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D017/D018/D019/D020
SERVICE MANUAL

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Ricoh Americas Corporation

LEGEND

PRODUCT CODE	COMPANY			
	GESTETNER	LANIER	RICOH	SAVIN
D017	MP 2550B	LD425B	Aficio MP2550B	9025B
D018	MP 2550SP	LD425SP	Aficio MP2550SP	9025SP
D019	MP 3350B	LD433B	Aficio MP 3350B	9033B
D020	MP 3350SP	LD433SP	Aficio MP 3350SP	9033bSP

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Read This First

Safety, Conventions, Trademarks

SAFETY

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine and peripheral power cords 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. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

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.

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.

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.

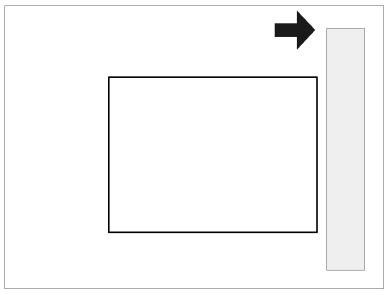
⚠CAUTION

- 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.

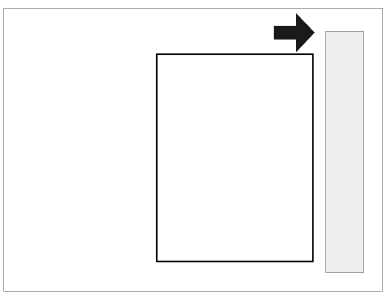
CONVENTIONS AND TRADEMARKS

Conventions

Symbol	What it means
CT	Core Tech Manual
	Screw
	Connector
	E-ring
	C-ring
	Harness clamp
FFC	Flat Film Connector



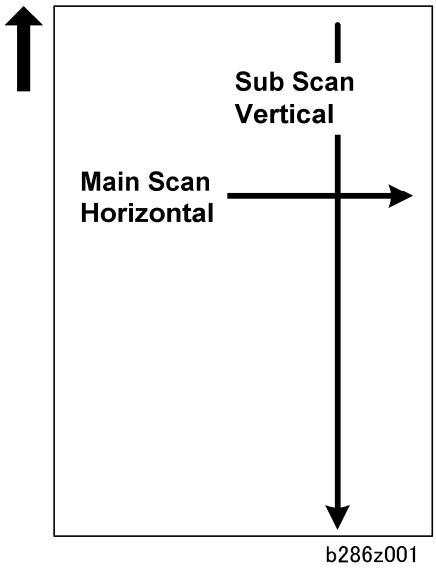
SEF (Short Edge Feed)



LEF (Long Edge Feed)

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

the direction of paper feed.



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

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.

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- PowerPC® is a registered trademark of International Business Machines Corporation.
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INSTALLATION
D366 ARDF DF3030
D361 FAX OPTION TYPE 3350

PREVENTIVE MAINTENANCE
D331 PAPER FEED UNIT PB3030

REPLACEMENT AND ADJUSTMENT
B391 LARGE CAPACITY TRAY PS500

TROUBLESHOOTING
B408 1000-SHEET FINISHER SR790
B793 BOOKLET FINISHER SR3000
D372 500-SHEET FINISHER SR3050
D383 PRINTER/SCANNER OPTION

SERVICE TABLES
D369 DUPLEX UNIT AD3000
D371 INTERCHANGE UNIT TYPE 3350

DETAILED DESCRIPTIONS
D370 BYPASS TRAY BY3000

SPECIFICATIONS
D367 1-BIN TRAY BN3030

APPENDIX
D368 BRIDGE UNIT BU3020
D385 INTERNAL SHIFT TRAY SH3010

INSTALLATION

INSTALLATION REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
4	10/2/2008	Installation Requirements
5	6/19/2008	Installation Requirements
52	10/2/2008	1000 Sheet Booklet Finisher
57 - 58	5/07/2008	Key Counter Interface Unit B870
57 - 58	11/13/2008	Key Counter
57 - 58	06/08/2009	Key Counter B452
69	4/02/2008	Copy Data Security Unit B829
79 - 82	2/12/2008	Data Overwrite Security Unit D362-11
82	9/19/2008	Data Overwrite Security Unit D362 removed step
84	04/30/2009	File Format Converter Type E Installation
85	6/19/2008	VM Card Type F
86 - 91	10/2/2008	Punch Unit B807
92 - 93	11/13/2008	Mechanical Counter
94 - 95	06/08/2009	Key Counter Interface Unit Type 1027

1. INSTALLATION

1.1 INSTALLATION REQUIREMENTS

1.1.1 ENVIRONMENT

1. Temperature Range: 10 °C to 32 °C (50 °F to 89.6 °F)
2. Humidity Range: 15% to 80% RH
3. Ambient Illumination: Less than 1,500 lux (do not expose to direct sunlight.)
4. Ventilation: Room air should turn over at least 30 m^3/hr/person
5. Ambient Dust: Less than 0.10 mg/m^3
6. Avoid an area which is exposed to sudden temperature changes. This includes:
   - Areas directly exposed to cool air from an air conditioner.
   - Areas directly exposed to heat from a heater.
7. Do not place the machine in an area where it will be exposed to corrosive gases.
8. Do not install the machine at any location over 2,000 m (6,500 ft.) above sea level.
9. Place the copier on a strong and level base. (Inclination on any side should be no more than 5 mm.)
10. Do not place the machine where it may be subjected to strong vibrations.

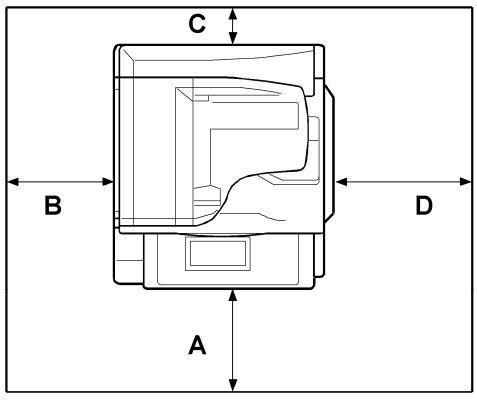
1.1.2 MACHINE LEVEL

Front to back: Within 5 mm (0.2") of level

Right to left: Within 5 mm (0.2") of level

1.1.3 MINIMUM SPACE REQUIREMENTS

Place the copier near the power source, and provide clearance as shown:

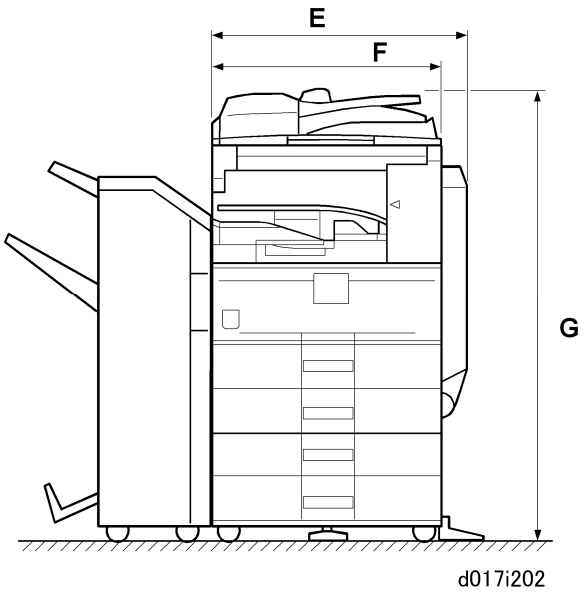


d017i201

Installation Requirements

A: In Front: Over 750 mm (29.6"), B: Left: Over 100 mm (0.4")

C: To Rear: Over 100 mm (0.4"), D: Right: Over 100 mm (0.4")



E: 640 mm (25.2"), F: 550 mm (21.7"), G: 1137 mm (44.8")

Note

- The 750 mm recommended for the space at the front is only for pulling out the paper tray. If an operator stands at the front of the copier, more space is required.

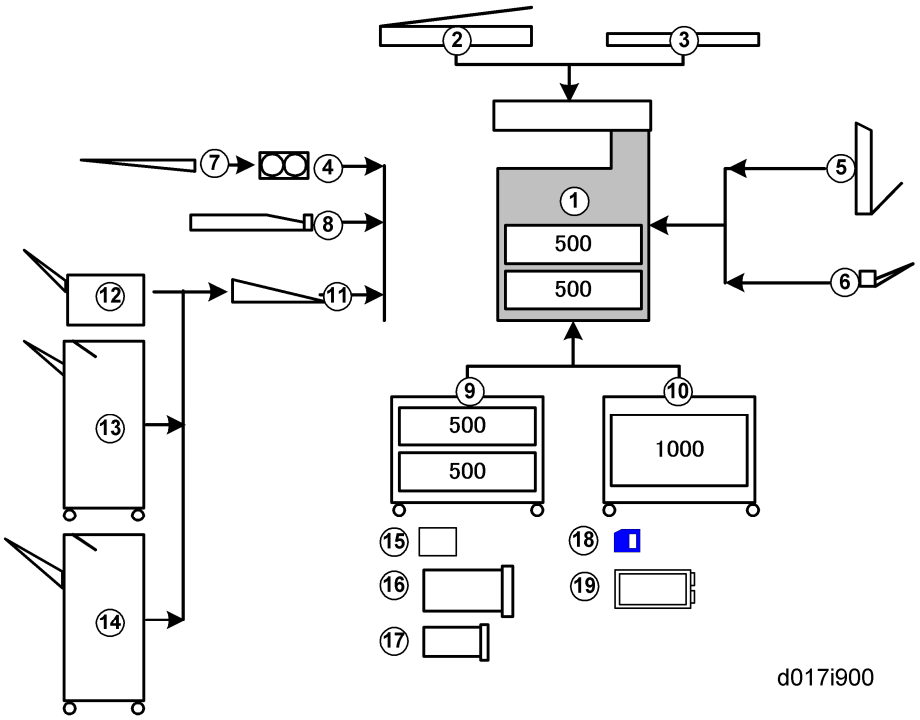
1.1.4 POWER REQUIREMENTS

CAUTION

- Make sure that the wall outlet is near the copier and easily accessible.
- Make sure the plug is firmly inserted in the outlet.
- Avoid multi-wiring.
- Be sure to ground the machine.

1. Input voltage level
   - 120 V, 60 Hz: More than 12 A
   - 220 V to 240 V, 50 Hz/60 Hz: More than 7 A
   - 110V, 50 Hz/60 Hz: More than 13 A
2. Permissible voltage fluctuation: 10 %
3. Do not set anything on the power cord.

1.1.5 SYSTEM CONFIGURATION AND OPTIONS



No.	Item	Comments
1	Main Machine D017/D018/B019/D020	D019/D017 Monochrome -or- D018/D020 Color
2	ARDF (D366)	
3	Platen Cover (B406)	
4	Interchange Unit (D371)	Required for Item 5, 7
5	Duplex Unit (D369)	
6	Bypass Tray (D370)	
7	1-Bin Tray (D367)	Requires Item 4
8	Internal Shift Tray (D385)	
9	Paper Tray Unit (D331)	

No.	Item	Comments
10	LCT (B391)	
11	Bridge Unit (D368)	Required for Items 12,13,14
12	500-Sheet Finisher (D372)	Requires Item 11
13	1000-Sheet Finisher (B408: Common with B264/B291)	Requires Item 11
14	1000-Sheet Booklet Finisher (B793)	Requires Item 11
⇒ 15	Punch Unit (B807)	Requires Item 14
15	Copy Data Security Unit (B829)	PCB (installed on BICU)
16	Fax Unit (D361)	See Fax manual
17	Interface Board Controller Options	See **Note 1**
18	SD Card Controller Options	See **Note 2**
19	HDD Unit (D362)	D017/D019 only

Note 1:

The following interface boards are available for installation.

Important

- There is only one board slot on the back of the machine. Only one of these options can be installed.

These options can be installed at any time.

Interface Board	For Installation See:
Bluetooth Interface Unit Type 3245 (B826)	Printer/Scanner Option
Modem for @Remote Service	This Section
File Format Converter Type E (D377)	This Section
IEEE1284 Interface Board Type A (B679)	Printer/Scanner Option
IEEE802.11a/g Interface Unit Type J (D377) -or-	Printer/Scanner Option

Interface Board	For Installation See:
IEEE802.11g Interface Unit Type K (D377)	
Gigabit Ethernet Type 7300 (G381)	Printer/Scanner Option

Note 2:

The following options are provided on SD cards.

- Two SD card slots are available. If more than two options need to be installed, the applications can be moved to one SD card with SP5873-1.
- Due to copyright restrictions, the PostScript Unit (D383) cannot be moved to another SD card. However, other applications can be moved onto the PostScript 3 SD card. (For more, see the Printer/Scanner Option manual.)

These options can be installed at any time.

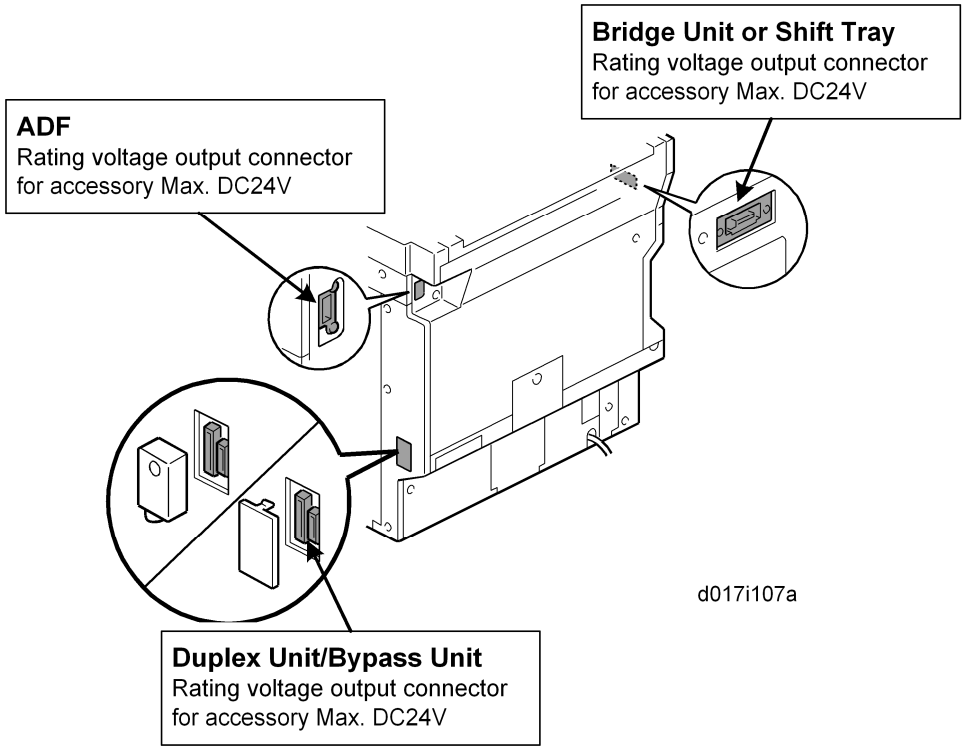
SD Cards	For Installation See:
Browser Unit Type D (D377)	This Section
Data Overwrite Security Unit Type I (D362)	Printer/Scanner Option
HDD Encryption Option (D377)	This Section
PostScript3 Unit Type 3350 (D383)	Printer/Scanner Option
Printer Enhance Option Type 3350 (D383)	Printer/Scanner Option
Printer Unit Type 3350 (D383)	Printer/Scanner Option
Printer/Scanner Unit Type 3350 (D383)	Printer/Scanner Option
RPCS Printer Unit Type 3350 (D383)	Printer/Scanner Option
Scanner Enhance Option Type 3350 (D383)	Printer/Scanner Option
⇒ VM Card Type F (D377)	This Section

1.2 COPIER INSTALLATION

1.2.1 POWER SOCKETS FOR PERIPHERALS

⚠CAUTION

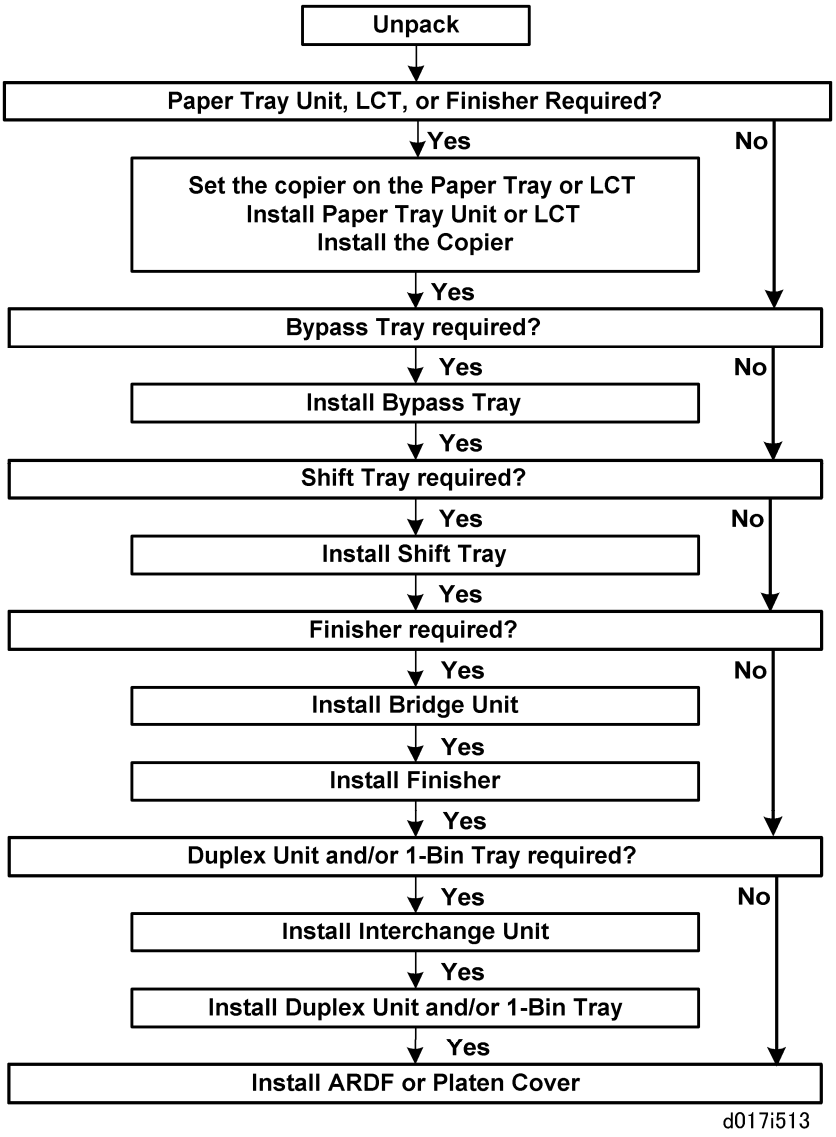
- Rating voltages for peripherals.



Make sure to connect the cables to the correct sockets.

1.2.2 INSTALLATION FLOW CHART

The following flow chart shows how to install the optional units more efficiently.



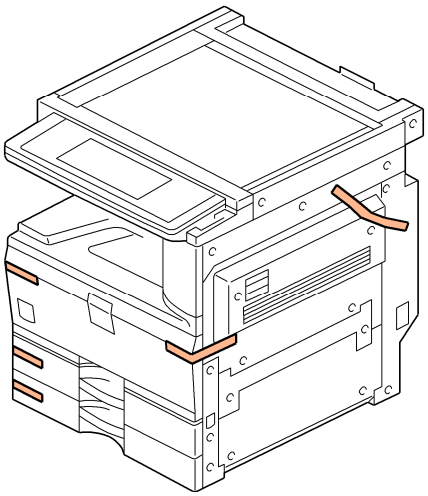
1.2.3 ACCESSORY CHECK

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

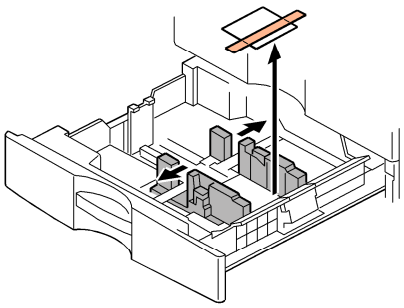
No.	Description	Quantity
1	Paper Tray Decal	1
2	Emblem Cover	1
3	Emblem	1
4	Model Name Decal	1
5	End Fence	1
6	HDD Caution Decal (-17, -29 only)	1
7	Operating Instructions – System Setting	1
8	Operating Instructions – Copy Reference	1

1.2.4 INSTALLATION PROCEDURE

Tapes and Retainers



d017i104



d017i904

⚠CAUTION

- Unplug the machine power cord before you start the following procedure.

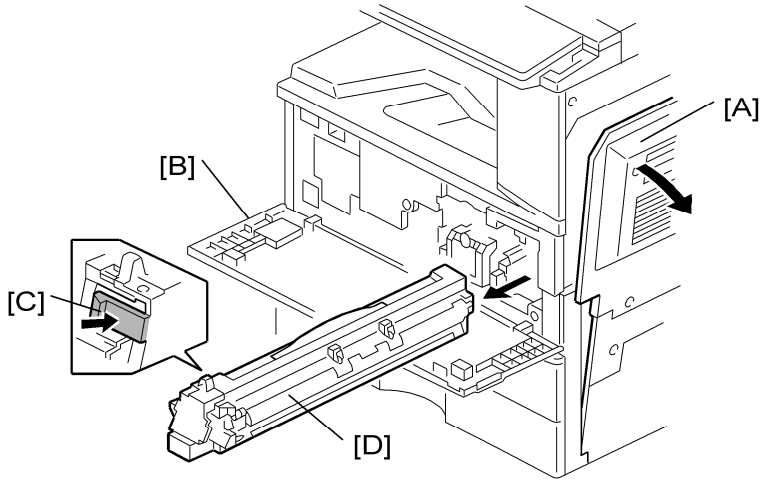
If the optional paper tray or the optional LCT is going to be installed now, put the copier on the paper tray unit or the LCT first, then install these options, then install the copier.

Note

- Keep the shipping retainers after installing the machine. They will be reused if the machine is moved to another location in the future.

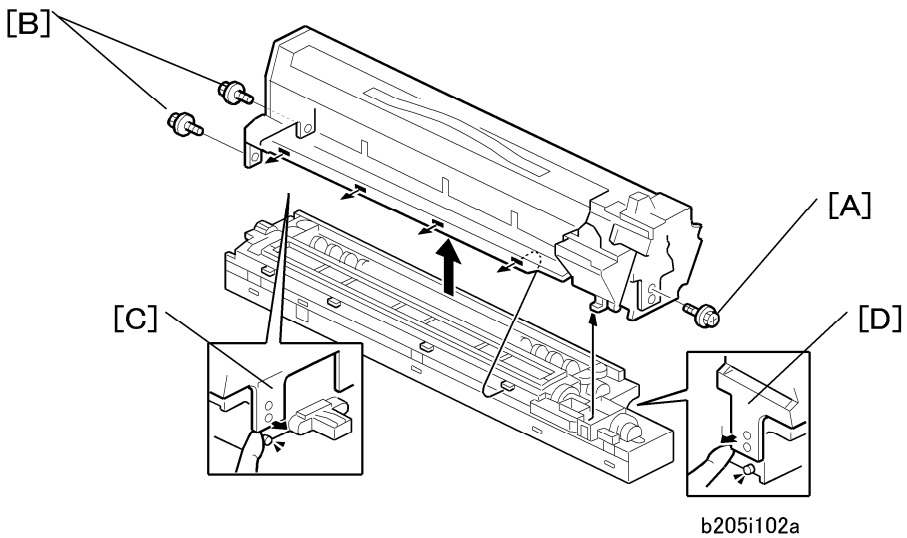
1. Remove the tapes and the shipping retainer on the exterior of the copier.
2. Install the end fence.

Developer



d017i920

1. Spread the vinyl sheet provided with the developer kit on a flat surface.
2. Open the right door [A].
3. Open the front door [B].
4. Push the latch [C] and remove the PCU [D].

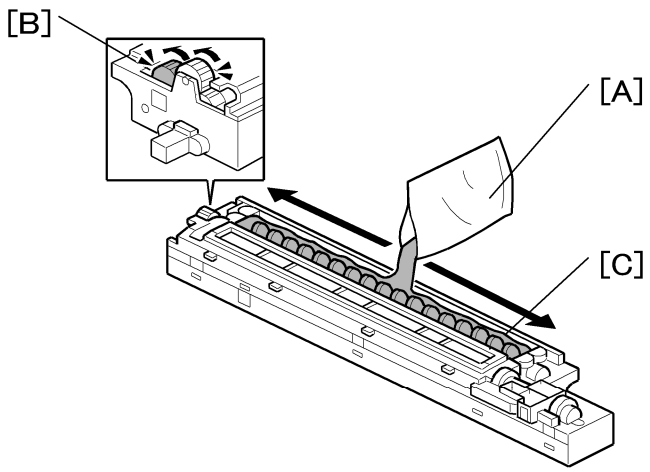


b205i102a

5. Remove the front screw [A] (x1)
6. Remove the rear screws [B] (x2)
7. Release the rear tab [C] then front tab [D], then separate the top and bottom.

Important

- Be sure to release the rear tab first and the front tab second.



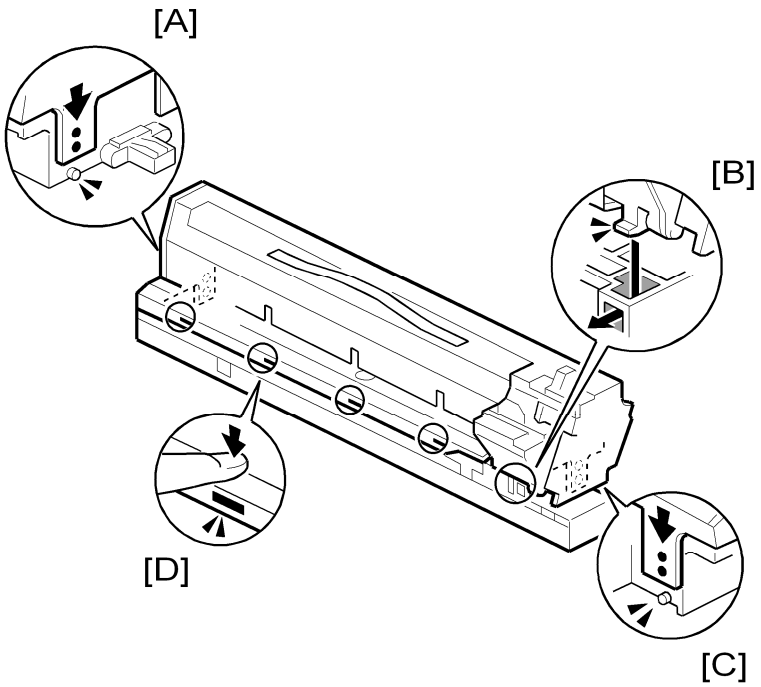
b205i103

8. Open the developer pack [A].
9. While turning the black gear [B], slowly move the pack left and right and pour half of the developer over the auger [C].
10. Continue to turn the black gear until the developer is level.
11. While continuing to turn the black gear, slowly move the pack left and right and pour the remaining half of the developer over the auger until the developer is level.

Important

- Be careful. Do not spill developer on the gears and sponges.
- If you accidentally spill developer on the gears or sponges, remove it with a magnet or the tip of a magnetized screwdriver.

Re-assembly

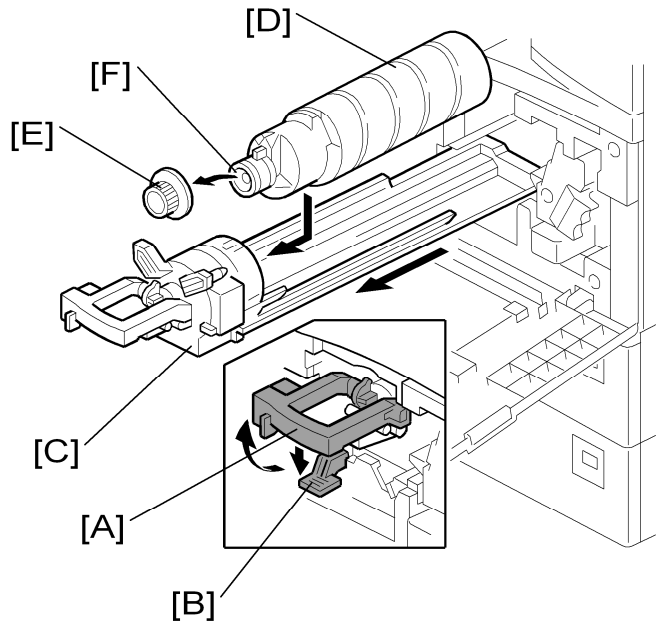


1. Make sure that all of the holes and tabs are engaged at [A], [B], [C], and [D]. Then push down to lock the tabs on the front and rear end of the PCU.
2. Make sure that the holes for the screws on the front and rear end of the PCU are aligned correctly. If the holes are not aligned correctly, make sure that the tabs at the front, rear, and left side of the PCU are engaged correctly.

Important

- Reattach the rear screws (x2) first, then reattach the front screw (x1).
- Do not push down on the top of the PCU when you attach the rear and front screws

Toner Bottle



1. Raise the toner bottle holder lever [A], push lever [B] down, and pull the toner bottle holder [C] out.
2. Shake the toner bottle [D].

Note

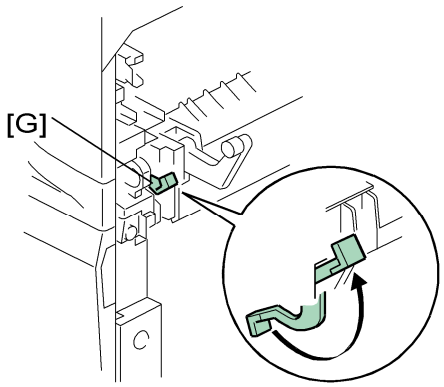
- Do not remove the toner bottle cap [E] until after shaking.

3. Unscrew the bottle cap [E] and insert the bottle into the holder.

Note

- Do not touch the inner bottle cap [F].

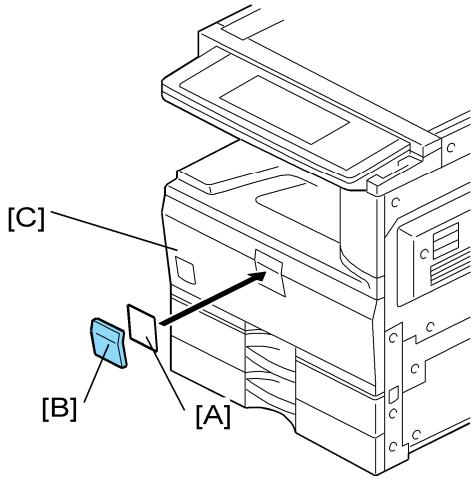
4. Reposition the holder and press down the holder lever to secure the bottle.
5. Open the right cover.



d017i500

6. Rotate the green fusing pressure lever [G] to the up position.

Emblem, Decals



d017i105

1. Attach the emblem [A] and panel [B] to the front door [C].

Note

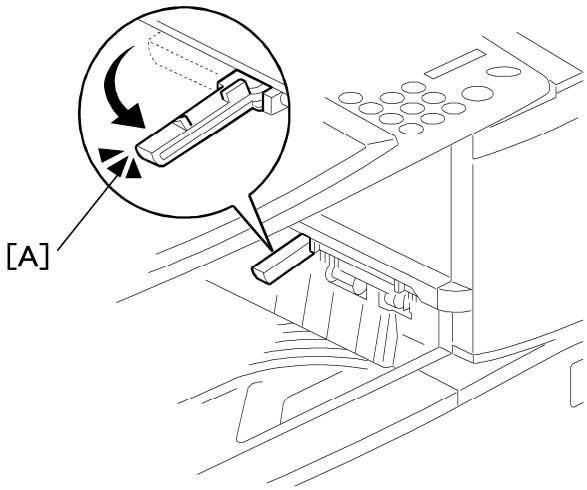
- Push the panel in until the emblem and panel move into their positions. You will hear a click.

2. Adjust the side guides and end guide to match the paper size.

Note

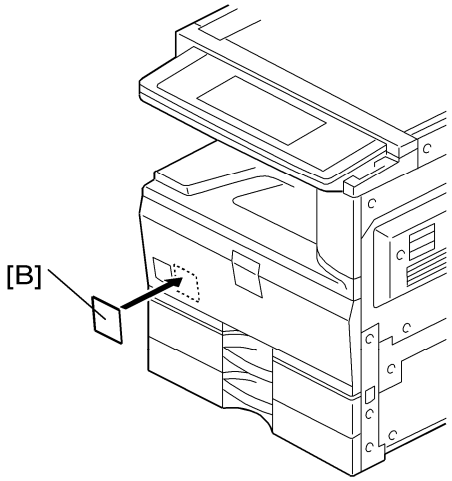
- To move the side guides, first pull out the tray fully, then push down the green lock at the rear of the tray.

Completion



b205i910

1. If the optional bridge unit will not be installed, swing the sensor feeler [A] out.
2. Install the optional ARDF or the optional platen cover (see "ARDF Installation" or "Platen Cover").



d017i108

3. If the HDD will be installed for a –17, -29 model, attach the HDD caution decal [B] to the front cover.

SP Settings

1. Connect the copier and turn the machine on.
2. Go into the SP mode and do SP2801 (Developer Initialization).
3. Do SP1912 and SP1913 to set automatic paper size selection for the upper and lower tray.

1912	1: Tray: Auto Paper Size Detection	Upper Tray
1913	2: Tray: Auto Paper Size Detection	Lower Tray
1	Size 1: B5/Exe Landscape	[0 to 1/**0**/1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
2	Size 2: A5/HLT	
3	A4/LT	
4	A4/LG	
5	A3/LT	

4. Enable the NIB and/or USB function.
   - To enable the NIB function, enter the SP mode and set SP5985-001 (On Board NIC) to "1"(Enable).
   - To enable the USB function, enter the SP mode and set SP5985-002 (On Board USB) to “1"(Enable).

5. Exit SP mode.
6. Do some test copies to make sure that the machine operates correctly.

1.2.5 TRANSPORTING THE MACHINE

1. Do SP 4806-001 to move the scanner carriage from the home position. This prevents dust from falling into the machine during transportation.

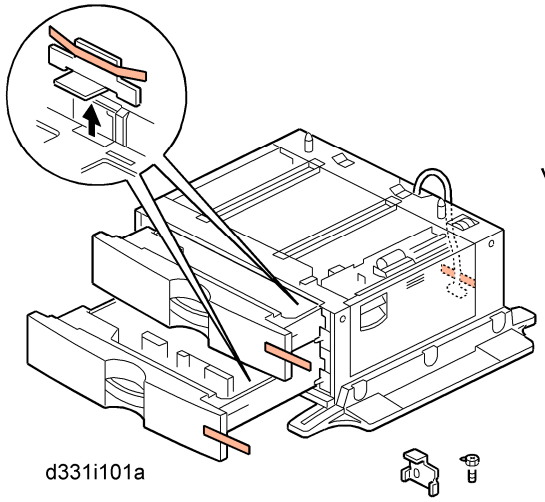
1.3 PAPER TRAY UNIT (D331)

1.3.1 ACCESSORY CHECK

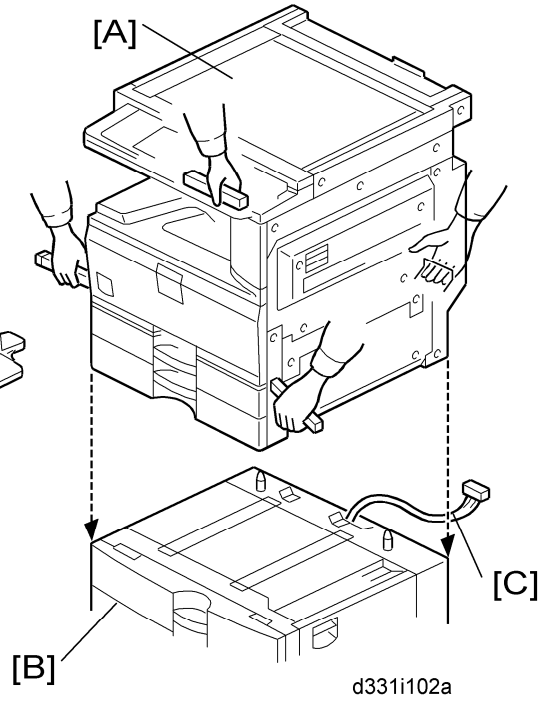
Check the quantity and condition of the accessories against the following list.

No.	Description	Quantity
1	Securing Bracket	2
2	Screw – M4 x 8	4

1.3.2 INSTALLATION PROCEDURE



d331i101a



d331i102a

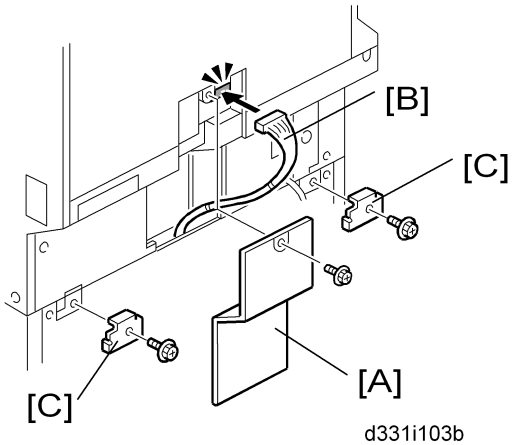
CAUTION

- Unplug the machine power cord before starting the following procedure.
- The handles of the main machine for lifting must be inserted inside the machine and locked unless these handles are used for the installation or relocation of the main machine.
- You need two or more persons to lift the copier. The copier is highly unstable when lifted by one person, and may cause human injury or property damage.

1. Remove the strips of tape.
2. Put the copier [A] on the paper tray unit [B].

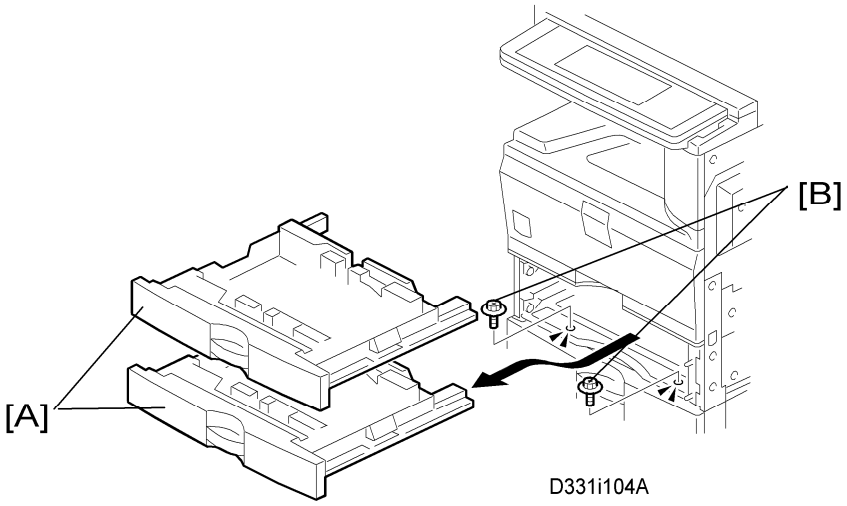
Note

- When you install the copier, be careful not to pinch the cable [C].



d331i103b

3. Remove the connector cover [A] (x1: M3x8).
4. Connect the cable [B] to the copier, as shown.
5. Attach a securing bracket [C] to each side of the paper tray unit, as shown (x 1: M4 x 8 each).
6. Re-install the connector cover.



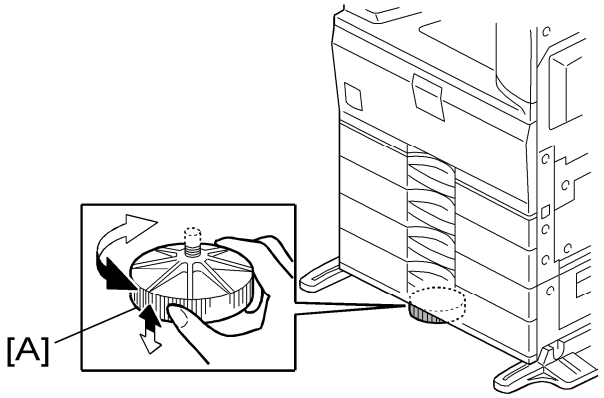
D331i104A

7. Remove the 1st and 2nd paper trays [A]
8. Fasten the paper tray unit at [B] (x 2 M4x8).
9. Reinstall the all paper trays.
10. Attach the appropriate paper tray number decal and paper size decal to the each handle of the trays.

Note

- The paper tray number and size sheet is in the accessory box of the main machine.

Paper Tray Unit (D331)



D331i105

11. Rotate the adjuster [A] until the machine cannot be pushed across the floor.
12. Load paper into the paper trays and set the side fences and bottom fence.

SP Settings

1. Connect the copier and turn the machine on.
2. Do SP1914 and SP1915 to set automatic paper size detection for the upper and lower tray of the paper tray unit.

1914	3: Tray: Auto Paper Size Detection	Upper Tray
1915	4: Tray: Auto Paper Size Detection	Lower Tray
1	Size 1: B5/Exe Landscape	[0 to 1/**0**/1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
2	Size 2: A5/HLT	
3	A4/LT	
4	A4/LG	
5	A3/LT	

3. Exit SP mode.
4. Do some test copies to make sure that the machine operates correctly.

.

1.4 LCT (B391)

1.4.1 ACCESSORY CHECK

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

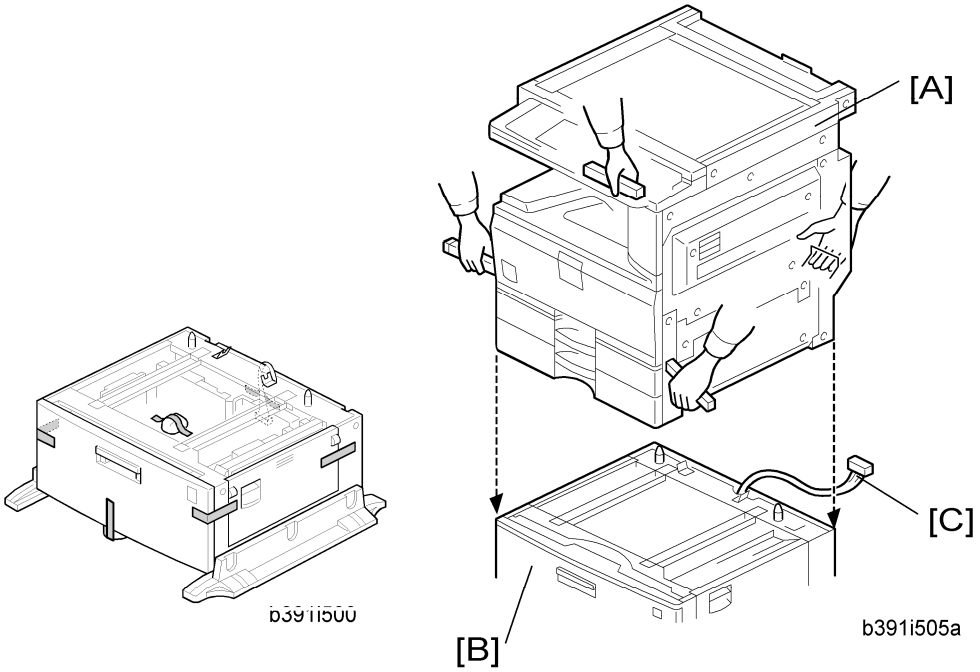
No.	Description	Quantity
1	Securing Bracket	2
2	Screw – M4 x 10	4
3	Paper Size Decal	1

1.4.2 INSTALLATION PROCEDURE

⚠CAUTION

- Unplug the machine power cord before starting the following procedure.
- The handles of the main machine for lifting must be inserted inside the machine and locked, unless these handles are used for the installation or relocation of the main machine.
- You need two or more persons to lift the copier. The copier is highly unstable when lifted by one person, and may cause human injury or property damage.

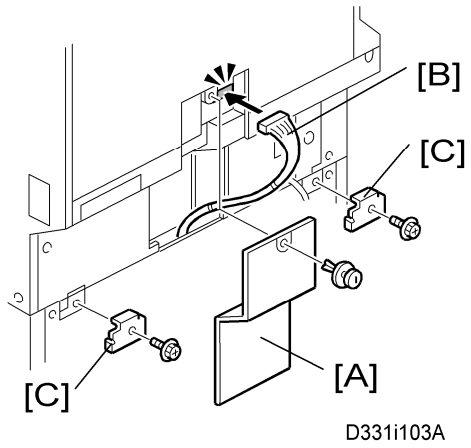
LCT (B391)



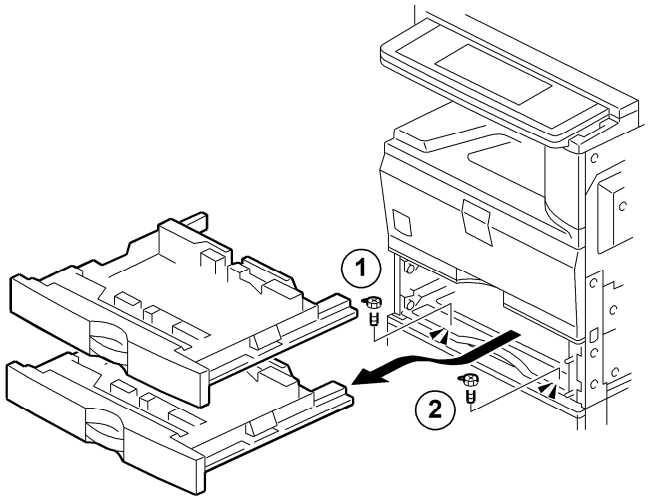
1. Remove the strips of tape.
2. Set the copier [A] on the LCT [B].

Note

- When installing the copier, Be careful not to pinch the cable [C].

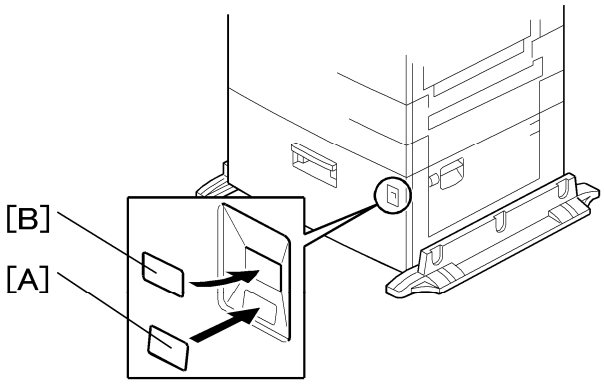


3. Remove the connector cover [A] (rivet screw x 1).
4. Connect the cable [B] to the copier, as shown.
5. Attach a securing bracket [C] to each side of the LCT, as shown (x 1 each).
6. Re-install the connector cover.



b391i501a

7. Remove the 1st and 2nd paper trays, and then secure the LCT with two screws ①, ②.
8. Load paper into the LCT
9. Reinstall the 1st and 2nd paper trays.



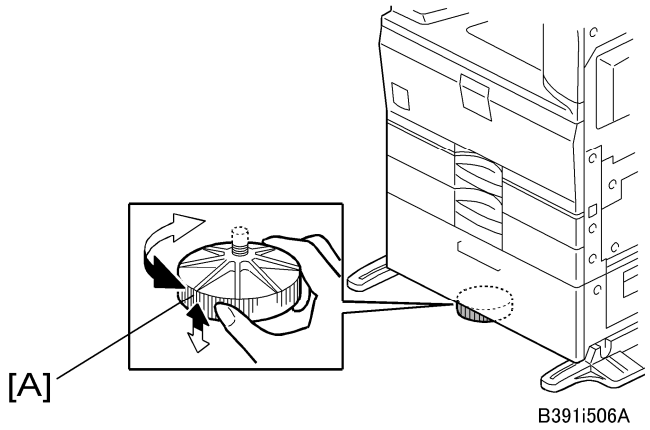
b391i502

10. Attach the appropriate paper tray number decal [A] and paper size decal [B] to the LCT tray cover.

Note

- The paper tray number decal is in the accessory box for the main copier.

LCT (B391)



11. Rotate the adjuster [A] until the machine cannot be pushed across the floor.
12. Load paper into the paper tray and turn on the main switch.

SP Setting

1. Connect the copier and turn the machine on.
2. Do SP1914 to set automatic paper size detection for the LCT.

1914	3: Tray: Auto Paper Size Detection	
1	Size 1: B5/Exe Landscape	[0 to 1/**0**/1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
2	Size 2: A5/HLT	
3	A4/LT	
4	A4/LG	
5	A3/LT	

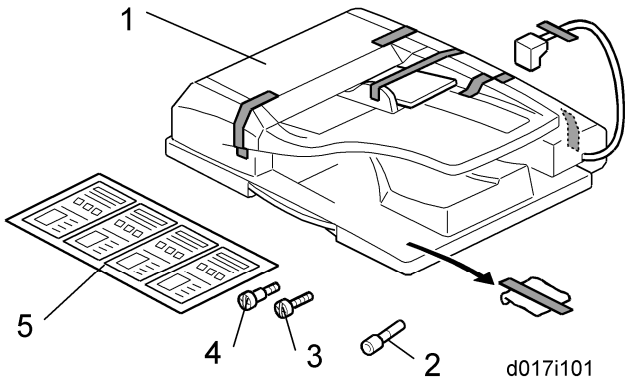
3. Exit SP mode.
4. Do some test copies to make sure that the machine operates correctly.

1.5 ARDF (D366)

1.5.1 COMPONENT CHECK

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

No.	Description	Q'ty
1	ARDF	1
2	Stamp Cartridge	1
3	Knob Screw	2
4	Stud Screw	2
5	Attention Decal-Top Cover	1



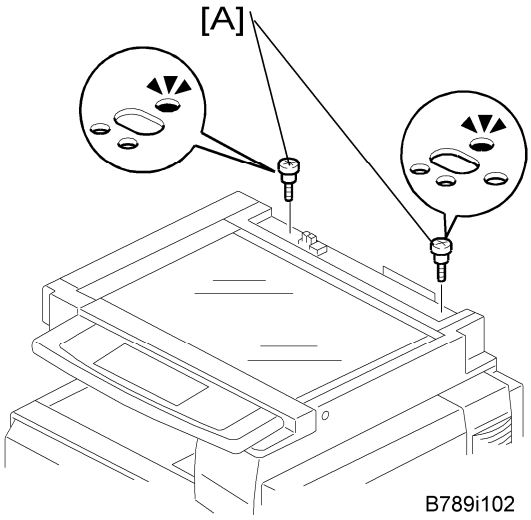
1.5.2 INSTALLATION PROCEDURE

⚠CAUTION

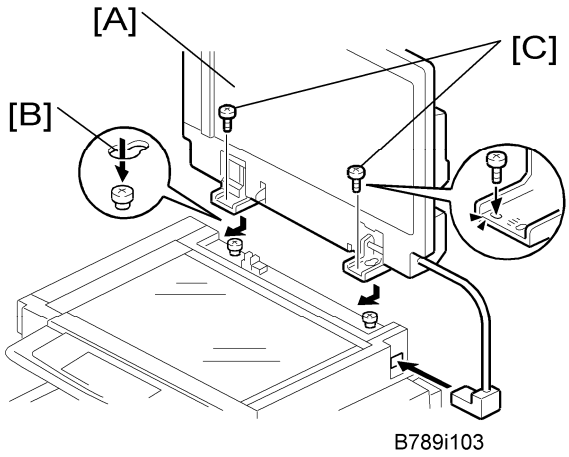
- Unplug the copier power cord before starting the following procedure.

1. Remove the all tapes and shipping retainers.

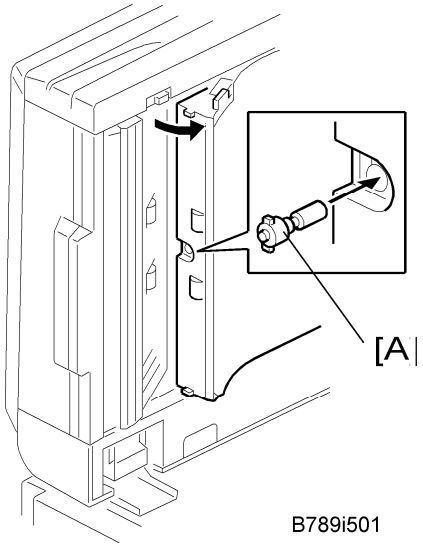
ARDF (D366)



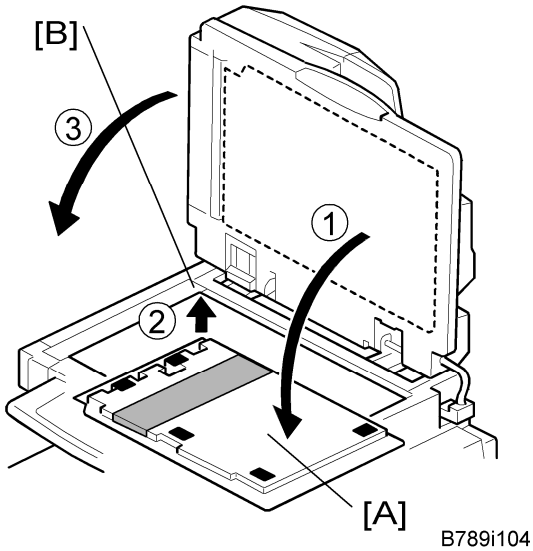
2. Insert the two stud screws [A] on the top of the machine.



3. Mount the ARDF [A] by aligning the screw keyholes [B] of the ARDF support plate over the stud screws.
4. Slide the ARDF toward the front of the machine.
5. Secure the ARDF with the two knob screw [C].

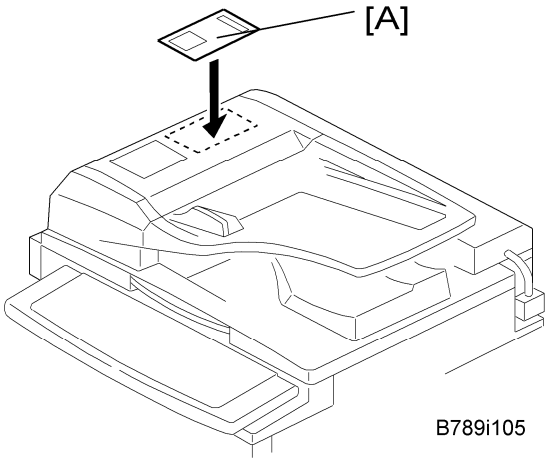


6. Install the stamp cartridge [A] in the ARDF.



7. Peel off the platen sheet [A] and place it on the exposure glass.
8. Align the rear left corner (of the platen sheet) with the corner [B] on the exposure glass.
9. Close the ARDF.
10. Open the ARDF and check that the platen sheet is correctly attached.

ARDF (D366)



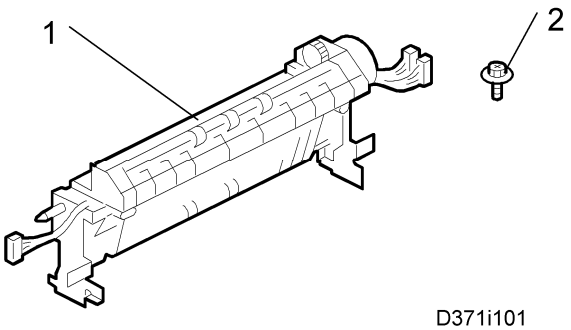
11. Attach the decal [A] to the top cover as shown. Choose the language you want.
12. Plug in and turn on the main power switch of the machine, and then check the ARDF operation.
13. Make a full size copy. Check that the registrations (side-to side and leading edge) and image skew are correct. If they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

1.6 INTERCHANGE UNIT (D371)

1.6.1 COMPONENT CHECK

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

No.	Description	Quantity
1	Interchange Unit	1
2	Tapping Screw M3 x 8	2



D371i101

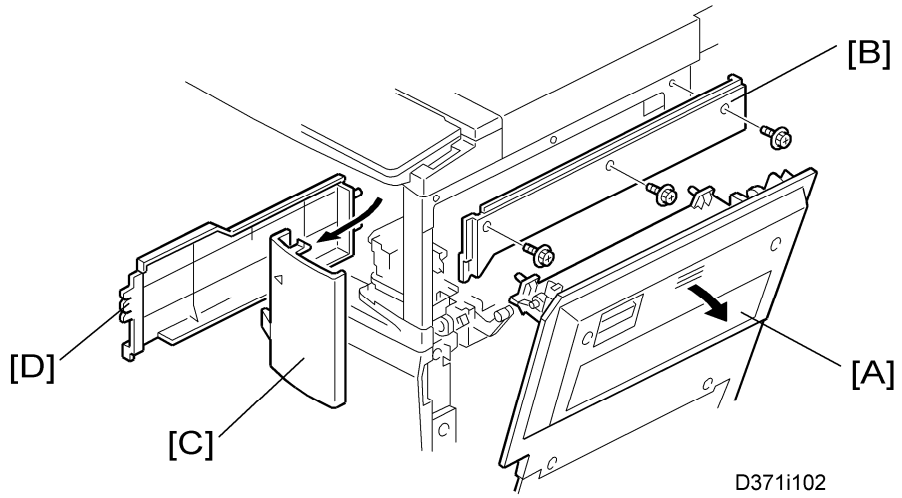
1.6.2 INSTALLATION PROCEDURE

⚠CAUTION

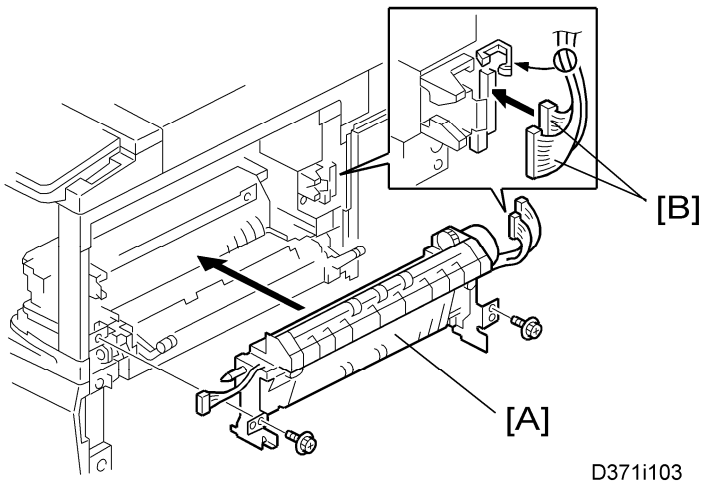
- Unplug the copier power cord before starting the following procedure.

1. Remove all tapes.

Interchange Unit (D371)



2. Open the right cover [A] of the copier.
3. Remove the right upper cover [B] (🔩 x 3)
4. Remove the front right cover [C] (hook)
5. Slide out the exit cover [D].



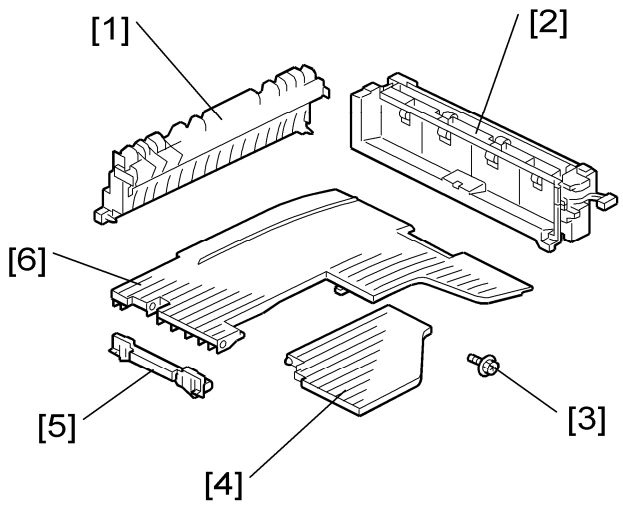
6. Install the interchange unit [A] (x 2).
7. Connect the two harnesses [B].

1.7 1-BIN TRAY UNIT (D367)

1.7.1 COMPONENT CHECK

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

No.	Description	Qty
1	1-Bin Tray Guide	1
2	1 Bin Tray Unit	1
3	Tapping Screw M3 x 8	1
4	Sub-tray	1
5	Tray Guide	1
6	Tray	1



D367i101

1.7.2 INSTALLATION PROCEDURE

⚠CAUTION

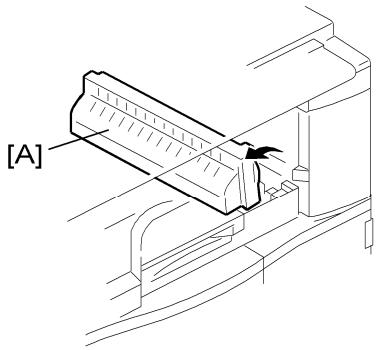
- Unplug the copier power cord before starting the following procedure.

Note

1-Bin Tray Unit (D367)

- Before installing this 1-bin tray unit, the optional interchange unit (D371) must be installed.

1. Remove all tapes.



b413i501

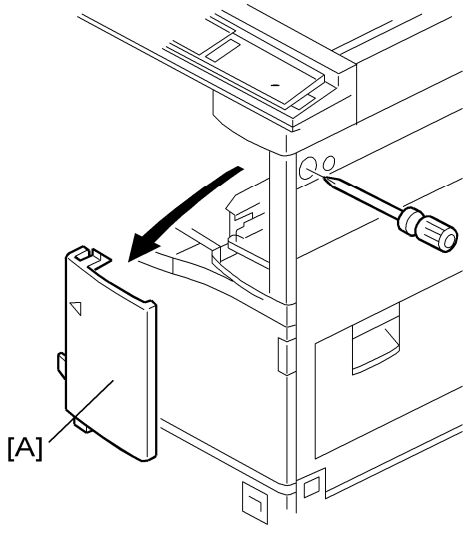
2. If the optional bridge unit has been installed, open the right jam removal cover [A] of the bridge unit.

   -or-

   If the optional bridge unit is not installed, skip this step.

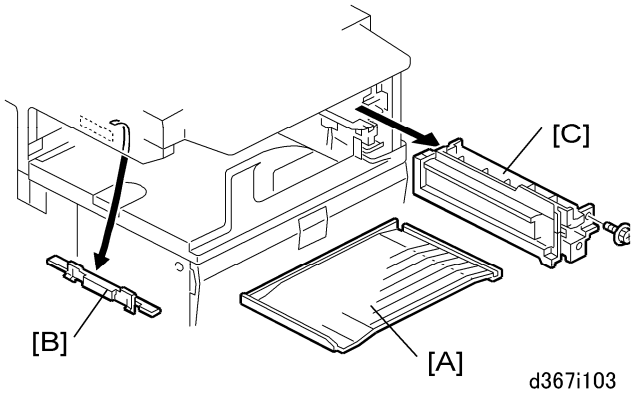
3. If the duplex unit has not been installed go to Step 7.

   If the duplex unit has been installed…



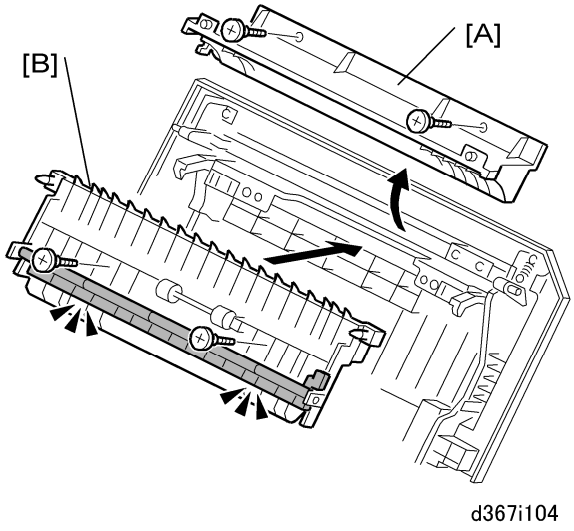
b416i502a

4. Remove the front right cover [A].



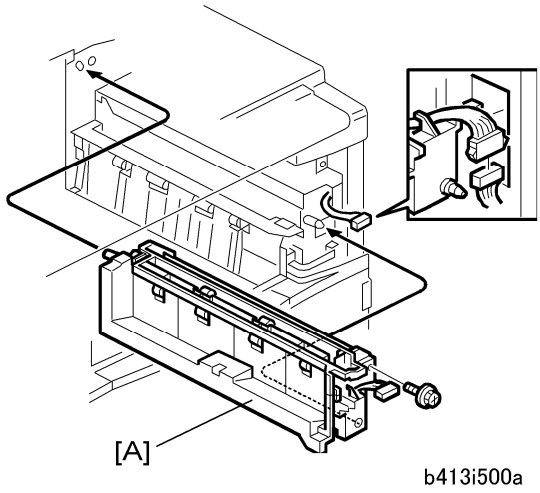
5. Remove the duplex tray [A] and duplex tray guide [B].
6. Remove the duplex guide [C] (☞ x 1).

Install the 1-Bin Tray

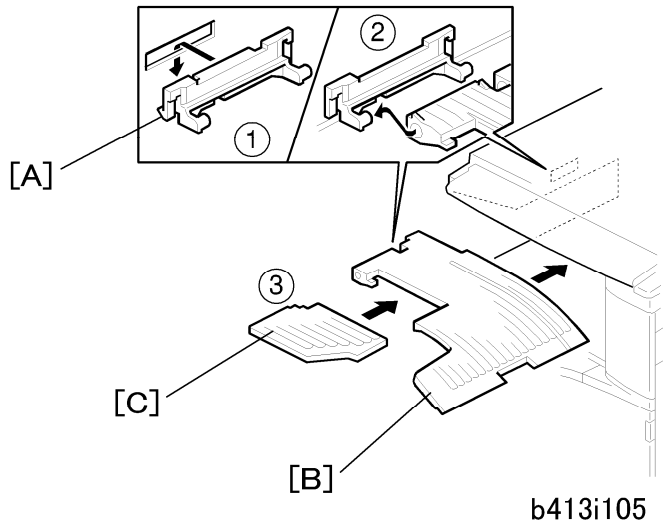


7. Remove plate [A] (☞x2)
8. Attach the 1-bin tray guide [B] (☞x2)

1-Bin Tray Unit (D367)



9. Install the 1-bin tray unit [A] (x 1, x 1)
10. Re-install the front right cover.



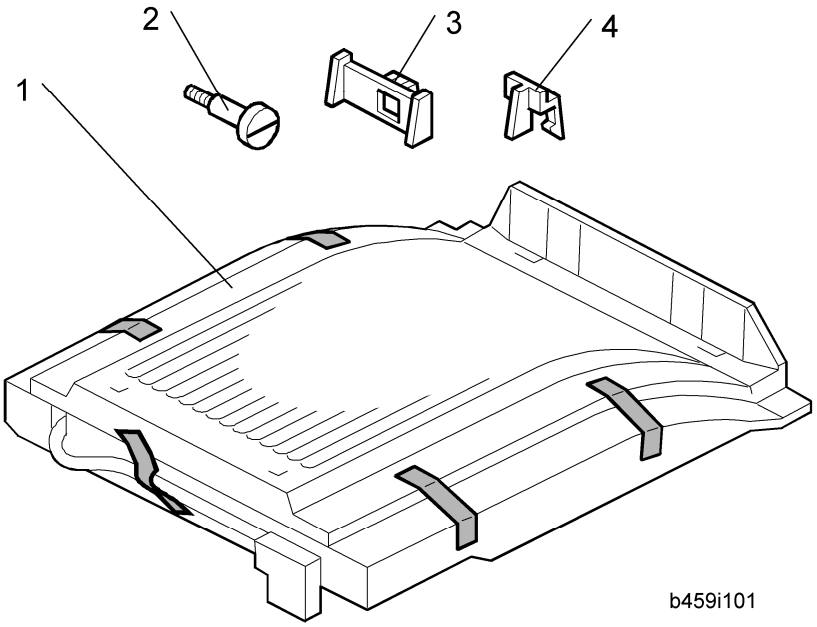
11. Install the tray guide [A].
12. Install the tray [B].
13. Install the sub-tray [C].
14. Turn on the main power switch and check the 1-bin tray unit operation.

1.8 SHIFT TRAY (D385)

1.8.1 COMPONENT CHECK

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

No.	Description	Q'ty
1	Shift Tray Unit	1
2	Stepped Screw	1
3	Paper Guide – Large	2
4	Paper Guide - Small	1

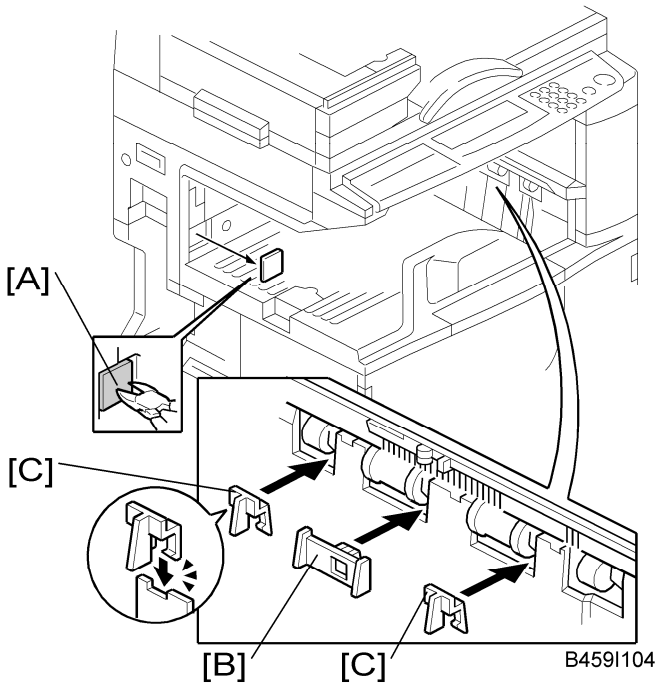


1.8.2 INSTALLATION PROCEDURE

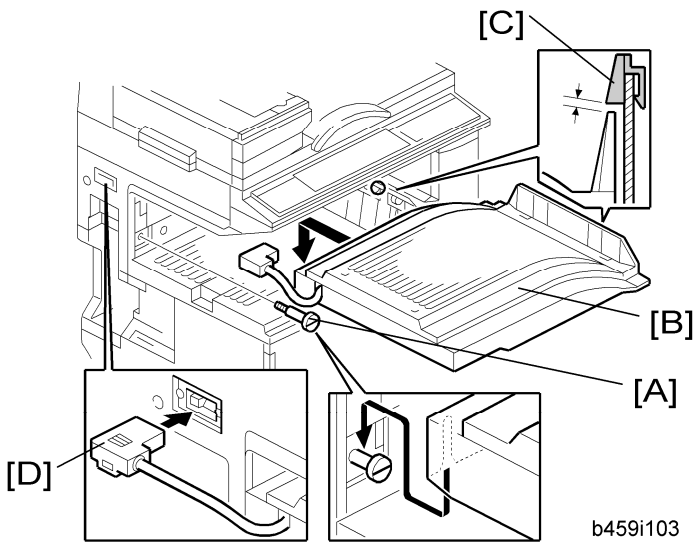
⚠CAUTION

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

Shift Tray (D385)



1. Remove all tapes.
2. Remove the plate [A].with nippers.
3. Install the large paper guide [B] and two small paper guides [C], as shown.



4. Install the stepped screw [A].
5. Install the shift tray unit [B], as shown.

Note

- Set the shift tray on the stepped screw.
- The shift tray must be installed under the paper guide [C] installed in step 3.

6. Connect the cable [D] to the copier.

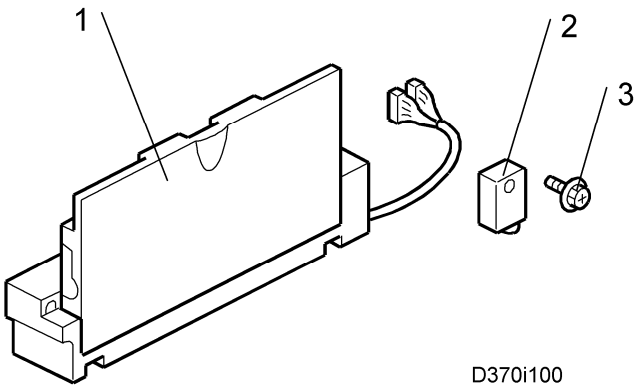
7. Turn on the main power switch. Then select the shift tray with the user tool
   - System Settings - General Features - Output: Copier (and Output: Document Server, Facsimile, Printer): Enable the shift tray – you can also enable the standard tray (internal Tray 1), 1-bin tray (internal tray 2), or the finisher proof tray.
8. Check the shift tray operation.

1.9 BYPASS FEED UNIT (D370)

1.9.1 COMPONENTS CHECK

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

No.	Description	Quantity
1	By-pass Tray Unit	1
2	Connector Cover	1
3	Tapping Screw	2

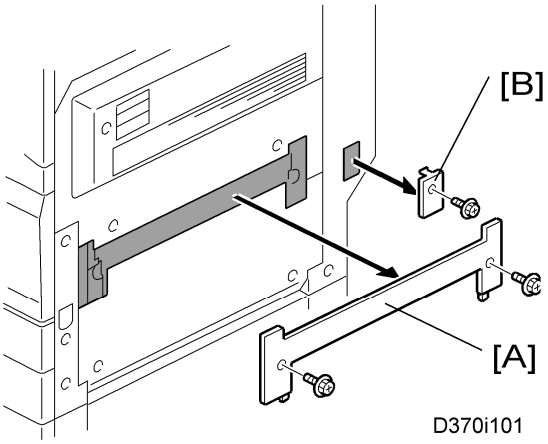


D370i100

1.9.2 INSTALLATION PROCEDURE

⚠CAUTION

- Disconnect the copier power cord before you start this procedure.

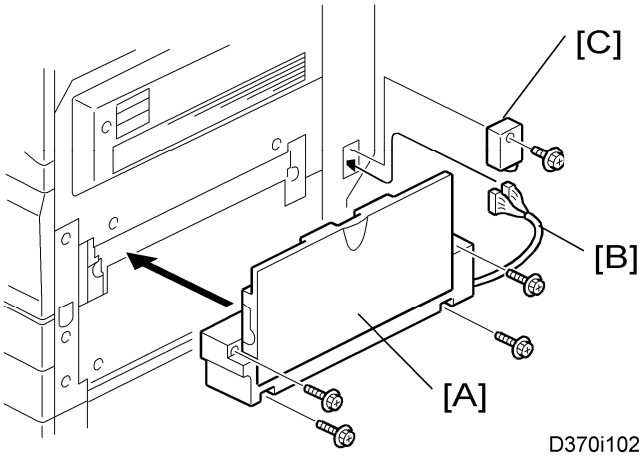


D370i101

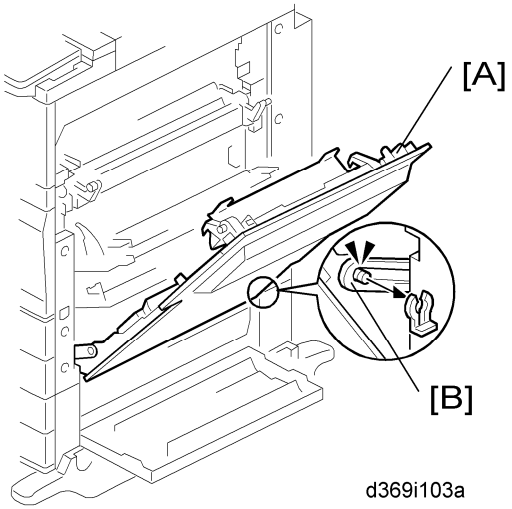
1. Remove all tapes.
2. Remove the entrance cover [A] (x 2) and cover [B] (x 2).

Note

- These removed screws will be used in steps 3 and 5.

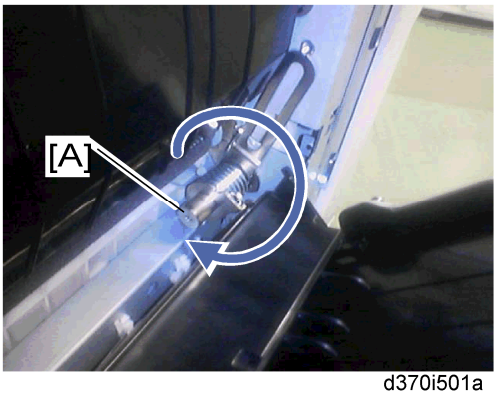


3. Install the by-pass tray unit [A] (x 4: two of these are removed in Step 2).
4. Connect the cable [B] to the machine.
5. Install the connector cover [C] (x 1: this screw is removed in Step 2).



6. Open the right cover [A].
7. Release the rear link [B] (x 1).

Bypass Feed Unit (D370)



d370i501a

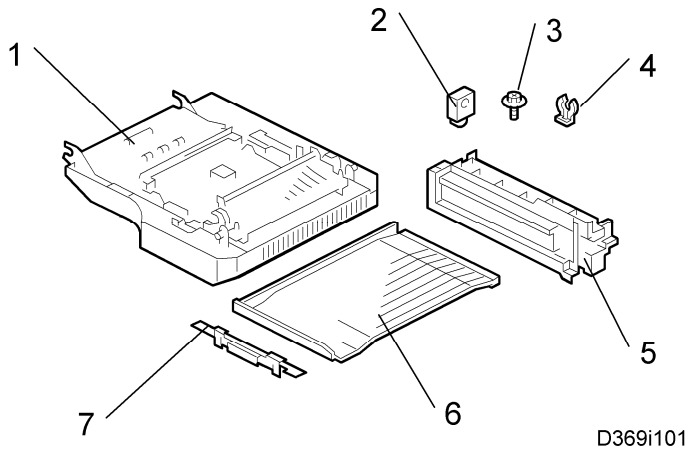
8. Rotate the rear link shaft [A] clockwise by 360 degrees to strengthen the spring tension.
9. Reattach the rear link (x 1).
10. Close the right cover.
11. Turn the main power switch on and check the by-pass tray function.
12. Make a copy from the by-pass tray. Then check the registration.

1.10 DUPLEX UNIT (D369)

1.10.1 ACCESSORY CHECK

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

No.	Description	Quantity
1	Duplex Unit	1
2	Connector Cover	1
3	Tapping Screw – M3 x 8	3
4	Clip	1
5	Duplex Guide	1
6	Duplex Tray	1
7	Duplex Tray Guide	1



1.10.2 INSTALLATION PROCEDURE

⚠CAUTION

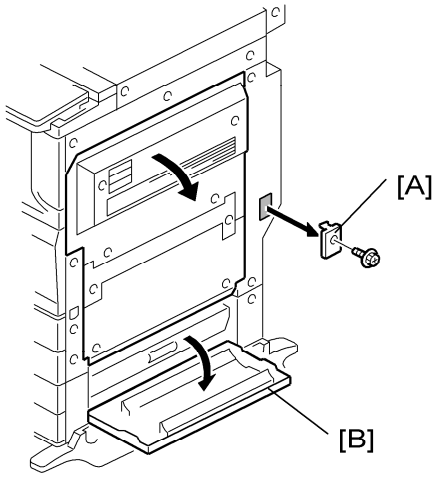
- Unplug the copier power cord before starting the following procedure.

Note

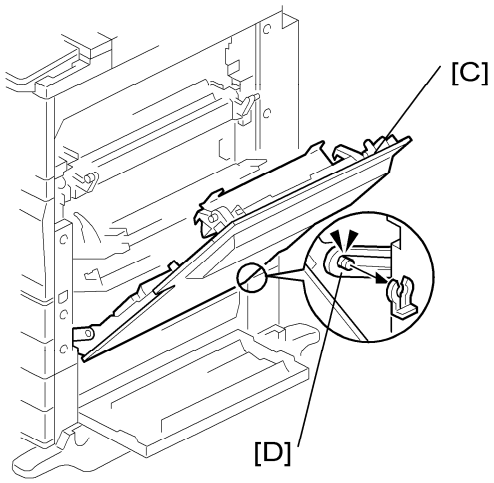
- Before installing the duplex unit, the optional interchange unit (D371) must be installed.

Duplex Unit (D369)

1. Remove all tapes.

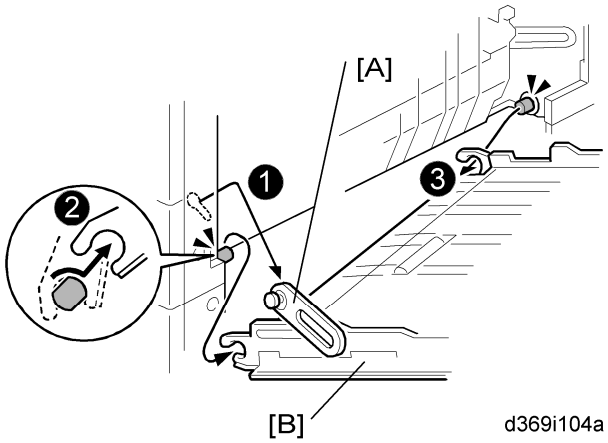


d369i102



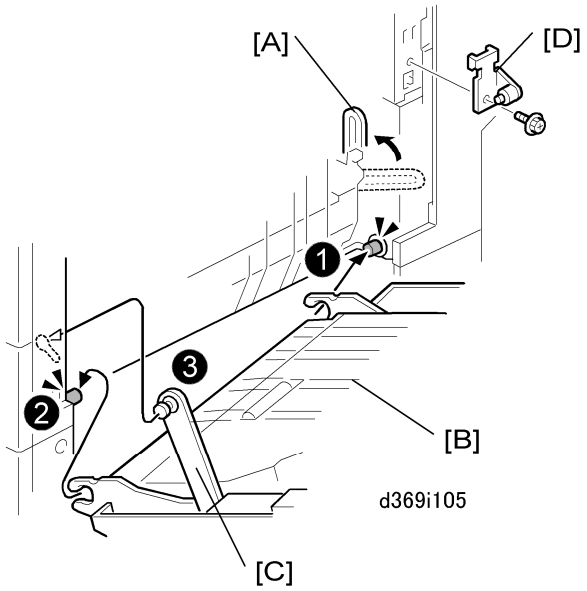
d369i103a

2. Remove the connector cover [A] (x 1).
3. Open the right cover [B] of the optional paper tray unit or LCT and right cover [C].
4. Release the rear link [D] from the right cover (x 1).

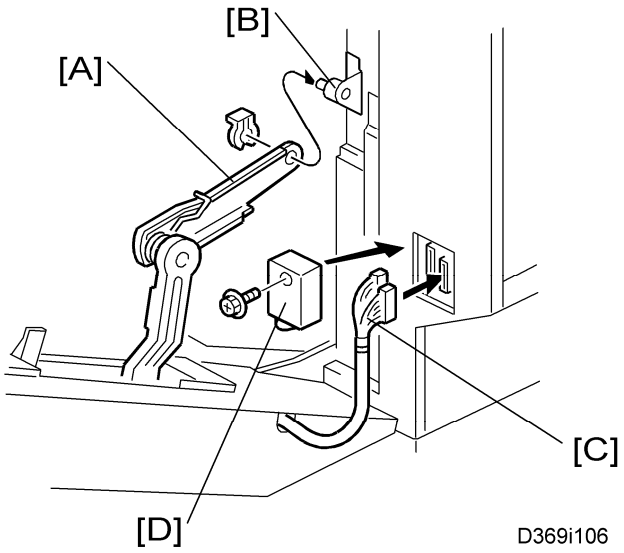


d369i104a

5. Release the front link [A] from the mainframe.
6. Remove the right cover [B].



7. Turn up the rear link [A] of the main machine.
8. Install the duplex unit [B].
9. Attach the front link [C] of the duplex unit to the main machine.
10. Install the bracket [D] (☞ x 1).

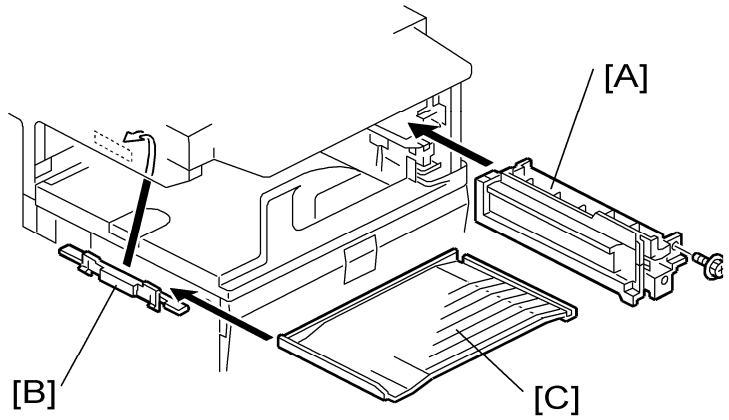


11. Attach the link [A] to the shaft [B] and secure it with the clip.
12. Connect the cable [C] and install the connector cover [D] (☞ x 1).

Note

- These last steps are not required if the 1-Bin Tray has been installed.

Duplex Unit (D369)



D369i107

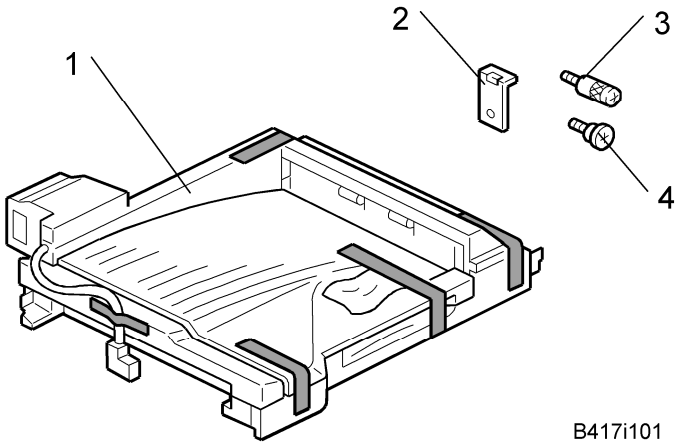
13. Install the duplex guide [A] (🔩 x 1).
14. Install the duplex tray guide [B] and duplex tray [C].
15. Turn on the main power switch and check the duplex unit function.

1.11 BRIDGE UNIT (D368)

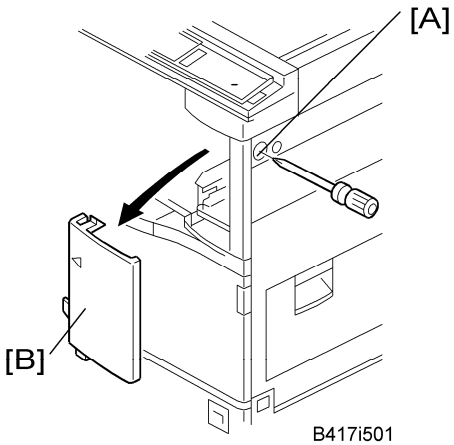
1.11.1 COMPONENT LIST

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

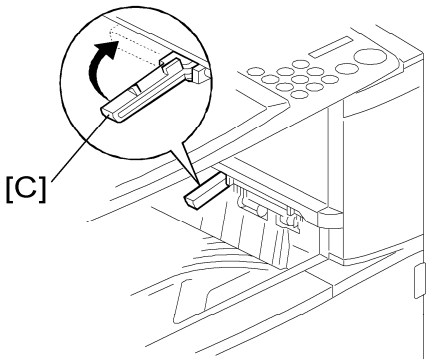
No.	Description	Quantity
1	Bridge Unit	1
2	Securing Plate	1
3	Shoulder Screw	1
4	Knob Screw	1



1.11.2 INSTALLATION PROCEDURE



B417i501

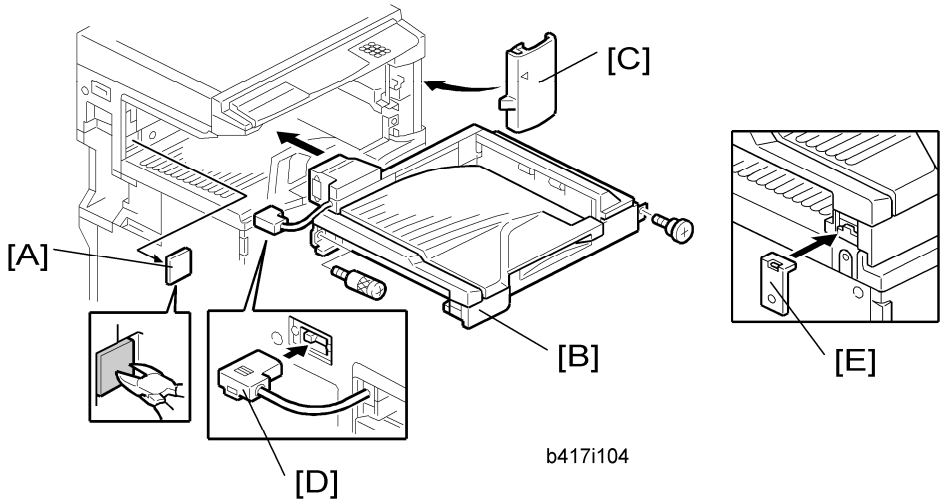


B417i500

CAUTION

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

1. Remove all tapes.
2. Loosen the screw [A] and remove the front right cover [B].
3. If the sensor feeler [C] is out, fold it away into the machine.



b417i104

4. Remove the cover [A].
5. Install the bridge unit [B] (1 shoulder screw, 1 knob screw).
6. Reinstall the front right cover [C].
7. Connect the cable [D] to the main machine.
8. Attach the securing plate [E], as shown.

Note

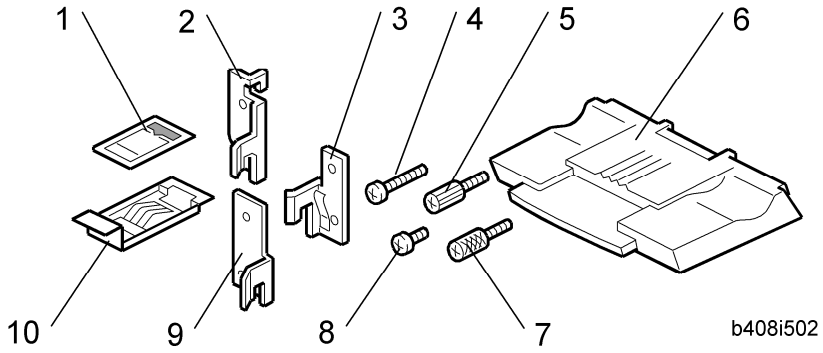
- Do not attach it with a screw; This is done when securing the front stand for the optional finisher.

9. Install the optional finisher (refer to the finisher installation procedure).

1.12 1000-SHEET FINISHER (B408)

1.12.1 ACCESSORY CHECK

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



No.	Description	Q'ty	For this model
1	Staple Position Decal	1	✓
2	Rear Joint Bracket	1	✓
3	Front Joint Bracket	1	✓
4	Screw - M4 x 14	4	✓ (Use 3)
5	Knob Screw - M4 x 10	1	✓
6	Copy Tray	1	✓
7	Knob Screw - M3 x 8	1	✓
8	Screw - M3 x 8	1	✓
9	Rear Joint Bracket	1	---
10	Grounding Plate	1	✓

✓ = Necessary, --- = Not necessary

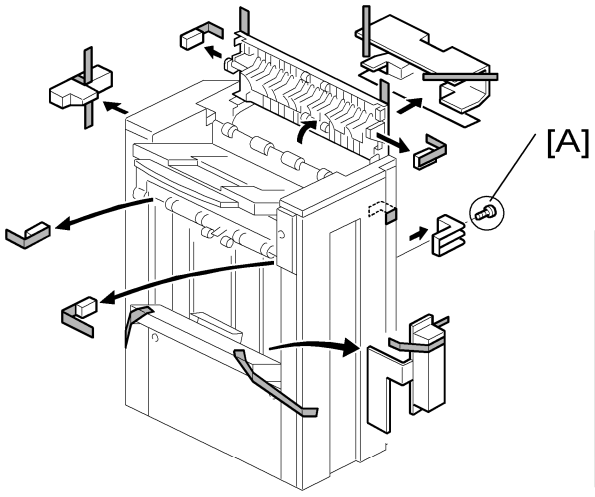
1.12.2 INSTALLATION PROCEDURE

CAUTION

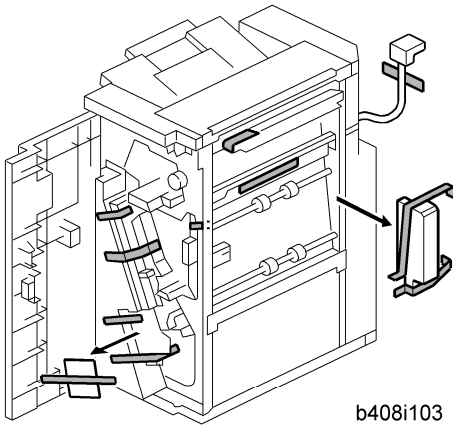
- Unplug the main machine power cord before starting the following procedure.

The following options must be installed before you install this finisher:

- Bridge Unit (D368)
- Paper Tray Unit (D331) or LCT (B391)



b408i102

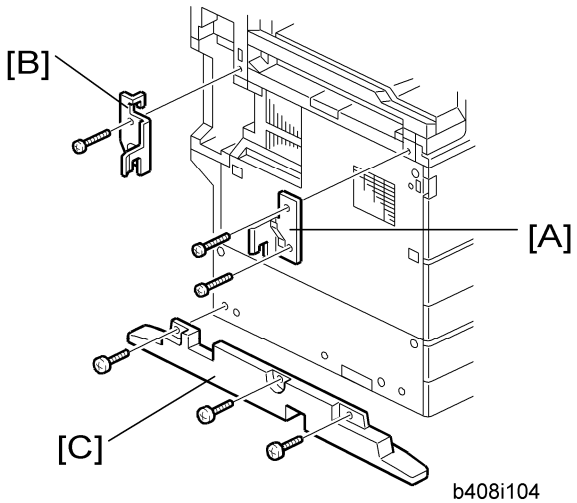


b408i103

1. Unpack the finisher and remove the tapes.

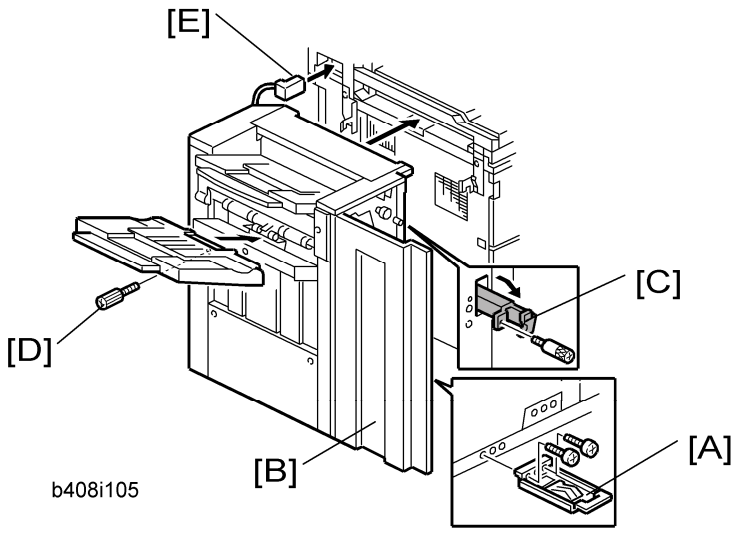
Note

- Be sure to keep screw [A]. It will be needed to secure the grounding plate in step 4.



b408i104

2. Install the front joint bracket [A] (x 2; M4 x 17) and rear joint bracket [B] (x 1; M4 x 17).
3. Remove the left stand [C] (x 3).

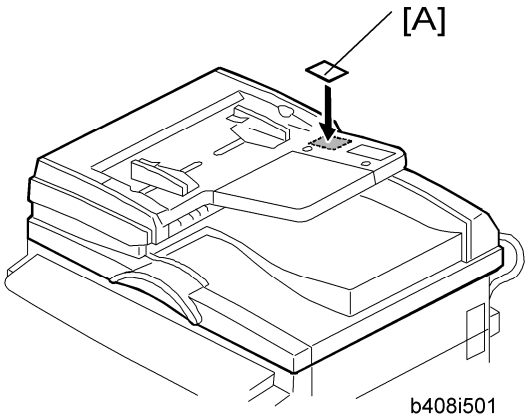


4. Install the lower grounding plate [A] on the finisher (🔩 x 2; M3 x 8).

Note

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

5. Open the front door [B]. Then pull the locking lever [C] (🔩 x 1; knob M3 x 8).
6. Align the finisher on the joint brackets, and lock it in place by pushing the locking lever.
7. Secure the locking lever (🔩 x 1; knob M3 x 8) and close the front door.
8. Install the copy tray [D] (🔩 x 1; knob M4 x 10).
9. Connect the finisher cable [E] to the main machine.



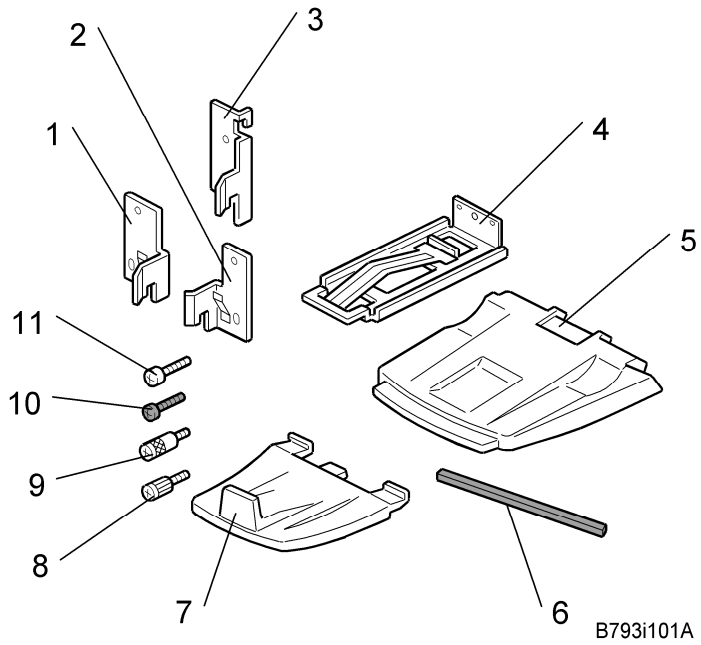
10. Attach the staple position decal [A] to the ARDF as shown.
11. Turn on the ac switch and check the finisher operation.

1.13 1000-SHEET BOOKLET FINISHER (B793)

1.13.1 ACCESSORY CHECK

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

No.	Description	Quantity	For D017/D018/D019/D020
1	Rear Joint Bracket	1	No
2	Front Joint Bracket	1	Yes
3	Rear Joint Bracket	1	Yes
4	Grounding Plate	1	Yes
5	Upper Output Tray	1	Yes
6	Cushion	2	Yes
7	Lower Output Tray	1	Yes
8	Short Knob screw	1	Yes
9	Long Knob screw	1	Yes
10	Screw (M3 x 8)	2	Yes
11	Screw (M4 x 14)	4	Yes (Use all)



B793i101A

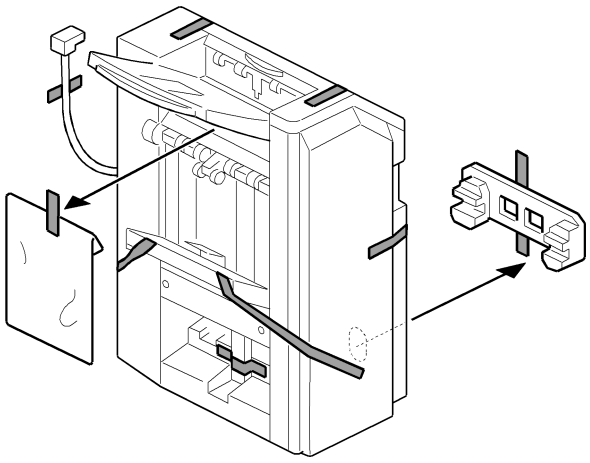
1.13.2 INSTALLATION PROCEDURE

⚠CAUTION

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

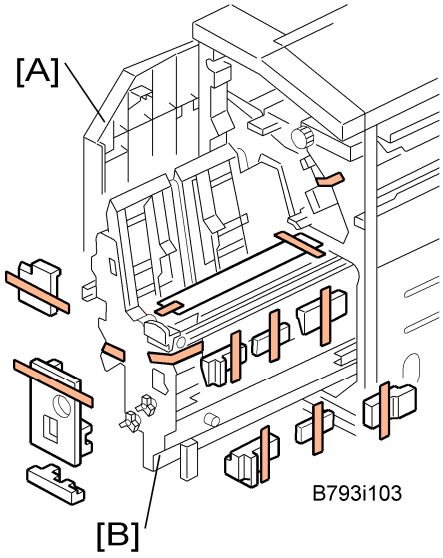
Some optional units must be installed before installing this finisher (B793). Refer to the table below about requirement options for each machine.

Machine Code	Requirement Optional Units
D017/D018/D019/D020	D368 and either B391 or D331

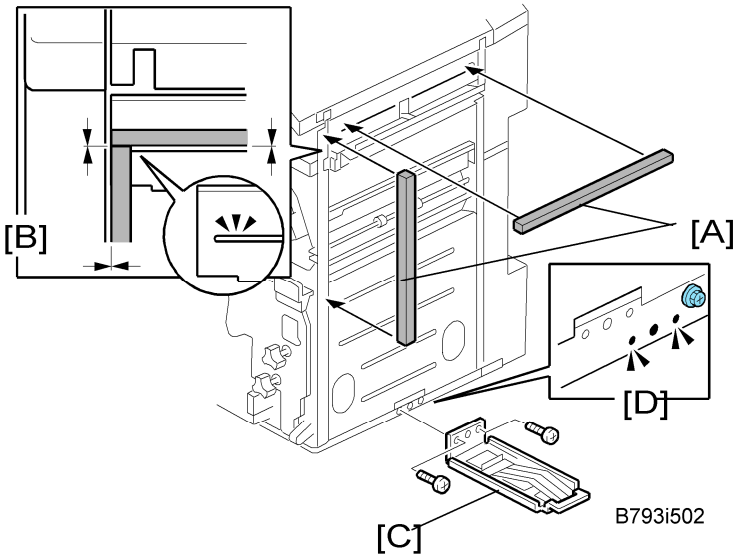

B793i102A

1000-Sheet Booklet Finisher (B793)

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



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

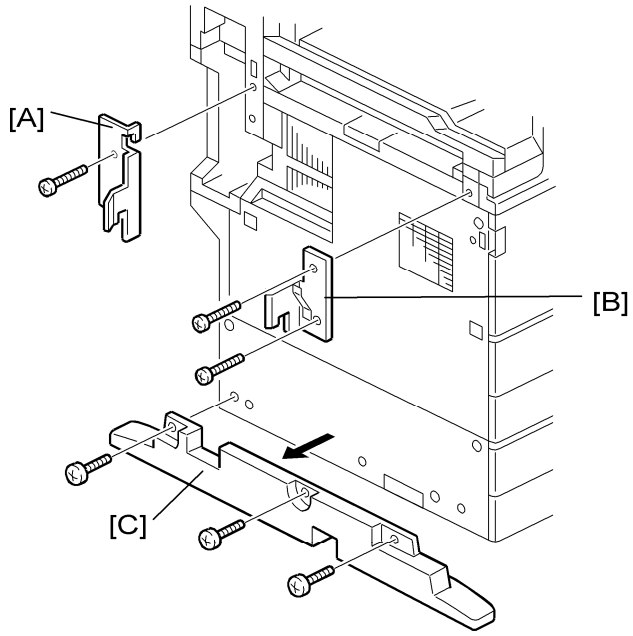


4. Attach the cushions [A] to the finisher.

Note

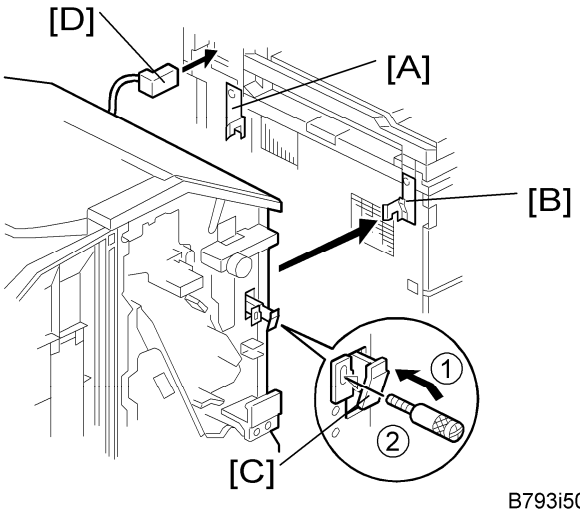
- Make sure that the cushions are placed within 0 to 1 mm [B] from the edge of the cover or frame.

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



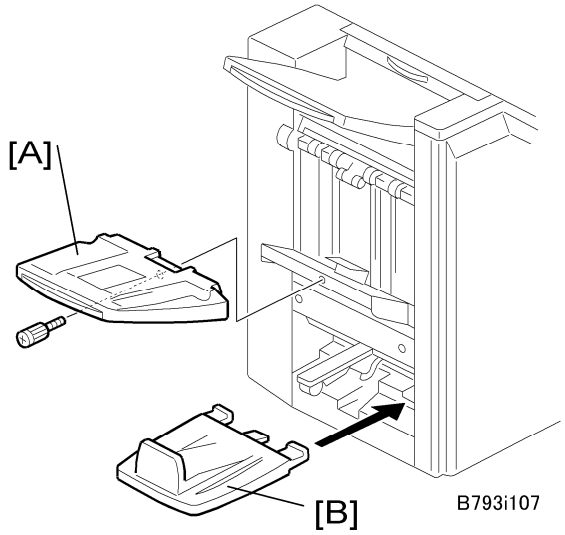
b793i503

6. Attach the rear joint bracket [A] (☞ x 1; M4 x 14).
7. Attach the front joint bracket [B] (☞ x 2; M4 x 14).
8. Remove the left support [C] from the optional paper tray unit or LCT.



B793i504

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



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

⇒ Important

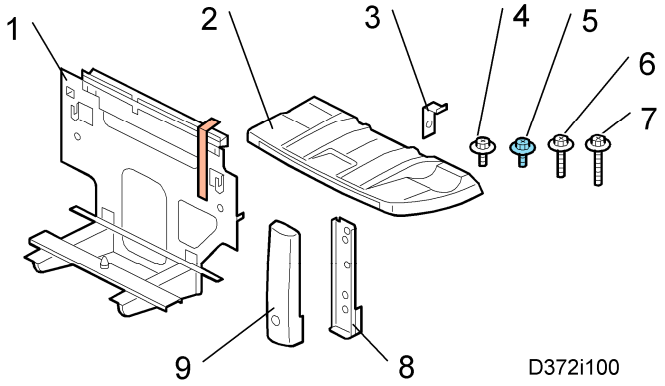
The installation instructions for the Punch Unit (B807) are located ☛ Section 1.25.

1.14 500-SHEET FINISHER (D372)

1.14.1 ACCESSORY CHECK

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

No	Description	Q'ty	For D017/D018/D019/D020
1	Unit Holder	1	Yes
2	Shift Tray	1	Yes
3	Holder Bracket	1	Yes
4	Screw: M3 x 8	4	Yes (Use 2)
5	Screw: M3 x 6	1	Yes
6	Screw: M4 x 14	4	Yes (Use 3)
7	Screw: M4 x 20	4	No
8	Support Bracket	2	No
9	Support Bracket Cover	2	No



1.14.2 INSTALLATION PROCEDURE

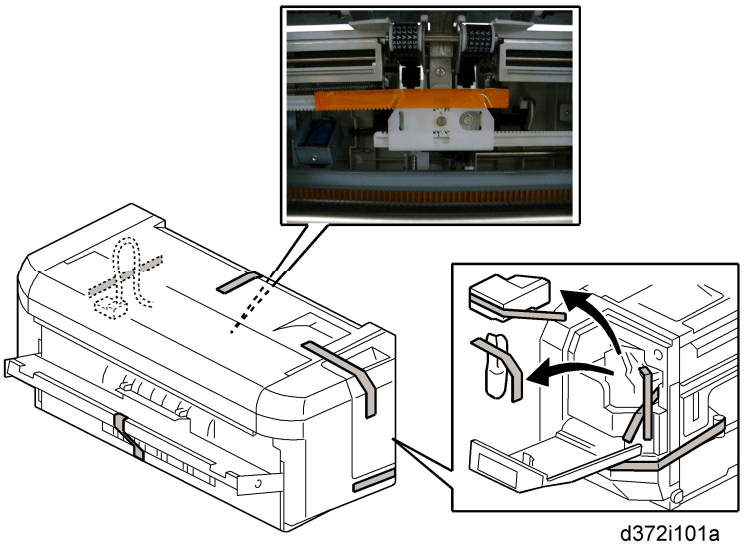
CAUTION

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

Note

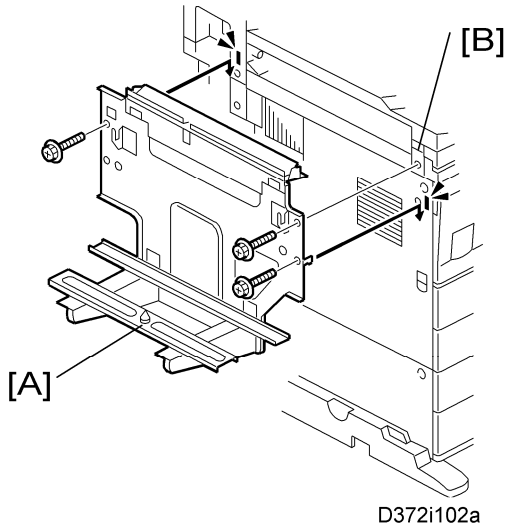
500-Sheet Finisher (D372)

- Before you install the 500-sheet finisher, the optional bridge unit (D368) must be installed.



d372i101a

1. Unpack the finisher and remove the tapes.

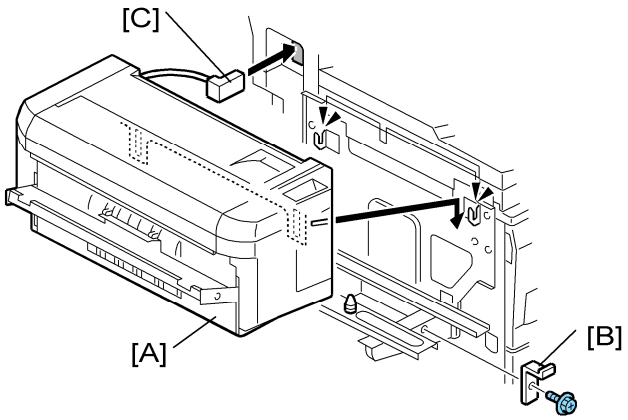


D372i102a

2. Install the unit holder [A] (x 3 - M4 x 14).

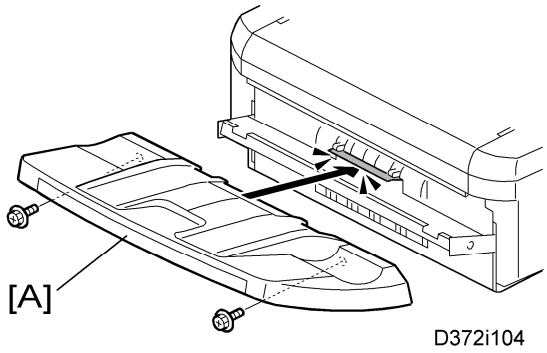
Note

- Make sure that the bracket [B] is installed in the bridge unit.



d372i103

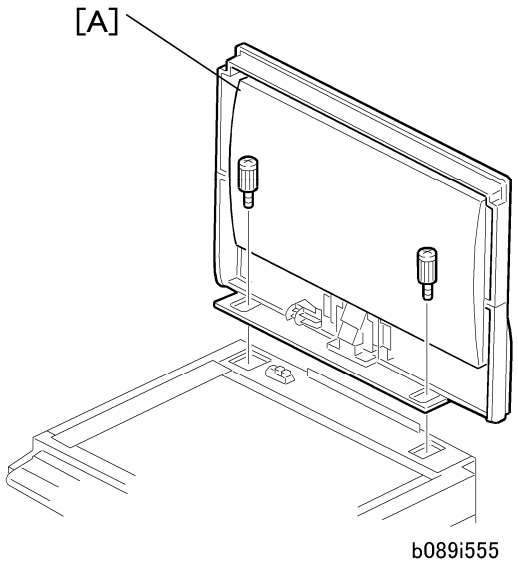
3. Install the 500-sheet finisher [A].
4. Install the holder bracket [B] (x 1; M3 x 6).
5. Connect the finisher cable [C].



D372i104

6. Install the shift tray [A] (x 2 - M3 x 8).
7. Turn on the main power switch and check the finisher operation.

1.15 PLATEN COVER (B406)



1. Install the platen cover [A] (☞ x 2).

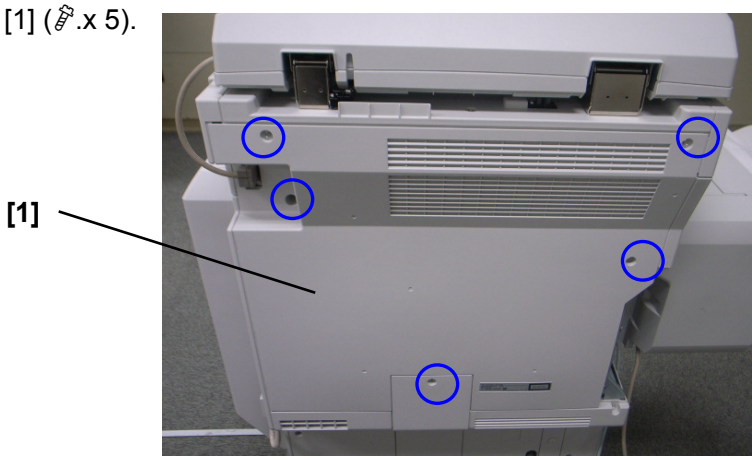
⇒1.16 KEY COUNTER INTERFACE UNIT (B452)

1.16.1 INSTALLATION PROCEDURE

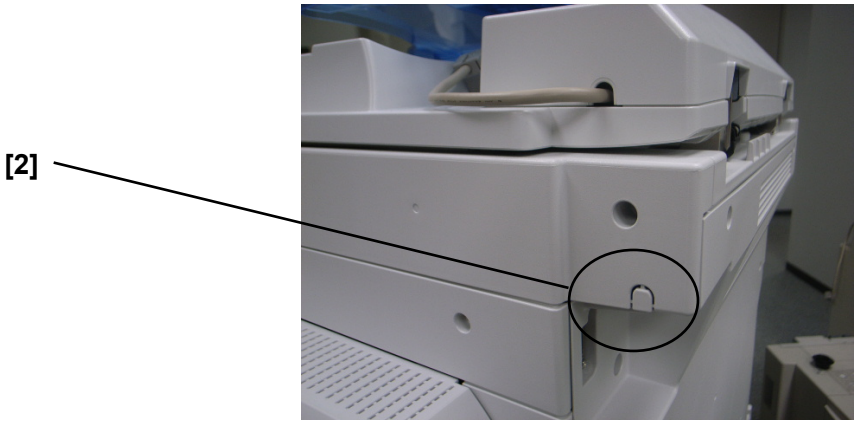
⚠CAUTION

- Disconnect the copier power cord before you start this procedure.

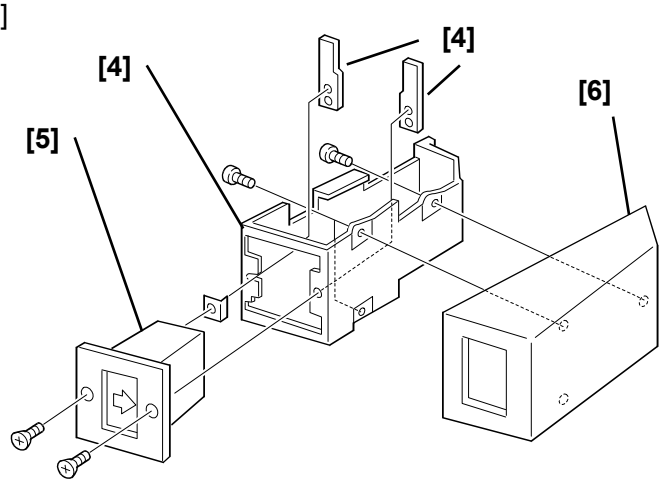
1. Remove the rear cover [1] (.x 5).



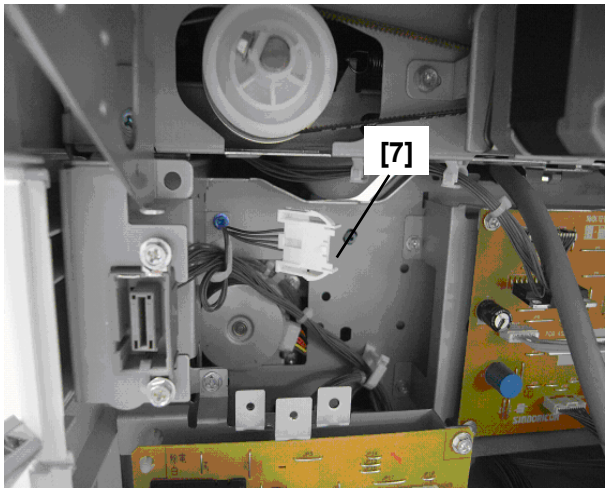
2. Cut off the part [2] of the right cover.



3. Hold the key counter plate nuts [3] on the inside of the key counter bracket [4] and insert the key counter holder [5].
4. Secure the key counter holder to the bracket (x 2).
5. Insert the key counter cover [6] (x 3).



6. Connect the harness to the connector [7] inside the machine.



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

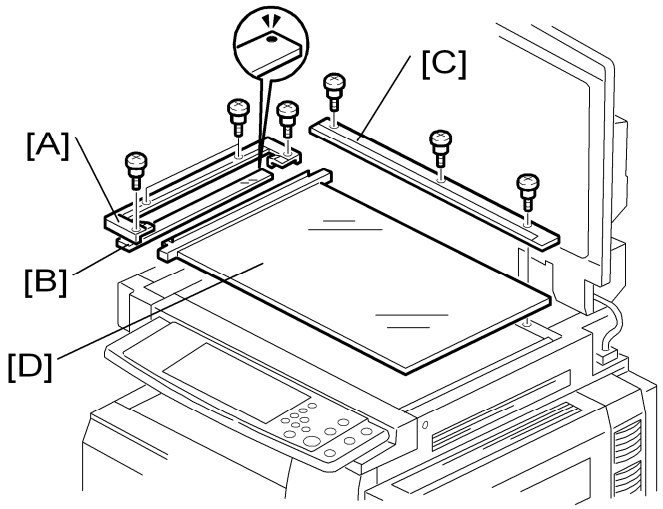


8. Reassemble the machine.

1.17 HEATERS

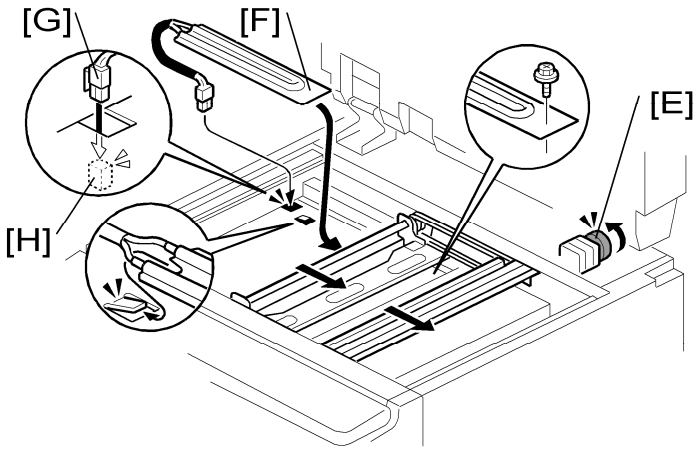
1.17.1 ANTI-CONDENSATION HEATER (SCANNER UNIT)

Installation Procedure



b230r153a

1. Rear cover (see "Rear Cover" in the "Replacement and Adjustment" section)
2. Open the ARDF or platen cover.
3. Glass cover [A] (☞ x 4)
4. ARDF exposure glass [B]
5. Rear scale [C] (☞ x 3)
6. Exposure glass with left scale [D]



7. Move the scanner carriage to the right side by rotating the scanner motor [E].
8. Install the heater [F] in the scanner unit (☞ x 1, hook)
9. Put the connector [G] through the cutout.

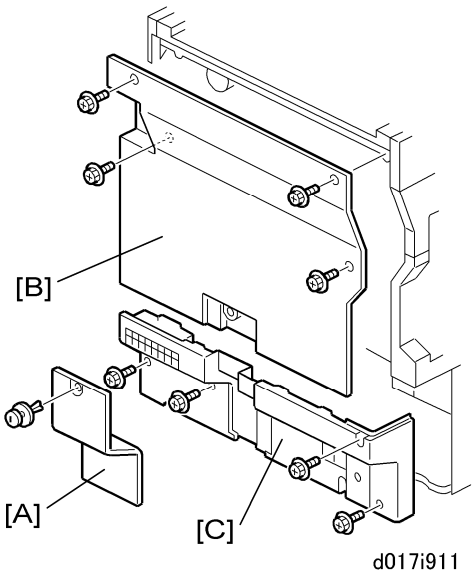
Heaters

10. Connect it to the connector [H] (blue and red cords) in the frame of the machine.
11. Reassemble the machine.

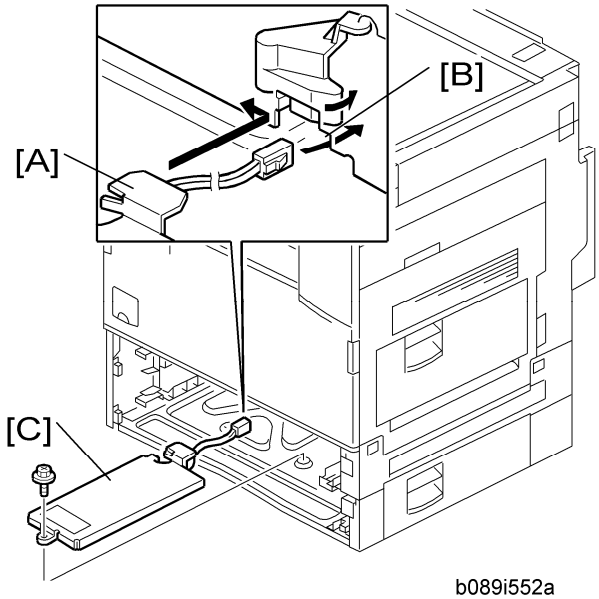
1.17.2 TRAY HEATER (COPIER)

⚠CAUTION

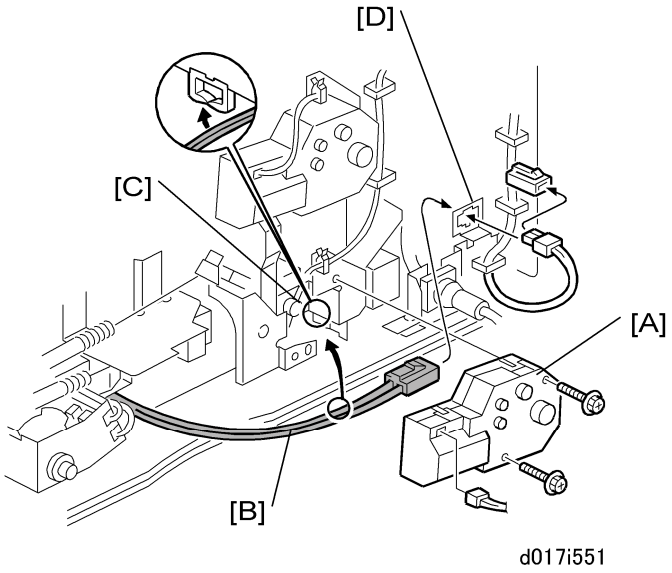
- Disconnect the copier power cord before you start this procedure.



1. Remove:
   - Connector cover [A]
   - Rear upper cover [B] (🔩 x 4)
   - Rear lower cover [C] (🔩 x 4)



2. Slide out the 1st and 2nd paper trays.
3. Pass the connector [A] through the opening [B].
4. Install the tray heater assembly [C] (x 1).

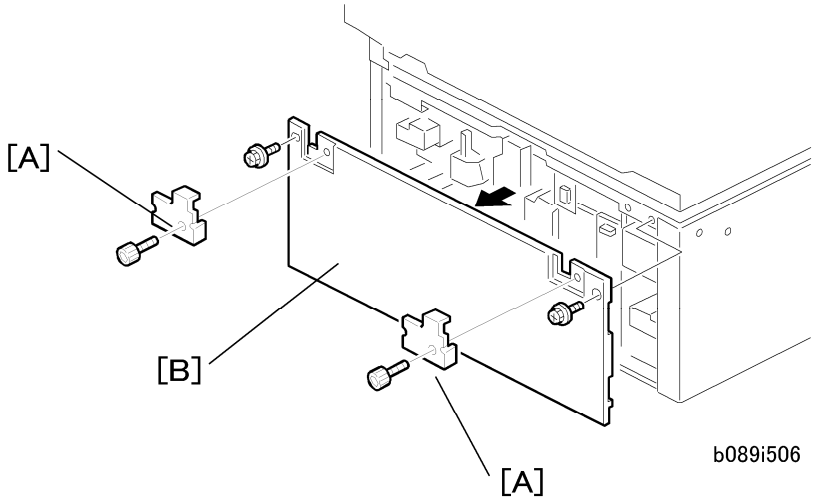


5. Remove the 2nd paper lift motor [A] (x 2, x 1).
6. Route the heater cable [B] as shown.
7. Clamp the heater cable at [C] as shown.
8. Connect the heater cable to the ac cable at [D].

1.17.3 TRAY HEATER (OPTIONAL PAPER TRAY UNIT)

CAUTION

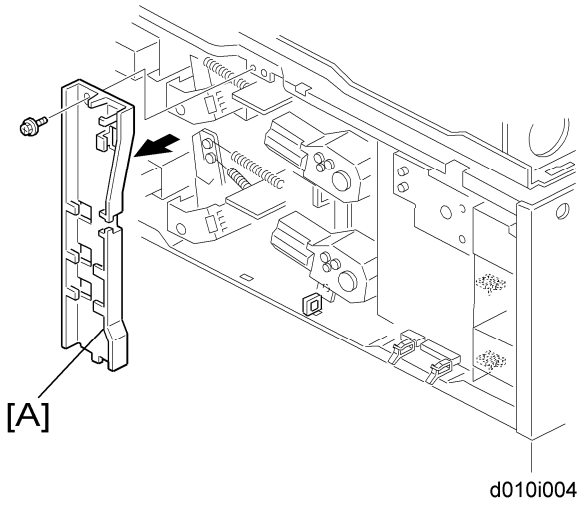
- Disconnect the copier power cord before you start this procedure.



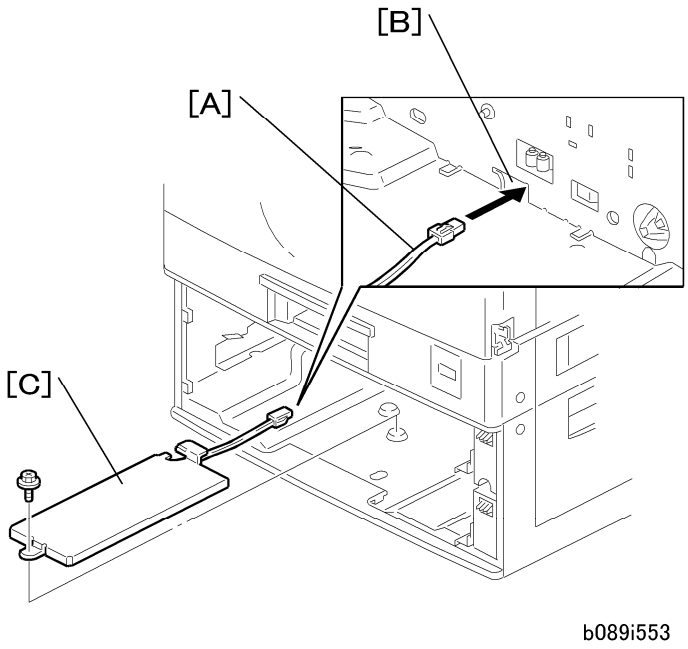
1. Remove the joint brackets [A] (x 1 each).

Heaters

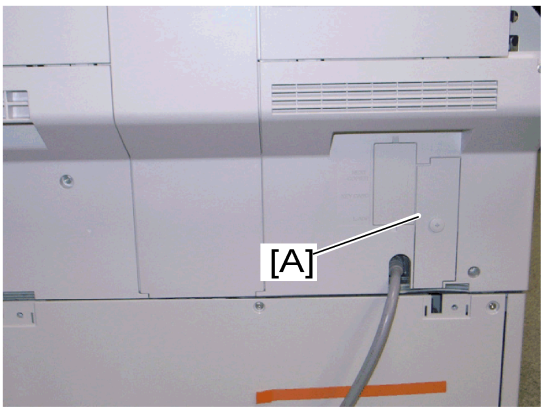
2. Remove the rear cover [B] for the optional paper tray unit (☞ x 2).



3. Remove the cable guide [A] (☞ x 1).

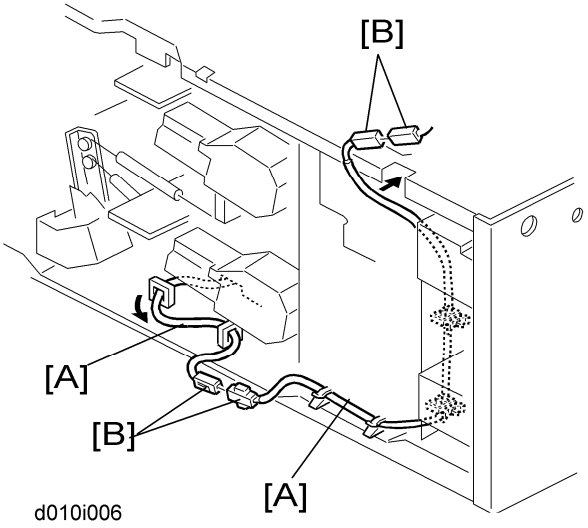


4. Slide out the two paper trays from the optional paper tray unit.
5. Pass the connector [A] through the opening [B].
6. Install the tray heater assembly [C] (☞ x 1).



d017i005

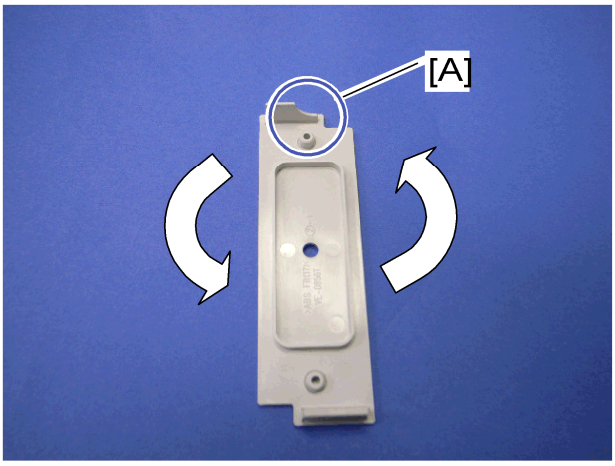
7. Remove the heater harness cover [A] (rivet screw x 1).



d010i006

8. Clamp the cables [A], as shown.
9. Join the connectors [B].
10. Reinstall the cable guide.
11. Reinstall the rear cover for the optional paper tray unit.

Heaters



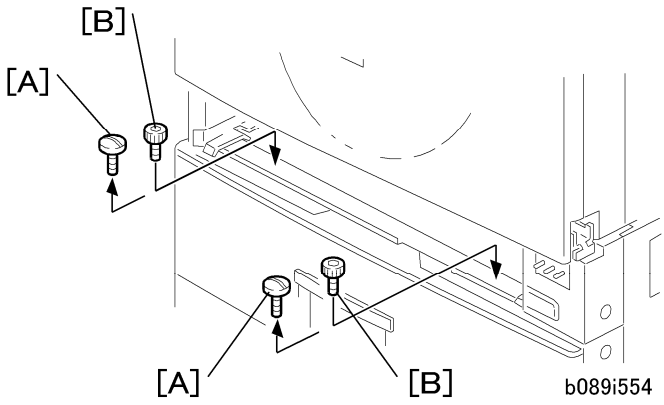
d010i310

12. Turn the heater harness cover upside down and reinstall it in the rear cover of the main machine.

Important

- Make sure that cutout [A] is directed downward. Otherwise, the rear cover of the main machine pinches the heater harness and breaks it.

13. Reinstall the two paper trays into the optional paper tray unit.



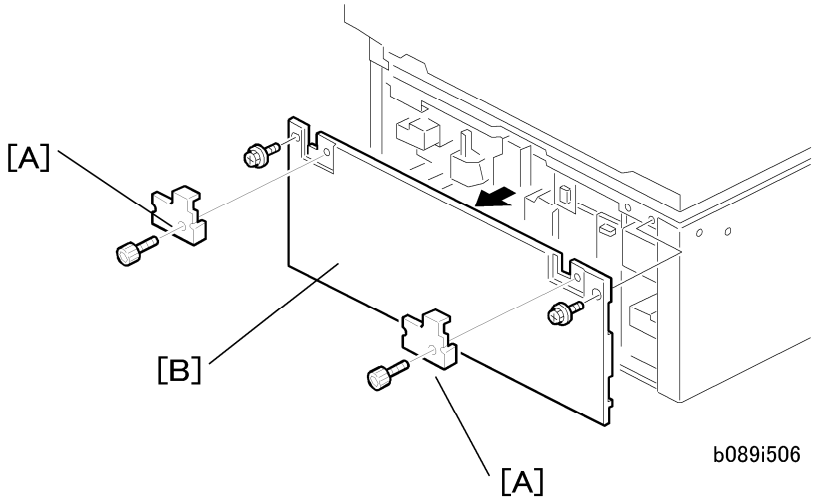
b089i554

14. Remove the 2nd paper tray of the copier.
15. Remove two screws [A] and install the screws [B] which were removed in step 11.
16. Reinstall the 2nd paper tray of the copier.

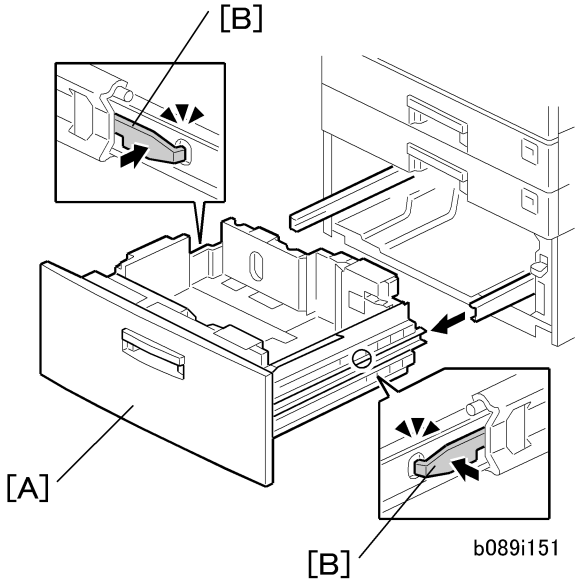
1.17.4 TRAY HEATER (OPTIONAL LCT)

⚠CAUTION

- Disconnect the copier power cord before you start this procedure.

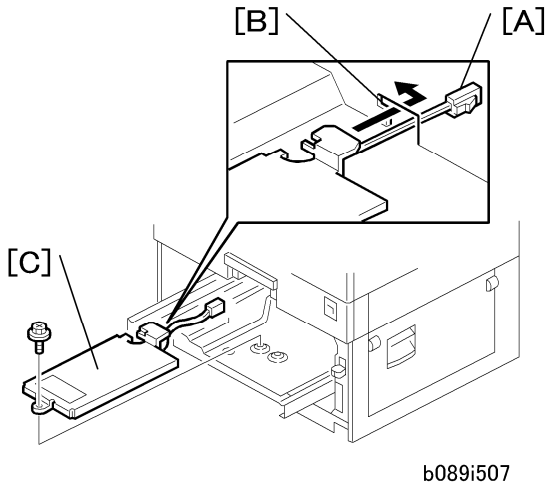


1. Remove two joint brackets [A] (☞ x 1 each).
2. Remove the rear cover for the LCT [B] (☞ x 2).

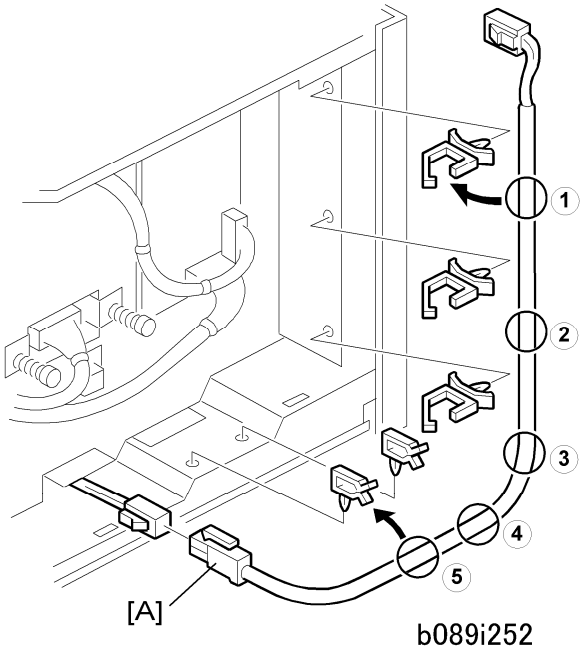


3. Slide out the paper tray [A].
4. Push the stopper [B] on both slide rails and remove the paper tray.

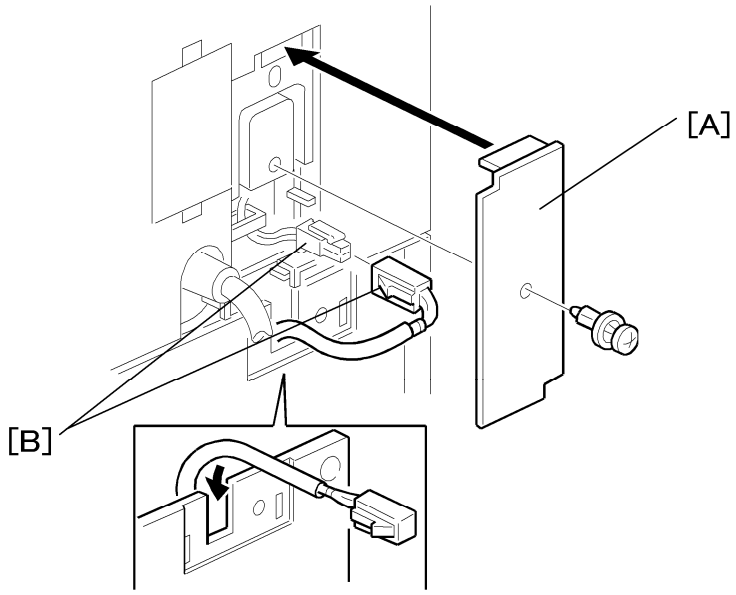
Heaters



5. Pass the connector [A] through the opening [B].
6. Install the tray heater [C] (x 1).

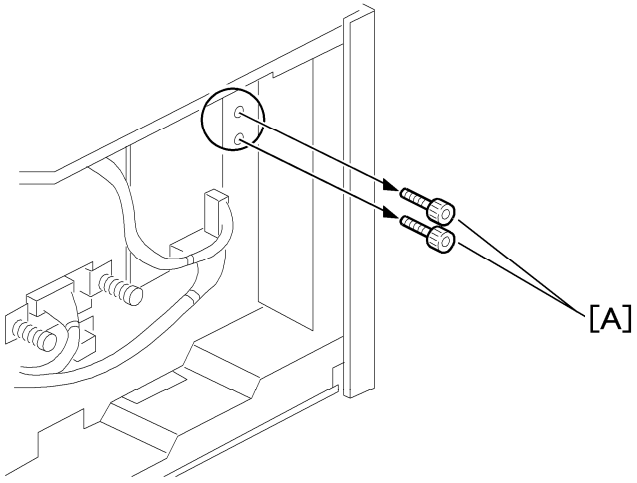


7. Install five clamps (x5).
8. Connect the cable tray heater cable [A].



b089i253

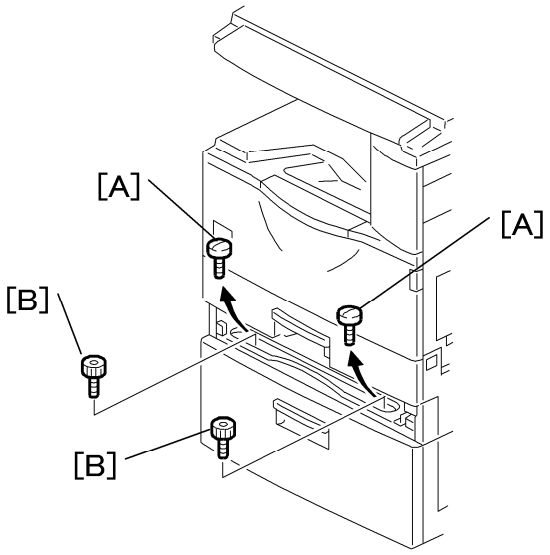
9. Route the cable and clamp it.
10. Remove the connector cover of the copier [A].
11. Join the connectors [B].
12. Reinstall the connector cover of the copier.



b089i601

13. Remove two screws [A] from the rear side of the LCT.
14. Reinstall the rear cover of the LCT.
15. Reinstall the paper tray.

Heaters



b089i600

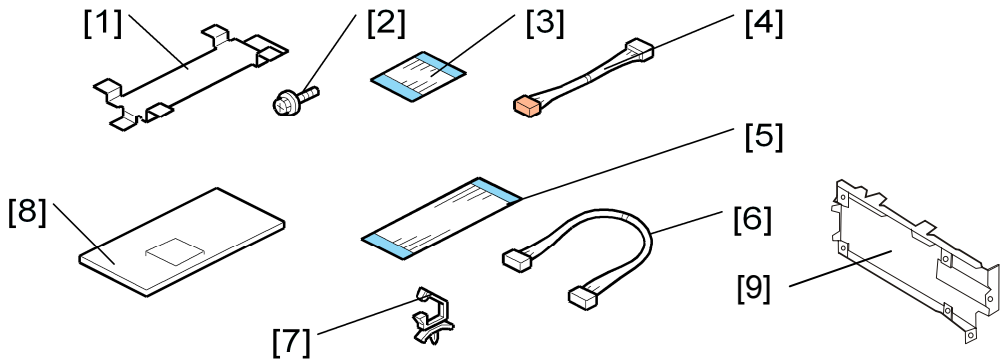
16. Remove the 2nd paper tray of the copier.
17. Remove two screws [A] and install the screws [B] which were removed in step 13.
18. Reinstall the 2nd paper tray of the copier.

1.18 COPY DATA SECURITY UNIT (B829)

1.18.1 ACCESSORIES

Check the accessories and their quantities against the following list:

No.	Description	Quantity
1	Bracket (Not used for the B205 series copiers)	1
2	Screws	4
3	FFC (Short) (Not used)	1
4	Harness (Not used)	1
5	FFC (Long)	1
6	Connection Cable	1
7	Harness Clamp	1
8	ICIB	1
⇒ 9	Bracket	1



1.18.2 INSTALLATION PROCEDURE

⚠CAUTION

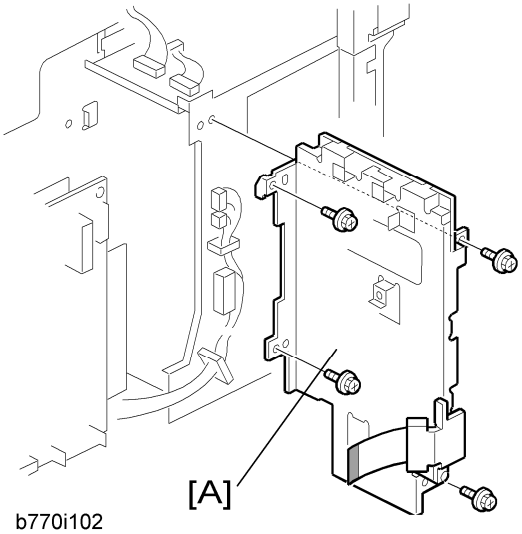
- Turn off the main power switch and disconnect the copier power cord before you start this procedure.

1. Remove these parts: (see Controller Board in Replacement and Adjustment)
   - Controller board plastic cover (🔩 x1).

Copy Data Security Unit (B829)

- FCU faceplate (x3)
- Controller board unit (x3)

2. Remove these parts: (see section 3.10.4)
   - Paper tray unit connector cover (x1)
   - Disconnect the paper tray unit or LCT (if it is installed) (x1)
   - Rear cover (x1).
3. Pull the controller board partially out of the left slot to disconnect it from the IPU.

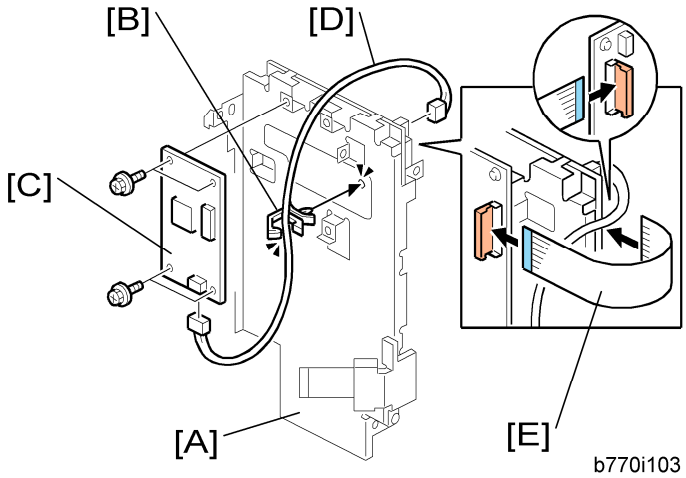


b770i102

4. Remove the IPU [A] from the main machine.

Note

- The board for this option is installed on the back of the IPU board.



b770i103

5. Attach the harness clamp [B].
6. Attach the ICIB [C] (x4)

7. Connect the cable [D] between the ICIB [C] and the IPU Board [A].
8. Connect the flat film connector [E] to the ICIB and IPU boards.
9. Reinstall the IPU board.
10. Turn on the machine.
11. Enable the Copy Data Security function:
    - [User Tools]> System Settings> Administrator Tools> Data Security for Copying

1.19 HARD DISK (D362, ONLY FOR D017/D019)

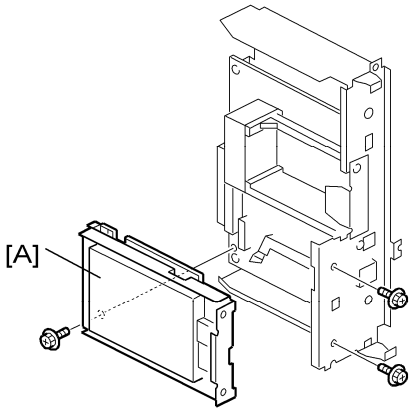
1.19.1 ACCESSORY CHECK

No.	Description	Q'ty	For D017/D019
1	HDD Unit	1	✓
2	Screw	3	✓
3	Keytop: Copy	2	✓
4	Keytop: Document Server	2	✓
5	Knob Screw	3	---

✓ = Necessary, --- = Not necessary

1.19.2 INSTALLATION

1. Remove the plastic application cover (☞ x1).
2. Remove the controller board. (See 'Controller Board'.)



d017r965

3. Attach the HDD unit [A] to the controller board bracket (☞ x2, ☞x3).
4. Reinstall the controller board with the HDD.

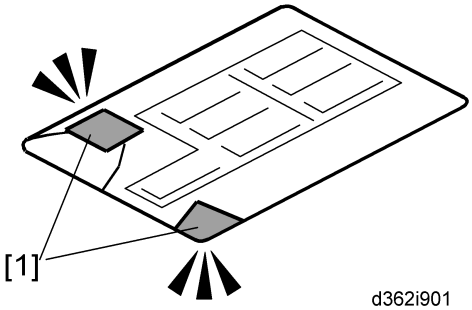
After Installing the HDD

1. Do **SP5832-001** to format the hard disk.
2. Do **SP5853-001** to copy the preset stamp data from the firmware to the hard disk.
3. Do **SP5846-040** to copy the address book to the hard disk from the controller board.
4. Do **SP5846-041** to let the user get access to the address book.
5. Turn the main power switch off/on.

1.20 HDD ENCRYPTION UNIT

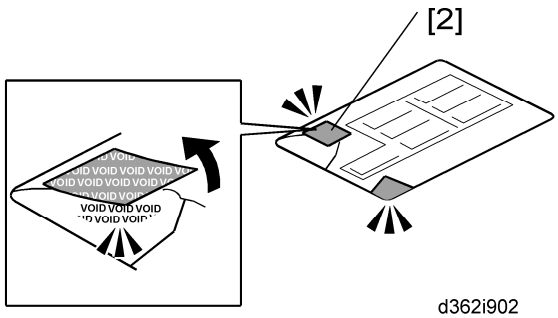
1.20.1 INSTALLATION

Seal Check and Removal



d362i901

1. Check the box seals [1] 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.



d362i902

3. When you remove each seal, the “VOID” marks [2] can be seen. In this condition, they cannot be reattached to the box.

Installation Procedure

1. 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 encryption option can be installed.

HDD Encryption Unit

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

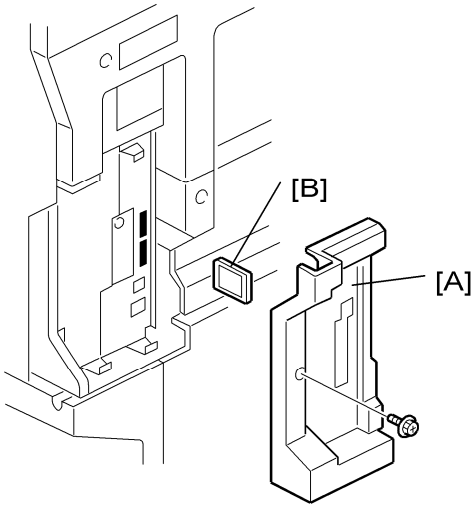
   Note

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

   If this setting is not selected tell the customer that this setting must be selected before you can do the installation procedure.
4. Remove the plastic application cover [A] (x 1).
5. Insert the SD card in SD card [B] Slot 2 (lower).

   Important

   - The encryption SD card must be installed in Slot 2 (lower).
6. Turn on the main power switch.
7. Enter the SP mode.
8. Select SP5878-002 (Option Setup – Encryption Option), and then touch [Execute].
9. Turn off the main power switch.
10. Remove the SD card.
11. Attach the slot cover [A] (x 1).



d017i502

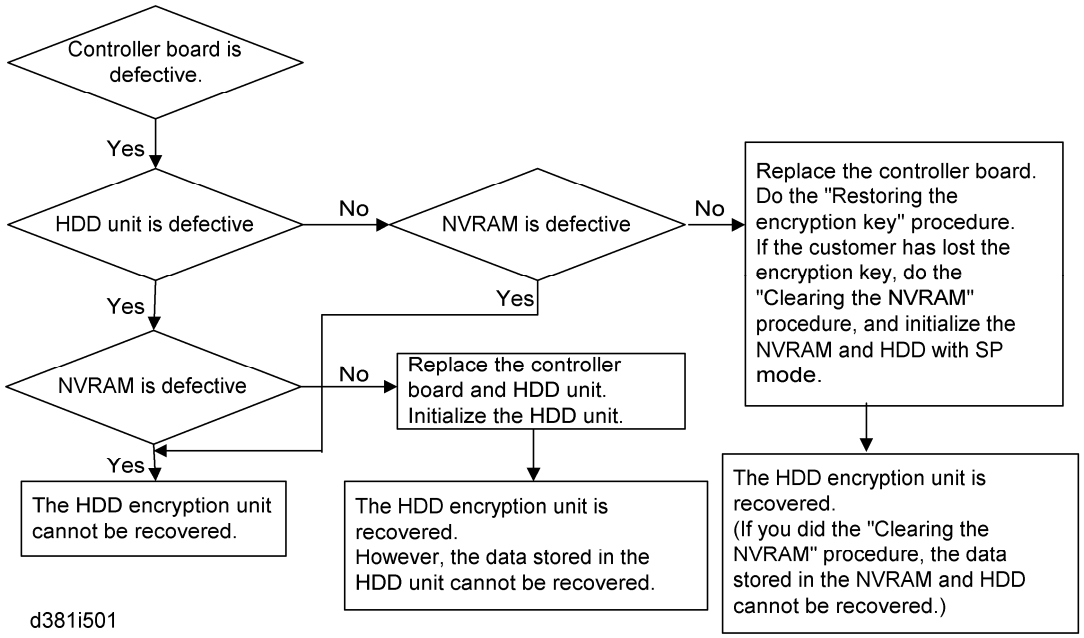
12. Switch the machine on.
13. Login to User Tools as the Administrator.
14. Go to [User Tools] [System Settings] [Administration Tools] [Machine Data Encryption Settings] [Encrypt]
    Depending on the customers needs, choose one from the following three choices: [All Data] , [File System Data Only], or [Format All Data].
15. From the window that will appear, print out the Data Encryption key by pressing the “Start” key.
16. Confirm that the Data Encryption key has been printed correctly. After confirming that the Data Encryption Key has correctly printed, press OK.
17. A new window will appear informing of the changed settings. Press EXIT to continue.
18. Reboot the machine.

Note

- First reboot time may be significantly longer.

19. Store the Encryption Key Printout in a secure location.

1.20.2 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 (☛ 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 (SP5801-001) and HDD unit (SP5832-001) with SP mode.
14. The user must enable the HDD encryption unit with a user tool.

1.20.3 MORE ABOUT HDD ENCRYPTION UNIT (D377)

Overview

The HDD Encryption unit encodes user data and machine settings to prevent this data from being stolen if somebody steals the hard disk. To activate this unit, an administrator must enable the unit with the user mode after installation by a customer engineer. Also, if "Administrator Authentication Management" is not turned on, this function is not displayed in the menu on the LCD.

Encrypted Data

The data to be encrypted are shown below:

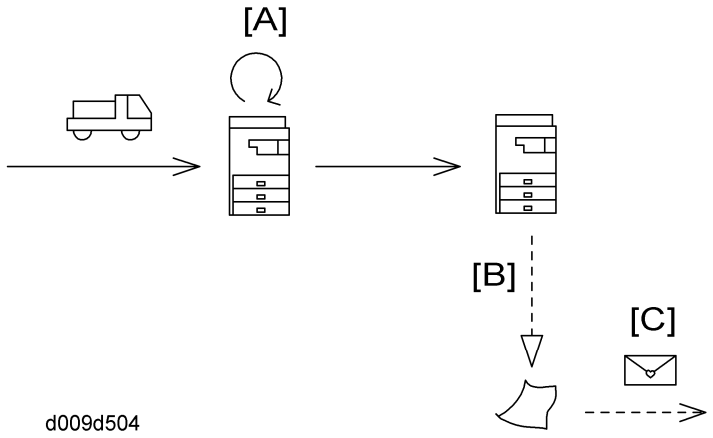
User Data in the HDD

▪ Address book data*2 ▪ User authentication data ▪ Stored document data ▪ Temporary data on the HDD	▪ Security log data*2 ▪ Network I/F setting data*1 ▪ User mode setting data*2
Machine Data in the NVRAM	
▪ Machine settings data*1	

At installation, an administrator can choose one of three settings to determine what happens to the data that is already in the NVRAM and HDD unit.

1. "File System Data Only" encrypts the items indicated with *1 and *2 in the table above and deletes other data.
2. "Format All Data" encrypts the item indicated with *1 in the table above and deletes other data.
3. "All Data" encrypts all data in the table above.

Procedure Flow



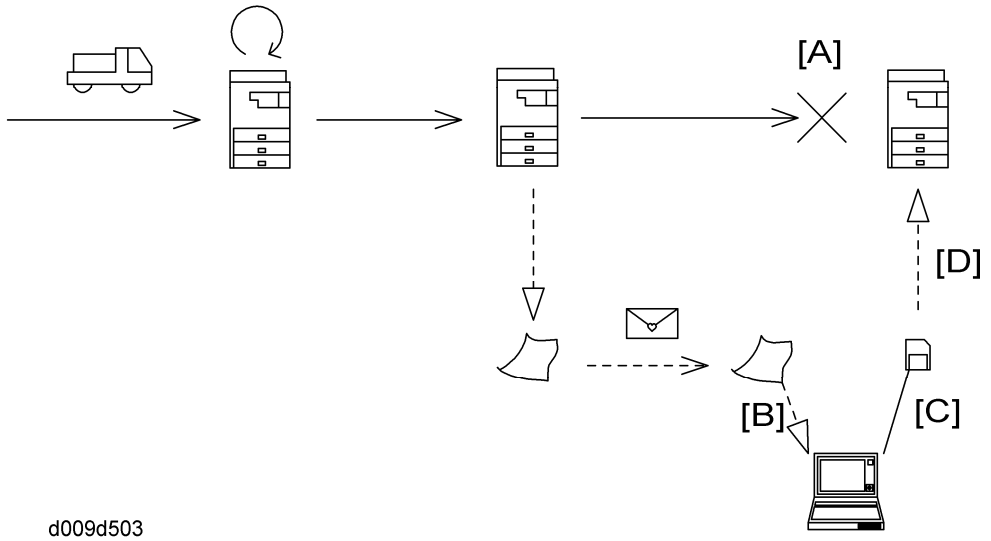
[A]: The CE (customer engineer) installs the unit [A], then an administrator uses the activating function. The administrator prints out the encryption key [B]. The administrator keeps the encryption key information [C] in a safe place.

Encryption Key

After this unit is installed and activated, an encryption key is printed out, and stored in a flash memory chip on the controller board. The encryption key is also copied to each device (NVRAM, HDD) to be encoded by this unit. The printed encryption key must be safeguarded by the administrator. The customer engineer must not see or ask for the key.

HDD Encryption Unit

Encryption Key Restoration



If the controller board becomes defective [A] and needs to be replaced, "Encryption key restoring" is required in order to use the data on the NVRAM and HDD.

- This is because this encryption function works properly only when the keys in the controller board, NVRAM and HDD match.
- SC858, 859 or 878 occurs if there is a problem with restoring or updating the encryption key. (For details of how to update the encryption key, refer to the Operating Instructions.)
- The customer engineer then asks an administrator to input the encryption key [B] into an SD card [C].
- Encryption key restoration is completed [D] after installation (by the CE) and activation by the administrator.

⇒1.21 DATA OVERWRITE SECURITY UNIT (D362-11)

1.21.1 ACCESSORY CHECK

Check the accessories and their quantities against the table below.

Description	Q'ty
1. Data Overwrite Security SD Card	1
2. Operating Instructions CD-ROM	1
3. Comments Sheet (17 languages)	2

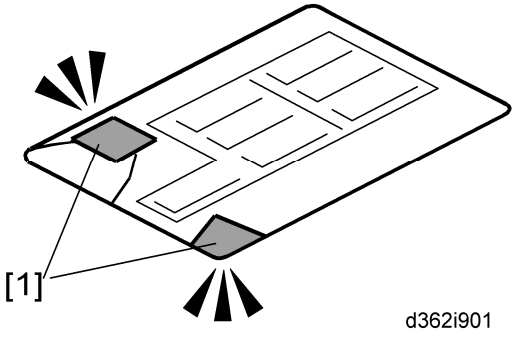
1.21.2 BEFORE YOU BEGIN

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 I**".
2. Make sure that the following features have been set up:
   - Supervisor login password
   - Administrator login name
   - Administrator login password

   Important
   - These settings must be set up by the customer before the DOS option can be installed.
3. Confirm that "Admin. Authentication" is on:
   [User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Admin. Authentication"> "On"
   If this setting is "Off" tell the customer that this setting must be "On" before you can do the installation procedure.
4. Confirm that "Administrator Tools" is selected and enabled:
   [User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Available Settings
   If this setting is not selected tell the customer that this setting must be selected before you can do the installation procedure.

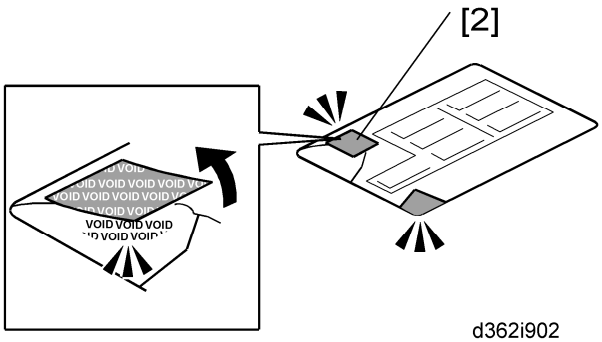
   Note
   - "Available Settings" is not displayed until Step 2 has been done.

⇒1.21.3 SEAL CHECK AND REMOVAL



d362i901

1. Check the box seals [1] 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.

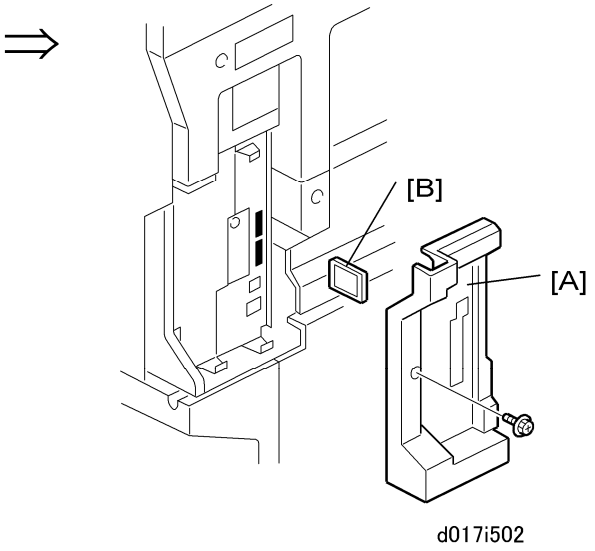


d362i902

3. When you remove each seal, the “VOID” marks [2] can be seen. In this condition, they cannot be reattached to the box.

1.21.4 DOS INSTALLATION

1. Switch OFF the machine.
2. Disconnect the network cable.
3. Turn the main power switch ON.
4. Turn the operation switch and main power switch OFF.



d017i502

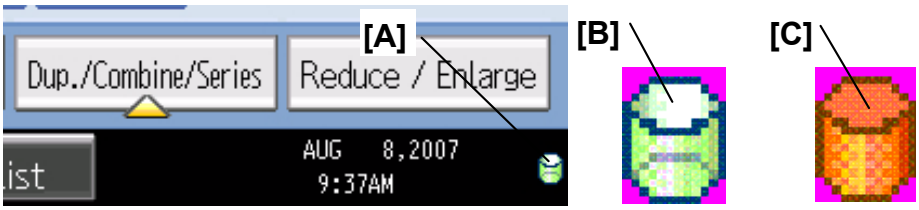
5. Remove the plastic application cover [A] (☞ x1).
6. Insert the SD card [B] in SD Slot 1 (upper).
7. Reconnect the network cable, if the network is connected to the copier.
8. Turn the main power switch ON.
9. Do SP5878-1 (Option Setup – Data Overwrite Security) and touch [EXECUTE].
10. Go out of the SP mode, turn the operation switch off, then turn the main power switch OFF.
11. Turn the machine power ON.
12. Make sure the ROM number and firmware version in area [a] of the diagnostic report are the same as those in area [b].

    - [a]: “ROM Number/Firmware Version” – “HDD Format Option”
    - [b]: “Loading Program” - “GW**5**a_zoffy**m”**

Diagnostic Report:	“ROM No. / Firmware Version” [a]	“Loading Program” [b]
DataOverwriteSecurity Unit	HDD Format Option: **D3775912A / 1.01m**	**GW5a_zoffym: D3775912A / 1.01m**

13. Push [User Tools] and select System Settings> Administrator Tools> Auto Erase Memory Setting> On.

14. Exit from User Tools mode.



15. Check the display and make sure that the overwrite erase icon [A] is displayed.
16. Make a Sample Copy.
17. Check the overwrite erase icon.
    - The icon [B] changes to [C] when job data is stored in the hard disk.
    - The icon goes back to its usual shape [B] after this function has completed a data overwrite operation to the hard disk.
18. Do SP5990-005 (SP print mode - Diagnostic Report).
19. Exit SP mode.

⇒ 20. Step 20 was unnecessary and as a result deleted.

1.22 BROWSER UNIT TYPE D (D377)

1.22.1 ACCESSORIES

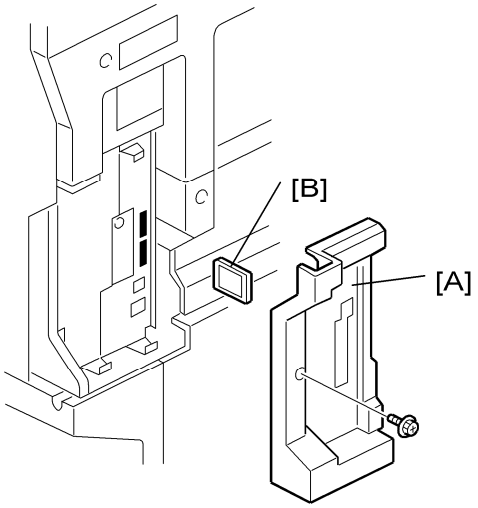
Check the accessories and their quantities against the table below.

Description	Qt'y
1. Browser Unit D377 SD Card	1

1.22.2 INSTALLATION

This option requires a HDD unit.

1. Switch the machine off.
2. Remove the plastic application cover [A] (☞ x1).
3. Insert the browser SD card [B] into SD card Slot 1 (upper).
4. Turn the machine on.
5. Push [User Tools]> [Login/Logout].
6. Login with the administrator user name and password.
7. Touch "Extended Feature Settings" twice.
8. Touch "SD Card" then touch the "Browser" line.
9. Under "Install to:" touch "Machine HDD"> "Next".
10. When you see "Ready to Install", check the information on the screen to confirm your previous selection.
11. Touch "OK". You will see "Installing…" then "Completed".
12. Touch "Exit" twice to return to the copy screen.
13. Remove the SD card from the SD card slot.



d017i502

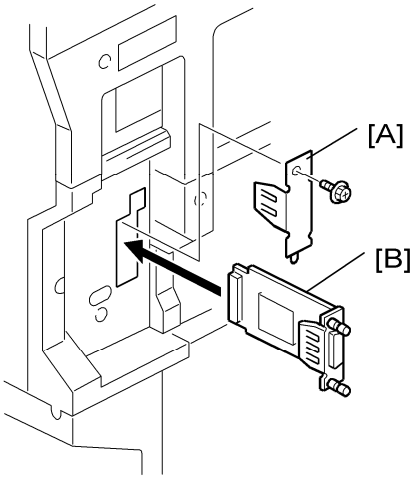
1.23 FILE FORMAT CONVERTER TYPE E (D377)

1.23.1 ACCESSORY CHECK

Check the accessories and their quantities against this list:

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

1.23.2 INSTALLATION



d017i503

1. Switch the machine off.
2. Remove the plastic application cover (☞ x1).
3. Remove the board slot cover [A] (☞ x2).
4. Touch a metal surface to discharge any static electricity from your hands.
5. Set the interface board [B] in the open slot.
6. Confirm that the board is inserted completely, then fasten it (☞ x 2).
7. Turn the machine power on.
8. ⟹ Scan a document to the Document Server.
9. ⟹ Access Web Image Monitor and confirm that the document can be downloaded.

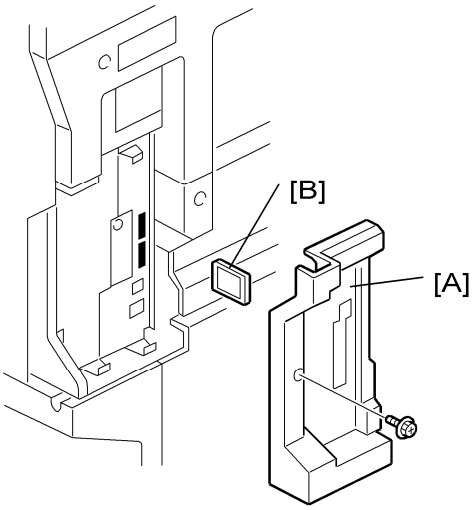
⇒1.24 VM CARD TYPE F (D377)

1.24.1 ACCESSORIES

Check the accessories and their quantities against the table below.

Description	Q'ty
1. VM SD Card	1
2. Decal	1

1.24.2 INSTALLATION



d017i502

1. Switch the machine off.
2. Remove the plastic application cover (☞ x1).
3. Remove the SD card slot cover [A] (☞ x1).
4. Insert the SD card [B] into SD Slot 2 (lower).

Important

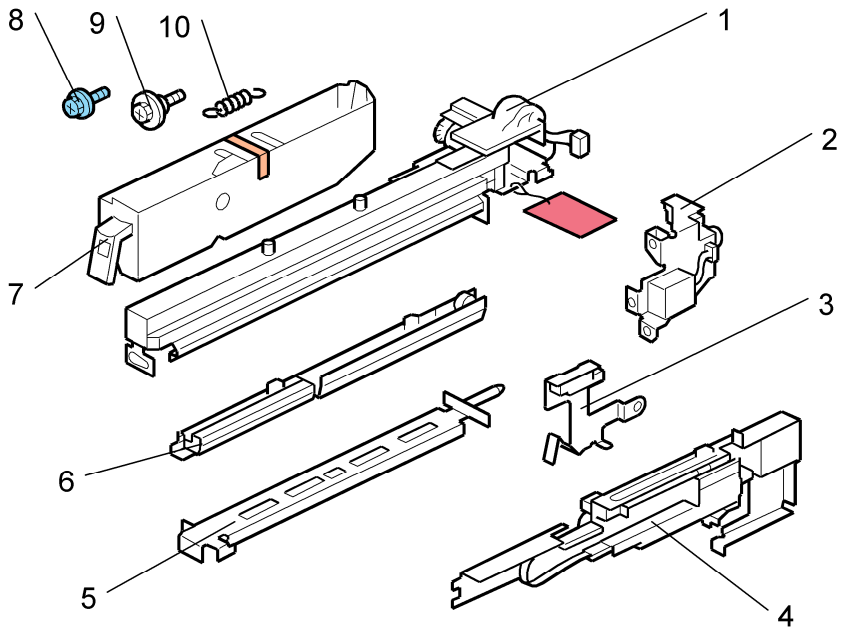
- This SD card must be inserted into Slot 2, the lower slot.

⇒1.25 PUNCH UNIT (B807)

1.25.1 COMPONENT CHECK

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

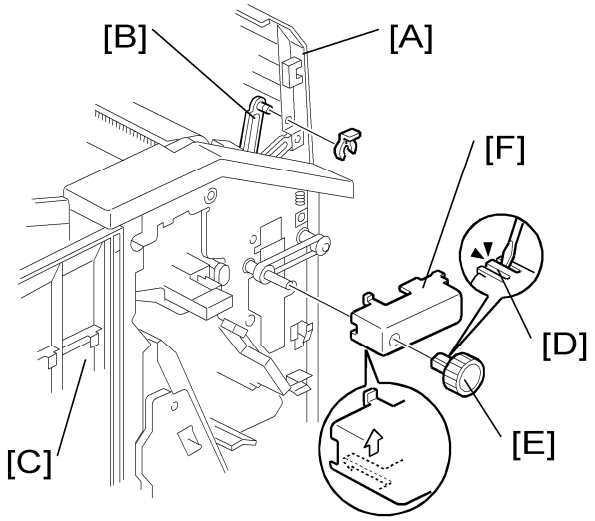
No.	Description	Q'ty
1	Punch Unit	1
2	Punch Drive Motor	1
3	Hopper Full Sensor Arm	1
4	Sub-scan Registration Sensor Unit	1
5	Punch Unit Stay	1
6	Sub-scan Registration Sensor Guide	1
7	Hopper	1
8	Screw	1
9	Step Screw	1
10	Spring	1



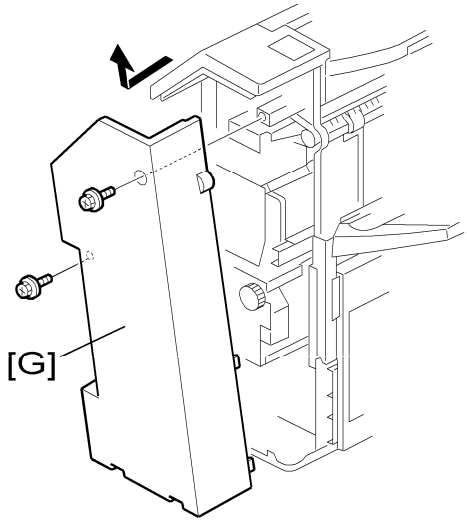
1.25.2 INSTALLATION

⚠CAUTION

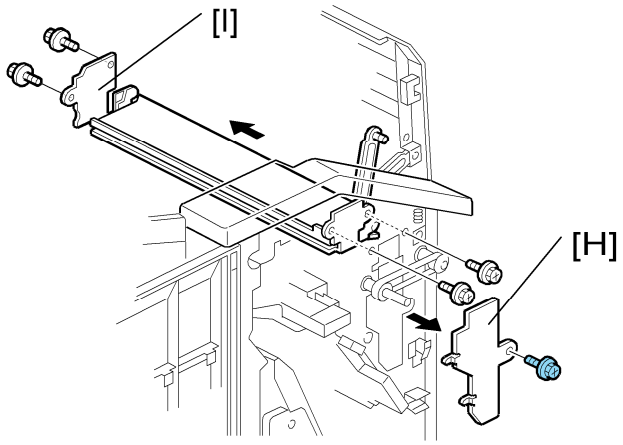
- **Unplug the main machine power cord before starting the following procedure. If the 1000-sheet booklet finisher has been installed, disconnect it and pull it away from the machine.**



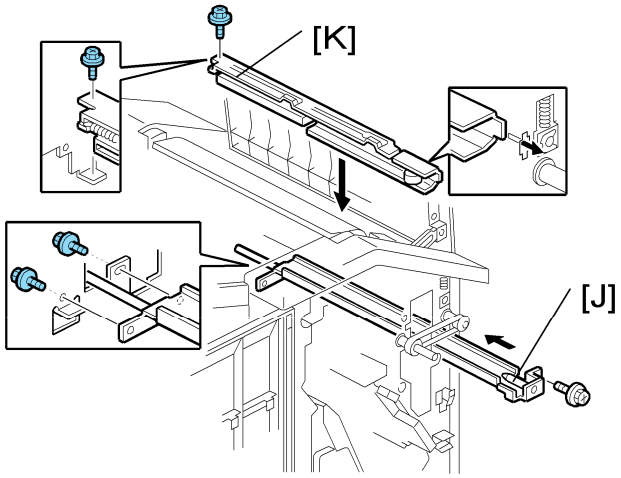
1. **If the finisher is connected to the machine, disconnect it.**
2. **Open the top cover [A] and then release the guide arm [B] (x 1).**
3. **Open the front door [C].**
4. **Pull the hook [D] up then remove the knob [E].**
5. **Timing belt cover [F].**



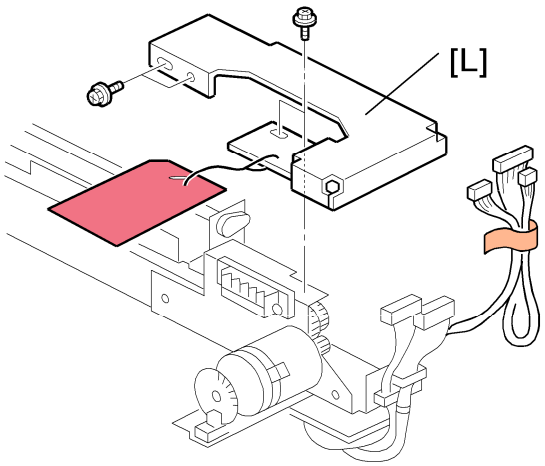
6. **Rear cover of the 1000-sheet booklet finisher [G] (x 2).**



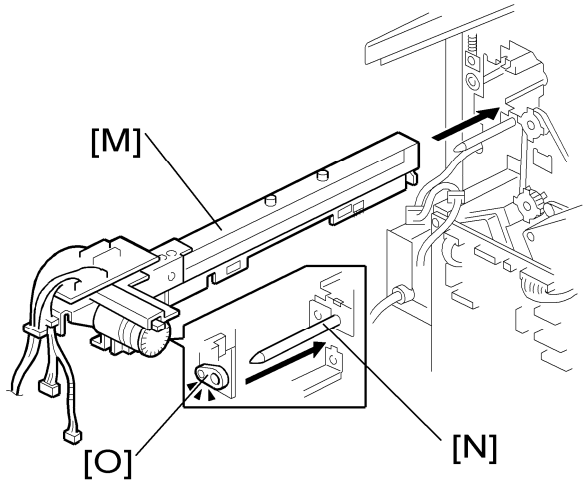
7. **Cover bracket [H] (x 1)**
8. **Remove the paper guide plate [I] from the rear side (x 4).**



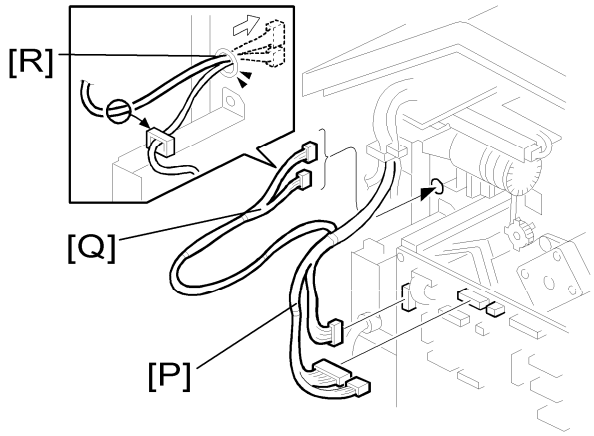
9. **Install the punch unit stay [J] from the front side (x 3).**
10. **Install the sub-scan registration sensor guide [K] from the top (x 1).**



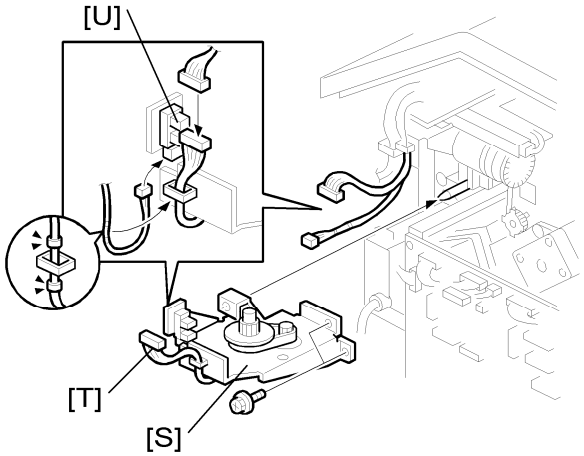
11. Remove the bracket [L] from the punch unit (x 1).



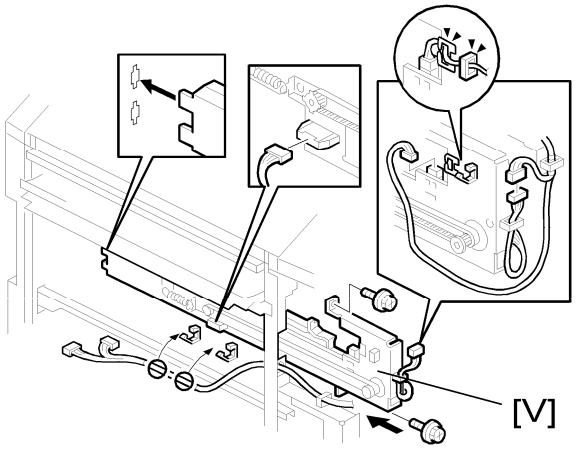
12. Install the punch unit [M] along the punch unit stay from the rear side.
13. Make sure to put the punch unit stay pin [N] through the hole



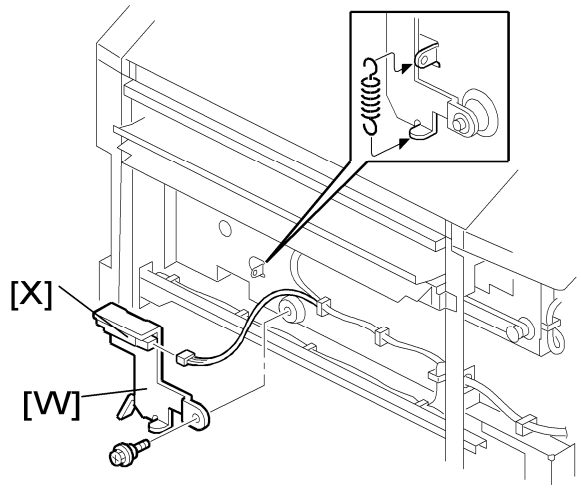
14. Connect the harnesses [P] to the main PCB.
15. Put the harnesses [Q] through the hole [R] in the rear frame (x 1).



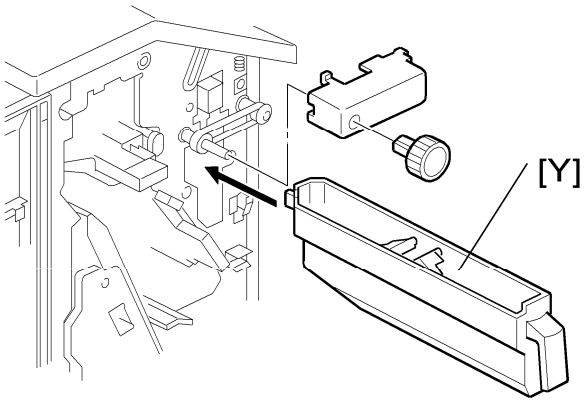
16. **Install the punch drive motor [S] on the rear frame (x 2).**
17. **Connect the drive motor harness [T] to the harness from the punch unit (x 1).**
18. **Connect the home position sensor harness from the punch unit to the home position sensor [U].**



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



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



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

⇒1.26 MECHANICAL COUNTER

1.26.1 COMPONENT CHECK

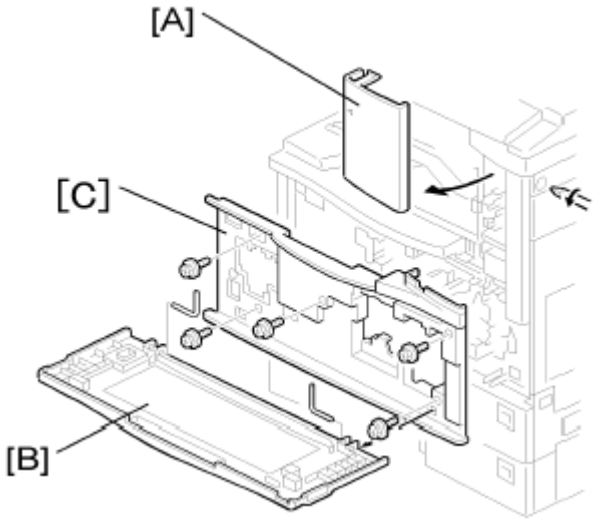
Check the quantity and condition of the components against the following list.

No.	Description	Q'ty
1	Mechanical Counter	1

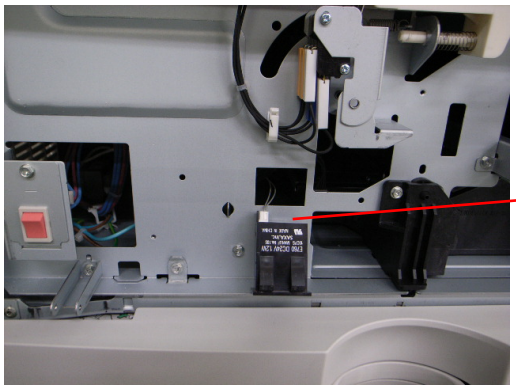
1.26.2 INSTALLATION

⚠CAUTION

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



1. Remove the front right cover [A]. (x 1, Hook x 1)
2. Remove the front cover [B] (L-brackets x2).
3. Remove the front inner cover [C] (x 5).



4. Connect the harness [D] to the mechanical counter.



5. Push the mechanical counter into the machine.
6. Reattach the covers.

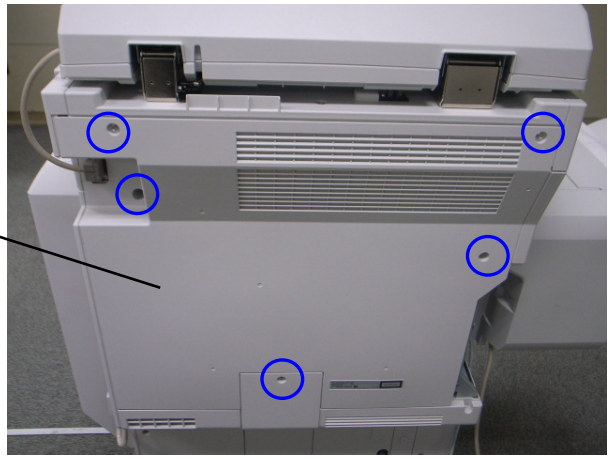
⇒1.27 KEY COUNTER INTERFACE UNIT (TYPE 1027)

1.27.1 INSTALLATION PROCEDURE

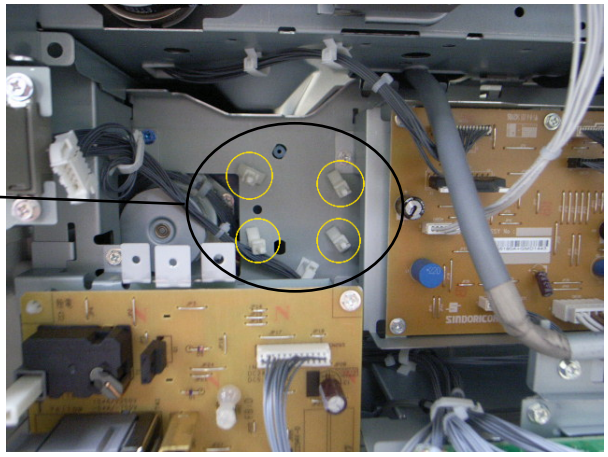
⚠CAUTION

- Disconnect the copier power cord before you start this procedure.

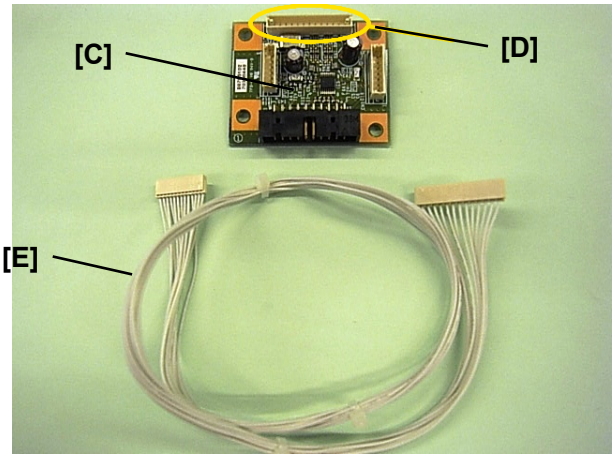
7. Remove the rear cover [A] (.x 5).



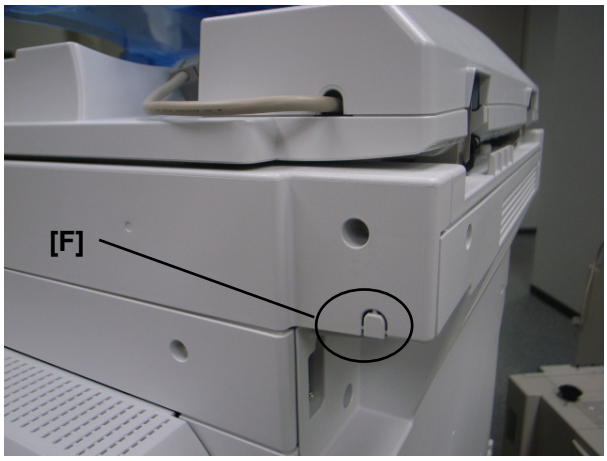
8. Attach the studs in the location [B] (Studs x 4).



9. Install the key counter interface board [C] on studs in location [B].
10. Connect the harness [E] to CN3 on the key counter interface board [D].



11. Connect the other terminal [E] of the harness to CN345 on the IOB (☞ x 1).
12. Cut off the part [F] of the right cover.
13. Connect the harness from the counter device to CN4 on the key counter interface board.
14. Reassemble the machine.



PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

2. PREVENTIVE MAINTENANCE

2.1 PM TABLE

Note

- The amounts mentioned as the PM interval indicate the number of prints.
- After carrying out PM, clear the maintenance counter (SP7-804).

Symbol key: C: Clean, R: Replace, L: Lubricate, I: Inspect

	EM	120K	240K	360K	NOTE
SCANNER/LASER OPTICS					
Reflector		C	C	C	Optics cloth
1st Mirror	C	C	C	C	Optics cloth
2nd Mirror	C	C	C	C	Optics cloth
3rd Mirror	C	C	C	C	Optics cloth
Scanner Guide Rails		C	C	C	Do not use alcohol.
Platen Sheet Cover	C	I	I	I	Replace the platen sheet, if necessary. Dry cloth or alcohol
Exposure Glass		C	C	C	Dry cloth or alcohol
Toner Shield Glass		C	C	C	Optics cloth
APS Sensor		C	C	C	Dry cloth or blower brush

	EM	120K	240K	360K	NOTE
AROUND THE DRUM					
Transfer/Separation		R	R	R	

PM Table

	EM	120K	240K	360K	NOTE
Unit					
ID Sensor		C	C	C	Perform the ID sensor initial setting (SP2-935) after cleaning (blower brush)

	EM	60K	120K	180K	NOTE
PCU					
Drum		R	R	R	Do SP2801. This initializes the developer and resets the TD and ID sensor outputs to their defaults. It also resets the PCU counter.
Charge Roller		R	R	R	
Cleaning Roller		R	R	R	
Cleaning Blade		R	R	R	
Pick-off Pawls		R	R	R	
Developer		R	R	R	

	EM	120K	240K	360K	NOTE
PAPER FEED					
Registration Rollers	C	C	C	C	Clean with water
Paper Feed Roller	C	R	R	R	Clean with water
Friction Pad	C	R	R	R	Dry cloth
Paper Feed Guides	C	C	C	C	Clean with alcohol.
Relay Rollers	C	C	C	C	Clean with water.
Bottom Plate Pad	C	C	C	C	Clean with water.
Registration Roller Mylar	C	C	C	C	Clean with water.

	EM	120K	240K	360K	NOTE
Dust collection box	C	C	C	C	Remove, empty, clean

	EM	120K	240K	360K	NOTE
FUSING UNIT AND PAPER EXIT					
Fusing Entrance and Exit Guide Plates		C	C	C	Clean with water or alcohol.
Hot Roller		R	R	R	Clean with water or alcohol.
Pressure Roller		R	R	R	
Fusing Thermistors		R	R	R	
Cleaning Roller		C	C	C	
Cleaning Roller Bushings		C	C	C	
Hot Roller Strippers		R	R	R	
Hot Roller and Pressure Roller Bushings	L	L	L	L	Grease Barrierta JFE5 5/2 (A0289300)
Paper Exit Guide Ribs		C	C	C	Clean with water or alcohol.
OTHERS					
Main Motor Drive Gear	L	I	I	I	Silicone Grease G501 (see 'Main Motor Drive Gear')

	EM	120K	240K	360K	NOTE
ADF (PM interval is measured in originals)					

PM Table

	EM	120K	240K	360K	NOTE
Pick-up Roller	C	R	R	R	Clean with water
Feed Belt	C	R	R	R	Clean with water
Separation Roller	C	R	R	R	Clean with water
Stamp		I	I	I	Replace if necessary
ADF Exposure Glass	C	C	C	C	Clean with alcohol
White Plate	C	C	C	C	Clean with alcohol
Platen Sheet	C	C	C	C	Clean with alcohol

	EM	120K	240K	360K	NOTE
PAPER TRAY UNIT					
Paper Feed Roller	C	R	R	R	Clean with water
Friction Pad	C	R	R	R	Dry cloth
Paper Feed Guides	C	C	C	C	Clean with alcohol.
Relay Rollers	C	C	C	C	Clean with water.
Bottom Plate Pad	C	C	C	C	Clean with water.
Relay Clutch		I	I	I	Replace if necessary
Paper Feed Clutch		I	I	I	Replace if necessary

	EM	120K	240K	360K	NOTE
LCT					
Paper Feed Roller		R	R	R	
Pick-up Roller		R	R	R	
Separation Roller		R	R	R	

	EM	120K	240K	360K	NOTE
Transport Rollers		C	C	C	Clean with water
Bottom Plate Pad		C	C	C	Clean with water
Relay Clutch		I	I	I	Replace if necessary
Paper Feed Clutch		I	I	I	Replace if necessary

	EM	120K	240K	360K	NOTE
1,000-sheet Finisher					
Rollers	C				Clean with water or alcohol.
Brush Roller	I	I	I	I	Replace if necessary.
Discharge Brush	C	C	C	C	Clean with a dry cloth
Sensors	C				Blower brush
Jogger Fences	I	I	I	I	Replace if necessary.

	EM	120K	240K	360K	NOTE
1,000-sheet Booklet Finisher					
Rollers	C				Damp cloth
Discharge Brush	C				Dry cloth
Sensors	C				Blower brush
Punch Kit					
Punch Chads	C				Discard chads.

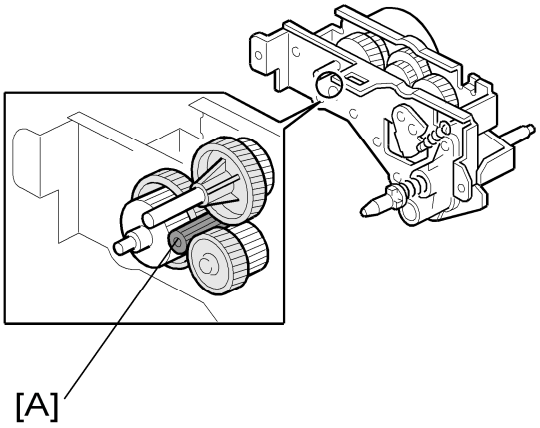
	EM	120K	240K	360K	NOTE
500-sheet Finisher					

PM Table

	EM	120K	240K	360K	NOTE
Rollers	C				Damp cloth
Discharge Brush	C				Dry cloth
Sensors	C				Blower brush

	EM	150K	300K	450K	NOTE
1-bin tray unit					
Rollers	C				Dry or damp cloth
Copy Tray	C				Dry or damp cloth
Sensors	C				Blower brush

2.2 MAIN MOTOR DRIVE GEAR



At every EM lubricate the main motor drive gear [A] with silicone grease G501.

REPLACEMENT AND ADJUSTMENT

REPLACEMENT AND ADJUSTMENT REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

3. REPLACEMENT AND ADJUSTMENT

3.1 SPECIAL TOOLS AND LUBRICANTS

3.1.1 SPECIAL TOOLS

No.	Part No.	Description	Q'ty	Availability
1	A0069104	Scanner Positioning Pins (4 pins/set)	1	Common – R-C3
2	A2929500	Test Chart S5S (10 pcs/set)	1	Common - General
3	VSSM9000	Digital Multimeter FLUKE 87	1	Common - General
4	A2309003	Adjustment Cam – Laser Unit	1	Common – R-C3
5	A2679002	Positioning Pin – Laser Unit	1	Common – R-C3
6	B6455010	SD-Card	1	Common - General
7	B6456800	USB Reader/Writer	1	Common - General
8	G0219350	Loop-back Connector	1	Common - General

3.1.2 LUBRICANTS

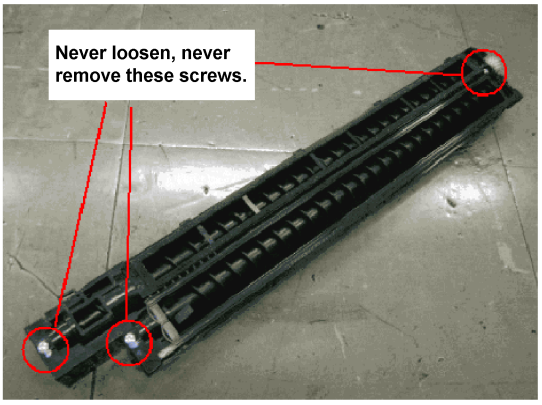
No.	Part No.	Description	Q'ty	Availability
1	A2579300	Grease Barrierta S552R	1	Common - General
2	52039502	Silicone Grease G-501	1	Common - General

3.2 GENERAL CAUTIONS

3.2.1 PCU (PHOTOCONDUCTOR UNIT)

The PCU consists of the OPC drum, development unit, charge roller, and cleaning unit. Follow the cautions below when handling a PCU.

- Never touch the drum surface with bare hands. When the drum surface is touched or becomes dirty, wipe it with a dry cloth or clean it with wet cotton. Wipe with a dry cloth after cleaning with the cotton.
- Never used alcohol to clean the drum; alcohol dissolves the drum surface.
- Store the PCU in a cool, dry place away from heat.
- Never expose the drum to corrosive gases such as ammonia gas.
- Never shake the used PCU. Doing so may cause toner and/or developer to spill out.
- Dispose of used PCUs in accordance with local regulations.
- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section. To prevent toner leakage, never loosen or remove the screws shown in the illustration below.



d017r901

3.2.2 TRANSFER ROLLER UNIT

- Never touch the transfer roller surface with bare hands.
- Take care not to scratch the transfer roller as the surface is easily damaged.

3.2.3 SCANNER UNIT

- Clean the exposure glass with alcohol or with glass cleaner to reduce the amount of static electricity on the surface of the glass.
- Use a blower brush or a cotton pad with water to clean the mirrors and lens.
- Do not bend or crease the exposure lamp flat cable.

- Do not disassemble the lens unit. Doing so will throw the lens and the copy image out of focus.
- Do not turn any of the CCD positioning screws. Doing so will throw the CCD out of position.

3.2.4 LASER UNIT

- Do not loosen the screws that secure the LD drive board to the laser diode casing. Doing so will throw the LD unit out of adjustment.
- Do not adjust the variable resistors on the LD unit, as they are adjusted in the factory.
- The polygon mirror and F-theta mirror are very sensitive to dust.
- Do not touch the glass surface of the polygon mirror motor unit with bare hands.

3.2.5 FUSING UNIT

- After installing the fusing thermistor, make sure that it is in contact with the hot roller and that the hot roller can rotate freely.
- Be careful not to damage the edges of the hot roller strippers or their tension springs.
- Do not touch the fusing lamp and rollers with bare hands.
- Make sure that the fusing lamp is positioned correctly and that it does not touch the inner surface of the hot roller.

3.2.6 PAPER FEED

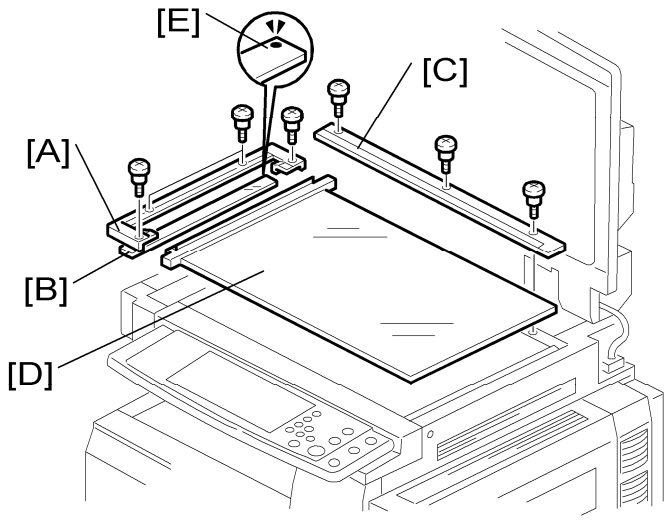
- Do not touch the surface of the paper feed roller.
- To avoid paper misfeeds, the side fences and end fences of the paper tray must be positioned correctly to align with the actual paper size.

3.2.7 OTHERS

- The toner bottle should be replaced while the main switch is on.
- If the optional tray, drum, and optics anti-condensation heaters have been installed, keep the copier power cord plugged in, even when the copier main switch is turned off. This keeps the heaters energized.

3.3 SCANNER UNIT

3.3.1 EXPOSURE GLASS

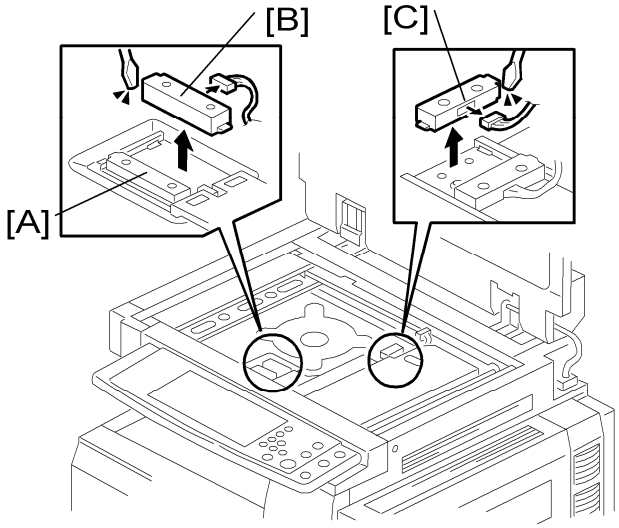


1. Glass cover [A] (x 4)
2. ARDF exposure glass [B]
3. Rear scale [C] (x 3)
4. Exposure glass with left scale [D]

Note

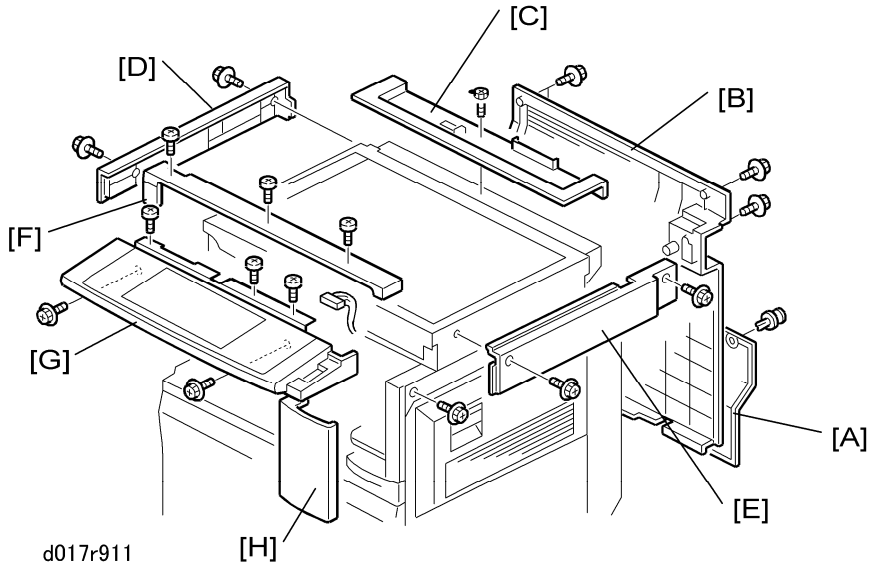
- Position the white marker [E] at the rear-left corner and the blue marker at the front-left corner when you reattach the ARDF exposure glass.

