sensor: Late Error	Exit sensor does not detect paper.	D
-023	Duplex Entrance Sensor: Late Error	Duplex entrance sensor does not detect paper.	Z1
-024	Duplex Transport Sensor 1: Late Error	Duplex transport sensor 1 does not detect paper.	Z4
-025	Duplex Transport Sensor 2: Late Error	Duplex transport sensor 2 does not detect paper.	Z4
-026	Duplex Transport Sensor 3: Late Error	Duplex transport sensor 3 does not detect paper.	Z4
-027	Duplex Inverter Sensor: Late Error	Duplex inverter sensor does not detect paper.	Z1
-028	Duplex Inverter Relay Sensor: Late Error	Duplex inverter relay sensor does not detect paper.	Z1
-053	1st Tray Feed Sensor: Lag Error	1st tray feed sensor does not turn off.	A
-054	2nd Tray Feed Sensor: Lag Error	2nd tray feed sensor does not turn off.	A3
-055	3rd Tray Feed Sensor: Lag Error	3rd tray feed sensor does not turn off.	A2
-056	4th Tray Feed Sensor: Lag Error	4th tray feed sensor (LCT) does not turn off.	U2
-057	5th Tray Feed Sensor: Lag Error	5th tray feed sensor (LCT) does not turn off.	U4

Jam Code	Display	Description	LCD Display
-058	6th Tray Feed Sensor: Lag Error	6th tray feed sensor (LCT) does not turn off.	U5
-059	7th Tray Feed Sensor: Lag Error	Paper feed sensor (Multi Bypass Tray) does not turn off.	V
-060	1st Tray Transport Sensor: Lag Error	Vertical transport sensor 1 does not turn off.	A
-061	2nd Tray Transport Sensor: Lag Error	Vertical transport sensor 2 does not turn off.	A
-062	3rd Tray Transport Sensor: Lag Error	Vertical transport sensor 3 does not turn off.	A
-063	4th Tray Transport Sensor: Lag Error	4th transport sensor (LCT) does not turn off.	U
-064	5th Tray Transport Sensor: Lag Error	5th transport sensor (LCT) does not turn off.	U
-065	6th Tray Transport Sensor: Lag Error	6th transport sensor (LCT) does not turn off.	U
-066	7th Tray Transport Sensor: Lag Error	Relay sensor (Multi Bypass Tray) does not turn off.	U
-067	LCIT Relay Sensor: Lag Error	LCT relay sensor (Mainframe) does not detect turn off..	Z4
-068	LCIT Exit Sensor: Lag Error	LCT exit sensor (LCT) does not turn off..	Z4
-069	Paper Bank Relay Sensor: Lag Error	Upper relay sensor does not turn off.	Z4
-070	Registration Sensor: Lag Error	Registration sensor does not turn off.	Z1
-071	Paper Cooling Pipe Exit Sensor: Lag Error	Job time sensor does not turn off.	Z1
-072	Exit Sensor: Lag Error	Exit sensor does not turn off.	D
-073	Duplex Entrance Sensor: Lag Error	Duplex entrance sensor does not turn off.	Z1

Jam Code	Display	Description	LCD Display
-074	Duplex Transport Sensor 1: Lag Error	Duplex transport sensor 1 does not turn off.	Z4
-075	Duplex Transport Sensor 2: Lag Error	Duplex transport sensor 2 does not turn off.	Z4
-076	Duplex Transport Sensor 3: Lag Error	Duplex transport sensor 3 does not turn off.	Z4
-077	Duplex Inverter Sensor: Lag Error	Duplex inverter sensor does not detect paper.	Z1
-078	Duplex Inverter Relay Sensor: Lag Error	Duplex inverter relay sensor does not turn off.	Z1
-093	Entrance Sensor: Late Error (D457)	Entrance sensor (Decurl Unit) does not detect paper.	K1 to K4
-094	Entrance Sensor: Lag Error (D457)	Entrance sensor (Decurl Unit) does not turn off	K1 to K4
-095	Exit Sensor: Late Error (D457)	Exit sensor (Decurl Unit) does not detect paper.	K1 to K4
-096	Exit Sensor: Lag Error (D457)	Exit sensor (Decurl Unit) does not turn off	K1 to K4
-099	Double Feed	Double-feed sensor detects double feeding paper.	B1

### Finisher SR5000 (B830)

Jam Code	Display	Description	LCD Display
-101	Entrance: Late Error (B830)	Entrance sensor does not detect paper.	R1 to R3
-102	Entrance: Lag Error (B830)	Entrance sensor does not turn off.	R1 to R3
-103	Proof Tray Exit: Late Error (B830)	Upper tray exit sensor does not detect paper.	R1 to R3
-104	Proof Tray Exit: Lag Error (B830)	Upper tray exit sensor does not turn off.	R1 to R3

Jam Code	Display	Description	LCD Display
-105	Shift Tray Exit: Late Error (B830)	Shift tray exit sensor does not detect paper.	R1 to R3
-106	Shift Tray Exit: Lag Error (B830)	Shift tray exit sensor does not turn off.	R1 to R3
-107	Staple Tray Exit: Late Error (B830)	Staple tray exit sensor does not detect paper.	R4 to R8
-108	Staple Tray Exit: Lag Error (B830)	Staple tray exit sensor does not turn off.	R4 to R8
-109	Pre-Stack Tray: Late Error (B830)	Staple tray paper sensor does not detect paper.	R4 to R8
-110	Pre-Stack Tray: Lag Error (B830)	Staple tray paper sensor does not turn off.	R4 to R8
-111	Output (B830)	Stack feed-out belt HP sensor does not turn off.	R4 to R8
-112	Drive Train (B830)	The machine detects a lock signal from the transport motors.	R1 to R3
-113	Shift Tray Lift Drive Train (B830)	The machine detects a lock signal from the shift tray lift motor.	R1 to R3
-114	Jogger Fence Drive Train (B830)	The machine detects a lock signal from the jogger motor.	R4 to R8
-115	Shift Tray Drive Train (B830)	The machine detects a lock signal from the shift motor.	R1 to R3
-116	Stapler Drive Train (B830)	The machine detects a lock signal from the staple motor.	R4 to R8
-117	Output Drive Train (B830)	The machine detects a lock signal from the stack feed-out belt motor.	R4 to R8
-118	Punch Drive Train (B830)	The machine detects a lock signal from the punch motor.	R1 to R3
-119	Z-Fold Drive Train (B830)	The machine detects a lock signal from the Z-fold jam motor.	R4 to R8



Jam Code	Display	Description	LCD Display
-120	Pre-Stacker Drive Train (B830)	The machine detects a lock signal from the pre-stack transport jam motor.	R4 to R8
-121	Main Machine Setting Incorrect (B830)	The machine detects the job data error.	R1 to R3
-122	Plockmatic Jam (B830)	The machine detects the jam signal from the Plockmatic unit.	Ploc
-123	GBC Punch Unit Jam (B830)	The machine detects the jam signal from the GBC unit.	GBC

### Cover Interposer Tray CI5010 (B835)

Jam Code	Display	Description	LCD Display
-130	1st Feed Sensor: Late Error (B835)	1st paper feed sensor does not detect paper.	Q1
-131	1st Feed Sensor: Lag Error (B835)	1st paper feed sensor does not turn off.	Q1
-132	2nd Feed Sensor: Late Error (B835)	2nd paper feed sensor does not detect paper.	Q2
-133	2nd Feed Sensor: Lag Error (B835)	2nd paper feed sensor does not turn off.	Q2
-134	1st Transport Sensor: Late Error (B835)	1st transport sensor does not detect paper.	Q3 to Q4
-135	1st Transport Sensor: Lag Error (B835)	1st transport sensor does not turn off.	Q3 to Q4
-136	2nd Transport Sensor: Late Error (B835)	2nd transport sensor does not detect paper.	Q3 to Q4
-137	2nd Transport Sensor: Lag Error (B835)	2nd transport sensor does not turn off.	Q3 to Q4

Jam Code	Display	Description	LCD Display
-138	1st Ver. Transport Sn: Late Error (B835)	1st vertical transport sensor does not detect paper.	Q3 to Q4
-139	1st Ver. Transport Sn: Lag Error (B835)	1st vertical transport sensor does not turn off.	Q3 to Q4
-140	2nd Ver. Transport Sn: Late Error (B835)	2nd vertical transport sensor does not detect paper.	Q3 to Q4
-141	2nd Ve. Transport Sn: Lag Error (B835)	2nd vertical transport sensor does not turn off.	Q3 to Q4
-142	Vertical Exit Sensor: Late Error (B835)	Vertical exit sensor does not detect paper.	Q3 to Q4
-143	Vertical Exit Sensor: Lag Error (B835)	Vertical exit sensor does not turn off.	Q3 to Q4
-144	Entrance Sensor: Late Error (B835)	Entrance sensor does not detect paper.	Q3 to Q4
-145	Entrance Sensor: Lag Error (B835)	Entrance sensor does not turn off.	Q3 to Q4
-146	Interposer Exit Sensor: Late Error (B835)	Exit sensor does not detect paper.	Q3 to Q4
-147	Interposer Exit Sensor: Lag Error (B835)	Exit sensor does not turn off.	Q3 to Q4
-148	1st Lift Motor Drive Train (B835)	The machine detects a lock signal from the 1st lift motor.	Q1
-149	2nd Lift Motor Drive Train (B835)	The machine detects a lock signal from the 2nd lift motor	Q2
-150	1st Pick-up Motor Drive Train (B835)	The machine detects a lock signal from the 1st pick-up motor.	Q1
-151	2nd Pick-up Motor Drive Train (B835)	The machine detects a lock signal from the 2nd pick-up motor	Q2

## High Capacity Stacker SK5010 (D447)

Jam Code	Display	Description	LCD Display
-240	Entrance: Late Error (Stacker 1)	Entrance sensor (stacker 1) does not detect paper.	L1 to L5
-241	Entrance: Lag Error (Stacker 1)	Entrance sensor (stacker 1) does not turn off	L1 to L5
-242	Proof Tray Exit: Late Error (Stacker 1)	Proof tray exit sensor (stacker 1) does not detect paper.	L1 to L5
-243	Proof Tray Exit: Lag Error (Stacker 1)	Proof tray exit sensor (stacker 1) does not turn off.	L1 to L5
-244	Stack Tray Exit: Late Error (Stacker 1)	Shift tray exit sensor (stacker 1) does not detect paper.	L6
-245	Stack Tray Exit: Lag Error (Stacker 1)	Shift tray exit sensor (stacker 1) does not turn off.	L6
-246	Relay Path: Late Error (Stacker 1)	Transport sensor (stacker 1) does not detect paper.	L1 to L5
-247	Relay Path: Lag Error (Stacker 1)	Transport sensor (stacker 1) does not turn off.	L1 to L5
-248	Straight-Through Exit: Late Error (Stacker 1)	Exit sensor (stacker 1) does not detect paper.	L1 to L5
-249	Straight-Through Exit: Lag Error (Stacker 1)	Exit sensor (stacker 1) does not turn off.	L1 to L5
-250	Shift JG Motor (Stacker 1)	The machine detects a lock signal from the shift JG motor (stacker 1).	L6
-251	Proof Tray JG Motor (Stacker 1)	The machine detects a lock signal from the proof tray JG motor (stacker 1).	L6
-252	Shift Motor (Stacker 1)	The machine detects a lock signal from the shift roller motor (stacker 1).	L6
-253	Front Jogger Fence Motor (Stacker 1)	The machine detects a lock signal from the main jogger front motor (stacker 1).	L6

Jam Code	Display	Description	LCD Display
-254	Rear Jogger Fence Motor (Stacker 1)	The machine detects a lock signal from the main jogger rear motor (stacker 1).	L6
-255	Front Jogger Fence Retraction Mtr (Stacker 1)	The machine detects a lock signal from the main jogger fence retraction motor (stacker 1).	L6
-256	Rear Jogger Fence Retraction Mtr (Stacker 1)	The machine detects a lock signal from the main jogger fence retraction motor (stacker 1).	L6
-257	Sub Jogger Motor (Stacker 1)	The machine detects a lock signal from the sub jogger motor (stacker 1).	L6
-258	LE Stopper Motor (Stacker 1)	The machine detects a lock signal from the LE stopper motor (stacker 1).	L6
-259	Tray Lift Motor (Stacker 1)	The machine detects a lock signal from the tray lift motor (stacker 1).	L6
-260	Main Machine Setting Incorrect (Stacker 1)	The machine detects an error signal from the stacker due to the incorrect request sent by the mainframe.	L6
-270	Entrance: Late Error (Stacker 2)	Entrance sensor (stacker 2) does not detect paper.	L1 to L5
-271	Entrance: Lag Error (Stacker 2)	Entrance sensor (stacker 2) does not turn off	L1 to L5
-272	Proof Tray Exit: Late Error (Stacker 2)	Proof tray exit sensor (stacker 2) does not detect paper.	L1 to L5
-273	Proof Tray Exit: Lag Error (Stacker 2)	Proof tray exit sensor (stacker 2) does not turn off.	L1 to L5
-274	Stack Tray Exit: Late Error (Stacker 2)	Shift tray exit sensor (stacker 2) does not detect paper.	L6
-275	Stack Tray Exit: Lag Error (Stacker 2)	Shift tray exit sensor (stacker 2) does not turn off.	L6
-276	Relay Path: Late Error (Stacker 2)	Transport sensor (stacker 2) does not detect paper.	L1 to L5

Jam Code	Display	Description	LCD Display
-277	Relay Path: Lag Error (Stacker 2)	Transport sensor (stacker 2) does not turn off.	L1 to L5
-278	Straight-Through Exit: Late Error (Stacker 2)	Exit sensor (stacker 2) does not detect paper.	L1 to L5
-279	Straight-Through Exit: Lag Error (Stacker 2)	Exit sensor (stacker 2) does not turn off.	L1 to L5
-280	Shift JG Motor (Stacker 2)	The machine detects a lock signal from the shift JG motor (stacker 2).	L6
-281	Proof Tray JG Motor (Stacker 2)	The machine detects a lock signal from the proof tray JG motor (stacker 2).	L6
-282	Shift Motor (Stacker 2)	The machine detects a lock signal from the shift roller motor (stacker 2).	L6
-283	Front Jogger Fence Motor (Stacker 2)	The machine detects a lock signal from the main jogger front motor (stacker 2).	L6
-284	Rear Jogger Fence Motor (Stacker 2)	The machine detects a lock signal from the main jogger rear motor (stacker 2).	L6
-285	Front Jogger Fence Retraction Mtr (Stacker 2)	The machine detects a lock signal from the main jogger fence retraction motor (stacker 2).	L6
-286	Rear Jogger Fence Retraction Mtr (Stacker 2)	The machine detects a lock signal from the main jogger fence retraction motor (stacker 2).	L6
-287	Sub Jogger Motor (Stacker 2)	The machine detects a lock signal from the sub jogger motor (stacker 2).	L6
-288	LE Stopper Motor (Stacker 2)	The machine detects a lock signal from the LE stopper motor (stacker 2).	L6
-289	Tray Lift Motor (Stacker 2)	The machine detects a lock signal from the tray lift motor (stacker 2).	L6
-290	Main Machine Setting Incorrect (Stacker 2)	The machine detects an error signal from the stacker (stacker 2) due to the incorrect request sent by the mainframe.	L6

**Perfect Binder (D391)**

Jam Code	Display	Description	LCD Display
-300	P-Binder:Job Data Error	The machine detects a job data error.	Mk6
-301	P-Binder:S-Through Exit Sn:Late	S-Through exit sensor does not detect paper.	Mk7 to Mk 8
-302	P-Binder:S-Through Exit Sn:Stay on	S-Through exit sensor does not turn off.	Mk7 to Mk 8
-303	P-Binder:Cover Regist Sn:Late	Cover registration sensor does not detect paper.	Mk9, Mk10
-304	P-Binder:Cover Regist Sn:Stay on	Cover registration sensor does not turn off.	Mk9, Mk10
-305	P-Binder:Cover H-Reg. S Sn:Late	Cover horizontal registration S sensor does not detect paper.	Mk9, Mk10
-306	P-Binder:Cover H-Reg. S Sn:Stay on	Cover horizontal registration S sensor does not turn off.	Mk9, Mk10
-307	P-Binder:Cover H-Reg. L Sn:Late	Cover horizontal registration L sensor does not detect paper.	Mk9, Mk10
-308	P-Binder:Cover H-Reg. L Sn:Stay on	Cover horizontal registration L sensor does not turn off.	Mk9, Mk10
-309	P-Binder:Entrance Sn:Late	Entrance sensor does not detect paper.	Mk11 to Mk14
-310	P-Binder:Entrance Sn:Stay on	Entrance sensor does not turn off.	Mk11 to Mk14
-311	P-Binder:Sign. Path: Sn 1:Late	Signature path sensor 1 does not detect paper.	Mk11 to Mk14
-312	P-Binder:Sign. Path: Sn 1:Stay on	Signature path sensor 1 does not turn off.	Mk11 to Mk14
-313	P-Binder:Sign. Path: Sn 2:Late	Signature path sensor 2 does not detect paper.	Mk3 to Mk5

Jam Code	Display	Description	LCD Display
-314	P-Binder:Sign. Path: Sn 2:Stay on	Signature path sensor 2 does not turn off.	Mk3 to Mk5
-315	P-Binder:Timing Sn:Late	Timing sensor does not detect paper.	Mk3 to Mk5
-316	P-Binder:Timing Sn:Stay on	Timing sensor does not turn off.	Mk3 to Mk5
-317	P-Binder:Stck Tray Emp. Sn:Late	Stack tray empty sensor does not detect paper.	Mk3 to Mk5
-318	P-Binder:Stck Tray Emp. Sn:Stay on	Stack tray empty sensor does not turn off.	Mk3 to Mk5
-319	P-Binder:SG Paper Sn:Late	Sub grip paper sensor does not detect paper.	Mk3 to Mk5
-320	P-Binder:Cover Path: Sn 1:Late	Cover path sensor 1 does not detect paper.	Mk9 to Mk10
-321	P-Binder:Cover Path: Sn 1:Stay on	Cover path sensor 1 does not turn off.	Mk9 to Mk10
-322	P-Binder:Cover Path: Sn 2:Late	Cover path sensor 2 does not detect paper.	Mk7, Mk8
-323	P-Binder:Cover Path: Sn 2:Stay on	Cover path sensor 2 does not turn off.	Mk7, Mk8
-324	P-Binder:Cover Reg. Sn:Late	Cover registration sensor does not detect paper.	Mk9, Mk10
-325	P-Binder:Cover Reg. Sn:Stay on	Cover registration sensor does not turn off.	Mk9, Mk10
-326	P-B/Inserter:Com. Sn:Late	Inserter: Entrance sensor does not detect paper.	Mk9 to Mk14
-327	P-B/Inserter:Com. Sn:Stay on	Inserter: Entrance sensor does not stay on.	Mk9 to Mk14
-328	P-B/Inserter:U-Tray P-up Sn:Late	Inserter: Separation sensor: tray A does not detect paper.	Mk1

Jam Code	Display	Description	LCD Display
-329	P-B/Inserter:U-Tray P-up Sn:Stay on	Inserter: Separation sensor: tray A does not stay on.	Mk1
-330	P-B/Inserter:L-Tray P-up Sn:Late	Inserter: Separation sensor: tray B does not detect paper.	Mk1
-332	P-B/Inserter:Trans. Sn 1:Late	Inserter: Vertical transport sensor 1 does not detect paper.	Mk1
-333	P-B/Inserter:Trans. Sn 1:Stay on	Inserter: Vertical transport sensor 1 does not stay on.	Mk1
-334	P-B/Inserter:Trans. Sn 2:Late	Inserter: Vertical transport sensor 2 does not detect paper.	Mk2
-335	P-B/Inserter:Trans. Sn 2:Stay on	Inserter: Vertical transport sensor 2 does not stay on.	Mk2
-336	P-B/Relay:Transport Sn:Late	Relay: Transport sensor does not detect paper.	Mk6
-337	P-B/Relay:Transport Sn:Stay on	Relay: Transport sensor does not stay on	Mk6

### Ring Binder RB5000 (D392)

Jam Code	Display	Description	LCD Display
-350	R-Binder:Entrance Sn:Late	Entrance sensor does not detect paper.	Mc1, Mc2
-351	R-Binder:Entrance Sn:Stay on	Entrance sensor does not turn off.	Mc1, Mc2
-352	R-Binder:Transport Sn:Late	Transport sensor does not detect paper.	Mc3, Mc4
-353	R-Binder:Transport Sn:Stay on	Transport sensor does not turn off.	Mc3, Mc4



Jam Code	Display	Description	LCD Display
-354	R-Binder:Exit Sn:Late	Exit sensor does not detect paper.	Mc3, Mc4
-355	R-Binder:Exit Sn:Stay on	Exit sensor does not turn off.	Mc3, Mc4
-356	R-Binder:Pre-punch Jam	Pre-punch jogger trigger sensor does not turn off.	Mc5
-357	R-Binder:After-Punch Jam	Binder delivery sensor does not turn off.	Mc5
-358	R-Binder:P TE Detect Sn Jam	Paper LE detect sensor does not turn off.	Mc5, Mc6
-359	R-Binder:P LE Detect Sn Jam	Paper LE detect sensor does not detect paper.	Mc7, Mc8
-360	R-Binder:Ring Error Jam	The machine detects a ring error.	Mc7, Mc8
-361	R-Binder:Binder Unit Set Jam	The machine cannot detect the binder unit.	Mc7, Mc8
-362	R-Binder:Output Belt 1 Jam	Output belt 1 HP sensor does not turn off.	Mc9
-363	R-Binder:Output Belt 2 Jam	Output belt 2 HP sensor does not turn off.	Mc9
-364	R-Binder:Stacker Jam	The machine detects an error at the stacker unit.	Mc10
-365	R-Binder:Punch Motor Error	The machine detects a lock signal from the punch motor.	Mc5
-366	R-Binder:Shutter Motor Error	The machine detects a lock signal from the shutter motor.	Mc7, Mc8
-367	R-Binder:Line-up Pin M Error	The machine detects a lock signal from the alignment pin motor.	Mc7, Mc8
-368	R-Binder:Paper Jog Error	The machine detects an error signal from the pre-punch jogger unit.	Mc7, Mc8
-369	R-Binder:Line-up Pin Error	The machine detects an error signal from the pre-bind jogger unit.	Mc7, Mc8

Jam Code	Display	Description	LCD Display
-370	R-Binder:Clamp Motor Error	The machine detects a lock signal from the clamp motor.	Mc7, Mc8
-371	R-Binder:50/100 Adj. M Error	The machine detects a lock signal from the 50/100 clamp adjust motor.	Mc7, Mc8
-372	R-Binder:Out-Belt Rot. M Error	The machine detects a lock signal from the output belt rotation motor.	Mc9
-373	R-Binder:Job Data Error	The machine detects the job data error.	Mc1 to Nc2

### Booklet Finisher SR5020 (D434)

Jam Code	Display	Description	LCD Display
-400	Entrance: Late Error (D434)	Entrance sensor does not detect paper.	Rb1 to Rb5
-401	Entrance: Lag Error (D434)	Entrance sensor does not turn off.	Rb1 to Rb5
-402	Proof Tray Exit: Late Error (D434)	Proof tray exit sensor does not detect paper.	Rb1 to Rb5
-403	Proof Tray Exit: Lag Error (D434)	Proof tray exit sensor does not turn off.	Rb1 to Rb5
-404	Shift Tray Exit: Late Error (D434)	Shift tray exit sensor does not detect paper.	Rb1 to Rb5
-405	Shift Tray Exit: Lag Error (D434)	Shift tray exit sensor does not turn off.	Rb1 to Rb5
-406	Staple Tray Exit: Late Error (D434)	Stapling tray paper sensor does not detect paper.	Rb6 to Rb8
-407	Staple Tray Exit: Lag Error (D434)	Stapling tray paper sensor does not turn off.	Rb10 to Rb17

Jam Code	Display	Description	LCD Display
-408	Pre-Stack Tray: Late Error (D434)	Pre-stack paper sensor does not detect paper.	Rb6 to Rb9
-409	Pre-Stack Tray: Lag Error (D434)	Pre-stack paper sensor does not turn off.	Rb6 to Rb9
-410	Output (D434)	Booklet unit exit sensor detects a paper jam.	Rb10 to Rb17
-411	Booklet Stapler: Late (D434)	Fold unit entrance sensor does not detect paper.	Rb10 to Rb17
-412	Booklet Stapler: Lag (D434)	Fold unit entrance sensor does not turn off.	Rb10 to Rb17
-413	Booklet Stapler Exit: Late (D434)	Fold unit exit sensor does not detect paper.	Rb10 to Rb17
-414	Booklet Stapler Exit: Lag (D434)	Fold unit exit sensor does not turn off.	Rb10 to Rb17
-415	Paper Path (D434)	The machine detects an error signal from the stapler JG HP sensor or proof tray HP JG sensor or a lock signal from the transport motors.	Rb1 to Rb5
-416	Shift Tray Lift Drive Train (D434)	The machine detects an error signal from the paper height sensors.	Rb1 to Rb5
-417	Jogger Fence Drive Train (D434)	The machine detects an error signal from the jogger fence HP sensors or top fence HP sensor	Rb10 to Rb17
-418	Shift Drive Train (D434)	The machine detects an error signal from the exit guide HP sensor, shift tray HP sensors, shift tray jogger HP sensor, shift tray jogger retract HP sensor or drag roller HP sensor.	Rb1 to Rb5
-419	Stapler Drive Train (D434)	The machine detects an error signal from the corner stapler HP sensor, stapler rotation HP sensors, bottom fence HP sensor or stapler HP sensor.	Rb10 to Rb17

Jam Code	Display	Description	LCD Display
-420	Stack Output Drive Train (D434)	The machine detects an error signal from the stack feed-out belt HP sensor	Rb10 to Rb17
-421	Punch Drive Train (D434)	The machine detects an error signal from the punch blade HP sensor, punch unit HP sensor or punch SW.	Rb1 to Rb5
-422	Jogger System (D434)	The machine detects an error signal from the stack plate HP sensors or positioning roller HP sensor	Rb10 to Rb17
-423	Pre-Stacker Drive Train(D434)	The machine detects an error signal from the pre-stack roller HP sensor.	Rb6 to Rb9
-424	Booklet Path (D434)	The machine detects an error signal from the stack transport unit HP sensor or stack JG HP sensor.	Rb10 to Rb17
-425	Booklet Stapling System (D434)	The machine detects an error signal from the booklet top fence HP sensor, booklet stapler jogger HP sensors, booklet stapler bottom fence HP sensor or booklet stapler unit.	Rb10 to Rb17
-426	Folding System (D434)	The machine detects an error signal from the fold plate cam HP sensor, fold plate HP sensor or booklet stapler clamp roller HP sensor.	Rb10 to Rb17
-427	For Debugging: Cause Unknown (D434)	Not used	-
-428	Main Machine Setting Incorrect (D434)	The machine detects an error signal of the communication with an upstream unit.	Rb1 to Rb5

### Trimmer Unit TR5020 (D455)

Jam Code	Display	Description	LCD Display
-430	Entrance Sensor: Late Error (D455)	Entrance sensor does not detect paper.	Rt1, Rt2
-431	Entrance Sensor: Lag Error (D455)	Entrance sensor does not turn off.	Rt1, Rt2
-432	Skew Sensor: Late Error (D455)	Stopper sensor does not detect paper.	Rt1, Rt2
-433	Skew Sensor: Lag Error (D455)	Stopper sensor does not turn off.	Rt1, Rt2
-434	Exit Sensor: Late Error (D455)	Exit sensor does not detect paper.	Rt1, Rt2
-435	Exit Sensor: Lag Error (D455)	Exit sensor does not turn off.	Rt1, Rt2
-436	Trimming Blade Motor Lock (D455)	The machine detects a lock signal from the trimming blade motor.	Rt1, Rt2
-437	Cut Position Motor (D455)	The machine detects a lock signal from the cut position motor.	Rt1, Rt2
-438	Press Roller (D455)	The machine detects a lock signal from the press roller motor.	Rt1, Rt2
-439	Press/Stopper Roller (D455)	The machine detects a lock signal from the press stopper motor.	Rt1, Rt2
-440	Tray Motor (D455)	The machine detects a lock signal from the tray motor.	Rt1, Rt2

### Multi-Folding Unit FD5000 (D454)

Jam Code	Display	Description	LCD Display
-450	Entrance: Late Jam (D454)	Entrance sensor does not detect paper.	N1 to N5
-451	Entrance: Lag Jam (D454)	Entrance sensor does not turn off.	N1 to N5
-452	Top Tray Exit: Late Jam (D454)	Top tray exit sensor does not detect paper.	N1 to N5

Jam Code	Display	Description	LCD Display
-453	Top Tray Exit: Lag Jam (D454)	Top tray exit sensor does not turn off.	N1 to N5
-454	Straight-Through Exit: Late Jam (D454)	Horizontal path exit sensor does not detect paper.	N1 to N5
-455	Straight-Through Exit: Lag Jam (D454)	Horizontal path exit sensor does not turn off.	N1 to N5
-456	1st Stopper: Late Jam (D454)	Stopper 1 paper sensor does not detect paper.	N6 to N22
-457	1st Stopper: Lag Jam (D454)	Stopper 1 paper sensor does not turn off.	N6 to N22
-458	2nd Stopper: Late Jam (D454)	Stopper 2 paper sensor does not detect paper.	N6 to N22
-459	2nd Stopper: Lag Jam (D454)	Stopper 2 paper sensor does not turn off.	N6 to N22
-460	3rd Stopper: Late Jam (D454)	Stopper 3 paper sensor does not detect paper.	N6 to N22
-461	3rd Stopper: Lag Jam (D454)	Stopper 3 paper sensor does not turn off.	N6 to N22
-462	Skew Correction Jam (D454)	Registration sensor does not turn on after the entrance sensor has turned on.	N6 to N22
-463	Top Tray Transport Jam (D454)	Top tray paper path sensor does not turn on after the stopper 1 paper sensor has turned on.	N1 to N5
-464	Entrance/Top Tray JG Motor Error (D454)	The machine detects a lock signal from the entrance JG motor.	N1 to N5
-465	Entrance/Fold JG Motor Error (D454)	Entrance JG HP sensor does not turn on after the entrance JG motor has turned on.	N1 to N5
-466	1st Stopper Motor Error (D454)	The machine detects a lock signal from the stopper 1 motor.	N6 to N22
-467	2nd Stopper Motor Error (D454)	The machine detects a lock signal from the stopper 2 motor.	N6 to N22

Jam Code	Display	Description	LCD Display
-468	3rd Stopper Motor Error (D454)	The machine detects a lock signal from the stopper 3 motor.	N6 to N22
-469	Dynamic Roller Transport Motor Error (D454)	The machine detects a lock signal from the dynamic roller transport motor.	N6 to N22
-470	Registration Roller Release Motor (D454)	The machine detects a lock signal from the registration roller release motor.	N6 to N22
-471	Fold Plate Motor Error (D454)	The machine detects a lock signal from the fold plate motor.	N6 to N22
-472	Jogger Fence Motor Jam (D454)	The machine detects a lock signal from the Jogger fence motor.	N6 to N22
-473	Positioning Roller Motor Jam (D454)	Positioning roller HP sensor does not turn on after the positioning roller motor has turned on.	N6 to N22
-474	FM2 Direct Send Motor Error (D454)	The machine detects a lock signal from the direct send JG motor.	N6 to N22
-475	FM6 Pawl Motor (D454)	The machine detects a lock signal from the FM6 pawl motor.	N6 to N22





# 5. Service Tables

---

## Service Tables

See "Appendices" for the following information:

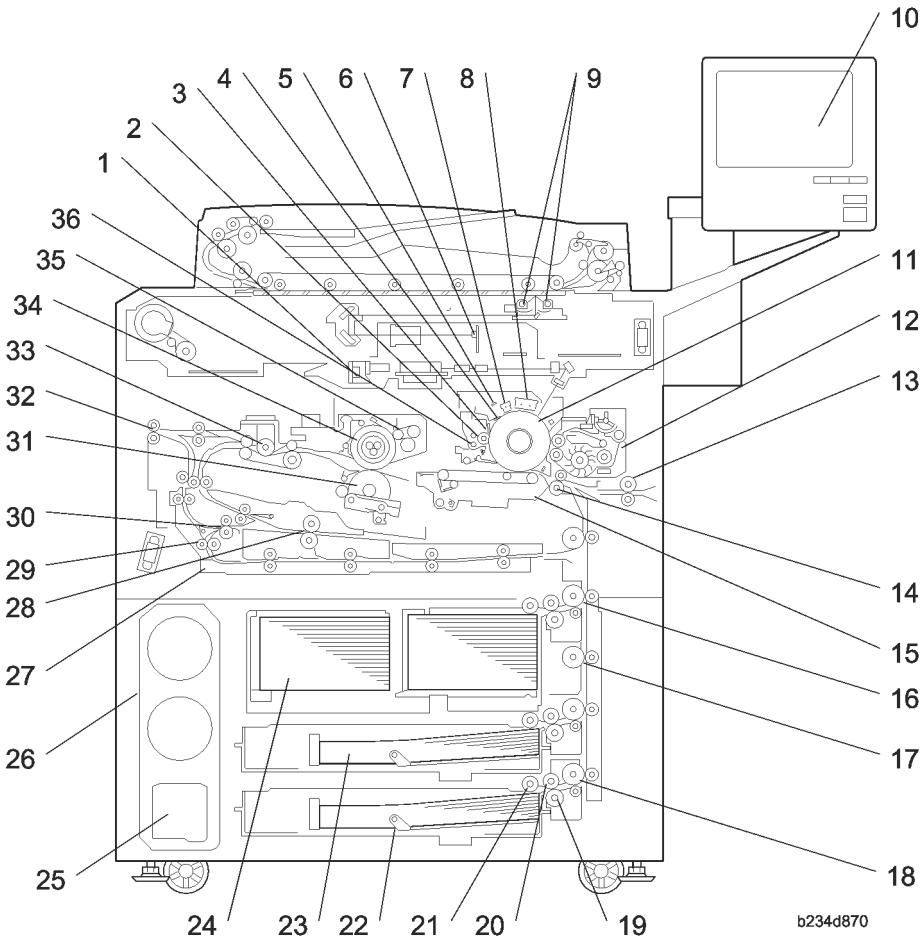
- Service Tables
- SP Tables.
- Printer SP Tables
- Scanner SP Tables
- User Service Program Mode Tables
- Input Check
- Output Checks
- Special Operations



# 6. Details

## Overview

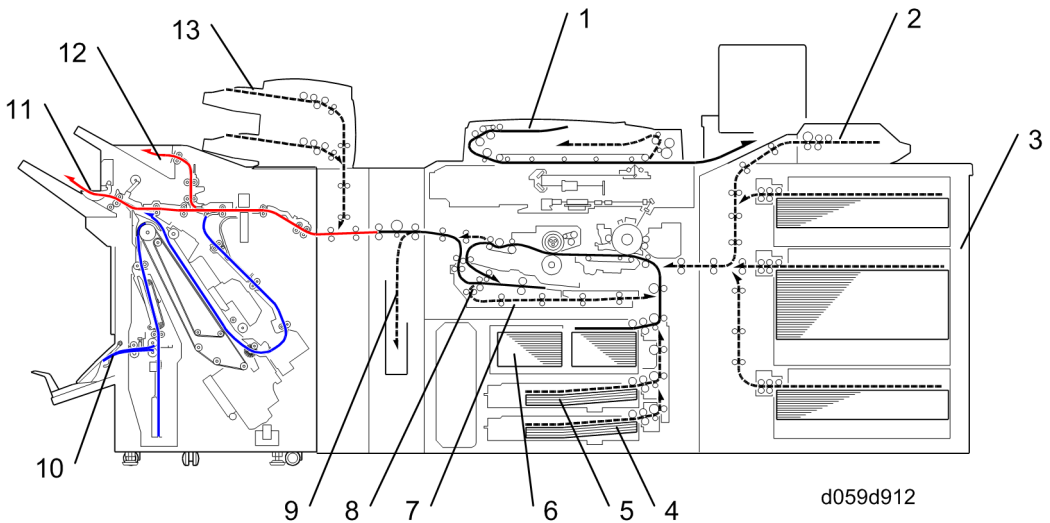
### Overall Machine Layout



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)

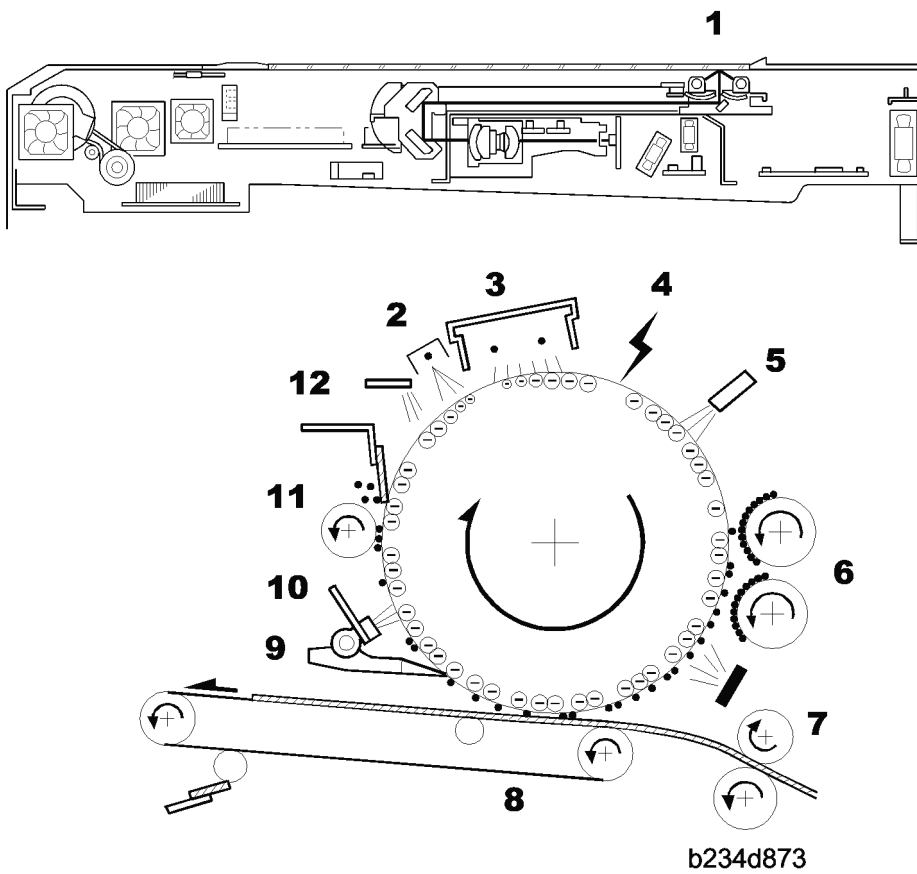
5. Quenching Lamp	23. 2nd Tray (500 Sheets)
6. SBU (Sensor Board Unit)	24. 1st Tray (Tandem Tray, 1,100 Sheets Each)
7. Pre-Charge Unit	25. Toner Collection Bottle
8. Charge Corona Unit	26. Toner Bank Unit
9. Exposure Lamps x2	27. Duplex Tray
10. Operation Panel	28. Switchback Roller
11. Drum	29. Inverter 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

**Paper Path**



1. ADF	8. Inverter Unit
2. Bypass Tray	9. Decurl Unit
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	

## Copy Process



6

Exposure

A Xenon lamp [1] exposes the original. Light reflected from the original passes to the CCD, where it is converted into an analog data signal. This data is converted to a digital signal, processed, and stored in the memory. At the time of printing, the data is retrieved and sent to the laser diode. For multi-copy runs, the original is scanned once only and stored to the hard disk.

### **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).

### **Drum Potential Measurement**

The drum potential sensor [5] detects the electric potential on the drum to correct various process control elements.

## **6**

### **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.

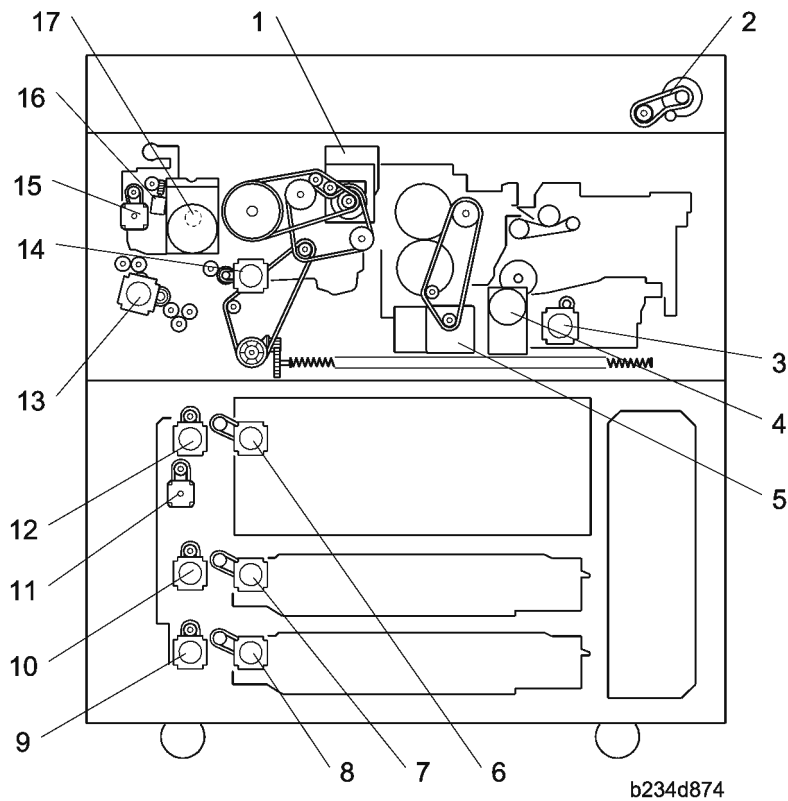
### **Drum Cleaning**

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.

## Drive Layout



1.	Drum Motor	10.	12nd Grip Motor
2.	Scanner Motor	11.	Vertical Relay Motor
3.	Duplex Inverter Motor	12.	1st Grip Motor
4.	Exit Motor	13.	Upper Relay Motor
5.	Fusing Motor	14.	Registration Motor
6.	Paper Feed Motor	15.	Toner Supply Motor
7.	2nd Paper Feed Motor	16.	Hopper Agitator Motor

8.	3rd Paper Feed Motor	17.	Development Motor
9.	3rd Grip Motor		

## 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.

### Copier Engine

Number	Name	Description
<b>Clutches</b>		
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.
<b>Heaters</b>		
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.
H5	LCT Anti-Condensation Heater	Turns on when the main switch is off to keep paper dry in the paper trays of the LCT.
<b>Lamps</b>		
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.



Number	Name	Description
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.
<b>Motors</b>		
M1	Scanner Motor Cooling Fan	Cools the scanner motor.
M2	Scanner Unit Exhaust Fan	Cools the scanner optics. Not: "optics exhaust fan".
M3	Lamp Regulator Fan (Right)	Cools the area around the right lamp regulator.
M4	Lamp Regulator Fan (Left)	Cools the area around the left lamp regulator.
M5	Scanner Intake Fan	Cools the scanner optics. Not: "optics fan"
M6	SBU Cooling Fan	Removes heat from around the SBU.
M7	Scanner Motor	Drives the 1st and 2nd scanners.
M8	Polygon Mirror Motor	Drives the polygon mirror in the laser optics unit
M9	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.
M10	Development Unit Cooling Fan Motor 1	Removes heat from the development unit.
M11	Development Unit Cooling Fan Motor 2	Removes heat from the development unit.
M12	Toner Supply Motor	An independent stepper motor that drives the toner supply roller.
M13	Transport Motor Cooling Fan	Removes heat from the transport motor.
M14	Drum Cooling Fan	Blows cool air around the drum.
M15	Transport Pipe Cooling Fan	Cools the toner transport pipe between the toner entrance bank and the toner cylinder.

Number	Name	Description
M16	Toner Cylinder Agitator Motor	Drives the agitator inside the toner supply cylinder to prevent clumping inside the cylinder.
M17	Development Motor	Drives the development unit.
M18	Hopper Agitator Motor	Drives the agitator that agitates the toner in the toner hopper to prevent clumping.
M19	Exit Motor	Drives the exit rollers that feed the paper out of the machine.
M20	Fusing Motor	Drives the fusing unit.
M21	Cleaning Fabric Motor	Drives the oil supply/cleaning fabric.
M22	Drum Exhaust Fan	Draws hot air from around the drum and the charge corona unit.
M23	Polygon Mirror Motor Cooling Fan	Removes heat from around the polygon mirror motor.
M24	Cleaning Unit Cooling Fan	Cools the area around the cleaning unit.
M25	Drum Motor	Drives the drum, cleaning unit, and transfer belt unit.
M26	1st Tray Lift Motor	Raises and lowers the bottom plate in the 1st paper tray.
M27	2nd Tray Lift Motor	Raises and lowers the bottom plate in the 2nd paper tray.
M28	3rd Tray Lift Motor	Raises and lowers the bottom plate in the 3rd paper tray.
M29	Toner Collection Bottle Agitator Motor	Drives the coil that agitates the used toner in the toner collection bottle.
M30	Toner Bank Motor	Drives the toner transport coil, which feeds fresh toner from the toner bank to the toner supply cylinder.
M31	Lower Toner Bottle Motor	Rotates the lower toner bottle to supply toner to the toner entrance tank.
M32	Lower Bottle Cap Motor	Opens and closes the inner cap of the lower toner bottle.
M33	Upper Toner Bottle Motor	Rotates the upper toner bottle to supply toner to the toner entrance tank.
M34	Upper Bottle Cap Motor	Opens and closes the inner cap of the upper toner bottle.

Number	Name	Description
M35	Rear Fence Drive Motor	Moves the paper stack in the left tandem tray to the right tandem tray.
M36	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.
M37	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.
M38	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.
M39	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.
M40	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.
M41	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.
M42	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.
M43	Registration Motor	Drives the registration rollers.
M44	Upper Relay Motor	Drives the upper relay rollers that transport paper to the registration rollers, the duplex exit roller, and the LCT relay roller.
M45	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.
M46	Switchback Motor	Drives the switchback roller in the duplex unit.
M47	Duplex Transport Motor	Drives the transport rollers of the duplex unit.

Number	Name	Description
M48	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.
M49	Duplex Entrance Motor	Feeds paper to the duplex unit.
M50	Toner Collection Unit Cooling Fan	Removes heat from the toner collection unit.
M51	Power Pack Fan	Removes heat from the power pack.
M52	Paper Cooling Pipe Fan 2	Cools the paper cooling pipe.
M53	Paper Cooling Pipe Fan 1	Cools the paper cooling pipe.
M54	Charge Corona Wire Cleaner Motor	Drives the charge corona wire cleaner.
M55	Duplex Cooling Fan	Removes heat from the horizontal paper path of the duplex/inverter unit. Note: Number of duplex fans has increased to 3
M56	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
M57	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
M58	Paper Dehumidifier Fan	Removes water vapor around the paper exit unit.
M59	Moisture Removal Fan	Removes water vapor from around the fusing unit.
M60	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.
M61	PSU Box Fan 3	Cools the PSU-E board.
M62	PSU Box Fan 1	Cools the PSU-E board.
M63	PSU Box Fan 2	Cools the PSU-E board.
M64	Controller Box Cooling Fan	Cools the controller box interior.

Number	Name	Description
M65	CPU Fan	Cools the CPU on the controller board.
<b>PCBs</b>		
PCB1	CNB (Connector Board)	Interfaces between the BICU and SIB.
PCB2	SBU	SBU (Sensor Board Unit): Contains the CCD. Converts the CCD output to digital before sending it to the IPU (Image Processing Unit).
PCB3	SIB	The SIB (Scanner Interface Board) controls the scanner, and serves as the signal I/F board for the IPU and MCU.
PCB4	Lamp Regulator (Left)	Controls the Xenon exposure lamp in the flat bed scanner
PCB5	Lamp Regulator (Right)	Controls the Xenon exposure lamp in the flat bed scanner
PCB6	MCU	MCU (Motor Control Unit). Controls the scanner motor.
PCB7	OPU	The operation panel unit interfaces with the CPU and runs the copier user interface.
PCB8	BICU	BCU (Base-Engine Image-Processing Control Unit): Main control board, controls the engine sequence, timing for peripherals, image processing, and the video data path
PCB9	Polygon Mirror Motor Control Board	Controls the polygon motor.
PCB10	LDB	LDB (Laser Diode Board): The LDB contains and controls the laser diodes.
PCB11	Laser Synchronization Detector Board	Detects when the laser is about to start another main scan line across the OPC
PCB12	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.
PCB13	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.

Number	Name	Description
PCB14	URB	Controls the double-feed sensors and registration sensor.
PCB15	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.
PCB16	AC Drive Board	Drives the ac components (fusing lamps, anti-condensation heaters).
PCB17	PSU-Ea	PSU-E (Power Supply Unit-Engine A): Supplies DC power for the IOB, LCT, OPU, IPU.
PCB18	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.
PCB19	PSU-c	PSU-C (Power Supply Unit-Controller): Supplies DC power for the controller.
PCB20	PSU-Eb	PSU-E (Power Supply Unit-Engine B): Supplies DC power for the two PSU fans, the MCU and the Relay Interlock Switch.
PCB21	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.
<b>Power Packs</b>		
PP1	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.
PP2	CGB Power Pack	Provides high voltage for the charge corona wires, grid plate, and the development roller.
PP3	PPG Power Pack	Provides high voltage for the corona wires and grid plate in the pre-charge unit.
<b>Sensors</b>		
S1	Scanner HP Sensor	Informs the CPU when the 1st and 2nd scanners are at home position.

Number	Name	Description
S2	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.
S3	Original Length Sensor 1	Detects the original length.
S4	Original Length Sensor 2	Detects the original length.
S5	Toner Suction Bottle Rotation Sensor	Monitors the rotation of the toner suction bottle motor.
S6	TD Sensor	The Toner Density sensor measures the concentration of toner in the toner-developer mixture.
S7	Toner Hopper Sensor	Monitors the level of toner in the toner supply unit.
S8	Toner Pump Motor Sensor	Detects whether the toner supply pump motor is rotating.
S9	Toner End Sensor	Signals toner end (TE) when the toner supply cylinder is empty.
S10	Toner Collection Coil Sensor	Detects whether the coil of the toner collection unit is rotating.
S11	Cleaning Fabric End Sensor	Detects when the oil supply/cleaning fabric has been used up.
S12	Fusing Exit Sensor	Detects misfeeds.
S13	Temperature/Humidity Sensor	Monitors the temperature and humidity inside the machine.
S14	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.

Number	Name	Description
S15	Toner Collection Bottle Agitator Sensor	Detects when the toner collection bottle agitator motor locks.
S16	Toner Collection Bottle Overflow Sensor	Detects when the toner collection bottle is full.
S17	Lower Bottle Inner Cap Sensor	Detects when the inner cap of the lower toner bottle is opened.
S18	Lower Toner Bottle Sensor	Detects when the lower toner bottle is set.
S19	Upper Toner Bottle Inner Cap Sensor	Detects when the inner cap of the upper toner bottle is opened.
S20	Upper Toner Bottle Sensor	Detects when the upper toner bottle is set.
S21	Left 1st Tray Paper Sensor	Detects whether there is paper in the left side of the 1st tray.
S22	Rear Fence Return Sensor	Informs the CPU when the tandem tray rear fence is in the return position.
S23	Rear Fence HP Sensor	Informs the CPU when the tandem tray rear fence is in the home position.
S24	Right Tray Paper Set Sensor	Detects paper in the right side of the tandem tray (Tray 1).
S25	1st Tray Paper Height 4 Sensor	Detects the paper height in the 1st tray (tandem tray), stage 4.
S26	1st Tray Paper Height 3 Sensor	Detects the paper height in the 1st tray (tandem tray), stage 3.
S27	1st Tray Paper Height 2 Sensor	Detects the paper height in the 1st tray (tandem tray), stage 2.
S28	1st Tray Paper Height 1 Sensor	Detects the paper height in the 1st tray (tandem tray), stage 1.
S29	Lower Limit Sensor	After the tandem tray is empty, the tray lowers until this sensor detects the tray.
S30	Rear Side Fence Closed Sensor	Detects whether the tandem tray rear side fence is closed.
S31	Rear Side Fence Open Sensor	Detects whether the tandem tray rear side fence is opened.



Number	Name	Description
S32	Front Side Fence Closed Sensor	Detects whether the tandem tray front side fence is closed.
S33	Front Side Fence Open Sensor	Detects whether the tandem tray front side fence is opened.
S34	Vertical Transport Sensor 3	Detects misfeeds in the vertical feed path.
S35	3rd Tray Lift Sensor	Detects the correct paper height for feeding in the 3rd tray.
S36	3rd Paper End Sensor	Informs the CPU when tray 3 runs out of paper.
S37	3rd Paper Feed Sensor	Controls the 3rd paper feed motor on/off timing and the 1st pick-up solenoid off timing.
S38	Vertical Transport Sensor 2	Detects misfeeds in the vertical feed path.
S39	2nd Tray Lift Sensor	Detects the correct paper height for feeding in the 2nd tray.
S40	2nd Paper End Sensor	Informs the CPU when tray 2 runs out of paper.
S41	2nd Paper Feed Sensor	Controls the 2nd paper feed motor on/off timing and the 1st pick-up solenoid off timing.
S42	Vertical Transport Sensor 1	Detects misfeeds in the vertical feed path.
S43	1st Tray Lift Sensor	Detects the correct paper height for feeding in the 1st tray.
S44	1st Paper End Sensor	Informs the CPU when tray 1 runs out of paper.
S45	1st Paper Feed Sensor	Controls the 1st paper feed motor on/off timing and the 1st pick-up solenoid off timing.
S46	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.
S47	LCT Relay Sensor	Detects misfeeds.
S48	Upper Relay Sensor	Detects misfeeds.
S49	Guide Plate Open/Close Sensor	Detects whether the guide plate is open or close.

Number	Name	Description
S50	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.
S51	Double-Feed Detection Sensor	Receives the light emitted from the double-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.
S52	Registration Sensor	Detects misfeeds and controls registration motor on/off timing.
S53	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.
S54	Duplex Transport Sensor 2	Detects the position of paper in the duplex unit.
S55	Duplex Transport Sensor 1	Detects the position of paper in the duplex unit.
S56	Duplex Inverter Sensor	Detects when to turn the inverter gate and exit gate solenoids off and checks for misfeeds.
S57	Duplex Entrance Sensor	Detects the leading and trailing edges of the paper to determine the reverse roller solenoid on or off timing.
S58	Duplex Inverter Relay Sensor	Monitors timing of sheets in the vertical paper path and detects paper jams.
S59	Duplex Transport Sensor 3	Detects the position of paper in the duplex unit.
S60	Drum Potential Sensor	Detects the drum surface potential.
S61	ID Sensor	Image density sensor detects the density of the ID sensor pattern on the drum.
S62	Exit Junction Gate HP Sensor	Detects the home position of the exit junction gate.

Number	Name	Description
S63	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.
S64	Exit Sensor	Detects misfeeds.
<b>Solenoids</b>		
SOL1	Guide Plate Solenoid	Opens the guide plate when a paper misfeed occurs around this area.
SOL2	Transfer Belt Lift Solenoid	Controls the up-down movement of the transfer belt unit.
SOL3	2nd Cleaning Blade Solenoid	Controls the operation of the 2nd cleaning blade.
SOL4	Left Tandem Tray Lock Solenoid	Locks the left tandem tray while paper is being transported from left tray to right tray.
SOL5	Tandem Tray Connect Solenoid	Connects/disconnects the two halves of the tandem tray.
SOL6	Rear Side Fence Solenoid	Opens and closes the rear side fence in the tandem tray.
SOL7	Front Side Fence Solenoid	Opens and closes the front side fence in the tandem tray.
SOL8	3rd Separation Roller Solenoid	Controls the up-down movement of the separation roller in tray 3.
SOL9	3rd Pick-up Solenoid	Controls the up-down movement of the pick-up roller in tray 3.
SOL10	2nd Separation Roller Solenoid	Controls the up-down movement of the separation roller in tray 2.
SOL11	2nd Pick-up Solenoid	Controls the up-down movement of the pick-up roller in tray 2.
SOL12	1st Separation Roller Solenoid	Controls the up-down movement of the separation roller in tray 1.
SOL13	1st Pick-up Solenoid	Controls the up-down movement of the pick-up roller in tray 1.

Number	Name	Description
SOL14	LCT Guide Plate Solenoid	Opens and closes the LCT guide plate between the LCT and the bypass tray.
SOL15	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.
SOL16	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.
SOL17	Switchback Idle Roller Solenoid	Controls the contact of the switchback idle roller with the switchback roller.
SOL18	Toner Recycling Shutter Solenoid	Controls the shutter mechanism in the toner recycling system.
<b>Switches</b>		
SW1	Right Front Door Safety Switch	Cuts the 24V power from the PSU-E to the IOB when the front right door is opened.
SW2	Left Front Door Safety Switch	Cuts the +5 LD dc power to disable the LD unit when the front left door is open.
SW3	2nd Cleaning Blade Release Switch	Monitors the operation of the release mechanism of the 2nd cleaning blade.
SW4	Toner Suction Bottle Set Switch	Detects whether the toner suction bottle is installed or set correctly.
SW5	Toner Collection Bottle Set Switch	Detects when the toner collection bottle is set.
SW6	Toner Bottle Front Door SW	Detects whether the toner bottle front door is open or close. When the toner bottle front door is open, the power to the toner bank motor, toner supply coil clutch and toner collection bottle agitator motor is cut.
SW7	Right Front Door Safety Switch 2	Cuts the 24V power from the PSU-E to the IOB when the front left door is opened.

Number	Name	Description
SW8	Left Front Door Safety Switch 2	Cuts the 24V power from the PSU-E to the IOB when the front left door is opened.
SW9	Cleaning Unit Set SW	A push switch that detects when the cleaning unit is set correctly.
SW10	Circuit Breaker	Provides back-up high current protection for the electrical components.
SW11	Main Power Switch	Provides power to the machine. If this is off, there is no power supplied to the machine.
SW12	3rd Tray Paper Size Switches	Determines the size of paper in tray 3. Also detects when the tray has been placed in the machine.
SW13	2nd Tray Paper Size Switches	Determines the size of paper in tray 2. Also detects when the tray has been placed in the machine.
	Fusing Unit Set Detection Pins	These are the pins that complete a circuit to tell whether the fusing unit is installed or set correctly.
<b>TC</b>		
TC1	Total Counter	Counts the total number of copies.
<b>TH</b>		
TH1	Thermistor (Fusing Unit)	Touches the hot roller and measures its temperature. These temperature readings are used to control operation of the fusing lamps.
TH2	Thermistor (Drum Unit)	Measures the surface temperature of the drum. The measured temperature is used for a reference value of the process control.
<b>TS</b>		
TS1/2	Thermostat 1/2	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.
TS3/4	Thermostat 3/4	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.

Number	Name	Description
<b>Other</b>		
HDD	HDD	Scanned image data is compressed and held here temporarily.
NF1	Noise Filter	Filters noise from the ac power supply.

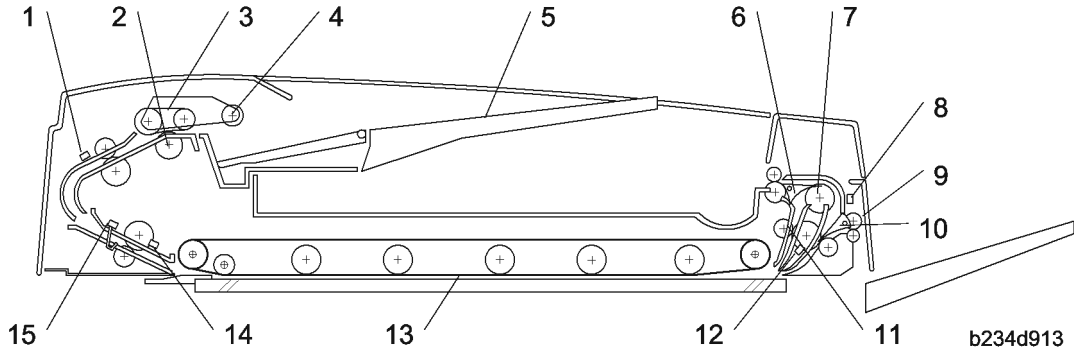
## ADF

Symbol	Name	Function
<b>Motors</b>		
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.
<b>Sensors</b>		
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.

Symbol	Name	Function
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.
<b>Solenoids</b>		
SOL1	Exit Gate	Opens and closes the exit gate.
SOL2	Inverter Gate	Opens and closes the inverter gate.
<b>Magnetic Clutches</b>		
MC1	Feed-in	Drives the feed belt, separation roller, and pick-up roller.
<b>PCBs</b>		
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.

# ADF

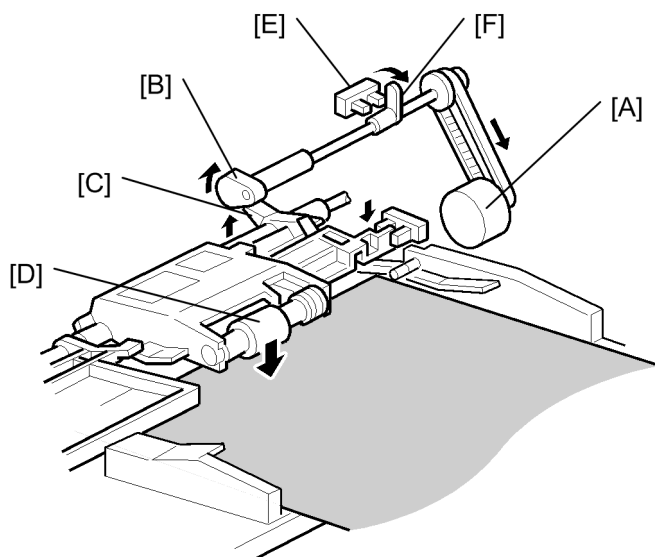
## Overview



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		



## Pick-Up Roller Release



b234d914

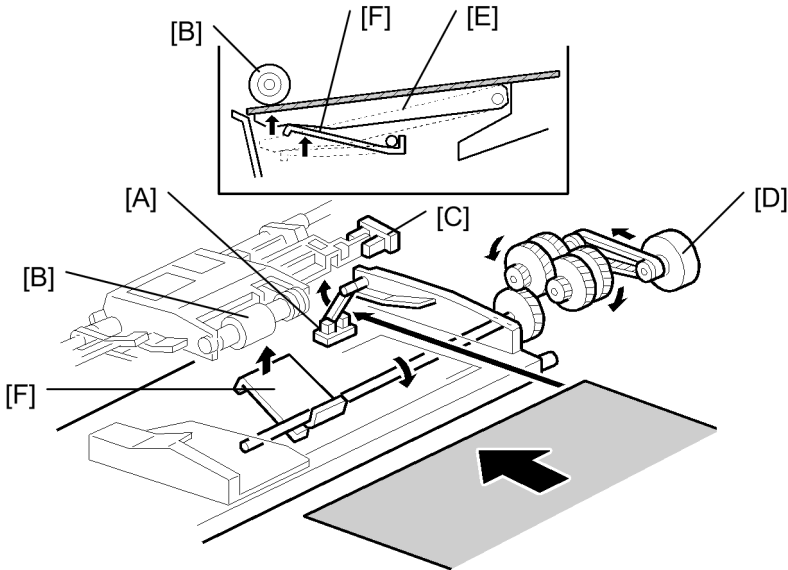
6

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].

## Bottom Plate Lift

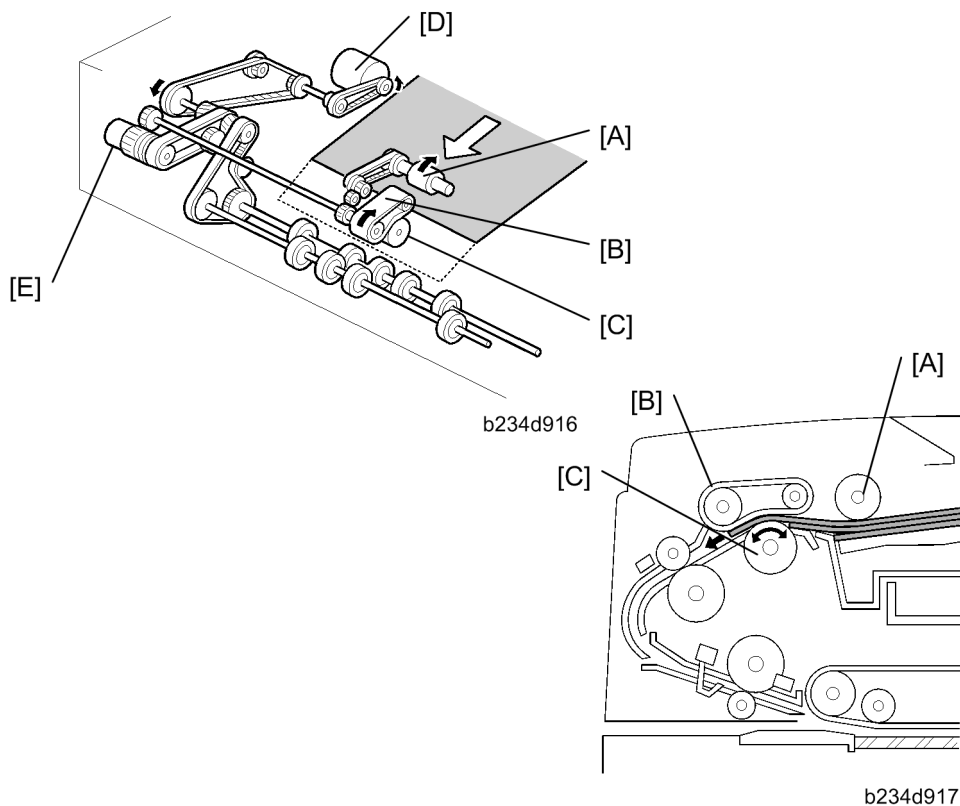


b234d915

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.

## Pick-Up and Separation

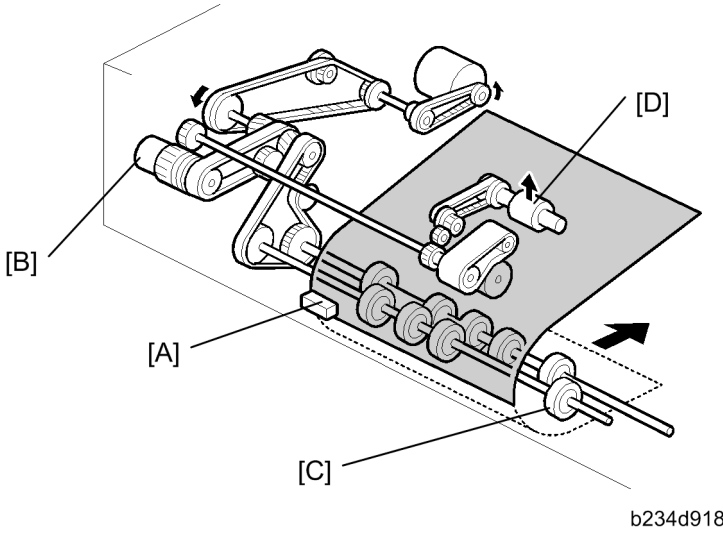


The original separation system is a Feed and Reverse Roller (FRR) system. The pick-up roller [A], feed belt [B], and separation roller [C] are driven by the feed-in motor [D].

To drive this mechanism, the feed-in motor [D] and feed-in clutch [E] turn on.

(**CT**) Handling Paper > Handling Originals > Document Feed > FRR with Feed Belt

## Original Feed

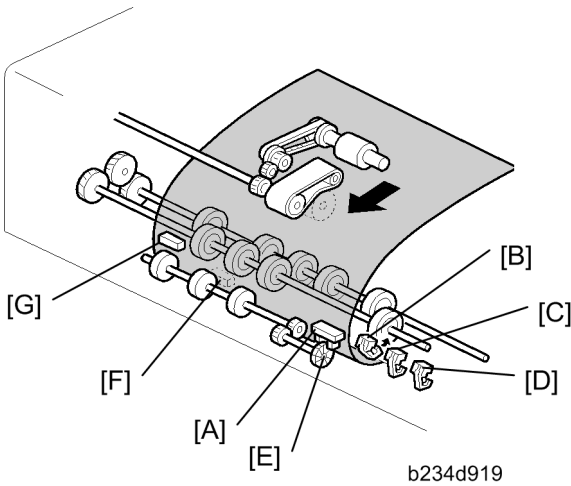


6

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.

## 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].

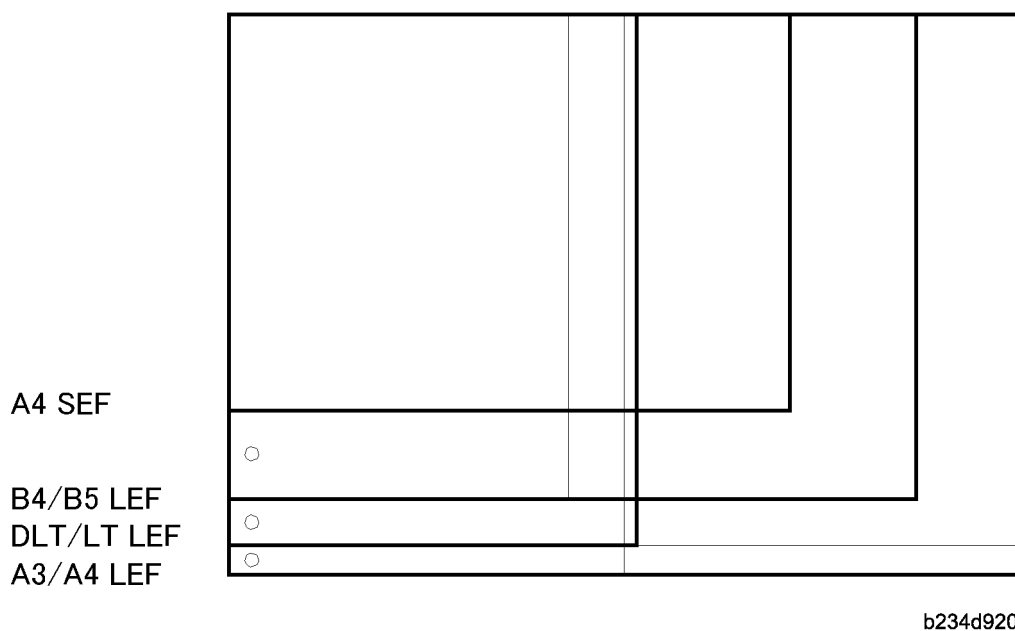
## Original Length

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.

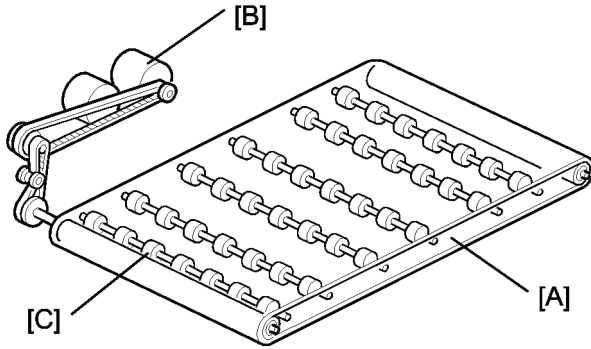
## Original Width Sensor Location



## Detectable Paper Sizes

Please refer to the "ADF" table in "Specifications".

## Original Transport

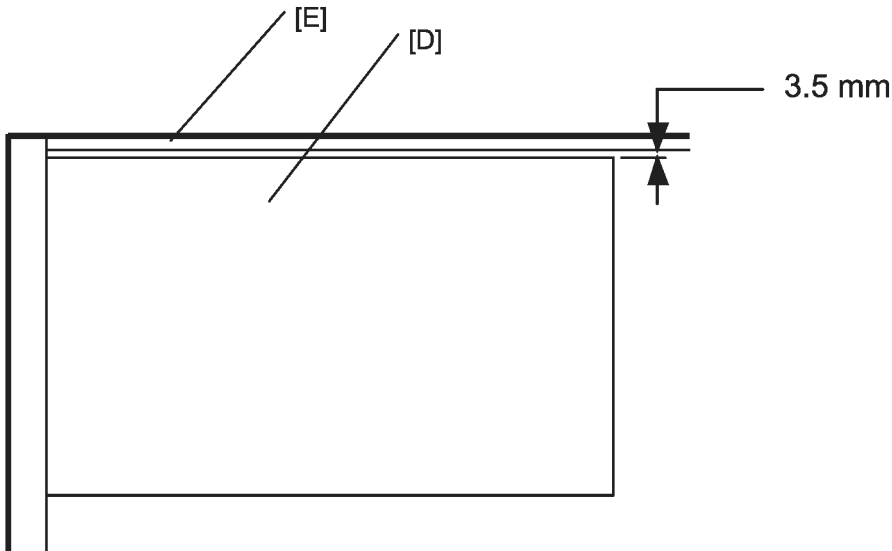


b234d922

The transport belt [A] is driven by the transport belt motor [B]. The transport belt motor starts when the main machine 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.

6

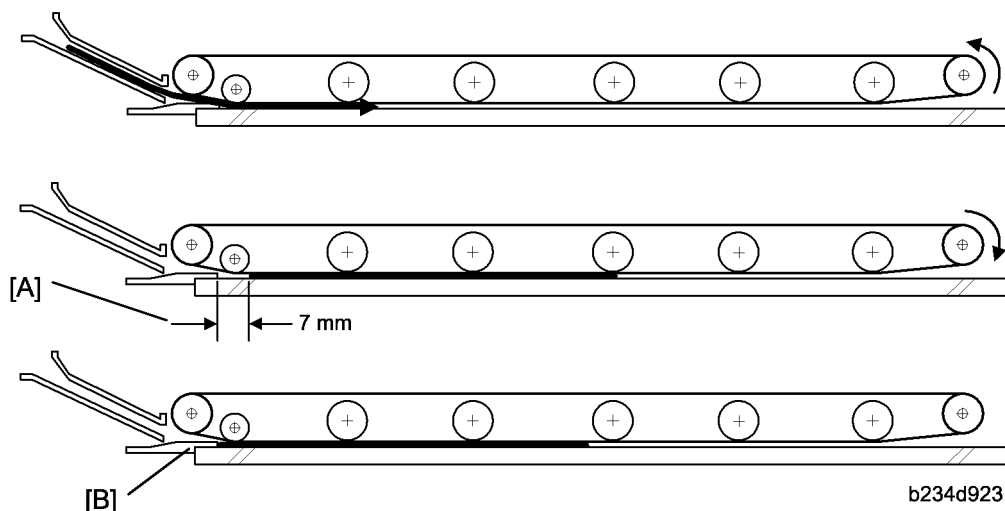


b234d921

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.

## 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
- Side 2 of two-sided originals: SP6006-4.

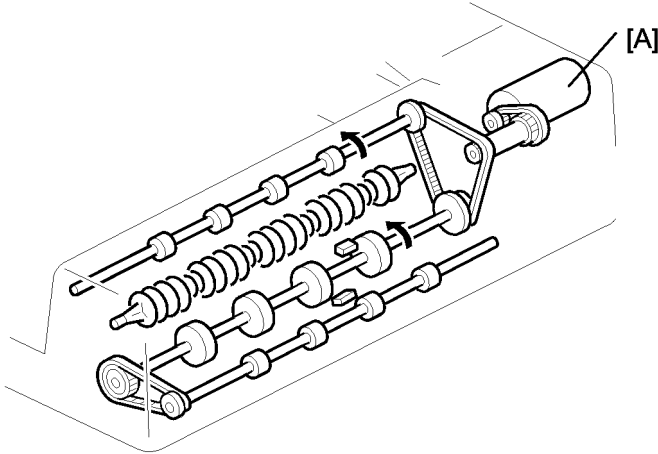
---

## Original Inversion and Feed-Out

---

### General Operation

---



b234d924

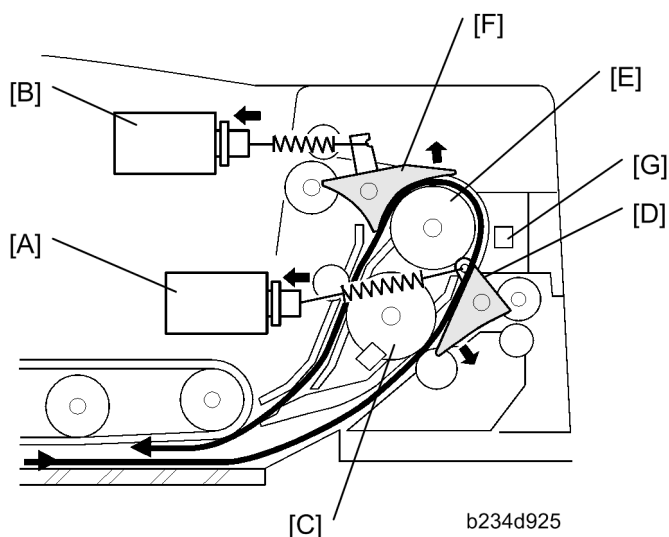
When the scanner reaches the return position, the main machine CPU sends the feed-out signal to the ADF. When the ADF receives the feed-out signal, the transport belt motor and feed-out motor [A] turn on. The original is then fed out to the exit tray or fed back to the exposure glass after reversing 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.



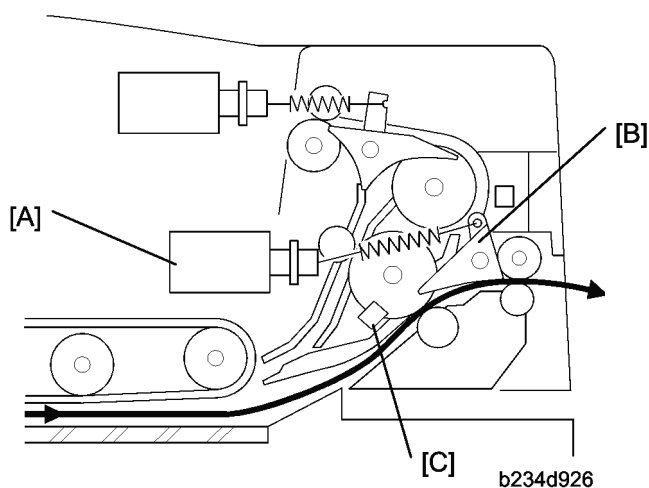
## Original Inversion



When the ADF receives the original invert signal from the main machine, 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.

## Original Exit (Single-Sided Original Mode)

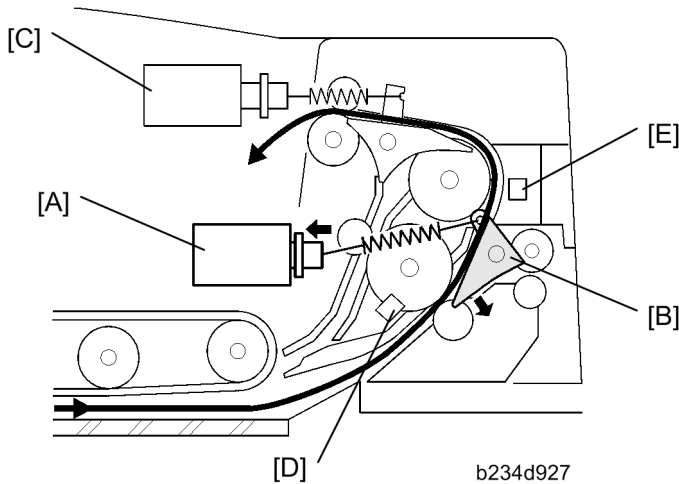


The exit gate solenoid [A] remains off, the exit gate [B] remains closed, and the original is fed out to the right exit tray.

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)

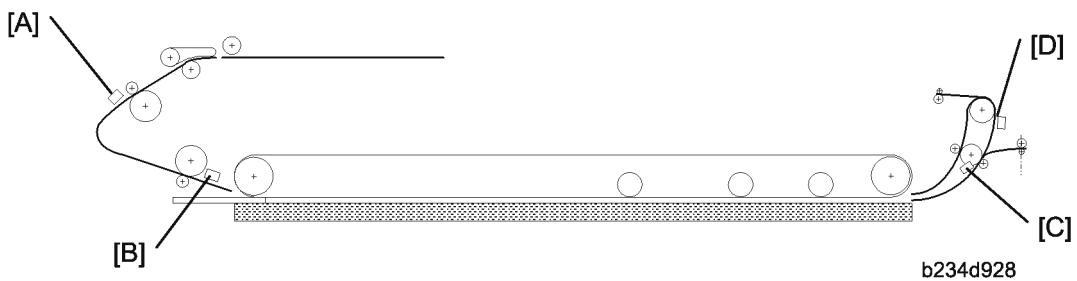


The exit gate solenoid [A] turns on and the exit gate [B] opens.

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].

### 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

---

1. 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.
2. 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.
3. 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.

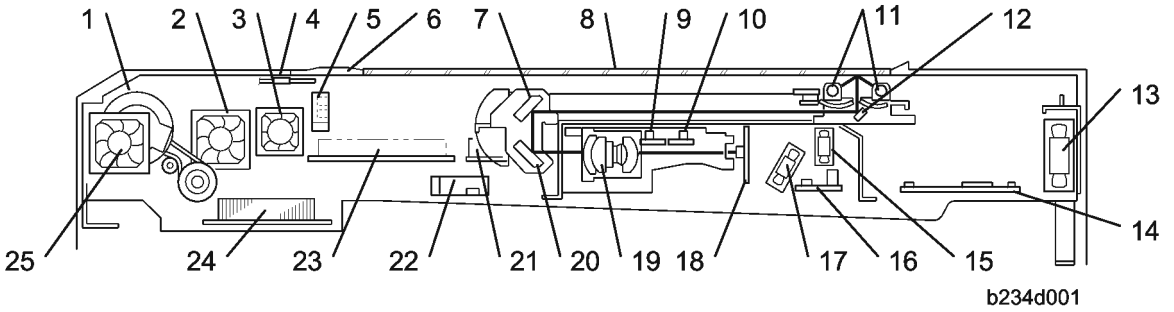
## Inversion

---

1. 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.
2. 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.
3. 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.
4. 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.

## Scanning

### 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	22.	Original Width Sensors 1, 2, 3
10.	Original Length Sensors 2	23.	Lamp Regulator (Left)
11.	Exposure Lamps (x2 Xenon)	24.	MCU
12.	1st Mirror	25.	Scanner Motor Cooling Fan
13.	Optics Intake Fan		

Two xenon lamps (30W, 57,600 lux) as the exposure lamps [4] illuminate 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.

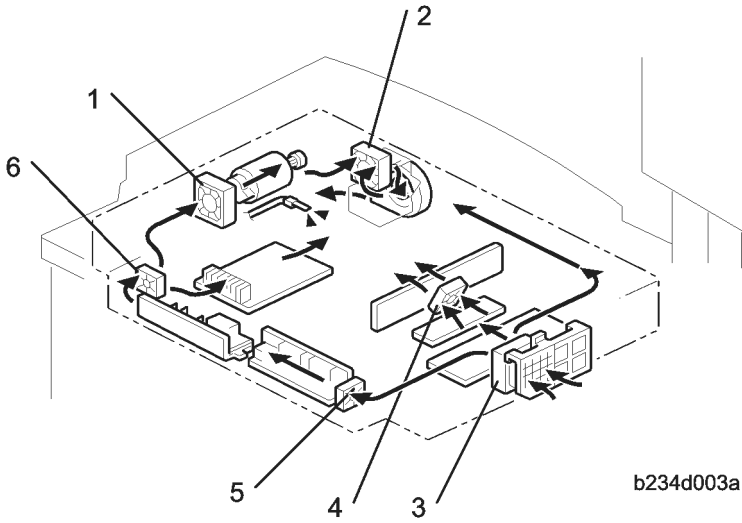
The image is reflected onto the CCD [11] (600 dpi resolution) via the 1st, 2nd, and 3rd mirrors, and through the lens [13].

The CCD (10  $\mu\text{m}$  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 s)	On	Off (after 60 s)	
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.

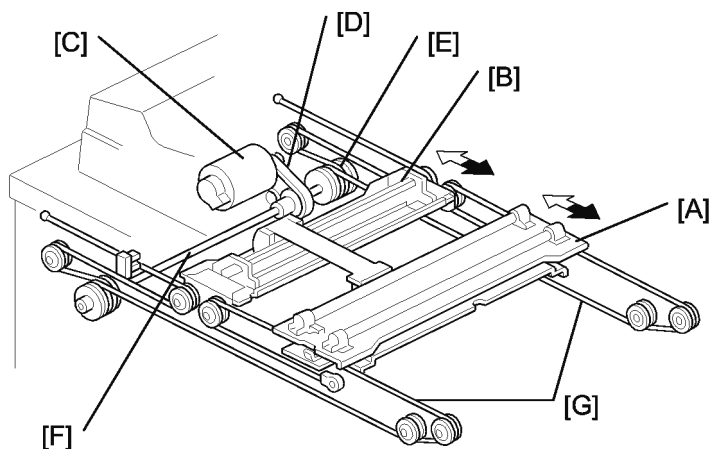
The right lamp regulator [5] fan draws cool air over the lamp regulators.

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.

## Scanner Drive



b234d003

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/s
- Return: 2500 mm/s

## Magnification and Reduction

Magnification and reduction in the main scan direction are done in the IPU board.

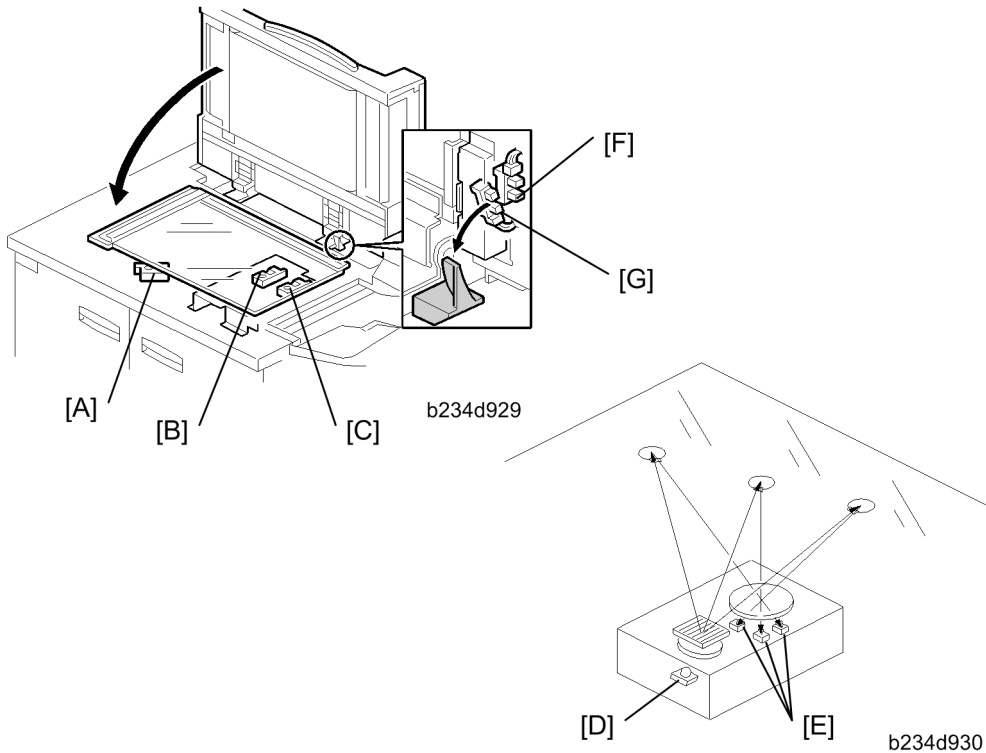
Magnification and reduction in the sub scan direction are done by controlling the speed of the scanner motor in sync with the main scan processing done in the IPU.

- 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).

## Original Size Detection



6

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.

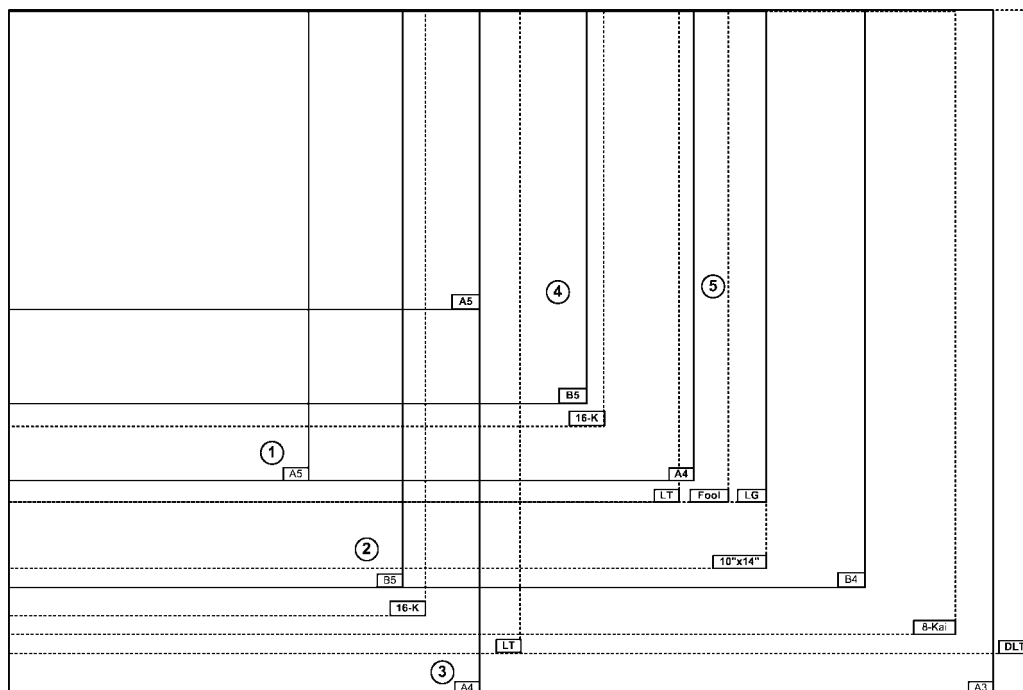
The original size data is taken by the main CPU when the APS start sensor is activated. This is when the ADF is positioned about 12 cm above the exposure glass. At this time, only the sensors underneath the original receive the reflected light and switch on. The other sensors are off. The main CPU recognizes 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 below show the outputs of the sensors for each original size.



b234d931

## North America

Original		APS 1			APS 2	APS 3	SP4301 Display
Name	Size	W1	W2	W3	L1	L2	
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 1			APS 2	APS 3	SP4301 Display
Name	Size	W1	W2	W3	L1	L2	
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.

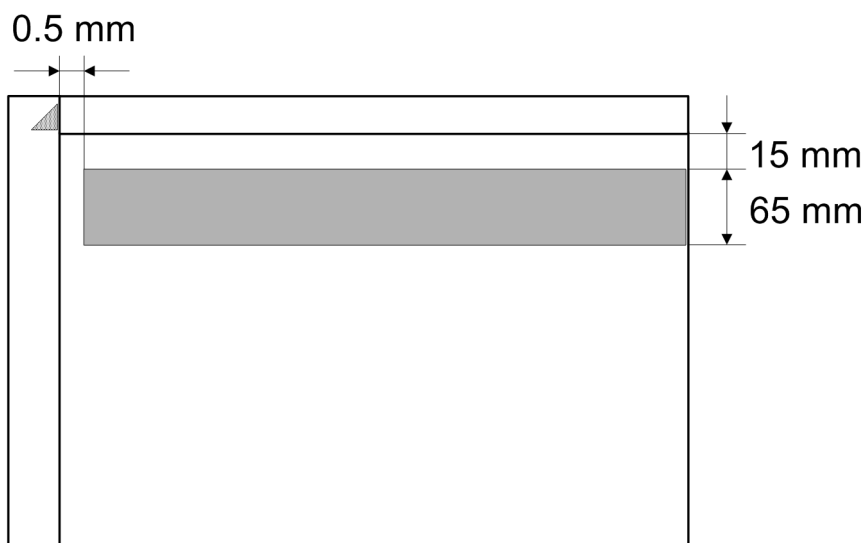
\* 1: With SP 5126, you can select 1 from 3 paper sizes of very similar dimensions. The default is 8½ x 13", and the other choices are 8¼ x 13", 8" x 13".

#### ★ 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 only the paper sizes in the table above.

## Auto Image Density (ADS)

The area that the CCD uses as a reference for ADS is shown in the following diagram.



b234d954

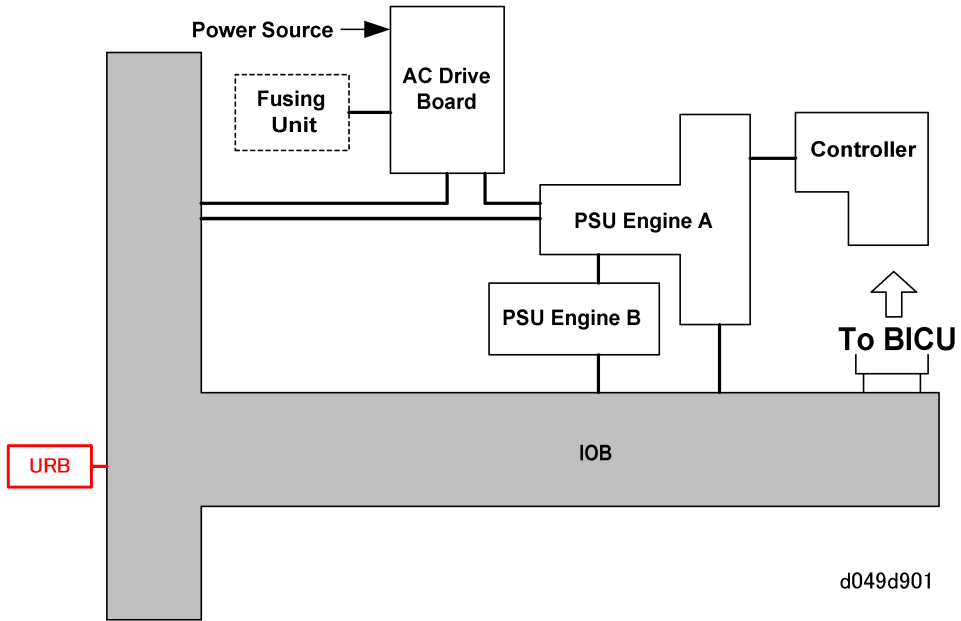


- Digital Processes> Image Processing> Black and White CCD Systems> Analog Signal Processing> Automatic Image Density
- Digital Processes> Image Processing> Color Systems> Analog Signal Processing

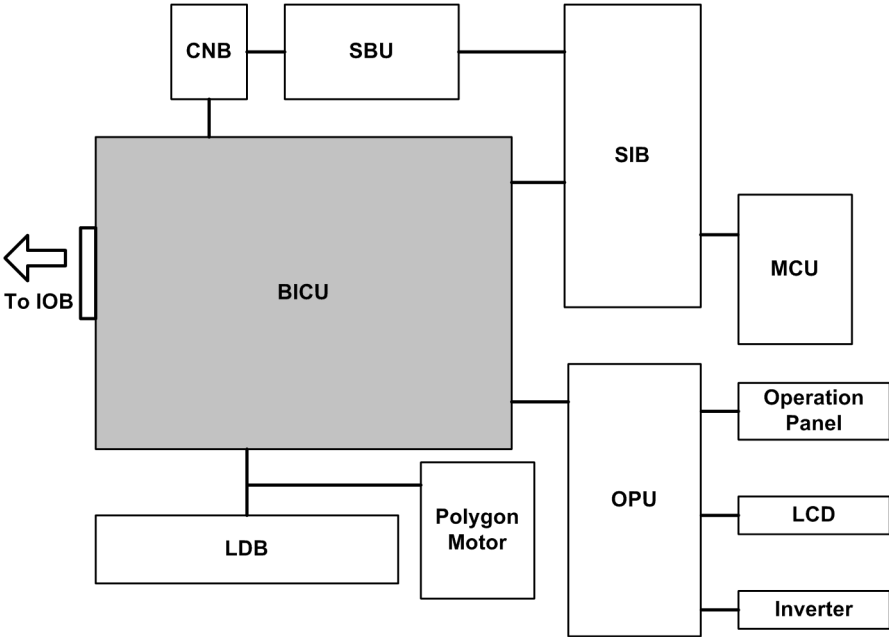
# Board Structure

## Block Diagrams

### IOB

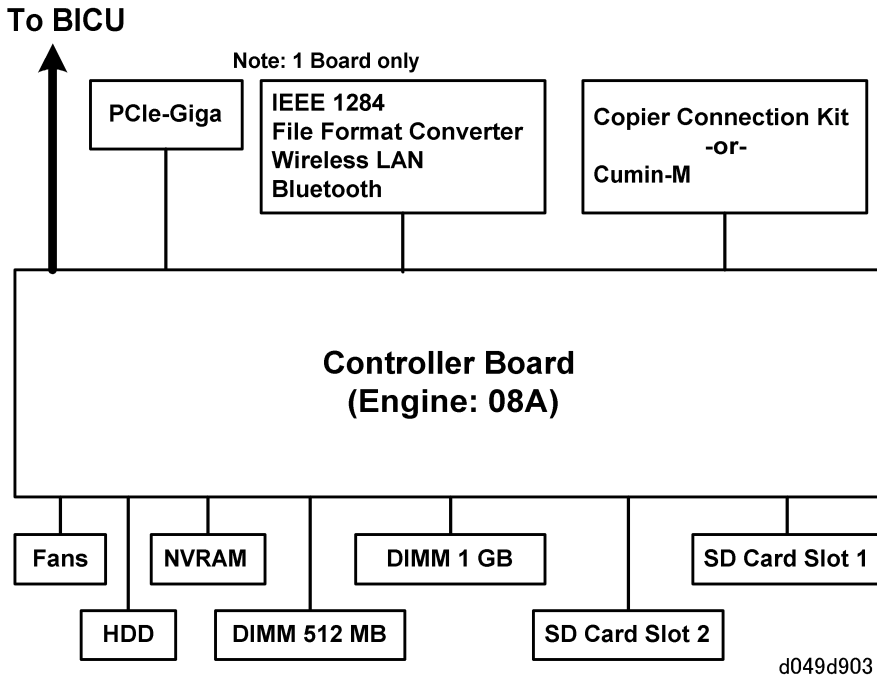


BICU



d049d902

## Controller



## Component Descriptions

This machine has a GW controller board.

### PCBs

Here is a summary of the main parts of the board structure.

