RICOH UNIVERSITY
Learning ◆ Knowledge ◆ Performance

D120/D121/D122/D139/D140/D141
SERVICE MANUAL

LANIER RICOH savin

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Ricoh Americas Corporation

LEGEND

PRODUCT CODE	COMPANY		
	LANIER	RICOH	SAVIN
D120	MP 2352SP	Aficio MP 2352SP	MP 2352SP
D121	MP 2852	Aficio MP 2852	MP 2852
D122	MP 3352	Aficio MP 3352	MP 3352
D139 (220V)	MP 2352SP	Aficio MP 2352SP	MP 2352SP
D140 (220V)	MP 2852	Aficio MP 2852	MP 2852
D141 (220V)	MP 3352	Aficio MP 3352	MP 3352

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D120/D121/D122/D139/D140/D141

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ARDF DF3060 (D578)

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PAPER FEED UNIT PB3120 (D579)

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SR790(B408)/SR3090(D588) 1000-SHEET FINISHER

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ARDF DF3060 (D578)

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PAPER FEED UNIT PB3120 (D579)

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1 BIN TRAY BN3090 (D582)

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INTERNAL FINISHER TYPE 3352 (D586)

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PUNCH KIT PU3020 (D587)

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PRINTER/SCANNER UNIT TYPE 3352 (D595)

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FAX OPTION TYPE 3352 (D596)

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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.

Handling Toner

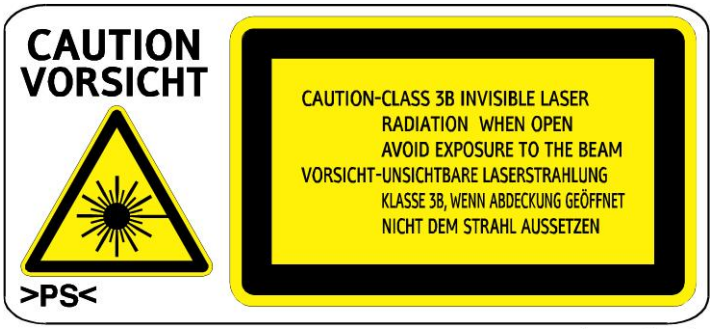
- Work carefully when removing paper jams or replacing toner bottles or cartridges to avoid spilling toner on clothing or the hands.
- If toner is inhaled, immediately gargle with large amounts of cold water and move to a well ventilated location. If there are signs of irritation or other problems, seek medical attention.
- If toner gets on the skin, wash immediately with soap and cold running water.
- If toner gets into the eyes, flush the eyes with cold running water or eye wash. If there are signs of irritation or other problems, seek medical attention.
- If toner is swallowed, drink a large amount of cold water to dilute the ingested toner. If there are signs of any problem, seek medical attention.
- If toner spills on clothing, wash the affected area immediately with soap and cold water. Never use hot water! Hot water can cause toner to set and permanently stain fabric.
- Always store toner and developer supplies such as toner and developer packages, cartridges, and bottles (including used toner and empty bottles and cartridges) out of the reach of children.
- Always store fresh toner supplies or empty bottles or cartridges in a cool, dry location that is not exposed to direct sunlight.

Laser Safety

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

⚠WARNING

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

WARNING FOR LASER UNIT
WARNING: Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes. **CAUTION MARKING:**    laser_decal

Safety Precautions for This Machine

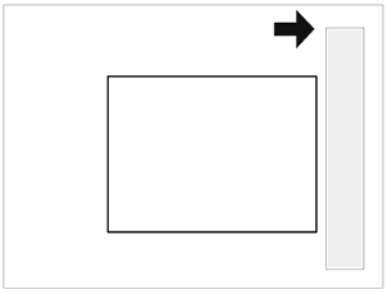
Before moving the mainframe:

- Disconnect all peripheral units (finisher, LCT, etc.) from the mainframe.
- Pull the slide handles out of the mainframe and use them to lift the mainframe.

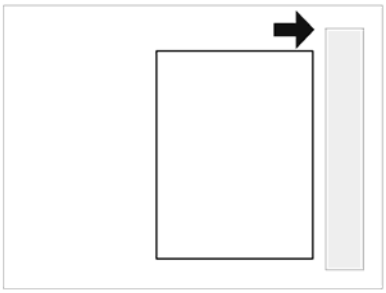
Conventions and Trademarks

Conventions

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

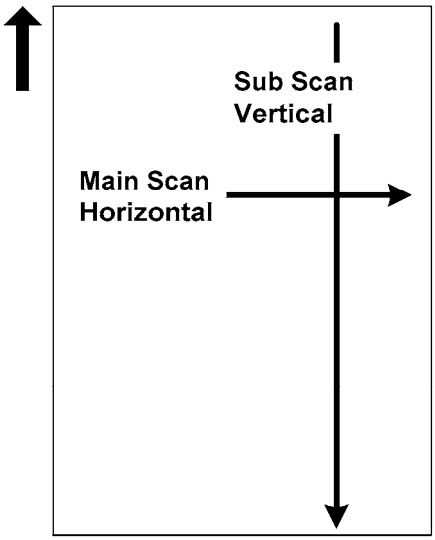


SEF (Short Edge Feed)



LEF (Long Edge Feed)

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



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.

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- PowerPC® is a registered trademark of International Business Machines Corporation.
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PRODUCT INFORMATION

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

1. PRODUCT INFORMATION

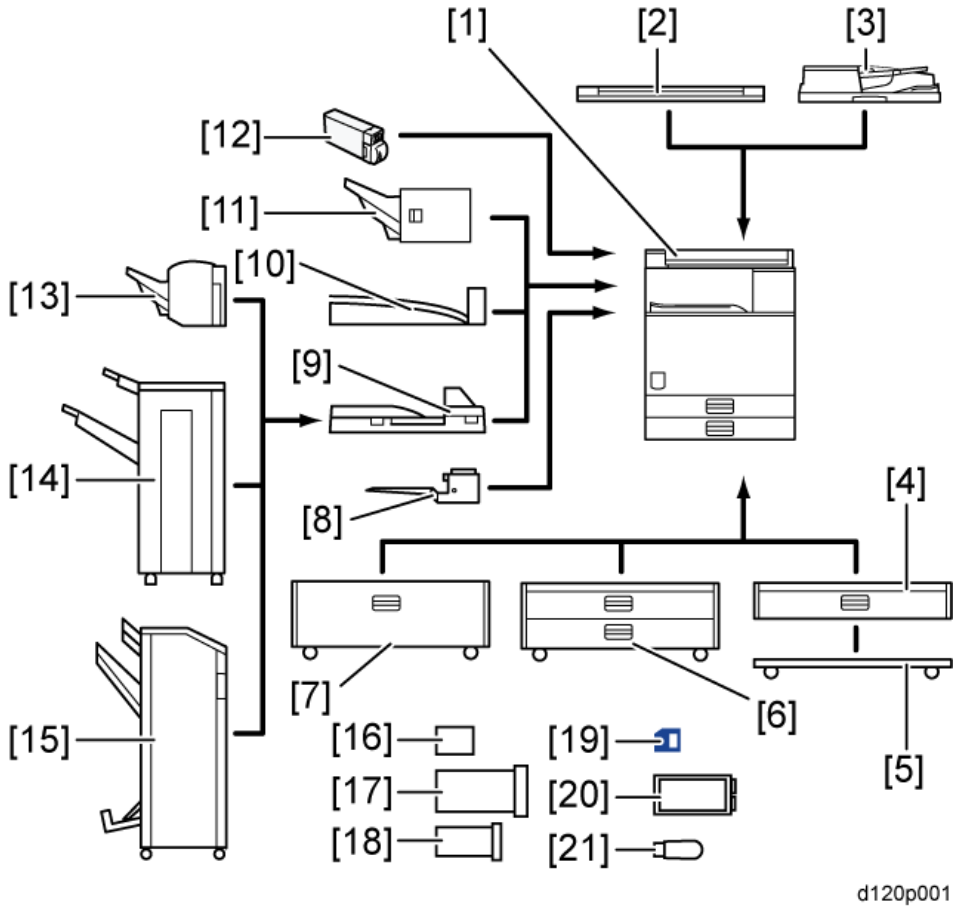
1.1 SPECIFICATIONS

See "Appendices" for the following information:

- General Specifications
- Supported Paper Sizes
- Software Accessories
- Optional Equipment

1.2 MACHINE CONFIGURATION

1.2.1 SYSTEM CONFIGURATION AND OPTIONS



No.	Item	Comments
1	Main Machine D120/D121/D122/D139/D140/D141	
2	Platen Cover (D593)	
3	ARDF (D578)	
4	Paper Feed Unit (D579)	Required for item 5
5	Caster Table (D593)	
6	Paper Feed Unit (D580)	Required for item 14, 15
7	LCT (D581)	Required for item 14, 15

No.	Item	Comments
8	1-Bin Tray (D582)	
9	Bridge Unit (D584)	Required for item 13, 14, 15
10	Internal Shift Tray (D583)	
11	Internal Finisher (D586)	
12	USB2.0/SD Slot Type H (D594)	
13	500-Sheet Finisher (D585)	Requires item 9
14	1000-Sheet Finisher (D588)	Requires item 9 Requires item 6 or 7
15	Booklet Finisher (D589)	Requires item 9 Requires item 6 or 7
16	Copy Data Security Unit Type F (B829)	
17	Fax Unit (D596)	See Fax manual
18	Interface Board Controller Options	See **Note 1**
19	SD Card Controller Options	See **Note 2**
20	HDD Unit (D594)	
21	Bluetooth Interface Unit Type D (D566)	

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
File Format Converter Type E (D377)
IEEE 1284 Interface Board Type A (B679)
IEEE 802.11a/g Interface Unit Type J (D377) -or- IEEE 802.11g Interface Unit Type K (D377)
Gigabit Ethernet Board Type A (G874)
Optional Counter Interface Unit Type A (B870)

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.

These options can be installed at any time.

SD Cards
Browser Unit Type E (D430)
PostScript3 Unit Type 3352 (D595)
IPDS Unit Type 3352 (D595)
VM Card Type N (D594) *[1] only for Basic models

*1: Java-VM is standard for SP models.

1.3 GUIDANCE FOR THOSE WHO ARE FAMILIAR WITH PREDECESSOR PRODUCTS

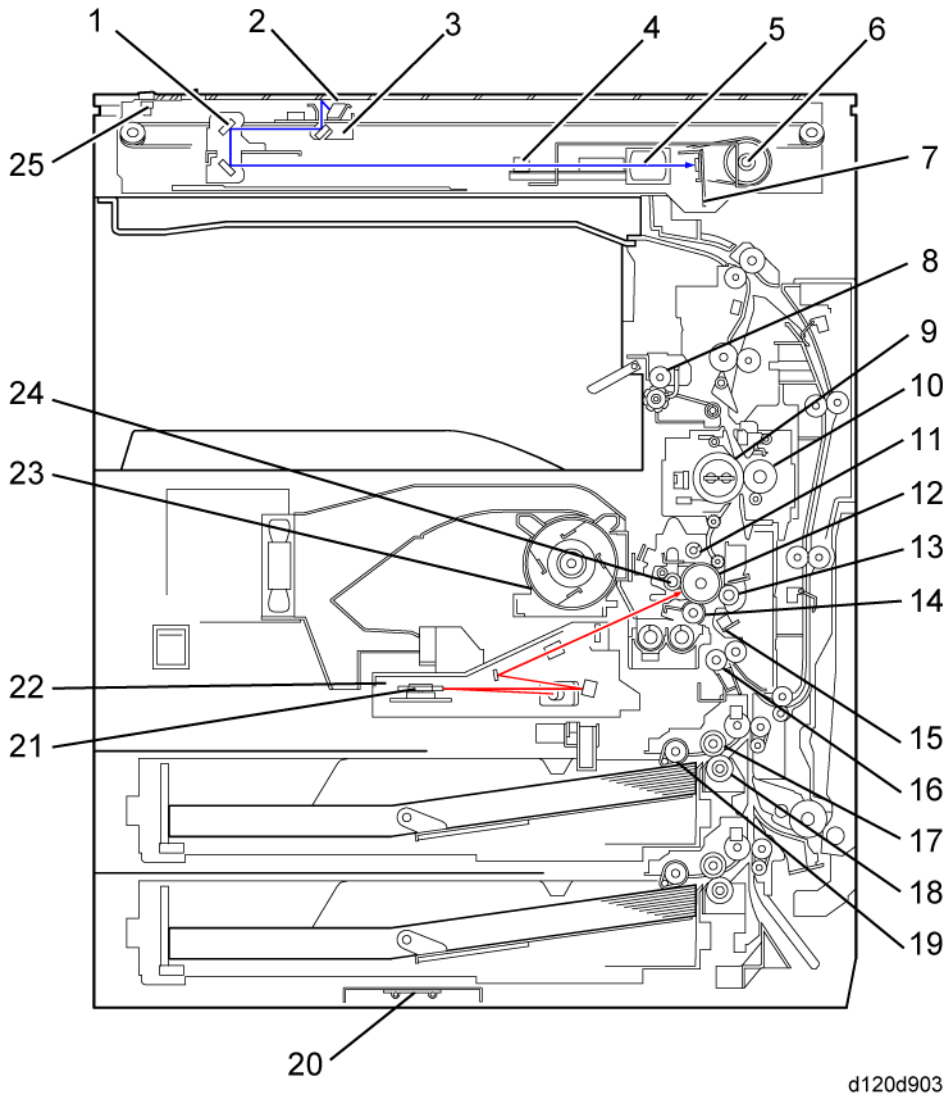
The D120/D121/D122/D139/D140/D141 series are successor models to the D084/D085 series. If you have experience with the predecessor products, the following information will be of help when you read this manual.

Different Points from Predecessor Products

	D120/D121/D122/D139/D140/D141	D084/D085
Model Line Up	3 models 23 cpm/ 28 cpm/ 33cpm	2 models 28 cpm/ 33 cpm
Safety Shutdown Function	Available	Not available
Scanner Lamp	LED	Xenon
Paper Feed Method	FRR System	Friction Pad System
Data Overwrite Security	Standard	Option
HDD Encryption	Standard	Option
App2Me	Standard (SP model only) Included in Printer/Scanner SD card.	Standard
VM	Standard (SP model only) Included in Printer/Scanner SD card.	Standard
PDF Direct	Standard (SP model only) Included in Printer/Scanner, Printer, and PS3 SD card.	Option

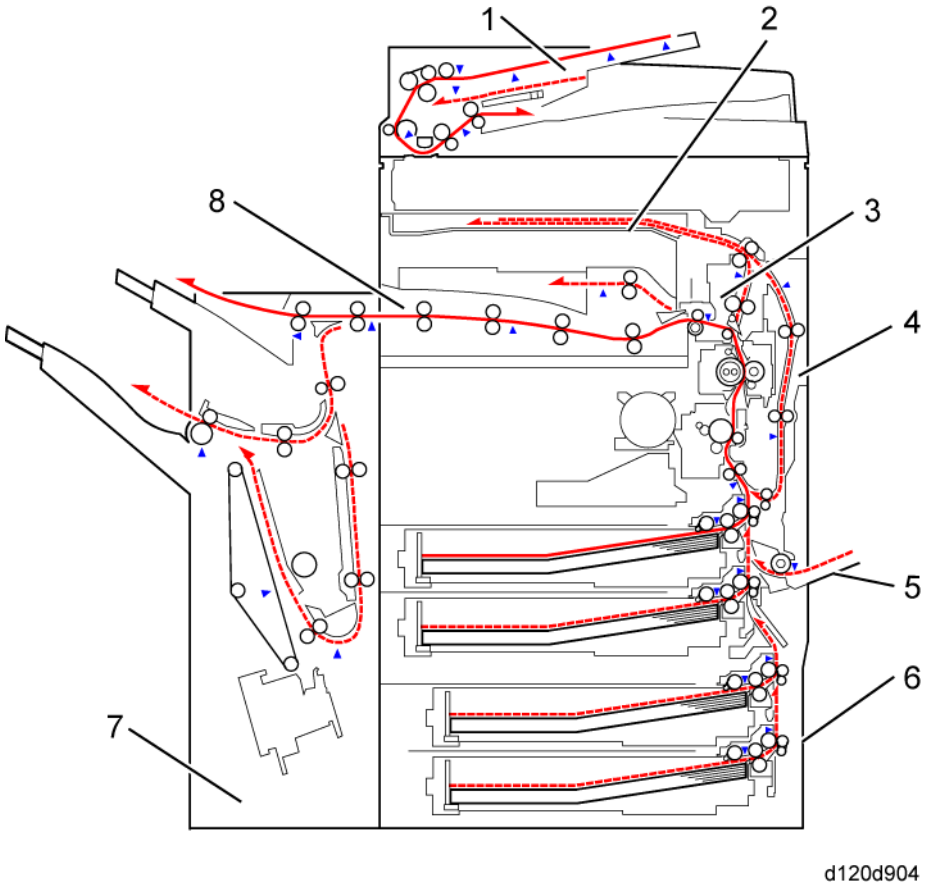
1.4 OVERVIEW

1.4.1 MECHANICAL COMPONENTS



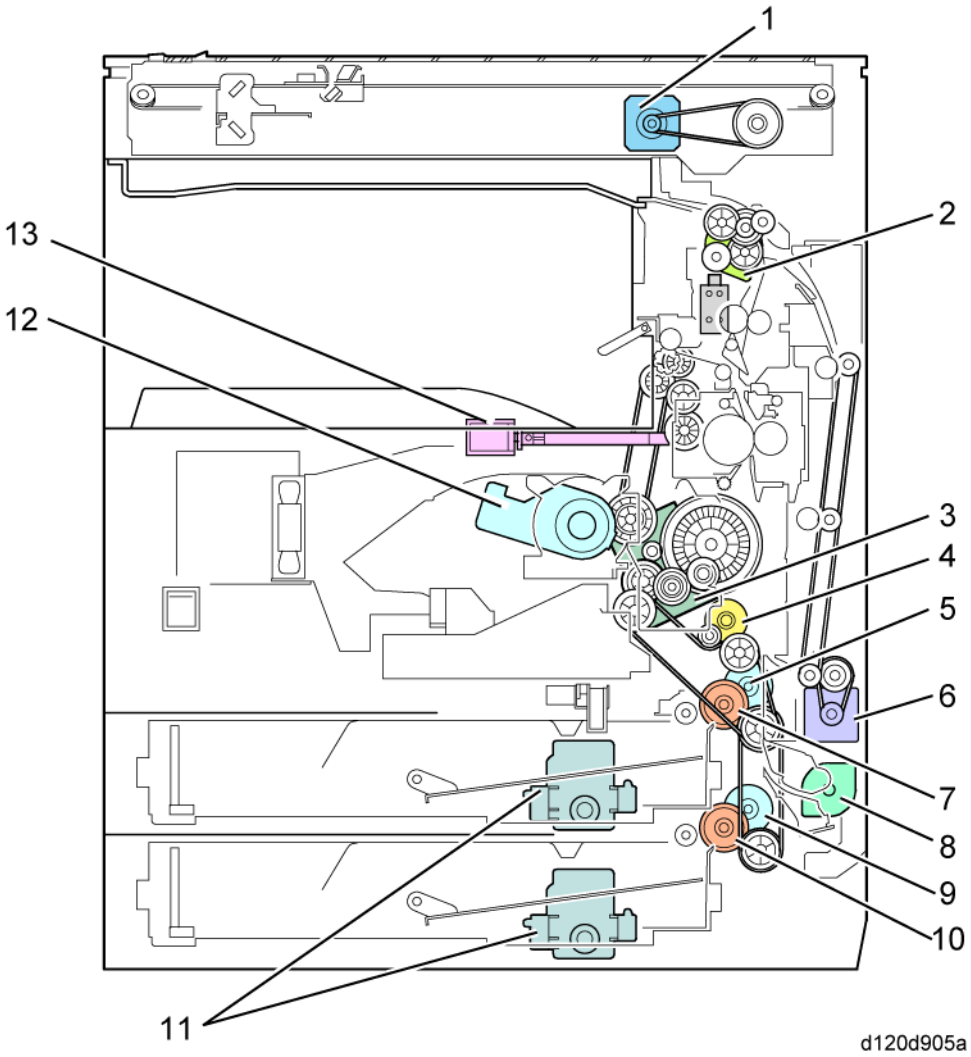
1. 2nd scanner	14. Development roller
2. Exposure lamp	15. ID sensor
3. 1st scanner	16. Registration roller
4. Original length sensor	17. Feed roller
5. Lens	18. Separation roller
6. Scanner motor	19. Pick-up roller
7. SBU board	20. Optional tray heater
8. Exit roller	21. Polygon mirror motor
9. Fusing hot roller	22. Laser unit
10. Fusing pressure roller	23. Toner supply bottle holder
11. Cleaning unit	24. Drum charge roller
12. OPC drum	25. Scanner home position sensor
13. Transfer roller	

1.4.2 PAPER PATH



1. Optional ADF	6. Optional Paper Feed Unit
2. Optional 1-bin Tray	7. Optional Finisher
3. Interchange Unit	8. Optional Bridge Unit
4. Duplex Unit	
5. By-pass Feed Tray	

1.4.3 DRIVE LAYOUT



1. Scanner Motor	8. By-pass Motor
2. Inverter Motor	9. Lower Transport Clutch
3. Main Motor	10. Lower Paper Feed Clutch
4. Registration Clutch	11. Paper Tray Lift Motor
5. Upper Transport Clutch	12. Toner Supply Motor
6. Duplex Motor	13. Fusing drive release solenoid
7. Upper Paper Feed Clutch	

INSTALLATION

REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
120	2/3/2012	USB2.0 installation

2. INSTALLATION

2.1 INSTALLATION REQUIREMENTS

2.1.1 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.

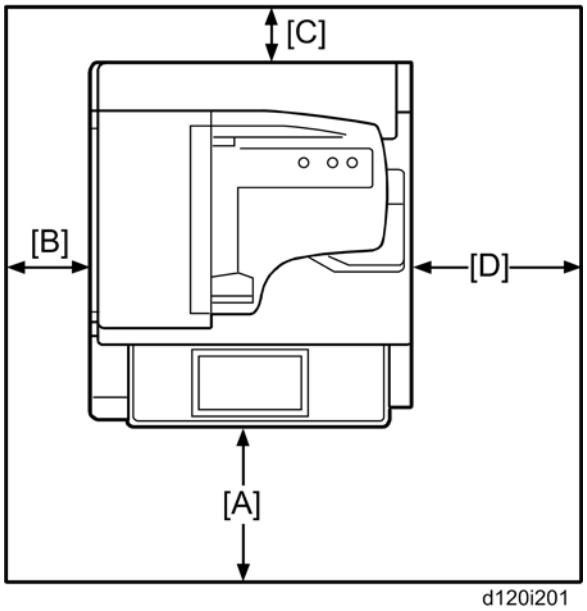
2.1.2 MACHINE LEVEL

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

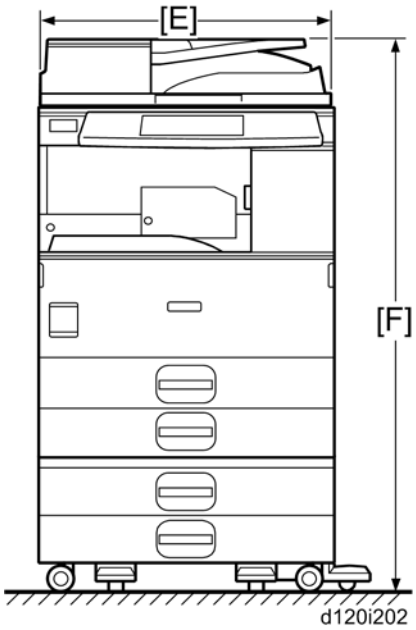
Right to left: Within 5 mm (0.2") of level

2.1.3 MINIMUM SPACE REQUIREMENTS

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



- Front [A]: Over 400 mm (15.8")
- Left [B]: Over 100 mm (4")
- Rear [C]: Over 100 mm (4")
- Right [D]: Over 900 mm (36")



- Width [E]: 587 mm (23.1")
- Height [F]: 1087 mm (42.8")

Note

- The 400 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.

2.1.4 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.

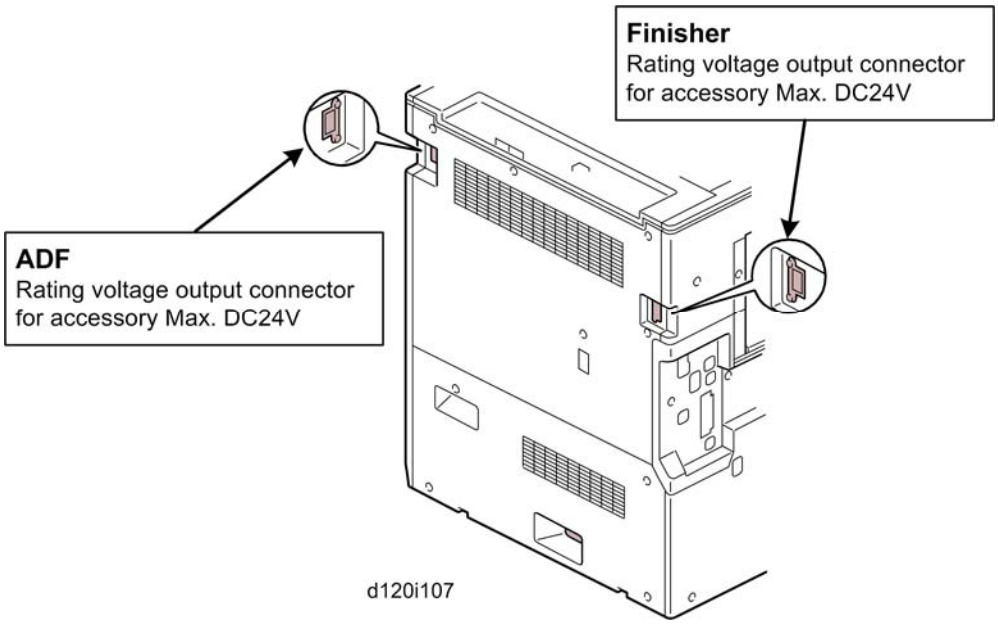
1. Input voltage level
   - 120 V to 127 V, 60 Hz: More than 12 A
   - 220 V to 240 V, 50 Hz/60 Hz: More than 7 A
   - 110V, 50 Hz/60 Hz: More than 13 A
2. Permissible voltage fluctuation: 10 %
3. Do not set anything on the power cord.

2.2 COPIER INSTALLATION

2.2.1 POWER SOCKETS FOR PERIPHERALS

⚠CAUTION

- Rating voltages for peripherals.



Make sure to connect the cables to the correct sockets.

2.2.2 ACCESSORY CHECK

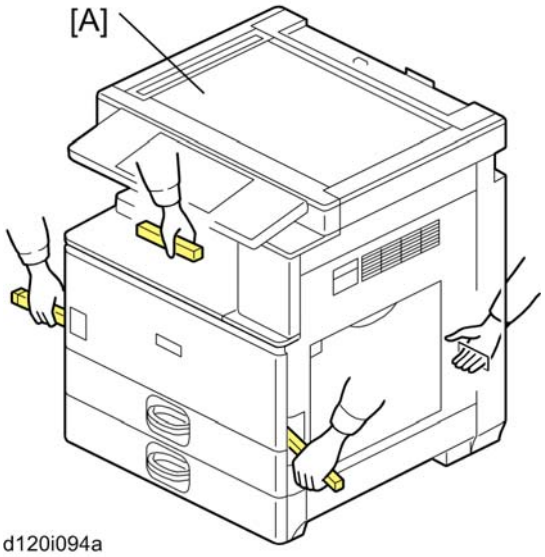
Check the quantity and condition of the accessories in the box against the following list:

No.	Description	Q'ty
1	Paper Tray Decal	1
2	Emblem: Small	1
3	Emblem: Large	1
4	Model Name Decal	1
5	Precautions for Printing Decal	1
6	Copy Prohibition Display Decal	1
7	Operating Instructions – About This Machine	1

No.	Description	Q'ty
8	Operating Instructions – Troubleshooting	1
9	Quick Reference Guide - Copy	1
10	Quick Reference Guide - Printer (SP model only)	1
11	Quick Reference Guide - Scanner (SP model only)	1
12	Quick Reference Guide - App 2 Me (SP model only)	1
13	CD-ROM Operation Instruction - User	1
14	CD-ROM Operation Instruction - Administrator	1
15	CD-ROM Operation Instruction - App 2 Me (SP model only)	1
16	CD-ROM - SDK (SP model only)	1
17	CD-ROM - Printer/Scanner (SP model only)	1
18	CD-ROM - Printer (SP model only)	1
19	CD-ROM - Scanner (SP model only)	1
20	CD-ROM - Font	1
21	Cloth Holder	1
22	Cloth - DF Exposure Glass	1
23	Ferrite Core (SP model only)	1
24	Power Cord	1
25	Fax Stamp (SP model only)	1

2.2.3 INSTALLATION PROCEDURE

Unloading



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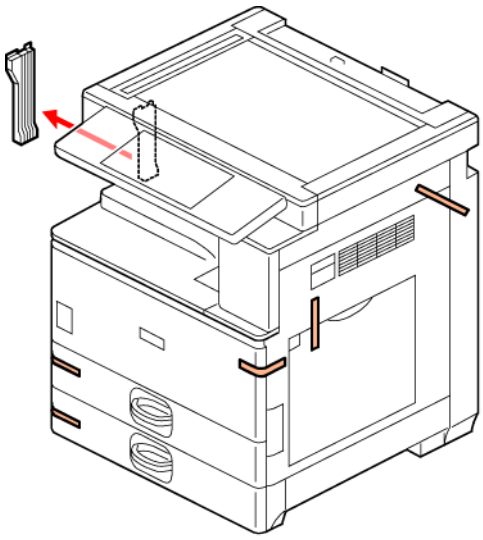
When unloading the main machine [A] from a pallet, use grips and the handle.

Tapes and Retainers



d120i104a

⚠CAUTION

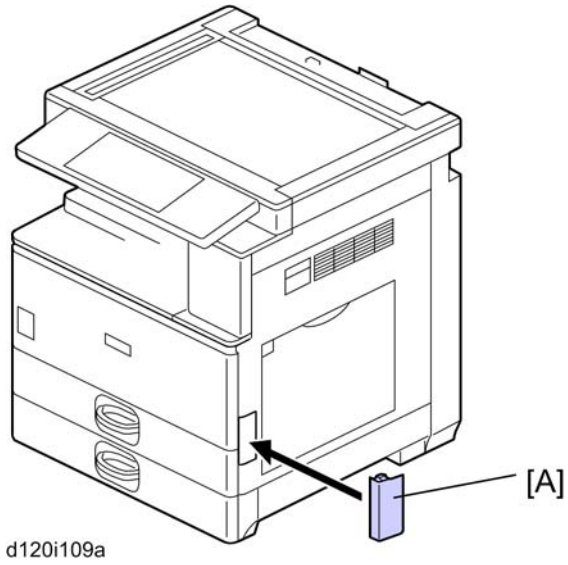
- Unplug the machine power cord before you start the following procedure.

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

Note

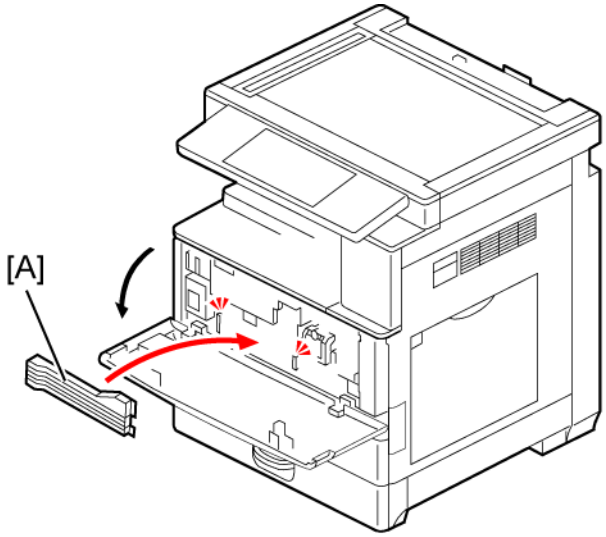
- Keep the shipping retainers after installing the machine. They will be reused if the machine is moved to another location in the future.

1. Remove the tapes and the shipping retainer on the exterior of the copier.



d120i109a

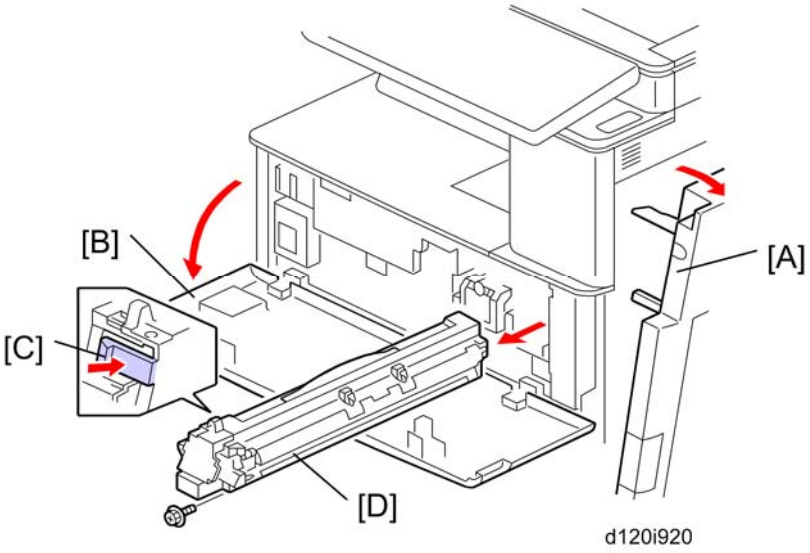
2. Attach the grip cover [A] to the main machine.



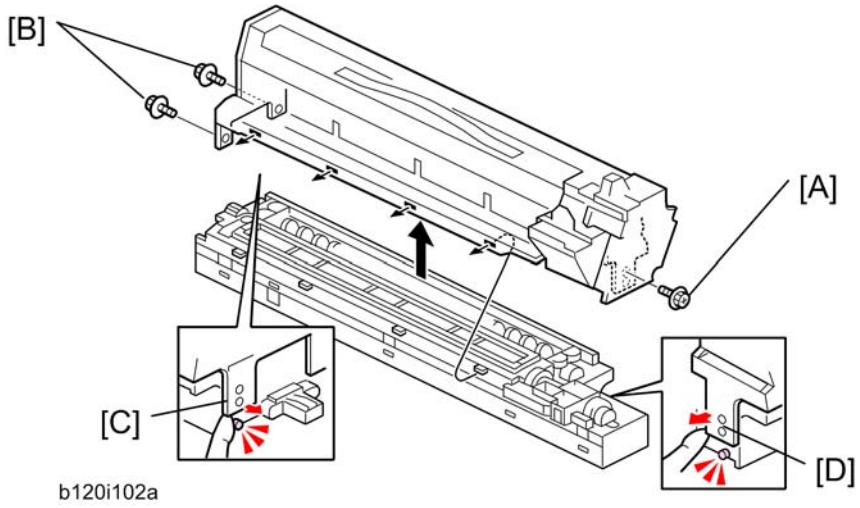
d120i580

3. Open the front cover, and then keep the scanner unit stay [A] inside the front door.

Developer



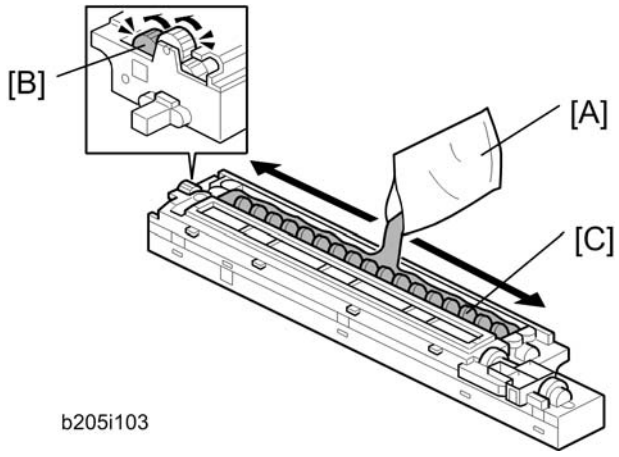
1. Spread the vinyl sheet provided with the developer kit on a flat surface.
2. Open the right cover [A].
3. Open the front cover [B].
4. Push the latch [C] and remove the PCU [D] (x 1).



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.

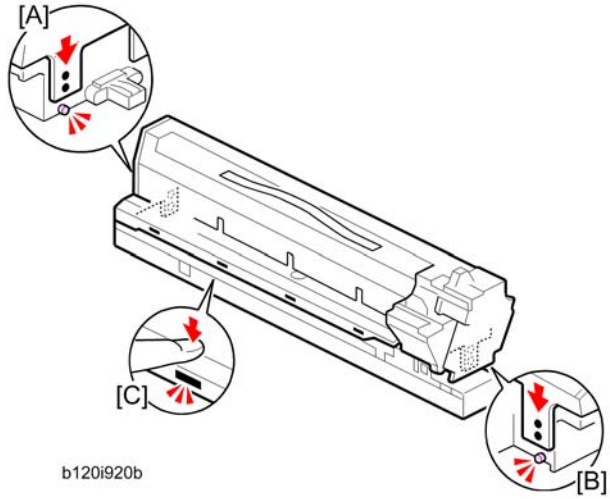


8. Open the developer pack [A].
9. While turning the black gear [B], slowly move the pack left and right and pour half of the developer over the auger [C].
10. Continue to turn the black gear until the developer is level.
11. While continuing to turn the black gear, slowly move the pack left and right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

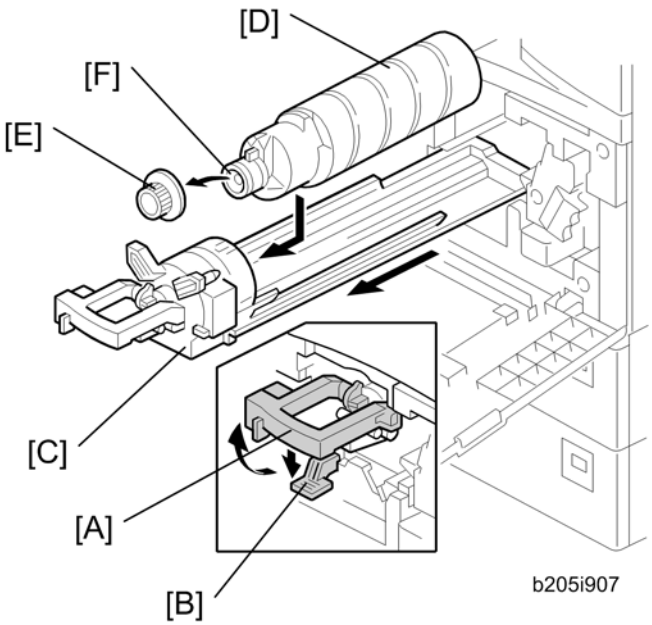


1. Make sure that all of the holes and tabs are engaged at [A], [B], and [C]. Then push down to lock the tabs on the front and rear end of the PCU.
2. Make sure that the holes for the screws on the front and rear end of the PCU are aligned correctly. If the holes are not aligned correctly, make sure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

   Important

   - Reattach the rear screws (x 2) first, then reattach the front screw (x 1).
   - Do not push down on the top of the PCU when you attach the rear and front screws
3. Reinstall the PCU in the main machine (x 1).

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

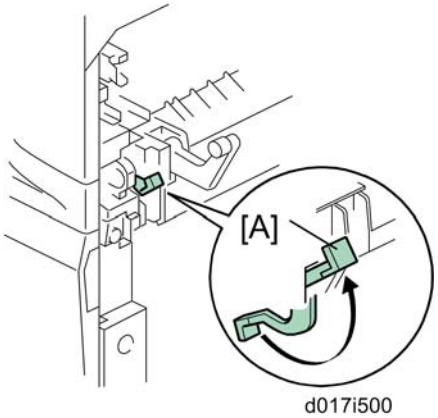
- Do not remove the toner bottle cap [E] until after shaking.

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

Note

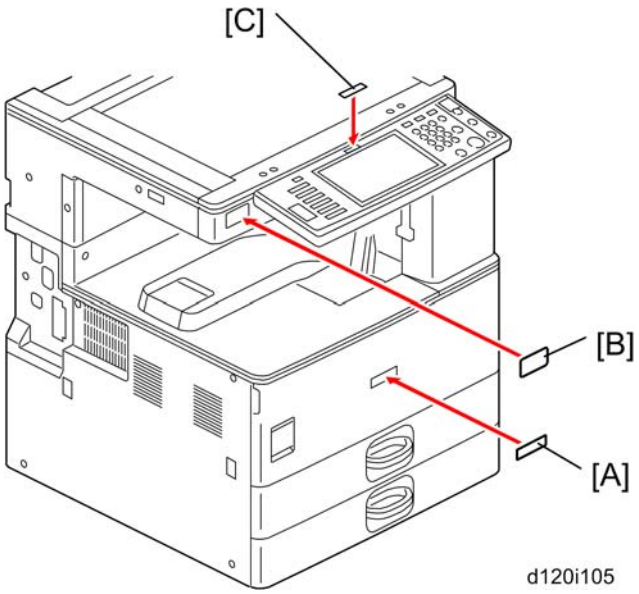
- Do not touch the inner bottle cap [F].

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

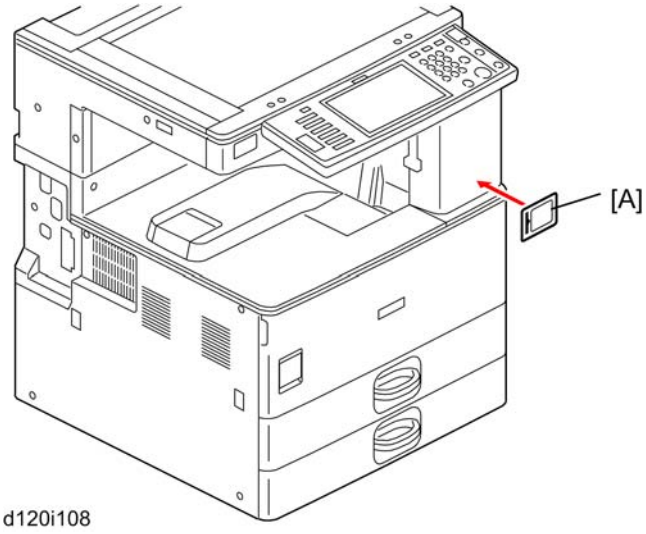


6. Rotate the green fusing pressure lever [A] to the up position.

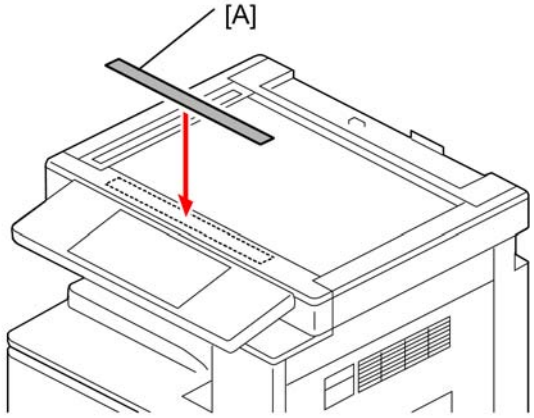
Emblem, Decals



1. Attach the emblem [A] to the center of the front cover
2. Attach the model name decal [B] to the front left of the front scanner cover.
3. Attach the small emblem [C] to the top center on the operation panel.



4. Attach the precautions for printing decal [A] to the front right cover.



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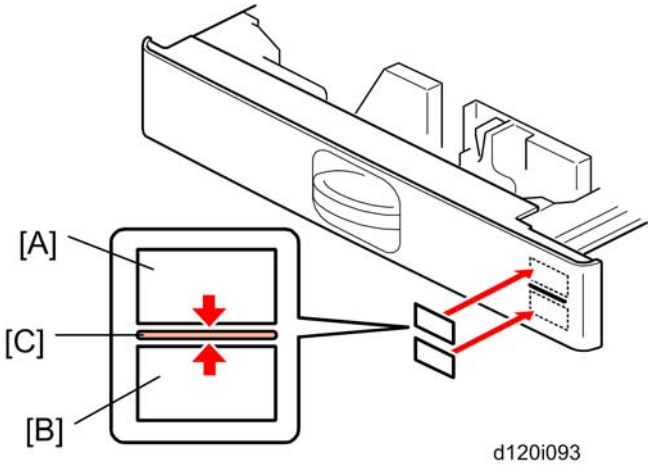
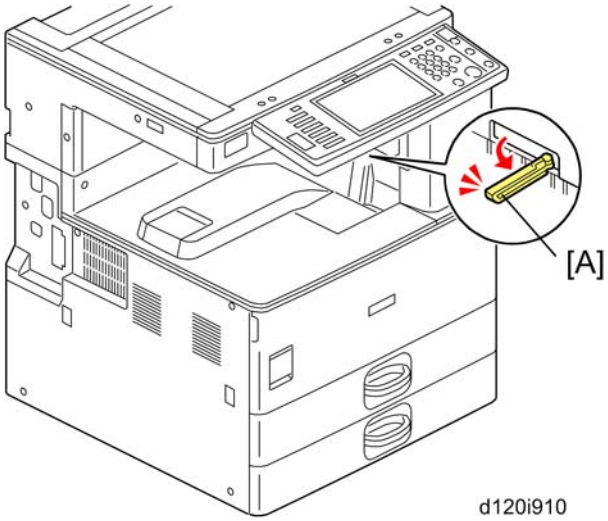
5. Attach the copy prohibition display decal [A] to the front of the exposure glass.



d120i093

6. Attach the appropriate paper tray number decal [A] and paper size decal [B] above and below the line [C] on the tray of the paper feed unit.

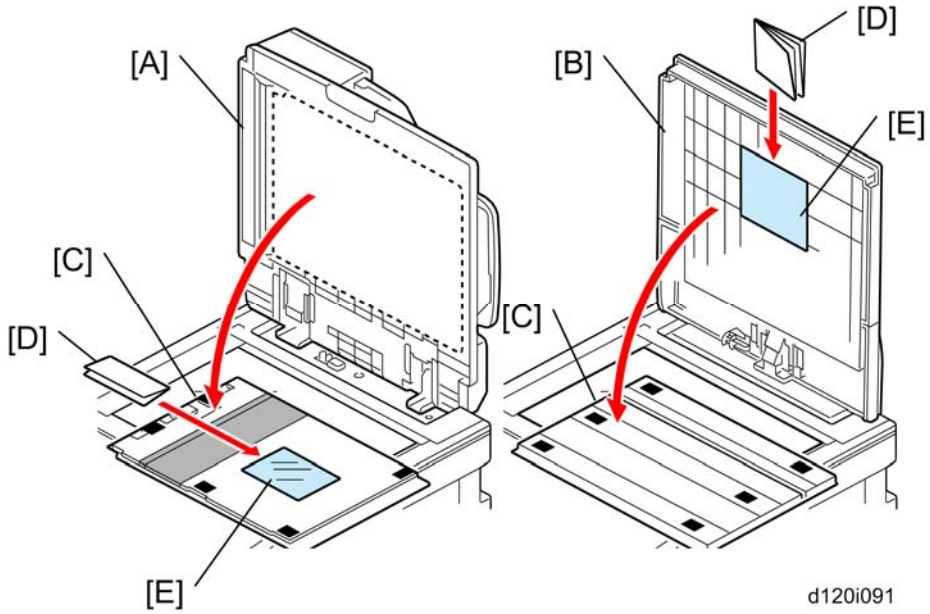
Completion



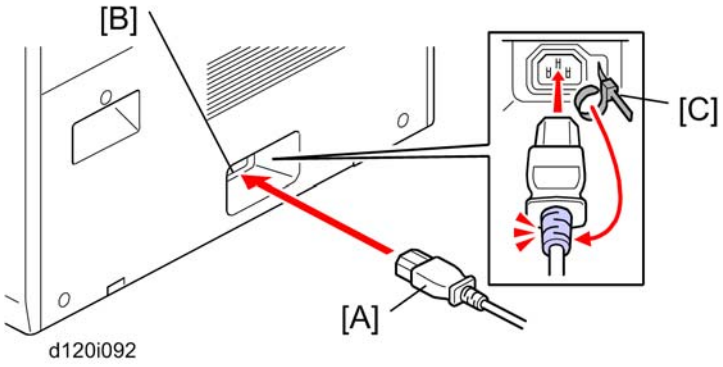
1. If the optional bridge unit will not be installed, swing the sensor feeler [A] out.
2. Install the optional ARDF or the optional platen cover (see ARDF (D578) or Platen Cover (D593)).
3. Pull out trays, and then adjust the side guides and end guide to match the paper size.

Note

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



4. Open the ARDF [A] or platen cover [B].
5. Remove the platen [C] from the ARDF or platen cover.
6. Fold the SMC sheets into folio (for the ARDF) or quarto (for the platen cover).
7. Put the folded SMC sheets [D] in the pocket [E].
8. Align the platen on the exposure glass, and then close the ARDF or platen cover.



9. Connect the power cord [A] to the inlet [B] of the main machine.
10. Secure the power cord with the clamp [C] installed in the main machine so that the power cord is never disconnected.

SP Settings

1. Turn on the main power switch.
2. Go into the SP mode and do SP2-801 (Developer Initialization).
3. Do SP5-181 and SP1-007-007 to set automatic paper size selection for the upper tray, lower tray, and by-pass tray.

Upper Tray (Size Adjust Tray 1)

5-181-001	A4 LEF/LT LEF	[0 to 1 / **0** / 1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
5-181-002	A3/DLT	
5-181-003	B4/LG	
5-181-004	B5LEF/ExeLEF	
5-181-005	A5SEF/HLTSEF	

Lower Tray (Size Adjust Tray 2)

5-181-006	A4 LEF/LT LEF	[0 to 1 / **0** / 1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
5-181-007	A3/DLT	
5-181-008	B4/LG	
5-181-009	B5LEF/ExeLEF	

By-Pass Tray (By-Pass Size Detection)

1-007-007	LTSEF/LG	[0 to 1 / **0** / 1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)

4. Enable the NIB and/or USB function.
   - To enable the NIB function, enter the SP mode and set SP5-985-001 (On Board NIC) to "1"(Enable).
   - To enable the USB function, enter the SP mode and set SP5-985-002 (On Board USB) to "1"(Enable).
5. Exit SP mode.
6. Do some test copies to make sure that the machine operates correctly.

Data Overwrite Security

Do the following procedure if a customer wants to use this function.

1. Do SP5-878-1(Option Setup - Data Overwrite Security) and touch [EXECUTE].
2. Go out of the SP mode, turn off the operation switch, then turn off the main power switch.
3. Turn the machine power on.
4. Press [User Tools] and select System Setting > Administrator Tools > Auto Erase Memory Setting > On
5. Exit from User Tools mode.

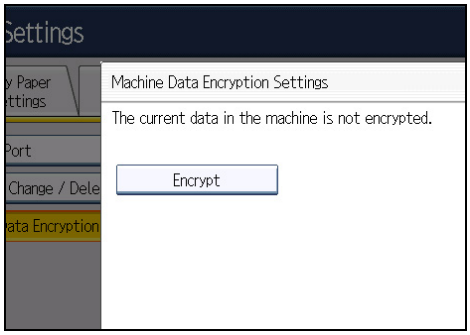
6. Check the display and make sure that the overwrite erase icon [A] is displayed.
7. Make a Sample Copy.
8. Check the overwrite erase icon.
   - The icon [B] changes to [C] when job data is stored in the hard disk.
   - The icon goes back to its usual shape [B] after this function has completed a data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

10. Look at the report:
    - Under "[ROM No./Firmware Version]" check the number and version number listed for "HDD Format Option".
    - Under "[Loading Program]" check the option number and version number listed for "GW_zoffy".
    - These two version numbers should be identical.
11. Exit SP mode.

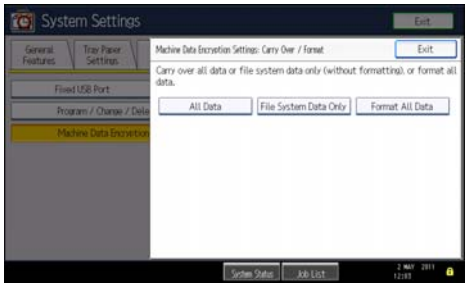
HDD Encryption

Do the following procedure if a customer wants to use this function.

1. Do SP5-878-2 (Option Setup - Encryption Option) and touch [EXECUTE]
2. Go out of the SP mode, turn off the operation switch, then turn off the main power switch.
3. Turn the machine power on.
4. Push [User Tools] and select System Setting > Administrator Tools > Machine Data Encryption Setting.



5. Press [Encrypt].



6. Select the data to be carried over to the hard disk and not to be reset
   To carry all of the data over to the hard disk, select [All data].To carry over only the machine setting data, select [File System Data Only]. To reset all of the data, select [Format All Data].

7. Press the [Start] Key.
   The encryption key for backup data is printed.

App 2 Me Setting (SP models only)

SP models have Java VM and "App 2 Me" as a standard.

Do the following procedure if a customer wants to use this function.

1. Press "User Tools" key on the operation panel.
2. Touch the "Extended Feature Settings" button twice.
3. Touch the "App 2 Me" line in the Startup Setting tab.
4. Touch the "Extended Feature Info" tab on the LCD.
5. Touch the "App 2 Me" line.
6. Set the setting of "Auto Start" to "On".
7. Touch the "Exit" button.
8. Exit the "User Tools" settings.

2.2.4 TRANSPORTING THE MACHINE

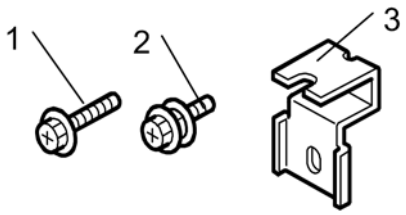
1. Do SP4-806-001 to move the scanner carriage from the home position. This prevents dust from falling into the machine during transportation.

2.3 PAPER FEED UNIT PB3120 (D579)

2.3.1 ACCESSORY CHECK

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

No.	Description	Q'ty
1	Screw - M4 x 10	2
2	Screw with Spring Washer - M4 x 10	1
3	Securing bracket	2



d581i100

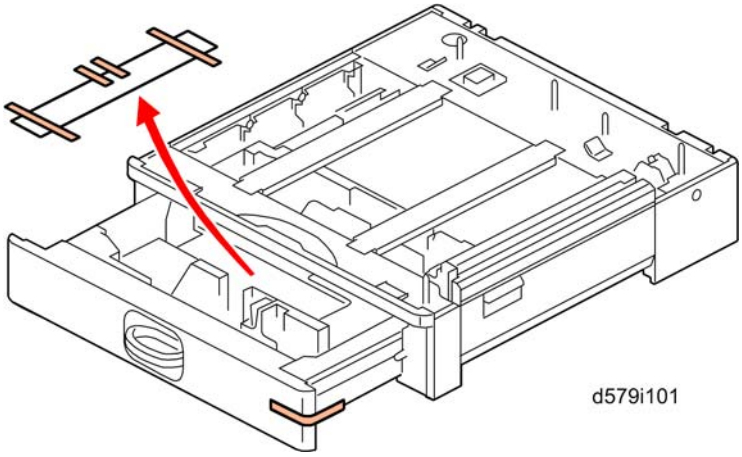
2.3.2 INSTALLATION PROCEDURE

CAUTION

- Turn off the main power switch of the copier and unplug the power cord before you start the installation procedure.
- 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.
- Do not lift the copier with the paper feed unit installed. The handle and grips may be damaged.

Note

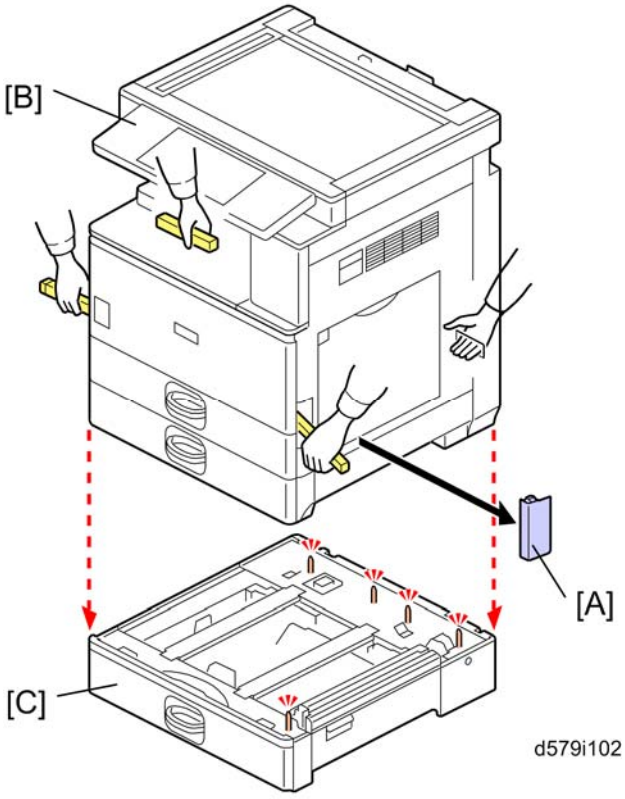
- The one-tray paper feed unit must be installed on the caster table (D593). Prepare the caster table first before installing this unit.



1. Remove all tape on the paper feed unit.
2. Remove the paper tray and remove all tapes and padding.
3. Put the paper tray unit on the caster table (D593).

Note

- For details about the installation of the caster table, see the “Installation Procedure of Caster Table (D593)” in this section.

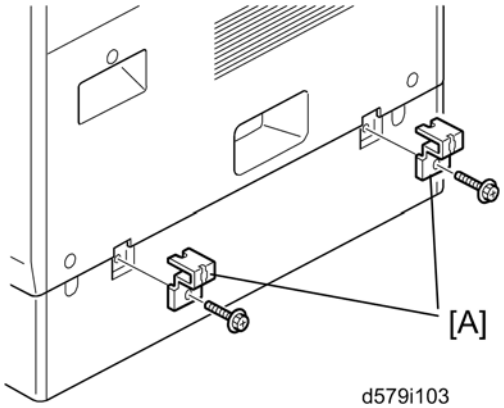


4. Remove the grip cover [A] at the front right of the main machine if this cover is attached.
5. Pull out three grips, then hold the handle and grips, and put the copier [B] on the paper feed unit [C].

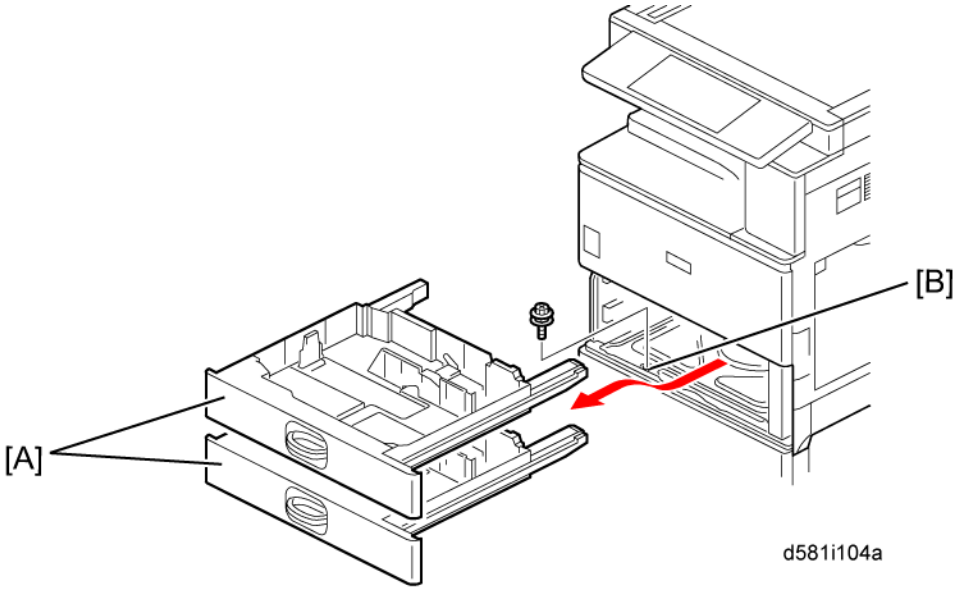
Important

- You need two or more persons to lift the copier.

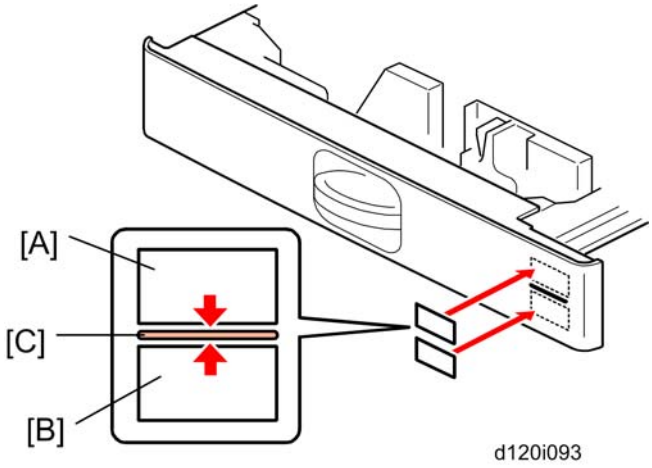
6. Attach the grip cover [A] to the main machine.



7. Attach the securing brackets [A] (x 1; M4x10 each).



1. Remove the 1st and 2nc paper trays [A], and then secure the paper feed unit [B] (spring washer x 1; M4x 10).
2. Reinstall the 1st and 2nd trays.



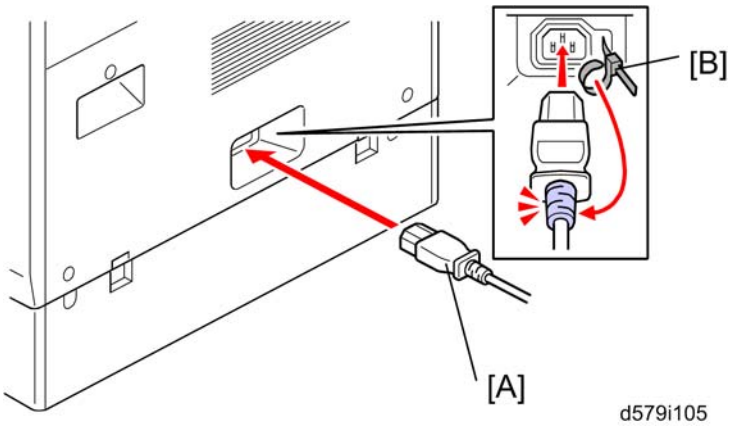
3. Attach the appropriate paper tray number decal [A] and paper size decal [B] above and

below the line [C] on the tray of the paper feed unit.

Note

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

4. Lock the caster stoppers for the front two casters under the paper feed unit.
5. Load paper into the paper tray and set the side fences and bottom fence.



6. Connect the power cord [A] to the inlet of the main machine.
7. Secure the power cord with the clamp [B] on the main machine so that the power cord is never disconnected.

SP Settings

1. Connect the copier and turn on the main power switch.
2. Do SP5-181 to set automatic paper size detection for the upper tray of the paper tray unit.
   Upper Tray (Size Adjust Tray 3)

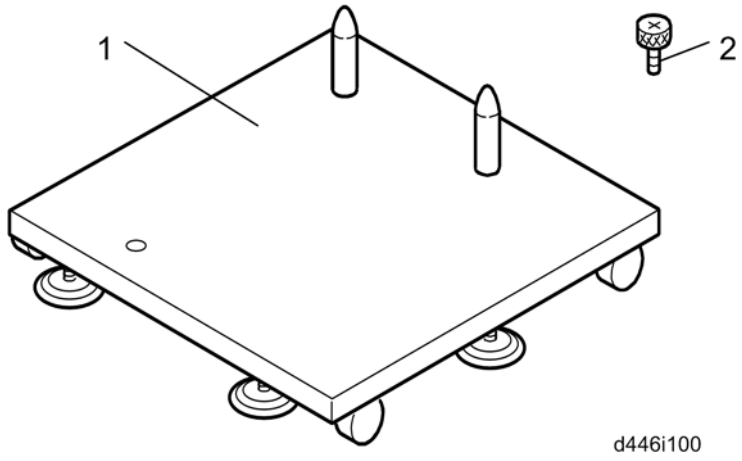
5-181-011	A3/DLT	[0 to 1 / **0** / 1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
5-181-012	B4/LG	
5-181-013	B5LEF/ExeLEF	

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

2.4 CASTER TABLE TYPE D (D593)

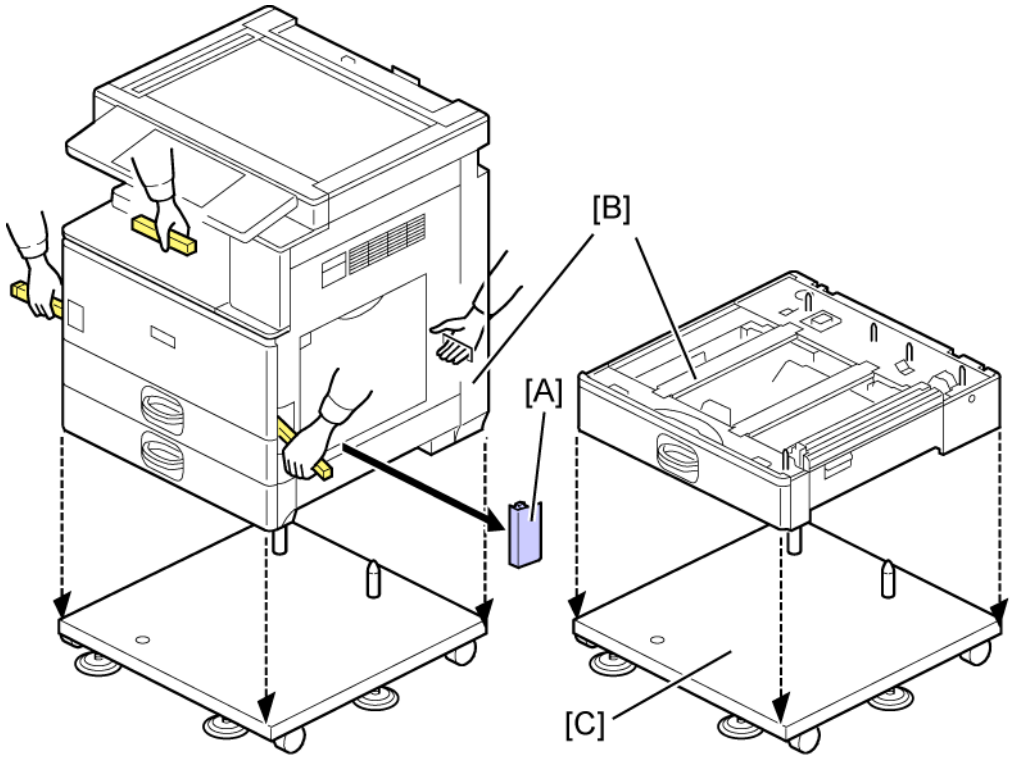
2.4.1 COMPONENT CHECK

No.	Description	Q'ty
1	Caster Table	1
2	Stud Screw	1

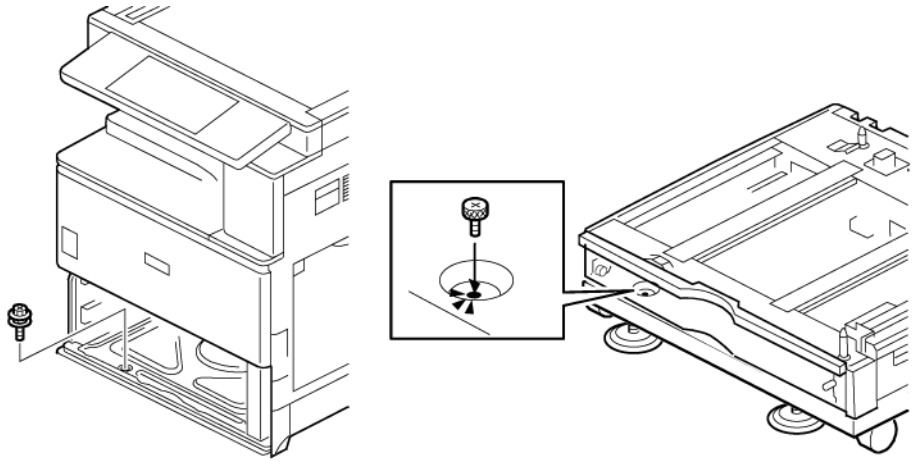


2.4.2 INSTALLATION PROCEDURE

1. Put the caster table on a flat place.



2. Remove the grip cover [A] at the front right of the main machine if this cover is attached.
3. Lift the mainframe or the one-tray paper feed unit [B], and then install it on the caster table [C].
4. Pull out the tray of the mainframe or the one-tray paper feed unit.



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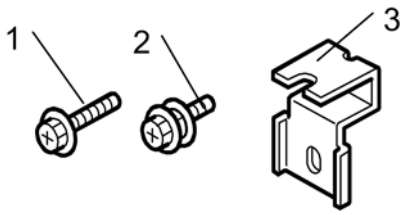
5. Secure the mainframe or the one-tray paper feed unit to the caster table (stud screw x 1)
6. Reinstall the tray(s) in the mainframe or the one-tray paper feed unit.
7. Adjust the five leveling adjustors of the caster table.

2.5 PAPER FEED UNIT PB3130 (D580)

2.5.1 ACCESSORY CHECK

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

No.	Description	Q'ty
1	Screw – M4 x 10	2
2	Screw with Spring Washer – M4 x 10	1
3	Securing Bracket	2

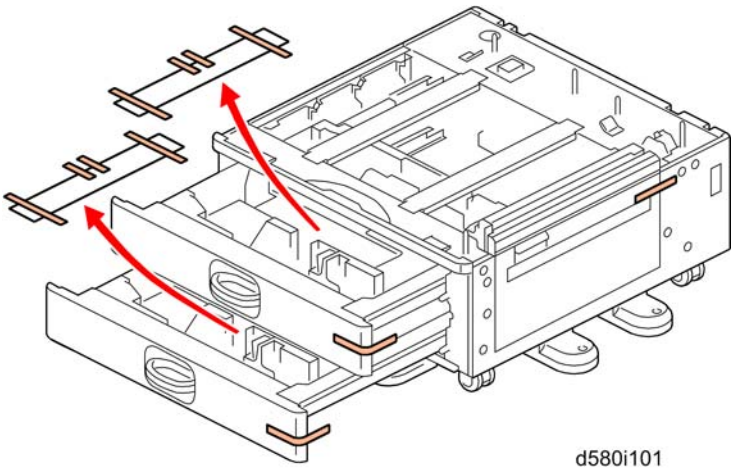


d581i100

2.5.2 INSTALLATION PROCEDURE

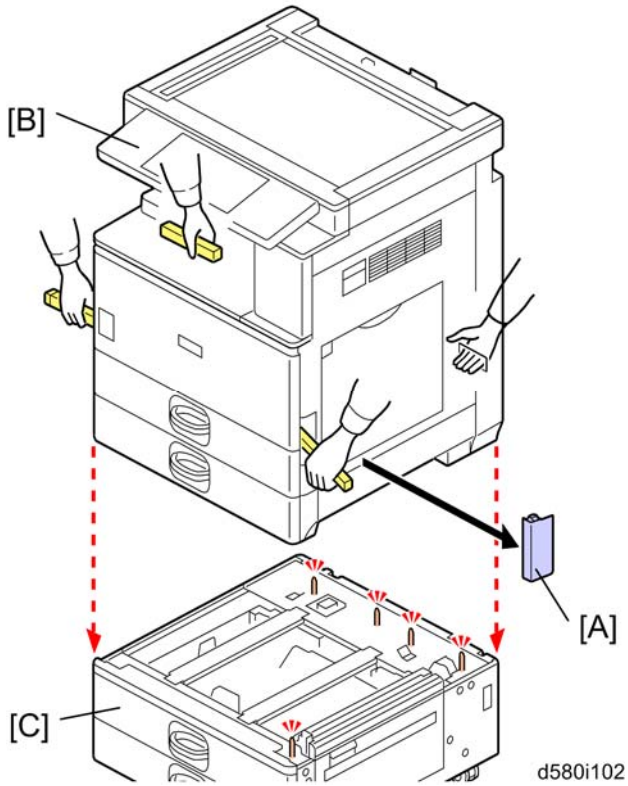
⚠CAUTION

- 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.



d580i101

1. Remove all tape on the paper feed unit.
2. Remove the paper tray and remove all tapes and padding.



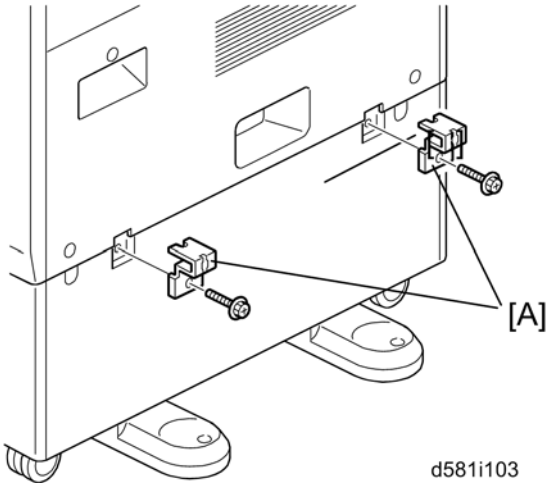
d580i102

3. Remove the grip cover [A] at the front right of the main machine if this cover is attached.
4. Pull out three grips, then hold the handle and grips, and put the copier [B] on the paper feed unit [C].

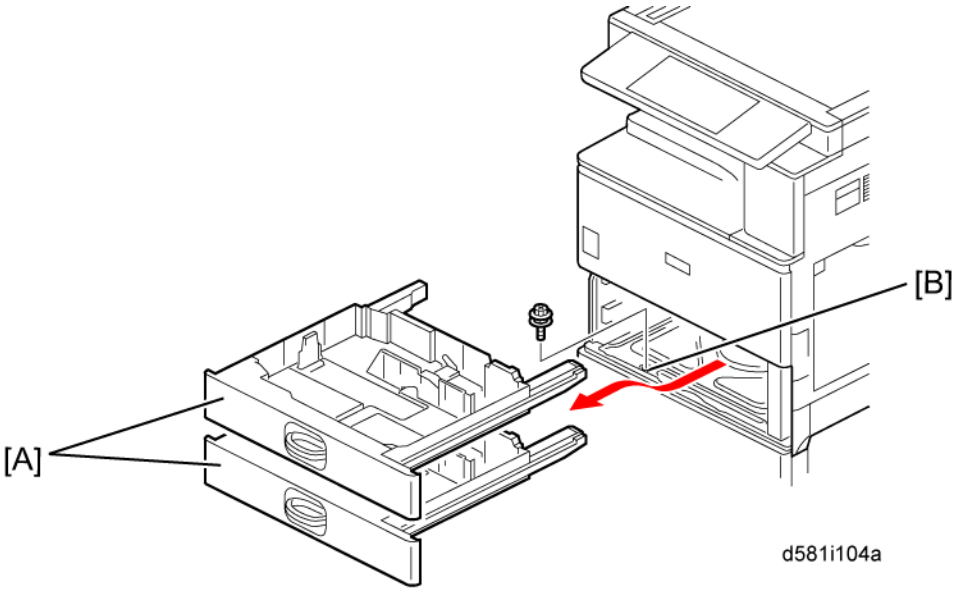
Important

- You need two or more persons to lift the copier.

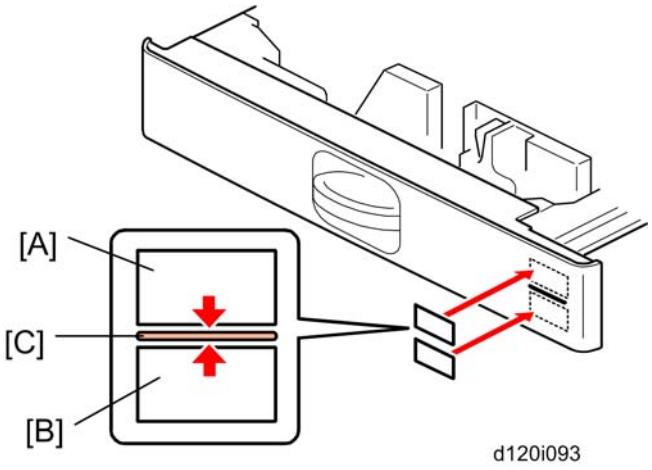
5. Attach the grip cover [A] to the main machine.



6. Attach a securing bracket [A] to each side of the paper tray unit, as shown (x 1; M4x10 each).



7. Remove the 1st and 2nd paper trays [A].
8. Fasten the paper tray unit at [B] (spring washer x 1; M4x10).
9. Reinstall the all paper trays.

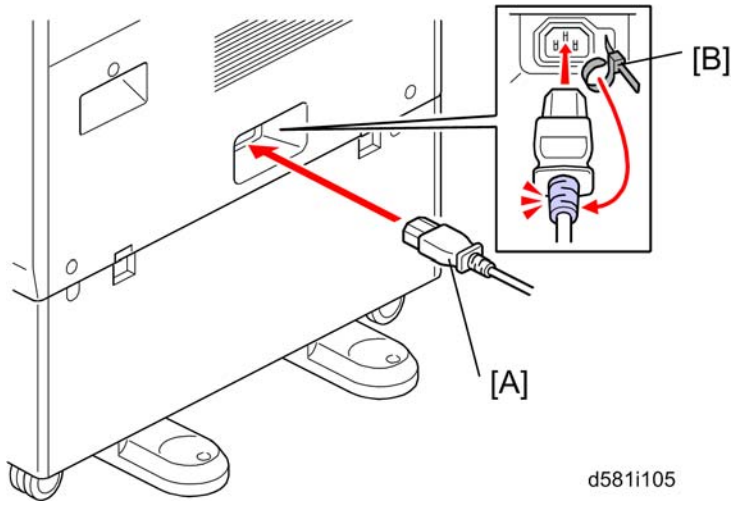


10. Attach the appropriate paper tray number decal [A] and paper size decal [B] above and below the line [C] on each tray of the paper feed unit.

Note

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

11. Lock the caster stoppers for the front two casters under the paper feed unit.
12. Load paper into the paper trays and set the side fences and bottom fence.



13. Connect the power cord [A] to the inlet of the main machine.
14. Secure the power cord with the clamp [B] on the main machine so that the power cord is never disconnected.

SP Settings

1. Connect the copier and turn on the main power switch.
2. Do SP5-181 to set automatic paper size detection for the upper and lower tray of the paper tray unit.

Upper Tray (Size Adjust Tray 3)

5-181-011	A3/DLT	[0 to 1 / **0** / 1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
5-181-012	B4/LG	
5-181-013	B5LEF/ExeLEF	

Lower Tray (Size Adjust Tray 4)

5-181-014	A4/LEF	[0 to 1 / **0** / 1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
5-181-015	B3/DLT	
5-181-016	B4/LG	
5-181-017	B5LEF/ExeLEF	

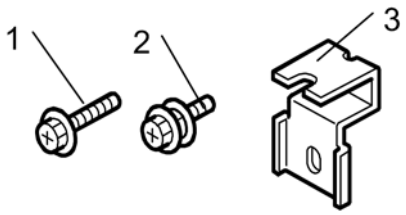
3. Exit SP mode.
4. Do some test copies to make sure that the machine operates correctly.

2.6 LCIT PB3140 (D581)

2.6.1 ACCESSORY CHECK

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

No.	Description	Q'ty
1	Screw – M4 x 10	2
2	Screw with Spring Washer - M4 x 10	1
3	Securing Bracket	2

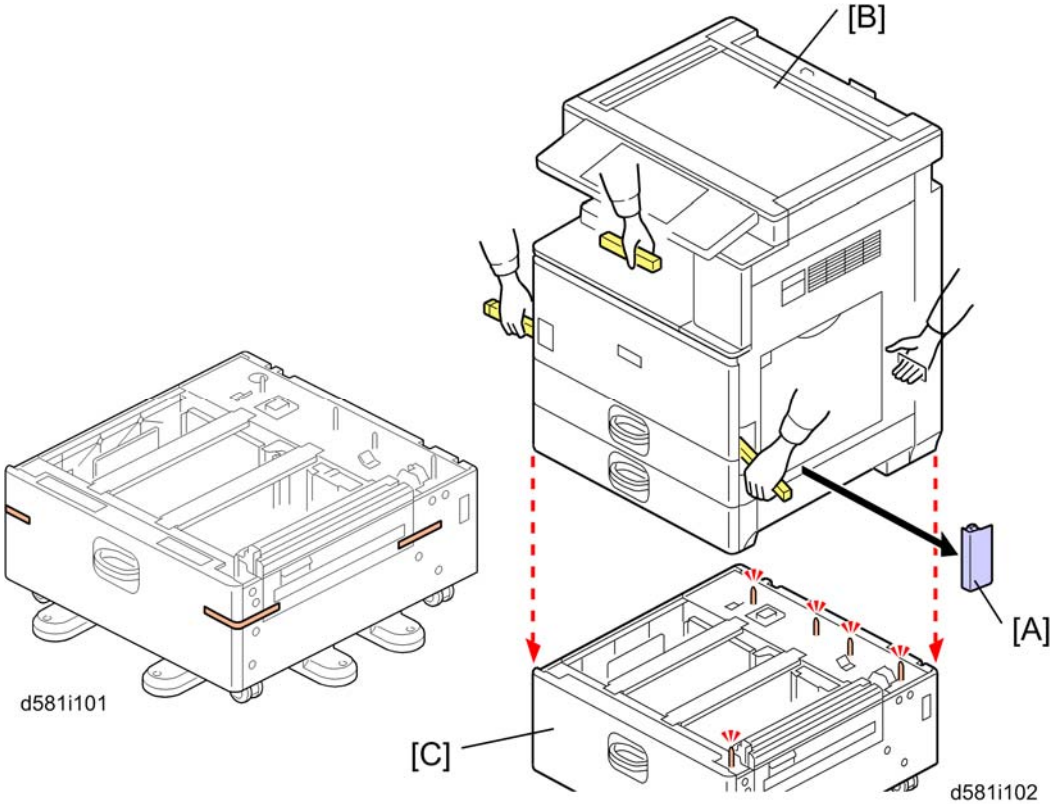


d581i100

2.6.2 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.

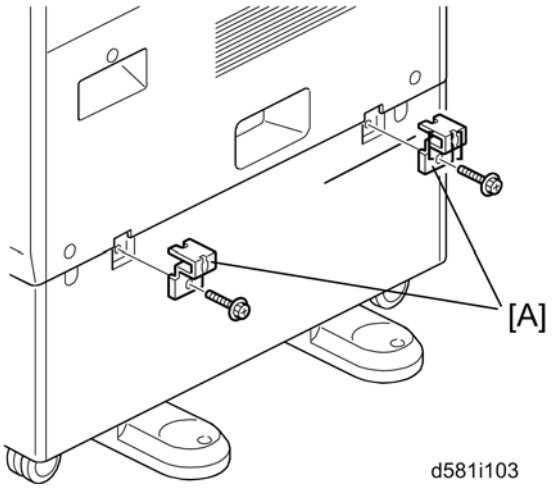


1. Remove the strips of tape.
2. Remove the grip cover [A] at the front right of the main machine if this cover is attached.
3. Pull out three grips, then hold the handle and grips, and put the copier [B] on the LCT [C].

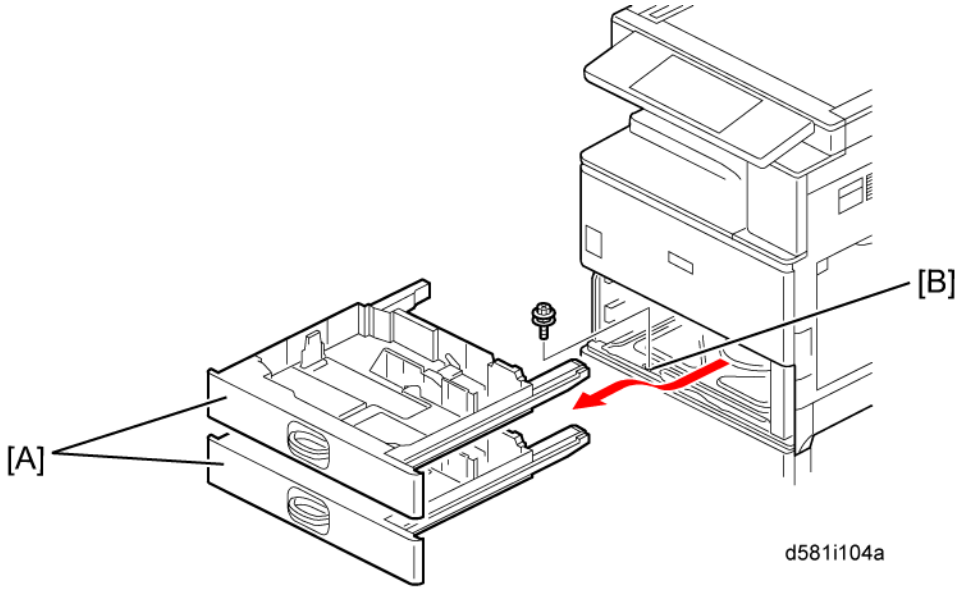
Important

- You need two or more persons to lift the copier.

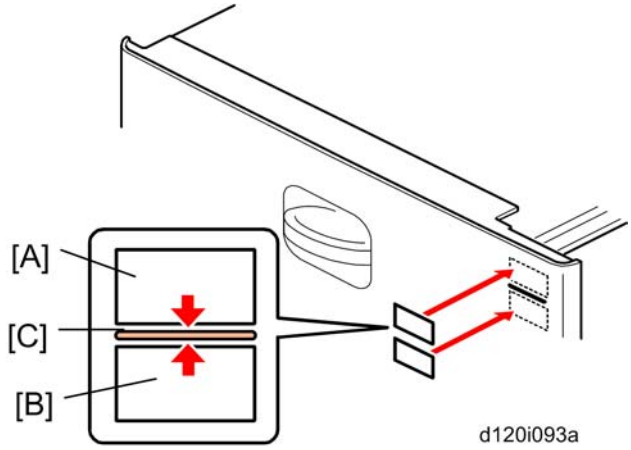
4. Attach the grip cover [A] to the main machine.



5. Attach a securing bracket [A] to each side of the LCT, as shown (x 1; M4x10 each).



6. Remove the 1st and 2nd paper trays [A], and then secure the LCT [B] (spring washer x 1; M4x10).
7. Reinstall the 1st and 2nd paper trays.

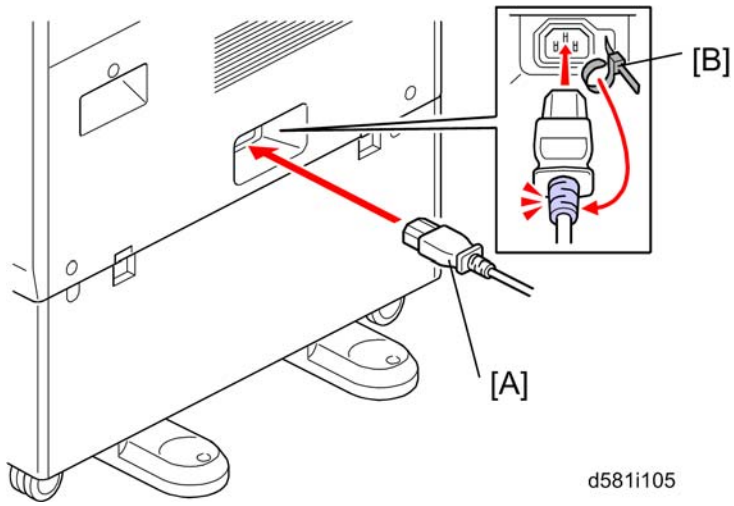


8. Attach the appropriate paper tray number decal [A] and paper size decal [B] to the line [C] on the tray of the LCT.

Note

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

9. Lock the caster stoppers for the front two casters under the paper feed unit.
10. Load paper into the LCT.



11. Connect the power cord [A] to the inlet of the main machine.
12. Secure the power cord with the clamp [B] on the main machine so that the power cord is never disconnected.

SP Settings

1. Connect the copier and turn the main machine on.
2. Do SP5-181-010 to set automatic paper size detection for the LCT paper tray.
   LCT Paper Tray (Size Adjust Tray 3 / LCT)

5-181-010	A4 LEF/LT LEF	[0 to 1 / **0** / 1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)

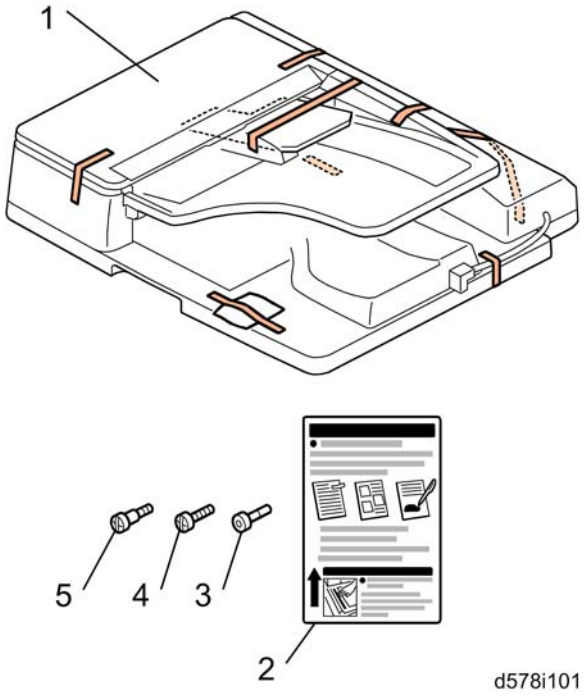
3. Exit SP mode.
4. Do some test copies to make sure that the machine operates correctly.

2.7 ARDF DF3060 (D578)

2.7.1 COMPONENT CHECK

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

No.	Description	Q'ty
1	ARDF	1
2	Original Setting and ARDF Exposure Glass Cleaning Decal	1
3	Stamp Cartridge	1
4	Knob Screw	2
5	Stud Screw	2



2.7.2 INSTALLATION PROCEDURE

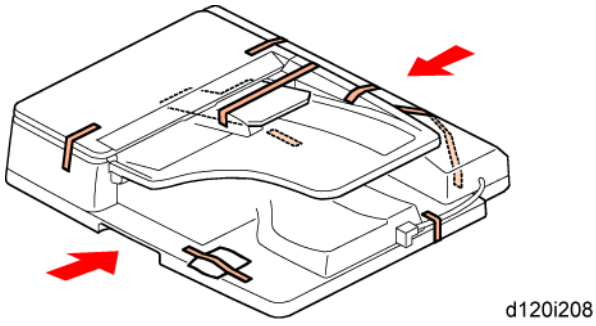
CAUTION

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

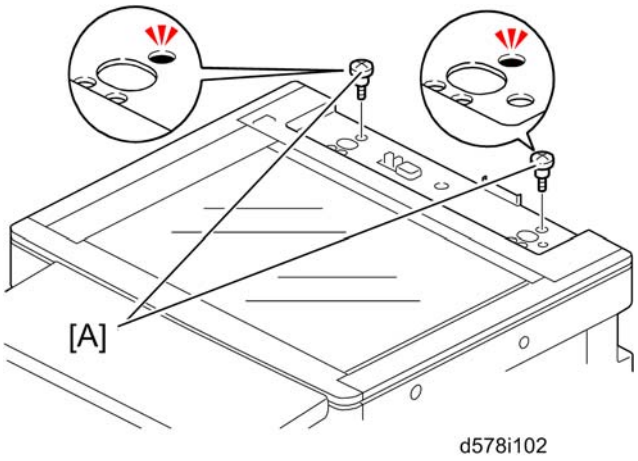
1. Remove all tapes and shipping retainers.

Note

- When unloading the ARDF from a pallet, hold the front and rear side of the ARDF.

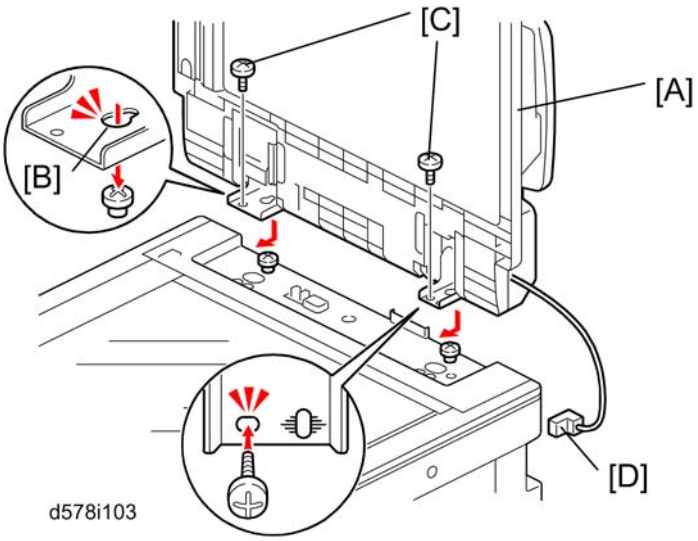


d120i208



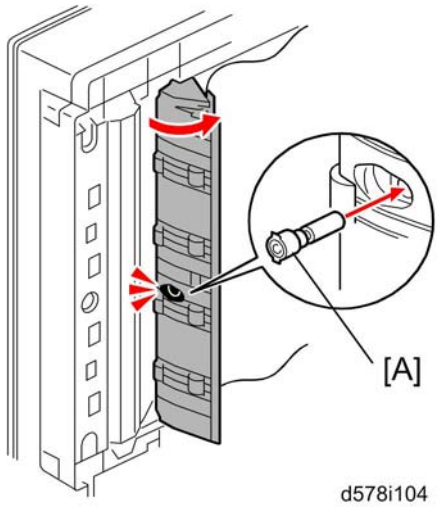
d578i102

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

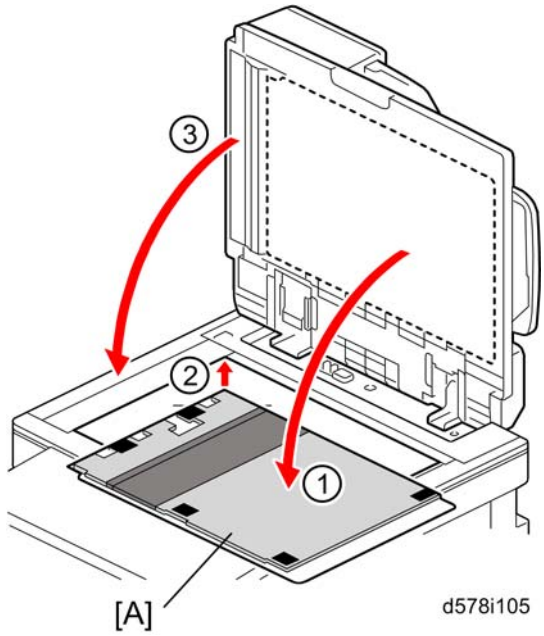


d578i103

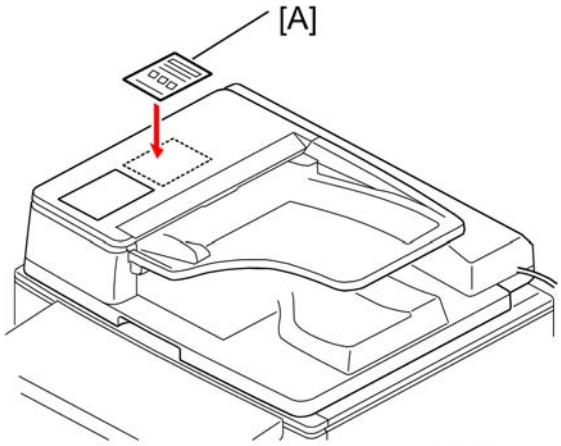
3. Mount the ARDF [A] by aligning the screw keyholes [B] of the ARDF support plate over the stud screws.
4. Slide the ARDF toward the front of the machine.
5. Secure the ARDF with the two knob screws [C].
6. Attach the interface cable [D] to the inlet of the machine.



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



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



d578i106

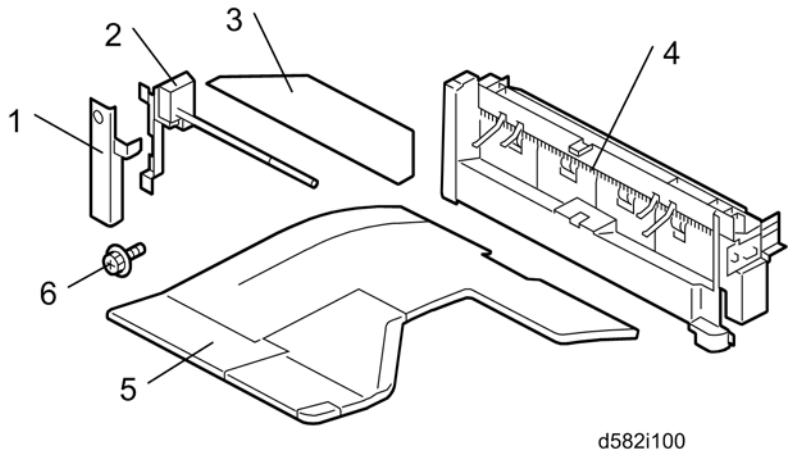
12. Attach the original setting and ARDF exposure glass cleaning decal [A] to the top cover as shown.
13. Plug in and turn on the main power switch, and then check the ARDF operation.
14. Make a full size copy. Check that the registrations (side-to side and leading edge) and image skew are correct. If they are not, adjust the registrations and image skew, referring to the service manual ("Copy Adjustments" in the "Replacements and Adjustments").

2.8 1 BIN TRAY BN3090 (D582)

2.8.1 COMPONENT CHECK

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

No.	Description	Q'ty
1	Support Bar Cover	1
2	Tray Support Bar	1
3	Guide Mylar	1
4	1 Bin Tray Unit	1
5	Tray	1
6	Tapping Screw M3 x 8	2

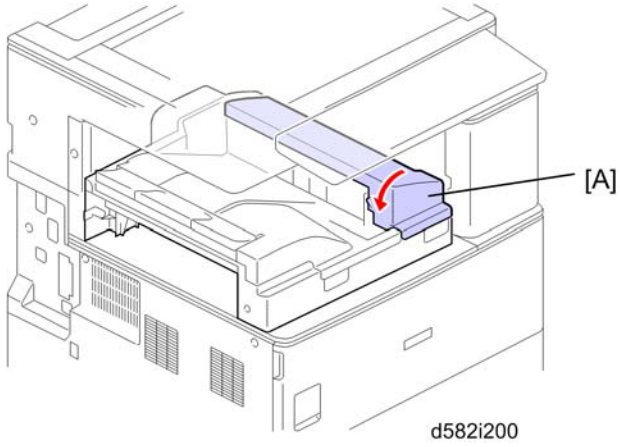


2.8.2 INSTALLATION PROCEDURE

CAUTION

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

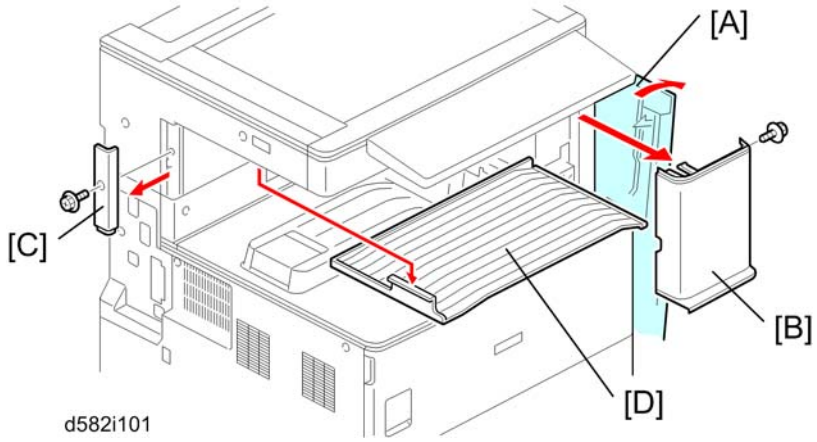
1. Remove all tapes.



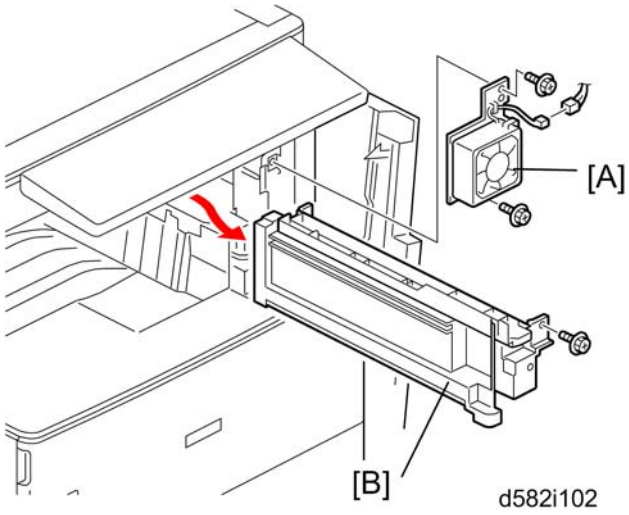
2. If the optional bridge unit has been installed, open the right guide [A] of the bridge unit.