3.3.2 ORIGINAL LENGTH/WIDTH SENSORS



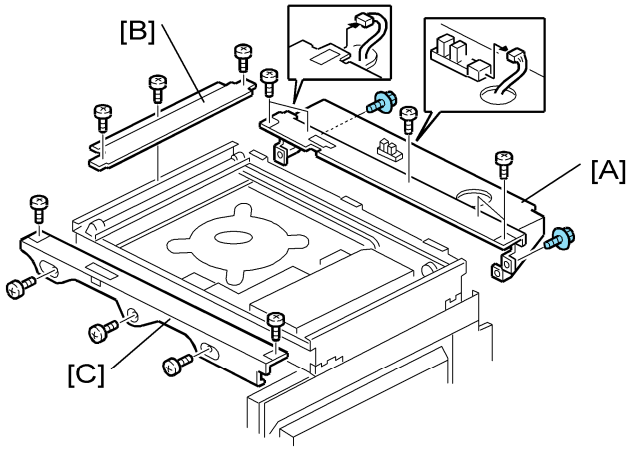
1. Exposure glass with left scale (☛ Scanner Unit)
2. Original length sensor bracket [A] (x 1, x1)
3. Original length sensors [B] (snap, x 1 each)
4. The number of the original length sensors depends on the model; 3 for EU, 2 for others.
5. Original width sensors [C] (snap, x 1, x1 each)

3.3.3 EXPOSURE LAMP



1. Remove:
   [A] Harness cover (x1)
   [B] Rear cover (x4)
   [C] Scanner rear cover (x1)
   [D] Scanner left cover (x2)
   [E] Scanner right cover (x2)
   [F] Scanner front cover (x3)
   [G] Operation panel (x5, x1)
   [H] Support cover (Tab x1)

Scanner Unit



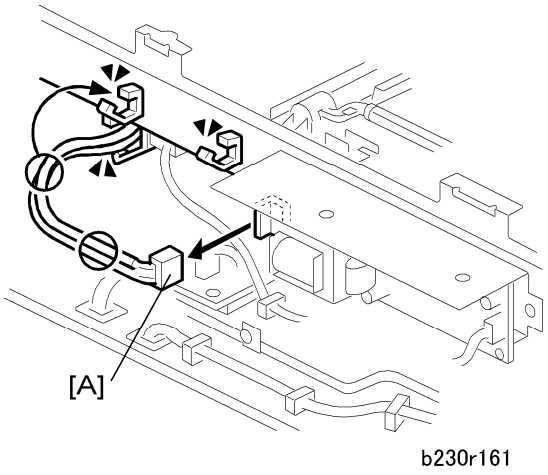
d017r915

2. Remove:

   [A] Rear stay (x7, x2)

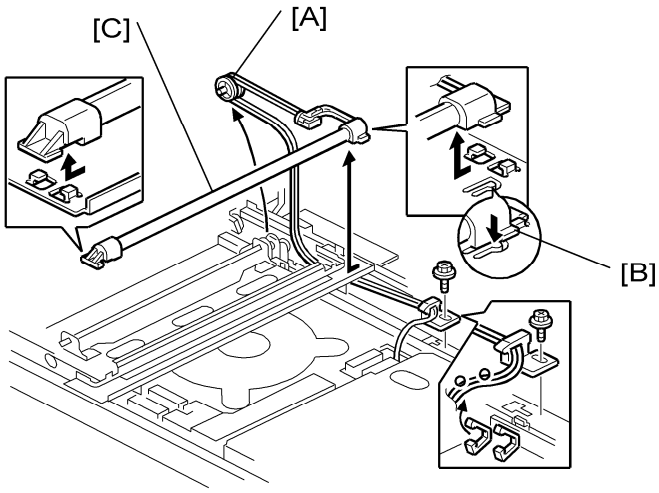
   [B] Left stay (x3)

   [C] Front stay (x5)



b230r161

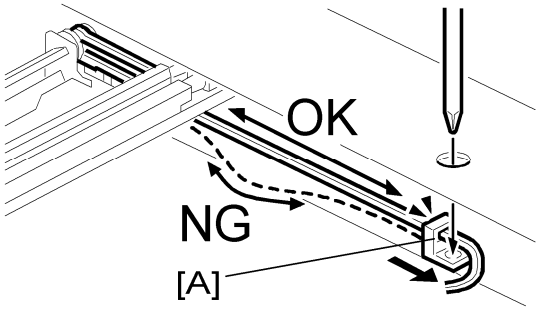
3. Disconnect the connector [A] (x2, 1).



b230r162

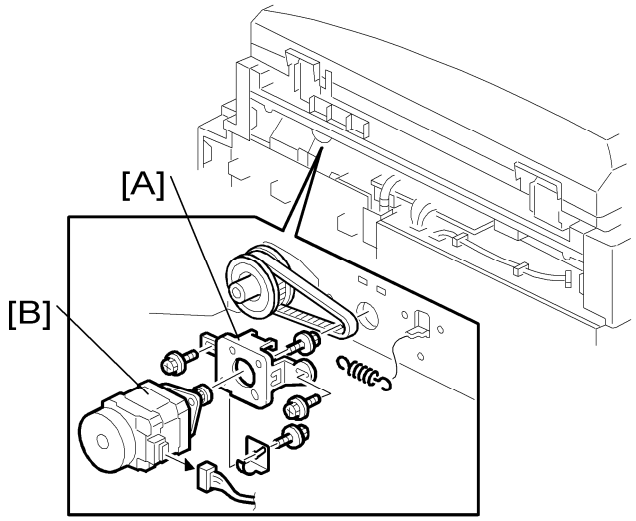
4. Remove the pulley [A].
5. Hold down the snap [B]
6. Remove the exposure lamp [C] (x2, x1, x1)

Reassembling



1. Run the cable so that there is no slack.
2. Slide clamp [A] to adjust the cable slack.

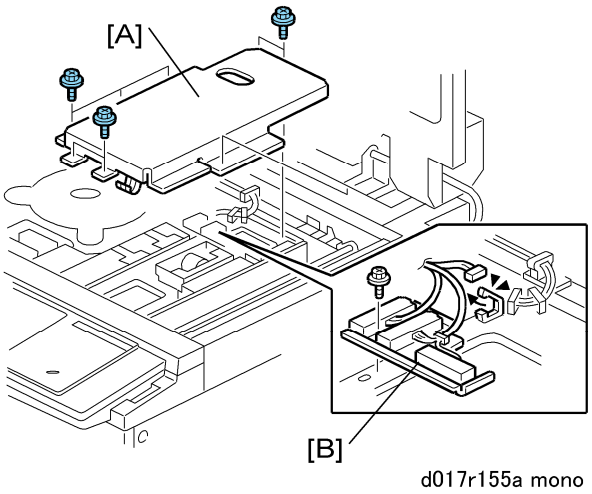
3.3.4 SCANNER MOTOR



1. Rear cover (☛ Rear Cover)
2. Scanner motor assembly [A] (x 2, x 1, spring x 1)
3. Scanner motor [B] (x 2)

3.3.5 SENSOR BOARD UNIT (SBU)

Monochrome Scanner Unit

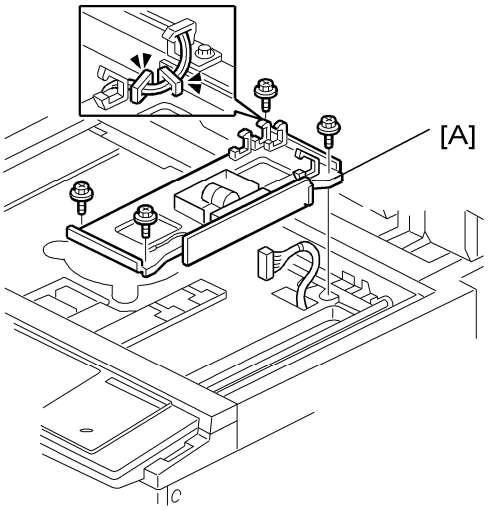


1. Remove:

- Exposure glass (☛Exposure glass)

  [A] SBU cover (x3)

  [B] Original length sensor bracket (x1, x1)

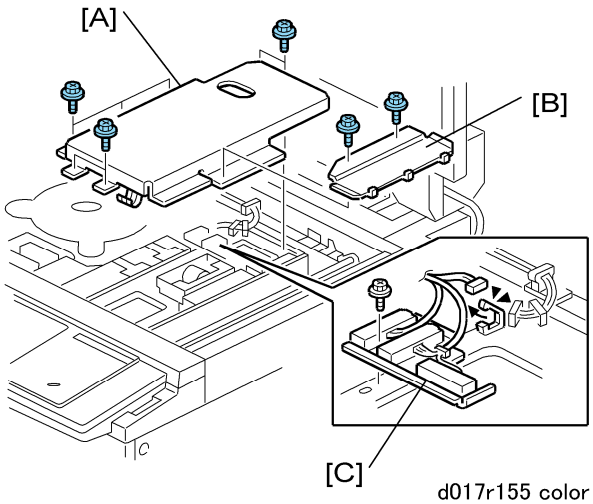


d017r156a mono

1. Remove:

   [A] Sensor board unit (x3, x3, x1)

Color Scanner Unit



d017r155 color

1. Remove:

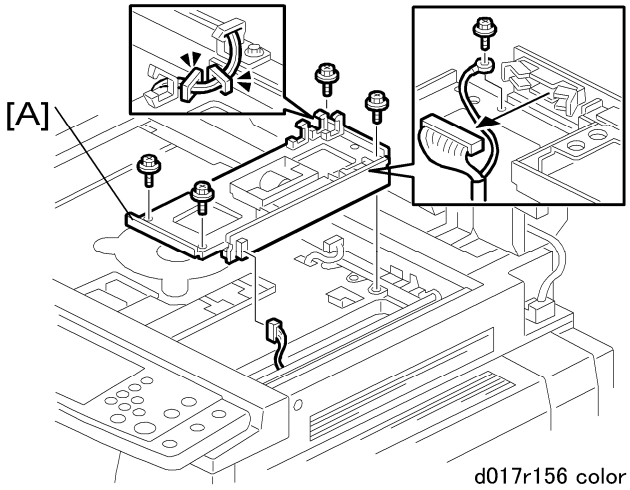
   - Exposure glass (☛Exposure glass)

   [A] SBU cover (x3)

   [B] Cover (x2)

   [C] Original length sensor bracket (x1, x1)

Scanner Unit



1. Remove:
   [A] Sensor board unit (x 4, x 1, x 2)

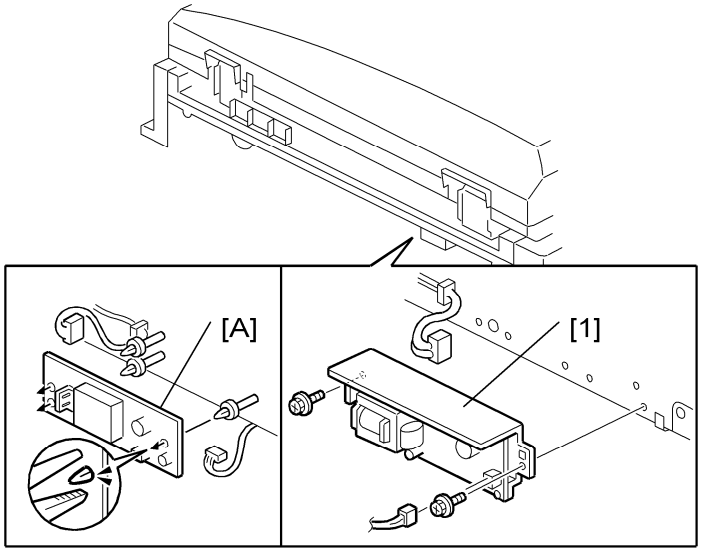
When reassembling

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

- SP4–008 (Sub Scan Mag)
- SP4–010 (Sub Mag Reg.)
- SP4–011 (Main Scan Reg)
- SP4–688 (DF: Density Adjustment). This SP code adjusts the density level if the ID of outputs made in the DF and Platen mode is different.

For more details, see Image Adjustment: Scanning.

3.3.6 EXPOSURE LAMP STABILIZER



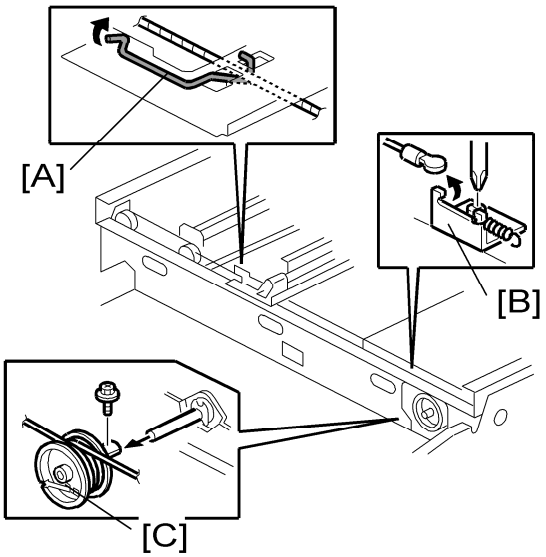
1. Remove:
   - Rear cover (☛Rear Cover)

   Exposure lamp stabilizer [A] (Standoff x1, 🖐 x 2) (Monochrome Scanner Unit)

   -or-

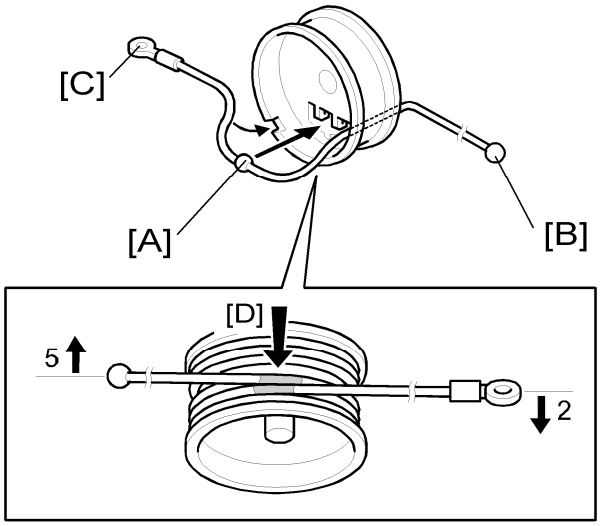
   Exposure lamp stabilizer [1] (🔩 x 2, 🖐 x 2) (Color Scanner Unit)

3.3.7 FRONT SCANNER WIRE



1. Exposure glass (☛ Exposure Glass)
2. Front frame (☛ Exposure Lamp)
3. Front scanner wire clamp [A]
4. Front scanner wire bracket [B] (🔩 x 1)
5. Front scanner wire and scanner drive pulley [C] (🔩 x 1)

Reinstalling the Front Scanner Wire

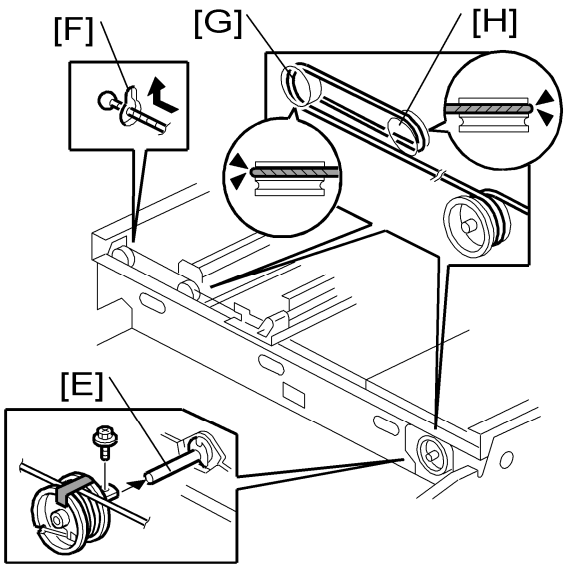


Scanner Unit

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

Note

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

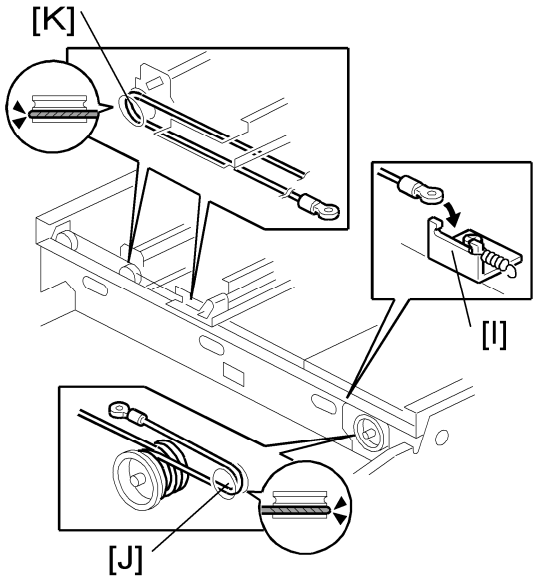


4. Install the drive pulley on the shaft [E].

Note

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

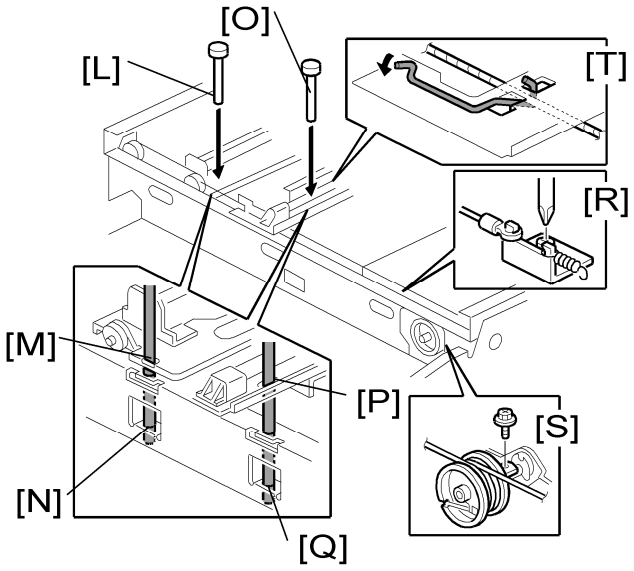
5. Insert the left end into the slit [F]. The end should go via the rear track of the left pulley [G] and the rear track of the movable pulley [H].



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

Note

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



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

Scanner Unit

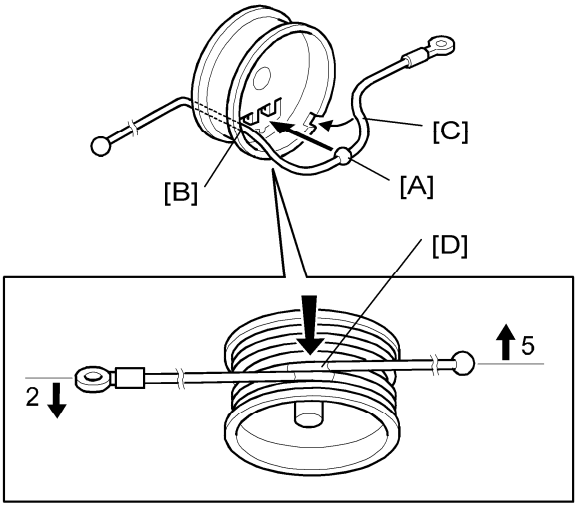
11. Screw the scanner wire bracket to the front rail [S].
12. Install the scanner wire clamp [T].
13. Pull out the positioning pins.

Note

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

3.3.8 REAR SCANNER WIRE

Reinstalling the Rear Scanner Wire



d017r164a

1. Position the center ball [A] in the middle of the forked holder.
2. Pass the left end (with the ball) [B] through the drive pulley notch.
3. Pass the right end (with the ring) [C] through the drive pulley notch.
4. Wind the left end [B] clockwise (from the machine front) five times.
5. Wind the right end [C] counterclockwise twice.

Note

- The two red marks [D] come together after winding.. Attach the wire to the pulley with tape. This lets you easily handle the assembly at installation.

6. Install the drive pulley on the shaft.

Note

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

7. Install the wire.

Note

- The winding of the wire on the three pulleys at the rear of the scanner should be the same as the winding on the three pulleys at the front. This must show

as a mirror image.

- At the front of the machine, the side of the drive pulley with the two windings must face the front of the machine.
- At the rear of the machine, it must face the rear.

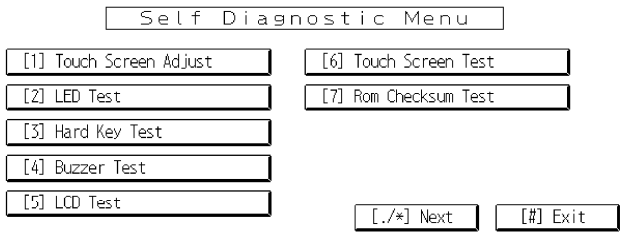
3.3.9 TOUCH PANEL POSITION ADJUSTMENT

The touch panel must be recalibrated if it is not functioning correctly or after replacing these items:

- Operation panel
- Controller board

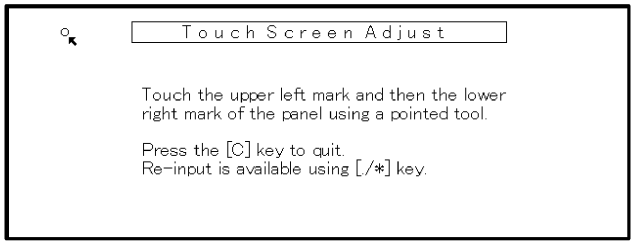
Do not use items [2] to [9] on the Self-Diagnostic Menu. These items are for design use only.

1. Press [Clear], press [1] [9] [9] [3], press ⓒ/ⓔ 5 times to open the Self-Diagnostics menu.



b178r548a

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



b178r549

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

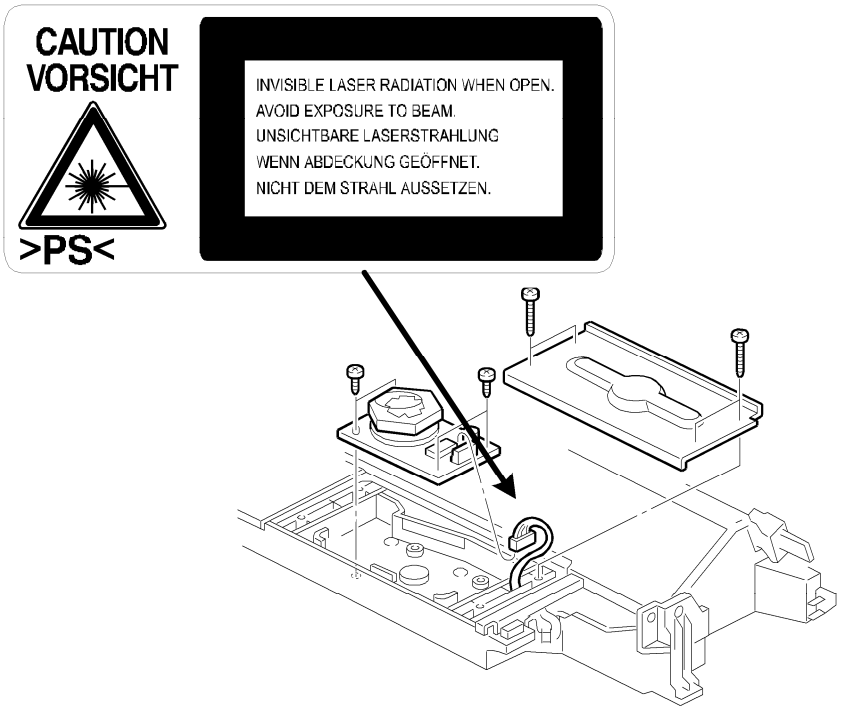
3.4 LASER UNIT

⚠WARNING

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section. Laser beams can seriously damage your eyes.

3.4.1 CAUTION DECAL LOCATIONS

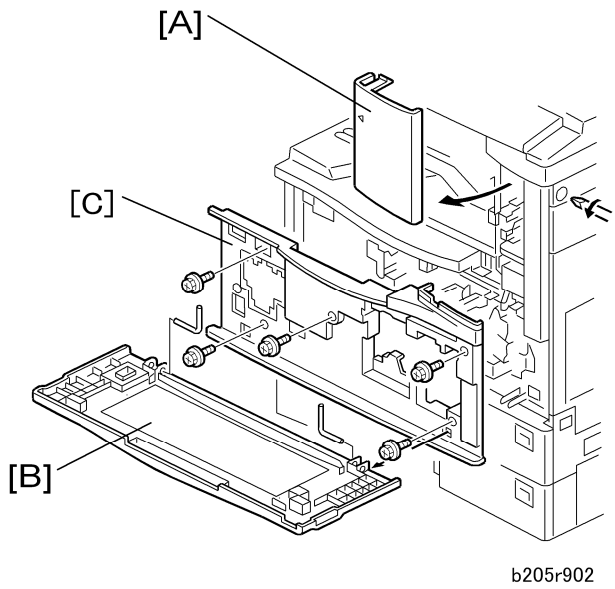
The caution decal is located in the laser section as shown below.



3.4.2 LASER UNIT

⚠WARNING

- Turn off the main power switch and disconnect the power cord before you start this procedure in this section. Laser beams can seriously damage your eyes.



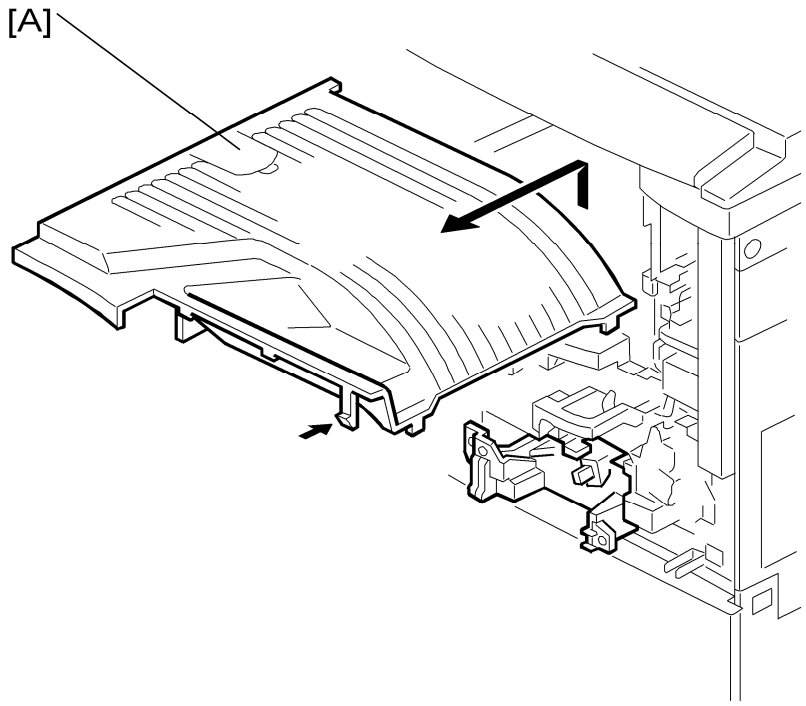
1. Remove:
   - 500-Sheet finisher
   - Bridge unit
   - Optional shift tray (or 1-Bin tray)
2. Remove:

   [A] Upper front cover (🔩 x1, Hook x1)

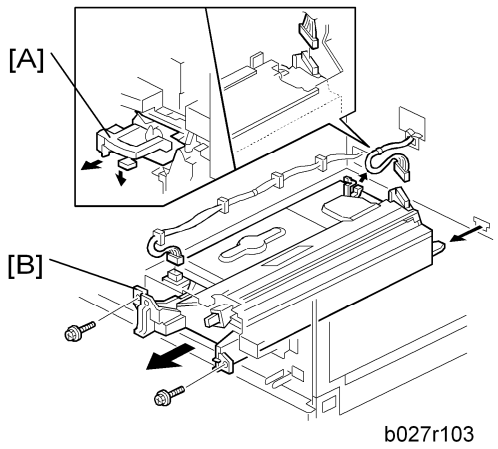
   [B] Front cover (Pins x2)

   [C] Inner cover (🔩 x5)

Laser Unit



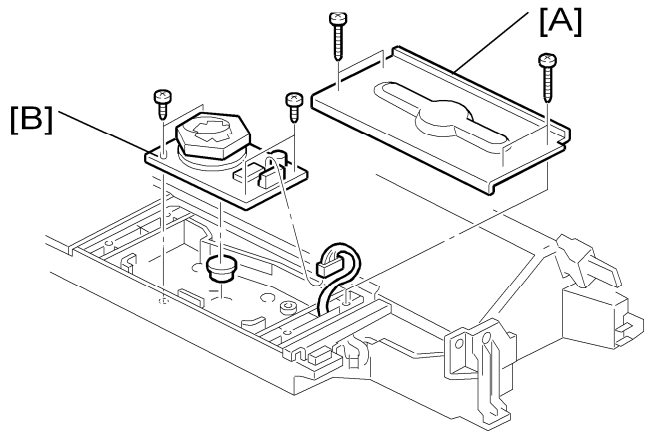
3. Remove:
   [A] Copy tray (Hook x1)



1. Remove:
   [A] Toner bottle
   [B] Laser unit (x2, x2)

3.4.3 POLYGON MIRROR MOTOR

1. Remove the laser unit (see 'Laser Unit').



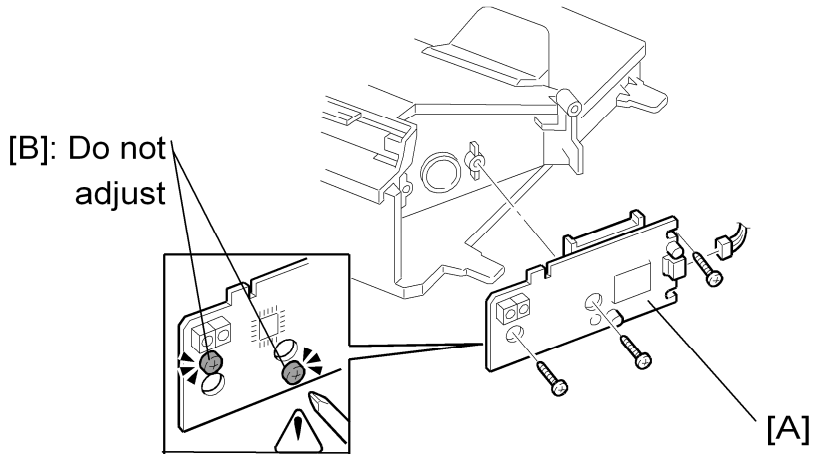
2. Remove the heat sink [A] (x4).
3. Replace the polygon mirror motor [B] (x4, x1).

Note

- When you install the new polygon mirror motor, do not touch the surface of the mirror with bare hands.

3.4.4 LD UNIT

1. Remove the laser unit (see 'Laser Unit').



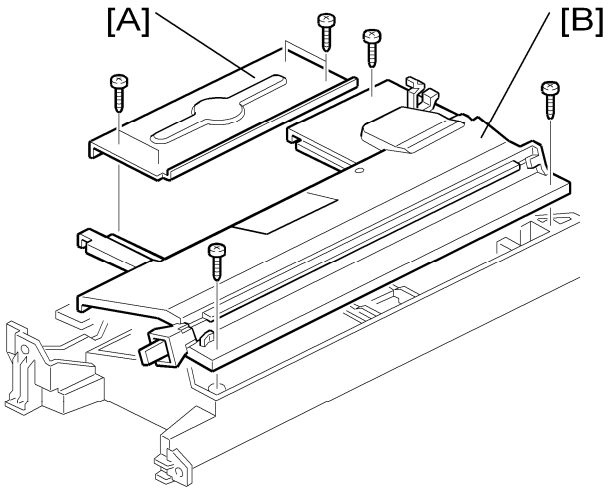
2. Replace the LD unit [A] (x3, x1).

Note

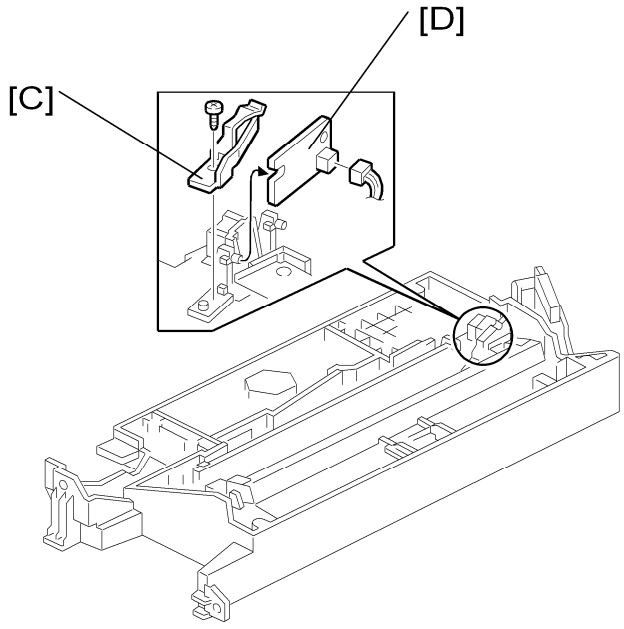
- Do not remove the screws [B].
- Do not touch any variable resistors on the LD unit.

3.4.5 LASER SYNCHRONIZATION DETECTOR

1. Remove the laser unit (see 'Laser Unit').



2. Remove the heat sink [A] (x4).
3. Remove the laser unit cover [B] (x3).

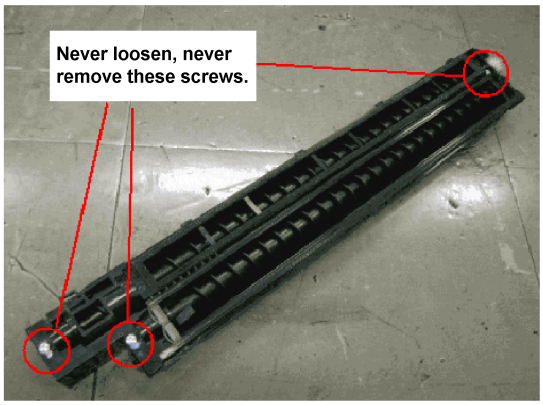


4. Remove the bracket [C] (x1).
5. Replace the laser synchronization detector [D] (x1).

3.5 PHOTOCONDUCTOR UNIT (PCU)

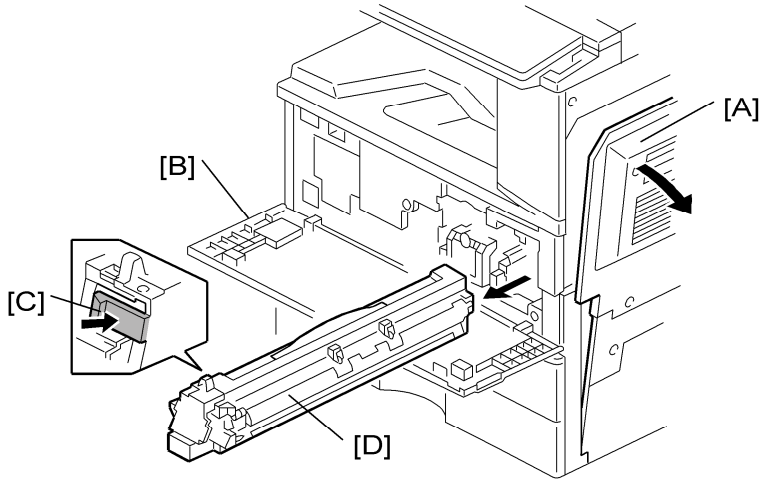
⚠CAUTION

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section. To prevent toner leakage, never loosen or remove the screws shown in the illustration below.



d017r901

3.5.1 PCU REMOVAL



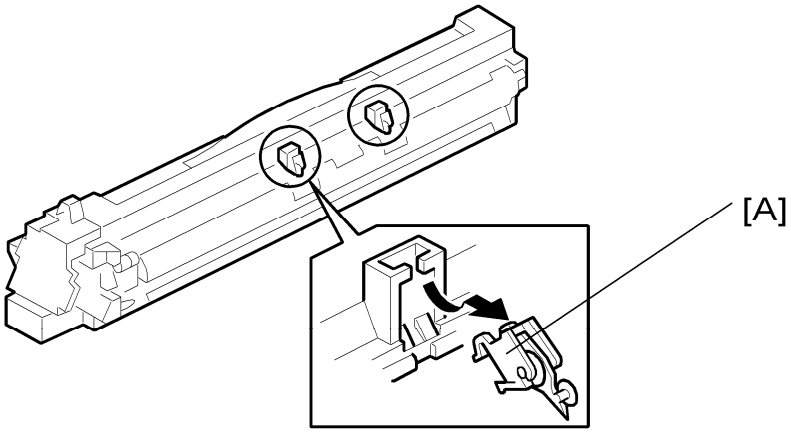
d017i920

1. Open the right cover [A] and front cover [B].
2. Pull the PCU [C] out a small distance while you push the release lever [D], then remove the PCU.

Note

- Do not touch the drum surface with bare hands.

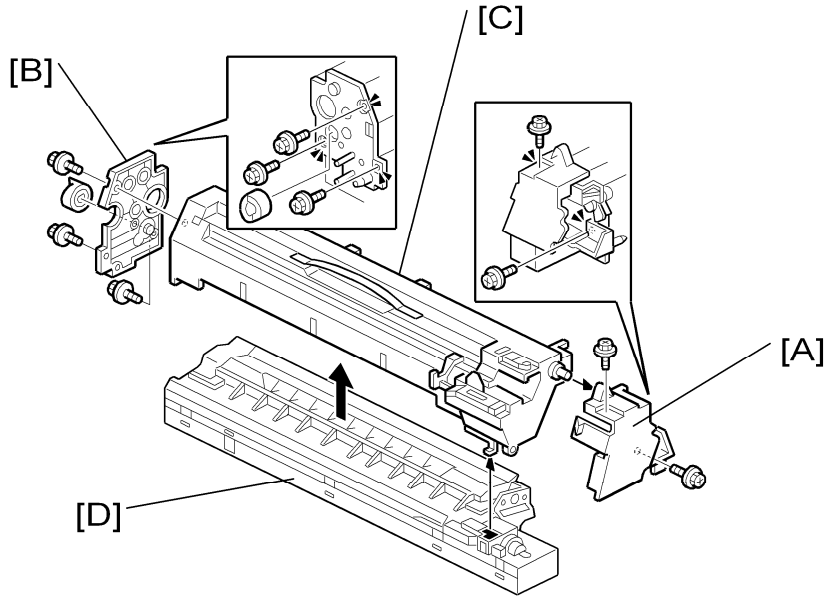
3.5.2 PICK-OFF PAWLS



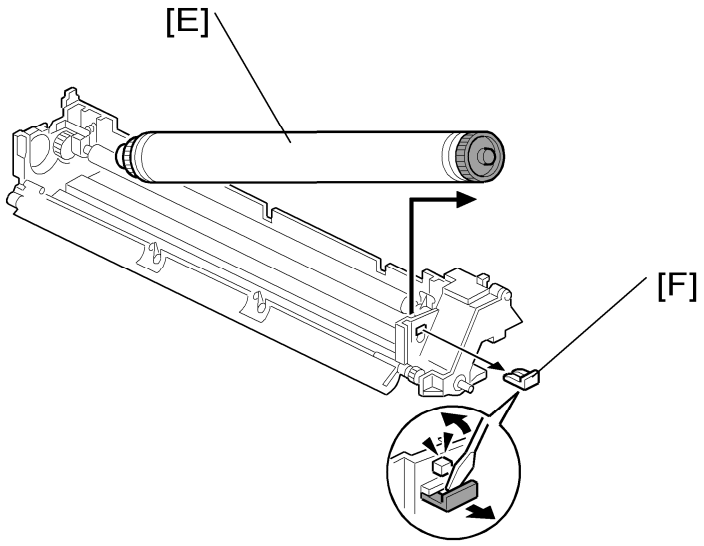
1. Remove the PCU. (See 'PCU Removal'.)
2. Hold the pawl [A] by its sides, pull it down and slowly twist it away from the PCU.

3.5.3 OPC DRUM

1. Remove the PCU. (See 'PCU Removal'.)



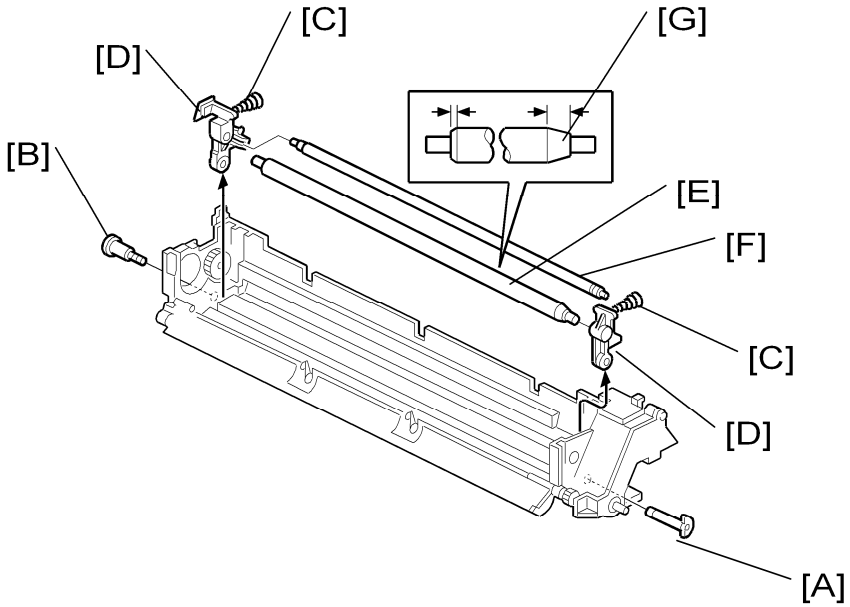
2. Front cover [A] (x2)
3. Rear cover [B] (x3, Coupling x1)
4. Top part [C]
5. Bottom part [D]



6. Drum [E] (White clip x1 [F])

3.5.4 CHARGE ROLLER, CLEANING ROLLER

1. Remove the PCU. (See 'PCU Removal'.)
2. Remove the OPC drum. (See 'OPC Drum'.)



3. Front stud [A]
4. Rear shoulder screw [B] (🔩 x1)
5. Release the front and rear springs [C].
6. Remove the roller assembly [D] (Springs x2, Arms x2, Rollers x2)
7. Charge roller [E]

Photoconductor Unit (PCU)

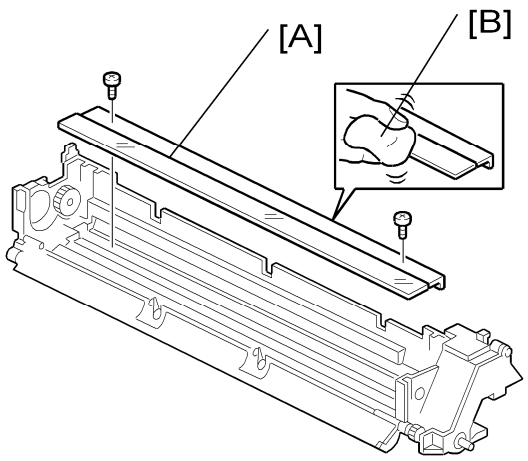
8. Cleaning roller [F]

Re-installation: Charge Roller

- Put the end of the charge roller with the wide bevel [G] at the front of the PCU.
- The ends of the cleaning roller [F] are the same (put either end at the front).
- Make sure that the front stud of the roller assembly is put in the correct position.
- Install the front stud before you tighten the rear shoulder screw. Make sure that the head of the stud is put in the correct position.

3.5.5 CLEANING BLADE

1. Remove the PCU. (See 'PCU Removal'.)
2. Remove the OPC drum. (See 'OPC Drum'.)
3. Remove the charge roller and cleaning roller. (See 'Charge Roller, Cleaning Roller').



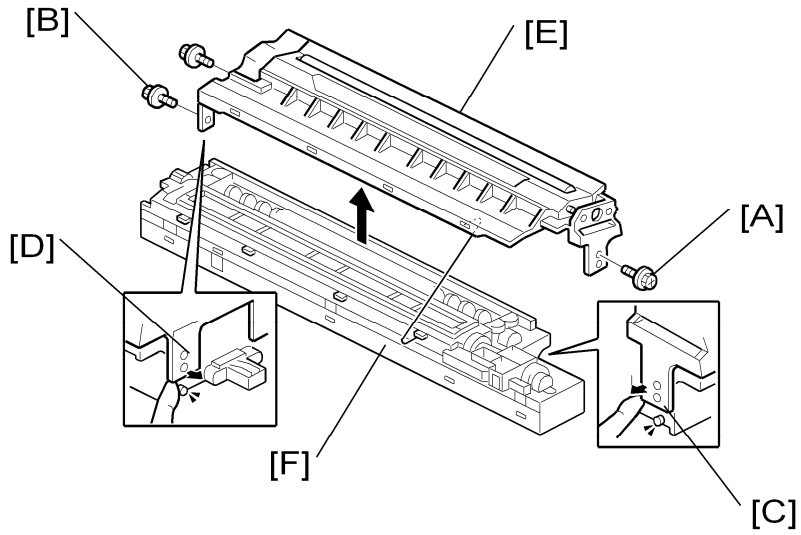
4. Cleaning blade [A] (x2)

Reinstallation: Cleaning Blade

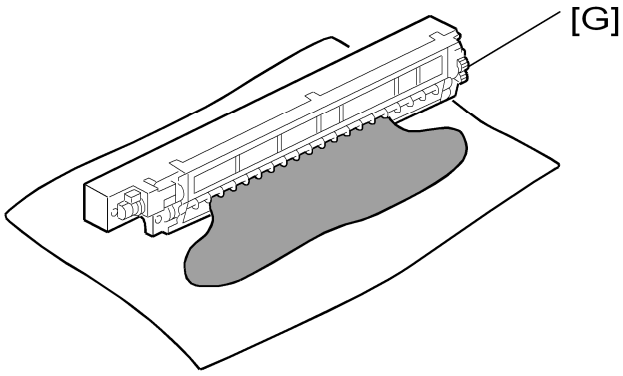
- To prevent damage to the new cleaning blade and OPC drum, apply some toner to the edge of the new blade [B].
- Install the new blade. Remove some toner from the edge of the old blade with your finger, and apply it evenly along the full length of the new blade.

3.5.6 DEVELOPER

1. Spread the vinyl sheet provided with the developer kit on a flat surface.
2. Separate the top and bottom parts of the PCU. (See 'Charge Roller, Cleaning Roller').
3. Set the bottom on the vinyl sheet.

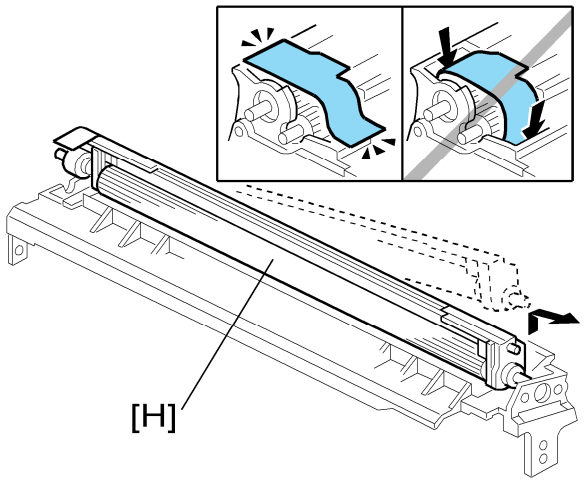


4. Remove the front screw [A] (x1)
5. Remove the rear screws [B] (x2).
6. Release the front tab [C].
7. Release the rear tab [D].
8. Separate the top [E] and bottom [F] of the development unit.



9. Turn the gears [G] to remove the developer from the bottom half.

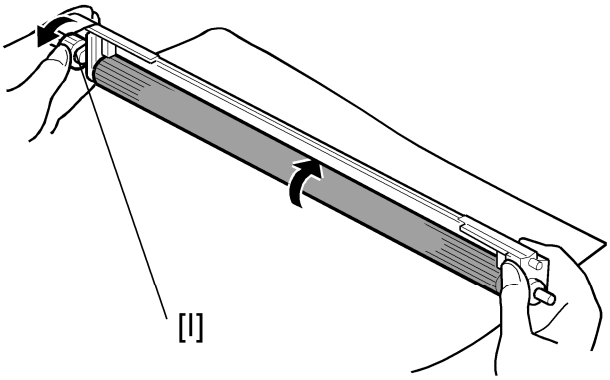
Photoconductor Unit (PCU)



10. Remove the development roller [H] from the development unit.

Important

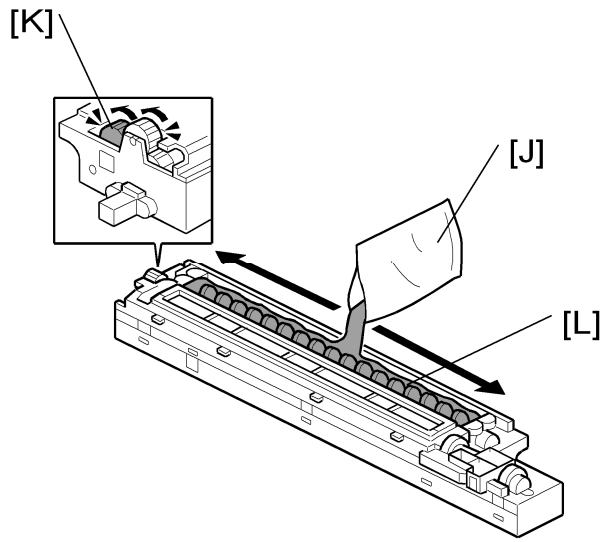
- At reinstallation, make sure that the mylar is positioned as shown.



11. Turn the development roller gear [I] to remove toner from around the development roller.
12. Assemble the development unit.

Important

- Dispose of the used developer according to the local laws and regulations regarding the disposal of such items.



13. Open the developer pack [J]
14. While turning the black gear [K], slowly move the pack left and right and pour half of the developer over the auger [L].
15. Continue to rotate the black gear until the developer is level.
16. While continuing to turn the black gear, slowly move the pack left and right and pour the remaining half of the developer over the augur until the developer is level.

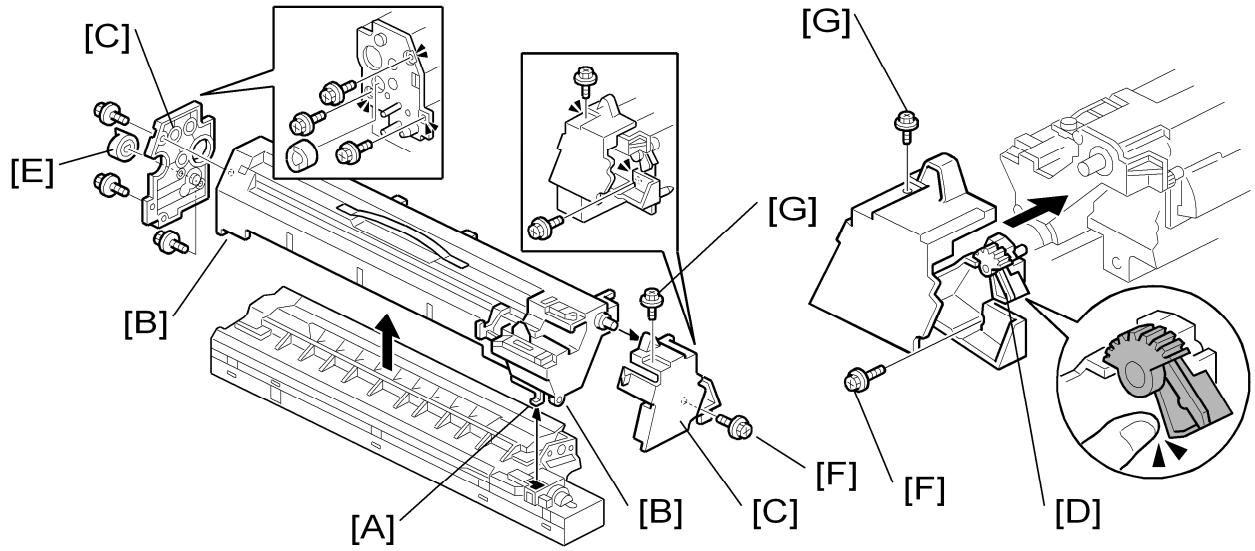
Important

- Be careful. Do not spill developer on the gears or sponges.
- If you accidentally spill developer on the gears or sponges, remove it with a magnet or the tip of a magnetized screwdriver.

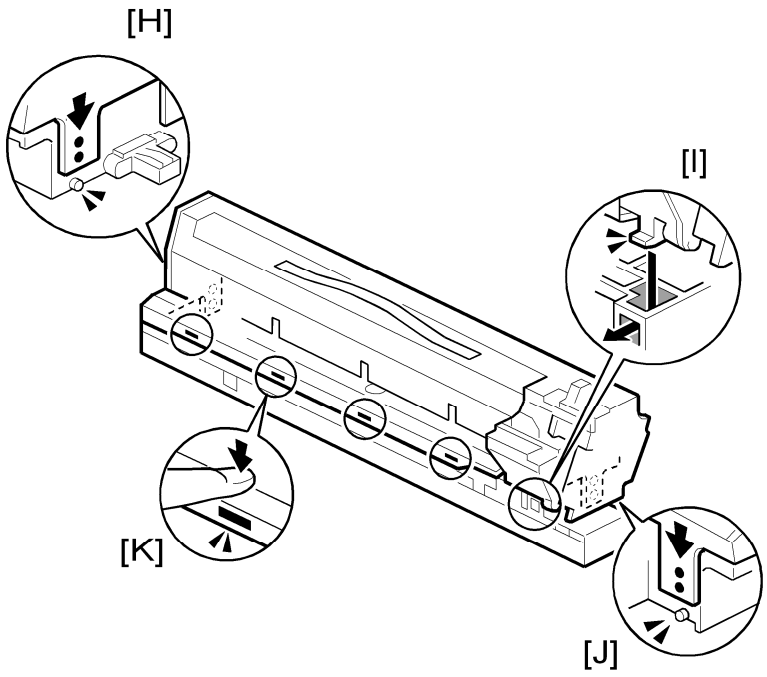
Photoconductor Unit (PCU)

PCU Reassembly

Reassemble the PCU in this order:



1. Connect the pawl [A]
2. Frame pawls [B], front and rear
3. Set the rear cover and front cover [C]
   - Never touch the lever [D] until after the top screw has been fastened.
4. Screws (x3), coupling x1 [E]
   - Never press down on the top of the PCU when you reattach the rear or front cover.
5. Lower screw (x1) [F]
   - Always install the lower screw first to maintain the correct gap between the rollers.
6. Top screw (x1) [G]
   - Lift and lower the lever [D] to make sure that the shutter opens fully and operates smoothly.



7. Make sure that all of the holes and tabs on are engaged at [H], [I], [J], and [K]. Then push down to lock the tabs on the front and rear end of the PCU.
8. Make sure that the holes for the screws on the front and rear end of the PCU are aligned correctly. If the holes are not aligned correctly, make sure that the tabs at the front, rear, and left side of the PCU are engaged correctly.

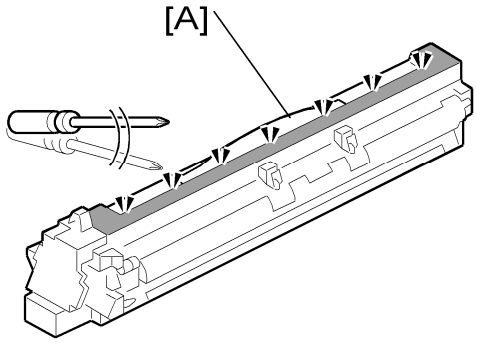
3.5.7 AFTER REPLACEMENT OF PCU COMPONENTS

Do this procedure after you replace the PCU components and developer.

1. Assemble the PCU and install it in the machine.
2. Turn the machine on.
3. If you replaced developer, go into the SP mode and do SP2801 (Developer Initialization).
4. Make 5 sample copies.
5. Check the copies.
   - If the copies are clean (no black dots), the replacement is completed.

   -or-
   - If you see black dots of toner that fell on the copies, go to the next step.
6. Remove the PCU from the machine.

Photoconductor Unit (PCU)



7. Lightly tap the top of the PCU [A] with a screwdriver at 8 locations. These locations must be at equal intervals. Tap 2 or 3 times at each location, to make the toner fall into the development section.
8. Install the PCU in the machine.
9. Turn the machine on, and close the front door. After the machine turns the development roller for 10 seconds, go to the next step.
10. Open and close the door two more times. The total rotation time is 30 seconds.
11. If you replaced PCU components:
    - If A4/8½" x11" paper is installed, make 4 copies or prints.
    - If A3/11" x 17" paper is installed, make 2 copies or prints.
    - To make solid black prints, use SP2902 Pattern #8.

Note

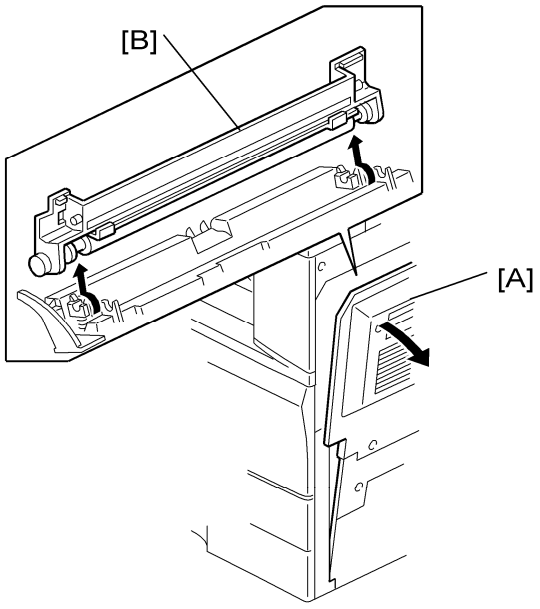
- This step is not necessary if only the developer was replaced.

3.6 TRANSFER UNIT

⚠CAUTION

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

3.6.1 TRANSFER ROLLER UNIT



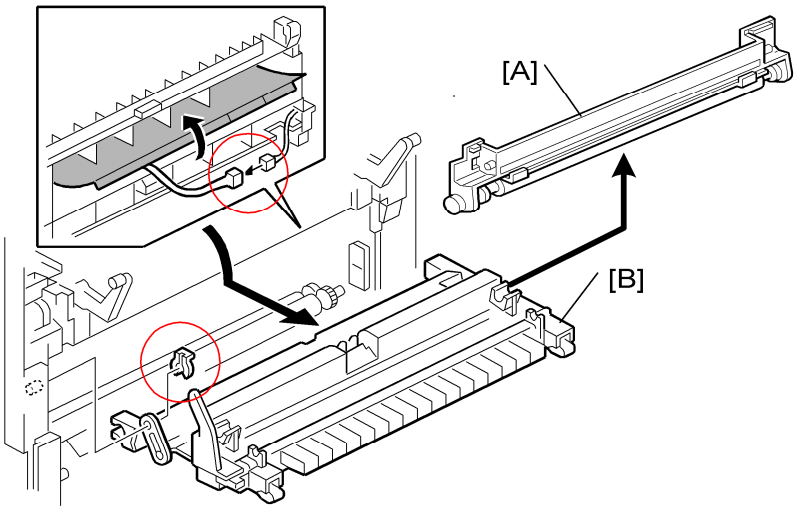
d017r929

1. Open the right cover [A].
2. Remove the transfer roller unit [B] (Hook x1).

Note

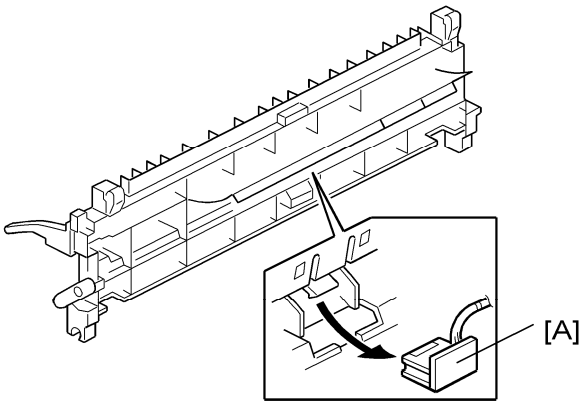
- Do not touch the transfer roller surface.

3.6.2 IMAGE DENSITY SENSOR



d071r930

1. Open the right cover.
2. Remove:
   [A] Transfer roller
   [B] Roller guide (x1, x1)



d017r931

3. Remove:
   [A] Image density sensor (x1).
4. Initialize the new sensor with SP2935.

3.7 FUSING/EXIT

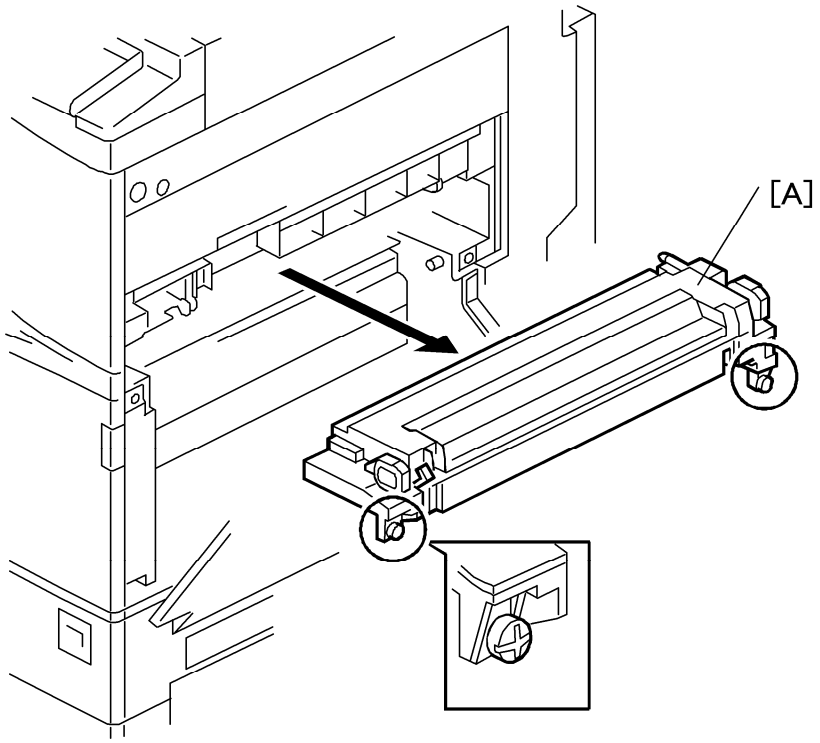
⚠CAUTION

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

3.7.1 FUSING UNIT

⚠CAUTION

- Allow time for the unit to cool before doing the following procedure.

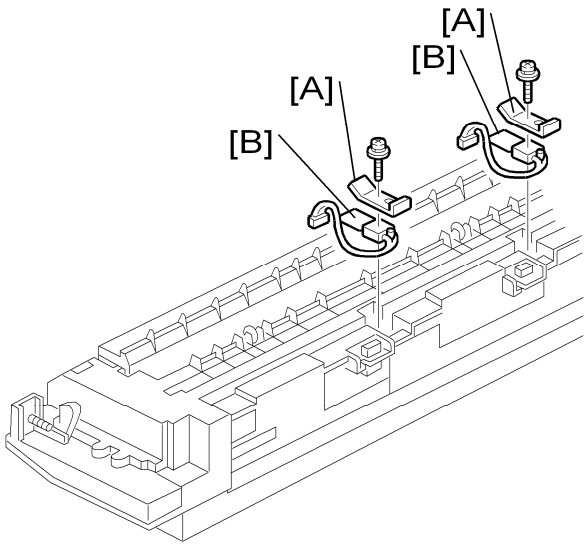


b205r932

1. Release the duplex unit, if it has been installed, and open the right cover.
2. Remove the fusing unit [A] (🔩 x2).

3.7.2 THERMISTORS

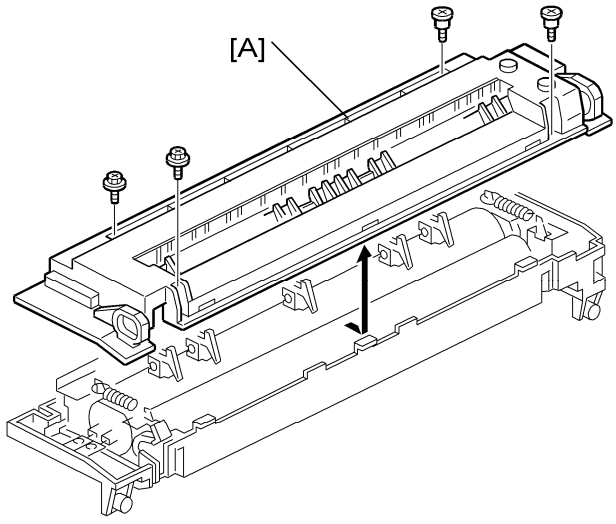
1. Remove the fusing unit. (See 'Fusing Unit'.)



2. Remove the plates [A] (x1 each).
3. Replace the thermistors [B] (x1).

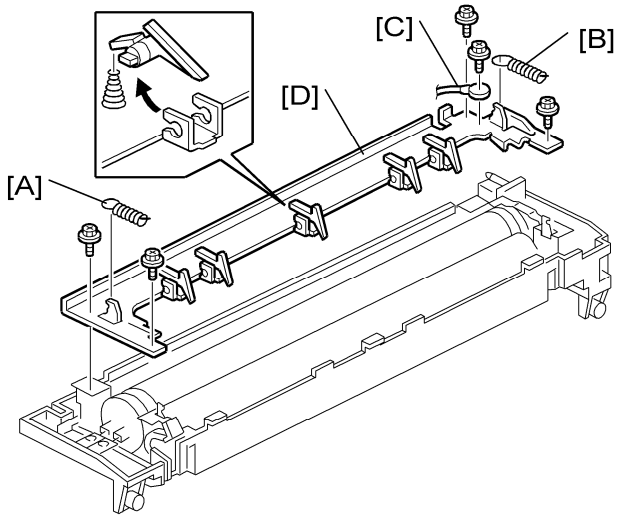
3.7.3 THERMOSTATS

1. Remove the fusing unit. (See 'Fusing Unit'.)



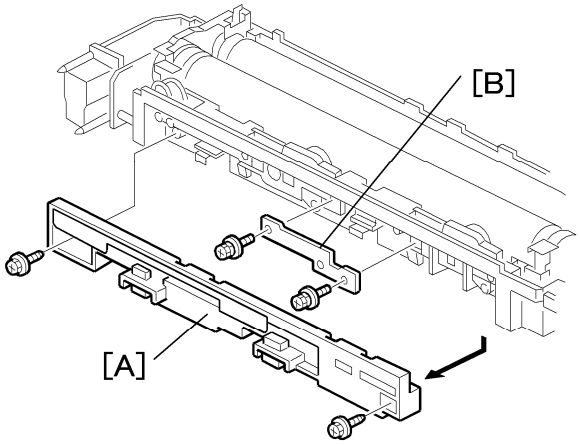
d017r503

2. Remove the fusing upper cover [A] (x4).



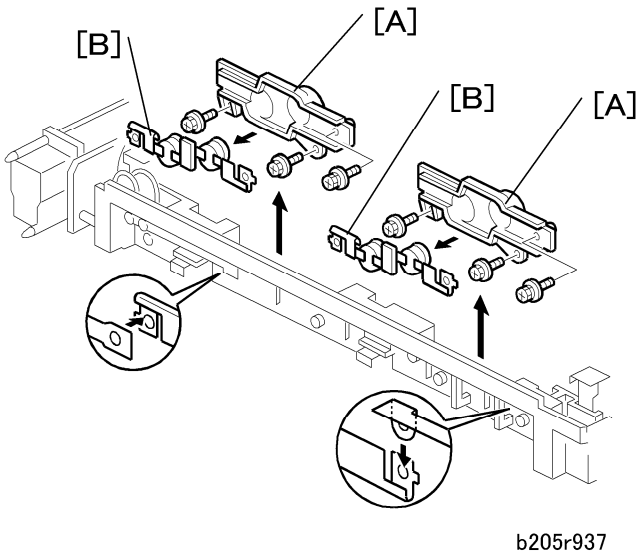
d017r504

3. Remove:
   [A] Pressure spring
   [B] Pressure spring
   [C] Ground wire (☞ x1)
   [D] Hot roller stripper bracket (☞ x4).



b205r936

4. Remove:
   [A] Thermostat cover (Tap ☞ x2).
   [B] Plate (☞ x2 , spring washers).

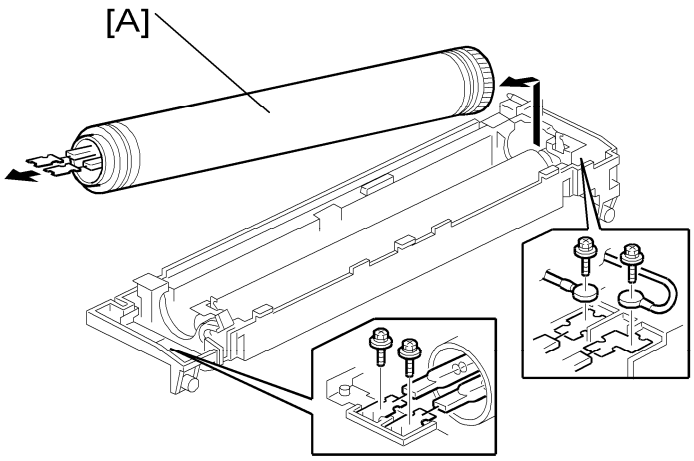


b205r937

5. Remove:
   [A] Thermostat holders x2 (☞ x3 each.).
   [B] Thermostats x4

3.7.4 HOT ROLLER AND FUSING LAMPS

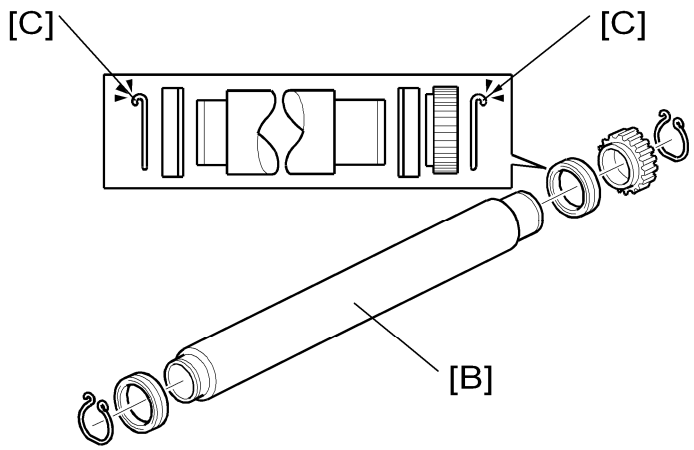
1. Remove the fusing unit. (See 'Fusing Unit'.)
2. Remove these parts: (see 'Thermostats').
   - Fusing upper cover.
   - Pressure springs.
   - Hot roller stripper bracket.



3. Remove the fusing lamps (☞ x4) and hot roller assembly [A].

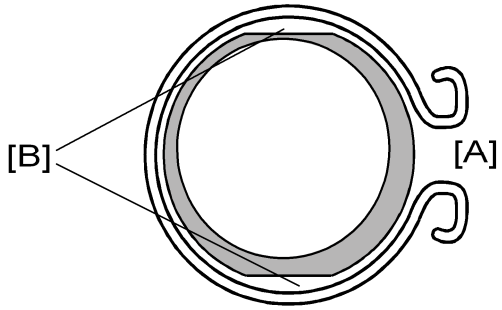
Note

- Do not touch the surface of the fusing lamp with bare hands.

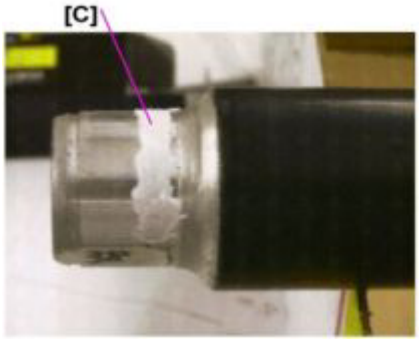


4. Replace the hot roller [B] (C-rings x2, Gear x1, Bushings x2).
   - When you reattach the C-rings, the flat sides must face the bearing/roller. (The little hooks [C] must face away from the bearing/roller).

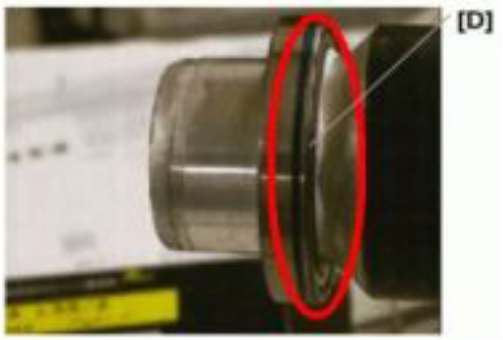
Reinstallation



1. At the rear (gear-side), attach the C-ring so that the opening [A] is 90 degrees from the D-cut sections [B] of the fusing roller.



2. Apply enough grease at [C] so the metal surface is not visible.



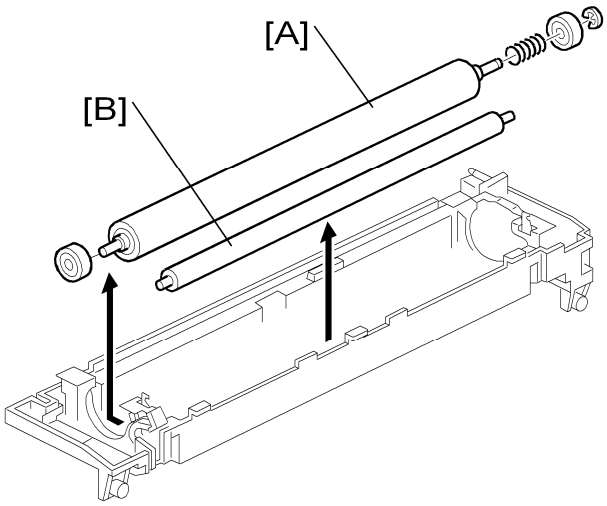
3. The grease should be visible after reattaching the bushing [D].

Important

- Before you install the new hot roller, peel off 3 cm (1 inch) from both ends of the protective sheet on the new roller.
- Do not touch the surface of the rollers.
- When reinstalling the fusing lamp, secure the front screws first.
- Be careful not to damage the surface of the hot roller.

3.7.5 PRESSURE ROLLER/CLEANING ROLLER

1. Remove the fusing lamp and hot roller assembly. (See 'Hot Roller and Fusing Lamp'.)

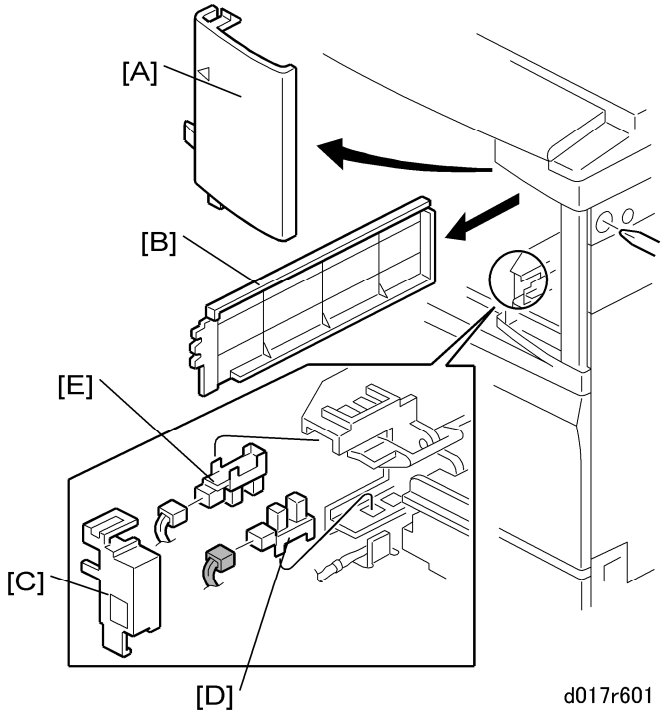


2. Replace the pressure roller [A] (℃ x1, Bushings x2, Spring x1).
3. Replace the cleaning roller [B].

Note

- Apply grease (Barrierta) to the inner surface of the bushing for the pressure roller.
- Do not touch the surface of the rollers.

3.7.6 PAPER EXIT SENSOR/PAPER OVERFLOW SENSOR



1. Remove the front upper cover [A] (x1, Peg x1).
2. Remove the exit cover [B].

Note

- If the optional one-bin tray unit and/or interchange unit have been installed, remove them.

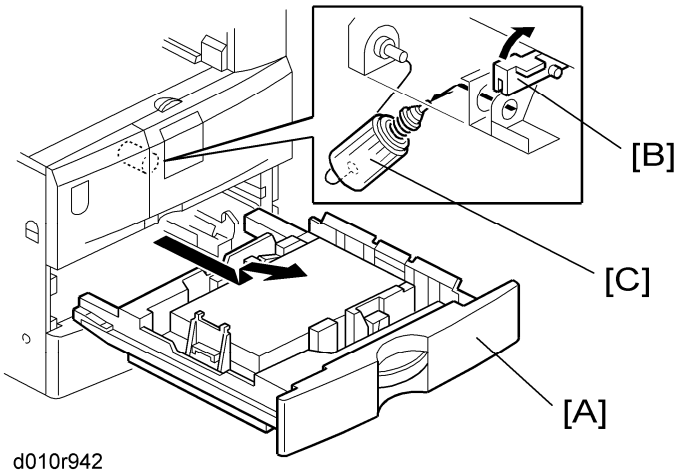
3. Remove the cover [C].
4. Replace the exit sensor [D] (x1).
5. Replace the overflow sensor [E] (x1).

3.8 PAPER FEED

⚠CAUTION

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

3.8.1 FEED ROLLER: TRAY 1



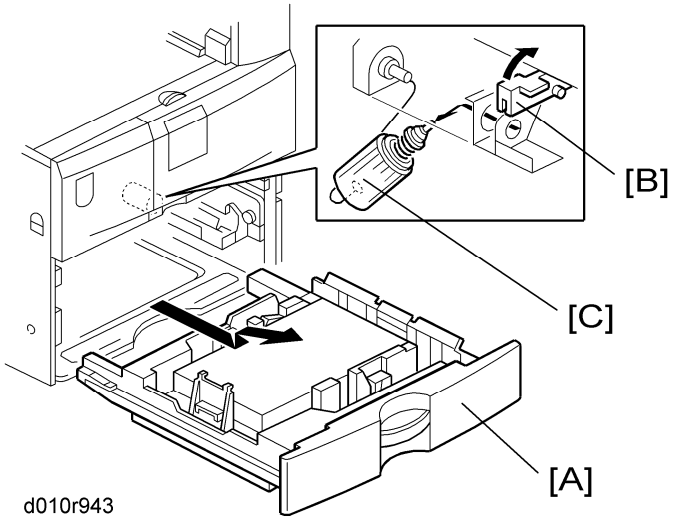
d010r942

1. Pull out the paper tray 1 [A].
2. Pull up the stopper [B].
3. Paper feed roller [C]

Note

- Do not touch the roller surface with bare hands.
- After reinstalling the feed roller, reset [B] to its former position.

3.8.2 FEED ROLLER: TRAY 2

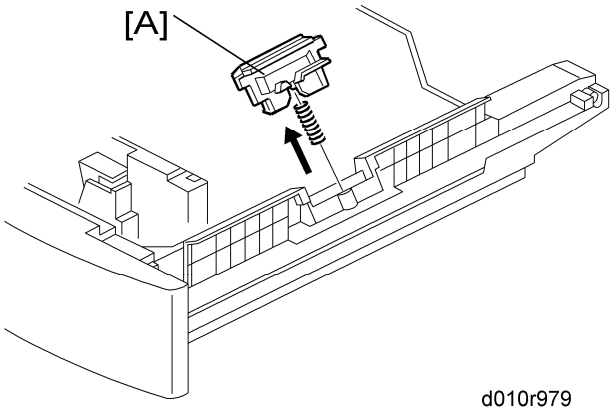


1. Pull out the paper tray 1 and 2 [A].
2. Pull up the stopper [B].
3. Paper feed roller [C]

Note

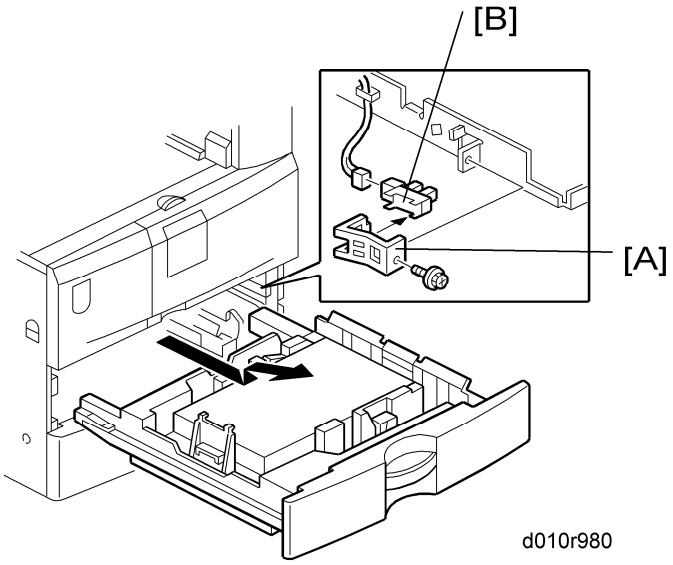
- Do not touch the roller surface with bare hands.
- After reinstalling the feed roller, reset the lever [B].

3.8.3 FRICTION PAD



1. Pull out the paper tray.
2. Friction pad [A] (spring x 1)

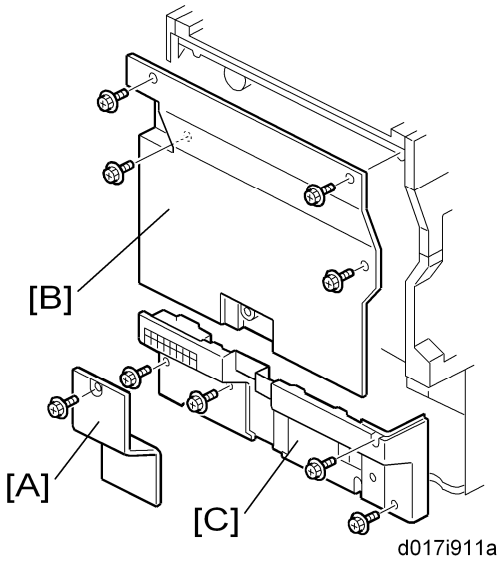
3.8.4 PAPER END SENSOR



1. Paper cassette
2. Bracket [A] (x 1, x 1)
3. Paper end sensor [B] (Hook x1)

3.8.5 PAPER TRAY LIFT MOTORS

1. Remove the paper tray.

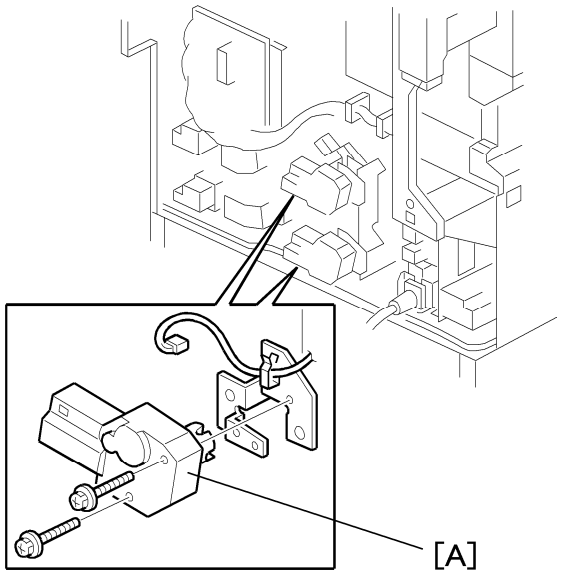


2. Remove:

   [A] Connector cover (x1) and disconnect the cable.

   [B] Rear cover (x4).

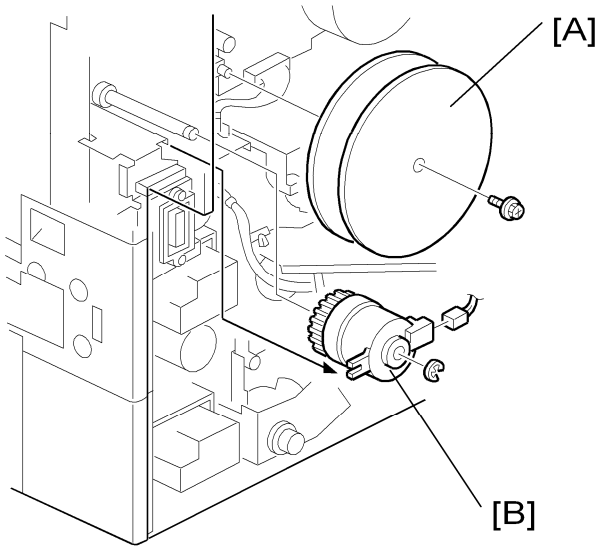
   [C] Lower rear cover (x4).



3. Replace the paper lift motors [A] (x2 each, x1 each).

3.8.6 REGISTRATION CLUTCH

1. Remove the connector cover and the rear cover. (See 'Paper Tray Lift Motors'.)
2. Remove the duplex connector cover and lower rear cover. (See 'Paper Tray Lift Motors'.)

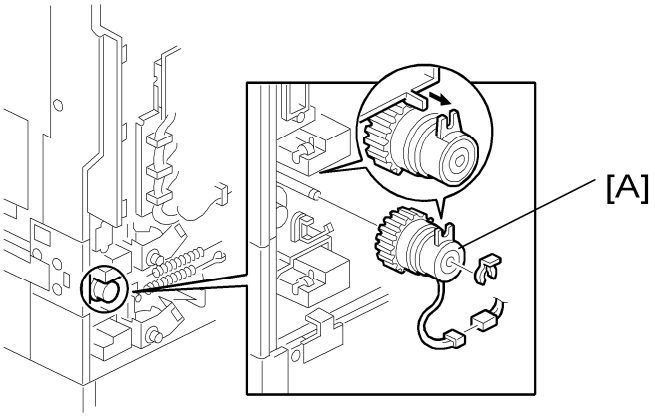


3. Remove the fly wheels [A] (x1).
4. Remove the registration clutch [B] (x1, x1).

3.8.7 PAPER FEED CLUTCHES

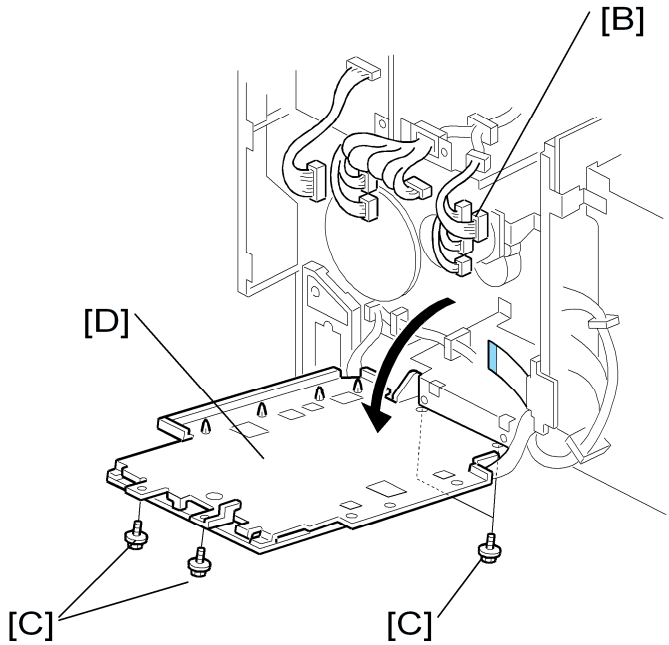
Lower Paper Feed Clutch

1. Remove the rear cover.
2. Remove the lower rear cover.

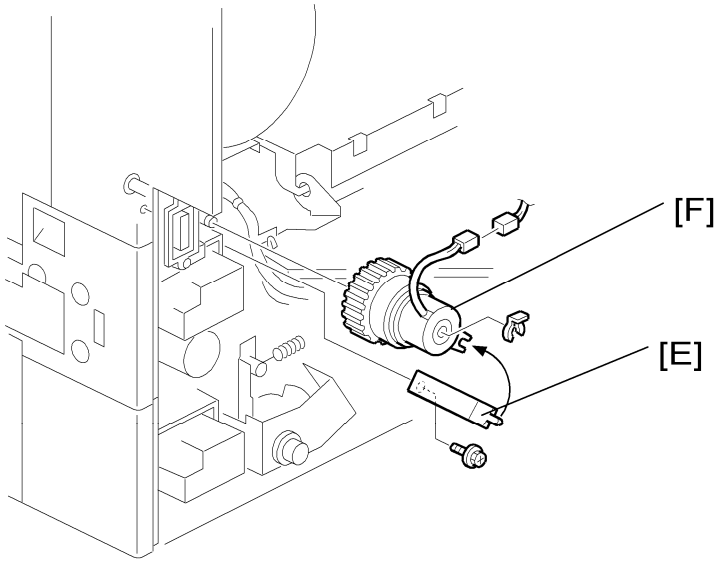


3. Replace the lower paper feed clutch [A] (x 1, x 1).

Upper Paper Feed Clutch



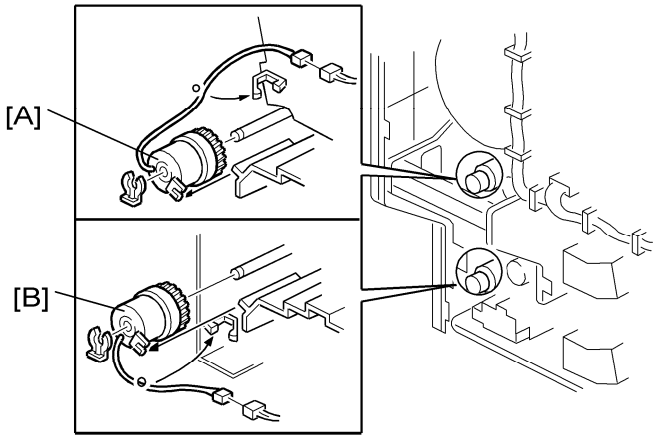
1. Disconnect the connectors [B] for the BCU board as shown (x15).
2. Remove 4 screws [C] securing the BCU board bracket then swing down the BCU board bracket [D].



3. Remove the bracket [E] (x1).
4. Replace the upper paper feed clutch [F] (x 1, x 1).

3.8.8 RELAY CLUTCHES

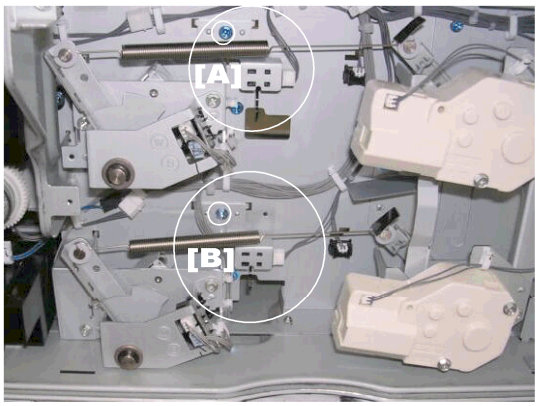
1. Remove:
   - Rear connector cover (x1)
   - Rear cover (x4)
   - Lower rear cover (x4)



d017r950

1. Remove:
   [A] Upper relay clutch (x1, x1, x1)
   [B] Lower relay clutch (x1, x1, x1)

3.8.9 UPPER/LOWER PAPER SIZE SENSORS



d017r952

1. Pull out the paper tray 1 and/or 2.
2. Remove:
   - Relay connector cover (x1, x1)
   - Rear upper cover (x4)
   - Rear lower cover (x4)
3. Remove:

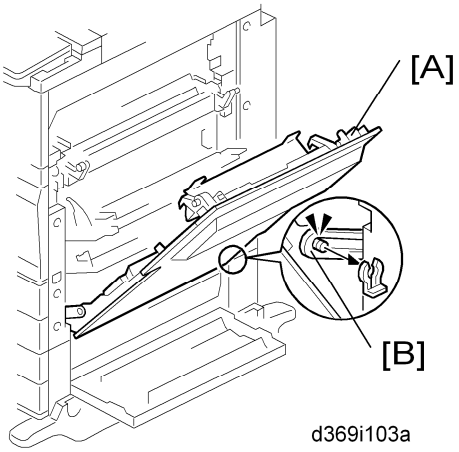
   [A] Tray 1 paper size sensor bracket (x 1)
   - Tray paper size sensor (x 1, Pawls x4)

   -or-

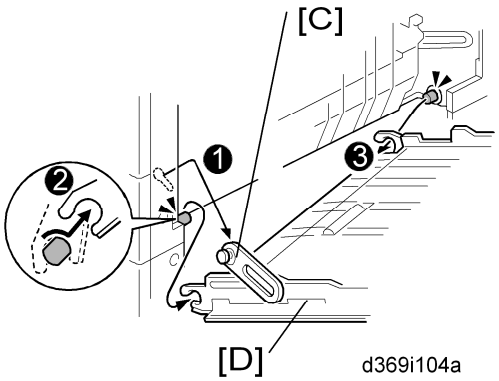
   [B] Tray 1 paper size sensor bracket (x 1)
   - Tray paper size sensor (x 1, Pawls x4)

3.8.10 REGISTRATION SENSOR

1. Open the right cover of the optional paper tray unit or LCT.



d369i103a

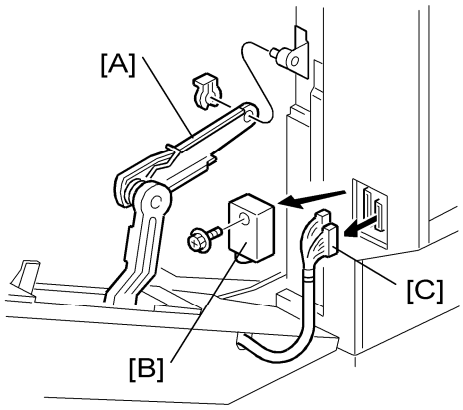


d369i104a

1. Open the right cover [A].

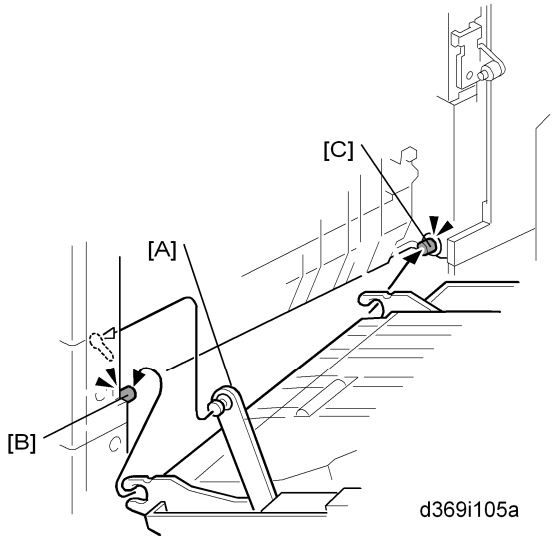
2. Release the rear link [B] from the right cover (x 1).
3. Release the front link [C] from the mainframe.
4. Remove the right cover [D].

If the duplex unit is installed:



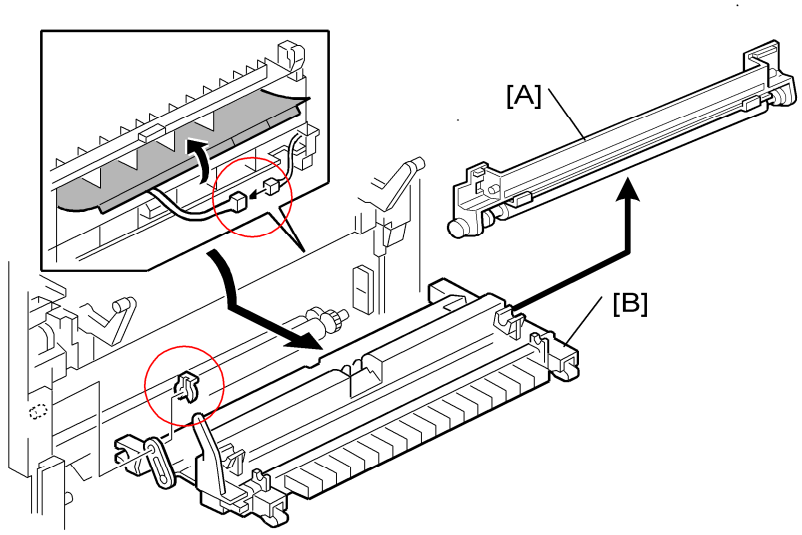
d369i106a

1. Disconnect the right hinge [A] (x1)
2. Remove the connector cap [B] (x1).
3. Disconnect the duplex unit harness [C] (x1).



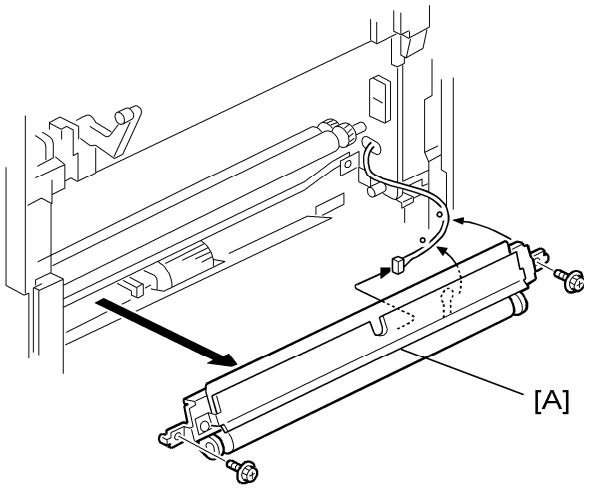
d369i105a

4. Disconnect the arm [A], then disconnect the snap hinges [B] and [C].



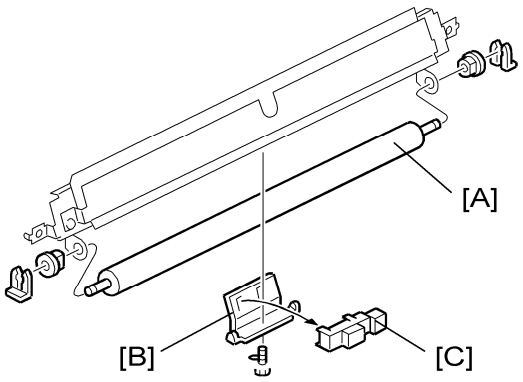
d071r930

5. Remove:
   [A] Transfer roller
   [B] Transfer roller guide (x1, x1)



d017r957

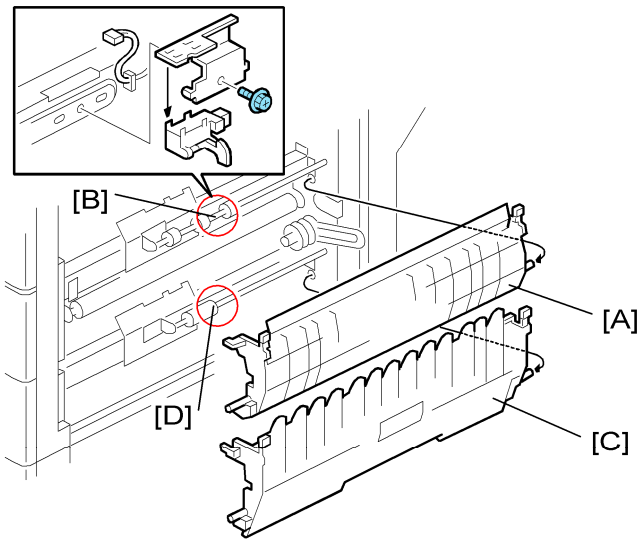
1. Remove the guide plate [A] (x2, x2, x1)



d017r957a

1. Remove:
   [A] Registration roller (x2, Bushings x2)
   [B] Registration sensor bracket (x1)
   [C] Registration sensor (Pawls x4)

3.8.11 UPPER, LOWER RELAY SENSORS



d017r958

1. Remove:
   - Right cover

   -or-

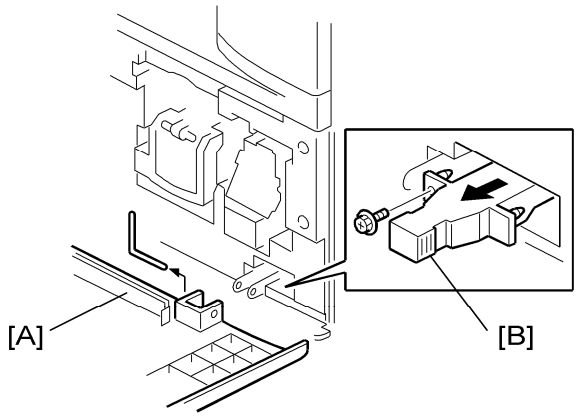
   - Duplex unit if it is installed (See the previous section)
2. Remove:
   [A] Upper cover
   [B] Upper relay sensor (Bracket x1, x1, Pawls x4)

Paper Feed

[C] Lower cover

[D] Lower relay sensor (Bracket x1, x1, Pawls x4)

3.8.12 DUST COLLECTION BIN



d017r158

1. Remove:

   [A] Front door (L-brackets x2)

   [B] Dust collection bin (x1)
2. Tap the dust collection bin above a sheet of paper, to remove the paper dust.
3. Use a dry cloth to clean the inside of the dust collection bin.

3.9 PCBS AND OTHER ITEMS

CAUTION

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

3.9.1 CONTROLLER BOARD

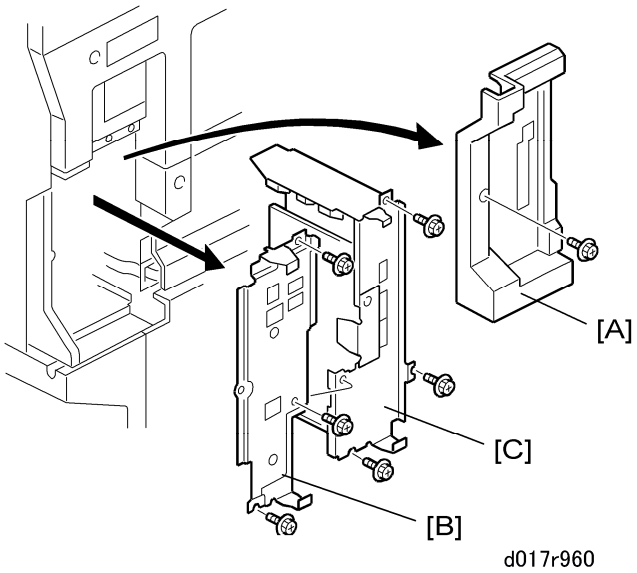
Important

- If you intend to replace the NVRAMs, upload their contents to an SD card with SP5824 before you remove them and replace them with new ones. Never remove the NVRAMs until after you have uploaded their contents.

Before replacing the controller board in the model without HDD

When you replace the controller board in a model without a HDD, address book data can be copied from an old controller board to a new controller board using an SD card.
Copy the address book data to an SD card from the flash ROM on the controller board with **SP5846-051** if possible.

Replacement Procedure

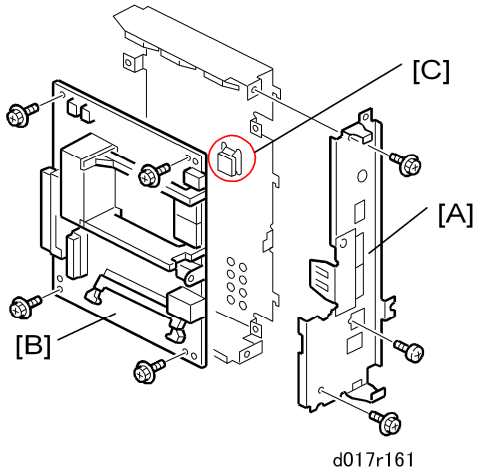


1. Remove:
   [A] Controller plastic cover (x1)
   [B] FCU faceplate (x3)
   [C] Controller board unit (x3)

Important

PCBs and Other Items

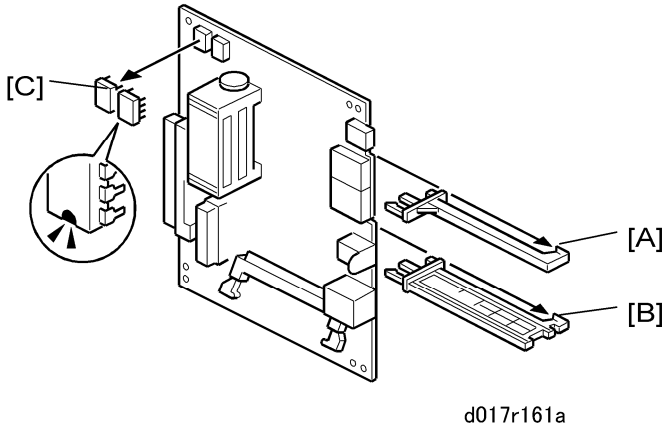
- Before touching the controller board, always touch a metal surface to discharge any static that has accumulated on your hands.



2. Remove:
   [A] Faceplate (x3)
   [B] Controller board (x4)

Important

- Make sure that the thermal conductive sheet [C] is attached to the bracket after replacement of this procedure.



3. Remove:
   [A] Upper brace
   [B] Lower brace
   [C] NVRAM x2
4. Remove the NVRAMs from the old board and install them on the new board.

Important

- The NVRAM chips must always be replaced as a pair.

5. If you have replaced the controller board, set the DIP switches on the new controller board to the same settings as the old board.

After installing the controller board

1. For a model without a HDD, do **SP5846-052** to copy back the address book to the flash ROM on the controller board from the SD card to which you have already copied the address book data if possible.
2. For a model in which the HDD encryption unit has been installed, restoring the encryption key is required. Refer to “Recovery from a Device Problem” in the installation procedure for "HDD Encryption Unit".
3. Turn the main power switch off/on.

3.9.2 NVRAM

1. Do SP5990 001 to print the SMC report.
2. Turn off the main switch.
3. Remove the controller board cover (☞ x1).
4. Put the SD card in SD card slot C3.
5. Turn on the main switch.
6. Do SP5824.
7. Touch “Execute” to start to upload the NVRAM data.
8. Turn off the main switch and remove the SD card.
9. Remove the controller board (☞ x1). (See ‘Controller Board’)
10. Remove the NVRAM (x2) and replace them with the new chips. (See ‘Controller Board’)

Note

- Both NVRAM chips must be replaced.

11. Install the controller board.
12. Put the SD card with the NVRAM data in SD card slot C3.
13. Turn on the machine.
14. Do SP5801 to initialize the new NVRAM.
15. To download the NVRAM data from the SD card in C3, do SP5825.
16. Touch “Execute” to start to download the NVRAM data.
17. Turn off the main switch and remove the SD card.
18. Turn on the machine.
19. Do SP5990 001 to print another SMC report.
20. Compare this new SMC report with the report you printed in Step 1. If any of the SP settings are different, input the SP settings of the first report.

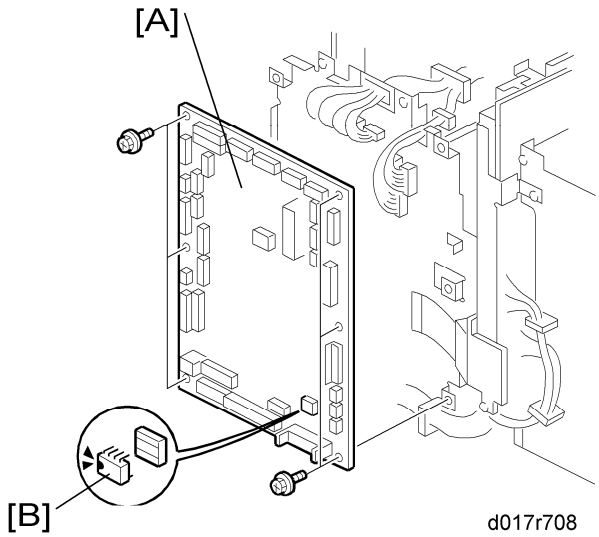
PCBs and Other Items

21. Do SP5907 and input the brand and model name of the machine for Windows Plug & Play capability.

Note

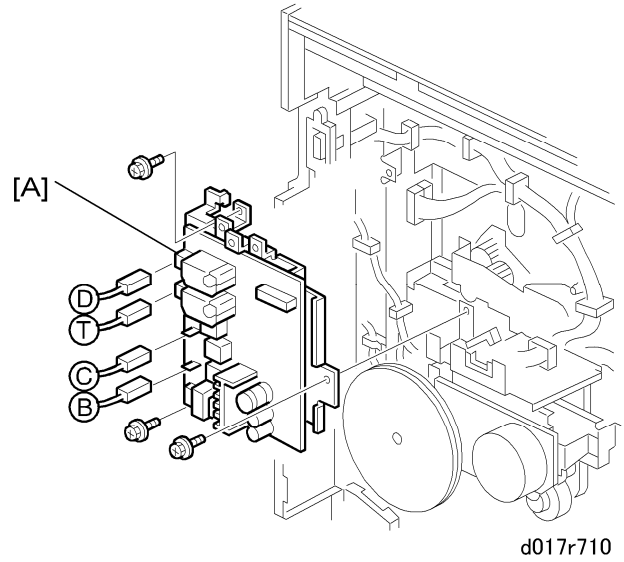
- If the HDD encryption unit has been installed, the HDD encryption unit and encrypted data cannot be recovered. For details, refer to "Recovery from a Device Problem" in the installation procedure of the HDD Encryption Unit.

3.9.3 BCU BOARD



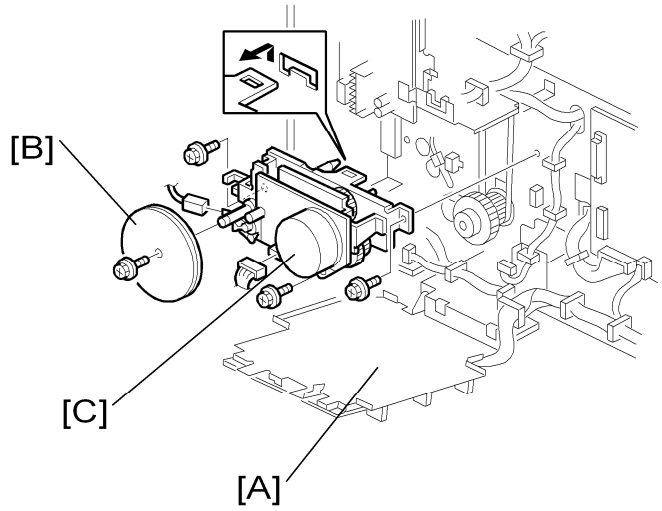
1. Remove the rear cover. (See 'Paper Tray Lift Motors'.)
2. Remove the BCU board [A] (x All, x6).
3. Remove the NVRAM [B] from the old board and install it on the new board.
4. Set the DIP switches on the new BCU board to the same settings as the old board.

3.9.4 POWER PACK



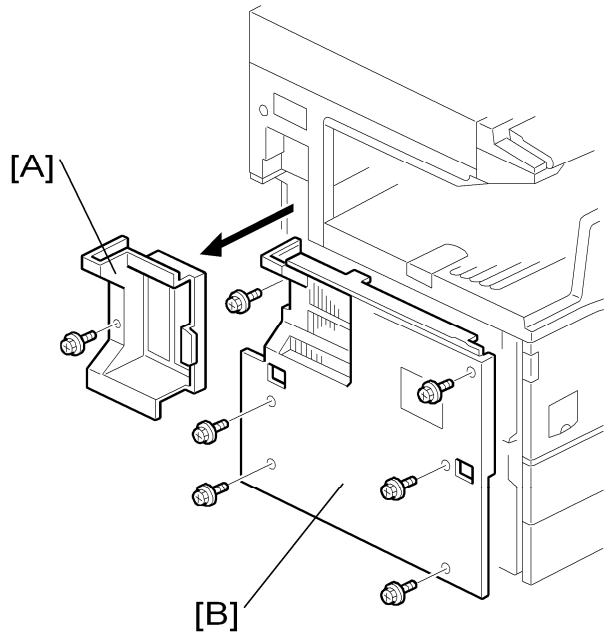
1. Remove the rear cover.
2. Swing down the BCU board bracket. (See 'Paper Feed Clutches'.)
3. Remove the power pack [A] (x 4, x3).

3.9.5 MAIN MOTOR

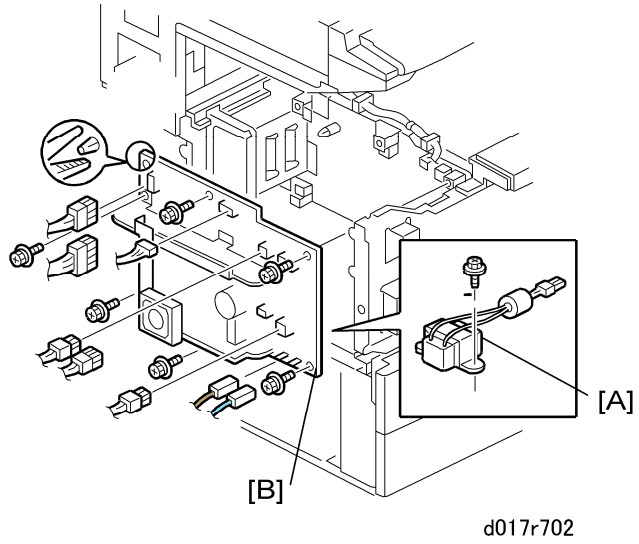


1. Remove the rear cover. (See 'Paper Tray Lift Motors'.)
2. Swing down the BCU board bracket [A]. (See 'Paper Feed Clutches'.)
3. Remove the flywheels [B] (x1).
4. Replace the main motor [C] (x2, x3).

3.9.6 PSU



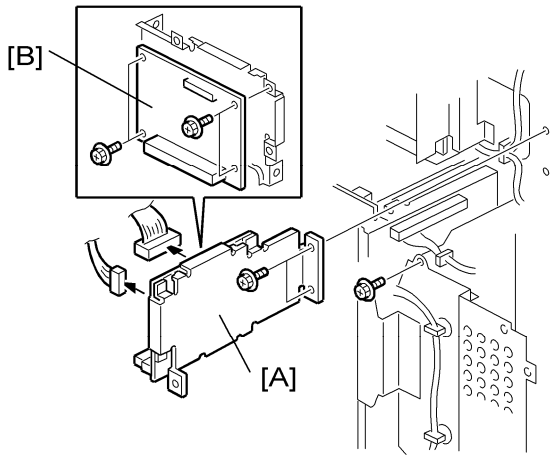
1. Remove the optional finisher if it has been installed.
2. Remove the application cover [A] (x1).
3. Remove the left cover [B] (x6).



4. Remove:
   [A] Transformer (x1) (For the 220 V machine only)
   [B] PSU (x all, x6, Standoff x1).

3.9.7 SIO

Monochrome Scanner Unit (D017/D019)



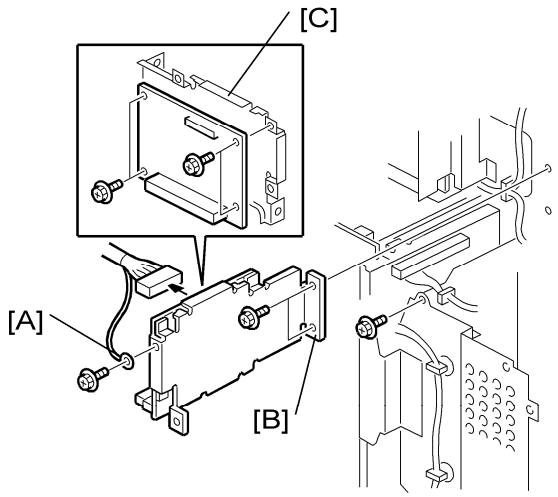
d017r159a

1. Remove:
   - Rear cover

   [A] SIO bracket (x3, x2)

   [B] SIO board (x4)

Color Scanner Unit (D018/D020)



d017r159b

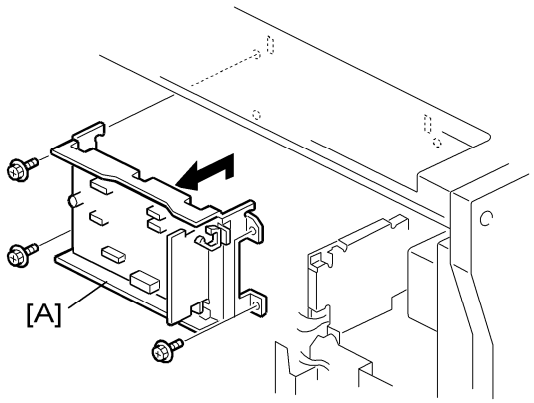
1. Remove:
   - Rear cover

   [A] Ground wire, connector (x1, x1)

   [B] SIO bracket (x3)

   [C] SIO board (x4)

3.9.8 SIU



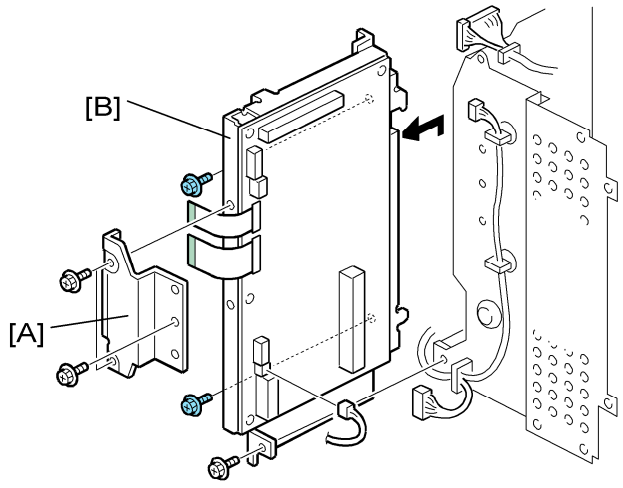
d017r160a

1. Remove:
   - Rear cover

   [A] SIU assembly (x4, x7)

3.9.9 IPU

1. Remove:
   - Rear cover
   - Controller unit
   - SIO

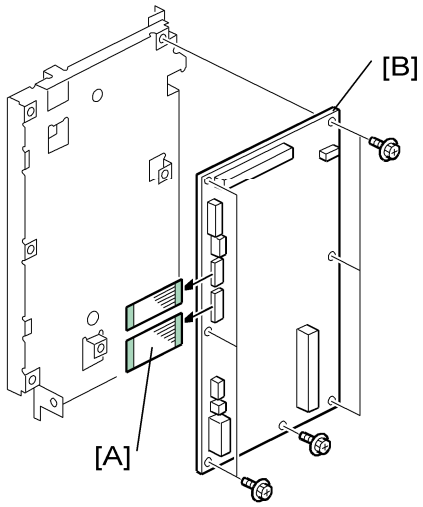


d017r159

2. Remove:

   [A] FFC cover (x2)

   [B] IPU (x3, x4, FFC x2)



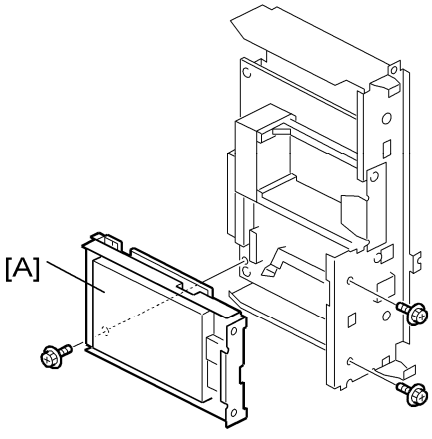
d017r160

3. Remove:
   [A] FFC x2
   [B] IPU (☞ x7)

3.9.10 HDD

1. Before you replace the HDD:
   - Insert an SD card in SD card slot 2 (lower slot).
   - Go into the SP mode.
   - Do SP5846 51 to upload the address book data to the SD card.

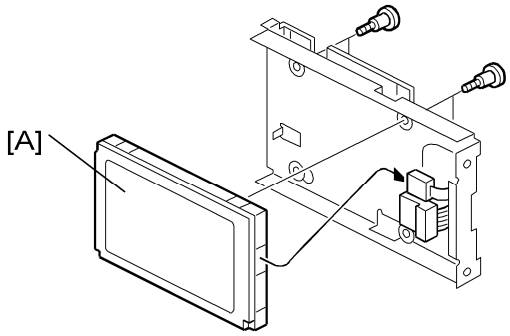
   Important
   - If the HDD is damaged, you may not be able to retrieve this data from the HDD.
2. Remove the controller board. (See 'Controller Board'.)



d017r965

PCBs and Other Items

3. Remove the HDD and bracket [A] (☞ x1)



4. Remove the old HDD [A] from its bracket (☞ x4, ☞ x2).
5. Install the new HDD unit.
6. Cycle the machine power off/on.
7. Format the HDD with SP5832-1.
8. Do SP5853 to copy the preset stamp data from the firmware to the hard disk.
9. Do SP5846-52 to restore the address book data to the HDD.

After HDD Replacement:

- Never remove a used HDD unit from the work site (even if it is suspected of being damaged) without the consent of the client.
- The HDD must remain with the customer for disposal or safe keeping.
- The HDD may contain proprietary or classified (Confidential, Secret) information. Specifically, the HDD contains document server documents and data stored in temporary files created automatically during copy job sorting and jam recovery. Such data is stored on the HDD in a special format, so it cannot normally be read but it can possibly be recovered with illegal methods.
- If the customer is using the Data Overwrite Security feature, the DOS function must be set up again after replacing the HDD unit.
- If the customer is using the HDD Encryption Unit, the encryption key must be restored after replacing the HDD unit. For details, see the installation procedure for the HDD Encryption Unit.

3.10 COPY ADJUSTMENTS: PRINTING/SCANNING

You must do these adjustment(s) after replacing any of the following parts:

- Scanner Wire
- Lens Block/SBU Assembly
- Scanner Drive Motor
- Polygon Mirror Motor
- Paper Side Fence
- Memory All Clear

For more details about accessing SP modes, see Service Tables.

3.10.1 PRINTING

Note

- Make sure the paper is installed correctly in each paper tray before you start these adjustments.
- Use the Trimming Area Pattern (SP2-902, No.10) to print the test pattern for the following procedures.
- Set SP 2-902 to 0 again after completing these printing adjustments.

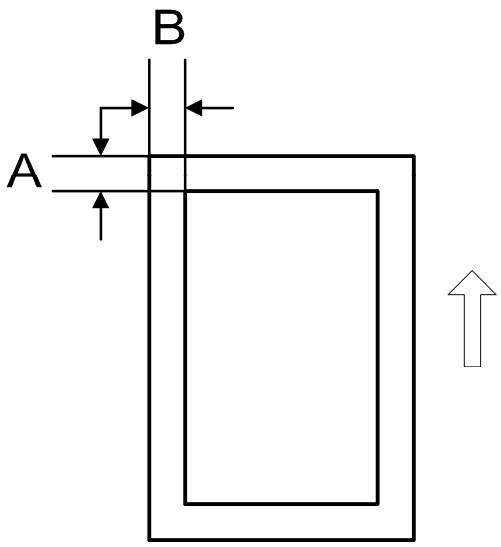
Registration - Leading Edge/Side-to-Side

1. Check the leading edge registration for each paper feed station, and adjust them using SP1-001.
2. Check the side-to-side registration for each paper feed station, and adjust them using SP1-002.

Tray	SP mode	Specification
Any paper tray	SP1-001-1	3 ± 2 mm
By-pass feed	SP1-001-2	
Duplex	SP1-001-3	
1st paper feed	SP1-002-1	2 ±1.5 mm
2nd paper feed	SP1-002-2	
3rd paper feed (Optional	SP1-002-3	

Copy Adjustments: Printing/Scanning

Tray	SP mode	Specification
PFU tray 1), or LCT		
4th paper feed (Optional PFU tray 2)	SP1-002-4	
By-pass feed	SP1-002-5	
Duplex, side 2	SP1-002-6	



A: Leading Edge Registration

B: Side-to-side Registration

Blank Margin

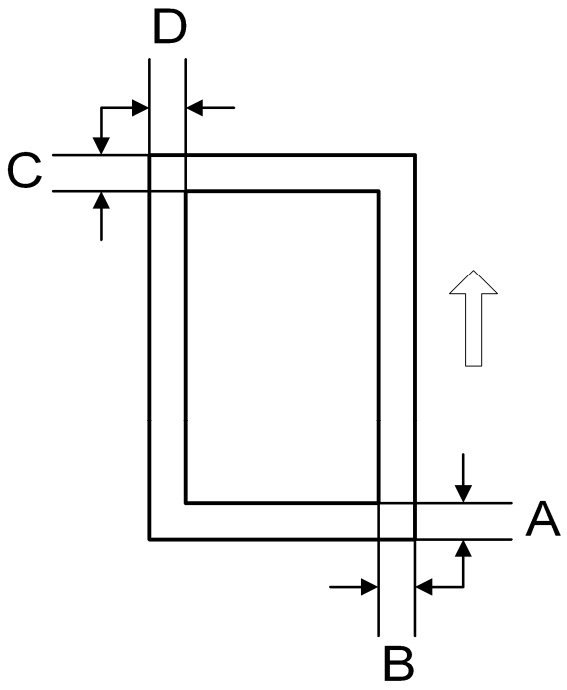
Note

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

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

	SP mode	Specification
Trailing edge	SP2-101-2/3/4	3 ± 2 mm
Right edge	SP2-101-6	2 +2.5/-1.5 mm

	SP mode	Specification
Leading edge	SP2-101-1	3 ± 2 mm
Left edge	SP2-101-5	2 ± 1.5 mm
Trailing edge (duplex copy, 2nd side)	SP2-101-7	2 ± 2 mm
Left edge (duplex copy, 2nd side)	SP2-101-8	2 ± 1.5 mm
Right edge (duplex copy, 2nd side)	SP2-101-9	2 +2.5/-1.5 mm



A: Trailing Edge Blank Margin

B: Right Edge Blank Margin

C: Leading Edge Blank Margin

D: Left Edge Blank Margin

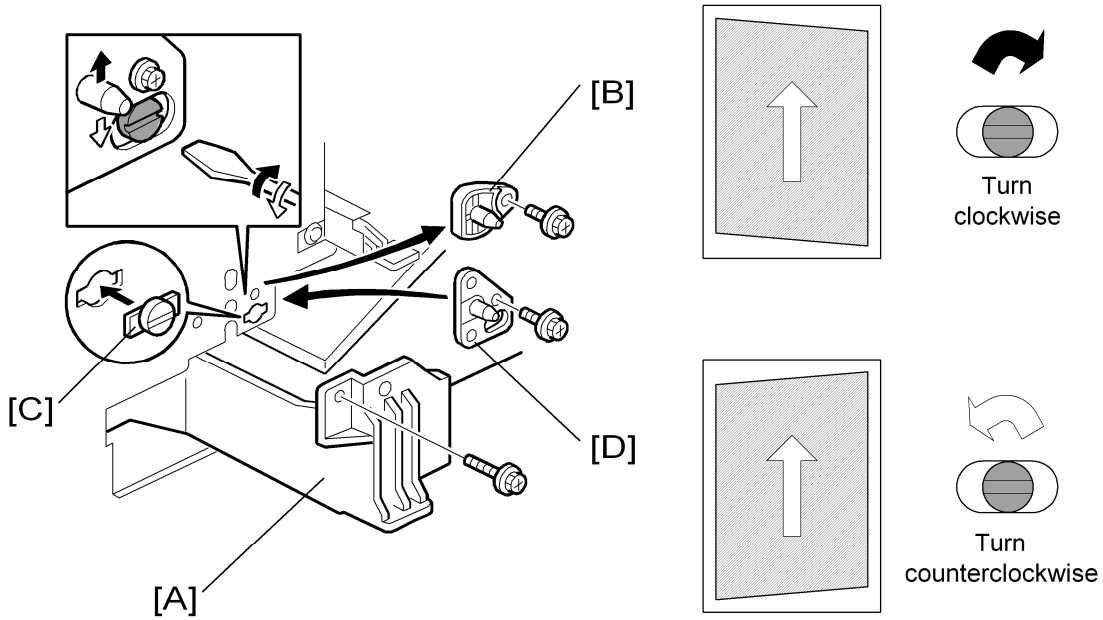
Main Scan Magnification

1. Print the single-dot grid pattern (SP2-902, no.5).

2. Check the magnification, and adjust the magnification using SP2-909 if necessary. The specification is ± 1%.

Parallelogram Image Adjustment

Do the following procedure if a parallelogram is printed while adjusting the printing registration or the printing margin using a trimming area pattern.



Note

- The following procedure should be done after adjusting the side-to-side registration for each paper tray station.

1. Check whether the trimming area pattern (SP2-902, No.10) is printed as a parallelogram, as shown. If it is, do the following.
2. Remove the laser unit [A] (see 'Laser Unit').
3. Remove the bracket [B] (x2).
4. Install the adjusting cam [C] (P/N: A2309003).
5. Secure the adjustment bracket [D] (P/N A2679002) using the screw which was used for bracket [B]. However, do not tighten the screws at this time.
6. Adjusts the laser unit position by turning the adjusting cam. (Refer to the above illustration for the relationship between the image and the cam rotation direction).
7. Tighten the adjustment bracket.
8. Print the trimming area pattern to check the image. If it is still unsatisfactory, repeat steps 4 to 8.

3.10.2 SCANNING

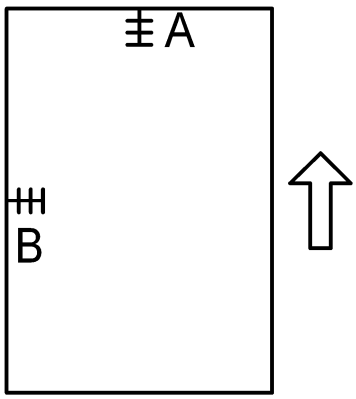
Note

- Before doing the following scanner adjustments, perform or check the printing registration/side-to-side adjustment and the blank margin adjustment.
- Use an S5S test chart to perform the following adjustments.

Registration: Platen Mode

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

	SP mode
Leading Edge	SP4-010
Side-to-side	SP4-011



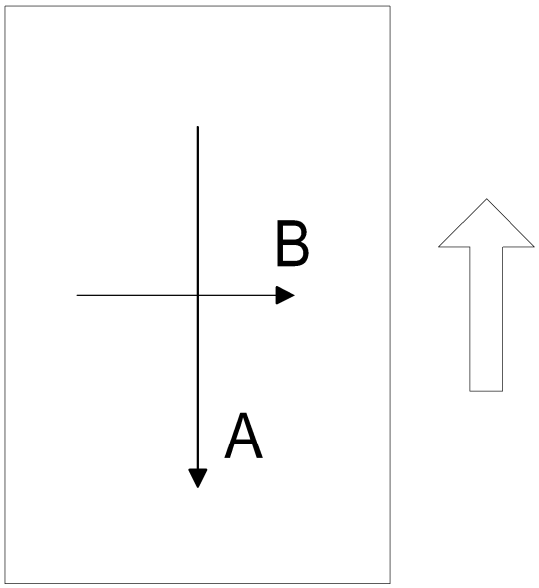
A: Leading Edge Registration

B: Side-to-side Registration

Magnification

Note

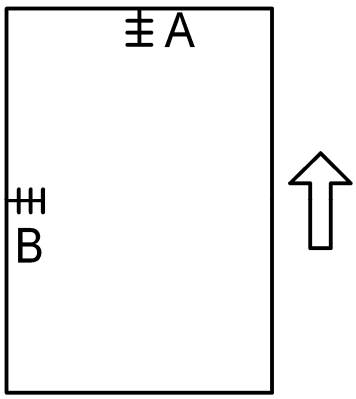
- Use an S5S test chart to do the following adjustment.



1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the magnification ratio. Use SP4-008 (Scanner Sub Scan Magnification) to adjust if necessary. Specification: ±0.9%.

3.10.3 ADF IMAGE ADJUSTMENT

Registration



A: Leading Edge Registration

B: Side-to-side Registration

Note

- Make a temporary test chart as shown above 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	SP6-006-1
Leading Edge Registration (Simplex)	SP6-006-2
Trailing Edge Blank Margin	SP6-006-3

Sub Scan Magnification

Note

- Make a temporary test chart as shown above 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 magnification, and adjust using the following SP modes if necessary. The specification is ±1%.

	SP mode
Sub scan magnification	SP6-006-5

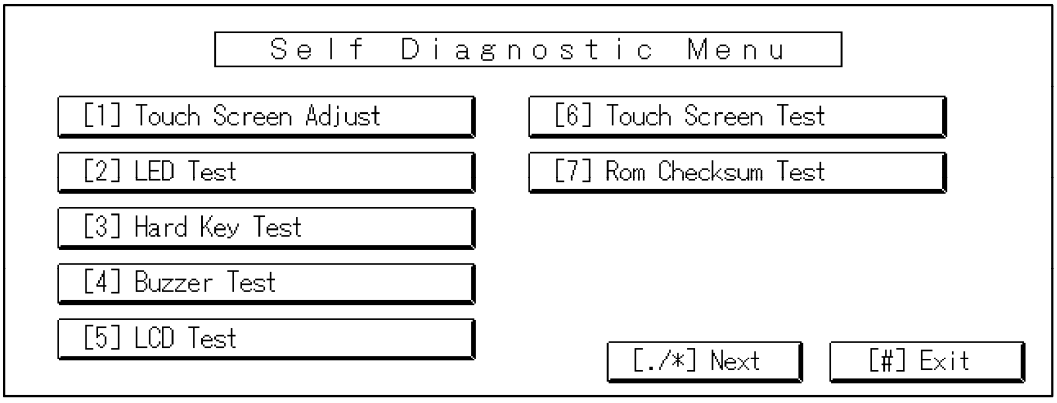
3.10.4 TOUCH SCREEN CALIBRATION

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

Note

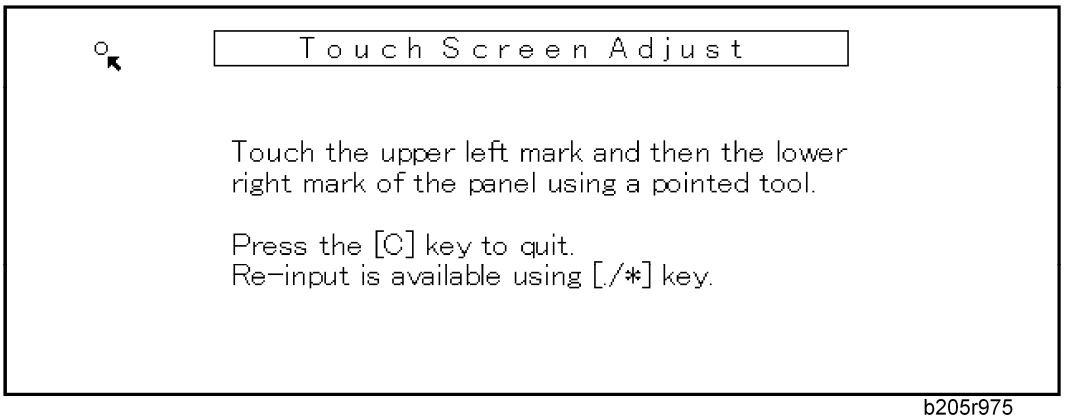
- Do not attempt to use items [2] to [9] on the Self-Diagnostic Menu. These items are for design use only.

1. Press ⊡, input 1993 at the ten-key pad, and then press C/⊘ 5 times to open the Self-Diagnostics menu.



b205r974

2. On the touch screen press “Touch Screen Adjust” (or press ① on the ten-key pad).



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3. Use a pointed (not sharp!) tool to press the mark at the upper left of the screen (⌜).
4. Press the mark at the lower right of the screen (⌟) after it appears.
5. Touch a few spots on the touch panel to confirm that the marker (+) appears exactly where the screen is touched.
   - If the + mark does not appear where the screen is touched, press Cancel and repeat from Step 2.
6. When you are finished, press [#] OK on the screen (or press ⑯ on the ten-key pad).
7. Touch [#] Exit on the screen to close the Self-Diagnostic menu and save the calibration settings.

TROUBLESHOOTING

TROUBLESHOOTING (SC CODES) REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
5	04/09/2009	SC144-1 and 2
26 30	09/22/2008	SC838 Self Diagnostic Error: Clock Generator
26 ~ 48	10/17/2008	SC798 – 1 through 9
30	06/08/2009	SC817
31	02/03/2009	Service Call Conditions
32 ~ 39	02/03/2009	Page number changes only

4. TROUBLESHOOTING

4.1 SERVICE CALL CONDITIONS

4.1.1 SUMMARY

There are 4 levels of service call conditions.

Level	Definition	Reset Procedure
A	To prevent damage to the machine, the main machine cannot be operated until the SC has been reset by a service representative (see the note below).	Enter SP mode, go into SP5810, press [Execute], turn the main power switch off and on.
B	SCs that disable only the features that use the defective item. Although these SCs are not shown to the user under normal conditions, they are displayed on the operation panel only when the defective feature is selected.	Turn the operation switch or main switch off and on.
C	The SC history is updated. The machine can be operated as usual.	The SC will not be displayed. Only the SC history is updated.
D	Turning the main switch off then on resets SCs displayed on the operation panel. These are re-displayed if the error occurs again.	Turn the operation switch off and on.

When a Level "D" SC code occurs

When a Level D SC occurs, a screen opens on the operation panel to tell the operator:

- An error occurred
- The job in progress will be erased
- The machine will reboot automatically after approximately 30 seconds.

The operator can wait until the machine reboots automatically or touch "Reset" on the screen to reset the machine immediately and go back to the copy screen.

Service Call Conditions

If the operator does not touch “Reset”

The next message tells the operator that the machine will reset automatically and that the previous job was lost and must be started again. After reading the message, the operator touches “Confirm” on the screen. The next screen shows the number and title of the SC code, and stops until the operator turns the machine off and on.

If the operator touches “Reset”

If the operator touches "Reset" to bypass the 30-second interval for the machine to reboot, the machine reboots immediately and the operation panel displays the copy screen.

Important

- Do not try to use the operation panel during an automatic reboot. If the Remote Service System is in use, the SC code is sent immediately to the Service Center

4.1.2 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.
- The machine reboots automatically when the machine issues a Level “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 (☀) lights or flashes while the platen cover or ARDF is open, while the main machine is communicating with a fax machine or the network server, or while the machine is accessing the hard disk or memory for reading or writing data.

101-1	D	Exposure lamp error 1
		The standard white level could not be set properly when scanning the white plate during automatic white level adjustment.
		▪ White plate dirty ▪ Spurious electrical noise on power supply line ▪ Exposure lamp connection loose, broken, defective ▪ Exposure lamp defective ▪ Lamp stabilizer connection, loose, broken, defective ▪ Lamp stabilizer defective ▪ High voltage power supply harness loose, broken, defective ▪ SBU defective ▪ BCU defective ▪ SIO defective

101-2	D	Exposure lamp error 1
		The standard white level setting dropped below the specified range during scanning.
		▪ White plate dirty ▪ Spurious electrical noise on power supply line ▪ Exposure lamp connection loose, broken, defective ▪ Exposure lamp defective ▪ Lamp stabilizer connection, loose, broken, defective ▪ Lamp stabilizer defective ▪ High voltage power supply harness loose, broken, defective ▪ SBU defective ▪ BCU defective ▪ SIO defective

120	D	Scanner home position error 1
		The scanner HP sensor did not turn off during scanner initialization or copying.

Service Call Conditions

121	D	Scanner home position error 1
		The scanner HP sensor did not turn on during scanner initialization or copying.
		▪ Scanner motor harness loose, broken, defective at scanner motor or at BCU ▪ Scanner HP sensor harness, loose, broken, defective at HP sensor or at BCU ▪ Scanner motor or motor driver board defective ▪ Scanner motor drive board defective ▪ Scanner HP sensor defective ▪ BCU defective

141	D	Black level correction error	▪ Harnesses at the SBU, IPU, BCU loose, broken, defective. ▪ SBU defective ▪ IPU defective ▪ BCU defective
		Black level correction could not be set properly during automatic adjustment.	

142	D	White level correction error
		White level correction could not be set properly during automatic adjustment.
		▪ Harnesses at SBU, IPU, BCU loose, broken, defective ▪ Spurious electrical noise on power supply line ▪ White plate dirty or missing ▪ Anti-condensation heater (option) in scanner unit not operating ▪ Exposure lamp harness, loose, broken, defective ▪ Exposure lamp defective ▪ Lamp stabilizer harness loose, broken, defective ▪ Lamp stabilizer defective ▪ SBU defective ▪ IPU defective ▪ BCU defective

		▪ SIO Defective

143	C	SBU auto adjust error
		The machine could not acquire the white or black peak level setting at power on.
		▪ Exposure lamp, lamp stabilizer harness connection loose, broken, defective ▪ Exposure lamp defective ▪ Lamp stabilizer defective ▪ Spurious electrical noise on power supply line ▪ White plate dirty or missing ▪ Anti-condensation heater (option) in scanner unit not operating ▪ Harness connection at SBU, iPU, BCU, SIO, loose, broken, defective ▪ SBU defective ▪ IPU defective ▪ BCU defective ▪ SIO Defective

⇒	144-1	D	SBU connection error
			Connection to the SBU could not be confirmed, possibly due to a defect in the BCU detection port.
⇒	144-2	D	SBU serial communication error
			Poor SBU power supply caused by SIO, or BCU detection port defective.
	144-3	D	SBU GASBU reset error
			SBU defective, BCU detection circuit defective.
	144-4	D	SBU version error
			SBU defective, BCU detection circuit defective.
			▪ Harness connection at IPU, BCU, SBU loose, broken, defective. ▪ Spurious electrical noise on power supply line

Trouble-shooting

Service Call Conditions

		▪ IPU defective ▪ BCU defective ▪ SBU defective

161	D	IPU Error The self-diagnostic test detected an error at the IPU at power on, or after the machine returned from energy save mode.	▪ Harness between SBU and IPU loose or broken ▪ IPU defective ▪ SBU defective

165	B	Copy Data Security Unit error An error occurred when the machine attempted to recognize the Copy Data Security Unit board.	▪ Check installation of Copy Data Security (CDS) Unit ▪ CDS unit not correct type for the machine ▪ CDS unit defective

202	D	Polygon motor error 1: ON timeout The polygon mirror motor did not reach the targeted operating speed within 10 sec. after turning on or changing speed
203	D	Polygon motor error 1: OFF timeout The polygon mirror motor did not leave READY status within 3 sec. after polygon motor switched off.
204	D	Polygon motor error 1: XSCRDY signal error The XSCRDY signal remained HIGH for 200 ms while the LD unit was firing.
		▪ Polygon motor/driver board harness loose or broken ▪ Polygon motor/driver board defective ▪ Laser optic unit defective ▪ IPU defective

220	D	Laser synchronization detection error: LD0	
		The laser synchronizing detection signal for the start position of the LD was not output for two sec. after LDB unit turned on with the polygon motor rotating normally.	▪ Laser synchronizing detection board harness loose or broken. ▪ Laser synchronization detection board defective ▪ LDB unit defective ▪ IPU defective

230	D	FGATE ON error	
		The FGATE signal did not assert within the prescribed time. (The BCU generates the FGATE signal and sends it to the LD unit when the registration sensor switches on.)	▪ BCU, Controller board harness loose or broken ▪ BCU defective ▪ Controller board defective
231	D	FGATE OFF error	
		The FGATE signal did not go off within the prescribed time. (The BCU generates the FGATE signal and sends it to the LD unit when the registration sensor switches on.)	

240		LD error	
		The IPU detected a problem at the LD unit.	▪ LD unit harness broken, defective ▪ BCU harness broken defective ▪ LD unit defective ▪ BCU defective

302	D	Charge level output error	
		The PWM output level was detected higher than 50% after 10 consecutive samplings.	▪ HVPS (High Voltage Power Supply) board harness loose, broken. ▪ PCU connection loose or

Service Call Conditions

			broken

350	B	ID sensor calibration – Error 1
		One of the following conditions occurred when the ID sensor pattern was calibrated during printing: Vsp > 2.5V Vsg < 2.5V Vsp = 0V Vsg = 0V
		▪ ID sensor defective or dirty ▪ ID sensor harness disconnected or connector is damaged ▪ BCU defective ▪ Scanning system or image creation system malfunction ▪ High voltage power supply board (power pack) defective

351	B	ID sensor calibration – Error 2
		The following conditions occurred simultaneously when the ID sensor pattern was calibrated during printing: Vsg = 5V PWM = 0 (LED current drop)
		▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ BCU board defective High voltage power supply board (power pack) defective

353	B	ID sensor LED current error	
		Error occurred during automatic adjustment of Vsg: ▪ Vsg output did not attain 4V, even with PWM = 1023 (maximum current for LED)	▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ IOB defective ▪ High voltage power supply board

		▪ Vsg output was greater than 4V, even with PWM=1 (no current for the LED)	(power pack) defective ▪ Scanning system or image creation system malfunction

354	B	ID sensor adjustment timeout error	
		Error occurred during automatic adjustment of Vsg. Vsg could not be adjusted to 4.0V ±0.2V within the prescribed time.	▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ BCU defective ▪ High voltage power supply board (power pack) defective

355	C	ID sensor error	
		For more details about the cause of the problem, please refer to SC350 to 354 above.	▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ BCU defective ▪ High voltage power supply board (power pack) defective

389	C	TD sensor error 1
		TD sensor output was less than 0.5V, or more than 0.5V 10 times in succession. If the fax unit is installed, this SC is issued immediately. If the fax unit is not installed, this SC is issued after the prescribed number of copies has printed.
390	D	TD sensor error 2
		The TD sensor outputs less than 0.5V or more than 4.0V 10 times consecutively during copying. **Note**: If the fax option is installed, this SC is issued immediately. If the fax option is not installed, this SC is issued after the prescribed number of pages is copied.

Service Call Conditions

		▪ TD sensor abnormal ▪ Poor connection of the PCU

391	B	Development bias leak	
		A development bias leak signal is detected.	▪ Poor connection at the PCU bias terminal ▪ High voltage supply board defective

392	B	TD sensor initial setting error	
		Initialization of the new PCU unit failed (the drum and development roller did not start rotating).	▪ The PCU toner seal was not removed ▪ ID sensor harness loose, broken ▪ TD sensor harness loose, broken ▪ ID sensor defective ▪ TD sensor defective

398	B	PCU error (**South Korea only**)	
		Illegal PCU unit.	Install the correct type of PCU.

399	B	Illegal toner bottle (**South Korea only**)	
		The installed toner bottle installed is not intended for use with this machine.	Install the correct type of toner bottle.

401	B	Transfer roller leak error 1	
		A transfer roller current leak signal wad detected. (The current feedback signal for the transfer roller was not detected within the correct time.)	▪ High voltage supply board set incorrectly or defective ▪ Transfer roller set incorrectly or damaged ▪ Transfer unit set incorrectly

402	B	Transfer roller leak error 2	
		A transfer roller current leak signal is detected. The current feedback signal for the transfer roller is not detected within the correct time.	▪ Transfer roller set incorrectly or damaged ▪ High voltage supply board set incorrectly or defective

411	B	Separation bias leak error	
		A separation bias leak signal was detected.	▪ High voltage supply board defective ▪ Discharge plate defective

490	B	Toner supply motor leak error	
		More than 1 ampere supplied to the toner supply motor for longer than 200 ms.	▪ Toner supply motor defective

500	B	Main motor lock	
		The machine detected motor lock (motor is not operating correctly)	▪ An obstruction has blocked operation of the main motor ▪ Main motor harness loose or broken ▪ Main motor or main motor driver board defective

501	B	1st paper tray lift motor malfunction
502	B	2nd paper tray lift motor malfunction
503	B	3rd paper tray lift motor malfunction (optional Paper Tray Unit)
504	B	4th paper tray lift motor malfunction (optional Paper Tray Unit)
		The paper lift sensor did not activate within 18 sec. after the tray lift motor

Service Call Conditions

		switched on.
		▪ An obstruction (jammed paper, paper scraps, etc.) has blocked the motor drive and caused an overload. ▪ Paper lift sensor connection loose, disconnected, or damaged ▪ Paper lift sensor defective ▪ Tray lift motor connection loose, disconnected, or damaged ▪ Tray lift motor defective

506	B	Paper tray motor lock (optional Paper Tray Unit)	
		A motor lock signal is not detected for more than 1.5 s or the lock signal is not detected for more than 1.0 s during rotation.	▪ An obstruction (jammed paper, paper scraps, etc.) has blocked the motor drive and caused an overload. ▪ Paper tray motor connection loose, disconnected, or damaged ▪ Paper tray motor defective

508	B	LCT rear fence drive error
		The return position sensor is not activated after the rear fence drive motor has been on to lower the tandem tray for 8 seconds.
		▪ An obstruction (jammed paper, paper scraps, etc.) has jammed the rear fence or motor ▪ Rear fence motor connection loose, disconnected, or damaged ▪ Rear fence motor defective ▪ Return position sensor connector loose, disconnected, or damaged ▪ Return position sensor defective

509	B	LCT side fence drive error
		The side fence positioning sensor is not activated for more 3 seconds when the paper stack in the left tray is moved to the right tray. The side fence close sensor is not activated for more 3 seconds after moving the paper stack to the right tray.

		▪ An obstruction (jammed paper, paper scraps, etc.) has jammed the rear fence or motor ▪ Side fence motor disconnected or defective ▪ Side fence position sensor disconnected or defective Side fence close sensor disconnected or defective

510	B	LCT lower limit error
		The lower limit sensor does not activate within 8 seconds after the tray has been lowered.
		▪ An obstruction (jammed paper, paper scraps, etc.) has jammed the tray lift motor ▪ Tray lift motor defective ▪ Poor connection of the tray lift motor ▪ Lower limit sensor disconnected or defective Obstruction that causes overload on the drive mechanism.

541	A	Fusing thermistor open (center)	
		The temperature of the hot roller remained below 0°C for 5 sec at the center of the hot roller.	▪ Fusing thermistor out of its position because of incorrect installation ▪ Fusing thermistor disconnected or defective ▪ Power supply not within rated range (15% or more below rating)

542	A	Fusing temperature warm-up error (center)	
		The fusing temperature did not reach the standby temperature within 20 sec. at the center of the hot roller after the main switch turned on.	▪ Fusing thermistor defective or out of position ▪ Fusing lamp disconnected ▪ Thermistor defective ▪ Fusing lamp defective

Service Call Conditions

543	A	Fusing overheat error 1 (center)	
		The fusing thermistor detected a fusing temperature over 230 °C for 5 sec. at the center of the hot roller.	▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective

544	A	Fusing overheat error 2 (center)	
		A fusing temperature over 250 °C is detected at the center of the hot roller by the fusing temperature monitor circuit in the BCU board. The power was interrupted for more than 0.3 sec.	▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective ▪ Power supply voltage unstable

545	A	Fusing overheat error 3 (center)	
		After warmup, the center of the hot roller attained full operating temperature and maintained this temperature for 10 sec. without the hot roller rotating.	▪ Center hot roller thermistor installed incorrectly, disconnected. ▪ Center hot roller thermistor defective

547	B	Zero cross signal detection error	
		Zero cross signals were not detected within the prescribed time.	▪ PSU, BCU harness loose or broken ▪ PSU defective ▪ BCU defective

551	A	Fusing thermistor open (end)	
		The temperature of the hot roller remained below	▪ Fusing thermistor out of its position because of incorrect installation

		0°C for 5 sec. at the end of the hot roller.	▪ Fusing thermistor disconnected or defective ▪ Power supply not within rated range (15% or more below rating)

552	A	Fusing temperature warm-up error (end)	
		The fusing temperature did not reach the standby temperature within 20 sec. at the center of the hot roller after the main switch turned on.	▪ Fusing thermistor defective or out of position ▪ Fusing lamp disconnected ▪ Thermistor defective ▪ Fusing lamp defective

553	A	Fusing overheat error 1 (end)	
		The fusing thermistor detected a fusing temperature over 230 °C for 5 sec. at the center of the hot roller.	▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective

554	A	Fusing overheat error 2 (end)	
		A fusing temperature over 250 °C is detected at the center of the hot roller by the fusing temperature monitor circuit in the BCU board. The power was interrupted for more than 0.3 sec.	▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective ▪ Power supply voltage unstable

555	A	Fusing overheat error 3 (end)	
		After warmup, the center of the hot roller attained full operating temperature and maintained this temperature for 10 sec. without the hot	▪ Center hot roller thermistor installed incorrectly, disconnected. ▪ Center hot roller thermistor

Service Call Conditions

		roller rotating.	defective

557	B	Zero cross waveform signal error	
		The waveform of the zero cross signal was detected out of range.	▪ Electrical noise on the power supply line

559	A	Consecutive fusing unit paper jams	
		Three consecutive paper jams occurred in the fusing unit. The paper jam counter for the fusing unit reaches 3 times. The paper jam counter clears after the paper feeds correctly. **Note**: This SC is issued only if SP1159 is set to "1".	▪ Remove the paper jam in the fusing unit. ▪ Make sure that the paper path in the fusing unit is clear.

590	B	Exhaust fan motor error	
		The CPU detects an exhaust fan lock signal for more than 3.5 seconds.	▪ Poor connection of the exhaust fan motor ▪ Too much load on the motor drive

620	B	Communication error between IPU and ADF	
		A break occurred in the connection between the IPU and ADF	▪ ADF disconnected ▪ ADF defective ▪ IPU harness connection loose, broken ▪ IPU defective ▪ External noise

621	B	Communication timeout between BCU and finisher

		A break (LOW) signal was received from the finisher.	▪ Finisher serial cable connection loose, broken ▪ BCU defective ▪ Finisher main board defective ▪ External noise

632	B	Key/card counter device error 1	
	After 1 data frame is sent to the device, an ACK signal is not received within 100 ms, and is not received after 3 retries.	▪ Serial line from the device to the main machine is unstable, disconnected, or defective	

633	B	Key/card counter device error 2	
		During communication with the device, the MCU received a break (Low) signal.	▪ Serial line from the device to the main machine is unstable, disconnected, or defective

634	B	Key/card counter device error 3	
		The backup battery of the counter	▪ RAM backup battery

Service Call Conditions

		device RAM is low.	exhausted ▪ Counter device defective

635	B	Key/card counter device error 4	
		After installation of the device a message alerts user to a battery voltage abnormal error.	▪ Device control board defective ▪ Device control board backup battery defective

636	B	OSM User Code File Error	
		The correct "usercode" file could not be found in the root folder of the SD card because the file is not present, or the existing file is corrupted or the wrong type file.	▪ Make sure the eccm.mod file is in the root folder of the SD card. **Note**: The usercode files are created with the User Setting Tool "IDissuer.exe".

641	D	Engine-Controller Communication Error: Non-Response	
		There was no response to a frame sent from the controller board to the engine.	▪ Turn the machine power off/on.

650	B	Communication error of the remote service modem (Cumin-M)
-001	-	Authentication error
		The authentication for the Cumin-M failed at dial up connection.
		▪ Incorrect SP settings ▪ Disconnected telephone line ▪ Disconnected modem board
		Check and set the correct user name (SP5816-156) and password (SP5816-157).
-004	-	Incorrect modem setting

		Dial up fails due to the incorrect modem setting.
		Same as -001
-005	-	Communication line error
		The supplied voltage is not sufficient due to the defective communication line or defective connection.
		Same as -001
		Consult with the user's local telephone company.
-011	-	Incorrect network setting
		Both the NIC and Cumin-M are activated at the same time.
		Same as -001
		Disable the NIC with SP5985-1.
-012	-	Modem board error
		The modem board does not work properly even though the setting of the modem board is installed with a dial up connection.
		Same as -001
		Install the modem board. Check and reset the modem board setting with SP5816. Replace the modem board.

651	C	Incorrect dial up connection
		-001: Program parameter error
		-002: Program execution error
		An unexpected error occurred when the modem (Cumin-M) tried to call the center with a dial up connection.
		▪ Caused by a software bug ▪ No action required because this SC does not interfere with operation of

Service Call Conditions

		the machine.

669	B	EEPROM Communication Error	
		The machine failed to detect a match between the read/write data for the EEPROM on the BCU after 3 attempts.	▪ EEPROM installed incorrectly ▪ EEPROM defective. Turn the machine power off/on after replacing the EEPROM. ▪ BCU defective.

670	D	Engine response error	
		After powering on the machine, a response is not received from the engine within 30 seconds.	▪ BCU installed incorrectly ▪ BCU defective ▪ Controller board defective

672	D	Controller-to-operation panel communication error at startup	
		After powering on the machine, the communication circuit between the controller and the operation panel is not opened, or communication with controller is interrupted after a normal startup.	▪ Controller stalled ▪ Controller board installed incorrectly ▪ Controller board defective ▪ Operation panel connector loose or defective

687	D	Memory address (PER) command error	
		The BCU did not receive a memory address command from the controller with the prescribed time once the paper reached the registration sensor.	▪ Harness connection at BCU, Controller board loose or broken ▪ Defective BCU ▪ Defective Controller Board

721	B	Front fence motor error

		The jogger fence motor in the finisher is not operating.	▪ Jogger motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The motor harness loose or broken ▪ Jogger fence HP sensor dirty, loose, defective ▪ Jogger fence motor defective

722	B	Rear fence motor error	
		The rear jogger fence motor in the finisher is not operating.	▪ Rear jogger motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The rear jogger fence motor harness loose or broken ▪ Rear jogger fence HP sensor dirty, loose, defective ▪ Rear jogger fence motor defective

723	B	Feed-out belt motor error	
		The feed-out belt did not return to the home position within the prescribed time.	▪ Feed-out belt motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ Feed-out belt motor drive obstructed (jammed paper, paper scraps, etc.) ▪ Motor harness loose or broken ▪ Feed-out belt HP sensor dirty, disconnected, broken ▪ Motor defective

725	B	Finisher stack feed-out motor error	
		The stack feed-out belt HP sensor did not activate within the prescribed time after the stack feed-out motor turned on.	▪ Finisher stack feed-out motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ Stack feed-out motor harness loose, broken ▪ Stack feed-out HP sensor harness

Service Call Conditions

			loose, broken ▪ Stack feed-out motor defective ▪ Stack feed-out HP sensor defective

730	B	Shift tray motor error	
		The shift tray motor in the 1000-sheet finisher is not operating.	▪ Shift motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ Shift motor harness loose, broken ▪ Shift tray HP sensor harness loose, broken ▪ Shift motor defective ▪ Shit tray HP sensor defective

740	B	Corner stapler motor error	
		The corner stapler motor in the 1000-sheet finisher is not operating.	▪ Staple jam ▪ Number of sheets in stack exceeds allowed number of sheets for stapling ▪ Stapler motor obstructed ▪ Stapler motor defective

742	B	Stapler movement motor	
		The stapler movement motor in the 1000-sheet finisher is not operating.	▪ Stapler or motor drive is blocked by obstruction ▪ Motor harness loose or broken ▪ Stapler HP sensor harness loose, broken ▪ Motor defective ▪ Stapler HP sensor defective

746		Stack feed motor error
		The stack feed HP sensor in the 1000-sheet booklet finisher did not detect "ON" twice (once: jam error) within the prescribed time after the stack feed

		motor turned on. -or- The stack feed HP sensor did not detect "OFF" twice (once: jam error) for the specified time after the stack feed motor turned on.
		▪ Motor drive obstructed ▪ Stack feed motor harness loose, broken ▪ Stack feed motor defective

750	B	Tray lift motor error	
		The tray lift motor in the 1000-sheet booklet finisher is not operating.	▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Stack height sensor dirty, harness loose, broken ▪ Motor defective ▪ Stack height sensor defective

751	B	Stack pressure solenoid error	
		The stack pressure solenoid in the finisher is not operating.	▪ Solenoid harness loose, broken ▪ Solenoid obstructed ▪ Stack height sensor dirty, harness loose, broke ▪ Solenoid defective ▪ Stack height sensor defective

760	B	Finisher punch motor error	
		The punch HP sensor did not activate within the prescribed time after the punch motor turned on. The 1st detection issues a jam error, and the 2nd failure issues this SC code.	▪ Punch HP sensor harness loose, broken ▪ Punch motor harness loose, broken ▪ Punch motor obstructed ▪ Punch motor defective ▪ Punch HP sensor defective

Service Call Conditions

761	B	Folder plate motor error
		The folder plate in the 1000-sheet booklet finisher moved but was not detected at the home position within the prescribed time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Folder plate motor drive obstructed ▪ Folder plate HP sensor harness loose, broken ▪ Folder plate motor harness loose, broken ▪ Folder plate motor defective ▪ Folder plate HP sensor defective

763	B	Punch movement motor error	
		The punch unit moved but it was not detected at the home position within the prescribed time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective

764	B	Paper position slide motor error	
		The paper position sensor detected movement of the slide but the slide was not detected at the home position within the prescribed time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective

765	B	Fold unit bottom fence lift motor	
		The fold unit bottom fence lift motor in the 1000-sheet booklet finisher is not operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective

766	B	Clamp roller retraction motor	
		The clamp roller retraction motor in the 1000-sheet booklet finisher is not operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective

791	B	Bridge unit error	
		The machine can communicate with the finisher but not the bridge unit.	▪ Poor connection between the finisher and mainframe ▪ Bridge unit harness damaged or defective ▪ Bridge unit defective

792	B	Finisher unit error	
		The machine cannot communicate with the bridge unit but not the finisher.	▪ Poor connection between the finisher and mainframe ▪ Finisher harness damaged or defective ▪ Finisher unit defective

⇒	798	B	Finisher Lift Tray bound up error	
			The finisher tray cannot move freely due to binding or incorrect alignment.	▪ Remove Lift Tray Motor. ▪ Let Tray bottom out. ▪ Reinstall the Lift Tray Motor.

816	D	Energy saver I/O sub system error	
		Energy saver sub system is not operating correctly.	▪ Controller board defective

⇒ 798-1	B	Upper limit switch error	
		The upper limit switch is pushed due to tray lift error or some problems.	▪ Upper limit switch pulled up ▪ Defective upper limit switch 1. Check the harness. 2. Check for blockage around the upper limit switch. 3. Replace the upper limit switch.

⇒ 798-2	B	Front fence motor error	
		The front fence moves out of the home position but the HP sensor output does not change within the specified number of pulses. The 1st failure issues an original jam message, and the 2nd failure issues this SC code.	▪ Jogger HP sensor disconnected, defective ▪ Front fence motor disconnected, defective ▪ Front fence motor overloaded due to obstruction ▪ Finisher main board and front fence motor 1. Check or replace the harness. 2. Check for blockages in the front jogger motor mechanism. 3. Replace the front jogger HP sensor. 4. Replace the front jogger motor. 5. Replace the finisher main board.

⇒	798-3	B	Rear fence motor error	
			The rear fence moves out of the home position but the HP sensor output does not change within the specified number of pulses. The 1st failure issues an original jam message, and the 2nd failure issues this SC code.	▪ Rear jogger motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The rear jogger fence motor harness loose or broken ▪ Rear jogger fence HP sensor dirty, loose, defective ▪ Rear jogger fence motor defective 1. Check or replace the harness. 2. Check for blockages in the rear jogger motor drive mechanism. 3. Replace the rear jogger fence HP sensor. 4. Replace the rear jogger fence motor. 5. Replace the finisher main board.

⇒	798-4	B	Stack feed-out motor error	
			The stack feed-out HP sensor does not detect the home position of the stack feed-out belt for a certain time after the stack feed-out belt has moved to its home position. The stack feed-out HP sensor does not turn off for a certain time after the stack feed-out belt has moved from its home position. The 1st detection failure causes a jam error, and the 2nd failure causes this	▪ Defective stack feed-out HP sensor ▪ Overload on the stack feed-out motor ▪ Defective stack feed-out motor ▪ Defective main board ▪ Disconnected or defective harness Check or replace the harness. 1. Check or replace the harness. 2. Check for blockages in the

Trouble-shooting

		SC code.	stack feed-out mechanism. 3. Replace the stack feed-out HP sensor. 4. Replace the stack feed-out motor. 5. Replace the main board.

⇒

798-5	B	Positioning roller arm motor error	
		The positioning roller HP sensor does not turn on or off for a certain time at power-on. The positioning roller HP sensor does not turn on or off for a certain time when the positioning roller returns to its home position from the lower position. The 1st detection failure causes a jam error, and the 2nd failure causes this SC code.	▪ Disconnected or defective harness ▪ Overload on the positioning roller arm motor ▪ Defective positioning roller arm motor ▪ Defective positioning roller HP sensor 1. Check or replace the harness. 2. Check for blockages in the positioning roller arm mechanism. 3. Replace the positioning roller arm motor. 4. Replace the positioning roller HP sensor.

⇒

798-6	B	Finisher corner stapler motor error	
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. **For 500-sheet finisher** The stapler HP sensor does not detect "ON"/"OFF" signal even the stapler moves from the "OFF"/"ON" position	▪ Staple jam ▪ Motor overload ▪ Defective stapler motor 1. Check the connections and cables for the components mentioned above. 2. Replace the HP sensor and/or

		for 0.6 seconds. The stapler HP sensor does not detect "ON" when a stapling job is commanded or the stapler moves.	stapler motor 3. Replace the finisher main board.

⇒

798-7	B	Finisher stapler movement motor error	
		For 500-sheet finisher The stapler HP sensor does not detect "OFF" signal even the stapler moves from the "ON" position for 0.35 seconds. The stapler HP sensor does not detect "ON" signal even the stapler moves from the "OFF" position for 5.5 seconds.	▪ Motor overload ▪ Loose connection of the stapler home position sensor ▪ Loose connection of the stapler movement motor ▪ Defective stapler home position sensor ▪ Defective stapler movement motor Check the connections and cables for the components mentioned above. 1. Check the connection of the stapler movement motor. 2. Check the connection of the stapler home position sensor. 3. Replace the stapler home position sensor. 4. Replace the stapler movement motor.

⇒ 798-8	B	500-sheet finisher: Tray lift motor error	
			▪ Motor overload ▪ Loose connection of the shift tray motor ▪ Defective shift tray motor 1. Check the connections to the tray lift motor. 2. Replace the tray lift motor.

⇒ 798-9	B	Stack pressure solenoid error	
		The stack pressure solenoid in the finisher is not operating.	▪ Solenoid harness loose, broken ▪ Solenoid obstructed ▪ Stack height sensor dirty, harness loose, broke ▪ Solenoid defective ▪ Stack height sensor defective 1. Check or replace the solenoid harness. 2. Check for blockages in the stack pressure mechanism. 3. Replace the stack height sensor.

816	D	Energy saver I/O sub system error	
		Energy saver sub system is not operating correctly.	▪ Controller board defective

819	C	Fatal kernel error	
		Due to a control error, a RAM overflow occurred during system processing.	▪ Controller board defective ▪ Insufficient memory ▪ Expanded memory defective

Note: For more details about this SC code error, execute SP5990 to print an SMC report so that you can read the error code. The error code is not displayed on the operation panel.

829	B	Self-Diagnostic Error: Optional RAM	
[401]		Verification Error (Slot 1) The data stored in the optional RAM in Slot 1 does not match the data when reading.	▪ Not the specified RAM DIMM installed or Defective RAM DIMM – Replace the RAM DIMM ▪ Replace the controller Board

838	D	Self-Diagnostic Error: Clock Generator	
		A verify error occurred when setting data was read from the clock generator via the I2C bus.	Replace the Controller Board

839	B	USB flash error	
		This is a self-diagnostic error. The device ID of the on-board USB flash ROM was not recognized.	▪ Replace the Controller Board

851	D	IEEE 1394 I/F Abnormal	
		IEEE1394 interface error.	▪ IEEE1394 interface board defective ▪ Controller board defective

853	D	Wireless LAN board error 1	
		At startup the wireless LAN board could be accessed, but the wireless LAN board (IEEE 802.11b or Bluetooth) could not access the controller board.	▪ Wireless LAN board not installed when the machine was turned on

854	D	Wireless LAN board error 2	
		The board that holds the wireless LAN board can be accessed, but the wireless LAN board (802.11b/Bluetooth) itself cannot be accessed while the machine is operating	▪ Wireless LAN board has been removed during machine operation.

855	D	Wireless LAN board error 3	
		An error was detected for the wireless LAN board (802.11b or Bluetooth).	▪ Wireless LAN board defective ▪ Wireless board connection not tight

856	D	Wireless LAN board error	
		An error is detected for the wireless LAN board (802.11b or Bluetooth).	▪ Wireless LAN board defective ▪ PCI connector loose

857	D	USB I/F Error	
		The USB driver is unstable and generated an error. The USB I/F cannot be used. The USB driver can generate three types of errors: RX, CRC, and STALL errors. Only the STALL error can generate this SC code.	▪ USB 2.0 disconnected ▪ Controller board defective

858	A	Data encryption conversion error	
		A serious error occurred during data encryption.	
0	A	Key acquisition error	▪ Replace the controller board
1	A	HDD key setting error	▪ Turn the machine power off/on ▪ If the error reoccurs, replace the controller board
2	A	NVRAM read/write error	▪ Replace the NVRAM
30	A	NVRAM error	▪ Turn the machine power off/on ▪ If the error reoccurs, replace the controller board
31	A		▪ See SC991

859	B	HDD data encryption error	
		Encryption of data on the hard disk failed.	
8	B	HDD check error	▪ Format the HDD
6	B	Power loss during encryption	▪ Format the HDD
10	B	Data read/write error	▪ See SC863 below

860	B	HDD error 1	
		The hard disk connection is not detected because it is defective or has not been formatted	▪ Cable between HDC and HDD loose or defective ▪ HDD power connector loose or defective ▪ HDD not formatted ▪ HDD defective ▪ Replace the controller board

861	B	HDD error 2	
		The HDD did not enter the ready status within 30 sec. after power on.	▪ Cable between HDC and HDD loose or defective ▪ HDD power connector loose or defective ▪ HDD defective ▪ Replace the controller board

863	B	HDD error 3	
		Startup without HD data lead. Data stored on the hard disk is not read correctly, due to a bad sector on the HDD	▪ Format the HDD ▪ HDD defective ▪ Controller board defective

864	D	HDD error 4	▪ HDD defective
		HD data CRC error. During operation of the HD, the HD responded with a CRC error.	

865	D	HDD error 5	
		HDD responded to an error during operation for a condition other than those for SC863 or 864.	▪ HDD defective.

866	D	SD card error 1: Recognition error	
		The SD card in the slot contains illegal program data.	▪ Use only SD cards that contain the correct data.

867	D	SD card error 2: SD card removed	
		The SD card in the boot slot when the machine was turned on was removed while the machine power was on.	▪ Insert the SD card, then turn the machine off and on.

868	D	SD card error 3: SD card access	
		An error occurred while an SD card was used.	▪ SD card not inserted correctly ▪ SD card defective ▪ Controller board defective **Note**: If you want to try to reformat the SD card, use SD Formatter Ver 1.1.

870	B	Address Book Data Error	
		Address book data stored on the hard disk was detected as abnormal when it was accessed from either the operation panel or the network.	▪ Initialize the address book data (SP5-846-050). ▪ Initialize the user information (SP5-832-006). ▪ Replace the HDD.HDD defective

872	B	HDD mail RX data abnormal	
		An error was detected at power on. The data received during mail receive could be neither read nor written.	▪ HDD sector corrupted. Reformat with SP5832 007. If this does not repair the problem, replace the HDD.

873	B	HDD mail TX data error	
		An error was detected on the HDD immediately after the machine was	▪ Do SP5832-8 (Format HDD – Mail TX Data) to initialize the

		turned on, or power was turned off while the machine used the HDD.	HDD. ▪ Replace the HDD

874	D	Delete All error 1: HDD	
		A data error was detected for the HDD/NVRAM after the Delete All option was used. **Note**: The source of this error is the Data Overwrite Security Unit D362 running from an SD card.	▪ Turn the main switch off/on, and try the operation again. ▪ Install the Data Overwrite Security Unit again. For more, see “Installation”. ▪ HDD defective **Rev. 10/2008**

875	D	Delete All error 2: Data area	
		An error occurred while the machine deleted data from the HDD. **Note**: The source of this error is the Data Overwrite Security Unit D362 running from an SD card.	▪ Turn the main switch off/on, and try the operation again.

876	D	Log data abnormal	
		An error was detected in the handling of the log data at power on or during machine operation. This can be caused if you turn the machine off while it is operating.	▪ Software error. Update the firmware ▪ NVRAM defective ▪ HDD defective

877	D	Data Overwrite Security SD card error	
		The 'all delete' function did not execute but the Data Overwrite Security Unit (D362) is installed and activated.	▪ Replace the NVRAM ▪ Reinstall the DOS from the SD card ▪ SD card defective

878	D	TPM electronic recognition error	
		The main machine firmware failed to recognize TPM because USB flash is not operating or a system module was updated incorrectly.	▪ Replace the controller board

880	D	File format converter error	
		A request for access to the File Format Converter (MLB) was not answered within the specified time.	▪ File format converter disconnected ▪ File format converter board defective

900	D	Electrical total counter error	
		The total count contains something that is not a number.	▪ NVRAM incorrect type ▪ NVRAM defective ▪ NVRAM data scrambled ▪ Unexpected error from external source

901	D	Mechanical total counter error	
		The counter was removed during standby or while it is operating, possibly damaging he connector.	▪ Check the connection of the mechanical counter ▪ Counter defective

920	D	Printer Error 1	
		An internal application error was detected and operation cannot continue.	▪ Software defective ▪ Insufficient memory

921	B	Printer error 2	
		When the application started, the necessary font was not on the SD card.	▪ Font not on the SD card

925	D	Network File Error	
		The file that manages NetFile is corrupted and operation cannot continue.	▪ Software defective ▪ Files on the HDD corrupted

990	D	Software performance error
		The software attempted to perform an unexpected operation due to: 1) software bug, 2) incorrect internal parameter, 3) insufficient working memory.
		▪ Turn the machine power off/on ▪ Reinstall the controller and/or main firmware **Note**: When this SC occurs, the file name, address, and data will be stored in NVRAM. This information can be checked by using SP7-403. Note the above data and the situation in which this SC occurs. Then report the data and conditions to your technical control center.

991	C	Software continuity error	
		The software attempted to perform an unexpected operation. However, unlike SC990, the object of the error is continuity of the software.	▪ No operation required. Note: This SC code does not appear on the panel, and is only logged.

992	D	Unexpected Software Error	
		Software encountered an unexpected operation not defined under any SC code.	▪ Software defective ▪ An error undetectable by any other SC code occurred

997	B	Application function selection error
		Application selected by the operator did not start or end normally due to a software problem. An option required by the application may not be installed.

		▪ Confirm which devices are required for the application. ▪ Make sure all devices are configured correctly. ▪ If the problem is with the fax unit, the nesting of the fax group may be too complicated

998	D	Application start error
		No applications start within 60 sec. after the power is turned on.
		▪ Loose connection of RAM-DIMM, ROM-DIMM ▪ Defective controller ▪ Software problem: check the setting of SP5875-001. If the setting is set to "1 (OFF)", change it to "0 (OFF)". ▪ Check if the RAM-DIMM and ROM-DIMM are correctly connected. ▪ Reinstall the controller system firmware. ▪ Replace the controller.

Note 1

If a problem always occurs under specific conditions (for example. printer driver setting, image file), the problem may be caused by a software error. In this case, the following data and information need to be sent back to your product specialist. Please understand that it may take some time to get a reply on how to solve the problem, because in some cases the design staff in Japan must analyze the data.

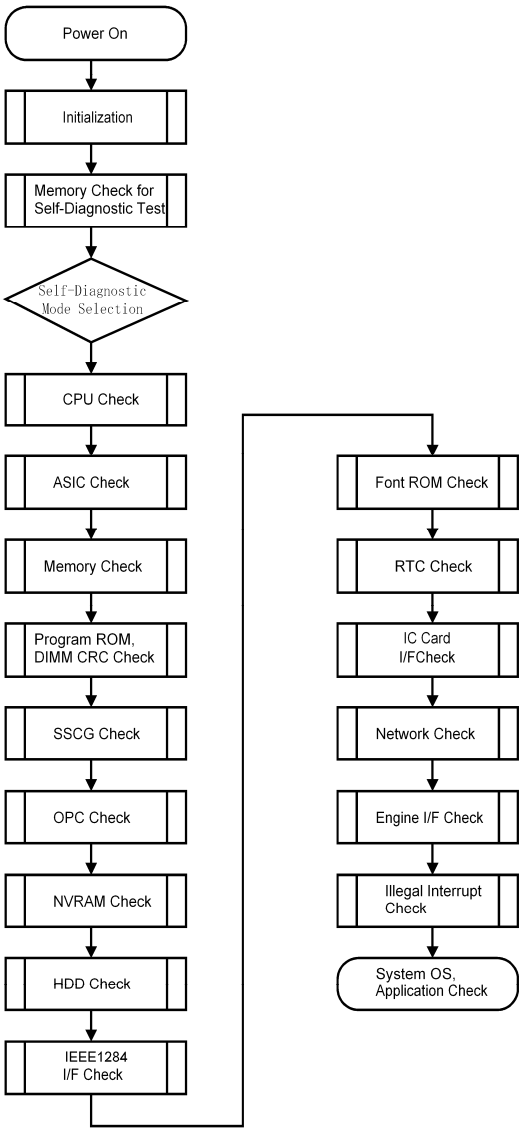
- Symptom / Possible Causes / Action taken
- Summary sheet (SP mode “Printer SP”, SP1-004 [Print Summary])
- SMC - All (SP5-990-001)
- SMC - Logging (SP5-990-004)
- Printer driver settings used when the problem occurs
- All data displayed on the screen (SC code, error code, and program address where the problem is logged.)
- Image file which causes the problem, if possible

4.2 SELF-DIAGNOSTIC MODE

4.2.1 SELF-DIAGNOSTIC MODE AT POWER ON

As soon as the main machine is powered on, the controller waits for the initial settings of the copy engine to take effect and then starts an independent self-diagnostic test program. The self-diagnostic test follows the path of the flow chart shown below and checks the CPU, memory, HDD, and so on. An SC code is displayed in the touch panel if the self-diagnostic program detects any malfunction or abnormal condition.

Self-Diagnostic Test Flow Chart



4.2.2 DETAILED SELF-DIAGNOSTIC MODE

Purpose

In addition to the self-diagnostic test initiated every time the main machine is powered on, you can set the machine in a more detailed diagnostic mode manually in order to test other components or conditions that are not tested during self-diagnosis after power on.
The following device is required in order to put the machine in the detailed self-diagnosis mode.
Also, the printer/scanner unit and the optional Centronics (IEEE1284) interface must be installed.

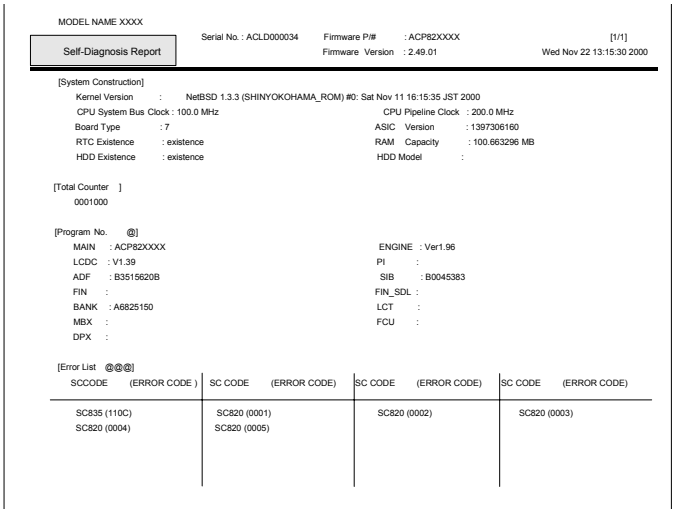
Part No.	Name
G0219350	Parallel Loopback Connector

Executing Detailed Self-Diagnosis

Follow this procedure to do the detailed self-diagnosis.

1. Switch off the machine, and connect the parallel loopback device to the Centronics I/F port.
2. Hold down the # button, press and hold down the * button, and then while pressing both keys at the same time, switch on the machine.
   - You will see “Now Loading” on the touch-panel, and then you will see the results of the test.

A report like the one below is printed every time a detailed self-diagnostic test is executed, whether errors were detected or not.



MODEL NAME XXXX

Self-Diagnosis Report

Serial No. : ACLD000034 Firmware P/# : ACP82XXXX [1/1]
Firmware Version : 2.49.01 Wed Nov 22 13:15:30 2000

[System Construction]
Kernel Version : NetBSD 1.3.3 (SHINYOKOHAMA_ROM) #0: Sat Nov 11 16:15:35 JST 2000
CPU System Bus Clock : 100.0 MHz CPU Pipeline Clock : 200.0 MHz
Board Type : 7 ASIC Version : 1397306160
RTC Existence : existence RAM Capacity : 100.663296 MB
HDD Existence : existence HDD Model :

[Total Counter]
0001000

[Program No. @]
MAIN : ACP82XXXX ENGINE : Ver1.96
LCDC : V1.39 PI :
ADF : B3515620B SIB : B0045383
FIN : FIN_SDL :
BANK : A6825150 LCT :
MBX : FCU :
DPX :

[Error List @@@]

SCCODE (ERROR CODE)	SC CODE (ERROR CODE)	SC CODE (ERROR CODE)	SC CODE (ERROR CODE)
SC835 (110C)	SC820 (0001)	SC820 (0002)	SC820 (0003)
SC820 (0004)	SC820 (0005)		

4.3 PAPER FEED TROUBLESHOOTING

The machine is designed to automatically adjust the bottom plate pressure of each paper feed station in the main machine and paper tray unit for the paper size and amount of paper remaining in the tray. If the machine is frequently double-feeding or failing to feed with a particular paper size with a certain amount of paper remaining in the tray, this problem can be corrected with SP code settings, SP1908 to 1911. These SP codes change the amount of time the bottom plate motor runs forward or reverse to increase or decrease pressure on the bottom of the stack.

- **Double feeding** occurs when the bottom plate is exerting too much pressure on the paper remaining in the tray. To correct this, increase the length of time the motor runs in reverse to lower the tray. This is a minus (-) value.
- **Failure to feed** occurs when the bottom plate is not exerting enough pressure on the paper remaining in the tray. To correct this, increase the length of time the motor runs forward to raise the tray. This is a positive setting.

Before doing any adjustments with these SP codes, confirm that the correct paper size has been selected for each tray with SP codes 1912, 1913, 1914, 1915.

- For more details about how this feature operates, please refer to "Feed Pressure Adjustment for Paper Size" in Detailed Section Descriptions – Paper Feed.
- For more details about how to do the adjustments, please refer to "SP1xxx: Feed" in Service Tables.

4.4 SKEWED IMAGE

Do the following to fix a skewed image problem.

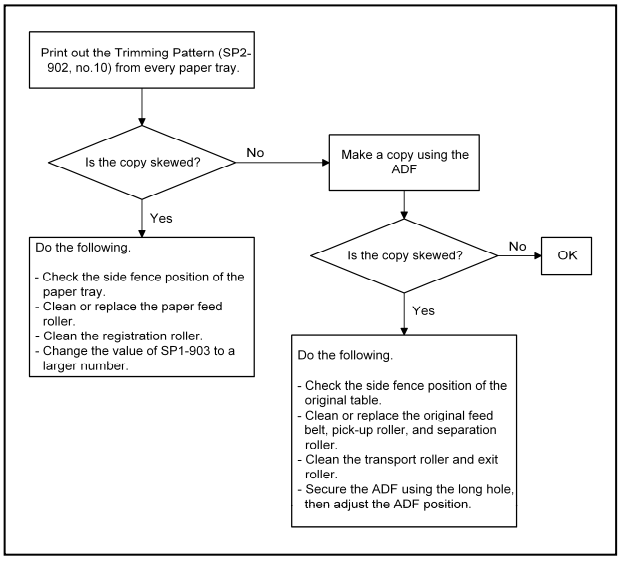
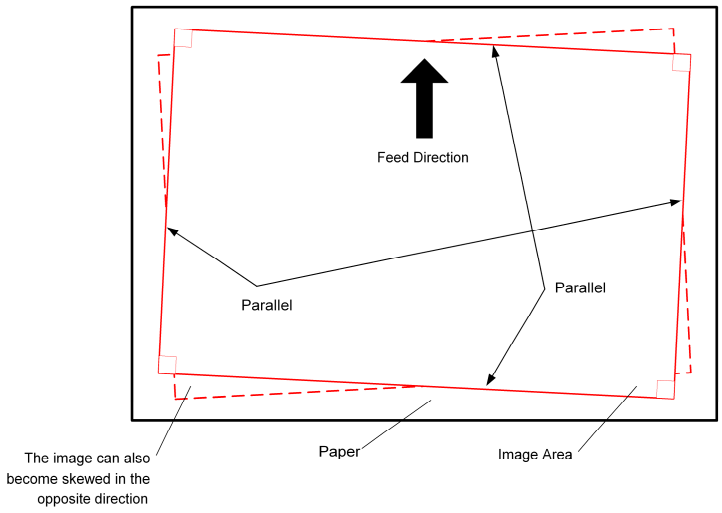


IMAGE PROBLEMS

4.4.1 SKEWED, TRAPEZOID AND PARALLELOGRAM IMAGES

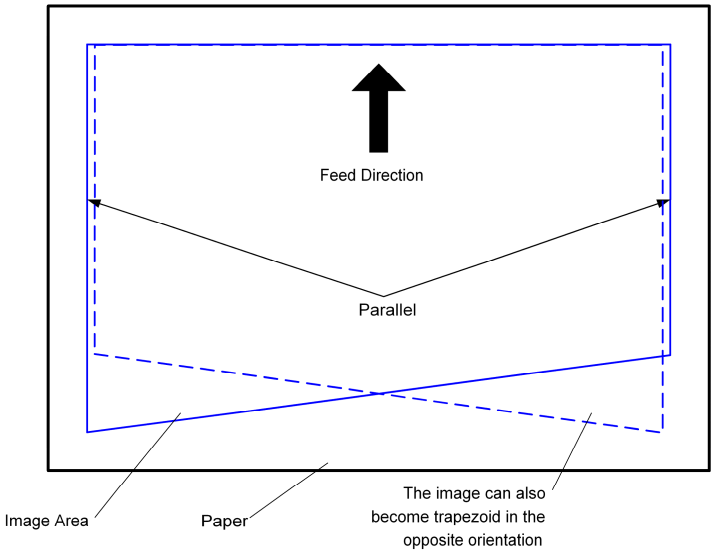
Skewed Images

- The image's leading and trailing edges are parallel.
- The image's left and right edges are also parallel.
- But, all four sides are not parallel with the paper edge.

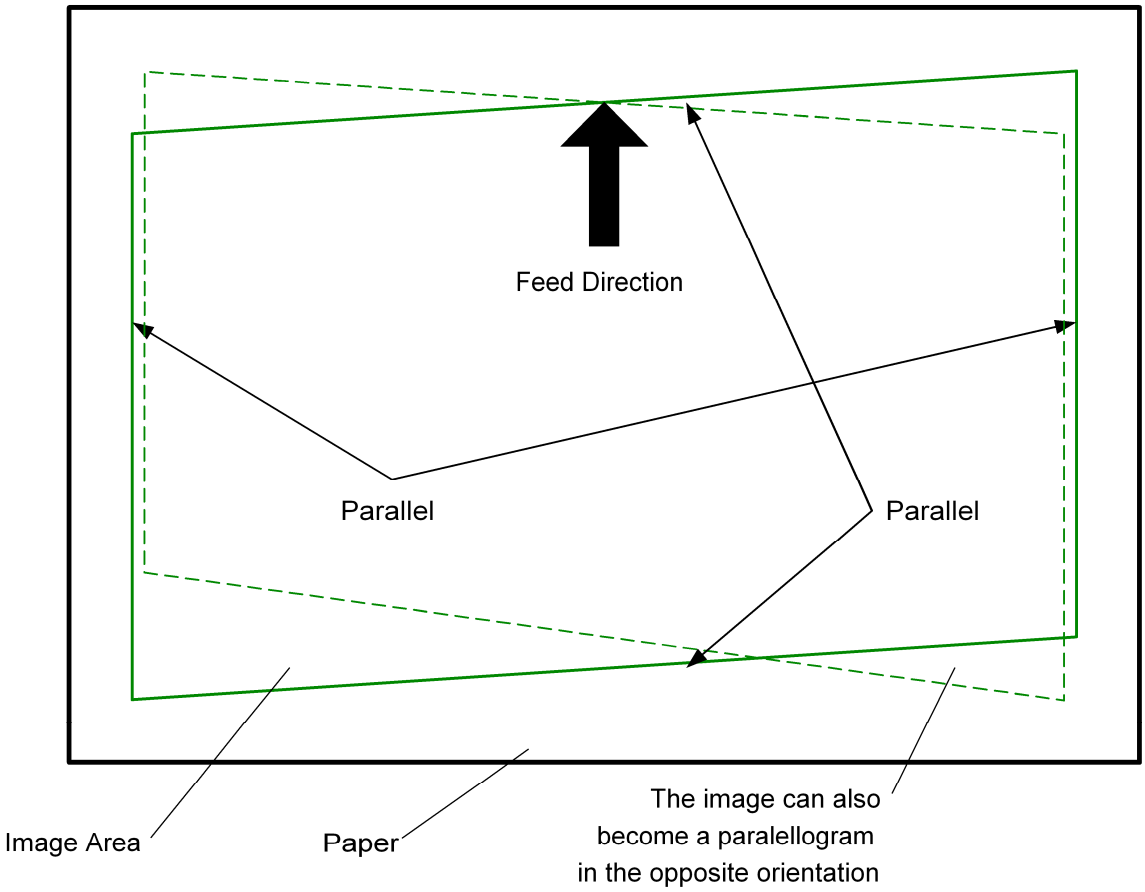


Trapezoid Images

- Only the image's trailing edge is not parallel with the paper edge. The other 3 sides are parallel to the paper's edges.



Parallelogram Images

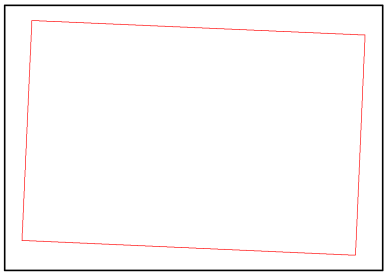


- Like skewed images, the leading/trailing edges and left/right edges are parallel to each other. But, the leading and trailing edges are not parallel to the paper's edges.

4.4.2 CHECKING IMAGES WITH THE TRIMMING PATTERN

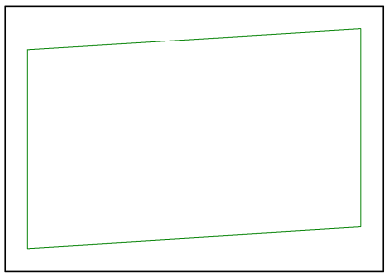
DoSP2-902-3 (Pattern 10) to print a trimming pattern.

Skewed



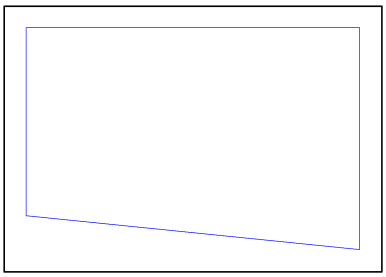
For more see "Adjusting Skewed Images" below

Parallelogram



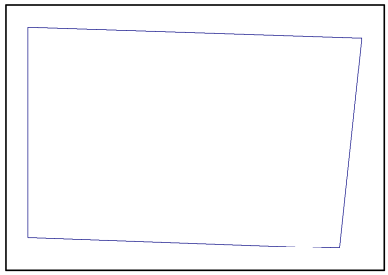
For more, see Parallelogram Image Adjustment

Trapezoid



For more, see "Adjusting Trapezoid Images" below.

Combination skewed and trapezoid image



Perform "Adjusting Skewed Images" first, then "Adjusting Trapezoid Images".

4.4.3 CORRECTING THE IMAGES

Correcting Skewed Images

1. Test pattern (Trimming Pattern) mode check

Is the image skewed?	
No	**Yes**
	1. Adjust the side fences. There must be no gap between the fences and the paper stack.
	2. Adjust the paper buckle: SP1-003-1 and 2.

2. Platen mode check

Set an original flush against the left and rear scales and make a copy. **Does the image come out as a parallelogram?**	
No	**Yes**
	Attach the Scanner Holder (supporter that is normally attached during shipping) OR Do Procedure A below.

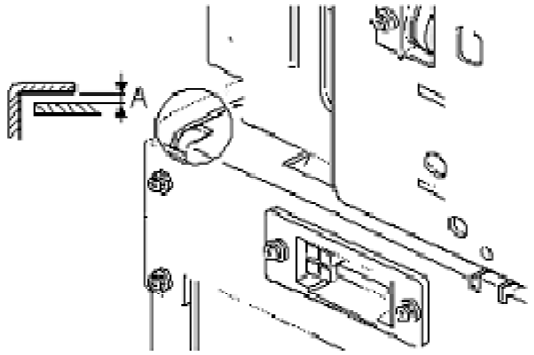
3. ADF mode check

Feed an original through the ADF. **Is the image skewed?**		
No	**Yes**	
	Do the front and rear transport rollers feed the original straight?	
	No	**Yes**
		Change the position of the right hinge screw to the longer hole, and make small position adjustments that are necessary.
	Do Procedure B below.	

Procedure A

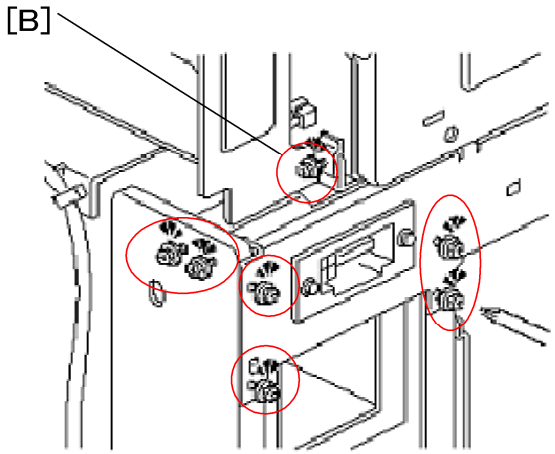
1. Remove the rear and left covers, then the left scanner cover.

Rear, left upper side of machine



b205t904a

2. Check to see if there is a gap between the scanner unit holder and frame at [A].
3. If there is no gap, the left front section of the scanner unit is lower than the standard position.



b205t905

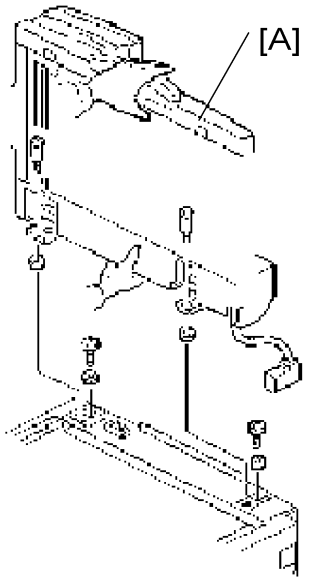
4. Loosen all screws (x7) [B].
5. Lift up the left front of unit until there is a 1 to 2 mm gap.
6. Tighten the 7 screws.
7. Insert a washer (#07080050, 1 mm thick) into gap [A].
8. Attach the washer in its position with an adhesive that sets quickly.

Note

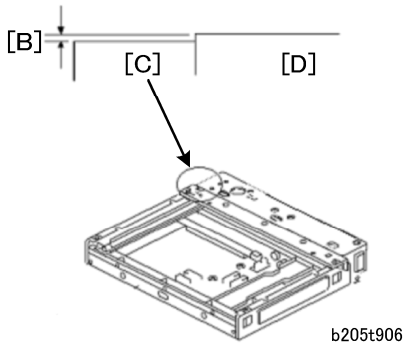
- This washer will also absorb small amounts of shock.

9. Check if the parallelogram image still appears.

Procedure B



1. Remove the ADF [A], machine rear cover, scanner left cover, and scanner rear cover.



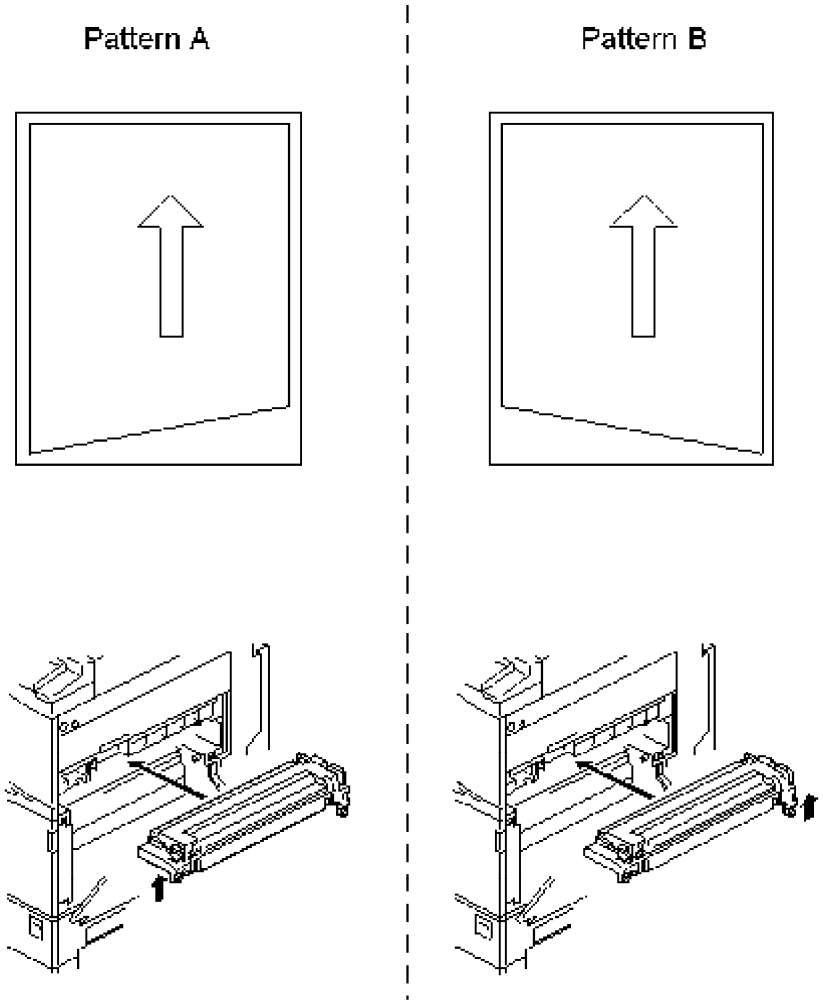
2. Measure the height difference [B] between the hinge bracket [C] and scanner housing [D].
3. If the difference is 0.5 mm or more:
   Add a spacer (t = 0.5 to 0.8) between the hinge bracket (mainframe) and ADF left hinge, to lift the left side of the ADF
   -or-
   Adjust the stepped height difference between the hinge bracket and scanner housing until it is within 0 ±0.3 mm.

Note

- This is necessary because skew occurs when the hinge bracket more than 0.3 mm lower than the scanner housing.

Correcting Trapezoid Images

Procedure 1: Minor Adjustment of the Fusing Unit Height (front-to-rear)



1. Print out the SP2-902 Trimming Pattern (value: 10).
2. If the image is a pattern A trapezoid:
   a) Remove and reinstall the Fusing Unit.
   b) Tighten the left fixing screw while you push up the unit's left side (until it stops).
3. If the image is a pattern B trapezoid, do the same for the unit's right side.
4. If the image is still printed out as a trapezoid, do Procedure 2 below.

Procedure 2: Minor Adjustment of the Fusing Unit Position (front-to-rear)

1. Remove the fusing unit, then add a washer (t = 0.5 to 1.6) to the front fixing screw.

   Note

   - This will increase the distance from the mainframe stay.
2. Check the image.

Image Problems

- Still NG: Go to the next step.
- OK: Adjustment Complete.

3. Add more washers (t = 0.5 to 1.6, as above).

Note

- Too many washers can cause wrinkling in the paper.
- Still NG: Go to the next step.
- OK: Adjustment Complete.

4. Remove the fusing unit and all the washers added in steps 1 and 2 above.
5. Then, add washer(s) in the same way for the rear side.

Recommended Washers:

t = 0.5, 07080040Z or 07080040G

t = 0.8, 07080050Z or 07080050G

Correcting Parallelogram Images

For the procedure, see "Parallelogram Image Problems".

4.6 ELECTRICAL COMPONENT DEFECTS

4.6.1 SENSORS

Component	CN	PCB	State	
1st Bottom Fence Sensor 1	309-1	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
1st Bottom Fence Sensor 2	309-4	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
1st Bottom Fence Sensor 3	309-7	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
1st Paper End Sensor	307-1	BCU	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
			Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.
1st Paper Height Sensor 1	310-1	BCU	Open	The CPU cannot determine the paper near-end condition properly.
			Shorted	
1st Paper Height Sensor 2	310-4	BCU	Open	The CPU cannot determine the paper near-end condition properly.
			Shorted	
1st Paper Lift Sensor	306-1	BCU	Open	SC501 displays.
			Shorted	Paper jam will occur during copying.
1st Side Fence Sensor	309-10	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	

Electrical Component Defects

1st Tray Detect Sensor	309-13	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Bottom Fence Sensor 3	309-21	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Bottom Fence Sensor 1	309-15	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Bottom Fence Sensor 2	309-18	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Paper End Sensor	308-1	BCU	Open	The Paper End indicator lights even if paper is placed in the 2nd paper tray.
			Shorted	The Paper End indicator does not light even if there is no paper in the 2nd paper tray.
2nd Paper Height Sensor 1	310-7	BCU	Open	The CPU cannot determine the paper near-end condition properly.
			Shorted	
2nd Paper Height Sensor 2	310-10	BCU	Open	The CPU cannot determine the paper near-end condition properly.
			Shorted	
2nd Paper Lift Sensor	306-2	BCU	Open	SC502 displays.
			Shorted	Paper jam will occur during copying.
2nd Side Fence Sensor	309-24	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Tray Detect	309-27	BCU	Open	The CPU cannot detect the

Sensor			Shorted	paper size properly.
APS Sensor 1: Original Width	223-1	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
APS Sensor 2: Original Width	223-4	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
APS Sensor 3: Original Length	223-7	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
APS Sensor 4: Original Length	223-10	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
APS Sensor 5: Original Length	223-13	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
Bridge Open Sensor (Paper Exit)	701-3	CKB	Open	"Open Cover" is displayed even the cover is closed.
			Shorted	"Open Cover" is not displayed even the cover is open.
Bridge Open Sensor (Relay)	701-1	CKB	Open	"Open Cover" is displayed even the cover is closed.
			Shorted	"Open Cover" is not displayed even the cover is open.