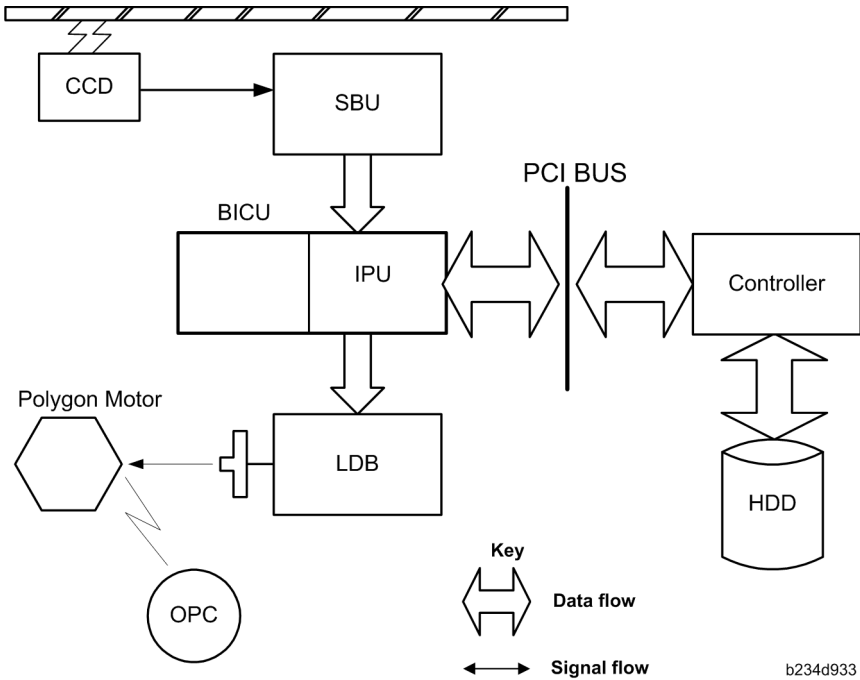
#### ★ Important

- The DIP switch settings and the board should not be changed. For details, please refer to "Specifications", the last section of this manual.
1. BICU (Base Engine Control Unit): This is the main control board that controls the engine sequence, timing for peripherals. The BICU 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. The controller board also controls:
    - Printer/scanner
    - Document server
    - Image rotation
    - Conversion of all image formats
    - Image compression and decompression
  3. **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.
  4. **IOB (Input/Output Board):** Performs three functions:
    - Converts sensor output from the paper bank, toner bank unit, and LCT then sends it to the BICU.
    - Converts serial data from the BICU 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 BICU, LCT, and interlock system for the development motor, drum motor, and paper feed motor.
  5. **LDB (LD Board):** The LDB controls the laser diodes. It also contains the laser diodes.
  6. **AC Drive Board:** The AC drive board controls AC power for the fusing lamps and the anti-condensation heaters.
  7. **MCU (Motor Control Unit):** Controls the scanner motor with the commands from the BICU. Also controls exposure lamp on/off timing, APS detection, the fan motors, generation of gate signals, and transmission of serial data.
  8. **Operation Panel:** Controls the operation panel and LCD display panel.
  9. **Polygon Mirror Motor Control Board:** Controls the polygon motor.
  10. **The URB is a new board.** It controls the operation of the double-feed sensors. There are two sensors. One sensor is an emitter sensor, and the other is a receptor.

# Image Processing

## Image Processing Overview



b234d933

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

## 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

Shading Correction	Corrects the dispersion of the scanning lens and CCD.
↓	
Gamma Correction	Background erase
↓	
Auto Select	Determines if an image is text or raster image data and processes the data accordingly.
↓	
	Selects the best methods for Filtering, Density Control, and Grayscale Processing.
Filtering	MTF and smoothing (MTF filter of previous machines)
↓	
	Either of two filters is selected by Auto Select above.
Independent Dot Erase	Removes isolated pixels.
↓	
Line Width Correction	
↓	
Main Scan Magnification	
↓	
Video Path	Application (printer)
↓	
Density Control	Employs one of two gamma tables, selected by Auto Select above
↓	
Grayscale Processing	Error diffusion, dithering, or binary picture processing

↓	Black-and-white digitization or dithering is selected by Auto Select above.
LD Unit	

## Adjustments

### Independent Dot Erase, Background Color Dropout

#### Independent Dot Erase

Item	Range	Default	SP No.
Text	0 to 7	0	4903-001
Generation Copy		0	4903-002

6

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 (BG) Color Dropout

SP NO.	MODE NAME	TARGETED COLOR	VALUES
4901-020	BG Dropout – Weak	Orange	0 to 192 (Default: 180)
4901-021	BG Dropout – Medium	Green	0 to 192 (Default: 155)
4901-022	BG Dropout - Strong	Blue	0 to 192 (Default: 105)

### Original Type Settings

Text/Photo and Photo have different settings (Glossy Photo, Printed Photo, Copied Photo, etc.) as shown in the screen below).

To display this screen:

User Tools/Counter button (  ) > "Copier/Document Server Settings" > "General Features" > "Original Photo Type Priority".

Original Photo Type Priority Cancel

---

Select item then press [OK].

▶ Text/Photo

▶ Photo

d059d005

These features can be adjusted with SP4918.

## Manual Gamma Adjustment with SP4918

Enter the SP mode and select SP4918.

Manual Gamma Adj

Copy: Letter (SC)

Offset

K	H 15	M 15	S 15	IDmax 15
---	---------	---------	---------	-------------

Option

K	H 0	M 0	S 0	IDmax 0
---	--------	--------	--------	------------

Copy: Photo (SC)

Offset

K	H 15	M 15	S 15	IDmax 15
---	---------	---------	---------	-------------

Option

K	H 0	M 0	S 0	IDmax 0
---	--------	--------	--------	------------

d059d006

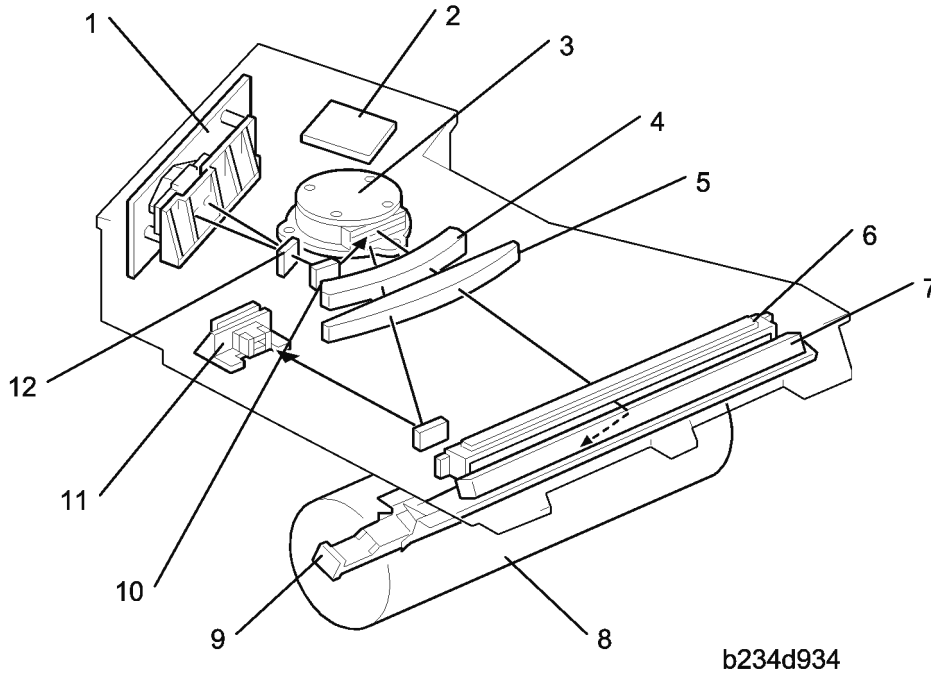
Eight adjustments can be done independently for "Text" and "Photo" originals. Refer to the table below.

	Area Adjusted on Original	Value	
		Low (1)	High (15)
<b>Offset</b>			
H	Density in light areas (highlights)	Lighter	Darker
M	Density at center	Lighter	Darker
S	Density of dark areas (shadows)	Lighter	Darker

	Area Adjusted on Original	Value	
		Low (1)	High (15)
IDmax	Density of entire original	Lighter	Darker
<b>Option</b>			
H	Entire original background erase	Weak	Strong
M	Entire original contrast	Low	High
S	Not used		
IDmax	Not used		

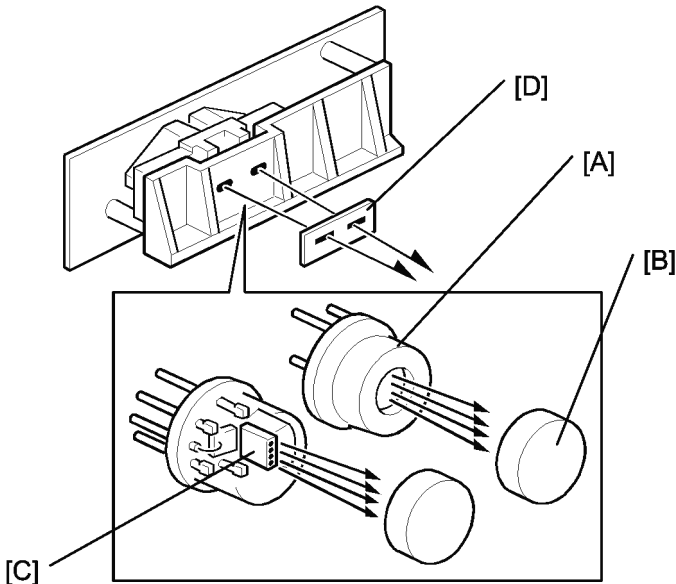
# Laser Exposure

## 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

## Laser Exposure Mechanism



b234d935

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, through 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.

#### ↓ Note

- The laser diode array is assembled and adjusted in the factory, and does not require position adjustment in the field.

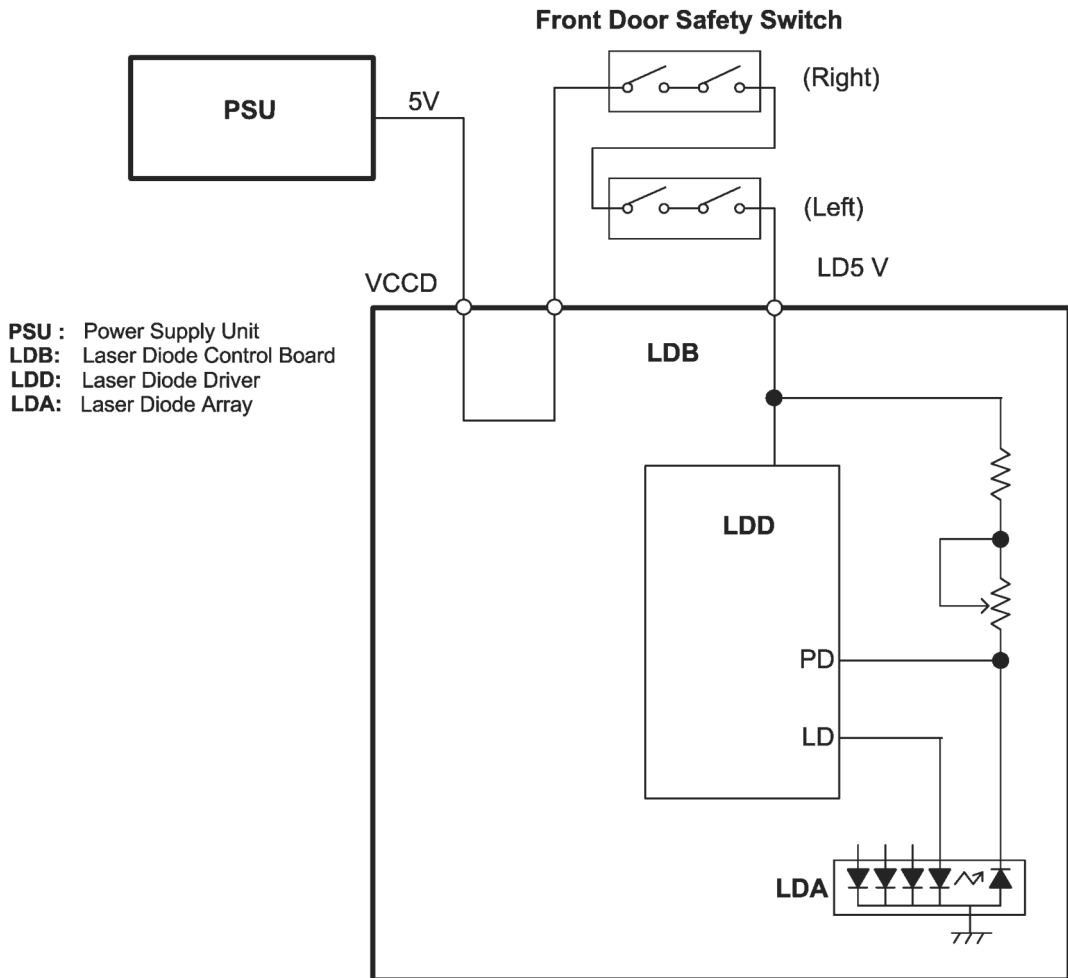
LD drivers control the power output from the laser diodes.

( 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.

## LD Safety Switches



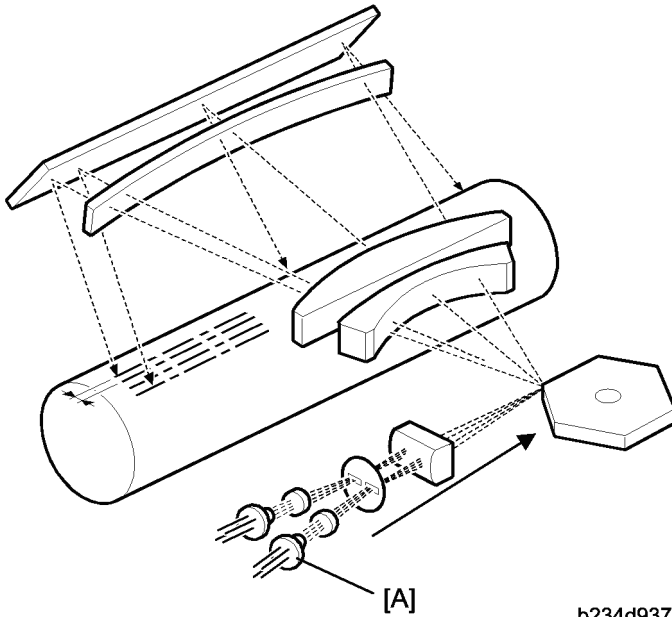
b234d999

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.

## Multi-Beam Line Exposure



6

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.

An SC code is issued for a laser synchronization detector error if the LD unit malfunctions and does not emit the laser beams.



## 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 main machine is in standby mode, but shuts off when the main machine enters the energy conservation mode.

### Polygon Mirror Motor Rotation Speed

D059: 90 ppm	D060: 110 ppm	D061: 135 ppm
24,803 rpm	29,528 rpm	37,205 rpm

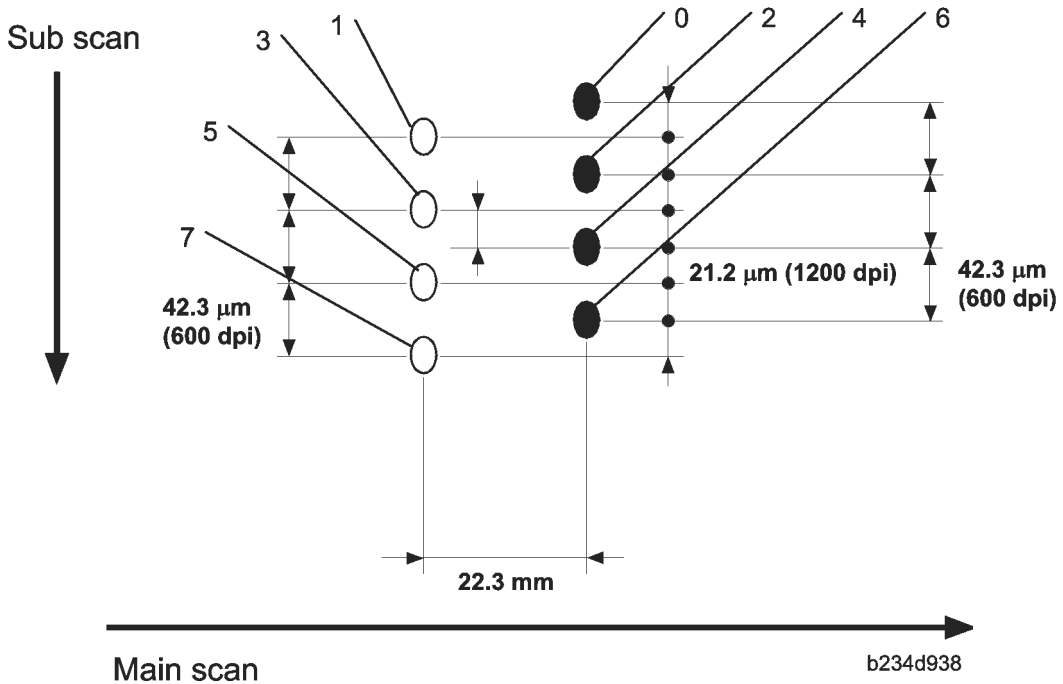
#### ★ Important

- 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 main machine 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.

## 1200-dpi Resolution



6

0	LDA 1	4	LDA 1
1	LDA 2	5	LDA 2
2	LDA 1	6	LDA 1
3	LDA 2	7	LDA 2

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 BICU.

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.

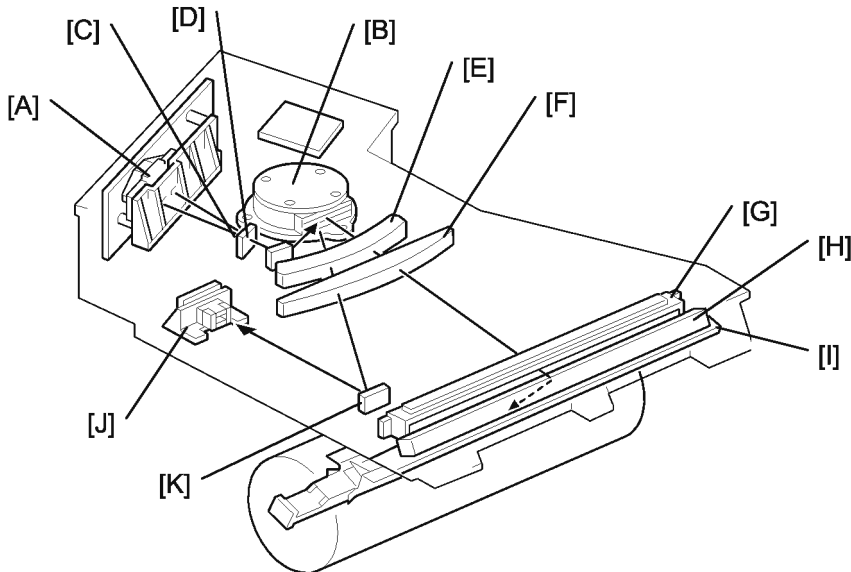
The diagram shows how the two sets of four beams are interlaced to produce a sub scan resolution of 1200 dpi.

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.

## Optical Path



b234d939

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].

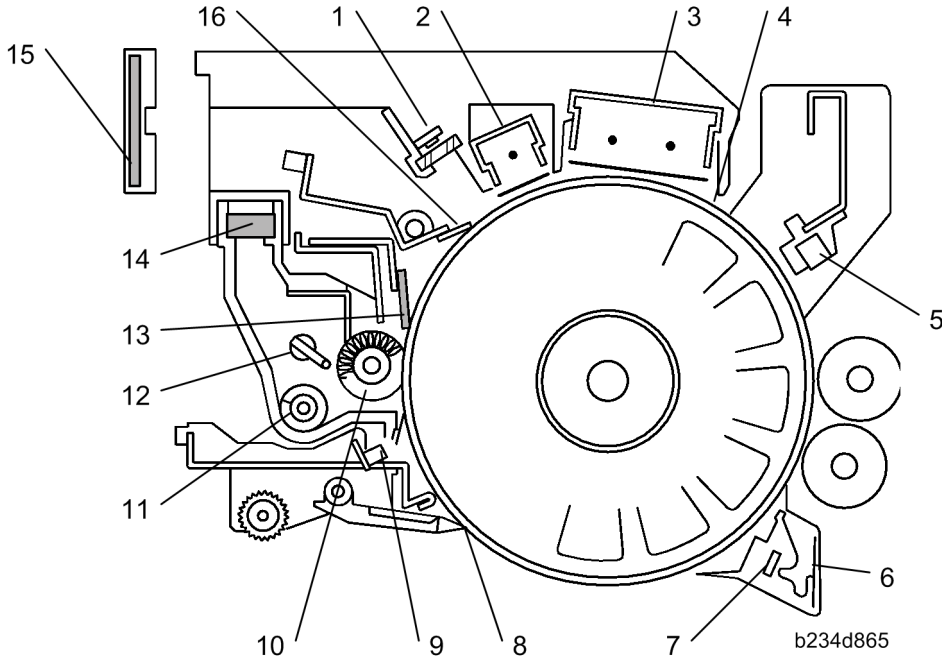
Each surface of the polygon mirror reflects eight full main scan lines. The laser beams go to the F-theta lens 1 [E], F-theta lens 2 [F], BTL (barrel toroidal lens) [G], and mirror [H]. Then these laser beams go to the drum through the toner shield glass [I].

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.

# Drum Unit

## 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. ID Sensor
2. Pre-Charge Unit	10. Cleaning Brush
3. Charge Corona Unit	11. Toner Collection Coil
4. OPC Drum	12. Drum Cleaning Unit Agitator
5. Drum Potential Sensor	13. Cleaning Blade
6. Thermistor	14. Cleaning Unit Filters
7. PTL (Pre-Transfer Lamp)	15. Toner Filter
8. Pick-Off Pawls	16. 2nd Cleaning Blade

### 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 D061 (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 D061 (135 ppm) due to its high speed.

**Second cleaning blade (15):**

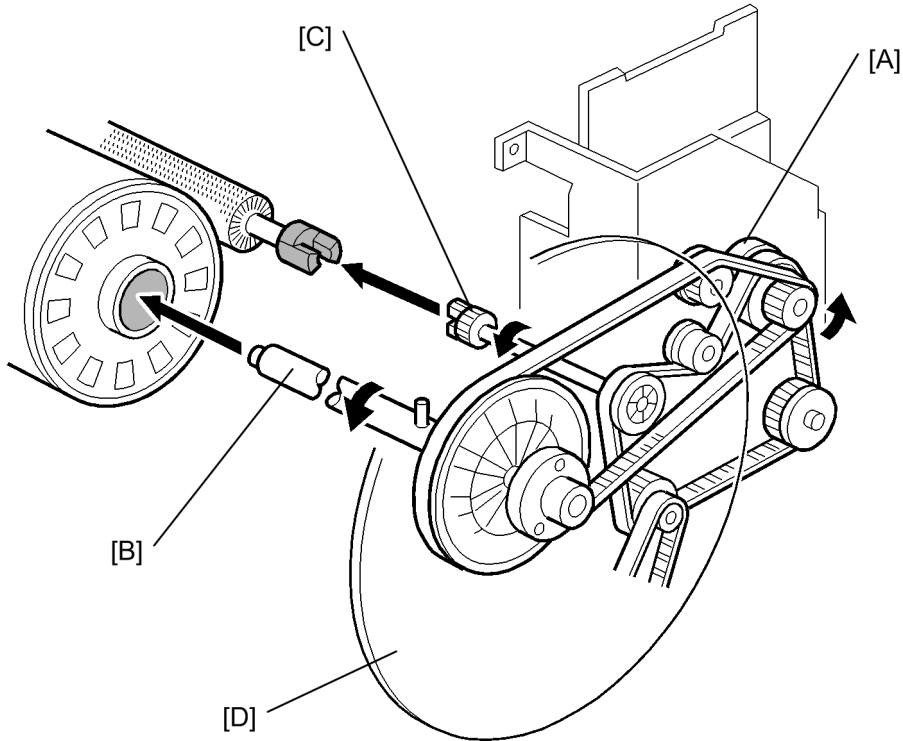
Added specifically to reduce white tear-drop shapes that appear in the solid backgrounds of copies and prints.

After training, super users (trained operators) can replace the following components around the drum:

- Pre-Charge Unit
- Charge Corona Unit
- 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.

## Drum Drive



b234d202

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.

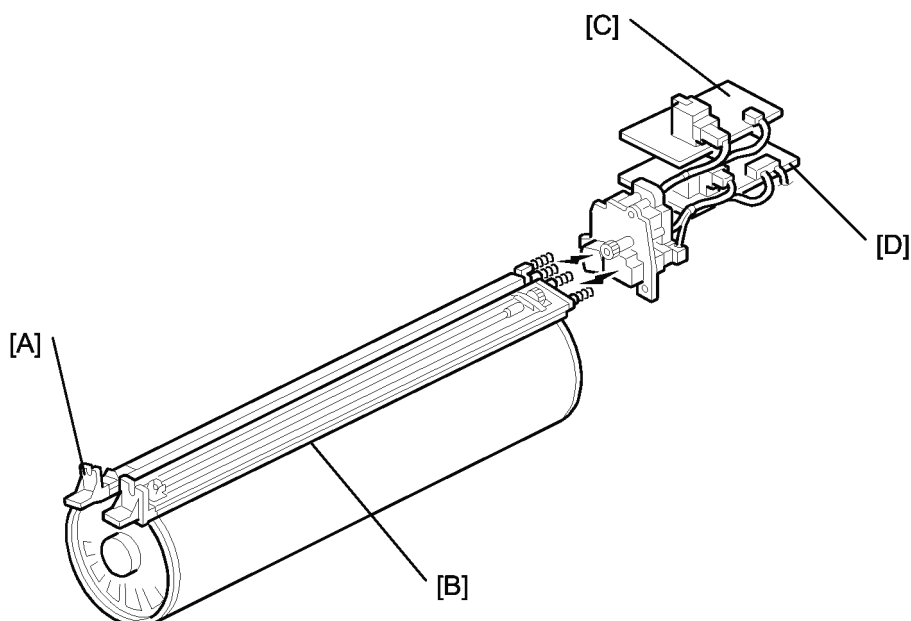
### Drum Speeds

D059 (90 cpm)	420 mm/s
D060 (110 cpm)	500 mm/s
D061 (135 cpm)	630 mm/s

The flywheel [D] on the end of the drum drive shaft stabilizes the rotation speed.

## Drum Charge

### Overview



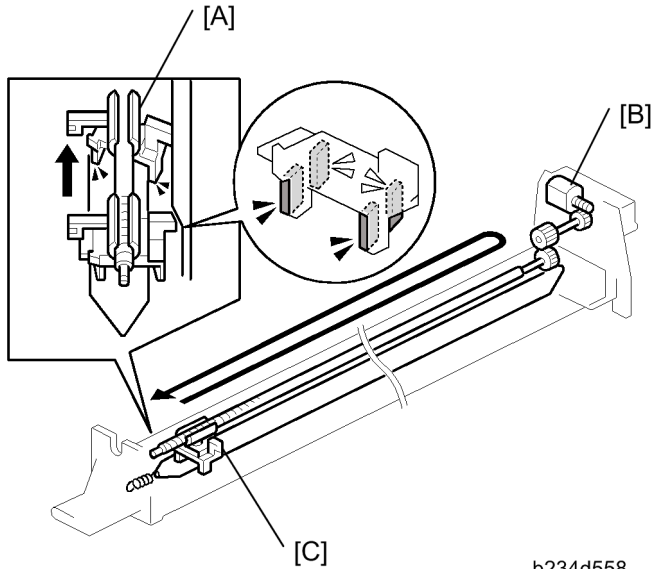
b234d203

This main machine uses a corona wire Scorotron 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 $\mu$ A	Constant: 1,550 $\mu$ A
Charge current (Photo mode)	Constant: 600 $\mu$ A	Constant: 1,600 $\mu$ A
Grid voltage	Not controlled	- 900 V
Corona wire cleaning	Manually	Automatic mechanism

This is a high-speed main machine, 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



b234d558

6

### 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).

### Pre-Charge Unit

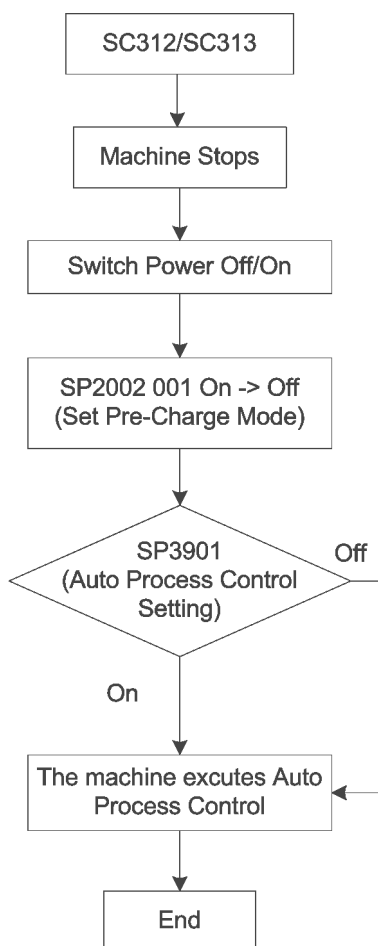


There is no mechanism to clean the pre-charge unit corona wire automatically.

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 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.



b234d559

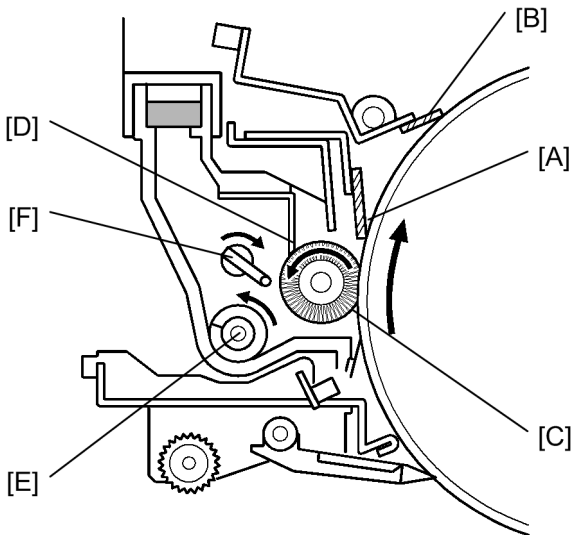
#### ↓ Note

- 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).

## Drum Cleaning

### Overview



b234d886a

This main machine 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

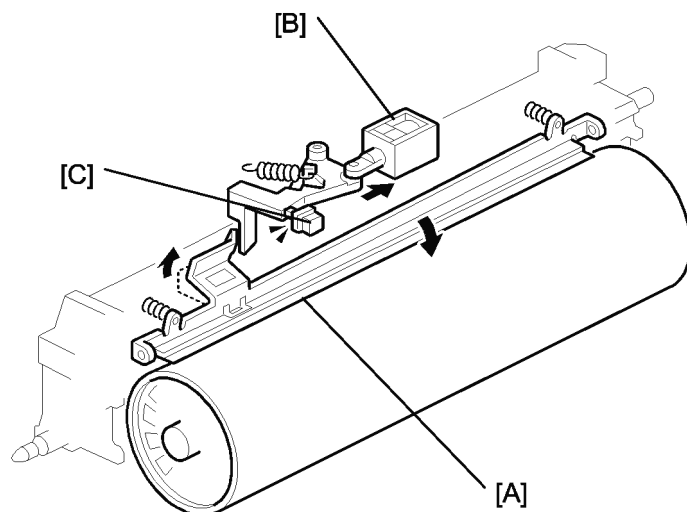
The cleaning brush [C] removes toner from the drum surface. Any remaining toner is scraped off by the cleaning blade. The cleaning brush rotates counter-clockwise, not against the rotation direction of the drum. This reduces wear on the surface of the drum.

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 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".

## 2nd Cleaning Blade



b234d868a

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

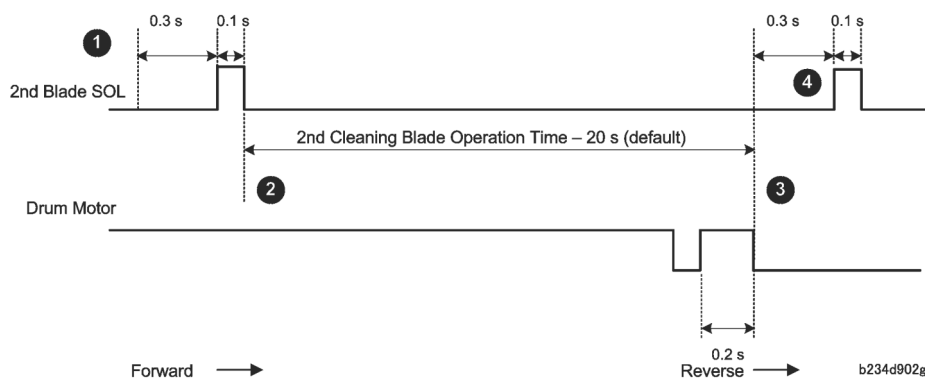
SP2930 controls the operation of the 2nd cleaning blade. There are two modes of operation: 'normal humidity', and 'low humidity'. The threshold between these two humidity modes is set with SP 2930 008.

	SP2930 008		<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>
Humidity Mode	Normal	Low	
Condition	SP2930-1	SP2930-5	<p>Determines when 2nd blade cleaning executes.</p> <p>[0-2/1/1]</p> <p><b>0: Off</b> 2nd blade cleaning is never done. However, the 2nd blade cleaning can be done manually with SP2930-4.</p> <p><b>1: On</b> Cleaning done after process control execution but only when SP3901 is ON to enable process control and:</p> <ul style="list-style-type: none"> <li>The temperature of the machine is less than 100°C when it is powered on.</li> <li>SP2966 is ON. This SP sets process control to execute if the machine remains on and idle for longer than 24 hours.</li> </ul> <p><b>2:</b> After the selected time interval has elapsed. The time interval is prescribed by SP2930-2 or -7. If the time elapses during a job, process control does not execute until the job has finished.</p>
Interval	SP2930-2	SP2930-6	<p>This SP sets the time to elapse before 2nd blade cleaning. 2nd blade cleaning is done when the time exceeds this value, but only if SP2930-001 is set to "2".</p> <p>SP2930-001: [5 to 1440/90/1 min.]</p> <p>SP2930-006: [5 to 1440/15/1 min.]</p>

Time	SP2930-3	SP2930-7	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]
------	----------	----------	--

- 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



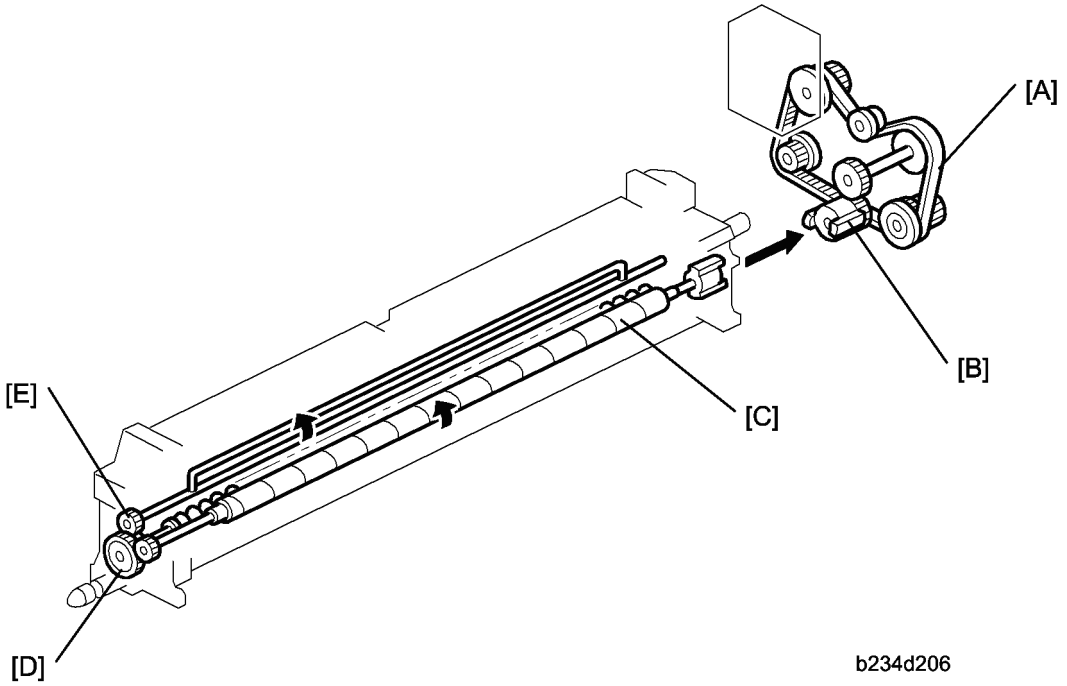
At the end of a job:

- (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 seconds and reverse for 0.2 second. The length of time that the blade is held against the drum can be adjusted with SP2930-3.
- (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 second to make sure that the solenoid is restored to its normal state (released and away from the drum):

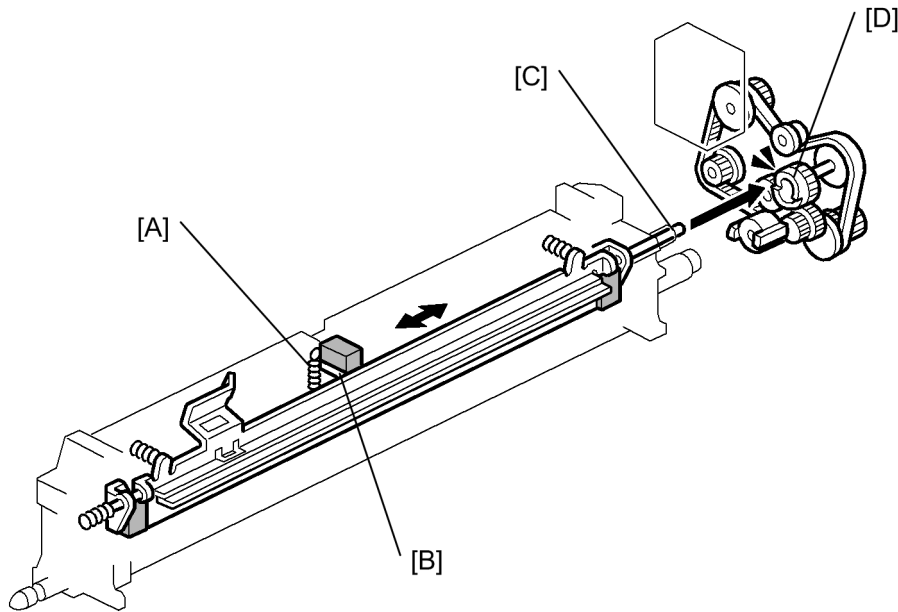
- Immediately after the machine is turned on
- When either front door is closed
- At the beginning of every job

## 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].

## Cleaning Blade Pressure and Side-to-Side Movement

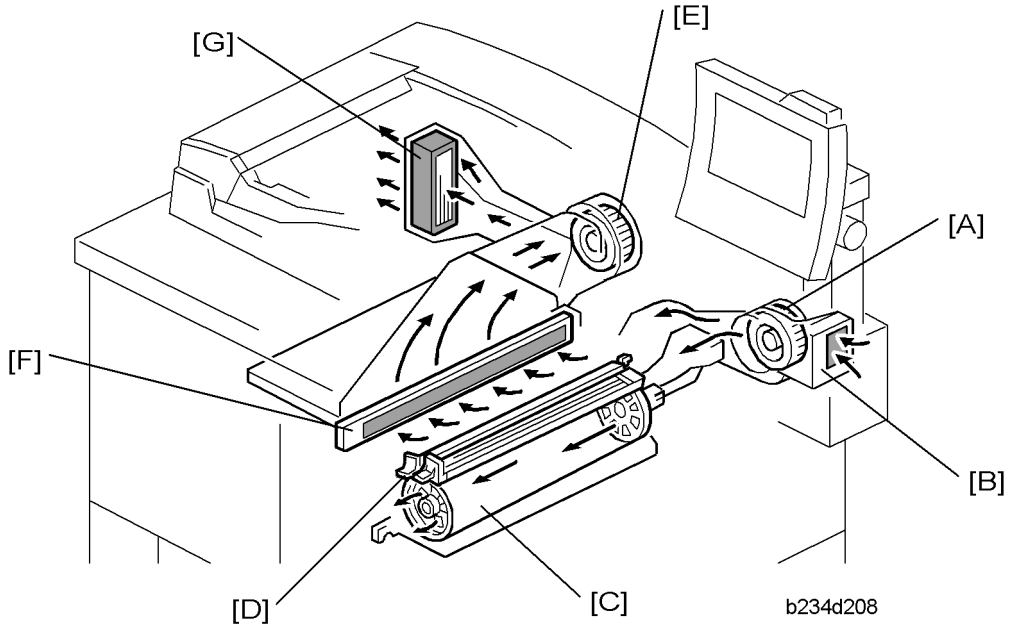


b234d868

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.

## Air Flow around the Drum



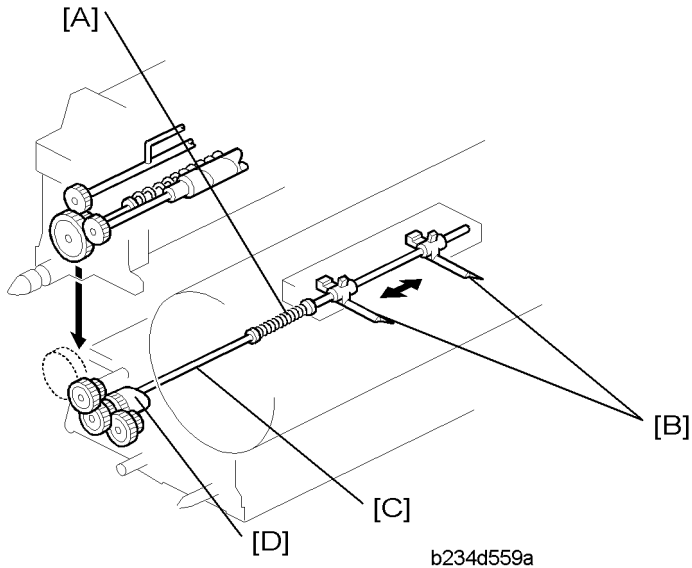
The drum cooling fan [A] draws cool air through the drum dust filter [B] and sends it to the center of the drum [C], then over the charge units [D] (charge corona unit and pre-charge unit).

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.



## 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.

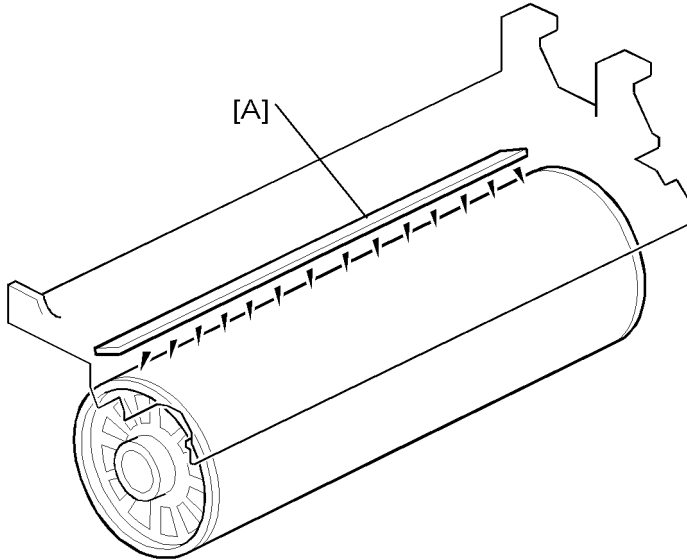
Pressure from small springs [A] press the pick-off pawls [B] against the surface of the drum.

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).

---

## Drum Quenching

---



b234d209

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.

---

## 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 002) 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 rotation speed 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

1. Step 1: Charge Unit Corona Wire Cleaning
2. Step 2: Process Control Begins (OPC Drum Start Timing)
3. Step 3: ID Sensor Vsg Adjustment
4. Step 4: Vb (Development Bias Voltage), Vg (Charge Grid Voltage), LD (Laser Diode) Power Adjustments (Based on Drum Potential Sensor Readings)
5. Step 5: TD Sensor (Vref) Adjustment (Based on ID Sensor Readings)
6. Step 6: Vb (Development Bias Voltage), Vg (Charge Grid Voltage) Adjustments (Based on VL Detection)
7. Step 7: Process Control Ends
  - 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 (Vr) 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 exposure to 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.

#### 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

Vsg (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 $\Delta VL$ : $\Delta VL = (\text{Target VL}) - 150 - \text{Temperature Control}$

The difference between the value of VL read by the drum potential sensor and the previous target VL value of -150 is obtained.  $\Delta VL$  is then used to update VLref.

#### ↓ Note

- Temperature Control is switched on/off with SP3901 003 (Temperature Control On/Off Setting). Default: ON.

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: 80 mm
Exposure Level	15
Laser PM	Same value as previous process control execution

#### ↓ Note

- If  $\Delta VL < 0$ ,  $\Delta VL$  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  $\Delta VL_{ref}$  is displayed by SP3902 009.
- If process control is switched off (SP3901 set to "0") then  $\Delta VL_{ref}$  is set to "0" and the drum potential sensor does not detect VL.

#### 2-1. Determining $V_b$ : $V_b = (\text{Value of SP2201}) + \Delta VL$

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)
Low Speed 2	SP2201 007	Image Area (Low Speed 2)

**Note**

- Even if the result of the calculation is  $V_b > 900$ , the voltage applied by the power pack is 900V.
- The value of  $V_b$  is displayed by SP3902 012.

### 2-2. Determining $V_{dref}$ : $V_{dref} = (\text{Value of SP2001}) + \Delta V_{Lref} + V_D \text{ Correction}$

The value of  $V_d$  applied from SP2001 depends on the line speed.

Line Speed	SP No.
Normal Speed	SP2001 006
Low Speed	SP2001 010
Low Speed 2	SP2001 014

**Note**

- Count "A" is cleared only when SP2801 (TD Sensor Initial Setting) is executed:
- a) If "A" < SP3903 (VD Correction Counter), there is no VD correction.
- b) If "A" > SP3903, the value is corrected by +50.

### 2-3. Determining $V_{href}$ : $V_{href} = (\text{value of VH from SP3904}) + \text{Temperature Control} + V_H \text{ Correction for Low Temperature} + \Delta V_{Lref}$

The value of  $V_H$  applied from SP3904 depends on the line speed.

Line Speed	SP No.
Normal Speed	SP3904 001
Low Speed	SP3904 002
Low Speed 2	SP3904 003

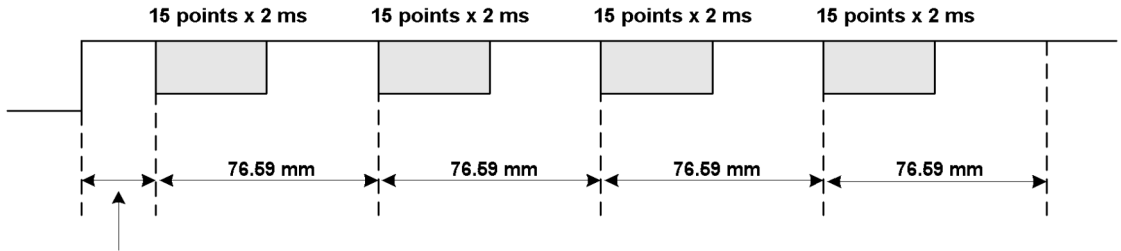
**Note**

- If  $V_B = 800$ , then  $V_{href} = V_H \text{ of SP3904} + (800 - V_b \text{ of SP2201})$  for the value of development bias on image areas.

### 3. Determining $V_g$ with the detected $V_d$ : $V_D = (-V_{Dref}) \pm 20$

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 for 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)  $V_D = -V_{Dref} \pm 20V$ ?  
If  $V_D = -V_{Dref} \pm 20V$  is not achieved, the grid voltage is adjusted ( $V_G - (V_D + V_{Dref})$ ) and the VD samplings are done again. This cycle is repeated 5 times. If a satisfactory result is not obtained ( $V_D = -V_{Dref} \pm 20V$ ), then SC420 is issued.
- (3)  $V_D = -V_{Dref} \pm 20V$ ?  
If  $V_D = -V_{Dref} \pm 20V$  is achieved,  $V_G$  is determined. The determined value of  $V_G$  is displayed by SP3902 004.  $V_D$  is displayed by SP3902 002.

### 4. LD PM is determined with the detected $V_h$ : $V_H = (-V_{Href}) \pm 20$

(1) The development motor turns off and the laser creates a  $V_H$  pattern 30 mm wide and 80 mm long.

(2) 15  $V_H$  readings are taken at 2 ms intervals. The maximum and minimum values are discarded. The remaining 13 readings are averaged to determine  $V_H$ .

(3)  $V_H = |V_{Href}| \pm 20V$

If  $V_H = |V_{Href}| \pm 20V$  is not achieved, the laser power is adjusted for creation of the pattern.

(4) 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 2103.

(5) The  $V_H$  pattern created with the adjusted laser power is sampled again. This cycle (4) and (5) is repeated until a satisfactory result is achieved. If a satisfactory result is not achieved after the 45th attempt, SC428 is issued.

(6) The correct value for the level of the laser power (PM) is obtained. The result can be displayed with SP3902 005.  $V_H$  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.

#### **Step 6 Update $V_b$ , $V_g$ (Based on VL Detection)**

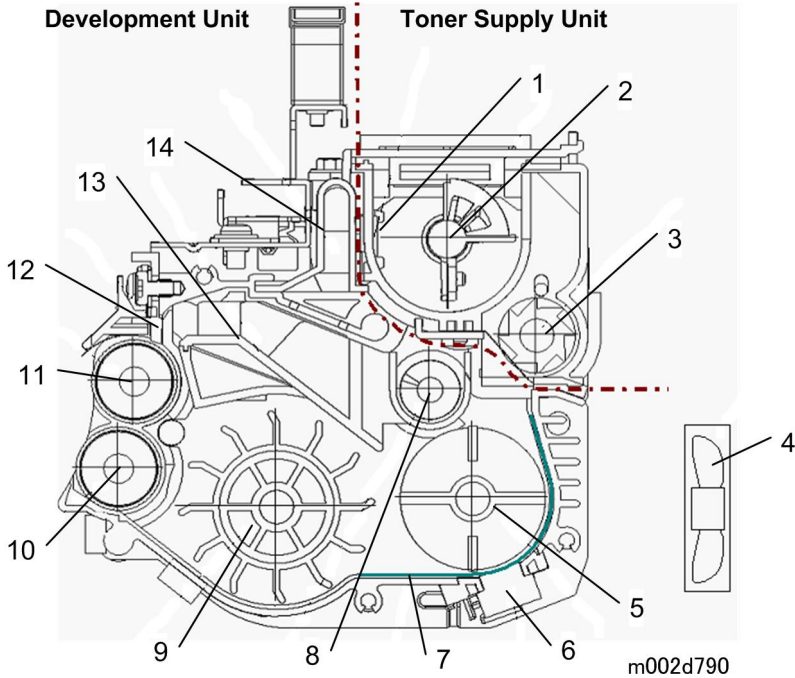
$V_b$  (Development Bias Voltage) and  $V_g$  (Charge Grid Voltage) are finally updated.

#### **Step 7 Process Control Ends**

All motors shut off in the same sequence as any job end.

# Development

## Overview



1.	Toner End Sensor	8.	Toner Transport Coil
2.	Agitator	9.	Paddle Roller
3.	Toner Supply Roller	10.	Lower Development Roller
4.	Cooling Fan	11.	Upper Development Roller
5.	Cross-mixing Roller	12.	Doctor Blade
6.	TD Sensor	13.	Separator
7.	Friction Sheet	14.	Suction Duct

This main machine uses a double roller development system and a dual component development process with toner particles  $6.8 \mu\text{m}$  and developer particles  $50 \mu\text{m}$ . 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



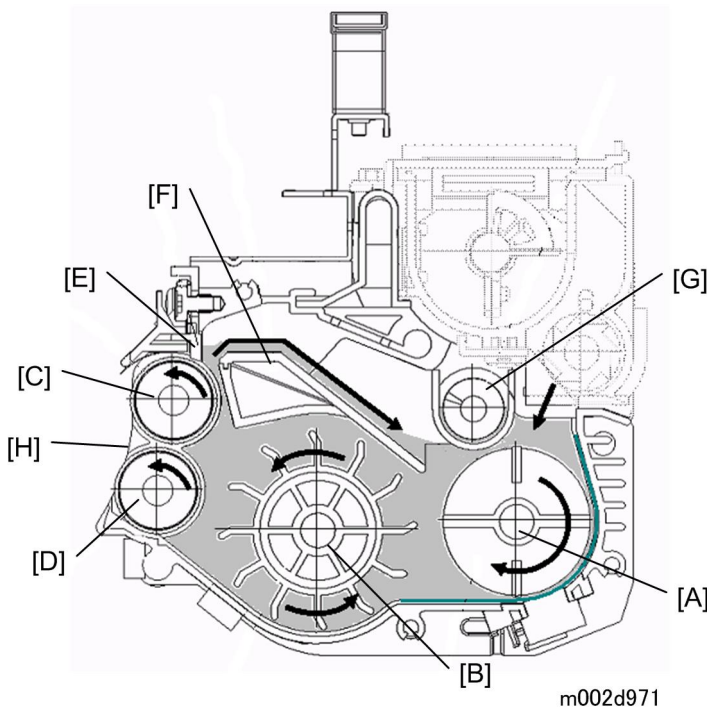
- It develops the image twice
- The relative speed of each development roller against the drum is reduced.

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.

In order to improve overall toner density:

- The angle of the elliptical plate of the cross-mixing roller has been changed.
- The speed of rotation of the cross-mixing roller has been changed.
- A friction sheet was added to improve the accuracy of TD sensor detection.
- Dead space inside the development unit has been eliminated to improve the efficiency of cross-mixing.

## Development Mechanism



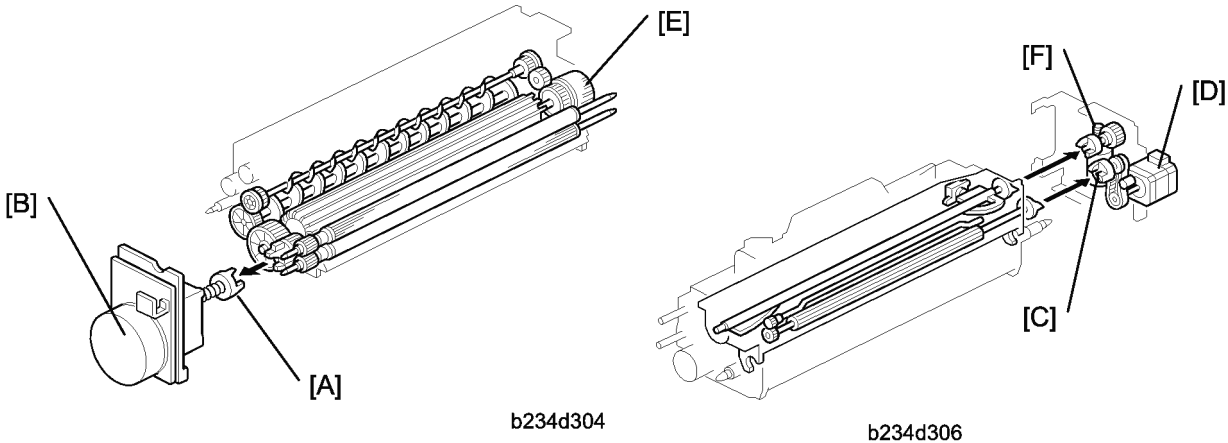
Toner and developer are mixed in the toner agitator by the cross-mixing roller [A]. The paddle roller [B] picks up the developer and sends it to the upper development roller [C]. Internal permanent magnets in the development rollers attract the developer to the development roller sleeve. Developer from 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 surface of the drum [H].

## Drive



The gears in the development unit are driven by the development drive gear [A] when the development motor [B] (a dc servomotor) turns.

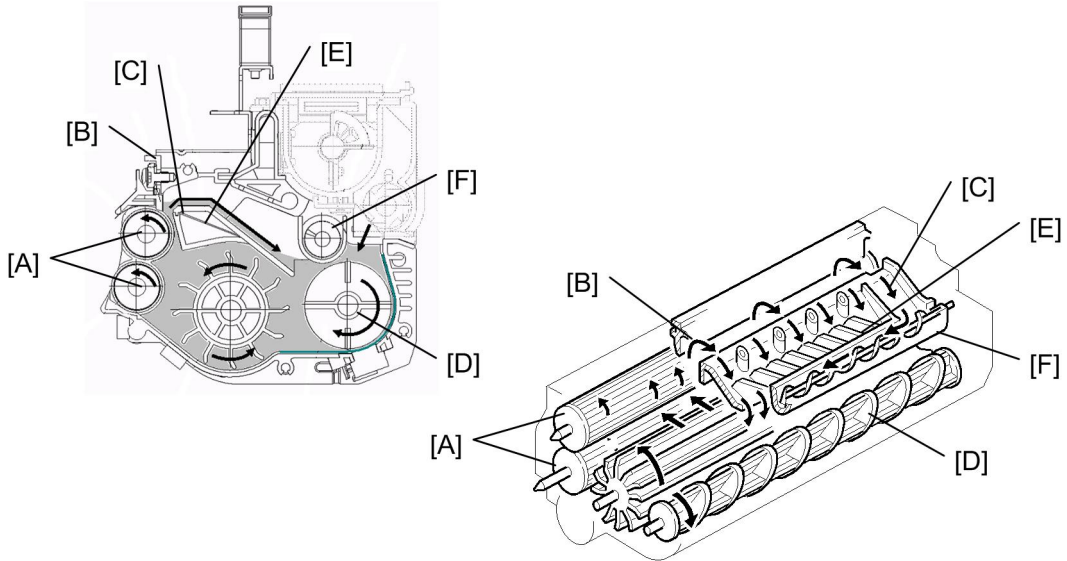
The gears in the toner hopper are driven by the toner supply roller drive gear [C], which is connected to the toner supply motor [D].

A one-way clutch on the paddle roller knob [E] prevents 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

## Cross-mixing



M002d941

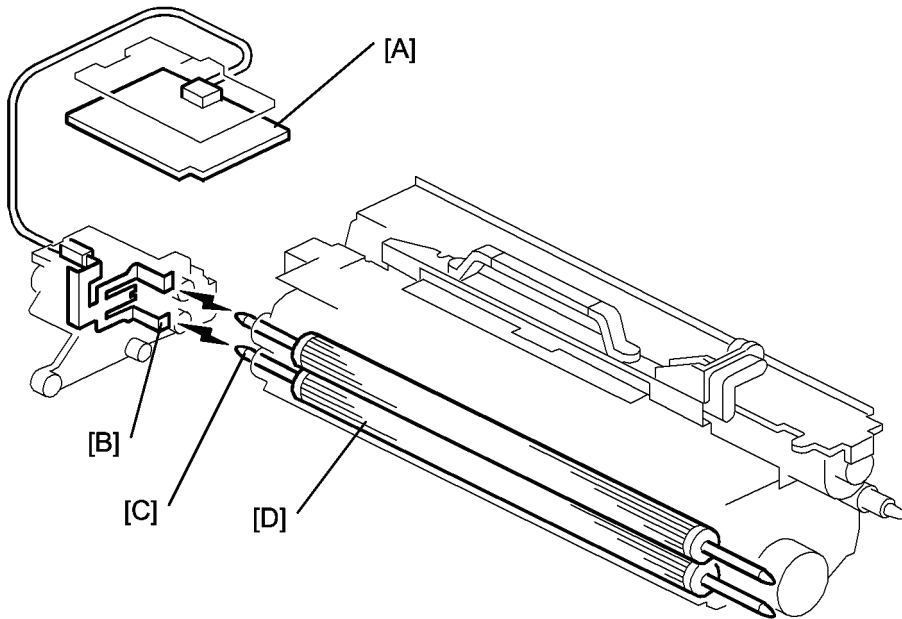
6

This main machine 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].

## Development Bias



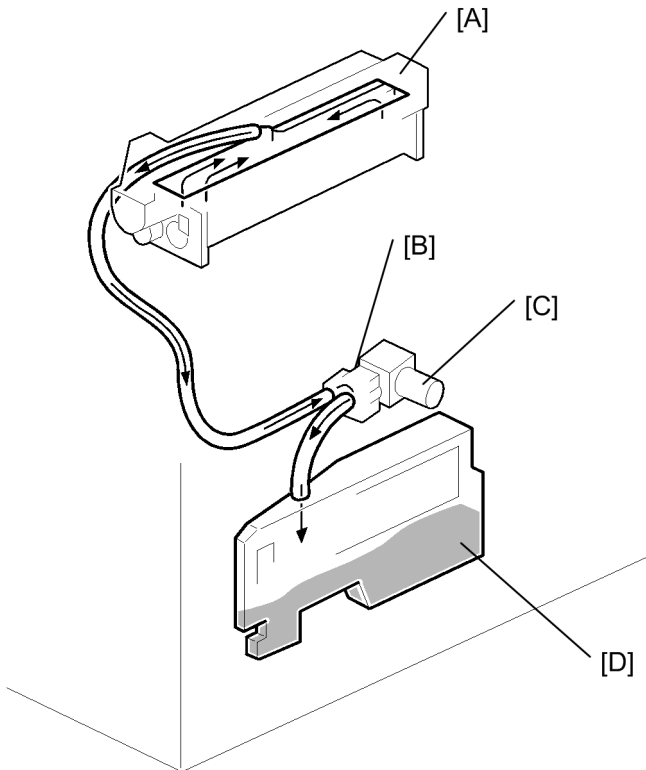
b234d305

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. The shafts never require lubrication.

## Development Unit Toner Suction



b234d943

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.

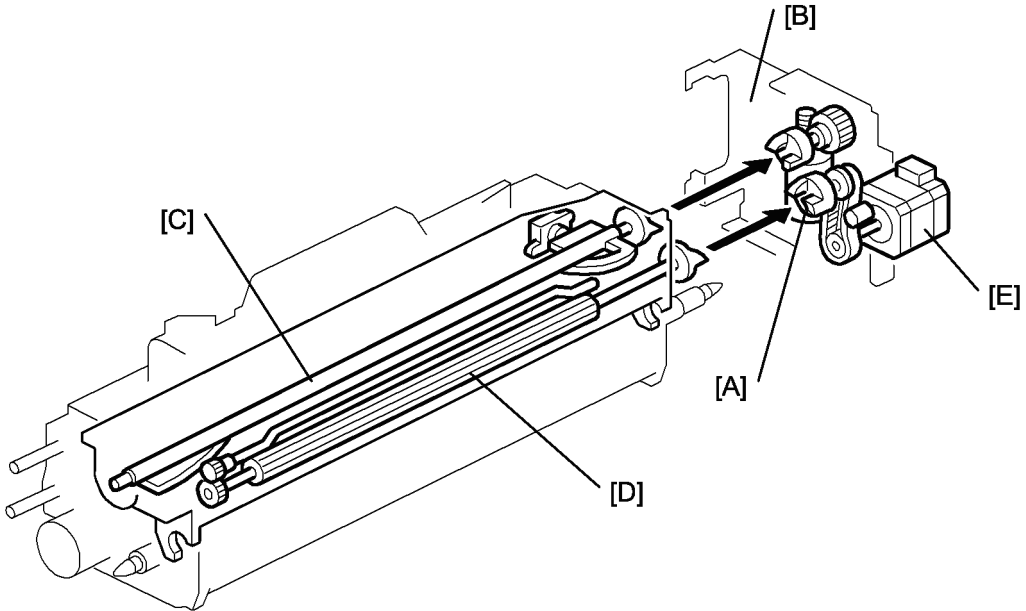
The service life of both the toner suction bottle and toner suction motor are limited.

- 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 main machine LCD panel.

## Toner Hopper

### Toner Supply



b234d306

The toner supply pump motor pumps toner from the toner supply cylinder into the hopper. This toner is new toner mixed with recycled toner.

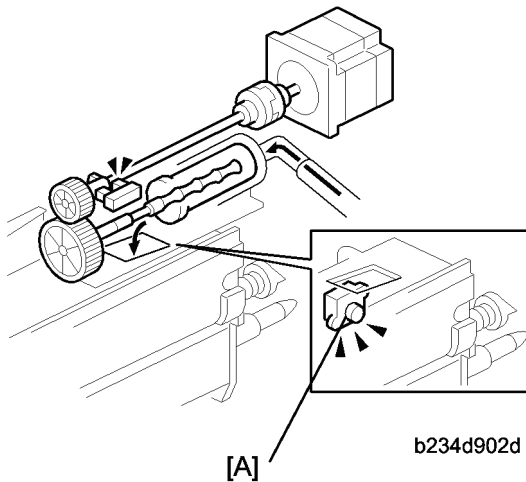
When the hopper agitator motor [A] (inside the development motor unit [B]) turns on, the agitator [C] mixes the toner. Then it moves the toner from rear to front and sends it to the toner supply roller.

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.

## Toner Hopper Empty Detection



The toner hopper sensor [A] detects whether there is enough toner in the toner hopper.

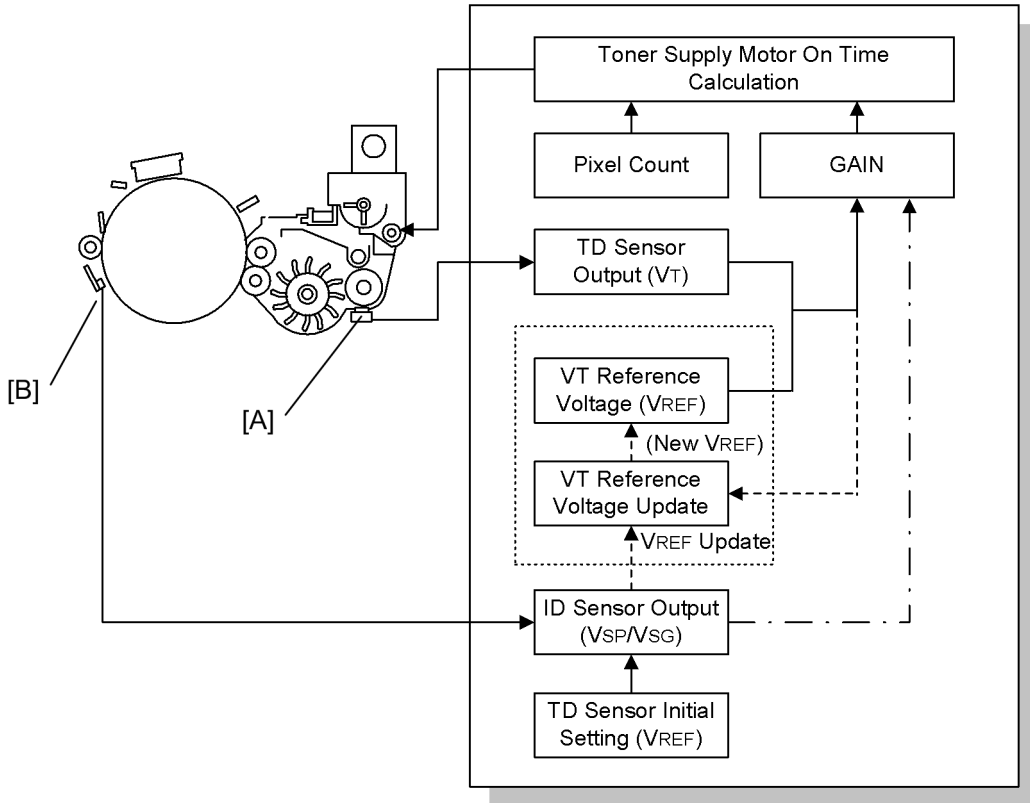
The toner hopper sensor checks for toner once when the toner supply roller clutch turns on. When there is only a small amount of toner inside the toner hopper and pressure on the toner hopper sensor becomes low, the toner hopper sensor outputs a pulse signal for each copy. Then the toner supply pump supplies more toner to the toner hopper.

6

## 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 [A] or ID [B] sensor is defective and cannot be replaced immediately.



b234d994

6

## 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 ( $V_T - V_{REF}$  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  $2.5 \pm 0.1$  V. This value is used as the TD sensor reference voltage ( $V_{REF}$ ). 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 ( $V_t$ ).

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

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  $V_{REF}$  (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  $V_{REF}$  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.

$V_{REF}$  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	
$\alpha = V_T - V_{REF}$	GAIN

$\alpha < 0.00$	0
$0.00 \leq \alpha < 0.06$	1
$0.06 \leq \alpha < 0.10$	2
$0.10 \leq \alpha < 0.20$	3
$0.20 \leq \alpha$	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  $0.7\text{mg}/\text{cm}^2$  / Toner Supply Rate) + 50 ms

When GAIN is "0", the above 50 ms is set to "0".

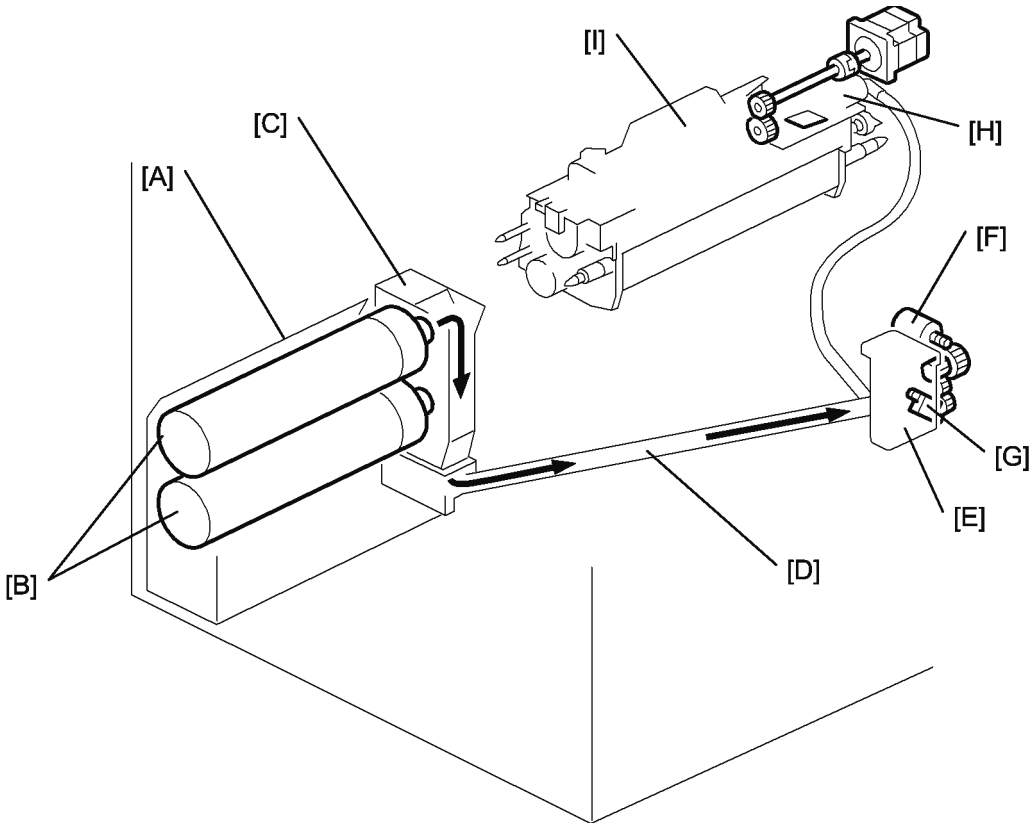
The toner supply rate can be changed using SP2209.

### Image Pixel Count Control

This mode should only be use 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.

# Toner Supply and Recycling

## Overview



b234d902e

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

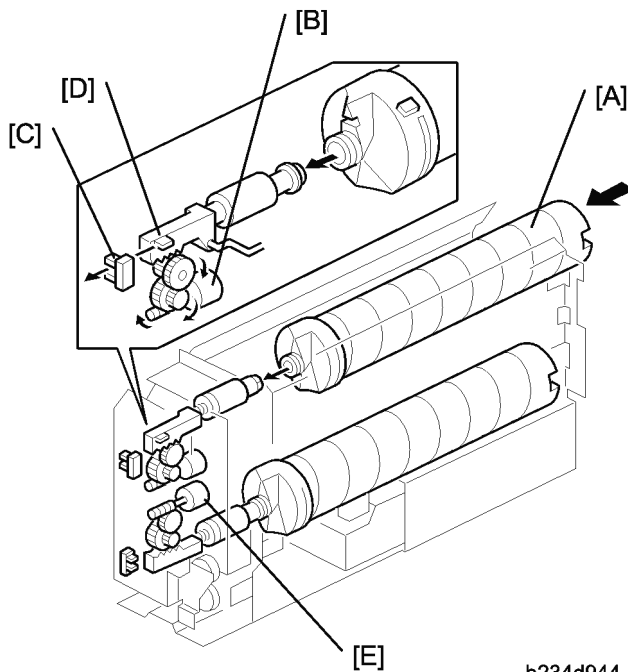
Here are some important points to remember about the toner bank:

- 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.
- Handle toner bottles carefully. Avoid shaking them.

## Toner Bank

6

### Toner Bottle Switching Mechanism



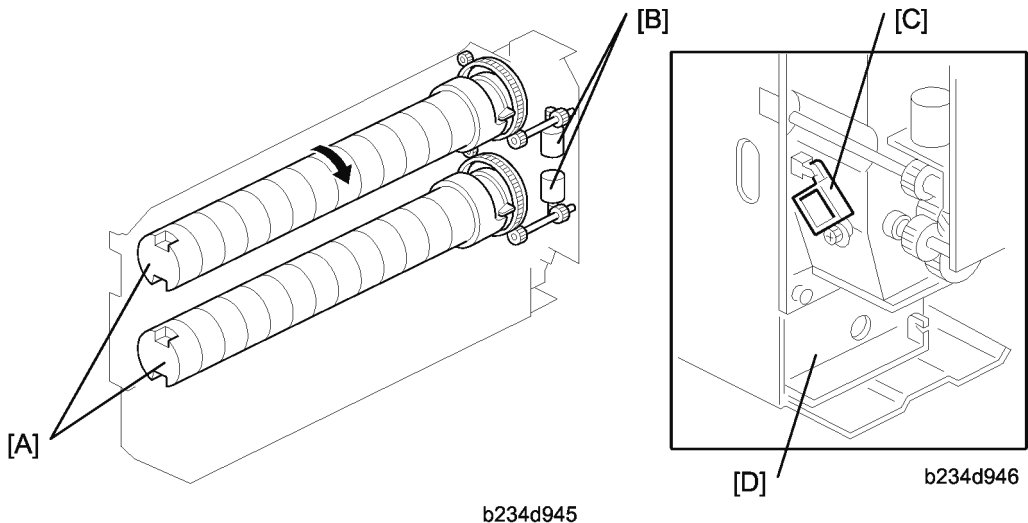
b234d944

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.

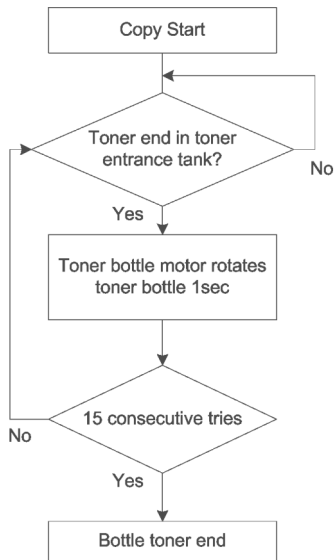
When the toner end sensor (not shown) can no longer detect any toner, it signals the machine that it is time to switch bottles. The upper bottle cap motor switches on and closes the cap of the top bottle, while the lower bottle cap motor [E] switches on and opens the cap of the lower bottle so it can 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.

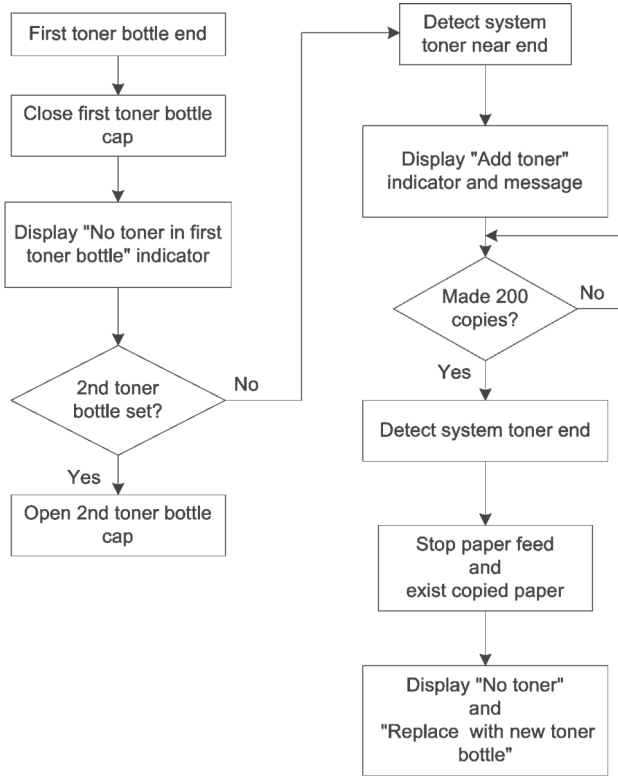


b234d909a

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.



b234d909b

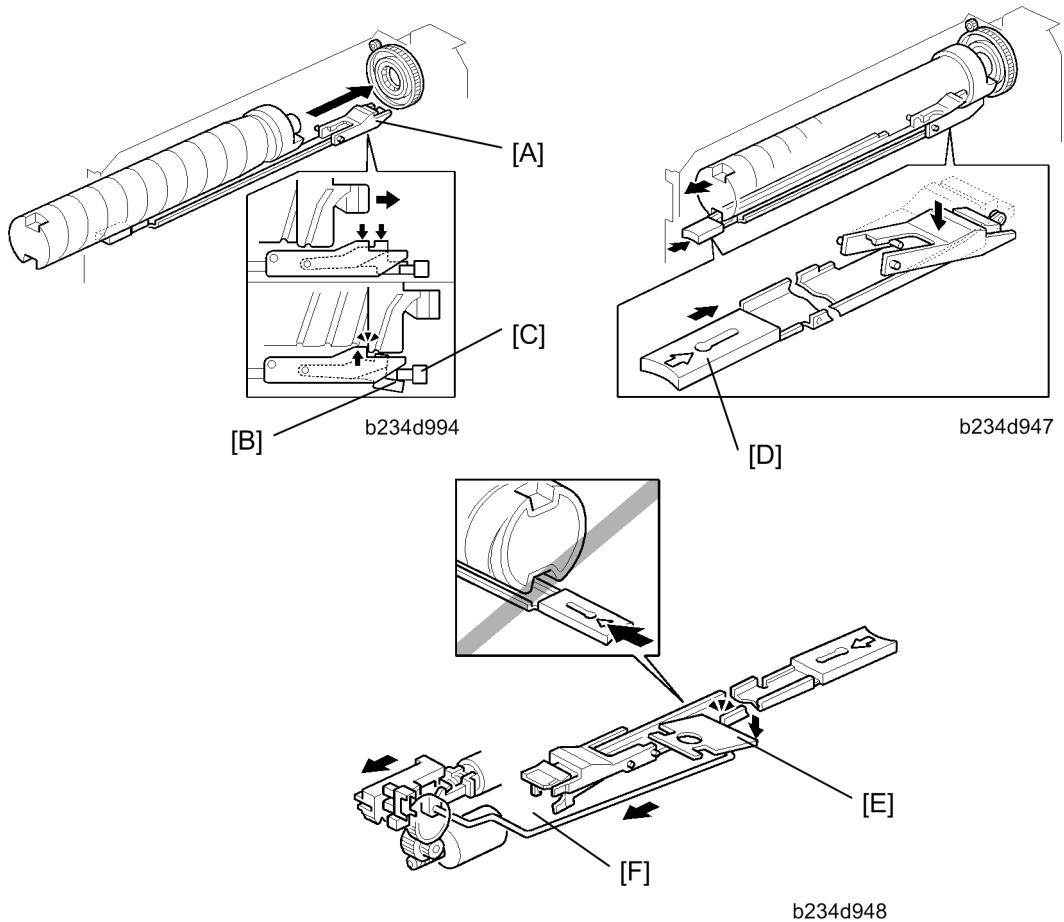
When the operator takes out the old bottle, and puts in a new one, this is detected by the toner bottle sensor. However, this bottle is not tested until the second bottle is empty. When the second bottle is empty, the machine switches back to the first bottle.

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.



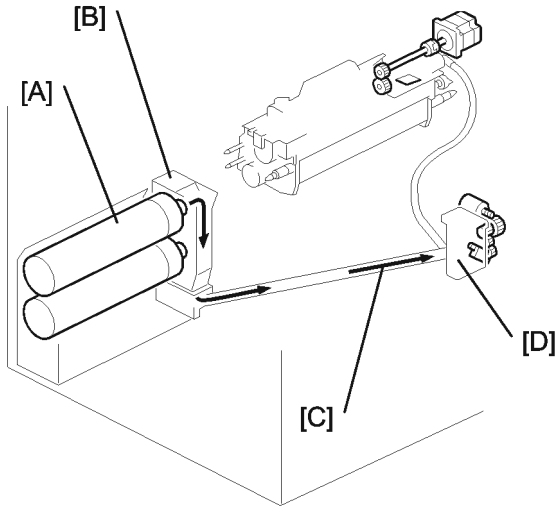
## Toner Bottle Sensors



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).

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.

## Supplying Toner to the Development Unit



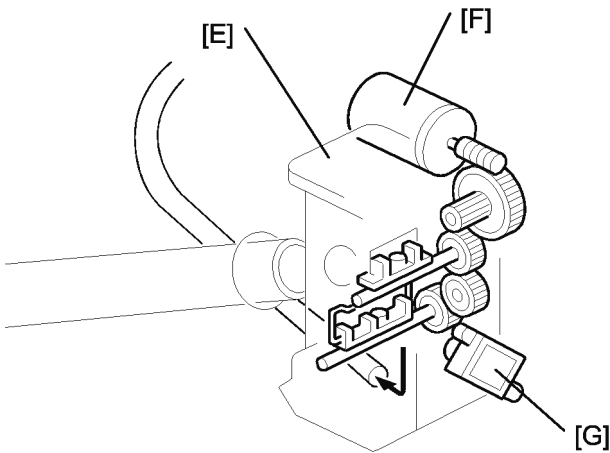
b234d902e

6

The toner bottle motor turns the toner bottle [A]. This spills toner into the toner entrance tank [B].

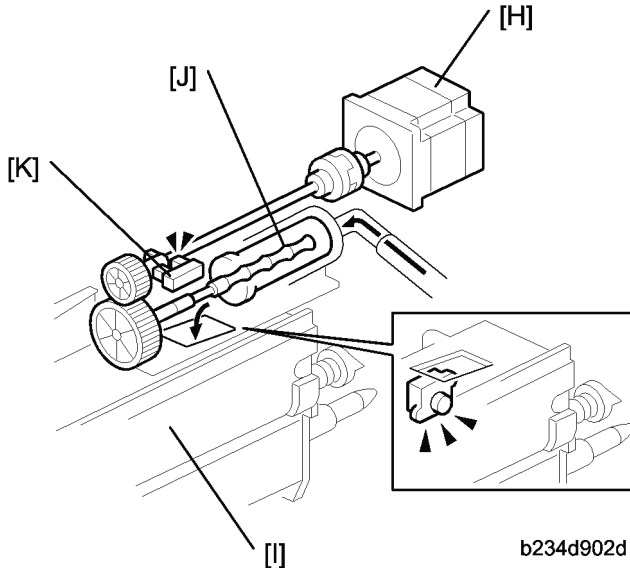
Toner collected from the drum cleaning unit is also sent to the toner entrance tank where it mixes with fresh toner.

The toner bank motor drives the toner transport coil via the toner supply coil clutch toner. The revolving coil [C] inside the transport tube transports the toner to the toner supply cylinder [D].



b234d902c

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.

6

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 to 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 to toner supply cylinder

Step 2: Toner transported from toner supply cylinder to 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 seconds when toner runs low (toner end) in the toner cylinder. If the sensor detects insufficient toner for longer than 2 seconds, it signals the machine to issue SC494 because toner transport has stopped due to an obstruction or some other problem.

## 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.

6

The toner cylinder TE (toner end) sensor checks the toner level 1 second 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 second after the hopper agitator turns off, and 1 second after the toner pump motor turns off. If the sensor detects insufficient toner, it waits for 1 second then signals the pump motor to switch on for 2 seconds.

If the sensor detects insufficient toner for more than 2 seconds, 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

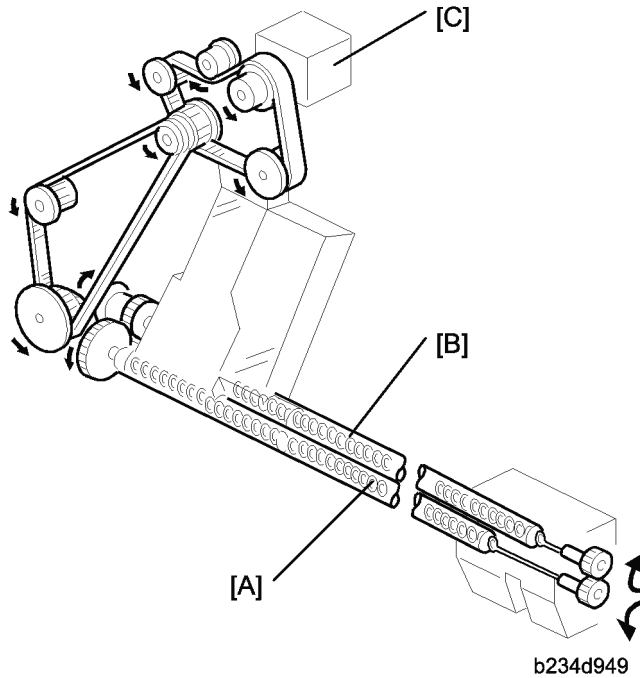
The toner hopper agitator motor turns on with the toner supply pump motor.

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".

## Toner Recycling and Toner Collection

### Overview

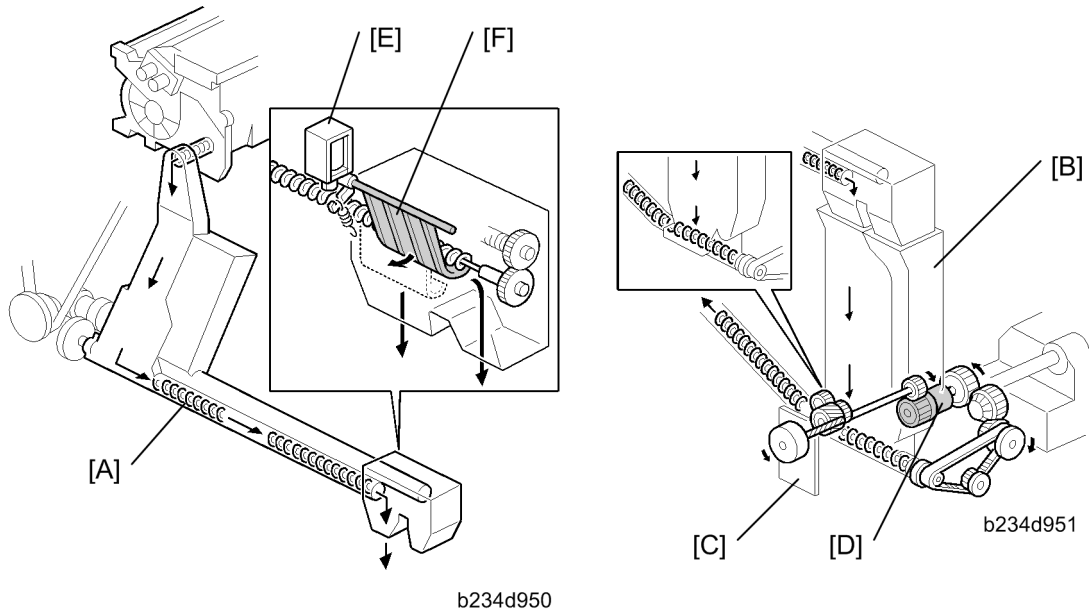


To recycle used toner for re-use, the toner recycling coil [A] in the tube [B] transports the toner collected by the drum cleaning to the toner entrance tank for recycling.

The toner collection coil [A] 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.

## Toner Recycling



6

The toner recycling coil [A] in the tube 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.

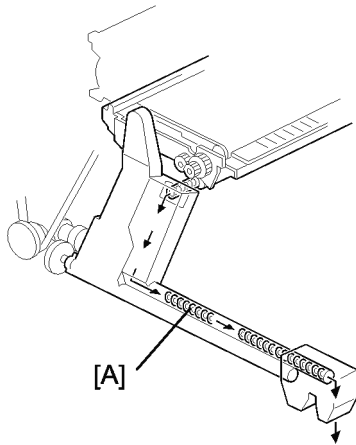
Normally during toner recycling, the toner recycling shutter solenoid remains on and the shutter remains open, but when the number of copies exceeds 25K, the toner recycling shutter solenoid switches off and the shutter closes.

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.

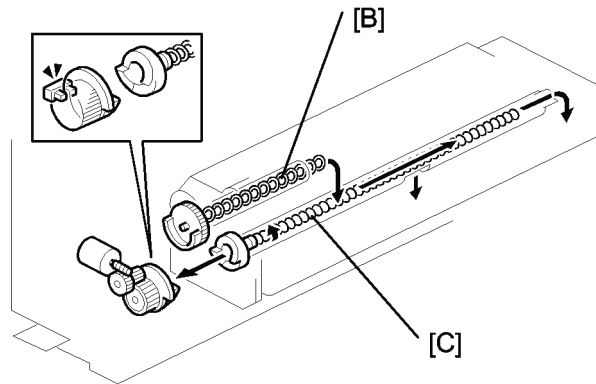
### ↓ Note

- 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



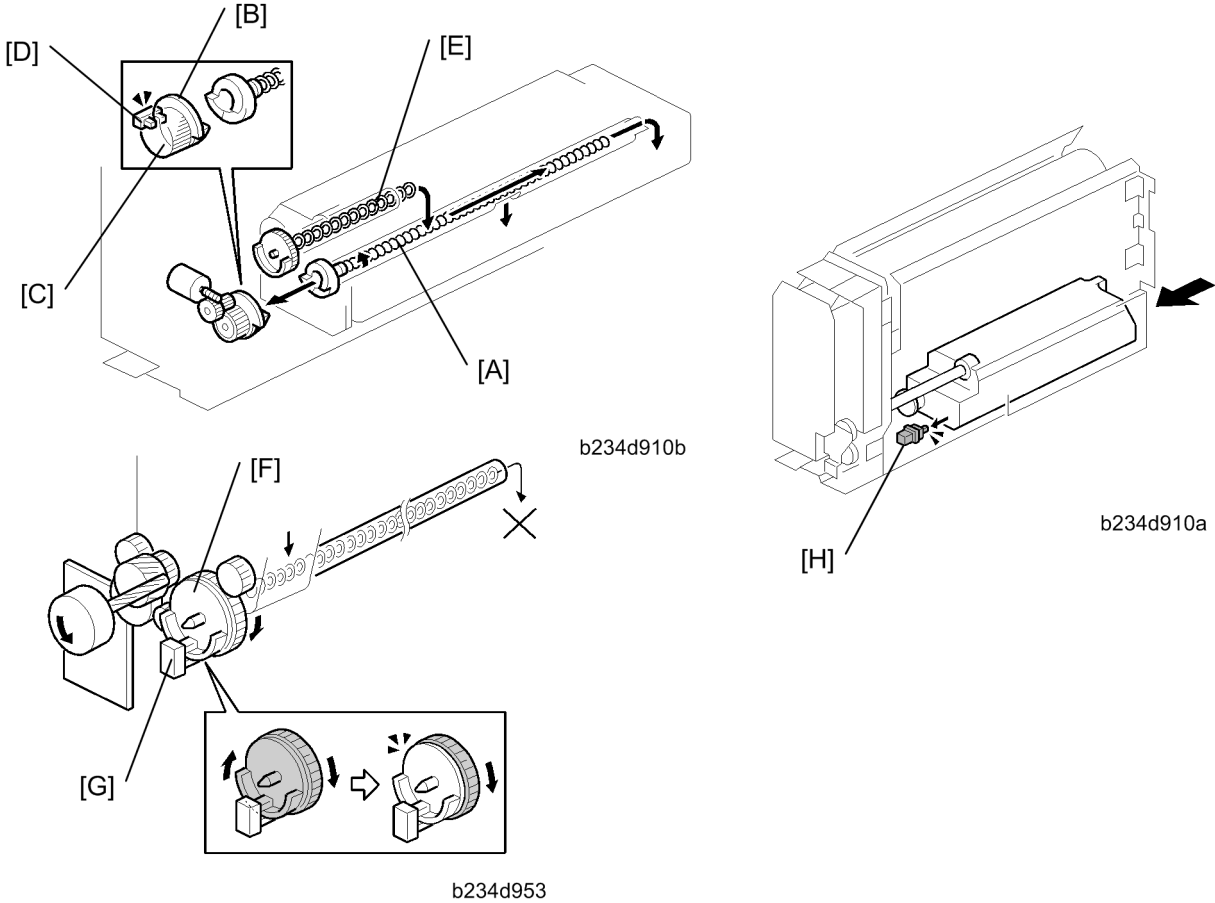
b234d952



b234d910b

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.



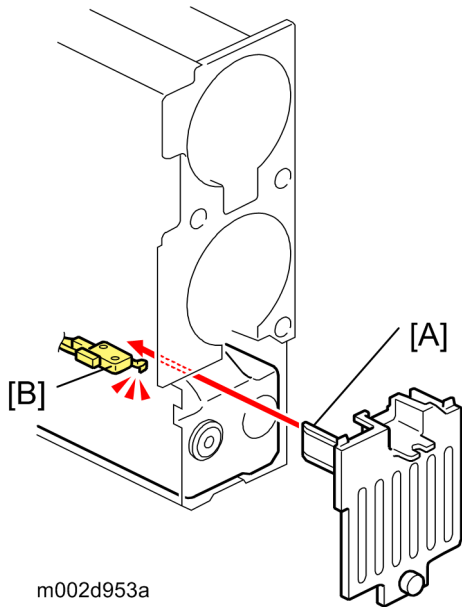
The capacity of the toner collection bottle is approximately 1 800 grams (A4 6%: 650K).

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 ("Waste Toner Bottle is not set correctly or the cover is open.").



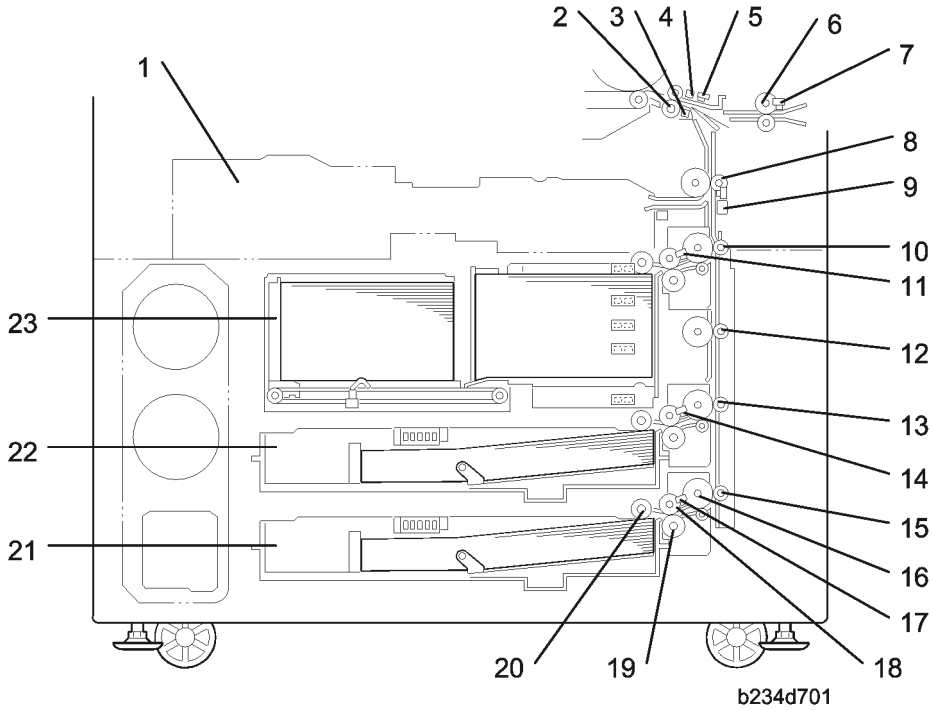


m002d953a

When the toner collection bottle is set, its actuator [A] activates microswitch [B]. This tells the machine that the cover is attached. The machine will not operate unless this cover is attached correctly.

# Paper Feed

## Overview



1. Duplex Tray	13. 2nd Transport Roller
2. Registration Rollers	14. 2nd Paper Feed Sensor
3. Double-Feed Sensor (Emitter)	15. 3rd Transport Roller
4. Double-Feed Sensor (Receptor)	16. 3rd Grip Roller
5. Registration Sensor	17. 3rd Paper Feed Sensor
6. LCT Relay Rollers	18. 3rd Paper Feed Roller
7. LCT Relay Sensor	19. 3rd Separation Roller
8. Upper Relay Roller	20. 3rd Pick-up Roller
9. Upper Relay Sensor	21. 3rd Tray
10. 1st Transport Roller	22. 2nd Tray

11. 1st Paper Feed Sensor	23. 1st Tray (Tandem Tray)
12. Vertical Relay Roller	

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 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.

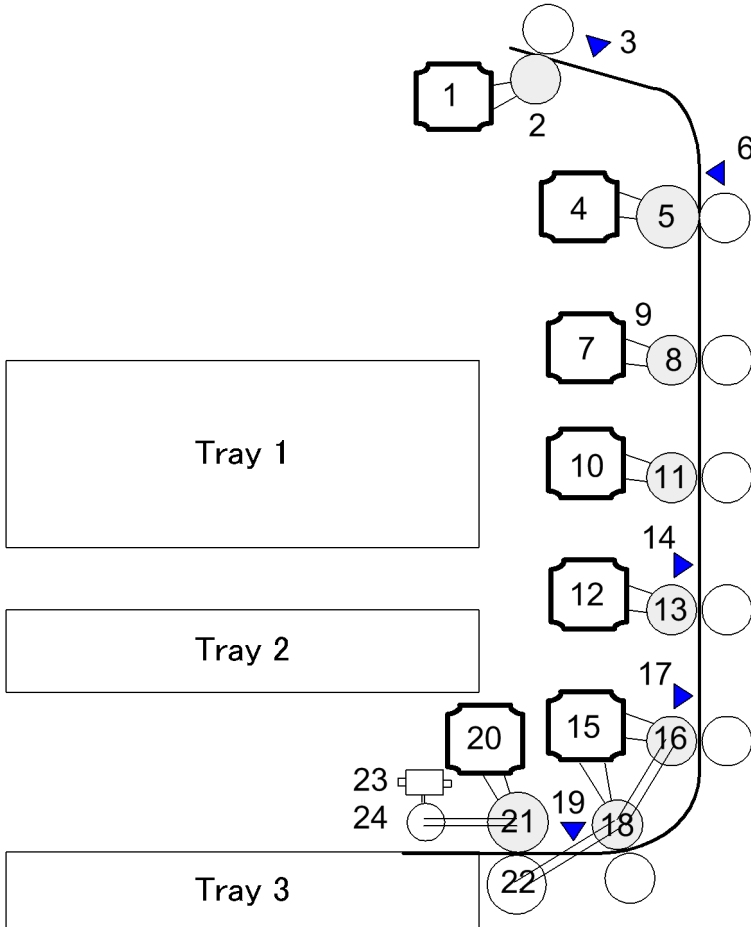
All feed stations use the FRR feed system, shown at (17)-(20) above for the 3rd tray.

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.

**Drive**

**Layout**



b234d905

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.

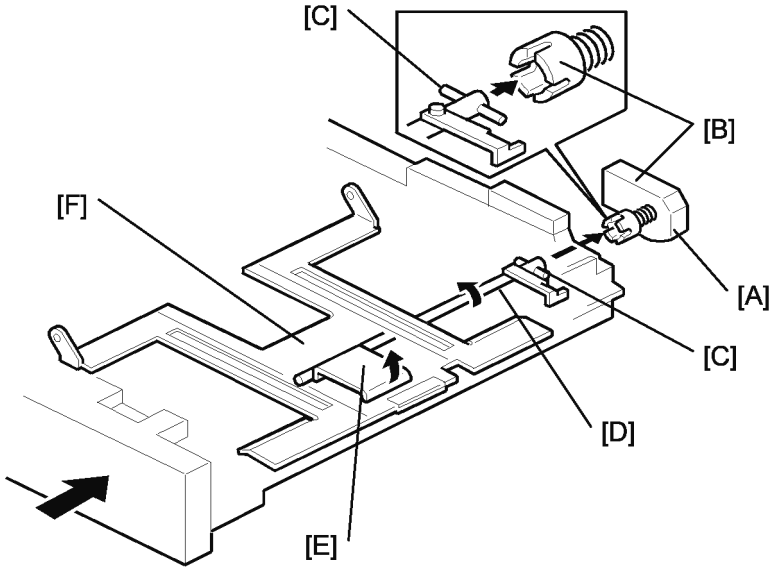
### Vertical Paper Path

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.