   -or-

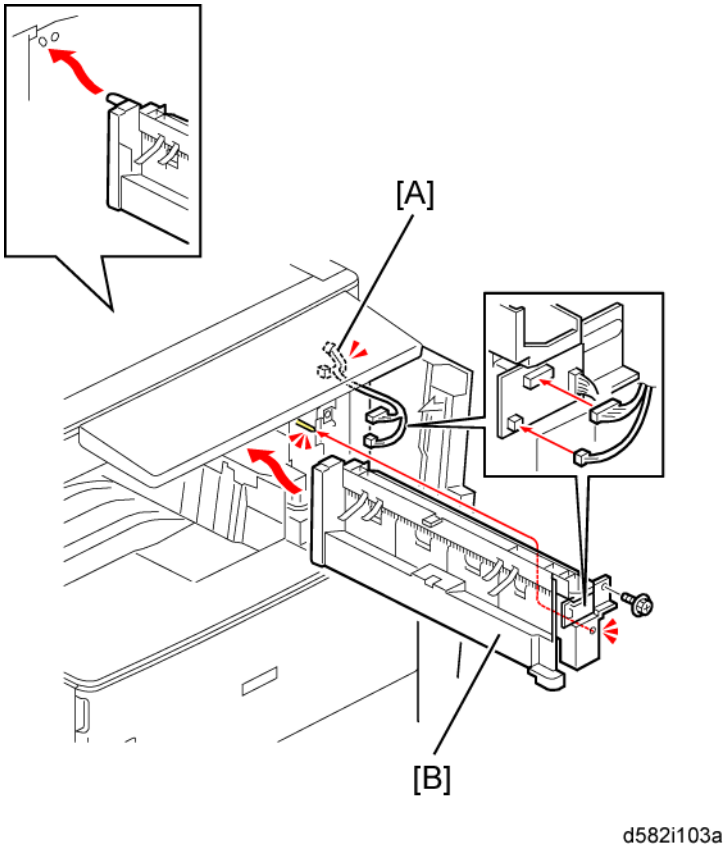
   If the optional bridge unit is not installed, skip this step.



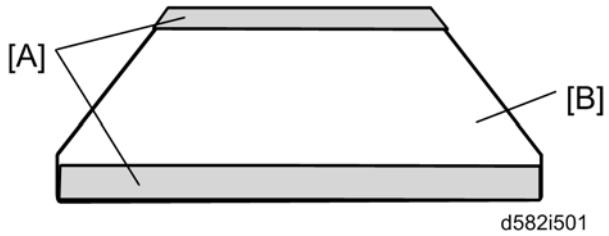
3. Open the right cover [A].
4. Remove the front right cover [B] (x 1).
5. Remove the left frame cover [C] (x 1).
   - Keep this screw for a later step.
6. Take out the duplex tray [D].



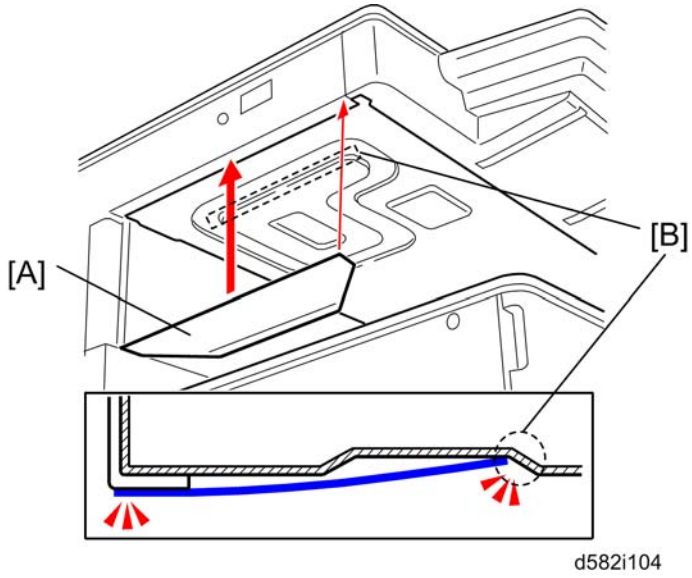
7. Remove the fusing fan [A] (x 2, x 1)
8. Remove the duplex guide [B] (x 1).
   - Keep this screw for a later step.



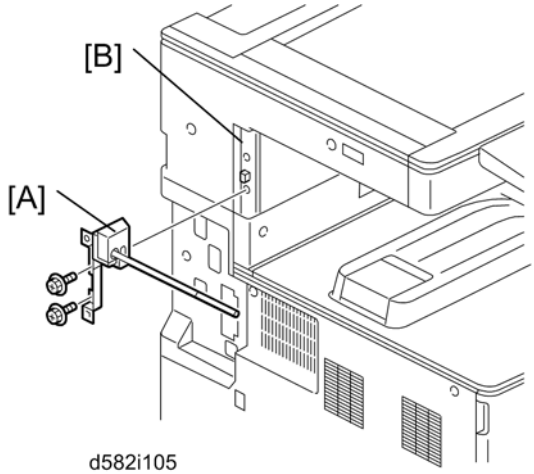
9. Remove the harness from the clamp [A].
10. Install the 1-bin tray unit [B] (x 1, x 2).
    - Use the screw which was removed in step 8.
11. Re-install the fusing fan (x 2) and front right cover (x 1).



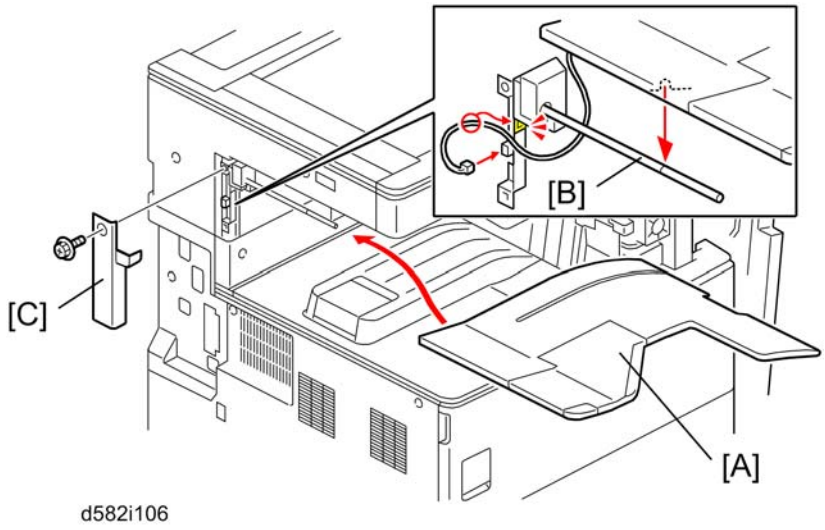
12. Peel off the double sided tapes [A] from the guide mylar [B].



13. Attach the guide mylar [A] so that the short edge of the guide mylar is aligned with the sloping part [B] of the scanner unit bottom frame.



14. Install the tray support bar [A] (x 2) in the left frame [B] of the main machine.



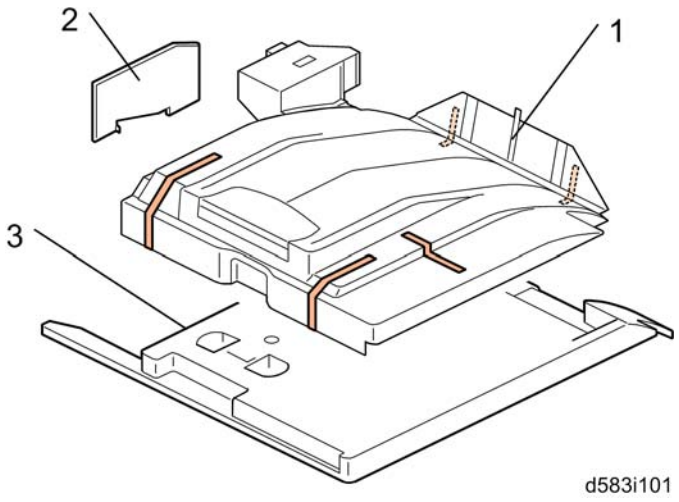
15. Install the tray [A], and then attach the tray to the tray support bar [B] (x 1, x 1).
16. Attach the support bar cover [C] (x 1).
    - Use the screw which was removed in step 5.
17. Turn on the main power switch and check the 1-bin tray unit operation.

2.9 INTERNAL SHIFT TRAY SH3050 (D583)

2.9.1 COMPONENT CHECK

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

No.	Description	Q'ty	For this model
1	Shift Tray Unit	1	Yes
2	Drawer Cover	1	Yes
3	Base	1	Yes

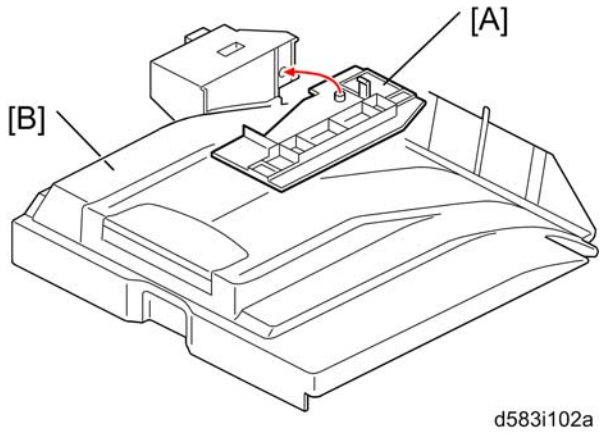


2.9.2 INSTALLATION PROCEDURE

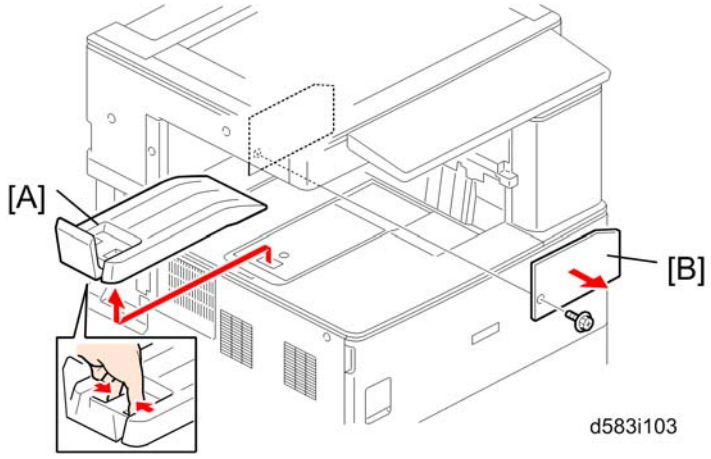
CAUTION

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

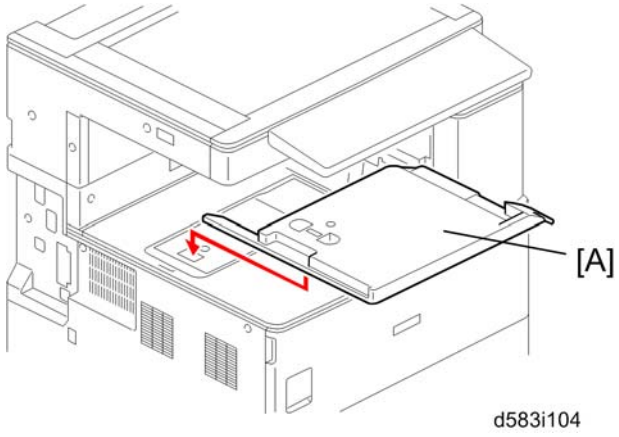
1. Remove all tapes.



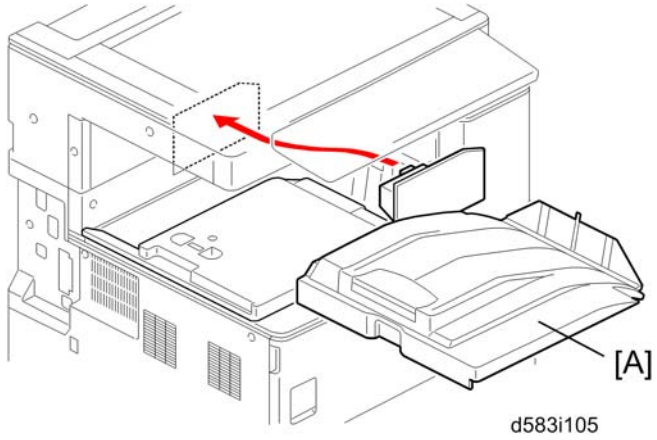
2. Attach the drawer cover [A] to the shift tray unit [B].



3. Remove the inner tray [A].
4. Remove the connector cover [B] (x 1).



5. Install the shift tray base [A].



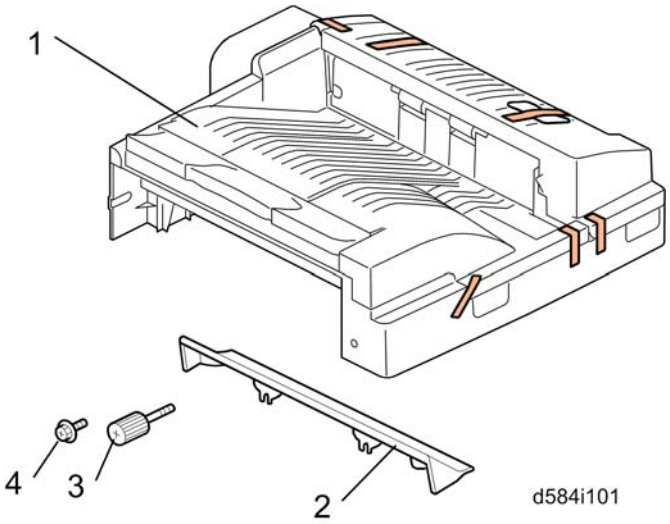
6. Install the shift tray unit [A], as shown.
7. Turn on the main power switch and check the shift tray operation.

2.10 BRIDGE UNIT BU3050 (D584)

2.10.1 COMPONENT LIST

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

No.	Description	Q'ty
1	Bridge Unit	1
2	Wide Extension Tray	1
3	Shoulder Screw	1
4	Screw	1

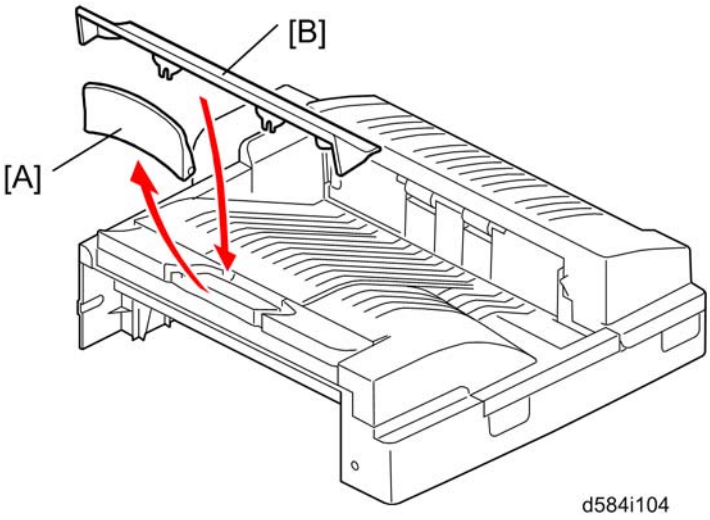


2.10.2 INSTALLATION PROCEDURE

⚠CAUTION

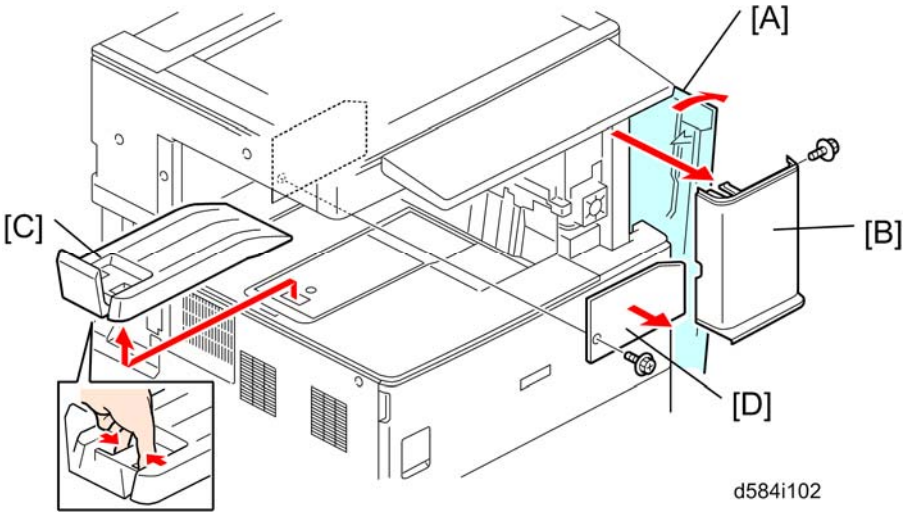
- Unplug the copier power cord before starting the following procedure.

Only when installing this unit for use with Booklet Finisher (D589)

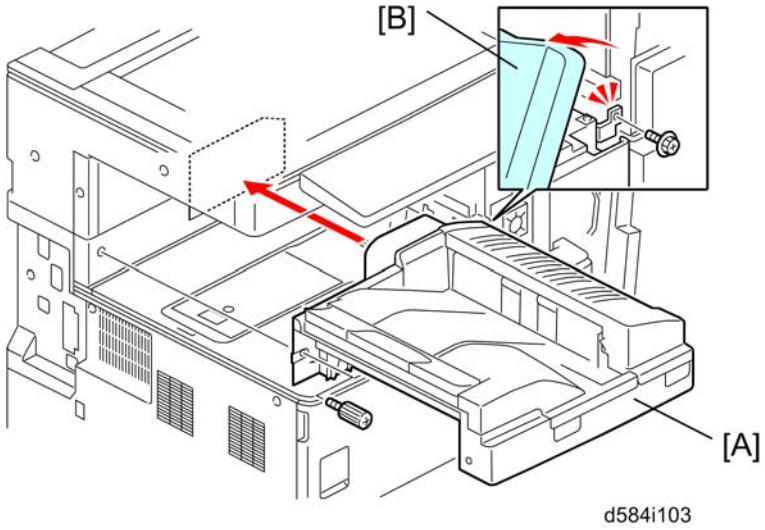


Replace the extension tray [A] with the wide extension tray [B] in the accessories of this unit only when Booklet Finisher (D589) is attached to the machine.

Installation Procedure



1. Open the right cover [A].
2. Remove the front right cover [B] (x 1).
3. Remove the inner tray [C].
4. Remove the connector cover [D] (x 1).



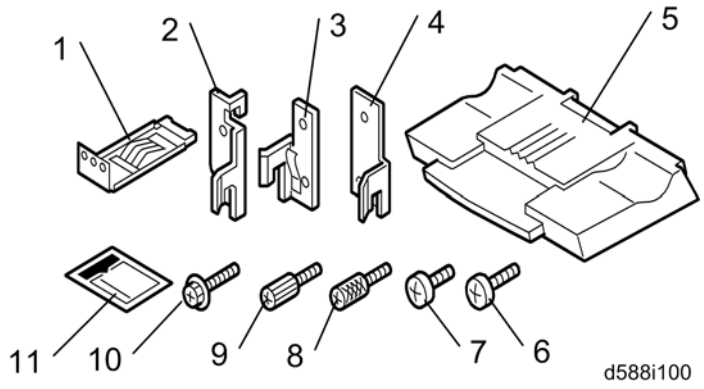
5. Install the bridge unit [A], and then secure it (shoulder screw x 1).
   - Open the bridge right cover [B] to secure the right screw.
6. Reinstall the front right cover (x 1).
7. Install the optional finisher (refer to the finisher installation procedure).

2.11 FINISHER SR3090 (D588)

2.11.1 ACCESSORY CHECK

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

No.	Description	Q'ty	For this model
1	Grounding Plate	1	Yes
2	Rear Joint Bracket	1	Yes
3	Front Joint Bracket	1	Yes
4	Rear Joint Bracket	1	Not used
5	Copy Tray	1	Yes
6	Screw - M3 x 8	1	Yes
7	Screw - M4 x 13	4	Not used
8	Knob Screw - M3 x 8	1	Yes
9	Knob Screw - M4 x 10	1	Yes
10	Screw - M4 x 25	3	Yes
11	Staple Position Decal	1	Yes



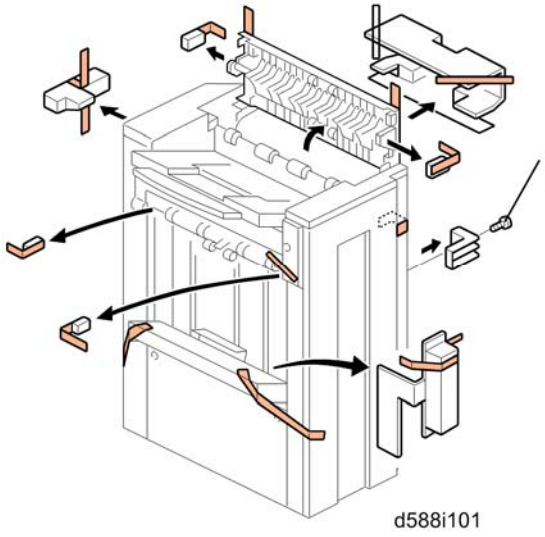
2.11.2 INSTALLATION PROCEDURE

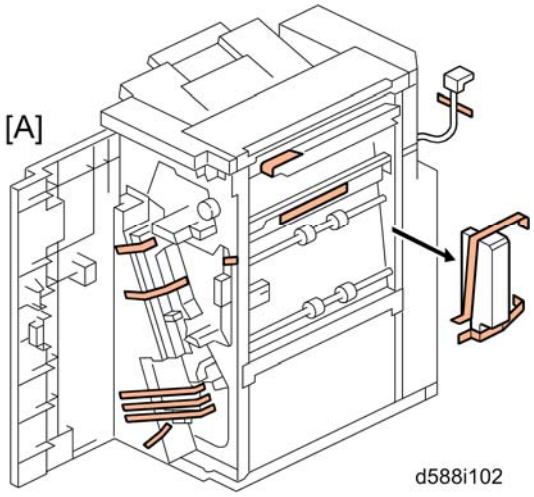
CAUTION

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

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

- Bridge Unit (D584) and either Paper Feed Unit (D580) or LCT (D581)

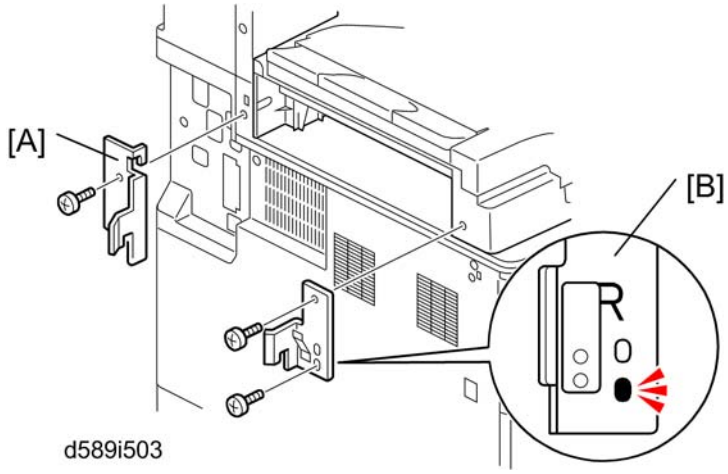




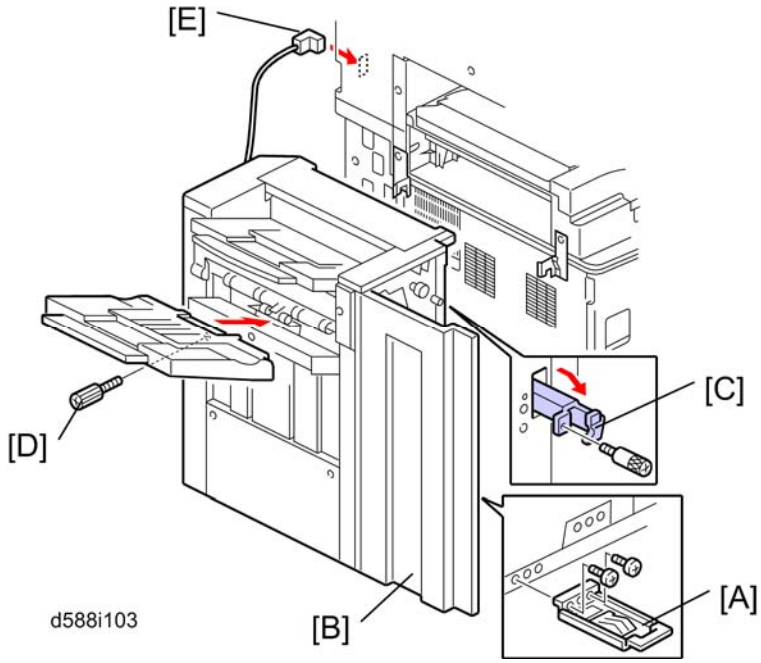
1. Unpack the finisher and remove the tapes.

Note

- Be sure to keep screw [A]. It will be needed to secure the grounding plate in step 3.



2. Install the rear joint bracket [A] (x 1; M4x25) and front joint bracket [B] (x 2; M4x25).

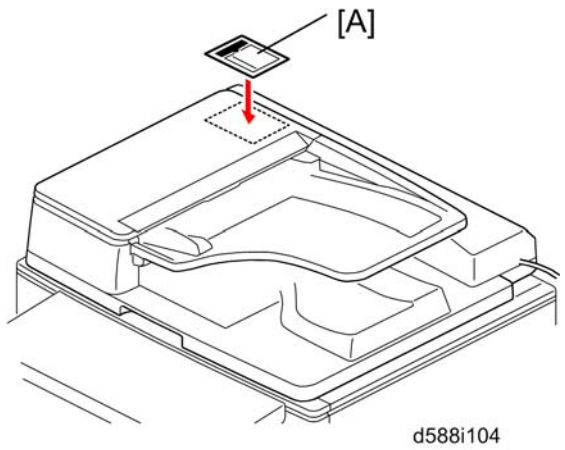


3. Install the grounding plate [A] on the finisher (x 2; M3x8).

Note

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

4. Open the front door [B]. Then pull the locking lever [C].
5. Align the finisher on the joint brackets, and lock it in place by pushing the locking lever.
6. Secure the locking lever (x 1; knob M3x8) and close the front door.
7. Install the copy tray [D] (x 1; knob M4x10).
8. Connect the finisher cable [E] to the main machine.



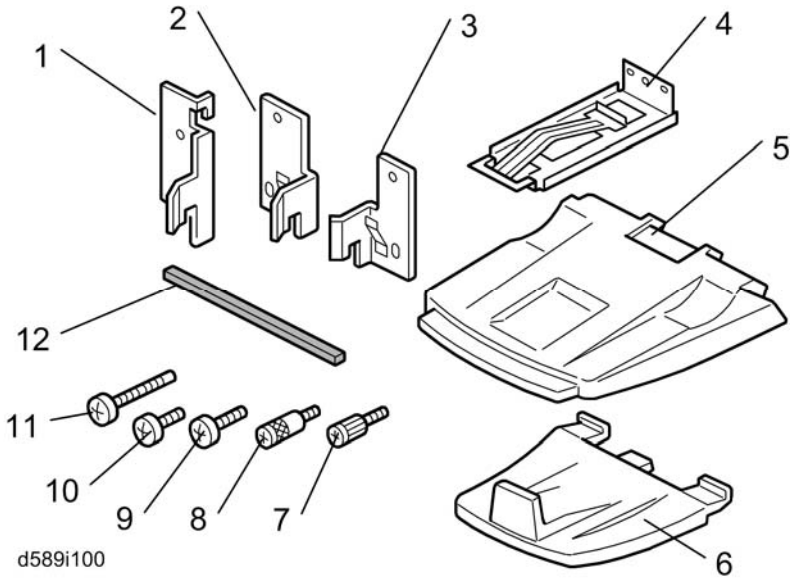
9. Attach the staple position decal [A] to the ARDF as shown.
10. Turn on the main power switch and check the finisher operation.

2.12 BOOKLET FINISHER SR3100 (D589)

2.12.1 ACCESSORY CHECK

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

No.	Description	Q'ty	For This Model
1	Rear Joint Bracket	1	Yes
2	Rear Joint Bracket	1	Not used
3	Front Joint Bracket	1	Yes
4	Grounding Plate	1	Yes
5	Upper Output Tray	1	Yes
6	Lower Output Tray	2	Yes
7	Short Knob screw	1	Yes
8	Long Knob screw	1	Yes
9	Screw (M4 x 13)	4	Not used
10	Screw (M3 x 8)	2	Yes
11	Screw (M4 x 25)	3	Yes
12	Cushion	2	Yes



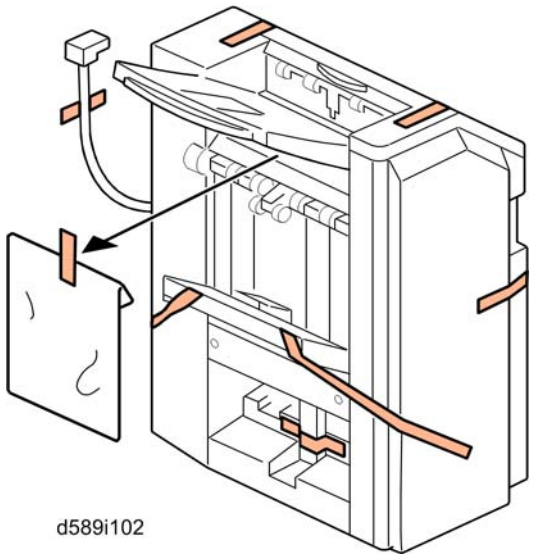
2.12.2 INSTALLATION PROCEDURE

CAUTION

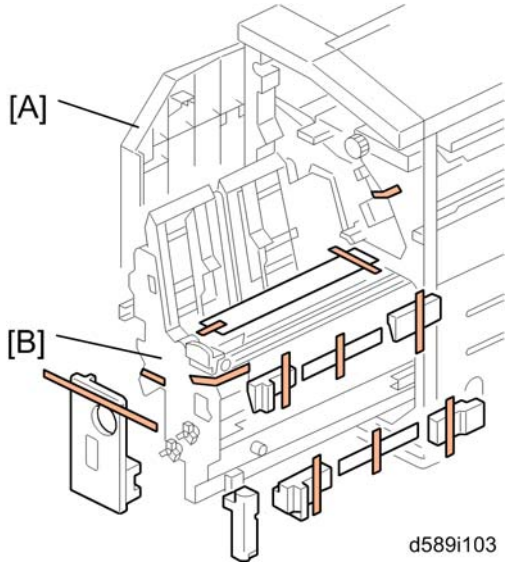
- Unplug the machine power cord before starting the following procedure.

Some optional units must be installed before installing this finisher (D589). Refer to the following:

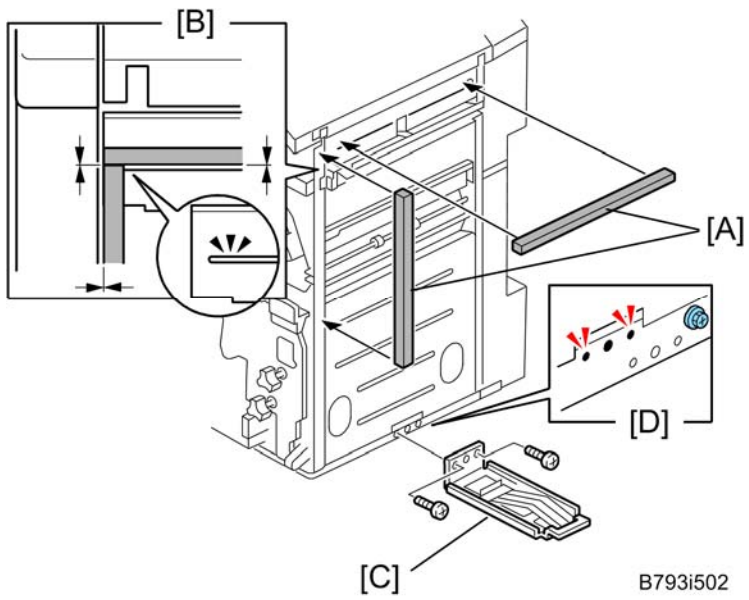
- Bridge Unit (D584) and either PFU (D580) or LCT (D581)



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.

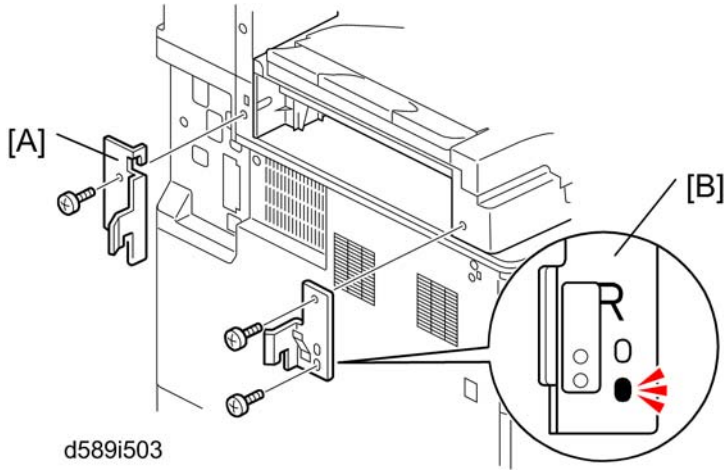


4. Attach the cushions [A] to the finisher.

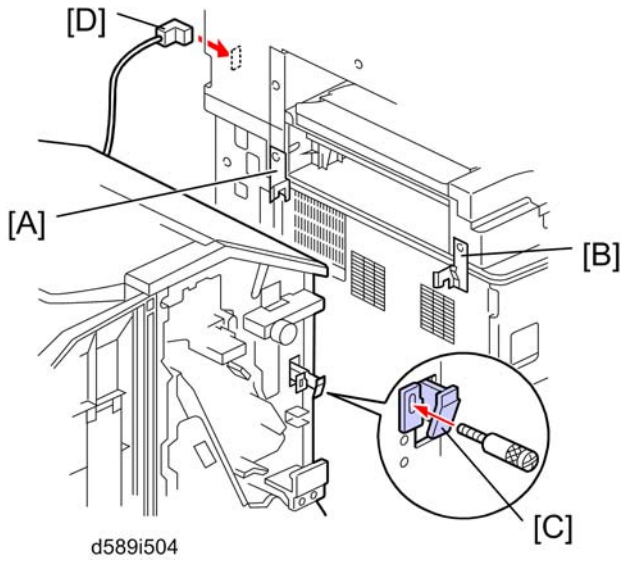
Note

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

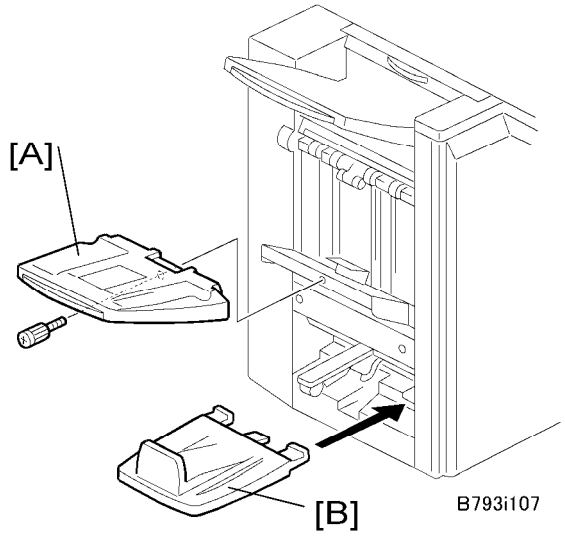
5. Install the ground plate [C] on the finisher [D] (x 2; M3x8).



6. Attach the rear joint bracket [A] (x 1; M4x25).
7. Attach the front joint bracket [B] (x 2; M4x25).



8. 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.
9. Push the lock lever [C], and then secure it (Long knob screw x 1).
10. Close the front door of the finisher.
11. Connect the finisher connector [D] to the machine.



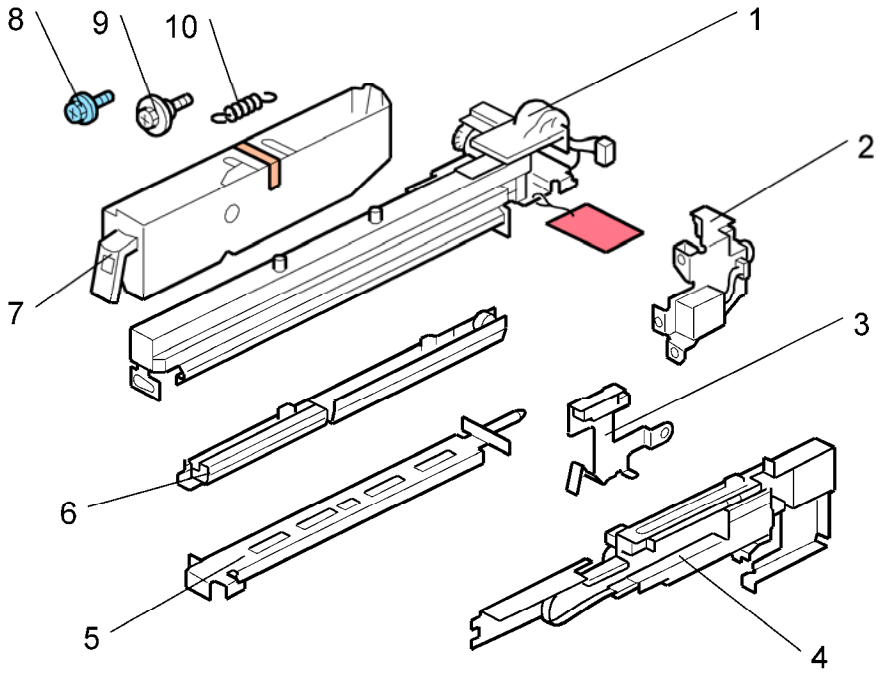
12. Install the upper output tray [A] (short knob screw x 1).
13. Install the lower output tray [B].
14. Turn on the main power switch.
15. Check the 1000-sheet booklet finisher operation.

2.13 PUNCH KIT PU3000 (B807)

2.13.1 COMPONENT CHECK

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

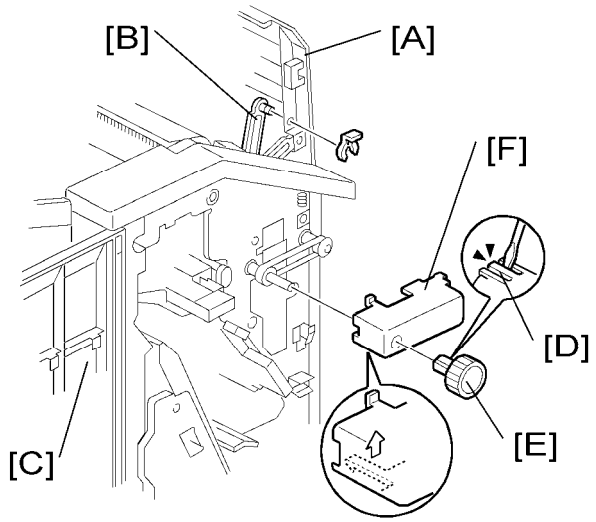
No.	Description	Q'ty
1	Punch Unit	1
2	Punch Drive Motor	1
3	Hopper Full Sensor Arm	1
4	Sub-scan Registration Sensor Unit	1
5	Punch Unit Stay	1
6	Sub-scan Registration Sensor Guide	1
7	Hopper	1
8	Screw	8
9	Step Screw	1
10	Spring	1



2.13.2 INSTALLATION

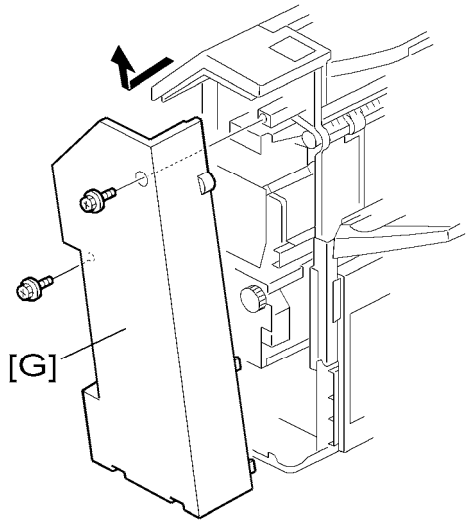
⚠CAUTION

- 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.

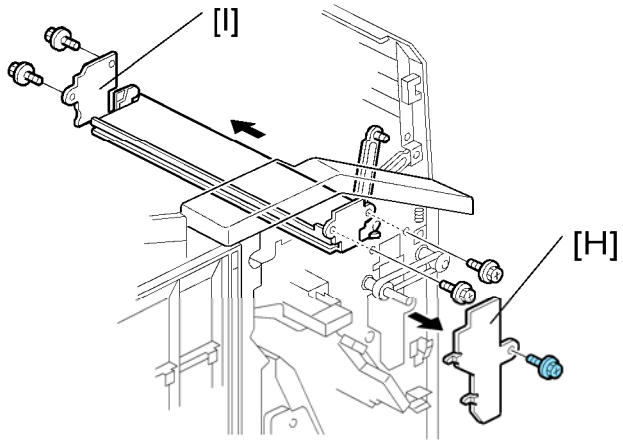


1. If the finisher is connected to the machine, disconnect it.
2. Open the top cover [A] and then release the guide arm [B] (x 1).
3. Open the front door [C].

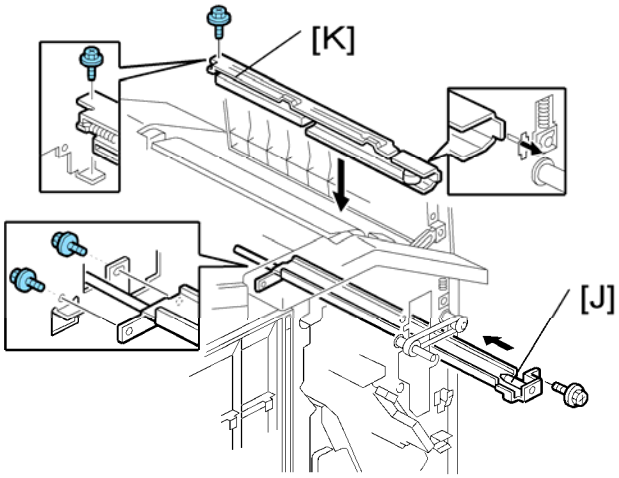
4. Pull the hook [D] up then remove the knob [E].
5. Timing belt cover [F].



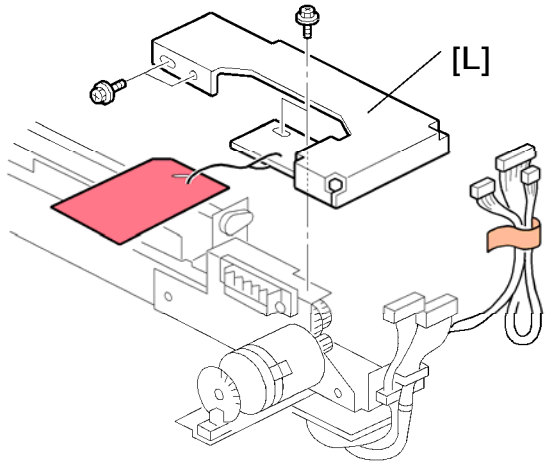
6. Rear cover of the 1000-sheet booklet finisher [G] (x 2).



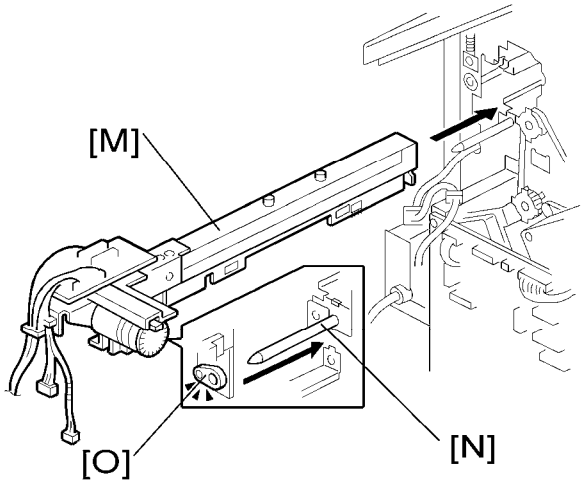
7. Cover bracket [H] (x 1)
8. Remove the paper guide plate [I] from the rear side (x 4).



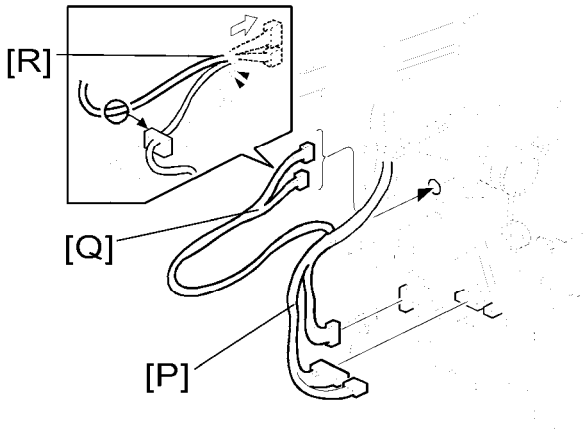
9. Install the punch unit stay [J] from the front side (x 3).
10. Install the sub-scan registration sensor guide [K] from the top (x 1).



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

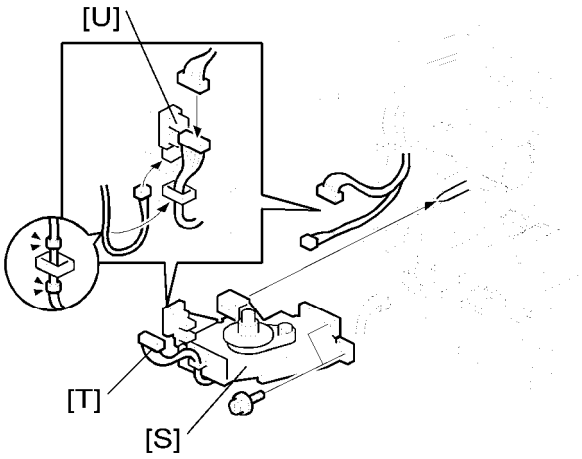


12. Install the punch unit [M] along the punch unit stay from the rear side.
13. Make sure to put the punch unit stay pin [N] through the hole [O].

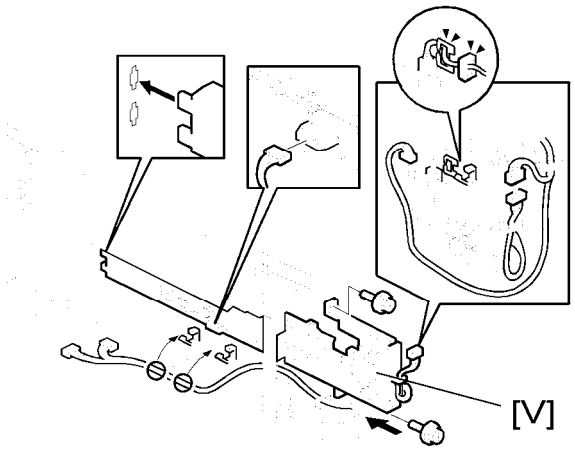


14. Connect the harnesses [P] to the main PCB.

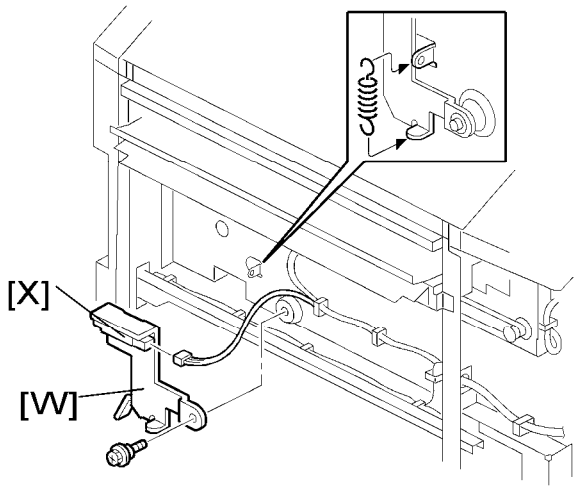
15. Put the harnesses [Q] through the hole [R] in the rear frame (x 1).



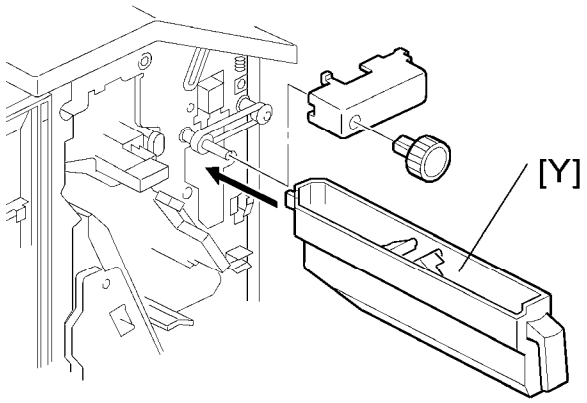
16. Install the punch drive motor [S] on the rear frame (x 2).
17. Connect the drive motor harness [T] to the harness from the punch unit (x 1).
18. Connect the home position sensor harness from the punch unit to the home position sensor [U].



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].



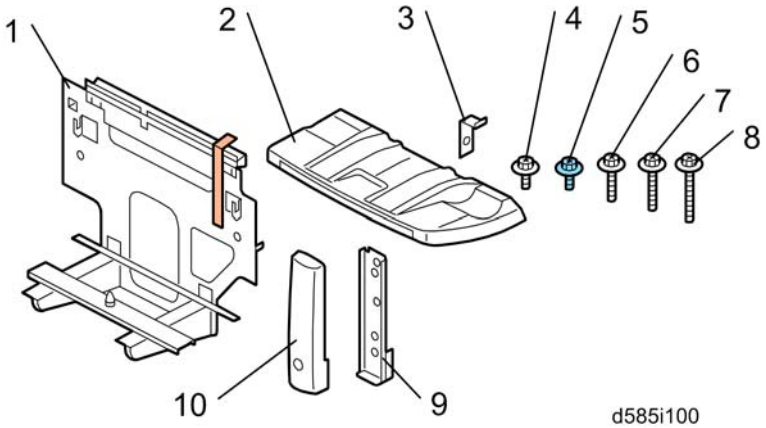
23. Install the hopper [Y] from the front side.
24. Reinstall the timing belt cover and knob.
25. Reinstall the rear cover (x 2).
26. Close the front door and top cover.
27. Install the 1000-sheet booklet finisher on the copier.
28. Plug in and turn on the main power switch.
29. Check the 1000-sheet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

2.14 FINISHER SR3070 (D585)

2.14.1 ACCESSORY CHECK

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

No	Description	Q'ty	For This Model
1	Unit Holder	1	Yes
2	Shift Tray	1	Yes
3	Holder Bracket	1	Yes
4	Screw: M3 x 8	4	Yes
5	Screw: M3 x 6	1	Yes
6	Screw: M4 x 14	4	Not used
7	Screw: M4 x 20	4	Yes
8	Screw: M4 x 25	3	Yes
9	Support Bracket	2	Yes
10	Support Bracket Cover	2	Yes



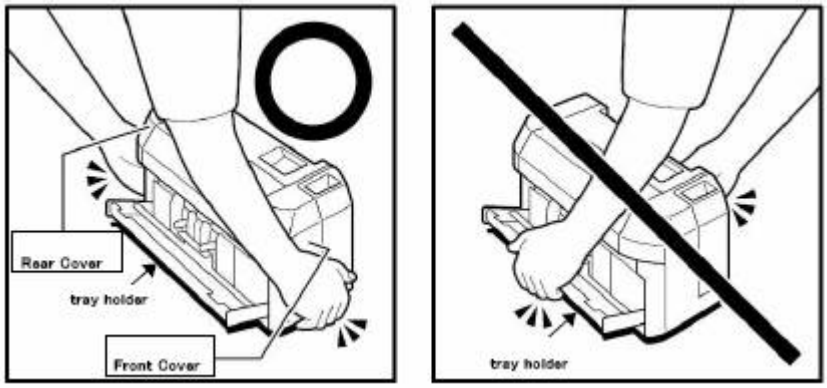
2.14.2 INSTALLATION PROCEDURE

CAUTION

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

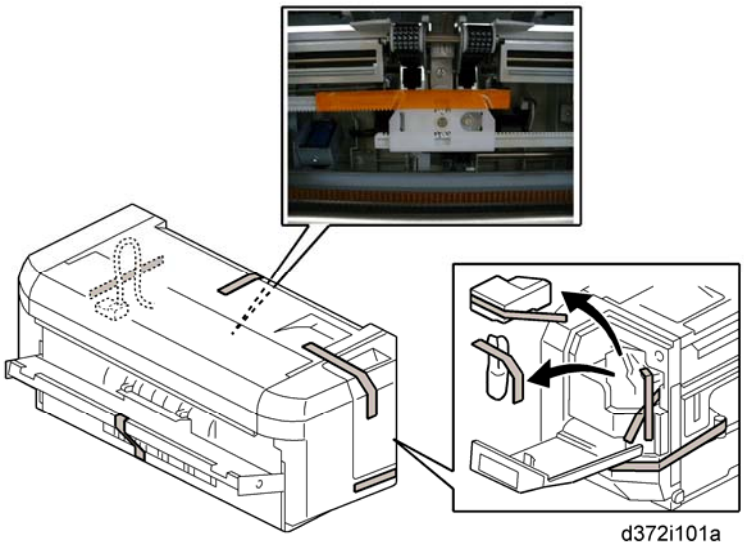
Important

- Whenever you lift or carry the SR3070, always hold it by the bottom edges of the front and rear covers, as shown below. If you do not, SC798 will occur when you attach the finisher. DO NOT hold the finisher by the tray holder.

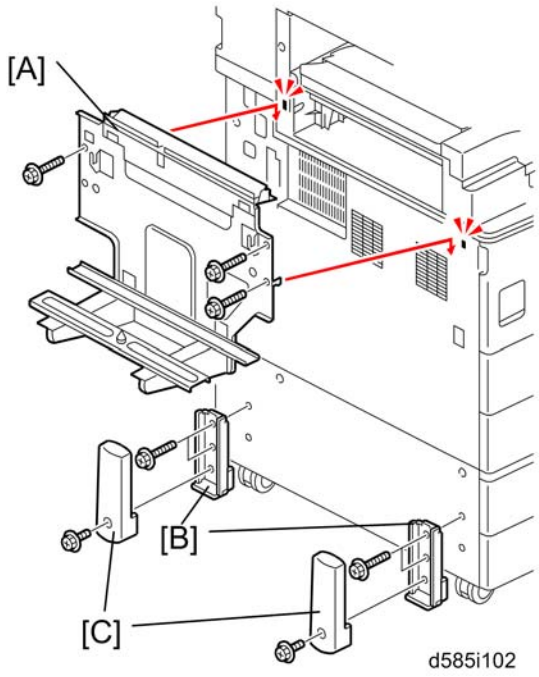


Note

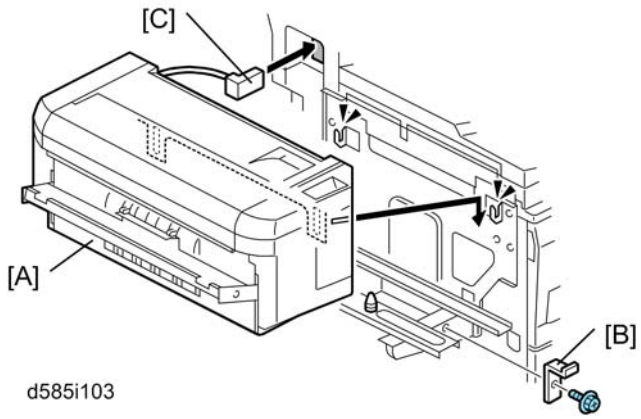
- Before you install Finisher SR3070, the optional bridge unit (D584) must be installed.



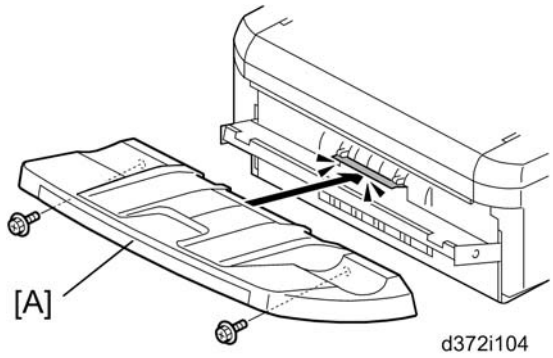
1. Unpack the finisher and remove the tapes.



2. Install the unit holder [A] (x 3; M4x25).
3. Install the support brackets [B] (x 2 each; M4x20).
4. Install the support bracket covers [C] (x 1 each; M3x8).



5. Install the 500-sheet finisher [A].
6. Install the holder bracket [B] (x 1; M3x6).
7. Connect the finisher cable [C].



8. Install the shift tray [A] (x 2; M3x8).
9. Turn on the main power switch and check the finisher operation.

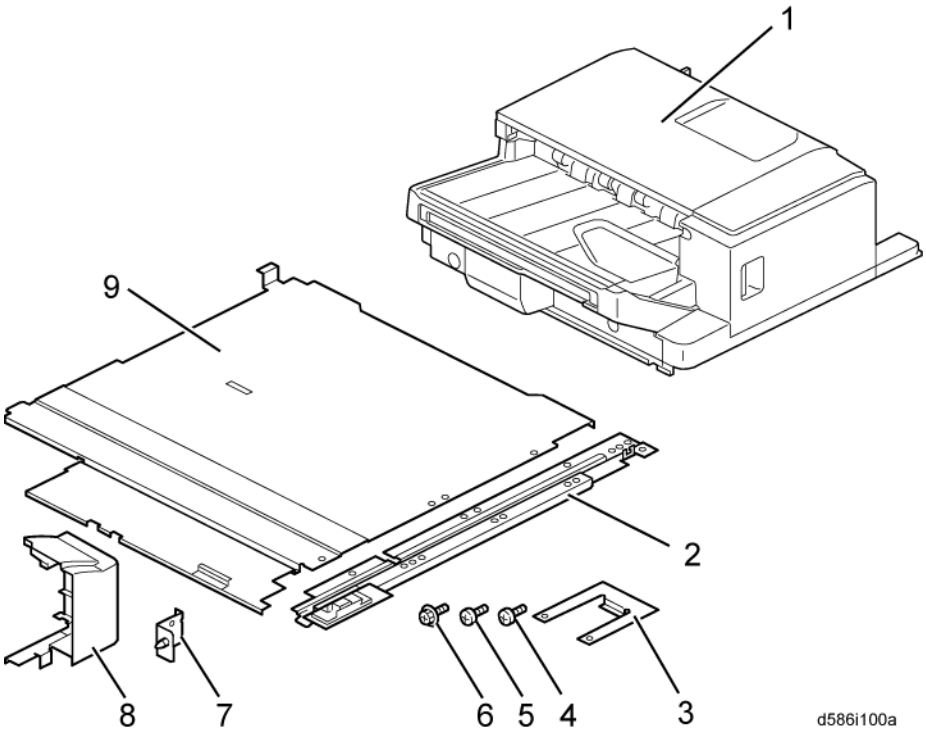
2.15 INTERNAL FINISHER TYPE 3352 (D586)

This procedure explains how to install the internal finisher, without installing the punch unit at the same time.

2.15.1 COMPONENT CHECK

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

No.	Description	Q'ty
1	Internal Finisher	1
2	Guide Rail	1
3	Stopper	1
4	Screw - M4 x 6	1
5	Bind Screw - M3 x 6	8
6	Screw - M3 x 6	2
7	Positioning Pin Bracket	1
8	Finisher Right Cover	1
9	Inner Bottom Plate	1



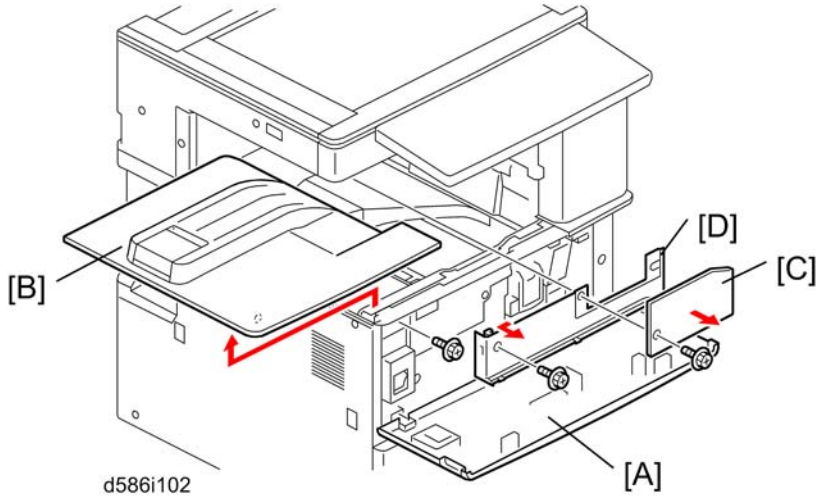
2.15.2 INSTALLATION PROCEDURE

⚠CAUTION

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

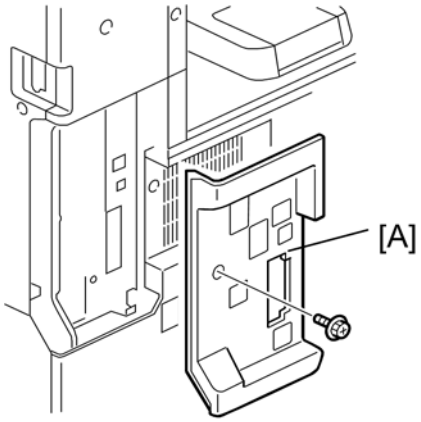
Preparing before Installing the Internal Finisher

1. Remove all tapes from the internal finisher.

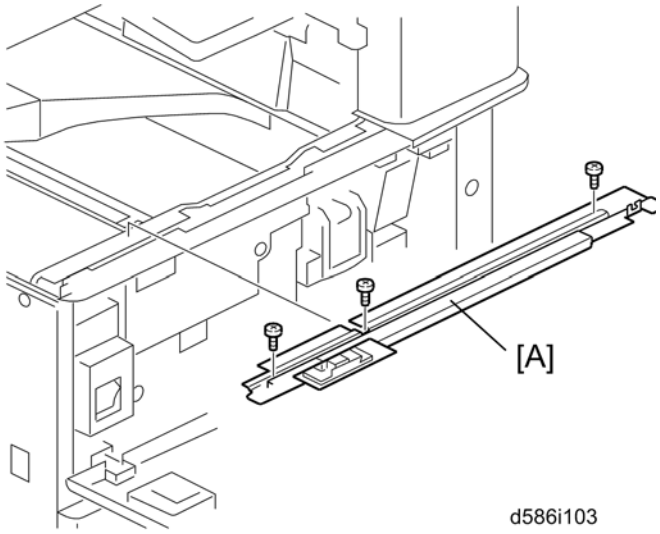


2. Open the front cover [A].
3. Remove the output tray [B] (x 1).
4. Remove the connector cover [C] (x 1).

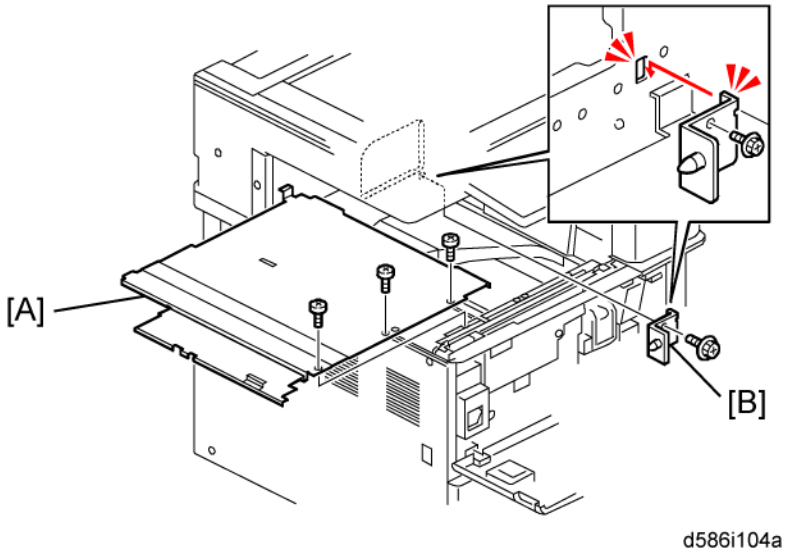
5. Remove the inner rear cover [D] (x 1).



6. Remove the controller cover [A] (x 1).



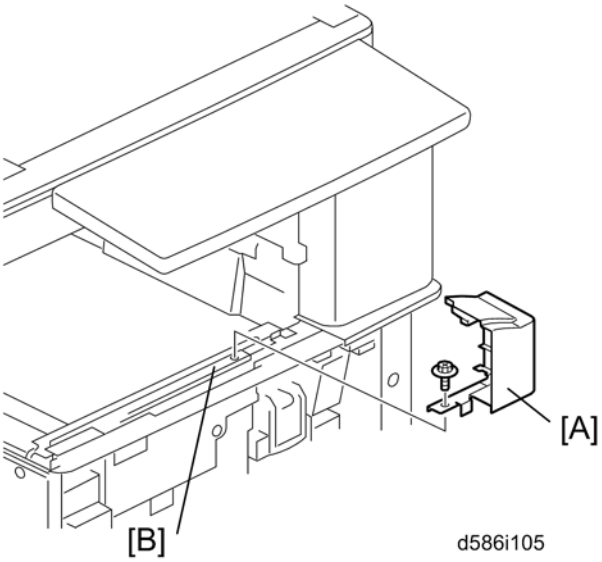
7. Install the guide rail [A] in the front frame of the main machine (bind screw x 3; M3x6).



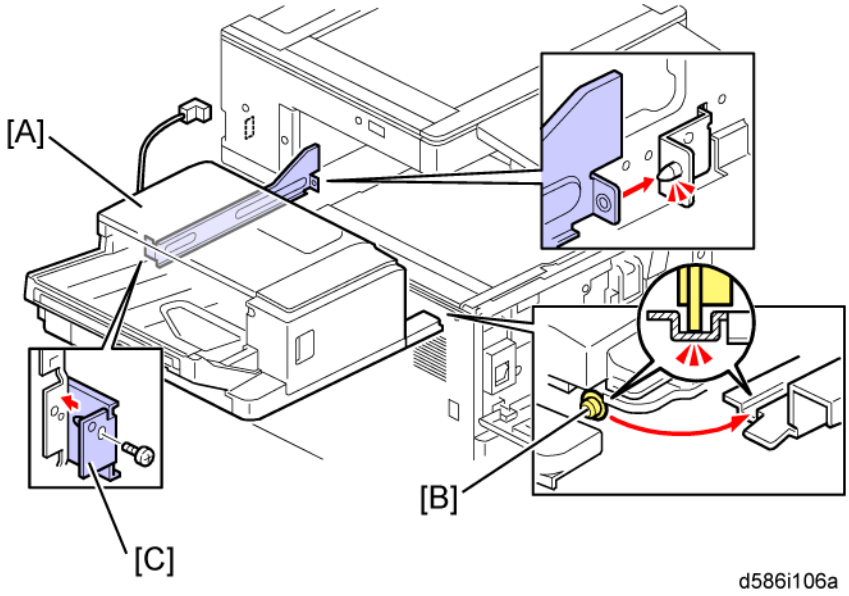
8. Install the inner bottom plate [A] (bind screw x 3; M3x6).

9. Install the positioning pin bracket [B] in the rear frame of the main machine (x 1; M3x6).

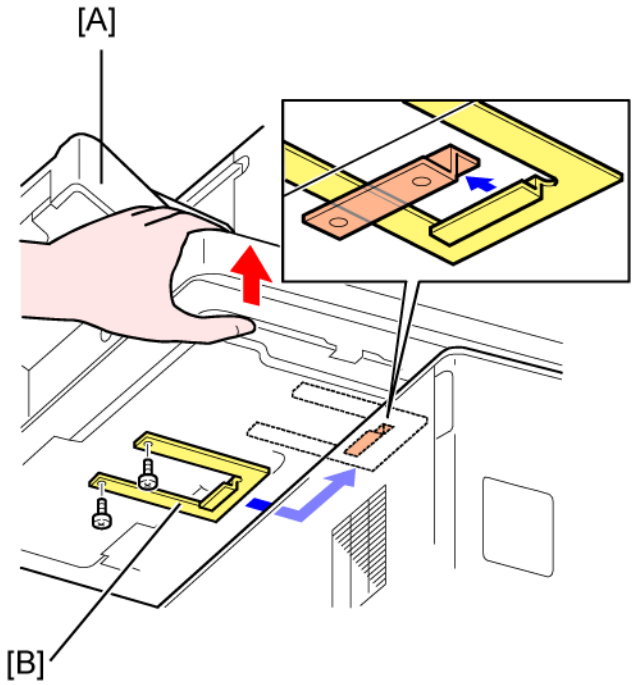
Internal Finisher Installation



1. Attach the finisher right cover [A] to the guide rail [B] (x 1; M3x6).



2. Install the internal finisher [A].
   - Align the wheel [B] at the front of the internal finisher with the groove on the guide rail when installing the internal finisher
3. Insert the rear rail [C] into the left frame of the main machine (x 1: M4x6).



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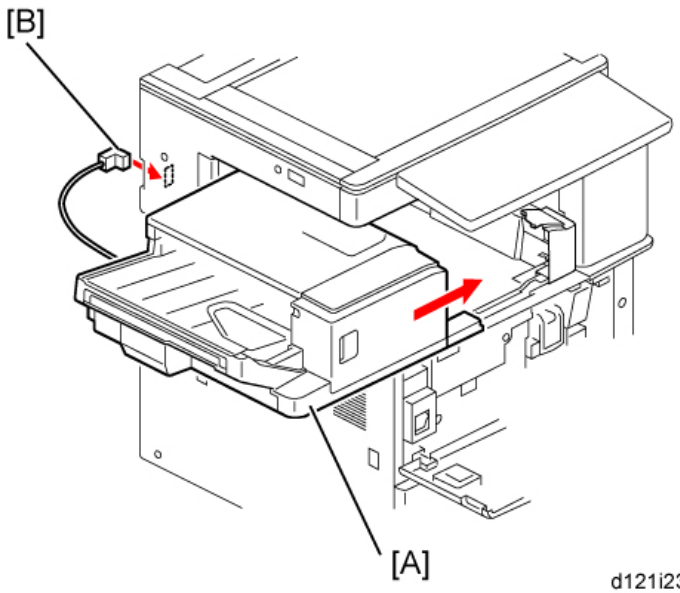
4. Push up the internal finisher [A] from the bottom, and then install the stopper [B] to the bottom side of the internal finisher (bind screw x 2; M3x6).



d121i232

5. Push the internal finisher [A], and then connect the cable [B] to the inlet of the main machine.
6. Reassemble the machine.
7. Turn on the main power switch.
8. Check the internal finisher operation.

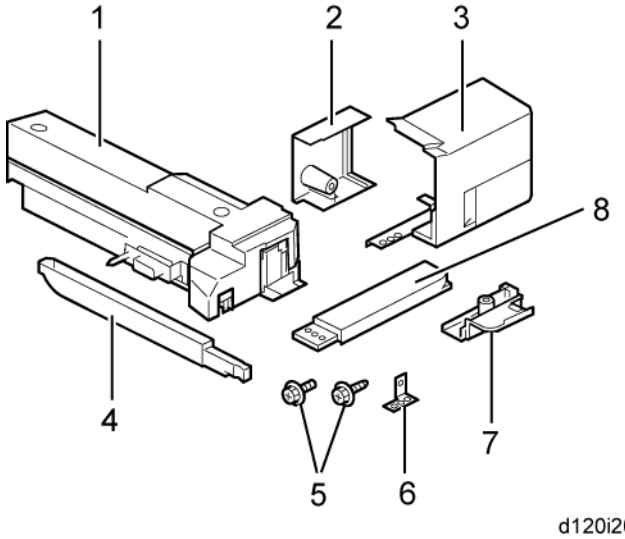
2.16 PUNCH KIT PU3020 (D587)

This procedure explains how to install the punch kit for the internal finisher, after installing the internal finisher.

2.16.1 COMPONENT CHECK

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

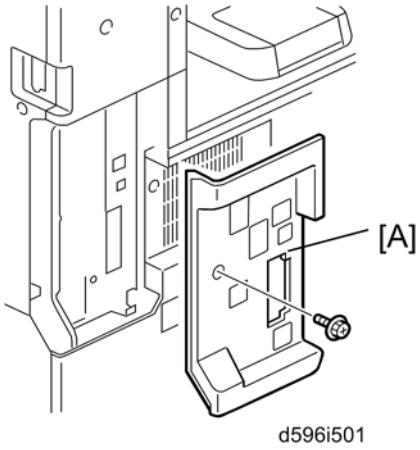
No.	Description	Q'ty
1	Punch Unit	1
2	Tray Lower Rear Cover	1
3	Punch Cover	1
4	Hopper	1
5	Screw: M3x6	7
6	Bracket	1
7	Tray Lower Front Cover	1
8	Front Right Lower Cover	1



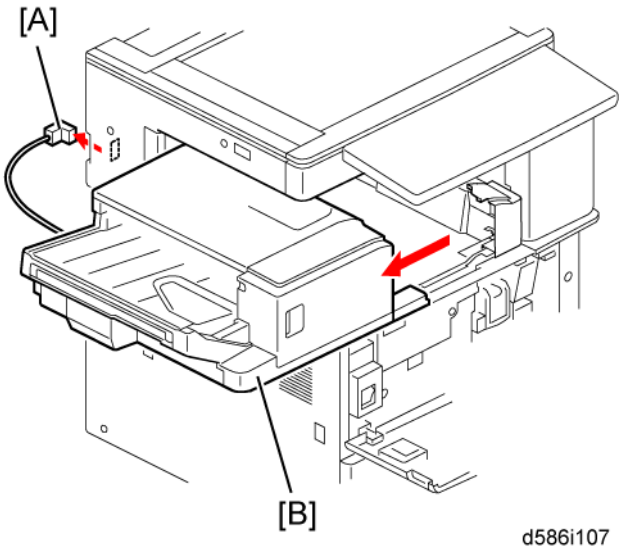
2.16.2 INSTALLATION PROCEDURE

CAUTION

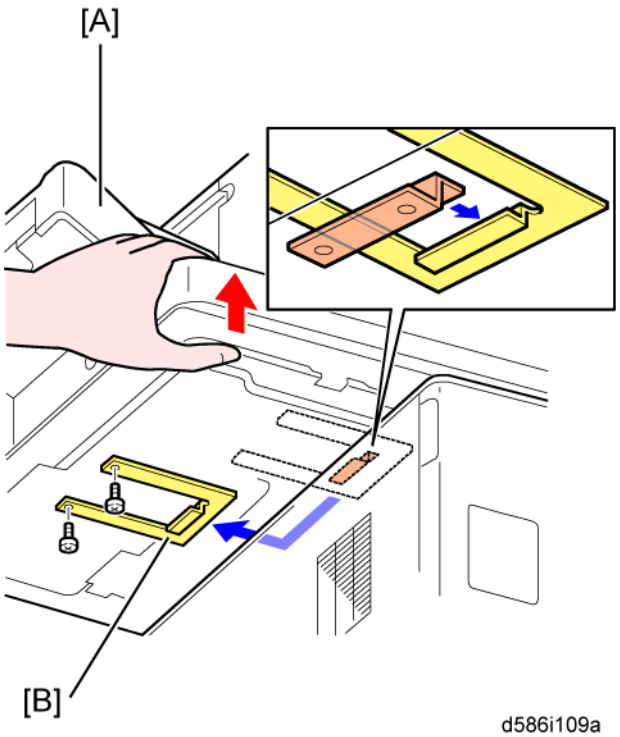
- Unplug the copier power cord before starting the following procedure.



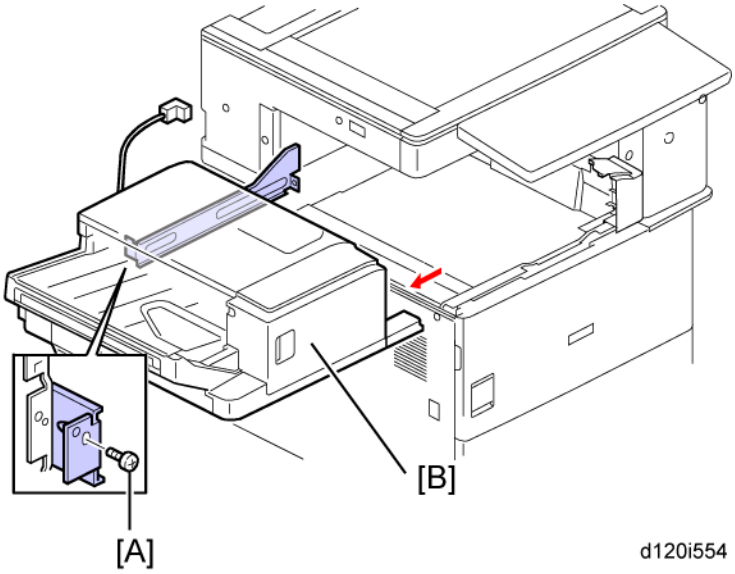
1. Remove the controller cover [A] (x 1).



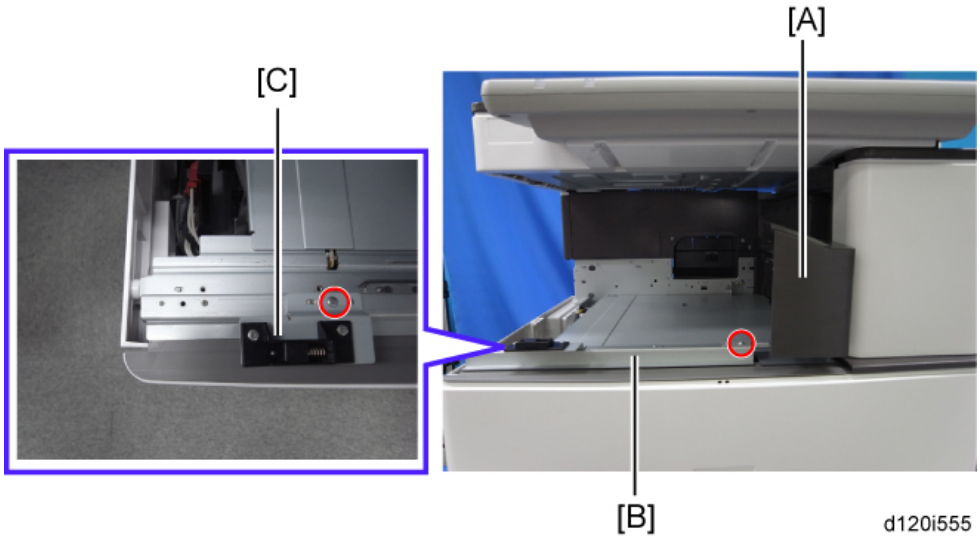
2. Disconnect the cable [A] from the inlet of the main machine.
3. Pull out the internal finisher [B].



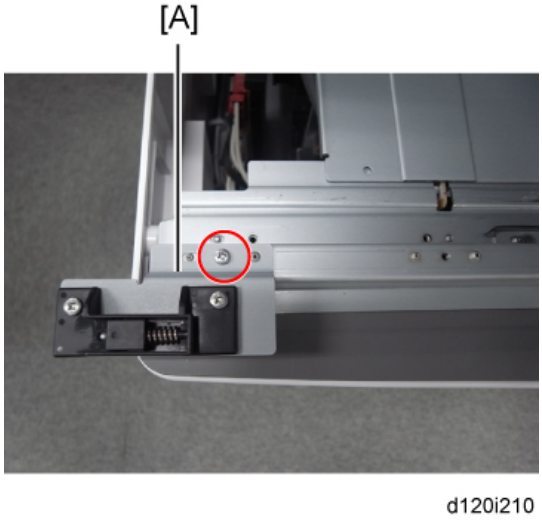
4. Push up the internal finisher [A] from the bottom, and then remove the stopper [B] from the bottom side of the internal finisher (x 2).



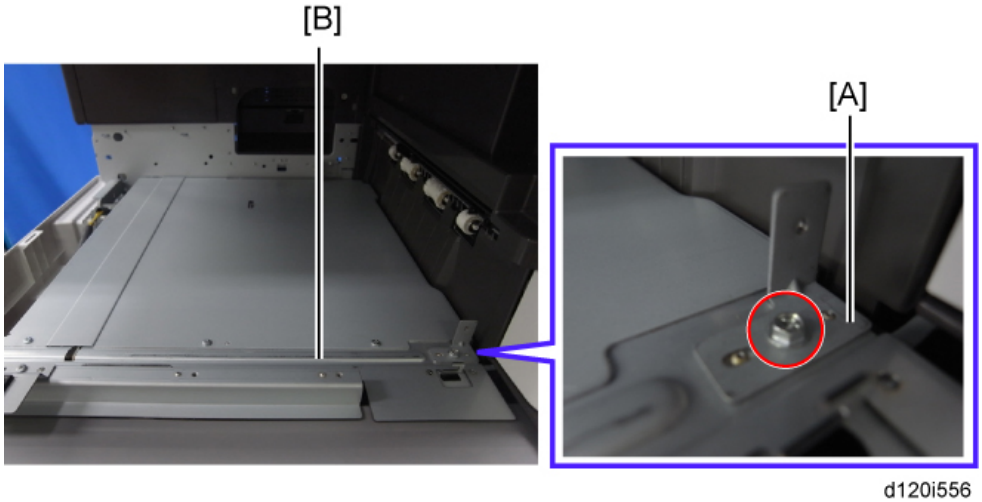
5. Remove the screw from the rear rail [A].
6. Remove the internal finisher [B] by pulling it off the main machine.



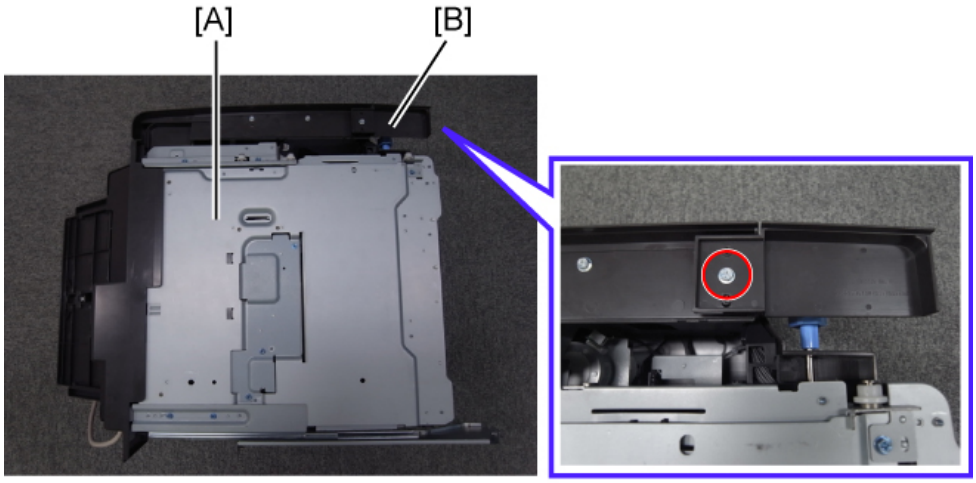
7. Remove the finisher right cover [A] from the guide rail [B] (x 1).
8. Remove the bracket [C] form the guide rail.



9. Attach the bracket [A] removed in step 5 on the guide rail shown above.

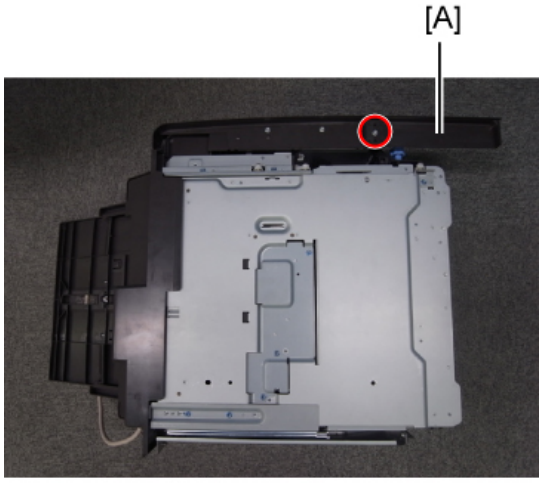


10. Install the bracket [A] on the guide rail [B] (x 1; M3x6).



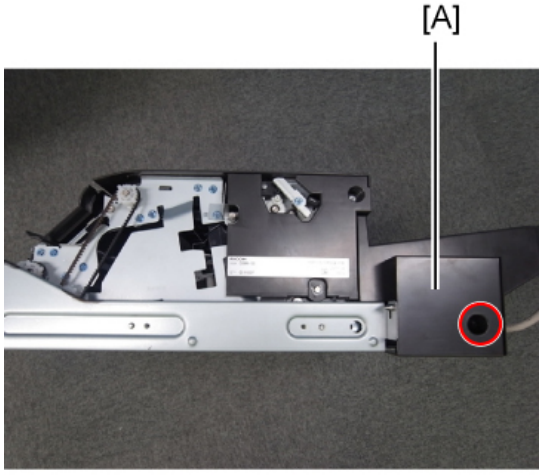
d120i557

11. Turn the internal finisher [A] over, and then remove the finisher front cover [B] (x 1).



d120i558

12. Install the front right lower cover for punch unit [A] on the internal finisher (x 1; M3x6).

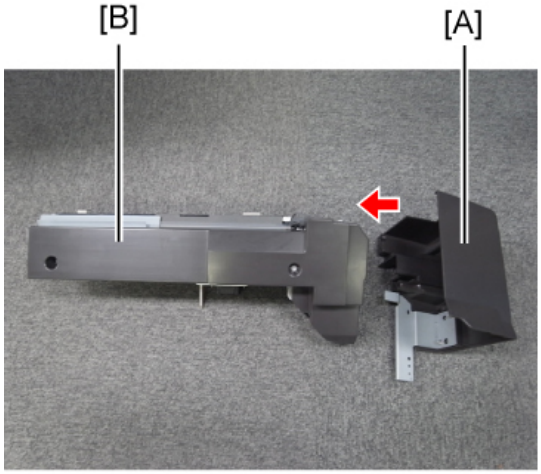


d120i559

13. Install the tray lower rear cover [A] on the rear side of the internal finisher (x 1; M3x6).

d120i560

14. Install the tray lower front cover [A] on the internal finisher (x 1; M3x6).



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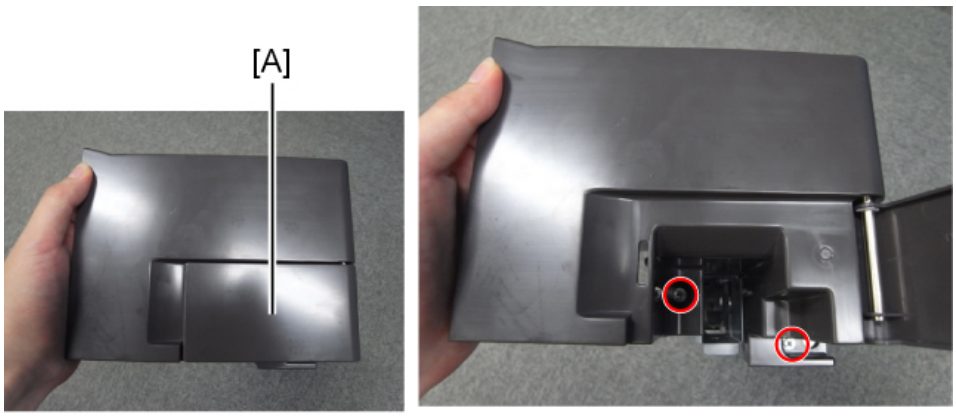
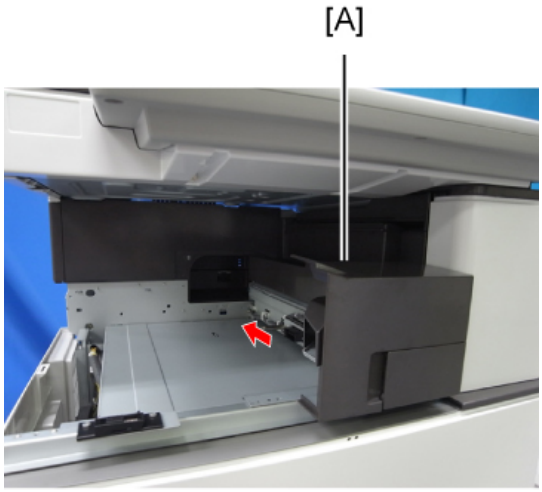
15. Attach the punch cover [A] to the punch unit [B].



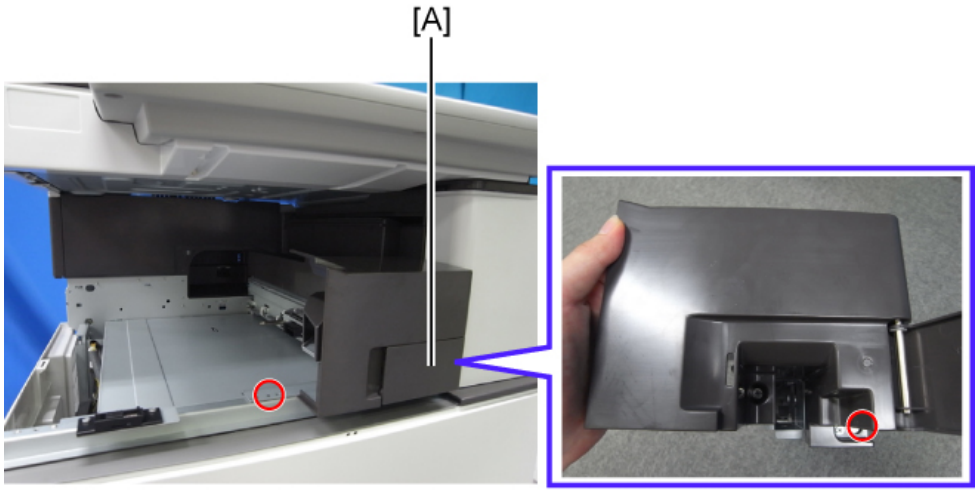
d120i562

16. Open the punch cover's front door [A], and then secure the punch cover to the punch unit (x 2: M3x6).



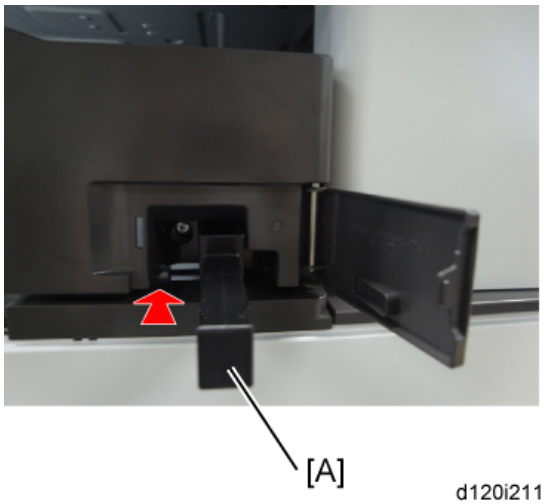
d120i563

17. Install the punch unit [A] on the main machine.



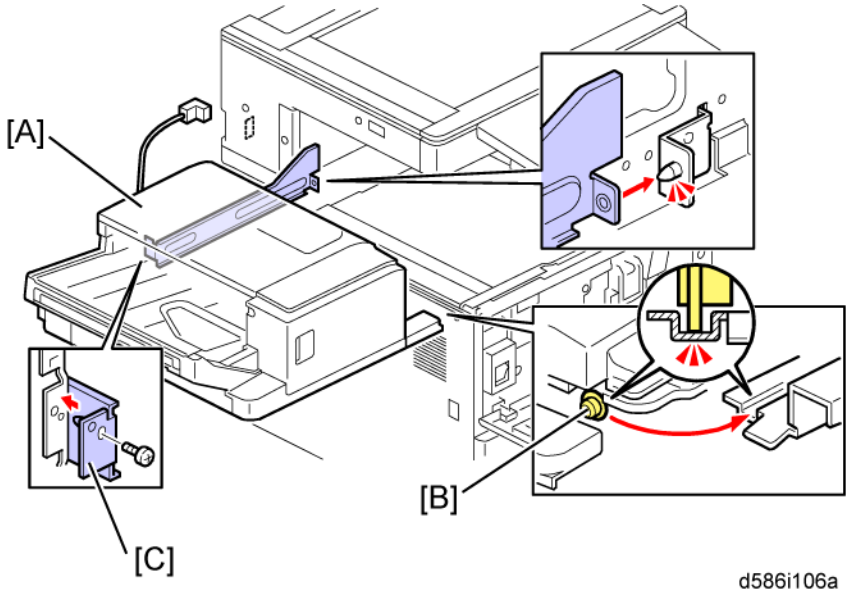
d120i564

18. Open the punch cover's front door [A], and then secure the punch unit to the main machine (x 2: M3x6).



d120i211

19. Install the hopper [A] from the front.



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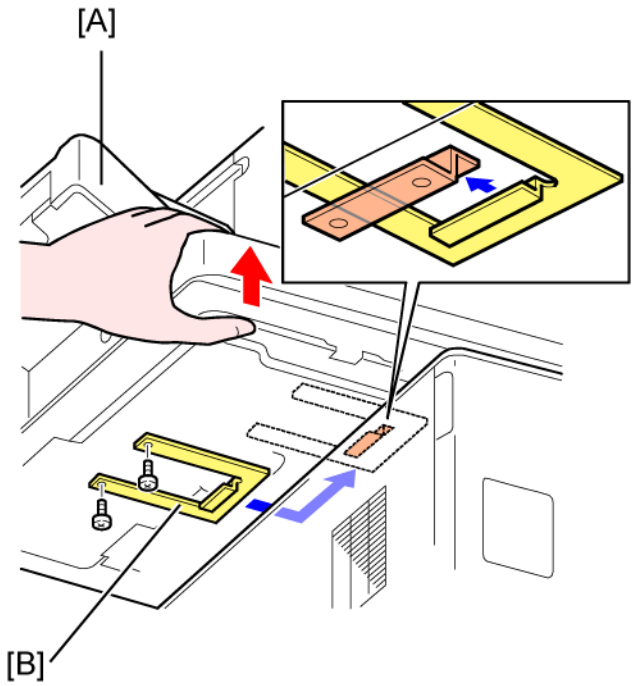
20. Install the internal finisher [A].
    - Align the wheel [B] at the front of the internal finisher with the groove on the guide rail when installing the internal finisher
21. Insert the rear rail [C] into the left frame of the main machine (x 1: M4x6).



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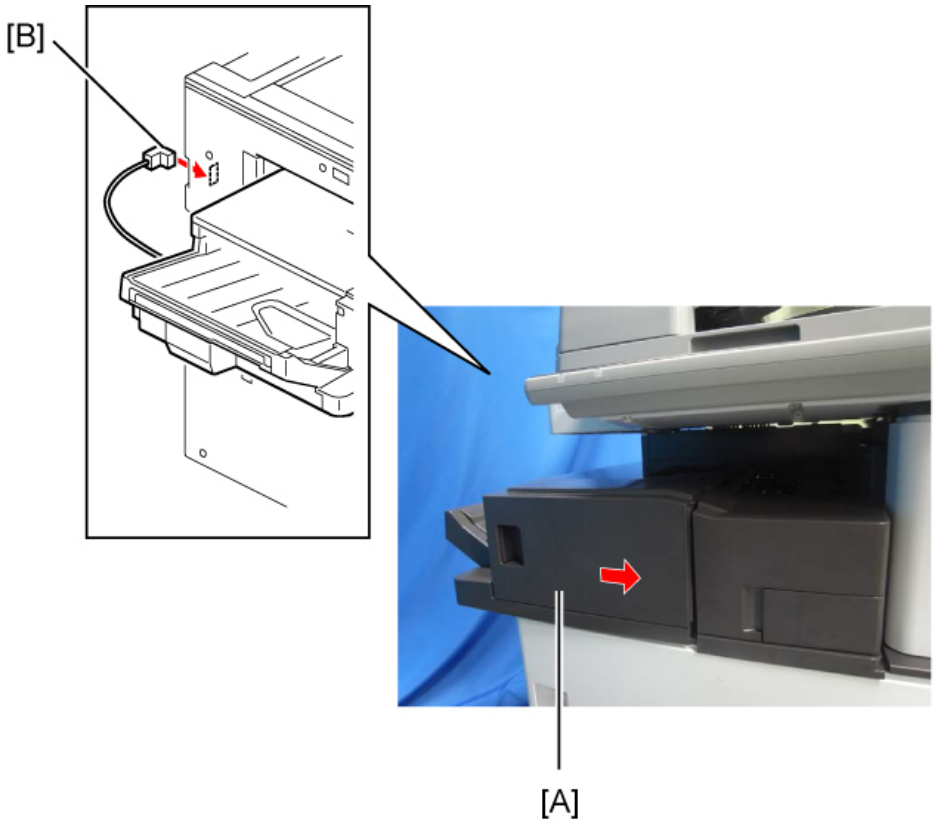
22. Push up the internal finisher [A] from the bottom, and then install the stopper [B] to the bottom side of the internal finisher (bind screw x 2; M3x6).



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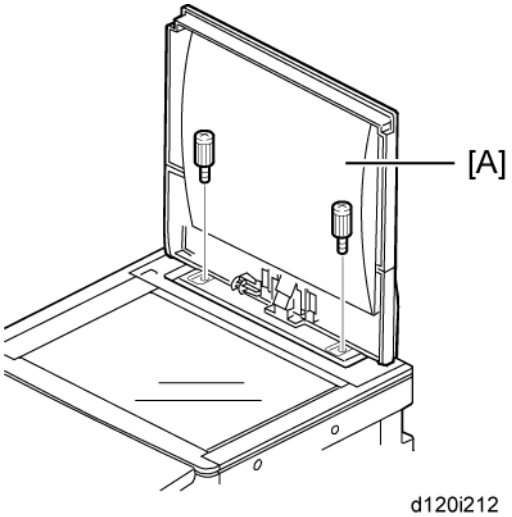
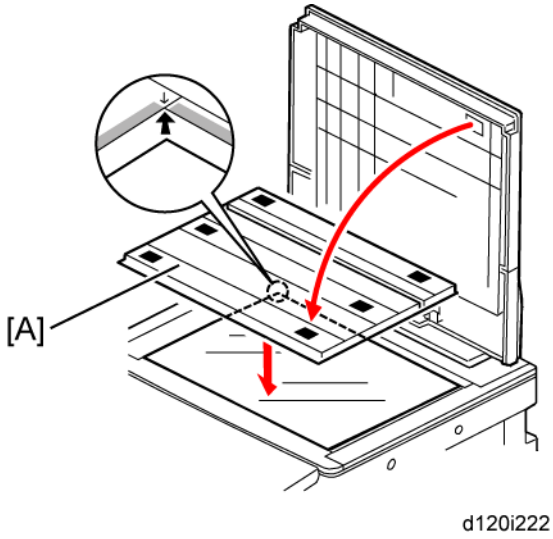
23. Push the internal finisher [A], and then connect the cable [B] to the inlet of the main machine.
24. Reassemble the machine.
25. Turn on the main power switch.
26. Check the internal finisher operation.

2.17 PLATEN COVER (D597)



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

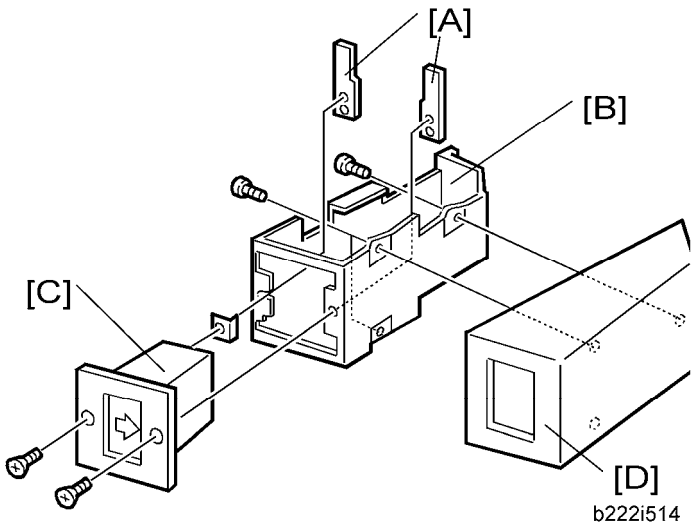


2. Remove the platen [A] from the platen cover.
3. Align the platen on the exposure glass, and then close the platen cover.

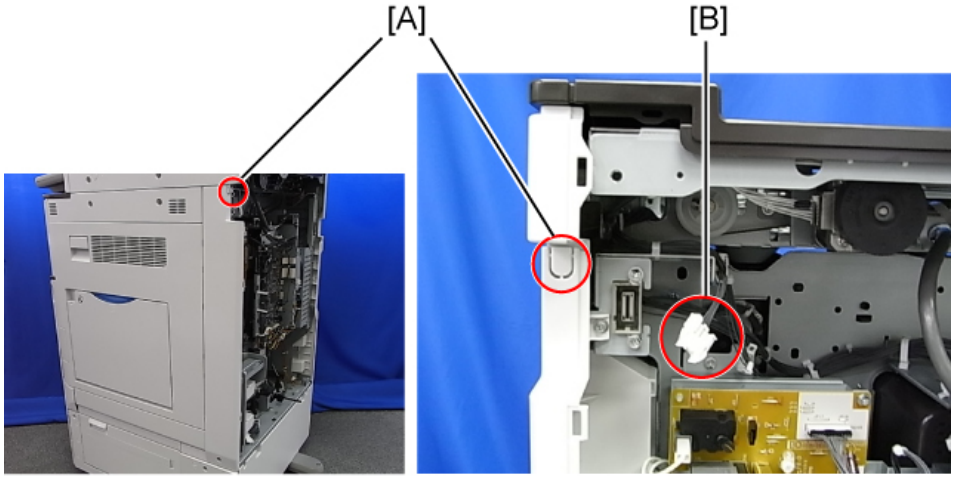
2.18 KEY COUNTER BRACKET TYPE H (A674)

2.18.1 INSTALLATION PROCEDURE

Preparing before installing the key counter bracket



1. Hold the key counter plate nuts [A] on the inside of the key counter bracket [B] and insert the key counter holder [C].
2. Secure the key counter holder to the bracket (x 2).
3. Install the key counter cover [D] (x 2).
4. Remove:
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover")
   - Right rear cover (☛ p.4-9 "Right Rear Cover")



5. Cut off the part [A] of the right rear cover.
6. Connect the key counter harness to the connector [B] through the cut off part of the rear

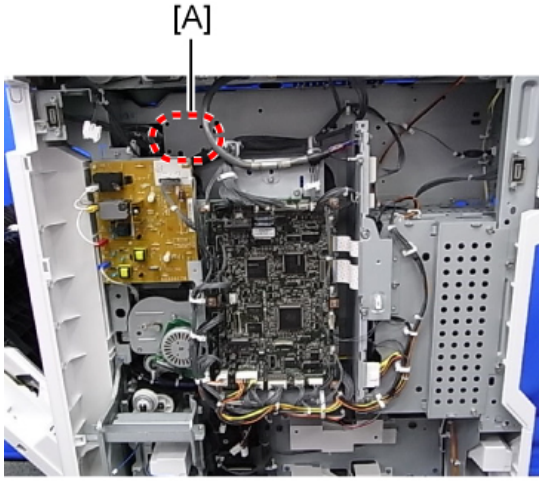
cover.