Electrical Component Defects

Duplex Unit Entrance Sensor	340-10	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
			Shorted	The Paper Jam indicator lights even if there is no paper.
Duplex Unit Exit Sensor	859-1	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
			Shorted	The Paper Jam indicator lights even if there is no paper.
Duplex Unit Set Sensor	859-9	BCU	Open	The Cover Open indicator is not lit even if the right upper cover is opened.
			Shorted	The Cover Open indicator is lit even if the right upper cover is closed.
Exit Sensor	703-4	CKB	Open	The Paper Jam indicator will light whenever a copy is made.
			Shorted	The Paper Jam indicator lights even if there is no paper.
ID Sensor	321-1	BCU	Open	SC392 is displayed (see note)
			Shorted	
Interchange/Inverter Sensor	331-9	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
			Shorted	The Paper Jam indicator

				lights even if there is no paper.
Lower Relay Sensor	308-4	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
			Shorted	The Paper Jam indicator lights even if there is no paper.
New PCU Detect Sensor	327-6	BCU	Open	The TD sensor initial setting procedure is not performed when a new PCU is installed.
			Shorted	The TD sensor initial setting procedure is performed whenever the front cover is closed.
Paper End Sensor (Bypass)	860-3	BCU	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
			Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.
Paper End Sensor (Duplex)	860-3	BCU	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
			Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.
Paper Exit Sensor	324-1	BCU	Open	The Paper Jam indicator will

Electrical Component Defects

				light whenever a copy is made.
			Shorted	The Paper Jam indicator lights even if there is no paper.
Paper Overflow Sensor	324-4	BCU	Open	The paper overflow message is not displayed when the paper overfull condition exist.
			Shorted	The paper overflow message is displayed.
Paper Overflow Sensor	703-1	CKB	Open	The paper overflow message is not displayed when the paper overfull condition exist.
			Shorted	The paper overflow message is displayed.
Paper Present Sensor	330-1	BCU	Open	LED does not light even if paper is in 1-bin tray.
			Shorted	LED lights even if paper is not in 1-bin tray.
Paper Size Sensor (Bypass)	860-6	BCU	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
			Shorted	
Paper Size Sensor (Duplex)	860-6	BCU	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
			Shorted	
Registration Sensor	321-5	BCU	Open	The Paper Jam indicator will

				light whenever a copy is made.
			Shorted	The Paper Jam indicator lights even if there is no paper.
Relay Sensor	702-1	CKB	Open	The Paper Jam indicator will light whenever a copy is made.
			Shorted	The Paper Jam indicator lights even if there is no paper.
Scanner HP Sensor	228-1	SIO	Open	SC120 is displayed.
			Shorted	The CPU does not detect the scanner home position and the scanner motor does not stop.
Shift Sensor	903-1	STB	Open	SC770 is displayed.
			Shorted	
TD Sensor	327-1	BCU	Open	SC390 is displayed.
			Shorted	
Upper Relay Sensor	307-4	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
			Shorted	The Paper Jam indicator lights even if there is no paper.

Note

- An SC condition occurs only when a new PCU is being installed in the machine. During copying, if the ID sensor fails, the image density will be changed.

4.6.2 SWITCHES

Component	CN	PCB	State	Symptom
Correct PCU Detect Switch	327-8	BCU	Open	The TD sensor initial setting procedure is not performed when a new PCU is installed.
			Shorted	The TD sensor initial setting procedure is performed whenever the front cover is closed.
Front Door Safety Switch	321-3	BCU	Open	The Cover Open indicator is not lit even if the front cover is opened.
			Shorted	The Cover Open indicator is lit even if the front cover is closed.
Right Upper Cover Switch	321-8	BCU	Open	The Cover Open indicator is not lit even if the right upper cover is opened.
			Shorted	The Cover Open indicator is lit even if the right upper cover is closed.
Right Lower Cover Switch	321-1	BCU	Open	The Cover Open indicator is not lit even if the right lower cover is opened.
			Shorted	The Cover Open indicator is lit even if the right lower cover is closed.

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4.7 BLOWN FUSE CONDITIONS

Fuse	Rating		Symptom when turning on the main switch
	115 V	220 to 240 V	
PSU			
FU1	15 A/250 V	8 A/250V	No response.
FU2	8 A/125 V	5 A/250 V	No response
FU3	2 A/125 V	1 A/250V	Anti-condensation/Tray Heater does not turn on.
FU4	6.3 A/125 V	6.3 A/250V	Optional finisher, bridge unit, and shift tray does not work then SC792 is displayed.
FU5	6.3 A/125 V	6.3 /250 V	All motors do not rotate. The "Cover Open" and SC indicators light.
FU6	6.3 A/125 V	6.3 A/250V	The touch panel does not turn on, and all motors (except scanner motor) do not rotate.
FU7	5 A/250 V	5 A/250 V	No response
FU8	5 A/250 V	5 A/250 V	No response

SERVICE TABLES

SERVICE TABLES (SP MODES) REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
94 - 95	03/10/2009	Deleted SP5807
135	05/27/2009	Deleted SP5912
136 ~ 138	09/16/2009	SP 5985
158 - 161	04/24/2009	Added Jam Codes to SP7504
213	04/21/2008	Firmware Update

5. SERVICE TABLES

5.1 SERVICE PROGRAM MODE

The service program (SP) mode is used to check electrical data, change modes, and adjust values.

⚠CAUTION

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

5.1.1 SERVICE MODE LOCK/UNLOCK

At locations where the machine contains sensitive data, the customer engineer cannot operate the machine until the Administrator turns the service mode lock off. This function makes sure that work on the machine is always done with the permission of the Administrator.

1. If you cannot go into the SP mode, ask the Administrator to log in with the 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.

5.1.2 SERVICE PROGRAM MODE OPERATION

Overview

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

Service Program Mode

- SP Mode (Service). Includes all the options in the SP displays for normal maintenance and adjustments.
- SSP Mode (Special Service). Includes the normal SP modes and some additional options in the SP displays not required for normal settings and adjustments. (Most are marked “DFU” in the following tables.) Do not change these important settings needlessly. For details, contact your supervisor.

Entering and Exiting SP mode

Entering the Service Mode.

1. Press the Clear Mode ( ) key.
2. Use the keypad to enter “107”.
3. Hold down the Clear/Stop ( ) key for at least 3 seconds.

To enter the Normal Service Mode:

1. On the touch-panel, press Copy SP.

To enter the Special Service Mode:

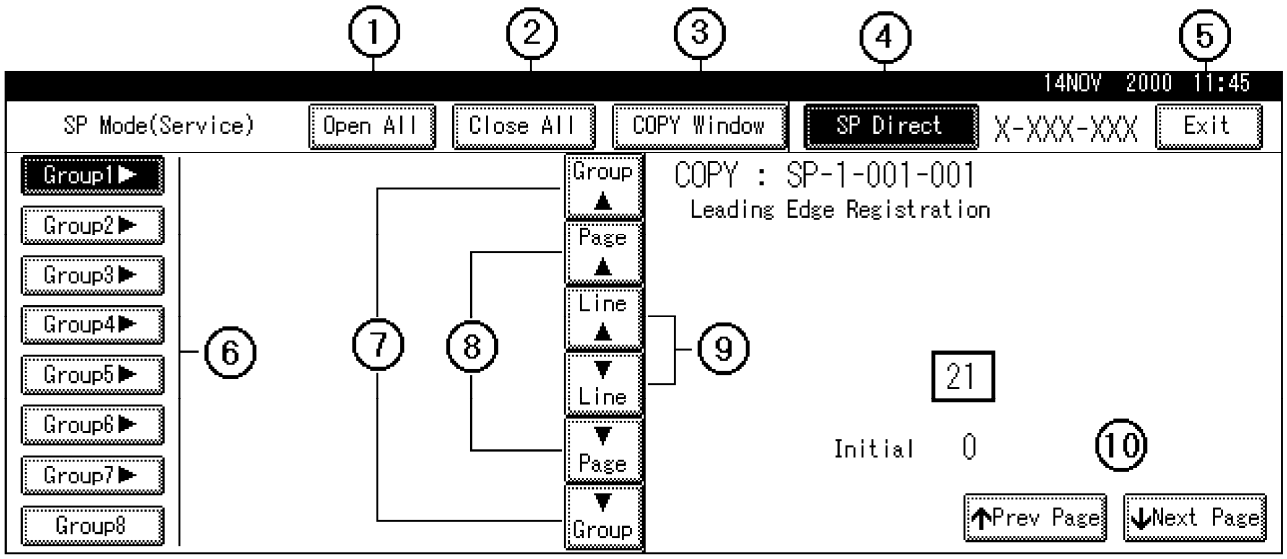
1. Hold down the # button, then press Copy SP.
2. Press Exit two times to return to the copy window.

Note

- Use SP2902 to print a test pattern (see ‘Test Pattern Printing’).

SP Mode Button Summary

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



① Opens all SP groups and sublevels.

② Closes all open groups and sublevels and restores the initial SP mode display.

③ Opens the copy window (copy mode) so you can make test copies. To return to the SP

mode screen, press SP Mode (highlighted) in the copy window.

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

⑤ Press twice to leave the SP mode and return to the copy window to resume normal operation.

⑥ Press any Group number to open a list of SP codes and titles for that group. For example, to open the SP code list for SP1nnn, press Group1. If an SP has sublevels, touch the appropriate button to expand the list.

⑦ Press to scroll the display to the previous or next group.

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

⑨ Press to scroll the display to the previous or next line, line by line.

⑩ Press to move the highlight on the left to the previous or next selection in the list.

Switching Between SP Mode and Copy Mode for Test Printing

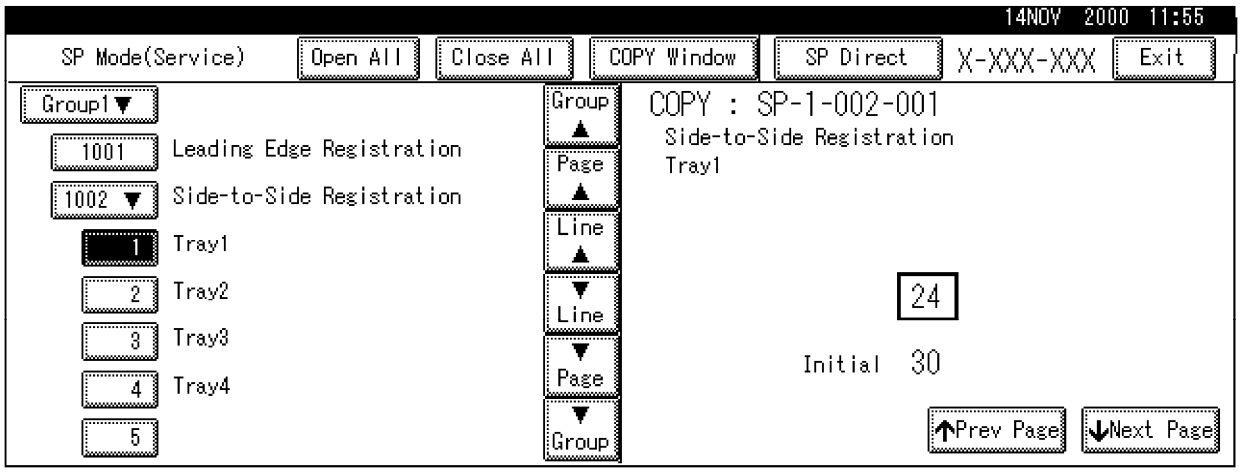
1. In the SP mode, select the test print and then press Copy Window.
2. Use the copy window (copier mode), to select the appropriate settings (paper size, etc.) for the test print.
3. Press the Start button (◇) to execute the test print.
4. Press SP Mode (highlighted) to return to the SP mode screen and repeat from step 1.

Selecting the Program Number

Program numbers have two or three levels.

1. Before you begin, refer to the Service Tables to find the SP that you want to adjust. (See 'Service Program Mode Tables'.)
2. Press the Group number on the left side SP Mode window that contains the SP that you want to adjust.
3. Use the scrolling buttons in the center of the SP mode window to display the SP number that you want to open, and then press that number to expand the list.
4. Use the center touch-panel buttons to scroll to the number and title of the item that you want to set and press. The small entry box on the right is activated and displays the default or the current setting below.

Service Program Mode



Note

- See the Service Program Mode Tables for the range of allowed settings.

5. To enter a setting
   - Press the ⓒ/* button to toggle between plus and minus, and then use the keypad to enter the appropriate number. The number you enter writes over the previous setting.
   - Press ⓔ to enter the setting. (If you enter a number that is out of range, the key press is ignored.)
   - When you are prompted to complete the selection, press Yes.
6. If you need to perform a test print, press Copy Window to open the copy window and select the settings for the test print. Press Start (◇) twice, and then press SP Mode (highlighted) in the copy window to return to the SP mode display.
7. When you are finished, press Exit twice to return to the copy window.

5.1.3 COMMONLY USED SP CODES AND FEATURES

This section is a summary of commonly used SP codes.

For details about the input/output checks, please refer to the SP code tables:

	Input Check	Output Check
Main Machine	SP5803	SP 5804
ARDF	SP 6007	SP 6008
Finisher	SP 6117	SP 6118

Test Pattern Printing (SP2902)

Note

- You can print a test pattern to confirm correct operation of the machine.

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

No.	Test Pattern
0	None
1	Vertical Line (1dot)
2	Horizontal Line (1dot)
3	Vertical Line (2-dot)
4	Horizontal Line (2-dot)
5	Grid Pattern (1dot)
6	Independent (1-dot)
7	Independent (2-dot)
8	100% Black Coverage
9	Belt Pattern
10	Trimming Area
11	Argyle
12	Argyle (2-dot)
13	Checkered Flag
14	Horizontal Belt

No.	Test Pattern
15	Independent (4-dot)
16	Grayscale Horizontal
17	Grayscale Vertical
18	Grayscale Horizontal/Vertical
19	Grayscale Grid
20	Grayscale Horizontal White Stripe
21	Grayscale Vertical White Stripe
22	Grayscale Horizontal/Vertical White Stripe
23	100% White Coverage
24	Trimming Area (OR Outside Data)

Note

- See SP 4417 in the SP table for a different set of test patterns.

SMC Data Lists (SP5990)

1. Open SP mode 5990 and select the number corresponding to the list that you wish to print.

SMC (System Parameter and Data Lists)	
1	All Data List
2	SP Mode Data List
3	UP Mode Data List
4	Logging Data List
5	Self-Diagnostics Results List
7	NIB Summary

SMC (System Parameter and Data Lists)	
8	Capture Log
21	Copy UP Mode List
22	Scanner SP Mode List
23	Scanner UP Mode List

2. Touch “Execute” on the touch panel
3. Select. “Single Face” or “Both Face”, then touch “Execute” to start printing.
4. After printing the list, press Exit twice to close the SP Mode screen and return to copy mode.

Memory All Clear (SP5801)

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

- SP2989 1-5: PCU ID (South Korea Only)
- SP2990 1-5: Original Toner ID (South Korea Only)
- SP2991 1-5: Original Toner Counter (South Korea Only)
- SP5811 1: Machine serial number
- SP5907: Plug & Play Brand Name and Production Name Setting

Normally, this SP mode should not be used. This procedure is necessary only after replacing the NVRAM, or when the copier malfunctions because the NVRAM is damaged.

1. Enter the SP mode, do SP5801, and press the number for the item that you want to initialize.

No.	What It Initializes	Comments
1	All Clear	Initializes items 2 to 12 below.
2	Engine Clear	Initializes all registration settings for the engine and process settings.
3	SCS	(System Control Service)/SRAM. Initializes default system settings, CSS settings, operation display coordinates, and ROM update information.

Service Program Mode

No.	What It Initializes	Comments
4	IMH Memory Clear	Initializes the image file system. (IMH: Image Memory Handler)
5	MCS	(Memory Control Service). Initializes the automatic delete time setting for stored documents.
6	Copier application	Initializes all copier application settings.
7	Fax application	Initializes the fax reset time, job login ID, all TX/RX settings, local storage file numbers, and off-hook timer.
8	Printer application	Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter.
9	Scanner application	Initializes the scanner defaults for the scanner and all the scanner SP modes.
10	Network application	Deletes the network file application management files and thumbnails, and initializes the job login ID.
11	NCS	(Network Control Service) Initializes the system defaults and interface settings (IP addresses also), SmartNetMonitor for Admin, WebStatusMonitor settings, and the TELNET settings.
12	R-FAX	Initializes the job login ID, SmartNetMonitor for Admin, job history, and local storage file numbers.
14	Clear DCS Settings	Initializes the DCS settings.
15	Clear UCS Settings	Initializes: SP5846 (All), SP5801 15
18	SRM Memory Clear	Initializes information in non-volatile RAM.
19	LCS Memory Clear	Initializes information in non-volatile RAM.

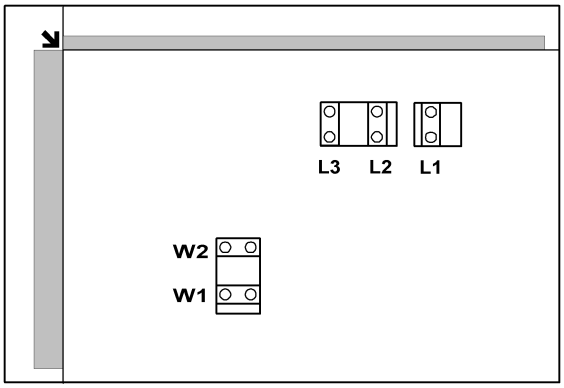
1. Press Execute and turn the main switch off and back on.

APS Output Display (SP4301)

When you open this SP, a small box will be displayed on the SP mode screen with a series of 0's and 1's. The meaning of the display is as follows.

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

0 = Paper not detected, 1 = Paper detected



d017s905

Bit	Description
7	L2
6	L3
5	W1
4	W2
3	Not Used
2	L1
1	Not Used
0	Not Used

Nip Band Width Measurement (SP1109)

When paper wrinkling or image off-set occurs, the pressure from the pressure roller can be adjusted by changing the position of the pressure springs. At this time, the nip band width can also be checked with SP1109, as follows.

1. Do a free run (SP5802) for about 50 sheets.
2. Access SP1109 and press the “1” key.
3. Press Copy Window to return to the copy window.
4. Place an OHP sheet (A4/8.5”x11” sideways) on the by-pass tray or in the 2nd paper tray.



5. Press the “Start” key.
6. The OHP sheet is stopped in the fusing unit for about 20 seconds, then it will be fed automatically.
7. Check the width of the nip band [A] around the center of the OHP. The relationship between the position of the pressure spring and the width is as follows.

1. Pressure spring position	**Nip band width**
Upper (default position)	5.2 ±0.5 mm
Lower	5.3 ±0.5 mm
2. Envelope feed mode (green lever down) at the default pressure spring position	4.7 ±0.5 mm

If the width is out of the above specification, the pressure spring should be replaced.

Software Reset

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

Turn the main power switch off and on.

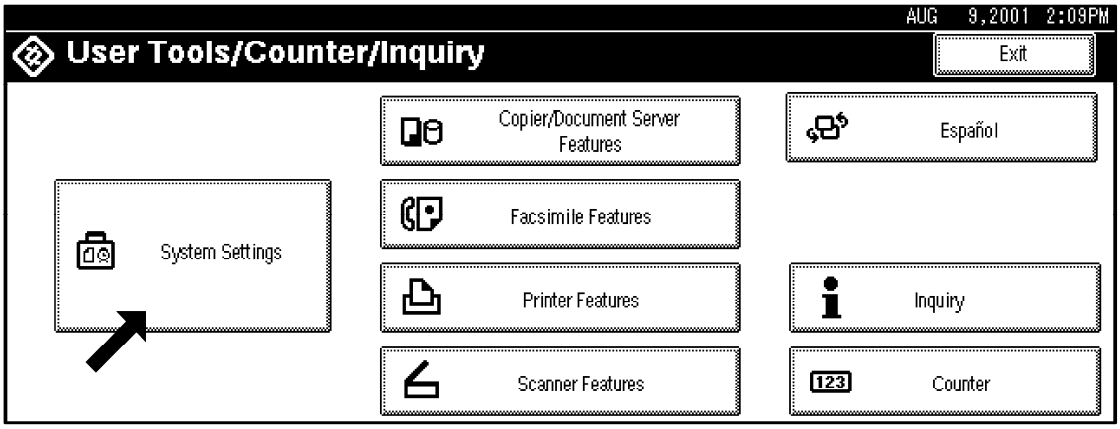
-or-

Press and hold down * and # together for longer than 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.

System Setting Reset

The system settings in the UP mode can be reset to their defaults. Use the following procedure.

1. Press User Tools/Counter.
2. Press and hold down # and then touch "System Settings".

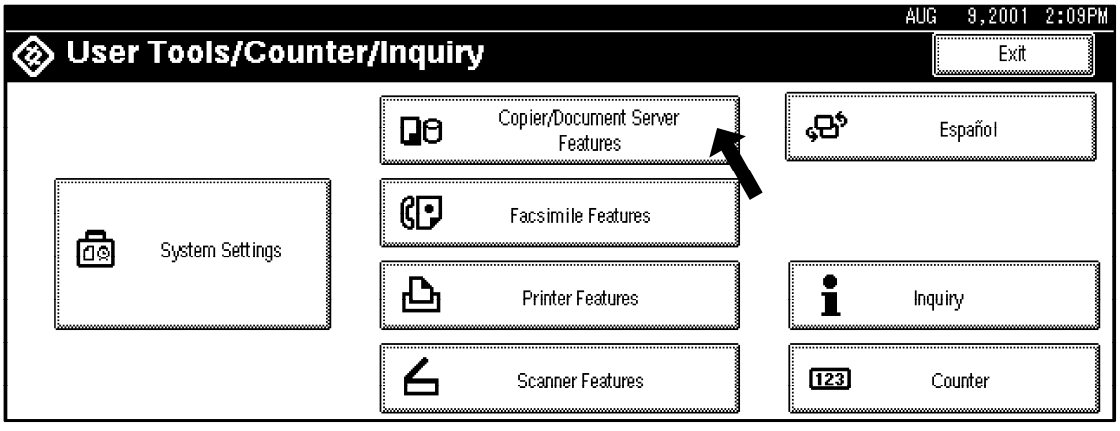


3. When the message prompts you to confirm that you want to reset the system settings, press Yes.
4. When the message tells you that the settings have been reset, press Exit.

Copier Setting Reset

The copy settings in the UP mode can be reset to their defaults. Use the following procedure.

1. Press User Tools/Counter.
2. Press and hold down # and then touch "Copier/Document Server Settings".



3. When the message prompts you to confirm that you want to reset the Copier Document Server settings, press Yes.
4. When the message tells you that the settings have been reset, press Exit.

5.1.4 SERVICE PROGRAM MODE TABLES

Service Table Key

Notation	What it means
[range / default / step]	Example: [-9 to +9 / +3.0 / 0.1 mm step]. The setting can be adjusted in the range ±9, the setting is reset to +3.0 after an NVRAM reset, and the value can be changed in 0.1 mm steps with each key press.
italics	Comments added for reference.
*	Value stored in NVRAM. After a RAM reset, this default value (factory setting) is restored.
1111	An SP number set in bold denotes a “Special Service Program” mode setting that appears only after entering the SP mode by pressing # and Copy SP together. (See ‘Service Program Mode Operation’.)
DFU	“Design or Factory Use”. Do not change this value.
Japan only	The feature or item is for Japan only. Do not change this value.
(S)	Sideways feed direction
(L)	Lengthwise feed direction

5.2 SP1XXX: FEED

1001*	Leading Edge Registration	
1	Tray	Adjusts the printing leading edge registration from each paper feed station using the Trimming Area Pattern (SP2902 Pattern No. 10). [+9.0 to –9.0 / +0.0 / 0.1 mm/step] Use the # key to toggle between + and – before entering the value. The specification is 3 ± 2 mm. See “Replacement and Adjustment - Copy Adjustment” for details.
2	By-pass	
3	Duplex Side2	

1002*	Side-to-Side Registration	
1	Tray 1	Adjusts the printing side-to-side registration from each paper feed station using the Trimming Area Pattern (SP2902 Pattern No. 10). [+9.0 to –9.0 / +0.0 / 0.1 mm/step] Use the # key to toggle between + and – before entering the value. The specification is 2 ± 1.5 mm. See “Replacement and Adjustment - Copy Adjustment” for details.
2	Tray 2	
3	Tray 3 (Optional PFU Tray 1, or LCT)	
4	Tray 4 (Optional PFU Tray 2)	
5	By-pass	
6	Duplex Side 2	

1003*	Registration Buckle Adjustment	
1	Tray 1	Adjusts the paper feed clutch timing at registration. The paper feed clutch timing determines the amount of paper buckle at registration. (A larger setting leads to more buckling.) [0 to 10 / 5 / 1 mm/step]
2	Tray 2/3/4 By-pass	

3	Duplex Side 2	[0 to 20 / 6 / 1 mm/step]

1007*	By-pass Paper Size Detection	
	Controls paper size detection for the by-pass feed table.	
1	Detection Timing	[-15 to 15 / **0** / 5 mm step]
2	LG Detection	[0 to 1 / **0** / -] 0: LT SEF, 1: LG

1103	Fusing Idling
	Switches fusing idling on/off. [0 = Off / 1 = On / 2 = Off plus machine temperature check] Switch on if fusing on the 1st and 2nd copies is incomplete (this may occur if the room is cold.)

1104	Fusing Temperature Control **DFU**
	[0 to 1/1/1] 0: Hysterysis Control 1: Normal Control

1105*	Fusing Temperature Adjustment	
1	Roller Center	Adjusts the fusing temperature at the center and both ends of the hot roller for normal printing. [120 to 200 / 180 / 1°C/step]
2	Roller Ends	
3	Energy Saver	Adjusts the fusing temperature at the center and both ends of the hot roller for energy saver mode. [0 to 160 / 150 / 1°C/step]
4	Thick Paper – Roller Center	Adjusts the additional fusing temperature

5	Thick Paper – Roller Ends	for thick paper for the 2nd paper tray and for the bypass tray. [0 to 30 / 15 / 1°C/step]
6	After Warming-up - Center	Adjusts the fusing temperature at the center of the hot roller after the machine has warmed up. [120 to 200 / 180 / 1°C/step]
7	After Warming-up - Ends	Adjusts the fusing temperature at both ends of the hot roller after the machine has warmed up. [120 to 200 / 185 / 1°C/step]
8	After Warming-up - No. of Pages	In this machine, fusing temperature is kept 10°C higher than the normal temperature for a number of pages after the machine has warmed up. This SP selects the number of pages made at this temperature. See Detailed Section Descriptions – Fusing for more details. [0 to 10 / 3 / 1 page/step]
9	After Warming-up - Time	In this machine, fusing temperature is kept 10°C higher than the normal temperature for a short while after the machine warms up. This SP selects the length of time that this temperature is used. See Detailed Section Descriptions – Fusing for more details. [0 to 180 / 60 / 1s/step]
10	Wait Temp: Center Minus	
11	Wait Temp: Ends Minus	

1106	Fusing Temperature Display

SP1xxx: Feed

1	Roller Center	Displays the fusing temperature for the center or both ends of the hot roller.
2	Roller Ends	
3	In the Machine at Power On	Displays the temperature in the machine at power on. This temperature is monitored by the thermistor on the SBCU board.

1108*	Fusing Soft Start Adj: Cycle
	Selects whether the fusing temperature control cycle is 1 or 3 seconds. If this is “1 (3 s)”, the power supply fluctuation caused by the fusing lamp turning on is less often. [0 = 1 s / 1 = 2 s] Default: 0 = N. America, Taiwan, 1 = Europe/Asia

1109*	Fusing Nip Band Check	
	Checks the fusing nip band.	
1	Execution	
2	Idling Rotation Time	[0 to 120 / **60** / 1 sec]
	Specifies the fusing rotation time before executing SP1109-001.	
3	Pre-Idling Time	[5 to 30 / **10** / 1 sec]
	Specifies the time that the paper stops in the fusing unit for measuring the nip.	

1159	Fusing Jam Detection
	Disables or enables the consecutive jam error for the fusing unit. [0 to 1/0/1 Step] When set to "1" (on) this SC code is issued after the 3rd consecutive jam in the fusing unit.

1902*	AC Frequency Display **DFU**
	Displays the AC frequency for fusing temperature control. [0 to 1/0/1 Step] Used to check the measured number of interrupts for the zero cross signal. Measured time interval is 500 ms with 5 interrupts per 2 mms: 10 ms x 50 = 500

1903*	Feed Clutch Re-energize	
	Adjusts the paper feed amount allowed by the clutch after correcting the skew at registration. When paper jams occur after restarting paper feed after registration, increase the value to help the registration roller feed the paper.	
1	By-pass Feed	[0 to 10 / 6 / 1 mm/step]
2	Tray 1 Feed	[0 to 10 / 0 / 1 mm/step]
3	Other Trays	

1907*	Timing Adjustment **DFU**

1908	F1 Plate Adj	Upper Tray: Main Machine (Standard)
1909	F2 Plate Adj	Lower Tray: Main Machine (Standard)
1910	F3 Plate Adj	Upper Tray: PTU (Option)
1911	F4 Plate Adj	Lower Tray: PTU (Option)
	These SP codes adjust the initial amount of pressure that the bottom plate exerts on the bottom of the stack that presses against the feed roller. Adjust these SP codes if the machine is consistently double-feeding or failing to feed a specific paper size. These SP codes adjust the length of time that the lift motor runs forward or reverse to raise or lower the bottom plate under the stack after the top of stack has reached the feed position. ▪ **Double feeding** occurs when there is too much pressure. To	

	correct this, increase the length of time the motor runs in reverse to lower the tray (to do this, reduce the value of the setting). ▪ **Failure to feed** occurs when there is not enough pressure. To correct this, increase the length of time the motor runs forward to raise the tray. (to do this, increase the value of the setting). **How to Read These SP Codes** ▪ Each selection shows the paper size and a percentage that indicates the amount of paper remaining in the tray when the setting will take effect. For example, "B4,LG 70%" means the setting will take effect when B4 or Legal size paper is loaded in the tray and 70% of the paper remains in the tray. ▪ The "Initial" notation in the display indicates the default value for the setting. A positive number (+) indicates the length of time (ms) the lift motor runs forward to raise the bottom plate and increase pressure. A negative number (-) indicates the length of time (ms) the lift motor runs in reverse to lower the bottom plate and reduce pressure. ▪ Please note that the "Initial" settings for some settings are negative (reverse run time), others are positive (forward run time). **Note**: Before doing any adjustments with these SP codes, confirm that the correct paper size has been selected for each tray with SP codes 1912, 1913, 1914, 1915.	
1	A3, DLT:100%	▪ To correct feed problems for a paper size, be sure to set all four settings (100%, 70%, 30%, 10%) for each paper size that is causing problems. ▪ The "T" notation denotes "SEF" (Short Edge Feed). ▪ The "Y" notation denotes "LEF" (Long Edge Feed)

56	A5T:70%->30%	

1912	Tray 1: Auto Paper Size Detection

1913	Tray 2: Auto Paper Size Detection	
1914	Tray 3: Auto Paper Size Detection	
1915	Tray 4: Auto Paper Size Detection	
	Some paper sizes are very nearly the same (A4, LT for example). The paper size sensors are not sensitive enough to distinguish between such paper sizes. Use these SP codes to select the paper size for the tray. A setting can be done for each tray: Tray 1: Upper Tray (Main Machine) Tray 2: Lower Tray (Main Machine) Tray 3: LCT Tray or Upper Tray: Paper Tray Unit Tray 4: Lower: Tray Paper Tray Unit	
1	Size 1: B5/Exe Landscape	[0 to 1/**0**/1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.) Note: "Landscape" means LEF (Long Edge Feed)
2	Size 2: A5/HLT Landscape	
3	Size 3: A4/LT	
4	Size 4: A4/LG	
5	Size 5: A3/LT	

1991	Max Fusing Lamp Duty **DFU**	
	These SP codes are debugging tools.	
1	Roller Center	[40 to 100/80/10%]
2	Roller Ends	
3	After Warming-up – Center	
4	After Warming-up - Ends	[40 to 100/100/10%]

1992	Mtr Rvrs Time at Fusing Drv Rls **DFU**
	This is a debugging tool. [0 to 3/3/1]

SP1xxx: Feed

1996	Heater Forced Off **DFU**	
	These are debugging tools	
1	Starting Temperature (Center)	[150 to 180/180/5 deg]
2	Starting Temperature (Side)	
3	Time (Center)	[0 to 5/0/1]
4	Time (Side)	
5	After Printing	[0 to 5/1/1]

5.3 SP2XXX: DRUM

2001*	Charge Bias
	Setting (Copying)
1*	Adjusts the voltage applied to the charge roller during printing. This value will be changed automatically when the charge roller bias correction is performed. Note that if this value is changed, the charge roller voltage will be corrected based on the new voltage. [2100 to 1500 / –1700 / 1 V/step]
	ID Sensor Pattern
2*	Adjusts the voltage applied to the charge roller when making the Vsdp ID sensor pattern (for charge roller bias correction). The actual charge roller voltage is this value plus the value of SP2001 1. [0 to 400 / 200 / 1 V/step]
	Temporary Input
3	Inputs the charge roller voltage temporarily for test purposes. **Do not change the value.** [0 to –2500 / 0 / 1 V/step]

2005*	Charge Bias Correction
	Vsdp Min
1	Adjusts the lower threshold value for the charge roller correction. When the value of Vsdp/Vsg is less than this value, the charge roller voltage increases by 50V (e.g. from –500 to –550). The size of the increase depends on SP2005 3. [0 to 100 / 90 / 1%/step]
2	Vsdp Max
	Adjusts the upper threshold value for the charge roller correction.

	When the value of Vsdp/Vsg is greater than this value, the charge roller voltage decreases by 50V (e.g. from –550 to –500). The size of the decrease depends on SP2005 3. [0 to 100 / 95 / 1 %/step]
3	Charge Roller Bias Correction
	Adjusts the size of the charge roller voltage correction. [0 to 200 / 50 / 1 V/step]

2101*	Erase Margin Adjust
1	Leading Edge
	Adjusts the leading edge erase margin. The specification is 3 ±2 mm. See “Replacement and Adjustment - Copy Adjustment” for details. [0.0 to 9.0 / 3.0 / 0.1 mm/step]
2	Trailing Edge – Small Paper
	Adjusts the trailing edge erase margin for paper of length 216 mm or less. The specification is 3 ±2 mm. See “Replacement and Adjustment - Copy Adjustment” for details. [0.0 to 9.0 / 2.0 / 0.1 mm/step]
3	Trailing Edge – Middle Paper
	Adjusts the trailing edge erase margin for paper of length 216.1 to 297 mm. The specification is 3 ±2 mm. See “Replacement and Adjustment - Copy Adjustment” for details. [0.0 to 9.0 / 3.0 / 0.1 mm/step]
4	Trailing Edge – Large Paper
	Adjusts the trailing edge erase margin for paper longer than 297 mm. The specification is 3 ±2 mm. See “Replacement and Adjustment - Copy Adjustment” for details. [0.0 to 9.0 / 4.0 / 0.1 mm/step]

5	Left Side
	Adjusts the left edge erase margin. The specification is 2 ±1.5 mm. See “Replacement and Adjustment - Copy Adjustment” for details. [0.0 to 9.0 / 2.0 / 0.1 mm/step]
6	Right Side
	Adjusts the right edge erase margin. The specification is 2 +2.5/-1.5 mm. See “Replacement and Adjustment - Copy Adjustment” for details. [0.0 to 9.0 / 2.0 / 0.1 mm/step]
7	Rear – Trailing Edge (Duplex 2nd Side)
	Adjusts the trailing edge erase margin on the reverse side of duplex copies. The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-2 or 3 or 4. The specification is 3 ±2 mm. See “Replacement and Adjustment - Copy Adjustment” for details [0.0 to 9.0 / 1.2 / 0.1 mm/step]
8	Rear – Left Side (Duplex 2nd Side)
	Adjusts the left side erase margin on the reverse side of duplex copies. The actual left side erase margin on the reverse side is this value plus the value of SP2101-5. The specification is 2 ±1.5 mm. See “Replacement and Adjustment - Copy Adjustment” for details. [0.0 to 9.0 / 0.3 / 0.1 mm/step]
9	Rear – Right Side (Duplex 2nd Side)
	Adjusts the right side erase margin on the reverse side of duplex copies. The actual right side erase margin on the reverse side is this value plus the value of SP2101-6. The specification is 2 +2.5/–1.5 mm. See “Replacement and Adjustment - Copy Adjustment” for details. [0.0 to 9.0 / 0.3 / 0.1 mm/step]

SP2xxx: Drum

	Printer - Rear Trailing Edge
10	In printer mode, adjusts the trailing edge erase margin on the reverse side of duplex copies. The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-7. The specification is 3 ±2 mm. See “Replacement and Adjustment - Copy Adjustment” for details [0.0 to 9.0 / 0.0 / 0.1 mm/step]

	LD Power Adjustment **DFU**
2103*	[50 to 170 / 129 / 1/step] Adjusts the LD power. **Do not change the value.**

	Test Mode dpi
2110*	Sets the scanning resolution (dpi). **DFU** [See below / 8 / 0to18] 0: 400x400 dpi 4: 300x300 dpi 8: 600x600 dpi

2201*	Development Bias Adjust
	Printing
1	Adjusts the development bias during printing. This can be adjusted as a temporary measure if faint copies appear due to an aging drum. [–1500 to –200 / –650 / 1 V/step]
	ID Sensor Pattern
2	Adjusts the development bias for making the ID sensor pattern. The actual development voltage for the ID sensor pattern is this value plus

	the value of SP2201-1. This should not be used in the field, because it affects ID sensor pattern density, which affects toner supply. [0 = N (200V) / 1 = H (240V) / 2 = L (160V) / 3 = HH (280V) / 4 = LL (120V)]

2210*	Bias Off Time
1	Charge Bias **DFU**
	Adjusts the charge voltage (-1200V) application time. When the charge voltage and development bias are turned off at the same time, toner or carrier will be attracted to the drum. To reduce the toner or carrier attraction, the machine applies –1200V to the charge roller before the development bias is turned off. This SP adjusts the time for applying the charge. [0 to 150 / 80 / 1 ms /step]
2	Development Bias **DFU**
	Adjusts the development bias off time. [-120 to 120 / 0 / 1ms/step]

2211*	PCU Reverse Interval
	Adjusts the PCU reverse interval for cleaning during a job. When the machine has made this number of copies in the middle of a job, the machine reverses to clean the edge of the cleaning blade. After cleaning, the machine resumes the job. Set to a shorter interval if thin white lines appear on printouts. [0 to 999 / 100 / 1 sheet/step] 0: Never cleans during job

2213*	Copies after Toner Near End
	Selects the number of copies that can be made after toner near-end has been detected. [0 = 50 pages / 1 = 20 pages]

	If the user normally makes copies with a high proportion of black, reduce the interval.

2220*	Vsg/V/Vsdp/Vt/Vts Display	
1	Vsg	Displays the individual Vt, Vsg, Vsp, Vsdp, and Vts values.
2	V	
3	Vsdp	
4	Vt	
5	Vts	
6	Vsp/Vsg/Vsdp/Vt/Vts	Displays all the data used in process control, separated by slashes (/).

2301*	Transfer Current Adjust
	Normal Paper
1*	Adjusts the current applied to the transfer roller during copying from a paper tray when the user uses the “Normal” paper setting. If the user normally feeds thicker paper from a paper tray, use a higher setting. [0 = –2 μA / 1 = 0 μA / 2 = +2 μA / 3 = +4μA]
	Thick/Thin Paper
2*	Adjusts the current applied to the transfer roller during copying from the by-pass tray. These settings are also used if the 2nd tray is used and special paper is selected. If the user normally feeds thicker paper from the by-pass tray/2nd tray (special paper), use a higher setting. If waste toner is re-attracted from the drum (this can occur when using an OHP sheet), use a higher setting. [0 = –2 μA / 1 = 0 μA / 2 = +2 μA / 3 = +4μA]
3*	Duplex Side 2

	Adjusts the current applied to the transfer roller during copying from the duplex unit when the user uses the “Normal” paper setting. Use this SP when the image on the rear side of the paper has a problem caused by poor image transfer. [0 = –2 μA / 1 = 0 μA / 2 = +2 μA / 3 = +4 μA]
4*	Cleaning
	Adjusts the current applied to the transfer roller during roller cleaning. If toner remains on the roller after cleaning (dirty background appears on the rear side of the paper), increase the current. [–10 to 0 / –4 / 1 μA /step]
5	Input – Front **DFU**
6	Input – Rear **DFU**
7	Temp Inside the Machine
	Displays the temperature measured inside the machine just after power-on (by the thermistor on the SBCU board) the last time that the fusing unit was less than 40°C just after the machine was switched on. The transfer current is corrected in accordance with this value.

2801	Developer Initialization
	Initializes the developer and resets the TD and ID sensor outputs to their defaults. Do this SP after you fill the PCU with developer at machine installation and every time developer is replaced.

2802	Developer Mixing
	Mixes the developer and checks Vt. The machine mixes the developer for 2 minutes and while doing this, it reads the TD sensor output (Vt). It does not initialize the TD sensor output. If the machine has not been used for a long time, prints may have a dirty background. In this case, use this SP mode to mix the developer.

SP2xxx: Drum

2803*	Developer Initialization Data
	Vts
1	When the machine detects a new PCU (photoconductor unit) in the machine, it checks the heat seals at the creation of the first ID sensor pattern. After the agitator is rotated for 30 sec., the machine creates the second ID sensor pattern and corrects the reference value of the TD sensor. The corrected reference value for the TD sensor is recorded here.
	ID Sensor PWM Value
2	Displays the PWM value of the ID sensor after performing the developer initialization.

2804	New PCU Check **DFU**
	This SP determines whether the machine is set to recognize a new PCU. [0 to 1/0/1] 0: New PCU recognition on. 1: New PCU recognition off.

2901*	Separation Voltage Adj
	Front – Leading Edge
1	Adjusts the voltage that is applied to the separation plate during printing at the leading edge of the paper on the front side. If the copies have pawl marks at the leading edge, increase this voltage. [–4000 to –1000 / –1800 / 1 V/step]
	Front – Image Area
2	Adjusts the voltage that is applied to the separation plate during printing on the image area of the paper on the front side. If the copies have pawl marks in the image area, increase this voltage. [–4000 to –1000 / –1800 / 1 V/step]
3	Rear – Leading Edge

	Adjusts the voltage applied to the separation plate, during printing at the leading edge of the paper on the rear side. See SP2901 1. [–4000 to –1000 / –2100 / 1 V/step]
4	Rear – Image Area
	Adjusts the voltage applied to the separation plate, during printing at the image area of the paper on the rear side. See SP2901 2. [–4000 to –1000 / –2100 / 1 V/step]

2902*	Test Pattern
	Prints the test patterns. Select the number of the test pattern that you want to print. When adjusting the printing registration, select no.10 (Trimming Area Pattern). [0 to 24 / 0 / 1 step]

Test Patterns for SP2902

0	None	13	Checker Flag Pattern
1	Vertical Line (1 dot)	14	Black Band (Vertical)
2	Horizontal Line (1 dot)	15	Independent Pattern (4 dot)
3	Vertical Line (2 dot)	16	Grayscale Horizontal
4	Horizontal Line (2 dot)	17	Grayscale Vertical
5	Grid Pattern 1	18	Grayscale Vertical Horizontal
6	Independent Pattern (1 dot)	19	Grayscale Grid
7	Independent Pattern (2 dot)	20	Grayscale (Horizontal Margin)
8	Full Dot Pattern	21	Grayscale (Vertical Margin)
9	Black Band (Horizontal)	22	Grayscale (Ver Hor Margin)

SP2xxx: Drum

10	Trimming Area	23	All White Pattern
11	Argyle Pattern	24	Trimming Area Or Out
12	Hounds Tooth Check (2 dot Hor)		

2906*	Tailing Correction
1	Shift Value
	Shifts the image across the page at the interval specified by SP2906 2. When making many copies of an original that contains vertical lines (such as a table), separation may not work correctly, then a tailing image will occur (ghosts of the vertical lines will continue past the bottom of the table). This SP prevents this problem. [0.0 to 1.0 / 0.0 / 0.1 mm/step]
2	Interval
	Changes the interval for the image shift specified by SP2906 1. [0 to 10 / 0 / 1 page/step]

2907*	Filter Setting	
	Adjusts the line width for the copy mode. The default setting disables this function. A number smaller than the default makes lines thinner, a number larger than the default makes lines thicker.	
1	Text: Multilevel Copy	[0 to 10 / 5 / 1 step]
2	Photo: Multilevel Copy	[0 to 10 / 6 / 1 step]
3	Text/Photo: Multilevel Copy	[0 to 10 / 5 / 1 step]
4	Pale: Multilevel Copy	
5	Generation: Multilevel Copy	

2908	Forced Toner Supply

	Forces the toner bottle to supply toner to the toner supply unit. Press Execute on the touch panel to start. During this process, the machine supplies toner until the toner concentration in the development unit reaches a standard level. However, if the toner concentration does not reach a standard level, the machine supplies toner for 2 minutes maximum.

2909*	Main Scan Magnification Adj
	[-0.5 to 0.5 / 0.0 / 0.1%/step]
1	Copy: Short Edge Feed
	Adjusts the main scan magnification in copy mode when the machine feeds the paper in the short edge feed orientation.
2	Printer: Short Edge Feed
	Adjusts the main scan magnification in printer mode when the machine feeds the paper in the short edge feed orientation.
3	Copy: Long Edge Feed
	Adjusts the main scan magnification in copy mode when the machine feeds the paper in the long edge feed orientation.
4	Printer: Long Edge Feed
	Adjusts the main scan magnification in printer mode when the machine feeds the paper in the long edge feed orientation.

2910*	Margin Adjust for By-pass
	Adjusts the blank margin at the trailing edge of paper fed from the by-pass table. [-9.0 to +9.0 / 0 mm / 0.1 mm/step]

2913*	ID Test Pattern

SP2xxx: Drum

	Adjusts the image density level for black pixels on test pattern printouts (patterns are made with SP2902) [0 to 15 / 15 / 1/step] This SP affects all test patterns except for the grayscale test patterns.

2915*	Polygon Motor Idling Time	
	Selects the polygon motor idling time. The polygon motor starts rotating up to its operation speed if the user 1) sets an original, 2) touches a key, or 3) opens the platen cover or document feeder. This shortens the time to the first copy. However, with the default (10 s) set, the motor stops if the user does nothing for 10 s after doing one of the actions above, and stops 10 s at the end of a job. **Note**: If set at "0", the polygon motor never turns off during stand-by. However, when the machine goes into energy saver mode, the polygon motor turns off regardless of this timer.	
1	Idling Time Adj.	[0 to 60/10/1]
2	Post Idling Time Adj.	

2921*	Toner Supply Mode
	Selects the toner supply mode. [0 = Sensor 1 / 1 = Sensor 2 / 2 = Fixed 1 / 3 = Fixed 2, 4 = Sensor 3] Normally, only use setting 0. Change to 3 temporarily if the TD sensor is defective. Do not use settings 1, 2 and 4; these are for designer's use only.

2922*	Toner Supply Time
	Adjusts the toner supply motor on time for sensor supply mode. This SP is effective only when SP2921 is "0" or "1". [0.1 to 5.0 / 0.6 / 0.1 s/step] Increasing this value increases the toner supply motor on time. So, use a high value if the user tends to make lots of copies that have a high proportion of black.

2923*	Toner Recovery Time Adjusts the toner supply motor on time during recovery from toner near-end/end. This SP is effective only when SP2921 is “0”, “1”, or “2”. [1 to 60 / 30 / 1 s/step] Note that toner recovery is done in a 3-second cycle. So, the input value should be a multiple of 3 (e.g. 3, 6, 9). See “Toner Density Control” for more details.

2925*	Toner Supply Ratio Adjusts the toner supply rate for fixed toner supply mode. This SP is effective only when SP2921 is “2” or “3”. Increasing this value increases the toner supply motor on time. So, use a high value if the user tends to make lots of copies that have a high proportion of black. See “Toner Density Control” for more details. [0 to 7 / 0 / 1/step] 0: t, 1: 2t, 2: 4t, 3: 8t, 4: 12t, 5: 16t, 6: On continuously, 7: 0 s t: 200 ms

2926*	Standard Vt **DFU** Adjusts Vts (Vt for a new PCU). The TD sensor output is adjusted to this value during the TD sensor initial setting process. This SP is effective only when SP2921 is “0”, “1”, or “2”. [0.00 to 5.00 / 2.50 / 0.05 V/step]

2927*	ID Sensor Control Selects whether the ID sensor is used or not for toner density control. [0 = No / 1 = Yes] If this value is “0”, dirty background may occur after the machine has not been used for a long time.

SP2xxx: Drum

2928*	Toner End Clear
	Clears the toner end condition. Press Execute on the touch panel to clear the toner end condition without adding new toner. When you press Execute, the following are cleared: ▪ Toner end indicator (goes out) ▪ Toner near-end counter ▪ Toner near-end level When making a lot of copies after changing this setting to “1”, the carrier may be attracted to the drum when the toner runs out, which may damage the drum.

2929*	Vref Adjustment
1	Upper Limit
	Adjusts the upper limit for Vref. [0.5 to 3.5 / 3.10 / 0.05 V/step]
2	Lower Limit
	Adjusts the lower limit for Vref. [0.5 to 3.5 / 1.40 / 0.05 V/step]

2930*	TD Sensor Manual Setting
	Adjusts the TD sensor output. **DFU** [0 to 5 / 0.0V / 0.05V/step]

2931*	TD (V/wt%) Setting
	Adjusts the TD sensor sensitivity (coefficient: S) for toner density control. **DFU** [0.01 to 1.50 / 0.4 / 0.01/step]

2932*	Toner Density Control Level
	Adjusts the toner density control threshold level. [0 = Normal / 1 = Dark / 2 = Light / 3 = Darker / 4 = Lighter]

	Use this SP when you want to adjust the image density.

2933*	ID Sensor Control Correction
	Adjusts the ID sensor control coefficient. **DFU** [0.5 to 3 / 1 / 0.1/step]

2934*	ID Sensor PWM Setting	
1	Display	Displays the PWM of the ID Sensor LED.
3	Upper Limit Correction	
	Corrects the upper limit of the PWM for the ID sensor LED. **DFU** [0 to 255 / 50 / 1/step]	

2935	ID Sensor Initialization
	Performs the ID sensor initial setting. Press Execute on the touch panel to start. Perform this setting after replacing or cleaning the ID sensor.

2989	Original PCU ID **South Korea only**	
	Displays the ISSUER CODE of the loaded PCU. The history of the PCU ID codes is stored in NVRAM for display.	
1	Latest	Most current code (in use).
2	Last 1	Up to four issuer codes of toner lots in the same series can be stored. If a PCU with a new series code is set, then the new code replaces the history of the previous PCU.
3	Last 2	
4	Last 3	
5	Last 4	

2990	Original Toner ID **South Korea only**

SP2xxx: Drum

	Displays the ISSUER CODE of the loaded toner. The history of the toner ID codes are stored in NVRAM for display.	
1	Latest	Most current code (in use).
2	Last 1	Up to four issuer codes of toner lots in the same series can be stored. If toner with a new series code is set, then the new code replaces the history of the previous toner.
3	Last 2	
4	Last 3	
5	Last 4	

2991	Original Toner Counter **South Korea only**	
	Displays the page counts for the issuer code history. [0 to 65535 / 0 / 1]	
1	Latest	This SP displays the page counts for each successive issuer code. See SP2990 above.
2	Last 1	
3	Last 2	
4	Last 3	
5	Last 4	

2992*	Copies After TD Sensor Error	
	Selects the number of copies that can be made after a TD sensor error has been detected. When the machine copies this amount, an SC condition will occur. If the optional fax unit is installed, the SC condition occurs immediately regardless of the number of prints (this is because the sender of the fax cannot check the image quality of the printout).	
1	0:100 Pages 1:200 Pages	
2	Counter	

2993*	ISSUER CODE Ref **South Korea Only**
	Sets the standard issuer code, once it has been determined. [0 to 9999 / 0 / 1]

2994*	Vts Limitation - Factory	
1	Upper Limit - Factory Only	**DFU**
2	Lower Limit - Factory Only	**DFU**

2995*	ID Sensor Detection Interval
1	Warming-up
	This SP controls the temperature at which the ID sensor pattern is created after the machine is turned on, or after the machine returns to full operation from the energy saver or auto off mode. [0 to 255 / 30 / 1 degree]
2	Number of Pages
	The machine makes an ID sensor pattern after the specified number of prints has been made. [0 to 999 / 300 / 1 page/step]
3	Job End/Interrupt
	Determines when the ID sensor reads the ID sensor pattern. 0: Job End. Read pattern at job end. 1: Interrupt. Read pattern at interval set with SP2995-2, even if the job is not completed.

2996	Transfer Roller Cleaning
	These SP codes determine how the transfer roller is cleaned.
1	0:OFF 1:ON

SP2xxx: Drum

	Selects whether the transfer roller is cleaned. Transfer roller cleaning is necessary only when black spots occur in the image areas of copies. This can occur when bad environmental conditions increase the toner density. Set this to '1' when dirty background appears on the reverse side of the first page of a copy job. However, the first copy time will be longer regardless of the SP2996 001 setting. [0 = No / 1 = Yes]
	Interval
2	This SP sets the page interval for transfer roller cleaning when SP2996 001 is set to "1" (Yes). Increase this setting only when absolutely necessary. A higher setting increases wear on the PCU. [0to100/50/1 sheets] **Note:** This SP does not execute for the first copy after power on or when the machine returns from the energy save or auto off mode. This SP setting does cannot correct poor copies if there is a problem with the TD sensor.

2997*	Standard Vt (Factory Only) **DFU**

2998*	PCU Reverse Rotation Time **DFU**
	Wait Time
1	Adjusts the waiting time for starting to rotate the drum in reverse after the end of each job. The wait time calculation formula is as follows. [0 to 999 / 600/ 1] This SP is adjusted in units of 30 ms (1 step = 30 ms, 2 steps = 60 ms, etc.) If "0" is selected, the drum reverses immediately at the end of the job.
	Reverse Time
2	Adjusts the drum reverse rotation time. [0 to 99 / 60/ 1] This SP is adjusted in units of 60 ms (1 step = 6 ms, 2 steps = 12 ms, etc.) If "0" is selected, the drum does not reverse at the end of the job.

	Brake Time
3	Adjusts the length of time of braking to stop reverse rotation of the drum. [0 to 99/60/1] This SP is adjusted in units of 6 ms (1 step = 6 ms, 2 steps = 12 ms, etc.) If "0" is selected, the drum stops reverse rotation immediately. **Note:** Adjust the SP only if the PCU makes noise during braking when the drum rotation slows. To reduce or eliminate the noise, select a lower setting to reduce the braking time.

5.4 SP3XXX

There are no Group 3 SP codes for this machine.

5.5 SP4XXX: SCANNER

4008*	Scanner Sub Scan Magnification
	Adjusts the magnification of the sub scan direction during scanning. Changing this value changes the scanner motor speed. Press # to toggle ±. [–1 to 1 / **0** / 0.1%]

4010*	Scanner Leading Edge Registration
	Adjusts the leading edge registration for scanning. Press # to toggle ±. [–2 to 2 / **0** / 0.1 mm] As you enter a negative value, the image moves toward the leading edge.

4011*	Scanner Side-to-side Registration
	Adjusts side-to-side registration for scanning. Press # to toggle ±. C: [–2.5 to +2.5 / 0.0 / 0.1 mm step] M: [–4.2 to +4.2 / 0.0 / 0.1 mm step] As you enter negative values, the image will disappear at the left, and as you enter positive values, the image will appear at the left.

4012*	Scanner Erase Margin: Scale	
	Adjusts the erase margin at each side for scanning in book mode and ADF mode. Note ▪ Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin. ▪ These settings are adjusted to erase shadows caused by the gap between the original and the scale of the scanner unit.	
1	Book: Leading Edge	[0 to 3.0 / 1.0 / 0.1 mm / step]
2	Book: Trailing Edge	[0 to 3.0 / 0.0 / 0.1 mm / step]

3	Book: Left	[0 to 3.0 / 1.0 / 0.1 mm / step]
4	Book: Right	[0 to 3.0 / 0.0 / 0.1 mm / step]
5	ADF: Leading Edge	
7	ADF: Right	
8	ADF: Left	

4013	Scanner Free Run	
	Performs a scanner free run with the exposure lamp on or off.	
001	Lamp: ON	[0 to 1 / **0** / 1] 0=Off, 1=On
002	Lamp: OFF	

4014	Scanner Free Run	
	Performs a scanner free run with the exposure lamp on. **Note**: The free run is done for full size (A3/DLT).	
1	HP Detection Enable	▪ Touch [Execute] to start this feature. ▪ Press the (Clear/Stop) key to stop.
2	HP Detection Disable	

4020	ADF Scan Glass Dust Check
	This function checks the narrow scanning glass of the ADF for dust that can cause black lines in copies. If dust is detected a system banner message is displayed, but processing does not stop.
1	Check On/Off Change
	Issues a warning if there is dust on the narrow scanning glass of the ADF when the original size is detected before a job starts. This function can detect dust on the white plate above the scanning glass, as well as dust on the glass. Sensitivity of the level of detection is adjusted with SP4020 2. [0 to 1 / 0 / 1]

	0: Off. No dust warning. 1: On. Dust warning. This warning does not stop the job. Note ▪ Before switching this setting on, clean the ADF scanning glass and the white plate above the scanning glass.
2	Detect Level
	Adjusts the sensitivity for dust detection on the ADF scanning glass. This SP is available only after SP4020 1 is switched on. [0 to 8 / 4/ 1] If you see black streaks in copies when no warning has been issued, raise the setting to increase the level of sensitivity. If warnings are issued when you see not black streaks in copies, lower the setting. **Note**: Dust that triggers a warning could be removed from the glass by the originals in the feed path. If the dust is removed by passing originals, this is not detected and the warning remains on.
3	Correction Level
	Selects the level of the sub scan line correction when using the ARDF. [0 to 4 / **0** / 1 /step] 0: Off, 1: Weakest, 2: Weak, 3: Strong, 4: Strongest

4301	APS Scanner Output Display
	Displays the status of the APS sensors and platen/DF cover sensor (see 'APS Output Display').

4303*	APS A5/LT Size Detection
	Selects if the copier defaults to A5 SEF/LEF if the APS sensor cannot detect the size of a small original. [0 to 2/0/1] 0: Not detected as A5 1: Detected as A5 SEF 2: Detected as A5 LEF

4305*	Original Size Detection
	Selects whether the machine determines that the original is A4/LT, or 8K/16K. 8K/16K is not available for USA models. [0 = Normal (LT for USA models, A4 for Europe/Asia models) 1 = Reversed [A4 for USA models, LT for Europe/Asia models] 2 = 8K/16K]

4400	Scanner Erase Margin	
	These SPs set the area to be masked during platen (book) mode scanning.	
1	Book: Leading Edge	[0 to 3.0 / 0.0 / 0.1 mm/step]
2	Book: Trailing Edge	
3	Book: Left	
4	Book: Right	
5	ADF: Leading Edge	[0 to 3.0 / 2.0 / 0.1 mm/step]
7	ADF: Right	[0 to 3.0 / 0 / 0.1 mm/step]
8	ADF: Left	

4417	IPU Test Pattern		
	Selects the IPU test Pattern.		
	Test Pattern Selection	[0 to 28 / **0** / 1]	
		0: Scanned image	15: Gray pattern (1)
		1: Gradation main scan A	16: Gray pattern (2)
		2: Gradation main scan B	17: Gray pattern (3)
		3: Gradation main scan C	18: Shading pattern

		4: Gradation main scan D	19: Thin line pattern
		5: Gradation sub scan (1)	20: Scanned + Grid pattern
		6: Grid pattern	21: Scanned + Grid scale
		7: Slant grid pattern	22: Scanned + Color patch
		8: Gradation K	23: Scanned + Slant Grid C
		9: Check pattern 16	24: Scanned + Slant Grid D
		10: Gray patch 16 (1)	25: Gray Scale 18 text
		11: Gray patch 16 (2)	26: Gray Scale 18 photo
		12: Gray patch 64	27: Gray Scale 256 text
		13: Grid pattern (2)	28: Gray Scale 256 photo
		14: Color patch K	

4429	ICI Output Selection	
	Adjusts the ICI density level.	
1	Copy	[32 to 255 / **128** / 1 /step] 255: Strongest density
2	Scanner	
3	Fax	

4450	Scan Image Path Detection	
	Determines the method of image path detection.	
1	Black Reduction ON/OFF	Switches black image path detection on/off
2	SH ON/OFf	Switches shading image path detection on/off

4460	Digital AE Setting

	Specifies the detection threshold for background deletion in ADS mode.	
1	Lower Limit	[0 to 1024 / **364** / 4 digit/step]
2	Background Level	[512 to 1532 / **972** / 1 digit/step]

4540	Printer Vector Correction	
	This SP corrects the printer coverage for 12 hues (RY, YR, YG, etc. x 4 Colors [R, G, B, Option]) for a total of 48 parameters.	
1-4	RY Phase: Option/R/G/B	Specifies the printer vector correction value. [0 to 255 / 0 / 1 /step]
5-8	YR Phase: Option/R/G/B	
9-12	YG Phase: Option/R/G/B	
13-16	GY Phase: Option/R/G/B	
17-20	GC Phase: Option/R/G/B	
21-24	CG Phase: Option/R/G/B	
25-28	CB Phase: Option/R/G/B	
29-32	BC Phase: Option/R/G/B	
33-36	BM Phase: Option/R/G/B	
37-40	MB Phase: Option/R/G/B	
41-44	MR Phase: Option/R/G/B	
45-48	RM Phase: Option/R/G/B	

4550*	Scanner: Text/Chart
4551*	Scanner: Text
4552*	Scanner: Text (Dropout Color)
4553*	Scanner: Text/Photo

4554	Scanner: Photo	
4565	Scanner: Grayscale	
4570	Scanner: Color: Text/Photo	
4571	Scanner: Color: Text/Photo	
4572	Scanner: Color: Auto Color	
5	MTF: 0(Off), 1-15 (On)	
	[0 to 15 / **8** / 1 /step] 0: MTF Off When the CCD converts the original image to electrical signals, the contrast is reduced due to the influence that adjacent white and black pixels have on one another as a result of lens properties. Typically, you may see very narrow width and spacing between black and white areas. MTF corrects this problem and emphasizes image detail.	
6	Smoothing	Selects the level of smoothing for originals that contain dithered images. [0 to 7 / 4 / 0 / step] 0: Default (Off) → 7: Strongest
7	Brightness	Sets the overall brightness of the image. [1 to 255/128/1] 1: Weakest ← 128: Default → 255: Strongest
8	Contrast	Sets the overall contrast of the image. [1 to 255/128/1] 1: Weakest ← 128: Default → 255: Strongest
9	Ind. Dot Erase	Sets the level of independent dot erasure to improve the appearance of background. [0 to 7/0/1] 0: Default (Off) → 7: Strongest

4580	Fax: Text/Chart

4581	Fax: Text	
4582	Fax: Text/Photo	
4583	Fax: Photo	
4584	Fax: Original 1	
4585	Fax: Original 2	
5	MTF: 0(Off), 1-15 (On)	
	[0 to 15 / **8** / 1 /step] 0: MTF Off When the CCD converts the original image to electrical signals, the contrast is reduced due to the influence that adjacent white and black pixels have on one another as a result of lens properties. Typically, you will see very narrow width and spacing between black and white areas. MTF corrects this problem and emphasizes image detail.	
6	Smoothing	Selects the level of smoothing for originals that contain dithered images. [0 to 7 / 4 / 0 / step] 0: Default (Off) → 7: Strongest
7	Brightness	Sets the overall brightness of the image. [1 to 255/128/1] 1: Weakest ← 128: Default → 255: Strongest
8	Contrast	Sets the overall contrast of the image. [1 to 255/128/1] 1: Weakest ← 128: Default → 255: Strongest
9	Ind. Dot Erase	Sets the level of independent dot erasure to improve the appearance of background. [0 to 7/0/1] 0: Default (Off) → 7: Strongest
10	Text Erasure	Sets the erasure level of textures. Set higher for stronger effect, lower for weaker effect. [0 to 2 / 0 / 1 /step]

		0: Not activated **Note**: This SP code exists for SP4580, SP4582 and SP4583 only.

4600	SBU Version
	Displays the version number of the SBU.

4602	Scanner Memory Erase	
1	Scanner Memory Access	Enables the read and write check for the SBU registers.
2	Address Setting	Not used.
3	Data Set	

4603	AGC Execution **DFU**
	Executes the AGC.
1	HP Detection Enable
2	HP Detection Disable

4604	FGATE Open/Close
	Opens or closes the FGATE signal. This SP automatically returns to the default status (close) after exiting this SP. [0 or 1 / 0 / 1/step] 0: OFF, 1: ON **Note**: ▪ When the registration sensor goes ON, the BCU generates the FGATE signal and sends it to the LD units. ▪ As soon as the LD units receive the FGATE signal, they send a feedback signal to the BCU. ▪ SC230, SC231 if the FGATE signal fails to switch on or off.

4606	White Balance Target: R
4607	White Balance Target: G
4608	White Balance Target: B
	These SP codes set the target values for R, G, B (Red, Green, Blue) during white level adjustment. [0 to 1024 / **784** / 1 digit/step]

4623	Black Level Fine Adj. Display **Note**: ▪ RE: Red Even signal ▪ RO: Red Odd signal	
1	Latest: RE Color	Displays the black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
2	Latest: RO Color	Displays the black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
3	Latest: RE Color	Displays the black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed).
4	Latest: RO Color	Displays the black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
5	Latest: RE BW	Displays the black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]
6	Latest: RO BW	Displays the black offset value (rough adjustment)

		for the odd red signal in the CCD circuit board (black and white printing speed).
7	Latest: RE BW	Displays the black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed).
8	Latest: RO BW	Displays the black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4624	Black Level Rough Adj. Display	
	Note: ▪ GE: Green Even signal ▪ GO: Green Odd signal	
1	Latest: GE Color	Displays the black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
2	Latest: GO Color	Displays the black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).
3	Latest: GE Color	Displays the black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed).
4	Latest: GO Color	Displays the black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
5	Latest: GE BW	Displays the black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]

6	Latest: GO BW	Displays the black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
7	Latest: GE BW	Displays the black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed).
8	Latest: GO BW	Displays the black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

4628	Gain Adjustment Display	
	Displays the gain value of the amplifiers on the controller for Red.	
1	Latest: RE Color	[0 to 255 / 0 / 1 digit/step]
2	Latest: RO Color	
3	Latest: RE BW	
4	Latest: RO BW	

4629	Gain Adjustment Display	
	Displays the gain value of the amplifiers on the controller for Green.	
1	Latest: GE Color	[0 to 255 / 0 / 1 digit/step]
2	Latest: GO Color	
3	Latest: GE BW	
4	Latest: GO BW	

4630	Gain Adjustment Display
	Displays the gain value of the amplifiers on the controller for Blue.

1	Latest: BE Color	[0 to 255 / 0 / 1 digit/step]
2	Latest: BO Color	
3	Latest: BE BW	
4	Latest: BO BW	

4640	SBU Black Level Loop	
	Displays the black level adjustment time for each mode. The black level adjustment is done twice. The 1st loop decides the reference value for the 2nd loop.	
1	Loop Count 1st: Color	1st adjustment [0 to 20 / **0** / 1 /step]
2	Loop Count 1st: B/W	
3	Loop Count 2nd: Color	2nd adjustment [0 to 20 / **0** / 1 /step]
4	Loop Count 2nd: B/W	

4641	SBU White Level Loop	
	Displays the white level adjustment time for each mode.	
1	Loop Count: Color	[0 to 20 / **0** / 1 /step]
2	Loop Count: B/W	

4646*	SBU Timeout Error	
	Use this SP to determine whether the automatic scanner adjustment loop has exceeded the prescribed number of loops and flagged a timeout.	
1	Black Level Adjustment 1	0: OK 1: AGC adjustment failure
2	Black Level Adjustment 2	
3	White Level Adjustment	

4647	SBU Error
	Displays the result of the SBU connection check.

4654	Black Level 1: Rough Adj. Display	
	RE: Red Even signal, RO: Red Odd signal	
1	Previous: RE Color	Displays the previous black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step]
2	Previous: RO Color	Displays the previous black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
3	Previous: RE Color	Displays the previous black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
4	Previous: RO Color	Displays the previous black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
5	Previous: RE BW	Displays the previous black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step]
6	Previous: RO BW	Displays the previous black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
7	Previous: RE BW	Displays the previous black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]

8	Previous: RO BW	Displays the previous black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4655	Black Level 1: Rough Adj. Display	
	GE: Green Even signal, GO: Green Odd signal	
1	Previous: GE Color	Displays the previous black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step]
2	Previous: GO Color	Displays the previous black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).
3	Previous: GE Color	Displays the previous black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
4	Previous: GO Color	Displays the previous black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
5	Previous: GE BW	Displays the previous black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step]
6	Previous: GO BW	Displays the previous black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
7	Previous: GE BW	Displays the previous black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]

8	Previous: GO BW	Displays the previous black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

4656	Black Level 1: Rough Adj. Display	
	BE: Blue Even signal, BO: Blue Odd signal	
1	Previous: BE Color	Displays the previous black offset value (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step]
2	Previous: BO Color	Displays the previous black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
3	Previous: BE Color	Displays the previous black offset value (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
4	Previous: BO Color	Displays the previous black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
5	Previous: BE BW	Displays the previous black offset value (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step]
6	Previous: BO BW	Displays the previous black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).
7	Previous: BE BW	Displays the previous black offset value (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]

8	Previous: BO BW	Displays the previous black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).

4658	Gain Adjustment Display	
	Displays the previous gain value of the amplifiers on the controller for Red.	
1	Previous: RE Color	[0 to 255 / 0 / 1 digit/step]
2	Previous: RO Color	
3	Previous: RE BW	
4	Previous: RO BW	

4659	Gain Adjustment Display	
	Displays the previous gain value of the amplifiers on the controller for Green.	
1	Previous: GE Color	[0 to 255 / 0 / 1 digit/step]
2	Previous: GO Color	
3	Previous: GE BW	
4	Previous: GO BW	

4660	Gain Adjustment Display	
	Displays the previous gain value of the amplifiers on the controller for Blue.	
1	Previous: BE Color	[0 to 255 / 0 / 1 digit/step]
2	Previous: BO Color	
3	Previous: BE BW	
4	Previous: BO BW	

SP4xxx: Scanner

4661	Black Level 2: Rough Adjustment Display	
	RE: Red Even signal, RO: Red Odd signal	
1	Previous: RE Color	Displays the previous 2nd black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step]
2	Previous: RO Color	Displays the previous 2nd black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
3	Previous: RE Color	Displays the previous 2nd black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
4	Previous: RO Color	Displays the previous 2nd black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
5	Previous: RE BW	Displays the previous 2nd black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step]
6	Previous: RO BW	Displays the previous 2nd black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
7	Previous: RE BW	Displays the previous 2nd black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]
8	Previous: RO BW	Displays the previous 2nd black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4662	Black Level 2: Rough Adjustment Display	
	GE: Green Even signal, GO: Green Odd signal	
1	Previous: GE Color	Displays the previous 2nd black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step]
2	Previous: GO Color	Displays the previous 2nd black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).
3	Previous: GE Color	Displays the previous 2nd black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
4	Previous: GO Color	Displays the previous 2nd black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
5	Previous: GE BW	Displays the previous 2nd black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step]
6	Previous: GO BW	Displays the previous 2nd black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
7	Previous: GE BW	Displays the previous 2nd black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]
8	Previous: GO BW	Displays the previous 2nd black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

SP4xxx: Scanner

4663	Black Level 2: Rough Adjustment Display	
	BE: Blue Even signal, BO: Blue Odd signal	
1	Previous: BE Color	Displays the previous 2nd black offset value (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step]
2	Previous: BO Color	Displays the previous 2nd black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
3	Previous: BE Color	Displays the previous 2nd black offset value (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
4	Previous: BO Color	Displays the previous 2nd black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
5	Previous: BE BW	Displays the previous 2nd black offset value (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step]
6	Previous: BO BW	Displays the previous 2nd black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).
7	Previous: BE BW	Displays the previous 2nd black offset value (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]
8	Previous: BO BW	Displays the previous 2nd black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).

4673	Black Level 2: Rough Adjustment Display	
	RE: Red Even signal, RO: Red Odd signal	
1	Factory Setting: RE Color	Displays the factory setting values of the black level adjustment for the even red signal in the CCD circuit board (color printing speed).. [0 to 255 / 112 / 1 digit/step]
2	Factory Setting: RO Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
3	Factory Setting: RE Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
4	Factory Setting: RO Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
5	Factory Setting: RE BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step]
6	Factory Setting: RO BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
7	Factory Setting: RE BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]
8	Factory Setting: RO BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4674	Black Level 2: Rough Adjustment Display	
	GE: Green Even signal, GO: Green Odd signal	
1	Factory Setting: GE Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step]
2	Factory Setting: GO Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).
3	Factory Setting: GE Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
4	Factory Setting: GO Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
5	Factory Setting: GE BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step]
6	Factory Setting: GO BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
7	Factory Setting: GE BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the even

		green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]
8	Factory Setting: GO BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

4675	Black Level 2: Rough Adjustment Display	
	BE: Blue Even signal, BO: Blue Odd signal	
1	Factory Setting: BE Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step]
2	Factory Setting: BO Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
3	Factory Setting: BE Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step]
4	Factory Setting: BO Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
5	Factory Setting: BE BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step]
6	Factory Setting: BO BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd blue

		signal in the CCD circuit board (black and white printing speed).
7	Factory Setting: BE BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step]
8	Factory Setting: BO BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).

4677	Gain Adjustment Display	
	Displays the factory setting values of the gain adjustment for Red.	
1	Factory Setting: RE Color	[0 to 255 / 0 / 1 digit/step]
2	Factory Setting: RO Color	
3	Factory Setting: RE BW	
4	Factory Setting: RO BW	

4678	Gain Adjustment Display	
	Displays the factory setting values of the gain adjustment for Green.	
1	Factory Setting: GE Color	[0 to 255 / 0 / 1 digit/step]
2	Factory Setting: GO Color	
3	Factory Setting: GE BW	
4	Factory Setting: GO BW	

4679	Gain Adjustment Display

	Displays the factory setting values of the gain adjustment for Blue.	
1	Factory Setting: BE Color	[0 to 255 / 0 / 1 digit/step
2	Factory Setting: BO Color	
3	Factory Setting: BE BW	
4	Factory Setting: BO BW	

4685	Gray Balance Set: R **DFU**	
	Adjusts the gray balance of the red signal for each scanning mode.	
1	Book Read	[-512 to 511 / -240 / 1 digit/step]
2	DF Read	

4686	Gray Balance Set: G **DFU**	
	Adjusts the gray balance of the green signal for each scanning mode.	
1	Book Read	[-512 to 511 / -240 / 1 digit/step]
2	DF Read	

4687	Gray Balance Set: B DFU	
	Adjusts the gray balance of the blue signal for each scanning mode.	
1	Book Read	[-512 to 511 / -240 / 1 digit/step]
2	DF Read	

4688	DF: Density Adjustment
	Adjusts the white shading parameter when scanning an image with the DF. Adjusts the density level if the ID of outputs made in the DF and Platen mode is different. [50 to 150 / 109 / 1%/ step]

4800	SBU ID Check Setting **DFU**

4802	DF Shading Free Run	
	Executes the scanner free run for shading movement with the exposure lamp on or off. The free run moves the scanning lamp a short distance and immediately returns it to its home position.	
1	Lamp ON	▪ Touch [ON] to start the free run ▪ Be sure to touch "OFF" to stop the free run.
2	Lamp OFF	

4803	Home Position Adjustment
	Adjusts the home position of the exposure lamp. [-1 to 1/0.1/0.1]

4804	Returning to Scanner HP
	Moves the exposure lamp a short distance and immediately returns it to its home position. Touch [Execute]> "Completed"> [Exit].

4806	Moving from Scanner HP
	Moves the exposure lamp a short distance away from the home position and stops. ▪ Touch [Execute]> "Completed"> [Exit] ▪ Do SP4804 to return the exposure lamp to its home position. **Note** ▪ This SP is done before shipping the machine to another location. ▪ Turning the machine power off/on also returns the exposure lamp to its home position.

4903*	Filter Settings

	This SP code sets the threshold value for independent dot erase. ▪ The "0" setting disables independent dot erase. ▪ A higher setting detects more spurious dots for erasing. However, this could cause dots to erase in images that contain areas filled by dithering.	
1	Independent Dot Erase: Text/Photo	[0 to 7/0/1]
2	Independent Dot Erase: Generation	

4905*	Dither Selection **DFU**	
	Changes the parameters for dithering. [0 to 255 / 0 / 1 /step]	

4906	Filter Setting: Other	
	Outline level Adj	[0 / 10 / 0 / 1]

4907	SBU Test Pattern Change
	Selects the test pattern generated by the controller board. [0 to 255 / 0 / 1 /step] 0: Default (Scanning Image) 1: Grid pattern 2: Gradation main scan 3: Gradation sub scan 4 to 250: Default (Scanning Image)

4908	Factory Setting Input **DFU**
1	Execution: ON/OFF
2	Execution Flag

4918	Manual Gamma Adjustment **DFU**

4991	IPU Image Pass [Path] Selection (RGB Frame Memory) **DFU**	
	Selects the image path. Enter the number to be selected using the 10-key pad. [0 to 11/ 2/ 1]	
	0	Scanner input RGB images
	1	Scanner I/F RGB images
	2	RGB images done by Shading correction (Shading ON, Black offset ON)
	3	Shading data
	4	Inner pattern data: Gray scale
	5	RGB images done by Line skipping correction
	6	RGB images done by Digital AE
	7	RGB images done by Vertical line correction
	8	RGB image done by Scanner gamma correction
	9	RGB image done by Filtering correction
	10	RGB images done by Full color ADS
	11	RGB image done by Color correction

4993	Highlight Correction	
	Selects the level of highlight correction.	
1	Sensitivity Selection	Selects the Highlight correction level. [0 to 9 / 4 / 1 /step] 0: weakest sensitivity 9: strongest sensitivity
2	Range Selection	Selects the range level of Highlight

		correction. [0 to 9 / 4 / 1 /step] 0: weakest skew correction, 9: strongest skew correction

4994	Text/Photo Detection Level Adj.
	Selects the definition level between Text and Photo for high compression PDF. [0 to 2 / 1 / 1 /step] 0: Text priority 1: Normal 2: Photo priority

5.6 SP5XXX: MODE

5024*	mm/inch Selection
	Selects whether mm or inches are used in the display. **Note**: After selecting the number, you must turn the main power switch off and on. Europe/Asia model: [0 = mm / 1 = inch] American model: [0 = mm / 1 = inch]

5045	Accounting Counter
	Selects whether the printer counter is displayed on the LCD. [0-1/0/1] 0: Displays the total counter only. 1: Displays both total counter and printer counter.

5047	Paper Display
	Determines whether the tray loaded with paper printed on one side is displayed. [0 to 1/1] 0: Not displayed 1: Displayed

5052	Return Time Priority Type
	The recovery time of the Basic model is 5 sec. so two settings are provided, one for energy save priority and one for start time priority. 0: Energy save priority 1: Start time priority

5055*	Display IP Address
	Display or does not display the IP address on the LCD. [0 to 1 / **0** / 1]

	0: OFF, 1: ON

5056*	Coverage Counter Display
	Display or does not display the coverage counter on the LCD. [0 to 1 / **0** / 1] 0: Not displayed, 1: Displayed

5061*	Toner Remaining Icon Display
	Display or does not display the remaining toner display icon on the LCD. [0 to 1 / **0** / 1] 0: Not display, 1: Display

5104*	A3/DLT Double Count **(SSP)**
	Specifies whether the counter is doubled for A3/DLT. “Yes” counts except from the bypass tray. When “Yes” is selected, A3 and DLT paper are counted twice, that is A4 x2 and LT x2 respectively.

5106*	Density Level Setting
	Selects the image density level used in ADS mode. [1 to 7 / 4 / 1 notch per step] Example: If you set SP5106 to “2”: Pressing the Auto Image Density key toggles the display off and manual notch 2 is selected. Adjust this SP if the customer cannot attain clean copies after performing automatic density adjustment

5113	Optional Counter Type
	Default Optional Counter Type
1	Selects the type of counter: 0: None

	1: Key Card (RK3, 4) **Japan only** 2: Key Card Down 3: Pre-paid Card 4: Coin Lock 5: MF Key Card (Must be enabled with SP5114) 11: Exp Key Card (Add) 12: Exp Key Card (Deduct)
2	External Optional Counter Type
	Enables the SDK application. This lets you select a number for the external device for user access control. **Note**: "SDK" refers to software on an SD card. [0 to 3/1] 0: None 1: Expansion Device 1 2: Expansion Device 2 3: Expansion Device 3

5114*	Optional Counter I/F
001	MF Key Card Extension
	Use this SP to change the setting to "1" only when the "5" (MF Key Card) is selected with SP5113-001. [**0**: Not installed/ 1: Installed (scanning accounting)]

5118	Disable Copying
	Temporarily denies access to the machine. **Japan Only** [0 to 1/1] 0: Release for normal operation 1: Prohibit access to machine

5120	Mode Clear Opt. Counter Removal
	Do not change. **Japan Only**

	[0 to 2/1] 0: Yes. Normal reset 1: Standby. Resets before job start/after completion 2: No. Normally no reset

5121	Counter Up Timing
	Determines whether the optional key counter counts up at paper feed-in or at paper exit. **Japan Only** [0 to 1/1] 0: Feed count 1: No feed count

5126	F Size Original Setting
	Selects the F-size original setting. [0 to 2 / **0** / 1 /step] 0: 81/2" x 13" (Foolscap) 1: 81/4" x 13" (Folio) 2: 8" x 13" (F)

5127	APS OFF Mode
	This SP can be used to switch APS (Auto Paper Select) off when a coin lock or pre-paid key card device is connected to the machine. [0 to 1/1] 0: On 1: Off

5129*	F Paper Size Selection
	Selects the “F” paper size. [0 to 2 / 0 / 1 step] 0: 8" x 13" 1: 8.5" x 13"

	2: 8.25" x 13"

5131*	Paper Size Type Selection
	Selects the paper size (type) for both originals and copy paper. [0 to 2 / DIP SW setting / 1 step] 0: Japan 1: North America 2: Europe After changing the setting, turn the copier off and on. If the paper size of the archive files stored on the HDD is different, abnormal copies could result. Ask the customer to restore the archive files.

5150	Bypass Length Setting
	Sets up the by-pass tray for long paper. [0 to 1/1] 0: Off 1: On. Sets the tray for feeding paper up to 600 mm long. With this SP selected on, paper jams are not detected in the paper path.

5162	App. Switch Method
	Controls if the application screen is changed with a hardware switch or a software switch. [0 to 1/1] 0: Soft Key Set 1: Hard Key Set

5165	Z-Fold Position (**Not Used**)	
	Adjusts the position of the first fold to decrease or increase the distance between the leading edge and the crease of the 2nd fold.	
1	A3T (SEF)	[-4 ~ +4/0/ 0.2 mm]

2	B4T (SEF)	
3	A4T (SEF)	
4	DLTT (SEF)	
5	LGT (SEF)	
6	LTT (SEF)	
7	12x18 (SEF)	
8	Other	

5167	Fax Printing Mode at Optional Counter Off
	Enables or disables the automatic print out without an accounting device. This SP is used when the receiving fax is accounted for by an external accounting device. 0: Automatic printing 1: No automatic printing

5169	CE Login
	If you will change the printer bit switches, you must 'log in' to service mode with this SP before you go into the printer SP mode. [0 to 1/1] 0: Off. Printer bit switches cannot be adjusted. 1: On. Printer bit switches can be adjusted.

5179*	Bypass Size Error
	This SP determines whether a paper size error prompt appears when the machine detects the wrong paper size for the job and jams during feed from the bypass tray. [0 to 1/0/1] 0: Off 1: On

5186	RK 4: Setting **Japan Only**
	Enables or disables the prevention for RK4 (accounting device) disconnection. If the RK4 is disconnected for 10 seconds when this SP is set to "1 (Enable)", the machine automatically jams a sheet of paper and stops. [0 or 1 / 0 / 1/step] 0: Disable 1: Enable

5188	Copy NV Version **DFU**

5195	Limitless SW **DFU**

5212	Page Numbering	
3	Duplex Printout Left/Right Position	Horizontally positions the page numbers printed on both sides during duplexing. [–10 to +10/1 mm] 0 is center, minus is left, + is right.
4	Duplex Printout High/Low Position	Vertically positions the page numbers printed on both sides during duplexing. [–10 to +10/1 mm] 0 is center, minus is down, + is up.

5302	Set Time **DFU**
	Sets the time clock for the local time. This setting is done at the factory before delivery. The setting is GMT expressed in minutes. [–1440 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	
	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: ▪ Day and time to go forward automatically in April. ▪ Day and time to go back automatically in October. ▪ Set the length of time to go forward and back automatically. The settings for 002 and 003 are done with 8-digit numbers:	
	Digits	**Meaning**
	1st, 2nd	Month. 4: April, 10: October (for months 1 to 9, the first digit of 0 cannot be input, so the eight-digit setting for 002 or 003 becomes a seven-digit setting)
	3rd	Day of the week. 0: Sunday, 1: Monday
	4th	The number of the week for the day selected at the 3rd digit. If “0” is selected for “Sunday”, for example, and the selected Sunday is the start of the 2nd week, then input a “2” for this digit.
	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).
1	Setting	Enables/disables the settings for 002 and 003. [0 to 1/1] 0: Disable 1: Enable
2	Rule Set (Start)	The start of summer time.

4	Rule Set (End)	The end of summer time.

5401	Access Control **DFU**	
	This SP stores the settings that limit uses access to SDK application data.	
103	Default Document ACL	
200	SDK1 Unique ID	"SDK" is the "Software Development Kit". This data can be converted from SAS (VAS) when installed or uninstalled. **DFU**
201	SDK1 Certification Method	
210	SDK2 Unique ID	
211	SDK2 Certification Method	
220	SDK3 Unique ID	
221	SDK3 Certification Method	
230	Certification Device	

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
4	Easy Certification Determines whether easy LDAP certification is done. [0 to 1/1/1] 1: On 0: Off
5	Password Null Not Permit This SP is referenced only when SP5411-4 is set to "1" (On).

	[0 to 1/0/1] 0: Password NULL not permitted. 1: Password NULL permitted.

5413	Lockout Setting
1	Lockout On/Off Switches on/off the lock on the local address book account. [0 to 1/0/1] 0: Off 1: On
2	Lockout Threshold Sets a limit on the frequency of lockouts for account lockouts. [1 to 10/5/1]
3	Cancellation On/Off Determines whether the system waits the prescribed time for input of a correct user ID and password after an account lockout has occurred. [0 to 1/0/1] 0: Off (no wait time, lockout not cancelled) 1: On (system waits, cancels lockout if correct user ID and password are entered.
4	Cancellation Time 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). [1 to 999/60/1 min.]

5414	Access Mitigation
1	Mitigation On/Off Switches on/off masking of continuously used IDs and passwords that are identical. [0 to 1/0/1] 0: Off

	1: On
2	Mitigation Time Sets the length of time for excluding continuous access for identical user IDs and passwords. [0 to 60/15/1 min.]

5415	Password Attack
1	Permissible Number Sets the number of attempts to attack the system with random passwords to gain illegal access to the system. [0 to 100/30/1 attempt]
2	Detect Time Sets the time limit to stop a password attack once such an attack has been detected. [1 to 10/5/1 sec.]

5416	Access Information
1	Access User Max Number Limits the number of users used by the access exclusion and password attack detection functions. [50 to 200/200/1 users]
2	Access Password Max Number Limits the number of passwords used by the access exclusion and password attack detection functions. [50 to 200/200/1 passwords]
3	Monitor Interval Sets the processing time interval for referencing user ID and password information. [1 to 10/3/1 sec.]

5417	Access Attack

1	Access Permissible Number Sets a limit on access attempts when an excessive number of attempts are detected for MFP features. [0 to 500/100/1]
2	Attack Detect Time Sets the length of time for monitoring the frequency of access to MFP features. [10 to 30/10/1 sec.]
3	Productivity Fall Waite Sets the wait time to slow down the speed of certification when an excessive number of access attempts have been detected. [0 to 9/3/1 sec.]
4	Attack Max Number 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. [50 to 200/200/1 attempt]

5420	User Authentication
	These settings should be done with the System Administrator. **Note**: These functions are enabled only after the user access feature has been enabled.
1	Copy
	Determines whether certification is required before a user can use the copy applications. [0 to 1/0/1] 0: On 1: Off
11	Document Server Determines whether certification is required before a user can use the document server.

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	[0 to 1/0/1] 0: On 1: Off	
21	Fax Determines whether certification is required before a user can use the fax application. [0 to 1/0/1] 0: On 1: Off	
31	Scanner Determines whether certification is required before a user can use the scan applications. [0 to 1/0/1] 0: On 1: Off	
41	Printer Determines whether certification is required before a user can use the printer applications. [0 to 1/0/1] 0: On 1: Off	
51	SDK1	[0 or 1/ **0** / 1] 0: ON. 1: OFF Determines whether certification is required before a user can use the SDK application.
61	SDK2	
71	SDK3	

5481	Authentication Error Code	
	These SP codes determine how the authentication failures are displayed.	
1	System Log Disp Determines whether an error code appears in the system log after a user authentication failure occurs. [0 to 1/0/1]	

	0: Off 1: On
2	Panel Disp Determines whether an error code appears on the operation panel after a user authentication failure occurs. [0 to 1/1/1] 1: On 0: Off

5490	MF Keycard **Japan Only**
	Sets up operation of the machine with a keycard. [0 to 1/0/1] 0: Disabled. Cancels operation if no code is input. 1: Enabled. Allows operation if another code is input and decrements the counter once for use of the entered code.

5501*	PM Alarm
	PM Alarm Interval
1	Sets the PM interval. The value stored in this SP is used when the value of SP5501 2 is “1”. [0 to 255 / 0 / 1 k copies/step]
	Original Count Alarm **DFU**
2	Selects whether the PM alarm for the number of scans is enabled or not. If this is “1”, the PM alarm function is enabled. [0 = No / 1 = Yes]

5504*	Jam Alarm **Japan Only**
	Sets the alarm to sound for the specified jam level (document misfeeds are not included). **RSS use only** [0 to 3 / 3 / 1 step]

	0: Zero (Off) 1: Low (2.5K jams) 2: Medium (3K jams) 3: High (6K jams)

5505*	Error Alarm
	Sets the error alarm level. **Japan only DFU** [0 to 255 / 50 / 100 copies per step]

5507	Supply Alarm	
1	Paper Supply Alarm (0:Off 1:On)	Switches the control call on/off for the paper supply. **DFU** 0: Off, 1: On 0: No alarm. 1: Sets the alarm to sound for the specified number transfer sheets for each paper size (A3, A4, B4, B5, DLT, LG, LT, HLT)
2	Staple Supply Alarm (0:Off 1:On)	Switches the control call on/off for the stapler installed in the finisher. **DFU** 0: Off, 1: On 0: No alarm 1: Alarm goes off for every 1K of staples used.
3	Toner Supply Alarm (0:Off 1:On)	Switches the control call on/off for the toner end. **DFU** 0: Off, 1: On If you select “1” the alarm will sound when the copier detects toner end.
128*	interval: Others	The “Paper Supply Call Level: nn” SPs specify the paper control call interval for the referenced paper sizes. **DFU** [00250 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	CC Call **Japan Only**	
1	Jam Remains	Enables/disables initiating a call. [0 to 1/1] 0: Disable 1: Enable
2	Continuous Jams	
3	Continuous Door Open	
11	Jam Detection: Time Length	Sets the length of time to determine the length of an unattended paper jam. [03 to 30/1]
12	Jam Detection Continuous Count	Sets the number of continuous paper jams required to initiate a call. [02 to 10/1]
13	Door Open: Time Length	Sets the length of time the remains opens to determine when to initiate a call. [03 to 30/1]

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.	
1	SC Call	[0 or 1 / 1 / -]

2	Service Parts Near End Call	0: Off 1: On
3	Service Parts End Call	
4	User Call	
6	Communication Test Call	[0 or 1 / 1 / -] 0: Off 1: On
7	Machine Information Notice	
8	Alarm Notice	
9	Non Genuine Toner Alarm	
10	Supply Automatic Ordering Call	
11	Supply Management Report Call	
12	Jam/Door Open Call	

5792	MCS Debug Log **DFU**

5793	ECS Debug SW **DFU**

5801	Memory Clear	
	Resets NVRAM data to the default settings. Before executing any of these SP codes, print an SMC Report.	
1	All Clear	Initializes items 2 to 15 below.
2	Engine	Initializes all registration settings for the engine and copy process settings.
3	SCS	Initializes default system settings, SCS (System Control Service) settings, operation display coordinates, and ROM update information.
4	IMH Memory Clear	Initializes the image file system.

		(IMH: Image Memory Handler)
5	MCS	Initializes the automatic delete time setting for stored documents. (MCS: Memory Control Service)
6	Copier application	Initializes all copier application settings.
7	Fax application	Initializes the fax reset time, job login ID, all TX/RX settings, local storage file numbers, and off-hook timer.
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	Web Service	Deletes the Netfile (NFA) management files and thumbnails, and initializes the Job login ID. Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software
11	NCS	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)
12	R-FAX	Initializes the job login ID, SmartNetMonitor for Admin, job history, and local storage file numbers.
14	Clear DCS Setting	Initializes the DCS (Delivery Control Service) settings.

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15	Clear UCS Setting	Initializes the UCS (User Information Control Service) settings.
16	MIRS Setting	Initializes the MIRS (Machine Information Report Service) settings.
17	CCS	Initializes the CCS (Certification and Charge-control Service) settings.
18	SRM Memory Clear	Initializes the SRM (System Resource Manager) settings.
19	LCS	Initializes the LCS (Log Count Service) settings.
20	Web Apli	Initializes Web application settings.
21	ECS	Initializes ECS (Engine Control Service).

5802	Free Run	
	Performs a free run for both scanner and the printer. ▪ Touch [ON] to start the free run. ▪ Touch [OFF] to stop.	
1	A4 (LEF)/F1	Free run for A4-size paper, long-edge feed, from the upper tray.
2	A3/F2	Free run for A3-size paper from the lower tray.
3	A4 (SEF)/F2	Free run for A4-size paper, short-edge feed, from the lower tray.

5803	Input Check
	Displays signals received from sensors and switches. Press the ⊡ (Clear Modes) key to exit
1	Original Size Sensor

2	ENG Enable Signal
3	Tray 2: Paper Height Sensor
4	Tray 1: Paper Height Sensor
5	Tray 2: Paper End Sensor
6	Tray 2: Paper Feed Sensor
7	Warm-up Signal
8	ENG Down Time Signal
9	Bank Motor Ready Signal
10	Bank Paper Height Sensor
11	Bank: Set Sensor
12	Bank: Cover Open
13	Fusing Unit Set
14	Interchange Sensor
15	Interchange Unit Set
16	1-Bin Unit Set
17	1-Bin Unit: Paper Set
18	Tray 1: Paper Feed Sensor
19	Tray 1: Paper End Sensor
20	Tray 2: Paper Lift Sensor
21	Tray 1: Paper Lift Sensor
22	Tray 3: Paper End Sensor
23	Tray 4: Paper End Sensor
24	Tray 3: Paper Lift Sensor

25	Tray 4: Paper Lift Sensor
26	Duplex Unit Set
27	Mechanical Counter Set
28	By-pass Tray Unit Set
29	By-pass: Paper End Sensor
30	By-pass: Paper Size Sensor
31	Duplex: Entrance Sensor
32	Duplex: Exit Sensor
33	Registration Sensor
34	Front Safety SW- 24V
35	Front Safety SW – 5V
36	Paper Overflow Sensor
37	Fan Lock
38	Bottle Lock Motor
39	Destination Code
40	SIU: BW/Color
42	Bridge Exit Sensor
43	Bridge Relay Sensor
44	Bridge Center Cover Open
45	Bridge Right Cover Open
46	Bridge Unit Set Detection
47	Bridge Motor Lock
48	Shift Tray Unit Set

49	Key Counter Set
50	Key Card Set
51	Tray 3: Paper Feed Sensor
52	Tray 4: Paper Feed Sensor
53	Tray 3: Paper Size Sensor
54	Tray 4: Paper Size Sensor
55	Paper Exit Sensor
56	PCU Set
57	New PCU Sensor
58	Tray 2: Paper Size Sensor
59	Tray 1: Paper Size Sensor
60	Main Motor Ready Signal
61	Tray 2: Tray Set Sensor
62	Tray 1: Tray Set Sensor
63	Right Cover Open
200	Scanner HP Sensor
201	Platen Cover Sensor

5804		Output Check
		Turns on electrical components individually for test purposes.
1	Main Motor (Fwd)	Main motor (forward)
2	Main Motor (Rev)	Main motor (Reverse) **Do not use**

3	Registration CL	Registration clutch
5	Toner Bottle Motor	Toner supply motor
6	Exhaust Fan Motor (High Speed)	Exhaust fan (High Speed)
7	Exhaust Fan Motor (Low Speed)	Exhaust fan (Low Speed)
9	1st Paper Feed CL	Upper paper feed clutch
10	2nd Paper Feed CL	Lower paper feed clutch
11	1st Paper Tray Up	Upper paper lift motor (Up)
12	1st Paper Tray Down	Upper paper lift motor (Down)
13	2nd Paper Tray Up	Lower paper lift motor (Up)
14	2nd Paper Tray Down	Lower paper lift motor (Down)
15	Paper Transport CL1	Upper relay clutch
16	Paper Transport CL2	Lower relay clutch
17	Fuser Drive	Fusing drive release solenoid

	Cancel SOL	
21	Paper Transport CL3	Relay clutch (Optional paper tray unit)
22	3rd Paper Feed CL	Upper paper feed clutch (Optional paper tray unit)
23	4th Paper Feed CL	Lower paper feed clutch (Optional paper tray unit)
24	Paper Bank Motor	Tray motor (Optional paper tray unit)
25	3rd/LCT Tray Up	Upper Paper lift motor (Up) (Optional paper tray unit or LCT)
26	3rd/LCT Tray Down	Upper paper lift motor (Down) (Optional paper tray unit or LCT)
27	4th Tray Up	Lower paper lift motor (Up) (Optional paper tray unit)
28	4th Tray Down	Lower paper lift motor (Down) (Optional paper tray unit)
33	Exit Junction Gate SOL (Upper Unit)	Exit junction gate (Optional interchange unit)
41	Interchange Motor CCW	Interchange motor (Reverse) (Optional duplex unit)
42	Interchange Sensor SW	Interchange sensor
43	Duplex Motor	Duplex transport motor (Optional duplex unit)
44	Duplex SOL	Inverter gate solenoid (Optional duplex unit)
51	Relay Fan	Bridge cooling fan motor (Optional bridge unit)

	Motor		
52	Relay Transport Motor	Bridge unit drive motor (Optional bridge unit)	
53	Relay SOL	Junction gate solenoid (Optional bridge unit)	
54	Total Counter	Total counter	
60	Polygon Motor	Polygonal mirror motor	
61	Polygon Motor	Polygonal mirror motor and laser diode	
62	LD ON	Laser diode - **Do not use**	
107	QL		
108	PP. Chrg.	PP. means "Power Pack" (PCBs).	
109	PP. Development		
110	PP. Image Transfer		
111	PP. Separation Voltage		
202	Scanner Lamp		

⇒

~~5807*~~	~~Option Connection Check~~ This SP mode has been deleted.

5810	SC Reset
	Resets all level A service call conditions, such as fusing errors. To clear the service call, touch “Execute” on the LCD, then turn the main power switch off/on.

5811	Machine No. Setting **DFU**
	This SP presents the screen 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	
1	Service	Inputs the telephone number of the CE (displayed when a service call condition occurs.)
2	Facsimile	Use this to input the fax number of the CE printed on the Counter Report (UP mode). **Not Used**
3	Supply	Displayed on the initial SP screen.
4	Operation	Allows the service center contact telephone number to be displayed on the initial screen.

5816	Remote Service
1	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.
2	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
3	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.
7	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.
8	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.]
9	RCG Write Timeout
	Sets the length of time (seconds) for the time-out when sent data is written to the RCG during a call over the NRS network. [0 to 100/1 sec.]
10	RCG Read Timeout
	Sets the length of time (seconds) for the timeout when sent data is written from the RCG during a call over the NRS network. [0 to 100/1 sec.]
11	Port 80 Enable

	Controls if permission is given to get access to the SOAP method over Port 80 on the NRS network. [0 to 1/1] 0: No. Access denied 1: Yes. Access granted.
21	RCG – C Registed
	This SP displays the Cumin installation end flag. 1: Installation completed 2: Installation not completed
22	RCG – C Registed Detail
	This SP displays the Cumin installation status. 0: Basil not registered 1: Basil registered 2: Device registered
23	Connect Type (N/M)
	This SP displays and selects the Cumin connection method. 0: Internet connection 1: Dial-up connection
61	Cert. Expire Timing **DFU**
	Proximity of the expiration of the certification.
62	Use Proxy
	This SP setting determines if the proxy server is used when the machine communicates with the service center.
063	HTTP Proxy Host
	This SP sets the address of the proxy server used for communication between embedded RCG-N and the gateway. Use this SP to set up or display the customer proxy server address. The address is necessary to set up embedded RCG-N. **Note**: The address display is limited to 128 characters. Characters beyond

	the 128th character are ignored. This address is customer information and is not printed in the SMC report.	
064	HTTP Proxy Port	
	This SP sets the port number of the proxy server used for communication between embedded RCG-N and the gateway. This setting is necessary to set up embedded RCG-N. **Note**: This port number is customer information and is not printed in the SMC report.	
065	HTTP Proxy Aut Usr	
	This SP sets the HTTP proxy certification user name. Note: ▪ The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored. ▪ This name is customer information and is not printed in the SMC report.	
066	HTTP Proxy Aut Pass	
	This SP sets the HTTP proxy certification password. ▪ The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored. ▪ This name is customer information and is not printed in the SMC report.	
67	CERT: Up State	
	Displays the status of the certification update.	
	0	The certification used by Cumin is set correctly.
	1	The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated.
	2	The certification update is completed and the GW URL is being notified of the successful update.
	3	The certification update failed, and the GW URL is being notified of the failed update.

	4	The period of the certification has expired and new request for an update is being sent to the GW URL.
	11	A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection.
	12	The rescue certification setting is completed and the GW URL is being notified of the certification update request.
	13	The notification of the request for certification update has completed successfully, and the system is waiting for the certification update request from the rescue GW URL.
	14	The notification of the certification request has been received from the rescue GW controller, and the certification is being stored.
	15	The certification has been stored, and the GW URL is being notified of the successful completion of this event.
	16	The storing of the certification has failed, and the GW URL is being notified of the failure of this event.
	17	The certification update request has been received from the GW URL, the GW URL was notified of the results of the update after it was completed, but an certification error has been received, and the rescue certification is being recorded.
	18	The rescue certification of No. 17 has been recorded, and the GW URL is being notified of the failure of the certification update.
68	CERT: Error	
	Displays a number code that describes the reason for the request for update of the certification.	
	0	Normal. There is no request for certification update in progress.
	1	Request for certification update in progress. The current certification has expired.
	2	An SSL error notification has been issued. Issued after the certification has expired.

	3	Notification of shift from a common authtentication to an individual certification.
	4	Notification of a common certification without ID2.
	5	Notification that no certification was issued.
	6	Notification that GW URL does not exist.
69	CERT: Up ID	
	The ID of the request for certification.	
83	Firmware Up Status	
	Displays the status of the firmware update.	
84	Non-HDD Firm Up	
	This setting determines if the firmware can be updated, even without the HDD installed.	
85	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.	
86	Firmware Size	
	Allows the service technician to confirm the size of the firmware data files during the firmware update execution.	
87	CERT: Macro Version	
	Displays the macro version of the NRS certification	
88	CERT: PAC Version	
	Displays the PAC version of the NRS certification.	
89	CERT: ID2 Code	

	Displays ID2 for the NRS certification. Spaces are displayed as underscores (_). Asterisks (****) indicate that no NRS certification exists.
90	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.
91	CERT: Serial Number
	Displays serial number for the NRS certification. Asterisks (****) indicate that no DESS exists.
92	CERT: Issuer
	Displays the common name of the issuer of the NRS certification. CN = the following 30 bytes. Asterisks (****) indicate that no DESS exists.
93	CERT: Valid Start
	Displays the start time of the period for which the current NRS certification is enabled.
94	CERT: Valid End
	Displays the end time of the period for which the current NRS certification is enabled.
95	Server On Check **DFU**
96	GW Host **DFU**
97	GW URL Path **DFU**
99	Debug Rescue G/WURL Set **DFU**
150	Selection Country **DFU**
151	Line Type Automatic Judgement **DFU**
152	Line Type Judgement Result **DFU**
153	Selection Dial/Push **DFU**

154	Outside Line Outgoing Number **DFU**	
156	Dial Up User Name **DFU**	
157	Dial Up Password **DFU**	
161	Local Phone Number **DFU**	
162	Connection Timing Adjustment **DFU**	
163	Access Point **DFU**	
164	Line Connecting **DFU**	
173	Modem Serial No. **DFU**	
174	Retransmission Limit **DFU**	
186	RCG-C M Debut Bit SW **DFU**	
187	Fax TX Priority **DFU**	
200	Manual Polling	
	No information is available at this time.	
201	Regist: Status	
	Displays a number that indicates the status of the NRS service device.	
	0	Neither the NRS device nor Cumin device are set.
	1	The Cumin device is being set. Only Box registration is completed. In this status the Basil unit cannot answer a polling request.
	2	The Cumin device is set. In this status the Basil unit cannot answer a polling request.
	3	The NRS device is being set. In this status the Cumin device cannot be set.
	4	The NRS module has not started.
202	Letter Number	

	Allows entry of the number of the request needed for the Cumin device.	
203	Confirm Execute	
	Executes the inquiry request to the NRS GW URL.	
204	Confirm Result	
	Displays a number that indicates the result of the inquiry executed with SP5816 203.	
	0	Succeeded
	1	Inquiry number error
	2	Registration in progress
	3	Proxy error (proxy enabled)
	4	Proxy error (proxy disabled)
	5	Proxy error (Illegal user name or password)
	6	Communication error
	7	Certification update error
	8	Other error
	9	Inquiry executing
205	Confirm Place	
	Displays the result of the notification sent to the device from the GW URL in answer to the inquiry request. Displayed only when the result is registered at the GW URL.	
206	Register Execute	
	Executes Cumin Registration.	
207	Register Result	
	Displays a number that indicates the registration result.	

	0	Succeeded	
	2	Registration in progress	
	3	Proxy error (proxy enabled)	
	4	Proxy error (proxy disabled)	
	5	Proxy error (Illegal user name or password)	
	6	Communication error	
	7	Certification update error	
	8	Other error	
	9	Registration executing	
208	Error Code		
	Displays a number that describes the error code that was issued when either SP5816 204 or SP5816 207 was executed.		
	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 the machine from its embedded RCG setup.		
250	CommLog Print		
	Prints the communication log.		

5821	Remote Service Address **Japan Only**	
1	CSS PI Device Code	Sets the PI device code. After you change this setting, you must turn the machine off and on.
2	RCG IP Address	Sets the IP address of the RCG (Remote Communication Gate) destination for call processing at the remote service center. [00000000htoFFFFFFFFh/1]

5824	NVRAM Data Upload

SP5xxx: Mode

	Uploads the NVRAM data to an SD card (B140). Push Execute. **Note**: When uploading data in this SP mode, the front door must be open.

5825	NVRAM Data Download
	Downloads data from an SD card to the NVRAM in the machine. After downloading is completed, remove the card and turn the machine power off and on.

5828	Network Setting
1	IPv4 Address (Ethernet/IEEE 802.11)
	This SP allows you to confirm and reset the IPv4 address for Ethernet and a wireless LAN (802.11): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "192.168.000.001" this is read "0C0A80001h"
2	IPv4 Subnet Mask (Ethernet/IEEE 802.11)
	This SP allows you to confirm and reset the IPv4 subnet mask for Ethernet and a wireless LAN (802.11): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "255.255.255.00" this is read "FFFFFF00h".
3	IPv4 Default Gateway (Ethernet/IEEE 802.11)
	This SP allows you to confirm and reset the IPv4 default gateway used by the network for Ethernet and wireless LAN (802.11): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "192.169.000.001" this is read "0C0A80001h"
6	DHCP (Ethernet/IEEE 802.11)
	This SP code allows you confirm and change the setting that determines whether the IP address is used with DHCP on an Ethernet or wireless (802.11) LAN network.

	[0 to 1/1/0] 0: Not used (manual setting) 1: Used
21	Active IPv4 Address
	This SP allows you to confirm the IPv4 address that was used when the machine started up with DHCP. For example, if the the setting of the the IPv4 address is "0C0A80001h " this is displayed as "192.169.000.001".
22	Active IPv4 Subnet Mask
	This SP allows you to confirm the IPv4 subnet mask setting that was used when the machine started up with DHCP. For example, if the setting for the IPv4 subnet mask is "FFFFFF00H" this is displayed as "255.255.255.000"
23	Active IPv4 Gateway Address
	This SP allows you to confirm the IPv4 default gateway setting that was used when the machine started up with DHCP. For example, if the setting for the IPv4 gateway is "0C0A80001h" this is displayed as "192.168.000.001".
50	1284 Compatibility (Centro)
	Enables and disables bi-directional communication on the parallel connection between the machine and a computer. [0 to 1/1] 0:Off 1: On
52	ECP (Centro)
	Disables and enables the ECP feature (1284 Mode) for data transfer. [0 to 1/1] 0: Disabled 1: Enabled
65	Job Spooling
	Switches job spooling on and off. 0: No spooling, 1: Spooling enabled

66	Job Spool Clear: Start Time			
	This SP determines whether the job interrupted at power off is resumed at the next power on. This SP operates only when SP5828 065 is set to 1. 1: Resumes printing spooled jog. 0: Clears spooled job.			
69	Job Spool Protocol			
	This SP determines whether job spooling is enabled or disabled for each protocol. This is a 8-bit setting.			
	0	LPR	4	BMLinks (Japan Only)
1		FTP (Not Used)	5	DIPRINT
2		IPP	6	Reserved (Not Used)
3		SMB	7	Reserved (Not Used)
90	TELNET (0:OFF 1:ON)			
	Disables or enables Telnet operation. If this SP is disabled, the Telnet port is closed. [0 to 1/1] 0: Disable 1: Enable			
91	Web Operation (0:OFF 1:ON)			
	Disables or enables the Web operation. [0 to 1/1] 0: Disable 1: Enable			
145	ActIPv6LinkLocal			
	This is the IPv6 local address referenced on the Ethernet or wireless LAN (802.11) 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. These notations can be abbreviated. See "Note: IPV6 Addresses "			

	below this table.	
147	ActIPv6Sttles1	These SPs are the IPv6 stateless addresses (1 to 5) referenced on the Ethernet or wireless LAN (802.11) in the format: "Stateless Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.
149	ActIPv6Sttles2	
151	ActIPv6Sttles3	
153	ActIPv6Sttles4	
155	ActIPv6Sttles5	
156	IPv6 Manual Address	
	This SP is the IPv6 manually set address referenced on the Ethernet or wireless LAN (802.11) in the format: "Manual Set Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses" below this table.	
158	IPv6 Gateway	
	This SP is the IPv6 gateway address referenced on the Ethernet or wireless LAN (802.11). The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses " below this table.	

Note: IPV6 Addresses

Ethernet and the Wireless LAN (802.11) reference the IPV6 "Link-Local address + Prefix Length". The IPV6 address consists of 128 bits divided into 8 blocks of 16 bits:

aaaa:bbbb:cccc:dddd:eeee:ffff:gggg:hhhh:

The prefix length is inserted at the 17th byte (Prefix Range: 0x0~0x80). The initial setting is 0x40(64).

For example, the data:

2001123456789012abcdef012345678940h

is expressed:

2001:1234:5678:9012:abcd:ef01:2345:6789: prefixlen 64

However, the actual IPV6 address display is abbreviated according to the following rules.

Rules for Abbreviating IPV6 Addresses

1. The IPV6 address is expressed in hexadecimal delmited by colons (:) with the following characters:
   0123456789abcdefABCDEF
2. A colon is inserted as a delimiter every 4th hexadecimal character.
   fe80:0000:0000:0000:0207:40ff:0000:340e
3. The notations can be abbreviated by elminating zeros where the MSB and digits following the MSB are zero. The example in "2" above, then, becomes:
   fe80:0:0:0207:40ff:0:340e
4. Sections where only zeros exist can be abbreviated with double colons (::). This abbreviation can be done also where succeeding sections contain only zeros (but this can be done only at one point in the address). The example in "2" and "3" above then becomes:
   fe80::207:40ff:0:340e (only the first null sets zero digits are abbreviated as "::")
   -or-
   fe80:0:0:0:207:40ff::340e (only the last null set before "340e" is abbreviated as "::")

161	IPv6 Stateless Auto Setting Enables/disables the stateless automatic setting for Ethernet/wireless LAN operation. [0 to 1/1/1] 1: Enable 0: Disable
236	Web Item Invisible Determines whether each item can be set in Websys. [0x0000 to 0xffff/0xffff] Bit 1: NetRICOH Bit2: Vendor for consumables Bit2-15: Reserved
237	Web Shopping Link Invisible Determines whether the NetRICOH link is displayed on the Websys top page and link page. [0 to 1/1/1] 1: Display

	0: No display
238	Web Supplies Link Invisible Determines whether the consumable vendor link is displayed on the Websys top page and link page. [0 to 1/1/1] 1: Display 0: No display
239	Web Link 1 Name Determines whether an name entered for "URL1" is displayed on the Websys link page. The name length is limited to 31 characters.
240	Web Link 1 URL Sets the URL referenced for URL1 linked to the Websys linked page. The link name is limited to 127 characters.
241	Web Link 1 Visible Determines whether the link for URL1 is displayed on the Websys top page. [0 to 1/1/1] 1: Display 0: No display
242	Web Link 2 Name Determines whether a name entered for "URL2" is displayed on the Websys link page. The name length is limited to 31 characters.
243	Web Link 2 URL Sets the URL referenced for URL2 linked to the Websys linked page. The link name is limited to 127 characters.
244	Web Link 2 Visible Determines whether the link for URL2 is displayed on the Websys top page. [0 to 1/1/1] 1: Display 0: No display

5832	HDD Formatting

SP5xxx: Mode

	Enter the SP number for the partition to initialize, then press #. When the execution ends, cycle the machine off and on.
. 1	HDD Formatting (All)
. 2	HDD Formatting (IMH)
. 3	HDD Formatting (Thumbnail)
. 4	HDD Formatting (Job Log)
5	HDD Formatting (Printer Fonts)
. 6	HDD Formatting (User Info)
. 7	Mail RX Data
. 8	Mail TX Data
. 9	HDD Formatting (Data for Design)
. 10	HDD Formatting (Log)
. 11	HDD Formatting (Ridoc I/F) (for Ridoc Desk Top Binder)

5836	Capture Setting
	Capture Function (0:Off 1:On)
1	With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected. [0 to 1/1] 0: Disable 1: Enable
	Panel Setting
2	Determines whether each capture related setting can be selected or updated from the initial system screen. [0 to 1/1] 0: Disable 1: Enable

	The setting for SP5836-001 has priority.	
71	Reduction for Copy Color	[0 to 3/1] 0:1, 1:1/2, 2:1/3, 3:1/4 **DFU**
72	Reduction for Copy B&W Text	[0 to 6/1] 0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3
73	Reduction for Copy B&W Other	[0 to 6/1] 0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3
74	Reduction for Printer Color	[0 to 3/1] 0:1, 1:1/2, 2:1/3, 3:1/4 **DFU**
75	Reduction for Printer B&W	[0 to 6/1] 0 1, 1:1/2, 2:1/3, 3:1/4, 6:2/3
76	Reduction for Printer B&W HQ	[1 to 5/1] 1:1/2, 3:1/4, 4:1/6, 5:1/8
81	Format for Copy Color	[0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR **DFU**
82	Format for Copy B&W Text	[0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
83	Format Copy B&W Other	[0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
84	Format for Printer Color	[0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR **DFU**
85	Format for Printer B&W	[0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
86	Format for Printer	[0 to 3/1]

SP5xxx: Mode

	B&W HQ	0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
91	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.	

5840	IEEE 802.11	
6	Channel MAX	
	Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1]	
7	Channel MIN	
	Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1]	
8	Transmission Speed	[0 x 00 to 0 x FF / **0 x FF to Auto** / -]
	0 x FF to Auto [Default] 0 x 11 - 55M Fix 0 x 10 - 48M Fix 0 x 0F - 36M Fix 0 x 0E - 18M Fix 0 x 0D - 12M Fix 0 x 0B - 9M Fix 0 x 0A - 6M Fix	 0 x 07 - 11M Fix 0 x 05 - 5.5M Fix 0 x 08 - 1M Fix 0 x 13 - 0 x FE (reserved) 0 x 12 - 72M (reserved) 0 x 09 - 22M (reserved)
11	WEP Key Select	
	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. **Note**: Displayed only when the wireless LAN card is installed.
42	Fragment Thresh
	Adjusts the fragment threshold for the IEEE802.11 card. [256 to 2346 / **2346** / 1] This SP is displayed only when the IEEE802.11 card is installed.
43	11g CTS to Self
	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.
44	11g Slot Time
	Selects the slot time for IEEE802.11. [0 to 1 / **0** / 1] 0: 20 μm, 1: 9 μm This SP is displayed only when the IEEE802.11 card is installed.
45	WPA Debug Lvl
	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.

5841	Supply Name Setting	
	Press the User Tools key. These names appear when the user presses the Inquiry button on the User Tools screen.	
1	Toner Name Setting: Black	
7	Org Stamp	
11	StapleStd1	

12	StapleStd2	
13	StapleStd3	Not Used
14	StapleStd4	
21	StapleBnd1	
22	StapleBnd2	
23	StapleBnd3	

5842	GWWS Analysis **DFU**
	This is a debugging tool. It sets the debugging output mode of each Net File process

5844	USB
1	Transfer Rate
	Sets the speed for USB data transmission. [Full Speed] [Auto Change]
2	Vendor ID
	Sets the vendor ID: Initial Setting: 0x05A Ricoh Company [0x0000 to 0xFFFF/1] **DFU**
3	Product ID
	Sets the product ID. [0x0000 to 0xFFFF/1] **DFU**
4	Device Release No.
	Sets the device release number of the BCD (binary coded decimal) display. [0000 to 9999/1] **DFU** Enter as a decimal number. NCS converts the number to hexadecimal

	number recognized as the BCD.

5845	Delivery Server Setting
	These are delivery server settings.
1	FTP Port No.
	[0 to 65535/1]
2	IP Address (Primary)
	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]
6	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]
8	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.
9	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
10	Delivery Svr. Capability

SP5xxx: Mode

	Changes the functions that the registered I/O device can do. [0 to 255/1] Bit7 = 1 Comment information exits 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”)
	Delivery Svr.Capability (Ext)
11	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.
13	Server Scheme (Primary)
14	Server Port Number (Primary)
15	Server URL Path (Primary)
16	Server Scheme (Secondary)
17	Server Port Number (Secondary)
18	Server URL Path (Secondary)
19	Capture Server Scheme
20	Capture Server Path Number
21	Capture Server URL Path
22	Report Setting Control

5846*	UCS Setting
1	Machine ID (for Delivery Server)

	Displays the unique device ID in use by the delivery server directory. The value is only displayed and cannot be changed. This ID is created from the NIC MAC or IEEE 1394 EUI. The ID is displayed as either 6-byle or 8-byte binary.
2	Machine ID Clear (Delivery Server)
	Clears the unique ID of the device used as the name in the file transfer directory. Execute this SP if the connection of the device to the delivery server is unstable. After clearing the ID, the ID will be established again automatically by cycling the machine off and on.
3	Maximum Entries
	Changes the maximum number of entries that UCS can handle. [2000 to 50000/1] If a value smaller than the present value is set, the UCS managed data is cleared, and the data (excluding user code information) is displayed.
6	Delivery Server Retry Timer
	Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book. [0 to 255/1 s] 0: No retries
7	Delivery Server Retry Times
	Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book. [0 to 255/1]
8	Delivery Server Maximum Entries
	Lets you set the maximum number of account entries and information about the users of the delivery server controlled by UCS. [20000 to 50000/1]
10	LDAP Search Timeout
	Sets the length of the time-out for the search of the LDAP server.

SP5xxx: Mode

	[1 to 255/1]
40	Addr Book Migration (SD -> HDD)
	This SP moves the address book data from an SD card to the HDD. You must cycle the machine off and on after executing this SP. Turn the machine off. Install the HDD. Insert the SD card with the address book data in SD card slot C3. Turn the machine on. Do SP5846 040. Turn the machine off. Remove the SD card from SD card slot C3. Turn the machine on. **Note** ▪ Executing this SP overwrites any address book data already on the HDD with the data from the SD card. ▪ We recommend that you back up all directory information to an SD card with SP5846 051 before you execute this SP. ▪ After the address book data is copied to HDD, all the address book data is deleted from the source SD card. If the operation fails, the data is not erased from the SD card.
41	Fill Addr Acl Info.
	This SP must be executed immediately after installation of an HDD unit in a basic machine that previously had no HDD. The first time the machine is powered on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it onto the new HDD. However, the new address book on the HDD can be accessed only by the system administrator at this stage. Executing this SP by the service technician immediately after power on grants full address book access to all users. **Procedure** 1. Turn the machine off. 2. Install the new HDD. 3. Turn the machine on. 4. The address book and its initial data are created on the HDD

	automatically. However, at this point the address book can be accessed by only the system administrator or key operator. 5. Enter the SP mode and do SP5846 041. After this SP executes successfully, any user can access the address book.
43	Addr Book Media
46	Initialize All Settings & Addr Book
47	Initialize Local Address Book
	Clears all of the address information from the local address book of a machine managed with UCS.
48	Initialize Delivery Addr Book
	Push [Execute] to delete all items (this does not include user codes) in the delivery address book that is controlled by UCS.
49	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.
50	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.
51	Backup All Addr Book
	Uploads all directory information to the SD card. Do this SP before replacing the HDD. The operation may not succeed if the HDD is damaged.
52	Restore All Addr Book
	Downloads all directory information from the SD card. Upload the address book from the old HDD with SP5846 51 before removing it. Do SP5846 52 after installing the new HDD.
53	Clear Backup Info.

<table>
<tr><td></td><td colspan="2">Deletes the address book uploaded from the SD card in the slot. Deletes only the files uploaded for that machine. This feature does not work if the card is write-protected.
Note: After you do this SP, go out of the SP mode, turn the power off. Do not remove the SD card until the Power LED stops flashing.</td></tr>
<tr><td rowspan="10">60</td><td colspan="2">Search Option</td></tr>
<tr><td colspan="2">This SP uses bit switches to set up the fuzzy search options for the UCS local address book.</td></tr>
<tr><td>Bit</td><td>Meaning</td></tr>
<tr><td>0</td><td>Checks both upper/lower case characters</td></tr>
<tr><td>1</td><td rowspan="3">Japan Only</td></tr>
<tr><td>2</td></tr>
<tr><td>3</td></tr>
<tr><td>4</td><td>--- Not Used ---</td></tr>
<tr><td>5</td><td>--- Not Used ---</td></tr>
<tr><td>6</td><td>--- Not Used ---</td></tr>
<tr><td>7</td><td>--- Not Used ---</td></tr>
<tr><td rowspan="2">62</td><td colspan="2">Complexity Option 1</td></tr>
<tr><td colspan="2">Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to upper case and sets the length of the password.
[0 to 32/1]
Note:
▪ This SP does not normally require adjustment.
▪ This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.</td></tr>
<tr><td rowspan="2">63</td><td colspan="2">Complexity Option 2</td></tr>
<tr><td colspan="2">Use this SP to set the conditions for password entry to access the local</td></tr>
</table>

	address book. Specifically, this SP limits the password entry to lower case and defines the length of the password. [0 to 32/1] **Note** ▪ This SP does not normally require adjustment. ▪ This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.
64	Complexity Option 3
	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. [0 to 32/1] **Note** ▪ This SP does not normally require adjustment. ▪ This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.
65	Complexity Option 4
	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. [0 to 32/1] **Note** ▪ This SP does not normally require adjustment. ▪ This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.
91	FTP Auth. Port Settings
	Sets the FTP port to get the delivery server address book that is used in the individual authorization mode. [0 to 65535/1]
94	Encryption Start
	Shows the status of the encryption function of the address book on the LDAP

	server. [0 to 255/1] No default

5847	Rep Resolution Reduction		
	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. “NetFile” refers to jobs to be printed from the document server with a PC and the DeskTopBinder software.		
5847 2	Rate for Copy B&W Text	[0 to 6/1]	0: 1x 1: 1/2x 2: 1/3x 3: 1/4x 4: 1/6x 5: 1/8x 6: 2/3x1 1: “6: 2/3x” applies to 003, 005, 006 only.
5847 3	Rate for Copy B&W Other	[0 to 6/1]	
5847 5	Rate for Printer B&W	[0 to 6/1]	
5847 6	Rate for Printer B&W HQ	[0 to 6/1]	
5847 21	Network Quality Default for JPEG		
	Sets the default value for the quality of JPEG images sent as NetFile pages. This function is available only with the MLB (Media Link Board) option installed. [5 to 95/1]		

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.
1	Access Control.: NetFile (Lower 4 Bits Only)

	Bit switch settings. 0000: No access control 0001: Denies access to Desk Top Binder. Access and deliveries from Scan Router have no effect on capture.	
2	Acc. Ctrl.: Repository (only Lower 4 Bits)	0000: No access control 0001: Denies access to DeskTop Binder.
3	Acc. Ctrl.: Doc. Svr. Print (Lower 4 Bits)	Switches access control on and off. 0000: OFF, 0001: ON
4	Acc. Ctrl.: User Directory (Lower 4 Bits)	
5	Acc. Ctrl.: Delivery Input (Lower 4 Bits)	
7	Acc. Ctrl Comm. Log Fax (Lower 4 Bits)	
9	Acc. Ctrl.: Job Control (Lower 4 Bits)	
11	Acc. Ctrl: Device Management (Lower 4 Bits)	
21	Acc. Ctrl: Delivery (Lower 4 Bits)	
22	Acc. Ctrl: User Administration (Lower 4 Bits)	
41	Acc. Ctrl: Security Setting (Lower 4 Bits only)	
100	Repository: Download Image Max. Size	[1 to 1024/1 K]
201	Access Ctrl: Regular Trans	
	No information is available at this time. 0: Not allowed 1: Allowed	

210	Setting: Log Type: Job 1
	No information is available at this time.
211	Setting: Log Type: Job 2
	No information is available at this time.
212	Setting: Log Type: Access
	No information is available at this time.
213	Setting: Primary Srv
	No information is available at this time.
214	Setting: Secondary Srv
	No information is available at this time.
215	Setting: Start Time
	No information is available at this time.
216	Setting: Interval Time
	No information is available at this time.
217	Setting: Timing
	No information is available at this time.

5849	Installation Date	
	Displays or prints the installation date of the machine.	
1	Display	The “Counter Clear Day” has been changed to “Installation Date” or “Inst. Date”.
2	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
3	Total Counter	

5850*	Address Book Function **Japan Only**
	The machine is shipped ready to use with a G3 line. Use this SP to switch all at once to G4 after adding a G4 line. If the G4 line becomes unusable for some reason, you can use this SP to switch easily back to G3. Just touch [Replacement].

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

SP5xxx: Mode

	On/Off (1:ON 0:OFF)
1	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
	Target (2: HDD 3: SD)
2	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
5	Save to HDD
	Specifies the decimal key number of the log to be written to the hard disk.
6	Save to SD Card
	Specifies the decimal key number of the log to be written to the SD Card.
	Copy HDD to SD Card (Latest 4 MB)
9	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.
	Copy HDD to SD Card Latest 4 MB Any Key)
10	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.

11	Erase HDD Debug Data
	Erases all debug logs on the HDD
12	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.
13	Free Space on SD Card
	Displays the amount of space available on the SD card.
14	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.
15	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.
16	Make HDD Debug
	This SP creates a 32 MB file to store a log on the HDD.
17	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. SP5858 3 stores one SC specified by number.	
1*	Engine SC Error (0:OFF 1:ON)	Stores SC codes generated by copier engine errors.

2*	Controller SC Error (0:OFF 1:ON)	Stores SC codes generated by GW controller errors.
3*	Any SC Error (0:OFF 1:ON)	[0 to 65535 / 0 / 1]
4*	Jam (0:OFF 1:ON)	Stores jam errors.

5859	Debug Log Save Function	
1	Key 1	These SPs allow you to set up to 10 keys for log files for functions that use common memory on the controller board. [-9999999 to 9999999/1]
2	Key 2	
3	Key 3	
4	Key 4	
5	Key 5	
6	Key 6	
7	Key 7	
8	Key 8	
9	Key 9	
10	Key 10	

5860	SMTP/POP3/IMAP4
20	Partial Mail Receive Timeout
	[1 to 168/72/1] Sets the amount of time to wait before saving a mail that breaks up during reception. The received mail is discarded if the remaining portion of the mail is not received during this prescribed time.
21	MDN Response RFC2298 Compliance
	Determines whether RFC2298 compliance is switched on for MDN reply mail. [0 to 1/1]

	0: No 1: Yes
22	SMTP Auth. From Field Replacement
	Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated. [0 to 1/1] 0: No. “From” item not switched. 1: Yes. “From” item switched.
25	SMTP Auth Direct Sending
	Occasionally, SMTP certification may fail with encryption enabled 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 encryption has been enabled. Bit 0: LOGIN Bit 1: PLAIN Bit 2: CRAM_MD5 Bit 3: DIGEST_MD5 Bit 4 to Bit 7: Not Used
26	S/MIMI: MIME Header Setting

5866	E-Mail Report **Not Used**	
1	Report Validity	Enables or disables the E-mail alert function. [0 or 1 / **0** / –] 0: Enabled, 1: Disabled
2	Add Date Field	Adds or does not add the date field to the header of the alert mail. [0 or 1 / **0** / –] 0: Not added, 1: Added

SP5xxx: Mode

5870	Common Key Info Writing	
	Writes to flash ROM the common proof for validating the device for NRS specifications.	
1	Writing	These SPs are for future use and currently are not used.
3	Initialize	

5873	SD Card Application Move (Merge)	
	Allows applications to be moved (merged) from one SD card to another. For more information regarding merging applications onto one SD card see section 1.2.4 of the D383 Printer/Scanner Option SM.	
1	Move Exec	Executes the move from one SD card to another.
2	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. **Note**: The reboot does not occur for Type A SC codes.	
1	Reboot Setting	[0 to 1/ **0** / 1] 0: The machine reboots automatically after the machine issues an SC error and logs the SC error code. If the same SC occurs again, the machine does not reboot. 1: The machine does not reboot when an SC error occurs.
2	Reboot Type	[0 to 1 / **0** / 1] 0: Manual reboot, 1: Automatic reboot

5878	Option Setup
	Use this SP to enable the Data Overwrite Security option or HDD Encryption Option after installation.

1	Data Overwrite Security	
2	Encryption Option	

5879	Editing Option Setup **DFU**
	This SP is used to install the edit option card.

5881	Fixed Phase Block Erasing **DFU**

5885	Set WIM Function	
20	Doc Svr Acc Ctrl	Close or disclose the functions of web image monitor. **0**: OFF, 1: ON Bit: 0: Forbid all document server access 1: Forbid user mode access 2: Forbid print function 3: Forbid Fax 4: Forbid scan sending 5: Forbid download 6: Forbid delete 7: Forbid guest user
50	DocSvr Format	Selects the display type for the document box list. [0 to 2 / **0** / 1] 0: Thumbnail, 1: Icon, 2: Details
51	DocSvr Trans	Sets the number of documents to be displayed in the document box list. [5 to 20 / **10** / 1]
100	Set Signature	
101	Set Encryption	Determines whether the scanned documents

		with WIM are encrypted when they are transmitted by an e-mail. [0 to 1 / **0** / 1] 0: Not encrypted, 1:Encryption
200	Detect Mem Leak	
201	DocSvr Timeout	

5886*	Farm (Firmware) Update Procedure
	This SP determines whether the ROM can be updated remotely. [0 or 1 / **0** / 1 step] 0: ON, 1: OFF

5888*	Personal Information Protect
	Selects the protection level for logs. [0 to 1 / **0** / 1} 0: No authentication, No protection for logs 1: No authentication, Protected logs (an administrator can see the logs)

5907	Plug & Play Maker/Model Name
	Selects the brand name and the production name for Windows Plug & Play. This information is stored in the NVRAM. If the NVRAM is defective, these names should be registered again. After selecting, press the “Original Type” key and “#” key at the same time. When the setting is completed, the beeper sounds five times.

5908*	LCT Paper Size
	Selects the paper size for the LCT. Use this SP after changing the paper size in the optional LCT (i.e., after changing the side plate position for the LCT). [0 to 1 / 1 / 1] North America 0: A4

	1: LT [0 to 1 / 0 / 1] Other Areas (Europe/Asia) 0: A4 1: LT

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5913	Switchover Permission Time
	Sets the length of time to elapse before allowing another application to take control of the display when the application currently controlling the display is not operating because a key has not been pressed. [3 to 30/1 s]

5915*	Mechanical Counter Detection
	Checks whether the mechanical counter inside the inner cover is connected or not. Display: 0: Not detected 1: Detected 2: Unknown

5921*	Exhaust Fan Control
	Sets the timing for slowing the exhaust fan motor speed or shutting the motor off for normal operation, depending on the following conditions:

	After the machine has entered energy saver mode or stand-by mode, the machine slows the fan speed after this time runs out. After the machine has entered the auto off mode or an error occurs, the machine stops the fan after this time runs out. [30 to 120 / 30 s / 1 s]	
1	Normal	
2	Energy Saver	

5967	Copy Server: Set Function
	Enables and disables the document server. This is a security measure that prevents image data from being left in the temporary area of the HDD. After changing this setting, you must switch the main switch off and on to enable the new setting. [0 to 1/1] 0: ON 1: OFF

5974	Cherry Server
	Selects which version of the Scan Router application program, “Light” or “Full (Professional)”, is installed. [0 to 1 / 0 / 1 /step] 0: Light version (supplied with this machine) 1: Full version (optional)

⇒

5985	Device Setting	
	The NIC and USB support features are built into the GW controller. In order to use the NIC and USB functions built into the controller board, these SP codes must be set to "1" (Default: 1 Enabled)	
1	On Board NIC	[0 to 2 / **0** / 1 /step] 0: Disable, 1: Enable, 2: Function limitation When the "Function limitation" is set, "On board NIC" is

		limited only for the NRS or LDAP/NT authentication. Note ▪ Other network applications such as WebImageMonitor, NRS or LDAP/NT authentication are not available when this SP is set to "2". Even though you can change the initial settings of those network applications, the settings do not work.
2	On Board USB	[0 or 1 / **0** / 1/step] 0: Disable, 1: Enable

5987	Mech. Counter
	This SP detects that a mechanical counter device is removed. If it is detected, SC610 occurs. 0: OFF. 1: ON

5990	SP Print Mode (SMC Print)
	In the SP mode, press Copy Window to move to the copy screen, select the paper size, then press Start. Select A4/LT (Sideways) or larger to ensure that all the information prints. Press SP Window to return to the SP mode, select the desired print, and press Execute.
1	All (Data List)
2	SP (Mode Data List)
3	User Program
4	Logging Data
5	Diagnostic Report
6	Non-Default (Prints only SPs set to values other than defaults.)
7	NIB Summary

SP5xxx: Mode

8	Capture Log
21	Copier User Program
22	Scanner SP
23	Scanner User Program

5995	Factory Mode	**DFU**

5996	Machine State **DFU**	
1	Destination	Shows intended destination of the engine board. 0: Japan 1: North America 2: Europe 3: Mainland China 4: Taiwan
2	SBCU ID	Displays the CPM information for the engine board. For example, 25 (25 cpm), 30 (30 cpm), and so on.
3	IPU ID	Displays the IPU ID (presently fixed at “30”).

5.7 SP6XXX: PERIPHERALS

6006	ADF Registration Adjustment	
1	Side-to-Side Registration	
	Adjusts the side-to-side registration of originals with the ARDF. [-3.0 to 3.0 / 0 / 0.1 mm/step]	
3	Leading Edge Registration	
	Adjusts the leading registration of originals with the ARDF. [-5.0 to 5.0 / 0 / 0.1 mm/step]	
5	Buckle: Duplex Front	Adjust the amount of paper buckle to correct original skew for the front and rear sides. [-5.0 to 5.0 / 0 / 0.1 mm/step]
6	Buckle: Duplex Rear	
7	Rear Edge Erase	
	Adjusts the erase margin at the original trailing edge. [-5.0 to 5.0 / 0 / 0.1 mm/step]	

6007	ADF Input Check	
	Displays the signals received from the sensors and switches of the ARDF. Only Bit 0 is used for ADF input check.	
1	Original B5 Sensor	0: Paper not detected 1: Paper detected
2	Original A4 Sensor	
3	Original LG Sensor	
4	Original Width Sensor S	
5	Original Width Sensor M	
6	Original Width Sensor L	
7	Original Width Sensor LL	

9	Original Set Sensor	
10	Rear Edge Detection	
11	Skew Correction Sensor	
13	Registration Sensor	
14	Exit Sensor	
15	Top Cover Sensor	0: Cover closed, 1: Cover open
16	Lift Sensor	0: ADF closed, 1: ADF open

6008	ADF Output Check	
	Switches on each electrical component (motors, solenoids, etc.) of the ARDF for testing.	
3	Feed Motor: Fwd	
4	Feed Motor: Rev	
5	Transport Motor: Fwd	
6	Transport Motor: Rev	
9	Feed Clutch	
10	Feed Solenoid	
11	Junction Gate Solenoid	
12	Stamp Solenoid	

6009	ADF Free Run
	Performs an ARDF free run in duplex mode. Press [ON] to start, press [OFF] to stop. **Note**: This is a general free run controlled from the copier.

6010*	Stamp Position Adj.
	Adjusts the stamp position in the sub-scan direction in fax mode. [–5.0 to +5.0 / 0 / 1 mm/step]

6016*	Original Size Detection Priority		
	Specifies the original size for a size detected by the original sensor, since original sensors cannot recognize all sizes. **(7) 0000 0000 (0)** Different bits are used for detection, depending on the location as shown below.		
	Bit	**Size**	**Location**
	7	A4 (L)/LT (L)	Japan only
	6	11" x 15"/DLT (L)	
	5	DLT (L)/ 11" x 15"	NA only
	4	LT (S)/ US Exec (S)	
	3	LT (L)/ 8" x 10" (L)	
	2	LG (L)/ F4 (L)	
	1	A4 (L)/ 16K (L)	EU/AA only
	0	8K (L)/ DLT (L)	

6017	Sheet Through Magnification
	Adjusts the magnification in the sub-scan direction for the ARDF. [-5.0 to 5.0 / 0 / 0.1 %/step]

6117	Finisher Input Check
	Displays the signals received from finisher sensors and switches. (See the tables below.)

1	Group 1	
2	Group 2	
3	Group 3 (Only 1000 Fin)	
4	Group 4 (Only 1000 Fin)	

Check the status of each item against the 8-digit bit display listed in the table below.

Number	Bit	Description	Reading	
			0	1
Group 1	7	Stack Feed-out Belt HP Sensor	Activated	Deactivated
	6	Not Used		
	5	Jogger Fence HP Sensor	Activated	Deactivated
	4	Stapler HP Sensor	Activated	Deactivated
	3	Stapler Tray Entrance Sensor	Activated	Deactivated
	2	Not Used		
	1	Lower Tray Exit Sensor	Activated	Deactivated
	0	Entrance Sensor	Activated	Deactivated

Number	Bit	Description	Reading	
			0	1
Group 2	7	Not Used		
	6	Not Used		
	5	Stapler Ready Signal	Activated	Deactivated
	4	Not Used		

Number	Bit	Description	Reading	
			0	1
	3	Not Used		
	2	Staple Sensor	Activated	Deactivated
	1	Staple Hammer HP Sensor	Activated	Deactivated
	0	Stapler Tray Paper Sensor	Activated	Deactivated

Number	Bit	Description	Reading	
			0	1
Group 3	7	Not Used		
	6	Lower Tray Lower Limit Sensor	Activated	Deactivated
	5	Not used		
	4	Stack Height Sensor	Activated	Deactivated
	3	Not Used		
	2	Not Used		
	1	Shift HP Sensor	Activated	Deactivated
	0	Exit Guide HP Sensor	Activated	Deactivated

Number	Bit	Description	Reading	
			0	1
Group 4	7	Not Used		
	6	Not Used		
	5	Not Used		

SP6xxx: Peripherals

Number	Bit	Description	Reading	
			0	1
	4	Not Used		
	3	Upper Tray Paper Limit Sensor	Activated	Deactivated
	2	Not Used		
	1	Not Used		
	0	Not Used		

6118	Finisher Output Check
	Switches on each electrical component of the finisher for testing. Press [1] to switch on or [0] to switch off.
1	Upper Transport/Main Motor
2	Shift Tray Lift/Tray Motor
3	Staple Hammer Motor
4	Shift/Jogger Motor
5	Lower Transport Motor
6	Shift Tray Exit Motor
7	Tray Junction Gate Sol
8	Jogger Motor
9	Stapler Motor
10	Stapler Junction Gate Motor
11	Positioning Roller Sol
12	Stack Feed-Out Motor

13	Exit Guide Motor
14	Paddle Sol
15	Exit Unit Gear Sol
16	Stack Height Lever Sol
17	Transport Motor

6128	Punch Position: Sub Scan	
	Adjusts the punching position in the sub scan direction.	
1	Domestic 2Hole	[-7.5 to 7.5 / 0 / 0.5 mm/step]]
2	North America 3Hole	
3	Europe 4Hole	
4	North Europe 4Hole	
5	North Europe 2Hole	

6129	Punch Position: Main Scan	
	Adjusts the punching position in the main scan direction.	
1	Domestic 2Hole	[-2.0 to 2.0 / 0 / 0.4 mm/step]]
2	North America 3Hole	
3	Europe 4Hole	
4	North Europe 4Hole	
5	North Europe 2Hole	

6130	Skew Correction: Buckle Adj.
	Adjusts the paper buckle for each paper size (B793 finisher).

1	A3T (SEF)	[-5.0 to 5.0 / 0 / 0.25 mm/step]]
2	B4T (SEF)	
3	A4T (SEF)	
4	A4Y (LEF)	
5	B5T (SEF)	
6	B5Y (LEF)	
7	DLT-T (SEF)	
8	LG-T (SEF)	
9	LT-T (SEF)	
10	LT-Y (LEF)	
11	12" x 18"	
12	Other	

6131	[Skew Correction Control]	
	Selects the skew correction control for each paper size. These are only activated for B793.	
1	A3T (SEF)	[0 to 2 / 1 / 1/step]] 0: No (No skew correction) 1: Roller Stop Skew Correction 2: Roller Reverse Skew Correction
2	B4T (SEF)	
3	A4T (SEF)	
4	A4Y (LEF)	
5	B5T (SEF)	
6	B5Y (LEF)	
7	DLT-T (SEF)	
8	LG-T (SEF)	

9	LT-T (SEF)	
10	LT-Y (LEF)	
11	12" x 18"	
12	Other	

6132	Jogger Fence Fine Adj	
	This SP adjusts the distance between the jogger fences and the sides of the stack on the finisher stapling tray in the Booklet Finisher B793. The adjustment is done perpendicular to the direction of paper feed.	
1	A3T (SEF)	[-1.5 to 1.5 / 0 / 1/step] + Value: Increases distance between jogger fences and the sides of the stack. - Value: Decreases the distance between the jogger fences and the sides of the stack.
2	B4T (SEF)	
3	A4T (SEF)	
4	A4Y (LEF)	
5	B5T (SEF)	
6	B5Y (LEF)	
7	DLT-T (SEF)	
8	LG-T (SEF)	
9	LT-T (SEF)	
10	LT-Y (LEF)	
11	12" x 18"	
12	Other	

6133	Staple Position Adjustment
	Adjusts the staple position for each finisher (B408/B793/D372). + Value: Moves the staple position to the rear side.

	- Value: Moves the staple position to the front side.	
1	Finisher 1 (B408/B793)	[-3.5 to 3.5 / 0 / 1/step]]
2	Finisher 2 (D372)	[-2.0 to 2.0 / 0 / 1/step]]

6134	Saddle Stitch Position Adjustment	
	Use this SP to adjust the stapling position of the booklet stapler when paper is stapled and folded in the Booklet Finisher B793.	
1	A3 SEF	[-3.0 to 3.0 / 0 / 0.2 mm/step] + Value: Shifts staple position toward the crease. - Value: Shifts staple position away from the crease.
2	B4 SEF	
3	A4 SEF	
4	B5 SEF	
5	DLT-T (SEF)	
6	LG-T (SEF)	
7	LT-T (SEF)	
8	12" x 18"	
9	Other	

6135	Folder Position Adjustment	
	This SP corrects the folding position when paper is stapled and folded in the Booklet Finisher B793.	
1	A3 SEF	[-3.0 to 3.0 / 0 / 0.2 mm/step] + Value: Shifts staple position toward the crease. - Value: Shifts staple position away from the crease.
2	B4 SEF	
3	A4 SEF	
4	B5 SEF	
5	DLT-T (SEF)	

6	LG-T (SEF)	
7	LT-T (SEF)	
8	12" x 18"	
9	Other	

6136	Folding Number
	This SP sets the number of times the folding rollers are driven forward and reverse to sharpen the crease of a folded booklet before it exits the folding unit. [2 to 30/2/1 times]

6137	Fin. Free Run	
	These SPs are used only for B793 finisher.	
1	Free Run 1	Free run for paper edge stapling.
2	Free Run 2	Free run for booklet stapling.
3	Free Run 3	Shipping free run. Simulates standby conditions during shipping.
4	Free Run 4	**DFU**

6138	FIN (TIG) Input Check	1000-Sheet Finisher B793		
	Note: The names in parentheses are the names used in the service manuals.			
	Component	**0**	**1**	
1	Interference Escape Sensor (Stapler Safety Sensor)	Inactive	Active	
2	Staple Moving HP Sensor (Staple Unit HP Sensor)	Not HP	At HP	

3	Stuck Relay1 Release HP Sensor (Stopper S HP Sensor)	Not HP	At HP
4	Exit Junction Gate HP Sensor (Stack Feed Out HP Sensor)	At HP	Not HP
5	Jogger HP Sensor (Jogger Fence HP Sensor)	Not HP	At HP
6	Staple Tray Paper Sensor (Staple Tray Paper Sensor)	No Paper	Paper
7	Rear Edge Fence HP Sensor (Paper Stack Stopper HP Sensor)	Not HP	At HP
8	Saddle Stitch Exit Sensor	Paper	No Paper
9	Stuck Relay2 Roller HP Sensor (Clamp Roller HP Sensor)	At HP	Not HP
10	Folder Tray Full Sensor 1 (Bottom Tray HP 1 Sensor)	Full	Not full
11	Folder Tray Full Sensor 2 (Bottom Tray HP 2 Sensor)	Not full	Full
12	Folder Plate HP Sensor (Fold Plate HP Sensor)	Not HP	At HP
13	Saddle Stitch Arrival Sensor (Fold Unit Entrance Sensor)	No Paper	Paper
14	Folder Cam HP Sensor (Fold Plate Cam HP Sensor)	Not HP	At HP
15	Staple Exit Sensor (Stapler Tray Exit Sensor)	Paper	No Paper
16	Shift Tray Paper Sensor (Shift Tray Paper Position Sensor)	No Tray	Tray
17	Shift Tray Full	Full	Nor full

18	Shift Roller HP Sensor	Not HP	At HP
20	Entrance Sensor (Finisher Entrance Sensor)	Paper	No Paper
21	Shift Exit Sensor (Shift Tray Exit Sensor)	No Paper	Paper
22	Proof Exit Sensor (Proof Tray Exit Sensor)	Paper	No Paper
23	Exit Guide Plate HP Sensor	Not HP	At HP
24	Proof Full Sensor (Proof Tray Full Sensor)	Not full	Full
25	Upper Cover Sensor	Open	Close
26	Door SW (Front Door Switch)	Close	Open
27	Clincher Timing Sensor	Encoder	
28	Clincher HP Sensor	At HP	Not HP
29	Driver Timing Sensor	Encoder	
30	Staple Near End	Staples Remain	Staples N.E.
31	Self Priming	Staples	No Staples
32	Driver HP Sensor	At HP	Not HP
33	Punch Registration Detection HP Sensor	Not HP	At HP
34	Punch Moving HP Sensor (Punch Movement HP Sensor)	Not HP	At HP
35	Punch HP Sensor (Punch HP Sensor)	At HP	Not HP
36	Punch Pulse Count Sensor (Punch Encoder Sensor)	Encoder	

37	Punch Chad Full Sensor (Punch Hopper Full Sensor)	Not full	Full
38	Punch Registration Detection Sensor (Paper Position Sensor)	Paper	No Paper

6139	FIN (KIN) Input Check	1000-Sheet Finisher B408	
	Note: The names in parentheses are the names used in the service manuals.		
	Component	**0**	**1**
1	Entrance Sensor	Paper	No Paper
2	Shift Exit Sensor (Lower Tray Exit Sensor)	No Paper	Paper
3	Staple Entrance Sensor (Stapler Tray Entrance Sensor)	Paper	No Paper
4	Staple Moving HP Sensor (Stapler HP Sensor)	Not HP	At HP
5	Jogger HP Sensor (Jogger Fence HP Sensor)	Not HP	At HP
6	Stack Feed-out Belt HP Sensor	At HP	Not HP
7	Staple Tray Paper Sensor	No Paper	Paper
8	Staple Rotation Sensor (Staple Rotation HP Sensor)	Not HP	At HP
9	Staple Sensor	Staples	No Staples
10	Staple READY Detection	Staples	No Staples
11	Exit Guide Plate HP (Exit Guide Plate HP Sensor)	Not HP	At HP
12	Shift HP Sensor	Not HP	At HP

13	Paper Sensor (Stack Height Sensor)	No Tray	Tray
14	Tray Lower Sensor (Lower Tray Lower Limit Sensor)	Lower limit	Not Lower Limit
15	Proof Full Sensor (Paper Limit Sensor)	Not Full	Full

6143	FIN (TIG) Output Check	1000-Sheet Finisher B793
	Displays the signals received from sensors and switches of the booklet finisher. **Note**: In the table below, "Display" is what you see on the screen, and "Component" is the name used in the service manuals.	
	Display	**Component**
1	Shift Motor	Shift Tray Motor
2	Entrance Motor	-
3	Staple Relay Motor	Stapler Unit Motor
4	Knock Solenoid	
5	Junction Gate SOL 1	Proof Tray Gate Solenoid
6	Junction Gate SOL 2	Staple Tray Gate Solenoid
7	Folder Roller Rotation Motor	Fold Roller Motor
8	Staple Motor	Staple Fold Motor
10	Exit Guide Plate Motor	-
11	Shift Relay Motor	Upper Transport Motor
12	Tray Motor	Shift Tray Motor
13	Stack Feed-out Motor	Positioning Roller Solenoid
14	Stuck Relay1 Motor	Upper Clamp Roller Motor

15	Stuck Relay1 Release Motor	Upper Retraction Motor
16	Rear Edge Fence Drive Motor	Bottom Fence Lift Motor
17	Folder Plate Motor	-
18	Drive Roller Oscillating Motor	Lower Retraction Motor
19	Staple Moving Motor	Staple Unit Driver Motor
20	Jogger Motor	Jogger Motor
21	Punch Registration Moving Motor	Paper Position Sensor Slide Motor
22	Punch Motor	-
23	Punch Moving Motor	Punch Movement Motor

6144	FIN (KIN) Output Check	1000-Sheet Finisher B408
	Displays the signals received from sensors and switches of the booklet finisher. **Note**: In the table below, "Display" is what you see on the screen, and "Component" is the name used in the service manuals.	
	Display	**Component**
1	Relay Up Motor	Upper Transport Motor
2	Relay Down Motor	Lower Transport Motor
3	Exit Motor	-
4	Proof Junction Gate SOL	Tray Junction Gate Solenoid
5	Tray Up Motor	Lower Tray Lift Motor
6	Jogger Motor	Jogger Fence Motor
7	Staple Moving Motor	Stapler Motor
8	Staple Motor	Stapler Hammer
9	Staple Junction Gate SOL	Stapler Junction Gate Solenoid

10	Positioning Roller Solenoid	Positioning Roller Solenoid
11	Stack Feed-out Motor	-
12	Shift Motor	-
13	Exit Guide Plate Motor	-

6145	FIN (ELB) Input Check	500-Sheet Finisher D372	
	Displays the signals received from sensors and switches of the finisher. **Note**: ▪ The names in parentheses below are the names used in the service manuals. ▪ "0" means LOW, "1" means HIGH.		

	Component	**0**	**1**
1	Entrance Sensor	Paper	No Paper
2	Hitroll HP Sensor (Positioning Roller HP Sensor)	Not HP	At HP
3	Front Jogger HP Sensor (Front Fence HP Sensor)	Not HP	At HP
4	Rear Jogger HP Sensor (Rear Fence HP Sensor)	Not HP	At HP
5	Staple Tray Paper Sensor	Paper	No Paper
6	Staple Moving HP Sensor (Stapler HP Sensor)	Not HP	At HP
7	Stack Feed-Out Belt HP Sensor	Not HP	At HP
8	Shift Tray Paper Sensor	Not HP	At HP
9	Upper Cover Sensor	Not HP	At HP
10	Stapler Rotation Sensor	HP	Not HP

11	Staple Near End Sensor	HP	Not HP
12	Self Priming (Stapler)	HP	Not HP
13	Shift Tray Limit Sensor (Tray Upper Limit SW)	Not Full	Full

6146	FIN (ELB) Output Check	500-Sheet Finisher D372	
	Displays the signals received from sensors and switches of the booklet finisher. **Note**: In the table below, "Display" is what you see on the screen, and "Component" is the name used in the service manuals.		
	Display	**Component**	
1	Carry Motor	Transport Motor	
2	Hitroll Motor	Positioning Roller Arm Motor	
3	Front Jogger Motor	Front Fence Motor	
4	Rear Jogger Motor	Rear Fence Motor	
5	Staple Moving Motor	Stapler Movement Motor	
6	Stack Feed-Out Motor	Feed-Out Belt Motor	
7	Tray Motor	Tray Lift Motor	
8	Staple Motor	Stapler Motor	
9	Stopper Solenoid	Stack Depressor Solenoid	

5.8 SP7XXX: DATA LOG

7001*	Main Motor Operation Time
	The number of prints and drive time for drum revolutions can be obtained by counting the main motor revolution time. If the amount of the time required for the drum to revolve to print 1 copy increases, this data combined with the number of copies can be used to analyze problems and could be useful for future product development. Display: 0000000 to 9999999 min.

7401*	Total SC Counter
	Displays the total number of service calls that have occurred.

7403*	SC History	
1	Latest	Displays the most recent 10 service calls.
2	Latest 1	
3	Latest 2	
4	Latest 3	
5	Latest 4	
6	Latest 5	
7	Latest 6	
8	Latest 7	
9	Latest 8	
10	Latest 9	

7502*	Total Paper Jam Counter

	Displays the total number of paper jams.

7503*	Total Original Jam Counter
	Displays the total number of original jams.

⇒

7504*	Paper Jam Location	
	These SPs display the total number of paper jams by location. A "Check-in" (paper late) error occurs when the paper fails to activate the sensor at the precise time. **Note** ▪ Lag. Jam occurs when the paper remains at the sensor for longer than the prescribed time. ▪ Late: Jam occurs because paper fails to arrive at the prescribed time.	

Jam Code	Description	LCD Display
1	Paper is not fed at power on.	A
3	Paper is not fed from tray 1.	A
4	Paper is not fed from tray 2.	Y
5	Paper is not fed from tray 3.	Y
6	Paper is not fed from tray 4.	Y
7	Paper is not fed from the LCT.	Y
8	Paper is not fed from the By-Pass Tray.	A
9	Paper jammed at the duplex unit.	Z
11	Upper relay sensor does not detect paper from tray 1.	A
12	Lower relay sensor does not detect paper from tray 2.	A
13	Vertical transport sensor (paper tray unit) does not detect paper.	Y
17	Registration sensor does not detect paper.	A
20	Paper exit sensor does not detect paper.	C
21	Tray exit sensor (bridge unit) does not detect paper.	D
22	Relay sensor (bridge unit) does not detect paper.	D
25	Duplex exit sensor (duplex unit) does not detect paper.	Z
27	Duplex entrance (duplex unit) does not detect paper.	Z
51	Upper relay sensor does not turn off.	A
52	Lower relay sensor does not turn off.	A
53	Vertical transport sensor (paper tray unit) does not turn off.	Y
57	Registration sensor does not turn off.	B
58	Relay sensor (LCT) does not turn off.	Y
60	Paper exit sensor does not turn off.	C
61	Tray exit sensor (bridge unit) does not turn off.	D
62	Relay sensor (bridge unit) does not turn off.	D
65	Duplex exit sensor (duplex unit) does not turn off.	Z
67	Duplex entrance (duplex unit) does not turn off.	C
100	Paper does not reach to the entrance sensor or stay at the entrance sensor. (B408)	R1-R2
101	Paper does not reach to the lower tray exit sensor or stay at the lower tray exit sensor. (B408)	R1-R2

⇒ SP7504 Paper Jam Locations continued.

Jam Code	Description	LCD Display
102	Paper does not reach to the staple tray entrance sensor or stay at the staple tray entrance sensor. (B408)	R3-R5
103	- Lower tray exit sensor does not detect paper after the stack feed-out belt has fed paper. (B408) - Lower tray ext sensor still detects paper after the stack feed-out belt has returned to the home position. (B408)	R3-R5
105	- Stack height sensor does not detect paper after the lower tray has lofted up. (B408) - Stack height sensor still detects paper after the lower tray has lifted down. (B408)	R1-R2
106	- Jogger fence HP sensor does not turn off after the jogger fence has moved from its home position. (B408) - Jogger fence HP sensor does not turn on after the jogger fence has returned to its home position. (B408)	R3-R5
107	- Shift roller HP sensor does not turn off after the shift motor has moved. (B408) - Shift roller HP sensor does not turn on after the shift roller has returned to its home position. (B408)	R1-R2
108	- Stapler HP sensor does not turn off after the stapler has moved from its home position (B408) - Stapler HP sensor does not turn on after the stapler has returned to its home position (B408)	R3-R5
109	- Stack feed-out belt HP sensor does not turn off after the stack feed-out belt has moved from its home position (B408) - Stack feed-out belt HP sensor does not turn on after the stack feed-out belt has returned to its home position (B408)	R3-R5
130	Paper does not reach to the entrance sensor or stay at the entrance sensor. (B793)	R1-R3
131	Paper does not reach to the proof tray ext sensor or stay at the proof tray ext sensor. (B793)	R1-R3
132	Paper does not reach to the shift tray ext sensor or stay at the shift tray ext sensor. (B793)	R1-R3
133	- Staple tray exit sensor does not turn on after the entrance sensor has turned on. (B793) - Staple tray exit sensor does not turn off after it has turned on. (B793)	R4-R6
134	- Shift tray exit sensor does not turn on while the stack feed-out roller has turned on. (B793) - Shift tray exit sensor does not turn off while the stack feed-out roller has returned to its home position. (B793)	R4-R6
135	Fold unit entrance sensor does not turn on after the stopper S HP sensor has turned on. (B793)	R7-R11
136	- Fold unit exit sensor does not turn on after the folding has been done. (B793) - Fold unit exit sensor does not turn off after it has turned on. (B793)	R7-R11
137	- Exit guide plate HP sensor does not turn off after the exit guide plate has opened. (B793) - Exit guide plate HP sensor does not turn on after the exit guide plate has closed. (B793)	R1-R3
138	- Staple unit HP sensor does not turn off after the staple unit has moved from its home position. (B793) - Staple unit HP sensor does not turn on after the staple unit has returned to its home position. (B793)	R7-R11
139	- Punch HP, punch movement HP or paper position slide HP senor does not turn off after each unit has moved from its home position. (B793) - Punch HP, punch movement HP or paper position slide HP senor does not turn on after each unit has returned to its home position. (B793)	R1-R3
140	- Shift tray position sensor does not turn on after the shift tray has lifted up. (B793) - Shift tray position sensor does not turn off after the shift tray has lifted down. (B793)	R1-R3

⟹ SP7504 Paper Jam Locations continued.

Jam Code	Description	LCD Display
141	- Jogger fence HP sensor does not turn off after the jogger fences have moved from its home position. (B793) - Jogger fence HP sensor does not turn on after the jogger fences have returned to its home position. (B793)	R7-R11
142	- Shift motor HP sensor does not turn off after the shift motor has moved from its home position. (B793) - Shift motor HP sensor does not turn on after the shift motor has returned to its home position. (B793)	R1-R3
143	- Fold plate HP sensor does not turn off after the fold plate has moved from its home position. (B793) - Fold plate HP sensor does not turn on after the fold plate has returned to its home position. (B793)	R7-R11
144	- Staple HP sensor does not turn off after the staple has moved from its home position. (B793) - Staple HP sensor does not turn on after the staple has returned to its home position. (B793)	R7-R11
145	- Stack feed-out HP sensor does not turn off after the stack feed-out has moved from its home position (B793) - Stack feed-out HP sensor does not turn on after the stack feed-out has returned to its home position (B793)	R7-R11
146	- Stopper S HP sensor does not turn off after the upper clamp roller has moved from its home position (B793) - Stopper S HP sensor does not turn on after the upper clamp roller has returned to its home position (B793)	R7-R11
147	- Lower clamp roller HP sensor does not turn off after the lower clamp roller has moved from its home position (B793) - Lower clamp roller HP sensor does not turn on after the lower clamp roller has returned to its home position (B793)	R7-R11
148	- Stopper S HP sensor does not turn off after the stopper S has moved from its home position (B793) - Stopper S HP sensor does not turn on after the stopper S has returned to its home position (B793)	R7-R11
160	Entrance sensor does not detect paper. (D372)	R1
161	Entrance sensor does not turn off. (D372)	R1
162	Feed-out belt HP sensor does not turn on or off at power on initialization. (D372)	R2
163	- Positioning roller HP sensor does not turn on after the transport motor has switched on. (D372) - Positioning roller HP sensor does not turn off within specified time. (D372)	R1
164	- Front fence HP sensor does not turn off after the front fence has moved from its home position. (D372) - Front fence HP sensor does not turn on after the jogger fence has returned to its home position. (D372)	R1
165	- Rear fence HP sensor does not turn off after the rear fence has moved from its home position. (D372) - Rear fence HP sensor does not turn on after the rear fence has returned to its home position. (D372)	R1
166	- Feed-out belt HP sensor does not turn off even after the feed-out belt motor has rotated. (D372) - Feed-out belt HP sensor does not turn on at the power on initialization. (D372)	R1

⇒ SP7504 Paper Jam Locations continued.

Jam Code	Description	LCD Display
167	- Stapler HP sensor does not turn on or off at power on initialization. (D372) - Stapler HP sensor does not turn off after the stapler unit has moved from its home position. (D372) - Stapler HP sensor does not turn on after the stapler unit has returned to its home position. (D372)	R1
168	- Stapler hummer HP sensor does not turn on when stapling movement starts (D372) - Stapler hummer HP sensor does not turn off after the stapling movement has finished. (D372)	R1
169	- Paper height sensor does not turn on after the tray has lifted up. (D372) - Paper height sensor does not turn off after the tray has lifted down. (D372)	R1
170	Edge depressor solenoid does not work (paper height sensor does not turn on) at the power on initialization. (D372)	R1
230	The machine does not get paper exit signal from the finisher. (D372)	R1
231	The machine does not detect the finisher. (D372)	R1

7505	Original Jam Location
	Displays the total number of original jams by location. These jams occur when the original does not activate the sensors. **Note** ▪ Lag. Jam occurs when the paper remains at the sensor for longer than the prescribed time. ▪ Late: Jam occurs because paper fails to arrive at the prescribed time.
1	At Power On
3	Skew Correction Sn: Late
4	Registration Sn: Late

SP7xxx: Data Log

5	Exit Sn: Late
53	Skew Correction Sn: Lag
54	Registration Sn: Lag
55	Exit Sn: Lag

7506*	Jam Count by Paper Size	
5	A4 LEF	Displays the total number of copy jams by paper size.
6	A5 LEF	
14	B5 LEF	
38	LT LEF	
44	HLT LEF	
132	A3 SEF	
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	
7507 1	Last	Displays the copy jam history (the most recent 10 jams)

7507 2	Latest 1	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 (SP7502) DATE is the date the jams occurred.
7507 3	Latest 2	
7507 4	Latest 3	
7507 5	Latest 4	
7507 6	Latest 5	
7507 7	Latest 6	
7507 8	Latest 7	
7507 9	Latest 8	
7507 10	Latest 9	

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	
1	Last	Displays the original 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 SP7505*** number (see above. SIZE is the ASAP paper size code in hex. TOTAL is the total error count (SP7503)
2	Last 1	
3	Last 2	
4	Last 3	
5	Last 4	
6	Last 5	
7	Last 6	

8	Last 7	DATE is the date the jams occurred.
9	Last 8	
10	Last 9	

7801	ROM No./Firmware Version
	This SP codes display the firmware versions of all ROMs in the system, including the mainframe, the ARDF, and peripheral devices.

7803*	PM Counter Display	
	Displays the PM counter since the last PM.	
1	Paper	
2	Sheets 60K Part	
3	Sheets 120K Part	
4	Distance (m) 60 K	
5	Distance (m) 120	
6	Distance 60K	
7	Distance 120K	

7804	PM Counter Resets	
	Resets the PM counter. To reset, press Execute on the touch panel.	
1	Paper	
2	Sheets 60K	
3	Sheets 120K	

7807	SC/Jam Counter Reset

	Resets the SC and jam counters. To reset, press Execute on the touch panel. This SP does not reset the jam history counters: SP7507, SP7508.

7826	MF Error Counter **Japan Only**	
	Displays the number of counts requested of the card/key counter.	
1	Error Total	A request for the count total failed at power on. This error will occur if the device is installed but disconnected.
2	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 **Japan Only**
	Press Execute to reset to 0 the values of SP7826. **Japan Only**

7832	Self-Diagnose Result Display
	Execute to open the “Self-Diagnostics Result Display” to view details about errors. Use the keys in the display on the touch-panel to scroll through all the information. If no errors have occurred, you will see the “No Error” message on the screen.

7834	Coverage Data Clear
	These SPs clear the counters for the following items.
1	Last & Average
2	No. of Toner Bottles
3	Page Count: Bottle
4	Dot Coverage Clear
255	All Coverage Data

7836	Total Memory Size
	Displays the memory capacity of the controller system.

7852*	ADF Exposure Glass	
	Counts the number of occurrences (0 to 65,535) when dust was detected on the scanning glass of the ADF.	
1*	Dust Check Counter	Counts the occurrences. Counting is done only if SP4020 1 (ADF Scan Glass Dust Check) is switched on.
2*	Dust Check Counter Clear	Clears the count. Memory All Clear (SP5801) resets this counter to zero.

7856	Zero Cross
	Stores and displays the detected zero cross frequency for main power ac.

7901*	Assert Info. **DFU**	
	These SP numbers display the results of the occurrence of the most recent SC code generated by the machine.	
1*	File Name	Module name
2*	Number of Lines	Number of the lines where error occurred.
3*	Location	Value

7906	Last PM Count	
	Displays the most recent PM count for 60K and 120K service parts ("60K" and "120" refer to service life).	
1	Paper	

2	Sheets 60K Part	
3	Sheets 120K Part	
4	Distance (m) 60 K	
5	Distance (m) 120	
6	Distance 60K	
7	Distance 120K	

7907	Before 2 PM Count	
	Displays the PM count before the most recent PM count for 60K and 120K service parts ("60K" and "120" refer to service life).	
1	Paper	
2	Sheets 60K Part	
3	Sheets 120K Part	
4	Distance (m) 60 K	
5	Distance (m) 120 K	
6	Distance 60K	
7	Distance 120K	

7908	Before 3 PM Count	
	Displays the PM count two counts the most recent PM count for 60K and 120K service parts ("60K" and "120" refer to service life).	
1	Paper	
2	Sheets 60K Part	
3	Sheets 120K Part	
4	Distance (m) 60 K	

5	Distance (m) 120 K	
6	Distance 60K	
7	Distance 120K	

7909	PCU Counter Display
	Displays the value of the PCU counter (number of copies since the last PCU change).

7999	Engine Debug Log Switch			
	This SP switches the contents of the debug log.			
	0	RHM log (all)	4	Scanner log 2
	1	Plotter log	5	Scanner log 3
	2	Print log	6	Scanner log 4
	3	Scanner log 1	7-255	RHM log (all)

5.9 SP8XXX: DATA LOG 2

Many of these counters are provided for features that are currently not available, such as sending color faxes, and so on. However, here are some Group 8 codes that when used in combination with others, can provide useful information.

SP Numbers	What They Do
SP8211 - SP8216	The number of pages scanned to the document server.
SP841 - SP8406	The number of pages printed from the document server
SP8691 - SP8696	The number of pages sent from the document server

Specifically, the following questions can be answered:

- How is the document server actually being used?
- What application is using the document server most frequently?
- What data in the document server is being reused?

Most of the SPs in this group are prefixed with a letter that indicates the mode of operation (the mode of operation is referred to as an 'application'). Before reading the Group 8 Service Table, make sure that you understand what these prefixes mean.

<table>
<tr><th>Prefixes</th><th colspan="2">What It Means</th></tr>
<tr><td>T:</td><td>Total: (Grand Total).</td><td>Grand total of the items counted for all applications (C, F, P, etc.).</td></tr>
<tr><td>C:</td><td>Copy application.</td><td rowspan="4">Totals (pages, jobs, etc.) executed for each application when the job was not stored on the document server.</td></tr>
<tr><td>F:</td><td>Fax application.</td></tr>
<tr><td>P:</td><td>Print application.</td></tr>
<tr><td>S:</td><td>Scan application.</td></tr>
<tr><td>L:</td><td>Local storage (document server)</td><td>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</td></tr>
</table>

SP8xxx: Data Log 2

Prefixes	What It Means	
		document server mode (from the document server window), or from another mode, such as from a printer driver or by pressing the Store File button in the Copy mode window. Sometimes, they include occasions when the user uses a file that is already on the document server. Each counter will be discussed case by case.
O:	Other applications (external network applications, for example)	Refers to network applications such as Web Image Monitor. Utilities developed with the SDK (Software Development Kit) will also be counted with this group in the future.

The Group 8 SP codes are limited to 17 characters, forced by the necessity of displaying them on the small LCDs of printers and faxes that also use these SPs. Read over the list of abbreviations below and refer to it again if you see the name of an SP that you do not understand.

Key for Abbreviations

Abbreviation	**What It Means**
/	“By”, e.g. “T:Jobs/Apl” = Total Jobs “by” Application
>	More (2> “2 or more”, 4> “4 or more”
AddBook	Address Book
Apl	Application
B/W	Black & White
Bk	Black
C	Cyan
ColCr	Color Create

Abbreviation	What It Means
ColMode	Color Mode
Comb	Combine
Comp	Compression
Deliv	Delivery
DesApl	Designated Application. The application (Copy, Fax, Scan, Print) used to store the job on the document server, for example.
Dev Counter	Development Count, no. of pages developed.
Dup, Duplex	Duplex, printing on both sides
Emul	Emulation
FC	Full Color
FIN	Post-print processing, i.e. finishing (punching, stapling, etc.)
Full Bleed	No Margins
GenCopy	Generation Copy Mode
GPC	Get Print Counter. For jobs 10 pages or less, this counter does not count up. For jobs larger than 10 pages, this counter counts up by the number that is in excess of 10 (e.g., for an 11-page job, the counter counts up 11-10 =1)
IFax	Internet Fax
ImgEdt	Image Edit performed on the original with the copier GUI, e.g. border removal, adding stamps, page numbers, etc.
K	Black (YMCK)
LS	Local Storage. Refers to the document server.
LSize	Large (paper) Size
Mag	Magnification

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Abbreviation	What It Means
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 moved around, combined, and converted to different formats.
PC	Personal Computer
PGS	Pages. A page is the total scanned surface of the original. Duplex pages count as two pages, and A3 simplex count as two pages if the A3/DLT counter SP is switched ON.
PJob	Print Jobs
Ppr	Paper
PrtJam	Printer (plotter) Jam
PrtPGS	Print Pages
R	Red (Toner Remaining). Applies to the wide format model A2 only. This machine is under development and currently not available.
Rez	Resolution
SC	Service Code (Error SC code displayed)
Scn	Scan
Sim, Simplex	Simplex, printing on 1 side.
S-to-Email	Scan-to-E-mail
SMC	SMC report printed with SP5990. All of the Group 8 counters are

Abbreviation	What It Means
	recorded in the SMC report.
Svr	Server
TonEnd	Toner End
TonSave	Toner Save
TXJob	Send, Transmission
YMC	Yellow, Magenta, Cyan
YMCK	Yellow, Magenta, Cyan, BlacK

Note

- All of the Group 8 SPs are reset with SP5 801 1 Memory All Clear, or the Counter Reset SP7 808.

8001	T:Total Jobs	These SPs count the number of times each application is used to do a job. [0 to 9999999/ 0 / 1] **Note:** The L: counter is the total number of times the other applications are used to send a job to the document server, plus the number of times a file already on the document server is used.
8002	C:Total Jobs	
8003	F: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.
- A job is counted as a fax job when the job is stored for sending.

SP8xxx: Data Log 2

- When a fax is received to fax memory, the F: counter increments but the L: counter does not (the document server is not used).
- A fax broadcast counts as one job for the F: counter (the fax destinations in the broadcast are not counted separately).
- A fax broadcast is counted only after all the faxes have been sent to their destinations. If one transmission generates an error, then the broadcast will not be counted until the transmission has been completed.
- A printed fax report counts as one job for the F: counter.
- The F: counter does not distinguish between fax sending or receiving.
- When a copy job on the document server is printed, SP8022 also increments, and when a print job stored on the document server is printed, SP8024 also increments.
- When an original is both copied and stored on the document server, the C: and L: counters both increment.
- When a print job is stored on the document server, only the L: counter increments.
- When the user presses the Document Server button to store the job on the document server, only the L: counter increments.
- When the user enters document server mode and prints data stored on the document server, only the L: counter increments.
- When an image received from Palm 2 is received and stored, the L: counter increments.
- When the customer prints a report (user code list, for example), the O: counter increments. However, for fax reports and reports executed from the fax application, the F: counter increments.

8011	T:Jobs/LS	These SPs count the number of jobs stored to the document server by each application, to reveal how local storage is being used for input. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.
8012	C:Jobs/LS	
8013	F:Jobs/LS	
8014	P:Jobs/LS	
8015	S:Jobs/LS	
8016	L:Jobs/LS	
8017	O:Jobs/LS	

- When a scan job is sent to the document server, the S: counter increments. When you enter document server mode and then scan an original, the L: counter increments.
- When a print job is sent to the document server, the P: counter increments.
- When a network application sends data to the document server, the O: counter increments.
- When an image from Palm 2 is stored on the document server, the O: counter increments.
- When a fax is sent to the document server, the F: counter increments.

8021	T:Pjob/LS	These SPs reveal how files printed from the document server were stored on the document server originally. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.
8022	C:Pjob/LS	
8023	F:Pjob/LS	
8024	P:Pjob/LS	
8025	S:Pjob/LS	
8026	L:Pjob/LS	
8027	O:Pjob/LS	

- When a copy job stored on the document server is printed with another application, the C: counter increments.
- When an application like DeskTopBinder merges a copy job that was stored on the document server with a print job that was stored on the document server, the C: and P: counters both increment.
- When a job already on the document server is printed with another application, the L: counter increments.
- When a scanner job stored on the document server is printed with another application, the S: counter increments. If the original was scanned from within document server mode, then the L: counter increments.
- When images stored on the document server by a network application (including Palm 2), are printed with another application, the O: counter increments.
- When a copy job stored on the document server is printed with a network application (Web Image Monitor, for example), the C: counter increments.
- When a fax on the document server is printed, the F: counter increments.

SP8xxx: Data Log 2

8031	T:Pjob/DesApl	These SPs reveal what applications were used to output documents from the document server. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs printed from within the document server mode screen at the operation panel.
8032	C:Pjob/DesApl	
8033	F:Pjob/DesApl	
8034	P:Pjob/DesApl	
8035	S:Pjob/DesApl	
8036	L:Pjob/DesApl	
8037	O:Pjob/DesApl	

- When documents already stored on the document server are printed, the count for the application that started the print job is incremented.
- When the print job is started from a network application (Desk Top Binder, Web Image Monitor, etc.) the L: counter increments.

8041	T:TX Jobs/LS	These SPs count the applications that stored files on the document server that were later accessed for transmission over the telephone line or over a network (attached to an e-mail, or as a fax image by I-Fax). [0 to 9999999/ 0 / 1] **Note**: ▪ Jobs merged for sending are counted separately. ▪ The L: counter counts the number of jobs scanned from within the document server mode screen at the operation panel.
8042	C:TX Jobs/LS	
8043	F:TX Jobs/LS	
8044	P:TX Jobs/LS	
8045	S:TX Jobs/LS	
8046	L:TX Jobs/LS	
8047	O:TX Jobs/LS	

- When a stored copy job is sent from the document server, the C: counter increments.
- When images stored on the document server by a network application or Palm2 are sent as an e-mail, the O: counter increments.

8051	T:TX Jobs/DesApl	These SPs count the applications used to send files from the document server over the telephone line or over a network (attached to an e-mail, or as a fax image by I-Fax). Jobs merged for sending are counted separately. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs sent from within the document server mode screen at the operation panel.
8052	C:TX Jobs/DesApl	
8053	F: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	[0 to 9999999/ 0 / 1]
	These SPs total the finishing methods. The finishing method is specified by the application.	
8062	C:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for copy jobs only. The finishing method is specified by the application.	
8063	F:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for fax jobs only. The finishing method is specified by the application. **Note**: Finishing features for fax jobs are not available at this time.	
8064	P:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for print jobs only. The finishing method is specified by the application.	
8065	S:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for scan jobs only. The finishing method is specified by the application.	

SP8xxx: Data Log 2

	Note: Finishing features for scan jobs are not available at this time.	
8066	L:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for jobs output from within the document server mode screen at the operation panel. The finishing method is specified from the print window within document server mode.	
8067	O:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for jobs executed by an external application, over the network. The finishing method is specified by the application.	
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 9999999/ 0 / 1]
	These SPs count the number of jobs broken down by the number of pages in the job, regardless of which application was used.	
8072	C:Jobs/PGS	[0 to 9999999/ 0 / 1]

	These SPs count and calculate the number of copy jobs by size based on the number of pages in the job.			
8073	F:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count and calculate the number of fax jobs by size based on the number of pages in the job.			
8074	P:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count and calculate the number of print jobs by size based on the number of pages in the job.			
8075	S:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count and calculate the number of scan jobs by size based on the number of pages in the job.			
8076	L:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count and calculate the number of jobs printed from within the document server mode window at the operation panel, by the number of pages in the job.			
8077	O:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count and calculate the number of “Other” application jobs (Web Image Monitor, Palm 2, etc.) by size based on the number of pages in the job.			
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	6to10 Pages	807x 13	701 to 1000 Pages	
807x 7	11 to 20 Pages	807x 14	More than 1001 Pages	

SP8xxx: Data Log 2

- For example: When a copy job stored on the document server is printed in document server mode, the appropriate L: counter (SP8076 0xx) increments.
- Printing a fax report counts as a job and increments the F: counter (SP 8073).
- Interrupted jobs (paper jam, etc.) are counted, even though they do not finish.
- If a job is paused and re-started, it counts as one job.
- If the finisher runs out of staples during a print and staple job, then the job is counted at the time the error occurs.
- For copy jobs (SP 8072) and scan jobs (SP 8075), the total is calculated by multiplying the number of sets of copies by the number of pages scanned. (One duplex page counts as 2.)
- The first test print and subsequent test prints to adjust settings are added to the number of pages of the copy job (SP 8072).
- When printing the first page of a job from within the document server screen, the page is counted.

8111	T:FAX TX Jobs	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) sent by fax, either directly or using a file stored on the document server, on a telephone line.	
8113	F:FAX TX Jobs	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) sent by fax directly on a telephone line.	

- These counters count jobs, not pages.
- This SP counts fax jobs sent over a telephone line with a fax application, including documents stored on the document server.
- If the mode is changed during the job, the job will count with the mode set when the job started.
- If the same document is faxed to both a public fax line and an I-Fax at a destination where both are available, then this counter increments, and the I-Fax counter (812x) also increments.
- The fax job is counted when the job is scanned for sending, not when the job is sent.

8121	T:IFAX TX Jobs	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) sent, either directly or using a file stored on the document server, as fax images using I-Fax.	
8123	F:IFAX TX Jobs	[0 to 9999999/ 0 / 1]
	These SPs count the number of jobs (color or black-and-white) sent (not stored on the document server), as fax images using I-Fax.	

- These counters count jobs, not pages.
- The counters for color are provided for future use; the color fax feature is not available at this time.
- The fax job is counted when the job is scanned for sending, not when the job is sent.

8131	T:S-to-Email Jobs	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs scanned and attached to an e-mail, regardless of whether the document server was used or not.	
8135	S:S-to-Email Jobs	
	These SPs count the number of jobs scanned and attached to an e-mail, without storing the original on the document server.	
813x 1	B/W	Monochrome
813x 2	Color	Color
813x 3	ACS	Automatic Color Selection

- 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.

SP8xxx: Data Log 2

- If several jobs are combined for sending to the Scan Router, Scan-to-Email, or Scan-to-PC, or if one job is sent to more than one destination. each send is counted separately. For example, if the same document is sent by Scan-to-Email as well as Scan-to-PC, then it is counted twice (once for Scan-to-Email and once for Scan-to-PC).

8141	T:Deliv Jobs/Svr	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs scanned and sent to a Scan Router server.	
8145	S:Deliv Jobs/Svr	
	These SPs count the number of jobs scanned in scanner mode and sent to a Scan Router server.	
814x 1	B/W	Monochrome
814x 2	Color	Color
814x 3	ACS	Automatic Color Selection

- The jobs are counted even though the arrival and reception of the jobs at the Scan Router server cannot be confirmed.
- If even one color image is mixed with black-and-white images, then the job is counted as a “Color” job.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be delivered, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

8151	T:Deliv Jobs/PC	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs scanned and sent to a folder on a PC (Scan-to-PC).	
8155	S:Deliv Jobs/PC	

	These SPs count the total number of jobs scanned and sent with Scan-to-PC.	
815x 1	B/W	Monochrome
815x 2	Color	Color
815x 3	ACS	Automatic Color Selection

- 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.

8161	T:PCFAX TX Jobs	These SPs count the number of PC Fax transmission jobs. A job is counted from when it is registered for sending, not when it is sent. [0 to 9999999/ 0 / 1]
8163	F:PCFAX TX Jobs	

- This counts fax jobs started from a PC using a PC fax application, and sending the data out to the destination from the PC through the copier.

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	
8193	F: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.

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- 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. Large size paper (A3/DLT) scanned for fax transmission are not counted. **Note**: These counters are displayed in the SMC Report, and in the User Tools display.	
8205	S:LSize Scan PGS	[0 to 9999999/ 0 / 1]
	These SPs count the total number of large pages input with the scanner for scan jobs only. Large size paper (A3/DLT) scanned for fax transmission are not counted. **Note**: These counters are displayed in the SMC Report, and in the User Tools display.	

8211	T:Scan PGS/LS	These SPs count the number of pages scanned into the document server . [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen
8212	C:Scan PGS/LS	
8213	F: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	[0 to 9999999/ 0 / 1]
	These SPs count the number of pages fed through the ADF for front and back side scanning.	
8221 1	Front	Number of front sides fed for scanning: With an ADF that can scan both sides simultaneously, the Front side count is the same as the number of pages fed for either simplex or duplex scanning. With an ADF that cannot scan both sides simultaneously, the Front side count is the same as the number of pages fed for duplex front side scanning. (The front side is determined by which side the user loads face up.)
8221 2	Back	Number of rear sides fed for scanning: With an ADF that can scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex scanning. With an ADF that cannot scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex rear-side scanning.

- When 1 sheet is fed for duplex scanning the Front count is 1 and the Back count is 1.
- If a jam occurs during the job, recovery processing is not counted to avoid double counting. Also, the pages are not counted if the jam occurs before the first sheet is output.

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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.	
1	Large Volume	Selectable. Large copy jobs that cannot be loaded in the ADF at one time.
2	SADF	Selectable. Feeding pages one by one through the ADF.
3	Mixed Size	Selectable. Select “Mixed Sizes” on the operation panel.
4	Custom Size	Selectable. Originals of non-standard size.
5	Platen	Book mode. Raising the ADF and placing the original directly on the platen.
6	Simplex/Duplex	Single-side, double-side scanning.

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.
- The user cannot select mixed sizes or non-standard sizes with the fax application so if the original’s page sizes are mixed or non-standard, these are not counted.
- If the user selects “Mixed Sizes” for copying in the platen mode, the Mixed Size count is enabled.
- In the SADF mode if the user copies 1 page in platen mode and then copies 2 pages with SADF, the Platen count is 1 and the SADF count is 3.

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.	

8243	F:Scan PGS/Org	[0 to 9999999/ 0 / 1]
	These SPs count the number of pages scanned by original type for Fax 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 11: Other		Yes	Yes	Yes	Yes	Yes

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.

8251	T:Scan PGS/ImgEdt	These SPs show how many times Image Edit features have been selected at the operation panel for each application. Some examples of these editing features are: ▪ Erase> Border ▪ Erase> Center ▪ Image Repeat ▪ Centering
8252	C:Scan PGS/ImgEdt	
8255	S:Scan PGS/ImgEdt	
8256	L:Scan PGS/ImgEdt	
8257	O:Scan PGS/ImgEdt	

SP8xxx: Data Log 2

		▪ Positive/Negative [0 to 9999999/ 0 / 1] **Note**: The count totals the number of times the edit features have been used. A detailed breakdown of exactly which features have been used is not given.

- The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen.

8281	T:Scan PGS/TWAIN	These SPs count the number of pages scanned using a TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions. [0 to 9999999/ 0 / 1]
8285	S:Scan PGS/TWAIN	

8291	T:Scan PGS/Stamp	These SPs count the number of pages stamped with the stamp in the ADF unit. [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen
8293	F:Scan PGS/Stamp	
8295	S:Scan PGS/Stamp	

8301	T:Scan PGS/Size	[0 to 9999999/ 0 / 1]
	These SPs count by size the total number of pages scanned by all applications. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-441].	
8302	C:Scan PGS/Size	[0 to 9999999/ 0 / 1]
	These SPs count by size the total number of pages scanned by the	

	Copy application. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-442].		
8303	F:Scan PGS/Size		[0 to 9999999/ 0 / 1]
	These SPs count by size the total number of pages scanned by the Fax application. Use these totals to compare original page size (scanning) and output page size [SP 8-443].		
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		

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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. Note: At the present time, 8311 and 8315 perform identical counts.	

831x 1	1200dpi to		
831x 2	600dpito1199dpi		
831x 3	400dpito599dpi		
831x 4	200dpito399dpi		
831x 5	to199dpi		

- Copy resolution settings are fixed so they are not counted.
- The Fax application does not allow finely-adjusted resolution settings so no count is done for the Fax application.

8381	T:Total PrtPGS	These SPs count the number of pages printed by the customer. The counter for the application used for storing the pages increments. [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy
8382	C:Total PrtPGS	
8383	F:Total PrtPGS	
8384	P:Total PrtPGS	
8385	S:Total PrtPGS	
8386	L:Total PrtPGS	

8387	O:Total PrtPGS	mode screen go to the C: counter.

- When the A3/DLT double count function is switched on with SP5104, 1 A3/DLT page is counted as 2.
- When several documents are merged for a print job, the number of pages stored are counted for the application that stored them.
- These counters are used primarily to calculate charges on use of the machine, so the following pages are not counted as printed pages:
  - Blank pages in a duplex printing job.
  - Blank pages inserted as document covers, chapter title sheets, and slip sheets.
  - Reports printed to confirm counts.
  - All reports done in the service mode (service summaries, engine maintenance reports, etc.)
  - Test prints for machine image adjustment.
  - Error notification reports.
  - Partially printed pages as the result of a copier jam.

8391	LSize PrtPGS	[0 to 9999999/ 0 / 1]
	These SPs count pages printed on paper sizes A3/DLT and larger. **Note**: In addition to being displayed in the SMC Report, These counters appear in the SMC report as well as on the machine display.	

8401	T:PrtPGS/LS	These SPs count the number of pages printed from the document server. The counter for the application used to print the pages is incremented. The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel. [0 to 9999999/ 0 / 1]
8402	C:PrtPGS/LS	
8403	F:PrtPGS/LS	
8404	P:PrtPGS/LS	
8405	S:PrtPGS/LS	
8406	L:PrtPGS/LS	

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the L: count.

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- Fax jobs done with Web Image Monitor and Desk Top Binder are added to the F: count.

8411	Prints/Duplex
	This SP counts the amount of paper (front/back counted as 1 page) used for duplex printing. Last pages printed only on one side are not counted. [0 to 9999999/ 0 / 1]

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.	
8423	F: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 fax 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 9999999/ 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the scanner application.	
8426	L:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]
	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing from within the document server mode window at the operation panel.	

8427	O: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 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

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Booklet			Magazine	
Original Pages	Count		Original Pages	Count
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.	
8443	F:PrtPGS/Ppr Size	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by the fax 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 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed from	

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	within the document server mode window at the operation panel.		
8447	O:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by Other applications.		
844x 1	A3		
844x 2	A4		
844x 3	A5		
844x 4	B4		
844x 5	B5		
844x 6	DLT		
844x 7	LG		
844x 8	LT		
844x 9	HLT		
844x 10	Full Bleed		
844x 254	Other (Standard)		
844x 255	Other (Custom)		

- These counters do not distinguish between LEF and SEF.

8451	PrtPGS/Ppr Tray	[0 to 9999999/ 0 / 1]
	These SPs count the number of sheets fed from each paper feed station.	
1	Bypass	Bypass Tray
2	Tray 1	Copier
3	Tray 2	Copier

4	Tray 3	Paper Tray Unit (Option)
5	Tray 4	Paper Tray Unit (Option)
6	Tray 5	LCT (Option)
7	Tray 6	500-Sheet Finisher
8	Tray 7	Currently not used.
9	Tray 8	Currently not used.
10	Tray 9	Currently not used.
11	Tray 10	Currently not used.
12	Tray 11	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. ▪ These counters are not the same as the PM counter. The PM counter is based on feed timing to accurately measure the service life of the feed rollers. However, these counts are based on output timing. ▪ Blank sheets (covers, chapter covers, slip sheets) are also counted. ▪ During duplex printing, pages printed on both sides count as 1, and a page printed on one side counts as 1.	
8462	C:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]
	These SPs count by paper type the number pages printed by the copy application.	
8463	F:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]
	These SPs count by paper type the number pages printed by the fax application.	

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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	

8471	PrtPGS/Mag	[0 to 9999999/ 0 / 1]
	These SPs count by magnification rate the number of pages printed.	
1	to49%	
2	50%to99%	
3	100%	
4	101%to200%	
5	201% to	

- Counts are done for magnification adjusted for pages, not only on the operation panel but performed remotely with an external network application capable of performing magnification adjustment as well.

- Magnification adjustments done with printer drivers with PC applications such as Excel are also counted.
- Magnification adjustments done for adjustments after they have been stored on the document server are not counted.
- Magnification adjustments performed automatically during Auto Reduce/Enlarge copying are counted.
- The magnification rates of blank cover sheets, slip sheets, etc. are automatically assigned a rate of 100%.

8481	T:PrtPGS/TonSave
8484	P:PrtPGS/TonSave
	These SPs count the number of pages printed with the Toner Save feature switched on. **Note:** These SPs return the same results because this SP is limited to the Print application. [0 to 9999999/ 0 / 1]

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		

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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 because they are both limited to the Print application.
- Print jobs output to the document server are not counted.¶

8521	T:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed by all applications.	
8522	C:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Copy application.	
8523	F:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Fax application.	
8524	P:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Print application.	
8525	S:PrtPGS/FIN	[0 to 9999999/ 0 / 1]

	These SPs count by finishing mode the total number of pages printed by the Scanner application.	
8526	L:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed from within the document server mode window at the operation panel. **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.	
852x 1	Sort	
852x 2	Stack	
852x 3	Staple	
852x 4	Booklet	
852x 5	Z-Fold	
852x 6	Punch	
852x 7	Other	

8531	Staples	This SP counts the amount of staples used by the machine. [0 to 9999999/ 0 / 1]

8581	T:Counter	[0 to 9999999/ 0 / 1]
	These SPs count the total output broken down by color output, regardless of the application used. In addition to being displayed in the SMC Report, these counters are also displayed in the User Tools display on the copy machine.	

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8591	O:Counter		[0 to 9999999/ 0 / 1]
	These SPs count the totals for A3/DLT paper use, number of duplex pages printed, and the number of staples used. These totals are for Other (O:) applications only.		
1	A3/DLT		
2	Duplex		

8601	Coverage Counter		
1	B/W		
2	B/W Printing Pages		

8631	T:FAX TX PGS	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by fax to a telephone number.	
8633	F:FAX TX PGS	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by fax to a telephone number.	

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/W or Color.
- At the present time, this feature is provided for the Fax application only so SP8631 and SP8633 are the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions and are counted for each destination.

8641	T:FAX TX PGS	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by fax to as fax images using I-Fax.	
8643	F:FAX TX PGS	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by Fax as fax images using I-Fax.	

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/W or Color.
- At the present time, this feature is provided for the Fax application only so SP8641 and SP8643 are the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions and are counted for each destination.

8651	T:S-to-Email PGS		[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages attached to an e-mail for both the Scan and document server applications.		
8655	S:S-to-Email PGS		[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages attached to an e-mail for the Scan application only.		
1	B/W		
2	Color		

Note

- The count for B/W and Color pages is done after the document is stored on the HDD. If the job is cancelled before it is stored, the pages are not counted.
- If Scan-to-Email is used to send a 10-page document to 5 addresses, the count is 10

(the pages are sent to the same SMTP server together).

- If Scan-to-PC is used to send a 10-page document to 5 folders, the count is 50 (the document is sent to each destination of the SMB/FTP server).
- Due to restrictions on some devices, if Scan-to-Email is used to send a 10-page document to a large number of destinations, the count may be divided and counted separately. For example, if a 10-page document is sent to 200 addresses, the count is 10 for the first 100 destinations and the count is also 10 for the second 100 destinations, for a total of 20.

8661	T:Deliv PGS/Svr		[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages sent to a Scan Router server by both Scan and LS applications.		
8665	S:Deliv PGS/Svr		[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages sent to a Scan Router server by the Scan application.		
1	B/W		
2	Color		

Note

- The B/W and Color counts are done after the document is stored on the HDD of the Scan Router server.
- If the job is canceled before storage on the Scan Router server finishes, the counts are not done.
- The count is executed even if regardless of confirmation of the arrival at the Scan Router server.

8671	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.	
8675	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.		
1	B/W		
2	Color		

8681	T:PCFAX TXPGS	These SPs count the number of pages sent by PC Fax. These SPs are provided for the Fax application only, so the counts for SP8681 and SP8683 are the same. [0 to 9999999/ 0 / 1]
8683	F:PCFAX TXPGS	

- This counts pages sent from a PC using a PC fax application, from the PC through the copier to the destination.
- When sending the same message to more than one place using broadcasting, the pages are only counted once. (For example, a 10-page fax is sent to location A and location B. The counter goes up by 10, not 20.)

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. [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter.
8692	C:TX PGS/LS	
8693	F:TX PGS/LS	
8694	P:TX PGS/LS	
8695	S:TX PGS/LS	
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 are counted for the application that stored them.
- When several documents are sent by a Fax broadcast, the F: count is done for the number of pages sent to each destination.

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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		

8 715	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		

8741	RX PGS/Port		[0 to 9999999/ 0 / 1]
	These SPs count the number of pages received by the physical port used to receive them.		
8741 1	PSTN-1		
8741 2	PSTN-2		
8741 3	PSTN-3		
8741 4	ISDN (G3,G4)		
8741 5	Network		

8771	Dev Counter	[0 to 9999999/ 0 / 1]
	These SPs count the frequency of use (number of rotations of the development rollers) for black and other color toners.	

8781	Pixel Coverage Ratio
	This SP displays the number of toner bottles used. The count is done based on the equivalent of 1,000 pages per bottle.

8791	LS Memory Remain	This SP displays the percent of space available on the document server for storing documents. [0 to 100/ 0 / 1]

8801	Toner Remain	[0 to 100/ 0 / 1]
	This SP displays the percent of toner remaining for each color. This SP allows the user to check the toner supply at any time. **Note** ▪ 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	Cover Cnt: 0-10%		[0 to 9999999]
	These SPs count the percentage of dot coverage for black other color toners.		
1	K	Black toner	
2	M	Magenta toner	Do not display for this machine.
3	C	Cyan toner	
4	Y	Yellow toner	

8861	Cover Cnt: 11-20%		[0 to 9999999]
	These SPs count the percentage of dot coverage for black other color toners.		
1	K	Black toner	
2	M	Magenta toner	Do not display for this machine.
3	C	Cyan toner	
4	Y	Yellow toner	

8871	Cover Cnt: 21-30%		[0 to 9999999]
	These SPs count the percentage of dot coverage for black other color toners.		
1	K	Black toner	
2	M	Magenta toner	Do not display for this machine.
3	C	Cyan toner	

4	Y	Yellow toner	

8881	Cover Cnt: 31 -%		[0 to 9999999]
	These SPs count the percentage of dot coverage for black other color toners.		
1	K	Black toner	
2	M	Magenta toner	Do not display for this machine.
3	C	Cyan toner	
4	Y	Yellow toner	

8891	Page/Toner Bottle **DFU**
8901	Page/Toner_Prev1 **DFU**
8911	Page/Toner_Prev2 **DFU**

8921	Cvr Cnt/Total		
1	Coverage (%) BK		
11	Cover/Page (%): BK		

8941	Machine Status	[0 to 9999999/ 0 / 1]
	These SPs count the amount of time the machine spends in each operation mode. These SPs are useful for customers who need to investigate machine operation for improvement in their compliance with ISO Standards.	
1	Operation Time	Engine operation time. Does not include time while controller is saving data to HDD (while engine is not operating).

SP8xxx: Data Log 2

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.
3	Energy Save Time	Includes time while the machine is performing background printing.
4	Low Power Time	Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing.
5	Off Mode Time	Includes time while machine is performing background printing. Does not include time machine remains powered off with the power switches.
6	SC	Total down time due to SC errors.
7	PrtJam	Total down time due to paper jams during printing.
8	OrgJam	Total down time due to original jams during scanning.
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.		
1	User Code	User code registrations.	[0 to 9999999/ 0 / 1]
2	Mail Address	Mail address registrations.	
3	Fax Destination	Fax destination registrations.	
4	Group	Group destination registrations.	
5	Transfer Request	Fax relay destination registrations for relay TX.	

6	F-Code	F-Code box registrations.	
7	Copy Program	Copy application registrations with the Program (job settings) feature.	[0 to 255 / 0 / 255]
8	Fax Program	Fax application registrations with the Program (job settings) feature.	
9	Printer Program	Printer application registrations with the Program (job settings) feature.	
10	Scanner Program	Scanner application registrations with the Program (job settings) feature.	

8999	Admin. Counter List	[0 to 9999999/ **0** / 1]
	Displays the total coverage and total printout number for each color.	
1	Total	
3	Copy: BW	
7	Printer BW	
10	Fax Print: BW	
12	A3/DLT	
13	Duplex	
15	Coverage: BW (%)	
101	Transmission Total: Color	

SP8xxx: Data Log 2

102	Transmission Total: BW	
103	FAX Transmission	
104	Scanner Transmission: Color	
105	Scanner Transmission: BW	

5.10 FIRMWARE UPDATE

The procedure is the same for all firmware modules.

Note

- If you will change scanner firmware, print 5-990-22 and -23 (SMC reports for scanner settings) before you start this procedure.