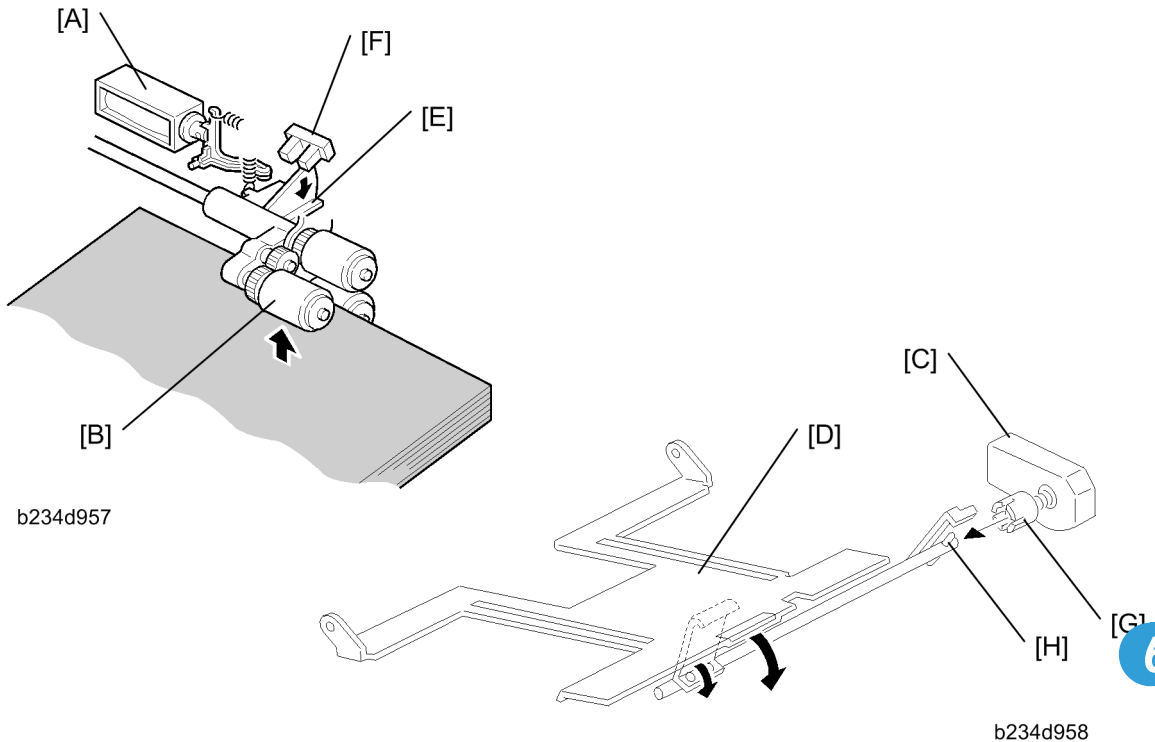
## Paper Lift – Trays 2 & 3



b234d955

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.



6

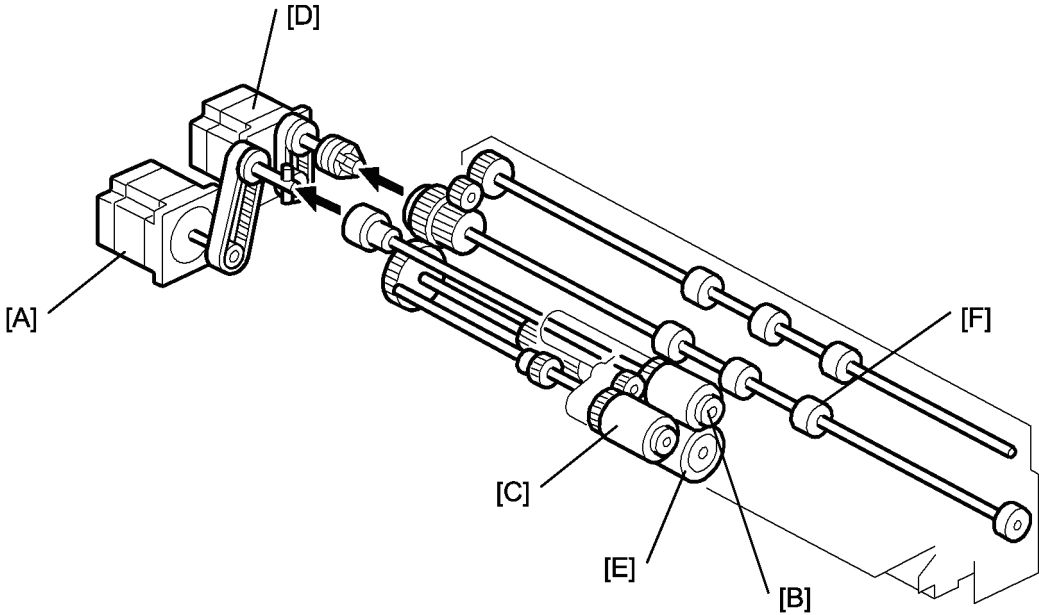
When a stack of paper is loaded in the tray, the paper end sensor below the stack (not shown) activates and switches on the pick-up solenoid [A] to lower the pick-up roller [B]. At the same time, the tray lift motor [C] switches on and lifts the bottom plate [D]. This plate pushes the top of the stack 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.

## Pick-Up and Feed – Trays 1, 2, 3

### Overview

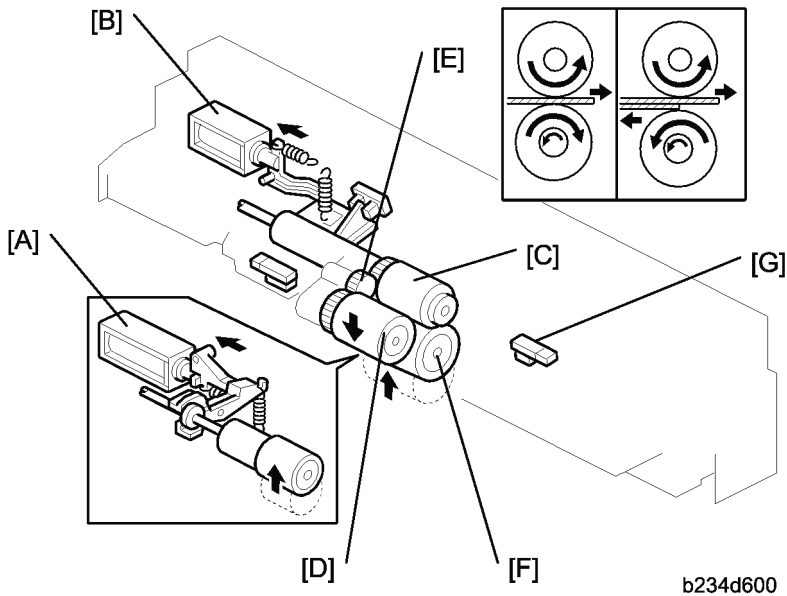


b234d598

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].



## 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].

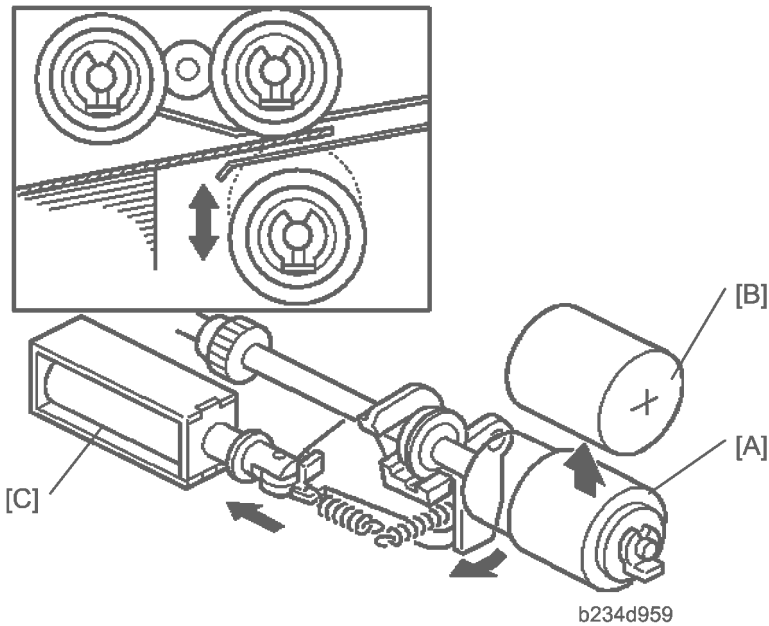
**Grip motor:** Rotates the grip roller and separation roller [F].

**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

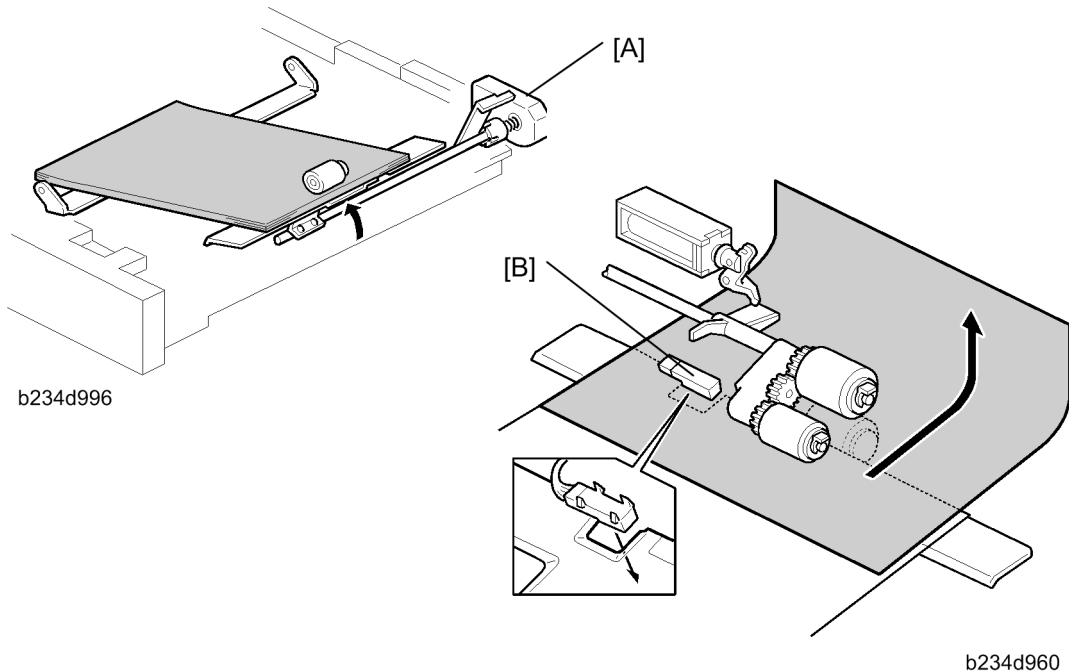


The separation roller [A] is normally away from the feed roller [B]. When the paper feed station is selected, the separation roller solenoid [C] pushes the separation roller up so it touches the paper feed roller.

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.

## Remaining Paper/Paper End Detection (Tray 2, 3)



6

### 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.

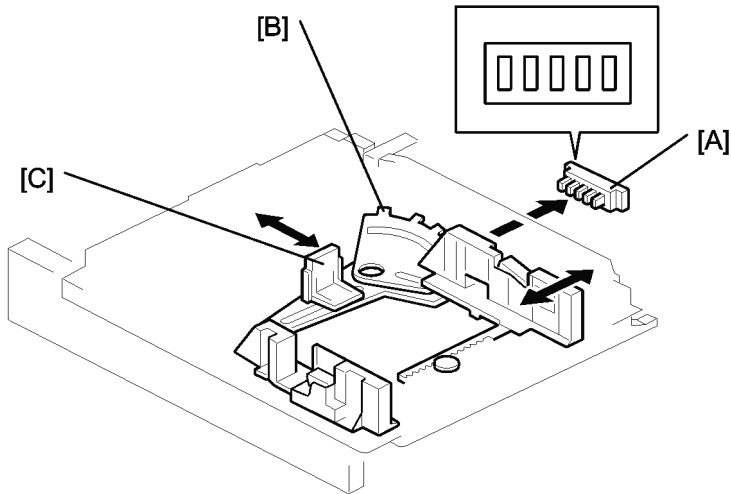
### Paper Size Detection

#### 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)



b234d961

6

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.

### 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

Paper	Size	Switch
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

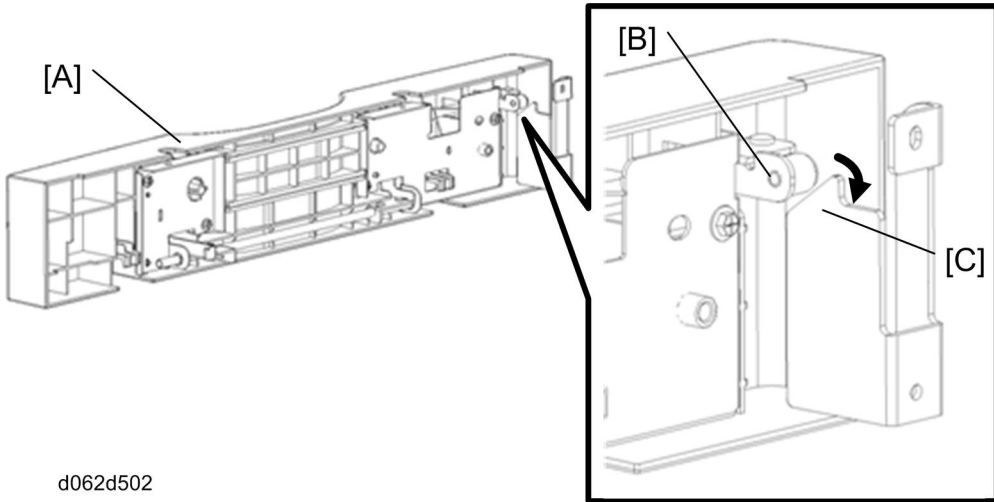
0: OFF (Sensor Output HIGH)

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.

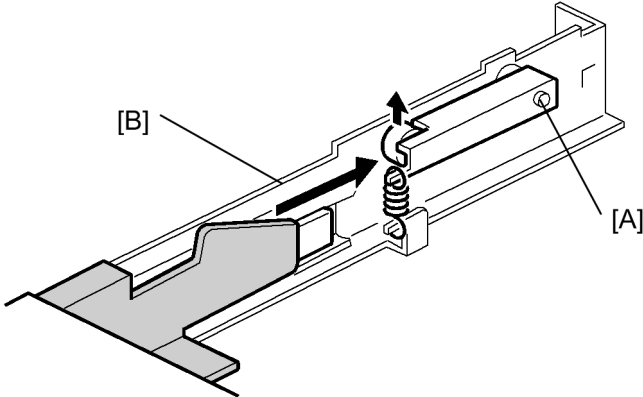
## Tray Lock – Tray 2, 3



d062d502

6

When the tray 2 or 3 [A] is placed in the paper feed unit, the lock lever [B] drops behind the lock plate [C] at the mainframe because of spring tension, and then locks the tray. This lock lever is connected with the tray handle. As a result, pulling the tray handle lifts the lock lever, and then releases the tray.

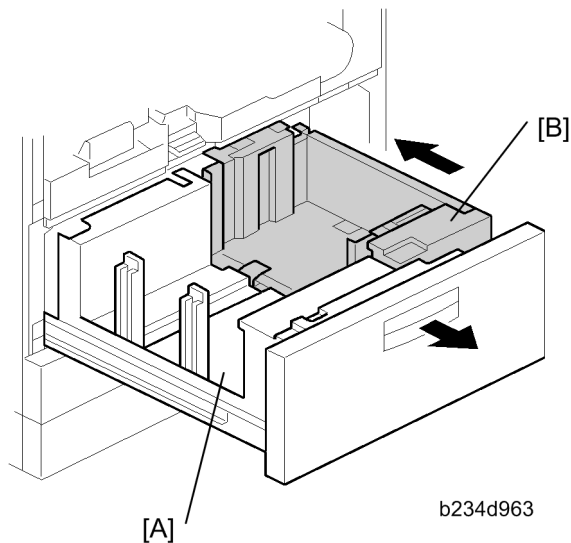


b234d962

The lock lever [A] on the left rail of the mainframe also drops behind the lock plate [B] on the support bracket to lock the tray in the proper position at the same time.

## Tandem Feed – Tray 1

### Overview



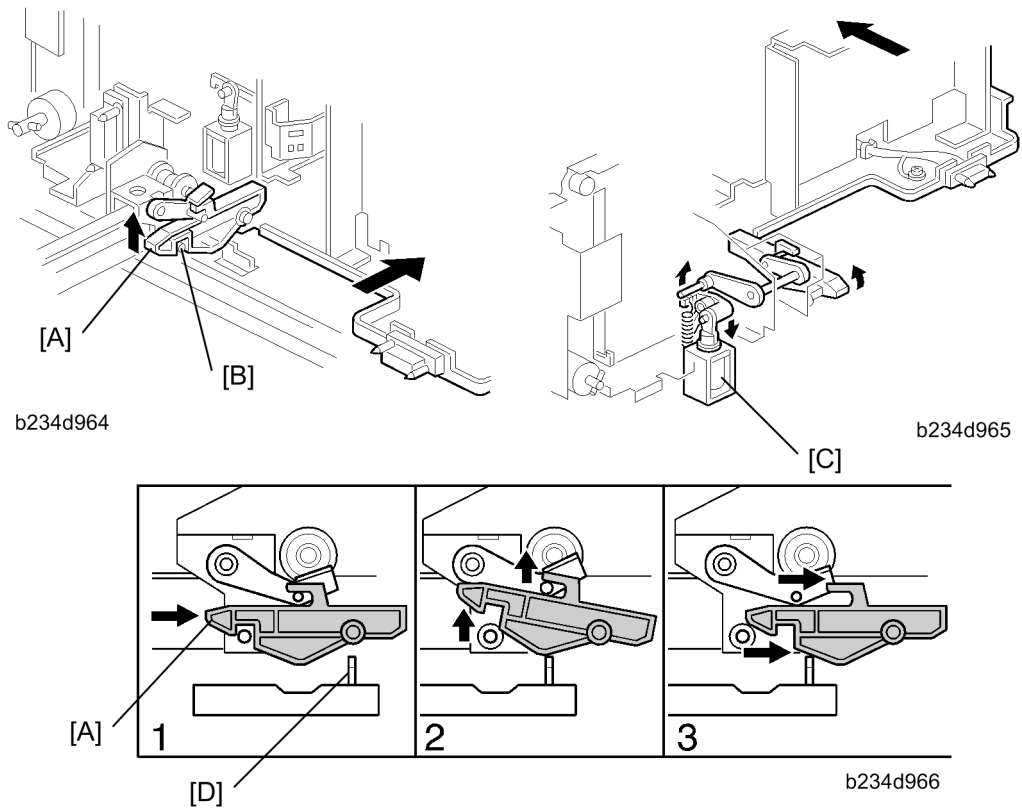
1,000 sheets of paper can be set in the left tray [A] and right tray [B] of tray 1, the tandem paper tray. Paper is fed from the right tray. When the paper in the right tray runs out, the paper stack in the left tray automatically is pushed to the right tray. After the stack is moved from the left tray 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



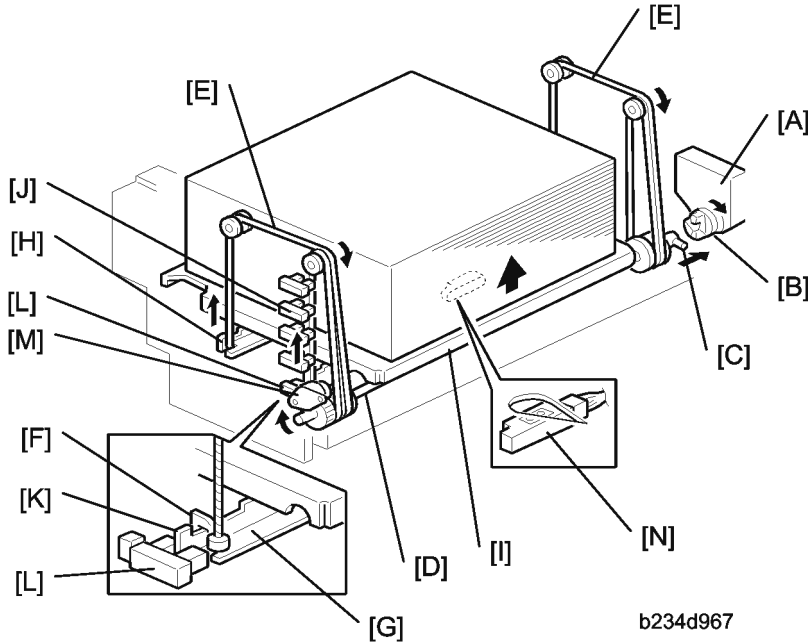
Normally the left tray lock lever [A] catches the pin [B] in the right tandem tray. During copying, if there is no paper in the left tray, the tandem tray connect solenoid [C] turns on to release the tray lock lever so the left tray separates from the right tray. Therefore, the left tray can be pulled 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.

### 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].

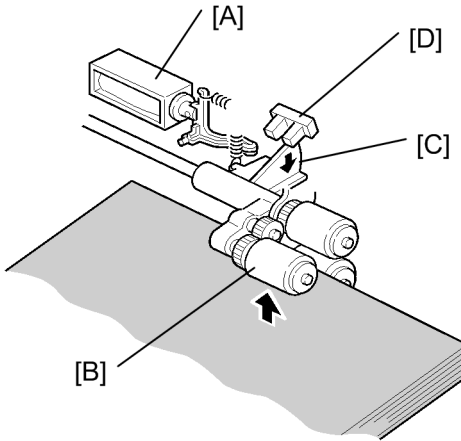
The tray wires [E] are fixed in the slots [F] at the ends of the tray support rods [G, H]. When the tray lift motor rotates clockwise, the tray support rods and the tray bottom plate [I] rise. The tray rises until stack pushes up the pick-up roller until the tray lift sensor de-activates and switches 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.

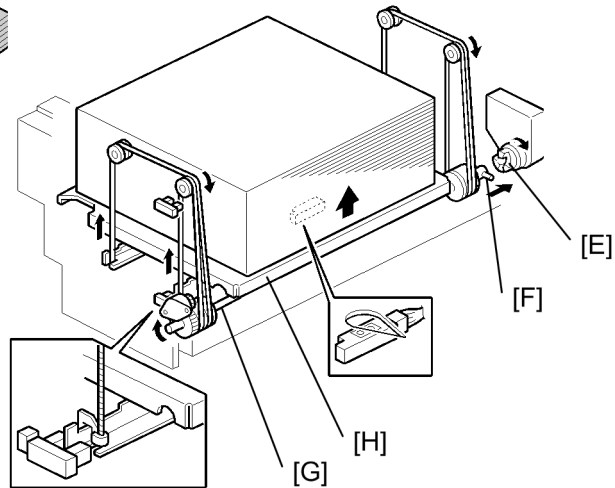
Paper Height Sensor	Remaining Paper	Comment
None	100%	Bottom position, no sensors de-activated.
1	75%	Each sensor de-activates as the actuator rises.
2	50%	
3	25%	
4	Near End	
	Paper Out	Detected by the paper sensor [N] below the stack when the last sheet feeds.

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



b234d970



b234d968

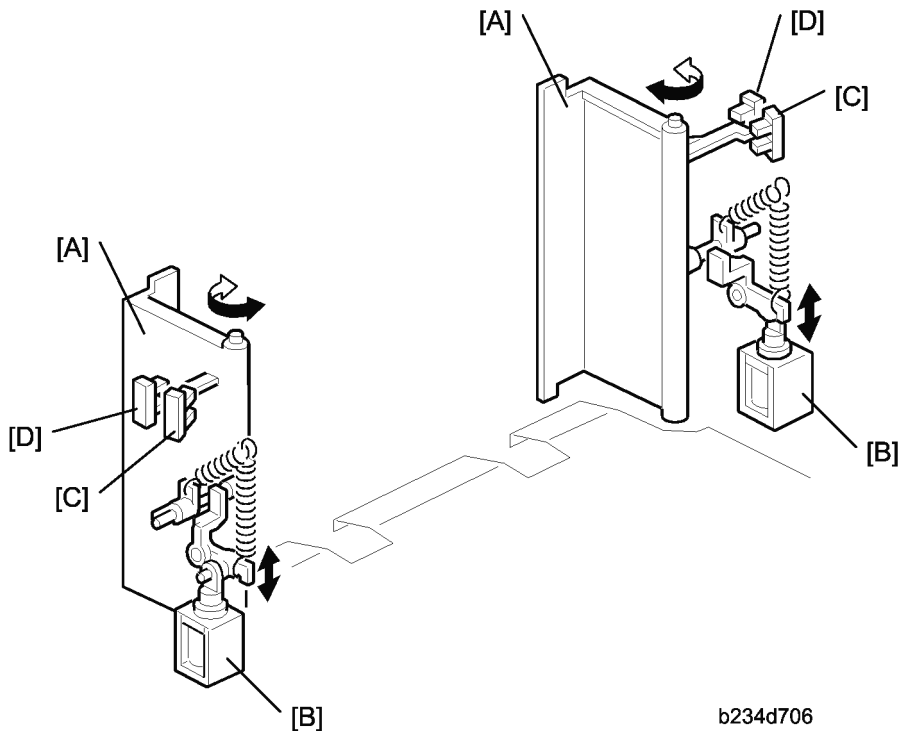
When the tray lift motor turns on, the pick-up solenoid [A] actuates and lowers the pick-up roller [B]. When the top of the stack reaches the correct height for paper feed, it pushes up the pick-up roller and lowers the actuator [C]. This actuator de-activates the tray lift sensor [D] when it leaves 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.

### Side Fence Drive: Tray 1

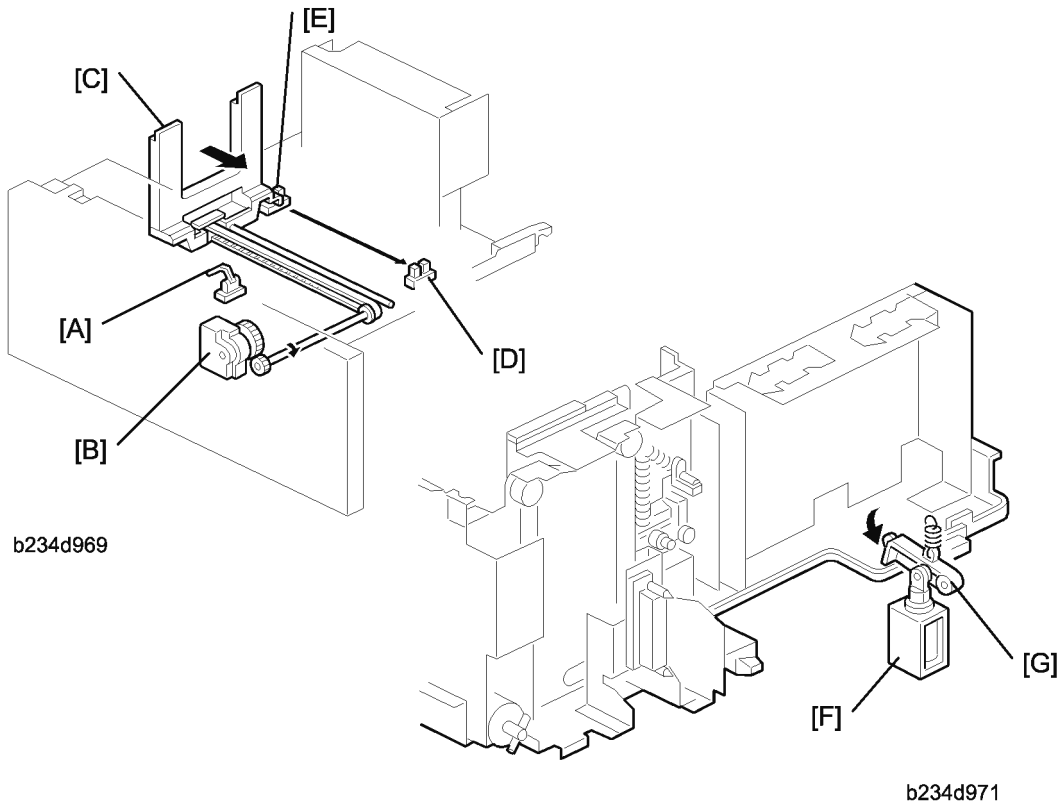


The side fences [A] of the right tray are normally closed. They open only when paper in the left tray is moving to the right tray.

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



b234d969

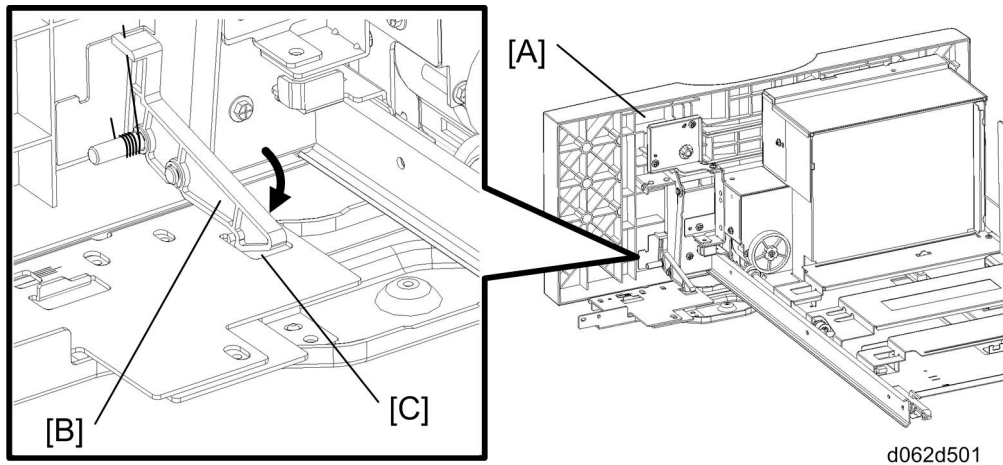
b234d971

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.

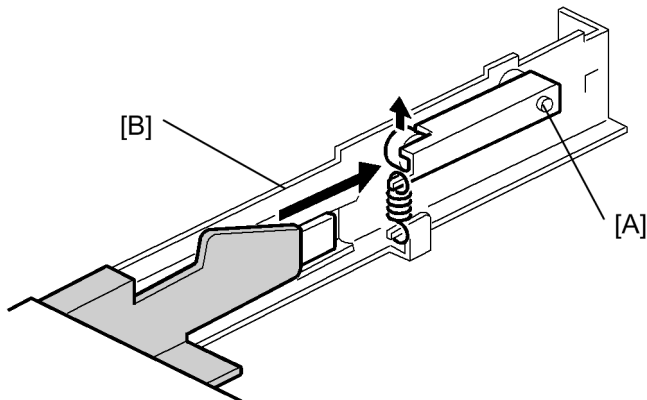
When the actuator on the rear fence activates the rear fence return sensor [D], the rear fence drive motor turns clockwise until the actuator activates the rear fence HP sensor [E].

While the rear fence is moving, the left 1st tray lock solenoid [F] turns on and the lock lever [G] locks the left tray.

## Tandem Tray Lock Mechanism

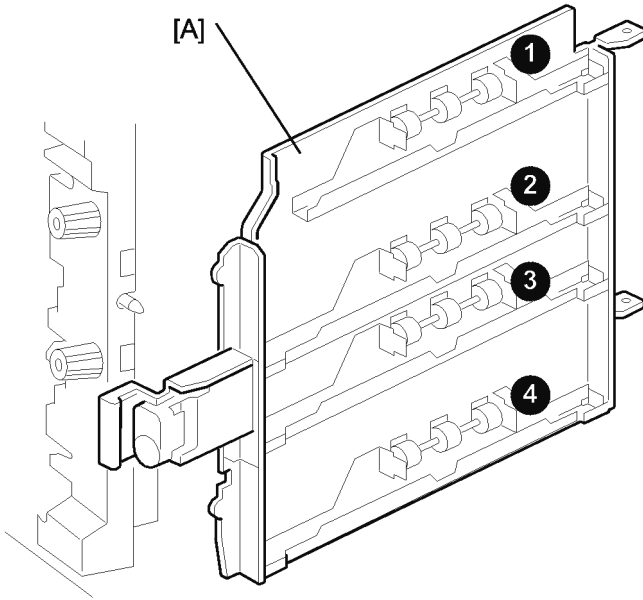


When the tray 1 [A] is placed in the paper feed unit, the lock lever [B] drops into the cutout [C] in the skew adjustment bracket because of spring tension, and then locks the tray. This lock lever is connected with the tray handle. As a result, pulling the tray handle lifts the lock lever, and then releases the tray.



The lock lever [A] on the left rail of the mainframe also drops behind the lock plate [B] on the support bracket to lock the tray in the proper position at the same time.

## Vertical Transport

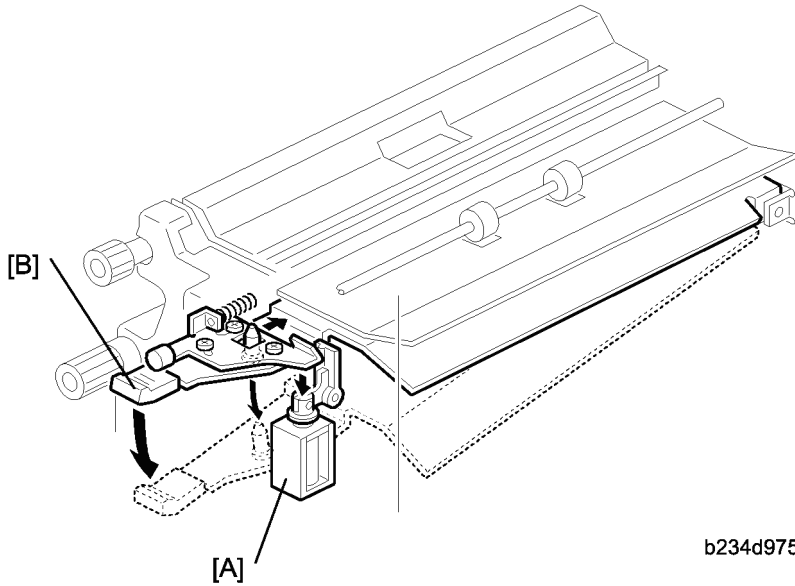


b234d617

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.

## LCT Guide Plate



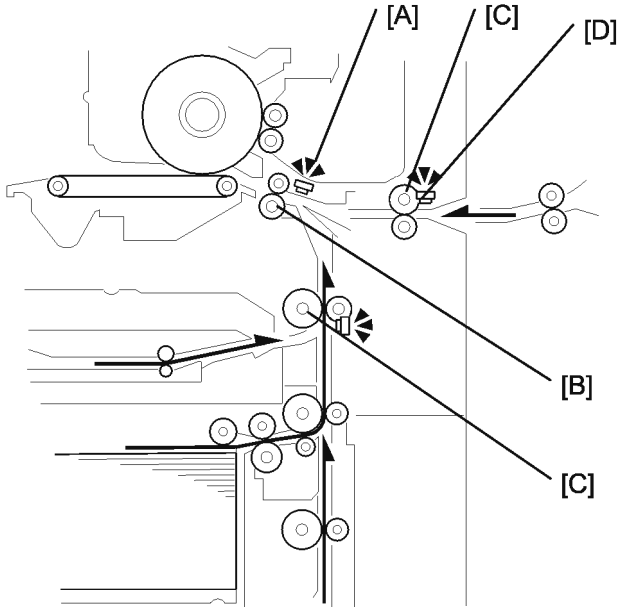
b234d975

6

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] in order for the user to easily remove jammed paper. After removing the jam, the user must return the B5 lever to its normal position.

## Paper Registration

### Overview



b234d976

The registration sensor [A] is positioned just before the registration rollers [B].

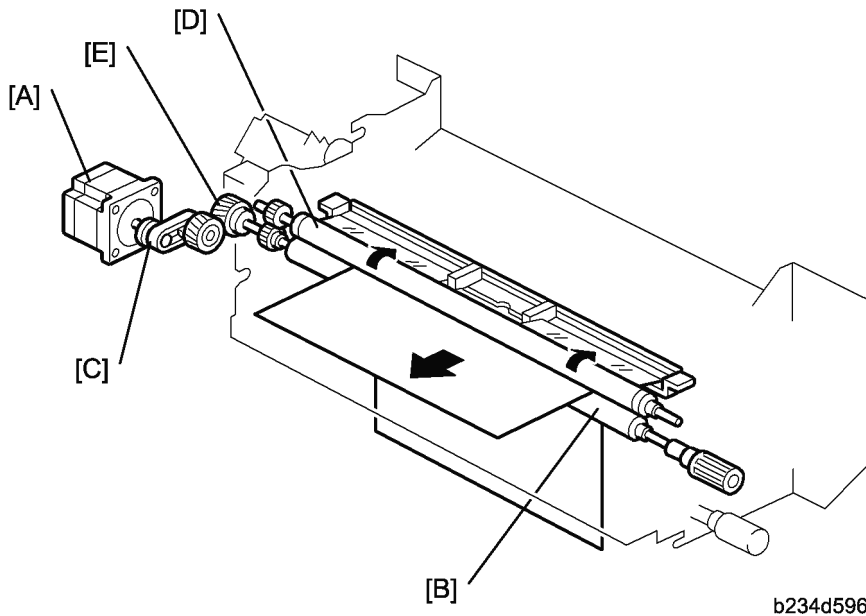
When the paper leading edge activates the registration sensor, the registration motor is off and the registration rollers are not turning. However, the upper relay roller (or LCT relay roller for feed from the LCT) [C] stays on for a bit longer.

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 mis-feed detection, and the LCT relay sensor [D] detects jams at the LCT roller.



## Registration Drive



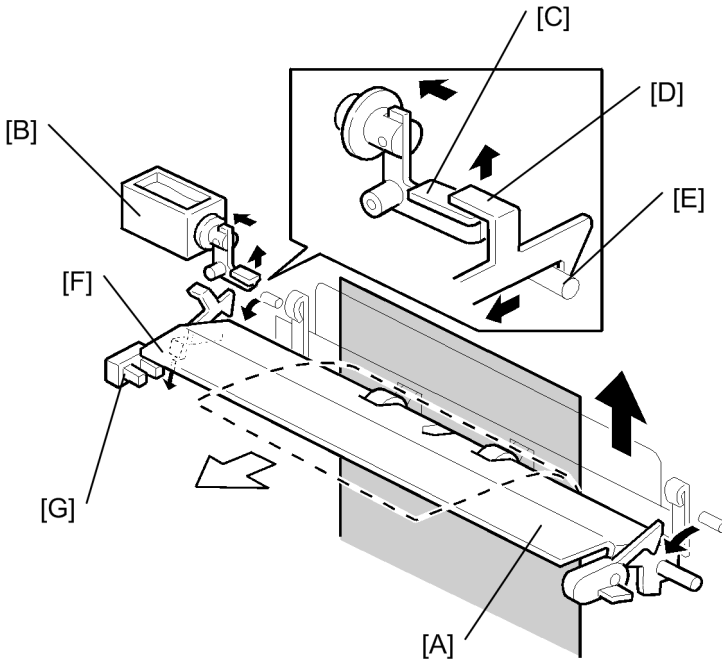
The registration motor [A] drives the lower registration roller [B] through a timing belt [C] and some gears. Drive is transmitted to the upper registration roller [D] via two gears [E] at the front.

The paper dust remover 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



b234d977

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.

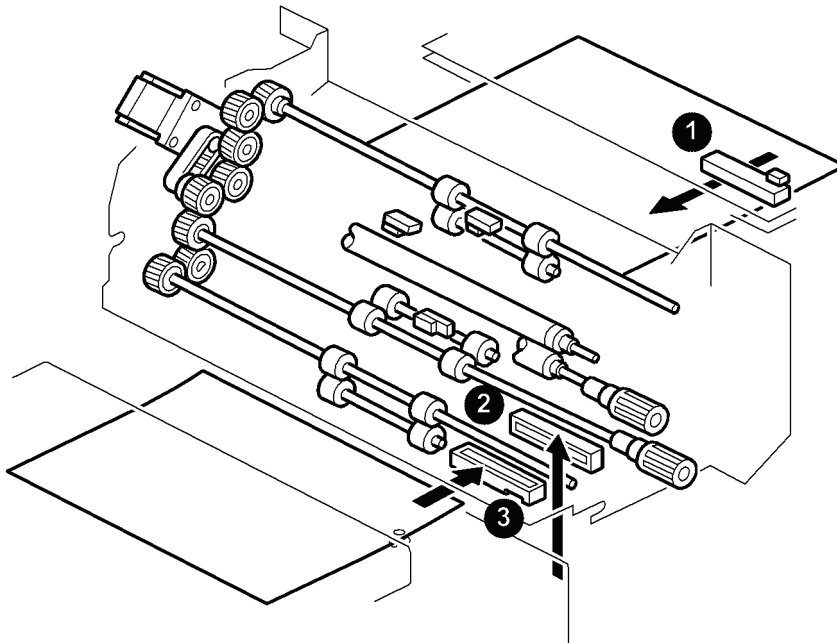
Guide plate solenoid [B] turns on > Lever [C] raises > Lock lever [D] (on the guide plate) releases from pin [E] (on the rear side frame) > Guide plate [A] falls open > Paper coming along the feed path is diverted to the duplex tray.

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.

## Image Position Correction



b234d904a

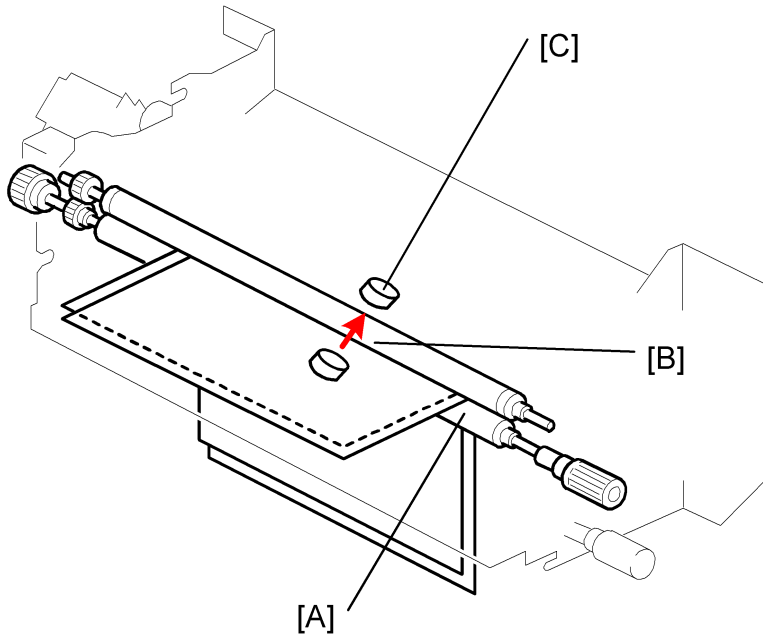
There are three image position sensors:

- (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 main machine 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.

## Double-Feed Detection



d059d001

[A]: Registration Rollers

[B]: Double-Feed Sensor 1 (Emitter)

[C]: Double-Feed Sensor 2 (Receptor)

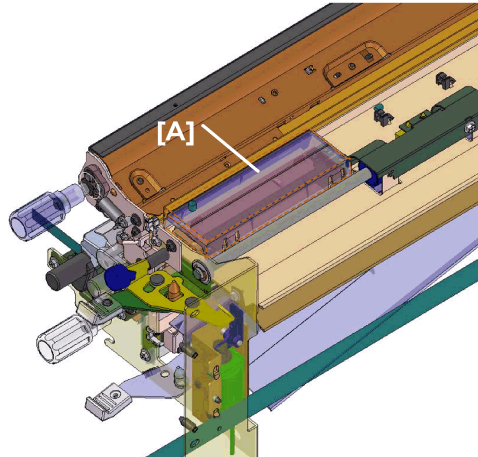
The double-feed sensors, mounted above and below the paper path at the registration roller, employ ultrasound. The bottom sensor [A] (the emitter) aims uninterrupted small supersonic waves at the top sensor [B] (the receptor).



When the a sheet of plain paper [A] passes between the bottom sensor ① and the top sensor ②.

- The sound waves emitted from the bottom sensor strike the paper. This is called the "primary signal".
- The waves striking the bottom of the paper start the paper oscillating very slightly only where the waves strike. The obstruction of the paper weakens the wave signal on the top side of the paper. This is called the "secondary signal".
- The receptor sensor picks up this extremely weak secondary signal on top side of the paper, amplifies it, converts it to an electronic signal and sends it to the URB.
- The strength of the secondary signal is different for each type of paper, depending on its thickness [B].

- Because the secondary signal is very weak, if a double feed [C] occurs, there will be no secondary signal and the receptor sensor will detect nothing. When this occurs the machine will signal a double-feed, stop paper feed, and issue an error message.



d059d003

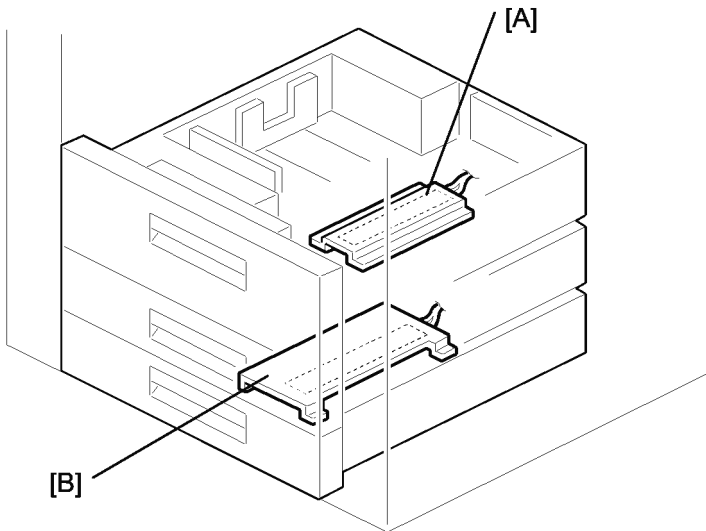
Both sensors are connected to the URB [A] which constantly monitors and compares the strengths of the primary signal and the secondary signal.

The URB is mounted directly under the development unit so it is encased in a hard cover to protect it from toner scatter. It connects directly to the IOB.

**Note**

- These sensors do not require calibration or adjustment.

## Anti-Condensation Heaters (Options)



b234d978

6

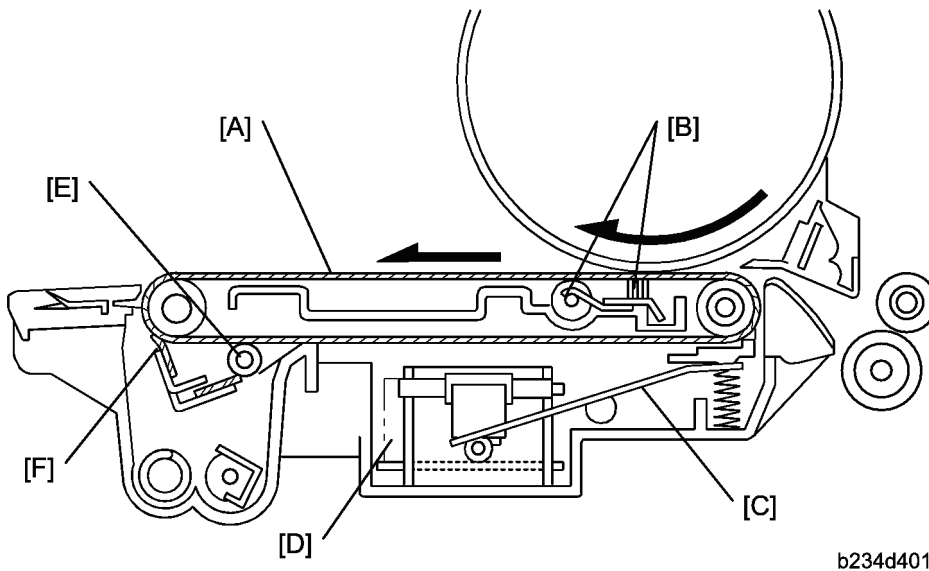
Two optional anti-condensation heaters can be installed below the 1st tray [A] and below the 3rd tray [B]. The anti-condensation heaters switch on when the main switch or operation switch are switched off. The anti-condensation trays prevent moisture from collecting in and around the paper trays when 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.

# Image Transfer and Paper Separation

## Overview



6

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.

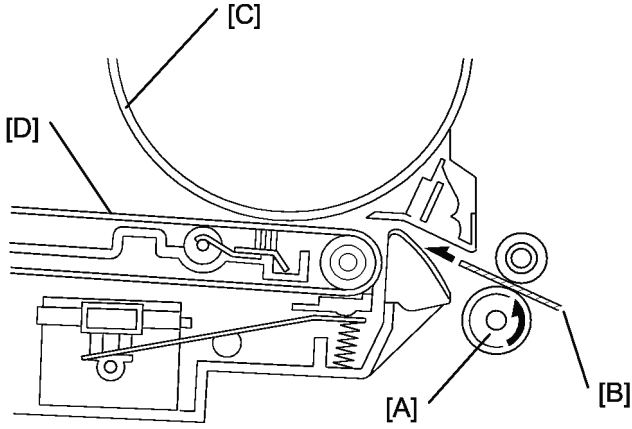
**[E]: Cleaning bias roller and cleaning roller cleaning blade**

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].

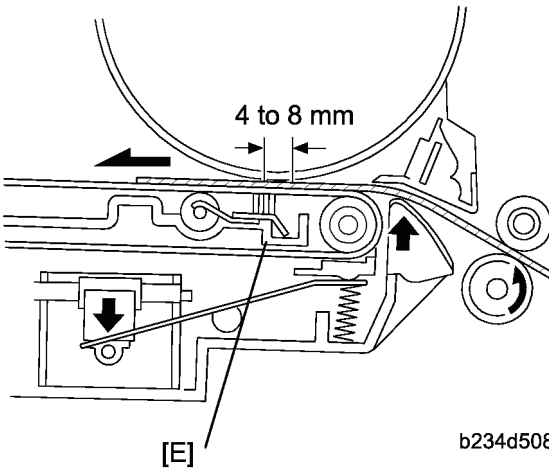
## Image Transfer and Paper Separation



b234d507

The registration rollers [A] feed the paper [B] to the gap between the drum [C] and the transfer belt [D].

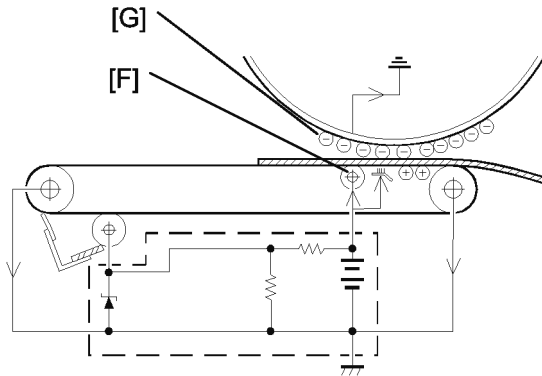
6



b234d508

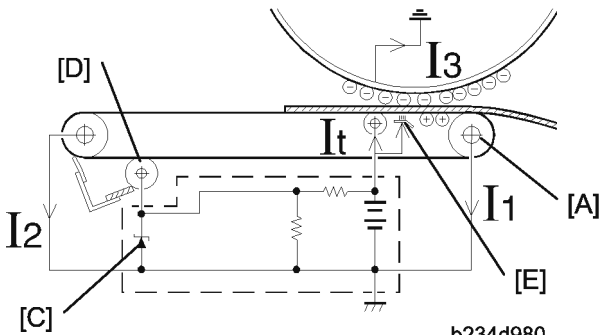
As soon as the leading edge of the first sheet reaches the gap between the transfer belt and the drum, the transfer belt lift lever [E] raises the transfer belt into contact with the drum. The lift lever is driven by a solenoid.





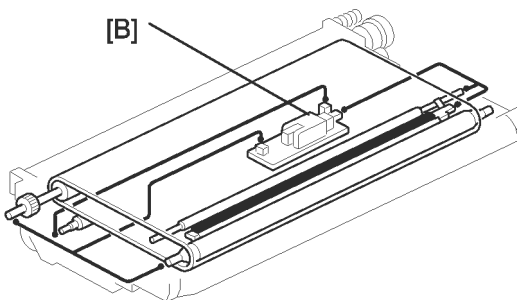
b234d979

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.



b234d980

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].



b234d503

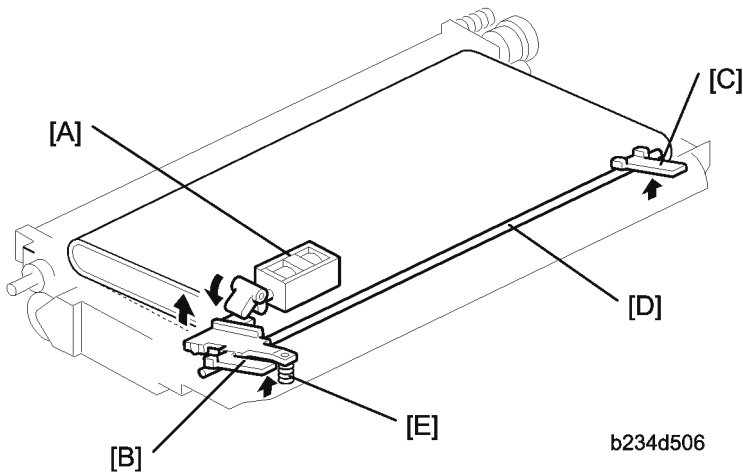
The transfer power pack [B] inside the transfer belt unit monitors the current ( $I_1$  and  $I_2$ ) fed back from the drive rollers at each end of the transfer belt to adjust the transfer current.

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.

## 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.

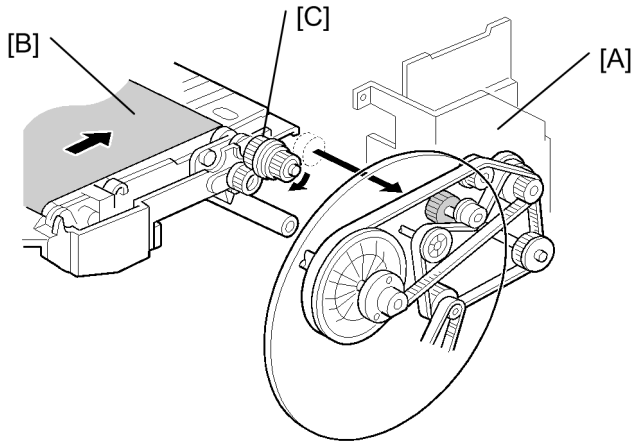
The support spring [E] helps the solenoid to raise the transfer belt.

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.

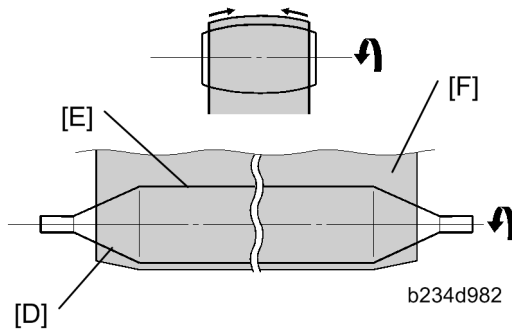
## Paper Transportation and Belt Drive



b234d981

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.

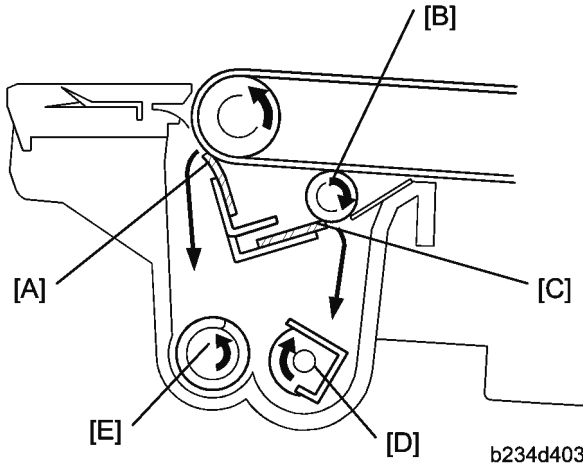
At the turn in the transfer belt, the transfer belt drive roller [C] discharges the belt to reduce paper attraction, and the paper separates from the belt as a result of its own stiffness.



b234d982

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.

## 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.

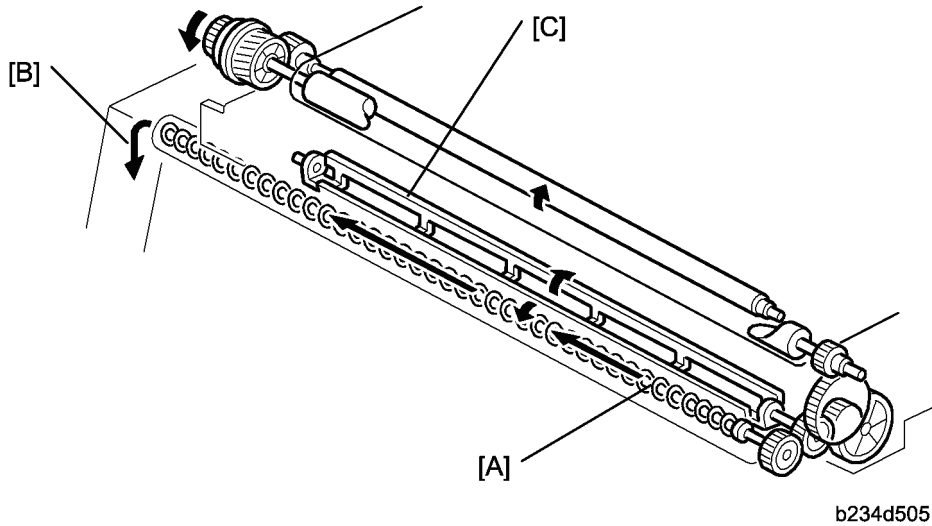
6

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.

## Toner Collection

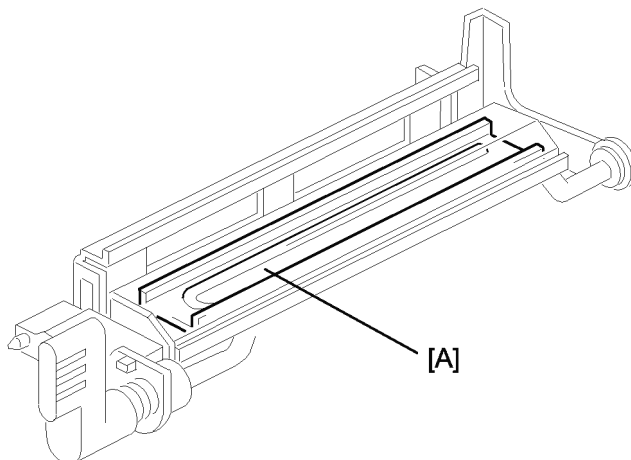


Transfer belt drive is transmitted to the toner collection coil [A] through idle gears. The toner collection coil transports the collected toner to the toner recycling unit [B] and from there it goes to the waste toner collection bottle.

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.

## Drum Anti-Condensation Heater

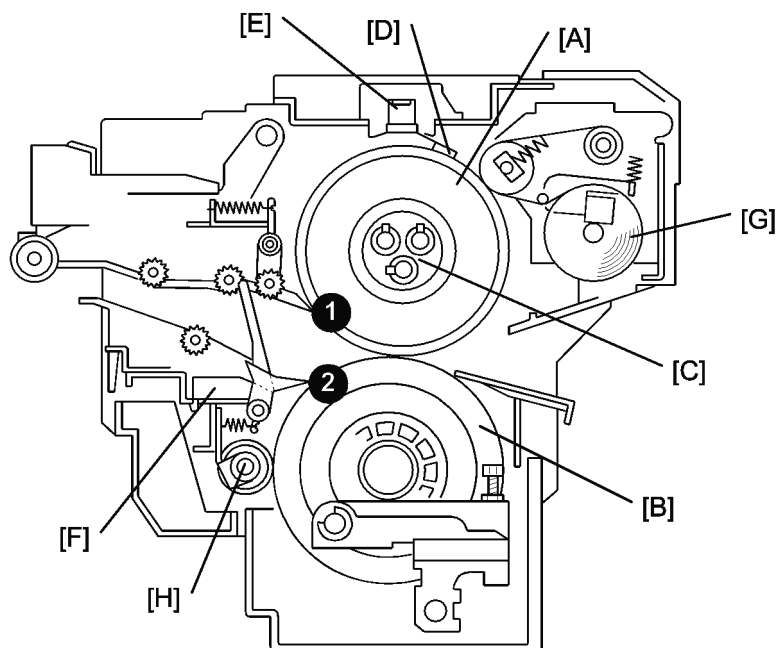


The drum anti-condensation heater [A] is located under the transfer belt unit. It turns on when the main switch is off to prevent moisture from forming on the transfer belt.

The heater is included in the machine at the factory, but the connector is not connected.

# Fusing

## Overview



b234d501

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.

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.

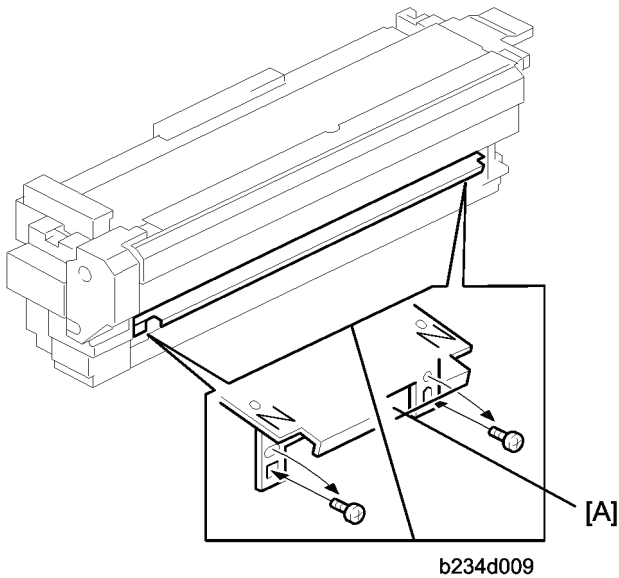
The fusing exit sensor [F] monitors the progress of the copy paper through the fusing unit and also detects paper jams while the exit rollers drive the copy paper to the inverter section.

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.

## Fusing Entrance Guide



6

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.

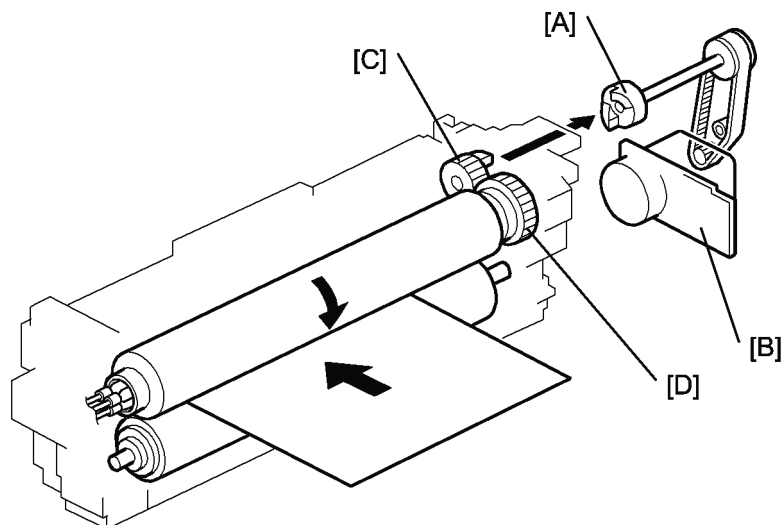
Use the screws to adjust the guide plate position. Since there are very few reasons to change the guide plate position, there is no guide plate position adjustment lever for customer use.

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



## Fusing Unit Drive



b234d936

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

## 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 SP1 106.

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. The wattages of the fusing lamps are as shown below.



Name	Voltage/Wattage	
	D059/D060	D061
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

## 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	D059	D060	D061	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	D059	D060	D061	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	D059	D060	D061	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	D059	D060	D061	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

6

## 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.

**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	D059	D060	D061	SP No.	
Fusing Lamp Switching for warm-up	99°C	99°C	95°C	1105-10	20 to 190°C

1. When the temperature rises to the temperature set with SP1105 010, fusing lamp 1 switches off.
2. 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 D059/D060 and D061.

Model	Lamps Used	Comment
D059/D060	Lamp 2	Only 1 lamp is used:
D061	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 SP1 105 004 – 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.

### 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 SP1 105 013.

The fusing lamp control with normal paper sizes is different for the D059/D060 and D061.

### Lamps Used

Model	Lamps Used	ON Order	OFF Order
D059/D060	1, 3	1 > 3	3 > 1
D061	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
D059/D060	1	2 On	After 2 Off, On 1 > 3
	2	1, 2, 3 Off	On 1 > 3
D061	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 (D059/D060) or three (D061) 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 D061 (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
D059/D060	(1)	2 on	2 remains on > 1
	(2)	1, 2, 3 off	1 > 2
D061	(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 D061 (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
D059/D060	(1)	2 on	2 goes off → 1 → 3
	(2)	1, 2, 3 off	1 → 3

Model		Status Before Job Start	Status After Job Start
D061	(3)	2 On	2 remains on → 1 → 3
	(4)	3 On	3 remains on → 1
	(5)	1, 2, 3 off	1 → 3

**One Fusing Lamp (Lamp 1 Only):** In the table below, D061 (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
D059/D060	(1)	2 on	2 off → 1
	(2)	1, 2, 3 off	1
D061	(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
D059/D060	Lamp 3	Only 1 lamp is used:
D061	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)
- Off: 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	D059	D060	D061	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 (User Tools > Adjustment Settings for Operators > 0108: Adjust Paper Feed Speed) 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).

The speed reductions are as follows:

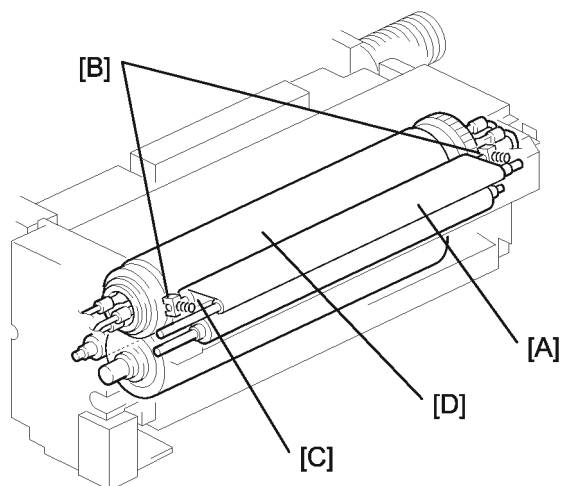
- D059: No speed reduction (stays at 90 cpm)
- D060: Reduced from 110 cpm to 90 cpm



- D061: Reduced from 135 cpm to 110 cpm

## Fusing Cleaning Unit

### Mechanism

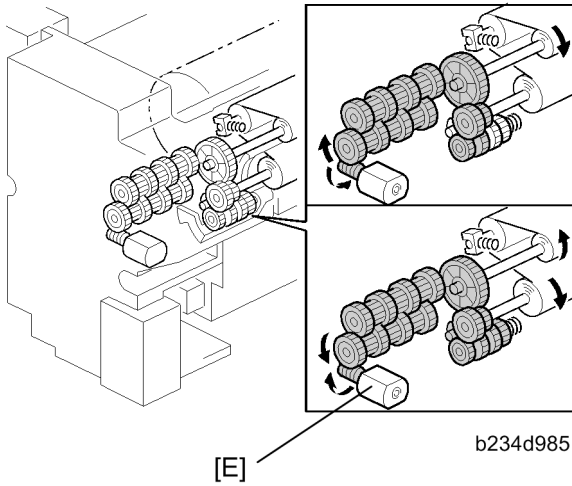


b234d984

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.

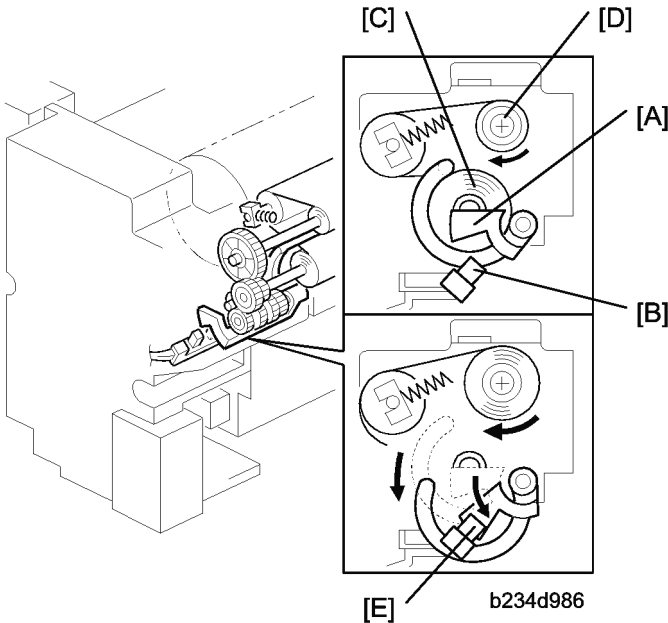


At prescribed intervals during printing, the fabric motor [E] switches on for a fixed period of time to move the cleaning fabric.

6

SP1902 002 and SP1902 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'.

### 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 long 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

6

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 D059 (90 ppm), D060 (110 ppm) and D061 (135 ppm).

SP1902 002 * 1			SP1902 004 * 2	Near-End Display (Sheets) * 3	End Display (Sheets)	Comments
D059	D060	D061				
19.8s	16.2s	12.9s	92%	750K	820K	NA Default
13.2s	10.8s	8.6s	90%	500K	550K	EUR/A Default

\* 1: SP1902 002 (Fabric Motor Control – Fabric Motor Drive Interval)

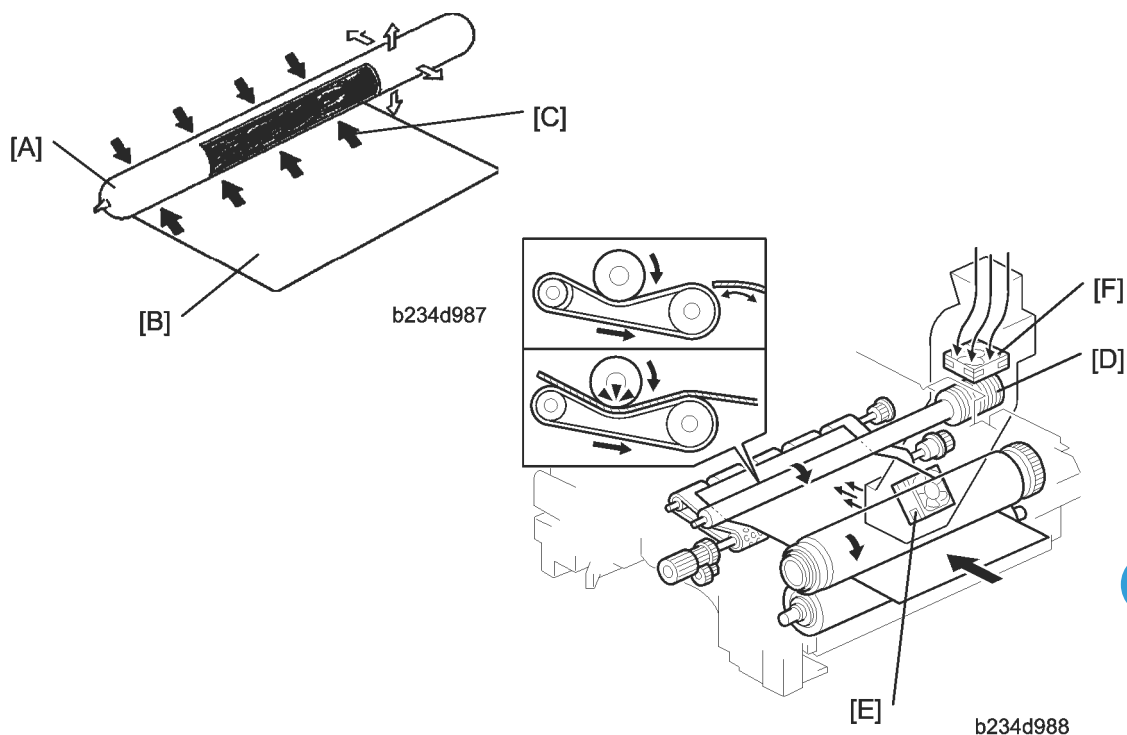
\* 2: SP1902 004 (Fabric Motor Control – Fabric Near End Setting)

\* 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.

## Paper Cooling



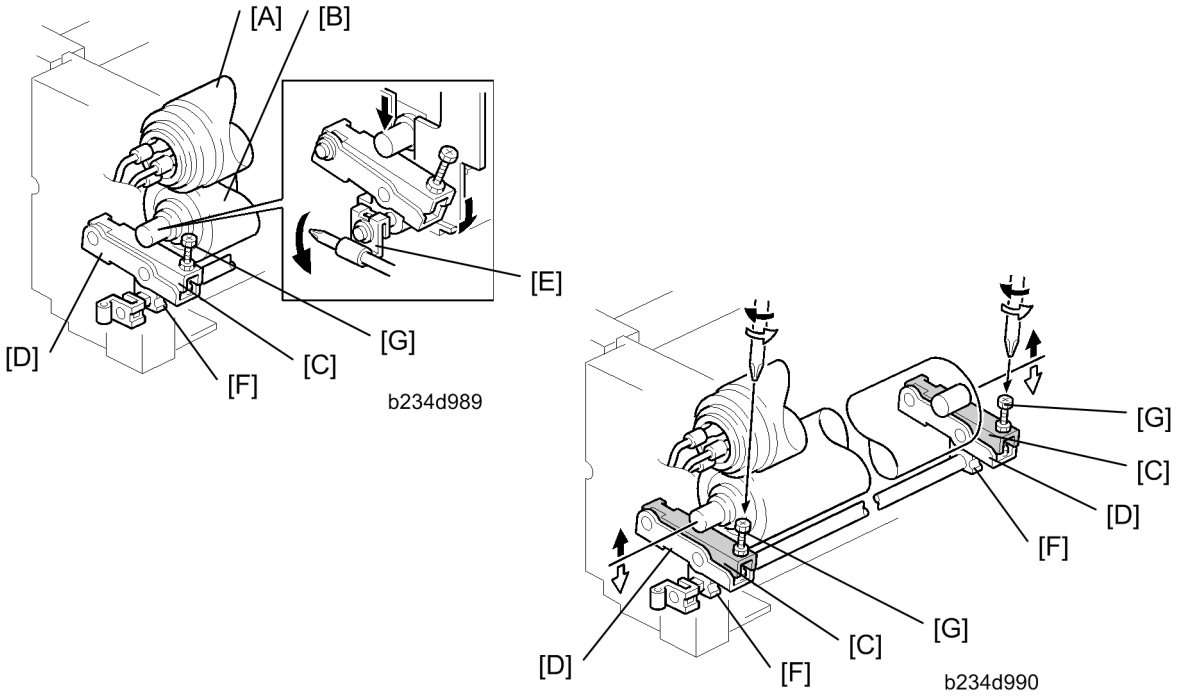
The paper cooling pipe [A] cools the copy paper [B] after it has gone through the fusing unit. This prevents the temperature around the drum from increasing in duplex mode.

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.

## Fusing Pressure

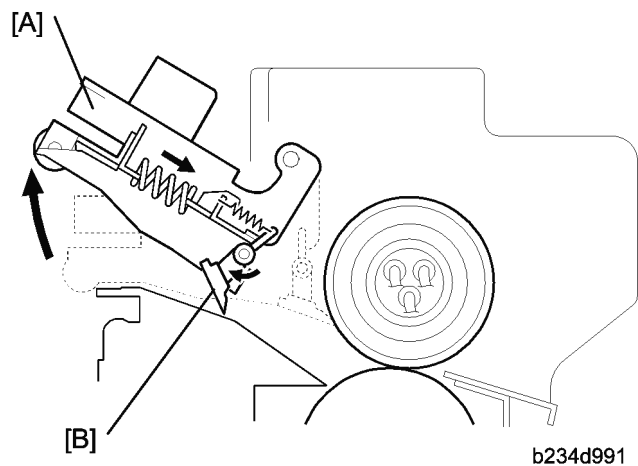


6

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.

## Hot Roller Stripper Release

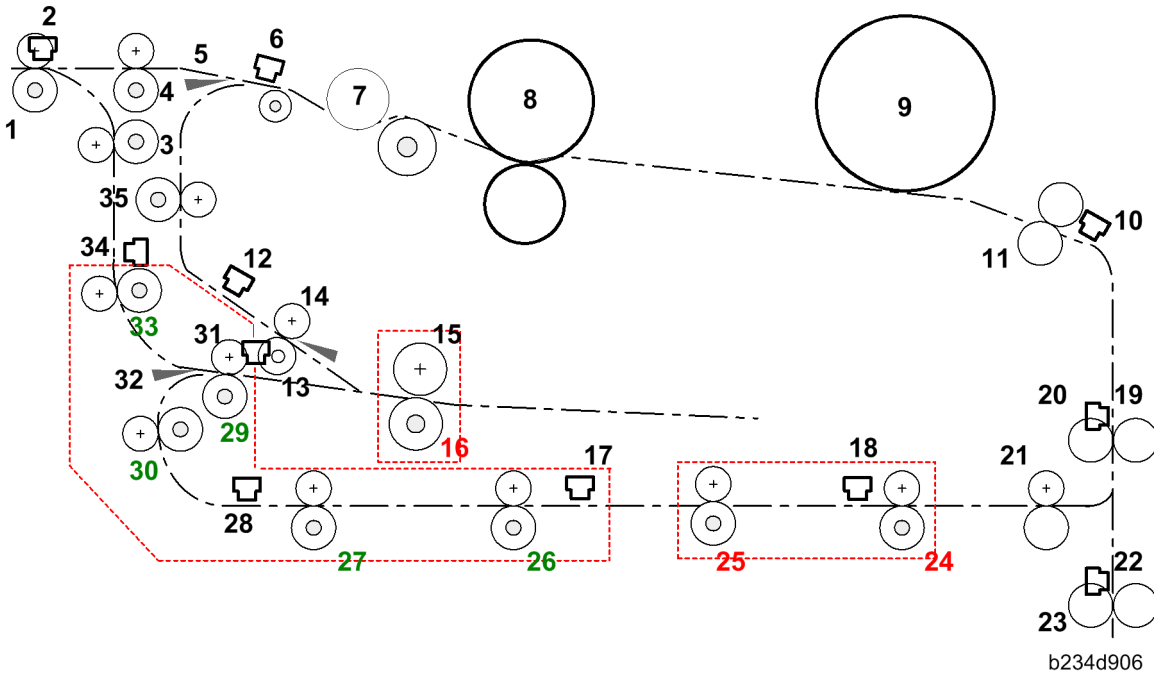


For easier jam removal, when the hot roller stripper unit [A] is opened, the stripper pawls [B] turn clockwise to expand the jam removal area.

# Paper Exit/Duplex

## Overview

### Inversion/Duplex Components



- Duplex Entrance Motor drives: 13
- Duplex Switchback Motor drives: 16
- Duplex Inverter Motor drives: 26, 27, 29, 30, 33
- Duplex Transport Motor drives: 24, 25
- Upper Relay Motor drives: 19, 21

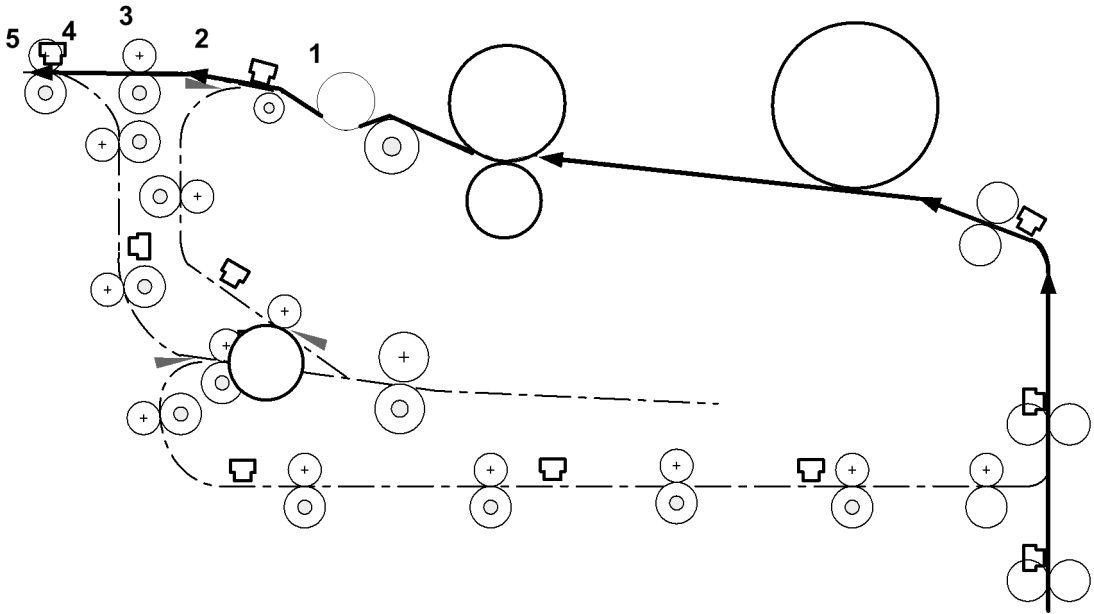
Exit Motor drives: 1, 3, 4, 7, 35

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		

### Straight-Through Path (No Inversion, No Duplexing)

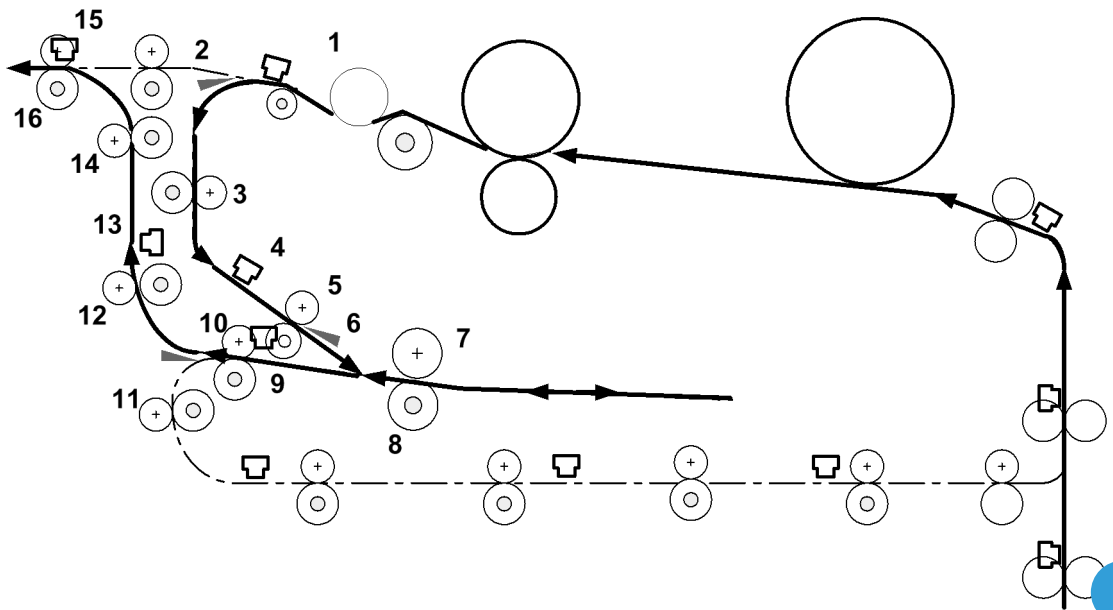


b234d907

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)



6

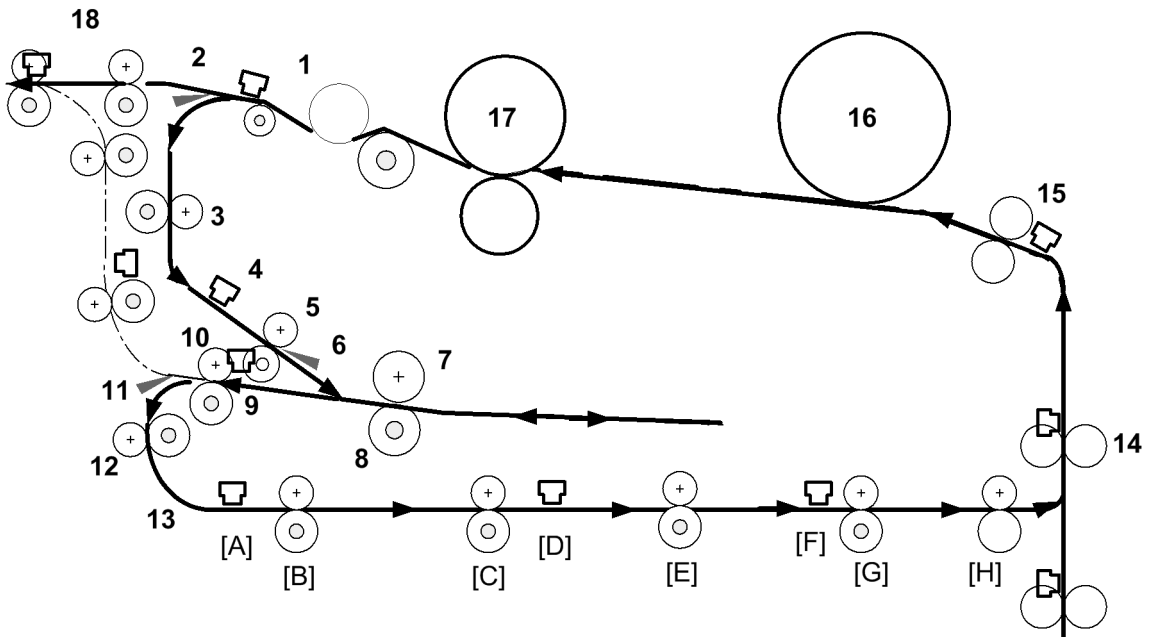
b234d908

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

### Inverting/Duplexing Path



b234d909

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

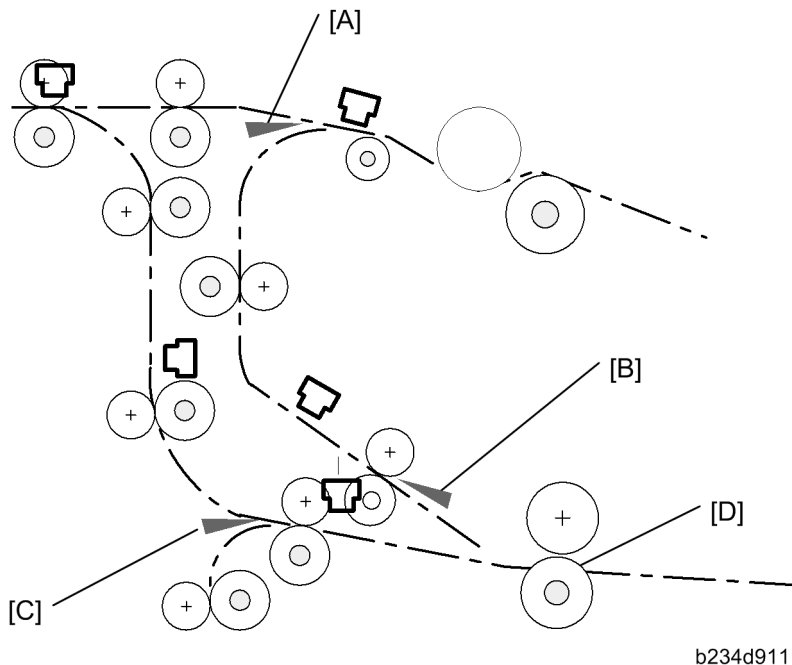
15: Under the registration sensor, registration sensor

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.

## Inverter/Duplexing Junction Gates



This inverter/duplexer unit has three junction gates:

[A]: Exit junction gate

[B]: Switchback junction gate

[C]: Invert/duplex junction gate

The exit junction gate [A]:

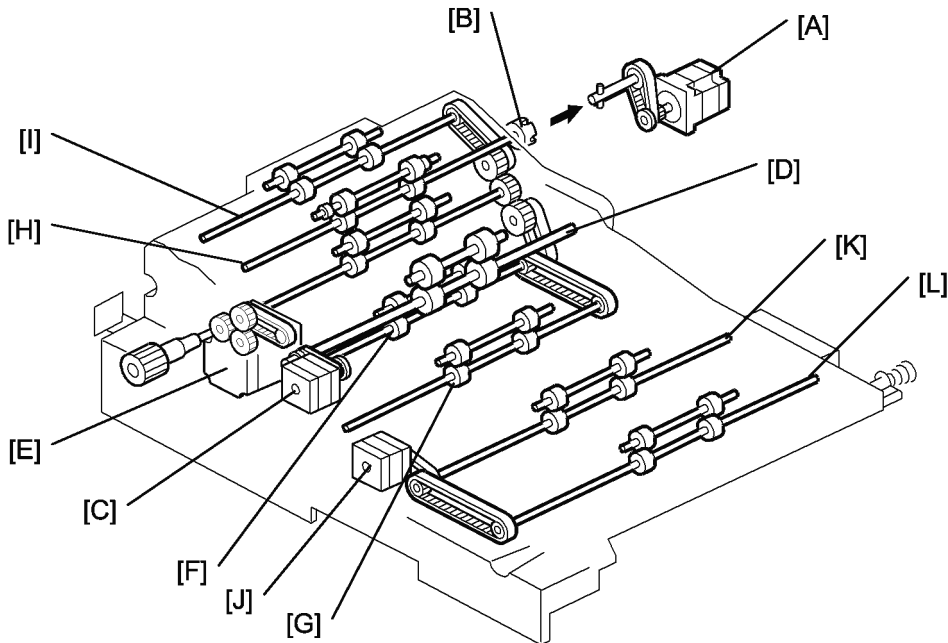
- Closes for straight-through feed (neither face-up nor duplexing selected) and the paper goes out of the machine face-up.
- Opens to feed paper down into the inversion tray for inversion/duplexing

- 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.

## Duplex Drive Mechanism



b234d801

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].

## 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.

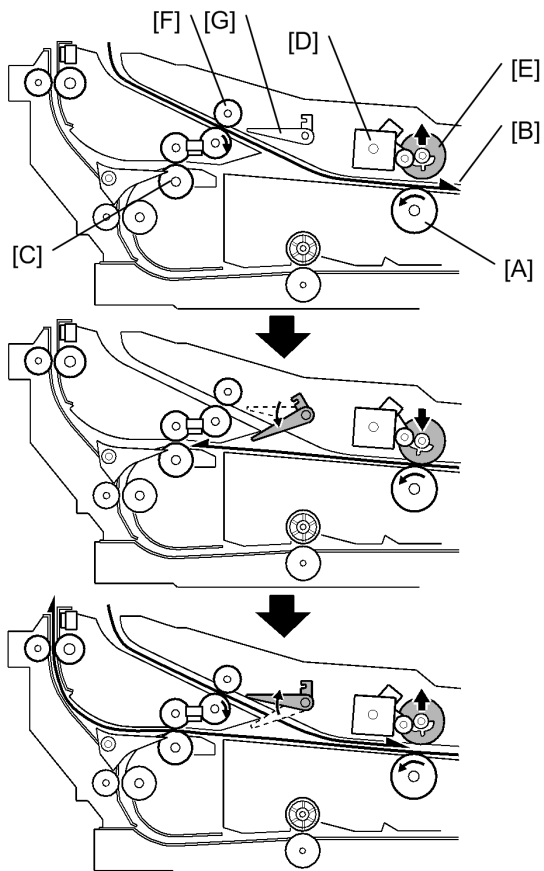
To feed the first sheet out of the inverter, the switchback roller [A] reverses and feeds the first sheet [B] to the inverter rollers 1 [C]. At about the same time, the switchback idle roller solenoid [D] energizes and raises the switchback idle roller [E].

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.

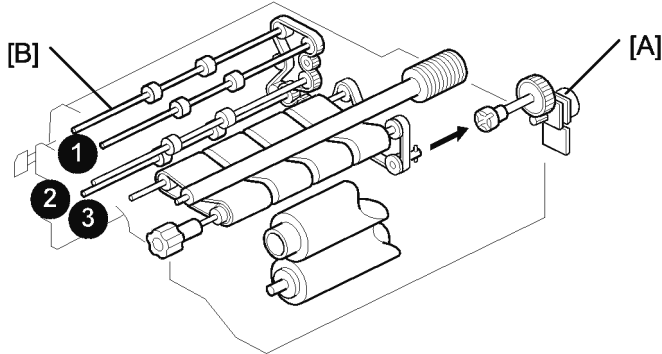
To feed the first sheet out of the inverter, the switchback roller [A] reverses and feeds the first sheet [B] to the inverter rollers 1 [C]. At about the same time, the switchback idle roller solenoid [D] energizes and raises the switchback idle roller [E].

The next sheet feeds into the inverter tray through the duplex entrance rollers [F] and under the open switchback junction gate [G].



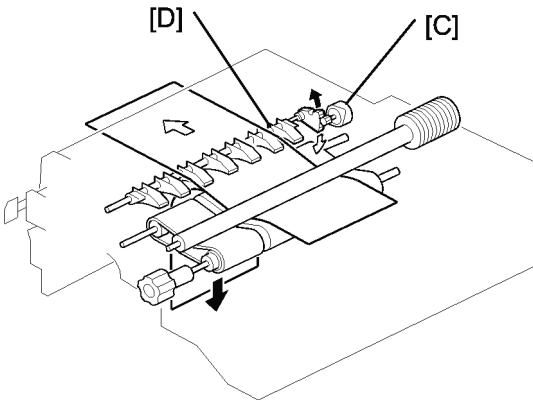
b234d910c

## Paper Exit Mechanism



b234d662

The exit motor [A] drives the paper exit roller [B] and transport rollers (1), (2), (3).



b234d664

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.

## 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.



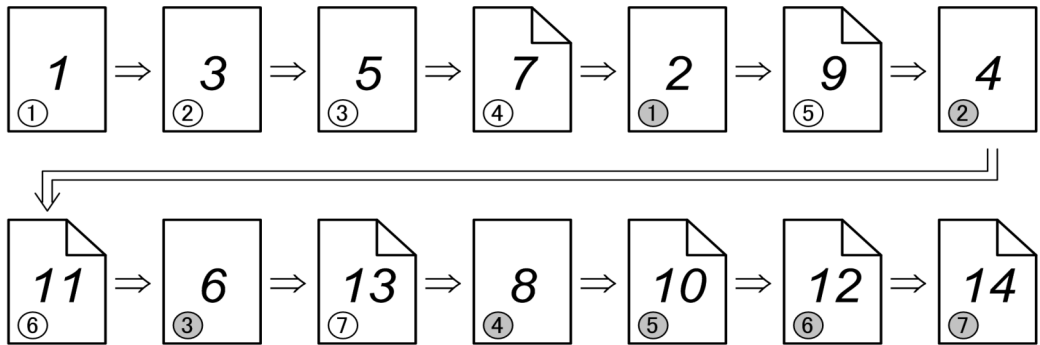
For paper longer than this, the duplex tray can process two sheets of copy paper at once.

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

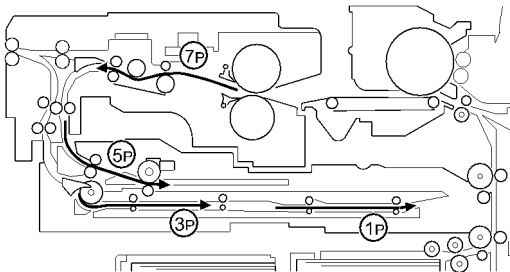
The duplex unit can process four sheets of copy paper

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).



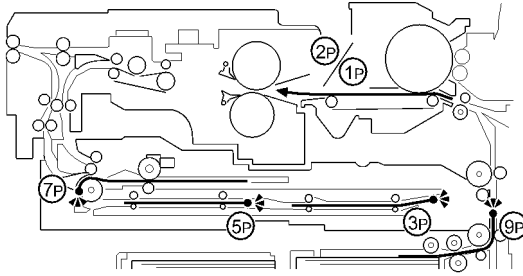
b234d992

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)



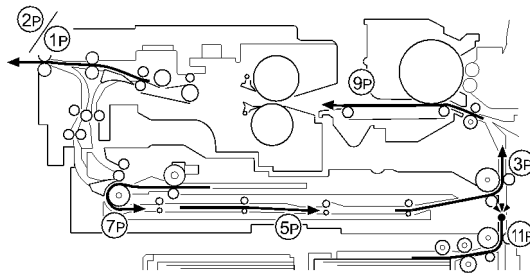
b234d993

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.



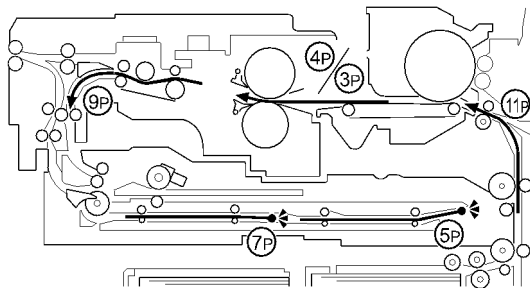
b234d995

5. The 5th sheet is printed (9th page).
6. The 1st sheet is fed out (1st and 2nd pages printed).



b234d997

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).



b234d998

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).

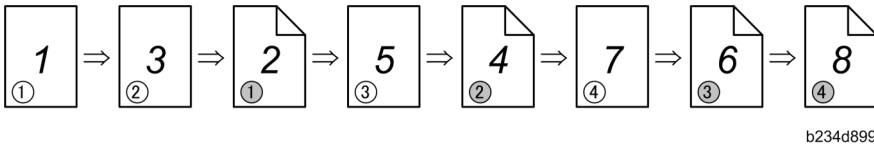
15. The back of the 5th sheet is printed (10th page) and fed out (9th and 10th pages).
16. The back of the 6th sheet is printed (12th page) and fed out (11th and 12th pages).
17. The back of the 7th sheet is printed and fed out (13th and 14th pages).



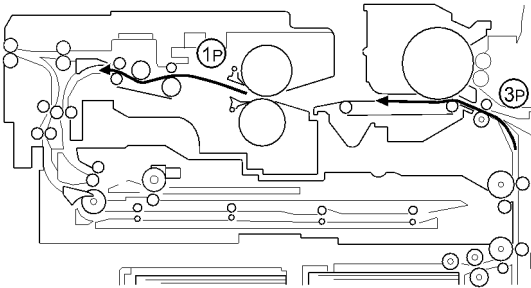
## Longer than A4/Letter LEF

The duplex unit can process two sheets of copy paper

Example: 8 pages. The small numbers in circles show the order of sheets of copy paper (if shaded, this indicates the second side).

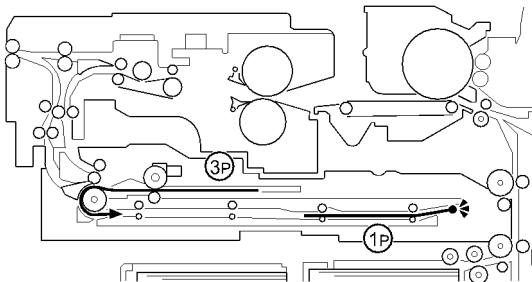


1. The first 2 sheets are fed and printed.
  - 1) 1st sheet printed (1st page)
  - 2) 2nd sheet printed (3rd page)



b234d898

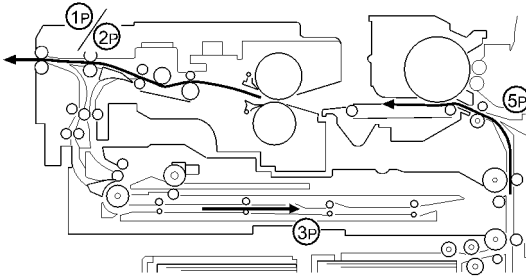
1. The first 2 sheets go into the duplex unit.



b234d897

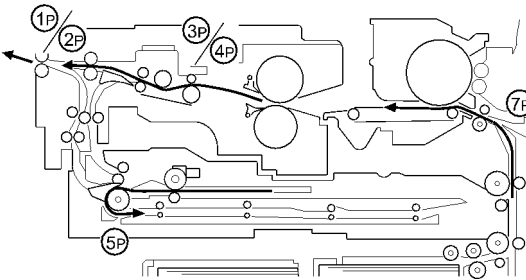
2. The back of the 1st sheet (2nd page) is printed.