7. Peel off double sided tape on the key counter bracket and attach the key counter to the scanner right cover.
8. Reassemble the machine.

2.19 OPTIONAL COUNTER INTERFACE UNIT TYPE A (B870)

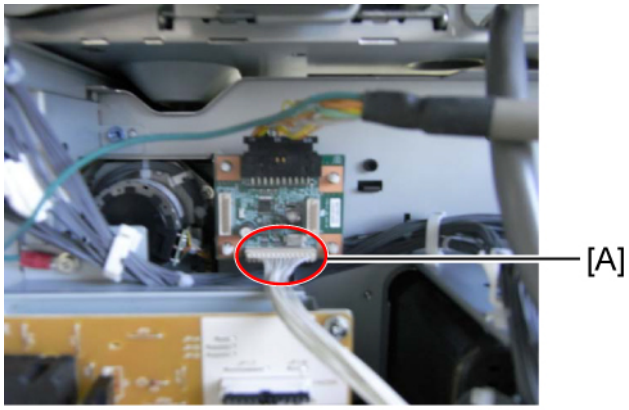
2.19.1 INSTALLATION PROCEDURE

1. Remove the upper rear cover. (☛ p.4-8 "Upper Rear Cover")



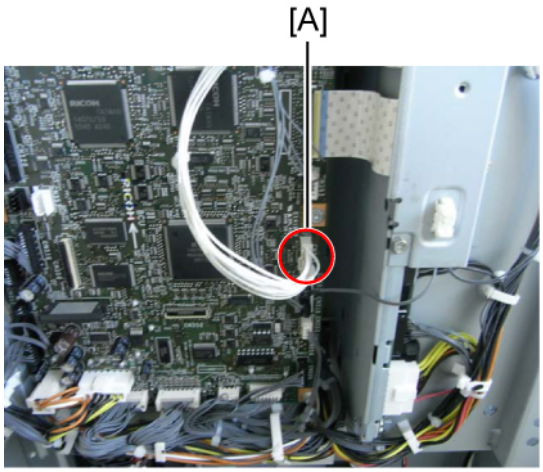
d120i517

2. Install the four stud stays in the location [A].
3. Install the optional counter interface board on the four stud stays.



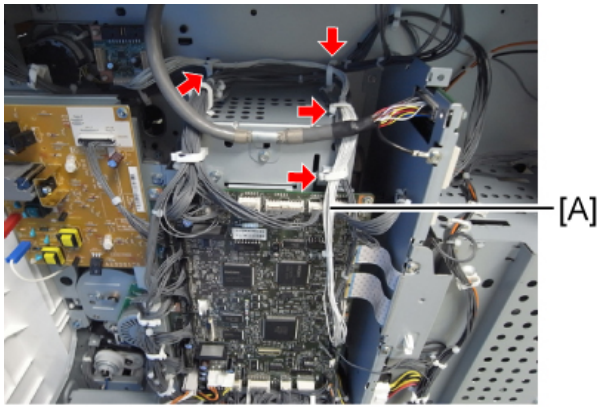
d120i515

4. Connect the harness to CN3 [A] on the optional counter interface board.



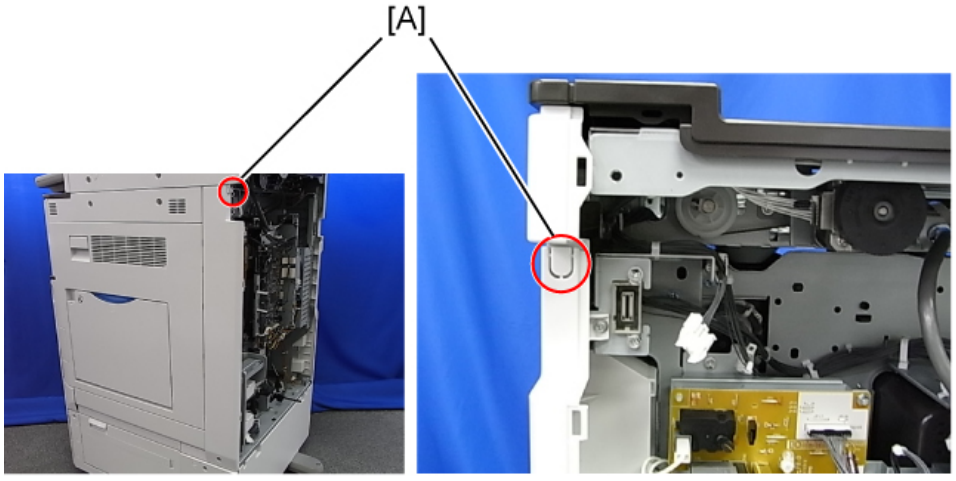
d120i514

5. Connect the other terminal of the harness to "CN345" [A] on the BCU.



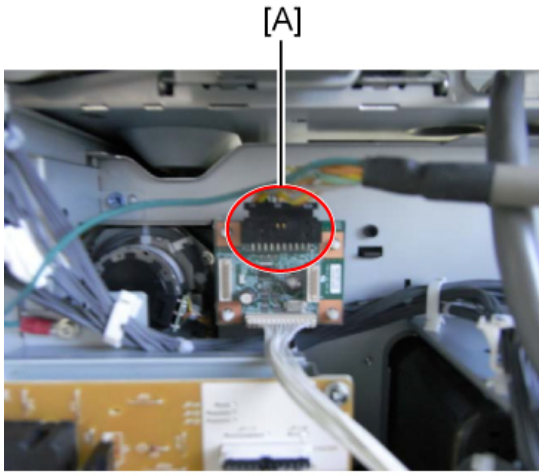
d120i223

6. Route the harness [A] and clamp it with four clamps as shown above (x 4).
7. Remove the right rear cover. (☛ p.4-9 "Right Rear Cover")



d120i505

8. Cut off the part [A] of the right rear cover.



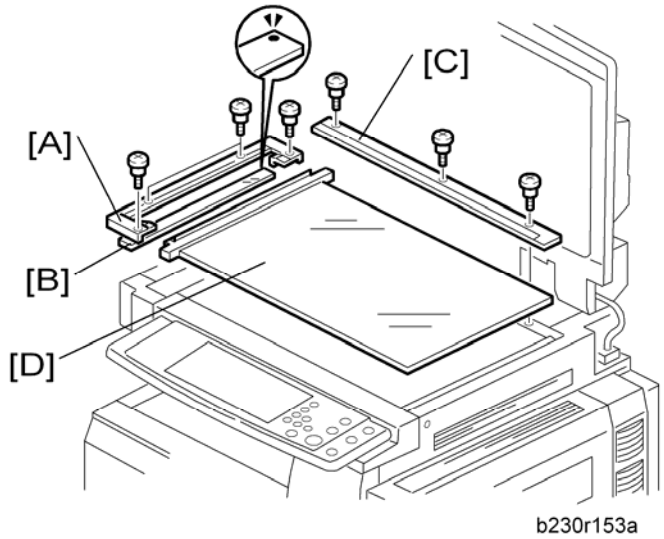
d120i516

9. Connect the harness from the optional counter device to "CN4" [A] on the optional counter interface board through the cut off part of the right rear cover.
10. Reassemble the machine.

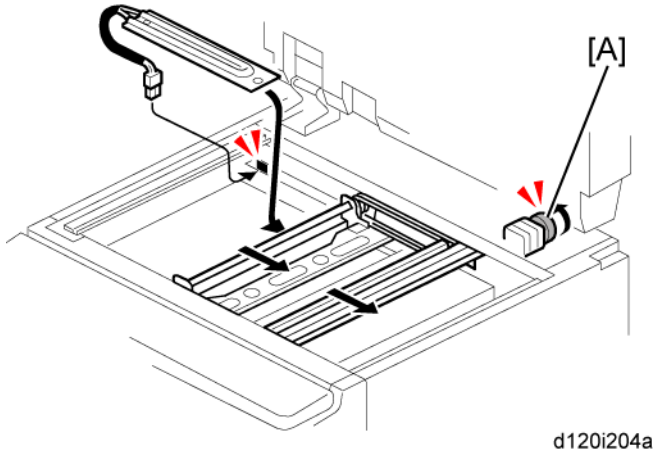
2.20 HEATERS

2.20.1 ANTI-CONDENSATION HEATER (SCANNER UNIT)

Installation Procedure

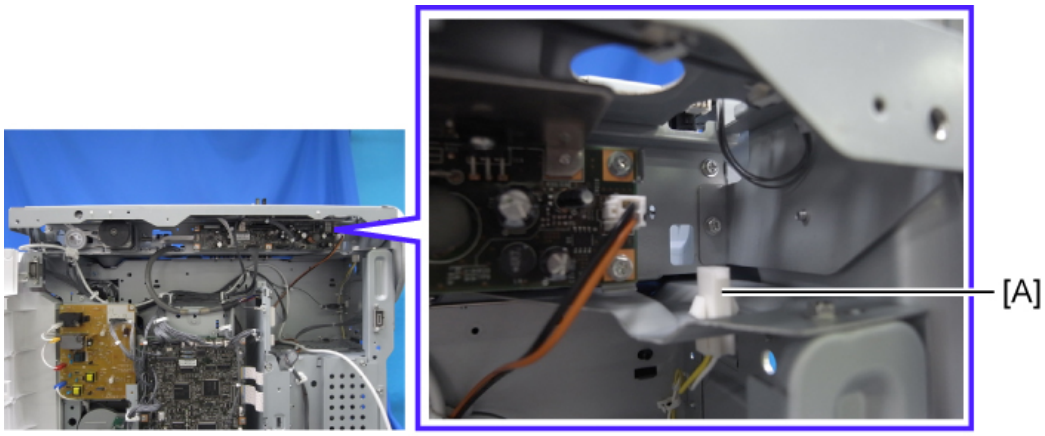


1. Remove the upper rear cover. (☛ p.4-8 "Upper Rear Cover")
2. Open the ARDF or platen cover.
3. Remove:
   - [A] Glass cover (x 4)
   - [B] ARDF exposure glass
   - [C] Rear scale (x 3)
   - [D] Exposure glass with left scale



4. Move the scanner carriage to the right side by rotating the scanner motor [A].

5. Put the heater connector through the cut out.



d120i203

6. Connect the heater connector to [A] in the frame of the machine (x 1).

d037i133

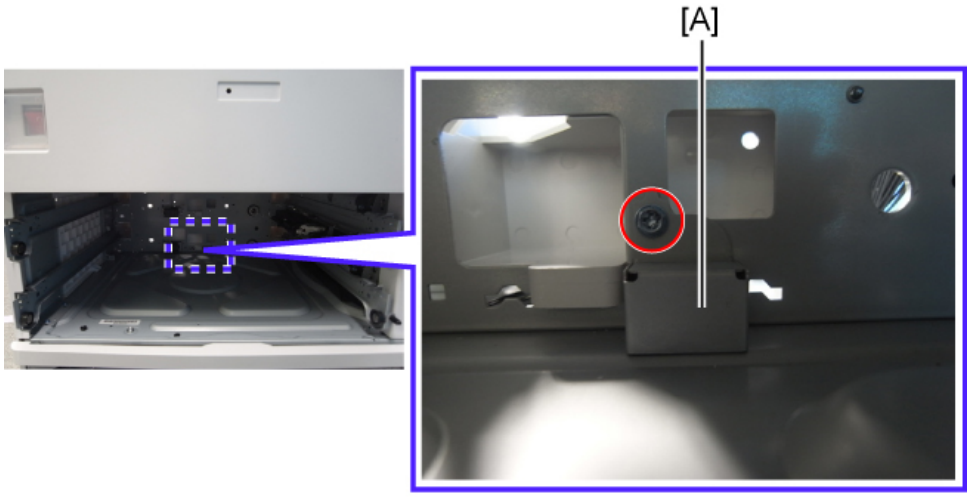
7. Install the heater in the scanner unit (x 1).
8. Secure the cable cover [A] and the left side of the heater (x 1).
9. Reassemble the machine.

2.20.2 TRAY HEATER (COPIER)

CAUTION

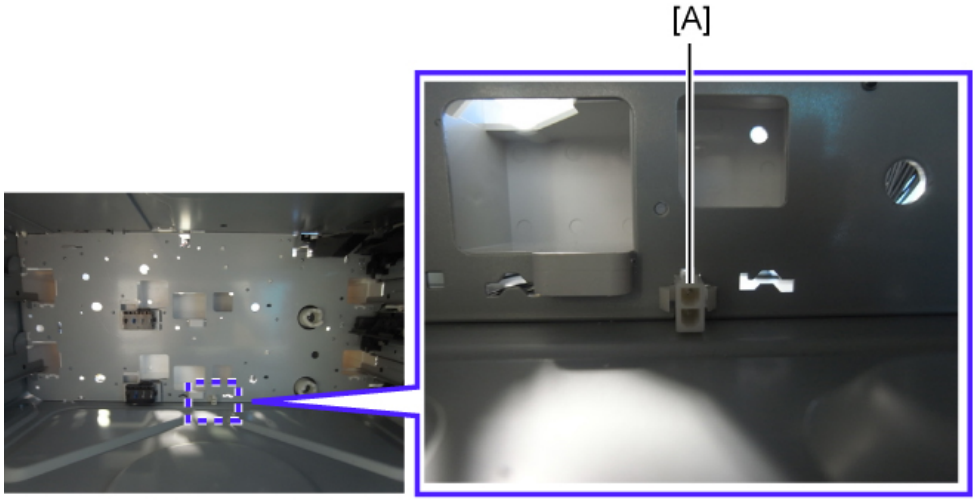
- Disconnect the copier power cord before you start this procedure.

1. Pull out the 1st and 2nd paper trays.
2. Remove the lower rear cover (p.4-8 "Lower Rear Cover").



d120i566

3. Remove the bracket [A] from the main machine (x 1).



d120i567

4. Connect the heater cable to the ac cable at [A].

d120i568

5. Install the tray heater assembly [A] (x 1).
6. Reassemble the main machine and 1st and 2nd paper trays.

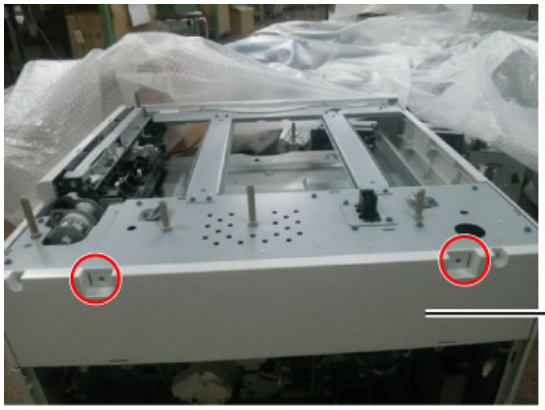
2.20.3 TRAY HEATER (OPTIONAL PAPER FEED UNIT)

For Installing the Tray Heater in D579

CAUTION

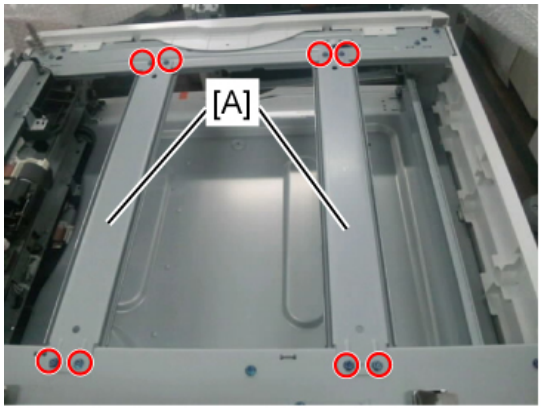
- Disconnect the copier power cord before you start this procedure.

1. If the optional paper feed unit has been installed to the main machine, remove it from the main mahchine.
2. Pull out the tray in the optional paper feed unit.



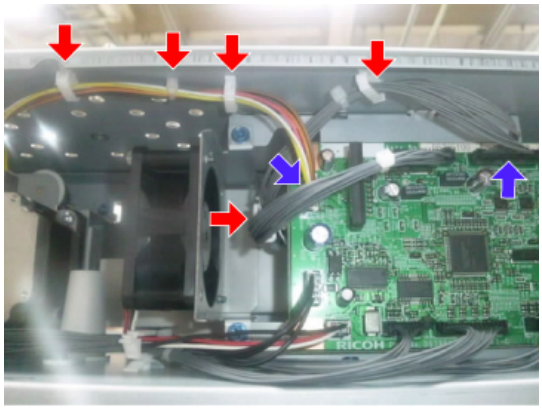
d120i587

1. Remove the rear cover [A] of the optional paper feed unit (x 2).



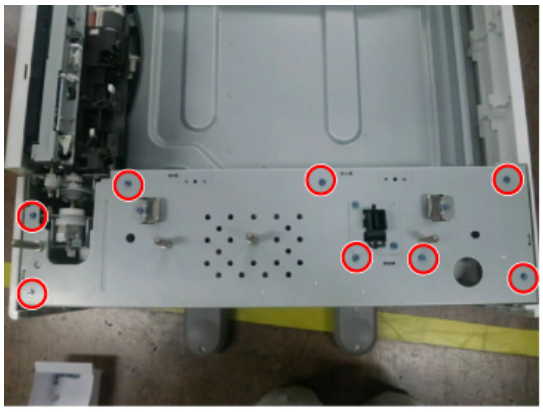
d120i588

2. Remove the upper stays [A] (x 8).



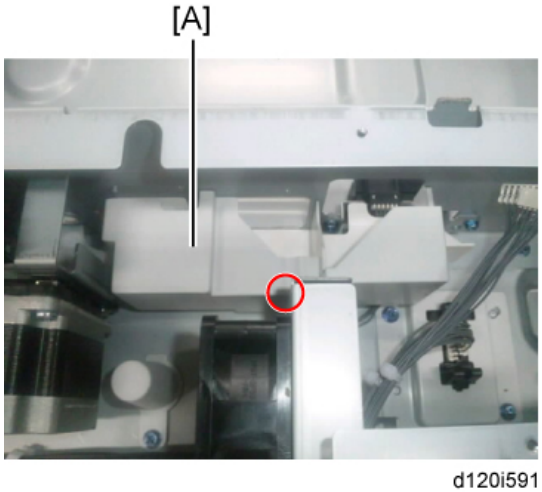
d120i589

3. Remove the harness from the clamps (x 5 : red arrows).
4. Remove the cables from the connectors (x 2 : blue arrows).



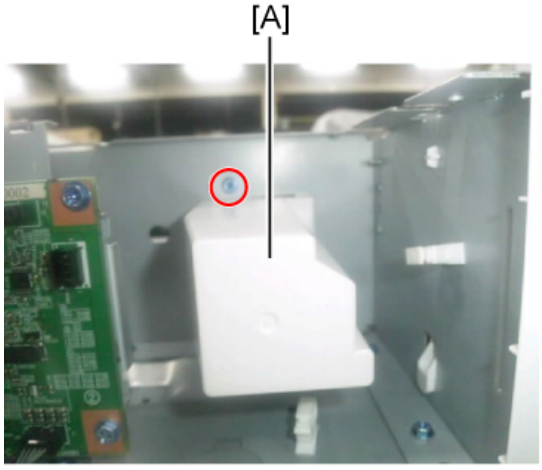
d120i590

5. Remove the upper rear stay [A] (x 8).



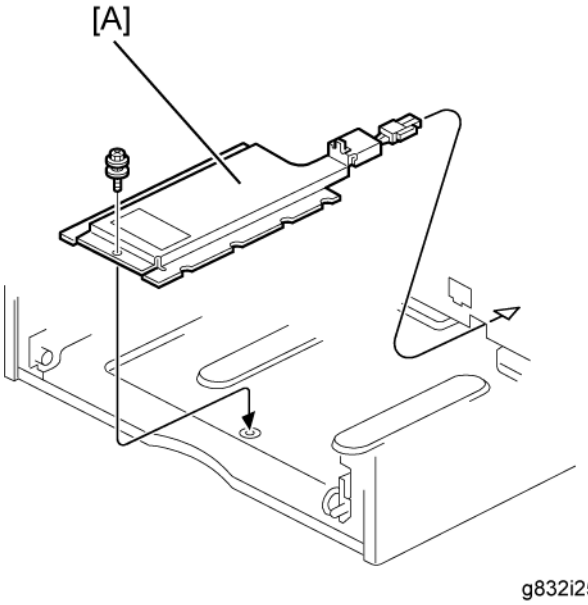
d120i591

6. Remove the PCB cover [A] (x 1).



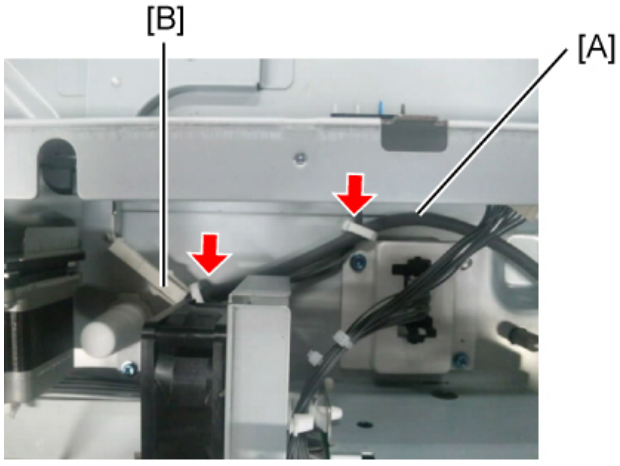
d120i592

7. Remove the tray bar cover [A] (x 1).



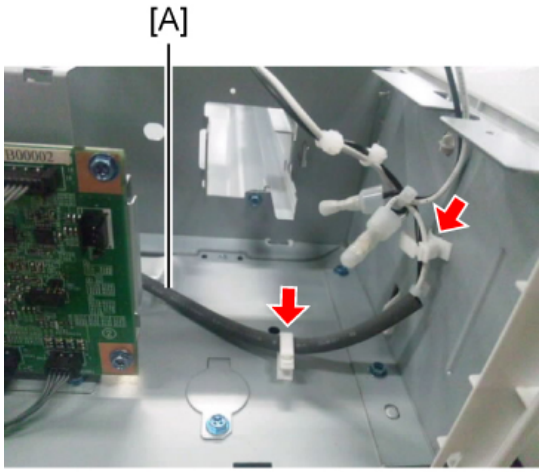
g832i250

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



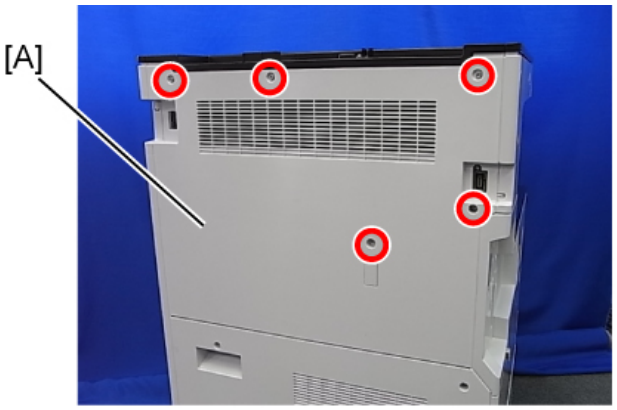
d120i593

9. Connect the harness [A] to the connector [B] of the tray heater (x 2).



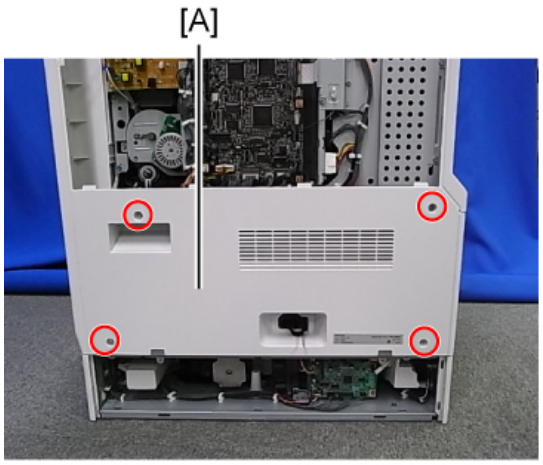
d120i594

10. Route the harness [A] as shown and clamp it with two clamps (x 2).
11. Reassemble the optional paper feed unit except the rear cover.
12. Install the paper feed unit to the main machine.



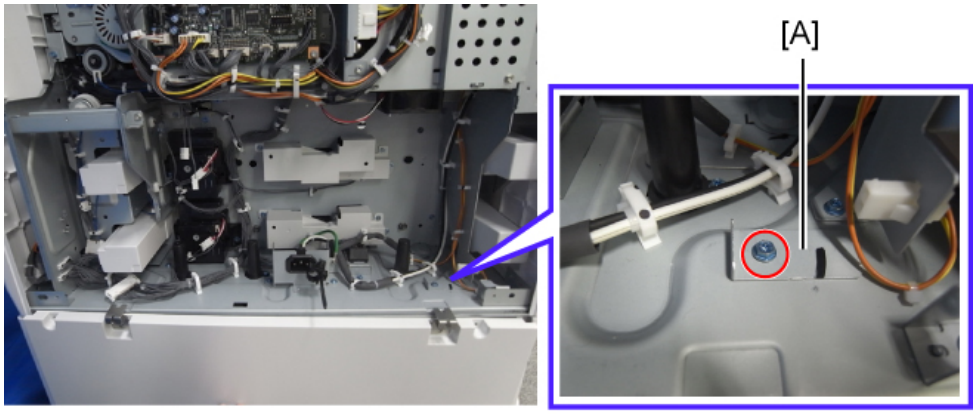
d120r120

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



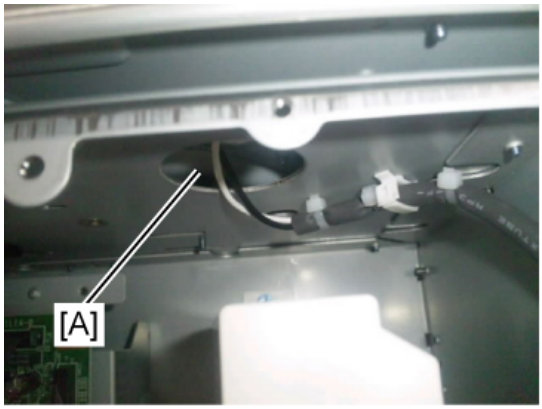
d120i595

14. Remove the lower rear cover [A] (x 4).



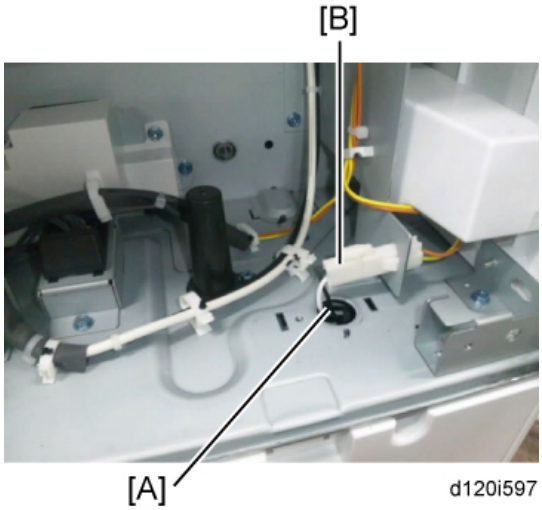
d120i571

15. Remove the harness cover bracket [A] from the main frame (x 1).



d120i596

16. Pass the harness from the lower paper feed unit through the hole [A].



d120i597

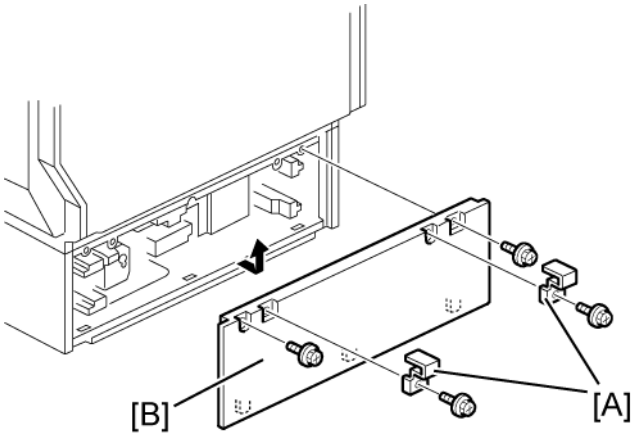
17. Connect the harness [A] to the connector [B] of the main frame.
18. Reassemble the main machine and optional paper feed unit.

For Installing the Tray Heater in D580

⚠CAUTION

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

1. Pull out the two trays in the optional paper feed unit.

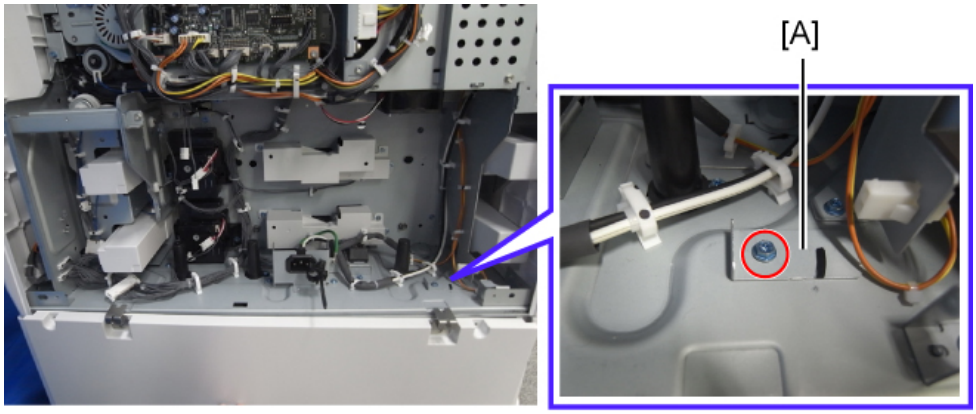


d120i569

2. Remove the joint bracket [A] (x 1 each).
3. Remove the cover [B] for the optional paper tray unit (x 2).

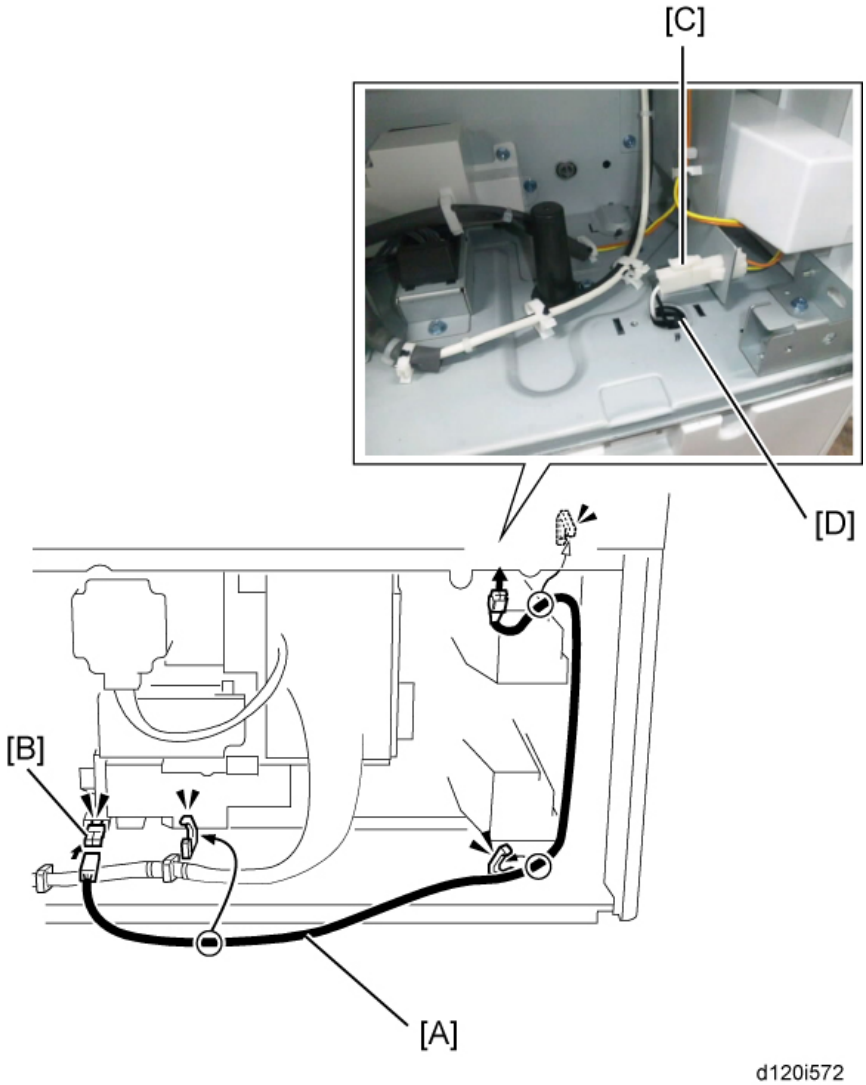
d120i570

4. Pass the heater cable through the opening [A], and then install the tray heater in the optional paper feed unit (x1).
5. Remove:
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover")
   - Right rear cover (☛ p.4-9 "Right Rear Cover")



d120i571

6. Remove the harness cover bracket [A] from the main frame (x 1).



d120i572

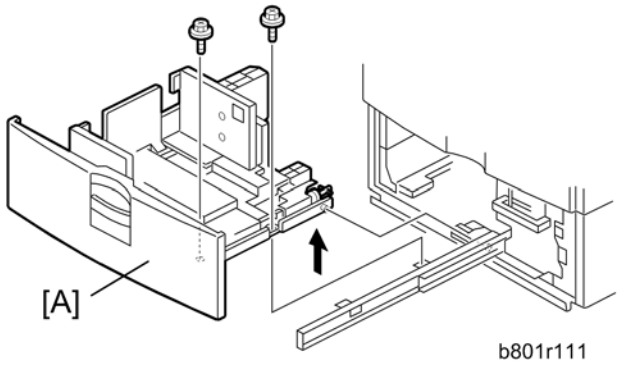
7. Connect the harness [A] to the connector [B] of the tray heater.
8. Route the harness [A] and clamp it as shown (x 3).
9. Connect the harness [A] to the connector [C] of the main frame through the hole [D].
10. Reassemble the main machine and optional paper feed unit.

2.20.4 TRAY HEATER (OPTIONAL LCT)

1. Pull out the LCT drawer.

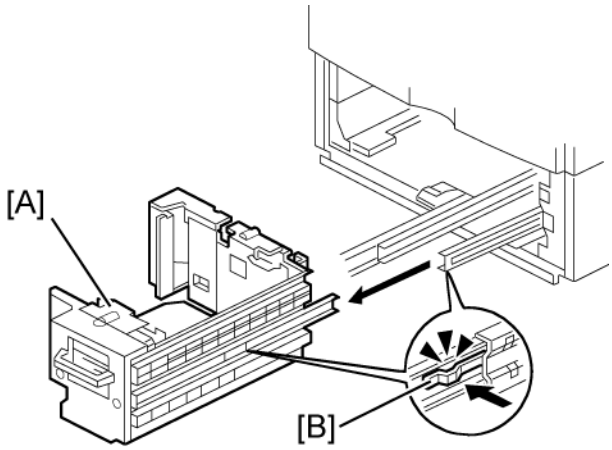
Note

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



b801r111

2. Remove the left tray [A] (x 2).

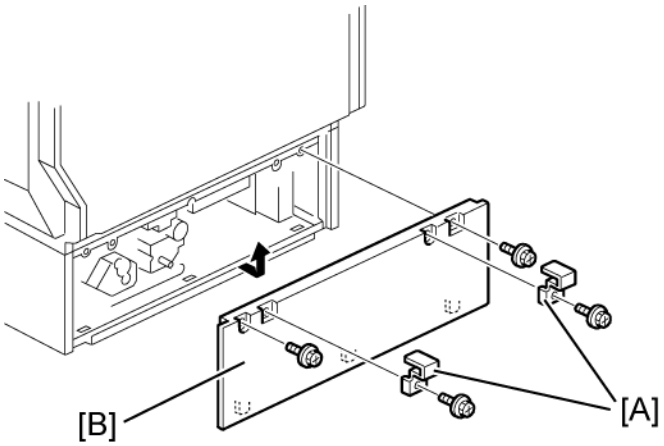


b801r112

3. Remove the right tray [A] while pressing down the stopper [B].

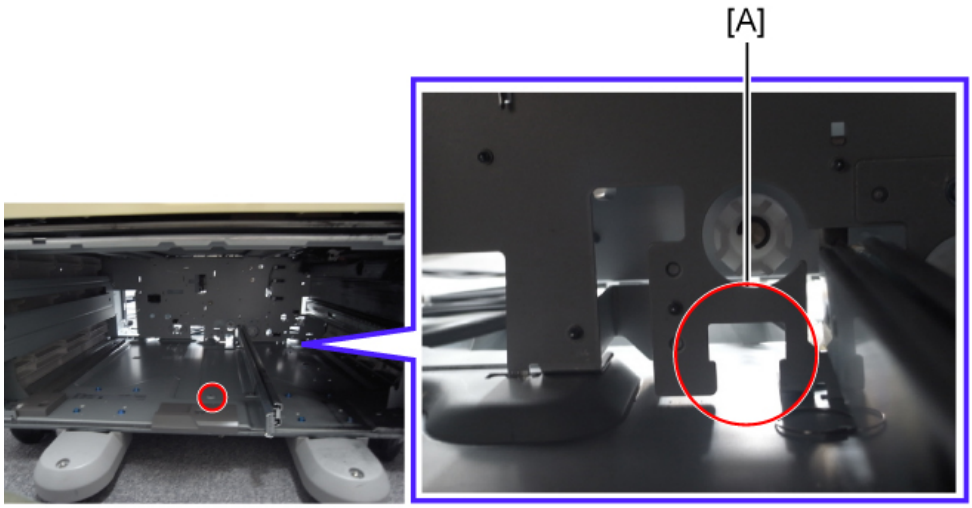
Note

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



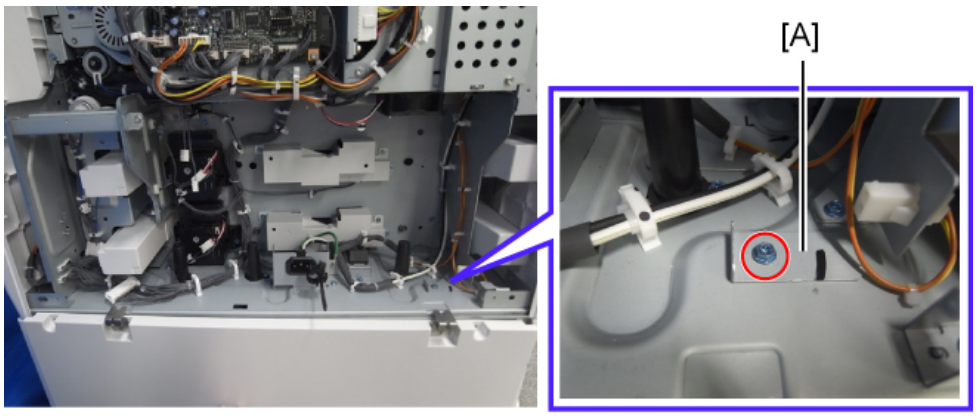
b801i251

4. Remove the two securing brackets [A] (x 1 each), and then the rear cover [B] of the optional LCT (x 2).

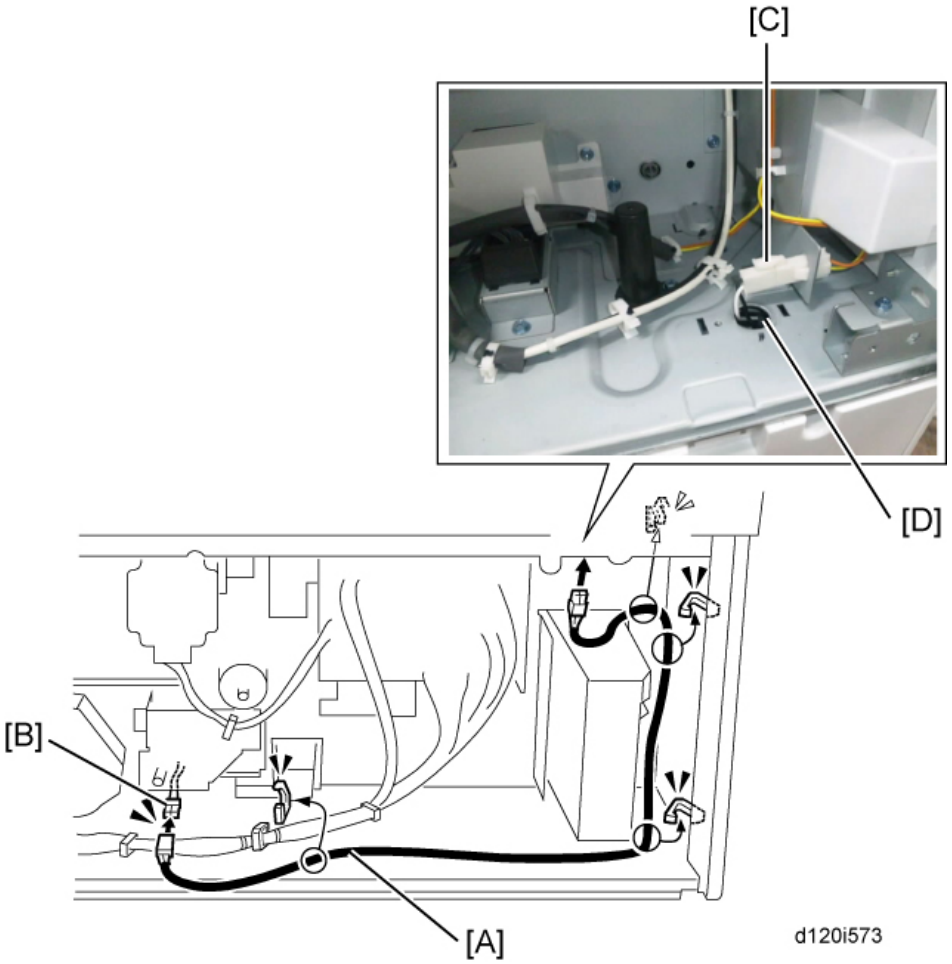


d120i579

5. Pass the heater cable through the opening [A], and then install the tray heater in the optional paper LCT (x1).
6. Remove:
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover")
   - Right rear cover (☛ p.4-9 "Right Rear Cover")



7. Remove the harness cover bracket [A] from the main frame (x 1).



8. Connect the harness [A] to the connector [B] of the tray heater.
9. Route the harness [A] and clamp it with four clamps as shown (x 4).
10. Connect the harness [A] to the connector [C] of the main frame through the hole [D].
11. Reassemble the mainframe and the optional LCT.

2.21 MECHANICAL COUNTER

This counter is only used for NA models.

2.21.1 ACCESSORY CHECK

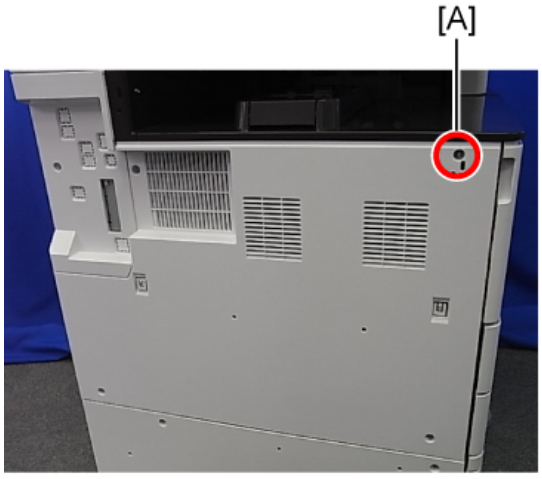
No.	Description	Q'ty
1	Mechanical counter	1

2.21.2 INSTALLATION

CAUTION

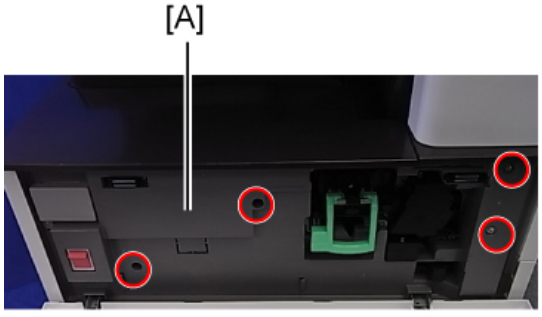
- Unplug the machine power cord before starting the following procedure.

1. Remove:
   - Output tray (☛ p.4-13 "Output Tray")
   - Front door (☛ p.4-5 "Front Door")



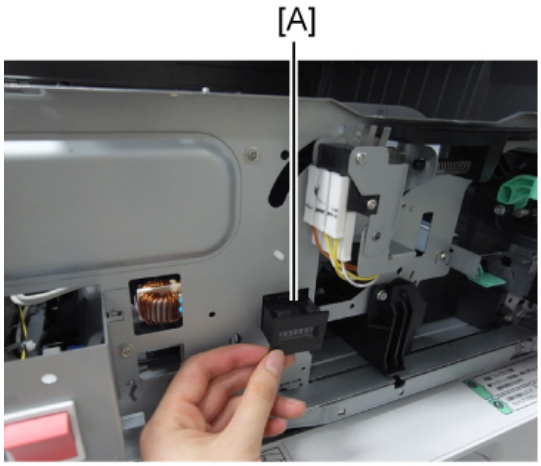
d120r201

2. Remove the screw [A] of the left cover.



d120r203

3. Remove the front inner cover [A] (x 4).



d120i224

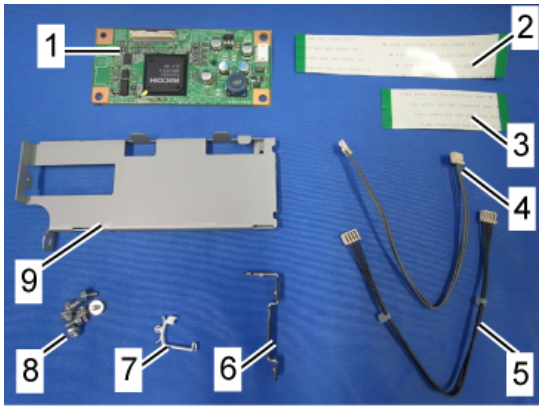
4. Push the mechanical counter [A] into the machine.

d120r205

5. Connect the harness [A] to the mechanical counter.
6. Reassemble the machine.

2.22 COPY DATA SECURITY UNIT TYPE F (B829)

2.22.1 COMPONENT CHECK



d120i225

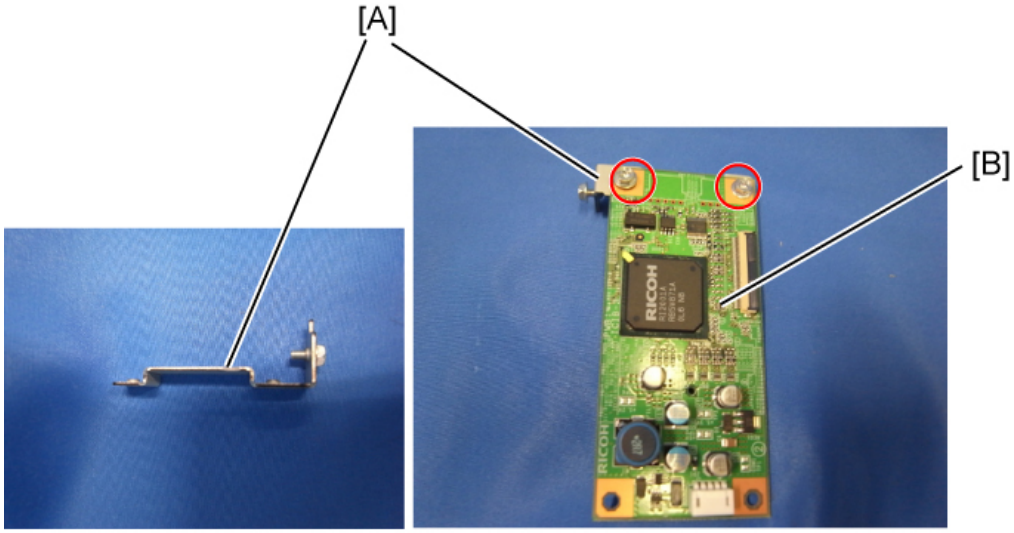
No.	Description	Q'ty	For this model
1	ICIB-3	1	Yes
2	Flexible cable: Long	1	Not used
3	Flexible cable: Short	1	Not used
4	Harness	1	Not used
5	Harness with bands	1	Not used
6	Small Bracket	1	Yes
7	Saddle Clamp	1	Not used
8	Screws: M3x6	6	Yes
9	Bracket	1	Not used

2.22.2 INSTALLATION

CAUTION

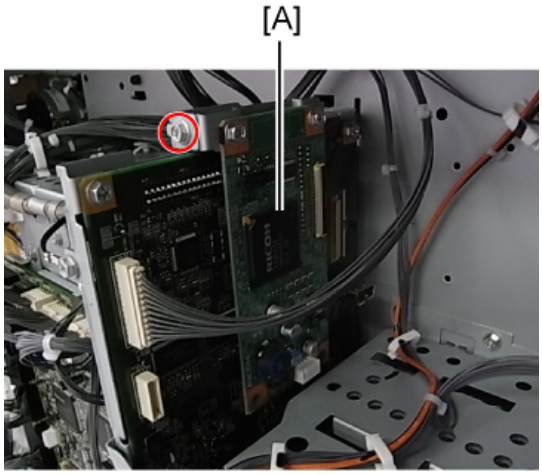
- Unplug the main machine power cord before you do the following procedure.

1. Remove the upper rear cover. (☛ p.4-8 "Upper Rear Cover")



d120r206

2. Attach the small bracket [A] to the ICIB-3 [B] (x 2).



d120r207

3. Attach the ICIB-3 with small bracket [A] to the IPU (x 1).
4. Reassemble the machine.

User Tool Setting

1. Plug in the machine and turn on the main power switch.
2. Go into the User Tools mode, and select System Settings > Administrator Tools > Copy Data Security Option > “On”.
3. Exit User Tools.
4. Check the operation.

Note

- The machine will issue an SC165 error if the machine is powered on with the ICIB-3 removed and the “Data Security for Copying“ feature set to “ON”.
- The machine will issue an uncertain SC165 error if ICIB-3 is defective when the machine is powered on and the “Data Security for Copying“ feature is set to “OFF”.
- When you remove this option from the machine, first set this feature to “OFF” with the user tool before removing this board. If you forget to do this, “Data Security for Copying “feature cannot appear in the user tool setting. Also, SC165 will appear every time the machine is switched on, and the machine cannot be used.

5. Make sure that the machine can recognize the option.

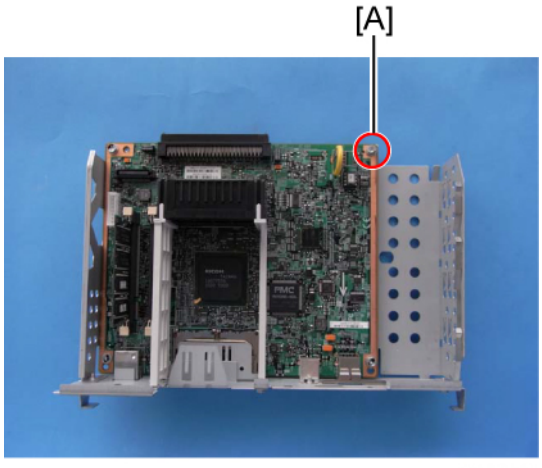
2.23 HARD DISK (D594)

2.23.1 ACCESSORY CHECK

No.	Description	Q'ty
1	HDD Unit	1
2	Screw	4
3	Connecting Board Unit	1
4	Keytop: Copy	2
5	Keytop: Document Server	2
6	Harness clamp	1

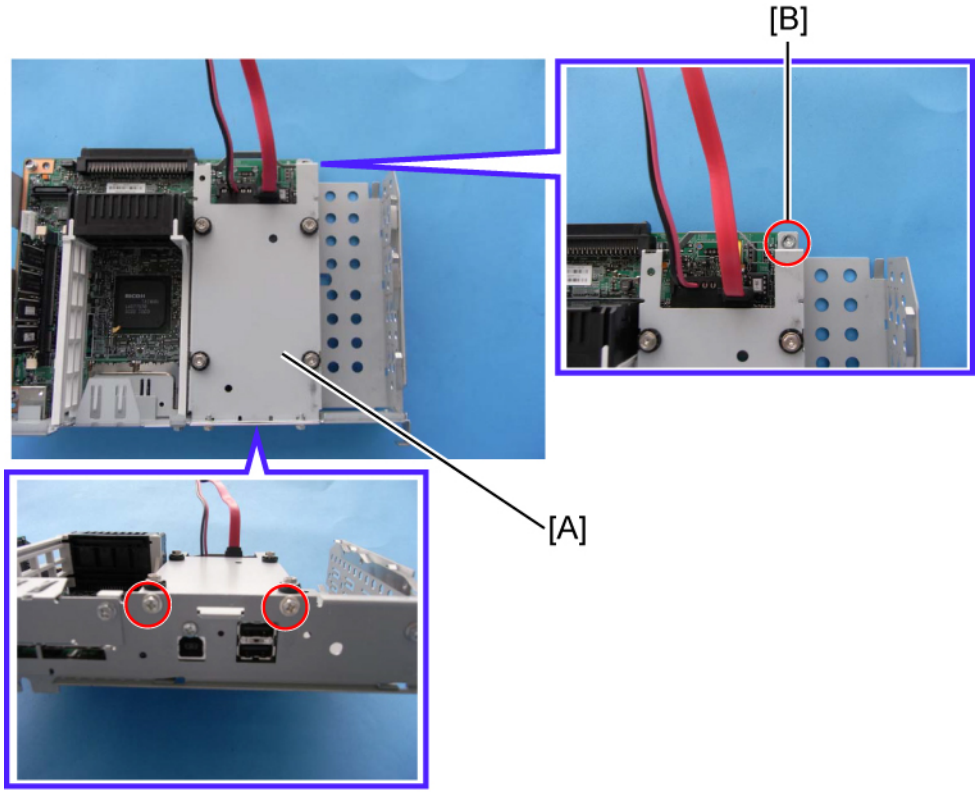
2.23.2 INSTALLATION

1. Remove the controller board unit. (☛ p.4-86 "Controller Board")



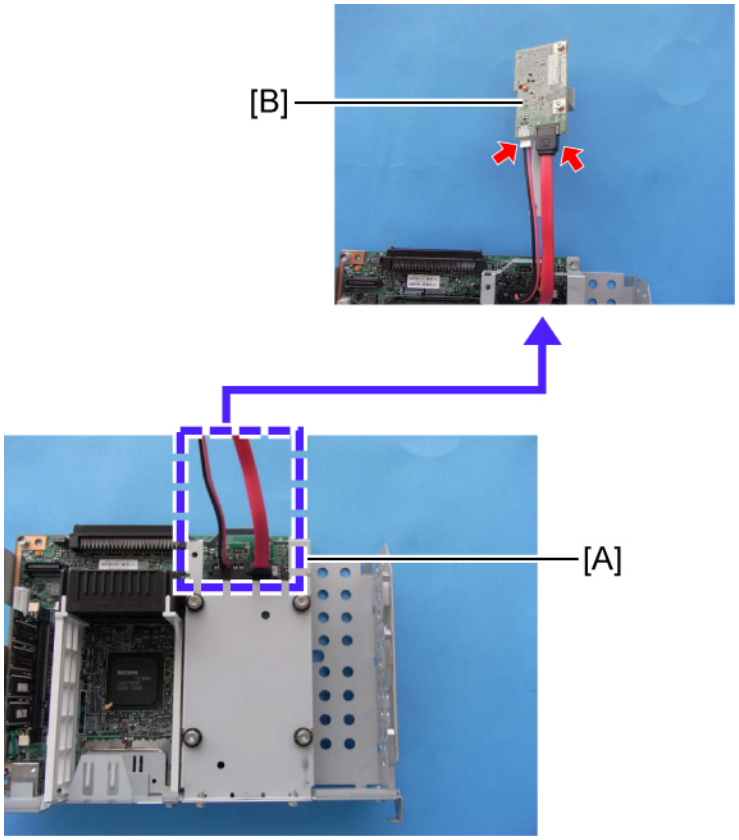
d120i509

2. Remove the screw [A] on the controller board.



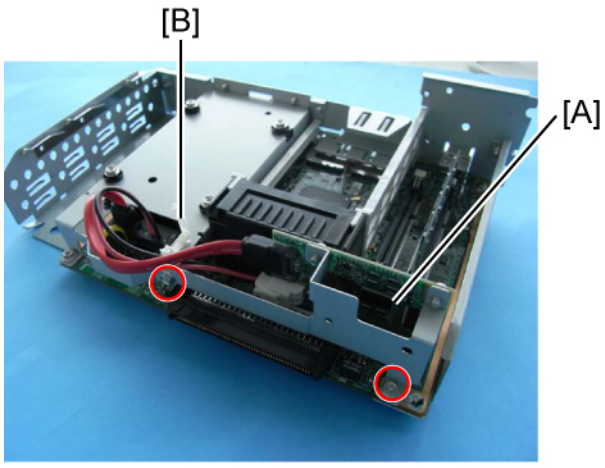
d120i510

3. Install the HDD unit [A] on the controller board unit (x 3). Use the screw removed in step 2 at [B].



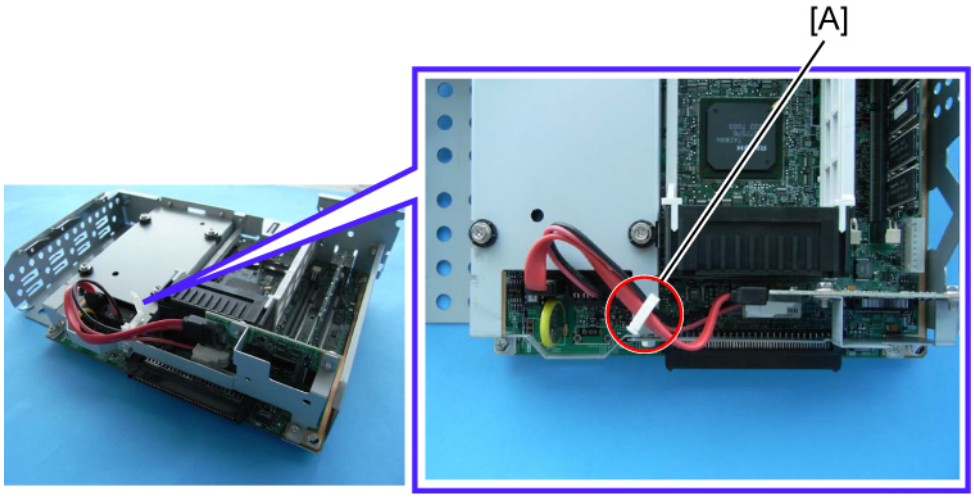
d120i511

4. Connect the two cables [A] from the HDD unit to the connecting board [B] (x 2).



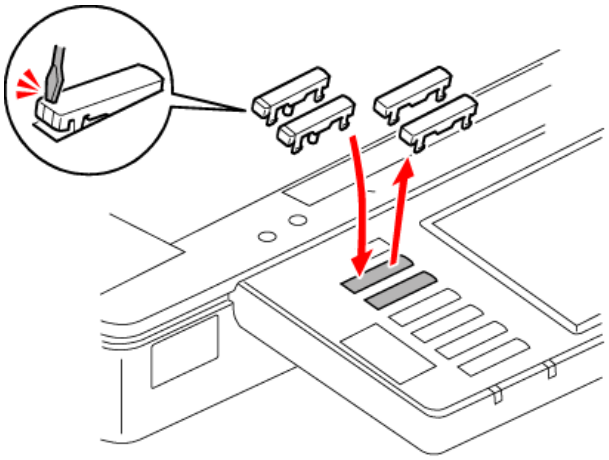
d120i512

5. Install the connecting board unit [A] on the controller board (x 2).
6. Install the harness clamp [B] on the HDD unit.



d120i513

7. Clamp the cables [A] to prevent them from sticking out.
8. Reinstall the controller board with the HDD.



d120i520

9. Remove the 1st and 2nd blank key tops.
10. Replace the blank key tops with the key tops received in the kit from top to bottom:
    - 1st Copy
    - 2nd Document Server

After Installing the HDD

1. Do **SP5-832-001** to format the hard disk.
2. Do **SP5-853-001** to copy the preset stamp data from the firmware to the hard disk.
3. Do **SP5-846-040** to copy the address book to the hard disk from the controller board.
4. Do **SP5-846-041** to let the user get access to the address book.
5. Turn the main power switch off and on.

2.24 FILE FORMAT CONVERTER TYPE E (D377)

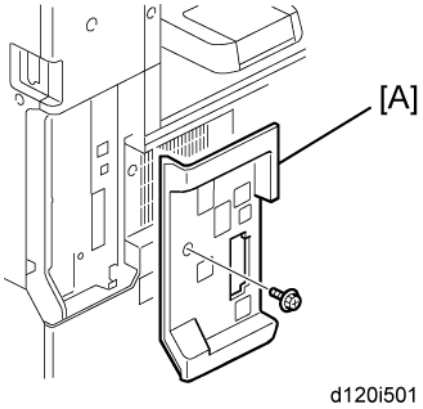
2.24.1 ACCESSORY CHECK

Check the accessories and their quantities against this list:

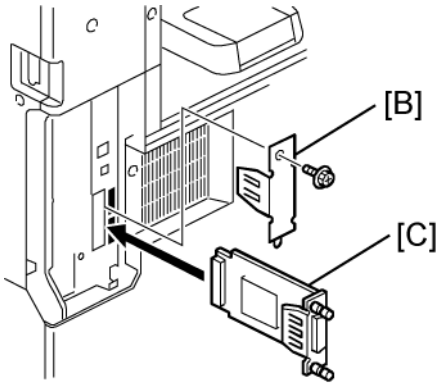
	Description	Q'ty
1.	File Format Converter (MLB: Media Link Board)	1

2.24.2 INSTALLATION

1. Turn off the main power switch.



2. Remove the controller cover [A] (x1).



d120i504

3. Remove the board slot cover [B] (x2).
4. Touch a metal surface to discharge any static electricity from your hands.
5. Set the interface board [C] in the open slot.
6. Confirm that the board is inserted completely, then fasten it (x 2).
7. Turn on the main power switch.
8. Enter the SP mode and do SP5-990 to print an SMC Report.
9. Read the report and confirm that the interface board is installed correctly.

2.25 BROWSER UNIT TYPE E (D430)

2.25.1 ACCESSORIES

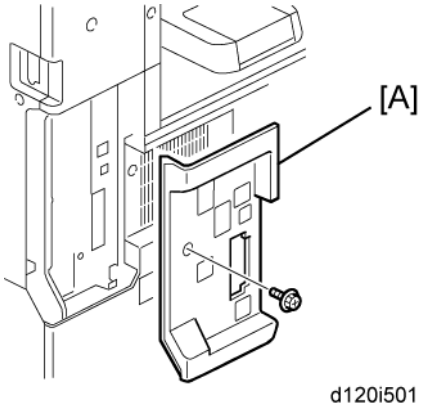
Check the accessories and their quantities against the table below.

Description	Q'ty
Browser Unit D430 SD Card	1

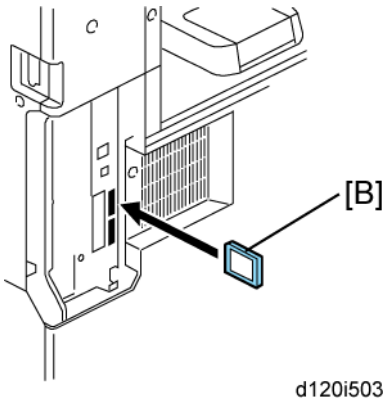
2.25.2 INSTALLATION

This option requires a HDD unit.

1. Switch the machine off.



2. Remove the controller cover [A] (x1).



3. Insert the browser SD card [B] into SD card slot 1 or slot 2.
4. Turn on the main power switch.
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. Turn off the main power switch.
14. Install the key for “Browser Unit” to the place where you want it.
15. Turn on the main power switch.
16. When the machine reaches the Ready condition, press the key that you installed in Step 14 above.

    Note

    - A message will be displayed confirming that the browser option was successfully installed.
17. Turn off the main power switch.
18. Remove the SD card from the slot.
19. Attach the slot cover.
20. Tell a customer to keep the SD card in a safe place after you have installed the application program from the card to the HDD.

    This is because:

    - The SD card is the only proof that the user is licensed to use the application program.
    - You may need to check the SD card and its data to solve a problem in the future.

2.26 VM CARD TYPE N (D594)

This option is only for basic models.

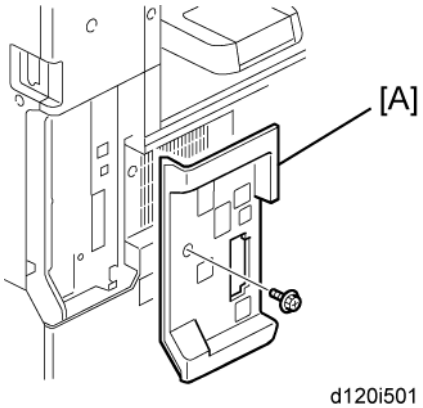
2.26.1 ACCESSORIES

Check the accessories and their quantities against the table below.

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

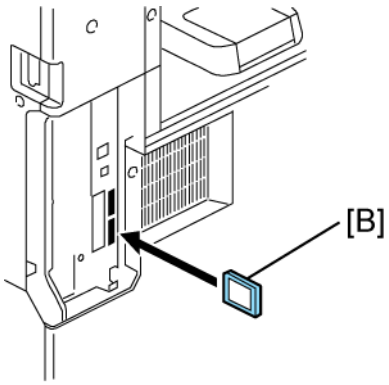
2.26.2 INSTALLATION

1. Switch the machine off.



d120i501

2. Remove the controller cover [A] (x1).



d120i502

3. Insert the SD card [B] into SD Slot 2 (lower).

Important

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

2.27 USB2.0/SD SLOT TYPE H (D594)

2.27.1 ACCESSORY CHECK

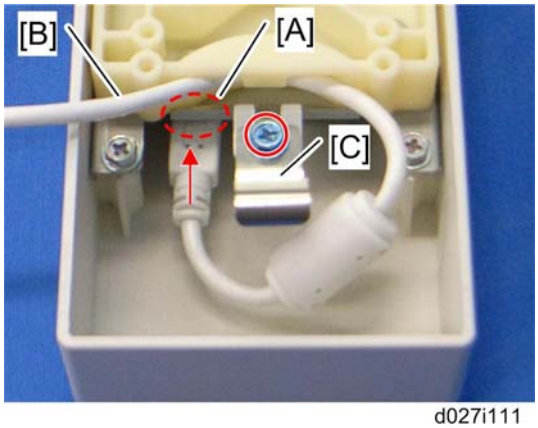
Check the quantity and condition of the accessories against the following list.

No.	Description	Q'ty
1	USB2.0/SD Slot	1
2	Ground Plate	1
3	USB Cable	1
4	Screw: M3 x 6 blue	1
5	Screw: M3 x 8	4
6	Screw: M3 x 6 (Used when the booklet finisher (D589) has been installed)	1
7	Bracket (Used when the booklet finisher (D589) has been installed)	1
8	Ground wire (Used when the booklet finisher has been installed)	1
9	Hook and loop fastener	1
10	Decal	1
11	Decal Small	1

2.27.2 INSTALLATION PROCEDURE

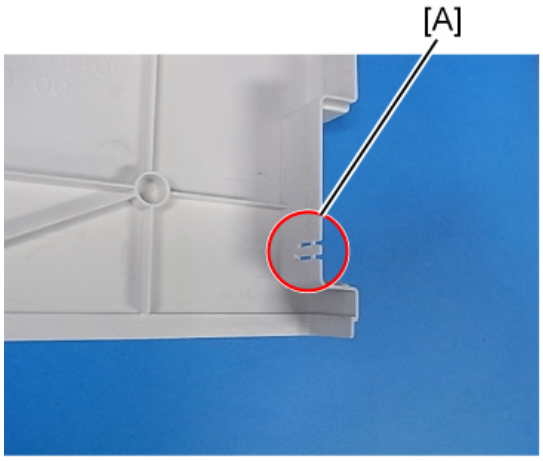
Important

- If the optional booklet finisher has been installed, see the procedure in “Installation if the optional booklet finisher has been installed” in this section.



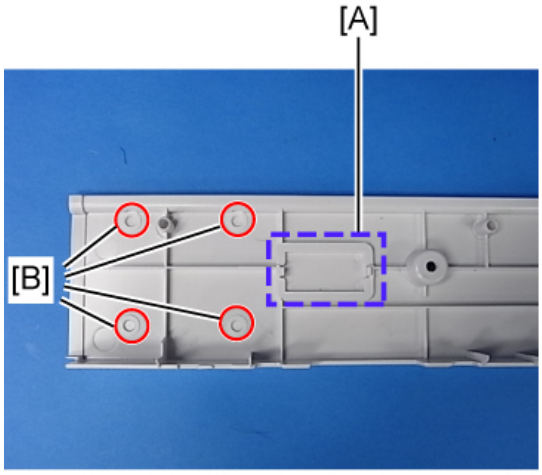
d027i111

1. Connect the USB cable [B] to the USB slot [A] in the USB2.0/SD Slot as shown above.
2. Attach the ground plate [C] to the bracket of the USB2.0/SD Slot (x 1: M3x6 blue).
3. Remove the upper left cover. (☛ p.4-7 "Upper Left Cover")



d120i507

4. Remove the part [A] of the upper left cover with pliers or a similar tool.

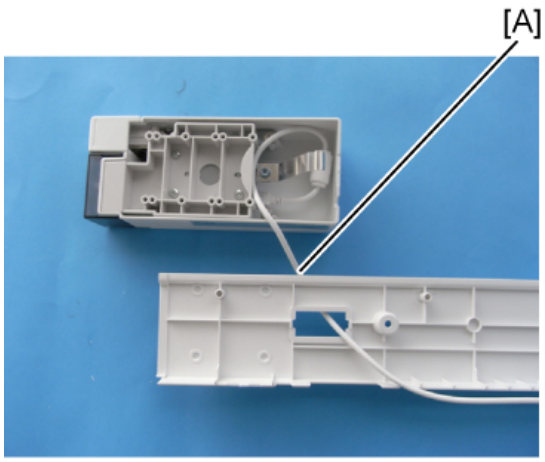


d120i508

5. Remove the part [A] on the upper left cover.
6. Make four holes in the upper left cover with a screwdriver as shown [B].

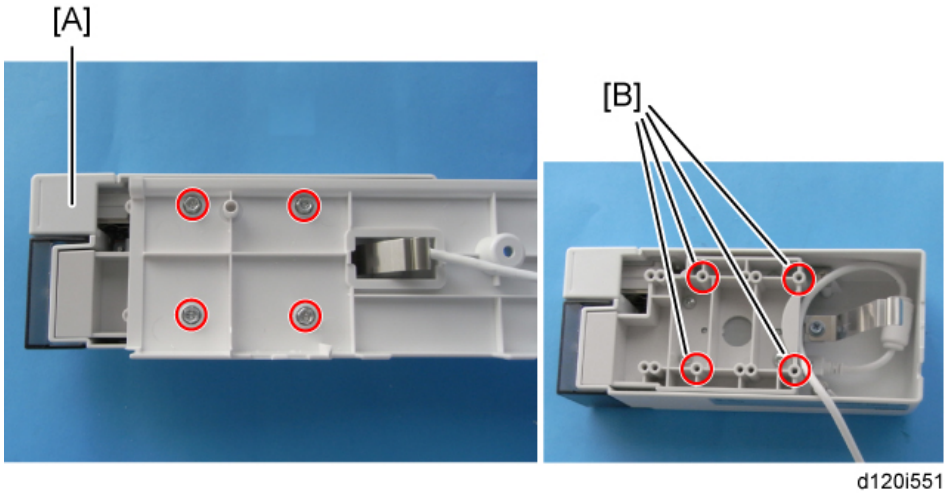
Note

- Smooth the four holes in the upper left cover as shown [B].



d120i550

7. Put the USB cable [A] through the cutout in the upper left cover.

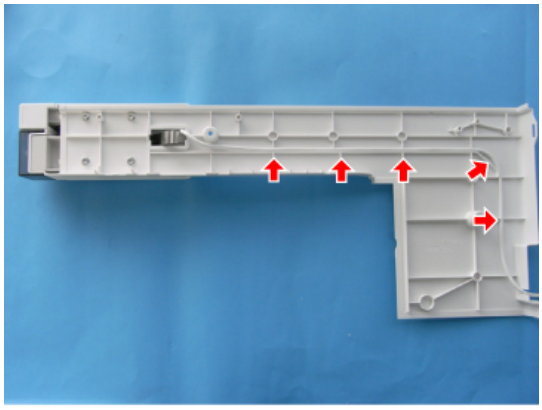


d120i551

8. Secure the USB2.0/SD Slot [A] with the upper left cover as shown above (x 4: M3x8).

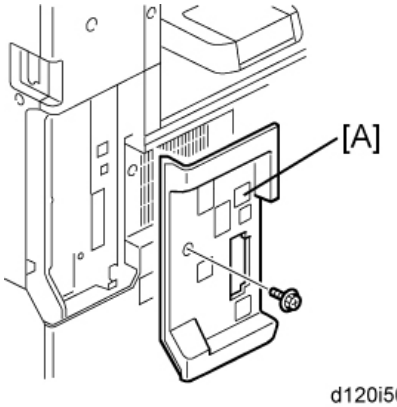
Note

- Use the screw holes [B] as shown above.



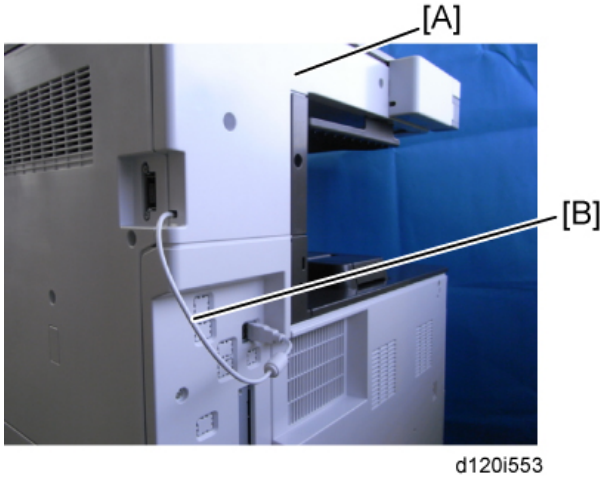
d120i552

9. Route the USB cable through the gaps in the upper left cover.



d120i501a

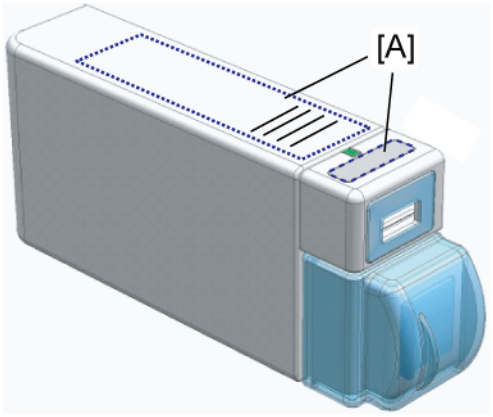
10. Remove the controller cover [A] (x1), and then cut out the cover for the USB-A slots.



d120i553

11. Attach the upper left cover [A] to the mainframe (x 2).
12. Reattach the controller cover (x 1).
13. Connect the USB cable [B] to USB-A as shown above.
14. Plug in and turn on the main power switch.

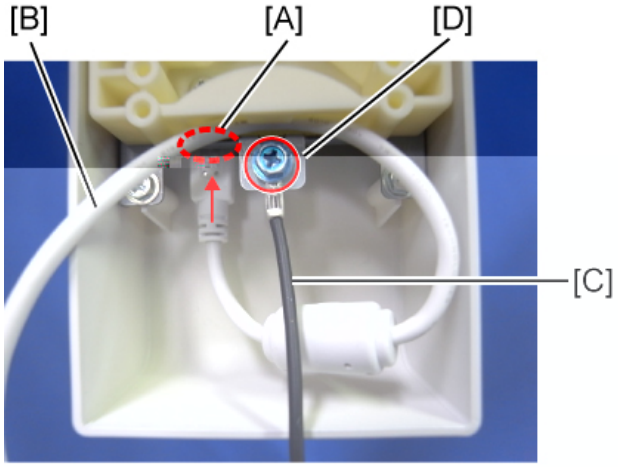
⇒ 15. Change the setting of Scanner SP1-013-002 from "0" to "1".
16. Change the setting of Printer SP1-110-002 from "0" to "1".
17. Exit the SP mode, and then check the operation of the USB2.0/SD Slot.



d027i118a

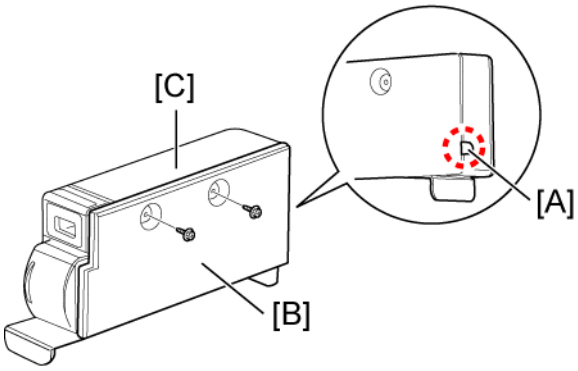
18. Attach the decals [A] to the USB2.0/SD Slot as shown above.

Installation if the optional booklet finisher has been installed



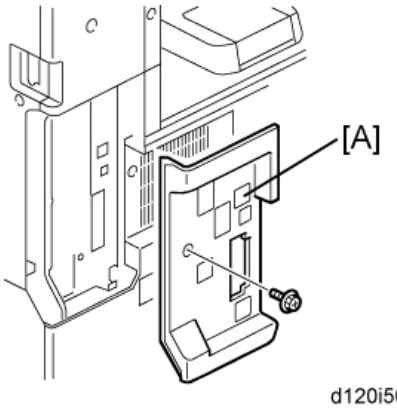
d120i226

1. Connect the USB cable [B] to the USB slot [A] in the USB2.0/SD slot as shown above.
2. Connect the ground wire [C] to [D] in the USB2.0/SD Slot (x 1: M3x6 blue).



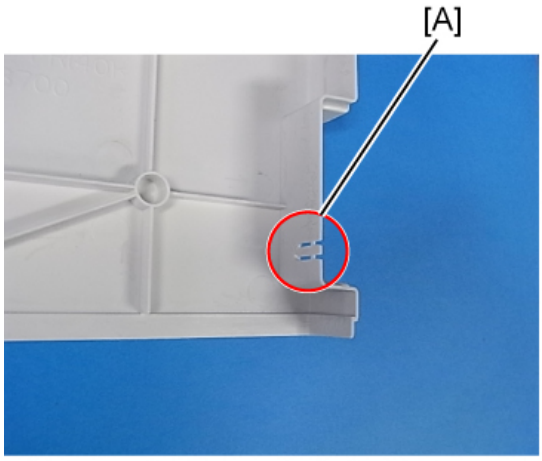
d120i582

3. Cut out the part [A] on the back of the USB 2.0/SD slot with pliers or a similar tool, and route the USB cable and ground wire through [A].
4. Install the right cover [B] of the USB2.0/SD Slot [C] (x 2).
5. Remove the optional booklet finisher from the left side of the machine (x 1).



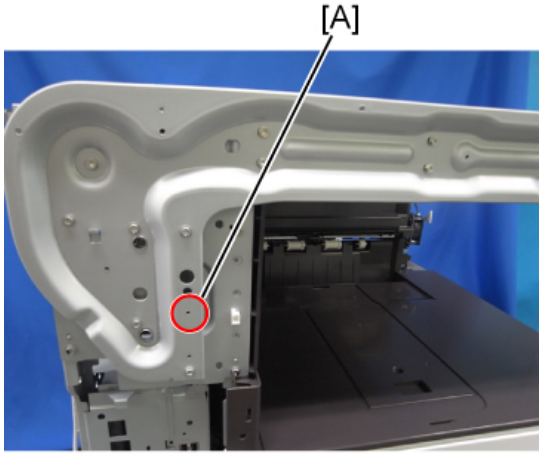
d120i501a

6. Remove the controller cover [A] (x1), and then cut out the cover for the USB-A slots.
7. Remove the upper left cover. (p.4-7 "Upper Left Cover")



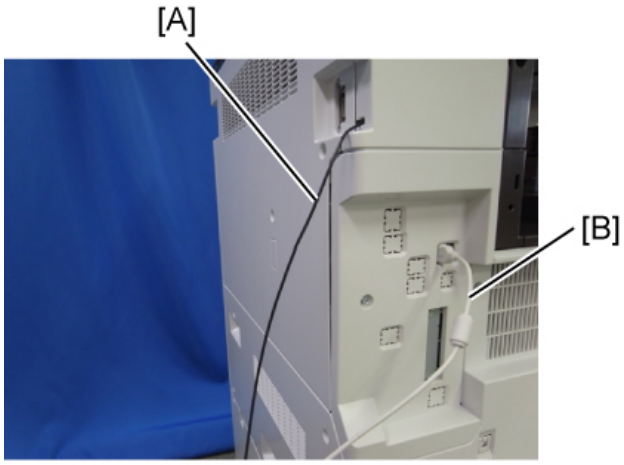
d120i507

8. Remove the part [A] of the upper left cover with pliers or a similar tool.



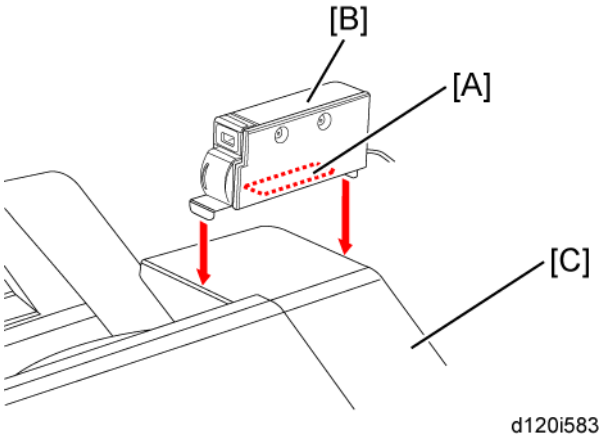
d120i206

9. Secure the ground wire to the location [A] (x 1).



d120i227

10. Reassemble the machine and route the ground wire [A] through the cutout in the upper left cover.
11. Connect the USB cable [B] to USB-A.
12. Install the optional booklet finisher to the left side of the machine.

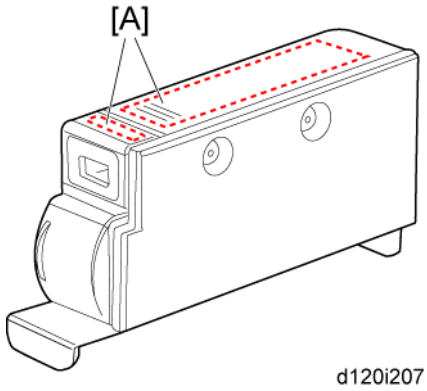


d120i583

13. Peel off the backing paper from one side of the hook and loop fastener, and then stick it to

the bottom of the USB2.0/SD slot [A].

14. Remove the other backing paper from the hook and loop fastener, and then attach the USB 2.0/SD slot [B] to the middle position on the back of the optional booklet finisher [C].
15. Plug in and turn on the main power switch.
16. Change the setting of Printer SP1-013-002 from "0" to "1".
17. Change the setting of Printer SP1-110-002 from "0" to "1".
18. Exit the SP mode, and then turn off the main power switch.
19. Check the operation of the USB2.0/SD Slot.



d120i207

20. Attach the decals [A] to the USB2.0/SD Slot as shown above.

2.27.3 TESTING THE SD CARD/USB SLOT

1. Insert an SD card or USB memory device in the slot.
   You can connect only one removable memory device at a time.
2. Close the media slot cover.
   If you leave the cover open, static electricity conducted through an inserted SD card could cause the machine to malfunction.
3. Make sure that no previous settings remain.
   If a previous setting remains, press the [Clear Modes] key.
4. Place an original on the exposure glass.
5. Press [Store File].
6. Press [Store to Memory Device].
7. Press [OK].
8. Press the [Start] key.
   When writing is complete, a confirmation message appears.
9. Press [Exit].
10. Remove the memory device from the media slot.

Note

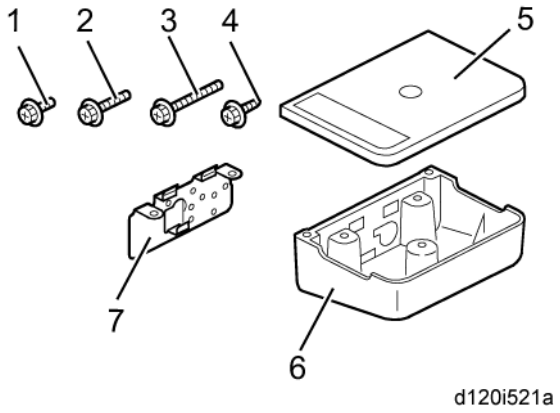
- Do not remove the memory device while writing is in process.

2.28 CARD READER BRACKET TYPE C3352 (D593)

2.28.1 COMPONENT CHECK

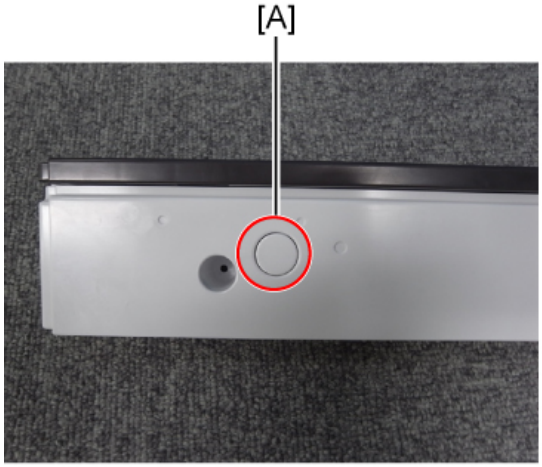
Check the quantity and condition of the accessories against the following list.

No	Description	Q'ty	For This Model
1	Screw: M3 x 8	2	Yes
2	Screw: M3 x 14	1	Not used
3	Screw: M4 x 25	1	Yes
4	Tapping Screw: M3 x 10	3	Yes
5	Upper Tray	1	Yes
6	Lower Tray	1	Yes
7	Tray Bracket	1	Yes



2.28.2 INSTALLATION PROCEDURE

1. Remove the upper right cover. (☛ p.4-10 " Upper Right Cover")



d120i229

2. Remove the cover [A] from the upper right cover.

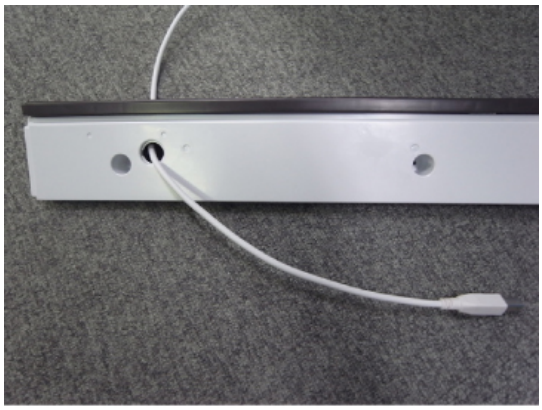
d120i578

3. Make 3 holes for the M4 screw in the upper right cover with a screwdriver.

Important

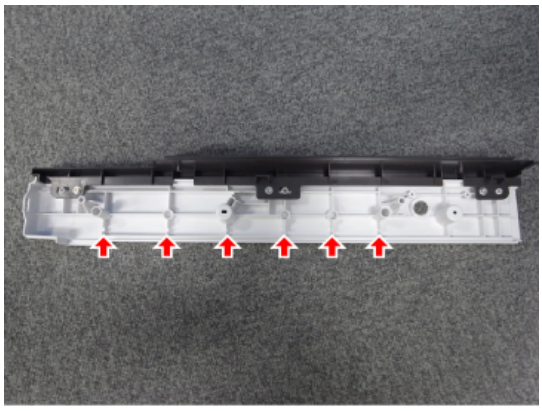
- Do not open the 2 holes for the M3 screws all the way. This will make it impossible to tighten the M4 screw.

d120i228



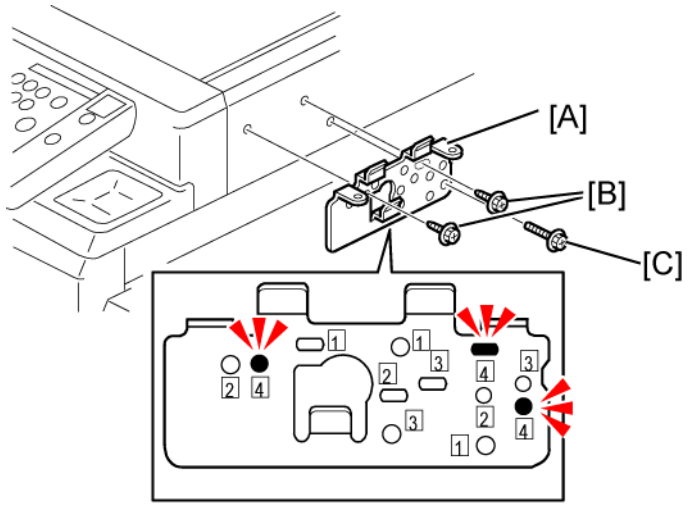
d120i598

4. Put the device cable through the hole in the upper right cover.



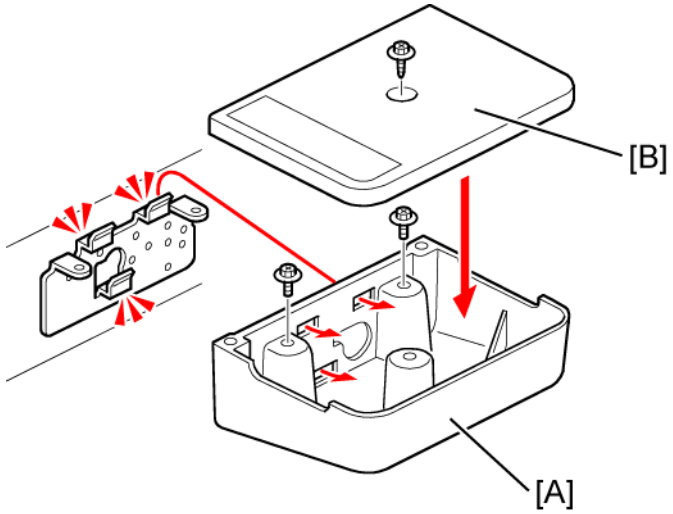
d120i584

5. Route the cable in the upper right cover
6. Reattach the upper right cover (x 2).



d120i576

7. Attach the tray bracket [A] to the upper right cover ([B] x 2: M3x8 tapping screw, [C] x 1: M4x25).
   - For this model, use the screw holes marked "4" on the table bracket.

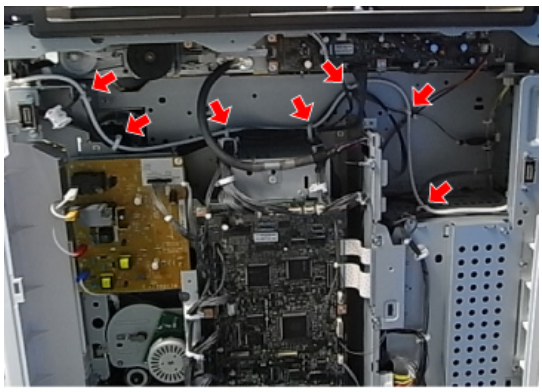


d120i577

8. Attach the lower tray [A] to the tray bracket (x 2: M3x8).
9. Attach the upper tray [B] to the tray bracket (x 1: M3x8).
10. Connect the cable to the designated connector (the connector to use depends on the type of device to be connected).

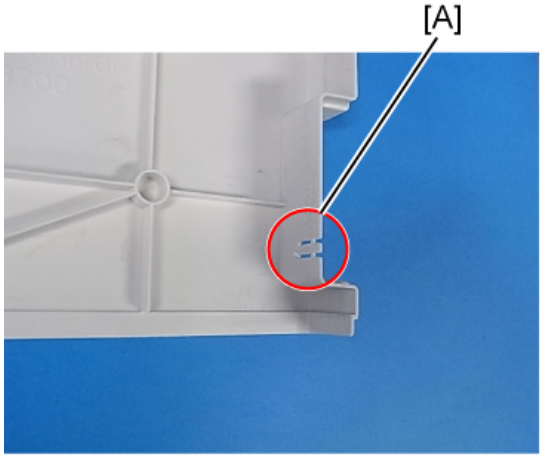
If you install the device with USB cable.

1. Remove the upper rear cover. (☛ p.4-8 "Upper Rear Cover")



d120i585

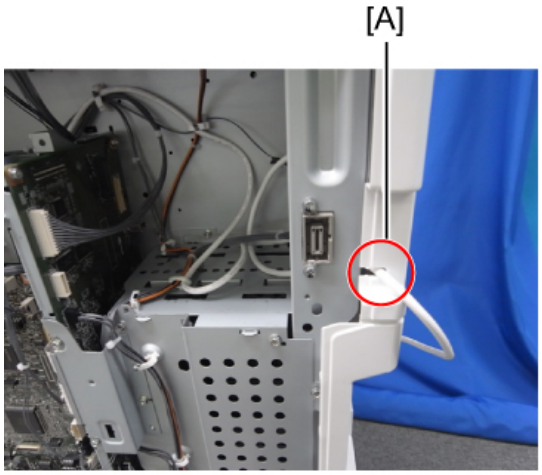
2. Route the cable as shown above.
3. Remove the upper left cover. (☛ p.4-7 "Upper Left Cover")



d120i507

4. Remove the cut off part [A] of the upper left cover with pliers or a similar tool.

5. Reattach the upper left cover.



d120i586

6. Route the cable through the cut off part of the upper left cover [A], and then connect the cable to the designated connector (the connector to use depends on the type of device to be connected).
7. Reassemble the machine.

PREVENTIVE MAINTENANCE

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

3. PREVENTIVE MAINTENANCE

3.1 PM TABLES

See "Appendices" for the following information:

- PM Tables

REPLACEMENT AND ADJUSTMENT

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

4. REPLACEMENT AND ADJUSTMENT

4.1 BEFOREHAND

CAUTION

- Before installing options, please do the following:
- If there is a fax unit in the machine, print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.
- If there are printer jobs in the machine, print out all jobs in the printer buffer.
- Turn off the main power switch and disconnect the power cord, the telephone line, and the network cable.

Important

- Always touch a grounded surface to discharge static electricity from your hands before you handle SD cards, printed circuit boards, or memory boards.

4.2 SPECIAL TOOLS AND LUBRICANTS

4.2.1 SPECIAL TOOLS

No.	Part No.	Description	Q'ty	Availability
1	A1849501	Scanner Positioning Pin (2pcs/set)	1	Common – D086/D087/D088/D089
2	A2929500	Test Chart - S5S (10 pcs/set)	1	Common - General
3	A2309003	Adjustment Cam – Laser Unit	1	Common – D017/D018/D019/D020/D084/D085
4	A2309002	Positioning Pin – Laser Unit	1	Common – D017/D018/D019/D020/D084/D085
5	B6455010	SD-Card	1	Common - General
6	G0219350	Loop-back Connector	1	Common – D017/D018/D019/D020/D084/D085

4.2.2 LUBRICANTS

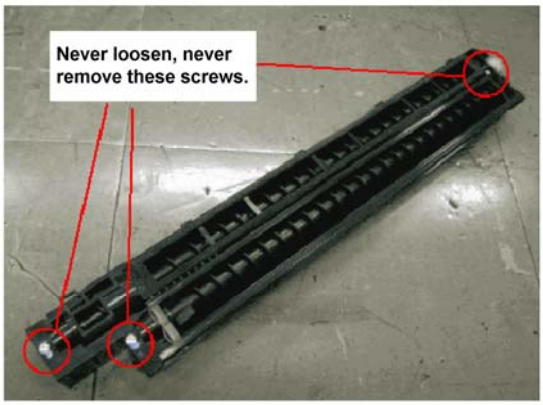
No.	Part No.	Description	Q'ty	Availability
1	A2579300	Grease Barrierta – JFE 5 5/2	1	Common - General

4.3 GENERAL CAUTIONS

4.3.1 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 use 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

4.3.2 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.

4.3.3 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.

4.3.4 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.

4.3.5 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.

4.3.6 PAPER FEED

- Do not touch the surface of the separation roller, feed roller and pick-up belt.
- 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.

4.3.7 OTHERS

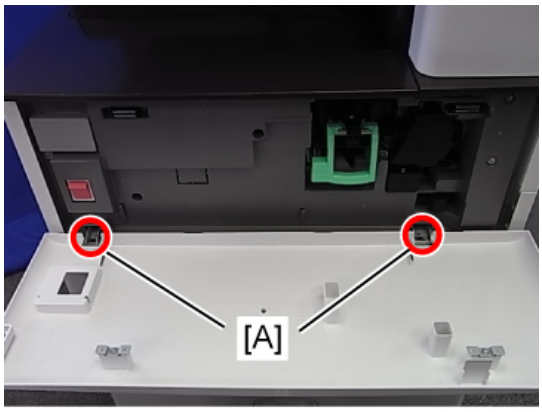
- The toner bottle should be replaced while the main switch is on.
- If the optional tray and optics anti-condensation heaters have been installed, keep the copier power cord plugged in, even when the copier main power switch is turned off. This keeps the heaters energized.

4.4 EXTERIOR COVERS

4.4.1 FRONT DOOR

d120r115

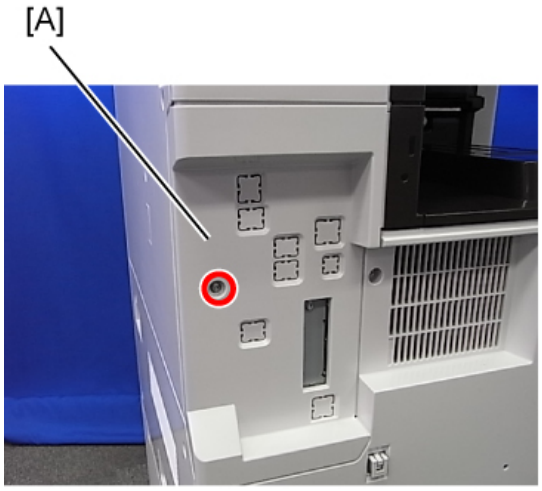
1. Open the front door [A].



d120r116

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

4.4.2 CONTROLLER COVER

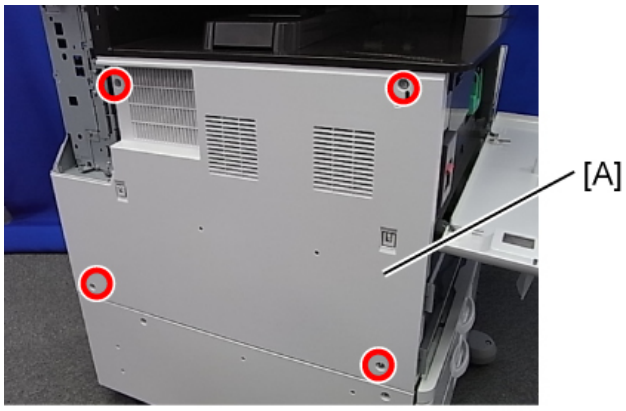


d120r117

1. Remove the controller cover [A] (x 1).

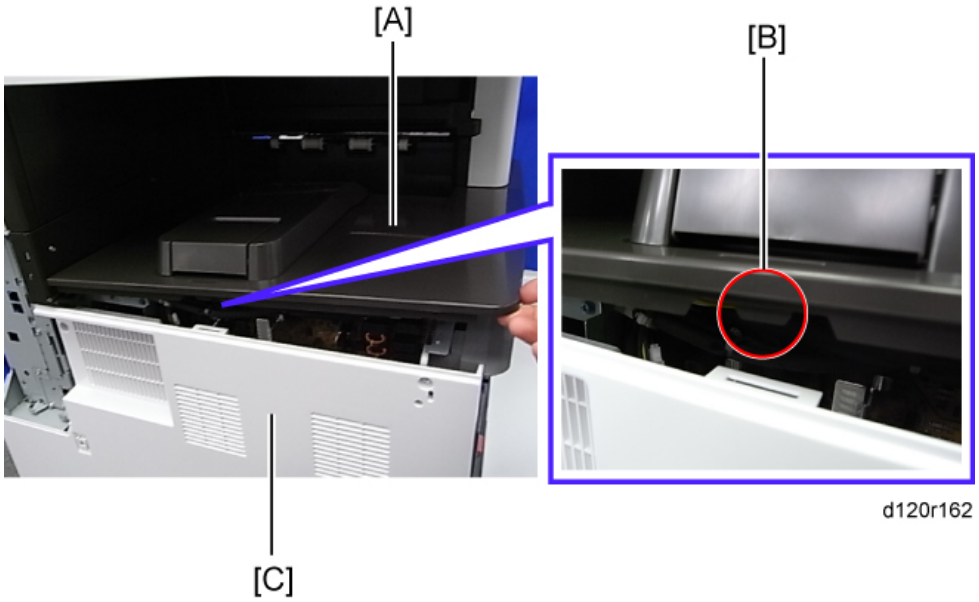
4.4.3 LEFT COVER

1. Remove the controller cover. (☛ p.4-6 "Controller Cover")



d120r118

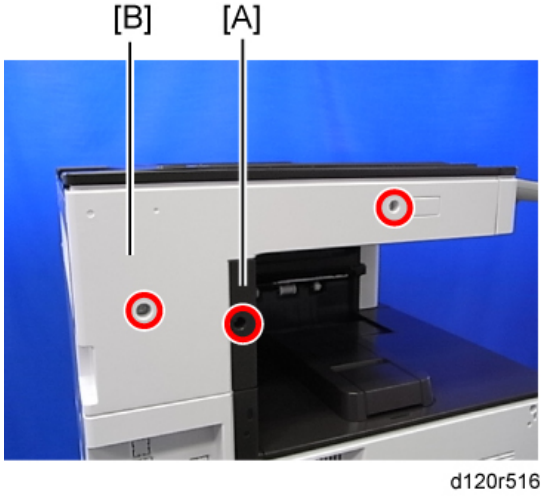
2. Remove the 4 screws of the left cover [A].