1. Turn off the main power switch.
2. Remove the SD card slot cover (x 2).
3. Insert the SD card [B] containing the software you wish to download into SD card slot C2.
4. Open the front cover.
5. Turn on the main power.
6. Follow the instructions on the operation panel
7. Monitor the downloading status on the operation panel.
   - While downloading is in progress, the panel displays “Writing”. When downloading has been completed, the panel displays “Completed”.
   - The Start key lights red during downloading, then lights green after downloading is completed. (only for "Operation Panel" downloading)

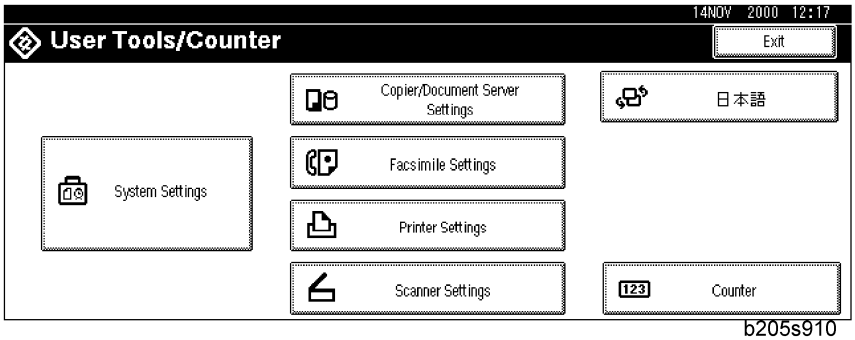
   CAUTION
   - Never switch off the power while downloading. Switching off the power while the new software is being downloading will damage the boot files in the controller.
8. After confirming that downloading is completed, turn off the main power and remove the SD card.
9. If more software needs to be downloaded, repeat steps 1 to 7.
10. Turn the main power on and confirm that the new software loads and that the machine starts normally.
11. After installing new scanner firmware, do SP5-801-9 (Memory All Clear – Scanner Application). Then input scanner settings that are different from the defaults (see the SMC prints of 5-990-22 and -23 that you made earlier).
    If the download failed, an error message appears on the panel. Do the download procedure again. If the second download fails:
    - For the controller module, set bit 1 of DIP switch 1 on the controller board to OFF, then switch on the machine. The machine boots from the SD card.
    - Other modules. Replace the appropriate PCB.

5.11 USER TOOLS

The user program (UP) mode can be accessed by users and operators, and by sales and service staff. UP mode is used to input the copier's default settings. The user can reset the default settings at any time. (See 'System Setting and Copy Setting Reset'.)

5.11.1 UP MODE INITIAL SCREEN: USER TOOLS/COUNTER DISPLAY

To enter the UP mode, press User Tools/Counter.

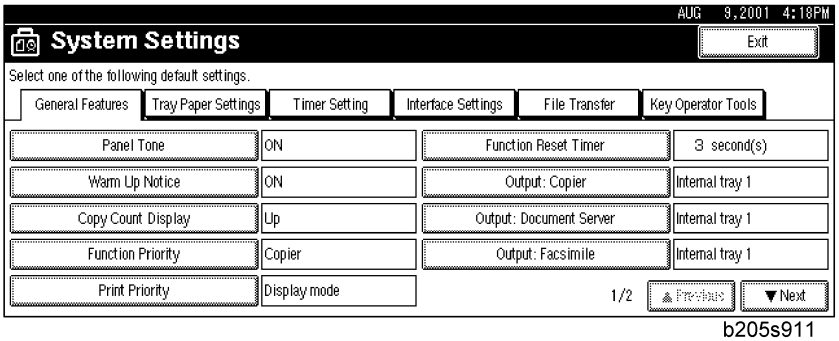


b205s910

5.11.2 SYSTEM SETTINGS

In the User Tools/Counter display, press System Settings.

- Click a tab to display the settings.
- If the Next button is lit in the lower right corner, press it to display more options.
- Make the settings, press Exit to return to the User Tools/Counter display, and then press Exit to return to the copy window.



b205s911

5.11.3 COPIER/DOCUMENT SERVER FEATURES

In the User/Tools Counter display, press Copy/Document Server Settings.

- Click a tab to display the settings.

- If the Next button is lit in the lower right corner, press it to display more options.
- Make the settings, press Exit to return to the User Tools/Counter display, and then press Exit to return to the copy window.

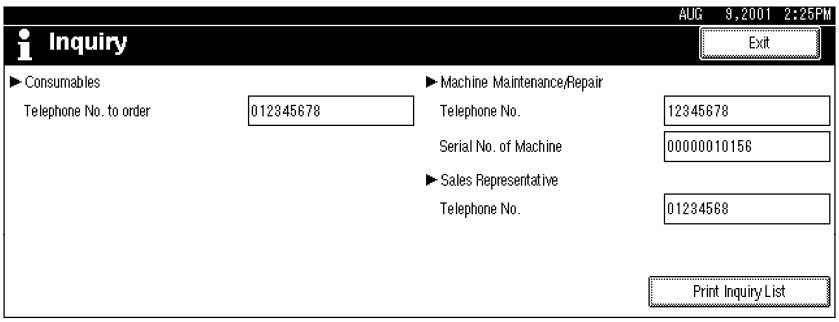
5.11.4 PRINTER, FACSIMILE, SCANNER SETTINGS

In the User/Tools Counter display, press Printer Settings, Facsimile, or Scanner Settings to open the appropriate screen and then click the tab to display more settings.

5.11.5 INQUIRY

In the User/Tools Counter display, press Inquiry.
The following SP mode settings will be displayed.

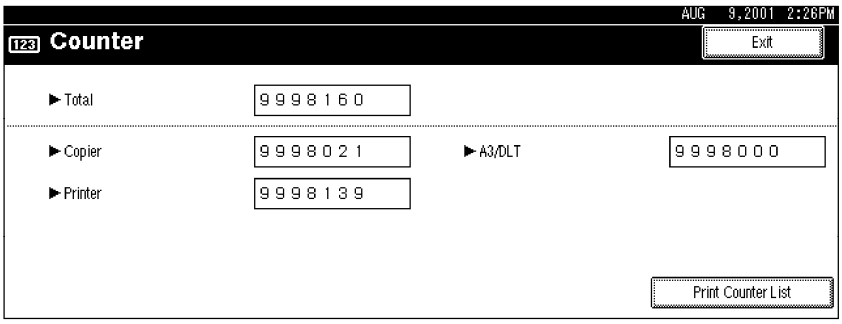
- Consumables Telephone Number.
- Service Telephone Number
- Serial Number of Machine
- Sales Representative Telephone No.



b205s913

5.11.6 COUNTER

In the User/Tools Counter display, press [Counter].



b205s914

View the settings, press Print Counter Exit to return to the User Tools/Counter display, and then press Exit to return to the copy window.

5.12 LED AND DIP SWITCHES

5.12.1 LEDS

Controller

Number	Normal	Controller Software Download	Error
LED 1	Off	Blinking	Off
LED 2	Blinking	Blinking	Lit or Off

SBCU

Number	Normal	Controller Software Download	Error
LED 1	Lit	Lit	Off or Blinking
LED 2	Blinking	Lit	Lit (except downloading) or Off

5.12.2 DIP SWITCHES

Controller

SW1

Number	OFF	ON
1	Boot from SD card	Default: Boot from Flash ROM
2 to 7	Default: OFF DFU	---
8	---	Default DFU

SBCU

SW102

Destination	Bit			
	1	2	3	4
Japan	OFF	OFF	OFF	OFF
NA	ON	OFF	OFF	OFF
EU/ASIA	OFF	ON	OFF	OFF

SW103

DFU. Do not change these settings.

5.13 USING THE DEBUG LOG

This machine provides a Save Debug Log feature that allows the Customer Engineer to save and retrieve error information for analysis.

Every time an error occurs, debug information is recorded in volatile memory but this information is lost when the machine is switched off and on.

To capture this debug information, the Save Debug Log feature provides two main features:

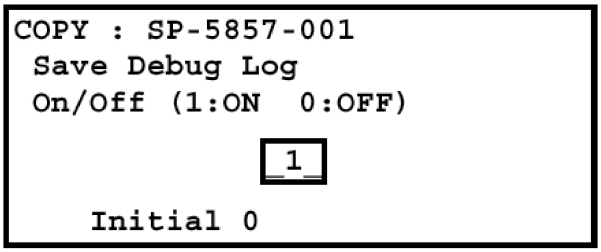
- Switching on the debug feature so error information is saved directly to the HDD for later retrieval.
- Copying the error information from the HDD to an SD card.

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.

5.13.1 SWITCHING ON AND SETTING UP 'SAVE DEBUG LOG'

The debug information cannot be saved until the "Save Debug Log" function is switched on and a target is selected.

1. Enter the SP mode.
   - Press ⊡ (Clear Modes), then use the 10-key pad to input '107'.
   - Press and hold down ⓒ (Clear/Stop) for more than 3 seconds.
   - Press "Copy SP" on the touch-panel.
   - Input '5857', then press ⓗ.
2. Under "5857 Save Debug Log", press ①.



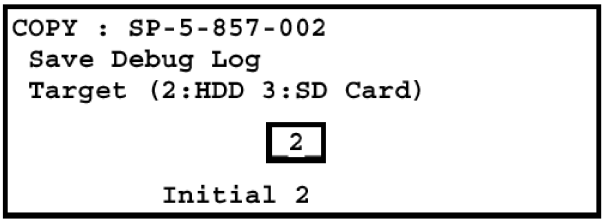
debuglog_screen1

3. On the operation panel keypad, press ① then press ⓗ. This switches the Save Debug Log feature on.

Note

   - The default setting is "0" (OFF). This feature must be switched on in order for the debug information to be saved.
4. Next, select the target destination where the debug information will be saved. Under

"5857 Save Debug Log", touch "2 Target", enter "2" with the operation panel key to select the hard disk as the target destination, then press #.



debuglog_screen2

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.

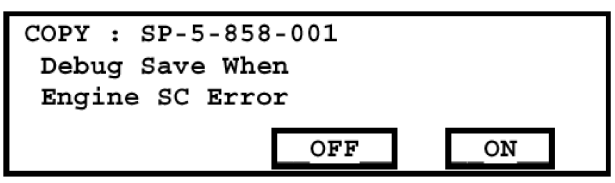
1	Engine SC Error	Saves data when an engine-related SC code is generated.
2	Controller SC Error	Saves debug data when a controller-related SC Code is generated.
3	Any SC Error	Saves data only for the SC code that you specify by entering code number.
4	Jam	Saves data for jams.

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.

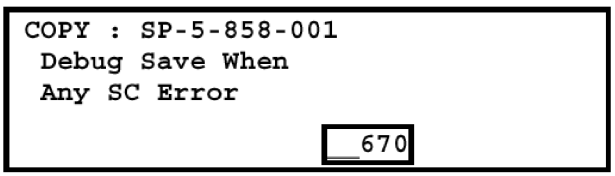


debuglog_screen3

Using the Debug Log

Example 2: To Specify an SC Code

Touch “3 Any SC Error”, enter the 3-digit SC code number with the operation panel number keys, then press #. This example shows an entry for SC670.



debuglog_screen4

Note

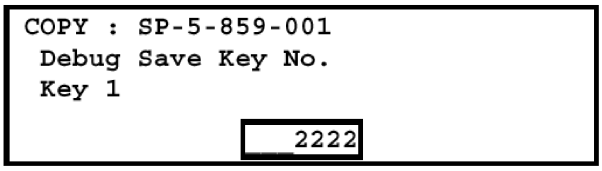
- For details about SC code numbers, please refer to the SC tables in Section 4. Troubleshooting.

6. Next, select the one or more memory modules for reading and recording debug information. Touch “5859”.
7. Under “5859” press the appropriate key item for the module that you want to record.
8. 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.



debuglog_screen5

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)			

Key No.	Copy	Printer	Scanner	Web
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:

- The number entries for Keys 1 to 5 are the same for the Copy, Printer, Scanner, and Web memory modules.

Using the Debug Log

- 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.

5.13.2 RETRIEVING THE DEBUG LOG FROM THE HDD

1. Insert the SD card into service slot C3 of the copier.
2. Enter the SP mode and execute SP5857 009 (Copy HDD to SD Card (Latest 4 MB) to write the debugging data to the SD card.
3. Use a card reader to copy the file and send it for analysis to your local Ricoh representative by email, or just send the SD card by mail.

5.13.3 RECORDING ERRORS MANUALLY

Since only SC errors and jams are recorded to the debug log automatically, for any other errors that occur while the customer engineer is not on site, please instruct customers to perform the following immediately after occurrence to save the debug data. Such problems would include a controller or panel freeze.

Note

- 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 operation panel, enter “01” then hold down C/⊘ for at least 3 seconds, until the machine beeps. Then release the key. 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.
4. The debug information for the error is saved on the hard disk so the service representatives can retrieve it on their next visit by copying it from the HDD to an SD card.

5.13.4 NEW DEBUG LOG CODES

SP5857-015 Copy SD Card-to-SD Card: Any Desired Key

This SP copies the log on an SD card (the file that contains the information written directly from shared memory) to a log specified by key number. The copy operation is executed in the log directory of the SD card inserted in the same slot. (This function does not copy from one slot to another.) Each SD card can hold up to 4 MB of file data. Unique file names are created for the data during the copy operation to prevent overwriting files of the same name. This means that log data from more than one machine can be copied onto the same SC card. This command does not execute if there is no log on the HDD for the name of the specified key.

SP5857-016 Create a File on HDD to Store a Log

This SP creates a 32 MB file to store a log on the HDD. However, this is not a completely empty file. The created file will hold the number “2225” as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the HDD when the first log is stored on the HDD, but this operation takes time. This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the HDD. With the file already created on the HDD for the log file, the data only needs to be recorded; a new log file does not require creation. To create a new log file, execute SP5857-011 to delete the debug log data from the HDD and then execute this SP (SP5857-016).

SP5857-017 Create a File on SD Card to Store a Log

This SP creates a 4 MB file to store a log on an SD card. However, this is not a completely empty file. The created file will hold the number “2225” as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the SD card when the first log is stored on the SD card, but this operation takes time. This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the SD card. With the file already created on the SD card for the log file, the data only needs to be recorded; a new log file does not require creation. To create a new log file, execute SP5857-012 to delete the debug log data from the SD card and then execute this SP (SP5857-017).

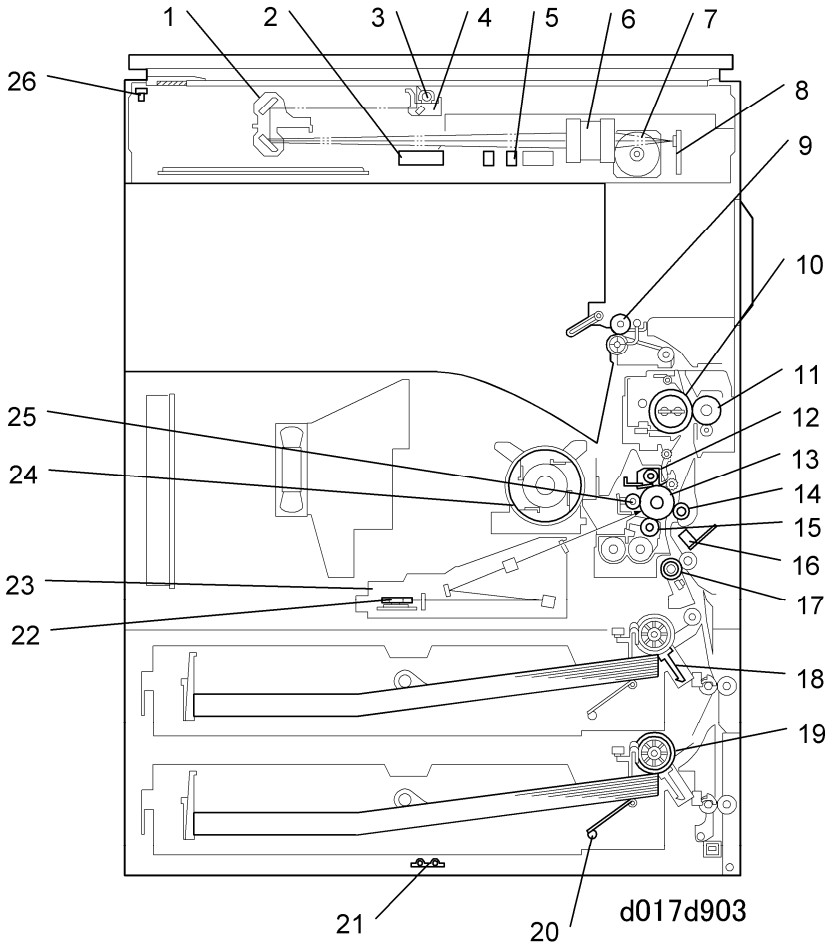
DETAILED SECTION DESCRIPTIONS

DETAILED DESCRIPTIONS REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

6. DETAILED SECTION DESCRIPTIONS

6.1 OVERVIEW

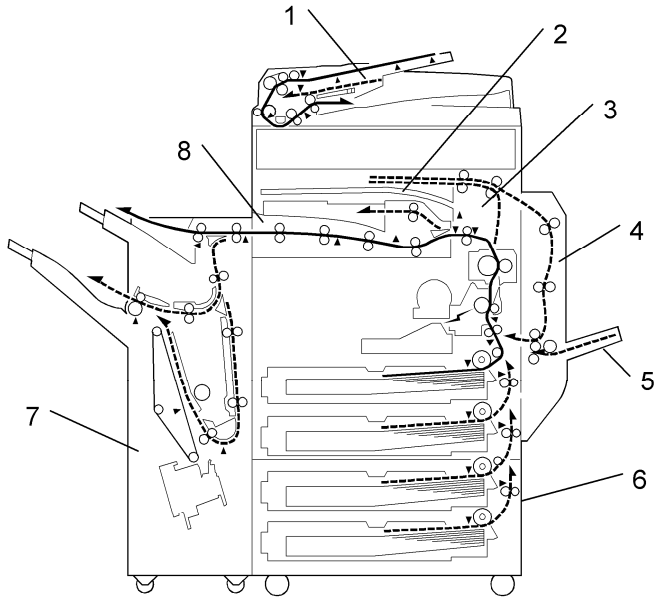
6.1.1 MECHANICAL COMPONENTS



Overview

1. 2nd scanner	14. Transfer roller
2. Original width sensor	15. Development roller
3. Exposure lamp	16. ID sensor
4. 1st scanner	17. Registration roller
5. Original length sensor	18. Friction pad
6. Lens	19. Paper feed roller
7. Scanner motor	20. Bottom plate
8. SBU board	21. Tray heater
9. Exit roller	22. Polygon mirror motor
10. Fusing hot roller	23. Laser unit
11. Fusing pressure roller	24. Toner supply bottle holder
12. Cleaning unit	25. Drum charge roller
13. OPC drum	26. Scanner home position sensor

6.1.2 PAPER PATH



d017d904

1. Optional ADF
2. Optional 1-bin Tray
3. Optional Interchange Unit
4. Optional Duplex Unit
5. Optional By-pass Feed Tray
6. Optional Paper Tray Unit
7. Optional 1000-sheet Finisher
8. Optional Bridge Unit

6.1.3 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.

Symbol	Name	Function
Motors		
M	Upper Paper Lift Motor	Raises the bottom plate in the 1st paper tray.
M	Lower Paper Lift Motor	Raises the bottom plate in the 2nd paper tray.
M	Main Motor	Drives the main unit components.
M	Toner Supply Motor	Rotates the toner bottle to supply toner to the development unit.
M	Exhaust Fan Motor	Removes heat from around the fusing unit.
M	Polygonal Motor	Rotates the polygonal mirror.
M	Main Motor	Drives the main unit components.
M	Scanner Motor (Mono)	Monochrome scanner unit.
M	Scanner Motor (Color)	Color scanner unit.
Magnetic Clutches		
MC	Lower Paper Feed Clutch	Starts paper feed from the 2nd paper tray.
MC	Lower Relay Clutch	Drives the lower relay rollers.
MC	Upper Paper Feed Clutch	Starts paper feed from the 1st paper tray.
MC	Upper Relay Clutch	Drives the upper relay rollers.
MC	Registration Clutch	Drives the registration rollers.

Switches		
SW	Correct PCU Detect Switch	Detects when a new PCU is installed. South Korea only.
SW	Right Cover Switch	Cuts the +5VLD and +24V dc power line and detects whether the right cover is open or not.
SW	Right Lower Cover Switch	Detects whether the right lower cover is open or not.
SW	Front Door Safety Switch	Cuts the +5VLD and +24V dc power line and detects whether the front cover is open or not.
Sensors		
S	1st Paper Lift Sensor	Detects when the paper in the 1st paper tray is at the feed height.
S	2nd Paper Lift Sensor	Detects when the paper in the 2nd paper tray is at the feed height.
S	TD Sensor	Toner Density Sensor. Detects the amount of toner inside the development unit.
S	New PCU Detect Sensor	Detects when a new PCU is installed.
S	1st Paper End Sensor	Informs the CPU when the 1st paper tray runs out of paper.
S	Upper Relay Sensor	Detects misfeeds.
S	2nd Paper End Sensor	Informs the CPU when the 2nd paper tray runs out of paper.
S	Lower Relay Sensor	Detects misfeeds.
S	1st Paper Height Sensor 1	Detects the amount of paper in the 1st paper tray.
S	1st Paper Height Sensor 2	Detects the amount of paper in the 1st paper tray.

Overview

S	2nd Paper Height Sensor 1	Detects the amount of paper in the 2nd paper tray.
S	2nd Paper Height Sensor 2	Detects the amount of paper in the 2nd paper tray.
S	1st Bottom Fence Sensor 1	1 of 3 paper size sensors inside the machine that detect paper size in the upper tray according to the position of the bottom fence.
S	1st Bottom Fence Sensor 2	1 of 3 paper size sensors inside the machine that detect paper size in the upper tray according to the position of the bottom fence.
S	1st Bottom Fence Sensor 3	1 of 3 paper size sensors inside the machine that detect paper size in the upper tray according to the position of the bottom fence.
S	1st Side Fence Sensor	Detects paper size in the upper tray according to the position of the side fence (used in combination with the upper tray bottom fence sensors).
S	1st Tray Detect Sensor	Detects the presence of the upper tray.
S	2nd Bottom Fence Sensor 1	1 of 3 paper size sensors inside the machine that detects paper size in the lower tray according to the position of the bottom fence.
S	2nd Bottom Fence Sensor 2	1 of 3 paper size sensors inside the machine that detect paper size in the lower tray according to the position of the bottom fence.
S	2nd Bottom Fence Sensor 3	1 of 3 paper size sensors inside the machine that detect paper size in the lower tray according to the position of the bottom fence.
S	2nd Side Fence Sensor	Detects paper size in the lower tray according to the position of the side fence (used in combination with the bottom fence sensors).
S	2nd Tray Detect Sensor	Detects the presence of the lower tray.

S	ID Sensor	Detects the density of various patterns and the reflectivity of the drum for process control.
S	Registration Sensor	Detects misfeeds and controls registration clutch off-on timing.
S	Correct Toner Type Sensor	Determines whether correct type of toner is in use. **South Korea only**.
S	Paper Exit Sensor	Detects misfeeds.
S	Paper Overflow Sensor	Detects paper overflow in the built-in copy tray.
S	APS Sensor 1: Original Width (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original.
S	APS Sensor 2: Original Width (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original.
S	APS Sensor 3: Original Length (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original.
S	APS Sensor 4: Original Length (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original.
S	APS Sensor 5: Original Length (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original. **EU only.**
S	Scanner HP Sensor (Mono)	Detects the scanner unit home position sensor in the monochrome scanner.
S	APS Sensor 1: Original Width (Color)	1 of 5 APS sensors used in the color scanner unit to detect the size of the original.
S	APS Sensor 2: Original Width (Color)	1 of 5 APS sensors used in the color scanner unit to detect the size of the original.
S	APS Sensor 3: Original Length (Color)	1 of 5 APS sensors used in the color scanner unit to detect the size of the original.
S	APS Sensor 4: Original	1 of 5 APS sensors used in the color scanner unit to

Overview

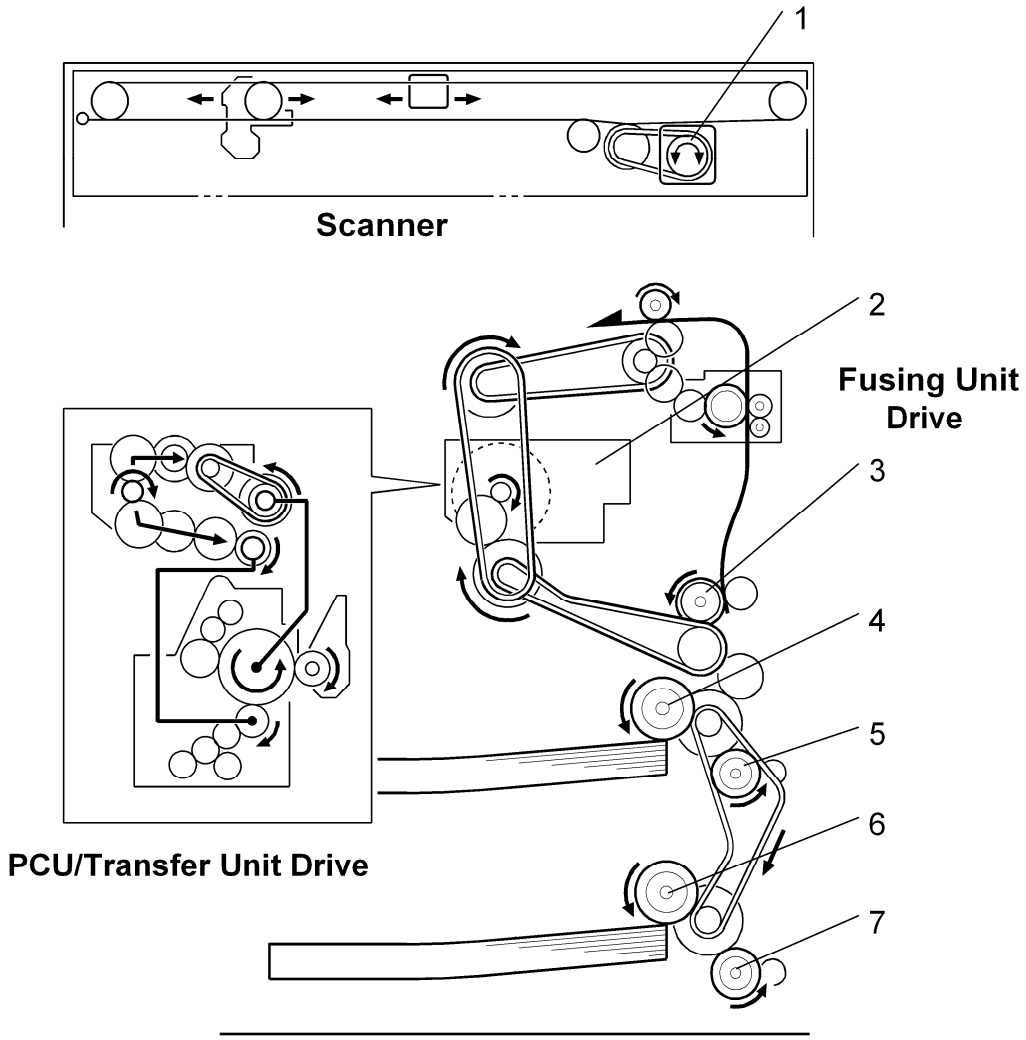
	Length (Color)	detect the size of the original.
S	APS Sensor 5: Original Length (Color)	1 of 5 APS sensors used in the color scanner unit to detect the size of the original. **EU only**.
S	Scanner HP Sensor (Color)	Detects the position of the scanner unit in the color scanner.
PCBs		
PCB	Operation Panel	Controls the operation panel.
PCB	MBU	Mother Board Unit. Interfaces between the BCU and controller board.
PCB	Controller Board	Controls all applications both directly and through other control boards.
PCB	Network Interface Card	Enables scan-to-email, LAN faxing, IP faxing, Internet faxing, and other functions.
PCB	IPU	Image Processing Unit. Performs image processing.
PCB	LSDB	Laser Synchronization Detection Board. Detects when the laser is about to start another main scan across the OPC drum
PCB	LDD	Laser Diode Driver. Controls the laser diodes.
PCB	PSU	Power Supply Unit. Provides dc power to the system and ac power to the fusing lamp and heaters.
PCB	SBU (Mono)	Sensor Board Unit. Contains the CCD, and outputs a video signal to the IPU board.
PCB	SIU (Mono)	Connects and interfaces between the IPU and the SIO of the monochrome scanner unit.
PCB	SIO (Mono)	Interfaces between scanner unit and BCU, controls sensors and motors in the scanner unit.
PCB	Lamp Stabilizer (Mono)	Stabilizes the exposure lamp power supply.

PCB	SBU (Color)	Sensor Board Unit. Contains the CCD, and outputs a video signal to the IPU board.
PCB	SIU (Color)	Connects and interfaces between the IPU and the SIO of the color scanner unit.
PCB	SIO (Color)	Interfaces between scanner unit and BCU, controls sensors and motors in the scanner unit.
PCB	Lamp Stabilizer (Color)	Stabilizes the power to the exposure lamp.
Solenoids		
SOL1	Fusing Drive Release	Releases the drive for the fusing unit.
Lamps		
L	Quenching Lamp	Neutralizes any charge remaining on the drum surface after cleaning.
L	Secondary Fusing Lamp	Heats both ends of the hot roller.
L	Main Fusing Lamp	Heats the center of the hot roller.
L	Exposure Lamp (Mono)	Monochrome scanner unit. Applies high intensity light to the original for exposure.
L	Exposure Lamp (Color)	Color scanner unit. Applies high intensity light to the original for exposure.
Heaters		
H1	Anti-condensation (Option)	Turns on when the main power switch is off to prevent moisture from forming on the optics.
H2	Tray (Option)	Turns on when the main power switch is off to prevent moisture from forming around the paper trays.
Others		
CO	Mechanical Counter	Keeps track of the total number of prints made.

Overview

CO	Key Counter (Option)	Used for control of authorized use. If this feature is enabled for copying, copying will be impossible until it is installed.
H	Tray Heater	Option. Turns on when the main power switch is off to prevent moisture from forming around the paper trays.
H	Anti-Condensation Heater	Option. Turns on when the main power switch is off to prevent moisture from forming on the optics.
TH	Thermistor (Sub)	Reads the temperature at the end of the hot roller. These readings are used for fusing temperature control.
TH	Thermistor (Main)	Reads the temperature at the center of the hot roller. These readings are used for fusing temperature control.
TS	Thermostats	Open the fusing lamp circuit if the fusing unit overheats.

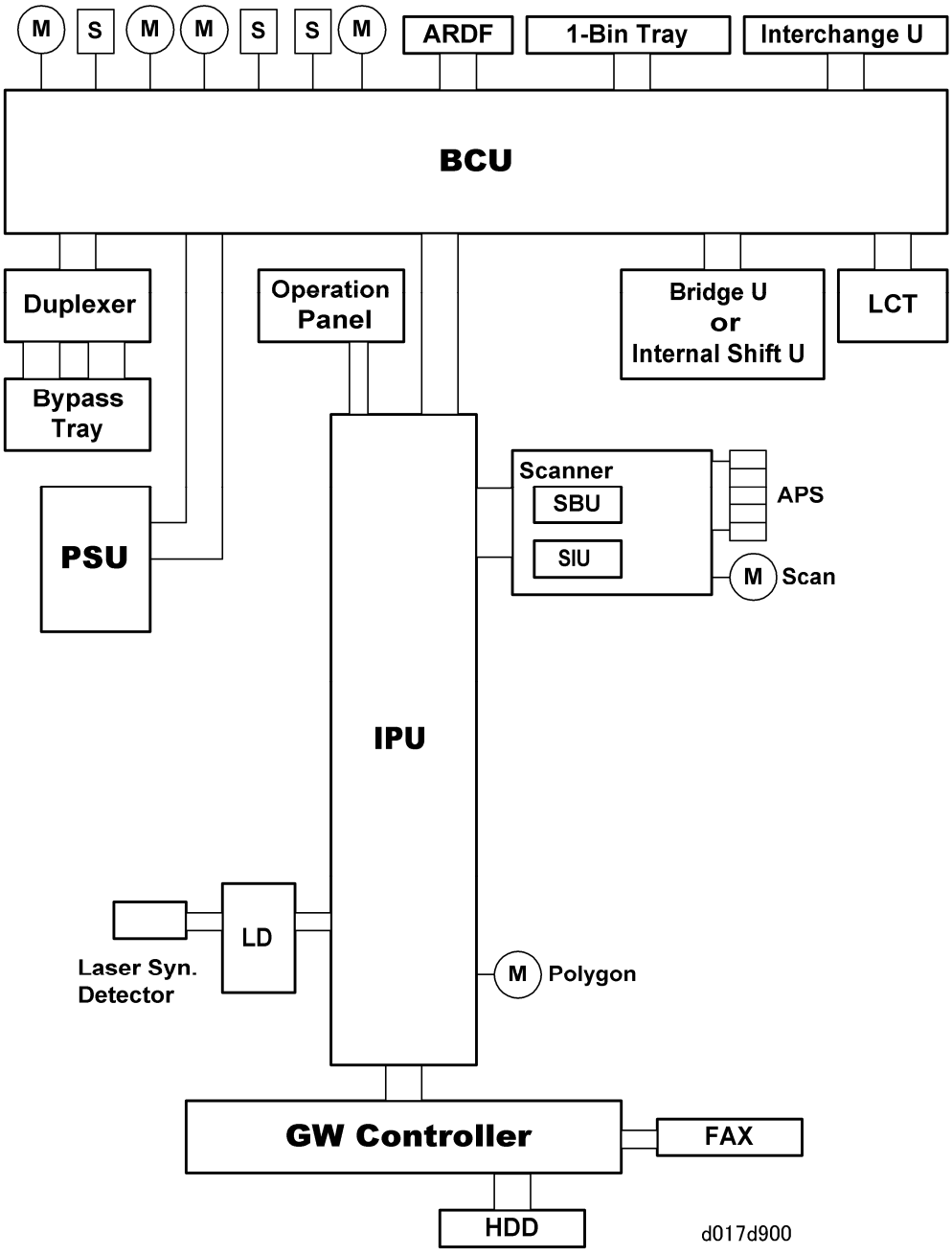
6.1.4 DRIVE LAYOUT



1. Scanner Drive Motor
2. Main Motor
3. Registration Clutch
4. Upper Paper Feed Clutch
5. Upper Transport Clutch
6. Lower Paper Feed Clutch
7. Lower Transport Clutch

6.2 BOARD STRUCTURE

6.2.1 MAIN BOARDS



Here is a summary of the new features of the boards in this machine. For more details, please refer to the point-to-point diagram provided with the machine.

BCU (Base Engine Control Unit)

This is the scanner and engine control board. It controls the following functions:

- Engine sequence
- Timing control for peripherals
- Image processing control and video control
- Operation control
- Drive control for the sensors, motors, and solenoids of the printer and scanner
- High voltage supply board control
- Fusing control

PSU (Power Supply Unit)

Provides dc power to the system and ac power to the fusing lamp and optional heaters.

Operation Panel

Controls the operation panel user interface (key input) and the LCD display.

IPU (Image Processing Unit)

The IPU board does the image processing (auto shading, filtering, magnification, gradation processing), and finally sends the data to the LD drive board. The IPU also functions as a motherboard because it has connection points for the GW controller and FCU. The ICIB (Illegal Copy Interface Board) also connects directly to the IPU

Scanner Board (Mono or Color)

The machine can have either a black-and-white or color scanner unit. Although the machine does not print color, the color scanner provides color scanning for applications such scan-to-email, scan to PDF, etc. Either unit is installed (not both).

- SBU (Sensor Board Unit). Converts the analog signals to 8-bit digital signals, and then sends them to the IPU for processing.
- SIU (Scanner Interface Unit). Interface between the scanner unit and the IPU.

LD (Laser Diode Board)

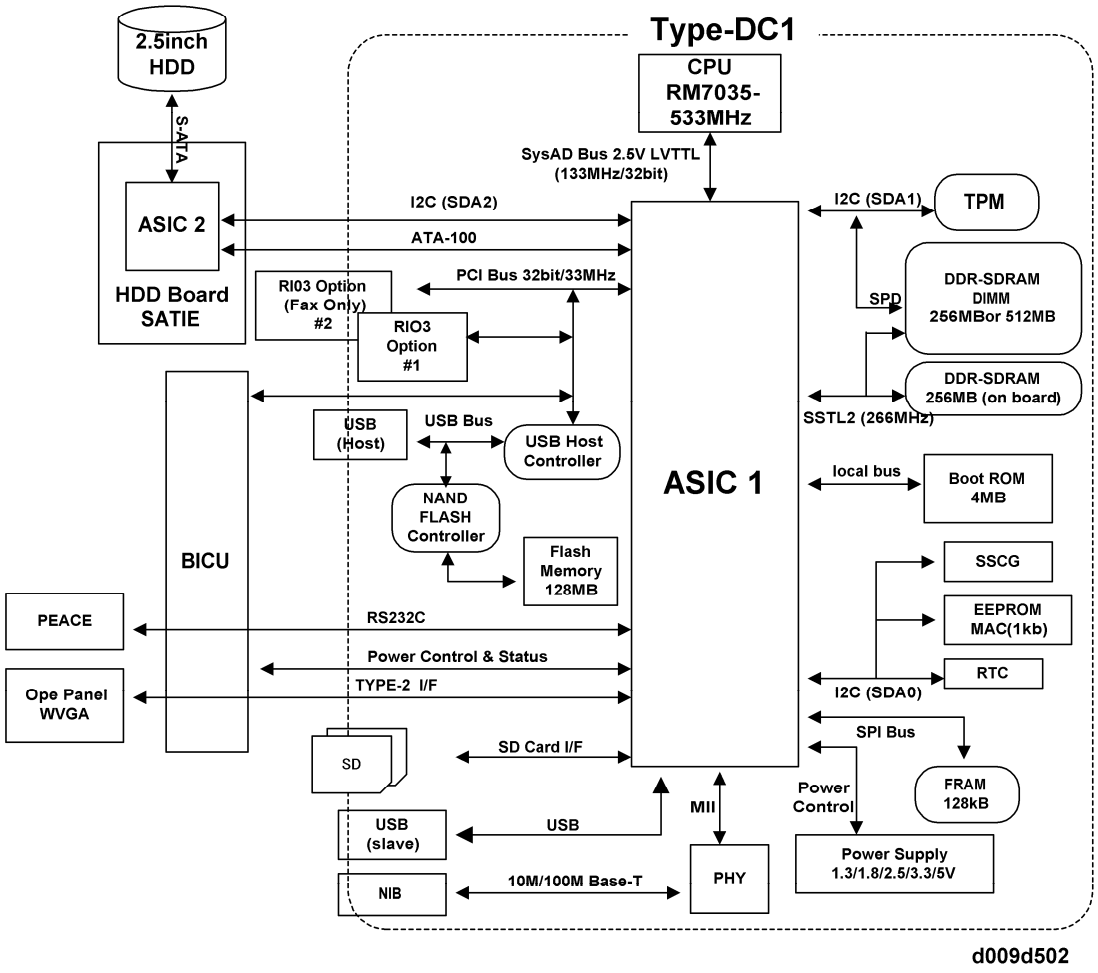
The laser diode board is controlled directly by the GAVD mounted on the IPU.

GW Controller

Controls the memory and the fax/scanner/printer options. The NIB (Network Interface Board) and USB 2.0 interfaces are built into the controller board and do not require installation.

Fax Unit D361. The fax unit is an option for this machine. A G3 option is also available.

6.2.2 CONTROLLER BOARD



The controller controls all applications, including copier, printer, scanner, and fax applications. To add the optional printer, scanner, or fax applications, SD cards must be inserted in the SD card slots of the controller. The fax option, however, requires installation of an FCU.

ASCI 1: Contains the dedicated GW controller chips of the shared resources (the CPU, memory, and HDD hardware) for the copying and printing functions.

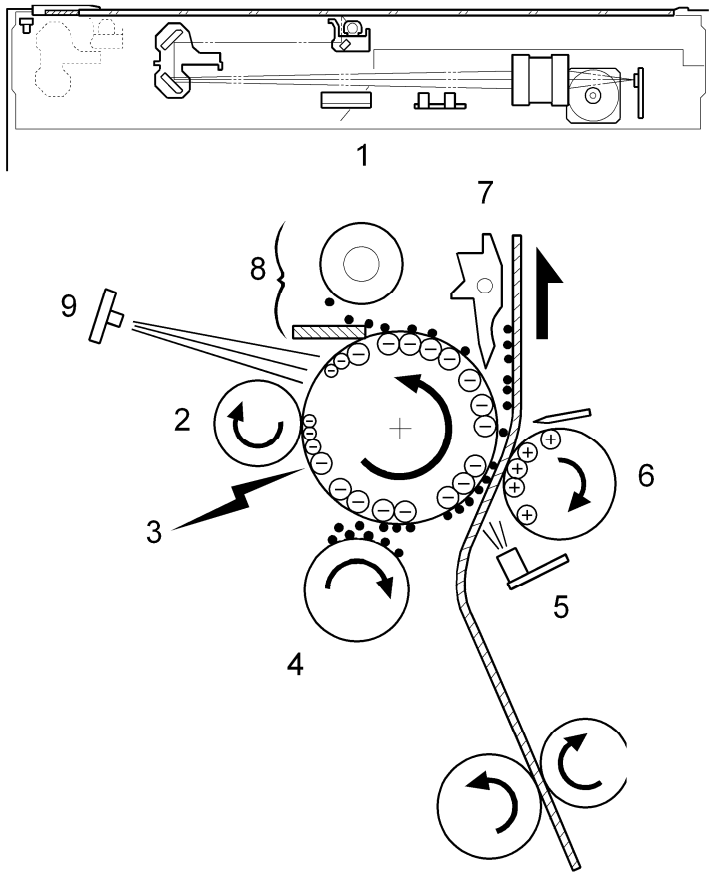
- CPU (RM7035-533MHz). The central processing unit that controls the operation of the controller board.
- HDD. The interface for connection of the flat film cable connection to the HDD unit.
- DDR SDRAM. The image memory for the printer function where image compression,

image rotation and other operations are done.

- **SD.** This is the interface for SD card slots 1 and 2. Slot 2 is for optional applications, or for firmware version updates, moving applications to other SD cards, and downloading/uploading NVRAM contents
- **Board Option Slot** Only one of the following options can be installed: IEEE1284 Interface Board (Centronics), IEEE802.11a/g, g (Wireless LAN), Bluetooth Interface Unit, File Format Converter (MLB) or Cumin-M.
- **Flash ROM.** Stores the program. Maximum capacity: 128 MB.
- **USB**. The interface for USB 2.0 devices. Supports both low-speed and high-speed modes. USB support is built-into the controller. No installation is required for the USB function. But, **SP5985 001** must be set to "**1**" to enable the network functions.
- **NIB.** The Ethernet interface connection. Network support is built-into the controller. No installation is required for the network function. But, SP5985 002 must be set to "**1**" to enable the network functions.
- **EEPROM.** Stores the data for the SP code settings.
- **NVRAM.** The memory that stores the system configuration and other information.

HDD: A 2.5" HDD (more than 40 GB) can be connected using an S-ATA I/F.

6.3 COPY PROCESS



1. Exposure

A xenon lamp exposes the original. Light reflected from the original passes to the CCD, Were 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 memory.

2. Drum Charge

In the dark, the charge roller gives a negative charge to the organic photo-conductive (OPC) drum. The charge remains on the surface of the drum because the OPC layer has a high electrical resistance in the dark.

3. Laser Exposure

The processed data scanned from the original is retrieved from the memory and transferred to the drum by a laser beam, which forms an electrical 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 IPU board.

4. Development

The magnetic developer brush on the development rollers comes in contact with the latent image on the drum surface. Toner particles are electrostatically attached to the areas of the drum surface Were the laser reduced the negative charge on the drum.

5. ID Sensor

The laser forms a sensor pattern on the drum surface. The ID sensor measures the reflectivity of the pattern. The output signal is one of the factors used for toner supply control. Also, the ID sensor measures the reflectivity of the drum surface. The output signal is used for charge roller voltage control.

6. Image Transfer

Paper is fed to the area between the drum surface and the transfer roller at the proper time for aligning the copy paper and the developed image on the drum surface. Then, the transfer roller applies a high positive charge to the reverse side of the paper. This positive charge pulls the toner particles from the drum surface onto the paper. At the same time, the paper is electrostatically attracted to the transfer roller.

7. Paper Separation

Paper separates from the drum as a result of the electrostatic attraction between the paper and the transfer roller. The discharge plate helps separate the paper from the drum.

8. Cleaning

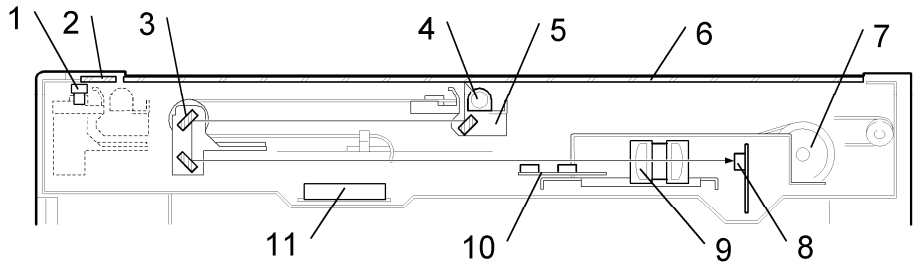
The cleaning blade removes any toner remaining on the drum surface after the image transfers to the paper.

9. Quenching

The light from the quenching lamp electrically neutralizes the charge on the drum surface.

6.4 SCANNING

6.4.1 OVERVIEW



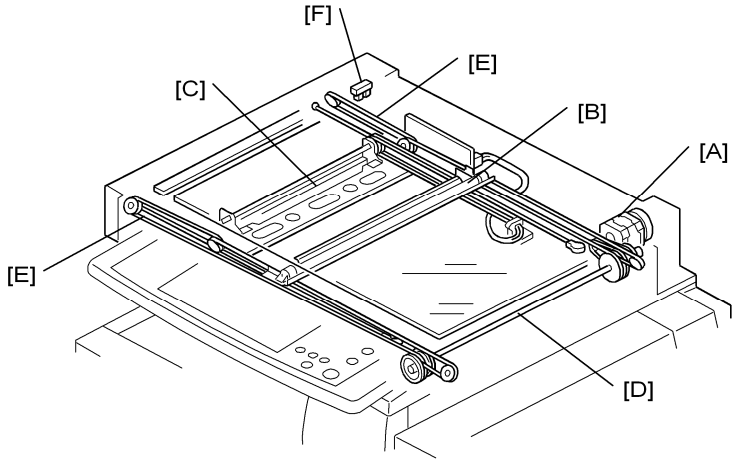
1.	Scanner HP sensor	7.	Scanner motor
2.	ADF exposure glass	8.	Sensor board unit (SBU)
3.	2nd scanner (2nd carriage)	9.	Lens Block
4.	Scanner lamp	10.	Original length sensor
5.	1st scanner (1st carriage)	11.	Original width sensor
6.	Exposure glass		

The original on the exposure glass or ARDF exposure glass reflects the light emitted from the scanner lamp. The reflected light goes to the CCD on the sensor board by way of the 1st and 2nd scanners. The sensor board converts the CCD analog signals into digital signals.

When the original is manually placed on the exposure glass, the scanner motor pulls the 1st and 2nd scanners via mechanical linkage. The original is scanned from left to right.

When the original is fed from the optional ARDF, it is automatically transported onto the ARDF exposure glass, and to the original exit. The original does not stay on the glass; but goes to the exit. The 1st and 2nd scanners stay at their home positions.

6.4.2 SCANNER DRIVE



The scanner motor [A] drives the 1st scanner [B] and the 2nd scanner [C] through the scanner drive pulley, scanner drive shaft [D], and two scanner wires [E].

Book mode -

The SBU board controls the scanner drive motor. The 2nd scanner speed is half that of the 1st scanner.

In reduction or enlargement mode, the scanning speed depends on the magnification ratio. The returning speed is always the same, whether in full size or magnification mode. The image length change, in the sub scan direction, is done by changing the scanner motor speed. In the main scan direction it is done by image processing on the BICU board.

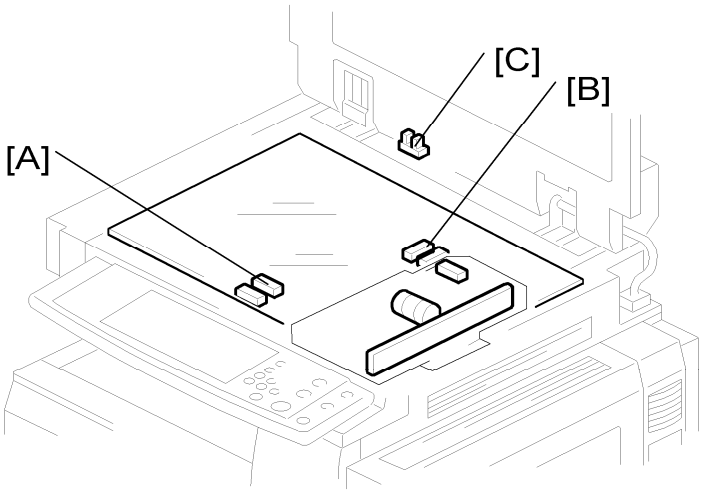
You can adjust the magnification in the sub-scan direction by changing the scanner motor speed with SP4-008.

ARDF mode -

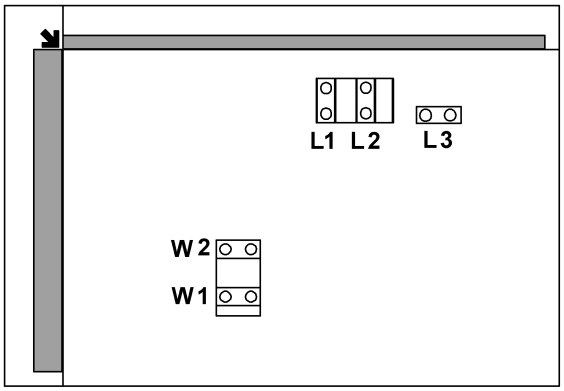
The scanners always stay in their home position (the scanner HP sensor [F] detects the 1st scanner) to scan the original. The ARDF motor feeds the original through the ARDF. In reduction/enlargement mode, the image length change in the sub-scan direction is done by changing the ARDF motor speed. Magnification in the main scan direction is done in the BICU board. This is the same as for book mode.

You can adjust magnification in the sub-scan direction by changing the ARDF motor speed with SP6-017.

6.4.3 ORIGINAL SIZE DETECTION



- The original width sensors [A] detect the original width. The original length sensors [B] detect the original length.
- The SBU controller on the SBU board checks each sensor status when the platen cover sensor [C] is activated as it is closed. It detects the original size by the on/off signals it gets from each sensor.
- If the copy is made with the platen cover fully open, the SBU controller on the SBU determines the original size from the sensor outputs after the Start key is pressed.



Original Size		Length Sensor			Width Sensor		SP4-301 display
Metric version	Inch version	L3	L2	L1	W1	W2	
A3	11" x 17"	O	O	O	O	O	00011111
B4	10" x 14"	O	O	O	O	X	00011110
F4 8.5" x 13", 8.25" x 13", or 8" x 13" SP 5126 controls the size that is detected	8.5” x 14”	O	O	O	X	X	00011100
A4 LEF	8.5" x 11"	X	X	X	O	O	00000011
B5 LEF	-	X	X	X	O	X	00000010
A4 SEF	11" x 8.5"	X	O	O	X	X	00001100
B5 SEF	-	X	X	O	X	X	00000100
A5 LEF/ SEF	5.5" x 8.5", 8.5" x 5.5"	X	X	X	X	X	00000000

O: Paper present X: Paper not present

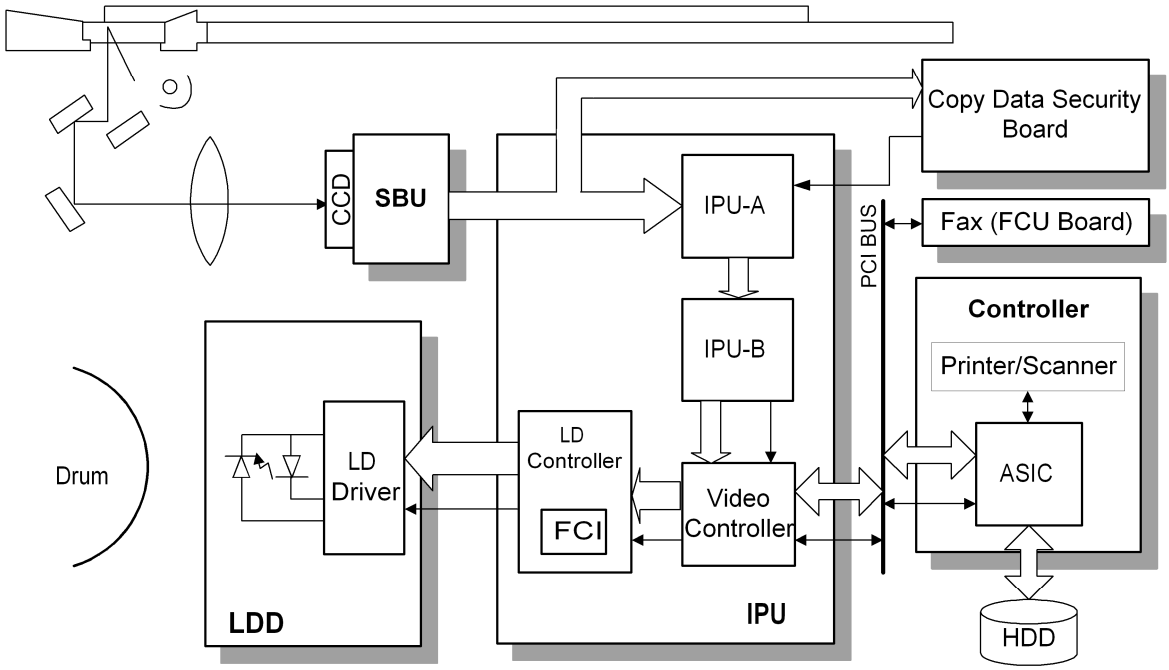
The above table shows the outputs of each original size sensor. This original size detection method eliminates the necessity for a pre-scan and increases the machine’s productivity. However, if the by-pass tray is used, the machine assumes that the copy paper is lengthwise (L). For example, if A4 sideways paper is placed on the by-pass tray, the machine assumes it is A3 paper and scans a full A3 area. Information from the original size sensors is disregarded. Refer to the ARDF manual for more information on original size detection with the ARDF.

6.4.4 ANTI-CONDENSATION HEATER

The anti-condensation heater is available as an optional unit. The anti-condensation heater prevents condensation on the mirrors. Condensation can occur when the scanner unit is moved from a cold room to a warm room. Condensation can cause abnormal images.

6.5 IMAGE PROCESSING

6.5.1 OVERVIEW



The CCD generates an analog video signal. The SBU (Sensor Board Unit) converts the analog signal to an 8-bit digital signal, then it sends the digital signal to the IPU (Image Processing Unit) board.

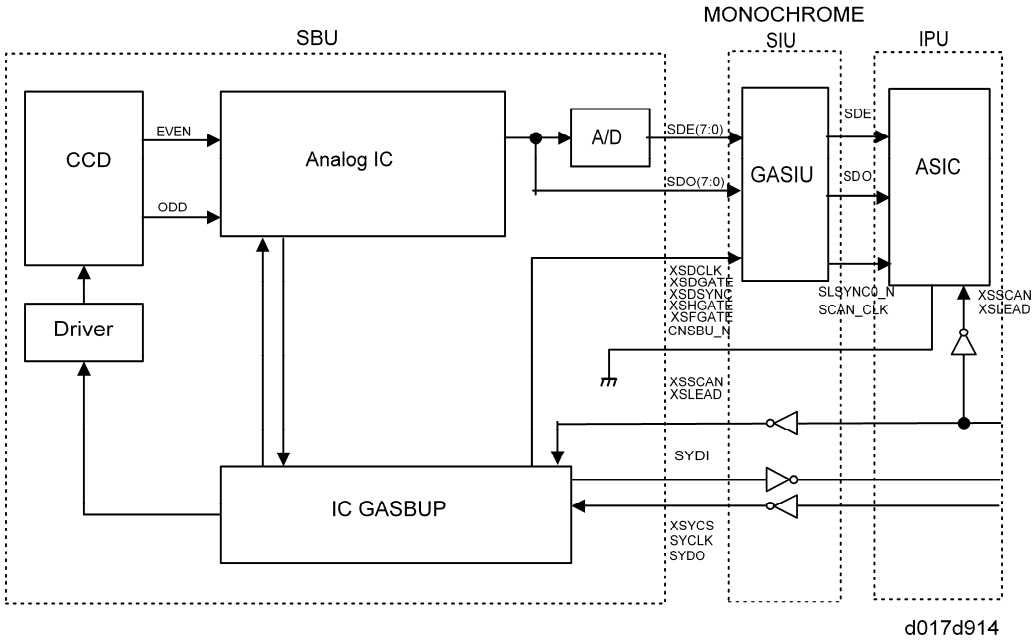
The IPU board performs the image processing, such as auto shading, filtering, magnification, gradation processing.

The ASIC on the controller board performs the image editing, such as image repeat, double copy.

Finally, the IPU board sends the video data to the LD drive board.

6.5.2 SBU (SENSOR BOARD UNIT)

Monochrome Scanner Unit



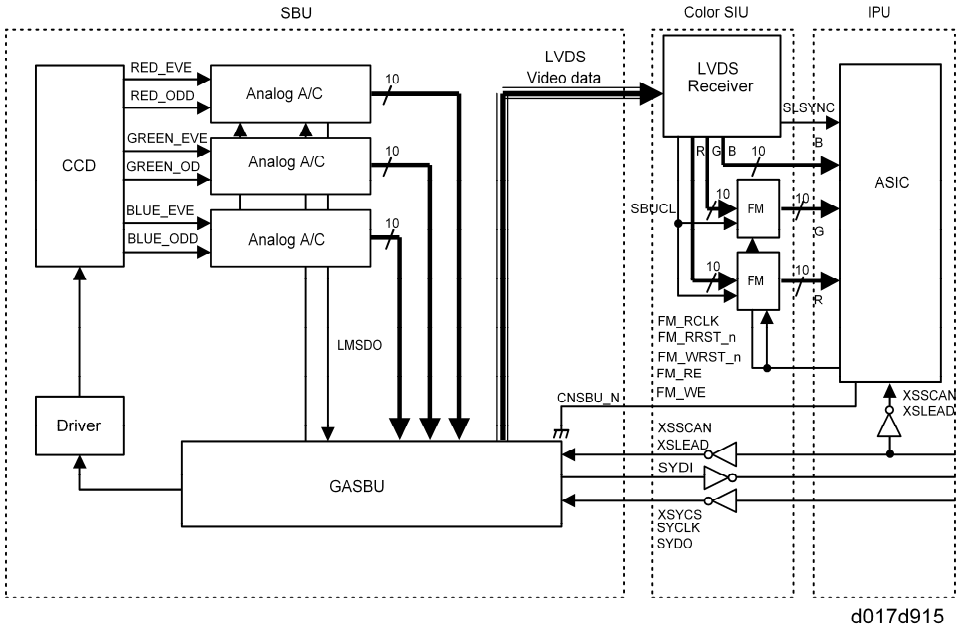
The CCD converts the light reflected from the original into an analog signal. The CCD line has 7,400 pixels and the resolution is 600 dpi (23.6 lines/mm).

The CCD has two output lines, for odd and even pixels, to the analog processing IC. The analog processing IC performs the following operations on the signals from the CCD:

1. Z/C (Zero Clamp):
   Adjusts the black level reference for even pixels to match the odd pixels.
2. Signal Amplification:
   The analog signal is amplified by operational amplifiers in the AGC circuit.
3. Auto Gain Control
   Adjusts the gain curve for the scanned image density.

After the above processing, the analog signals are converted to 8-bit signals by the A/D converter. This will give a value for each pixel on a scale of 256 grades. Then, the digitized image data goes to the IPU board.

Color Scanner Unit



SBU

The VPU (Video Processor Unit) does the following functions:

1. Black level correction
2. White level correction
3. Gradation calibration
4. ADS control (Background Density)
5. Creating the SBU test pattern

Operation Summary

The signals from the 3-line CCD, one line for each color (R, G, B) and 2 analog signals per line (ODD, EVEN), are sampled by the ASIC and converted to digital signals in the 10-bit A/D converter. This is the first phase of processing the data scanned from the original.

Storing Operation Settings

The controller stores the SBU settings. These values must be restored after the lens block is replaced:

SP4-008-001	Sub Scan Mag	Sub Scan Magnification Adjustment
SP4-010-001	Leading Edge Reg	Leading Edge Registration Adjustment
SP4-011-001	Side to Side Reg	Side to Side Registration Adjustment

Also, before lens block replacement, enter the SP mode and note the settings of **SP4-688-001** (DF density adjustments). After lens block replacement, do some copy samples with the DF, then check the copies, If the copies have background, change **SP4-688-001** to their previous settings, or adjust until the background is acceptable. This SP code is also used to adjust the DF scanning density, if the scanning densities of the DF and the platen mode is not the same.

SBU Test Mode

There are two SP codes to create a test pattern which can be used as a diagnostic tool to troubleshoot problems in the SBU:

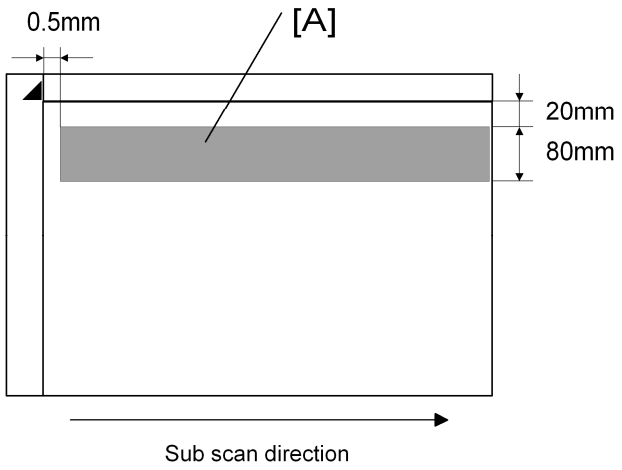
SP4907 001 SBU Pattern - Test Pattern change

To print the pattern:

Select the pattern to print.

Touch "Copy Window" then press the Start key twice.

6.5.3 AUTO IMAGE DENSITY



ADS prevents the background of an original from appearing on copies.

The copier scans the auto image density detection area [A] as shown in the diagram. This corresponds to a few mm at one end of the main scan line. As the scanner scans down the page, the SBU detects the peak white level for each scan line. The IPU performs the ADS function in accordance with the peak white level.

When an original with a gray background is scanned, the density of the gray area is the peak white level density. Therefore, the original background will not appear on copies.

Because peak level data is taken for each scan line, ADS corrects for any changes in

background density down the page.

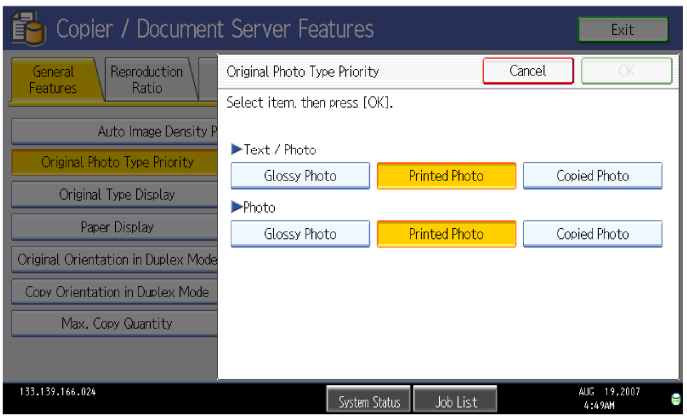
As with previous digital copiers, the user can select manual image density when selecting auto image density mode, and the machine will use both settings when processing the original.

6.5.4 ORIGINAL TYPE SETTINGS

The user can select one of the following modes with the User Tools screen: Text, Text/Photo, Photo, Pale, Generation.

Text/Photo and Photo have three different settings (Glossy Photo, Printed Photo, Copied Photo, etc).

To display this screen, press the User Tools/Counter button (), press 'Copier/Document Server Settings' on the display panel, press the 'General Features' tab, and then press 'Original Photo Type Priority'.



d017d916

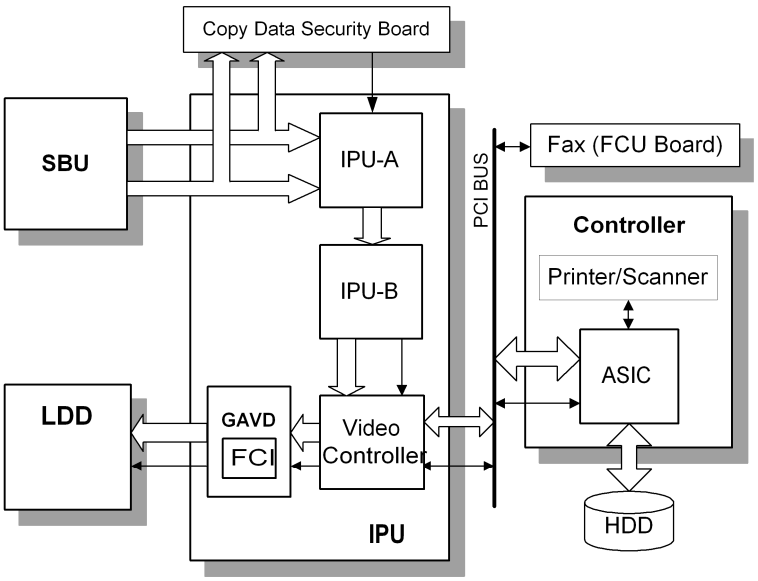
Mode	Function
Text	Best reproduction of text and sharp lines. Ignores background texture.
Text/Photo	Good reproduction of mixed text and photographs with accurate grayscaling, better than that achieved in the Text mode.
Photo	Best possible reproduction of photographs.
Pale	Reproduction similar to text mode, but of lower contrast. Ideal for copying thin original.

Mode	Function
Generation Copy	Attempts to achieve the best reproduction of copied originals that are faded because they are copies of copies.

In addition, there are two main image processing modes: grayscale processing and binary picture processing. When no optional hard disk has been installed, the machine uses binary picture processing. However, when the optional hard disk has been installed, the machine uses grayscale processing. The user or technician cannot select the mode.

6.5.5 IPU (IMAGE PROCESSING UNIT)

Overview



The image data from the SBU goes to the IPU (Image Processing Unit) ICs on the IPU board, which does the following processes on the image data.

IPU-A

- Auto shading
- Pre-filtering
- Magnification
- Test pattern generation

IPU-B

- Filtering (MTF and smoothing)
- ID gamma correction
- Grayscale processing

Image Processing

- Binary picture processing
- Error diffusion
- Dithering

Video Controller

- Video path control

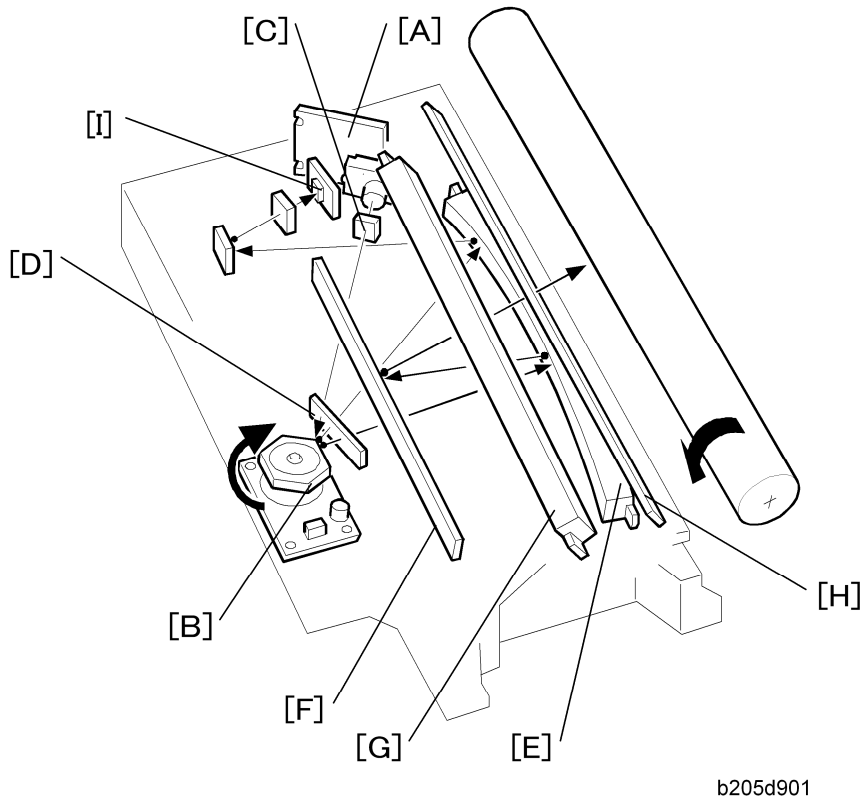
GAVD

- FCI (Fine Character and Image)

The image data then goes to the LD driver (LDD).

6.6 LASER EXPOSURE

6.6.1 OVERVIEW



The optical path from the laser diode to the drum is shown above.

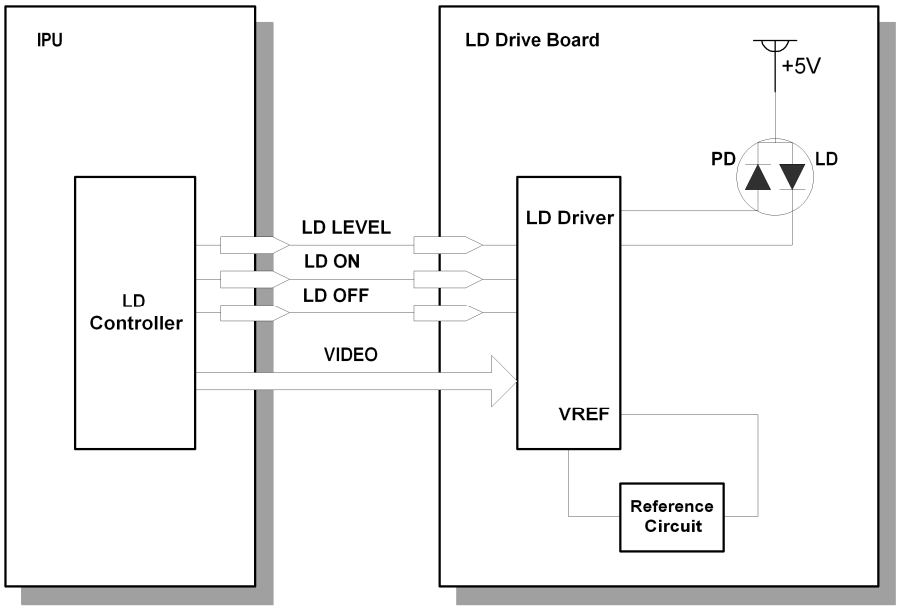
The LD unit [A] outputs a laser beam to the polygon mirror [B] through the cylindrical lens [C]. The shield glass [D] prevents dust from reaching the polygon mirror.

Each surface of the polygon mirror reflects one full main scan line. The laser beam goes to the F-theta mirror [E], mirror [F], and BTL (barrel toroidal lens) [G]. Then the laser beam goes to the drum through the toner shield glass [H].

The laser synchronizing detector [I] determines the main scan starting position.

The speed of the polygon mirror motor is 35,433 rpm for 600 dpi.

6.6.2 AUTO POWER CONTROL (APC)



The LD driver IC drives the laser diode. To prevent the intensity of the laser beam from changing because of the temperature, the machine monitors the current passing through the laser diode (LD). The machine adjusts the current to the laser diode by comparing it with the reference level from the reference circuit.

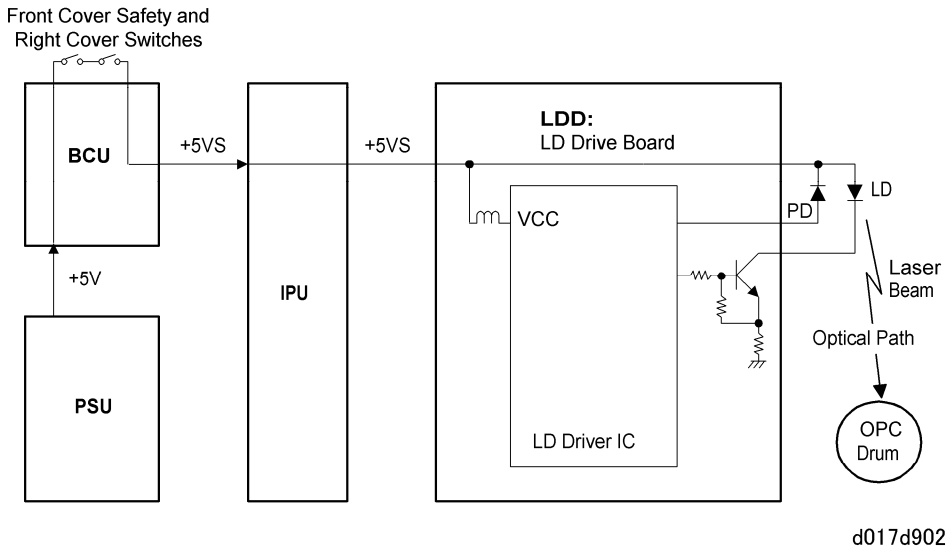
This auto power control is done just after the machine is turned on and during printing while the laser diode is active.

The laser diode power is adjusted on the production line.

Note

- Do not touch the variable resistors on the LD unit in the field.

6.6.3 LD SAFETY SWITCH

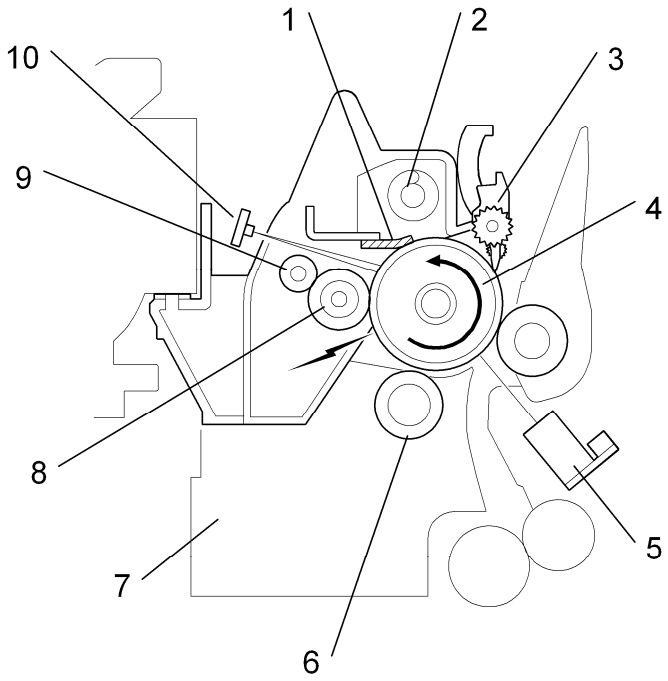


To ensure technician and user safety and to prevent the laser beam from inadvertently switching on during servicing, safety switches are located at the front and right covers. The switches are installed on the +5VLD line coming from the power supply unit through the BCU and IPU boards.

When the front cover or the right cover is opened, the power supply to the laser diode is interrupted.

6.7 PHOTOCONDUCTOR UNIT (PCU)

6.7.1 OVERVIEW



The PCU consists of the components shown in the above illustration. An organic photoconductor (OPC) drum (diameter: 30 mm) is used in this machine.

1. Cleaning Blade 2. Toner Collection Coil 3. Pick-off Pawl 4. OPC Drum 5. ID Sensor (see the note below this list)	6. Development Roller 7. Development Unit 8. Charge Roller 9. Charge Roller Cleaning Roller 10. Quenching Lamp (see the note below this list)

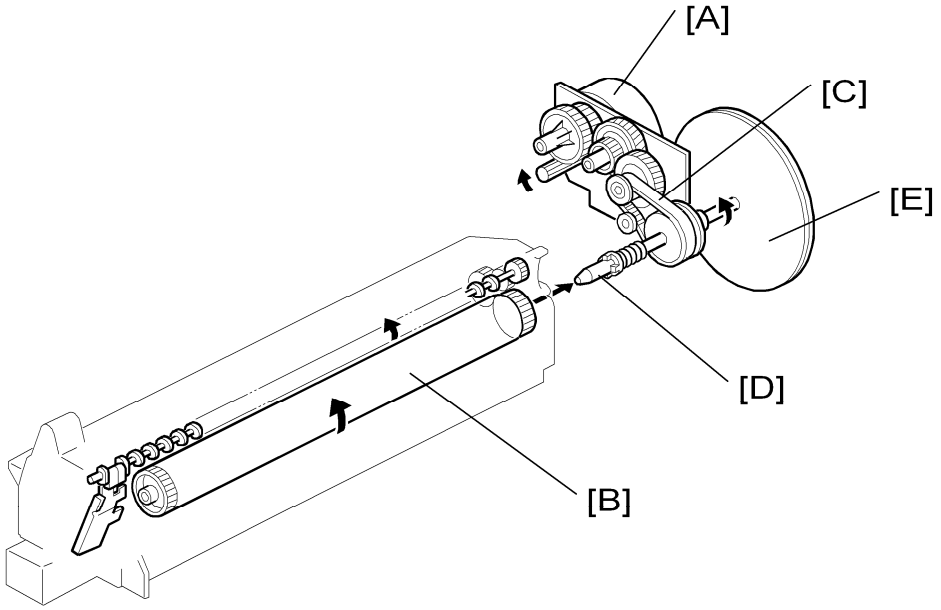
Note

- These parts are not included in the PCU.

The machine informs the user when the PCU life has finished. However, the user can continue to make copies.

SP5-912 can be used to enable or disable this warning message, and to change the default replacement interval (the default is 60k).

6.7.2 DRIVE

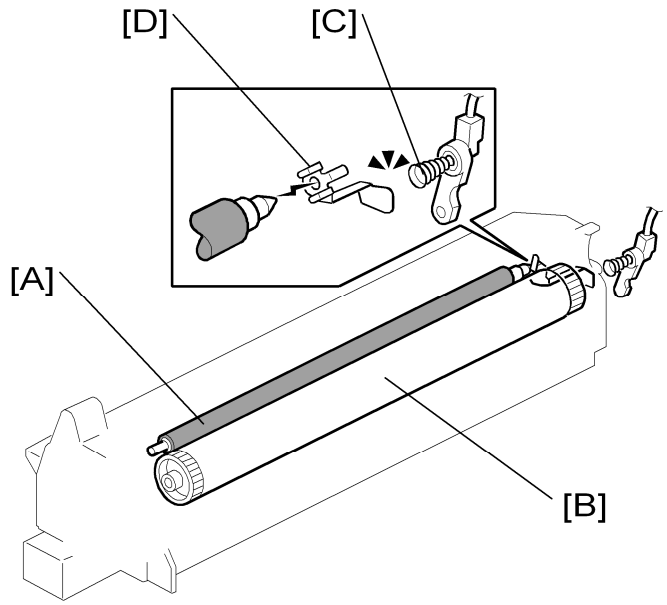


The main motor [A] drives the drum [B] through a series of gears, a timing belt [C], and the drum drive shaft [D]. The main motor assembly includes a drive controller, which outputs a motor lock signal when the rotation speed is out of the specified range.

The fly-wheel [E] on the end of the drum drive shaft stabilizes the rotation speed (this prevents banding and jitter from appearing on copies).

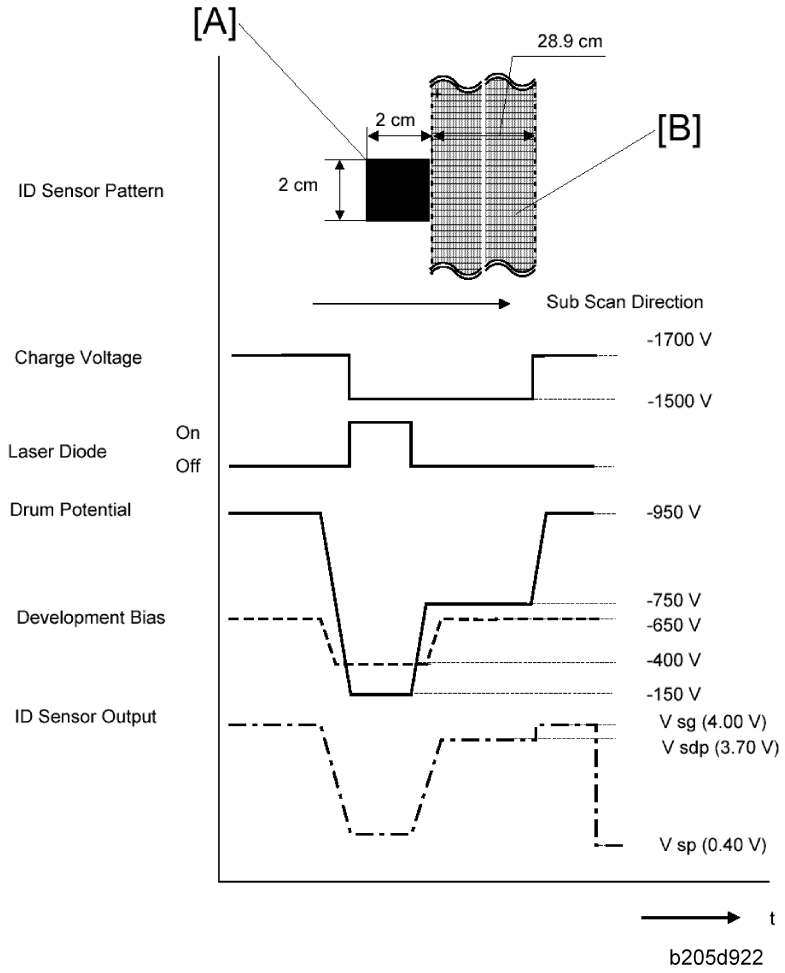
6.8 DRUM CHARGE

6.8.1 OVERVIEW



This copier uses a drum charge roller to charge the drum. The drum charge roller [A] always contacts the surface of the drum [B] to give it a negative charge of –900V.
The high voltage supply board gives a negative dc voltage to the drum charge roller through the spring [C] and terminal plate [D].

6.8.2 CHARGE ROLLER VOLTAGE CORRECTION



With a drum charge roller system, the voltage transferred from roller to drum varies with the temperature and humidity around the drum charge roller. The lower the temperature or humidity is, the higher the applied voltage required.

To compensate, the machine uses the ID sensor to measure the effects of current environmental conditions. For this measurement, the process control parameters are balanced so that any small change in drum potential caused by environmental effects is reflected in a change in the amount of toner transferred to the drum.

This measurement is made immediately after the ID sensor pattern for toner density control. Immediately after making ID sensor pattern [A], the charge roller voltage stays on, but the development bias goes up to -650V; as a result the drum potential is reduced to -750V. The laser diode is not switched on, and the drum potential is now slightly higher than the development bias, so only a very small amount of toner transfers to the drum.

The ID sensor measures the density of this pattern [B], and the output voltage is known as

Drum Charge

Vsdp. This voltage is compared with Vsg (read from the bare drum at the same time).
If the humidity drops, the drum potential goes up (to a higher –ve voltage) even if the charge roller voltage supply stays the same (efficiency of voltage transfer is higher with lower humidity). As a result, less toner is transferred to ID sensor pattern [B]. If the sensor output reaches a certain point, the drum charge voltage will be reduced.
To determine whether to change the drum charge roller voltage, the machine compares Vsdp with Vsg.

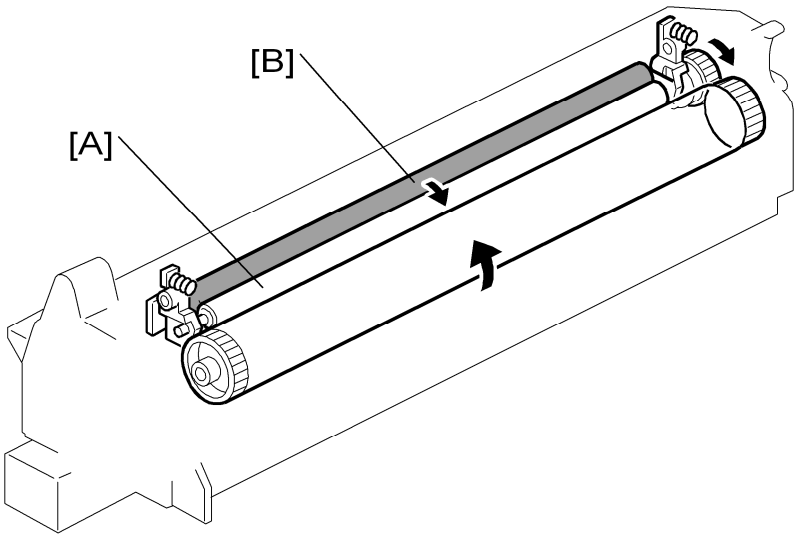
- Vsdp / Vsg > 0.95 = Reduce the magnitude of the drum charge voltage by 50 V
- Vsdp / Vsg < 0.90 = Increase the magnitude of the drum charge voltage by 50 V

6.8.3 ID SENSOR PATTERN PRODUCTION TIMING

The ID sensor pattern is made in the following conditions:

- When the machine is turned on or returns from the energy save mode and the hot roller temperature is less than 30 °C. The temperature threshold can be adjusted with SP2995 001
- After the total number of prints exceeds 300 pages. If this total is exceeded during a job, the pattern is created at the completion of the job. This total can be changed with SP2995 002.
- SP 2995 003 determines whether the job is interrupted to make the ID sensor pattern. If it is set to 1, the job will be interrupted.

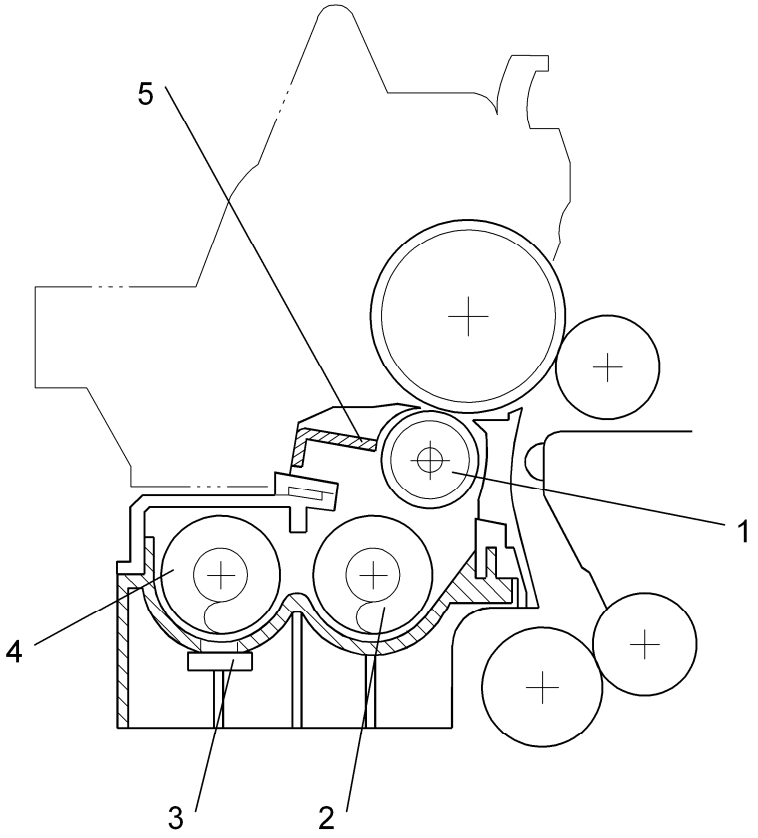
6.8.4 DRUM CHARGE ROLLER CLEANING



Because the drum charge roller [A] always contacts the drum, it gets dirty easily. So, the charge roller cleaning roller [B] also contacts the drum charge roller all the time to clean the surface of the drum charge roller.

6.9 DEVELOPMENT

6.9.1 OVERVIEW

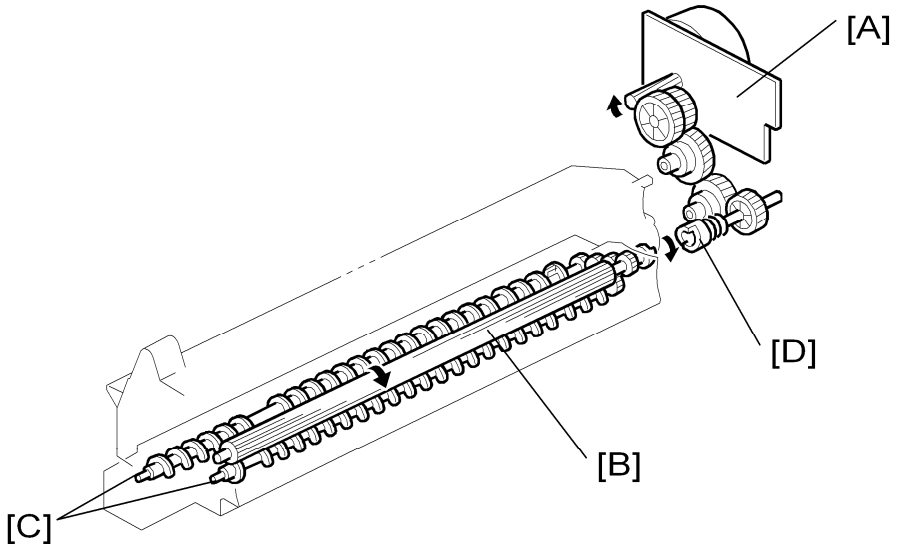


The development unit consists of the following parts.

1. Development roller
2. Mixing auger 2
3. TD sensor
4. Mixing auger 1
5. Doctor blade

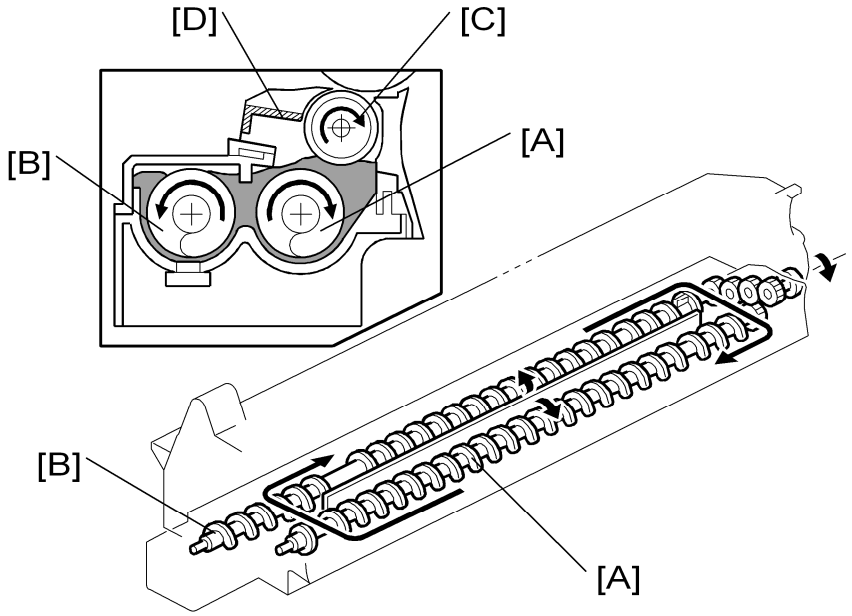
This machine uses a single-roller development system. Two mixing augers mix the developer. The toner density (TD) sensor and image density (ID) sensor (see the illustration in the PCU section) are used to control toner density.

6.9.2 DRIVE



The main motor [A] drives the development roller [B] and mixing augers [C] through a train of gears and the development drive shaft [D]. When the PCU is pushed in, the development drive shaft engages the development roller gear.
The development drive gears (except for the gears in the development unit) are helical gears. These gears are quieter than normal gears.

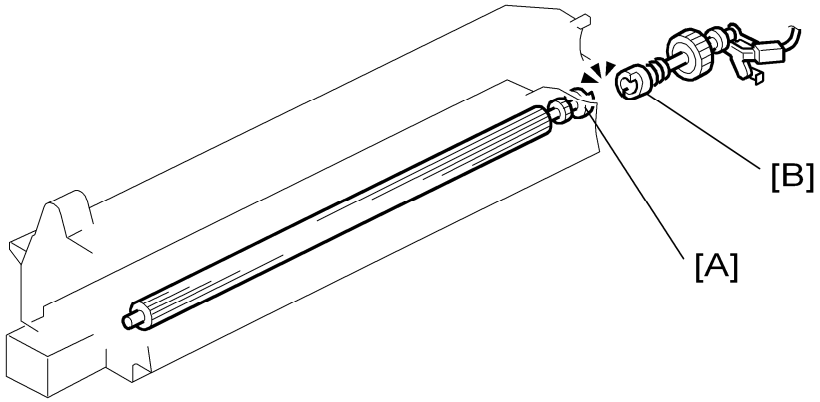
6.9.3 DEVELOPER MIXING



This copier uses 2 mixing augers, [A] and [B], to keep the developer evenly mixed. Mixing auger 2 [A] transports excess developer, scraped off the development roller [C] by the

doctor blade [D], towards the front of the machine. Mixing auger 1 [B] returns the excess developer, along with new toner, to the rear of the mixing assembly. Here the developer is reapplied to the development roller.

6.9.4 DEVELOPMENT BIAS



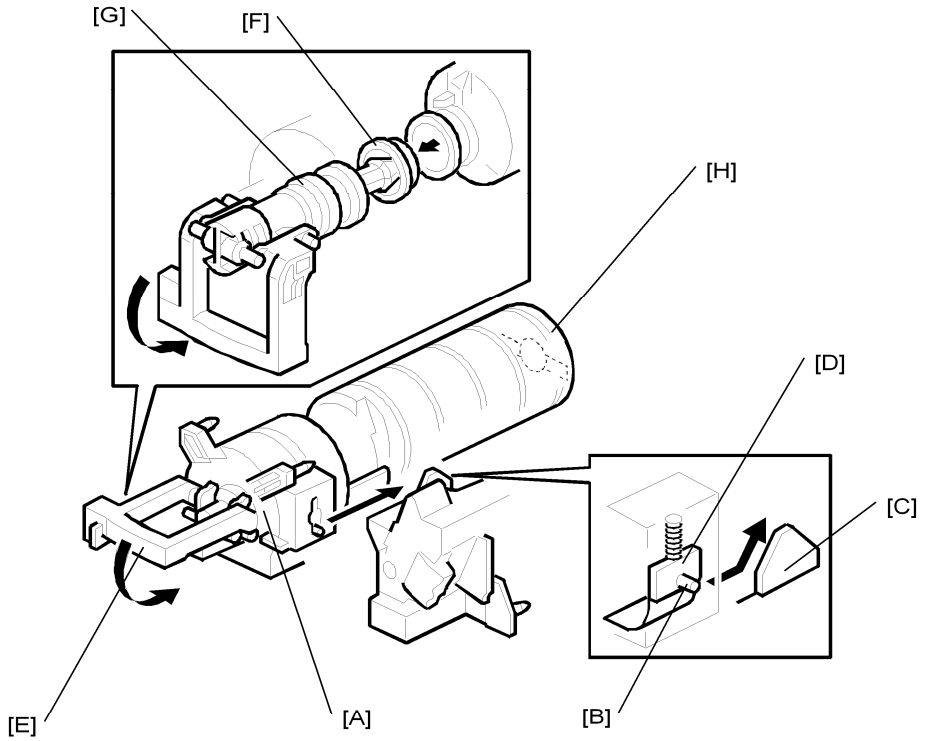
This machine uses a negative-positive development system, in which black areas of the latent image are at a low negative charge (about –150 ±50 V) and white areas are at a high negative charge (about -950 V).

To attract negatively charged toner to the black areas of the latent image on the drum, the high voltage supply board applies a bias of -650 volts to the development rollers throughout the image development process. The bias is applied to the development roller shaft [A] through the drive shaft [B].

The development bias voltage (-650 V) can be adjusted with SP2-201-1.

6.9.5 TONER SUPPLY

Toner Bottle Replenishment Mechanism



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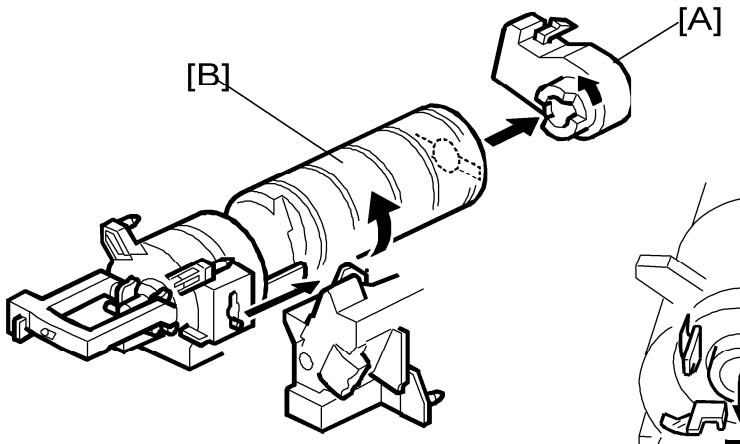
When a toner bottle is placed in the bottle holder unit [A] and the unit is pushed in completely, pin [B] moves against the side [C] of the PCU, and the toner shutter [D] is pulled out to open the bottle. When the toner bottle holder lever [E] is put back in the original position, the cap [F] on the toner bottle is pulled away and kept in place by the chuck [G].

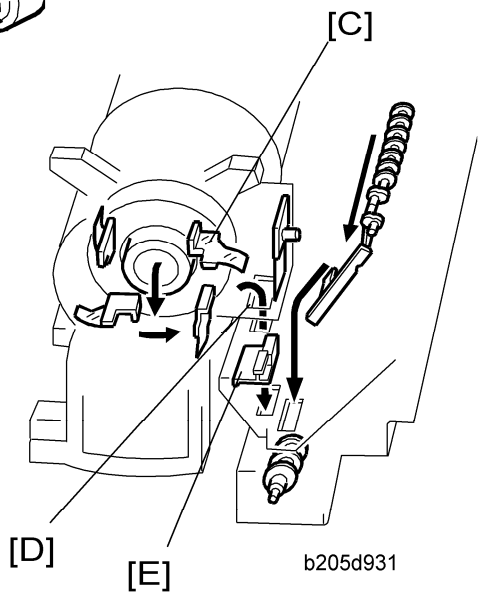
The toner supply mechanism transports toner from the bottle to the development unit. The toner bottle has a spiral groove [H] that helps move toner to the development unit.

When the bottle holder unit is pulled out to add a new toner bottle, the following happens automatically to prevent toner from scattering.

- The chuck releases the toner bottle cap into its proper position.
- The toner shutter shuts to block the opening as a result of pressure from a spring.

Toner Supply Mechanism





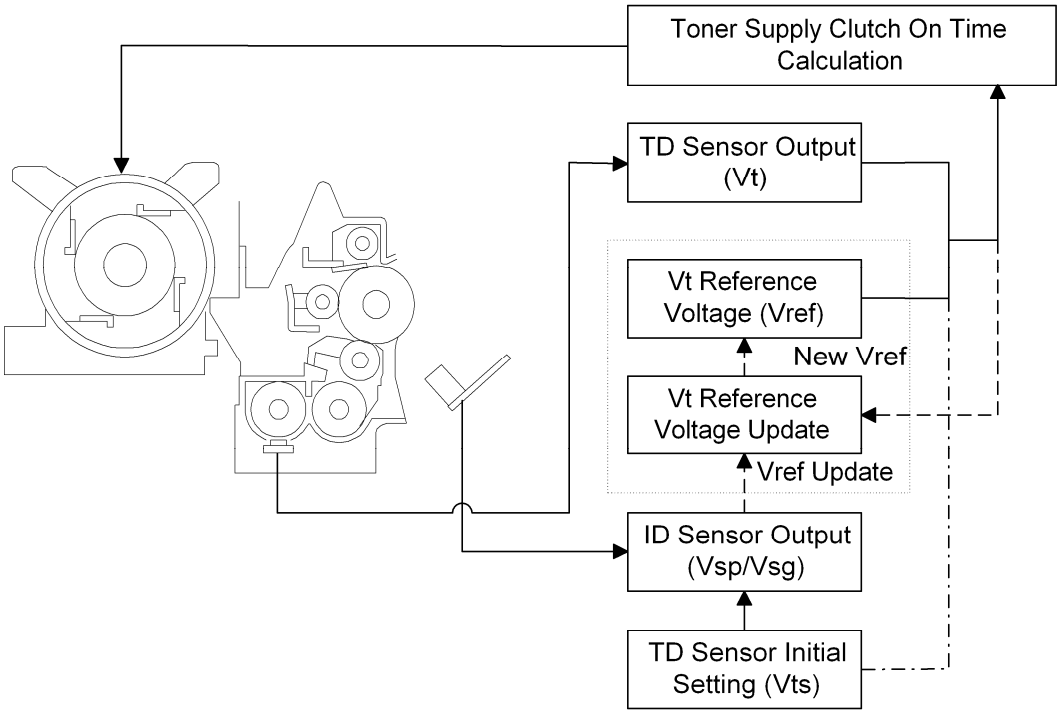
The toner supply motor [A] drives the toner bottle [B] and the mylar blades [C]. First, the toner falls down into the toner bottle holder. The toner supply mylar blades transfer the toner to the slit [D]. When the PCU is installed in the machine, the shutter [E] above the PCU is opened by the machine frame. Then the toner falls down into the development unit through the slit and the shutter.

6.9.6 TONER DENSITY CONTROL

Overview

There are four modes for controlling toner supply as shown in the following tables. The mode can be changed with by SP2-921. The factory setting is sensor control 1 mode. Basically, toner density is controlled using the standard TD sensor voltage (Vts), toner supply reference voltage (Vref), actual TD sensor output voltage (Vt), and ID sensor output data (Vsp/Vsg).

Development



There are five toner density control modes as follows.

Mode	Sensor control 1 (SP2-921, "0"): Normally use this setting only
Toner supply decision	Compare Vt with a reference voltage (Vts or Vref)
Toner control process	Toner is supplied to the development unit when Vt is higher than the reference voltage (Vts or Vref). This mode keeps the Vref value for use the next toner density control. Vts is used for the first toner density control after a new PCU has been installed, until it has been corrected with the ID sensor output. Vref is used after Vts has been corrected with the ID sensor output voltage (corrected during the first toner density control for a new PCU).
Toner supply amount	Varies
Toner end detection	Performed

Mode	Sensor control 2 (SP2-921, “1”): **DFU**
Toner supply decision	Compare Vt with a reference voltage (Vts or Vref)
Toner control process	This toner control process is the same as sensor control 1 mode. However, the reference voltage is always the same as Vref.
Toner supply amount	Varies
Toner end detection	Performed

Mode	Fixed control 1 (SP2-921, “2”): **DFU**
Toner supply decision	Compare Vt with a reference voltage (Vts or Vref)
Toner control process	This toner control process is the same as sensor control 1 mode.
Toner supply amount	Fixed (SP2-925)
Toner end detection	Performed

Mode	Fixed control 2 (SP2-921, “3”): Use temporarily if the TD sensor needs to be replaced
Toner supply decision	None
Toner control process	Toner is supplied every printed page regardless of Vt.
Toner supply amount	Fixed (SP2-925)
Toner end detection	Not performed

Mode	Sensor control 3 (SP921, "4". **DFU**
Toner supply decision	Compare Vt with a reference voltage (Vts)
Toner control process	This toner control process is the same as sensor control 1 mode. However, the reference voltage used is always Vts.

Development

Mode	Sensor control 3 (SP921, "4". **DFU**
Toner supply amount	Varies
Toner end detection	Performed.

Toner Density Sensor Initial Setting

The TD sensor initial setting procedure is done by SP2801. During TD sensor initial setting, the TD sensor is set so that the TD sensor output to the value of SP2-926 (default: 2.5V). This value will be used as the standard reference voltage (Vts) of the TD sensor.

Toner Density Measurement

Toner density in the developer is detected once every copy cycle. The sensor output voltage (Vt) during the detection cycle is compared with the standard reference voltage (Vts) or the toner supply reference voltage (Vref).

Vsp/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 surface and the pattern on the drum are checked. This compensates for any variations in the reflectivity of the pattern on the drum or the reflectivity of the drum surface.

The ID sensor pattern is made on the drum by the charge roller and laser diode.

Vsp/Vsg is not detected every page or job; it is detected at the following times to decide Vref:

- When the machine is turned on or returns from the energy save mode and the hot roller temperature is less than 30 °C. The temperature threshold can be adjusted with SP2995 001
- After the total number of prints exceeds 300 pages. If this total is exceeded during a job, the pattern is created at the completion of the job. This total can be changed with SP2995 002.
- SP 2995 003 determines whether the job is interrupted to make the ID sensor pattern. If it is set to 1, the job will be interrupted.

Toner Supply Reference Voltage (Vref) Determination

The toner supply reference voltage (Vref) is the threshold voltage for the toner supply determination. Vref is determined using the following data:

- ID sensor output (Vsp/Vsg)
- (Vts or the current Vref) - Vt

Toner Supply Determination

The reference voltage (Vts or Vref) is the threshold voltage for determining whether or not to supply toner. If Vt becomes greater than the reference voltage, the machine supplies additional toner.

Toner Supply Motor On Time Determinations

For fixed control mode, the toner supply motor on time is specified by the setting of SP2-925, and does not vary. The default setting is 200 ms for each copy. The toner supply motor on time for each value of SP2-925 is as follows.

SP2-925	Motor On Time (t = 200 ms)
0	t
1	2t
2	4t
3	8t
4	12t
5	16t
6	Continuously
7	Not supplied

For sensor control modes 1 and 2, the toner supply motor on time is decided by the following factors.

- ∆Vt (= Vt – (Vref or Vts))
- TD sensor sensitivity (coefficient: S, value is 0.3)

There are seven levels for toner supply motor on time as shown below.

Level	Decision	Motor On Time (seconds)
1	0 <∆Vt < or = S/16	t (0.6)

Development

Level	Decision	Motor On Time (seconds)
2	S/16 <ΔVt < or = S/8	t x 2 (1.2)
3	S/8 <ΔVt < or = S/4	t x 4 (2.4)
4	S/4 <ΔVt < or = S/2	t x 8 (4.8)
5	S/2 <ΔVt < or = 4S/5	t x 16 (9.6)
6	4S/5 <ΔVt < or = S (near-end)	T (30); see note 3
7	S <ΔVt (toner end)	T (30); see note 3

- The value of "t" can be changed using SP2-922 (default: 0.6 second)
- The value of "T" can be changed using SP2-923 (default: 30 seconds)
- T (30) means that toner is supplied intermittently in a half duty cycle (1.5 s on, 1.5 s off) for 30 seconds

6.9.7 TONER SUPPLY IN ABNORMAL SENSOR CONDITIONS

ID sensor

Readings are abnormal if any of the following conditions occur:

- Vsg < or = 2.5V
- Vsg < 3.5V when maximum power (254) is applied
- Vsp > or = 2.5V
- (Vsg – Vsp) < 1.0V

ID sensor power required to make the standard output reaches the maximum value (254)
The above ID sensor values can be checked using SP2-220.
When this is detected, the machine changes the value of Vref to the previous value then does the toner density control process (in a similar way to sensor control mode 2).
No SC code is generated if the ID sensor is defective.

TD Sensor

The TD sensor is checked every copy. If the readings from TD sensor become abnormal, the machine changes the toner density control mode to fixed supply mode 2, and the toner supply amount per page is always 200 ms, regardless of the value of SP2-925. Then at the end of a job (if the optional fax unit is installed), or 100 copies after the TD sensor error was detected (if no fax unit is installed), an SC code is generated (SC390) and the machine must be repaired. The 100-copy threshold can be adjusted with SP 2-992.

6.9.8 TONER NEAR-END/END DETECTION AND RECOVERY

The toner near end and end conditions are detected using the Vt and Vref values, in a similar way to toner density control.

This is done in all toner supply modes except for fixed mode 2, when toner end is not detected.

Toner Near-end Detection

If Vt is at level 6 (see the table on the previous page) five times consecutively, the machine enters the toner near end condition and the toner end indicator starts blinking. Then the machine supplies toner for a certain time, which depends on the setting of SP 2-923 (see above).

Toner Near-end Recovery

If the machine detects "S/2 <ΔVt < or = 4S/5" twice consecutively when in one of the following situations, the machine leaves the toner near end condition.

- While in the toner recovery cycle (supplying toner on and off for 30 s – see the previous page) after the machine has detected a toner near end condition.
- During copying in the toner near end condition.
- If the front cover is opened and closed for more than 10 seconds while a toner near end condition exists.

Toner End Detection

There are two situations for entering the toner end condition.

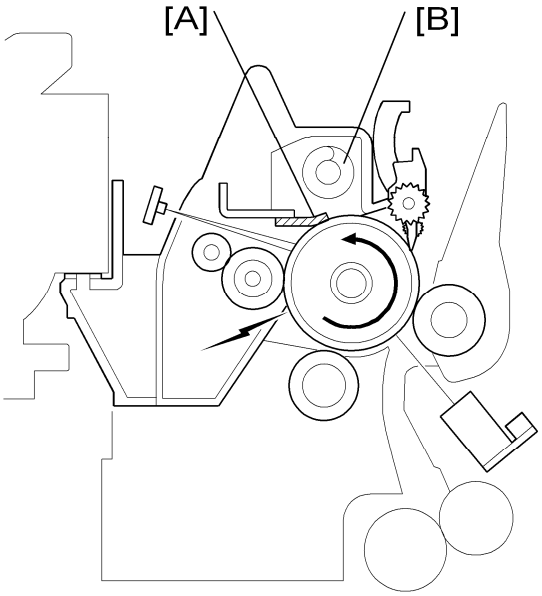
- When Vt is level 7 three times consecutively, the machine enters the toner end condition.
- When "4S/5 <ΔVt < or = S" is detected in the toner near end condition, then 50 copies can be made after this condition (the number of copies between this condition and toner end can be changed using SP2-213).

Toner End Recovery

If the front cover is opened and closed for 10 seconds while a toner end condition exists and the toner bottle is replaced, the machine attempts to recover using the same procedure as for toner near end/end detection.

6.10 DRUM CLEANING AND TONER RECYCLING

6.10.1 DRUM CLEANING



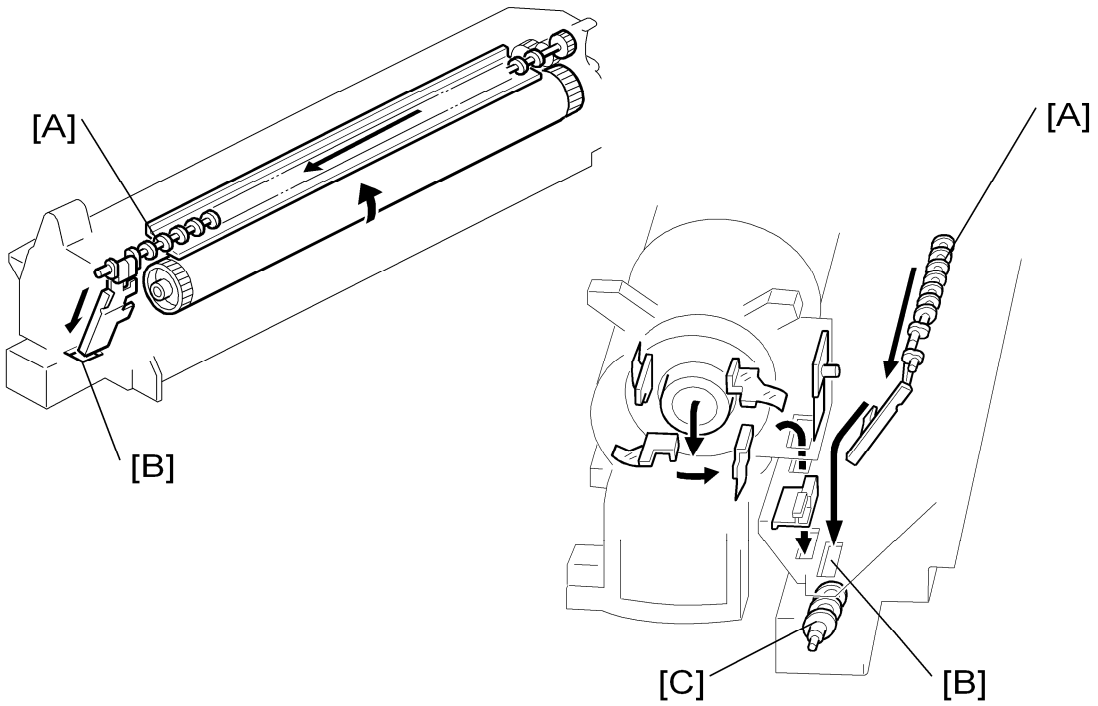
The cleaning blade [A] removes any toner remaining on the drum after the image is transferred to the paper. This model uses a counter blade system.

The cleaning blade scrapes off toner remaining on the drum. When toner builds up in the cleaning unit, toner at the top of the pile is removed by the toner collection coil [B].

To remove the toner and other particles that are accumulated at the edge of the cleaning blade, the drum turns in reverse for about 5 mm at the end of every copy job. This feature is controlled with SP 2-998.

In addition, cleaning is done in the middle of a job if 100 sheets have been made since the previous cleaning. This feature is controlled with SP 2-211.

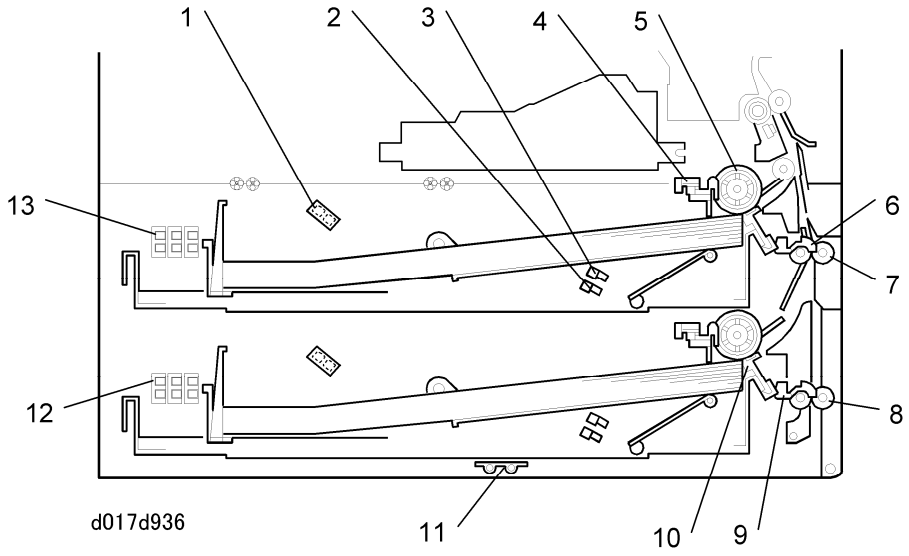
6.10.2 TONER RECYCLING



Toner picked up by the toner collection coil [A], is transported to the opening [B] in the side of the PCU. Then, this toner falls into the development unit with new toner coming from the toner bottle and it is all mixed together by mixing auger 1 [C] and used again.

6.11 PAPER FEED

6.11.1 OVERVIEW

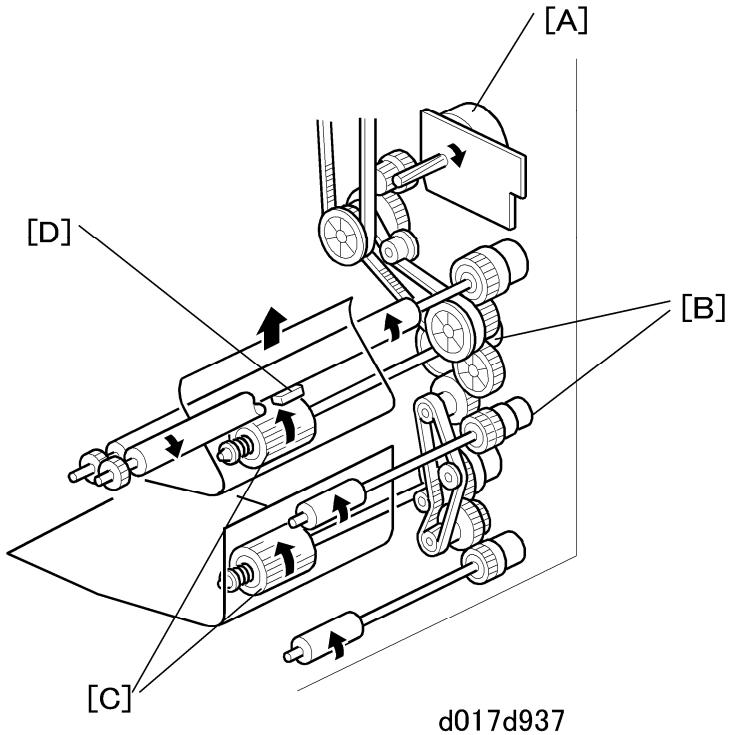


1. Paper Lift Sensor 2. Paper Height Sensor2 3. Paper Height Sensor1 4. Paper End Sensor 5. Paper Feed Roller 6. Upper Relay Sensor 7. Upper Relay Roller	8. Lower Relay Roller 9. Lower Relay Sensor 10. Friction Pad 11. Tray Heater (option) 12. Paper Size Sensor (Tray 2) 13. Paper Size Sensor (Tray 1)

There are two standard paper trays. Each tray holds 550 sheets.

- Each tray uses a friction pad (4) to separate paper so that only one sheet feeds at a time.
- The paper feed roller (2) and shaft do not separate from the tray when the tray is pulled out. This prevents paper from getting caught inside the machine when a tray is removed.
- The two relay sensors are used to detect paper jams. The upper relay sensor (6) detects jams for paper fed from either tray of the main machine. The lower sensor (8) detects jams if paper is fed up from the optional paper feed unit or LCT.

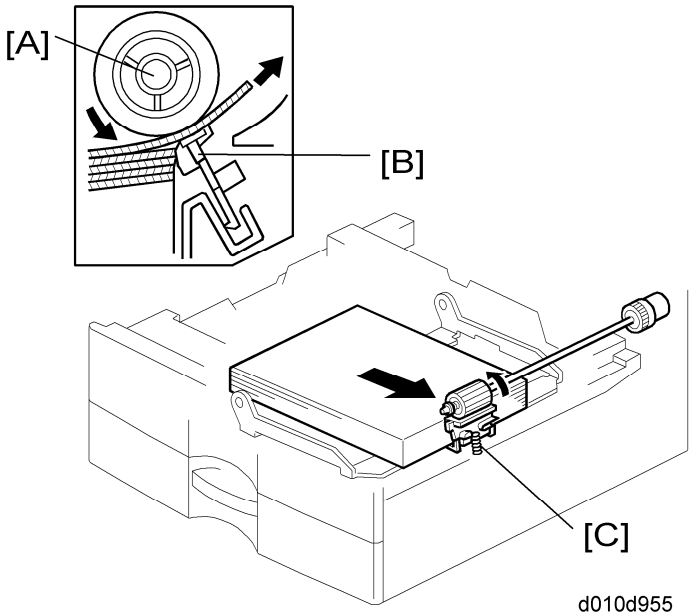
6.11.2 PAPER FEED DRIVE



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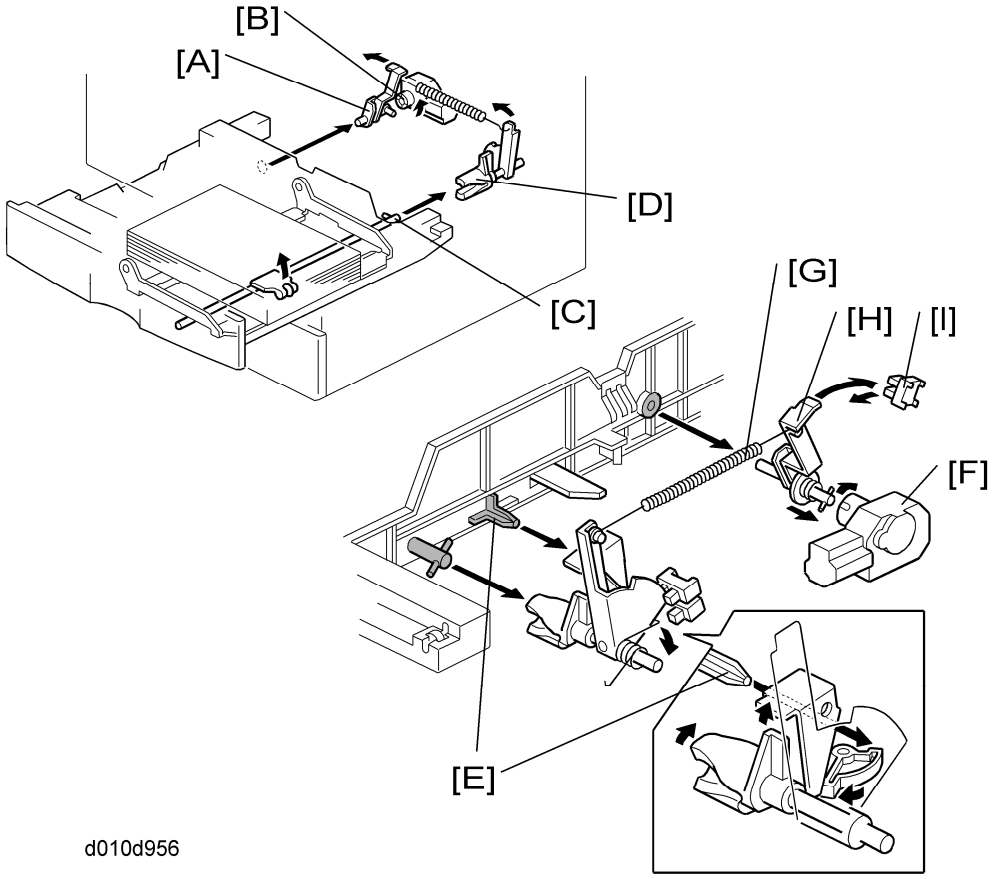
The main motor [A] drives the pick-up and feed mechanism of both the first and second paper trays. The paper feed clutches [B] transfer drive from this motor to the paper feed rollers [C]. When the paper feed clutch activates, the feed roller starts to feed the paper from the tray. The paper feed clutch remains on until shortly after the registration sensor [D] activates.

6.11.3 PAPER FEED AND SEPARATION



The paper feed roller [A] feeds the first sheet on top of the stack into the paper feed path. The friction pad [B] stops the sheet below so that only one sheet feeds at a time. A spring [C] pushes up the friction pad so that it applies constant pressure on the feed roller above. (The pressure exerted by the spring on the friction pad is constant and cannot be adjusted.)

6.11.4 PAPER LIFT



When a tray is pushed into the machine:

- A paper size switch (not shown) detects the tray
- Pin [A] for the lift motor pressure shaft engages the lift motor coupling [B].
- Pin [C] for the bottom plate lift shaft in the tray engages the bottom plate pressure lever coupling [D].
- Pin [E] on the rear of the tray pushes the lock lever so that the lift motor can lift the bottom plate pressure lever.

The lift motor [F] turns on, and rotates clockwise.

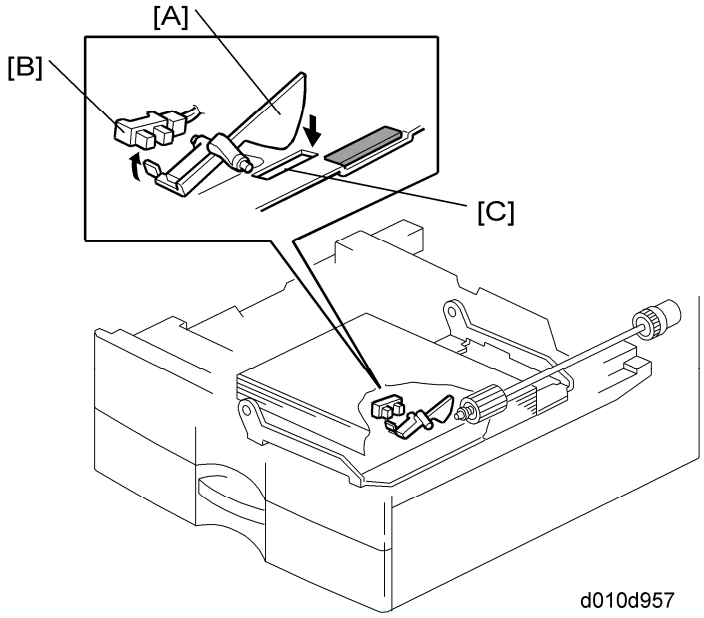
- The main pressure spring [G] pulls the bottom plate pressure lever. This lifts the tray bottom plate.
- When the top of the stack contacts the feed roller, the motor can no longer raise the plate, and the actuator [H] enters the gap of the lift sensor [I], and this stops the motor.
- At this time, the pressure of the feed roller on the paper is too low or too high. The lift motor moves forwards or reverses to increase or reduce this pressure. The length of time that the motor moves forwards or reverses is prescribed for each paper size. (This is described in detail below.)

Paper Feed

When the paper tray is pulled out:

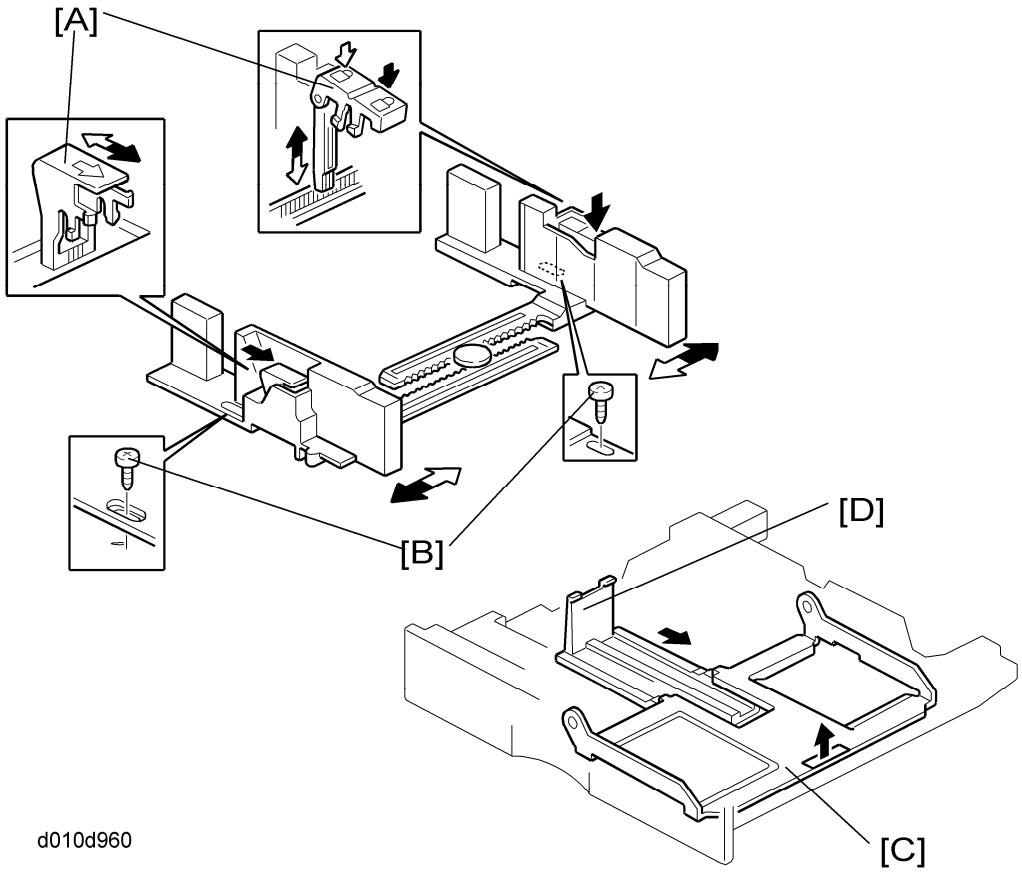
- Pins [A], [C] disengage from the couplings [B], [D], and the bottom plate lowers.
- To make it easier to push the tray in, the lift motor reverses to lower the bottom plate pressure lever coupling [D] to its original position.

6.11.5 PAPER END DETECTION



While there is paper in a paper tray, the top of the paper stack lifts the feeler [A] which deactivates the paper end sensor [B]. This signals paper present in the tray.
After the last sheet feeds, the paper end feeler [A] drops into the cutout [C] in the tray bottom plate and activates the paper end sensor. This signals that the paper tray is empty.
When a paper tray is removed with no paper in the tray, the rounded shape of the paper end feeler causes it to rise so that it does not interfere with tray removal.

6.11.6 SIDE AND END FENCES



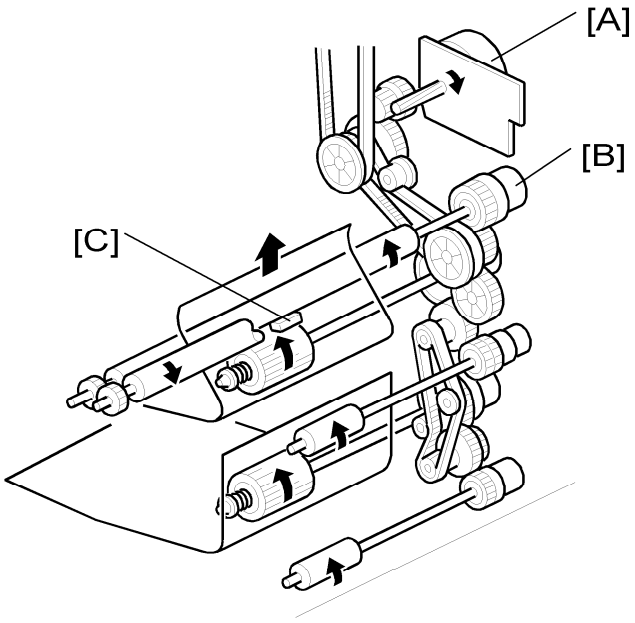
Side Fences

If the tray is pushed in forcefully when it is full, the fences may warp or bend. This can cause paper skew or incorrect side-to-side registration. To prevent this problem, each side fence has a stopper [A]. Each side fence can be secured with a screw [B], for customers who do not want to change the paper size.

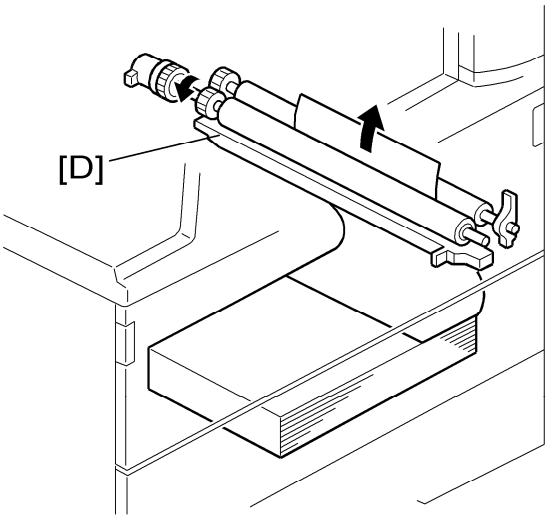
End Fence

When the amount of paper in the tray decreases, the bottom plate [C] lifts gradually. The end fence [D] is connected to the bottom plate. When the tray bottom plate rises, the end fence moves forward and pushes the back of the paper stack to keep it straight.

6.11.7 PAPER REGISTRATION



d017d937



d017d948

The drive from the main motor [A] is transmitted to the registration roller through the registration clutch [B].

The registration sensor [C] is used to correct paper skew and to detect paper misfeed.

The cleaning mylar [D] contacts the registration roller. It removes paper dust from the registration roller to prevent the dust from going to the development unit via the drum-cleaning unit.

The amount of paper buckle at the registration roller to correct skew can be adjusted with SP 1003.

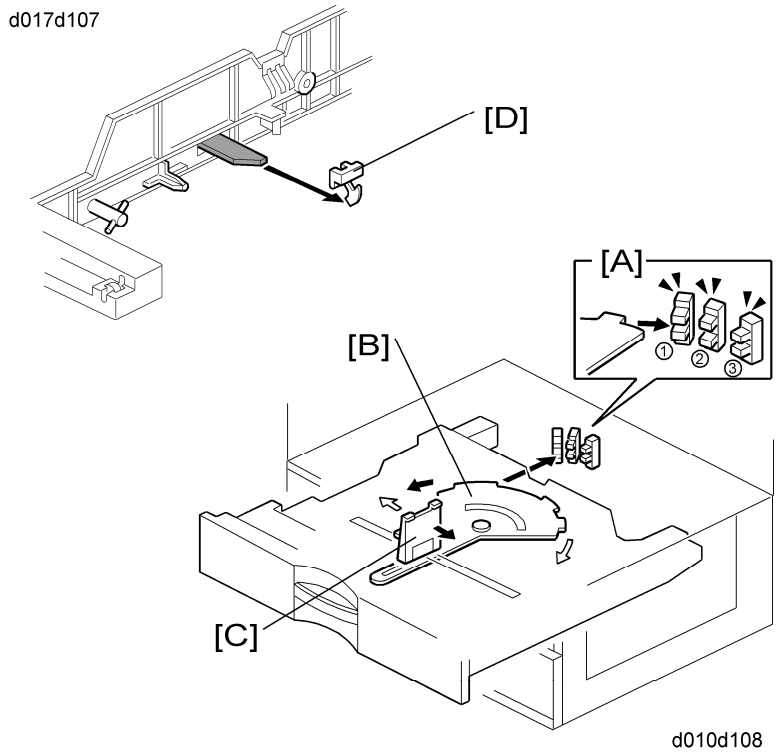
If jams frequently occur after registration, SP 1903 can be used to activate the relay clutch so that the relay roller assists the registration roller in feeding the paper.

When feeding from the by-pass tray, the by-pass feed clutch activates and turns the by-pass feed roller. This feature may be needed when feeding thick paper, and cannot be used for the first paper feed tray.

A jam lever is provided to facilitate removal of jammed sheets.

6.11.8 PAPER SIZE DETECTION

Paper Tray 1, Paper Tray 2



The three paper size sensors [A] (SN1, SN2 and SN3) interact with notched actuators [B] on a movable wheel. The actuators move when the paper end fence [C] is adjusted for the loaded paper. The readings of these three sensors are used with the reading of the side fence sensor [D] to determine the paper size. The combination of these four readings is sent to the CPU to determine the size of the paper loaded in the tray.

The table below shows how the machine uses the on or off signals from the sensors to determine a paper size.

EUROPE/ASIA

L= "LOW" (OFF)

H= "HIGH" (ON)

Tray 1

Name		Sensor				SP Set SP1912
	1	2	3	4		
A5 LEF	148 x 210	L	H	L	L	

Paper Feed

B5 LEF	182 x 257	H	L	H	L	Exec. LEF
A5 SEF	210 x 148	H	H	L	H	HLT SEF
A4 LEF	210 x 297	H	H	L	L	LT LEF
B5 SEF	257 x 182	L	L	H	H	
LT SEF	279 x 216	L	L	L	L	
A4 SEF	297 x 210	H	L	L	L	
B4 SEF	364 x 357	H	H	H	L	LG SEF
A3 SEF	420 x 297	L	H	H	L	DLT SEF

Tray 2

Name	(W x L mm)	Sensor				SP Set SP1913
		1	2	3	4	
A6 SEF	148 x 105	L	H	L	H	
A5 LEF	148 x 210	L	H	L	L	
B6 SEF	182 x 128	H	L	H	H	
B5 LEF	182 x 257	H	L	H	L	Exec. LEF
A5 SEF	210 x 148	H	H	L	H	HLT SEF
A4 LEF	297 x 210	H	H	L	L	LT LEF
B5 SEF	257 x 182	L	L	H	H	
LT SEF	279 x 216	L	L	L	L	
A4 SEF	297 x 210	H	L	L	L	
B4 SEF	364 x 257	H	H	H	L	LG SEF
A3 SEF	420 x 297	L	H	H	L	DLT SEF

NORTH AMERICA

L= "LOW" (OFF)

H= "HIGH" (ON)

Tray 1

Name	(W x L mm)	Sensor				SP Set SP1912
		1	2	3	4	
A5 LEF	148 x 210	L	H	L	L	
B5 LEF	182 x 257	H	L	H	L	Exec. LEF
HLT SEF	216 x 140	H	H	L	H	A5 SEF
LT LEF	216 x 279	H	H	L	L	A4 LEF
B5 SEF	257 x 182	L	L	H	H	
LT SEF	270 x 216	L	L	L	L	
A4 SEF	297 x 210	H	L	L	L	
LG SEF	356 x 216	H	H	H	L	B4
DLT SEF	432 x 279	L	H	H	L	A3

Tray 2

Name	(W x L mm)	Sensor				SP Set SP1913
		1	2	3	4	
A6 SEF	148 x 105	L	H	L	H	
A5 LEF	148 x 210	L	H	L	L	
B6 SEF	182 x 128	H	L	H	H	
B5 LEF	182 x 257	H	L	H	L	Exec. LEF
HLT SEF	216 x 140	H	H	L	H	A5 SEF

Paper Feed

LT LEF	216 x 279	H	H	L	L	A4 LEF
B5 SEF	257 x 182	L	L	H	H	
LT SEF	270 x 216	L	L	L	L	
A4 SEF	297 x 210	H	L	L	L	
LG SEF	356 x 216	H	H	H	L	B4
DLT SEF	432 x 279	L	H	H	L	A3

The CPU disables paper feed from a tray if the paper size cannot be detected. If the paper size actuator is broken, or if there is no tray installed, the "Add Paper" indicator will light. These SP codes allow you to select more precisely which size is detected in the tray. An alternate size can be selected for each paper tray.

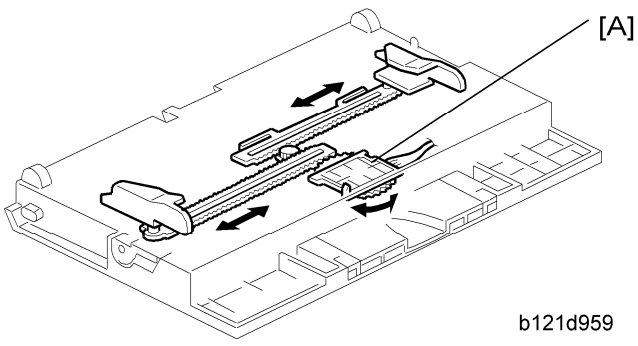
Auto Paper Size Detection SP Codes

Tray Name	SP Code	Available Selections for Each SP
1st Tray	1912	1 B5 or Executive (LEF) 2 A5 or Half-Letter (SEF) 3 A4 or Letter (LEF) 4 A4/Legal (SEF) 5 A3/Double-Letter (SEF)
2nd Tray	1913	
3rd Tray*[1]	1914	
4th Tray*[2]	1915	

*[1]: LCT (option) or upper tray of paper feed unit (option)

*[2]: Lower tray of paper feed unit (option).

By-pass Tray



The by-pass feed paper size switch [A] monitors the paper width. The side fence is connected to the terminal plate gear. When the side fences move to match the paper width, the circular terminal plate rotates over the wiring patterns on the rectangular part of the paper size switch. The patterns for each paper width in the paper size switch are unique.

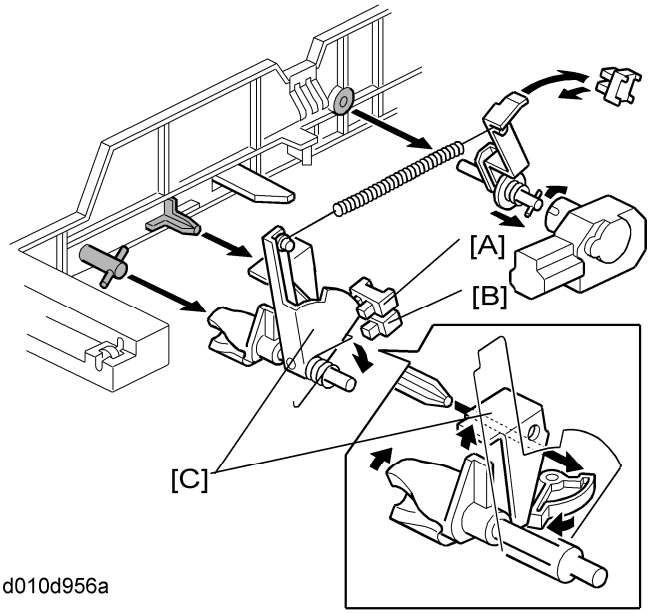
North America

CN No. (BCU)	11" x 17"	8 ½ " x 14"	5 ½ " x 8 ½ "		
CN136-1	ON/OFF	OFF	OFF	OFF	OFF
CN136-2	OFF	OFF	OFF	ON	OFF
CN136-3 (GND)	OFF	OFF	OFF	OFF	OFF
CN136-4	OFF	ON	OFF	OFF	ON
CN136-5	ON	ON	OFF	OFF	OFF

Europe/Asia

CN No. (BCU)	A3	A4 SEF	8" x 13"	A5 SEF
CN136-1	ON/OFF	OFF	OFF	OFF
CN136-2	OFF	OFF	OFF	ON/OFF
CN136-3 (GND)	OFF	OFF	OFF	OFF
CN136-4	OFF	ON	ON	OFF
CN136-5	ON	ON	OFF	OFF

6.11.9 PAPER HEIGHT DETECTION



The amount of paper in a tray is detected by the combination of on/off signals from two paper height sensors [A] and [B]. These sensors are switched on/off by an actuator that rises as the stack of paper becomes smaller. (The paper amount that remains in a tray is displayed on the LCD.)

When the paper stack becomes smaller, the bottom plate pressure lever [C] pushes an actuator up through the gaps in the paper height sensors. This activates and deactivates the paper height sensors.

Four on/off states are possible. These on/off combinations (shown in the table below) signal how much paper remains in a tray.

Paper Remaining	Paper Height Sensor 1 [A]	Paper Height Sensor 2 [B]
100%	OFF	OFF
70%	ON	OFF
30%	ON	ON
10%	OFF	ON

6.11.10 FEED PRESSURE ADJUSTMENT FOR PAPER SIZE

To ensure effective paper separation at the friction pad, the stack lift motor and bottom plate must maintain the correct, constant pressure of the top on the stack on the feed roller above.

- If the pressure is too high, this can cause double-feeding.
- If the pressure is too low, paper feed failure.

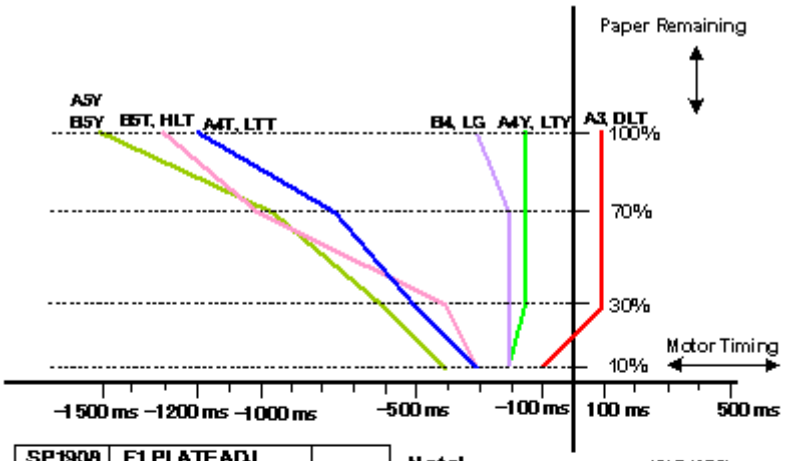
To prevent these problems, the machine takes into account the size of the paper in the tray and constantly monitors the amount of paper remaining in the tray. It uses this information to make slight adjustments by raising or lowering the bottom plate with the stack lift motor to maintain the correct pressure against the feed roller.

Several SP codes can be used to adjust feed pressure based on these variables:

- **Paper size**. The paper size detectors tell the machine the paper size loaded in the tray.
- **Amount of paper remaining in the tray**. The paper height sensors monitor the amount of paper remaining in the tray.

The pressure of the spring under the friction pad does not change and cannot be adjusted. However, downward pressure from weight of the stack on the bottom plate varies according to paper size and orientation (LEF or SEF). A stack of A3 size paper, for example, will weigh much more than a stack of A5.)

Paper Feed



SP1909	F1 PLATE ADJ.	
1	A3, DLT: 100%	+100
2	A3, DLT: 70%	+100
3	A3, DLT: 30%	+100
4	A3, DLT: 10%	-100
5	A4Y, LTT: 100%	-150
6	A4Y, LTT: 70%	-150
7	A4Y, LTT: 30%	-150
8	A4Y, LTT: 10%	-200
9	B4, LG: 100%	-300
10	B4, LG: 70%	-200
11	B4, LG: 30%	-200
12	B4, LG: 10%	-200
13	B5Y: 100%	-1500
14	B5Y: 70%	-900
15	B5Y: 30%	-600
16	B5Y: 10%	-400
17	A4T, LTT: 100%	-1200
18	A4T, LTT: 70%	-700
19	A4T, LTT: 30%	-500
20	A4T, LTT: 10%	-300
21	A5Y: 100%	-1500
22	A5Y: 70%	-900
23	A5Y: 30%	-600
24	A5Y: 10%	-400
25	B5T, HLT: 100%	-1300
26	B5T, HLT: 70%	-1000
27	B5T, HLT: 30%	-400
28	B5T, HLT: 10%	-300

Note!
T: SEF
Y: LEF

Look at the graph and table above.

A3, DLT

To keep the stack of this heavy paper at the correct pressure against the feed roller above:

- The machine runs the tray lift motor forward for 100 ms (+100 ms) to lift the tray at 100%, 70%, and 30% paper remaining to prevent a failure to feed.
- The machine runs the tray lift motor in reverse for 100 ms (-100 ms) to lower the tray at 10% remaining to compensate for the lower weight of the smaller amount of paper remaining. This prevents double-feeding.

B5T, HLT

To keep the stack of this light paper at the correct pressure against the feed roller above:

- The machine runs the tray lift motor in reverse for 1300 ms, 1000 ms, 400 ms, and 300

ms at 100%, 70%, 30% and 10% paper remaining.

- This lowers the pressure of the stack against the roller to prevent double-feeding.

The run time of the tray lift motor can be adjusted with SP codes for each paper size at each step of paper remaining. This can be done for every feed tray except the bypass tray.

Tray Name	Tray Location	SP Code
1st Tray	Upper Tray (Main Machine)	1908 F1 Plate Adj
2nd Tray	Lower Tray (Main Machine)	1909 F2 Plate Adj
3rd Tray	LCT or Upper Tray of Paper Feed Unit	1910 F3 Plate Adj
4th Tray	Lower Tray of Paper Feed Unit	1911 F4 Plate Adj

Each SP code has a total of 56 settings to adjust for:

- Paper size (A3, A4, A5, etc.)
- Four settings for the amount of paper remaining with each paper size (100%, 70%, 30%, 10%)

For more information about these SP codes, see Service Tables.

- If a particular paper size is consistently double-feeding, this means there is too much pressure between the feed roller and paper stack. Increasing the reverse run time of the tray lift motor (-300 to -500, for example) should reduce the pressure and solve the problem.
- If a particular paper size is consistently failing to feed, this means there is not enough pressure between the feed roller and paper stack. Increasing the forward run time of the tray lift motor (200 to 400, for example) should increase the pressure and solve the problem.

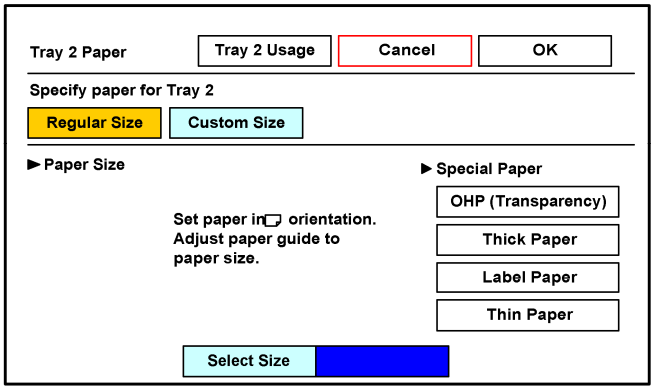
Another set of SP codes allow you to select more precise automatic detection of size by the tray paper size sensors. An alternate size can be selected for each paper tray. (See Paper Size Detection.)

6.11.11 SPECIAL PAPER SETTING

Only the 2nd tray can feed special paper such as thick paper or envelopes. The special paper type can be selected either by using the UP mode or with the following operation.

1. Touch the Tray 2 Icon on the operation panel, then press [#].

Paper Feed



d010d109

After selecting the special paper type, the fusing temperature and transfer roller current will be changed as follows.

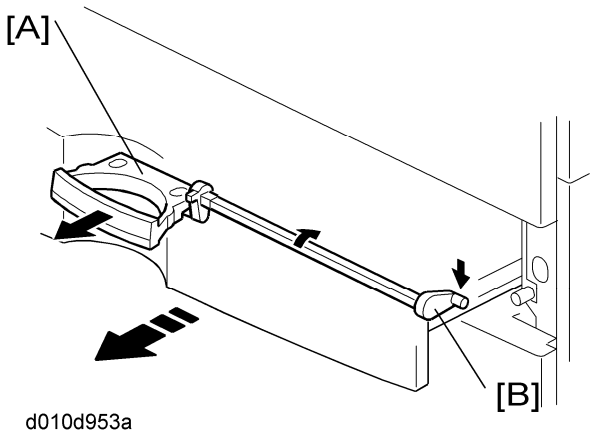
2. Fusing temperature (when thick paper is selected):
   - Current operation temperature + 15 °C
3. Transfer roller current:
   - A3 width (11”): 14muA
   - B4 width (10”): 15muA
   - A4 width (8.5”): 17muA
   - A5 width (5.5”): 20muA

Note that for the by-pass tray, the fusing and transfer conditions for special paper are also applied if the user uses thick (non-standard) mode.

6.11.12 TRAY LOCK MECHANISM

A lock mechanism in each tray prevents it from coming out accidentally when the machine is moved.

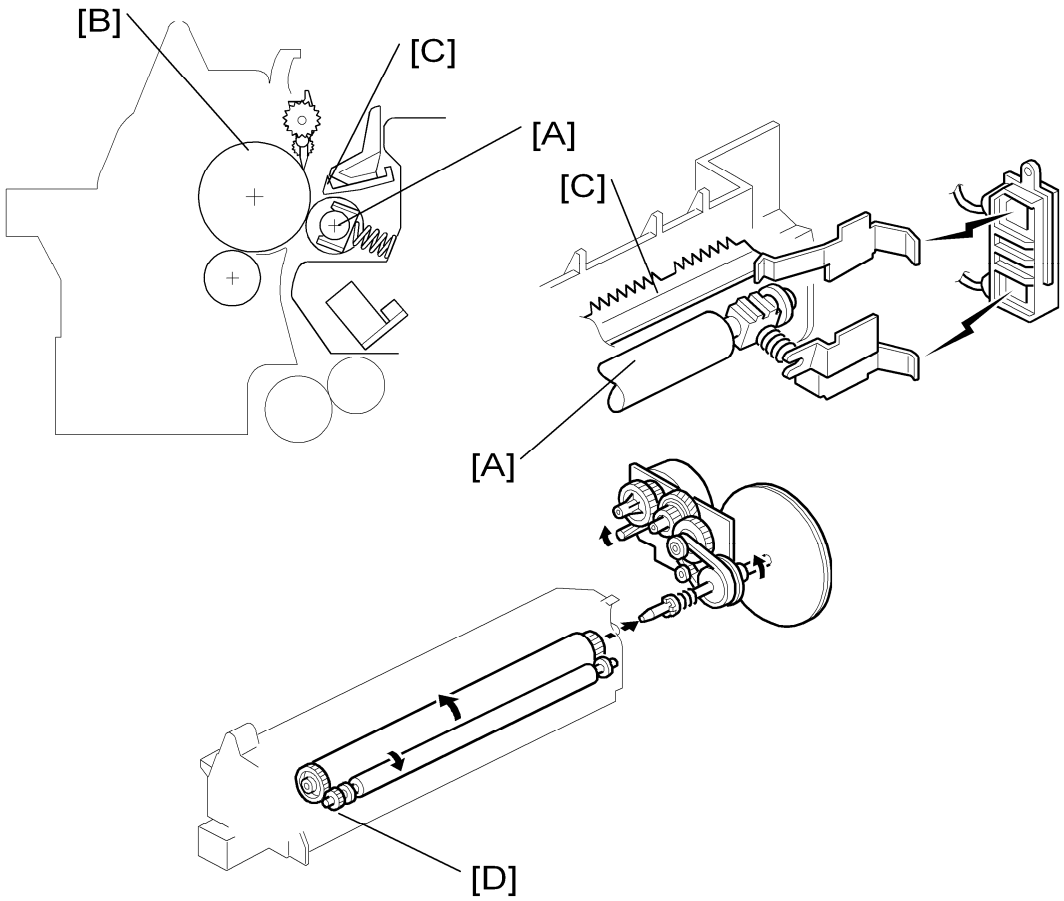
- Pulling on the sides of a tray will not open it. A tray can be opened only by pulling on its handle to release the tray for opening.
- Pulling the handle [A] lowers the lock lever [B] and releases the lock so the tray will open.



d010d953a

6.12 IMAGE TRANSFER AND PAPER SEPARATION

6.12.1 OVERVIEW



The machine uses a transfer roller [A], which touches the surface of the drum [B]. The high voltage supply board supplies a positive current to the transfer roller, which attracts the toner from the drum onto the paper. The current depends on the paper width, paper type, and paper feed tray.

The curvature of the drum and the discharge plate [C] help the paper to separate from the drum. The high voltage supply board also supplies a negative dc voltage to the discharge plate.

Drive from the drum through a gear [D] turns the transfer roller

6.12.2 IMAGE TRANSFER CURRENT TIMING

There are two transfer current levels: low transfer current level and high transfer current level. The image transfer procedure is as follows:

Image Transfer and Paper Separation

1. When the CPU receives the image writing start signal, the CPU instructs the high voltage supply board to supply +10μA (low transfer current level) to the roller. This prevents any positively charged toner on the drum surface from transferring to the transfer roller.
2. At a certain time after the low transfer current has been supplied to the roller, an appropriate current is applied to the roller to transfer the toner to the paper.
3. After the trailing edge of the paper has passed through the roller, transfer current turns off. In multiple copy mode, the transfer current shifts again to the low transfer current.

The transfer current (high transfer current level) depends on the paper feed station, paper width, and the temperature in the machine.

Example: Temperature = 15 °C to 24 °C

Paper Width	Paper Tray / By-pass Tray (Normal)	Duplex (2nd Side)	By-pass Tray (Thick) / 2nd Paper Tray (Special Paper)
A3/11" x 17", A4/8.5 x 11"sideways	14μA	10μA	14μA
B4	13μA	12μA	15μA
A4/11" x 8.5 lengthwise, A5/5.5 x 8.5 sidewise	13μA	16μA	17μA
A5/8.5 x 5.5 lengthwise and less	16μA	16μA	20μA

The transfer current can be adjusted using SP2301, except for the low transfer current. Be careful when increasing the transfer current. This might cause a ghosting effect, in which part of the image at the top of the page is repeated lower down the page at a lower density. It may also damage the OPC drum in the worst case.

6.12.3 TRANSFER ROLLER CLEANING

If the paper size is smaller than the image, or if a paper jam occurs during printing, toner may be transferred to the roller surface. To prevent the toner from transferring to the back side of the printouts, the transfer roller requires cleaning before the next printing run. During transfer roller cleaning, the high voltage supply unit supplies a negative cleaning

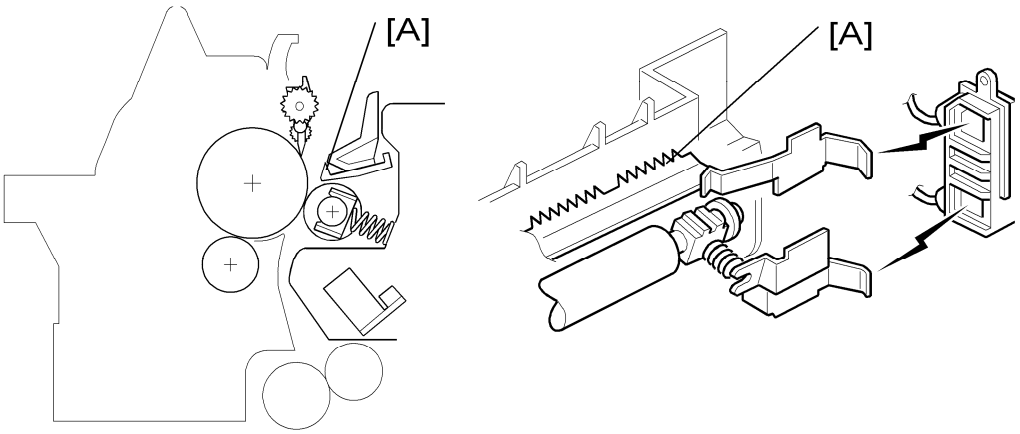
current (-4μA) to the transfer roller. Any negatively charged toner on the transfer roller is then transferred back to the drum. Then a positive cleaning current (+10μA) is applied to the transfer roller to push back to the drum any positively charged toner on the transfer roller.

The machine goes through the cleaning mode in the following conditions:

- Before starting the printing job (only if enabled with SP2-996; note that the default setting is off)
- Just after the power is switched on.
- After a copy jam has been cleared
- After 50 sheets have printed. If a job is in progress when the number of prints exceeds 50, the machine enters cleaning mode at the completion of the current job (the print job is not interrupted for cleaning).

The transfer roller cleaning current can be adjusted using SP2-301-4.

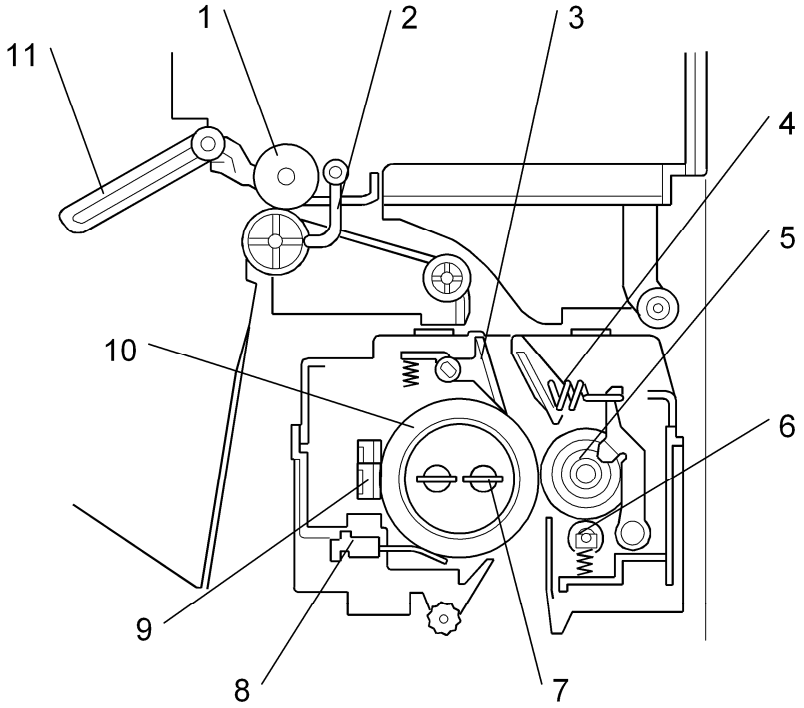
6.12.4 PAPER SEPARATION MECHANISM



The discharge plate [A] and the drum curvature of the drum help the paper to separate away from the drum. The high voltage supply board applies a constant dc voltage, -1.8 kV (when feeding from a paper tray) or –2.1 kV (from the duplex unit) to the discharge plate. The discharge plate voltage can be adjusted using SP2-901.

6.13 IMAGE FUSING AND PAPER EXIT

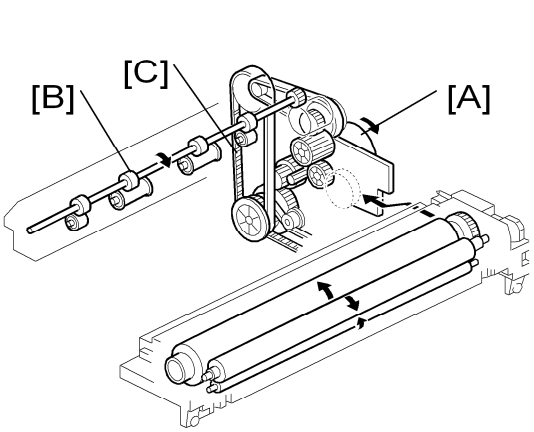
6.13.1 OVERVIEW



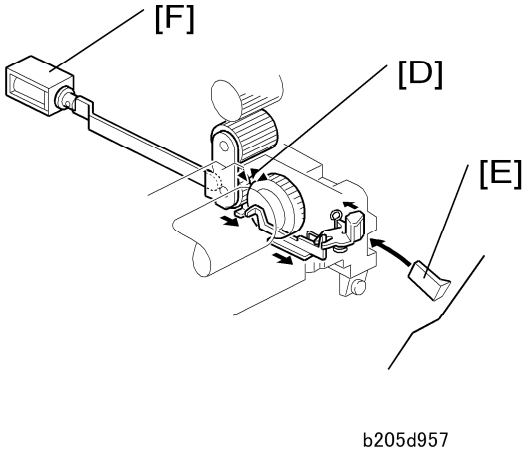
1.	Paper exit roller	7.	Two fusing lamps
2.	Fusing exit sensor	8.	Two thermistors
3.	Hot roller strippers	9.	Four thermostats
4.	Pressure spring	10.	Hot roller
5.	Pressure roller	11.	Paper overflow sensor
6.	Cleaning roller		

The pressure lever applies the correct pressure at the nip between the pressure roller and hot roller. When the lever is released, the pressure roller moves away from the hot roller. If a paper jam occurs in the fusing unit, releasing this lever makes jam removal easier.

6.13.2 FUSING DRIVE AND RELEASE MECHANISM



b205d956



b205d957

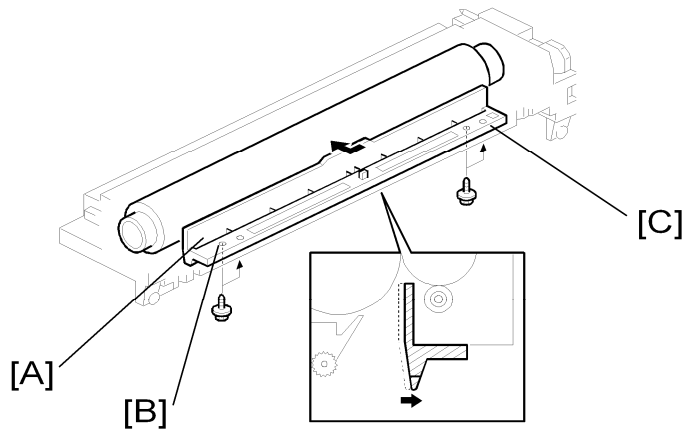
The main motor [A] drives the fusing unit through a gear train and drives the paper exit rollers [B] through a timing belt [C].

The fusing unit release mechanism automatically disengages the fusing unit drive gear [D] when the right cover [E] is opened. This allows the fusing unit drive gear to rotate freely so that misfed paper can easily be removed.

Also, the fusing drive is released by the fusing drive release solenoid [F]. To reduce the warming up time, the machine cuts the drive to the fusing unit during warming up. Just after the main switch is turned on, this solenoid is energized and the fusing unit drive gear [D] is disengaged.

However, the fusing unit drive is not released when the temperature is lower than 15 °C.

6.13.3 FUSING ENTRANCE GUIDE SHIFT MECHANISM

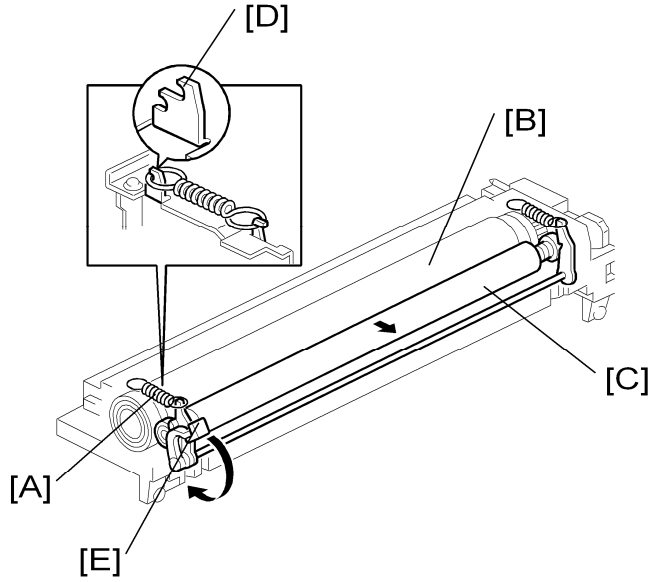


The entrance guide [A] is adjustable for paper thickness to prevent creasing. The left screw holes [B] on each side are used as the default setting.

Image Fusing and Paper Exit

If creasing occurs frequently in the fusing unit, adjust the entrance guide to the right, by securing it with the other holes [C]. This allows more direct access to the gap between the hot roller and the pressure roller.

6.13.4 PRESSURE ROLLER

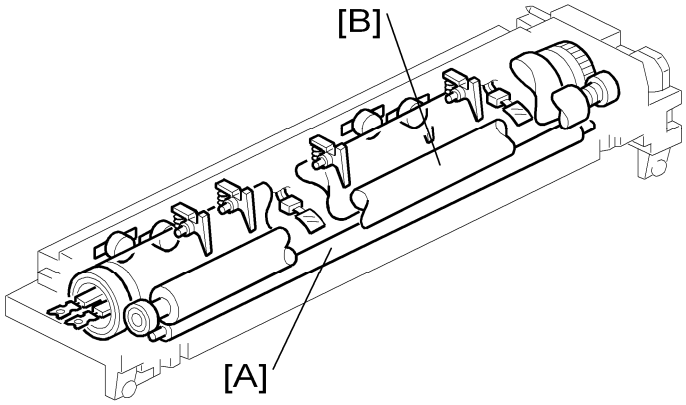


The pressure springs [A] constantly apply pressure between the hot roller [B] and the pressure roller [C].

Applied pressure can be changed by adjusting the position of the pressure springs. The spring is positioned at the top [D] as the default setting.

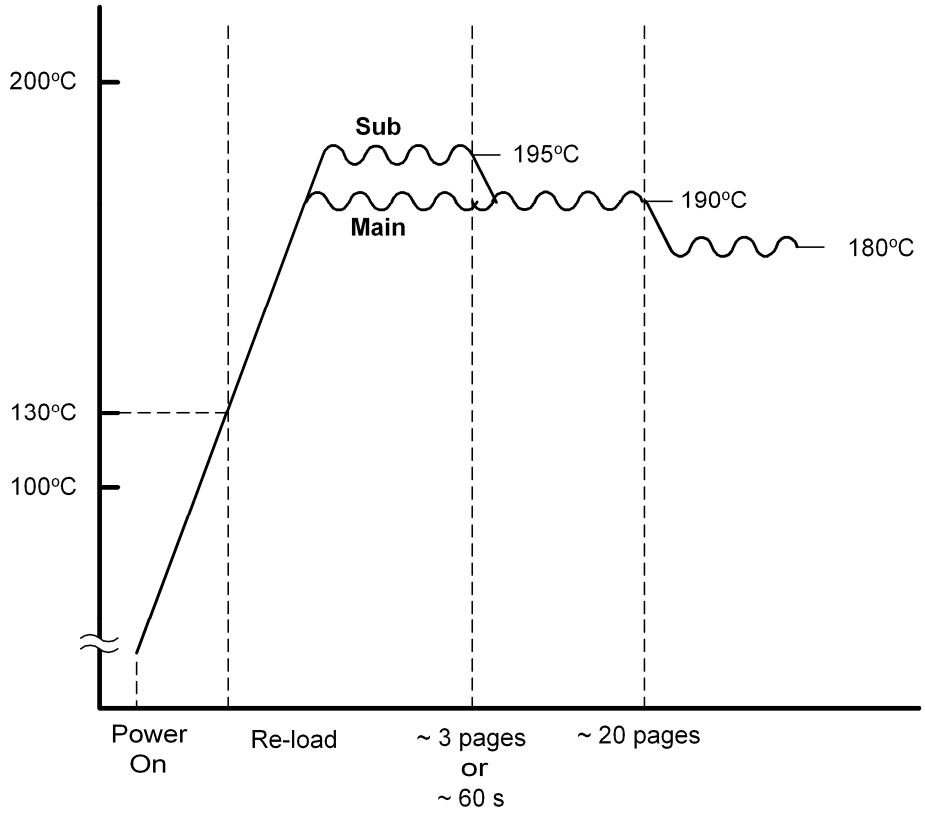
The user moves lever [E] when using thicker copy paper or envelopes, to reduce the pressure between the hot and pressure rollers.

6.13.5 CLEANING MECHANISM



The cleaning roller [A] is always in contact with the pressure roller [B]. It collects toner and paper dust adhered to the surface of the pressure roller.

6.13.6 FUSING TEMPERATURE CONTROL



Temperature Control

Just after the main power switch is turned on, the CPU turns on the fusing lamp to obtain a fusing temperature of 190 °C (Main fusing lamp), 195 °C (Sub fusing lamp) for the first 60s, or for the first three consecutive pages of printing, whichever comes first. After that, the machine keeps the fusing temperature at 190 °C for the first 20 consecutive pages of printing. Then the fusing temperature is kept at 180 °C.

The three-page and 60-second limits can be adjusted with SP1-105-8 and -9.

Note that the fusing temperature is higher if the user uses special paper in the 2nd tray or thick paper mode from the bypass tray.

Fusing Lamp Control

When the fusing lamp power turns off and on, this causes fluorescent lights in the room to flicker. To reduce the flickering, use the following SP modes.

Fusing temperature detection cycle (SP mode 1-108)

The CPU checks the output from the fusing thermistor once a second (default setting). The CPU compares the current and previous temperatures. Based on the result, it then decides how long the fusing lamp power should be on during the next one-second interval (also, if the current temperature is too high, the power will not be needed).

Image Fusing and Paper Exit

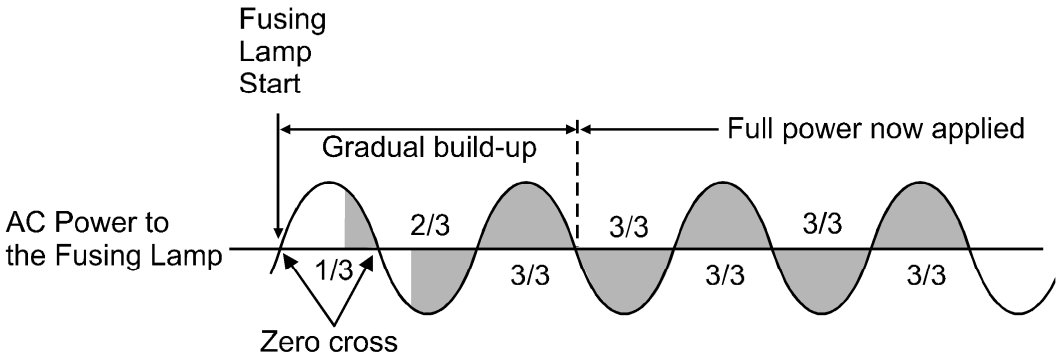
Starting and stopping the fusing lamp power every second causes fluorescent lighting in the room to flicker. To reduce this flickering, use SP1-108 to change the cycle from 1 second to 2 seconds.

Fusing soft-start

In addition, whenever the fusing lamp power switches on, full power is applied to the fusing lamp gradually, not all at once. This prevents the power in the room from dropping suddenly. This feature is known as “Soft Start”. The machine does this by gradually allowing more power to the fusing lamp over a number of zero-cross cycles of the ac supply. The diagram below shows full power being applied gradually over the duration of 3 zero-cross cycles. Soft start occurs every time the fusing lamp power switches on (i.e., at some time during every second), not just at the start of the print job.

Note

- This feature is effective to counter flickering lights. However, generated noise increases if the setting is changed from the default. If a radio or a TV is close by the machine, the noise may have some effect on the image or sound.



6.13.7 OVERHEAT PROTECTION

If the hot roller temperature becomes higher than 231 °C, the CPU cuts off the power to the fusing lamp. At the same time, SC543 is generated.

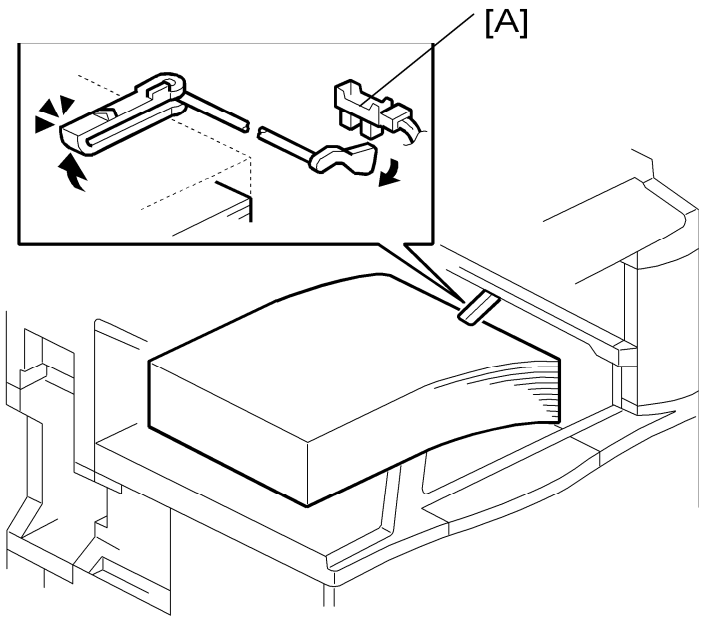
Even if the thermistor overheat protection fails, there are four thermostats in series with the common ground line of the fusing lamp. If the temperature of the thermostat reaches 210 °C, one of the thermostats opens, removing power from the fusing lamp. At the same time, SC542 is generated and the machine stops operating.

In addition to these protection devices, there is a backup temperature control circuit on the SBCU. If the thermistor protection fails, or if a short circuit occurs on the PSU board.

If the temperature exceeds 250 °C:

- This backup temperature control circuit switches off the fusing lamps
- The machine issues SC544.

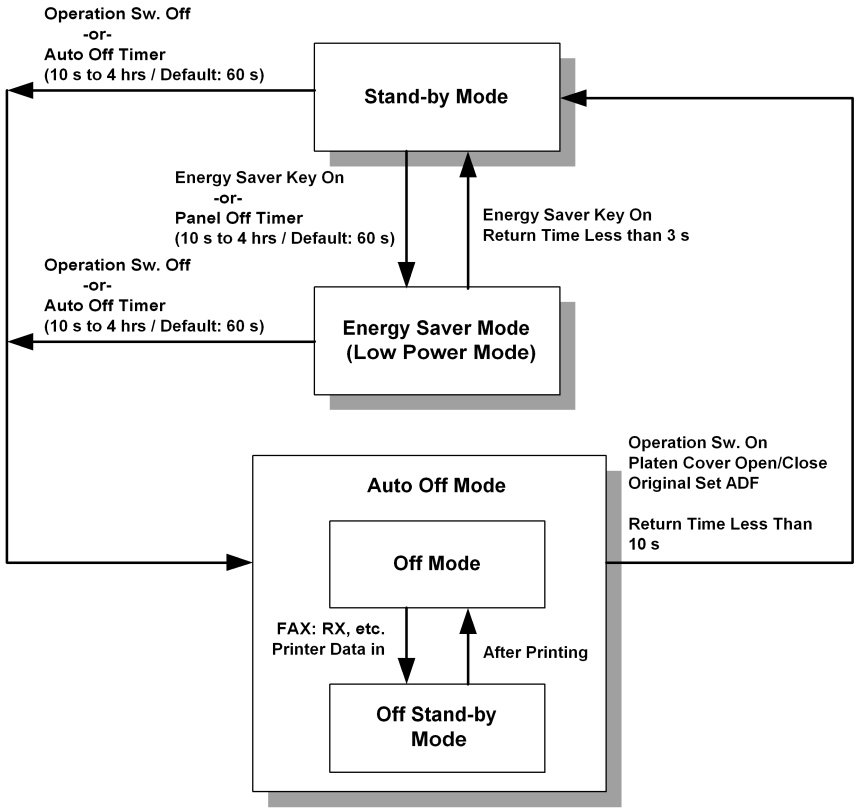
6.13.8 PAPER EXIT



The paper overflow detection sensor [A] is located at the paper exit section of the fusing unit. When this sensor is activated, the machine detects that the paper stack height exceeded a certain limit and stops printing.

6.14 ENERGY SAVER MODES

6.14.1 OVERVIEW



When the machine is not being used, the energy saver function reduces power consumption by decreasing the fusing temperature.

This machine has two types of energy saver mode as follows.

- Energy saver mode
- Auto Off mode

These modes are controlled by the following UP and SP modes.

- Panel off timer (energy saver mode timer): User Tools> System Settings> Timer Setting> Panel Off Timer
- Auto off timer: User Tools> System Settings> Timer Setting> Auto Off Timer

6.14.2 ENERGY SAVER MODE

Entering the energy saver mode

The operation manual uses the term ‘panel off mode’ for the timer.

The machine enters energy saver mode when one of the following is done.

- The panel off timer runs out
- The Clear Mode/Energy Saver Key is held down for one second

Note that the default setting of the panel off timer is 60 s, which is the same as the auto off timer. In this condition, if the machine is not touched for 60 s, it will go straight to auto off mode. If the user wants an energy saver mode and an auto off mode, the panel off timer must be set to a shorter value than the auto off timer.

What happens in energy saver mode

When the machine enters energy saver mode, the fusing lamp drops to a certain temperature, and the operation panel indicators are turned off except for the Energy Saver LED and the Power LED.

If the CPU receives an image print out command from an application (e. g. to print incoming fax data or to print data from a PC), the fusing temperature rises to print the data.

Return to stand-by mode

If one of the following is done, the machine returns to stand-by mode:

- The Clear Mode/Energy Saver Mode key is pressed
- Any key on the operation panel or touch panel screen is pressed
- An original is placed in the ADF
- The ADF is lifted
- A sheet of paper is placed in the by-pass feed table

The recovery time from energy saver mode is about 3 s.

Mode	Operation Switch	Energy Saver LED	Fusing Temp.	+24V	System +5V
Energy Saver	On	On	150 °C	On	On

6.14.3 AUTO OFF MODE

There are two Auto Off modes: Off Stand-by mode and Off mode. The difference between Off Stand-by mode and Off mode is the machine's condition when it enters Auto Off mode.

Note

- The machine will not enter the Auto Off mode for at least 90 seconds. after the machine is turned on when applications other than Copy (printer/scanner, printer, etc.) are installed.

Energy Saver Modes

Entering off stand-by and off modes

The machine enters the Off Stand-by mode or Off mode when:

- The auto off timer runs out
- The operation switch is pressed to turn the power off

If one or more of the following conditions exists, the machine enters Off Stand-by mode. If none of these conditions exist, the machine enters Off Mode.

- Error or SC condition
- An optional G4 unit is installed
- Image data is stored in the memory
- During memory TX or polling RX
- The handset is off hook
- An original is in the ADF
- The ADF is open

Off Stand-by mode

The system +5V is still supplied to all components. When the machine detects a ringing signal or receives a stream of data for a print job, the +24V supply is activated and the machine automatically prints the incoming message or executes the print job.

Off Mode

The system +5V supply also turns off. However, +5VE (+5V for energy saver mode) is still activated. When the machine detects a ringing signal, off-hook signal, or receives a print job, the machine returns to the Off Stand-by mode and the system +5V and +24V supplies are activated.

Returning to stand-by mode

The machine returns to stand-by mode when the operation switch is pressed. The recovery time is about 10 s.

Mode	Operation Switch	Energy Saver Mode	Fusing Lamp	+24V	System +5V	Note
Off Stand-by	Off	Off	Off (On when printing)	On	On	
Off	Off	Off	Off	Off	Off	+5VE is supplied

SPECIFICATIONS

SPECIFICATIONS REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
7	08/27/2009	Specifications – LCT (B391) Corrected Paper Weight

7. SPECIFICATIONS

7.1 SPECIFICATIONS

7.1.1 MAIN MACHINE

Configuration:	Desktop
Copy Process:	Dry electrostatic transfer system
Originals:	Sheet, Book
Original Size:	Platen/ARDF: Max. A3/11" x 17"
Copy Paper Size	Tray 1: A5 to A3,/DLT, Custom Tray 2: A6 SEF to A3, DLT, Postcard, Custom Bypass: A6 SEF to A3/DLT, Postcard, Custom
Custom Sizes (W x L)	Tray 1: 140 to 297 mm x 180 to 432 mm (5.5” to 11.75” x 7” to 17”) Tray 2: 100 to 297 mm x 148 to 432 mm (4” to 11.75” x 5.75” to 17”) Bypass: 90 to 305 mm x 148 to 1260 mm (35” to 12” x 5.75” to 50”)
Duplexing	A5/HLT to A3/DLT
Paper Weight	Tray 1: 60 to 105 g/m^2, (14 ~ 28 lb.) Tray 2: 52 to 107 g/m^2, (14 ~ 28 lb.) Bypass: 52 to 157 g/m^2, (14 ~ 42 lb.) Duplex: 60 to 105 g/m^2, (14 ~ 28 lb.)
Copy Speed	D018: 25 cpm (A4 LEF/Letter LEF) D019: 33 cpm (A4 LEF/Letter LEF)
Resolution	600 dpi
Gradation	Read: 256-level (1-dot) Write: 2/3-level (1-dot)
1st Copy Print Time	4.5 sec. (A4/LT LEF, Tray 1)

Specifications

Warm-up Time	Basic: Less than 12 sec. Operation Key: Less than 10 sec. LCD on: Less than 3 sec. Standby: Less than 6 sec. Scan Start: Less than 6 sec.	
Continuous Copies	001 to 999 Sheets	
Zoom	Platen Mode: 25% to 400% ARDF Mode: 25% to 200%	
Paper Supply	Tray 1, 2: 500 Sheets Bypass: 100 Sheets	
Output Capacity	A4, smaller: 500 Sheets face-down B4, larger: 250 Sheets face-down	
Power Source	NA: 120V 60 Hz EU: 220 to 240V 50/60 Hz (Asia, China) Taiwan: 110V 60 Hz	
Power Consumption	Full System (Operating)	Less than 1.4 KW
	Off Mode	Less than 1.65 W
	Sleep Mode	Less than 6 W (NA Less than 6.5 W (EU)

Dimensions (w x d x h)		
Standard	No PTU	570 x 653 x 709 mm (22.4 x 25.7 x 30 in.)
	With PTU	570 x 653 x 980 mm (22.4 x 25.7 x 38.6 in.)
Duplexer	With Duplexer (No PTU)	630 x 653 x 709 mm (24.8 x 25.7 x 30 in.)
	With Duplexer (With PTU)	630 x 653 x 980 mm (24.8 x 25.7 x 38.6 in.)

Maximum (w x d)	With Side Finisher, Bypass	858 x 653 mm (33.8 x 25.7 in.)
Full System	All Options	1165 x 653 x 1100 mm (48.9 x 25.7 x 43.3 in.)

Weight	No Duplexer	Less than 60 kg (132 lb)
	With Duplexer	Less than 65 kg (143 lb)

Noise Emission (Sound Power Level):	
Stand-by (Mainframe only):	40 db
Operating (Mainframe only):	64.8 db (D017/D019) 67.6 db (D018/D020)

Note

- The above measurements were made in accordance with ISO 7779.
- Full System: Mainframe + ADF + 1-bin Sorter + Paper Tray Unit + Duplex Unit + Bridge Unit + Finisher

7.1.2 OPTIONS

ARDF (D366)

Paper Size/Weight:	Simplex	Size	A3 to A5, DLT to HLT
		Weight	40 to 128 g/m^2 (10 to 34 lb)
	Duplex	Size	A3 to A5, DLT to HLT
		Weight	52 to 105 g/m^2 (14 to 28 lb)
Table Capacity:	50 sheets (80 g/m^2, 20 lb)		
Original Standard Position:	Rear left corner		
Separation:	Feed belt and separation roller		

Specifications

Original Transport:	Roller transport		
Original Feed Order:	From the top original		
Supported Magnification Ratios:	Copy	-	32 to 200 %
	Fax	Color	32.6 to 200 %
		Black & white	48.9 to 200 %
Power Source:	DC 24V, 5V from the scanner unit		
Power Consumption:	50 W or less		
Dimensions (W × D × H) :	550 mm x 491 mm x 120 mm (21.7" x 19.3" x 4.7")		
Weight:	10 kg (22 lb)		

Duplex Unit (D369)

Paper Size:	Standard sizes: A5 LEF to A3, HLT to DLT Non-standard sizes: Width: 140 to 297 mm, Length: 182 to 432 mm
Paper Weight:	64 g/m^2 to 105 g/m^2 (20 lb to 28 lb)
Tray Capacity:	1 sheet
Power Consumption:	40 W
Power Source:	DC 24 V, 5 V
Weight:	7 kg
Size (W x D x H):	160 x 490 x 570 mm

Bypass Feed Unit (D370)

Paper Size:	Standard sizes:

	A6 LEF to A3, HLT lengthwise to DLT Non-standard sizes: Width: 90 to 305 mm, Length: 148 to 432 mm
Paper Weight:	52 g/m^2 to 157 g/m^2 (16 lb to 42 lb)
Tray Capacity:	50 sheets (80 g/m2, 20 lb)
Paper Feed System:	Friction Pad Paper Feed
Power Source:	DC 24 V, 5 V
Weight:	3 kg
Size (W x D x H):	430 x 110 x 240 mm

Interchange Unit (D371)

Paper Size:	Standard sizes: A6 LEF to A3, HLT to DLT Non-standard sizes: Width: 100 to 305 mm, Length: 148 to 432 mm
Paper Weight:	52 g/m^2 to 135 g/m^2 (16 lb to 36 lb)
Power Consumption:	15 W
Weight:	1.6 kg
Size (W x D x H):	117 x 447 x 92 mm (4.6" x 17.6" x 3.6")

1-Bin Tray (D367)

Paper Size:	A5 LEF to A3, HLT to DLT
Paper Weight:	60 g/m^2 to 105 g/m^2 (16 lb to 28 lb)
Tray Capacity:	125 sheets (80 g/m^2, 20 lb)

Specifications

Power Source:	DC 5 V, 24 V (from copier)
Power Consumption:	15 W
Weight:	4 kg
Size (W x D x H):	470 mm x 550 mm x 110 mm

Bridge Unit (D368)

Paper Size:	Standard sizes: A6 LEF to A3, HLT to DLT Non-standard sizes: Width: 100 to 305 mm, Length: 148 to 432 mm
Paper Weight:	52 g/m^2 to 135 g/m^2 (16 lb to 42 lb)
Power Source:	DC 24 V, 5 V (form copier)
Dimensions (W x D x H):	413 x 435 x 126 mm
Weight	3.0 kg (6.6 lbs)

Shift Tray Unit (D385)

Paper Size:	Standard Size: A5 LEF to A3, HLT LEF to DLT Non-standard Size: Width: 90 to 297 mm, Length: 148 to 432 mm
Paper Weight:	60 to 105 g/m^2 (16 to 28 lbs.)
Tray Capacity:	125 sheets (80 g/m^2, 20 lbs.): B4 or larger 250 sheets (80 g/m^2, 20 lbs.): A4 or smaller
Power Source:	DC 5 V, 24 V (from copier)
Power Consumption:	17 W

Weight:	1.1 kg
Size (W x D x H):	530 mm x 410 mm x 120 mm

Paper Tray Unit (D331)

Paper Size:	A5 to A3, $5^1/_2$" x $8^1/_2$" SEF to 11" x 17"	
Paper Weight:	60 – 105 g/m^2, 16 – 28 lb	
Tray Capacity:	500 sheets (80 g/m^2, 20 lb) x 2 trays	
Paper Feed System:	Feed roller and friction pad	
Paper Height Detection:	4 steps (100%, 70%, 30%, Near end)	
Power Source:	▪ 24 Vdc and 5Vdc (from the copier/printer): ▪ 120 Vac (120 V version) from the copier/printer when the optional tray heater is installed ▪ 220 – 240 Vac (230 V version) from the copier/printer when the optional tray heater is installed	
Power Consumption:	Max:	28 W (Copying/printing) 23 W (Optional Tray Heater On)
	Average:	17 W (Copying/printing) 15 W (Optional Tray Heater On)
Weight:	25 kg (55 lb)	
Size (W x D x H):	550 mm x 520 mm x 271 mm	

LCT (B391)

Paper Size:	A4 LEF/LT LEF
⇒ Paper Weight:	60 g/m^2 to 105 g/m^2, 16 lb to 28 lb
Tray Capacity:	2,000 sheets (80 g/m^2, 20lb.)

Specifications

Remaining Paper Detection:	5 steps (100%, 70%, 30%, 10%, Empty): Right Tray 4 steps (100%, 70%, 30%, Empty): Left Tray
Power Source:	DC 24 V, 5 V (from copier/printer)
Power Consumption:	50 W (Max.)/30 W (Ave.)
Weight:	25 kg (55 lb)
Size (W x D x H):	580 mm x 620 mm x 260 mm (22.8" x 24.4" x 10.2")

500-Sheet Finisher (D372)

Target Line Speed	77 mm/sec. to 205 mm/sec		
Target CPM	35 cpm		
Face-down Output Size	12"x18", A3 SEF to A6 SEF, DLT to HLT SEF Shift sizes: A3 SEF to B5 SEF A5, B6, A6 SEF labels possible		
Paper Thickness	52 g/m^2 (45 K) to 157 g/m^2 (135 K) Up to 253 g/m^2 (220K) without shift		
Stapling			
Stack Height for Stapling	50 sheets: A4, LT and smaller 30 sheets: B4, LG and larger		
Size	A3 SEF to B5 SEF (can be mixed if same width)		
Stack Thickness	64g/m^2 (45 K) to 157 g/m (135 K)		
Stapling Positions	Front/Oblique: 1, Front/Parallel: 1 Rear/Oblique: 1, Rear/Parallel: 1, 2 locations		
Output Tray Capacity			
Non-staple Mode	500 sheets: A4, LT and smaller		
Staple Mode	250 sheets: B4,	Stacks	Size

		LG and larger Stack Size (Stapling)		
	2 to 9 Sheets		55 to 46	A4, B5, LT LEF
	10 to 50 Sheets		45 to 10	
	2 to 9 Sheets		55 to 27	A4, B5, LT SEF
	10 to 50 Sheets		25 to 8	
	2 to 9 Sheets		55 to 27	A3, B4, DLT, LG
	10 to 30 Sheets		25 to 8	
Stacking		Non-Stapling Mode	Vertical: 15 mm or less	
			Horizontal: 15 mm or less	
Jogging Precision				
2 to 30 Sheets		2 mm		
31 to 50 Sheets		3 mm		
Dimensions (w x d x h)		396 x 551 x 276 mm (15.6 x 21.7 x 10.9 in.)		
Weight		12 kg (26.4 lb)		

Specifications

1000-Sheet Finisher (B408)

Upper Tray

Paper Size:	A3 to A6 11" x 17" to 5.5" x 8.5"
Paper Weight:	60 to 157 g/m^2 (16 to 42 lb)
Paper Capacity:	250 sheets (A4 LEF/8.5" x 11" SEF or smaller) 50 sheets (A4, 8.5" x 11" or smaller) 30 sheets (B4, 8.5" x 14" or larger)

Lower Tray

<table>
<tr><td>Paper Size:</td><td colspan="4">No staple mode:
A3 to B5, DLT to HLT
Staple mode:
A3, B4, A4, B5, DLT to LT</td></tr>
<tr><td>Paper Weight:</td><td colspan="4">No staple mode: 60 to 157 g/m^2 (16 to 42 lb)
Staple mode: 64 to 90 g/m^2 (17 to 24 lb)</td></tr>
<tr><td>Stapler Capacity:</td><td colspan="4">30 sheets (A3, B4, DLT, LG)
50 sheets (A4, B5 LEF, LT)</td></tr>
<tr><td rowspan="5">Paper Capacity:</td><td colspan="4">No staple mode:
1,000 sheets (A4/LT or smaller: 80 g/m^2, 20 lb)
500 sheets (A3, B4, DLT, LG: 80 g/m^2, 20 lb)
Staple mode: (80 g/m^2, 20 lb, number of sets)</td></tr>
<tr><td>Set Size</td><td rowspan="2">2 to 9</td><td>10 to 50</td><td>-</td></tr>
<tr><td>Size</td><td>10 to 30</td><td>31 to 50</td></tr>
<tr><td>A4/LT LEF
B5 LEF</td><td>100</td><td>100 to 20</td><td>100 to 20</td></tr>
<tr><td>A4/LT SEF</td><td>100</td><td>50 to 10</td><td>50 to 10</td></tr>
</table>

	A3, B4, DLT, LG	50	50 to 10	-
Staple positions:	1 Staple: 2 positions (Front, Rear) 2 Staples: 2 positions (Upper, Left)			
Staple Replenishment:	Cartridge (5,000 staples/cartridge)			
Power Source:	DC 24 V, 5 V (from the copier/printer)			
Power Consumption:	50 W			
Weight:	25 kg (55.2 lbs)			
Dimensions (W x D x H):	527 x 520 x 790 mm (20.8" x 20.5" x 31.1")			

1000-Sheet Finisher (B793)

Print Paper Size:	No punch mode: A3/11" x 17" to A5/8.5" x 5.5" (LEF) Punch mode: 2 holes: A3/11" x 17" to B6/5.5" x 8.5" (SEF) or A4/8.5" x 11" to A5/8.5" x 5.5" (LEF) 3 holes: A3, B4, 11" x 17" (SEF) or A4, B5, 8.5" x 11" (LEF) 4 holes (Europe): A3, B4, 11" x 17" (SEF) or A4, B5, 8.5" x 11" (LEF) 4 holes (North Europe): A3/11" x 17" to B6/5.5" x 8.5" (SEF) Staple mode: A3/11" x 17" to B5/8.5" x 11"
Paper Weight:	No punch mode: 52 to 256 g/m^2 (14 to 68 lb) (Shift tray) 52 to 105 g/m^2 (14 to 28 lb) (Proof tray) Punch mode: 52 to 163 g/m^2 (14 to 43 lb) Staple mode: 64 to 90 g/m^2 (17 to 24 lb)

Specifications

	Label/Thick paper/OHP cannot be stapled	
Tray Capacity:	[Proof tray] 100 sheets: A4, 8.5" x 11" or less 50 sheets: B4, 8.5" x 14" or more [Shift tray] 1000 sheets: A4, 8.5" x 11" (LEF) or smaller 500 sheets: B4, 8.5" x 14" or larger	
Staple capacity:	Single size: 50 sheets: A4, 8.5" x 11" or smaller 30 sheets: B4, 8.5" x 14" or larger	
Staple position:	3 positions 1-staple: 2 positions (Top Left, Top Right) 2-staples: 1 positions	
Staple replenishment:	Cartridge (5000 staples)	
Power consumption:	60 W	
Dimensions (W x D x H):	535 mm x 600 mm x 930 mm (21.1" x 23.6" x 36.6")	
Weight	Without punch unit:	48 kg (105.8 lb)
	With punch unit:	50 Kg (110.3 lb)

LARGE CAPACITY TRAY PS500

B391

LARGE CAPACITY TRAY PS500 REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

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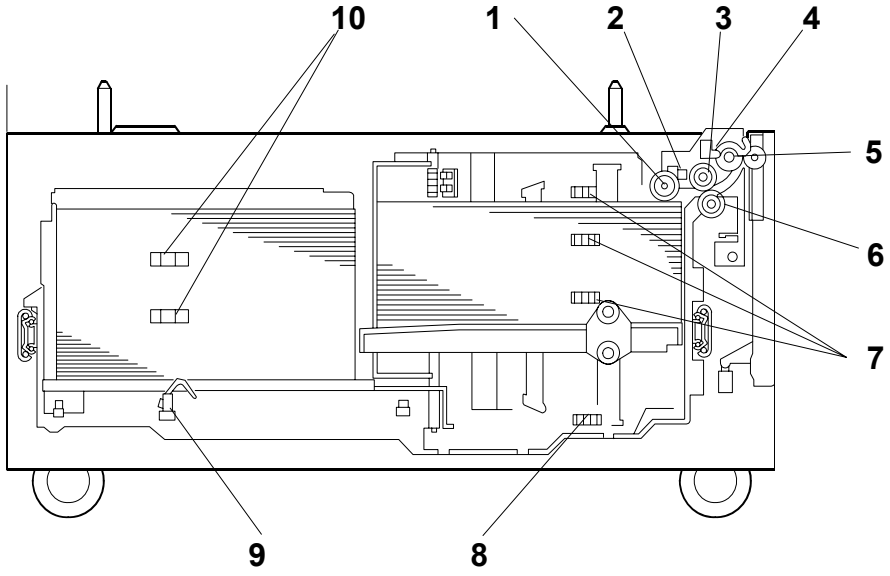
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1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

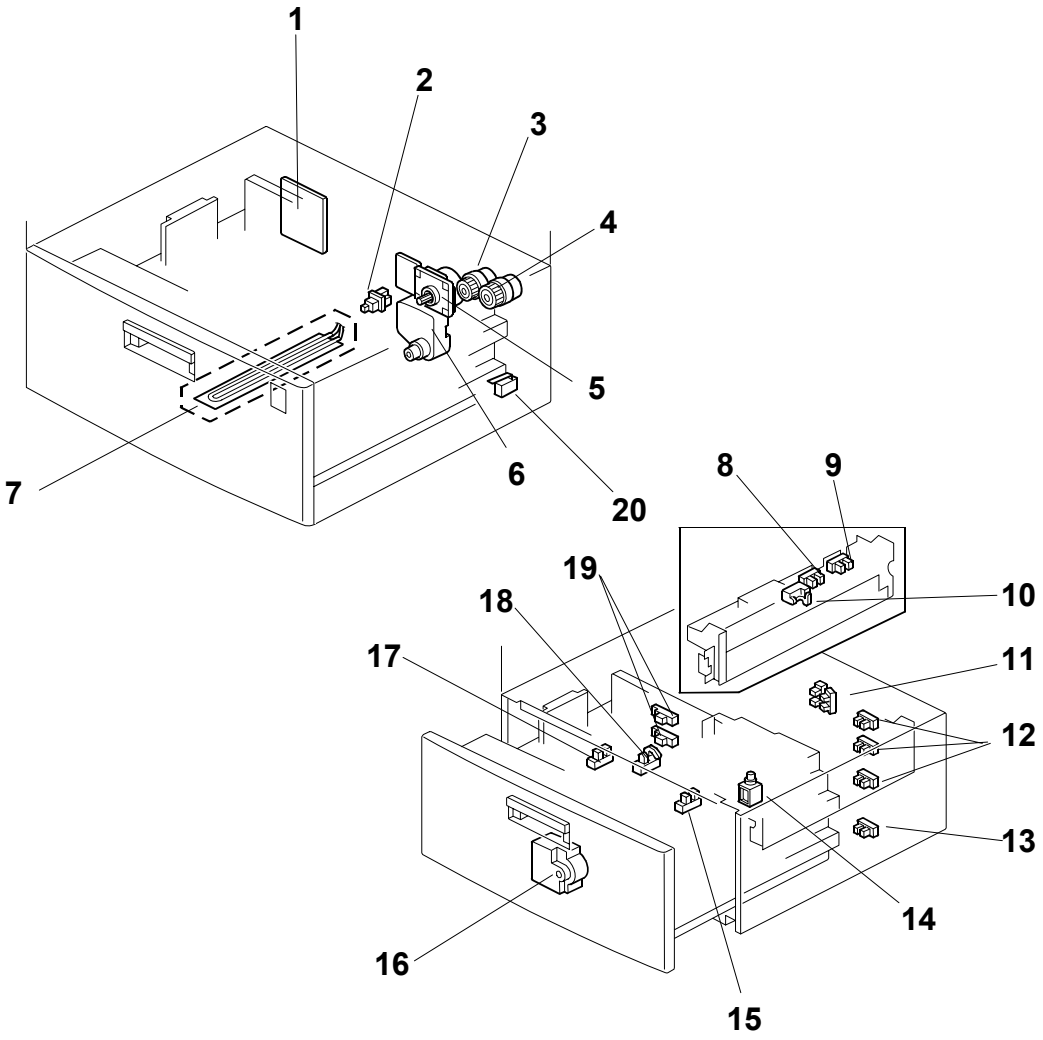
Paper Size:	A4 sideways/LT sideways
Paper Weight:	60 g/m^2 ~ 105 g/m^2, 16 lb ~ 28 lb
Tray Capacity:	2,000 sheets (80 g/m^2, 20lb)
Remaining Paper Detection:	5 steps (100%, 75%, 50%, 25%, Near end)
Power Source:	24 Vdc, 5 Vdc (from copier/printer)
Power Consumption:	26 W (Max.)/14 W (Ave.)
Weight:	25 kg (55 lbs)
Size (W x D x H):	550 mm x 520 mm x 271 mm

1.2 MECHANICAL COMPONENT LAYOUT



1. Pick-up Roller
2. Upper Limit Sensor
3. Paper Feed Roller
4. Relay Sensor
5. Relay Roller
6. Reverse Roller
7. Paper Height Sensors 1, 2, 3
8. Lower Limit Sensor
9. Left Paper End Sensor
10. Paper Height Sensors 4,5

1.3 ELECTRICAL COMPONENT LAYOUT



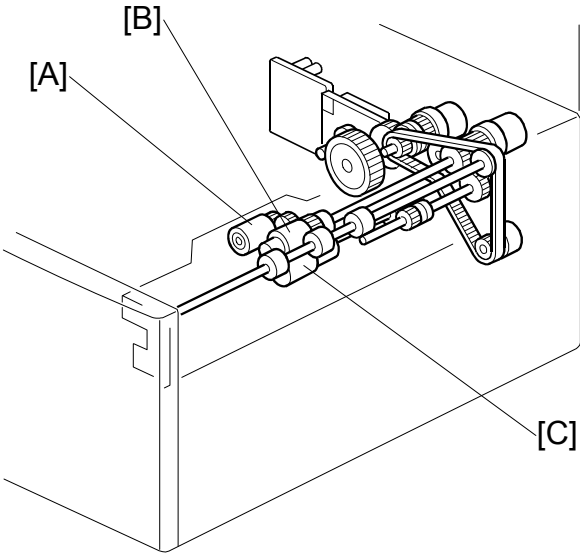
1. Main Board
2. Tray Sensor (Switch)
3. Relay Clutch
4. Paper Feed Clutch
5. Tray Motor
6. Tray Lift Motor
7. Tray Heater (option)
8. Right Tray Paper End Sensor
9. Upper Limit Sensor
10. Relay Sensor
11. Side Fence Open/Closed Sensors
12. Paper Height Sensors 1, 2, 3
13. Lower Limit Sensor
14. Side Fence Solenoid
15. Rear Fence Return Sensor
16. Rear Fence Motor
17. Rear Fence Home Position Sensor
18. Left Tray Paper End Sensor
19. Paper Height Sensors 4, 5
20. Right Cover Switch

1.4 ELECTRICAL COMPONENT DESCRIPTIONS

Symbol	Name	Function	Index No.
Motors			
M1	Tray Motor	Drives all rollers.	5
M2	Tray Lift Motor	Drives the paper tray up or down.	6
M3	Rear Fence Motor	Moves the rear fence to transfer the paper stack from the paper storage (left) side of the tray to the paper feed (right) side.	16
Sensors			
S1	Right Tray Paper End	Informs the copier/printer when the paper in the right side (paper feed side) of the tray has been used up. If there is a paper stack in the left side (paper storage side), this is moved into the right tray. If there is no paper stack in the left side, paper end is indicated.	8
S2	Relay	Detects the copy paper coming to the relay roller and checks for misfeeds.	10
S3	Upper Limit	Detects when the paper is at the correct paper feed height.	9
S4	Lower Limit	Detects when the tray is completely lowered, to stop the LCT motor.	13
S5	Paper Height 1, 2, 3	Detects the amount of paper remaining in the right side of the tray.	12
S6	Paper Height 4, 5	Detects the amount of paper remaining in the left side of the tray.	19
S7	Rear Fence Home Position	Detects when the rear fence is at H.P.	17
S8	Tray (Switch)	Detects whether the tray is correctly set.	2
S9	Side Fence Open/Closed	Detects whether the side fence is opened on closed.	11
S10	Rear Fence Return	Detects when the rear fence has moved the paper stack from the left side to the right side.	15
S11	Left Tray Paper End	Informs the copier/printer when there is no paper in the left side (paper storage side) of the tray.	18
Solenoids			
SOL1	Side Fence	Controls open-close movement of the side fence.	14
Magnetic Clutches			
MC1	Paper Feed	Drives the paper feed roller.	4
MC2	Relay	Drives the relay roller.	3
PCBs			
PCB1	Main	Controls the LCT and communicates with the copier/printer.	1
Switches			
SW1	Right Cover	Detects whether the right cover is open.	20

2. DETAILED SECTION DESCRIPTIONS

2.1 PAPER FEED

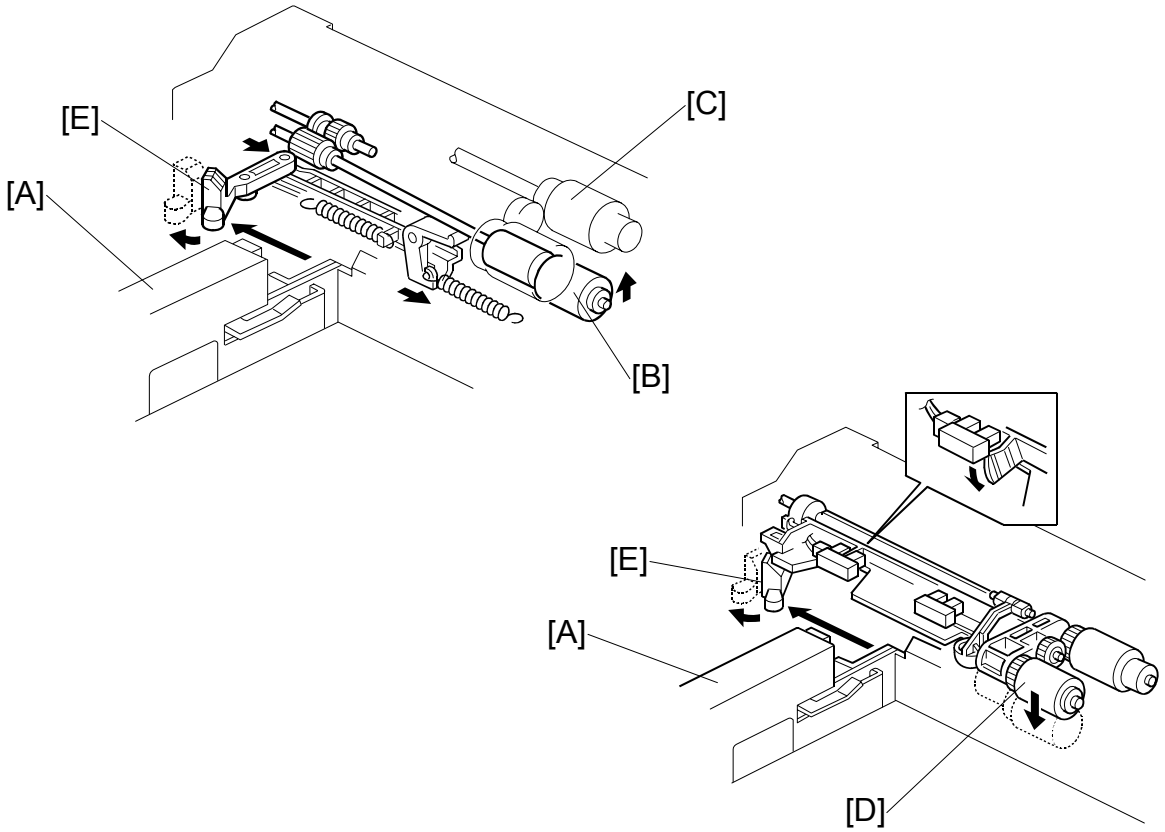


This products uses an FRR type paper feed mechanism.