3. The 3rd sheet (5th page) is fed and printed.



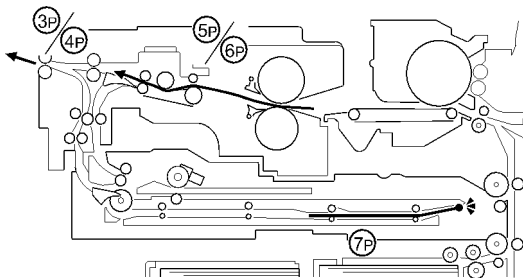
b234d896

4. The 1st sheet (1st and 2nd pages) is fed out.
5. The back of the 2nd sheet (4th page) is printed.
6. The 4th sheet (7th page) is fed and printed.



b234d895

7. The 2nd sheet (3rd and 4th pages) is fed out.
8. The back of the 3rd sheet (6th page) is printed.
9. The 3rd sheet (5th and 6th pages printed) is fed out.
10. The back of the 4th sheet (8th page) is printed.
11. The 4th sheet (7th and 8th pages) is fed out.



b234d894

# Boards

## LEDs

### BICU

LED No.	Color	Monitored Signal
102	Orange	Firmware downloading. <ul style="list-style-type: none"> <li>• ON: Downloading</li> <li>• OFF: Normal</li> </ul>
103	Red	Firmware operation <ul style="list-style-type: none"> <li>• Slow Flash: Normal operation</li> <li>• Rapid Flash: Firmware error</li> </ul>
1	Red	Printer
2	Yellow	+5 VL
3	Green	+3.3 VL
5	Orange	Image processing
6	Yellow	LD conditions
7	Red	+5 VE

6

### MCU

Number	Monitored Signal
LED1 (Green)	DC24V 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: 1 s On+1 s Off: Completed downloading
	Off: Download error

## IPU

Number	Monitored Signal
LED 1 (Green) LED 2 (Green)	Monitors Printer Flashes: ICs operating normally for image processing. Off: Operation failure.
LED 3 (Red) LED 4 (Red) LED 5 (Red)	Monitors Scanner Flashes: ICs operating normally for image processing. Off: Operation failure.

Number	Monitored Signal
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	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.
7	Red	
6	Red	
5	Red	
4	Red	
3	Red	
2	Red	
1	Red	

6

## ADF Main Board LEDs

LED100	LED059	LED060	
On	—	—	Entrance Sensor Jam
—	On	—	Registration Sensor Jam
On	On	—	Exit Sensor Jam

LED100	LED059	LED060	
—	—	On	Inverter Sensor Jam
On	—	On	Jammed paper not removed: Between entrance sensor + registration sensor
On	On	On	Jammed paper not removed: On the exposure glass
Blinking	—	—	Feed-in Motor Abnormal
—	Blinking	—	Transport Motor Abnormal
—	—	Blinking	Feed-out Motor Abnormal
Blinking	Blinking	—	Pick-up Motor Abnormal
—	Blinking	Blinking	Bottom Plate Motor Abnormal
Blinking	Blinking	Blinking	DF Position (Open)
Blinking	—	Blinking	APS Sensor ON
Blinking	—	—	Normal

## 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		Do not change these settings.
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.

6

### 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	OFF	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

## Test Points

### ADF Main Board

Number	Label	Monitored Signal
TP100	TXD	TXD to the main machine
TP101	RXD	RXD from the main machine
TP102	GND	Ground
TP103	12 V	+12 V
TP104	5 V	+5 V

## Fuses

### ADF Main Board

Number	Description
FU100	Protects the 38 V line
FU101	Protects the 24 V line

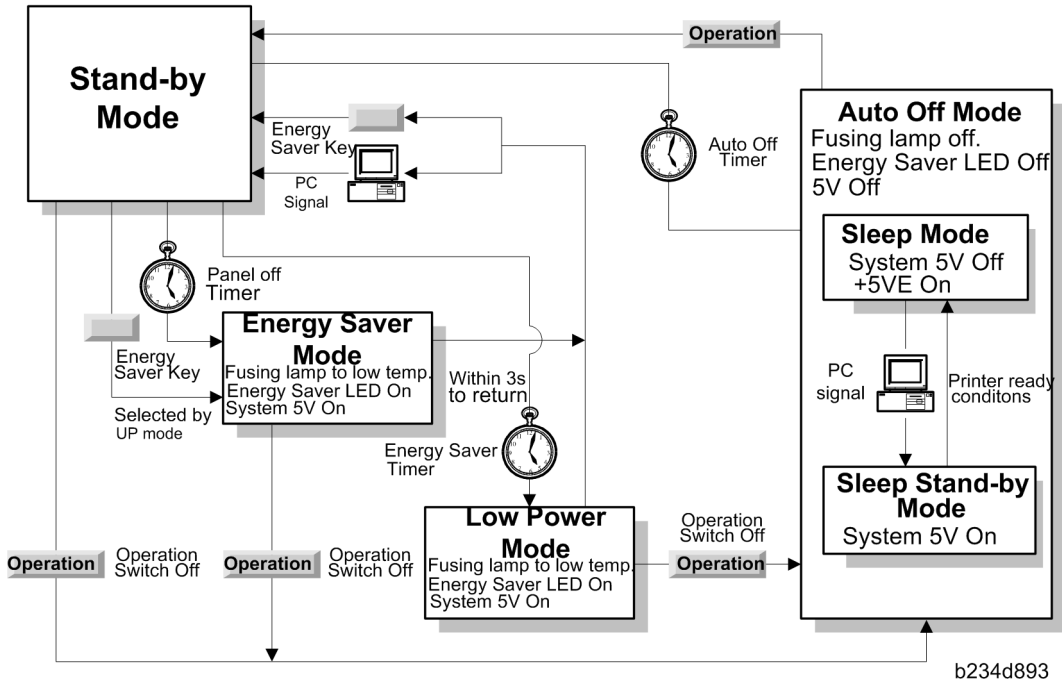
## Variable Resistors

### 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.

# Energy Conservation Modes

## 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 (main machine configuration only)
- 4) Sleep mode (main machine/printer/scanner configuration only)

These modes are controlled by the following User Tools:

- Panel off timer
- Energy saver timer
- Auto off timer
- Auto off disabling

The way that the machine operates depends on the combination of installed equipment (main machine only, or whether a printer/scanner is installed).

## 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	D059/D060: Stays at the standby temperature (D059: 153 °C, D060: 165 °C) D061: Stays at the standby temperature minus 5 °C (178 °C – 5 °C)	3 s	On

## 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 (D059, D060) Standby temperature - 20 °C (D061)	Depends on the model and the region: See 'Energy Star' in the Specifications.	On

## Off Mode

Off mode is used only if no optional printer/scanner unit is installed.

### 6

### 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').

## 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.

### 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.





# 7. Specifications

---

## Specifications: Main

---

### Main Machine

---

### Engine

---

Configuration:	Console
Copy Process:	Dry electrostatic transfer system
Originals:	Sheet/Book/Object
Original Size:	Max.: A3, 11" x 17"
	Min.: A5, 5½" x 8½" (with ADF)
Original Alignment:	Rear left corner (for platen mode, ADF mode)

Paper Weight:	Tray 1-3:	52 to 216 g/m <sup>2</sup>
	Tray 4-5(D452):	Bond: 16 to 40 lb.
	Tray 4,6 (D453)	Cover: 50 to 80 lb.
	Tray 7 (Bypass):	Index: 90 to 110 lb.
	Tray 6 (D452):	52 to 163 g/m <sup>2</sup>
		Bond: 16 to 40 lb.
		Cover: 50 to 60 lb.
		Index: 90 lb.
	Tray 5 (D453):	52 to 216 g/m <sup>2</sup>
		Bond: 16 to 40 lb.
		Cover: 50 to 60 lb.
		Index: 90 lb.
	Duplex Tray (Possible Weight):	52 to 216 g/m <sup>2</sup>
		Bond: 16 to 40 lb.
Cover: 50 to 80 lb.		
Index: 90 to 110 lb.		
Paper Size:	Tray 1 (Tandem):	8½" x 11" LEF, A4 LEF
	Tray 2, Tray 3:	5½" x 8½" to 11" x 17", 12" x 18", A5 to A3
	Duplex Tray (Possible Sizes):	A5 to A3, 5½" x 8½" to 11" x 17", 12" x 18", 13" x 18"

Reproduction Ratios:	7 reduction and 5 enlargement		
		Metric Version	Inch Version
	Enlargement	400%	400%
		200%	200%
		141%	155%
		122%	129%
		115%	121%
	Full Size	100%	100%
	Reduction	93%	93%
		82%	85%
		75%	78%
		71%	73%
		65%	65%
50%		50%	
25%		25%	
Zoom:	25 to 400% (allows manual adjustment in 1% steps vertically, horizontally)		
Image Density:	Automatic, Manual (9 notches)		
Copy Speed:	D059: 90 ppm	Copying with image stored in memory with A4/LT LEF feeding from the same tray.	
	D060: 110 ppm		
	D061: 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 Scanning: 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, 8½" x 11" LEF		
		Face-up	Face-down
	D059 (90 cpm)	<3.5 s	< 5.0 s
	D060 (110 cpm)	<3.2 s	< 4.5 s
	D061 (135 cpm)	<3.0 s	< 4 s
Multiple Copies:	Up to 9,999		
Copy Paper Capacity (Sheets):	Copier	3,000	Tray 1: (Tandem) 1000 x 2
			Tray 2: 500
			Tray 3: 500
	Bypass	500	Tray 7, 500 (Optional Bypass Tray B833)
Memory Capacity:	RAM:	512 MB (512 x 1) Standard	
		1.5 GB (512 MB x1, 1 GB x1) Optional but required for Scanner/Printer Option	
	HDD:	320 GB (320 GB x1) Approximately 1,735 copies	
Toner Replenishment:	Cartridge exchange (1,650 g/cartridge)		
Toner Yield:	60 K copies, (A4 LEF, 6% chart)		
	D059 (90 cpm) 1 to 25 Repeat Copying		
	D060 (110 cpm), 1 to 50 Repeat Copying		
	D061 (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	

Size (W x D x H)	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 315 kg (693 lb) including ADF, and no options	
Space Requirements: See "Installation"		

### Maximum Power Consumption

90 ppm	110 ppm	135 ppm
3500W or less	3500W or less	4000W or less

### Energy Star

	North America					
	D059 (90 cpm)		D060 (110 cpm)		D061 (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					
	D059 (90 cpm)		D060 (110 cpm)		D061 (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

7

**Noise Emission: Sound Power Level**

D059 (90 cpm)		dB (A)
Mainframe	Stand-by	≤ 60
	Copying	≤ 74
	Operator position	≤ 68
	Passers-by	≤ 68
Full System	Stand-by	≤ 64
	Copying	≤ 78
	Operator position	≤ 72
	Passers-by	≤ 72

D060 (110 cpm)		dB (A)
----------------	--	--------

Mainframe	Stand-by	≤ 66
	Copying	≤ 76
	Operator position	≤ 70
	Passers-by	≤ 70
Full System	Stand-by	≤ 70
	Copying	≤ 80
	Operator position	≤ 74
	Passers-by	≤ 74

D061 (135 cpm)		dB (A)
Mainframe	Stand-by	≤ 73.5
	Copying	≤ 78.5
	Operator position	≤ 72.5
	Passers-by	≤ 72.5
Full System	Stand-by	≤ 77.5
	Copying	≤ 82.5
	Operator position	---
	Passers-by	---

**ADF (B301)**

Original Size:	Normal Original	A3 to B5, 11" x 17" to 5½" x 8½"
	Thin Original	A3 to B5, 11" x 17" to 5½" x 8½"
	Duplex Original	A3 to B5, 11" x 17" to 5½" x 8½"
Original Weight:	Normal Original	52-128 g/m <sup>2</sup> (Note 1)
	Thin Original	40-128 g/m <sup>2</sup> (Note 1)
	Duplex Original	52-105 g/m <sup>2</sup> (Note 2)

Table Capacity:	100 sheets (80 g/m <sup>2</sup> , 20 lb)
Original Feeding Speed:	80 cpm (A4/8½" 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
Size (W x D x H):	680 x 560 x 150 mm (26.8" x 22" x 5.9")
Level	Less than 5 mm deviation at front/back, left/right
Weight	Less than 17.5 kg (38.5 lb.)

Note 1: 156 g/m<sup>2</sup> possible, but not guaranteed.

Note 2: 128 g/m<sup>2</sup> possible, but not guaranteed.



# Specifications: Options-1

## A3/DLT Tray Kit B331 (Option)

Paper Size	A3 SEF, B4 SEF, 11"x17" SEF, 8½"x14" SEF, A4 SEF, A4 LEF, 8½"x11" SEF, 11"x8½" LEF, 305 mm x 439 mm
Paper Weight	52 - 163 g/m <sup>2</sup>
Tray Capacity	1,000 sheets
Paper Level Detection	5-Step: 100%, 75%, 50%, 25%, End

## LCIT RT5030 (D452) (Option)

Compatible Machines	D059/D060/D061	
Operating Environment	Ranges of temperature and humidity: Same as main machine.	
Service Life	Expected: 5 Years or 55,000K sheets	
Speed	D059 (90 cpm)	420-555 mm/s
	D060 (110 cpm)	500-720 mm/s
	D061 (135 cpm)	630-985 mm/s
Paper Feed System:	FRR-CF (no air-knife separation)	
Tray Capacity:	Tray 1, 2	1,000 sheets (Thickness: 0.11 mm)
	Tray 3	2,550 sheets (Thickness: 0.11 mm)
Paper Weight	Tray 1, 2	52 to 216 g/m <sup>2</sup>
	Tray 3	52 to 163 g/m <sup>2</sup>
Paper Size	Tray 1,2,3	A5 LEF, A5 SEF, 5½"x8½" LEF, B5 LEF, 5½"x8½" SEF, A4 LEF, 8½"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.

Heater (Option)	Anti-condensation heaters: 36W (18W x 2)				
Size (w x d h)	540 x 730 x 980 mm (21.3 x 28.7 x 38.6 in.)				
Level	Less than 5 mm deviation at front/back, left/right				
Weight	Less than 88 kg (193.6 lb)				
Power Source	DC 24 V ±10% (from copier)				
Power Consumption	Less than 132 W				
I/F Connection	Serial connection to main frame				
Tab Sheet:	Feed possible from Tray 4 or Tray 5. Requires installation of tab sheet fence.				
	Note: Only A4 LEF, 8½" x 11" LEF tab sheets can be fed.				
Paper Level Detection:	Trays 4, 5	5 Step: 900, 625, 375, 75, paper end			
	Tray 6	5 Step: 2250, 1525, 800, 75, paper end			
	Accuracy	±30 sheets (Tray 4, 5, 6)			
Bypass Tray (Option)	The Multi-Bypass Tray (B833) can be installed on either this LCIT or LCIT RT5040 (D453).				
Noise Level	Mode	Stand-alone	System		
			A	B	C
	Operation	< 73 dB	< 78 dB	< 80 dB	< 83 dB
	Standby		< 64 dB	< 70 dB	< 78 dB

**LCIT RT5040 (D453) (Option)**

Compatible Machines	D059/D060/D061
Operating Environment	Ranges of temperature and humidity: Same as main machine.
Service Life	Expected: 5 Years or 55,000K sheets

Speed	D059 (90 cpm)	420-555 mm/s
	D060 (110 cpm)	500-720 mm/s
	D061 (135 cpm)	630-985 mm/s
Service Life	Expected: 5 Years or 55,000K	
Paper Feed System:	Tray 1, 2, 3	FRR-CF
Tray Capacity:	Tray 1, 3	1,000 sheets (Thickness: 0.11 mm)
	Tray 2	2,000 sheets (Thickness: 0.11 mm)
Paper Level Detection:	Trays 4, 5	5 Step: 900, 625, 375, 75, tray end
	Tray 6	5 Step: 2250, 1525, 800, 75, tray end
	Accuracy	±30 sheets (Tray 4, 5, 6)
Bypass Tray (Option)	The Multi-Bypass Tray (B833) can be installed on either this LCIT or LCIT RT5030 (D452).	
Paper Weight	Tray 1	52 to 256 g/m <sup>2</sup>
	Tray 2	40 to 300 g/m <sup>2</sup>
	Tray 3	52 to 256 g/m <sup>2</sup>
Paper Size	Tray 1,2,3	A5 to A3, 5½"x8½" to 13" x 18"
Paper Size Switching	Side fence, end fence adjustment.	
Paper Size Detection	Automatic	
Heater (Option)	Anti-condensation heaters: 36W (18W x 2)	
Size (w x d x h)	880 x 730 x 980 mm (33.5 x 28.7 x 38.6 in.)	
Level	Less than 5 mm deviation at front/back, left/right	
Weight	Less than 165 kg (363 lb)	
Power Source	DC 24 V ±10% (from copier)	
Power Consumption:	Less than 150 W	
I/F Connection	Serial connection to main frame	

Tab Sheet:	Feed possible from all Tray. Requires installation of tab sheet fence.				
	Note: Only A4 LEF, 8½" x 11" LEF tab sheets can be fed.				
Paper Level Detection:	Trays 4, 5	5 Step: 900, 625, 375, 75, paper end			
	Tray 6	5 Step: 1750, 1250, 750, 75, paper end			
	Accuracy	±30 sheets (Tray 4, 5, 6)			
Bypass Tray (Option)	The Multi-Bypass Tray (B833) can be installed on either this LCIT or LCIT RT5040 (D453).				
Noise Level	Mode	Stand-alone	System		
			A	B	C
	Operation	< 73 dB	< 78 dB	< 80 dB	< 83 dB
	Standby		< 64 dB	< 70 dB	< 78 dB

### Multi-Bypass Tray (B833) (Option)

7

This option can be installed on the top of either the LCIT RT5030 (452) for A4/LT paper or the LCIT RT5040 (D453) for A3/DLT paper.

Compatible Machines	D059/D060/D061
Operating Environment	Temperature and humidity ranges: Same as main machine.
Service Life	Expected: 5 Years or 60,000K sheets
Speed	D059 (90 cpm): 420-555 mm/s
	D060 (110 cpm): 500-720 mm/s
	D061 (135 cpm): 630-985 mm/s
Paper Feed System	FRR-CF
Tray Capacity	500 sheets (Paper thickness: 0.11 mm)
Paper Weight	52 to 216 g/m <sup>2</sup>
Paper Size	A5 LEF, A5 SEF to A3 SEF, HLT LEF, HLT SEF to 13"x18" SEF
Paper Size Switching	Operator adjustable side fences accommodate different paper sizes

Paper Size Detection	Automatic (standard sizes only)				
Heater	None				
Paper Level Detection	Tray 7	4-Step: 500, 250, 50, paper end			
	Accuracy	±50 sheets			
Weight	Less than 18 kg (39.6 lb)				
Power Source	24 V DC (from Copier), 5 V DC (from LCT)				
Power Consumption	Less than 50 W				
Size (W x D x H)	710 x 560 x 210 mm (30 x 22 x 8.3 in.)				
Tab Sheets	A4 LEF, 8½" x 11" LEF (requires attachment of tab fence)				
Noise Level	Mode	Alone	System		
			A	B	C
	Operation	< 73 dB	< 78 dB	< 80 dB	< 83 dB
	Standby		< 64 dB	< 70 dB	< 78 dB

## De-curl DU5000 Unit (D457) (Option)

A de-curler and purge tray unit comprise this option:

- Mounted on the left side of the main machine, the de-curler unit removes curl from paper after it exits the main machine.
- The purge tray holds paper purged from the paper path at the exit of the main machine when a jam occurs downstream. (This reduces the number of sheets that have to be removed to clear paper jams from the line.)
- This unit is an option for the D059, D060, and D061

## General

Compatible Machines	D059/D060/D061
Operating Environment	Temperature and humidity ranges: Same as main machine.
Service Life	Expected: 5 Years or 60,000K sheets

Paper Weight	40 g/m <sup>2</sup> to 300g/m <sup>2</sup>
Paper Size	331 x 488 mm (13"x19.2") to A6 SEF, postcards
Power Supply	DC 24V±5%, 5.1V±3% from main machine
Power Consumption	Less than 30V
Size (w x d x h)	170 x 730 x 990 mm (6.7 x 28.7 x 40 in.)
Level	Less than 5 mm deviation at front/back, left/right
Weight	Less than 30 Kg (66 lb)

**Noise Level: dB(A)**

	D059		D060		D061	
	Alone	System	Alone	System	Alone	System
Operation	74	78	76	80	79	83
Standby	60	64	66	70	74	78

7

**De-Curler Unit**

Paper Size	331 x 488 mm (13"x19.2") to A6 SEF, postcards	
De-curling	Site	Corrects front/back curl, selectable with lift plate on the unit by operator
	Strength	5-Steps: Set by CE

**Purge Tray**

Capacity	10 sheets
Jam Alert	<ul style="list-style-type: none"> <li>• Operation panel (main machine)</li> <li>• Jam LED front door</li> <li>• Inner Jam LED (paper remaining on tray)</li> </ul>
Jam Removal	Tray easily opened, paper removed by operator
Purged Paper Count	None

Special Feature	Space provided for storage of one extra used toner bottle for the main machine.
-----------------	---

## Perfect Binder D391

### 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 <sup>2</sup> )
	Maximum stack thickness: 24 mm
Paper Weight	64 g/m <sup>2</sup> to 300 g/m <sup>2</sup>
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
Size (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)

### Perfect Binder (D391)

Compatible Host Machines	D059/D060/D061	
Paper Positioning	Center aligned	
Delivery	Face-down	
Signature Thickness	10 to 200 sheets (64 to 80 g/m <sup>2</sup> ) 10 to 150 sheets (81 to 105 g/m <sup>2</sup> ) 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 <sup>2</sup>
	Cover	90 to 300 g/m <sup>2</sup>
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



	Target	Signature	Cover
Recommended Cover/Signature Size Ratios	A4	SRA4	13"x19.2" 13"x19" 13"x18" SRA3
	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 <sup>2</sup>	
Book Output Tray	Max.: 25 mm (80g/m <sup>2</sup> ) 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		
Trimming Box Capacity	More than 15 books Approx. A4 to B5 of 100 sheets each, 80 g/m <sup>2</sup>		
Size (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)		

**Cover Interposer Tray CI5010 (B835)**

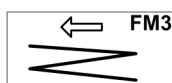
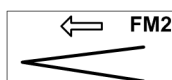
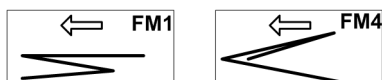
Compatible Machines	D059/D060/D061	
Speed	D059 (90 cpm)	432 mm/s
	D060 (110 cpm)	515 mm/s
	D061 (135 cpm)	649 mm/s
Paper Separation	FRR System with Feed Belt	
Paper Sizes	Width: A5 SEF/5½"x8½" SEF - 13"	
	Length: A5 LEF/5½"x8½" LEF - 18"	
Paper Weight	64 to 216 g/m <sup>2</sup>	
Capacity	400 sheets (80 g/m <sup>2</sup> ) (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	
Size (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)	

**Mutli-Folding Unit FD5000 (D454)**

**General**

Compatible Machines	D059/D060/D061
Operating Environment	Temperature and humidity ranges: Same as main machine.
Service Life	Expected: 5 years or 60,000 K (A4 LEF)
Paper Weight	40 to 300 g/m <sup>2</sup>

Folding Methods	6 (see below)	
Speed	Straight-Through	100 to 700 mm/s
	Folding	270 to 700 mm/s
Straight-Through Feed	Size	Postcard to 13x19.2"
	Type	Used paper: A3, A4, B4, B5 OHP: A4, B5 Tap paper: A4 LEF, LT LEF
Folding Methods	6 (FM1 to FM6)	



FM1: Z-Folding  
 FM2: Half Fold  
 FM3: Letter Fold-out  
 FM4: Letter Fold-in  
 FM5: Double Parallel Fold  
 FM6: Gate Fold

d454v900

Paper Sizes (Folding)	FM1	A3, B4, DLT, LG, A4, LT, 12x18", 8-kai
	FM2	A3, B4, DLT, LG, A4, B5, LT 12x18", 12.6x18.5", 12.6x19.2", 13x18", 13x19", 13x19.2", 226x310 mm, 310x432 mm, SRA3, SRA4, 8-kai
	FM3	A3, B4, DLT, LG, A4, LT, B5, 12x18", 8-kai
	FM4	
	FM5	
	FM6	

Paper Weights (Folding)	FM 1	64 to 105 g/m <sup>2</sup>
	FM2	
	FM3	
	FM4	
	FM5	
	FM6	
Multiple Folding	FM 1	Not allowed
	FM2	Max. 3 (64 to 80 g/m <sup>2</sup> only)
	FM3	Max. 3 (64 to 80 g/m <sup>2</sup> only)
	FM4	Max. 3 (64 to 80 g/m <sup>2</sup> , B4, A4, LT, B5 only)
	FM5	Not allowed
	FM6	
Line Speed (Only FM1 Z-Folded paper can exit downstream)		
No Fold	350 mm/sec. to top tray To downstream: Same as main machine.	
FM1	700 mm/sec. to top tray (paper ≤ 355.6 mm long) 450 mm/sec. to top tray (paper < 355.6 mm long) To downstream: Same as main machine.	
FM2	1 Sheet: Same as main machine 2-3 Sheets: 454 mm/sec. 700 mm/sec. to top tray (paper ≤ 355.6 mm long) 350 mm/sec. to top tray (paper ≤ 279.4 <355.6 mm long) 250 mm/sec. to top tray (paper < 279.4 mm long)	
FM3	1 Sheet: Same as main machine 2-3 Sheets: 454 mm/sec. to top tray	
FM4	350 mm/sec. to top tray (paper ≤ 420 mm long) 250 mm/sec. to top tray (paper < 420 mm long)	

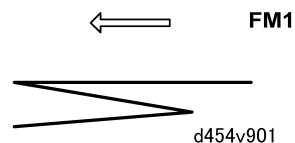
FM5	1 Sheet: Same as main machine 350 mm/sec. to top tray (paper $\leq$ 420 mm long) 250 mm/sec. to top tray (paper < 420 mm long)		
FM6	1 Sheet: Same as main machine as far as 3rd Stopper. At 3rd stopper feeds 50 mm at 100 mm/sec. 350 mm/sec. to top tray (paper $\leq$ 420 mm long) 250 mm/sec. to top tray (paper < 420 mm long)		
Power Supply	NA	AC 120V 60 Hz, 15A	
	EU	AC 220 to 240V, 50/60 Hz 10A	
Power Consumption	270 W		
Size (w x d x h)	466 x 980 x 730 mm (18.4 x 38.6 x 28.7 in.)		
Level	Less than 5 mm deviation at front/back, left/right		
Weight	92 kg (203 lb)		
Noise Level (dB A)	Mode	Alone	System
	No Folding	< 76 dB	---
	Folding	< 78 dB	< 83 dB

## Tray Capacity

The capacity of the tray on top of the unit for folded paper is determined by these variables:

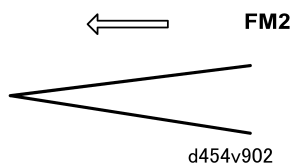
- Folding Methods (FM1 to FM6)
- Paper size
- Paper weight

### Folding Mode FM1



Size	Weight (Standard) 64 to 80 g/m <sup>2</sup>	Weight (Heavy) 64 to 80 g/m <sup>2</sup>
8-kai	35	20
12x18"	35	20
A3 SEF	35	20
DLT	35	20
B4 SEF	35	20
LG SEF	35	20
A4 SEF	30	20
LT SEF	30	20

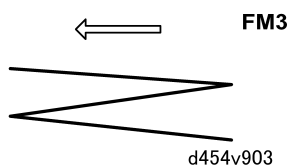
## Folding Mode FM2



Size	Weight (Standard) 64 to 80 g/m <sup>2</sup>	Weight (Heavy) 64 to 80 g/m <sup>2</sup>
13x19.2"	40	25
13x19"	40	25
12.6x19.2"	40	25
12.6x18.5"	40	25
13x18"	40	25
SRA3 (320x450 mm)	40	25
SRA4 (225x320 mm)	40	25
226x310 mm	40	25
310x432 mm	40	25

Size	Weight (Standard) 64 to 80 g/m <sup>2</sup>	Weight (Heavy) 64 to 80 g/m <sup>2</sup>
8-kai	40	25
12x18"	40	25
A3 SEF	40	25
DLT	40	25
B4 SEF	40	25
LG SEF	40	25
A4 SEF	50	50
LT SEF	50	50
B5 SEF	50	50

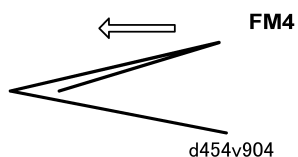
### Folding Mode FM3



Size	Weight (Standard) 64 to 80 g/m <sup>2</sup>	Weight (Heavy) 64 to 80 g/m <sup>2</sup>
8-kai	30	20
12x18"	30	20
A3 SEF	30	20
DLT	30	20
B4 SEF	30	20
LG SEF	30	20
A4 SEF	40	30
LT SEF	40	30

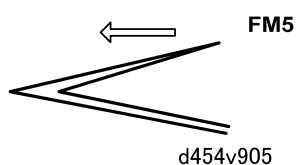
Size	Weight (Standard) 64 to 80 g/m <sup>2</sup>	Weight (Heavy) 64 to 80 g/m <sup>2</sup>
B5 SEF	40	30

## Folding Mode FM4



Size	Weight (Standard) 64 to 80 g/m <sup>2</sup>	Weight (Heavy) 64 to 80 g/m <sup>2</sup>
8-kai	40	20
12x18"	40	20
A3 SEF	40	20
DLT	40	20
B4 SEF	40	20
LG SEF	40	20
A4 SEF	50	40
LT SEF	50	40
B5 SEF	50	40

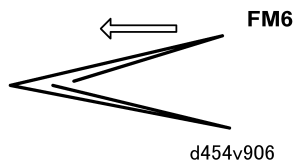
## Folding Mode FM5





Size	Weight (Standard) 64 to 80 g/m <sup>2</sup>	Weight (Heavy) 64 to 80 g/m <sup>2</sup>
8-kai	30	20
12x18"	30	20
A3 SEF	30	20
DLT	30	20
B4 SEF	30	20
LG SEF	30	20
A4 SEF	30	30
LT SEF	30	30
B5 SEF	30	30

### Folding Mode FM6



Size	Weight (Standard) 64 to 80 g/m <sup>2</sup>	Weight (Heavy) 64 to 80 g/m <sup>2</sup>
8-kai	50	20
12x18"	50	20
A3 SEF	50	20
DLT	50	20
B4 SEF	50	20
LG SEF	50	20
A4 SEF	30	30
LT SEF	30	30

Size	Weight (Standard) 64 to 80 g/m <sup>2</sup>	Weight (Heavy) 64 to 80 g/m <sup>2</sup>
B5 SEF	30	30

### Ring Binder RB5000 (D392)

Compatible Host Machines	D059/D060/D061	
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 <sup>2</sup>	
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		
Size	870 x 730 x 980 mm (34.3 x 28.7 x 38.6 in.)		
Weight	140 kg (308 lb)		
Power Consumption	Less than 400 W		

# Specifications: Options-2

## High Capacity Stacker SK5010 (D447)

The Tray Cart (D456) is available as an additional option for this unit.

### General

Compatible Machines	D059/D060/D061		
Operating Environment	Temperature and humidity ranges: Same as main machine.		
Service Life	Expected: 5 years or 60,000 K		
Speed	280 to 700 mm/s		
Front Door Lock	Hasps provided, lock not provided		
Size (w x h x d)	900 x 980 x 730 mm (35.4 x 38.6 x 28.7)		
Weight	100 kg (220 lb.)		
Power Supply	NA	AC 120V 60 Hz, 15A	
	EU	AC 220 to 240V, 50/60 Hz 10A	
Power Consumption	250 W		
Level	Less than 5 mm deviation at front/back, left/right		
Noise Level (dB A)	Mode	Alone	System
	Shift	< 76 dB	< 83 dB

### Shift Tray

Capacity (80 g/m <sup>2</sup> )	5,000	A3 Ext., A3 SEF, B4 SEF, A4 SEF, A4 LEF, DLT SEF, LG SEF, LT SEF, LT LEF
	2,500	B5 SEF, B5 LEF, A5 SEF, A5 LEF, HLT SEF, HLT LEF
Paper Weight	40 to 300 g/m <sup>2</sup>	
Tray Full Detection	4-Steps: 25%, 50%, 75%, 100%	

## Proof Tray

Capacity	250 (A4, LT 80 g/m <sup>2</sup> )
Paper Size	A5 SEF/Postcard to 331 x 499 mm (13" x 19.2")
Paper Weight	40 to 300 g/m <sup>2</sup>
Tray Full Detection	None

## Booklet Finisher SR5020 (D434)

### General

Compatible Machines	D059/D060/D061		
Operating Environment	Temperature and humidity ranges: Same as main machine.		
Service Life	Expected: Five years or 60,000K		
Size (w x h x d)	990 x 730 x 1130 mm (39 x 28.7 x 44.5 in.)		
Weight	128 kg (281.6)		
Power Supply	NA	AC 120V 60 Hz, 15A	
	EU	AC 220 to 240V, 50/60 Hz 10A	
Power Consumption	250 W		
Level	Less than 5 mm deviation at front/back, left/right		
Noise Level (dB A)	Mode	Alone	System
	Shift	< 76 dB	---
	Staple	< 78 dB	< 83 dB

### Shift Tray

Capacity	Unfolded Paper	2500	A4 LEF, B5 LEF, LT LEF
		1500	A3, A4 SEF, B4, B5 SEF, LT, LG<LT SEF, SRA4, 226x310 mm
		1000	12x18", SRA3, 13x18", 12.6x1.5", 12.6x19.2", 13x19", 13x19.2", 310x432 mm
		500	A5 LEF, HLT LEF
		100	A5 SEF, HLT SEF
	Z-Folded Paper	30	
Paper Size	Unfolded Paper	A5 to 13x19.2"	
	Z-Folded Paper	A3, B4, A4 SEF, DLT, LG LT SEF, 12x18", 8-kai	
Paper Weight	Unfolded Paper	40 to 300 g/m <sup>2</sup>	
	Z-Folded Paper	64 to 105 g/m <sup>2</sup>	

7

### Proof Tray

Capacity	Unfolded Paper	250	A4, LT or smaller
		50	B4, LG or larger
	Z-Folded Paper	20	A4, LT or smaller
		20	B4, LG or larger
Paper Size	Unfolded Paper	A6 SEF to 13x19.2", Postcard SEF	
	Z-Folded Paper	A3, B4, A4 SEF, DLT, LG, LT SEF, 12x18", 8-kai	
Paper Weight	Unfolded Paper	52 to 216 g/m <sup>2</sup>	
	Z-Folded Paper	64 to 105 g/m <sup>2</sup>	

## Corner Stapling

Stack Size (80 g/m <sup>2</sup> )	Unfolded Paper	2 to 100	A4, B5, LT	
		2 to 50	A3, B4, DLT, LG	
	Z-Folded Paper	10		
		<b>Combined Stack</b>		
		<b>Z-Folded</b>	<b>Unfolded</b>	
		1	1 to 90	
		2	0 to 80	
		3	0 to 70	
		4	0 to 60	
		5	0 to 50	
		6	0 to 40	
		7	0 to 30	
		8	0 to 20	
		9	0 to 10	
10	0			
Paper Size	Unfolded Paper	B5 to A3, LT to DLT		
	Z-Folded Paper	A3, B4, DLT		
Paper Weight	Unfolded Paper	64 to 90 g/m <sup>2</sup>		
	Z-Folded Paper	64 to 105 g/m <sup>2</sup>		
Stapling Positions	1 Staple: Rear, Rear diagonal, or Front 2 Staples: Front/Rear			
Staple Supply	Cartridge with 5000-staple capacity			
Tray Capacity After Stapling				

No Folding	Pages	Stacks	Size
	20 to 100	125 to 25	A4 LEF, B5 LEF, LT LEF
	10 to 19	200 to 105	
	2 to 9	150	
	10 to 100	150 to 15	A4 SEF, B5 SEF, LT SEF
	2 to 9	150	
	10 to 50	150 to 30	A3, B4, DLT, LG
	2 to 9	150	
No Folding, Mixed Sizes	Pages	Stacks	Size
	2 to 50	30	A3/A4 LEF B4/B5 LEF DLT/LT LEF
Z-Folded, Mixed with Unfolded	Pages	Stacks	Size
	1 to 10	30 to 3	A3 Z-fold/A4 B4 Z-fold/B5 DLT Z-fold/LT
Staple Trimming	Hopper Capacity		15,000 staples
	Hopper Full Alert		Photo-sensor
	Trimming Disposal		Alert, operator

### Booklet Stapling

Stack Size	20	64 to 80 g/m <sup>2</sup>
	15	80 to 90 g/m <sup>2</sup>
Paper Size	13x19.2", 13x19", 12.6x19.2", 12.6x18.5", 13x18", SRA3 (320x450 mm), 12x18", A3, B4, SRA4 (320 x 225 mm), 226x310 mm, 310 x 432 mm, A4,B5, DLT, LG, LT	
Paper Weight	60 to 90 g/m <sup>2</sup>	



Stapling Positions	2 staples, 2 fixed locations		
Staple Supply	2 cartridges, 5000 staples each		
Tray Capacity After Stapling	<b>Pages</b>	<b>Stacks</b>	<b>Size</b>
	2 to 5	30	All sizes
	6 to 10	15	
	11 to 15	10	
	16 to 20	5	

### Punch Unit PU5020 (D449) (Option)

This punch unit is not pre-installed in the finisher. The punch unit must be installed.

Punching	North America	2/3 hole selectable	
	Europe	2/4 hole selectable	
	Scandinavia	4 hole	
Skew Correction	Yes		
Paper Registration	Yes		
Paper Size	<b>Holes</b>	<b>Edge</b>	<b>Size</b>
	2 Holes	SEF	A6 to A3, HLT to DLT
		LEF	A5 to A4, HLT to LT
	NA 2 Holes	SEF	A6 to A3, HLT to DLT
		LEF	A5 to A4, HLT to LT
	3 Holes	SEF	A3, B4, DLT
		LEF	A4, B5, LT
	EU 4 Holes	SEF	A3, B4, DLT
		LEF	A4, B5, LT
	Scn 4 Holes	SEF	B6 to A3, HLT to DLT
		LEF	A5 to A4, HLT to LT

Paper Weight	Holes	Weight
	2 Holes	52 to 209 g/m <sup>2</sup>
	NA 2 Holes	
	3 Holes	
	EU 4 Holes	52 to 163 g/m <sup>2</sup>
	Scn 4 Holes	

### Trimmer Unit TR5020 (D455) (Option)

This option is installed on the left side of the Booklet Finisher (D434).

Compatible Machines	Booklet Finisher SR5020 (D434) with the D059/D060/D061
Operating Environment	Temperature and humidity ranges: Same as main machine.
Service Life	Expected: 5 years or 12,000 K
Paper Size	
Standard Sizes	13x19.2", 13x19", 12.6x19.2", 12.6x18.5", 13x19", SRA3 (320x450 mm), 12x18", A3, B4, SRA4 (320x225 mm), 226x310 mm, 310 x 432 mm, A4, B5, DLT, LG, LT, 8 kai
Custom Size	Width: 182 to 330 mm Length: 257 to 488 mm
Stack Size	1 to 20 sheets (folded)
Trimming	40 sheets (80 g/m <sup>2</sup> )

Tray Capacity	<b>Pages</b>	<b>Sets</b>	
	1 to 5	60 for all sizes	
	6 to 10	35 for B5 and A4/LT 40 for B4/LG and A3/DLT	
	11 to 15	25 for all sizes	
	16 to 18	20 for B5, A4/LT and B4/LG 25 for A3/DLT	
	19 to 20	20 for B5, A4/LT and B4/LG 25 for A3/DLT	
Paper Weight	Weight: 80 g/m <sup>2</sup> Weight: 20 lb. Bond		
Power Supply	NA	AC 120V 60 Hz, 15A	
	EU	AC 220 to 240V, 50/60 Hz 10A	
Power Consumption	75W		
Size (w x d x h)	1115 x 590 x 555 mm (43.9 x 23.2 x 21.8 in.)		
Level	Less than 5 mm deviation at front/back, left/right		
Weight	70 kg or less		
Noise Level (dB A)	Mode	Alone	System
	Straight-Through	< 68 dB	< 75 dB
	Trimming	< 72 dB	< 75 dB

7

**Finisher SR5000 (3K Finisher B830)**

**Proof Tray**

Paper Capacity (80 g/m <sup>2</sup> )	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 5 1/2" x 8 1/2", 12" x 18", 13" x 18"
Paper Weight	52 to 216 g/m <sup>2</sup>
Upper Tray Full Detection	Provided

### Shift Tray

Paper Capacity (80 g/m <sup>2</sup> )	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 5 1/2" x 8 1/2", 12" x 18" (including tab paper)
Paper Weight	52 to 216 g/m <sup>2</sup>
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 <sup>2</sup>
	Z fold paper: 64 to 80 g/m <sup>2</sup>
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	Sizes
		10 - 100	200 - 30	A4 SEF, B5 SEF, 8 $\frac{1}{2}$ " x 11" SEF
				A4 LEF, B5 LEF, 8 $\frac{1}{2}$ " x 11" LEF
		2 - 9	150	
		10 - 50	150 - 30	A3, B4, 11" x 17", 8 $\frac{1}{2}$ " x 14"
		2 - 9	150	
	Folding	Sheets	Sets	Sizes
		1 - 10	30 - 3	A3 Z fold + A4, B4 Z fold + B5
				11" x 17" Z fold + 8 $\frac{1}{2}$ " x 11"
	Trimmed Staple Capacity		15,000 or more	
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		D059 (90 cpm), D060 (110 cpm), D061 (135 cpm)		

### 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 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ " SEF
	A5 - A4 LEF, 8 $\frac{1}{2}$ " x 11" LEF, 5 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ " LEF

3-Hole (NA)	A3 SEF, B4 SEF, 11" x 17" SEF
	A4 LEF, B5 LEF, 8 $\frac{1}{2}$ " x 11" LEF
4-Hole (EUR/A)	A3 SEF, B4 SEF, 11" x 17" SEF
	A4 LEF, B5 LEF, 8 $\frac{1}{2}$ " x 11" LEF
Paper Weight	
2-Hole (NA)	52 g/m <sup>2</sup> - 163 g/m <sup>2</sup>
3-Hole (NA)	52 g/m <sup>2</sup> - 163 g/m <sup>2</sup>
4-Hole ( EUR/A)	52 g/m <sup>2</sup> - 128 g/m <sup>2</sup>
Punch Waste Hopper Capacity	
2-Hole (NA)	10K
3-Hole (NA)	10K
4-Hole ( EUR/A)	15K
Operation Modes	All (Shift, Proof, Staple)

**Model B-C4**  
**Machine Code: D059/D060/D061**  
**Appendices**

31 May, 2010  
Revised





# TABLE OF CONTENTS

## 1. Appendix: Program Download

Program Download.....	3
Overview.....	3
Recovery Methods.....	3
Download Error Codes.....	4

## 2. Appendix: Service Call

Service Call Conditions.....	11
Service Mode Lock/Unlock.....	11
Service Call Levels.....	11
SC Code Descriptions.....	12
SC Tables: 1xx.....	13
SC Tables: 2xx.....	21
SC Tables: 3.....	25
SC Tables: 4.....	29
SC Tables: 5xx.....	38
SC Tables: 6xx.....	46
SC Tables: 7xx-1.....	51
SC Tables: 7xx-2.....	74
SC Tables: 7xx-3.....	99
SC Tables: 7xx-4.....	124
SC Tables: 7xx-5.....	149
SC Tables: 8xx.....	180
SC Tables: 9xx.....	192

## 3. Appendix: Service Program Mode

Service Tables.....	199
Before You Begin.....	199
Service Table Key.....	200
System SP1-nnn Feed.....	201
System SP2-nnn Drum: 1.....	218
System SP2-nnn Drum: 2.....	238
System SP3-nnn Processing.....	262
System SP4-nnn Scanner.....	269
System SP5-nnn Mode: 1.....	280

---

System SP5-nnn Mode: 2.....	297
System SP5-nnn Mode: 3.....	315
SP5-nnn Mode: 4.....	341
System SP6-nnn Peripherals: 1.....	359
System SP6-nnn Peripherals: 2.....	369
System SP6-nnn Peripherals: 3.....	381
System SP6-nnn Peripherals: 4.....	395
System SP6-nnn Peripherals: 5.....	409
System SP7-nnn Data Logs: 1.....	421
System SP7-nnn Data Logs: 2.....	430
System SP7-nnn Data Logs: 3.....	442
System SP8-nnn: Data Log2: 1.....	451
SP8-nnn: Data Log2: 2.....	470
Printer SP Tables.....	489
Scanner SP Tables.....	495
User Service Program Mode Tables.....	497
Adjustment Settings for Operators.....	497
Adjustment Settings for Skilled Operators.....	498
Input Check.....	501
Main Machine Input Check: SP5803.....	501
ADF Input Check: SP6007.....	508
Other Input Checks.....	509
Output Checks.....	510
Special Operations.....	511
Firmware Update.....	511
NVRAM Data Upload/Download.....	524
SMC Lists.....	525
Memory All Clear: SP5801.....	526
Software and Copy Setting Reset.....	527
Using the Debug Log.....	528
Touch Screen Calibration.....	534

# 1. Appendix: Program Download

---

## Program Download

---

### 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.

---

### 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.

## Download Error Codes

	Display	Details	Recovery
01	Reboot after card insert E01	Controller ROM update error 1	<ul style="list-style-type: none"> <li>Use the correct card</li> </ul>
	↓ Module ID Card No. xx/xx	When the update break data is stored in NVRAM, the break module information and the decompression module capable of writing do not match.	
02	Download Error E02 Power off/on	Controller ROM update error 2.	<ul style="list-style-type: none"> <li>Cycle the machine off/on to rewrite</li> </ul>
		Error occurs during ROM update program initialization.	
03	Download Error E03 Power off/on	Controller ROM update error 3	<ul style="list-style-type: none"> <li>Cycle the machine off/on</li> <li>Install the missing ROM DIMM</li> </ul>
		The ROM for the write operation does not exist.	
04	Download Error E04 Power off/on	Controller ROM update error 4	<ul style="list-style-type: none"> <li>Cycle the machine off/on</li> <li>Set DIP SW 1 to ON and retry</li> <li>Replace the RAM DIMM</li> <li>Replace the controller board</li> </ul>
		GZIP data confirmation fails. (CRC value check)	

	Display	Details	Recovery
05	Download Error E05 Power off/on	Controller ROM update error 5	<ul style="list-style-type: none"> <li>• Cycle the machine off/on</li> <li>• Set DIP SW 1 to ON and retry</li> <li>• Replace the RAM DIMM</li> <li>• Replace the controller board</li> </ul>
		Error occurs when writing to the device.	
06	Download Error E06 Power off/on	Controller ROM update error 6	<ul style="list-style-type: none"> <li>• Turn the machine power off/on.</li> <li>• Set controller DIPSW-1 to ON to force the machine to write to ROM.</li> <li>• If you cannot force the machine to write, replace the controller board.</li> </ul>
		CPU clock error.	
19	Download Error E19 Power off/on	Controller ROM update error 7	<ul style="list-style-type: none"> <li>• Software defective</li> </ul>
		Schedule data is unclear.	
20	Down Error E20 Power Off/On	System error 1 (+SC991)	<ul style="list-style-type: none"> <li>• Cycle the machine off/on and re-try</li> <li>• Replace the controller board</li> </ul>
		The physical address cannot be mapped. Software/hardware is defective	
21	Download Error E21 Power Off/On	System error 2 (+SC991)	<ul style="list-style-type: none"> <li>• Cycle the machine off/on and re-try.</li> <li>• Replace the RAM</li> <li>• Replace the controller board</li> </ul>
		There is not sufficient memory to download.	

	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"> <li>• Cycle the machine off/on and re-try.</li> <li>• Replace the card</li> <li>• Replace the controller board</li> </ul>
	SC991	System error 4  "Selfupdate" does not execute. Software defective.	
23	Download Error E24 Power Off/On	System error 5  Card read/write error. Software or card defective.	<ul style="list-style-type: none"> <li>• Cycle the machine off/on and re-try</li> <li>• Replace the card</li> <li>• Replace the controller board</li> </ul>
30	No Valid Data E30	Download dysfunction 1	<ul style="list-style-type: none"> <li>• HDD defective</li> <li>• HDD harness disconnected, defective</li> </ul>
		Print download is not possible. Cannot download to HDD because HDD not installed or defective.	
31	Reboot After Card Insert E31 Module ID Card No. xx/xx	Download dysfunction 2	<ul style="list-style-type: none"> <li>• Set the correct cards in the correct order</li> </ul>
		Download continuity error with more than one card. The second or later card is not compatible.	

	Display	Details	Recovery
32	Reboot After Card Insert E32 Module ID Card No. xx/xx	Download dysfunction 3	<ul style="list-style-type: none"> <li>• Use the correct card</li> <li>• If power failure caused the failure, remove the card and insert another.</li> </ul>
		Download interrupted because card is not correct, or power failure interrupted download.	
33	No Valid Data E33	Download dysfunction 4	<ul style="list-style-type: none"> <li>• Use the correct card</li> </ul>
		Card version error. Attempted to download program using a card with the wrong version number.	
34	No Valid Data E34	Download dysfunction 5	<ul style="list-style-type: none"> <li>• Use the correct card</li> </ul>
		Specification error. DOM card set in EXP machine, or vice versa.	
35	No Valid Data E35	Download dysfunction 6	<ul style="list-style-type: none"> <li>• Use the correct card</li> </ul>
		Wrong model. The inserted card is for another model.	
36	No Valid Data E36	Download dysfunction 7	<ul style="list-style-type: none"> <li>• Use the correct card, inserted correctly</li> <li>• Install a ROM DIMM if none is installed</li> </ul>
		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.	
37	No Valid Data E37	Download dysfunction 8	<ul style="list-style-type: none"> <li>• Use an unused card</li> </ul>
		Edit option card error. You attempted to employ a used card.	
40	Downloa d Error E40 Module ID Card No. xx/xx	Download result failure 1	<ul style="list-style-type: none"> <li>• Cycle the machine off/on and re-try</li> </ul>
		Engine download failure.	

	Display	Details	Recovery
41	Download Error E41	Download result failure 2	<ul style="list-style-type: none"> <li>• Cycle the machine off/on and re-try</li> </ul>
	Module ID Card No. xx/xx	Fax download failure.	
42	Download Error E42	Download result failure 3	<ul style="list-style-type: none"> <li>• Cycle the machine off/on and re-try</li> </ul>
	Module ID Card No. xx/xx	Operation panel or language download failed. For this error, sometimes the message may not be displayed.	
43	Download Error E43	Download result failure 4	<ul style="list-style-type: none"> <li>• Cycle the machine off/on and re-try</li> </ul>
	Module ID Card No. xx/xx	Print download failed.	
44	Download Error E44	Download result failure 5	<ul style="list-style-type: none"> <li>• Turn the machine power off.</li> <li>• Replace the SD card with the start-up SD card that has the source data.</li> <li>• Set controller DIPSW-1 to ON to force the machine to write.</li> <li>• Turn the machine on.</li> <li>• If you cannot force the machine to write, replace the controller board.</li> </ul>
	Module ID Card No.	The data targeted for the write operation could not be accessed.	



	Display	Details	Recovery
50	No Valid Data E50	Download invalid	<ul style="list-style-type: none"> <li>Use the correct SD card.</li> </ul>
		The source data for the update could not be authenticated.	
51	(no display)	Remote ROM update failure 1	<ul style="list-style-type: none"> <li>Turn the machine power off/on and try again.</li> </ul>
		The source data for the ROM update is corrupted because the machine is operating and an SC code has been issued.	
52	(no display)	Remote ROM update failure 2	<ul style="list-style-type: none"> <li>Try again with the correct data.</li> </ul>
		The source data received for the ROM update is corrupted; it failed a SUM check due to its abnormal length.	
53	(no display)	Download result failure 6	<ul style="list-style-type: none"> <li>Do the download procedure again.</li> </ul>
		The previous download in progress was cancelled.	



# 2. Appendix: Service Call

## Service Call Conditions

### 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 5169-001 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.

### Service Call Levels

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.

Level	Definition	Reset Procedure
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.

## 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. This is done for Level "D" SC codes only.

### ⚠ 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.

### ↓ Note

- The main power LED (ⓧ⓪) 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 Tables: 1xx

SC101	B	Exposure Lamp Error
		The standard white level was not detected properly when scanning the white plate.
		<ul style="list-style-type: none"> <li>• Exposure lamp defective</li> <li>• Lamp stabilizer defective</li> <li>• Exposure lamp connector defective</li> <li>• Scanner motor control unit (MCU board) defective</li> <li>• SBU board defective</li> <li>• Dirty white plate</li> <li>• Dirty scanner mirror</li> <li>• Scanner mirror or lens block out of position</li> </ul>
SC120	B	Scanner Home Position Error 1
		The scanner home position sensor does not detect the OFF condition during initialization or copying
		<ul style="list-style-type: none"> <li>• Scanner home position sensor defective</li> <li>• Poor connection between HP sensor and MCU board</li> <li>• Scanner motor control unit (MCU board) defective</li> <li>• Scanner wire, timing belt, pulleys, or carriage out of position</li> <li>• Scanner motor defective</li> <li>• Poor connection or defective harness between MCU board and scanner motor</li> </ul>

SC121	B	Scanner Home Position Error 2
		Scanner home position sensor does not detect ON.
		<ul style="list-style-type: none"> <li>• Scanner home position sensor defective</li> <li>• Poor connection between MCU board and scanner home position sensor</li> <li>• Harness between MCU board and sensor defective</li> <li>• MCU board defective</li> <li>• Scanner wire, timing belt, pulleys, or carriage out of position</li> <li>• Scanner drive motor defective</li> <li>• Harness between MCU board and scanner motor disconnected</li> </ul>
SC124	B	Encoder Signal Error
		The scanner motor encoder connector is not set correctly, or the encoder signal was not input.
		<ul style="list-style-type: none"> <li>• Scanner motor encoder connector disconnected</li> <li>• Scanner motor lead connector disconnected</li> <li>• Scanner motor defective</li> <li>• MCU board defective (scanner motor control unit)</li> <li>• Scanner wire, timing belt, pulleys, or carriage installation incorrect</li> <li>• Power supply connector disconnected (+38V ±24V)</li> <li>• Power supply unit (PSU-E board) defective</li> </ul>
SC125	B	Scanner Motor Error 1
		Scanner motor stopped before feedback from scanner HP sensor detected, or motor speed too slow when detected at scanner HP sensor.
		<ul style="list-style-type: none"> <li>• Scanner motor defective (high torque)</li> <li>• Overload on scanner drive mechanism</li> <li>• MCU board defective (scanner motor unit control)</li> </ul>

SC126	B	Scanner Motor Error 2
		The scanner motor does not stop within 15 mm after the scanner home position sensor turns on when the scanner returns.
		<ul style="list-style-type: none"> <li>• Scanner motor defective (low torque)</li> <li>• Overload on scanner drive mechanism</li> <li>• MCU board defective (scanner motor control unit)</li> </ul>
SC127	B	Scanner Motor Error 3
		The scanner motor rotates in the opposite direction to the signal from the MCU board.
		<ul style="list-style-type: none"> <li>• Scanner motor defective (motor lead connected incorrectly)</li> <li>• MCU board defective (scanner motor control unit)</li> </ul>
SC128	C	Scanner Motor Error 4
		The scanner motor speed does not reach the target speed by the time the scanning start point is reached.
		<ul style="list-style-type: none"> <li>• Scanner motor defective</li> <li>• Overload on scanner mechanism</li> <li>• PSU-Eb board defective</li> <li>• MCU board defective (scanner motor control unit)</li> </ul>
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"> <li>• Scanner motor defective</li> <li>• Scanner drive mechanism defective</li> <li>• PSU-Eb board defective</li> <li>• MCU board defective (scanner motor control unit)</li> </ul>

SC141	B	Black level detection error
		When the scanner was turned on, AGC (automatic gain control) failed to achieve the target value of $10 \pm 3$ .
		<ul style="list-style-type: none"> <li>• SBU ↔ BICU harnesses defective</li> <li>• SBU defective</li> <li>• BICU defective</li> </ul>

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"> <li>• Standard white plate defective, dirty</li> <li>• Moisture inside the scanner unit</li> <li>• SBU to BICU harnesses defective</li> <li>• SBU defective</li> <li>• BICU defective</li> </ul>

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"> <li>• SBU defective</li> <li>• BICU defective</li> <li>• Harness between the SBU and BICU defective</li> <li>• Standard white plate not installed correctly, or is dirty</li> <li>• Scanner mirrors and/or lenses are dirty or installed incorrectly</li> </ul>



SC144	B	SBU Error 2
		At power on: <ul style="list-style-type: none"> <li>The SYDI terminal signal did not go HIGH within 1 s</li> <li>The specified SBU (Sensor Board Unit) ID (GASBUP and LM98513) could not be read after 3 tries</li> </ul>
		<ul style="list-style-type: none"> <li>SBU defective</li> <li>BICU defective</li> <li>Harness between SBU and BICU defective</li> </ul>

SC161-1	D	IPU Error:
		At power on, or when the machine returns from an energy save mode, the self-diagnostic program returned an IPU error (LSYNC abnormal).
		<ul style="list-style-type: none"> <li>Connector or harness between SBU and IPU loose, broken, or defective</li> <li>SBU connector or harness loose, broken, or defective</li> <li>BICU defective</li> </ul>

SC161-2	B	IPU Error 2
		Initialization after power on failed because an error occurred on the IPU
		<ul style="list-style-type: none"> <li>Replace BICU</li> </ul>

SC165	A	Illegal Copy Data Security Error
		The "Data Security for Copying Feature" in the User Tools is set to "ON" without the ICIB-2 installed.
		<ul style="list-style-type: none"> <li>Copy Data Security Unit option board not installed, or not installed correctly</li> <li>Copy Data Security Unit board is defective</li> </ul>
		<p><b>Note:</b></p> <ul style="list-style-type: none"> <li>The "Data Security for Copying" feature in the User Tools must be set to "OFF" before the ICIB-2 is removed.</li> <li>To switch this feature off/on: [User Tools]&gt; System Settings&gt; Administrator Tools&gt; Next.&gt; Data Security for Copying&gt; Select Off/On.</li> </ul>

SC180	B	Scanner Unit Fan Error: Scanner Intake Fan
		The MCU issued a lock signal from the scanner intake fan (rear, right).
		<ul style="list-style-type: none"> <li>• Fan, MCU, SIB harnesses loose or defective</li> <li>• Scanner intake fan motor defective</li> <li>• MCU defective</li> <li>• SIB defective</li> </ul>

SC181	B	Scanner Unit Fan Error: Lamp Regulator Fan (Right)
		The MCU issued a lock signal for the lamp regulator fan (front, right).
		<ul style="list-style-type: none"> <li>• Fan, MCU harness loose, defective</li> <li>• Lamp regulator (right) fan motor defective</li> <li>• MCU defective</li> <li>• SIB defective</li> </ul>

SC182	B	Scanner Unit Fan Error: SBU Cooling Fan
		The MCU issued a motor lock signal for the SBU cooling fan in the scanner unit
		<ul style="list-style-type: none"> <li>• Scanner unit harness loose, defective</li> <li>• Fan, MCU harness loose, defective</li> <li>• SBU Fan motor defective</li> <li>• MCU defective</li> <li>• SIB defective</li> </ul>

SC183	B	Scanner Unit Fan Error: Lamp Regulator Fan (Left)
		The MCU issued a lock signal for the lamp regulator fan (front, left).
		<ul style="list-style-type: none"> <li>• Scanner unit harness loose, defective</li> <li>• Fan, MCU harness loose, defective</li> <li>• Lamp regulator (left) fan motor defective</li> <li>• MCU defective</li> <li>• SIB defective</li> </ul>

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"> <li>• 1st exposure lamp defective</li> <li>• 1st lamp FFC (flat film cable) loose or defective</li> <li>• MCU ↔ lamp regulator (left) harness defective</li> <li>• Lamp regulator (left) is defective</li> <li>• MCU defective</li> <li>• SIB defective</li> </ul>

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"> <li>• 2nd exposure lamp defective</li> <li>• 2nd lamp FFC (flat film cable) loose or defective</li> <li>• MCU ↔ lamp regulator (left) harness defective</li> <li>• Lamp regulator (left) is defective</li> <li>• MCU defective</li> <li>• SIB defective</li> </ul>

SC187	B	Scanner Unit Fan Error: Scanner Unit Exhaust Fan
		The MCU issued a lock signal for the scanner unit exhaust fan (rear, left).
		<ul style="list-style-type: none"> <li>• Scanner unit harness loose, defective</li> <li>• Fan, MCU harness loose, defective</li> <li>• Scanner unit exhaust fan motor defective</li> <li>• MCU defective</li> <li>• SIB defective</li> </ul>

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"> <li>• Scanner unit harness loose, defective</li> <li>• Fan, MCU harness loose, defective</li> <li>• Scanner unit exhaust fan motor defective</li> <li>• MCU defective</li> <li>• SIB defective</li> </ul>

SC195	B	Main Machine Model Entry Error
		The 11-digit serial number stored in memory is not the correct number for this model.
		<ul style="list-style-type: none"> <li>• Check the entered serial number with SP5811.</li> <li>• If the serial number is incorrect, contact your supervisor.</li> <li>• NVRAM defective</li> <li>• BICU replaced without original NVRAM on the Controller board.</li> </ul>

## SC Tables: 2xx

2

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"> <li>• Connection between the polygon mirror motor control board and the motor is loose, broken, or defective</li> <li>• Polygon mirror motor defective</li> <li>• Polygon mirror motor control board defective</li> <li>• BICU defective</li> </ul>
SC203	B	Polygon Motor Error 2: OFF Timeout
		The polygon mirror motor did not turn off within 3 s after the motor was switched off.
		<ul style="list-style-type: none"> <li>• Connection between polygon mirror motor and its drive board is loose, broken, or defective</li> <li>• Polygon mirror motor defective</li> <li>• Polygon mirror motor drive board defective</li> <li>• BICU defective</li> </ul>
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"> <li>• While an image was being created</li> <li>• During the output of a synchronous laser detection signal</li> </ul>
		<ul style="list-style-type: none"> <li>• Switch the machine off/on (problem was probably due to electronic noise)</li> <li>• Replace the harness if cycling the machine off/on does not solve the problem</li> <li>• Polygon motor defective</li> <li>• Polygon mirror motor control board defective</li> <li>• BICU defective</li> </ul>

2



SC205	B	Polygon Motor Error 4: Unstable Timeout
		<p>The machine detected that the polygon mirror motor signal went inactive at some time other than:</p> <ul style="list-style-type: none"> <li>• While an image was being created</li> <li>• During the output of a synchronous laser detection signal</li> </ul>
		<ul style="list-style-type: none"> <li>• Switch the machine off/on (problem was probably due to electronic noise)</li> <li>• Replace the harness if cycling the machine off/on does not solve the problem</li> <li>• Polygon motor defective</li> <li>• Polygon mirror motor control board defective</li> <li>• BICU defective</li> </ul>
SC220	B	Synchronization Detector Error 1: LD0
		<p>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.</p>
		<ul style="list-style-type: none"> <li>• Make sure there is paper in the trays</li> <li>• Cycle the machine off/on</li> <li>• Harness connector of the laser synchronization detector board is loose, broken, defective</li> <li>• Laser synchronization detection board defective or installed improperly</li> <li>• LD unit defective</li> <li>• BICU defective</li> </ul>

SC221	B	Synchronization Detection Error 2: LD1
		When LD1 fired with the polygon mirror motor rotating at normal speed, a synchronous detection signal was not output. <b>Note:</b> This can occur when the machine recovers from the energy save mode and there is no paper available.
		<ul style="list-style-type: none"> <li>• Make sure there is paper in the trays</li> <li>• Cycle the machine off/on</li> <li>• Harness connector of the laser synchronization detector board is loose, broken, defective</li> <li>• Laser synchronization detection board defective or installed improperly</li> <li>• LD unit defective</li> <li>• BICU defective</li> </ul>

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"> <li>• Cycle the machine off/on</li> <li>• Check the harnesses, connectors of the BICU, Controller</li> <li>• GAVD on the BICU defective</li> <li>• Controller defective</li> <li>• BICU defective</li> </ul>

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"> <li>• Cycle the machine off/on</li> <li>• Check the harnesses, connectors of the BICU, Controller</li> <li>• GAVD on the BICU defective</li> <li>• Controller defective</li> <li>• BICU defective</li> </ul>



2

SC240	B	LD Error
		The LD error terminal of the LDB asserted an error.
		<ul style="list-style-type: none"><li>• Cycle the machine off/on</li><li>• LDB harness connectors loose, broken, defective</li><li>• LDB defective</li><li>• BICU defective</li></ul>



## SC Tables: 3



SC300	B	Charge Corona Error 1: Charge Leak
		An abnormal detection signal (H) was detected for more than 60 ms. During this time, the detected voltage remained below $-4V$ for more than 50 ms.)
		<ul style="list-style-type: none"> <li>• Cycle the machine off/on</li> <li>• CGB power pack harness connectors loose, broken, defective</li> <li>• Corona wire caps loose, missing</li> <li>• CGB power pack defective</li> <li>• Charge corona unit connectors loose, broken, defective</li> </ul>

2



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"> <li>• Cycle the machine off/on</li> <li>• Charge unit set incorrectly (not locked in place)</li> <li>• Charge unit connector loose, broken, defective</li> </ul>

SC305	C	Charge Corona Wire Cleaner Error
		One of these occurred after the charge corona cleaner motor was switched on: 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"> <li>• Cycle the machine off/on</li> <li>• Charge corona wire cleaner motor defective</li> </ul>

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"> <li>• Pre-charge unit set incorrectly.</li> <li>• Pre-charge unit contact is broken or defective.</li> </ul>

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"> <li>• Pre-charge unit set incorrectly</li> <li>• Pre-charge unit contact is broken or defective</li> </ul>



SC320	D	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"> <li>• Development power pack connectors loose, broken, defective</li> <li>• Development unit connectors loose, broken, defective</li> <li>• Development power pack defective</li> </ul>

SC344	C	Development Unit Set Error
		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.
		<ol style="list-style-type: none"> <li>1. Pull out the development unit.</li> <li>2. Install it again.</li> <li>3. Close the front doors</li> <li>4. Cycle the machine off/on</li> </ol>

SC360	C	TD Sensor Output Error 1: $V_t$ Above Upper Limit
		The result of the check of the TD sensor output ( $V_t$ ) after every copy for 10 continuous copies was $V_t \geq 4.0V$ (out of range).
		<ul style="list-style-type: none"> <li>• TD sensor dirty or defective</li> <li>• TD sensor connector to BICU loose, broken, defective</li> <li>• IOB defective</li> <li>• BICU defective</li> </ul>
SC364	C	TD Sensor Output Error 2: $V_t$ Below Lower Limit
		The result of the check of the TD sensor output ( $V_t$ ) after every copy for 10 continuous copies was $V_t \leq 0.5V$ (out of range).
		<ul style="list-style-type: none"> <li>• TD sensor dirty or defective</li> <li>• TD sensor connector to BICU loose, broken, defective</li> <li>• IOB defective</li> <li>• BICU defective</li> </ul>
SC368	D	TD Sensor Adjustment Error 1
		The value for $V_{ref}$ could not be set because: <ul style="list-style-type: none"> <li>• The target voltage could not reach 2.5V with maximum PWM (255) application</li> <li>• The target voltage exceeded 2.5V with minimum PWM (0) application.</li> </ul>
		<ul style="list-style-type: none"> <li>• TD sensor connector or harness to the IOB loose, broken, defective</li> <li>• TD sensor defective</li> <li>• IOB defective</li> <li>• BICU defective</li> </ul>

SC372	D	TD Sensor Adjustment Error 2
		The TD sensor output voltage is not adjusted to $2.5 \pm 0.1$ V within 3 min. during initialization of the TD sensor with SP2801.
		<p><b>Note:</b> When an abnormal condition occurs, "0" is displayed for SP2906 (Vcont Manual Setting).</p> <ul style="list-style-type: none"> <li>• TD sensor connector, harness loose, broken, defective</li> <li>• TD sensor defective</li> <li>• IOB defective</li> </ul>
SC396	B	Drum Motor Error
		The drum motor lock signal is longer than 2 s while the drum motor is on.
		<ul style="list-style-type: none"> <li>• Drum motor connector, harness loose, broken, defective</li> <li>• Drum motor defective</li> <li>• Mechanical problem with the drum unit, transfer belt, toner collection unit</li> </ul>

## SC Tables: 4

2

SC400	C	ID Sensor Error 1: Background Adjustment Error
		<p>One of the following ID sensor output voltages was detected for <math>V_{sg}</math> (the reading of the bare drum surface) at ID sensor initialization.</p> <ul style="list-style-type: none"> <li>The reading was less than 4V at PWM=255 (Maximum PWM).</li> </ul> <p>The reading was over 4V at PWM=0 (Minimum PWM)</p> <p><b>Note:</b> The most recent correct PWM value is used for control.</p> <p>The value displayed by SP3 103 (ID Sensor Output Display) is the actual, incorrect value.</p> <ul style="list-style-type: none"> <li>ID sensor harness, connector was loose, broken, defective</li> <li>ID sensor dirty</li> <li>ID sensor defective</li> <li>IOB defective</li> <li>BICU defective</li> <li>ID unit defective</li> <li>CGB/PPG power pack defective</li> </ul>

SC401	C	ID Sensor Error 2: Background Output Error
		<p>One of the following conditions was detected when checking the ID sensor pattern:</p> <ul style="list-style-type: none"> <li><math>V_{sg} \leq 2.5</math> V</li> <li><math>V_{sg} = 0</math> V</li> <li>The ID sensor output voltage = 5.0 V and PWM signal input to ID sensor = 0</li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li><math>V_{sg}</math> is the ID sensor output after checking the bare drum surface in the ID sensor pattern.</li> <li>The SC code is not displayed; only the logging data is incremented.</li> <li>When this SC is issued, only the toner density sensor output (<math>V_t</math>) (even for jobs less than 10 copies) and <math>V_{ref}</math> is not updated.</li> <li>After an abnormal condition is detected, SP3 103 (ID Sensor Output Display) shows "<math>V_{sp} = V_{sg} = 0</math>" (or "5.0V").</li> <li>If the next ID sensor pattern check is normal, this restores normal operation.</li> </ul>

		<ul style="list-style-type: none"> <li>• ID sensor harness, connector is loose, broken, or defective</li> <li>• ID sensor dirty</li> <li>• ID sensor defective</li> <li>• IOB defective</li> <li>• LD Unit defective</li> <li>• BICU defective</li> <li>• CGB/PPG power pack defective</li> </ul>
--	--	---

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 are of the ID sensor pattern:</p> <ul style="list-style-type: none"> <li>• <math>V_{sp} \geq 2.5\text{ V}</math></li> <li>• <math>V_{sp} = 0\text{ V}</math></li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• The SC code is not displayed; only the logging data is incremented.</li> <li>• When this SC is issued, only the toner density sensor output (<math>V_t</math>) (even for jobs less than 10 copies) and <math>V_{ref}</math> is not updated.</li> <li>• After an abnormal condition is detected, SP3103 (ID Sensor Output Display) shows "<math>V_{sp} = V_{sg} = 0</math>" (or "5.0V").</li> <li>• If the next ID sensor pattern check is normal, this restores normal operation.</li> </ul>
		<ul style="list-style-type: none"> <li>• ID sensor harness, connector is loose, broken, or defective</li> <li>• ID sensor dirty</li> <li>• ID sensor defective</li> <li>• IOB defective</li> <li>• LD Unit defective</li> <li>• BICU defective</li> <li>• Development power pack defective</li> </ul>

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> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• The SC code is not displayed; only the logging data is incremented.</li> <li>• When this SC is issued, only the toner density sensor output (Vt) (even for jobs less than 10 copies) and Vref is not updated.</li> <li>• After an abnormal condition is detected, SP3103 (ID Sensor Output Display) shows "Vsp = Vsg = 0" (or "5.0V").</li> <li>• If the next ID sensor pattern check is normal, this restores normal operation.</li> </ul>
		<ul style="list-style-type: none"> <li>• ID sensor harness, connector is loose, broken, or defective</li> <li>• ID sensor dirty</li> <li>• ID sensor defective</li> <li>• IOB defective</li> <li>• LD Unit defective</li> <li>• BICU defective</li> <li>• Development power pack defective</li> </ul>
SC420	C	Drum Potential Sensor Error 1: Vd Adjustment Error
		<p>When Vd (drum potential of the latent ID sensor pattern before exposure) was adjusted during auto process control:</p> <p>After 5 adjustments by Vg (voltage output of the charge corona unit) Vd failed to attain the value of SP2001 006 (total corona voltage for Photo Mode at normal speed) or Vd failed to attain the value of SP2001 012 for the CPM down mode (but not Photo Mode).</p>
		<ul style="list-style-type: none"> <li>• Drum potential sensor harness, connector is loose, broken, defective</li> <li>• Drum potential sensor dirty</li> <li>• Drum potential sensor defective</li> <li>• Drum connector, harness loose, broken, defective</li> <li>• Development power pack defective</li> <li>• BICU defective</li> </ul>

SC424	C	Drum Potential Sensor Error 2: VL Error
		At the beginning of auto process control, the VL detected after creation of the ID sensor pattern was greater than 550. <b>Note:</b> VL is the drum potential after maximum laser exposure, determined by reading the white patches of the potential sensor pattern. To change VL, the machine adjusts the input current of the laser diodes.
		<ul style="list-style-type: none"> <li>• Poor drum ground connection</li> <li>• Drum worn</li> <li>• LD unit dirty</li> </ul>
SC428	C	Drum Potential Sensor Error 3: Vh Adjustment Error
		<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"> <li>• The value for SP3904-1 could not be attained for normal speed, or the value of SP3904-2 could not be attained for low speed mode.</li> <li>• The LD power adjustments exceeded the upper and lower limits (+185 and -70).</li> </ul>
		<ul style="list-style-type: none"> <li>• Drum potential sensor harness, connector is loose, broken, defective</li> <li>• Drum potential sensor dirty</li> <li>• Drum potential sensor defective</li> <li>• Drum unit connector, harness loose, broken, defective</li> <li>• Poor drum ground connection</li> <li>• LD unit defective</li> <li>• BICU defective</li> </ul>
SC435	C	PCU Set Error
		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.
		<ol style="list-style-type: none"> <li>1. Pull out the PCU unit.</li> <li>2. Install it again.</li> <li>3. Close the front doors</li> <li>4. Cycle the machine off/on</li> </ol>



SC437	C	Drum Potential Sensor Error 4: Vd Detection Error
		During execution of auto process control for normal speed and CPM down mode when VD was detected VG= -900V
		<ul style="list-style-type: none"> <li>Do SP3902 001 to determine if auto process control has been turned off. If this SP is off, turn it on.</li> </ul>

SC438	B	Drum Potential Sensor Error 5: ID Sensor Pattern Potential
		When the ID sensor potential (Vp) 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 SP2201-4 did not exceed 900V (development unit power pack output) after 3 samplings.
		<ul style="list-style-type: none"> <li>Drum potential sensor defective</li> <li>BICU defective</li> <li>IOB defective</li> <li>Poor drum unit connection or connectors defective</li> <li>Poor drum ground connection</li> <li>LD defective</li> <li>Poor drum cleaning ground connection</li> <li>Drum worn</li> <li>Dirty laser optics</li> </ul>

SC439	B	Drum Potential Sensor Error 6: Vh Abnormal
		When the LD power was adjusted during auto process control, the first value detected for the Vh pattern (used to set standard drum potential for halftones) exceeded 720V.
		<ul style="list-style-type: none"> <li>Drum potential sensor harness, connector loose, broken, defective</li> <li>Drum potential sensor defective</li> <li>LD unit defective (pattern could not be created)</li> </ul>

SC440	B	Transfer Output Error
		<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"> <li>• The value for the transfer current was set for 70µA, but the feedback voltage was less than 0.75V (less than 1.5 KV).</li> <li>• When the feedback current was less than 0.16V (10µA), the feedback voltage was less than 0.15V (less than 300V) due to a poor input connection.</li> <li>• When the feedback current was less than 0.16V (10µA), the feedback voltage was less than 3.05V (over 6.1 KV) due to a poor output connection.</li> </ul>
		<ul style="list-style-type: none"> <li>• Transfer power pack harness, connectors loose or broken</li> <li>• Transfer power pack harness or connectors have short circuited</li> <li>• Transfer power pack is defective</li> </ul>

SC441	D	Development Motor Lock
		While the motor is operating, the motor lock signal remained LOW for 2 s
		<ul style="list-style-type: none"> <li>• Development motor lock due to overload</li> <li>• IOB defective</li> </ul>

SC487	B	Toner Collection Unit Lock
		<p>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.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• The sensor (a photo interrupter) detects the change in the position of the gear triggers the error.</li> <li>• This SC code occurs after 8K pages have been fed after a message alerts the operator that the toner collection unit needs replacement. After the 8K pages have fed, the machine will stop.</li> </ul>
		<ul style="list-style-type: none"> <li>• Enter "0" for SP2950-1 then cycle the machine off/on</li> <li>• Empty or replace the toner collection bottle.</li> </ul>

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"> <li>• 2nd blade solenoid connector loose, broken defective</li> <li>• 2nd blade solenoid defective</li> <li>• Release mechanism defective</li> </ul>
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"> <li>1. Remove the drum cleaning unit</li> <li>2. Install it again.</li> <li>3. Close the front doors</li> <li>4. Cycle the machine off/on</li> </ol>
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"> <li>• Drive mechanism overload</li> <li>• Obstruction has stopped the fan</li> <li>• Fan connector loose, broken, defective</li> </ul>
SC492	D	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"> <li>• Replace the motor.</li> </ul>



2

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"> <li>• An obstruction (clumped toner, other foreign material) is blocking the toner supply coil</li> <li>• The coil torque limiter is broken</li> <li>• Toner bottle end sensor is broken</li> </ul>
		<ul style="list-style-type: none"> <li>• Cycle the machine off/on</li> <li>• Clean the toner transport coil, tubing, toner supply clutch, torque limiter</li> <li>• Defective toner supply coil</li> <li>• Defective toner supply tube</li> <li>• Defective toner supply clutch</li> <li>• Defective torque limiter</li> </ul>



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"> <li>• Toner supply pump motor harness, connector loose, broken, defective</li> <li>• Toner supply pump motor defective</li> <li>• Blockage in the toner supply tube</li> <li>• Toner supply tube disconnected</li> <li>• Blockage in the toner supply cylinder</li> <li>• Toner-end sensor in the toner supply cylinder defective</li> <li>• Agitator in the toner supply cylinder defective</li> <li>• Toner supply cylinder agitator motor defective</li> </ul>

SC498	B	OPC Temperature Sensor Error
		The OPC temperature sensor detected a temperature of less than $-20^{\circ}\text{C}$ or greater than $60^{\circ}\text{C}$ . -or- At temperature detection, the A/D input voltage was less than 0.05V or was greater than 4.95V
		<ul style="list-style-type: none"><li>• OPC temperature sensor dirty</li><li>• OPC temperature sensor harness or connector loose, broken, defective</li><li>• OPC temperature sensor or PCB defective</li></ul>

## SC Tables: 5xx

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"> <li>• The 1st tray lift sensor is not activated for 10 s after the 1st tray lift motor turned on.</li> <li>• Upper limit is not detected within 10 s while the paper tray is lifting during paper feed.</li> <li>• The 1st tray lift sensor is already activated when the 1st tray is placed in the machine.</li> </ul>
		<ul style="list-style-type: none"> <li>• Poor 1st tray lift motor connection</li> <li>• Remaining paper or another obstruction has stopped the tray and motor</li> <li>• 1st pick-up solenoid connector is loose</li> <li>• 1st pick-up solenoid is blocked by an obstruction</li> </ul>

SC502	D	2nd Tray Lift Malfunction
		<p>One of the following conditions is detected in the 2nd tray of the main machine:</p> <ul style="list-style-type: none"> <li>• The 2nd tray lift sensor is not activated for 10 s after the 2nd tray lift motor turned on.</li> <li>• Upper limit is not detected within 10 s while the paper tray is lifting during paper feed.</li> <li>• The 2nd tray lift sensor is already activated when the 2nd tray is placed in the machine.</li> </ul>
		<ul style="list-style-type: none"> <li>• Poor 2nd tray lift motor connection</li> <li>• Remaining paper or another obstruction has stopped the tray and motor</li> <li>• 2nd pick-up solenoid connector is loose</li> <li>• 2nd pick-up solenoid is blocked by an obstruction</li> </ul>

SC503	D	3rd Tray Lift Malfunction
		<p>One of the following conditions is detected in the 3rd tray of the main machine:</p> <ul style="list-style-type: none"> <li>• The 3rd tray lift sensor is not activated for 10 s after the 3rd tray lift motor turned on.</li> <li>• Upper limit is not detected within 10 s while the paper tray is lifting during paper feed.</li> <li>• The 3rd tray lift sensor is already activated when the 3rd tray is placed in the machine</li> </ul>
		<ul style="list-style-type: none"> <li>• Poor 3rd tray lift motor connection</li> <li>• Remaining paper or another obstruction has stopped the tray and motor</li> <li>• 3rd pick-up solenoid connector is loose</li> <li>• 3rd pick-up solenoid is blocked by an obstruction</li> </ul>

SC504	D	4th Tray (LCT Tray 1) Lift Malfunction
		<p>One of the following conditions is detected in the 4th tray:</p> <ul style="list-style-type: none"> <li>• The LCT 1st lift sensor is not activated for 10 s after the LCT 1st tray lift motor turned on.</li> <li>• Upper limit is not detected within 10 s while the paper tray is lifting during paper feed.</li> <li>• The LCT 1st lift sensor is already activated when the LCT 1st tray is placed in the machine.</li> </ul>
		<ul style="list-style-type: none"> <li>• Poor LCT 1st tray lift motor connection</li> <li>• Remaining paper or another obstruction has stopped the tray and motor</li> <li>• LCT 1st pick-up solenoid connector is loose</li> <li>• LCT 1st pick-up solenoid is blocked by an obstruction</li> </ul>

SC505	D	5th Tray (LCT Tray 2) Lift Malfunction
		<p>One of the following conditions is detected in the 5th tray:</p> <ul style="list-style-type: none"> <li>• The LCT 2nd lift sensor is not activated for 10 s after the LCT 2nd tray lift motor turned on.</li> <li>• Upper limit is not detected within 10 s while the paper tray is lifting during paper feed.</li> <li>• The LCT 2nd lift sensor is already activated when the LCT 2nd tray is placed in the machine.</li> </ul>
		<ul style="list-style-type: none"> <li>• Poor LCT 2nd tray lift motor connection</li> <li>• Remaining paper or another obstruction has stopped the tray and motor</li> <li>• LCT 2nd pick-up solenoid connector is loose</li> <li>• LCT 2nd pick-up solenoid is blocked by an obstruction</li> </ul>

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"> <li>• The LCT 3rd lift sensor is not activated for 20 s after the LCT 3rd tray lift motor turned on.</li> <li>• Upper limit is not detected within 20 s while the paper tray is lifting during paper feed.</li> <li>• The LCT 3rd lift sensor is already activated when the LCT 3rd tray is placed in the machine.</li> </ul>
		<ul style="list-style-type: none"> <li>• Poor LCT 3rd tray lift motor connection</li> <li>• Remaining paper or another obstruction has stopped the tray and motor</li> <li>• LCT 3rd pick-up solenoid connector is loose</li> <li>• LCT 3rd pick-up solenoid is blocked by an obstruction</li> </ul>



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"> <li>• The bypass tray lift sensor is not activated for 10 s after the tray lift motor turned on.</li> <li>• Upper limit is not detected within 10 s while the paper tray is lifting during paper feed.</li> <li>• The bypass tray lift sensor is already activated when the bypass tray was placed in the machine.</li> </ul>
		<ul style="list-style-type: none"> <li>• Poor bypass tray lift motor connection</li> <li>• Remaining paper or another obstruction has stopped the tray and motor</li> <li>• Bypass tray pick-up solenoid connector is loose</li> <li>• Bypass tray pick-up solenoid is blocked by an obstruction</li> </ul>

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"> <li>• Cycle the machine off/on</li> </ul>

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"> <li>• Motor driver board defective. Replace motor.</li> </ul>

SC532-1	B	4th Tray Front Fan Error	LCIT (D453)
SC532-2	B	4th Tray Rear Fan Error	
SC533-1	B	5th Tray Front Fan Error	
SC533-2	B	5th Tray Rear Fan Error	
SC534-1	B	6th Tray Front Fan Error	
SC534-2	B	6th Tray Rear Fan Error	

		<p>A problem has occurred with a fan and it is not operating. The tray where the fan is not operating cannot feed paper until the problem has been corrected.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Each tray has two fans. These fans are used to help separate the paper from the top of the stack.</li> <li>• Paper separation will not occur unless both fans are operating correctly.</li> <li>• Only the tray where the error occurred cannot feed paper. The other trays can continue to feed paper.</li> </ul>
		<ul style="list-style-type: none"> <li>• Fan is disconnected</li> <li>• Fan harness or connector loose, broken, defective</li> <li>• Fan defective.</li> </ul>

SC541	A	Fusing Thermistor Open
		The fusing temperature detected by the thermistor was below 7°C for 15 s.
		<ul style="list-style-type: none"> <li>• Fusing thermistor defective or out of position</li> <li>• Poor thermistor terminal connection</li> </ul>

SC542	A	Fusing Temperature Warm-up Error
		<p>One of the following occurred:</p> <ul style="list-style-type: none"> <li>• D059/D060: Hot roller did not reach target operation temperature within 360 sec. after the machine was powered or after the doors were closed.</li> <li>• D061: Hot roller did not reach target operation temperature within 465 sec. after the machine was powered on after the doors were closed.</li> <li>• 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.</li> <li>• Fusing temperature rose only 5°C toward the fusing temperature within 20 s after thermistor started monitoring hot roller temperature. (The thermistors start monitoring 25 s after the hot roller starts rotating.)</li> </ul>
		<ul style="list-style-type: none"> <li>• Fusing lamp(s) disconnected</li> <li>• Thermistor out of position</li> </ul>

SC543	A	Fusing Overheat Error 1: Software
		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.
		<ul style="list-style-type: none"> <li>• AC drive board defective (TRIAC short)</li> <li>• BICU defective</li> <li>• BICU firmware defective</li> </ul>

SC544	A	Fusing Overheat Error 2: Hardware
		The fusing temperature monitoring circuit detects abnormal fusing temperature.
		<ul style="list-style-type: none"> <li>• AC drive board defective (TRIAC short)</li> <li>• BICU defective</li> <li>• BICU firmware defective</li> </ul>

SC545	A	Fusing Overheat Error 3: Continuous Lamp On
		After warm-up and while the hot roller is not rotating, the fusing lamps remain on at full power for 45 s (D059/D060) 90 s (D061).
		<ul style="list-style-type: none"> <li>• Fusing thermistor out of position</li> <li>• One or more fusing lamp is disconnected</li> </ul>

SC547	A	Zero-Cross Signal Not Detected
		The applied bandwidth was not within range: <ul style="list-style-type: none"> <li>• Where the power supply is 50 Hz, the detected bandwidth was below 45 Hz or above 54 Hz.</li> <li>• Where the power supply is 60 Hz, the detected bandwidth was below 55 Hz or above 65 Hz.</li> </ul>
		<ul style="list-style-type: none"> <li>• Noise on the ac power line</li> <li>• Cycle the machine off/on</li> <li>• If the problem continues, install a noise filter</li> </ul>

2

SC557	C	Zero-Cross Signal Over
		Noise was detected on the power supply line.
		<ul style="list-style-type: none"> <li>• Cycle the machine off/on</li> <li>• If the problem continues, install a noise filter</li> </ul>

SC559	A	Fusing Unit Jam Error
		The paper cooling job time sensor detected paper late for 3 counts. This SC only occurs if SP1 159 is on, and a jam occurred in the fusing unit for three consecutive sheets of paper.
		<ul style="list-style-type: none"> <li>• Remove the paper that is jammed in the fusing unit.</li> <li>• Make sure that the fusing unit is clean and has no obstructions in the paper feed path.</li> </ul>



SC584	B	De-curl effect adjustment motor error	Decurl Unit (D457)
		The stepper motor in the de-curler/purge unit that applies the pressure on the de-curler soft roller to adjust the de-curling effect did not return the de-curler roller to its home position at the end of the operation.	
		<ul style="list-style-type: none"> <li>• A foreign object is interfering with operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Soft roller HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Sensor defective</li> </ul>	



SC585	C	Double-Feed Detection Error	
		Double-feed detection components failed the initial check. The initial check is done when:	
		<ul style="list-style-type: none"> <li>• The main machine is turned on</li> <li>• The main machine returns to full operation from energy save mode</li> <li>• The front doors are opened and closed.</li> </ul>	
		<ul style="list-style-type: none"> <li>• Harness or connector loose, broken, defective</li> <li>• URB defective</li> <li>• Double-feed sensor defective</li> </ul>	

2



SC586	C	High-precision registration CIS error	LCIT (D452/D453)
		The CIS mounted above the paper path in the LCIT issued a paper detection signal when there was no paper in the LCIT paper path.	
		<ul style="list-style-type: none"> <li>• Exposed surface of CIS dirty</li> <li>• Clean the CIS</li> </ul>	

SC592	B	Toner Bank Motor Error	
		An abnormal signal was received from the toner bank motor.	
		<ul style="list-style-type: none"> <li>• Toner bank motor defective</li> <li>• Bank motor connector loose</li> <li>• Mechanical overload on the drive mechanism</li> </ul>	

SC593	D	Toner Suction Motor Replace Alert	
		The total operation time of the motor exceeded 600 hours.	
		<p><b>Note:</b> 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"> <li>• The toner suction motor has reached the end of its service life.</li> </ul>	

## SC Tables: 6xx

2

SC601	B	Communication Error Between BICU and MCU
		<p>One or more of the following occurred:</p> <ul style="list-style-type: none"> <li>• The BICU cannot communicate with the MCU within 100 ms after power on after 3 tries.</li> <li>• A BREAK signal was detected after connection between the BICU and MCU.</li> <li>• After a communication error, three tries to communicate with the MCU failed.</li> </ul>
		<ul style="list-style-type: none"> <li>• Poor connection between BICU and MCU</li> <li>• BICU defective</li> <li>• MCU defective</li> </ul>
SC620	B	ADF Communication Error
		No reponse from the ADF to the ACK signal issued by the IPU.
		<ul style="list-style-type: none"> <li>• Poor connection between the IPU and ADF</li> <li>• Electrical noise interfering with communication between electrical components</li> <li>• ADF harness or connector loose, broken, defective</li> <li>• ADF defective</li> <li>• IPU on BICU defective</li> </ul>
SC625	B	Communication Error Between BICU and Finisher
		The BICU cannot communicate with the finisher properly. There was no response from the finisher 100 ms after the ACK signal was sent to the finisher. Three attempts to resend the data failed.
		<ul style="list-style-type: none"> <li>• Finisher door was opened while stacking/stapling was in progress.</li> <li>• Poor connection between the BICU board and the finisher main board</li> </ul>

SC626	B	Communication Error Between BICU and Finisher
		A break signal (LOW) was detected.
		<ul style="list-style-type: none"> <li>• Poor connection between the BICU board and the finisher main board</li> <li>• Finisher main board defective</li> <li>• BICU board defective</li> <li>• External electrical noise on the interface cable caused the serial line to become unstable</li> </ul>

SC632	B	Charge Unit Device Error 1	Japan Only	GW
SC633	B	Charge Unit Device Error 2	Japan Only	GW
SC634	B	Charge Unit Device Error 3	Japan Only	GW
SC635	B	Charge Unit Device Error 4	Japan Only	GW

SC641	B	Engine-to-controller communication error	GW
		The controller sent a frame to the main machine engine but there was no response as demanded by RAPI protocol. The frame was sent 3 times at 100 ms intervals. This SC was issued after the 3rd attempt failed.	
		<ul style="list-style-type: none"> <li>• Examine the connection between the controller and the engine board.</li> <li>• Replace the engine board if the error is frequent.</li> </ul>	

SC650	D	NRS Modem Communication Error	GW
		<p>One of the following factors could be the cause of this error:</p> <ul style="list-style-type: none"> <li>• In the User Tools, check the settings for the dial-up user name and dial-up password.</li> <li>• Modem has been disconnected.</li> <li>• Modem board disconnected.</li> </ul>	
		<p>Check the following for a machine that is using Cumin (NRS modem):</p> <ul style="list-style-type: none"> <li>• An error was returned during the dialup connection</li> <li>• A network was detected at startup</li> <li>• At startup, the machine detected that the NIB was disabled, or did not detect a modem board</li> </ul>	

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:

2

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 SP5816160 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 SP59851 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.