3. Lift up the output tray [A] by disconnecting the tab [B], and then remove the left cover [C].

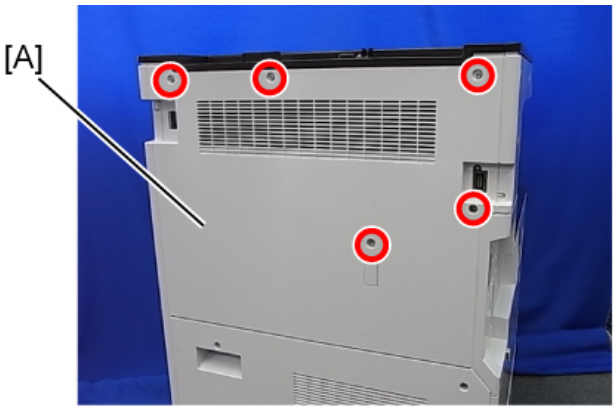
4.4.4 UPPER LEFT COVER

1. Remove the controller cover. (☛ p.4-6 "Controller Cover")



2. Remove the left frame cover [A] (x1).
3. Remove the upper left cover [B] (x 2).

4.4.5 UPPER REAR COVER

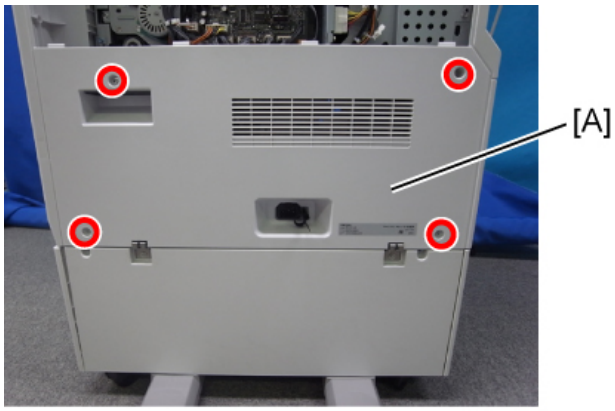


d120r120

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

4.4.6 LOWER REAR COVER

1. Remove the upper rear cover. (p.4-8 "Upper Rear Cover")

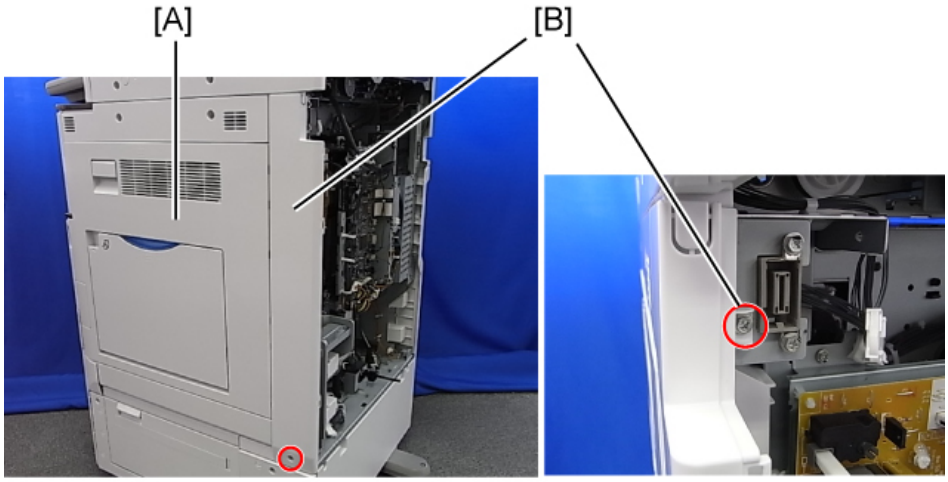


d120r121

2. Remove the lower rear cover [A] (x 4).

4.4.7 RIGHT REAR COVER

1. Remove:
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover")
   - Lower rear cover (☛ p.4-8 "Lower Rear Cover")



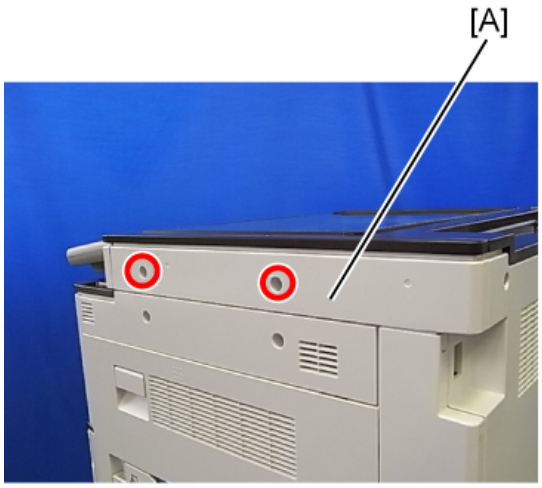
d120r154

2. Open the right door [A].
3. Remove the right rear cover [B] (x 2).

4.4.8 UPPER RIGHT COVER

d120r191

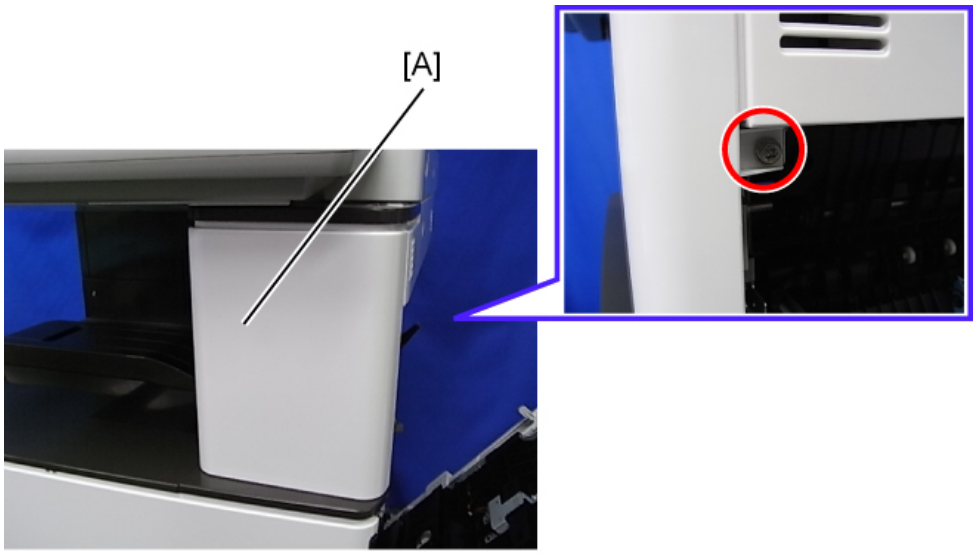
1. Remove a screw.



d120r122

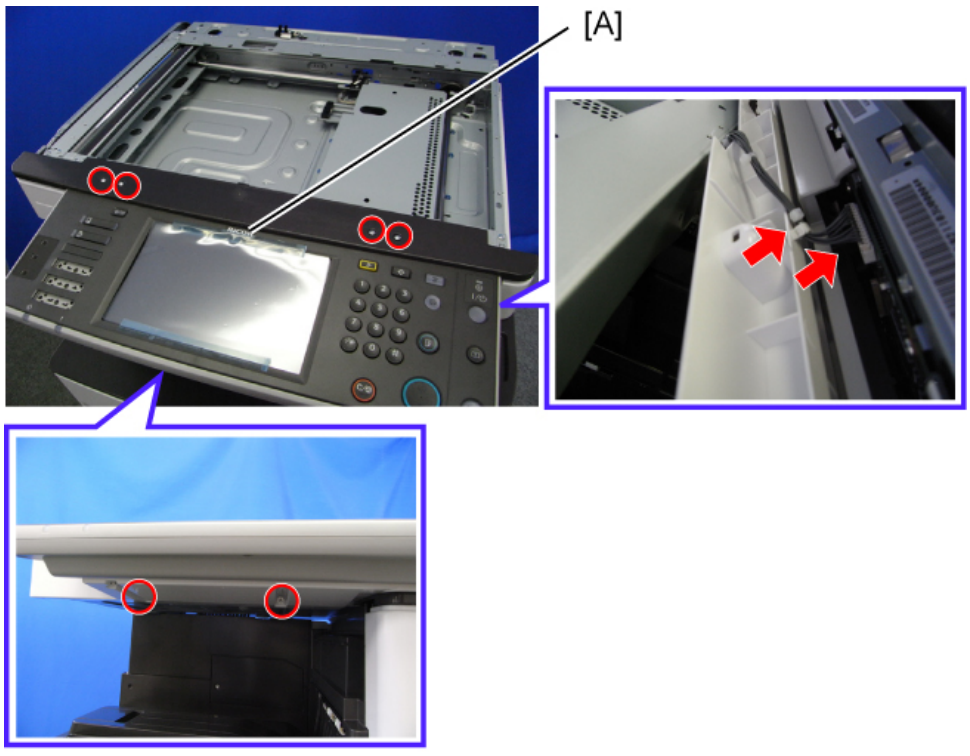
2. Remove the upper right cover [A] (x 2).

4.4.9 OPERATION PANEL



d120r124

1. Open the right door.
2. Remove the front right cover [A] (x 1).

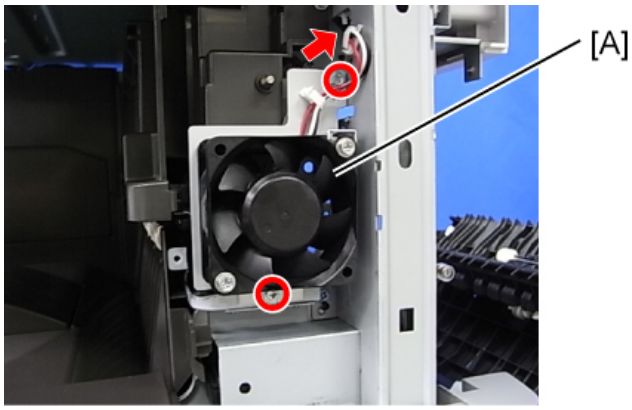


d120r102

3. Remove the operation panel [A] (x6, x1, x1).

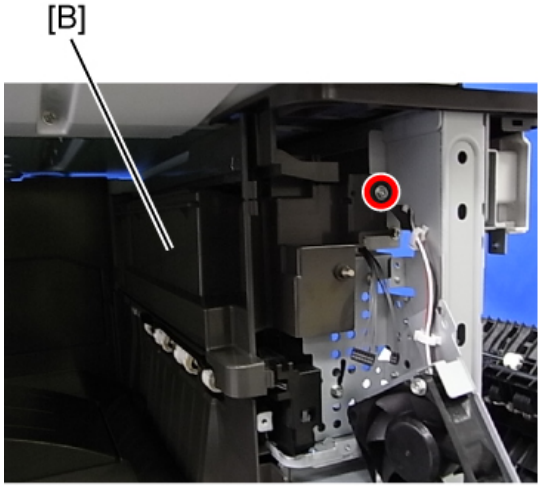
4.4.10 PAPER EXIT COVER

1. Remove the front right cover. (☛p.4-11 "Operation Panel")



d120r125

2. Remove the fusing fan with bracket [A] (x2, x1).



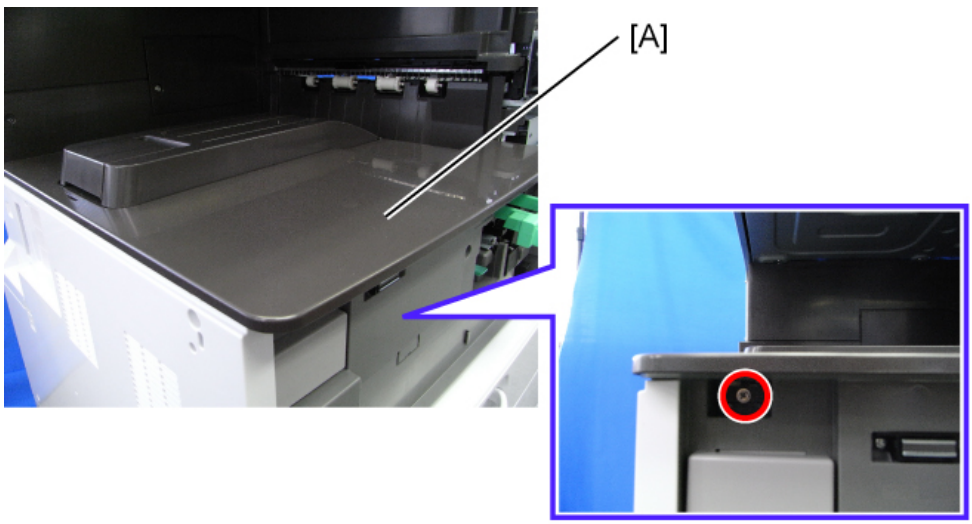
d120r126

3. Remove the paper exit cover [B] (x 1).

4.4.11 OUTPUT TRAY

d120r115

1. Open the front door [A].

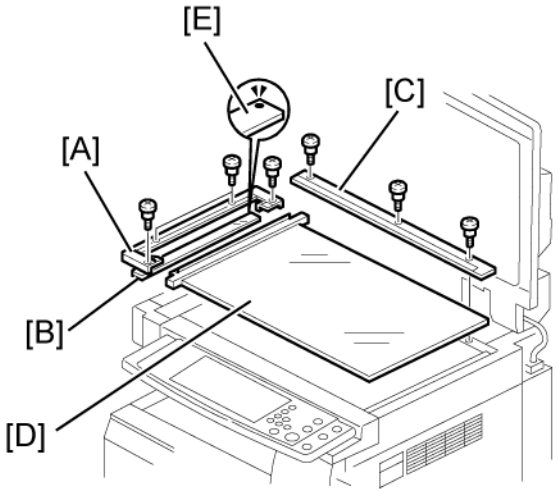


d120r127

2. Remove the output tray [A] (x 1).

4.5 SCANNER UNIT

4.5.1 EXPOSURE GLASS



d120r186

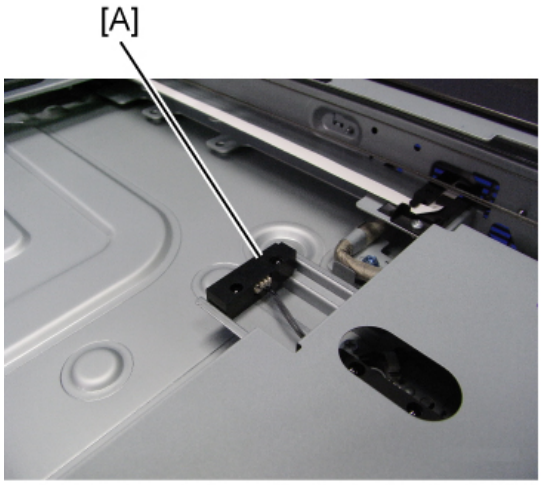
1. Remove the glass cover [A] (x 4).
2. Remove the ARDF exposure glass [B].
3. Remove the rear scale (x 3).
4. Replace the exposure glass with left scale.

Note

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

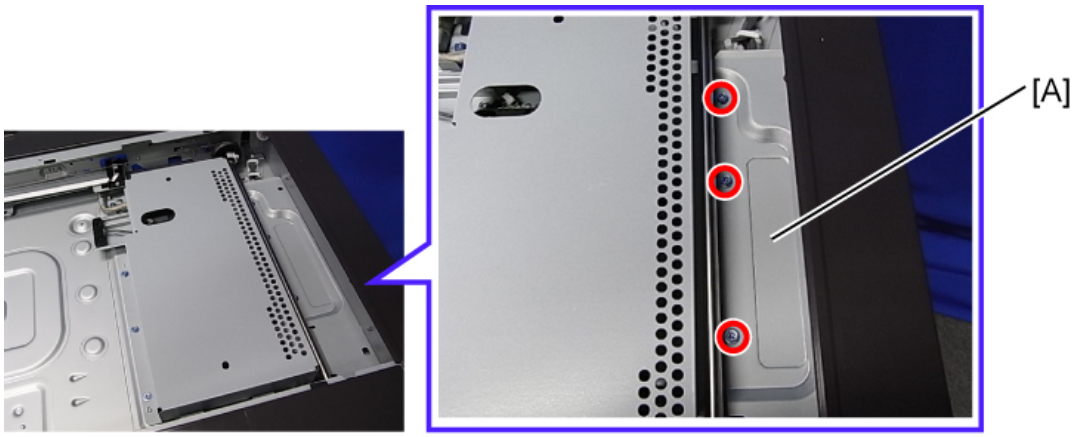
4.5.2 ORIGINAL LENGTH SENSORS

1. Remove the exposure glass with left scale. (☛ p.4-14 "Exposure Glass")



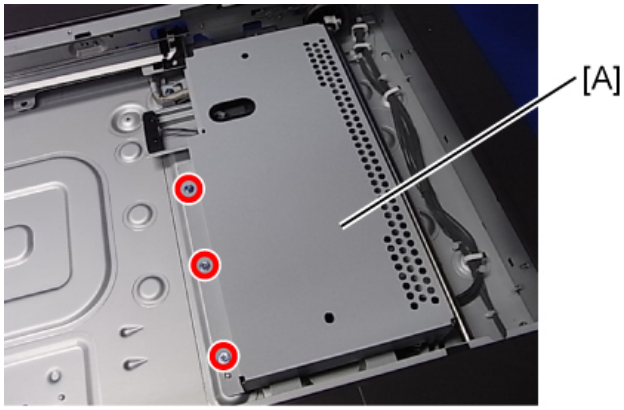
d120r100

2. Replace the original length sensor [A] (snap, x1).



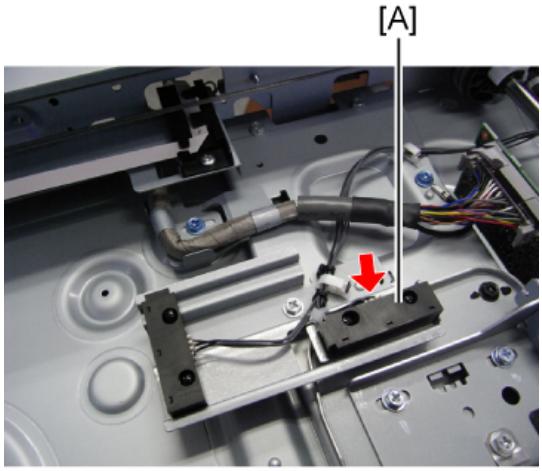
d120r131

3. Remove the SBU right cover [A] (x3).



d120r132

4. Remove the SBU cover [A] (x3).



d120r515

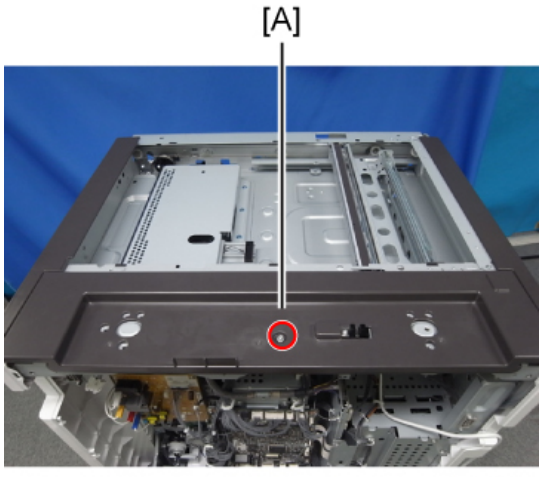
5. Replace the original length sensor [A] (snap, x1).

4.5.3 SCANNER LAMP

Important

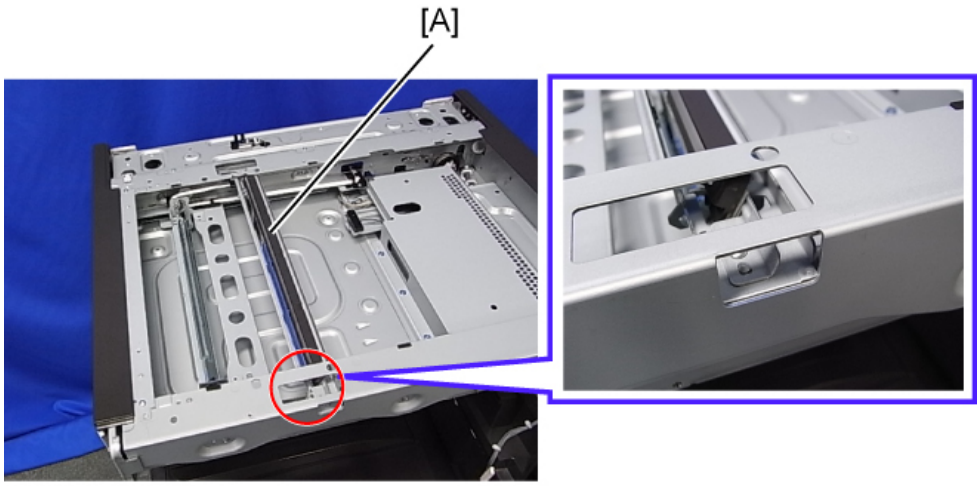
- Before replacing the scanner lamp, check and note the first three digits in the bar-code on the new scanner lamp. (☛ p.4-18 "Chromaticity rank adjustment")

1. Remove:
   - ADF or platen cover
   - Exposure glass (☛ p.4-14 "Exposure Glass")
   - Operation panel (☛ p.4-11 "Operation Panel")
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover")



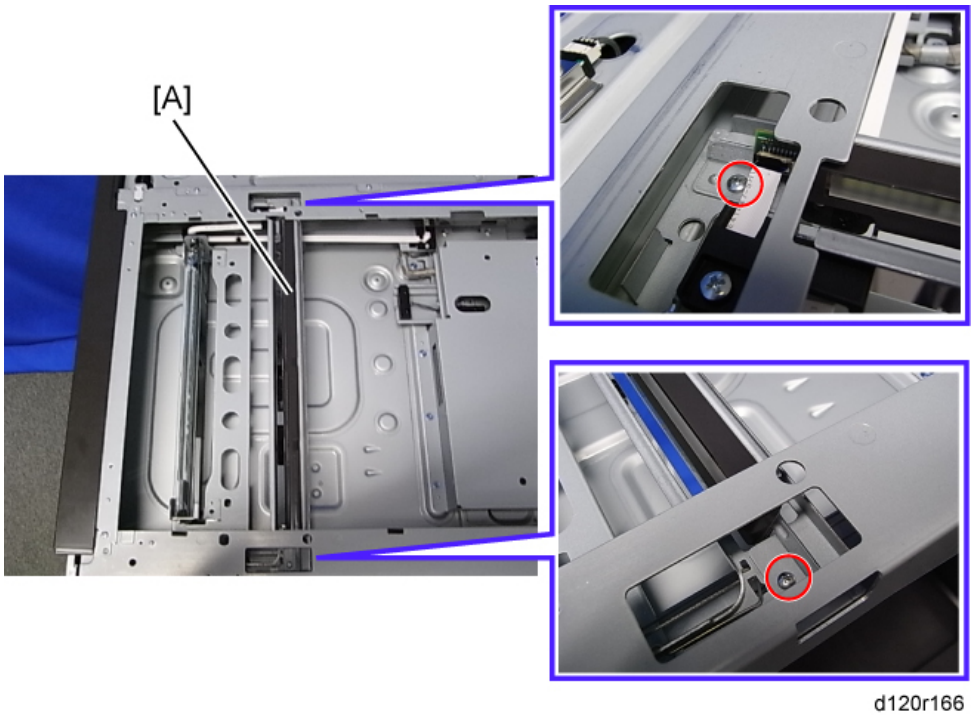
d120r168

2. Remove the scanner rear cover (x 1).



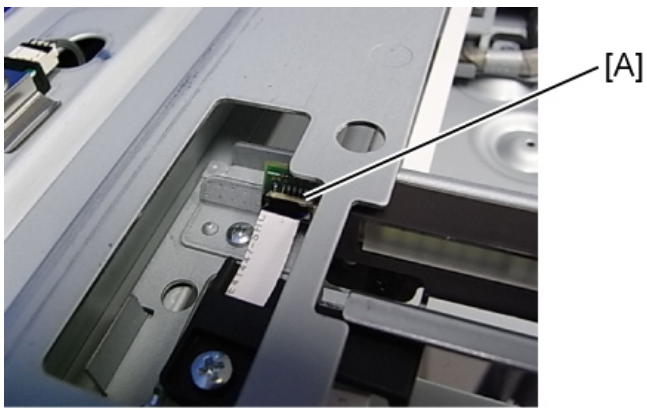
d120r165

3. Move the scanner carriage [A] to the position shown above.



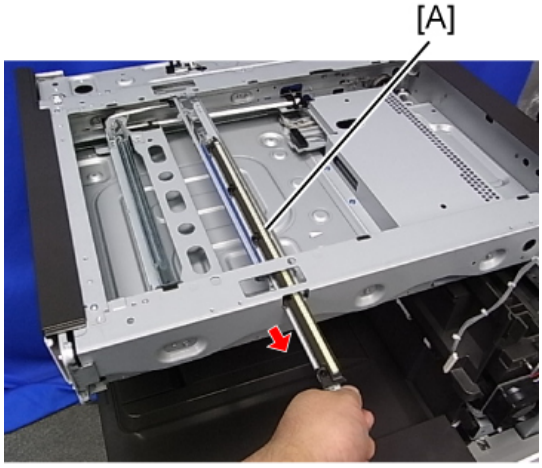
d120r166

4. Remove the two screws on the scanner lamp [A].



d120r130

5. Disconnect the connector [A] (x1).

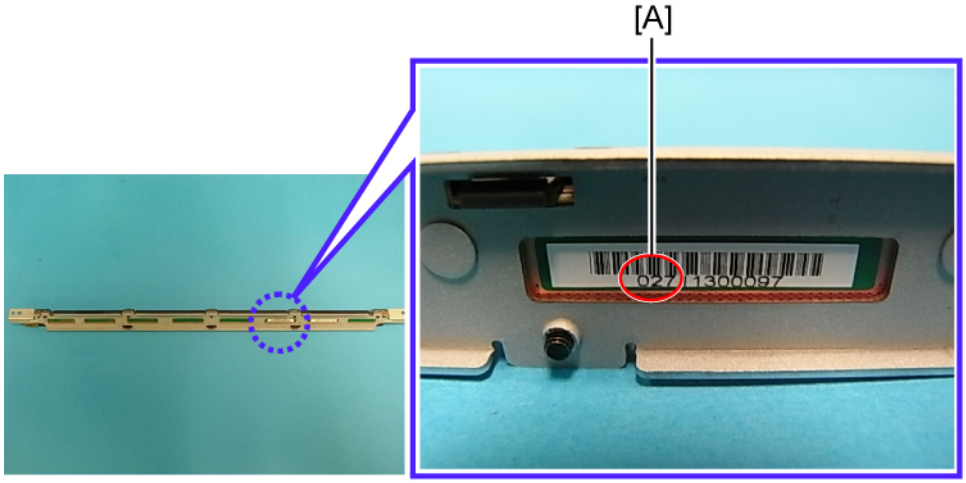


d120r167

6. Pull out the scanner lamp [A].

Chromaticity rank adjustment

Each scanner lamp has a specific chromaticity rank. The chromaticity rank is indicated by the bar-code on the new scanner lamp. After replacing the lamp, adjust the chromaticity rank to correspond to the new scanner lamp.



d120r169

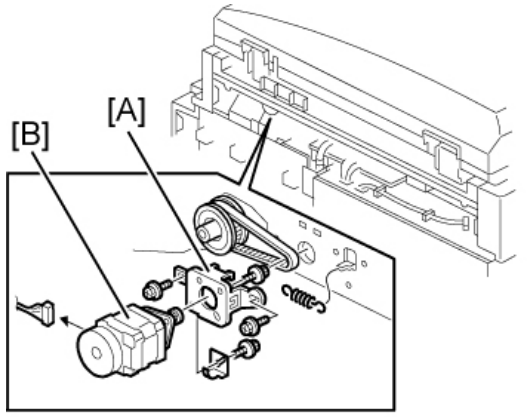
1. Check the first three digits [A] in the bar-code on the new scanner lamp before installing the new lamp.
2. After installing the new lamp, go to SP4-954-005 and enter the SP setting number referring to the table below.

1st Three Digits	SP Setting (SP4-954-005)	1st Three Digits	SP Setting (SP4-954-005)
020	3	047	12
021	2	048	11
022	1	049	10
023	6	050	15
024	5	051	14
025	4	052	13
026	9	053	18
027	8	054	17
028	7	055	16
029	12	186	3
030	11	187	2
031	10	188	1
032	15	189	6
033	14	190	5
034	13	191	4
035	18	192	9
036	17	193	8
037	16	194	7
038	3	195	12
039	2	196	11
040	1	197	10
041	6	198	15
042	5	199	14

1st Three Digits	SP Setting (SP4-954-005)	1st Three Digits	SP Setting (SP4-954-005)
043	4	200	13
044	9	201	18
045	8	202	17
046	7	203	16

4.5.4 SCANNER MOTOR

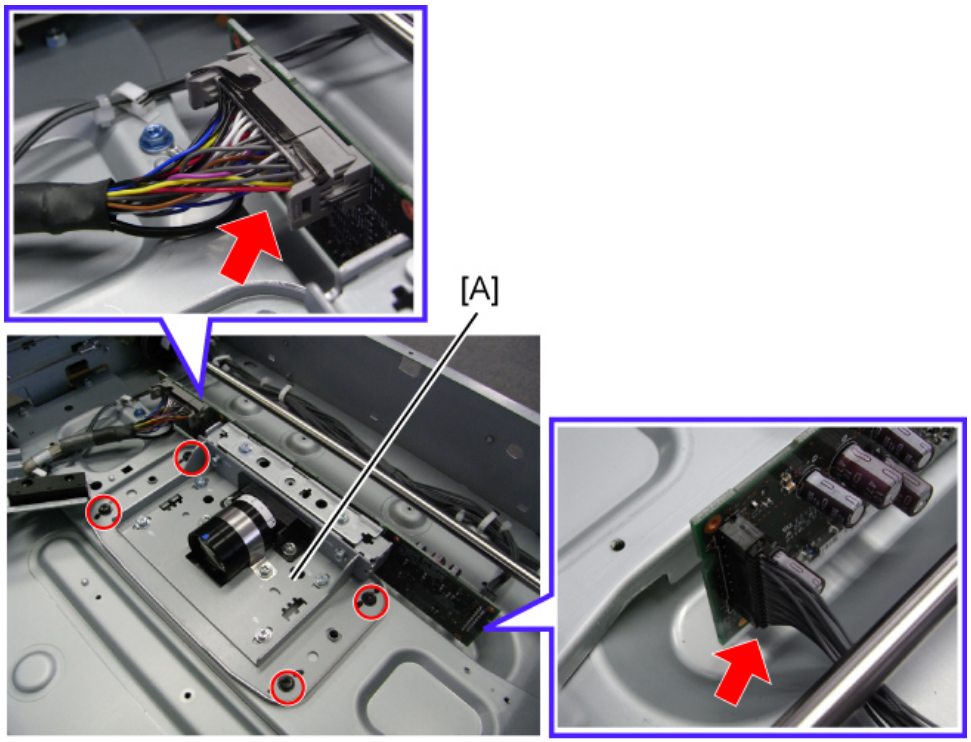
1. Remove the upper rear cover. (☛ p.4-8 "Upper Rear Cover")



2. Remove the scanner motor assembly [A] (x 2, x 1, spring x 1).
3. Replace the scanner motor [B] (x 2)

4.5.5 LENS BLOCK UNIT

1. Remove:
   - Exposure glass (☛ p.4-14 "Exposure Glass")
   - SBU right cover (☛ p.4-15 "Original Length Sensors")
   - SBU cover (☛ p.4-15 "Original Length Sensors")

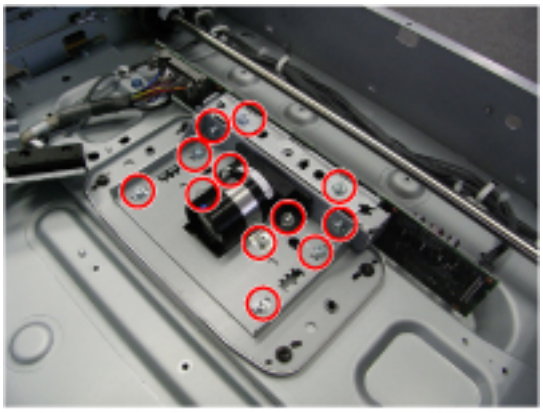


d120r112

2. Replace the lens block unit [A] (x 4, x 2).

Important

- Do not remove the other screws on the lens block unit



d120r158

When reassembling

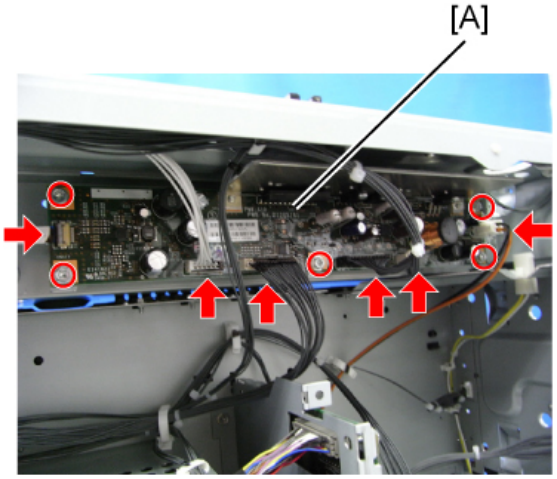
Adjust the following SP modes after you replace the sensor board unit:

- SP4–008 (Sub Scan Mag.)
- SP4–010 (Sub Scan 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.

4.5.6 SIO BOARD

1. Remove the upper rear cover. (☛ p.4-8 "Upper Rear Cover").

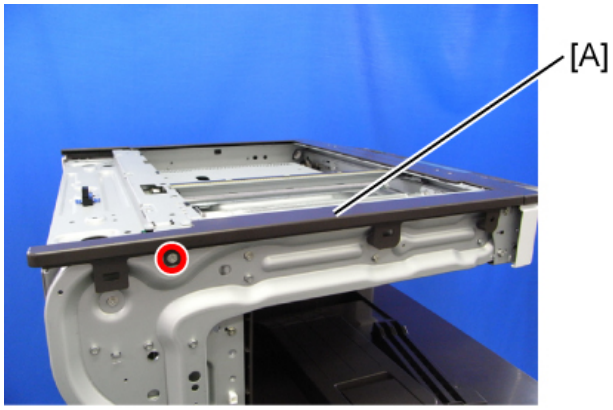


d120r103

2. Replace the SIO Board [A] (x 5, x 6).

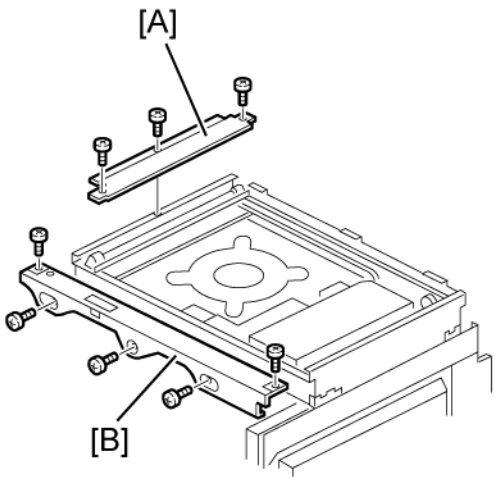
4.5.7 FRONT SCANNER WIRE

1. Remove:
   - Exposure glass (☛ p.4-14 "Exposure Glass")
   - Upper rear cover (☛ p.4-8 "Lower Rear Cover")
   - Upper left cover (☛ p.4-7 "Upper Left Cover")



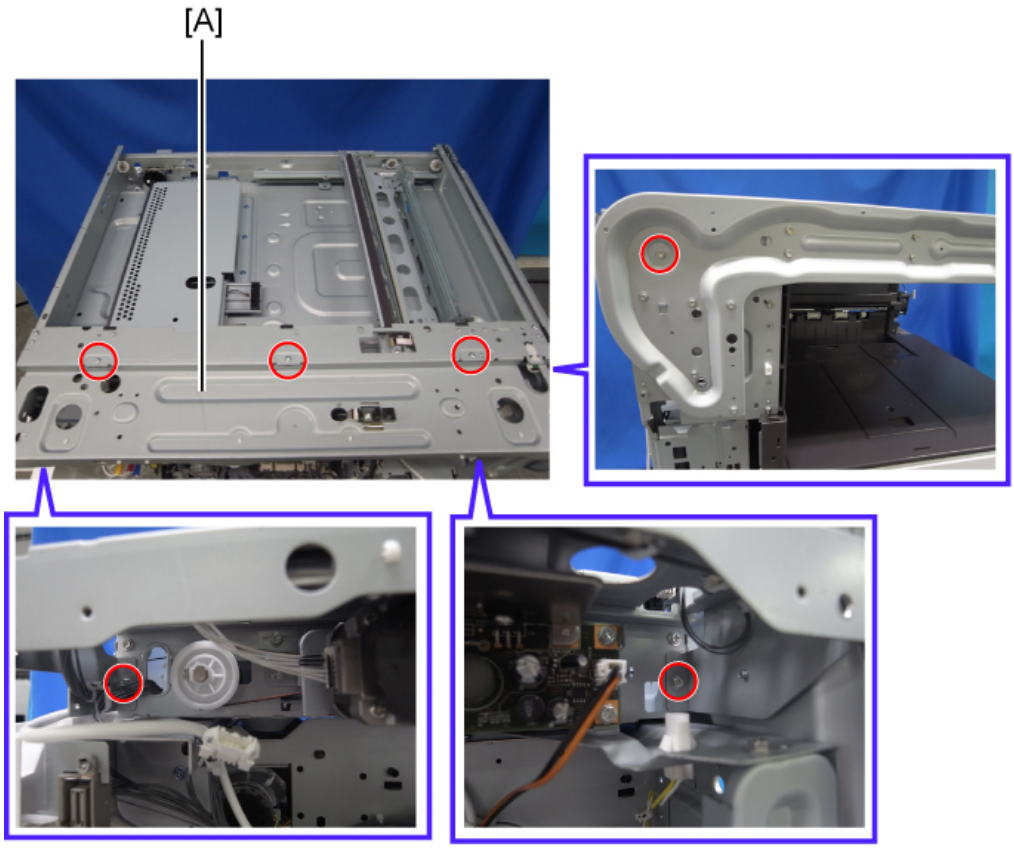
d120r128

2. Remove the scanner left cover [A] (x1).
3. Remove the operation panel. (☛ p.4-11 "Operation Panel")
4. Remove the scanner rear cover (☛ p.4-16 "Scanner Lamp")



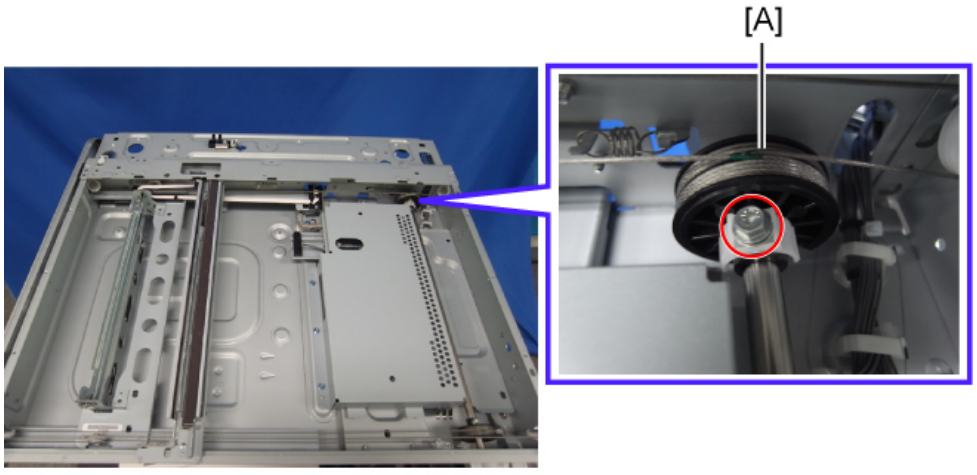
d120r101

5. Remove the left stay [A] (x3).
6. Remove the front stay [B] (x5).



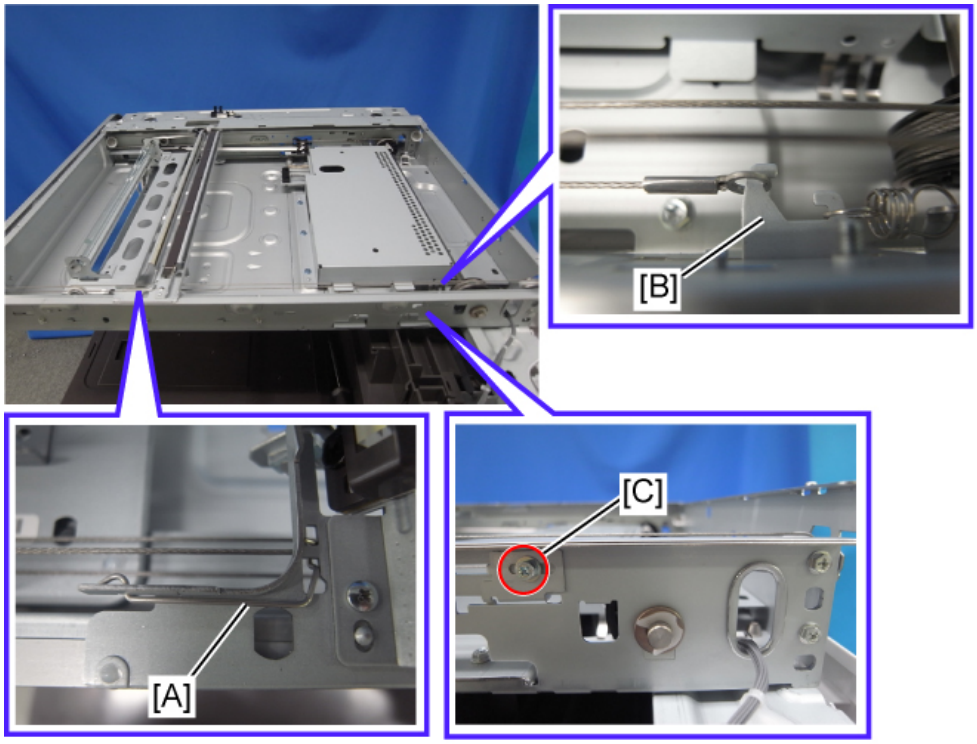
d120r193

7. Remove the rear stay [A] (x6, x all).
8. Remove the scanner motor assembly. (☛ p.4-20 "Scanner Motor")



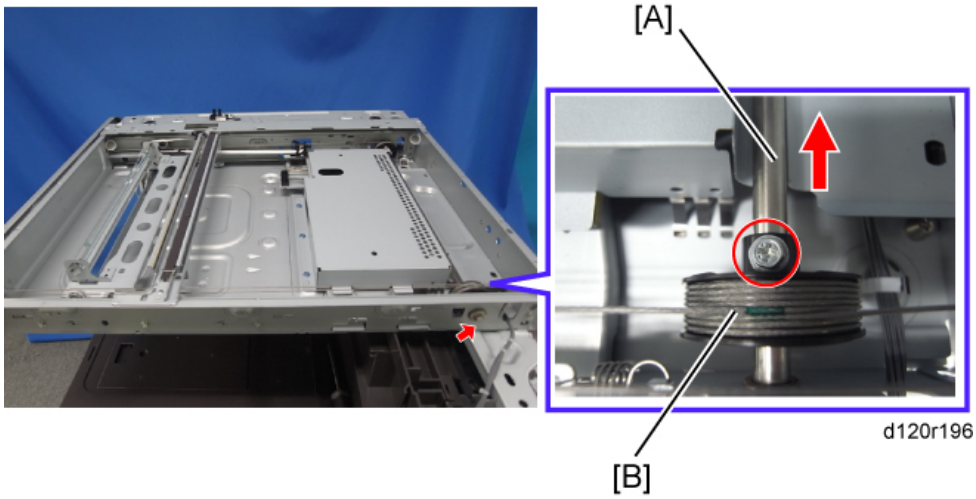
d120r102

9. Remove the rear scanner drive pulley [A] (x 1).



d120r195

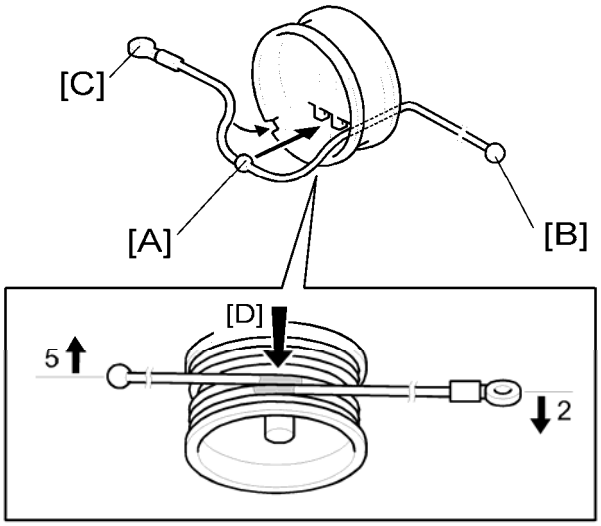
10. Remove the front scanner wire clamp [A].
11. Loosen the front scanner wire bracket [B] with screw [C].



d120r196

12. Remove the front scanner wire.
13. Move the shaft [A] in the red arrow direction (x 1: at front), and remove the scanner drive pulley [B] (x 1).

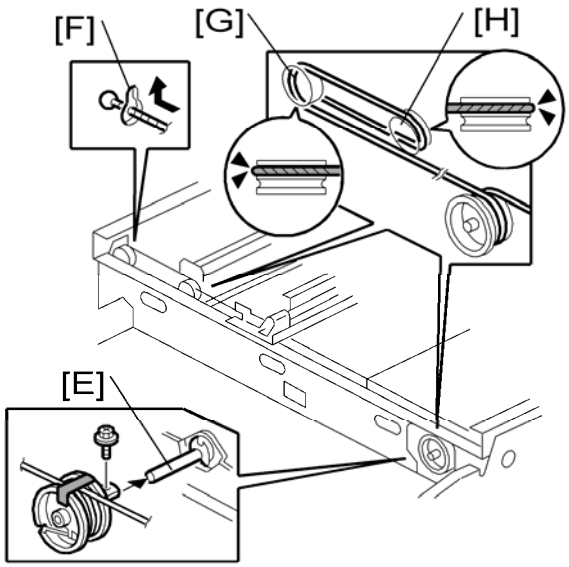
Reinstalling the Front Scanner Wire



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.

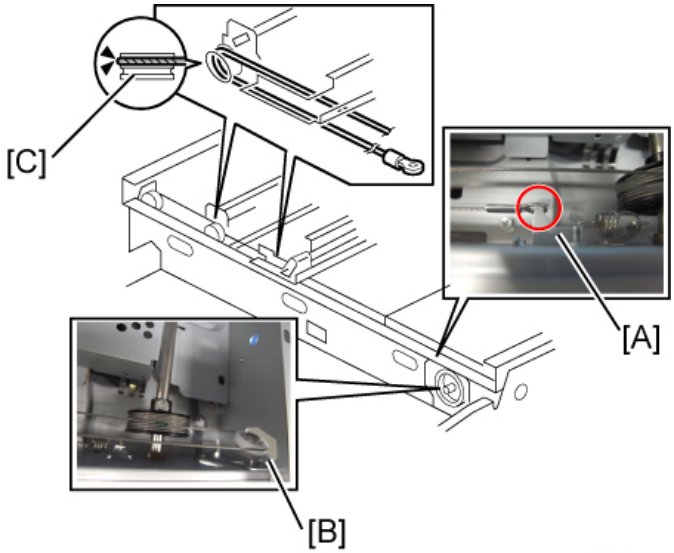


4. Install the drive pulley on the shaft [E].

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].

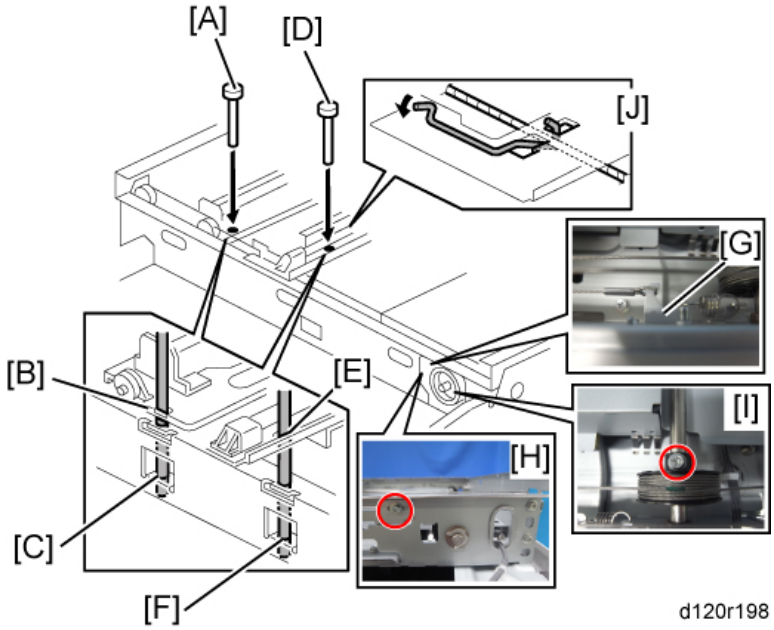


d120r197

6. Hook the right end onto the front scanner wire bracket [A]. The end should go via the front track of the right pulley [B] and the front track of the movable pulley [C].

Note

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



d120r198

7. Remove the tape from the drive pulley.
8. Insert a scanner-positioning pin [A] through the 2nd carriage hole [B] and the left holes [C] in the front rail. Insert another scanner positioning pin [D] through the 1st carriage hole [E] and the right holes in the front rail [F].
9. Insert two more scanner positioning pins through the holes in the rear rail.
10. Screw the drive pulley to the shaft [I].

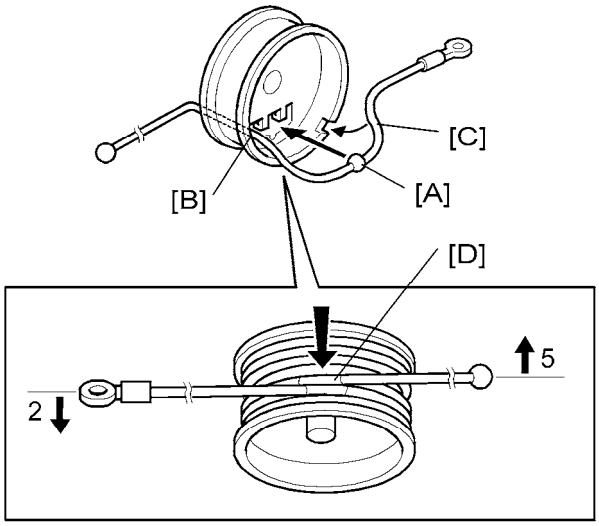
11. Screw the scanner wire bracket [G] to the front rail with screw [H].
12. Install the scanner wire clamp [J].
13. Pull out the positioning pins.

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.

4.5.8 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.

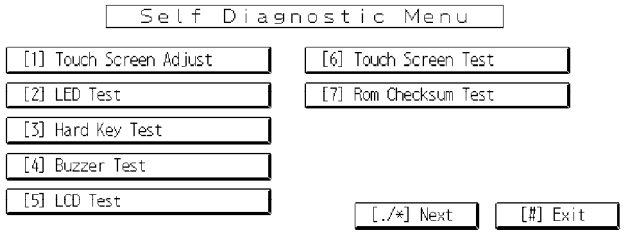
4.5.9 TOUCH PANEL POSITION ADJUSTMENT

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

- Operation panel
- Controller board

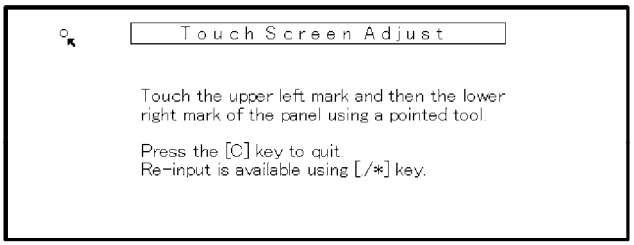
Do not use items [2] to [9] on the Self-Diagnostic Menu. These items are for design use only.

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.

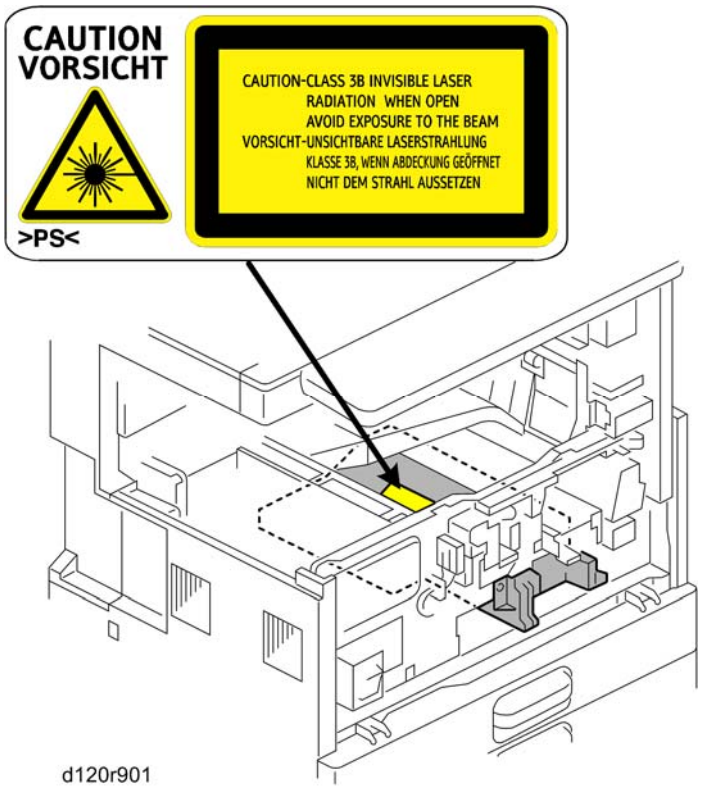
4.6 LASER UNIT

⚠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.

4.6.1 CAUTION DECAL LOCATIONS

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

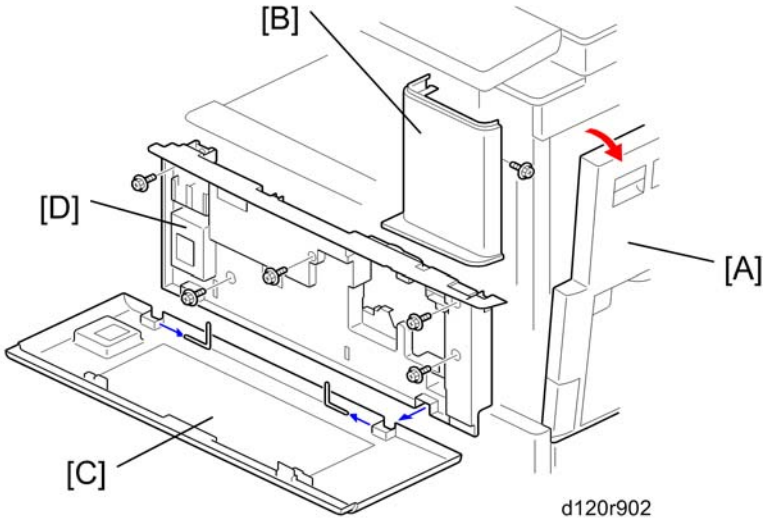


4.6.2 LASER UNIT

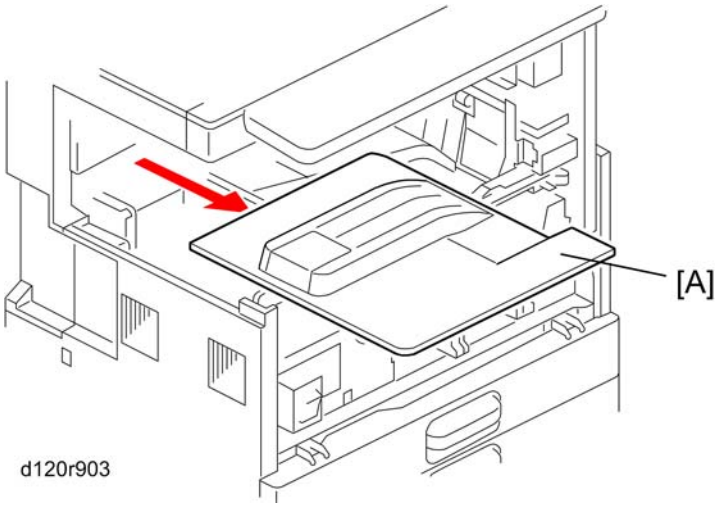
⚠WARNING

- 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.

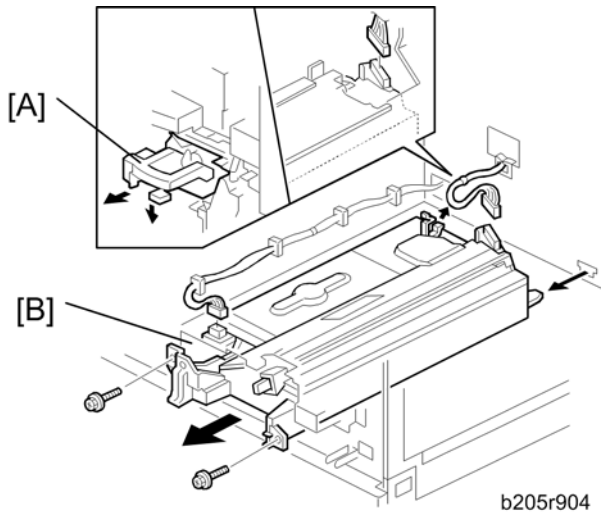
1. Remove the following options if these have been installed.
   - Finisher
   - Bridge unit
   - Optional shift tray



2. Open the duplex unit [A].
3. Remove the upper front cover [B] (x1, Hook x1).
4. Remove the front cover [C] (Pins x2).
5. Remove the front inner cover [D] (x5).



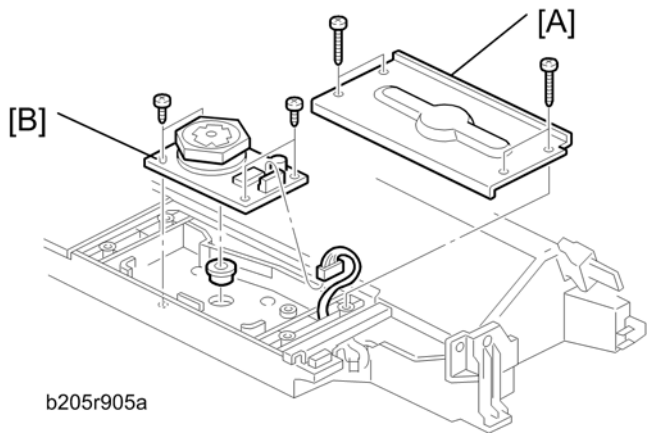
6. Remove the output tray [A] (Hook x1).



7. Remove the toner supply unit [A].
8. Remove the laser unit [B] (x2, x2, x1).

4.6.3 POLYGON MIRROR MOTOR

1. Remove the laser unit (p.4-32 "Laser Unit").



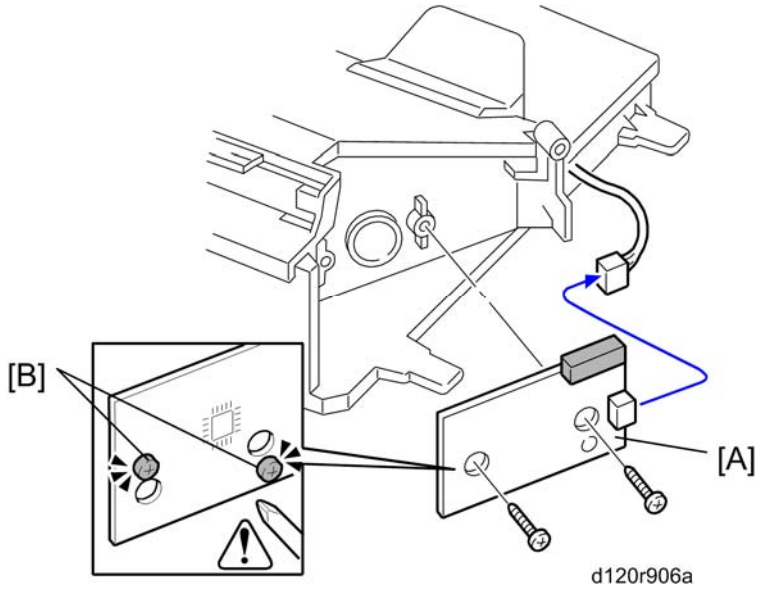
2. Remove the heat sink [A] (x4).
3. Replace the polygon mirror motor [B] (x4, x1).

Note

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

4.6.4 LD UNIT

1. Remove the laser unit. (☛p.4-32 "Laser Unit")



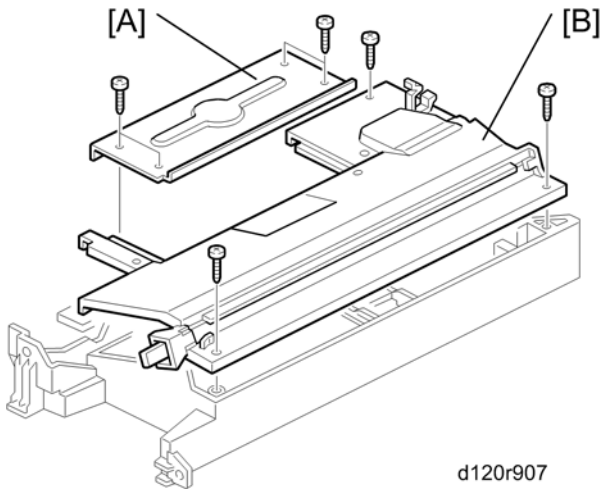
2. Replace the LD unit [A] (x2, x1).

Note

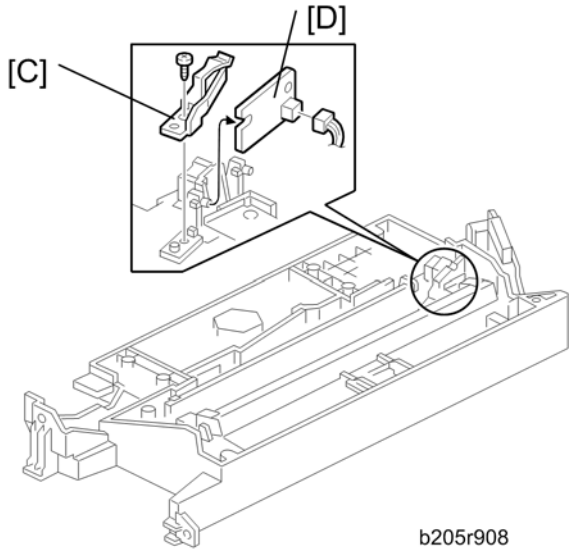
- Do not touch any variable resistors on the LD unit.
- Do not loose the screws [B].

4.6.5 LASER SYNCHRONIZATION DETECTOR

1. Remove the laser unit. (☛p.4-32 "Laser Unit")



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

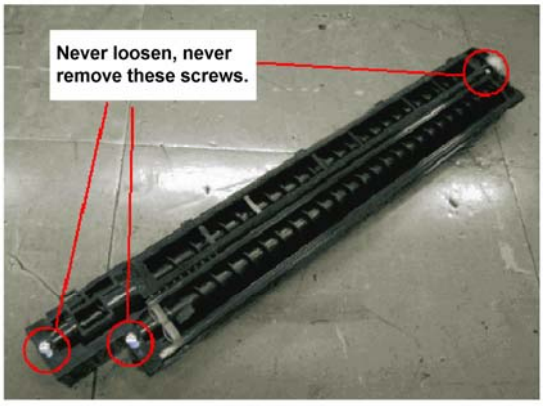


4. Remove the bracket [C] (x1).
5. Replace the laser synchronization detector [D] (x1).

4.7 PHOTOCONDUCTOR UNIT (PCU)

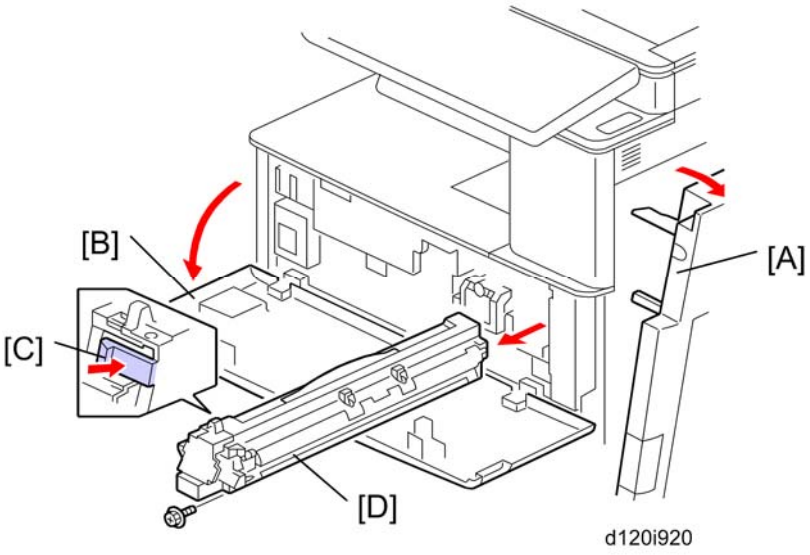
⚠CAUTION

- 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

4.7.1 PCU REMOVAL



d120i920

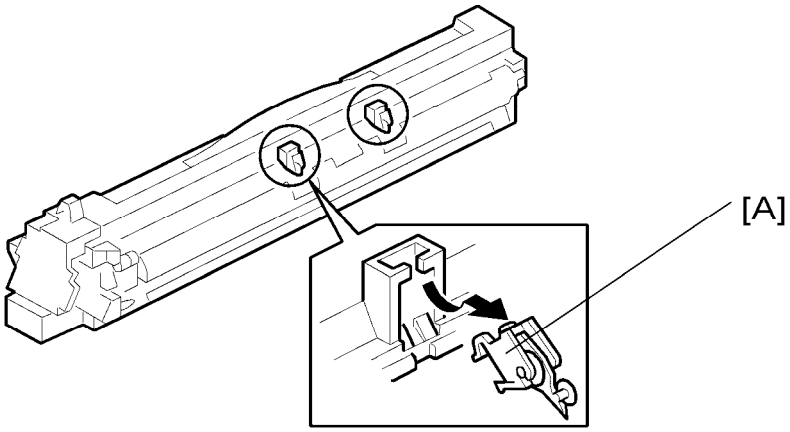
1. Open the right cover [A] and front cover [B].
2. Push the latch [C] and replace the PCU [D] (x 1).

Note

- Do not touch the drum surface with bare hands.

4.7.2 PICK-OFF PAWLS

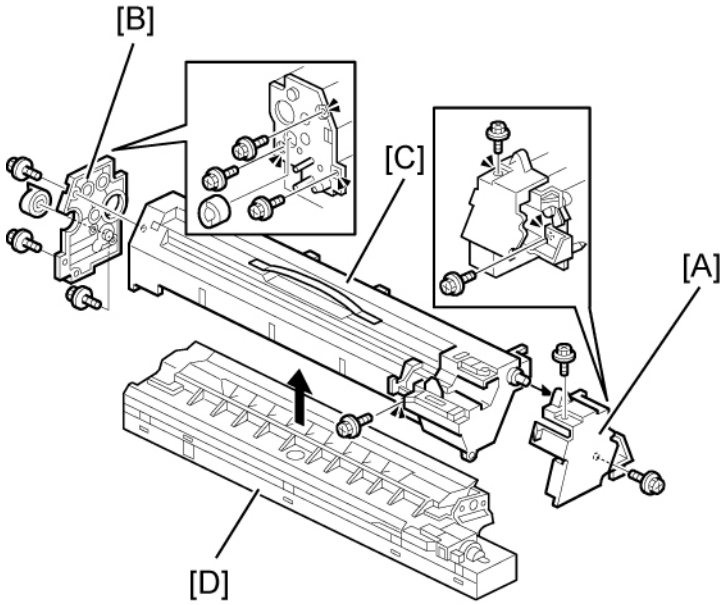
1. Remove the PCU. (☛ p.4-36 "PCU Removal")



2. Hold the pawl [A] by its sides, pull it down and slowly twist it away from the PCU.

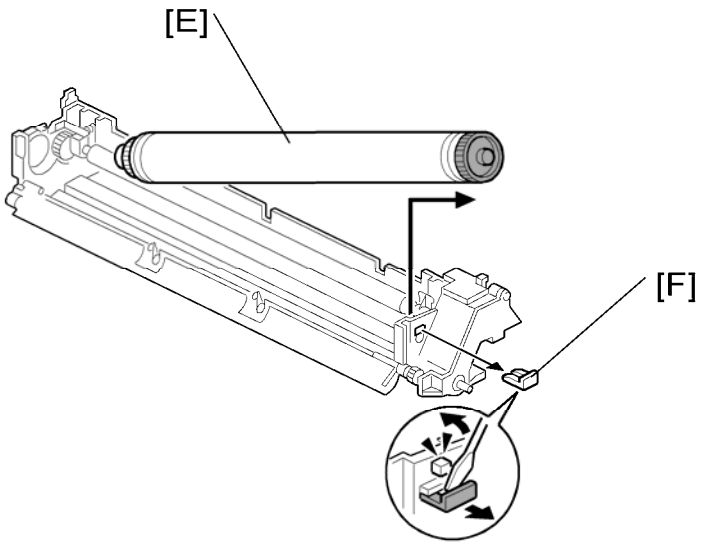
4.7.3 OPC DRUM

1. Remove the PCU. (☛ p.4-36 "PCU Removal")



d120r170

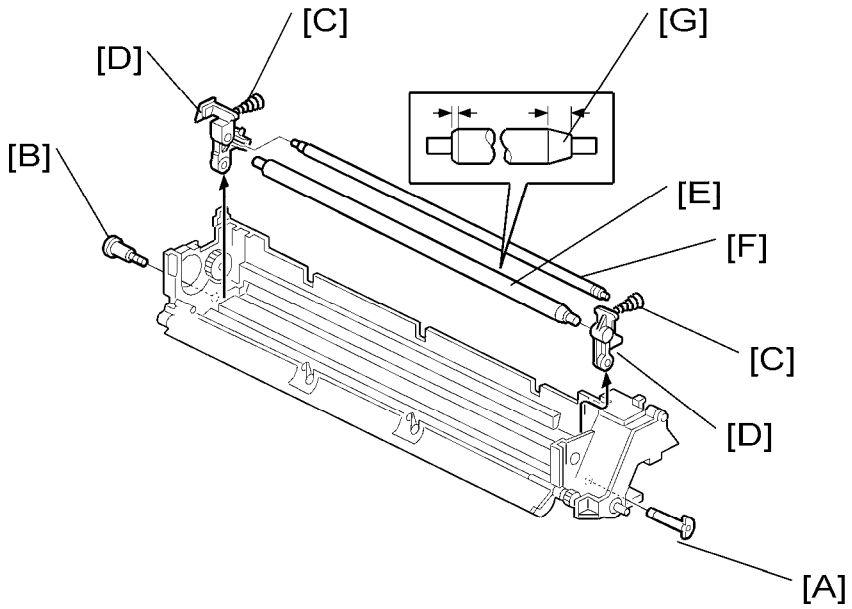
2. Remove the front cover [A] (x2).
3. Remove the rear cover [B] (x3, Coupling x1).
4. Remove the top part [C] (x1).
5. Remove the bottom part [D].



6. Replace the drum [E] (White clip x1 [F]).

4.7.4 CHARGE ROLLER, CLEANING ROLLER

1. Remove:
   - PCU (☛ p.4-36 "PCU Removal")
   - OPC drum (☛ p.4-38 "OPC Drum")



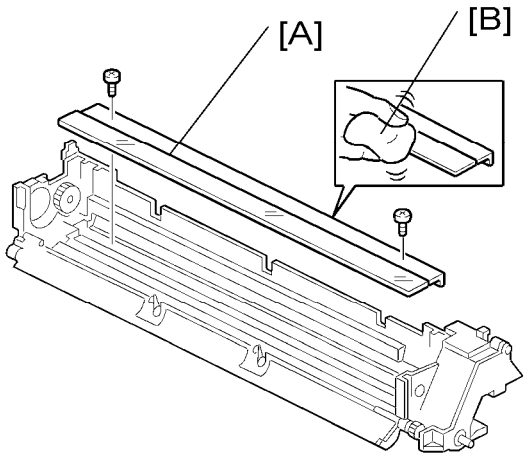
2. Remove the front stud [A].
3. Remove the rear shoulder screw [B] (x1).
4. Release the front and rear springs [C].
5. Remove the roller assembly [D] (Springs x2, Arms x2, Rollers x2)
6. Replace the charge roller [E].
7. Replace the cleaning roller [F].

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.

4.7.5 CLEANING BLADE

1. Remove:
   - PCU (☛ p.4-36 "PCU Removal")
   - OPC drum (☛ p.4-38 "OPC Drum")
   - Charge roller and cleaning roller (☛ p.4-39 "Charge Roller, Cleaning Roller ")



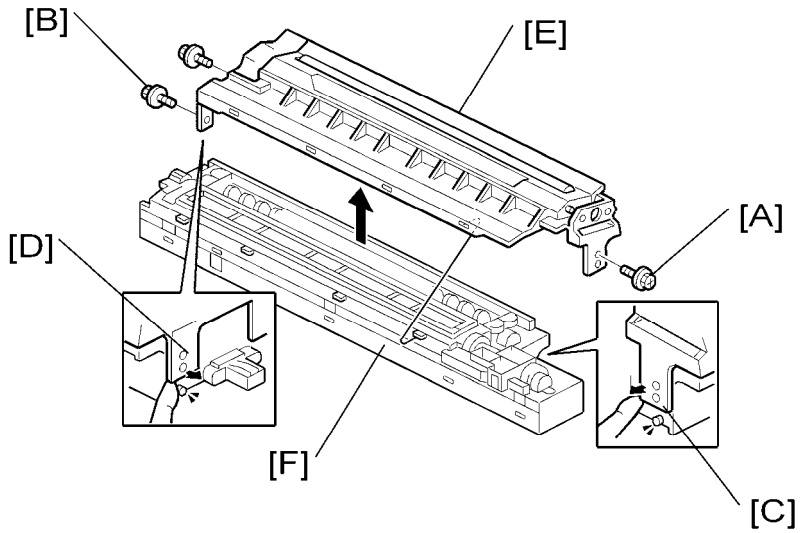
2. Replace the cleaning blade [A] (x2)

Reinstallation: Cleaning Blade

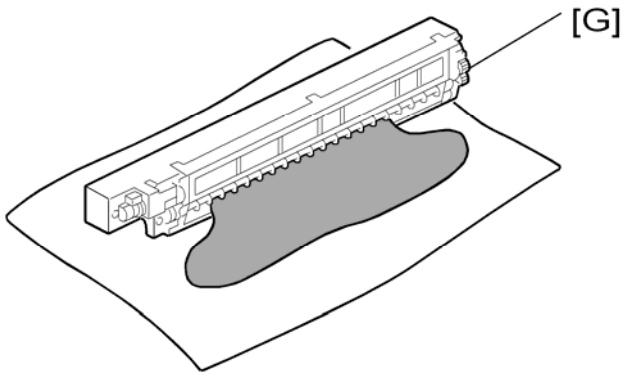
- To prevent damage to the new cleaning blade and OPC drum, apply some toner to the edge of the new blade [B].
- Install the new blade. Remove some toner from the edge of the old blade with your finger, and apply it evenly along the full length of the new blade.

4.7.6 DEVELOPER

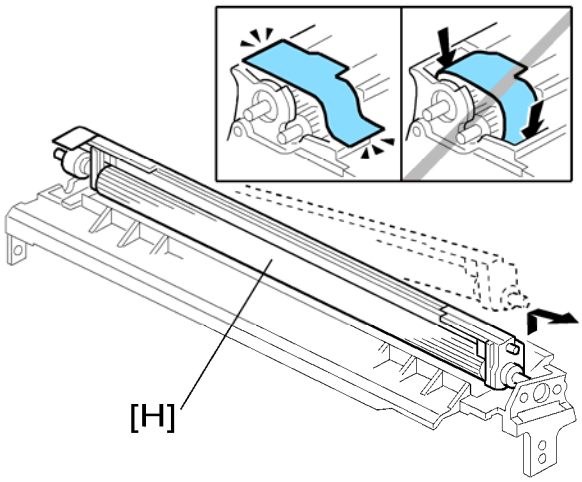
1. Spread the vinyl sheet provided with the developer kit on a flat surface.
2. Separate the top and bottom parts of the PCU. (☛ p.4-38 "OPC Drum")
3. Set the bottom on the vinyl sheet.



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.



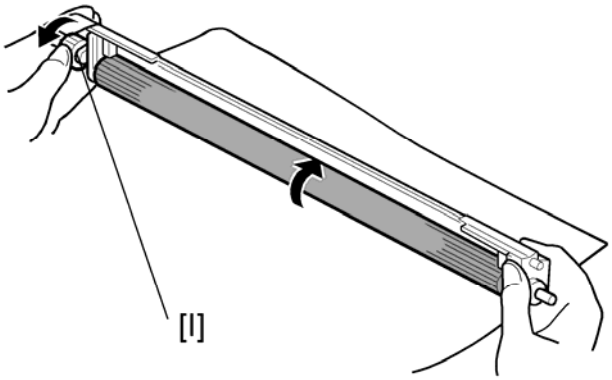
9. Turn the gears [G] to remove the developer from the bottom half.



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

Important

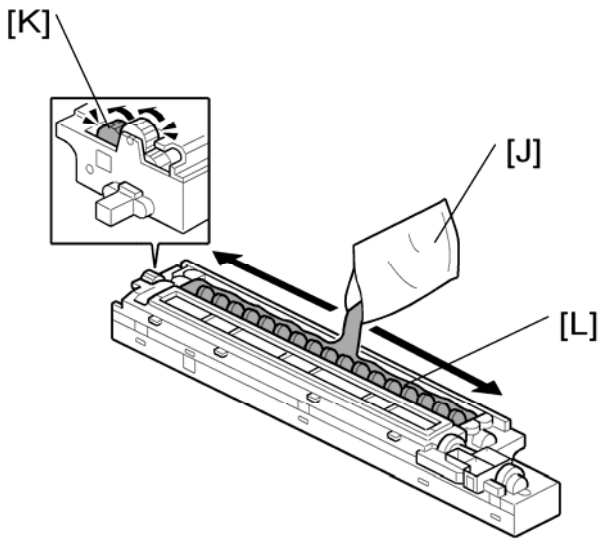
- At reinstallation, make sure that the mylar is positioned as shown.



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.

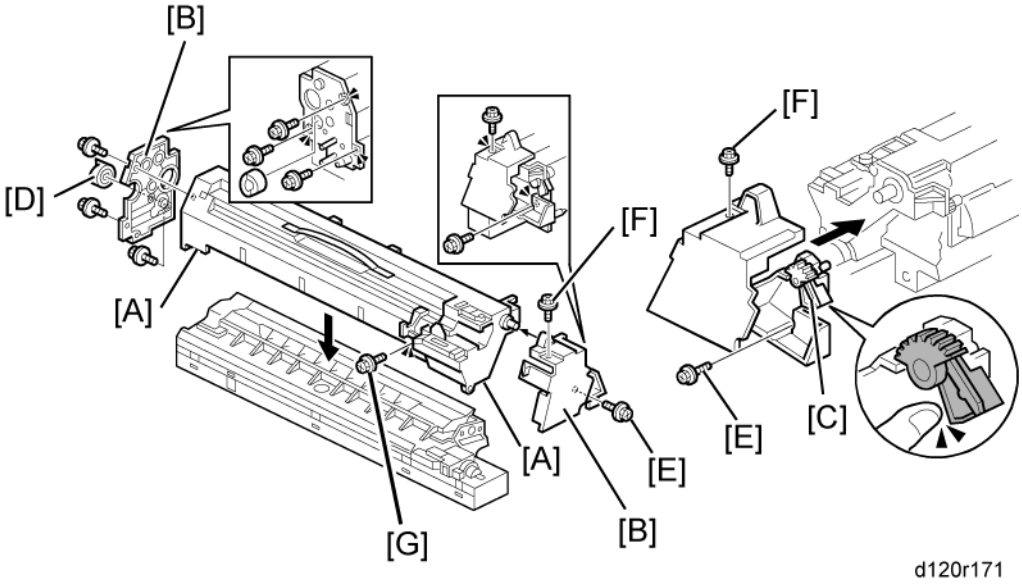
While continuing to turn the black gear, slowly move the pack left and right and pour the remaining half of the developer over the augur until the developer is level.

Important

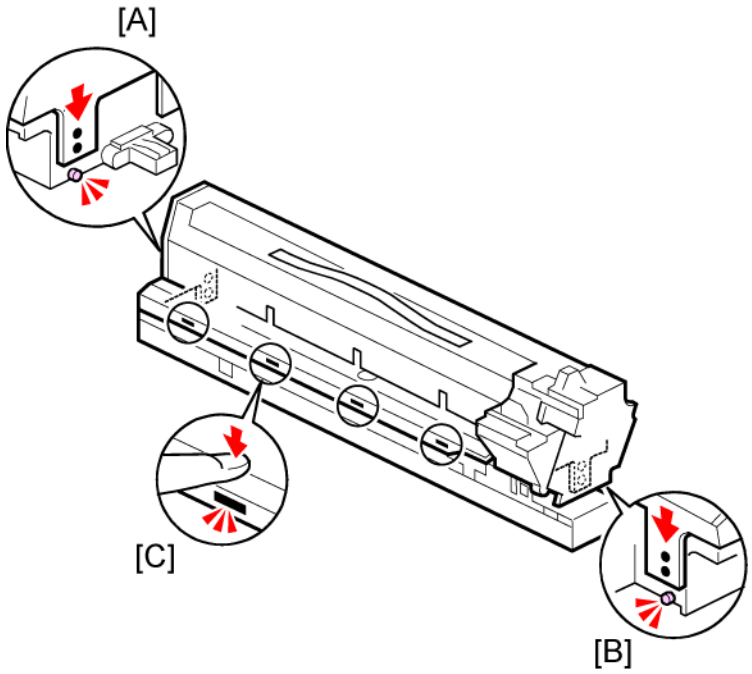
- Be careful. Do not spill developer on the gears or sponges.
- If you accidentally spill developer on the gears or sponges, remove it with a magnet or the tip of a magnetized screwdriver.

PCU Reassembly

Reassemble the PCU in this order:



1. Attach the front frame pawls and front and rear [A].
2. Set the rear cover and front cover [B].
   - Never touch the lever [C] until after the top screw has been fastened.
3. Tighten the three screws and coupling [D].
   - Never press down on the top of the PCU when you reattach the rear or front cover.
4. Tighten the lower screw [E].
   - Always install the lower screw first to maintain the correct gap between the rollers.
5. Tighten the top screw [F].
   - Lift and lower the lever [C] to make sure that the shutter opens fully and operates smoothly.
6. Attach the side screw [G].



d120r105

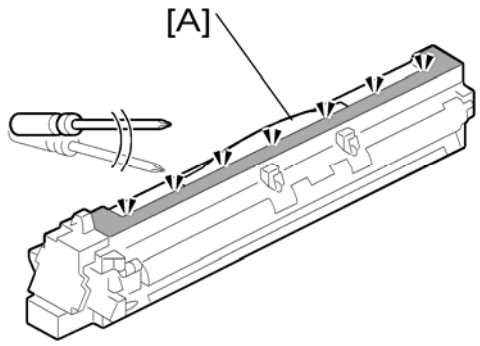
7. Make sure that all of the holes and tabs on are engaged at [A], [B], and [C]. Then push down to lock the tabs on the front and rear end of the PCU.
8. Make sure that the holes for the screws on the front and rear end of the PCU are aligned correctly. If the holes are not aligned correctly, make sure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

4.7.7 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 on the main power switch.
3. If you replaced developer, go into the SP mode and do SP2-801 (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.



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 on the main power switch, 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/$8_{1/2}$" 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 SP2-109 No.8.

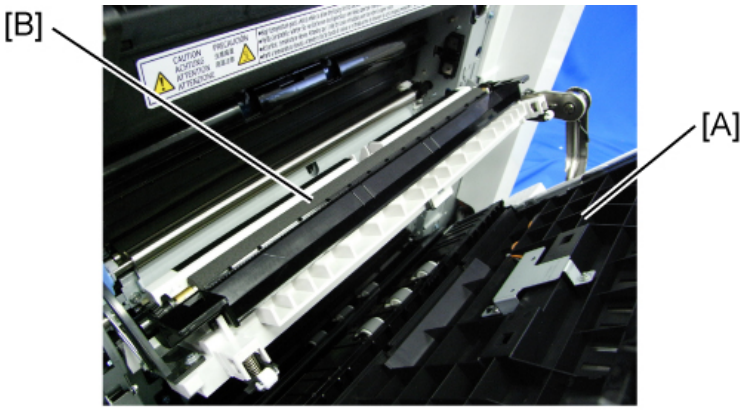
    Note
    - This step is not necessary if only the developer was replaced.

4.8 TRANSFER UNIT

CAUTION

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

4.8.1 TRANSFER ROLLER UNIT



d120r104

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

Note

- Do not touch the transfer roller surface.

4.8.2 IMAGE DENSITY SENSOR

1. Open the right cover.
2. Remove transfer roller unit. (☛ p.4-47 "Transfer Roller Unit")

d120r143

3. Displace the mylar [A] of the transfer roller guide.
4. Replace the image density sensor [B] (☞ x1).
5. After you install a new sensor, initialize the new sensor with SP2-935.

4.9 FUSING/EXIT

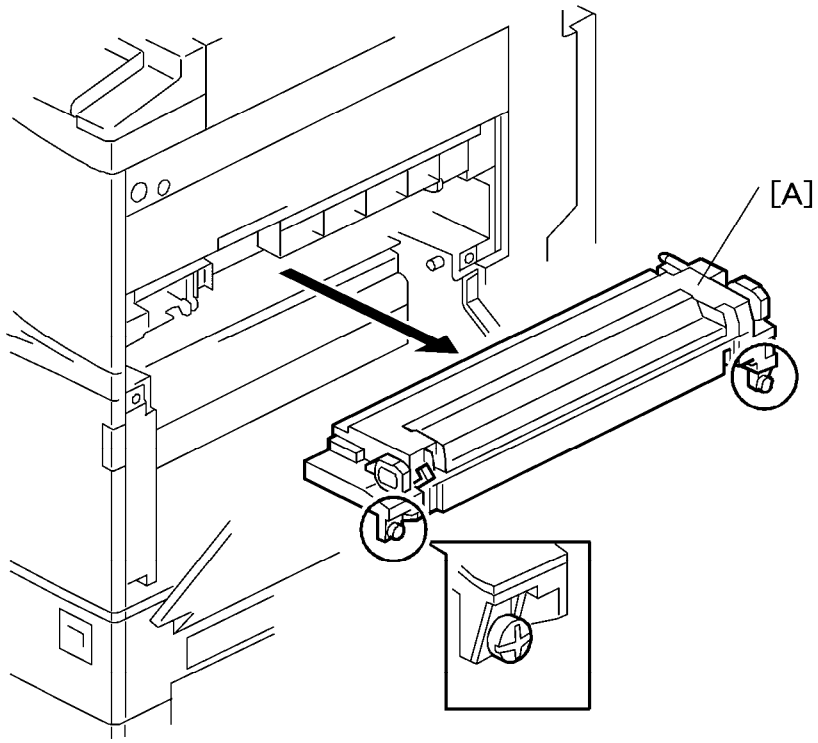
⚠CAUTION

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

4.9.1 FUSING UNIT

⚠CAUTION

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

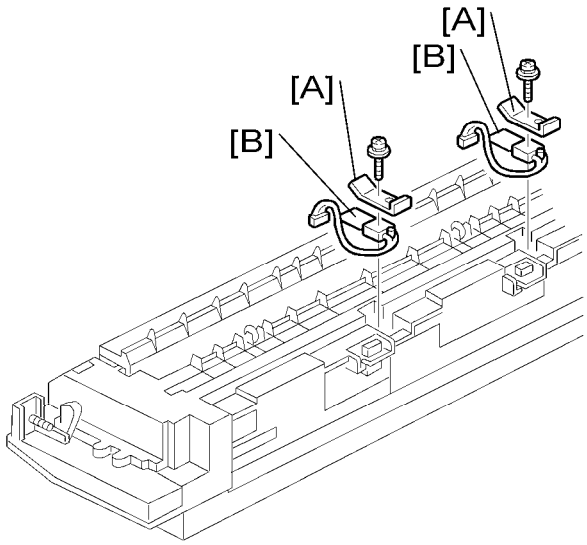


b205r932

1. Open the duplex unit.
2. Remove the fusing unit [A] (x2).

4.9.2 THERMISTORS

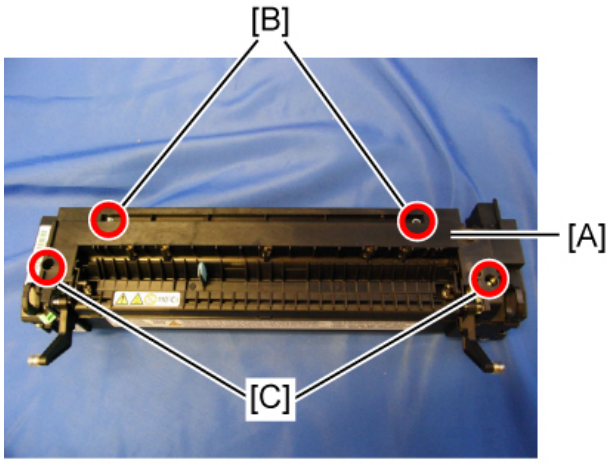
1. Remove the fusing unit. (☛ p.4-49 "Fusing Unit")



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

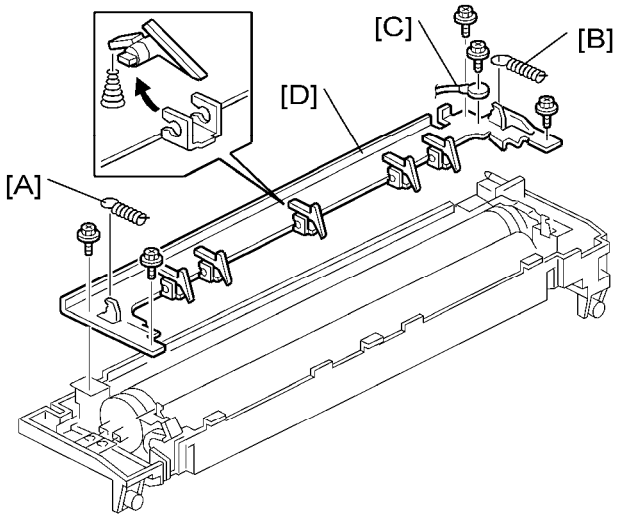
4.9.3 THERMOSTATS

1. Remove the fusing unit. (☛ p.4-49 "Fusing Unit")



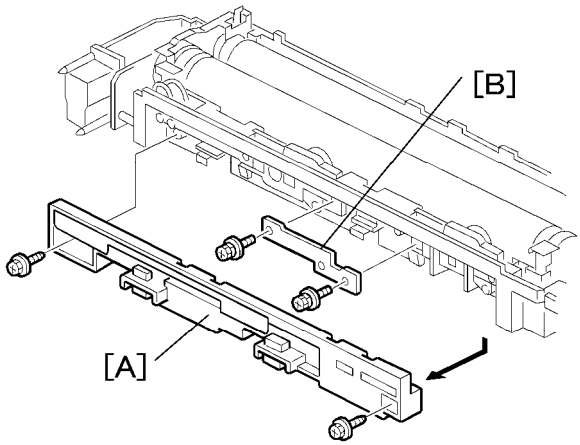
d120r113

2. Remove the fusing upper cover [A] ([B]: Screw with spring washer x2, [C]: Stud screw x2).



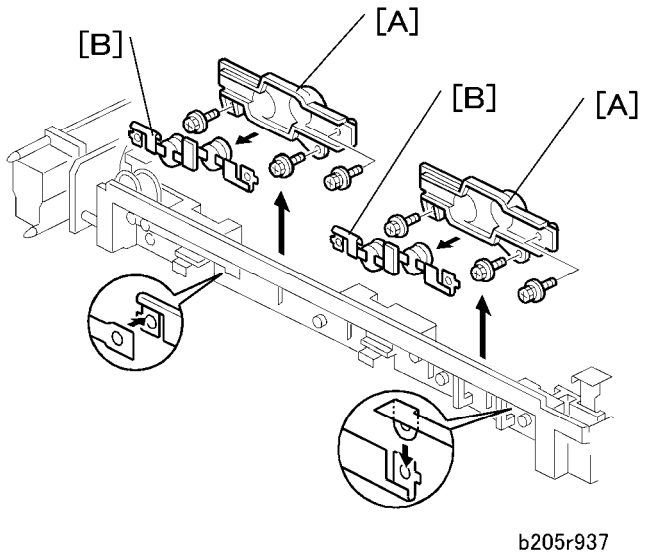
d017r504

3. Remove the pressure spring [A].
4. Remove the pressure spring [B].
5. Remove the ground wire [C] (x1).
6. Remove the hot roller stripper bracket [D] (x4).



b205r936

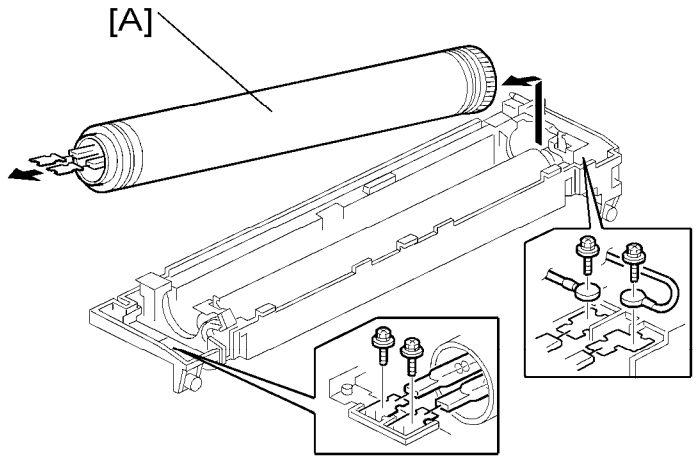
7. Remove the thermostat cover [A] (Tap x 2).
8. Remove the plate [B] (x 2 , spring washers).



9. Remove the thermostat holders [A] x2 (x3 each).
10. Replace the thermostats [B] x4.

4.9.4 HOT ROLLER AND FUSING LAMPS

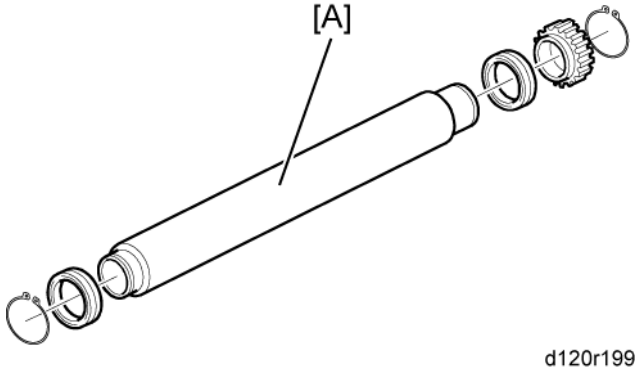
1. Remove the fusing unit. (☛ p.4-49 "Fusing Unit")
2. Remove these parts: (☛ p.4-50 "Thermostats").
   - Fusing upper cover
   - Pressure springs
   - Hot roller stripper bracket



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

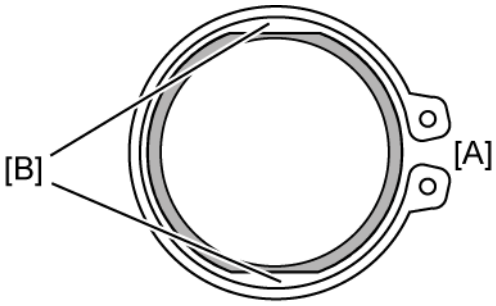
Note

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



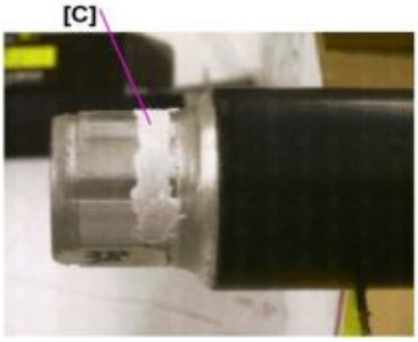
4. Replace the hot roller [A] (C-rings x2, Gear x1, Bushings x2).

Reinstallation

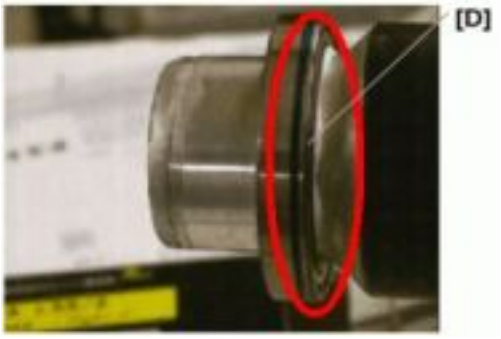


d120r200

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.



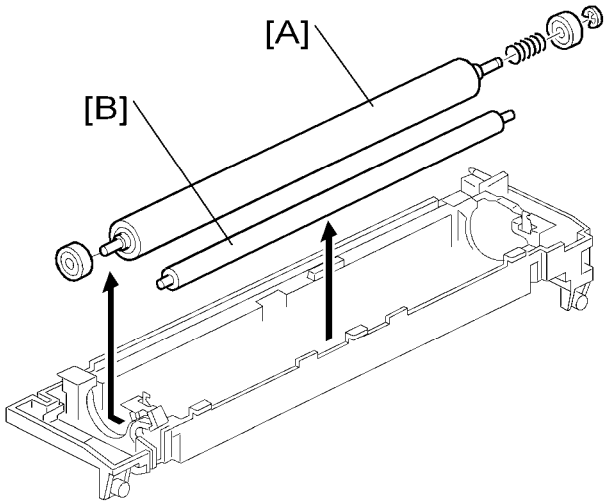
3. The grease should be visible after reattaching the bushing [D].

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.

4.9.5 PRESSURE ROLLER/CLEANING ROLLER

1. Remove the fusing lamp and hot roller assembly. (☛ p.4-53 "Hot Roller and Fusing Lamps")



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

Note

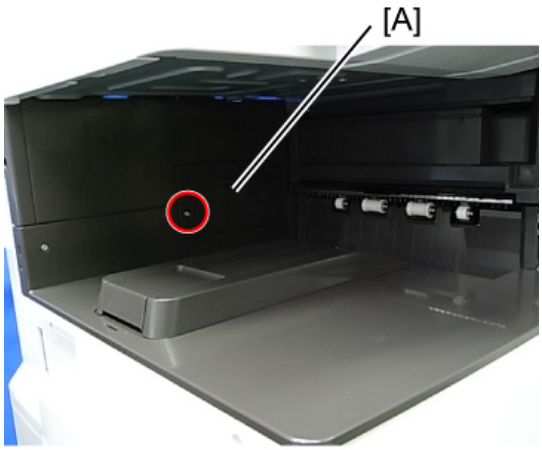
- Apply grease (Barrierta) to the inner surface of the bushing for the pressure roller.
- Do not touch the surface of the rollers.