The paper feed unit consists of the pickup roller [A], paper feed roller [B], reverse roller [C], and grip and transport rollers.

There is a torque limiter in the back of the reverse roller (ferrite powder type).

2.2 REVERSE ROLLER AND PICK-UP ROLLER RELEASE

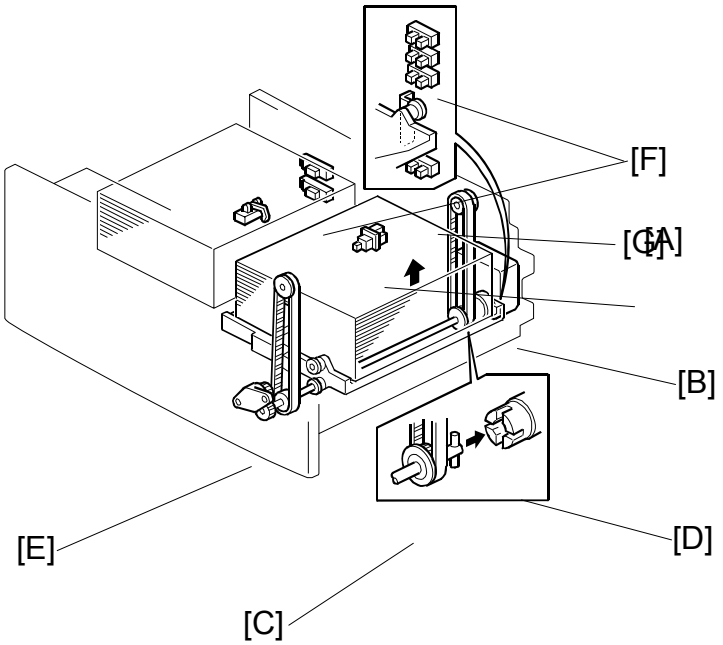


To prevent the paper from being torn when pulling out the paper feed tray, the reverse and pickup rollers are set so that they release automatically.

When the paper tray [A] is not inside the machine, the reverse roller [B] is away from the paper feed roller [C] and the pick-up roller [D] stays in the upper position.

When the paper tray is set into the machine, it pushes the release lever [E]. This causes the pick-up roller [D] to go down into contact with the top sheet of paper and the reverse roller [B] to move up and contact the paper feed roller.

2.3 TRAY LIFT



When the paper feed tray is put in the machine, the tray switch [A] on the back face turns on and the tray lift motor [B] starts up. The base plate lift shaft [C] is coupled to the lift motor at shaft [D], so the base plate of the tray is lifted. After a short while, the top of the paper stack contacts the pick-up roller and lifts it up.

When this occurs, the actuator enters the upper limit sensor, the sensor turns off and the lift motor stops. When paper in the tray is used up, the pick-up roller is gradually lowered, and the actuator leaves the upper limit sensor (turning the sensor on). When this happens, the lift motor begins turning again. The tray will then be lifted until the actuator enters the upper limit sensor (turning the sensor off again).

When the tray is removed from the copier, the coupling between the lift motor [B] and base plate lift shaft [C] is broken and the base plate goes into a controlled free fall (using a damper [E] to slow the fall and prevent damage).

2.4 NEAR END/END DETECTION

This tray can hold two stacks of paper, so the machine needs to monitor the status of both these stacks. There are seven sensors to do this.

In the right tray (paper feed side), three height sensors measure the height of the stack, and an end sensor detects when all the paper is used up. As the amount of paper remaining in the tray decreases, the base plate rises and the actuator activates the paper height sensors. When paper runs out in the right tray, the stack in the left tray is moved across to the right tray.

There are also two height sensors ([F] in the diagram on the previous page) and an end sensor in the left tray (paper storage side) ([G] in the diagram on the previous page). When there is no paper in both trays, paper end is detected.

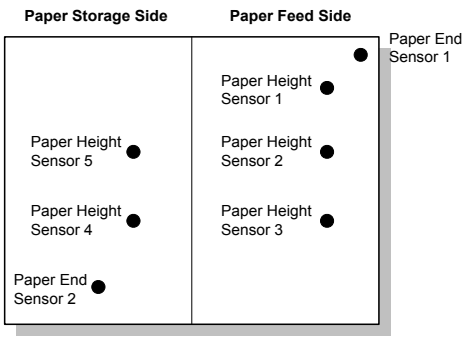
The machine determines the amount of remaining paper based on the sensor outputs, as shown in the following table.

Paper end sensor 1: ❍ = Low (no paper), ● = High (paper present)
Other sensors: ❍ = Low (paper present), ● = High (no paper)

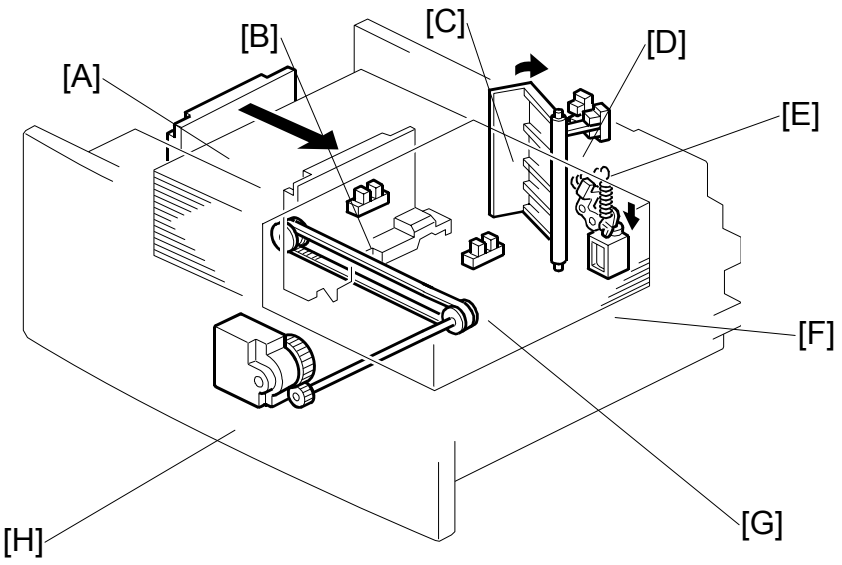
	Amount of paper								
	100%	75%		50%					
Paper Height Sensor 1	❍	❍	❍	❍	❍	❍	●	❍	❍
Paper Height Sensor 2	❍	❍	❍	❍	❍	●	–	❍	●
Paper Height Sensor 3	❍	❍	●	❍	❍	–	–	●	–
Paper End Sensor 1	●	●	●	●	●	●	●	●	●
Paper Height Sensor 4	❍	●	❍	●	●	❍	❍	●	●
Paper Height Sensor 5	❍	❍	❍	●	●	❍	❍	❍	❍
Paper End Sensor 2	❍	❍	❍	❍	●	❍	❍	❍	❍

	Amount of paper							
	25%					Near-end		End
Paper Height Sensor 1	●	❍	❍	❍	❍	●	●	–
Paper Height Sensor 2	–	–	●	❍	●	–	–	–
Paper Height Sensor 3	–	–	–	●	–	–	–	–
Paper End Sensor 1	●	●	●	●	●	●	●	❍
Paper Height Sensor 4	❍	●	●	●	●	●	●	●
Paper Height Sensor 5	●	❍	●	●	●	●	●	●
Paper End Sensor 2	❍	❍	❍	●	●	❍	●	●

The following diagram is the sensor layout, as viewed from the front.



2.5 RIGHT TRAY SIDE FENCE



When the paper in the right tray is used up, the side fence solenoid [F] activates and stays on until the side fence open/closed sensor [E] detects that the fence is open. The rear fence [A] then moves the stack of paper from the left tray into the right tray, as described in the following section. When the stack has been transferred to the right tray, the rear fence return sensor [G] detects the rear fence and then the cpu turns off the side fence open solenoid (closing the side fence).

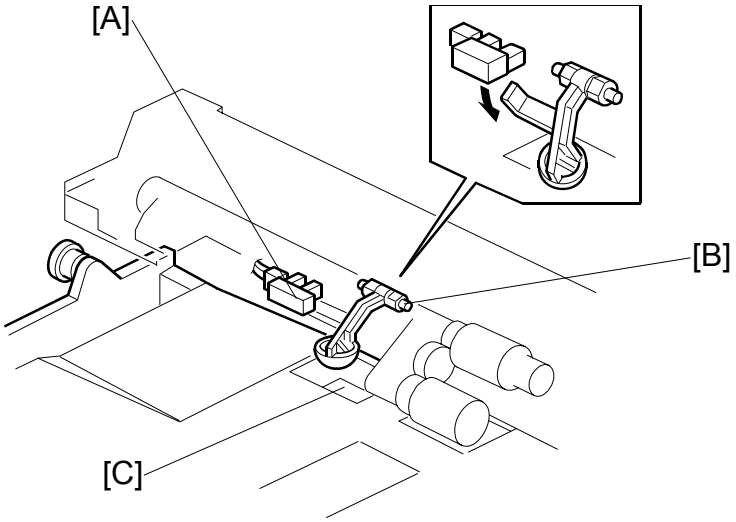
The side fence open/closed sensor [D] detects when the side fence is closed. When it is not closed, the user is prompted at the operation panel to free the mechanism.

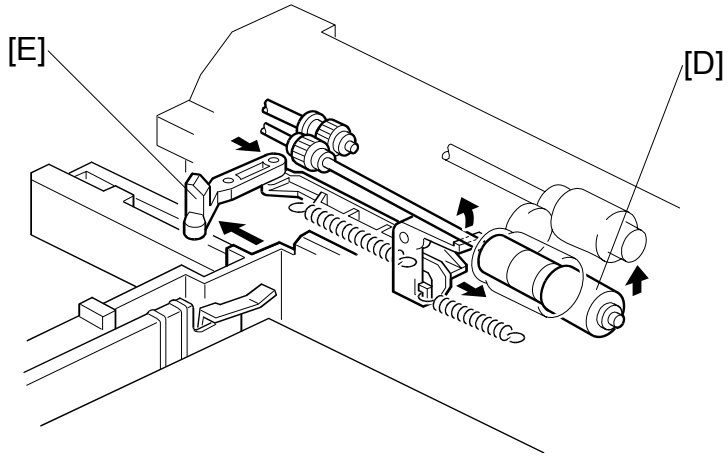
2.6 LEFT TRAY REAR FENCE

If the right tray paper end sensor detects that there is no paper in the tray (while the left tray sensor detects that there is still paper in the left tray), the right side fence [C] opens and the rear fence motor [H] turns on. The rear fence of the left tray moves and the paper stack is then transferred from the left tray to the right tray.

When the left tray rear fence activates the rear fence return sensor, the machine detects that the paper stack has been transferred to the right tray and the rear fence motor rotates in the opposite direction. When the rear fence HP sensor [B] comes on, the motor stops.

2.7 RIGHT TRAY PAPER END DETECTION





The paper end sensor [A] detects when copy paper in the right tray runs out.

When there is paper in the tray, the paper pushes up the paper end feeler [B] and causes the actuator to come between the LED and photo diode of the sensor. When paper runs out, the feeler drops and the actuator leaves the photointerruptor, and the machine detects that there is no paper in the tray.

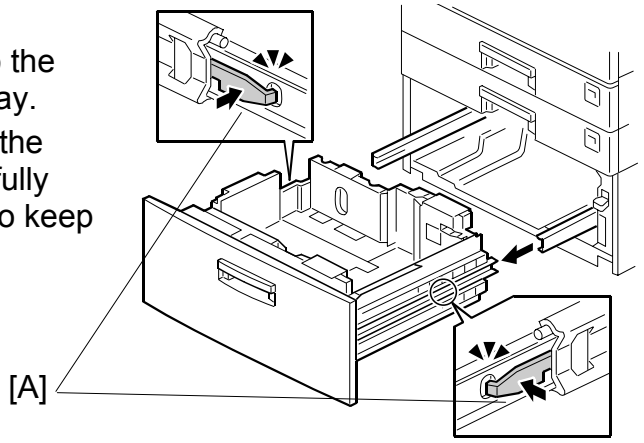
When the tray is being pulled out, the lever [E] lifts the pick-up roller and this also lifts up the feeler.

3. REPLACEMENT AND ADJUSTMENT

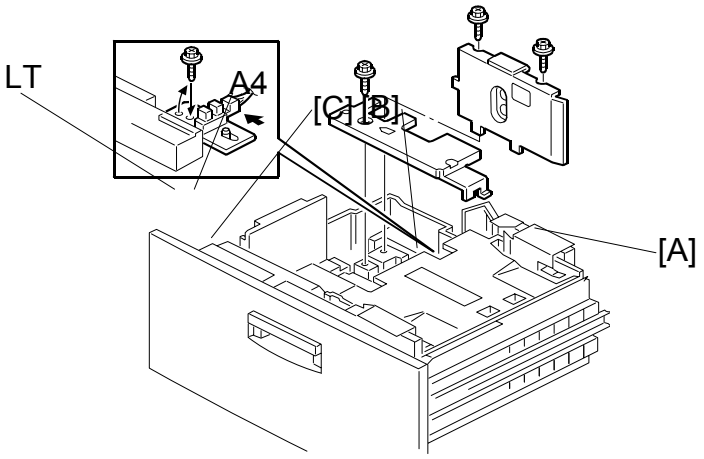
3.1 DETACHING THE TRAY FROM THE MAINFRAME

While pressing the stopper attached to the guide rail, pull out the large capacity tray.

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



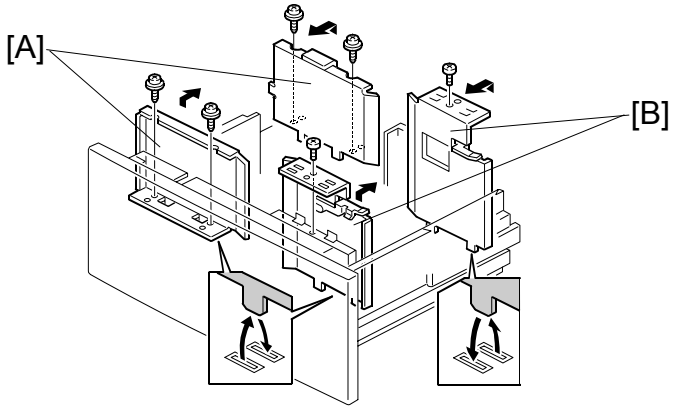
3.2 REAR FENCE HP SENSOR



1. Pull out the large capacity tray.
2. Remove the left tray rear side fence [A] (2 screws).
3. Remove the rear fence bracket [B] (1 screw).
4. Remove the connector of the rear fence HP sensor.
5. Replace the rear fence HP sensor [C] (1 screw).

NOTE: When securing the sensor in place, be sure to fasten the screw in the proper position.

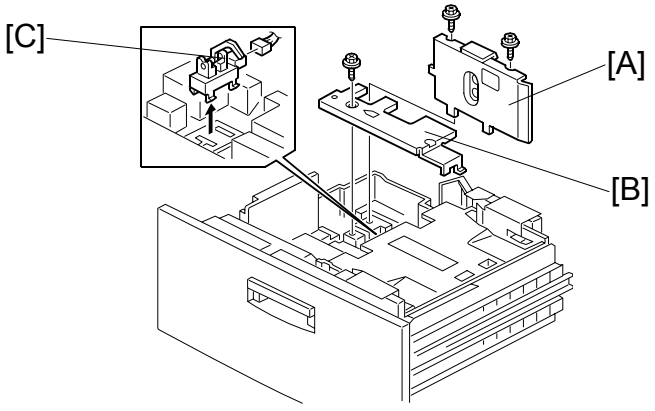
3.3 CHANGING THE TRAY PAPER SIZE



1. Remove the screws of all side fences [A], [B].
2. The position of the rear fence HP sensor can then be changed (see Rear Fence HP Sensor Removal).
3. The paper size display can then be changed with an SP mode.

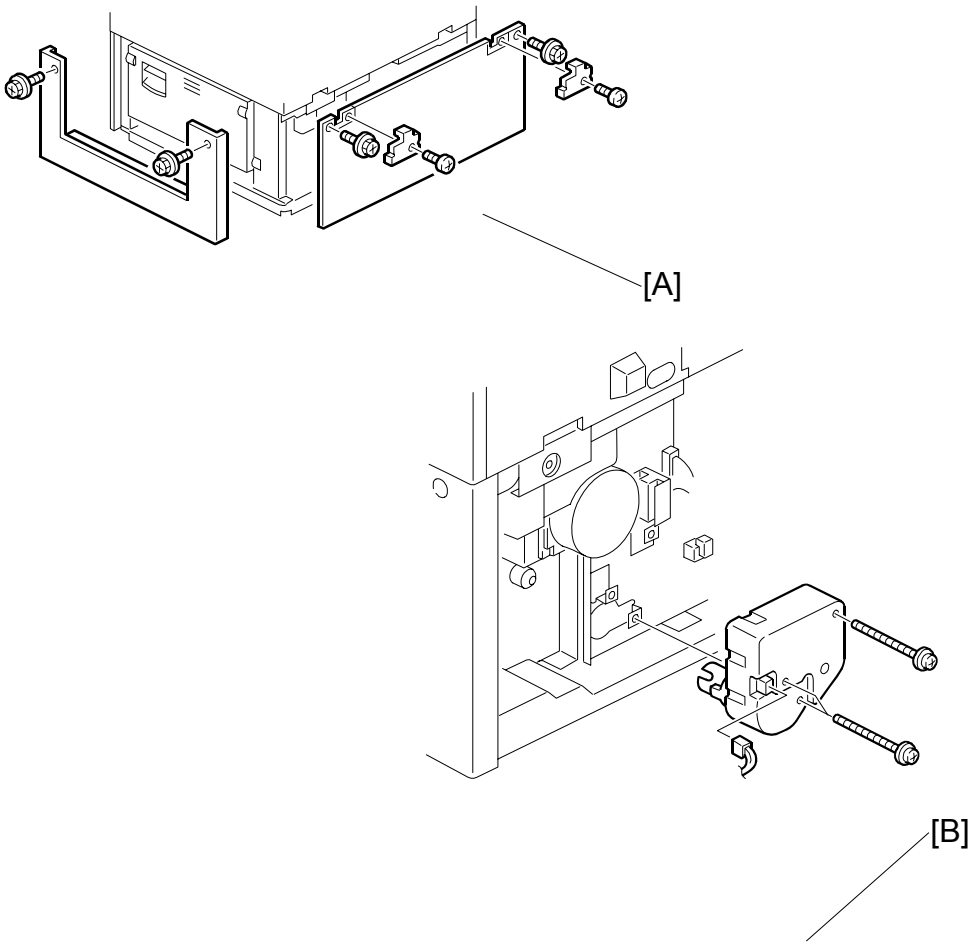
NOTE: When securing the right tray side fence, fasten the screw after setting the paper in the right tray and adjusting the fence to the width of the paper.

3.4 LEFT TRAY PAPER END SENSOR



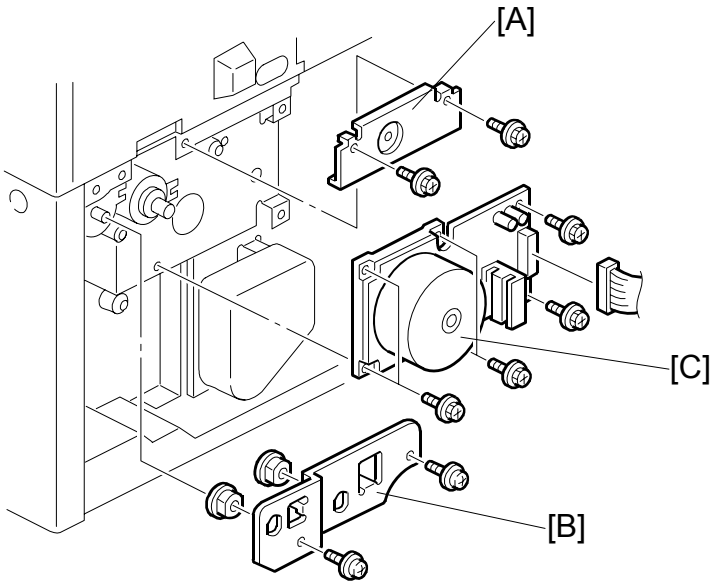
1. Pull out the large capacity tray.
2. Remove the left tray side fence [A] (2 screws).
3. Remove the rear fence bracket [B] (1 screws).
4. Replace the left tray paper end sensor [C] (1 connector).

3.5 TRAY LIFT MOTOR



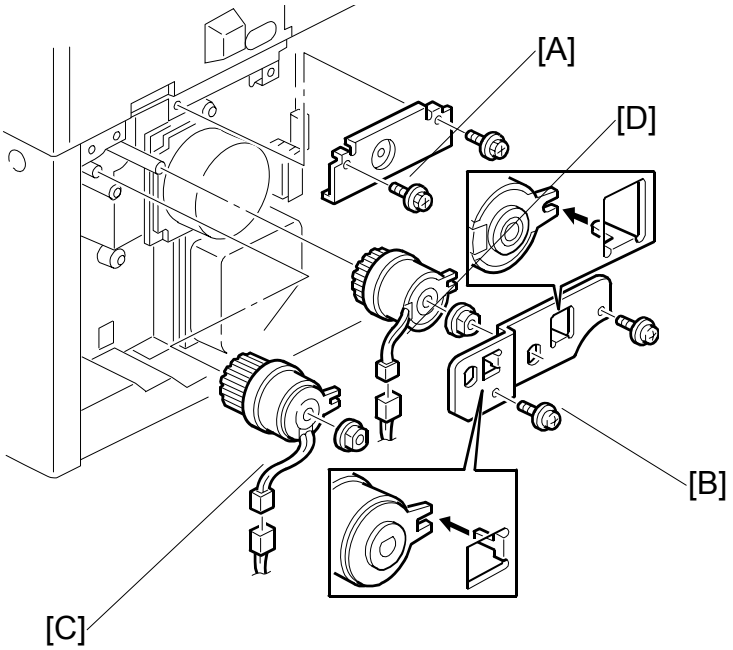
1. Remove the brackets (1 screw for each).
2. Remove the rear cover [A] (2 screws).
3. Remove the tray lift motor [B] (3 screws, 1 connector).

3.6 TRAY MOTOR



1. Remove the rear cover.
2. Remove bracket #1 [A] (2 screws).
3. Remove bracket #2 [B] (2 screws).
4. Remove the tray motor [C] (6 screws, 1 connector).

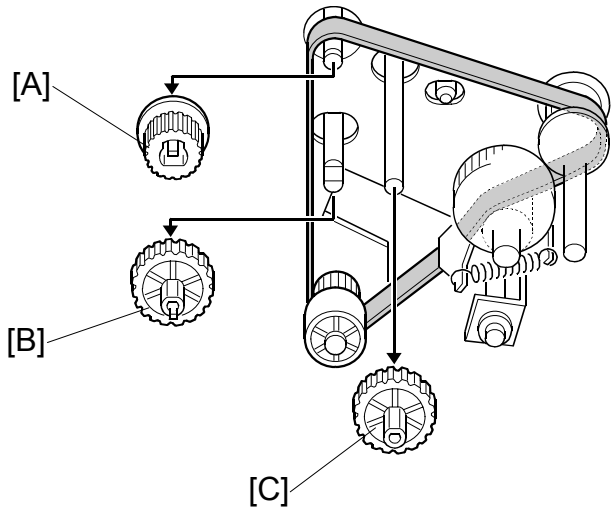
3.7 PAPER FEED CLUTCH AND RELAY CLUTCH

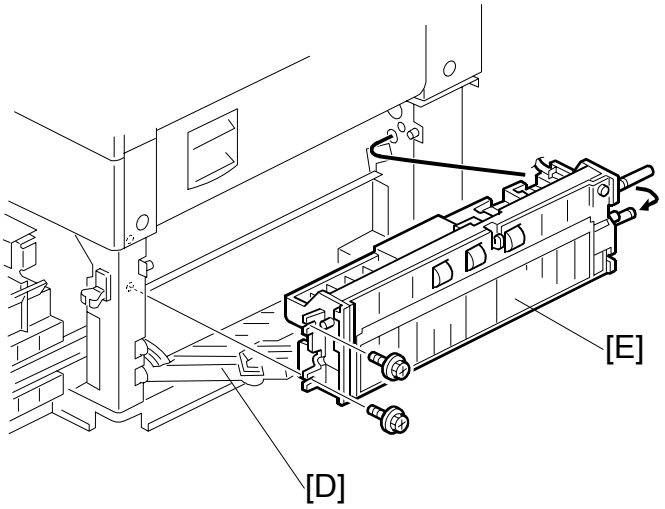


1. Remove the rear cover.
2. Remove bracket #1 [A] (2 screws).
3. Remove bracket #2 [B] (2 screws).
4. Remove all bushings.
5. Remove the paper feed clutch [C] and relay clutch [D].
6. Replace the required clutch.

NOTE: Make sure to properly secure both clutches before completing installation.

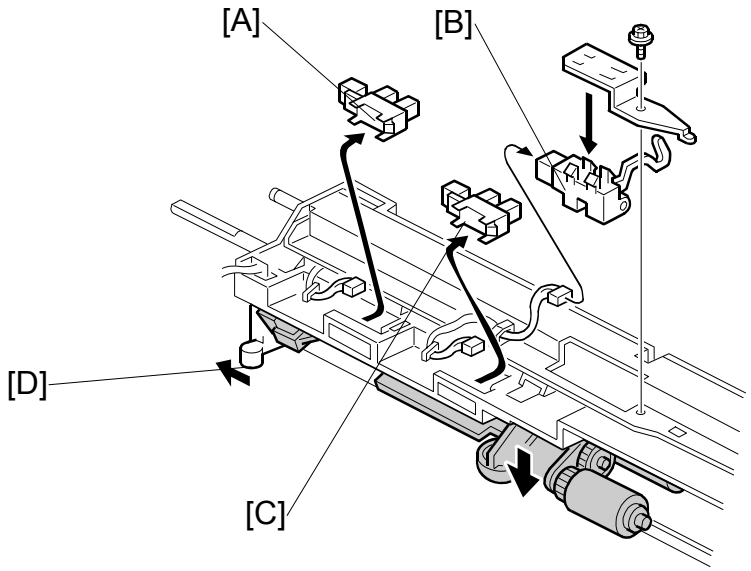
3.8 PAPER FEED UNIT





1. Remove the paper feed clutch and relay clutch (see Paper Feed Clutch and Relay Clutch Replacement).
2. Remove pulleys A [A], B [B], and C [C].
3. Remove the paper feed harness from the main board.
4. Open the vertical transport guide plate [D].
5. Remove the paper feed unit [E] (2 screws).

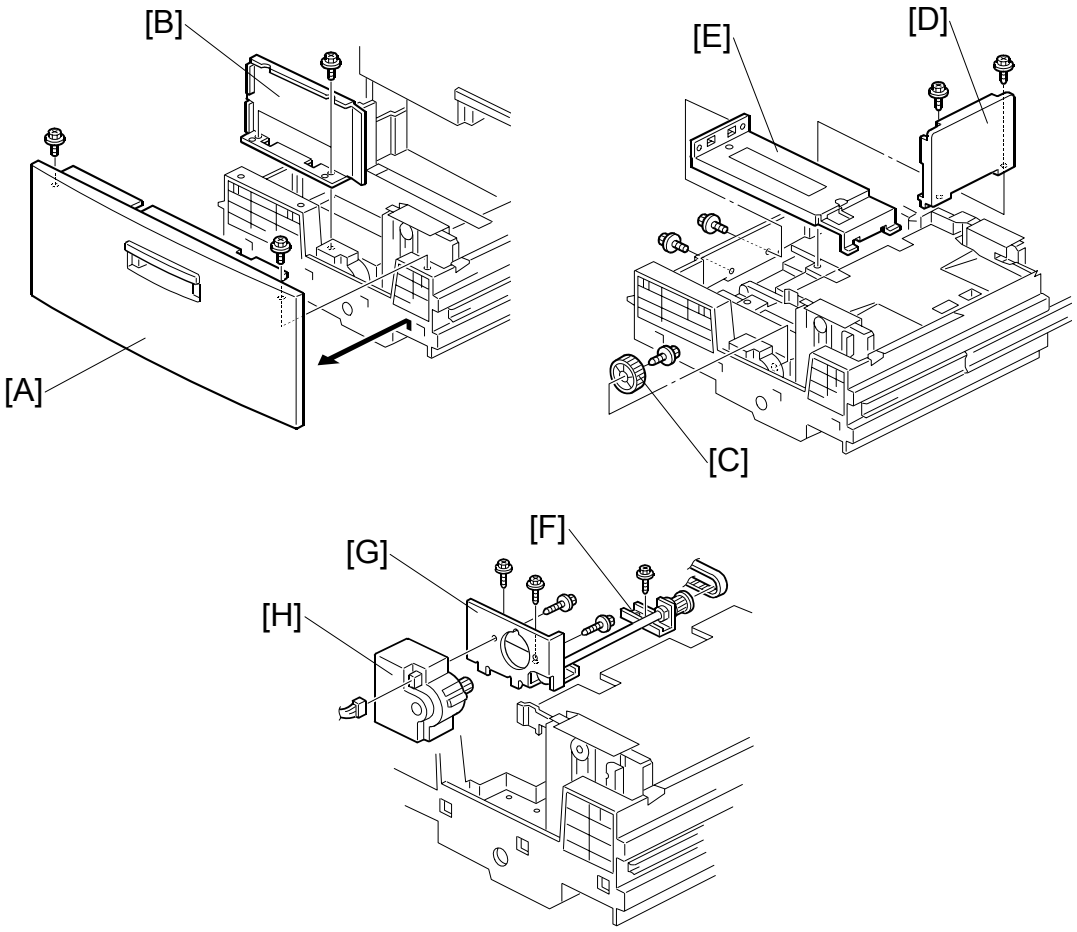
3.9 UPPER LIMIT, RIGHT TRAY PAPER END, AND RELAY SENSORS



1. Remove the paper feed unit (see Paper Feed Unit Replacement).
2. Replace the required sensor.
   - Upper limit [A]
   - Relay [B]
   - Right tray paper end [C]

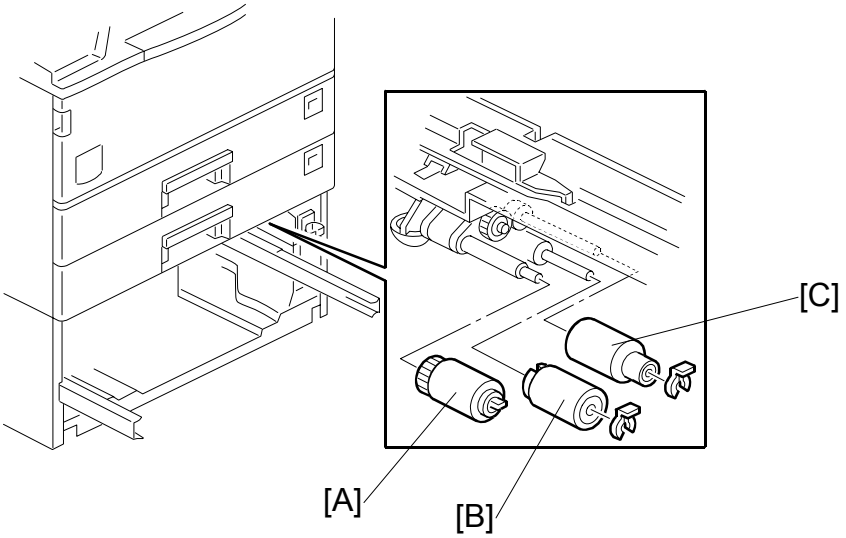
NOTE: When replacing the upper limit [A] and paper end sensor [C], please be sure to do so while pushing the release lever [D].

3.10 REAR FENCE MOTOR



1. Pull out the paper feed tray unit.
2. Remove the paper feed tray front cover [A] (2 screws).
3. Remove the left side fence [B].
4. Remove the rear fence drive gear [C] (1 screw). This is in order to free the end fence [D].
5. Move the end fence to the right (toward the center).
6. Remove the end fence (1 screw).
7. Remove the end fence bracket [E] (2 screws).
8. Remove the bracket [F] (1 screw).
9. Remove the bracket [G] of the rear fence motor assembly (2 screws).
10. Remove the rear fence motor assembly (2 screws).
11. Replace the motor [H] (1 connector).

3.11 PICK-UP/PAPER FEED/REVERSE ROLLERS



1. Remove the paper tray unit (see Paper Tray Unit Replacement).
2. Remove the snap ring (1 each for the paper feed and reverse rollers).
3. Remove the pick up roller [A].
4. Replace each roller [B], [C].

NOTE: Install the paper feed rollers the correct way round, as shown in the illustration. If the rollers are installed incorrectly, this will cause the one-way clutch to lock.

1000-SHEET FINISHER
B408

1000 SHEET FINISHER SR790 REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

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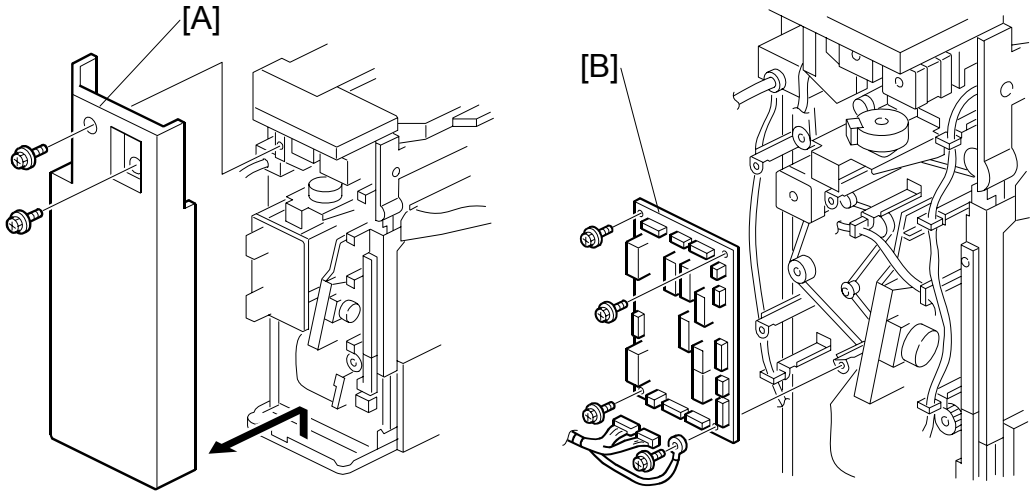
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1. REPLACEMENT AND ADJUSTMENT

⚠CAUTION
Turn off the main power switch and unplug the machine before beginning any of the procedures in this section.

NOTE: This manual uses the following symbols.
☛ : See or Refer to : Screws : Connector : Clip ring
 : E-ring

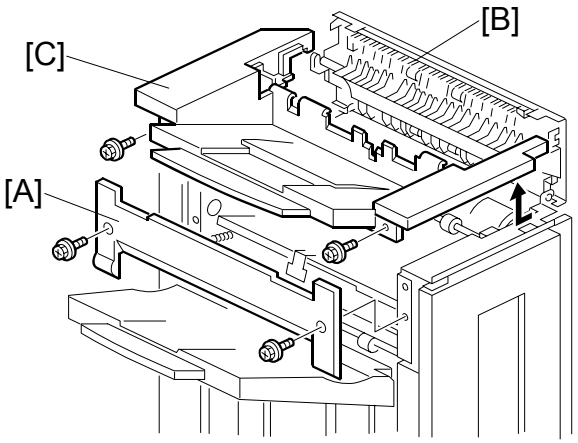
1.1 MAIN PCB



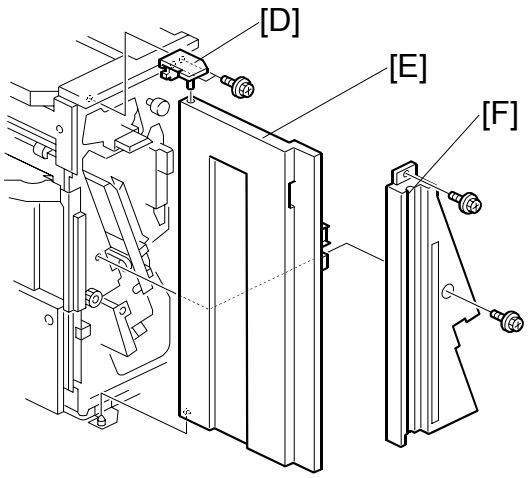
1. Rear cover [A] (x 2)
2. Main PCB [B] (x 4, All)

1.2 STAPLER UNIT

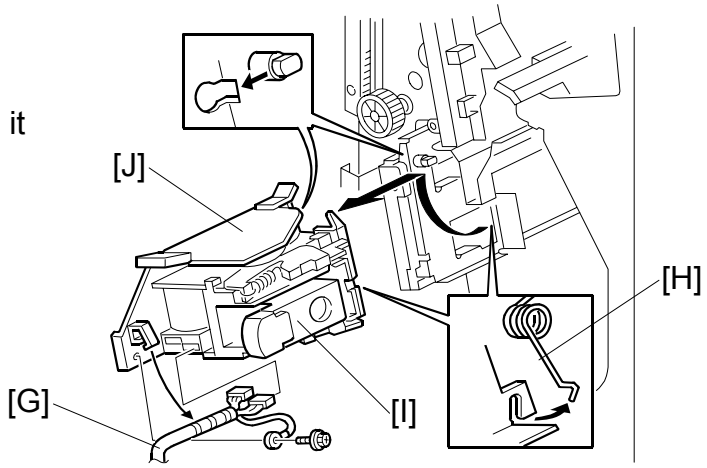
1. Side cover [A] (x 2)
2. Open exit guide plate [B]
3. Upper side cover [C] (x 2)



4. Front cover support plate [D] (x 1)
5. Front cover [E]
6. Front inner cover [F] (x 2)



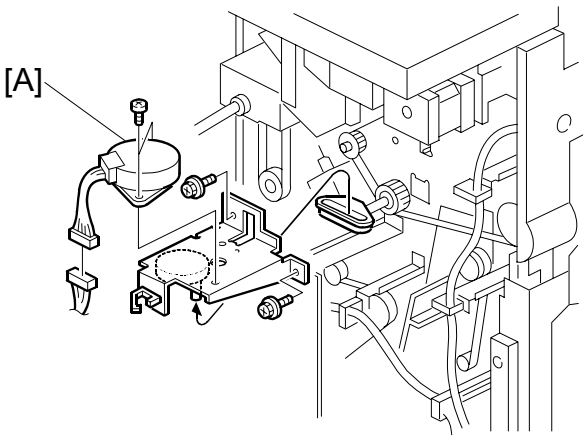
7. Harness [G]
8. Unhook the spring [H]
9. Turn the stapler unit [I] and take it out.
10. Bracket [J] (x 2)



1.3 MOTORS

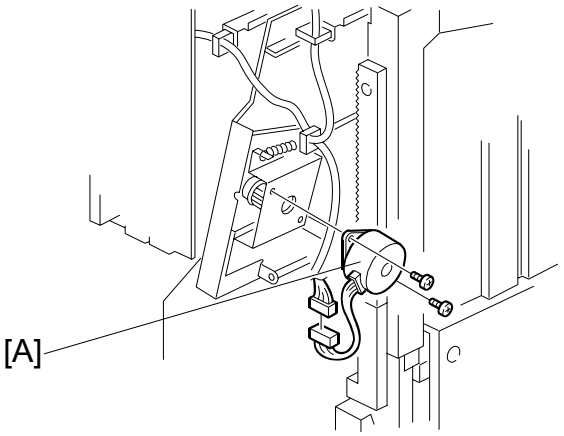
1.3.1 SHIFT MOTOR

1. Rear cover (☛1.1)
2. Shift motor [A] (🔩 x 2, 🖐 x 1)



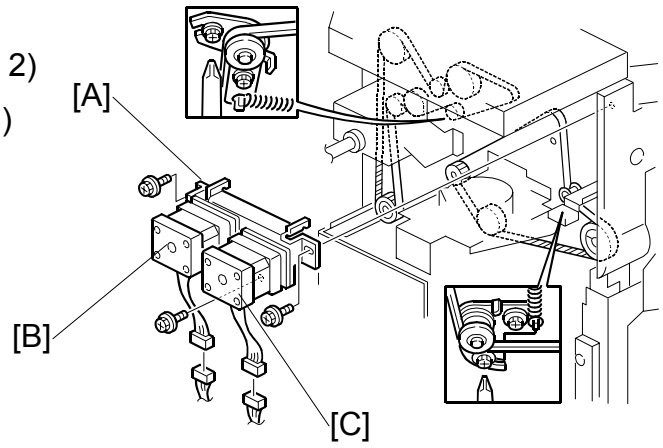
1.3.2 STAPLER MOTOR

1. Rear cover (☛1.1)
2. Stapler motor [A] (🔩 x 2, 🖐 x 1)



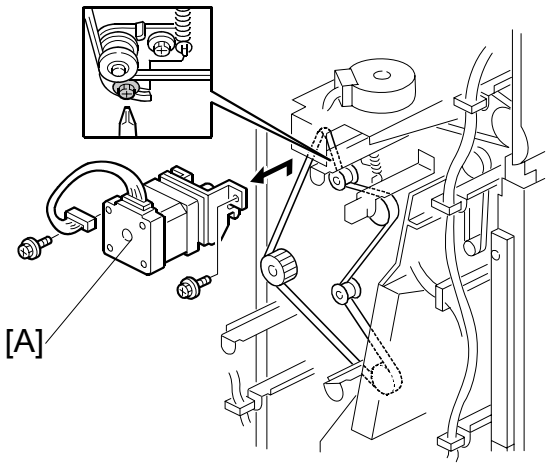
1.3.3 UPPER TRANSPORT MOTOR AND EXIT MOTOR

1. Rear cover (☛1.1)
2. Motor assembly [A] (🔩 x 4, 🖐 x 2)
3. Upper transport motor [B] (🔩 x 4)
4. Exit motor [C] (🔩 x 4)



1.3.4 LOWER TRANSPORT MOTOR

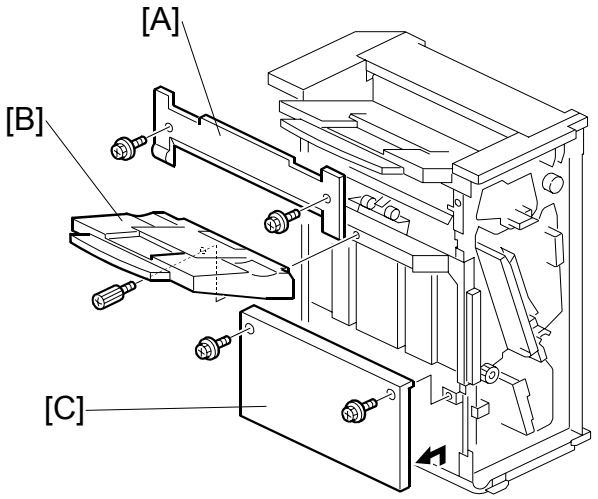
1. Main PCB (☛1.1)
2. Lower transport motor [A] (🔩 x 2, 🖐 x 1)



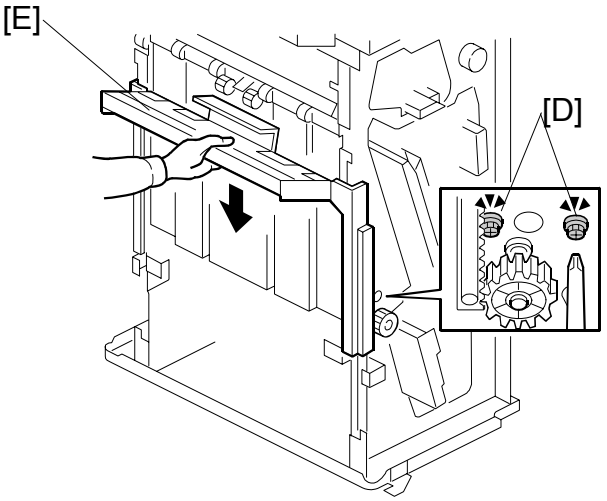
1.4 MOTORS AND SENSORS

1.4.1 PREPARATION

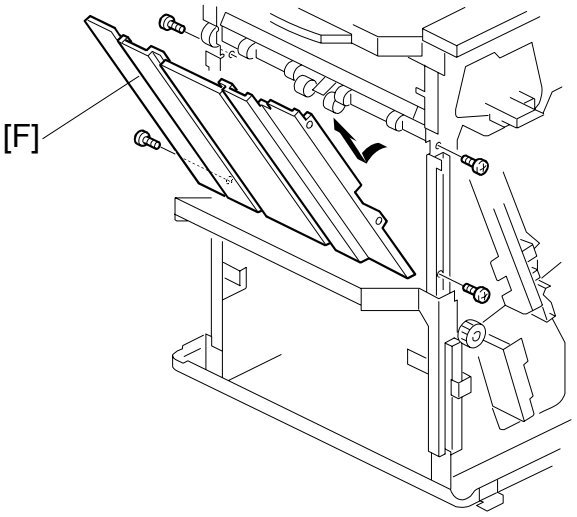
1. Front cover and inner cover (☛1.2)
2. Upper side cover [A] (☞ x 2)
3. Upper tray [B] (☞ x 1)



4. Lower side cover [C] (☞ x 2)
5. Loosen the 2 screws [D].
6. Lower the lower tray guide plate [E].

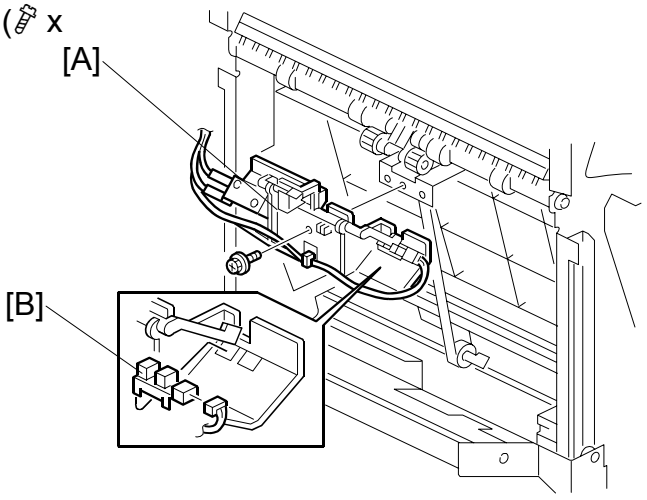


7. Guide plate [F] (☞ x 4)



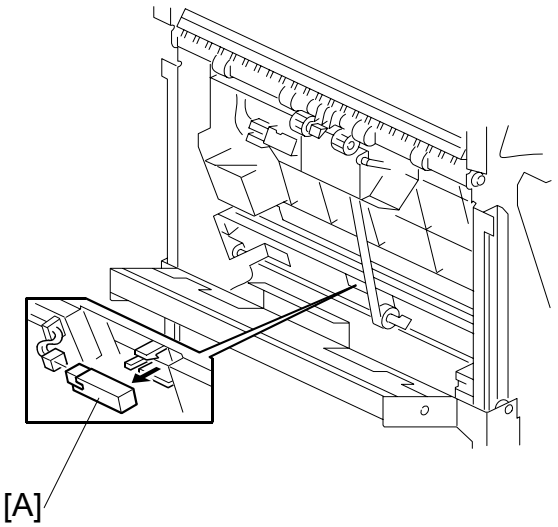
1.4.2 STACK HEIGHT SENSOR

1. Stack height sensor assembly [A] (x 1)
2. Stack height sensor [B] (x 1)



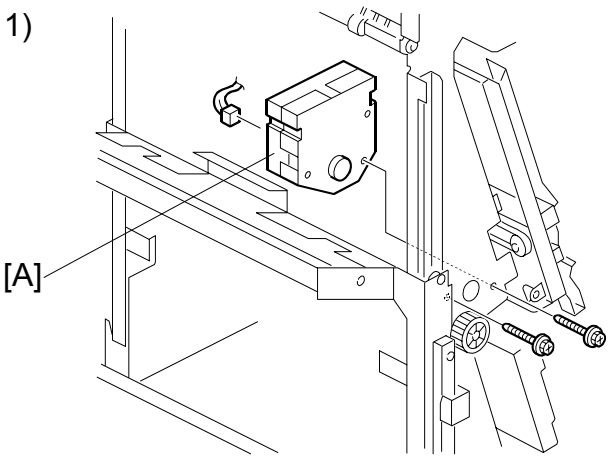
1.4.3 STAPLER TRAY PAPER SENSOR

1. Stapler tray paper sensor [A] (x 1)



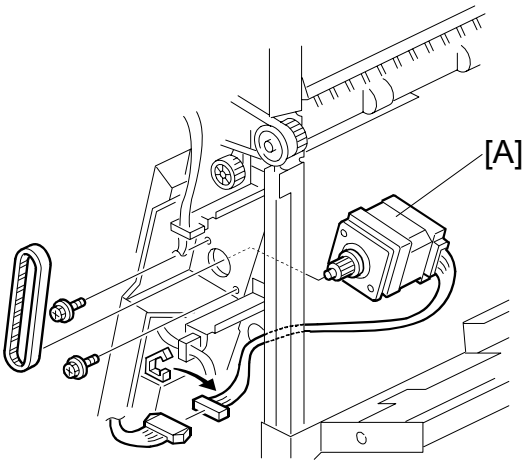
1.4.4 LOWER TRAY LIFT MOTOR

1. Lower tray lift motor [A] (x 2, x 1)



1.4.5 STACK FEED-OUT MOTOR

1. Stack feed-out motor [A] (x 2, x 1)



2. TROUBLESHOOTING

2.1 JAM DETECTION

Mode		Jam	Content
Shift	Staple		
✔	✔	Entrance sensor: On check	The entrance sensor does not turn on within the normal time after the main machine exit sensor turns on
✔	✔	Entrance sensor: Off check	The entrance sensor does not turn off within the normal time after it turns on.
✔		Lower tray exit sensor: On check	The lower tray exit sensor does not turn on within the normal time after the entrance sensor turns off.
✔		Tray exit sensor: Off check	The tray exit sensor does not turn off within the normal time after it turns on.
	✔	Stapler tray entrance sensor: On check	The stapler tray entrance sensor does not switch on within the normal time after the entrance sensor switched on.
	✔	Stapler tray entrance sensor: Off check	The staple tray entrance sensor does not turn off within the normal time after it turns on.
	✔	Lower tray exit sensor: On check	The lower exit sensor does not turn on after the feed-out pawl feeds out the outputs.
	✔	Lower tray exit sensor: Off check	The lower exit sensor turns on when the feed-out pawl returns to its home position after feeding out the outputs.

3. SERVICE TABLES

3.1 DIP SWITCH SETTINGS

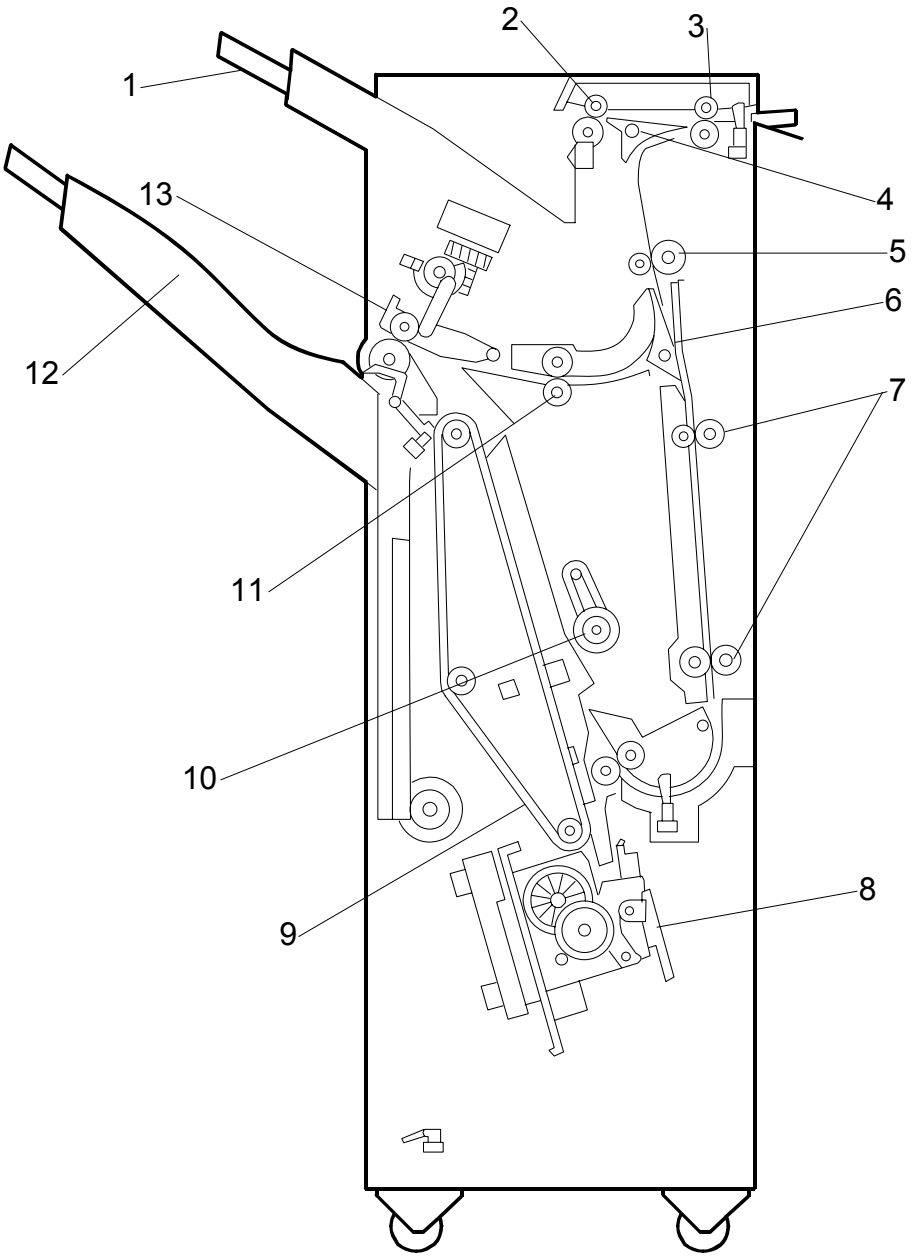
The DIP switches should not be set to any combination other than those listed in the table below.

SW100		Description
1	2	
0	0	Normal operation mode (Default)
1	0	Packing mode.

- Before packing the machine, do the following: Set switch 1 to 1 then back to zero. The lower tray moves to the lowest position. Then turn off the main switch.
- After unpacking the machine, do the following: After turning the main switch back on, the lower tray returns to home position automatically.

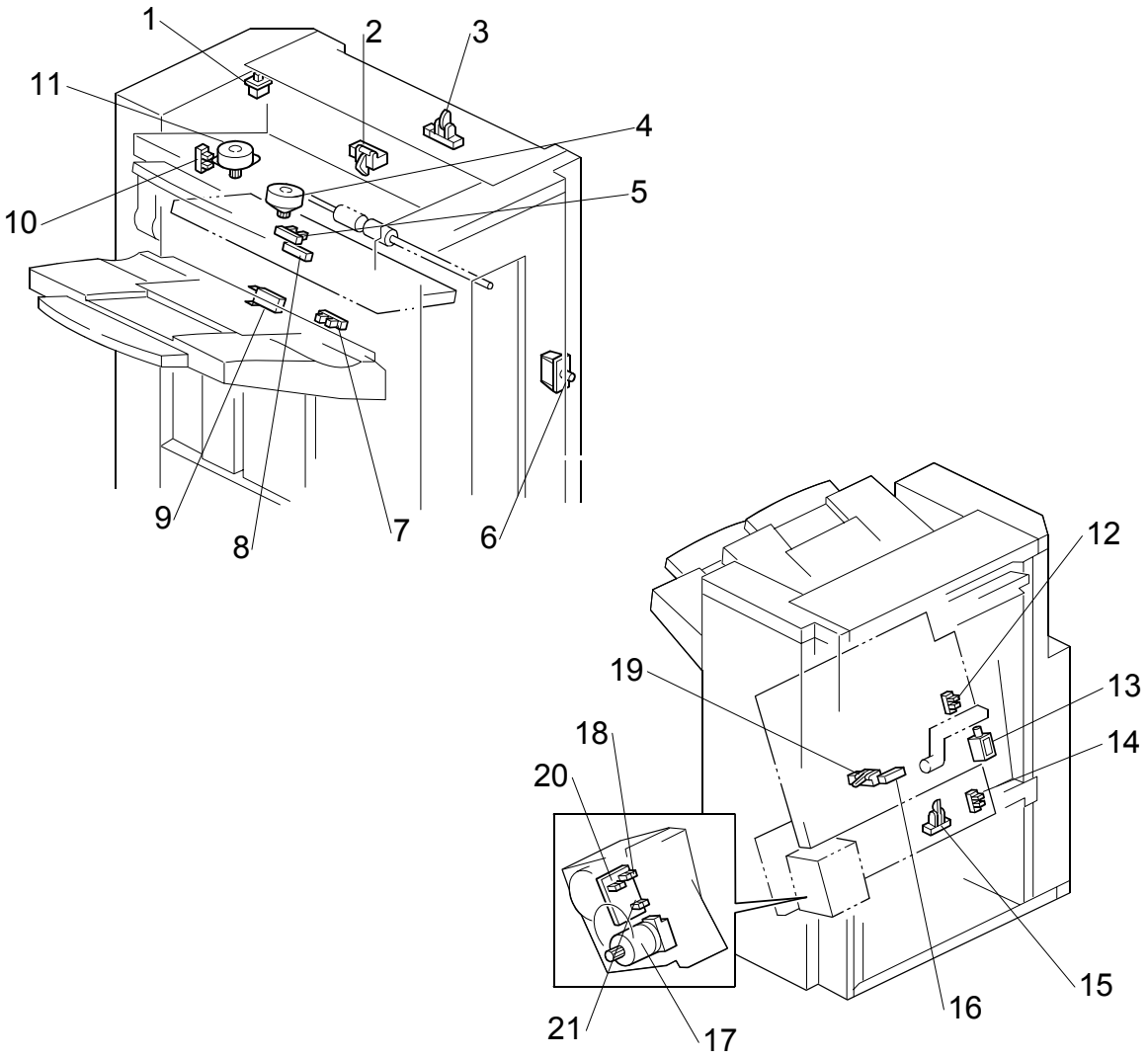
4. DETAILED DESCRIPTIONS

4.1 GENERAL LAYOUT

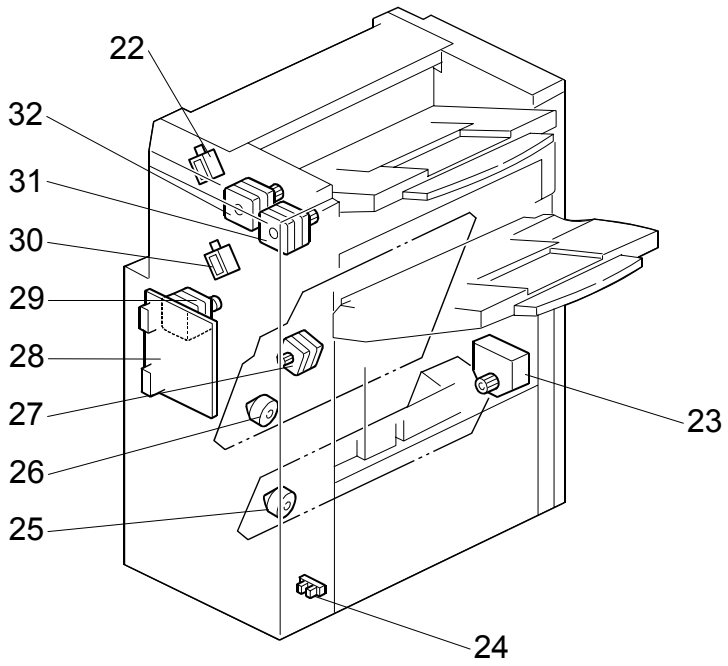


1. Upper Tray
2. Upper Tray Exit Roller
3. Entrance Roller
4. Tray Junction Gate
5. Upper Transport Roller
6. Stapler Junction Gate
7. Lower Transport Rollers
8. Stapler
9. Stack Feed-out Belt
10. Positioning Roller
11. Shift Roller
12. Lower Tray
13. Lower Tray Exit Roller

4.2 ELECTRICAL COMPONENT LAYOUT



1. Upper Cover Switch
2. Paper Limit Sensor
3. Entrance Sensor
4. Exit Guide Plate Motor
5. Exit Guide Plate HP Sensor
6. Front Door Safety Switch
7. Stack Height Sensor
8. Lower Tray Exit Sensor
9. Lower Tray Upper Limit Switch
10. Shift HP Sensor
11. Shift Motor
12. Jogger Fence HP Sensor
13. Positioning Roller Solenoid
14. Stapler HP Sensor
15. Stapler Tray Entrance Sensor
16. Stapler Tray Paper Sensor
17. Stapler Hammer Motor
18. Staple Sheet Sensor
19. Stack Feed-out Belt HP Sensor
20. Stapler Rotation HP Sensor
21. Staple Sensor



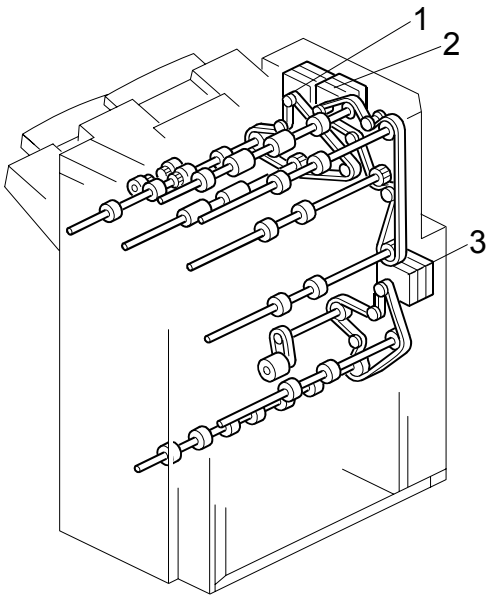
22. Tray Junction Gate Solenoid
23. Lower Tray Lift Motor
24. Lower Tray Lower Limit Sensor
25. Stapler Motor
26. Jogger Fence Motor
27. Stack Feed-out Motor
28. Main Board
29. Lower Transport Motor
30. Stapler Junction Gate Solenoid
31. Exit Motor
32. Upper Transport Motor

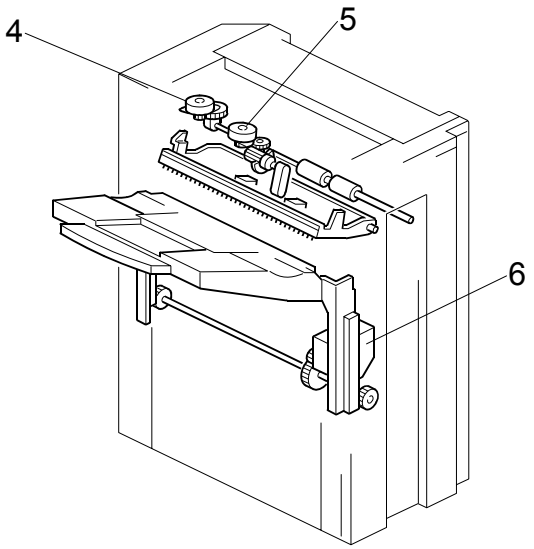
4.3 ELECTRICAL COMPONENT DESCRIPTION

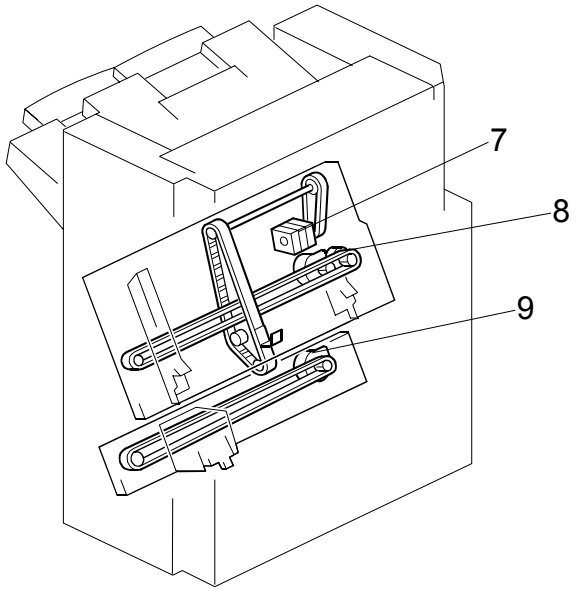
Symbol	Name	Function	Index No.
Motors			
M1	Upper Transport	Drives the entrance roller and upper transport rollers.	32
M2	Lower Transport	Drives the lower transport rollers and the positioning roller.	29
M3	Jogger Fence	Drives the jogger fences.	26
M4	Staple Hammer	Drives the staple hammer.	17
M5	Stack Feed-out	Drives the stack feed-out belt.	27
M6	Exit Guide Plate	Opens and closes the exit guide plate.	4
M7	Exit	Drives the exit roller.	31
M8	Lower Tray Lift	Moves the lower tray up or down.	23
M9	Shift	Moves the shift roller from side to side.	11
M10	Stapler	Moves the stapler unit from side to side.	25
Sensors			
S1	Entrance	Detects copy paper entering the finisher and checks for misfeeds.	3
S2	Paper Limit	Detects when the paper stack height in the upper tray is at its limit.	2
S3	Jogger Fence HP	Detects when the jogger fence is at home position.	12
S4	Shift HP	Detects when the shift roller is at home position.	10
S5	Stack Feed-out Belt HP	Detects when the stack feed-out belt is at home position.	19
S6	Stapler HP	Detects when the stapler is at home position.	14
S7	Exit Guide Plate HP	Detects when the exit guide plate is at home position.	5
S8	Stapler Tray Entrance	Detects copy paper entering the stapler tray and checks for misfeeds.	15
S9	Lower Tray Exit	Checks for misfeeds.	8
S10	Stack Height	Detects the top of the copy paper stack.	7
S11	Lower Tray Lower Limit	Detects when the lower tray is at its lower limit position.	24
S12	Stapler Tray Paper	Detects when there is copy paper in the stapler tray.	16
S13	Staple Sheet	Detects the leading edge of the staple sheet.	18
S14	Stapler Rotation HP	Detects when the staple hammer is at home position.	20
S15	Staple	Detects whether there are staples in the staple cartridge.	21
Solenoids			
SOL1	Tray Junction Gate	Drives the tray junction gate.	22
SOL2	Stapler Junction Gate	Drives the stapler junction gate.	30

Symbol	Name	Function	Index No.
SOL3	Positioning Roller	Moves the positioning roller.	13
Switches			
SW1	Lower Tray Upper Limit	Detects when the lower tray is at its upper limit position.	9
SW2	Front Door Safety	Cuts the dc power when the front door is opened.	6
SW3	Upper Cover	Cuts the dc power when the upper cover is opened.	1
PCBs			
PCB1	Main	Controls the finisher and communicates with the copier/printer.	28

4.4 DRIVE LAYOUT

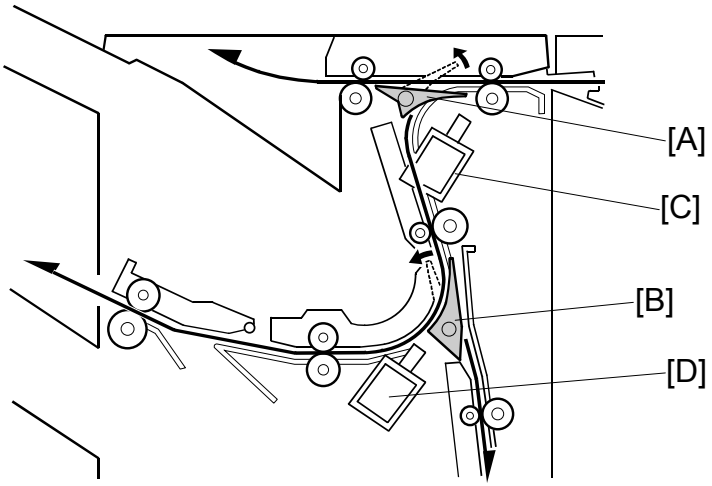






1. Exit Motor
2. Upper Transport Motor
3. Lower Transport Motor
4. Shift Motor
5. Exit Guide Plate Motor
6. Lower Tray Lift Motor
7. Stack Feed-out Motor
8. Jogger Motor
9. Stapler Motor

4.5 JUNCTION GATES



Depending on the finishing mode, the copies are directed up, straight through, or down by the combination of the tray junction gate [A] and stapler junction gate [B]. These gates are controlled by the tray junction gate solenoid [C] and stapler junction gate solenoid [D].

Upper Tray Mode

The tray junction gate solenoid remains off. The copies go up to the upper tray.

Sort/Stack Mode

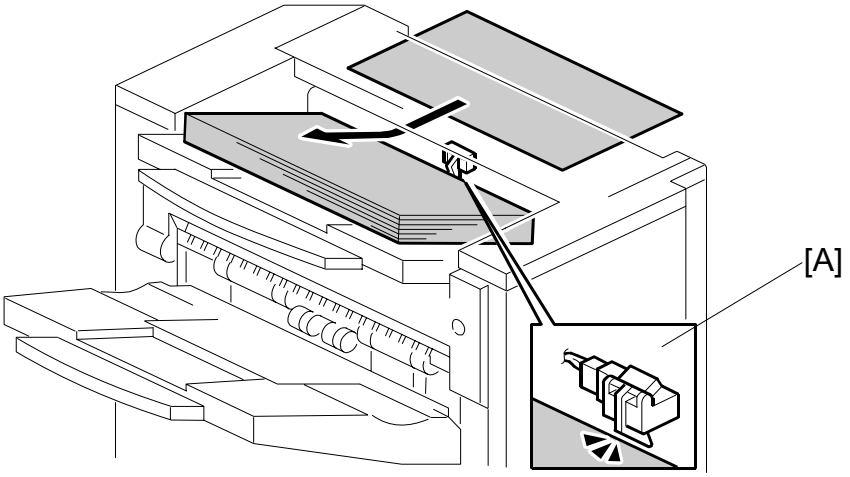
The tray junction gate solenoid turns on and the stapler junction gate solenoid remains off. The copies are sent to the lower tray directly.

Staple Mode

The tray junction gate solenoid and the stapler junction gate solenoid both turn on.

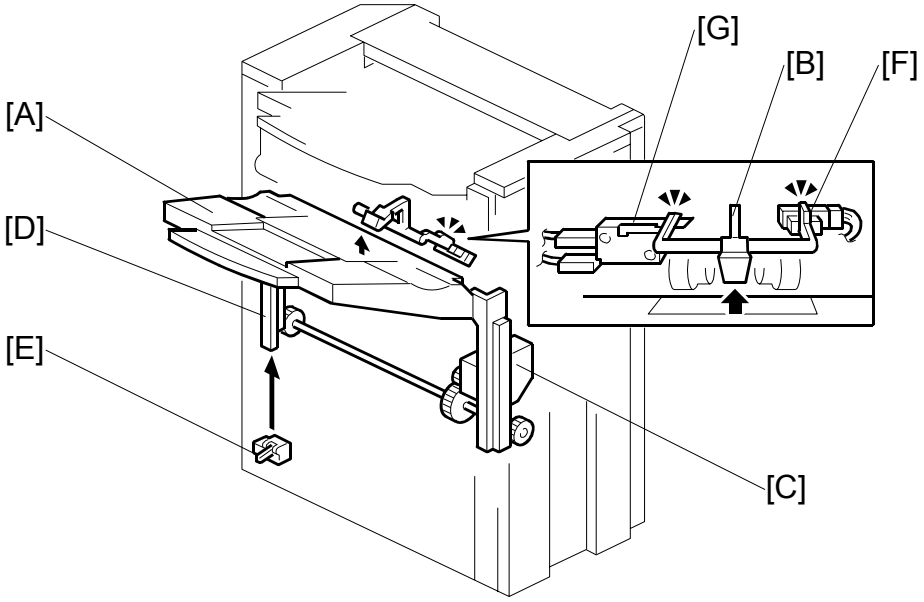
The copies go down to the jogger unit.

4.6 UPPER TRAY



When the paper limit sensor [A] switches on during feed-out for each of three consecutive sheets of paper, paper overflow is detected.

4.7 LOWER TRAY UP/DOWN MECHANISMS



The vertical position of the lower tray [A] depends on the height of the copied paper stack on the lower tray. The stack height sensor feeler [B] contacts the top of the stack, and the lower tray lift motor [C] controls the tray height.

When the lower tray reaches its lowest possible position, the actuator [D] turns on the lower tray lower limit sensor [E], and copying stops.

Tray Up

When the copy paper on the tray is removed, the stack height sensor [F] turns off and the tray lifts up. Then, the tray stops when the sensor turns on again (the tray pushes up the feeler).

If the stack height sensor fails, the lower tray upper limit switch [G] detects the tray and stops the motor. This is a safety measure against stack height sensor failure.

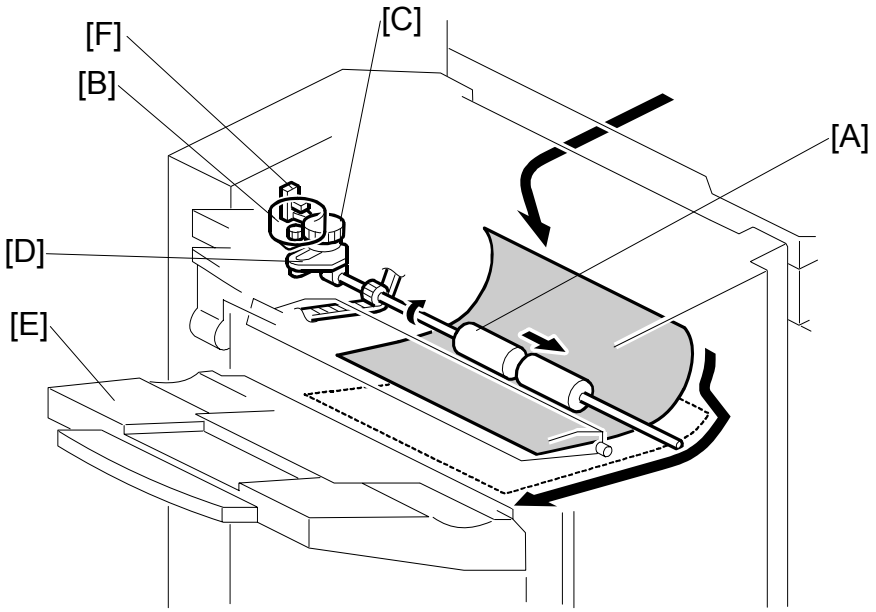
Sort/Stack Mode (Tray Down)

Every five sheets of paper, the tray goes down until the sensor turns off again. Then, it goes up until the sensor is on again.

Staple Mode (Tray Down)

After a stapled copy is fed out, the tray goes up for 220 ms and stops for 300 ms. Then, it goes down for 1 second, waits for 500 ms, then goes up until the sensor turns on.

4.8 PAPER SHIFT MECHANISM



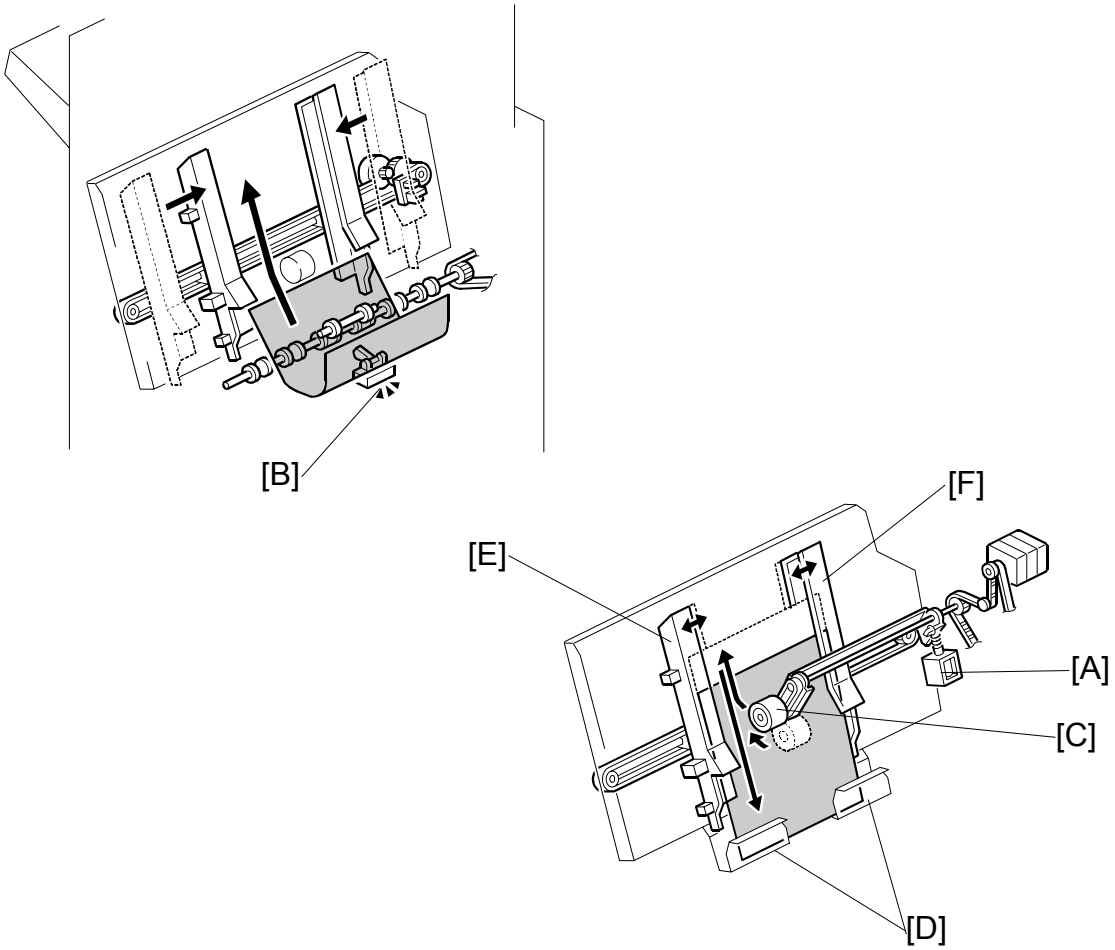
In the sort/stack mode, the shift roller [A] moves from side to side to separate the sets of copies.

The horizontal position of the shift roller is controlled by the shift motor [B] and the shift gear disk [C]. After the trailing edge of the copy passes the upper transport roller, the shift motor turns on, driving the shift gear disk and the link [D].

After the paper is delivered to the lower tray [E], the shift roller moves to its home position, which is detected by the shift HP sensor [F]. Then, when the trailing edge of the next copy passes the upper transport roller, the shift roller shifts again. This operation is done every sheet.

When the trailing edge of each page in the next set of copies passes the upper transport roller, the shift roller shifts in the opposite direction.

4.9 JOGGER UNIT PAPER POSITIONING MECHANISM

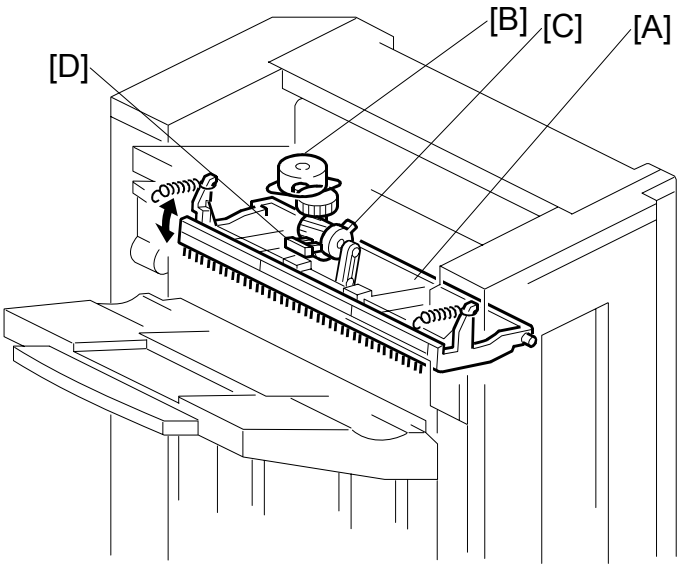


In staple mode, each sheet of copy paper is vertically and horizontally aligned when it arrives in the jogger unit.

For the vertical paper alignment, the positioning roller solenoid [A] turns on shortly after the stapler tray entrance sensor [B] turns off, and the positioning roller [C] pushes the copy against the bottom of the stack stopper [D].

For the horizontal paper alignment, the jogger front fence [E] and the rear fence [F] move to the waiting position, which is 18 mm away from the side of the paper. When aligning the paper vertically, the jogger fence moves in 14 mm from the waiting position. After the vertical position has been aligned, the jogger fence pushes the paper 4 mm against the rear fence to align the paper horizontally. Then the jogger fence moves back to the previous position.

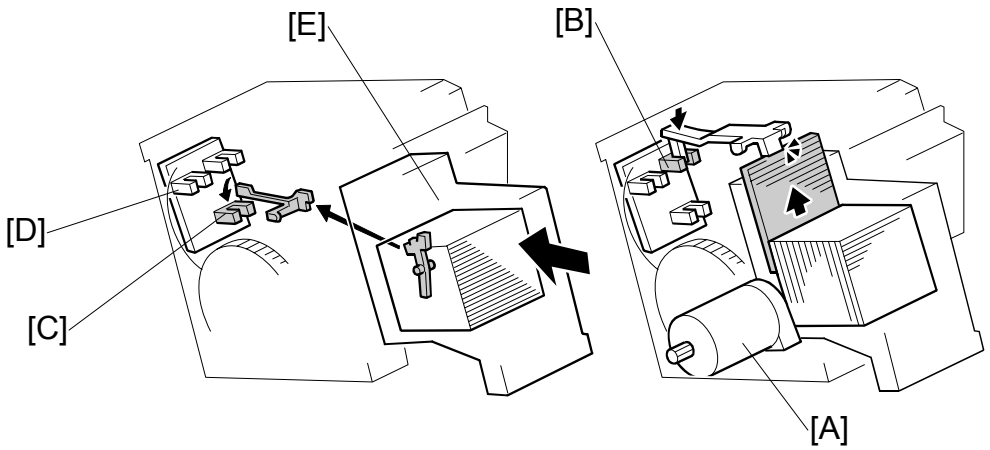
4.10 EXIT GUIDE PLATE



When stacking a large size of paper (such as A3, DLT) in the jogger unit, the leading edge of the paper reaches the exit rollers. To prevent the paper from running into the exit rollers and not being aligned correctly, the exit guide plate [A] is moved up to make a gap between the exit rollers. This operation is done for all paper sizes, but is only needed for the larger sizes.

The exit guide plate motor [B] and exit roller release cam [C] control the exit guide plate movement. When the exit guide plate motor starts, the cam turns and the exit guide plate moves up. When stapling is finished, the exit guide plate motor turns on again to close the exit guide plate. When the exit guide plate HP sensor [D] turns on, the motor stops.

4.11 STAPLER MECHANISM



The staple hammer motor [A] drives the staple hammer.

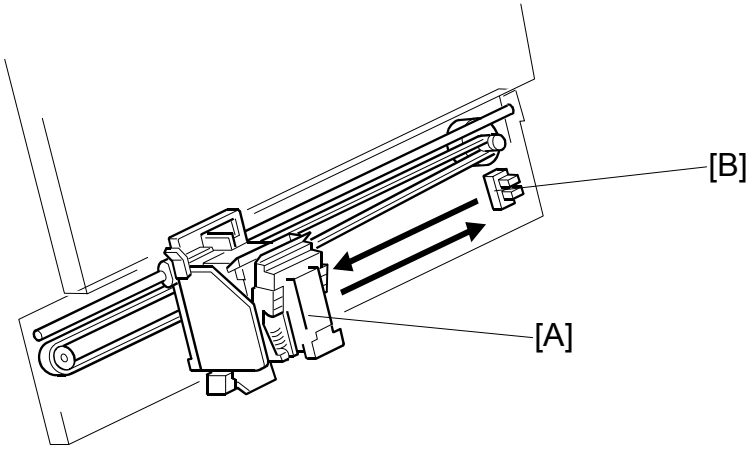
The staple sheet sensor [B] detects the leading edge of the staple sheet at the stapling position to prevent the hammer from operating if there are no staples at the stapling position.

If there is no staple cartridge in the stapler unit or no staples in the staple cartridge, staple end is indicated on the operation panel. The stapler sensor [C] detects this.

The stapler rotation HP sensor [D] checks whether the staple hammer mechanism returns to home position after each stack has been stapled.

When excessive load is applied to the staple hammer motor, the copier detects a staple jam. When a staple jam has occurred, the jammed staple is inside the staple cartridge [E]. Therefore, the jammed staple can be removed easily after pulling out the staple cartridge.

4.12 STAPLER UNIT MOVEMENT MECHANISM

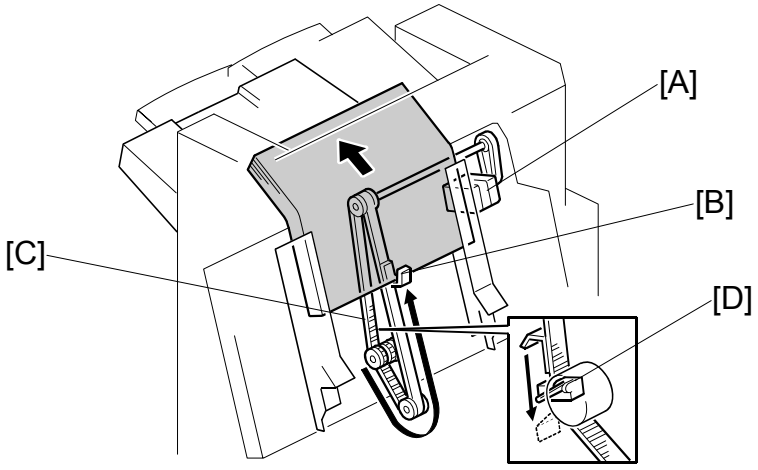


The stapler motor moves the stapler [A] from side to side. After the start key is pressed, the stapler moves from its home position to the stapling position.

If two-staple-position mode is selected, the stapler moves to the front stapling position first, then moves to the rear stapling position. However, for the next copy set, it staples in the reverse order (at the rear side first, then at the front side).

After the job is completed, the stapler moves back to its home position. The stapler HP sensor [B] detects this.

4.13 PAPER FEED-OUT MECHANISM



After the copies have been stapled, the stack feed-out motor [A] starts. The pawl [B] on the stack feed-out belt [C] transports the set of stapled copies up and feeds it to the shift roller. The shift roller takes over stack feed-out after the leading edge reaches this roller.

Just before the stapled stack passes through the lower tray exit sensor, the stack-feed-out motor turns off until the shift rollers have completely fed the stack out to the lower tray. Then, the stack-feed-out motor turns on again until the pawl [B] actuates the stack feed-out belt home position sensor [D].

BOOKLET FINISHER
B793

BOOKLET FINISHER SR3000 REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

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Read This First

Safety and Symbols

Replacement Procedure Safety

⚠CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

When taking apart the bridge unit, first take the unit out of the copier.

Symbols Used in this Manual

This manual uses the following symbols.

☛: See or Refer to

: Screws

: Connector

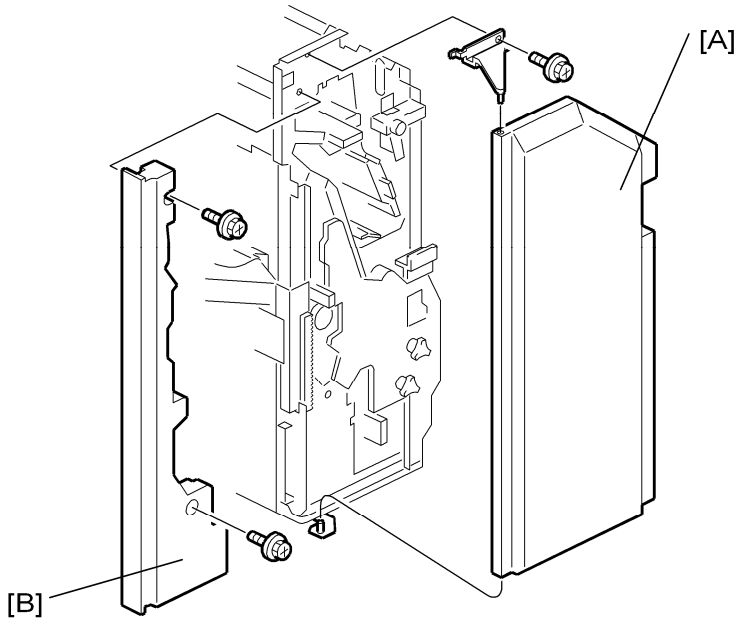
: Clip ring

: E-ring

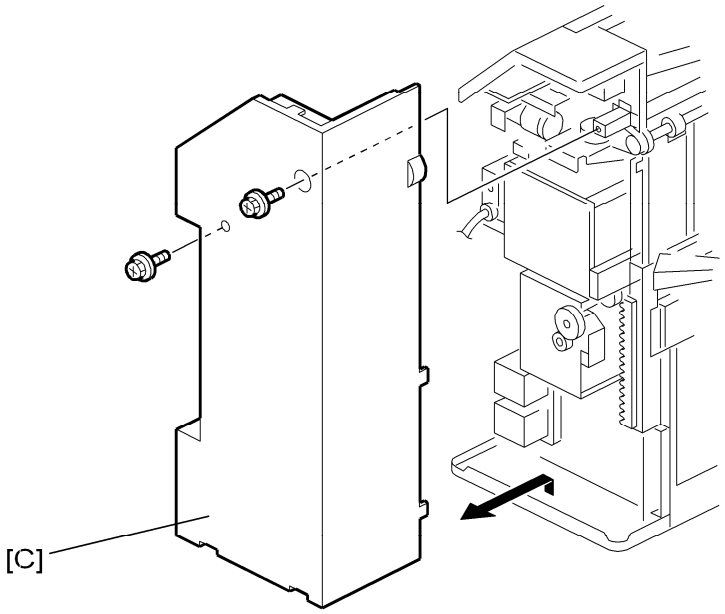
1. REPLACEMENT AND ADJUSTMENT

1.1 COVERS

1.1.1 FRONT/INNER/REAR COVERS

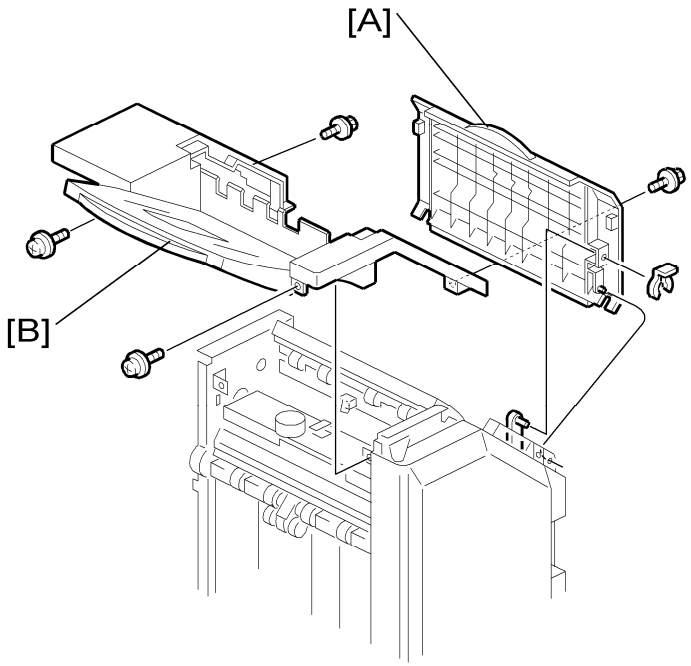


1. Remove the front cover [A] (x 1).
2. Remove the inner cover [B] (x 2).



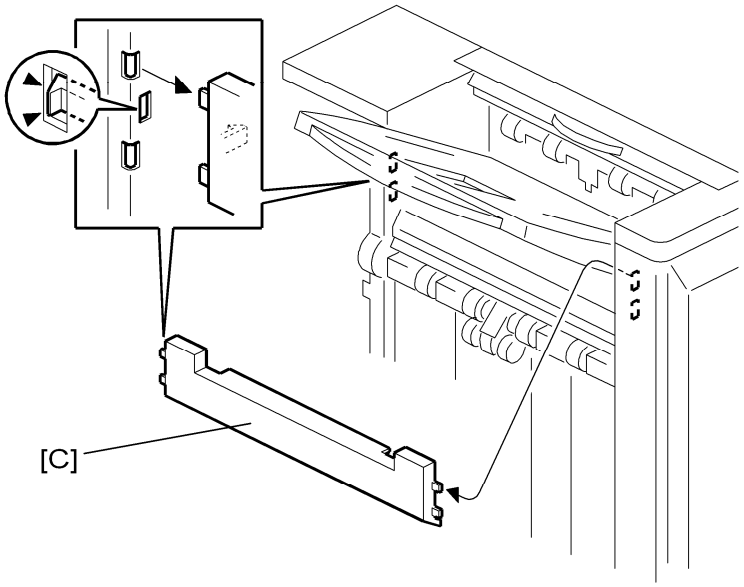
3. Remove the rear cover [C] (x 2).

1.1.2 UPPER COVERS



1. Remove the upper cover [A] (x 1).

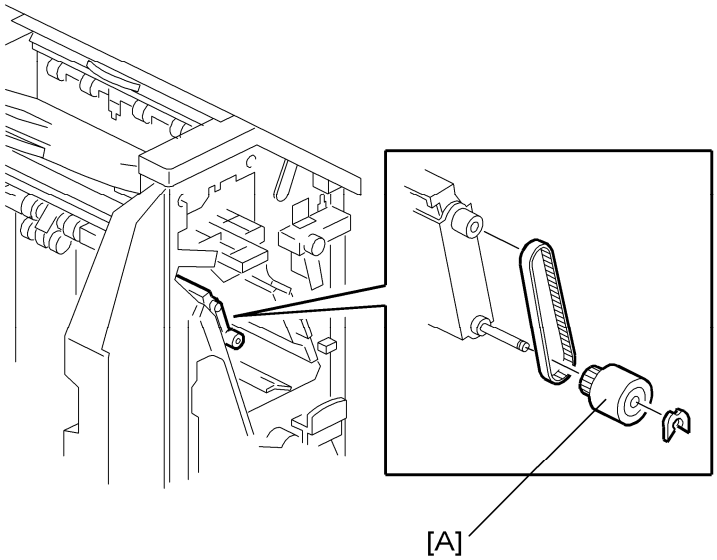
2. Remove the proof tray [B] (x 4).



3. Remove the upper left cover [C].

1.2 MAIN BODY

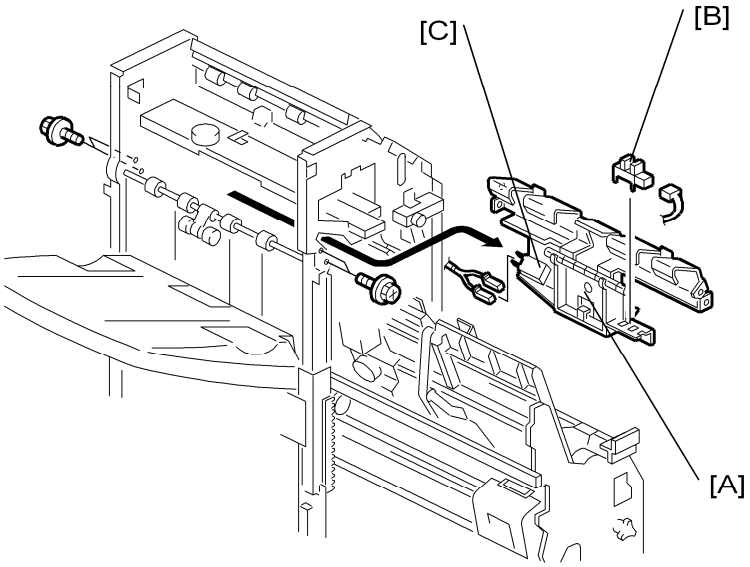
1.2.1 POSITIONING ROLLER



1. Open the front cover.
2. Remove the positioning roller [A] (x 1).

1.2.2 SHIFT TRAY POSITION SENSOR, UPPER LIMIT SWITCH

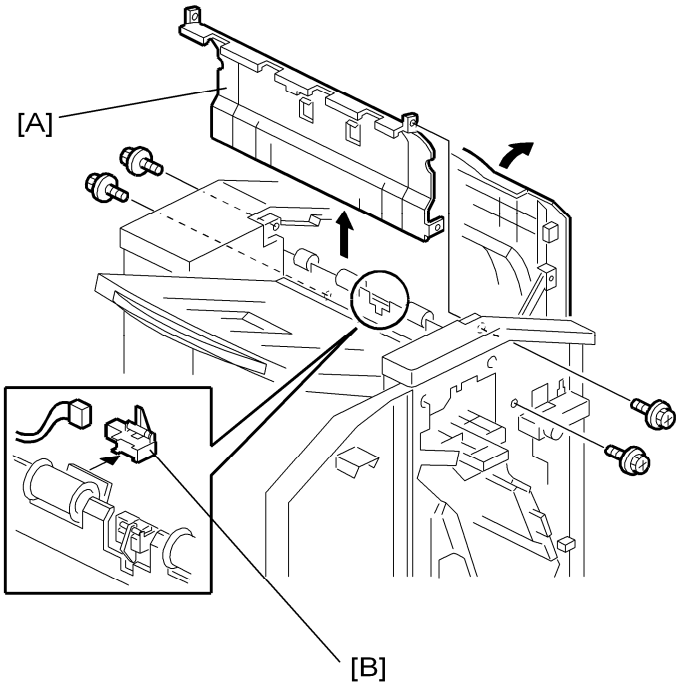
1. Remove the following items.
   - Front Cover
   - Inner Cover
   - Rear Cover
   - Proof Tray
   - Upper Left Cover



2. Remove the lower guide unit [A] (x 4, x 2).
3. Remove the shift tray position sensor [B] (x 1).
4. Remove the upper limit switch [C] (x 2). (Pull it out from the assembly.)

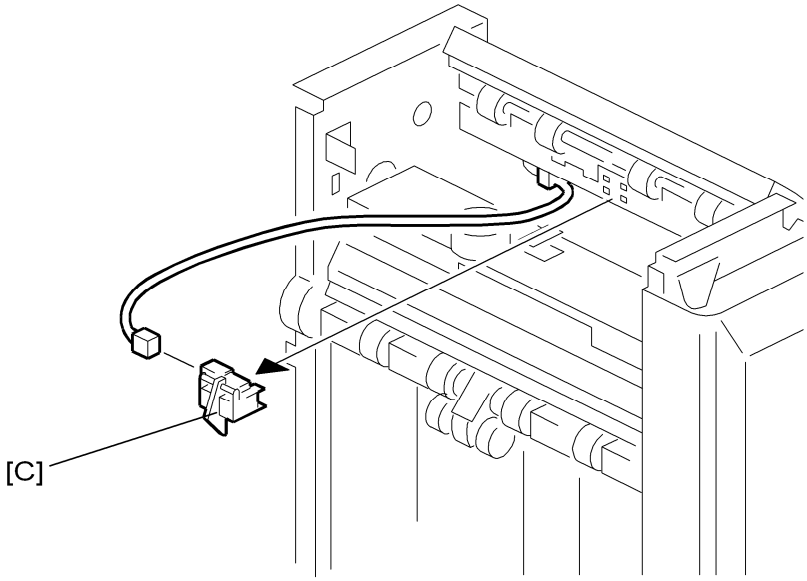
1.2.3 PROOF TRAY EXIT / FULL SENSOR

1. Remove the front cover, rear cover and proof tray.
2. Open the upper cover.



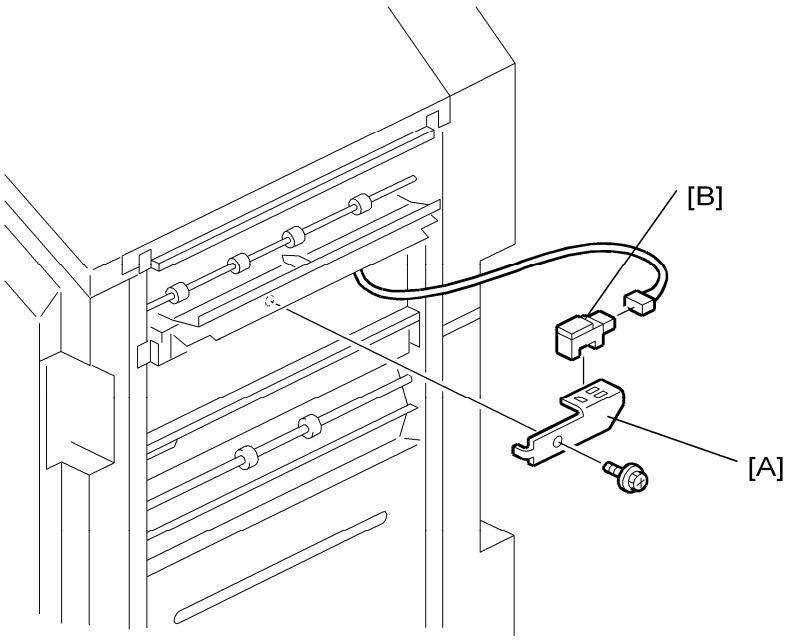
Main Body

3. Remove the vertical transport guide [A] (x 4).
4. Remove the exit sensor [B] (x 1).



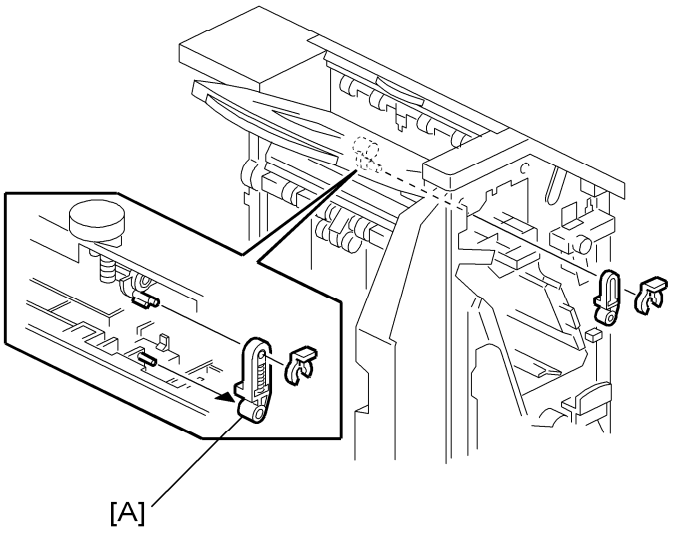
5. Remove the tray full sensor [C] (x 1).

1.2.4 FINISHER ENTRANCE SENSOR

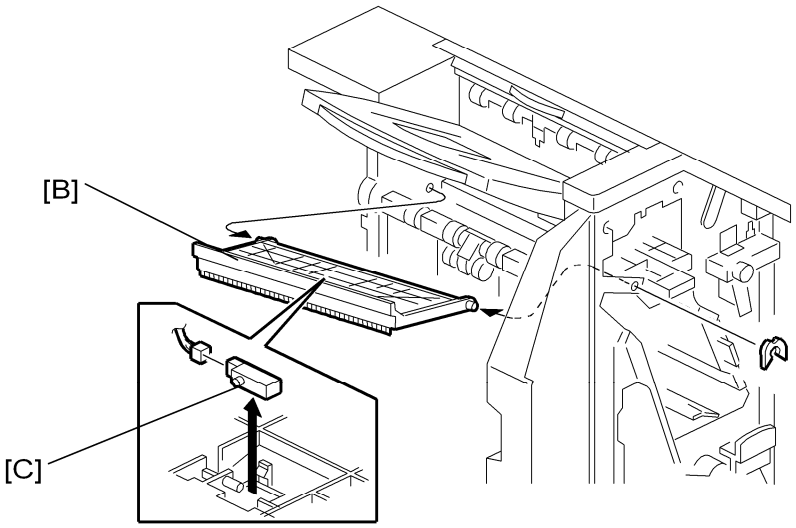


1. Remove the finisher entrance sensor with bracket [A] (x 1).
2. Remove the finisher entrance sensor [B] (x 1).

1.2.5 SHIFT TRAY EXIT SENSOR

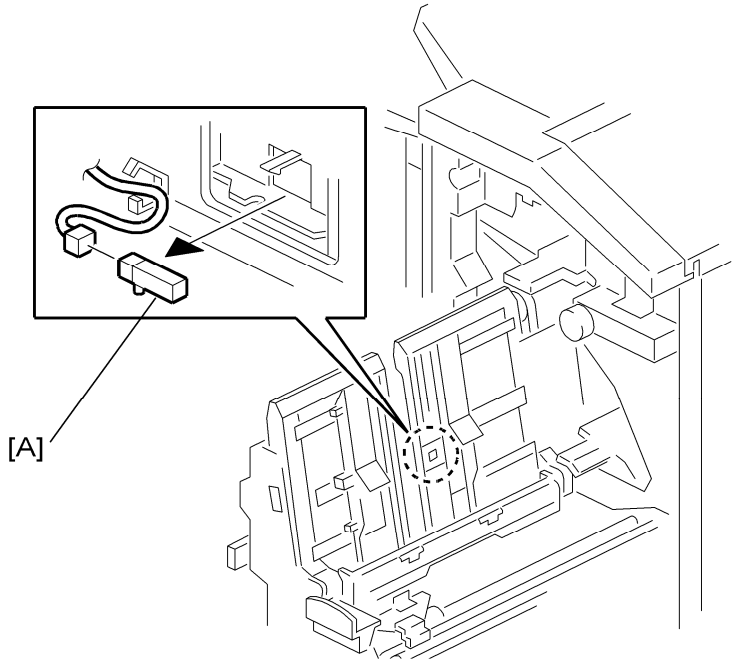


1. Remove the front cover and upper left cover.
2. Remove the link [A] (x 1).



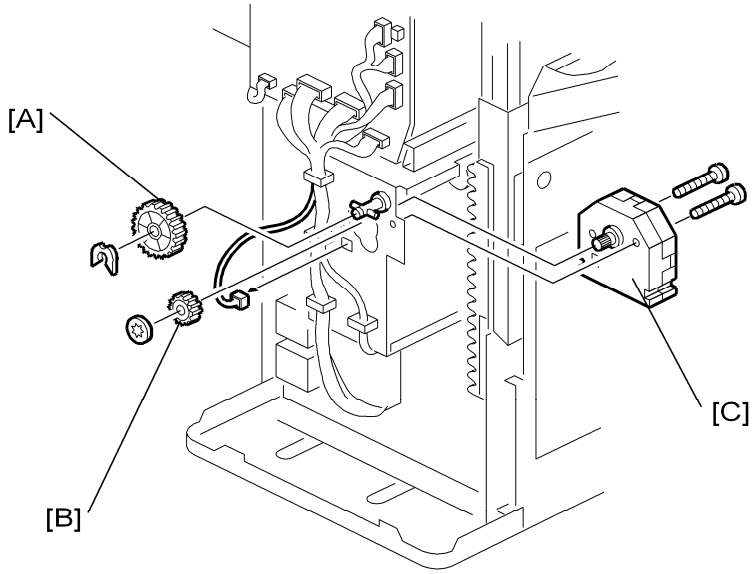
3. Remove the exit guide unit [B].
4. Remove the sensor [C] (x 1).

1.2.6 STAPLE TRAY PAPER SENSOR



1. Open the front cover.
2. Pull out the staple/fold unit.
3. Remove the staple tray paper sensor [A] (x 1).

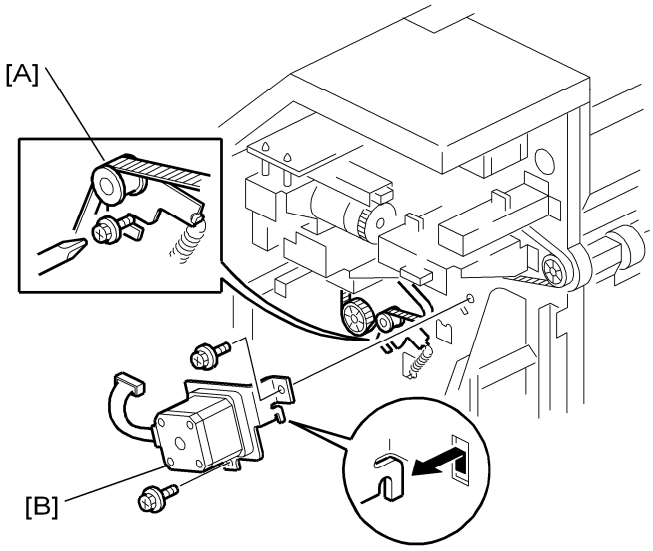
1.2.7 SHIFT TRAY MOTOR



1. Remove the rear cover.
2. Open the front cover, and then pull out the staple/fold unit.

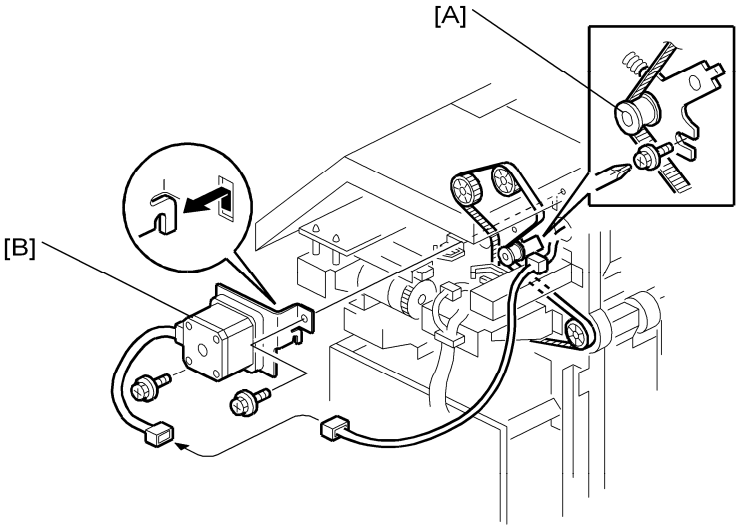
3. Remove the two gears [A], [B].
4. Remove the shift tray motor [C] (x 2, x 1)

1.2.8 ENTRANCE MOTOR



1. Remove the rear cover.
2. Release the belt tension [A].
3. Remove the entrance motor [B] (x 2, x 1).

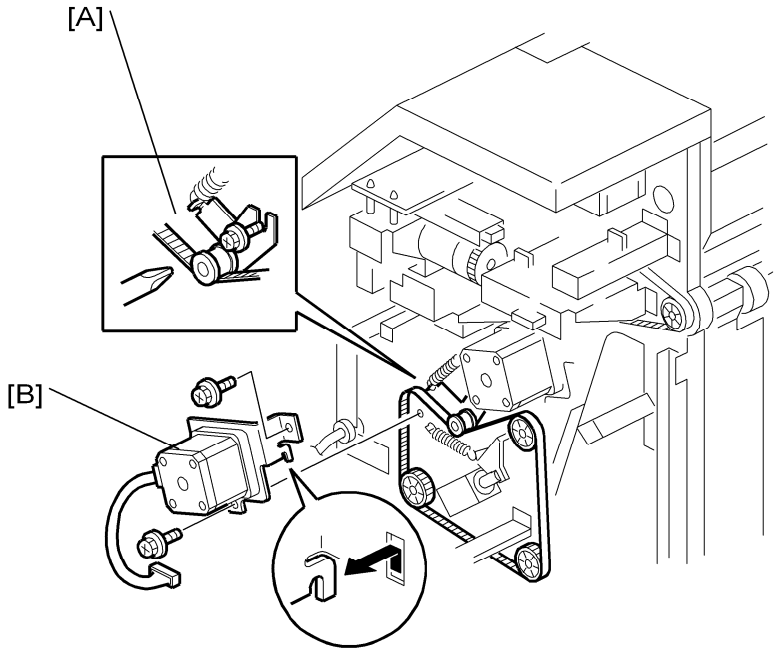
1.2.9 UPPER TRANSPORT MOTOR



1. Remove the rear cover.

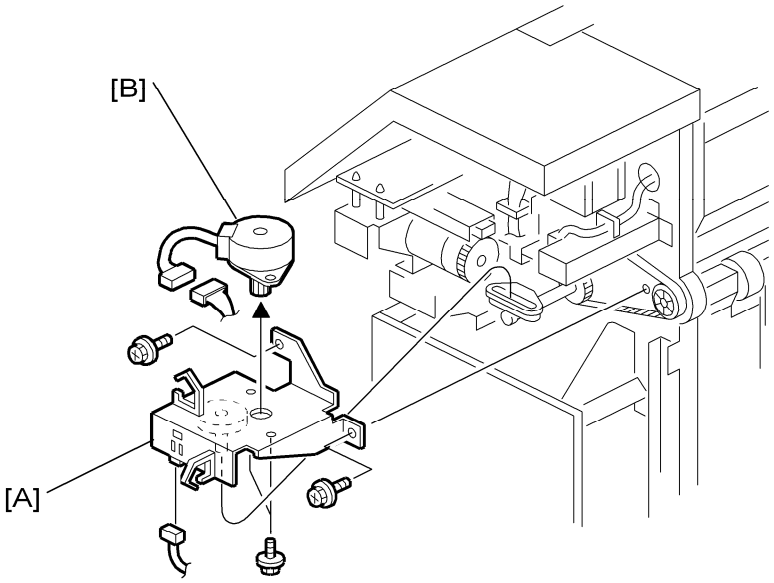
2. Release the belt tension [A].
3. Remove the upper transport motor [B] (x 2, x 1).

1.2.10 LOWER TRANSPORT MOTOR



1. Remove the rear cover.
2. Release the belt tension [A].
3. Remove the lower transport motor [B] (x 2, x 1).

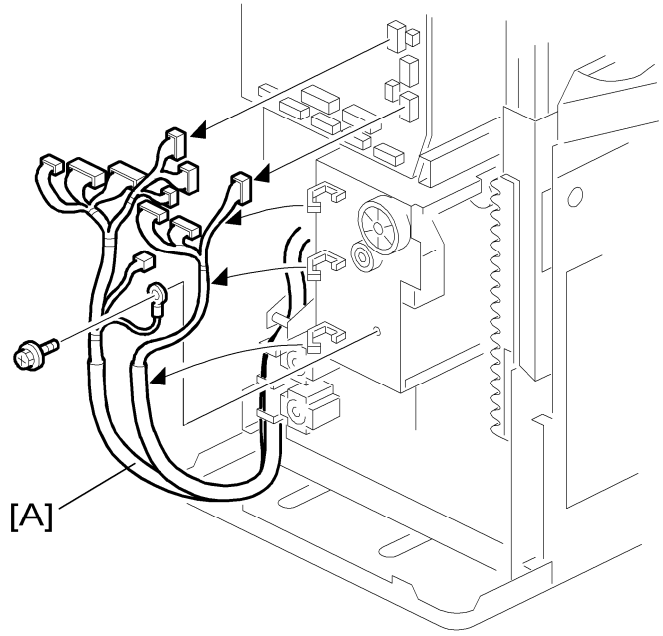
1.2.11 SHIFT MOTOR



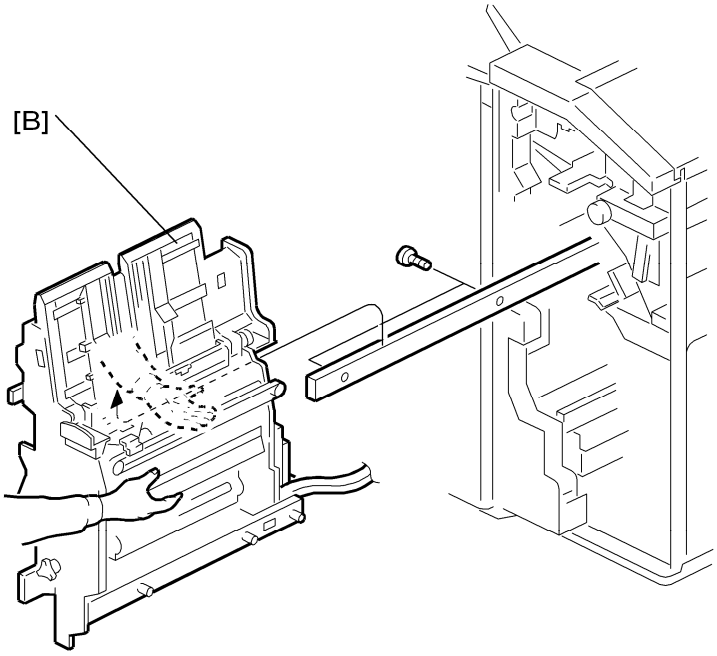
1. Remove the rear cover.
2. Remove the shift motor with bracket [A] (x 1, x 4)
3. Remove the shift motor [B] (x 1).

1.3 FOLDER

1.3.1 STAPLE FOLDER UNIT



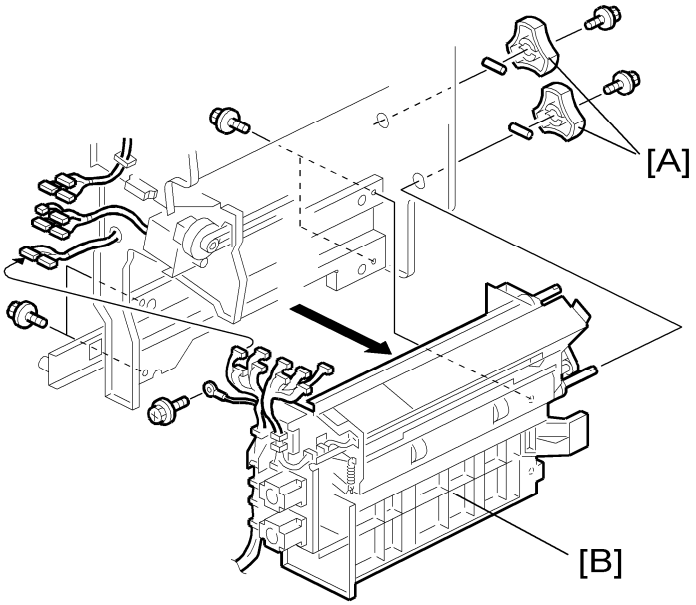
1. Remove the rear cover.
2. Disconnect all connectors and release the harness [A] for the staple folder unit (x 1, x 3).
3. Open the front cover.



4. Pull out and remove the staple folder unit [B] (x 2).

1.3.2 FOLDER UNIT

1. Remove the staple folder unit.

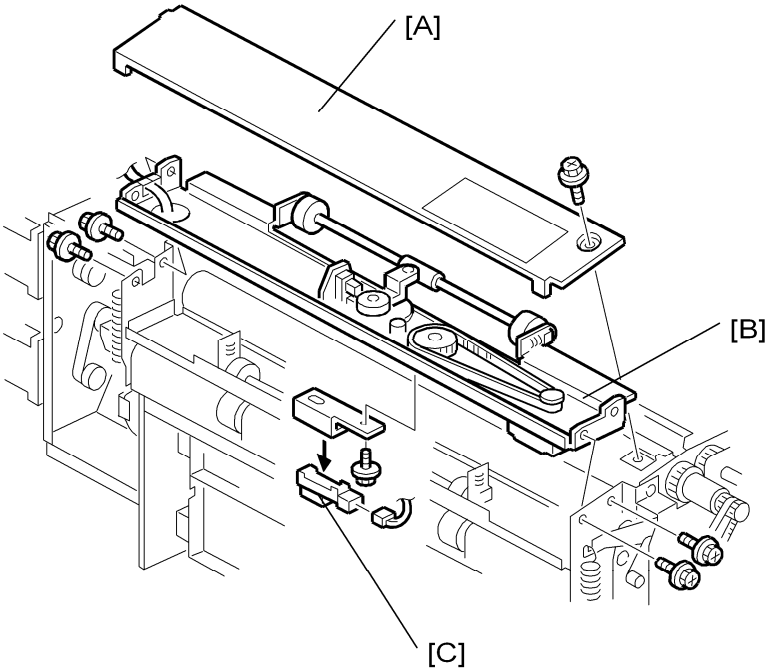


2. Remove the knobs [A] (x 1 each).

3. Disconnect the connectors.

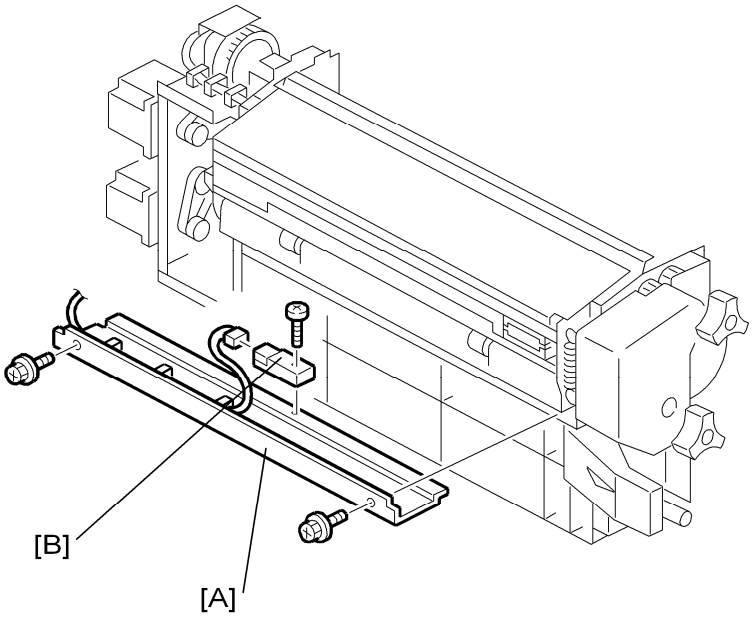
4. Remove the folder unit [B] (x 4).

1.3.3 FOLDER UNIT EXIT SENSOR



1. Remove the folder unit.
2. Remove the folder unit upper cover [A] (x 1).
3. Remove the lower clamp roller unit [B] (x 4).
4. Remove the folder unit exit sensor [C] (x 1, x 1).

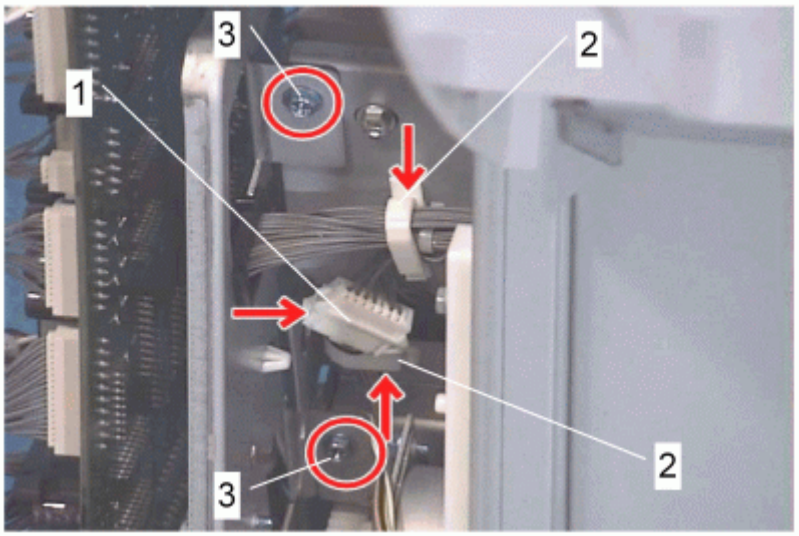
1.3.4 FOLDER UNIT ENTRANCE SENSOR



1. Open the front cover.
2. Pull out the staple folder unit.
3. Remove the exit cover [A] (x 2).
4. Remove the entrance sensor [B] (x 1, x 1).

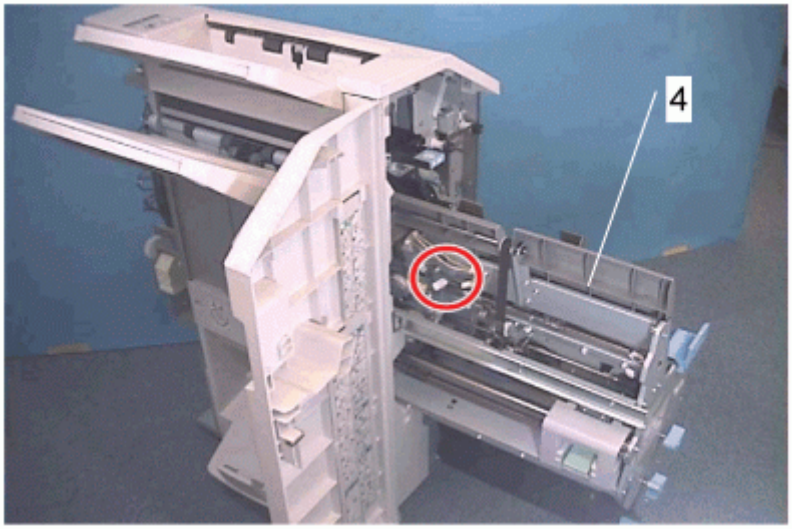
1.3.5 STAPLER UNIT

1. Remove the rear cover.

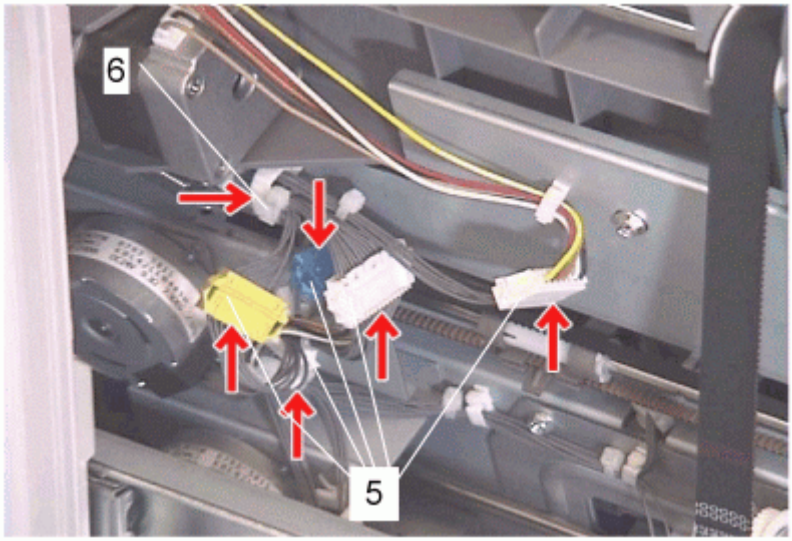


2. Disconnect the connector [1] and release the harness (x 2 [2]).
3. Remove two screws [3].

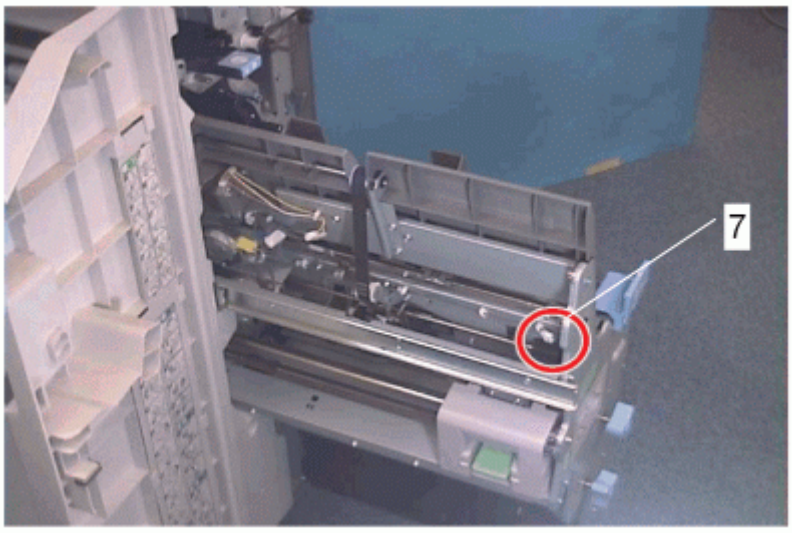
Folder



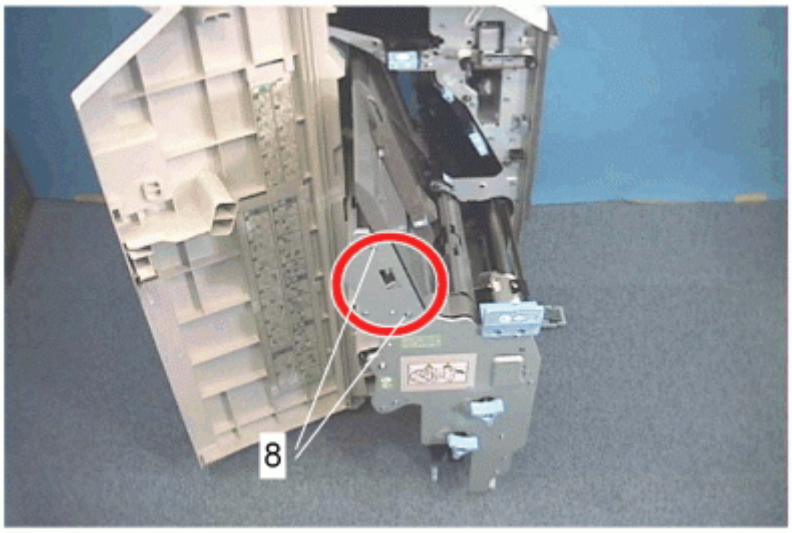
4. Open the front cover and pull out the staple folder unit [4].



5. Disconnect the connectors and release the harness. (4 connectors [5], 1 clamp [6])

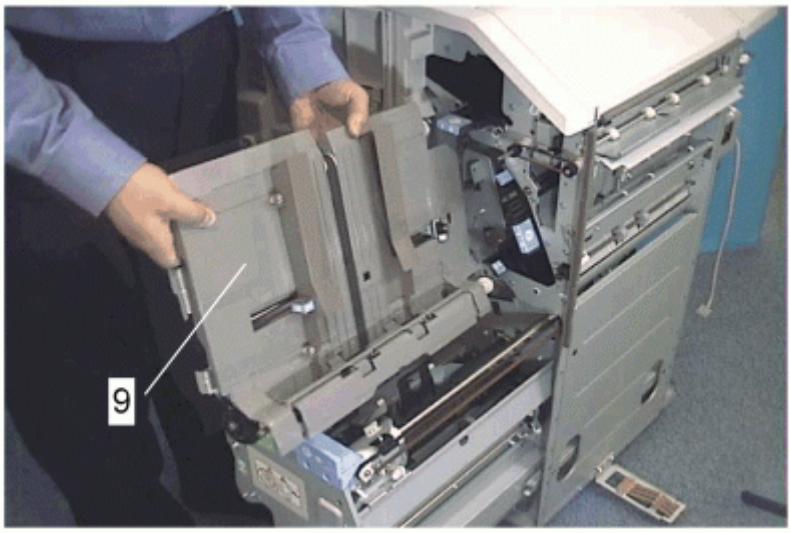


6. Remove a connector [7].

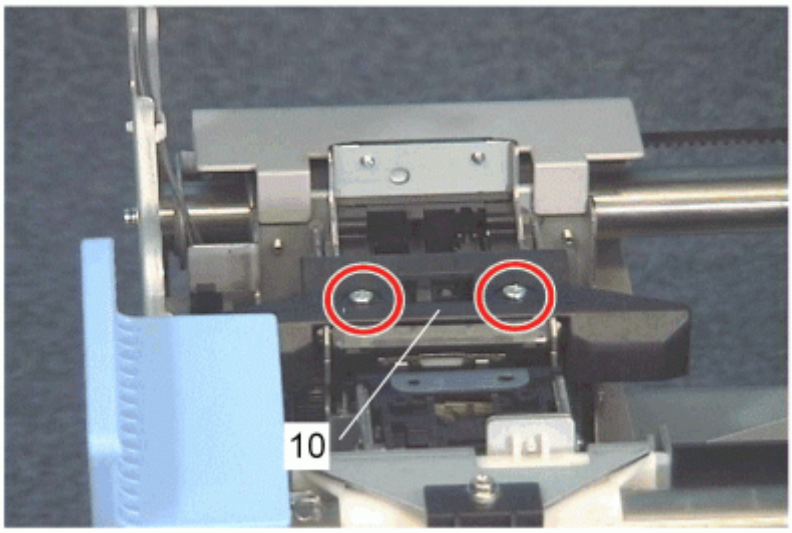


7. Remove 2 screws [8].

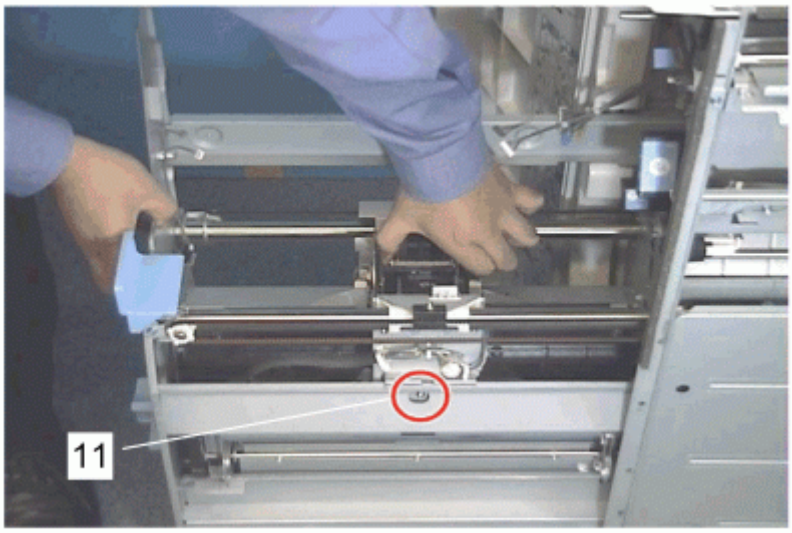
Folder



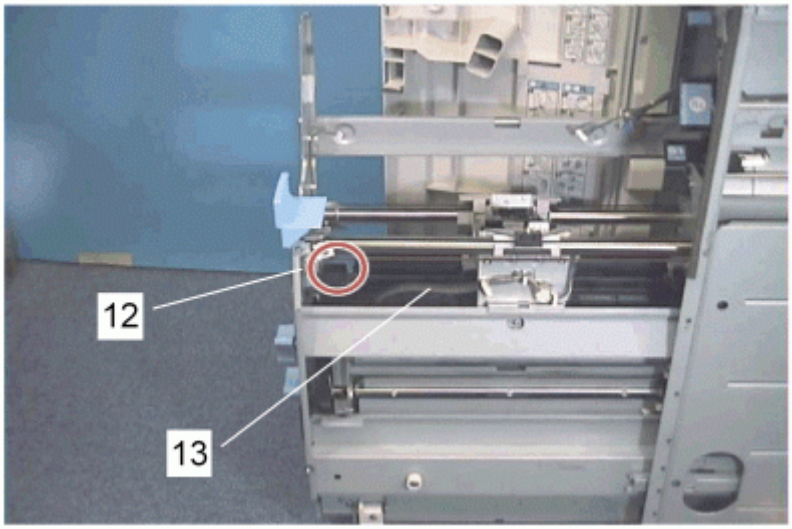
8. Remove the staple tray [9].



9. Remove the guide [10]. (2 screws)

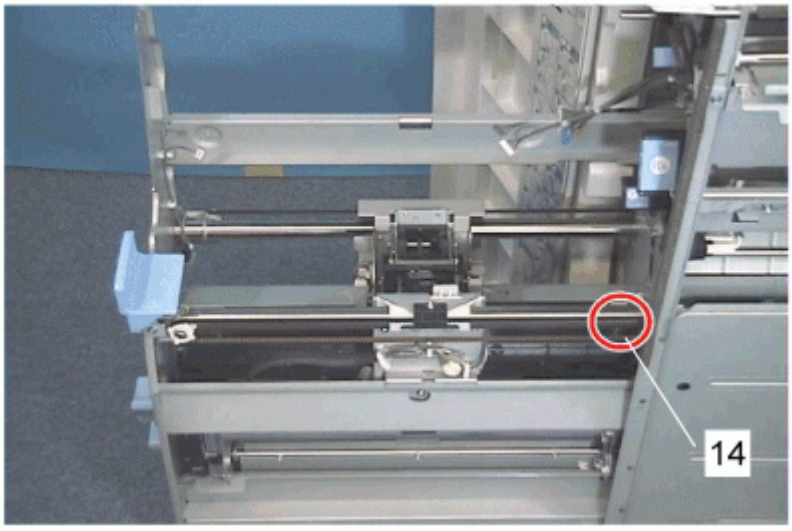


10. Move the stapler unit until its screw come to the hole [11] on the stay.

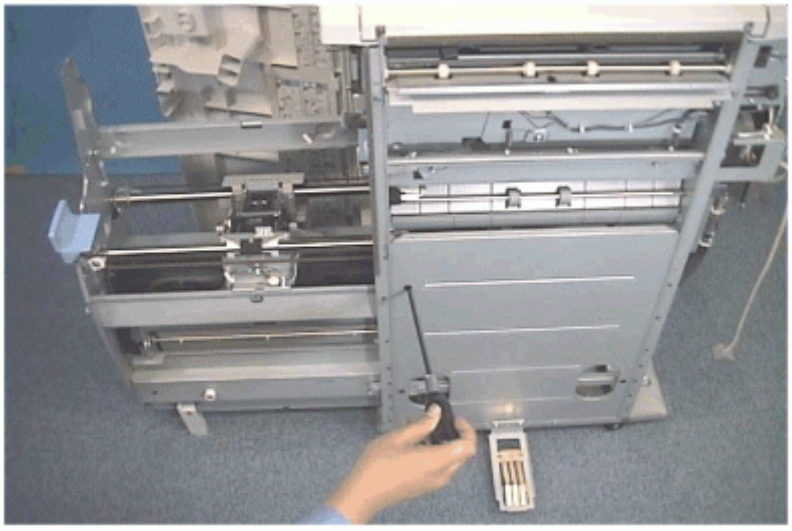


11. Remove the screw [12] that holds the front of the guide plate [13].

Folder

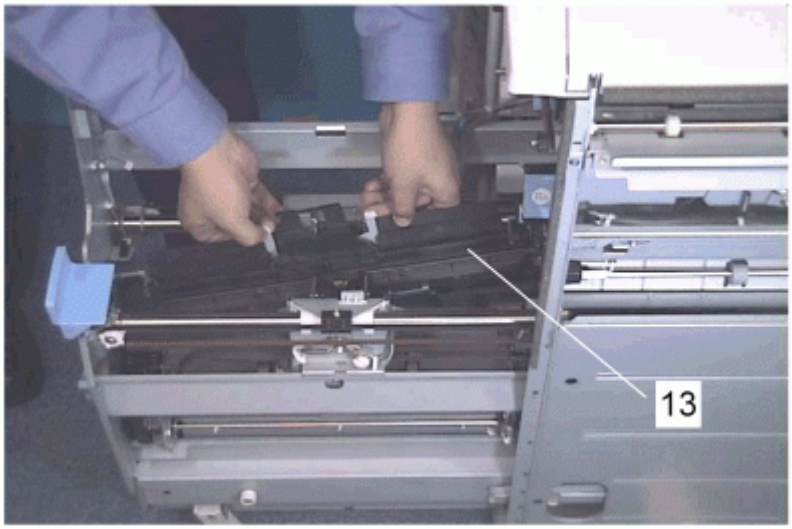


12. Remove the screw [14] that holds the rear of the guide plate.

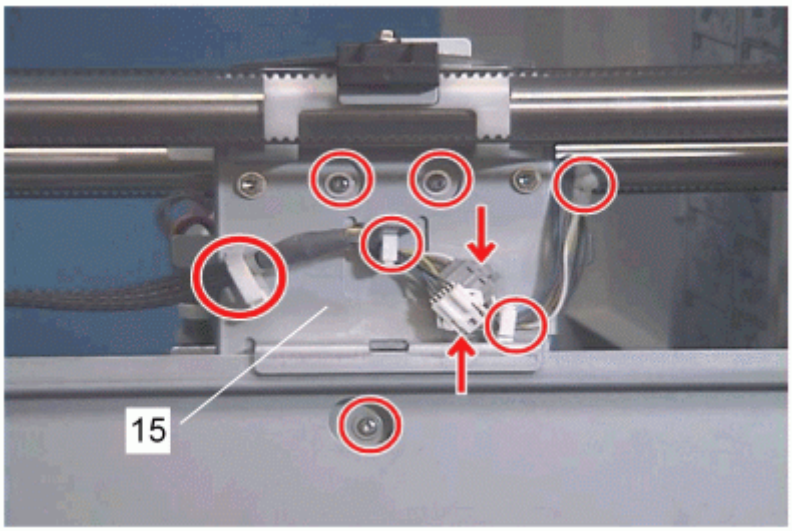


Note

- Remove the rear side screw through the hole in the stay.

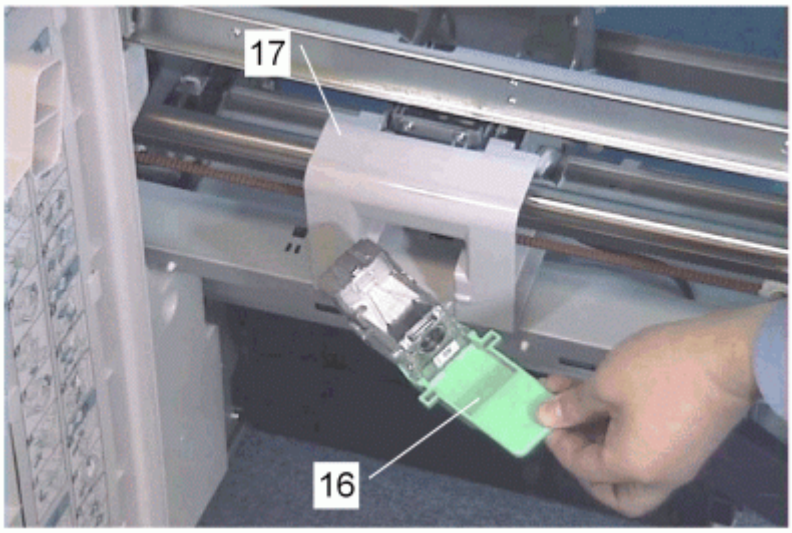


13. Remove the guide plate [13].



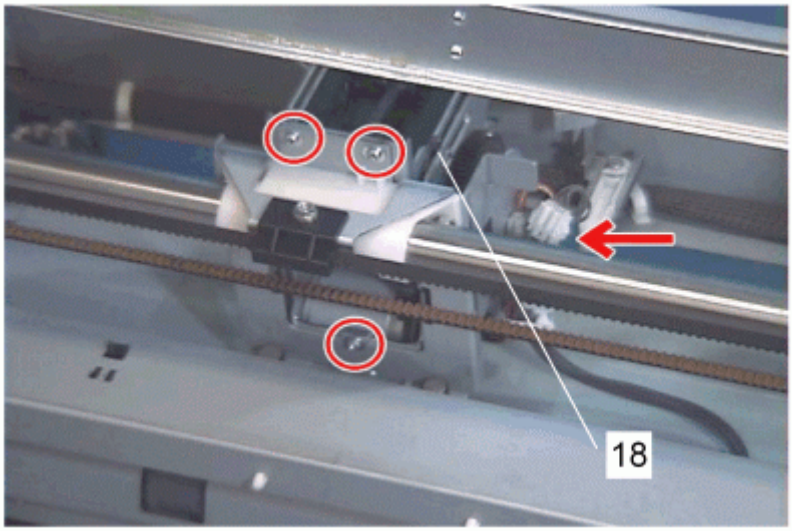
14. Remove the staple folding unit [15] (3 screws, 2 connectors).

Folder



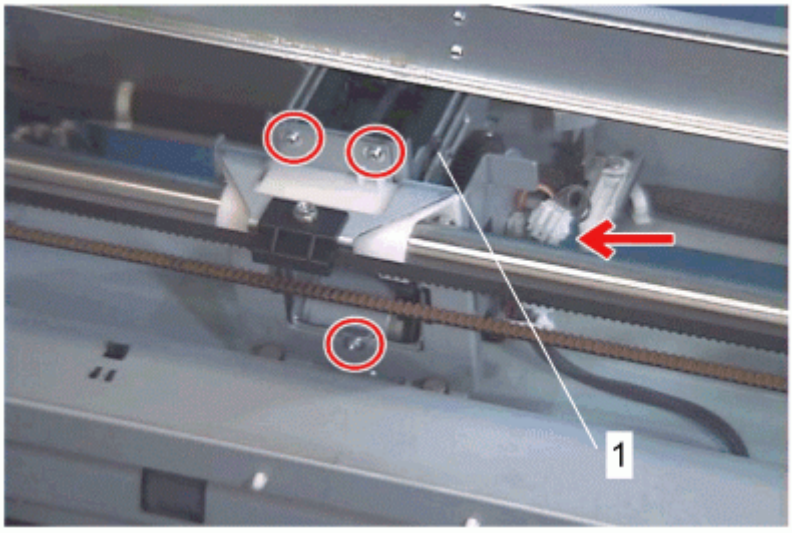
15. Remove the staple cartridge [16].

16. Remove the stapler unit cover [17].

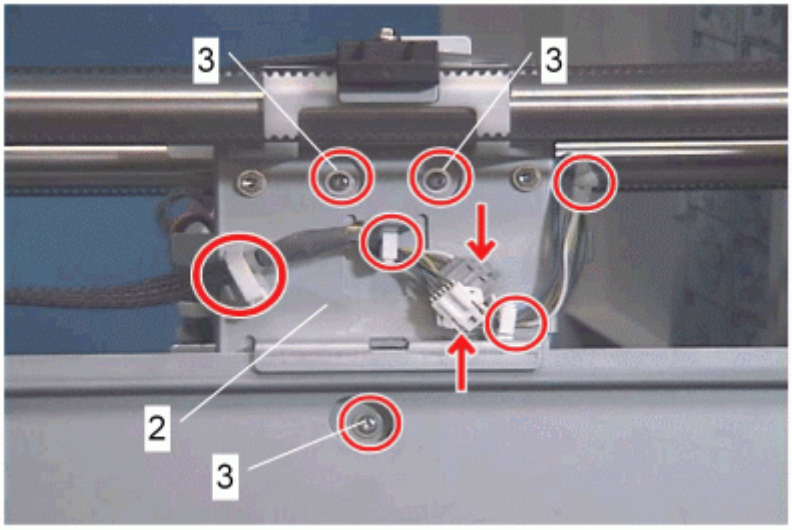


17. Remove the stapler drive unit [18].

Reassembly

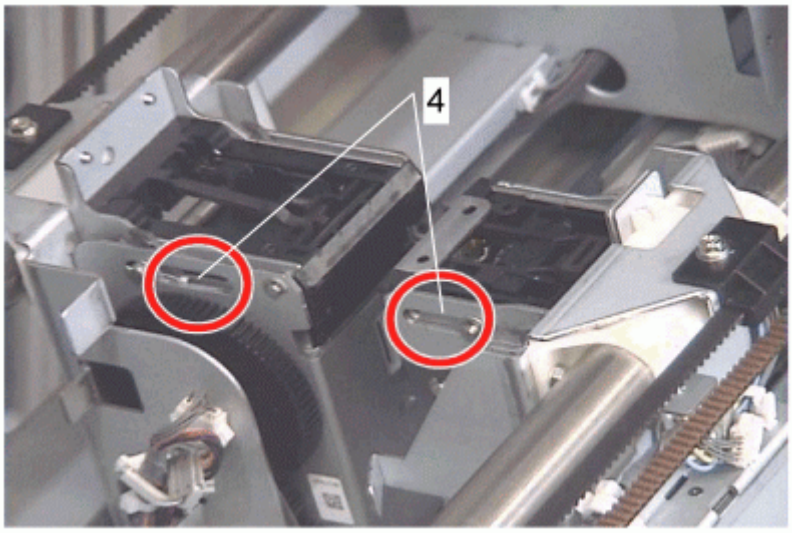


1. Mount the stapler drive unit [1].

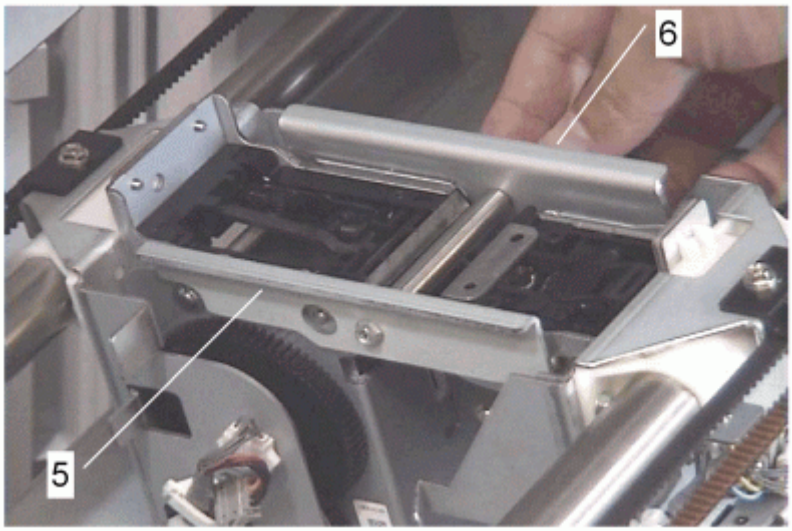


2. Mount the staple folder unit [2]. Do not tighten the screws [3] at this time.

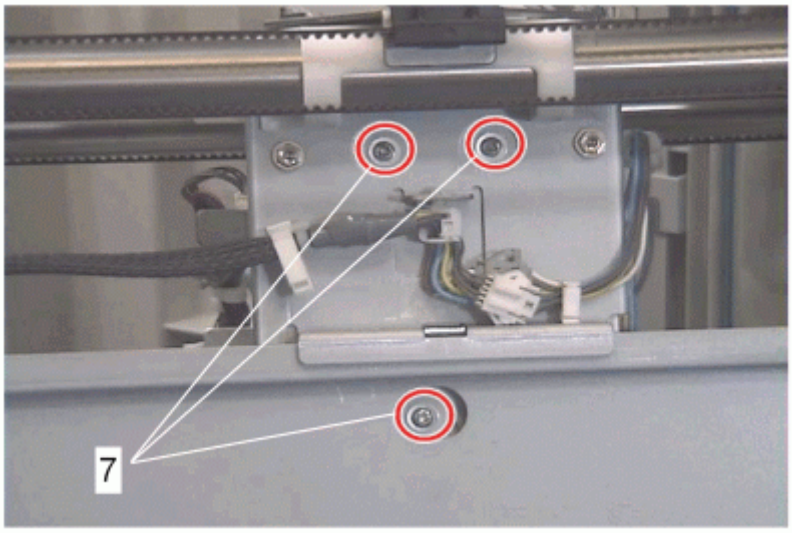
Folder



3. Set the special tool in the long hole [4] on both units.



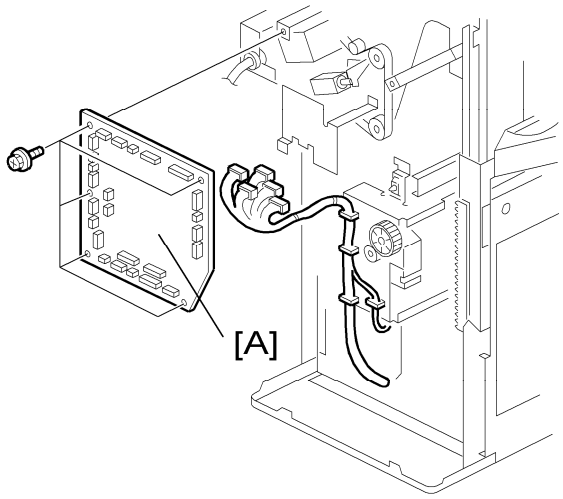
4. Secure the special tool [5] with the knob [6].



5. Tighten the screws [7] for the stapler folder unit.
6. Reassemble the machine.

1.4 OTHERS

1.4.1 MAIN BOARD



1. Remove the rear cover.
2. Remove the main board [A] (x 5).

1.5 DIP SWITCHES

SW100: Adjust the staple position for booklet mode

No.	Function
1	ON: 0.3 mm
2	ON: 0.6 mm
3	ON: 1.2 mm
4	Direction OFF: Towards the trailing edge, ON: Towards the leading edge

SW101: Adjust the fold position

No.	Function
1	ON: 0.2 mm
2	ON: 0.4 mm
3	ON: 0.8 mm
4	Direction OFF: Towards the trailing edge, ON: Towards the leading edge

SW102: Move the tray position

No.	Function
1	OFF → ON → OFF Turn the switch from off to on, then turn it to off again. Then, the tray moves down to the shipping position
2	Not used

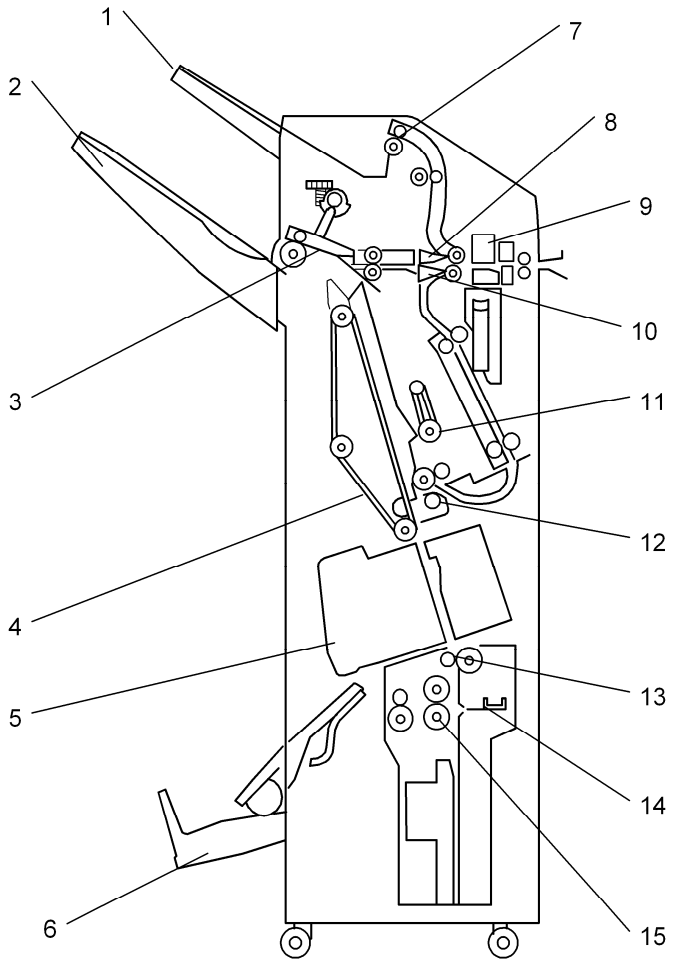
Note

- After you change any of these dip switch settings, open and close the finisher cover to activate the new setting. It is not necessary to turn the main power off/on.

2. DETAILED SECTION DESCRIPTIONS

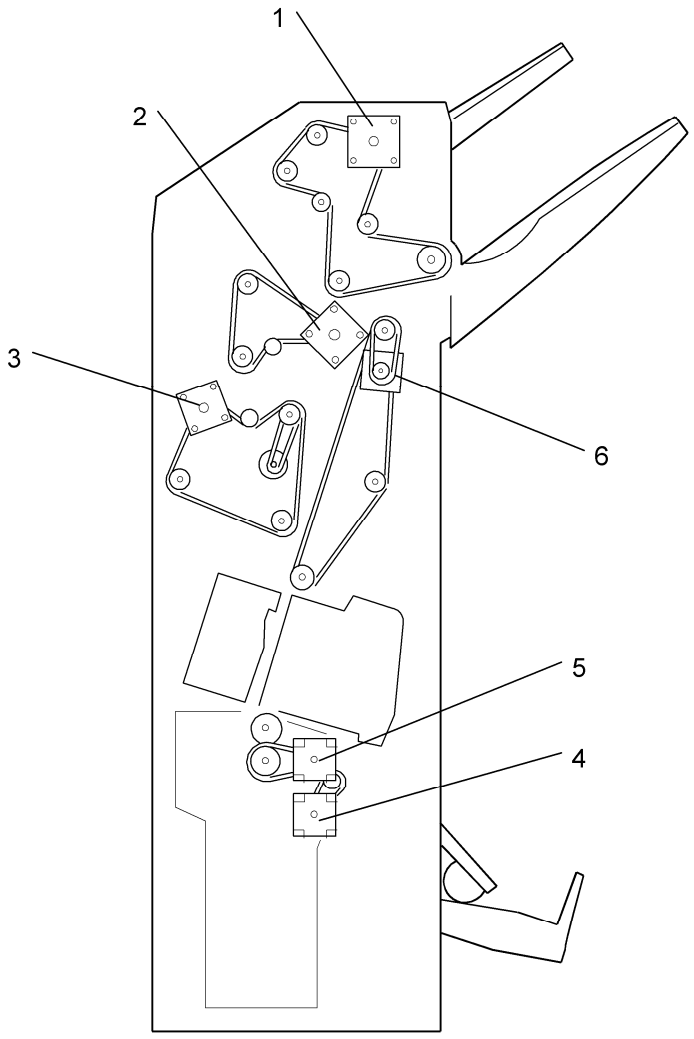
2.1 COMPONENT LAYOUT

2.1.1 MECHANICAL COMPONENT LAYOUT



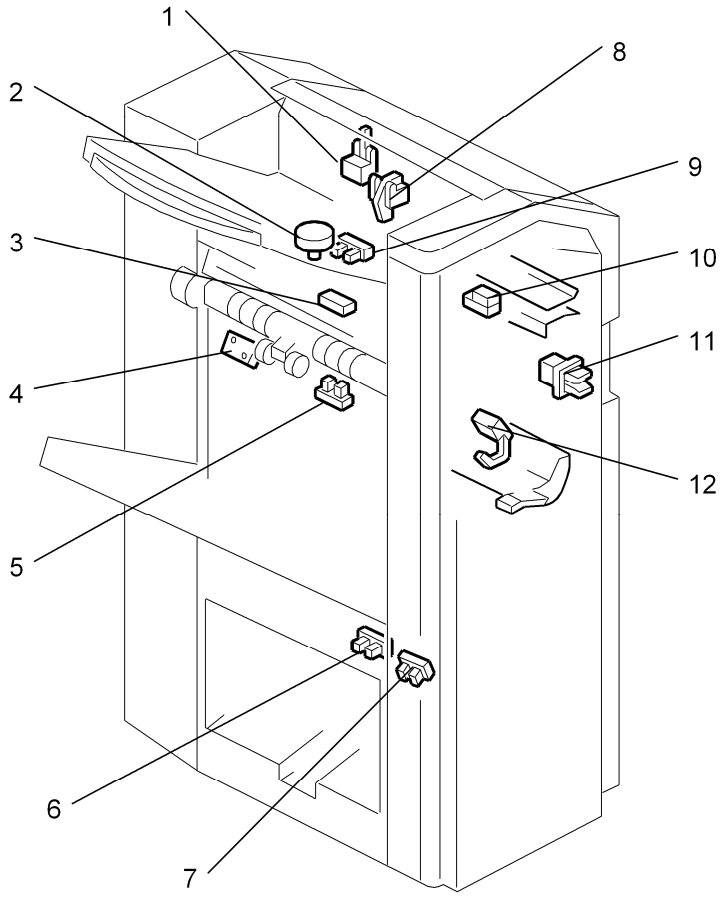
1. Proof Tray	2. Shift Tray	3. Exit Guide Plate
4. Stack Feed Out Belt	5. Staple Unit	6. Booklet Tray
7. Proof Tray Exit Roller	8. Proof Tray Junction Gate	9. Punch Unit
10. Staple Tray Junction Gate	11. Positioning Roller	12. 1st Clamp Roller
13. 2nd Clamp Roller	14. Folder Plate	15. Folder Roller

Drive Layout

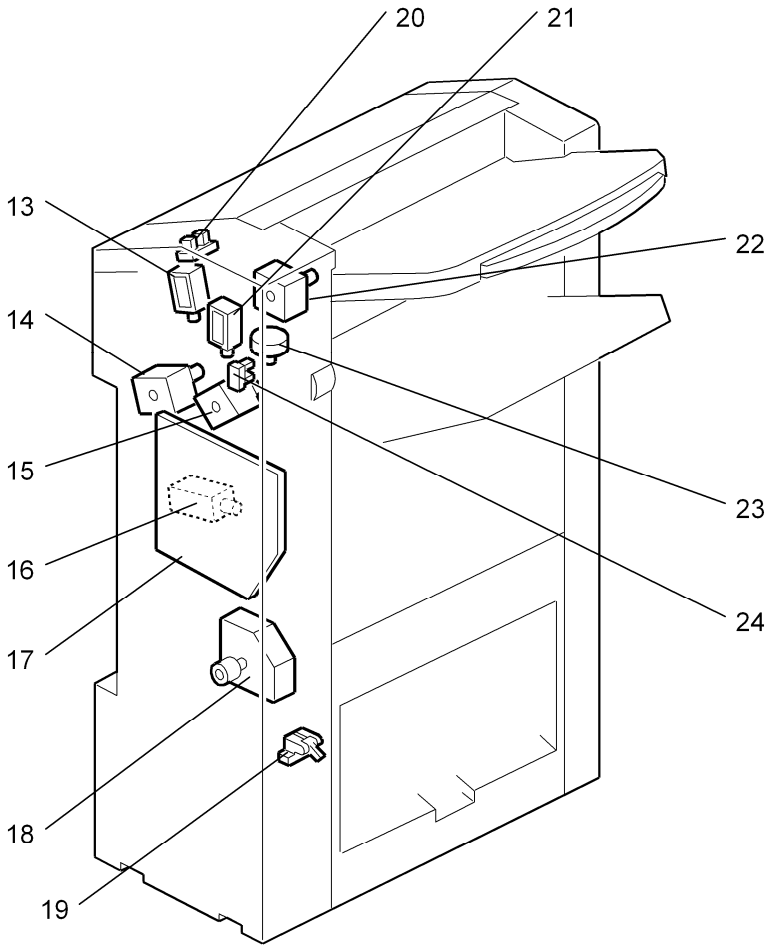


1. Upper Transport Motor
2. Entrance Motor
3. Lower Transport Motor
4. Fold Plate Motor
5. Fold Roller Motor
6. Stack Feed-out Motor

2.1.2 ELECTRICAL COMPONENT LAYOUT

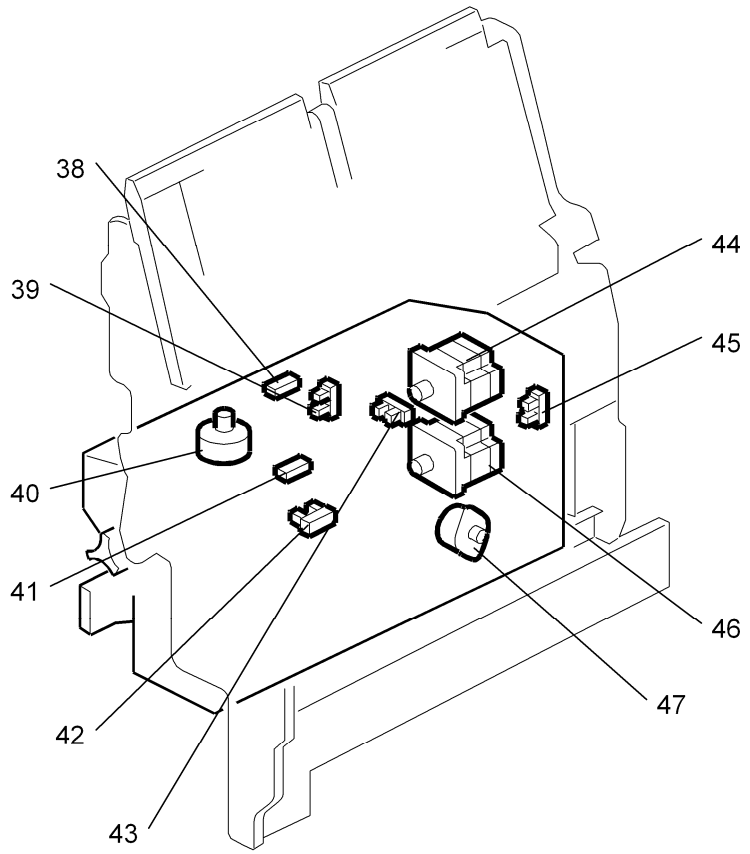


1. Proof Tray Exit Sensor
2. Exit Guide Plate Motor
3. Shift Tray Exit Sensor
4. Upper Limit Switch
5. Shift Tray Position Sensor
6. Rear Booklet Tray Full Sensor
7. Front Booklet Tray Full Sensor
8. Proof Tray Full Sensor
9. Exit Guide Plate HP Sensor
10. Entrance Sensor
11. Front Door Safety Switch
12. Staple Tray Exit Sensor

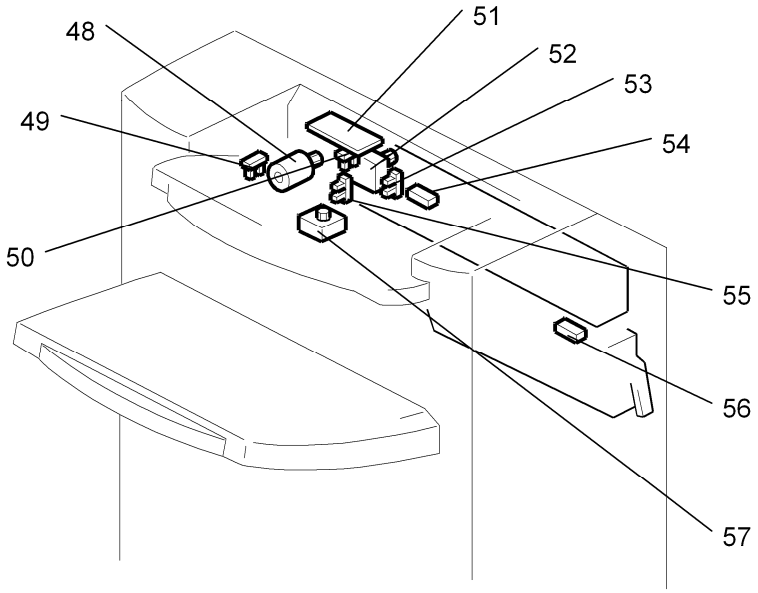


13. Proof Tray Gate Solenoid
14. Lower Transport Motor
15. Entrance Motor
16. Positioning Roller Solenoid
17. Main Board
18. Shift Tray Motor
19. Lower Limit Sensor
20. Upper Cover Sensor
21. Staple Tray Gate Solenoid
22. Upper Transport Motor
23. Shift Motor
24. Shift Motor HP Sensor

Component Layout



38. Fold Unit Exit Sensor
39. Lower Clamp Roller HP Sensor
40. Lower Retraction Motor
41. Fold Unit Entrance Sensor
42. Bottom Fence HP Sensor
43. Fold Cam HP Sensor
44. Fold Roller Motor
45. Fold Plate HP Sensor
46. Fold Plate Motor
47. Bottom Fence Lift Motor



48. Punch Motor
49. Punch Encoder Sensor
50. Punch HP Sensor
51. Punch Board
52. Paper Position Sensor Slide Motor
53. Paper Position Slide HP Sensor
54. Paper Position Sensor
55. Punch Movement HP Sensor
56. Punch Hopper Full Sensor
57. Punch Movement Motor

Component Layout

Electrical Component Descriptions

Boards

Item	No.	Purpose
Main Board	17	Controls the finisher.
Punch Board	51	Controls the punch unit.

Sensors

Item	No.	Purpose
Proof Tray Exit Sensor	1	Detects paper when it is fed out to the proof tray.
Shift Tray Exit Sensor	3	Detects paper when it is fed out to the shift tray.
Shift Tray Position Sensor	5	Detects when the shift tray is at the correct height to receive paper.
Rear Booklet Tray Full Sensor	6	One of two sensors that the machine uses to determine when the booklet tray is full.
Front Booklet Tray Full Sensor	7	One of two sensors that the machine uses to determine when the booklet tray is full.
Proof Tray Full Sensor	8	Detects when the proof tray is full.
Exit Guide Plate HP Sensor	9	Detects when the exit guide plate is at home position
Entrance Sensor	10	Detects when paper comes into the finisher
Staple Tray Exit Sensor	12	Detects paper leaving the bottom of the stapler
Lower Limit Sensor	19	Detects when the shift tray has moved to its lowest possible position (the shift tray is full).
Upper Cover Sensor	20	Detects when the upper cover is open
Shift Motor HP Sensor	24	Detects when the side-to-side motion of the shift roller is at home position

Item	No.	Purpose
Stopper S HP Sensor	28	Detects when the 'stopper S' mechanism is at home position.
Stack Feed Out HP Sensor	29	Detects when the stack feed-out belt is at home position
Staple Unit HP Sensor	30	Detects when the side-to-side motion of the stapler unit is at home position
Jogger HP Sensor	34	Detects when the jogger unit is at home position
Staple Tray Paper Sensor	35	Detects when paper is fed into the stapler tray
Stapler Safety Sensor	37	Stops side-to-side movement of the stapler until stopper S and the stack feed-out pawl mechanisms are at home position, to prevent damage to the machine.
Fold Unit Exit Sensor	38	1) Detects the folded edge of the stack as it feeds out from the nip of the fold rollers so the fold feeds back into the nip, 2) when the folded booklet finally emerges from the nip of the fold rollers, detects the leading and trailing edge of the booklet to make sure that it feeds out correctly.
Lower Clamp Roller HP Sensor	39	Detects when the lower clamp roller is at home position
Fold Unit Entrance Sensor	41	Detects 1) the leading edge of the stack during booklet stapling, and 2) also used to signal an alarm if a paper is detected at the entrance of the fold unit when the copier is turned on.
Bottom Fence HP Sensor	42	Detects when the bottom fence of the booklet folding mechanism is at home position
Fold Cam HP Sensor	43	Along with the fold plate HP sensor, this sensor controls the movement of the fold plate. The actuator mounted on the end of the roller that drives the folder plate forward and back makes three full rotations, i.e. the actuator passes the sensor gap twice and stops on the 3rd rotation and reverses. This accounts for the left and right movement of the fold plate.
Fold Plate HP Sensor	45	Along with the fold plate HP sensor this sensor controls the movement of the fold plate. The fold plate has arrived at the home position when the edge of the plate enters the gap of this sensor.
Punch Encoder Sensor	49	Controls the timing for activating the punches, to punch holes in the paper at the correct position.

Component Layout

Item	No.	Purpose
Punch HP Sensor	50	Detects when the hole-punch firing mechanism is at home position
Paper Position Slide HP Sensor	53	Detects when the mechanism that measures the paper position in the punch unit is at home position
Paper Position Sensor	54	Detects the side edge of the paper, to tell the machine where to put the punch holes.
Punch Movement HP Sensor	55	Detects when the side-to-side motion of the punch unit is at home position.
Punch Hopper Full Sensor	56	Detects when the punch hopper is full. Also checks if the hopper is installed correctly.

Motors

Item	No.	Purpose
Exit Guide Plate Motor	2	Controls the exit guide plate mechanism.
Lower Transport Motor	14	Controls the positioning roller, and other rollers in the finisher (see 'Drive Layout' for details).
Entrance Motor	15	Controls the rollers at the entrance of the finisher.
Shift Tray Motor	18	Moves the shift tray up and down.
Upper Transport Motor	22	Controls the rollers that feed paper from the junction gate to the proof tray and to the shift tray (see 'Drive Layout' for details).
Shift Motor	23	Moves the shift tray from side to side.
Stack Feed Out Motor	25	Controls the stack feed-out belt
Jogger Motor	26	Controls the jogger in the stapler tray
Upper Retraction Motor	27	Controls the 'stopper S' mechanism. Also moves the upper clamp roller into contact and away from the stack of paper in the stapler tray.
Upper	33	Rotates the upper clamp roller.

Item	No.	Purpose
Clamp Roller Motor		
Stapler Unit Motor	36	Moves the stapler from side to side.
Lower Retraction Motor	40	Drives a large cam that alternately clamps and unclamps the lower clamp roller, which is the idle roller of the clamp roller pair. When these rollers are clamped, they are part of the paper feed path and feed the stack toward the bottom fence of the fold unit. When the idle roller is retracted, the stacks falls a very short distance (3 mm) onto the fold unit bottom fence below. These rollers remain unclamped while the bottom fence positions the stack for folding and while the stack is folded by the fold rollers.
Fold Roller Motor	44	Controls the rollers that fold the paper.
Fold Plate Motor	46	Controls the plate that makes the fold in the paper.
Bottom Fence Lift Motor	47	Raises the bottom fence and stapled stack to the correct fold position for the paper size.
Punch Motor	48	Punches the holes in the paper.
Paper Position Sensor Slide Motor	52	Controls side-to-side movement of the paper position sensor in the punch unit.
Punch Movement Motor	57	Moves the punch from side to side.

Solenoids

Item	No.	Purpose
Proof Tray Gate Solenoid	13	Controls the proof tray junction gate
Positioning Roller Solenoid	16	Controls the positioning roller.
Staple Tray Gate Solenoid	21	Controls the staple tray junction gate

Switches

Item	No.	Purpose
Upper Limit Switch	4	Detects when the shift tray is at the highest possible position, and cuts power to the shift tray motor.

Component Layout

Item	No.	Purpose
Front Door Safety Switch	11	Cuts dc power when the front door is opened.

Others

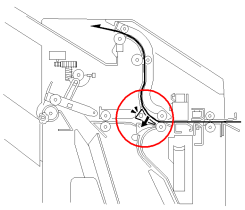
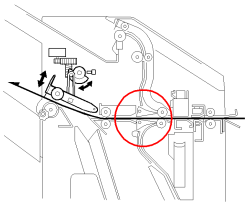
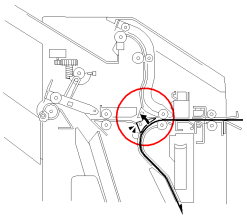
Item	No.	Purpose
Staple Driver Unit	31	Pushes the staples into the paper.
Staple Folder Unit	32	Folds the ends of the staples after stapling

2.2 JUNCTION GATES

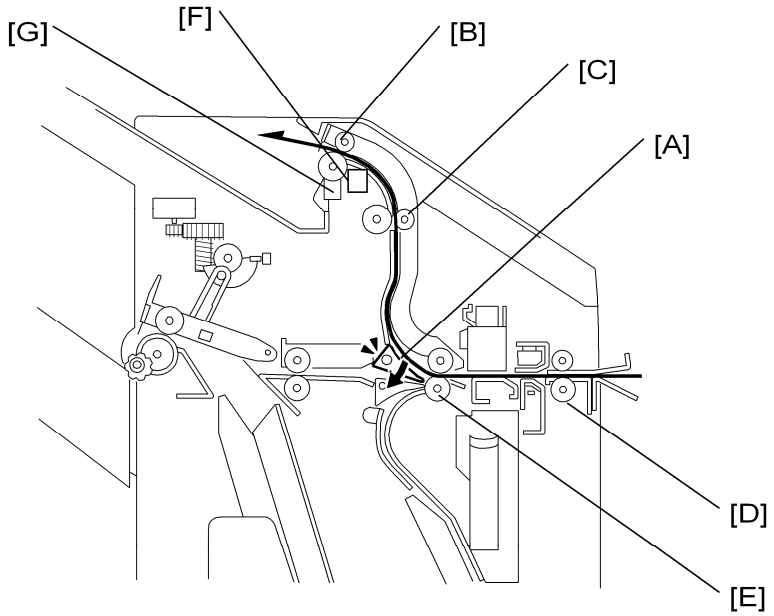
Two junction gates control the path of paper.

Each junction gate is controlled by a solenoid.

Junction gate operation is summarized in the following table.

Mode	Proof	Shift	Staple
Paper Path			
Proof Tray Gate Solenoid	ON	OFF	OFF
Staple Tray Gate Solenoid	OFF	OFF	ON

2.3 PROOF TRAY



Proof Tray Junction Gate Control [A]: Proof Tray Gate Solenoid

Roller Drive:

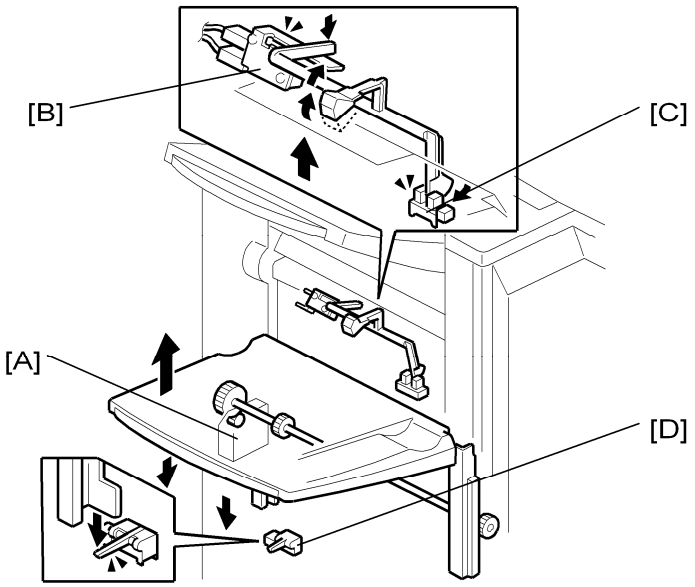
- Proof Tray Exit Roller [B], Proof Tray Transport Roller [C]: Controlled by the Upper Transport Motor
- Entrance Roller [D], Transport Roller [E]: Controlled by the Entrance Motor

Jam Detection: Proof Tray Exit Sensor [F]

Tray Full Detection: Proof Tray Full Sensor [G]

2.4 SHIFT TRAY

2.4.1 UP/DOWN MOTION



The shift tray motor [A] moves the tray up and down.

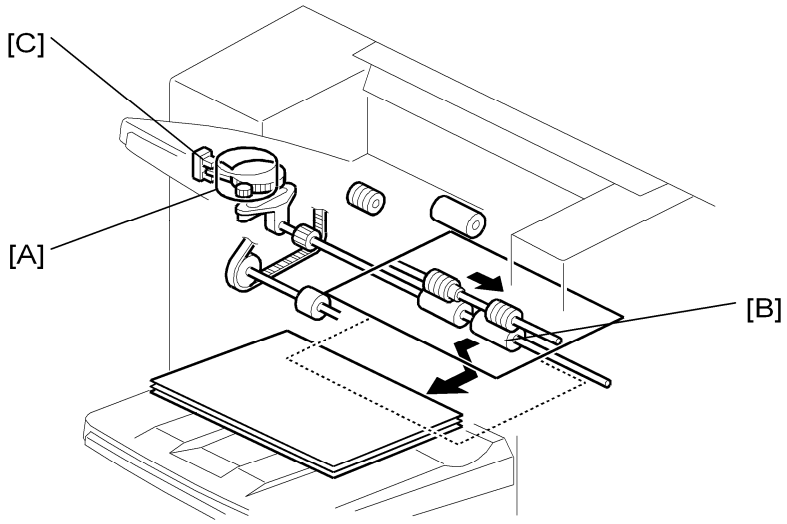
The upper limit switch [B] detects when the tray moves up too far, and cuts power to the shift tray motor.

The shift tray position sensor [C] checks when the tray (or the top of the stack) is at the correct height to receive paper.

- Shift Mode: This is checked every 5 sheets
- Staple Mode: This is checked every stack

The lower limit sensor [D] detects when the tray is full. At this point, the tray cannot move down any more.

2.4.2 SIDE-TO-SIDE MOTION



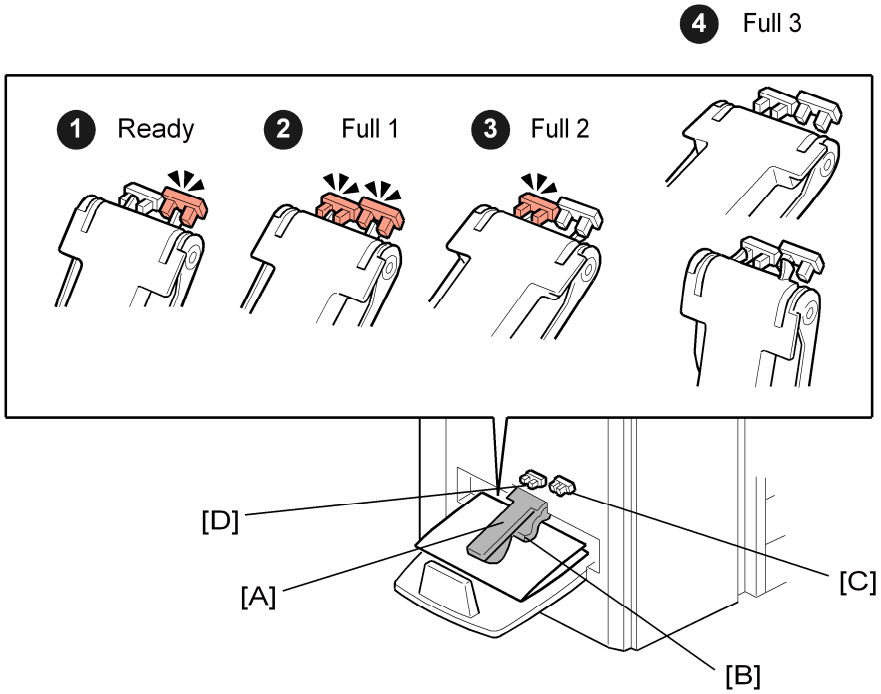
The shift motor [A] moves the shift roller [B] from side to side.

The shift motor HP sensor [C] detects when the mechanism is at home position.

The upper transport motor rotates the shift roller.

When shift mode is used, the shift motor turns on after each page is fed out. Then, for the next set, the shift motor turns the other way. In this way, the user can easily divide the sets.

2.5 BOOKLET TRAY



The sensor actuator arm [A] rests on the top of the stack of stapled booklets as they are output to the lower tray. A flap depressor [B] keeps the open ends of the booklets down. The front booklet tray full sensor [C] and rear booklet tray full sensor [D] detect when the tray is full of booklets.

Note

- The front booklet tray full sensor is mounted higher than the rear booklet tray full sensor.
- The booklet tray is stationary. When it becomes full, the stapling and folding job stops until booklets are removed from the tray.
- If the booklet tray is not installed (this is detected if the front and rear sensors remain OFF), the machine will not operate in the booklet staple and fold mode. When booklet mode is selected, the tray full message appears on the operation panel.

The combinations of the two actuators and two sensors when the actuator arm rises determines the number of booklets that the tray can hold before the job stops.

Tray full detection depends on the size of the paper and the number of sheets in one stapled and folded booklet.

The condition detected by the machine (❶ Ready ❷ Full 1, ❸ Full 2, ❹ Full 3; see the illustration above) depends on the states of the sensors, as shown in the table below.

Booklet Tray

Condition	Front Sensor	Rear Sensor
Ready	ON	OFF
Full 1	ON	ON
Full 2	OFF	ON
Full 3 (or booklet tray not installed)	OFF	OFF

In the tables below:

- "Sht" denotes "sheets in a stack".
- "Cnt" denotes "Count" (see below for an explanation).

After a booklet is feed out, the fold roller motor stops the exit roller. The machine then monitors the tray full sensors every feed-out of a paper stack. The machine checks a certain condition, based on the size of the paper and the number of sheets in the booklet. Two examples are shown below the table. Tell the operators that the number of sheets that the lower tray can hold will vary greatly.

- Lower Tray Full Condition Tables -

A3 (DLT)

Sheet	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Full 1	**15 Cnt**	-	-	-	-	-	-	-	-	-
Full 2	-	3 Cnt	11 Cnt	-	-	-	-	-	-	-
Full 3	-	-	-	16 Cnt	12 Cnt	2 Cnt	3 Cnt	5 Cnt	6 Cnt	7 Cnt

A4 (LT)

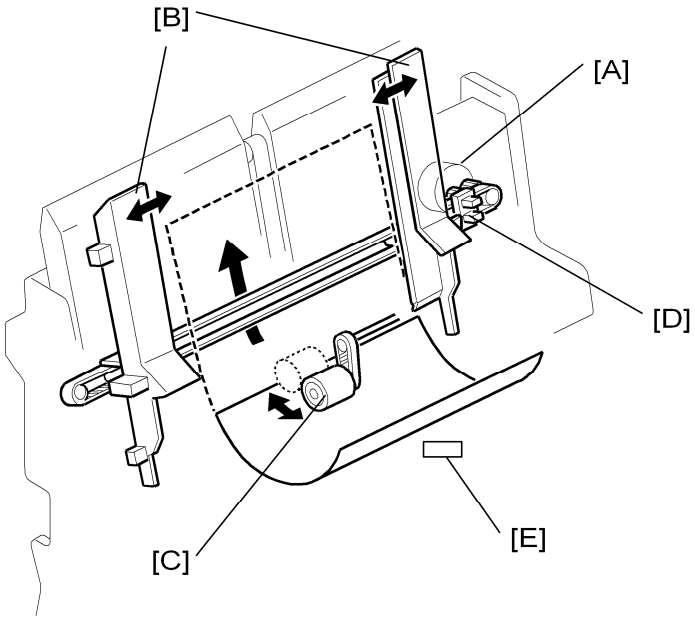
Sheet	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Full 1	**15 Cnt**	-	-	-	-	-	-	-	-	-
Full 2	-	8 Cnt	16 Cnt	19 Cnt	**5 Cnt**	2 Cnt	2 Cnt	2 Cnt	3 Cnt	4 Cnt
Full 3	-	-	-	-	-	-	-	-	-	-

- Examples -

After the copier makes a booklet with 1 sheet of 11 x 17 inch paper, the machine checks every feed-out of a paper stack for the ‘Full 1’ condition. If the Full 1 condition occurs 15 times (‘**15 Cnt’** in the table above), the machine detects that the tray is full.

After the copier makes a booklet with 5 sheets of A4/LT paper, the machine checks every feed-out of a paper stack for the ‘Full 2’ condition. If the Full 3 condition occurs 5 times (‘**5 Cnt’** in the table above), the machine detects that the tray is full.

2.6 JOGGER UNIT



The jogger is used in corner-staple mode and in booklet mode.

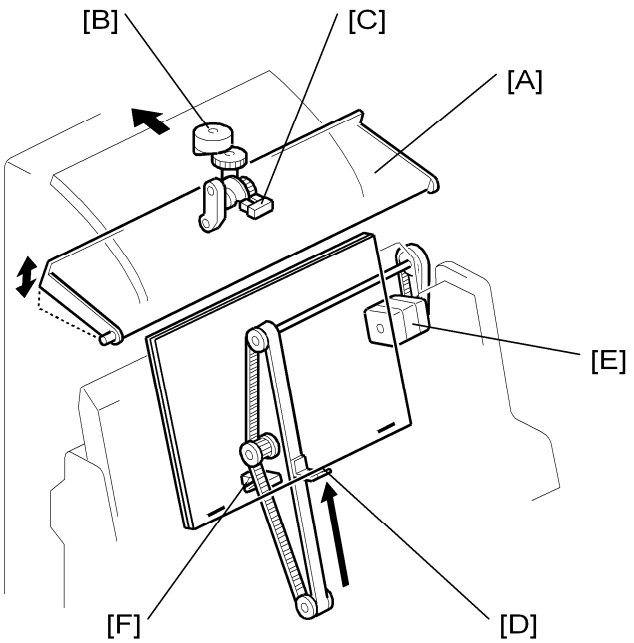
For each sheet of paper when it arrives in the staple tray, the following is done.

- The jogger motor [A] drives the jogger fences [B].
- The positioning roller solenoid moves the positioning roller [C] onto the top of the sheet. Then the lower transport motor turns on and the positioning roller rotates to push the sheet of paper against the stopper (there are two stoppers: stopper L or stopper S the one that is used depends on the paper size, as we shall see later.)

The jogger HP sensor [D] detects when the jogger fences are at home position (away from the stack).

The staple tray exit sensor [E] detects if a jam occurs when the machine feeds the stack out at the bottom of the jogger tray.

2.7 EXIT GUIDE PLATE, PAPER FEED OUT



The exit guide plate [A] opens when a stapled stack is fed out.

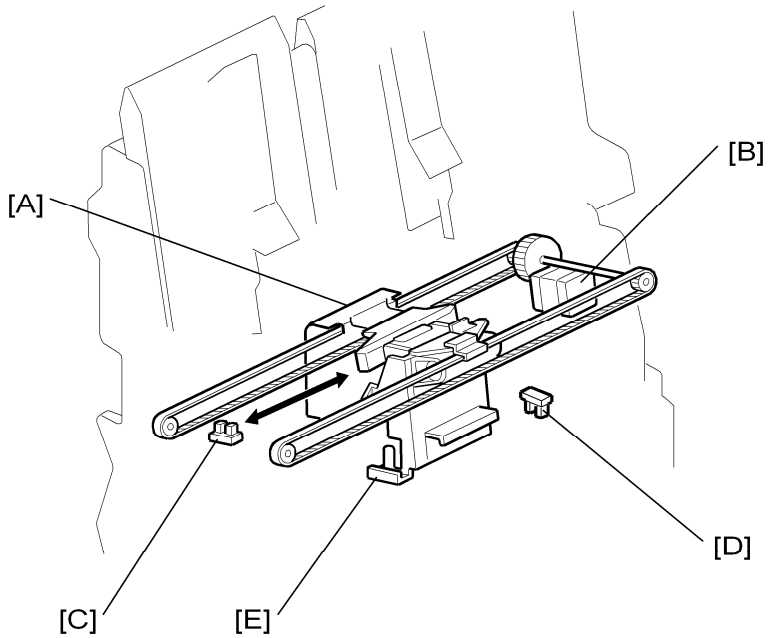
Also it opens every time a sheet is fed to the staple tray, to prevent the paper running into the exit roller during stacking.

The exit guide plate motor [B] drives the exit guide plate. The exit guide plate HP sensor [C] detects when the guide plate is at home position.

The stack feed-out belt feeds out stapled stacks. The pawl [D] on the belt moves the stack out to the exit.

The stack feed-out motor [E] drives the belt. The stack feed-out HP sensor [F] detects when the belt is at home position.

2.8 STAPLER UNIT MOVEMENT



The machine has only one stapler [A]. It does stapling for booklets and for corner stapling. The stapler unit motor [B] moves the stapler from side to side. The stapler unit HP sensor [C] detects when the stapler unit is at home position.

In corner staple mode, at the start of the job, the stapler moves to the position where the stapler will be inserted.

In booklet mode, at the start of a job, the stapler moves to a starting position that depends on the paper size, as follows:

- 8.5 x 14 inches or shorter: Rear side staple position
- Longer than 8.5 x 14 inches: Center position. When the stapler is at the center position, bracket [E] releases 'stopper L', which catches the bottom edge of the paper for booklet stapling with longer paper sizes. This will be described in a later section.

If the stapler safety sensor [D] detects the stapler unit at its initialization, the stapler unit stops moving until the stack feed out belt pawl and stopper S are at home position. If the stapler unit does not stop, it could collide with the pawl and/or the stopper.

2.9 STACKING FOR BOOKLET STAPLING

2.9.1 OVERVIEW

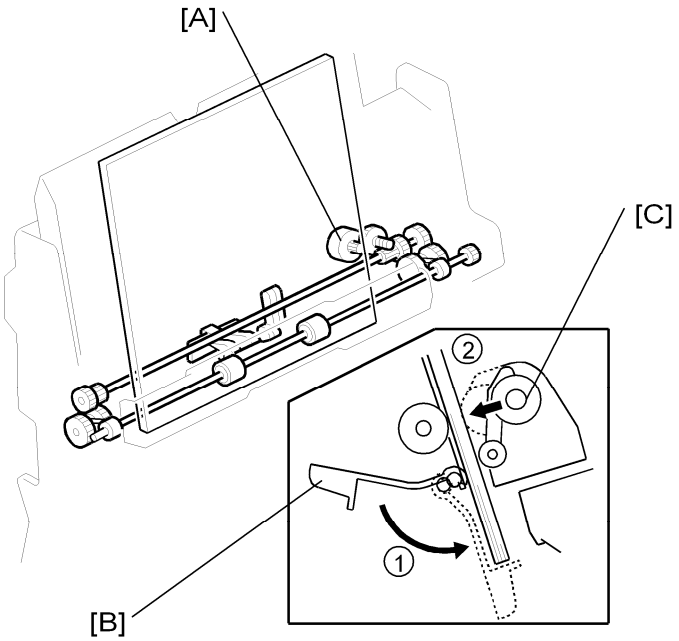
There are two stoppers near the stapler unit. These stoppers hold the stack of paper in the correct position during stacking.

The stoppers are called ‘stopper S’ and ‘stopper L’. Stopper S is used for legal size paper, or shorter than 8.5 x 14 inches. Stopper L is used for paper that is longer than 8.5 x 14 inches.

Note

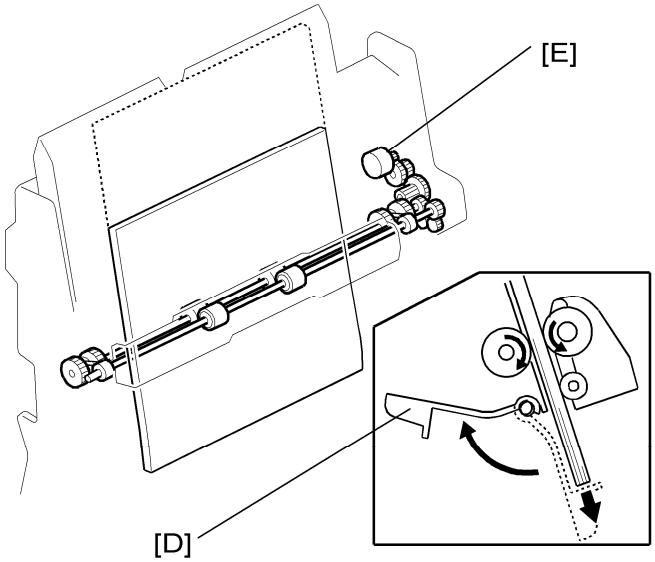
- In corner stapling mode, the pawl on the stack feed-out belt holds the stack of paper. For booklet stapling, this pawl stays at home position, which is on the rear side, so it does not interfere with booklet stapling.

2.9.2 8.5 X 14 (LEGAL) OR SHORTER



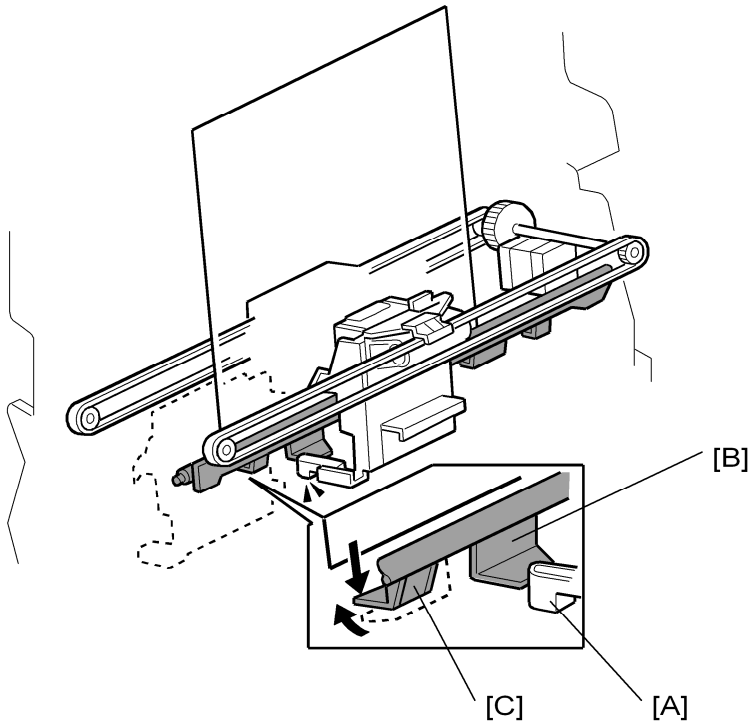
At the start of the set, the upper retraction motor [A] turns on, and stopper S [B] moves down into position to catch the paper ①. The upper retraction motor also moves the upper clamp roller [C] into contact with the stack ②.

Stacking for Booklet Stapling



When the stack is complete, stopper S moves away [D], and the machine feeds the stack to the correct position for stapling. To do this, the upper clamp roller motor [E] rotates the upper clamp roller.

2.9.3 LONGER THAN 8.5 X 14 INCHES

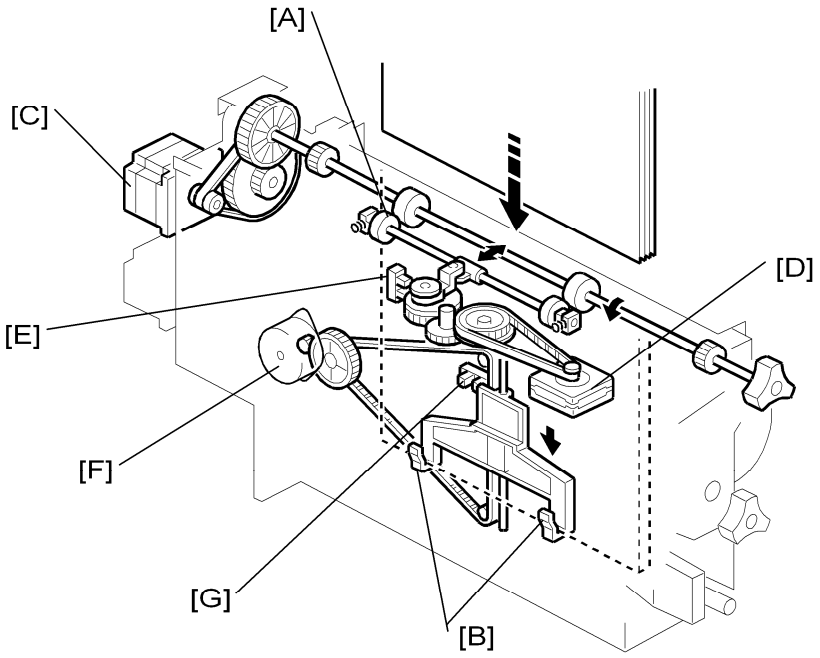


At the start of the set, the stapler moves to the center position. At this position, a bracket [A] on the stapler unit pushes stopper L [B]. The pawl [C] on the stopper L assembly then moves into position to catch the paper. The upper clamp roller holds the stack (see the

previous section).