SC651	C	Illegal Remote Service Dial-up	GW
		An expected error occurred when Cumin-M dialed up the NRS Center.	
		<ul style="list-style-type: none"> <li>• Software bug</li> <li>• No action is required because only the count is logged</li> </ul>	



SC670	B	Engine Startup Error	GW
		<p>At power on or after the machine leaves the energy conservation mode:</p> <ul style="list-style-type: none"> <li>• ENGRDY signal does not assert</li> <li>• IPURDY signal does not assert</li> </ul> <p>After power on and the prescribed time has elapsed:</p> <ul style="list-style-type: none"> <li>• No EC response from the engine</li> <li>• No PC response from the engine</li> <li>• No SC response from the engine</li> </ul> <p>During machine operation mode:</p> <ul style="list-style-type: none"> <li>• Write to Rapi drive failure (could not locate destination on the PCI)</li> <li>• After the /ENGRDY signal asserts with no effect.</li> </ul>	
		<ul style="list-style-type: none"> <li>• BICU ↔ Controller Board disconnected</li> <li>• BICU board defective</li> <li>• Controller board defective</li> <li>• Mother board defective</li> <li>• Software error; switch off/on, if that fails, change the engine firmware</li> <li>• PSU-E or PSU-C defective</li> </ul>	
SC671	D	Illegal Engine Board	GW
		An illegal engine board was detected by the firmware at power on.	
		<ul style="list-style-type: none"> <li>• Replace BICU</li> </ul>	



2

SC672	B	Controller Startup Error	GW
		<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>	
		<ul style="list-style-type: none"> <li>• Controller board defective</li> <li>• Controller board installed incorrectly</li> <li>• Operation panel harness connection loose or incorrect</li> </ul>	

## SC Tables: 7xx-1

SC701	B	ADF Pickup Roller Release Malfunction
		The pick-up roller HP sensor does not activate or de-activate when the pick-up motor turns on.
		<ul style="list-style-type: none"> <li>• HP sensor connector, harness loose, broken, defective</li> <li>• Pick-up motor connector, harness loose, broken defective</li> <li>• Pick-up roller HP sensor defective</li> <li>• Pick-up motor defective</li> <li>• ADF main control board defective</li> </ul>

SC702	B	ADF Feed-In Motor Error
		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).
		<ul style="list-style-type: none"> <li>• Feed-in motor connector, harness loose, broken, defective</li> <li>• Paper length sensor connector, harness loose, broken, defective</li> <li>• Feed-in motor defective</li> <li>• Paper length sensor or encoder is defective</li> <li>• ADF main control board defective</li> </ul>

SC703	B	ADF Transport Belt Motor Error
		The encoder pulse signal did not change within 100 ms after 3 attempts to detect a change, causing a "P1" jam error.
		<ul style="list-style-type: none"> <li>• Transport belt motor defective</li> <li>• Poor connection between the transport motor and ADF main board</li> <li>• ADF main board defective</li> </ul>

SC704	B	ADF Feed-Out Motor Error
		The encoder pulse signal did not change within 80 ms after 3 attempts to detect a change, causing a "P2" jam error.
		<ul style="list-style-type: none"> <li>• Feed-out motor defective</li> <li>• Poor connection between the feed-out motor and ADF main board</li> <li>• ADF main control board defective</li> </ul>

SC705	B	ADF Original Table Lift Malfunction
		<p>One of the following conditions was detected.</p> <ul style="list-style-type: none"> <li>• The bottom plate position sensor did not activate within 2.5 s when the bottom plate motor lifted the original table.</li> <li>• The bottom plate HP sensor did not activate within 2.5 s when the bottom plate motor lowered the original table.</li> </ul>
		<ul style="list-style-type: none"> <li>• The harnesses, connectors of the bottom plate position sensor, bottom plate HP sensor, bottom plate motor loose, broken, defective</li> <li>• Bottom plate position sensor defective</li> <li>• Bottom plate HP sensor defective</li> <li>• Bottom plate motor defective</li> <li>• ADF main control board defective</li> </ul>

SC720-1	B	Entrance Roller Motor Error	Booklet Finisher (D434)
		Motor stopped operating, due to a physical obstruction or another problem.	
		<ul style="list-style-type: none"> <li>• Check for and remove any physical obstructions around the motor and timing belts</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor defective</li> </ul>	

SC720-2	B	Junction Gate Motor Error	Booklet Finisher (D434)
		One or both motors at the junction gates (stapler junction gate motor, proof tray junction gate motor) stopped operating, due to a physical obstruction or another problem.	
		<ul style="list-style-type: none"> <li>• Check for and remove any physical obstructions around the motor and timing belt</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	
SC720-3	B	Punch Roller Motor (Rear) Error	Booklet Finisher (D434)
		Motor stopped operating, due to a physical obstruction or another problem.	
		<ul style="list-style-type: none"> <li>• Check for and remove any physical obstructions around the motor and timing belts</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	
SC720-4	B	Registration Motor Error	Booklet Finisher (D434)
		Motor stopped operating, due to a physical obstruction or another problem.	
		<ul style="list-style-type: none"> <li>• Check for and remove any physical obstructions around the motor and timing belts</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC721-1	B	Front Jogger Fence Motor	Booklet Finisher (D434)
		The system did not detect the front jogger fence at its home position (or out of its home position) within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstructions around the jogger fence</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Front jogger fence HP sensor dirty</li> <li>• Front jogger fence HP sensor harness or connector loose, broken, defective</li> <li>• Front jogger fence HP sensor defective</li> <li>• Front jogger fence motor defective</li> <li>• Finisher main board defective</li> </ul>	
SC721-2	B	Rear Jogger Fence Motor	Booklet Finisher (D434)
		The system did not detect the rear jogger fence at its home position (or out of its home position) within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstructions around the jogger fence</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Rear jogger fence HP sensor dirty</li> <li>• Rear jogger fence HP sensor harness or connector loose, broken, defective</li> <li>• Rear jogger fence HP sensor defective</li> <li>• Rear jogger fence motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC723	D	Positioning Roller Rotation Motor Error	Finishers B830/D434
		The motor that drives the rotation of the positioning sponge roller is not operating.	
		<ul style="list-style-type: none"> <li>• Cycle the machine off/on</li> <li>• Check for and remove any obstruction that blocks the operation of the roller or roller arm</li> <li>• Motor harness loose, defective</li> <li>• Positioning roller HP sensor dirty</li> <li>• Positioning roller HP sensor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Sensor defective</li> <li>• Finisher main board defective</li> </ul>	

SC724	D	Positioning Roller Motor	Finishers B830/D434
		The motor that lowers and raises the positioning roller above the stapling tray not operating.	
		<ul style="list-style-type: none"> <li>• Cycle the machine off/on</li> <li>• Check for and remove any obstruction that blocks the operation of the roller arm</li> <li>• Motor harness loose, defective</li> <li>• Positioning roller HP sensor dirty</li> <li>• Positioning roller HP sensor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Sensor defective</li> <li>• Finisher main board defective</li> </ul>	

SC725	D	Exit Guide Motor Error	Finishers B830/D434
		The motor that opens and closes the exit guide at the shift tray exit is not operating correctly.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstruction that interferes with the operation of the exit guide</li> <li>• Exit guide plate HP sensor dirty</li> <li>• Exit guide plate HP sensor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Sensor defective</li> <li>• Finisher main board defective</li> </ul>	

SC726	D	Shift Jogger Retraction Motor Error 1	Finishers B830/D434
		The drag roller arm with the sponge roller did not return to its home position within the prescribed time.	
		<ul style="list-style-type: none"> <li>• Arm blocked by an obstruction</li> <li>• Motor harness loose, broken defective</li> <li>• HP sensor harness loose, broken, defective</li> <li>• Motor defective</li> <li>• HP sensor defective</li> </ul>	



SC728	D	Shift Jogger Retraction Motor Error 2	Finishers B830/D434
		The side fences at the exit of the finisher did not leave (or arrive at) their home positions within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the motor is rotating, positioning roller HP sensor loose, broken, defective</li> <li>• If the motor is not rotating:</li> <li>• Remove any obstruction blocking movement</li> <li>• Positioning roller motor overloaded due to obstruction</li> <li>• Positioning roller motor disconnected, defective</li> <li>• Main control board connectors loose, broken, defective</li> <li>• Finisher main board defective</li> </ul>	

SC730	D	Lower Transport Motor Error	Finishers B830
		No encoder pulse signal is detected for the lower transport motor within the prescribed time. The 1st failure issues an original jam message, and the 2nd failure issues this SC code.	
		<ul style="list-style-type: none"> <li>• Lower transport motor disconnected, defective</li> <li>• Finisher connection to lower transport motor loose, defective</li> <li>• Lower transport motor blocked by an obstruction</li> <li>• Lower transport motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC731	B	Proof (Upper) Tray Exit Motor Error	Finishers B830/D434
		Motor drive board output abnormal, or short circuit detected on the board. The 1st failure issues this SC code.	
		<ul style="list-style-type: none"> <li>• Motor disconnected, defective</li> <li>• Finisher connection to motor loose, defective</li> <li>• Motor blocked by an obstruction</li> <li>• Motor defective</li> </ul>	

SC732	D	Shift Tray Exit Motor Error	Finishers B830/D434
		The shift tray exit motor is not operating.	
		<ul style="list-style-type: none"> <li>• Motor harness loose, broken, defective</li> <li>• Motor is blocked by an obstruction</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC733	D	Stapler Exit Motor Error	Finishers B830/D434
		The stapler exit motor is not operating.	
		<ul style="list-style-type: none"> <li>• Motor harness loose, broken, defective</li> <li>• Motor is blocked by an obstruction</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC734	B	Proof Tray Junction Gate Motor Error	Finishers B830/D434
		The proof tray JG HP sensor did not detect the junction gate at (or out of) its home position within 2 s.	
		<ul style="list-style-type: none"> <li>• Proof junction gate HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Proof junction gate motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC735	B	Stapler Junction Gate Motor Error	Finishers B830/D434
		The stapler JG HP sensor did not detect the stapler junction gate at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Stapler junction gate HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Stapler junction gate motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC736	D	Pre-Stack Junction Gate Motor Error	Finishers B830
		The pre-stack junction gate sensor did not detect the pre-stack junction gate in (or out of) its home position within the prescribed time.	
		<ul style="list-style-type: none"> <li>• Pre-stack junction gate HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Pre-stack junction gate motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC737	D	Pre-Stack Motor Error	Finishers B830/D434
		The pre-stack motor that moves the pre-stack roller is not operating.	
		<ul style="list-style-type: none"> <li>• Motor harness loose, broken, defective</li> <li>• Motor is blocked by an obstruction</li> <li>• Pre-stack roller HP sensor dirty</li> <li>• Pre-stack roller HP sensor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Sensor defective</li> <li>• Finisher main board defective</li> </ul>	

SC738	D	Pre-Stack JG Motor Error	Finishers B830/D434
		The pre-stack JG motor that operates the pre-stack junction gate is not operating. The pre-stack junction gate sensor did not detect the junction gate in (or out of) its home position within the prescribed time.	
		<ul style="list-style-type: none"> <li>• Pre-stack JG motor harness or connector loose, broken, defective</li> <li>• Pre-stack JG HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Sensor defective</li> <li>• Finisher main board defective</li> </ul>	

SC740	D	Finisher Corner Stapler Motor Error	Finishers B830/D434
		The stapler motor did not switch off within the prescribed time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	
		<ul style="list-style-type: none"> <li>• Number of sheets in the stack exceeded the limit for stapling</li> <li>• If error occurred during stapling, stapler rotation sensor 1 defective (replace stapler)</li> <li>• If error did not occur during stapling: staple jam:             <ol style="list-style-type: none"> <li>1. Motor blocked by an obstruction</li> <li>2. Stapler motor harness loose, broken, defective</li> <li>3. Corner stapler motor defective</li> <li>4. Finisher main board defective</li> </ol> </li> </ul>	

SC741	D	Finisher Corner Stapler Rotation Motor Error	Finishers B830/D434
		The stapler did not return to its home position (or did not leave its home position) within the specified time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the motor is running, <ol style="list-style-type: none"> <li>1. Stapler rotation home position sensor harnesses are broken, loose, or defective</li> <li>2. Stapler rotation home position sensors are defective</li> </ol> </li> <li>• If the motor is not running: <ol style="list-style-type: none"> <li>1. Motor is blocked by an obstruction</li> <li>2. Motor harness is loose, broken, defective</li> <li>3. Motor is defective</li> </ol> </li> </ul>	

SC742	D	Corner Stapler Movement Motor Error	Finishers B830/D434
		The stapler did not return to its home position (or leave its home position) within the specified time after stapling. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the motor is running, <ol style="list-style-type: none"> <li>1. Stapler home position sensor harness is broken, loose, or defective</li> <li>2. Stapler home position sensor is defective</li> </ol> </li> <li>• If the motor is not running: <ol style="list-style-type: none"> <li>1. Motor is blocked by an obstruction</li> <li>2. Motor harness is loose, broken, defective</li> <li>3. Motor is defective</li> </ol> </li> </ul>	

SC743	D	Booklet Stapler Motor Error	Booklet Finisher (D434)
		The booklet stapler motor did not start stapling within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Front motor harness loose, broken, defective</li> <li>• Front motor overloaded due to obstruction</li> <li>• Front motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC745	D	Feed-Out Belt Motor Error	Finishers B830/D434
		The stack feed-out belt HP sensor did not activate within the specified time after the stack feed-out belt motor turned on. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the motor is operating                             <ol style="list-style-type: none"> <li>1. Stack feed-out belt HP sensor harness loose, broken, defective</li> <li>2. Sensor defective</li> </ol> </li> <li>• If the motor is not operating:                             <ol style="list-style-type: none"> <li>1. Feed-out belt motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Finisher main board defective</li> </ol> </li> </ul>	

SC746	D	Stack Plate Motor Error 1: Front Motor	Finishers B830/D434
		The stack plate HP sensor (front) did not activate within the prescribed time after the motor turned on. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the motor is operating                             <ol style="list-style-type: none"> <li>1. Front stack plate HP sensor harness loose, broken, defective</li> <li>2. Front stack plate HP sensor defective</li> </ol> </li> <li>• If the motor is not operating:                             <ol style="list-style-type: none"> <li>1. Motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Booklet finisher main board defective</li> </ol> </li> </ul>	



SC747	D	Stack Plate Motor Error 2: Center Motor	Finishers B830/D434
		The stack plate HP sensor (center) did not activate within the prescribed time after the motor turned on. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the motor is operating           <ol style="list-style-type: none"> <li>1. Center stack plate HP sensor harness loose, broken, defective</li> <li>2. Center stack plate HP sensor defective</li> </ol> </li> <li>• If the motor is not operating:           <ol style="list-style-type: none"> <li>1. Motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Booklet finisher main board defective</li> </ol> </li> </ul>	

2

SC748	D	Stack Plate Motor Error 3: Rear Motor	Finishers B830/D434
		The stack plate HP sensor (rear) did not activate within the prescribed time after the motor turned on. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the motor is operating           <ol style="list-style-type: none"> <li>1. Rear stack plate HP sensor harness loose, broken, defective</li> <li>2. Rear stack plate HP sensor defective</li> </ol> </li> <li>• If the motor is not operating:           <ol style="list-style-type: none"> <li>1. Motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Booklet finisher main board defective</li> </ol> </li> </ul>	

SC750	D	Proof Tray Lift Motor Error	Finishers B830/D434
		The shift tray paper height sensor did not change its status within the prescribed time after the tray was raised or lowered. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Lift motor disconnected, defective</li> <li>• Paper height sensor disconnected, defective</li> <li>• Finisher main board connection to motor loose</li> <li>• Finisher main board defective</li> </ul>	

SC753	D	Drag Drive Motor Error	Finishers B830/D434
		The drag roller HP sensor did not detect the drag roller in (or out of) its home position within the prescribed time. (The drag drive motor drives the timing belt that rotates the drag roller at the shift tray exit.)	
		<ul style="list-style-type: none"> <li>• If the motor is operating             <ol style="list-style-type: none"> <li>1. Drag roller HP sensor harness loose, broken, defective</li> <li>2. Drag roller HP sensor defective</li> </ol> </li> <li>• If the motor is not operating:             <ol style="list-style-type: none"> <li>1. Motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Finisher main board defective</li> </ol> </li> </ul>	

SC754	D	Drag Roller Motor Error	Finishers B830/D434
		The drag roller motor did not turn on. (The drag roller motor drives the shaft that moves the drag roller left and right at the shift tray exit.)	
		<ul style="list-style-type: none"> <li>• Motor harness loose, broken, defective</li> <li>• Motor defective</li> <li>• Finisher control board defective</li> </ul>	



SC755	D	Shift Motor Error	Finishers B830/D434
		The shift tray HP sensors did not detect the shift tray in (or out of) its home position within the prescribed times. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<p><b>Note:</b> In the Finisher SR5000 (B830), these sensors are the "half-turn" sensors.</p> <ul style="list-style-type: none"> <li>• If the motor is operating <ol style="list-style-type: none"> <li>1. HP sensor harnesses loose, broken, defective</li> <li>2. HP sensor defective</li> </ol> </li> <li>• If the motor is not operating: <ol style="list-style-type: none"> <li>1. Motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Finisher main board defective</li> </ol> </li> </ul>	

SC760	B	Punch Motor Error	Finishers B830/D434
		The punch HP sensor did not detect the punch movement motor in (or out) of its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the motor is operating: <ol style="list-style-type: none"> <li>1. Punch HP sensor loose, broken, defective</li> <li>2. Punch HP sensor defective</li> </ol> </li> <li>• If the motor is not operating: <ol style="list-style-type: none"> <li>1. Motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Finisher main board defective</li> </ol> </li> </ul>	

SC761	D	Fold Plate Motor Error	Booklet Finisher (D434)
		<p>The fold plate moves but:</p> <ol style="list-style-type: none"> <li>1. The fold plate HP sensor did not detect it at the home position within the specified time.</li> <li>-or-</li> <li>2. The plate remained at the home position longer than the specified time.</li> </ol> <p>The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.</p>	
		<ul style="list-style-type: none"> <li>• If the motor is operating:             <ol style="list-style-type: none"> <li>1. Fold plate HP sensor dirty</li> <li>2. Fold plate HP sensor harness or connector loose, broken, defective</li> <li>3. Fold plate HP sensor defective</li> </ol> </li> <li>• If the motor is not operating:             <ol style="list-style-type: none"> <li>1. Fold plate motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Finisher main board defective</li> </ol> </li> </ul>	
SC762	D	Punch Switch Motor Error	Booklet Finisher (D434)
		<p>The punch switch motor failed to turn on within the specified time.</p>	
		<ul style="list-style-type: none"> <li>• Check for and remove obstruction blocking the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor defective</li> </ul>	



SC763	D	Punch Movement Motor Error	Booklet Finisher (D434)
		The punch movement HP sensor did not detect the punch at its home position (or out of its home position) within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstructions that block the movement of the punch unit</li> <li>• Punch movement HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor defective</li> </ul>	
SC764	D	Punch Registration (CIS) Error	Booklet Finisher (D434)
		The system detected an error at the CIS (Contact Image Sensor) inside the punch unit during paper registration for paper punching.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstructions that block the movement of the punch unit</li> <li>• Punch CIS unit harness or connectors loose, broken, defective</li> <li>• CIS unit defective</li> <li>• Punch movement motor defective</li> </ul>	
SC765	D	Bottom Fence Lift Motor Error	Booklet Finisher (D434)
		The bottom fence in the booklet fold unit did not return to the home position within the specified time.	
		<ul style="list-style-type: none"> <li>• Bottom fence mechanism overloaded due to an obstruction</li> <li>• Bottom fence HP sensor connector loose, broken, defective</li> <li>• Bottom fence HP sensor defective</li> <li>• Bottom fence lift motor connector loose, broken, defective</li> <li>• Bottom fence lift motor defective</li> <li>• Main control board defective</li> </ul>	

SC766	D	Clamp Roller Retraction Motor	Booklet Finisher (D434)
		The clamp roller did not return to the home position within the specified time.	
		<ul style="list-style-type: none"> <li>• Clamp roller mechanism overloaded due to an obstruction</li> <li>• Clamp roller HP sensor connector loose, broken, defective</li> <li>• Clamp roller HP sensor defective</li> <li>• Clamp roller retraction motor connector loose, broken, defective</li> <li>• Clamp roller retraction motor defective</li> <li>• Main control board defective</li> </ul>	

SC767-1	D	Stack JG Motor	Booklet Finisher (D434)
		The stack junction gate motor did not return to the home position within the prescribed time.	
		<ul style="list-style-type: none"> <li>• Check junction gate for obstruction and remove it</li> <li>• Stack JG HP sensor connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Stack JG motor connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC767-2	B	Stack Transport Unit Motor	Finishers D434
		The stack transport unit HP sensor did not detect the stack transport unit at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Check for any obstruction around the motor and remove it</li> <li>• Stack transport unit motor harness or connector loose, broken, defective</li> <li>• Stack transport unit HP sensor dirty</li> <li>• Sensor harness connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor defective</li> <li>• Finisher main board defective</li> </ul>	

SC770	D	Cover Interposer Lift Motor 1 Error	CIT B835
		<p>In the first tray:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul> <p><b>Note:</b> In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.</p>	
		<ul style="list-style-type: none"> <li>• Lift motor, upper limit sensor, lower limit sensor harnesses, connectors loose, broken, defective</li> <li>• Lift motor defective</li> <li>• Upper limit sensor defective</li> <li>• Lower limit sensor defective</li> </ul>	

SC771	D	Cover Interposer Lift Motor 2 Error	CIT B835
		<p>In the second tray:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul> <p><b>Note:</b> In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.</p>	
		<ul style="list-style-type: none"> <li>• Lift motor, upper limit sensor, lower limit sensor harnesses, connectors loose, broken, defective</li> <li>• Lift motor defective</li> <li>• Upper limit sensor defective</li> <li>• Lower limit sensor defective</li> </ul>	

SC772	D	Cover Interposer Pickup Motor 1 Error	CIT B835
		<p>In the first tray:</p> <ul style="list-style-type: none"> <li>• 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 within the specified number of pulses.</li> <li>• 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 above the specified number of pulses.</li> </ul> <p><b>Note:</b> In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.</p>	
		<ul style="list-style-type: none"> <li>• The pick-up motor, pick-up roller HP sensor harnesses, connectors were loose, broken, defective</li> <li>• Pick-up motor overload due to an obstruction</li> <li>• Pick-up motor defective</li> <li>• Pick-up roller HP sensor defective</li> </ul>	

SC773	D	Cover Interposer Pickup Motor 2 Error	CIT B835
		<p>In the second tray:</p> <ul style="list-style-type: none"> <li>• 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 within the specified number of pulses.</li> <li>• 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 above the specified number of pulses.</li> </ul> <p><b>Note:</b> In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.</p>	
		<ul style="list-style-type: none"> <li>• The pick-up motor, pick-up roller HP sensor harnesses, connectors were loose, broken, defective</li> <li>• Pick-up motor overload due to an obstruction</li> <li>• Pick-up motor defective</li> <li>• Pick-up roller HP sensor defective</li> </ul>	

SC775	D	Top Fence Motor Error	Finisher B830/D434
		The top fence HP sensor did not detect the top fence at (or out of) the home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the top fence motor is operating:             <ol style="list-style-type: none"> <li>1. Top fence HP sensor dirty</li> <li>2. Sensor harness loose, broken, defective</li> <li>3. Sensor defective</li> </ol> </li> <li>• If the jogger top fence motor is not operating:             <ol style="list-style-type: none"> <li>1. Top fence motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Finisher main board defective</li> </ol> </li> </ul>	

SC776	D	Bottom Fence Motor Error	Finisher B830/D434
		The bottom fence HP sensor did not detect the bottom fence at (or out of) the home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• If the bottom fence motor is operating:             <ol style="list-style-type: none"> <li>1. Bottom fence HP sensor dirty</li> <li>2. Sensor harness loose, broken, defective</li> <li>3. Sensor defective</li> </ol> </li> <li>• If the bottom fence motor is not operating:             <ol style="list-style-type: none"> <li>1. Bottom fence motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Finisher main board defective</li> </ol> </li> </ul>	

SC778-1	B	Horizontal Transport Motor Error	Multi Folder (D454)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC778-2	B	Top Tray Exit Motor	Multi Folder (D454)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC778-3	B	Top Tray JG Motor	Multi Folder (D454)
		The top tray JG HP sensor did not detect the top tray junction gate at (or out of) its home position. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Top tray JG HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Top tray JG motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC778-4	B	Entrance JG Motor	Multi Folder (D454)
		The entrance junction gate HP sensor did not detect the entrance junction gate at (or out of) its home position. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Entrance JG HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Entrance JG motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	



SC779	B	1st Stopper Motor Error	Multi Folder (D454)
		The 1st stopper HP sensor did not detect the 1st stopper in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• 1st stopper HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• 1st stopper motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	

2

# SC Tables: 7xx-2

SC783-1	B	2nd Stopper Motor Error	Multi Folder (D454)
		The 2nd stopper HP sensor did not detect the 2nd stopper in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• 2nd stopper HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• 2nd stopper motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC783-2	B	3rd Stopper Motor Error	Multi Folder (D454)
		The 3rd stopper HP sensor did not detect the 3rd stopper in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• 3rd stopper HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• 3rd stopper motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC783-3	B	1st Fold Motor Error	Multi Folder (D454)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC783-4	B	2nd Fold Motor Error	Multi Folder (D454)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC783-5	B	Crease Motor Error	Multi Folder (D454)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC783-6	B	Dynamic Roller Transport Motor Error	Multi Folder (D454)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC783-7	B	Reg. Roller Transport Motor Error	Multi Folder (D454)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC783-8	B	Dynamic Roller Lift Motor Error	Multi Folder (D454)
		The dynamic roller HP sensor did not detect the dynamic roller in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Dynamic roller HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Dynamic roller lift motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC783-9	B	Registration Roller Release Motor Error	Multi Folder (D454)
		The registration roller HP sensor did not detect the registration roller in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Registration roller HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Registration roller release motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC783-10	B	Fold Plate Motor Error	Multi Folder (D454)
		The fold plate HP sensor did not detect the fold plate in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Fold plate HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Fold plate motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC783-11	B	Jogger Fence Motor	Multi Folder (D454)
		The jogger fence HP sensor did not detect the jogger fence in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Jogger fence HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Jogger fence motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC783-12	B	Positioning Roller Motor Error	Multi Folder (D454)
		The positioning roller HP sensor did not detect the positioning roller in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Positioning roller HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Positioning roller motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC783-13	B	FM2 Direct-Send JG Motor	Multi Folder (D454)
		The direct-send JG HP sensor did not detect the direct-send JG in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• FM2 direct-send JG HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• FM2 direct-send JG motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC783-14	B	FM6 Pawl Motor	Multi Folder (D454)
		The FM6 pawl HP sensor did not detect the FM6 pawl in (or out of) its home position. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• FM6 pawl HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• FM6 pawl motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	

**★ Important**

- Two High-Capacity Stackers can be installed in the same line.
- The following SC Codes (SC787-1 to 5) apply to the first stacker in the line.

2

SC787-1	B	Entrance Motor Error	Stacker (D447)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC787-2	B	Shift JG Motor Error	Stacker (D447)
		The shift tray JG HP sensor did not detect the shift junction gate in (or out of) its home position. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code..	
		<ul style="list-style-type: none"> <li>• Shift tray JG HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Shift tray JG motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC787-3	B	Transport Motor Error	Stacker (D447)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC787-4	B	Proof Tray JG Motor	Stacker (D447)
		The proof tray JG HP sensor did not detect the proof tray junction gate in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Proof tray JG HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Proof tray JG motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC787-5	B	Proof Tray Exit Motor Error	Stacker (D447)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	

**★ Important**

- Two High-Capacity Stackers can be installed in the same line.
- The following SC Codes (SC788-1 to 5) apply to the second stacker in the line if it is installed.
- SC Codes SC787-1 to -5 apply to the first stacker.

SC788-1	B	Entrance Motor Error	Stacker (D447)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC788-2	B	Shift JG Motor Error	Stacker (D447)
		The shift tray JG HP sensor did not detect the shift junction gate in (or out of) its home position. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Shift tray JG HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Shift tray JG motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC788-3	B	Transport Motor Error	Stacker (D447)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	

SC788-4	B	Proof Tray JG Motor	Stacker (D447)
		The proof tray JG HP sensor did not detect the proof tray junction gate in (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Proof tray JG HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Proof tray JG motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC788-5	B	Proof Tray Exit Motor Error	Stacker (D447)
		The motor drive PCB detected an error at the motor due to overload, overheating.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC789	B	Proof Tray Exit Motor Error	Multi Folder (D454)
		The motor drive PCB detected an error at the motor due to overload, overheating. Paper cannot exit at proof tray.	
		<ul style="list-style-type: none"> <li>• Motor, motor drive board defective</li> </ul>	
SC790	D	Booklet Stapler Jogger Motor Error	Booklet Finisher (D434)
		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"> <li>• If the booklet stapler jogger motor is operating:                             <ol style="list-style-type: none"> <li>1. Jogger fence HP sensor harness loose, broken, defective</li> <li>2. Jogger fence HP sensor defective</li> </ol> </li> <li>• If the jogger bottom fence motor is not operating:                             <ol style="list-style-type: none"> <li>1. Motor blocked by an obstruction</li> <li>2. Motor harness loose, broken, defective</li> <li>3. Motor defective</li> <li>4. Finisher main board defective</li> </ol> </li> </ul>	



SC791	D	Booklet Stapler Bottom Fence Motor	Booklet Finisher (D434)
		The bottom fence failed to return to home position or failed to leave the home position within the prescribed time.	
		<ul style="list-style-type: none"> <li>• An obstruction is blocking the movement of the bottom fence</li> <li>• Motor harness loose, broken, defective</li> <li>• Bottom fence HP sensor loose, broken, defective</li> <li>• Motor defective</li> <li>• Sensor defective</li> </ul>	

SC792-1	D	Junction gate error	Ring Binder (D392)
		Detected at HP after the time prescribed to leave the HP had elapsed (more than 36 pulses) (1 detection, jam, twice detected, SC error)	
		<p>-or-</p> <p>Not detected at HP after the time prescribed to arrive at the HP had elapsed (more than 22 pulses) (1 detection, jam, twice detected, SC error)</p> <ul style="list-style-type: none"> <li>• Path JG motor (M201) defective</li> <li>• Motor connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Path JG sensor (S203) connector loose, broken, defective</li> <li>• Sensor (S203) defective</li> </ul>	

SC792-2	D	Pre-punch side fence HP error	Ring Binder (D392)
		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>-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"> <li>• Side jogger motor (M302) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Pre-punch jogger HP sensor (S301) connector loose, broken, defective</li> <li>• Sensor (S301) defective</li> </ul>	

SC792-3	D	Pre-punch jogger roller HP error	Ring Binder (D392)
		Detected at HP after the time prescribed to leave the HP had elapsed (more than 36 pulses) (1st detection, jam, 2nd detection, SC error) -or- 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)	
		<ul style="list-style-type: none"> <li>• Jog roller lift motor (M305) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Jog roller lift HP sensor (S309) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-4	D	Punch defective	Ring Binder (D392)
		One or more of the following occurred: Punch unit not detected at initialization. No motor rotation detected at HP at 30 ms after the DC motor turned on No encoder pulse detected at HP at 5 ms after the DC motor turned on Not detected at HP at 400 ms after the DC motor turned on	
		<ul style="list-style-type: none"> <li>• Punch motor (M304) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Punch HP sensor (S302) connector loose, broken, defective, or sensor defective</li> <li>• Punch encoder sensor (S303) connector loose, broken, defective, or sensor defective</li> </ul>	

SC792-5	D	Paddle roller HP error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Paddle roller lift motor (M603) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Paddle roller HP sensor (S602) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-6	D	Jogger fence 1 error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Jog fence 1 motor (M604) connector, loose, broken, defective</li> <li>• Motor defective</li> <li>• Motor overload</li> <li>• Side fence 1 HP sensor (S601) connector, loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-7	D	Jogger fence 2 error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Jogger fence 2 motor (M606) connector, loose, broken, defective</li> <li>• Motor defective</li> <li>• Motor overload</li> <li>• Side fence HP sensor 1 (S611) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-8	D	Stack tamper HP error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Stack tamper motor (M607) connector, loose, broken, defective</li> <li>• Motor defective</li> <li>• Motor overload</li> <li>• Stack tamper HP sensor (S612) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-9	D	Pre-bind jogger clamp HP error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Spine clamp motor (M605) connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Motor overload</li> <li>• Clamp HP sensor (S603) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-10	D	Binder unit runout error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Runout press roller motor (M610) connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Motor overload</li> <li>• Runout roller HP sensor (S614) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-11	D	Clamp thickness error	Ring Binder (D392)
		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.	
		<ul style="list-style-type: none"> <li>• 50-sheet detection sensor (S606) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-12	D	Alignment pin error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Alignment pin motor (M602) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Alignment pin HP sensor (S604) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-13	D	Pre-bind jogger shutter error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Shutter motor (M608) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Shutter HP sensor (S605) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-14	D	50/100 clamp adjustment error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• 50/100 adjustment motor (M702) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Ring switch HP sensor (S706) connector loose, broken, defective, or sensor defective</li> <li>• Ring switch timing sensor (S707) connector loose, broken, defective, or sensor defective</li> </ul>	

SC792-15	D	Timing sensor interval error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Clamp unit motor (M701) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Bind timing sensor (S702) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-16	D	Clamp unit HP error	Ring Binder (D392)
		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)	
		<ul style="list-style-type: none"> <li>• Clamp unit motor (M701) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Clamp unit HP sensor (S701) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-17	D	Spine alignment error	Ring Binder (D392)
		During pin alignment operation, the pin did not reach the up position or return to the home position within the prescribed time (400 ms), and one retry failed within the same time limit.	
		<ul style="list-style-type: none"> <li>• Alignment pin motor (M602) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Alignment pin HP sensor (S604) connector: loose, broken, defective, or sensor defective</li> <li>• Alignment pin up sensor (S610) connector loose, broken, defective, or sensor defective</li> <li>• Stack not jogged correctly, or not punched correctly</li> </ul>	

SC792-18	D	Binder unit not detected	Ring Binder (D392)
		The binder unit could not be detected at initialization.	
		<ul style="list-style-type: none"> <li>• Drawer connector loose, broken, defective</li> <li>• Drawer connector defective</li> </ul>	



SC792-19	D	Output belt unit rotation error	Ring Binder (D392)
		Detected at HP after the time prescribed to leave the HP had elapsed (more than 800 pulses) (1st detection, jam, 2nd detection, SC error)	
		-or-	
		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)	
		<ul style="list-style-type: none"> <li>• Output belt rotation motor (M403) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Output belt rotation HP sensor (S403) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-20	D	Output belt 1 HP error	Ring Binder (D392)
		Detected at HP after the time prescribed to leave the HP had elapsed (more than 200 pulses) (1st detection, jam, 2nd detection, SC error)	
		-or-	
		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)	
		<ul style="list-style-type: none"> <li>• Output belt 1 motor (M401) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Output belt 1 HP sensor (S401) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-21	D	Output belt 2 HP error	Ring Binder (D392)
		Detected at HP after the time prescribed to leave the HP had elapsed (more than 200 pulses) (1st detection, jam, 2nd detection, SC error)	
		-or-	
		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)	
		<ul style="list-style-type: none"> <li>• Output belt 2 motor (M402) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Motor defective</li> <li>• Output belt 2 HP sensor (S402) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-22	D	Stack height error	Ring Binder (D392)
		Stack height sensor remained ON while moving toward the top.	
		-or-	
		The sensor did not go ON within 6 sec. after the motor turned on.	
		<ul style="list-style-type: none"> <li>• Stacker motor (M501) connector loose, broken, defective</li> <li>• Motor overload</li> <li>• Stack height sensor (S502) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC792-23	D	Stacker error	Ring Binder (D392)
		<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"> <li>Stacker HP sensor (S501) connector loose, broken, defective, or sensor defective</li> <li>Stacker height HP sensor (S502) connector loose, broken, defective, or sensor defective</li> <li>Stacker detect sensor (S504) loose, broken, defective, or sensor defective</li> </ul>	

**★ Important**

- Two High-Capacity Stackers can be installed in the same line.
- The following SC Codes (SC793-1 to 8) apply to the first stacker in the line.

SC793-1	D	Shift Motor Error	Stacker (D447)
		<p>The shift roller HP sensor did not detect the shift roller at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.</p>	
		<ul style="list-style-type: none"> <li>Shift roller HP sensor dirty</li> <li>Sensor harness or connector loose, broken, defective</li> <li>Check for and remove any obstructions that interfere with the operation of the motor</li> <li>Shift motor harness or connector loose, broken, defective</li> <li>Sensor defective</li> <li>Motor or motor drive board defective</li> </ul>	

SC793-2	D	Front Jogger Fence Motor Error	Stacker (D447)
		The front jogger fence HP sensor did not detect the front jogger fence at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Front jogger fence HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	

SC793-3	D	Rear Jogger Fence Motor Error	Stacker (D447)
		The rear jogger fence HP sensor did not detect the rear jogger fence at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Rear jogger fence HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	

SC793-4	D	Jogger Fence Retraction Motor Error	Stacker (D447)
		The jogger fence retraction HP sensor did not detect the jogger fences at (or out of) their home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Jogger fence retraction HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	
SC793-5	D D	Sub Jogger Motor Error	Stacker (D447)
		The sub jogger HP sensor did not detect the sub jogger fence at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Sub jogger fence HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	

SC793-6	D	LE Stopper Motor Error	Stacker (D447)
		The LE stopper HP sensor did not detect the leading edge stopper at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• LE stopper HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	
SC793-7	D	Tray Lift Motor Error	Stacker (D447)
		When the tray was ascending (or descending), the state of the paper height sensor did not change at the prescribed time to detect the height of the stack and adjust the height of the tray. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstructions that interfere with the operation of the tray lift motor or paper height sensor actuator</li> <li>• Sensor actuator loose or broken</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor defective</li> </ul>	
SC793-8	D	Proof Tray Exit Motor Error	Stacker (D447)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	

**★ Important**

- Two High-Capacity Stackers can be installed in the same line.
- The following SC Codes (SC794-1 to 8) apply to the second stacker in the line if it is installed.

- SC Codes SC793-1 to 8 apply to the first stacker.

SC794-1	D	Shift Motor Error	Stacker (D447)
		The shift roller HP sensor did not detect the shift roller at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Shift roller HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Shift motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or motor drive board defective</li> </ul>	
SC794-2	D	Front Jogger Fence Motor Error	Stacker (D447)
		The front jogger fence HP sensor did not detect the front jogger fence at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Front jogger fence HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	

SC794-3	D	Rear Jogger Fence Motor Error	Stacker (D447)
		The rear jogger fence HP sensor did not detect the rear jogger fence at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Rear jogger fence HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	

SC793-4	D	Jogger Fence Retraction Motor Error	Stacker (D447)
		The jogger fence retraction HP sensor did not detect the jogger fences at (or out of) their home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Jogger fence retraction HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	



SC794-5	D	Sub Jogger Motor Error	Stacker (D447)
		The sub jogger HP sensor did not detect the sub jogger fence at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Sub jogger fence HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	
SC794-6	D	LE Stopper Motor Error	Stacker (D447)
		The LE stopper HP sensor did not detect the leading edge stopper at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• LE stopper HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Check for and remove any obstructions that interfere with the operation of the motor</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor or shift motor drive board defective</li> </ul>	

SC794-7	D	Tray Lift Motor Error	Stacker (D447)
		When the tray was ascending (or descending), the state of the paper height sensor did not change at the prescribed time to detect the height of the stack and adjust the height of the tray. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstructions that interfere with the operation of the tray lift motor or paper height sensor actuator</li> <li>• Sensor actuator loose or broken</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Motor harness or connector loose, broken, defective</li> <li>• Sensor defective</li> <li>• Motor defective</li> </ul>	
SC794-8	D	Proof Tray Exit Motor Error	Stacker (D447)
		The motor drive PCB detected an error at the motor.	
		<ul style="list-style-type: none"> <li>• Motor harness or connector loose, broken, defective</li> <li>• Motor or motor drive board defective</li> </ul>	

## SC Tables: 7xx-3

SC795-1	A	Master-to-Slave Board Communication Errors	PB (D391)
		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"> <li>• Slave board connector loose, broken, defective</li> <li>• Slave board defective</li> </ul>	
		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"> <li>• Received data corrupted</li> <li>• Cycle the machine power off/on</li> <li>• Slave control board defective</li> </ul>	
		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"> <li>• Slave board firmware not written</li> <li>• Cycle the machine power off/on</li> <li>• Slave control board defective</li> </ul>	

SC795-2	A	Master-to-Relay Board Communication Error	PB (D391)
		The master control board could not communicate with the relay control board.	
		<ul style="list-style-type: none"> <li>• Master control board, relay control board connectors loose, broken, defective</li> <li>• Master control board defective</li> <li>• Relay control board defective</li> </ul>	
		Download Error	
		The version of the master control board could not be detected at power on	
		<ul style="list-style-type: none"> <li>• Master control board firmware not written</li> </ul>	

SC795-3	A	Slave-to-Cutter Control Board Communication Error	PB (D391)
		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"> <li>• Cutter board connector loose, broken, defective</li> <li>• Cutter control board defective</li> </ul>	
		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"> <li>• Slave control board connectors loose, broken, defective</li> <li>• Cutter control board connectors loose, broken, defective</li> <li>• Slave control board defective</li> <li>• Cutter control board defective</li> </ul>	
		Download Error	
		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"> <li>• Cutter control board connection loose, broken, defective</li> <li>• Cutter control board defective</li> </ul>			

SC795-4	A	Bookbinder EEPROM Error	PB (D391)
		EEPROM Read Error	
		After EEPROM write operation was completed, the data was read from the same address.	
		<ul style="list-style-type: none"> <li>• Master control board EEPROM not installed, not installed correctly</li> <li>• EEPROM defective</li> </ul>	
		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)	
		<ul style="list-style-type: none"> <li>• Master control board EEPROM not installed, not installed correctly</li> <li>• EEPROM defective</li> </ul>	

SC795-5	A	Master-to-Inserter Board Communication Error	PB (D391)
		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).	
		<ul style="list-style-type: none"> <li>• Inserter board connector loose, broken, defective</li> <li>• Inserter board defective</li> </ul>	
		Bookbinder-to-Inserter Communication Error	
		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"> <li>• Inserter control board defective</li> <li>• Inserter control board connector loose, broken, defective</li> </ul>	
		Download Error	
The version of the firmware on the inserter control board could not be detected at power on.			
<ul style="list-style-type: none"> <li>• Inserter control board defective</li> <li>• Inserter control board connector loose, broken, defective</li> </ul>			

SC795-6	A	24V Check Signal Error 1	PB (D391)
		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"> <li>• Front cover switch error</li> <li>• 24V1 monitor signal error</li> <li>• 24V1 power supply error</li> </ul>	

SC795-7	A	24V Check Signal Errors	PB (D391)
		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"> <li>• Top cover switch (MSW3) error</li> <li>• Front cover switch error</li> <li>• Stacking cover switch error</li> <li>• Master control board connection loose, broken, defective</li> <li>• Master control board defective</li> </ul>	
		24V Check Signal Error 2	
		The 24V2 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"> <li>• Top cover switch (MSW3) error</li> <li>• Front cover switch error</li> <li>• Slave control board connection loose, broken, defective</li> <li>• Slave control board defective</li> </ul>	

SC795-8	A	24V Check Signal Error	PB (D391)
		The 24V3 check signal of the slave control board failed to go OFF within 5 sec. even though the front door is closed.	
		<ul style="list-style-type: none"> <li>• Front cover switch error</li> <li>• Slave control board connection loose, broken, defective</li> <li>• Slave control board defective</li> </ul>	

SC795-9	A	Power Supply Fan Lock Errors	PB (D391)
		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"> <li>• Fan overload</li> <li>• Confirm that there are no obstructions interfering with operation of the fan</li> <li>• Fan motor defective</li> </ul>			

SC795-10	A	Spine Plate Lower Fan Errors	PB (D391)
		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"> <li>• Fan overload</li> <li>• Confirm that there are no obstructions interfering with operation of the fan</li> <li>• Fan motor defective</li> </ul>	

SC795-11	A	Spine Plate Upper Fan Errors	PB (D391)
		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"> <li>• Fan overload</li> <li>• Confirm that there are no obstructions interfering with operation of the fan</li> <li>• Fan motor defective</li> </ul>	



SC795-12	A	Signature Fan 2 Error	PB (D391)
		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"> <li>• Fan overload</li> <li>• Confirm that there are no obstructions interfering with operation of the fan</li> <li>• Fan motor defective</li> </ul>			

SC795-13	A	Signature Fan 1 Errors	PB (D391)
		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"> <li>• Fan overload</li> <li>• Confirm that there are no obstructions interfering with operation of the fan</li> <li>• Fan motor defective</li> </ul>			

SC795-14	A	Glue Supply Fan H Lock	PB (D391)
		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"> <li>• Fan overload</li> <li>• Confirm that there are no obstructions interfering with operation of the fan</li> <li>• Fan motor defective</li> </ul>	

SC795-15	A	Glue Supply Fan L Lock	PB (D391)
		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"> <li>• Fan overload</li> <li>• Confirm that there are no obstructions interfering with operation of the fan</li> <li>• Fan motor defective</li> </ul>	

SC795-16	A	Grip HP Sensor (S93) Error	PB (D391)
		The grip unit did not pull away from the HP sensor during operation. -or- The grip unit did not arrive at the HP sensor	
		<ul style="list-style-type: none"> <li>• Book grip motor (M43) connection loose, broken, defective</li> <li>• Motor defective</li> <li>• Grip HP sensor harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-17	A	Main Grip Signature Sensor (S55)	PB (D391)
		The main grip signature sensor did not go off after the main grip unit released the signature and moved the prescribed distance. -or- The grip unit did not arrive at the sensor.	
		<ul style="list-style-type: none"> <li>• Front and rear main grip motors (M23, M24) connection loose, broken, defective</li> <li>• Motor defective</li> <li>• Main grip signature sensor harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-18	A	Trimming Buffer HP Sensor: Left (S103) Error	PB (D391)
		<p>The trimmings buffer sensor (S103):</p> <p>Did not go ON within 3 sec. when it was supposed to move to the right to its home position.</p> <p>Did not go OFF within 5 sec. when it was supposed to move to the left away from its home position.</p>	
		<ul style="list-style-type: none"> <li>• Clear jammed trimming scraps away from the trimmings buffer</li> <li>• Trimmings buffer motor (M37) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Sensor harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-19	A	Trimming Buffer HP Sensor: Right (S100) Error	PB (D391)
		<p>The trimmings buffer failed to move away from the dump port on top of the trimmings box or failed to arrive at the port.</p> <p>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.</p> <p>The trimmings buffer sensor: right (S100) did not go ON within 5 seconds when the trimmings buffer was supposed to arrive at the sensor.</p>	
		<ul style="list-style-type: none"> <li>• Clear jammed trimming scraps away from the trimmings buffer</li> <li>• Trimmings buffer motor (M37) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Sensor harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-20	A	Trimmings Buffer Motor (M37) Error	PB (D391)
		The trimmings buffer motor is not rotating.	
		<ul style="list-style-type: none"> <li>• Clear jammed trimming scraps away from the trimmings buffer</li> <li>• Trimmings buffer motor (M37) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Trimmings buffer sensor: left/right (S103/S100) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-21	A	Book Press Plate Sensor (S104) Error	PB (D391)
		<p>The trimmings buffer and book press plate did not move after the trimmings buffer motor turned on.</p> <p>The book press plate sensor did not go OFF with 3 sec..</p> <p>-or-</p> <p>The book press plate sensor did not go ON within 3 sec.</p>	
		<ul style="list-style-type: none"> <li>• Clear jammed trimming scraps away from the trimmings buffer</li> <li>• Trimmings buffer motor (M37) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Trimmings buffer sensor: left/right (S103/S100) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-22	A	Book Buffer Tray HP Sensor (S78)	PB (D391)
		<p>The book buffer tray failed to move to the rear or failed to move to the front.</p> <p>The book buffer tray HP sensor failed to go ON within 3 sec. when the tray was supposed to move front to rear.</p> <p>The book buffer tray HP sensor failed to go OFF within 3 sec. when the tray was supposed to move rear to front.</p> <ul style="list-style-type: none"> <li>• Book jammed on the rail of the book buffer tray</li> <li>• Book buffer tray overloaded</li> <li>• Book buffer tray motor (M39) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book buffer tray HP sensor (S78) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-23	A	Edge Press Plate HP Sensor (S90) Error	PB (D391)
		<p>During edge press plate operation during trimming:</p> <p>The edge press plate HP sensor did not go OFF within the prescribed time because it failed to pull away from the HP sensor.</p> <p>The edge press plate HP sensor did not ON within the prescribed time because it failed to arrive at the HP sensor.</p> <p>The edge press motor (M36) stopped when the press HP sensor (S90) switched ON, but after the motor stopped the HP sensor went OFF.</p> <ul style="list-style-type: none"> <li>• Edge press motor (M36) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Edge press plate HP sensor (S90) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-24	A	Press End Sensor (S87) Error	PB (D391)
		<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"> <li>• Edge press plate motor (M36) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Press end sensor (S87) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-25	A	Press Limit Sensor (S89) Error	PB (D391)
		<p>The press limit sensor went ON and detected the edge press plate beyond its maximum position.</p>	
		<ul style="list-style-type: none"> <li>• Edge press plate motor (M36) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Press limit sensor harness loose, broken, defective</li> <li>• Sensor defective</li> <li>• Plate out of position (see below)</li> </ul> <p><b>Note:</b> 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	Slide HP Sensor (S82) Error	PB (D391)
		<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"> <li>• Signature has jammed during transport.</li> <li>• Slide motor (M44) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Slide HP sensor (S82) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-27	A	Book Rotation HP Sensor 1 (S95) Error	PB (D391)
		<p>Rotate motor 1 (M42) did not leave the home position and the book rotation HP sensor did not go OFF after enough time elapsed for rotation through an arc of 50°.</p> <p>-or-</p> <p>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"> <li>• Jam or overload during book rotation.</li> <li>• Rotate motor 1 (M42) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book rotation HP sensor 1 (S95)harness loose, broken, defective</li> <li>• Book rotation HP sensor 1 (S95) defective</li> </ul>	

SC795-28	A	Book Rotation HP Sensor 2 (S91)	PB (D391)
		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°.	
<ul style="list-style-type: none"> <li>• Jam or overload during book rotation.</li> <li>• Rotate motor 2 (M41) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book rotation HP sensor (S91) harness loose, broken, defective</li> <li>• Book rotation HP sensor (S91) defective</li> </ul>			

SC795-29	A	Cutter Motor (M35) Error	PB (D391)
		One of the following occurred:	
		<ul style="list-style-type: none"> <li>• The cutter blade did not move after it was moved to the rear (it did not leave home position).</li> <li>• The blade did not move away from the cutting point on the blade cradle (it did not arrive at the home position).</li> <li>• The blade did not move for a rear-to-front cut.</li> <li>• The blade did not move away from the blade cradle to the front within 10 sec.</li> <li>• When moving from the front, the blade did not reach the blade cradle within 10 sec.</li> <li>• When moving from the rear, the blade did not reach the blade cradle.</li> </ul>	
<ul style="list-style-type: none"> <li>• Cutter motor (M35) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Blade sensor 1, 2 (S84, S85) sensor harness loose, broken, defective</li> <li>• Sensor defective</li> <li>• Blade is dull, cutting poorly</li> </ul> <p><b>Note:</b> Sensors S84, S85 are on the cutter area PCB.</p>			



SC795-30	A	Trimmer Limit Sensor (S86) Error	PB (D391)
		The blade reached the limit position and the trimmer limit sensor went ON.	
		<ul style="list-style-type: none"> <li>• Cutter motor (M35) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Trimmer limit sensor (S86) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	
		<p><b>Note:</b> 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>	

SC795-31	A	Book Lift Tray HP Sensor (S79) Error	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>• Book tray lift motor (M38) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book lift tray HP sensor (S79) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-32	A	Book Lift Tray Motor (M38) Error	PB (D391)
		The motor is not rotating. The encoder is checked for motor lock at 50 ms intervals.	
		<ul style="list-style-type: none"> <li>• Book lift tray motor (M38) locked, blocked by the book press plate or a jammed book.</li> <li>• Motor connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book lift tray HP sensor (S79) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-33	A	Book Buffer Tray HP Sensor (S78) Error	PB (D391)
		<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.</p> <p>-or-</p> <p>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"> <li>• Book collection buffer tray overloaded.</li> <li>• Book buffer tray motor (M39) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book buffer tray HP sensor (S78) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-34	A	Blade Cradle HP Sensor (S83) Error	PB (D391)
		<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.</p> <p>-or-</p> <p>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"> <li>• Blade cradle motor (M40) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Blade cradle HP sensor (S83) harness loose, broken, defective</li> <li>• Sensor defective</li> <li>• Book press plate or cutter has interfered with the blade cradle movement.</li> </ul>	

SC795-35	A	Book Stacker Lock Solenoid (SOL5) Error	PB (D391)
		The book stacker door is locked but the book stacker door sensor (S98) did not go OFF.	
		<ul style="list-style-type: none"> <li>• Book stacker lock solenoid (SOL5) connections loose, broken, defective</li> <li>• Solenoid defective</li> <li>• Book stacker door sensor harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-36	A	Glue Heater (HTR1) Errors	PB (D391)
		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"> <li>• Heater (HTR1), glue temperature thermistor (S56) defective</li> </ul>	
		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"> <li>• Heater, glue temperature thermistor (S56) defective</li> </ul>	

SC795-37	A	Electrical Short in the Gluing Unit	PB (D391)
		<ul style="list-style-type: none"> <li>• Heater short. The glue unit thermistor detected a temperature higher than 200C for longer than 1 sec.</li> <li>• 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).</li> <li>• Glue level thermistor (S58) broken</li> <li>• The AD value of the glue level thermistor (S58) remained at 1023 for 10 sec.</li> </ul>	
		<ul style="list-style-type: none"> <li>• Thermistor abnormal, wire breakage, short circuit, broken wire: Replace the gluing unit</li> </ul>	

SC795-38	A	Temperature Detection Error	PB (D391)
		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"> <li>• Heater, glue temperature thermistor (S56) defective</li> </ul>	
		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"> <li>• Glue level thermistor (S58) defective</li> </ul>	
		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"> <li>• Glue level thermistor (S58) defective</li> </ul>			

SC795-39	A	Protective Circuit Error	PB (D391)
		<ul style="list-style-type: none"> <li>• The thermostat (THSW1) inside the gluing unit detected an abnormally high temperature.</li> <li>• Abnormal thermostat detection</li> </ul>	
		<ul style="list-style-type: none"> <li>• Glue heater defective</li> <li>• Thermostat defective</li> </ul>	

SC795-40	A	Glue Surface Error 1	PB (D391)
		The surface of the glue in the vat did not reach the lower or upper 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.	
		<ul style="list-style-type: none"> <li>• Glue has clogged in the vat</li> <li>• Glue supply defective</li> <li>• Glue level thermistor (S58) defective</li> </ul>	

SC795-41	A	Glue Surface Error 2	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>• Glue application abnormal (not applying correctly)</li> <li>• Glue level thermistor (S58) defective</li> </ul>	

SC795-42	A	Glue Level Thermistor (S58) Adjustment Error	PB (D391)
		One of the following errors occurred in the adjustment data for the glue level thermistor:	
		<ul style="list-style-type: none"> <li>• Glue level thermistor 1 value (low limit) was out of the range: <math>128^{\circ}\text{C}\pm 14^{\circ}\text{C}</math></li> <li>• Glue level thermistor 2 value (high limit) was out of the range: <math>142^{\circ}\text{C}\pm 10^{\circ}\text{C}</math></li> <li>• Glue level thermistor adjustment value 1 was larger than for adjustment 1.</li> <li>• The difference between the values for adjustment 1 and 2 was less than <math>5^{\circ}\text{C}</math>.</li> </ul>	
<ul style="list-style-type: none"> <li>• Slave control board connection loose, broken, defective</li> <li>• Slave control board defective</li> </ul>			

SC795-43	A	Timing Sensor (S5) Adjustment Error	PB (D391)
		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>-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"> <li>• Timing sensor defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>			

SC795-44	A	Cover Registration Sensor (S21) Error	PB (D391)
		The value for the adjustment of the cover registration sensor was higher than or lower than the target range: 3V to 3.5V	
		<ul style="list-style-type: none"> <li>• Cover registration sensor (S21) defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC795-45	A	Cover Horizontal Registration Sensor: Small (S71)	PB (D391)
		The value for the adjustment of the cover registration sensor was higher than or lower than the target range: 3.2V to 3.5V	
		<ul style="list-style-type: none"> <li>• Cover horizontal registration sensor: small (S71) defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC795-46	A	Cover Horizontal Registration Sensor: Large (S72)	PB (D391)
		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	
		<ul style="list-style-type: none"> <li>• Cover Horizontal Registration Sensor: Large (S72) defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC795-47	A	Book Exit Sensor (S64) Error	PB (D391)
		The value for the adjustment of the book exit sensor was higher than or lower than the target range: 3.2V to 3.54V	
		<ul style="list-style-type: none"> <li>• Signature exit sensor defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC795-48	A	Leading Edge Sensor (S65) Error	PB (D391)
		The value for the adjustment of the leading edge sensor was higher than or lower than the target range: 3.2V to 3.54V	
		<ul style="list-style-type: none"> <li>• Leading edge sensor S65) defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC795-49	A	Trim Unit Entrance Sensor (S92) Error	PB (D391)
		The value for the adjustment of the sensor was out of range.	
		<ul style="list-style-type: none"> <li>• Trim unit entrance sensor (S92) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-50	A	Book Registration Sensor (S88) Error	PB (D391)
		The value for the adjustment of the book registration sensor was out of range.	
		<ul style="list-style-type: none"> <li>• Slide motor (M44) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book registration sensor (S88) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-51	A	Leading Edge Sensor (S65) Error	PB (D391)
		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"> <li>• The book has slipped out of the grip of the book rotation plates.</li> </ul>	

SC795-52	A	Book Exit Sensor (S64) Error	PB (D391)
		No book could be detected at the entrance of the trimming unit. -or- The book did not arrive in the trimming unit because it jammed. (The trim unit entrance sensor (S92) did not go ON.)	
		<ul style="list-style-type: none"> <li>• Main grip lift motor (M22) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book exit sensor (S64) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-53	A	Book Registration Sensor (S88) Error	PB (D391)
		A book was not detected at the book registration sensor pair (the book registration sensor did not go ON).	
		<ul style="list-style-type: none"> <li>• Book jammed, failed to arrive at book registration sensor</li> <li>• Slide motor (M44) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book registration sensor (S88) harness loose, broken, defective</li> <li>• Sensor defective</li> <li>• Sensor flag error, overload</li> </ul>	

SC795-54	A	Book Exit Sensor (S64) Error	PB (D391)
		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"> <li>• Book jammed at the entrance of the book grip and rotation unit.</li> <li>• Book exit sensor (S64) defective</li> </ul>	



SC795-55	A	Trim Unit Entrance Sensor (S92)Error	PB (D391)
		The slave control board could detect no paper at the entrance of the trimming unit. The trim unit entrance sensor did not detect the signature within 6860 ms from when the signature exited the gluing unit.	
		<ul style="list-style-type: none"> <li>Trim unit entrance sensor (S92) defective</li> </ul>	

SC795-56	A	Main Grip Signature Sensor (S55) Error	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>Main grip signature sensor (S55) defective</li> </ul>	

SC795-57	A	Book Exit Sensor (S64) Error	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>Book jam at power on</li> <li>Main group lift motor (M22) connections loose, broken, defective</li> <li>Motor defective</li> <li>Book exit sensor (S64) harness loose, broken, defective</li> <li>Sensor defective</li> </ul>	

SC795-58	A	Book Registration Sensor (S88) Lag Error	PB (D391)
		<p>The book registration sensor remained ON because the book did not move from the sensor location.</p> <p>-or-</p> <p>The book registration sensor went on when the system was turned on.</p>	
		<ul style="list-style-type: none"> <li>• Book jam above the trimmer unit</li> <li>• Slide motor (M44) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book registration (S88) sensor harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-59	A	Book Arrival Sensor (S76) Lag Error	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>• Slide motor (M44) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Book arrival sensor (S76) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-60	A	Trimming Scrap Error	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>• Trimming scraps have jammed in or around the trimmings buffer</li> <li>• Edge press plate motor (M36) connections loose, broken, defective</li> <li>• Motor defective</li> <li>• Edge press plate HP sensor (S90) harness loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC795-61	A	Sub Grip Signature Lag Error	PB (D391)
		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"> <li>• Signature jam in the sub grip unit</li> <li>• Sub grip signature sensor (S39) defective (did not go OFF even with sub grip unit open and the signature removed)</li> </ul>	

SC795-62	A	Main Grip Lag Jam	PB (D391)
		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"> <li>• Book jam in the main grip unit</li> <li>• Main grip signature sensor (S55) defective (did not go OFF even with the book removed)</li> </ul>	

SC795-63	A	Signature Thickness Error	PB (D391)
		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"> <li>• Signature thickness sensor (S50) defective.</li> </ul>	

## SC Tables: 7xx-4

2

SC796-1	A	Glue Vat HP Sensor (S73) Error	PB (D391)
		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"> <li>• Glue vat motor (M32) defective</li> <li>• Glue vat HP sensor (S73) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>			

SC796-2	A	Glue Vat Roller Rotation Error	PB (D391)
		The glue vat roller did not start rotating within the prescribed time.	
		<ul style="list-style-type: none"> <li>• Glue vat roller motor (M25) defective</li> <li>• Glue vat roller rotation sensor (S59) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC796-3	A	Glue Supply Motor (M33) Error	PB (D391)
		The glue supply motor did not arrive at its home position. The glue roller 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"> <li>• Glue pellet supply lock</li> <li>• Glue supply motor (M33) defective</li> <li>• Glue roller HP sensor (S75) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>			

SC796-4	A	Spine Plate HP Sensor: Left (S60) Error	PB (D391)
		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.	
		-or- The spine fold plate did not leave the left HP sensor position (the sensor did not go OFF within the prescribed time).	
		<ul style="list-style-type: none"> <li>• Spine fold plate motor: left (M28) defective</li> <li>• Spine plate HP sensor: left (S60) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC796-5	A	Spine Fold Close Sensor: Left (S61) Error	PB (D391)
		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.	
		-or- 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.	
		<ul style="list-style-type: none"> <li>• Spine fold plate motor: left (M28) defective</li> <li>• Spine fold close sensor: left (S61) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC796-6	A	Dual Spine Plate Sensor Error: Left	PB (D391)
		The spine plate HP sensor (S60) and spine plate close sensor (S63) turned ON at the same time.	
		<ul style="list-style-type: none"> <li>• Spine plate HP sensor: left (S60) defective</li> <li>• Spine fold close sensor (S63) defective</li> <li>• A sensor connector loose, broken, defective</li> </ul>	

SC796-7	A	Spine Plate HP Sensor: Right (S66) Error	PB (D391)
		<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"> <li>• Spine fold motor: right (M29) defective</li> <li>• Spine plate HP sensor: right (S66) defective</li> <li>• Connector loose, broken, defective</li> </ul>	
SC796-8	A	Spine Fold Close Sensor: Right (S69) Error	PB (D391)
		<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"> <li>• Spine fold motor: right (M29) defective</li> <li>• Spine fold close sensor: right (S69) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	
SC796-9	A	Dual Spine Plate Sensor Error: Right	PB (D391)
		<p>The spine plate HP sensor: right (S66) and spine fold close sensor: right (S69) turned ON at the same time.</p>	
		<ul style="list-style-type: none"> <li>• Spine plate HP sensor: right (S66) defective</li> <li>• Spine fold close sensor: right (S69) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC796-10	A	Spine Plate Open Sensor (S62) Error	PB (D391)
		<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"> <li>• Spine plate motor (M26) defective</li> <li>• Spine plate open sensor (S62) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-11	A	Spine Plate Close Sensor (S63)	PB (D391)
		<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"> <li>• Spine plate motor (M26) defective</li> <li>• Spine plate close sensor (S63) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-12	A	Front Door Lock Error	PB (D391)
		<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"> <li>• The right front door solenoid (SOL3) defective</li> <li>• Right front door sensor (S30) defective</li> <li>• One or more of the front door switches (MSW1, 2, 4, 5, 6, 7) is defective</li> <li>• Solenoid, sensor, or MSW connector loose, broken, defective</li> </ul>	

SC796-13	A	Switchback Flapper HP Sensor (S10) Error	PB (D391)
		<p>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.</p> <p>-or-</p> <p>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.</p>	
		<ul style="list-style-type: none"> <li>• Switchback flapper HP sensor (S10) defective</li> <li>• Switchback flapper motor (M8) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-14	A	TE Press Lever HP Sensor (S3) Error	PB (D391)
		<p>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 and arc of 30 degrees to release the lever.</p> <p>-or-</p> <p>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 and arc of 20 degrees to close the lever.</p>	
		<ul style="list-style-type: none"> <li>• TE press lever HP sensor (S3) defective</li> <li>• TE press lever motor (M3) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-15	A	Jog Fence HP Sensor: Front/Small (S12) Error	PB (D391)
		<p>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.</p> <p>-or-</p> <p>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.</p>	
		<ul style="list-style-type: none"> <li>• Jog fence HP sensor: front/small (S12) defective</li> <li>• Jogger motor: front (M4) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	



SC796-16	A	Jog Fence HP Sensor: Front/Large (S14) Error	PB (D391)
		<p>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.</p> <p>-or-</p> <p>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.</p>	
		<ul style="list-style-type: none"> <li>• Jog fence HP sensor: front/large (S14) defective</li> <li>• Jogger motor: front (M4) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-17	A	Jog Fence HP Sensor: Rear/Small (S13) Error	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>• Jog fence HP sensor: rear/small (S13) defective</li> <li>• Jogger motor: rear (M5) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-18	A	Jog Fence HP Sensor: Rear/Large (S15) Error	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>• Jog fence HP sensor: rear/large (S15) defective</li> <li>• Jogger motor: rear (M5) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-19	A	Switchback Roller HP Sensor (S11) Error	PB (D391)
		<p>The switchback roller HP sensor in the stacking tray did not go ON after the switchback roller lift 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 switchback roller lift motor turned on long enough to lower the roller through an arc of 20 degrees.</p>	
		<ul style="list-style-type: none"> <li>• Switchback roller HP sensor (S11) defective</li> <li>• Switchback roller lift motor (M7) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-20	A	Stacking Tray Lower Limit Sensor (S7) Error	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>• Stacking tray lower limit sensor (S7) defective</li> <li>• Stacking tray lift motor (M2) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-21	A	Paper Detection Sensor: Fron/Rear (S1/S2) Error	PB (D391)
		<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 after 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 after the stacking tray lift motor turned on to lower the tray</p>	
		<ul style="list-style-type: none"> <li>• Paper Detect Sensor: Front (S1) defective</li> <li>• Stacking Tray Lift Motor (M2) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-22	A	Stacking Tray Overflow Sensor (S6) Error	PB (D391)
		<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.</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.</p>	
		<ul style="list-style-type: none"> <li>• Stacking Tray Overflow Sensor (S6) defective</li> <li>• Stacking Tray Lift Motor (M2) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-23	A	Dual Stacking Tray Errors	PB (D391)
		The Stacking Tray Lower Limit Sensor (S7) and Stacking Tray Overflow Sensor (S6) went ON at the same time.	
		<ul style="list-style-type: none"> <li>Stacking Tray Lower Limit Sensor (S7) defective</li> <li>Stacking Tray Overflow Sensor (S6) defective</li> <li>Sensor connector loose, broken, defective</li> </ul>	
		<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> <ul style="list-style-type: none"> <li>Stacking Tray Empty Sensor (S8) defective</li> <li>Paper Detect Sensors: Front/Rear (S1/S2) defective</li> <li>Stacking Tray Overflow Sensor (S6) defective</li> <li>Stacking Tray Lift Motor (M2) defective</li> <li>Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-24	A	Stacking Tray HP Sensor (S9) Error	PB (D391)
		<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.</p> <p>-or-</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 away from the sensor.</p>	
		<ul style="list-style-type: none"> <li>Stacking Tray HP Sensor (S9) defective</li> <li>Stacking Tray Motor (M9) defective</li> <li>Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-25	A	Stacking Weight HP Sensor (S16) Error	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>Stacking weight HP sensor did not go ON.</li> <li>Stacking Weight HP Sensor (S16) defective</li> <li>Stacking Weight Motor (M6) defective</li> <li>Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-26	A	Left Cover Guide Error	PB (D391)
		The left cover guide HP sensor did not go ON within the prescribed time after the left cover guide motor turned on.	
		<ul style="list-style-type: none"> <li>Cover Guide HP Sensor: Left (S27) defective</li> <li>Cover Guide Motor: Left (M15) defective</li> <li>Sensor or motor connector loose, broken, defective</li> </ul>	
		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.	
		<ul style="list-style-type: none"> <li>Cover Guide Open Sensor: Left (S28) defective</li> <li>Cover Guide Motor: Left (M15) defective</li> <li>Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-27	A	Left Cover Guide Dual Sensor Errors	PB (D391)
		Cover Guide HP Sensor: Left (S27) and Cover Guide Open Sensor: Left (S28) went ON at the same time.	
		<ul style="list-style-type: none"> <li>Cover Guide HP Sensor: Left (S27) defective</li> <li>Cover Guide Open Sensor: Left (S28) defective</li> <li>Sensor connector loose, broken, defective</li> </ul>	

SC796-28	A	Right Cover Guide Error	PB (D391)
		The right cover guide HP sensor did not go ON within the prescribed time after the right cover guide motor turned on.	
		<ul style="list-style-type: none"> <li>• Cover Guide HP Sensor: Right (S22) defective</li> <li>• Cover Guide Motor: Right (M16) defective</li> </ul>	
		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.	
		<ul style="list-style-type: none"> <li>• Cover Guide HP Sensor: Right (S23) defective</li> <li>• Cover Guide Motor: Right (M16) defective</li> </ul>	

SC796-29	A	Right Cover Guide Dual Sensor Errors	PB (D391)
		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"> <li>• Cover Guide HP Sensor: Right (S23) defective</li> <li>• Cover Guide Open Sensor: Right (S23) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC796-30	A	Cover Horizontal Registration HP Error	PB (D391)
		Cover Horizontal Registration HP Sensor: Small/Large (S71, S72) did not go ON within the prescribed time after the cover horizontal registration motor turned on.	
		-or-	
		Cover Horizontal Registration HP Sensor: Small/Large (S71, S72) did not go OFF within the prescribed time after the cover horizontal registration motor turned on.	
		<ul style="list-style-type: none"> <li>• Cover Horizontal Registration Motor (M31) defective</li> <li>• Cover Horizontal Registration HP Sensor: Small/Large (S71, S72) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-31	A	Sub Grip HP Sensor (S37) Error	PB (D391)
		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.	
		-or- 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.	
		<ul style="list-style-type: none"> <li>• Sub Grip Lift Motor (M17) defective</li> <li>• Sub Grip HP Sensor (S37) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-32	A	Sub Grip Size HP Sensor (S38) Error	PB (D391)
		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 (from the open to closed position).	
		<ul style="list-style-type: none"> <li>• Sub Grip Size Motor (M19) defective</li> <li>• Sub Grip Size HP Sensor (S38) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	
		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.	
		-or- The sub grip size HP sensor was already ON when the sub grip size horizontal adjustment started (from the close to open position).	
<ul style="list-style-type: none"> <li>• Sub Grip Size Motor (M19) defective</li> <li>• Sub Grip Size HP Sensor (S38) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>			

SC796-33	A	Sub Grip Open Sensor (S40) Error	PB (D391)
		<p>The sub grip open sensor did not go ON within the prescribed time after the sub grip 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 motor motor turned on to close the sub grip unit.</p>	
		<ul style="list-style-type: none"> <li>• Sub Grip Motor (M20) defective</li> <li>• Sub Grip Open Sensor (S40) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-34	A	Sub Grip Close Sensor (S41) Error	PB (D391)
		<p>The sub grip close sensor did not go ON within the prescribed time after the sub grip 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 motor turned on to open the sub grip unit.</p>	
		<ul style="list-style-type: none"> <li>• Sub Grip Motor (M20) defective</li> <li>• Sub Grip Close Sensor (S41) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-35	A	Sub Grip Dual Sensor Error	PB (D391)
		<p>The Sub Grip Open Sensor (S40) and Sub Grip Close Sensor (S41) went ON at the same time.</p>	
		<ul style="list-style-type: none"> <li>• Sub Grip Open Sensor (S40) defective</li> <li>• Sub Grip Close Sensor (S41) defective</li> <li>• A sensor connector loose, broken, defective</li> </ul>	



SC796-36	A	Signature HP Sensor (S34) Error	PB (D391)
		<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"> <li>• Signature Move Motor (M18) defective</li> <li>• Signature HP Sensor (S34) defective</li> <li>• Connector loose, broken, defective</li> </ul>	

SC796-37	A	Signature Main Grip Position Sensor (S35) Error	PB (D391)
		<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"> <li>• Signature Move Motor (M18) defective</li> <li>• Signature Main Grip Position Sensor (S35) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	
		<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"> <li>• Signature Move Motor (M18) defective</li> <li>• Signature Main Grip Position Sensor (S35) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-38	A	Main Grip Rotate Enable Sensor (S36) Error	PB (D391)
		<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.</p> <p>-or-</p> <p>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"> <li>• Signature Move Motor (M18) defective</li> <li>• Main Grip Rotate Enable Sensor (S36) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-39	A	Sub Grip Dual Sensor Error	PB (D391)
		<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"> <li>• Signature HP Sensor (S34) defective</li> <li>• Signature Main Grip Position Sensor (M35) defective</li> <li>• A sensor connector loose, broken, defective</li> </ul>	

SC796-40	A	Main Grip HP Sensor (S44) Error	PB (D391)
		<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.</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"> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Main Grip HP Sensor (S44) Error</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-41	A	Main Grip Press Sensor 1 (S48)Error	PB (D391)
		<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"> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Main Grip Press Sensor 1 (S48) defective</li> <li>• Connector loose, broken, defective</li> </ul>	

SC796-42	A	Main Grip Press Sensor 2 (S49) Error	PB (D391)
		<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"> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Main Grip Press Sensor 2 (S49) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-43	A	Book Exit Sensor Error	PB (D391)
		<p>The book exit sensor did not go ON after the main grip lift motor moved the book to the delivery point when the book was passed from the main grip unit to the signature exit roller.</p>	
		<ul style="list-style-type: none"> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Book Exit Sensor (S64) defective</li> <li>• Book broken, bent</li> <li>• Book stuck in the main grip unit</li> </ul>	

SC796-44	A	Main Grip HP Sensor: High (S45) Error	PB (D391)
		<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"> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Main Grip HP Sensor: High (S45) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-45	A	Main Grip Rotate HP Sensor (S43) Error	PB (D391)
		<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"> <li>• Main Grip Rotation Motor (M21) defective</li> <li>• Main Grip Rotate HP Sensor (S43) defective</li> <li>• Motor or connector loose, broken, defective</li> </ul>	

SC796-46	A	Rotate-to-Binding Position Sensor (S42) Error	PB (D391)
		<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"> <li>• Main Grip Rotation Motor (M21) defective</li> <li>• Rotate to Binding Position Sensor (S42) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-47	A	Main Grip Rotation Dual Sensor Errors	PB (D391)
		<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"> <li>• Main Grip Rotate HP Sensor (S43) defective</li> <li>• Rotate-to-Binding Position Sensor (S42) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC796-48	A	Main Grip Open/Close Sensor: Rear (S47, S48)	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>• Grip Motor: Rear (M23) defective</li> <li>• Main Grip Open Sensor: Rear (S47) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	
		<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"> <li>• Grip Motor: Rear (M23) defective</li> <li>• Main Grip Close Sensor: Rear (S54) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-49	A	Main Grip Encoder: Rear Sensor (S46) Error	PB (D391)
		<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"> <li>• Grip Motor: Rear (M23) defective</li> <li>• Main Grip Encoder: Rear Sensor (S46) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-50	A	Rear Main Group Dual Sensor Error	PB (D391)
		Main Grip Open Sensor: Rear (S47) and Main Grip Close Sensor: Rear (S54) went ON at the same time.	
		<ul style="list-style-type: none"> <li>• Main Grip Open Sensor: Rear (S47) defective</li> <li>• Main Grip Close Sensor: Rear (S54) defective</li> <li>• A sensor connector loose, broken, defective</li> </ul>	

SC796-51	A	Main Grip Open/Close Sensor: Front (S51, S53)	PB (D391)
		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.	
		-or-	
		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.	
		<ul style="list-style-type: none"> <li>• Grip Motor: Front (M24) defective</li> <li>• Main Grip Open Sensor: Front (S51) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	
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.			
-or-			
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.			
<ul style="list-style-type: none"> <li>• Grip Motor: Front (M24) defective</li> <li>• Main Grip Close Sensor: Front (S53) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>			

SC796-52	A	Main Grip Encoder: Front Sensor (S52) Error	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>• Main Grip Encoder: Front Sensor (S52) defective</li> <li>• Grip Motor: Front (M24) defective</li> <li>• Main Grip Encoder: Front Sensor (S52) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC796-53	A	Front Main Group Dual Sensor Error	PB (D391)
		Main Grip Open Sensor: Front (S51) and Main Grip Close Sensor: Front (S53) went ON at the same time.	
		<ul style="list-style-type: none"> <li>• Main Grip Open Sensor: Front (S51) defective</li> <li>• Main Grip Close Sensor: Front (S53) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC796-54	A	Signature Exit Path HP Sensor (S67) Error	PB (D391)
		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>-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"> <li>• Signature Exit Path Motor (M30) defective</li> <li>• Signature Exit Path HP Sensor (S67) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	



SC796-55	A	Signature Exit Path Press Sensor (S68) Error	PB (D391)
		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.	
		-or- 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.	
		<ul style="list-style-type: none"> <li>• Signature Exit Path Motor (M30) defective</li> <li>• Signature Exit Path Press Sensor (S68) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-56	A	Signature Exit Roller Error	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>• Signature Roller Exit Motor (M27) defective</li> <li>• Leading Edge Sensor (S65) defective</li> <li>• Signature torn, bent</li> </ul>	

SC796-57	A	Inserter EEPROM Error	PB (D391)
		CHECKSUM error at power on.	
		-or- EEPROM write error.	
		<ul style="list-style-type: none"> <li>• EEPROM not installed, or not installed correctly</li> <li>• EEPROM defective</li> </ul>	

SC796-58	A	Inserter Drive Switch Sensor (S16) Error	PB (D391)
		The drive switch sensor in the inserter did not go OFF within the time prescribed after the drive switch motor (M2) turned on.	
		-or- The drive switch sensor in the inserter did not go ON within the time prescribed after the drive switching motor (M2) turned on.	
		<ul style="list-style-type: none"> <li>• Drive switch motor (M2) defective</li> <li>• Drive switch sensor (S16) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> <li>• Connector loose, broken, defective</li> </ul>	

SC796-59	A	Inserter Tray A Error	PB (D391)
		Inserter Tray A (upper tray) failed to leave its lower limit sensor within the prescribed time after Tray A lift motor turned on.	
		<ul style="list-style-type: none"> <li>• Lift Motor: Tray A (M3) defective</li> <li>• Lower Limit Sensor: Tray A (S11) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	
		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.	
		<ul style="list-style-type: none"> <li>• Lift Motor: Tray A (M3) defective</li> <li>• Paper Feed Sensor: Tray A (S4) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-60	A	Inserter Tray B Error	PB (D391)
		Inserter Tray B (lower tray) failed to leave its lower limit sensor within the prescribed time after the Tray B lift motor turned on.	
		<ul style="list-style-type: none"> <li>Lift Motor: Tray B (M4) defective</li> <li>Lower Limit Sensor: Tray B (S12) defective</li> <li>Motor or sensor connector loose, broken, defective</li> </ul>	
		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"> <li>Lift Motor: Tray B (M4) defective</li> <li>Paper Feed Sensor: Tray B (S10) defective</li> <li>Motor or sensor connector loose, broken, defective</li> </ul>	

SC796-61	A	Relay Unit EEPROM Error	PB (D391)
		EEPROM write error (successful completion of data write operation not detected within the prescribed time).	
		<ul style="list-style-type: none"> <li>Relay board EEPROM not installed, or installed incorrectly</li> <li>EEPROM damaged</li> <li>Relay board defective</li> </ul>	

SC796-62	A	Relay/ Bookbinder Communication Error	PB (D391)
		Communication error between relay unit and bookbinder.	
		<ul style="list-style-type: none"> <li>Relay I/F cable disconnected or damaged</li> <li>Relay unit PCB in bookbinder damaged, not installed correctly</li> <li>PCB in relay unit damaged, not installed correctly</li> </ul>	

SC796-63	D	Lower Performance Mode Error	PB (D391)
		<p>These are the conditions that must be met before the bookbinder enters low performance mode:</p> <ul style="list-style-type: none"> <li>• The location where the error occurred has no effect on the operation of the horizontal feed path for downstream delivery.</li> <li>• The jam has occurred in the horizontal feed path but it can be removed easily.</li> <li>• The unit where the error occurred allows use of the horizontal feed path.</li> <li>• These conditions determine whether downstream delivery is possible after an error occurs in the bookbinder.</li> </ul>	
		<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 low performance mode.</p>	

## SC Tables: 7xx-5

2

SC797-1	B	Grip HP Sensor (S93) Error	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>• Book grip motor (M43) defective</li> <li>• Grip HP sensor (S93) defective</li> <li>• Sensor or motor harness loose, broken, defective</li> </ul>	

SC797-2	B	Grip End Sensor (S94) Error	PB (D391)
		The grip end sensor (S94) did not go OFF after the grip unit released the signature and moved the prescribed distance.	
		<ul style="list-style-type: none"> <li>• Book grip motor (M43) defective</li> <li>• Grip end sensor (S94) defective</li> <li>• Sensor or motor harness loose, broken, defective</li> </ul>	
		The grip end sensor (S94) did not go ON because the grip unit did arrive at the sensor position.	
		<ul style="list-style-type: none"> <li>• Book grip motor (M43) defective</li> <li>• Grip end sensor (S94) defective</li> <li>• Sensor or motor harness loose, broken, defective</li> <li>• Data received for signature data was incorrect.</li> </ul>	

SC797-3	B	Trimmings Buffer HP Sensor: Left (S103) Error	PB (D391)
		<p>The trimmings buffer HP sensor: left (S103) did not go OFF within the prescribed time because it failed to leave the HP sensor.</p> <p>-or-</p> <p>The trimmings buffer HP 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"> <li>• Trimmed scraps in or around the trimmings buffer</li> <li>• Trimmings buffer motor (M37) defective</li> <li>• Trimmings buffer HP sensor: left (S103) defective</li> <li>• Sensor or motor harness loose, broken, defective</li> </ul>	

SC797-4	B	Trimmings Buffer HP Sensor: Right (S100) Error	PB (D391)
		<p>Trimmings buffer did not reach the trimmings dump port because:</p> <p>The trimmings buffer HP sensor: right (S100) did not go OFF within the prescribed time because it failed to leave the HP sensor.</p> <p>-or-</p> <p>The trimmings buffer HP sensor: right (S100) did not go ON within the prescribed time because it failed to arrive at the HP sensor.</p>	
		<ul style="list-style-type: none"> <li>• Trimmed scraps in or around the trimmings buffer</li> <li>• Trimmings buffer motor (M37) defective</li> <li>• Right trimmings buffer HP sensor (S100) defective</li> <li>• Sensor or motor harness loose, broken, defective</li> </ul>	

SC797-5	B	Trimmings Buffer Motor (M37) Error	PB (D391)
		Trimmings buffer motor (M37) is not running.	
		<ul style="list-style-type: none"> <li>• Trimming scrap jam</li> <li>• Trimmings buffer motor (M37) defective</li> <li>• Right or left trimmings buffer sensor (S100, S103) defective</li> <li>• Motor or sensor connections loose, broken, defective</li> </ul>	

SC797-6	B	Failure to Detect Book Press Plate Position	PB (D391)
		<p>The book press plate sensor (S104) did not go OFF because the trimmings buffer left the HP sensor position.</p> <p>-or-</p> <p>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"> <li>• Trimming scraps jammed in or around the trimmings buffer</li> <li>• Trimmings buffer motor (M37) defective</li> <li>• Book press plate sensor (S104) defective</li> <li>• Sensor or motor harness loose, broken, defective</li> </ul>	

SC797-7	B	Book Buffer Tray HP Sensor (S78) Error	PB (D391)
		<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.</p> <p>-or-</p> <p>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"> <li>• Book has jammed on the rail of the buffer</li> <li>• Buffer tray overloaded</li> <li>• Book buffer tray motor (M39) defective</li> <li>• Book buffer tray HP sensor (S78) defective</li> <li>• Motor or sensor connection loose, broken, defective</li> </ul>	

SC797-8	B	Edge Press Plate HP Sensor (S90)	PB (D391)
		<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.</p> <p>-or-</p> <p>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"> <li>• Edge press plate motor (M36) defective</li> <li>• Edge press plate HP sensor (S90) defective</li> <li>• Motor or sensor connection loose, broken, defective</li> </ul>	

SC797-9	B	Press end Sensor (S87) Error	PB (D391)
		<p>The press end HP sensor did not go OFF within the time prescribed for press END.</p> <p>-or-</p> <p>Press end sensor went OFF after press end sensor went ON and stopped the press motor (M36).</p>	
		<ul style="list-style-type: none"> <li>• Edge press plate motor (M36) defective</li> <li>• Press end sensor (S87) defective</li> <li>• Data received for signature data was incorrect because signature thickness sensor (S50) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-10	B	Slide HP Sensor (S82) Error	PB (D391)
		<p>The HP sensor did not go OFF within the prescribed time because the slide motor did not leave the home position.</p> <p>-or-</p> <p>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"> <li>• Signature jam, overload</li> <li>• Slide motor (M44) defective</li> <li>• Slide HP sensor (S82) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	



SC797-11	B	Book Rotation HP Sensor 1 (S95) Error	PB (D391)
		<p>Book rotation sensor 1 did not go OFF because the book rotation motor 1 (M41) did not leave the home position.</p> <p>-or-</p> <p>Book rotation sensor 1 did not go ON because the book rotation motor 1 (M41) did not arrive at the home position.</p> <p>-or-</p> <p>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"> <li>• Jam or overload during book rotation</li> <li>• Book rotation motor 1 (M41) defective</li> <li>• Book rotation HP sensor 1 (S95) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-12	B	Book Rotation HP Sensor 2 (S91)	PB (D391)
		<p>Book rotation sensor 2 did not go OFF because the book rotation motor 1 (M42) did not leave the home position.</p> <p>-or-</p> <p>Book rotation sensor 1 did not go ON because the book rotation motor 1 (M42) did not arrive at the home position.</p> <p>-or-</p> <p>At power on, book rotation motor 1 failed to rotate the left plate through the prescribed arc for initialization.</p> <p>Jam or overload during book rotation</p>	
		<ul style="list-style-type: none"> <li>• Book rotation motor 1 (M42) defective</li> <li>• Book rotation HP sensor 1 (S91) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-13	B	Cutter Motor (M35) Error	PB (D391)
		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"> <li>• Blade is dull, cutting poorly</li> <li>• Cutter motor (M35) defective</li> <li>• Blade sensor 1, blade sensor 2 defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	
		<b>Note:</b> Blade sensors 1 and 2 (S84, S85) are mounted on the cutter control board.	

SC797-14	B	Book Lift Tray HP Sensor (S79) Error	PB (D391)
		The book lift tray HP sensor did not go OFF within the prescribed time after the book lift tray motor (M38) turned on to raise the tray and receive a finished book from the trimming unit.	
		-or-	
		The book lift tray HP sensor did not go ON within the prescribed time after the book lift tray motor (M38) turned on to lower the tray and book.	
		<ul style="list-style-type: none"> <li>• Book jammed under the tray</li> <li>• Book lift tray motor (M38) defective</li> <li>• Book lift tray HP sensor (S79) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-15	B	Book Lift Tray Motor (M38) Error	PB (D391)
		The book lift tray motor was not rotating.	
		<ul style="list-style-type: none"> <li>• Book lift tray motor (M38) locked, blocked by the press plate or a jammed book</li> <li>• Motor defective</li> <li>• Book lift tray HP sensor (S79) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-16	B	Book Buffer Tray HP Sensor (S78) Error	PB (D391)
		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.	
		-or-	
		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.	
		<ul style="list-style-type: none"> <li>• Book buffer tray overloaded.</li> <li>• Book buffer tray motor (M39) defective</li> <li>• Book buffer tray HP sensor (S78) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-17	B	Blade Cradle HP Sensor (S83) Error	PB (D391)
		The blade cradle HP sensor did not go OFF within the prescribed time after the blade cradle motor (M40) turned on to raise it.	
		-or-	
		The blade cradle HP sensor did not go ON within the prescribed time after the blade cradle motor (M40) turned on to lower it.	
		<ul style="list-style-type: none"> <li>• Edge press plate or cutter interfered with movement of the blade cradle</li> <li>• Blade cradle motor (M40) defective</li> <li>• Blade cradle HP sensor (S83) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-18	B	Book Door Lock Solenoid (SOL5) Error	PB (D391)
		The book stack door is locked but the book door sensor (S98) did not go OFF.	
		<ul style="list-style-type: none"> <li>• Book door sensor (S98) defective</li> <li>• Book door lock solenoid (SOL5) defective</li> <li>• Solenoid or sensor harness loose, broken, defective</li> </ul>	

SC797-19	B	Glue Heater (HTR1) Error	PB (D391)
		<p>The heater failed to start because:          600 sec. after the bookbinder left the energy save mode, the glue temperature thermistor did not detect the target temperature (153°C±5).</p> <p>-or-</p> <p>After the glue temperature 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"> <li>• Heater (HTR1) defective</li> <li>• Glue temperature thermistor (S56) defective</li> </ul>	

SC797-20	B	Electrical Short in the Gluing Unit	PB (D391)
		<p>A short circuit or wire breakage occurred in the gluing unit.          The glue temperature thermistor (S56) detected:</p> <ul style="list-style-type: none"> <li>• A temperature over 200°C more than 1 sec. (short circuit)</li> <li>• A temperature of less than 5°C for more than 1 sec. or more than 10 sec. after power on (wire breakage)</li> <li>• The AD value of the glue level thermistor (S58) remained at 1023 for 10 sec (wire breakage).</li> </ul>	
		<ul style="list-style-type: none"> <li>• Heater (HTR1) defective</li> <li>• Glue temperature thermistor (S56) defective</li> </ul>	

SC797-21	B	Temperature Detection Error	PB (D391)
		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"> <li>• Heater (HTR1) defective</li> <li>• Glue temperature thermistor (S56) defective</li> </ul>	
		<p>The glue level thermistor detected a temperature higher than 170°C for longer than 10 sec. after the glue had warmed up.</p> <p>-or-</p> <p>The glue level thermistor detected a temperature higher than 100°C for longer than 10 sec. after the glue had warmed up.</p> <ul style="list-style-type: none"> <li>• Glue level thermistor (S58) defective</li> </ul>	
SC797-22	B	Protection Circuit Error	PB (D391)
		The thermostat (THSW1) inside the gluing unit detected an abnormally high temperature.	
		<ul style="list-style-type: none"> <li>• Glue heater (HTR1) defective</li> <li>• Thermostat (THSW1) defective</li> </ul>	
SC797-23	B	Glue Surface Error 1	PB (D391)
		The surface of the glue in the vat did not reach the lower limit position. This error occurred when the glue surface was detected below the lower limit position 4 times in succession during the glue replenishment cycle.	
		<ul style="list-style-type: none"> <li>• Glue has clogged in the vat</li> <li>• Glue supply defective</li> <li>• Glue level thermistor (S58) defective</li> </ul>	
		<p>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.</p> <ul style="list-style-type: none"> <li>• Glue has clogged in the vat</li> <li>• Glue level thermistor (S58) defective</li> </ul>	

SC797-24	B	Glue Surface Error 2	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>• Glue application abnormal (not applying correctly)</li> <li>• Glue level thermistor (S58) defective</li> </ul>	

SC797-25	B	Glue Level Thermistor (S58) Adjustment Error	PB (D391)
		One of the following errors occurred in the adjustment data for the glue level thermistor:	
		<ol style="list-style-type: none"> <li>1. Glue level thermistor 1 value (low limit) was out of the range: <math>128^{\circ}\text{C}\pm 14\text{C}</math></li> <li>2. Glue level thermistor 2 value (high limit) was out of the range: <math>142^{\circ}\text{C}\pm 10\text{C}</math></li> <li>3. Glue level thermistor adjustment value 1 was larger than for adjustment 1.</li> </ol>	

SC797-26	B	Timing Sensor (S5) Adjustment Error	PB (D391)
		The value for the adjustment of the timing sensor was out of range (3.0V to 3.5V)	
		<ul style="list-style-type: none"> <li>• Timing sensor (S5) defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC797-27	B	Cover Registration Sensor (S21) Error	PB (D391)
		The value for the adjustment of the cover registration sensor was out of range (3.0V to 3.5V)	
		<ul style="list-style-type: none"> <li>• Cover registration (S21) sensor defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC797-28	B	Cover Horizontal Registration Sensor: Small (S71)	PB (D391)
		The value for the adjustment of the cover horizontal registration sensor: small was out of range (3.0V to 3.5V)	
		<ul style="list-style-type: none"> <li>• Cover horizontal registration sensor: small (S71) defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC797-29	B	Cover Horizontal Registration Sensor: Large (S72)	PB (D391)
		The value for the adjustment of the cover horizontal registration sensor: large was out of range (3.0V to 3.5V)	
		<ul style="list-style-type: none"> <li>• Cover horizontal registration sensor: large (S72) defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC797-30	B	Book Exit Sensor (S64) Error	PB (D391)
		The value for the adjustment of the book exit sensor (S64) was out of range (3.2V to 3.54V)	
		<ul style="list-style-type: none"> <li>• Signature Exit Sensor (S64) defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC797-31	B	Leading Edge Sensor (S65) Error	PB (D391)
		The value for the adjustment of the LE sensor (S65) was out of range (3.2V to 3.54V)	
		<ul style="list-style-type: none"> <li>• Leading edge sensor (S65) defective</li> <li>• D/A converter defective</li> <li>• A/D converter defective</li> </ul>	

SC797-32	B	Trim Unit Entrance Sensor (S92) Error	PB (D391)
		The adjusted value for the trim unit entrance sensor was higher or lower than the target range.	
		<ul style="list-style-type: none"> <li>• Book grip motor (M43) defective</li> <li>• Trim unit entrance sensor (S92) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-33	B	Book Registration Sensor (S88) Error	PB (D391)
		The adjusted value for the book registration was higher or lower than the target range.	
		<ul style="list-style-type: none"> <li>• Book grip motor (M43) defective</li> <li>• Book registration sensor (S88) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-34	B	Leading Edge Sensor (S65) Error	PB (D391)
		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"> <li>• Main grip motors: front/rear (M24/M23) defective.</li> <li>• Leading edge sensor (S65) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC797-35	B	Book Exit Sensor (S64) Error	PB (D391)
		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"> <li>• Failure to deliver the signature (due to a jam)</li> <li>• Signature path exit motor (M30) defective</li> <li>• Book exit sensor (S64) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	



SC797-36	B	Book Exit Sensor (S64) Late Error	PB (D391)
		A book was not detected in the trimming unit because the book registration sensor failed to go ON.	
		<ul style="list-style-type: none"> <li>• Main grip lift motor (M22) defective</li> <li>• Book exit sensor (S64) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-37	B	Book Exit Sensor (S64) Lag Error	PB (D391)
		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"> <li>• Book exit sensor (S64) defective</li> <li>• Sensor harness loose, broken, defective</li> </ul>	

SC797-38	B	Book Exit Sensor (S64) Error	PB (D391)
		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"> <li>• Book exit sensor (S64) connector loose, broken, defective</li> <li>• Sensor defective</li> </ul>	

SC797-39	B	Main Grip Signature Sensor (S55) Error	PB (D391)
		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"> <li>• Main grip signature sensor (S55) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC797-40	B	Leading Edge Sensor Error	PB (D391)
		The leading edge sensor (S65) went ON at power on after the finisher initialized.	
		-or- The leading edge sensor (S65) remained ON after the power on jam recovery.	
		<ul style="list-style-type: none"> <li>Detected a signature jam at power on.</li> </ul>	

SC797-41	B	Book Registration Sensor (S88) Lag Error	PB (D391)
		The book 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"> <li>Detected a jammed book at power on.</li> <li>Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-42	B	Book Arrival Sensor (S76)	PB (D391)
		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"> <li>Trimming buffer motor (M37) defective</li> <li>Book arrival sensor (S76) defective</li> <li>Motor or sensor harness loose, broken, defective</li> </ul>	

SC797-43	B	Trimming Jam Scrap Error	PB (D391)
		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"> <li>• Strips jammed between the edge press plate and trimmings buffer.</li> <li>• Trimmings buffer motor (M37) defective</li> <li>• Trimmings buffer HP sensors: right or left (S100, S103) defective</li> <li>• Motor or sensor harness loose, broken, defective</li> </ul>	
		<b>Note:</b> 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.	