4.9.6 PAPER EXIT SENSOR/PAPER OVERFLOW SENSOR

1. Remove:
   - Front right cover (☛ p.4-11 "Operation Panel")
   - Output tray (☛ p.4-13 "Output Tray")

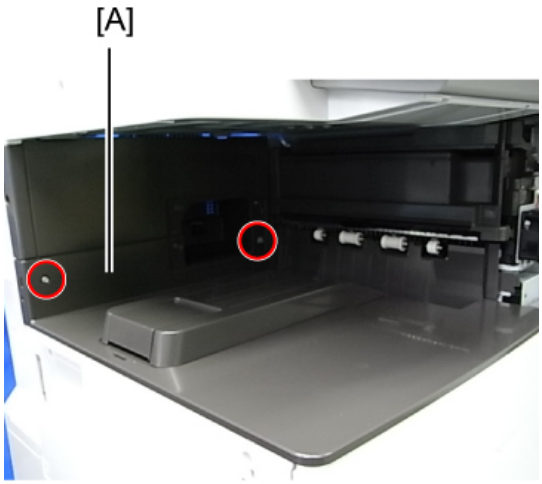
   Note

   - If the optional bridge unit, internal shift unit, or internal finisher has been installed, remove it.



d120r159

2. Remove the connector cover [A] (x1).

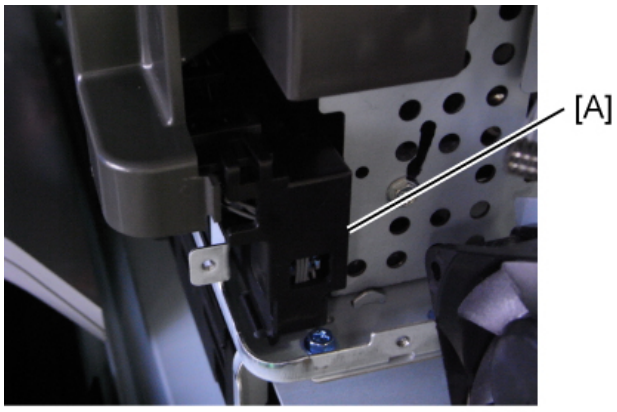


d120r160

3. Remove the inner rear cover [A] (x2).
4. Remove the paper exit cover. (☛ p.4-12 "Paper Exit Cover")

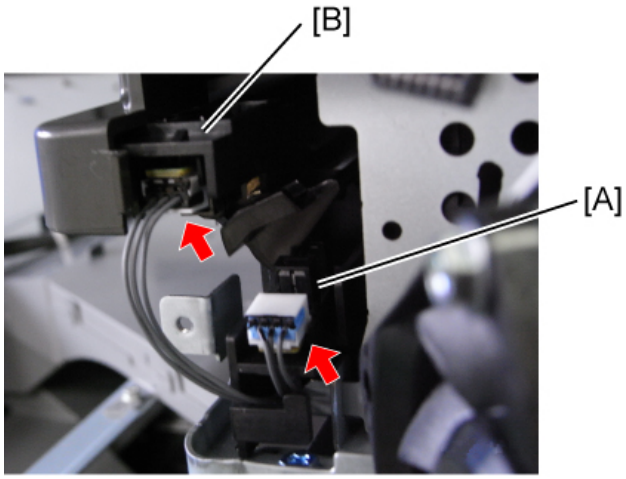
d120r133

5. Remove the paper exit lower cover [A].



d120r106

6. Remove the sensor cover [A].



d120r108

7. Replace the exit sensor [A] (x1).
8. Replace the overflow sensor [B] (x1).

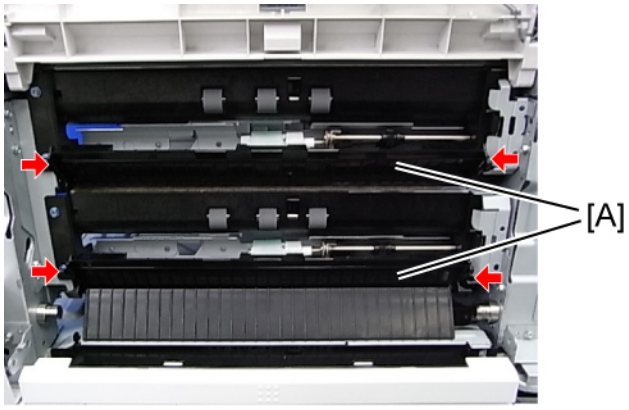
4.10 PAPER FEED

CAUTION

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

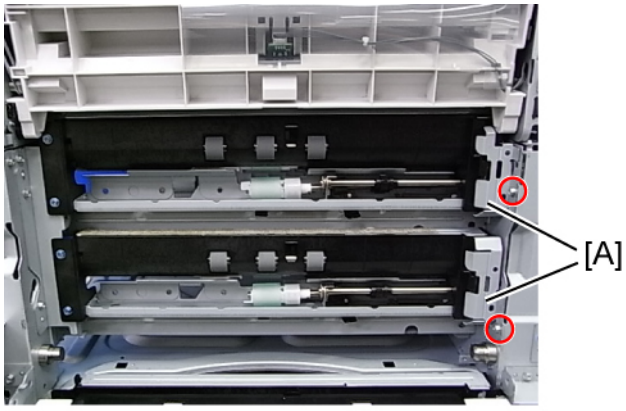
4.10.1 PAPER FEED UNIT

1. Remove:
   - Paper feed clutch (☛ p.4-66 "Paper Feed Clutch")
   - Duplex unit (☛ p.4-72 "Duplex Unit")
2. Pull out the 1st and 2nd paper trays.



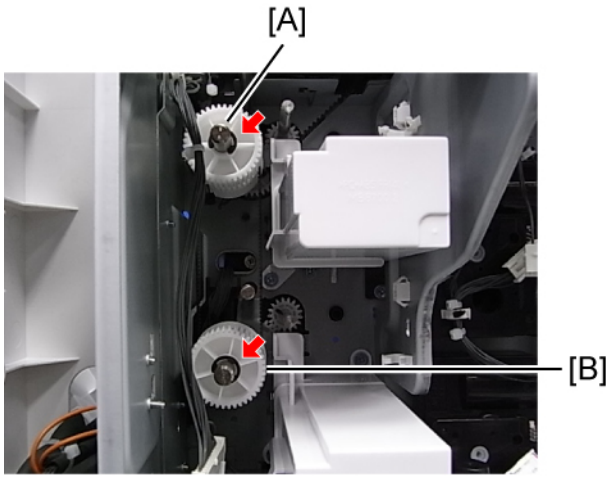
d120r172

3. Remove the paper guide plate [A] (tab x 2 each)



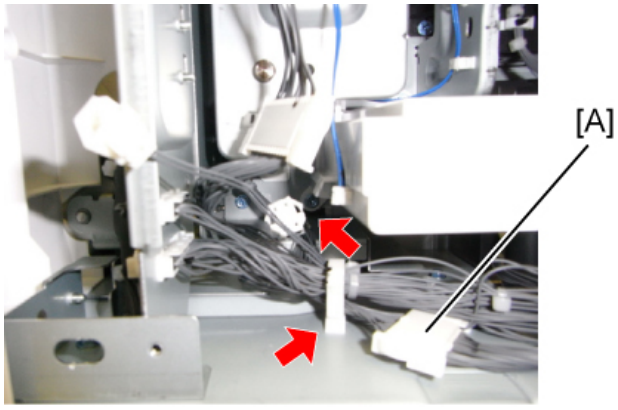
d120r173

4. Remove the harness cover [A] (x 1 each).



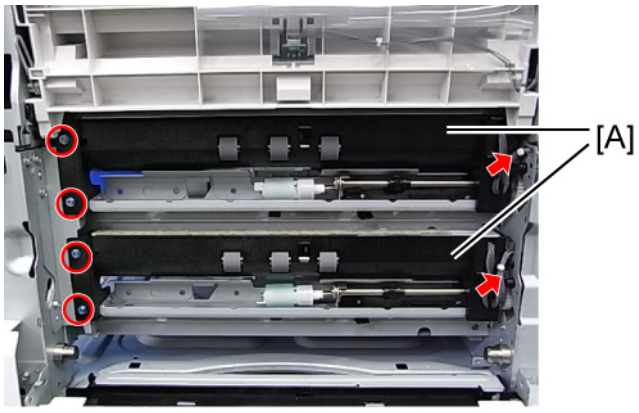
d120r174

5. Remove the upper gear [A] (x1) and lower gear [B] (x1).



d120r155

6. Remove the connector [A] (x2).



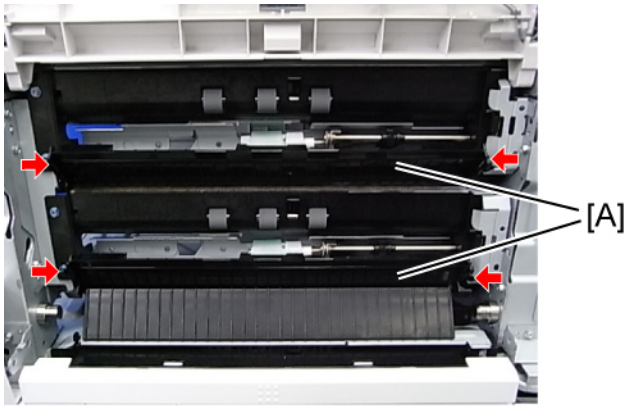
d120r175

7. Remove the paper feed unit [A] (x 2, x 1 each).
   Pull the left side of the paper feed unit, and slide it to the left.

4.10.2 SEPARATION ROLLER, FEED ROLLER

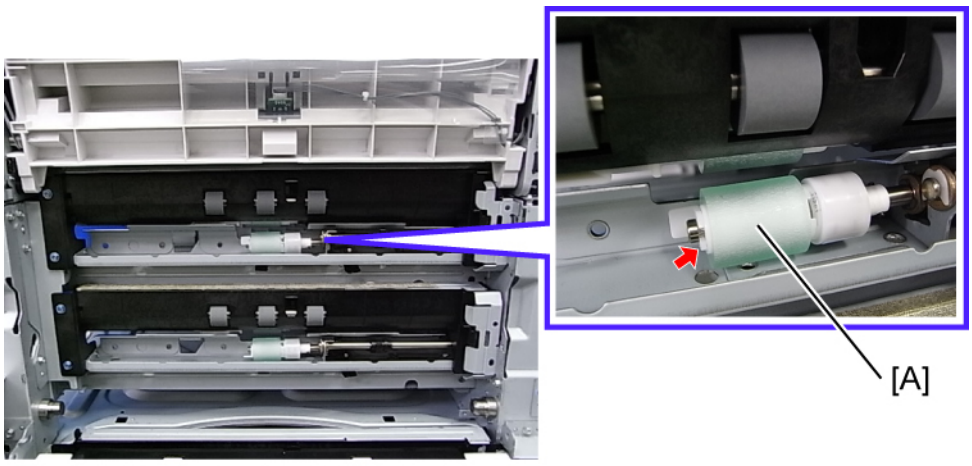
Tray 1 and Tray 2

1. Pull out the 1st and 2nd paper trays.
2. Remove the duplex unit (☛ p.4-72 "Duplex Unit")



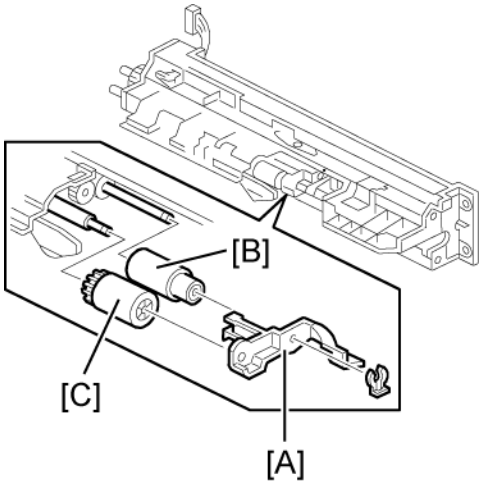
d120r172

3. Remove the paper guide plate [A] (tab x 2 each).



d120r176

4. Replace the separation roller [A] (⟲ x 1).

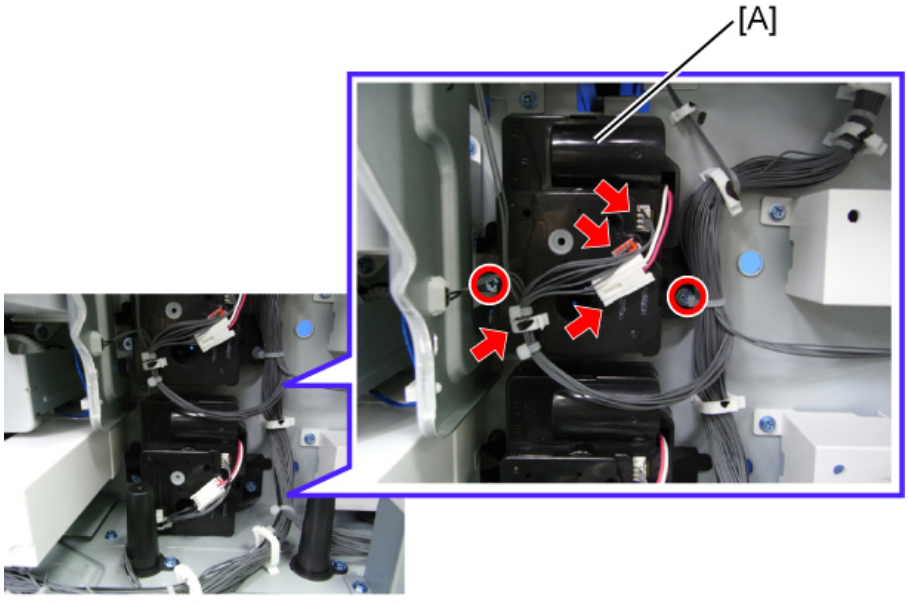


d120r518

5. Remove the roller holder [A] (x 1).
6. Replace the feed roller [B].
7. Replace the pick-up roller [C].

4.10.3 PAPER TRAY LIFT MOTORS

1. Remove:
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover").
   - Lower rear cover (☛ p.4-8 "Lower Rear Cover").
2. Pull out the 1st and 2nd paper trays.

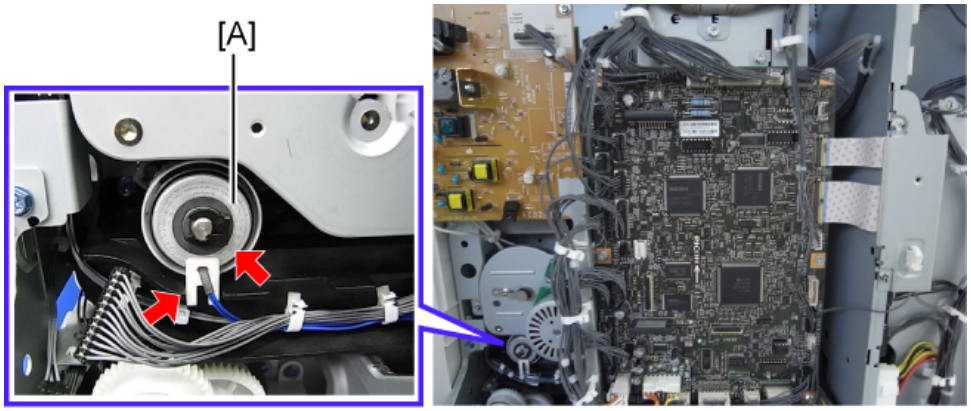


d120r134

3. Replace the paper lift motors [A] (x2 each, x1, x3 each).

4.10.4 REGISTRATION CLUTCH

1. Remove the upper rear cover (☛ p.4-8 "Upper Rear Cover")

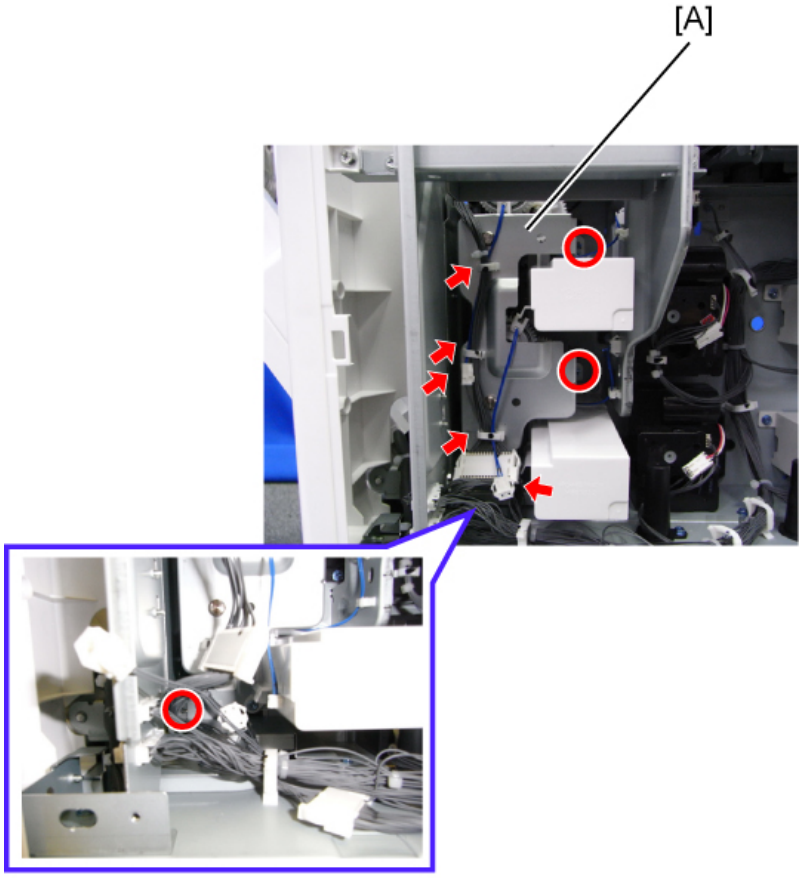


d120r136

2. Replace the registration clutch [A] (ℭ x1, x1).

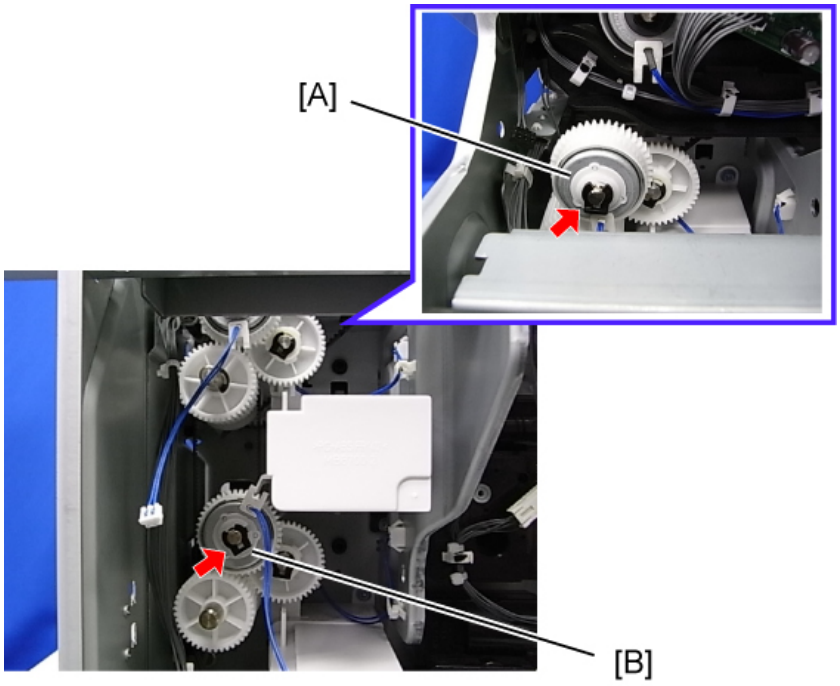
4.10.5 TRANSPORT CLUTCH

1. Remove:
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover")
   - Lower rear cover (☛ p.4-8 "Lower Rear Cover")



d120r137

2. Remove the bracket [A] (x3, x 3, x 2).

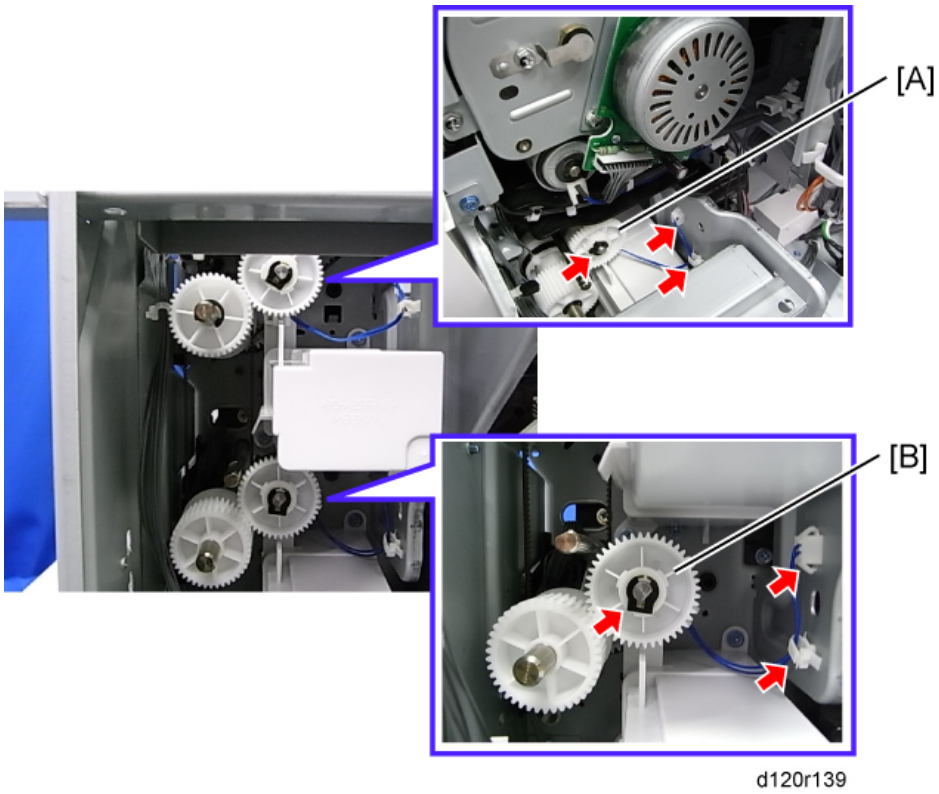


d120r138

3. Replace the upper transport clutch [A] (x 1, x 1).
4. Replace the lower transport clutch [B] (x 1, x 1).

4.10.6 PAPER FEED CLUTCH

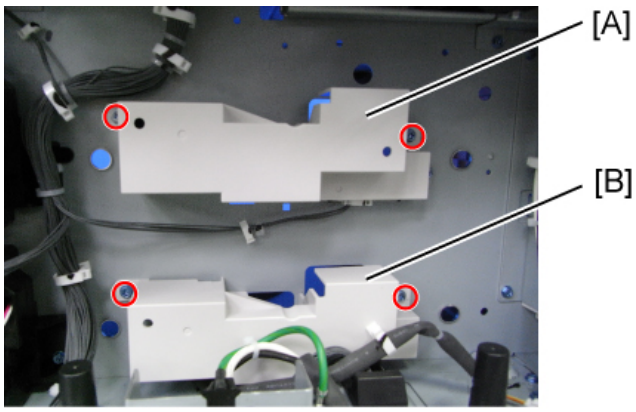
1. Remove the transport clutch. (☛ p.4-63 "Transport Clutch")



2. Replace the upper feed clutch [A] (x1, x1, x1).
3. Replace the lower feed clutch [B] (x1, x1, x1).

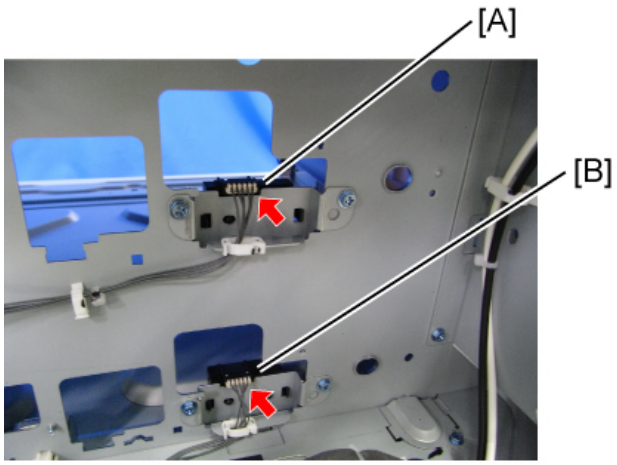
4.10.7 PAPER SIZE SENSORS

1. Remove:
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover")
   - Lower rear cover (☛ p.4-8 "Lower Rear Cover")
2. Pull out the 1st and 2nd paper trays.



d120r110

3. Remove the tray 1 paper size sensor cover [A] (x 2) and/or, tray 2 paper size sensor cover [B] (x 2).

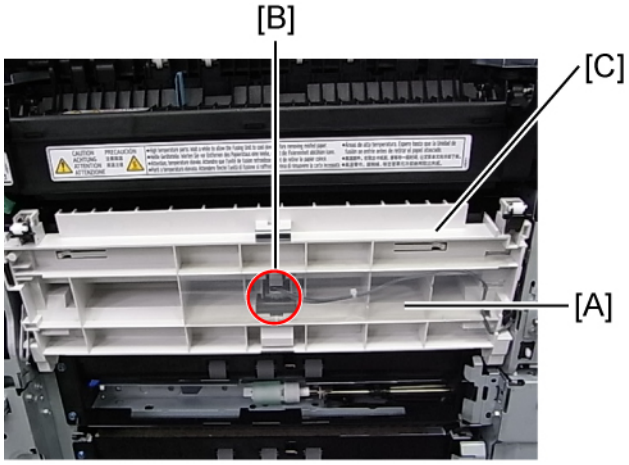


d120r111

4. Replace the tray 1 paper size sensor [A] (x 1, Pawls x4) and/or tray 2 paper size sensor [B] (x 1, Pawls x4).

4.10.8 REGISTRATION SENSOR

1. Remove the duplex unit (☛ p.4-72 "Duplex Unit").



d120r179

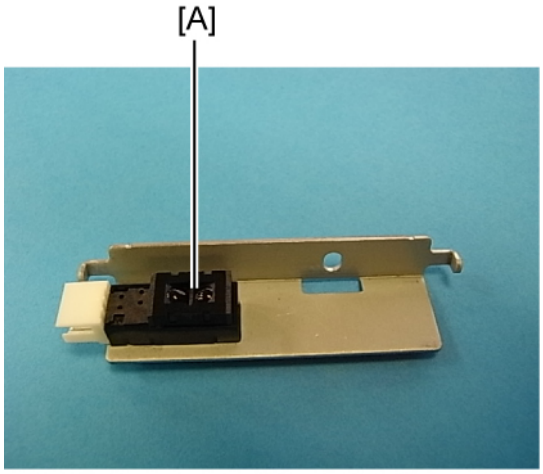
1. Displace the mylar [A] of the transfer roller guide.
2. Remove the image density sensor [B] (x1).
3. Open the transfer roller guide [C].

d120r180

4. Remove the paper guide plate [A] (x2).

d120r181

5. Remove the registration sensor bracket [A] (x1, x1).

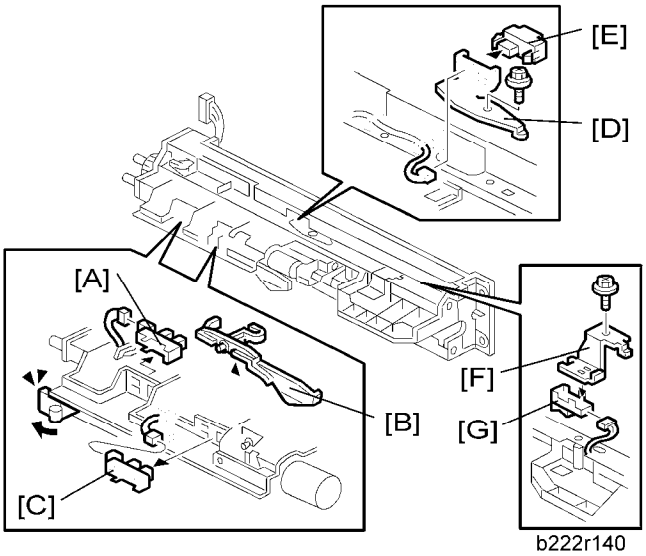


d120r182

6. Replace the registration sensor [A] (hook x4).

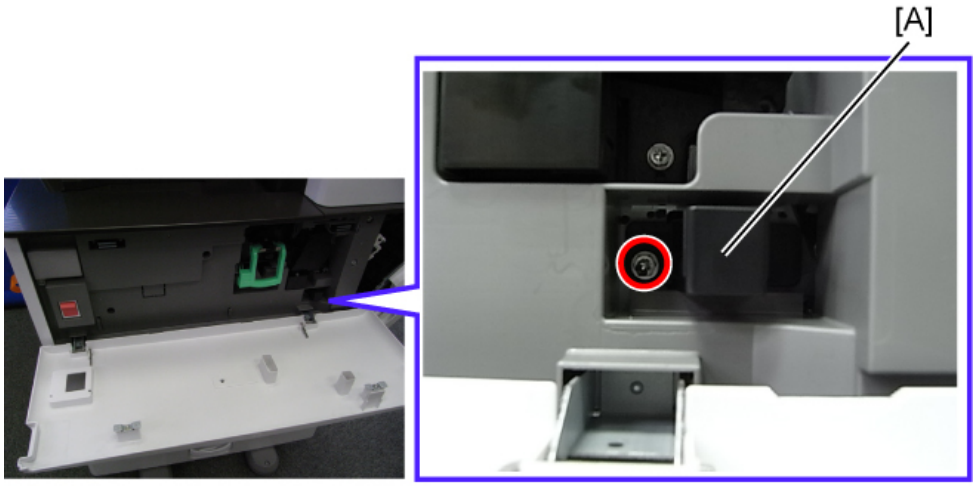
4.10.9 VERTICAL TRANSPORT, PAPER OVERFLOW, PAPER END AND PAPER FEED SENSOR

1. Remove the paper feed unit (☛ p.4-59 "Paper Feed Unit")



2. Replace the paper overflow sensor [A].
3. Remove the paper end feeler [B] (hook, x 1).
4. Replace the paper end sensor [C] (hook, x 1)
5. Remove the vertical transport sensor bracket [D] (x 1, x 1).
6. Replace the vertical transport sensor [E] (x 1, hook).
7. Remove the paper feed sensor bracket [F] (x 1).
8. Replace the paper feed sensor [G](x 1, hook).

4.10.10 DUST COLLECTION BOX



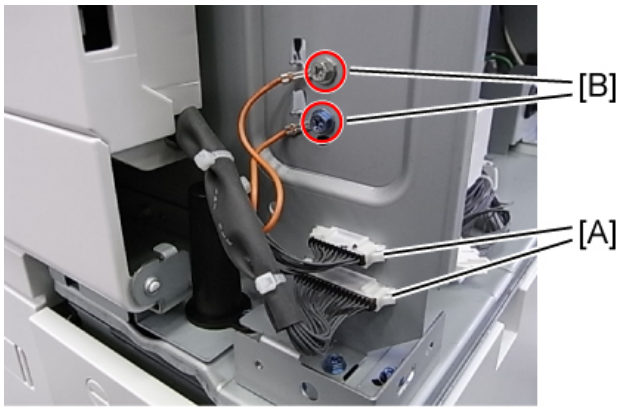
d120r140

1. Open the front door.
2. Remove the dust collection box [A](x1).
3. Tap the dust collection box above a sheet of paper, to remove the paper dust.
4. Use a dry cloth to clean the inside of the dust collection box.

4.11 DUPLEX UNIT

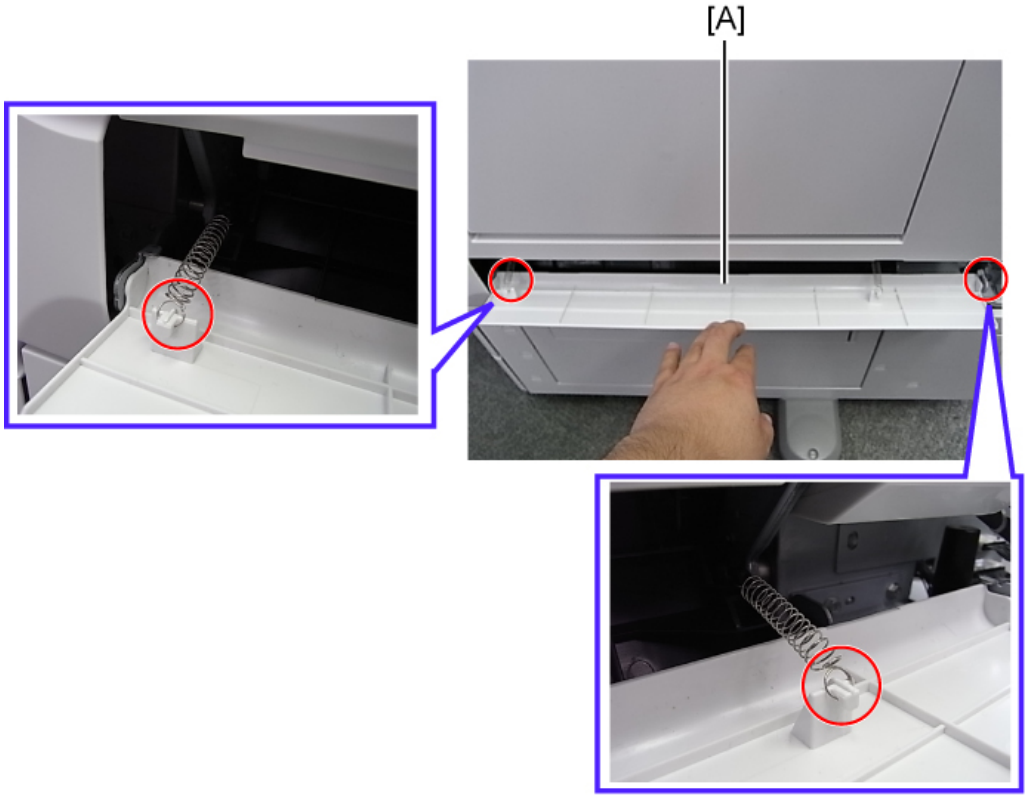
4.11.1 DUPLEX UNIT

1. Remove:
   - Upper rear cover(☛ p.4-8 "Upper Rear Cover")
   - Lower rear cover (☛ p.4-8 "Lower Rear Cover")
   - Right rear cover (☛ p.4-9 "Right Rear Cover")



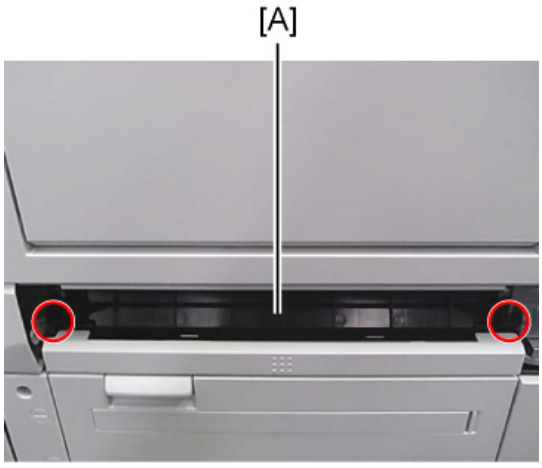
d120r501

2. Remove or disconnect two connectors [A].
3. Remove or disconnect two ground cables [B] (x 2).



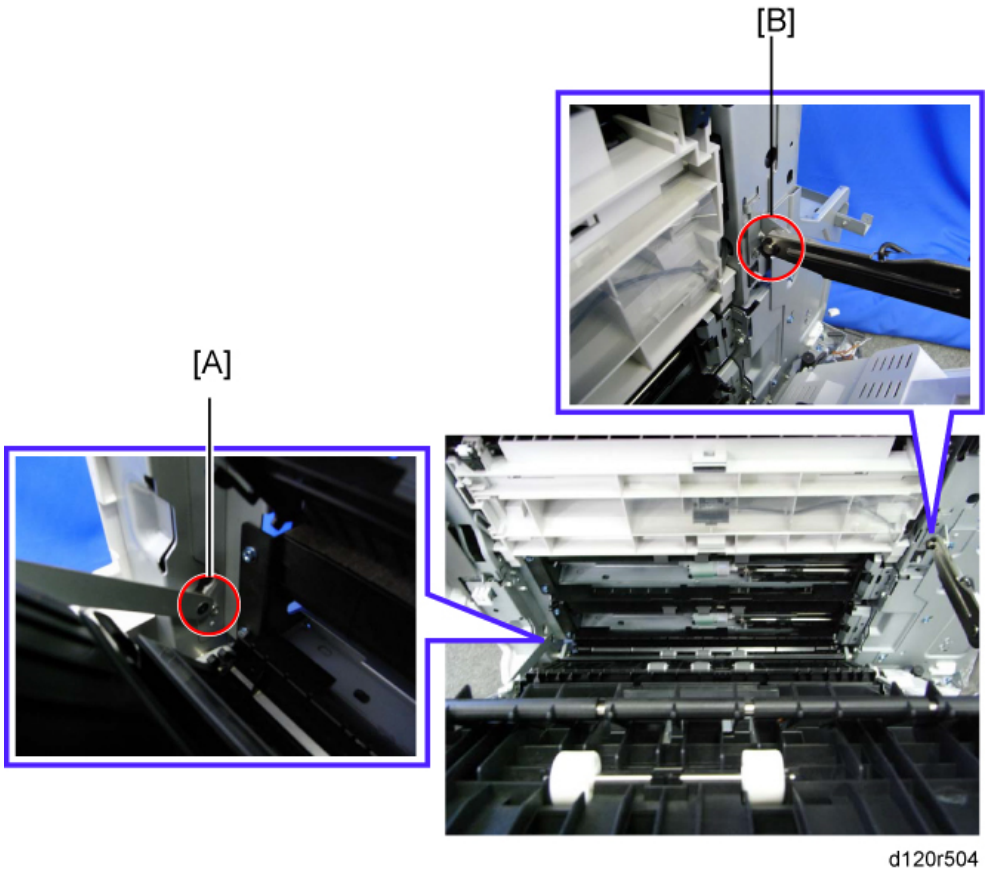
d120r502

4. Remove the lower right cover [A] (spring x 2, tab x 2).



d120r503

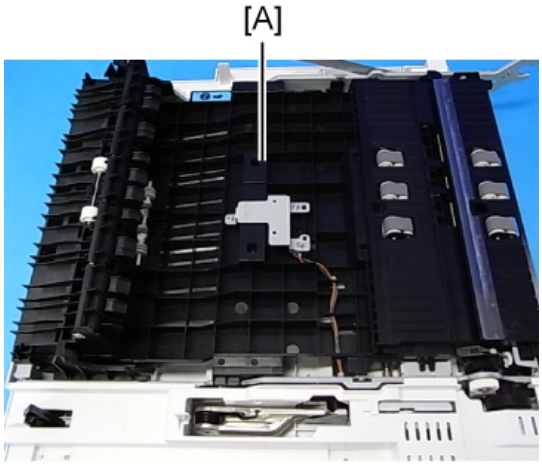
5. Remove the guide plate (tab x 2).
6. Open the duplex unit.



7. Release the front arm [A] and rear arm [B] (x 1).
8. Slide the duplex unit to the front side, and then remove it.

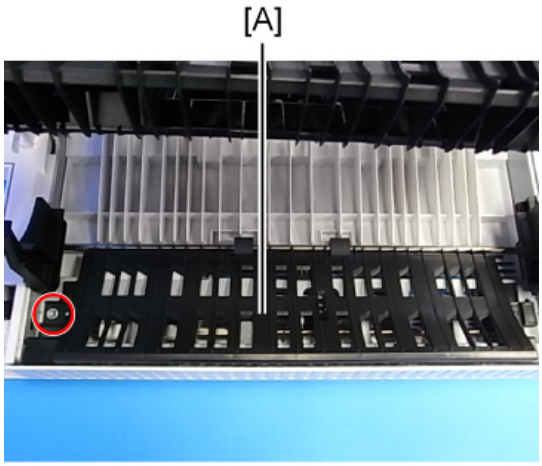
4.11.2 DUPLEX ENTRANCE SENSOR

1. Remove the duplex unit (☛ p.4-72 "Duplex Unit").



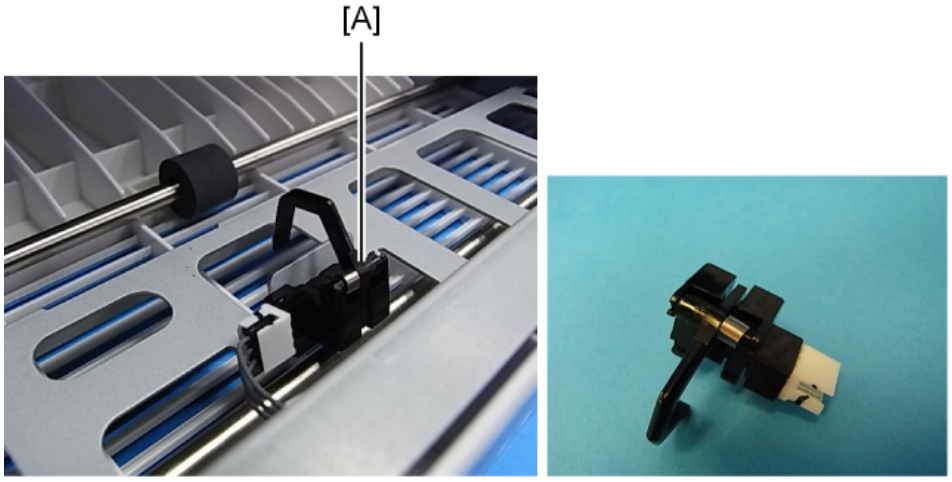
d120r506

2. Lift up the duplex guide plate [A] first when reinstalling the duplex outer guide plate.



d120r505

3. Remove the duplex outer guide plate [A] (x 1).

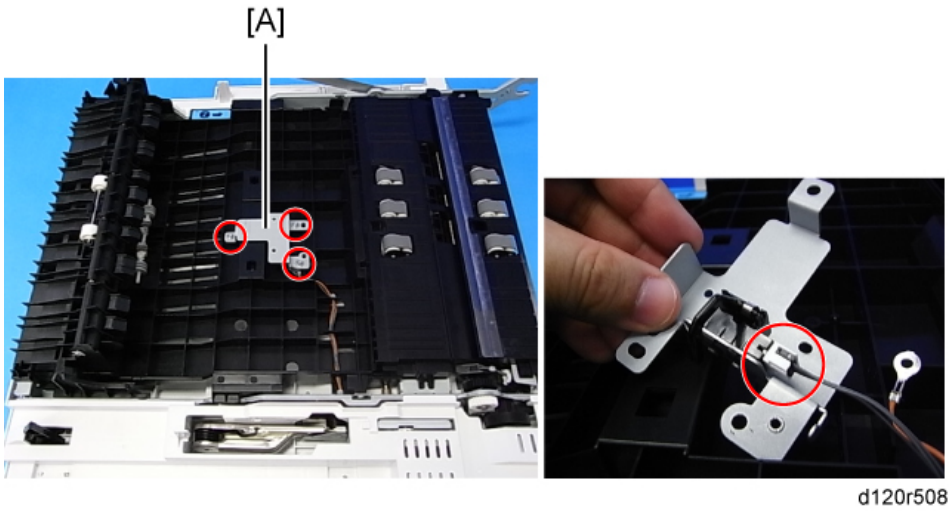


d120r507

4. Replace the duplex entrance sensor [A] (hook).

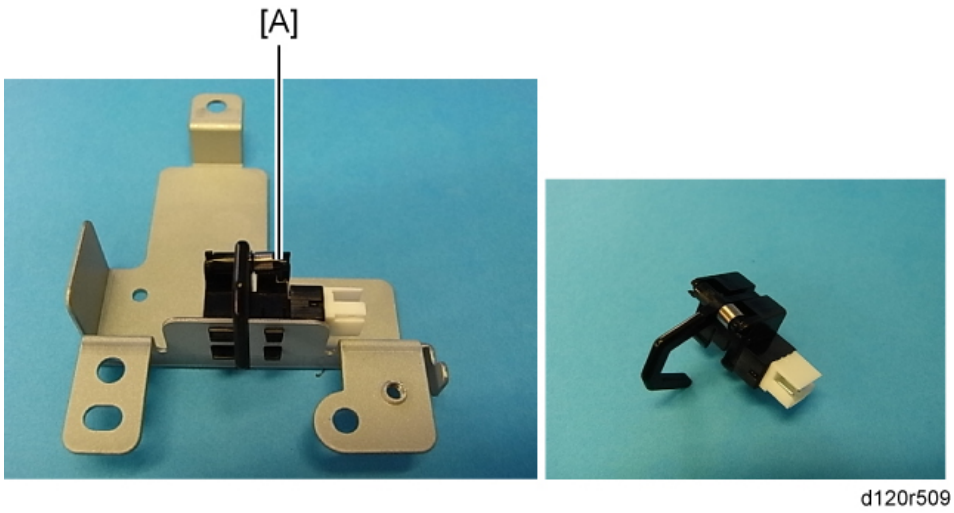
4.11.3 DUPLEX EXIT SENSOR

1. Remove the duplex unit (☛ p.4-72 "Duplex Unit").



d120r508

2. Remove the duplex exit sensor assembly [A] (x 3, x 1).

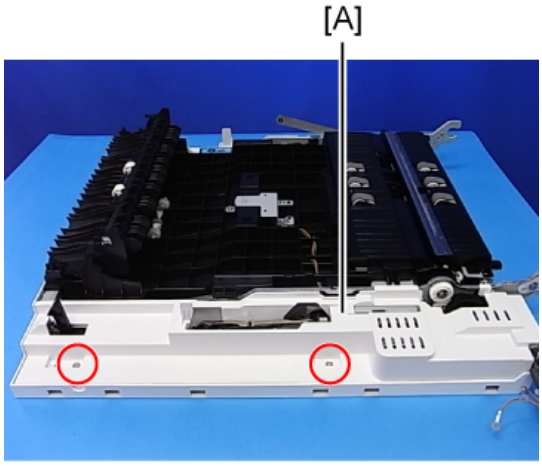


d120r509

3. Replace the duplex exit sensor [A] (hook).

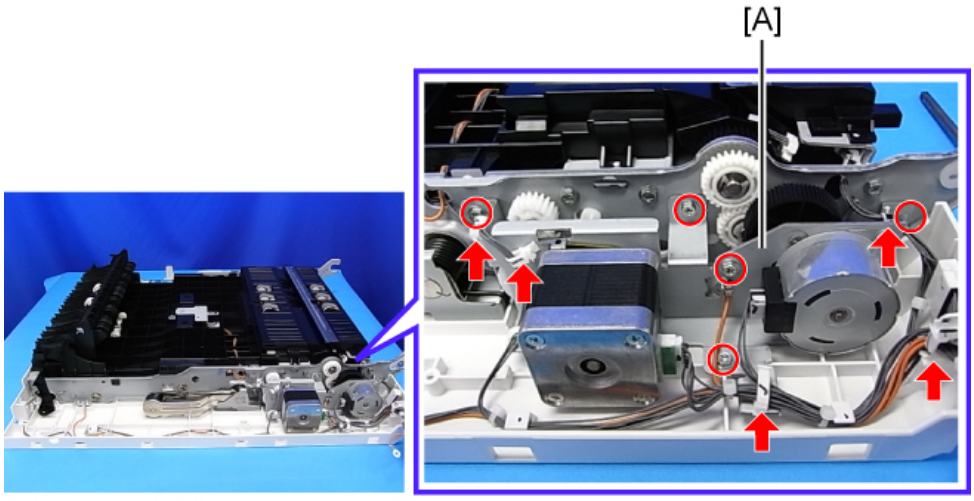
4.11.4 DUPLEX MOTOR/BYPASS MOTOR

1. Remove the duplex unit (☛ p.4-72 "Duplex Unit").



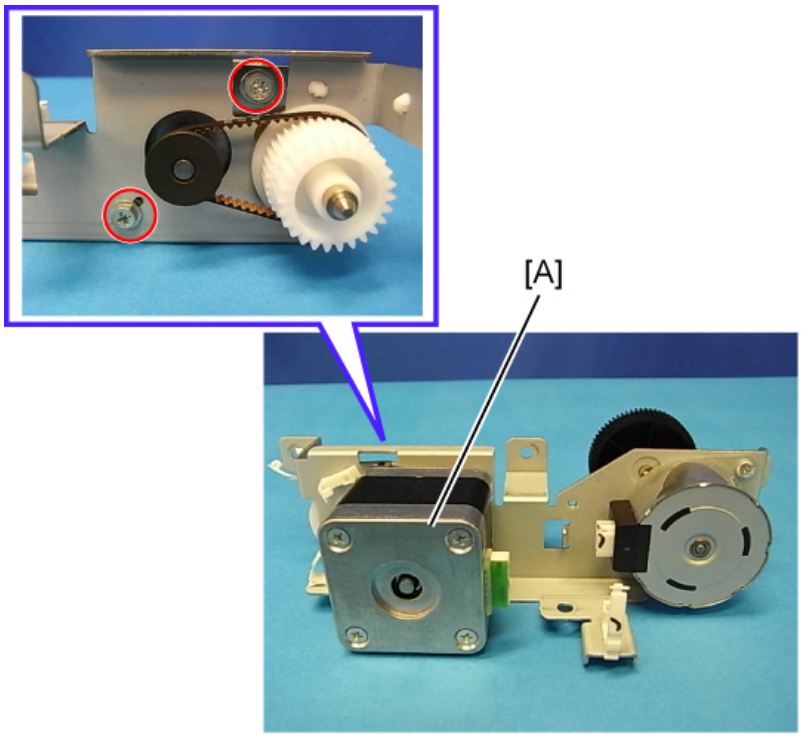
d120r510

2. Remove the duplex inner cover [A] (x 2).



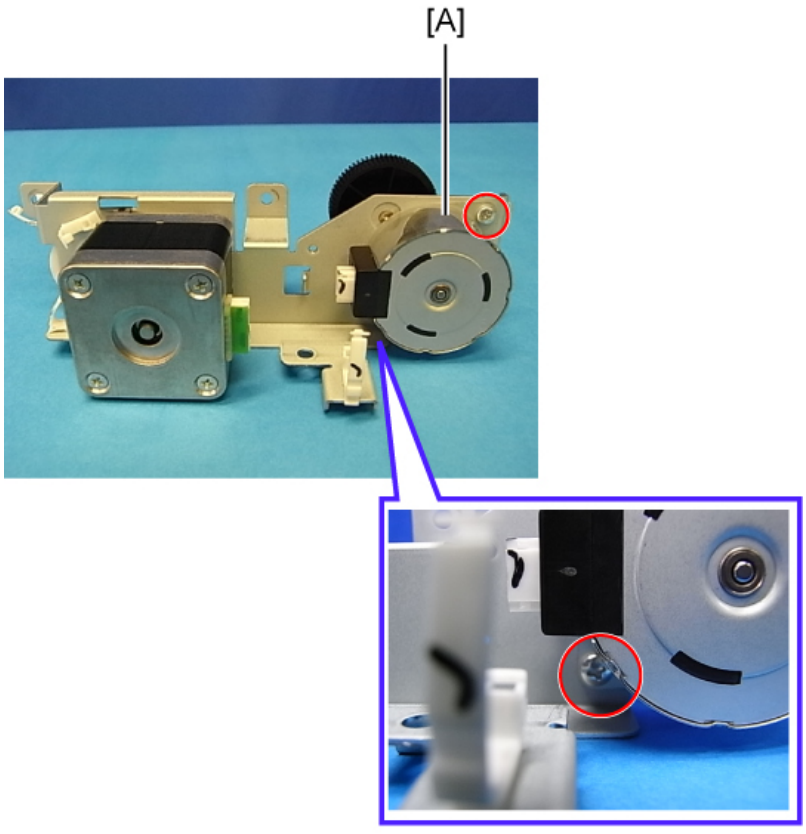
d120r511

3. Remove the duplex entrance motor with the bracket [A] (x 5, x 5, x 2).



d120r512

4. Replace the separate the duplex entrance motor [A] from the bracket (x 2).

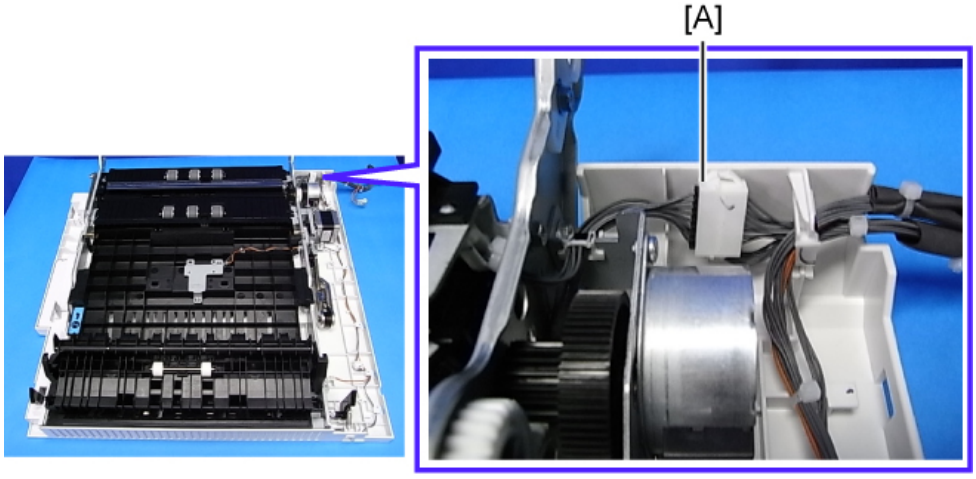


d120r513

5. Replace the by-pass motor [A] (x 2).

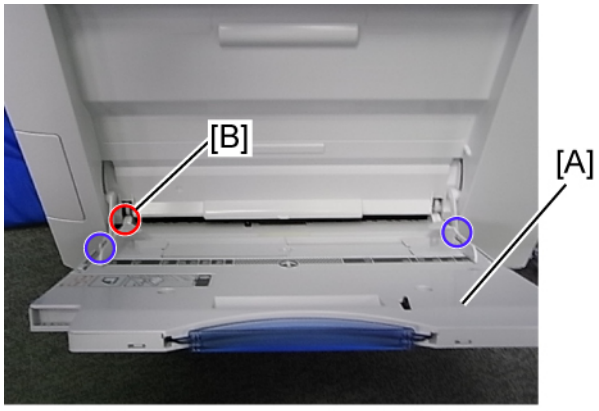
4.11.5 BY-PASS TRAY UNIT

1. Remove the duplex inner cover. (☛ p.4-78 "Duplex Motor/Bypass Motor ")



d120r514

2. Disconnect the harness [A].



d120r183

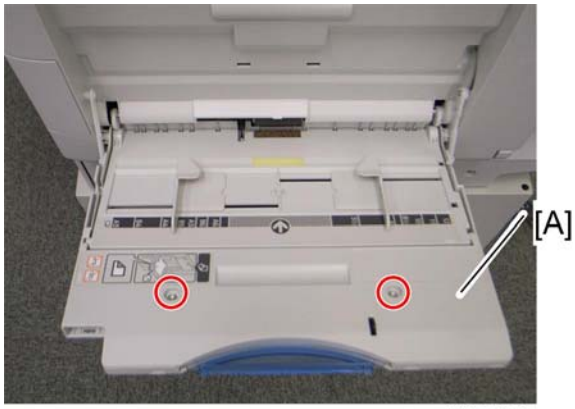
3. Open the by-pass tray unit [A].
4. Replace the by-pass tray unit (x 2, hook [B]).

Note

- Use a flat-head screw driver or similar tool to push the hook [B] down.

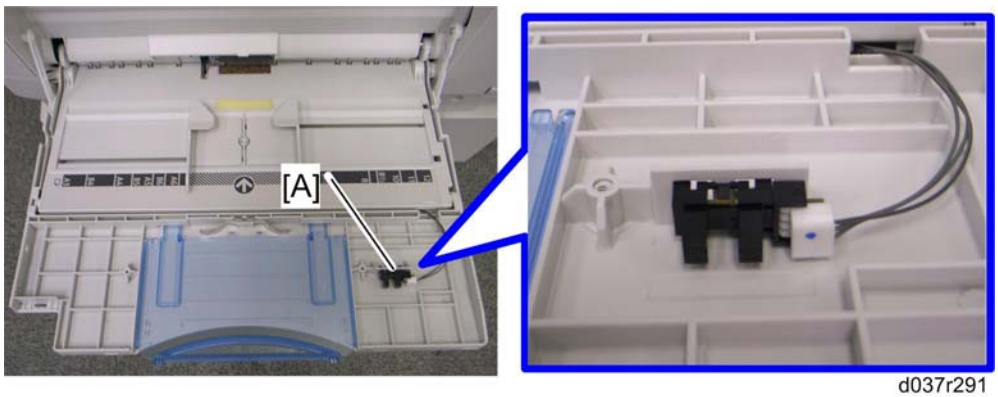
4.11.6 BY-PASS PAPER LENGTH SENSOR

1. Open the by-pass tray unit.



d037r290

2. Remove the by-pass tray right cover [A] (x 2).

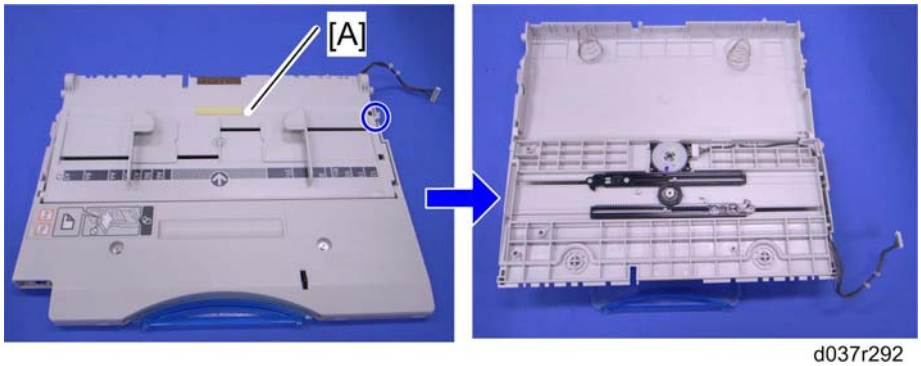


d037r291

3. Replace the by-pass paper length sensor [A] (x 1).

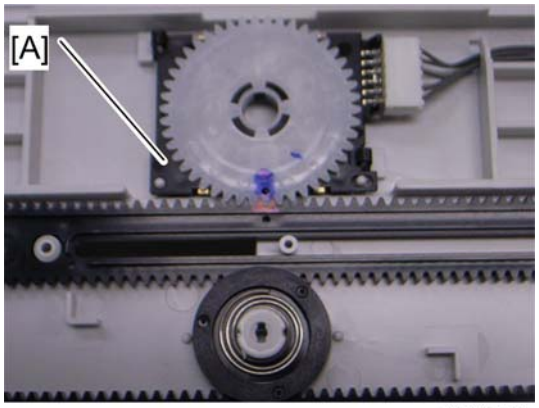
4.11.7 BY-PASS PAPER SIZE SENSOR

1. Remove the by-pass tray unit (☛ p.4-80 "By-pass Tray Unit").



d037r292

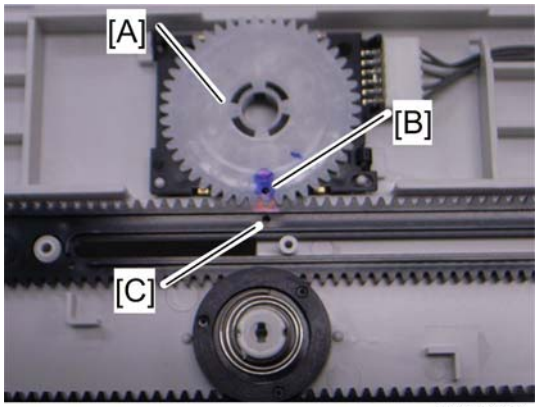
2. Remove the by-pass tray cover [A] (hook x 1).



d037r293

3. Replace the by-pass paper size sensor [A] (x 1).

When reinstalling the by-pass paper size sensor



d037r294

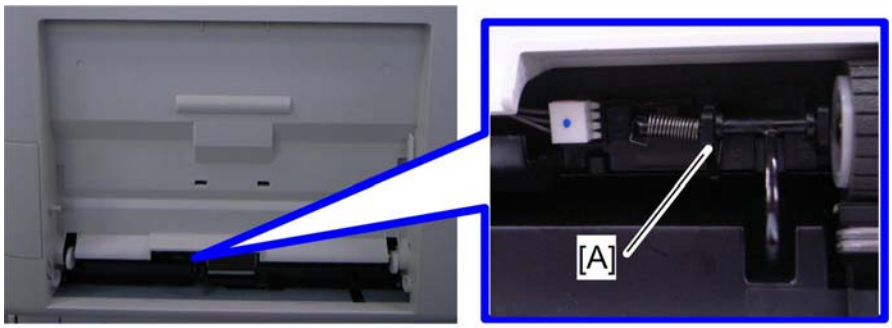
1. Adjust the projection [A] of the left side fence bar (it must be centered).
2. Install the by-pass paper size detection switch so that the hole [B] in this switch faces the projection [C] of the left side fence bar.
3. Reassemble the copier.
4. Plug in and turn on the main power switch.
5. Check this switch operation with SP5-803-046 (By-Pass Size Detection SW < Input Check).

- Display on the LCD -

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

4.11.8 BY-PASS PAPER END SENSOR

1. Remove the by-pass tray unit. (☛ p.4-80 "By-pass Tray Unit")



d037r300

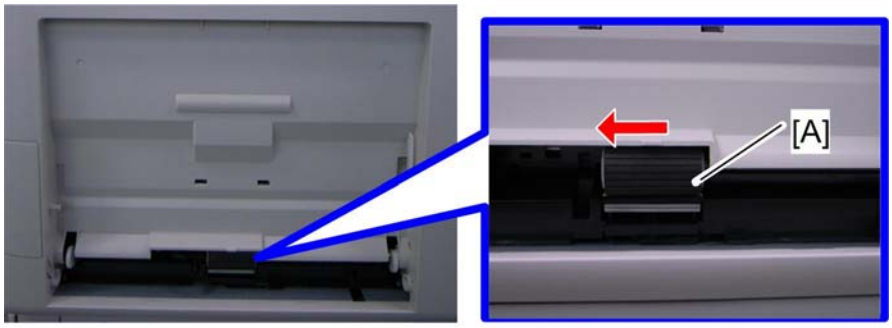
2. Replace the by-pass paper end sensor [A] (x 1, hook).

Reinstalling the By-pass Paper End Sensor

- Reinstall the right hook first and then the left hook using a flat-head screw driver or similar tool.

4.11.9 BY-PASS FEED ROLLER

1. Remove the by-pass tray unit. (☛ p.4-80 "By-pass Tray Unit")

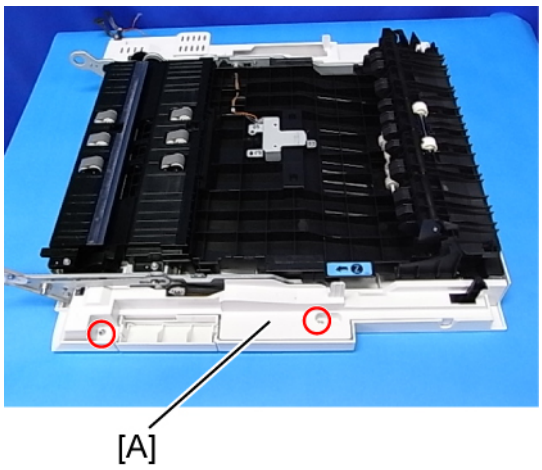


d037r301

2. Replace the by-pass feed roller [A] (hook).

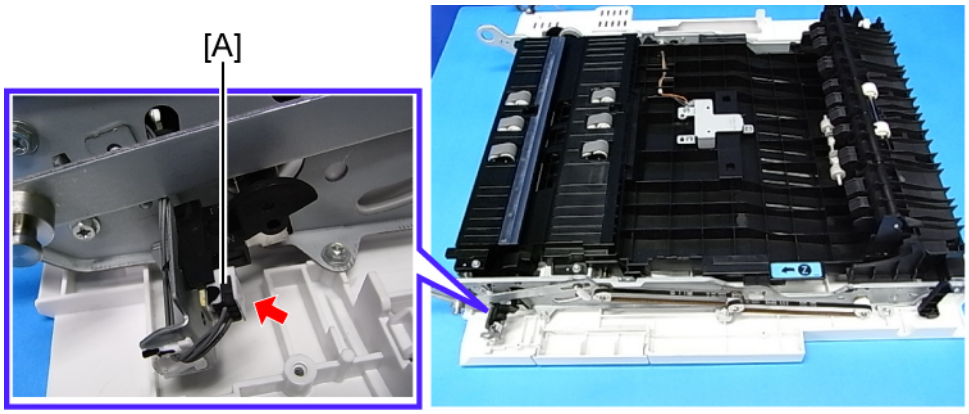
4.11.10 BY-PASS TRAY HP SENSOR

1. Remove the duplex unit. (☛ p.4-72 "Duplex Unit")



d120r184

2. Remove the duplex inner front cover [A] (x 2).



d120r185

3. Replace the by-pass HP sensor [A] (x 1, hook x4).

4.12 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.

4.12.1 CONTROLLER BOARD

Important

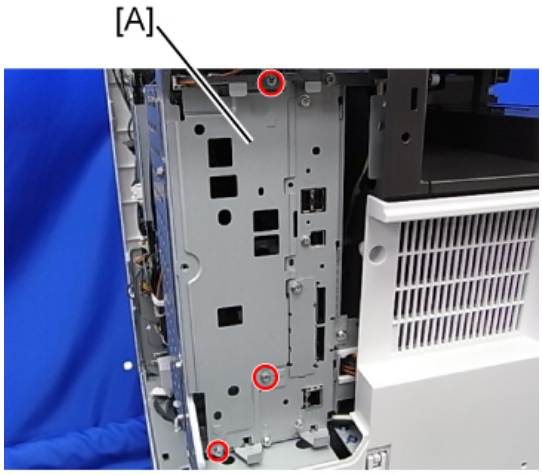
- If you intend to replace the NVRAM, upload its contents to an SD card with SP5-824 before you remove NVRAM and replace it with a new one. Never remove the NVRAM until after you have uploaded its contents.

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 **SP5-846-051** if possible.

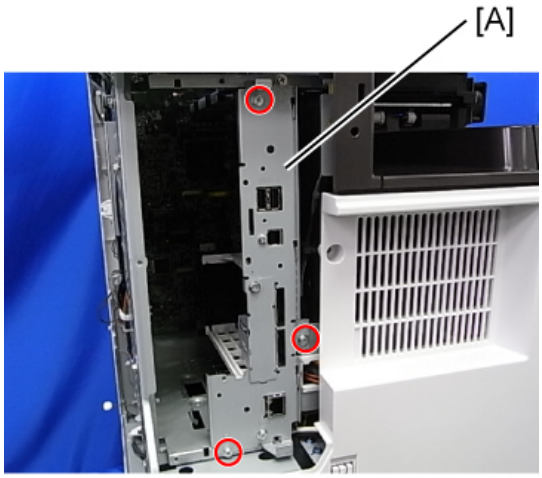
Replacement Procedure

1. Remove the controller cover. (☛ p.4-6 "Controller Cover")



d120r144

2. Remove the FCU faceplate [A] (x3).

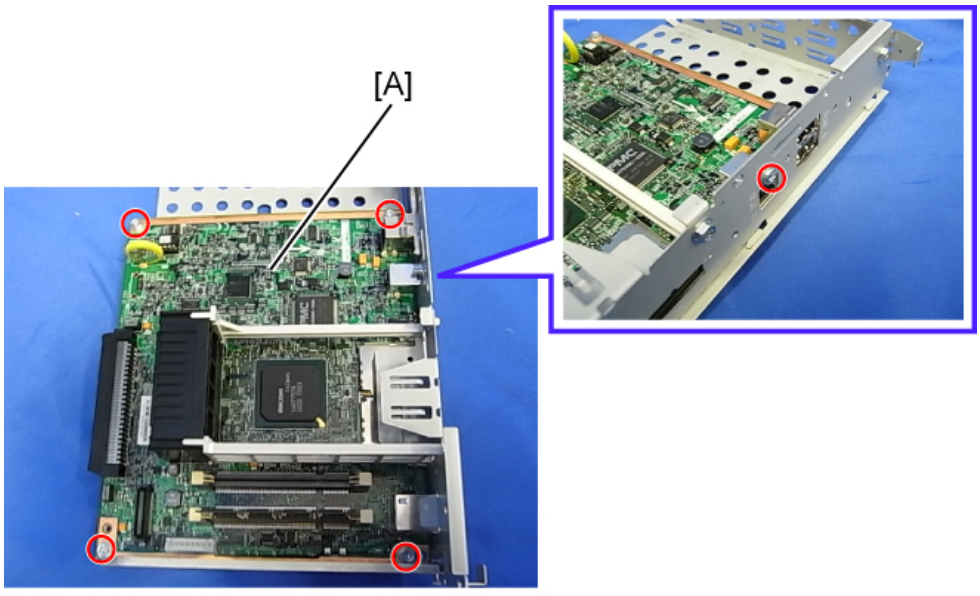


d120r145

3. Remove the controller board unit [A] (x3).

Important

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

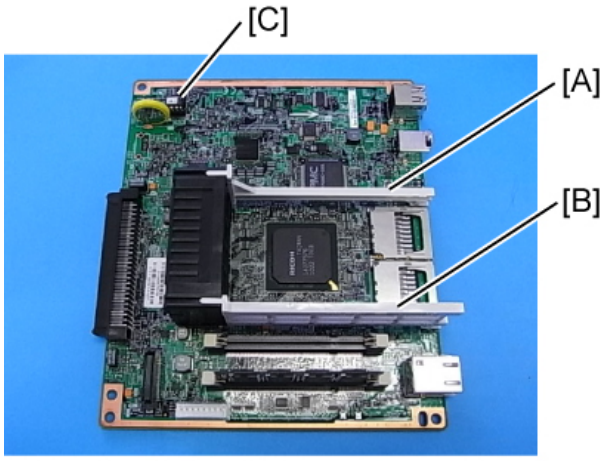


d120r146

4. Remove the controller board [A] (x5).

Important

- Before removing the controller board, remove the HDD and option interface boards.



d120r156

5. Remove the upper brace [A].
6. Remove the lower brace [B]
7. Remove the NVRAM [C] from the old board and install it on the new board.
8. 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 **SP5-846-052** 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. If the customer is using the data encryption feature, the encryption key must be restored.
3. Turn the main power switch off and on.

4.12.2 NVRAM

The following data stored in the NVRAM will not be saved to the SD card when you perform an NVRAM data upload (SP5-824).

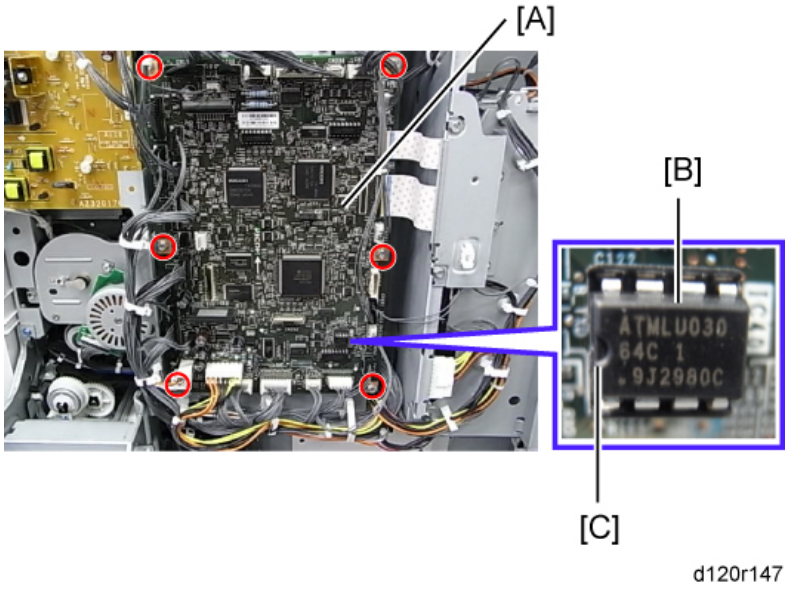
- Total counter value
- C/O, P/O counter values
- Duplex, A3/DLT/Over 420mm, Stapler, and Scanner counter values
- Engine SP data

Therefore, whenever you perform an NVRAM upload/download, make sure to print out the SP Data List before you perform SP5-801-001 (Memory Clear: All Clear) or SP5-801-002 (Memory Clear: Engine).

1. Do SP5-990 001 to print the SMC report.
2. Stop all SDK applications if the VM card is installed.
3. Turn off the main power switch.
4. Remove the controller cover (x1). (☛ p.4-6 "Controller Cover")
5. Remove the VM card from SD card slot 2 if it is installed.
6. Put the SD card in SD card slot 2.
7. Turn on the main power switch.
8. Do SP5-824.
9. Touch "Execute" to start to upload the NVRAM data.
10. Turn off the main power switch and remove the SD card.
11. Remove the controller board. (☛ p.4-86 "Controller Board")
12. Remove the NVRAM and replace it with the new chip. (☛ p.4-86 "Controller Board")
13. Install the controller board.
14. Put the SD card with the NVRAM data in SD card slot 2.
15. Turn on the main power switch.
16. Do SP5-801 to initialize the new NVRAM.
17. To download the NVRAM data from the SD card in slot 2, do SP5-825.
18. Touch "Execute" to start to download the NVRAM data.
19. Turn off the main power switch and remove the SD card.
20. Turn on the main power switch.
21. Do SP5-990-001 to print another SMC report.
22. 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.
23. Do SP5-907 and input the brand and model name of the machine for Windows Plug & Play capability.

4.12.3 BCU BOARD

1. Remove:
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover")
   - Lower rear cover (☛ p.4-8 "Lower Rear Cover")



2. Replace 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.

Note

- Make sure the NVRAM is correctly installed on the BCU. Insert the NVRAM in the NVRAM slot with the "half-moon" pointing [C] to the left side.

When installing the new BCU

1. Remove the NVRAM from the old BCU.
2. Install the NVRAM on the new BCU after you replace the BCU.
3. Reassemble the machine.
4. Turn on the main power switch.
5. "SC995-01" occurs.
6. Enter the serial number with SP5-811-004.
7. Turn the main power switch off and on.

Note

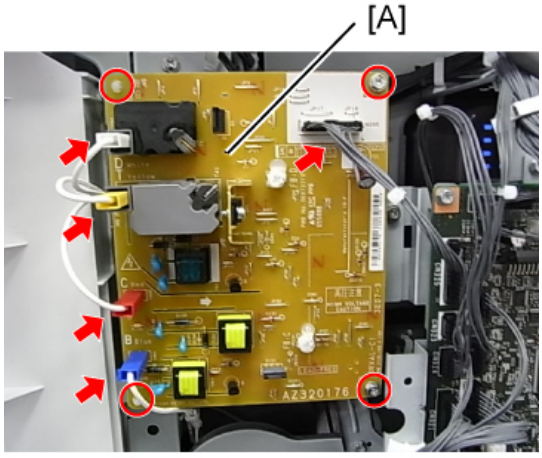
- Make sure you print out the SMC reports ("SP Mode Data" and "Logging Data") before you replace the NVRAM.

CAUTION

- Keep NVRAM away from any objects that can cause static electricity. Static electricity can damage NVRAM data.

4.12.4 POWER PACK

1. Remove:
   - Upper rear cover (☛ p.4-8 "Upper Rear Cover")
   - Lower rear cover (☛ p.4-8 "Lower Rear Cover")

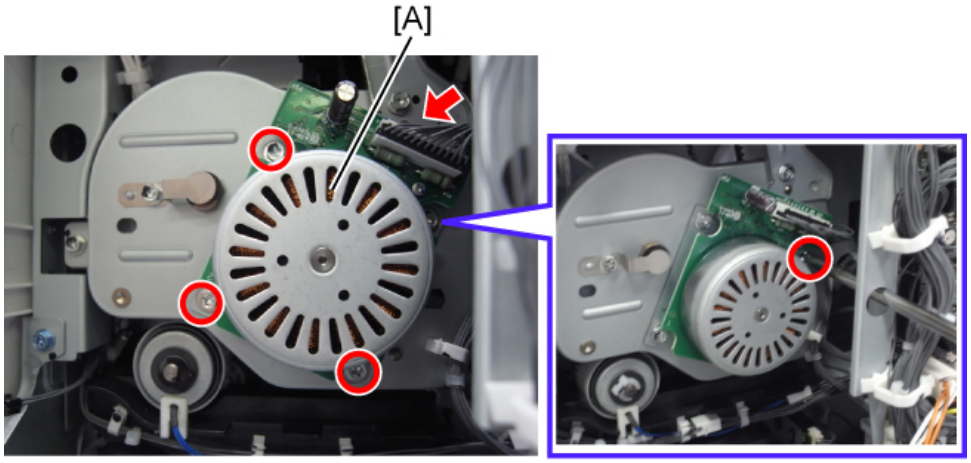


d120r148

2. Replace the power pack [A] (x 5, x2, Standoff x2).

4.12.5 MAIN MOTOR

1. Remove the upper rear cover (☛ p.4-8 "Upper Rear Cover")

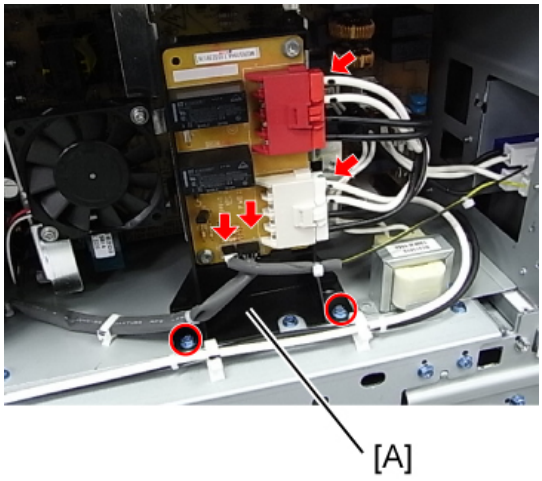


d120r135

2. Replace the main motor [A] (x 4, x 1).

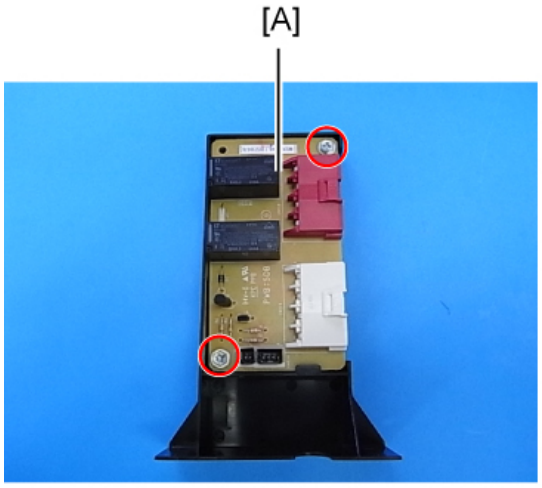
4.12.6 SDB

1. Remove:
   - Optional finishers except internal finisher if it has been installed.
   - Left cover (☛ p.4-6 "Left Cover")



d120r149

2. Remove the SDB assembly [A] (x4, x2).

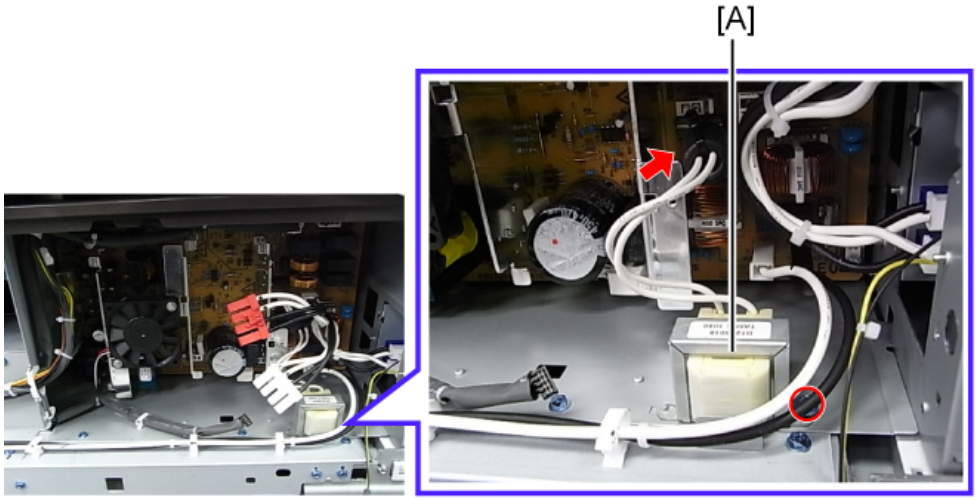


d120r161

3. Replace the SDB [A] (x2).

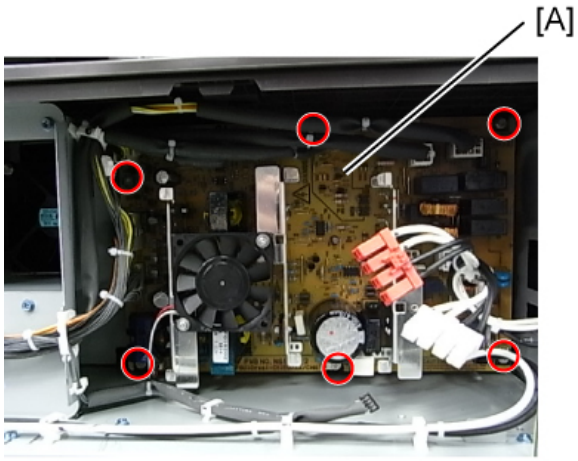
4.12.7 PSU

1. Remove:
   - Optional finishers except internal finisher if it has been installed.
   - SDB (☛ p.4-93 "SDB")



d120r150

2. Remove the transformer [A] (x1, x1) (For the 230 V machine only).

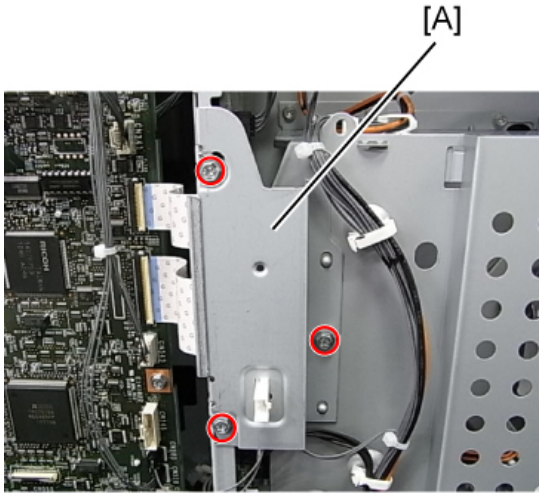


d120r151

3. Replace the PSU [A] (x all, x5, Standoff x1).

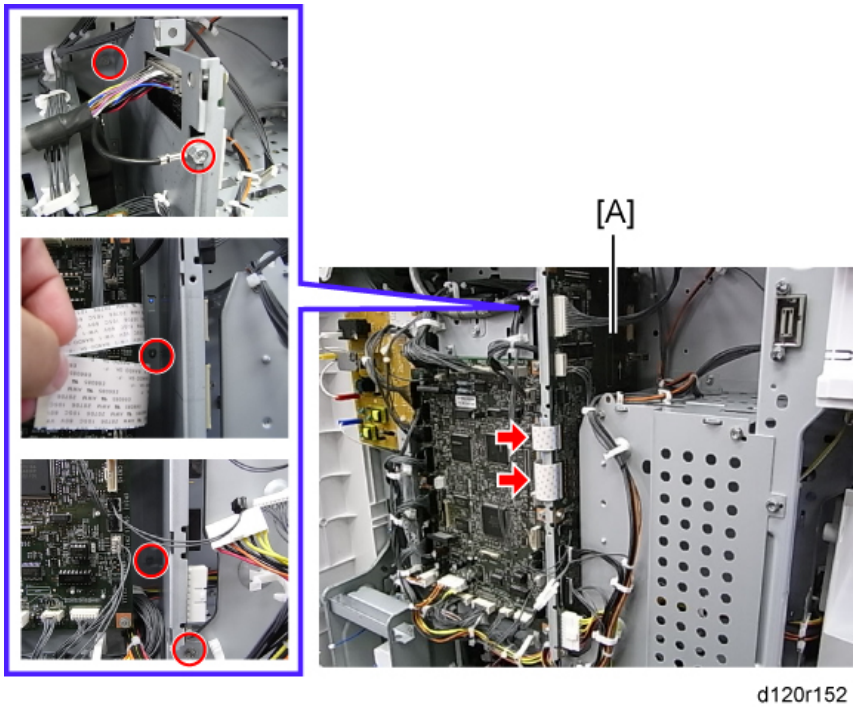
4.12.8 IPU

1. Remove:
   - Upper rear cover. (☛ p.4-8 "Upper Rear Cover")
   - Lower rear cover. (☛ p.4-8 "Lower Rear Cover")
   - Controller board unit (☛ p.4-86 "Controller Board")



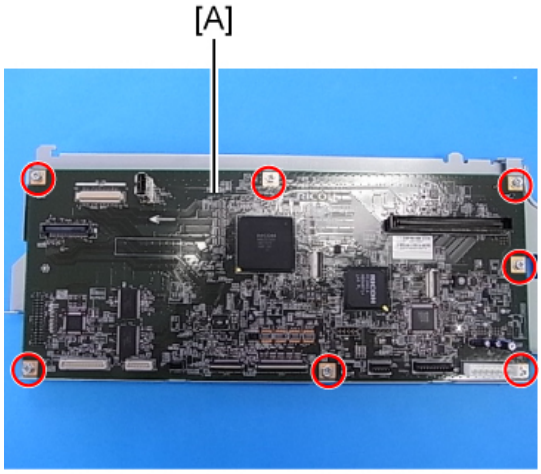
d120r153

2. Remove the FFC cover [A] (x3).



d120r152

3. Remove the IPU with bracket [A] (x5, x All, FFC x2).



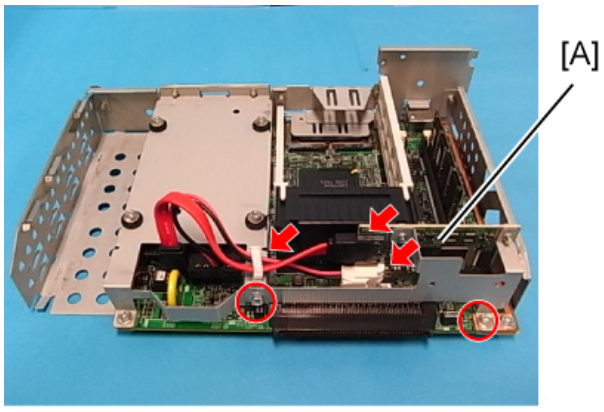
d120r157

4. Replace the IPU [A] (x7).

4.12.9 HDD

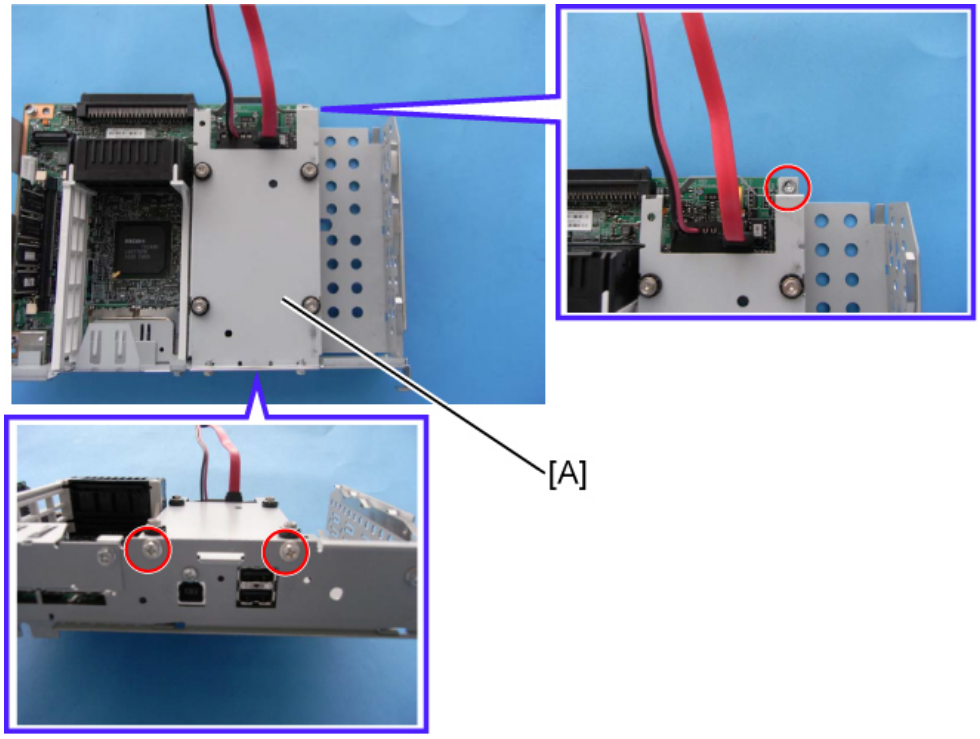
1. Before you replace the HDD:
   - Stop all SDK applications, and then remove it from the machine if the VM card is installed.
   - Insert an SD card in SD card slot 2 (lower slot).
   - Go into the SP mode.
   - Do SP5-846 51 to upload the address book data to the SD card.

   Important
   - If the HDD is damaged, you may not be able to retrieve this data from the HDD.
2. Remove the controller board. (p.4-86 "Controller Board")



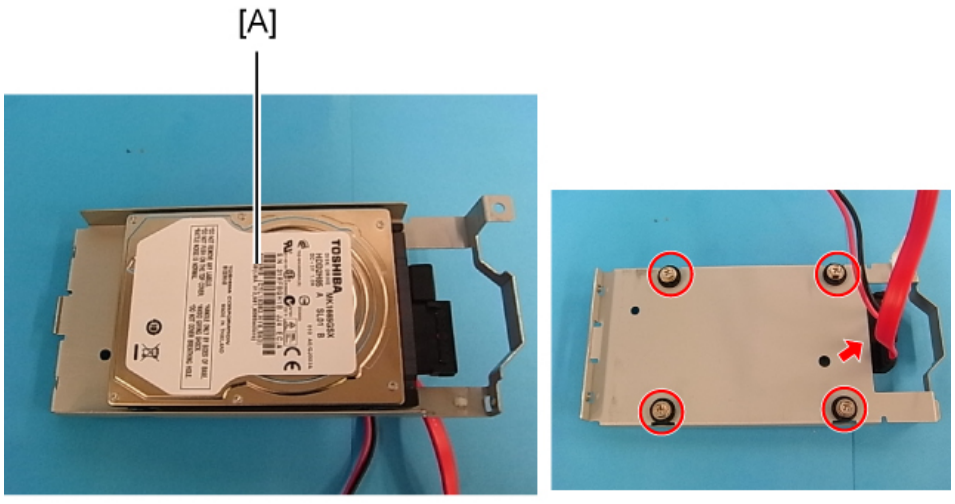
d120r187

3. Remove the connecting board unit [A] (x2, x 2, x 1).



d120r189

4. Remove the HDD unit [A] (x 3).



d120r188

5. Remove the old HDD [A] from its bracket (x4, x2).
6. Install the new HDD unit.
7. Turn the main power switch off and on.
8. Format the HDD with SP5-832-1.
9. Do SP5-853 to copy the preset stamp data from the firmware to the hard disk.
10. Do SP5-846-52 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.

4.13 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

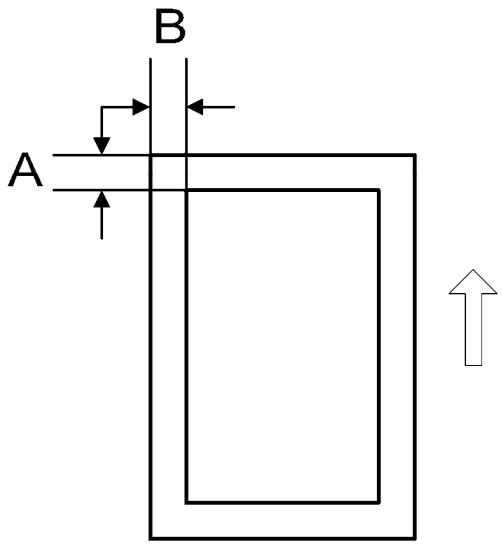
For more details about accessing SP modes, see Service Tables.

4.13.1 PRINTING

Note

- Make sure the paper is installed correctly in each paper tray before you start these adjustments.
- Use the Trimming Area Pattern (SP2-109-001, No.14) to print the test pattern for the following procedures.
- Set SP 2-109-001 to 0 again after completing these printing adjustments.

Registration - Leading Edge/Side-to-Side



A: Leading Edge Registration (3 ± 2 mm)

B: Side-to-side Registration (2 ± 1.5 mm)

1. Check the leading edge registration [A] for each paper feed station, and adjust them using SP1-001.

Tray	SP mode
Tray: Plain	SP1-001-002
Tray: Thick 1	SP1-001-003
Tray: Thick 2	SP1-001-004
By-pass: Plain	SP1-001-007
By-pass: Thick 1	SP1-001-008
By-pass: Thick 2	SP1-001-009
Duplex: Plain	SP1-001-013
Duplex: Thick 1	SP1-001-014

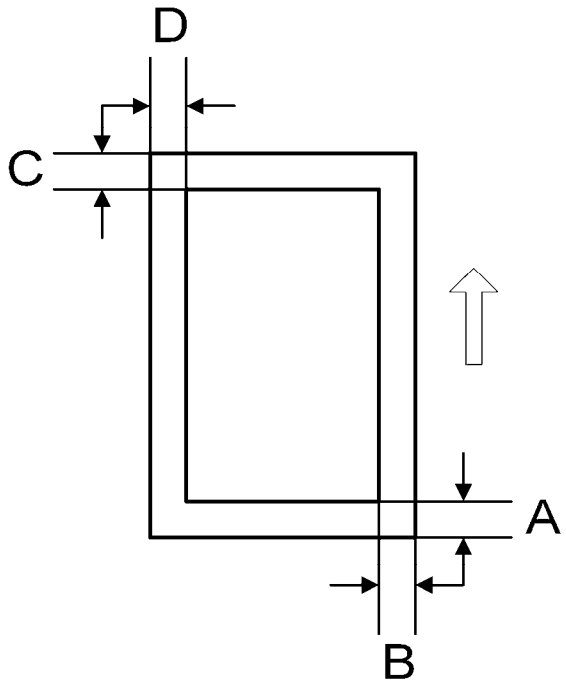
2. Check the side-to-side registration [B] for each paper feed station, and adjust them using SP1-002.

Tray	SP mode
By-pass	SP1-002-001
Tray 1	SP1-002-002
Tray 2	SP1-002-003
Tray 3 (Optional PFU tray 1 or LCT)	SP1-002-004
Tray 4 (Optional PFU tray 2)	SP1-002-005
Duplex (side 1)	SP1-002-006

Blank Margin

Note

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



A: Trailing Edge Blank Margin (3 ± 2 mm, duplex: 2 ± 2 mm)

B: Right Edge Blank Margin (2 + 2.5/-1.5 mm)

C: Leading Edge Blank Margin (-3 ± 2 mm)

D: Left Edge Blank Margin (-3 ±2 mm, duplex: -2 ± 1.5 mm)

1. Check the trailing edge [A], right edge [B], leading edge [C], left edge [D] blank margins, and adjust them using the following SP modes.

	SP mode
Leading Edge	SP2-103-001
Trailing Edge	SP2-103-002
Left Edge	SP2-103-003
Right Edge	SP2-103-004

	SP mode
Duplex: Trailing Edge: L Size: Plain	SP2-103-005
Duplex: Trailing Edge: M Size: Plain	SP2-103-006
Duplex: Trailing Edge: S Size: Plain	SP2-103-007
Duplex: Left Edge Plain	SP2-103-008
Duplex: Right Edge: Plain	SP2-103-009
Duplex: Trailing Edge: L Size: Thick	SP2-103-010
Duplex: Trailing Edge: M Size: Thick	SP2-103-011
Duplex: Trailing Edge: S Size: Thick	SP2-103-012
Duplex: Left Edge Thick	SP2-103-013
Duplex: Right Edge: Thick	SP2-103-014

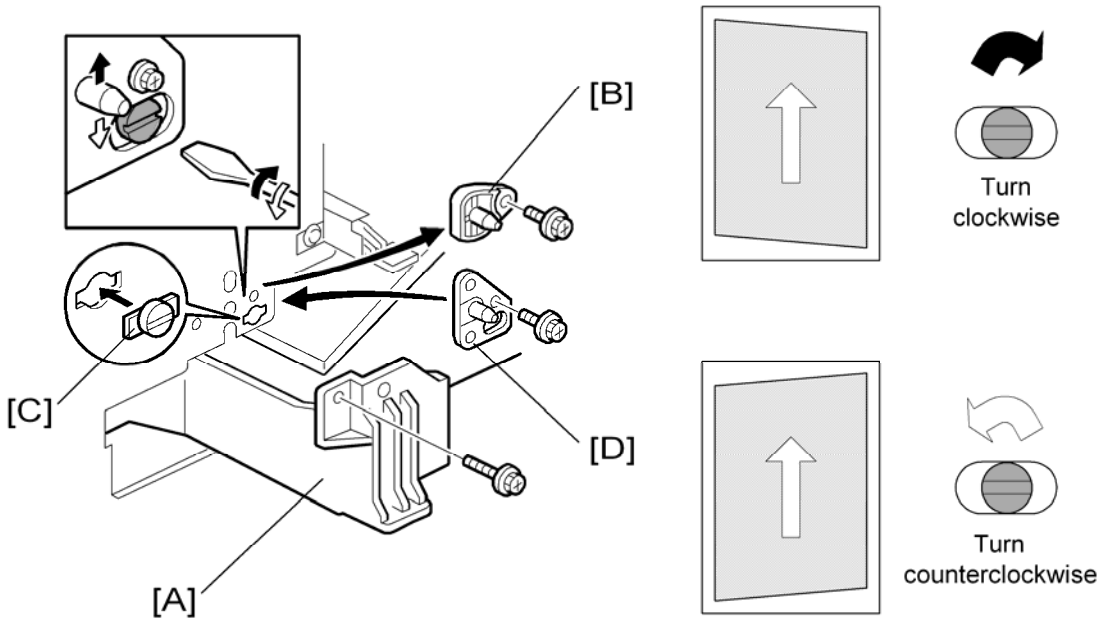
- L Size: Paper Length is 297.1 mm or more
- M Size: Paper Length is 216.1 to 297 mm
- S Size: Paper Length is 216 mm or less.

Main Scan Magnification

1. Use SP2-109-001, no.5 (Grid Pattern) to print the single-dot grid pattern.
2. Check the magnification, and adjust the magnification using SP2-102 (Magnification Adjustment Main Scan) 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.

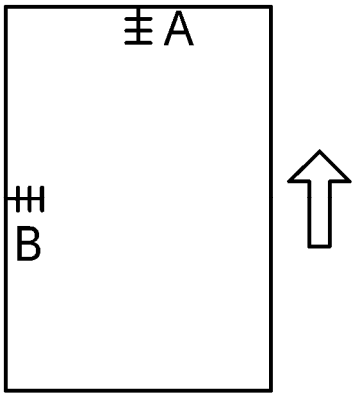
1. Check whether the trimming area pattern (SP2-109, No.14) is printed as a parallelogram, as shown. If it is, do the following.
2. Remove the laser unit [A] (☛ p.4-32 "Laser Unit").
3. Remove the bracket [B] (x2).
4. Install the adjusting cam [C] (P/N: A2309003).
5. Secure the adjustment bracket [D] (P/N: A1849501) 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.

4.13.2 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



A: Leading Edge Registration

B: Side-to-side Registration

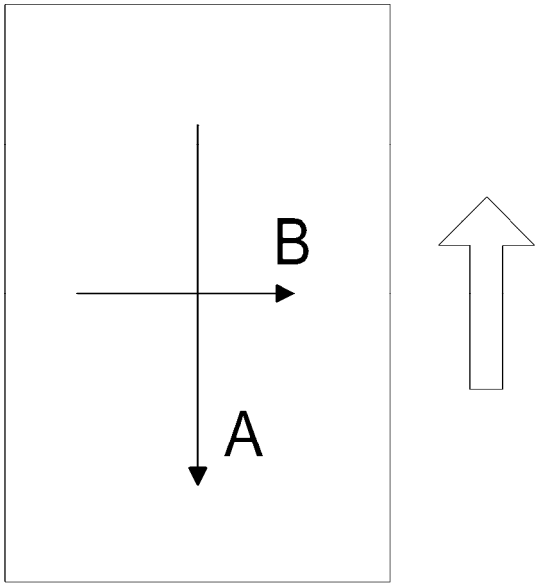
1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the leading edge and side-to-side registration, and adjust them using the following SP modes if necessary.

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

Magnification

Note

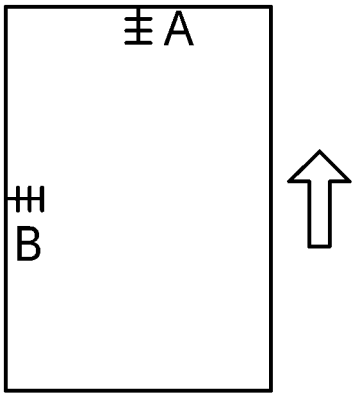
- Use an S5S test chart to do the following adjustment.



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%.