When the stack is complete, the stapler moves to the rear-side position, and stopper L moves away. The machine feeds the stack to the correct position for stapling.

2.10 MOVING THE STACK TO THE FOLDING POSITION



First, the upper clamp roller feeds the stack down after the stack has been stapled. When the lower clamp roller [A] catches the stack, the upper clamp roller stops, and the lower clamp roller feeds the stack down.

The lower clamp roller is released just before the leading edge of the stack reaches the bottom fence [B] (this fence consists of two pawls that catch the paper). The bottom fence moves the stack to the folding position

The fold roller motor [C] turns the lower clamp roller.

The lower retracting motor [D] moves the lower clamp roller against and away from the stack. The lower clamp roller HP sensor [E] detects when the lower clamp roller is moved to the home position.

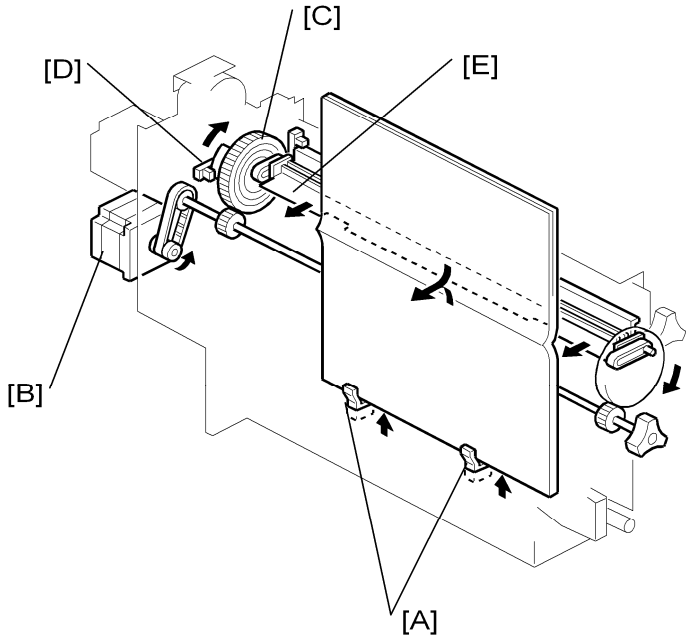
The bottom fence lift motor [F] moves the bottom fence up and down. The bottom fence HP sensor [G] detects when the bottom fence is at home position.

2.11 FOLDER

2.11.1 OVERVIEW

The fold plate pushes the stack into the nip between the fold rollers. The fold rollers feed out the stack, then reverse to feed it back in again. Then, the fold rollers feed the stack out of the folder, to the booklet tray.

2.11.2 FOLD PLATE



[A]: Bottom Fence Stack Stoppers. Catches the stack after it is released by the clamp rollers.

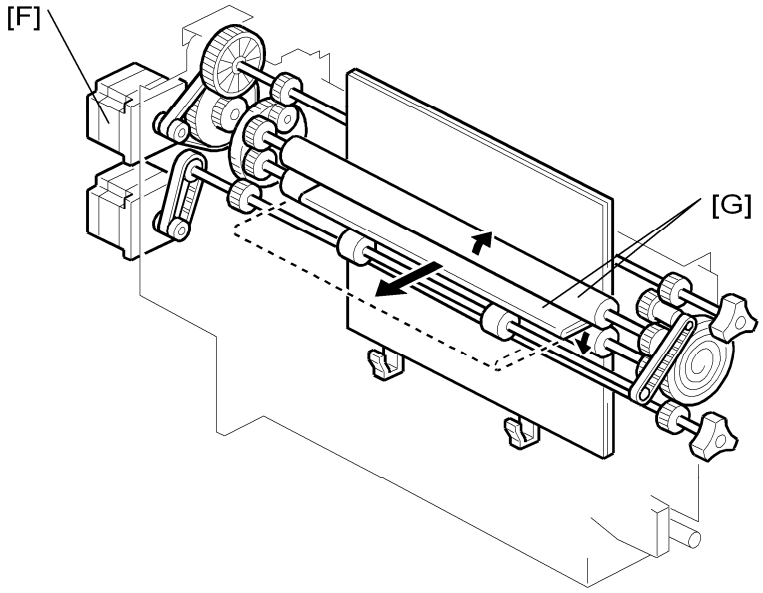
[B]: Fold Plate Motor. Drives the timing belt and gears that move the fold plate.

[C]: Fold Plate Cam. Controls the movement of the fold plate to the left (into the nip of the fold rollers) and right (toward the fold plate home position).

[D]: Fold Plate HP Sensor. Controls operation of the fold plate motor.

[E]: Fold Plate. Moves left and pushes the stack into the nip of the fold rollers and then moves right to retract.

2.11.3 FOLD ROLLERS



[F]: Fold Roller Motor. Drives forward to feed out the stack at the fold, and then drives forward again to feed out the folded stack.

Note

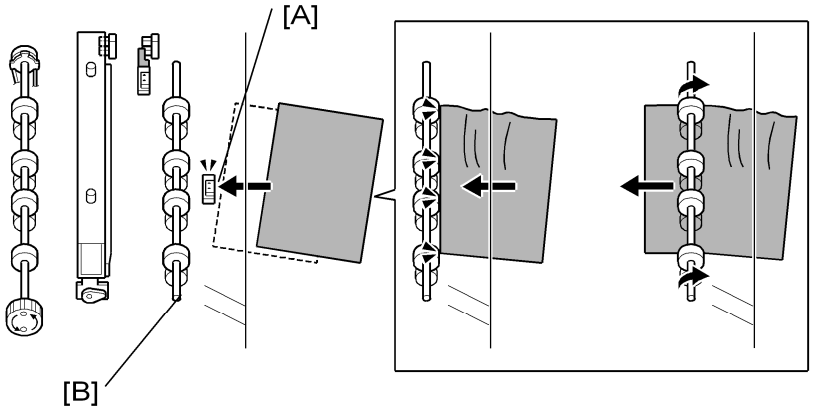
- This cycle can be repeated by changing the setting of SP6136.

[G]: Fold Rollers. Driven by the fold roller motor, this roller pair feeds out the stack at its fold, reverses to feed in the stack to, and then feeds forward again (assisted by the fold unit exit rollers – not shown) to feed out the stack to the lower tray.

2.12 PUNCH UNIT

2.12.1 OVERVIEW OF OPERATION

Skew Correction Before Punching



The finisher entrance roller corrects for paper skew and then the punch unit moves across to punch the holes at the correct position. Each sheet is punched one at a time.

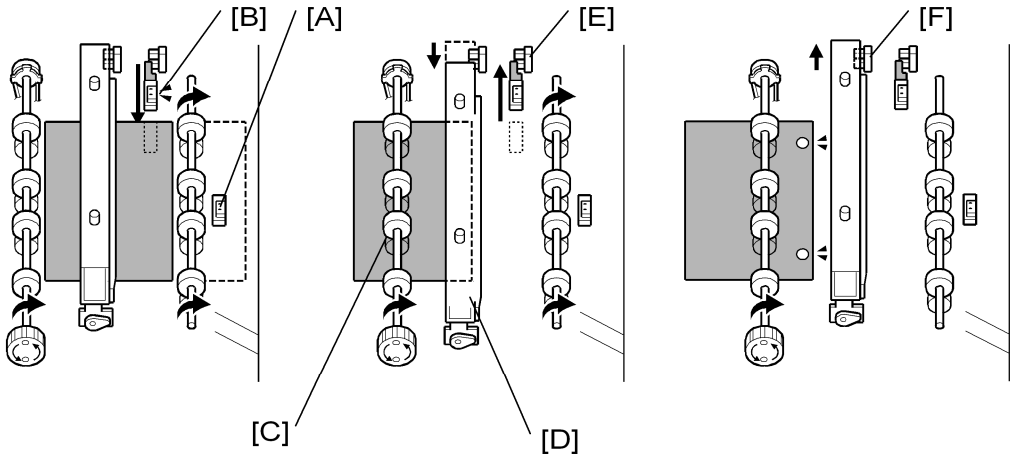
Paper feeds out of the copier. The finisher entrance sensor [A] detects the leading edge of the sheet.

The finisher entrance roller [B] stops rotating briefly while the copier exit rollers continue to rotate. This buckles the paper against the finisher entrance roller to correct skew. The finisher entrance roller starts to rotate again and feeds the sheet into the finisher.

These SP codes adjust the skew operation in the punch unit:

- SP6130. This SP corrects the punch hole alignment. To do this, it corrects the skew of each sheet by adjusting the amount of time the finisher entrance roller remains off while the exit roller of the machine remains on. For more, see Section "5. Service Tables".
- SP6131. This SP determines whether the finisher entrance roller stops to correct skew when paper enters the finisher. You can use this SP to disable the skew correction. For more, see Section "5. Service Tables".

Punch Unit Position Correction



These operations (skew correction before punching, and punch unit position correction) increase the accuracy of the punch alignment.

❶

The trailing edge of the sheet passes the finisher entrance sensor [A].

The paper position slide unit moves the paper position sensor [B] forward to the edge of the paper.

The paper position sensor detects the position of the paper edge and sends this information to the punch unit board. The machine uses the detected position of the paper edge to calculate the correct position for punching.

The upper transport motor switches on and rotates the feed rollers [C] the prescribed distance to put the paper under the punch unit [D].

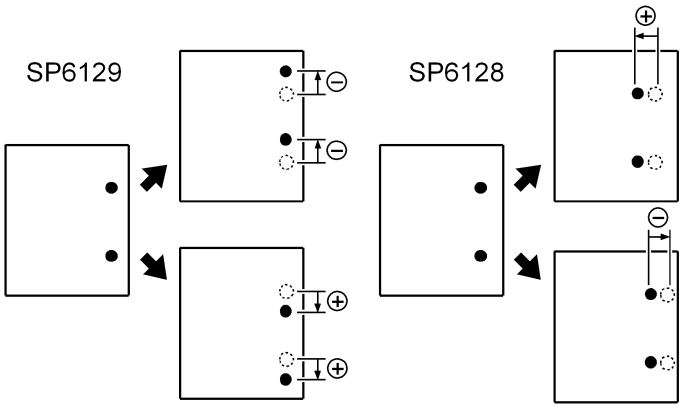
❷

Using the result of the position calculation, the punch unit control board moves the punch unit [D] to the adjusted punch position.

The paper position slide unit and its paper sensor, move back to the paper position slide home position sensor [E], and the punch unit fires the punches to make the holes.

❸

The feed rollers feed the punched paper out of the punch unit and into the paper path. The punch unit moves back to home position (detected by the home position sensor [F].

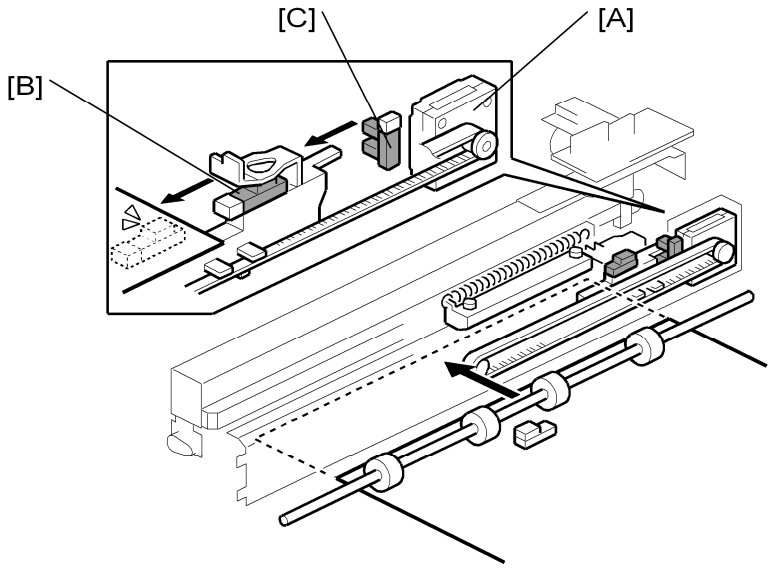


These SP codes adjust the punch hole alignment:

- SP6128 Adjusts the punch positions in the direction of paper feed.
- SP6129 Adjusts the punch position perpendicular to the direction of feed.

For more, see Section "5. Service Tables".

2.12.2 PAPER POSITION DETECTION

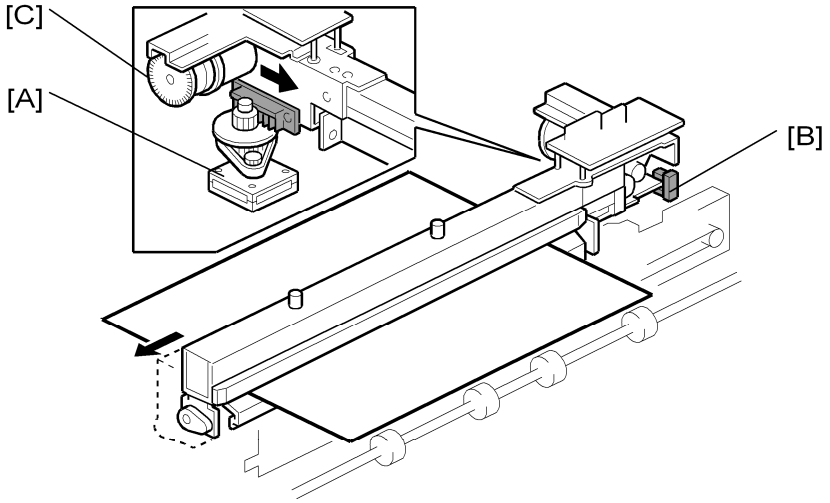


The paper position sensor slide motor [A] extends and retracts the paper position slide that holds the paper position sensor [B].

The paper position sensor detects the position of the paper edge. The detected position of the paper is used to move the punch unit across to the correct position for punching.

When the paper position slide is retracted, the paper position slide HP sensor [C] detects when the slider is at home position and stops paper position slide motor.

2.12.3 PUNCH UNIT MOVEMENT

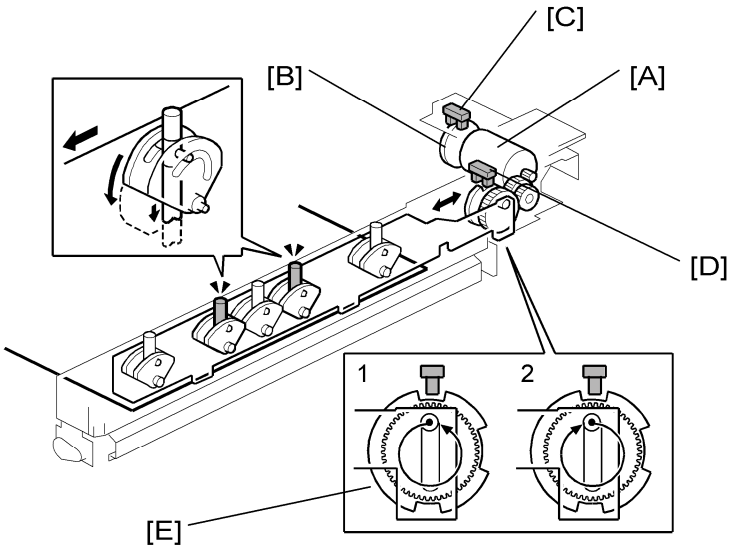


The punch movement motor [A] extends and retracts the punch unit to put it at the correct position for punching.

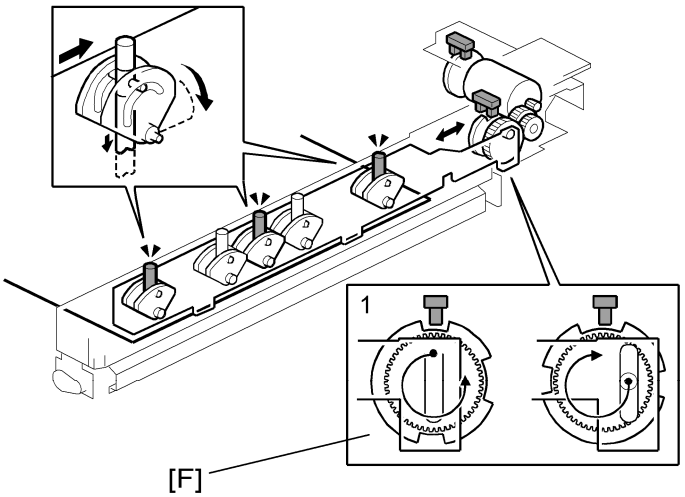
The punch movement HP sensor [B] detects the position when it retracts, switches off the punch movement motor, and stops the punch unit at its home position.

The punch drive motor [C] fires the punches that punch holes in the paper below.

2.12.4 PUNCH SELECTION AND FIRING



The punch drive motor [A] turns the small, notched encoder wheel [B] through the gap in the punch encoder sensor [C]. The sensor output is used to control the punch timing.



The timing for 2-hole punching [E] is different from 3-hole punching [F].

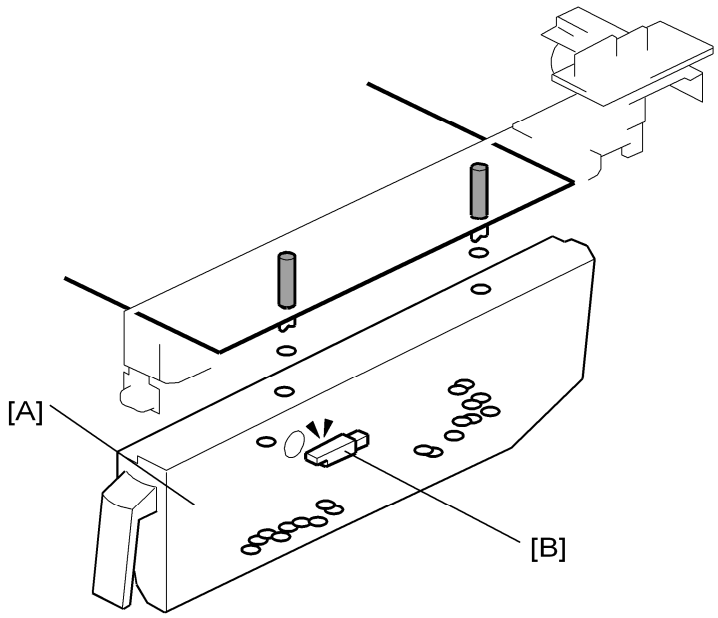
When the punch unit is at the punching position, the punch motor turns until the encoder detects the starting position for 2-hole or 3-hole punching.

- This is the '1' position in the diagrams (the first diagram is for 2-hole punching, and the second diagram is for 3-hole punching).

Then, the punch drive motor turns counter-clockwise to the '2' position. This movement punches the holes in the paper.

Then, the punch drive motor turns clockwise to the '1' position, to be ready for the next sheet of paper.

2.12.5 PUNCH HOPPER MECHANISM



The punchouts fall from the punch unit into the punch hopper [A].

Punch Unit

The punch hopper full sensor [B] does the following:

- Signals that the hopper is full when it detects the top of the stack of punchouts that have collected in the hopper.
- Detects when the punch hopper is set properly.

PAPER TRAY UNIT PB3030
D331

PAPER TRAY UNIT PB3030 REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

PAPER TRAY UNIT PB3030 D331

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2.7.1 SIDE FENCES 21

2.7.2 END FENCE 21

Read This First

Safety and Symbols

Replacement Procedure Safety

⚠CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

☛: See or Refer to

: Screws

: Connector

: Clip ring

: E-ring

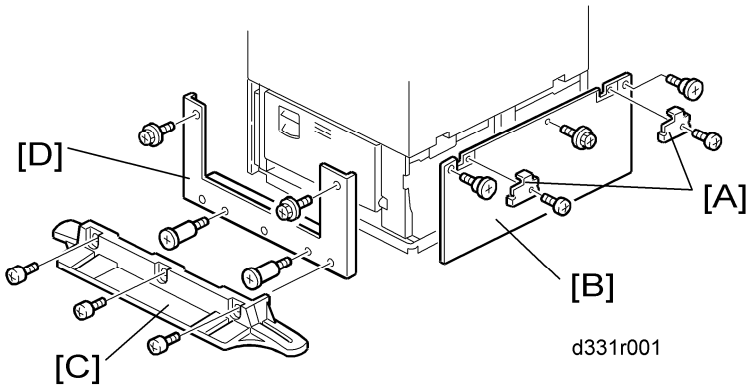
1. REPLACEMENT AND ADJUSTMENT

1.1 COVERS AND ROLLER

CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the procedures in this section.

1.1.1 COVERS



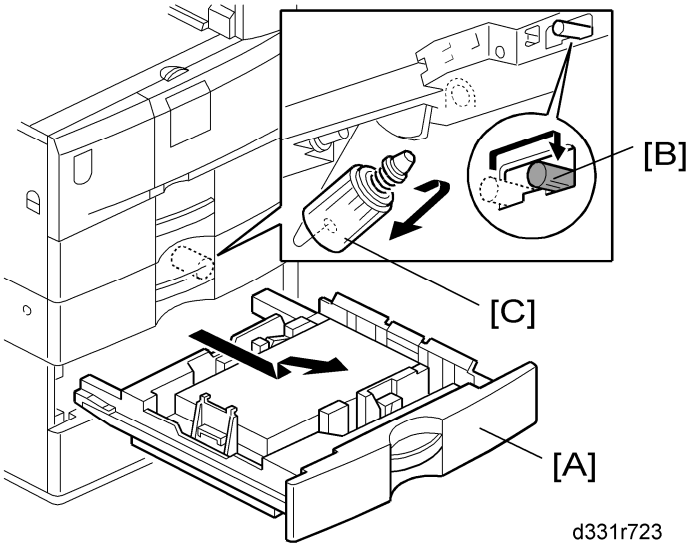
Rear Cover

1. Hold brackets [A] (☞ x 1 each)
2. Rear cover [B] (☞ x 3)

Right Cover

1. Right side stopper [C] (☞ x 3)
2. Right cover [D] (☞ x , knob screw x 2)

1.1.2 FEED ROLLER



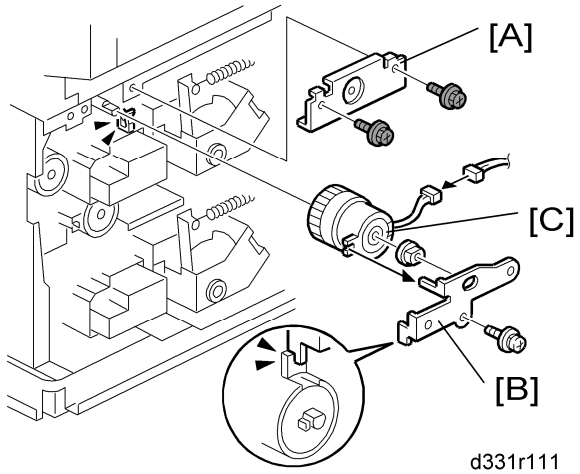
1. Pull out the tray [A].
2. Release the lock lever [B].
3. Feed roller [C]

1.2 DRIVE COMPONENTS

⚠CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the procedures in this section.

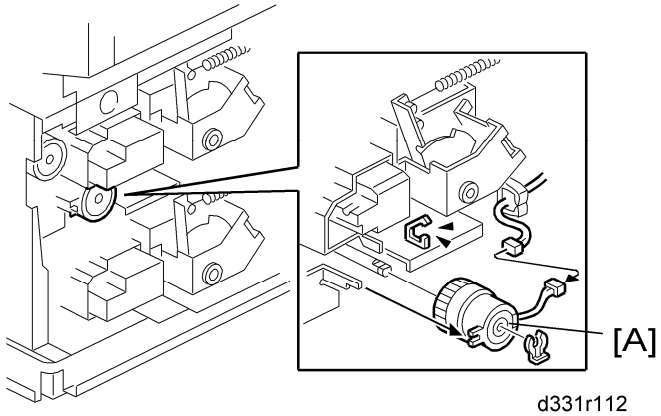
1.2.1 UPPER FEED CLUTCH



d331r111

1. Rear cover (☛ "Covers")
2. Bracket [A] (x 2)
3. Hold bracket [B] (x 1, bushing x 1)
4. Upper feed clutch [C] (x 1)

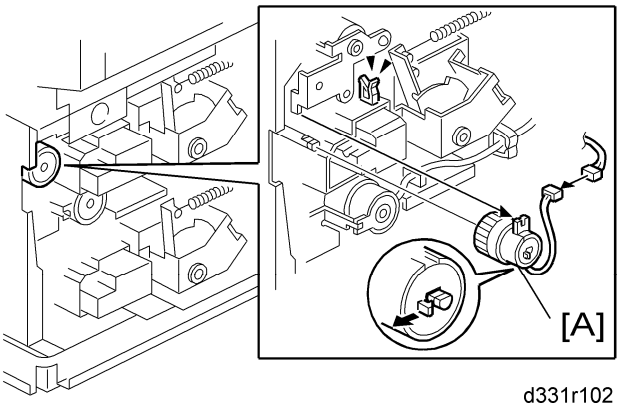
1.2.2 LOWER FEED CLUTCH



d331r112

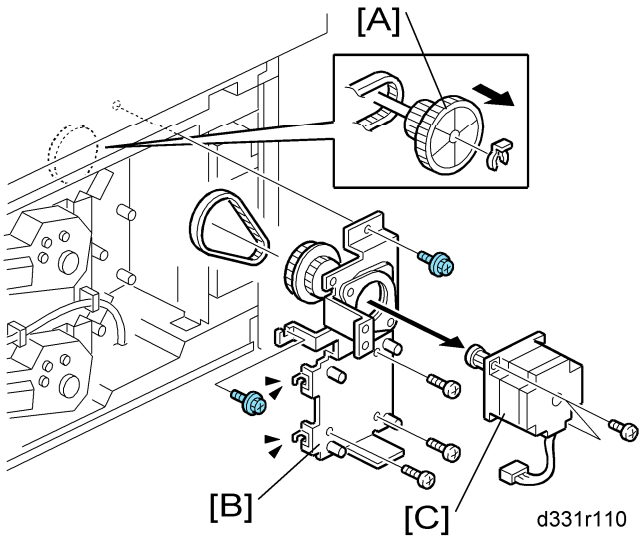
1. Rear cover (☛ "Covers")
2. Lower feed clutch [A] (x 1, x 1, x 1)

1.2.3 RELAY CLUTCH



1. Rear cover (☛ "Covers")
2. Relay clutch [A] (x 1, x 1)

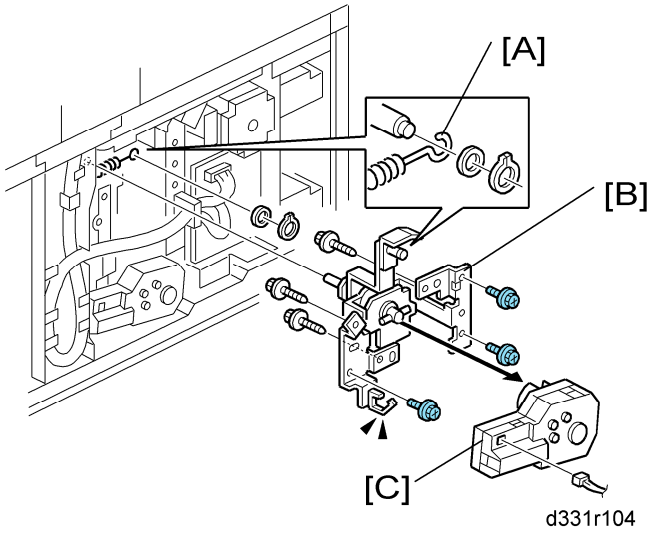
1.2.4 PAPER FEED MOTOR



1. Rear cover (☛ "Covers")
2. Tray main board (☛ "Tray Main Board")
3. Gear [A] (x 1)
4. Paper feed motor bracket [B] (x 5)
5. Paper feed motor [C] (x 2)

1.2.5 LIFT MOTORS

Upper Lift Motor



1. Rear cover (☛ "Covers")
2. Spring [A] (snap ring x 1, spacer x 1)
3. Lift motor bracket [B] (🔩 x 3, 🔌 x 1)
4. Upper lift motor [C] (🔩 x 3)

Lower Lift Motor

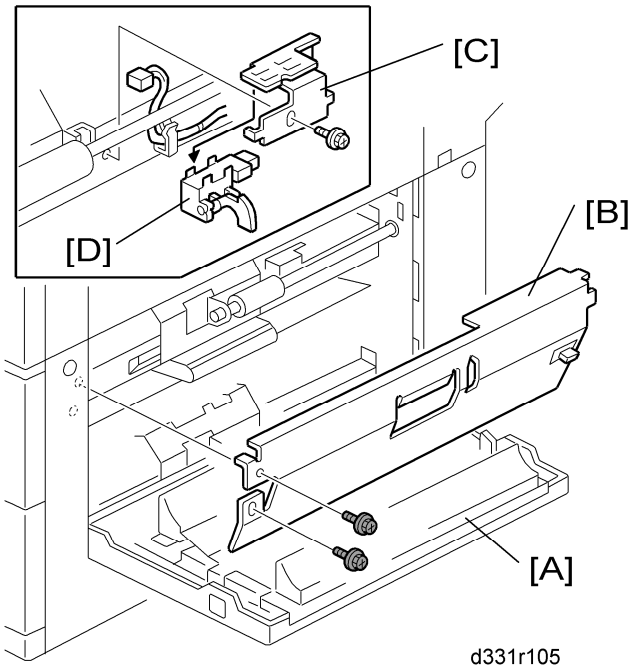
1. Rear cover (☛ "Covers")
2. Spring (snap ring x 1, spacer x 1)
3. Lift motor bracket (🔩 x 4, 🔌 x 1)
4. Lower lift motor (🔩 x 3)

1.3 ELECTRICAL COMPONENTS

⚠CAUTION

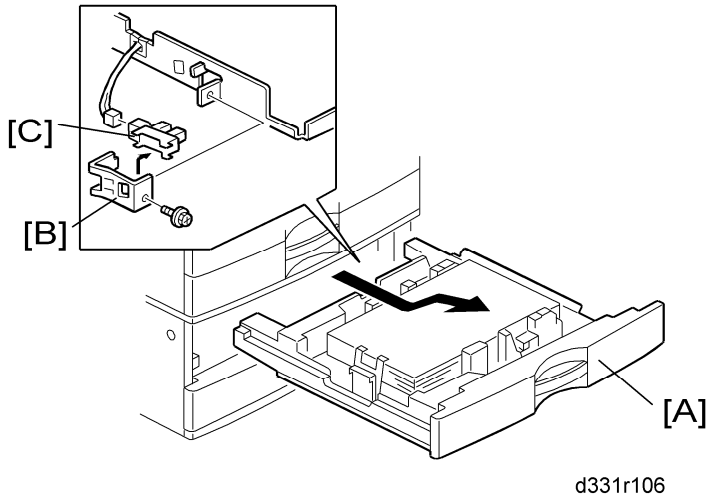
- Turn off the main power switch and unplug the machine before beginning any of the procedures in this section.

1.3.1 VERTICAL TRANSPORT SENSOR



1. Open the tray cover [A]
2. Guide plate [B] (x 2)
3. Sensor bracket [C] (x 1, x 1)
4. Vertical transport sensor [D] (hooks)

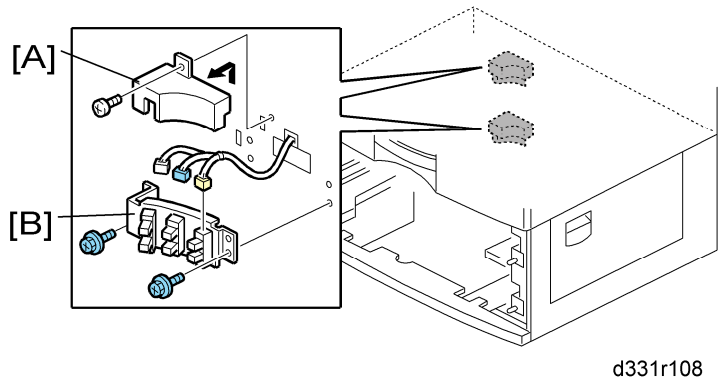
1.3.2 PAPER END SENSOR



d331r106

1. Pull out the tray [A]
2. Sensor bracket [B] (x 1, x 1)
3. Paper end sensor [C] (hooks)

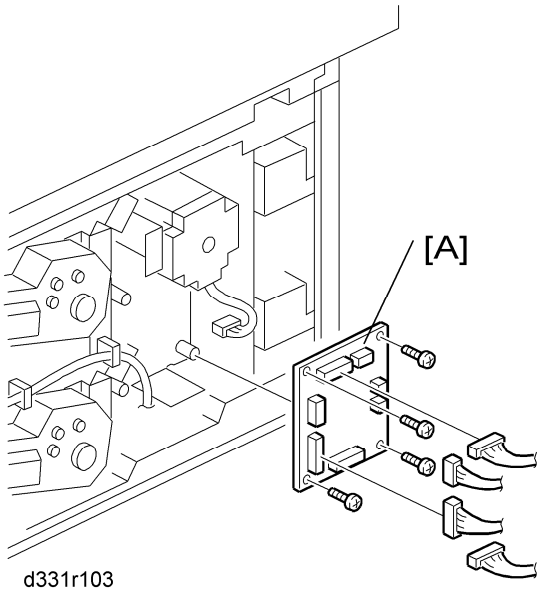
1.3.3 PAPER SIZE SENSORS



d331r108

1. Pull out the two trays.
2. Sensor bracket cover [A] (x 1)
3. Sensor bracket [B] (x 3, x 2)
4. Paper size sensors (hooks)

1.3.4 TRAY MAIN BOARD

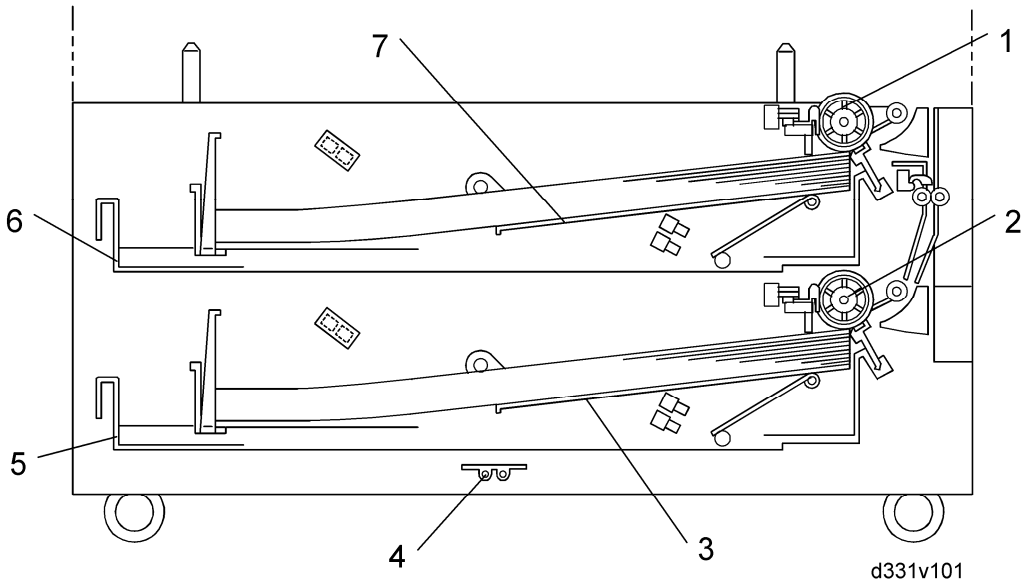


1. Rear cover (☛ "Covers")
2. Tray main board [A] (🔩 x 4, all 🖑's)

2. DETAILED SECTION DESCRIPTIONS

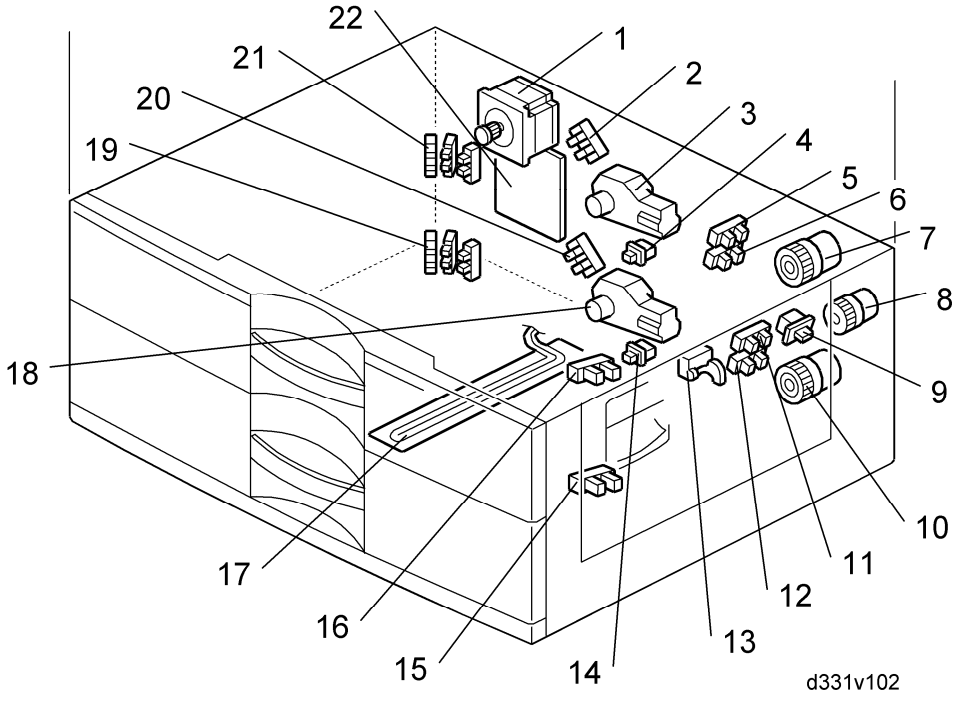
2.1 COMPONENT LAYOUT

2.1.1 MECHANICAL COMPONENT LAYOUT



1. Upper paper feed roller 2. Lower paper feed roller 3. Lower bottom plate 4. Optional tray heater	5. Lower tray 6. Upper tray 7. Upper bottom plate

2.1.2 ELECTRICAL COMPONENT LAYOUT



1. Paper feed motor	12. Lower paper height 1 sensor
2. Upper lift sensor	13. Vertical transport sensor
3. Upper lift motor	14. Lower tray set switch
4. Upper tray set switch	15. Lower paper end sensor
5. Upper paper height 2 sensor	16. Upper paper end sensor
6. Upper paper height 1 sensor	17. Optional tray heater
7. Upper paper feed clutch	18. Lower lift motor
8. Relay clutch	19. Lower paper size sensors
9. Tray cover switch	20. Lower lift sensor
10. Lower paper feed clutch	21. Upper paper size sensors
11. Lower paper height 2 sensor	22. Tray main board

2.1.3 ELECTRICAL COMPONENT DESCRIPTION

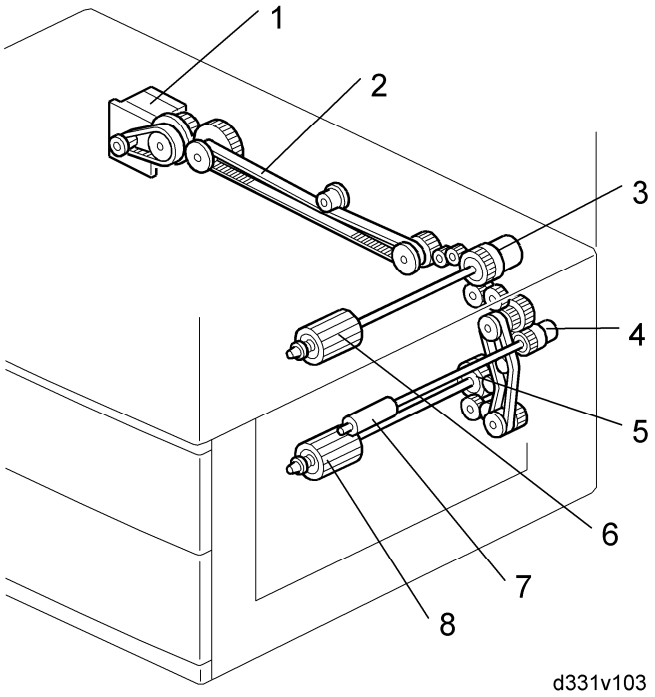
Symbol	Name	Function	Index No.

Motors			
M1	Paper Feed	Drives all rollers.	1
M2	Upper Lift	Lifts the upper tray bottom plate.	3
M3	Lower Lift	Lifts the lower tray bottom plate.	18
Sensors			
S1	Upper Lift	Detects when the paper in the upper tray is at the correct feed height.	2
S2	Lower Lift	Detects when the paper in the lower tray is at the correct feed height.	20
S3	Upper Paper End	Informs the copier/printer when the upper tray runs out of paper.	16
S4	Lower Paper End	Informs the copier/printer when the lower tray runs out of paper.	15
S5	Vertical Transport	Detects misfeeds.	13
S6	Upper Paper Height 1	Detects the amount of paper in the upper tray.	6
S7	Upper Paper Height 2	Detects the amount of paper in the upper tray.	5
S8	Lower Paper Height 1	Detects the amount of paper in the lower tray.	12
S9	Lower Paper Height 2	Detects the amount of paper in the lower tray.	11
S10	Upper Paper Size	Determines what paper size is in the upper tray.	21
S11	Lower Paper	Determines what paper size is in the lower tray.	19

Component Layout

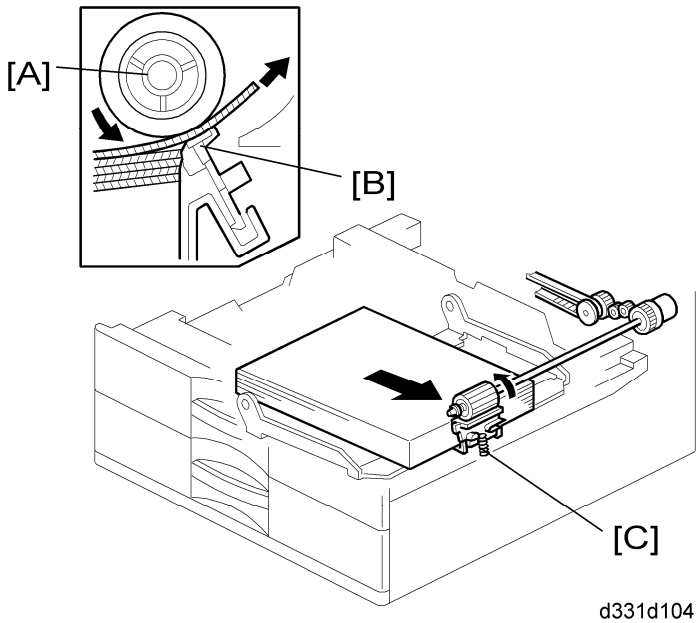
	Size		
Switches			
SW1	Tray Cover	Detects whether the tray cover is opened or not.	9
SW2	Upper Tray Set	Detects whether the upper tray is opened or not.	4
SW3	Lower Tray Set	Detects whether the lower tray is opened or not.	14
Magnetic Clutches			
MC1	Upper Paper Feed	Starts paper feed from the upper tray.	7
MC2	Lower Paper Feed	Starts paper feed from the lower tray.	10
MC3	Relay	Drives the relay rollers.	8
PCBs			
PCB1	Tray Main	Controls the paper tray unit and communicates with the copier/printer.	22
Others			
H1	Optional Tray Heater	Removes humidity from the paper in the trays.	17

2.1.4 DRIVE LAYOUT



1. Paper feed motor	5. Lower paper feed clutch
2. Drive belt	6. Upper paper feed roller
3. Upper paper feed clutch	7. Relay roller
4. Relay clutch	8. Lower paper feed roller

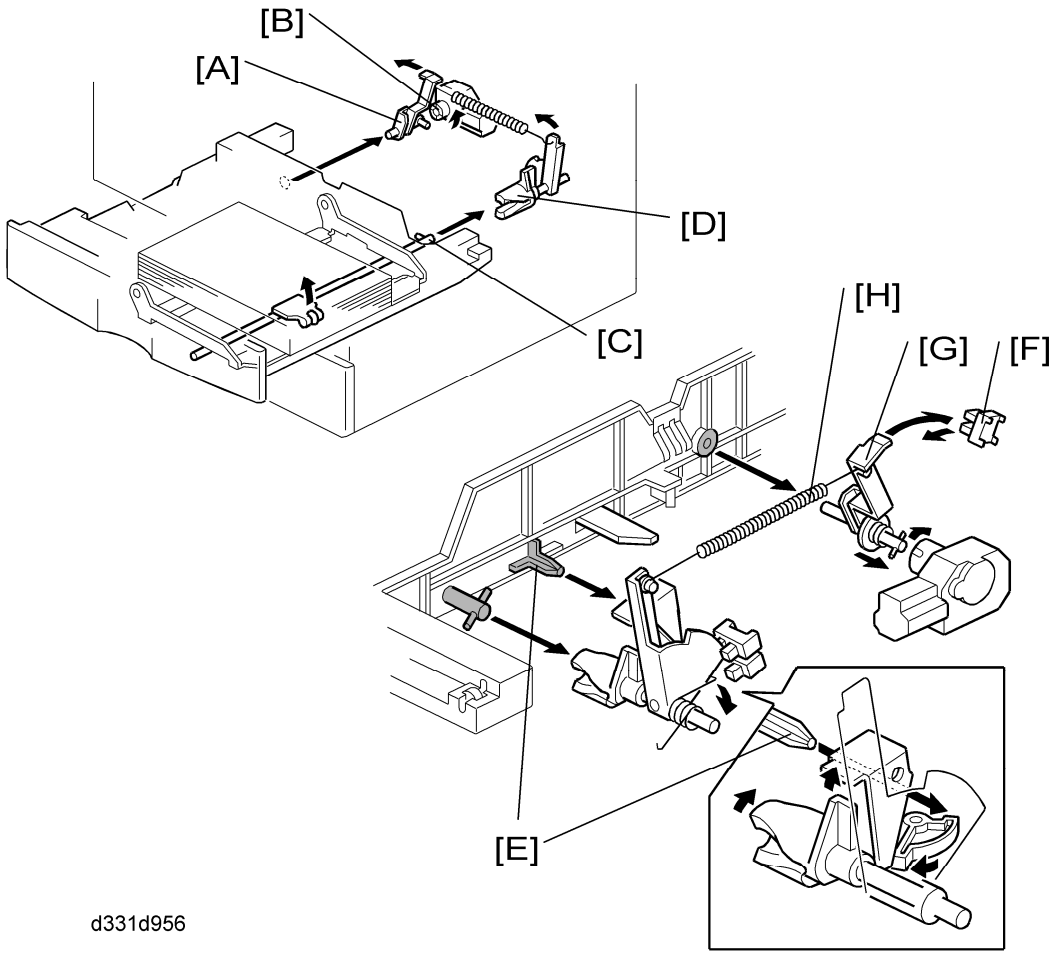
2.2 PAPER FEED AND SEPARATION MECHANISM



d331d104

The paper tray holds 500 sheets. The paper feed roller [A] drives the top sheet of paper from the paper tray to the copier/printer. The friction pad [B] allows only one sheet to feed at a time. The friction pad applies pressure to the feed roller with a spring [C].

2.3 PAPER LIFT MECHANISM



The paper size switch detects when the tray is pushed in.

When the paper tray is pushed into the machine, the pin [A] for the lift motor pressure shaft engages the lift motor coupling [B] and the pin [C] for the bottom plate lift shaft in the tray engages the bottom plate pressure lever coupling [D]. The pin [E] on the rear of the tray pushes the lock lever so that the lift motor can lift the bottom plate pressure lever.

The lift motor turns on, and turns clockwise as viewed on the diagram. The main pressure spring [H] pulls the bottom plate pressure lever, and this lifts the tray bottom plate.

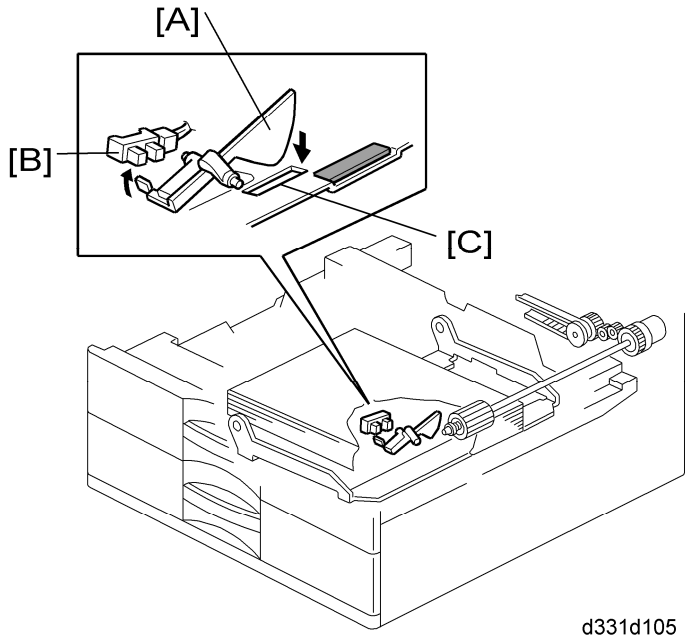
When the top of the stack touches the feed roller, the motor cannot pull up the plate any more, so it pulls the actuator [G] into the lift sensor [F].

The pressure of the feed roller on the paper is now too high, so the lift motor reverses to reduce this pressure. It reverses for 300 ms or 600 ms, depending on the paper size. For smaller paper, it reverses the larger amount (600 ms) to reduce the pressure more.

When the paper tray is pulled out, the pins [A, C] disengage from the couplings [B, D], and

the bottom plate drops. To make it easier to push the tray in, the lift motor rotates backwards 1.7 seconds to return the bottom plate pressure lever coupling [D] to the original position.

2.4 PAPER END DETECTION



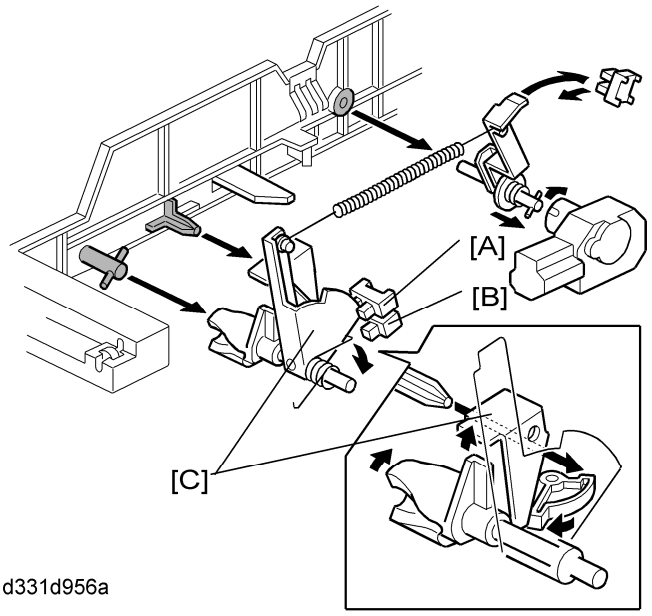
d331d105

If there is some paper in the paper tray, the paper stack raises the paper end feeler [A] and the paper end sensor [B] is deactivated.

When the paper tray runs out of paper, the paper end feeler drops into the cutout [C] in the tray bottom plate and the paper end sensor is activated.

When the paper tray is drawn out with no paper in the tray, the shape of the paper end feeler causes it to lift up.

2.5 PAPER HEIGHT DETECTION



The amount of paper in the tray is detected by the combination of on/off signals from two paper height sensors [A] and [B].

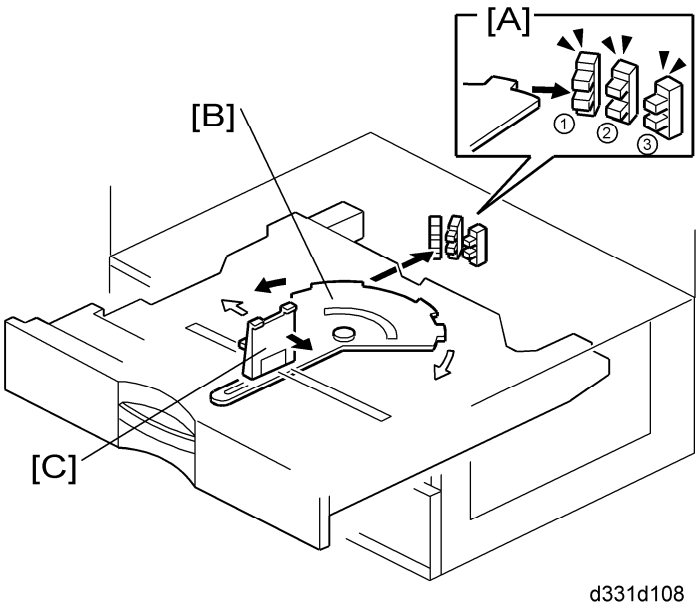
When the amount of paper decreases, the bottom plate pressure lever [C] moves the actuator up.

The following combination of sensor signals is sent to the copier/printer.

Amount of Paper	Paper Height Sensor 1	Paper Height Sensor 2
Near End	OFF	ON
30%	ON	ON
70%	ON	OFF
100%	OFF	OFF

When the tray contains paper of a small width, the paper feed pressure may become too low when the thickness of the remaining stack of paper has decreased. The lift motor rotates forward 300 ms after the sensor detects a certain amount of paper remaining in the tray to increase paper feed pressure, simulating the pressure generated by a full tray.

2.6 PAPER SIZE DETECTION



d331d108

There are three paper size sensors [A] (SN1, SN2 and SN3) on the paper tray unit. Each paper tray has its own actuator [B], with a unique combination of notches. This actuator is moved when the paper end fence [C] is adjusted for the installed paper. To determine which size has been installed, the CPU reads which paper size sensors the actuator has switched off. Refer to the size detection lists as shown below.

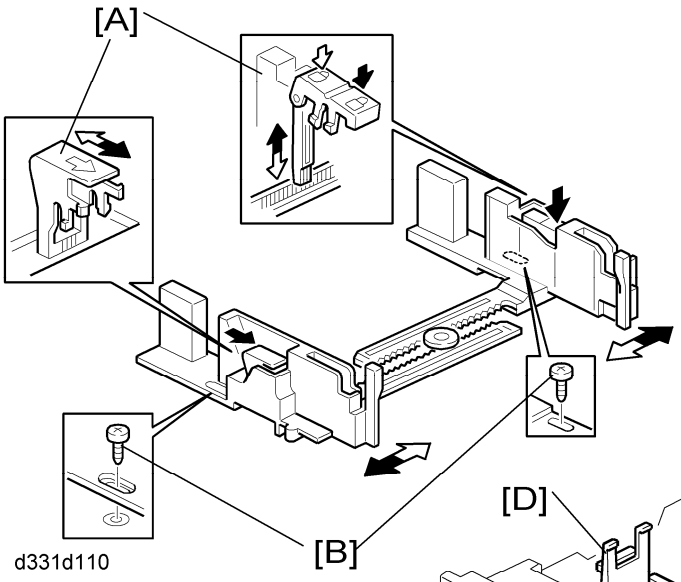
EU/ AISA Size		SN1	SN2	SN3	SP Setting
A6 SEF	148 x 105	OFF	ON	OFF	A5 LEF
B5 LEF	182 x 257	ON	OFF	ON	B6 SEF/ Exe LEF
A4 LEF	210 x 297	ON	ON	OFF	LT LEF/ A5 SEF/ HLT SEF
B5 SEF	257 x 182	OFF	OFF	ON	
LT SEF	279 x 216	OFF	OFF	OFF	
A4 SEF	297 x 210	ON	OFF	OFF	LG SEF
B4 SEF	364 x 257	ON	ON	ON	

Paper Size Detection

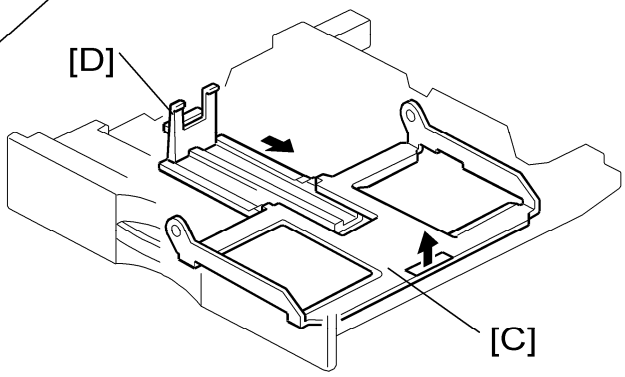
A3 SEF	420 x 297	OFF	ON	ON	DLT SEF
NA Size		**SN1**	**SN2**	**SN3**	**SP Setting**
A6 SEF	148 x 105	OFF	ON	OFF	A5 LEF
B5 LEF	182 x 257	ON	OFF	ON	Exe LEF/ B6 SEF
LT LEF	210 x 297	ON	ON	OFF	A4 LEF/ A5 SEF/ HLT SEF
B5 SEF	257 x 182	OFF	OFF	ON	
LT SEF	279 x 216	OFF	OFF	OFF	
A4 SEF	297 x 210	ON	OFF	OFF	
LG SEF	364 x 257	ON	ON	ON	
DLT SEF	420 x 297	OFF	ON	ON	A3 SEF

The CPU disables paper feed from a tray if the paper size cannot be detected. If the paper size actuator is broken, or if there is no tray installed, the Add Paper indicator will light.

2.7 SIDE AND END FENCES



d331d110



d331d109

2.7.1 SIDE FENCES

If the tray is full of paper and it is pushed in strongly, the fences may deform or bend. This may cause the paper to skew or the side-to-side registration to be incorrect. To correct this, each side fence has a stopper [A] attached to it. Each side fence can be secured with a screw [B], for customers who do not want to change the paper size.

2.7.2 END FENCE

As the amount of paper in the tray decreases, the bottom plate [C] lifts up gradually. The end fence [D] is connected to the bottom plate. When the tray bottom plate rises, the end fence moves forward and pushes the back of the paper stack to keep it squared up.

FAX OPTION TYPE 3350

D361

FAX OPTION TYPE 3350 REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
25 - 31	10/09/2008	Error Code 14-21 SMIME Sending Error
31	10/05/2009	Error Code 31-21 added.

FAX OPTION TYPE 3350 D361

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Read This First

Important Safety Notices

⚠WARNING

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use a telephone or cellular phone to report a gas leak in the vicinity of the leak.

⚠CAUTION

- Before installing the fax unit, switch off the main switch, and disconnect the power cord.
- The fax unit contains a lithium battery. The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard batteries in accordance with the manufacturer's instructions and local regulations.

Note

- **Note for Australia**:
- Unit must be connected to Telecommunication Network through a line cord which meets the requirements of ACA Technical Standard TS008.

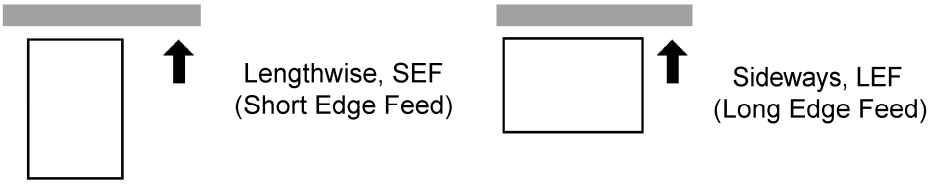
Symbols and Abbreviations

CONVENTIONS USED IN THIS MANUAL

This manual uses several symbols.

Symbol	What it means
☛	Refer to section number
	Screw

	Connector
	E-ring
	Clip ring
	Clamp



CAUTIONS, NOTES, ETC.

The following headings provide special information:

⚠WARNING

- Failure to obey warning information could result in serious injury or death.

⚠CAUTION

- Obey these guidelines to ensure safe operation and prevent minor injuries.

Important

- Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine.
- Always obey these guidelines to avoid serious problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine. bold is added for emphasis.

Note

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

1. INSTALLATION

1.1 INSTALLATION

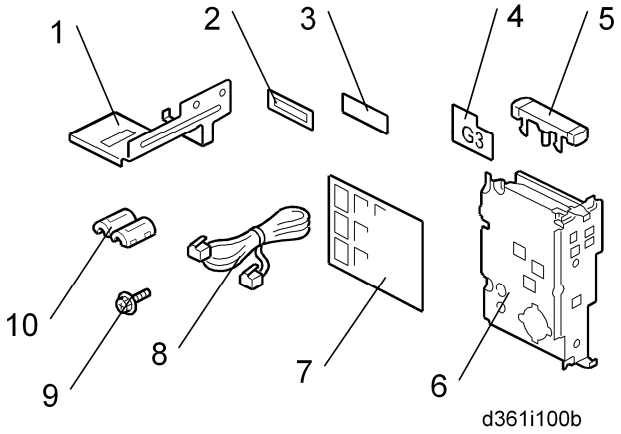
1.1.1 FAX UNIT (D361)

Accessory Check

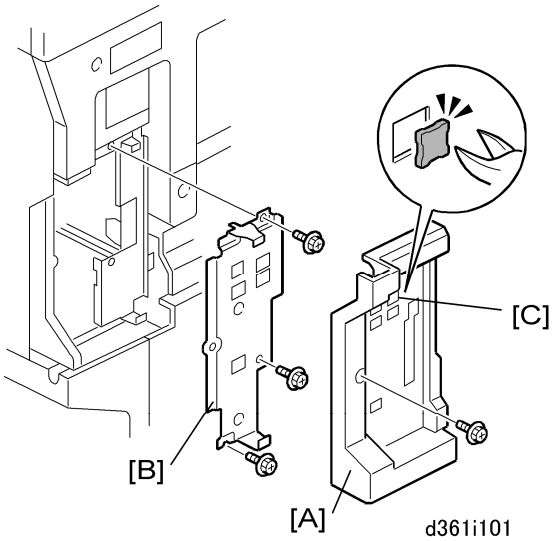
Check the quantity and condition of the accessories against the following list.

No.	Description	Qty
1.	Handset Bracket (NA only)	1
2.	Serial Number Label	1
3.	FCC Label (NA only)	1
4.	G3 Decal	1
5.	Fax Keytops	2
	Copy Keytpos	2
6.	Fax Unit	1
7.	Data Display Overlay (for operation panel)	2
8.	Telephone Cable (NA only)	1
9.	Screw-M3x6	3
10.	Ferrite Core (NA Only)	1

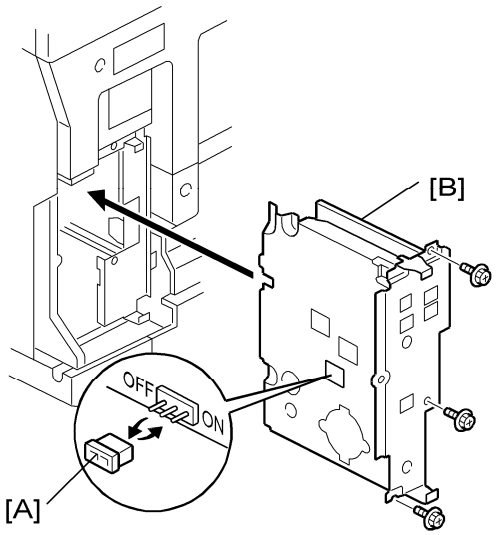
Installation



Fax Installation



1. Remove:
   [A] Application (plastic) cover (🔩 x1)
   [B] Left cover plate (🔩 x1)
   [C] Knockouts
   - LINE 1 for Fax Unit
   - If one G3 Unit will be installed, remove the knockout for LINE 1 and LINE 2.
   - If two G3 Units will be installed, remove the knockouts for both LINE 1, LINE 2, and LINE 3



d361i102

2. Through the window, remove the jumper [A] and set it to the ON position.
3. Press down the MBU.

Note

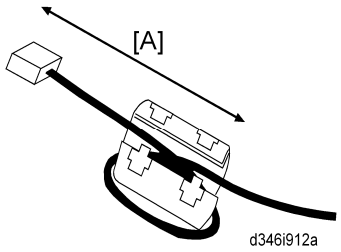
- Make sure that the MBU is seated correctly. If not, SC672 occurs.

4. Remove the jumper [A] (set to OFF) and set it to ON.

Note

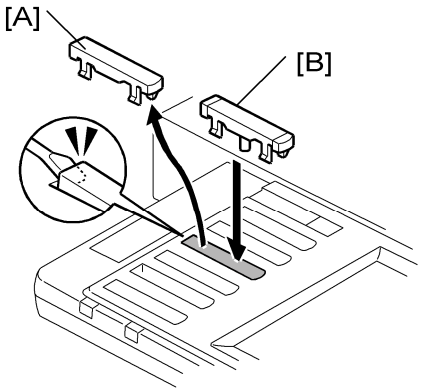
- The machine may issue SC819, SC820 if the jumper is not set to “ON” correctly.
- (sometimes these SC codes are not issued.)

5. If the 32 MB Memory (option) will be installed, do this now. (☛ “32 MB Memory (Option)”)
6. If one or two G3 interface units (options) will be installed, do this now. (☛ “G3 Interface Unit (D361)”)
7. Slide the fax unit [B] into the machine and fasten it (☞ x3).
8. Reattach the plastic application cover (☞ x1)
9. Attach the Serial number label and FCC decal (NA only) to under the serial number decal in rear cover of the main body.
10. **For NA models**, attach the ferrite core to the telephone cord. The end of the ferrite core must be about 5 cm (2.1") [A] from the end of the cable.
11. Connect the telephone cord to the "LINE 1" jack.



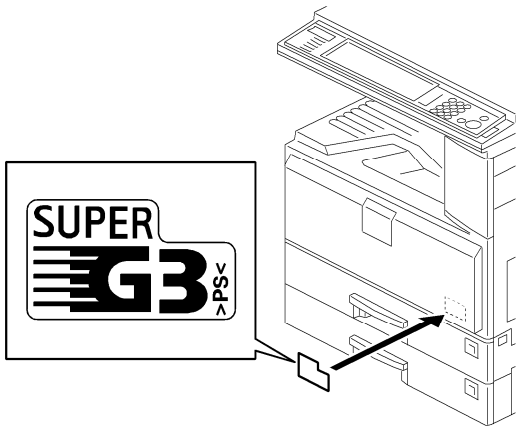
d346i912a

Installation



d361i105

12. Remove the dummy keytop [A] (3rd from the top) and replace it with a facsimile keytop [B].



b766i903

13. Attach the G3 decal to the front of the machine.
14. Connect the power cord to the machine.
15. Make sure that the plug is grounded properly at the power source.
16. Switch the machine on.

Note

- If you see a message that tells you the SRAM has been formatted (due to a problem with SRAM), cycle the machine off/on to clear the message.

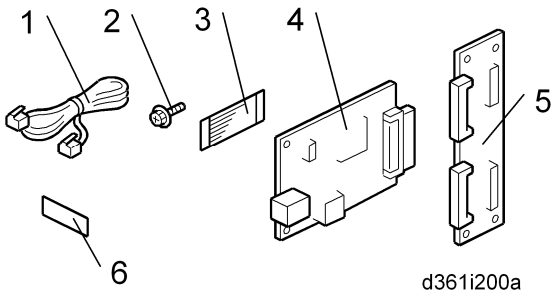
17. Check the clock settings (date and time) with the User Tools.

1.1.2 G3 INTERFACE UNIT (D361)

Accessory Check

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

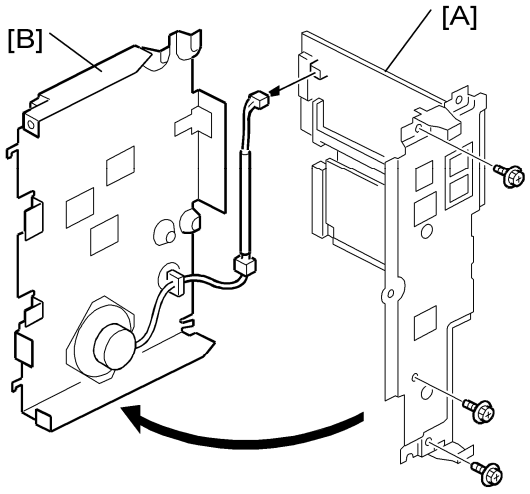
No.	Description	Qty
1.	Telephone Cable (NA)	1
2.	Screws M3 x 6	6
3.	FFC (Flat Flexible Cable)	1
4.	G3 Board	1
5.	CCUIF	1
6.	FCC Label (NA only)	1



d361i200a

G3 Interface Installation

1. If the fax unit is already installed in the machine, remove:
   - Application (plastic) cover (x1) xref
   - FCU (x3)

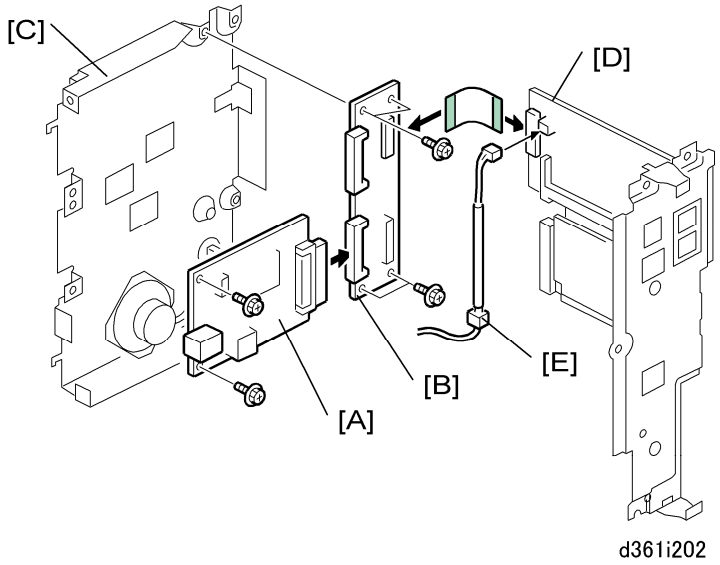


d361i201

2. Separate the FCU [A] from its cover [B] (x3, x1).

Installation

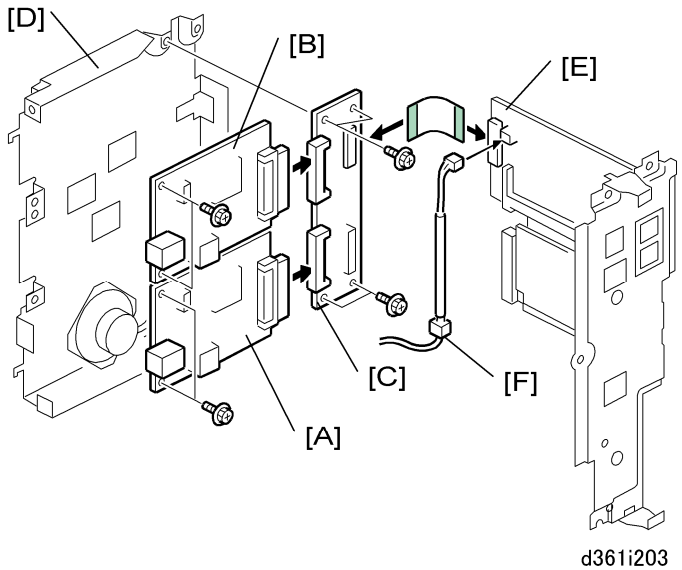
One G3 Unit



d361i202

1. Connect the G3 interface unit [A] and CCUIF [B] (edge connector).
   - Fasten the connected G3/CCUIF to the cover [C].
   - G3: (x2)
   - CCUIF (x4)
2. Connect the FCU [D] and CCUIF [B] (FFC x1).
3. Reconnect the speaker harness [E] (x1)

Two G3 Units



d361i203

1. Connect the G3 interface units [A] and [B] to the CCUIF [C] (edge connector).
   - Fasten the connected G3/CCUIF to the cover [D].
   - G3: (x2 ea.)

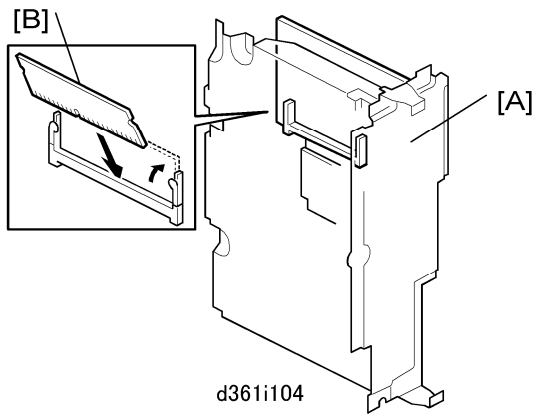
- CCUIF (☞ x4)

2. Connect the FCU [E] and CCUIF [B] (FFC x1).
3. Reconnect the speaker harness [F] (☜ x1)
4. **One and Two G3 Units** connect the telephone lines to the back of the machine at LINE 2 (single port) or LINE 2 and LINE 3 (dual port).
5. Plug in the machine. Then turn the main switch on.
6. Enter the Fax SP mode and set **Bit 1** of Communication Switch **16** to "**1**" if you install the single port.

   -or-

   Enter the Fax SP mode and set **Bit 3** of Communication Switch **16** to "**1**" if you install the dual ports.
7. Print the system parameter list. Make sure that “G3-2“ (single port) and “G3-3“ (dual port) are listed as an option.
8. Set up and program the item required for PSTN-2 communication.

1.1.3 32 MB MEMORY (OPTION)

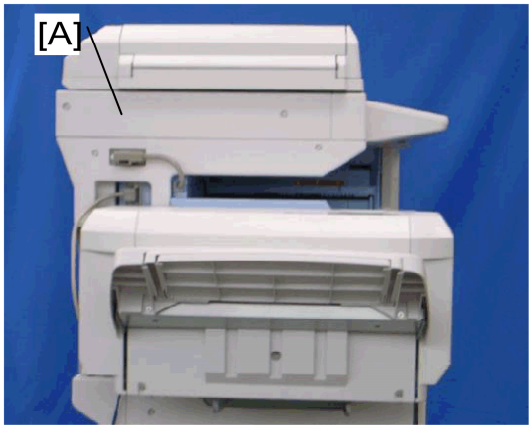


1. Remove:
   - Application cover (☞ x1)
   - FCU [A] (☞ x3).
2. Attach the DIMM [B] to the FCU.

1.1.4 HANDSET (B433)

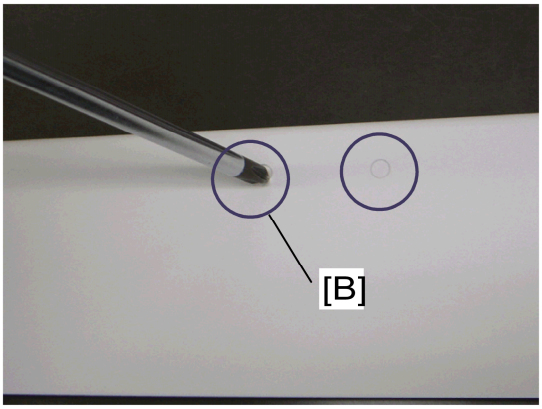
Note

- The optional handset is available for the U.S. version only.



d361i429

1. Remove the scanner left cover [A] (x 2).

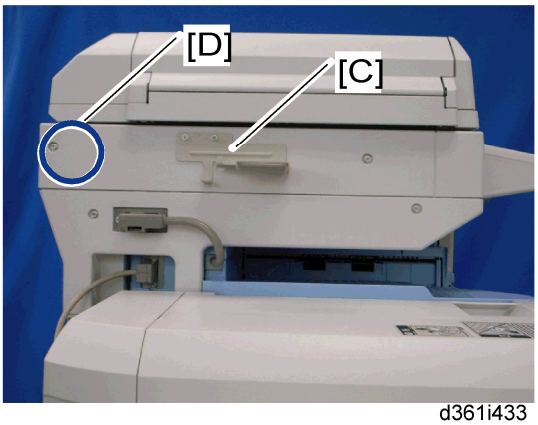


d361i431

2. Make two holes [B] in the scanner left cover.

Note

- Drill a hole from the outside of the cover with a screwdriver.



d361i433

3. Reinstall the scanner left cover on the machine (☞ x 2).
4. Install the handset bracket [C] (☞ x 2) on the scanner left cover.
5. Attach the clamp to the location [D].
6. Set the handset on the handset bracket.
7. Clamp the handset cord.
8. Connect the handset cable to the “TEL” jack at the rear of the machine.

2. REPLACEMENT AND ADJUSTMENT

2.1 FCU

1. When you replace the FCU board, remove the MBU board from the old FCU board and install it on the new FCU board.
2. Set the correct date and time with the User Tools:
   - User Tools> System Settings> Timer Setting> Set Date/Time

Note

- Do not turn off the battery switch (SW1).
- Do SP6101 to print the system parameters. Then check the settings.

3. TROUBLESHOOTING

3.1 ERROR CODES

If an error code occurs, retry the communication. If the same problem occurs, try to fix the problem as suggested below. Note that some error codes appear only in the error code display and on the service report.

Code	Meaning	Suggested Cause/Action
0-00	DIS/NSF not detected within 40 s of Start being pressed	▪ Check the line connection. ▪ Check the NCU - FCU connectors. ▪ The machine at the other end may be incompatible. ▪ Replace the NCU or FCU. ▪ Check for DIS/NSF with an oscilloscope. ▪ If the rx signal is weak, there may be a bad line.
0-01	DCN received unexpectedly	▪ The other party is out of paper or has a jammed printer. ▪ The other party pressed Stop during communication.
0-03	Incompatible modem at the other end	▪ The other terminal is incompatible.
0-04	CFR or FTT not received after modem training	▪ Check the line connection. ▪ Check the NCU - FCU connectors. ▪ Try changing the tx level and/or cable equalizer settings. ▪ Replace the FCU or NCU. ▪ The other terminal may be faulty; try sending to another machine. ▪ If the rx signal is weak or defective, there may be a bad line.

Error Codes

Code	Meaning	Suggested Cause/Action
		Cross reference ▪ Tx level - NCU Parameter 01 (PSTN) ▪ Cable equalizer - G3 Switch 07 (PSTN) ▪ Dedicated Tx parameters - Section 4
0-05	Unsuccessful after modem training at 2400 bps	▪ Check the line connection. ▪ Check the NCU - FCU connectors. ▪ Try adjusting the tx level and/or cable equalizer. ▪ Replace the FCU or NCU. ▪ Check for line problems. **Cross reference** ▪ See error code 0-04.
0-06	The other terminal did not reply to DCS	▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ Replace the NCU or FCU. ▪ The other end may be defective or incompatible; try sending to another machine. ▪ Check for line problems. **Cross reference** ▪ See error code 0-04.
0-07	No post-message response from the other end after a page was sent	▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ The other end may have jammed or run out of paper. ▪ The other end user may have disconnected the call. ▪ Check for a bad line. ▪ The other end may be defective; try sending to

Code	Meaning	Suggested Cause/Action
		another machine.
0-08	The other end sent RTN or PIN after receiving a page, because there were too many errors	▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ The other end may have jammed, or run out of paper or memory space. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ The other end may have a defective modem/NCU/FCU; try sending to another machine. ▪ Check for line problems and noise. **Cross reference** ▪ Tx level - NCU Parameter 01 (PSTN) ▪ Cable equalizer - G3 Switch 07 (PSTN) ▪ Dedicated Tx parameters - Section 4
0-14	Non-standard post message response code received	▪ Check the FCU - NCU connectors. ▪ Incompatible or defective remote terminal; try sending to another machine. ▪ Noisy line: resend. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ Replace the NCU or FCU. **Cross reference** ▪ See error code 0-08.
0-15	The other terminal is not capable of specific functions.	▪ The other terminal is not capable of accepting the following functions, or the other terminal's memory is full. ▪ Confidential rx ▪ Transfer function ▪ SEP/SUB/PWD/SID
0-16	CFR or FTT not detected	▪ Check the line connection.

Error Codes

Code	Meaning	Suggested Cause/Action
	after modem training in confidential or transfer mode	▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ The other end may have disconnected, or it may be defective; try calling another machine. ▪ If the rx signal level is too low, there may be a line problem. **Cross reference** ▪ See error code 0-08.
0-20	Facsimile data not received within 6 s of retraining	▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ Check for line problems. ▪ Try calling another fax machine. ▪ Try adjusting the reconstruction time for the first line and/or rx cable equalizer setting. **Cross reference** ▪ Reconstruction time - G3 Switch 0A, bit 6 ▪ Rx cable equalizer - G3 Switch 07 (PSTN)
0-21	EOL signal (end-of-line) from the other end not received within 5 s of the previous EOL signal	▪ Check the connections between the FCU, NCU, & line. ▪ Check for line noise or other line problems. ▪ Replace the NCU or FCU. ▪ The remote machine may be defective or may have disconnected. **Cross reference** ▪ Maximum interval between EOLs and between ECM frames - G3 Bit Switch 0A, bit 4

Code	Meaning	Suggested Cause/Action
0-22	The signal from the other end was interrupted for more than the acceptable modem carrier drop time (default: 200 ms)	▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ Defective remote terminal. ▪ Check for line noise or other line problems. ▪ Try adjusting the acceptable modem carrier drop time. **Cross reference** ▪ Acceptable modem carrier drop time - G3 Switch 0A, bits 0 and 1
0-23	Too many errors during reception	▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ Defective remote terminal. ▪ Check for line noise or other line problems. ▪ Try asking the other end to adjust their tx level. ▪ Try adjusting the rx cable equalizer setting and/or rx error criteria. **Cross reference** ▪ Rx cable equalizer - G3 Switch 07 (PSTN) ▪ Rx error criteria - Communication Switch 02, bits 0 and 1
0-30	The other terminal did not reply to NSS(A) in AI short protocol mode	▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ The other terminal may not be compatible. **Cross reference** ▪ Dedicated tx parameters - Section 4

Error Codes

Code	Meaning	Suggested Cause/Action
0-32	The other terminal sent a DCS, which contained functions that the receiving machine cannot handle.	▪ Check the protocol dump list. ▪ Ask the other party to contact the manufacturer.
0-52	Polarity changed during communication	▪ Check the line connection. ▪ Retry the communication.
0-55	FCE does not detect the SG3-V34.	▪ FCU firmware or board defective. ▪ SG3-V34 firmware or board defective.
0-56	The stored message data exceeds the capacity of the mailbox in the SG3-V34.	▪ SG3-V34 firmware or board defective.
0-70	The communication mode specified in CM/JM was not available (V.8 calling and called terminal)	▪ The other terminal did not have a compatible communication mode (e.g., the other terminal was a V.34 data modem and not a fax modem.) ▪ A polling tx file was not ready at the other terminal when polling rx was initiated from the calling terminal.
0-74	The calling terminal fell back to T.30 mode, because it could not detect ANSam after sending CI.	▪ The calling terminal could not detect ANSam due to noise, etc. ▪ ANSam was too short to detect. ▪ Check the line connection and condition. ▪ Try making a call to another V.8/V.34 fax.
0-75	The called terminal fell back to T.30 mode, because it could not detect a CM in response to ANSam (ANSam timeout).	▪ The terminal could not detect ANSam. ▪ Check the line connection and condition. ▪ Try receiving a call from another V.8/V.34 fax.

Code	Meaning	Suggested Cause/Action
0-76	The calling terminal fell back to T.30 mode, because it could not detect a JM in response to a CM (CM timeout).	▪ The called terminal could not detect a CM due to noise, etc. ▪ Check the line connection and condition. ▪ Try making a call to another V.8/V.34 fax.
0-77	The called terminal fell back to T.30 mode, because it could not detect a CJ in response to JM (JM timeout).	▪ The calling terminal could not detect a JM due to noise, etc. ▪ A network that has narrow bandwidth cannot pass JM to the other end. ▪ Check the line connection and condition. ▪ Try receiving a call from another V.8/V.34 fax.
0-79	The called terminal detected CI while waiting for a V.21 signal.	▪ Check for line noise or other line problems. ▪ If this error occurs, the called terminal falls back to T.30 mode.
0-80	The line was disconnected due to a timeout in V.34 phase 2 – line probing.	The guard timer expired while starting these phases. Serious noise, narrow bandwidth, or low signal level can cause these errors. **If these errors happen at the transmitting terminal:** ▪ Try making a call at a later time. ▪ Try using V.17 or a slower modem using dedicated tx parameters. ▪ Try increasing the tx level. ▪ Try adjusting the tx cable equalizer setting. **If these errors happen at the receiving terminal:** ▪ Try adjusting the rx cable equalizer
0-81	The line was disconnected due to a timeout in V.34 phase 3 – equalizer training.	
0-82	The line was disconnected due to a timeout in the V.34 phase 4 – control channel start-up.	

Error Codes

Code	Meaning	Suggested Cause/Action
0-83	The line was disconnected due to a timeout in the V.34 control channel restart sequence.	setting. ▪ Try increasing the tx level. ▪ Try using V.17 or a slower modem if the same error is frequent when receiving from multiple senders.
0-84	The line was disconnected due to abnormal signaling in V.34 phase 4 – control channel start-up.	▪ The signal did not stop within 10 s. ▪ Turn off the machine, then turn it back on. ▪ If the same error is frequent, replace the FCU.
0-85	The line was disconnected due to abnormal signaling in V.34 control channel restart.	▪ The signal did not stop within 10 s. ▪ Turn off the machine, then turn it back on. ▪ If the same error is frequent, replace the FCU.
0-86	The line was disconnected because the other terminal requested a data rate using MPh that was not available in the currently selected symbol rate.	▪ The other terminal was incompatible. ▪ Ask the other party to contact the manufacturer.
0-87	The control channel started after an unsuccessful primary channel.	▪ The receiving terminal restarted the control channel because data reception in the primary channel was not successful. ▪ This does not result in an error communication.
0-88	The line was disconnected because PPR was transmitted/received 9	▪ Try using a lower data rate at the start. ▪ Try adjusting the cable equalizer setting.

Code	Meaning	Suggested Cause/Action
	(default) times within the same ECM frame.	
2-11	Only one V.21 connection flag was received	▪ Replace the FCU.
2-12	Modem clock irregularity	▪ Replace the FCU.
2-13	Modem initialization error	▪ Turn off the machine, then turn it back on. ▪ Update the modem ROM. ▪ Replace the FCU.
2-23	JBIG compression or reconstruction error	▪ Turn off the machine, then turn it back on. ▪ Replace the EXFUNC board if the error is frequent.
2-24	JBIG ASIC error	▪ Turn off the machine, then turn it back on. ▪ Replace the EXFUNC board if the error is frequent.
2-25	JBIG data reconstruction error (BIH error)	▪ JBIG data error ▪ Check the sender's JBIG function. ▪ Update the MBU ROM.
2-26	JBIG data reconstruction error (Float marker error)	
2-27	JBIG data reconstruction error (End marker error)	
2-28	JBIG data reconstruction error (Timeout)	
2-29	JBIG trailing edge maker error	▪ FCU defective ▪ Check the destination device.
2-50	The machine resets itself for a fatal FCU system error	▪ If this is frequent, update the ROM, or replace the FCU.

Error Codes

Code	Meaning	Suggested Cause/Action
2-51	The machine resets itself because of a fatal communication error	▪ If this is frequent, update the ROM, or replace the FCU.
2-53	Snd msg() in the manual task is an error because the mailbox for the operation task is full.	▪ The user did the same operation many times, and this gave too much load to the machine.
4-01	Line current was cut	▪ Check the line connector. ▪ Check the connection between FCU and NCU. ▪ Check for line problems. ▪ Replace the FCU or the NCU.
4-10	Communication failed because of an ID Code mismatch (Closed Network) or Tel. No./CSI mismatch (Protection against Wrong Connections)	▪ Get the ID Codes the same and/or the CSIs programmed correctly, then resend. ▪ The machine at the other end may be defective.
5-10	DCR timer expired	▪ Replace the FCU.
5-20	Storage impossible because of a lack of memory	▪ Temporary memory shortage. ▪ Test the SAF memory. ▪ Replace the FCU or optional EXMEM board
5-21	Memory overflow	
5-23	Print data error when printing a substitute rx or confidential rx message	▪ Test the SAF memory. ▪ Ask the other end to resend the message. ▪ Replace the FCU or optional EXMEM board.
5-25	SAF file access error	▪ Replace the FCU or EXMEM board.

Code	Meaning	Suggested Cause/Action
6-00	G3 ECM - T1 time out during reception of facsimile data	▪ Try adjusting the rx cable equalizer. ▪ Replace the FCU or NCU.
6-01	G3 ECM - no V.21 signal was received	
6-02	G3 ECM - EOR was received	
6-04	G3 ECM - RTC not detected	▪ Check the line connection. ▪ Check connections from the NCU to the FCU. ▪ Check for a bad line or defective remote terminal. ▪ Replace the FCU or NCU.
6-05	G3 ECM - facsimile data frame not received within 18 s of CFR, but there was no line fail	▪ Check the line connection. ▪ Check connections from the NCU to the FCU. ▪ Check for a bad line or defective remote terminal. ▪ Replace the FCU or NCU. ▪ Try adjusting the rx cable equalizer **Cross reference** ▪ Rx cable equalizer - G3 Switch 07 (PSTN)
6-06	G3 ECM - coding/decoding error	▪ Defective FCU. ▪ The other terminal may be defective.
6-08	G3 ECM - PIP/PIN received in reply to PPS.NULL	▪ The other end pressed Stop during communication. ▪ The other terminal may be defective.
6-09	G3 ECM - ERR received	▪ Check for a noisy line. ▪ Adjust the tx levels of the communicating machines. ▪ See code 6-05.

Error Codes

Code	Meaning	Suggested Cause/Action
6-10	G3 ECM - error frames still received at the other end after all communication attempts at 2400 bps	▪ Check for line noise. ▪ Adjust the tx level (use NCU parameter 01 or the dedicated tx parameter for that address). ▪ Check the line connection. ▪ Defective remote terminal.
6-21	V.21 flag detected during high speed modem communication	▪ The other terminal may be defective or incompatible.
6-22	The machine resets the sequence because of an abnormal handshake in the V.34 control channel	▪ Check for line noise. ▪ If the same error occurs frequently, replace the FCU. ▪ Defective remote terminal.
6-99	V.21 signal not stopped within 6 s	▪ Replace the FCU.
13-17	SIP user name registration error	▪ Double registration of the SIP user name. ▪ Capacity for user-name registration in the SIP server is not sufficient.
13-18	SIP server access error	▪ Incorrect initial setting for the SIP server. ▪ Defective SIP server.
14-00	SMTP Send Error	Error occurred during sending to the SMTP server. Occurs for any error other than 14-01 to 16. For example, the mail address of the system administrator is not registered.
14-01	SMTP Connection Failed	Failed to connect to the SMTP server (timeout) because the server could not be found. ▪ The PC is not ready to transfer files. ▪ SMTP server not functioning correctly. ▪ The DNS IP address is not registered. ▪ Network not operating correctly. ▪ Destination folder selection not correct.

Code	Meaning	Suggested Cause/Action
14-02	No Service by SMTP Service (421)	SMTP server operating incorrectly, or the destination for direct SMTP sending is not correct. ▪ Contact the system administrator and check that the SMTP server has the correct settings and operates correctly. ▪ Contact the system administrator for direct SMTP sending and check the sending destination.
14-03	Access to SMTP Server Denied (450)	Failed to access the SMTP server because the access is denied. ▪ SMTP server operating incorrectly. Contact the system administrator to determine if there is a problem with the SMTP server and to check that the SMTP server settings are correct. ▪ Folder send destination is incorrect. Contact the system administrator to determine that the SMTP server settings and path to the server are correct. ▪ Device settings incorrect. Confirm that the user name and password settings are correct. ▪ Direct SMTP destination incorrect. Contact the system administrator to determine if there is a problem at the destination at that the settings at the destination are correct.
14-04	Access to SMTP Server Denied (550)	▪ SMTP server operating incorrectly ▪ Direct SMTP sending not operating correctly
14-05	SMTP Server HDD Full (452)	Failed to access the SMTP server because the HDD on the server is full. ▪ Insufficient free space on the HDD of the SMTP server. Contact the system administrator and check the amount of space

Error Codes

Code	Meaning	Suggested Cause/Action
		remaining on the SMTP server HDD. ▪ Insufficient free space on the HDD where the destination folder is located. Contact the system administrator and check the amount of space remaining on the HDD where the target folder is located. ▪ Insufficient free space on the HDD at the target destination for SMTP direct sending. Contact the system administrator and check the amount of space remaining on the target HDD.
14-06	User Not Found on SMTP Server (551)	The designated user does not exist. ▪ The designated user does not exist on the SMTP server. ▪ The designated address is not for use with direct SMTP sending.
14-07	Data Send to SMTP Server Failed (4XX)	Failed to access the SMTP server because the transmission failed. ▪ PC not operating correctly. ▪ SMTP server operating incorrectly ▪ Network not operating correctly. ▪ Destination folder setting incorrect. ▪ Direct SMTP sending not operating correctly.
14-08	Data Send to SMTP Server Failed (5XX)	Failed to access the SMTP server because the transmission failed. ▪ SMTP server operating incorrectly ▪ Destination folder setting incorrect. ▪ Direct SMTP sending not operating correctly. ▪ Software application error.
14-09	Authorization Failed for Sending to SMTP Server	▪ POP-Before-SMTP or SMTP authorization failed. ▪ Incorrect setting for file transfer

Code	Meaning	Suggested Cause/Action
14-10	Addresses Exceeded	Number of broadcast addresses exceeded the limit for the SMTP server.
14-11	Buffer Full	The send buffer is full so the transmission could not be completed. Buffer is full due to using Scan-to-Email while the buffer is being used send mail at the same time.
14-12	Data Size Too Large	Transmission was cancelled because the detected size of the file was too large.
14-13	Send Cancelled	Processing is interrupted because the user pressed Stop.
⇒ 14-21	SMIME Sending Error	Make sure the user certificate or device certificate is registered correctly.
14-30	MCS File Creation Failed	Failed to create the MCS file because: ▪ The number of files created with other applications on the Document Server has exceeded the limit. ▪ HDD is full or not operating correctly. ▪ Software error.
14-31	UFS File Creation Failed	UFS file could not be created: ▪ Not enough space in UFS area to handle both Scan-to-Email and IFAX transmission. ▪ HDD full or not operating correctly. ▪ Software error.
14-32	Cancelled the Mail Due to Error Detected by NFAX	Error detected with NFAX and send was cancelled due to a software error.
14-33	No Mail Address For the Machine	Neither the mail address of the machine nor the mail address of the network administrator is registered.

Code	Meaning	Suggested Cause/Action
14-34	Address designated in the domain for SMTP sending does not exist	Operational error in normal mail sending or direct SMTP sending. ▪ Check the address selected in the address book for SMTP sending. ▪ Check the domain selection.
14-50	Mail Job Task Error	Due to an FCU mail job task error, the send was cancelled: ▪ Address book was being edited during creation of the notification mail. ▪ Software error.
14-51	UCS Destination Download Error	Not even one return notification can be downloaded: ▪ The address book was being edited. ▪ The number for the specified destination does not exist (it was deleted or edited after the job was created).
14-60	Send Cancel Failed	The cancel operation by the user failed to cancel the send operation.
14-61	Notification Mail Send Failed for All Destinations	All addresses for return notification mail failed.
15-01	POP3/IMAP4 Server Not Registered	At startup, the system detected that the IP address of the POP3/IMAP4 server has not been registered in the machine.
15-02	POP3/IMAP4 Mail Account Information Not Registered	The POP3/IMAP4 mail account has not been registered.
15-03	Mail Address Not Registered	The mail address has not been registered.
15-10	DCS Mail Receive Error	Error other than 15-11 to 15-18.

Code	Meaning	Suggested Cause/Action
15-11	Connection Error	The DNS or POP3/IMAP4 server could not be found: ▪ The IP address for DNS or POP3/IMAP4 server is not stored in the machine. ▪ The DNS IP address is not registered. ▪ Network not operating correctly.
15-12	Authorization Error	POP3/IMAP4 send authorization failed: ▪ Incorrect IFAX user name or password. ▪ Access was attempted by another device, such as the PC. ▪ POP3/IMAP4 settings incorrect.
15-13	Receive Buffer Full	Occurs only during manual reception. Transmission cannot be received due to insufficient buffer space. The buffer is being used for mail send or Scan-to-Email.
15-14	Mail Header Format Error	The mail header is not standard format. For example, the Date line description is incorrect.
15-15	Mail Divide Error	The e-mail is not in standard format. There is no boundary between parts of the e-mail, including the header.
15-16	Mail Size Receive Error	The mail cannot be received because it is too large.
15-17	Receive Timeout	May occur during manual receiving only because the network is not operating correctly.
15-18	Incomplete Mail Received	Only one portion of the mail was received.
15-31	Final Destination for Transfer Request Reception Format Error	The format of the final destination for the transfer request was incorrect.

Code	Meaning	Suggested Cause/Action
15-39	Send/Delivery Destination Error	The transmission cannot be delivered to the final destination: ▪ Destination file format is incorrect. ▪ Could not create the destination for the file transmission.
15-41	SMTP Receive Error	Reception rejected because the transaction exceeded the limit for the “Auth. E-mail RX” setting.
15-42	Off Ramp Gateway Error	The delivery destination address was specified with Off Ramp Gateway OFF.
15-43	Address Format Error	Format error in the address of the Off Ramp Gateway.
15-44	Addresses Over	The number of addresses for the Off Ramp Gateway exceeded the limit of 30.
15-61	Attachment File Format Error	The attached file is not TIFF format.
15-62	TIFF File Compatibility Error	Could not receive transmission due to: ▪ Resolution error ▪ Image of resolution greater than 200 dpi without extended memory. ▪ Resolution is not supported. ▪ Page size error ▪ The page size was larger than A3. ▪ Compression error ▪ File was compressed with other than MH, MR, or MMR.
15-63	TIFF Parameter Error	The TIFF file sent as the attachment could not be received because the TIFF header is incorrect: ▪ The TIFF file attachment is a type not supported.

Code	Meaning	Suggested Cause/Action
		▪ The TIFF file attachment is corrupted. ▪ Software error.
15-64	TIFF Decompression Error	The file received as an attachment caused the TIFF decompression error: ▪ The TIFF format of the attachment is corrupted. ▪ Software error.
15-71	Not Binary Image Data	The file could not be received because the attachment was not binary image data.
15-73	MDN Status Error	Could not find the Disposition line in the header of the Return Receipt, or there is a problem with the firmware.
15-74	MSDN Message ID Error	Could not find the Original Message ID line in the header of the Return Receipt, or there is a problem with the firmware.
15-80	Mail Job Task Read Error	Could not receive the transmission because the destination buffer is full and the destination could not be created (this error may occur when receiving a transfer request or a request for notification of reception).
15-81	Repeated Destination Registration Error	Could not repeat receive the transmission because the destination buffer is full and the destination could not be created (this error may occur when receiving a transfer request or a request for notification of reception).
15-91	Send Registration Error	Could not receive the file for transfer to the final destination: ▪ The format of the final destination or the transfer destination is incorrect. ▪ Destinations are full so the final and transfer

Code	Meaning	Suggested Cause/Action
		destinations could not be created.
15-92	Memory Overflow	Transmission could not be received because memory overflowed during the transaction.
15-93	Memory Access Error	Transaction could not complete due to a malfunction of SAF memory.
15-94	Incorrect ID Code	The machine rejected an incoming e-mail for transfer request, because the ID code in the incoming e-mail did not match the ID code registered in the machine.
15-95	Transfer Station Function	The machine rejected an incoming e-mail for transfer because the transfer function was unavailable.
22-00	Original length exceeded the maximum scan length	▪ Divide the original into more than one page. ▪ Check the resolution used for scanning. Lower the scan resolution if possible. ▪ Add optional page memory.
22-01	Memory overflow while receiving	▪ Wait for the files in the queue to be sent. ▪ Delete unnecessary files from memory. ▪ Transfer the substitute reception files to another fax machine, if the machine's printer is busy or out of order. ▪ Add an optional SAF memory card or hard disk.
22-02	Tx or rx job stalled due to line disconnection at the other end	▪ The job started normally but did not finish normally; data may or may not have been received fully. ▪ Restart the machine.
22-04	The machine cannot store received data in the SAF	▪ Update the ROM ▪ Replace the FCU.

Code	Meaning	Suggested Cause/Action
22-05	No G3 parameter confirmation answer	▪ Defective FCU board or firmware.
23-00	Data read timeout during construction	▪ Restart the machine. ▪ Replace the FCU
25-00	The machine software resets itself after a fatal transmission error occurred	▪ Update the ROM ▪ Replace the FCU.
⇒ 31-21	LAN Fax Error	• It was cancelled received LAN Fax images during store the image to SAF of FCU. • The LAN Fax transmission of a message was cancelled by the LAN Fax driver.
F0-xx	V.34 modem error	▪ Replace the FCU.
F6-xx	SG3-V34 modem error	▪ Update the SG3-V34 modem ROM. ▪ Replace the SG3-V34 board. ▪ Check for line noise or other line problems. ▪ Try communicating another V.8/V.34 fax.

3.2 IFAX TROUBLESHOOTING

Use the following procedures to determine whether the machine or another part of the network is causing the problem.

Communication Route	Item	Action	Remarks
General LAN	1. Connection with the LAN	▪ Check that the LAN cable is connected to the machine. ▪ Check that the LEDs on the hub are lit.	
	2. LAN activity	▪ Check that other devices connected to the LAN can communicate through the LAN.	
Between IFAX and PC	1. Network settings on the PC	▪ Check the network settings on the PC.	▪ Is the IP address registered in the TCP/IP properties in the network setup correct? Check the IP address with the administrator of the network.

Communication Route	Item	Action	Remarks
	2. Check that PC can connect with the machine	▪ Use the “ping” command on the PC to contact the machine.	▪ At the MS-DOS prompt, type ping then the IP address of the machine, then press Enter.
	3. LAN settings in the machine	▪ Check the LAN parameters ▪ Check if there is an IP address conflict with other PCs.	▪ Use the “Network” function in the User Tools. ▪ If there is an IP address conflict, inform the administrator.
Between machine and e-mail server	1. LAN settings in the machine	▪ Check the LAN parameters ▪ Check if there is an IP address conflict with other PCs.	▪ Use the “Network” function in the User Tools. ▪ If there is an IP address conflict, inform the administrator.
	2. E-mail account on the server	▪ Make sure that the machine can log into the e-mail server. ▪ Check that the account and password stored in the server are the same as in the machine.	▪ Ask the administrator to check.

IFAX Troubleshooting

Communication Route	Item	Action	Remarks
	3. E-mail server	▪ Make sure that the client devices which have an account in the server can send/receive e-mail.	▪ Ask the administrator to check. ▪ Send a test e-mail with the machine's own number as the destination. The machine receives the returned e-mail if the communication is performed successfully.
Between e-mail server and internet	1. E-mail account on the Server	▪ Make sure that the PC can log into the e-mail server. ▪ Check that the account and password stored in the server are the same as in the machine.	▪ Ask the administrator to check.

Communication Route	Item	Action	Remarks
	2. E-mail server	▪ Make sure that the client devices which have an account in the server can send/receive e-mail.	▪ Ask the administrator to check. ▪ Send a test e-mail with the machine's own number as the destination. The machine receives the returned e-mail if the communication is performed successfully.
	3. Destination e-mail address	▪ Make sure that the e-mail address is actually used. ▪ Check that the e-mail address contains no incorrect characters such as spaces.	
	4. Router settings	▪ Use the "ping" command to contact the router. ▪ Check that other devices connected to the router can sent data over the router.	▪ Ask the administrator of the server to check.

IFAX Troubleshooting

Communication Route	Item	Action	Remarks
	5. Error message by e-mail from the network of the destination.	▪ Check whether e-mail can be sent to another address on the same network, using the application e-mail software. ▪ Check the error e-mail message.	▪ Inform the administrator of the LAN.

3.3 IP-FAX TROUBLESHOOTING

3.3.1 IP-FAX TRANSMISSION

Cannot send by IP Address/Host Name

Check Point		Action
1	LAN cable connected?	Check the LAN cable connection.
2	Specified IP address/host name correct?	Check the IP address/host name.
3	Firewall/NAT is installed?	Cannot breach the firewall. Send by using another method (Fax, Internet Fax)
4	Transmission sent manually?	Manual sending not supported.
5	IP address of local machine registered?	Register the IP address.
6	Remote terminal port number setting other than 1720?	Send by specifying the port number.
7	Specified port number correct?	Confirm the port number of the remote fax.
8	DNS server registered when host name specified?	Contact the network administrator.
9	Remote fax a T.38 terminal?	Check whether the remote fax is a T38 terminal.
10	Remote fax switched off or busy?	Check that the remote fax is switched on.
11	Network bandwidth too narrow?	Request the network administrator to increase the bandwidth.
		Raise the delay level. IPFAX SW 01 Bit 0 to 3

IP-Fax Troubleshooting

Check Point		Action
		IP-Fax bandwidth is the same as the DCS speed. Set IP-Fax SW00 Bit 6 to 1.
12	Remote fax cancelled transmission?	Check whether the remote fax cancelled the transmission.

Cannot send via VoIP Gateway

Check Point		Action
1	LAN cable connected?	Check the LAN cable connection.
2	VoIP Gateway T.38 standard?	Contact the network administrator.
3	VoIP Gateway installed correctly?	Contact the network administrator.
4	VoIP Gateway power switched on?	Contact the network administrator.
5	Is the IP address/host name of the specified Gateway correct?	Check the IP address/host name.
6	Number of the specified fax correct?	Check the remote fax number.
7	Firewall/NAT is installed?	Cannot breach the firewall. Send by using another method (Fax, Internet Fax)
8	Transmission sent manually?	Manual sending not supported.
9	IP address of local fax registered?	Register the IP address.
10	DNS registered when host name specified?	Contact the network administrator.
11	Remote fax a G3 fax?	Check that the remote fax is a G3 fax.
12	G3 fax is connected to VoIP gateway?	Check that G3 fax is connected.

Check Point		Action
13	Remote G3 fax turned on?	Check that G3 fax is switched on.
14	Network bandwidth too narrow?	Request the network administrator to increase the bandwidth.
		Raise the network delay level. IPFAX SW 01 Bit 0 to 3
		IP-Fax bandwidth is the same as the DCS speed. Set IP-Fax SW00 Bit 6 to 1.

Cannot send by Alias Fax number.

Check Point		Action
1	LAN cable connected?	Check the LAN cable connection.
2	Number of specified Alias fax correct?	Confirm the Alias of the remote fax. Error Code: 13-14
3	Firewall/NAT installed?	Cannot breach the firewall. Send by using another method (Fax, Internet Fax)
4	Transmission sent manually?	Manual sending not supported.
5	Gatekeeper installed correctly?	Contact the network administrator.
6	Gatekeeper power switched on?	Contact the network administrator.
7	IP address/host name of Gatekeeper correct?	Check the IP address/host name.
8	DNS server registered when Gatekeeper host name specified?	Contact the network administrator.
9	Enable H.323 SW is set to on?	Check the settings. See User Parameter SW 34 Bit 0

IP-Fax Troubleshooting

Check Point		Action
10	IP address of local fax registered?	Register the IP address of the local fax.
11	Alias number of local fax registered?	Register the Alias number of the local fax.
12	Remote fax registered in Gatekeeper?	Contact the network administrator.
13	Remote fax a T.38 terminal?	Check whether the remote fax is a T38 terminal.
14	Remote fax switched off or busy?	Contact the network administrator.
15	Network bandwidth too narrow?	Request the system administrator to increase the bandwidth.
		Raise the delay level. IPFAX SW 01 Bit 0 to 3
		Lower the modem transmission baud rate. IPFAX SW 05
16	Remote fax cancelled transmission?	Check whether the remote fax cancelled the transmission.

3.3.2 IP-FAX RECEPTION

Cannot receive by IP Address/Host name

Check Point		Action
1	LAN cable connected?	Check the LAN cable connection.
2	Firewall/NAT is installed?	Cannot breach the firewall. Send by using another method (Fax, Internet Fax)
3	IP address of local fax registered?	Register the IP address.
4	Port number specified at remote sender fax (if required)?	Request the sender to specify the port number.

Check Point		Action
5	Specified port number correct (if required)?	Request the sender to check the port number.
6	DNS server registered when host name specified on sender side?	Contact the network administrator. **Note:** The sender machine displays this error code if the sender fax is a Ricoh model.
7	Network bandwidth too narrow?	Request the system administrator to increase the bandwidth.
		Lower the start modem reception baud rate on the receiving side. IPFAX SW06
8	Remote fax cancelled transmission?	Check whether the remote fax cancelled the transmission.

Cannot receive by VoIP Gateway.

Check Point		Action
1	LAN cable connected?	Check the LAN cable connection.
2	Firewall/NAT is installed?	Cannot breach the firewall. Request the remote fax to send by using another method (Fax, Internet Fax)
3	VoIP Gateway installed correctly?	Contact the network administrator.
4	VoIP Gateway power switched on?	Contact the network administrator.
5	IP address/host name of specified VoIP Gateway correct on sender's side?	Request the remote fax to check the IP address/host name.
6	DNS server registered when host name specified on sender side?	Contact the network administrator.
7	Network bandwidth too narrow?	Request the network administrator to

IP-Fax Troubleshooting

Check Point		Action
		increase the bandwidth.
8	G3 fax connected?	Check that G3 fax is connected.
9	G3 fax power switched on?	Check that G3 fax is switched on.

Cannot receive by Alias Fax number.

Check Point		Action
1	LAN cable connected?	Check the LAN cable connection.
2	Firewall/NAT is installed?	Cannot the breach firewall. Request the remote fax to send by using another method (Fax, Internet Fax)
3	Gatekeeper installed correctly?	Contact the network administrator. **Note:** The sender machine displays this error code if the sender fax is a Ricoh model.
4	Power to Gatekeeper switched on?	Contact the network administrator. **Note:** The sender machine displays this error code if the sender fax is a Ricoh model.
5	IP address/host name of Gatekeeper correct on the sender's side?	Request the sender to check the IP address/host name. **Note:** The sender machine displays this error code if the sender fax is a Ricoh model.
6	DNS server registered when Gatekeeper host name specified on sender's side?	Contact the network administrator. **Note:** The sender machine displays this error code if the sender fax is a Ricoh model.

Check Point		Action
7	Enable H.323 SW is set to on?	Request the sender to check the settings. User Parameter SW 34 Bit 0 **Note:** Only if the remote sender fax is a Ricoh fax.
8	Local fax IP address registered?	Register the IP address.
9	Local fax Alias number registered?	Register the Alias number.
10	Network bandwidth too narrow?	Request the system administrator to increase the bandwidth.
		Lower the start modem reception baud rate on the receiving side. IPFAX SW06
11	Remote fax cancelled transmission?	Check whether the remote fax cancelled the transmission.
12	Local fax registered in Gatekeeper?	Contact the network administrator. **Note:** The sender machine displays this error code if the sender fax is a Ricoh model.

4. SERVICE TABLE

4.1 CAUTIONS

⚠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.

Note

- The main power LED (☀) 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.

4.2 SERVICE PROGRAM TABLES

4.2.1 SP1-XXX (BIT SWITCHES)

1	Mode No.		Function
101	System Switch		
	001 – 032	00 – 1F	Changes the bit switches for system settings for the fax option. See section 4.2 Bit Switches
102	Ifax Switch		
	001 – 016	00 – 0F	Changes the bit switches for internet fax settings for the fax option. See section 4.2 Bit Switches
103	Printer Switch		
	001 – 016	00 – 0F	Changes the bit switches for printer settings for the fax option. See section 4.2 Bit Switches
104	Communication Switch		
	001 – 032	00 – 1F	Changes the bit switches for communication settings for the fax option. See section 4.2 Bit Switches
105	G3-1 Switch		
	001 – 016	00 – 0F	Changes the bit switches for the protocol settings of the standard G3 board. See section 4.2 Bit Switches
106	G3-2 Switch		

1	Mode No.		Function
	001 – 016	00 – 0F	Changes the bit switches for the protocol settings of the optional G3 board. See section 4.2 Bit Switches
107	G3-3 Switch		
	001 – 016	00 – 0F	Changes the bit switches for the protocol settings of the optional G3 board. See section 4.2 Bit Switches
108	G4 Internal Switch		
	001 – 032	00 – 1F	Not used (Do not change the bit switches)
109	G4 Parameter Switch		
	001 – 016	00 – 0F	Not used (Do not change the bit switches)
111	IP fax Switch		
	001 – 016	00 – 0F	Changes the bit switches for optional IP fax parameters. See section 4.2 Bit Switches

4.2.2 SP2-XXX (RAM DATA)

2	Mode No.		Function
101	RAM Read/Write		
	001		Changes RAM data for the fax board directly. See section 4.5 Service RAM Addresses.
102	Memory Dump		
	001	G3-1 Memory Dump	Prints out RAM data for the fax board. See section 4.5 Service RAM Addresses.

2	Mode No.		Function
	002	G3-2 Memory Dump	Prints out RAM data for the optional SG3 board.
	003	G3-3 Memory Dump	Prints out RAM data for the optional SG3 board.
	004	G4 Memory Dump	Prints out RAM data for the SiG4 board.
103	G3-1 NCU Parameters		
	001 – 023	CC, 01 – 22	NCU parameter settings for the standard G3 board. See section 4.3 NCU Parameters.
104	G3-2 NCU Parameters		
	001 – 023	CC, 01 – 22	NCU parameter settings for the optional G3 board. See section 4.3 NCU Parameters.
105	G3-3 NCU Parameters		
	001 – 023	CC, 01 – 22	NCU parameter settings for the optional G3 board. See section 4.3 NCU Parameters.

4.2.3 SP3-XXX (TEL LINE SETTINGS)

3	Mode No.		Function
101	Service Station		
	001	Fax Number	Enter the fax number of the service station.
	002	Select Line	Select the line type.
102	Serial Number		
	000		Enter the fax unit's serial number.

Service Program Tables

3	Mode No.		Function
103	PSTN-1 Port Settings		
	001	Select Line	Select the line type setting for the G3-1 line. If the machine is installed on a PABX line, select “PABX”, “PABX(GND)” or “PABX(FLASH)”.
	002	PSTN Access Number	Enter the PSTN access number for the G3-1 line.
	003	Memory Lock Disabled	If the customer does not want to receive transmissions using Memory Lock on this line, turn this SP on.
104	PSTN-2 Port Settings		
	001	Select Line	Select the line setting for the G3-2 line. If the machine is installed on a PABX line, select “PABX”, “PABX(GND)” or “PABX(FLASH)”.
	002	PSTN Access Number	Enter the PSTN access number for the G3-2 line.
	003	Memory Lock Disabled	If the customer does not want to receive transmissions using Memory Lock on this line, change this SP to on.
	004	Transmission Disabled	If you turn this SP on, the machine does not send any fax messages on the G3-2 line.
105	PSTN-3 Port Settings		
	001	Select Line	Select the line setting for the G3-3 line. If the machine is installed on a PABX line, select “PABX”, “PABX(GND)” or “PABX(FLASH)”.

3	Mode No.		Function
	002	PSTN Access Number	Enter the PSTN access number for the G3-3 line.
	003	Memory Lock Disabled	If the customer does not want to receive transmissions using Memory Lock on this line, change this SP to on.
	004	Transmission Disabled	If you turn this SP on, the machine does not send any fax messages on the G3-3 line.
106	ISDN Port Settings		
	001	Select Line	Not used (Do not change the bit switches)
	002	PSTN Access Number	
	003	Memory Lock Disabled	
106	004	Transmission Disabled	
107	IPFAX Port Settings		
	001	H323 Port	
	002	SIP Port	
	003	RAS Port	
	004	Gatekeeper port	
	005	T.38 Port	
	006	SIP Server Port	
	007	IPFAX Protocol Priority	Select "H323" or "SIP".
201	FAX SW		

3	Mode No.		Function
	001 – 032	00 – 1F	

4.2.4 SP4-XXX (ROM VERSIONS)

4	Mode No.		Function
101	001	FCU ROM Version	Displays the FCU ROM version.
102	001	Error Codes	Displays the latest 64 fax error codes.
103	001	G3-1 ROM Version	Displays the G3-1 modem version.
104	001	G3-2 ROM Version	Displays the G3-2 modem version.
105	001	G3-3 ROM Version	Displays the G3-3 modem version.
106	001	G4 ROM Version	Not used (Do not change the bit switches)
107	001	Charge ROM Version	Not used (Do not change the bit switches)

4.2.5 SP5-XXX (INITIALIZING)

5	Mode No.		Function
101	Initialize SRAM		
	000		Initializes the bit switches and user parameters, user data in the SRAM, files in the SAF memory, and clock.
102	Erase All Files		
	000		Erases all files stored in the SAF memory.
103	Reset Bit Switches		

5	Mode No.		Function
	000		Resets the bit switches and user parameters.
104	Factory setting		
	000		Resets the bit switches and user parameters, user data in the SRAM and files in the SAF memory.
105	Initialize All Bit Switches		
	000		Initializes all the current bit switch settings.
106	Initialize Security Bit Switches		
	000		Initializes only the security bit switches. If you select automatic output/display for the user parameter switches, the security settings are initialized.

4.2.6 SP6-XXX (REPORTS)

6	Mode No.		Function
101	System Parameter List		
	000		Touch the “ON” button to print the system parameter list.
102	Service Monitor Report		
	000		Touch the “ON” button to print the service monitor report.
103	G3 Protocol Dump List		
	001	G3 All Communications	Prints the protocol dump list of all communications for all G3 lines.

Service Program Tables

6	Mode No.		Function
	002	G3-1 (All Communications)	Prints the protocol dump list of all communications for the G3-1 line.
103	003	G3-1 (1 Communication)	Prints the protocol dump list of the last communication for the G3-1 line.
	004	G3-2 (All Communications)	Prints the protocol dump list of all communications for the G3-2 line.
	005	G3-2 (1 Communication)	Prints the protocol dump list of the last communication for the G3-2 line.
	006	G3-3 (All Communications)	Prints the protocol dump list of all communications for the G3-3 line.
	007	G3-3 (1 Communication)	Prints the protocol dump list of the last communication for the G3-3 line.
104	G4 Protocol Dump List		
	001	Dch + Bch 1	Not used (Do not change the bit switches)
	002	Dch	
	003	Bch 1 Link Layer	
	004	Dch Link Layer	
	005	Dch +Bch 2	
	006	Bch 2 Link Layer	
105	All Files print out		
	000		Prints out all the user files in the SAF memory, including confidential messages. **Note:** Do not use this function, unless the customer is having trouble printing confidential messages or recovering files stored using the memory lock feature.

6	Mode No.		Function
106	Journal Print out		
	001	All Journals	The machine prints all the communication records on the report.
	002	Specified Date	The machine prints all communication records after the specified date.
107	Log List Print out		These log print out functions are for designer use only.
	001	All log files	
	002	Printer	
	003	SC/TRAP Stored	
	004	Decompression	
	005	Scanner	
	006	JOB/SAF	
	007	Reconstruction	
	008	JBIG	
	009	Fax Driver	
	010	G3CCU	
	011	Fax Job	
	012	CCU	
	013	Scanner Condition	
108	IP Protocol Dump List		
	001	All Communications	Prints the protocol dump list of all communications for the IP fax line.
	002	1 Communication	Prints the protocol dump list of the last communication for the IP fax line.

4.2.7 SP7-XXX (TEST MODES)

These are the test modes for PTT approval.

7	Function
101	G3-1 Modem Tests
102	G3-1 DTMF Tests
103	Ringer Test
104	G3-1 V34 (S2400baud)
105	G3-1 V34 (S2800baud)
106	G3-1 V34 (S3000baud)
107	G3-1 V34 (S3200baud)
108	G3-1 V34 (S3429baud)
109	Recorded Message Test
110	G3-2 Modem Tests
111	G3-2 DTMF Tests
112	G3-2 V34 (S2400baud)
113	G3-2 V34 (S2800baud)
114	G3-2 V34 (S3000baud)
115	G3-2 V34 (S3200baud)
116	G3-2 V34 (S3429baud)
117	G3-3 Modem Tests
118	G3-3 DTMF Tests
119	G3-3 V34 (S2400baud)
120	G3-3 V34 (S2800baud)

7	Function
121	G3-3 V34 (S3000baud)
122	G3-3 V34 (S3200baud)
123	G3-3 V34 (S3429baud)
124	IG3-1 Modem Tests - Not used
125	IG3-1 DTMF Tests - Not used
126	IG3-1 V34 (S2400baud) - Not used
127	IG3-1 V34 (S2800baud) - Not used
128	IG3-1 V34 (S3000baud) - Not used
129	IG3-1 V34 (S3200baud) - Not used
130	IG3-1 V34 (S3429baud) - Not used
131	IG3-2 Modem Tests - Not used
132	IG3-2 DTMF Tests - Not used
133	IG3-2 V34 (S2400baud) - Not used
134	IG3-2 V34 (S2800baud) - Not used
135	IG3-2 V34 (S3000baud) - Not used
136	IG3-2 V34 (S3200baud) - Not used
137	IG3-2 V34 (S3429baud) - Not used

4.2.8 SP9-XXX (DESIGN SWITCH MODE)

9	Mode No.	Function
702	Design Switch	**DFU**

4.3 BIT SWITCHES

Note

- Do not adjust a bit switch or use a setting that is described as "Not used", as this may cause the machine to malfunction or to operate in a manner that is not accepted by local regulations. Such bits are for use only in other areas, such as Japan.

Default settings for bit switches are not listed in this manual. Refer to the System Parameter List printed by the machine.

4.3.1 SYSTEM SWITCHES

System Switch 00 (SP No. 1-101-001)		
No	**Function**	**Comments**
0	Dedicated transmission parameter programming 0: Disabled 1: Enabled	Set this bit to 1 before changing any dedicated transmission parameters. Reset this bit to 0 after programming dedicated transmission parameters.
1	Not used	Do not change
2	Technical data printout on the Journal 0: Disabled 1: Enabled	1: Instead of the personal name, the following data are listed on the Journal for each G3 communication.

System Switch 00 (SP No. 1-101-001)		
No	**Function**	**Comments**
	Example: **0000 32V34 288/264 L0100 03 04** (1) (2)(3) (4) (5) (6) (7) (8) (1): EQM value (Line quality data). A larger number means more errors. (2): Symbol rate (V.34 only) (3): Final modem type used (4): Starting data rate (for example, 288 means 28.8 kbps) (5): Final data rate (6): Rx revel (see below for how to read the rx level) (7): Total number of error lines that occurred during non-ECM reception. (8): Total number of burst error lines that occurred during non-ECM reception. Note ▪ EQM and rx level are fixed at "FFFF" in tx mode. ▪ The seventh and eighth numbers are fixed at "00" for transmission records and ECM reception records.	
	Rx level calculation Example: **0000 32V34 288/264 L0100 03 04** (1) (2)(3) (4) (5) (6) (7) (8) The four-digit hexadecimal value (N) after "L" indicates the rx level. The **high** byte is given first, followed by the **low** byte. Divide the decimal value of N by -16 to get the rx level. In the above example, the decimal value of N (= 0100 [H]) is 256. So, the actual rx level is 256/-16 = -16 dB	
3	Not used	Do not change this setting.
4	Line error mark print 0: OFF, 1: ON (print)	When "1" is selected, a line error mark is printed on the printout if a line error occurs during reception.
5	G3/G4 communication parameter display 0: Disabled	This is a fault-finding aid. The LCD shows the key parameters (see below). This is normally disabled because it cancels the CSI display for the user.

Bit Switches

System Switch 00 (SP No. 1-101-001)		
No	**Function**	**Comments**
	1: Enabled	Be sure to reset this bit to 0 after testing.
6	Protocol dump list output after each communication 0: Off 1: On	This is only used for communication troubleshooting. It shows the content of the transmitted facsimile protocol signals. Always reset this bit to 0 after finishing testing. If system switch 09 bit 6 is at "1", the list is only printed if there was an error during the communication.
7	Not used	Do not change the setting.

G3 Communication Parameters

Modem rate	336: 33600 bps 168: 16800 bps 312: 31200 bps 144: 14400 bps 288: 28800 bps 120: 12000 bps 264: 26400 bps 96: 9600 bps 240: 24000 bps 72: 7200 bps 216: 21600 bps 48: 4800 bps 192: 19200 bps 24: 2400 bps
Resolution	S: Standard (8 x 3.85 dots/mm) D: Detail (8 x 7.7 dots/mm) F: Fine (8 x 15.4 dots/mm) SF: Superfine (16 x 15.4 dots/mm) 21: Standard (200 x 100 dpi) 22: Detail (200 x 200 dpi) 44: Superfine (400 x 400 dpi)
Compression mode	MMR: MMR compression MR: MR compression MH: MH compression JBO: JBIG compression (Optional mode) JBB: JBIG compression (Basic mode)

Communication mode	ECM: With ECM NML: With no ECM
Width and reduction	A4: A4 (8.3"), no reduction B4: B4 (10.1"), no reduction A3: A3 (11.7"), no reduction
I/O rate	0: 0 ms/line 5: 5 ms/line 10: 10 ms/line 20: 20 ms/line 25: 2.5 ms/line 40: 40 ms/line Note "40" is displayed while receiving a fax message using AI short protocol.
System Switch 01 - Not used (Do not change the factory settings.)	

System Switch 02 (SP No. 1-101-003)		
No	**Function**	**Comments**
0	Not used	Do not change these settings.
2	Forced reset after transmission stalls 0: Off 1: On	With this setting on, the machine resets itself automatically if a transmission stalls and fails to complete the job.
3	Not used	Do not change these settings.
4	File retention time 0: Depends on User Parameter 24 [18(H)] 1: No limit	1: A file that had a communication error will not be erased unless the communication is successful.
5	Not used	Do not change this setting.
6-7	Memory read/write by RDS	(0,0): All RDS systems are always locked out.

Bit Switches

System Switch 02 (SP No. 1-101-003)				
No	**Function**			**Comments**
	Bit 7	Bit 6	Setting	(0,1), (1,0): Normally, RDS systems are locked out, but the user can temporarily switch RDS on to allow RDS operations to take place. RDS will automatically be locked out again after a certain time, which is stored in System Switch 03. Note that if an RDS operation takes place, RDS will not switch off until this time limit has expired. (1,1): At any time, an RDS system can access the machine.
	0	0	Always disabled	
	0	1	User selectable	
	1	0	User selectable	
	1	1	Always enabled	

System Switch 03 (SP No. 1-101-004)		
No	**Function**	**Comments**
0 to 7	Length of time that RDS is temporarily switched on when bits 6 and 7 of System Switch 02 are set to "User selectable"	00 - 99 hours (BCD). This setting is only valid if bits 6 and 7 of System Switch 02 are set to "User selectable". The default setting is 24 hours.

System Switch 04 (SP No. 1-101-005)		
No	**Function**	**Comments**
0-2	Not used	Do not change these settings.
3	Printing dedicated tx parameters on Quick/Speed Dial Lists 0: Disabled 1: Enabled	1: Each Quick/Speed dial number on the list is printed with the dedicated tx parameters (10 bytes each). The first 10 bytes of data are the programmed dedicated tx parameters; 34 bytes of data are printed (the other 24 bytes have no use for service technicians).
4-7	Not used	Do not change these settings.

System Switch 05 - Not used (Do not change the factory settings.)

System Switch 06 (SP No. 1-101-007)		
No	**Function**	**Comments**
0 to 7	Margin setting for Create Margin Transmission	71 to 99 (BCD) %. This setting determines the reduction ratio when the user uses the Create Margin Transmission feature. Default setting: 1001 0011 (93%)

System Switch 07 - Not used (Do not change the factory settings.)
System Switch 08 - Not used (Do not change the factory settings.)

System Switch 09 (SP No. 1-101-010)		
No	**Function**	**Comments**
0	Addition of image data from confidential transmissions on the transmission result report 0: Disabled 1: Enabled	If this feature is enabled, the top half of the first page of confidential messages will be printed on transmission result reports.
1	Inclusion of communications on the Journal when no image data was exchanged. 0: Disabled 1: Enabled	0: Communications that reached phase C (message tx/rx) of the T.30 protocol are listed on the Journal. 1: Communications that reached phase A (call setup) of T.30 protocol are listed on the Journal. This will include telephone calls.
2	Automatic error report printout 0: Disabled 1: Enabled	0: Error reports will not be printed. 1: Error reports will be printed automatically after failed communications.
3	Printing of the error code on the	1: Error codes are printed on the error reports.

Bit Switches

System Switch 09 (SP No. 1-101-010)		
No	**Function**	**Comments**
	error report 0: No 1: Yes	
4	Not used	Do not change this setting.
5	Power failure report 0: Disabled 1: Enabled	1: A power failure report will be automatically printed after the power is switched on if a fax message disappeared from the memory when the power was turned off last.
6	Conditions for printing the protocol dump list 0: Print for all communications 1: Print only when there is a communication error	This switch becomes effective only when system switch 00 bit 6 is set to 1. 1: Set this bit to 1 when you wish to print a protocol dump list only for communications with errors.
7	Priority given to various types of remote terminal ID when printing reports 0: RTI > CSI > Dial label > Tel. number 1: Dial label > Tel. number > RTI > CSI	This bit determines which set of priorities the machine uses when listing remote terminal names on reports. Dial Label: The name stored, by the user, for the Quick/Speed Dial number.

System Switch 0A (SP No. 1-101-011)		
No	**Function**	**Comments**
0	Automatic port selection 0: Disabled, 1: Enabled	When "1" is selected, a suitable port is automatically selected if the selected port is not used.
1-2	Not used	Do not change these settings.
3	Continuous polling reception 0: Disabled 1: Enabled	This feature allows a series of stations to be polled in a continuous cycle. This will continue until the

System Switch 0A (SP No. 1-101-011)		
No	**Function**	**Comments**
		polling reception file is erased. The dialing interval is the same as memory transmission.
4	Dialing on the ten-key pad when the external telephone is off-hook 0: Disabled 1: Enabled	0: Prevents dialing from the ten-key pad while the external telephone is off-hook. Use this setting when the external telephone is not by the machine, or if a wireless telephone is connected as an external telephone. 1: The user can dial on the machine's ten-key pad when the handset is off-hook.
5	On hook dial 0: Disabled 1: Enabled	0: On hook dial is disabled.
6-7	Not used	Do not change the factory settings

System Switch 0B - Not used (Do not change the factory settings.)
System Switch 0C - Not used (Do not change the factory settings.)
System Switch 0D - Not used (Do not change the factory settings.)

System Switch 0E (SP No. 1-101-015)		
No	**Function**	**Comments**
0-1	Not used	Do not change the settings.
2	Enable/disable for direct sending selection 0: Direct sending off 1: Direct sending on	Direct sending cannot operate when the capture function is on during sending. Setting this switch to "1" enables direct sending without capture. Setting this switch to "0" masks the direct sending function on the operation panel so it cannot be selected.

Bit Switches

System Switch 0E (SP No. 1-101-015)		
No	**Function**	**Comments**
3	Action when the external handset goes off-hook 0: Manual tx and rx operation 1: Memory tx and rx operation (the display remains the same)	0: Manual tx and rx are possible while the external handset is off-hook. However, memory tx is not possible. 1: The display stays in standby mode even when the external handset is used, so that other people can use the machine for memory tx operation. Note that manual tx and rx are not possible with this setting.
4-7	Not used	Do not change these settings.

System Switch 0F (SP No. 1-101-016)			
No	**Function**		**Comments**
0 to 7	Country/area code for functional settings (Hex)		This country/area code determines the factory settings of bit switches and RAM addresses. However, it has no effect on the NCU parameter settings and communication parameter RAM addresses. Cross reference NCU country code: SP No. 2-103-001 for G3-1 SP No. 2-104-001 for G3-2 SP No. 2-105-001 for G3-3
	00: France	11: USA	
	01: Germany	12: Asia	
	02: UK	13: Japan	
	03: Italy	14: Hong Kong	
	04: Austria	15: South Africa	
	05: Belgium	16: Australia	
	06: Denmark	17: New Zealand	
	07: Finland	18: Singapore	
	08: Ireland	19: Malaysia	
	09: Norway	1A: China	
	0A: Sweden	1B: Taiwan	
	0B: Switz.	1C: Korea	
	0C: Portugal	20: Turkey	
	0D: Holland	21: Greece	
	0E: Spain	22: Hungary	
	0F: Israel	23: Czech	
	10: ---	24: Poland	

Bit Switches

System Switch 10 (SP No. 1-101-017)		
No	**Function**	**Comments**
0-7	Threshold memory level for parallel memory transmission	Threshold = N x 128 KB + 256 KB N can be between 00 - FF(H) Default setting: 02(H) = 512 KB

System Switch 11 (SP No. 1-101-018)		
No	**Function**	**Comments**
0	TTI printing position 0: Superimposed on the page data 1: Printed before the data leading edge	Change this bit to 1 if the TTI overprints information that the customer considers to be important (G3 transmissions).
1	TSI (G3) printing position 0: Superimposed on the page data 1: Printed before the data leading edge	Change this bit to 1 if the TSI (G3) overprints information that the customer considers to be important.
2	Not used	Do not change the factory settings.
3	TTI used for broadcasting 0: The TTIs selected for each Quick/Speed dial are used 1: The same TTI is used for all destinations	1: The TTI (TTI_1 or TTI_2) which is selected for all destinations during broadcasting.
4-7	Not used	Do not change the factory settings.

System Switch 12 (SP No. 1-101-019)		
No	**Function**	**Comments**
0-7	TTI printing position in the main scan direction	TTI: 08 to 92 (BCD) mm Input even numbers only. This setting determines the print start position for the TTI from the left edge of the paper. If the TTI is moved too far to the right, it may overwrite the file number which is on the top right of the page. On an A4 page, if the TTI is moved over by more than 50 mm, it may overwrite the page number.

System Switch 13 - Not used (do not change these settings)
System Switch 14 - Not used (do not change these settings)

System Switch 15 (SP No. 1-101-022)				
No	**Function**			**Comments**
0	Not used			Do not change the settings.
1	Going into the Energy Saver mode automatically 0: Enabled 1: Disabled			1: The machine will restart from the Energy Saver mode quickly, because the +5V power supply is active even in the Energy Saver mode.
2-3	Not used			Do not change these settings.
4-5	Interval for preventing the machine from entering Energy Saver mode if there is a pending transmission file.			If there is a file waiting for transmission, the machine does not go to Energy Saver mode during the selected period. After transmitting the file, if there is no file waiting for transmission, the machine goes to the Energy Saver mode.
	Bit 5	Bit 4	Setting	
	0	0	1 min	

Bit Switches

System Switch 15 (SP No. 1-101-022)				
No	**Function**			**Comments**
	0	1	30 min	
	1	0	1 hour	
	1	1	24 hours	
6-7	Not used			Do not change

System Switch 16 (SP No. 1-101-023)		
No	**Function**	**Comments**
0	Parallel Broadcasting 0: Disabled 1: Enabled	1: The machine sends messages simultaneously using all available ports during broadcasting.
1	Priority setting for the G3 line. 0: PSTN-1 > PSTN-2 or 3 1: PSTN-2 or 3 > PSTN-1	This function allows the user to select the default G3 line type. The optional SG3 units are required to use the PSTN-2 or 3 setting.
2-7	Not used	Do not change these settings.

System Switch 17 - Not used (do not change these settings)
System Switch 18 - Not used (do not change these settings)

System Switch 19 (SP No. 1-101-026)		
No	**Function**	**Comments**
0-5	Not used	Do not change the settings.
6	Extended scanner page memory after memory option is installed 0: Disabled	0: After installing the memory expansion option, the scanner page memory is extended to 4 MB from 2 MB. 1: If this bit is set to 1 after installing the

System Switch 19 (SP No. 1-101-026)		
No	**Function**	**Comments**
	1: Enabled	memory expansion option, the scanner page memory is extended to 12 MB. But the SAF memory decreases to 18 MB.
7	Special Original mode 0: Disabled 1: Enabled	1: If the customer frequently wishes to transmit a form or letterhead which has a colored or printed background, change this bit to "1". "Original 1" and "Original 2" can be selected in addition to the "Text", "Text/Photo" and "Photo" modes.

System Switch 1A (SP No. 1-101-027)		
No	**Function**	**Comments**
0 to 7	LS RX memory capacity threshold setting 00-FF (0-1020 Kbyte: Hex)	Sets the value to x4KB. When the amount of available memory drops below this setting, RX documents are printed to conserve memory. Initial setting 0x80 (512 KB)

System Switch 1B - Not used (do not change these settings)
System Switch 1C - Not used (do not change these settings)

System Switch 1D (SP No. 1-101-030)		
No	**Function**	**Comments**
0	RTI/CSI/CPS code display 0: Enable 1: Disable	0: RTI, CSI, CPS codes are displayed on the top line of the LCD panel during communication. 1: Codes are switched off (no display)
1	Not used	Do not change this setting.

Bit Switches

System Switch 1D (SP No. 1-101-030)		
No	**Function**	**Comments**
2	Destination telephone number display limitation 0: OFF, 1: ON	When "1" is selected, the destination telephone number display is limited and redial is disabled.
3-7	Not used	Do not change these settings.

System Switch 1E (SP No. 1-101-031)		
No	**Function**	**Comments**
0	Communication after the Journal data storage area has become full 0: Impossible 1: Possible	0: When this switch is on and the journal history becomes full, the next report prints. If the journal history is not deleted, the next transmission cannot be received. This prevents overwriting communication records before the machine can print them. 1: If the buffer memory of the communication records for the Journal is full, fax communications are still possible. But the machine will overwrite the oldest communication records. Note ▪ This setting is effective only when Automatic Journal printout is enabled but the machine cannot print the report (e.g., no paper).
1	Action when the SAF memory has become full during scanning 0: The current page is erased. 1: The entire file is erased.	0: If the SAF memory becomes full during scanning, the successfully scanned pages are transmitted. 1: If the SAF memory becomes full during scanning, the file is erased and no pages are transmitted. Note

System Switch 1E (SP No. 1-101-031)		
No	**Function**	**Comments**
		▪ This setting is effective only when Automatic Journal printout is enabled but the machine cannot print the report (e.g., no paper).
2	RTI/CSI display priority 0: RTI 1: CSI	This bit determines which identifier, RTI or CSI, is displayed on the LCD while the machine is communicating in G3 non-standard mode.
3	File No. printing 0: Enabled 1: Disabled	1: File numbers are not printed on any reports.
4	Action when authorized reception is enabled but authorized RTIs/CSIs are not yet programmed 0: All fax reception is disabled 1: Faxes can be received if the sender has an RTI or CSI	If authorized reception is enabled but the user has stored no acceptable sender RTIs or CSIs, the machine will not be able to receive any fax messages. If the customer wishes to receive messages from any sender that includes an RTI or CSI, and to block messages from senders that do not include an RTI or CSI, change this bit to "1", then enable Authorized Reception. Otherwise, keep this bit at "0 (default setting)".
5-7	Not used	Do not change the settings

System Switch 1F (SP No. 1-101-032)		
No	**Function**	**Comments**
0	Not used	Do not change the settings.
1	Report printout after an original jam during SAF storage or if the SAF memory fills up	0: When an original jams, or the SAF memory overflows during scanning, a report will be printed.

Bit Switches

System Switch 1F (SP No. 1-101-032)		
No	**Function**	**Comments**
	0: Enabled 1: Disabled	Change this bit to "1" if the customer does not want to have a report in these cases. Memory tx – Memory storage report Parallel memory tx – Transmission result report
2	Not used	Do not change the settings.
3	Received fax print start timing (G3 reception) 0: After receiving each page 1: After receiving all pages	0: The machine prints each page immediately after the machine receives it. 1: The machine prints the complete message after the machine receives all the pages in the memory.
4-6	Not used	Do not change the factory settings.
7	Action when a fax SC has occurred 0: Automatic reset 1: Fax unit stops	0: When the fax unit detects a fax SC code other than SC1201 and SC1207, the fax unit automatically resets itself. 1: When the fax unit detects any fax SC code, the fax unit stops. **Cross Reference** Fax SC codes - See "Troubleshooting"

4.3.2 I-FAX SWITCHES

I-fax Switch 00 (SP No. 1-102-001)		
No	**Function**	**Comments**
Original Width of TX Attachment File		This setting sets the maximum size of the original that the destination can receive. (Bits 3~7 are reserved for future use or not used.)
0	A4	0: Off (not selected), 1: On (selected)

I-fax Switch 00 (SP No. 1-102-001)		
No	**Function**	**Comments**
1	B4	If more than one of these three bits is set to "1", the larger size has priority. For example, if both Bit 2 and Bit 1 are set to "1" then the maximum size is "A3" (Bit 2). When mail is sent, there is no negotiation with the receiving machine at the destination, so the sending machine cannot make a selection for the receiving capabilities (original width setting) of the receiving machine. The original width selected with this switch is used as the RX machine's original width setting, and the original is reduced to this size before sending. The default is A4. If the width selected with this switch is higher than the receiving machine can accept, the machine detects this and this causes an error.
2	A3	
3-6	Reserved	
7	Not used	

I-fax Switch 01 (SP No. 1-102-002)		
No	**Function**	**Comments**
Original Line Resolution of TX Attachment File		These settings set the maximum resolution of the original that the destination can receive.
0	200x100 Standard	0: Not selected 1: Selected If more than one of these three bits is set to "1", the higher resolution has priority. For example, if both Bit 0 and Bit 2 are set to "1" Then The Resolution is set for "Bit 2 200 x 400.
1	200x200 Detail	
2	200x400 Fine	
3	300 x 300 Reserve	
4	400 x 400 Super Fine	
5	600 x 600 Reserve	

Bit Switches

I-fax Switch 01 (SP No. 1-102-002)		
No	**Function**	**Comments**
6	Reserve	
7	mm/inch	
	This setting selects mm/inch conversion for mail transmission. 0: Off (No conversion), 1: On (Conversion) When on (set to "1"), the machine converts millimeters to inches for sending mail. There is no switch for converting inches to millimeters. Unlike G3 fax transmissions which can negotiate between sender and receiver to determine the setting, mail cannot negotiate between terminals; the mm/inch selection is determined by the sender fax. When this switch is Off (0): ▪ Images scanned in inches are sent in inches. ▪ Images scanned in mm are sent in mm. ▪ Images received in inches are transmitted in inches. ▪ Images received in mm are transmitted in mm. When this switch is On (1): ▪ Images scanned in inches are sent in inches. ▪ Images scanned in mm are converted to inches. ▪ Images received in inches are transmitted in inches. ▪ Images received in mm are converted to inches.	

I-fax Switch 02 (SP No. 1-102-003)		
No	**Function**	**Comments**
0	RX Text Mail Header Processing	

I-fax Switch 02 (SP No. 1-102-003)		
No	**Function**	**Comments**
	This setting determines whether the header information is printed with text e-mails when they are received. 0: Prints only text mail. 1: Prints mail header information attached to text mail. When a text mail is received with this switch On (1), the "From" address and "Subject" address are printed as header information. When a mail with only binary data is received (a TIFF-F file, for example), this setting is ignored and no header is printed.	
1	Output from Attached Document at E-mail TX Error	
	This setting determines whether only the first page or all pages of an e-mail attachment are printed at the sending station when a transmission error occurs. This allows the customer to see which documents have not reached their intended destinations if sent to the wrong e-mail addresses, for example. 0: Prints 1st page only. 1: Prints all pages.	
2-3	Text String for Return Receipt	
	This setting determines the text string output for the Return Receipt that confirms the transmission was received normally at the destination.	

Bit Switches

I-fax Switch 02 (SP No. 1-102-003)		
No	**Function**	**Comments**
	00: "Dispatched" Sends from PC mail a request for a Return Receipt. Receives the Return Receipt with "dispatched" in the 2nd part: Disposition: Automatic-action/MDN-send automatically; dispatched The "dispatched" string is included in the Subject string. 01: "Displayed" Sends from PC mail a request for a Return Receipt. Receives the Return Receipt with "displayed" in the 2nd part: Disposition: Automatic-action/MDN-send automatically; displayed The "displayed" string is included in the Subject string. 10: Reserved 11: Reserved A mail requesting a Return Receipt sent from an IFAX with this switch set to "00" (for "dispatched") received by Microsoft Outlook 2000 may cause an error. If any setting other than "displayed" (01) causes a problem, change the setting to "01" to enable normal sending of the Return Receipt.	
4	Media accept feature	
	This setting adds or does not add the media accept feature to the answer mail to confirm a reception. 0: Does not add the media accept feature to the answer mail 1: Adds the media accept feature to the answer mail. Use this bit switch if a problem occurs when the machine receives an answer mail, which contains the media accept feature field.	
5-6	Not Used	
7	Image Resolution of RX Text Mail	

I-fax Switch 02 (SP No. 1-102-003)		
No	**Function**	**Comments**
	This setting determines the image resolution of the received mail. 0: 200 x 200 1: 400 x 400 The "1" setting requires installation of the Function Upgrade Card in order to have enough SAF (Store and Forward) memory to receive images at 400 x 400 resolution.	

I-fax Switch 03 (SP No. 1-102-004)		
No	**Function**	**Comments**
0	Original Output at Transfer Station	
	This setting determines whether the original is output at the transfer station when it is received from the sender that initiated the transfer transmission. This feature is the same as for G3 transfer transmissions. 0: Received original not output at the transfer station. 1: Received original output. The original is printed after the transfer station has transferred it to the destinations, so its output confirms that the original has been transferred.	
1	Transfer Result Report	
	This setting determines when a Transfer Result Report is generated and returned to the transfer requestor. 0: Returns the report after each transfer. 1: Returns the report only if an error occurred during transfer.	
2	Destination Error Handling for Reception Transfer Request	

Bit Switches

I-fax Switch 03 (SP No. 1-102-004)		
No	**Function**	**Comments**
	This setting restricts transfer transmission based on whether the final destinations are correct or not. 0: The transfer station transmits to correct destinations only (addresses with no errors in them). 1: If any address has an error in it, the transfer station transfers no transmissions and returns a transfer transmission failure report to the requestor that initiated the transfer. There is no negotiation between the transfer initiator and the transfer station to determine whether the final destination addresses are correct or not. This setting determines whether or not the transfer station transfers the transmissions if there is a mistake in even one of the final destination addresses.	
3	Polling ID Check for Reception of Transfer Request	
	This setting determines whether the polling IDs of incoming transmissions are checked to ensure that the polling IDs match. 0: Receives and transfers only messages that have matching polling IDs. 1: Receives and transfers all messages, even if the polling IDs do not match.	
4-7	Not Used	

I-fax Switch 04 (SP No. 1-102-005)		
No	**Function**	**Comments**
0	Subject for Delivery TX/Memory Transfer	
	This setting determines whether the RTI/CSI registered on this machine or the RTI/CSI of the originator is used in the subject lines of transferred documents. 0: Puts the RTI/CSI of the originator in the Subject line. If this is used, either the RTI or CSI is used. Only one of these can be received for use in the subject line. 1: Puts the RTI/CSI registered on this machine in the Subject line. When this switch is used to transfer and deliver mail to a PC, the information in the Subject line that indicates where the transmission originated can be used to determine automatically the destination folder for each e-mail.	

I-fax Switch 04 (SP No. 1-102-005)		
No	**Function**	**Comments**
1	Subject corresponding to mail post database 0: Standard subject 1: Mail post database subject The standard subject is replaced by the mail post database subject in the following three cases: 1) When the service technician sets the service (software) switch. 2) When memory sending or delivery specified by F code is applied by the SMTP server 3) With relay broadcasting (1st stage without the Schmidt 4 function). Note ▪ This switch does not apply for condition 3) when the RX system is set up for memory sending, delivery by F-code, sending with SMTP RX and when operators are using FOL (to prevent problems when receiving transmissions).	
2-7	Not Used	

I-fax Switch 05 (SP No. 1-102-006)		
No	**Function**	**Comments**
0	Mail Addresses of SMTP Broadcast Recipients Determines whether the e-mail addresses of the destinations that receive transmissions broadcasted using SMTP protocol are recorded in the Journal. For example: "1st destination + Total number of destinations: 9" in the Journal indicates a broadcast to 9 destinations. 0: Not recorded 1: Recorded	
1-7	Not Used	

I-fax Switch 06 - Not used (do not change the settings)

Bit Switches

I-fax Switch 07 - Not used (do not change the settings)

I-fax Switch 08 (SP No. 1-102-009)		
No	**Function**	**Comments**
0-7	Memory Threshold for POP Mail Reception	
	This setting determines the amount of SAF (Store and Forward) memory. (SAF stores fax messages to send later for transmission to more than one location, and also holds incoming messages if they cannot be printed.) When the amount of SAF memory available falls below this setting, mail can no longer be received; received mail is then stored on the mail server. 00-FF (0 to 1024 KB: HEX) The hexadecimal number you enter is multiplied by 4 KB to determine the amount of memory.	

I-fax Switch 09 (SP No. 1-102-010)		
No	**Function**	**Comments**
0-3	Not used	Do not change the settings
4-7	Restrict TX Retries	This setting determines the number of retries when connection and transmission fails due to errors. 01-F (1-15 Hex)

I-fax Switch 0A - Not used (do not change the settings)
I-fax Switch 0B - Not used (do not change the settings)
I-fax Switch 0C - Not used (do not change the settings)
I-fax Switch 0D - Not used (do not change the settings)
I-fax Switch 0E - Not used (do not change the settings)

I-fax Switch 0F (SP No. 1-102-016)		
No	**Function**	**Comments**
0	Delivery Method for SMTP RX Files	
	This setting determines whether files received with SMTP protocol are delivered or output immediately. 0: Off. Files received via SMTP are output immediately without delivery. 1: On. Files received via SMTP are delivered immediately to their destinations.	
1-7	Not used	

4.3.3 PRINTER SWITCHES

Printer Switch 00 (SP No. 1-103-001)		
No	**Function**	**Comments**
0	Select page separation marks 0: Off 1: On	0: If a 2 page RX transmission is split, [*] is printed in the bottom right corner of the 1st page and only a [2] is printed in the upper right corner of the 2nd page. 1: If a 2 page RX transmission is split into two pages, for example, [*] [2] is printed in the bottom right corner of the 1st page and only a [2] is printed in the upper right corner of the 2nd page. Note ▪ This helps the user to identify pages that have been split because the size of the paper is smaller than the size of the document received. (When A5 is used to print an A4 size document, for example.)
1	Repetition of data when the received page is longer than the printer paper	1: Default. 10 mm of the trailing edge of the previous page are repeated at the top of the next page.

Bit Switches

Printer Switch 00 (SP No. 1-103-001)		
No	**Function**	**Comments**
	0: Off 1: On	0: The next page continues from where the previous page stopped without any repeated text.
2	Prints the date and time on received fax messages 0: Disabled 1: Enabled	This switch is only effective when user parameter 02 - bit 2 (printing the received date and time on received fax messages) is enabled. 1: The machine prints the received and printed date and time at the bottom of each received page.
3-7	Not used	Do not change the settings.

Printer Switch 01 (SP No. 1-103-002)				
No	**Function**			**Comments**
0-2	Not used			Do not change the settings.
3-4	Maximum print width used in the setup protocol			These bits are only effective when bit 7 of printer switch 01 is "1".
	Bit 4	Bit 3	Setting	
	0	0	Not used	
	0	1	A3	
	1	0	B4	
	1	1	A4	
5-6	Not used			Do not change the settings.
7	Received message width restriction in the protocol signal to the sender 0: Disabled			0: The machine informs the transmitting machine of the print width depending on the paper size available from the paper feed stations.

Printer Switch 01 (SP No. 1-103-002)		
No	**Function**	**Comments**
	1: Enabled	Refer to the table on the next page for how the machine chooses the paper width used in the setup protocol (NSF/DIS). 1: The machine informs the transmitting machine of the fixed paper width which is specified by bits 3 and 4 above.

Relationship between available paper sizes and printer width used in the setup protocol

Available Paper Size	Printer width used in the Protocol (NSF/DIS)
A4 or 8.5" x 11"	297 mm width
B5	256 mm width
A5 or 8.5" x 5.5"	216 mm width
No paper available (Paper end)	216 mm width

Printer Switch 02 (SP No. 1-103-003)		
No	**Function**	**Comments**
0	1st paper feed station usage for fax printing 0: Enabled 1: Disabled	0: The paper feed station can be used to print fax messages and reports. 1: The specified paper feed station will not be used for printing fax messages and reports. Note ▪ Do not disable usage for a paper feed station which has been specified by
1	2nd paper feed station usage for fax printing 0: Enabled 1: Disabled	

Bit Switches

Printer Switch 02 (SP No. 1-103-003)		
No	**Function**	**Comments**
2	3rd paper feed station usage for fax printing 0: Enabled 1: Disabled	User Parameter Switch 0F (15), or which is used for the Specified Cassette Selection feature.
3	4th paper feed station usage for fax printing 0: Enabled 1: Disabled	
4	LCT usage for fax printing 0: Enabled 1: Disabled	
5-7	Not used	Do not change the settings.

Printer Switch 03 (SP No. 1-103-004)		
No	**Function**	**Comments**
0	Length reduction of received data 0: Disabled 1: Enabled	0: Incoming pages are printed without length reduction. (Page separation threshold: Printer Switch 03, bits 4 to 7) 1: Incoming page length is reduced when printing. (Maximum reducible length: Printer Switches 04, bits 0 to 4)
1-3	Not used	Do not change the settings
4 to 7	Page separation setting when sub scan compression is forbidden 00-0F (0-15 mm: Hex)	Page separation threshold (with reduction disabled with switch 03-0 above). For example, if this setting is set to "10", and A4 is the selected paper size:

Printer Switch 03 (SP No. 1-103-004)		
No	**Function**	**Comments**
	Default: 6 mm	If the received document is 10 mm or less longer than A4, then the 10 mm are cut and only 1 page prints. If the received document is 10 mm longer than A4, then the document is split into 2 pages.

Printer Switch 04 (SP No. 1-103-005)						
No	**Function**			**Comments**		
0 to 4	Maximum reducible length when length reduction is enabled with switch 03-0 above. [Maximum reducible length] = [Paper length] + (N x 5mm) "N" is the decimal value of the binary setting of bits 0 to 4.					
	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Setting
	0	0	0	0	0	0 mm
	0	0	0	0	1	5 mm
	0	0	1	0	0	20 mm
	1	1	1	1	1	155 mm
	For A5 sideways and B5 sideways paper [Maximum reducible length] = [Paper length] + 0.75 x (N x 5mm)					
5 6	Length of the duplicated image on the next page, when page separation has taken place.					
	Bit 6		Bit 5		Setting	
	0		0		4 mm	
	0		1		10 mm	
	1		0		15 mm	

Bit Switches

Printer Switch 04 (SP No. 1-103-005)			
No	**Function**	**Comments**	
	1	1	Not used
7	Not used.	Do not change the setting.	

Printer Switch 05 - Not used (do not change the settings)

Printer Switch 06 (SP No. 1-103-007)		
No	**Function**	**Comments**
0	Printing while a paper cassette is pulled out, when the Just Size Printing feature is enabled. 0: Printing will not start 1: Printing will start if another cassette has a suitable size of paper, based on the paper size selection priority tables.	Cross reference Just size printing on/off – User switch 05, bit 5
1-7	Not used.	Do not change the settings.

Printer Switch 07 (SP No. 1-103-008)		
No	**Function**	**Comments**
0	Reduction for Journal printing 0: Off 1: On	1: The Journal is reduced to 91% to ensure that there is enough space in the left margin for punch holes or staples.
2-3	Not used.	Do not change the settings.
4	List of destinations in the Communication Failure Report for broadcasting 0: All destinations 1: Only destinations where communication failure occurred	1: Only destinations where communication failure occurred are printed on the Communication Failure Report.
5-7	Not used.	Do not change the settings.

Printer Switch 08 - Not used (do not change the settings)
Printer Switch 09 - Not used (do not change the settings)
Printer Switch 0A - Not used (do not change the settings)
Printer Switch 0B - Not used (do not change the settings)
Printer Switch 0C - Not used (do not change the settings)
Printer Switch 0D - Not used (do not change the settings)

Printer Switch 0E (SP No. 1-103-015)		
No	**Function**	**Comments**
0	Paper size selection priority 0: Width 1: Length	0: A paper size that has the same width as the received data is selected first. 1: A paper size which has enough

Bit Switches

<table>
<tr><th colspan="5">Printer Switch 0E (SP No. 1-103-015)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td></td><td colspan="3"></td><td>length to print all the received lines without reduction is selected first.</td></tr>
<tr><td>1</td><td colspan="3">Paper size selected for printing A4 width fax data
0: 8.5" x 11" size
1: A4 size</td><td>This switch determines which paper size is selected for printing A4 width fax data, when the machine has both A4 and 8.5" x 11" size paper.</td></tr>
<tr><td>2</td><td colspan="3">Page separation
0: Enabled
1: Disabled</td><td>1: If all paper sizes in the machine require page separation to print a received fax message, the machine does not print the message (Substitute Reception is used).
After a larger size of paper is set in a cassette, the machine automatically prints the fax message.</td></tr>
<tr><td rowspan="6">3-4</td><td colspan="3">Printing the sample image on reports</td><td rowspan="6">"Same size" means the sample image is printed at 100%, even if page separation occurs.
User Parameter Switch 19 (13H) bit 4 must be set to "0" to enable this switch.
Refer to Detailed Section Descriptions for more on this feature.</td></tr>
<tr><td>Bit 4</td><td>Bit 3</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>The upper half only</td></tr>
<tr><td>0</td><td>1</td><td>50% reduction (sub-scan only)</td></tr>
<tr><td>1</td><td>0</td><td>Same size</td></tr>
<tr><td>1</td><td>1</td><td>Not used</td></tr>
<tr><td>5-6</td><td colspan="3">Not used</td><td>Do not change the settings.</td></tr>
<tr><td>7</td><td colspan="3">Equalizing the reduction ratio among</td><td>0: When page separation has</td></tr>
</table>

Printer Switch 0E (SP No. 1-103-015)		
No	**Function**	**Comments**
	separated pages (Page Separation) 0: Enabled 1: Disabled	taken place, all the pages are reduced with the same reduction ratio. 1: Only the last page is reduced to fit the selected paper size when page separation has taken place. Other pages are printed without reduction.

Printer Switch 0F (SP No. 1-103-016)				
No	**Function**			**Comments**
0-1	Smoothing feature			(0, 0) (0, 1): Disable smoothing if the machine receives halftone images from other manufacturers fax machines frequently.
	Bit 1	Bit 0	Setting	
	0	0	Disabled	
	0	1	Disabled	
	1	0	Enabled	
	1	1	Not used	
2	Duplex printing 0: Disabled 1: Enabled			1: The machine always prints received fax messages in duplex printing mode:
3	Binding direction for Duplex printing 0: Left binding 1: Top binding			0: Sets the binding for the left edge of the stack. 1: Sets the binding for the top of the stack.
4-7	Not used			Do not change the settings.

4.3.4 COMMUNICATION SWITCHES

<table>
<tr><th colspan="5">Communication Switch 00 (SP No. 1-104-001)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="6">0-1</td><td colspan="3">Compression modes available in receive mode</td><td rowspan="6">These bits determine the compression capabilities to be declared in phase B (handshaking) of the T.30 protocol.</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td>Modes</td></tr>
<tr><td>0</td><td>0</td><td>MH only</td></tr>
<tr><td>0</td><td>1</td><td>MH/MR</td></tr>
<tr><td>1</td><td>0</td><td>MH/MR/MMR</td></tr>
<tr><td>1</td><td>1</td><td>MH/MR/MMR/JBIG</td></tr>
<tr><td rowspan="6">2-3</td><td colspan="3">Compression modes available in transmit mode</td><td rowspan="6">These bits determine the compression capabilities to be used in the transmission and to be declared in phase B (handshaking) of the T.30 protocol.</td></tr>
<tr><td>Bit 3</td><td>Bit 2</td><td>Modes</td></tr>
<tr><td>0</td><td>0</td><td>MH only</td></tr>
<tr><td>0</td><td>1</td><td>MH/MR</td></tr>
<tr><td>1</td><td>0</td><td>MH/MR/MMR</td></tr>
<tr><td>1</td><td>1</td><td>MH/MR/MMR/JBIG</td></tr>
<tr><td>4</td><td colspan="3">Not used</td><td>Do not change the settings.</td></tr>
<tr><td>5</td><td colspan="3">JBIG compression method: Reception
0: Only basic supported
1: Basic and optional both supported</td><td>Change the setting when communication problems occur using JBIG compression.</td></tr>
<tr><td>6</td><td colspan="3">JBIG compression method: Transmission
0: Basic mode priority
1: Optional mode priority</td><td>Change the setting when communication problems occur using JBIG compression.</td></tr>
<tr><td>7</td><td colspan="3">Closed network (reception)</td><td>1: Reception will not go ahead if the</td></tr>
</table>

Communication Switch 00 (SP No. 1-104-001)		
No	**Function**	**Comments**
	0: Disabled 1: Enabled	polling ID code of the remote terminal does not match the polling ID code of the local terminal. This function is only available in NSF/NSS mode.

<table>
<tr><th colspan="5">Communication Switch 01 (SP No. 1-104-002)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td>0</td><td colspan="3">ECM
0: Off 1: On</td><td>If this bit is set to 0, ECM is switched off for all communications.
In addition, V.8 protocol and JBIG compression are switched off automatically.</td></tr>
<tr><td>1</td><td colspan="3">Not used</td><td>Do not change the setting.</td></tr>
<tr><td rowspan="7">2-3</td><td colspan="3">Wrong connection prevention method</td><td rowspan="7">(0,1): The machine will disconnect the line without sending a fax message, if the last 8 digits of the received CSI do not match the last 8 digits of the dialed telephone number. This does not work when manually dialed.
(1,0): The same as above, except that only the last 4 digits are compared.
(1,1): The machine will disconnect the line without sending a fax message, if the other end does not identify itself with an RTI or CSI.
(0,0): Nothing is checked; transmission will always go ahead.
Note
▪ This function does not work when dialing is done from the external telephone.</td></tr>
<tr><td>Bit 3</td><td>Bit 2</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>None</td></tr>
<tr><td>0</td><td>1</td><td>8 digit CSI</td></tr>
<tr><td>1</td><td>0</td><td>4 digit CSI</td></tr>
<tr><td>1</td><td>1</td><td>CSI/RTI</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

Bit Switches

<table>
<tr><th colspan="5">Communication Switch 01 (SP No. 1-104-002)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td>4-5</td><td colspan="3">Not used</td><td>Do not change the setting.</td></tr>
<tr><td rowspan="6">6-7</td><td colspan="3">Maximum printable page length available</td><td rowspan="6">The setting determined by these bits is informed to the transmitting terminal in the pre-message protocol exchange (in the DIS/NSF frames).</td></tr>
<tr><td>Bit 7</td><td>Bit 6</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>No limit</td></tr>
<tr><td>0</td><td>1</td><td>B4 (364 mm)</td></tr>
<tr><td>1</td><td>0</td><td>A4 (297 mm)</td></tr>
<tr><td>1</td><td>1</td><td>Not used</td></tr>
</table>

<table>
<tr><th colspan="4">Communication Switch 02 (SP No. 1-104-003)</th></tr>
<tr><th>No</th><th>Function</th><th colspan="2">Comments</th></tr>
<tr><td rowspan="5">0</td><td rowspan="5">G3 Burst error threshold
0: Low 1: High</td><td colspan="2">If there are more consecutive error lines in the received page than the threshold, the machine will send a negative response. The Low and High threshold values depend on the sub-scan resolution, and are as follows.</td></tr>
<tr><td>100 dpi</td><td>6(L) → 12(H)</td></tr>
<tr><td>200 dpi</td><td>12(L) → 24(H)</td></tr>
<tr><td>300 dpi</td><td>18(L) → 36(H)</td></tr>
<tr><td>400 dpi</td><td>24(L) → 48(H)</td></tr>
<tr><td>1</td><td>Acceptable total error line ratio
0: 5% 1: 10%</td><td colspan="2">If the error line ratio for a page exceeds the acceptable ratio, RTN will be sent to the other end.</td></tr>
</table>

Communication Switch 02 (SP No. 1-104-003)		
No	**Function**	**Comments**
2	Treatment of pages received with errors during G3 reception 0: Deleted from memory without printing 1: Printed	0: Pages received with errors are not printed.
3	Hang-up decision when a negative code (RTN or PIN) is received during G3 immediate transmission 0: No hang-up, 1: Hang-up	0: The next page will be sent even if RTN or PIN is received. 1: The machine will send DCN and hang up if it receives RTN or PIN. This bit is ignored for memory transmissions or if ECM is being used.
4-7	Not used	Do not change the settings.

Communication Switch 03 (SP No. 1-104-004)		
No	**Function**	**Comments**
0-7	Maximum number of page retransmissions in a G3 memory transmission	00 - FF (Hex) times. This setting is not used if ECM is switched on. Default setting - 03(H)

Communication Switch 04 - Not used (do not change the settings)
Communication Switch 05 - Not used (do not change the settings)
Communication Switch 06 - Not used (do not change the settings)
Communication Switch 07 - Not used (do not change the settings)
Communication Switch 08 - Not used (do not change the settings)
Communication Switch 09 - Not used (do not change the settings)

Bit Switches

Communication Switch 0A (SP No. 1-104-011)		
No	**Function**	**Comments**
0	Point of resumption of memory transmission upon redialing 0: From the error page 1: From page 1	0: The transmission begins from the page where transmission failed the previous time. 1: Transmission begins from the first page, using normal memory transmission.
1-7	Not used	Do not change the settings.

Communication Switch 0B (SP No. 1-104-012)		
No	**Function**	**Comments**
0	Use of Economy Transmission during a Transfer operation to end receivers 0: Disabled, 1: Enabled	These bits determine whether the machine uses the Economy Transmission feature when it is carrying out a Transfer operation as a Transfer Station.
1	Use of Economy Transmission during a Transfer operation to the Next Transfer Stations 0: Disabled, 1: Enabled	
2	Use of Label Insertion for the End Receivers in a Transfer operation 0: Disabled, 1: Enabled	This bit determines whether the machine uses the Label Insertion feature when it is carrying out a Transfer operation as a Transfer Station.
3	Conditions required for Transfer Result Report transmission 0: Always transmitted 1: Only transmitted if there was an error	0: When acting as a Transfer Station, the machine will always send a Transfer Result Report back to the Requesting Station after completing the Transfer Request, even if there were no problems. 1: The machine will only send back a Transfer Result Report if there were errors during communication, meaning one or more of the End Receivers could not be contacted.

Communication Switch 0B (SP No. 1-104-012)		
No	**Function**	**Comments**
4	Printout of the message when acting as a Transfer Station 0: Disabled, 1: Enabled	When the machine is acting as a Transfer Station, this bit determines whether the machine prints the fax message coming in from the Requesting Terminal.
5	Action when there is no fax number in the programmed Quick/Speed dials which meets the requesting terminal's own fax number 0: Transfer is disabled 1: Transfer is enabled	After the machine receives a transfer request, the machine compares the last N digits of the requesting terminal's own fax number with all the Quick/Speed dials programmed in the machine. (N is the number programmed in communication switch 0C.) 0: If there is no matching number programmed in the machine, the machine rejects the transfer request. 1: Even if there is no matching number programmed in the machine, the machine accepts the transfer request. The result report will be printed at the transfer terminal, but will not be sent back to the requesting terminal.
6-7	Not used	Do not change the settings.

Communication Switch 0C (SP No. 1-104-013)		
No	**Function**	**Comments**
0-4	Number of digits compared to find the requester's fax number from the programmed Quick/Speed Dials when acting as a Transfer Station	00 – 1F (0 to 31 digits) After the machine receives a transfer request, the machine compares the own telephone number sent from the Requesting Terminal with all Quick/Speed Dials programmed in the machine, starting from Quick Dial 01 to the end of the Speed Dials. This number determines how many digits from the

Bit Switches

Communication Switch 0C (SP No. 1-104-013)		
No	**Function**	**Comments**
		end of the telephone numbers the machine compares. If it is set to 00, the machine will send the report to the first Quick/Speed Dial that the machine compared. If Quick Dial 01 is programmed, the machine will send the report to Quick 01. If Quick Dial 01 through 04 are not programmed and Quick Dial 05 is programmed, the machine will send the report to Quick 05. Default setting – 05(H) = 5 digits
5-7	Not used	Do not change the settings.

Communication Switch 0D (SP No. 1-104-014)		
No	**Function**	**Comments**
0-7	The available memory threshold, below which ringing detection (and therefore reception into memory) is disabled	00 to FF (Hex), unit = 4 kbytes (e.g., 06(H) = 24 kbytes) One page is about 24 kbytes. The machine refers to this setting before each fax reception. If the amount of remaining memory is below this threshold, the machine cannot receive any fax messages. If this setting is kept at 0, the machine will detect ringing signals and go into receive mode even if there is no memory available. This will result in communication failure.

Communication Switch 0E (SP No. 1-104-015)		
No	**Function**	**Comments**
0-7	Minimum interval between	06 to FF (Hex), unit = 2 s

Communication Switch 0E (SP No. 1-104-015)		
No	**Function**	**Comments**
	automatic dialing attempts	(e.g., 06(H) = 12 s) This value is the minimum time that the machine waits before it dials the next destination.

Communication Switch 0F – Not used (do not change the settings.)

Communication Switch 10 (SP No. 1-104-017)		
No	**Function**	**Comments**
0-7	Memory transmission: Maximum number of dialing attempts to the same destination	01 – FE (Hex) times

Communication Switch 11 – Not used (do not change the settings.)

Communication Switch 12 (SP No. 1-104-019)		
No	**Function**	**Comments**
0-7	Memory transmission: Interval between dialing attempts to the same destination	01 – FF (Hex) minutes

Communication Switch 13 – Not used (do not change the settings.)

Communication Switch 14 (SP No. 1-104-021)		
No	**Function**	**Comments**
0	Inch-to-mm conversion during	0: In immediate transmission, data

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<table>
<tr><th colspan="5">Communication Switch 14 (SP No. 1-104-021)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td></td><td colspan="3">transmission
0: Disabled, 1: Enabled</td><td>scanned in inch format are transmitted without conversion.
In memory transmission, data stored in the SAF memory in mm format are transmitted without conversion.
Note: When storing the scanned data into SAF memory, the fax unit always converts the data into mm format.
1: The machine converts the scanned data or stored data in the SAF memory to the format which was specified in the set-up protocol (DIS/NSF) before transmission.</td></tr>
<tr><td>1-5</td><td colspan="3">Not used</td><td>Do not change the factory settings.</td></tr>
<tr><td rowspan="5">6-7</td><td colspan="3">Available unit of resolution in which fax messages are received</td><td rowspan="5">For the best performance, do not change the factory settings.
The setting determined by these bits is informed to the transmitting terminal in the pre-message protocol exchange (in the DIS/NSF frames).</td></tr>
<tr><td>Bit 7</td><td>Bit 6</td><td>Unit</td></tr>
<tr><td>0</td><td>0</td><td>mm</td></tr>
<tr><td>0</td><td>1</td><td>inch</td></tr>
<tr><td>1</td><td>0</td><td>mm and inch</td></tr>
<tr><td></td><td>1</td><td>1</td><td>Not used</td><td></td></tr>
</table>

Communication Switch 15 – Not used (do not change the settings)

Communication Switch 16 (SP No. 1-104-023)		
No	**Function**	**Comments**
0	Not used	Do not change the settings.
1	Optional G3 unit (G3-2) 0: Not installed 1: Installed	Change this bit to 1 when installing the first optional G3 unit.
2	Not used	
3	Select PSTN connection 0: Off 1: On	This switch enables the G3-2. 0: Off, no connection 1: Recognizes and enables G3-2. This switch can be used only after G3-2 has been installed.
4-7	Not used	Do not change the settings.

Communication Switch 17 (SP No. 1-104-024)		
No	**Function**	**Comments**
0	SEP reception 0: Disabled 1: Enabled	0: Polling transmission to another maker's machine using the SEP (Selective Polling) signal is disabled.
1	SUB reception 0: Disabled 1: Enabled	0: Confidential reception to another maker's machine using the SUB (Sub-address) signal is disabled.
2	PWD reception 0: Disabled 1: Enabled	0: Disables features that require PWD (Password) signal reception.
3-6	Not used	Do not change the settings.
7	Action when there is no box with an F-code that matches	Change this setting when the customer requires.

Bit Switches

Communication Switch 17 (SP No. 1-104-024)		
No	**Function**	**Comments**
	the received SUB code 0: Disconnect the line 1: Receive the message (using normal reception mode)	

Communication Switch 18 - Not used (do not change the settings)
Communication Switch 19 - Not used (do not change the settings)
Communication Switch 1A - Not used (do not change the settings)

Communication Switch 1B (SP No. 1-104-028)		
No	**Function**	**Comments**
0-7	Extension access code (0 to 7) to turn V.8 protocol On/Off 0: On 1: Off	If the PABX does not support V.8/V.34 protocol procedure, set this bit to "1" to disable V.8. Example: If "0" is the PSTN access code, set bit 0 to 1. When the machine detects "0" as the first dialed number, it automatically disables V.8 protocol. (Alternatively, if "3" is the PSTN access code, set bit 3 to 1.)

Communication Switch 1C (SP No. 1-104-029)		
No	**Function**	**Comments**
0-1	Extension access code (8 and 9) to turn V.8 protocol On/Off 0: On 1: Off	Refer to communication switch 1B. Example: If "8" is the PSTN access code, set bit 0 to 1. When the machine detects "8" as the first dialed number, it automatically disables V.8 protocol. (If "9" is the PSTN access code, use bit 1.)

Communication Switch 1C (SP No. 1-104-029)		
No	**Function**	**Comments**
2-7	Not used	Do not change the settings.

Communication Switch 1D - Not used (do not change the settings)
Communication Switch 1E - Not used (do not change the settings)
Communication Switch 1F - Not used (do not change the settings)

4.3.5 G3 SWITCHES

<table>
<tr><th colspan="5">G3 Switch 00 (SP No. 1-105-001)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="8">0
1</td><td colspan="3">Monitor speaker during communication (tx and rx)</td><td rowspan="8">(0, 0): The monitor speaker is disabled all through the communication.
(0, 1): The monitor speaker is on up to phase B in the T.30 protocol.
(1, 0): Used for testing. The monitor speaker is on all through the communication. Make sure that you reset these bits after testing.</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>Disabled</td></tr>
<tr><td>0</td><td>1</td><td>Up to Phase B</td></tr>
<tr><td>1</td><td>0</td><td>All the time</td></tr>
<tr><td>1</td><td>1</td><td>Not used</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>2</td><td colspan="3">Monitor speaker during memory transmission
0: Disabled 1: Enabled</td><td>1: The monitor speaker is enabled during memory transmission.</td></tr>
<tr><td>3-7</td><td colspan="3">Not used</td><td>Do not change the settings.</td></tr>
</table>

Bit Switches

G3 Switch 01 (SP No. 1-105-002)		
No	**Function**	**Comments**
0	Not used	Do not change the settings.
1	Select V.8 protocol for manual RX function 0: No 1: Yes	This switch switches the V.8 protocol for manual receiving off and on.
2-3	Not used	Do not change the settings.
4	DIS frame length 0: 10 bytes 1: 4 bytes	1: The bytes in the DIS frame after the 4th byte will not be transmitted (set to 1 if there are communication problems with PC-based faxes which cannot receive the extended DIS frames).
5	Not used	Do not change the setting.
6	Forbid CED/AMsam output 0: Off 1: On (Forbid output)	Do not change this setting (Default: 0: Off), unless communication problem is caused by a CED or ANSam transmission.
7	Not used	Do not change the setting.

G3 Switch 02 (SP No. 1-105-003)		
No	**Function**	**Comments**
0	G3 protocol mode used 0: Standard and non-standard 1: Standard only	Change this bit to 1 only when the other end can only communicate with machines that send T.30-standard frames only. 1: Disables NSF/NSS signals (these are used in non-standard mode communication)
1-4	Not used	Do not change the settings.
5	Use of modem rate history for transmission using Quick/Speed Dials	0: Communications using Quick/Speed Dials always start from the highest modem rate. 1: The machine refers to the modem rate history

G3 Switch 02 (SP No. 1-105-003)		
No	**Function**	**Comments**
	0: Disabled 1: Enabled	for communications with the same machine when determining the most suitable rate for the current communication.
6	Not Used	Do not change the settings.
7	Short preamble 0: Disabled 1: Enabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about Short Preamble.

G3 Switch 03 (SP No. 1-105-004)		
No	**Function**	**Comments**
0	DIS detection number (Echo countermeasure) 0: 1 1: 2	0: The machine will hang up if it receives the same DIS frame twice. 1: Before sending DCS, the machine will wait for the second DIS which is caused by echo on the line.
1	Not Used	Do not change the settings.
2	V.8 protocol 0: Disabled 1: Enabled	0: V.8/V.34 communications will not be possible. Note ▪ Do not set to 0 unless the line condition is always bad enough to slow down the data rate to 14.4 kbps or lower.
3	ECM frame size 0: 256 bytes 1: 64 bytes	Keep this bit at "0" in most cases.
4	CTC transmission conditions 0: After one PPR signal received 1: After four PPR signals received (ITU-T standard)	0: When using ECM in non-standard (NSF/NSS) mode, the machine sends a CTC to drop back the modem rate after receiving a PPR, if the following condition is met in communications at 14.4, 12.0, 9.6, and 7.2 kbps.

Bit Switches

G3 Switch 03 (SP No. 1-105-004)		
No	**Function**	**Comments**
		$\sqrt{NTransmit \leq NResend}$ NTransmit- Number of transmitted frames NResend- Number of frames to be retransmitted 1: When using ECM, the machine sends a CTC to drop back the modem rate after receiving four PPRs. PPR, CTC: These are ECM protocol signals. This bit is not effective in V.34 communications.
5	Modem rate used for the next page after receiving a negative code (RTN or PIN) 0: No change 1: Fallback	1: The machine's tx modem rate will fall back before sending the next page if a negative code is received. This bit is ignored if ECM is being used.
6	Not used	Do not change the settings
7	Select detection of reverse polarity in ringing 0: Off 1: On	This switch is used to prevent reverse polarity in ringing on the phone line (applied to PSTN-G3 ringing). Do not change this setting 0: No detection (Outside Japan) 1: Detection (Inside Japan only)

G3 Switch 04 (SP No. 1-105-005)		
No	**Function**	**Comments**
0-3	Training error detection threshold	0 - F (Hex); 0 - 15 bits If the number of error bits in the received TCF is below this threshold, the machine informs the sender that training has succeeded.
4-7	Not used	Do not change the settings.

<table>
<tr><th colspan="8">G3 Switch 05 (SP No. 1-105-006)</th></tr>
<tr><th>No</th><th colspan="6">Function</th><th>Comments</th></tr>
<tr><td rowspan="18">0-3</td><td colspan="6">Initial Tx modem rate (kbps)</td><td rowspan="18">These bits set the initial starting modem rate for transmission.
Use the dedicated transmission parameters if you need to change this for specific receivers.
If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.
Cross reference
V.8 protocol on/off - G3 switch 03, bit 2</td></tr>
<tr><td>Bit 3</td><td>Bit 2</td><td>Bit 1</td><td>Bit 0</td><td colspan="2">kbps</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td colspan="2">2.4</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td colspan="2">4.8</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td colspan="2">7.2</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td colspan="2">9.6</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td><td colspan="2">12.0</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>0</td><td colspan="2">14.4</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>1</td><td colspan="2">16.8</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td colspan="2">19.2</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1</td><td colspan="2">21.6</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0</td><td colspan="2">24.0</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>1</td><td colspan="2">26.4</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>0</td><td colspan="2">28.8</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>1</td><td colspan="2">31.2</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td colspan="2">33.6</td></tr>
<tr><td colspan="6">Other settings - Not used</td></tr>
<tr><td rowspan="4">4-5</td><td colspan="6">Initial modem type for 9.6 k or 7.2 kbps.</td><td rowspan="4">These bits set the initial modem type for 9.6 and 7.2 kbps, if the initial modem rate is set at these speeds.</td></tr>
<tr><td colspan="2">Bit 5</td><td colspan="2">Bit 4</td><td colspan="2">Setting</td></tr>
<tr><td colspan="2">0</td><td colspan="2">0</td><td colspan="2">V.29</td></tr>
<tr><td colspan="2">0</td><td colspan="2">1</td><td colspan="2">V.17</td></tr>
</table>

Bit Switches

G3 Switch 05 (SP No. 1-105-006)				
No	**Function**			**Comments**
	1	0	V.34	
	1	1	Not used	
6-7	Not used			Do not change the settings.

G3 Switch 06 (SP No. 1-105-007)						
No	**Function**					**Comments**
0-3	Initial Rx modem rate(kbps)					These bits set the initial starting modem rate for reception. Use a lower setting if high speeds pose problems during reception. If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually. Cross reference V.8 protocol on/off - G3 switch 03, bit2
	Bit 3	Bit 2	Bit 1	Bit 0	kbps	
	0	0	0	1	2.4	
	0	0	1	0	4.8	
	0	0	1	1	7.2	
	0	1	0	0	9.6	
	0	1	0	1	12.0	
	0	1	1	0	14.4	
	0	1	1	1	16.8	
	1	0	0	0	19.2	
	1	0	0	1	21.6	
	1	0	1	0	24.0	
	1	0	1	1	26.4	
	1	1	0	0	28.8	
	1	1	0	1	31.2	
	Other settings - Not used					

<table>
<tr><th colspan="7">G3 Switch 06 (SP No. 1-105-007)</th></tr>
<tr><th>No</th><th colspan="5">Function</th><th>Comments</th></tr>
<tr><td rowspan="8">4-7</td><td colspan="6">Modem types available for reception
The setting of these bits is used to inform the transmitting terminal of the available modem type for the machine in receive mode.
If V.34 is not selected, V.8 protocol must be disabled manually.
Cross reference
V.8 protocol on/off - G3 switch 03, bit 2</td></tr>
<tr><td>Bit 7</td><td>Bit 6</td><td>Bit 5</td><td>Bit 4</td><td colspan="2">Types</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td colspan="2">V.27ter</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td colspan="2">V.27ter, V.29</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td colspan="2">V.27ter, V.29, V.33</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td colspan="2">V.27ter, V.29, V.17/V.33</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td><td colspan="2">V.27ter, V.29, V.17/V33, V.34</td></tr>
<tr><td colspan="6">Other settings - Not used</td></tr>
</table>

<table>
<tr><th colspan="5">G3 Switch 07 (SP No. 1-105-008)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="6">0-1</td><td colspan="3">PSTN cable equalizer
(tx mode: Internal)</td><td rowspan="6">Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange.
Use the dedicated transmission parameters for specific receivers.

Also, try using the cable equalizer if one or more of the following symptoms</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>None</td></tr>
<tr><td>0</td><td>1</td><td>Low</td></tr>
<tr><td>1</td><td>0</td><td>Medium</td></tr>
<tr><td>1</td><td>1</td><td>High</td></tr>
</table>

Bit Switches

<table>
<tr><th colspan="3">G3 Switch 07 (SP No. 1-105-008)</th></tr>
<tr><th>No</th><th>Function</th><th>Comments</th></tr>
<tr><td></td><td></td><td>occurs.
Communication error
Modem rate fallback occurs frequently.
Note
▪ This setting is not effective in V.34 communications.</td></tr>
<tr><td rowspan="8">2-3</td><td>PSTN cable equalizer
(rx mode: Internal)</td><td rowspan="8">Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange.
Also, try using the cable equalizer if one or more of the following symptoms occurs.
Communication error with error codes such as 0-20, 0-23, etc.
Modem rate fallback occurs frequently.
Note
▪ This setting is not effective in V.34 communications.</td></tr>
<tr><td>Bit 3 | Bit 2 | Setting</td></tr>
<tr><td>0 | 0 | None</td></tr>
<tr><td>0 | 1 | Low</td></tr>
<tr><td>1 | 0 | Medium</td></tr>
<tr><td>1 | 1 | High</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td>4</td><td>PSTN cable equalizer
(V.8/V.17 rx mode: External)
0: Disabled
1: Enabled</td><td>Keep this bit at "1".</td></tr>
<tr><td>5-7</td><td>Not used</td><td>Do not change the settings.</td></tr>
</table>

G3 Switch 08 - Not used (do not change the settings)
G3 Switch 09 - Not used (do not change the settings)

<table>
<tr><th colspan="5">G3 Switch 0A (SP No. 1-105-011)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="6">0-1</td><td colspan="3">Maximum allowable carrier drop during image data reception</td><td rowspan="6">These bits set the acceptable modem carrier drop time.
Try a longer setting if error code 0-22 is frequent.</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td>Value (ms)</td></tr>
<tr><td>0</td><td>0</td><td>200</td></tr>
<tr><td>0</td><td>1</td><td>400</td></tr>
<tr><td>1</td><td>0</td><td>800</td></tr>
<tr><td>1</td><td>1</td><td>Not used</td></tr>
<tr><td>2</td><td colspan="3">Select cancellation of high-speed RX if carrier signal lost while receiving
0: Off
1: On</td><td>This switch setting determines if high-speed receiving ends if the carrier signal is lost when receiving during non-ECM mode</td></tr>
<tr><td>3</td><td colspan="3">Not used</td><td>Do not change the settings</td></tr>
<tr><td>4</td><td colspan="3">Maximum allowable frame interval during image data reception.
0: 5 s 1: 13 s</td><td>This bit set the maximum interval between EOL (end-of-line) signals and the maximum interval between ECM frames from the other end.
Try using a longer setting if error code 0-21 is frequent.</td></tr>
<tr><td>5</td><td colspan="3">Not used</td><td>Do not change the settings.</td></tr>
<tr><td>6</td><td colspan="3">Reconstruction time for the first line in receive mode
0: 6 s 1: 12 s</td><td>When the sending terminal is controlled by a computer, there may be a delay in receiving page data after the local machine accepts set-up data and sends CFR. This is outside the T.30 recommendation. But, if this delay occurs, set this bit to 1 to give the</td></tr>
</table>

Bit Switches

G3 Switch 0A (SP No. 1-105-011)		
No	**Function**	**Comments**
		sending machine more time to send data. Refer to error code 0-20. ITU-T T.30 recommendation: The first line should come within 5 s of CFR.
7	Not used	Do not change the settings.

G3 Switch 0B Not used (do not change the settings).
G3 Switch 0C Not used (do not change the settings).
G3 Switch 0D Not used (do not change the settings).

G3 Switch 0E (SP No. 1-105-015)		
No	**Function**	**Comments**
0-7	Set CNG send time interval Some machines on the receiving side may not be able to automatically switch the 3-second CNG interval.	
	High order bit	3000-2250ms: 3000-50xNms 3000 – 50 x Nms 0F (3000 ms) ≤ N ≤ FF (2250 ms)
	Low order bit	00-0E(3000-3700ms: 3000+50xNms 3000 – 50 x Nms 0F (3000 ms) ≤ N ≤ 0F (3700 ms)

G3 Switch 0F (SP No. 1-105-016)		
No	**Function**	**Comments**
0	Alarm when an error occurred in Phase C or later	If the customer wants to hear an alarm after each error communication, change this bit to "1".

G3 Switch 0F (SP No. 1-105-016)		
No	**Function**	**Comments**
	0: Disabled 1: Enabled	
1	Alarm when the handset is off-hook at the end of communication 0: Disabled 1: Enabled	If the customer wants to hear an alarm if the handset is off-hook at the end of fax communication, change this bit to "1".
2-7	Not used	Do not change the settings.

4.3.6 G3-2 AND G3-3 SWITCHES

These switches require an optional G3 interface unit.

G3-3 switches are the same as for G3-2 switches.

<table>
<tr><th colspan="5">G3-2 Switch 00 (SP No. 1-106-001)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="8">0
1</td><td colspan="3">Monitor speaker during communication (tx and rx)</td><td rowspan="8">(0, 0): The monitor speaker is disabled all through the communication.
(0, 1): The monitor speaker is on up to phase B in the T.30 protocol.
(1, 0): Used for testing. The monitor speaker is on all through the communication. Make sure that you reset these bits after testing.</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>Disable</td></tr>
<tr><td>0</td><td>1</td><td>Up to Phase B</td></tr>
<tr><td>1</td><td>0</td><td>All the time</td></tr>
<tr><td>1</td><td>1</td><td>Not used</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>2</td><td colspan="3">Monitor speaker during memory transmission</td><td>1: The monitor speaker is enabled during memory transmission.</td></tr>
</table>

Bit Switches

G3-2 Switch 00 (SP No. 1-106-001)		
No	**Function**	**Comments**
	0: Disabled 1: Enabled	
3-7	Not used	Do not change the settings.

G3-2 Switch 01 (SP No. 1-106-002)		
No	**Function**	**Comments**
0-3	Not used	Do not change the settings.
4	DIS frame length 0: 10 bytes 1: 4 bytes	1: The bytes in the DIS frame after the 4th byte will not be transmitted (set to 1 if there are communication problems with PC-based faxes which cannot receive the extended DIS frames).
5	Not used	Do not change the setting.
6	Forbid CED/AMsam output 0: Off 1: On (Forbid output)	Do not change this setting (Default: 0: Off), unless communication problem is caused by a CED or ANSam transmission.
7	Not used	Do not change the setting.

G3-2 Switch 02 (SP No. 1-106-003)		
No	**Function**	**Comments**
0	G3 protocol mode used 0: Standard and non-standard 1: Standard only	Change this bit to 1 only when the other end can only communicate with machines that send T.30-standard frames only. 1: Disables NSF/NSS signals (these are used in non-standard mode communication)
1-4	Not used	Do not change the settings.
5	Use of modem rate history for	0: Communications using Quick/Speed Dials

G3-2 Switch 02 (SP No. 1-106-003)		
No	**Function**	**Comments**
	transmission using Quick/Speed Dials 0: Disabled 1: Enabled	always start from the highest modem rate. 1: The machine refers to the modem rate history for communications with the same machine when determining the most suitable rate for the current communication.
6	Not Used	Do not change the settings.
7	Short preamble 0: Disabled 1: Enabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about Short Preamble.

G3-2 Switch 03 (SP No. 1-106-004)		
No	**Function**	**Comments**
0	DIS detection number (Echo countermeasure) 0: 1 1: 2	0: The machine will hang up if it receives the same DIS frame twice. 1: Before sending DCS, the machine will wait for the second DIS which is caused by echo on the line.
1	Not Used	Do not change the settings.
2	V.8 protocol 0: Disabled 1: Enabled	0: V.8/V.34 communications will not be possible. Note ▪ Do not set to 0 unless the line condition is always bad enough to slow down the data rate to 14.4 kbps or lower.
3	ECM frame size 0: 256 bytes 1: 64 bytes	Keep this bit at "0" in most cases.
4	CTC transmission conditions 0: After one PPR signal received	0: When using ECM in non-standard (NSF/NSS) mode, the machine sends a CTC to drop back the modem rate after receiving a PPR, if the following

Bit Switches

G3-2 Switch 03 (SP No. 1-106-004)		
No	**Function**	**Comments**
	1: After four PPR signals received (ITU-T standard)	condition is met in communications at 14.4, 12.0, 9.6, and 7.2 kbps. $\sqrt{N\,Transmit \leq N\,Re\,send}$ Ntransmit = Number of transmitted frames Nresend = Number of frames to be retransmitted 1: When using ECM, the machine sends a CTC to drop back the modem rate after receiving four PPRs. PPR, CTC: These are ECM protocol signals. This bit is not effective in V.34 communications.
5	Modem rate used for the next page after receiving a negative code (RTN or PIN) 0: No change 1: Fallback	1: The machine's tx modem rate will fall back before sending the next page if a negative code is received. This bit is ignored if ECM is being used.
6	Not used	Do not change the settings
7	Select detection of reverse polarity in ringing 0: Off 1: On	This switch is used to prevent reverse polarity in ringing on the phone line (applied to PSTN-G3 ringing). Do not change this setting 0: No detection (Outside Japan) 1: Detection (Inside Japan only)

G3-2 Switch 04 (SP No. 1-106-005)		
No	**Function**	**Comments**
0-3	Training error detection threshold	0 - F (Hex); 0 - 15 bits If the number of error bits in the received TCF is below this threshold, the machine informs the sender that training has succeeded.

G3-2 Switch 04 (SP No. 1-106-005)		
No	**Function**	**Comments**
4-7	Not used	Do not change the settings.

G3-2 Switch 05 (SP No. 1-106-006)						
No	**Function**					**Comments**
0-3	Initial Tx modem rate (kbps)					These bits set the initial starting modem rate for transmission. Use the dedicated transmission parameters if you need to change this for specific receivers. If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually. Cross reference V.8 protocol on/off - G3 switch 03, bit 2
	Bit 3	Bit 2	Bit 1	Bit 0	kbps	
	0	0	0	1	2.4	
	0	0	1	0	4.8	
	0	0	1	1	7.2	
	0	1	0	0	9.6	
	0	1	0	1	12.0	
	0	1	1	0	14.4	
	0	1	1	1	16.8	
	1	0	0	0	19.2	
	1	0	0	1	21.6	
	1	0	1	0	24.0	
	1	0	1	1	26.4	
	1	1	0	0	28.8	
	1	1	0	1	31.2	
	Other settings - Not used					

Bit Switches

<table>
<tr><th colspan="5">G3-2 Switch 05 (SP No. 1-106-006)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="6">4-5</td><td colspan="3">Initial modem type for 9.6 k or 7.2 kbps.</td><td rowspan="6">These bits set the initial modem type for 9.6 and 7.2 kbps, if the initial modem rate is set at these speeds.</td></tr>
<tr><td>Bit 5</td><td>Bit 4</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>V.29</td></tr>
<tr><td>0</td><td>1</td><td>V.17</td></tr>
<tr><td>1</td><td>0</td><td>V.34</td></tr>
<tr><td>1</td><td>1</td><td>Not used</td></tr>
<tr><td>6-7</td><td colspan="3">Not used</td><td>Do not change the settings.</td></tr>
</table>

<table>
<tr><th colspan="7">G3-2 Switch 06 (SP No. 1-106-007)</th></tr>
<tr><th>No</th><th colspan="5">Function</th><th>Comments</th></tr>
<tr><td rowspan="14">0-3</td><td colspan="5">Initial Rx modem rate(kbps)</td><td rowspan="14">These bits set the initial starting modem rate for reception.
Use a lower setting if high speeds pose problems during reception.
If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.
Cross reference
V.8 protocol on/off - G3 switch 03, bit2</td></tr>
<tr><td>Bit 3</td><td>Bit 2</td><td>Bit 1</td><td>Bit 0</td><td>kbps</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>2.4</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>4.8</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>7.2</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>9.6</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td><td>12.0</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>0</td><td>14.4</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>1</td><td>16.8</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>19.2</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1</td><td>21.6</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0</td><td>24.0</td></tr>
</table>

<table>
<tr><th colspan="8">G3-2 Switch 06 (SP No. 1-106-007)</th></tr>
<tr><th>No</th><th colspan="6">Function</th><th>Comments</th></tr>
<tr><td rowspan="4"></td><td>1</td><td>0</td><td>1</td><td>1</td><td>26.4</td><td rowspan="4"></td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>0</td><td>28.8</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>1</td><td>31.2</td></tr>
<tr><td colspan="5">Other settings - Not used</td></tr>
<tr><td rowspan="8">4-7</td><td colspan="6">Modem types available for reception
The setting of these bits is used to inform the transmitting terminal of the available modem type for the machine in receive mode.
If V.34 is not selected, V.8 protocol must be disabled manually.
Cross reference
V.8 protocol on/off - G3 switch 03, bit 2</td></tr>
<tr><td>Bit 7</td><td>Bit 6</td><td>Bit 5</td><td>Bit 4</td><td colspan="2">Types</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td colspan="2">V.27ter</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td colspan="2">V.27ter</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td colspan="2">V.27ter</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td colspan="2">V.27ter</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td><td colspan="2">V.27ter</td></tr>
<tr><td colspan="6">Other settings - Not used</td></tr>
</table>

Bit Switches

<table>
<tr><th colspan="5">G3-2 Switch 07 (SP No. 1-106-008)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="8">0-1</td><td colspan="3">PSTN cable equalizer
(tx mode: Internal)</td><td rowspan="8">Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange.
Use the dedicated transmission parameters for specific receivers.

Also, try using the cable equalizer if one or more of the following symptoms occurs.
Communication error
Modem rate fallback occurs frequently.
Note
▪ This setting is not effective in V.34 communications.</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>None</td></tr>
<tr><td>0</td><td>1</td><td>Low</td></tr>
<tr><td>1</td><td>0</td><td>Medium</td></tr>
<tr><td>1</td><td>1</td><td>High</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td rowspan="8">2-3</td><td colspan="3">PSTN cable equalizer
(rx mode: Internal)</td><td rowspan="8">Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange.
Also, try using the cable equalizer if one or more of the following symptoms occurs.
Communication error with error codes such as 0-20, 0-23, etc.
Modem rate fallback occurs frequently.
Note
▪ This setting is not effective in V.34 communications.</td></tr>
<tr><td>Bit 3</td><td>Bit 2</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>None</td></tr>
<tr><td>0</td><td>1</td><td>Low</td></tr>
<tr><td>1</td><td>0</td><td>Medium</td></tr>
<tr><td>1</td><td>1</td><td>High</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>4</td><td colspan="3">PSTN cable equalizer
(V.8/V.17 rx mode: External)</td><td>Keep this bit at "1".</td></tr>
</table>

G3-2 Switch 07 (SP No. 1-106-008)		
No	**Function**	**Comments**
	0: Disabled 1: Enabled	
5-7	Not used	Do not change the settings.

G3-2 Switch 08 - Not used (do not change the settings)
G3-2 Switch 09 - Not used (do not change the settings)

<table>
<tr><th colspan="5">G3-2 Switch 0A (SP No. 1-106-011)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="6">0-1</td><td colspan="3">Maximum allowable carrier drop during image data reception</td><td rowspan="6">These bits set the acceptable modem carrier drop time.
Try a longer setting if error code 0-22 is frequent.</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td>Value (ms)</td></tr>
<tr><td>0</td><td>0</td><td>200</td></tr>
<tr><td>0</td><td>1</td><td>400</td></tr>
<tr><td>1</td><td>0</td><td>800</td></tr>
<tr><td>1</td><td>1</td><td>Not used</td></tr>
<tr><td>2</td><td colspan="3">Select cancellation of high-speed RX if carrier signal lost while receiving
0: Off
1: On</td><td>This switch setting determines if high-speed receiving ends if the carrier signal is lost when receiving during non-ECM mode</td></tr>
<tr><td>3</td><td colspan="3">Not used</td><td>Do not change the settings</td></tr>
<tr><td>4</td><td colspan="3">Maximum allowable frame interval during image data reception.
0: 5 s 1: 13 s</td><td>This bit set the maximum interval between EOL (end-of-line) signals and the maximum interval between ECM frames from the other end.</td></tr>
</table>

Bit Switches

G3-2 Switch 0A (SP No. 1-106-011)		
No	**Function**	**Comments**
		Try using a longer setting if error code 0-21 is frequent.
5	Not used	Do not change the settings.
6	Reconstruction time for the first line in receive mode 0: 6 s 1: 12 s	When the sending terminal is controlled by a computer, there may be a delay in receiving page data after the local machine accepts set-up data and sends CFR. This is outside the T.30 recommendation. But, if this delay occurs, set this bit to 1 to give the sending machine more time to send data. Refer to error code 0-20. ITU-T T.30 recommendation: The first line should come within 5 s of CFR.
7	Not used	Do not change the settings.

G3-2 Switch 0B- Not used (do not change the settings)
G3-2 Switch 0C- Not used (do not change the settings)
G3-2 Switch 0D - Not used (do not change the settings)
G3-2 Switch 0E - Not used (do not change the settings)
G3-2 Switch 0F - Not used (do not change the settings)

4.3.7 G4 INTERNAL SWITCHES

The G4 internal switches (SW00 to 1F) are displayed but do not change these settings.

4.3.8 G4 PARAMETER SWITCHES

The G4 parameter switches (SW00 to 0F) are displayed but do not change these settings.

4.3.9 IP FAX SWITCHES

IP Fax Switch 00 (SP No. 1-111-001)		
No.	**Function**	**Comments**
0	Not used	Do not change this setting.
1	IP Fax Transport 0: TCP, 1: UDP	Selects TCP or UDP protocol for IP-Fax
2	IP Fax single port selection 0: OFF, 1: ON (enable)	Selects single data port.
3	IP Fax double ports (single data port) selection 0: OFF, 1: ON (enable)	Selects whether IP-Fax uses a double port.
4	IP Fax Gatekeeper 0: OFF, 1: ON (enable)	Enables/disables the gatekeeper for IP-Fax.
5	IP Fax T30 bit signal reverse 0: LSB first, 1: MSB first	Reverses the T30 bit signal.
6	IP Fax max bit rate setting 0: Not affected, 1: Affected	When "0" is selected, the max bit rate does not affect the value of the DIS/DCS. When "1" is selected, the max bit rate affects the value of the DIS/DCS.
7	IP Fax received telephone number confirmation 0: No confirmation, 1: Confirmation	When "0" is selected, fax data is received without checking the telephone number. When "1" is selected, fax data is received only when confirming that the telephone number from the sender matches the registered telephone number in this machine. If this confirmation fails, the line is disconnected.

Bit Switches

IP Fax Switch 01 (SP No. 1-111-002)					
No.	**Function**			**Comments**	
0-3	IP Fax delay level setting Selects the acceptable delay level. Level 0 is the highest quality Default is "0000" (level 0).				
	Bit 3	Bit 2	Bit 1	Bit 0	
	0	0	0	0	Level 0
	0	0	0	1	Level 1
	0	0	1	0	Level 2
	0	0	1	1	Level 3
4-7	IP Fax preamble wait time setting			Selects the preamble wait time. [00 to 0f] There are 16 values in this 4-bit binary switch combination. Waiting time: set value level x 100 ms Max: 0f (1500 ms) Min: 00 (No wait time) The default is "0000" (00H).	