SC797-44	B	Sub Grip Signature Sensor (S39) Lag Error	PB (D391)
		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"> <li>• Signature jammed in sub grip unit</li> <li>• Sub grip signature sensor defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC797-45	B	Main Grip Signature Sensor (S55) Lag Jam	PB (D391)
		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"> <li>• Book jammed in main grip unit</li> <li>• Main grip signature sensor (S55) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC797-46	B	Signature Thickness Sensor (S50) Error	PB (D391)
		The size of the signature measured by the signature thickness sensor was smaller than the minimum.	
		<ul style="list-style-type: none"> <li>• Signature thickness sensor (S50) defective</li> <li>• Sensor connector loose, broken, defective</li> </ul>	

SC797-47	B	Glue Vat Roller Rotation Error	PB (D391)
		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"> <li>• Glue vat roller motor (M25) defective</li> <li>• Glue vat roller rotation sensor (S59) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC797-48	B	Glue Supply Motor (M33) Error	PB (D391)
		The glue roller 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.	
		<ul style="list-style-type: none"> <li>• Glue pellet jam in the glue feeder</li> <li>• Glue supply motor (M33) defective</li> <li>• Glue roller HP sensor (S75) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC797-49	B	Front Door Lock Error	PB (D391)
		<p>The right front door sensor did not go OFF even though the front doors were 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> <p>-or-</p> <p>Front doors are detected open even though the front doors are closed and locked.</p>	
		<ul style="list-style-type: none"> <li>• Right front door solenoid (SOL3) defective</li> <li>• Right front door sensor (S30) defective</li> <li>• Sensor connector loose, broken, defective</li> <li>• One or more of the front door micro-switches (MSW1, 2, 4, 5, 6, 7) defective</li> </ul>	

SC797-50	B	Switchback Flapper HP Sensor (S10) Error	PB (D391)
		<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.</p> <p>-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>	
		<ul style="list-style-type: none"> <li>• Switchback Flapper HP Sensor (S10) defective</li> <li>• Switchback flapper motor (M8) defective</li> <li>• Motor or sensor connector loose, broken, defective</li> </ul>	

SC797-51	B	TE Press Lever HP Sensor (S3) Error	PB (D391)
		<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.</p> <p>-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>	
		<ul style="list-style-type: none"> <li>• TE press lever HP sensor (S3) defective</li> <li>• TE press lever motor (M3) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC797-52	B	Jog Fence HP Sensor: Front/Small (S12) Error	PB (D391)
		<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.</p> <p>-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>	
		<ul style="list-style-type: none"> <li>• Jog fence HP sensor: front/small (S12) defective</li> <li>• Jogger motor: front (M4) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-1	B	Jog Fence HP Sensor: Front/Large (S14) Error	PB (D391)
		<p>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.</p> <p>-or-</p> <p>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.</p>	
		<ul style="list-style-type: none"> <li>• Jog fence HP sensor: front/large (S14) defective</li> <li>• Jogger motor: front (M4) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-2	B	Jog Fence HP Sensor: Rear/Small (S13) Error	PB (D391)
		<p>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.</p> <p>-or-</p> <p>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.</p>	
		<ul style="list-style-type: none"> <li>• Jog fence HP sensor: rear/small (S13) defective</li> <li>• Jogger motor: rear (M5) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-3	B	Jog Fence HP Sensor: Rear/Large (S15) Error	PB (D391)
		<p>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.</p> <p>-or-</p> <p>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.</p>	
		<ul style="list-style-type: none"> <li>• Jog fence HP sensor: rear/large (S15) defective</li> <li>• Jogger motor: rear (M5) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-4	B	Switchback Roller HP Sensor (S11) Error	PB (D391)
		<p>The switchback roller HP sensor did not go ON within the prescribed time after the switchback roller lift motor turned on to raise the roller through an arc of 40 degrees.</p> <p>-or-</p> <p>The switchback roller HP sensor did not go OFF within the prescribed time when the switchback roller lift motor turned on to lower the roller through an arc of 20 degrees.</p>	
		<ul style="list-style-type: none"> <li>• Switchback Roller HP Sensor (S11) defective</li> <li>• Switchback Roller Lift Motor (M7) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-5	B	Stacking Tray Lower Limit Sensor (S7) Error	PB (D391)
		<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"> <li>Stacking Tray Lower Limit Sensor (S7) defective</li> <li>Stacking Tray Lift Motor (M2) defective</li> <li>Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-6	B	Paper Detection Sensor: Front/Rear (S1/S2)	PB (D391)
		<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"> <li>Paper Detect Sensor: Front (S1) defective</li> <li>Stacking Tray Lift Motor (M2) defective</li> </ul>	



SC798-7	B	Stacking Tray Overflow Sensor (S6) Error	PB (D391)
		<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"> <li>Stacking Tray Overflow Sensor (S6) defective</li> <li>Stacking Tray Lift Motor (M2) defective</li> <li>Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-8	B	Stacking Tray HP Sensor (S9) Error	PB (D391)
		<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"> <li>Stacking HP Sensor (S9) defective</li> <li>Stacking Tray Motor (M9) defective</li> <li>Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-9	B	Stacking Weight HP Sensor (S16) Error	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>Stacking Weight HP Sensor (S16) defective</li> <li>Stacking Weight Motor (M6) defective</li> <li>Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-10	B	Sub Grip HP Sensor (S37) Error	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>• Sub Grip Lift Motor (M17) defective</li> <li>• Sub Grip HP Sensor (S37) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-11	B	Sub Grip Size HP Sensor (S38)	PB (D391)
		<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"> <li>• Sub Grip Size Motor (S19) defective</li> <li>• Sub Grip Size HP Sensor (S38) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-12	B	Sub Grip Open Sensor (S40) Error	PB (D391)
		The sub grip open sensor did not go ON within the prescribed time after the sub grip motor turned on to open the sub grip unit. -or- The sub grip open sensor did not go OFF within the prescribed time after the sub grip motor turned on to close the sub grip unit.	
		<ul style="list-style-type: none"> <li>• Sub Grip Motor (M20) defective</li> <li>• Sub Grip Open Sensor (S40) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-13	B	Sub Grip Close Sensor (S41) Error	PB (D391)
		The sub grip close sensor did not go ON within the prescribed time after the sub grip motor turned on to close the sub grip unit. -or- The sub grip close sensor did not go OFF within the prescribed time after the sub grip motor turned on to open the sub grip unit.	
		<ul style="list-style-type: none"> <li>• Sub Grip Motor (S20) defective</li> <li>• Sub Grip Close Sensor (S41) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-14	B	Main Grip HP Sensor: Low (S44) Error	PB (D391)
		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. -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.	
		<ul style="list-style-type: none"> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Main Grip HP Sensor: Low (S44) Error</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-15	B	Main Grip Press Sensor 1 (S48) Error	PB (D391)
		<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"> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Main Grip Press Sensor 1 (S48) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-16	B	Main Grip Press Sensor 2 (S49) Error	PB (D391)
		<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"> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Main Grip Press Sensor 2 (S49) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-17	B	Main Grip Signature Exit Error	PB (D391)
		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.	
		<ul style="list-style-type: none"> <li>• Signature broken, bent</li> <li>• Signature jammed in the main grip unit</li> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Book Exit Sensor (S64) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-18	B	Main Grip HP Sensor: High (S45) Error	PB (D391)
		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>-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"> <li>• Main Grip Lift Motor (M22) defective</li> <li>• Main Grip HP Sensor: High (S45) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-19	B	Main Grip Open/Close Sensor: Rear (S47, S51)	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>• Grip Motor: Rear (M23) defective</li> <li>• Main Grip Open Sensor: Rear (S47) defective</li> </ul>	
		<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"> <li>• Grip Motor: Rear (M23) defective</li> <li>• Main Grip Close Sensor: Rear (S51) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-20	B	Main Grip Encoder: Rear Sensor (S46) Error	PB (D391)
		<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"> <li>• Main Grip Encoder: Rear Sensor (S46) defective</li> <li>• Grip Motor: Rear (M23) defective</li> <li>• Main Grip Encoder: Rear Sensor (S46) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-21	B	Main Grip Open/Close Sensor: Front (S51,S53)	PB (D391)
		<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"> <li>• Grip Motor: Front (M24) defective</li> <li>• Main Grip Open Sensor: Front (S51) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	
		<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"> <li>• Grip Motor: Front (M24) defective</li> <li>• Main Grip Close Sensor: Front (S53) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-22	B	Main Grip Encoder: Front Sensor (S52) Error	PB (D391)
		<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>	
		<ul style="list-style-type: none"> <li>• Main Grip Encoder: Front Sensor (S52) defective</li> <li>• Grip Motor: Front (M24) defective</li> <li>• Main Grip Encoder: Front Sensor (S52) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-23	B	Signature Exit Path HP Sensor (S67) Error	PB (D391)
		<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"> <li>• Signature Exit Path Motor (M30) defective</li> <li>• Signature Exit Path HP Sensor (S67) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-24	B	Signature Exit Path Press Sensor (S68) Error	PB (D391)
		<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"> <li>• Signature Exit Path Motor (M30) defective</li> <li>• Signature Exit Path Press Sensor (S68) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-25	B	Inserter Drive Switch Sensor (S16)	PB (D391)
		<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"> <li>• Drive switch motor (M2) defective</li> <li>• Drive switch sensor (S16) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	



SC798-26	B	Inserting Tray A Error	PB (D391)
		Inserting Tray A (upper tray) failed to leave its lower limit sensor (S11) within the prescribed time after the Tray A lift motor turned on. -or- Inserting 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.	
		<ul style="list-style-type: none"> <li>• Lift Motor: Tray A (M3) defective</li> <li>• Lower limit sensor: Tray A (S11) defective</li> <li>• Paper feed sensor (S4) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC798-27	B	Inserting Tray B Error	PB (D391)
		Inserting Tray B (lower tray) failed to leave its lower limit sensor (S12) within the prescribed time after the Tray B lift motor turned on. -or- Inserting 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.	
		<ul style="list-style-type: none"> <li>• Lift Motor: Tray B (M4) defective</li> <li>• Lower Limit Sensor: Tray B (S12) defective</li> <li>• Sensor or motor connector loose, broken, defective</li> </ul>	

SC799-1	D	Trimming Blade Motor Error	Trimmer (D455)
		The trimming blade HP sensor did not detect the blade at (or out of) its home position within the prescribed time during trimming. The 1st detection causes a jam signal if the error occurred during cutting. The 2nd detection causes this SC code if the error occurred at the start or end of cutting.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstacles (jammed paper scraps) around the blade, motor, or sensor</li> <li>• Trimming blade HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Trimming blade motor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Trimming unit main board defective</li> </ul>	
SC799-2	D	Press Roller Motor Error	Trimmer (D455)
		The press roller HP sensor did not detect the press roller at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstacles around the motor and sensor</li> <li>• Press roller motor HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Press roller motor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Trimming unit main board defective</li> </ul>	

SC799-3	D	Cut Position Motor Error	Trimmer (D455)
		The cut position HP sensor did not detect the cut position stopper at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstacles around the motor and sensor</li> <li>• Cut position HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Cut position motor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Trimming unit main board defective</li> </ul>	
SC799-4	D	Press Stopper Motor Error	Trimmer (D455)
		The press stopper HP sensor did not detect the press stopper at (or out of) its home position within the prescribed time. The 1st occurrence causes a jam, and the 2nd occurrence causes this SC code.	
		<ul style="list-style-type: none"> <li>• Check for and remove any obstacles around the motor and sensor</li> <li>• Press stopper HP sensor dirty</li> <li>• Sensor harness or connector loose, broken, defective</li> <li>• Press stopper motor harness or connector loose, broken, defective</li> <li>• Motor defective</li> <li>• Trimming unit main board defective</li> </ul>	

## SC Tables: 8xx



2

SC816	D	Energy save I/O sub system error		GW
		An error occurred in the energy save sub system. This error occurs only when an energy sub system module such as ASIC Whistle is present.		
		<ul style="list-style-type: none"> <li>• Cycle the machine power off/on</li> <li>• If cycling the machine off/on does not restore normal operation, replace the IOB.</li> </ul>		



SC819	D	0x5032	HAIC-P2 Data Compression Error	GW
		0x5245	Link-up Failure	GW
		0x5355	L2 Status Timeout	GW
		554C	USB Loader Failure	GW

SC820	D	0008	Self-diagnostic Error: CPU: System Call Exception	GW
		0612	Self-diagnostic Error: CPU: ASIC Interrupt Error	GW
		<ul style="list-style-type: none"> <li>• System program defective</li> <li>• Controller board defective</li> <li>• Optional board defective</li> <li>• Replace controller firmware</li> </ul> <p><b>Note:</b> 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.</p>		

SC821	C	Self-diagnostic error 2: ASIC		GW	
		The ASIC provides the central point for the control of bus arbitration for CPU access, for option bus and SDRAM access, for SDRAM refresh, and for management of the internal bus gate.			
		0B00	Error code 0xffff ffff is returned when the register Write & Verify check is executed on the ASIC mounted on the controller board. The ASIC controls the ROM and buses for other devices.		
			<ul style="list-style-type: none"> <li>• ASIC defective</li> <li>• Replace the controller board</li> </ul>		
		0D05	The interrupts of the ASIC and CPU are not timed correctly.		
<ul style="list-style-type: none"> <li>• ASCI timing device or CPU defective</li> <li>• Replace the controller board.</li> </ul>					

SC822	B	Self-diagnostic error: HDD (Hard Disk Drive)		GW	
		3003	Time Out Error		
		3004	Command Error		
			When the main switch is turned on or starting the self-diagnostic, the HDD stays busy for the specified time or more.		
		<ul style="list-style-type: none"> <li>• Loose connection</li> <li>• Defective HDD</li> <li>• Defective controller</li> </ul>			

SC824	C	Self-diagnostic error: Standard NVRAM		GW	
		1401	The controller cannot recognize the standard NVRAM installed or detects that the NVRAM is defective.		
			<ul style="list-style-type: none"> <li>• Loose connection</li> <li>• Defective standard NVRAM</li> <li>• Defective controller board</li> <li>• Worn-out battery in the NVRAM</li> </ul>		

SC826	C	Self-diagnostic Error: RTC/optional NVRAM		GW
		15FF	The RTC device was not detected.	
			<ul style="list-style-type: none"> <li>• RTC defective</li> <li>• NVRAM without RTC installed</li> <li>• Backup battery discharged</li> </ul>	

827	C	Self-diagnostic error: Standard SDRAM DIMM		GW
		0201	Verification error Error detected during a write/verify check for the standard RAM (SDRAM DIMM).	
			<ul style="list-style-type: none"> <li>• Loose connection</li> <li>• Defective SDRAM DIMM</li> <li>• Defective controller</li> </ul>	
		0202	Resident memory error. The SPD values in all RAM DIMM are incorrect or unreadable.	
<ul style="list-style-type: none"> <li>• Defective RAM DIMM</li> <li>• Defective SPD ROM on RAM DIMM</li> <li>• Defective 12C bus</li> </ul>				

828	C	Self-diagnostic error: ROM		GW
		0101	Check sum error 1. The boot monitor and OS program stored in the ROM DIMM was checked. If the check sum of the program was incorrect, this SC code is displayed.	
		0104	Check sum error 2. All areas of the ROM DIMM are checked. If the check sum of all programs stored in the ROM DIMM is incorrect, this SC code is displayed.	
		<ul style="list-style-type: none"> <li>• Controller defective</li> <li>• Replace controller board</li> </ul>		

829	B	Self-diagnostic error: Optional RAM		GW	
		0401	Verification error (Slot 1). The data stored in the optional RAM in Slot 1 does not match the data when reading.		
		0402	Composition error (Slot 1). The result of checking the composition data of the optional RAM in Slot 1 on the controller is incorrect.		
			<ul style="list-style-type: none"> <li>• Incorrect RAM DIMM installed (not compatible with this machine.)</li> <li>• RAM DIMM defective</li> </ul>		

SC833	D	Self-diagnostic error 8: Engine I/F ASIC		GW
	0F30	ASIC (Mandolin) for system control could not be detected. After the PCI configuration, the device ID for the ASIC could not be checked.		
	0F41	The read/write check done for resident RAM on the mother board could not be done correctly.		
	50B1	Could not initialize or read the bus connection.		
	50B2	Value of the SSCG register is incorrect.		
		<ul style="list-style-type: none"> <li>• Check for loose connections at MB (Mother Board)</li> <li>• Replace MB</li> </ul>		

**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.

SC835	D	Self-diagnostic Error: Centronics Device		GW
		The self-diagnostic test with the loopback connector failed.		
		<ul style="list-style-type: none"> <li>• IEEE1284 Centronics board defective</li> <li>• Loopback connector defective</li> </ul>		

SC851	D	IEEE 1394 I/F Error		GW
		Driver setting incorrect and cannot be used by the 1394 I/F.		
		<ul style="list-style-type: none"> <li>• NIB (PHY), LINK module defective; change the Interface Board</li> <li>• Controller board defective</li> </ul>		

SC853	D	Wireless LAN Error 1	GW
		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.	
		<ul style="list-style-type: none"> <li>Wireless LAN card has been removed</li> </ul>	

SC854	D	Wireless LAN Error 2	GW
		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 operating.	
		<ul style="list-style-type: none"> <li>Wireless LAN card has been removed</li> </ul>	

SC855	D	Wireless LAN Error 3	GW
		An error is detected for the wireless LAN card (802.11b or Bluetooth).	
		<ul style="list-style-type: none"> <li>Wireless LAN card defective</li> <li>Wireless card connection not tight</li> </ul>	

SC856	D	Wireless LAN Error 4	GW
		An error is detected for the wireless LAN board (802.11b or Bluetooth).	
		<ul style="list-style-type: none"> <li>Wireless LAN card board defective</li> <li>PCI connector loose (External controller interface board)</li> </ul>	

SC857	D	USB I/F Error 1	GW
		The USB driver is unstable and generated an error. The USB I/F cannot be used.	
		<ul style="list-style-type: none"> <li>USB board or controller board defective</li> </ul>	



SC858	B	Serious Data Encryption Error	GW
		A serious error occurred during data encryption due to corruption of USB Flash or other data, or the presence of a magnetic field.	
		<ul style="list-style-type: none"> <li>• Power the system off/on</li> <li>• If this does not solve the problem, replace the data encryption board</li> </ul>	

SC859	B	Data encryption HDD error	GW
		An error occurred while data encryption was in progress.	
		<ul style="list-style-type: none"> <li>• The update procedure for the data encryption key was started with no HDD installed in the main machine.</li> <li>• The machine was switched off while the data encryption key was being updated.</li> <li>• An HDD error occurred caused by the effect of spurious noise on the disk or harnesses.</li> </ul>	
		<ul style="list-style-type: none"> <li>• Check all the HDD harness connection points</li> <li>• Initialize the HDD with SP5832</li> <li>• Replace the HDD</li> </ul>	

SC860	D	HDD Error 1	GW
		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:	
		<ul style="list-style-type: none"> <li>• Hard disks are not formatted</li> <li>• Hard disk corrupted; reformat the disks with SP mode</li> </ul>	
		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 2: HDD Startup	GW
		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"> <li>• Cable between the hard disks and controller board disconnected or loose</li> <li>• Hard disk power connector loose</li> <li>• One of the hard disks is defective</li> <li>• Controller or mother board defective</li> </ul>	

SC863	B	HDD Error 4: HDD Read Error	GW
		The system cannot read the data written on the hard disks.	
		<ul style="list-style-type: none"> <li>Sectors on the disks have become corrupted during operation; replace the hard disks</li> </ul>	

SC864	B	HDD Error 5: Data CRC Error	GW
		During HDD operation, the HDD could not respond to a CRC error query.	
		<ul style="list-style-type: none"> <li>Mother board defective</li> </ul>	

SC865	B	HDD Error 6: Access Error	GW
		HDD responded to an error during operation for a condition other than those for SC863, SC864.	
		<ul style="list-style-type: none"> <li>HDD defective</li> </ul>	

SC866	B	SD Card Error 1: Confirmation	GW
		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.	
		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.	
		<ul style="list-style-type: none"> <li>Required program missing or incorrect</li> <li>Download the correct program for this machine onto the SD card.</li> </ul>	

SC867	B	SD Card Error 2: SD Card Removal	GW
		The SD card inserted in the system slot when the machine was powered on was removed while the machine was still switched on.	
		<ul style="list-style-type: none"> <li>SD card removed from boot slot on the controller</li> <li>Cycle the machine off/on</li> </ul>	

SC868	B	SD Card Error 3: SD Card Access	GW
		An error is returned during an operation using an SD card. Debug console acquires more detailed information about the error.	
		<ul style="list-style-type: none"> <li>• SD card not inserted completely</li> <li>• SD card defective</li> <li>• Controller board defective</li> </ul> <p><b>Note:</b> 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>	

SC870	B	Address Book Data Error	GW
		Address book data stored on the hard disk was detected as abnormal when it was accessed from either the operation panel or the network. The address book data cannot be read from the HDD or SD card where it is stored, or the data read from the media is defective.	
		<ul style="list-style-type: none"> <li>• Software defective; switch off/on, and change the controller firmware if the problem is not solved</li> <li>• HDD defective</li> </ul> <p><b>Recommended Recovery</b></p> <ul style="list-style-type: none"> <li>• Execute SP5846 050 (UCS Settings – Initialize all Directory Info.) to initialize all address book data.</li> <li>• Initialize the user information with SP5832 006 (HDD Formatting– User Information 1) and SP5832 007 (HDD Formatting – User Information 2).</li> <li>• Replace the HDDs.</li> <li>• Boot the machine from the SD card.</li> </ul>	

SC872	D	HDD mail RX data error	GW
		An HDD error was detected immediately after power on. The HDD may be defective or the machine was accidentally powered off while the HDD was being accessed.	
		<ul style="list-style-type: none"> <li>• Reformat the HDD with SP5832-7 (Mail RX Data)</li> <li>• Replace the HDD</li> </ul>	

SC873	D	HDD mail send data error	GW
		An error was detected on the HDD immediately after the machine was turned on, or power was turned off while the machine used the HDD.	
		<ul style="list-style-type: none"> <li>Do SP5832-007 (Format HDD – Mail TX Data) to initialize the HDD.</li> <li>Replace the HDD</li> </ul>	
SC874	D	Delete All Error 1: HDD	GW
		A data error was detected for the HDD/NVRAM after the "Delete All" option was used. <b>Note:</b> The source of this error is the Data Overwrite Security Unit running from an SD card.	
		<ul style="list-style-type: none"> <li>Turn the main switch off/on and try the operation again.</li> <li>Install the Data Overwrite Security Unit again. For more, see section "MFP Options" in "Installation".</li> <li>HDD defective</li> </ul>	
SC875	D	Delete All Error 2: Data area	GW
		An error occurred while the machine deleted data from the HDD. <b>Note:</b> The source of this error is the Data Overwrite Security Unit running from an SD card.	
		<ul style="list-style-type: none"> <li>Turn the main switch off/on and try the operation again.</li> </ul>	
SC876	D	Log Data Error	GW
		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.	
SC876-1		Log data file was corrupted at power on or while the machine was operating.	
		<ul style="list-style-type: none"> <li>Format the HDD with SP5832-004.</li> </ul>	

SC876-2	<p>The log was set for encryption without the encryption module installed:</p> <ul style="list-style-type: none"> <li>• At power on</li> <li>• While the machine was operating</li> <li>• When the log encryption setting was changed.</li> </ul>
	<ul style="list-style-type: none"> <li>• Install or replace and set the encryption module.</li> <li>• Enable the log encryption setting.</li> </ul>
SC876-3	<ul style="list-style-type: none"> <li>• At power on the log encryption key was disabled, causing an NVRAM malfunction.</li> </ul>
	<ul style="list-style-type: none"> <li>• Format the disk with SP5832-004.</li> </ul>
SC876-4	<p>At power on the machine attempted log data encryption with the log encryption setting disabled (NVRAM malfunction).</p> <p>-or-</p> <p>At power on log encryption was attempted with the log encryption setting disabled (NVRAM malfunction).</p>
	<ul style="list-style-type: none"> <li>• Format the disk with SP5832-004.</li> </ul>
SC876-5	<p>Error occurred at power on.</p> <p>Only the NVRAM was replaced with an NVRAM from another machine.</p> <p>-or-</p> <p>Only the HDD was replaced with an HDD unit from another machine.</p>
	<ul style="list-style-type: none"> <li>• Replace NVRAM with original NVRAM.</li> <li>• Replace HDD with original HDD.</li> <li>• If the error persists, format the HDD with SP5832-004.</li> </ul>
SC876-99	<p>Cause unknown. The error occurred at power on or while the machine was operating.</p>
	<ul style="list-style-type: none"> <li>• Contact Ricoh design section.</li> </ul>

**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.
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 power 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 power off/on.

SC877	B	Data Overwrite Security SD card error	GW
		An error occurred, preventing successful execution of the Data Overwrite Security function, even though it has been set up and enabled.	
		<ul style="list-style-type: none"> <li>• DOS card is not inserted completely into the SD card slot</li> <li>• DOS card has been removed from the SD card slot</li> <li>• DOS card is damaged.</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• If the SD card has been removed (or was not installed correctly), switch the machine off, insert the SD card, then switch on the machine again.</li> <li>• If the SD card has been damaged, procure a new SD card, replace the NVRAM, then do the DOS option installation.</li> </ul>	
SC878	B	TPM electronic authentication error	GW
		The attempt by the main machine to electronically authenticate TPM failed. When the machine was switched on the value registered by TPM did not match the value stored in the USB Flash Memory	
		<ul style="list-style-type: none"> <li>• Replace the IOB.</li> </ul>	
SC880	D	Media Link Board Error	GW
		A request for access to the Media Link Board was not answered within the specified time.	
		<ul style="list-style-type: none"> <li>• Media Link Board defective</li> </ul>	

## SC Tables: 9xx

2

SC900	C	Electrical Total Counter Error	GW
		The total counter contains data that is not a number.	
		<ul style="list-style-type: none"> <li>• NVRAM disturbed unexpectedly</li> <li>• NVRAM defective</li> </ul> NVRAM data corrupted	

SC901	B	Mechanical Total Counter Error	
		The mechanical total counter is disconnected.	
		<ul style="list-style-type: none"> <li>• User removed the counter while it was operating</li> <li>• Poor connection</li> <li>• Mechanical total counter defective</li> </ul>	

SC910	D	External Controller Error 1	GW
SC911	D	External Controller Error 2	GW
SC912	D	External Controller Error 3	GW
SC913	D	External Controller Error 4	GW
SC914	D	External Controller Error 5	GW
		The external controller alerted the machine about an error.	
		<ul style="list-style-type: none"> <li>• Please refer to the instructions for the external controller.</li> </ul>	



SC919	B	External Controller Error 6	GW
		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"> <li>• Power outage at the EFI controller</li> <li>• EFI controller was rebooted</li> <li>• Connection to EFI controller loose</li> </ul>	

SC920	D	Printer Error 1	GW
		An internal application error was detected and operation cannot continue.	
		<ul style="list-style-type: none"> <li>• Software defective; switch off/on, or change the controller firmware if the problem is not solved</li> <li>• Insufficient memory</li> </ul>	

SC921	D	Printer Error 2	GW
		When the printer application started, the font to use could not be found on the SD card.	
		<ul style="list-style-type: none"> <li>• The font is not on the SD card</li> </ul>	

SC951	B	F-Gate Signal Error	
		When the IPU has already received the F-GATE signal (laser writing start trigger signal), the IPU receives another F-GATE signal.	
		<ul style="list-style-type: none"> <li>• Firmware defective</li> <li>• Update the BICU firmware.</li> <li>• BICU defective</li> </ul>	

SC953	B	Scanner Image Setting Error
		The settings required for image processing using the scanner are not sent from the IPU.
		<ul style="list-style-type: none"> <li>• Check the harnesses, connectors between the MCU and BICU</li> <li>• Update the BICU, MCU firmware</li> <li>• MCU defective</li> <li>• BICU defective</li> </ul>

SC954	B	Printer Image Setting Error
		The settings that are required for image processing using the printer controller are not sent from the IPU.
		<ul style="list-style-type: none"> <li>• Check the harnesses, connectors to the LDB and IPU</li> <li>• Check the harnesses, connectors between IPU/LDB, LDB/Polygon Mirror Motor PCB</li> <li>• Update the BICU firmware</li> <li>• LD defective</li> <li>• IPU on BICU defective</li> <li>• Polygon mirror motor or polygon mirror motor PCB defective</li> </ul>

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"> <li>• Software bug</li> <li>• Hard disk unit defective</li> <li>• Controller defective</li> <li>• MCU defective</li> <li>• Replace BICU.</li> </ul>

SC964	B	Scanner Start Error
		During scanned image processing, another command to start scanning was received.
		<ul style="list-style-type: none"> <li>• Software bug</li> </ul>

SC965	B	Print Start Error
		During print processing, another command to start printing was received.
		<ul style="list-style-type: none"> <li>• Software bug</li> </ul>

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"> <li>• Polygon mirror motor harness, connections to BICU loose, broken, defective</li> <li>• Polygon mirror motor drive board harness, connector to BICU loose, broken, defective</li> <li>• Polygon mirror motor defective</li> <li>• Polygon mirror motor drive board defective</li> <li>• BICU defective</li> </ul>

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"> <li>• Software bug</li> <li>• Harnesses, connectors to the MCU loose, broken, defective</li> <li>• MCU defective</li> <li>• BICU defective</li> </ul>



2

SC990	B	Software Performance Error 1	GW
		An unexpected operation was encountered by the software.	
		<ul style="list-style-type: none"> <li>• Software crash; reboot the machine</li> <li>• If the HDDs have just been replaced, be sure to download the stamp data (SP 5853).</li> <li>• With SP5990 004 (SMC Report – Logging Data), print the most recent information for SC990.</li> <li>• 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</li> </ul>	



SC991	C	Software Error	GW
		The software performs an unexpected function and the program cannot continue. Recovery processing allows the program to continue.	
		<ul style="list-style-type: none"> <li>• Software defective, re-boot* 1</li> </ul>	

\* 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.

SC992	C	Undefined Error (No SC Code)	GW
		An error not controlled by the system occurred (the error does not come under any other SC code).	
		<ul style="list-style-type: none"> <li>• Software defective</li> <li>• Turn the machine power off and on. The machine cannot be used until this error is corrected.</li> <li>• Re-install firmware</li> </ul>	

SC994	C	Operation Panel Management Records Exceeded	GW
		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 are too many application screens open on the operation panel.	
		No action required because this SC does not interfere with operation of the machine.	

SC995	Serial Number Setting Inccorret	
	The 11-digit serial number is printed on the data plate. This information is compared with the installed components to detect mismatches.	
SC995-01	D	Serial Number Mismatch 1
		<ul style="list-style-type: none"> <li>Enter the correct information for the model with SP5811 or use the previous NVRAM.</li> <li>Cycle the machine off/on.</li> </ul>
SC995-02	D	NVRAM Mismatch
		<p>Use the previous NVRAM.</p> <p>-or-</p> <p>If the NVRAM must be replaced:</p> <ul style="list-style-type: none"> <li>Prepare an SD card with the current model information.</li> <li>Do SP5825 to download the new model information from the SD card to new NVRAM.</li> <li>Remove the SD card.</li> <li>Cycle the main machine off/on.</li> </ul>
SC995-03	D	Controller Mismatch, or Controller Board Defective
		You must install the GW controller board designed for use with this machine.
SC995-04	D	Serial Number Mismatch 2
		Reinstall the components which have been removed from the machine.

SC997	B	Application Selection Error	GW
		An application did not start after pressing the appropriate key on the operation panel.	
		<ul style="list-style-type: none"><li>• Software bug; change the firmware for the application that failed</li><li>• A RAM or DIMM option required by the application is not installed or not installed correctly.</li></ul>	

# 3. Appendix: Service Program Mode

## Service Tables

### Before You Begin

#### Service Mode Lock/Unlock

3

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

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

#### Operators, Skilled Operators

Operators and Skilled Operators can adjust 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:

- **Operators:** Individuals who use the machine every day for copying and printing and are familiar with the operation of the machine.
- **Skilled Operators:** Individuals who also use the machine for copying and printing. However, skilled operators are also trained in basic replacement procedures for key components such as the development unit, charge corona unit, and so on.

Access to the skilled operator menus is restricted:

- A skilled operator is assigned an access code that allows access to all the features in the skilled operator menus.
- An operator is not assigned an access code, but he or she can use the User Program Mode.

Most of the operator, skilled operator menu selections duplicate the functions of the SP codes in the main service tables.

## Service Table Key

3

### ↓ 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.

Notation	What it means
[range / default / step]	[-9 to +9 / +3.0 / 0.1 mm] The default setting +3.0 can be adjusted in 0.1 mm steps in the range ±9.
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



# System SP1-nnn Feed



1001	Leading Edge Registration
	<p>Adjusts the printing leading edge registration for feeding from the trays and duplex tray using the trimming area pattern (SP2-902-1, No.15).]</p> <p>Use the [./*] key to enter the minus (-) before entering the value.</p> <p>The specification is <math>4 \pm 2</math> mm</p>
001	Copier/LCT Paper Tray
	[-9.0 to +9.0 /0 / 0.1 mm]
002	Duplex Tray
	[-9.0 to +9.0 /0 / 0.1 mm]
003	Copier//LCT Paper Tray (Low Speed)
	[-9.0 to +9.0 /0 / 0.1 mm]
004	Duplex Tray (Low Speed)
	[-9.0 to +9.0 /0 / 0.1 mm]

3

## Low Speed Table

	D059	D060	D061
Standard	90 cpm	100 cpm	135 cpm
Low Speed 1	Invalid	90 cpm	110 cpm
Low Speed 2	Invalid	Invalid	90 cpm

005	Copier/LCT Paper Tray (Low Speed 2)
	<p>[-9 to +9 / 0 / 0.1 mm]</p> <ul style="list-style-type: none"> <li>Low Speed 2 applies to the D061 only (see table above).</li> </ul>
006	Duplex Tray (Low Speed 2)
	<p>[-9 to +9 / 0 / 0.1 mm]</p> <ul style="list-style-type: none"> <li>Low Speed 2 applies to the D061 only (see table above).</li> </ul>



3

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 to +9.0 / 0 / 0.1 mm]
002	2nd Tray (Copier)	
003	3rd Tray (Copier)	
004	4th Tray (LCT Tray 1)	
005	5th Tray (LCT Tray 2)	
006	6th Tray (LCT Tray 3)	
007	7th Tray (Bypass Tray)	
008	Duplex Tray (Copier)	

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	[-6 to +6 / 0 / 1 mm]
002	LCT	
003	Duplex Tray	
004	Manual	

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
	<p><b>Note:</b> In the descriptions below:</p> <ul style="list-style-type: none"> <li>"[0107]" refers to the "0107 Adjust Toner Fusing Temperature" in the Operator and Skilled Operator menus of User Tools.</li> <li>This feature has the same number (0107) in both menus.</li> </ul>
	Standby Temperature
001	<p>Sets the target temperature of the hot roller for stand-by mode. This SP is enabled only if SP1105-16 or [User Tool] [0107] is set for "Medium". This SP adjusts temperature for thick paper and other types of paper. The machine uses this setting as the target re-load temperature during fusing temperature control.</p> <p>[140 to 190/* /1 °C]</p> <p>* D059: 153, * D060: 165, * D061: 178</p>
	Standby (Low Temp Mode)
002	<p>This SP sets the target temperature of the hot roller for stand-by mode. This SP is enabled only if SP1105-16 or [User Tool] [0107] is set for "Low Temp Mode". This SP adjusts temperature for thick paper and other types of paper. The machine uses this setting as the target re-load temperature during temperature control.</p> <p>[140 to 190/* /1 °C]</p> <p>* D059: 163, * D060: 175, * D061: 188</p>
	Standby (Low Temp Mode 2)
003	<p>This SP sets the target temperature of the hot roller for stand-by mode. This SP is enabled only if SP1105-16 is set for "Low" or if the fusing temperature has been set in User Tools with "0107". This SP adjusts temperature for thick paper and other types of paper. The machine uses this setting as the target re-load temperature during temperature control.</p> <p>[140 to 200/188/1 °C]</p>

004	<p>Standby (High Temp Mode)</p> <p>This SP sets the target temperature of the hot roller for stand-by mode. This SP is enabled only if SP1105-16 is set for "High" or if the fusing temperature has been set in User Tools with "0107". This SP adjusts temperature for thick paper and other types of paper. The machine uses this setting as the target re-load temperature during temperature control.</p> <p>[140 to 190/* /1 °C]</p> <p>* D059: 148, * D060: 160, * D061: 173</p>
005	<p>Standby (High Temp Mode 2)</p> <p>This SP sets the target temperature of the hot roller for stand-by mode. This SP is enabled only if SP1105-16 is set for "High" or if the fusing temperature has been set in User Tools with "0107". This SP adjusts temperature for thick paper and other types of paper. The machine uses this setting as the target re-load temperature during temperature control.</p> <p>[120 to 190/* /1 °C]</p> <p>* D059: 138, * D060: 150, * D061: 163</p>
006	<p>Fusing Temperature Lower Limit</p> <p>Sets the low limit for the fusing temperature. If the fusing temperature falls below this temperature, the machine will display an alert message and stop the line. After the fusing temperature rises above this temperature, the machine will resume operation in high temperature mode.</p> <ul style="list-style-type: none"> <li>• This SP is enabled only if SP1105-16 is set for "Medium" or if or if the fusing temperature has been set in User Tools with "0107".</li> <li>• Change the setting of this SP to prevent poor image fusing to paper with special paper, or if the environmental conditions around the machine are not ideal.</li> </ul> <p>[120 to 180/* /1 °C]</p> <p>* D059: 133, * D060: 145, * D061: 158</p>

007	<p>Low Limit (Low Temp Mode)</p> <p>Sets the low limit for the fusing temperature. If the fusing temperature falls below this temperature while operating in the high temperature mode, the machine will display an alert message and stop the line. After the fusing temperature rises above this temperature, the machine resumes operation in high temperature mode.</p> <ul style="list-style-type: none"> <li>• This SP is enabled only if SP1105-16 is set for "Low" or if or if the fusing temperature has been set in User Tools with "0107".</li> <li>• Change the setting of this SP to prevent poor image fusing to paper with special paper, or if the environmental conditions around the machine are not ideal.</li> </ul> <p>[120 to 190/153/ 1°C]</p>
008	<p>Low Limit (Low Temp Mode 2)</p> <p>Sets the low limit for the fusing temperature. If the fusing temperature falls below this temperature, the machine will display an alert message and stop the line. After the fusing temperature rises above this temperature, the machine resumes operation in high temperature mode.</p> <ul style="list-style-type: none"> <li>• This SP is enabled only if SP1105-16 is set for "Low" or if or if the fusing temperature has been set in User Tools with "0107".</li> <li>• Change the setting of this SP to prevent poor image fusing to paper with special paper, or if the environmental conditions around the machine are not ideal.</li> </ul> <p>[120 to 190/5/1] * D059: 153, * D060: 155, * D061: 168</p>
009	<p>Low Limit (High Temp Mode)</p> <p>Sets the low limit for the fusing temperature. If the fusing temperature falls below this temperature, the machine will display an alert message and stop the line. After the fusing temperature rises above this temperature, the machine resumes operation in high temperature mode.</p> <ul style="list-style-type: none"> <li>• This SP is enabled only if SP1105-16 is set for "High" or if or if the fusing temperature has been set in User Tools with "0107".</li> <li>• Change the setting of this SP to prevent poor image fusing to paper with special paper, or if the environmental conditions around the machine are not ideal.</li> </ul> <p>[120 to 180 / * / 1 °C] * D059: 128, * D060: 140, * D061: 153</p>

010	Low Limit (High Temp Mode 2)
	<p>Sets the low limit for the fusing temperature. If the fusing temperature falls below this temperature, the machine will display an alert message and stop the line. After the fusing temperature rises above this temperature, the machine resumes operation in high temperature mode.</p> <ul style="list-style-type: none"> <li>• This SP is enabled only if SP1105-16 is set for "High" or if or if the fusing temperature has been set in User Tools with "0107".</li> <li>• Change the setting of this SP to prevent poor image fusing to paper with special paper, or if the environmental conditions around the machine are not ideal.</li> </ul> <p>[100 to 180/* /1 °C]                  * D059: 123, * D060: 135, * D061: 148</p>
011	Fusing Temp Switch
	<p>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.</p> <p>0: Normal Temp. (Default)                  1: Low Temp. (Fusing Mode)                  2: Low Temp.2 (Fusing Mode 2)                  3: High Temp. (Reduce Curl Mode)                  4: High Temp.2 (Reduce Curl Mode 2)</p>
012	Fusing Temperature Correction (A4/LT)
	<p>Sets the amount to raise the fusing temperature above the standby temperature to print on paper sizes smaller than A4/LT LEF.</p> <p>[0 to 10/5/1°C]</p>
013	Fusing Temperature Correction: Translucent
	<p>Specifies the amount to raise or lower the fusing from the standby temperature to print on translucent paper.</p> <p>[-10 to +10/0/1°C]</p>

014	Fusing Temperature Correction: Small Size
	<p>Sets the amount to raise the fusing temperature above the standby temperature to print on paper sizes smaller than A4/LT LEF. The machine may display an alert and stop the line until it has adjusted the fusing temperature with this setting.</p> <p>"Small Size" (Small Size 1) is paper shorter than LT LEF (279 mm) in the main scan direction but wider than B5 SEF.</p> <p>[0 to 20/10 1°C]</p>
015	Small Size (2 Copies)
	<p>This SP adjusts the fusing temperature for "#2 Copies". These are small paper sizes (Small Size 2), smaller than A5 SEF in the main scan direction.. The value entered here is added to the "Ready" temperature (standby temperature). The job will begin when the hot roller reaches the adjusted temperature (stand-by temperature + this setting).</p> <p>[0 to 20/ 10/ 1 °C]</p>
016	Small Size (Switch to 1 Lamp )
	<p>This SP selects one fusing lamp for small paper sizes (B5 SEF and smaller).</p> <p>[0 to 2/0/1]</p> <p>0: Medium, 1: Low, 2: High</p> <ul style="list-style-type: none"> <li>• Raise this setting if you see loose toner, indicating that the toner has not fused completely with the surface of the paper.</li> <li>• Lower this setting if the paper excessively curled after it leaves the machine.</li> </ul>
017	Small Size (Switch to 2 Lamps)
	<p>This SP selects two fusing lamps for small paper sizes (Small Size 2), paper small than A5 SEF in the main scan direction.</p> <p>[0 to 20/10/1 degrees]</p>
018	Paper Size for Temp Correction (0:LT, 1:B5)
	<p>Sets the paper size used to define "small paper" for SP codes 1105-7, SP1105-8.</p> <p>[0 to 1/1/1]</p> <p>0: LT LEF 1: B5 LEF</p>

019	<p>Fusing Lamp Switching at Warm-up</p> <p>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 and ensures that heat is evenly distributed over the surface of the hot roller.</p> <p>[20 to 190 / * / 1°C                  * D059: 99, * D060: 99, * D061: 95</p>
020	<p>Low Power Mode</p>
	<p>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.</p> <p>[20 to 170/* / 1°C]                  * D059: 123, * D060: 135, * D061: 148</p>
021	<p>Fusing Lamp Switching after Low Power Mode</p>
	<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 center fusing lamp is switched off before reaching the target standby temperature to prevent overshooting the target temperature, and to ensure that the heat on the surface of the hot roller is evenly distributed.</p> <p>[-20 to 0 / * / 1°C]                  * D059: -10, * D060: -10, * D061: -20</p> <p><b>Note:</b> When this temperature is added to the stand-by temperature during warm-up after leaving low power mode, and additional 10°C is added in the D061 (135 cpm): 178°C - 20°C + 10°C = 168°C). This is done for the D069 only.</p>
022	<p>1st Print After Low Power Mode</p>
	<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 to 0 / * / 1°C]                  * D059: -20, * D060: -20, * D061: -5</p>
023	<p>Fusing Idling Start Temperature</p>



	<p>This is the temperature at which printing can start during the warm-up cycle after the machine leaves low power mode and returns to full operation. This is: Stand-by Temperature SP + Print Start Temperature.</p> <p>[100 to 160 / * / 1°C]</p> <p>* D059: 130, * D060: 130, * D061: 160</p>
--	---

1106	Fusing Temperature Display
	Displays the fusing temperature.

1107	Fusing Idling Time Setting
001	Normal/High Temp Mode
	<p>Sets the length of time the hot roller is allowed to rotate before the first sheet is fed in normal or high temperature mode. This idling time allows the hot roller to heat up faster. This SP setting is enabled only if SP1105-16 or if User Tool setting 0107 is set "Medium (Normal)" or if high temperature mode is selected.</p> <p>[0 to 120 / * / 1 s]</p> <p>* D059: 40, * D060: 50, * D061: 60</p>
002	Low Temp Mode
	<p>Sets the length of time the hot roller is allowed to rotate before the first sheet is fed low temperature mode. This idling time allows the hot roller to heat up faster. This SP setting is enabled only if SP1105-16 or if User Tool setting 0107 is set "Low".</p> <p>[0 to 120 / * / 1 s]</p> <p>* D059: 60, * D060: 70, * D061: 90</p>
003	Low Temp Mode 2
	<p>Sets the length of time the hot roller is allowed to rotate before the first sheet is fed low temperature mode. This idling time allows the hot roller to heat up faster. This setting is enabled regardless of settings done with SP1105-16 or the 0107 setting in User Tools.</p> <p>[0 to 120 / * / 1 s]</p> <p>* D059: 60, * D060: 70, * D061: 90</p>

3

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><b>Note:</b> 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 three consecutive jams occur in the fusing unit.</p> <p>0: OFF A jam alert is shown on the screen. The customer can remove the jam and the machine works normally after that.</p> <p>1: ON: SC559 occurs. The technician must remove the jam.</p>

1902	Web Motor Control			
001	Web Consumption Display/Setting			
	<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 to 107 / 0 / 1%]</p> <p>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.</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><b>Note:</b> The default setting is different depending on the area and model (see below).</p>			
	<b>Model</b>	<b>NA</b>	<b>EU</b>	<b>Asia</b>
	D059	17.2	11.5	17.2
	D060	14.7	9.8	14.7
D061	12.2	8.2	12.2	

003	Web Motor Drive Time			
	Changes the time that the web motor is driven. [0.3 to 3.5 / 2.8 / 0.1 s]			
004	Web Near End Setting			
	Changes the web consumption ratio at which web near end is displayed. EUR/A: [0 to 100 / 90 / 1%] NA: [0 to 100 / 92 / 1%]			
005	Web Motor Drive Interval (Low Speed)			
	Determines how often the web motor turns on in Low Speed mode. [3 to 130/* / 0.1s] <b>Note:</b> The default setting is different depending on the area and model (see below).			
	<b>Model</b>	<b>NA</b>	<b>EU</b>	<b>Asia</b>
	D059	17.2	11.5	17.2
	D060	17.2	11.5	17.2
	D061	14.7	9.8	14.7
007	Web Correction Coefficient Setting <b>DFU</b>			
	[5 to 0 / 0.79 / 0.01]			

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.			

1906	Web Motor Control at Finishing			
001	Web Rotation Setting			
	[0 to 1 / 0 / 1]			

002	Web Motor Drive Time
	[0 to 360 / 30 / 1 s]
003	Web Additional Temperature
	[0 to +20/ 0 / 1 degree C]

1907	Web Drive Time
001	Web Rotation Setting
	[0 to 1/0 1]
002	Web Motor Drive Time
	[0 to 120 /30/ 1 s]
003	Web Additional Temperature
	[-10 to +20/ 5/ 1 degree C]

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.	
	<b>Note:</b>	
	<ul style="list-style-type: none"> <li>• For more about adjustment of the CIS components in the copier, see "Replacement and Adjustment".</li> <li>• The CIS of the LCT should be adjusted at installation. For more see "Installation".</li> </ul>	
001	Tray 1, 2, 3	Press [Execute].
002	LCT	
003	Duplex	

1912	CIS Image Pos Adj: Normal Paper
	<p>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.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>For more about adjustment of the CIS components in the copier, see Section "Replacement and Adjustment".</li> <li>The CIS of the LCT should be adjusted at installation. For more see Section "Installation".</li> </ul>
001	Tray 1, 2, 3
002	LCT
003	Duplex

1913	CIS Image Pixel Adjustment: Get Pixels
	This SP retrieves and displays the dot data set with SP1912.
001	Tray 1, 2, 3
002	LCT (Normal Paper)
003	Duplex (Normal Paper)

1914	CIS Abnormal Detection <b>DFU</b>
	These SP codes display feedback resulting from the machine check on the CIS
001	Error Flag
	<p>This is the bit flag that confirms abnormal operation of the CIS. Display format: Binary Bit 2, Bit 1, Bit 0: [000]</p> <p>Bits correspond as follows:</p> <p>Bit 2 = Duplex unit</p> <p>Bit 1 = LCIT,</p> <p>Bit 0 = Bank</p> <p>For example, if the CIS were detected abnormal at the bank the display would be [001]. At the start of abnormal detection output, the SP value initializes (clears) and displays the current condition.</p>

002	Error Count
	Displays the counts for when high-precision correction is OFF. If high-precision correction is more than $\pm 5$ mm, this indicates that the CIS is not detecting correctly and feedback of the correction value stops.
003	Error Count Clear
	Clears the count for SP1914-2 only. Does not clear the count for SP1914-1.
101	P_EDGE:Bank
	Displays the P_EDGE (paper edge) where an error occurred during CIS error detection ("0" lights when feedback is normal).
102	P_EDGE:LCT
	Displays the P_EDGE (paper edge) where an error occurred during CIS error detection ("0" lights when feedback is normal).
103	P_EDGE:Duplex
	Displays the P_EDGE (paper edge) where an error occurred during CIS error detection ("0" lights when feedback is normal).

1915	Fine Adjust CIS <b>DFU</b>	
001	Tray 1	[-9 to +9 / 0 / 0.1 mm]
002	Tray 2	
003	Tray 3	
004	Tray 4	
005	Tray 5	
006	Tray 6	
007	Tray 7	
008	Back Side	

1916	Adjust Duplex/Invert Timing <b>DFU</b>	
001	Adjust Switchback Timing	[0 to 10 / 3.5 / 0.5 mm]

002	Adjust OFF Timing of Switchback [-70 to 100/ -15 / 5 ms]
-----	---

1917	Proof Tray Stop Time	
	This SP adjusts the stop timing of paper feed to the proof tray if double feeds are occurring frequently.	
001	1st Tray	[0 to 1/ 0 / 0.1 sec.]
002	2nd Tray	
003	3rd Tray	
004	4th Tray	
005	5th Tray	
006	6th Tray	
007	7th Tray	

1920	LCIT Blower Fan Duty Adjustment	
	These SP codes adjust the force of the air blown by the fans during paper separation with the LCT (D453).	
001	4th Tray Blower Fan	[1 to 90 / 70 / 1 %]
002	5th Tray Blower Fan	
003	6th Tray Blower Fan	
011	4th Tray Blower Fan: Special Paper	
012	5th Tray Blower Fan: Special Paper	
013	6th Tray Blower Fan: Special Paper	

1921	LCIT Air Feed Start Time Adjustment	
	These SP codes adjust the start timing of the fans during paper separation with the LCIT (D453).	

3

001	4th Tray	[1 to 10/ 3/ 1 sec.]
002	5th Tray	
003	6th Tray	
011	4th Tray: Special Paper	
012	5th Tray: Special Paper	
013	6th Tray: Special Paper	

1922	LCIT Air Assist Selection	
	These SP codes switch the air assist function of LCIT (D453) off/on.	
001	4th Tray	[0 to 2/ 0 / 1] 0: Auto Select 1: Force ON 2: Force OFF
002	5th Tray	
003	6th Tray	
011	4th Tray: Special Paper	
012	5th Tray: Special Paper	
013	6th Tray: Special Paper	

1923	LCIT Pickup Assist Selection	
001	4th Tray	[0 to 2/ 0 / 1] 0: Auto Select 1: Force ON 2: Force OFF
002	5th Tray	
003	6th Tray	
004	7th Tray	
011	4th Tray: Special Paper	
012	5th Tray: Special Paper	
013	6th Tray: Special Paper	
014	7th Tray: Special Paper	

1925	De-curl Soft Roller Pressure Adjustment	
------	---	--



	<p>This SP code adjusts the amount of pressure applied by the metal roller to the soft roller in the De-Curl Unit (D457). This pressure can be adjusted on the operation panel. Do not change this SP setting until you have tried the pressure adjustments on the operation panel.</p> <p>[-0.3 to 0.5 / 0 / 0.1 mm]</p>
1926	De-curl Exit Guide Plate Timing
	<p>When an error occurs in any unit downstream from the De-Curl unit, the exit guide plate drops so paper can drop into the purge tray below the de-curl unit. This SP adjusts how far the paper is allowed to feed after an error occurs downstream.</p> <p>[0 to 488 / 110 / 1 mm]</p>

## System SP2-*nnn* Drum: 1

2001	Charge Corona Bias Adjustment
001	Grid Voltage in Imaging Area
	<p>Adjusts the voltage applied to the grid plate during copying when auto process control is off.</p> <p>[-600 to -1800 / -900 / 10 V]</p> <p>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.</p>
002	Grid Voltage in ID Sensor Pattern
	<p>Adjusts the voltage applied to the grid plate when making the ID sensor pattern, when auto process control is switched off.</p> <p>[-600 to -1800 / -770 / 10 V]</p> <p>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.</p>
003	Grid Voltage in Imaging Area
	<p>Adjusts the voltage applied to the grid plate during copying when auto process control is switched on.</p> <p>[-600 to -1800 / -900 / 10 V]</p> <p>This voltage changes every time auto process control starts up (every time the machine is switched on)</p>
004	Total Current
	<p>Adjusts the amount of current used to apply voltage to the grid plate during normal operation mode (Text, Text/Photo, Pale, Generation copies).</p> <p>[-1000 to -1800 / -1550 / 10 <math>\mu</math>A]</p>
005	Total Corona Current
	<p>Adjusts the current applied to the charge corona wire for Photo mode.</p> <p>[-1000 to -1800 / -1600 / 10 <math>\mu</math>A]</p>
006	Vd (Auto Process Control)
	<p>Adjusts the target VD voltage for Process Control Initial Setting.</p> <p>[-700 to -950 / -800 / 5 V]</p>

007	Grid Voltage in Imaging Area (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 to -1800 / -850/ 10 V]
008	Pattern Grid Voltage: Low Speed: No Procon
	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 to -1800 / -710 / 10 V]
009	Grid Voltage:Low Speed:Procon
	Adjusts the voltage applied to the grid plate when auto process control is on and the machine is in the low speed mode. [-600 to -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). [-750 to -950 / -800 / 10 $\mu$ A]
011	Til Corona Current: Low Speed 2: No Procon
	Adjusts the current applied to the charge corona wire when the machine is in the low speed mode and Photo Mode. [-600 to -1800 / -850 / 10 $\mu$ A]
012	Vd (Auto Process Control)
	[600 to 1800/710/5 V]
013	Til Corona Current: Low Speed2: Procon
	[600 to 1800/ 900/ 10V]
014	Vd (Auto Process Control)
	[700 to 950 / 800/ 5 V]

2002	Charge Corona Bias Adjustment
	<p>These SP codes allow you to display and change the settings for the operation mode of the pre-charge unit.</p> <p><b>Note:</b> 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	Set Pre-Charge Mode
	<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 to 2/1/1]</p> <p>0: Off. Pre-charge unit does not operate after the machine is cycled off/on.</p> <p>1: On. Pre-charge unit operates after the machine is cycled off/on.</p> <p>2: Pre-charge unit operates only after the main motor turns on.</p> <p><b>Note:</b></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	Pre-Charge Total Current
	<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 to 1500/600/10 <math>\mu</math>A]</p>

2101	Printing Erase Margin
001	Leading Edge
	<p>Adjusts the leading edge erase margin.</p> <p>[0 to 9.0/ 3.5 / 0.1 mm]</p>
002	Trailing Edge
	<p>Adjusts the trailing edge erase margin.</p> <p>[0 to 9.0/ 2.5 / 0.1 mm]</p>
003	Left edge
	<p>Adjusts the left side erase margin.</p> <p>[0 to 9.0/ 2.0 / 0.1 mm]</p>

004	Right edge
	Adjusts the right side erase margin. [0 to 9.0/ 2.0 / 0.1 mm]

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. [-70 to +185/0/1]  If you adjust one or more of these SP codes, you must select the appropriate SP (009 to 016 below) to enable adjustment.
002	LD1 Power Adjustment	
003	LD2 Power 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 to 1/0/1] 0: Off 1: On (enables adjustment)
010	LD1 Power Adjustment Start/End	
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 Sn Pattern) <b>DFU</b>	
	<p>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:</p> <ul style="list-style-type: none"> <li>Leaving the SP mode.</li> <li>The copier is switched off and on.</li> </ul>	
LD Power Adjustment – ID Sensor Pattern		
001	Potential Pattern	[0 to 15 / 6 / 1]
002	VH Pattern	

2105	LD Power Correction	
	<p>These SP codes correct the banding caused by: 1) changes in drum characteristics over time, and 2) LD power fluctuations.</p>	
001	Correction in Printer Mode	
	<p>If switched ON, this allows each channel to be adjusted for 1200 dpi print output with the SP settings below (LD0 to LD7). 0: OFF, 1: ON</p>	
002	Correction in Copy Mode	
	<p>If switched ON, this allows each channel to be adjusted for copy output with the SP settings below (LD0 to LD7). [0 to 1 / 0 / 1] 0: OFF, 1: ON</p>	
003	LDO Power Correction	
	<p>Correct the power of LD0 after either SP2105-001 or -002 is switched on. [-40 to +40 / -2 / 1]</p>	
004	LD1 Power Correction	
	<p>Corrects the power of LD1 after either SP2105-001 or -002 is switched on. [-40 to +40 / -2 / 1]</p>	

005	LD2 Power Correction	
	Corrects the power of LD2 after either SP2105-001 or -002 is switched on. [-40 to +40 / +2 / 1]	
006	LD3 Power Correction	
	Corrects the power of LD3 after either SP2105-001 or -002 is switched on. [-40 to +40 / +2 / 1]	
007	LD4 Power Correction	
	Corrects the power of LD4 after either SP2105-001 or -002 is switched on. [-40 to +40 / +2 / 1]	
008	LD5 Power Correction	
	Corrects the power of LD5 after either SP2105-001 or -002 is switched on. [-40 to +40 / +2 / 1]	
009	LD6 Power Correction	
	Corrects the power of LD6 after either SP2105-001 or -002 is switched on. [-40 to +40 / -2 / 1]	
010	LD7 Power Correction	
	Corrects the power of LD7 after either SP2105-001 or -002 is switched on. [-40 to +40 / -2 / 1]	

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 to 128 / 18 / 1] 0: OFF
002	Threshold Value (600 dpi)	[0 to 128 / 4 / 1] 0: OFF

003	Matrix Size (400 dpi)	[0 to 128 / 18 / 1] 0: OFF
004	Threshold Value (400 dpi)	[0 to 128 / 4 / 1] 0: OFF

3

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 to 8 / 5/ 1]
	002	Trailing Dot Level Setting (1200 dpi) [2 to 8 / 5/ 1]
	003	Multiple Dot Level Setting (1200 dpi) [2 to 8 / 8 / 1]
	004	Independent Dot Level Setting (1200 dpi) [2 to 8 / 6/ 1]
	005	Leading Dot Level Setting (600 dpi) [2 to 16 / 12/ 1]
	006	Trailing Dot Level Setting (600 dpi) [2 to 16 / 12/ 1]
	007	Multiple Dot Level Setting (600 dpi) [2 to 16 / 16/ 1]
	008	Independent Dot Level Setting (600 dpi) [2 to 16 / 12/ 1]

2115	Main Scan Beam Pitch Adjustment	
001	Pitch Adjustment Between ch0 and ch2 (LD0)	[-100 to 100/0/1 um]
002	Pitch Adjustment Between ch0 and ch4 (LD0)	
003	Pitch Adjustment Between ch0 and ch6 (LD0)	
004	Pitch Adjustment Between ch1 and ch3 (LD1)	
005	Pitch Adjustment Between ch1 and ch5 (LD1)	
006	Pitch Adjustment Between ch1 and ch7 (LD1)	
007	Pitch Adjustment Between ch0 and ch1 (LD1)	[-99 to +99/0/1 um]



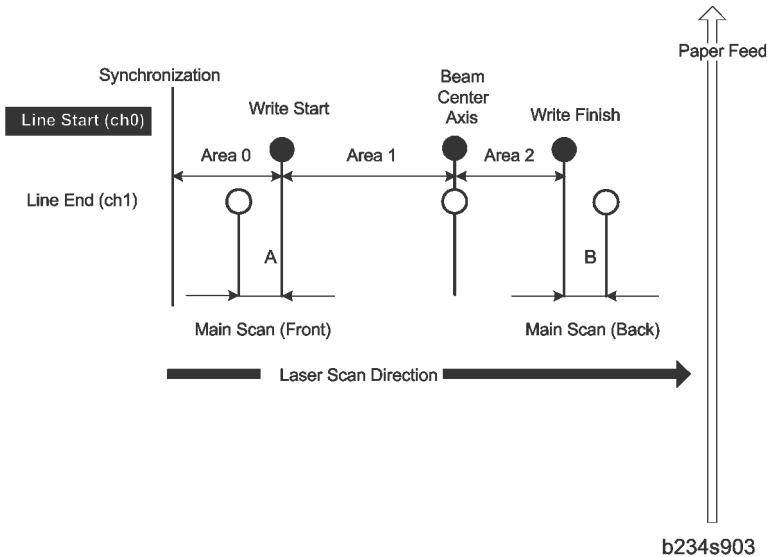
008	Front Main Scan: LD0/LD1 (ch0 to ch1)	[-50 to +50/0/1 $\mu$ m]
009	Rear Main Scan: LD0/LD1 (ch0 to ch1)	

Two adjustments have been added:

- 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
	Low Speed (Low Speed 1) and Low Speed 2 are referenced in the settings for this SP code. Refer to the table below.

### Low Speed Table

	D059	D060	D061
Standard	90 cpm	110 cpm	135 cpm
Low Speed 1	Invalid	90 cpm	110 cpm
Low Speed 2	Invalid	Invalid	90 cpm

3

001	Image Area (Normal Speed)
	<p>Adjusts the development bias for copying. [-200 to -800 / -550 / 10 V]</p> <p>This can be adjusted as a temporary measure if faint copies appear due to an aging drum.</p>
002	ID Sensor Pattern (Auto Process Control OFF)
	<p>Adjusts the development bias for making the ID sensor pattern for VSP measurement when the auto process control is set to off. [-200 to -800 / -500 / 10 V]</p> <p>This should not be used in the field, because it affects ID sensor pattern density, which affects toner supply.</p>
003	LD Sensor Development Potential
	<p>This SP adjusts the development bias of the ID sensor pattern that conforms to the value of the measured ID sensor potential when the ID sensor development potential was measured during auto process control.</p> <p>With the ID sensor pattern potential at -100V, if the ID sensor pattern development potential (default:+200V) were +240V, the development potential would be -340 V. The larger the value of SP2201-2, SP2201-4, (absolute value), toner density control becomes lighter and image density becomes lighter.</p> <p>[140 to 380 / 200 / 10V]</p>
004	Image Area (Low Speed)
	<p>This SP adjusts the development bias of the ID sensor pattern that conforms to the value of the measured ID sensor potential when the ID sensor development potential was measured during auto process control.</p> <p>[200 to 800 / 550 / 10V]</p>
005	ID Sensor Pattern (Low Speed)
	[200 to 800 / 500 / 10V]

006	ID Sensor Pattern Potential (Low Speed)
	[140 to 380 / 200 / 10V]
007	Image Area (Low Speed 2)
	[200 to 800 / 550 / 10V]
008	ID Sensor Pattern (Low Speed 2)
	[200 to 800 / 550 / 10V]
009	ID Sensor Development Potential (Low Speed 2)
	[140 to 380 / 200 / 10V]

2207	Toner Supply
	Forced Toner Supply
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>
	Toner Bank Toner Setup
002	<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><b>Note:</b> Use this SP to fill the toner transport path with toner after cleaning the toner supply unit, or at installation.</p>

2208	Toner Supply Mode
	<p>Selects the toner supply mode: Sensor Control or Image Pixel Count.</p> <p>[0 to 1 / 0 / 1]</p> <p>0: Sensor Control, 1: Pixel Count Control</p> <p>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.</p>

2209	Toner Supply Rate
	<p>Adjust the toner supply amount from the hopper for the normal operation.</p> <p>[100 to 2000 / 1300 / 10 mg/s]</p> <p>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.</p>

2210	ID Sensor Pattern Interval
	<p>Changes the interval for making the ID sensor pattern (VSP/VSG detection).</p> <p>[1 to 500 / 10 / 1 copy]</p> <p>Note: "mai" means "1 copy".</p> <p>If the user normally makes copies with a high proportion of black, reduce the interval.</p>

2220	Vref Display or Set
	<p>Adjusts the TD sensor reference voltage (Vref) manually.</p> <p>[0 to 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"> <li>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.</li> <li>2) Install the test development unit, then input the VREF for this unit into SP2220 and the Vcont for this unit into SP2906.</li> <li>3) After the test, put back the old development unit, and change SP2220 and SP2906 back to the original value.</li> </ol>

2223	Vt Display
	Displays the current TD sensor output voltage. [0 to 5.0 / 2.5 / 0.01 V]

2226	Toner Bank Toner Discharge
	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.

2227	Toner Supply Mode Display
	Displays the toner supply mode (1 to 4) used for the last copy. 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

2301	Transfer Current Adjustment
	Adjusts the current applied to the transfer belt during copying, depending on the machine, side, media type, paper thickness, and operation mode (normal or low speed). [20 to 200/ 100 /1 $\mu$ a]

### Low Speed Table

Refer to this table for the meaning of Low Speed 1, Low Speed 2.

	D059	D060	D061
Standard	90 cpm	110 cpm	135 cpm
Low Speed 1	Invalid	90 cpm	110 cpm
Low Speed 2	Invalid	Invalid	90 cpm

These are weights for the paper thickness references:

- **Thin Paper:** 40 to 51g/m<sup>2</sup>
- **Med Thick Paper:** 106 to 163g/ m<sup>2</sup>
- **Thick Paper 1:** 164 to 216g/ m<sup>2</sup>
- **Thick Paper 2:** 217 to 256g/ m<sup>2</sup>
- **Thick Paper 3:** 257 to 300g/ m<sup>2</sup>

3

001	1st Copy Side
002	2nd Copy Side
003	Thin Paper
004	Med Thick Paper
005	Med Thick Paper (2nd Copy Side)
006	Thick Paper 1
007	Thick Paper 1 (2nd Copy Side)
008	Thick Paper 2
009	Thick Paper 2 (2nd Copy Side)
010	Thick Papers
011	Coated Paper
012	Coated Paper (2nd Copy Side)
013	Transparencies
014	Translucent Sheet
015	Postcard
016	Between Pages
017	1st Copy Side: Low Speed 1
018	2nd Copy Side: Low Speed 1
019	Thin Paper: Low Speed 1
020	Med Thick Paper: Low Speed 1
021	Med Thick Paper: 2nd Copy Side

022	Thick Paper 1: Low Speed 1
023	Thick Paper 1: 2nd Copy Side: Low Speed 1
024	Thick Paper 2: Low Speed 1
025	Thick Paper 2: 2nd Copy Side: Low Speed 1
026	Thick Paper 3: Low Speed 1
027	Coated Paper: Low Speed 1
028	Coated Paper (2nd Copy Side): Low Speed 1
029	Transparencies: Low Speed 1
030	Translucent Sheet: Low Speed 1
031	Postcard: Low Speed 1
032	Between Papers: Low Speed 1
033	1st Copy Side: Low Speed 2
034	2nd Copy Side: Low Speed 2
035	Thin Paper: Low Speed 2
036	Med Thick Paper: Low Speed 2
037	Med Thick Paper (2nd Copy Side): Low Speed 2
038	Thick Paper 1: Low Speed 2
039	Thick Paper 1 (2nd Copy Side): Low Speed 2
040	Thick Paper 2: Low Speed 2
041	Thick Paper 2 (2nd Copy Side): Low Speed 2
042	Thick Paper 3: Low Speed 2
043	Coated Paper: Low Speed 2
044	Coated Paper (2nd Copy Side): Low Speed 2
045	Transparencies: Low Speed 2
046	Translucent Sheet: Low Speed 2
047	Postcard: Low Speed 2

048	Between Papers: Low Speed 2
-----	-----------------------------

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 to 1 / 1/1] 0: OFF, 1: ON Use if the drum gets dirty or images get too pale or too dark during long copy jobs.
002	Interval
	Selects the interval at which multi copy jobs are stopped for blade cleaning. [1 to 100 / 30/ 1 min] Reduce the value if a large amount of paper dust is causing black lines on the copy.

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. [0 to 1 / 0 / 1] 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 to 2000/100/ 1 K sheets] <b>Note:</b> "mai" means "sheets"
003	Set Number of Patterns
	This setting determines the number of patterns to be created on the drum. [0 to 200/5/1]



## Low Speed Table

Refer to this table for the meaning of Low Speed 1, Low Speed 2.

	D059	D060	D061
Standard	90 cpm	110 cpm	135 cpm
Low Speed 1	Invalid	90 cpm	110 cpm
Low Speed 2	Invalid	Invalid	90 cpm

3

2602	PTL Setting
	<p>Use this SP to adjust the on/off timing of the PTL (pre-transfer lamp).</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>This PTL light emitted from the PTL is intended to reduce charge on the drum and improve image transfer from drum to paper. The default setting for SP2602 001 is set to "On".</li> <li>However, adjusting the on/off of the PTL can caused blurred images appear at the leading edges of the paper.</li> </ul>
001	1st Copy Side
	<p>Switches the PTL on and off for the front side of the paper passing through the fusing unit at normal speed.</p> <p><b>Note:</b> When feeding thick paper or OHP transparencies, this setting is always off.</p> <p>[0 to 1/1/1]</p> <p>0: Off, 1: On</p> <p>PTL timing can be adjusted with SP2602 002.</p>
002	OFF Timing (1st Copy Side)
	<p>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.</p> <p>[-5 to 10/2/0.1 mm]</p>

003	2nd Copy Side
	<p>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.</p> <p>[0 to 1/0/1]</p> <p>0: Off, 1: On</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• When this setting is switched on, make sure that the setting of SP2940 008 is the same as the default setting of SP2940 001.</li> <li>• When feeding thick paper or OHP transparencies, this setting is always off.</li> </ul>
004	OFF Timing (2nd Copy Side)
	<p>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.</p> <p>[-5 to 10/2/0.1 mm]</p>
005	1st Copy Side: Low Speed 1
	<p>Switches the PTL on and off for the front side of the paper passing through the fusing unit at Low Speed 1.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• When feeding thick paper or OHP transparencies, this setting is always off.</li> <li>• Low Speed 1 is 90 cpm for the D060 (110 cpm) and 110 cpm for D061 (135 cpm).</li> </ul> <p>[0 to 1/1/1]</p> <p>0: Off, 1: On</p>
006	OFF Timing (1st Copy Side): Low Speed 1
	<p>This SP adjusts the length of the space from the leading edge where the PTL quenching is applied to the front side at Low Speed 1. For example, if you set +5, 5 mm from the leading edge will be quenched.</p> <p>[-5 to 10/2/0.1 mm]</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Low Speed 1 is 90 cpm for the D060 (110 cpm) and 110 cpm for D061 (135 cpm).</li> </ul>

007	2nd Copy Side: Low Speed 1
	<p>Switches the PTL on and off for the rear side of the paper passing through the fusing unit in the duplex mode at Low Speed 1.</p> <p>[0 to 1/0/1]</p> <p>0: Off, 1: On</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• When this setting is switched on, make sure that the setting of SP2940 016 is the same as the default setting of SP2940 009.</li> <li>• When feeding thick paper or OHP transparencies, this setting is always off.</li> <li>• Low Speed 1 is 90 cpm for the D060 (110 cpm) and 110 cpm for D061 (135 cpm).</li> </ul>
008	OFF Timing (2nd Copy Side): Low Speed 1
	<p>This SP adjusts the length of the space from the leading edge where the PTL quenching is applied to the rear side at Low Speed 1. For example, if you set +5, 5 mm from the leading edge will be quenched.</p> <p>[-5 to 10/2/0.1 mm]</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Low Speed 1 is 90 cpm for the D060 (110 cpm) and 110 cpm for D061 (135 cpm).</li> </ul>
009	1st Copy Side: Low Speed 2
	<p>Switches the PTL on and off for the front side of the paper passing through the fusing unit at Low Speed 2.</p> <p><b>Note:</b> When feeding thick paper or OHP transparencies, this setting is always off.</p> <p>[0 to 1/1/1]</p> <p>0: Off, 1: On</p> <p>PTL timing can be adjusted with SP2602 002.</p>
010	OFF Timing (1st Copy Side): Low Speed 2
	<p>This SP adjusts the length of the space from the leading edge where the PTL quenching is applied to the front side at Low Speed 2. For example, if you set +5, 5 mm from the leading edge will be quenched.</p> <p>[-5 to 10/2/0.1 mm]</p> <p><b>Note:</b> Low Speed 2 (90 cpm) applies to the D061 (135 cpm) only.</p>

011	2nd Copy Side: Low Speed 2
	<p>Switches the PTL on and off for the rear side of the paper passing through the fusing unit in the duplex mode at Low Speed 2.</p> <p>[0 to 1/0/1]</p> <p>0: Off, 1: On</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• When this setting is switched on, make sure that the setting of SP2940 008 is the same as the default setting of SP2940 001.</li> <li>• When feeding thick paper or OHP transparencies, this setting is always off.</li> <li>• Low Speed 2 (90 cpm) applies to the D061 (135 cpm) only.</li> </ul>
012	OFF Timing (2nd Copy Side): Low Speed 2
	<p>This SP adjusts the length of the space from the leading edge where the PTL quenching is applied to the rear side at Low Speed 2. For example, if you set +5, 5 mm from the leading edge will be quenched.</p> <p>[-5 to 10/2/0.1 mm]</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Low Speed 2 (90 cpm) applies to the D061 (135 cpm) only.</li> </ul>
2801	TD Sensor Initial Setting
	<p>Performs the TD sensor initial setting.</p> <p>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. Touch [Start] to execute.</p> <p>You must also enter the developer lot number. (The lot number is stenciled on the top edge of the developer package.)</p> <p>Use this mode only after replacing the TD sensor or the developer.</p>
001	Auto Initialize
002	Developer Lot Number
2803	Charge Corona Cleaner On
	<p>Touch [Execute] to clean the corona wire cleaner manually. When copy density across the paper is uneven, clean the wire with this SP.</p>

2804	Charge Corona Cleaner Setting
001	Corona Wire Cleaner Operation Setting
	<p>Selects when automatic corona wire cleaning is done.</p> <p>[0 to 3/2/1]</p> <p>0: Off. No cleaning done.</p> <p>1: Procon Sync At the beginning process control and at intervals selected with SP2804 002</p> <p>2: Interval At intervals selected with SP2804 002 only (not at the beginning of process control).</p> <p>3: Suspend Suspends wire cleaning.</p>
002	Corona Wire Cleaner Interval
	<p>Selects the interval for automatic corona wire cleaning.</p> <p>[100 to 10000 / 5000 / 100 copies]</p>

## System SP2-*nnn* Drum: 2



3

2902	Test Pattern
001	IPU Scanning Test Pattern
	Use SP4417-001 to select the IPU scanning test pattern instead of this SP. It is because this SP is equivalent to SP4417-001. Prints the scan test patterns for the IPU chip. Prints 17 patterns for selection. [0 to 17 / 0 / 1]
	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 Area
	16: Vertical Frequency Spec.
	17: Horizontal Frequency Spec.

002	IPU Printing Test Pattern
	<p>Use SP4417-001 to select the IPU printing test pattern instead of this SP. It is because this SP is equivalent to SP4417-001.</p> <p>Prints the print test pattern for the IPU chip. Presents 4 selections for selection.</p> <p>[0 to 4 / 0 / 1]</p> <p>0: OFF</p> <p>1:1200 Date Image 1 (Edge)</p> <p>2:1200 Date Image 2 (Non-Edge)</p> <p>3: Vertical Grayscale</p> <p>4: Caterpillar</p>
003	Printing Test Pattern
	<p>Presents 42 selections for selection.</p> <p>[0 to 42/0/1]</p>
	0:None
	1:1-dot Independent Pattern
	2:2-dot Independent Pattern
	3:4-dot Independent Pattern
	4:1024-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: Checkered 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 (20mm W)
	31: Grayscale Horizontal (40mm W)
	32: Grayscale Vertical (20mm W)
	33: Grayscale Vertical (40mm W)
	34: Grayscale Hor. 20 (No Loop)
	35: White Paper (Test: No Output)
	36: Grid 1-dot (0ch) Ext. Data
	37: Trim 1-dot External Data
	38: Slanted Grid Pattern Ext.Data
	39: LD Channel Adjust 1



004	Select Test Pattern
	<p>Selects the SBU test pattern (DAGL test pattern).</p> <p>[0 to 4 / 0 / 1]</p> <p>0: None</p> <p>1: Fixed Value Output</p> <p>2: Main Scan Grayscale Output</p> <p>3: Sub Scan Grayscale Output</p> <p>4: Grid Output</p>
005	Set Output Level
	<p>Sets the output level for the test pattern selected with SP4907-1.</p> <p>[0 to 1023 / 512 / 1]</p>

2906	Vcont Display or Set
	<p>Adjusts the TD sensor control voltage (Vcont) manually.</p> <p>[0 to 24 / 8 / 0.1 V]</p> <p>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.)</p>

2909	Main Scan Magnification
001	Copy
	<p>Adjusts the magnification in the main scan direction for copy mode.</p> <p>[-2.0 to +2.0 / 0 / 0.1%]</p> <p>Use the [./*] key to enter the minus (-) before entering the value.</p>
002	Printer
	<p>Adjusts the magnification in the main scan direction for printing mode.</p> <p>[-2.0 to +2.0 / 0 / 0.1%]</p> <p>Use the [./*] key to enter the minus (-) before entering the value.</p>

2910	Sub Scan Magnification
------	------------------------



	<p>Fine adjusts the magnification in the sub scan direction.</p> <p><b>Note:</b> 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.</p>
001	<p>Image Sub Scan Magnification</p> <p>[-1.0 to +1.0 / 0 / 0.1%]</p>
002	<p>Image Sub Scan Magnification: Back Side</p> <p>[-0.4 to +0.4 / 0 / 0.1%]</p>
2911	<p>Transfer Current On / Off Timing</p>

Here is a summary of the notations that appear in the descriptions of these SP codes:

- **La:** Adjusts the OFF timing for transfer bias between sheets at the leading edge.
- **Lb:** Adjusts ON timing for bias in the image transfer area after leading edge transfer current goes ON.
- **Lc:** Adjusts the OFF timing of image transfer bias after the trailing edge of a sheet exits the nip of the transfer roller. }

**Transfer current OFF between pages**

After the registration roller starts to rotate again after buckle adjustment, the transfer power pack starts up and switches on leading edge transfer bias 50 ms before the leading edge of the sheet reaches the nip of the transfer roller (the distance between the registration roller and transfer roller nip is 57.02 mm).

If the line speed is 630 mm/s, the timing after the registration roller restarts is :

$$57.02/630 - 0.05 = 40.5 \text{ ms.}$$

**Leading edge transfer current ON**

$$T_{on}(T_c) = T_{off}(T(b))$$

**Leading edge transfer transfer current OFF**

$$T_{off}(T_c) = T_{on}(T_c) + 0.05 + L_b / V_p$$

As for the standard for leading edge transfer current ON timing, the image area bias goes ON at 50 ms plus the distance after Lb (this adjusts the criterion for leading edge ON timing).

**Lb: SP2911-2 Lb Switch Timing**

This control is for when normal paper or tracing paper is selected. Image transfer efficiency is given priority for Thick Paper 1, Thick Paper 2, Thick Paper 3, OHP, postcard, and Medium Thick paper to prevent power separation with these media. Lb is fixed at "0" when OHP, postcard, Thick Paper 1, Thick Paper 2, or Thick Paper 3 is selected. }

**Image area transfer current ON**

After the trailing edge of each sheet passes the registration sensor then reaches the exit of the nip of the transfer roller after  $L_c$ , transfer bias goes OFF and switches to bias for between sheets.  $L_c$ : SP2911-3  $L_c$  Timing OFF (OFF timing is delayed from the maximum number of tab sheets (15 mm).

### Low Speed Table

Refer to this table for the meaning of Low Speed 1, Low Speed 2.

	D059	D060	D061
Standard	90 cpm	110 cpm	135 cpm
Low Speed 1	Invalid	90 cpm	110 cpm
Low Speed 2	Invalid	Invalid	90 cpm

3

These are weights for the paper thickness references:

- Thin Paper: 40 to 51g/m<sup>2</sup>
- Med Thick Paper: 106 to 163g/ m<sup>2</sup>
- Thick Paper 1: 164 to 216g/ m<sup>2</sup>
- Thick Paper 2: 217 to 256g/ m<sup>2</sup>
- Thick Paper 3: 257 to 300g/ m<sup>2</sup>

2911	Transfer Current On / Off Timing
001	$L_a$ (ON)
	[-15 to +20 / 0 / 1 mm]
002	$L_b$ (Switch)
	[0 to 45 / * / 1 mm] * D059: 20, D060: 20, * D061: 26
003	$L_c$ (OFF)
	[-40 to +40 / 0 / 1 mm]
004	Med Thick $L_a$ (Switch)
	[-15 to +20/ 0 / 1 mm]
005	Med Thick $L_b$ (Switch)
	[0 to 45/ 0 / 1 mm]

006	Med Thick Lc (Switch)
	[-40 to +40/ 0 / 1 mm]
007	After Punch La (Switch)
	[-15 to +20/ 0 / 1 mm]
008	After Punch Lb (Switch)
	[0 to 45/ * / 1 mm] * D059: 20, D060: 20, * D061: 26
009	After Punch Lc (Switch)
	[-40 to +40/ * / 1 mm] * D059: -25, * D060: -30, * D061: -38
010	Coated Paper: La (ON)
	[-15 to +20 / 0 / 1 mm]
011	Coated Paper Lb (Switch)
	[0 to 45 /20/ 1 mm]
012	Coated Paper: Lc (OFF)
	[-40 to +40 / 0 / 1 mm]
013	Thin Paper: La (ON)
	[-15 to 20 / 0 / 1 mm]
014	Thin Paper: Lb: (Switch)
	[0 to 45 / 20 / 1 mm]
015	Thin Paper: Lc (OFF)
	[-40 to +40 / 0 / 1 mm]
016	Thick Paper: 1 La (ON)
	[-15 to +20 / 0 / 1 mm]
017	Thick Paper: 1 Lb (Switch)
	[0 to 45 / 0 / 1 mm]
018	Thick Paper: 1 Lc (OFF)
	[-40 to +40 / 0 / 1 mm]

019	Thick Paper: 2 La (ON) [-15 to +20 / 0 / 1 mm]
020	Thick Paper: 2 Lb (Switch) [0 to 45 / 0 / 1 mm]
021	Thick Paper: 2 Lc (OFF) [-40 to +40 / 0 / 1 mm]
022	Thick Paper: 3 La (ON) [-15 to +20 / 0 / 1 mm]
023	Thick Paper: 3 Lb (Switch) [0 to 45 / 0 / 1 mm]
024	Thick Paper: 3 Lc (OFF) [-40 to +40 / 0 / 1 mm]
025	Transparencies: La (ON) [-15 to +20 / 0 / 1 mm]
026	Transparencies: Lb (Switch) [0 to 45 / 0 / 1 mm]
027	Transparencies: Lc (OFF) [-40 to +40 / 0 / 1 mm]
028	La (ON) (Low Speed 1) [-15 to +20 / 0 / 1 mm]
029	Lb (Switch) (Low Speed 1) [0 to 45 / 20 / 1 mm]
030	Lc (OFF) (Low Speed 1) [-40 to +40 / 0 / 1 mm]
031	Med Thick La (ON) (Low Speed 1) [-15 to +20 / 0 / 1 mm]
032	Med Thick Lb (Switch) (Low Speed 1) [0 to 45 / 0 / 1 mm]

033	Med Thick Lc (Switch) (Low Speed 1) [-40 to +40 / 0 / 1 mm]
034	After Punch La (ON) (Low Speed 1) [-15 to +20 / 0 / 1 mm]
035	After Punch Lb (Switch) (Low Speed 1) [0 to 45 / 20 / 1 mm]
036	After Punch Lc (Switch) (Low Speed 1) [-40 to +40 / -25 / 1 mm]
037	Coated Paper La (ON) (Low Speed 1) [-15 to +20 / 0 / 1 mm]
038	Coated Paper Lb (Switch) (Low Speed 1) [0 to 45 / 20 / 1 mm]
039	Coated Paper Lc (Switch) (Low Speed 1) [-40 to +40 / 0 / 1 mm]
040	Thin Paper La (ON) (Low Speed 1) [-15 to +20 / 0 / 1 mm]
041	Thin Paper Lb (Switch) (Low Speed 1) [0 to 45 / 20 / 1 mm]
042	Thin Paper Lc (Switch) (Low Speed 1) [-40 to +40 / 0 / 1 mm]
043	Thick Paper 1: La (ON) (Low Speed 1) [-15 to +20 / 0 / 1 mm]
044	Thick Paper 1: Lb (Switch) (Low Speed 1) [0 to 45 / 0 / 1 mm]
045	Thick Paper 1: Lc (Switch) (Low Speed 1) [-40 to +40 / 0 / 1 mm]
046	Thick Paper 2: La (ON) (Low Speed 1) [-15 to +20 / 0 / 1 mm]

047	Thick Paper 2: Lb (Switch) (Low Speed 1) [0 to 45 / 0 / 1 mm]
048	Thick Paper 2: Lc (Switch) (Low Speed 1) [-40 to +40 / 0 / 1 mm]
049	Thick Paper 3: La (ON) (Low Speed 1) [-15 to +20 / 0 / 1 mm]
050	Thick Paper 3: Lb (Switch) (Low Speed 1) [0 to 45 / 0 / 1 mm]
051	Thick Paper 3: Lc (Switch) (Low Speed 1) [-40 to +40 / 0 / 1 mm]
052	Transparencies: La (ON) (Low Speed 1) [-15 to +20 / 0 / 1 mm]
053	Transparencies: Lb (Switch) (Low Speed 1) [0 to 45 / 0 / 1 mm]
054	Transparencies: Lc (Switch) (Low Speed 1) [-40 to +40 / 0 / 1 mm]
055	La (ON) Low Speed 2 [-15 to +20 / 0 / 1 mm]
056	Lb (Switch) Low Speed 2 [0 to 45 / 0 / 1 mm]
057	Lc (Switch) Low Speed 2 [-40 to +40 / 0 / 1 mm]
058	Med Thick La (ON) Low Speed 2 [-15 to +20 / 0 / 1 mm]
059	Med Thick Lb (Switch) Low Speed 2 [0 to 45 / 0 / 1 mm]
060	Med Thick Lc (Switch) Low Speed 2 [-40 to +40 / 0 / 1 mm]

061	After Punch La (ON) Low Speed 2 [-15 to +20 / 0 / 1 mm]
062	After Punch Lb (Switch) Low Speed 2 [0 to 45 / 0 / 1 mm]
063	After Punch Lc (Switch) Low Speed 2 [-40 to +40 / -25 / 1 mm]
064	Coated Paper La (ON) Low Speed 2 [-15 to +20 / 0 / 1 mm]
065	Coated Paper Lb (Switch) Low Speed 2 [0 to 45 / 20 / 1 mm]
066	Coated Paper Lc (Switch) Low Speed 2 [-40 to +40 / 0 / 1 mm]
067	Thin Paper La (ON) Low Speed 2 [-15 to +20 / 0 / 1 mm]
068	Thin Paper Lb (Switch) Low Speed 2 [0 to 45 / 20 / 1 mm]
069	Thin Paper Lc (Switch) Low Speed 2 [-40 to +40 / 0 / 1 mm]
070	Thick Paper 1: La (ON) Low Speed 2 [-15 to +20 / 0 / 1 mm]
071	Thick Paper 1: Lb (Switch) Low Speed 2 [0 to 45 / 0 / 1 mm]
072	Thick Paper 1: Lc (Switch) Low Speed 2 [-40 to +40 / 0 / 1 mm]
073	Thick Paper 2: La (ON) Low Speed 2 [-15 to +20 / 0 / 1 mm]
074	Thick Paper 2: Lb (Switch) Low Speed 2 [0 to 45 / 0 / 1 mm]



075	Thick Paper 2: Lc (Switch) Low Speed 2 [-40 to +40 / 0 / 1 mm]
076	Thick Paper 3: La (ON) Low Speed 2 [-15 to +20 / 0 / 1 mm]
077	Thick Paper 3: Lb (Switch) Low Speed 2 [0 to 45 / 0 / 1 mm]
078	Thick Paper 3: Lc (Switch) Low Speed 2 [-40 to +40 / 0 / 1 mm]
079	Transparencies: La (ON) Low Speed 2 [-15 to +20 / 0 / 1 mm]
080	Transparencies: Lb (Switch) Low Speed 2 [0 to 45 / 0 / 1 mm]
081	Transparencies: Lc (Switch) Low Speed 2 [-40 to +40 / 0 / 1 mm]

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 to 7 / 2 / 1 ms]
002	Forward Rotation After 1st Reverse Rotation
	Sets the length of time the drum is rotated forward after the 1st reverse rotation. [0 to 7 / 0 / 1 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 to 7 / 0 / 1 ms]

2913	Temperature & Humidity Display
	This SP displays readings of the current temperature and humidity inside the machine.
	Internal Temp
001	Temperature
	Displays current temperature inside the machine. [-20 to 60/None/1 °C]
002	Humidity
	Current humidity level inside the machine. [0 to 100/None/1% rH]
003	Drum (OPC) Temperature
	[0 to 2 / 1 / 1] Temperature around the drum.

2920	LD Off Check <b>DFU</b>
	Checks whether the LD turns off or on when the front door is opened. [0 to 1 / 0 / 0] 0: ON, 1: OFF

2930	2nd Cleaning Blade
	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"> <li>• The settings of SP2930-001, -002, -003 take effect only when SP2930-008 is set to "0" (Normal).</li> <li>• The settings of SP29030-004, -005, -006, -007 take effect only when SP2930-008 is set to "1" (Low).</li> </ul>
	001 Condition 1

	<p>This SP setting determines when 2nd blade cleaning is done.</p> <p>[0 to 2 /1/ 1 step]</p> <p>0: No 2nd blade cleaning</p> <p>1: During Process Control</p> <p>2nd blade cleaning is done for the specified time by SP2930-3 during process control.</p> <p>2: Manual</p> <p>2nd blade cleaning is done for the specified time by SP2930-3 at the following timing:</p> <ul style="list-style-type: none"> <li>• During process control</li> <li>• At intervals specified by SP2930-2</li> </ul>
	<p><b>Note:</b></p> <p>If white spots appear on outputs, set the setting of SP2930-001 to "2" (Manual). To use "Manual" cleaning, check if the settings of SP2930-002 and -003 are properly set. Otherwise, "Manual" cleaning will not properly work.</p>
002	<p>Interval 1</p> <p>This SP sets the time to elapse before 2nd blade cleaning operates. 2nd blade cleaning is done when the time exceeds this value, but only if SP2930-1 is set to "2".</p> <p>[5 to 1400/90/1 min.]</p>
003	<p>Time 1</p> <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 to 90/20/1 sec.]</p>
004	<p>Force 2nd Blade Cleaning</p> <p>Press [Start] to force cleaning the drum with the 2nd cleaning blade.</p>
005	<p>Condition 2</p> <p>This SP setting determines when 2nd blade cleaning is done.</p> <p>[0 to 3/1/1]</p> <p>0: No Switching</p> <p>1: Level 1 (cleaning every sheet)</p> <p>2: Level 2 (cleaning every 2 sheets)</p> <p>3: Level 3 (cleaning every 3 sheets)</p>

006	Interval 2
	This SP sets the length of time to elapse before 2nd blade cleaning. [5 to 1440 / 15 / 1 min.]
007	Time 2
	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 to 90/20/1 sec.]
008	Set Level
	This SP displays a number that tells you which mode is controlling the operation of the 2nd cleaning blade. [0 to 1 / 0 / 1] 0: Normal. The settings of SP2930-001, 002, 003 control the operation of the 2nd cleaning blade. 1: Low. The settings of SP2920-005, 006, 007, 008 control the operation of 2nd blade cleaning.

2940	Leading Edge Transfer Current	
	Adjusts the leading edge transfer current for each paper feed station at normal and low speed.	
001	Tray 1	[20 to 200 / * / 1 μA] D059: 25, D060: 30, D061: 35
002	Tray 2	
003	Tray 3	
004	Tray 4	
005	Tray 5	
006	Tray 6	
007	Tray 7	

008	Duplex Tray	[20 to 200 / * / 1 $\mu$ m] D059: 25, D060: 25, D061: 30
009	Tray 1 (Low Speed 1)	
010	Tray 2 (Low Speed 1)	
011	Tray 3 (Low Speed 1)	
012	Tray 4 (Low Speed 1)	
013	Tray 5 (Low Speed 1)	
014	Tray 6 (Low Speed 1)	
015	Tray 7 (Low Speed 1)	
016	Duplex Tray (Low Speed 1)	[20 to 200 / * / 1 $\mu$ m] D059: 100, D060: 100, D061: 110
017	Tray 1 (Low Speed 2)	[20 to 200 / 25 / 1 $\mu$ m]
018	Tray 2 (Low Speed 2)	
019	Tray 3 (Low Speed 2)	
020	Tray 4 (Low Speed 2)	
021	Tray 5 (Low Speed 2)	
022	Tray 6 (Low Speed 2)	
023	Tray 7 (Low Speed 2)	
024	Duplex Tray (Low Speed 2)	[20 to 200 / 100 / 1 $\mu$ m]

2950	Pages Allowed After TCB Lock
	<p>This SP displays the number of sheets allowed after Toner Collection Unit Lock is detected. After detection, "Replacement of Toner Recycling Unit will soon be necessary" is displayed at the bottom of the operation panel. When this number reaches 8K, SC487 is issued and the machine stops.</p> <p>Enter "0" and cycle the machine power off/on to reset this symptom.</p> <p>[0 to 50/0/1 K Sheets]</p>

2960	Process Interval
------	------------------

	This SP extends the time delay before the machine shifts to shut down mode. [0 to 7/ 0 / 1 sec.]
--	---

2961	Developer Initialization (Factory)	DFU
------	------------------------------------	-----

3

2962	Auto Process Control Execution
	<p>Press [Start] to execute and automatically adjust the following:</p> <ul style="list-style-type: none"> <li>• Drum potential sensor</li> <li>• ID sensor</li> <li>• Charge grid voltage Vg (by changing Vd)</li> <li>• LD power (by changing Vh)</li> <li>• VL detection.</li> </ul> <p><b>Note:</b> 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
	Selects whether auto process control is done after 24 hours have elapsed after the last copy job. This setting is required for a customer who keeps the main switch on all day.
001	Operation Setting
	[0 to 1 / 1/ 1] 0: OFF, 1: ON
002	Interval Setting
	[1 to 24 / 24 /1 hour]

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 to 1 / 0 / 1]</p> <p>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 <math>-0.06\text{ V}</math> every <math>(100 \times [\text{SP2-974 value} + 1])</math> prints. This correction is applied from when the auto process control is done, until "(the number of prints set in this SP mode) <math>\times</math> (SP2-974 value + 1)" has been made.</p> <p>[0 to 20 / 0 / 1K copies]</p>

2969	ID Sensor Pattern Interval-Multiple Copy
001	Operation Setting
	<p>[0 to 2 / 0 / 1]</p> <p>0: No Operation</p> <p>1: Process Control Execution Mode</p> <p>2: Environment Sensor Mode</p>
002	Interval Setting Between Jobs
	[10 to 1000 / 70 / 10]
003	Total Number of Created Patterns
	<p>This is the frequency of the number of ID sensor patterns created during continuous jobs.</p> <p>[1 to 100 / 20 / 1 Pattern]</p>
004	Switch Level

	<p>This is the switching level for the creation of ID sensor patterns during continuous jobs.</p> <p>[1 to 3 / 1 / 1]</p> <p>1: Switch When &gt; 1300</p> <p>2: Switch When &gt; 1600</p> <p>3: Switch When &gt; 1800</p>
--	---

3

2970	Initialize by Unit
	This SP can initialize units independently.
001	#Development Unit
003	#Drum Unit
005	#Drum Cleaning Unit
009	#Charge Unit
014	#Pre-Charge Unit
017	#Fusing Unit
021	#Fusing Cleaning Unit

	Toner Suction Bottle Operation Time
2972	<p>Displays the total operation time of the development unit toner collection bottle.</p> <p>[0 to 65 535 / 0 / 1 hour]</p> <p>Need to replace soon: 680 hours</p> <p>Need to replace now: 720 hours</p> <p>After the bottle is replaced, reset the value to "0" by pressing 0 and <math>\text{\textcircled{\#}}</math> (Enter).</p>

	Toner Suction Motor Operation Time
2973	<p>Displays the total operation time of the development toner suction motor.</p> <p>[0 to 600 / 0 / 1 hour]</p> <p>Need to replace soon: 570 hours</p> <p>Need to replace now: 600 hours</p> <p>After the motor is replaced, reset the value to 0 (zero) by pressing 0 and [#].</p>



2974	Toner Supply Interval
	<p>Adjusts how often toner is supplied</p> <p>[0 to 3 / 0 (D059/D060) or 1 (D061) / 1]</p> <p>0: 1/1 (every print)</p> <p>1: 1/2 (every 2 prints)</p> <p>2: 1/3 (every 3 prints)</p> <p>3: 1/4 (every 4 prints)</p> <p>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 [100 x (SP2-974 value + 1)] prints". For example, if set to 1, toner is supplied every 2 prints, and SP 2-974 value + 1 = 3.</p>

2975	Toner Recycle Cut Counter
001	ON Counter
	<p>Determines how long all toner is recycled.</p> <p>[0 to 999 / a, b: 25 or c: 12 / 1 K prints]</p> <p>This setting determines when the toner separation solenoid switches ON to stop shunting toner to the toner collection bottle (Recycle ON).</p>
002	OFF Counter
	<p>This setting determines how often all recycled toner is discarded. The purpose of this feature is to periodically remove all recycled toner contaminated with paper dust.</p> <p>[0 to 255 / 25 / 1 K prints]</p> <p>This setting determines when the toner separation solenoid switches OFF to close the shutter and shunt all toner to the toner collection bottle (Recycle OFF).</p>
003	Recycle Level Setting
	<p>Adjusts recycling according to ambient conditions.</p> <p>[0 to 3/1/1]</p>

2977	Toner Supply/Transport Display	
	This SP displays information about toner supply operation.	
001	Toner Bank Mtr: Total On Time	[0 to 9 999/0/1 Hour]

002	Toner Supply CL: On/Off Times	[0 to 9 999/0/1 K Prints]
003	TCB Agitator: Total On Time	[0 to 999/0/1 Hour]
004	TS Agitator: Total On Time	[0 to 999/0/1 Hour]
005	Toner Pump: Total On Time	[0 to 999/0/1 Hour]

3

2978	Recycle Status Display	
001	Status This SP displays whether recycling is on or off. [0 to 1/0] 0: On, 1: Off	
002	Page Count [0 to 999 / 0 / K copies] Displays the number of K (1,000) pages printed with recycling on.	

2985	Coat Drum With Toner
	Touch [Execute] to coat the drum with toner.

2986	Refresh Mode
	<p>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.</p> <ul style="list-style-type: none"> <li>Set the setting value of SP2975-001 to "0" before using "Refresh Mode". This makes "Refresh Mode" more effective.</li> <li>Reset the setting value of SP2975-001 to the default value (model a, b: 25, model c: 12) after using "Refresh Mode".</li> <li>This can occur with machines that are used infrequently or on machines where the average printed image is of very low density.</li> <li>Toner may also deteriorate due to the amount of time for downstream peripherals to process jobs at work sites where heavy peripheral processing jobs are done frequently.</li> </ul> <p><b>Note:</b> Doing this adjustment can shorten the service life of the toner collection bottle. Frequently discarded toner will fill the bottle within a shorter period.</p>

001	Interval
	<p>Sets the interval between refresh executions. The toner refresh is done when the count exceeds this number.</p> <p>[0 to 25/0/1 K]</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• "KMAI" Means K sheets (1,000 sheets).</li> <li>• The machine will execute the refresh mode immediately as soon as the count exceeds this setting, even if this occurs during a print job.</li> <li>• 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.</li> </ul>
002	Level
	<p>Selects the Vsp value that will trigger toner refresh. Toner is refreshed if the value of Vsp drops below the selected level.</p> <p>[0 to 4/2/ 1]</p> <p>0: Vsp = 0.8</p> <p>1: Vsp = 1.0</p> <p>2: Vsp = 1.2</p> <p>3: Vsp = 1.5</p> <p>4: Vsp = 1.8</p> <p><b>Note:</b> Vsp is the ID sensor output after it measures the toner density of the ID sensor pattern.</p>
003	Repetitions
	<p>Sets the number of times the refresh cycle is repeated for one refresh execution.</p> <p>[1 to 3/2/1 times]</p>

2987	Toner Consumption with Ring Binder
001	Operation Setting
	<p>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.</p> <p>[0 to 1 / 0 / 1]</p> <p>1: ON. Pattern created at the level specified by SP2987-2.</p> <p>0: OFF. No pattern is created. The setting of SP2987-2 is ignored.</p>

002	<p>Operation Level Setting</p> <p>Determines the temperature/humidity level at which the toner pattern is created on the OPC drum (only when SP2987-1 is enabled).</p> <p>[0 to 3/1/1]</p> <p>Ring Binder Run</p> <p>Up to 200 books: 10°C 20% rH</p> <p>Up to 400 books: 10°C 30% rH</p> <p>Up to 600 books: 10°C 40% rH</p>
-----	---

2990	<p>Adjust Start Timing</p> <p>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.</p> <p>[0 to 2/0/1]</p> <p>0: Normal Mode</p> <p>1: Mode 1</p> <p>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.</p> <p>2: Mode 2</p> <p>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.</p>
------	--

2991	<p>Toner Supply Interval: Large Paper</p> <p>This SP sets the toner supply interval for large size paper. Large size paper is paper longer than 350 mm in the sub scan direction.</p> <p>[0 to 3 / 0 / 1]</p> <p>0: 1/1 (every sheet)</p> <p>1: 1/2 (every 2nd sheet)</p> <p>2: 1/3 (every 3rd sheet)</p> <p>3: 1/4 (every 4th sheet)</p>
------	---

2992	Edge Pattern Creation
	<p>Switches the trailing edge pattern on/off. When this SP code is ON, a trailing edge pattern is created if the number of images have exceeded the specified number by the time the job and main motor have stopped. SP2993 specifies the interval.</p> <p>[0 to 1/0/1] [*0:OFF] [1:ON]</p>
2993	Edge Pattern Interval Setting Between Jobs
	<p>This SP sets the interval for creation of the edge patterns. This setting is enabled only when SP2992 is ON.</p> <p>[1 to 9999 / 10 / 1]</p>

## System SP3-*nnn* Processing

3

3001	ID Sensor Initial Setting
001	ID Sensor PWM Setting
	<p>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.</p> <p>[0 to 255 / 62 / 1]</p> <p>The PWM data is stored when ID Sensor Initial Setting is done.</p>
002	ID Sensor Initialization
	<p>Performs the ID sensor initial setting. The ID sensor output for the bare drum (VSG) is adjusted to <math>4.0 \pm 0.2</math> V.</p> <p>This SP mode should be performed: 1) After replacing or cleaning the ID sensor, 2) After replacing the NVRAM or doing an NVRAM clear.</p>

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	Vsgp
	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	Process Control ON/OFF Setting
------	--------------------------------

001	Auto Process Control Setting
	<p>Determines whether machine checks and corrects drum potential (Vd) and LD power when the fusing temperature is lower than 100°C at power-on.</p> <p>[0 to 1 / 1 / 1]</p> <p>0: OFF, 1: ON</p> <p>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.</p>
002	VL & VD Correction Control Setting <b>DFU</b>
	<p>Determines whether VL detection and correction are performed during process control every 1K copies.</p> <p>[0 to 1 / 1 / 1]</p> <p>0: OFF, 1: ON</p> <p>Even with this SP switched ON, VL detection and correction will not be performed if SP3901 001 is OFF.</p>
003	Temperature Control
	<p>Displays the value of VH measured by the potential sensor.</p> <p>0: OFF</p> <p>1: ON</p>

3902	Process Control Data Display
001	Auto Process Control (0:OFF 1:ON)
	<p>Displays whether auto process control is switched on or off [0:Off, 1:On]</p> <p>When auto process control is on and the potential sensor is calibrated correctly, "ON" appears on the operation panel.</p> <p>Auto process control is not executed when this SP is switched off. After RAM is cleared, this SP setting goes off.</p>
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.
007	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 ( $\Delta VL_{ref}$ ) 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 ( $\Delta VL_{ref}$ ) according to the latest VL detection results.
012	VB
	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	VD
015	Temperature Correction Value: VL



016	Temperature Correction Value: VBp
017	Process Control Temperature
018	Line Speed

3903	VD Correction Counter
	<p>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".</p> <p>[0 to 9999 / 9999 / 1 K copies]</p> <p>Reduce the setting if dirty background occurs.</p> <p>The counter is automatically reset to 0 (zero) when SP2-801 is performed.</p>

3904	Vh Adjustment
	<p>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.</p> <p><b>Note:</b> 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.</p>
001	<p>Normal Line Speed</p> <p>This resets the target Vh for machine operation (but not low speed mode).</p> <p>[200 to 500/280/10V]</p>
002	<p>Low Speed Mode</p> <p>This resets the target Vh for low speed mode.</p> <p>[200 to 500/280/10V]</p> <ul style="list-style-type: none"> <li>• Low Speed 1 is 90 cpm for the D060 (110 cpm).</li> <li>• Low Speed 1 is 110 cpm for the D061 (135 cpm).</li> </ul>

003	<p>Low Speed 2</p> <p>This resets the target Vh for Low Speed Mode 2.</p> <p>[200 to 500/280/10V]</p> <ul style="list-style-type: none"> <li>• Low Speed 2 is 90 cpm for the D061 (135 cpm).</li> <li>• Low Speed 2 does not apply to either the D059 or D060.</li> </ul>
-----	---

3

3905	OPC Drum Initial Setting
001	Execute Mode
	Resets the counters of SP3905-002 and -003 to zero. This SP code must be executed after the drum has been replaced.
002	Time
	Displays the time that has elapsed since the last time the count was cleared. The displayed time is the total run time of the main motor.
003	Distance
	<p>Displays the time that has elapsed since the last time the count was cleared. The displayed value is the distance calculated based on the total run time of the main motor.</p> <p>Running distance is calculated as follows;</p> <p>OPC running distance (meter) = main motor run time x process line speed</p>

3906	<p>VB Correction Setting</p> <p>Vb (development bias) is used during process control to control drum potential. Normally, VB is recalibrated every 11,400 minutes (about every 8 days).</p>
001	<p>On/Off Setting</p> <p>Switches periodic calibration of Vb off on.</p> <p>[0 to 1/1/1]</p> <p>0: Off, 1: On</p>
002	<p>VB Correction Counter</p> <p>When SP3906 1 is on, use this SP to adjust the interval between VB calibrations.</p> <p>[3800 to 9 999 999 / 1 m]</p>
003	2nd Step ON/OFF Setting

	<p>This SP sets the value for 1st cycle Vb correction at Level 2. When set to zero no correction is done. When set to any value other than zero, this value is subtracted from the setting for SP3902-12.</p> <p>[0 to 200 / 20 / 1V]</p>
004	Start Distance for 2nd Step Correction
	<p>This SP sets the value the start time for 1st cycle Vb correction at Level 2. SP3905-2 displays the initial setting of the OPC use time, this condition is satisfied with any value higher than this setting.</p> <p>[0 to 999 999 / 420 000 / 1 m]</p>
005	3rd Step ON/OFF Setting
	<p>This SP sets the value for 1st cycle Vb correction at Level 3. When set to zero no correction is done. When set to any value other than zero, this value is subtracted from the setting for SP3902-12.</p> <p>[0 to 200 / 120 / 1V]</p>
006	Start Distance for 3rd Step Correction
	<p>This SP sets the value the start time for 1st cycle Vb correction at Level 3. SP3905-2 displays the initial setting of the OPC use time, this condition is satisfied with any value higher than this setting.</p> <p>[0 to 000 000 / 560 000 / 1m]</p>
007	Job Time Setting
	<p>The condition is satisfied if the time set for this SP is more that the time from the last main motor stoppage until the next time the main motor starts. SP3906-001 to -006: The correction is input when the conditions of these SP codes are met and the correction is input for the 1st Vb cycle.</p> <p>[0 to 9 / 3 / 1 min.]</p>
3907	OPC Drum Initial Setting
001	Correction Setting
	<p>This SP corrects transfer voltage. When set to zero no correction is done. When set to a value other than zero, this setting is subtracted from the image area transfer current.</p> <p>[0 to 100 / 0 / 1 <math>\mu</math>a]</p>
002	Correction End Setting

	<p>This SP sets the stop time of the transfer current. SP3907-001: Even if the setting of SP307-001 (transfer current correction) is any value other than zero, if the value of SP3905-002 (OPC use time setting/display) is more than this SP value, then the transfer current correction is not done.</p> <p>[0 to 999 9999 / 140 000 / 1 m]</p>
--	--

3

3908	VH Correction for Low Temperature
001	1st Level ON/OFF Setting
	<p>Level 1: Setting (approx. 10°C, below 25%) When set to zero no correction is done.</p> <p>[0 to 100 / 20 / 10°C]</p>
002	2nd Level ON/OFF Setting
	<p>Level 2: Setting (approx. 14°C, below 40%) When set to zero no correction is done.</p> <p>[0 to 100 / 10 / 10°C]</p>
003	Correction End Setting
	<p>Sets the stop time for Vh correction in a low temperature, low humidity environment.</p> <p>[0 to 999 999 / 56 000 / 1 m]</p>

## System 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.</p> <p>[-0.9 to +0.9 / 0 / 0.1 %]</p> <p>Use the [./*] key to enter the minus (-) before entering the value.</p> <p>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.</p>
4010	Scanner Leading Edge Registration
	<p>Adjusts the leading edge registration for scanning.</p> <p>[-9.0 to +9.0 / 0 / 0.1 mm]</p> <p>Use the [./*] key to enter the minus (-) before entering the value.</p> <p>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.</p>
4011	Scanner Main Scan Registration Adj
	<p>Adjusts the side-to-side registration for scanning.</p> <p>[-2.0 to +2.0 / 0 / 0.1 mm]</p> <p>(-): The image disappears at the left side.</p> <p>(+): The image appears at the left side.</p> <p>Use the [./*] key to enter the minus (-) before entering the value.</p>
4012	<p>Set Scale Mask</p> <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>
001	<p>Book: Sub Scan: Leading Edge</p> <p>[0 to 3.0 / 1 / 0.1 mm]</p>

002	Book: Main Scan: Leading Edge [0 to 3.0 / 0 / 0.1 mm]
003	Book: Main Scan: Trailing Edge (Rear) [0 to 3.0 / 1 / 0.1 mm]
004	Book: Main Scan: Trailing Edge (Front) [0 to 3.0 / 0 / 0.1 mm]

4013	Scanner Free Run
001	Book Mode: Lamp OFF
	Allows scanner free running with exposure lamp off. [0 to 1 / 0 / 1] 0: OFF, 1: ON
002	Book Mode: Lamp ON
	Allows scanner free running with the exposure lamp on. [0 to 1 / 0 / 1] 0: OFF, 1: ON

4014	Scanner
	This SP adjustment fine adjusts the speed of the scanner to prevent uneven performance. [Execute]

4015	Scanning Control Adjustment
	Displays the value of the scanner speed fine adjustment. [-20 to +20 / 0 / 1] Scanner speed fine adjustment is automatically done when the main switch is turned on, and the current setting is overwritten.