4.13.3 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: Front	SP6-006-001
Side-to Side: Rear	SP6-006-002
Leading Edge	SP6-006-003
Buckle: Duplex front	SP6-006-005
Buckle: Duplex rear	SP6-006-006
Rear Edge Erase	SP6-006-007

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	SP6-017-001

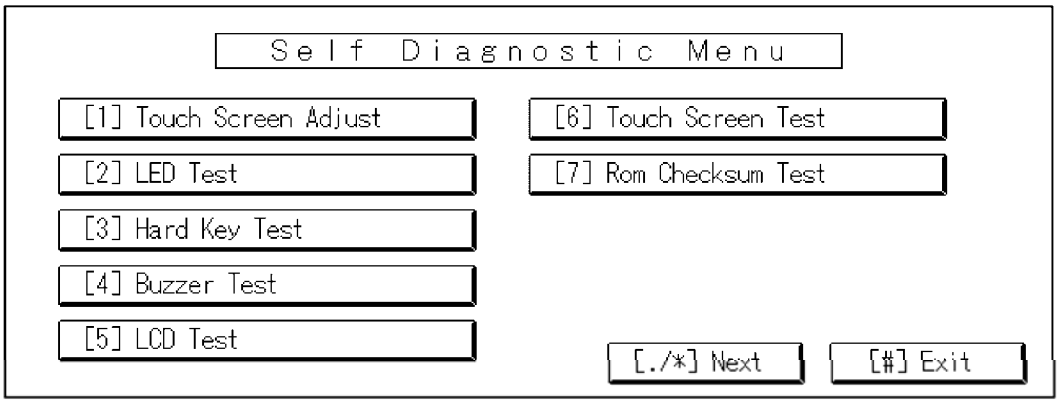
4.13.4 TOUCH SCREEN CALIBRATION

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

Note

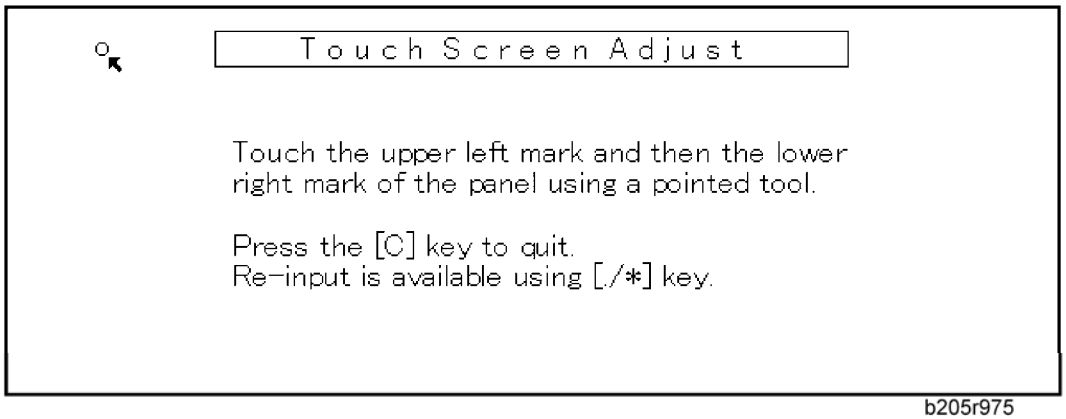
- Do not attempt to use items [2] to [9] on the Self-Diagnostic Menu. These items are for design use only.

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



b205r974

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



b205r975

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 on the ten-key pad).

7. Touch [#] Exit on the screen to close the Self-Diagnostic menu and save the calibration settings.

SYSTEM MAINTENANCE

REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
28	01/05/2012	Delete: BCU SW102 Table

5. SYSTEM MAINTENANCE

5.1 SERVICE PROGRAM MODE

CAUTION

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

5.1.1 SP TABLES

See "Appendices" for the following information:

- System SP Tables

5.1.2 ENABLING AND DISABLING SERVICE PROGRAM MODE

Note

- The Service Program Mode is for use by service representatives only. If this mode is used by anyone other than service representatives for any reason, data might be deleted or settings might be changed. In such case, product quality cannot be guaranteed any more.

Entering SP Mode

For details, ask your supervisor.

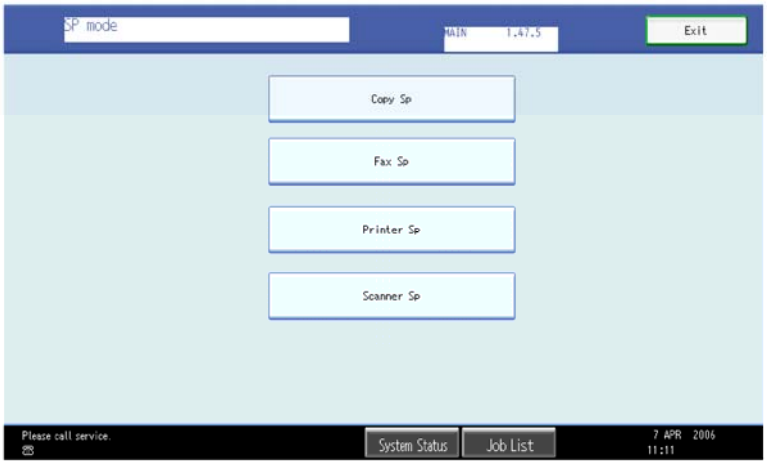
Exiting SP Mode

- Press "Exit" on the LCD twice to return to the copy window.

5.1.3 TYPES OF SP MODES

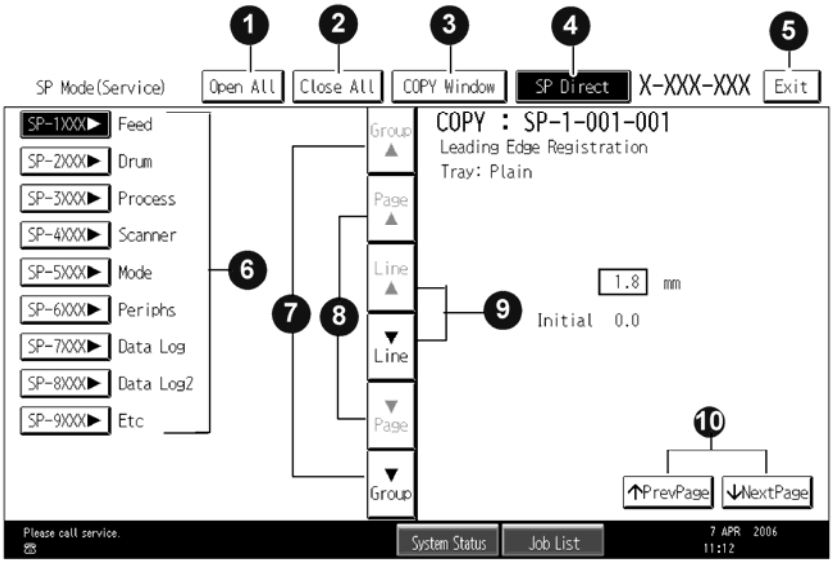
- System SP: SP modes related to the engine functions
- Printer SP: SP modes related to the controller functions
- Scanner SP: SP modes related to the scanner functions
- Fax SP: SP modes related to the fax functions

Select one of the Service Program modes (System, Printer, Scanner, or Fax) from the touch panel as shown in the diagram below after you access the SP mode. This section explains the functions of the System/Printer/Scanner SP modes. Refer to the Fax service manual for the Fax SP modes.



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. Press SP Mode (highlighted) in the copy window to return to the SP mode screen,
4	Enter the SP code directly with the number keys if you know the SP number. Then press #. (The required SP Mode number will be highlighted when pressing #. If not, just press the required SP Mode number.)
5	Press two times to leave the SP mode and return to the copy window to resume normal operation.

6	Press any Class 1 number to open a list of Class 2 SP modes.
7	Press to scroll the show 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 show 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.

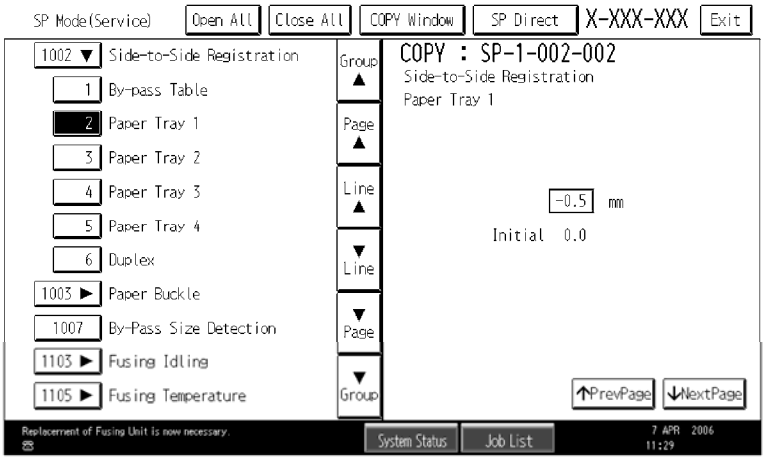
Switching Between SP Mode and Copy Mode for Test Printing

1. In the SP mode, select the test print. 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 Start to start 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. Refer to the Service Tables to find the SP that you want to adjust before you begin.
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 show the SP number that you want to open. Then press that number to expand the list.
4. Use the center touch-panel buttons to scroll to the number and title of the item that you want to set and press it. The small entry box on the right activates and shows the below default or the current settings.



Note

- Refer to the Service Tables for the range of allowed settings.

5. Do this procedure to enter a setting:
   - Press ⊖ to toggle between plus and minus and use the keypad to enter the appropriate number. The number you enter writes over the previous setting.
   - Press # to enter the setting. (The value is not registered if you enter a number that is out of range.)
   - Press "Yes" when you are prompted to complete the selection.
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 ◇ and then press SP Mode (highlighted) in the copy window to return to the SP mode display.
7. Press Exit two times to return to the copy window when you are finished.

Exiting Service Mode

Press the Exit key on the touch-panel.

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 CE can service the machine and turn the machine power switch off and on. It is not necessary to ask the Administrator to log in again each time the main power switch is turned on.
2. Go into the SP mode and set SP5-169 to "1" if you must use the printer bit switches.
3. After machine servicing is completed:
   - Change SP5-169 from "1" to "0".
   - Turn the machine power switch off and on. Tell the administrator that you have completed servicing the machine.
   - The Administrator will then set the "Service Mode Lock" to ON.

5.1.4 REMARKS

The following symbols are used in the SP mode tables.

FA: Factory setting

(Data may be adjusted from the default setting at the factory. Refer to the factory setting sheets enclosed. You can find it under the jammed paper removal decal.)

DFU: Design/Factory Use only

Do not touch these SP modes in the field.

A sharp (#) to the right hand side of the mode number column means that the main power switch must be turned off and on to effect the setting change.

An asterisk (*) to the right hand side of the mode number column means that this mode is stored in the NVRAM. If you do a RAM clear, this SP mode will be reset to the default value.

"ENG" and "CTL" show which NVRAM contains the data.

- ENG: NVRAM on the BCU board
- CTL: NVRAM on the controller board

The settings of each SP mode are explained in the right-hand column of the SP table in the following way.

[Adjustable range / **Default setting** / Step] Alphanumeric

Note

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

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

5.2 FIRMWARE UPDATE

To update the firmware for this machine, you must have the new version of the firmware downloaded onto an SD (Secure Digital) Card. The SD Card is inserted into SD Card Slot 2 on the left rear side of the controller box.

5.2.1 TYPE OF FIRMWARE

Type of firmware	Function	Location of firmware	Message shown
Engine	Printer engine control	BCU Flash ROM	Engine
System/Copy Application	Operating system	Flash ROM on the controller board	System/Copy
Printer Application	Feature application	Flash ROM on the controller board	Printer
Scanner Application	Feature application	Flash ROM on the controller board	Scanner
Fax Application	Feature application	Flash ROM on the controller board	Fax
NIB	Network Interface	Flash ROM on the controller board	Network Support
Operation Panel	Panel control	Operation Panel	Lcdc.
Fax FCU	Fax control	FCU	GWFCU3.5-1(WW)
Remote Fax	Fax control	Flash ROM on the controller board	Remote Fax
Language	Language firmware Two languages can be selected from 16 languages.	Operation Panel	Language 1
			Language 2

Type of firmware	Function	Location of firmware	Message shown
WebDocBox	Document server application	Flash ROM on the controller board	Web Uapl
WebSys	Web Service application	Flash ROM on the controller board	Web Support
PDF	PDF direct printing		PDF
PS	Page description language (PostScript3)	PS3 SD card	PS
RPCS	Page description language (RPCS for XPS driver data process)	Flash ROM on the controller board	RPCS
MediaPrint:JPEG/IFF	MediaPrint control	Flash ROM on the controller board	MediaPrint:JPEG/TIFF
Netfile Application	Feature application	Flash ROM on the controller board	NetworkDocBox
Summary font	Summary fonts	Flash ROM on the controller board	FONT
PCL Font	PCL fonts	Flash ROM on the controller board	FONT1
PS 3 font	Post Script 3 fonts	Flash ROM on the controller board	FONT2
ARDF	ARDF control	ARDF	ADF
Finisher	Finisher control	Finisher	Finisher
Java VM	SDK application	Java VM SD card	SDK
Data Overwrite Security	Security application	Flash ROM on the controller board	HDD Format Option

5.2.2 BEFORE YOU BEGIN

An SD card is a precision device. Always observe the following precautions when you handle SD cards:

- Always switch the machine off before you insert an SD card. Never insert the SD card into the slot with the power on.
- Do not remove the SD card from the service slot after the power has been switched on.
- Never switch the machine off while the firmware is downloading from the SD card.
- Keep SD cards in a safe location where they are not exposed to high temperature, high humidity, or exposure to direct sunlight.
- Always handle SD cards with care. Do not bend or scratch them. Do not let the SD card get exposed to shock or vibration.
- Make sure that the write protection of an SD card is unlocked when you download an application to it. If not, downloading fails and a download error (e.g. Error Code 44) occurs during a firmware upgrade.

Keep the following points in mind when you use the firmware update software:

- "Upload" means to send data from the machine to the SD card. "Download" means to send data from the SD card to the machine.
- To select an item on the LCD, touch the appropriate button on the soft touch-screen of the LCD, or, press the appropriate number key on the 10-key pad of the operation panel. For example, when "Exit (0)" shows on the screen you can touch the Exit button on the screen, or, press the ⓪ button on the operation panel of the copier.
- Make sure that the machine is disconnected from the network to prevent a print job for arriving while the firmware update is in progress before you start the firmware update procedure.

5.2.3 UPDATING FIRMWARE

Preparation

- If the SD card is blank, make a "romdata" folder on the SD card.
- If the card already contains a “romdata” folder, copy the “firmware” to the folder.

Updating Procedure

1. Turn off the main power switch.
2. Remove the controller cover (x 1).
3. Insert the SD card into SD Card Slot 2. Make sure the label on the SD card faces the front side of the machine.
4. Slowly push the SD card into the slot so it locks in place. You will hear it click. Make sure the SD card locks in place.

Note

- To remove the SD, push it in to unlock the spring lock. Then release it so it pops out of the slot.

5. Disconnect the network cable from the copier if the machine is connected to a network.
6. Switch the main power switch on. After about 45 seconds, the initial version update screen appears on the LCD in English.
7. On the screen, touch the button or press the corresponding number key on the operation panel to select the item in the menu that you want to update.

ROM/NEW	What it means
ROM:	Tells you the number of the module and name of the version currently installed. The first line is the module number, the second line the version name.
NEW:	Tells you the number of the module and name version on the SD card. The first line is the module number, the second line the version name.

Note

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

8. Touch "UpDate (#)" (or #) to start the update.

Note

- The progress bar does not show for the operation panel firmware after you touch "OpPanel". The power on key flashes on and off at 0.5 s intervals when the LCDC firmware is updating. The power key flashes on and off at three seconds intervals when the update is finished.

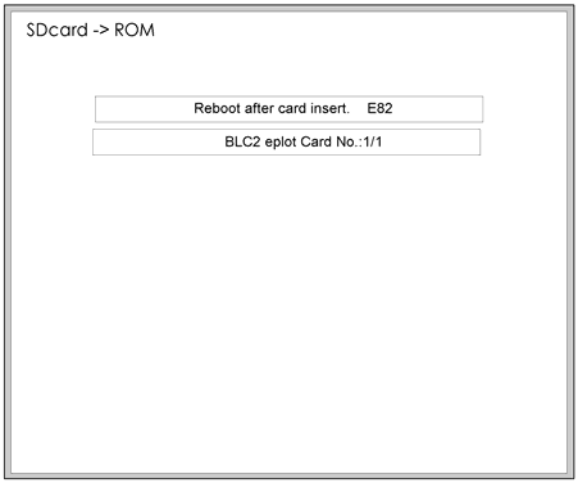
9. The "Update is Done" message appears on the operation panel after completing the updating. The message differs depending on the firmware that has been updated.
10. Switch the copier main power switch off when you see the "Update is Done" message or follow the procedure that is displayed on the operation panel.
11. Press in the SD card to release it. Then remove it from the slot.
12. Switch the copier on for normal operation.

Error Messages

An error message shows in the first line if an error occurs during the download.
The error code consists of the letter "E" and a number. The example above shows error "E24" displayed. For details, refer to the Error Message Table. (☛p.5-15 "Handling Firmware Update Errors" in this section)

Firmware Update Error

If a firmware update error occurs, this means the update was cancelled during the update because the module selected for update was not on the SD card.



Recovery after Power Loss

If the ROM update is interrupted as a result of accidental loss of power while the firmware is updating, then the correct operation of the machine cannot be guaranteed after the machine is switched on again. If the ROM update does not complete successfully for any reason, then in order to ensure the correct operation of the machine, the ROM update error will continue to show until the ROM is updated successfully.
In this case, insert the card again and switch on the machine to continue the firmware download automatically from the card without the menu display.

5.2.4 UPDATING THE LCDC FOR THE OPERATION PANEL

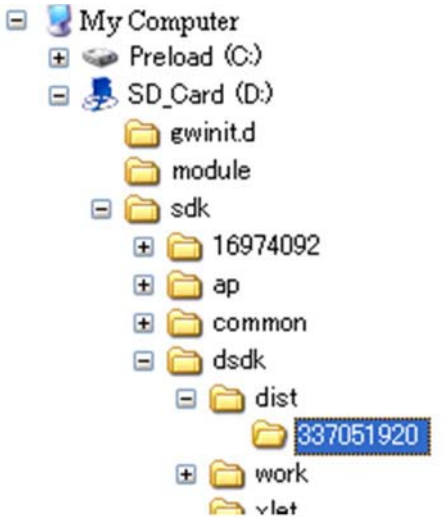
Do the following procedure to update the LCDC (LCD Control Board).

1. Turn off the main power switch.
2. Remove the SD slot cover (x 1).
3. Insert the SD card into SD Card Slot 2.
4. Switch the copier main switch on.
5. The initial screen opens in English after about 45 seconds.
6. Touch "Ope Panel.xx".
7. "xx" differs depending on the destination.
8. Touch "UpDate(#) or ( ) to start the update.
9. Downloading starts after about 9 seconds.
10. The operation panel goes off and the main power on key flashes in red at 0.5 s intervals when the data is downloading. The same key starts flashing in green at 1 s intervals when the update is finished.
11. Switch the copier main power switch off and remove the SD card. Then switch the copier on.

5.2.5 UPDATE PROCEDURE FOR APP2ME PROVIDER

Follow this procedure to update App2Me if a new version is available.

1. Push the [User/Tools] key on the operation panel.
2. If an administrator setting is registered for the machine, Step 3 and Step 4 are required. Otherwise, skip to step 5.
3. Push [Login/Logout] on the operation panel.
4. Login with the administrator user name and password.
5. Touch "Extended Feature Settings" twice on the LCD.
6. Touch each of the applications until the status changes to "Stop".
7. Turn off the main power switch, and then remove the SD Card which contains Java-VM.



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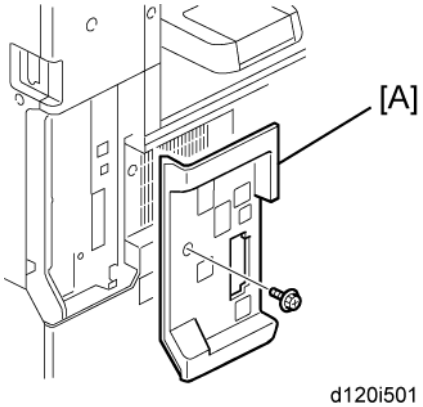
8. Prepare the newer App2Me Provider zip file from the Firmware Download Center, and then unzip the zip file. (The folder name is "337051920".)
9. Copy the App2Me Provider folder into the specified path for the SD Card which contains Java-VM. The path is:
   "SD_Card Drive¥ sdk¥dsdk¥dist¥337051920"
10. Turn the SD card label face to the front of the machine, and then push it slowly into Slot 2 (lower slot) until you hear a click.
11. Turn on the main power switch.
12. Press [User Tools] on the operation panel.
13. Touch the "Extended Feature Settings" button twice.
14. Touch the "Extended Feature Info" tab on the LCD.
15. Touch the "App2Me" line.
16. Set the setting of the "Auto Start" to "On".
17. Touch the "Exit" button.

18. Exit the [User Tools/Counter] settings.

Important

- App2Me and all other running applications on the SD Card which contains Java-VM must be shut down before removing the SD Card contains Java-VM in order to update the firmware, back up NVRAM, install the browser unit, or execute application move or undo with SP5-873.
- After the SD Card which contains Java-VM is re-inserted, App2Me (and any other Java-VM applications used by the customer) must be switched on after the machine is switched on.

5.2.6 BROWSER UNIT UPDATE PROCEDURE



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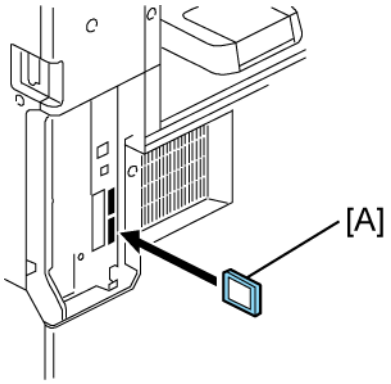
1. Remove the controller cover [A] (x1).



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2. Turn the SD-card label face of the browser unit to the front of the machine. Then push it slowly into slot 1 or slot 2 [A] until you hear a click.
3. Plug in and turn on the main power switch.
4. Push the "User Tools" key.
   - If an administrator setting is registered for the machine, step 5 and 6 are required. Otherwise, skip to the step 7
5. Push the "Login/ Logout" key.
6. Login with the administrator user name and password.
7. Touch "Extended Feature Settings" twice on the LCD.
8. Touch "Uninstall" on the LCD.
9. Touch the "Browser" line
10. Confirmation message appears on the LCD.
11. Touch "Yes" to proceed.
12. Reconfirmation message appears on the LCD.
13. Touch "Yes" to uninstall the browser unit.
14. You will see "Uninstalling the extended feature... Please wait.", and then "Completed".

15. Touch "Exit" to go back to the setting screen.
16. Exit "User/Tools" setting, and then turn off the main power switch.
17. Remove the SD card of the browser unit from the SD card slot.
18. Overwrite the updated program in the "sdk" folder of the browser unit application with PC.
19. Do the "Installation Procedure" to install the browser unit.

5.2.7 HANDLING FIRMWARE UPDATE ERRORS

An error message shows in the first line if an error occurs during a download. The error code consists of the letter "E" and a number ("E20", for example).

Error Message Table

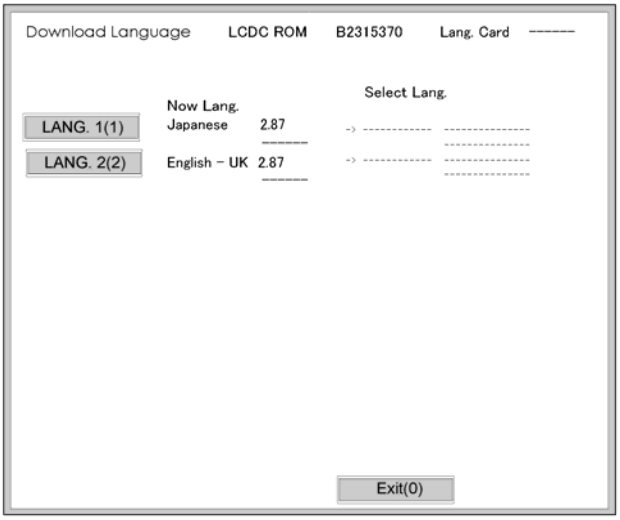
Code	Meaning	Solution
20	Cannot map logical address	Make sure the SD card is inserted correctly.
21	Cannot access memory	HDD connection incorrect or replace hard disks.
22	Cannot decompress compressed data	Incorrect ROM data on the SD card, or data is corrupted.
23	Error occurred when ROM update program started	Controller program abnormal. If the second attempt fails, replace controller board.
24	SD card access error	Make sure SD card inserted correctly, or use another SD card.
30	No HDD available for stamp data download	HDD connection incorrect or replace hard disks.
31	Data incorrect for continuous download	Insert the SD card with the remaining data required for the download, the re-start the procedure.
32	Data incorrect after download interrupted	Execute the recovery procedure for the intended module download, then repeat the installation procedure.
33	Incorrect SD card version	Incorrect ROM data on the SD card, or data is corrupted.

34	Module mismatch - Correct module is not on the SD card)	SD update data is incorrect. Acquire the correct data (Japan, Overseas, OEM, etc.) then install again.
35	Module mismatch – Module on SD card is not for this machine	SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again.
36	Cannot write module – Cause other than E34, E35	SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again.
40	Engine module download failed	Replace the update data for the module on the SD card and try again, or replace the BCU board.
42	Operation panel module download failed	Replace the update data for the module on the SD card and try again, or replace the LCDC.
43	Stamp data module download failed	Replace the update data for the module on the SD card and try again, or replace the hard disks.
44	Controller module download failed	Replace the update data for the module on the SD card and tray again, or replace controller board.
50	Electronic confirmation check failed	SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again.

5.3 INSTALLING ANOTHER LANGUAGE

Many languages are available. But you can only switch between two languages at a time. Do the following procedure to select the two languages you want. You can select both of the languages you want from the user interface on the operation panel.

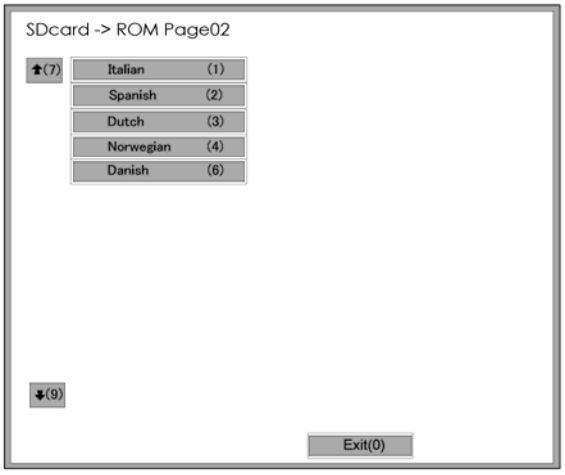
1. Switch the copier main power switch off.
2. Remove the controller cover (x 1).
3. Insert the SD card with the language data into SD Card Slot 2.
4. Switch the copier main power switch on. The initial screen opens after about 45 seconds.
5. Touch "Language Data (2)" on the screen (or press the "2" key).



6. Touch "LANG. 1(1)" or "LANG. 2(2)"

Key	What it does
LANG. 1(1)	Touch this button on the screen (or press the "1" key on the 10-key pad) to open the next screen so you can select the 1st language.
LANG. 1(2)	Touch this button on the screen (or press the "2" key on the 10-key pad) to open the next screen so you can select the 2nd language.
Exit (0)	Touch this key on the screen (or press the "0" key on the 10-key pad) to quit the update procedure and return to normal screen.

7. Touch "LANG 1(1)" to select the 1st Language. Touch "LANG (2)" to select the 2nd Language.



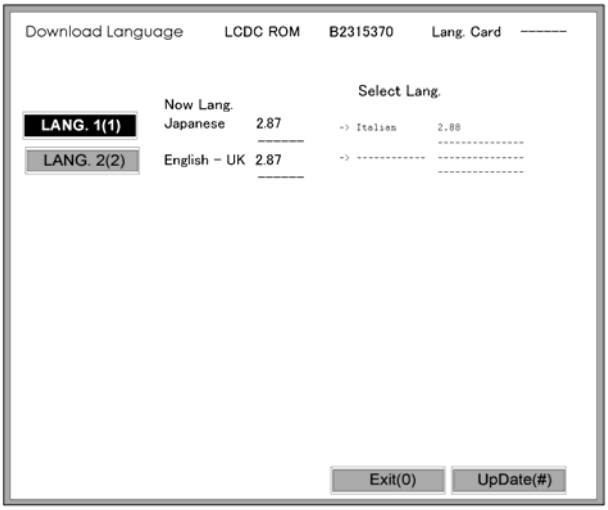
8. Touch the appropriate button on the screen (or press the number on the 10-keypad) to select a language as the 1st (or 2nd) language.
   - If a language is already selected, it will show in reverse.
   - Touching "Exit (0)" returns you to the previous screen.
9. If you do not see the language that you want to select, touch "↑(7)" or "↓(9)" on the screen (or press the "7" or "9" key) to show more choices.

   The Download Screen opens after you select a language.

   The 1st or 2nd language selected for updating shows.

   The following show to right of the selection:
   - 1. The first column shows the language currently selected.
   - 2. The 2nd column shows the language selected to replace that language.

   The example below shows that the download will replace "Japanese" with "Italian" as the 1st language.



10. Touch "Update(#)" on the screen (or press #) to start the download.
    Another screen with a progress bar does not show when the language is downloading.
    The following occur at the time the language is downloading:
    - The operation panel switches off.
    - The LED on the power on key flashes rapidly.
11. After the message of installation completed has shown on the LCD, switch the copier main power switch off. Then remove the SD card from the slot.
12. Switch the copier main power switch on to resume normal operation.

5.4 REBOOT/SYSTEM SETTING RESET

5.4.1 SOFTWARE RESET

You can reboot the software with one of the following two procedures:

1. Turn the main power switch off and on.
2. Press and hold down ⟳ and # together for over 10 seconds. When the machine beeps once, release both buttons. After “Now loading. Please wait” shows for a few seconds, the copy window will open. The machine is ready for normal operation.

5.4.2 SYSTEM SETTINGS AND COPY SETTING RESET

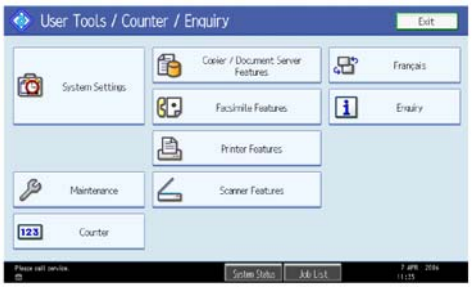
System Setting Reset

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

1. Press User Tools/Counter 🔢.
2. Hold down # and then press System Settings.

Note

- You must press # first.



3. Press yes when the message prompts you to confirm that you want to reset the system settings.
4. Press exit when the message tells you that the settings have been reset.

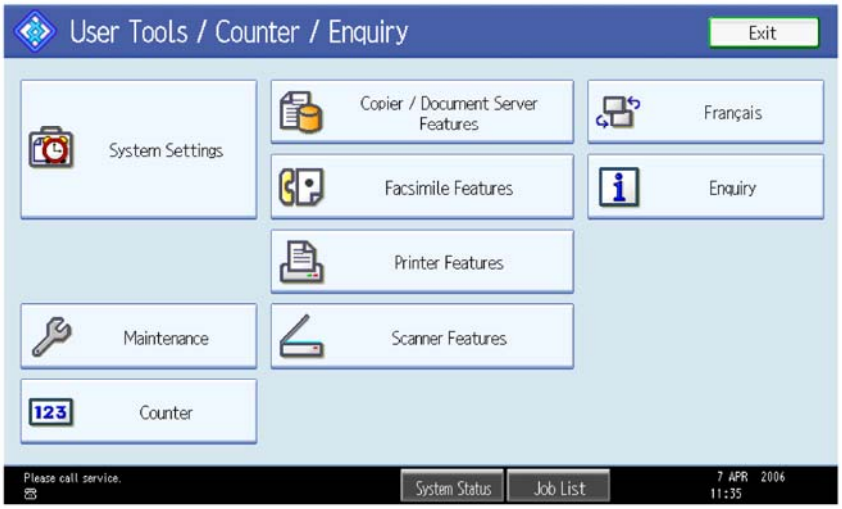
Copier Setting Reset

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

1. Press User Tools/Counter 🔢.
2. Hold down # and then press Copier/Document Server Settings.

Note

- You must press # first.



3. Press “Yes” when the message prompts you to confirm that you want to reset the Copier Document Server settings.
4. Press exit when the message tells you that the settings have been reset.

5.5 NVRAM DATA UPLOAD/DOWNLOAD

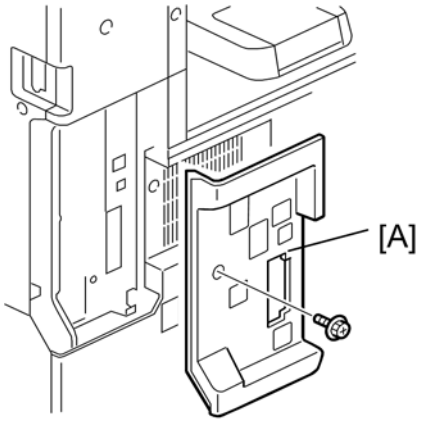
5.5.1 UPLOADING CONTENT OF NVRAM TO AN SD CARD

Do the following procedure to upload SP code settings from NVRAM to an SD card.

Note

- This data should always be uploaded to an SD card before the NVRAM is replaced.
- Make sure that the write protection of an SD card is unlocked

1. Do SP5-990-001 (SMC Print) before you switch the machine off. You will need a record of the NVRAM settings if the upload fails.
2. Switch the copier main power switch off.



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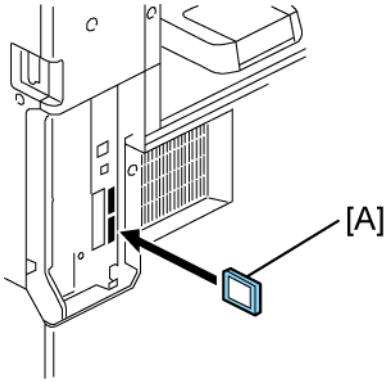
3. Remove the controller cover [A] (x 1).



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4. Insert the SD card [A] into SD slot 2. Then switch the copier on.
5. Execute SP5-824-001 (NVRAM Data Upload) and then press the “Execute” key.
6. The following files are coped to an NVRAM folder on the SD card when the upload procedure is finished. The file is saved to the path and the following filename:

NVRAM¥<serial number>.NV

Here is an example with Serial Number “K5000017114”:

NVRAM¥K5000017114.NV

7. In order to prevent an error during the download, be sure to mark the SD card that holds the uploaded data with the number of the machine from which the data was uploaded.

Note

- You can upload NVRAM data from more than one machine to the same SD card.

5.5.2 DOWNLOADING AN SD CARD TO NVRAM

Do the following procedure to download SP data from an SD card to the NVRAM in the machine.

- The NVRAM data down load may fail if the SD card with the NVRAM data is damaged, or if the connection between the controller and BCU is defective.
- Do the download procedure again if the download fails.
- Do the following procedure if the second attempt fails:
- Enter the NVRAM data manually using the SMC print you created before uploading the NVRAM data.

1. Switch the copier main power switch off.
2. Remove the controller cover (x 1).
3. Insert the SD card with the NVRAM data into SD slot 2.
4. Switch the copier main power switch on.
5. Do SP5-825-001 (NVRAM Data Download) and press the “Execute” key.

Note

- The serial number of the file on the SD card must match the serial number of the machine for the NVRAM data to download successfully. The download fails if the serial numbers do not match.

This procedure does not download the following data to the NVRAM:

- Total Count
- C/O, P/O Count

5.6 ADDRESS BOOK UPLOAD/DOWNLOAD

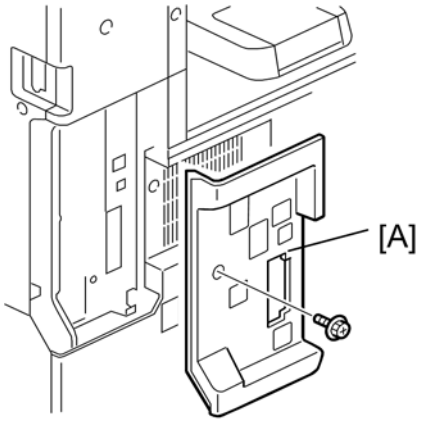
5.6.1 INFORMATION LIST

The following information is possible to be uploaded and downloaded.

Information	
▪ Registration No. ▪ User Code ▪ E-mail ▪ Protection Code ▪ Fax Destination ▪ Fax Option ▪ Group Name ▪ Key Display	▪ Select Title ▪ Folder ▪ Local Authentication ▪ Folder Authentication ▪ Account ACL ▪ New Document Initial ACL ▪ LDAP Authentication

5.6.2 DOWNLOAD

1. Prepare a formatted SD card.
2. Make sure that the write-protection on the SD card is off.
3. Turn off the main power switch.



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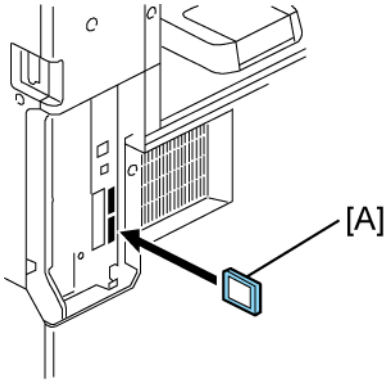
4. Remove the controller cover [A] (x 1).



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5. Install the SD card [A] into the SD card slot 2 (for service use).
6. Turn on the main power switch.
7. Enter the SP mode.
8. Do SP5-846-051 (Backup All Addr Book).
9. Exit the SP mode, and then turn off the main power switch.
10. Remove the SD card from the SD card slot 2.
11. Install the controller cover.

Note

- If the capacity of SD card is not enough to store the local user information, an error message is displayed.
- Carefully handle the SD card, which contains user information. Do not take it back to your location.

5.6.3 UPLOAD

1. Turn off the main power switch.
2. Remove the controller cover (x 1).
3. Install the SD card, which has already been uploaded, into the SD card slot 2.
4. Turn on the main power switch.
5. Enter the SP mode.
6. Do SP5-846-052 (Restore All Addr Book).
7. Exit the SP mode, and then turn off the main power switch.
8. Remove the SD card form the SD card slot 2.
9. Install the controller cover.

Note

- The counter in the user code information is initialized after uploading.
- The information of an administrator and supervisor cannot be downloaded nor uploaded.
- If there is no data of address book information in the SD card, an error message is displayed.

5.7 LED AND DIP SWITCHES

5.7.1 LEDS

Controller

Number	Normal	Controller Software Download	Error
LED 1	Off	Blinking	Off
LED 2	Blinking	Blinking	Lit or Off

BCU

Number	Normal	Controller Software Download	Error
LED 1	Lit	Lit	Off or Blinking
LED 2	Blinking	Lit	Lit (except downloading) or Off

5.7.2 DIP SWITCHES

Controller

SW2

Number	OFF	ON
1	Boot from SD card	Default: Boot from Flash ROM
2 to 4	Default: OFF DFU	---

⇒

5.8 USING THE DEBUG LOG

5.8.1 OVERVIEW

This machine provides a Save Debug Log feature that allows the Customer Engineer to save and retrieve error information for analysis.

Every time an error occurs, debug information is recorded in volatile memory. But this information is lost when the machine is switched off and on.

To capture this debug information, the Save Debug Log feature provides two main features:

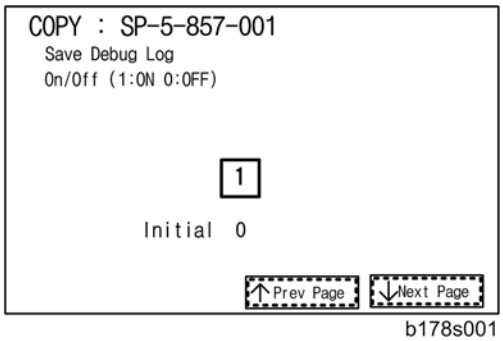
- Switching on the debug feature so error information is saved directly to the HDD for later retrieval.
- Copying the error information from the HDD to an SD card.

Do the following procedure below to set up the machine so the error information is saved automatically to the HDD when a user has problems with the machine. Then ask the user to reproduce the problem.

5.8.2 SWITCHING ON AND SETTING UP SAVE DEBUG LOG

The debug information cannot be saved until the “Save Debug Log” function has been switched on and a target has been selected.

1. Enter the SP mode and switch the Save Debug Log feature on.
   - Enter the SP mode.
   - Touch “System SP”.
   - On the LCD panel, open SP5857.
2. Under “5857 Save Debug Log”, touch “1 On/Off”.

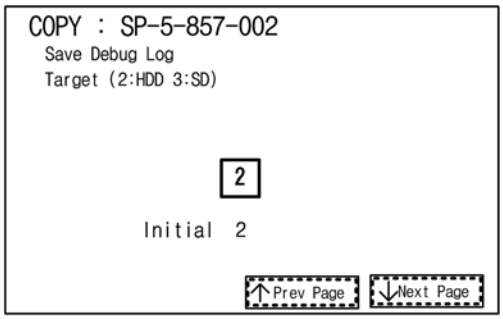


b178s001

3. On the control panel keypad, press “1”. Then press #. This switches the Save Debug Log feature on.

Note

- The default setting is “0” (OFF). This feature must be switched on in order for the debug information to be saved.



b178s002

4. Select the target destination where the debug information will be saved. Under “5857 Save Debug Log”, touch “2 Target”, enter “2” with the operation panel key to select the hard disk as the target destination. Then press #.

Note

- Select “3 SD Card” to save the debug information directly to the SD card if it is inserted in the service slot.

5. Now touch “5858” and specify the events that you want to record in the debug log. SP5-858 (Debug Save When) provides the following items for selection.

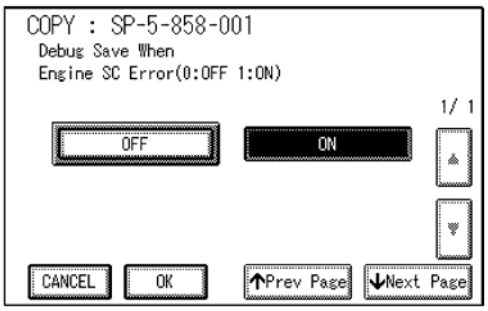
1	Engine SC Error	Saves data when an engine-related SC code is generated.
2	Controller SC Error	Saves debug data when a controller-related SC Code is generated.
3	Any SC Error	Saves data only for the SC code that you specify by entering code number.
4	Jam	Saves data for jams.

Note

- More than one event can be selected.

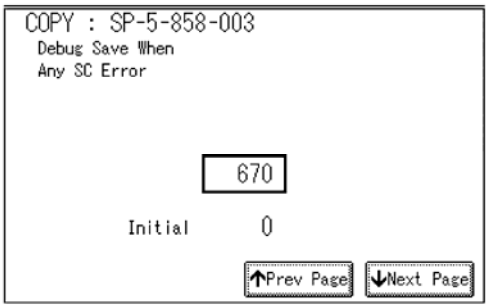
Example 1: To Select Items 1, 2, 4

Touch the appropriate items(s). Press “ON” for each selection. This example shows “Engine SC Error” selected.



Example 2: To Specify an SC Code

Touch “3 Any SC Error”, enter the 3-digit SC code number with the control panel number keys. Then press #. This example shows an entry for SC670.



Note

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

6. Select one or more memory modules for reading and recording debug information. Touch “5859”.

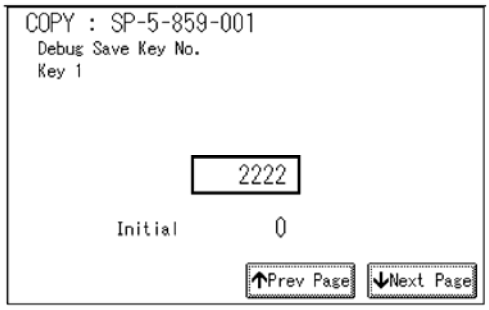
   Under “5859” press the necessary key item for the module that you want to record.

   Enter the appropriate 4-digit number. Then press #.

   Note

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

   The example below shows “Key 1” with “2222” entered.



   The following keys can be set with the corresponding numbers. (The initials in parentheses indicate the names of the modules.)

   4-Digit Entries for Keys 1 to 10

System Maintenance

Key No.	Copy	Printer	Scanner	Web
1	2222 (SCS)			
2	14000 (SRM)			
3	256 (IMH)			
4	1000 (ECS)			
5	1025 (MCS)			
6	4848 (COPY)	4400 (GPS)	5375 (Scan)	5682 (NFA)
7	2224 (BCU)	4500 (PDL)	5682 (NFA)	6600 (WebDB)
8		4600 (GPS-PM)	3000 (UCS)	3300 (PTS)
9		2000 (NCS)	2000 (NCS)	6666 (WebSys)
10		2224 (BCU)	4126 (DCS)	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)

7. 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 with SP5-858 and the memory modules selected with SP5-859.

Please keep the following important points in mind when you do this setting:

- Note that the number entries for Keys 1 to 5 are the same for the Copy, Printer, Scanner, and Web memory modules.
- The initial settings are all zero.
- These settings remain in effect until you change them. Be sure to check all the settings, especially the settings for Keys 6 to 10. To switch off a key setting, enter a zero for that key.
- You can select any number of keys from 1 to 10 (or all) by entering the corresponding 4-digit numbers from the table.
- You cannot mix settings for the groups (COPY, PRINTER, etc.) for 006 to 010. For example, if you want to create a PRINTER debug log you must select the settings from the 9 available selections for the “PRINTER” column only.
- One area of the disk is reserved to store the debug log. The size of this area is limited to 4 MB.

5.8.3 RETRIEVING THE DEBUG LOG FROM THE HDD

Retrieve the debug log by copying it from the hard disk to an SD card.

1. Insert the SD card into slot 2 (service slot) of the copier.
2. Enter the SP mode and execute SP5-857-009 (Copy HDD to SD Card (Latest 4 MB)) to write the debugging data to the SD card.
3. Use a card reader to copy the file and send it for analysis to your local Ricoh representative by email. You can also send the SD card by regular mail if you want.

5.8.4 RECORDING ERRORS MANUALLY

SC errors and jams only are recorded to the debug log automatically. Please instruct the user to do the following immediately after occurrence to save the debug data for any other errors that occur while the customer engineer is not on site. Such problems also include a controller or panel freeze.

Note

- You must previously switch on the Save Debug Feature (SP5-857-001) and select the hard disk as the save destination (SP5-857-002) if you want to use this feature.

1. Press (Clear Modes).on the operation panel when the error occurs.
2. On the control panel, enter “01”. Then hold down for at least 3 seconds until the machine beeps and then release it. This saves the debug log to the hard disk for later retrieval with an SD card by the service representatives.
3. Switch the machine off and on to resume operation.
   The debug information for the error is saved on the hard disk. This lets the service representative retrieve it on their next visit by copying it from the HDD to an SD card.

5.8.5 DEBUG LOG CODES

SP5-857-015 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 SD card. This command does not execute if there is no log on the HDD for the name of the specified key.

SP5-857-016 Create a File on HDD to Store a Log

This SP creates a 32 MB file to store a log on the HDD. However, this is not a completely empty file. The created file will hold the number “2225” as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the HDD when the first log is stored on the HDD (it takes some time to complete this operation). This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the HDD. With the file already created on the HDD for the log file, the data only needs to be recorded. A new log file does not need to be created. To create a new log file, do SP5-857-011 to delete the debug log data from the HDD. Then do SP5-857-016.

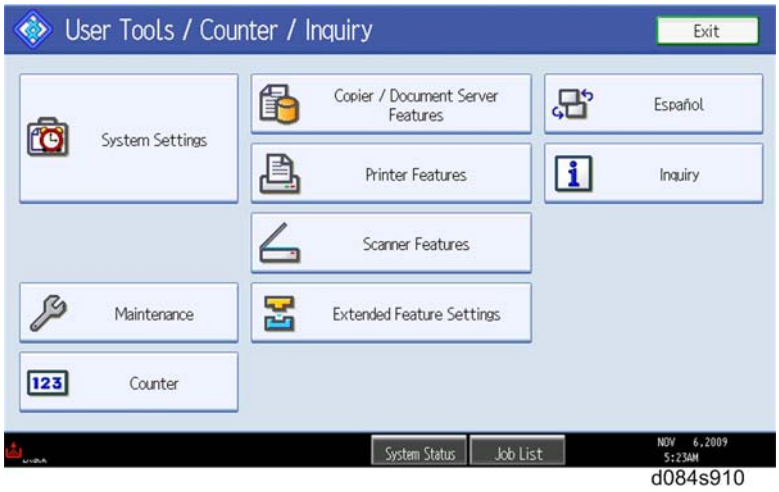
SP5-857-017 Create a File on SD Card to Store a Log

This SP creates a 4 MB file to store a log on an SD card. However, this is not a completely empty file. The created file will hold the number “2225” as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the SD card when the first log is stored on the SD card (it takes some time to complete this operation). This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the SD card. With the file already created on the SD card for the log file, the data only needs to be recorded; a new log file does not require creation. To create a new log file, do SP5-857-012 to delete the debug log data from the SD card. Then do SP5-857-017.

5.9 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'.)

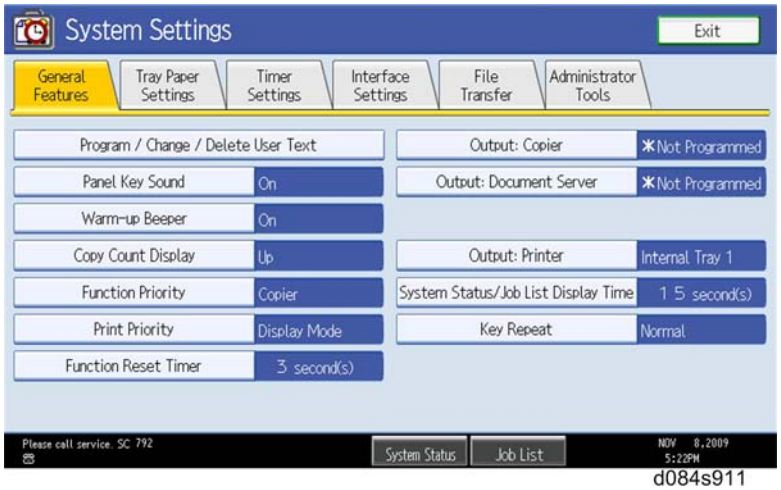
5.9.1 UP MODE INITIAL SCREEN: USER TOOLS/COUNTER DISPLAY



d084s910

To enter the UP mode, press User Tools/Counter.

5.9.2 SYSTEM SETTINGS



d084s911

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.

5.9.3 COPIER/DOCUMENT SERVER FEATURES

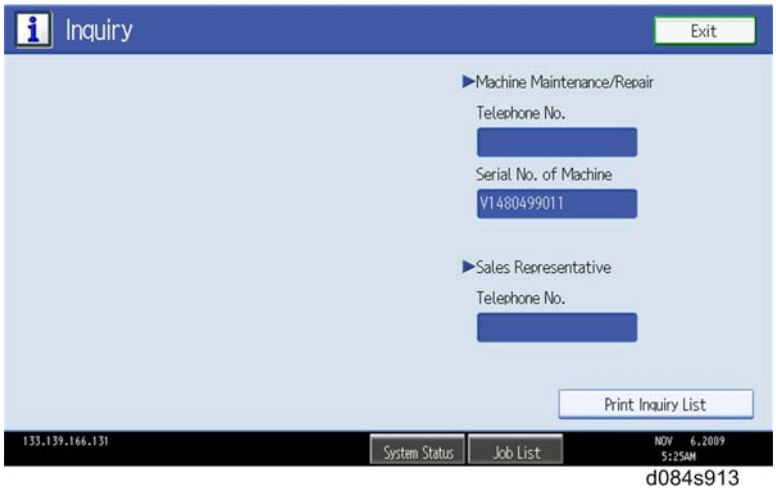
In the User/Tools Counter display, press Copy/Document Server Settings.

- 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.

5.9.4 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.

5.9.5 INQUIRY



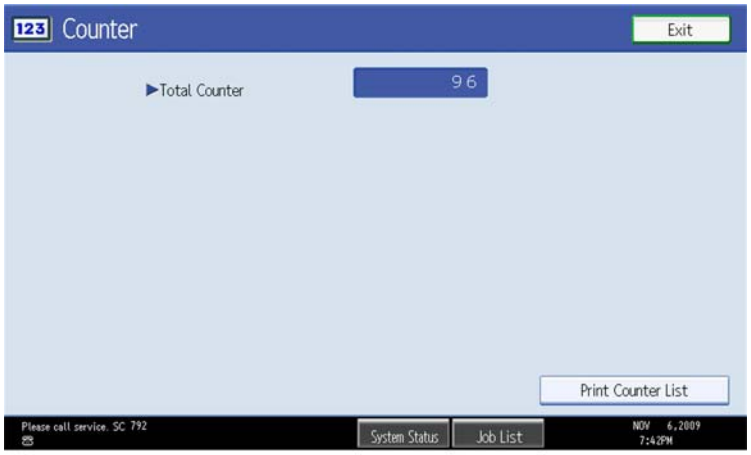
d084s913

In the User/Tools Counter display, press Inquiry.

The following SP mode settings will be displayed.

- Service Telephone Number
- Serial Number of Machine
- Sales Representative Telephone No.

5.9.6 COUNTER



d084s914

In the User/Tools Counter display, press Counter.

View the settings, press Exit to return to the User Tools/Counter display, and then press Exit to return to the copy window.

TROUBLESHOOTING

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

6. TROUBLESHOOTING

6.1 SERVICE CALL CONDITIONS

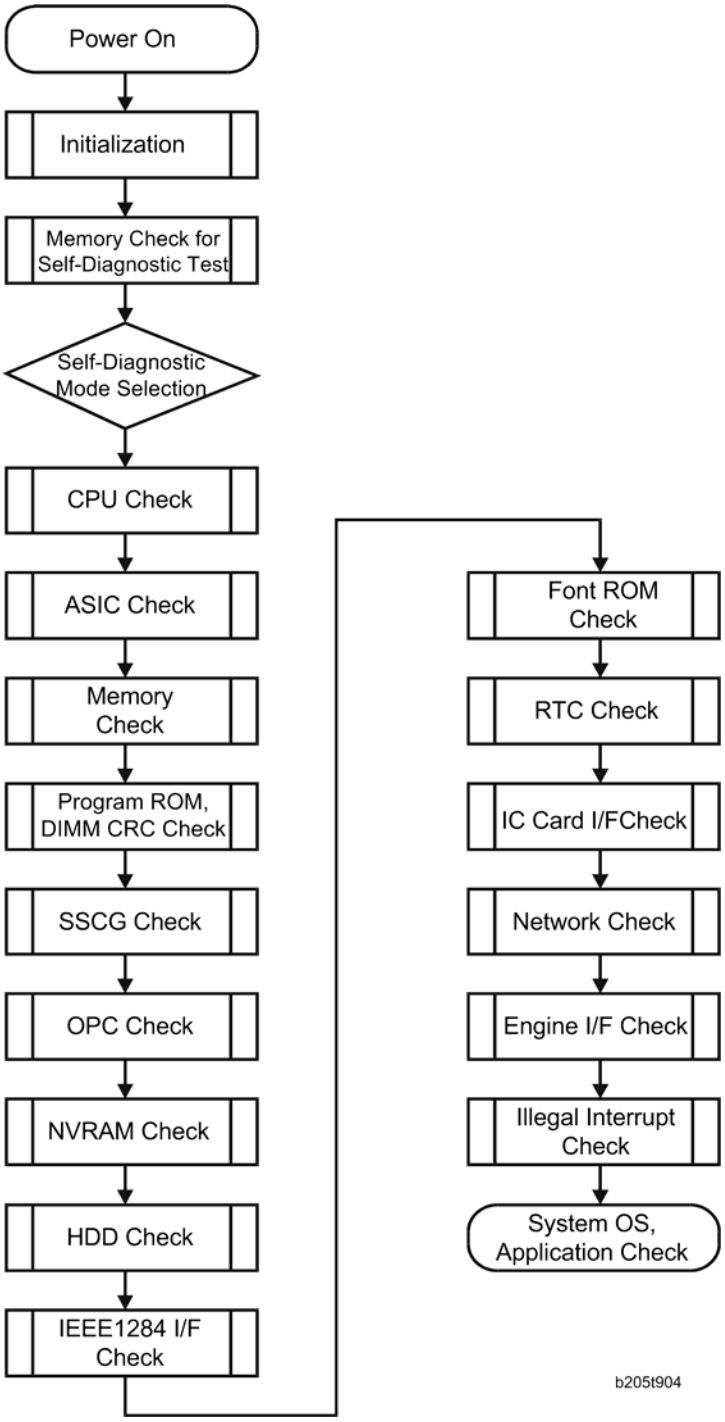
For "Service Call Conditions" information, see "Appendices".

6.2 SELF-DIAGNOSTIC MODE

6.2.1 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



6.2.2 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.

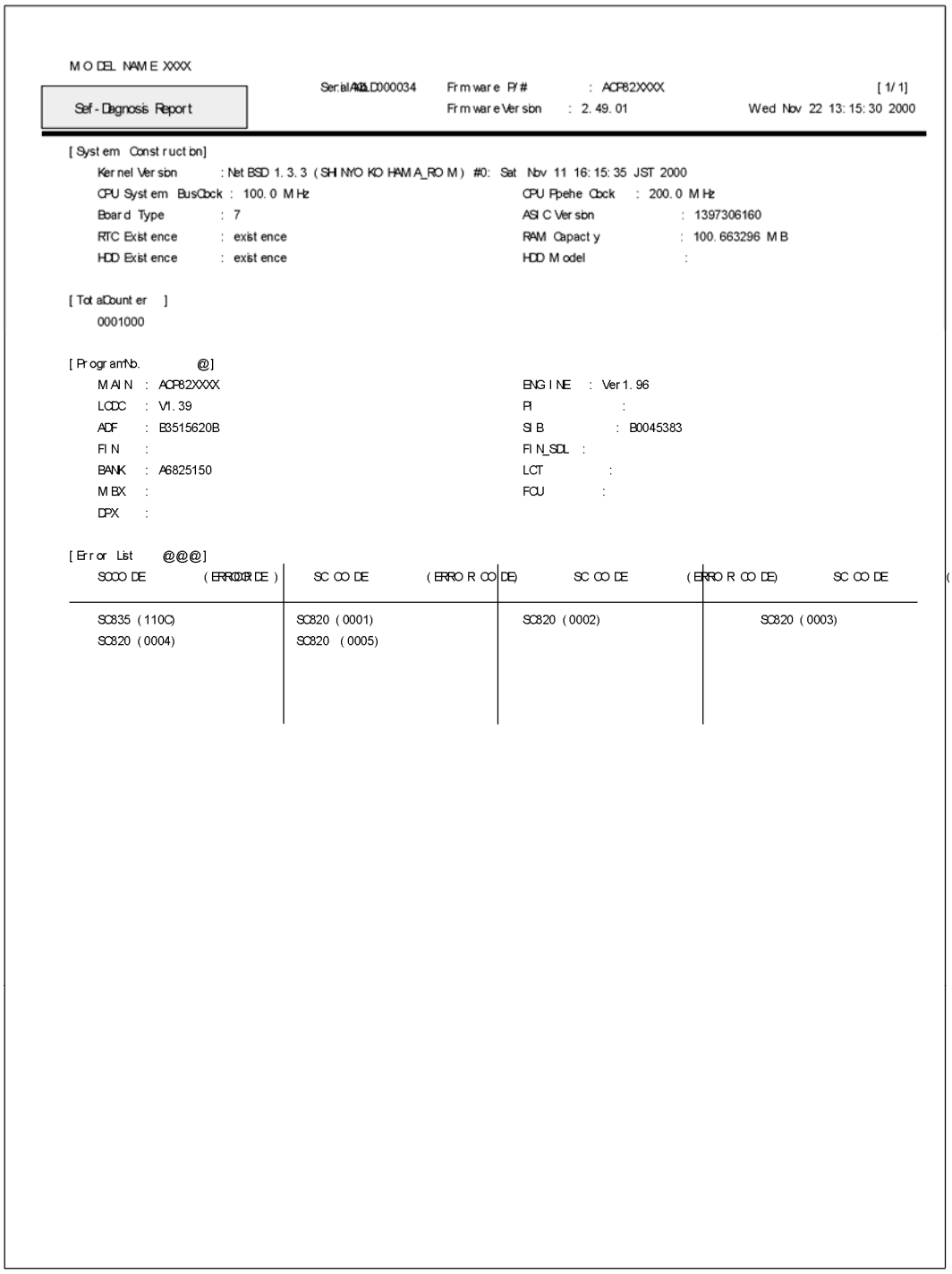
Part No.	Name
G0219350	Parallel Loopback Connector

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. D000034 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

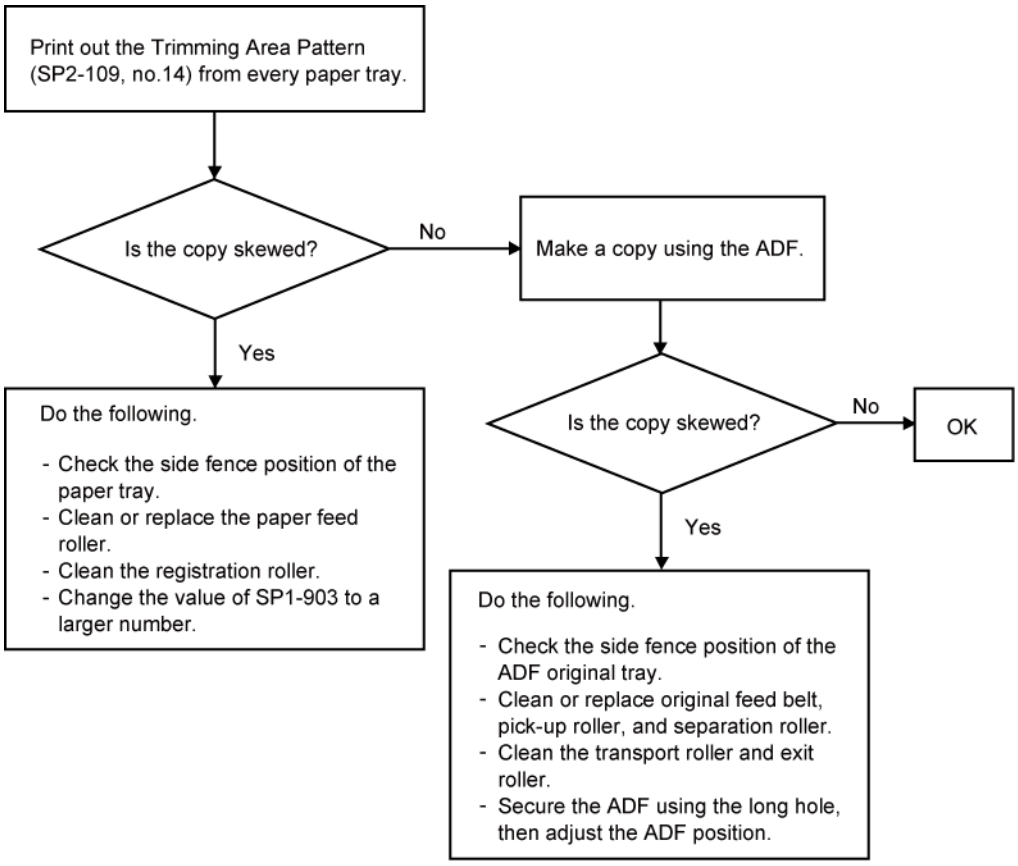
[Program No. @]
MAIN : ACP82XXXX ENGINE : Ver1.96
LCDC : V1.39 PI :
ADF : B3515620B SIB : B0045383
FIN : FIN_SDL :
BANK : A6825150 LCT :
MBX : FCU :
DPX :

[Error List @@@]

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

6.3 SKEWED IMAGE

Do the following to fix a skewed image problem.



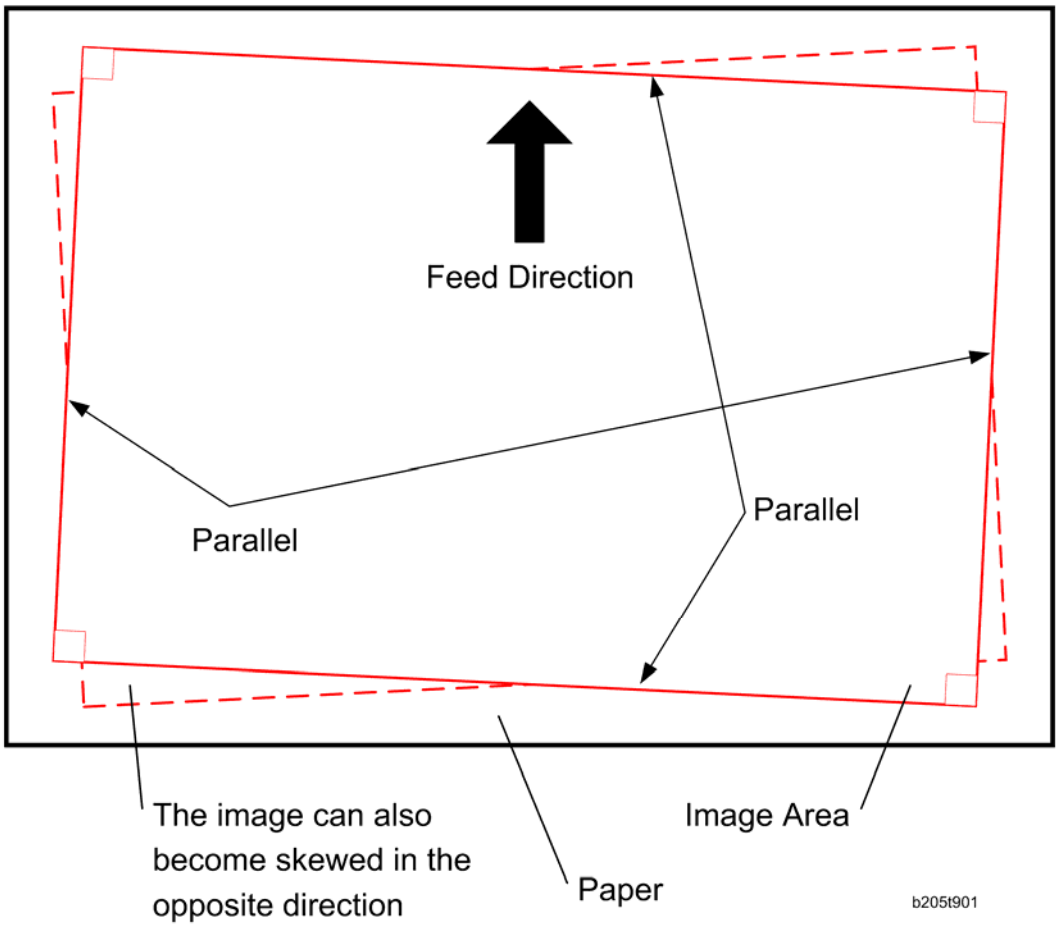
d120t101

6.4 IMAGE PROBLEMS

6.4.1 SKEWED, TRAPEZOID AND PARALLELOGRAM IMAGES

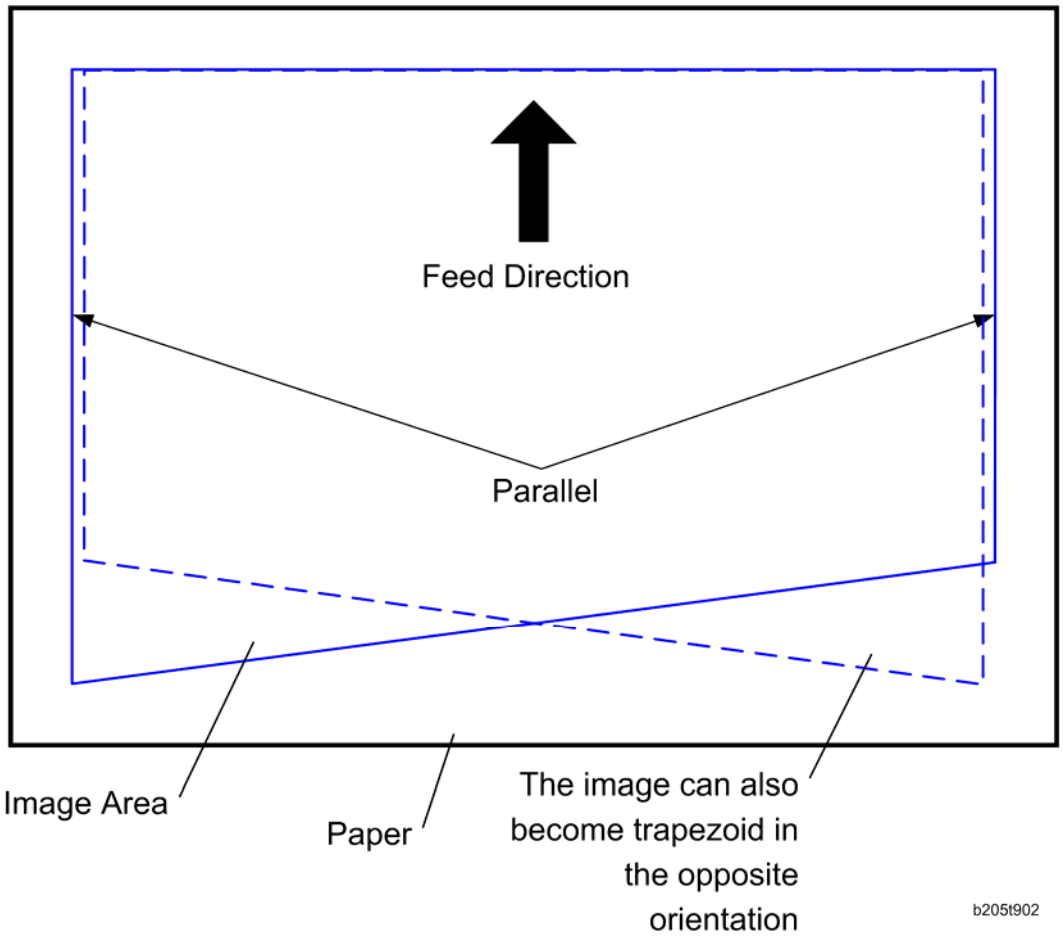
Skewed Images

- 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.

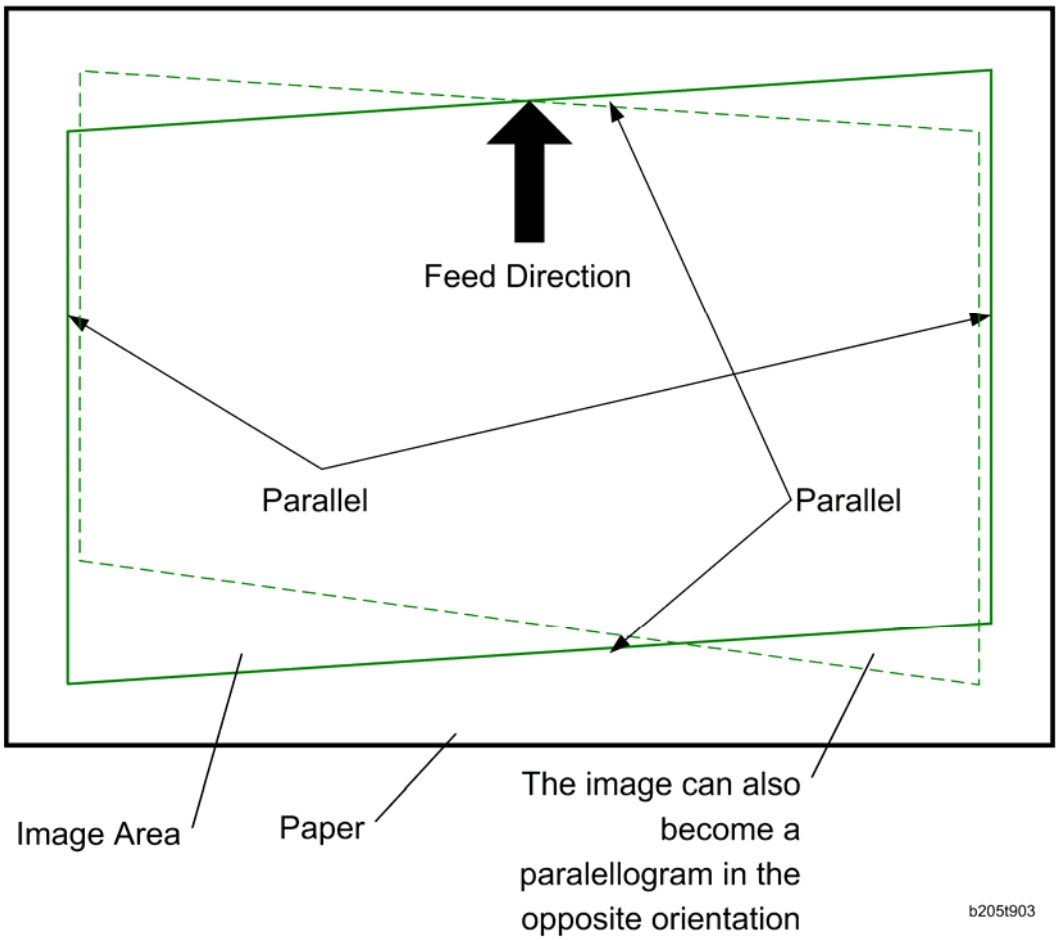


Trapezoid Images

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

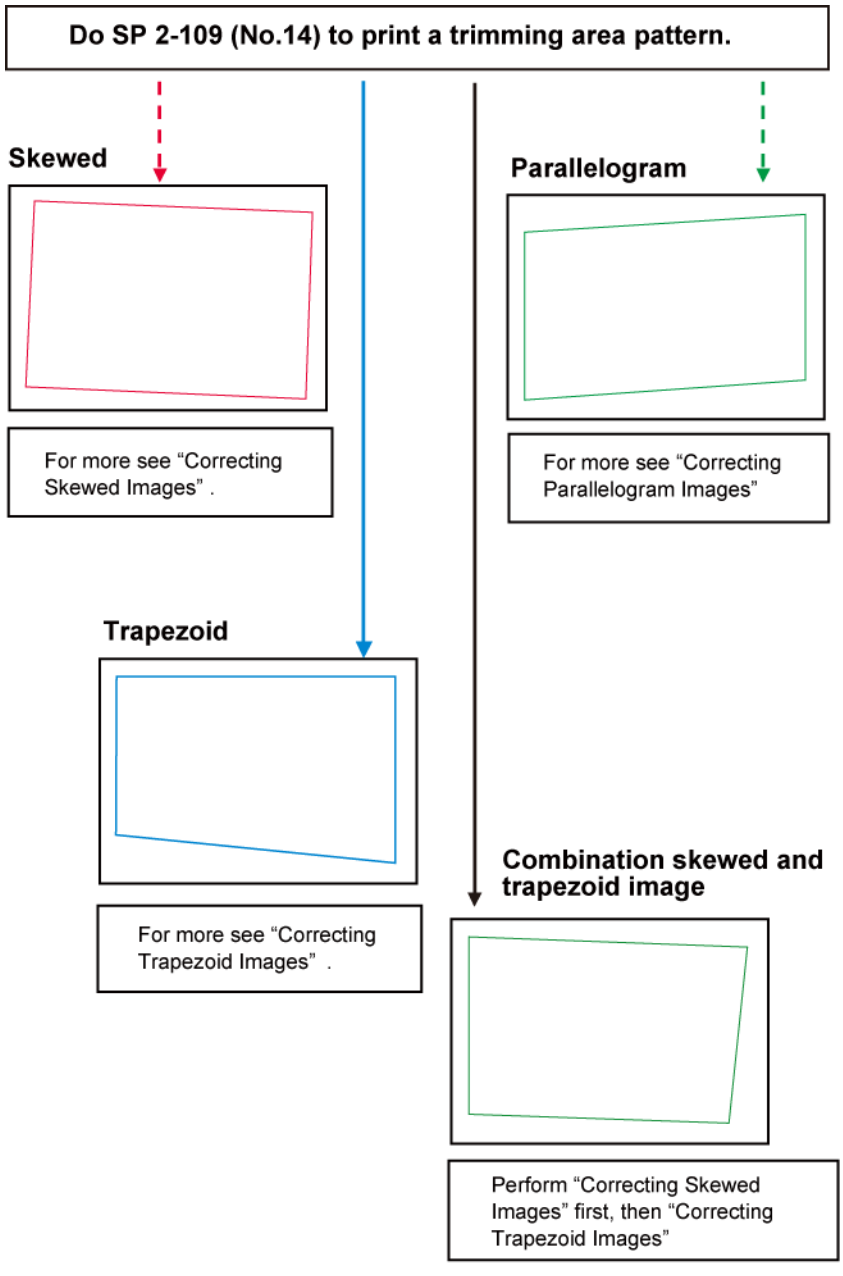


Parallelogram Images



- 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.

6.4.2 CHECKING IMAGES WITH THE TRIMMING PATTERN



6.4.3 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 registration: SP1-002 and 003.

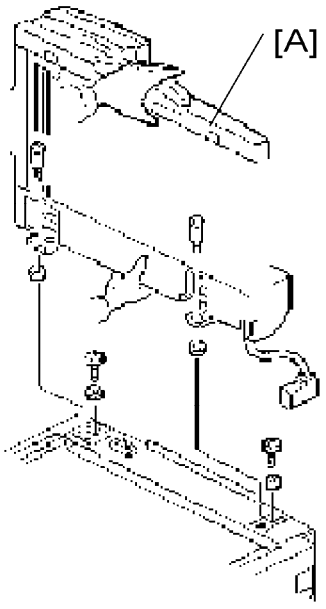
2. Platen mode check

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 (a supporter that is normally attached during shipping)

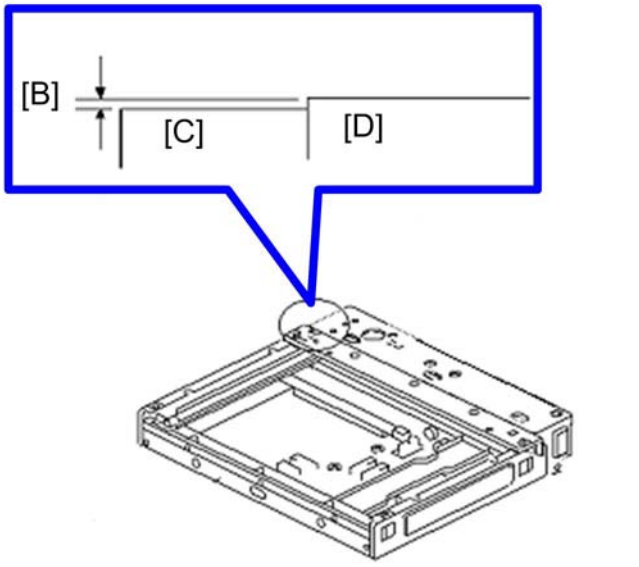
3. ADF mode check

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 A below.	
Procedure complete.		

Procedure A



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



b205t906

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-

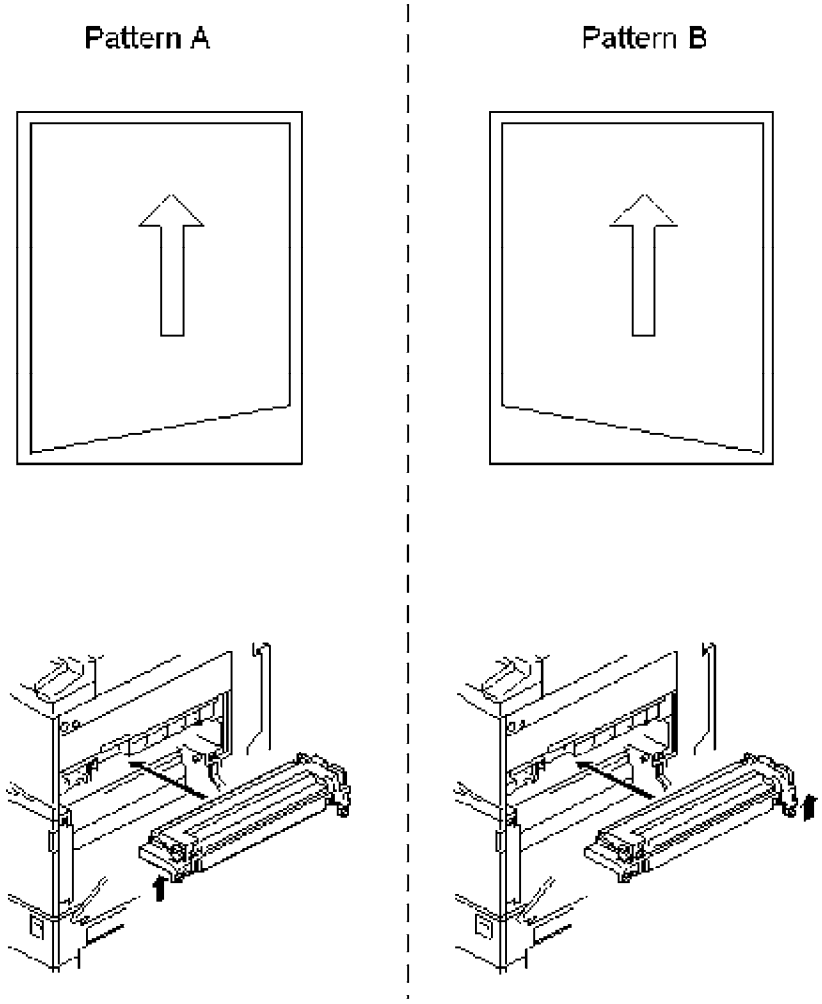
   Adjust the stepped height difference between the hinge bracket and scanner housing until it is within 0 ±0.3 mm.

   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 Trimming Pattern (SP2-109 No.14).
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 and reinstall 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.
   - 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

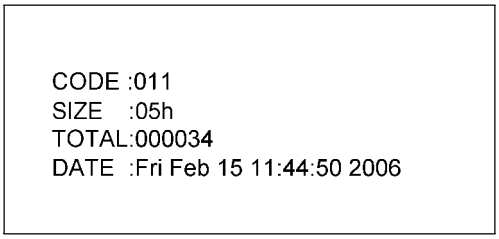
Correcting Parallelogram Images

For the procedure, see "Parallelogram Image Adjustment".

6.5 JAM DETECTION

6.5.1 PAPER JAM DISPLAY

SP7-507 shows the paper jam history.



- **CODE**: Indicates the jam code.
- **SIZE**: Indicates the paper Size Code.
- **TOTAL**: Indicates the total counter (SP7-502-001).
- **DATE**: indicates the date when the jam occurred.

6.5.2 JAM CODES AND DISPLAY CODES

SP7-504 shows how many jams occurred at each location.

Jam Code SP	Display	Description	LCD Display
7-504-003	Tray 1: On	Paper is not fed from tray 1.	A
7-504-004	Tray 2: On	Paper is not fed from tray 2.	A
7-504-005	Tray 3: On	Paper is not fed from tray 3 (LCT).	Y
7-504-006	Tray 4: On	Paper is not fed from tray 4.	Y
7-504-008	Bypass: On	Paper is not fed from the by-pass tray.	A
7-504-009	Duplex: On	Paper is jammed at the duplex unit.	Z
7-504-011	Vertical Trans. 1: On	Vertical transport sensor 1 does not detect paper from tray 1.	A
7-504-012	Vertical Trans .2: On	Vertical transport sensor 2 does not detect paper from tray 2.	A

Jam Code SP	Display	Description	LCD Display
7-504-013	Vertical Trans .3: On	Vertical transport sensor 1 or relay sensor does not detect paper from tray 3 (LCT).	Y
7-504-017	Registration: On	Registration sensor does not detect paper.	A
7-504-020	Paper Exit: On	Paper exit sensor does not detect paper.	C
7-504-021	Bridge Tray Exit: On	Tray exit sensor (bridge unit) does not detect paper.	D
7-504-022	Bridge Relay: On	Relay sensor (bridge unit) does not detect paper.	D
7-504-024	Inverter: On	Junction gate jam sensor does not detect paper.	C
7-504-025	Duplex Exit: On	Duplex exit sensor does not detect paper.	Z
7-504-027	Duplex Entrance: On	Duplex entrance sensor does not detect paper again after paper has passed this sensor.	Z
7-504-051	Vertical Trans. 1: Off	Vertical transport sensor 1 does not turn off.	A
7-504-052	Vertical Trans. 2: Off	Vertical transport sensor 2 does not turn off.	A
7-504-053	Vertical Trans. 3 (PFU): Off	Vertical transport sensor 3 or relay sensor 1 does not turn off.	Y
7-504-054	Vertical Trans. 4 (PFU): Off	Vertical transport sensor 4 does not turn off.	Y
7-504-057	Registration Sensor: Off	Registration sensor does not turn off.	B
7-504-060	Paper Exit: Off	Paper exit sensor does not turn off.	C

Jam Code SP	Display	Description	LCD Display
7-504-061	Bridge Tray Exit: Off	Tray exit sensor (bridge unit) does not turn off.	D
7-504-062	Bridge Relay: Off	Relay sensor (bridge unit) does not turn off.	D
7-504-064	Inverter: Off	Junction gate jam sensor does not turn off.	C
7-504-065	Duplex Exit: Off	Duplex exit sensor does not turn off.	Z
7-504-067	Duplex Ent: Off	Duplex entrance sensor does not turn off after paper has passed this sensor.	Z
7-504-100	Finisher Entrance (D588)	Paper does not reach the entrance sensor or stay at the entrance sensor.	R1-R2
7-504-101	Finisher Shift Tray Exit (D588)	Paper does not reach the lower tray exit sensor or stay at the lower tray exit sensor.	R1-R2
7-504-102	Finisher Staple (D588)	Paper does not reach the staple tray entrance sensor or stay at the staple tray entrance sensor.	R3-R5
7-504-103	Finisher Exit (D588)	Lower tray exit sensor does not detect paper after the stack feed-out belt has fed paper. Lower tray exit sensor still detects paper after the stack feed-out belt has returned to the home position.	R3-R5
7-504-105	Finisher Tray Lift Motor (D588)	Stack height sensor does not detect paper after the lower tray has lifted up. Stack height sensor still detects paper after the lower tray has lifted down.	R1-R2

Jam Code SP	Display	Description	LCD Display
7-504-106	Finisher Jogger Motor (D588)	Jogger fence HP sensor does not turn off after the jogger fence has moved from its home position. Jogger fence HP sensor does not turn on after the jogger fence has returned to its home position.	R3-R5
7-504-107	Finisher Shift Motor (D588)	Shift roller HP sensor does not turn off after the shift roller has moved from its home position. Shift roller HP sensor does not turn on after the shift roller has returned to its home position.	R1-R2
7-504-108	Finisher Staple Motor (D588)	Stapler HP sensor does not turn off after the stapler has moved from its home position. Stapler HP sensor does not turn on after the stapler has returned to its home position.	R3-R5
7-504-109	Finisher Exit Motor (D588)	Stack belt HP sensor does not turn off after the stack feed-out belt has moved from its home position. Stack feed-out belt HP sensor does not turn on after the stack feed-out belt has returned to its home position.	R3-R5
7-504-130	FIN Entrance (D589)	Paper does not reach the entrance sensor or stay at the entrance sensor.	R1-R3
7-504-131	FIN Proof Tray Exit (D589)	Paper does not reach the proof tray exit sensor or stays at the proof tray exit sensor.	R1-R3

Jam Code SP	Display	Description	LCD Display
7-504-132	FIN Shift Tray (D589)	Paper does not reach the shift tray exit sensor or stays at the shift tray exit sensor.	R1-R3
7-504-133	FIN Staple Exit (D589)	Paper does not reach the staple tray exit sensor or stays at the staple tray exit sensor.	R4-R6
7-504-134	FIN Exit (D589)	Exit sensor does not detect paper.	R4-R6
7-504-135	Finisher Fold (D589)	Paper does not reach the fold unit entrance sensor or stay at the fold unit entrance sensor.	R7-R11
7-504-136	FIN Fold Exit (D589)	Paper does not reach the fold unit exit sensor or stay at the fold unit exit sensor.	R7-R11
7-504-137	Exit Guide Gate Motor (D589)	Exit guide plate HP sensor does not turn off after the guide plate has moved from its position. Exit guide plate HP sensor does not turn on after the guide plate has returned to its position.	R1-R3
7-504-138	FIN Staple Shift Motor (D589)	Stapler unit HP sensor does not turn off after the stapler unit has moved from its position. Stapler unit HP sensor does not turn on after the stapler unit has returned to its position.	R7-R11

Jam Code SP	Display	Description	LCD Display
7-504-139	FIN Paper Punch Motor (D589)	Punch encoder sensor does not turn on/off after the punch drive motor has turned on. Punch movement HP sensor does not turn on/off after the punch movement motor has turned on. Paper position slide HP sensor does not turn on/off after the paper position sensor slide motor has turned on.	R1-R3
7-504-140	FIN Tray Lift Motor (D589)	Shift Tray position sensor does not detect paper after the shift tray has lifted up. Shift Tray position sensor still detects paper after the shift tray has moved down.	R1-R3
7-504-141	FIN Jogger Motor (D589)	Jogger fence HP sensor does not turn off after the jogger fence has moved from its home position. Jogger fence HP sensor does not turn on after the jogger fence has returned to its home position.	R7-R11
7-504-142	FIN Shift Motor (D589)	Shift motor HP sensor does not turn off after the shift roller has moved from its home position. Shift motor HP sensor does not turn on after the shift roller has returned to its home position.	R1-R3

Jam Code SP	Display	Description	LCD Display
7-504-143	FIN Fold Plate Motor (D589)	Fold plate HP sensor does not turn off after the shift fold plate has moved from its home position. Fold plate HP sensor does not turn on after the s fold plate has returned to its home position.	R7-R11
7-504-144	FIN Staple Motor (D589)	Corner stapler does not finish stapling after a specified time. Booklet stapler does not finish stapling after a specified time.	R7-R11
7-504-145	FIN Exit Motor (D589)	Stack feed-out belt HP sensor does not turn off after the stack feed-out belt has moved from its home position. Stack feed-out belt HP sensor does not turn on after the stack feed-out belt has returned to its home position.	R7-R11
7-504-146	FIN Stack 1 Release Motor (D589)	Stopper S HP sensor does not turn off after the stopper S has moved from its home position. Stopper S HP sensor does not turn on after the stopper S has returned to its home position.	R7-R11
7-504-147	FIN Stack 2 Release Motor (D589)	Lower clamp roller HP sensor does not turn off after the lower clamp roller has moved from its home position. Lower clamp roller HP sensor does not turn on after the lower clamp roller has returned to its home position.	R7-R11

Jam Code SP	Display	Description	LCD Display
7-504-148	FIN Stopper Motor (D589)	Bottom fence HP sensor does not turn off after the bottom fence has moved from its home position. Bottom fence HP sensor does not turn on after the bottom fence has returned to its home position.	R7-R11
7-504-160	Entrance Sn:ON (D585)	Paper does not reach the entrance sensor.	R1
7-504-161	Entrance Sn (D585)	Paper stays at the entrance sensor.	R1
7-504-162	FIN Entrance (D585)	Sensor does not detect paper.	R2
7-504-163	Positioning Roller (D585)	Positioning roller HP sensor does not turn off after the positioning roller has moved from its home position. Positioning roller HP sensor does not turn on after the positioning roller has returned to its home position.	R1
7-504-164	Front Jogger Motor (D585)	Front fence HP sensor does not turn off after the front fence has moved from its home position. Front fence HP sensor does not turn on after the front fence has returned to its home position.	R1
7-504-165	Rear Jogger Motor (D585)	Rear fence HP sensor does not turn off after the rear fence has moved from its home position. Rear fence HP sensor does not turn on after the rear fence has returned to its home position.	R1

Jam Code SP	Display	Description	LCD Display
7-504-166	Exit Motor (D585)	Feed out belt HP sensor does not turn on after the feed out belt motor has turned off. Feed out belt HP sensor does not turn off after the feed out belt motor has turned on.	R1
7-504-167	FIN Staple Shift Motor (D585)	Stapler HP sensor does not turn off after the finisher stapler movement motor has turned on. Stapler HP sensor does not turn on after the finisher stapler movement motor has turned off.	R1
7-504-168	FIN Staple Motor (D585)	Corner stapler does not finish stapling after a specified time.	R1
7-504-169	FIN Tray Lift Motor (D585)	Paper height sensor does not turn on after the output tray has lifted up. Paper height sensor does not turn off after the output tray has moved down.	R1
7-504-170	FIN Stack Height SOL (D585)	Paper height sensor does not turn on after the edge depressor has retracted from the stack. Paper height sensor does not turn off after the edge depressor has touched the top of the stack.	R1
7-504-190	FIN Entrance: ON (D586)	Paper does not reach the entrance sensor.	R1-R2
7-504-191	FIN Entrance: OFF (D586)	Paper stays at the entrance sensor.	R1-R2
7-504-192	FIN Trans ON (D586)	Paper does not reach the vertical transport sensor.	R1-R2

Jam Code SP	Display	Description	LCD Display
7-504-193	FIN Trans: OFF (D586)	Paper stays at the vertical transport sensor.	R1-R2
7-504-194	FIN Entrance (D586)	Exit sensor does not detect paper.	R1-R2
7-504-195	FIN Front Jogger Motor (D586)	Front fence HP sensor does not turn off after the front fence has moved from its home position. Front fence HP sensor does not turn on after the front fence has returned to its home position.	R1-R2
7-504-196	FIN Rear Jogger Motor (D586)	Rear fence HP sensor does not turn off after the rear fence has moved from its home position. Rear fence HP sensor does not turn on after the rear fence has returned to its home position.	R1-R2
7-504-197	FIN Shift Roller Motor (D586)	Shift motor HP sensor does not turn off after the shift roller has moved from its home position. Shift motor HP sensor does not turn on after the shift roller has returned to its home position.	R1-R2
7-504-198	FIN Positioning Roller (D586)	Positioning roller HP sensor does not turn off after the positioning roller has moved from its home position. Positioning roller HP sensor does not turn on after the positioning roller has returned to its home position.	R1-R2

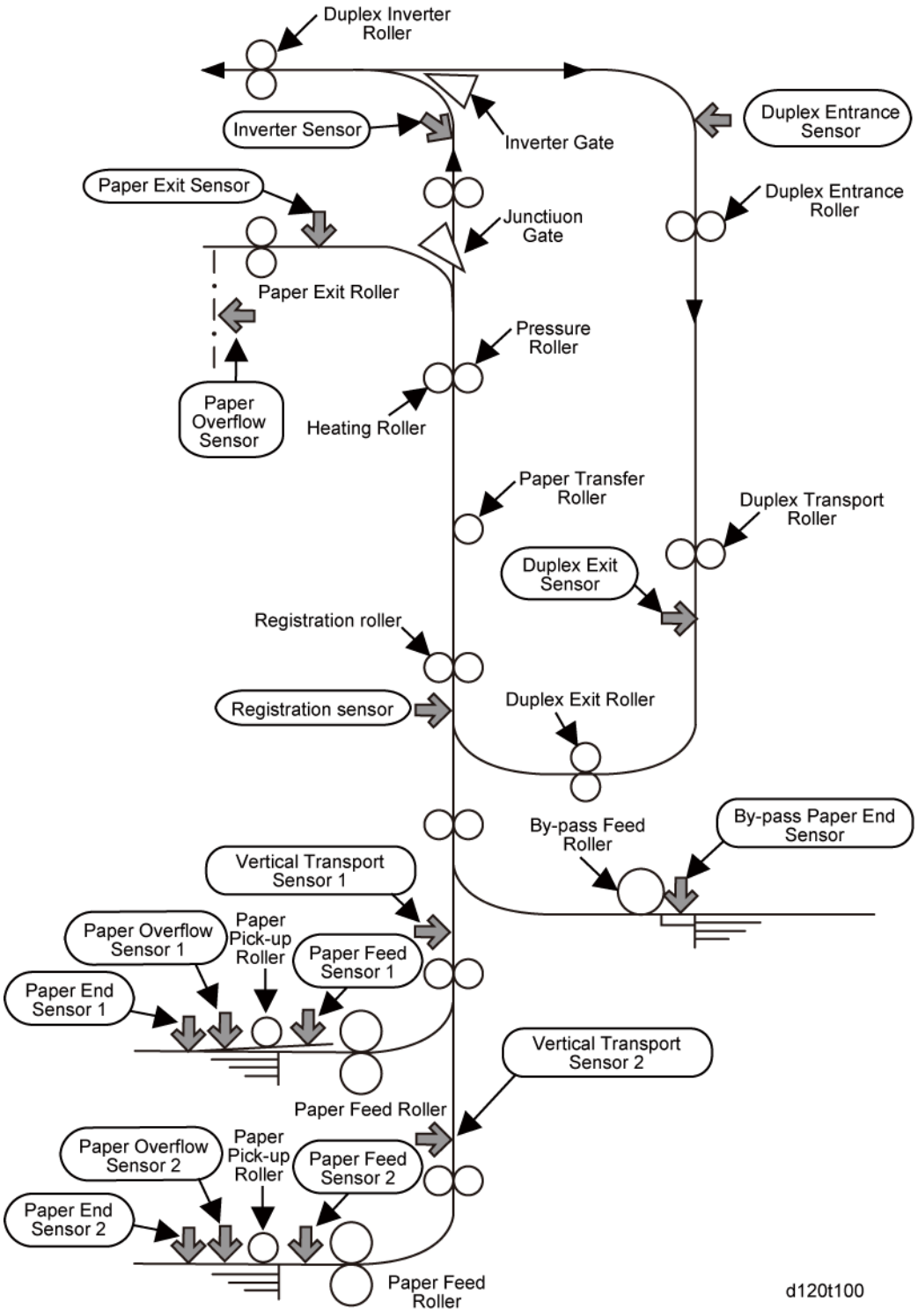
Jam Code SP	Display	Description	LCD Display
7-504-199	FIN Paper Exit Plate Motor (D586)	Exit guide plate HP sensor does not turn off after the guide plate has moved from its position. Exit guide plate HP sensor does not turn on after the guide plate has returned to its position.	R1-R2
7-504-200	FIN Staple Shift Motor (D586)	Stapler HP sensor does not turn off after the finisher stapler movement motor has turned on. Stapler HP sensor does not turn on after the finisher stapler movement motor has turned off.	R1-R2
7-504-201	FIN Tray Lift Motor (D586)	Paper height sensor does not turn on after the output tray has lifted up. Paper height sensor does not turn off after the output tray has moved down.	R1-R2
7-504-202	FIN Staple Motor (D586)	Corner stapler does not finish stapling after a specified time.	R1-R2
7-504-203	FIN Stack Height SOL (D586)	Paper height sensor does not turn on after the edge depressor has retracted from the stack. Paper height sensor does not turn off after the edge depressor has touched the top of the stack.	R1-R2
7-504-204	FIN Punch Motor (D586)	Punch encoder sensor does not turn on/off after the punch drive motor has turned on. Paper position slide HP sensor does not turn on/off after the paper position sensor slide motor has turned on.	R1-R2

Jam Code SP	Display	Description	LCD Display
7-504-205	FIN Punch Movement Motor (D586)	Punch movement HP sensor does not turn on/off after the punch movement motor has turned on.	R1-R2
7-504-206	FIN Registration Motor (D586)	Paper position slide HP sensor does not turn on after the paper position sensor slide motor has turned off. Paper position slide HP sensor does not turn off after the paper position sensor slide motor has turned on.	R1-R2
7-504-230	Fin Exit	Paper exit sensor does not detect paper.	R1-R2
7-504-231	Insufficient Data	Data is Insufficient.	R1-R2

Paper Size Code

Size Code	Paper Size	Size Code	Paper Size
05	A4 LEF	141	B4 SEF
06	A5 LEF	142	B5 SEF
14	B5 LEF	160	DLT SEF
38	LT LEF	164	LG SEF
44	HLT LEF	166	LT SEF
132	A3 SEF	172	HLT SEF
133	A4 SEF	255	Others
134	A5 SEF	-	-

Sensor Locations



6.6 ELECTRICAL COMPONENT DEFECTS

6.6.1 SENSORS

Component	CN	PCB	State	
Small Paper Size Sensor (S1)	307-A2	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
1st Tray Paper Size Sensor (S2)	307-A5, A6, A8	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
			Shorted	
2nd Tray Paper Size Sensor (S3)	307-A13, A14, A16	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
			Shorted	
1st Paper Height Sensor 1 (S4)	307-B2	BCU	Open	Remaining paper volume in Tray 1 or 2 on the LCD is wrong.
			Shorted	
1st Paper Height Sensor 2 (S5)	307-B5	BCU	Open	Remaining paper volume in Tray 1 or 2 on the LCD is wrong.
			Shorted	
2nd Paper Height Sensor 1 (S6)	307-B10	BCU	Open	Remaining paper volume in Tray 1 or 2 on the LCD is wrong..
			Shorted	
2nd Paper Height Sensor 2 (S7)	307-B11	BCU	Open	Remaining paper volume in Tray 1 or 2 on the LCD is wrong..
			Shorted	

Component	CN	PCB	State	
2nd Paper Overflow Sensor (S8)	308-B13	BCU	Open	Paper overflow sensor detects the top of the paper loaded in the 2nd paper tray, even if no paper is placed in the 2nd paper tray
			Shorted	Paper overflow sensor does not detect the top of the paper loaded in the 2nd paper tray, even if paper is placed in the 2nd paper tray
2nd Paper End Sensor (S9)	308-B10	BCU	Open	The Paper End indicator does not light even if there is no paper in the 2nd paper tray.
			Shorted	The Paper End indicator lights even if paper is placed in the 2nd paper tray.
2nd Vertical Transport Sensor (S10)	308-B13	BCU	Open	Jam A (Jam 12)
			Shorted	Jam A (Jam 1)
2nd Paper Feed Sensor (S11)	308-B17	BCU	Open	Jam A (Jam 4)
			Shorted	
1st Paper Overflow Sensor (S12)	308-A13	BCU	Open	Paper overflow sensor detects the top of the paper loaded in the 1st paper tray, even if no paper is placed in the 1st paper tray
			Shorted	Paper overflow sensor does not detect the top of the paper loaded in the 1st paper tray, even if paper is placed in the 1st paper tray

Component	CN	PCB	State	
1st Paper End Sensor (S13)	308-A10	BCU	Open	The Paper End indicator does not light even if there is no paper in the 1st paper tray.
			Shorted	The Paper End indicator lights even if paper is placed in the 1st paper tray.
1st Vertical Transport Sensor (S14)	308-A17	BCU	Open	Jam A (Jam 11)
			Shorted	Jam A (Jam 1)
1st Paper Feed Sensor (S15)	308-A4	BCU	Open	Jam A (Jam 3)
			Shorted	
Duplex Unit Entrance Sensor (S16)	314-8	BCU	Open	Jam Z (Jam 27)
			Shorted	Jam Z (Jam 1)
Duplex Unit Exit Sensor (S17)	314-11	BCU	Open	Jam Z (Jam 25)
			Shorted	Jam Z (Jam 1)
By-pass Tray HP Sensor (S18)	316-13	BCU	Open	SC 508 is displayed.
			Shorted	
By-pass Paper End Sensor (S19)	316-10	BCU	Open	Paper end is not detected when there is no paper in the by-pass paper tray.
			Shorted	Paper end is detected when there is paper in the paper tray.
By-pass Paper Length Sensor (S20)	316-7	BCU	Open	Paper size error
			Shorted	
By-pass Paper Size Sensor (S21)	316-1, 2, 4, 5	BCU	Open	Paper size error
			Shorted	

Component	CN	PCB	State	
Paper Exit Sensor (S22)	324-2	BCU	Open	JAM C (JAM 20)
			Shorted	JAM C (JAM 1)
Paper Overflow Sensor (S23)	324-5	BCU	Open	The paper overflow message is not displayed when the paper overflow condition exists.
			Shorted	The paper overflow message is displayed.
TD Sensor (S24)	327-3	BCU	Open	SC 390 is displayed.
			Shorted	
ID Sensor (S25)	321-4	BCU	Open	SC 355 is displayed.
			Shorted	
Registration Sensor (S26)	321-6	BCU	Open	Jam A (Jam 17)
			Shorted	Jam B (Jam 57)
Inverter Sensor (S27)	331-10	BCU	Open	Jam Z (Jam 24)
			Shorted	Jam Z (Jam 1)
Original Length Sensor 1 (S28)	313-01	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
Original Length Sensor 2 (S29)	313-22	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	

Component	CN	PCB	State	
Scanner H.P Sensor (S30)	336-2	BCU	Open	SC120
			Shorted	SC121
Platen Cover Sensor (S31)	336-5	BCU	Open	APS and ARE do not function properly.
			Shorted	No Symptom.