IP Fax Switch 02 (SP No. 1-111-003)		
No.	**Function**	**Comments**
0	IP Fax bit signal reverse setting 0: Maker code setting 1: Internal bit switch setting	When "0" is selected, the bit signal reverse method is decided by the maker code. When "1" is selected, the bit signal reverse method is decided by the internal bit switch. When communicating between IP Fax devices, LSB first is selected.)
1	IP Fax transmission speed setting	Selects the transmit speed for IP Fax

IP Fax Switch 02 (SP No. 1-111-003)		
No.	**Function**	**Comments**
	0: Modem speed 1: No limitation	communication.
2	SIP transport setting 0: TCP 1: UDP	This bit switch sets the transport that has priority for receiving IP Fax data. This function is activated only when the sender has both TCP and UDP.
3-7	Not used	Do not change these settings.

IP Fax Switch 03 (SP No. 1-111-004)		
No.	**Function**	**Comments**
0	Effective field limitation for G3 standard function information 0: OFF, 1: 4byte (DIS)	Limits the effective field for standard G3 function information.
1	Switching between G3 standard and G3 non standard 0: Enable switching 1: G3 standard only	Enables/disables switching between G3 standard and G3 non-standard.
2	AI modem rate function 0: OFF, 1: ON (enable)	Enables/disables the AI modem rate.
3	ECM frame size selection at transmitting 0: 256byte, 1: 64byte	Selects the ECM frame size for sending.
4	DIS detection times for echo prevention 0: 1 time, 1: 2 times	Sets the number of times for DIS to detect echoes.
5	CTC transmission selection 0: PPRx1	When "0" is selected, the transmission condition is decided by error frame

Bit Switches

IP Fax Switch 03 (SP No. 1-111-004)		
No.	**Function**	**Comments**
	1: PPRx4	numbers. When "1" is selected, the transmission condition is based on the ITU-T method.
6	Shift down setting at receiving negative code 0: OFF, 1: ON	Selects whether to shift down when negative codes are received.
7	Not used	Do not change this setting.

IP Fax Switch 04 (SP No. 1-111-005)		
No.	**Function**	**Comments**
0-3	TCF error threshold	Sets the TCF error threshold level. [00 to 0f] The default is "1111" (0fH).
4-7	Not used	Do not change these settings.

IP Fax Switch 05 (SP No. 1-111-006)						
No.	**Function**					**Comments**
0-3	Modem bit rate setting for transmission (kbps)					Sets the modem bit rate for transmission. The default is "0110" (14.4K bps).
	Bit 3	Bit 2	Bit 1	Bit 0	kbps	
	0	0	0	1	2.4	
	0	0	1	1	4.8	
	0	0	1	1	7.2	
	0	1	0	0	9.6	
	0	1	0	1	12.0	

<table>
<tr><th colspan="7">IP Fax Switch 05 (SP No. 1-111-006)</th></tr>
<tr><th>No.</th><th colspan="5">Function</th><th>Comments</th></tr>
<tr><td rowspan="10"></td><td>0</td><td>1</td><td>1</td><td>0</td><td>14.4</td><td rowspan="10"></td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>1</td><td>16.8</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>19.2</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1</td><td>21.6</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0</td><td>24.0</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>1</td><td>26.4</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>0</td><td>28.8</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>1</td><td>31.2</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>0</td><td>33.6</td></tr>
<tr><td rowspan="6">4-5</td><td colspan="5">Modem setting for transmission</td><td rowspan="6">Sets the modem type for transmission.
The default is "00" (V29).</td></tr>
<tr><td colspan="2">Bit 5</td><td colspan="2">Bit 4</td><td>Types</td></tr>
<tr><td colspan="2">0</td><td colspan="2">0</td><td>V29</td></tr>
<tr><td colspan="2">0</td><td colspan="2">1</td><td>V17</td></tr>
<tr><td colspan="2">1</td><td colspan="2">0</td><td>V34</td></tr>
<tr><td colspan="2">1</td><td colspan="2">1</td><td>Not used</td></tr>
<tr><td>6-7</td><td colspan="5">Not used</td><td>Do not change these settings.</td></tr>
</table>

IP Fax Switch 06 (SP No. 1-111-007)		
No.	**Function**	**Comments**
0-3	Modem bit rate setting for reception Sets the modem bit rate for reception. The default is "0110" (14.4K bps).	

Bit Switches

IP Fax Switch 06 (SP No. 1-111-007)					
No.	**Function**				**Comments**
4-7	Modem setting for reception Sets the modem type for reception. The default is "0100" (V27ter, V29, V17).				
	Bit 7	Bit 6	Bit 5	Bit 4	Types
	0	0	0	1	V.27ter
	0	0	1	0	V.27ter, V.29
	0	0	1	1	V.27ter, V.29, V.33
	0	1	0	0	V.27ter, V.29, V.17/V.33
	Other settings - Not used				

IP Fax Switch 07 (SP No. 1-111-008)		
No.	**Function**	**Comments**
0	TSI information 0: Not added, 1: Added	Adds or does not add TSI information to NSS(S).
1	DCN transmission setting at T1 timeout 0: Not transmitted 1: Transmitted	Transmits or does not transmit DCN at T1 timeout.
2	Not used	Do not change this setting.
3	Hang up setting at DIS reception disabled 0: No hang up 1: Hang up after transmitting DCN	Sets whether the machine disconnects after DIS reception.
4	Number of times for training 0: 1 time, 1: 2 times	Selects the number of times training is done at the same bit rate.
5	Space CSI transmission setting at	When "0" is selected, frame data is enabled.

IP Fax Switch 07 (SP No. 1-111-008)		
No.	**Function**	**Comments**
	no CSI registration 0: Not transmitted 1: Transmitted	When "1" is selected, the transmitted data is all spaces.
6-7	Not used	Do not change these settings.

Bit Switches

<table>
<tr><th colspan="5">IP Fax Switch 08 (SP No. 1-111-009)</th></tr>
<tr><th>No.</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="6">0-1</td><td colspan="3">T1 timer adjustment</td><td rowspan="6">Adjusts the T1 timer.
The default is "00" (35 seconds).</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td></td></tr>
<tr><td>0</td><td>0</td><td>35 s</td></tr>
<tr><td>0</td><td>1</td><td>40 s</td></tr>
<tr><td>1</td><td>0</td><td>50 s</td></tr>
<tr><td>1</td><td>1</td><td>60 s</td></tr>
<tr><td rowspan="6">2-3</td><td colspan="3">T4 timer adjustment</td><td rowspan="6">Adjust the T4 timer.
The default is "00" (3 seconds).</td></tr>
<tr><td>Bit 3</td><td>Bit 2</td><td></td></tr>
<tr><td>0</td><td>0</td><td>3 s</td></tr>
<tr><td>0</td><td>1</td><td>3.5 s</td></tr>
<tr><td>1</td><td>0</td><td>4 s</td></tr>
<tr><td>1</td><td>1</td><td>5 s</td></tr>
<tr><td rowspan="6">4-5</td><td colspan="3">T0 timer adjustment</td><td rowspan="6">Adjusts the fail safe timer. This timer sets the interval between "setup" data transmission and T.38 phase decision. If your destination return is late on the network or G3 fax return is late, adjust the longer interval timer.
The default is "00" (75 seconds).</td></tr>
<tr><td>Bit 5</td><td>Bit 4</td><td></td></tr>
<tr><td>0</td><td>0</td><td>75 s</td></tr>
<tr><td>0</td><td>1</td><td>120 s</td></tr>
<tr><td>1</td><td>0</td><td>180 s</td></tr>
<tr><td>1</td><td>1</td><td>240 s</td></tr>
<tr><td>6-7</td><td colspan="3">Not used</td><td>Do not change these settings.</td></tr>
</table>

4.4 NCU PARAMETERS

The following tables give the RAM addresses and the parameter calculation units that the machine uses for ringing signal detection and automatic dialing. The factory settings for each country are also given. Most of these must be changed by RAM read/write (SP2-102), but some can be changed using NCU Parameter programming (SP2-103, 104 and 105); if SP2-103, 104 and 105 can be used, this will be indicated in the Remarks column. The RAM is programmed in hex code unless (BCD) is included in the Unit column.

Note

- The following addresses describe settings for the standard NCU.
- Change the fourth digit from "5" to "6" (e.g. 680500 to 680600) for the settings for the first optional G3 interface unit and from "5" to "7" (e.g. 680700) for the settings for the second optional G3 interface unit.

Address	Function			Unit		Remarks
680500	Country/Area code for NCU parameters					
	Use the Hex value to program the country/area code directly into this address, or use the decimal value to program it using SP2-103-001					
	Country/Area	**Decimal**	**Hex**	**Country/Area**	**Decimal**	**Hex**
	France	00	00	Hong Kong	20	14
	Germany	01	01	South Africa	21	15
	UK	02	02	Australia	22	16
	Italy	03	03	New Zealand	23	17
	Austria	04	04	S'pore	24	18
	Belgium	05	05	Malaysia	25	19
	Denmark	06	06	China	26	1A
	Finland	07	07	Taiwan	27	1B
	Ireland	08	08	Korea	28	1C

NCU Parameters

Address	Function			Unit	Remarks
	Norway	09	09	Turkey	32 20
	Sweden	10	0A	Greece	33 21
	Switz.	11	0B	Hungary	34 22
	Portugal	12	0C	Czech	35 23
	Holland	13	0D	Poland	36 24
	Spain	14	0E		
	Israel	15	0F		
	USA	17	11		
680501	Line current detection time			20 ms	Line current detection is disabled. Line current is not detected if 680501 contains FF.
680502	Line current wait time				
680503	Line current drop detect time				
680504	PSTN dial tone frequency upper limit (high byte)			Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680505	PSTN dial tone frequency upper limit (low byte)				
680506	PSTN dial tone frequency lower limit (high byte)			Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680507	PSTN dial tone frequency lower limit (low byte)				
680508	PSTN dial tone detection time			20 ms	If 680508 contains FF(H), the machine pauses for the pause time (address 68050D / 68050E).
680509	PSTN dial tone reset time (LOW)				
68050A	PSTN dial tone reset time (HIGH)				
68050B	PSTN dial tone continuous tone time				

Address	Function	Unit	Remarks
68050C	PSTN dial tone permissible drop time		Italy: See Note 2.
68050D	PSTN wait interval (LOW)		
68050E	PSTN wait interval (HIGH)		
68050F	PSTN ring-back tone detection time	20 ms	Detection is disabled if this contains FF.
680510	PSTN ring-back tone off detection time	20 ms	
680511	PSTN detection time for silent period after ring-back tone detected (LOW)	20 ms	
680512	PSTN detection time for silent period after ring-back tone detected (HIGH)	20 ms	
680513	PSTN busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680514	PSTN busy tone frequency upper limit (low byte)		
680515	PSTN busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680516	PSTN busy tone frequency lower limit (low byte)		
680517	PABX dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680518	PABX dial tone frequency upper limit (low byte)		
680519	PABX dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
68051A	PABX dial tone frequency lower limit (low byte)		

NCU Parameters

Address	Function	Unit	Remarks
68051B	PABX dial tone detection time	20 ms	If 68051B contains FF, the machine pauses for the pause time (680520 / 680521).
68051C	PABX dial tone reset time (LOW)		
68051D	PABX dial tone reset time (HIGH)		
68051E	PABX dial tone continuous tone time		
68051F	PABX dial tone permissible drop time		
680520	PABX wait interval (LOW)		
680521	PABX wait interval (HIGH)		
680522	PABX ringback tone detection time	20 ms	If both addresses contain FF(H), tone detection is disabled.
680523	PABX ringback tone off detection time	20 ms	
680524	PABX detection time for silent period after ringback tone detected (LOW)	20 ms	If both addresses contain FF(H), tone detection is disabled.
680525	PABX detection time for silent period after ringback tone detected (HIGH)	20 ms	
680526	PABX busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680527	PABX busy tone frequency upper limit (low byte)		
680528	PABX busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680529	PABX busy tone frequency lower limit (low byte)		
68052A	Busy tone ON time: range 1	20 ms	
68052B	Busy tone OFF time: range 1		
68052C	Busy tone ON time: range 2		

Address	Function	Unit	Remarks
68052D	Busy tone OFF time: range 2		
68052E	Busy tone ON time: range 3		
68052F	Busy tone OFF time: range 3	20 ms	
680530	Busy tone ON time: range 4		
680531	Busy tone OFF time: range 4		
680532	Busy tone continuous tone detection time		
680533	Busy tone signal state time tolerance for all ranges, and number of cycles required for detection (a setting of 4 cycles means that ON-OFF-ON or OFF-ON-OFF must be detected twice). Tolerance (±)		
	Bit 1 / Bit 0		
	0 / 0	75%	
	0 / 1	50%	
	1 / 0	25%	
	1 / 1	12.5%	
	Bits 2 and 3 must always be kept at 0. Bits 7, 6, 5, 4 - number of cycles required for cadence detection		
680534	International dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680535	International dial tone frequency upper limit (low byte)		
680536	International dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone

NCU Parameters

Address	Function	Unit	Remarks
680537	International dial tone frequency lower limit (low byte)		detection is disabled.
680538	International dial tone detection time	20 ms	If 680538 contains FF, the machine pauses for the pause time (68053D / 68053E). Belgium: See Note 2.
680539	International dial tone reset time (LOW)		
68053A	International dial tone reset time (HIGH)		
68053B	International dial tone continuous tone time		
68053C	International dial tone permissible drop time		
68053D	International dial wait interval (LOW)		
68053E	International dial wait interval (HIGH)		
68053F	Country dial tone upper frequency limit (HIGH)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680540	Country dial tone upper frequency limit (LOW)		
680541	Country dial tone lower frequency limit (HIGH)		If both addresses contain FF(H), tone detection is disabled.
680542	Country dial tone lower frequency limit (LOW)		
680543	Country dial tone detection time	20 ms	If 680543 contains FF, the machine pauses for the pause time (680548 / 680549).
680544	Country dial tone reset time (LOW)		
680545	Country dial tone reset time (HIGH)		
680546	Country dial tone continuous tone time		

Address	Function	Unit	Remarks
680547	Country dial tone permissible drop time	20 ms	
680548	Country dial wait interval (LOW)		
680549	Country dial wait interval (HIGH)		
68054A	Time between opening or closing the DO relay and opening the OHDI relay	1 ms	See Notes 3, 6 and 8. SP2-103-012 (parameter 11).
68054B	Break time for pulse dialing	1 ms	See Note 3. SP2-103-013 (parameter 12).
68054C	Make time for pulse dialing	1 ms	See Note 3. SP2-103-014 (parameter 13).
68054D	Time between final OHDI relay closure and DO relay opening or closing	1 ms	See Notes 3, 6 and 8. SP2-103-015 (parameter 14). This parameter is only valid in Europe.
68054E	Minimum pause between dialed digits (pulse dial mode)	20 ms	See Note 3 and 8. SP2-103-016 (parameter 15).
68054F	Time waited when a pause is entered at the operation panel		SP2-103-017 (parameter 16). See Note 3.
680550	DTMF tone on time	1 ms	SP2-103-018 (parameter 17).
680551	DTMF tone off time		SP2-103-019 (parameter 18).

NCU Parameters

Address	Function	Unit	Remarks
680552	Tone attenuation level of DTMF signals while dialing	-N x 0.5 –3.5 dBm	SP2-103-020 (parameter 19). See Note 5.
680553	Tone attenuation value difference between high frequency tone and low frequency tone in DTMF signals	-dBm x 0.5	SP2-103-021 (parameter 20). The setting must be less than –5dBm, and should not exceed the setting at 680552h above. See Note 5.
680554	PSTN: DTMF tone attenuation level after dialling	-N x 0.5 –3.5 dBm	SP2-103-022 (parameter 21). See Note 5.
680555	ISDN: DTMF tone attenuation level after dialling	-dBm x 0.5	See Note 5
680556	Not used		Do not change the settings.
680557	Time between 68054Dh (NCU parameter 14) and 68054Eh (NCU parameter 15)	1 ms	This parameter takes effect when the country code is set to France.
680558	Not used		Do not change the setting.
680559	Grounding time (ground start mode)	20 ms	The Gs relay is closed for this interval.
68055A	Break time (flash start mode)	1 ms	The OHDI relay is open for this interval.
68055B	International dial access code (High)	BCD	For a code of 100: 68055B - F1 68055C - 00
68055C	International dial access code (Low)		

<table>
<tr><th>Address</th><th>Function</th><th>Unit</th><th>Remarks</th></tr>
<tr><td>68055D</td><td>PSTN access pause time</td><td>20 ms</td><td>This time is waited for each pause input after the PSTN access code. If this address contains FF[H], the pause time stored in address 68054F is used.
Do not set a number more than 7 in the UK.</td></tr>
<tr><td rowspan="6">68055E</td><td rowspan="6">Progress tone detection level, and cadence detection enable flags</td><td colspan="2"></td><td></td></tr>
<tr><td>Bit 7</td><td>Bit 6</td><td>Bit 5</td><td>dBm</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>-25.0</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>-35.0</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>-30.0</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>-40.0</td></tr>
<tr><td colspan="4">Bits 2, 0 - See Note 2.</td></tr>
<tr><td>68055F
to
680564</td><td>Not used</td><td colspan="2"></td><td>Do not change the settings.</td></tr>
<tr><td>680565</td><td>Long distance call prefix (HIGH)</td><td colspan="2">BCD</td><td rowspan="2">For a code of 0:
680565 - FF
680566 - FF</td></tr>
<tr><td>680566</td><td>Long distance call prefix (LOW)</td><td colspan="2">BCD</td></tr>
<tr><td>680567
to
680571</td><td>Not used</td><td colspan="2"></td><td>Do not change the settings.</td></tr>
<tr><td>680572</td><td>Acceptable ringing signal frequency: range 1, upper limit</td><td colspan="2">1000/ N (Hz).</td><td>SP2-103-003 (parameter 02).</td></tr>
</table>

NCU Parameters

Address	Function	Unit	Remarks
680573	Acceptable ringing signal frequency: range 1, lower limit		SP2-103-004 (parameter 03).
680574	Acceptable ringing signal frequency: range 2, upper limit		SP2-103-005 (parameter 04).
680575	Acceptable ringing signal frequency: range 2, lower limit		SP2-103-006 (parameter 05).
680576	Number of rings until a call is detected	1	SP2-103-007 (parameter 06). The setting must not be zero.
680577	Minimum required length of the first ring	20 ms	See Note 4. SP2-103-008 (parameter 07).
680578	Minimum required length of the second and subsequent rings	20 ms	SP2-103-009 (parameter 08).
680579	Ringing signal detection reset time (LOW)	20 ms	SP2-103-010 (parameter 09).
68057A	Ringing signal detection reset time (HIGH)		SP2-103-011 (parameter 10).
68057B to 680580	Not used		Do not change the settings.
680581	Interval between dialing the last digit and switching the Oh relay over to the external telephone when dialing from the operation panel in handset mode.	20 ms	Factory setting: 500 ms
680582	Bits 0 and 1 - Handset off-hook detection time		

Address	Function		Unit	Remarks
	Bit 1	Bit 0	Setting	
	0	0	200 ms	
	0	1	800 ms	
	Other		Not used	
	Bits 2 and 3 - Handset on-hook detection time			
	Bit 3	Bit 2	Setting	
	0	0	200 ms	
	0	1	800 ms	
	Other		Not used	
	Bits 4 to 7 - Not used			
680583 to 6805A0	Not used			Do not change the settings.
6805A1	Acceptable CED detection frequency upper limit (high byte)		BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6805A2	Acceptable CED detection frequency upper limit (low byte)			
6805A3	Acceptable CED detection frequency lower limit (high byte)		BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6805A4	Acceptable CED detection frequency lower limit (low byte)			
6805A5	CED detection time		20 ms ± 20 ms	Factory setting: 200 ms
6805A6	Acceptable CNG detection frequency upper limit (high byte)		BCD (Hz)	If both addresses contain FF(H), tone

NCU Parameters

Address	Function	Unit	Remarks
6805A7	Acceptable CNG detection frequency upper limit (low byte)		detection is disabled.
6805A8	Acceptable CNG detection frequency lower limit (high byte)	BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6805A9	Acceptable CNG detection frequency lower limit (low byte)		
6805AA	Not used		Do not change the setting.
6805AB	CNG on time	20 ms	Factory setting: 500 ms
6805AC	CNG off time	20 ms	Factory setting: 3000 ms
6805AD	Number of CNG cycles required for detection		The data is coded in the same way as address 680533.
6805AE	Not used		Do not change the settings.
6805AF	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
6805B0	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (low byte)		
6805B1	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (high byte)	Hz(BCD)	If both addresses contain FF(H), tone detection is disabled.
6805B2	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (low byte)		

Address	Function	Unit	Remarks
6805B3	Detection time for 800 Hz AI short protocol tone	20 ms	Factory setting: 360 ms
6805B4	PSTN: Tx level from the modem	-N – 3 dBm	SP2-103-002 (parameter 01).
6805B5	PSTN: 1100 Hz tone transmission level	- N 6805B4 - 0.5N 6805B5 –3.5 (dB) See Note 7.	
6805B6	PSTN: 2100 Hz tone transmission level	- N6805B4 - 0.5N 6805B6 –3 (dB) See Note 7.	
6805B7	PABX: Tx level from the modem	- dBm	
6805B8	PABX: 1100 Hz tone transmission level	- N 6805B7 - 0.5N 6805B8 (dB)	
6805B9	PABX: 2100 Hz tone transmission level	- N 6805B7 - 0.5N 6805B9 (dB)	
6805BD	Modem turn-on level (incoming signal detection level)	-37-0.5N (dBm)	
6805BE to 6805C6	Not used		Do not change the settings.
6805C7	Bits 0 to 3 – Not used. Bit 4 – V.34 protocol dump - 0: Simple, 1: Detailed (default) Bits 5 to 7 – Not used.		
6805C8 to 6805D9	Not used		Do not change the settings.
6805DA	T.30 T1 timer	1 s	
6805E0 bit 3	Maximum wait time for post message	0: 12 s 1: 30 s	1: Maximum wait time for post message (EOP/EOM/MPS) can

NCU Parameters

<table>
<tr><th>Address</th><th colspan="6">Function</th><th>Unit</th><th>Remarks</th></tr>
<tr><td></td><td colspan="6"></td><td></td><td>be changed to 30 s. Change this bit to "1" if communication errors occur frequently during V.17 reception.</td></tr>
<tr><td rowspan="8">6805E3</td><td colspan="6">Voltage setting to detect off-hook for voltage/DP detection for an externally connected line.</td><td>0: Auto
1: Fixed V</td><td rowspan="2">Do not change these settings</td></tr>
<tr><td colspan="6">Here is a summary of the fixed voltage settings (1: Fixed) for an externally connected line.</td><td></td></tr>
<tr><td>Bit 7</td><td>Bit 6</td><td>Bit 5</td><td>Bit 4</td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td colspan="2">Not used</td><td colspan="2"></td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td colspan="2">2.75 V</td><td colspan="2"></td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td colspan="2">5.5 V</td><td colspan="2"></td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td colspan="2">22 V</td><td colspan="2"></td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1</td><td colspan="2">41.25 V</td><td colspan="2"></td></tr>
<tr><td rowspan="4">6805E4</td><td colspan="2" rowspan="4">Bit 1 sets the level of the call signal, Bit 3 sets the call signal impedance</td><td rowspan="2">Bit 1</td><td>0</td><td>RT=0 (Low)</td><td colspan="2"></td></tr>
<tr><td>1</td><td>RT=1 (High</td><td colspan="2"></td></tr>
<tr><td rowspan="2">Bit 3</td><td>0</td><td>RZ=0 (High)</td><td colspan="2"></td></tr>
<tr><td>1</td><td>RZ=1 (Composite)</td><td colspan="2"></td></tr>
<tr><td rowspan="4">6805E5</td><td colspan="2" rowspan="4">Bit 0 sets the ring detection method, Bit 1 sets the ring detection method when fixed.</td><td rowspan="2">Bit 0</td><td>0</td><td>RT=0 (Low)</td><td rowspan="4">If any setting is changed, select a setting that is higher than the default setting.</td></tr>
<tr><td>1</td><td>RT=1 (High</td></tr>
<tr><td rowspan="2">Bit 1</td><td>0</td><td>Use RDTP</td></tr>
<tr><td>1</td><td>Use RDTN</td></tr>
</table>

Address	Function				Unit	Remarks
	Here is a summary of the voltages for the detection of off-hook for DP detection.					
	Bit 7	Bit 6	Bit 5	Bit 4		
	0	0	0	0	Not used	
	0	0	0	1	2.75 V	
	0	0	1	0	5.5 V	
	1	0	0	0	22 V	
	1	1	1	1	41.25 V	

Notes

1. If a setting is not required, store FF in the address.
2. Italy and Belgium only
   RAM address 68055E: the lower four bits have the following meaning.
   Bit 2 - 1: International dial tone cadence detection enabled (Belgium)
   Bit 1 - Not used
   Bit 0 - 1: PSTN dial tone cadence detection enabled (Italy)
   If bit 0 or bit 2 is set to 1, the functions of the following RAM addresses are changed.
   680508 (if bit 0 = 1) or 680538 (if bit 2 = 1): tolerance for on or off state duration (%), and number of cycles required for detection, coded as in address 680533.
   68050B (if bit 0 = 1) or 68053B (if bit 2 = 1): on time, hex code (unit = 20 ms)
   68050C (if bit 0 = 1) or 68053C (if bit 2 = 1): off time, hex code (unit = 20 ms)
3. Pulse dial parameters (addresses 68054A to 68054F) are the values for 10 pps. If 20 pps is used, the machine automatically compensates.
4. The first ring may not be detected until 1 to 2.5 wavelengths after the time specified by this parameter.
5. The calculated level must be between 0 and 10.
   The attenuation levels calculated from RAM data are:
   High frequency tone: – 0.5 x N680552/680554–3.5 dBm
   – 0.5 x N680555 dBm
   Low frequency tone:– 0.5 x (N680552/680554 + N680553) –3.5 dBm

– 0.5 x (N680555 + N680553) dBm

N680552, for example, means the value stored in address 680552(H)

6. Ds and Di relay timing

   68054A: Europe - Between Ds opening and Di opening, France - Between Ds closing and Di opening

   68054D: Europe - Between Ds closing and Di closing, France - Between Ds opening and Di closing

7. Tone signals which frequency is lower than 1500Hz (e.g., 800Hz tone for AI short protocol) refer to the setting at 6805B5h. Tones which frequency is higher than 1500Hz refer to the setting at 6805B6h.
8. 68054A, 68054D, 68054E: The actual inter-digit pause (pulse dial mode) is the sum of the period specified by the RAM addresses 68054A, 68054D, and 68054E.

4.5 DEDICATED TRANSMISSION PARAMETERS

There are two sets of transmission parameters: Fax and E-mail

Each Quick Dial Key and Speed Dial Code has eight bytes of programmable parameters allocated to it. If transmissions to a particular machine often experience problems, store that terminal's fax number as a Quick Dial or Speed Dial, and adjust the parameters allocated to that number.

The programming procedure will be explained first. Then, the eight bytes will be described.

4.5.1 PROGRAMMING PROCEDURE

1. Set the bit 0 of System Bit Switch 00 to 1.
2. Enter Address Book Management mode ([User Tools]> System Settings> Key Operator> Address Book Management).
3. Select the address book that you want to program.
4. For the fax parameter, select "Fax Dest.", for the E-mail parameter, select "E-mail", then press "Start". Make sure that the LED of the Start button lights green.
5. The settings for the switch 00 are now displayed. Press the bit number that you wish to change.
6. To scroll through the parameter switches, either:
7. Do one of the following:
   Select the next switch: press "Next"
   or
   Select the previous switch: "Prev." until the correct switch is displayed. Then go back to step 6.
8. After the setting is changed, press "OK".
9. After finishing, reset bit 0 of System Bit Switch 00 to 0.

4.5.2 PARAMETERS

Fax Parameters

The initial settings of the following fax parameters are all FF(H). This means that all the parameters are disabled.

Dedicated Transmission Parameters

Switch 00
Function and Comments
ITU-T T1 time (for PSTN G3 mode) If the connection time to a particular terminal is longer than the NCU parameter setting, adjust this byte. The T1 time is the value stored in this byte (in hex code), multiplied by 1 second. Range: 0 to 120 s (00h to 78h) FFh - The local NCU parameter factory setting is used. Do not program a value between 79h and FEh.

<table>
<tr><th colspan="3">Switch 01</th></tr>
<tr><th>No</th><th>Function</th><th>Function</th></tr>
<tr><td>0
to
4</td><td>Tx level
<table><tr><td>Bit 4</td><td>Bit 3</td><td>Bit 2</td><td>Bit 1</td><td>Bit 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>-1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>-2</td></tr><tr><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>-3</td></tr><tr><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>-4</td></tr><tr><td colspan="6">. . . and so on until . . .</td></tr><tr><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>-15</td></tr></table>If all five bits are at 1, the setting is ‘Disabled’.</td><td>If communication with a particular remote terminal often contains errors, the signal level may be inappropriate. Adjust the Tx level for communications with that terminal until the results are better.
If the setting is “Disabled”, the NCU parameter 01 setting is used.
Note
▪ Do not use settings other than listed on the left.</td></tr>
<tr><td>5
to
7</td><td>Cable equalizer
<table><tr><td>Bit 7</td><td>Bit 6</td><td>Bit 5</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>None</td></tr><tr><td>0</td><td>0</td><td>1</td><td>Low</td></tr><tr><td>0</td><td>1</td><td>0</td><td>Medium</td></tr><tr><td>0</td><td>1</td><td>1</td><td>High</td></tr><tr><td>1</td><td>1</td><td>1</td><td>Disabled</td></tr></table></td><td>Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange when calling the number stored in this Quick/Speed Dial.
Also, try using the cable equalizer if one or more of the following symptoms occurs.
▪ Communication error with error</td></tr>
</table>

Dedicated Transmission Parameters

Switch 01		
No	**Function**	**Function**
		codes such as 0-20, 0-23, etc. ▪ Modem rate fallback occurs frequently. Note ▪ Do not use settings other than listed on the left. ▪ If the setting is “Disabled”, the bit switch setting is used.

Switch 02						
No	**Function**					**Comments**
0 to 3	Initial Tx modem rate (kbps)					If training with a particular remote terminal always takes too long, the initial modem rate may be too high. Reduce the initial Tx modem rate using these bits. For the settings 14.4 or kbps slower, Switch 04 bit 4 must be changed to 0. Note ▪ Other settings: Not used If the setting is “Disabled”, the bit switch setting is used.
	Bit 3	Bit 2	Bit 1	Bit 0		
	0	0	0	0	Not used	
	0	0	0	1	2.4	
	0	0	1	0	4.8	
	0	0	1	1	7.2	
	0	1	0	0	9.6	
	0	1	0	1	12.0	
	0	1	1	0	14.4	
	0	1	1	1	16.8	
	1	0	0	0	19.2	
	1	0	0	1	21.6	

Switch 02						
No	**Function**					**Comments**
	1	0	1	0	24.0	
	1	0	1	1	26.4	
	1	1	0	0	28.8	
	1	1	0	1	31.2	
	If all bits are at '1', the setting is 'Disabled' Note ▪ Other settings: Not used					
4-7	Not used					Do not change the settings.

Switch 03				
No	**Function**			**Comments**
0-1	Inch-mm conversion before tx			The machine uses inch-based resolutions for scanning. If "inch only" is selected, the printed copy may be slightly distorted at the other end if that machine uses mm-based resolutions. If the setting is "Disabled", the bit switch setting is used.
	Bit 1	Bit 0	Setting	
	0	0	Inch-mm conversion available	
	0	1	Inch only	
	1	0	Not used	
	1	1	Disabled	
2-3	DIS/NSF detection method			(0, 1): Use this setting if echoes on the line are interfering with the set-up protocol at the start of transmission. The machine will then wait for the
	Bit 3	Bit 2	Setting	
	0	0	First DIS or NSF	

Dedicated Transmission Parameters

<table>
<tr><th colspan="5">Switch 03</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="4"></td><td>0</td><td>1</td><td>Second DIS or NSF</td><td rowspan="4">second DIS or NSF before sending DCS or NSS.
If the setting is “Disabled”, the bit switch setting is used.</td></tr>
<tr><td>1</td><td>0</td><td>Not used</td></tr>
<tr><td>1</td><td>1</td><td>Disabled</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>4</td><td colspan="3">V.8 protocol
0: Off
1: Disabled</td><td>If transmissions to a specific destination always end at a lower modem rate (14,400 bps or lower), disable V.8 protocol so as not to use V.34 protocol.
0: V.34 communication will not be possible.
If the setting is “Disabled”, the bit switch setting is used.</td></tr>
<tr><td>5</td><td colspan="3">Compression modes available in transmit mode
0: MH only
1: Disabled</td><td>This bit determines the capabilities that are informed to the other terminal during transmission.
If the setting is “Disabled”, the bit switch setting is used.</td></tr>
<tr><td rowspan="8">6
7</td><td colspan="3">ECM during transmission</td><td rowspan="8">For example, if ECM is switched on but is not wanted when sending to a particular terminal, use the (0, 0) setting.
Note that V.8/V.34 protocol and JBIG compression are automatically disabled if ECM is disabled.
If the setting is “Disabled”, the bit switch setting is used.</td></tr>
<tr><td>Bit 7</td><td>Bit 6</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>Off</td></tr>
<tr><td>0</td><td>1</td><td>On</td></tr>
<tr><td>1</td><td>0</td><td>Not used</td></tr>
<tr><td>1</td><td>1</td><td>Disabled</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

Switch 04 - Not used (do not change the settings)
Switch 05 - Not used (do not change the settings)
Switch 06 - Not used (do not change the settings)
Switch 07 - Not used (do not change the settings)
Switch 08 - Not used (do not change the settings)
Switch 09 - Not used (do not change the settings)

E-mail Parameters

The initial settings of the following e-mail parameters are all "0" (all parameters disabled).

Switch 00		
No	**Function**	**Comments**
0	HM Compression mode for e-mail attachments 0: Off 1: On	Switches HM compression on and off for files attached to e-mails for sending.
1	HR Compression mode for e-mail attachments 0: Off 1: On	Switches HR compression on and off for files attached to e-mails for sending.
2	MMR Compression mode for e-mail attachments 0: Off 1: On	Switches MMR compression on and off for files attached to e-mails for sending.
3-6	Not used	Do not change these settings.
7	Designates the bits to reference for compression method of e-mail attachments	The "0" selection (default) references the settings for Bits 00, 01, 02 above. The "1" selection ignores the selections of Bits 00, 01, 02.

Dedicated Transmission Parameters

Switch 00		
No	**Function**	**Comments**
	0: Registered (Bit 0 to 6) 1: No registration.	

Switch 01		
No	**Function**	**Comments**
0	Original width of e-mail attachment: A4 0: Off 1: On	Sets the original width of the e-mail attachment as A4.
1	Original width of e-mail attachment: B4 0: Off 1: On	Sets the original width of the e-mail attachment as B4.
2	Original width of e-mail attachment: A3 0: Off 1: On	Sets the original width of the e-mail attachment as A3.
3-6	Not used	Do not change these settings.
7	Designates the bits to reference for original size of e-mail attachments 0: Registered (Bit 0 to 6) 1: No registration.	The "0" selection (default) references the settings for Bits 00, 01, 02 above. The "1" selection ignores the selections of Bits 00, 01, 02.

Switch 02		
No	**Function**	**Comments**
0	Line resolution of e-mail	Sets the line resolution of the e-mail attachment as

Switch 02		
No	**Function**	**Comments**
	attachment: 200 x 100 0: Off 1: On	200 x100.
1	Line resolution of e-mail attachment: 200 x 200 0: Off 1: On	Sets the line resolution of the e-mail attachment as 200 x 200.
2	Line resolution of e-mail attachment: 200 x 400 0: Off 1: On	Sets the line resolution of the e-mail attachment as 200 x 400.
3	Not used	Do not change these settings.
4	Line resolution of e-mail attachment: 400 x 400 0: Off 1: On	Sets the line resolution of the e-mail attachment as 400 x 400.
5-6	Not used	Do not change these settings.
7	Designates the bits to reference for original size of e-mail attachments 0: Registered (Bit 0 to 6) 1: No registration.	The "0" selection (default) references the settings for Bits 00, 01, 02, 04 above. The "1" selection ignores the selections of Bits 00, 01, 02, 04.

Switch 03 - Not used (do not change the settings)
Switch 04 - Not used (do not change the settings)
Switch 05 - Not used (do not change the settings)
Switch 06 - Not used (do not change the settings)

Dedicated Transmission Parameters

Switch 07 - Not used (do not change the settings)
Switch 08 - Not used (do not change the settings)
Switch 09 - Not used (do not change the settings)

4.6 SERVICE RAM ADDRESSES

Note

- Do not change the settings which are marked as “Not used” or “Read only.”

680001 to 680004(H) - ROM version (Read only)

- 680001(H) - Revision number (BCD)
- 680002(H) - Year (BCD)
- 680003(H) - Month (BCD)
- 680004(H) - Day (BCD)

680006 to 680015(H) - Machine’s serial number (16 digits - ASCII)

680018(H) - Total program checksum (low)

680019(H) - Total program checksum (high)

680020 to 68003F(H) - System bit switches

680050 to 68005F(H) - Printer bit switches

680060 to 68007F(H) - Communication bit switches

680080 to 68008F(H) - G3 bit switches

680090 to 68009F(H) - G3-2 bit switches

6800A0 to 6800AF(H) - G3-3 bit switches

6800D0(H) - User parameter switch 00 (SWUER_00): Not used

6800D1(H) - User parameter switch 01 (SWUSR_01): Not used

6800D2(H) - User parameter switch 02 (SWUSR_02)

- Bit 0: Forwarding mark printing on forwarded messages, 0: Disabled, 1: Enabled
- Bit 1: Center mark printing on received copies (this switch is not printed on the user parameter list), 0: Disabled, 1: Enabled
- Bit 2: Reception time printing (this switch is not printed on the user parameter list), 0: Disabled, 1: Enabled
- Bit 3: TSI print on received messages, 0: Disabled, 1: Enabled
- Bit 4: Checkered mark printing (this switch is not printed on the user parameter list), 0: Disabled, 1: Enabled
- Bit 5: Not used
- Bit 6: Not used
- Bit 7: Not used

6800D3(H) - User parameter switch 03 (SWUSR_03: Automatic report printout)

- Bit 0: Transmission result report (memory transmissions), 0: Off, 1: On
- Bit 1: Not used
- Bit 2: Memory storage report, 0: Off, 1: On

- Bit 3: Polling reserve report (polling reception), 0: Off, 1: On
- Bit 4: Polling result report (polling reception), 0: Off, 1: On
- Bit 5: Transmission result report (immediate transmissions), 0: Off, 1: On
- Bit 6: Polling clear report, 0: Off, 1: On
- Bit 7: Journal, 0: Off, 1: On

6800D4(H) - User parameter switch 04 (SWUSR_04: Automatic report printout)

- Bit 0: Automatic confidential reception report output, 0: Off, 1: On
- Bit 1: Automatic communication failure report and transfer result report output, 0: Off, 1: On
- Bits 2 to 3: Not used
- Bit 4: Indicates the parties, 0: Not indicated, 1: Indicated
- Bit 5: Include sender's name on reports, 0: Off, 1: On
- Bit 6: Not used
- Bit 7: Inclusion of a sample image on reports, 0: Off, 1: On

6800D5(H) - User parameter switch 05 (SWUSR_05)

- Bit 0: Substitute reception when the base copier is in an SC condition, 0: Enabled, 1: Disabled
- Bits 1 and 2: Condition for substitute rx when the machine cannot print messages (Paper end, toner end, jam, and during night mode)

Bit 2	Bit 1	Setting
0	0	The machine receives all the fax messages.
0	1	The machine receives fax messages with RTI or CSI.
1	0	The machine receives fax messages with the same ID code.
1	1	The machine does not receive anything.

- Bit 3: Not used
- Bit 4: Not used
- Bit 5: Just size printing, 0: Off, 1: On
- Bit 6: Not used
- Bit 7: Add paper display when a cassette is empty. 0: Off, 1: On

6800D6(H) - User parameter switch 06 (SWUSR_06)

- Bits 0 to 5: Not used

- Bit 6: Scan sequence in Book transmission, 0: Left page then right page, 1: Right page then left page
- Bit 7: Not used

6800D7(H) - User parameter switch 07 (SWUSR_07)

- Bits 0 and 1: Not used
- Bit 2: Parallel memory transmission, 0: Off, 1: On
- Bits 3 to 7: Not used

6800D8(H) - User parameter switch 08 (SWUSR_08)

- Bits 0 and 1: Not used
- Bit 2: Authorized reception

  0: Only faxes from senders whose RTIs/CSIs are specified for this feature are accepted.

  1: Only faxes from senders whose RTIs/CSIs are not specified for this feature are accepted.
- Bits 3 to 7: Not used

6800D9(H) - User parameter switch 09 (SWUSR_09): Not used

6800DA(H) - User parameter switch 10 (SWUSR_0A)

- Bit 0: Not used
- Bit 1: 2 into 1, 0: Off, 1: On
- Bit 2: Not used
- Bit 3: Page reduction, 0: Off, 1: On
- Bit 4: Not used
- Bit 5: Reception file printout, 0: Disabled, 1: Enabled
- Bit 6: Use both e-mail notification and printed reports to confirm the transmission results, 0: Off, 1: On
- Bit 7: Not used

6800DB(H) - User parameter switch 11 (SWUSR_0B)

- Bit 0: Not used
- Bit 1: Not used
- Bits 2 to 5: Not used
- Bit 6: Printout of messages received while acting as a forwarding station, 0: Off, 1: On
- Bit 7: Polling Standby duration, 0: Once, 1: No limit

6800DC(H) - User parameter switch 12 (SWUSR_0C): Not used

6800DD(H) - User parameter switch 13 (SWUSR_0D): Not used

6800DE(H) - User parameter switch 14 (SWUSR_0E)

- Bit 0: Message printout while the machine is in Night Printing mode, 0: On, 1: Off

- Bit 1: Maximum document length detection
  0: Double letter, 1: Longer than double-letter (well log) – up to 1,200 mm
- Bit 2: Batch transmission, 0: Off, 1: On
- Bit 3: Fax mode settings, such as resolution, before a mode key (Copy, Fax, Printer, or Scanner) is pressed, 0: Not cleared, 1: Cleared
- Bits 4 to 6: Not used
- Bit 7: Manual service call (sends the system parameter list to the service station), 0: Off, 1: On

6800DF(H) - User parameter switch 15 (SWUSR_0F)

Note

- This switch is not printed on the user parameter list.

Bits 0, 1 and 2: Cassette for fax printout

Bit 2	Bit 1	Bit 0	Setting
0	0	1	1st paper feed station
0	1	0	2nd paper feed station
0	1	1	3rd paper feed station
1	0	0	4th paper feed station
1	0	1	LCT

Other settings: Not used

- Bits 3 and 4: Not used
- Bit 5: Using the cassette specified by bits 0, 1 and 2 above only, 0: On, 1: Off
- Bits 6 and 7: Not used

6800E0(H) – User parameter switch 16 (SWUSR_10)

Note

- This switch is not printed on the user parameter list.

- Bits 0 and 1: Not used
- Bit 2: Paper size selection priority for an A4 size fax message when A4/LT size paper is not available, 0: A3 has priority, 1: B4 has priority
- Bits 3 to 7: Not used

6800E1(H) – User parameter switch 17 (SWUSR_11)

- Bit 0: IFAX Group Destination Selection/Release Method

0	Priority Select Mode
	Select the priority destination according to input mode. The Group button reflects either email or fax input mode. Released as soon as the entry mode is selected, regardless of the current entry mode.
1	All Select Mode
	Acquires all registered members regardless of entry mode. If both email and fax are registered, both are selected. The Group button reflects either email or fax input mode. All registered members are released, regardless of the entry mode. If both email/fax are registered, both are released.

- Bit 1: Not used
- Bit 2: Inclusion of the “Add” button when a sequence of Quick/Speed dials is selected for broadcasting, 0:Not needed, 1: Needed
- Bits 3 to 6: Not used
- Bit 7: Press “Start” key without an original when using the on hook dial or the external telephone
  0: Displays “Cannot detect original size”
  1: Receives fax messages.

6800E2(H) - User parameter switch 18 (SWUSR_12)

- Bit 0: TTI date, 0: Off, 1: On
- Bit 1: TTI sender, 0: Off, 1: On
- Bit 2: TTI file number, 0: Off, 1: On
- Bit 3: TTI page number, 0: Off, 1: On
- Bit 4 to 7: Not used

6800E3(H) - User parameter switch 19 (SWUSR_13)

- Bit 0: Offset sort function for the fax (only using the shift tray on the 1,000 sheet finisher), 0: Disabled, 1: Enabled
- Bit 1: Journal format
  0: The Journal is separated into transmissions and receptions
  1: The Journal is separated into G3-1, G3-2, and G3-3 communications
- Bit 2: Action when the paper cassette that was selected by the specified cassette selection feature becomes empty.
  (This switch is not printed on the user parameter list.)

0: The machine will not print any received files until paper is added.

1: The machine will use other cassettes to print received files that are not specified by this feature.

- Bit 3: 90° image rotation during B5 portrait Tx, 0: Off, 1: On
  (This switch is not printed on the user parameter list.)
- Bit 4: Reduction of sample images on reports to 50% in the main scan and sub-scan directions. (This switch is not printed on the user parameter list.)
  0: Technician adjustment (printer switch 0E bits 3 and 4)
  1: 50% reduction
- Bit 5: Use of A5 size paper for reports (This switch is not printed on the user parameter list.)
  0: Off, 1: On
- Bits 6 and 7: Not used

6800E4(H) - User parameter switch 20 (SWUSR_14)

- Bit 0: Automatic printing of the LAN fax result report, 0: Off, 1: On
- Bit 1: Not used
- Bits 2 to 5: Store documents in memory which could not be printed from PC fax (LAN fax) driver

Bit 5	Bit 4	Bit 3	Bit 2	Setting (minutes)
0	0	0	0	0
0	0	0	1	1
. . . and so on, until . . .				
1	1	1	0	14
1	1	1	1	15

- Bits 6 and 7: Not used.

6800E5(H) - User parameter switch 21 (SWUSR_15)

- Bit 0: Print results of sending reception notice request message, 0: Disabled (print only when error occurs), 1: Enabled
- Bit 1: Respond to e-mail reception acknowledgment request, 0: Disabled, 1: Enabled
- Bit 2: Not used
- ⟹ Bit 3: File format for forwarded folders and E-Mail, 0: TIFF, 1:PDF

- Bit 4: Transmit Journal by E-mail, 0: Disabled, 1: Enabled
- Bit 5: Not used
- Bit 6: Network error display, 0: Displayed, 1: Not displayed
- Bit 7: Transmit error mail notification, 0: Enabled, 1: Disabled

6800E6(H) - User parameter switch 22 (SWUSR_16)

Note

- This switch is not printed on the user parameter list.

- Bit 0: Dial tone detection (PSTN 1), 0: Disabled, 1: Enabled
- Bit 1: Dial tone detection (PSTN 2), 0: Disabled, 1: Enabled
- Bit 2: Dial tone detection (PSTN 3), 0: Disabled, 1: Enabled
- Bits 3 to 7: Not used

6800E7(H) - User parameter switch 23 (SWUSR_17) : Not used

6800E8(H) - User parameter switch 24 (SWUSR_18)

- Bits 0 and 1: File retention time (Cross reference: System switch 02 bit 4)

Bit 1	Bit 0	Setting
0	0	File retention impossible
0	1	24 hours
1	0	File retention impossible
1	1	72 hours

- Bits 2 to 7: Not used

6800E9(H) - User parameter switch 25 (SWUSR_19)

- Bit 0 and 1: Not used
- Bit 2: Not used
- Bit 3: Not used
- Bit 4: RDS operation

  0: Not acceptable

  1: Acceptable for the limit specified by system switch 03

  Note

  - This bit is only effective when RDS operation can be selected by the user (see system switch 02).

- Bits 5 to 7: Not used

6800EA(H) to 6800EF(H) - User parameter switches 26 to 31 (SWUSR_1A to 1F): Not

Service RAM Addresses

used

6800F0(H) - User parameter switch 32 (SWUSR_20)

- Bit 0: Quotation priority for a destination when there is no destination of the specified type

  0: Paper output priority

  Priority order

  1. IP-fax destination, 2. Fax Number, 3. E-mail address, 4. Folder

  1: Electric output order

  Priority order

  1. E-mail address, 2. Folder, 3. IP-fax destination, 4. Fax number
- Bits 1 to 7: Not used

6800F1(H) - User parameter switch 33 (SWUSR_21): Not used

6800F2(H) - User parameter switch 34 (SWUSR_22)

- Bit 0: Gatekeeper server used with IP-Fax, 0: Disabled, 1: Enabled
- Bit 1: SIP server used with IP-Fax, 0: Disabled, 1: Enabled

680100 to 68010F(H) - G4 Parameter Switches – Not used

680110 to 68012F(H) - G4 Internal Switches – Not used

680170 to 68017F(H) - IFAX Switches

680180 to 68018F(H) - IP-FAX Switches

680190 to 6801AF(H) - Service station's fax number (SP3-101)

6801B0 to 6801B9(H) - Own fax PABX extension number

6801BA to 6801C3(H) - Own fax number (PSTN)

6801C4 to 6801D7(H) - Own fax number (ISDN G4) – Not used

6801D8 to 6801E3(H) - The first subscriber number (ISDN G3) – Not used

6801E4 to 6801EF(H) - The second subscriber number (ISDN G3) – Not used

6801F0 to 6801FB(H) - The first subscriber number (ISDN G4) – Not used

6801FC to 680207(H) - The second subscriber number (ISDN G4) – Not used

680208 to 68021B(H) - PSTN-1 RTI (Max. 20 characters - ASCII) - See the following note.

68021C to 68022F(H) - PSTN-2 RTI (Max. 20 characters - ASCII) - See the following note.

680230 to 680246(H) - PSTN-3 RTI (Max. 20 characters - ASCII) - See the following note.

680247 to 680286(H) - TTI 1 (Max. 64 characters - ASCII) - See the following note.

680287 to 6802C6(H) - TTI 2 (Max. 64 characters - ASCII) - See the following note.

6802C7 to 680306(H) - TTI 3 (Max. 64 characters - ASCII) - See the following note.

680307 to 68031A(H) - PSTN-1 CSI (Max. 20 characters - ASCII)

68031B to 68032E(H) - PSTN-2 CSI (Max.20 characters - ASCII)

68032F to 680342(H) - PSTN-3 CSI (Max.20 characters - ASCII)

680343(H) - Number of PSTN-1 CSI characters (Hex)

680344(H) - Number of PSTN-2 CSI characters (Hex)

680345(H) - Number of PSTN-3 CSI characters (Hex)-

- If the number of characters is less than the maximum (20 for RTI, 64 for TTI), add a stop code (00[H]) after the last character.

680380 to 680387(H) - Last power off time (Read only)

- 680380(H) - 01(H) - 24-hour clock, 00(H) - 12-hour clock (AM), 02(H) - 12-hour clock (PM)
- 680381(H) - Year (BCD)
- 680382(H) - Month (BCD)
- 680383(H) - Day (BCD)
- 680384(H) - Hour
- 680385(H) - Minute
- 680386(H) - Second
- 680387(H) - 00: Monday, 01: Tuesday, 02: Wednesday, . . . and so on until . . ., 06: Sunday

680394(H) - Optional equipment (Read only – Do not change the settings)

- Bit 0: Page Memory, 0: Not installed, 1: Installed
- Bit 1: SAF Memory, 0: Not installed, 1: Installed
- Bits 2 to 7: Not used

680395(H) - Optional equipment (Read only – Do not change the settings)

- Bits 0 to 3: Not used
- Bit 4: G3-2, 0: Not installed, 1: Installed
- Bit 5: G3-3, 0: Not installed, 1: Installed
- Bit 6 and 7: Not used

680406 to 68040A - Option G3 board (G3-2) ROM information (Read only)

- 680406(H) - Suffix (BCD)
- 680407(H) - Version (BCD)
- 680408(H) - Year (BCD)
- 680409(H) - Month (BCD)
- 68040A(H) - Day (BCD)

68040B to 68040F - Option G3 board (G3-3) ROM information (Read only)

- 68040B(H) - Suffix (BCD)
- 68040C(H) - Version (BCD)
- 68040D(H) - Year (BCD)
- 68040E(H) - Month (BCD)

Service RAM Addresses

- 68040F(H) - Day (BCD)

680410(H) - G3-1 Modem ROM version (Read only)

680412(H) - G3-2 Modem ROM version (Read only)

680414(H) - G3-3 Modem ROM version (Read only)

680420(H) - Number of multiple sets print (Read only)

680476(H) - Time for economy transmission (hour in 24h clock format - BCD)

680477(H) - Time for economy transmission (minute - BCD)

680492(H) - Transmission monitor volume, 00 - 07(H)

680493(H) - Reception monitor volume, 00 - 07(H)

680494(H) - On-hook monitor volume, 00 - 07(H)

680495(H) - Dialing monitor volume, 00 - 07(H)

680496(H) - Buzzer volume, 00 - 07(H)

680497(H) - Beeper volume, 00 - 07(H)

69ED04 to 69F003(H) - SIP server address (Read only)

- 69ED04(H) - Proxy server - Main (Max. 128 characters - ASCII)
- 69ED84(H) - Proxy server - Sub (Max. 128 characters - ASCII)
- 69EE04(H) - Redirect server - Main (Max. 128 characters - ASCII)
- 69EE84(H) - Redirect server - Sub (Max. 128 characters - ASCII)
- 69EF04(H) - Registrar server - Main (Max. 128 characters - ASCII)
- 69EF84(H) - Registrar server - Sub (Max. 128 characters - ASCII)

69F004(H) - Gatekeeper server address - Main (Max. 128 characters - ASCII)

69F084(H) - Gatekeeper server address - Sub (Max. 128 characters - ASCII)

69F104(H) - Alias Number (Max. 128 characters - ASCII)

69F184(H) - SIP user name (Max. 128 characters - ASCII)

69F204(H) - Gateway address information (Max. 128 characters - ASCII)

6A0DC0(H) - Stand-by port number for H.232 connection

6A0DC2(H) - Stand-by port number for SIP connection

6A0DC4(H) - RAS port number

6A0DC6(H) - Gatekeeper port number

6A0DC8(H) - Port number of data waiting for T.38

6A0DCA(H) - Port number of SIP server

6A0DCC(H) - Priority for SIP and H.323, 0: H.323, 1: SIP

6A0DCD(H) - SIP function, 0: Disabled, 1: Enabled

6A0DCE(H) - H.323 function, 0: Disabled, 1: Enabled

6BEBFE(H) - Dial tone detection frequency – Upper limit (High)

Defaults: NA: 06, EU: 06, ASIA: 06

6BEBFF(H) - Dial tone detection frequency – Upper Limit (Low)

Defaults: NA: 50, EU: 50, ASIA: 50

6BEC00(H) - Dial tone detection frequency – Lower Limit (High)

Defaults: NA: 03, EU: 02, ASIA: 02

6BEC01(H) - Dial tone detection frequency – Lower Limit (Low)

Defaults: NA: 60, EU: 90, ASIA: 90

6BEC02(H) - Dial tone detection waiting time (20 ms)

Defaults: NA: 64, EU 64, ASIA: 64

6BEC03 to 6BEC04 - Dial tone detection monitoring time (20 ms)

Defaults

Area	6BEC03	6BEC04
NA	F4	01
EU	F4	01
ASIA	F4	01

6BEC05(H) - Dial tone detect judge time (20 ms)

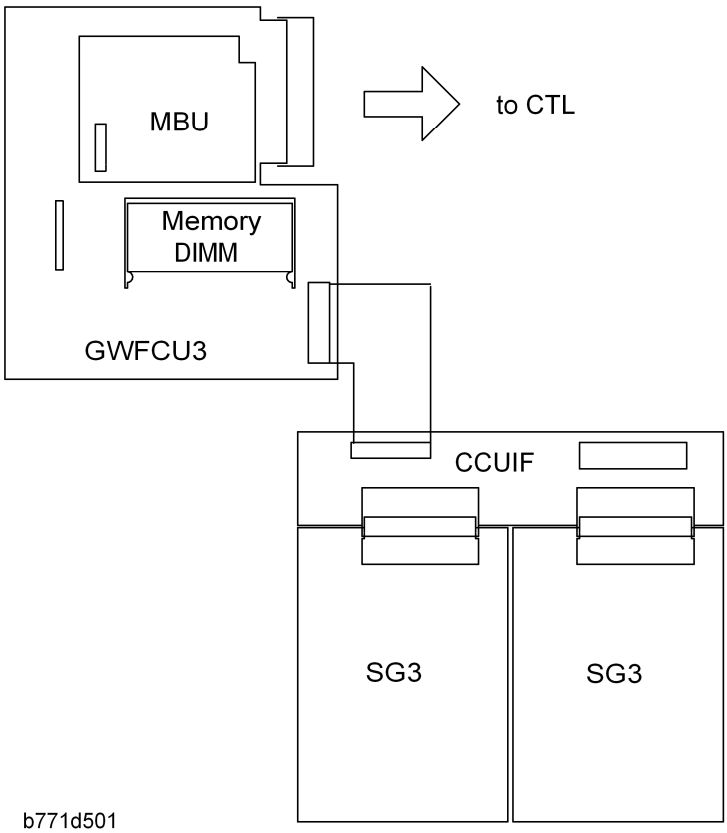
Defaults: NA: 64, EU: 1B, ASIA: 32

6BEC06(H) - Dial tone disconnect permission time (20 ms)

Defaults: NA: 11, EU: 0F, ASIA: 11

5. DETAILED SECTION DESCRIPTIONS

5.1 OVERVIEW



The basic fax unit consists of two PCBs: an FCU and an MBU.

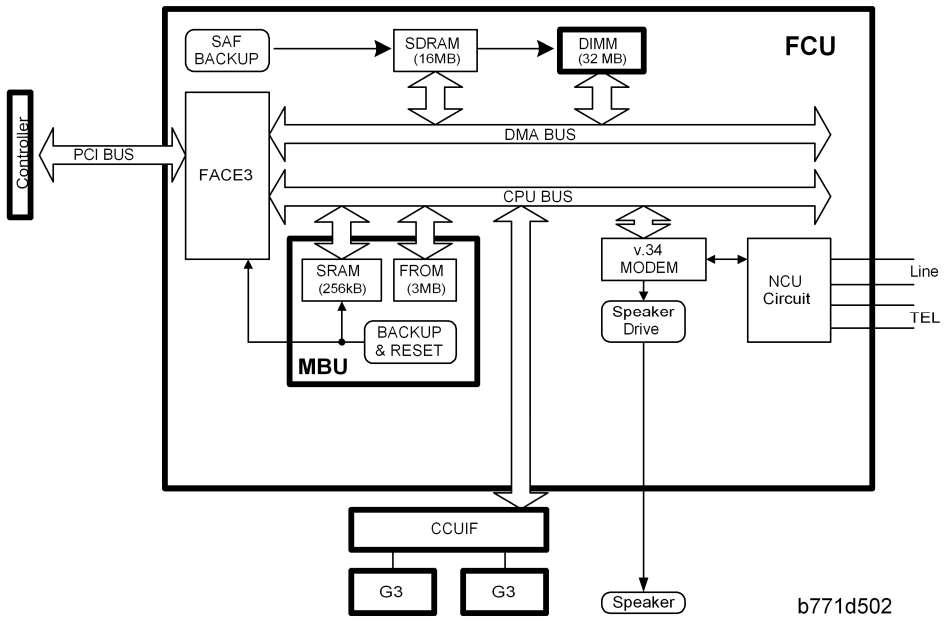
The FCU controls all the fax communications and fax features, in cooperation with the controller board. The MBU contains the ROM and SRAM. Also, the FCU has an NCU circuit.

Fax Options:

- Extra G3 Interface option: This provides one more analog line interface. This allows full dual access. Two extra G3 interface options can be installed.
- Memory Expansion: This expands the SAF memory and the page memory (used for image rotation); without this expansion, the page memory is not big enough for image rotation at 400 dpi, so transmission at 400 dpi is not possible.

5.2 BOARDS

5.2.1 FCU



The FCU (Facsimile Control Unit) controls fax communications, the video interface to the base copier's engine, and all the fax options.

FACE3 (Fax Application Control Engine)

- CPU
- Data compression and reconstruction (DCR)
- DMA control
- Clock generation
- DRAM backup control

Modem (FAME)

- V.34, V33, V17, V.29, V.27ter, V.21, and V.8

DRAM

- The 16 MB of DRAM is shared as follows.
  - SAF memory: 4MB
  - Working memory: 4MB
  - Page memory: 8MB
  - The SAF memory is backed up by a rechargeable battery.

Memory Back-up

- A rechargeable battery backs up the SAF memory (DRAM) for 1 hour.

5.2.2 MBU

On this board, the flash ROM contains the FCU firmware, and the SRAM contains the system data and user parameters. Even if the FCU is changed, the system data and user parameters are kept on the MBU board.

ROM

- 3MB flash ROMs for system software storage
- 2MB (16bit x 1MB) + 1MB (16bit x 512K)

SRAM

- The 256 KB SRAM for system and user parameter storage is backed up by a lithium battery.

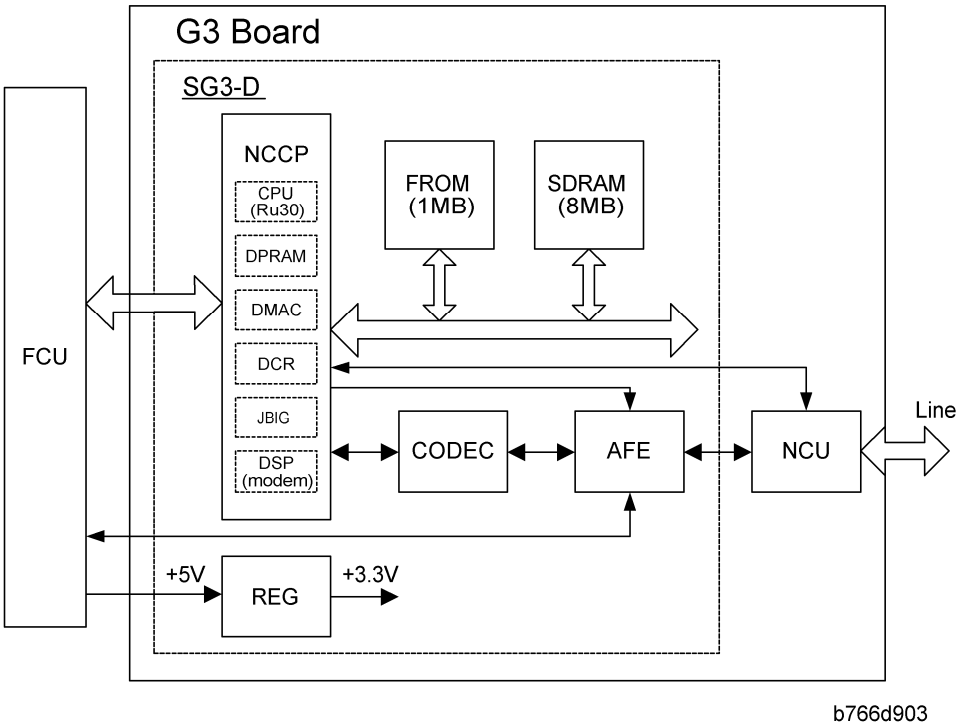
Memory Back-up

- A lithium battery backs up the system parameters and programmed items in the SRAM, in case the base copier's main switch is turned off.

Switches

Item	Description
SW1	Switches the SRAM backup battery on/off.

5.2.3 SG3 BOARD



The SG3 board allows up to three simultaneous communications when used in combination with the FCU and optional G3 boards. The NCU is on the same board as the common SG-3 board. This makes the total board structure smaller. But, the specifications of the SG3 board do not change.

NCCP (New Communication Control Processor)

- Controls the SG3 board.
- CPU (RU30)
- DPRAM (Dual Port RAM): Handshaking with the FCU is done through this block.
- DMA controller
- JBIG
- DSP V34 modem (RL5T892): Includes the DTMF Receiver function
- DCR for MH, MR, MMR, and JBIG compression and decompression

FROM

- 1Mbyte flash ROM for SG3 software storage and modem software storage

SDRAM

- 4Mbyte DRAM shared between ECM buffer, line buffer, and working memory

AFE (Analog Front End)

- Analog processing

CODEC (COder-DECoder)

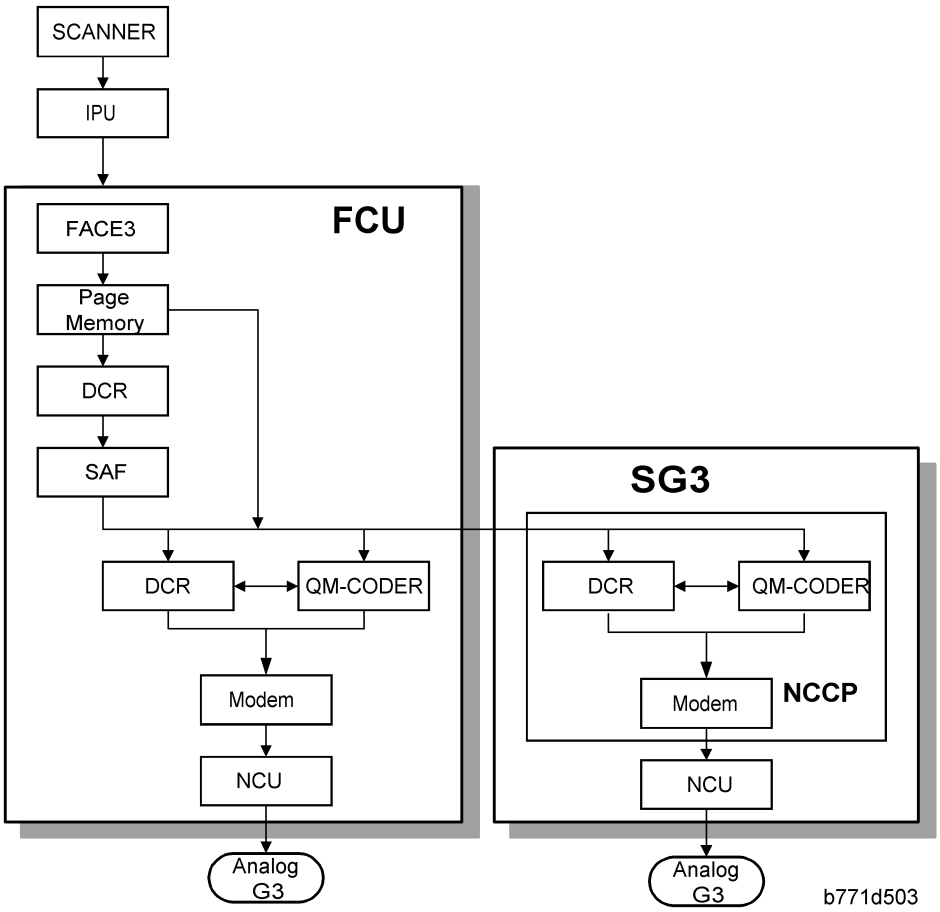
- A/D & D/A conversions for modem

REG

- Generates +3.3 V from the +5V from the FCU

5.3 VIDEO DATA PATH

5.3.1 TRANSMISSION



Memory Transmission and Parallel Memory Transmission

The base copier's scanner scans the original at the selected resolution in inch format. The IPU processes the data and transfers it to the FCU.

Note

- When scanning a fax original, the IPU uses the MTF, independent dot erase and thresholding parameter settings programmed in the fax unit's scanner bit switches, not the copier's SP modes.

Then, the FCU converts the data to mm format, and compresses the data in MMR or raw format to store it in the SAF memory. If image rotation will be done, the image is rotated in page memory before compression.

At the time of transmission, the FCU decompresses the stored data, then re-compresses and/or reduces the data if necessary for transmission. The NCU transmits the data to the

line.

Immediate Transmission

The base copier's scanner scans the original at the resolution agreed with the receiving terminal. The IPU video processes the data and transfers it to the FCU.

Note

- When scanning a fax original, the IPU uses the MTF, independent dot erase and thresholding parameter settings programmed in the fax unit's scanner bit switches, not the copier's SP modes.

Then the FCU stores the data in page memory, and compresses the data for transmission. The NCU transmits the data to the line.

JBIG Transmission

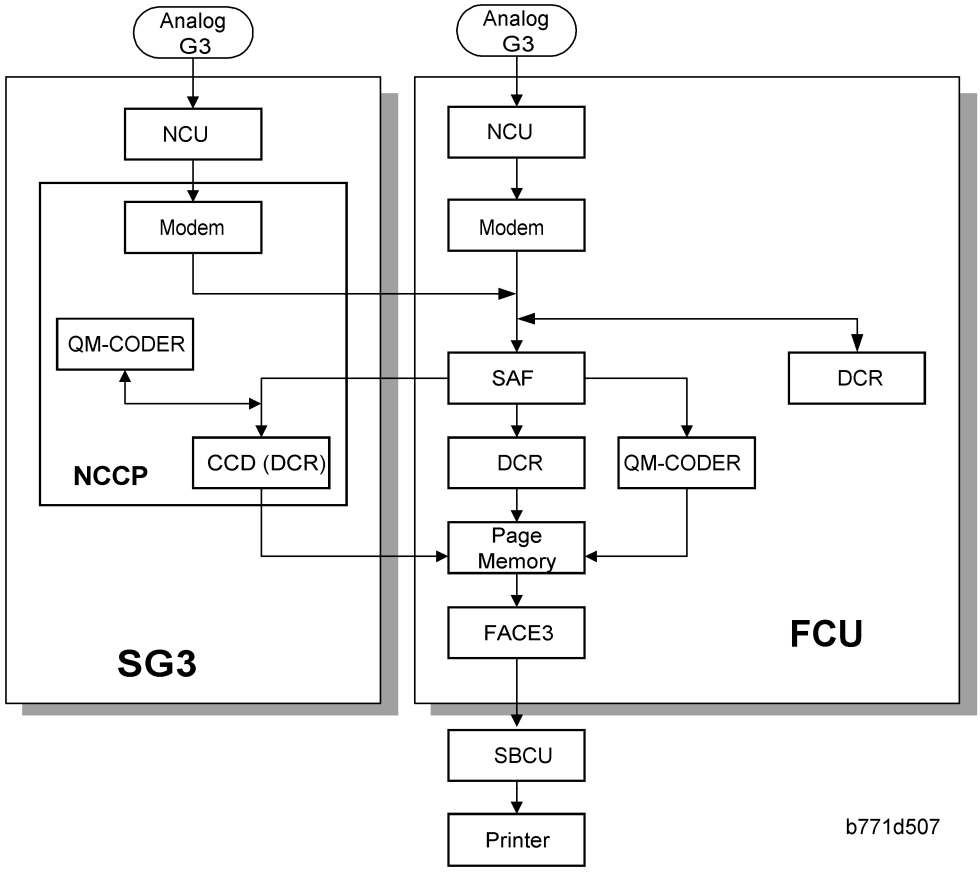
Memory transmission: If the receiver has JBIG compression, the data goes from the DCR to the QM-Coder. Then the NCU transmits the data to the line. When an optional G3 unit (SG3) is installed and PSTN2 is selected as the line type, JBIG compression is available, but only for the PSTN-2 line.

Immediate transmission: If the receiver has JBIG compression, the data goes from the page memory to the QM-Coder. Then the NCU transmits the data to the line. When an optional G3 unit (SG3) is installed and PSTN2 is selected as the line type, JBIG compression is available, but only for the PSTN-2 line.

Adjustments

- Priority for the line used for G3 transmissions (PSTN 1/PSTN 2 or 3): System switch 16 bit 1

5.3.2 RECEPTION



First, the FCU stores the incoming data from either an analog line to the SAF memory. (The data goes to the FACE3 at the same time, and is checked for error lines/frames.)
The FCU then decompresses the data and transfers it to page memory. If image rotation will be done, the image is rotated in the page memory. The data is transferred to the IPU.
If the optional G3 unit is installed, the line that the message comes in on depends on the telephone number dialled by the other party (the optional G3 unit has a different telephone number from the main fax board).

JBIG Reception

When data compressed with JBIG comes in on PSTN-1 (the standard analog line), the data is sent to the QM-CODER for decompression. Then the data is stored in the page memory, and transferred to the IPU.
When data compressed with JBIG comes in on PSTN-2 (optional extra analog line), the data is sent to the QM-CODER on the SG3 board for decompression.

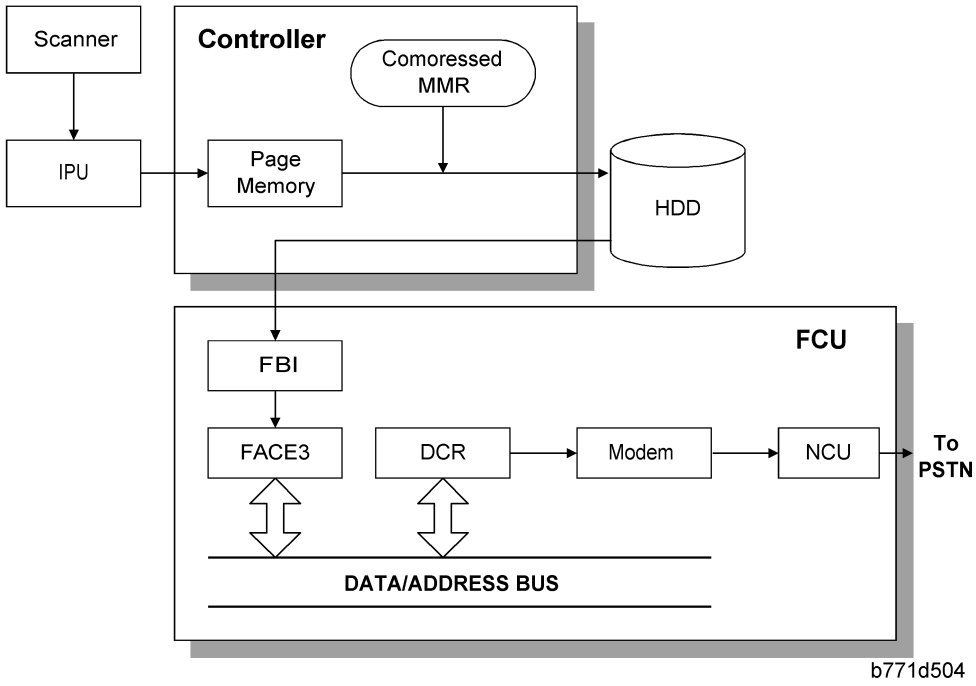
5.4 FAX COMMUNICATION FEATURES

5.4.1 MULTI-PORT

When the optional extra G3 Interface Unit is installed, communication can take place at the same time through the two or three lines at once.

Option	Available Line Type	Available protocol Combinations
Standard only	PSTN	G3
Extra G3 Interface Unit (single)	PSTN + PSTN	G3 + G3
Extra G3 Interface Unit (double)	PSTN + PSTN +PSTN	G3 + G3 +G3

5.4.2 DOCUMENT SERVER



The base copier's scanner scans the original at the selected resolution. The IPU video processes the data and transfers it to the controller board.

Then the controller stores the data in the page memory for the copier function, and

compresses the data in MMR (by software) to store it in the HDD. If image rotation will be done, the image is rotated in the page memory before compression.

For transmission, the stored image data is transferred to the FCU. The FCU decompresses the image data, then recompresses and/or reduces the data if necessary for transmission. The NCU transmits the data to the line.

The documents can be stored in the HDD (Document Server) from the fax application. The stored documents in the document sever can be used for the fax transmission in many times. More than one document and the scanned document can be combined into one file and then the file can be transmitted.

- When using the document server, the SAF memory is not used.
- The document is compressed with MMR and stored.
- Up to 9,000 pages can be stored (1 file: Up to 1,000 pages) from the fax application.
- Only stored documents from the fax application can be transmitted.
- Scanned documents are given a name automatically, such as “FAX001”. But it is possible to change the file name, user name and password.
- Up to 30 files can be selected at once.

Note

- The compression method of the fax application is different from the copy application. The storing time is longer than the copier storing.
- When selecting “Print 1st page”, the stored document will be reduced to A4 size.

5.4.3 INTERNET MAIL COMMUNICATION

Mail Transmission

T.37 simple and full modes

This machine supports T.37 full mode. (ITU-RFC232). The difference between T.37 simple mode and full mode is as follows.

Function	T.37 Simple Mode	T.37 Full Mode
Resolution	200 x 100 200 x 200	200 x100 200 x 200 200 x 400 400 x 400 (if available)
RX Paper Width	A4	A4, B4, A3
RX Data Compression Method	MH	MH (default), MR, MMR,

Function	T.37 Simple Mode	T.37 Full Mode
Signals	Image data transmission only	Image data transmission, exchange of capability information between the two terminals, and acknowledgement of receipt of fax messages

Data Formats

The scanned data is converted into a TIFF-F formatted file.

The fields of the e-mail and their contents are as follows:

Field	Content
From	Mail address of the sender
Reply To	Destination requested for reply
To	Mail address of the destination
Bcc	Backup mail address
Subject	From CSI or RTI (Fax Message No. xxxx)
Content Type	Multipart/mixed Attached files: image/tiff
Content Transfer Encoding	Base 64, 7-bit, 8-bit, Quoted Printable
Message Body	MIME-converted TIFF-F (MIME standards specify how files are attached to e-mail messages)

Direct SMTP Transmission

Internet Fax documents can be sent directly to their destinations without going through the SMTP server. (Internet Faxes normally transmit via the SMTP server.)

For example:

e-mail address:	gts@ricoh.co.jp
SMTP server address:	gts.abcd.com

In this case, this feature destination e-mail address (gts@ricoh.co.jp) is read as the SMTP server address "gts.abcd.com", and the transmissions bypass the SMTP server.

Selectable Options

These options are available for selection:

- With the default settings, the scan resolution can be either standard or detail. Inch-mm conversion before TX depends on IFAX SW01 Bit 7. Detail resolution will be used if Super Fine resolution is selected, unless Fine resolution is enabled with IFAX SW01.
- The requirements for originals (document size, scan width, and memory capacity) are the same as for G3 fax memory TX.
- The default compression is TIFF-F format.
- IFAX SW00: Acceptable paper widths for sending
- IFAX SW09: Maximum number of attempts to the same destination

Secure Internet Transmission

SMTP Authentication:

- User Tools> System Settings> File Transfer> SMTP Authentication

POP Before SMTP:

- User Tools> System Settings> File Transfer> POP Before SMTP

Mail Reception

Three Types

This machine supports three types of e-mail reception:

- POP3 (Post Office Protocol Ver. 3.)
- IMAP4 (Internet Messaging Access Protocol)
- SMTP (Simple Mail Transfer Protocol)

Note

- For details: Core Technology Manual – Facsimile Processes – Faxing from a PC – Internet/LAN Fax Boards – Mail Reception

POP3/IMAP4 Mail Reception Procedure

The machine automatically picks up e-mail from the server at an interval which is adjustable in the range 2 to 1440 min. in 1-minute steps:

- User Tools> System Settings> File Transfer> E-mail Reception Interval

SMTP Reception

1. The IFAX must be registered as an SMTP server in the MX record of the DNS server, and the address of the received mail must specify the IFAX.
2. To enable SMTP reception: User Tools> System Settings> File Transfer> Reception Protocol

- Even if the MX record on the DNS server includes the IFAX, mail cannot be received with SMTP until SMTP reception is enabled:
- However, if SMTP reception is selected and the machine is not registered in the MX record of the DNS server, then either IMAP4 or POP3 is used, depending on the setting: User Tools> System Settings> File Transfer> Reception Protocol

Mail Delivery Conditions: Transferring Mail Received With SMTP

1. The machine must be set up for SMTP mail delivery:
   - User Tools> Facsimile Features> E-mail Settings> SMTP RX File Delivery Settings
2. If the user wishes to limit this feature so that the machine will only deliver mail from designated senders, the machine's "Auth. E-mail RX" feature must be set (User Tools> Facsimile Features> E-mail Settings> SMTP RX File Delivery Settings).
3. If the "SMTP RX File Delivery Setting" is set to 0 to prohibit SMTP receiving, and if there is mail designated for delivery, then the machine responds with an error. (User Tools> Facsimile Features> E-mail Settings> SMTP RX File Delivery Settings)
4. If the quick dial, speed dial, or group dial entry is incorrect, the mail transmission is lost, and the IFAX issues an error to the SMTP server and outputs an error report.

Auth. E-mail RX

In order to limit access to mail delivery with IFAX, the addresses of senders must be limited using the Access Limit Entry. Only one entry can be registered.

1. Access Limit Entry
   For example, to limit access to @IFAX.ricoh.co.jp:

gts@IFAX.ricoh.co.jp	Matches and is delivered.
gts@IFAX.abcde.co.jp	Does not match and is not delivered.
IFAX@ricoh.co.jp	Does not match and is not delivered.

2. Conditions
   - The length of the Access Limit Entry is limited to 127 characters.
   - If the Access Limit Entry address and the mail address of the incoming mail do not match, the incoming mail is discarded and not delivered, and the SMTP server responds with an error. However, in this case an error report is not output.
   - If the Access Limit Entry address is not registered, and if the incoming mail specifies a delivery destination, then the mail is delivered unconditionally.

Handling Mail Reception Errors

Abnormal files

When an error of this type occurs, the machine stops receiving and commands the server to erase the message. Then the machine prints an error report and sends information about the error by e-mail to the sender address (specified in the “From” or “Reply-to” field of the message). If there is an incomplete received message in the machine memory, it will be erased.

The machine prints an error message when it fails to send the receive error notification after a certain number of attempts.

The following types of files are judged to be abnormal if one or more of the following are detected:

1. Unsupported MIME headers.
   Supported types of MIME header

Header	Supported Types
Content-Type	Multipart/mixed, text/plain, message/rfc822 Image/tiff
Charset	US-ASCII, ISO 8859 X. Other types cannot be handled, and some garbage may appear in the data.
Content-Transfer-Encoding	Base 64, 7-bit, 8-bit, Quoted Printable

2. MIME decoding errors
3. File format not recognized as TIFF-F format
4. Resolution, document size, or compression type cannot be accepted

Remaining SAF capacity error

The machine calls the server but does not receive e-mail if the remaining SAF capacity is less than a certain value (the value depends on IFAX Switch 08. The e-mail will be received when the SAF capacity increases (for example, after substitute reception files have been printed). The error handling method for this type of error is the same as for “Abnormal files”. If the capacity of the SAF memory drops to zero during reception, the machine operates in the same way as when receiving an abnormal file (refer to “Abnormal files” above).

Secure Internet Reception

To enable password encryption and higher level security: User Tools> System Settings>

File Transfer> POP3/IMAP4 Settings> Encryption (set to “On”)

Transfer Request: Request By Mail

For details: Core Technology Manual – Facsimile Processes – Faxing from a PC – Internet/LAN Fax Boards – Transfer Request

The fields of the e-mail and their contents are as follows:

Field	Content
From	E-mail address of the requesting terminal
To	Destination address (Transfer Station address)
Bcc	Backup mail address
Subject	From TSI (Fax Message No. xxxx)
Content-Type	Multipart/mixed Text/Plain (for a text part), image/tiff (for attached files)
Content-Transfer-Encoding	Base 64, 7-Bit, 8-bit, Quoted Printable
Mail body (text part)	RELAY-ID-: xxxx (xxxx: 4 digits for an ID code) RELAY: #01#*X#**01….
Message body	MIME-converted TIFF-F.

E-Mail Options (Sub TX Mode)

The following features are available as options for mail sending: entering a subject, designating the level of importance, confirming reception of the mail.

Subject and Level of Importance

You can enter a subject message with: Sub TX Mode> E-mail Options

The Subject entry for the mail being sent is limited to 64 characters. The subject can also be prefixed with an “Urgent” or “High” notation.

- How the Subject Differs According to Mail Type -

Mail Type	Item 1	Item 2	Item 3
Subject Entry	---	Entry Condition	Fax Message No.

Fax Communication Features

<table>
<tr><th>Mail Type</th><th>Item 1</th><th colspan="2">Item 2</th><th>Item 3</th></tr>
<tr><td rowspan="4">No Subject Entry</td><td></td><td colspan="2">1. “CSI” (“RTI”)</td><td rowspan="4">+
File No.</td></tr>
<tr><td></td><td>2. “RTI”</td><td>CSI not registered</td></tr>
<tr><td></td><td>3. “CSI”</td><td>RTI not registered</td></tr>
<tr><td></td><td>4. None</td><td>CSI, RTI not registered</td></tr>
<tr><td rowspan="4">Confirmation of Reception</td><td rowspan="4">From</td><td colspan="2">1. “CSI” (“RTI”)</td><td rowspan="2">Normal:
Return Receipt (dispatched).
You can select “displayed” with IFAX SW02 Bits 2 and 3.</td></tr>
<tr><td>2. “RTI”</td><td>CSI not registered</td></tr>
<tr><td>3. “CSI”</td><td>RTI not registered</td><td rowspan="2">Error:
Return Receipt (processed/error)</td></tr>
<tr><td>4. None</td><td>CSI, RTI not registered</td></tr>
<tr><td rowspan="4">Mail delivery, memory transfer, SMTP receiving and delivery</td><td rowspan="4">From</td><td>RTI or CSI of the station designated for delivery</td><td>Mail delivery</td><td rowspan="4">Fax Message No. + File Number</td></tr>
<tr><td>RTI or CSI of sender</td><td>Mail sending from G3 memory</td></tr>
<tr><td>Mail address of sender</td><td>Memory sending</td></tr>
<tr><td>Mail address of sender</td><td>SMTP receiving and delivery (Off Ramp Gateway)</td></tr>
<tr><td>Mail error notification</td><td>---</td><td colspan="3">Error Message No. xxxx From CSI (RTI)</td></tr>
</table>

Items 1, 2, and 3 in the table above are in the Subject.

- Subjects Displayed on the PC -

B766D907.WMF

E-mail Messages

After entering the subject, you can enter a message with: Sub TX Mode> E-mail Options

An e-mail message (up to 5 lines) can be pre-registered with: User Tools> System Settings> File Transfer> Program/Change/Delete E-mail Message

- Limitations on Entries -

Item	Maximum
Number of Lines	5 lines
Line Length	80 characters
Name Length	20 characters

Message Disposition Notification (MDN)

For details: Core Technology Manual – Facsimile Processes – Faxing from a PC – Internet/LAN Fax Boards – E-mail Options

The network system administrator can confirm whether a sent mail has been received correctly or not. This confirmation is done in four steps.

1. Send request for confirmation of mail reception. To enable or disable this request (known as MDN): Sub TX Mode> E-mail Options
2. Mail reception (receive confirmation request)
3. Send confirmation of mail reception
4. Receive confirmation of mail reception

The other party's machine will not respond to the request unless the two conditions below are met:

- The other party's machine must be set up to respond to the confirmation request.
- The other party's machine must support MDN (Message Disposition Notification).

- Setting up the Receiving Party -

The receiving party will respond to the confirmation request if:

1. The "Disposition Notification To" field is in the received mail header (automatically inserted in the 4th line in the upper table on the previous page, if MDN is enabled), and
2. Sending the disposition notification must be enabled (User Parameter Setting SW21 (15 [H]) Bit 1 for this model). The content of the response is as follows:

Normal reception:	“Return Receipt (dispatched)” in the Subject line
IFAX SW02 (Bit 2, 3)	“Return Receipt (displayed)” in the Subject line
Error:	“Return Receipt (processed/error)” in the Subject line

Handling Reports

- Sending a Request for a Return Receipt by Mail -

After the mail sender transmits a request for a return receipt, the mail sender’s journal is annotated with two hyphens (--) in the Result column and a “Q” in the Mode column.

- Mail Receipt (Request for Receipt Confirmation) and Sending Mail Receipt Response -

After the mail receiver sends a response to the request for a return receipt, the mail receiver’s journal is annotated with two hyphens (--) in the Result column and an “A” in the Mode column.

- Receiving the Return Receipt Mail -

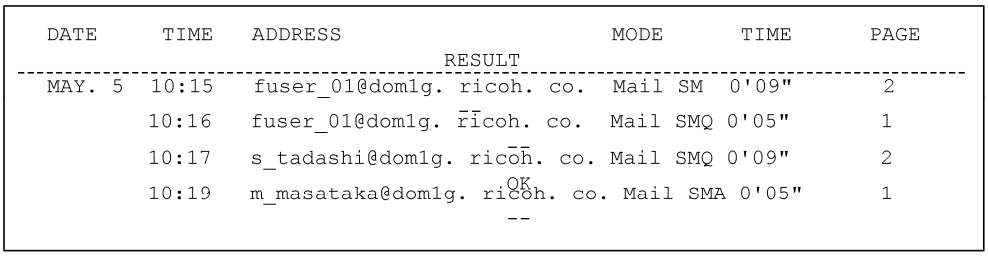
- After the mail sender receives a return receipt, the information in the mail sender’s journal about the receipt request is replaced, i.e. the journal is annotated with “OK” in the Result column.
- When the return receipt reports an error, the journal is annotated with an “E” in the Result column.
- The arrival of the return receipt is not recorded in the journal as a separate communication. Its arrival is only reported by the presence of “OK” or “E” in the Result column.
- If the mail address used by the sender specifies a mailing list (i.e., a Group destination; the machine sends the mail to more than one location. See “How to set up Mail Delivery”), the Result column of the Journal is updated every time a return receipt is received. For example, if the mailing list was to 5 destinations, the Result column indicates the result of the communication with the 5th destination only. The results of the communications to the first 4 destinations are not shown.

  Exceptions:

  If one of the communications had an error, the Result column will indicate E, even if subsequent communications were OK.

  If two of the communications had an error, the Journal will indicate the destination for the first error only.

- Report Sample -


DATE TIME ADDRESS MODE TIME PAGE
RESULT
MAY. 5 10:15 fuser_01@dom1g. ricoh. co. Mail SM 0'09" 2
10:16 fuser_01@dom1g. ricoh. co. Mail SMQ 0'05" 1
10:17 s_tadashi@dom1g. ricoh. co. Mail SMQ 0'09" 2
10:19 m_masataka@dom1g. ricoh. co. Mail SMA 0'05" 1
OK

b771d506

5.5 IP-FAX

5.5.1 WHAT IS IP-FAX?

For details: Core Technology Manual – Facsimile Processes – Faxing from a PC – Internet/LAN Fax Boards – IP-FAX

5.5.2 T.38 PACKET FORMAT

TCP is selected by default for this machine, but you can change this to UDP with IPFAX SW 00 Bit 1.

UDP Related Switches

<table>
<tr><th colspan="7">IP-Fax Switch 01</th></tr>
<tr><th>No.</th><th colspan="5">Function</th><th>Comments</th></tr>
<tr><td rowspan="6">0-3</td><td colspan="5">Select IP FAX Delay Level</td><td rowspan="6">Raise the level by selecting a higher setting if too many transmission errors are occurring on the network.
If TCP/UDP is enabled on the network, raise this setting on the T.30 machine. Increasing the delay time allows the recovery of more lost packets.
If only UDP is enabled, increase the number of redundant packets.
Level 1~2: 3 Redundant packets
Level 3: 4 Redundant packets</td></tr>
<tr><td>Bit 3</td><td>Bit 2</td><td>Bit 1</td><td>Bit 0</td><td>Level</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>2</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>3</td></tr>
</table>

5.5.3 SETTINGS

User parameter switch 34 (22[H]), bit 0

IP-Fax Gate Keeper usage, 0: No, 1: Yes

IP Fax Switches: Various IP-FAX settings (see the bit switch table)

6. SPECIFICATIONS

6.1 GENERAL SPECIFICATIONS

Type:	Desktop type transceiver
Circuit:	PSTN (max. 3ch.) PBX
Connection:	Direct couple
Original Size:	Book (Face down) ▪ Maximum Length: 432 mm [17 ins] ▪ Maximum Width: 297 mm [11.7 ins] ARDF (Face up) Single-sided document ▪ Length: 128 - 1200 mm [5.0 - 47.2 ins] ▪ Width: 105 - 297 mm [4.1 - 11.7 inch] Double-sided document ▪ Length: 128 - 432 mm [5.0 - 17 inch] ▪ Width: 105 - 297 mm [4.1 - 11.7 inch]
Scanning Method:	Flat bed, with CCD
Resolution:	G3 ▪ 8 x 3.85 lines/mm (Standard) ▪ 8 x 7.7 lines/mm (Detail) ▪ 8 x 15.4 line/mm (Fine) Note1 ▪ 16 x15.4 line/mm (Super Fine) See Note. ▪ 200 x 100 dpi (Standard) ▪ 200 x 200 dpi (Detail) ▪ 400 x 400 dpi (Super Fine) Note - Optional Expansion Memory required.
Transmission Time:	G3: 3 s at 28800 bps; Measured with G3 ECM using memory for an ITU-T #1 test document (Slerexe letter) at standard

General Specifications

	resolution
Data Compression:	MH, MR, MMR JBIG
Protocol:	Group 3 with ECM
Modulation:	V.34, V.33, V.17 (TCM), V.29 (QAM), V.27ter (PHM), V.8, V.21 (FM)
Data Rate:	G3: 33600/31200/28800/26400/24000/21600/ 19200/16800/14400/12000/9600/7200/4800/2400 bps Automatic fallback
I/O Rate:	With ECM: 0 ms/line Without ECM: 2.5, 5, 10, 20, or 40 ms/line
Memory Capacity:	ECM: 128 KB SAF ▪ Standard: 4 MB ▪ With optional Expansion Memory: 28 MB (4 MB+ 24 MB) Page Memory ▪ Standard: 4 MB (Print: 2 MB + Scanner: 2 MB) ▪ With optional Expansion Memory: 12 MB (4 MB + 8 MB) (Print 8 MB + Scanner: 4 MB)

6.2 CAPABILITIES OF PROGRAMMABLE ITEMS

The following table shows how the capabilities of each programmable item will change after the optional Fax Function Upgrade Unit is installed.

Item	Standard
Quick Dial	2000
Groups	100
Destination per Group	500
Destinations dialed from the ten-key pad overall	500
Programs	100
Auto Document	6
Communication records for Journal stored in the memory	200
Specific Senders	30

The following table shows how the capabilities of the document memory will change after the optional Fax Function Upgrade Unit and the Expansion Memory are installed.

	Without the Expansion Memory	With the Expansion Memory
Memory Transmission files	400	400
Maximum number of pages for memory transmission	1000	1000
Memory capacity for memory transmission (see the Note below)	320	2240

Note

- Measured using an ITU-T #1 test document (Slerexe letter) at standard resolution, with auto image density mode, and in Text mode.

6.3 IFAX SPECIFICATIONS

Connectivity

Local area network

Ethernet 100base-Tx/10base-T

IEEE1394 (IP over 1394)

IEEE802.11b (wireless LAN)

Resolution

Main scan: 400 dpi, 200 dpi

Sub scan: 400 dpi, 200 dpi, 100 dpi

Note: To use 400 dpi, IFAX SW01 Bit 4 must be set to "1".

Transmission Time

1 s (through a LAN to the server)

Conditions:

- ITU-T #1 test document (Slerexe Letter)
- MTF correction: OFF
- TTI: None
- Resolution: 200 x 100 dpi
- Communication speed: 10 Mbps
- Correspondent device: E-mail server
- Line conditions: No terminal access

Document Size

Maximum message width is A4/LT.

Note: To use B4 and A3 width, IFAX SW00 Bit 1 (B4) and/or Bit 2 (A3) must be set to "1".

E-mail File Format

Single/multi-part

MIME conversion

Image: TIFF-F (MH, MR, MMR)

Protocol

Transmission: SMTP, TCP/IP

Reception: POP3, SMTP, IMAP4, TCP/IP

Data rate

100 Mbps(100base-Tx)

10 Mbps (10base-T)

Authentication method

SMTP-AUTH

POP before SMTP

A-POP

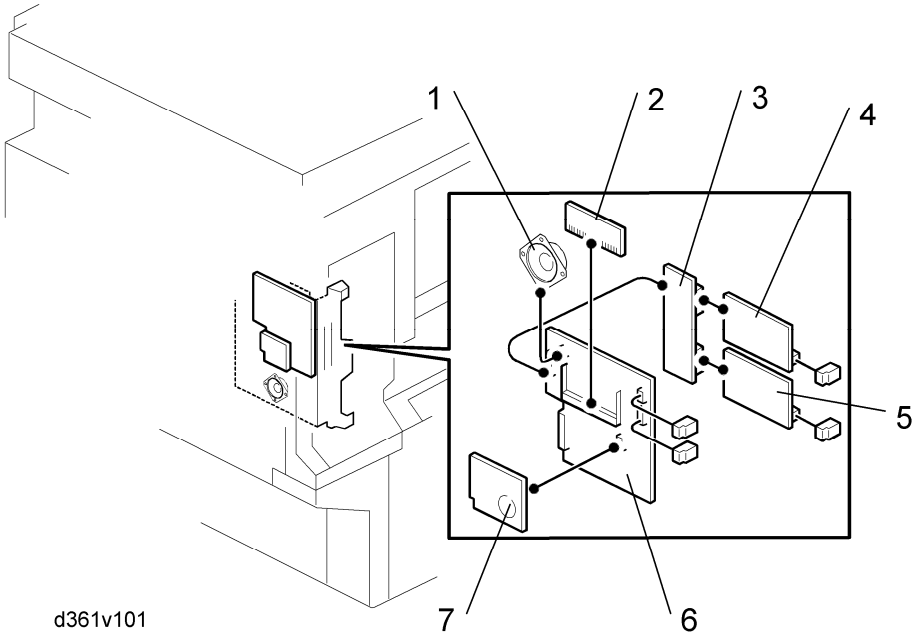
Remark

The machine must be set up as an e-mail client before installation. Any client PCs connected to the machine through a LAN must also be e-mail clients, or some features will not work (e.g. Autorouting).

6.4 IP-FAX SPECIFICATIONS

Network:	LAN: Ethernet/10base-T, 100base-TX IEEE1394 (IP over 1394), IEEE802.11b (wireless LAN)
Scan line density:	8 x 3.85 lines/mm, 200x100dpi (standard character), 8 x 7.7lines/mm, 200x200dpi (detail character), 8 x 15.4lines/mm (fine character: optional expansion memory required), 16 x 15.4lines/mm, 400x400dpi (super fine character: optional expansion memory required)
Original size:	Maximum A3 or 11"x 17" (DLT)
Maximum scanning size:	Standard: A3, 297mm x 432mm Irregular: 297mm x 1200mm
Transmission protocol:	Recommended: T.38 Annex protocol, TCP, UDP/IP communication
Compatible machines:	IP-Fax compatible machines
IP-Fax transmission:	Specify IP address and send fax to an IP-Fax compatible fax through a network. Also capable of sending fax from a G3 fax connected to the public telephone lines via a VoIP gateway.
IP-Fax reception:	Receive a fax sent from an IP-Fax compatible fax through a network. Also capable of receiving fax from a G3 fax connected the public telephone lines via a VoIP gateway.

6.5 FAX UNIT CONFIGURATION



Component	Code	No.	Remarks
FCU	D361	6	Included with fax unit
MBU		7	
Speaker		1	
CCU I/F Board	D361	3	Included with optional G3 unit.
G3 Board		4	
G3 Board	D361	5	Included with optional G3 unit.
Expansion Memory	G578	2	Common with R-C4/4.5
Handset Type 1018	B433		USA only. Common with R-C4/4.5

ARDF DF3030

D366

ARDF DF3030 REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

ARDF DF3030 D366

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Read This First

Safety and Symbols

Replacement Procedure Safety

⚠CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

☛: See or Refer to

: Screws

: Connector

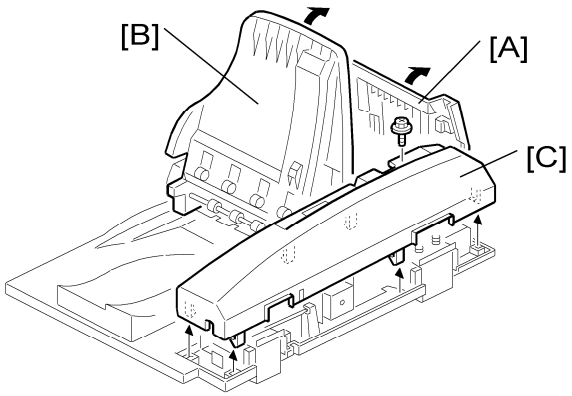
: Clip ring

: E-ring

1. REPLACEMENT AND ADJUSTMENT

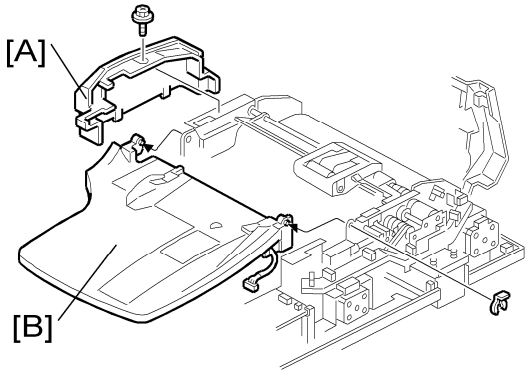
1.1 COVERS AND TRAY

1.1.1 REAR COVER



1. Open the left cover [A].
2. Open the original tray [B].
3. Rear cover [C] (x 1, hook x 6)

1.1.2 FRONT COVER AND ORIGINAL TRAY



1. Open the left cover.
2. Rear cover ("Rear Cover")
3. Front cover [A] (x 1)

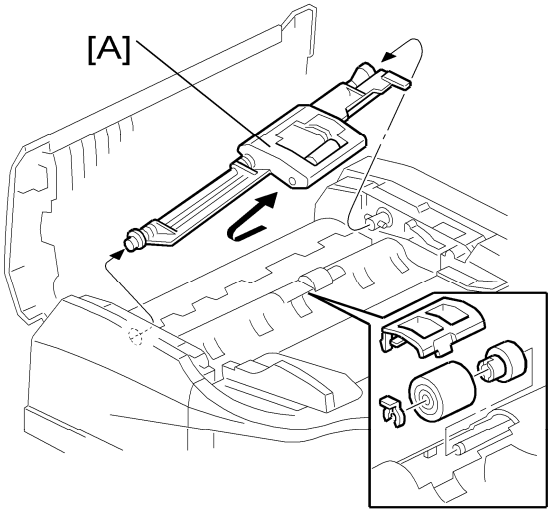
Note

- Keep the original tray open when you remove the front cover.

4. Original tray [B] (x 1, x 1)

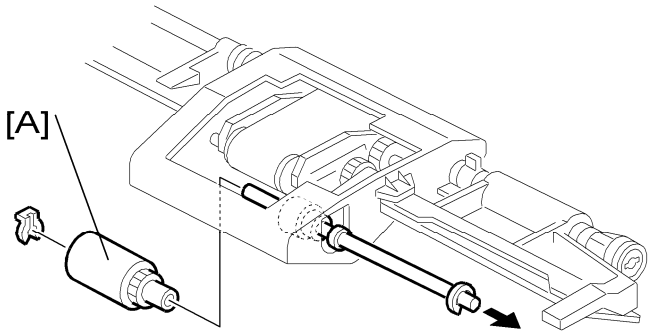
1.2 DOCUMENT FEED COMPONENTS

1.2.1 ORIGINAL FEED UNIT



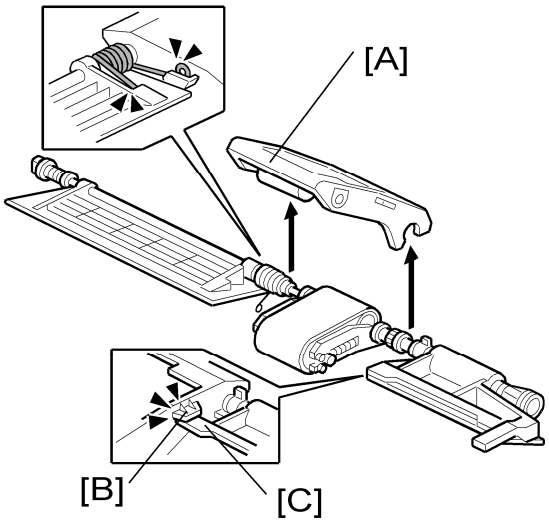
1. Open the left cover.
2. Original feed unit [A].

1.2.2 PICK-UP ROLLER



1. Open the left cover.
2. Original feed unit ("Original Feed Unit")
3. Pick-up roller [A] (x 1)

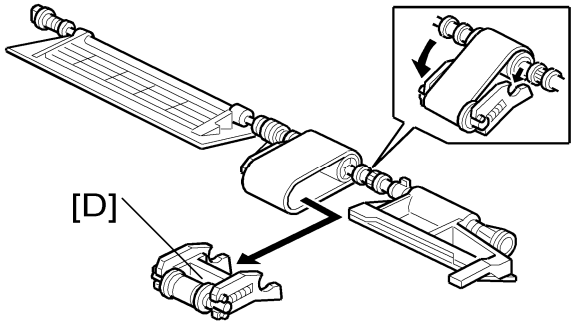
1.2.3 FEED BELT



1. Open the left cover.
2. Original feed unit (☛ "Original Feed Unit")
3. Feed belt cover [A] (spring x 1)

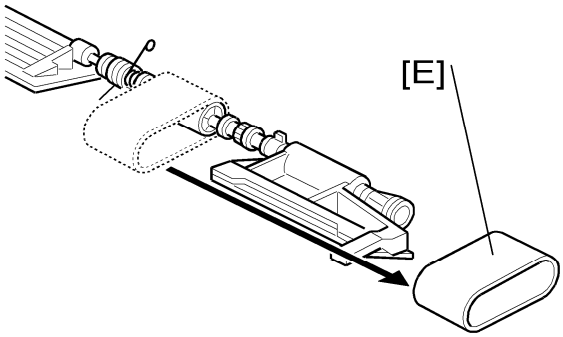
Note

- When reassembling the feed belt cover, make sure that the projection [B] of the feed belt cover is on the guide plate rear [C].



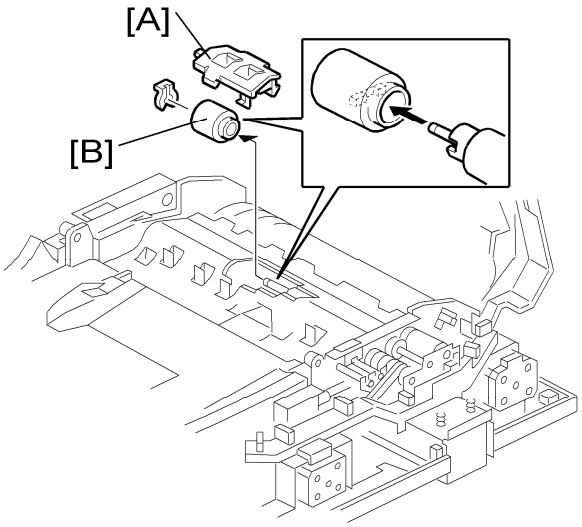
4. Belt tension unit [D]

Document Feed Components



5. Feed belt [E]

1.2.4 SEPARATION ROLLER



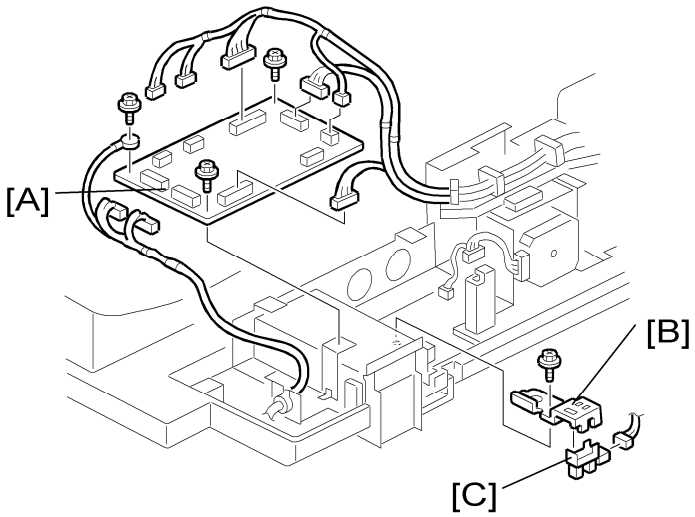
1. Open the left cover.

2. Separation roller cover [A].

3. Separation roller [B] (x 1)

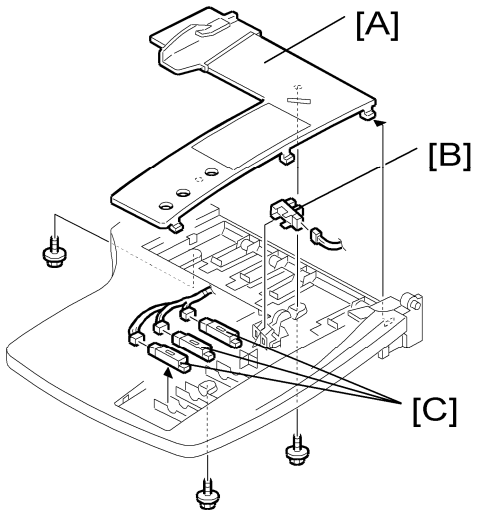
1.3 ELECTRICAL COMPONENTS

1.3.1 ARDF DRIVE BOARD AND DF POSITION SENSOR



1. Rear cover (see "Rear Cover")
2. ARDF drive board [A] (x 3, all s)
3. DF position sensor with bracket [B] (x 1, x 1)
4. DF position sensor [C] (hook x 2)

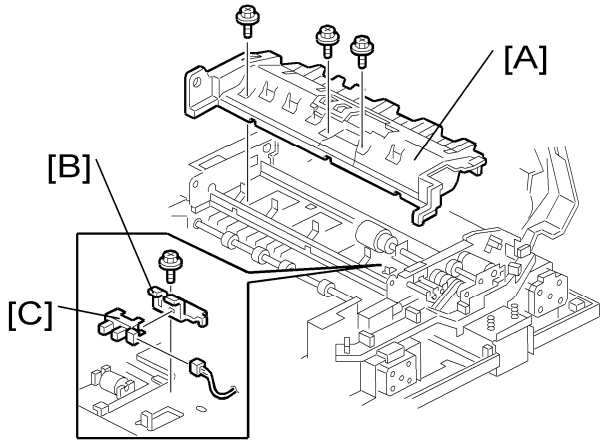
1.3.2 ORIGINAL LENGTH SENSORS AND TRAILING EDGE SENSOR



1. Original Tray (see "Front Cover and Original Tray")
2. Tray cover [A] (x 3)

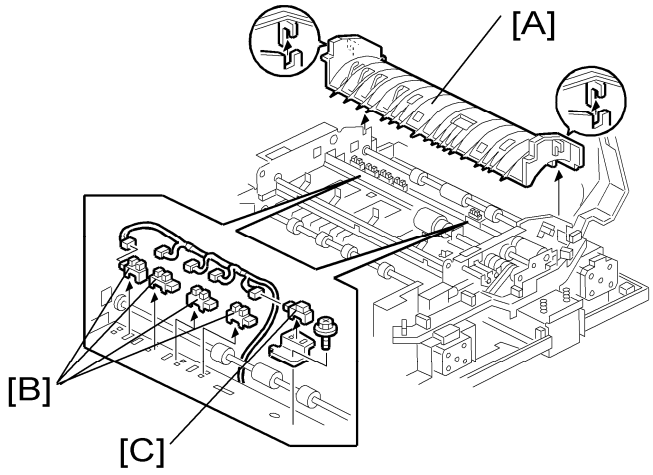
3. Original trailing edge sensor [B] (x 1)
4. Original length sensors [C] (x 1 each)

1.3.3 ORIGINAL SET SENSOR



1. Open the left cover.
2. Original feed unit (see the "Original Feed Unit")
3. Original Tray (see the "Original Tray")
4. Original feed-in guide plate [A] (x 3).
5. Original set sensor bracket [B] (x 1)
6. Original set sensor [C]

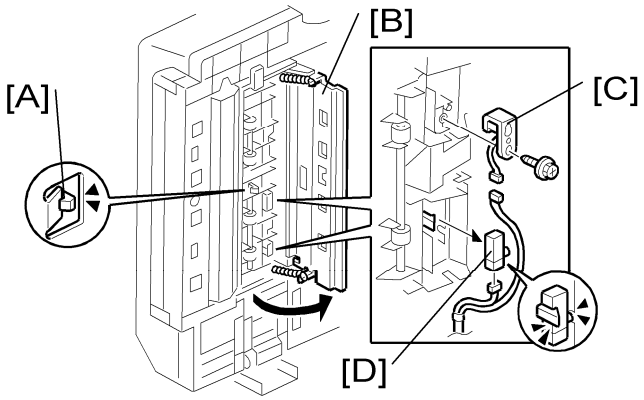
1.3.4 ORIGINAL SIZE SENSORS AND SKEW CORRECTION SENSOR



1. Original feed-in guide plate (see "Original Set Sensor")
2. Original turn guide plate [A] (hook x 1).
3. Original width sensors [B] (x 1 each) and skew correction sensor [C] with **bracket**

(x 1, x 1)

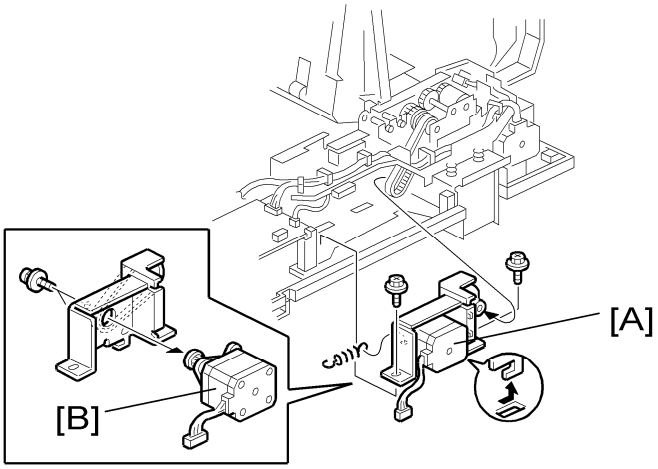
1.3.5 STAMP SOLENOID AND ORIGINAL EXIT SENSOR



1. Open the ARDF.
2. Remove the left edge of the platen sheet.
3. Release the hook [A].
4. Open the original exit guide plate [B]
5. Stamp solenoid [C] (x 1, x 1)
6. Original exit sensor [D] (x 1, hook x 1)

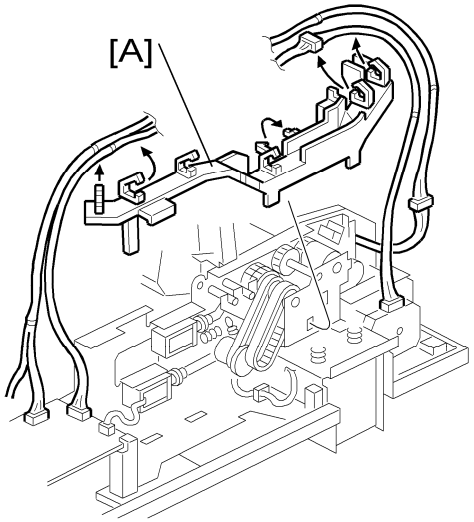
1.4 ORIGINAL FEED DRIVE

1.4.1 FEED MOTOR

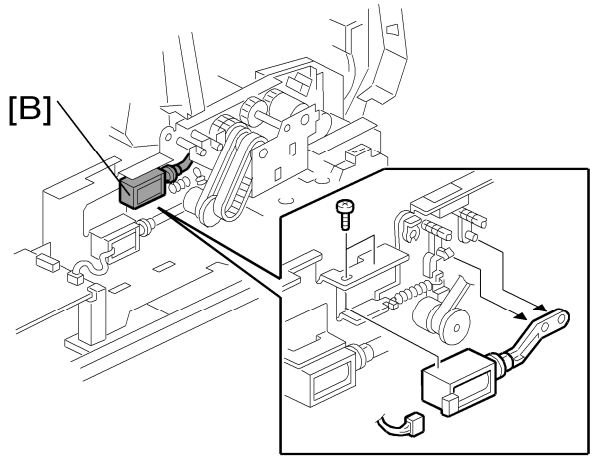


1. Rear cover (see "Rear Cover")
2. Feed motor with bracket [A] (x 2, x 1, spring x 1)
3. Feed motor [B] (x 2)

1.4.2 PICK-UP SOLENOID

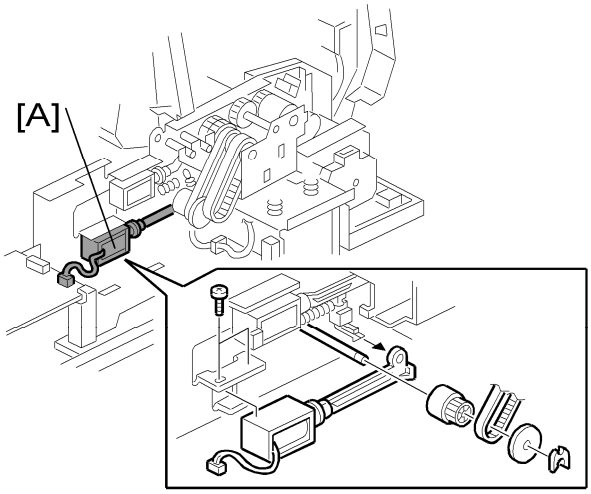


1. Rear cover (see "Rear Cover")
2. Harness guide [A] (all s)



3. Pick-up solenoid [B] (x 2, x 1)

1.4.3 INVERTER SOLENOID

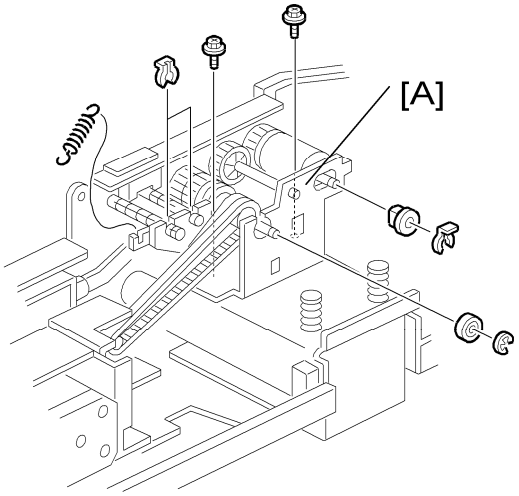


1. Rear cover (see "Rear Cover")

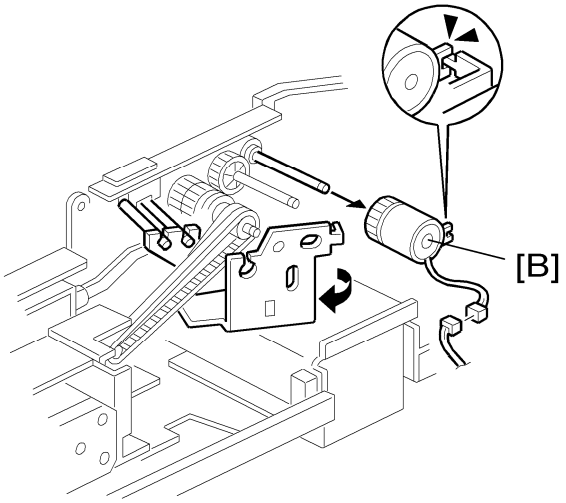
2. Harness guide (see "Pick-up Solenoid")

3. Inverter solenoid [A] (x 2, x 1, x 1, gear x 1, gear cover x 1)

1.4.4 FEED CLUTCH

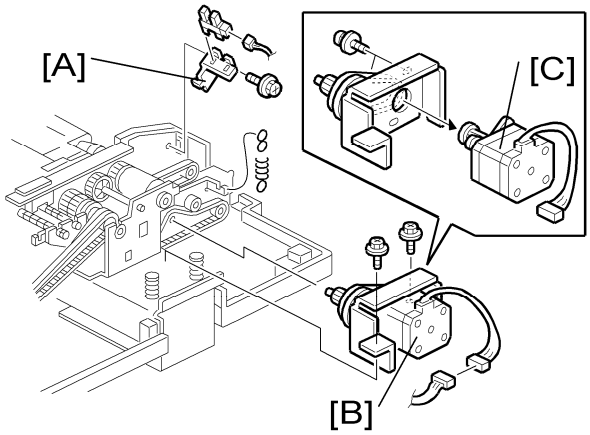


1. Rear cover (see "Rear Cover")
2. Harness guide (see "Pick-up Solenoid")
3. Bracket [A] (x 2, x 3, x 1, bushing x 1, spring x 1)



4. Slide the bracket.
5. Feed clutch [B] (x 1)

1.4.5 TRANSPORT MOTOR

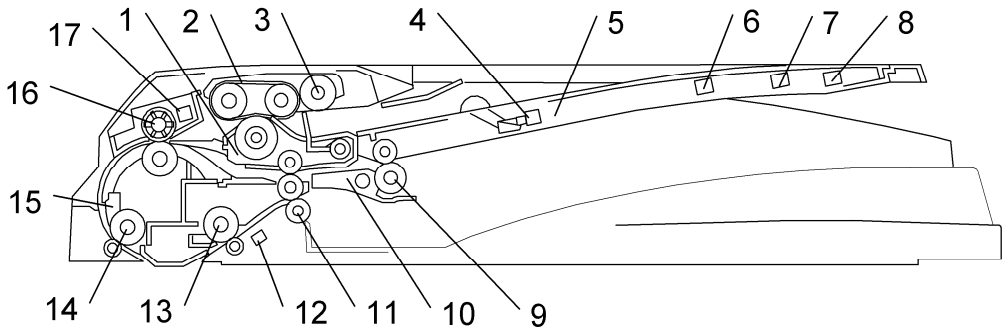


1. Rear cover (see "Rear Cover")
2. Harness guide (see "Pick-up Solenoid")
3. Left cover sensor with bracket [A] (x 1, x 1)
4. Transport motor with bracket [B] (x 2, x 1, spring x 1)
5. Transport motor [C] (x 2)

2. DETAILED DESCRIPTIONS

2.1 COMPONENT LAYOUT

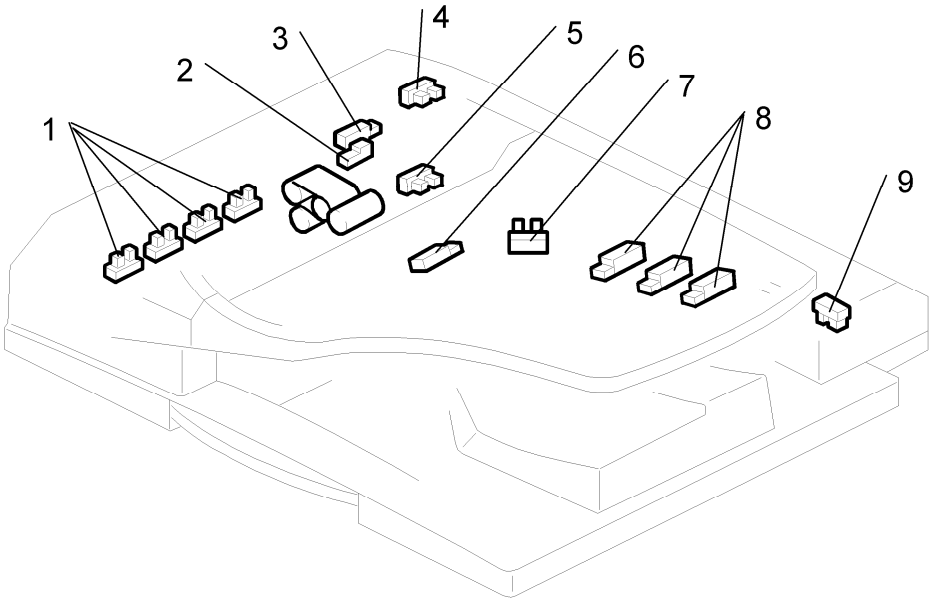
2.1.1 MECHANICAL COMPONENT LAYOUT



1. Separation Roller 2. Paper Feed Belt 3. Pick-up Roller 4. Original Trailing Edge Sensor 5. Original Tray 6. Original Length Sensor 1 7. Original Length Sensor 2 8. Original Length Sensor 3 9. Inverter Roller	10. Junction Gate 11. Exit Roller 12. Original Exit Sensor 13. Transport Roller 14. Registration Roller 15. Registration Sensor 16. Skew Correction Roller 17. Skew Correction Sensor

2.1.2 ELECTRICAL COMPONENT LAYOUT

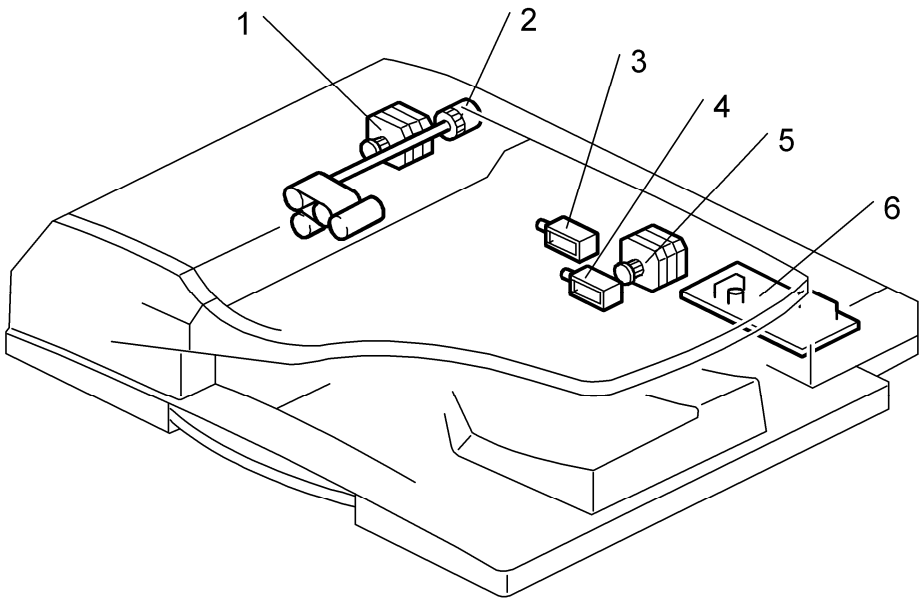
Sensors



1. Original Width Sensor
2. Skew Correction Sensor
3. Registration Sensor
4. Cover Sensor
5. Original Set Sensor
6. Exit Sensor
7. Original Sensor
8. Original Length Sensor
9. DF Position Sensor

Component Layout

Drive Components



1. Transport Motor
2. Feed Clutch
3. Pick-up Solenoid
4. Inverter Solenoid
5. Feed Motor
6. Main Board

Electrical Component Descriptions

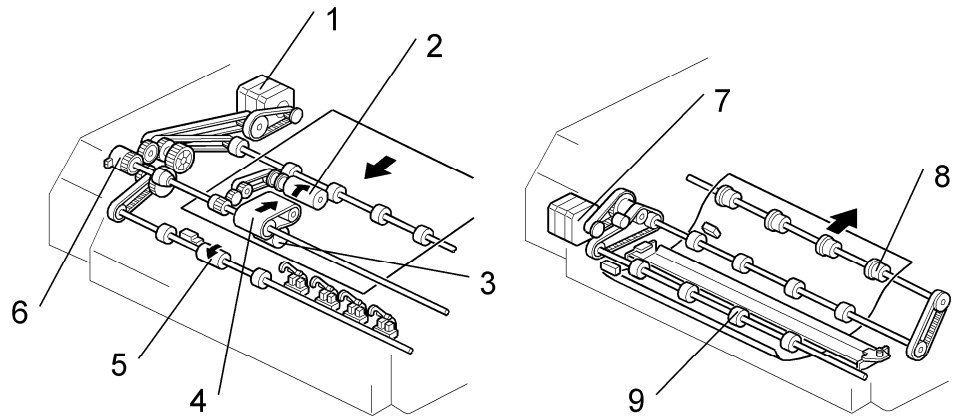
Symbol	Name	Function	Index No.
Motors			
M1	Feed	Drives the feed belt, separation, pick-up, and reverse table rollers.	5
M2	Transport	Drives the transport and exit rollers	1
Sensors			
S9	DF Position	Detects whether the DF is lifted or not.	9
S5	Skew Correction	Detects the leading edge of the original to turn off the DF feed and transport motors.	2
S8	Registration	Detects the original exposure timing, and checks for original misfeeds.	3
S10	Cover Sensor	Detects whether the feed-in cover is opened or not.	4

S1	Original Width Sensor - S	Detects the original width - S.	1
S2	Original Width Sensor - M	Detects the original width - M.	1
S3	Original Width Sensor - L	Detects the original width - L.	1
S4	Original Width Sensor - LL	Detects the original width - LL.	1
S14	Original Length - S	Detects the original length - S.	8
S13	Original Length - M	Detects the original length - M.	8
S12	Original Length - L	Detects the original length - L.	8
S7	Original Set	Detects if an original is on the feed table.	5
S6	Original Exit	Detects the leading edge of the original to turn on the junction gate solenoid and checks for original misfeeds. Detects the trailing edge of the original to turn off the transport and feed motor and junction gate solenoid. In single-sided mode, used to detect original misfeeds.	6
S11	Original	Detects the trailing edge of the last original to stop copy paper feed and to turn off the transport motor, and checks for original misfeeds.	7
Solenoids			
SOL1	Pick-up	Controls the up-down movement of the original table.	3
SOL2	Stamp	Energizes the stamper to mark the original.	
SOL3	Junction Gate	Opens and closes the junction gate.	4
Magnetic Clutches			
MC1	Feed	Drives the feed belt, separation, pick-up, and skew correction rollers	5

Component Layout

PCBs			
PCB1	Main	Interfaces the sensor signals with the copier, and transfers the magnetic clutch, solenoid and motor drive signals from the copier.	6

2.1.3 DRIVE LAYOUT

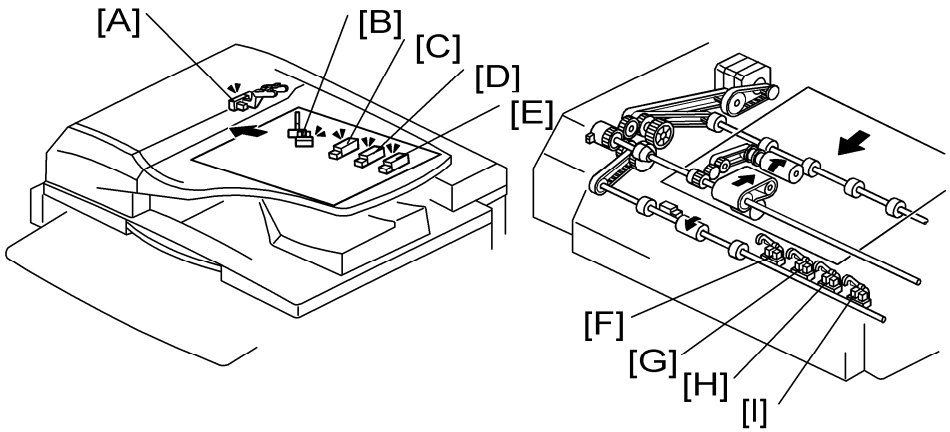


1. Feed Motor
2. Pick-up Roller
3. Separation Roller
4. Feed Belt
5. Skew Correction Roller
6. Feed Clutch
7. Transport Motor
8. Exit Roller
9. Registration Roller

- Feed Motor: Drives the feed belt, separation, pick-up, and skew correction rollers.
- Transport Motor: Drives the registration and exit rollers.

2.2 BASIC OPERATION

2.2.1 ORIGINAL SET AND SIZE DETECTION



The original set sensor [A] detects if the original is set or not. The original sensor [B] detects if the original is on the original tray or not (this lets the machine know as early as possible, whether there is another original on the tray).

The original size detection mechanism consists of the four original width sensors ([F]: Width Sensor S, [G]: Width Sensor M, [H] Width Sensor L, [I]: Width Sensor LL) and three original length sensors ([C]: Length Sensor S, [D]: Length Sensor M, [E]: Length Sensor L). Based on the combined output of the length sensors and the width sensors, the machine can detect the size of the original. This integrated detection mechanism is detailed in the table below.

Size	Width Sensor				Length Sensor			Area	
	S	M	L	LL	S	M	L	LT	A/B
A3/SEF (297 x 420)	ON	ON	ON	ON	ON	ON	ON	O	O
B4/SEF (257 x 364)	ON	ON	-	-	ON	ON	ON	-	O
A4/SEF (210 x 297)	ON	-	-	-	ON	ON	-	O	O
A4/LEF (297 x 210)	ON	ON	ON	ON	-	-	-	O	O
B5/SEF (182 x 257)	-	-	-	-	ON	-	-	-	O
B5/LEF (257 x 182)	ON	ON	-	-	-	-	-	-	O
A5/SEF (148 x 210)	-	-	-	-	-	-	-	-	O
A5/LEF (210 x 148)	ON	-	-	-	-	-	-	-	O
11" x 17"/SEF (DLT)	ON	ON	ON	-	ON	ON	ON	O[1]	O[5]

11" x 15"/SEF	ON	ON	ON	-	ON	ON	ON	●[1]	-
10" x 14"/SEF	ON	ON	-	-	ON	ON	ON	O	-
8.5" x 14"/SEF (LG)	ON	-	-	-	ON	ON	ON	O[2]	-
8.5" x 13"/SEF (F4)	ON	-	-	-	ON	ON	ON	●[2]	O
8.25" x 13"/SEF	ON				ON	ON	ON	-	-
8" x 13"/SEF (F)	ON	-	-	-	ON	ON	ON	-	-
8.5" x 11"/SEF (LT)	ON	-	-	-	ON	-	-	O[3]	O[6]
8.5" x 11"/LEF (LT)	ON	ON	ON	-	-	-	-	O[4]	O[7]
7.25" x 10.5"/SEF (US EXE)	ON	-	-	-	ON	-	-	O	-
10.5" x 7.25"/SEF (US EXE)	ON	ON	ON	-	-	-	-	●[4]	-
10" x 8"/SEF	ON	-	-	-	ON	-	-	●[3]	-
5.5" x 8.5"/SEF (HLT)	-	-	-	-	-	-	-	O	-
5.5" x 8.5"/LEF (HLT)	ON	-	-	-	-	-	-	O	-
267 mm x 390 mm	ON	ON	ON	-	ON	ON	ON	-	●[5]
195 mm x 267 mm	ON	-	-	-	ON	-	-	-	●[6]
267 mm x 195 mm	ON	ON	ON	-	-	-	-	-	●[7]

Symbol

O: Yes (Default), ●: Yes (Can select this with SP mode), ON: Paper present, LT: North America, A/B: Europe, Asia

Note

- For "O/●" mark, which has superscripted number, it is possible to change the original detection size with SP6-016. For example, instead of LT (O[3]), the machine can be set up to detect 10” x 8” (●[3]).
- The F size can be selected with SP5-126. The default is 8.5" x 13"
- The machine cannot detect more than one size of original in the same job.

2.2.2 MIXED ORIGINAL SIZE MODE

This section explains what happens when the user selects mixed original size mode. Because this ARDF is a sheet-through document feeder, the method for original document width detection is the same as when the originals are the same size, but the document length detection method is different. Therefore, the scanning speed is slightly slower.

Document length detection

From when the skew correction sensor switches on until it switches off, the CPU counts the transport motor pulses. The number of pulses determines the length of the original.

Feed-in cycle

When the original size for the copy modes listed below cannot be determined, the image cannot be correctly scaled (reduced or enlarged) or processed until the original's length has been accurately detected. The length must be determined before the image is scanned.

Auto Reduce/Enlarge
Centering
Erase Center/Border
Booklet
Image Repeat

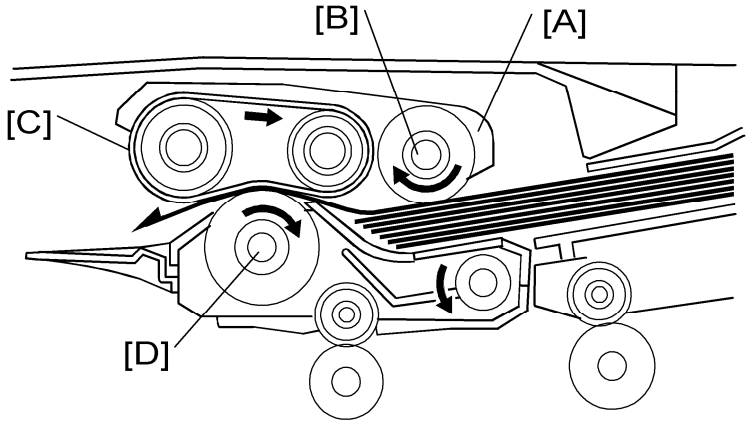
The originals follow this path:

1. Length detection → Scanning glass → Inverter table
2. Inverter table → Scanning glass → Inverter table (restores the original order)
3. Inverter table → Scanning glass (image scanned) → Exit tray

Normal feed-in

In a copy mode other than those listed above, when the reduction/enlargement ratio has been determined, the originals are scanned normally. In order to store the scanned images, a large area of memory (the detected original width x 432 mm length) is prepared. Next, only the portion of the image up to the detected original length is read from memory and printed.

2.2.3 PICK-UP AND SEPARATION



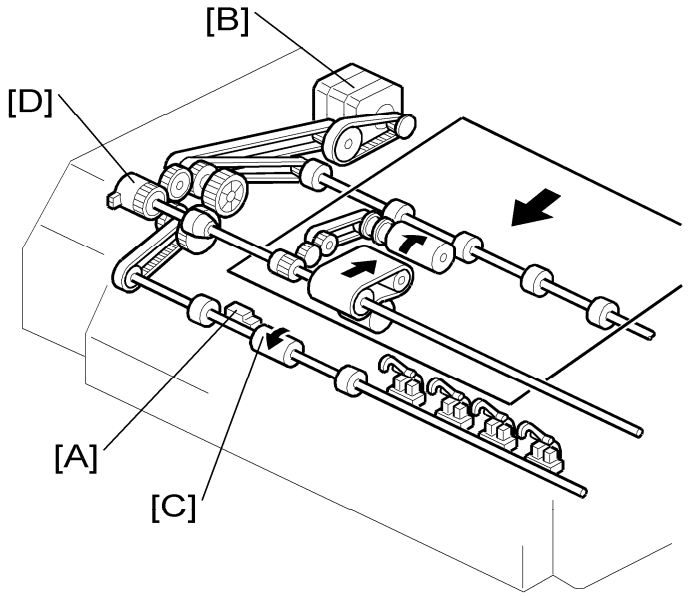
The original is set with the image facing up. The original pushes actuator and the original set sensor is activated.

After pressing the start button, the feed clutch is activated and the original feed unit [A] moves down. At the same time, the pick-up solenoid is activated and the original table lifts until the original comes in contact with the pick-up roller [B]. The pick-up roller then feeds the top sheet of paper.

After being fed from feed belt [C], the topmost sheet is separated from the stack by the separation roller [D] and sent to the skew correction roller.

The mechanism is an FRR system, consisting of the original feed belt [C] and separation roller [D].

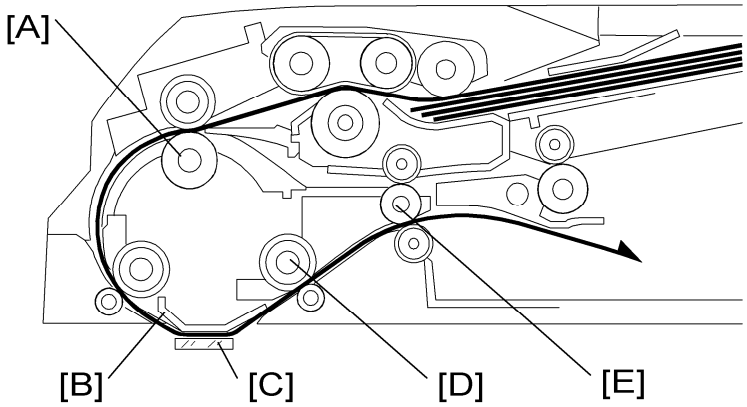
2.2.4 SKEW CORRECTION



When an original is fed into the feeder, the feed motor [B] rotates forwards. At this time, the feed belt turns but the skew correction roller [C] does not. Because of this, when the leading edge of the paper gets to the skew correction roller, skew in the original is removed.
A short time after the leading edge of the original turns on the skew correction sensor [A], the feed motor [B] turns off for 40 ms and rotates in reverse. At this time, the skew correction roller [C] and the feed belt both turn, and original feed continues.
The original is fed by the skew correction roller after the feed clutch [D] has turned off.

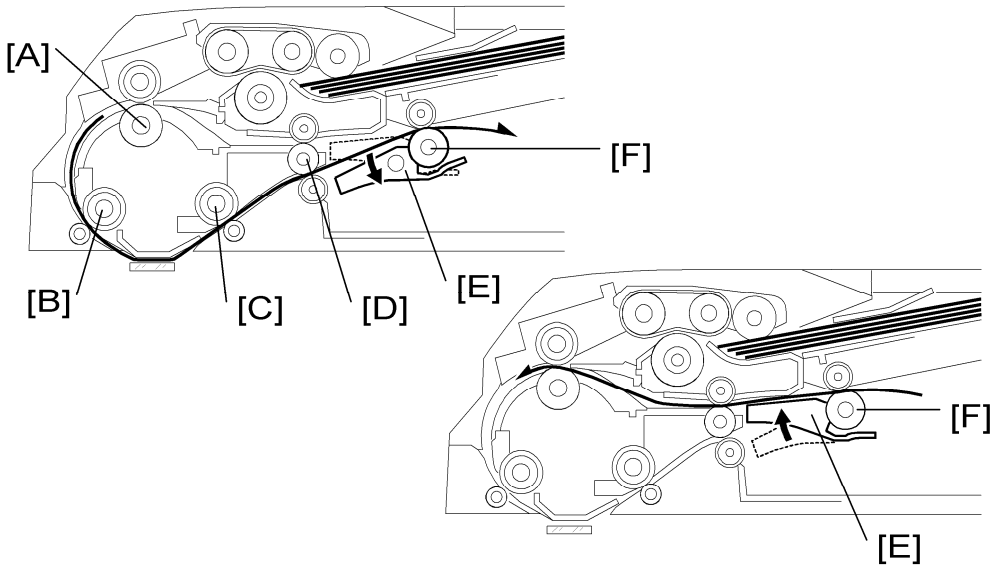
2.2.5 ORIGINAL TRANSPORT AND EXIT

Single-Sided Originals



The feed motor feeds the separated original to the skew correction roller [A] at maximum speed. After skew correction, the feed and transport motors feed the original through the scanning area at a lower speed (the scanning area contains the original exposure guide [B] and DF exposure glass [C]). After scanning, the original is fed out by the transport roller [D] and exit roller [E].

Double-Sided Originals

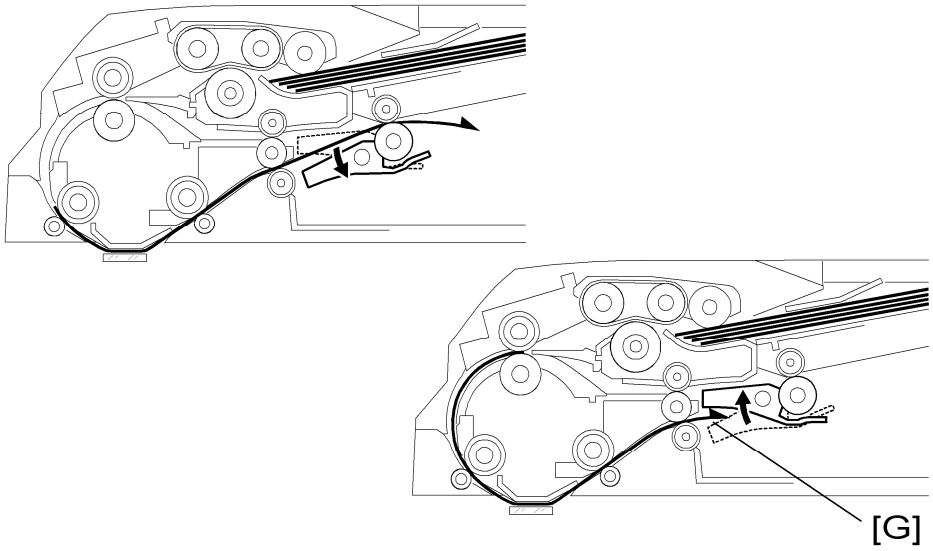


After skew correction, the feed and transport motors drive the skew correction roller [A], registration roller [B], transport roller [C] and the exit roller [D]. The front side of the original is then scanned.

When the original exit sensor detects the leading edge of the original, the junction gate solenoid is activated and the junction gate [E] opens. The original is then transported

towards the inverter table.

Soon after the trailing edge of the original passes the exit sensor, the junction gate solenoid switches off and the junction gate [E] is closed. When the original has been fed onto the inverter table, the feed motor switches on in reverse. The original is then fed by the inverter roller [F], and then by the skew correction roller [A] and registration roller [B] to the scanning area (where the reverse side will be scanned).



The original is then sent to the inverter table again to be turned over. This is done so that the duplex copies will be properly stacked front side down in the exit tray [G] in the correct order.

Original Sensor

During one-to-one copying, copy paper is fed to the skew correction roller in advance (while the original is still being scanned), to increase the copy speed. The original sensor monitors the stack of originals in the feeder, and detects when the trailing edge of the last page has been fed in. The main CPU then stops the copier from feeding an unwanted extra sheet of copy paper.

2.2.6 CONDITIONS FOR JAM DETECTION

Jam Mode	Detection Timing
Initial	When turning on the machine, the skew correction sensor, registration sensor or exit sensor detects an original.
	When the cover is closed or DF is down, the skew correction sensor, registration sensor or exit sensor detects an original.
	When the cover is opened or DF is lifted up, the skew correction sensor, registration sensor or exit sensor detects an original.

Sensor stays on too long	The skew correction sensor does not turn off even if the original was fed by the maximum length of the original + 150 mm after the skew correction sensor turned on.
	The registration sensor does not turn off even if the original was fed by its length x 1.5 after the registration sensor turned on.
	The exit sensor does not turn off even if the original was fed by its length x 1.5 after the exit sensor turned on.
Sensor does not come on	The skew correction sensor does not turn on even if the original was fed by transport path length x 1.5.
	The registration sensor does not turn on even if the original was fed by transport path length x 1.5 after the skew correction sensor turned on.
	The exit sensor does not turn on even the original was fed by transport path length x 1.5 after the skew correction sensor turned on.

3. SERVICE TABLES

3.1 DIP SWITCHES

DIP-SW				Function
1	2	3	4	
0	0	0	0	Normal operating mode (Default)
0	0	0	1	Free run: With original: One-sided mode: 100% speed
0	0	1	0	Free run: With original: Two-sided mode: 100% speed
0	0	1	1	Free run: No original: One-sided mode: 100% speed
0	1	0	0	Free run: No original: Two-sided mode: 100% speed
0	1	0	1	Free run: With original: One-sided mode: 32% speed
0	1	1	0	Free run: With original: Two-sided mode: 32% speed
0	1	1	1	Free run: With original: One-sided mode: 70% speed
1	0	0	0	Free run: With original: Two-sided mode: 70% speed
1	0	0	1	Free run: With original: One-sided mode: 200% speed
1	0	1	0	Free run: With original: Two-sided mode: 200% speed
1	0	1	1	Transport Motor On
1	1	0	0	Feed Motor On
1	1	0	1	Transport Motor On with random mode
1	1	1	0	Feed Motor On with random mode
1	1	1	1	

1-BIN TRAY BN3030

D367

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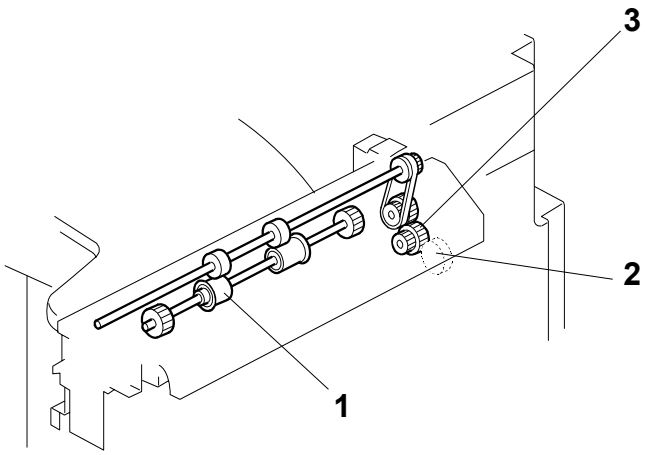
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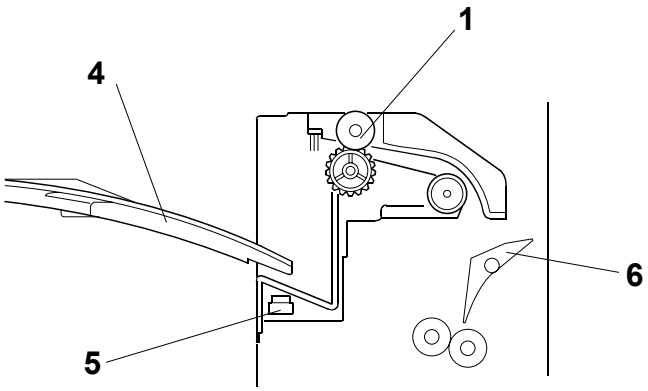
1. OVERALL INFORMATION

1.1 SPECIFICATIONS

Paper Size:	Standard Size: A5 Lengthwise to A3 HLT Lengthwise to DLT Non-standard Size: Paper Width: 90 ~ 297 mm Paper Length: 148 ~ 432 mm
Paper Weight:	60 ~ 105 g/m², 16 ~ 28 lbs.
Tray Capacity:	125 sheets (80 g/m², 20 lbs.)
Power Source:	5 VDC, 24 VDC (from the copier)
Power Consumption:	17 W
Weight:	1.1 kg
Size (W x D x H):	530 mm x 410 mm x 120 mm

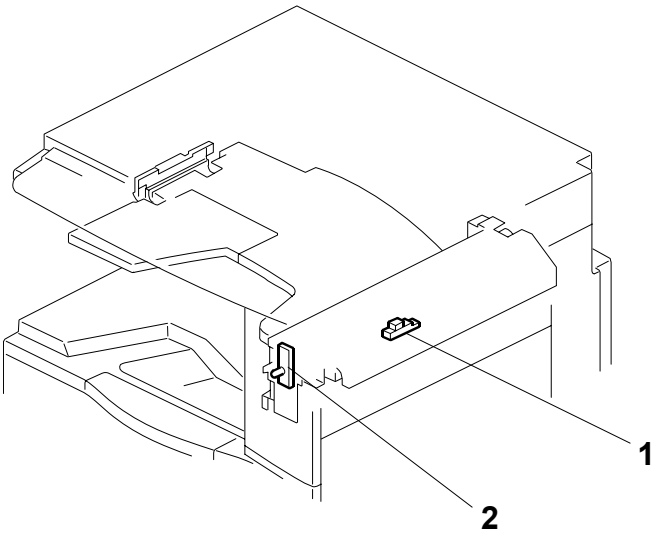
1.2 MECHANICAL COMPONENT LAYOUT





1. Exit Rollers
2. Junction Gate Gear
3. Drive Gear
4. Paper Tray
5. Paper Sensor
6. Junction Gate (Interchange Unit)

1.3 ELECTRICAL COMPONENT LAYOUT



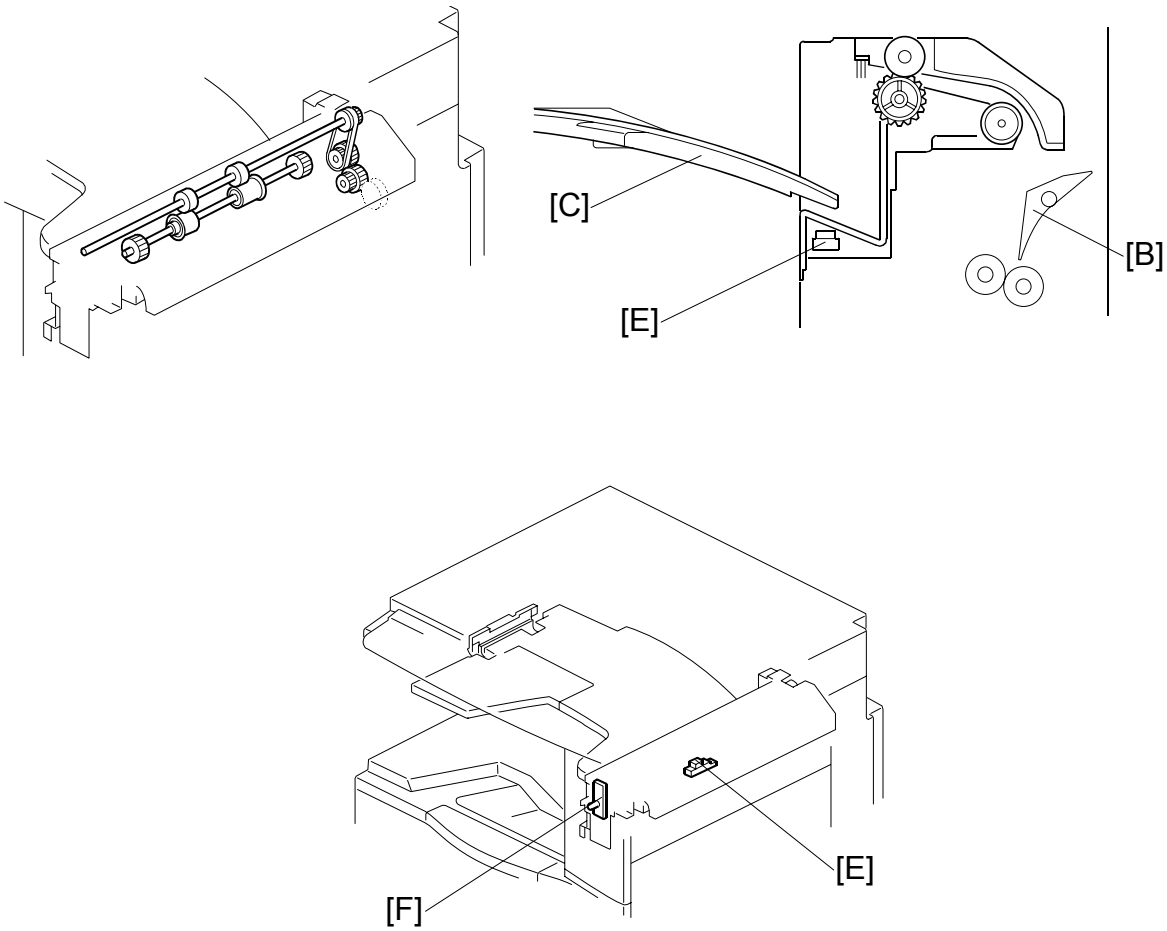
1. Paper Sensor
2. 1-bin Sorter Exit Tray LED
   (located in the copier)

1.4 ELECTRICAL COMPONENT DESCRIPTION

Symbol	Name	Function	Index No.
Sensors			
S1	Paper	Detects when there is paper on the tray.	1
LEDs			
LED1	1 Bin Exit Tray	Indicates when there is paper in the tray. This sensor is located in the copier.	2

2. DETAILED SECTION DESCRIPTIONS

2.1 BASIC OPERATION



At the appropriate time after the leading edge of the first sheet of copy paper reaches the copier's registration roller, the junction gate solenoid [B] in the interchange unit turns on to switch the junction gate to direct the paper to the tray [C].

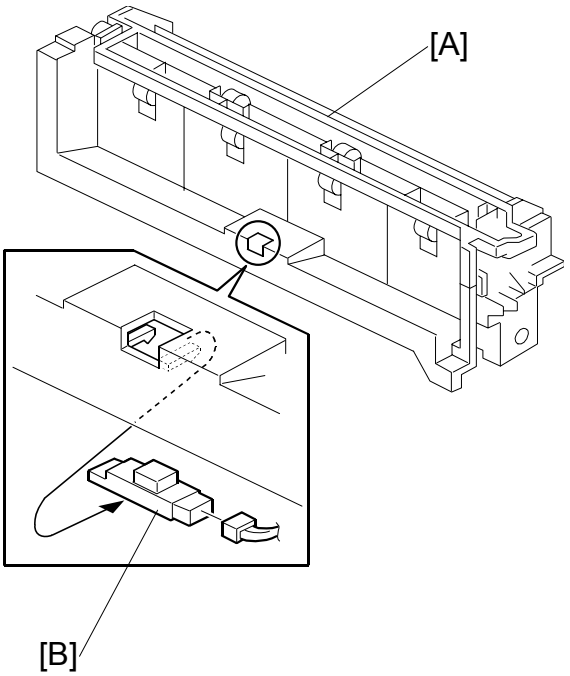
The junction gate solenoid turns off at the appropriate time after the paper is directed to the tray. The main motor in the copier stops after the final sheet passes through the paper sensor [E].

The paper sensor [E] turns on when there is paper in the tray, and the paper indicator [F] turns on.

The tray can be opened for easier jam removal by swinging the tray to the left.

3. REPLACEMENT AND ADJUSTMENT

3.1 PAPER SENSOR REMOVAL



1. Remove the 1-bin tray.
2. Remove the 1-bin sorter unit [A].
3. Remove the paper sensor [B] (1 connector).

BRIDGE UNIT BU3020

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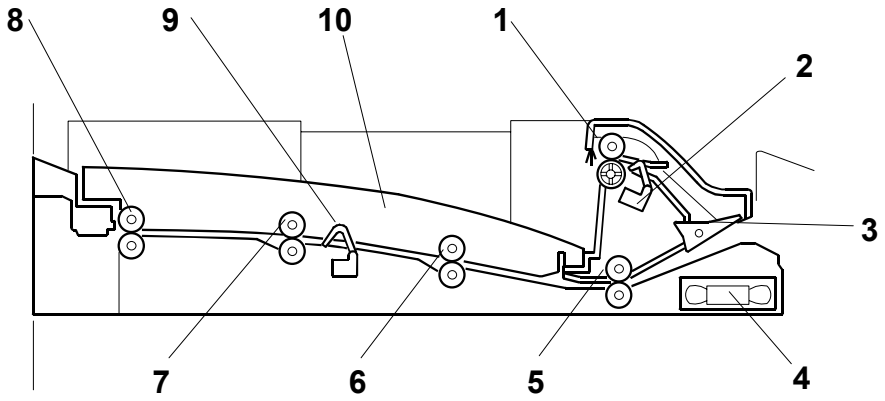
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1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

Paper Size:	Standard sizes A6 lengthwise to A3 HLT to DLT Non-standard sizes Width: 100 to 305 mm Length: 148 to 432 mm
Paper Weight:	52 g/m^2 ~ 135 g/m^2, 16 lb ~ 42 lb
Power Source:	DC24 V, 5 V (from the copier/printer)
Dimensions (W x D x H):	413 x 435 x 126 mm
Weight	3.0 kg (6.6 lbs)

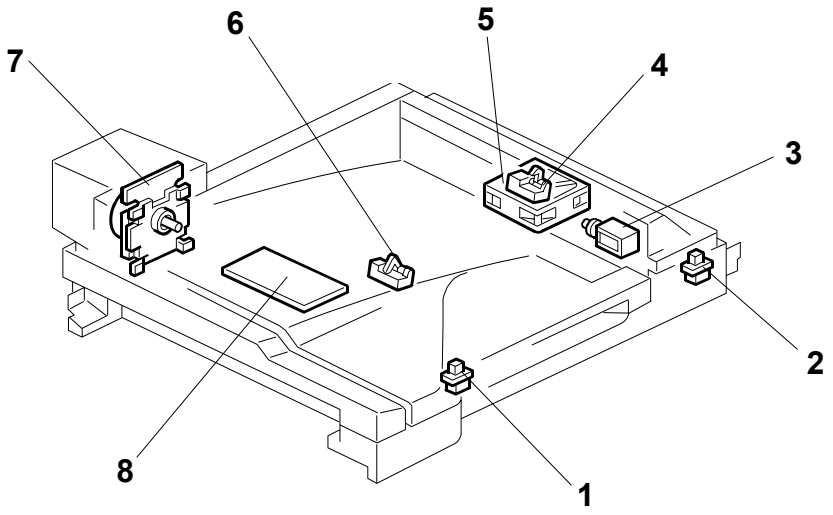
1.2 MECHANICAL COMPONENT LAYOUT



B417V500.WMF

1. Upper Exit Roller
2. Tray Exit Sensor
3. Junction Gate
4. Cooling Fan
5. 1st Transport Roller
6. 2nd Transport Roller
7. 3rd Transport Roller
8. Left Exit Roller
9. Relay Sensor
10. Paper Tray

1.3 ELECTRICAL COMPONENT LAYOUT

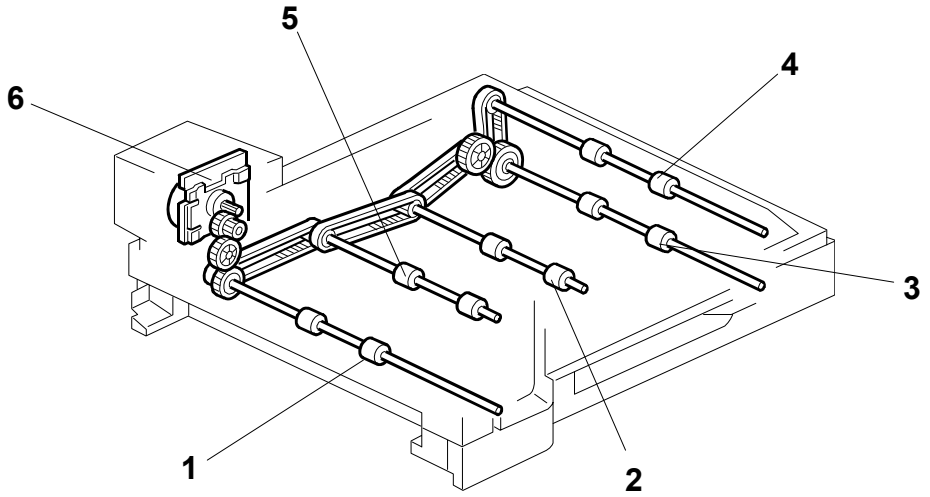


1. Left Guide Switch
2. Right Guide Switch
3. Junction Gate Solenoid
4. Tray Exit Sensor
5. Cooling Fan Motor
6. Relay Sensor
7. Bridge Unit Drive Motor
8. Bridge Unit Control Board

1.4 ELECTRICAL COMPONENT DESCRIPTION

Symbol	Name	Function	Index No.
Motors			
M1	Cooling Fan	Cools the transport unit.	5
M2	Bridge Unit Drive	Drives the bridge unit.	7
Sensors			
S1	Tray Exit	Checks for misfeeds.	4
S2	Relay	Checks for misfeeds.	6
Switches			
SW2	Right Guide	Detects when the right guide is opened.	2
SW3	Left Guide	Detects when the left guide is opened.	1
Solenoids			
SOL1	Junction Gate	Moves the junction gate to direct the paper to the upper tray (on top of the bridge unit) or to the finisher.	3
PCBs			
PCB1	Bridge Unit Control Board	Controls the bridge unit.	8

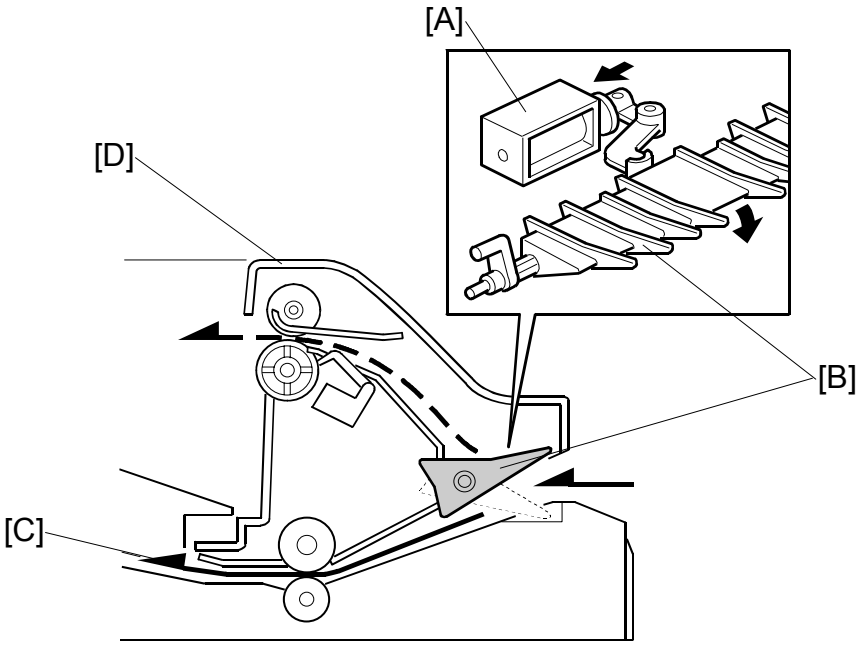
1.5 DRIVE LAYOUT



1. Left Exit Roller
2. 2nd Transport Roller
3. 1st Transport Roller
4. Upper Exit Roller
5. 3rd Transport Roller
6. Bridge Unit Drive Motor

2. DETAILED DESCRIPTION

2.1 JUNCTION GATE MECHANISM



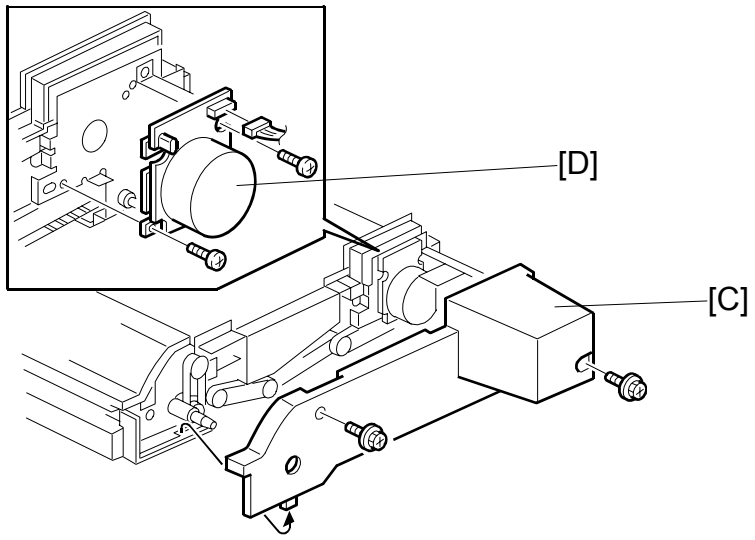
The junction gate [B] directs any paper reaching the bridge unit to either the upper tray (on top of the bridge unit) or to the finisher, depending on which has been selected.

If the junction gate solenoid [A] has been activated, the junction gate [B] points downward and directs the paper to the upper tray [D] (dotted line path in illustration). When the solenoid is off, the junction gate points upward and the paper is fed out to the finisher [C] by the transport and exit rollers (solid line).

3. REPLACEMENT AND ADJUSTMENT

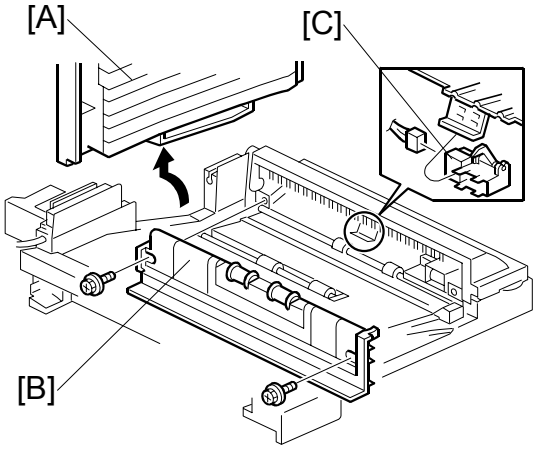
NOTE: When taking apart the bridge unit, first take the unit out of the copier.

3.1 BRIDGE UNIT DRIVE MOTOR REPLACEMENT



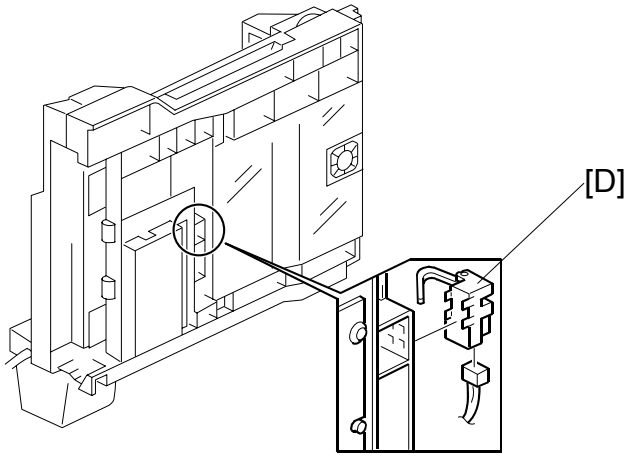
1. Remove the bridge unit from the copier. (See the Installation Procedure in the base copier manual.)
2. Remove the rear cover [C] (2 screws).
3. Remove the bridge unit drive motor [D] (2 screws, 1 connector).

3.2 TRAY EXIT SENSOR REPLACEMENT



1. Remove the bridge unit from the copier. (See the Installation Procedure in the base copier manual.)
2. Remove the rear cover (2 screws). See Bridge Unit Drive Motor Replacement.
3. Remove the paper tray [A].
4. Remove the exit guide [B] (2 screws).
5. Remove the tray exit sensor [C] (1 connector).

3.3 RELAY SENSOR REPLACEMENT



1. Remove the bridge unit from the copier. (See the Installation Procedure in the base copier manual.)
2. Stand the bridge unit up as shown in the illustration and remove the sensor [D].

DUPLEX UNIT AD3000

D369

DUPLEX UNIT AD3000 REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

DUPLEX UNIT AD3000 D369

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Read This First

Safety, Conventions, Trademarks

SAFETY

PREVENTION OF PHYSICAL INJURY

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

HEALTH SAFETY CONDITIONS

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

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

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

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.

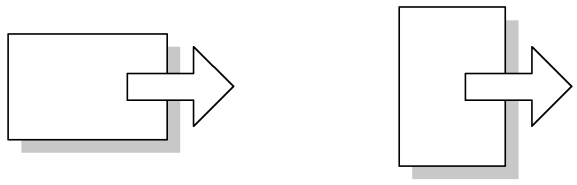
⚠CAUTION

- 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
CT	Core Tech Manual
	Screw
	Connector
	E-ring
	C-ring
	Clamp
FFC	Flexible Film Connector



Short Edge Feed (SEF) **Long Edge Feed (LEF)**

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

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.

TRADEMARKS

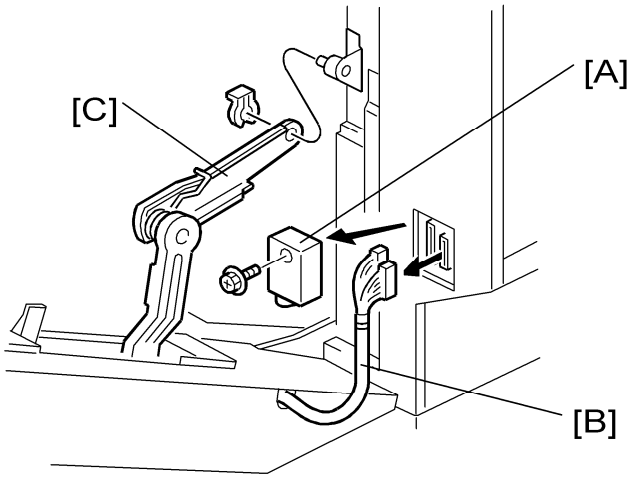
- Microsoft®, Windows®, and MS-DOS® are registered trademarks of Microsoft Corporation in the United States and /or other countries.
- PostScript® is a registered trademark of Adobe Systems, Incorporated.
- PCL® is a registered trademark of Hewlett-Packard Company.
- Ethernet® is a registered trademark of Xerox Corporation.
- PowerPC® is a registered trademark of International Business Machines Corporation.
- 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.

1. REPLACEMENT AND ADJUSTMENT

1.1 UNIT AND COVER

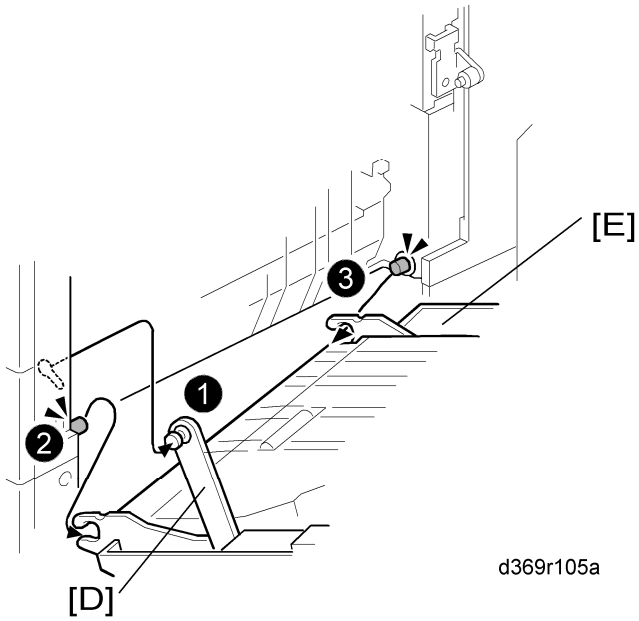
1.1.1 DUPLEX UNIT

1. Open the right door and right door of the optional paper tray unit or LCT..



d369i106b

2. Connector cover [A] (x 1).
3. Disconnect the cable [B].
4. Release the rear link [C] (x 1).

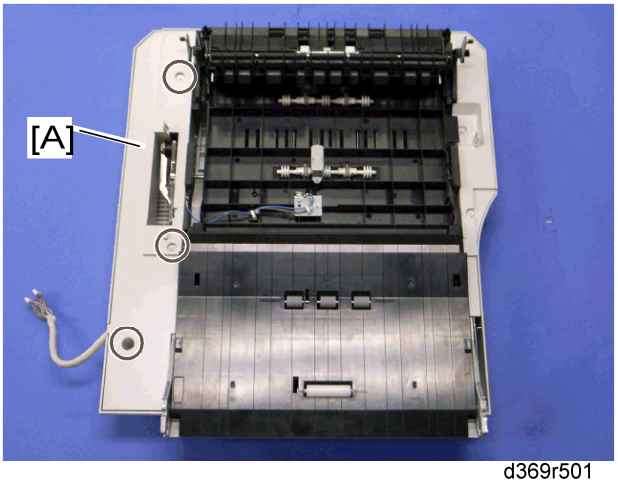


d369r105a

5. Release the front link [D] and remove the duplex unit [E].

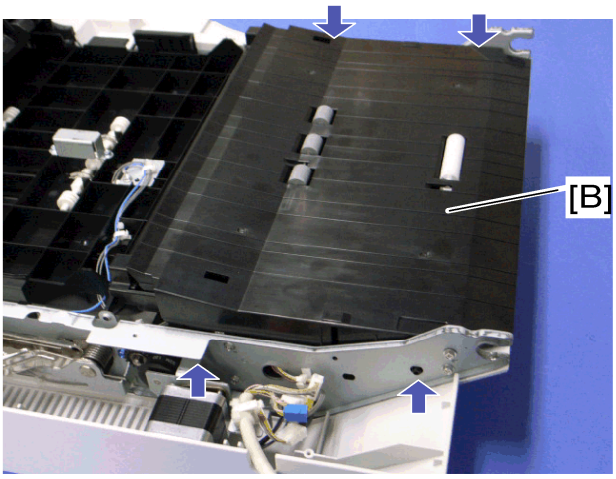
1.1.2 BY-PASS TRAY

1. Duplex unit (☛ Duplex Unit)



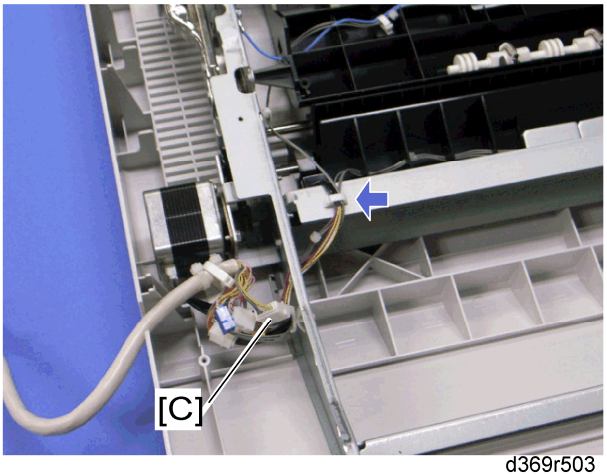
d369r501

2. Inner rear cover [A] (🔩 x 3)



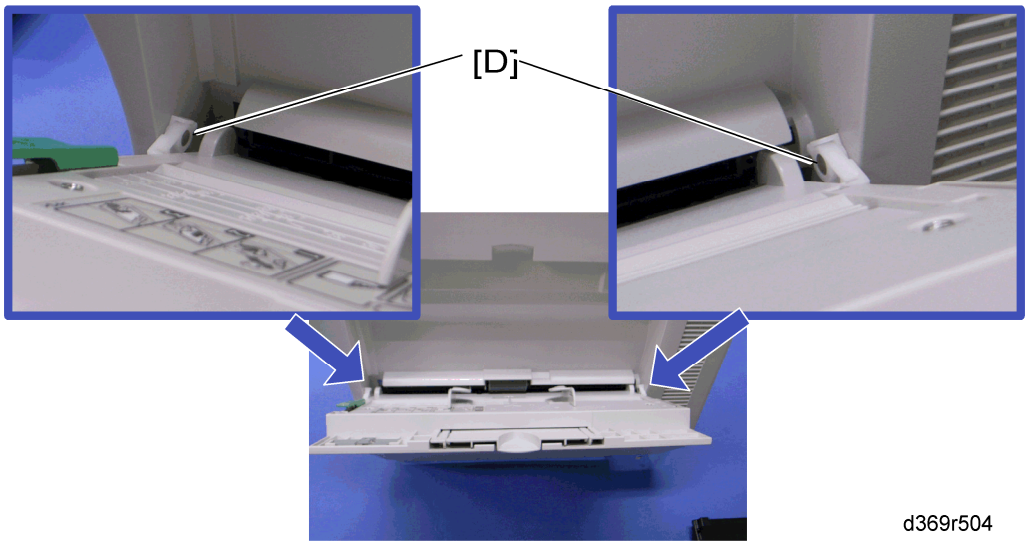
d369r502

3. Paper guide unit [B] (tabs x 4)



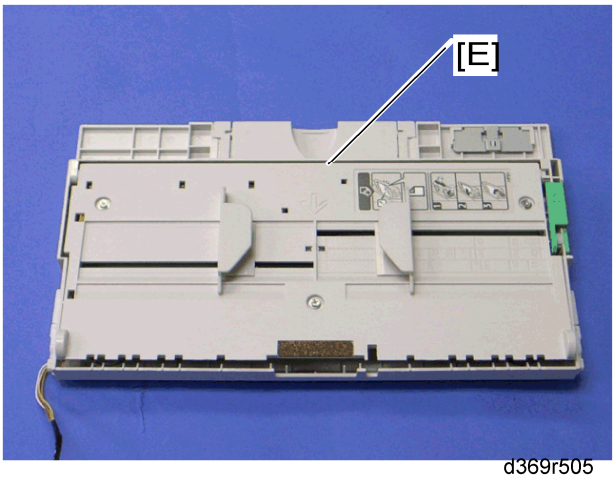
d369r503

4. Disconnect the by-pass tray cable [C] (x 1).



d369r504

5. Remove the front and rear pins [D] (x 1 each).

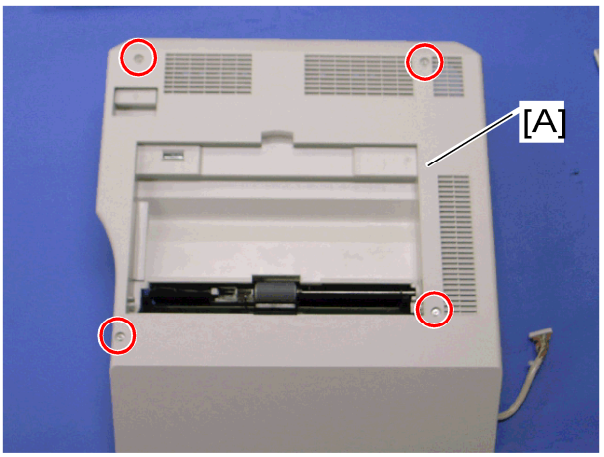


d369r505

6. By-pass tray [E]

1.1.3 RIGHT DOOR COVER

1. Duplex unit (☛ Duplex Unit)
2. By-pass tray (☛ By-pass Tray)



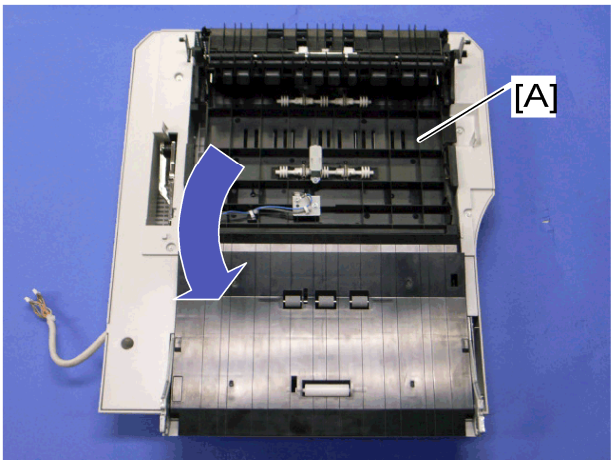
d369r506

3. Right door cover (🔩 x 4)

1.2 ELECTRICAL COMPONENT

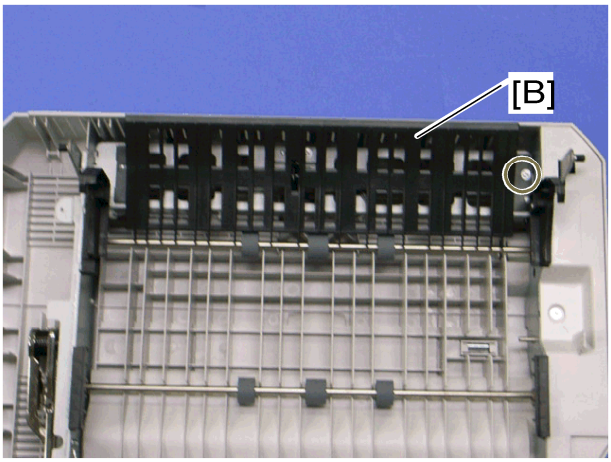
1.2.1 DUPLEX ENTRANCE SENSOR

1. Duplex unit (☛ Duplex Unit)



d369r509

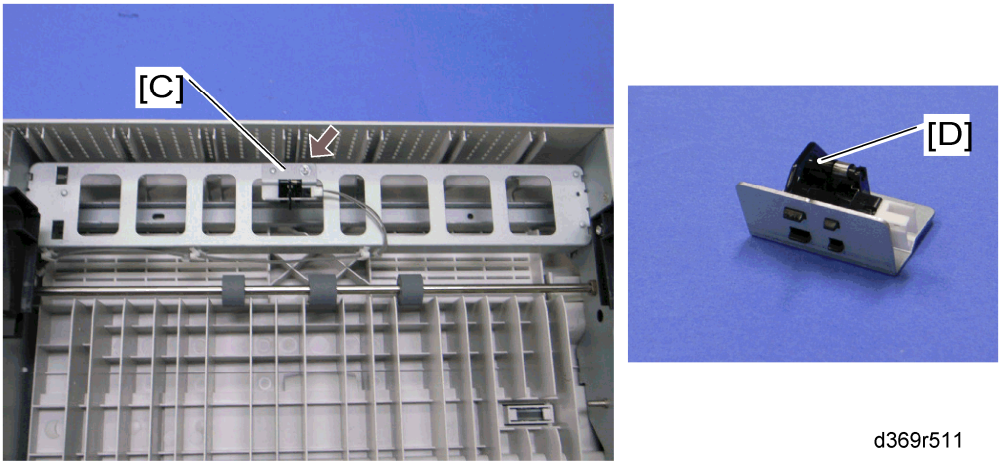
2. Open the duplex inner guide unit [A].



d369r510

3. Duplex outer guide [B] (☞ x 1)

Electrical Component

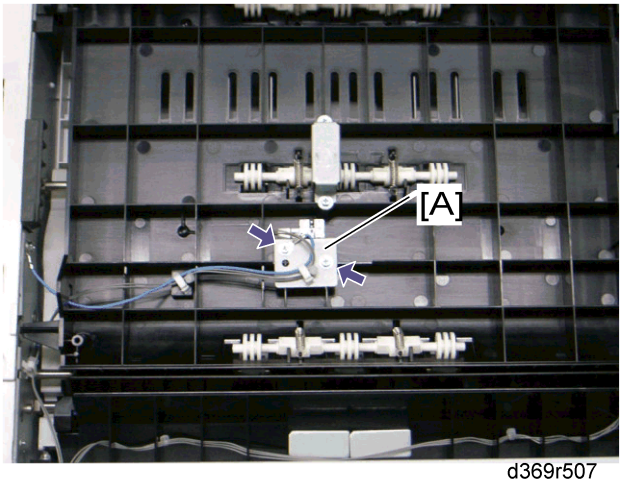


d369r511

4. Duplex entrance sensor bracket [C] (x 1, x 1)
5. Duplex entrance sensor [D] (hooks)

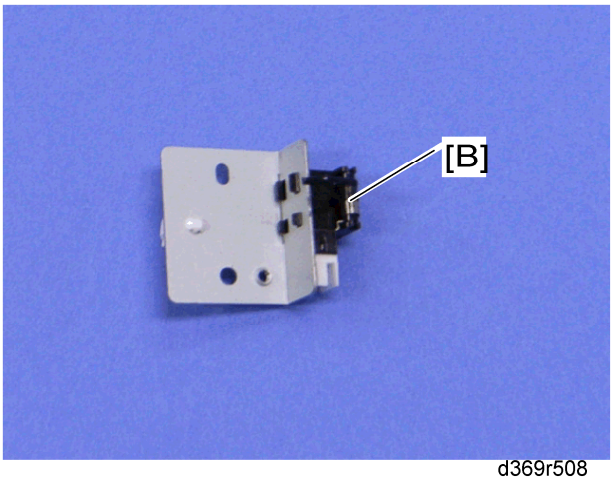
1.2.2 DUPLEX EXIT SENSOR

1. Duplex unit (☛ Duplex Unit)
2. Paper guide unit (☛ By-pass Tray)



d369r507

3. Duplex exit sensor bracket [A] (x 2)

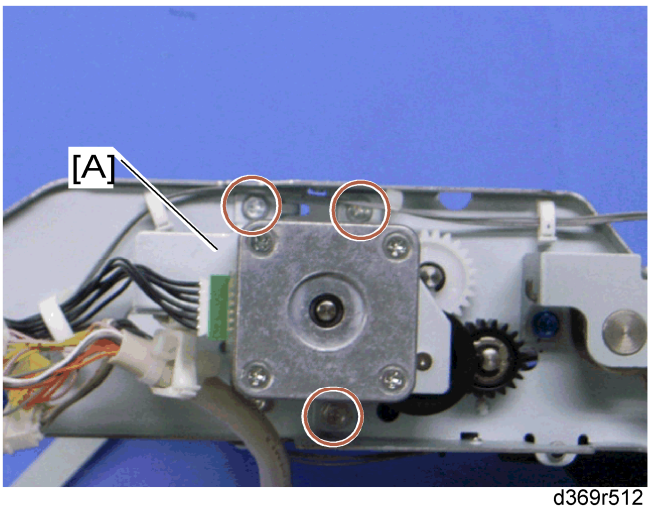


d369r508

4. Duplex exit sensor [B] (hooks)

1.2.3 DUPLEX TRANSPORT MOTOR

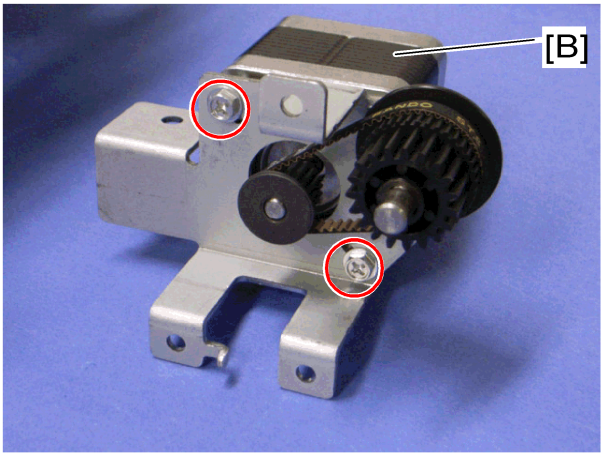
1. Duplex unit (☛ Duplex Unit)
2. Right door cover (☛ Right Door Cover)



d369r512

3. Duplex transport motor bracket [A] (x 3, x 1, x 1)

Electrical Component



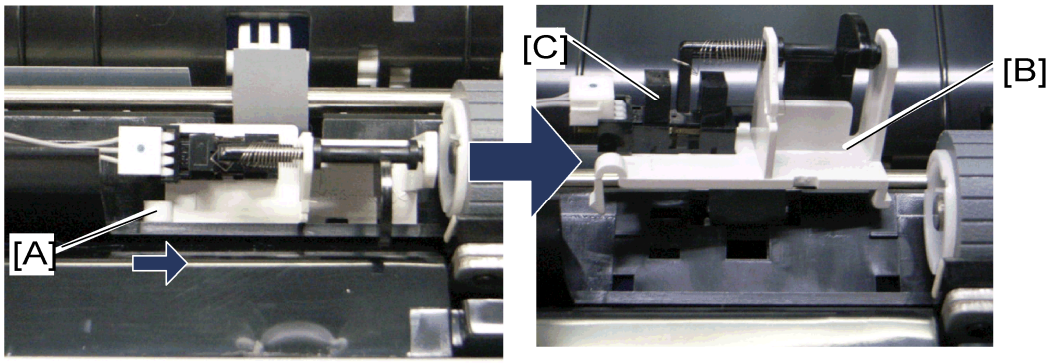
d369r513

4. Duplex transport motor [B] (🔩 x 2)

1.3 BY-PASS UNIT

1.3.1 PAPER END SENSOR (BYPASS)

1. Duplex unit (☛ Duplex Unit)
2. By-pass Tray (☛ By-pass Tray)
3. Right door cover (☛ Right Door Cover)

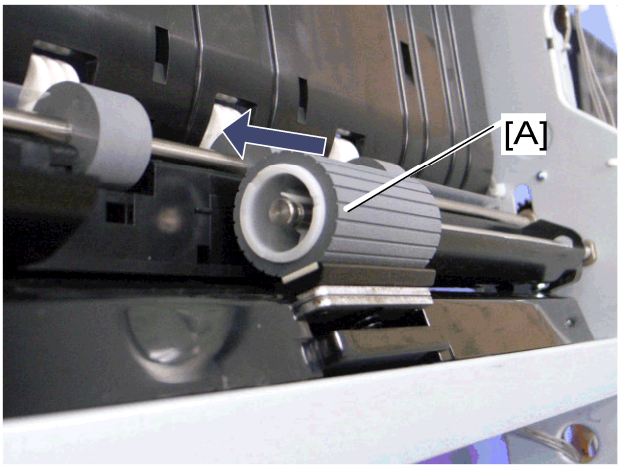


d369r514

4. Release the hook [A].
5. Sensor base [B] (☞ x 1)
6. Paper end sensor (bypass) [C] (hooks)

1.3.2 BY-PASS FEED ROLLER

1. Duplex unit (☛ Duplex Unit)
2. By-pass Tray (☛ By-pass Tray)
3. Right door cover (☛ Right Door Cover)
4. Sensor base (☛Paper End Sensor (Bypass))



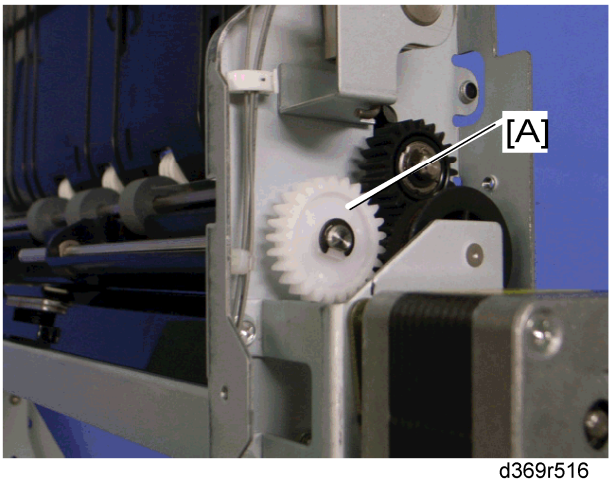
d369r515

By-pass Unit

5. By-pass feed roller [A] (hook)

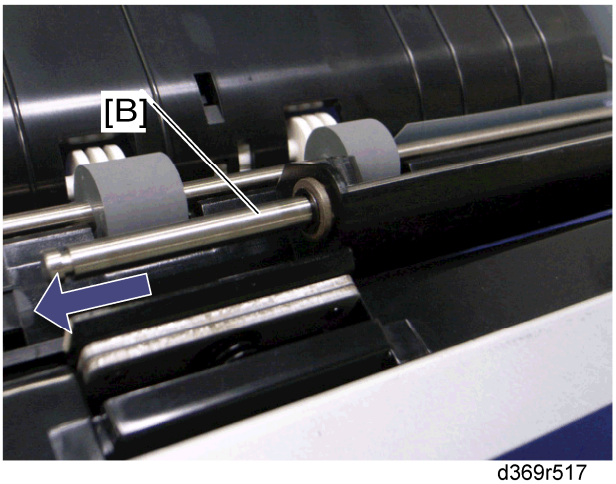
1.3.3 SEPARATION PAD

1. Duplex unit (☛ Duplex Unit)
2. By-pass Tray (☛ By-pass Tray)
3. Right door cover (☛ Right Door Cover)
4. By-pass feed roller (☛By-pass Feed Roller)
5. By-pass transport motor bracket (☛By-pass Transport Motor)



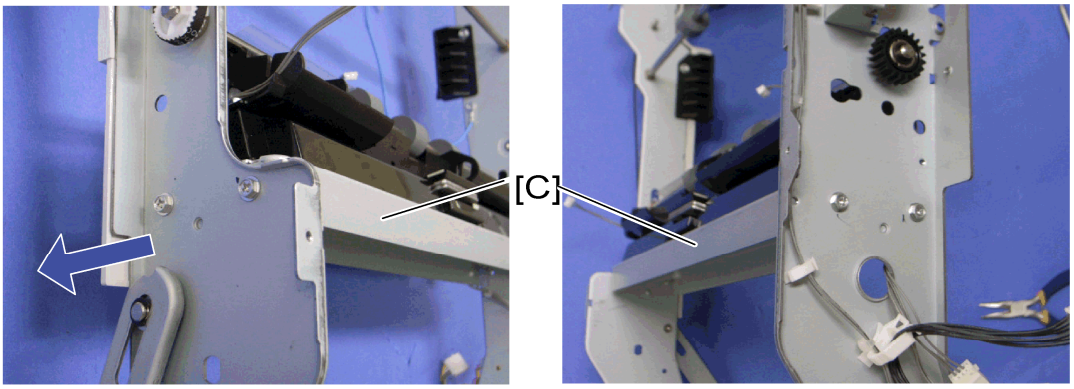
d369r516

6. By-pass feed gear [A] (ℂ x 1, bushing x 1)



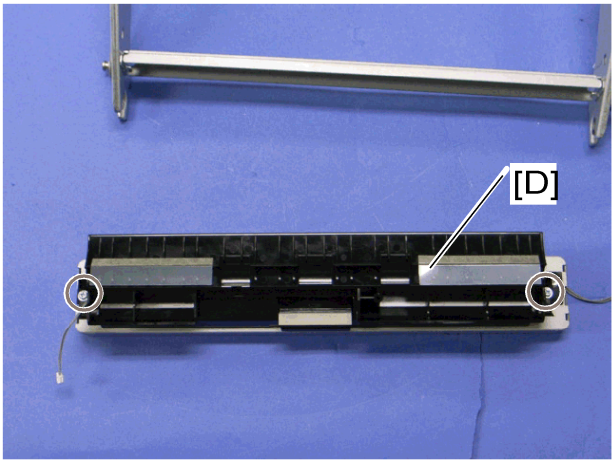
d369r517

7. By-pass feed shaft [B] (ℂ x 1, bushing x 1)



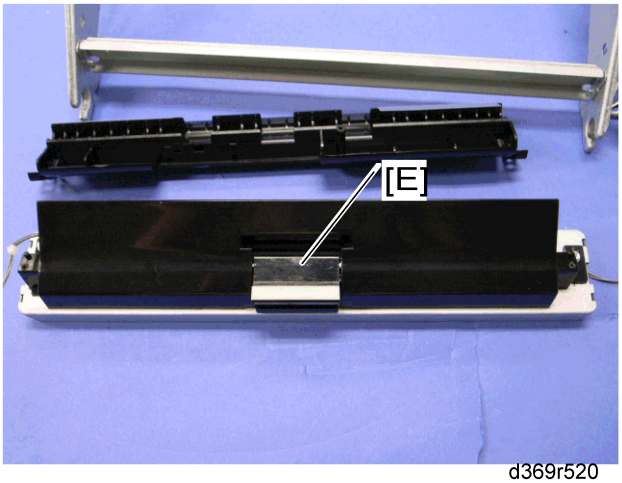
d369r518

8. By-pass tray bar [C] (x 4, x 1, x 1)



d369r519

9. Paper guide [D] (x 2)



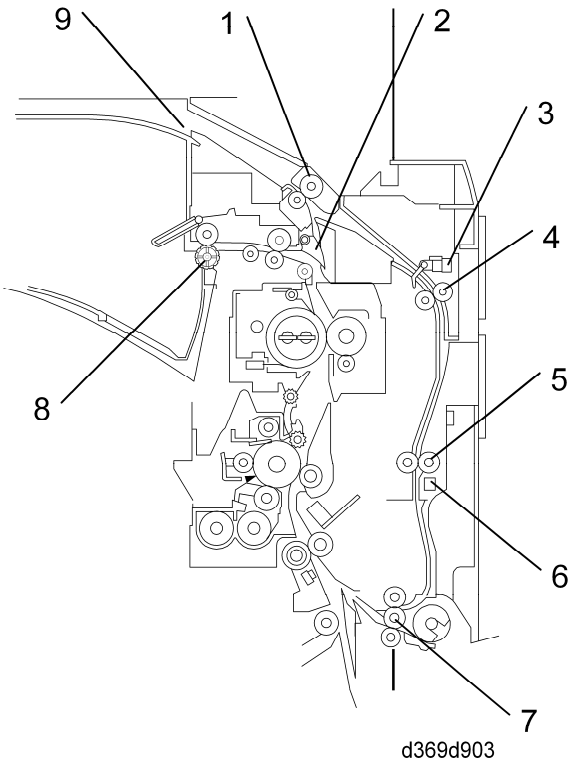
d369r520

1. Separation pad [E] (hook x 2, spring x 1)

2. DETAILED SECTION DESCRIPTIONS

2.1 COMPONENT LAYOUT

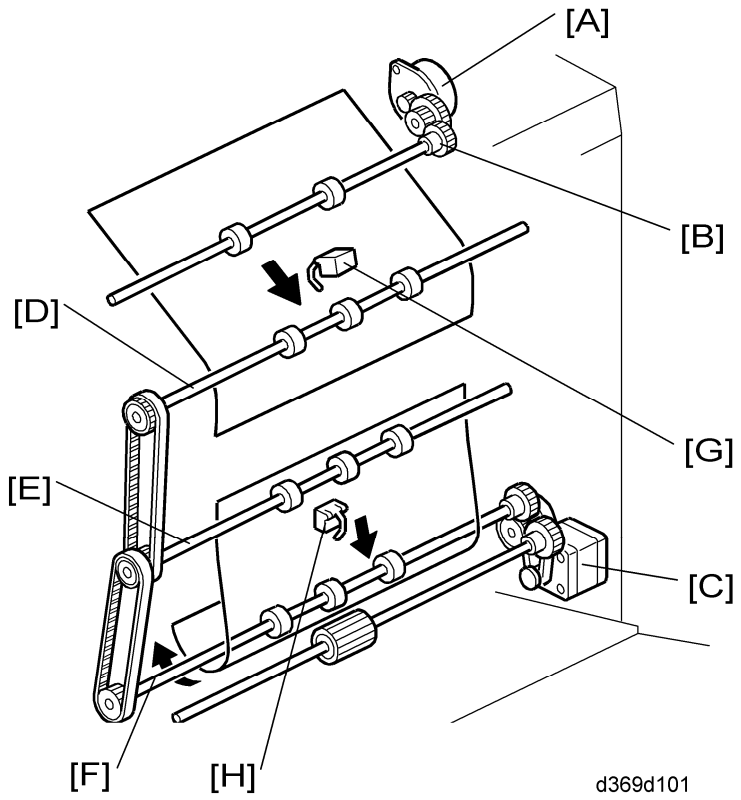
2.1.1 MECHANICAL COMPONENT



1. Paper exit/ inverter roller 2. Junction gate 3. Duplex entrance sensor 4. Duplex transport roller 1 5. Duplex transport roller 2	6. Duplex exit sensor 7. Duplex transport roller 3 8. Standard tray 9. Inverter tray

- To print on the second side, the paper exit/ inverter roller inverts the paper from the fusing unit and feeds it to the duplex unit.
- The duplex unit feeds the inverted paper back to the paper feed section.
- When both sides have been printed, the duplex inverter unit feeds the paper out to the standard tray.