4301	Operation Check APS Sensor
	Displays the APS sensor output signals when an original is placed on the exposure glass.

4303	Set Minimum Size for APS		
	<p>Selects whether or not the machine detects the original as A5 or HLT size when the APS sensor does not detect the size.</p> <p>[0 to 1 / 0 / 1]</p> <p>0: Unknown Document Size</p> <p>1 : A5-SEF (HLT-SEF)</p> <p>If 1 is selected, the paper size is determined as A5 length 5½" x 8 ½", even if the paper size is too small to be detected on the exposure glass.</p>		
4305	8K/16K Detection		
	<p>Changes APS size detection</p> <p>[0 to 3 / 0 / 1]</p> <p>0 : Normal</p> <p>1 : A4-LEF LT-SEF</p> <p>If the paper is LEF, detects A4, if SEF detects LT</p> <p>2 : LT-LEF A4 SEF</p> <p>If paper is LEF, detects LT, if SEF detects A4.</p> <p>3: 8-kai, 16-kai</p> <ul style="list-style-type: none"> <li>• A3, B4 &gt; 8-kai SEF</li> <li>• A4 SEF, B5 SEF, A5 SEF &gt; 16-kai SEF</li> <li>• A4 LEF, B5 LEF, A5 LEF &gt; 16-kai LEF</li> </ul>		
4400	Original Edge Mask Setting		
	This SP sets the mask area to remove shadows when scanning originals from the exposure glass in Book mode.		
	<b>Note:</b> "LE" denotes "leading edge" and "TE" denotes "trailing edge".		
	001	Book:Sub Scan:Leading Edge	[0 to 3/0/0.1 mm]
	002	Book:Sub Scan:Trailing Edge	
003	Book:Main Scan:Leading Edge (Rear)		
004	Book:Main Scan:Trailing Edge (Front)		
4417	IPU Test Pattern		

001	0	Scanner Data
	1	256-Gradation: Main Scan A
	2	256-Gradation: Main Scan B
	3	256-Gradation: Main Scan C
	4	256-Gradation: Main Scan D
	5	256-Gradation: Sub Scan
	6	Small Grid Pattern
	7	Slanted Grid Pattern
	8	256 Gradations: K
	9	16-Step Check Pattern
	10	Gray Patch 1: 16-Step
	11	Gray Patch 2: 16-Step
	12	Gray Patch: 64-Step
	13	Large Grid
	14	Uneven Density Check
	15	Banding Check 1
	16	Banding Check 2
	17	Overall Coverage
	18	Shading Check
	19	Text Check
	20	Scan Image + Grid B
	21	Scan Image + Black Grade B
	22	Scan Image + Density Uneven C
	23	Scan Image + Slanted Grid C
	24	Scan Image + Slanted Grid D
	25	18-Level Grayscale: Text



	26	18-Level Grayscale: Photo
	27	256-Level Grayscale: Text
	28	256-Level Grayscale: Photo

4429	Illegal Copy Output <b>DFU</b>	
001	Copy [0 to 3/ 3 / 1]	
002	Scanner [0 to 3/ 3 / 1]	

4460	Digital AE	
	This SP sets the lower limit and level for background removal when background removal is selected with a scanner application.	
001	Low Limit Value	[0 to 1023/392/1]
002	Background level	[0 to 1023/972/1]

4540	Print Coverage Correction <b>DFU</b>
------	--------------------------------------

4550	Scanning: Text/Drawing
4551	Scanning: Text
4552	Scanning: Test Dropout Color
4553	Scanning: Text/Photo
4554	Scanning: Photo
4565	Scanning: Grayscale
4570	Scanning: Color Text/Photo
4571	Scanning: Color Gloss Photo
4572	Scanning: Auto Color
005	MTF Level: 0-15 (0:OFF, 15:High)

	<p>Sets the MTF level (Modulation Transfer Function) designed to improve image contrast. Set higher for stronger effect, lower for weaker effect.</p> <p>[0 to 15/8/1]</p>
006	Smoothing Level: 0-7 (0:Low, 7:High)
	<p>Use to remove "jaggies" if they appear. Set higher for smoother.</p> <p>[0 to 7/4/1]</p>
007	Brightness: 1-255
	<p>Set higher for darker, set lower for lighter.</p> <p>[1 to 255/128/1]</p>
008	Contrast: 1-255
	<p>Set higher for more contrast, set lower for less contrast.</p> <p>[1 to 255/128/1]</p>
009	Independent Dot Erase: 0-7 (0:Low, 7 High)
	<p>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.</p> <p>[0 to 7/0/1]</p>

4600	Read SBU ASIC ID <b>DFU</b>
	Displays the SBU ID code confirmed by reading the SBU after the SBU adjusts automatically at power on.
001	VSBCNT
	<p>Displays the reading of VSBCNT_ID if an error is detected at the SBU during iSBU auto adjustment.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>This SP displays after SC144 is issued if the reading of the ID value is not within specifications for iSBU self adjustment control operation.</li> <li>The display format is hexadecimal (1-byte data), normally "14H" displays. 1</li> </ul>
002	DAGL_L

	<p>Displays the reading of DAGL_ID if an error is detected at the SBU during iSBU auto adjustment.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>This SP displays after SC144 is issued if the reading of the ID value is not within specifications for iSBU self adjustment control operation. The display format is hexadecimal (1-byte data), normally "11H" displays.</li> </ul>
003	DAGL_F
	<p>Displays the reading of DAGL_F_ID if an error is detected at the SBU during iSBU auto adjustment.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>This SP displays after SC144 is issued if the reading of the ID value is not within specifications for iSBU self adjustment control operation.</li> <li>The display format is hexadecimal (1-byte data), normally "11H" displays.</li> </ul>

4609	Gray Balance Ad Value: R	DFU
4610	Gray Balance Adj Value: G	DFU
4611	Gray Balance Ad Value: B	DFU
4615	Gray Balance Adj Value: R (Factory Setting)	DFU
4616	Gray Balance Ad Value: G (Factory Setting)	DFU
4617	Gray Balance Adj Value: B (Factory Setting)	DFU
4628	Gain Range Ad Value: R (Factory Setting)	DFU
4629	Gain Range Adj Value: G (Factory Setting)	DFU
4630	Gain Range Ad Value: B (Factory Setting)	DFU
4631	Gain Adj Value R	DFU
4632	Gain Adj Value G	DFU
4633	Gain Adj Value B	DFU
4641	Loop Number: White Level	DFU
4646	Error Flag Auto – Adj Scanner	DFU
4647	Error Flag Auto – Adj Scanner	DFU

4677	Gain Range Adj Value (Factory Setting)	DFU
4678	Gain Range Adj Value (Factory Setting)	DFU
4679	Gain Range Adj Value (Factory Setting)	DFU
4680	Gain Range: Adj Value	DFU
4681	Gain Range: Adj Value	DFU
4682	Gain Range: Adj Value	DFU
4690	White Level Peak Data	DFU
4691	White Level Peak Data	DFU
4692	White Level Peak Data	DFU
4693	Black Level Data	DFU
4694	Black Level Data	DFU
4695	Black Level Data	DFU
4800	FL Correction ON/OFF	DFU
4803	Result FL	DFU
4804	Result FL	DFU
4820	Lamp Error Detection	DFU

4901	Background Erase
020	Blue Original (Lighter)
	Sets the strength of background blue erase when orange original mode is selected. [0 to 192 / 50 / 1] A higher setting erases more background and a lower setting less.
021	Blue Original (Normal)
	Sets the strength of background blue erase when the green original mode is selected. [0 to 192 / 72 / 1] A higher setting erases more background and a lower setting less.

022	Blue Original (Darker)	
	Sets the strength of background blue erase when blue original mode is selected [0 to 192 / 100 / 1]	
	A higher setting erases more background and a lower setting less.	

4903	Image Quality Adjustment	
	These SP codes adjust the sharpness and granularity of printed images.	
001	Independent Dot Erase: Text	[0 to 7 / 0 / 1]
002	Independent Dot Erase: Copy Original	0: Softest 1: Soft Mode 4: Normal ( <b>Default</b> ) 6: Sharp Mode 7: Sharpest

4905	Gradation Processing Selection	
------	--------------------------------	--

4918	Manual Gamma	
------	--------------	--

Text/Photo and Photo have different settings (Glossy Photo, Printed Photo, Copied Photo, etc.) as shown in the screen below).

To display this screen: User Tools/Counter button (  ) > "Copier/Document Server Settings" > "General Features" > "Original Photo Type Priority".

Original Photo Type Priority Cancel

---

Select item then press [OK].

▶ Text/Photo

▶ Photo

d059d005

These features can be adjusted with SP4918.

Enter the SP mode and select SP4918.

Manual Gamma Adj

Copy: Letter (SC)

Offset				Option			
H	M	S	IDmax	H	M	S	IDmax
15	15	15	15	0	0	0	0

Copy: Photo (SC)

Offset				Option			
H	M	S	IDmax	H	M	S	IDmax
15	15	15	15	0	0	0	0

d059d006

Eight adjustments can be done independently for "Text" and "Photo" originals. Refer to the table below.

	Area Adjusted on Original	Value	
		Low (1)	High (15)
<b>Offset</b>			
H	Density in light areas (highlights)	Lighter	Darker
M	Density at center	Lighter	Darker
S	Density of dark areas (shadows)	Lighter	Darker
IDmax	Density of entire original	Lighter	Darker
<b>Option</b>			
H	Entire original background erase	Weak	Strong
M	Entire original contrast	Low	High
S	Not used	---	---
IDmax	Not used	---	---

4991	IPU Image Path Switching <b>DFU</b>
------	-------------------------------------

4993	Highlight Correction
001	Sensitivity Selection

	<p>Sets the level of sensitivity for the removal of shadows that can be caused with originals that have been marked up with highlighter pens.</p> <p>[0 to 9/4/1]</p> <p>Lowering the setting reduces the removal effect, and raising the setting increases the removal effect.</p>
002	Range Selection
	<p>Sets the region where highlight removal is applied.</p> <p>[0 to 9/4/1]</p> <p>A lower setting increases the size of the region, and a higher setting reduces the size of the region.</p>
4994	<p>Adj Txt/Photo Recognition Level: High Compression PDF</p> <hr/> <p>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.</p> <p>[0 to 2/1/1]</p> <p>0: Nearer text</p> <p>1: Default</p> <p>2: Nearer photo</p>

# System SP5-*nnn* Mode: 1

3

5019	Paper Size
	Selects the paper size for the trays. LT LEF: USA version A4 LEF: Other versions
002	Tray 1
005	Tray 4
006	Tray 5
007	Tray 6

5024	mm/inch Display Selection
	Selects whether mm or inches are used in the display. <b>Note:</b> 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	[0 to 297.0 / 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	[0 to 4320 / 2100 / 0.1 mm]
005	Tray 4	
006	Tray 5	
007	Tray 6	

5045	Accounting Counter <b>DFU</b>
	<p>Selects the counter display.</p> <p><b>Note:</b> You can change the setting only one time.</p> <p>[0 to 2/ 0]</p> <p>0: Total counter</p> <p>1: Not used</p> <p>2: Total counter and GPC counter: GPC counter is only used for Japanese model. For other models, this mode cannot be used.</p>

5047	Paper Display
001	Backing Paper Display
	<p>Determines whether the tray loaded with paper printed on one side is displayed on the operation panel.</p> <p>[0 to 1/0/1]</p> <p>0: Not displayed, 1: Displayed</p>
002	Punched Paper
	<p>Determines whether the tray loaded with punched paper is displayed on the operation panel.</p> <p>[0 to 1/1/1]</p> <p>0: Disabled, 1: Enabled</p>

5051	Toner Refill Detection Display
	<p>Enables/disables the toner refill detection display.</p> <p>[0 or 1 / 0 / 1] Alphanumeric</p> <p>0: ON</p> <p>1: OFF</p>

5055	Display IP Address
	Switches the banner display of MFP device display on and off. [0 to 1 / 0 / 1] [OFF] ON

5056	Coverage Counter Display
	NIA [0 to 1/0/1] 0: Display off, 1: Display on

5061	Toner Remaining Icon Display Change
	Display or does not display the remaining toner display icon on the LCD. [0 or 1 / 0 / 1 ] 0: Not display, 1: Display

5062	Part Replacement Alert Display
	Enables/disables the appearance of the PM parts in the yield list on the operation panel. PM parts can be selected independently for display. [ON] OFF <b>Note:</b> SP5066 must be set to "1: Display".
001	#Development Unit
002	Developer
003	#Drum Unit
004	Drum Pick-off Pawls
005	#Drum Cleaning Unit
006	Cleaning Blade
007	Cleaning Brush
008	Drum Cleaning Unit Filter
009	#Charge Unit

010	Grid Plate
011	Charge Corona Wire
012	Cleaning Pad
013	Cushion
014	#Pre-Charge Unit
015	Pre-Charge Corona Wire
016	Pre-Charge Grid Plate
017	#Fusing Unit
018	Hot Roller Strippers
019	Hot Roller
020	Pressure Roller
021	#Fusing Cleaning Unit
022	Web Roll
023	Web Cleaning Roll
024	Web Brake Pad
025	Toner Suction Bottle
026	Toner Suction Motor
027	Tray 1 Roller Assembly
028	Feed Roller – Tray 1
029	Pick-up Roller – Tray 1
030	Separation Roller – Tray 1
031	Tray 2 Roller Assembly
032	Feed Roller – Tray 2
033	Pick-up Roller – Tray 2
034	Separation Roller – Tray 2
035	Tray 3 Roller Assembly

036	Feed Roller – Tray 3
037	Pick-up Roller – Tray 3
038	Separation Roller – Tray 3
040	Transfer Belt
041	Transfer Belt Cleaning Blade
042	Toner Filter
043	ADF Transfer Belt
044	ADF Separation Roller
045	ADF Feed Belt
046	ADF Pick-up Roller
047	Tray 4 Roller Assembly
048	Feed Roller – Tray 4
049	Pick-up Roller – Tray 4
050	Separation Roller – Tray 4
051	Tray 5 Roller Assembly
052	Feed Roller – Tray 5
053	Pick-up Roller – Tray 5
054	Separation Roller – Tray 5
055	Tray 6 Roller Assembly
056	Feed Roller – Tray 6
057	Pick-up Roller – Tray 6
058	Separation Roller – Tray 6
059	Tray 7 Roller Assembly
060	Feed Roller – Tray 7
061	Pick-up Roller – Tray 7
062	Separation Roller – Tray 7

063	Toner Collection Unit
100	Blade Cradle
101	Blade
102	Glue Vat Unit

5066	PM Parts Display
	<p>Determines whether the PM parts button is displayed on the initial screen.  [*0: No Display] [1: Display]</p> <p><b>Note:</b> Individual PM parts can be selected for display or no display with SP5062.</p>

5067	Part Replacement Operation Type
	<p>Configures the PM parts display for either the customer engineer (Service) or user.  [*0: Service] [1: User]</p> <p><b>Note:</b> SP5066 must be set to "1: Display".</p>
001	#Development Unit
002	Developer
003	#Drum Unit
004	Drum Pick-off Pawls
005	#Drum Cleaning Unit
006	Cleaning Blade
007	Cleaning Brush
008	Drum Cleaning Unit Filter
009	#Charge Unit
010	Grid Plate
011	Charge Corona Wire
012	Cleaning Pad
013	Cushion

014	#Pre-Charge Unit
015	Pre-Charge Corona Wire
016	Pre-Charge Grid Plate
017	#Fusing Unit
018	Hot Roller Strippers
019	Hot Roller
020	Pressure Roller
021	#Fusing Cleaning Unit
022	Web Roll
023	Web Cleaning Roll
024	Web Brake Pad
025	Toner Suction Bottle
026	Toner Suction Motor
027	Tray 1 Roller Assembly
028	Feed Roller – Tray 1
029	Pick-up Roller – Tray 1
030	Separation Roller – Tray 1
031	Tray 2 Roller Assembly
032	Feed Roller – Tray 2
033	Pick-up Roller – Tray 2
034	Separation Roller – Tray 2
035	Tray 3 Roller Assembly
036	Feed Roller – Tray 3
037	Pick-up Roller – Tray 3
038	Separation Roller – Tray 3
040	Transfer Belt

041	Transfer Belt Cleaning Blade
042	Toner Filter
043	ADF Transfer Belt
044	ADF Separation Roller
045	ADF Feed Belt
046	ADF Pick-up Roller
047	Tray 4 Roller Assembly
048	Feed Roller – Tray 4
049	Pick-up Roller – Tray 4
050	Separation Roller – Tray 4
051	Tray 5 Roller Assembly
052	Feed Roller – Tray 5
053	Pick-up Roller – Tray 5
054	Separation Roller – Tray 5
055	Tray 6 Roller Assembly
056	Feed Roller – Tray 6
057	Pick-up Roller – Tray 6
058	Separation Roller – Tray 6
059	Tray 7 Roller Assembly
060	Feed Roller – Tray 7
061	Pick-up Roller – Tray 7
062	Separation Roller – Tray 7
063	Toner Collection Unit
100	Blade Cradle
101	Blade
102	Glue Vat Unit

5112	Non-Std. Paper Sel.
	<p>Determines whether a non-standard paper size can be input for the universal cassette trays (Tray 2, Tray 3)</p> <p>[0 to 1/1]</p> <p>0: No</p> <p>1: Yes. If "1" is selected, the customer will be able to input a non-standard paper size using the UP mode.</p>

5113	Optional Counter Type
001	Default Optional Counter Type
	<p>Selects the type of counter:</p> <p>0: None</p> <p>1: Key Card (RK3, 4)</p> <p>2: Key Card Down</p> <p>3: Pre-paid Card</p> <p>4: Coin Lock</p> <p>5: MF Key Card</p> <p>11: Exp Key Card (Add)</p> <p>12: Exp Key Card (Deduct)</p> <p><b>Note:</b> Items 1, 2, 3, 5, 5 are for <b>Japan Only</b></p>
002	External Optional Counter Type
	<p>Enables the SDK application. This lets you select a number for the external device for user access control.</p> <p><b>Note:</b> "SDK" refers to software on an SD card.</p> <p>[0 to 3/1]</p> <p>0: None</p> <p>1: Expansion Device 1</p> <p>2: Expansion Device 2</p> <p>3: Expansion Device 3</p>

5114	Optional Counter I/F
------	----------------------



	<p>This SP sets the machine for the MF Key Card Extension.</p> <p>0: OFF, 1: ON</p>
5118	<p>Disable Copying</p> <p>Temporarily denies access to the machine. <b>Japan Only</b></p> <p>[0 to 1/1]</p> <p>0: Release for normal operation</p> <p>1: Prohibit access to machine</p>
5120	<p>Mode Clear Opt. Counter Removal</p> <p>Do not change. <b>Japan Only</b></p> <p>[0 to 2/ 0 / 1]</p> <p>0: Yes. Normal reset</p> <p>1: Standby. Resets before job start/after completion</p> <p>2: No. Normally no reset</p>
5121	<p>Counter Up Timing</p> <p>Determines whether the optional key counter counts up at paper feed-in or at paper exit.</p> <p>[0 to 1/1]</p> <p>0: Feed count, 1: No feed count</p>
5126	<p>Document: Set F-Size</p> <p>There are presently three F-type sizes (8½ x 13, 8¼ x 13, 8 x 13). 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.</p> <p>[0 to 2/0/1]</p> <p>0: Foolscap 8 1/2 x 13</p> <p>1: Folio 8 1/4 x 13</p> <p>2: F 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.</p> <p>[0 to 1/1] 0: On, 1: Off</p>

3

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 the IOB.)</p> <p>[0 to 2 / 0 / 1] 0: [JP]: Japan, 1: [NA]: North America, 2: [EU]: Europe After changing the value, turn the main power switch off and on.</p>

5148	Size Detection Off
	<p>This SP switches off paper size detection for the paper feed trays in the LCT. Each tray can be selected independently. The number of trays displayed will depend on whether the LCT and bypass unit are installed.</p>
005	Tray 4 (0: ON, 1: OFF)
006	Tray 5 (0: ON, 1: OFF)
007	Tray 6 (0: ON, 1: OFF)

5158	Cover Feeder Size Change
	<p>This SP sets the priority paper size setting for the cover interposer tray.</p>
001	[0: A3] [1: 12x18]
002	[0: 8 1/2 x 13] [1: 8 1/2 x 13] [2: 8 1/4 x 13]
003	[0: 8 1/2x 14] [1: [8 1/2 x 13]
004	[0: 11x8 1/2] [1: 10 1/2 x 7 1/4]
005	[0: 8 1/2 x 11] [1: 8 x 10]
006	[0: K] [1: DLT]

007	[0: 16K (267 x 195)] [1: 8 1/2 x 11]
008	[0: 16K (195 x 267)] [1: 11 x 81/2]

5160	Thick Paper Setting (0: OFF 1: ON)
	<p>Adjusts the machine for line speed with thick paper.</p> <p>0: OFF</p> <p>1: ON (Low Speed Mode)</p> <p>2: ON (Low Speed Mode 2)</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• D059: Do not change (90 cpm only).</li> <li>• D060: "1" selects 90 cpm. "2" setting has no effect.</li> <li>• D061: "1" selects 110 cpm, "2" selects 90 cpm</li> </ul>

	App. Switch Method
5162	<p>Controls if the application screen is changed with a hardware switch or a software switch.</p> <p>[0 to 1/1]</p> <p>0: Soft Key Set, 1: Hard Key Set</p>

	CE Login
5169	<p>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.</p> <p>[0 to 1/1]</p> <p>0: Off. Printer bit switches cannot be adjusted.</p> <p>1: On. Printer bit switches can be adjusted.</p>



3

5182	HDD Page Mgmt <b>(Not necessary to be adjusted)</b>
	<p><b>These SP codes are not necessary to be adjusted for this model.</b></p> <p>These SP codes were used to change the configuration of the TEMP partition for raw data on the HDD so the local storage (LS) area can be expanded.</p> <ul style="list-style-type: none"> <li>• The SP codes below cannot be set together.</li> <li>• 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) when 001 is already set to on (1), 002 will be set to on (1) and 001 will automatically reset to its default value (0: Normal).</li> </ul>
001	Release LS Limit
	<p>Normally LS can handle up to 15,000 pages. Use this SP code to select expansion of the page storage area.</p> <p>[0 to 1/0/1]</p> <p>0: Normal, 1: Allow Expansion</p>
002	Change Pages/Doc
	<p>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.</p> <p>[0 to 1/0/1]</p> <p>0: Normal, 1: Allow Expansion</p>
5185	TCRU: Set Machine <b>DFU</b>
	<p>Determines whether the machine is TCRU compatible or not.</p> <p>[*0: OFF] [1: ON]</p>
5187	PM Counter Print Out in UP
	<p>This setting determines whether parts without standard counts print in addition to the normal counter list</p> <p>[0 to 1/0/1]</p> <p>0: No, 1: Yes</p>

5188	Copy NV Version
	Copies NV version to another NVRAM. <b>Note:</b> NVRAM version management automatically initializes the NV for each machine.
5190	Unit Life Target Change
	This SP determines whether operators and skilled operators are allowed to make changes in the Operator and Skilled Operator display screens on the machine operation panel. 0: Changes allowed 1: No changes allowed.
5191	Mode Set
	This setting determines whether the machine is allowed to move into energy save mode.. 1: Allowed 0: Not allowed
5193	External Controller Info. Setting
	Selects the information setting for the type of external controller.
	[0 to 10/ 0 / 1] 0: No external controller 1: EFI Controller 2: Ratio Controller 3: Egret Controller 4 to 10: Reserved (Do not select)
5195	Limitless SW

	<p>Selects the paper feed mode priority (productivity or tray). This SP is activated only when a customer selects the "Auto Paper Select".</p> <ul style="list-style-type: none"> <li>• <b>Productivity priority.</b> Changes the feed station as soon as the machine detects the priority tray even the paper still remains in the current tray.</li> <li>• <b>Tray priority.</b> This changes the feeding tray after the paper in the tray where the machine has been feeding paper has run out of paper.</li> </ul> <p>[0 to 1/0/1]                  0: Productivity priority                  1: Tray priority</p>
--	--

5199	Paper Set After Staple End
	<p>Enables or disables feeding out of the finisher without stapling.                  [0: OFF] [1: ON]                  0: OFF"                  Paper feeds out with stapling at the maximum number of the finisher stapling when the machine gets a multiple printing job (over maximum number).                  1: ON                  Paper feeds out without stapling at the maximum number of the finisher stapling when the machine gets a multiple printing job (over maximum number).</p>

5212	Page Numbering
003	Duplex Printout Left/Right Position
	<p>Horizontally positions the page numbers printed on both sides during duplexing.                  [-10 to +10/1 mm]                  0 is center, minus is left, + is right.</p>
004	Duplex Printout High/Low Position
	<p>Vertically positions the page numbers printed on both sides during duplexing.                  [-10 to +10/1 mm]                  0 is center, minus is down, + is up.</p>

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 to 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 to 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 to 1/0/1] 0: No excess zeros, 1: Excess zeros displayed

5302	Set Time <b>DFU</b>
	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 to 1440/1 min.] JA: +540 (Tokyo) NA: -300 (NY) EU: +6- (Paris) CH: +480 (Peking) TW: +480 (Taipei) AS: +480 (Hong Kong)

5307	Summer Time	
	<p>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:</p> <p>Day and time to go forward automatically in April.</p> <p>Day and time to go back automatically in October.</p> <p>Set the length of time to go forward and back automatically.</p> <p>The settings for 002 and 003 are done with 8-digit numbers:</p>	
	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.
	5th, 6th	The time when the change occurs (24-hour as hex code). Example: 00:00 (Midnight) = 00, 01:00 (1 a.m.) = 01, and so on.
	7th	The number of hours to change the time. 1 hour: 1
8th	If the time change is not a whole number (1.5 hours for example), digit 8 should be 3 (30 minutes).	
001	Setting	<p>Enables/disables the settings for 002 and 003.</p> <p>[0 to 1/1]</p> <p>0: Disable, 1: Enable</p>
003	Rule Set (Start)	The start of summer time.
004	Rule Set (End)	The end of summer time.



## System SP5-*nnn* Mode: 2

5401	Access Control <b>DFU</b>
	This SP adjusts the settings below when installing and SDK application. <b>Note:</b> "SDK" is the "Software Development Kit". This data can be converted from SAS (VAS) when installed or uninstalled.
103	Default Document ACL
	Used to assign the default access user access privileges to their own documents on the document server.
162	Extend Certification Detail
	Logout without an IC card. [0 to 1/0/1] 0: Not allowed (default) 1: Allowed
200	SDK1 Unique ID
201	SDK1 Certification Method
210	SDK2 Unique ID
211	SDK2 Certification Method
220	SDK3 Unique ID
221	SDK3 Certification Method

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.

5411	LDAP Certification
004	Easy Certification
	Determines whether easy LDAP certification is done. [0 or 1 / 1 / 1] 1: On, 0: Off

005	Password Null Not Permit
	<p>Enabled only when SP5411-4 is set to "1" (On).</p> <p>[0 or 1 / <b>0</b> / -]</p> <p>0: Password NULL not permitted.</p> <p>1: Password NULL permitted.</p>

3

5413	Lockout Setting
001	Lockout On/Off
	<p>Switches the local address book account lock on/off.</p> <p>[0 or 1 / <b>0</b> / -]</p> <p>0: Off, 1: On</p>
002	Lockout Threshold
	<p>Sets a limit on the frequency of lockouts for account lockouts.</p> <p>[1 to 10 / <b>5</b> / 1/step]</p>
003	Cancellation On/Off
	<p>Determines whether the system waits the prescribed time for input of a correct user ID and password after an account lockout has occurred.</p> <p>[0 or 1 / <b>0</b> / -]</p> <p>0: Off (no wait time, lockout not cancelled)</p> <p>1: On (system waits, cancels lockout if correct user ID and password are entered).</p>
004	Cancellation Time
	<p>Determines the length of time that the system waits for correct input of the user ID and password after a lockout has occurred. This setting is used only if SP5413-3 is set to "1" (on).</p> <p>[1 to 999 / <b>60</b> / 1 min./step]</p>
005	Counter Clear Time
	Not used.

5414	Access Mitigation
001	Mitigation On/Off

	Switches on/off masking of continuously used IDs and passwords that are identical. [0 or 1 / <b>0</b> / -] 0: Off, 1: On
002	Mitigation Time
	Sets the length of time for excluding continuous access for identical user IDs and passwords. [0 to 60 / <b>15</b> / 1 min./step]

5415	Password Attack
001	Permissible Number
	Sets limit on the number of attacks on the system with random passwords to gain illegal access to the system. [0 to 100 / 30 / 1 attempt/step]
002	Detect Time
	Sets the time limit to stop a password attack once such an attack has been detected. [1 to 10 / 5 / 1 sec./step]

5416	Access Information
001	Access Use Max Num
	Limits the number of users used by the access exclusion and password attack detection functions. [50 to 200 / <b>200</b> / 1 users/step]
002	Access Password Max Num
	Limits the number of passwords used by the access exclusion and password attack detection functions. [50 to 200 / <b>200</b> / 1 password/step]
003	Monitor Interval
	Sets the processing time interval for referencing user ID and password information. [1 to 10 / <b>3</b> / 1 sec./step]

5417	Access Attack
001	Access Permissible Number

	<p>Sets a limit on access attempts when an excessive number of attempts are detected for MFP features.</p> <p>[0 to 500 / <b>100</b> / 1/step]</p>
002	Attack Detect Time
	<p>Sets the length of time the frequency of access to MFP features are monitored.</p> <p>[10 to 30 / <b>10</b> / 1 sec./step]</p>
003	Productivity Fall Wait
	<p>Sets the wait time to slow down the speed of certification when an excessive number of access attempts have been detected.</p> <p>[0 to 9 / <b>3</b> / 1 sec./step]</p>
004	Attack Max Number
	<p>Sets a limit on the number of requests received for certification in order to slow down the certification speed when an excessive number of access attempts have been detected.</p> <p>[50 to 200 / <b>200</b> / 1 attempt/step]</p>

5420	User Authentication
	<p>These settings should be done with the System Administrator.</p> <p><b>Note:</b> These functions are enabled only after the user access feature has been enabled.</p>
001	Copy
	<p>Determines whether certification is required before a user can use the copy applications.</p> <p>[0 or 1/ <b>0</b> /1]</p> <p>0: On, 1: Off</p>
011	Document Server
	<p>Determines whether certification is required before a user can use the document server.</p> <p>[0 or 1/ <b>0</b> /1]</p> <p>0: On, 1: Off</p>
031	Scanner
	<p>Determines whether certification is required before a user can use the scanner applications.</p> <p>[0 or 1/ <b>0</b> /1]</p> <p>0: On, 1: Off</p>

041	Printer	
	Determines whether certification is required before a user can use the printer applications. [0 or 1 / 0 / 1] 0: On, 1: Off	
051	SDK1	Determines whether certification is required before a user can use the SDK application. [0 or 1 / 0 / 1] 0: ON. 1: OFF
061	SDK2	
071	SDK3	

3

5430	Auth Dialog Message Change	
001	Message Change On/Off	
002	Message Text Download	
003	Message Text ID	
	[0 to 1/0/1 0: OFF 1: ON	

5481	Authentication Error Code	
	These SP codes determine how the authentication failures are displayed.	
001	System Log Disp	
	Determines whether an error code appears in the system log after a user authentication failure occurs. [0 or 1 / 0 / 1] 0: Off, 1: On	
002	Panel Disp	
	Determines whether an error code appears on the operation panel after a user authentication failure occurs. [0 or 1 / 0 / 1] 0: Off, 1: On	

5490	MF Key Card	
------	-------------	--

	<p>Sets operation of the MF key card.</p> <p>[0 to 1/0/1]</p> <p>1: Allowed</p> <p>0: Not allowed</p> <p>1: Certification executes with a user code (9999 9999). Printing executes and the counter increments for the user code.</p> <p>0: Certification executes without a user code but printing is cancelled.</p>
--	--

	PM Alarm
5501	<p>Sets the count level for the PM alarm.</p> <p>[0 to 9999 / 0 / 1]</p> <p>0: Alarm disabled</p> <p>The PM alarm goes off when the print count reaches this value multiplied by 1,000.</p>

	Jam Alarm <b>Japan Only</b>
5504	<p>Sets the alarm to sound for the specified jam level (document misfeeds are not included). RSS use only</p> <p>[0 to 3 / 3 / 1 step]</p> <p>0: Zero (Off)</p> <p>1: Low (2.5K jams)</p> <p>2: Medium (3K jams)</p> <p>3: High (6K jams)</p>

	Error Alarm
5505	<p>Sets the error alarm level. <b>Japan only DFU</b></p> <p>[0 to 255 / 50 / 100 copies per step]</p>

5507	Supply Alarm
001	Paper Supply Alarm

	Switches the control call on/off for the paper supply. <b>DFU</b> 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	
	Switches the control call on/off for the stapler installed in the finisher. <b>DFU</b> 0: Off, 1: On 0: No alarm 1: Alarm goes off for every 1K of staples used.	
003	Toner Supply Alarm	
	Switches the control call on/off for the toner end. <b>DFU</b> 0: Off, 1: On If you select "1" the alarm will sound when the copier detects toner end.	
080	Toner Call Timing	
	Changes the timing of the "Toner Supply Call" via the NRS, when the following conditions occur. <b>0</b> : Toner is replaced (default) <b>1</b> : Toner near end or End	
128	Interval: Others	The "Paper Supply Call Level: <i>nn</i> " SPs specify the paper control call interval for the referenced paper sizes. [00250 to 10000 / 1000 / 1 Step]
132	Interval: A3	
133	Interval: A4	
134	Interval: A5	
141	Interval: B4	
142	Interval: B5	
160	Interval: DLT	
164	Interval: LG	
166	Interval: LT	
172	Interval: HLT	

5508	<b>CC Call Japan Only</b>	
001	Jam Remains	Enables/disables initiating a call. [0 to 1/1] 0: Disabled, 1: Enabled
002	Continuous Jams	
003	Continuous Door Open	
011	Jam Detection: Time Length	
	Sets the length of time to determine the length of an unattended paper jam. [03 to 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 to 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 to 30/1] This setting is enabled only when SP5508-004 is enabled (set to 1).	

5513	<b>Parts Alarm Level Count Japan Only</b>	
001	Normal	Sets the parts replacement alarm counter to sound for the number of copies. [1 to 9999 / 350 / 1]
	DF	
002	DF	Sets the parts replacement alarm counter to sound for the number of scanned originals. [1 to 9999 / 350 / 1]

5514	Parts Alarm Level	<b>Japan Only</b>
001	Normal	[0 to 1 / 1 / 1]
002	DF	[0 to 1 / 0 / 1]



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 to 1/1/1] 0: Off, 1: On
002	Service Parts Near End Call	
003	Service Parts End Call	
004	User Call	
006	Communication Test Call	[0 or 1 / 1 / -]
007	Machine Information Notice	0: Off
008	Alarm Notice	1: On
010	Supply Automatic Ordering Call	[0 to 1/0/1]
011	Supply Management Report Call	
012	Jam/Door Open Call	[0 to 1/1/1]

5516	Individual PM Part 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. <b>Note:</b> 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.	
004	Percent yield for triggering PM alert	
	Sets the percentage of yield (used service life) to trigger the PM alert.	

5801	Memory Clear	
	Resets NVRAM data to the default settings. Before executing any of these SP codes, print an SMC Report.	
001	All Clear	Initializes items 2 to 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
021	ECS
	Initializes the ECS settings.

5802	Printer Free Run
	Makes a base engine free run [0 to 1/0/1] 0: Release free run mode, 1: Enable free run mode Return this setting to off (0) after testing is completed. Finisher connectors should be disconnected and duplex mode should be off.

5803	Input Check: Decurl Unit	Decurler (D457)
------	--------------------------	-----------------

	Displays signals received from sensors and switches. This is the input check for the main machine.
050	Entrance Sensor
051	Exit Sensor
052	Soft Roller HP Sensor
053	Decurl Roller Set Sensor
055	Purge Tray Paper Sensor 1
056	Purge Tray Paper Sensor 2
057	Purge Tray Paper Sensor 3
058	Front Door Switch

	Output Check
5804	Turns on the electrical components individually for testing. This is the output check for the main machine.
001	1st Pick-up SOL
002	2nd Pick-up SOL
003	3rd Pick-up SOL
004	LCT 1st Pick-up SOL
005	LCT 2nd Pick-up SOL
006	LCT 3rd Pick-up SOL
007	Bypass Pick-up SOL
008	1st Separation Roller SOL
009	2nd Separation Roller SOL
010	3rd Separation Roller SOL
011	LCT 1st Separation Roller SOL
012	LCT 2nd Separation Roller SOL
013	LCT 3rd Separation Roller SOL

014	Bypass Separation Roller SOL
015	1st Tray Lift Motor
016	2nd Tray Lift Motor
017	3rd Tray Lift Motor
018	Rear Fence Drive Motor
019	Tandem Tray Connect Solenoid
020	Front Side Fence Solenoid
021	Rear Side Fence Solenoid
022	Left 1st Tray Lock Solenoid
031	Drum Motor
032	Fusing/Exit Motor
033	Fusing Motor
034	Web Motor
035	Development Motor
036	Upper Toner Bottle Motor
037	Lower Toner Bottle Motor
038	Toner Bank Motor
039	Toner Supply Coil Clutch
040	Toner Suction Motor
041	Upper Bottle Cap Motor
042	Lower Bottle Cap Motor
043	Toner Collection Bottle Agitator Motor
044	Hopper Agitator Motor
045	Toner Cylinder Agitator Motor
051	Guide Plate Solenoid
052	LCT Guide Plate Solenoid

053	Duplex Inverter Gate Solenoid
054	Reverse Roller Solenoid
055	Inverter Guide Plate Solenoid
056	Toner Recycling Shutter Solenoid
057	2nd Cleaning Blade Solenoid
058	Transfer Belt Lift Solenoid]
061	ID Sensor LED
062	Quenching Lamp
063	Charge Corona
064	Grid Plate
065	Development Bias
066	Transfer Belt Bias
067	Pre-Charge Grid
068	Charge Corona Grid
069	ID Sensor
070	PTL
081	Polygonal Motor Mirror Cooling Fan
082	Exhaust Fan (Low)
083	Exhaust Fan (High)
084	Drum Cooling Fan (Low)
085	Drum Cooling Fan (High)
086	Paper Cooling Pipe Fan 1
087	Paper Cooling Pipe Fan2
088	Steam Removal Fan (Low)
089	Steam Removal Fan (High)
090	Development Unit Cooling Fan 1

091	Development Unit Cooling Fan2
092	Duplex Entrance Cooling Fan
093	Duplex Cooling Fan
094	Cleaning Unit Cooling Fan
095	Toner Collection Cooling Fan
098	Laser Diode
099	Total Counter
101	1st Paper Feed Motor (Low Speed)
102	1st Paper Feed Motor (High Speed)
103	2nd Paper Feed Motor (Low Speed)
104	2nd Paper Feed Motor (High Speed)
105	3rd Paper Feed Motor (Low Speed)
106	3rd Paper Feed Motor (High Speed)
107	1st Transport Motor (Low Speed)
108	1st Transport Motor (High Speed)
109	2nd Transport Motor (Low Speed)
110	2nd Transport Motor (High Speed)
111	3rd Transport Motor (Low Speed)
112	3rd Transport Motor (High Speed)
113	Upper Relay Motor (Low Speed)
114	Upper Relay Motor (High Speed)
115	Vertical Relay Roller (Low Speed)
116	Vertical Relay Roller (High Speed)
117	Registration Motor
118	Registration Motor
121	4th Paper Feed Motor (Low Speed)

122	4th Paper Feed Motor (High Speed)
123	5th Paper Feed Motor (Low Speed)
124	5th Paper Feed Motor (High Speed)
125	6th Paper Feed Motor (Low Speed)
126	6th Paper Feed Motor (High Speed)
127	7th Paper Feed Motor (Low Speed)
128	7th Paper Feed Motor (High Speed)
129	4th Grip Motor (Low Speed)
130	4th Grip Motor (High Speed)
131	5th Grip Motor (Low Speed)
132	5th Grip Motor (High Speed)
133	6th Grip Motor (Low Speed)
134	6th Grip Motor (High Speed)
135	7th Grip Motor (Low Speed)
136	7th Grip Motor High Speed)
137	4th Transport Motor (Low Speed)
138	4th Transport Motor (High Speed)
139	5th Transport Motor (Low Speed)
140	5th Transport Motor (High Speed)
141	6th Transport Motor (Low Speed)
142	6th Transport Motor (High Speed)
143	7th Transport Motor (Low Speed)
144	7th Transport Motor High Speed)
145	LCT Exit Motor (Low)
146	LCT Exit Motor (High)
151	1st Vertical Transport Clutch



152	2nd Vertical Transport Clutch
153	3rd Vertical Transport Clutch
154	LCT 1st Grip Clutch
155	LCT 2nd Grip Clutch
156	LCT 3rd Grip Clutch
157	Bypass Grip Clutch
158	Relay Clutch
159	LCT Relay Clutch
161	Inverter Gate Solenoid
162	Duplex Transport Motor1
163	Toner Supply Pump Motor
164	Toner Supply Roller Motor
165	4th Front Blower Fan
166	4th Rear Blower Fan
167	5th Front Blower Fan
168	5th Rear Blower Fan
169	6th Front Blower Fan
170	6th Rear Blower Fan
171	Decurl Pressure Adjustment Motor
172	Transport Motor
173	Exit Guide Solenoid
174	Purge Tray JG Solenoid
202	Scanner Lamp 1
203	Scanner Lamp 2
204	Scanner Lamp Fan
205	Scanner Motor Fan

206	Scanner Fan
209	Paper Dehumidifier Fan (Main)
210	Transport Motor Cooling Fan (Main)
211	Power Pack Fan (Main)

3

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)
004	Decurler (D457) (1: Connected)

5811	Machine Serial <b>DFU</b>
	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.

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.

## System SP5-*nnn* Mode: 3

5816	Remote Service
001	I/F Setting
	Turns the remote diagnostics off and on. [0 to 2/1] 0: Remote diagnostics off. 1: Serial (CSS or NRS) remote diagnostics on. 2: Network remote diagnostics.
002	CE Call
	Lets the customer engineer start or end the remote machine check with CSS or NRS; to do this, push the center report key
003	Function Flag
	Enables and disables remote diagnosis over the NRS network. [0 to 1/1] 0: Disables remote diagnosis over the network. 1: Enables remote diagnosis over the network.
007	SSL Disable
	Controls if RCG (Remote Communication Gate) confirmation is done by SSL during an RCG send for the NRS over a network interface. [0 to 1/1] 0: Yes. SSL not used. 1: No. SSL used.
008	RCG Connect Timeout
	Sets the length of time (seconds) for the time-out when the RCG (Remote Communication Gate) connects during a call via the NRS network. [1 to 90/1 sec.]

009	RCG Write Timeout
	<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.</p> <p>[0 to 100/1 sec.]</p>
010	RCG Read Timeout
	<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.</p> <p>[0 to 100/1 sec.]</p>
011	Port 80 Enable
	<p>Controls if permission is given to get access to the SOAP method over Port 80 on the NRS network.</p> <p>[0 to 1/1]</p> <p>0: No. Access denied 1: Yes. Access granted.</p>
013	RFU Timing
021	RCG – C Registered
	<p>This SP displays the Cumin installation end flag.</p> <p>1: Installation completed 2: Installation not completed</p>
022	RCG – C Registered Detail
	<p>This SP displays the Cumin installation status.</p> <p>0: Basil not registered 1: Basil registered 2: Device registered</p>
023	Connect Type (N/M)
	<p>This SP displays and selects the Cumin connection method.</p> <p>0: Internet connection 1: Dial-up connection</p>

061	Cert. Expire Timing <b>DFU</b>
	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
	<p>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.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• The address display is limited to 127 characters. Characters beyond the 127th character are ignored.</li> <li>• This address is customer information and is not printed in the SMC report.</li> </ul>
064	HTTP Proxy Port Number
	<p>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.</p> <p><b>Note:</b> This port number is customer information and is not printed in the SMC report.</p>
065	Proxy User Name
	<p>This SP sets the HTTP proxy certification user name.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored.</li> <li>• This name is customer information and is not printed in the SMC report.</li> </ul>
066	Proxy Password
	<p>This SP sets the HTTP proxy certification password.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• The length of the password is limited to 31 characters. Any character beyond the 31st character is ignored.</li> <li>• This name is customer information and is not printed in the SMC report.</li> </ul>

<p>067</p>	<p>CERT: Up State</p> <p>Displays the status of the certification update.</p> <p>0: The certification used by Cumin is set correctly.</p> <p>1: The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated.</p> <p>2: The certification update is completed and the GW URL is being notified of the successful update.</p> <p>3: The certification update failed, and the GW URL is being notified of the failed update.</p> <p>4: The period of the certification has expired and new request for an update is being sent to the GW URL.</p>
	<p>11: A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection.</p> <p>12: The rescue certification setting is completed and the GW URL is being notified of the certification update request.</p> <p>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.</p> <p>14: The notification of the certification request has been received from the rescue GW controller, and the certification is being stored.</p> <p>15: The certification has been stored, and the GW URL is being notified of the successful completion of this event.</p> <p>16: The storing of the certification has failed, and the GW URL is being notified of the failure of this event.</p> <p>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.</p> <p>18: The rescue certification of No. 17 has been recorded, and the GW URL is being notified of the failure of the certification update.</p>

068	CERT: Error
	<p>Displays a number code that describes the reason for the request for update of the certification.</p> <p>0: Normal. There is no request for certification update in progress.</p> <p>1: Request for certification update in progress. The current certification has expired.</p> <p>2: An SSL error notification has been issued. Issued after the certification has expired.</p> <p>3: Notification of shift from a common authentication to an individual certification.</p> <p>4: Notification of a common certification without ID2.</p> <p>5: Notification that no certification was issued.</p> <p>6: Notification that GW URL does not exist.</p>
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 No.	
	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.	
093	CERT: Valid Start	
	Displays the start time of the period for which the current NRS certification is enabled.	
094	CERT: Valid End	
	Displays the end time of the period for which the current NRS certification is enabled.	
150	Selection Country	
	Select from the list the name of the country where Cumin-M is installed in the machine. After selecting the country, you must also set the following SP codes for Cumin-M:	
	<ul style="list-style-type: none"> <li>• SP5816-153</li> <li>• SP5816-154</li> <li>• SP5816-161</li> </ul>	
	0: Japan	6: Italy
	1: USA	7: Netherlands
	2: Canada	8: Belgium
	3: UK	9: Luxembourg
	4: Germany	10: Spain
5: France		



151	<p>Line Type Authentication Judgment</p> <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"> <li>• The current progress, success, or failure of this execution can be displayed with SP5816 152.</li> <li>• 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.</li> </ul>
152	<p>Line Type Judgment Result</p> <p>Displays a number to show the result of the execution of SP5816 151. Here is a list of what the numbers mean.</p> <p>0: Success</p> <p>1: In progress (no result yet). Please wait.</p> <p>2: Line abnormal</p> <p>3: Cannot detect dial tone automatically</p> <p>4: Line is disconnected</p> <p>5: Insufficient electrical power supply</p> <p>6: Line classification not supported</p> <p>7: Error because fax transmission in progress – ioctl() occurred.</p> <p>8: Other error occurred</p> <p>9: Line classification still in progress. Please wait.</p>
153	<p>Selection Dial/Push</p> <p>This SP displays the classification (tone or pulse) of the telephone line to the access point for Cumin-M. The number displayed (0 or 1) is the result of the execution of SP5816 151. However, this setting can also be changed manually.</p> <p>[0 to 1/0/1]</p> <p>0: Tone Dialing Phone</p> <p>1: Pulse Dialing Phone</p> <p>Inside Japan, "2" may also be displayed:</p> <p>0: Tone Dialing Phone</p> <p>1: Pulse Dialing Phone 10PPS</p> <p>2: Pulse Dialing Phone 20PPS</p>

154	Outside Line/Outgoing Number
	<p>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).</p> <ul style="list-style-type: none"> <li>• If the execution of SP5816 151 has succeeded and Cumin-M has connected to the external line, this SP display is completely blank.</li> <li>• If Cumin-M has connected to an internal line, then the number of the connection to the external line is displayed.</li> <li>• 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.</li> <li>• The number setting for the external line can be entered manually (including commas).</li> </ul>
156	Dial Up User Name
	<p>Use this SP to set a user name for access to remote dial up. Follow these rules when setting a user name:</p> <ul style="list-style-type: none"> <li>• Name length: Up to 32 characters</li> <li>• Spaces and # allowed but the entire entry must be enclosed by double quotation marks ("").</li> </ul>
157	Dial Up Password
	<p>Use this SP to set a password for access to remote dial up. Follow these rules when setting a user name:</p> <ul style="list-style-type: none"> <li>• Name length: Up to 32 characters</li> <li>• Spaces and # allowed but the entire entry must be enclosed by double quotation marks ("").</li> </ul>
161	Local Phone Number
	<p>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.</p> <p>Limit: 24 numbers (numbers only)</p>
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.</p> <p>[0 to 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.</p> <p>[0 to 1/0/1]</p> <p>0: Line shared by Cumin-M/Fax</p> <p>1: Line dedicated to Cumin-M only</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• If this setting is changed, the copier must be cycled off and on.</li> <li>• 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.</li> </ul>
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.</p> <p>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 SP5816164 is set to "0".</p> <p>[0 to 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>
200	Manual Polling
	No information is available at this time.
201	Regist: Status
	<p>Displays a number that indicates the status of the NRS service device.</p> <p>0: Neither the NRS device nor Cumin device are set.</p> <p>1: The Cumin device is being set. Only Box registration is completed. In this status the Basil unit cannot answer a polling request.</p> <p>2: The Cumin device is set. In this status the Basil unit cannot answer a polling request.</p> <p>3: The NRS device is being set. In this status the Cumin device cannot be set.</p> <p>4: The NRS module has not started.</p>
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	<p>Confirm Result</p> <p>Displays a number that indicates the result of the inquiry executed with SP5816 203.</p> <p>0: Succeeded</p> <p>1: Inquiry number error</p> <p>2: Registration in progress</p> <p>3: Proxy error (proxy enabled)</p> <p>4: Proxy error (proxy disabled)</p> <p>5: Proxy error (Illegal user name or password)</p> <p>6: Communication error</p> <p>7: Certification update error</p> <p>8: Other error</p> <p>9: Inquiry executing</p>
205	<p>Confirm Place</p> <p>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.</p>
206	<p>Register Execute</p> <p>Executes Cumin Registration.</p>
207	<p>Register Result</p> <p>Displays a number that indicates the registration result.</p> <p>0: Succeeded</p> <p>2: Registration in progress</p> <p>3: Proxy error (proxy enabled)</p> <p>4: Proxy error (proxy disabled)</p> <p>5: Proxy error (Illegal user name or password)</p> <p>6: Communication error</p> <p>7: Certification update error</p> <p>8: Other error</p> <p>9: Registration executing</p>
208	<p>Error Code</p>
	<p>Displays a number that describes the error code that was issued when either SP5816 204 or SP5816 207 was executed.</p>

	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
		-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	Instl Clear		
	Releases a machine from its Cumin setup.		
250	CommLog Print		
	Prints the communication log.		

5821	Remote Service Address <b>Japan Only</b>
	<p>RCG IP Address</p> <p>Sets the IP address of the RCG (Remote Communication Gate) destination for call processing at the remote service center.</p> <p>[00000000h to FFFFFFFFh/1]</p>

5824	NVRAM Data Upload
	<p>Uploads the UP and SP mode data (except for counters and the serial number) from NVRAM on the control board to an SD card.</p> <p>Note: While using this SP mode, always keep the front cover open. This prevents a software module accessing the NVRAM during the upload.</p>

5825	NVRAM Data Download
	<p>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.</p>

5828	Network Setting
050	1284 Compatibility (Centro)
	<p>Enables and disables bi-directional communication on the parallel connection between the machine and a computer.</p> <p>[0 to 1/1]</p> <p>0: Off, 1: On</p>
052	ECP (Centro)
	<p>Disables and enables the ECP feature (1284 Mode) for data transfer.</p> <p>[0 to 1/1]</p> <p>0: Disabled, 1: Enabled</p>
065	Job Spool Setting
	<p>Switches job spooling on and off.</p> <p>0: No spooling, 1: Spooling enabled</p>

066	Job Spool Clear: Start Time		
	<p>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.</p> <p>1: Resumes printing spooled job. 0: Clears spooled job.</p>		
069	Job Spool Protocol		
	<p>This SP determines whether job spooling is enabled or disabled for each protocol. This is an 8-bit setting.</p>		
	0	LPR	4 BMLinks (Japan Only)
	1	FTP (Not Used)	5 DIPRINT
	2	IPP	6 Reserved (Not Used)
	3	SMB	7 Reserved (Not Used)
090	TELNET (0:OFF 1:ON)		
	<p>Disables or enables Telnet operation. If this SP is disabled, the Telnet port is closed. [0 to 1/1] 0: Disable, 1: Enable</p>		
091	Web (0:OFF 1:ON)		
	<p>Disables or enables the Web operation. [0 to 1/1] 0: Disable, 1: Enable</p>		
145	Operation IPv6 Link Local Address		
	<p>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.</p>		
147	Operation IPv6 Stateless Address 1		
149	Operation IPv6 Stateless Address 2		
151	Operation IPv6 Stateless Address 3		
153	Operation IPv6 Stateless Address 4		



155	Operation IPv6 Stateless Address 5
	<p>These SPs are the IPv6 status addresses (1 to 5) referenced on the Ethernet or wireless LAN (802.11b) in the format:</p> <p>"Status Address" + "Prefix Length"</p> <p>The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.</p>
156	IPv6 Manual Setting Address
	<p>This SP is the IPv6 manually set address referenced on the Ethernet or wireless LAN (802.11b) in the format:</p> <p>"Manual Set Address" + "Prefix Length"</p> <p>The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.</p>
158	IPv6 Gateway Address
	<p>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.</p>
161	IPv6 Stateless Auto Setting
	<p>Enables or disables the automatic setting for IPv6 stateless.</p> <p>[0 or 1 / 1 / 1 /step]</p> <p>0: Disable, 1: Enable</p>
236	Web Item Visible
	<p>Displays or does not display the Web system items.</p> <p>[0 x 0000 to 0 x ffff / 0 x ffff] 0: Not displayed, 1: Displayed</p> <p>bit0: Net RICOH</p> <p>bit1: Consumable Supplier</p> <p>bit2-15: Reserved (all)</p>
237	Web Shopping Link Visible
	<p>Displays or does not display the link to Net RICOH on the top page and link page of the web system.</p> <p>[0 to 1 / 1 / 1]</p> <p>0: Not display, 1: Display</p>
238	Web Support Link Visible

	Displays or does not display the link to Consumable Supplier on the top page and link page of the web system. [0 to 1 / 1 / 1] 0: Not display, 1:Display	
239	Web Link 1 Name	
	This SP confirms or changes the URL1 name on the link page of the web system. The maximum characters for the URL name are 31 characters.	
240	Web Link 1 URL	
	This SP confirms or changes the link to URL1 on the link page of the web system. The maximum characters for the URL are 127 characters.	
241	Web Link 1 Visible	
	Displays or does not display the link to URL1 on the top page of the web system. [0 to 1 / 1 / 1] 0: Not display, 1:Display	
242	Web Link 2 Name	Same as "-239"
243	Web Link 2 URL	Same as "-240"
244	Web Link 2 Visible	Same as "-241"

5831	Initial Setting Mode Clear	
	Push [Execute] to restore the initial settings of all SP codes to their initial (factory) settings. <b>Note:</b> This SP does not reset time settings or user tool settings.	

5832	HDD	
	Enter the SP number for the partition to initialize, then press #. When the execution ends, cycle the machine power off and on.	
001	HDD Formatting (All)	
002	HDD Formatting (IMH)	
003	HDD Formatting (Thumbnail)	
004	HDD Formatting (Job Log)	

005	HDD Formatting (Printer Fonts)
006	HDD Formatting (User Info 1)
007	Mail RX Data
008	Mail TX Data
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	<p>Capture Function (0:Off 1:On)</p> <p>With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected.</p> <p>[0 to 1/1]</p> <p>0: Disable, 1: Enable</p>
002	<p>Panel Setting</p> <p>Determines whether each capture related setting can be selected or updated from the initial system screen.</p> <p>[0 to 1/1]</p> <p>0: Disable, 1: Enable</p> <p>The setting for SP5836-001 has priority.</p>
003	<p>Print Back-up Function</p> <p>Determines whether the print back-up function setting can be changed.</p> <p>[0 to 1/1]</p> <p>0: Disable, 1: Enable</p>
072	<p>Reduction for Copy B&amp;W Text</p> <p>[0 to 6/1] 0:1 1:1/2 2:1/3 3:1/4 6:2/3</p>
073	<p>Reduction for Copy B&amp;W Other</p> <p>[0 to 6/1] 0:1 1:1/2 2:1/3 3:1/4 6:2/3</p>

075	Reduction for Printer B&W [0 to 6/1] 0 1 1:1/2 2:1/3 3:1/4 6:2/3
081	Format for Copy Color <b>DFU</b> [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
082	Format for Copy B&W Text [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
083	Format Copy B&W Other [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
084	Format for Printer Color <b>DFU</b> [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
085	Format for Printer B&W [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
086	Format for Printer B&W HQ [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
091	Default for JPEG [5 to 95/1] Sets the JPEG format default for documents sent to the document management server with the MLB, with JPEG selected as the format. Enabled only when optional File Format Converter (MLB: Media Link Board) is installed.
092	High Quality for JPEG Determines the quality level of JPEG images for high quality sent to the Document Server via the MLB (Media Link Board). [5 to 95/60/1]
093	Low Quality for JPEG Determines the quality level of JPEG images for low quality sent to the Document Server via the MLB (Media Link Board). [5 to 95/40/1]

094	Default Format for Backup Files
	<p>Sets the format for backup files created when the print backup function is used.</p> <p>[0 to 4/0/1]</p> <p>0: TIFF 1: JPEG 2: J2K 3: PDF Single 4: PDF Multi</p>
095	Default Resolution for Backup Files
	<p>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 SP5836 094.</p> <p>[0 to 6/2/1]</p> <p>0: 1/1 1: 1/2 3: 1/4 6: 2/3 (Unavailable for some models)</p>
096	Default User Name for Backup Files
	<p>Sets the user name when the print backup function is used.</p> <p>Limit: 8 alphanumeric characters.</p>
097	Default Compression for Backup Files
	<p>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).</p> <p>[0 to 2/0/1]</p>
098	Back Projection Removal
	<p>Removes the ghost images transferred from the back sides of double-sided originals.</p> <p>1: Enable, 0: Disable</p>
101	Primary srv IP address
	<p>Sets the IP address of the PC designated to operate as the primary capture server (CS).</p> <p>[000.000.000.000]</p>
102	Primary srv scheme

	Sets the IO device of the primary CS remotely. Max. characters: 6	
103	Primary srv .port number	
	Use to set the IO device for the primary CS remotely. [1 to 65535/80/1]	
104	Primary srv URL Path	
	Use to set the IO device for the primary CS remotely Max. characters: 16	
111	Secondary srv IP Address	
	Sets the IP address of the PC designated to operate as the secondary capture server (CS). [000.000.000.000]	
112	Secondary svr scheme	
	Sets the IO device of the secondary CS remotely. Max. characters: 6	
113	Secondary svr port number	
	Sets the IO device of the secondary CS remotely. Max. characters: 6	
114	Secondary svr port number	
	Sets the IO device of the secondary CS remotely. Max. characters: 6	
120	Default Reso Rate Switch	
	Sets the IO device of the CS remotely. [0 to 1/ 0 / 1]	
122	Reso: Copy (Mono)	Sets the IO device of the CS remotely. [0 to 6/ 3/ 1] 0: 600 dpi 1: 400 dpi 2: 300 dpi 3: 200 dpi 4: 150 5: 100 6: 75
124	Reso: Print (Mono)	
127	Reso: Scan (Color)	
128	Reso: Scan (Mono)	

141	All Addr Info Switch
	Expands the scope of used resources and performance. Switch this off if this feature is not being used. [0 to 1/1/1] 1: ON 0: OFF
142	Stand-by Doc Max Number
	Expands the scope of used resources and performance. Switch this off if this feature is not being used. [0 to 1/1/1] 1: ON 0: OFF
5840	IEEE 802.11
	Channel MAX
006	Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1]
	Channel MIN
007	Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1]
	WEP Key Select
011	Determines how the initiator (SBP-2) handles subsequent login requests. [0 to 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. <b>Note:</b> Displayed only when the wireless LAN card is installed.
042	Fragment Thresh

	<p>Adjusts the fragment threshold for the IEEE802.11 card.                  [256 to 2346 / <b>2346</b> / 1]                  This SP is displayed only when the IEEE802.11 card is installed.</p>
043	11g CTS to Self
	<p>Determines whether the CTS self function is turned on or off.                  [0 to 1 / 1 / 1] 0: Off, 1: On                  This SP is displayed only when the IEEE802.11 card is installed.</p>
044	11g Start Time
	<p>Selects the slot time for IEEE802.11.                  [0 to 1 / 0 / 1] 0: 20 μm, 1: 9 μm</p>
045	WPA Debug Lvl1
	<p>Selects the debug level for WPA authentication application.                  [1 to 3 / 3 / 1] 1: Info, 2: warning, 3: error                  This SP is displayed only when the IEEE802.11 card is installed.</p>

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
008	Paste Name
011	Staple Std 1
012	Staple Std 2
013	Staple Std 3
014	Staple Std 4
021	Staple Bind 1
022	Staple Bind 2
023	Staple Bind 3
031	Ring Name (50/black)



032	Ring Name (50/white)
033	Ring Name (100/black)
034	Ring Name (100/white)

5842	GWS Analysis Setting <b>DFU</b>
	This settings select the output mode for debugging information as each network file is processed.
001	Setting 1
	Default: <b>00000000</b> Do not change Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software
002	Setting 2
	Adjusts the debug program modesetting. Bit7: 5682 mmseg-log setting 0: Date/Hour/Minute/Second 1: Minute/Second/Msec. 0 to 6: Not used

5844	USB
001	Transfer Rate
	Sets the speed for USB data transmission. [Full Speed] [Auto Change]
002	Vendor ID
	Sets the vendor ID: Initial Setting: 0x05A Ricoh Company [0x0000 to 0xFFFF/1] <b>DFU</b>
003	Product ID
	Sets the product ID. [0x0000 to 0xFFFF/1] <b>DFU</b>

004	Device Release No.
	<p>Sets the device release number of the BCD (binary coded decimal) display.                  [0000 to 9999/1]                  Enter as a decimal number. NCS converts the number to hexadecimal number recognized as the BCD.</p>
005	Fixed USB Port
	<p>Selects the PnP name standardization mode.                  [0 to 2 / 0 / 1/step]                  0: Disable                  1: Level 1                  2: Level 2</p>
006	PnP Model Name
	Specifies PnP name for USB device.
007	PnP Serial Number
	Specifies PnP serial number for USB device.
100	Notify Unsupport
	<p>Displays or does not display USB unsupported message.                  [0 or 1 / 1 / -]                  0: Not displayed,</p>
5845	Delivery Server Setting
	These are delivery server settings.
001	FTP Port No.
	[0 to 65535/1]
002	IP Address (Primary)
	<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 to FFFFFFFF/1]</p>

006	Delivery Error Display Time
	Use this setting to set the length of time that the message is shown when a test error occurs during document transfer with the NetFile application and an external device. [0 to 999/1]
008	IP Address (Secondary)
	Sets the IP address that is given to the computer that is the secondary delivery server for Scan Router. This SP lets you set only the IP address, and does not refer to the DNS setting.
009	Delivery Server Model
	Lets you change the model of the delivery server that is registered by the I/O device. [0 to 4/1] 0: Unknown 1: SG1 Provided 2: SG1 Package 3: SG2 Provided 4: SG2 Package
010	Delivery Svr. Capability
	Changes the functions that the registered I/O device can do. [0 to 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 Svr.Capability (Ext)
	These settings are for future use. They will let you increase the number of registered devices (in addition to those registered for SP5845 010). There are eight bits (Bit 0 to Bit 7). All are unused at this time.
013	Delivery Server Scheme (Primary)

	Max. character string: 6 characters
014	Server Port Number (Primary)
	[1 to 65535 / 80 / 1]
015	Server URL Path (Primary)
	Max. character string: 16
016	Server Scheme (Secondary)
	Max. character string: 6 characters
017	Server Port Number (Secondary)
	Max. character string: 16
018	Server URL Path (Secondary)
	Max. character string: 16

## SP5-*nnn* Mode: 4

5846	UCS Setting
001	Machine ID (for Delivery Server)
	<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	Machine ID Clear (Delivery Server)
	<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	Maximum Entries
	<p>Changes the maximum number of entries that UCS can handle.</p> <p>[2000 to 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	Delivery Server Retry Timer
	<p>Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book.</p> <p>[0 to 255/1 s]</p> <p>0: No retries</p>
007	Delivery Server Retry Times
	<p>Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book.</p> <p>[0 to 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.</p> <p>[20000 to 50000/1]</p>
010	<p>LDAP Search Timeout</p> <p>Sets the length of the time-out for the search of the LDAP server.</p> <p>[1 to 255/1]</p>
020	<p>WSD Maximum Entries</p> <p>Sets a limit on the number of WS-Scanner for WSD (Web Services Devices) address book entries. You must cycle the machine off/on after changing this setting for the new setting to take effect.</p> <p>[50 to 250/250/1]</p>
021	<p>Fold Auth Change</p>
	<p>Authorizes changes on folders.</p>
040	<p>Addr Book Migration (USB -&gt; HDD)</p> <p>This SP moves the address book data from for a data source via USB to the HDD. You must cycle the machine off and on after executing this SP.</p> <ol style="list-style-type: none"> <li>1. Turn the machine off.</li> <li>2. Install the HDD.</li> <li>3. Insert the USB storage device with the address book data into the device connected via the USB interface.</li> <li>4. Turn the machine on.</li> <li>5. Do SP5846 040.</li> <li>6. Turn the machine off.</li> <li>7. Remove the USB storage device from the USB device.</li> <li>8. Turn the machine on.</li> </ol> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• Executing this SP overwrites any address book data already on the HDD.</li> <li>• We recommend that you back up all directory information before you execute this SP.</li> <li>• After the address book data is copied to HDD, all the address book data is deleted from the source USB memory device. If the operation fails, the data is not erased from the source device.</li> </ul>

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><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Turn the machine off.</li> <li>2. Install the new HDD.</li> <li>3. Turn the machine on.</li> <li>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.</li> <li>5. Enter the SP mode and do SP5846 041. After this SP executes successfully, any user can access the address book.</li> </ol>
043	Add Book Media
	<p>Displays the slot number of address book data location.</p> <p>[0 to 30 / - /1]</p> <p>0: Unconfirmed</p> <p>1: SD Slot 1</p> <p>2: SD Slot 2</p> <p>4: USB Flash ROM</p> <p>20: HDD</p> <p>30: Nothing</p>
047	<p>Initialize Local Address Book</p> <p>Clears all of the address information from the local address book of a machine managed with UCS.</p>
048	<p>Initialize Delivery Addr Book</p> <p>Push [Execute] to delete all items (this does not include user codes) in the delivery address book that is controlled by UCS.</p>

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.	
	<b>Note:</b> 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.	
	<b>Bit</b>	<b>Meaning</b>
	0	Checks both upper/lower case characters
	1	<b>Japan Only</b>
	2	<b>Japan Only</b>
	3	<b>Japan Only</b>
	4	--- Not Used ---
	5	--- Not Used ---
	6	--- Not Used ---
7	--- Not Used ---	



062	Complexity Option 1
	<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 upper case and sets the length of the password.</p> <p>[0 to 32/1]</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• This SP does not normally require adjustment.</li> <li>• This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.</li> </ul>
063	Complexity Option 2
	<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 lower case and defines the length of the password.</p> <p>[0 to 32/1]</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• This SP does not normally require adjustment.</li> <li>• This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.</li> </ul>
064	Complexity Option 3
	<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 numbers and defines the length of the password.</p> <p>[0 to 32/1]</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• This SP does not normally require adjustment.</li> <li>• This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.</li> </ul>
065	Complexity Option 4
	<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 symbols and defines the length of the password.</p> <p>[0 to 32/1]</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• This SP does not normally require adjustment.</li> <li>• This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.</li> </ul>

	FTP Auth. Port Settings
091	Sets the FTP port to get the delivery server address book that is used in the individual authorization mode. [0 to 65535/1]
	Encryption Start
094	Shows the status of the encryption function of the address book on the LDAP server. [0 to 255/1] No default

	Resolution Reduction
5847	5847 1 through 5847 6 changes the default settings of image data sent externally by the Net File page reference function. [0 to 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 to 6/1]
003	Rate for Copy B&W Other 0: 1x
005	Rate for Printer B&W 1: 1/2x 2: 1/3x
007	Rate for Printer B&W 1200dpi 3: 1/4x 4: 1/6x 5: 1/8x 6: 2/3x1 "6: 2/3x" applies to 003, 005 only.
	Network Quality Default for JPEG
021	Sets the default value for the quality of JPEG images sent as NetFile pages. This function is available only with the MLB (Media Link Board) option installed. [5 to 95/1]

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.	
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/off. 0000: OFF, 0001: ON
004	Acc. Ctrl.: User Directory (Lower 4 Bits)	
009	Acc. Ctrl.: Job Control (Lower 4 Bits)	
011	Acc. Ctrl: Device Management (Lower 4 Bits)	
021	Acc. Ctrl: Delivery (Lower 4 Bits)	
022	Acc. Ctrl: User Administration (Lower 4 Bits)	
100	Repository: Download Image Max. Size	[1 to 1024/1 K]
210	Setting: Log Type: Job 1	Switches access control on/off. 0000: OFF, 0001: ON
211	Setting: Log Type: Job 2	
212	Setting: LogType Access	
213	Setting: Primary Srv <b>DFU</b>	
214	Setting: Secondary Srv	
	Specifies the maximum size of the image data that the machine can download. [1 to 1024 / <b>1024</b> / 1 MB /step]	
215	Setting: Start Time	-
216	Setting: Interval Time	
217	Setting: Timing	

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 to 1/1] 0: No Print, 1: Print
003	Total Counter
	Displays the total count from the day set with SP5849-001. [0 to 9999 9999]
5851	Bluetooth Mode
	Sets the operation mode for the Bluetooth unit. Press either key. [0: Public] [1: Private]
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 to 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 to 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 to 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.

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 to 65535 / 0 / 1]
004	Jam (0:OFF 1:ON)

	Stores jam errors.
--	--------------------

5859	Debug Log Save Function	
001	Key 1	<p>These SPs allow you to set up to 10 keys for log files for functions that use common memory on the controller board.</p> <p>[-99999999 to 99999999/1]</p>
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	<p>[1 to 168/72/1]</p> <p>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.</p>
021	MDN Response RFC2298Compliance	<p>Determines whether RFC2298compliance is switched on for MDN reply mail.</p> <p>[0 to 1/1]</p> <p>0: No, 1: Yes</p>

022	SMTP Auth. From Field Replacement
	<p>Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated.</p> <p>[0 to 1/1]</p> <p>0: No. "From" item not switched.</p> <p>1: Yes. "From" item switched.</p>
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</p> <p>Bit1: PLAIN</p> <p>Bit2: CRAM_MD5</p> <p>Bit3: DIGEST_MD5</p> <p>Bit4 to Bit 7: Not Used</p>
026	S/MIME: MIME Header Settings
	<p>Selects the MIME header type of an e-mail sent by S/MIME.</p> <p>[0 to 2 / 0 / 1]</p> <p>0: Microsoft Outlook Express standard</p> <p>1: Internet Draft standard</p> <p>2: RFC standard</p>

5866	E-Mail Report
	This SP controls operation of the email notification function.
001	Report Validity
	<p>Enables or disables the e-mail notification to @Remote.</p> <p>[0 or 1 / 0 / 1 ]</p> <p>0: Enable, 1: Disable</p>
005	Add Date Field



	Disables and re-enables the addition of a date field to the email notification. [0 to 1/0/1]	
--	---	--

5870	Common Key Info Writing	
	Writes to flash ROM the common proof for validating the device for NRS specifications.	
001	Writing	Note: These SPs are for future use and currently are not used.
003	Initialize	

3

5873	SD Card Appli Move	
	Allows you to move applications from one SD card another.	
001	Move Exec	Executes the move from one SD card to another.
002	Undo Exec	This is an undo function. It cancels the previous execution.

5875	SC Auto Reboot	
	This SP determines whether the machine reboots automatically when an SC error occurs. <b>Note:</b> The reboot does not occur for Type A and C SC codes.	
001	Reboot Setting	
	[0 to 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.	
	Reboot Type	
002	This setting determines how the machine reboots after an SC code is issued. [0 to 1/0/1] 0: Allows manual reboot, 1: Automatic reboot	

5878	Option Setup
	This SP enables the DOS application (Data Overwrite Security). Do this SP after installing Data Overwrite Security Unit.)
001	Data Overwrite Security
	Enables the Data Overwrite Security unit. Touch [EXECUTE] on the operation panel. Then cycle the machine off/on.
002	HDD Encryption
	Enables the Copy Data Security unit. Touch [EXECUTE] on the operation panel. Then cycle the machine off/on.

5881	Fixed Phase Block Erasing <b>DFU</b>
------	--------------------------------------

5885	WIM Settings <b>DFU</b>	
020	Doc Svr Acc Ctrl	
	<b>Bit</b>	<b>Meaning</b>
	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
050	Doc Svr Format	
051	Doc Svr	
100	Set Signature	
101	Set Encryption	

200	Detect Mem Lock
201	Doc Svr Timeout

5887	SD Get Counter
	<p>This SP sends a text file to an SD card inserted in SD card the service slot.</p> <ul style="list-style-type: none"> <li>The file is stored in a folder created in the root directory of the SD card called SD_COUNTER.</li> <li>The file is saved as a text file (*.txt) prefixed with the number of the machine.</li> </ul> <ol style="list-style-type: none"> <li>1. Insert the SD card in SD card Slot 2 (lower slot).</li> <li>2. Select SP5887 then touch [EXECUTE].</li> <li>3. Touch [Execute] in the message when you are prompted.</li> </ol>

5888	Personal Information Protect
	<p>Selects the protection level for logs.</p> <p>[0 to 1 / 0 / 1]</p> <p>0: No authentication, No protection for logs</p> <p>1: No authentication, Protected logs (only an administrator can see the logs)</p>

5893	SDK Application Couter
	Displays the counter name of each SDK application.
001	SDK-1
002	SDK-2
003	SDK-3
004	SDK-4
005	SDK-5
006	SDK-6

5894	External Charge Unit Setting: Switch Charge Mode <b>DFU</b>
	[0 to 2 / 0 / 1]

5898	HDD Pages
	<p>Changes the number of pages in LS (Local Storage) to match the number of documents.                      [0 to 2/0/1]</p> <p>0: Standard, max. number of pages per job for LS management:</p> <ul style="list-style-type: none"> <li>• Copy application: 15000P1 per job</li> <li>• Printer application: 5000P1 per job</li> <li>• 15000P per job (LS area)</li> <li>• 20 000 per job (TEMP)</li> </ul> <p>1: Maximum no of pages for ALS:</p> <ul style="list-style-type: none"> <li>• Copy application: 30,000P1</li> <li>• Printer application: 5,000P1</li> </ul> <p>2: Maximum number of pages per 50,000P1 jobs for BLS</p> <ul style="list-style-type: none"> <li>• Copy application 2000P1</li> <li>• Printer application 2000P</li> <li>• At next startup HDD is initialized, HDD stamp area also initialized.</li> </ul>
5899	PM Double Count
	<p>This SP sets the PM counter to count double for paper longer than 420 mm.                      [0 to 1/ 0 / 1]</p> <p>0: OFF</p> <p>1: PM registers a double-count for paper longer than 420 mm in the sub scan direction.</p>
5907	<p>Plug &amp; Play Maker/Model Name</p> <p>Selects the brand name and the production name for Windows Plug &amp; 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.</p>
5913	Switchover Permission Time
	<p>If no key is pressed when there is an application with display control rights, these SP settings allow the system to shift to the application standing by after the specified time as elapse.</p>
001	Print Application Timer

	<p>This SP switches the switchover permission timer on/off.</p> <p>[0 to 1 / 1 / 1]</p> <p>0: OFF</p> <p>1: ON</p>
002	Indication Application Timer
	<p>Sets the length of time to elapse before allowing another application to take control of the display when the application currently controlling the display is not operating because a key has not been pressed.</p> <p>[3 to 30/30/1 s]</p>
5915	Mechanical Counter Detection
	<p>Displays whether the mechanical counter is installed in the machine.</p> <p>[0 to 2]</p> <p>0: Not detected</p> <p>1: Detected</p> <p>2: Unknown</p>
5967	Copy Server: Set Function
	<p>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.</p> <p>[0 to 1/1]</p> <p>0: ON, 1: OFF</p>
5974	Cherry Server
	<p>Selects which version of the Scan Router application program, "Light" or "Full (Professional)", is installed.</p> <p>[0 to 1 / 0 / 1 /step]</p> <p>0: Light version (supplied with this machine)</p> <p>1: Full version (optional)</p>

5985	Device Setting	
	The NIC and USB support features are built into the GW controller. Use this SP to enable and disable these features. In order to use the NIC and USB functions built into the controller board, these SP codes must be set to "1".	
001	On Board NIC	[0 to 2 / 2 / 1/tep]
002	On Board USB	0: Disable, 1: Enable, 2: Limited Enable

3

	SP Print Mode	SMC Print
5990	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	

# System SP6-*nnn* Peripherals: 1

6006	ADF Adjustment
001	Main Scan Registration: Front Side
	Adjusts the printing side-to-side registration in the ADF mode for copying the front side of the paper. [-3 to +3 / 0 / 0.1 mm]
002	Main Scan Registration: Back Side
	Adjusts the printing side-to-side registration in the ADF mode for copying the back side of the paper. [-3 to +3 / 0 / 0.1 mm]
003	No Registration Buckle Correction
	This SP changes the registration reference data for the single sheet that follows the command (C2H) that adjusted the registration amount of the front side of the paper in original no-buckle mode. [-10 to +10 / 0 / 1]
005	Reg Buckle Adjustment: Front Side
	This SP adjusts the amount of buckle of the single sheet that strikes the registration roller after the COH command that adjusted the amount of buckle for the front side of a duplex sheet in the buckle registration mode. [-29 to +29 / 0 / 1]
006	Reg Buckle Adjustment: Back Side
	This SP adjusts the amount of buckle of the single sheet that strikes the registration roller after the C1H command that adjusted the amount of buckle for the back side of a duplex sheet in the buckle registration mode. [-29 to +29 / 0 / 1]

6007	ADF Input Check
001	Original Set Sensor
002	Original Width Sensor 1
003	Original Width Sensor 2

004	Original Width Sensor 3
005	Entrance Sensor
006	Registration Sensor
007	Exit Sensor
008	Inverter Sensor
009	DF Position Sensor
010	APS Start Sensor
011	Feed Cover Sensor
012	Exit Cover Sensor
013	Bottom Plate HP Sensor
014	Bottom Plate Position Sensor
015	Pick-up Roller HP Sensor
016	Feed-in Motor Encoder Pulse
017	Transport Motor Encoder Pulse
018	Feed-out Motor Encoder Pulse
019	Original Length Sensor

6008	ADF Output Check	
	Turns on each ADF electrical component on/off for testing.	
001	Feed-in Motor(Fast)	
002	Feed-in Motor(Slow)	
003	Transport Motor (Forward)	
004	Transport Motor (Reverse)	
005	Feed-out Motor	
006	Exit Gate SOL	
007	Inverter Gate SOL	



008	LEDs	
009	Pick-up Motor	
010	Bottom Plate Motor	
011	Paper Feed Clutch	

6009	ADF Test Mode
	Performs an ADF free run in two-sided original mode. Press "1" to start. This is a general free run controlled from the copier.

6015	ADF Original Scale Setting
	<p>This SP adjusts the operation of an original striking the original scale to correct original skew for originals shorter than A5 SEF.</p> <ul style="list-style-type: none"> <li>• The setting for the DOM scale should be left at "1".</li> <li>• The setting of the overseas (EXP) machine scale is "0". A5 SEF paper does not strike the scale. If set to "0" A5 SEF strikes the scale.</li> </ul> <p>[*0: EXP SCALE] [1: DOM SCALE]</p>

6019	ADF Motor Speed Auto Adjustment
	<p>After the [Start key] is pressed, the machine automatically adjusts the speeds of the ADF motors in the following order:</p> <p>Feed-in motor &gt; Transport Motor &gt; Feed-out Motor (High) &gt; Feed-out Motor (Low)</p>

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"> <li>• Use the [./*] key to toggle between + and –.</li> <li>• A larger value shifts the stapling position to shift forward.</li> </ul> <p>A smaller value shifts the stapling position backward.</p>

001	A3 SEF	<p>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]</p>
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	Others	

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>[-7.5 to +7.5 / 0 / 0.5 mm]</p> <ul style="list-style-type: none"> <li>• Use the [./*] key to toggle between + and -.</li> <li>• A larger value shifts the punch holes away from the edge of the paper.</li> </ul> <p>A smaller value shifts the punch holes toward the edge of the paper.</p>	
	001	JPN/EU: 2-Hole
	002	JPN/NA: 3-Hole
	003	EU: 4-Hole
	004	NA: 4-Hole
	005	NA: 2-Hole
006	JPN: 1-Hole	

6102	End Bind Jogger Adjustment
	<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"> <li>• 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.</li> <li>• 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.</li> </ul>
	<p>The settings below are done for each paper size. SEF denotes "Short Edge Feed". LEF denotes "Long Edge Feed".</p> <p>[-2.0 to +1.5 / 0 / 0.5 mm]</p>
001	A3 SEF
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

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"> <li>• 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.</li> <li>• 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.</li> </ul>
	The settings below are done for each paper size. SEF denotes "Short Edge Feed". LEF denotes "Long Edge Feed".
001	A3 SEF
002	B4 SEF
003	A4 SEF
004	A4 LEF
005	A5 SEF
006	A5 LEF
007	B5 SEF
008	B5 SEF
009	DLT LEF
010	LG SEF
011	LT SEF
012	LT SEF
013	HLT SEF
014	HLT LEF
015	Other

6104	Pre Stack Adjustment	
	[-3 to +3/0/0.1]	
001	A4 LEF	
002	B5 LEF	
003	LT LEF	
004	Others	

6105	Adj Leading Edge Stopper Pressure	
001	A4 LEF	[-5 to +10 / 0 / 0.1]
002	B5 LEF	[-5.0 to +2.0/0/0.11]
003	LT LEF	[-5.0 to +10.0/0/0.1]
004	Other	[-5.0 to +10.0/0/0.1]

6106	Staple Jogging Repeat Settings	
	Allows you to increase by 1 the number of times the stack is jogged on the stapling tray. [*0: DEFAULT] [1: +1]	

6107	Staple Tray Jog Off/On	
	Allows you to switch jogging on the stapling tray off and on for the paper sizes listed below. The default for each paper size is 0 (On)	
001	A3 SEF 0:On 1:Off	
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	A5 SEF 0:On 1:Off	
007	B5 SEF 0:On 1:Off	

008	B5 LEF 0:On 1:Off
009	DLT SEF 0:On 1:Off
010	LG SEF 0:On 1:Off
011	LT SEF 0:On 1:Off
012	LT LEF 0:On 1:Off
013	HLT SEF 0:On 1:Off
014	HLT LEF 0:On 1:Off
015	Other

6112	Finisher Input Check
	Displays the signals received from sensors and switches of the finisher.
001	Entrance Sensor
002	Upper Exit Tray Sensor
003	Shift Tray Exit Sensor 1
004	Stapler Tray Exit Sensor
005	Shift Tray Lower Limit Sensor
006	Shift Tray Near Full Sensor
007	Feed-Out Belt HP Sensor
008	Jogger HP Sensor
009	Shift Tray Half-Turn Sensor 1
010	Stapler HP Sensor (Front/Rear)
011	Stapler HP Sensor
012	Staple Out Sensor
013	Staple Tray Paper Sensor
014	Front Door Open Switch
015	Punch Detection Sensor

016	Punch HP Sensor 1
017	Punch-out Hopper Full Sensor
018	Stapling Paper Height Sensor
019	Staple Mode HP Sensor
020	Jam Detection Sensor
021	Upper Tray Full Sensor
022	Stapler Rotation Sensor 1
023	Stapler Trimmings Hopper Full Sensor
024	Pre-Stack Sensor
025	Stack Plate HP Sensor (Center)
026	Exit Guide Open Sensor
027	Stapler Rotation Sensor 2
028	Staple Ready Sensor
029	Stack Plate HP Sensor (Front)
030	Stack Plate HP Sensor (Back)
031	Positioning Roller HP Sensor
032	Return Drive HP Sensor
033	Stapling Paper Height Sensor
034	Shift Lower Limit Sensor (Large Paper)
035	Punch HP Sensor 2
036	Shift Jogger Sensor
037	Shift Jogger HP Sensor
038	Shift Jogger Retraction HP Sensor
039	Emergency Stop Switch
040	Top Fence HP Sensor
041	Bottom Fence HP Sensor

042	LowerTray Full Sensor (Z-Folded Paper)
043	Shift Tray Exit Sensor 2
044	Upper Tray Junction Gate HP Sensor
045	Staple Junction Gate HP Sensor
046	Pre-Stack Junction Gate HP Sensor
047	Pre-Stack Sensor (Right)
048	Pre-Stack Junction Gate Release HP Sensor
049	Shift Tray Half-Turn Sensor 2
050	Staple Trimmings Hopper Set Sensor



## System SP6-*nnn* Peripherals: 2

6113	Finisher Output Check
	Turn on the electrical components of the finisher individually for test purposes.
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

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.

6200	Adjust Booklet Stapling Position (D434)
	Use this SP to adjust the stapling position of the booklet stapler when paper is stapled and folded in the Booklet Finisher.

001	A3 SEF	<p>[-2 to +2/0/0.2 mm]</p> <p>When viewing the open booklet:</p> <p>+ Value: Shifts staple position right .</p> <p>- Value: Shifts staple position left .</p>
002	B4 SEF	
003	A4 SEF	
004	B5 SEF	
005	12 x 18 SEF	
006	13 x 19 SEF	
007	DLT	
008	LG	
009	LT SEF	
011	Other	

6201	Adjust Booklet Fold Position (D434)	
	This SP corrects the folding position when paper is stapled and folded in the Booklet Finisher.	
001	A3 SEF	<p>[-3 to +2/0/0.2 mm]</p> <p>When viewing the open booklet:</p> <p>+ Value: Shifts staple position right</p> <p>- Value: Shifts staple position left.</p>
002	B4 SEF	
003	A4 SEF	
004	B5 SEF	
005	12 x 18 SEF	
006	13 x 19 SEF	
007	DLT	
008	LG	
009	LT SEF	
011	Other	

6202	Fine Adj Booklet Jog Fence Pos (D434)	
	This SP adjusts the distance between the jogger fences and the sides of the stack on the finisher stapling tray in the Booklet Finisher. The adjustment is done perpendicular to the direction of paper feed.	
001	A3 SEF	[-0.5 to +0.5/0/0.1 mm] + Value: Increases distance between jogger fences and the sides of the stack. - Value: Decreases the distance between the jogger fences and the sides of the stack.
002	B4 SEF	
003	A4 SEF	
004	B5 SEF	
005	12x18 SEF	
006	13x19 SEF	
007	DLT	
008	LG	
009	LT SEF	
011	Other	

6205	Booklet Stapler Jog Pawl Adjust (D434)	
001	A3 SEF	[-3 to +3 / 0 / 0.2]
002	B4 SEF	
003	A4 SEF	
004	B5 SEF	
005	12 x 18 SEF	
006	13 x 19 SEF	
007	DLT	
008	LG	
009	LT SEF	
011	Other	

6208	Staple Position Adjustment (D434)	
001	A3 SEF	[-1 + 1 / 0 / 0.5 mm]
002	B4 SEF	
003	A4 SEF	
004	A4 LEF	
005	B5 SEF	
006	B5 LEF	
007	DLT	
008	LG	
009	LT SEF	
010	LT LEF	
011	8-Kai SEF	
012	16-Kai SEF	
013	16-Kai LEF	
015	Other	

6209	Punch Position Adjust: Sub Scan (D434)	
001	2-Hole EU/JPN	[-3.5 +3.5 / 0 / 0.5]
002	3-Hole NA	
003	4-Hole EU	
004	4-Hole Scandinavia	
005	2-Hole NA	

6210	Punch Position Adjust: Main Scan (D434)	
------	---	--

001	2-Hole EU/JPN	[-3 to +3 / 0 / 0.5 mm]
002	3-Hole NA	
003	4-Hole EU	
004	4-Hole Scandinavia	
005	2-Hole NA	

3

6211	End Bind Jogger Adjustment (D434)	
001	A3 SEF	[-3 to +3 / 0 / 0.5 mm]
002	B4 SEF	
003	A4 SEF	
004	A4 LEF	
005	B5 SEF	
006	B5 LEF	
007	DLT	
008	LG	
009	LT SEF	
010	LT LEF	
011	8-Kai SEF	
012	16-Kai SEF	
013	16-Kai LEF	
015	Other	

6212	Adjust Output Jog Position (D434)
------	-----------------------------------

001	A3 SEF	[-2 to +2 / 0 / 0.1 mm]
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	
016	Other	

6213	Pre Stack Adjustment (D434)	
001	A3 SEF	[0 to 2 / 2 / 1 Sheet]
002	B4 SEF	
003	A4 SEF	[0 to 5 / 5 / 1 Sheet]
004	A4 LEF	
007	B5 SEF	
008	B5 LEF	

009	DLT	[0 to 2 / 2 / 1 Sheet]
010	LG	
011	LTSEF	
012	LT LEF	
013	8-Kai SEF	
014	16-Kai SEF	[0 to 5 / 5 / 1 Sheet]
015	16-Kai LEF	
016	Other	

6214	Adj Leading Edge Stopper Pressure (D434)	
001	A3 SEF	[-2.5 to +2.5 / 0 / 0.5 mm]
002	B4 SEF	
003	A4 SEF	
004	A4 LEF	
005	B5 SEF	
006	B5 LEF	
007	DLT	
008	LG	
009	LT SEF	
010	LT LEF	
011	8-Kai SEF	
012	16-Kai SEF	
013	16-Kai LEF	
015	Other	

6215	Staple Jogging Repeat Setting (D434)
------	--------------------------------------



	[0 to 1/ 0 / 1] [0: Default] [1: High Precision]
--	--

6216	Staple Tray Jog Off/On (D434)	
001	A3 SEF 0: ON 1: OFF	
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	A5 LEF 0: ON 1: OFF	
007	B5 SEF 0: ON 1: OFF	
008	B5 LEF 0: ON 1: OFF	
009	DLT 0: ON 1: OFF	
010	LG 0: ON 1: OFF	
011	LT SEF 0: ON 1: OFF	
012	LT LEF 0: ON 1: OFF	
013	HLT SEF 0: ON 1: OFF	
014	HLT LEF 0: ON 1: OFF	
016	Other 0: ON 1: OFF	

6217	Top/Bottom Jog Adjustment (D434)	
	[-10 to +10/ 0 / 5 deg.] -10, -5, 0, +5, +10	

6218	Booklet Finisher Input Check (D434)	
	Displays the signals received from sensors and switches of the booklet finisher.	
001	Finisher Entrance Sensor	

002	Pre-Stack Paper Sensor
003	Pre-Stack Roller HP Sensor
004	Proof Tray JG HP Sensor
005	Stack JG HP Sensor
006	Proof Tray Exit Sensor
007	Proof Tray Full Sensor
008	Punch Vertical Registration Sensor
009	Punch Side-to-Side Registration Sensor
010	Punch Blade HP Sensor
011	Punch Unit HP Sensor
012	Punch Switch
013	Punch Hopper Full Sensor
014	Punch Set Sensor
015	Stack Plate HP Sensor: Front
016	Stack Plate HP Sensor: Center
017	Stack Plate HP Sensor: Rear
018	Corner Stapler HP Sensor
019	Stapler Rotation HP Sensor: Front
020	Stapler Rotation HP Sensor: Rear
021	Bottom Fence HP Sensor
022	Jogger Fence HP Sensor: Front
023	Jogger Fence HP Sensor: Rear
024	Positioning Roller HP Sensor
025	Top Fence HP Sensor
026	Stack Feed-Out Belt HP Sensor
027	Stapling Tray Paper Sensor

028	Corner Stapler HP Sensor
029	Staple End Sensor
030	Self-Limit Sensor
031	Staple Trimmings Hopper Set Sensor
032	Staple Trimmings Hopper Full Sensor
033	Stapling Tray Entrance Sensor
034	Stack Transport Unit HP Sensor
035	Stack JG HP Sensor
036	Booklet Top Fence HP Sensor
037	Booklet Stapler Clamp Roller HP Sensor
038	Fold Plate Cam HP Sensor
039	Fold Plate HP Sensor
040	Booklet Stapler Side Fence HP Sensor (Front)
041	Booklet Stapler Side Fence HP Sensor (Rear)
042	Booklet Stapler Bottom Fence HP Sensor
043	Fold Unit Entrance Sensor
044	Booklet Stapler Entrance Sensor
045	Fold Unit Entrance Sensor
046	Booklet Stapler Staple End Sensor: Front
047	Booklet Stapler Staple End Sensor: Rear
048	Booklet Tray Full Sensor: Upper
049	Booklet Tray Full Sensor: Lower
050	Shift Tray Exit Sensor: Long
051	Shift Tray Exit Sensor: Short
052	Exit Guide HP Sensor
053	Drag Roller HP Sensor

054	Shift Tray Upper Limit Switch
055	Shift Tray HP Sensor: Front
056	Shift Tray HP Sensor: Rear
057	Paper Height Sensor: Staple
058	Paper Height Sensor: Shift
059	Paper Height Sensor: Z-Fold
060	Paper Height Sensor: TE
061	Shift Tray Full Sensor: 2500
062	Shift Tray Full Sensor: 1500
063	Shift Tray Full Sensor: 1000
064	Shift Tray Full Sensor: 500
065	Shift Tray Emergency Stop Switch
066	Shift Tray Jogger HP Sensor
067	Shift Jogger Fence Retract HP Sensor
068	Shift Tray Jogger HP Sensor
069	Front Door Switch
070	Punch Type 1
071	Punch Type 2
072	Staple Tray Set Sensor
073	Sub Board Set Sensor
074	Reserved

# System SP6-*nnn* Peripherals: 3

6219	Finisher Output Check (D434)	
001	Entrance Motor	
002	Registration Motor	
003	Proof Tray Vertical Transport Motor	
004	Pre-stack Release Motor	
005	Pre-stack Motor	
006	Shift JG Motor	
007	Stapler JG Motor	
008	Proof Tray Exit Motor	
009	Horizontal Transport Motor	
010	Punch Movement Motor	
011	Punch Switch Motor	
012	Punch Drive Motor	
013	Stapling Tray Entrance Motor	
014	Stack Plate Motor: Front	
015	Stack Plate Motor: Center	
016	Stack Plate Motor: Rear	
017	Punch S-to-S Registration: CIS Lamp	
018	Stapler Rotation Motor	
019	Stapler Movement Motor	
020	Bottom Fence Lift Motor	
021	Front Jogger Fence Motor	
022	Rear Jogger Fence Motor	
023	Positioning Roller Rotation Motor	

024	Positioning Roller Motor	
025	Stack Feed-out Belt Motor	
026	Top Fence Motor	
027	Shutter Solenoid	
028	Booklet Stapler Motor	
029	Stack Transport Motor	
030	Stack JG Motor	
031	Stack Transport Motor	
032	Reserved	
033	Booklet Stapler Clamp Roller Motor	
034	Booklet Stapler Bottom Fence Motor	
035	Booklet Stapler Side Fence Motor	
036	Booklet Stapler Top Fence Motor	
037	Booklet Stapler Motor	
038	Fold Roller Motor	
039	Fold Plate Motor	
040	Shift Tray Exit Motor	
041	Shift Motor	
042	Drag Drive Motor	
043	Drag Roller Motor	
044	Exit Guide Motor	
045	Shift Tray Lift Motor	
046	Shift Tray Jogger Fence Motor	
047	Shift Tray Jogger Fence Retraction Motor	

6220	Finisher Free Run (D434)	
------	--------------------------	--

001	Finisher Free Run 1
	System free run. A4 LEF at 90 ppm, with simulated staple mode.
002	Finisher Free Run 2
	Free run for durability testing. All motors and solenoids operate to simulate full staple mode run for durability testing.
003	Finisher Free Run 3
	Shipping free run. Simulates standby conditions during shipping.
004	Finisher 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.