6.6.2 SWITCHES

Component	CN	PCB	State	
Front Door Safety Switch (SW1)	321-1/3	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 Door Open Switch (SW2)	321-9	BCU	Open	The Cover Open indicator is not lit even if the right cover is opened.
			Shorted	The Cover Open indicator is lit even if the right cover is closed.

6.7 BLOWN FUSE CONDITIONS

⚠CAUTION

- Use a correct rating fuse for the fuse replacement. Never use a wrong rating fuse. If do so, the machine may be damaged.

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	10 A/250 V	5 A/250 V	No response
FU3	2 A/250 V	2 A/250V	Anti-condensation/Tray Heater does not turn on.
FU4	5 A/250 V	5 A/250V	Optional finisher does not work then SC792 is displayed. Paper reaches the bridge unit and stays.
FU5	5 A/250 V	5 A/250 V	All motors do not rotate. "Cover Open" appears.
FU6	5 A/250 V	5 A /250V	SC is displayed.
FU7	5 A/250 V	5 A/250 V	The touch panel does not turn on and all motors do not rotate.
FU8	6.3 A/250 V	6.3 A/250 V	No response

ENERGY SAVING

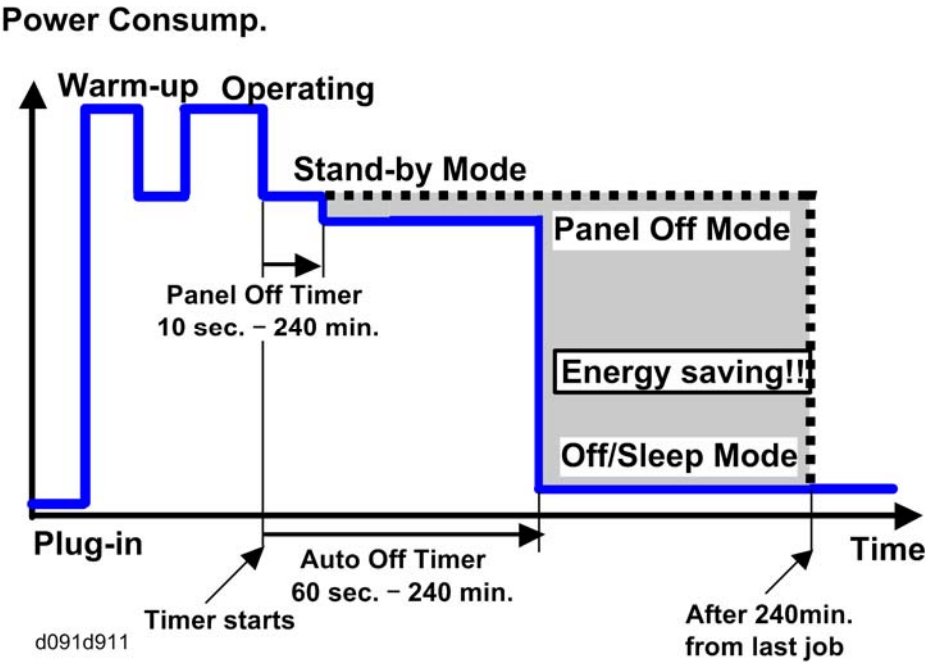
REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

7. ENERGY SAVING

7.1 ENERGY SAVE

7.1.1 ENERGY SAVER MODES

Customers should use energy saver modes properly, to save energy and protect the environment.



The area shaded grey in this diagram represents the amount of energy that is saved when the timers are at the default settings. If the timers are changed, then the energy saved will be different. For example, if the timers are all set to 240 min., the grey area will disappear, and no energy is saved before 240 min. expires.

Timer Settings

The user can set these timers with User Tools (System settings > Timer setting)

- Panel off timer (10 sec – 240 min): Panel Off Mode. Default setting: 1 min.
- Auto off timer (1 – 240 min): Off/Sleep Mode. Default setting: 1 min.

Normally, Panel Off timer < Auto Off timer. But, for example, if Auto Off timer < or = Panel Off timer, the machine goes immediately to Off mode when the Auto Off timer expires. It skips the Panel Off and Energy Saver modes.

Example

- Panel off: 1 min.
- Auto Off: 1 min.
- The machine goes to Off mode after 1 minute. Panel Off and Low Power modes are not used.

Return to Stand-by Mode

Recovery time from Off/Sleep Mode

- Machine without HDD: Less than 11 sec.
- Machine with HDD: Less than 10 sec.

Recommendation

We recommend that the default settings should be kept.

- If the customer requests that these settings should be changed, please explain that their energy costs could increase, and that they should consider the effects on the environment of extra energy use.
- If it is necessary to change the settings, please try to make sure that the Auto Off timer is not too long. Try with a shorter setting first, such as 30 min., then go to a longer one (such as 60 min.) if the customer is not satisfied.
- If the timers are all set to the maximum value, the machine will not begin saving energy until 240 minutes has expired after the last job. This means that after the customer has finished using the machine for the day, energy will be consumed that could otherwise be saved.
- If you change the settings, the energy consumed can be measured using SP8941, as explained below.

7.1.2 ENERGY SAVE EFFECTIVENESS

SP 8941 (Machine Status) keeps a record of the amount of time that the machine spends in each mode.

- 8941-001: Operating mode
- 8941-002: Standby mode
- 8941-003: Panel off mode
- 8941-004: Low power mode
- 8941-005: Off/sleep mode

With this data, and the power consumption values from the specifications, we can estimate the amount of energy that is used by the machine.

This should only be used as a reference value, because the power consumption specifications are measured in a controlled environment with a constant power supply.

To get an exact measurement at the customers site, a watt meter must be used to measure the actual energy consumed.

To use SP8941 to calculate the energy consumed:

- At the start of the measurement period, read the values of SP8941 001 to 005.
- At the end of the measurement period, read the values of SP8941 001 to 005 again.
- Find the amount of time spent in each mode (subtract the earlier measurement from the later measurement).
- Multiply this by the power consumption spec for each mode.
- Convert the result to kWh (kilowatt hours)

Here is an example calculation.

Machine Condition	SP8941: Machine Status	Time at Start (min.) ①	Time at End (min.) ②	Running time (hour) (②-①)/60 = ③	Power consumption Spec. (W) ④	Power consumption (KWH) (③x④)/1000 = ⑤
Operating	001: Operating Time	21089.0	21386.0	5.0	1081.8	5.35
② Stand by (Ready)	002: Standby Time	306163.0	308046.0	31.4	214.0	6.72
③ Energy save (Panel off)	003: Energy Save Time	71386.0	75111.0	62.1	214.0	13.29
④ Low power	004: Low Power Time	154084.0	156340.0	37.6	146.0	5.49
⑤ Off/Sleep	005: Off Mode Time	508776.0	520377.0	193.4	7.0	1.35
Total ⑥						32.20

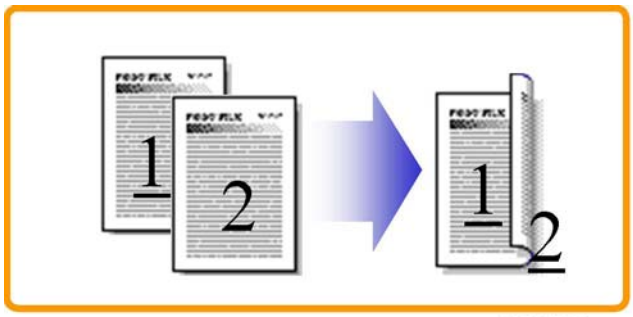
7.2 PAPER SAVE

7.2.1 EFFECTIVENESS OF DUPLEX/COMBINE FUNCTION

Duplexing and the combine functions reduce the amount of paper used. This means that less energy overall is used for paper production, which improves the environment.

1. Duplex:

Reduce paper volume in half!



d062d102

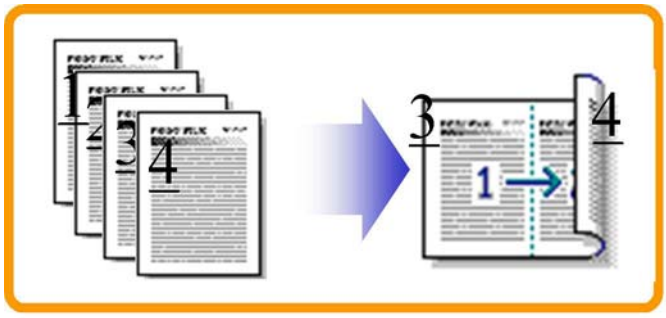
2. Combine mode:

Reduce paper volume in half!

d062d100

3. Duplex + Combine:

Using both features together can further reduce paper volume by 3/4!



d062d101

To check the paper consumption, look at the total counter and the duplex counter.

The total counter counts all pages printed.

- For one duplex page, the total counter goes up by 2.
- For a duplex job of a three-page original, the total counter goes up by 3.

The duplex counter counts pages that have images on both sides.

- For one duplex page, the duplex counter goes up by 1.
- For a duplex job of a three-page original, the duplex counter will only increase by 1, even though two sheets are used.

How to calculate the paper reduction ratio

How to calculate the paper reduction ratio, when compared with Single-sided copying, with no 2-in-1 combine mode

Paper reduction ratio (%) = Number of sheets reduced: A/Number of printed original images: B x 100

- Number of sheets reduced: A
  = Output pages in duplex mode/2 + Number of pages in Single-sided with combine mode + Number of pages in Duplex with combine mode x 3/2
  A = ((2) + (3) + (4))/2 + (5) + (6) x 3/2
- Number of printed original images: B
  = Total counter6 + Number of pages in Single-sided with combine mode + Number of pages in Duplex with combine mode
  B = (1) + (5) + (6)
- (1) Total counter: SP 8581 001 (pages)
- (2) Single-sided with duplex mode: SP 8421 001 (pages)
- (3) Double-sided with duplex mode: SP 8421 002 (pages)
- (4) Book with duplex mode: SP 8421 003 (pages)
- (5) Single-sided with combine mode: SP 8421 004 (pages)
- (6) Duplex with combine mode: SP 8421 005 (pages)

D120/D121/D122/D139/D140/D141
SERVICE MANUAL APPENDICES

D120/D121/D122/D139/D140/D141
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APPENDIX:

SPECIFICATIONS

REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
1	1/16/2012	Bypass: Envelopes

1. APPENDIX: GENERAL SPECIFICATIONS

1.1 SPECIFICATIONS

1.1.1 GENERAL SPECIFICATIONS

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: A6 SEF to A3/DLT, Custom, Postcard, Envelopes Tray 2: A5 to A3, DLT, Custom Bypass: A6 SEF to A3/DLT, Custom, Postcard, Envelopes
Custom Sizes (W x L)	Tray 1: 100 to 297 mm x 148 to 432 mm Tray 2: 182 to 297 mm x 148 to 432 mm Bypass: 90 to 305 mm x 148 to 1260 mm
Duplexing	A5/HLT to A3/DLT
Paper Weight	Tray 1 and Tray 2: 52 to 157 g/m^2 (14 to 42 lbs.) Bypass: 52 to 157 g/m^2 (14 to 42 lbs.) Duplex: 52 to 105 g/m^2 (14 to 28 lbs.)
Copy Speed	D120/D139: 23 cpm (A4 LEF/Letter LEF) D121/D140: 28 cpm (A4 LEF/Letter LEF) D122/D141: 33 cpm (A4 LEF/Letter LEF)
Resolution	600 dpi
Gradation	Read: 256-level (1-dot) Write: 3 or 4-level (2-dot), 2 level (1-dot)
1st Copy Print Time	D120/D139: 5.4 sec (A4/LT LEF, Tray 1) D121/D122/D140/D141: 4.5 sec. (A4/LT LEF, Tray 1)

Warm-up Time	Main Power Switch: Less than 14 sec. (without HDD) Less than 20 sec. (with HDD) Off/Sleep: Less than 11 sec (without HDD) Less than 10 sec (with HDD)	
Continuous Copies	001 to 999 Sheets	
Zoom	Platen Mode: 25% to 400%, in 1% step ARDF Mode: 25% to 400%, in 1% step	
Paper Supply	Tray 1: 500 Sheets Tray 2: 550 Sheets Bypass: 100 Sheets	
Output Capacity	A4, smaller: 500 Sheets face-down B4, larger: 250 Sheets face-down	
Power Source	NA: 120 to 127 V 60 Hz EU, Asia, China: 220 to 240V 50/60 Hz Taiwan: 110V 60 Hz	
Power Consumption	Full System (Operating)	Less than 1.6 KW
	Off Mode	Less than 1.65 W
	Sleep Mode	Less than 4 W (NA) Less than 4.2 W (EU)
Dimensions (W x D x H)	Standard	No PTU: 587 x 653 x 709 mm (23.1" x 25.7" x 30") With PTU: 587 x 653 x 950 mm (23.1" x 25.7" x 37.4")
	Full System	All Options: 1152 x 653 x 1085 mm (45.3" x 25.7" x 42.7")
Weight	Less than 65 kg (143 lbs.) (basic model)	

Noise Emission (Sound Power Level)	Stand-by (Mainframe only):	40 dB (D120/D121/D139/D140) 42.9 dB (D122/D141)
	Operating (Mainframe only):	64.1 dB (D120/D139) 65.8 dB (D121/D140) 67.6 dB (D122/D141)
	Operating (Full-System):	68.1 dB (D120/D139) 69.8 dB (D121/D140) 71.6 dB (D122/D141)

Note

- The above measurements were made in accordance with ISO 7779.
- Full System: Mainframe + ADF + 1-bin Sorter + Paper Tray Unit + Bridge Unit + Finisher

Printer Controller

Printing Speed:	D120/D139: Maximum 23 ppm (A4/LT LEF) D121/D140: Maximum 28 ppm (A4/LT LEF) D122/D141: Maximum 33 ppm (A4/LT LEF)
Printer Languages:	PCL 6/5e PDF Direct Adobe PostScript 3 (optional) IPDS (optional) MediaPrint: JPEG/TIFF (optional)
Resolution and Gradation:	PCL 5e: 300 x 300 dpi 600 x 600 dpi : Fast (1-bit) PCL 6: 600 x 600 dpi : Fast (1-bit) PDF Direct: 300 x 300 dpi/600 x 600 dpi PS3: 300 x 300 dpi/600 x 600 dpi XPS: 600 x 600 dpi : Fast (1-bit) IPDS: 300 x 300 dpi/ 600 x 600 dpi
Printing speed:	D120/D139: 23 ppm (A4/LT LEF) D121/D140: 28 ppm (A4/LT LEF) D122/D141: 33 ppm (A4/LT LEF)
Resident Fonts:	PCL 6/5e (Standard): 45 Compatible fonts 13 International fonts 6 Bitmap fonts Adobe PostScript 3 (Optional): 136 fonts IPDS (Optional): 108 fonts

Host Interfaces:	USB2.0 Type A and Type B: Standard Ethernet (100 Base-TX/10 Base-T): Standard Gigabit Ethernet (1000 Base-T): Optional IEEE1284 parallel x 1: Optional IEEE802.11a/b/g (Wireless LAN): Optional Bluetooth (USB type): Optional
Network Protocols:	TCP/IP (IPv4, IPv6), IPX/SPX
RAM	Maximum Basic model: 512 MB SP model: 1 GB (Resident 512 MB + Additional 512 MB) Note ▪ Additional 512 MB (basic model) is required for all printer/scanner unit and printer units.

Scanner Specification

Standard Scanner Resolution:	Main scan/Sub scan 600 dpi
Scanning Speed	29 ipm (E-mail/Scan-to-Folder/Network Delivery Scanner (A4 LEF, Text 200 dpi, Compression (Default Level))
Available scanning Resolution Range:	100 to1200 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/Fullcolor:	1 bit or 8 bits/pixel each for RGB
Interface:	Ethernet 10Base-T / 100Base-TX, Gigabit Ethernet (1000Base-T), Wireless LAN (IEEE 802.11a/b/g,g)
Compression Method:	B&W: TIFF (MH, MR, MMR), Gray Scale Full Color: JPEG
Video Memory Capacity:	109.41 MB (A4, Full Color, 600dpi)
Image Storage Capacity:	Number of originals per file: Maximum 1,000 pages Maximum of files: 3,000 files Max.Storage on Doc.Server: 9,000 pages (B&W (ITU-T No.1/200 dpi MMR)

1.1.2 SOFTWARE ACCESSORIES

The printer drivers and utility software are provided on one CD-ROM. An auto-run installer allows you to select which components to install.

Printer Drivers

Printer Language	Windows XP, Server 2003, Server 2008, Vista, 7	MacOSX10.2 or later
PCL5c / PCL6	Yes	No
PS3	Yes	Yes
RPCS	No	No

Note

- The PCL5c/6 and PS3 drivers are provided on printer/scanner CD-ROM.
- The PS3 drivers are all genuine Adobe PS drivers, except for Windows XP/Server 2003/Server 2008/Vista/7. A PPD file for each operating system is provided with the driver.
- The PPD installer for Macintosh supports Mac OS X 10.2 or later versions.

Scanner and LAN Fax drivers

Printer Language	Windows XP, Server 2003, Server 2008, Vista, 7	MacOSX10.2 or later
Network TWAIN	Yes	No
LAN-FAX	Yes	No

Note

- The Network TWAIN and LAN Fax drivers are provided on the printer and scanner drivers CD-ROM.
- This software lets you fax documents directly form your PC. Address Book Editor and Cover Sheet Editor are to be installed as well. (These require the optional fax unit.)

Utility Software

Software	Description
Font Manager (XP/Vista)	A font management utility with screen fonts for the printer This is provided on the printer scanner CD-ROM
Smart Device Monitor for Admin (XP/Server 2003/Server 2008/Vista/7)	A printer management utility for network administrators. NIB setup utilities are also available. This is provided on the web.
DeskTopBinder – SmartDeviceMonitor for Client (XP/Server 2003/Server 2008/Vista/7)	A printer management utility for client users. A utility for peer-to-peer printing over a NetBEUI or TCP/IP network. A peer-to-peer print utility over a TCP/IP network. This provides the parallel printing and recovery printing features. This is provided on the web.
Printer Utility for Mac (Mac)	A utility for peer-to-peer printing over a NetBEUI or TCP This software provides several convenient functions for printing from Macintosh clients. This is provided on the web.
DeskTopBinder Lite (XP/Server 2003/Server 2008/Vista/7)	DeskTopBinder Lite itself can be used as personal document management software and can manage both image data converted from paper documents and application files saved in each client's PC. This is provided on the web.

1.1.3 SUPPORTED PAPER SIZES

Paper Feed (North America)

BT: By-pass Tray, T1: Tray 1, T2/3/4: Tray 2/3/4, LCT: Large Capacity Tray: 2000-sheet, DU: Duplex Unit

Paper	Size (W x L)	BT	T1	T2/3/4	LCT	DU
A3 W	12" x 18"	M	-	-	-	-
A3 SEF	297 x 420mm	M	S	S	-	M
A4 SEF	210 x 297mm	M	A	A	-	M
A4 LEF	297 x 210mm	M	S	S	S	M
A5 SEF	148 x 210mm	M	M	-	-	M
A5 LEF	210 x 148mm	M	S	A	-	M
A6 SEF	105 x 148mm	M	A	-	-	-
B4 SEF	257 x 364mm	M	S	S	-	M
B5 SEF	182 x 257mm	M	A	A	-	M
B5 LEF	257 x 182mm	M	S	M	-	M
B6 SEF	128 x 182mm	M	M	-	-	-
Ledger	11" x 17"	A	A	A	-	M
Letter SEF	8.5" x 11"	A	A	A	-	M
Letter LEF	11" x 8.5"	A	A	A	M	M
Legal SEF	8.5" x 14"	M	A	A	-	M
Government Legal SEF	8.25" x 14"	M	M	M	-	M
Half Letter SEF	5.5" x 8.5"	A	A	A	-	M
Executive SEF	7.25" x 10.5"	M	M	M	-	M

Paper	Size (W x L)	BT	T1	T2/3/4	LCT	DU
Executive LEF	10.5" x 7.25"	M	A	A	-	M
F SEF	8" x 13"	M	M	M	-	M
Foolscap SEF	8.5" x 13"	M	M	M	-	M
Folio SEF	8.25" x 13"	M	M	M	-	M
	11" x 15"	M	M	M	-	M
	10" x 14"	M	M	M	-	M
	8" x 10"	M	M	M	-	M
8K	267 x 390mm	M	M	M	-	M
16K SEF	195 x 267mm	M	M	M	-	M
16K LEF	267 x 195mm	M	M	M	-	M
Custom		M	M	M	-	-
Com10 Env.	4.125" x 9.5"	M	M	-	-	-
Monarch Env.	3.875" x 7.5"	M	M	-	-	-
C6 Env.	114 x 162mm	M	M	-	-	-
C5 Env.	162 x 229mm	M	M	-	-	-
DL Env.	110 x 220mm	M	M	-	-	-

Remarks:

A	Supported: the sensor detects the paper size.
M	Supported: the user specifies the paper size.
S	Supported: depends on a technician adjustment
-	Not supported

Paper Feed (Europe/ Asia)

BT: By-pass Tray, T1: Tray 1, T2/3/4: Tray 2/3/4, LCT: Large Capacity Tray: 2000-sheet, DU: Duplex Unit

Paper	Size (W x L)	BT	T1	T2/3/4	LCT	DU
A3 W	12" x 18"	M	-	-	-	-
A3 SEF	297 x 420mm	A	A	A	-	M
A4 SEF	210 x 297mm	A	A	A	-	M
A4 LEF	297 x 210mm	A	A	A	M	M
A5 SEF	148 x 210mm	A	M	-	-	M
A5 LEF	210 x 148mm	A	A	A	-	M
A6 SEF	105 x 148mm	M	M	-	-	-
B4 SEF	257 x 364mm	A	A	A	-	M
B5 SEF	182 x 257mm	A	A	A	-	M
B5 LEF	257 x 182mm	A	A	A	-	M
B6 SEF	128 x 182mm	A	M	-	-	-
Ledger	11" x 17"	M	S	S	-	M
Letter SEF	8.5" x 11"	M	A	A	-	M
Letter LEF	11" x 8.5"	M	S	S	S	M
Legal SEF	8.5" x 14"	M	S	S	-	M
Government Legal SEF	8.25" x 14"	M	M	M	-	M
Half Letter SEF	5.5" x 8.5"	M	S	S	-	M
Executive SEF	7.25" x 10.5"	M	M	M	-	M
Executive LEF	10.5" x 7.25"	M	S	S	-	M

Paper	Size (W x L)	BT	T1	T2/3/4	LCT	DU
F SEF	8" x 13"	M	M	M	-	M
Foolscap SEF	8.5" x 13"	M	M	M	-	M
Folio SEF	8.25" x 13"	M	M	M	-	M
	11" x 15"	M	M	M	-	M
	10" x 14"	M	M	M	-	M
	8" x 10"	M	M	M	-	M
8K	267 x 390mm	M	M	M	-	M
16K SEF	195 x 267mm	M	M	M	-	M
16K LEF	267 x 195mm	M	M	M	-	M
Custom		M	M	M	-	-
Com10 Env.	4.125" x 9.5"	M	M	-	-	-
Monarch Env.	3.875" x 7.5"	M	M	-	-	-
C6 Env.	114 x 162mm	M	M	-	-	-
C5 Env.	162 x 229mm	M	M	-	-	-
DL Env.	110 x 220mm	M	M	-	-	-

Remarks:

A	Supported: the sensor detects the paper size.
M	Supported: the user specifies the paper size.
S	Supported: depends on a technician adjustment
-	Not supported

Paper Exit (Mainframe and optional trays)

Main: Mainframe/ 1-bin: 1-bin tray/ Shift: Shift Tray

Paper	Size (W x L)	Main	1-bin	Shift
A3 W	12" x 18"	Y	-	Y
A3 SEF	297 x 420 mm	Y	Y	Y
A4 SEF	210 x 297 mm	Y	Y	Y
A4 LEF	297 x 210 mm	Y	Y	Y
A5 SEF	148 x 210 mm	Y	Y	Y
A5 LEF	210 x 148 mm	Y	Y	Y
A6 SEF	105 x 148 mm	Y	-	Y
B4 SEF	257 x 364 mm	Y	Y	Y
B5 SEF	182 x 257 mm	Y	Y	Y
B5 LEF	257 x 182 mm	Y	Y	Y
B6 SEF	128 x 182 mm	Y	-	Y
Ledger	11" x 17"	Y	Y	Y
Letter SEF	8.5" x 11"	Y	Y	Y
Letter LEF	11" x 8.5"	Y	Y	Y
Legal SEF	8.5" x 14"	Y	Y	Y
Government Legal SEF	8.25" x 14"	Y	Y	Y
Half Letter SEF	5.5" x 8.5"	Y	Y	Y
Executive SEF	7.25" x 10.5"	Y	Y	Y
Executive LEF	10.5" x 7.25"	Y	Y	Y
F SEF	8" x 13"	Y	Y	Y

Paper	Size (W x L)	Main	1-bin	Shift
Foolscap SEF	8.5" x 13"	Y	Y	Y
Folio SEF	8.25" x 13"	Y	Y	Y
	11" x 15"	Y	Y	Y
	10" x 14"	Y	Y	Y
	8" x 10"	Y	Y	Y
8K	267 x 390 mm	Y	-	Y
16K SEF	195 x 267 mm	Y	-	Y
16K LEF	267 x 195 mm	Y	-	Y
Custom		Y	Y	Y
Com10 Env.	4.125" x 9.5"	Y	-	Y
Monarch Env.	3.875" x 7.5"	Y	-	Y
C6 Env.	114 x 162 mm	Y	-	Y
C5 Env.	162 x 229 mm	Y	-	Y
DL Env.	110 x 220 mm	Y	-	Y

Remarks:

Y	Supported
-	Not supported

Paper Exit (1000-Sheet Booklet Finisher)

MF: Main Frame, Prf: Proof, Clr: Clear, Shf: Shift, Stp: Staple, SS: Saddle Stitch

Paper	Size (W x L)	MF	1000-sheet booklet finisher (Shift/Staple)				
			Prf	Clr	Shf	Stp	SS
A3 W	12" x 18"	Y	Y	Y	-	-	-
A3 SEF	297 x 420 mm	Y	Y	Y	Y	30	10
A4 SEF	210 x 297 mm	Y	Y	Y	Y	50	10
A4 LEF	297 x 210 mm	Y	Y	Y	Y	50	-
A5 SEF	148 x 210 mm	Y	Y	-	-	-	-
A5 LEF	210 x 148 mm	Y	Y	-	-	-	-
A6 SEF	105 x 148 mm	Y	Y	-	-	-	-
B4 SEF	257 x 364 mm	Y	Y	Y	Y	30	10
B5 SEF	182 x 257 mm	Y	Y	-	-	50	10
B5 LEF	257 x 182 mm	Y	Y	Y	Y	50	-
B6 SEF	128 x 182 mm	Y	Y	-	-	-	-
Ledger	11" x 17"	Y	Y	Y	Y	30	10
Letter SEF	8.5" x 11"	Y	Y	Y	Y	50	10
Letter LEF	11" x 8.5"	Y	Y	Y	Y	50	-
Legal SEF	8.5" x 14"	Y	Y	Y	Y	30	10
Government Legal SEF	8.25" x 14"	Y	Y	Y	Y	30	-
Half Letter SEF	5.5" x 8.5"	Y	Y	-	-	-	-
Executive SEF	7.25" x 10.5"	Y	Y	Y	Y	50	-

Paper	Size (W x L)	MF	1000-sheet booklet finisher (Shift/Staple)				
			Prf	Clr	Shf	Stp	SS
Executive LEF	10.5" x 7.25"	Y	Y	Y	Y	50	-
F SEF	8" x 13"	Y	Y	Y	Y	30	-
Foolscap SEF	8.5" x 13"	Y	Y	Y	Y	30	-
Folio SEF	8.25" x 13"	Y	Y	Y	Y	30	-
	11" x 15"	Y	Y	Y	Y	30	-
	10" x 14"	Y	Y	Y	Y	30	-
	8" x 10"	Y	Y	Y	Y	50	-
8K	267 x 390 mm	Y	Y	Y	Y	30	-
16K SEF	195 x 267 mm	Y	Y	Y	Y	50	-
16K LEF	267 x 195 mm	Y	Y	Y	Y	50	-
Custom		Y	Y	Y	-	-	-
Com10 Env.	4.125" x 9.5"	Y	-	-	-	-	-
Monarch Env.	3.875" x 7.5"	Y	-	-	-	-	-
C6 Env.	114 x 162 mm	Y	-	-	-	-	-
C5 Env.	162 x 229 mm	Y	-	-	-	-	-
DL Env.	110 x 220 mm	Y	-	-	-	-	-

MF: Main Frame, E2P: Europe 2 Holes Punch, N2P: North America 2 Holes Punch, N3P: North America 3 Holes Punch, E4P: Europe 4 Holes Punch, S4P: North Europe 4 Holes Punch

Paper	Size (W x L)	MF	1000-sheet booklet finisher (Punch)				
			E2P	N2P	N3P	E4P	S4P
A3 W	12" x 18"	Y	-	-	-	-	-
A3 SEF	297 x 420 mm	Y	Y	Y	Y	Y	Y
A4 SEF	210 x 297 mm	Y	Y	-	-	-	Y
A4 LEF	297 x 210 mm	Y	Y	Y	Y	Y	Y
A5 SEF	148 x 210 mm	Y	-	Y	-	-	-
A5 LEF	210 x 148 mm	Y	Y	-	-	-	-
A6 SEF	105 x 148 mm	Y	-	-	-	-	-
B4 SEF	257 x 364 mm	Y	Y	Y	Y	Y	Y
B5 SEF	182 x 257 mm	Y	Y	Y	-	-	Y
B5 LEF	257 x 182 mm	Y	Y	Y	Y	Y	Y
B6 SEF	128 x 182 mm	Y	-	-	-	-	-
Ledger	11" x 17"	Y	Y	Y	Y	Y	Y
Letter SEF	8.5" x 11"	Y	Y	Y	-	-	-
Letter LEF	11" x 8.5"	Y	Y	Y	Y	Y	Y
Legal SEF	8.5" x 14"	Y	Y	Y	-	-	Y
Government Legal SEF	8.25" x 14"	Y	Y	Y	-	-	Y
Half Letter SEF	5.5" x 8.5"	Y	Y	Y	-	-	Y
Executive SEF	7.25" x 10.5"	Y	Y	Y	-	-	Y
Executive LEF	10.5" x 7.25"	Y	Y	Y	Y	Y	Y

Paper	Size (W x L)	MF	1000-sheet booklet finisher (Punch)				
			E2P	N2P	N3P	E4P	S4P
F SEF	8" x 13"	Y	Y	Y	-	-	Y
Foolscap SEF	8.5" x 13"	Y	Y	Y	-	-	Y
Folio SEF	8.25" x 13"	Y	Y	Y	-	-	Y
	11" x 15"	Y	-	-	-	-	-
	10" x 14"	Y	-	-	-	-	-
	8" x 10"	Y	Y	Y	-	-	Y
8K	267 x 390 mm	Y	Y	Y	Y	Y	Y
16K SEF	195 x 267 mm	Y	Y	Y	-	-	Y
16K LEF	267 x 195 mm	Y	Y	Y	Y	Y	Y
Custom		Y	-	-	-	-	-
Com10 Env.	4.125" x 9.5"	Y	-	-	-	-	-
Monarch Env.	3.875" x 7.5"	Y	-	-	-	-	-
C6 Env.	114 x 162 mm	Y	-	-	-	-	-
C5 Env.	162 x 229 mm	Y	-	-	-	-	-
DL Env.	110 x 220 mm	Y	-	-	-	-	-

Remarks:

Y	Supported
10	Output up to 10 sheets
30	Output up to 30 sheets
50	Output up to 50 sheets
-	Not supported

Paper Exit (1000-Sheet Finisher and 500-Sheet Finisher)

MF: Main Frame, Prf: Proof, Clr: Clear, Shf: Shift, Stp: Staple

Paper	Size (W x L)	MF	1000-sheet finisher				500-sheet finisher		
			Prf	Clr	Shf	Stp	Clr	Shf	Stp
A3 W	12" x 18"	Y	Y	Y	-	-	-	-	-
A3 SEF	297 x 420 mm	Y	Y	Y	Y	30	Y	Y	30
A4 SEF	210 x 297 mm	Y	Y	Y	Y	50	Y	Y	50
A4 LEF	297 x 210 mm	Y	Y	Y	Y	50	Y	Y	50
A5 SEF	148 x 210 mm	Y	Y	-	-	-	-	-	-
A5 LEF	210 x 148 mm	Y	Y	-	-	-	-	-	-
A6 SEF	105 x 148 mm	Y	-	-	Y	30	Y	-	-
B4 SEF	257 x 364 mm	Y	Y	Y	Y	30	Y	Y	30
B5 SEF	182 x 257 mm	Y	Y	Y	Y	50	Y	Y	50
B5 LEF	257 x 182 mm	Y	Y	-	-	50	Y	Y	50
B6 SEF	128 x 182 mm	Y	Y	-	-	-	Y	-	-
Ledger	11" x 17"	Y	Y	Y	Y	30	-	Y	30
Letter SEF	8.5" x 11"	Y	Y	Y	Y	50	Y	Y	50
Letter LEF	11" x 8.5"	Y	Y	Y	Y	50	Y	Y	50

Paper	Size (W x L)	MF	1000-sheet finisher				500-sheet finisher		
			Prf	Clr	Shf	Stp	Clr	Shf	Stp
Legal SEF	8.5" x 14"	Y	Y	Y	Y	30	Y	Y	30
Government Legal SEF	8.25" x 14"	Y	Y	Y	Y	30	Y	Y	30
Half Letter SEF	5.5" x 8.5"	Y	Y	-	-	-	-	-	-
Executive SEF	7.25" x 10.5"	Y	Y	Y	Y	50	Y	Y	50
Executive LEF	10.5" x 7.25"	Y	Y	Y	Y	50	Y	Y	50
F SEF	8" x 13"	Y	Y	Y	Y	30	Y	Y	30
Foolscap SEF	8.5" x 13"	Y	Y	Y	Y	30	Y	Y	30
Folio SEF	8.25" x 13"	Y	Y	Y	Y	30	Y	Y	30
	11" x 15"	Y	Y	Y	Y	30	Y	Y	30
	10" x 14"	Y	Y	Y	Y	30	Y	Y	30
	8" x 10"	Y	Y	Y	Y	50	Y	Y	50
8K	267 x 390 mm	Y	Y	Y	Y	30	Y	Y	30
16K SEF	195 x 267 mm	Y	Y	Y	Y	50	Y	Y	50
16K LEF	267 x 195 mm	Y	Y	Y	Y	50	Y	Y	50
Custom		Y	Y	-	-	-	Y	Y	-
Com10 Env.	4.125" x 9.5"	Y	-	-	-	-	-	-	-

Paper	Size (W x L)	MF	1000-sheet finisher				500-sheet finisher		
			Prf	Clr	Shf	Stp	Clr	Shf	Stp
Monarch Env.	3.875" x 7.5"	Y	-	-	-	-	-	-	-
C6 Env.	114 x 162 mm	Y	-	-	-	-	-	-	-
C5 Env.	162 x 229 mm	Y	-	-	-	-	-	-	-
DL Env.	110 x 220 mm	Y	-	-	-	-	-	-	-

Remarks:

Y	Supported
30	Output up to 30 sheets
50	Output up to 50 sheets
-	Not supported

Paper Exit (Internal Finisher)

MF: Main Frame, Clr: Clear, Shf: Shift, Stp: Staple,

Paper	Size (W x L)	MF	Internal finisher(Shift/Staple)		
			Clr	Shf	Stp
A3 W	12" x 18"	Y	-	-	-
A3 SEF	297 x 420 mm	Y	Y	30	Y
A4 SEF	210 x 297 mm	Y	Y	50	Y
A4 LEF	297 x 210 mm	Y	Y	50	Y
A5 SEF	148 x 210 mm	Y	-	-	-
A5 LEF	210 x 148 mm	Y	-	-	-
A6 SEF	105 x 148 mm	Y	-	-	-
B4 SEF	257 x 364 mm	Y	Y	30	Y
B5 SEF	182 x 257 mm	Y	Y	50	Y
B5 LEF	257 x 182 mm	Y	Y	50	Y
B6 SEF	128 x 182 mm	Y	-	-	-
Ledger	11" x 17"	Y	Y	30	Y
Letter SEF	8.5" x 11"	Y	Y	50	Y
Letter LEF	11" x 8.5"	Y	Y	50	Y
Legal SEF	8.5" x 14"	Y	Y	30	Y
Government Legal SEF	8.25" x 14"	Y	-	30	-
Half Letter SEF	5.5" x 8.5"	Y	-	-	-
Executive SEF	7.25" x 10.5"	Y	Y	50	Y

Paper	Size (W x L)	MF	Internal finisher(Shift/Staple)		
			Clr	Shf	Stp
Executive LEF	10.5" x 7.25"	Y	Y	50	-
F SEF	8" x 13"	Y	-	-	-
Foolscap SEF	8.5" x 13"	Y	-	30	Y
Folio SEF	8.25" x 13"	Y	Y	30	-
	11" x 15"	Y	-	-	-
	10" x 14"	Y	-	-	-
	8" x 10"	Y	-	-	-
8K	267 x 390 mm	Y	Y	30	Y
16K SEF	195 x 267 mm	Y	Y	30	Y
16K LEF	267 x 195 mm	Y	Y	30	Y
Custom		Y	-	-	-
Com10 Env.	4.125" x 9.5"	Y	-	-	-
Monarch Env.	3.875" x 7.5"	Y	-	-	-
C6 Env.	114 x 162 mm	Y	-	-	-
C5 Env.	162 x 229 mm	Y	-	-	-
DL Env.	110 x 220 mm	Y	-	-	-

MF: Main Frame, E2P: Europe 2 Holes Punch, N2P: North America 2 Holes Punch, N3P: North America 3 Holes Punch, E4P: Europe 4 Holes Punch, S4P: North Europe 4 Holes Punch

Paper	Size (W x L)	MF	Internal finisher(Punch)				
			E2P	N2P	N3P	E4P	S4P
A3 W	12" x 18"	Y	-	-	-	-	Y
A3 SEF	297 x 420 mm	Y	Y	Y	Y	Y	Y
A4 SEF	210 x 297 mm	Y	Y	-	-	Y	Y
A4 LEF	297 x 210 mm	Y	Y	Y	Y	Y	Y
A5 SEF	148 x 210 mm	Y	-	-	-	-	Y
A5 LEF	210 x 148 mm	Y	-	-	-	-	Y
A6 SEF	105 x 148 mm	Y	-	-	-	-	Y
B4 SEF	257 x 364 mm	Y	-	-	-	Y	Y
B5 SEF	182 x 257 mm	Y	-	-	-	Y	Y
B5 LEF	257 x 182 mm	Y	-	-	-	Y	Y
B6 SEF	128 x 182 mm	Y	-	-	-	-	Y
Ledger	11" x 17"	Y	Y	Y	Y	Y	Y
Letter SEF	8.5" x 11"	Y	Y	-	-	-	Y
Letter LEF	11" x 8.5"	Y	Y	Y	Y	Y	Y
Legal SEF	8.5" x 14"	Y	Y	-	-	Y	Y
Government Legal SEF	8.25" x 14"	Y	-	-	-	-	Y
Half Letter SEF	5.5" x 8.5"	Y	-	-	-	-	Y
Executive SEF	7.25" x 10.5"	Y	Y	-	-	Y	Y
Executive LEF	10.5" x 7.25"	Y	-	-	-	-	Y

Paper	Size (W x L)	MF	Internal finisher(Punch)				
			E2P	N2P	N3P	E4P	S4P
F SEF	8" x 13"	Y	-	-	-	-	Y
Foolscap SEF	8.5" x 13"	Y	Y	-	-	Y	Y
Folio SEF	8.25" x 13"	Y	-	-	-	-	Y
	11" x 15"	Y	-	-	-	-	Y
	10" x 14"	Y	-	-	-	-	Y
	8" x 10"	Y	-	-	-	-	Y
8K	267 x 390 mm	Y	-	-	-	-	Y
16K SEF	195 x 267 mm	Y	-	-	-	-	Y
16K LEF	267 x 195 mm	Y	-	-	-	-	Y
Custom		Y	-	-	-	-	Y
Com10 Env.	4.125" x 9.5"	Y	-	-	-	-	Y
Monarch Env.	3.875" x 7.5"	Y	-	-	-	-	Y
C6 Env.	114 x 162 mm	Y	-	-	-	-	Y
C5 Env.	162 x 229 mm	Y	-	-	-	-	Y
DL Env.	110 x 220 mm	Y	-	-	-	-	Y

Remarks:

Y	Supported
30	Output up to 30 sheets
50	Output up to 50 sheets
-	Not supported

Platen/ARDF Original Size Detection

Size (width x length) [mm]	Platen Inches	ARDF Inches	Platen Metric	ARDF Metric
A3 (297 x 420) L	-	Y	Y*3	Y
B4 (257 x 364) L	-	-	Y*3	Y
A4 (210 x 297) L	Y*3	Y	Y*3	Y
A4 (297 x 210) S	Y*3	Y	Y*3	Y
B5 (182 x 257) L	-	-	Y*3	Y
B5 (257 x 182) S	-	-	Y*3	Y
A5 (148 x 210) L	-	-	Y*1	Y
A5 (210 x 148) S	-	-	Y*3	Y
B6 (128 x 182) L	-	-	-	-
B6 (182 x 128) S	-	-	-	-
11" x 17" (DLT)	Y	Y*2	-	Y*2
11" x 15"	-	Y*2	-	-
10" x 14"	-	Y	-	-
8.5" x 14" (LG)	Y	Y*2	-	-
8.5" x 13" (F4)	-	Y*2	Y*4	Y*4
8.25" x 13"	-	-	Y*4	Y*4
8" x 13"(F)	-	-	Y*4	Y*4
8.5" x 11" (LT)	Y*3	Y*2	Y*3	Y*2
11" x 8.5" (LT)	Y*3	Y*2	Y*3	Y*2
8" x 10"	-	Y*2	-	-

5.5" x 8.5" (HLT)	Y*[1]	Y	-	-
8.5" x 5.5" (HLT)	Y	Y	-	-
8K (267 x 390)	-	-	Y*[3]	Y*[2]
16K L (195 x 267)	-	-	Y*[3]	Y*[2]
16K S (267 x 195)	-	-	Y*[3]	Y*[2]
7.25" x 10.5" (Executive)	-	Y	-	-
10.5" x 7.25" (Executive)	-	Y*[2]	-	-

*1: Use SP4-303 to detect original sizes as A5 lengthwise/HLT when the message “Can-t detect original size” shows.

*2: The machine can detect the paper size depending on the setting of SP6-016-1.

*3: The machine can detect the paper size depending on the setting of SP4-305-1.

*4: The machine can detect the paper size depending on the setting of SP5-126-1.

Remarks:

Y	Supported
-	Not supported

1.1.4 OPTIONAL EQUIPMENT

ARDF (D578)

Paper Size/Weight:	Simplex	Size	A3 to A5, DLT to HLT
		Weight	40 to 128 g/m^2 (10 to 34 lbs.)
	Duplex	Size	A3 to A5, DLT to HLT
		Weight	52 to 105 g/m^2 (14 to 28 lbs.)
Table Capacity:	50 sheets (80 g/m^2, 20 lbs.)		
Original Standard Position:	Rear left corner		
Separation:	Feed belt and separation roller		
Original Transport:	Roller transport		
Original Feed Order:	From the top original		
Supported Magnification Ratios:	33.3 to 200 %		
Power Source:	DC 24V, 5V from the scanner unit		
Power Consumption:	50 W or less		
Dimensions (W × D × H) :	550 x 496 x 120 mm (21.7" x 19.5" x 4.7")		
Weight:	10 kg (22 lbs.)		

1-Bin Tray (D582)

Paper Size:	A5 LEF to A3, HLT to DLT
Paper Weight:	60 g/m^2 to 105 g/m^2 (16 lbs. to 28 lbs.)
Tray Capacity:	100 sheets (80 g/m^2, 20 lbs.): A4 or smaller 50 sheets (80 g/m^2, 20 lbs.): B4 or larger
Power Source:	DC 5 V (from copier)
Power Consumption:	1 W
Weight:	2 kg (4.4 lbs.)
Dimensions (W x D x H):	502 x 417 x 142 mm (19.8" x 16.4" x 5.6")

Bridge Unit (D584)

Paper Size:	Standard sizes: A6 LEF to A3, HLT to DLT Non-standard sizes: Width: 90 to 305 mm, Length: 148 to 600 mm
Paper Weight:	52 g/m^2 to 157 g/m^2 (14 lbs. to 42 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 10 sheets: Envelopes
Power Source:	DC 24 V, 5 V (form copier)
Dimensions (W x D x H):	420 x 513 x 145 mm (16.5" x 20.2" x 5.7")
Weight	4.0 kg (8.8 lbs.)

Shift Tray Unit (D583)

Paper Size:	Standard Size: A6 LEF to A3, HLT LEF to DLT Non-standard Size: Width: 90 to 305 mm, Length: 148 to 600 mm
Paper Weight:	57 to 157 g/m^2 (14 to 42 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:	Max: 4.4 W Average: 3.9 W
Weight:	2 kg (4.4 lbs.)
Dimensions (W x D x H):	423 x 467 x 113 mm (16.7" x 18.4" x 4.4")(without basement) 423 x 469 x 122 mm (16.7" x 18.5" x 4.8") (with basement)

Paper Feed Unit (D579)

Paper Size:	A5 to A3, $5^1/_2$" x $8^1/_2$" SEF to 11" x 17"
Paper Weight:	52 – 157 g/m^2, 14 – 42 lbs.
Tray Capacity:	550 sheets (80 g/m^2, 20 lbs.) x 1 tray
Paper Feed System:	FRR
Paper Height Detection:	5 steps (100%, 70%, 30%, 10%, Empty)
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: 37 W Average: 22 W
Weight:	15 kg (33 lbs.)
Dimensions (W x D x H):	580 x 629 x 120 mm (22.8" x 24.8" x 4.7")

Paper Feed Unit (D580)

Paper Size:	A5 to A3, $5^1/_2$" x $8^1/_2$" SEF to 11" x 17"
Paper Weight:	52 – 157 g/m^2, 14 – 42 lbs.
Tray Capacity:	550 sheets (80 g/m^2, 20 lbs.) x 2 trays
Paper Feed System:	FRR
Paper Height Detection:	5 steps (100%, 70%, 30%, 10%, Empty)
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: 40 W Average: 25 W
Weight:	26 kg (57 lbs.)
Dimensions (W x D x H):	580 x 629 x 260 mm (22.8" x 24.8" x 10.2")

LCT (D581)

Paper Size:	A4 LEF/LT LEF
Paper Weight:	52 g/m^2 to 157 g/m^2, 14lbs. to 42lbs.
Tray Capacity:	2,000 sheets (80 g/m^2, 20lbs.)
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) ▪ 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:	45 W (Max.)/27 W (Ave.)
Weight:	26 kg (57 lbs.)
Dimensions (W x D x H):	580 x 629 x 260 mm (22.8" x 24.7" x 10.2")

500-Sheet Finisher (D585)

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 (14 lbs.) to 157 g/m^2 (42 lbs.) Up to 253 g/m^2 (68 lbs.) 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)

<table>
<tr><td>Stack Thickness</td><td colspan="3">64 g/m^2 (16 lbs.) to 157 g/m^2 (42 lbs.)</td></tr>
<tr><td>Stapling Positions</td><td colspan="3">Front/Oblique: 1, Front/Parallel: 1
Rear/Oblique: 1, Rear/Parallel: 1, 2 locations</td></tr>
<tr><td colspan="4">Output Tray Capacity</td></tr>
<tr><td>Non-staple Mode</td><td colspan="3">500 sheets: A4, LT and smaller</td></tr>
<tr><td rowspan="2">Staple Mode</td><td>250 sheets: B4, LG and larger
Stack Size (Stapling)</td><td>Stacks</td><td>Size</td></tr>
<tr><td>2 to 9 Sheets</td><td>55 to 46</td><td rowspan="2">A4, B5, LT LEF</td></tr>
<tr><td></td><td>10 to 50 Sheets</td><td>45 to 10</td></tr>
<tr><td></td><td>2 to 9 Sheets</td><td>55 to 27</td><td rowspan="2">A4, B5, LT SEF</td></tr>
<tr><td></td><td>10 to 50 Sheets</td><td>25 to 8</td></tr>
<tr><td></td><td>2 to 9 Sheets</td><td>55 to 27</td><td rowspan="2">A3, B4, DLT, LG</td></tr>
<tr><td></td><td>10 to 30 Sheets</td><td>25 to 8</td></tr>
<tr><td rowspan="2">Stacking</td><td rowspan="2">Non-Stapling Mode</td><td colspan="2">Vertical: 15 mm or less</td></tr>
<tr><td colspan="2">Horizontal: 15 mm or less</td></tr>
<tr><td colspan="4">Jogging Precision</td></tr>
<tr><td>2 to 30 Sheets</td><td colspan="3">2 mm</td></tr>
<tr><td>31 to 50 Sheets</td><td colspan="3">3 mm</td></tr>
<tr><td>Dimensions (W x D x H)</td><td colspan="3">396 x 551 x 276 mm (15.6" x 21.7" x 10.9")</td></tr>
<tr><td>Weight</td><td colspan="3">12 kg (26.4 lbs.)</td></tr>
</table>

1000-Sheet Finisher (D588)

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 lbs.)
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 lbs.)
Staple mode: 64 to 90 g/m^2 (17 to 24 lbs.)</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="6">Paper Capacity:</td><td colspan="4">No staple mode:
1,000 sheets (A4/LT or smaller: 80 g/m^2, 20 lbs.)
500 sheets (A3, B4, DLT, LG: 80 g/m^2, 20 lbs.)
Staple mode: (80 g/m^2, 20 lbs., 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>
<tr><td>A3, B4, DLT, LG</td><td>50</td><td>50 to 10</td><td>-</td></tr>
</table>

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 Booklet Finisher (B589) and Punch Unit (B807)

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 lbs.) (Shift tray) 52 to 105 g/m^2 (14 to 28 lbs.) (Proof tray) Punch mode: 52 to 163 g/m^2 (14 to 43 lbs.) Staple mode: 64 to 90 g/m^2 (17 to 24 lbs.) 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 x 600 x 930 mm (21.1" x 23.6" x 36.6")	
Weight	Without punch unit:	48 kg (105.8 lbs.)
	With punch unit:	50 Kg (110.3 lbs.)

Internal Finisher (D586) and Punch Unit (D587)

Print Paper Size:	**No punch mode**: Standard Size: A3/11" x 17" to B6/5.5" x 8.5" (SEF) Non Standard Size: Width 90 to 30.5 mm (3.5" to 12") Length 148 to 1260 mm (5.8" to 49.6") **Punch mode**: **2 holes**: A3, A4, B4, B5 or 11" x 17", 8.5" x 14" (SEF), 8.5" x 13" (SEF), 8.5" x 11", 7.25" x 10.5" **3 holes**: A3, A4 (LEF) or 11" x 17", 8.5" x 11" (LEF) **4 holes (Europe)**: A3, A4 (LEF) or 11" x 17", 8.5" x 11" (LEF) **4 holes (Scandinavia)**: A3, A4, B4, B5 or 11" x 17", 8.5" x 14" (SEF), 8.5" x 13" (SEF), 8.5" x 11", 7.25" x 10.5" **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 lbs.) Punch mode: 52 to 105 g/m^2 (14 to 28 lbs.) Staple mode: 52 to 105 g/m^2 (14 to 28 lbs.) Label/Thick paper/OHP cannot be stapled
Tray Capacity:	500 sheets: A4, 8.5" x 11" or less 250 sheets: B4, 8.5" x 14" or more
Staple capacity:	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/ Bottom) 2-staples: 1 position	
Staple replenishment:	Cartridge (5000 staples)	
Power consumption:	50 W + 12 W (Punch Unit)	
Dimensions (W x D x H):	**Finisher:** 495 x 477 x 161 mm (19.5" x 18.7" x 6.3") **Punch Unit:** 171 x 459 x 136 mm (6.7" x 18.1" x 5.4")	
Weight:	Without punch unit:	13 kg (28.6 lbs.)
	With punch unit:	17 kg (37.4 lbs.)

APPENDIX:
PREVENTIVE MAINTENANCE TABLES

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

2. APPENDIX: PM TABLES

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).

2.1.1 PREVENTIVE MAINTENANCE ITEMS

Chart: A4 (LT)/5%

Mode: 3 copies / original (prints/job)

Ratio 30%

Environment: Normal temperature and humidity

Yield may change depending on circumstances and print conditions.

Symbol keys: C: Clean, R: Replace, L: Lubricant, I: Inspect

Mainframe

Item	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

Item	EM	120K	240K	360K	NOTE
APS Sensor		C	C	C	Dry cloth or blower brush
Around the Drum					
Transfer/Separation Unit		R	R	R	
ID Sensor		C	C	C	Perform the ID sensor initial setting (SP2-935) after cleaning (blower brush)

Item	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	

Item	EM	120K	240K	360K	NOTE
Paper Feed					
Registration Rollers	C	C	C	C	Clean with water
Paper Feed Roller	C	C	C	C	Dry cloth
Separation Roller	C	C	C	C	Dry cloth
Pick-up Roller	C	C	C	C	Dry cloth
Paper Feed Guides	C	C	C	C	Clean with alcohol.
Relay Rollers	C	C	C	C	Clean with water.
Dust collection box	C	C	C	C	Remove, empty, clean

Fusing Unit and Paper Exit					
Item	**EM**	**120K**	**240K**	**360K**	**NOTE**
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.

Duplex					
Rollers		C	C	C	Clean with water.

ARDF (D578)

Item	EM	80K (Original)	NOTE
Pick-up Roller	C	R	Clean with water
Feed Belt	C	R	Clean with water
Separation Roller	C	R	Clean with water
Other Rollers	C	C	Clean with water
Gears	L		Lubricate, if necessary
Platen Sheet	C	C	Clean with water or alcohol

Paper Feed Unit (D579)

Itme	EM	NOTE
Paper Feed Roller	C	Clean with water
Pick-up Roller	C	Dry cloth
Separation Roller	C	Clean with alcohol.
Relay Rollers	C	Clean with water.
Bottom Plate Pad	C	Clean with water.

Paper Feed Unit (D580)

Itme	EM	NOTE
Paper Feed Roller	C	Clean with water
Pick-up Roller	C	Dry cloth
Separation Roller	C	Clean with alcohol.
Relay Rollers	C	Clean with water.
Bottom Plate Pad	C	Clean with water.

LCT (D581)

Itme	EM	NOTE
Paper Feed Roller	C	Clean with water
Pick-up Roller	C	Dry cloth
Separation Roller	C	Clean with alcohol.
Relay Rollers	C	Clean with water.
Bottom Plate Pad	C	Clean with water.

1000-Sheet Finisher (D588)

Item	EM	NOTE
Rollers	C	Clean with water or alcohol.
Brush Roller	I	Replace if necessary.
Discharge Brush	C	Clean with a dry cloth
Sensors	C	Blower brush
Jogger Fences	I	Replace if necessary.

1000-Sheet Booklet Finisher (D589)

Item	EM	NOTE
Rollers	C	Damp cloth
Discharge Brush	C	Dry cloth
Sensors	C	Blower brush
Punch Kit		
Punch Chads	C	Discard chads.

500-Sheet Finisher (D585)

Item	EM	NOTE
Rollers	C	Damp cloth
Discharge Brush	C	Dry cloth
Sensors	C	Blower brush

1 Bin Tray (D582)

Item	EM	NOTE
Rollers	C	Dry or damp cloth
Copy Tray	C	Dry or damp cloth
Sensors	C	Blower brush

Internal Finisher (D586)

Item	EM	NOTE
Rollers	C	Clean with water or alcohol.
Sensors	C	Blower brush
Punch Chads	C	Discard chads.

2.1.2 OTHERS YIELD PARTS

The parts mentioned in these tables have a target yield. However, the total copy/print volume made by the machine will not reach the target yield within the machine's targeted lifetime if the machine is used under the target usage conditions (ACV, color ratio, P/J, and C/O). So, these parts are categorized not as PM parts but as yield parts (EM parts).

Item	600K	NOTE
Development Case	C	

APPENDIX:
SERVICE CALL CONDITIONS

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

3. APPENDIX: SERVICE CALL CONDITIONS

3.1 SERVICE CALL CONDITIONS

3.1.1 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.

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

SC Code Classification

The table shows the classification of the SC codes:

Class 1	Section	SC Code	Detailed section
1XX	Scanning	100 -	Scanner
		190 -	Unique for a specific model
2XX	Laser exposure	200 -	Polygon motor
		220 -	Synchronization control
		230 -	FGATE signal related
		240 -	LD control
		280 -	Unique for a specific model
		290 -	Shutter
3XX	Image development 1	300 -	Charge
		330 -	Drum potential
		350 -	Development
		380 -	Unique for a specific model

Class 1	Section	SC Code	Detailed section
4XX	Image development 2	400 -	Image transfer
		420 -	Paper separation
		430 -	Cleaning
		440 -	Around drum
		460 -	Unit
		480 -	Others
5XX	Paper feed / Fusing	500 -	Paper feed
		515 -	Duplex
		520 -	Paper transport
5XX	Paper feed / Fusing	530 -	Fan motor
		540 -	Fusing
		560 -	Others
		570 -	Unique for a specific model
6XX	Communication	600 -	Electrical counters
		620 -	Mechanical counters
		630 -	Account control
		640 -	CSS
		650 -	Network
		670 -	Internal data processing
		680 -	Unique for a specific model

Class 1	Section	SC Code	Detailed section
7XX	Peripherals	700 -	Original handling
		720 -	Two-tray finisher
		740 -	Booklet finisher
8XX	Controller	800 -	Error after ready condition
		820 -	Diagnostics error
		860 -	Hard disk
		880 -	Unique for a specific model
9XX	Others	900 -	Counter
		920 -	Memory
		990 -	Others

3.1.2 SC1XX: SCANNING

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
101	D	Exposure lamp error
		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 ▪ High voltage power supply (power pack) harness loose, broken, defective ▪ SBU defective ▪ BCU defective ▪ SIO defective
		1. Check and clean the scanner mirror(s) and scanner lens. 2. Check and clean the shading plate. 3. Replace the exposure lamp. 4. Replace the scanner mirror(s) or scanner lens. 5. Replace the SBU board. 6. Replace the BCU board. 7. Replace the SIO board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
120	D	Scanner home position error 1
		The scanner home position sensor does not detect the "OFF" condition during operation.
121	D	Scanner home position error 2
		The scanner HP sensor did not turn on during scanner initialization or copying.
-	-	▪ Scanner motor driver defective ▪ Scanner motor defective ▪ Harness between SIO board and scanner motor disconnected ▪ Scanner HP sensor defective ▪ Harness between SIO and HP sensor disconnected
		1. Check the cable connection between the SIO board and scanner motor. 2. Check the cable connection between the SIO and HP sensor. 3. Replace the scanner motor. 4. Replace the HP sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
141	D	Black level correction error
		Black level correction could not be set properly during automatic adjustment.
		▪ Harnesses at the SBU, IPU, BCU loose, broken, defective. ▪ SBU defective ▪ IPU defective ▪ BCU defective
		1. Check the cable connection 2. Replace the SBU. 3. Replace the IPU. 4. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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 ▪ SBU defective ▪ IPU defective ▪ BCU defective ▪ SIO Defective

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Clean the exposure glass, white plate, mirrors, and lens. 2. Check if the exposure lamp is lit during initialization. 3. Check the harness connection between SBU, BCU and IPU. 4. Check the anti-condensation heater (option) is installed correctly. 5. Replace the exposure lamp. 6. Replace the SBU board. 7. Replace the IPU board. 8. Replace the BCU board. 9. Replace the SIO board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
144	D	SBU communication error
		Connection to the SBU could not be confirmed, possibly due to a defect in the BCU detection port.
		▪ Harness connection at IPU, BCU, SBU loose, broken, defective ▪ Spurious electrical noise on power supply line ▪ IPU defective ▪ BCU defective ▪ SBU defective
		1. Replace the harness. 2. Replace the IPU. 3. Replace the SBU. 4. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
161	D	IPU error
001	D	The error result of self-diagnostic by the ASIC on the BCU is detected.
		▪ Defective BCU ▪ Defective connection between BCU and SBU
		1. Check the connection between BCU and SBU. 2. Replace the BCU.
002	D	The machine detects an error during an access to the Ri.
		▪ Defective BCU board
		Replace the BCU board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
165	D	Copy Data Security Unit error
		▪ The copy data security board is not detected when the copy data security function is set "ON" with the initial setting. ▪ A device check error occurs when the copy data security function is set "ON" with the initial setting.
		▪ Incorrect installation of the copy data security board ▪ Defective copy data security board
		1. Reinstall the copy data security board. 2. Replace the copy data security board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
195	D	Serial Number Mismatch
		▪ Serial number stored in the memory does not have the correct code.
		▪ NVRAM defective ▪ BCU replaced without original NVRAM
		1. Check the serial number with SP5-811-002. 2. If the stored serial number is incorrect, contact your supervisor.

3.1.3 SC 2XX: EXPOSURE

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Replace the polygon motor. 2. Replace the laser optics housing unit. 3. Replace the harness. 4. Replace the IPU.

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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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.)
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.)
		▪ BCU, Controller board harness loose or broken ▪ BCU defective ▪ Controller board defective
		1. Check the connection between the controller board and the BCU. 2. Replace the BCU. 3. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
240	C	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
		1. Replace the harness of the LD. 2. Replace the laser optics housing unit. 3. Replace the harness of the BCU. 4. Replace the BCU.

3.1.4 SC3XX: IMAGE PROCESSING – 1

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
302	D	Charge level output error
		The PWM output level was detected higher than 50% after 10 consecutive samplings.
		▪ Harness of the high voltage power supply board (power pack) is loose, broken. ▪ PCU connection loose or broken
		1. Replace the harness of the power pack. 2. Replace the harness of the PCU. 3. Replace the PCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
355	C	ID sensor error
		▪ 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 ▪ The following conditions occurred simultaneously when the ID sensor pattern was calibrated during printing: Vsg = 5V PWM = 0 (LED current drop) ▪ Error occurred during automatic adjustment of Vsg: Vsg output did not attain 4V, even with PWM = 1023 (maximum current for LED) Vsg output was greater than 4V, even with PWM=1 (no current for the LED)

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ BCU defective ▪ High voltage power supply board (power pack) defective ▪ Scanning system or image creation system malfunction
		1. Replace the ID sensor harness. 2. Replace the ID sensor. 3. Replace the harness of the high voltage power supply board (power pack). 4. Replace the harness of the BCU. 5. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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.
		▪ TD sensor abnormal ▪ Poor connection of the PCU
		1. Replace the TD sensor. 2. Replace the harness of PCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
391	D	Development bias leak
		The PWM output level was detected higher than 50% after 10 consecutive samplings.
		▪ High voltage power supply board (power pack) harness loose, broken. ▪ PCU connection loose or broken
		1. Replace the harness of the high voltage power supply board (power pack). 2. Replace the harness of the PCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
392	B	TD sensor initial setting error
		Initialization of the new PCU unit failed (the drum and development roller did not start rotating)
		▪ ID sensor harness loose, broken ▪ TD sensor harness loose, broken ▪ ID sensor defective ▪ TD sensor defective
		1. Replace the harness of the ID sensor. 2. Replace the the ID sensor. 3. Replace the harness of the TD sensor. 4. Replace the TD sensor.

3.1.5 SC4XX: IMAGE PROCESSING - 3

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
401	D	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
		1. Check the high voltage supply board is set correctly. 2. Check the harness of the high voltage supply board. 3. Replace the high voltage supply board. 4. Check the transfer roller is set correctly. 5. Replace the transfer roller. 6. Check the transfer unit is set correctly.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
402	D	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
		1. Check the high voltage supply board is set correctly. 2. Check the harness of the high voltage supply board. 3. Replace the high voltage supply board. 4. Check the transfer roller is set correctly. 5. Replace the transfer roller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
411	D	Separation bias leak error
		A separation bias leak signal was detected.
		▪ High voltage supply board defective ▪ Discharge plate defective
		1. Check the harness of the high voltage supply board. 2. Replace the high voltage supply board. 3. Replace the discharge plate.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
490	D	Toner supply motor leak error r
		More than 1 ampere supplied to the toner supply motor for longer than 200 ms.
		▪ Toner supply motor defective
		1. Replace the toner transport motor.

3.1.6 SC5XX: PAPER FEED AND FUSING

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
500	D	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 ▪ Overload on the main motor
		1. Replace the harness of the main motor. 2. Replace the motor. 3. Replace the main motor driver board. 4. Check for the blockages in the main motor mechanism.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
501	B	Paper Tray 1 error
502	B	Paper Tray 2 error
-	-	▪ When the tray lift motor rotates counterclockwise, (if the upper limit is not detected within 10 seconds), the machine asks the user to reset the tray. ▪ When the tray lift motor rotates clockwise, (if the upper limit is not detected within 1.5 seconds), the machine asks the user to reset the tray. If one of these conditions occurs three consecutive times, the SC is generated.
		▪ Disconnected or defective paper lift sensor ▪ Disconnected or defective tray lift motor ▪ Defective bottom plate lift mechanism ▪ Too much paper in the tray ▪ Defective IOB
		1. Check if the paper is not loaded too much. 2. Check if the bottom plate smoothly moves up and down manually. 3. Check and/or replace the tray lift motor/ paper lift sensor. 4. Replace the IOB.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
503	B	Tray 3 error (Paper Feed Unit or LCT)
		This SC is generated if the following condition occurs 3 consecutive times. **For the paper feed unit:** ▪ When the tray lowers, the tray lift sensor does not go off within 15 sec. **For the LCT:** ▪ When the main switch is turned on or when the LCT is set, if the end fence is not in the home position (home position sensor ON), the tray lift motor stops. ▪ If the upper limit does not go off for 8 seconds even the tray lift motor turns on to lower the tray after the upper limit has been detected at power on.
		For the paper feed unit: ▪ Defective tray lift motor or connector disconnection ▪ Defective lift sensor or connector disconnection **For the LCT:** ▪ Defective stack transport clutch or connector disconnection ▪ Defective tray motor or connector disconnection ▪ Defective end fence home position sensor or connector disconnection
		1. Check the cable connections. 2. Check and/or replace the defective component.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
504	B	Tray 4 error (3 Tray Paper Feed Unit)
		This SC is generated if the following condition occurs 3 consecutive times. ▪ When the tray lowers, the tray lift sensor does not go off within 1.5 sec.
		1. Check the cable connections. 2. Check and/or replace the defective component.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
508	B	By-pass bottom plate error
		The signal from the by-pass tray HP sensor does not change for 1.0 second after the by-pass motor has rotated counterclockwise. If this condition occurs three consecutive times, the SC is generated.
		▪ Disconnect or defective harness of the by-pass motor ▪ Defective or disconnected connection for the by-pass motor. ▪ Defective by-pass motor ▪ Disconnect or defective harness of the by-pass HP sensor ▪ Defective or disconnected connection for the by-pass HP sensor. ▪ Defective by-pass HP sensor
		Check the operation of the by-pass motor with SP5804-023. No operation: 1. Check the harness connection of the by-pass tray and duplex unit. 2. Replace the by-pass motor. Operation: Check the operation of the by-pass HP sensor with SP5803-048 while the by-pass motor is rotating. No change of Bit 0 1. Check the harness connection of the by-pass HP sensor. 2. Replace the by-pass HP sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
530	D	Ventilation fan: front error
531	D	Ventilation fan: rear error
-	-	The motor lock signal error is detected for 10 seconds after the motor lock signal was first detected. ▪ Defective ventilation fan: front or rear ▪ Disconnected or defective harness ▪ Defective DRB ▪ Defective BCU 1. Check or replace the harness. 2. Replace the ventilation fan: front (SC530) or rear (SC531). 3. Replace the DRB. 4. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
532	D	Laser unit fan error The motor lock signal error is detected for 10 seconds after the motor lock signal was first detected. ▪ Defective laser unit fan ▪ Disconnected or defective harness ▪ Defective drive board ▪ Defective BCU 1. Replace the laser unit fan. 2. Check the harness of the laser unit fan. 3. Replace the harness of the laser unit fan. 4. Replace the drive board. 5. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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)
		1. Check the fusing thermistor is set correctly. 2. Replace the fusing thermistor. 3. Check the power supply source.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check the fusing thermistor is set correctly. 2. Replace the fusing thermistor. 3. Check the fusing lamp is connected. 4. Replace the fusing lamp.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Replace the PSU. 2. Replace the BCU board. 3. Replace the thermistor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Replace the PSU. 2. Replace the BCU board. 3. Replace the thermistor. 4. Check the power supply source.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check the hot roller thermistor is set correctly. 2. Replace the hot roller thermistor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
547	D	▪ The zero cross signal is detected for 0.05 seconds three times even though the heater relay is off when turning on the main power.
		▪ The zero cross signal is not detected for 2 seconds even though the heater relay is on after turning on the main power or closing the front door.
		▪ Defective fusing lamp relay ▪ Defective fusing lamp relay circuit ▪ Unstable power supply
		1. Replace the fusing lamp relay. 2. Check the power supply source.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
551	A	Fusing thermistor open (end)
		The temperature of the hot roller remained below 0°C for 5 sec. at the end 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)
		1. Check the fusing thermistor is set correctly. 2. Replace the fusing thermistor. 3. Check the power supply source.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check the fusing thermistor is set correctly. 2. Check the fusing lamp is connected correctly. 3. Replace the fusing thermistor. 4. Replace the fusing lamp.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Replace the PSU. 2. Replace the BCU board. 3. Replace the thermistor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Replace the PSU. 2. Replace the BCU board. 3. Replace the thermistor. 4. Check the power supply source.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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 roller rotating.
		▪ Center hot roller thermistor installed incorrectly, disconnected. ▪ Center hot roller thermistor defective
		1. Check the hot roller thermistor is set correctly. 2. Replace the hot roller thermistor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
557	C	Zero cross waveform signal error
		The waveform of the zero cross signal was detected out of range.
		▪ Electrical noise on the power supply line
		Check the power supply source.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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".
		▪ Paper jam in the fusing unit.
		1. Remove the paper jam in the fusing unit. 2. Make sure that the paper path in the fusing unit is clear.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
590	D	Exhaust fan motor error
		The CPU detects an exhaust fan lock signal consecutively 200 ms.
		▪ Poor connection of the exhaust fan motor ▪ Too much load on the motor drive
		1. Check the connection of the exhaust fan motor. 2. Check for blockages in the motor drive mechanism.

3.1.7 SC6XX: DEVICE COMMUNICATION

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
620	D	Communication error between IPU and ADF
		A break occurred in the connection between the IPU and ADF
		▪ Finisher serial cable connection loose, broken ▪ BCU defective ▪ Finisher main board defective ▪ External noise
		1. Check the cable connection of the ARDF. 2. Shut out the external noise. 3. Replace the ARDF. 4. Replace the BCU board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
621	D	Finisher communication error
622	D	Paper tray unit communication error
-	-	While the IOB communicates with an optional unit, an SC code is displayed if one of following conditions occurs. ▪ The IOB receives the break signal which is generated by the peripherals only just after the main switch is turned on. ▪ When the IOB does not receive an OK signal from a peripheral 100ms after sending a command to it. The IOB resends the command. The IOB does not receive an OK signal after sending the command 3 times.
		▪ Cable problems ▪ IOB problems ▪ BCU problems ▪ PSU problems in the machine ▪ Main board problems in the peripherals

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Check if the cables of peripherals are correctly connected. 2. Replace the PSU if no power is supplied to peripherals. 3. Replace the IOB or main board of peripherals. 4. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
632	B	Counter device error 1
		After 3 attempts to send a data frame to the optional counter device via the serial communication line, no ACK signal was received within 100 ms.
		▪ Serial line between the optional counter device, the relay board and copier control board is disconnected or damaged ▪ Make sure that SP5113 is set to enable the optional counter device.
		Check the connection between the main machine and optional counter device.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check if the setting of the SP5113 is correctly set. 2. Check the connection between the main machine and optional counter device.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
634	B	Key/card counter device error 3
		The backup battery of the counter device RAM is low.
		▪ RAM backup battery exhausted ▪ Counter device defective
		Replace the counter device.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		Replace the counter device.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
636	D	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".
		Check the eccm.mod file is in the root folder of the SD card.

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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
650	CTL	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
		Check and set the correct AT command (SP5819-160).
-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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
-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
		1. Install the modem board. 2. Replace the modem board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
651	C	Incorrect dial up connection
		-001: Program parameter error
		-002: Program execution error
		An unexpected error occurs when the modem (Embedded RCG-M) tries 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 the machine.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
652	C	ID2 mismatching
		ID2 for @Remote certification is mismatching between the controller board and NVRAM.
		▪ Used controller board installed ▪ Used NVRAM installed
		1. Install the correct controller board or new controller board. 2. Install the correct NVRAM or new NVRAM.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
653	B	ID2 error
		ID2 stored in the NVRAM is incorrect.
		▪ Used NVRAM installed
		Clear the ID2 in the NVRAM, and then input a correct ID2.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)	
669	D	EEPROM Communication Error	
		[1]	Open communication error: ID error
		[2]	Open communication error: Channel error
		[3]	Open communication error: Device error
		[4]	Open communication error: Communication failed error
		[5]	Open communication error: Communication time error
		[6]	Open communication error: Communication suspended error
		[7]	Open communication error: Buffer full error
		[8]	Close communication error: No error code
		[9]	Close communication error: ID error
		[10]	Close communication error: No error code
		[11]	Data write error: ID error
		[12]	Data write error: Channel error
		[13]	Data write error: Device error
		[14]	Data write error: Communication suspended error
		[15]	Data write error: Communication time over error
		[16]	Data write error: Communication suspended error
		[17]	Data write error: Buffer full error
		[18]	Data write error: No error code
		[19]	Data read error: ID error
		[20]	Data read error: Channel error
		[21]	Data read error: Device error
		[22]	Data read error: Communication failed error

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)	
		[23]	Data read error: Communication time over error
		[24]	Data read error: Communication suspended error
		[25]	Data read error: Buffer full 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.	
		1. Install the EEPROM correctly. 2. Replace the EEPROM. 3. Replace the BCU.	

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Install the BCU correctly. 2. Replace the BCU. 3. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
671	D	Engine board mismatch error
		Engine board and controller mismatch detected.
		▪ Wrong engine board installed. ▪ Wrong controller board installed. ▪ Check the type of engine board and controller board.
		1. Replace the BCU. 2. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check the harness connection. 2. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
674	D	Transmission error in controller board
		Video transmission error is detected in the controller board.
-01		M2P error
		M2P error is occurred during transmitting the video data to the ASIC.
		▪ Defective Controller Board
		1. Turn the main switch off and on. 2. Replace the controller board.
-02		PCI error
		ASIC could not access to the PCI.
		▪ Defective Controller Board
		1. Turn the main switch off and on. 2. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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 HDD ▪ Defective BCU ▪ Defective Controller Board
		1. Check if the controller board is firmly connected to the BCU. 2. Replace the controller board. 3. Replace the HDD 4. Replace the BCU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
690	D	GAVD communication error
		▪ The I2C bus device ID is not identified during initialization. ▪ A device-status error occurs during I2C bus communication. ▪ The I2C bus communication is not established due to an error other than a buffer shortage.
		▪ Loose connection ▪ Defective BCU ▪ Defective LD controller board
		1. Turn the main switch off and on. 2. Check the cable connection. 3. Replace the laser optics-housing unit. 4. Replace the BCU board.

3.1.8 SC7XX: PERIPHERALS

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
720	B	Upper transport motor error
		The upper transport motor in the finisher is not operating.
		▪ Upper transport motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The motor harness loose or broken ▪ Upper transport motor defective
		1. Check for blockages in the upper transport motor mechanism. 2. Replace the upper transport motor. 3. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check the connections and cables for the components mentioned above. 2. Check for blockages in the jogger fence motor mechanism. 3. Replace the jogger fence HP sensor and/or jogger motor. 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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.) ▪ Motor harness loose or broken ▪ Feed-out belt HP sensor dirty, disconnected, broken ▪ Motor defective
		1. Check the connections and cables for the components mentioned above. 2. Check for blockages in the feed-out belt motor mechanism. 3. Replace the feed-out belt HP sensor and/or feed-out motor. 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
725	B	Finisher exit guide plate motor error
		The exit guide plate HP sensor did not activate within the prescribed time after the exit guide plate motor turned on.
		▪ Finisher exit guide plate motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ Exit guide plate motor harness loose, broken ▪ Exit guide plate HP sensor harness loose, broken ▪ Exit guide plate motor defective ▪ Exit guide plate HP sensor defective
		1. Check the connections and cables for the components mentioned above. 2. Check for blockages in the exit guide plate motor mechanism. 3. Replace the exit guide plate position sensor and/or exit guide plate motor. 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check the connections and cables for the components mentioned above. 2. Check for blockages in shift tray motor mechanism. 3. Replace the shift tray HP sensor and/or shift tray motor. 4. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
731	B	Exit motor error
		The exit motor in the finisher is not operating.
		▪ Exit motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The motor harness loose or broken ▪ Exit motor defective
		1. Check for blockages in the exit motor mechanism. 2. Replace the exit motor. 3. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
740	B	Corner stapler motor error
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. **For 1000-sheet (booklet) finisher** ▪ The stapler motor does not switch off within the prescribed time after operating. ▪ The HP sensor of the staple unit does not detect the home position after the staple unit moves to its home position. The HP sensor of the staple unit detects the home position after the staple unit moves from its home position.
		▪ Staple jam ▪ Number of sheets in stack exceeds allowed number of sheets for stapling ▪ Stapler motor obstructed ▪ Stapler motor defective
		1. Check the connections and cables for the components mentioned above. 2. Replace the HP sensor and/or stapler motor. 3. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
742	B	Stapler movement motor
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. **For 1000-sheet (booklet) finisher** ▪ The stapler HP sensor is not activated within the specified time after the stapler motor turned on.
		▪ 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
		1. Check the connection of the stapler movement motor. 2. Check the connection of the stapler home position sensor. 3. Replace the stapler home position sensor. 4. Replace the stapler movement motor.

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

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
747	B	Lower transport motor error
		The lower transport motor in the finisher is not operating.
		▪ Lower transport motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The motor harness loose or broken ▪ Lower transport motor defective
		1. Check for blockages in the upper transport motor mechanism. 2. Replace the upper transport motor. 3. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check the connections to the shift tray motor. 2. Replace the shift tray motor. 3. Check the connections to the stack height sensor. 4. Replace the stack height sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
760	B	Finisher punch motor error (D589)
		The punch HP sensor is not activated within the specified time after the punch motor turned on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Punch HP sensor harness loose, broken ▪ Punch motor harness loose, broken ▪ Punch motor obstructed ▪ Punch motor defective ▪ Punch HP sensor defective
		1. Check the connections and cables for the punch motor and HP sensor. 2. Check for blockages in the punch motor mechanism. 3. Replace the punch motor harness. 4. Replace the punch HP sensor and/or punch motor 5. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
761	B	Folder plate motor error (D589)
		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
		1. Check the connections and cables for the folder plate motor and HP sensor. 2. Check for blockages in the folder plate motor mechanism. 3. Replace the folder plate motor harness. 4. Replace the folder plate HP sensor and/or folder plate motor 5. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
763	B	Punch movement motor error (D589)
		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
		1. Check the connections to the punch movement motor. 2. Replace the punch movement motor

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
764	B	Paper position slide motor error (D589)
		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
		1. Check the connections to the paper position sensor slide motor. 2. Replace the paper position sensor slide motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
765	B	Bottom fence lift motor error (D589)
		The bottom fence HP sensor moves but is not detected at the home position within the specified time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective
		1. Check the connections to the bottom fence lift motor. 2. Replace the bottom fence lift motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
766	B	Paper position sensor slide motor error (D589)
		The paper position sensor moves but is not detected at the home position within the specified time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective
		1. Check the connections to the paper position sensor slide motor. 2. Replace the paper position sensor slide motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
770	B	Shift motor error (D583)
		The shift motor HP sensor does not detect any change for 1.86 seconds after the shift motor has turned on at power on or during its operation.
		▪ Defective shift motor ▪ Defective shift motor HP sensor
		1. Check the connections to the shift motor and the shift motor HP sensor. 2. Defective shift motor or the shift motor HP sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
791	D	Bridge unit error
		The machine recognizes the finisher, but does not recognize the bridge unit.
		▪ Defective connector ▪ Broken harness
		1. Check the connections between the bridge unit and the machine. 2. Install a new bridge unit.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
792	B	Finisher error
		The machine does not recognize the finisher, but recognizes the bridge unit.
		▪ Defective connector ▪ Defective harness ▪ Incorrect installation
		1. Check the connections between the finisher and the machine. 2. Install a new finisher.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-01	B	Front jogger motor error with 1-bin tray (D586)
794-01	D	Front jogger motor error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the front jogger fence HP sensor while the front jogger motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective front jogger motor ▪ Loosen connection ▪ Motor overload ▪ Defective front jogger fence HP sensor
		1. Replace the front jogger fence HP sensor. 2. Replace the front jogger motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-02	B	Rear jogger motor error with 1-bin tray (D586)
794-02	D	Rear jogger motor error 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the rear jogger fence HP sensor while the rear jogger motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective rear jogger motor ▪ Loosen connection ▪ Motor overload ▪ Defective rear jogger fence HP sensor
		1. Replace the rear jogger fence HP sensor. 2. Replace the rear jogger motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-03	B	Pick-up roller contact motor error with 1-bin tray (D586)
794-03	D	Pick-up roller contact motor error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the pick-up roller HP sensor while the pick-up roller contact motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective pick-up roller contact motor ▪ Loosen connection ▪ Motor overload ▪ Defective pick-up roller HP sensor
		1. Replace the pick-up roller HP sensor. 2. Replace the pick-up roller contact motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-04	B	Exit guide plate motor error with 1-bin tray (D586)
794-04	D	Exit guide plate motor error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the exit guide plate HP sensor while the exit guide plate motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective exit guide plate motor ▪ Loosen connection ▪ Motor overload ▪ Defective exit guide plate HP sensor
		1. Replace the exit guide plate HP sensor. 2. Replace the exit guide plate motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-05	B	Output tray motor error with 1-bin tray (D586)
794-05	D	D error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the stack height detection lever sensor while the output tray motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective output tray motor ▪ Loosen connection ▪ Motor overload ▪ Defective stack height detection lever sensor
		1. Replace the stack height detection lever sensor. 2. Replace the output tray motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-06	B	Stack height detection lever motor error with 1-bin tray (D586)
794-06	D	Stack height detection lever motor error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the stack height detection lever HP sensor while the stack height detection lever motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective stack height detection lever motor ▪ Loosen connection ▪ Motor overload ▪ Defective stack height detection lever HP sensor ▪ Defective stack height detection lever sensor
		1. Replace the stack height detection lever sensor. 2. Replace the output tray motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-07	B	Punch drive motor error with 1-bin tray (D586)
794-07	D	Punch drive motor error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the punch position sensor while the punch drive motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective punch drive motor ▪ Loosen connection ▪ Motor overload ▪ Defective punch position sensor
		1. Replace the punch position sensor . 2. Replace the punch drive motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-08	B	Punch movement motor error with 1-bin tray (D586)
794-08	D	Punch movement motor error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the punch position sensor while the punch movement motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective punch movement motor ▪ Loosen connection ▪ Motor overload ▪ Defective punch position sensor
		1. Replace the punch position sensor. 2. Replace the punch movement motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-09	B	Paper position sensor unit motor error with 1-bin tray (D586)
794-09	D	Paper position sensor unit motor error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the paper position detection unit HP sensor while paper position sensor unit motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective paper position sensor unit motor ▪ Loosen connection ▪ Motor overload ▪ Defective paper position detection unit HP sensor
		1. Replace the paper position detection unit HP sensor. 2. Replace the paper position sensor unit motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-11	B	Stapler unit motor error with 1-bin tray (D586)
794-11	D	Stapler unit motor error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the paper position detection unit HP sensor while the stapler unit motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective paper position sensor unit motor ▪ Loosen connection ▪ Motor overload ▪ Defective paper position detection unit HP sensor
		1. Replace the paper position detection unit HP sensor. 2. Replace the paper position sensor unit motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
793-12	B	Shift roller motor error with 1-bin tray (D586)
794-12	D	Shift roller motor error without 1-bin tray (D586)
-	-	The machine does not detect a correct signal from the shift roller HP sensor while the shift roller motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective paper position sensor unit motor ▪ Loosen connection ▪ Motor overload ▪ Defective shift roller HP sensor
		1. Replace the shift roller HP sensor. 2. Replace the paper position sensor unit motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
798 -01	B	Upper limit switch error (D585)
		The upper limit switch of the 500-sheet finisher (D585) is pushed due to tray lift error or some problems.
		▪ Upper limit switch pulled up ▪ Defective upper limit swtich
		1. Check the harness. 2. Check for blockage around the upper limit switch. 3. Replace the upper limit switch.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
798 -02	B	Finisher jogger motor error (D585)
		The machine does not detect a correct signal from the front jogger fence HP sensor while the front jogger motor is operating. The 1st failure issues an original jam message, and the 2nd failure issues this SC code.
		▪ Jogger HP sensor disconnected, defective ▪ Jogger motor disconnected, defective ▪ Jogger motor overloaded due to obstruction ▪ Finisher main board and jogger motor
		1. Check or replace the harness. 2. Check for blockages in the jogger motor mechanism. 3. Replace the jogger HP sensor. 4. Replace the jogger motor. 5. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
798 -03	B	Rear fence motor error (D585)
		The machine does not detect a correct signal from the rear jogger fence HP sensor while the rear jogger motor is operating. The 1st detection failure issues a jam error, 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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
798 -04	B	Stack feed-out motor error (D585)
		The machine does not detect a correct signal from the stack feed-out HP sensor while the stack feed-out motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Defective stack feed-out HP sensor ▪ Overload on the stack feed-out motor ▪ Defective stack feed-out motor ▪ Defective main board ▪ Disconnected or defective harness
		1. Check or replace the harness. 2. Check for blockages in the stack feed-out mechanism. 3. Replace the stack feed-out HP sensor. 4. Replace the stack feed-out motor. 5. Replace the main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
798 -05	B	Positioning roller arm motor error (D585)
		The machine does not detect a correct signal from the positioning roller HP sensor while the positioning roller arm motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues 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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
798 -06	B	Corner stapler motor error (D585)
		The machine does not detect a correct signal from the stapler HP sensor while the stapler motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Staple jam ▪ Motor overload ▪ Defective stapler motor
		1. Check the connections and cables for the components mentioned above. 2. Replace the HP sensor and/or stapler motor 3. Replace the finisher main board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
798 -07	B	Stapler movement motor error (D585)
		The machine does not detect a correct signal from the stapler home position sensor while the stapler movement motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Motor overload ▪ Loose connection of the stapler home position sensor ▪ Loose connection of the stapler movement motor ▪ Defective stapler home position sensor ▪ Defective stapler movement motor
		1. Check the connection of the stapler movement motor. 2. Check the connection of the stapler home position sensor. 3. Replace the stapler home position sensor. 4. Replace the stapler movement motor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
798 -08	B	Tray lift motor error (D585)
		The machine does not detect a correct signal from the paper height sensor while the Tray lift motor is operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ 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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
798 -09	B	Edge depressor solenoid error (D585)
		Paper height sensor is ON when the edge depressor solenoid switches ON and the edge depressors start lower. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		▪ Solenoid harness loose, broken ▪ Solenoid obstructed ▪ Paper height sensor dirty, harness loose, broke ▪ Solenoid defective ▪ Paper height sensor defective
		1. Check or replace the solenoid harness. 2. Check for blockages in the stack pressure mechanism. 3. Replace the paper height sensor.

3.1.9 SC8XX: OVERALL SYSTEM

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
816	D	Energy saving I/O sub-system error
		The energy saving I/O sub-system detects an error.
		▪ Controller board defective
		Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
817	D	Monitor Error
		This is a file detection and electronic file signature check error when the boot loader attempts to read the self-diagnostic module, system kernel, or root system files from the OS Flash ROM, or the items on the SD card in the controller slot are false or corrupted.
		▪ OS Flash ROM data defective; change the controller firmware ▪ SD card data defective; use another SD card

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
818	D	Watchdog timer error
		The watchdog timer detect the error even if system processing normally.
		▪ System program defective ▪ Controller board defective ▪ Optional board defective
		1. Turn the main switch off and on. 2. Replace controller firmware. 3. Replace controller board. 4. Replace the options.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
819	C	Fatal kernel error
		Due to a control error, a RAM overflow occurred during system processing. One of the following messages was displayed on the operation panel.
		▪ System program defective ▪ Controller board defective ▪ Optional board defective
		Replace controller firmware

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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
820	D	Self-diagnostics error: CPU [XXXX]: Detailed error code
[0001] to [06FF] [0801] to [4005]		CPU error During the self-diagnostic, the controller CPU detects an error. There are 47 types of error code (0001 to 4005) depending on the cause of the error. The CPU detects an error and displays the specific error code with the program address where the error occurs.
		▪ System firmware problem ▪ Defective controller

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
		1. Turn the main switch off and on. 2. Reinstall the controller system firmware. 3. Replace the controller. When the problem cannot be fixed with the above procedure, the following information displayed on the screen needs to be fed back to a technical support center. ▪ SC code ▪ Detailed error code ▪ Program address
[0702] [0709] [070A]		CPU/Memory Error
		▪ System firmware problem ▪ Defective RAM-DIMM ▪ Defective controller
		1. Reinstall the controller system software. 2. Replace the RAM-DIMM. 3. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
821	D	Self-diagnostics error: ASIC [XXXX]: Detailed error code
[0B00]		ASIC error
		The write-&-verify check error has occurred in the ASIC.
		Defective ASIC device
		Replace the controller.
[0B06]		ASIC detection error
		The I/O ASIC for system control is not detected.
		Defective ASIC Defective North Bridge and PCI I/F
		Replace the controller board.
[0D05]		Self-diagnosis error: ASIC
		The CPU checks if the ASIC timer works correctly compared with the CPU timer. If the ASIC timer does not function in the specified range, this SC code is displayed.
		System firmware problem Defective RAM-DIMM Defective controller
		1. Reinstall the controller system firmware. 2. Replace the RAM-DIMM. 3. Replace the controller board.
[50A1]		Video bridge device (ASIC) error 1
		The CPU does not detect the video bridge device.
		Defective I/F between the video bridge device and controller
		Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
[50A2]		Video bridge device (ASIC) register error 1
		The CPU detects the video bridge device, but detects error data from the video bridge device.
		Defective I/F between the video bridge device and controller
		Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
822	B	Self-diagnostic error: HDD (Hard Disk Drive) [XXXX]: Detailed error code
[3003]		Timeout error
[3004]		Command error
-	-	When the main switch is turned on or starting the self-diagnostic, the HDD stays busy for the specified time or more.
-	-	▪ Loose connection ▪ Defective HDD ▪ Defective controller
-	-	1. Check that the HDD is correctly connected to the controller. 2. Replace the HDD. 3. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
823	B	Self-diagnostic error: NIB [XXXX]: Detailed error code
[6101]		MAC address check sum error The result of the MAC address check sum does not match the check sum stored in ROM.
[6104]		PHY IC error The PHY IC on the controller cannot be correctly recognized.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
[6105]		PHY IC loop-back error An error occurred during the loop-back test for the PHY IC on the controller.
-		Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
824	C	Self-diagnosis error: Standard NVRAM The controller cannot recognize the standard NVRAM installed or detects that the NVRAM is defective.
[1401]		▪ Loose connection ▪ Defective standard NVRAM ▪ Defective controller
		1. Check the standard NVRAM is firmly inserted into the socket. 2. Replace the NVRAM. 3. Replace the controller

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
826	C	Self-diagnostic Error: RTC/optional NVRAM
[1501]		The one second counted by the RTC is different from the one second counted by the CPU on the controller.
		▪ Defective the RTC device
		Replace the RTC device.
[15FF]		The RTC device is not detected.
		▪ Defective RTC device ▪ NVRAM without RTC installed ▪ Discharged backup battery
		Replace the NVRAM with another NVRAM with an RTC device.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
827	C	Self-diagnostic error: Standard SDRAM DIMM [XXXX]: Detailed error code
[0201]		Verification error
		Error detected during a write/verify check for the standard RAM (SDRAM DIMM).
		▪ Loose connection ▪ Defective SDRAM DIMM ▪ Defective controller
		1. Turn the main switch off and on. 2. Replace the SDRAM DIMM. 3. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
828	C	Self-diagnostic error: ROM [XXXX]: Detailed error code
[0101]		Check sum error 1 The boot monitor and OS program stored in the ROM DIMM is checked. If the check sum of the program is incorrect, this SC code is displayed.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
829	B	Self-diagnostic error: Optional RAM [XXXX]: Detailed error code
[0301]		Verification error
		Error detected during a write/verify check for the optional RAM (SDRAM DIMM).
		▪ Loose connection ▪ Defective SDRAM DIMM ▪ Defective controller
		1. Turn the main switch off and on. 2. Replace the SDRAM DIMM. 3. Replace the controller.
[0302]		Memory structure data error
		The memory structure data error for the optional RAM (SDRAM DIMM) is detected when the self-diagnostic is executed.
		▪ Defective RAM DIMM ▪ Defective SPD ROM on RAM DIMM ▪ Defective 12C bus
		Replace the RAM DIMM.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
833	C	Self-diagnostic error 8: Engine I/F ASIC
[0F30] [0F31]		ASIC for system control could not be detected. After the PCI configuration, the device ID for the ASIC could not be checked.
		Replace the IPU.
[0F41]		ASIC for system control could not be detected. After the PCI configuration, the device ID for the ASIC could not be checked.
		Replace the IPU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
[50B1]		Could not initialize or read the bus connection.
		Check for loose connections at the mother board.
		Replace the IPU.
[50B2]		Value of the SSCG register is incorrect.
		Check for loose connections at the mother board.
		Replace the IPU.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
835	B	Self-diagnostic error: Centronic device
[1102]		Loopback connector is connected but check results in an error.
		▪ IEEE1284 connector error ▪ Centronic loopback connector defective
		Replace the controller board.
[110C]		Loopback connector is connected but check results in an error.
		▪ ASIC device error ▪ IEEE1284 connector error ▪ Centronic loopback connector defective
		Replace the controller board.
[1120]		Centronic loopback connector is not connected for detailed self-diagnostic test.
		▪ Centronic loopback connector not connected correctly ▪ Centronic loopback connector defective ▪ ASIC device defective
		Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
838	C	Self-diagnostic Error: Clock Generator
[2701]		A verify error occurred when setting data was read from the clock generator via the I2C bus.
		▪ Defective clock generator ▪ Defective I2C bus ▪ Defective I2C port on the CPU
		Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
839	C	USB flash error
		This is a self-diagnostic error. The device ID of the on-board USB flash ROM was not recognized.
		▪ Defective controller board.
		Replace the controller board

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
840	B	EEPROM error 1: EEPROM access
		During the I/O processing, reading error is occurred. The 3rd reading failure issues this SC code. ▪ During the I/O processing, writing error is occurred.
		▪ Defective EEPROM
		Replace the EEPROM.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
841	B	EEPROM error 2: EEPROM read/write error
		Mirrored data of the EEPROM is different from the original data in EEPROM.
		Data in the EEPROM is overwritten for some reasons.
		Turn the main switch off and on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
842	B	Flash ROM verification error
		Verification error of the flash ROM on the controller board occurs. Note ▪ This SC is logged at 1st error detection. ▪ SC819 is issued at 2nd error detection.
		▪ Defective flash ROM (controller board)
		Replace the flash ROM.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
851	B	IEEE 1394 I/F Abnormal
		IEEE1394 interface error.
		▪ IEEE1394 interface board defective ▪ Controller board defective
		1. Turn the main switch off and on. 2. Replace the IEEE1394 interface board. 3. Replace the controller.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
853	B	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
		Check the wireless LAN board is installed correctly.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
854	B	Wireless LAN board error 2
		The board that holds the wireless LAN board can be accessed, but the wireless LAN board (802.11b or Bluetooth) itself cannot be accessed while the machine is operating
		▪ Wireless LAN board has been removed during machine operation.
		Check the wireless LAN board is installed correctly.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
855	B	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
		1. Check the connection. 2. Replace the wireless LAN/Bluetooth card.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
857	B	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
		1. Check the connection. 2. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
858	A	Data encryption conversion error
		A serious error occurred during data encryption.
[0]	A	Key acquisition error: The controller fails to get a new encryption key.
		▪ Defective controller board
		Replace the controller board.
[1]	A	HDD key setting error: The controller fails to copy a new encryption key to the HDD.
		Defective SATA chip on the controller board
		▪ Turn the machine power off/on ▪ If the error reoccurs, replace the controller board
[2]	A	NVRAM data encryption error 1: An error occurs while the NVRAM data is encrypted.
		Defective NVRAM on the controller board
		▪ Replace the NVRAM

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
[30]	A	NVRAM data encryption error 2: An error occurs before the NVRAM data is encrypted.
		Defective controller board
		▪ Turn the machine power off/on ▪ If the error reoccurs, replace the controller board
[31]	A	Other error: A serious error occurs while the data is encrypted.
		See SC991

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
859	B	HDD data encryption error
		Encryption of data on the hard disk failed.
[8]	B	HDD check error: The HDD is not correctly installed.
		▪ No HDD installed ▪ Unformatted HDD ▪ The encryption key on the controller is different from the one on the HDD
		1. Install the HDD correctly. 2. Initialize the HDD.
[9]	B	Power loss during encryption
		▪ Power failure during the data encryption
		Format the HDD.
[10]		Data read/write error
		▪ The DMAC error is detected twice or more.
		See SC863 below.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check the cable between HDC and HDD. 2. Reformat the HDD. 3. Replace the HDD. 4. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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 ▪ Cable between HDC and HDD loose or defective ▪ HDD power connector loose or defective ▪ HDD defective
		1. Check the cable between HDC and HDD. 2. Reformat the HDD. 3. Replace the HDD. 4. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
862	D	Bad sector number error
		The number of bad sectors in the HDD (image data area) goes over 101.
		▪ Defective HDD
		1. Format the HDD with SP5-832-002. 2. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
863	D	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.
		▪ HDD defective ▪ Controller board defective
		1. Format the HDD with SP5-832-002. 2. Replace the HDD. 3. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
864	D	HDD error 4
		While reading data from the HDD or storing data in the HDD, data transmission fails.
		▪ Defective HDD
		1. Format the HDD with SP5-832-002. 1. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
865	D	HDD error 5
		HDD responded to an error during operation for a condition other than those for SC863 or 864.
		▪ Defective HDD
		1. Format the HDD with SP5-832-002. 1. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
866	B	SD card error 1: Recognition error
		The SD card in the slot contains illegal program data.
		▪ SD-card data is corrupted.
		Use only SD cards that contain the correct data.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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.
		▪ The SD card is ejected from the slot.
		1. Install the SD card. 2. Turn the main switch off and on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
868	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.
		1. Check the SD card is inserted correctly. 2. Replace the SD card. 3. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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.
		▪ Defective software program ▪ Defective HDD ▪ Incorrect path to the server
		1. Initialize the address book data (SP5-846-050). 2. Initialize the user information (SP5-832-006). 3. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
872	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.
		▪ Defective HDD ▪ Power failure during an access to the HDD
		1. Turn the main switch off and on. 2. Initialize the HDD partition (SP5-832-007). 3. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
873	B	HDD mail TX data error
		An error was detected on the HDD immediately after the machine was turned on, or power was turned off while the machine used the HDD.
		▪ Defective HDD ▪ Power failure during an access to the HDD
		1. Do SP5832-8 (Format HDD – Mail TX Data) to initialize the HDD. 2. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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.
		▪ Data Overwrite Security Unit (SD card) not installed ▪ Defective HDD
		1. Turn the main switch off/on, and try the operation again. 2. Install the Data Overwrite Security Unit. 3. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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 running from an SD card.
		▪ The logical format for the HDD fails.
		Turn the main switch off/on, and try the operation again.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
876	CTL D	Log Data Error
		An error was detected in the handling of the log data at power on or during machine operation. This can be caused by switching the machine off while it is operating.
-001		Log Data Error 1
		▪ Damaged log data file in the HDD
		Initialize the HDD with SP5832-004.
-002		Log Data Error 2
		▪ An encryption module not installed
		1. Disable the log encryption setting with SP9730-004 ("0" is off.) 2. Install the DESS module.
-003		Log Data Error 3
		▪ Invalid log encryption key due to defective NVRAM data
		1. Initialize the HDD with SP5832-004. 2. Disable the log encryption setting with SP9730-004 ("0" is off.)
-004		Log Data Error 4
		▪ Unusual log encryption function due to defective NVRAM data
		Initialize the HDD with SP5832-004.
-005		Log Data Error 5
		▪ Installed NVRAM or HDD which is used in another machine
		1. Reinstall the previous NVRAM or HDD. 2. Initialize the HDD with SP5832-004.
-099		Log Data Error 99
		▪ Other than the above causes
		Ask your supervisor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
877	B	Data Overwrite Security SD card error
		The 'all delete' function did not execute but the Data Overwrite Security Unit is installed and activated.
		▪ Defective SD card ▪ SD card not installed
		1. Replace the NVRAM and then install the new SD card. 2. Check and reinstall the SD card.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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.
		▪ Incorrect updating for the system firmware ▪ Defective flash ROM on the controller board
		Replace the controller board

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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 ▪ Defective file format converter
		1. Check the file format converter is connected correctly. 2. Replace the file format converter.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
881	D	Authentication area error
		Authentication application error is detected.
		▪ Error data in an authentication application reaches the management limit.
		Turn the main switch off and on.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
899	D	Software performance error
		If the processing program shows abnormal performance and the program is abend, this SC is issued.
		▪ Controller board defective ▪ Software defective
		1. Replace the controller board. 2. Turn the main switch off and on. 3. Update the firmware on the controller.