2.1.2 DUPLEX DRIVE



The interchange motor [A] drives the following:

- Paper exit/ inverter roller [B]

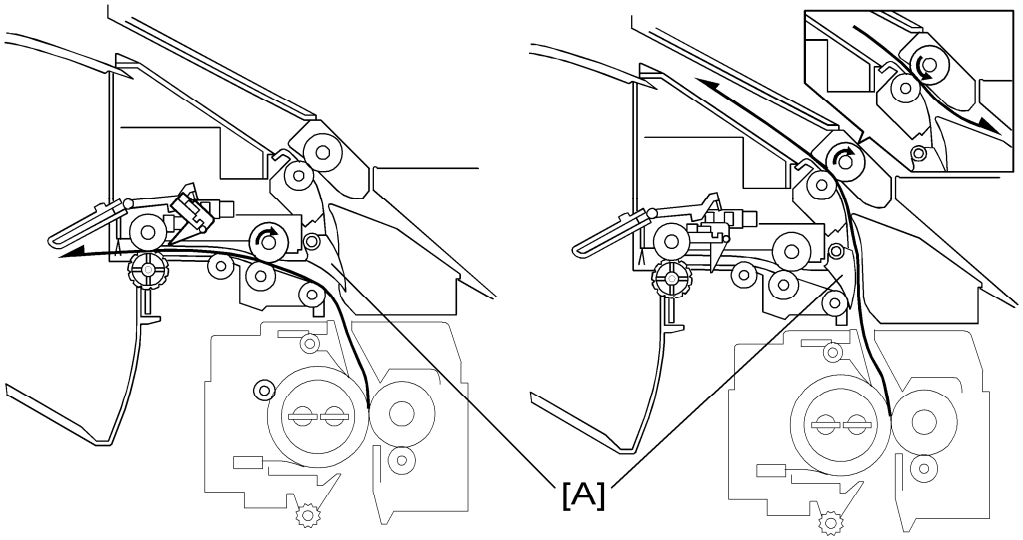
The duplex/bypass motor [C] drives the following:

- Duplex transport roller 1 [D]
- Duplex transport roller 2 [E]
- Duplex transport roller 3 [F]

The duplex entrance sensor [G] and duplex exit sensor [H] control the interleave movement and detect paper jams.

2.2 OVERVIEW

2.2.1 INVERTER MECHANISM



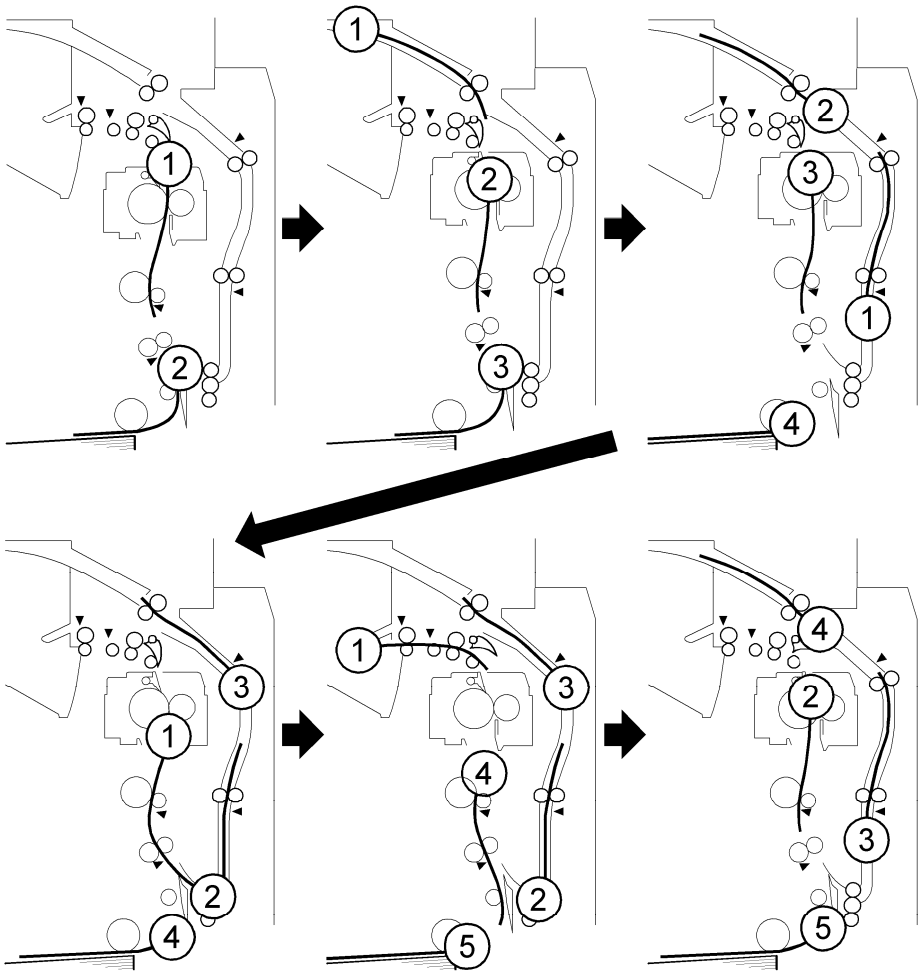
d369d138-9

This machine uses the above switch back system for duplex printing. The drawing above right shows the paper feed for duplex printing.

The junction gate solenoid, which is in the interchange unit, opens or closes the junction gate [A]. If the duplex mode is selected, the junction gate closes the exit path and opens the duplex inverter path.

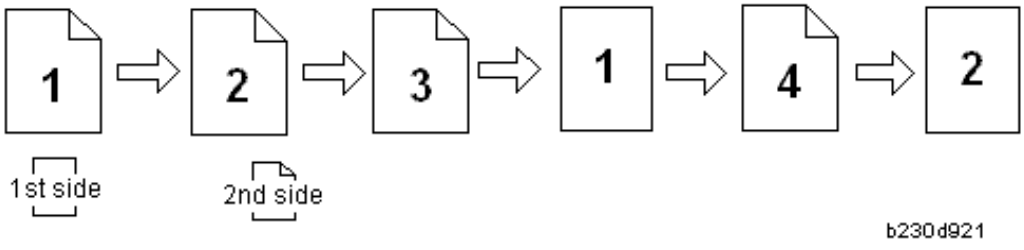
2.2.2 DUPLEX OPERATION

Up to A4/LT (8 1/2" x 11") LEF

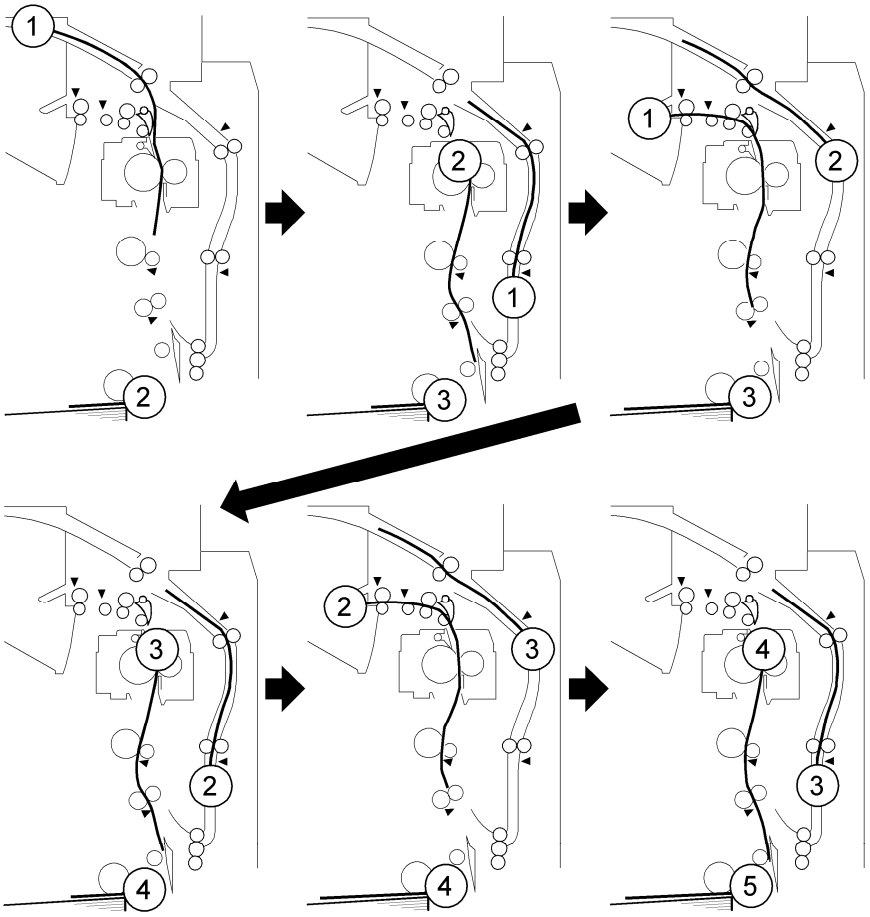


There are three sheets of paper in the paper feed path at the same time. The interleave method is used.

The drawing above shows the paper movement with the interleave method for three sheets of paper. The printing is done as follows:

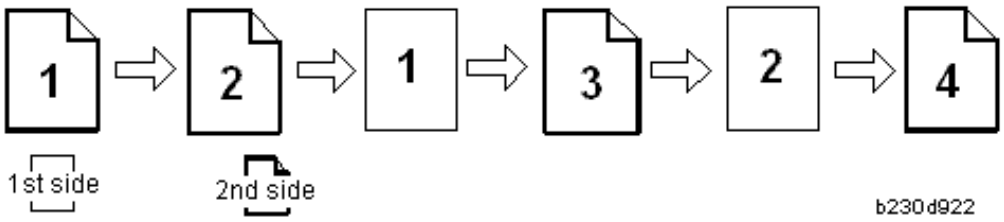


From A4/LT (8 1/2" x 11") LEF to 400mm length



There are two sheets of paper in the paper feed path at the same time. The interleave method is used. For sheets longer than 400 mm, there is no interleaving.

The drawing above shows the paper movement with the interleave method for two sheets of paper. The printing is done as follows:



BYPASS TRAY BY3000

D370

BYPASS TRAY D370 REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

BYPASS TRAY BY3000 D370

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1.1.2 BY-PASS TRAY 1

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Read This First

Safety and Symbols

REPLACEMENT PROCEDURE SAFETY

⚠CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

☛: See or Refer to

: Screws

: Connector

: Clip ring

: E-ring

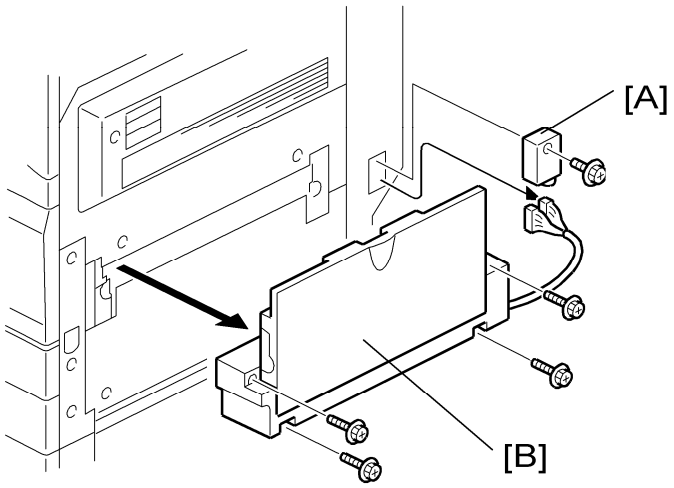
: Clamp

1. REPLACEMENT AND ADJUSTMENT

1.1 TRAY

1.1.1 BY-PASS TRAY UNIT

Basic Model



d370r100

1. Connector cover [A] (x 1)
2. By-pass tray unit [B] (x 4, x 2)

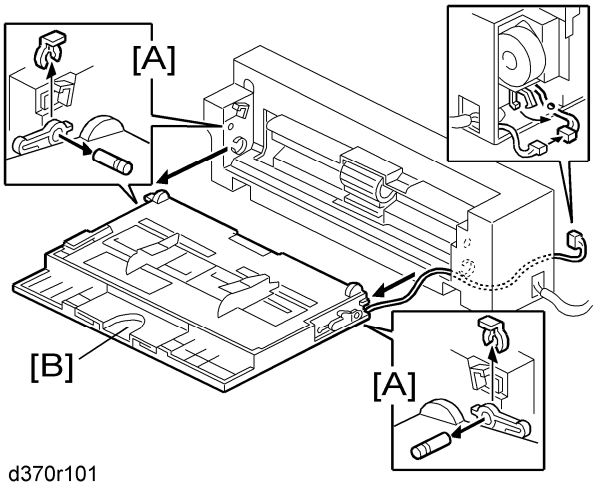
Duplex Model

1. Remove the connector cover (x 1).
2. Disconnect the cable.
3. Release the front and rear link (x 1).
4. Remove the duplex unit.
5. Remove the inner rear cover (x 2).
6. Remove the paper guide unit
7. Disconnect the by-pass tray cable (x 1).
8. Remove the front and rear pins (x 1 each).
9. By-pass tray unit

1.1.2 BY-PASS TRAY

1. By-pass tray unit (☛ By-pass Tray Unit)

Tray

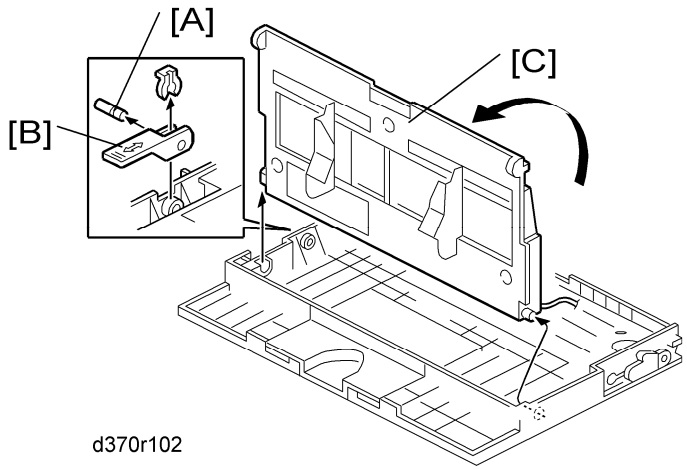


2. Remove the pins [A] (x 1 each).
3. By-pass tray [B] (x 1)

1.2 ELECTRICAL COMPONENTS

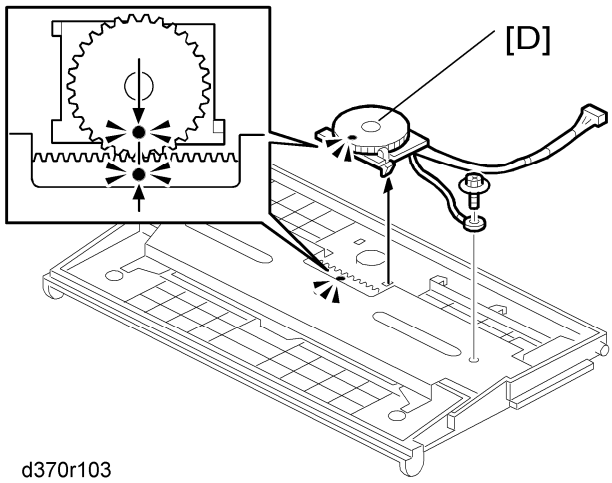
1.2.1 PAPER SIZE SENSOR (BYPASS)

1. By-pass tray unit (☛ By-pass Tray Unit)
2. By-pass tray (☛ Paper Tray)



d370r102

3. Pin [A] (⟲ x 1)
4. Pin cover [B]
5. By-pass tray top cover [C]

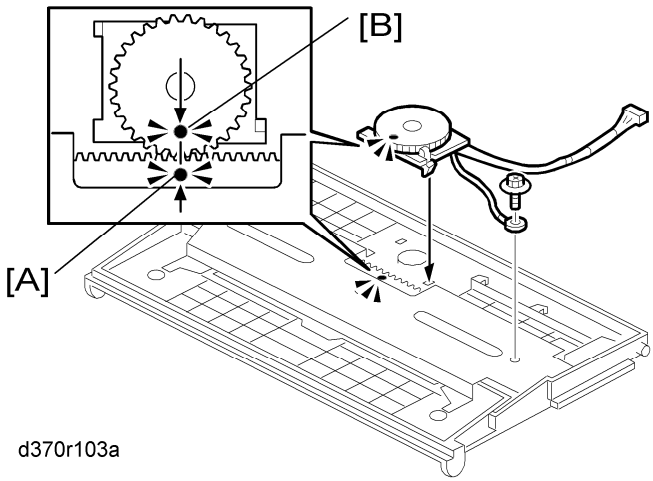


d370r103

6. Paper size sensor (bypass) [D] (hook, 🔩 x 1, ground cable x 1)

Electrical Components

When reinstalling this switch



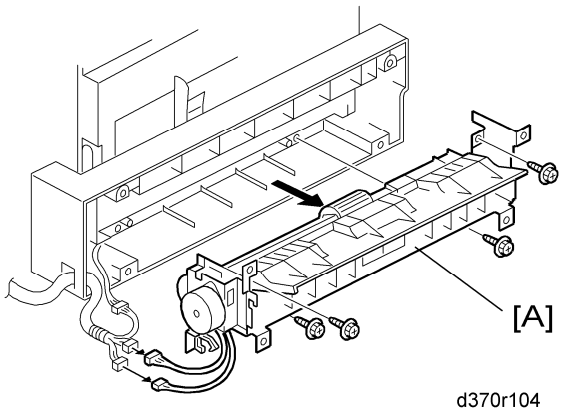
1. Adjust the projection [A] of the left side fence bar (it must be centered).
2. Install the by-pass paper size detection switch so that the hole [B] in this switch faces the projection [A] of the left side fence bar.
3. Reassemble the copier.
4. Plug in and turn on the main power switch.
5. Check this switch operation with SP5803-030 (By-pass paper size < Input Check).

Display on the LCD

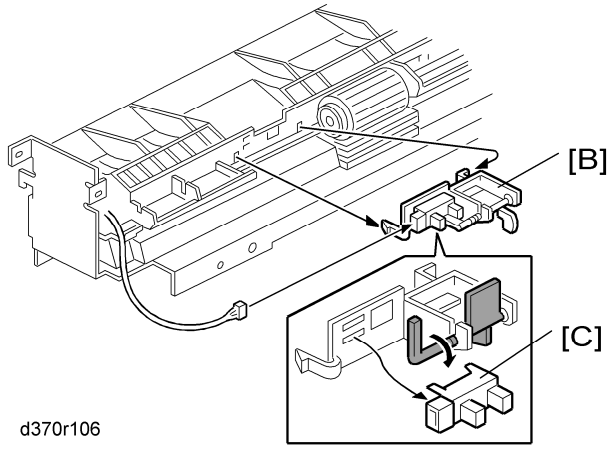
Paper Size	Display	Paper Size	Display
A3 SEF	10010000	B5 SEF	11100000
B4 SEF	11010000	B6 SEF	00110000
A4 SEF	11000000	A6 SEF	10110000

1.2.2 PAPER END SENSOR (BYPASS)

1. By-pass tray unit (☛ By-pass Tray Unit)



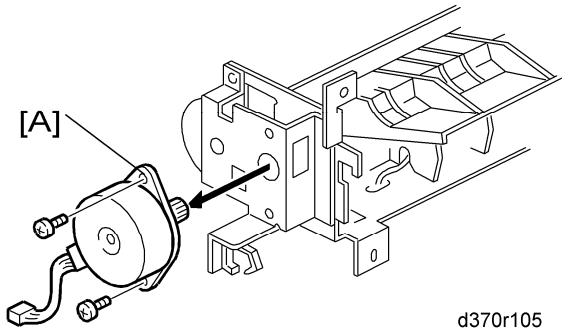
2. By-pass feed unit [A] (x 4, x 1, x 2)



3. Sensor base [B] (x 1, hooks)
4. Paper end sensor (bypass) [C] (hooks)

1.2.3 BY-PASS TRAY MOTOR

1. By-pass tray unit (☛ By-pass Tray Unit)
2. By-pass feed unit (☛ Paper End Sensor (Bypass))

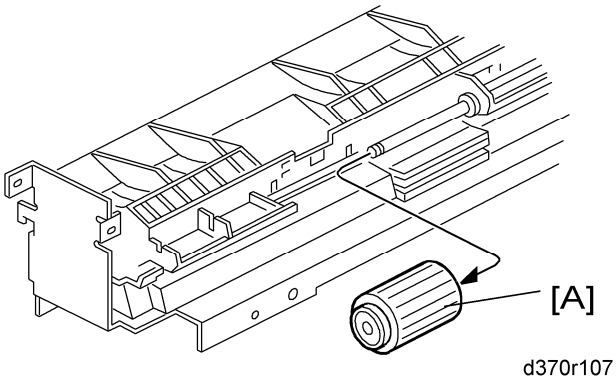


3. By-pass tray motor [A] (x 2)

1.3 FEED

1.3.1 BY-PASS FEED ROLLER

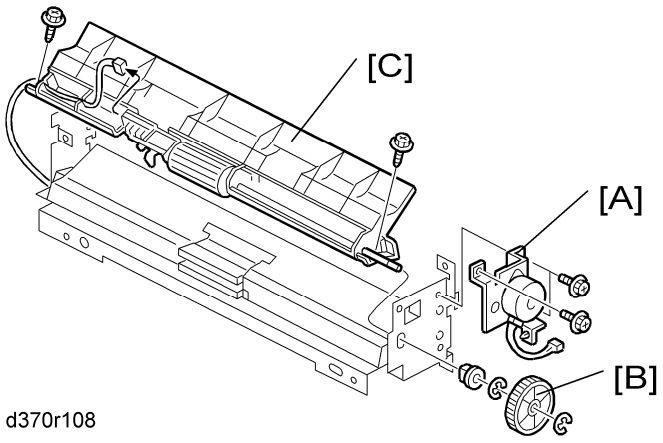
1. By-pass tray unit (☛ By-pass Tray Unit)
2. By-pass paper feed unit (☛ Paper End Sensor (Bypass))
3. Sensor base (☛ Paper End Sensor (Bypass))



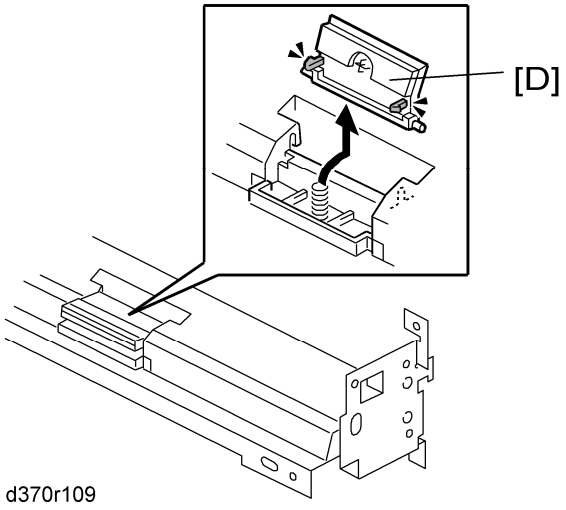
4. By-pass feed roller [A]

1.3.2 SEPARATION PAD

1. By-pass tray unit (☛ By-pass Tray Unit)
2. By-pass paper feed unit (☛ Paper End Sensor (Bypass))



3. By-pass tray motor bracket [A] (🔩 x 3)
4. Gear [B] (ℂ x 2, bushing x 1)
5. Paper guide unit [C] (🔩 x 2, 🖐 x 1)

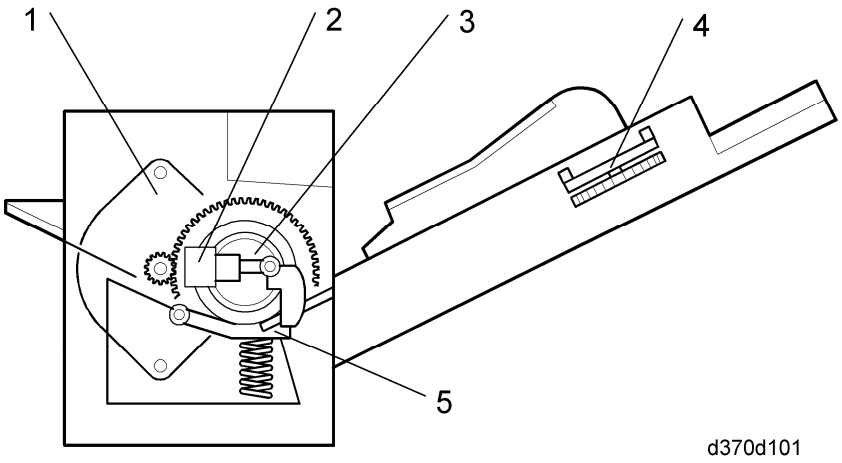


6. Separation pad [D] (spring x 1)

2. DETAILED SECTION DESCRIPTIONS

2.1 COMPONENT LAYOUT

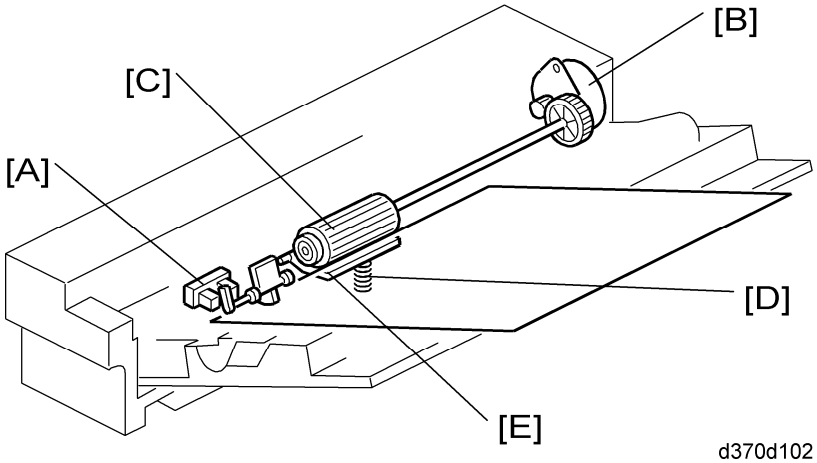
2.1.1 COMPONENT LAYOUT



Component	Description
1. By-pass Tray Motor	Drives the paper feed roller.
2. Paper End Sensor (Bypass)	Informs the copier/printer when the by-pass tray runs out of paper.
3. By-pass Feed Roller	Feeds paper from the by-pass tray.
4. Paper Size Sensor (Bypass)	Detects the paper width.
5. Separation Pad	Separates a sheet of paper from the paper stack on the by-pass tray.

2.2 OVERVIEW

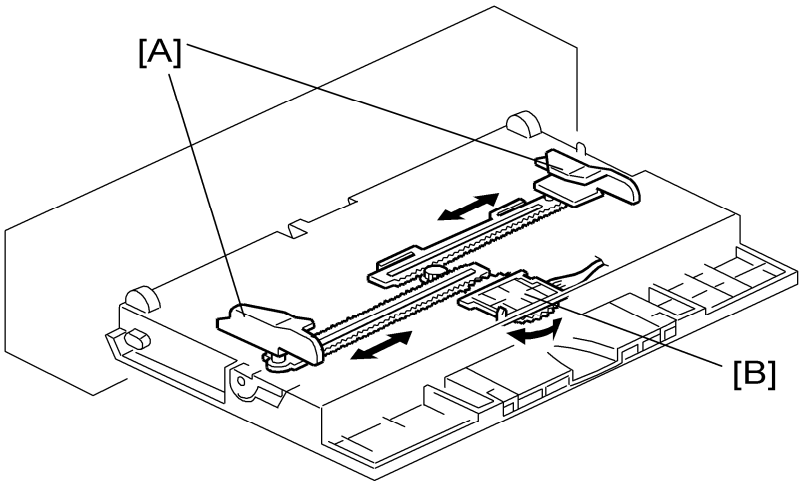
2.2.1 BASIC OPERATION



d370d102

When the paper end sensor [A] detects paper and the machine gets a by-pass printing job, the by-pass tray motor [B] starts to rotate the by-pass feed roller [C] via the gear.
The by-pass tray has the separation pad system. The spring [D] under the separation pad [E] pushes the paper against the feed roller. As a result, the by-pass feed roller [C] and separation pad [E] feed the top sheet of paper stack on the by-pass tray.

2.2.2 BY-PASS PAPER SIZE DETECTION



d370d103

There are two paper side plates [A] on the by-pass tray. These connect with the paper size sensor [B] through a rack-and-pinion mechanism.

Overview

The pattern for each paper width is unique. Therefore, the copier/printer determines which paper has been placed in the bypass tray by the signal output from the board. However, the copier cannot determine the paper length from the by-pass tray hardware.

Display on the LCD

Paper Size	Display	Paper Size	Display
A3 SEF	10010000	B5 SEF	11100000
B4 SEF	11010000	B6 SEF	00110000
A4 SEF	11000000	A6 SEF	10110000

INTERCHANGE UNIT TYPE 3350
D371

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INTERCHANGE UNIT TYPE 3350

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2.1.2 DRIVE LAYOUT 4

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Read This First

Safety and Symbols

REPLACEMENT PROCEDURE SAFETY

⚠CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

☛: See or Refer to

: Screws

: Connector

: Clip ring

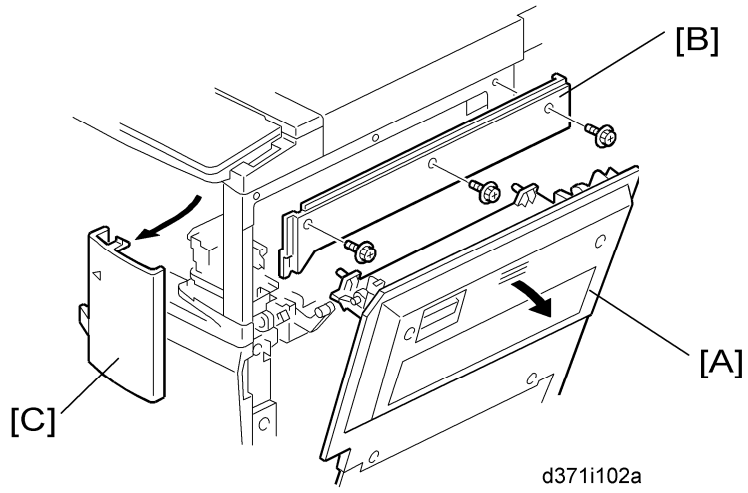
: E-ring

: Clamp

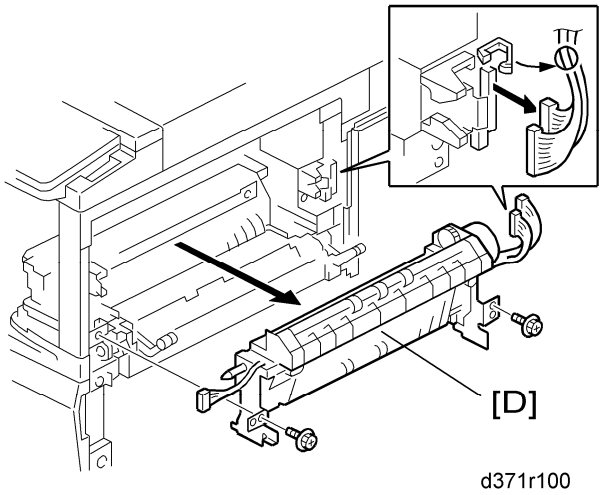
1. REPLACEMENT AND ADJUSTMENT

1.1 ELECTRICAL COMPONENT

1.1.1 INTERCHANGE MOTOR

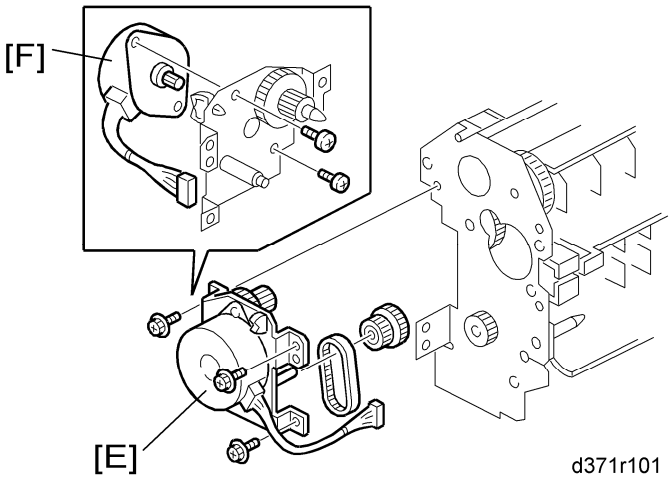


1. Open the right cover [A] or right door if the duplex unit is installed.
2. Right upper cover [B] (☞ x 3)
3. Front right cover [C] (hook)



4. Interchange unit [D] (☞ x 2, ☞ x 2 or 3 (if 1-bin unit is installed))

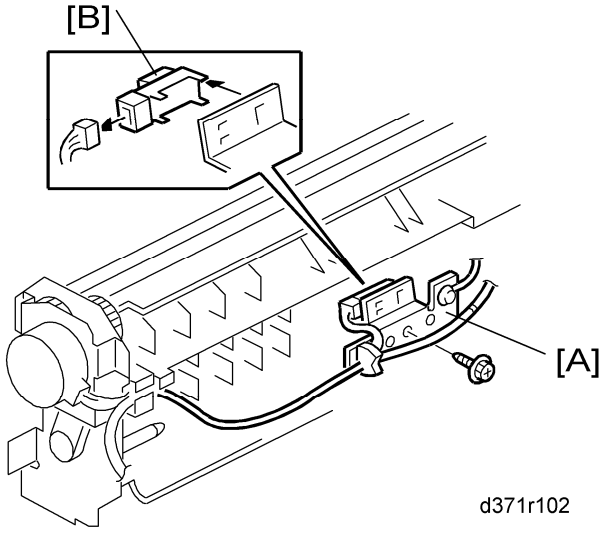
Electrical Component



5. Interchange motor bracket [E] (🔩 x 3, gear x 1, timing belt x 1)
6. Interchange motor [F] (🔩 x 2)

1.1.2 JUNCTION GATE JAM SENSOR

1. Interchange unit (☛ Interchange Motor)

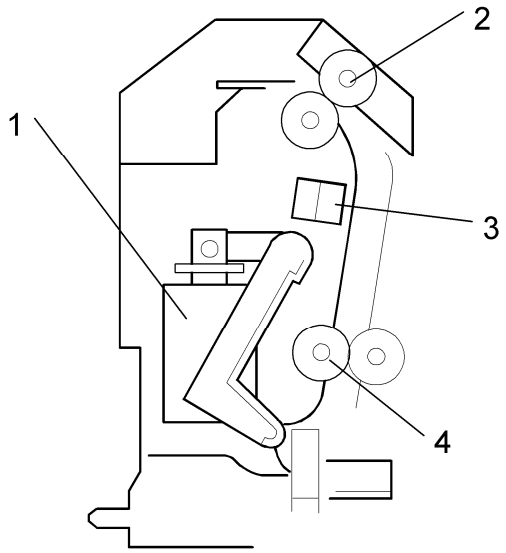


2. Sensor bracket [A] (🔩 x 1)
3. Junction gate jam sensor [B] (🖐 x 1, hooks)

2. DETAILED SECTION DESCRIPTIONS

2.1 COMPONENT LAYOUT

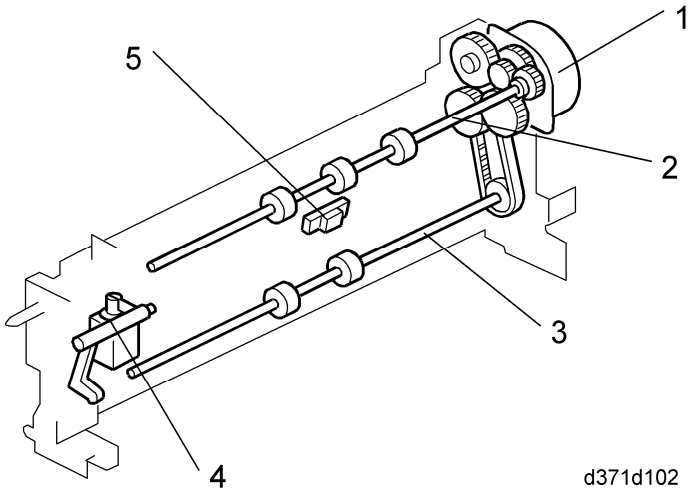
2.1.1 MECHANICAL COMPONENT LAYOUT



d371d101

1. Junction Gate Solenoid	3. Junction Gate Jam Sensor
2. Paper Exit/ Inverter Roller	4. Paper Transport Roller

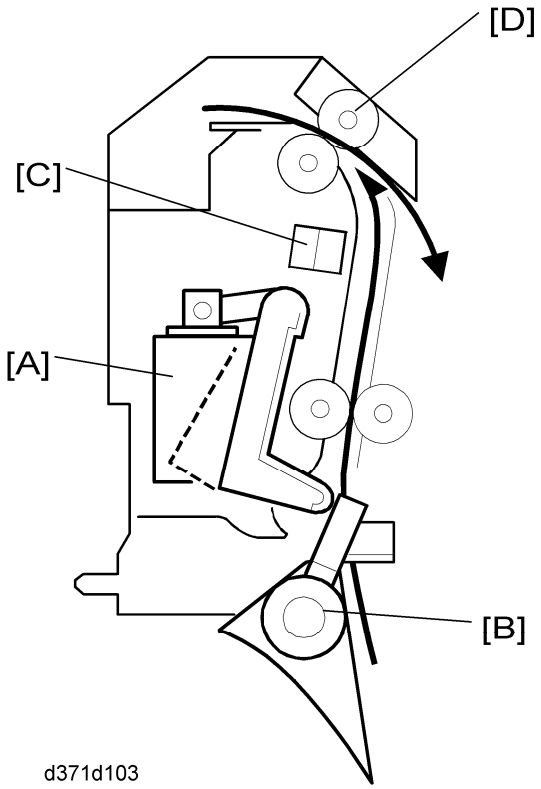
2.1.2 DRIVE LAYOUT



1. Interchange Motor 2. Paper Exit/ Inverter Roller 3. Paper Transport Roller	4. Junction Gate Solenoid 5. Junction Gate Jam Sensor

The interchange motor drives the paper exit/inverter roller and paper transport roller through the gears and timing belt. This motor exits paper to the 1-bin tray if it is installed and 1-bin tray is selected as an output location. However, this motor also transports paper to the duplex path if the duplex unit is installed and the machine gets a duplex job.

2.2 JUNCTION GATE MECHANISM



Depending on the selected mode, the copies are directed to the output tray/ bridge unit path or 1-bin tray/duplex path by the exit junction gate [A]. These are controlled by the junction gate solenoid [B].

- **To the Exit Tray or Bridge Unit**
  The exit junction gate solenoid stays off and the paper is directed to the copier exit unit.
- **To the 1-bin Tray**
  The junction gate solenoid turns on. The paper is directed to the 1-bin tray.
- **To the Duplex Unit**
  The junction gate solenoid turns on. When the junction gate jam sensor [C} detects a trailing edge of a sheet of paper, the machine stops the paper exit/inverter roller [D] and then drives its roller reversely. As a result, a sheet of paper is transported to the duplex path.

500-SHEET FINISHER SR3050

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3.1 SPECIFICATIONS 62

Read This First

Safety, Conventions, Trademarks

SAFETY

PREVENTION OF PHYSICAL INJURY

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

HEALTH SAFETY CONDITIONS

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

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

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

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.

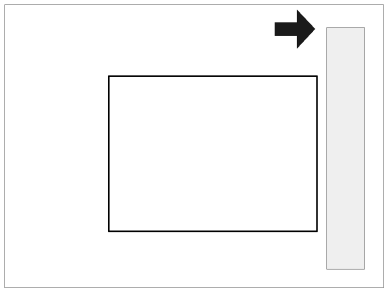
⚠CAUTION

- 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.

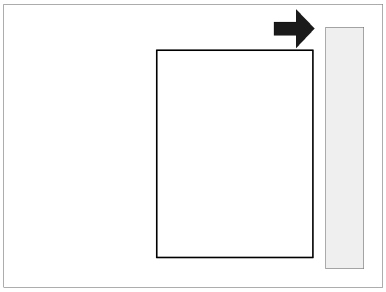
CONVENTIONS AND TRADEMARKS

CONVENTIONS

Symbol	What it means
CT	Core Tech Manual
	Screw
	Connector
	E-ring
	C-ring
	Clamp
FFC	Flexible Film Connector



SEF (Short Edge Feed)



LEF (Long Edge Feed)

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

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.

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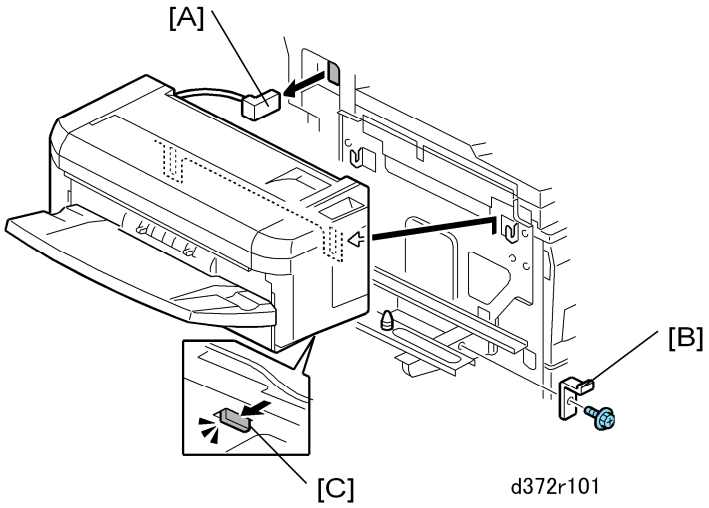
1. REPLACEMENT AND ADJUSTMENT

1.1 COMMON PROCEDURES

1.1.1 DISCONNECTING, REMOVING THE FINISHER

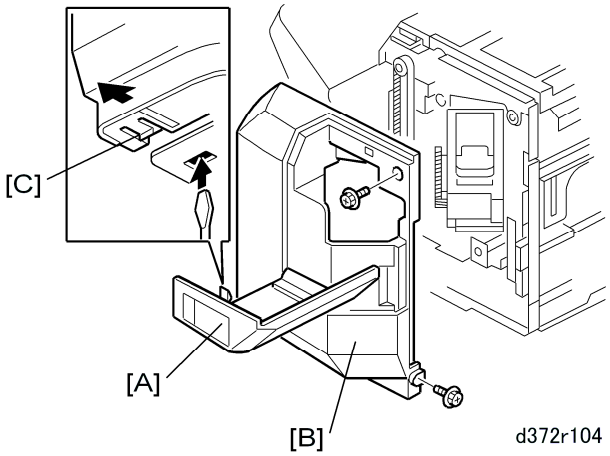
Important

- The finisher must be removed from the machine for these procedures. The front and rear covers cannot be removed while the finisher is attached to the side of the machine.



1. Disconnect the finisher I/F cable [A] on the left side of the machine.
2. Remove the lock plate [B] (x1).
3. Press the spring release [C] toward the rear of the finisher, then lift the finisher off its center post.

1.1.2 FRONT COVER

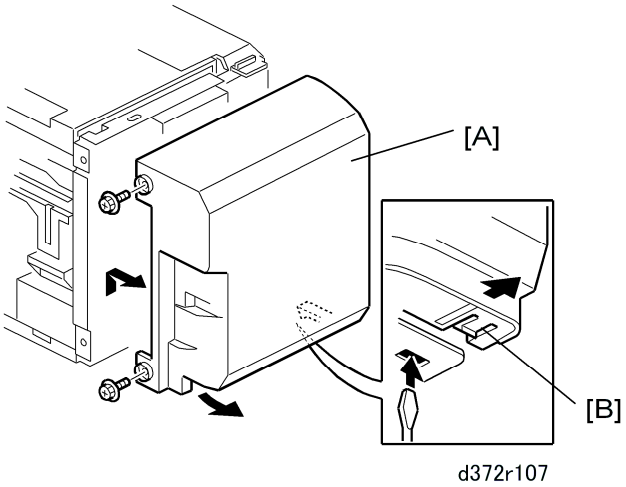


Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.

1. Open the stapler door [A].
2. Remove the front cover [B] (☞ x2)
   Release tab [C] after removing the screws, then raise the bottom of the front cover to remove it.

1.1.3 REAR COVER



Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.

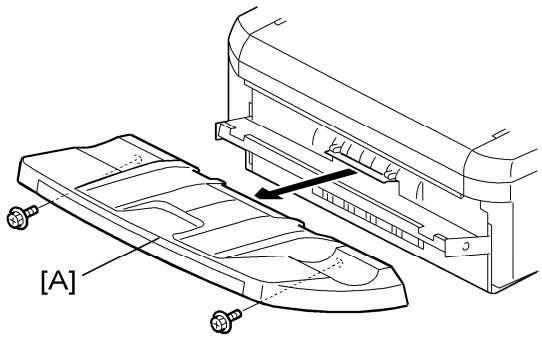
1. Remove the rear cover [A] (☞ x2)
   Release tab [B] after removing the screws, then raise the bottom of the rear cover to remove it.

1.1.4 TRANSPORT UNIT

Preparation

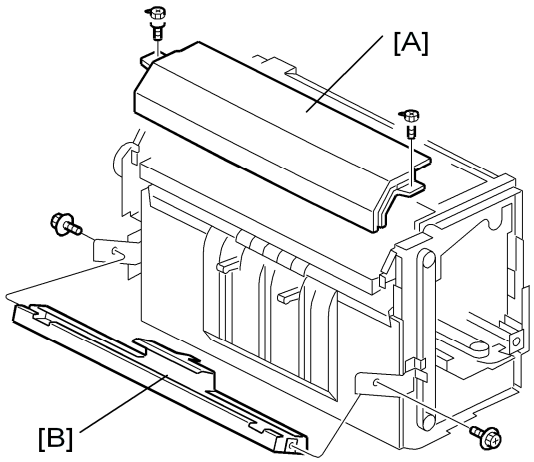
Remove:

- Front cover
- Rear cover



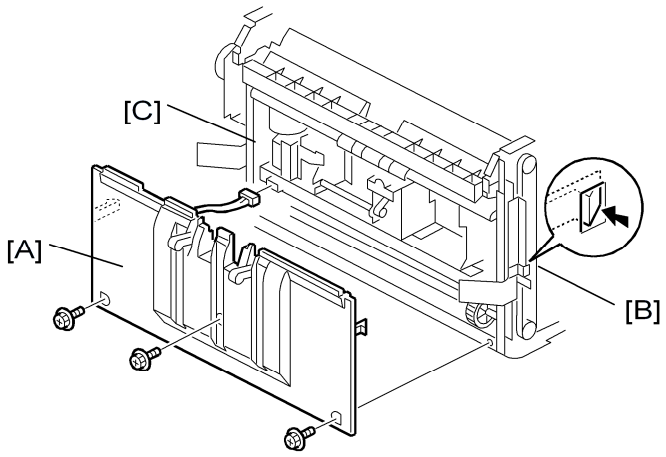
d372d102

1. Remove the paper output tray [A] (x2).

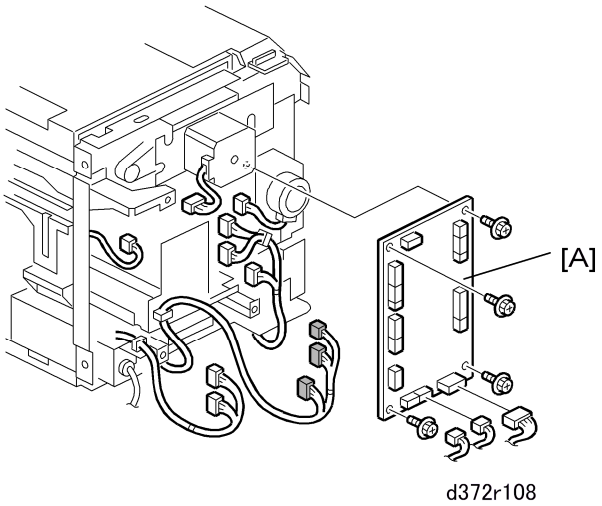


d372r114

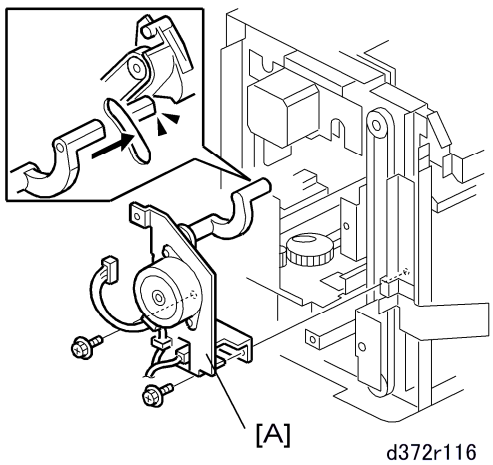
2. Remove the left top cover [A] (x2).
3. Remove the tray support [B] (x2).



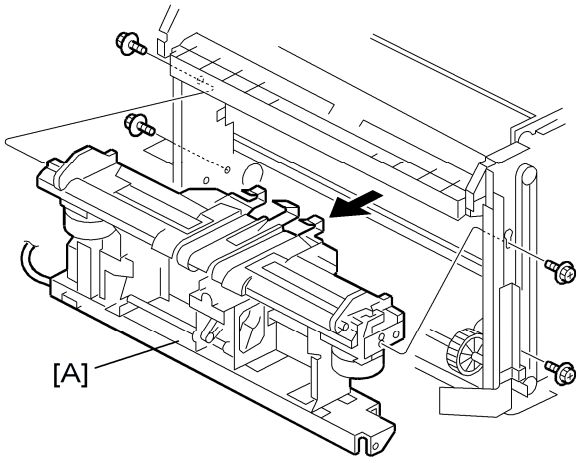
4. Remove the screws of the end fence [A] (x3).
5. Release tabs [B] and [C].
6. Remove the end fence.



7. Remove the main board [A] (x 14, x4)



8. Remove the positioning roller arm motor bracket [A] (x2).

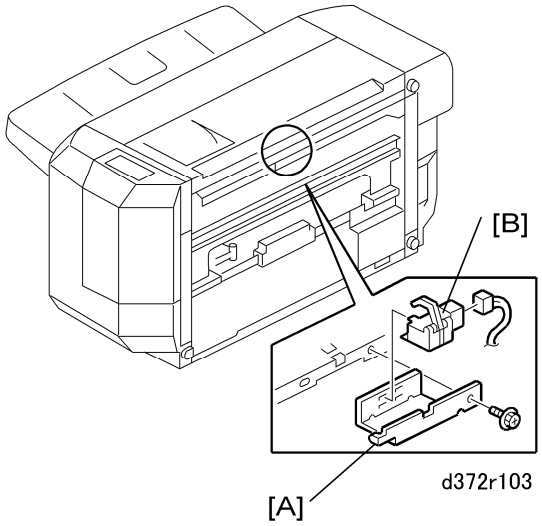


d372r117

9. Remove the transport unit [A] (x3 Rear, x2 Front).

1.2 SENSORS

1.2.1 ENTRANCE SENSOR

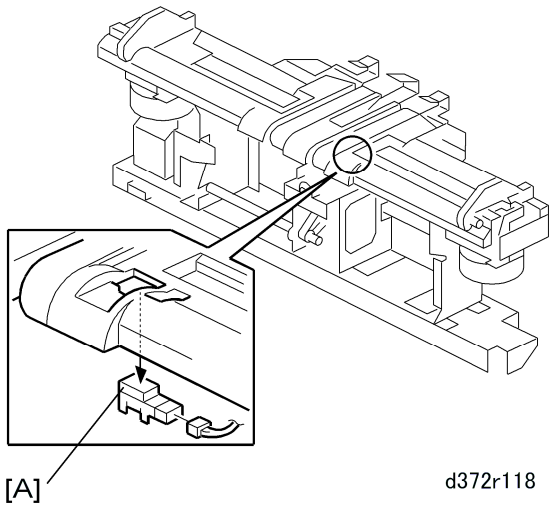


Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.

1. Remove the sensor bracket [A] (x1).
2. Disconnect the entrance sensor [B] (Pawls x4, x1).

1.2.2 PAPER SENSOR



Preparation

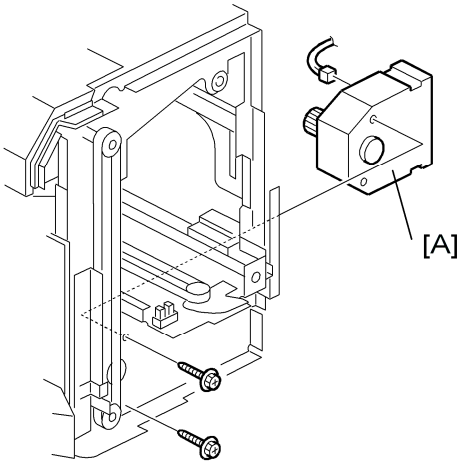
- Disconnect the finisher.

- Remove the finisher from the side of the machine.
- Remove the transport unit

1. Disconnect the sensor [A] (x1, Pawls x3, x1)

1.3 MOTORS

1.3.1 TRAY LIFT MOTOR



d372r106

Preparation

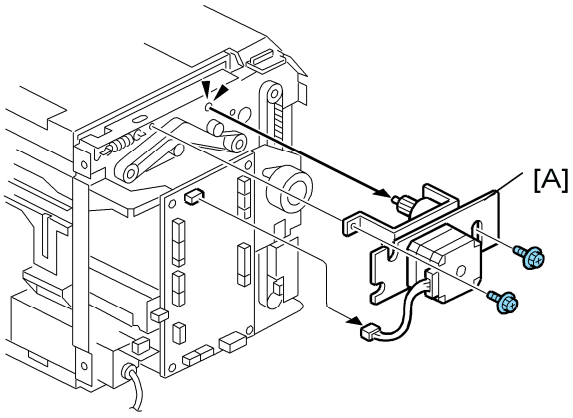
- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the front cover

1. Remove the tray lift motor [A] (x2, x1).

1.3.2 TRANSPORT MOTOR

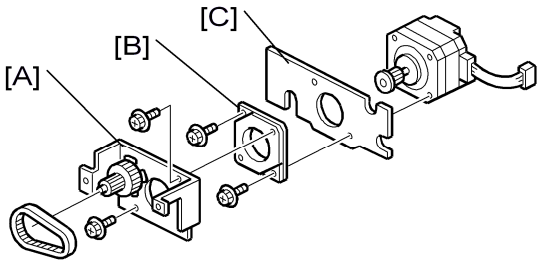
Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the rear cover.



d372r110

1. Remove the motor bracket [A] (x2, x1)



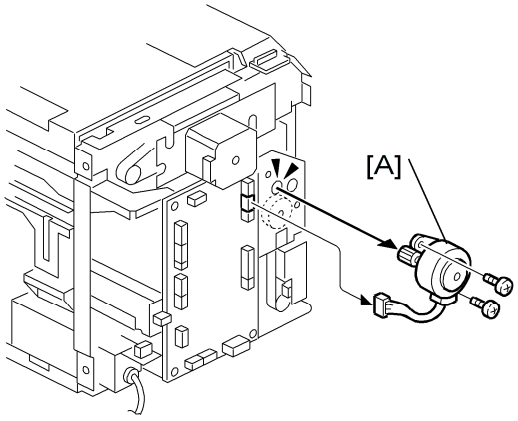
d372r111

2. Remove:
   [A] 1st bracket (Timing belt x1, x2)
   [B] 2nd bracket (x2)
   [C] 3rd bracket

Reinstallation

- After reattaching the motor, rotate its drive gear and confirm that the timing belt is set correctly.
- Rotate the motor drive gear by hand and confirm that these rollers are turning: 1) entrance roller, 2) positioning roller, and 3) return rollers. (The return rollers are the two small sponge rollers below the positioning roller.)

1.3.3 POSITIONING ROLLER ARM MOTOR



d372r109

Preparation

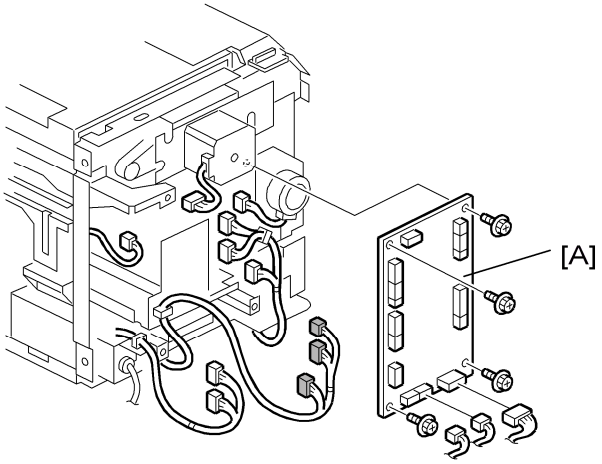
- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the rear cover.

1. Remove the positioning roller arm motor [A] (x2, x1).

1.3.4 STAPLER MOVEMENT MOTOR

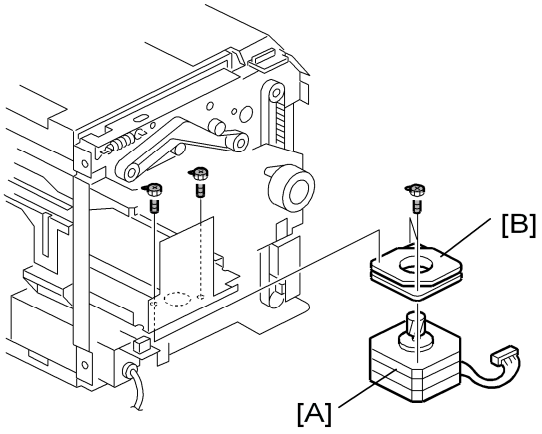
Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the rear cover.



d372r108

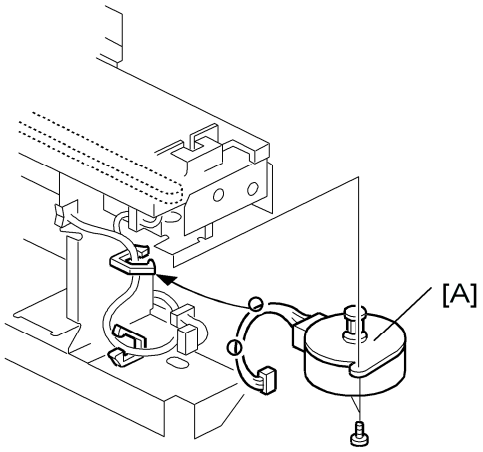
1. Remove the main board [A] (x 14, x4).



d372r112

2. Remove the stapler movement motor [A] (x2, x1).
3. Remove the bracket [B] (x2).

1.3.5 FRONT FENCE MOTOR



d372r119

Preparation

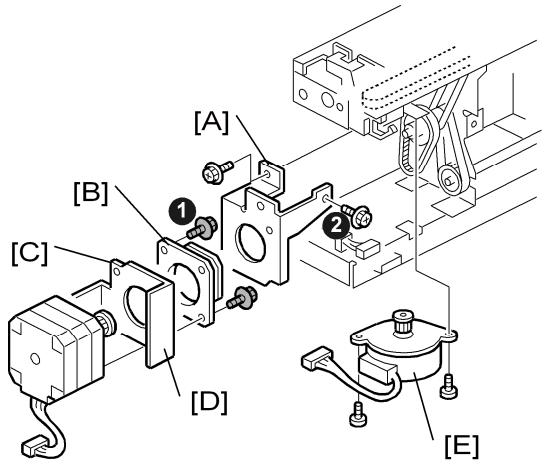
- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the transport unit

1. Remove the front fence motor [A] (x1, x2, x1).

1.3.6 FEED-OUT BELT MOTOR, REAR FENCE MOTOR

Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the transport unit



d372r120

1. Remove the feed-out belt motor mount [A] ①, ② (x2).
2. Remove:

Motors

[B] 1st bracket (x2)

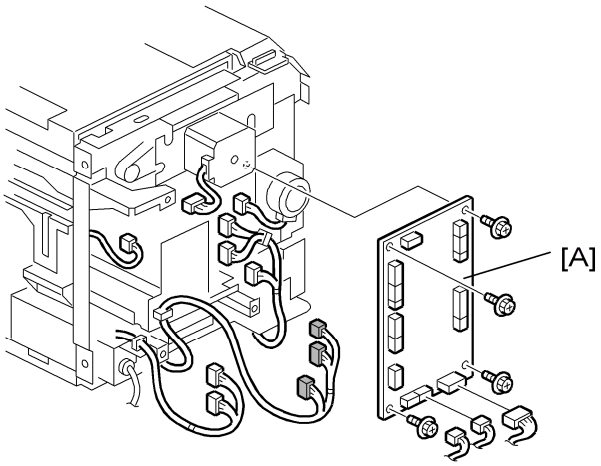
[C] 2nd bracket (x2)

[D] 3rd bracket

3. Remove the rear fence motor [E] (x2, x1)

1.4 BOARDS

1.4.1 MAIN BOARD



d372r108

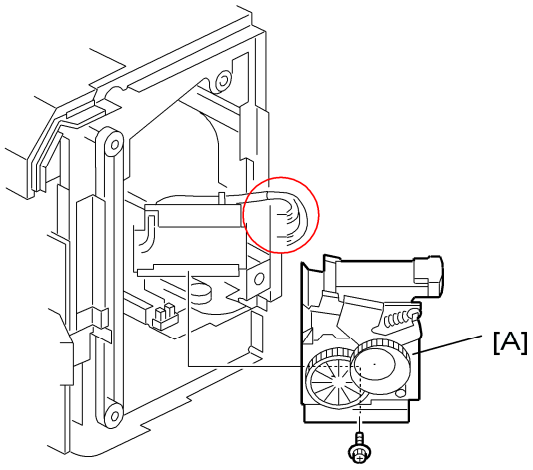
Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the rear cover.

1. Remove the main board [A] (x14, x4)

1.5 OTHERS

1.5.1 STAPLER



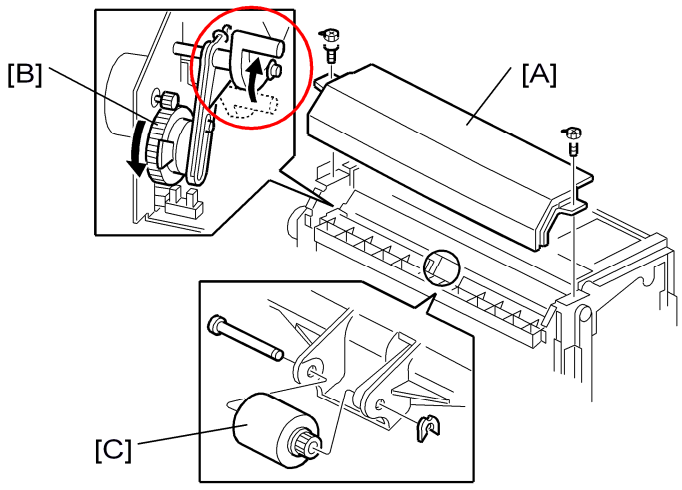
d372r105

Preparation

- Remove the front cover.

1. Remove the stapler [A] (x1, x2)

1.5.2 POSITIONING ROLLER



d372r113

Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the front cover.

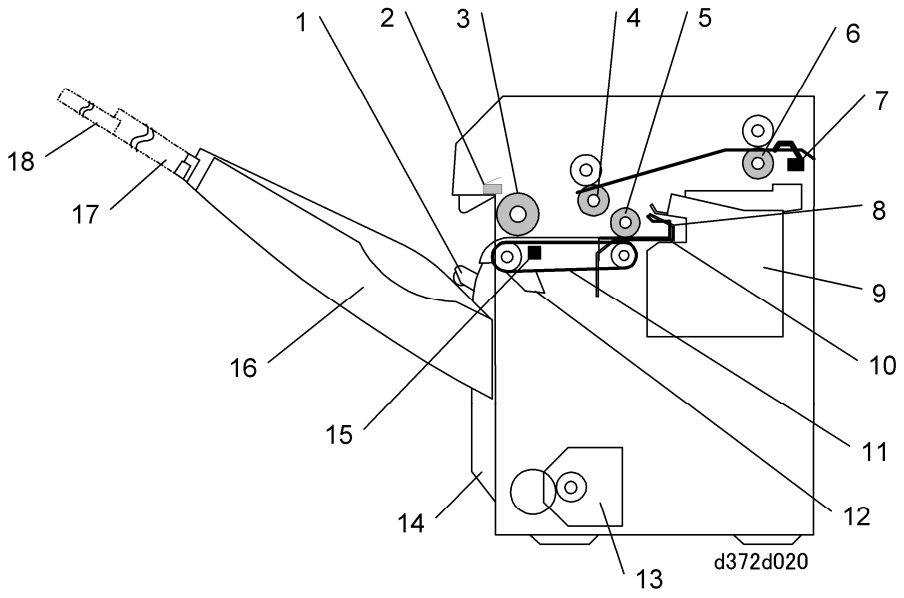
- Remove the rear cover.

1. Remove the left top cover [A] (x2)
2. Rotate drive gear [B] of the positioning roller arm motor to raise the positioning roller to its highest position.
3. Remove the positioning roller [C] (x1)

2. DETAILED SECTION DESCRIPTIONS

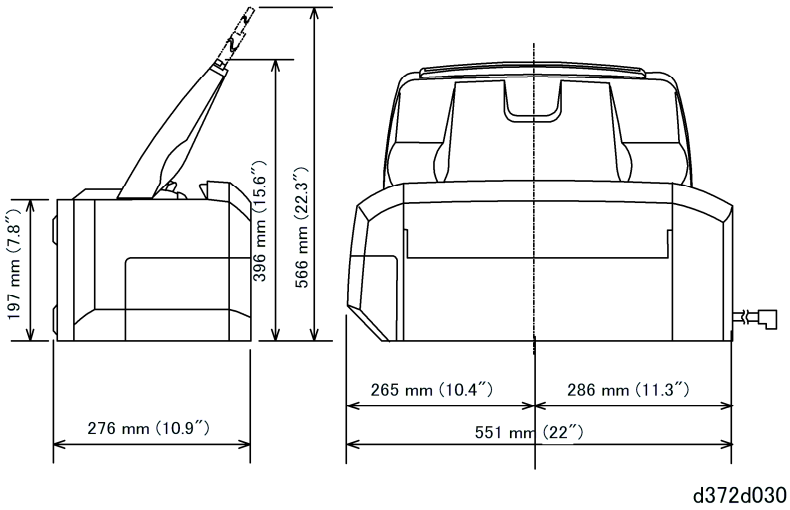
2.1 OVERVIEW

2.1.1 IMPORTANT PARTS

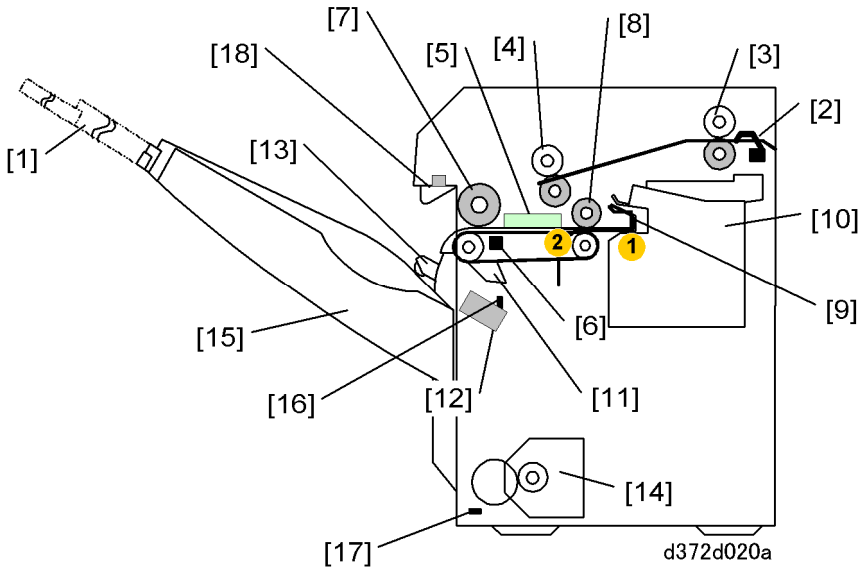


1.	Stack Edge Depressors (x2)	10.	Bottom Fences
2.	Tray Upper Limit Switch	11.	Feed-out Belt
3.	Positioning Roller	12.	Feed-out Belt Pawls (x2)
4.	Exit Roller	13.	Tray Lift Motor
5.	Return Roller	14.	End Fence
6.	Entrance Roller	15.	Paper Sensor
7.	Entrance Sensor	16.	Output Tray
8.	Mobile Fence (x1)	17.	Tray Extension (Middle)
9.	Stapler	18.	Tray Extension (End)

2.1.2 EXTERNAL DIMENSIONS



2.1.3 GENERAL OPERATION



Here is a brief summary of what happens inside the finisher. For more details, see the other sections of this manual.

First, the operator pulls out the tray extension [1], and selects the paper size and operation mode for the job (Normal, Shift, or Stapling).

Paper Transport

The entrance sensor [2] detects the paper when it enters the finisher. The entrance rollers [3] feed the paper to the exit rollers [4]. The paper falls between the front and side fences [5].

Overview

Positioning

The paper sensor [6] detects the paper on the tray. The positioning roller [7] (mounted on a free-swinging arm) descends and touches the paper. The positioning roller (turning counterclockwise) and the return roller [8] push the trailing edge of the paper against the two bottom fences and the mobile fence at [9]. (The mobile fence is centered between the stationary bottom fences.)

Jogging

The front and side fences move in to align the sheets for stacking.

Stapling

The stapler [10] staples the stack with one or two staples.

Paper Output

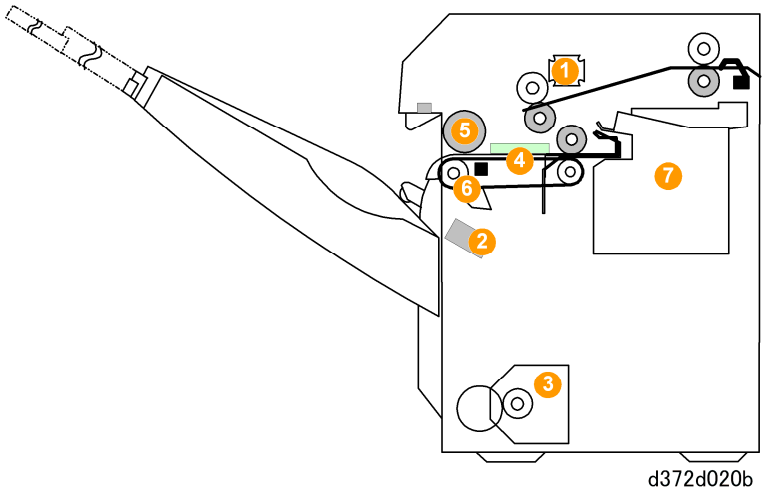
The feed-out belt motor switches on, moves the mobile fence forward and rotates the feed-out belt with the feed-out belt pawls [11]. The mobile fence pushes the stack from ① to ②, then the pawls come around and push the stack out of the finisher. Before the next stack exits, the edge depressor solenoid [12] switches on and retracts the edge depressors just before the feed-out belt pawls push the stack out. The two stack edge depressors [13] lightly push down on the trailing edge of the stack to keep it down against the end fence. The edge depressors are attached to the paper height sensor, so this action checks if it is necessary to move the tray up or down.

Tray Operation

The tray lift motor [14] raises and lowers the output tray [15] to keep the tray at the correct height. The readings of the paper height sensor [16] are used to control the raising and lowering of the tray with the tray lift motor.

The tray-full sensor [17] located at the bottom of the tray rail at the back of the finisher switches on after the tray descends to its lowest point. This signals that the tray is full. A spring-loaded bar [18] and its push-switch also signal tray full if the top of the paper load in the tray pushes this bar up and trips the switch. (This is a backup device to signal tray full if the tray-full sensor fails.)

2.1.4 INITIALIZATION: WHAT HAPPENS AT POWER ON



Here is a summary of what happens during the initialization of the finisher after the system power is turned on.

Note

- The initialization halts if the entrance sensor or paper sensor on the stapling tray detects paper inside the finisher.

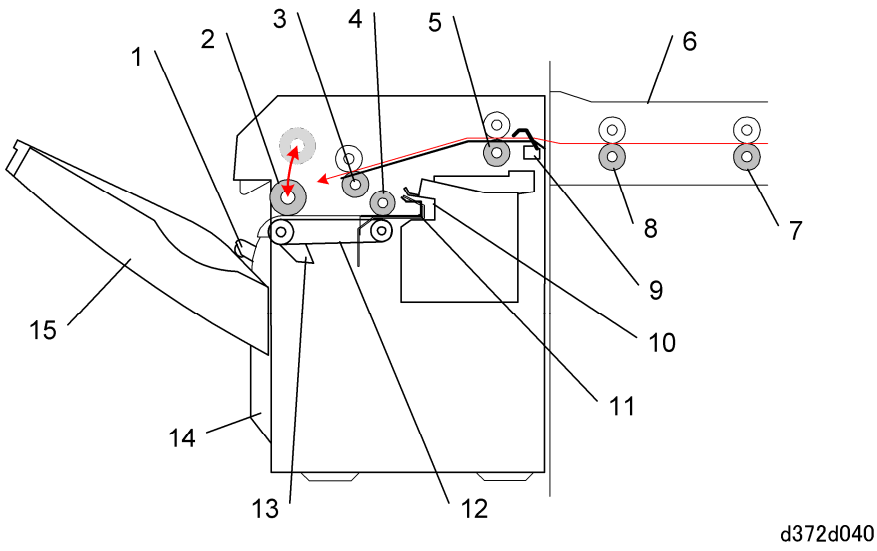
No.	What Happens
1	The transport motor roller switches on and off.
2	The edge depressor solenoid switches on, retracts the edge depressors, and then switches off to allow the depressors to lower.
3	The tray lift motor switches on, lowers the tray slightly, raises it to the start position and switches off.
4	The front and side fence motors switch on and off to position both side fences at their home positions (both retracted).
5	The positioning roller arm motor switches on and off to bring the positioning roller to its home position (up).
6	The feed-out belt motor switches on and moves the belt pawls to their home positions below the paper sensor on the stapling tray.
7	The stapler movement motor switches on, reverses, and then switches off to make

Overview

No.	What Happens
	sure that the stapler is at its home position.

2.2 PAPER TRANSPORT

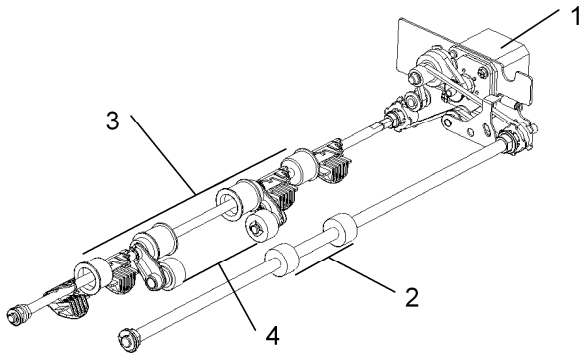
2.2.1 OVERVIEW



1.	Stack Edge Depressors	9.	Entrance Sensor
2.	Positioning Roller	10.	Mobile Fence
3.	Exit Roller	11.	Bottom Fences (x2)
4.	Return Rollers	12.	Feed-Out Belts (x2)
5.	Entrance Roller	13.	Feed-Out Belt Pawls (x2)
6.	Bridge Unit (Copier)	14.	End Fence
7.	Transport Roller (Main Machine)	15.	Output Tray
8.	Exit Roller (Main Machine)		

2.2.2 TRANSPORT ROLLERS

Paper Feed Rollers

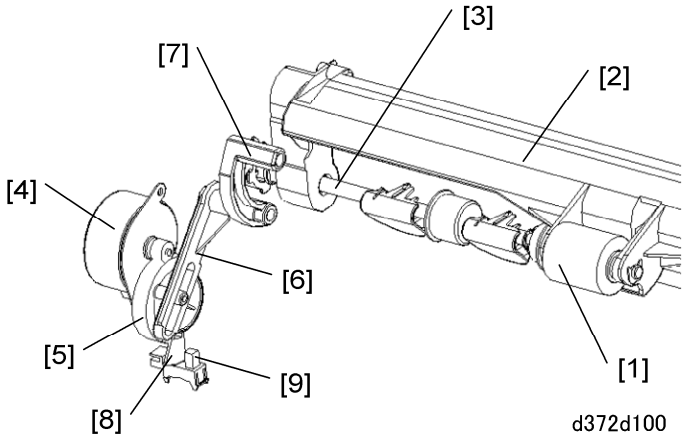


1.	Transport Motor
2.	Entrance Rollers
3.	Exit Rollers (Teflon)
4.	Return Rollers (Sponge)

The transport motor [1] uses timing belts to drive all the rollers in the unit.
The entrance rollers [2] take the paper from the copier and feed it to the exit rollers [3], where the paper drops onto the jogging and stapling tray. The return rollers [4] rotate in the opposite direction and feed each sheet against the bottom fences inside the finisher. The positioning roller (described in the next section) assists the return rollers in feeding each sheet against the end fences.

2.2.3 POSITIONING ROLLER

Positioning Roller Mechanism



The positioning roller [1] (driven by the transport motor) is mounted on the positioning roller arm [2] that swings freely on the shaft [3].

The positioning roller arm motor [4] drives a cam [5]. The eccentric rotation of this cam raises and lowers the coupler [6] that pushes against the positioning roller arm [7]. This motion raises and lowers the rotating positioning roller as the cam turns through one full rotation.

An actuator [8] attached to the cam wheel deactivates the positioning roller HP sensor [9] and stops the motor. This stops the positioning roller arm and positioning roller at the highest point (home position).

When the positioning roller is lowered:

- The transport motor slows down to match the speed of the main machine's exit roller.
- At the same time, the positioning roller motor accelerates briefly, lowers the positioning roller arm and then stops.

When the positioning roller touches the paper:

- The positioning roller (driven by the transport roller) continues to rotate.
- The positioning roller (and the smaller two sponge rollers), rotating against the direction of paper feed, touch the paper and send it back against the bottom fences.
- The number of sheets that stack on the staple tray while the positioning roller motor is stopped is different for each job.
- To meet the requirement for the increasing number of sheets, the length of prescribed time that the positioning roller is in contact with each sheet of paper is very short, regardless of the size of the stack.
- The positioning roller arm motor remains off just long enough for the positioning roller to send the sheet against the bottom fences.

Paper Transport

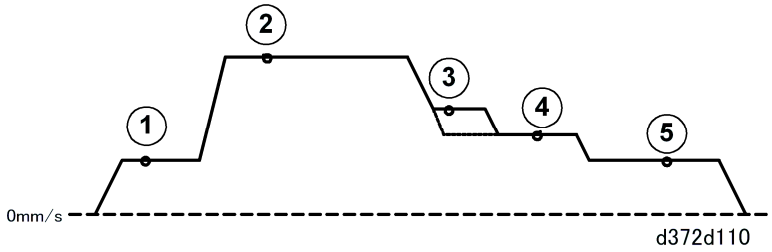
When the positioning roller is raised:

- The motor switches on again, raises the positioning roller arm, slows down slightly, and then the arm stops at the home position.
- The motor slows down slightly before reaching the home position to reduce the impact and noise of the arm returning to the home position.

This cycle of lowering the positioning roller, touching the paper with the positioning roller and return rollers, and then lifting them again and stopping at the home position, is done for each sheet of paper.

Transport Motor Control

The transport motor drives all the rollers inside the finisher and controls the line speed of the finisher.



①	The transport motor accelerates to match the line speed of the main machine (150 mm/s).
②	The transport motor speed accelerates to 600 mm/s after the leading edge of the sheet passes the entrance sensor and feeds 21.5 mm.
③	After the trailing edge goes 96 mm past the entrance sensor, the transport motor slows the line speed to 200 mm/s for paper shorter than 300 mm, or to 300 mm/s for paper longer than 300 mm.
④	After the paper sensor detects that the trailing has fed 45 mm past the exit roller, the transport motor slows the line speed to 200 mm/s so that the sheet can be positioned for jogging. At this time, the positioning roller arm motor switches on and starts to lower the positioning roller arm and positioning roller.
⑤	The transport motor slows the line speed in the finisher to match the line speed of the paper path in the main machine. The positioning roller reaches the end of its downward stroke and remains in that position long enough to feed the sheet back against the bottom fences. The positioning roller arm motor reverses and raises the

	positioning roller arm to the end of its upward stroke and stops at the home position. While the sheet is being jogged between the front and rear side fences, the cycle repeats from ② when the next sheet feeds.

2.2.4 POSITIONING ROLLER INITIALIZATION

The following sequence occurs when the system is switched on:

Paper in Paper Path (Jam)

If paper is detected in the paper path between the copier exit roller and finisher entrance roller, the transport motor switches on then immediately switches off.

Normal Startup

The transport motor switches on and rotates the positioning roller to home position. The positioning roller arm motor switches on, lowers the positioning roller arm, raises the positioning roller to the up position and then stops when the actuator of the positioning roller HP sensor switches off the sensor.

- If the HP sensor does not go OFF within the prescribed time, this indicates an error.
- If the HP sensor does not go ON after the motor has switched on, this also indicates an error.

In either case, the positioning roller arm motor is switched off. The first occurrence causes a jam error. An SC code is issued if the error occurs again.

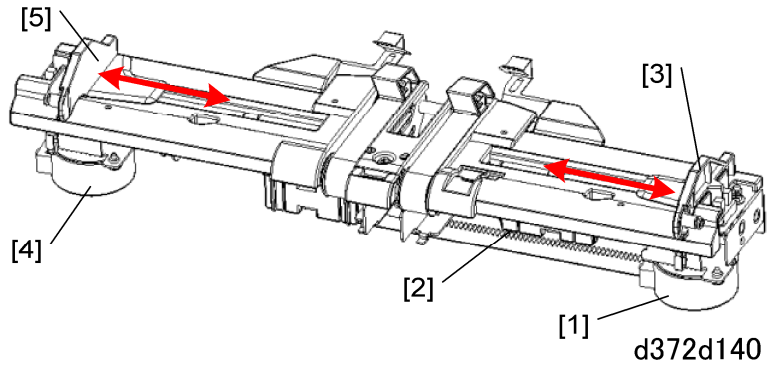
This initialization sequence is executed:

- When the copier is powered on
- When the stapler door is opened or closed
- When the top cover of the finisher is opened or closed to remove a jam

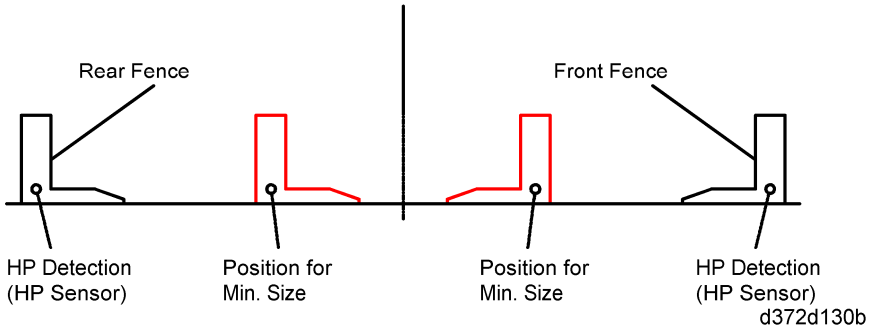
2.3 JOGGING (PAPER ALIGNMENT)

2.3.1 OVERVIEW

Two side fences, a rear fence and a front fence, move in and out to align the sides of the paper stack. Each fence is controlled by an independent timing belt and motor.



The front fence motor [1] and timing belt [2] move the front fence [3] backward and forward. The rear fence motor [4] and timing belt (not shown) move the rear fence [5] forward and backward.



The diagram above shows the positions of the side fences.

1. When the copier exit sensor signals that that a sheet of paper has been sent from the copier to the finisher, both fence motors switch on and move the side fences to the start position.

   The start position for each fence is set wider than the paper size selected for the job:

   - 15 mm wider than the paper for shift mode.
   - 7 mm wider than the paper for staple mode
   - 10 mm wider than 12-in. paper for oblique stapling
   - 12 mm wider than 12-in. paper for straight stapling

2. The paper is fed onto the output tray. The transport motor slows down the rotation of

the positioning roller and return rollers. The positioning roller descends. The positioning roller and return rollers feed the trailing edge of the paper to the right against the bottom fences. The side fence motors switch on and jog the edges of the sheet so that the first sheet is properly aligned.

3. The side fences return to the start position after the next sheet has feed 50 mm past the entrance sensor.
4. Steps 2 and 3 are repeated for the next sheet.
5. In stapling mode: After the last page of the document has fed and been aligned on top of the stack by the rear and front fences, the side fences retract and advance two more times against the sides of the complete stack.
6. The stack is now ready to be output from the finisher. The side fences stop at the sides of the stack and wait for the stack to be output. After output, the side fence motors switch on and move the fences to the jog start position.
   - As soon as 10 sheets stack on the jogging tray in shift mode, the stack is output regardless of whether the document has finished printing or not.
   - In stapling mode, the side fence that jogs the side of the stack stops and waits for stapling to end. After stapling, the side fence motor switches on and retracts the side fence 0.5 mm. (If the stack is centered, both fences retract 0.25 mm).
   - After the stack is output by the feed-out belt, the side fence motors switch on and once again move the fences to the jog start position.
7. In the shift mode: The rear side fence does the jogging against the side of the stack, and the front fence does not move. For the next stack, the roles of the side fences are reversed: the front fence does the jogging and the rear fence does not move. The operation continues to alternate for the next stacks so that each stack is shifted to the front (or back) depending how it was jogged between the side fences. (Steps 2, 3, 6 repeat.)

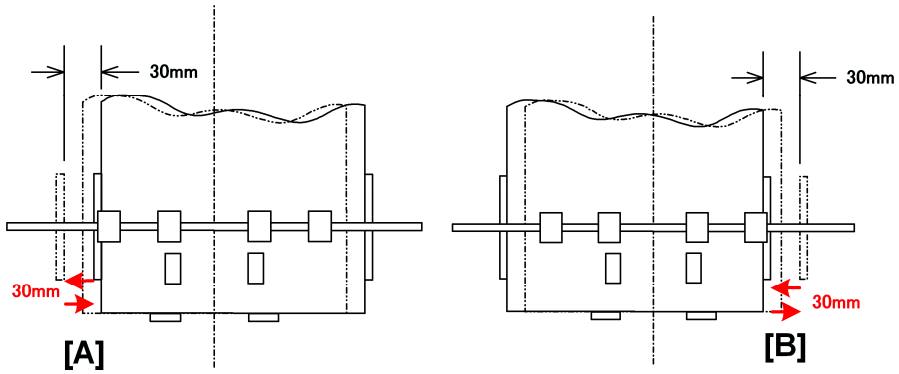
   In the staple mode, the steps are done in sequence (2), (3), (5), (6).
8. After the last stack of the job has been output, the main machine sends a STOP signal to end the job, and the front and rear side fence motors switch on and the side fences retract to their home positions.

2.3.2 SIDE FENCE OPERATION

Shift Mode

Side Fence Operation: Shift Mode

Jogging (Paper Alignment)



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The diagram above illustrates the operation of the side fences in shift mode with no stapling.

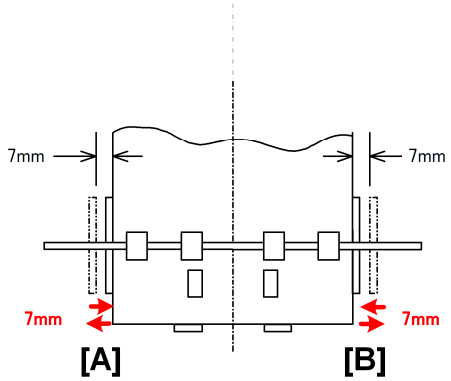
- Every sheet of the first set is pushed by the front fence [A] against the rear fence, which does not move.
- Every sheet of the second set is pushed by the rear fence [B] against the front fence, which does not move.
- The sequence alternates for every set in the print job. At the end of the job, every set is stacked on the output tray neatly offset by 30 mm, making them easy to separate.

Normal (Non-Shift) Mode

The diagram above illustrates the operation of the side fences in normal (non-shift) mode. The operation is slightly different, depending on the paper size. There are three cases:

- Standard paper sizes (other than "wide" or "small" paper
- Wide paper sizes (133 to 147 mm)
- Small paper sizes (up to 133 mm)

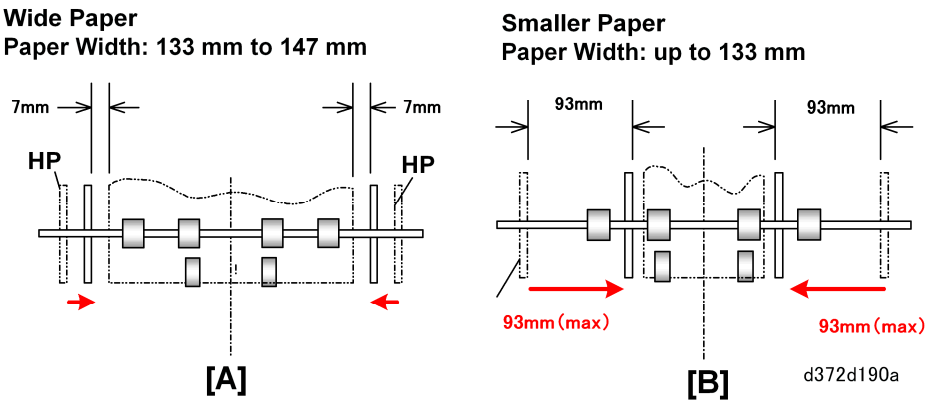
Standard Paper Sizes



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Every time a sheet is fed the front fence [A] and rear fence [B] both push against the sides of the stack within the space of 7 mm on each side.

Wide and Small Paper Sizes



Every time a wide sheet [A] is fed, the front fence and rear fence both push against the sides of the stack within the space of 7 mm on each side.

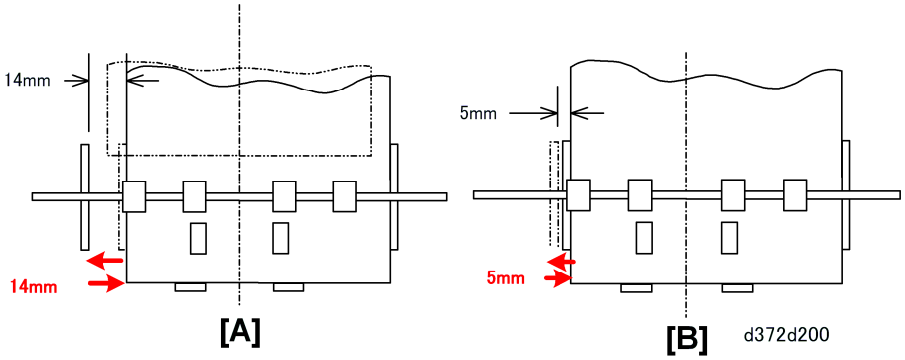
Every time a smaller sheet [B] is fed, the front fence and rear fence both push against the sides of the fence with the space of 93 mm on each side.

Staple Mode

The operation of the side fences is slightly different, depending on the type of stapling selected for the job:

- One staple (front/oblique, front/straight, rear/oblique, rear straight)
- Two staples at two positions

Staple Mode: 1 Staple

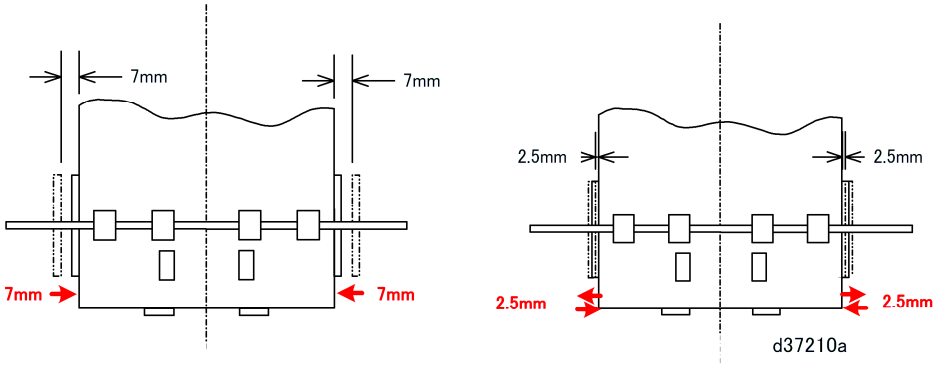


In the One-Staple Mode, one side fence jogs one side of the stack. The diagram above illustrates the operation of the side fences for stapling at one position (front/oblique, front/straight, rear/oblique, or rear/straight).

- Every time a sheet [A] is fed, the front fence pushes the sheet against the rear fence, which does not move.
- After the last sheet [B] is pushed against the rear fence, the front fence moves front to back twice (5 mm) to align the side of the stack for stapling.

Staple Mode: 2 Staples

Jogging (Paper Alignment)



[A] [B]

In the Two-Staple Mode, both side fences jog the sides of the stack. The diagram above illustrates the operation of the side fences for stapling at two positions.

- Every time a sheet [A] is fed, the front and rear side fences push the sheet to center it.
- After the last sheet [B] is centered, the front and side fences push and retract twice (5 mm) to align the sides of the stack centered for stapling.

2.3.3 SIDE FENCE INITIALIZATION

Initialization of the front and rear side fence positions at power on is determined by the states of the front fence HP sensor and rear fence HP sensor. The descriptions below apply to both HP sensors.

- Paper on Stapling Tray
  Initialization is not executed if the paper sensor on the stapling tray detects paper present.
- Fence HP Sensor OFF
  The fence motor switches on until the HP sensor goes ON, advances 0.25 mm, then switches OFF. This is the home position.
- Fence HP sensor ON
  The fence motor drives the fence toward the center until the HP sensor goes OFF, advances 15 mm, then switches off. The motor switches ON again, advances the fence 0.25 mm, then switches off. (This is the home position.)

2.3.4 SIDE FENCE MOTOR ERRORS

A side fence motor error can occur in two cases:

- The HP sensor does not go OFF even after the side fence has run long enough to advance the fence 12.5 mm from the fence home position, far enough to deactivate the fence HP sensor.
- The HP sensor does not go ON even after the motor has run long enough for the side fence to retract 105.0 mm, far enough for the fence to reach the side fence HP sensor.

When an error occurs the finisher ceases to operate (all motors are switched off with the exception of the stapler movement motor).

Errors for the front fence and rear fence motors are counted separately.

- The first occurrence of an error issues a paper jam alert.
- The second occurrence of an error issues an SC code. SC721 is issued for the front fence motor and SC722 for the rear fence motor.

To recover from an error:

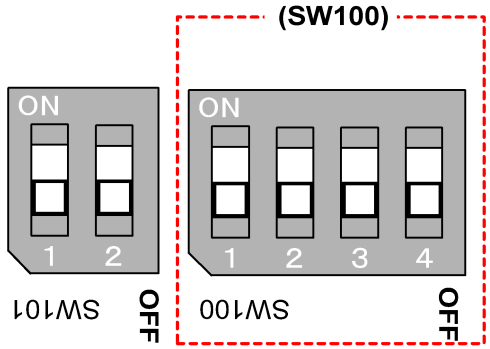
- At the first occurrence of the error after a paper jam error, opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after an SC code is issued, cycling the main machine off/on may restore full operation if no problems are detected.

2.3.5 SIDE FENCE OPERATION ADJUSTMENT

The distance between the front and rear side fences can be adjusted with DIP SW100. The DIP SW adjustment is done in increments of 0.5 mm (Max. Range: ±3.5 mm).

- The adjustment is halved for center jogging. If the adjustment is 0.5 mm, for example, this means the position adjustment 0.25 mm for each side fence.

The table below shows the adjustments done with DIP SW100 on the main board of the finisher.



DIP SW

1	2	3	4	Adjustment (mm)
ON	ON	ON	ON	-3.5
ON	ON	ON	OFF	-3.0
ON	ON	OFF	ON	-2.5

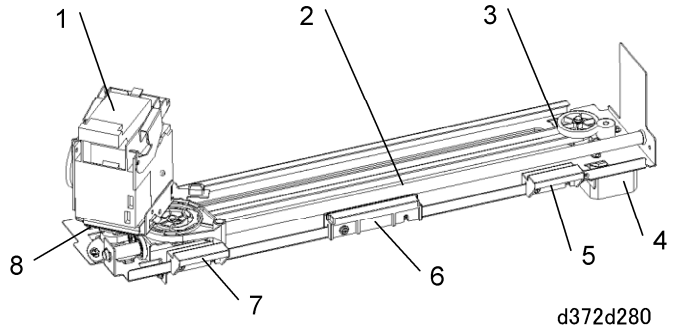
Jogging (Paper Alignment)

1	2	3	4	Adjustment (mm)
ON	ON	OFF	OFF	-2.0
ON	OFF	ON	ON	-1.5
ON	OFF	ON	OFF	-1.0
ON	OFF	OFF	ON	-0.5
ON	OFF	OFF	OFF	0.0
OFF	ON	ON	ON	3.5
OFF	ON	ON	OFF	3.0
OFF	ON	OFF	ON	2.5
OFF	ON	OFF	OFF	2.0
OFF	OFF	ON	ON	1.5
OFF	OFF	ON	OFF	1.0
OFF	OFF	OFF	ON	0.5
OFF	OFF	OFF	OFF	0.0

2.4 STAPLING

2.4.1 OVERVIEW

Stapler Movement



1.	Stapler Unit	5.	Trip Plate – Rear
2.	Guide Rail	6.	Trip Plate – Center
3.	Driver Gear, Timing Belt	7.	Trip Plate – Front
4.	Stapler Movement Motor	8.	Stapler HP Sensor

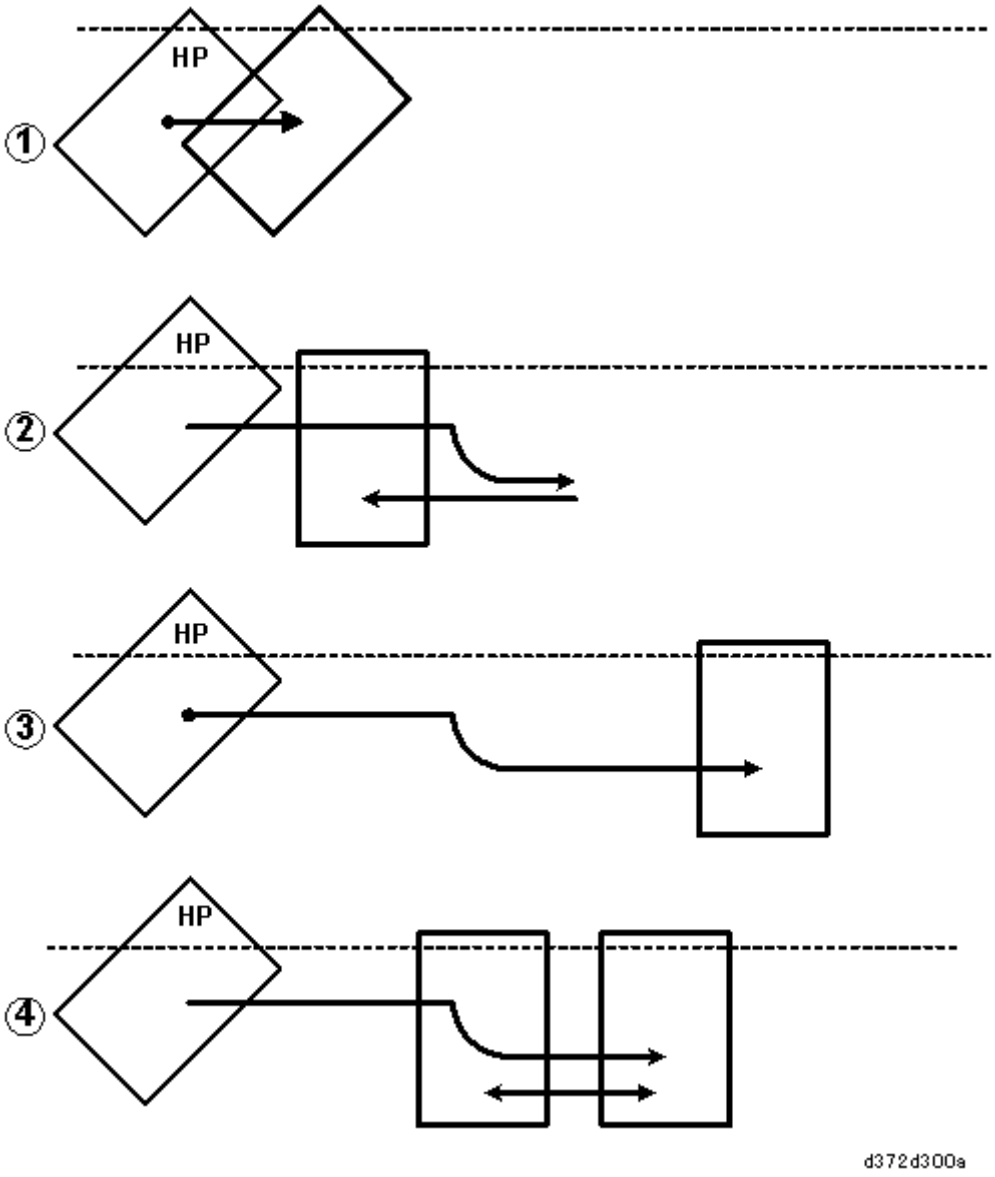
The illustration below shows how the stapler moves during each stapling mode.

Note

- When the plate on the bottom of the stapler unit strikes a trip plate, this swivels the stapler unit from straight to oblique or vice versa.

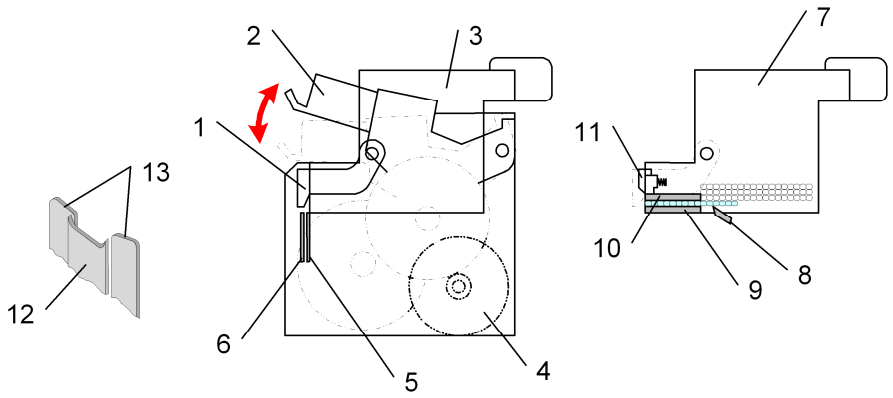
Stapling

Staple Positions



①	Front Oblique Stapling: 1 Staple
②	Front Straight Stapling: 1 Staple
③	Rear Straight Stapling: 1 Staple
④	2 Staples (Rear then Front)

Stapler EH-530



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1.	Faceplate	8.	Staple Supply Pawl
2.	Clincher	9.	Staple Sheet
3.	Cartridge	10.	Base
4.	Stapler Motor	11.	Plunger
5.	Homing Plates	12.	Driver Plate
6.	Driver Plate	13.	Homing Plates
7.	Cartridge		

The stapler motor (4) drives both the driver plate (12) and homing plates (13) toward the clincher. The driver plate and homing plates separate and feed the staples to the clincher (2) that performs the stapling.

The pressure of the plunger (11) feeds the next staple for firing. A staple supply pawl below the staple sheet moves to the front and back to assist in staple supply. The plunger feeds only one staple at a time, but the staple supply pawl can feed up to 10 staples.

2.4.2 STAPLER MOVEMENT MOTOR INITIALIZATION

Initialization of the stapler unit position is determined by the state of the stapler HP sensor. One of the following sequences occurs at power on, depending on the state of the stapler HP sensor.

- Stapler HP sensor OFF

Stapling

The motor turns on and brings the stapler forward until the stapler HP sensor goes ON. Then the motor remains on to move the stapler an additional 1.2 mm, then stops. This is the home position.

- Stapler HP sensor ON

  The stapler movement motor turns on and moves the stapler to the rear until the stapler HP sensor goes OFF. The motor stays on to move the stapler 12 mm, then stops. Next, the motor turns on again and brings the stapler forward until the stapler HP sensor goes ON, the motor stays on to move the stapler 1.2 mm, then stops. This is the home position.

2.4.3 STAPLER ERRORS

A stapler position error can occur in two cases:

- Stapler HP sensor does not go OFF.

  The stapler HP sensor does not go OFF even after the stapler movement motor has been on long enough to move the stapler away from the home position.
- Stapler HP sensor does not go ON

  While the stapler is out of the home position, the stapler HP sensor does not go ON even after the stapler movement motor has been on long enough to move the stapler into the home position.
- Stapler is out of staples.

  At power on, if staples are not detected in the stapler, the staple detection sequence executes up to 10 times until "staples present" is detected. If staples cannot be detected after 10 attempts, then the staples out alert is issued.

When one of these errors occurs, the exciter current to the stapler motor is switched off. Both of the HP sensor errors described above are counted as the same error. In either case, the first occurrence of the error is considered a jam, and the second occurrence issues SC742 (Stapler Movement Motor Error).

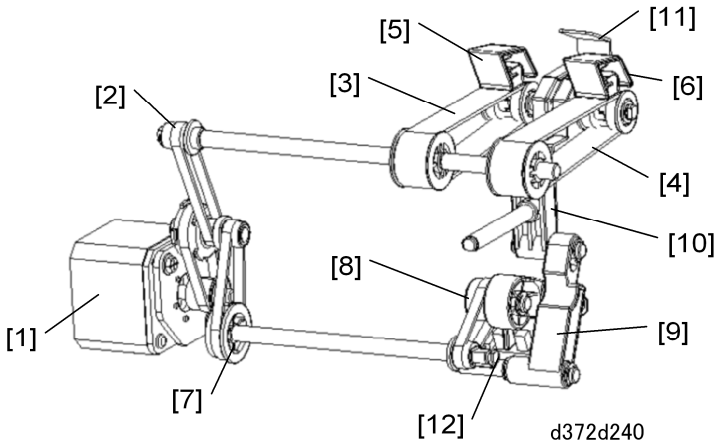
To recover from an error:

- At the first occurrence of a stapler HP sensor error, removing the jam then opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after SC742 is issued, cycling the main machine power off/on may restore full operation if no problems are detected.

2.5 PAPER OUTPUT

2.5.1 OVERVIEW

Feed-Out Mechanism



1.	Feed-Out Belt Motor	7.	Mobile Fence Drive Shaft
2.	Feed-Out Belt Drive Shaft	8.	Mobile Fence Cam
3.	Rear Feed-Out Belt	9.	Mobile Fence Follower
4.	Rear Feed-Out Belt Pawl	10.	Mobile Fence Link and Slider
5.	Front Feed-Out Belt	11.	Mobile Fence
6.	Front Feed-Out Belt Pawl	12.	Feed-Out Belt HP Sensor

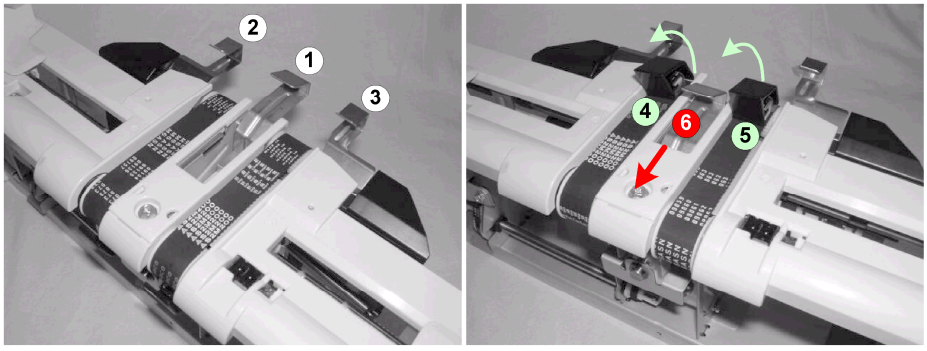
The feed-out belt motor [1] drives the timing belt and shaft [2] that rotates the feed-out belts [3] and [4]. The rear pawl [5] and front pawl [6] attached to the rear and front belts push the stack out of the finisher after stapling.

The feed-out belt motor also drives the timing belt and shaft [7] that rotates the mobile fence cam [8]. The mobile fence follower [9] converts the rotary movement of the cam to rectilinear movement (left-to-right) and transmits this movement via the link/slider [10] to the mobile fence [11]. The mobile fence is moved forward to start pushing the stack out of the finisher. The pawls on the rapidly moving feed-out belt complete pushing the stack out of the finisher. After the cam releases the follower, a spring pulls the mobile fence back to its home position.

Paper Output

When the actuator attached to the mobile fence cam switches the feed-out belt HP sensor [12] ON, this stops the feed-out belt motor with the pawls at their home positions.

Bottom Fences

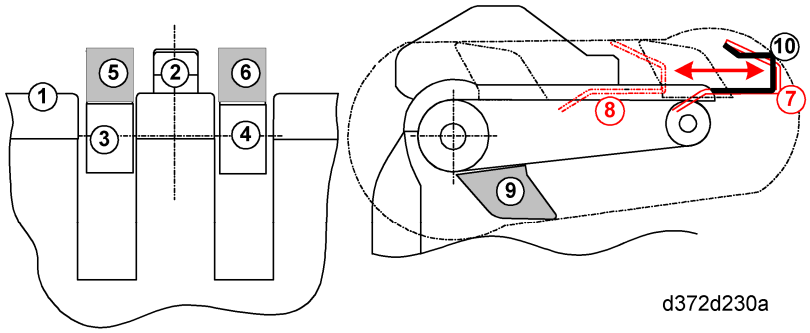


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There are three bottom fences. A mobile fence (1) resides between two stationary bottom fences (2) and (3). When the mobile fence (1) is at its home position, the positioning roller and return rollers feed the trailing edge of each sheet against these fences.

When the stack is ready to be moved to the output tray, the mobile fence (6) pushes the stack to the right. The rear pawl (4) and front pawl (5), mounted on the rear and front feed-out belts, swing up from below and push the stack onto the tray. The mobile fence (6) returns to its home position between the stationary bottom fences.

Feed-Out Mechanism: Right and Front View



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1.	Stapling Tray	6.	Rear Feed-Out Belt Pawl
2.	Mobile Fence	7.	Mobile Fence HP
3.	Front Feed-Out Belt	8.	Mobile Fence (Forward Position)
4.	Rear Feed-Out Belt	9.	Feed-Out Pawls (HP)
5.	Front Feed-Out Belt Pawl	10.	Bottom Fences x2

In the left illustration, just before that stack is output:

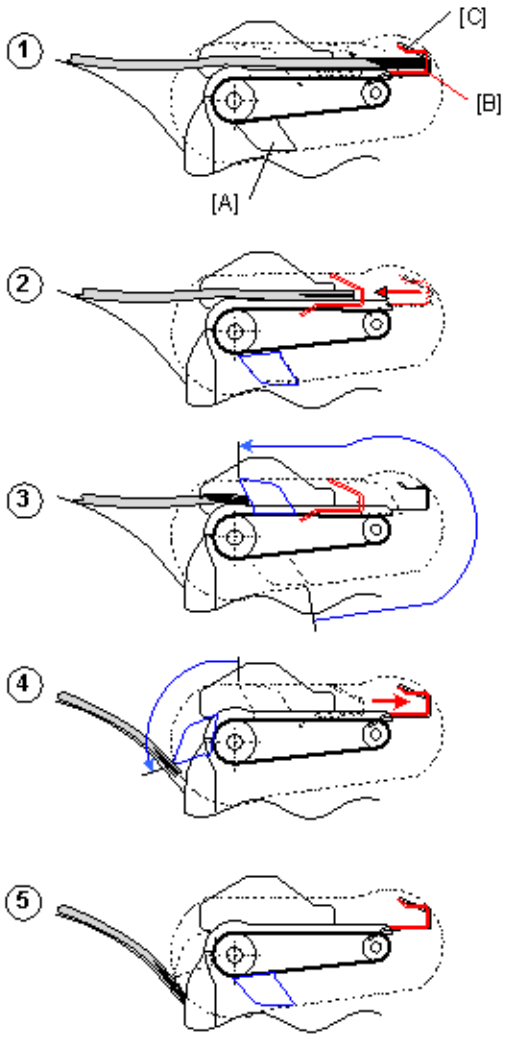
- The stack is on the stapling tray (1).
- The mobile fence (2) has pushed the stack forward to start moving it out of the finisher.
- The front and rear feed-out belts (3) and (4) have rotated the front and rear pawls (5) and (6) behind the stack so they can push the stack out of the finisher.

In the right illustration, after stack output:

- The mobile fence (driven by its cam, follower, and lever below) moved from its home position (7) to (8) to start pushing the stack out of the finisher.
- The feed-out belt pawls pushed the stack out of the finisher then stopped at their home positions (9).
- A long spring pulled the mobile fence back to its home position between the stationary bottom fences (10)

2.5.2 FEED-OUT

The diagram below shows how the feed-out belt and mobile fence work together to push the stack to the output tray.



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①	Document stacking has finished and the stack is ready to be output. The output belt pawls are at their home positions [A]. The mobile fence [B] is at its home position between the front and rear bottom fences [C].
②	The mobile fence pushes the stack to the right and stops.
③	The feed-out belt pawls rapidly swing up and push the stack toward the output tray.
④	The feed-out belt pawls push the stack onto the output tray. A spring (not shown) retracts the mobile fence.

⑤	The actuator on the mobile fence cam activates the feed-out belt pawl HP sensor. This switches the motor off and the pawls stop at the home position.

2.5.3 FEED-OUT BELT INITIALIZATION

Initialization of the positions of the feed-out belt pawls at power on is determined by the state of the feed-out belt HP sensor. This operation does not affect the mobile fence because it is held in its home position by a spring.

One of the following sequences occurs at power on, depending on the state of the feed-out belt HP sensor.

- Feed-out belt HP sensor ON
  The feed-out belt motor switches on and rotates clockwise until the HP sensor goes OFF. The motor reverses for 50 ms until the HP sensor goes ON again and stops. This is the home position.
- Feed-out belt HP sensor OFF
  The feed-out belt motor rotates counter-clockwise until the HP goes ON and then stops. This is the home position.

2.5.4 FEED-OUT BELT ERRORS

A feed-out belt error can occur in two cases:

- The feed-out belt HP sensor does not go OFF even after the motor has started.
- The feed-out belt does not go ON after the feed-out belt motor has started at power on and the finisher is ready to operate.
- Stapler out of staples

When an error occurs, the feed-out belt motor is switched off.

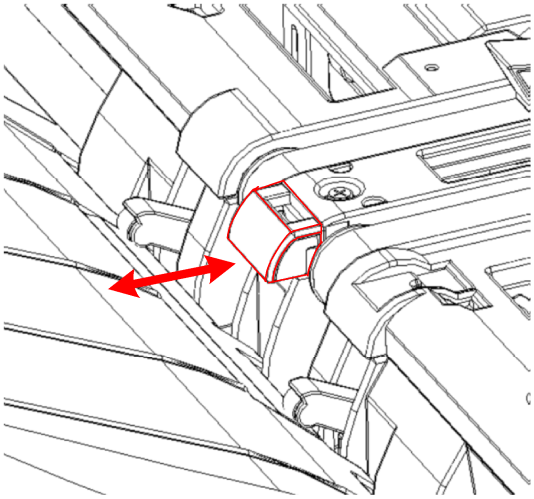
Either of the errors caused by the states of the feed-out belt HP sensor is counted as the same error.

- The first occurrence of an error issues a paper jam alert.
- The second occurrence of an error issues an SC723 (Feed-out Belt Motor Error).

To recover from an error:

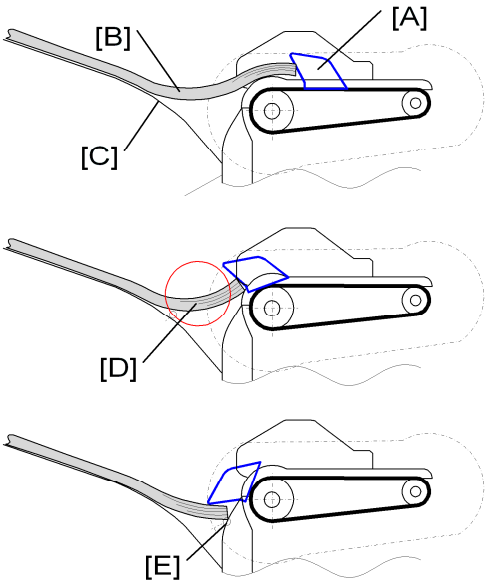
- At the first occurrence of the error after a paper jam error, opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after SC723 is issued, cycling the main machine power off/on may restore full operation if no problems are detected.

2.5.5 FEED-OUT EXTENSION



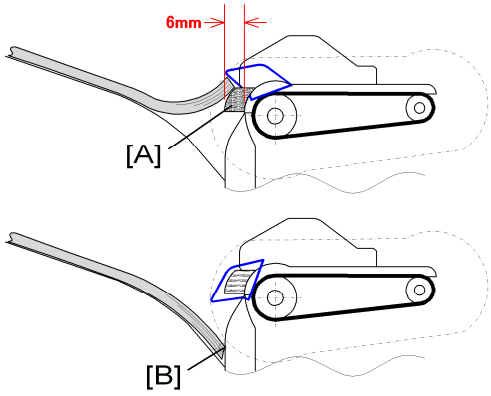
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A retractable extension is attached to the center of the stapling tray. The operator can pull it out manually if the trailing edges of the stacks are catching on the end fence and not falling straight down onto the tray.



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When the feed-out belt pawls [A] push a stack of paper [B] onto the tray [C], a bend [D] forms at the trailing edge. With some types of paper (especially larger paper such as A3), this bend can cause the edge of the stack to catch on the end fence [E] when it falls into the tray.

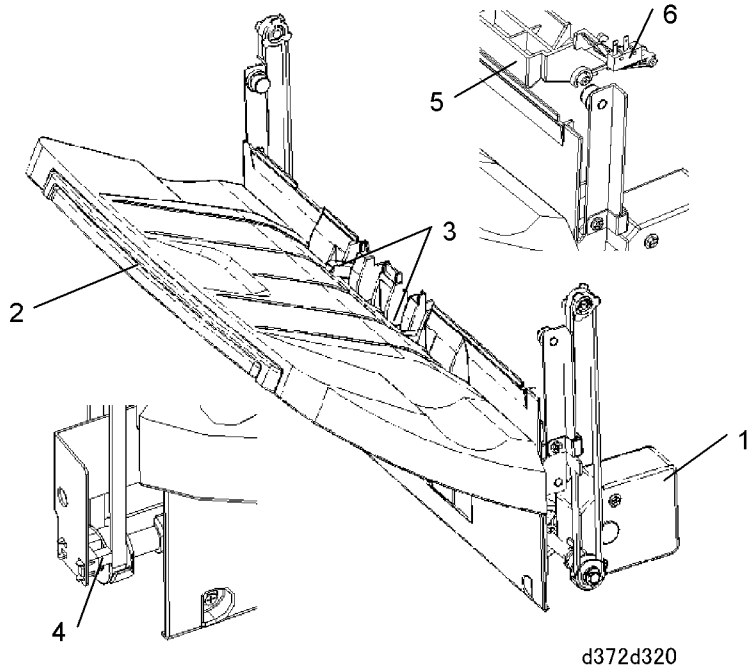


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Pulling the stapling tray extension [A] out by hand extends by 6 mm the distance that the pawls must push the trailing edge of the stack. The extra 6 mm forces the edge of the stack to bend more so it will snap down with more force and not catch on the end fence. This prevents the trailing edge of the stack [B] from catching on the end fence when it falls into the tray.

2.6 TRAY OPERATION

2.6.1 OVERVIEW



1.	Tray Lift Motor
2.	Output Tray
3.	Edge Depressors
4.	Tray Full Sensor
5.	Upper Limit Push-bar
6.	Tray Upper Limit Switch

The tray lift motor (1) raises and lowers the output tray (2).

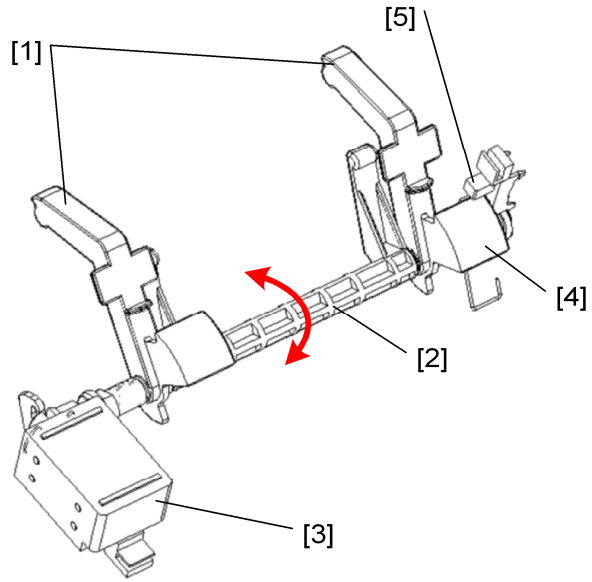
The edge depressors (3) lightly press down on the trailing edges of stacks already on the tray to keep them down against the end fence.

When the actuator on the bottom of the rear rail switches the tray full sensor (4) ON, this means that the tray is at its lowest point and the tray is full.

If the tray becomes overloaded, the top of the stack pushes up the spring-loaded push-bar

(5). This will turn on the tray upper limit switch (6) and turn off the tray lift motor. This is a safety device to signal tray full in case the tray full sensor fails.

2.6.2 TRAY LIFT CONTROL



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1.	Edge Depressors
2.	Rotating Shaft
3.	Edge Depressor Solenoid
4.	Actuator
5.	Paper Height Sensor

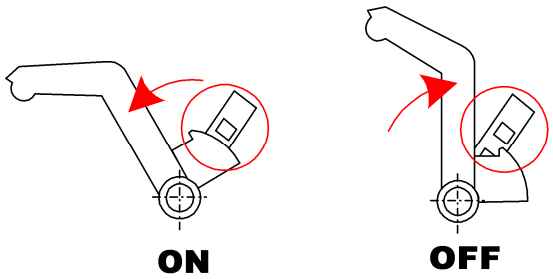
While the feed-out belt motor is running, the tray lift motor switches on (300 ms for shift mode, 500 ms for stapling mode), lowers the output tray, stops, then waits to receive the stack.

Just before a stack falls onto the output tray, the edge depressor solenoid (3) switches ON and retracts the edge depressors (1) away from the top of the stack already on the tray so that the next stack can fall freely.

The feed-out belt motor stops immediately after the stack has fallen between the side fences. The edge depressor solenoid switches OFF, and the edge depressors fall onto the trailing edge of the stack against the end fence.

Tray Operation

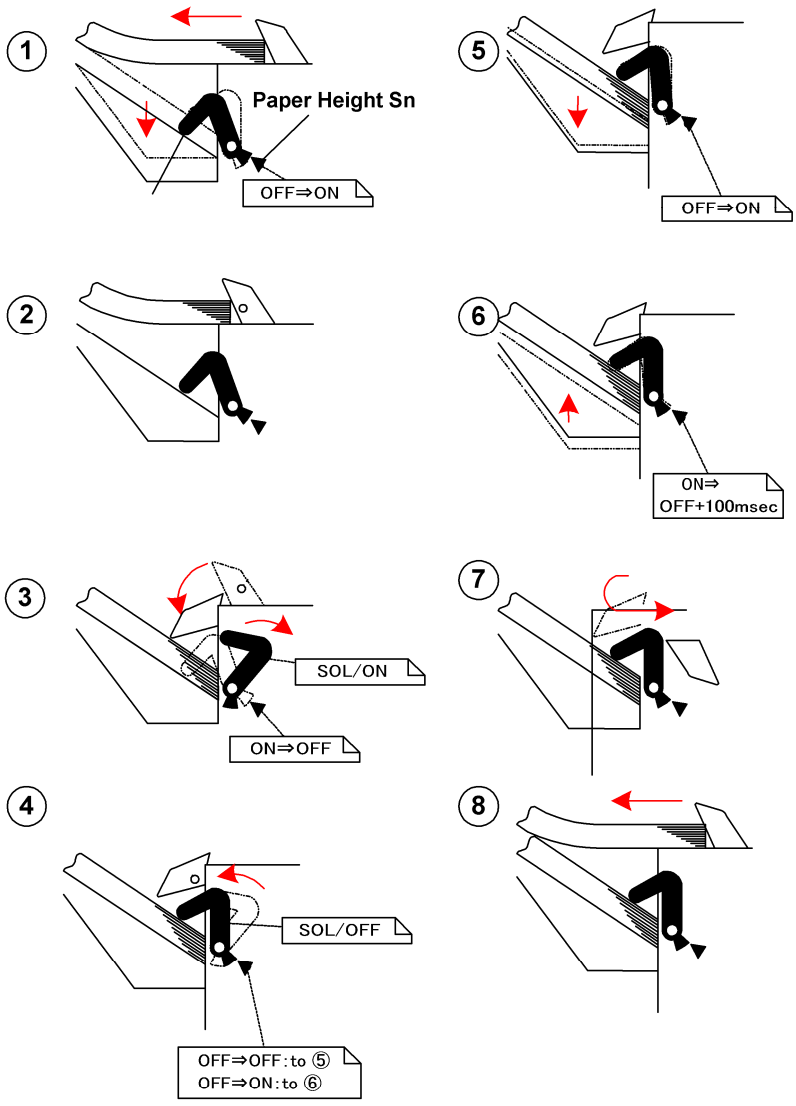
The edge depressors touch the top of the stack, and they are connected to the paper height sensor [5], so this action checks if it is necessary to move the tray up or down.



- After 200 ms if the paper height sensor is **ON**, the tray lift motor switches ON and raises the tray.
- If the paper height sensor is **OFF,** the tray lift motor lowers the tray until the paper height sensor switches ON, pauses for 100 ms, switches on again briefly to raise tray to the prescribed position to receive the next stack.

The diagram below shows how the feed-out belt pawls, output tray, and edge depressors operate together.

Stack Output to Tray



d372d360

①	The feed-out motor switches on and starts to move the feed-out belts and pawls, pushing the stack toward the output tray. The tray motor switches on and lowers the tray until the paper height sensor switches on.
②	The motor stops briefly to stop the pawls.

Tray Operation

③	The motor starts, and just as the pawls start to push the stack onto the tray the edge depressor solenoid switches on and retracts the edge depressors
④	The stack is on the tray. The solenoid switches off, and the depressors move forward and press down lightly on the trailing edge of the stack. ▪ If the paper height sensor is OFF, go to ⑤ ▪ If the paper height sensor is ON, go to ⑥
⑤	The tray lift motor switches on, lowers the tray, and then stops when the paper height sensor goes ON.
⑥	The tray lift motor reverses for 100 ms to raise the tray to the start position.
⑦	The pawls move to their home positions and stop.
⑧	The sequence starts again with the next finished stack,.

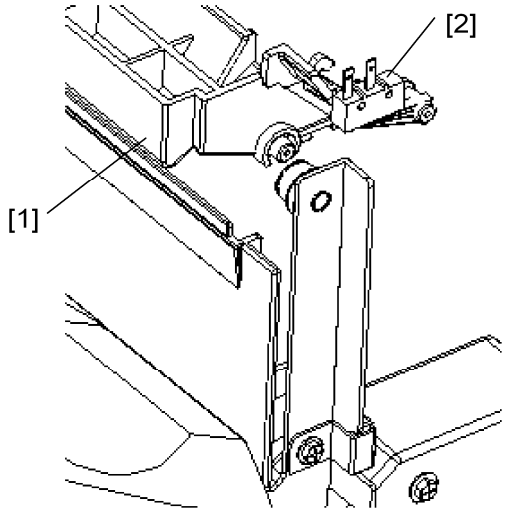
2.6.3 TRAY INITIALIZATION

The following sequence occurs at power on depending on the states of the paper height sensor and tray full sensor:

①	The edge depressor solenoid switches from ON to OFF.
②	▪ If paper height sensor ON, then go to ③. ▪ Paper height sensor OFF. If the tray full sensor is ON and the paper height sensor is OFF, this signals that the output tray is full. Removing the paper from the tray will switch the paper height sensor ON. The tray lift motor switches on, lowers the tray, reverses for briefly to raise the tray to the start position, then switches OFF.
③	The tray lift motor continues to lift the tray until the paper height sensor goes OFF, continues to run 100 ms, and stops.

2.6.4 TRAY LIFT ERRORS

Tray Lift Motor Error



d372d320a

If the tray becomes overloaded and the paper pushes and raises the push-bar [1], this will switch ON the upper limit switch [2] (a push-switch). Activating this switch switches off the tray lift motor. This is a backup device that will switch off the tray lift motor if the tray full sensor or paper height sensors fail.

The table below shows how the state of the two sensors and one switch signal an error.

Tray Upper Limit SW	Tray Full Sn	Paper Hgt Sn	What Happens
ON	OFF	OFF	Tray Full. One or both sensors has failed.
OFF	ON	OFF	Tray Full
OFF	ON	ON	Lift motor starts to raise tray
OFF	OFF	OFF	Lift motor starts to lower tray
OFF	OFF	ON	Lift motor starts to raise tray.

The machine issues a tray-full alert when the tray becomes full:

- Tray full sensor ON
  The tray has reached its lowest position.

Tray Operation

- Paper height sensor OFF (full upright)

  The paper on the tray has pushed the edge depressors to the full upright position.

Normally, removing the paper from the tray restores normal operation. The actuator falls and the paper height sensor switches ON. This signals the lift motor to raise the tray to the start position.

An error will occur if an abnormal condition exists:

- After the paper height sensor switches ON and the tray lift motor raises the tray, if paper height sensor does not go OFF after 20 sec., this signals an error and the tray lift motor will switch OFF.
- With the paper height sensor OFF and the tray full sensor OFF, the tray lift motor lowers the tray. The tray lift motor will switch off if the paper height sensor does not go ON within 3 sec.

These two errors are counted as the same error. The first occurrence of the error is considered a jam, and at the second occurrence SC750 (Tray Lift Motor Error) is issued.

To recover from an error:

- At the first occurrence of the error after a paper jam error, opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after SC750 is issued, cycling the main machine off/on may restore full operation if no problems are detected.

Edge Depressor Solenoid Error

At power on, or while the stack starts being output to the tray (the solenoid starts to go OFF), if the paper height sensor remains OFF this indicates a solenoid error. When this error occurs:

- All motors switch off.
- The error is logged.

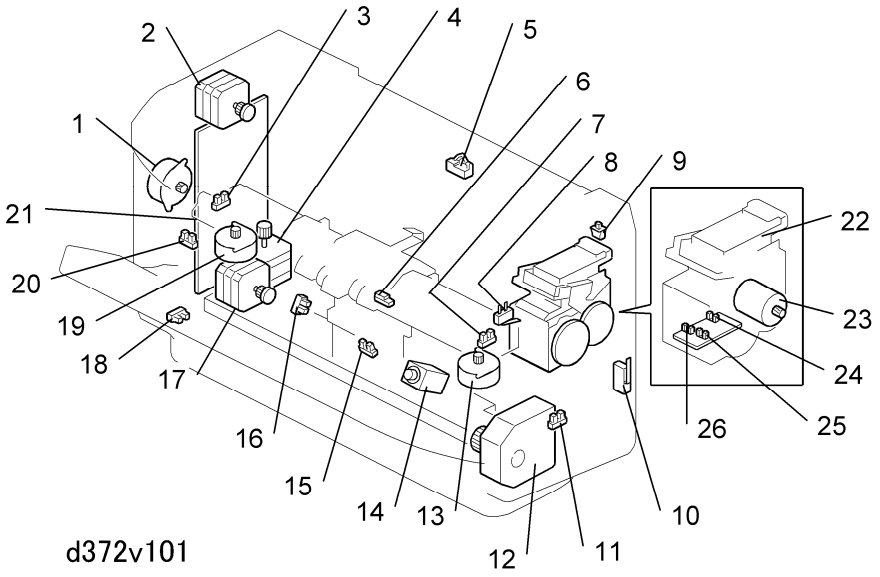
The first occurrence is considered a jam, and the second occurrence causes SC751 (Edge Depressor Solenoid).

To recover from an error:

- At the first occurrence of the error after a paper jam error, opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after SC750 is issued, cycling the main machine off/on may restore full operation if no problems are detected.

2.7 ELECTRICAL COMPONENTS

2.7.1 COMPONENT LAYOUT



1.	Positioning Roller Motor	14.	Stack Depressor Solenoid
2.	Transport Motor	15.	Feed-Out Belt HP Sensor
3.	Rear Fence HP Sensor	16.	Paper Height Sensor
4.	Stapler Movement Motor	17.	Feed-Out Belt Motor
5.	Entrance Sensor	18.	Output Tray Full Sensor
6.	Stapling Tray Paper Sensor	19.	Rear Fence Motor
7.	Front Fence HP Sensor	20.	Positioning Roller HP Sensor
8.	Tray Upper Limit Switch	21.	Main Board
9.	Top Cover Switch	22.	Stapler
10.	Stapler Door Switch	23.	Stapler Motor
11.	Stapler HP Sensor	24.	Staple Cartridge Set Sensor
12.	Tray Lift Motor	25.	Stapler Hammer HP Sensor
13.	Front Fence Motor	26.	Staple End Sensor

2.7.2 SUMMARY OF ELECTRICAL COMPONENTS

Motors		
M1	Feed-Out Belt Motor	Drives the two feed-out belts (1 pawl each). The pawls push the finished stack out of the finisher.
M2	Front Fence Motor	Moves the front fence to the back and front.
M3	Positioning Roller Arm Motor	Lowers and raises the positioning roller arm and positioning roller.
M4	Rear Fence Motor	Moves the rear fence to the front and back.
M5	Stapler Movement Motor	Moves the stapler to the front and back.
M6	Transport Motor	Drives all the rollers in the finisher: entrance roller, positioning roller, return rollers, exit roller
M7	Tray Lift Motor	Raises and lowers the output tray.
M8	Stapler Motor	The motor inside the stapler that drives staple supply and stapling.

Board		
PCB1	Main Board	Controls operation of the finisher. DIP switches can be changed to adjust the positions of the front and rear side fences.

Sensors		
S1	Entrance Sensor	Detects the leading edge of the paper when it enters the finisher. Readings of this sensor are used for timing of finisher operation. Also detects jams.
S	Feed Out Belt HP Sensor	Detects the HP of the feed-out belt pawls on the two feed-out belts (one pawl on each belt).

Sensors		
S2	Front Fence HP Sensor	Detects the HP of the front fence at the front of the finisher.
S3	Output Tray Full Sensor	Located at the bottom left corner of the finisher. When the actuator on the tray rail switches this sensor ON, this signals tray full.
S4	Paper Height Sensor	Used to monitor the positions of the edge depressors that press down on the trailing edge of the stack at the end fence. When the top of the stack pushes the depressors up, this switches the sensor OFF and signals the tray lift motor to lower the tray.
S5	Positioning Roller HP Sensor	Detects the HP of the positioning roller when it is up.
S6	Rear Fence HP Sensor	Detects the HP of the rear fence at the back of the finisher.
S7	Stapler HP Sensor	Detects HP of the stapler at the front of the finisher.
S8	Stapling Tray Paper Sensor	Detects paper on the stapling tray,

Solenoid		
SOL	Stack Depressor Solenoid	When a stack is output, the tray lift motor lowers the tray slightly. At this time, the stack depressor solenoid switches ON and retracts the edge depressors briefly so that the trailing edge of the stack can fall onto the tray. The solenoid then switches OFF and lowers the arms against the trailing edge of the stack to keep it down against the end fence.

Electrical Components

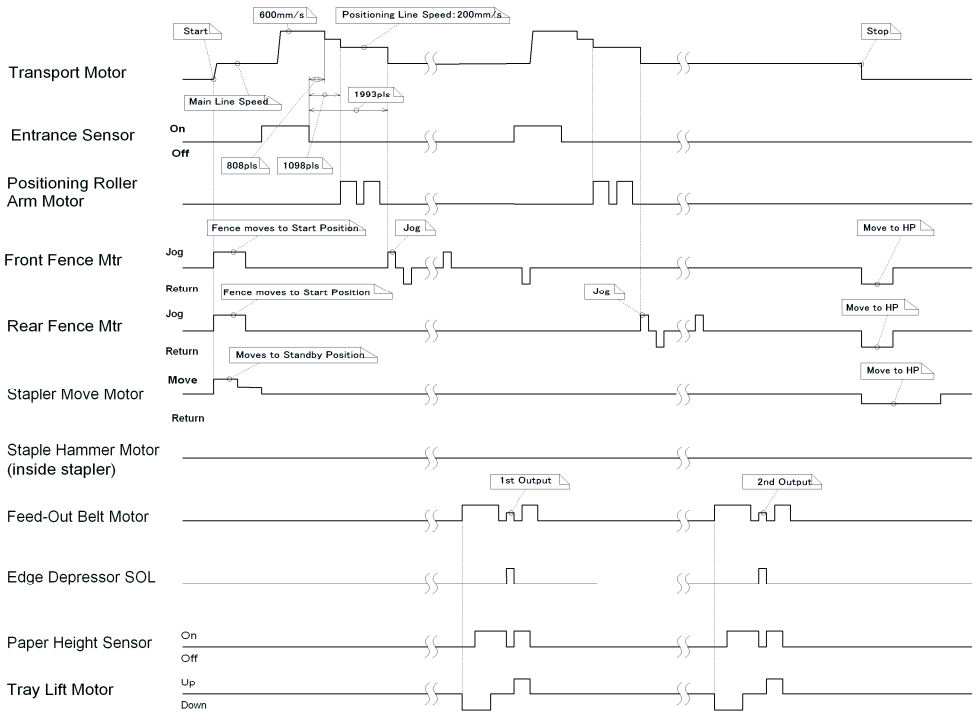
Switches		
SW1	Stapler Door Switch	Detects when the stapler top cover is open or closed.
SW2	Top Cover Switch	Detects when the top cover is opened or closed.
SW3	Tray Upper Limit Switch	If the tray becomes full, the top of the stack will push up a plate that activates this switch and switches off the finisher. This is a backup feature that will shut down operation if the tray full sensor or paper height sensor fails with the output tray full.

Other		
Stapler	Stapler Unit	Staples sheets stacked on the stapling tray.

2.7.3 TIMING CHARTS

The first flowchart below is the operational timing chart for shift mode, the second chart is for stapling mode.

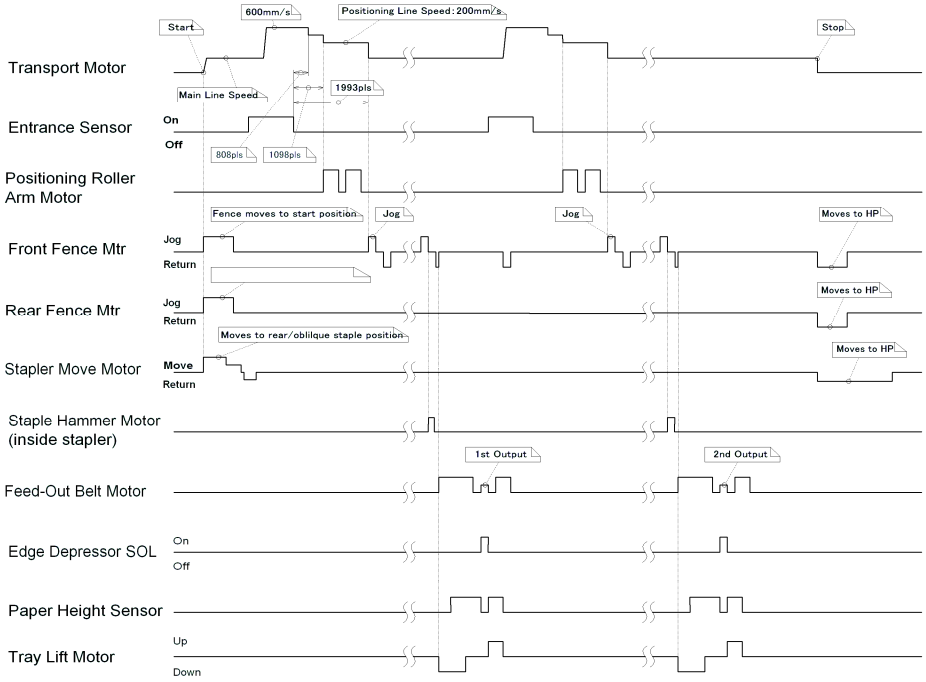
Shift Mode



d372d420

Electrical Components

Staple Mode: Rear/Oblique



d372d430

2.7.4 ERROR LIST

Here is a comprehensive list of finisher errors.

Solution Key

Symbol	Solution
①	1. Open top cover (or stapler door). 2. Remove jammed paper (or staple). 3. Close the top cover (or stapler door).
②	**1st Occurrence (Jam Error):** 1. Open top cover (or stapler door). 2. Remove jammed paper (or staple). 3. Close the top cover (or stapler door). **2nd Occurrence (SC Code):** 1. Cycle the machine power off/on 2. If this does not solve the problem, refer to Section "4. Troubleshooting". 3. Look up the SC code in table and do the service procedure.

No.	Error	Problem/Solution
1	Entrance sensor	**Problem:** Lag errorOccurs during paper feed. A paper exit signal (ON) was received from the main machine, but the entrance sensor did not switch ON after the finisher transport motor ran long enough to feed paper 500 mm. **Solution:** ①
2	Entrance sensor	**Problem:** Late errorOccurs during paper feed. The entrance detected the paper, but the entrance sensor did not go OFF after the finisher transport motor ran long enough to feed 1.5 times the length of the paper size signaled by the main machine. **Solution:**①
3	Paper in paper path	**Problem:** Occurs at power on, or after the top cover or stapler door has been closed. After the top or stapler cover switch is closed, the stapler cover switch goes OFF but the entrance sensor remains ON for longer than 50 ms. **Solution:** ①
4	No paper present	**Problem:** Occurs during stapling, stapling mode WAIT. The paper sensor on the stapling tray remains OFF for more than 50 ms. **Solution:** No action required.
5	Positioning roller motor error	**Problem:** Occurs during initialization or during operation of the positioning roller motor. ▪ During initialization or while the positioning roller arm was being lowered, the HP sensor remained ON did

Electrical Components

No.	Error	Problem/Solution
		not go OFF within the prescribed time. ▪ During initialization, the positioning roller HP sensor remained OFF did not go ON within the prescribed time. ▪ When the positioning roller arm is raised from the down position, the HP sensor does not go ON even after the positioning roller motor remained on for 450 pulses. **Solution:** ②
6	Front side fence motor error	**Problem:** Occurs at power on, when the paper moves to the start position in the finisher, or in standby mode. ▪ The front side fence HP sensor did not switch from ON to OFF after the front side fence motor remained on for 50 pulses to move the fence toward the rear. ▪ The front side fence HP sensor did not switch from OFF to ON after the front side fence motor remained on for 420 pulses. **Solution:** ②
7	Rear side fence motor error	**Problem:** Occurs at power on, when the paper moves to the start position in the finisher, or in standby mode. ▪ The rear side fence HP sensor did not switch from ON to OFF after the rear side fence motor remained on for 50 pulses to move the fence forward. ▪ The front side fence HP sensor did not switch from OFF to ON after the front side fence motor remained on for 420 pulses to move the fence toward the rear. **Solution:** ②
8	Feed-out belt motor	**Problem:** Occurs at initialization or during feed-out belt operation. ▪ The feed-out belt HP sensor did not switch from ON to

No.	Error	Problem/Solution
		OFF after the feed-out belt motor ran for 100 pulses. ▪ The feed-out belt HP sensor did not switch from OFF to ON after the feed-out belt motor ran for 1000 pulses. **Solution:** ②
9	Stapler movement motor error 1	**Problem:** Occurs at initialization or while the paper is being fed to the start position in the finisher. ▪ The stapler HP sensor did not switch from ON to OFF after the stapler movement motor ran for 200 pulses. ▪ The stapler HP sensor did not switch from OFF to ON after the stapler movement motor ran for 5600 pulses. **Solution:** ②
10	Stapler motor error	**Problem:** Occurs during staple supply to the stapler. The stapler operation (stapling) did not end after 600 ms. A staple jam can also cause this error.
11	Tray lift motor error	**Problem:** Occurs at initialization, after return to standby, or during feed-out belt operation. ▪ The paper height sensor did not go OFF after the tray lift motor ran for 3 sec. to lower the tray. ▪ The paper height sensor did not go OFF after the tray lift motor ran for 20 sec. to raise the tray. **Solution:** ②
12	Edge depressor solenoid	**Problem:** Occurs at initialization or during feed-out belt operation. ▪ The paper height sensor remained ON after the solenoid went OFF. **Solution:** ②
13	Tray full sensor	**Problem:**

Electrical Components

No.	Error	Problem/Solution
		The tray full sensor went ON with the edge depressor solenoid OFF and paper height sensor OFF. **Solution**: Tray full, remove paper.
14	Staple out	**Problem:** Occurs during standby or during stapling. ▪ The staple near-end sensor went ON, or during staple supply the self-priming sensor did not go ON, even after 10 attempts to supply more staples to the stapler. **Solution:** Replace the empty staple cartridge.
15	Top cover open	**Problem:** The top cover remained open longer than 2 ms. **Solution:** Close the top cover.
16	Stapler cover open	**Problem:** The stapler cover remained open longer than 2 ms. **Solution:** Close the stapler cover.
17	Tray upper limit switch is ON	**Problem:** The tray upper limit switch remained on longer than 2 ms. **Solution**: Before determining that an error has occurred: ▪ Lower the safety lever. ▪ Cycle the machine power off/on
18	System error	**Problem:** An abnormal condition was detected and existed longer than 60 sec. **Solution: DFU**
19	Exceeded system limitation	**Problem:** Occurs when the number of command requests received has exceeded the limit. The entrance detected the paper, but the entrance sensor did not go OFF after the finisher transport motor ran long enough to feed 1.5 times the length of the paper size signaled by the main machine.

No.	Error	Problem/Solution
		Solution: DFU
20	Abnormal data transfer	**Problem:** A problem has been detected at ASAP during data transmission. **Solution:** ①

3. SPECIFICATIONS

3.1 SPECIFICATIONS

Target Line Speed	77 mm/sec. to 205 mm/sec			
Target CPM	35 cpm			
Face-down Output Size	12"x18", A3 SEF to A6 SEF, DLT to HLT SEF Shift sizes: A3 SEF to B5 SEF A5, B6, A6 SEF labels possible			
Paper Thickness	52 g/m^2 (45 K) to 157 g/m^2 (135 K) Up to 253 g/m^2 (220K) without shift			
Stapling				
Stack Height for Stapling	50 sheets: A4, LT and smaller 30 sheets: B4, LG and larger			
Size	A3 SEF to B5 SEF (can be mixed if same width)			
Stack Thickness	64g/m^2 (45 K) to 157 g/m (135 K)			
Stapling Positions	Front/Oblique: 1, Front/Parallel: 1 Rear/Oblique: 1, Rear/Parallel: 1, 2 locations			
Output Tray Capacity				
Non-staple Mode	500 sheets: A4, LT and smaller			
Staple Mode		250 sheets: B4, LG and larger Stack Size (Stapling)	Stacks	Size
	2 to 9 Sheets		55 to 46	A4, B5, LT LEF

	10 to 50 Sheets		45 to 10	
	2 to 9 Sheets		55 to 27	A4, B5, LT SEF
	10 to 50 Sheets		25 to 8	
	2 to 9 Sheets		55 to 27	A3, B4, DLT, LG
	10 to 30 Sheets		25 to 8	
Stacking		Non-Stapling Mode	Vertical: 15 mm or less	
			Horizontal: 15 mm or less	
Jogging Precision				
2 to 30 Sheets		2 mm		
31 to 50 Sheets		3 mm		
Dimensions (w x d x h)		396 x 551 x 276 mm (15.6 x 21.7 x 10.9 in.)		
Weight		12 kg (26.4 lb.)		

PRINTER/SCANNER OPTION

D383

PRINTER/SCANNER OPTION REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
3	05/28/2008	Controller Board Slots

PRINTER/SCANNER OPTION D383

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Read This First

Safety, Conventions, Trademarks

SAFETY

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine and peripheral power cords 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. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

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.

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.

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.

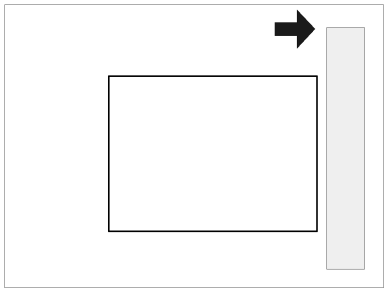
⚠CAUTION

- 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.

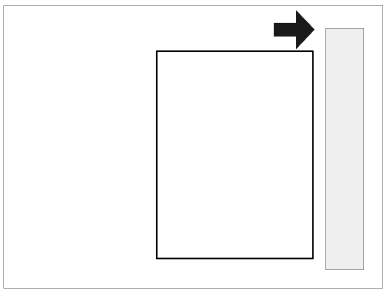
Conventions and Trademarks

CONVENTIONS

Symbol	What it means
CT	Core Tech Manual
	Screw
	Connector
	E-ring
	C-ring
	Harness clamp
FFC	Flexible Film Connector

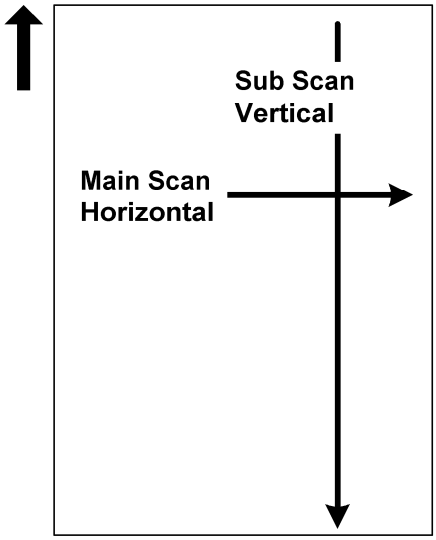


SEF (Short Edge Feed)



LEF (Long Edge Feed)

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



b286z001

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

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.

TRADEMARKS

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- PostScript® is a registered trademark of Adobe Systems, Incorporated.
- PCL® is a registered trademark of Hewlett-Packard Company.
- Ethernet® is a registered trademark of Xerox Corporation.
- PowerPC® is a registered trademark of International Business Machines Corporation.

- 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.

1. INSTALLATION

1.1 CONTROLLER BOARD SLOTS

The following items are standard (not options) for the Color Scanner Unit on the D018/D020.

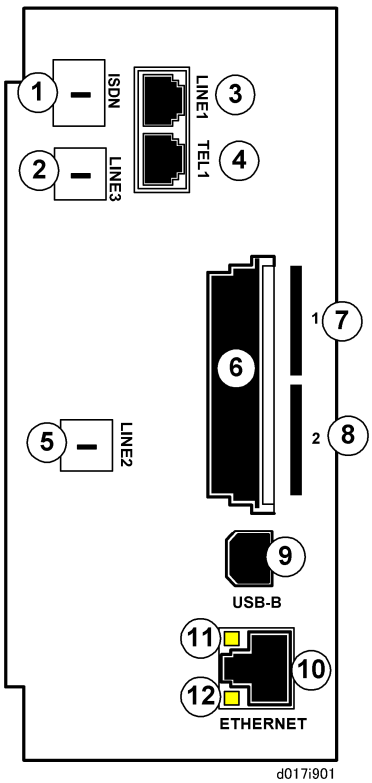
- Printer/Scanner Unit
- 256 MB memory

These items are available as options for the Monochrome Scanner Unit D017/D019.

1.1.1 INTERFACE BOARD, SD CARD SLOTS

The machine controller box has one board slot and two SD card slots.

- Only one interface board option can be installed.
- Only two SD cards are available for applications and maintenance.



Controller Board Slots

Board Slots

No.	Name	Description
①	ISDN	Jack for ISDN connection (**Japan Only**)
②	Line 3	Not used. (G4 is not available for installation outside Japan at this time.)
③	Line 1	Jack for the main telephone line from the outside for connection to Fax Option (D361).
④	TEL1	Jack for telephone connection
⑤	Line 2	Jack for a 2nd line connection to the Fax Interface Unit (D361) (G3) when this option is installed.
⑥	Board Slot	Optional interface boards are installed here.
⑦	SD Card Slot 1	For options provided on SD cards. The application SD card (with the exception of the HDD Encryption unit or VM SD card) should be installed in Slot 1. If more than one application is to be used, move the applications to the same SD card with SP5873.
⑧	SD Card Slot 2	For options provided on SD cards and servicing. The HDD Encryption unit SD card and VM card must be installed in Slot 2.
⑨	USB-B	Built-in for connection of USB devices (USB 2.0)
⑩	Ethernet	Standard LAN connection point. 100BaseT LAN
⑪	Green LED	Lights when the network is connected and operating.
⑫	Orange LED	Indicates the current transmission speed: ON: 100Base OFF: 10Base

- Only two SD Card slots are available for applications.
- To install more applications, they must be moved onto one SD Card. (See 1.2.4 Printer, Scanner Enhance Options for specific instructions)

Board Slot

The following optional interface boards are available. There is only one board slot so only one can be installed.

No.	Interface Board
B679	IEEE1284 Interface Board Type A (B679)
B826	Bluetooth Interface Unit Type 3245 (B826)
D377	File Format Converter Type E (D377)
D377	IEEE802.11a/g Interface Unit Type J/K (D377)
G831	Gigabit Ethernet Type 7300 (G831)

SD Card Slots

The following options are provided on SD cards.

- Two SD card slots are available.
- The VM application SD card and HDD Encryption Unit SD Card must be installed in Slot 2 (lower).
- Other applications should be installed in Slot 1 (upper). If more than one application is required, move the applications onto one SD card with SP5873-1.
- Due to copyright restrictions, the PostScript Unit (D383) cannot be moved to another SD card. However, other applications can be moved onto the PostScript 3 SD card.

No.	SD Card Appliacations
D362	Data Overwrite Security Unit Type I (D362)
D377	Browser Unit Type D (D377)
D377	HDD Encryption Unit (D377)
⇒ D377	VM Card Type F (D377)
D383	PostScript3 Unit Type 3350 (D383)
D383	Printer Enhance Option Type 3350 (D383)

Controller Board Slots

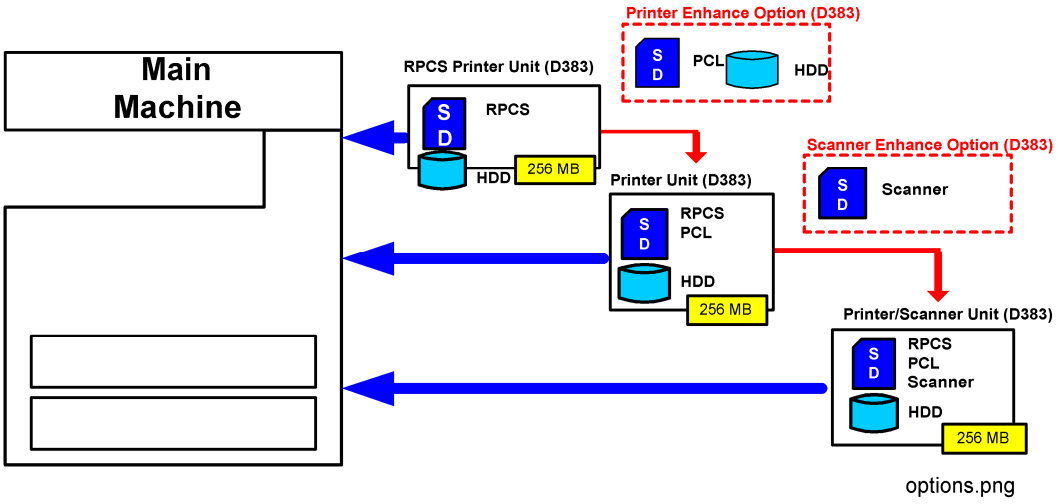
No.	SD Card Appliacations
D383	Printer Unit Type 3350 (D383)
D383	Printer/Scanner Unit Type 3350 (D383)
D383	RPCS Printer Unit Type 3350 (D383)
D383	Scanner Enhance Option Type 3350 (D383)

1.2 PRINTER AND P/S OPTIONS

1.2.1 OVERVIEW

This section describes the installation of the following items:

- RPCS Printer Unit
- Printer Unit
- Printer/Scanner Unit
- 256 MB Memory. Optional memory is required for each unit.
- HDD unit
- Printer Enhance Option
- Scanner Enhance Option



options.png

Main Units

The three main units are:

- **RPCS Printer Unit Type 3350.** For customers who require only basic copying and printing and the RPCS printer language. The HDD is not required but the 256 MB memory must be installed.
- **Printer Unit Type 3350.** For customers who do not require the extended scanning features but need more printing capability (both RPCS and PCL printer languages are provided). The 256 MB memory is required.
- **Printer/Scanner Unit Type 3350.** For customers who require the full range of DS features (advanced scanning and printing features such as "scan-to" solutions, virtual mailboxes, PCL, etc.). The 256 MB memory unit is required.

Separate Options

There are three separate options: HDD, 256 MB memory and PS3.

- **HDD.** Provided with the following kits: Printer Enhance Option, Printer Unit, and Printer/Scanner Unit. Refer to the illustration above. If an HDD has already been installed as a separate item, the HDD unit in the machine does not need to be replaced with the HDD from the kit.
- **256 MB memory.** Not provided with any option. However, every unit (RPCS, Printer Unit, P/S unit) requires installation of the 256 MB memory.
- **PostScript 3 Unit.** The PS3 option can be used with the RPCS Unit, the Printer Unit, or the Printer/Scanner Unit.

Enhance Options

There are two enhance options:

- Printer Enhance Option Type 3350. Updates the RPCS unit by adding PCL.
- Scanner Enhance Option Type 3350. Updates the RPCS unit or Printer Unit by adding the advanced scanning features.

1.2.2 KIT CONTENTS

Check the accessories and their quantities against the list below and the illustration on the next page. This is a common list for all the kits.

Common Accessory Table

This common accessory table lists all the items of the following units and options for the D007/D008:

- RPCS: RPCS Printer Unit
- PU: Printer Unit
- P/S: Printer/Scanner Unit
- PEO: Printer Enhance Unit
- SEO: Scanner Enhance Unit

	Description	Qty	Kit Contents				
			RPCS	PU	P/S	PEO	SEO
	256 MB Memory*1	1	No	No	No	No	No
1.	HDD*2	1	No	Yes	Yes	Yes	No
2.	Screws	2	No	Yes	Yes	Yes	

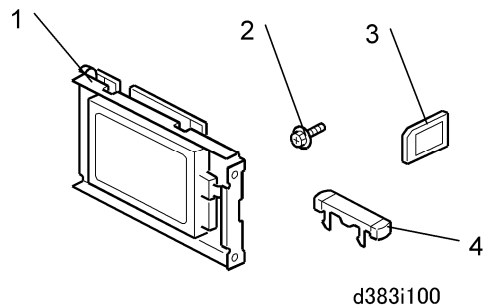
	Description	Qty	Kit Contents				
			RPCS	PU	P/S	PEO	SEO
3.	SD Card	1	Yes	Yes	Yes	Yes	Yes
4.	NA Keytop Set*3	1	Yes	Yes	Yes	Yes	Yes
	EU Keytop Set*3	1	Yes	Yes	Yes	Yes	Yes
5.	Ferrite Core	1	No	Yes	Yes	Yes	Yes

*1: The 256 Memory is a separate option and it is not provided in the kits. However, one memory unit is required for the installation of every print unit.

*2: The HDD can be installed anytime as a separate option. If an HDD unit has already been installed, it does not need to be replaced with the HDD unit from the Printer Enhance Option, Printer Unit, or Printer/Scanner Unit kit.

*3: The number of keytops provided varies:

Kit	Keytops			
	Copy	Document Server	Printer	Scanner
RPCS Unit	1		1	
Printer Unit	1	1	1	
Printer/Scanner Unit	1	1	1	1
Printer Enhance Unit		1		
Scanner Enhance Unit				1

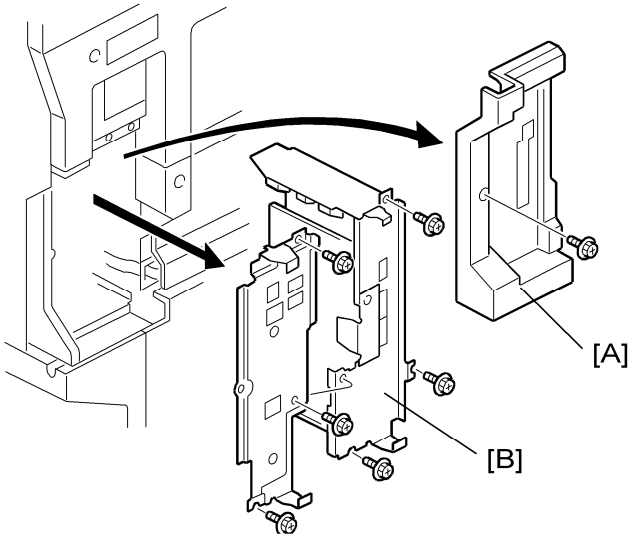


d383i100

1.2.3 PRINTER, PRINTER/SCANNER UNIT INSTALLATION

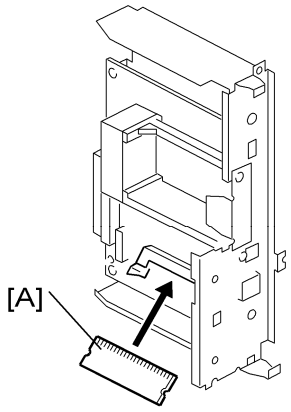
⚠CAUTION

- Turn off the main power switch and disconnect the power supply cord.



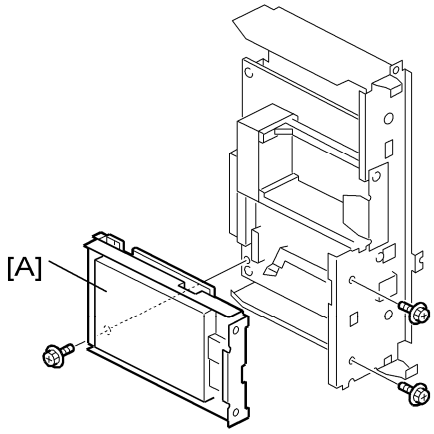
d017r960

1. Remove the application cover [A] (🔩 x1).
2. Remove the controller board [B] (🔩 x3).



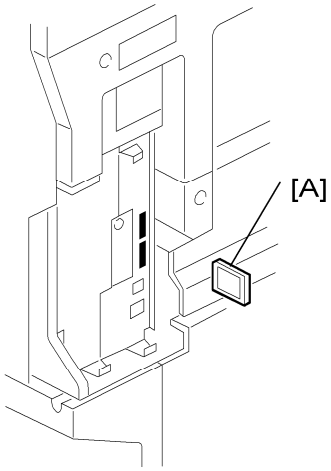
d017i501

3. Install the 256 MB memory [A].



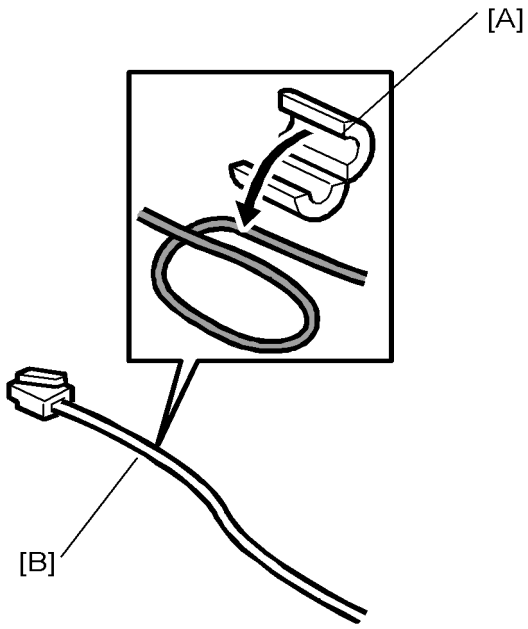
d017r965

4. Attach the HDD unit [A] to the controller board bracket (☞ x2, 🔩x3).
5. Reinstall the controller board with the HDD.



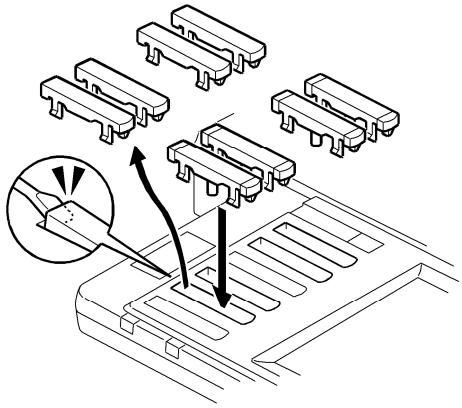
d017i502a

6. Insert the SD card [A] in SD card Slot 1 (upper).
7. Cycle the machine power off/on.
8. Format the HDD with SP5832-1.
9. Do SP5853 to copy the preset stamp data from the firmware to the hard disk.
10. Do SP5846-040 to copy the address book to the hard disk from the controller board.
11. Do SP5846-041 to let the user get access to the address book.
12. Reattach the application cover (🔩 x1).



b767i903

13. Attach the ferrite core [A] to the LAN cable [B].
14. Connect the LAN cable to the "NIC" connection.
15. Connect the USB cable to the "USB" connection.



d383i105

16. Remove the 1st, 2nd, 4th, and 5th blank key tops.

Note

- The 3rd blank keytop from the top is reserved for the "Fax" keytop. Do not remove it at this time.

17. Replace the blank keytops with the keytops received in the kit from top to bottom:
    - 1st Copy
    - 2nd Document Server
    - 4th Printer

- 5th Scanner

18. Connect the machine power cord and turn the main power switch on.
19. Enable the NIB and/or USB function.
    - To enable the NIB function, enter the SP mode and set SP5985-001 (On Board NIC) to "1" (Enable).
    - To enable the USB function, enter the SP mode and set SP5985-002 (On Board USB) to “1" (Enable).
20. If there was no HDD in the machine before you installed the Printer Enhance Option, Printer Unit, or Printer/Scanner Unit:
    - Do SP5846 41 so the user can use the address book.
    - Do SP5853 to copy the preset stamp data to the hard disk. Then turn the main power switch off/on

Important

- These SPs must be done immediately after installation of an HDD unit in a machine that previously had no HDD.
- The first time the machine power is turned on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it on the new HDD. However, only the system administrator can use the new address book on the HDD at this time.
- If you do SP5846 41 immediately after power on, then all users can use the address book.

Note

- It is not necessary to format the new hard disk after installation.

1.2.4 PRINTER, SCANNER ENHANCE OPTIONS

Accessory Check

Refer to the "Common Accessory Table"

Installation

The installation of the printer enhance option and scanner enhance option is done with SP5873 001 (Application Move).

Note

- If you are going to update the RPCS unit with both the printer and scanner enhance options, the order of execution is not important.

1. Turn off the copier.
2. Remove the cover (☞ x1).
3. Confirm that the RPCS Unit or Printer Unit SD card is in the upper slot.

Printer and P/S Options

4. Put the option SD Card (Printer Enhance Option or Scanner Enhance Option) in the lower slot.
5. Turn the copier on.
6. Go into the SP mode and select SP5873-1.
7. Touch "Execute".
8. Obey the instructions on the display and touch "Execute" to start.
9. When the display tells you copying is completed, touch "Exit", then turn the machine off.
10. Remove the option SD card from the lower slot.
11. Turn the copier on.
12. Go into the User Tools mode and confirm that update was successful.
    User Tools> System Settings> Administrator Tools> Firmware Version> Next
13. Turn the copier off and reattach the SD card slot cover.
14. Return the copied SD card to the customer for safekeeping, or tape it to the faceplate of the controller.

To undo an option update

1. Turn the main switch off.
2. Confirm that the RPCS Unit or Printer Unit SD card is in SD card the upper slot
3. Put the empty SD card (Printer Enhance Option or Scanner Enhance Option D383) in the lower slot.
4. Turn the main switch on.
5. Go into the SP mode and do SP5873-2 (Undo Exec).
6. Obey messages on the operation panel to complete the procedure.
7. Turn the main switch off.
8. Remove the restored SD card from the lower slot..
9. Turn the main switch on.
10. Go into the User Tools mode and confirm that undo was successful.
    User Tools> System Settings> Administrator Tools> Firmware Version> Next
11. Turn the copier off again, then reattach the cover.

Important Notes About SD Cards

Here are some basic rules about moving an application to another SD card.

- The authentication data is moved with the application program to the target SD card.
- Once an application has been moved from the original SD card, the original SD card cannot be used unless the application is restored to the SD card with SP5873-2 (Undo Execute).
- SD cards must be stored in a safe location at the customer site The empty SD card

serves as proof of purchase and is the only evidence that the customer is licensed to use the application program.

- Before storing the card from which an application has been copied, label it carefully so that you can identify it easily if you need to do the undo procedure later.

If PostScript3 is not used…

Move all applications which the customer wants onto one SD card. The destination card should have the largest amount of space available so it can hold as many other applications as possible.

Important

- The VM Card can be neither merged nor moved to another SD card. This card must be installed in Slot 2 (lower).

SD Card Options	SD Card Size	Module Size
Printer/Scanner Unit Type 3350	32 MB	9.3 MB
RPCS Printer Unit Type 3350	32 MB	6.3 MB
Printer Unit Type 3350	32 MB	8.3 MB
Printer Enhance Option Type 3350	16 MB	4 MB
Scanner Enhance Option Type 3350	16 MB	3 MB
DataOverwriteSecurity Unit Type I	16 MB	4 MB
PostScript3 Unit Type 3350	64 MB	14.6 MB

If PostScript3 is used…

Move all applications to the PostScript3 SD card.

1.3 INSTALLING CONTROLLER OPTIONS

1.3.1 IEEE 1284 INTERFACE BOARD (B679)

Accessories

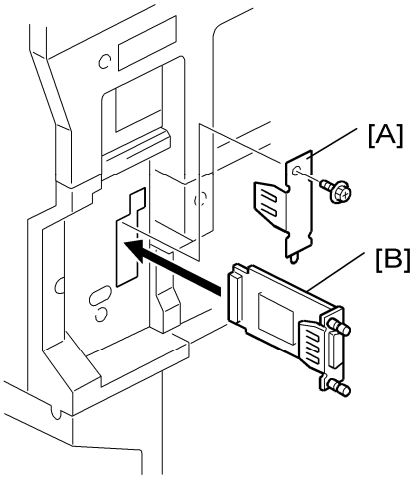
Check the accessories and their quantities against the following list:

No	Description	Quantity
1	IEEE 1284 Interface Board B679	1

Installation

⚠CAUTION

- Turn off the main power switch and disconnect the power supply cord.



d017i503

1. Remove the application cover (🔩 x1).
2. Remove the cover [A] of the board slot (🔩 x1).
3. Install the interface board [B] (🔩 x2 knob screws).

Note

- Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.

4. Reattach the application cover (🔩 x1).

Important

- If the 500-Sheet Finisher is installed, remove it before you attach the parallel cable. Install the finisher again after you connect the parallel cable.

1.3.2 IEEE 802.11A/G (D377)

Accessories

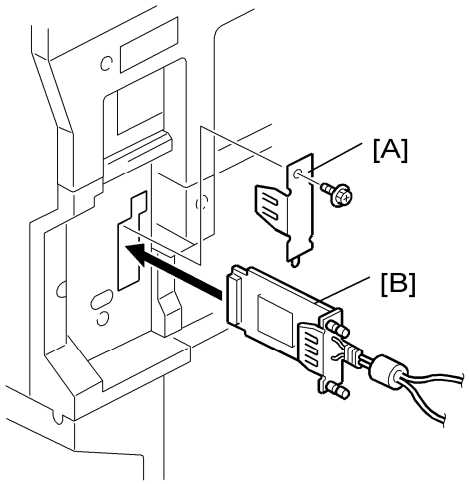
Check the accessories and their quantities against the following list:

No	Description	Quantity
1	IEEE 802.11a/b Interface Board	1
2	Antenna Cables	2
3	Antenna Clamps	8

Installation

⚠CAUTION

- Turn off the main power switch and disconnect the power supply cord.



d017i507

1. Remove the plastic application cover (☞ x1).
2. Remove the cover [A] of the board slot (☞ x1).
3. Insert the interface card [B] as shown above.

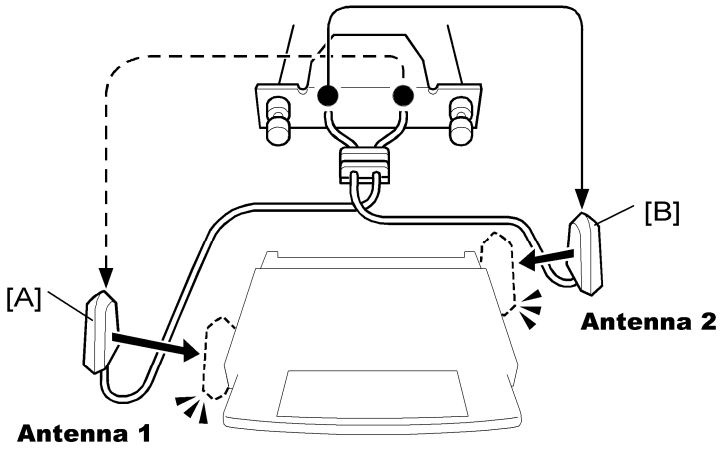
Note

- Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.

1. Look at the markings on the antenna bracket.

Installing Controller Options

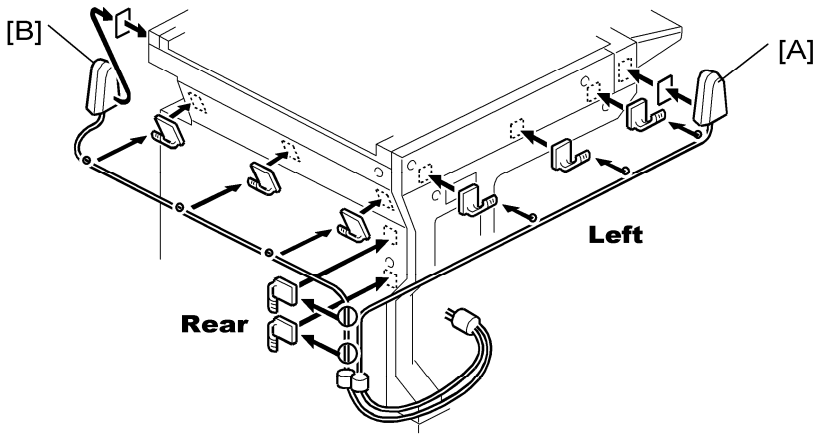
- **ANT1**. Antenna 1 transmits and receives. It must be installed on the front left corner of the main machine. (The core on the Antenna 1 cable is black.)
- **ANT2**. Antenna 2 only receives. It is installed on the rear right corner of the machine.



d017i508

Important

- To assure reliable data sending and receiving, Antenna 1 must be installed on the front left corner of the machine.



d017i509

2. Remove the seals from of the cable clamps and attach them to the left side of the machine as shown above.
3. Attach Antenna 1 [A] to the left front corner of the machine. (The core on the Antenna 1 cable is black.)
4. Set the cable of Antenna 1 in the clamps and close them.
5. Remove the seals from the cable clamps and attach them to the rear of the machine as shown above.

6. Attach Antenna 2 [B] to the right rear corner of the machine.
7. Set the cable of Antenna 2 in the clamps and close them.

User Tool Settings for IEEE 802.11a/g

Go into the User Tools mode and do the procedure below. These settings take effect every time the machine is powered on.

Note

- You cannot use IEEE 802.11a/g if you use Ethernet.

1. Press the “User Tools” key.
2. On the touch panel, touch “System Settings”.

   Note

   - The Network I/F (default: Ethernet) must be set for either Ethernet or wireless LAN.
3. Select “Interface Settings”> “Network”> “Network I/F Setting”
4. Press “IEEE 802.11”. Only the wireless LAN options show.
5. Set the Communication Mode. Select either “802.11 Ad hoc”, “Ad hoc” or “Infrastructure”.
6. Enter the SSID setting. (The setting is case sensitive.)
7. Set the Channel. You need this setting when Ad Hoc Mode is selected.
   - Range: 1 to 14 (default: 11)
   - The allowed range for the channel settings may vary for different countries.
8. Do the WEP (Encryption) Setting.
   - The WEP (Wired Equivalent Privacy) setting is designed to protect wireless data transmission. The same WEP key is required on the receiving side in order to unlock encoded data. There are 64 bit and 128 bit WEP keys.
   - WEP: Select “Active” or “Inactive”. (“Inactive” is the default.)
   - Range of Allowed Settings: 64-bit (10 characters) or 128-bit (26 characters)
9. Set the Transmission Speed.
   - Press the Next button to show more settings. Then select the transmission speed for the mode: Auto, 11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps (default: Auto). This setting should match the distance between the closest machine or access point. This depends on which mode is selected.
   - For the Ad Hoc Mode, this is the distance between the machine and the closest PC in the network. For the Infrastructure Mode, this is the distance between the machine and the closest access point.

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

10. Press “Return to Default” to initialize the wireless LAN settings. Press “Yes” to initialize the following settings:
    - Transmission mode
    - Channel
    - Transmission Speed
    - WEP
    - SSID
    - WEP Key

SP Mode Settings for IEEE 802.11b Wireless LAN

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

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

1.3.3 BLUETOOTH UNIT (B826)

Accessories

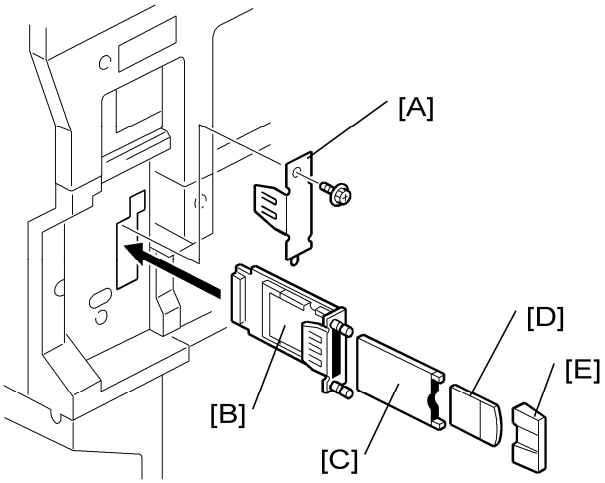
Check the accessories and their quantities against the following list:

No	Description	Quantity
1	Bluetooth Unit B826	1
2	PCI Card	1
3	Cap	1

Installation

CAUTION

- Turn off the main power switch and disconnect the power supply cord.



d017i504

1. Remove the plastic application cover (☞ x1).
2. Remove the cover [A] of board slot (☞ x1).
3. Attach the interface board [B] to the controller board (☞ x2 knob screws).

Note

- Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.

4. Install the Bluetooth card [C] in the slot in the Bluetooth unit.
5. Insert the antenna [D] into the Bluetooth card.
6. Attach the antenna cap [E].

1.3.4 POSTSCRIPT 3 UNIT (D383)

Accessories

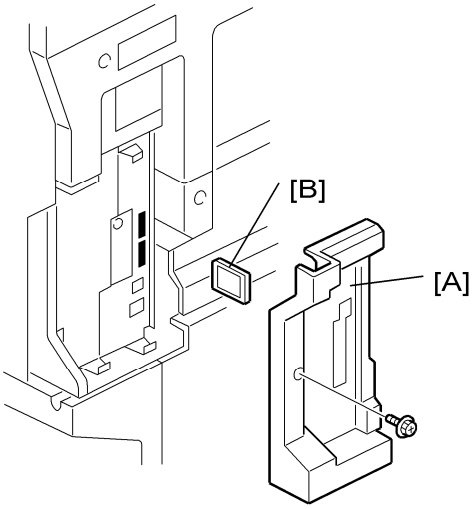
Check the accessories and their quantities against the following list:

No	Description	Quantity
1	PostScript 3 Emulation SD Card (D383)	1
2	Decal	1

Installation

⚠CAUTION

- Turn off the main power switch and disconnect the power supply cord.



d017i502

1. Remove the plastic application cover [A] (🔩 x1).
2. Insert the SD card [B] into Slot 1 (upper slot).
3. Reattach the plastic application cover (🔩 x1).
4. Attach the “Adobe PostScript 3” decal to the front cover.

1.3.5 GIGABIT ETHERNET (G831)

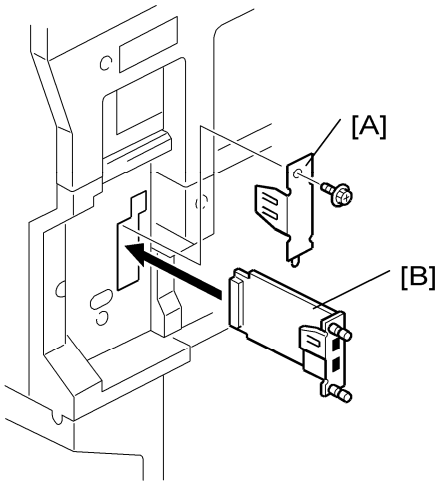
Accessories

Check the accessories and their quantities against the following list:

No	Description	Quantity
1	Gigabit Ethernet (G381)	1
2	Ferrite Core	1

Installation

1. Switch the machine off.



d017i505

2. Remove the plastic application cover (x1).
3. Remove the board cover [A] (x 2).
4. Insert the Gigabit Ethernet Board [B] into the slot and fasten it with the screws.
5. Switch the machine on.
6. Print a configuration page to confirm that the machine recognizes the installed board for USB2.0:
   User Tools > Printer Features > List/Test Print > Configuration Page

1.4 CHECK ALL CONNECTIONS

1. Connect the machine's power cord and turn on the main switch.
2. Go into the printer user mode and print the configuration page.
   - User Tools> Printer Settings> List Test Print> Config. Page

Note

- The same data can also be printed with printer SP1-004 – Print Summary. All installed options are listed in the "System Reference" column.

2. SERVICE TABLES

2.1 PRINTER SERVICE TABLES

SP	Number/Bit SW		Initial	
1001	Bit Switch			
	001	Bit SW 1	00H	Adjusts the bit switch settings. **Note:** These bit switches are currently not used.
	002	Bit SW 2	00H	
	003	Bit SW 3	00H	
	004	Bit SW 4	00H	
	005	Bit SW 5	00H	
	006	Bit SW 6	00H	
	007	Bit SW 7	00H	
	008	Bit SW 8	00H	

SP	Number/Name		Function/[Setting]
1003	Clear setting		
	001	Initialize Printer System	Initializes the settings in the printer feature settings of UP mode.
	002	Clear CSS Counter	DFU
	003	Delete Program	DFU
1004	Print Summary		Prints the printer summary sheet.
1005	Display Version.		Displays the version of the controller firmware.

Printer Service Tables

SP	Number/Name	Function/[Setting]
1006	Sample/Proof Print	[0~1/0/1] 0: Link with Doc. Server 1: Enable

SP	Function/[Setting]					
7910	PDL Part No. Information					
	Returns a text string for the version.					
	RPCS	150	R55	156	PDF	162
	PS	151	RTIFF	157	BMLinks	163
	RPDL	152	PCL	156	PICTBRIDGE	164
	R98	153	PCLXL	159	FONT	180
	R16	154	MSIS	160	FONT1	181
	RPGL	155	MSIS (OPT)	161	FONT2	182
				FONT3	183	

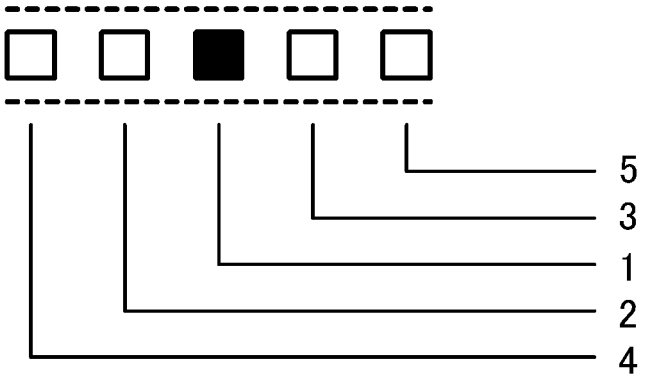
7911	PDL Version Information			Returns a text string for the version.		
	RPCS	150	R55	156	PDF	162
PS	151	RTIFF	157	BMLinks	163	
RPDL	152	PCL	156	PICTBRIDGE	164	
R98	153	PCLXL	159	FONT	180	
R16	154	MSIS	160	FONT1	181	
RPGL	155	MSIS (OPT)	161	FONT2	182	
				FONT3	183	

2.2 SCANNER SERVICE TABLES

SP	Number/Name	Function/[Setting]
1004	Compression Type	Selects the compression type for binary picture processing. [1-3/1/1] 1: MH, 2: MR, 3: MMR
1005	Erase Margin	Creates an erase margin for all edges of the scanned image. If the machine has scanned the edge of the original, create a margin. [0 – 5/0/1mm]
1009	Forbid Using TWAIN	Sets the system not to use the network TWAIN scanner driver. 0: Not forbidden (can use TWAIN) 1: Forbid using TWAIN driver.

SP	Number/Name	Function/[Setting]
2021	Compression level (grayscale)	
	These SP codes set the compression ratio for the grayscale processing mode that can be selected with the notch settings on the operation panel. Range: 5 (lowest ratio) to 95 (highest ratio)	
2021 1	Level 3 (Middle I-Qual)	[5~95/40/1/step]
2021 2	Level 2 (High I-Qual)	[5~95/50/1/step]
2021 3	Level 4 (Low I-Qual)	[5~95/30/1/step]
2021 4	Level 1 (Highest I-Qual)	[5~95/60/1/step]
2021 5	Level 5 (Lowest I-Qual)	[5~95/20/1/step]

Compression Notch Assignment



b767i910

3. SPECIFICATIONS

3.1 SPECIFICATIONS

3.1.1 PRINTER CONTROLLER (GENERAL)

Printing Speed	D017/D019: Maximum 25 ppm (A4/LT LEF) D018/D020: Maximum 33 ppm (A4/LT LEF)
Printer Languages	PCLXL/PCL5e PostScript 3 RPCS (Refined Printing Command Stream - an original Ricoh PDL)
Resolution (Driver)	RPCS 200/600 dpi PS3 300/600 dpi PCL5e 300/600 dpi PCLXL 300/600 dpi
Resident Fonts	PCL: TrueType: 10, Intellifont: 35, International: 13, Bitmap: 1 PS3: Option fonts PS3
Connectivity	Std.: RJ-45 network port (100BASE-TX, 10BASE-T, USB 2.0) Option: IEEE802.11a/g, g (Wireless LAN), Bluetooth, IEEE1284 (Centronics Parallel), Gigabit Ethernet
Network Protocols	TCP/IP, IPX/SPX, SMB (NetBIOS over TCP/IP), AppleTalk (Auto Switching)
RAM	Maximum MS model: 512 MB (Resident 256 MB + Additional 256 MB) CS model: 768 MB (Resident 512 MB + Additional 256 MB) Note: Additional 256 MB is required for all printer/scanner unit and printer units. **Note:** Additional 256 MB is required for all printer/scanner unit and printer units.

3.1.2 USB SPECIFICATIONS

USB connectivity is built into the controller.

Interface	USB 2.0
Data rates	480 Mbps (high speed), 12 Mbps (full speed), 1.5 Mbps (low speed) High speed mode is only supported by USB 2.0.

3.1.3 IEEE 802.11A/G, G SPECIFICATIONS

Standard applied	IEEE802.11a/g, g	
Data transmission rates	Speed	Distance
	11 Mbps	140 m (153 yd.)
	5.5 Mbps	200 m (219 yd.)
	2 Mbps	270 m (295 yd.)
	1 Mbps	400 m (437 yd.)
Network protocols	TCP/IP, Apple Talk, NetBEUI, IPX/SPX, SMB	
Bandwidth	2.4GHz (divided over 14 channels, 2400 to 2497 MHz for each channel)	

3.1.4 BLUETOOTH SPECIFICATIONS

Transmission Specifications	Based on Bluetooth V1.1
Data Transfer Speed	1 Mbps
Profile	Hard Copy Cable Replacement Profile (HCRP), Serial Port Profile

	(SPP), BIP
Distance Between Devices	10 m (The maximum distance when using outdoors, otherwise depends on the office environment.)

3.1.5 SCANNER SPECIFICATIONS

Standard Scanner Resolution:	Main scan/Sub scan 600 dpi
Scanning Speed	MS: 52 ipm, E-mail/Scan-to-Folder/Network Delivery Scanner (A4 LEF, Text 200 dpi, MH Compression) CS: 25 (D018)/ 32 (D020) ipm, E-mail/Scan-to-Folder/Network Delivery Scanner (A4 LEF, Text 200 dpi, MH Compression)
Available scanning Resolution Range:	100 to 1200 dpi (when used as a Network TWAIN scanner) 100, 200, 300, 400, 600 dpi (when used as a network delivery scanner, Scan-to-Folder, Scan-to-Email, or Document Server storage)
Grayscales:	8 bits/pixel
Interface:	Ethernet 10/100BASE TX, Wireless LAN 802.11a/g, g
Compression Method:	MH, MR, MMR (Binary Picture Processing) JPEG (Grayscale Processing)
Video Memory Capacity:	384 MB
Image Storage Capacity:	Number of originals per file: Maximum 1,000 pages Maximum of files: 3000 files Max. Storage on Doc. Server: 9,000 pages (B&W (ITU-T No. 1/200 dpi MMR)

3.1.6 SOFTWARE ACCESSORIES

Printer

The printer drivers and utility software are provided on one CD-ROM. An auto-run installer allows you to select which components to install.

Printer Drivers

Printer Language	Windows 95/98/Me	Windows NT4.0	Windows 2000, XP, Server 2003/Vista	Macintosh
PCL 6	Yes	Yes	Yes	No
PCL 5e	Yes	Yes	Yes	No
PS3	Yes	Yes	Yes	Yes
RPCS	Yes	Yes	Yes	No

Note

- The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for the PowerPC, Alpha, or MIPS platforms.
- The PS3 drivers are all genuine AdobePS drivers, except for Windows 2000/XP/Server 2003/Vista, which uses Microsoft PS. A PPD file for each operating system is provided with the driver.

Utility Software

Software	Description
Agfa Monotype Font Manager 2000 (Win 95/98/Me, NT4, 2000)	A font management utility with screen fonts for the printer.
Smart Device Monitor for Admin (Win 95/98/Me, NT4, 2000/XP/Server 2003/Vista)	A printer management utility for network administrators. NIB setup utilities are also available.
DeskTopBinder – SmartDeviceMonitor for Client (Win 95/98/Me, NT4, 2000/XP/Server 2003/Vista)	A printer management utility for client users. Peer-to-peer printing utility and parallel/recovery printing functions are included.

Software	Description
LAN-Fax M7 Driver (Win 95/98/Me, NT4, 2000/XP)	This driver allows use of the LAN-Fax functions by installing the LAN-Fax driver, Address Book, and LAN-Fax Cover Sheet Editor.
PS Utility for Mac	This software provides several convenient functions for printing from Macintosh clients.
Acrobat Reader	A utility that allows reading PDF files.

Scanner

The scanner driver and utility software are provided on one CD-ROM.

Scanner Driver

- Network Twain Driver for Win95/98/Me/NT4/2000/XP/Server 2003/Vista

Scanner Utilities

- DeskTopBinder Lite for 2000/XP/Server 2003

INTERNAL SHIFT TRAY SH3010

D385

INTERNAL SHIFT TRAY SH3010 REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

INTERNAL SHIFT TRAY SH3010 D385

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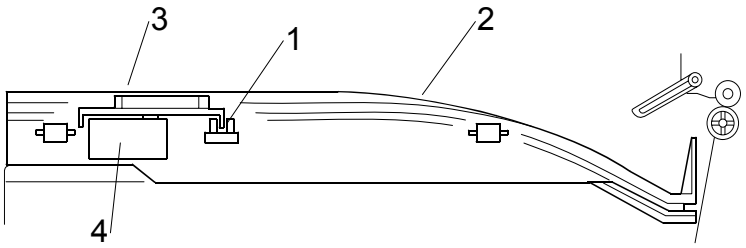
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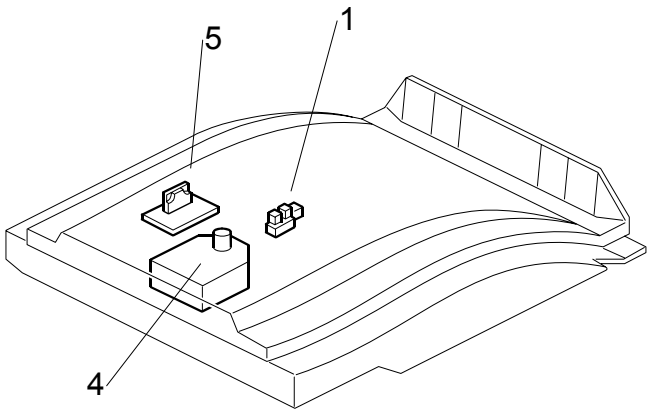
1 OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

Paper Size:	Standard Size: A5 lengthwise to A3 HLT lengthwise to DLT Non-standard Size: Paper Width: 90 ~ 297 mm Paper Length: 148 ~ 432 mm
Paper Weight:	60 ~ 105 g/m², 16 ~ 28 lbs.
Tray Capacity:	125 sheets (80 g/m², 20 lbs.): B4 or larger
	250 sheets (80 g/m², 20 lbs.): A4 or smaller
Power Source:	5 VDC, 24 VDC (from the copier)
Power Consumption:	17 W
Weight:	1.1 kg
Size (W x D x H):	530 mm x 410 mm x 120 mm

1.2 COMPONENT LAYOUT

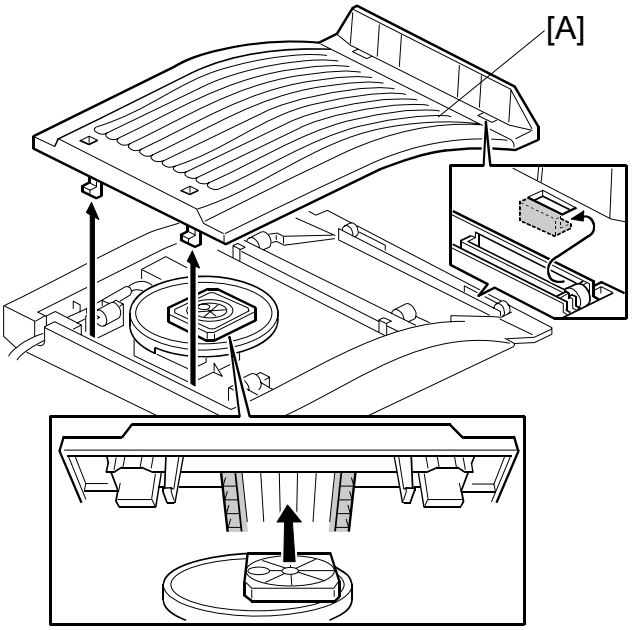




1. Half Turn Sensor
2. Tray Cover
3. Slip Disc
4. Tray Motor
5. Driver PCB

2. DETAILED SECTION DESCRIPTIONS

2.1 BASIC OPERATION

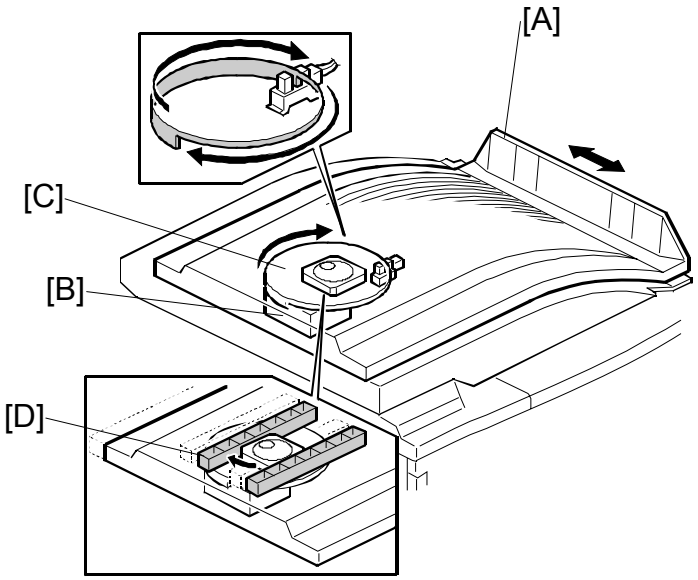


The shift tray allows copies to be sorted into separate piles on one tray.

From the left-right movement of the tray cover [A], the piles of copies are offset into two positions, slightly overlapping one another.

2.2 PRIMARY MECHANISMS

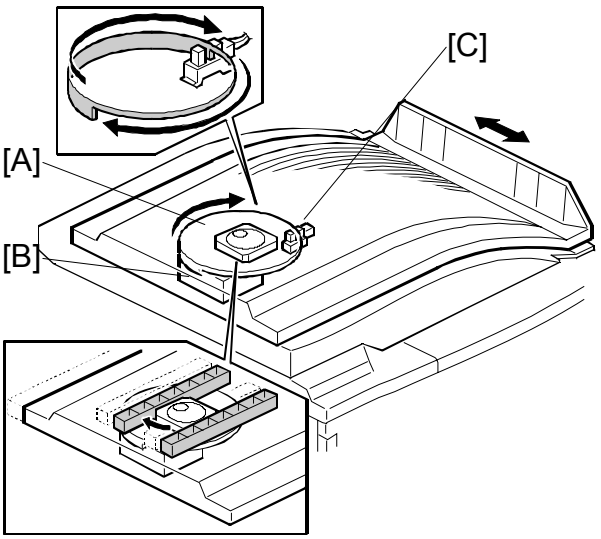
2.2.1 TRAY SHIFT



As stated above, the shift tray cover [A] moves from left to right to create two possible positions for the copies to stack up. This motion is driven by the tray motor [B], which connects to the slip disc [C] via a small shaft. The shaft is connected at the rotational center of the disc. However, there is an off-centered white square attached to the top surface of the disc. When the tray cover is attached to the unit, this square fits into a groove [D] (approximately equal to its width) that runs lengthwise along the underside of the tray

When the motor is running, the disc rotation causes the off-centered white square to change position. Since the square only has freedom of movement along the groove [D], the only net motion of the tray is from left to right.

2.2.2 HALF TURN DETECTION



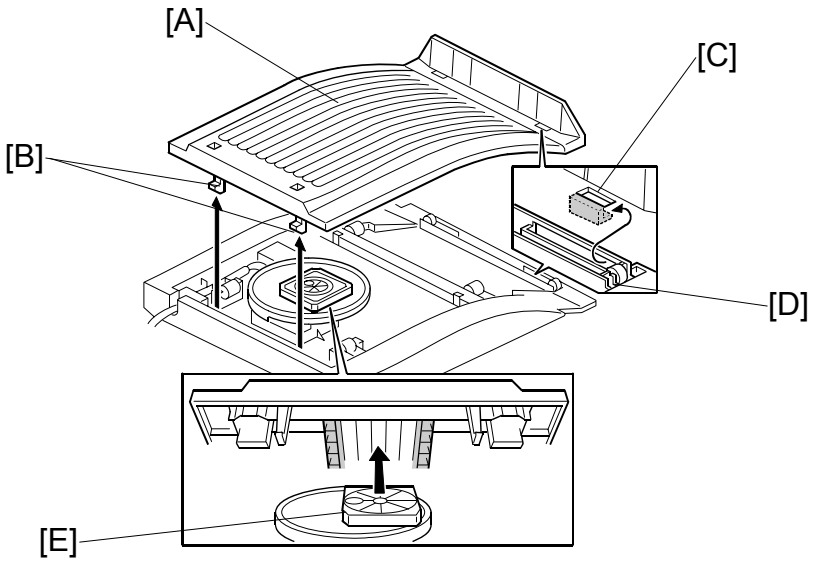
Half turn detection is performed through a combination of two components: the slip disc [A] and half turn sensor [C].

The slip disc has a rim extending below the top surface. However, the rim only extends 180° around the disc. The half turn sensor is below the edge of the disc, opposite the tray motor. The sensor is positioned so that the rim of the disc passes between the LED and photo diode when the disc turns.

While the motor [B] is rotating the disc and moving the tray cover, the disc rim is not between the diode and LED. After the disc has turned its maximum 180°, the rim passes between these two parts and blocks the signal to the LED, stopping the motor. The tray stays in place until the motor is activated again to move the tray across to receive another copy of the original.

3. REPLACEMENT AND ADJUSTMENT

3.1 TRAY COVER REPLACEMENT



3.1.1 TRAY COVER REMOVAL

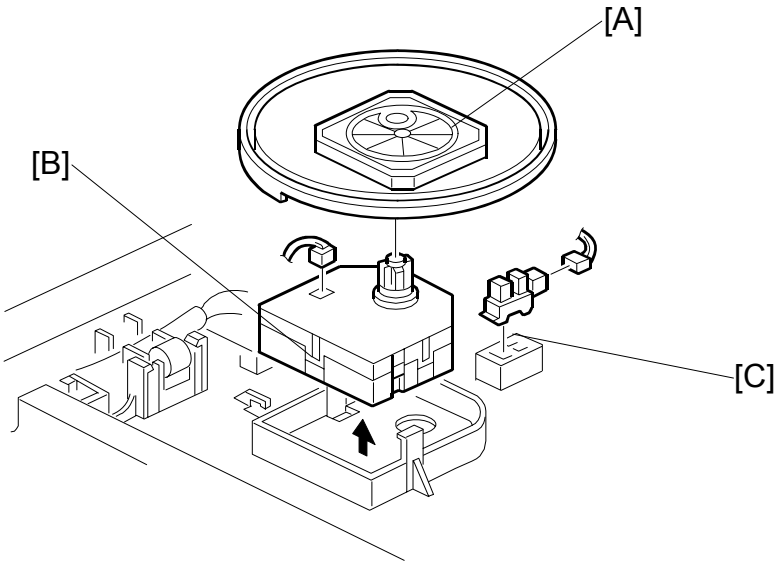
1. Remove the tray cover [A] by pressing on the two pawls [B] on the left side of the cover.

3.1.2 TRAY COVER ATTACHMENT

NOTE: The right side of the tray cover should be attached first.

1. Fit the pawls [C] (just below the cover fin) around the thin bar [D] on the shift tray.
2. Align the square [E] so that it fits into the groove in the underside of the tray cover and does not interfere with the attachment of the cover.
3. Complete the attachment by inserting the left side pawls [B] into place.

3.2 TRAY MOTOR AND HALF TURN SENSOR REPLACEMENT



3.2.1 REPLACING THE TRAY MOTOR

1. Remove the slip disc [A].
2. Remove the tray motor [B] from the motor holder (1 connector).

3.2.2 REPLACING THE HALF TURN SENSOR

1. Remove the half turn sensor [C] (1 connector).