6222	Registration Buckle Adjustment (D434)	
001	A4 LEF	[-2 to +2 / 0 / 0.5 mm]
002	A5 SEF	
003	A5 LEF	
004	B5 LEF	
005	LT LEF	
006	HLT SEF	
007	HLT LEF	
008	Other	

6309	Input Check: Folder (D454)	
001	Entrance Sensor	
002	Entrance JG HP Sensor	
004	Registration Sensor	
005	Dynamic Roller HP Sensor	
006	Registration Roller HP Sensor	

007	Fold Plate HP Sensor	
008	Jogger Fence HP Sensor	
009	Positioning Roller HP Sensor	
010	1st Stopper Paper Sensor	
011	1st Stopper HP Sensor	
012	2nd Stopper Paper Sensor	
013	2nd Stopper HP Sensor	
014	3rd Stopper Paper Sensor	
015	3rd Stopper HP Sensor	
016	Direct-Send JG HP Sensor	
017	FM6 Pawl HP Sensor	
018	Top Tray Paper Path Sensor	
019	Top Tray Exit Sensor	
020	Horizontal Path Exit Sensor	
021	Top Tray Full Sensor (E)	
023	Front Door Switch (SW1)	
024	Horizontal Path Paper Sensor	
025	Vertical Path Paper Sensor	
026	Bypass Entrance Paper Sensor	
027	Bypass Exit Paper Sensor	

6310	Output Check: Folder (D454)	
001	Horizontal Transport Motor	
002	Top Tray Transport Motor	
003	Top Tray Exit Motor	
004	Dynamic Roller Transport Motor	



005	Registration Roller Transport Motor	
007	Entrance JG Motor	
008	1st Stopper Motor	
009	2nd Stopper Motor	
010	3rd Stopper Motor	
011	Dynamic Roller Lift Motor	
012	Registration Roller Release Motor	
013	Fold Plate Motor	
014	Jogger Fence Motor	
015	Positioning Roller Motor	
016	Direct-Send JG Motor	
017	FM6 Pawl Motor	
018	1st Fold Motor	
019	2nd Fold Motor	
020	Crease Motor	
021	Bypass JG Solenoid	
022	Exit JG Solenoid	
023	Top Tray JG Solenoid	
024	LE Stop Pawl Solenoid	
025	Reverse JG Solenoid	

6311	Folder Free Run (D454)	
001	Free Run 1	
	System free run. A4 LEF at 90 ppm, with simulated staple mode.	
002	Free Run 2	

3

	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.

6324	Jogger Fence Position Adjust (D454)	
001	A3 SEF	[+1 to 1 /0/ 0.5 mm]
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
019	Other	

6325	Registration Buckle Adjust (D454)
------	-----------------------------------

001	A3 SEF	[+1 to 1 /0/ 0.5 mm]
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
019	Other	

6326	Registration Buckle Adjust Select (D454)
	[0: With Buckle Control] [1: Without Buckle Control]

6400	Input Check: Cvr Inserter (B835)
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

6401	Output Check: Cvr Inserter
------	----------------------------

	Turn on the electrical components of the cover interposer tray individually for test purposes.
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
009	Horizontal Transport Motor

6500	Punch Adjust	Ring Binder (D392)
	[-1 to 1 / 0 / 0.1 mm]	
001	A4 LEF	
002	LT LEF	

6501	Paddle Position Adjustment	Ring Binder (D392)
	[-1.5 to + 1.5 / 0 / 0.1 mm]	

6502	Adjust Binding Position 1	Ring Binder (D392)
001	A4 LEF	[-1 to +1 / 0 / 0.5 mm]
002	LT LEF	

6503	Adjust Binding Position 2	Ring Binder (D392)
001	A4 LEF	[-1 to +1 / 0 / 0.5 mm]
002	LT LEF	

6504	Adj Jog: Punching	Ring Binder (D392)
------	-------------------	--------------------

	<p>Shifts the punch hole position horizontally (front-to-rear, rear-to-front)</p> <p>This SP must be adjusted after replacement of one or more of the following items:</p> <ul style="list-style-type: none"> <li>• Ring binder main board</li> <li>• Binder unit control board</li> <li>• Pre-punch side jogger assembly</li> <li>• Pre-punch jogger HP sensor (S301)</li> </ul> <p><b>Notes:</b></p> <p>The correct value for this setting is written on the label attached to the pre-punch jog unit. The value must be divided by "10". For example, "19" is actually "1.9 mm)</p>	
001	A4 LEF	[-4 to +4/0/0.1 mm]
002	LT LEF	

	Adj Jog: Paddle	Ring Binder (D392)
650 5	<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.</p> <p>[-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"> <li>• Ring binder main board</li> <li>• Binder unit control board</li> <li>• Pre-bind jogger unit</li> </ul> <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><b>Note:</b> The value must be divided by "10". For example, "8" is actually "0.8 mm)</p>	

6506	Adj Jog: Binding 1	Ring Binder (D392)
------	--------------------	--------------------

	<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.</p> <p>This SP must be adjusted after replacement of one or more of the following items:</p> <ul style="list-style-type: none"> <li>• Ring binder main board</li> <li>• Binder unit control board</li> <li>• Pre-bind jogger unit</li> </ul> <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><b>Note:</b> The value must be divided by "10". For example, "-7" is actually "-0.7 mm)</p>	
001	A4 LEF	[-2 to +2/0/0.1 mm]
002	LT LEF	

6507	Adj Jog: Binding 2	Ring Binder (D392)
001	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.</p> <p>[-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"> <li>• Ring binder main board</li> <li>• Binder unit control board</li> <li>• Pre-bind jogger unit</li> </ul> <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><b>Note:</b> The value must be divided by "10". For example, "-3" is actually "-0.3 mm")</p>
002	LT LEF	

6508	Input Check: Ring Binder	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

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	Output Tray Lift 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	

## System SP6-*nnn* Peripherals: 4

6523	Finishing Angle Adjustment	
001	Forward	[-1 to + 1 / 0 / 0.1 mm]
002	Backward	
003	Toward Small Hole	

6524	Stack Thickness Volume Adjustment	
001	0 mm Adjust	[1 to 1023 / 97 / 1]
002	25 mm Adjust	[1 to 1023 / 865 / 1]

6525	Glue Remain Thermistor: Wet Side	
001	Glue Vat: Wet Side Lower Limit	[0 to 255 / 132 / 1]
002	Glue Vat: Wet Side Upper Limit	[0 to 255 / 132 / 1]

6526	Input Check: Perfect Binder	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	Inserter 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	Inserter 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
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
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



6600	Input Check: Stacker 1	High Capacity Stacker (D447)
001	Entrance Sensor	
002	Shift Tray Exit Sensor	
003	Proof Tray Exit Sensor	
004	Exit Sensor	
005	Transport Sensor	
006	Proof Tray Full Sensor	
007	Shift Tray JG HP Sensor	
008	Proof Tray JG HP Sensor	
009	Shift Tray Roller HP Sensor	
010	---	
011	Front Jogger Fence HP Sensor	
013	Jogger Fence Retraction HP Sensor	
014	LE Stopper HP Sensor	
015	Paper Height Sensor	
016	Shift Tray Paper Sensor	
017	Tray Full Sensor 1: 25%	
018	Tray Full Sensor 2: 50%	
019	Tray Full Sensor 3: 75%	
020	Tray Full Sensor 4: 100%	
021	Tray Low Limit Sensor	
022	Roll Away Cart Set SW	
023	Tray Guard Sensor 1	
024	Tray Guard Sensor 2	
025	Sub Jogger HP Sensor	
026	Down Button	

027	Jam Button
028	Top DoorSW
029	Front Door SW

6601	Output Check: Stacker 1	High Capacity Stacker (D447)
001	Stop	
002	Entrance Motor	
003	Proof Tray Exit Motor	
004	Shift Exit Motor	
005	Transport Motor	
006	Shift JG Motor	
007	Proof Tray JG Motor	
008	Shift Motor	
009	Front Jogger Fence Motor	
010	Rear Jogger Fence Motor	
011	Jogger Fence Retraction Motor	
013	LE Stopper Motor	
014	Sub Jogger Motor	
015	Tray Lift Motor	
016	Front Door Lock SOL	
017	Fan Motor	
018	Tray Full LED	
019	Jog In Progress LED	
020	Tray Lift LED	
021	Error LED	

6602	Jog Fence Adjust: Stacker 1	High Capacity Stacker (D447)
------	-----------------------------	------------------------------

001	A3 SEF	[+2 to -2 / 0 / 0.1 mm]
002	B4 SEF	
003	A4 SEF	
004	A4 LEF	
005	A5 SEF	
006	A5 LEF	
007	B5 SEF	
008	B5 LEF	
009	DLT SEF	
010	LG SEF	
011	LT SEF	
012	LT LEF	
013	HLT SEF	
014	HLT LEF	
015	Other	

6603	LE Stopper Adjust: Stacker 1	High Capacity Stacker (D447)
------	------------------------------	------------------------------

3

001	A3 SEF	[+2 to -2 / 0 / 0.1 mm]
002	B4 SEF	
003	A4 SEF	
004	A4 LEF	
005	A5 SEF	
006	A5 LEF	
007	B5 SEF	
008	B5 LEF	
009	DLT SEF	
010	LG SEF	
011	LT SEF	
012	LT LEF	
013	HLT SEF	
014	HLT LEF	
015	Other	

6604	Sub Jog Fence Adjust: Stacker 1	Hi Capacity Stacker (D447)
------	---------------------------------	----------------------------

001	A3 SEF	[+2 to -2 / 0 / 0.1 mm]
002	B4 SEF	
003	A4 SEF	
004	A4 LEF	
005	A5 SEF	
006	A5 LEF	
007	B5 SEF	
008	B5 LEF	
009	DLT SEF	
010	LG SEF	
011	LT SEF	
012	LT LEF	
013	HLT SEF	
014	HLT LEF	
015	Other	

6605	Free Run: Stacker 1	High Capacity Stacker (D447)
001	Free Run 1	
002	Free Run 2	

6606	Stacker 2 Input Check	High Capacity Stacker (D447)
001	Entrance Sensor	
002	Shift Tray Exit Sensor	
003	Proof Tray Exit Sensor	
004	Exit Sensor	
005	Transport Sensor	
006	Proof Tray Full Sensor	

007	Shift Tray JG HP Sensor
008	Proof Tray JG HP Sensor
009	Shift Tray Roller HP Sensor
010	---
011	Front Jogger Fence HP Sensor
013	Jogger Fence Retraction HP Sensor
014	LE Stopper HP Sensor
015	Paper Height Sensor
016	Shift Tray Paper Sensor
017	Tray Full Sensor 1: 25%
018	Tray Full Sensor 2: 50%
019	Tray Full Sensor 3: 75%
020	Tray Full Sensor 4: 100%
021	Tray Low Limit Sensor
022	Roll Away Cart Set SW
023	Tray Guard Sensor 1
024	Tray Guard Sensor 2
025	Sub Jogger HP Sensor
026	Down Button
027	Jam Button
028	Top DoorSW
029	Front Door SW

6607	Output Check: Stacker 2	High Capacity Stacker (D447)
001	Stop	
002	Entrance Motor	

003	Proof Tray Exit Motor
004	Shift Exit Motor
005	Transport Motor
006	Shift JG Motor
007	Proof Tray JG Motor
008	Shift Motor
009	Front Jogger Fence Motor
010	Rear Jogger Fence Motor
011	Jogger Fence Retraction Motor
013	LE Stopper Motor
014	Sub Jogger Motor
015	Tray Lift Motor
016	Front Door Lock SOL
017	Fan Motor
018	Tray Full LED
019	Jog In Progress LED
020	Tray Lift LED
021	Error LED

6608	Jog Fence Adjust: Stacker 2	High Capacity Stacker (D447)
------	-----------------------------	------------------------------

3

001	A3 SEF	[-2 to +2 / 0 / 0.1 mm]
002	B4 SEF	
003	A4 SEF	
004	A4 LEF	
005	A5 SEF	
006	A5 LEF	
007	B5 SEF	
008	B5 LEF	
009	DLT SEF	
010	LG SEF	
011	LT SEF	
012	LT LEF	
013	HLT SEF	
014	HLT LEF	
015	Other	



# System SP6-*nnn* Peripherals: 5

3

6609	LE Stopper Adjust: Stacker 2	High Capacity Stacker (D447)
001	A3 SEF	[-2 to +2 / 0 / 0.1 mm]
002	B4 SEF	
003	A4 SEF	
004	A4 LEF	
005	A5 SEF	
006	A5 LEF	
007	B5 SEF	
008	B5 LEF	
009	DLT SEF	
010	LG SEF	
011	LT SEF	
012	LT LEF	
013	HLT SEF	
014	HLT LEF	
015	Other	

6610	Sub Jog Fence Adjust: Stacker 2	Hi Capacity Stacker (D447)
------	---------------------------------	----------------------------

001	A3 SEF	[-2 to +2 / 0 / 0.1 mm]
002	B4 SEF	
003	A4 SEF	
004	A4 LEF	
005	A5 SEF	
006	A5 LEF	
007	B5 SEF	
008	B5 LEF	
009	DLT SEF	
010	LG SEF	
011	LT SEF	
012	LT LEF	
013	HLT SEF	
014	HLT LEF	
015	Other	

6611	Stacker 2: Free Run	High Capacity Stacker (D447)
001	Free Run 1	
002	Free Run 2	

6612	Stacker 1 Fan Setting	High Capacity Stacker (D447)
	0: ON 1: OFF	

6613	Stacker 2 Fan Setting	High Capacity Stacker (D447)
	0: ON 1: OFF	

6650	Input Check: Trimmer (D455)
001	Entrance Sensor
002	Stopper Sensor
003	Exit Sensor
004	Booklet Sensor 1
005	Booklet Sensor 2
006	Booklet Sensor 3
007	Trimming Blade HP Sensor
008	Cut Position HP Sensor
009	Press Roller HP Sensor
010	Press Stopper HP Sensor
011	Scrap Hopper Full HP Sensor
012	Scrap Hopper HP Sensor
013	Door Switch

6651	Output Check: Trimmer (D455)
001	Entrance Motor
002	Exit Motor
003	Press Roller Motor
004	Cut Position Motor
005	Press Stopper Motor
006	Tray Motor
007	Trimming Blade Motor

6750	FM1 Z-Fold: Fine Adjust 1st Fold (D454)	FM1 Z-Folding
------	---	---------------

001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM1: 1st Fold</b></p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
019	Other	

6751	FM1 Z-Fold: Fine Adjust 2nd Fold (D454)	FM1 Z-Folding
001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM1: 2nd Fold</b></p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
019	Other	

6752	FM2 Equal Halves: Fine Adjust Fold (D454)	FM2 Half Fold
------	---	---------------

001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM2: 1st Fold</b></p> <p>Fold Stopper 2</p> <p>Fold Stopper 1</p> <p>Fold Stopper 3</p> <p>d059s703</p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
010	13x19.2	
011	13x19	
012	12.6x19.2	
013	12.6x18.5	
014	13x18	
015	SR A3	
016	SR A4	
017	226x310	
018	310x432	
019	Other	

6753	FM3 Equal 3rds: Fine Adjust 1st (D454)	FM3 Letter Fold-out
------	--	---------------------

001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM3: 1st fold</b></p> <p>Fold Stopper 2</p> <p>Fold Stopper 1</p> <p>Fold Stopper 3</p> <p>d059s704</p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
019	Other	

6754	FM3 Equal 3rds: Fine Adjust 2nd (D454)	FM3 Letter Fold-out
001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM3: 2nd fold</b></p> <p>Fold Stopper 2</p> <p>Fold Stopper 1</p> <p>Fold Stopper 3</p> <p>d059s705</p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
019	Other	

6755	FM4 3rds 1 Flap: Fine Adjust 1st (D454)	FM4 Letter Fold-in
------	---	--------------------

001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM4: 1st Fold</b></p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
019	Other	

6756	FM4 3rds 1 Flap: Fine Adjust 2nd (D454)	FM4 Letter Fold-in
001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM4: 2nd Fold</b></p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
019	Other	

6757	FM5 4ths "V": Fine Adjust 1st (D454)	FM5 Double Parallel Fold
------	--------------------------------------	--------------------------

001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM5: 1st Fold</b></p> <p>Fold Stopper 2</p> <p>Fold Stopper 1</p> <p>Fold Stopper 3</p> <p>d059s708</p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
019	Other	

6758	FM5 4ths "V": Fine Adjust 2nd (D454)	FM5 Double Parallel
001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM5: 2nd Folds</b></p> <p>Fold Stopper 2</p> <p>Fold Stopper 1</p> <p>Fold Stopper 3</p> <p>d059s708</p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
019	Other	

6759	FM6 4ths 2 Flap: Fine Adjust 1st (D454)	FM6 Gate Fold
------	---	---------------



001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM6: 1st Fold</b></p> <p>Fold Stopper 2</p> <p>Fold Stopper 1</p> <p>Fold Stopper 3</p> <p>d059s710</p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
008	8-Kai	
009	B5 SEF	
019	Other	

6760	FM6 4ths 2 Flap: Fine Adjust 2nd (D454)	FM6 Gate Fold
001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM6: 2nd Fold</b></p> <p>Fold Stopper 2</p> <p>Fold Stopper 1</p> <p>Fold Stopper 3</p> <p>d059s711</p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
008	8-Kai	
009	B5 SEF	
019	Other	

6761	FM6 4ths 2 Flap: Fine Adjust 3rd (D454)	FM6 Gate Fold
001	A3 SEF	<p>[-4 to +4 / 0 / 0.2 mm]</p> <p><b>FM6: 2nd Fold</b></p> <p>Fold Stopper 2</p> <p>Fold Stopper 1</p> <p>Fold Stopper 3</p> <p>d059s712</p>
002	B4 SEF	
003	A4 SEF	
004	DLT SEF	
005	LG SEF	
006	LT SEF	
007	12x18	
008	8-Kai	
009	B5 SEF	
019	Other	

6770	Ring Binder: Jog Adjust: Front/Rear	
001	A4 LEF	[-1 to +1 / 0 / 0.1 mm]
002	LT LEF	

6771	Ring Binder: Jog Adjust: Leading Edge
	[-1.5 to + 1.5 / 0 / 0.1 mm]

6772	Ring Binder: Jog Adjust: Front	
001	A4 LEF	[-1 to +1 / 0 / 0.1 mm]
002	LT LEF	

6773	Ring Binder: Jog Adjust: Rear
------	-------------------------------

001	A4 LEF	[-1 to +1 / 0 / 0.1 mm]
002	LT LEF	

6800	Sheet Conversion (Thick Paper)
	<p>Selects the count type for stapling the thick paper. The machine calculates one sheet of thick paper as three sheets of plain paper by default.</p> <p>[1 to 3 / 3 / 1 ]</p> <p>1: 1 sheet</p> <p>2: 2 sheets</p> <p>3: 3 sheets</p>

6810	Ring Binding Thick Paper
	<p>Selects the count type for binding the thick paper. The machine calculates one sheet of thick paper as three sheets of plain paper by default.</p> <p>[1 to 3 / 3 / 1 ]</p> <p>1: 1 sheet</p> <p>2: 2 sheets</p> <p>3: 3 sheets</p>

6830	Extra Staples <b>DFU</b>
	<p>More than the standard number of corner staples can be loaded. This SP recognizes the maximum number of staples (This Setting + Standard Number).</p> <ul style="list-style-type: none"> <li>• If the number of the maximum for staples is increased, and the mechanical warranty of the unit can be guaranteed, then the setting can take effect without changing the controller software.</li> <li>• However, assurance that mechanical performance can be guaranteed is required before changing the setting to increase the staple load for more than the maximum in the feed/exit specifications. Raising this setting without quality assurance could damage the machine.</li> </ul>
001	0 to 50 (Initial: 0) [0 to 50 / 0 / 1]
002	0 to 50 (Initial: 0) [0 to 50 / 0 / 1]

6890	Punch Function Enabled (Z-Fold)
	Permission for punching thick (tab) paper is forbidden and it is up to the service technician to pass this on to the customer. 0: Simultaneous use forbidden 1: Simultaneous use allowed

3

6980	Punch Enable Setting for 135 cpm
	Enables punching with the D061 (cpm 135). The default for this SP is OFF. [0 to 1 / 0 / 1] [*OFF] [1:ON]

# System SP7-*nnn* Data Logs: 1

7001	Main Motor Operation Time
	Displays the total drum rotation time in minutes.

7401	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 Loc	Main Machine
------	---------------	--------------

<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"> <li>• Paper late error: Paper failed to arrive at prescribed time.</li> <li>• Paper lag error: Paper failed to leave at prescribed time.</li> </ul>		
001	At Power On	
003	1st Tray Feed Sensor: Late Error	
004	2nd Tray Feed Sensor: Late Error	
005	3rd Tray Feed Sensor: Late Error	
006	4th Tray Feed Sensor: Late Error	
007	5th Tray Feed Sensor: Late Error	
008	6th Tray Feed Sensor: Late Error	
009	7th Tray Feed Sensor: Late Error	
010	1st Tray Transport Sensor: Late Error	
011	2nd Tray Transport Sensor: Late Error	
012	3rd Tray Transport Sensor: Late Error	
013	4th Tray Transport Sensor: Late Error	
014	5th Tray Transport Sensor: Late Error	
015	6th Tray Transport Sensor: Late Error	
016	7th Tray Transport Sensor: Late Error	
017	LCIT Relay Sensor: Late Error	
018	LCIT Exit Sensor: Late Error	
019	Paper Bank Relay Sensor: Late Error	
020	Registration Sensor: Late Error	
021	Paper Cooling Pipe Exit Sensor: Late Error	
022	Exit Sensor: Late Error	
023	Duplex Entrance Sensor: Late Error	

024	Duplex Transport Sensor 1: Late Error	
025	Duplex Transport Sensor 2: Late Error	
026	Duplex Transport Sensor 3: Late Error	
027	Duplex Inverter Sensor: Late Error	
028	Duplex Inverter Relay Sensor: Late Error	
053	1st Tray Feed Sensor: Lag Error	
054	2nd Tray Feed Sensor: Lag Error	
055	3rd Tray Feed Sensor: Lag Error	
056	4th Tray Feed Sensor: Lag Error	
057	5th Tray Feed Sensor: Lag Error	
058	6th Tray Feed Sensor: Lag Error	
059	7th Tray Feed Sensor: Lag Error	
060	1st Transport Sensor: Lag Error	
061	2nd Transport Sensor: Lag Error	
062	3rd Transport Sensor: Lag Error	
063	4th Transport Sensor: Lag Error	
064	5th Transport Sensor: Lag Error	
065	6th Transport Sensor: Lag Error	
066	7th Transport Sensor: Lag Error	
067	LCIT Relay Sensor: Lag Error	
068	LCIT Exit Sensor: Lag Error	
069	Paper Bank Relay Sensor: Lag Error	
070	Registration Sensor: Lag Error	
071	Paper Cooling Pipe Exit Sensor: Lag Error	
072	Exit Sensor: Lag Error	
073	Duplex Entrance Sensor: Lag Error	

074	Duplex Transport Sensor 1: Lag Error	
075	Duplex Transport Sensor 2: Lag Error	
076	Duplex Transport Sensor 3: Lag Error	
077	Duplex Inverter Sensor: Lag Error	
078	Duplex Inverter Relay Sensor: Lag Error	
093	Entrance Sensor: Late Error (D457)	
094	Entrance Sensor: Lag Error (D457)	
095	Exit Sensor: Late Error (D457)	
096	Exit Sensor: Lag Error (D457)	
099	Double Feed	

7504	Paper Jam Loc	Finisher (B830)
101	Entrance: Late Error (B830)	
102	Entrance: Lag Error (B830)	
103	Proof Tray Exit: Late Error (B830)	
104	Proof Tray Exit: Lag Error (B830)	
105	Shift Tray Exit: Late Error (B830)	
106	Shift Tray Exit: Lag Error (B830)	
107	Staple Tray Exit: Late Error (B830)	
108	Staple Tray Exit: Lag Error (B830)	
109	Pre-Stack Tray: Late Error (B830)	
110	Pre-Stack Tray: Lag Error (B830)	
111	Output (B830)	
112	Drive Train (B830)	
113	Shift Tray Lift Drive Train (B830)	
114	Jogger Fence Drive Train (B830)	



115	Shift Tray Drive Train (B830)	
116	Stapler Drive Train (B830)	
117	Output Drive Train (B830)	
118	Punch Drive Train (B830)	
119	Z-Fold Drive Train (B830)	
120	Pre-Stacker Drive Train (B830)	
121	Main Machine Setting Incorrect (B830)	
122	Plockmatic Jam (B830)	
123	GBC Punch Unit Jam (B830)	

7504	Paper Jam Loc	CIT (B835)
130	1st Feed Sensor: Late Error (B835)	
131	1st Feed Sensor: Lag Error (B835)	
132	2nd Feed Sensor: Late Error (B835)	
133	2nd Feed Sensor: Lag Error (B835)	
134	1st Transport Sensor: Late Error (B835)	
135	1st Transport Sensor: Lag Error (B835)	
136	2nd Transport Sensor: Late Error (B835)	
137	2nd Transport Sensor: Lag Error (B835)	
138	1st Ver. Transport Sn: Late Error (B835)	
139	1st Ver. Transport Sn: Lag Error (B835)	
140	2nd Ver. Transport Sn: Late Error (B835)	
141	2nd Ve. Transport Sn: Lag Error (B835)	
142	Vertical Exit Sensor: Late Error (B835)	
143	Vertical Exit Sensor: Lag Error (B835)	
144	Entrance Sensor: Late Error (B835)	

3

145	Entrance Sensor: Lag Error (B835)	
146	Interposer Exit Sensor: Late Error (B835)	
147	Interposer Exit Sensor: Lag Error (B835)	
148	1st Lift Motor Drive Train (B835)	
149	2nd Lift Motor Drive Train (B835)	
150	1st Pick-up Motor Drive Train (B835)	
151	2nd Pick-up Motor Drive Train (B835)	

7504	Paper Jam Loc	High Capacity Stacker (D447)
240	Entrance: Late Error (Stacker 1)	
241	Entrance: Lag Error (Stacker 1)	
242	Proof Tray Exit: Late Error (Stacker 1)	
243	Proof Tray Exit: Lag Error (Stacker 1)	
244	Stack Tray Exit: Late Error (Stacker 1)	
245	Stack Tray Exit: Lag Error (Stacker 1)	
246	Relay Path: Late Error (Stacker 1)	
247	Relay Path: Lag Error (Stacker 1)	
248	Straight-Through Exit: Late Error(Stacker 1)	
249	Straight-Through Exit: Lag Error(Stacker 1)	
250	Shift JG Motor (Stacker 1)	
251	Proof Tray JG Motor (Stacker 1)	
252	Shift Motor (Stacker 1)	
253	Front Jogger Fence Motor (Stacker 1)	
254	Rear Jogger Fence Motor (Stacker 1)	
255	Front Jogger Fence Retraction Mtr(Stacker 1)	

7505	Original Jam Detection	
------	------------------------	--

	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.	
001	At Power On	
003	Feed Jam	
004	Exit Jam	

7506	Jam Count by Paper Size	
	Displays the total number of jams by paper size.	
005	A4 LEF	Displays the total number of jams by paper size.
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	

7507	Plotter Jam History
------	---------------------

3

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	Sample Display: CODE: 007 SIZE: 05h TOTAL: 0000334 DATE: Mon Mar 15 11:44:50 2000
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	

3

### 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		

## System SP7-*nnn* Data Logs: 2

7509	Paper Jam Loc	
001	Rear Jogger Fence Retraction Mtr (Stacker 1)	
002	Sub Jogger Motor (Stacker 1)	
003	LE Stopper Motor (Stacker 1)	
004	Tray Lift Motor (Stacker 1)	
005	Main Machine Setting Incorrect (Stacker 1)	
015	Entrance: Late Error (Stacker 2)	
016	Entrance: Lag Error (Stacker 2)	
017	Proof Tray Exit: Late Error (Stacker 2)	
018	Proof Tray Exit: Lag Error (Stacker 2)	
019	Stack Tray Exit: Late Error (Stacker 2)	
020	Stack Tray Exit: Lag Error (Stacker 2)	
021	Relay Path: Late Error (Stacker 2)	
022	Relay Path: Lag Error (Stacker 2)	
023	Straight-Through Path: Late Error(Stacker 2)	
024	Straight-Through Path: Lag Error(Stacker 2)	
025	Shift JG Motor (Stacker 2)	
026	Proof JG Motor (Stacker 2)	
027	Shift Motor (Stacker 2)	
028	Front Jogger Fence Motor (Stacker 2)	
029	Rear Jogger Fence Motor (Stacker 2)	
030	Jogger Front Retraction Motor (Stacker 2)	
031	Jogger Rear Retraction Motor (Stacker 2)	
032	Sub Jogger Motor (Stacker 2)	

033	LE Stopper Motor (Stacker 2)	
034	Tray Lift Motor (Stacker 2)	
035	Main Machine Setting Incorrect (Stacker 2)	
045	Main Machine Setting Incorrect (D391)	
046	Horizontal Path Exit Sensor: Late Jam (D391)	
047	Horizontal Path Exit Sensor: Lag Jam (D391)	
048	Cover Registration Sensor: Late Jam (D391)	
049	Cover Registration Sensor: Lag Jam (D391)	
050	Cover Horiz Regist Sn:Small: Late Jam (D391)	
051	Cover Horiz Regist Sn:Small: Lag Jam (D391)	
052	Cover Horiz Regist Sn:Large: Late Jam (D391)	
053	Cover Horiz Regist Sn:Large: Lag Jam (D391)	
054	Entrance Sensor: Late Jam (D391)	
055	Entrance Sensor: Lag Jam (D391)	
056	Signature Path Sensor 1: Late Jam (D391)	
057	Signature Path Sensor 1: Lag Jam (D391)	
058	Signature Path Sensor 2: Late Jam (D391)	
059	Signature Path Sensor 2: Lag Jam (D391)	
060	Timing Sensor: Late Jam (D391)	
061	Timing Sensor: Lag Jam (D391)	
062	Stacking Tray: Late Jam (D391)	
063	Stacking Tray: Lag Jam (D391)	
064	Sub Grip: Late Jam (D391)	
065	Cover Path Sensor 1: Late Jam (D391)	
066	Cover Path Sensor 1: Lag Jam (D391)	
067	Cover Path Sensor 2: Late Jam (D391)	

068	Cover Path Sensor 2: Lag Jam (D391)	
069	Cover Registration Sensor: Late Jam (D391)	
070	Cover Registration Sensor: Lag Jam (D391)	
071	Vertical Transport Sn 2: Late Jam (D391-INS)	
072	Vertical Transport Sn 2: Lag Jam (D391-INS)	
073	Tray A Paper Feed Sn Late Jam (D391-INS)	
074	Tray A Paper Feed Sn Lag Jam (D391-INS)	
075	Tray B Paper Feed Sn Late Jam (D391-INS)	
077	Vertical Transport Sn 1: Late Jam (D391-INS)	
078	Vertical Transport Sn 1: Lag Jam (D391-INS)	
079	Vertical Transport Sn 2: Late Jam (D391-INS)	
080	Vertical Transport Sn 2: Lag Jam (D391-INS)	
081	Transport Sensor: Late Jam (D391-TPU)	
082	Transport Sensor: Lag Jam (D391-TPU)	
095	Entrance: Late Jam (D392)	
096	Entrance: Lag Jam (D392)	
097	Relay: Late Jam (D392)	
098	Relay: Lag Jam (D392)	
099	Exit: Late Jam (D392)	
100	Exit: Lag Jam (D392)	
101	Before Punch Unit Jam (D392)	
102	After Punch Unit Jam (D392)	
103	Binder Unit TE Jam (D392)	
104	Binder Unit LE Jam (D392)	
105	Ring Jam: Wrong Ring Type (D392)	
106	Binder Unit Jam (D392)	



107	Output Belt 1 Jam (D392)	
108	Output Belt 2 Jam (D392)	
109	Stacker Jam (D392)	
110	Punch Motor Jam (D392)	
111	Shutter Motor Jam (D392)	
112	Alignment Pin Motor Jam (D392)	
113	Pre-Punch Jogger Jam (D392)	
114	Alignment Pin Jam (D392)	
115	Clamp Motor Jam (D392)	
116	50/100 Clamp Adjust Motor Jam (D392)	
117	Output Belt Rotation Motor Jam (D392)	
118	Main Machine Setting Incorrect (D392)	
145	Entrance: Late Error (D434)	
146	Entrance: Lag Error (D434)	
147	Proof Tray Exit: Late Error (D434)	
148	Proof Tray Exit: Lag Error (D434)	
149	Shift Tray Exit: Late Error (D434)	
150	Shift Tray Exit: Lag Error (D434)	
151	Staple Tray Exit: Late Error (D434)	
152	Staple Tray Exit: Lag Error (D434)	
153	Pre-Stack Tray: Late Error (D434)	
154	Pre-Stack Tray: Lag Error (D434)	
155	Output (D434)	
156	Booklet Stapler: Late (D434)	
157	Booklet Stapler: Lag (D434)	
158	Booklet Stapler Exit: Late (D434)	

159	Booklet Stapler Exit: Lag (D434)	
160	Paper Path (D434)	
161	Shift Tray Lift Drive Train (D434)	
162	Jogger Fence Drive Train (D434)	
163	Shift Drive Train (D434)	
164	Stapler Drive Train (D434)	
165	Stack Output Drive Train (D434)	
166	Punch Drive Train (D434)	
167	Jogger System (D434)	
168	Pre-Stacker Drive Train(D434)	
169	Booklet Path (D434)	
170	Booklet Stapling System (D434)	
171	Folding System (D434)	
172	For Debugging: Cause Unknown (D434)	
173	Main Machine Setting Incorrect (D434)	
175	Entrance Sensor: Late Error (D447)	
176	Entrance Sensor: Lag Error (D447)	
177	Skew Sensor: Late Error (D447)	
178	Skew Sensor: Lag Error (D447)	
179	Exit Sensor: Late Error (D447)	
180	Exit Sensor: Lag Error (D447)	
181	Trimming Blade Motor Lock (D447)	
182	Cut Position Motor (D447)	
183	Press Roller (D447)	
184	Press/Stopper Roller (D447)	
185	Tray Motor (D447)	

195	Entrance: Late Jam (D454)	
196	Entrance: Lag Jam (D454)	
197	Top Tray Exit: Late Jam (D454)	
198	Top Tray Exit: Lag Jam (D454)	
199	Straight-Through Exit: Late Jam (D454)	
200	Straight-Through Exit: Lag Jam (D454)	
201	1st Stopper: Late Jam (D454)	
202	1st Stopper: Lag Jam (D454)	
203	2nd Stopper: Late Jam (D454)	
204	2nd Stopper: Lag Jam (D454)	
205	3rd Stopper: Late Jam (D454)	
206	3rd Stopper: Lag Jam (D454)	
207	Skew Correction Jam (D454)	
208	Top Tray Transport Jam (D454)	
209	Entrance/Top Tray JG Motor Error (D454)	
210	Entrance/Fold JG Motor Error (D454)	
211	1st Stopper Motor Error (D454)	
212	2nd Stopper Motor Error (D454)	
213	3rd Stopper Motor Error (D454)	
214	Dynamic Roller Transport Motor Error (D454)	
215	Registration Roller Release Motor (D454)	
216	Fold Plate Motor Error (D454)	
217	Jogger Fence Motor Jam (D454)	
218	Positioning Roller Motor Jam (D454)	
219	FM2 Direct Send Motor Error (D454)	
220	FM6 Pawl Motor (D454)	

7617	Parts PM Counter Display	
001	Normal	
002	Document Feed	

7618	Parts PM Counter Reset <b>Japan Only</b>	
001	Normal	Clears the counter of SP7617- 001.
002	Document Feed	Clears the counter of SP7617- 002

7621	Display PM Count	
	0 to 9999 9999	
7622	Clear PM Count	
	This SP clears the PM counts for the components below.	
7623	Unit PM Target	
	0 to 9999 9999	
001	#Development Unit	
002	Developer	
003	#Drum Unit	
004	Drum Pick-off Pawls	
005	#Drum Cleaning Unit	
006	Cleaning Blade	
007	Cleaning Brush	
008	Drum Cleaning Unit Filter	
009	#Charge Unit	
010	Grid Plate	
011	Charge Corona Wire	
012	Cleaning Pad	
013	Cushion	

014	#Pre-Charge Unit
015	Pre-Charge Corona Wire
016	Pre-Charge Grid Plate
017	#Fusing Unit
018	Hot Roller Strippers
019	Hot Roller
020	Pressure Roller
021	#Fusing Cleaning Unit
022	Web Roll
023	Web Cleaning Roll
024	Web Brake Pad
025	Toner Suction Bottle
026	Toner Suction Motor
027	Tray 1 Roller Assembly
028	Feed Roller – Tray 1
029	Pick-up Roller – Tray 1
030	Separation Roller – Tray 1
031	Tray 2 Roller Assembly
032	Feed Roller – Tray 2
033	Pick-up Roller – Tray 2
034	Separation Roller – Tray 2
035	Tray 3 Roller Assembly
036	Feed Roller – Tray 3
037	Pick-up Roller – Tray 3
038	Separation Roller – Tray 3
040	Transfer Belt

041	Transfer Belt Cleaning Blade
042	Toner Filter
043	ADF Transfer Belt
044	ADF Separation Roller
045	ADF Feed Belt
046	ADF Pick-up Roller
047	Tray 4 Roller Assembly
048	Feed Roller – Tray 4
049	Pick-up Roller – Tray 4
050	Separation Roller – Tray 4
051	Tray 5 Roller Assembly
052	Feed Roller – Tray 5
053	Pick-up Roller – Tray 5
054	Separation Roller – Tray 5
055	Tray 6 Roller Assembly
056	Feed Roller – Tray 6
057	Pick-up Roller – Tray 6
058	Separation Roller – Tray 6
059	Tray 7 Roller Assembly
060	Feed Roller – Tray 7
061	Pick-up Roller – Tray 7
062	Separation Roller – Tray 7

7624	Part Replacement Operation ON/OFF
001	#Development Unit
002	Developer

003	#Drum Unit
004	Drum Pick-off Pawls
005	#Drum Cleaning Unit
006	Cleaning Blade
007	Cleaning Brush
008	Drum Cleaning Unit Filter
009	#Charge Unit
010	Grid Plate
011	Charge Corona Wire
012	Cleaning Pad
013	Cushion
014	#Pre-Charge Unit
015	Pre-Charge Corona Wire
016	Pre-Charge Grid Plate
017	#Fusing Unit
018	Hot Roller Strippers
019	Hot Roller
020	Pressure Roller
021	#Fusing Cleaning Unit
022	Web Roll
023	Web Cleaning Roll
024	Web Brake Pad
025	Toner Suction Bottle
026	Toner Suction Motor
027	Tray 1 Roller Assembly
028	Feed Roller – Tray 1

029	Pick-up Roller – Tray 1
030	Separation Roller – Tray 1
031	Tray 2 Roller Assembly
032	Feed Roller – Tray 2
033	Pick-up Roller – Tray 2
034	Separation Roller – Tray 2
035	Tray 3 Roller Assembly
036	Feed Roller – Tray 3
037	Pick-up Roller – Tray 3
038	Separation Roller – Tray 3
040	Transfer Belt
041	Transfer Belt Cleaning Blade
042	Toner Filter
043	ADF Transfer Belt
044	ADF Separation Roller
045	ADF Feed Belt
046	ADF Pick-up Roller
047	Tray 4 Roller Assembly
048	Feed Roller – Tray 4
049	Pick-up Roller – Tray 4
050	Separation Roller – Tray 4
051	Tray 5 Roller Assembly
052	Feed Roller – Tray 5
053	Pick-up Roller – Tray 5
054	Separation Roller – Tray 5
055	Tray 6 Roller Assembly



056	Feed Roller – Tray 6
057	Pick-up Roller – Tray 6
058	Separation Roller – Tray 6
059	Tray 7 Roller Assembly
060	Feed Roller – Tray 7
061	Pick-up Roller – Tray 7
062	Separation Roller – Tray 7
063	Toner Collection Unit
100	Blade Cradle
101	Blade
102	Glue Vat Unit

## System SP7-*nnn* Data Logs: 3

3

7625	Pg Counter History Latest 1
	0 to 9999 9999
7626	Pg Count History Latest 2
	0 to 9999 9999
7627	Pg Count History Latest 3
	0 to 9999 9999
001	#Development Unit
002	Developer
003	#Drum Unit
004	Drum Pick-off Pawls
005	#Drum Cleaning Unit
006	Cleaning Blade
007	Cleaning Brush
008	Drum Cleaning Unit Filter
009	#Charge Unit
010	Grid Plate
011	Charge Corona Wire
012	Cleaning Pad
013	Cushion
014	#Pre-Charge Unit
015	Pre-Charge Corona Wire
016	Pre-Charge Grid Plate
017	#Fusing Unit
018	Hot Roller Strippers

019	Hot Roller
020	Pressure Roller
021	#Fusing Cleaning Unit
022	Web Roll
023	Web Cleaning Roll
024	Web Brake Pad
025	Toner Suction Bottle
026	Toner Suction Motor
027	Tray 1 Roller Assembly
028	Feed Roller – Tray 1
029	Pick-up Roller – Tray 1
030	Separation Roller – Tray 1
031	Tray 2 Roller Assembly
032	Feed Roller – Tray 2
033	Pick-up Roller – Tray 2
034	Separation Roller – Tray 2
035	Tray 3 Roller Assembly
036	Feed Roller – Tray 3
037	Pick-up Roller – Tray 3
038	Separation Roller – Tray 3
040	Transfer Belt
041	Transfer Belt Cleaning Blade
042	Toner Filter
043	ADF Transfer Belt
044	ADF Separation Roller
045	ADF Feed Belt

046	ADF Pick-up Roller
047	Tray 4 Roller Assembly
048	Feed Roller – Tray 4
049	Pick-up Roller – Tray 4
050	Separation Roller – Tray 4
051	Tray 5 Roller Assembly
052	Feed Roller – Tray 5
053	Pick-up Roller – Tray 5
054	Separation Roller – Tray 5
055	Tray 6 Roller Assembly
056	Feed Roller – Tray 6
057	Pick-up Roller – Tray 6
058	Separation Roller – Tray 6
059	Tray 7 Roller Assembly
060	Feed Roller – Tray 7
061	Pick-up Roller – Tray 7
062	Separation Roller – Tray 7

	Clear PM Count
7628	Clears counts for all PM parts or on those PM parts whose counts have exceeded their services lives.
001	Clear Exceeded Counts
002	Reset All Counts

7801	ROM Version
	Displays the ROM versions for the items displayed on the operation panel screen.

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 <b>Japan Only</b>
	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. <b>Japan Only</b>
7832	Self-Diagnose Result Display
	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. <b>DFU</b>	
001	Filename	Used for debugging.
002	Number of Lines	
003	Location	

7940	Drive Distance: End Std Value	
	Displays the standard value of expected service life measured by distance (meters). Default setting of service life for each component appears on the screen.	
7942	Drive Distance % Counter	
	Displays expiration of service measured by percent (%).	
7944	Drive Distance Counter	
	Displays the expiration of service measured by distance (meters).	
001	#Development Unit	
002	Developer	
003	#Drum Unit	
004	Drum Pick-off Pawls	
005	#Drum Cleaning Unit	
006	Cleaning Blade	
007	Cleaning Brush	
008	Drum Cleaning Unit Filter	
009	#Charge Unit	
010	Grid Plate	
011	Charge Corona Wire	
012	Cleaning Pad	
013	Cushion	
014	#Pre-Charge Unit	

3

015	Pre-Charge Corona Wire
016	Pre-Charge Grid Plate
017	#Fusing Unit
018	Hot Roller Strippers
019	Hot Roller
020	Pressure Roller
040	Transfer Belt
041	Transfer Belt Cleaning Blade
042	Toner Filter

7954	Consumption Rate Counter
	Shows the consumption rate, expressed as a percentage (%).
001	#Development Unit
002	Developer
003	#Drum Unit
004	Drum Pick-off Pawls
005	#Drum Cleaning Unit
006	Cleaning Blade
007	Cleaning Brush
008	Drum Cleaning Unit Filter
009	#Charge Unit
010	Grid Plate
011	Charge Corona Wire
012	Cleaning Pad
013	Cushion
014	#Pre-Charge Unit

015	Pre-Charge Corona Wire
016	Pre-Charge Grid Plate
017	#Fusing Unit
018	Hot Roller Strippers
019	Hot Roller
020	Pressure Roller
021	#Fusing Cleaning Unit
022	Web Roll
023	Web Cleaning Roll
024	Web Brake Pad
025	Toner Suction Bottle
026	Toner Suction Motor
027	Tray 1 Roller Assembly
028	Feed Roller – Tray 1
029	Pick-up Roller – Tray 1
030	Separation Roller – Tray 1
031	Tray 2 Roller Assembly
032	Feed Roller – Tray 2
033	Pick-up Roller – Tray 2
034	Separation Roller – Tray 2
035	Tray 3 Roller Assembly
036	Feed Roller – Tray 3
037	Pick-up Roller – Tray 3
038	Separation Roller – Tray 3
040	Transfer Belt
041	Transfer Belt Cleaning Blade



042	Toner Filter
043	ADF Transfer Belt
044	ADF Separation Roller
045	ADF Feed Belt
046	ADF Pick-up Roller
047	Tray 4 Roller Assembly
048	Feed Roller – Tray 4
049	Pick-up Roller – Tray 4
050	Separation Roller – Tray 4
051	Tray 5 Roller Assembly
052	Feed Roller – Tray 5
053	Pick-up Roller – Tray 5
054	Separation Roller – Tray 5
055	Tray 6 Roller Assembly
056	Feed Roller – Tray 6
057	Pick-up Roller – Tray 6
058	Separation Roller – Tray 6
059	Tray 7 Roller Assembly
060	Feed Roller – Tray 7
061	Pick-up Roller – Tray 7
062	Separation Roller – Tray 7

7989	Trim Count (Trimmer)
	Displays the number of cuts performed with the Trimmer Unit (D455) attached to the left side of the Booklet Finisher (D434).

7999	Engine Debug Log Switch <b>DFU</b>			
	This SP sets the debug log switch for one of the settings listed below. [0 to 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			

# System SP8-xxx: Data Log2: 1

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 to SP8216	The number of pages scanned to the document server.
SP8401 to SP8406	The number of pages printed from the document server
SP8691 to SP8696	The number of pages sent from the document server

3

Specifically, the following questions can be answered:

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

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

PREFIXES	WHAT IT MEANS	
T:	Total: (Grand Total).	Grand total of the items counted for all applications (C, F, P, etc.)..
C:	Copy application.	Totals (pages, jobs, etc.) executed for each application when the job was not stored on the document server.
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.

PREFIXES	WHAT IT MEANS	
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.

3

**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

ABBREVIATION	WHAT IT MEANS
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/Desk Top Editor: A pair of utilities that allows print jobs to be distributed evenly among the printers on the network, and allows files to 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
Ppr	Paper

ABBREVIATION	WHAT IT MEANS
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
WSD	Web Services Devices
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	<p>These SPs count the number of times each application is used to do a job.</p> <p>[0 to 9999999 / 0 / 1]</p> <p><b>Note:</b> 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.</p>
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.

3

801 1	T:Jobs/LS	<p>These SPs count the number of jobs stored to the document server by each application, to reveal how local storage is being used for input. [0 to 9999999/ 0 / 1]</p> <p>The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.</p>
801 2	C:Jobs/LS	
801 4	P:Jobs/LS	
801 5	S:Jobs/LS	
801 6	L:Jobs/LS	
801 7	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.

802 1	T:Pjob/LS	<p>These SPs reveal how files printed from the document server were stored on the document server originally. [0 to 9999999/ 0 / 1]</p> <p>The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.</p>
802 2	C:Pjob/LS	
802 4	P:Pjob/LS	
802 5	S:Pjob/LS	
802 6	L:Pjob/LS	
802 7	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.

803 1	T:Pjob/ DesApl	<p>These SPs reveal what applications were used to output documents from the document server.</p> <p>[0 to 9999999 / 0 / 1]</p> <p>The L: counter counts the number of jobs printed from within the document server mode screen at the operation panel.</p>
803 2	C:Pjob/ DesApl	
803 4	P:Pjob/ DesApl	
803 5	S:Pjob/ DesApl	
803 6	L:Pjob/ DesApl	
803 7	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.

3

8041	T:TX Jobs/LS	<p>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).</p> <p>[0 to 9999999 / 0 / 1]</p> <p><b>Note:</b> Jobs merged for sending are counted separately.</p> <p>The L: counter counts the number of jobs scanned from within the document server mode screen at the operation panel.</p>
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	<p>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.</p> <p>[0 to 99999999 / 0 / 1]</p> <p>The L: counter counts the number of jobs sent from within the document server mode screen at the operation panel.</p>
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.

8061	T:FIN Jobs	<p>[0 to 99999999 / 0 / 1]</p> <p>These SPs total the finishing methods. The finishing method is specified by the application.</p>
	C:FIN Jobs	
8062	T:FIN Jobs	<p>[0 to 99999999 / 0 / 1]</p> <p>These SPs total finishing methods for copy jobs only. The finishing method is specified by the application.</p>
	C:FIN Jobs	

8064	P:FIN Jobs	
	[0 to 99999999 / 0 / 1] These SPs total finishing methods for print jobs only. The finishing method is specified by the application.	
8065	S:FIN Jobs	
	[0 to 99999999 / 0 / 1] These SPs total finishing methods for scan jobs only. The finishing method is specified by the application. <b>Note:</b> Finishing features for scan jobs are not available at this time.	
8066	L:FIN Jobs	
	[0 to 99999999 / 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 to 99999999 / 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 to 99999999 / 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 to 99999999 / 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 to 99999999 / 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 to 99999999 / 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 to 99999999 / 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 to 99999999 / 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 to 50 Pages
807x 2	2 Pages	807x 9	51 to 100 Pages
807x 3	3 Pages	807x 10	101 to 300 Pages
807x 4	4 Pages	807x 11	301 to 500 Pages
807x 5	5 Pages	807x 12	501 to 700 Pages

807x 6	6 to 10 Pages	807x 13	701 to 1000 Pages
807x 7	11 to 20 Pages	807x 14	1001 to Pages

- For example: When a copy job stored on the document server is printed in document server mode, the appropriate L: counter (SP8076 0xx) increments.
- 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.

	T:S-to-Email Jobs
813 1	[0 to 99999999 / 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.
	S:S-to-Email Jobs
813 5	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).

814 1	T:Deliv Jobs/Svr
	[0 to 9999999/ 0 / 1] These SPs count the total number of jobs scanned and sent to a Scan Router server.
814 5	S:Deliv Jobs/Svr
	These SPs count the number of jobs scanned in scanner mode and sent to a Scan Router server.

3

- 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.

815 1	T:Deliv Jobs/PC
	[0 to 9999999/ 0 / 1] These SPs count the total number of jobs scanned and sent to a folder on a PC (Scan-to-PC). <b>Note:</b> At the present time, 8151 and 8155 perform identical counts.
815 5	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.

8171	T: Deliv Jobs/WSD
	Total jobs for WSD (WS-Scanner for Web Services Devices).

8175	S: Deliv Jobs/WSD	
	Total number of jobs scanned for WSD.	
	001	B/W
	002	Color
	003	ACS

8191	T:Total Scan PGS	These SPs count the pages scanned by each application that uses the scanner to scan images. [0 to 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.

8201	T:LSize Scan PGS	[0 to 9999999 / 0 / 1] These SPs count the total number of large pages input with the scanner for scan and copy jobs. <b>Note:</b> These counters are displayed in the SMC Report, and in the User Tools display.
------	------------------	---

8205	S:LSize Scan PGS	<p>[0 to 9999999 / 0 / 1]</p> <p>These SPs count the total number of large pages input with the scanner for scan jobs only.</p> <p><b>Note:</b> These counters are displayed in the SMC Report, and in the User Tools display.</p>
------	------------------	--

3

8211	T:Scan PGS/LS	<p>These SPs count the number of pages scanned into the document server .</p> <p>[0 to 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, and with the Store File button from within the Copy mode screen</p>
8212	C:Scan PGS/LS	
8215	S:Scan PGS/LS	
8216	L:Scan PGS/LS	

- 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	
	<p>[0 to 9999999 / 0 / 1]</p> <p>These SPs count the number of pages fed through the ADF for front and back side scanning.</p>	
8221 1	Front	<p>Number of front sides fed for scanning:</p> <p>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.</p> <p>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.)</p>
8221 2	Back	<p>Number of rear sides fed for scanning:</p> <p>With an ADF that can scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex scanning.</p> <p>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.</p>



- 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 to 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.

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.
- If the user selects "Mixed Sizes" for copying in the platen mode, the Mixed Size count is enabled.
- In the SADF mode if the user copies 1 page in platen mode and then copies 2 pages with SADF, the Platen count is 1 and the SADF count is 3.

8241	T:Scan PGS/Org	[0 to 9999999/ 0 / 1] These SPs count the total number of scanned pages by original type for all jobs, regardless of which application was used.
8242	C:Scan PGS/Org	[0 to 9999999/ 0 / 1] These SPs count the number of pages scanned by original type for Copy jobs.
8245	S:Scan PGS/Org	[0 to 9999999/ 0 / 1] These SPs count the number of pages scanned by original type for Scan jobs.
8246	L:Scan PGS/Org	[0 to 9999999/ 0 / 1] These SPs count the number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen

	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.

825 1	T:Scan PGS/ ImgEdt	<p>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:</p> <ul style="list-style-type: none"> <li>• Erase&gt; Border</li> <li>• Erase&gt; Center</li> <li>• Image Repeat</li> <li>• Centering</li> <li>• Positive/Negative</li> </ul> <p>[0 to 99999999 / 0 / 1]</p> <p><b>Note:</b> 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.</p>
825 2	C:Scan PGS/ ImgEdt	

825 6	L:Scan PGS/ ImgEdt	
825 7	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.

828 1	T:Scan PGS/ TWAIN	<p>These SPs count the number of pages scanned using a TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions.</p> <p>[0 to 9999999 / 0 / 1]</p> <p><b>Note:</b> At the present time, these counters perform identical counts.</p>
828 5	S:Scan PGS/ TWAIN	

8291	T:Scan PGS/ Stamp	<p>These SPs count the number of pages stamped with the stamp in the ADF unit.</p> <p>[0 to 9999999 / 0 / 1]</p>
8295	S:Scan PGS/ Stamp	<p>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</p>
8296	L:Scan PGS/ Stamp	

8301	T:Scan PGS/Size	<p>[0 to 9999999 / 0 / 1]</p> <p>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].</p>
8302	C:Scan PGS/Size	<p>[0 to 9999999 / 0 / 1]</p> <p>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].</p>

8305	S:Scan PGS/Size	
	[0 to 9999999 / 0 / 1] These SPs count by size the total number of pages scanned by the Scan application. Use these totals to compare original page size (scanning) and output page size [SP 8-445].	
8306	L:Scan PGS/Size	
	[0 to 9999999 / 0 / 1] These SPs count by size the total number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen. Use these totals to compare original page size (scanning) and output page size [SP 8-446].	
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)	

8311	T:Scan PGS/Rez	
	[0 to 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 to 9999999/ 0 / 1] These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings. <b>Note:</b> At the present time, 8311 and 8315 perform identical counts.	
831x 1	1200dpi to	
831x 2	600dpi to 1199dpi	
831x 3	400dpi to 599dpi	
831x 4	200dpi to 399dpi	
831x 5	to 199dpi	

- Copy resolution settings are fixed so they are not counted.

## SP8-*nnn*: Data Log2: 2

3

8381	T:Total PrtPGS	<p>These SPs count the number of pages printed by the customer. The counter for the application used for storing the pages increments.</p> <p>[0 to 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>
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.

839 1	LSize PrtPGS
	<p>[0 to 9999999 / 0 / 1]</p> <p>These SPs count pages printed on paper sizes A3/DLT and larger.</p> <p><b>Note:</b> In addition to being displayed in the SMC Report, these counters are also displayed in the User Tools display on the copy machine.</p>

840 1	T:PrtPGS/LS	<p>These SPs count the number of pages printed from the document server. The counter for the application used to print the pages is incremented.</p> <p>The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.</p> <p>[0 to 9999999 / 0 / 1]</p>
840 2	C:PrtPGS/LS	
840 4	P:PrtPGS/LS	
840 5	S:PrtPGS/LS	
840 6	L:PrtPGS/LS	

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the L: count.

841 1	Prints/ Duplex	<p>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.</p> <p>[0 to 9999999 / 0 / 1]</p>
----------	-------------------	---

8421	T:PrtPGS/Dup Comb	[0 to 9999999 / 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing. This is the total for all applications.	
8422	C:PrtPGS/Dup Comb	[0 to 9999999 / 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the copier application.	
8424	P:PrtPGS/Dup Comb	[0 to 9999999 / 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the printer application.	

8425	S:PrtPGS/Dup Comb	
	[0 to 99999999/ 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 to 99999999/ 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 to 99999999/ 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		Magazine	
Original Pages	Count	Original Pages	Count
1	1	1	1
2	2	2	2
3	2	3	2
4	2	4	2
5	3	5	4
6	4	6	4
7	4	7	4
8	4	8	4

8431	T:PrtPGS/ImgEdt
	[0 to 9999999/ 0 / 1] These SPs count the total number of pages output with the three features below, regardless of which application was used.
8432	C:PrtPGS/ImgEdt
	[0 to 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 to 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 to 9999999/ 0 / 1] These SPs count the total number of pages output from within the document server mode window at the operation panel with the three features below.	
8437	O:PrtPGS/ImgEdt	
	[0 to 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.

8441	T:PrtPGS/Ppr Size	
	[0 to 9999999/ 0 / 1] These SPs count by print paper size the number of pages printed by all applications.	
8442	C:PrtPGS/Ppr Size	
	[0 to 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 to 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 to 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 to 99999999/ 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 to 99999999/ 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 to 99999999/ 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 to 9999999/ 0 / 1] These SPs count by paper type the number pages printed by all applications. <ul style="list-style-type: none"> <li>• 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.</li> <li>• Blank sheets (covers, chapter covers, slip sheets) are also counted.</li> <li>• During duplex printing, pages printed on both sides count as 1, and a page printed on one side counts as 1.</li> </ul>
8462	C:PrtPGS/Ppr Type
	[0 to 9999999/ 0 / 1] These SPs count by paper type the number pages printed by the copy application.
8464	P:PrtPGS/Ppr Type
	[0 to 9999999/ 0 / 1] These SPs count by paper type the number pages printed by the printer application.
8466	L:PrtPGS/Ppr Type
	[0 to 9999999/ 0 / 1] These SPs count by paper type the number pages printed from within the document server mode window at the operation panel.
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

3

8471	PrtPGS/Mag
	[0 to 9999999/ 0 / 1] These SPs count by magnification rate the number of pages printed.
8471 1	- 49%
8471 2	50% to 99%
8471 3	100%
8471 4	101% to 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%.

848 1	T:PrtPGS/TonSave
----------	------------------

848 4	P:PrtPGS/TonSave
	<p>These SPs count the number of pages printed with the Toner Save feature switched on.</p> <p><b>Note:</b> These SPs return the same results as this SP is limited to the Print application.</p> <p>[0 to 9999999/ 0 / 1]</p>

3

8511	T:PrtPGS/Emul	[0 to 9999999/ 0 / 1]
	These SPs count by printer emulation mode the total number of pages printed.	
8514	P:PrtPGS/Emul	[0 to 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.

8521	T:PrfPGS/FIN
	[0 to 99999999 / 0 / 1] These SPs count by finishing mode the total number of pages printed by all applications.
8522	C:PrfPGS/FIN
	[0 to 99999999 / 0 / 1] These SPs count by finishing mode the total number of pages printed by the Copy application.
8524	P:PrfPGS/FIN
	[0 to 99999999 / 0 / 1] These SPs count by finishing mode the total number of pages printed by the Print application.
8525	S:PrfPGS/FIN
	[0 to 99999999 / 0 / 1] These SPs count by finishing mode the total number of pages printed by the Scanner application.
8526	L:PrfPGS/FIN
	[0 to 99999999 / 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**

- If stapling is selected for finishing and the stack is too large for stapling, the unstapled pages are still counted.
- The counts for staple finishing are based on output to the staple tray, so jam recoveries are counted.

8531	Staples	This SP counts the amount of staples used by the machine. [0 to 99999999 / 0 / 1]
------	---------	--

8541	T: GPC Counter	<b>Japan Only</b>
8544	C: GPC Counter	

3

858 1	T:Counter	<p>[0 to 99999999 / 0 / 1]</p> <p>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.</p> <p><b>Note:</b> This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.</p>

8591	O:Counter	<p>[0 to 99999999 / 0 / 1]</p> <p>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.</p>
8591 1	A3/DLT	
8591 2	Duplex	
8591 3	Staple	

8621	Func Use Counter <b>NIA</b>	
	001 to 064	Function 001 to 064

865 1	T:S-to-Email PGS	<p>[0 to 99999999 / 0 / 1]</p> <p>These SPs count by color mode the total number of pages attached to an e-mail for both the Scan and document server applications.</p> <p><b>Note:</b> This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.</p>



865 5	S:S-to-Email PGS
	[0 to 99999999 / 0 / 1] These SPs count by color mode the total number of pages attached to an e-mail for the Scan application only. <b>Note:</b> This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.

↓ **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).

866 1	T:Deliv PGS/Svr
	[0 to 99999999 / 0 / 1] These SPs count by color mode the total number of pages sent to a Scan Router server by both Scan and LS applications. <b>Note:</b> This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.
866 5	S:Deliv PGS/Svr
	[0 to 99999999 / 0 / 1] These SPs count by color mode the total number of pages sent to a Scan Router server by the Scan application. <b>Note:</b> This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.

↓ **Note**

- The B/W and Color counts are done after the document is stored on the HDD of the Scan Router server.

- If the job is canceled before storage on the Scan Router server finishes, the counts are not done.
- The count is executed even if regardless of confirmation of the arrival at the Scan Router server.

867 1	T:Deliv PGS/PC	[0 to 9999999 / 0 / 1] These SPs count by color mode the total number of pages sent to a folder on a PC (Scan-to-PC) with the Scan and LS applications. <b>Note:</b> This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.
	S:Deliv PGS/PC	[0 to 9999999 / 0 / 1] These SPs count by color mode the total number of pages sent with Scan-to-PC with the Scan application. <b>Note:</b> This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.

8691	T:TX PGS/LS	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.
8692	C:TX PGS/LS	
8694	P:TX PGS/LS	[0 to 9999999 / 0 / 1]
8695	S:TX PGS/LS	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.
8696	L:TX PGS/LS	

**Note**

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the count.
- If several documents are merged for sending, the number of pages stored is counted for the application that stored them.

8701	TX PGS/Port
	[0 to 9999999/ 0 / 1] These SPs count the number of pages sent by the physical port used to send them. For example, if a 3-page original is sent to 4 destinations via ISDN G4, the count for ISDN (G3, G4) is 12.
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 to 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 to 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

8721	T: Deliv: PGS/WSD	
	Total number of pages sent via WSD (WS-Scanner for Web Services Devices).	
8725	S: Deliv PGS/WSD	
	Total number of pages sent via WSD (WS-Scanner for Web Services Devices).	
	001	B/W
	002	Color

8741	RX PGS/Port	
	[0 to 99999999 / 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	

877 1	Dev Counter	
	[0 to 99999999 / 0 / 1] These SPs count the frequency of use (number of rotations of the development rollers) for black and other color toners. <b>Note:</b> For machines that do not support color, the Black toner count is the same as the Total count.	

878 1	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.	

879 1	LS Memory Remain	This SP displays the percent of space available on the document server for storing documents. [0 to 100/ 0 / 1]
----------	---------------------	--

880 1	Toner Remain	This SP displays the percent of toner remaining for each color. This SP allows the user to check the toner supply at any time. [0 to 100/ 0 / 1]
----------	-----------------	---

**Note**

- This precise method of measuring remaining toner supply (1% steps) is better than other machines in the market that can only measure in increments of 10 (10% steps).
- 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 to 9999999] These SPs count the percentage of dot coverage for black and 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 to 9999999] These SPs count the percentage of dot coverage for black and 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 to 9999999] These SPs count the percentage of dot coverage for black and 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 to 9999999] These SPs count the percentage of dot coverage for black and 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) <b>DFU</b>
8911	Coverage Display (Toner Bottle: Before Previous) <b>DFU</b>

8941	Machine Status	
	[0 to 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.

8951	AddBook Register	
	These SPs count the number of events when the machine manages data registration.	

8951 1	User Code	User code registrations.	[0 to 9999999/ 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 to 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.	



## Printer SP Tables

1001	Bit Switch			
001	Bit Switch 1		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	DFU	-	-
	bit 3	<b>No I/O Timeout</b>	0: Disable	1: Enable
		Enable: The MFP I/O Timeout setting will have no effect. I/O Timeouts will never occur.		
	bit 4	<b>SD Card Save Mode</b>	0: Disable	1: Enable
		Enable: Print jobs will be saved to an SD Card in the GW SD slot.		
	bit 5	DFU	-	-
	bit 6	DFU	-	-
bit 7	<b>[RPCS,PCL]: Printable area frame border</b>	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	<b>Applying a collation Type</b>	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. <b>Note</b> <ul style="list-style-type: none"> <li>If #5-0 is enabled, this Bit Switch has no effect.</li> </ul>		
	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	<b>Bit Switch</b>			

003	Bit Switch 3		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	<b>[PCL5e/c]: Legacy HP compatibility</b>	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	-	-	

<b>1001</b>	<b>Bit Switch</b>		
004	Bit Switch 4 DFU	-	-

<b>1001</b>	<b>Bit Switch</b>			
005	Bit Switch 5	0	1	
	bit 0	<b>Show "Collate Type", "Staple Type" and "Punch Type" buttons on the operation panel.</b>	Disable	Enable
		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	-	-

3

bit 2	<b>Prevent SDK applications from altering the contents of a job.</b>	Disable	Enable
	<p>If this BitSw is enabled, SDK applications will not be able to alter print data. This is achieved by preventing SDK applications from accessing a module called the "GPS Filter".</p> <p>Note: The main purpose of this BitSw is for troubleshooting the effects of SDK applications on data.</p>		
bit 3	<b>[PS] PS Criteria</b>	Pattern3	Pattern 1
	<p>Change the number of PS criterion used by the PS interpreter to determine whether a job is PS data or not.</p> <p>Pattern3: includes most PS commands.</p> <p>Pattern 1: A small number of PS tags and headers</p>		
bit 4	<b>Increase max number of the stored jobs to 1000 jobs.</b>	Disable (100)	Enable (1000)
	<p>Enable: Changes the maximum number of jobs that can be stored on the HDD via Job Type settings to 1000. The default is 100.</p>		
bit 5	<b>Face-up output</b>	Disable	Enable
	<p>Enable: All print jobs will be output face-up in the destination tray.</p>		
bit 6	<b>Method for determining the image rotation for the edge to bind on.</b>	Disable	Enable
	<p>Enable: the image rotation will be performed as they were in the specifications of older models for the binding of pages of mixed orientation jobs.</p> <p>The old models are below:</p> <ul style="list-style-type: none"> <li>- PCL: Pre-04A models</li> <li>- PS/PDF/RPCS: Pre-05S models</li> </ul>		
bit 7	DFU	-	-

<b>1001</b>	<b>Bit Switch</b>		
006	Bit Switch 6 DFU	-	-

<b>1001</b>	<b>Bit Switch</b>		
-------------	-------------------	--	--

007	Bit Switch 7		0	1
		<b>Print path</b>	Disable	Enable
	bit 0	Enable: Simplex pages (in mixed simplex/duplex PS/PCL5 jobs only) and the last page of an odd paged duplex job (PS, PCL5, PCL6), are always routed through the duplex unit. Not having to switch paper paths increases the print speed slightly.		
	bit 1	DFU	-	-
	bit 2	DFU	-	-
	bit 3	DFU	-	-
	bit 4	DFU	-	-
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	DFU	-	-

1001 Bit Switch				
008	Bit Switch 8		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	DFU	-	-
		<b>[PCL,PS]: Allow BW jobs to print without requiring User Code</b>	Disable	Enable
	bit 3	Enable: BW jobs submitted without a user code will be printed even if usercode authentication is enabled. <b>Note</b> • Color jobs will not be printed without a valid user code.		
	bit 4	DFU	-	-
	bit 5	DFU	-	-
	bit 6	DFU	-	-

	bit 7	DFU	-	-
--	-------	-----	---	---

1003	Clear setting
001	Initialize Printer System Initializes the settings in the printer feature settings of UP mode.
003	Delete Program <b>DFU</b>

3

1004	Print Summary
	Touch [Execute] to print the printer summary sheets.

1005	Display Version.
	Printer Application Version
	Displays the version of the controller firmware.

1006	Sample/Locked Print
	This SP disables/enables use of the document server. [0 to 1/0/1] 0: Enabled. Document server can be used. 1: Disabled. Document server cannot be used.

## Scanner SP Tables

1001	Scan Nv Version
	Displays the scanner firmware version stored in NVRAM in a 9-digit format: Func. Name_Model Name_History No.
1004	Compression Type
	Selects the compression type for binary picture processing. [1-3/1/1] 1: MH, 2: MR, 3: MMR
1005	Erase Margin (Remote Scan)
	Creates an erase margin for all edges of the scanned image. If the machine has scanned the edge of the original, create a margin. [0 to 5/0/1 mm]
1009	Remote Scan Disable
	This SP switches the TWAIN scanner function on/off. This is one of the scanner application functions. [0 to 1 / 0 / 1] 0: ON (enabled- 1: OFF (disabled)
1010	Non Display Clear Light PDF
	This SP switches the Clear Light PDF display off/on. [0 to 1 / 0 / 1] 0: Display ON 1: Display OFF

1011	Org Count Display
	<p>This SP codes switches the original count display on/off.</p> <p>[0 to 1 / 0 / 1]</p> <p>0: OFF (no display)</p> <p>1: ON (count displays)</p>

3

1012	User Info Release
	<p>This SP code sets the machine to release or not release the following items at job end]</p> <ul style="list-style-type: none"> <li>• Destination (E-mail/Folder/CS)</li> <li>• Sender name</li> <li>• Mail Text</li> <li>• Subject line</li> <li>• File name</li> </ul> <p>[0 to 1 / 1 / 1]</p> <p>1: Release</p> <p>0: Do not release</p>

1013	Multi Media Func
	<p>This SP code enables/disables the multi-media function.</p> <p>[0 to 1 / 0 / 1]</p> <p>0: Disable</p> <p>1: Enable</p>



# User Service Program Mode Tables

## 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.

1 of 2

0101	Adjust Image Position Across Feed Direction	0102	Adjust Image Position with Feed Direction
0104	Adjust Magnification Across Feed Direction	0105	Adjust Magnification with Feed Direction
0106	Select Test Pattern for Image Position Adjustment	0107	Adjust Toner Fusing Temperature
0108	Adjust Feed Speed	0109	Double Feed Detect
0110	After Double Feed Paper is Automatically Ejected	0111	Auto Image Position Adjustment Across Feed Detection
0113	Adjust Wide LCT Fan Level	0114	Adjust Wide LCT Fan Timer
0116	Adjust Image Quality	0118	Temperature/Humidity Around the Machine
0201	Adjust Staple Position/Finisher	0202	Adjust Punch Position With Feed Dir./Finisher
0301	Adjust Staple Position for Booklet	0302	Adjust Folding Position for Booklet
0303	Adjust Staple Position/Booklet Finisher	0304	Adjust Punch Position Across Feed Dir./Booklet Finisher

2 of 2

0305	Adjust Punch Position With Feed Dir./Booklet Finisher	0407	Maximum Stack Quantity in Stacker Tray
0501	Adjust Z-fold Position 1	0502	Adjust Z-fold Position 2

3

0503	Adjust Half Fold Position	0504	Adjust Letter Fold-out Position 1
0505	Adjust Letter Fold-out Position 2	0506	Adjust Letter Fold-in Position 1
0507	Adjust Letter Fold-in Position 2	0508	Adjust Double Parallel Fold Position 1
0509	Adjust Double Parallel Fold Position 2	0510	Adjust Gate Fold Position 1
0511	Adjust Gate Fold Position 2	0512	Adjust Gate Fold Position 3
0901	Reset All Adjustment Settings.		

3

## Adjustment Settings for Skilled Operators

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.

1 of 3

0101	Adjust Image Position Across Feed Direction	0102	Adjust Image With Feed Direction
0103	Correct Image Skew	0104	Adjust Magnification Across Feed Direction
0105	Adjust Magnification With Feed Direction	0106	Select Test Pattern for Image Position Adjustment
0107	Adjust Toner Fusing Temperature	0108	Adjust Paper Feed Speed
0109	Double Feed Detect	0110	After Double Feed Paper is Automatically Ejected
0111	Auto Image Position Adjustment Across Feed Direction	0112	Adjust Paper Feed Separation Time

0113	Adjust Wide LCT Fan Level	0114	Adjust Wide LCT Fan Timer
0115	Adjust Image Density	0116	Adjust Image Quality
0117	Sensor Information	0118	Temperature/Humidity around the Machine
0122	Remove Toner Cartridge	0201	Adjust Staple Position / Finisher

**2 of 3**

0202	Adjust Punch Position With Feed Dir./ Finisher	0203	Paper Alignment for Stapling Across Feed Dir./Finisher
0204	Paper Alignment for Stapling With Feed Direction/Finisher	0205	Paper Alignment in Shift Tray Across Feed Dir./Finisher
0301	Adjust Staple Position for Booklet	0302	Adjust Folding Position for Booklet
0303	Adjust Staple Position/Booklet Finisher	0304	Adjust Punch Position Across Feed Dir./Booklet Finisher
0305	Adjust Punch Position With Feed Dir./ Booklet Finisher	0306	Paper Alignment for Booklet Across Feed Direction
0307	Set Number of Folds for Booklet	0308	Paper Alignment for Booklet with Feed Dir.
0309	Ppr.Alignmnt for Stapling Across Feed Dir./ Booklet Finisher	0310	Ppr. Alignment in Shift Tray Across Feed Dir./Bklet Finisher
0311	Ppr.Alignment for Stapling With Feed Dir./Booklet Finisher	0312	Punch Skew Correction
0313	Correct Punch Skew	0401	Paper Alignment in Stacker Tray Across Feed Direction 1
0402	Paper Alignment in Stacker Tray With Feed Direction	0403	Paper Alignment in Stacker Across Feed Direction 2

**3 of 3**

0404	Paper Alignment in 2nd Stacker Tray Across Feed Dir. 1	0405	Paper Alignment in 2nd Stacker Tray With Feed Direction
0406	Paper Alignment in 2nd Stacker Tray Across Feed Dir. 2	0407	Maximum Stack Quantity in Stacker Tray

0501	Adjust Z-fold Position 1	0502	Adjust Z-fold Position 2
0503	Adjust Half Fold Position	0504	Adjust Letter Fold-out Position 1
0505	Adjust Letter Fold-out Position 2	0506	Adjust Letter Fold-in Position 1
0507	Adjust Letter Fold-in Position 2	0508	Adjust Double Parallel Fold Position 1
0509	Adjust Double Parallel Fold Position 2	0510	Adjust Gate Fold Position 1
0511	Adjust Gate Fold Position 2	0512	Adjust Gate Fold Position 3
0601	Adjust Cover Sheet for Perfect Binding	0901	Reset All Adjustment Settings

# Input Check

## 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 from 0 to 7, reading from 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.

<b>[1]</b>		<b>[2]</b>		<b>[3]</b>	
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
<b>[4]</b>		<b>[5]</b>		<b>[6]</b>	
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: D103	bit-4	Original Set	bit-4	Development Toner Bottle Set Sensor
bit-3	Fusing Unit Set: D101/D102	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	-
<b>[7]</b>		<b>[8]</b>		<b>[9]</b>	
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
<b>[10]</b>		<b>[11]</b>		<b>[12]</b>	
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	-
<b>[13]</b>		<b>[14]</b>		<b>[15]</b>	
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	-
<b>[16]</b>		<b>[17]</b>		<b>[18]</b>	
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
<b>[19]</b>		<b>[20]</b>		<b>[21]</b>	
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	-



<b>[22]</b>		<b>[23]</b>	-	<b>[24]</b>	-
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	-
<b>[35]</b>		<b>[36]</b>		<b>[37]</b>	
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	1st 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	-
<b>[44]</b>		<b>[45]</b>		<b>[46]</b>	-
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	-

**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	Changes between "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

Class 3 No.	Bit No.	Description	Reading	
			0	1
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	Changes between "0" and "1" during rotation	
	0	ADF Transport Motor Encoder Pulse	Changes between "0" and "1" during rotation	

### Other Input Checks

Unit	SP No.
3000-Sheet Finisher (B830)	6112
ADF (see above)	6007
Booklet Finisher (D434)	6218
Cover Interposer Tray (B835)	6400
Decurl Unit (D455)	5803
Main Machine (see above)	5803
Multi Folder Unit (D454)	6309

# Output Checks

**★ Important**

- **Motors keep turning in output check 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.**

1. Open SP mode.
2. Select the SP number that corresponds to the component you wish to check. (Refer to the table below.)
3. Press On to test the selected item then press Off.

3

Units	SP No.
3000-Sheet Finisher (B830)	6113
ADF	6008
Booklet Finisher (D434)	6219
Cover Interposer Tray (B835)	6401
Decurl Unit	5804
High Capacity Stacker 1 (D447)	6601
High Capacity Stacker 2 (D447)	6607
Main Machine	5804
Multi Folder (D454)	6310
Ring Binder (D392)	6509
Trimmer Unit (D455)	6651

# Special Operations



## 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 lower slot on the right side of the controller box, viewed from the back of the machine.

3

### 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:

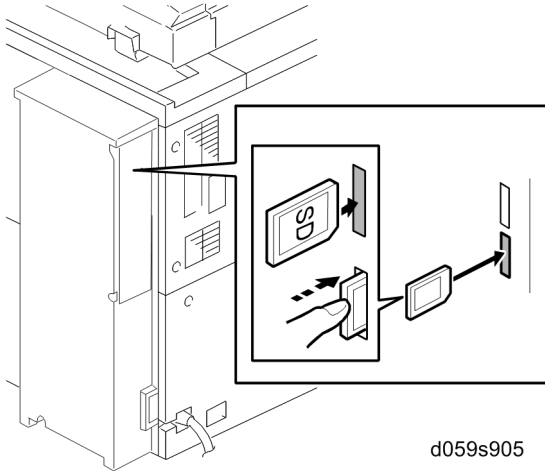
- "Upload" means to send data from the machine to the SD card, and "download" means to send data from the SD card to the machine.
- To select an item on the LCD, touch the appropriate button on the soft touch-screen of the LCD, or press the appropriate number key on the 10-key pad of the operation panel. For example, "Exit (0)" displayed on the screen means you can touch the Exit button on the screen, or press the "0" 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.

#### ★ Important

- If the Ring Binder (D392) is already installed in the machine, update the firmware of the Ring Binder (D392) to "1.250:04" or later version before updating other machines. Otherwise, updating the firmware of peripherals installed on the left side of the Ring Binder may fail.
- For updating the firmware for the Cover Interposer Tray (B835) and Perfect Binder (D391), the updating procedure for these peripherals should be done separately.

## Updating Firmware

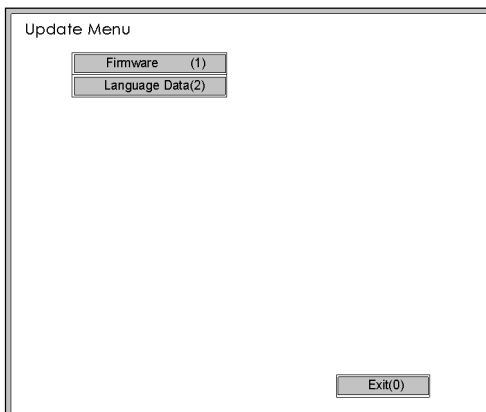
1. On the machine, switch off the main power switch.



2. With the label on the SD card [A] facing as shown (front side) in the diagram, insert the SD card into service slot [B] (lower slot) 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.





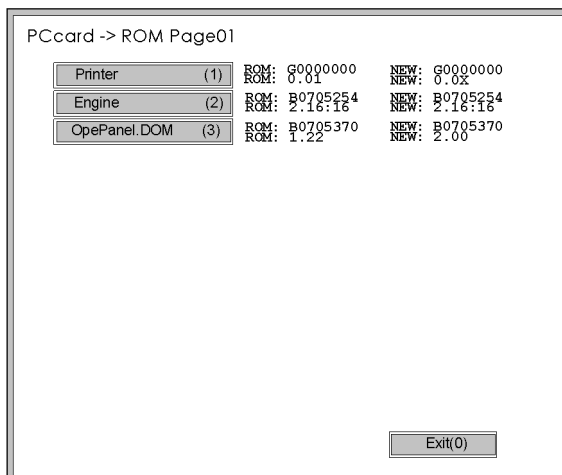
KEY	WHAT IT DOES
Firmware (1)	Press this button on the touch-screen (or ① on the 10-key pad) to open the firmware update screen.
Language Data (2)	Press this button on the touch-screen (or ② on the 10-key pad) to open the language update screen.
Exit (0)	Press this key on the touch-screen (or ① on the 10-key pad) to quit the update procedure and return to normal machine operation.

3

↓ **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.



b234s907

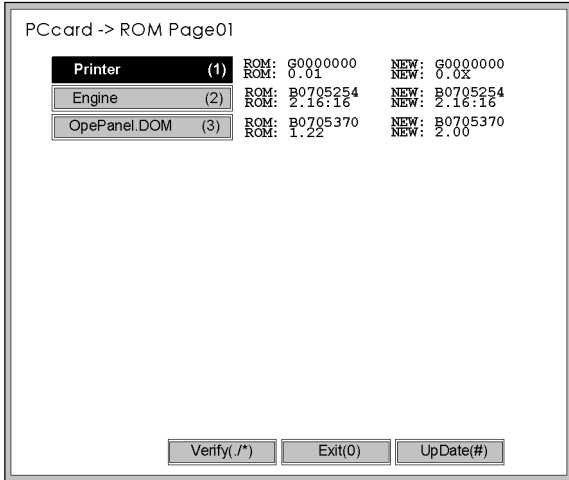
ROM/NEW	WHAT IT MEANS
ROM:	Tells you the number of the module and name of the version presently installed. The first line is the module number, the second line the version name.
NEW:	Tells you the number of the module and name version on the SD card. The first line is the module number, the second line 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.

- 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.

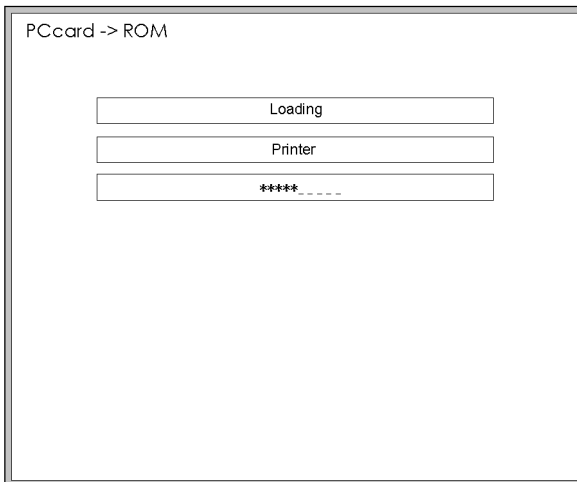


b234s908

KEY	WHAT IT DOES
Update(#)	Press this button (or <b>#</b> ) to upgrade the selected module.
Exit(0)	Press this button (or <b>0</b> ) to return to the previous screen.

- To start the update, touch "UpDate (#)" (or **#**).

After selecting "Update", three lines are displayed on the screen:



b234s909

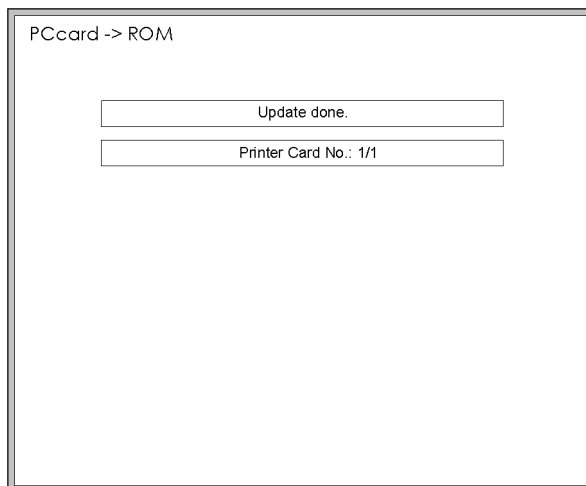
The first line tells you what is happening, the second line is the name of the module, and the third line tells you about the progress of the operation. As the update progresses, the underscores ( \_ ) in the progress bar are replaced by asterisks.

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 "OpePanel". 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:



b234s910

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.

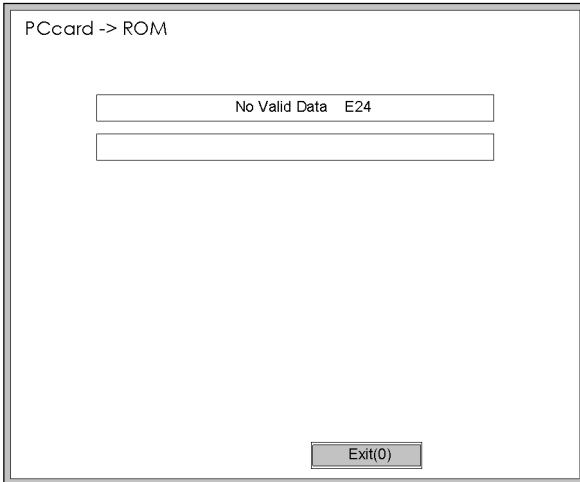
#### ↓ Note

- If you have selected more than one module for updating, only the screen for the last module updated will be displayed.

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.

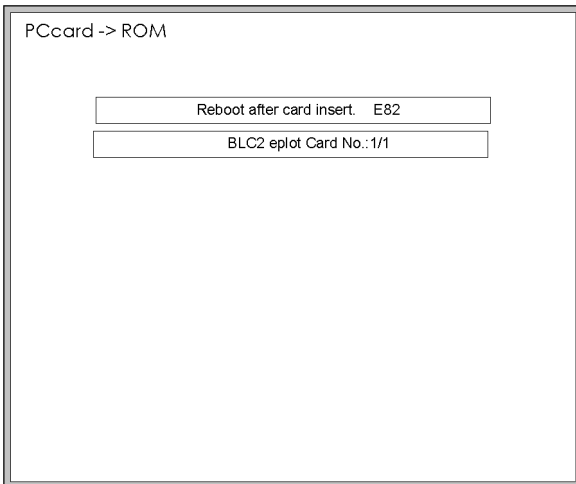


b234s911

The error code consists of the letter "E" and a number. The example above shows error "E24" displayed. For details, refer to the "Download Error Codes" table. (👉 Troubleshooting – Download Error Codes)

### 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.



b234s912

### 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.

## 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.

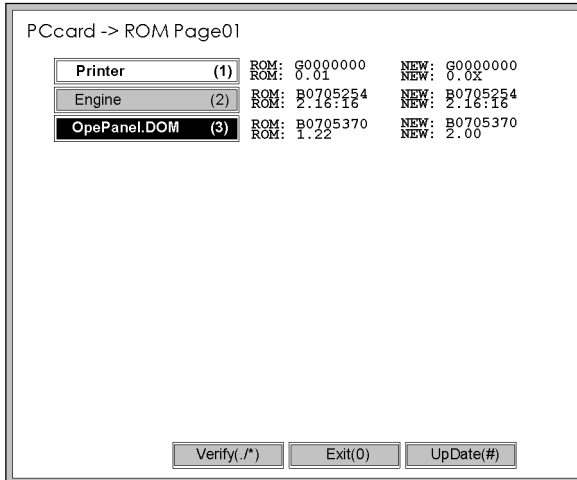
9. Touch "Yes" to uninstall the browser unit.
10. You will see "Uninstalling the extended feature... Please wait.", and then "Completed".
11. Touch "Exit" to go back to the settings screen.
12. Exit "User/Tools", and then turn OFF the main power switch.
13. Remove the SD card from the SD card slot.
14. 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. (☛ Installation – Browser Unit)

## 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 (lower slot).

3. Switch the copier main switch on.
4. After about 10 seconds the initial screen opens in English.
5. Touch "OpePanel".



b234s913

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.

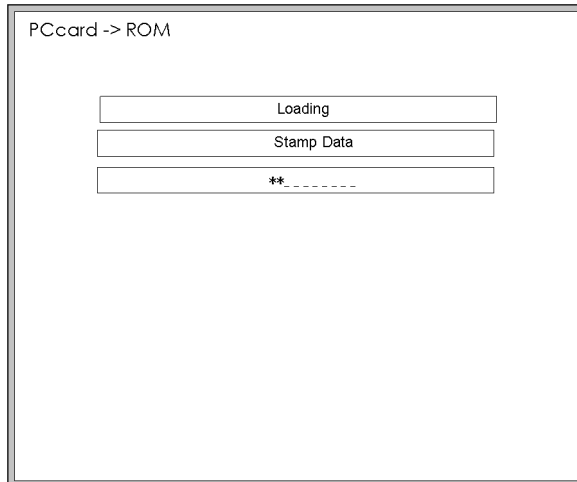
## Downloading Stamp Data

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.

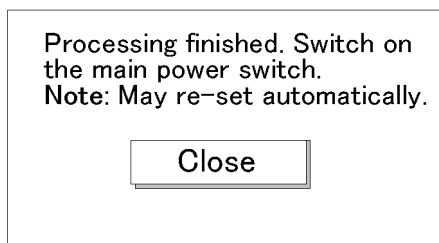
The print data contains the controller software, so execute SP5853 to download the fixed stamp data required by the hard disks.

1. Enter the SP mode.
2. Select SP5853 then press "Execute". The following screen opens while the stamp data is downloading.



b234s914

The download is finished with the message prompts you to close.



b234s915

3. Press the "Close" button then cycle the copier off and on again.

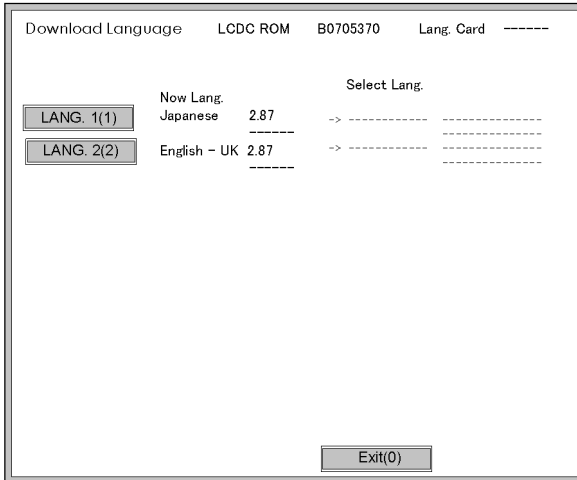
## Installing Another Language

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.

Switch the copier main power switch off.

1. Insert the SD card with the language data into service slot (lower slot).
2. Switch the copier main power switch on. The initial screen opens after about 10 seconds.
3. Touch "Language (2)" on the screen (or press **2**).

3



b234s916

4. Touch "LANG. 1(1)" or "LANG 2(2)"

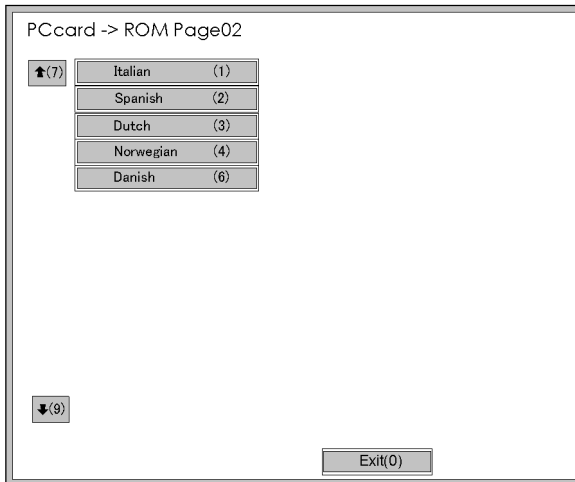
Key	What it does
LANG. 1(1)	Touch this button on the screen (or press ① on the 10-key pad) to open the next screen so you can select the 1st language.
LANG. 1(2)	Touch this button on the screen (or press ② on the 10-key pad) to open the next screen so you can select the 2nd language.
Exit(0)	Touch this key on the screen (or press ① on the 10-key pad) to quit the update procedure and return to normal screen.

5. To select the 1st Language, touch "LANG 1(1)".

-or-

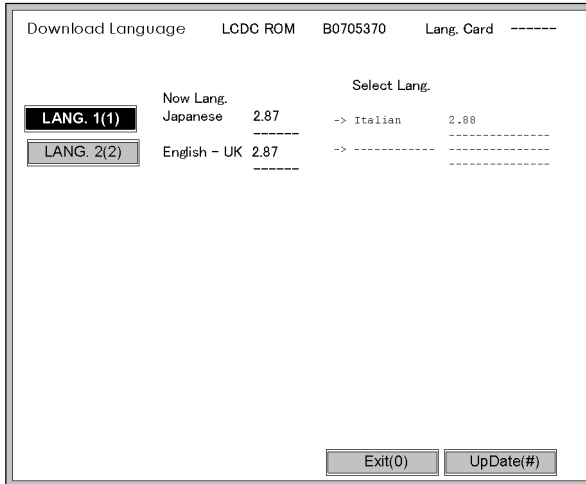
To select the 2nd Language, touch "LANG(2)".





b234s917

6. 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.
7. 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.



b234s918

8. Touch "Update(#)" on the screen (or press  $\text{\#}$ ) 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.
9. After the Start LED begins to flash slowly, switch the copier main power switch off, then remove the SD card from the slot.
10. Switch the copier main power switch on to resume normal operation.

### 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 the SD card is 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.

Code	Meaning	Solution
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, then 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.



---

## NVRAM Data Upload/Download

---

### 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.
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 (lower slot), 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 BICU is defective, the NVRAM data download 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.
1. Switch the copier main power switch off.
  2. Insert the SD card with the NVRAM data into service slot (lower slot).
  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 downloads the following data to the NVRAM:

- Total Count
- C/O, P/O Count

**SMC Lists****3**

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 return the SP mode.
4. Press the "Execute" key to print the list.
5. Exit SP mode.

## 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.

Execution of "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 to 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.

No.	What It Initializes	Comments
11	NCS (Network Control Service)	Initializes the system defaults and interface settings (IP addresses also), the SmartNetMonitor for Admin settings, WebStatusMonitor settings, and the TELNET settings.
14	DCS	Initializes the DCS (Delivery & Receive Control Server) settings.
15	UCS	Initializes the UCS (User Directory Control Server) settings.

4. Press Execute, then follow the prompts on the display to complete the procedure.
5. Make sure that you perform the following settings:
  - Do the printer and scanner registration and magnification adjustments. (☛ Replacement and Adjustment – Copy Image Adjustments).
  - Execute SP2115 – Main Scan Beam Pitch Adjustment
  - Do the touch screen calibration (☛ 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.

3



## Software and Copy Setting Reset

### 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  and  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.

### 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".

### Resetting Copy/Document Server Features Only

---

The copy/document server settings in the user tools mode can be reset to their defaults using the following procedure.

3

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".

### 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 the "Scanner Features" key.
4. A confirmation message will be displayed, then press "Yes".

---

## Using the Debug Log

---

### Overview

---

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

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

To capture this debug information, the Save Debug Log feature provides two main features:



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

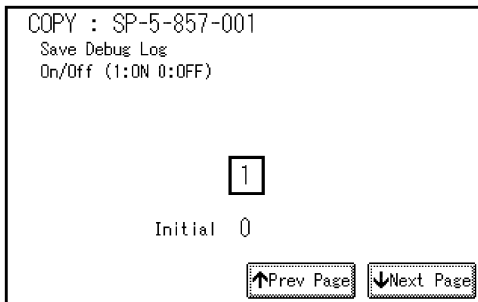
When a user is experiencing problems with the machine, follow the procedure below to set up the machine so the error information is saved automatically to the HDD. Then ask the user to reproduce the problem.



## Switching On and Setting Up Save Debug Log

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

- Enter the SP mode.
  - Press  (Clear Modes) then use the 10-key pad to enter ①①⑦.
  - Press and hold down  (Clear/Stop) for more than 3 seconds.
  - Press "Copy SP" on the touch-panel.
  - Enter ⑤⑧⑤⑦ then press ③.
- Under "5857 Save Debug Log", press ①.

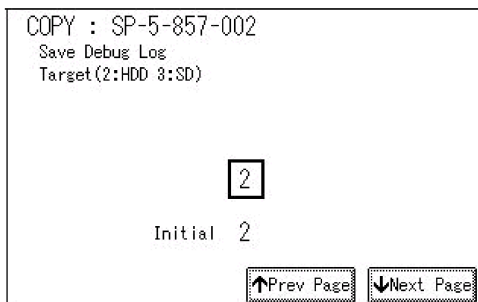


- On the control panel keypad, press "1" then press ③. This switches the Save Debug Log feature on.

### ↓ Note

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

- Next, select the target destination where the debug information will be saved. Under "5857 Save Debug Log", touch "2 Target", enter "2" with the operation panel key to select the hard disk as the target destination, then press ③.



### ↓ Note

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

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

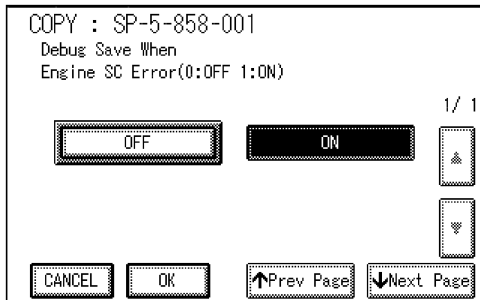
1	Engine SC Error	Saves data when an engine-related SC code is generated.
2	Controller SC Error	Saves debug data when a controller-related SC Code is generated.
3	Any SC Error	Saves data only for the SC code that you specify by entering code number.
4	Jam	Saves data for jams.

**Note**

- More than one event can be selected.

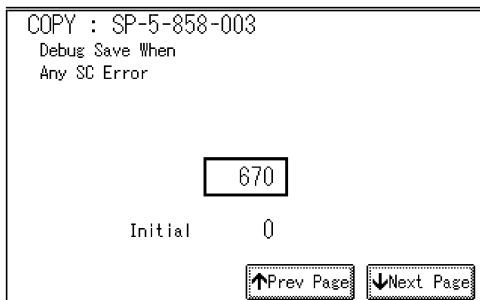
**Example 1: To Select Items 1, 2, 4**

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



**Example 2: To Specify an SC Code**

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



**Note**

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

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

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

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

**Note**

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

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

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 to 010. For example, if you want to create a PRINTER debug log you must select the settings from the 9 available selections for the "PRINTER" column only.
- One area of the disk is reserved to store the debug log. The size of this area is limited to 4 MB.

**Retrieving the Debug Log from the HDD**

1. Insert the SD card into 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.



### ↓ Note

- The SD card can hold up to 4MB of data. If the debugging data is larger than 4MB, you can switch to another SD card.
3. Use a card reader to copy the file and send it for analysis to your local Ricoh representative by email, or just send the SD card by mail.

## 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.

## 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).

3

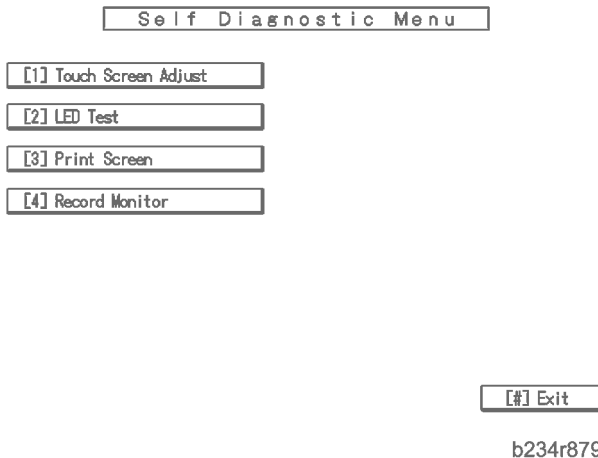
---

## Touch Screen Calibration

---

When the touch panel detection mechanism is not working properly, calibrate the touch screen as follows:

1. Push [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.




### Touch Screen Adjust

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

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

b234r878

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.

---

MEMO