3.1.10 SC9XX: MISCELLANEOUS

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		1. Check the connection between the NVRAM and controller. 2. Replace the NVRAM. 3. Replace the controller board.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
901	D	Mechanical total counter error
		The counter was moved during standby or while it is operating, possibly damaging the connector.
		▪ Counter defective
		Check the connection of the mechanical counter

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
920	B	Printer Error 1
		An internal application error was detected and operation cannot continue.
		▪ Software defective ▪ Unexpected hardware resource (e.g., memory shortage)
		1. Software defective; switch off/on, or change the controller firmware if the problem is not solved 2. Insufficient memory

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
921	B	Printer error 2
		When the application started, the necessary font was not on the SD card.
		▪ A necessary font is not found in the SD card. ▪ The SD card data is corrupted.
		Check that the SD card has the correct data.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
925	B	Network File Error
		The file that manages NetFile is corrupted and operation cannot continue.
		▪ Software defective ▪ Files on the HDD corrupted
		1. Do SP5-832 to format the HDD. 2. Replace the HDD.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
990	B	Software performance error
		The software attempted to perform an unexpected operation due to: 1) software bug, 2) incorrect internal parameter, 3) insufficient working memory.
		▪ Defective software ▪ Defective controller ▪ Software error
		▪ 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.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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.
		▪ Software program error ▪ Internal parameter incorrect, insufficient working memory.
		This SC is not displayed on the LCD (logging only).

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
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
		Print the "Logging Data" with SP5990-004 and then check the SP7990. If 498-Engine is found in the SP7990; 1. Check the harness connection of the temperature/humidity sensor. 2. Replace the temperature/humidity sensor.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
994	C	OCS record limitation error
		An error occurred because the number of records exceeded the limit for images managed in the service layer of the firmware. This can occur if there if there are too many application screens open on the operation panel.
		▪ No action required because this SC does not interfere with operation of the machine.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
995	D	Controller Board Mismatch
-001		▪ Defective BCU ▪ NVRAM Replacement error
		1. Install the previous NVRAM. 2. Input the serial number with SP5811-004, and turn the main power switch off/on. **IMPORTANT: When the BCU is replaced with a new one, this SC will occur. Therefore, make sure to do Step #2 above. Turning the power off/on links the NVRAM with the S/N information in the BCU.**
-002		▪ Defective NVRAM ▪ Defective controller
		1. Update the controller firmware. 2. Install a new NVRAM, and turn off and on the main power switch after SC995-002 has occurred. **IMPORTANT: When the NVRAM is replaced with a new one, this SC will occur. Therefore, make sure to do Step #2 above. Turning the power off/on allows the NVRAM to recognize the S/N.**
-003		▪ Incorrect type controller installed ▪ Defective controller
		Replace the controller with the correct type.
-004		▪ Incorrect model controller installed.
		Replace the controller with the correct model.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
997	CTL B	Application function selection error
		The application selected by the operation panel key does not start or ends abnormally.
		▪ Software (including the software configuration) defective ▪ An option required by the application (RAM, DIMM, board) is not installed ▪ Nesting of the fax group addresses is too complicated
		1. Check the devices necessary for the application program. If necessary devices have not been installed, install them. 2. Check that application programs are correctly configured. 3. For a fax operation problem, simplify the nesting of the fax group addresses. 4. Take necessary countermeasures specific to the application program. If the logs can be displayed on the operation panel, see the logs.

No.	Type	Details (Symptom, Possible Cause, Troubleshooting Procedures)
998	CTL D	Application start error
		No applications start within 60 seconds after the power is turned on.
		▪ Loose connection of RAM-DIMM, ROM-DIMM ▪ Defective controller ▪ Software problem
		1. Check the setting of SP5875-001. If the setting is set to "1 (OFF)", change it to "0 (OFF)". 2. Check if the RAM-DIMM and ROM-DIMM are correctly connected. 3. Reinstall the controller system firmware. 4. Replace the controller.

Note 1

If a problem always occurs 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

APPENDIX:

SERVICE PROGRAM MODE TABLES

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

4. APPENDIX: SERVICE PROGRAM MODE TABLES

4.1 SYSTEM SP TABLES-1

4.1.1 SP1XXX: FEED

1001*	Leading Edge Registration	
2	Tray: Plain	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.
3	Tray: Middle Thick	
4	Tray: Thick	
7	By-pass: Plain	
8	By-pass: Middle Thick	
9	By-pass: Thick	
13	Duplex: Plain	
14	Duplex: Middle Thick	

1002*	Side-to-Side Registration	
1	By-pass Table	Adjusts the printing side-to-side registration from each paper feed station using the Trimming Area Pattern (SP2902 Pattern No. 10). [–4.0 to +4.0 / **+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	Paper Tray 1	
3	Paper Tray 2	
4	Paper Tray 3	
5	Paper Tray 4	
6	Duplex	

1003*	Paper Buckle	
2	Paper Tray 1: Plain	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.) [–9 to 5 / **0** / 1 mm/step]
3	Tray 1: Middle Thick	
4	Paper Tray 1: Thick	
7	Paper Tray 2/3/4/LCT: Plain	
8	Paper Tray 2/3/4/LCT: Middle Thick	
9	Paper Tray 2/3/4/LCT: Thick	
12	By-pass: Plain	
13	By-pass: Middle Thick	
14	By-pass: Thick	
18	Duplex: Plain	
19	Duplex: Middle Thick	

1007*	By-pass Paper Size
	Controls paper size detection for the by-pass feed table.
1	LG Detection [0 to 1 / **0** / -] 0: LTSEF, 1: LG

1101*	Flicker Control
	Switches flicker control on/off. [**0 = Off** / 1 = On]

1103*	Fusing Idling	
1	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.)
2	Reload Permit Setting:Reload Temp.:Center	Adjusts the reload temperature at the center and both ends of the hot roller when the temperature inside the machine is 17°C or higher. [100 to 150 / **130** / 1°C/step]
3	Reload Permit Setting:Reload Temp.:Ends	
4	Reload Permit Setting:Reload Temp.:Cold:Center	Adjusts the reload temperature at the center and both ends of the hot roller when the temperature inside the machine is 16°C or lower. [100 to 150 / **130** / 1°C/step]
5	Reload Permit Setting:Reload Temp.:Cold:Ends	

1105*	Fusing Temperature Adjustment	
1	Roller Center:Plain1	Adjusts the fusing temperature at the center and both ends of the hot roller for plain paper 1. D120/D139:[120 to 200 / **155** / 1°C/step] D121/D122/D140/D141:[120 to 200 / **165** / 1°C/step]
2	Roller Ends:Plain1	
3	Roller Center:Plain2	Adjusts the fusing temperature at the center and both ends of the hot roller for plain paper 2. D120/D139:[120 to 200 / **160** / 1°C/step] D121/D122/D140/D141:[120 to 200 / **170** / 1°C/step]
4	Roller Ends:Plain2	
5	Roller Center:M-Thick	Adjusts the fusing temperature at the

6	Roller Ends:M-Thick	center and both ends of the hot roller for middle thick paper. D120/D139:[120 to 200 / **165** / 1°C/step] D121/D122/D140/D141:[120 to 200 / **175** / 1°C/step]
7	Thick Paper - Roller Center	Adjusts the additional temperature for the center and both ends of the hot roller for thick paper. D120/D139:[0 to 40 / **25** / 1°C/step] D121/D122/D140/D141:[0 to 40 / **20** / 1°C/step]
8	Thick Paper - Roller Ends	
9	Center Minus:Thin	Adjusts the subtract temperature for the center and both ends of the hot roller for thick paper. [0 to 20 / **5** / 1°C/step]
10	Ends Minus:Thin	
11	Energy Saver	Adjusts the fusing temperature at the center and both ends of the hot roller for energy saver mode. D120/D139:[0 to 200 / **135** / 1°C/step] D121/D122/D140/D141:[0 to 200 / **145** / 1°C/step]
12	Wait Temp: Center Minus	Adjusts the subtract temperature for the center and both ends of the hot roller in stand-by mode. [0 to 30 / **5** / 1 °C]
13	Wait Temp: Ends Minus	
14	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. [0 to 180 / **12** / 1s/step]

15	After Warming-up - No. of Page	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. [0 to 10 / **3** / 1 page/step]
16	Low:Center Add:Plain	Adjusts the additional temperature for the center and both ends of the hot roller for printing on thin paper/plain paper 1/plain paper 2/middle thick paper when the temperature inside the machine is 16 °C or lower. [0 to 30 / **5** / 1 °C]
17	Low:Ends Add:Plain	
18	Low:Center Add:Thick	Adjusts the additional temperature for the center and both ends of the hot roller for printing on thick paper when the temperature inside the machine is 16 °C or lower. [0 to 30 / **5** / 1 °C]
19	Low:Ends Add:Thick	
20	Registration Waiting:Plain1	Turns the registration waiting mode on or off for each paper type. [0 to 1 / **0** / 1] 0=Off, 1=On The paper waits at the registration roller until the fusing temperature reaches the prescribed temperature (adjustable with SP1105-024 to -31).
21	Registration Waiting:Plain2	
22	Registration Waiting:M-Thick	

23	Registration Waiting:Thick	Turns the registration waiting mode on or off for each paper type. [0 to 1 / **1** / 1] 0=Off, 1=On The paper waits at the registration roller until the fusing temperature reaches the prescribed temperature (adjustable with SP1105-024 to -31).
24	Waiting:Center Minus:Plain1	Adjusts the offset value for each re-load temperature to exit the registration waiting mode. [0 to 60 / **10** / 1 deg]
25	Waiting:Ends Minus:Plain1	
26	Waiting:Center Minus:Plain2	
27	Waiting:Ends Minus:Plain2	
28	Waiting:Center Minus:M-Thick	
29	Waiting:Ends Minus:M-Thick	
30	Waiting:Center Minus:Thick	
31	Waiting:Ends Minus:Thick	
32	Down Temp:No. of Page	When the fusing temperature at the center of the hot roller is lowered due to consecutive printing, the lowered temperature is kept until the number of sheets set here is printed. [0 to 20 / **5** / 1 sheet]
33	Copy Down Temp	When the fusing temperature at both ends of the hot roller is lowered due to consecutive printing, the lowered temperature is kept until the number of sheets set here are printed. [0 to 20 / **5** / 1 sheet]
34	Copy Down Temp:Center	Adjusts the subtract temperature for the

35	Copy Down Temp:Ends	center and both ends of the hot roller when the machine lowers the temperature due to consecutive printing. [0 to 30 / **1** / 1 deg]
36	Copy Down Temp:Add:Center	Adjusts the additional temperature until a specified period of time passes or a specified number of sheets are printed after reload. [0 to 30 / **5** / 1 deg]
37	Copy Down Temp:Add:Ends	
38	Feed Permit Setting:Thick	Adjusts the temperature at which feeding thick paper is permitted. Thick paper can be fed when the specified fusing temperature minus the actual temperature is the same as or smaller than this setting. [0 to 60 / **20** / 1 deg]

1106	Fusing Temperature Display	
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 BCU board.

1108*	Fusing Soft Start Setting	
1	Warming-up	Adjusts the fusing temperature control cycle when the machine is warming up. [100 to 2000 / **1000** / 100 msec]
2	Print	Adjusts the fusing temperature control cycle when the machine is printing. [100 to 2000 / **1000** / 100 msec]

3	Wait	Adjusts the fusing temperature control cycle [100 to 2000 / **1000 (North America, Taiwan), 2000 (Other countries)** / 100 msec]

1112*****	Image Proc. Temp. Correction	
1	Temp.:Normal:Level1	Specifies the correction temperature for the level 1 of the job image control. [–25 to 10 / **0** / 1 deg]
2	Temp.:Normal:Level2	Specifies the correction temperature for the level 2 of the job image control. [–25 to 10 / **–5** / 1 deg]

1124*****	CPM Down Setting	
	Specifies the settings for the CPM down mode.	
6	High:1st CPM	Specifies the 1st CPM down ratio against the normal CPM in the high temperature condition. [10 to 100 / **60** / 5 %/step]
7	High:2nd CPM	Specifies the 2nd CPM down ratio against the normal CPM in the high temperature condition. [10 to 100 / **50** / 5 %/step]
8	High:3rd CPM	Specifies the 3rd CPM down ratio against the normal CPM in the high temperature condition. [10 to 100 / **25** / 5 %/step]
9	High:1st CPM Down Temp.:A3	Specifies the heating roller temperature for 1st CPM down of A3 paper size. [100 to 250 / **215** / 1 deg/step]
10	High:2nd CPM Down Temp.:A3	Specifies the heating roller temperature for 2nd CPM down of A3 paper size. [100 to 250 / **220** / 1 deg/step]

11	High:3rd CPM Down Temp.:A3	Specifies the heating roller temperature for 3rd CPM down of A3 paper size. [100 to 250 / **225** / 1 deg/step]
12	High:1st CPM Down Temp.:A4	Specifies the heating roller temperature for 1st CPM down of A4 paper size. [100 to 250 / **215** / 1 deg/step]
13	High:2nd CPM Down Temp.:A4	Specifies the heating roller temperature for 2nd CPM down of A4 paper size. [100 to 250 / **220** / 1 deg/step]
14	High:3rd CPM Down Temp.:A4	Specifies the heating roller temperature for 3rd CPM down of A4 paper size. [100 to 250 / **225** / 1 deg/step]
15	High:1st CPM Down Temp.:B5:Press	Specifies the pressure roller temperature for 1st CPM down of B5 paper size. [100 to 250 / **200** / 1 deg/step]
16	High:2nd CPM Down Temp.:B5:Press	Specifies the pressure roller temperature for 2nd CPM down of B5 paper size. [100 to 250 / **205** / 1 deg/step]
17	High:3rd CPM Down Temp.:B5:Press	Specifies the pressure roller temperature for 3rd CPM down of B5 paper size. [100 to 250 / **210** / 1 deg/step]
18	High:1st CPM Down Temp.:A5:Press	Specifies the pressure roller temperature for 1st CPM down of A5 paper size. [100 to 250 / **200** / 1 deg/step]
19	High:2nd CPM Down Temp.:A5:Press	Specifies the pressure roller temperature for 2nd CPM down of A5 paper size. [100 to 250 / **205** / 1 deg/step]
20	High:3rd CPM Down Temp.:A5:Press	Specifies the pressure roller temperature for 3rd CPM down of A5 paper size. [100 to 250 / **210** / 1 deg/step]

21	High:1st CPM Down Temp.:A6:Press	Specifies the pressure roller temperature for 1st CPM down of A6 paper size. [100 to 250 / **200** / 1 deg/step]
22	High:2nd CPM Down Temp.:A6:Press	Specifies the pressure roller temperature for 2nd CPM down of A6 paper size. [100 to 250 / **205** / 1 deg/step]
23	High:3rd CPM Down Temp.:A6:Press	Specifies the pressure roller temperature for 3rd CPM down of A6 paper size. [100 to 250 / **210** / 1 deg/step]
24	Judging Interval	Specifies the interval for CPM down judgement. [1 to 250 / **10** / 1 sec/step]

1152*****	Fusing Nip Band Check	
	Checks the fusing nip band.	
1	Execute	Executes the fusing nip band check from the by-pass tray.
2*	Pre-idling Time	Specifies the fusing rotation time before executing SP1152-001. [0 to 999 / **20** / 1 sec/step]
3*	Stop Time	Specifies the time for paper staying at the nip. [0 to 100 / **20** / 1 sec/step]

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.

1801*****	MotorSpeedAdjust	
1	MainMotor:150	[–4 to 4 / **0** / 0.01 %/step]
2	MainMotor:122	[–4 to 4 / **0** / 0.01 %/step]
10	Duplex:Low	[–4 to 4 / **0** / 0.01 %/step]
11	Duplex:High	[–4 to 4 / **0** / 0.01 %/step]
24	Reverse:Low	[–4 to 4 / **0** / 0.01 %/step]
29	Reverse:High	[–4 to 4 / **0** / 0.01 %/step]

1903*	Feed Cl 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 / **5** / 1 mm/step]
2	Tray 1 Feed	
3	Other Trays	

1907*	Paper Feed Timing Adj.	
1	Feed Solenoid ON	[-10 to 10 / **0** / 1mm /step]
5	Inverter Stop Position	
15	Re-Feed Stop Position	
20	Bank1: Feed Solenoid ON: Plain	The feed solenoid turns on A mm before the pick-up roller feed out the trailing edge of the paper. A=(Original length – 80) x B / 100 B=setting value [35 to 85 / **60** / 5% /step]
21	Bank1: Feed Solenoid ON: Middle Thick	

22	Bank1: Feed Solenoid ON: Thick 1	The feed solenoid turns on A mm before the pick-up roller feed out the trailing edge of the paper. A=(Original length – 80) x B / 100 B=setting value [35 to 85 / **35** / 5% /step]
23	Bank2: Feed Solenoid ON: Plain	The feed solenoid turns on A mm before the pick-up roller feed out the trailing edge of the paper. A=(Original length – 80) x B / 100 B=setting value [35 to 85 / **60** / 5% /step]
24	Bank2: Feed Solenoid ON: Middle Thick	
25	Bank2: Feed Solenoid ON: Thick 1	The feed solenoid turns on A mm before the pick-up roller feed out the trailing edge of the paper. A=(Original length – 80) x B / 100 B=setting value [35 to 85 / **35** / 5% /step]
26	Bank1: Feed Clutch OFF: Plain	The feed solenoid turns off A mm after the pick-up roller feed out the trailing edge of the paper. A=4 + B B=setting value [-10 to 10 / **0** / 1mm /step]
27	Bank1: Feed Clutch OFF: Middle Thick	
28	Bank1: Feed Clutch OFF: Thick 1	
29	Bank2: Feed Clutch OFF: Plain	
30	Bank2: Feed Clutch OFF: Middle Thick	
31	Bank2: Feed Clutch OFF: Thick 1	
32	Bank Feed Wait Position	Stop and hold the paper A mm after the leading edge of the paper activates the vertical transport sensor. A=setting value [-20 to 20 / **0** / 1mm /step]

1908*	Paper Feed Timing Adj.	
15	Junction Gate SOL1: ON	[-10 to 10 / **0** / 1mm /step]
17	Junction Gate SOL1: OFF	
20	Bridge Junction Gate SOL ON: Plain	The bridge junction gate solenoid turns on A mm after the leading edge of the paper activates the paper exit sensor. A=setting value [0 to 20 / **0** / 1mm /step]
21	Bridge Junction Gate SOL ON: Middle Thick	
22	Bridge Junction Gate SOL ON: Thick 1	
23	Bridge Junction Gate SOL OFF: Plain	The bridge junction gate solenoid turns off A mm after the leading edge of the paper activates the paper exit sensor. A=setting value [0 to 50 / **0** / 1mm /step]
24	Bridge Junction Gate SOL OFF: Middle Thick	
25	Bridge Junction Gate SOL OFF: Thick 1	

1950*	Fan Cooling Time Set
	Adjust the rotation time for the fan motor (Fan for PSU, fusing, heater, controller box) after a job end. [10 to 600 / **10** / 1 sec]

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

1996*	Heater Forced Off After Printing
	Adjusts the period of time the fusing fan is off after printing. After the final sheet exits the fusing unit, the machine turns the fan off by setting the fusing temperature to reload temperature. [0 to 120/**1**/1 sec]

4.2 SYSTEM SP TABLES-2

4.2.1 SP2XXX: DRUM

2001*	Charge Roller Bias
1	Setting (Copying)
	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** / 10 V/step]
2	Adjust ID Sensor Pattern
	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** / 10 V/step]
3	Temporary Input
	Inputs the charge roller voltage temporarily for test purposes. **Do not change the value.** [0 to –2500 / **0** / 10 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]
	Vsdp Max
2	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]
	Charge Roller Bias Correction (Step)
3	Adjusts the size of the charge roller voltage correction. [0 to 200 / **50** / 1 V/step]

	Main Scan Mag. Adjustment
2102*	Adjusts the magnification in the main scan direction for copy mode and printer mode. Press "Clear/Stop" key to toggle plus or minus. [–0.5 to 0.5 / **0** / 0.1 %]

2103	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 4.0 / **3.0** / 0.1 mm/step]
2	Trailing Edge
	Adjusts the trailing edge erase margin. The specification is 0.5 mm or more. See "Replacement and Adjustment - Copy Adjustment" for details. [0.0 to 4.0 / **3.0** / 0.1 mm/step]
3	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 4.0 / **2.0** / 0.1 mm/step]
4	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 4.0 / **2.0** / 0.1 mm/step]
5	Duplex Trail.: L Size: Plain
	Adjusts the trailing edge erase margin on the reverse side of duplex copies for plain paper longer than 297 mm. The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-2. The specification is 0.5 mm or more. See "Replacement and Adjustment - Copy Adjustment" for details [0.0 to 4.0 / **1.2** / 0.1 mm/step]

6	Duplex Trail.: M Size: Plain
	Adjusts the trailing edge erase margin on the reverse side of duplex copies for plain paper of length 216.1 to 297 mm. The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-2. The specification is 0.5 mm or more. See "Replacement and Adjustment - Copy Adjustment" for details [0.0 to 4.0 / **0.8** / 0.1 mm/step]
7	Duplex Trail.: S Size: Plain
	Adjusts the trailing edge erase margin on the reverse side of duplex copies for plain paper of length 216 mm or less. The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-2. The specification is 0.5 mm or more. See "Replacement and Adjustment - Copy Adjustment" for details [0.0 to 4.0 / **0.6** / 0.1 mm/step]
8	Duplex Left: Plain
	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 SP2101-3. The specification is 2 ±1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details. [0.0 to 1.5 / **0.3** / 0.1 mm/step]
9	Duplex Right: Plain
	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 SP2101-4. The specification is 2 +2.5/–1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details. [0.0 to 1.5 / **0.3** / 0.1 mm/step]

10	Duplex Trail.: L Size: Thick
	Adjusts the trailing edge erase margin on the reverse side of duplex copies for thick paper longer than 297 mm. The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-2. The specification is 0.5 mm or more. See "Replacement and Adjustment - Copy Adjustment" for details [0.0 to 4.0 / **1** / 0.1 mm/step]
11	Duplex Trail.: M Size: Thick
	Adjusts the trailing edge erase margin on the reverse side of duplex copies for thick paper of length 216.1 to 297 mm. The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-2. The specification is 0.5 mm or more. See "Replacement and Adjustment - Copy Adjustment" for details [0.0 to 4.0 / **0.6** / 0.1 mm/step]
12	Duplex Trail.: S Size: Thick
	Adjusts the trailing edge erase margin on the reverse side of duplex copies for thick paper of length 216 mm or less. The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-2. The specification is 0.5 mm or more. See "Replacement and Adjustment - Copy Adjustment" for details [0.0 to 4.0 / **0.4** / 0.1 mm/step]
13	Duplex Left: Thick
	Adjusts the left side erase margin on the reverse side of duplex copies on thick paper. The actual left side erase margin on the reverse side is this value plus the value of SP2101-3. The specification is 2 ±1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details. [0.0 to 1.5 / **0.1** / 0.1 mm/step]

	Duplex Right: Thick
14	Adjusts the right side erase margin on the reverse side of duplex copies on thick paper. The actual right side erase margin on the reverse side is this value plus the value of SP2101-4. The specification is 2 +2.5/–1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details. [0.0 to 1.5 / **0.1** / 0.1 mm/step]

2105*	LD Power Adjustment
	LD Power Adjustment
1	[50 to 255 / **139 (D120/D139), 171 (D121/D122/D140/D141)** / 1/step] Adjusts the LD power.
	LD Power Adjustment Unit
2	Adjusts the LD power adjustment unit. [–50 to 50 / **0** / 0.1 %]

2109	Test Pattern
	Pattern Select
1	Prints the test patterns. Select the number of the test pattern that you want to print. When adjusting the printing registration, select no.14 (Trimming Area). [0 to 21 / **0** / 1 step]
	Test Pattern Density
2	Adjusts the test pattern density. [0 to 15 / **15** / 1 step]

Test Patterns for SP2109

0	None	11	Independent Pattern (1dot)
1	Vertical Line (1 dot)	12	Independent Pattern (2dot)
2	Vertical Line (2dot)	13	Independent Pattern (4dot)
3	Horizontal Line (1dot)	14	Trimming Area
4	Horizontal Line (2 dot)	15	Black Band (Horizontal)
5	Grid Vertical Line	16	Black Band (Vertical)
6	Grid Horizontal Line	17	Checker Flag Pattern
7	Grid Pattern Small	18	Grayscale (Vertical)
8	Grid Pattern Large	19	Grayscale (Horizontal)
9	Argyle Pattern Small	20	Full Dot Pattern
10	Argyle Pattern Large	21	All White Pattern

2201*	Development Bias Adjust
1	Printing
	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 0 / **–650** / 10 V/step]
2	ID Sensor Pattern
	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
	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. [10 to 150 / **100** / 10 ms /step]
2	Development Bias
	Adjusts the development bias off time. [10 to 200 / **80** / 10 ms/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/Vsp/Vsdp/Vt/Vtref Display	
1	Vsp	Displays the individual Vsp, Vsg, Vdsp, Vt, and Vtref values.
2	Vsg	
3	Vsdp	
4	Vt	
5	Vtref	

2301*	Transfer Current Adjust
1*	Thin:1side:Image Area
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
2*	Thin:1side:Lead Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
3*	Thin:1side:Trail Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
4*	Thin:2side:Image Area
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
5*	Thin:2side:Lead Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
6*	Thin:2side:Trail Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]

7*	Plain:1side:Image Area
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
8*	Plain:1side:Lead Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
9*	Plain:1side:Trail Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
10*	Plain:2side:Image Area
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
11*	Plain:2side:Lead Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
12*	Plain:2side:Trail Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
13*	Middle:1side:Image Area
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
14*	Middle:1side:Lead Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
15*	Middle:1side:Trail Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]

16*	Middle:2side:Image Area
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
17*	Middle:2side:Lead Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
18*	Middle:2side:Trail Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
19*	Thick:1side:Image Area
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
20*	Thick:1side:Lead Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
21*	Thick:1side:Trail Edge
	Adjusts the transfer current for copying. [–4 to 4/ **0** / 1 µA /step]
22	Input:1side
	Adjusts the transfer current for copying. [0 to 30 / **0** / 1 µA /step]
23	Input:2side
	Adjusts the transfer current for copying. [0 to 30 / **0** / 1 µA /step]
24*	Non Image Area
	Adjusts the transfer current for copying. [0 to 30 / **10** / 1 µA /step]

	Temp Inside the Machine
25*	Displays the temperature measured inside the machine just after power-on (by the thermistor on the BCU 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. [0 to 99 / **20** / 1 µA /step]

2302*	Transfer Current Switch Timing
	Transfer Current Switch Timing Lead Edge
1	Adjusts the transfer current switch timing based on FGATE assert. [–10 to 10 / **0** / 1 mm]
	Transfer Current Switch Timing Trail Edge
2	Adjusts the transfer current switch timing based on FGATE negate. [–10 to 10 / **0** / 1 mm]

2303*	Transfer Roller Cleaning Bias
	Positive
1	Adjusts the positive current of the paper transfer roller for cleaning the paper transfer roller. [0 to 20 / **10** / 1 µA]
	Negative
2	Adjusts the negative current of the paper transfer roller for cleaning the paper transfer roller. [0 to 20 / **4** / 1 µA]

	Developer Initialization
2801	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.

2803*	Developer Initialization Data
1	Vtref
	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.
2	ID Sensor PWM Value
	Displays the PWM value of the ID sensor after performing the developer initialization.

2901*	Separation Voltage Adjust
1	1side:Lead Edge
	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 0 / **–1800** / 100 V/step]
2	1side:Image Area
	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 0 / **–1800** / 100 V/step]
3	2side:Lead 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 0 / **–2100** / 100 V/step]
4	2side: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 0 / **–2100** / 100 V/step]
5	Switching Timing Lead Edge
	Adjusts the separation voltage switch timing based on FGATE assert. [-20 to 20 / **15** / 1 mm]

2906*	Tailing Control
1	Shift Range
	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	Number of Sheets
	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 / **6** / 1 step]
2	Photo: Multilevel Copy	[0 to 10 / **5** / 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.

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/**15**/1]
2	Post Idling Time ADJ	[0 to 60/**10**/1]

2921*	Toner Supply Mode
	Selects the toner supply mode. [**0 = Normal** 1 / 1 = Normal 2 / 2 = Fixed 1 / 3 = Fixed 2] Normally, only use setting 0. Change to 3 temporarily if the TD sensor is defective. Do not use settings 1 and 2; 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.

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. [0 to 5 / **0.0V** / 0.05V/step]

2931*	TD (V/wt%) Setting
	Adjusts the TD sensor sensitivity (coefficient: S) for toner density control. [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. [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. [0 to 1023 / **100** / 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.

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). [0 or 1 / **0** / -] 0:100 Pages, 1:200 Pages

2995*	ID Sensor Detection Interval
1	Warming-up
	If the period of time specified here elapses before the machine returns to full operation from the energy saver or auto off mode, ID sensor warming-up is performed. [0 to 999 / **480** / 1 min]
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 sheet/step]
3	Job End/Interrupt
	Determines when the ID sensor reads the ID sensor pattern. [0 or 1 / **0** / -] 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.
	0:OFF 1:ON
1	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.

2998*	PCU Reverse Rotation Time
1	Wait Time
	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 / **300** / 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.
2	Reverse Time
	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.
3	Brake Time
	Adjusts the length of time of braking to stop reverse rotation of the drum.: **DFU** [0 to 99/0/1] 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.

4.3 SYSTEM SP TABLES-3

4.3.1 SP3XXX

There are no Group 3 SP codes for this machine.

4.4 SYSTEM SP TABLES-4

4.4.1 SP4XXX: SCANNER

4008*	Sub Scan Mag.Adjustment
	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*	L-Edge Regist Adjustment
	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*	S-to-S Regist Adjustment
	Adjusts side-to-side registration for scanning. Press ⏲ to toggle ±. [–2.5 to +2.5 / **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.	
1	Lamp OFF	[0 to 1 / **0** / 1] 0=Off, 1=On
2	Lamp ON	

4014	Scan	
	Performs a scanner free run with or without HP sensor check.	
1	HP Detection Enable	▪ Touch [Execute] to start this feature. ▪ Press the (Clear/Stop) key to stop.
2	HP Detection Disable	

4020	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	Dust Detect:On/Off
	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 / **1** / 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	Dust Detect:Lvl
	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	Dust Reject:Lvl
	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 Operation Check
	Displays the status of the APS sensors and platen/DF cover sensor.

4303*	APS Min. Size
	Selects if the copier defaults to A5 SEF/LEF if the APS sensor cannot detect the size of a small original. [0 to 1/ **0** /1] 0: No Original (Not detected as A5) 1: A5-Lengthwise (Detected as A5 SEF)

4305*	8K/16K 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 = A4-Sideways LT-Lengthwise 2 = LT-Sideways A4-Lengthwise 3 = 8K/16K]

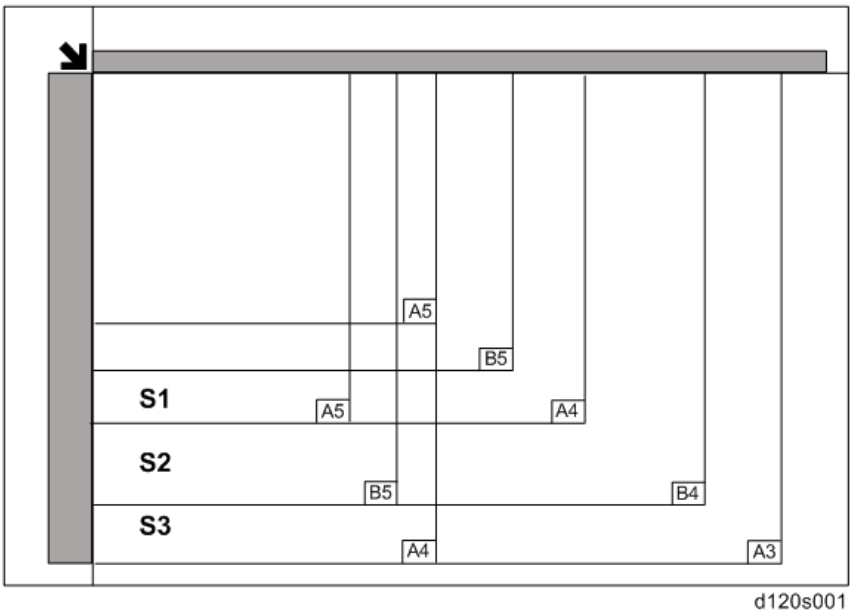
4308*	Scan Size Detection Detection ON/OFF
	Selects whether the machine detects the original size. [0 to 1 / **1** / 1] 0: Off, 1: On

4309*	Scan Size Detect:Setting	
1	Original Density Thresh	[0 to 255 / **18** / 1 digit]
2	Detection Time	[20 to 100 / **60** / 20 msec]
3	Lamp ON:Delay Time	[0 to 200 / **40** / 20 msec]
4	LED PWM Duty	[0 to 100 / **60** / 1 %]

4310	Scan Size Detect Value	
	Displays the detected value by CCD. Each detection point for paper size and color is displayed on the LCD.	
1	S1:R	[0 to 255 / **0** / 1 digit]
2	S1:G	
3	S1:B	
4	S2:R	
5	S2:G	
6	S2:B	
7	S3:R	
8	S3:G	
9	S3:B	

Note

- Each detection point (S1, S2, S3) in SP4310 is as follows.



d120s001

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	
7	ADF: Right	
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 (1)	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*	Select Copy Data Security	
	Adjusts the ICI density level.	
1	Copying	[0 to 3 / **3** / 1 /step]
2	Scanning	
3	Fax Operation	

4450	Scan Image Path Selection	
	Determines the method of image path detection.	
1	Black Subtraction ON/OFF	Switches black image path detection on/off: 0: ON, **1: OFF**
2	SH ON/OFF	Switches shading image path detection on/off **0: OFF**, 1: ON

4460*	Digital AE Set	
	Specifies the detection threshold for background deletion in ADS mode.	
1	Low Limit	[0 to 1023 / **364** / 1 digit]
2	Background Level	[512 to 1535 / **932** / 1 digit/step]

4550*	Scan Apli:Txt/Print	
4551*	Scan Apli:Txt	
4552*	Scan Apli:Txt Dropout	
4553*	Scan Apli:Txt/Photo	
4554*	Scan Apli:Photo	
4565*	Scan Apli:GrayScale	
4570*	Scan Apli:Col Txt/Photo	
4571*	Scan Apli:Col Gloss Photo	
4572*	Scan Apli:AutoCol	
5	MTF: 0(Off) 1-15 (Weak-Strong)	
	[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** / 1 / step] 0: Default (Off) → 7: Strongest
7	Brightness	Sets the overall brightness of the image. [1 to 255/ **128** / 1 / step] 1: Weakest ← 128: Default → 255: Strongest
8	Contrast	Sets the overall contrast of the image. [1 to 255/ **128** / 1 / step] 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 / step] 0: Default (Off) → 7: Strongest

4580*	Fax Apli:Txt/Chart	
4581*	Fax Apli:Txt	
4582*	Fax Apli:Txt/Photo	
4583*	Fax Apli:Photo	
4584*	Fax Apli:Original 1	
4585*	Fax Apli:Original 2	
5	MTF: 0(Off) 1-15 (Weak-Strong)	
	[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 /step] 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 Display	
	Displays the version number of the SBU.	
1	SBU ID	[0 to 0xFF / **0** / 1]
2	GASBU-N ID	[0 to 0xFF / **0** / 1]
3	VSP5100 ID	[0 to 0xFF / **0** / 1]

4602	Scanner Memory Access	
1	Scanner Memory Access	Enables the read and write check for the SBU registers.

4603	AGC Execution
	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.

4609*	Gray Balance Set: R	
	Adjusts the gray balance of the red signal for each scanning mode.	
1	Book Scan	[-384 to 255 / **-46** / 1 digit]
2	DF Scan	

4610	Gray Balance Set: G	
	Adjusts the gray balance of the green signal for each scanning mode.	
1	Book Scan	[-384 to 255 / **-20** / 1 digit]
2	DF Scan	

4611*	Gray Balance Set: B	
	Adjusts the gray balance of the blue signal for each scanning mode.	
1	Book Scan	[-384 to 255 / **-28** / 1 digit]
2	DF Scan	

4623	Black Level Adj. Display **Note**: ▪ RE: Red Even signal ▪ RO: Red Odd signal	
1	Latest: RE Color	Displays the black offset value for the even red signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]
2	Latest: RO Color	Displays the black offset value for the odd red signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]

4624	Black Level Adj. Display	
	Note: ▪ GE: Green Even signal ▪ GO: Green Odd signal	
1	Latest: GE Color	Displays the black offset value for the even green signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]
2	Latest: GO Color	Displays the black offset value for the odd green signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]

4625	Black Level Adj. Display	
	Note: ▪ BE: Blue Even signal ▪ BO: Blue Odd signal	
1	Latest: BE Color	Displays the black offset value for the even blue signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]
2	Latest: BO Color	Displays the black offset value for the odd blue signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]

4628	Analog Gain Adjust Latest: R Color
	Displays the gain value of the amplifiers on the controller for Red. [0 to 7 / **0** / 1 digit/step]

4629	Analog Gain Adjust Latest: G Color
	Displays the gain value of the amplifiers on the controller for Green. [0 to 7 / **0** / 1 digit/step]

4630	Analog Gain Adjust Latest: B Color
	Displays the gain value of the amplifiers on the controller for Blue. [0 to 7 / **0** / 1 digit/step]

4631	Digital Gain Adjust	
	Displays the gain value of the amplifiers on the controller for Red.	
1	Latest: RE Color	[0 to 1023 / **0** / 1 digit]
2	Latest: RO Color	

4632	Digital Gain Adjust	
	Displays the gain value of the amplifiers on the controller for Green.	
1	Latest: GE Color	[0 to 1023 / **0** / 1 digit]
2	Latest: GO Color	

4633	Digital Gain Adjust	
	Displays the gain value of the amplifiers on the controller for Blue.	
1	Latest: BE Color	[0 to 1023 / **0** / 1 digit]
2	Latest: BO Color	

4645	Scan Adjust Error	
	Displays the error value of the white level or black level adjustment.	
1	White Level	[0 to 65535 / **0** / 1 digit]
2	Black Level	

4647	SBU Error
	Displays the result of the SBU connection check.

4654*	Black Level Adj. Display	
	RE: Red Even signal, RO: Red Odd signal	
1	Last Correct Value: RE Color	Displays the previous black offset value for the even red signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]
2	Last Correct Value: RO Color	Displays the previous black offset value for the odd red signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]

4655*	Black Level Adj. Display	
	GE: Green Even signal, GO: Green Odd signal	
1	Last Correct Value: GE Color	Displays the previous black offset value for the even green signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]
2	Last Correct Value: GO Color	Displays the previous black offset value for the odd green signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]

4656*	Black Level Adj. Display	
	BE: Blue Even signal, BO: Blue Odd signal	
1	Last Correct Value: BE Color	Displays the previous black offset value for the even blue signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]
2	Last Correct Value: BO Color	Displays the previous black offset value for the odd blue signal in the CCD circuit board. [0 to 16383 / **0** / 1 digit/step]

4658*	Analog Gain Adjust Last Correct Value: R Color
	Displays the previous gain value of the amplifiers on the controller for Red. [0 to 7 / **0** / 1 digit/step]

4659*	Analog Gain Adjust Last Correct Value: G Color
	Displays the previous gain value of the amplifiers on the controller for Green. [0 to 7 / **0** / 1 digit/step]

4660*	Analog Gain Adjust Last Correct Value: B Color
	Displays the previous gain value of the amplifiers on the controller for Blue. [0 to 7 / **0** / 1 digit/step]

4661*	Digital Gain Adjust	
	RE: Red Even signal, RO: Red Odd signal	
1	Last Correct Value: RE Color	Displays the previous 2nd black offset value for the even red signal in the CCD circuit board. [0 to 1023 / **0** / 1 digit/step]
2	Last Correct Value: RO Color	Displays the previous 2nd black offset value for the odd red signal in the CCD circuit board. [0 to 1023 / **0** / 1 digit/step]

4662*	Digital Gain Adjust	
	GE: Green Even signal, GO: Green Odd signal	
1	Last Correct Value: GE Color	Displays the previous 2nd black offset value for the even green signal in the CCD circuit board. [0 to 1023 / **0** / 1 digit/step]
2	Last Correct Value: GO Color	Displays the previous 2nd black offset value for the odd green signal in the CCD circuit board. [0 to 1023 / **0** / 1 digit/step]

4663*	Digital Gain Adjust	
	BE: Blue Even signal, BO: Blue Odd signal	
1	Last Correct Value: BE Color	Displays the previous 2nd black offset value for the even blue signal in the CCD circuit board. [0 to 1023 / **0** / 1 digit/step]
2	Last Correct Value: BO Color	Displays the previous 2nd black offset value for the odd blue signal in the CCD circuit board. [0 to 1023 / **0** / 1 digit/step]

4673*	Black Level Adj. Display **DFU**	
	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.
2	Factory Setting: RO Color	Displays the factory setting values of the black level adjustment for the odd red signal in the CCD circuit board.

4674*	Black Level Adj. Display **DFU**	
	GE: Green Even signal, GO: Green Odd signal	
1	Factory Setting: GE Color	Displays the factory setting values of the black level adjustment for the even green signal in the CCD circuit board.
2	Factory Setting: GO Color	Displays the factory setting values of the black level adjustment for the odd green signal in the CCD circuit board.

4675*	Black Level Adj. Display **DFU**	
	BE: Blue Even signal, BO: Blue Odd signal	
1	Factory Setting: BE Color	Displays the factory setting values of the black level adjustment for the even blue signal in the CCD circuit board.
2	Factory Setting: BO Color	Displays the factory setting values of the black level adjustment for the odd blue signal in the CCD circuit board.

4677*	Analog Gain Adjust Factory Setting: R Color **DFU**
	Displays the factory setting values of the gain adjustment for Red.

4678*	Analog Gain Adjust Factory Setting: G Color **DFU**
	Displays the factory setting values of the gain adjustment for Green.

4679*	Analog Gain Adjust Factory Setting: B Color **DFU**
	Displays the factory setting values of the gain adjustment for Blue.

4680*	Digital Gain Adjust **DFU**
	Displays the gain value of the amplifiers on the controller for Red.
1	Factory Setting: RE Color
2	Factory Setting: RO Color

4681*	Digital Gain Adjust **DFU**
	Displays the gain value of the amplifiers on the controller for Green.
1	Factory Setting: GE Color
2	Factory Setting: GO Color

4682*	Digital Gain Adjust **DFU**
	Displays the gain value of the amplifiers on the controller for Blue.
1	Factory Setting: BE Color
2	Factory Setting: BO Color

4688*	Scan Image Density Adjustment ARDF
	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. [80 to 120 / **104** / 1%/ step]

4690	White Peak Level Read **DFU**
	Displays the peak level of the white level scanning.
1	RE
2	RO

4691	White Peak Level Read **DFU**
	Displays the peak level of the white level scanning.
1	GE
2	GO

4692	White Peak Level Read **DFU**
	Displays the peak level of the white level scanning.
1	BE
2	BO

4693	Black Peak Level Read **DFU**
	Displays the peak level of the black level scanning.
1	RE
2	RO

4694	Black Peak Level Read **DFU**
	Display the peak level of the black level scanning.
1	GE
2	GO

4695	Black Peak Level Read **DFU**
	Display the peak level of the black level scanning.
1	BE
2	BO

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 OFF	▪ Touch [ON] to start the free run ▪ Be sure to touch "OFF" to stop the free run.
2	Lamp ON	

4804	Home Position
	Moves the exposure lamp a short distance and immediately returns it to its home position. Touch [Execute]> "Completed"> [Exit].

4806	Carriage Save
	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.

4807	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 255: Default (Scanning Image)

4810	PWM **DFU**

4811	LED White Level Peak Read **DFU**

4812	LED White Level Peak Read **DFU**

4903*	Filter Setting	
	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	Ind Dot Erase: Text	[0 to 7/ **0** /1]
2	Ind Dot Erase: Generation Copy	

4905*	Select Gradation Level
	Changes the parameters for dithering. [0 to 255 / **0** / 1 /step]

4906*	Filter Setting: Other **DFU**	
	Outline level Adj	[0 to 10 / **0** / 1]

4918	Manual Gamma Adjustment **DFU**

4954*	Read/Restore Std	
1	Scan New Chart	Executes new chart scanning.
2	Recall Previous Chart	Recalls the previous scanned chart.
4	Set Standard Chart	Restores a new chart data as a standard chart data.
5*	Chromaticity Rank	Adjusts chromaticity rank. When replacing the scanner lamp, select a number according to the barcode on the new scanner lamp. [0 to 255 / **0** / 1]

4991	IPU Image Pass [Path] Selection RGB Frame Memory	
	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. High Compression PDF
	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

4996*	White Paper Detection Level
	Selects the threshold level of the original background density. [0 to 6 / **3** / 1/step] 0: Lightest 6: Darkest

4.5 SYSTEM SP TABLES-5

4.5.1 SP5XXX: MODE

5024*	mm/inch Display 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. [0-1 / Europe/Asia model: 0, American model: 1 / 1] 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 / **0** / 1] 0: Not displayed 1: Displayed

5052*	Return Time Priority Type
	Select the priority to return to the stand-by mode. [0 to 1 / **0** / 1] 0: Energy Save have priority 1: Return time have 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 Change
	Display or does not display the remaining toner display icon on the LCD. [0 to 1 / **0** / 1] 0: Not displayed, 1: Displayed

5062*	Parts PM System Setting
	Display or does not display the PM part yield on the LCD. [0 to 1 / **0** / 1] 0: Not displayed, 1: Displayed
1	PCU

5066*	Parts PM Display Setting **DFU**

5067*	Parts PM System Setting
	Selects the service maintenance or user maintenance for each PM parts. If the user service is selected, PM alert is displayed on the LCD. [0 to 1 / **0** / 1] 0: Service, 1: User
1	PCU

5071	Set Bypass Paper Size
	Turn on or off the paper size confirmation pop-up on the LED. This pop-up prevents mismatching between a paper size selected by the operation panel and an actual paper size on the by-pass tray. [0 to 1 / **0** / 1] 0: Off, 1: On
1	PCU

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.

5113*	Optional Counter Type
1	Default Optional Counter Type
	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)

5114*	Optional Counter I/F
1	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
	This program disables copying. [**0: Not disabled**/ 1: Disabled]

5120*	Mode Clear Opt. Counter Removal
	This program disables copying. [**0: Yes (removed)**/ 1: Standby (installed but not used)/ 2: No (not removed)]

5121*	Counter Up Timing
	Determines whether the optional key counter counts up at paper feed-in or at paper exit. [0 or 1 / **0** / 1] 0: Feed 1: Exit

5126*	F Size Original Setting
	Selects the F-size original setting. [0 to 2 / **0** / 1 /step] 0: 8.5" x 13" (Foolscap) 1: 8.25" x 13" (Folio) 2: 8" x 13" (F)

5127*	APS OFF Mode
	This program disables the APS. [**0: Not disabled**/ 1: Disabled]

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 / **0** / 1] 0: Off 1: On. Sets the tray for feeding paper up to 600 mm long. With this SP selected on, paper jams are not detected in the paper path.

5162*	App. Switch Method
	Controls if the application screen is changed with a hardware switch or a software switch. [0 or 1 / **0** / 1] 0: Soft Key Set 1: Hard Key Set

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 or 1 / **0** / 1] 0: Off. Printer bit switches cannot be adjusted. 1: On. Printer bit switches can be adjusted.

5181*	Size Adjust	
	Adjusts the paper size for each tray.	
1	Tray 1:1	[0 to 1 / **0 (EU/ASIA), 1 (NA)** / 1 /step] 0: A4 LEF, 1: LT LEF
2	Tray 1: 2	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: A3, 1: DLT
3	Tray 1: 3	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B4, 1: LG
4	Tray 1: 4	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B5 LEF, 1: Exe LEF
5	Tray 1: 5	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: A5SEF, 1: HLTSEF
6	Tray 2: 1	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: A4 LEF, 1: LT LEF
7	Tray 2: 2	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: A3, 1: DLT
8	Tray 2: 3	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B4, 1: LG
9	Tray 2: 4	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B5 LEF, 1: Exe LEF
10	Tray 3: 1	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: A4 LEF, 1: LT LEF
11	Tray 3: 2	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: A3, 1: DLT
12	Tray 3: 3	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B4, 1: LG
13	Tray 3: 4	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B5 LEF, 1: Exe LEF

14	Tray 4: 1	[0 to 2 / **0 (EU/ASIA), 1 (NA)** / -] 0: A4LEF, 1: LTLEF
15	Tray 4: 2	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: A3, 1: DLT
16	Tray 4: 3	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B4, 1: LG
17	Tray 4: 4	[0 or 1 / **0 (EU/ASIA), 1 (NA)** / -] 0: B5 LEF, 1: Exe LEF

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**

5199	Paper Exit After Staple End
	This SP determines whether a machine that normally cannot continue to output paper if staple supply runs can continue to operate. [0 to 1 / **0** / 1] 0: OFF. Paper cannot exit if no staples are available. 1: ON. Paper can exit with no staples.

5212*	Page Numbering	
3	Duplex Printout Left/Right Position	Horizontally positions the page numbers printed on both sides during duplexing. [–10 to 10 / **0** / 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 / **0** / 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	The number of the week for the day selected at the 4th 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.
	4th	Day of the week. 0: Sunday, 1: Monday
	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 (NA/EU), 0 (ASIA)** / 1 /step] 0: Disable 1: Enable
3	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	Used to assign the default access user access privileges to their own documents on the document server. [0 to 3 / **0** / 1 step] 0: View, 1: Edit, 2: Edit/Delete, 3: Full control.
104	Authentication Time	Specifies the timeout of the authentication. [0 to 255 / **0** / 1 sec./step] 0: 60 seconds 1 to 250 seconds
162	Extend Certification Detail	Selects the log out type for the extend authentication device. Bit 0: Log-out without an IC card 0: Not allowed (default) 1: Allowed
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	Enables or disables the SDK certification. ▪ Bit 0: SDK certification 0: Disable (default), 1: Enable ▪ Bit 1: Not used ▪ Bit 2: Administrator log in 0: Disable (default), 01: Enable
240	Detail Option	Enables or disables the log out confirmation option. ▪ Bit 0: Log out confirmation option 0: Enable (default), 1: Disable Selects the automatic log out time. ▪ Bit 1 and 2: Automatic log out timer reduction 00: 60 seconds (default), 01: 10 seconds,10: 20 seconds, 11: 30 seconds

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 or 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 or 1 / **0** / 1] 0: Password NULL not permitted. 1: Password NULL permitted.

6	Detail Option Determines whether LDAP option (anonymous certification) is turned on or off. [0 to 255 / **0** / 1] 0: OFF 1: ON

5413*	Lockout Setting
1	Lockout On/Off Switches on/off the lock on the local address book account. [0 or 1 / **0** / 1] 0: Off 1: On
2	Lockout Threshold Sets a limit on the frequency of lockouts for account lockouts. [5 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 or 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 9999 / **60** /1 min.]

5414*	Access Mitigation
1	Mitigation On/Off Switches on/off masking of continuously used IDs and passwords that are identical. [0 or 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 or 1/ **0** / 1] 0: On 1: Off
11	Document Server Determines whether certification is required before a user can use the document server. [0 or 1 / **0** / 1] 0: On 1: Off
21	Fax Determines whether certification is required before a user can use the fax application. [0 or 1 / **0** / 1] 0: On 1: Off
31	Scanner Determines whether certification is required before a user can use the scan applications. [0 or 1 / **0** / 1] 0: On 1: Off

41	Printer Determines whether certification is required before a user can use the printer applications. [0 or 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	

5430*	Auth Dialog Message Change
1*	Message Change On/Off Turns on or off the displayed message change for the authentication. [0 or 1 / **0** / 1] 0: Off, 1: On
2	Message Text Download Executes the message download for the authentication.
3	Message Text ID Inputs message text for the authentication.

5431*	External Auth User Preset
10	Tag Turns on or off the tag copy permission for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
11	Entry Turns on or off the copy permission of the entry information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit

12	Group Turns on or off the copy permission of the group information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
20	Mail Turns on or off the copy permission of the mail information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
30	Fax [0 or 1 / **1** / -] 0: Not permit, 1: Permit Turns on or off the copy permission of the fax information for the external authentication.
31	FaxSub Turns on or off the copy permission of the fax additional information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
32	Folder Turns on or off the copy permission of the folder information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
33	ProtectCode Turns on or off the copy permission of the protection code information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit

34	SmtpAuth Turns on or off the copy permission of the SMTP information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
35	LdapAuth Turns on or off the copy permission of the LDAP information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
36	Smb Ftp Fldr Auth Turns on or off the copy permission of the SMB/FTP information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
37	AcntAcl Turns on or off the copy permission of the account ACL information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
38	DocumentAcl Turns on or off the copy permission of the document ACL information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit
40	CertCrypt Turns on or off the copy permission of the authentication information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit

50	UserLimitCount Turns on or off the copy permission of the maximum number information for the external authentication. [0 or 1 / **1** / -] 0: Not permit, 1: Permit

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 or 1 / **0** / -] 0: Off 1: On
2	Panel Disp Determines whether an error code appears on the operation panel after a user authentication failure occurs. [0 or 1 / **1** / 1] 1: On 0: Off

5490*	MF Keycard **Japan Only**
	Sets up operation of the machine with a keycard. [0 or 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.

5491*	Optional Counter
	Determines whether to cancel the job when MK1 keycard is pulled out from the machine during job. [0 to 11111111 / **0** / 1] 0: On. Cancels the job. 1: Off. Allows operation if MK1 keycard is pulled out from the machine during the job.

5501*	PM Alarm
1	PM Alarm Level
	[0 to 9999 / **0** / 1 / step] 0: Alarm off 1 to 9999: Alarm goes off when Value (1 to 9999) x 1000 > PM counter
2	Original Count Alarm
	[0 or 1 / **1** / -] 0: No alarm sounds 1: Alarm sounds after the number of originals passing through the ARDF > 10,000

5504*	Jam Alarm
	Sets the alarm to sound for the specified jam level (document misfeeds are not included). [0 to 3 / **3** / 1 step] 0: Zero (Off) 1: Low (2.5K jams) 2: Medium (3K jams) 3: High (6K jams)

5505*	Error Alarm
	Sets the error alarm level. [0 to 255 / **20 (D120/D139), 25 (D121/D140), 35 (D122/D141)** / 100 copies / 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.
80	Toner Call Timing	Changes the timing of the "Toner Supply Call" via the @Remote, when the following conditions occur. 0: At replacement 1: At near 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	
1	Jam Remains	Enables/disables initiating a call. [0 or 1 / **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. [3 to 30 / **10** / 1 minute]
12	Jam Detection: Continuous Count	Sets the number of continuous paper jams required to initiate a call. [2 to 10 / **5** / 1 time]
13	Door Open: Time Length	Sets the length of time the remains opens to determine when to initiate a call. [3 to 30 / **10** / 1 minute]

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** / -] 0: Off 1: On
2	Service Parts Near End Call	
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	
10	Supply Automatic Ordering Call	
11	Supply Management Report Call	
12	Jam/Door Open Call	

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.
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 Uapli	Initializes Web application settings.
21	ECS	Initializes ECS (Engine Control Service).

5803	Input Check
	Displays signals received from sensors and switches. Press the (Clear Modes) key to exit
1	Tray 1: Paper Size Sensor
2	Tray 2: Paper Size Sensor
3	Tray 1: Tray Set Sensor
4	Tray 2: Tray Set Sensor
5	Tray 1: Paper Height Sensor 1
6	Tray 1: Paper Height Sensor 2
7	Tray 2: Paper Height Sensor 1
8	Tray 2: Paper Height Sensor 2
9	Tray 1: Paper End Sensor
10	Tray 2: Paper End Sensor
11	Tray 1: Paper Lift Sensor
12	Tray 2: Paper Lift Sensor

13	1st Paper Leading Edge Sensor
14	2nd Paper Leading Edge Sensor
15	By-pass: Paper Size Sensor
16	By-pass: Paper End Sensor
17	By-pass: Paper Length Sensor
18	By-pass: Home Position Sensor
19	Paper Exit Sensor
20	Paper Feed Sensor 1
21	Paper Feed Sensor 2
22	Registration Sensor
23	Interchange Sensor
24	Duplex: Exit Sensor
25	Duplex: Entrance Sensor
26	Paper Overflow Sensor
27	Front Safety Sw - 24V
28	Front Safety Sw - 5V
29	Right Cover Open
30	Duplex Fan Lock
31	CTL Fan Lock
33	Fan Lock
34	Bottle Motor Lock
35	Main Motor Lock
36	Interchange Unit Set
37	PCU Set

38	Fusing Unit Set
39	Key Card Set
40	Mechanical Counter Set
41	Key Counter Set
42	BCU Version
87	BANK_VFEEDSNS1
88	BANK_VFEEDSNS2
89	BANK_FEEDSNS1
90	BANK_FEEDSNS2
91	BANK_VFEEDCOVER
200	Scanner HP Sensor
201	Platen Cover Sensor

5804	Output Check	
	Turns on electrical components individually for test purposes.	
1	Main Motor: CW: High	
2	Main Motor: CW: Low	
3	Main Motor: CCW: High	
4	Main Motor: CCW: Low	
5	Duplex Motor: CCW: 425.3	
6	Duplex Motor: CCW: 345	
7	Duplex Motor: CCW: 153	
8	Duplex Motor: CCW: 123.8	
9	Interchange Motor: CW: 424	
10	Interchange Motor: CW: 345.1	

11	Interchange Motor: CW: 152	
12	Interchange Motor: CW: 123.8	
13	Interchange Motor: CCW: 424	
14	Interchange Motor: CCW: 345.1	
15	Interchange Motor: CCW: 152	
16	Interchange Motor: CCW: 123.8	
17	By-pass Feed Motor: CW: High	
18	By-pass Feed Motor: CW: Low	
19	By-pass Feed Motor: CCW	
20	Toner Bottle Motor	
21	1st Tray Up	
22	1st Tray Down	
23	2nd Tray Up	
24	2nd Tray Down	
25	Exhaust Fan Motor: High	
26	Exhaust Fan Motor: Low	
27	Duplex Fan	
28	CTL Fan	
29	PSU Fan	
32	Registration CL	
33	1st Paper Feed CL	
34	2nd Paper Feed CL	
35	Paper Transport CL1	
36	Paper Transport CL2	

37	Pick Up SOL1	
38	Pick Up SOL2	
39	Interchange SOL	
40	Fusing SOL	
41	Dehumidification Heater	
42	PP.: Image Transfer: -	PP. means "Power Pack" (PCBs).
43	PP.: Image Transfer: +	
44	PP.: Separation Voltage	
45	PP.: Development	
46	PP.: Charge	
47	P Sensor	
48	Anti-static LED	
49	Polygon Motor: High	
50	Polygon Motor: Low	
51	LD On	Laser diode - Do not use
163	BANK_MT:203mm/s	
164	BANK_MT:165mm/s	
165	BANK_MT:150mm/s	
166	BANK_MT:122mm/s	
169	BANK_FEEDCL1	
170	BANK_FEEDCL2	
171	BANK_PICKUPSOL1	
172	BANK_PICKUPSOL2	
202	Scanner Lamp	

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 Serial **DFU**
2	Display Displays the machine serial number.
4	BICU Inputs the serial number.

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
	I/F Setting
1*	Selects the remote service setting. [0 to 2 / **2** / - /step] 0: Remote service off 1: **DFU** 2: @Remote service on
	CE Call
2*	Performs the CE Call at the start or end of the service. [0 or 1 / **1** / 1 /step] 0: Start of the service 1: End of the service **NOTE:** This SP is activated only when SP 5816-001 is set to "1".
	Function Flag
3*	Enables or disables the remote service function. [0 to 1 / **0** / 1 /step] 0: Disabled, 1: Enabled **NOTE:** This SP setting is changed to "1" after @Remote register has been completed.
	SSL Disable
7*	Uses or does not use the RCG certification by SSL when calling the RCG. [0 to 1 / **0** / 1 /step] 0: Uses the RCG certification 1: Does no use the RCG certification
	RCG Connect Timeout
8*	Specifies the connect timeout interval when calling the RCG. [1 to 90 / **30** / 1 second /step]
	RCG Write Timeout
9*	Specifies the write timeout interval when calling the RCG. [0 to 100 / **60** / 1 second /step]

10*	RCG Read Timeout
	Specifies the read timeout interval when calling the RCG. [0 to 100 / **60** / 1 second /step]
11*	Port 80 Enable
	Enables/disables access via port 80 to the SOAP method. [0 or 1 / **0** / –] 0: Disabled, 1: Enabled
13*	RFU (Remote Firmware Update) Timing
	Selects the RFU timing. [0 or 1 / **1** / –] 0: RFU is executed whenever update request is received. 1: RFU is executed only when the machine is in the sleep mode.
21*	RCG – C Registed **DFU**
	This SP displays the Embedded RC Gate installation end flag. 0: Installation not completed 1: Installation completed
23*	Connect Type (N/M)
	This SP displays and selects the Embedded RC Gate connection method. 0: Internet connection 1: Dial-up connection
61*	Cert. Expire Timing **DFU**
	Proximity of the expiration of the certification.
62*	Use Proxy **DFU**
	This SP setting determines if the proxy server is used when the machine communicates with the service center. 0: proxy server is used 1: proxy server is not used

63*	Proxy Host This SP sets the address of the proxy server used for communication between Embedded RC Gate-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 RC Gate-N. Note ▪ The address display is limited to 128 characters. Characters beyond the 128 character are ignored. ▪ This address is customer information and is not printed in the SMC report.
64*	Proxy Port Number This SP sets the port number of the proxy server used for communication between Embedded RC Gate-N and the gateway. This setting is necessary to set up Embedded RC Gate-N. Note ▪ This port number is customer information and is not printed in the SMC report.
65*	Proxy User Name 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.
66*	Proxy Password This SP sets the HTTP proxy certification password. 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.
67*	CERT: Up State

	Displays the status of the certification update.	
	0	The certification used by Embedded RC Gate 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 a 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 authentication to an individual certification.
	4	Notification of a common certification without ID2.
	5	Notification that no certification was issued.
	6	Notification that GW URL does not exist.
69*	CERT: Up ID	The ID of the request for certification.
83*	Firmware Up Status	Displays the status of the firmware update.
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 Ver.	Displays the macro version of the @Remote certification.
88	CERT: PAC Ver.	Displays the PAC version of the @Remote certification.

89	CERT: ID2 Code	Displays ID2 for the @Remote certification. Spaces are displayed as underscores (_). Asterisks (*) indicate that no @Remote certification exists. "000000_____" indicates "Common certification".
90	CERT: Subject	Displays the common name of the @Remote certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks (*) indicate that no @Remote certification exists. "000000_____" indicates "Common certification".
91	CERT: Serial No.	Displays serial number for the @Remote certification. Asterisks (*) indicate that no @Remote certification exists.
92	CERT: Issuer	Displays the common name of the issuer of the @Remote certification. CN = the following 30 bytes. Asterisks () indicate that no @Remote certification exists.
93	CERT: Valid Start	Displays the start time of the period for which the current @Remote certification is enabled.
94	CERT: Valid End	Displays the end time of the period for which the current @Remote certification is enabled.
150*	Selection Country	
	Not used	
151	Line Type Automatic Judgment	
	Not used	
152	Line Type Judgment Result	
	Not used	
153*	Selection Dial/Push	
	Not used	

154*	Outside Line/Outgoing Number
	Not used
156*	Dial Up User Name
	Not used
157*	Dial Up Password
	Not used
161*	Local Phone Number
	Not used
162*	Connection Timing Adjustment: Incoming
	Not used
163*	Access Point
	Not used
164*	Line Connecting
	Not used
173*	Modem Serial Number
	Not used
174	Retransmission Limit
	Not used
187*	FAX TX Priority
	Not used
200	Manual Polling
	Not used

201	Regist: Status
	Displays a number that indicates the status of the @Remote service device. 0: Neither the @Remote device nor Embedded RCG Gate is set. 1: The Embedded RCG Gate is being set. Only Box registration is completed. In this status, @Remote device cannot communicate with this device. 2: The Embedded RCG Gate is set. In this status, the @Remote device cannot communicate with this device. 3: The @Remote device is being set. In this status the Embedded RCG Gate cannot be set. 4: The @Remote module has not started.
202*	Letter Number
	Allows entry of the request number needed for the Embedded RCG Gate.
203	Confirm Execute
	Executes the confirmation request to the @Remote Gateway.
204	Confirm Result
	Displays a number that indicates the result of the confirmation executed with SP5816-203. 0: Succeeded 1: Confirmation number error 3: Proxy error (proxy enabled) 4: Proxy error (proxy disabled) 5: Proxy error (Illegal user name or password) 6: Communication error 8: Other error 9: Confirmation executing
205	Confirm Place
	Displays the result of the notification sent to the device from the Gateway in answer to the confirmation request. Displayed only when the result is registered at the Gateway.

<table>
<tr><td rowspan="2">206</td><td colspan="3">Register Execute</td></tr>
<tr><td colspan="3">Executes "Embedded RCG Registration".</td></tr>
<tr><td rowspan="2">207</td><td colspan="3">Register Result</td></tr>
<tr><td colspan="3">Displays a number that indicates the registration result.
0: Succeeded
1: Confirmation 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
8: Other error
9: Registration executing</td></tr>
<tr><td rowspan="8">208</td><td colspan="3">Error Code</td></tr>
<tr><td colspan="3">Displays a number that describes the error code that was issued when either SP5816-204 or SP5816-207 was executed.</td></tr>
<tr><td>Cause</td><td>Code</td><td>Meaning</td></tr>
<tr><td rowspan="3">Illegal Modem Parameter</td><td>-11001</td><td>Chat parameter error</td></tr>
<tr><td>-11002</td><td>Chat execution error</td></tr>
<tr><td>-11003</td><td>Unexpected error</td></tr>
<tr><td rowspan="3">Operation Error, Incorrect Setting</td><td>-12002</td><td>Inquiry, registration attempted without acquiring device status.</td></tr>
<tr><td>-12003</td><td>Attempted registration without execution of an inquiry and no previous registration.</td></tr>
<tr><td>-12004</td><td>Attempted setting with illegal entries for certification and ID2.</td></tr>
</table>

		-12005	@Remote communication is prohibited. The device has an Embedded RC gate-related problem.
		-12006	A confirmation request was made after the confirmation had been already completed.
		-12007	The request number used at registration was different from the one used at confirmation.
		-12008	Update certification failed because mainframe was in use.
		-12009	ID2 between NVRAM and self-signed certificate is different.
		-12010	Certificate area is not initialized.
	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	RCG device not managed
		-2394	Device not managed
		-2395	Box ID for RCG device is illegal
		-2396	Device ID for RCG device is illegal
		-2397	Incorrect ID2 format
		-2398	Incorrect request number format

209	Instl Clear	Releases the machine from its Embedded RCG Gate setup. **NOTE:** Turn off and on the main power switch after this setting has been changed.
250	CommLog Print	Prints the communication log.

5821*	Remote Service Address **Japan Only**	
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
	Uploads the NVRAM data to an SD card. 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
50*	1284 Compatibility (Centro)
	Enables and disables bi-directional communication on the parallel connection between the machine and a computer. [0 or 1 / **1** / 1] 0:Off 1: On

52*	ECP (Centro)			
	Disables and enables the ECP feature (1284 Mode) for data transfer. [0 or 1 / **1** / 1] 0: Disabled 1: Enabled			
65*	Job Spooling			
	Switches job spooling on and off. [0 or 1 / **0** / 1] 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. [0 or 1 / **1** / 1] 1: Resumes printing spooled jog. 0: Clears spooled job.			
69*	Job Spooling (Protocol)			
	This SP determines whether job spooling is enabled or disabled for each protocol. This is a 8-bit setting. [0 or 1 / **1** / 1] 0: No spooling, 1: Spooling enabled			
	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 or 1 / **1** / 1] 0: Disable 1: Enable	
91*	Web (0:OFF 1:ON)	
	Disables or enables the Web operation. [0 or 1 / **1** / 1] 0: Disable 1: Enable	
145	Active IPv6 Link Local Address	
	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	Active IPv6 Status Address 1	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	Active IPv6 Status Address 2	
151	Active IPv6 Status Address 3	
153	Active IPv6 Status Address 3	
155	Active IPv6 Status Address 4	

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 Address
	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 delimited 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 eliminating 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 or 1 / **1** / 1] 1: Enable 0: Disable
236*	Web Item Invisible Determines whether each item can be set in Websys. [0x0000 to 0xffff/0xffff] 0: Not displayed, 1: Displayed Bit 0: NetRICOH Bit 1: Vendor for consumables Bit 2-15: Reserved
237*	Web Shopping Link Invisible Determines whether the NetRICOH link is displayed on the Websys top page and link page. [0 or 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 or 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 or 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 or 1 / **1** / 1] 1: Display 0: No display

5831	InitialSettingClear
	Execute to clears the initial setting mode.

5832	HDD Formatting
	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	
1	Capture Function (0:Off 1:On)	
	With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected. [0 to 1 / **0** / 1] 0: Disable 1: Enable	
2	Panel Setting	
	Determines whether each capture related setting can be selected or updated from the initial system screen. [0 to 1 / **0** / 1] 0: Enable 1: Disable The setting for SP5836-001 has priority.	
72	Reduction for Copy B&W Text	[0 to 6 / **0** / 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 / **0** / 1] 0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3
75	Reduction for Printer B&W	[0 to 6 / **0** / 1] 0 1, 1:1/2, 2:1/3, 3:1/4, 6:2/3

78	Reduction for Printer B&W 1200dpi	[1 to 5 / **1** / 1] 1:1/2, 3:1/4, 4:1/6, 5:1/8
82	Format for Copy B&W Text	[0 to 3 / **1** / 1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
83	Format Copy B&W Other	[0 to 3 / **1** / 1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
85	Format for Printer B&W	[0 to 3 / **1** / 1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
91	Default for JPEG	[5 to 95 / **50** / 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.	
101	Primary srv IP address	Sets the IP address for the primary capture server. This is basically adjusted by the remote system.
102	Primary srv scheme	This is basically adjusted by the remote system.
103	Primary srv port number	This is basically adjusted by the remote system.
104	Primary srv URL path	Sets the IP address for the primary capture server. This is basically adjusted by the remote system.
111	Secondary srv IP address	This is basically adjusted by the remote system.
112	Secondary srv scheme	This is basically adjusted by the remote system.
113	Secondary srv port number	This is basically adjusted by the remote system.
114	Secondary srv URL path	This is basically adjusted by the remote system.

120	Default Reso Rate Switch	This is basically adjusted by the remote system.
122	Reso: Copy (Mono)	[0 to 255 / **3** / 1/step]
	Selects the resolution for BW copy mode. This is basically adjusted by the remote system. 0: 600dpi/ 1: 400dpi/ 2: 300dpi/ 3: 200dpi/ 4: 150dpi/ 5: 100dpi/ 6: 75dpi	
124	Reso: Print (Mono)	[0 to 255 / **3** / 1/step]
	Selects the resolution for BW print mode. This is basically adjusted by the remote system. 0: 600dpi/ 1: 400dpi/ 2: 300dpi/ 3: 200dpi/ 4: 150dpi/ 5: 100dpi/ 6: 75dpi	
126	Reso: Fax (Mono)	[0 to 255 / **3** / 1/step]
	Selects the resolution for BW fax mode. This is basically adjusted by the remote system. 0: 600dpi/ 1: 400dpi/ 2: 300dpi/ 3: 200dpi/ 4: 150dpi/ 5: 100dpi/ 6: 75dpi	
127	Reso: Scan (Color)	[0 to 255 / **4** / 1/step]
	Selects the resolution for color scanning mode. This is basically adjusted by the remote system. 0: 600dpi/ 1: 400dpi/ 2: 300dpi/ 3: 200dpi/ 4: 150dpi/ 5: 100dpi/ 6: 75dpi	
128	Reso: Scan (Mono)	[0 to 255 / **3** / 1/step]
	Selects the resolution for BW scanning mode. This is basically adjusted by the remote system. 0: 600dpi/ 1: 400dpi/ 2: 300dpi/ 3: 200dpi/ 4: 150dpi/ 5: 100dpi/ 6: 75dpi	
141	All Addr Info Switch	[0 or 1 / **1** / -] 0: Off, 1: On
	Turns on or off the all address information transmission for the captured resources.	
142	Stand-by Doc Max Number	[10 to 9999 / **2000** / 1/step]
	Selects the maximum number of captured documents to be transmitted to the document server.	

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 / **11 (NA), 13 (EU), 14 (JPN)** / 1] JPN: 1 to 14, NA: 1 to 11, EU: 1 to 13	
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** / 1] JPN: 1 to 14, NA: 1 to 11, EU: 1 to 13	
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	
	Selects the WEP key. Bit 1 and 0 **00: Key1,** 01: Key2 (Reserved), 10: Key3 (Reserved), 11: Key4(Reserved) **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 µs, 1: 9 µs 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	
14	StapleStd4	
21	StapleBind1	
22	StapleBind2	
23	StapleBind3	

5842*	GWWS Analysis **DFU**
	This is a debugging tool. It sets the debugging output mode of each Net File process
1	Setting 1
2	Setting 2

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 / **100** / 1] **DFU** Enter as a decimal number. NCS converts the number to hexadecimal number recognized as the BCD.

	Fixed USB Port
5	This SP standardizes for common use the model name and serial number for USB PnP (Plug & Play). It determines whether the driver requires re-installation. [0 to 2 / **0** / 4] 0: Off 1: Level 1 2: Level 2
	PnP Model Name
6	This SP sets the model name to be used by the USB PnP when "Function Enable (Level 2) is set so the USB Serial No. can have a common name (SP5844-5). Default: **Laser Printer** (up to 20 characters allowed).
	PnP Serial Number
7	This SP sets the serial number to be used by the USB PnP when "Function Enable (Level 2) set so the USB Serial No. can have a common name (SP5844-5). Default: None (up to 12 characters allowed for entry). ▪ Make sure that this entry is the same as the serial number in use. ▪ At initialization the serial number generated from the model name is used, not the setting of this SP code. ▪ At times other than initialization, the value set for this SP code is used.

100	Notify Unsupport
	This SP determines whether an alert message appears on the control panel when a a USB device (unsupported device) that cannot use an A-connector is connected. [0 to 1 / **1** / 1] 0: Function enable 1: Function disable ▪ An unsupported device is a device that cannot use the functions of the USB device. For example, a USB mouse cannot be used even if it connected. ▪ If the PictBridge option is not mounted, even if a digital camera is connected it cannot be used because it is an unsupported device.

5845*	Delivery Server Setting
	These are delivery server settings.
1	FTP Port No.
	[0 to 65535 / **3670** / 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/ **0** / 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 / **300** / 1 sec]

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 / **0** / 1] 0: Unknown 1: SG1 Provided 2: SG1 Package 3: SG2 Provided 4: SG2 Package
10	Delivery Svr. Capability
	Changes the functions that the registered I/O device can do. [0 to 255 / **0** / 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")
11	Delivery Svr.Capability (Ext)
	These settings are for future use. They will let you increase the number of registered devices (in addition to those registered for SP5845 010). There are eight bits (Bit 0 to Bit 7). All are unused at this time.
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)
22	Rapid Sending 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 20000 / **2000** / 1] If a value smaller than the present value is set, the UCS managed data is cleared, and the data (excluding user code information) is displayed.
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 / **0** / 1] 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 / **0** / 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. [2000 to 20000 / **2000** / 1]
10	LDAP Search Timeout
	Sets the length of the time-out for the search of the LDAP server. [1 to 255 / **60** / 1]
20	WSD Maximum Entries
	WSD (Web Services on Devices) is the Microsoft standard for connectivity to web-service enabled devices. [50 to 250 / **250** / 1]
21	Folder Auth Change
	This SP determines whether the user login information (Login User name and Password) or address (destination setting in the address book for Scan-to-SMB) is used to permit folder access. The machine must be cycled off/on for this setting to take effect if it is changed. [0 to 1 / **0** / 1] 0: Uses operator login information (initial value of main machine) 1: Uses address authorization information

40	Addr Book Migration (USB -> 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	
	Displays the slot number where an address book data is in. [0 to 30 / **-** /1]	
	0: Unconfirmed 1: SD Slot 1 2: SD Slot 2 4: USB Flash ROM	20: HDD 30: Nothing
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 user's 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.
	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.

<table>
<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>62</td><td colspan="2">Complexity Option 1
Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to upper case and sets the length of the password.
[0 to 32 / 0 / 1]
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>
</table>

63	Complexity Option 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 lower case and defines the length of the password. [0 to 32 / **0** / 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 / **0** / 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 / **0** / 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 / **3671** / 1]
94	Encryption Stat
	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.		
2	Rate for Copy B&W Text	[0 to 6/ **0** / 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.
3	Rate for Copy B&W Other	[0 to 6/ **0** / 1]	
5	Rate for Printer B&W	[0 to 6/ **0** / 1]	
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 / **50** / 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.	
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)	
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)	
99	Repository: Download Image Setting **DFU**	
100	Repository: Download Image Max. Size	[1 to 2048 / **2048** / 1 MB]
210	Setting: Log Type: Job 1 **DFU**	
211	Setting: Log Type: Job 2 **DFU**	
212	Setting: Log Type: Access **DFU**	
213	Setting: Primary Srv **DFU**	
214	Setting: Secondary Srv **DFU**	

215	Setting: Start Time **DFU**
216	Setting: Interval Time **DFU**
217	Setting: Timing **DFU**

5849*	Installation Date	
	Displays or prints the installation date of the machine.	
1	Display	Displays the installation date. The installation date is set automatically after test copies are done at the installation site.
2	Switch to Print	Determines whether the installation date is printed on the printout for the total counter. [0 or 1/ **1** / -] 0: OFF (No Print) 1: ON (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
	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
2	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 or 1 / **0** / 1] 0: Not allowed 1: Allowed

5857*	Save Debug Log
	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 or 1 / **0** / 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 / **2** / 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.
9	Copy HDD to SD Card (Latest 4 MB)
	Takes the most recent 4 MB of the log written to the hard disk and copies them to the SD Card. A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card.
10	Copy HDD to SD Card Latest 4 MB Any Key)
	Takes the log of the specified key from the log on the hard disk and copies it to the SD Card. A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4 MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card. This SP does not execute if there is no log on the HDD with no key specified.
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 Save Key No.	
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. [00000000 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 hour] 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 or 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 or 1 / **0** / -] 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
	Selects the MIME header type of an E-mail sent by S/MIME. [0 to 2 / **0** / 1] 0: Microsoft Outlook Express standard 1: Internet Draft standard 2: RFC standard

5866*	E-Mail Report	
1	Report Validity	Enables or disables the E-mail alert function. [0 or 1 / **0** / –] 0: Enabled, 1: Disabled
5*	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

5869*	RAM Disk Setting
	Turns on or off the e-mail function. [0 or 1 / **0** / -] 0: ON, 1: OFF

5870	Common Key Info Writing	
	Writes to flash ROM the common proof for validating the device for NRS specifications.	
1	Writing	Rewrites the common certification used for the @Remote.
3	Initialize	Initializes the set certification.

5873	SD Card Apli. Move	
	Allows you to move applications from one SD card another. For more, see "SD Card Appli Move" in the chapter "System Maintenance (Main Chapters).	
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, B or C 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	HDD Encryption

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	[0 to 2 / **0** / 1/step] 0: Signature for each e-mail 1: Signature for all e-mails 2: No signature
	Selects whether the signature is added to the scanned documents with the WIM when they are transmitted by an e-mail.	

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	**Not used**
201	DocSvr Timeout	**Not used**

5887	SD Get Counter **DFU**
	This SP determines whether the ROM can be updated.
1	This SP sends a text file to an SD card inserted in SD card Slot 2 (lower slot). The operation stores. The file is stored in a folder created in the root directory of the SD card called SD_COUNTER. The file is saved as a text file (*.txt) prefixed with the number of the machine. 1. Insert the SD card in SD card Slot 2 (lower slot). 1. Select SP5887 then touch [EXECUTE]. 2. Touch [Execute] in the message when you are prompted.

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)

5893	SDK Application Counter
	Displays the counter name of each SDK application.
1	SDK-1
2	SDK-2
3	SDK-3

4	SDK-4
5	SDK-5
6	SDK-6

5894	External Counter Setting **DFU**

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
	Specifies the paper size in LCT. [0 or 1 / **0** / -] 0: A4 1: LT

5913*	Switchover Permission Time
2	Print Application Timer
	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. [0 to 30 / **3** / 1 s]

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 / **0** / -] 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. Use this SP to enable and disable these features. In order to use the NIC and USB functions built into the controller board, these SP codes must be set to "1".
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 than 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.
	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
8	Capture Log
21	Copier User Program
22	Scanner SP
23	Scanner User Program
24	SDK/J Summary
25	SDK/J Application Info

5994	Mirroring Engine

5995*	Factory Mode	**DFU**

4.6 SYSTEM SP TABLES-6

4.6.1 SP6XXX: PERIPHERALS

6006*	ADF Adjustment	
1	Side-to-Side Regist: Front	
	Adjusts the side-to-side registration of originals with the ARDF. [-3.0 to 3.0 / **0** / 0.1 mm/step]	
2	Side-to-Side Regist: Rear	
	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 Length 1 (B5 Detection Sensor)	**0: Paper not detected** 1: Paper detected
2	Original Length 2 (A4 Detection Sensor)	
3	Original Length 3 (LG Detection Sensor)	
4	Original Width 1	
5	Original Width 2	
6	Original Width 3	
7	Original Width 4	
9	Original Detection	
11	Skew Correction	
13	Registration Sensor	
14	Exit Sensor	
15	Feed Cover Sensor	**0: Cover closed**, 1: Cover open
16	Lift Up Sensor	**0: ADF closed**, 1: ADF open
23	Rear Edge Detection	**0: Paper not detected** 1: Paper detected

6008	ADF Output Check	
	Switches on each electrical component (motors, solenoids, etc.) of the ARDF for testing.	
3	Feed Motor Forward	
4	Feed Motor Reverse	
5	Relay Motor Forward	
6	Relay Motor Reverse	
11	Inverter Solenoid	
12	Stamp	
14	Feed Clutch	
15	Feed 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** / 0.1 mm/step]

<table>
<tr><td rowspan="11">6016*</td><td colspan="3">Original Size Detect Setting</td></tr>
<tr><td colspan="3">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.</td></tr>
<tr><td>Bit</td><td>Size</td><td>Location</td></tr>
<tr><td>7</td><td>A4 (L)/LT (L)</td><td rowspan="2">Japan only</td></tr>
<tr><td>6</td><td>11" x 15"/DLT (L)</td></tr>
<tr><td>5</td><td>DLT (L)/ 11" x 15"</td><td rowspan="4">NA only</td></tr>
<tr><td>4</td><td>LT (S)/ US Exec (S)</td></tr>
<tr><td>3</td><td>LT (L)/ 8" x 10" (L)</td></tr>
<tr><td>2</td><td>LG (L)/ F4 (L)</td></tr>
<tr><td>1</td><td>A4 (L)/ 16K (L)</td><td rowspan="2">EU/AA only</td></tr>
<tr><td>0</td><td>8K (L)/ DLT (L)</td></tr>
</table>

<table>
<tr><td rowspan="2">6017*</td><td>DF Magnification Adj.</td></tr>
<tr><td>Adjusts the magnification in the sub-scan direction for the ARDF.
[-5.0 to 5.0 / 0 / 0.1 %/step]</td></tr>
</table>

<table>
<tr><td rowspan="2">6128</td><td colspan="2">Punch Position: Sub Scan</td></tr>
<tr><td colspan="2">Adjusts the punching position in the sub scan direction.</td></tr>
<tr><td>1</td><td>Domestic 2Hole (Europe 2Hole)</td><td rowspan="3">[-7.5 to 7.5 / 0 / 0.5 mm/step]]</td></tr>
<tr><td>2</td><td>North America 3Hole</td></tr>
<tr><td>3</td><td>Europe 4Hole</td></tr>
</table>

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 (Europe 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 (D589 finisher).	
1	A3T (SEF)	[-5.0 to 5.0 / **0** / 0.2 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 D589.	
1	A3T (SEF)	[0 or 1 / **0** / 1/step]] 0: No (No skew correction) 1: Roller Stop 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 D585/D586/D589 finisher. The adjustment is done perpendicular to the direction of paper feed.	
1	A3T (SEF)	[-1.5 to 1.5 / **0** / 0.5 /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 (D585/D586/D588/D589). + Value: Moves the staple position to the rear side. - Value: Moves the staple position to the front side. [-3.5 to 3.5 (D588/D589), -2.0 to 2.0 (D585/D586) / **0** / 0.5/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 D589.	
1	A3T (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	B4T (SEF)	
3	A4 T (SEF)	
4	B5 T (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 D589.	
1	A3T (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 T (SEF)	
3	A4 T (SEF)	
4	B5 T (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	
1	Free Run 1	D585/D589: Free run for paper edge stapling. D588: System free run. D586: Shift free run. Remove the staple cartridge from D585/D589 finisher before performing this SP.
2	Free Run 2	D588: Free run for durability testing. D589: Free run for booklet stapling. D586: Free run for paper edge stapling. Remove the staple cartridge from D586/D589 finisher before performing this SP.
3	Free Run 3	D585/D586/D589: Shipping free run. Simulates standby conditions during shipping.
4	Free Run 4	**DFU**

6138	FIN (TIG) Input Check	1000-Sheet Finisher D589	
	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 D588	
	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

6141	FIN (ELB) Input Check	500-Sheet Finisher D585	
	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

6142	FIN (RUB) Input Check	Inner Finisher D586	
	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		
2	Carry Sensor (Feed Sensor)		
3	Exit Sensor (Paper Exit Sensor)		
4	Staple Tray Paper Sensor		
5	Front Jogger HP Sensor (Jogger Fence HP Sensor (Front))		
6	Rear Jogger HP Sensor (Jogger Fence HP Sensor (Back))		
7	Sft Roller HP Sensor (Shift Roller HP Sensor)		
8	Hitroll HP Sensor		
9	Ext Guide Plate HP Sensor		
10	Staple Moving HP Sensor		
11	Shift Tray Paper Sensor		
12	Shift Tray Limit Sensor		
13	Staple Rotation Sensor		
14	Staple Near End Sensor		
15	Self Priming Sensor		

16	Stopper HP Sensor		
17	Punch HP Sensor		
18	Punch Pluse Count Sensor		
19	Punch Chad Full Sensor		
20	Punch Moving HP Sensor		
21	Punch Registration Detection HP Sensor		
22	Punch Registration Detection Sensor		
23	Slide Door SW		
24	Shift Tray Upper Limit SW		

6143	FIN (TIG) Output Check	1000-Sheet Finisher D589
	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 D588
	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	-

6146	FIN (ELB) Output Check	500-Sheet Finisher D585
	Displays the signals received from sensors and switches of the 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

6147	FIN (RUB) Output Check	500-Sheet Finisher D586
	Displays the signals received from sensors and switches of the 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	Entrance Motor	Entrance Roller Motor
2	Carry Motor	Feed Roller Motor
3	Exit Motor	Exit Roller Motor
4	Front Jogger Motor	Jogger Fence Motor (Front)
5	Rear Jogger Motor	Jogger Fence Motor (Back)
6	Shift Motor	Shift Roller Motor
7	Hitroll Motor	Pick-up Roller Motor
8	Exit Guide Plate Motor	Exit Guide Plate Motor
9	Staple Moving Motor	Stapler Unit Motor
10	Tray Motor	Output Tray Motor
11	Staple Motor	Stapler Unit Motor
12	Stopper Motor	Stack height detection lever Motor
13	Punch Motor	Punch Drive Motor
14	Punch Moving Motor	Punch Movement Motor
15	Punch Registration Moving Motor	Paper Position Sensor Unit Motor

6150	Input Check		
	Displays the signals received from sensors and switches of the bridge unit.		
	Component	**0**	**1**
1	Relay: Paper Exit Sensor	Paper detected	Paper not detected
2	Relay: Paper Feed Sensor	Paper detected	Paper not detected
3	Relay/Shift Unit Set	Set	Not set
4	Relay: Exit Cover Sensor	Closed	Open
5	Relay: Feed Cover Sensor	Closed	Open

6151	OUTPUT Check	
	Displays the signals received from sensors and switches of the bridge unit.	
	Display	**Description**
1	Relay: Feed Motor: Reset	Bridge Unit: Feed Motor: Enable
2	Relay: Feed Motor: Enable	Bridge Unit: Feed Motor: CCW: High
3	Relay: Feed Motor: CCW: High	Bridge Unit: Feed Motor: CCW: Low
4	Relay: Feed Motor: CCW: Low	Bridge Unit: Junction Gate SOL
5	Relay: Junction Gate SOL	Bridge Unit: Feed Motor: Reset

6152	Input Check		
	Displays the signals received from sensors and switches of the bridge unit.		
	Component	**0**	**1**
2	ShiftTray: Position Sensor	Tray position: front	Tray position: rear

6153	OUTPUT Check	
	Displays the signals received from sensors and switches of the shift tray.	
	Display	**Description**
1	ShiftTray: Motor	-

6154	INPUT Check		
	Displays the signals received from sensors and switches of the bridge unit.		
	Component	**0**	**1**
1	1 bin: Set Detection	Set	Not set
2	1BIN: Paper Feed Sensor	Paper detected	Paper not detected
3	1BIN: Paper Remain		

6155	OUTPUT Check	
	Displays the signals received from sensors and switches of the 1-bin tray.	
	Display	**Description**
1	1BIN: Reversal Output Signal	-

6800	Sheet Conversion (Thick Paper)
	Allows the punch feature in Z-hold mode. [1 to 3 / **3** / 1] 1: 1 sheet 2: 2 sheets 3: 3 sheets

6830*	Extra Staples
	More than the standard number of sheets can be stapled. This SP sets the additional number of sheets (This Setting + Standard Number = maximum number of sheets). ▪ If the number of the maximum for staples is increased, and the mechanical warranty of the unit can be guaranteed, then the setting can take effect without changing the controller software. ▪ However, assurance that mechanical performance can be guaranteed is required before changing the setting to increase the staple load for more than the maximum in the feed/exit specifications. Raising this setting without quality assurance could damage the machine.
1	Staple positions other than booklet stapling
	[0 to 50 / **0** /1]
2	2 Booklet stapling
	[0 to 50 / **0** /1]

4.7 SYSTEM SP TABLES-7

4.7.1 SP7XXX: DATA LOG

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	

7404*	SC991 History	
1	Latest	Displays the 10 most recently detected SC991 codes.
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	

7504*	Paper Jam Loc
	ON: On check, OFF: Off Check Displays the number of jams according to the location where jams were detected. **NOTE:** The LCT is counted as the 3rd feed station.
1	At Power On
3	Tray 1: On
4	Tray 2: On
5	Tray 3: On
6	Tray 4: On
8	Bypass: On
9	Duplex: On
11	Vertical Trans. 1: On

12	Vertical Trans .2: On
13	Vertical Trans .3: On
17	Registration: On
20	Paper Exit: On
21	Bridge Tray Exit: On
22	Bridge Relay: On
24	Inverter: On
25	Duplex Exit: On
27	Duplex Entrance: On
51	Vertical Trans. 1: Off
52	Vertical Trans. 2: Off
53	Vertical Trans. 3 (PFU): Off
54	Vertical Trans. 4 (PFU): Off
57	Registration Sensor: Off
60	Paper Exit: Off
61	Bridge Tray Exit: Off
62	Bridge Relay: Off
64	Inverter: Off
65	Duplex Exit: Off
67	Duplex Ent: Off
100	Finisher Entrance: KIN (D588)
101	Finisher Shift Tray Exit: KIN (D588)
102	Finisher Staple: KIN (D588)
103	Finisher Exit: KIN (D588)

105	Finisher Tray Lift Motor: KIN (D588)
106	Finisher Jogger Motor: KIN (D588)
107	Finisher Shift Motor: KIN (D588)
108	Finisher Staple Motor: KIN (D588)
109	Finisher Exit Motor : KIN (D588)
130	FIN Entrance: TIG (D589)
131	FIN Proof Tray Exit: TIG (D589)
132	FIN Shift Tray: TIG (D589)
133	FIN Staple Exit: TIG (D589)
134	FIN Exit: TIG (D589)
135	Finisher Fold: TIG (D589)
136	FIN Fold Exit: TIG (D589)
137	Exit Guide Gate Motor: TIG (D589)
138	FIN Staple Shift Motor: TIG (D589)
139	FIN Paper Punch Motor: TIG (D589)
140	FIN Tray Lift Motor: TIG (D589)
141	FIN Jogger Motor: TIG (D589)
142	FIN Shift Motor: TIG (D589)
143	FIN Fold Plate Motor: TIG (D589)
144	FIN Staple Motor: TIG (D589)
145	FIN Exit Motor: TIG (D589)
146	FIN Stack 1 Release Motor: TIG (D589)
147	FIN Stack 2 Release Motor: TIG (D589)
148	FIN Stopper Motor: TIG (D589)

160	Entrance Sn:ON
161	Entrance Sn: OFF
162	FIN Entrance
163	Positioning Roller
164	Front Jogger Motor
165	Rear Jogger Motor
166	Exit Motor
167	FIN Staple Shift Motor: ELB (D585)
168	FIN Staple Motor: ELB (D585)
169	FIN Tray Lift Motor: ELB (D585)
170	FIN Stack Height SOL: ELB (D585)
190	FIN Entrance: ON: RUB (D586)
191	FIN Entrance: OFF: RUB (D586)
192	FIN Trans ON: RUB (D586)
193	FIN Trans: OFF: RUB (D586)
194	FIN Entrance: RUB (D586)
195	FIN Front Jogger Motor: RUB (D586)
196	FIN Rear Jogger Motor: RUB (D586)
197	FIN Shift Roller Motor: RUB (D586)
198	FIN Positioning Roller: RUB (D586)
199	FIN Paper Exit Plate Motor: RUB (D586)
200	FIN Staple Shift Motor: RUB (D586)
201	FIN Tray Lift Motor: RUB (D586)
202	FIN Staple Motor: RUB (D586)

203	FIN Stack Height SOL: RUB (D586)
204	FIN Punch Motor: RUB (D586)
205	FIN Punch Movement Motor: RUB (D586)
206	FIN Registration Motor: RUB (D586)
230	Fin Exit
231	Insufficient Data

7505*	Original Jam Det
	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 Sensor: On
4	Registration Sensor: On
5	Original Exit Sensor: On
53	Skew Correction Sensor: Off
54	Registration Sensor: Off
55	Original Exit Sensor: Off

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				
1	Latest	Displays the copy jam history (the most recent 10 jams) Sample Display: CODE:007 SIZE:05h TOTAL:0000334 DATE: Mon Mar 15 11:44:50 2000 where: CODE is the SP7504-*** number (see above. SIZE is the ASAP paper size code in hex. TOTAL is the total jam error count (SP7502) DATE is the date the jams occurred.			
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				
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	Latest	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) DATE is the date the jams occurred.
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	

7624*	Parts Replacement Operation ON/OFF	
1	PCU	[0 or 1 / **1** / -] 0: No (Not PM maintenance) 1: Yes (PM maintenance)

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 (mm) 60 K
5	Distance (mm) 120 K
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	60K part
3	120K part

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.

7836	Total Memory Size
	Displays the memory capacity of the controller system.

7852*	DF Glass Dust Check	
	Counts the number of occurrences (0 to 65,535) when dust was detected on the scanning glass of the ADF.	
1*	Dust Detection Counter	Counts the occurrences. Counting is done only if SP4020 1 (ADF Scan Glass Dust Check) is switched on.
2*	Dust Detection Clear Counter	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).
2	Sheets 60K Part
3	Sheets 120K Part
4	Distance (mm) 60 K
5	Distance (mm) 120 K
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).
2	Sheets 60K Part
3	Sheets 120K Part
4	Distance (mm) 60 K
5	Distance (mm) 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).
	Sheets 60K Part
3	Sheets 120K Part
4	Distance (mm) 60 K
5	Distance (mm) 120 K
6	Distance 60K
7	Distance 120K

4.8 SYSTEM SP TABLES-8

4.8.1 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.
SP8401 - SP8406	The number of pages printed from the document server
SP8691 - SP8696	The number of pages sent from the document server

Specifically, the following questions can be answered:

- How is the document server actually being used?
- What application is using the document server most frequently?
- What data in the document server is being reused?

Most of the SPs in this group are prefixed with a letter that indicates the mode of operation (the mode of operation is referred to as an 'application'). Before reading the Group 8 Service Table, make sure that you understand what these prefixes mean.

Prefixes	What It Means	
T:	Total: (Grand Total).	Grand total of the items counted for all applications (C, F, P, etc.).
C:	Copy application.	Totals (pages, jobs, etc.) executed for each application when the job was not stored on the document server.
F:	Fax application.	
P:	Print application.	
S:	Scan application.	

Prefixes	What It Means	
L:	Local storage (document server)	Totals (jobs, pages, etc.) for the document server. The L: counters work differently case by case. Sometimes, they count jobs/pages stored on the document server; this can be in document server mode (from the document server window), or from another mode, such as from a printer driver or by pressing the Store File button in the Copy mode window. Sometimes, they include occasions when the user uses a file that is already on the document server. Each counter will be discussed case by case.
O:	Other applications (external network applications, for example)	Refers to network applications such as Web Image Monitor. Utilities developed with the SDK (Software Development Kit) will also be counted with this group in the future.

The Group 8 SP codes are limited to 17 characters, forced by the necessity of displaying them on the small LCDs of printers and faxes that also use these SPs. Read over the list of abbreviations below and refer to it again if you see the name of an SP that you do not understand.

Key for Abbreviations

Abbreviation	What It Means
/	"By", e.g. "T:Jobs/Apl" = Total Jobs "by" Application
>	More (2> "2 or more", 4> "4 or more"
AddBook	Address Book
Apl	Application
B/W	Black & White
Bk	Black
C	Cyan

Abbreviation	What It Means
ColCr	Color Create
ColMode	Color Mode
Comb	Combine
Comp	Compression
Deliv	Delivery
DesApl	Designated Application. The application (Copy, Fax, Scan, Print) used to store the job on the document server, for example.
Dev Counter	Development Count, no. of pages developed.
Dup, Duplex	Duplex, printing on both sides
Emul	Emulation
FC	Full Color
FIN	Post-print processing, i.e. finishing (punching, stapling, etc.)
Full Bleed	No Margins
GenCopy	Generation Copy Mode
GPC	Get Print Counter. For jobs 10 pages or less, this counter does not count up. For jobs larger than 10 pages, this counter counts up by the number that is in excess of 10 (e.g., for an 11-page job, the counter counts up 11-10 =1)
IFax	Internet Fax
ImgEdt	Image Edit performed on the original with the copier GUI, e.g. border removal, adding stamps, page numbers, etc.
K	Black (YMCK)
LS	Local Storage. Refers to the document server.
LSize	Large (paper) Size
Mag	Magnification

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 recorded in the SMC report.

Abbreviation	What It Means
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.

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.
- 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.

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. **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.	

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)
2	Stack	Number of jobs started out of Sort mode.
3	Staple	Number of jobs started in Staple mode.
4	Booklet	Number of jobs started in Booklet mode. If the machine is in staple mode, the Staple counter also increments.
5	Z-Fold	Number of jobs started In any mode other than the Booklet mode and set for folding (Z-fold).
6	Punch	Number of jobs started in Punch mode. When Punch is set for a print job, the P: counter increments. (See SP8064 6.)
7	Other	Reserved. Not used.
8	Inside-Fold	Half-Fold **Not Used**
9	Three-IN-Fold	Letter Fold-in **Not Used**
10	Three-OUT-Fold	Letter Fold-out **Not Used**
11	Four-Fold	Double Parallel Fold **Not Used**
12	KANNON-Fold	Gate Fold **Not Used**
13	Perfect-Bind	Perfect Binder **Not Used**
14	Ring-Bind	Ring Binder **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.		
1	1 Page	8	21 to 50 Pages
2	2 Pages	9	51 to 100 Pages
3	3 Pages	10	101 to 300 Pages
4	4 Pages	11	301 to 500 Pages
5	5 Pages	12	501 to 700 Pages
6	6 to10 Pages	13	701 to 1000 Pages
7	11 to 20 Pages	14	More than 1001 Pages

- For example: When a copy job stored on the document server is printed in document server mode, the appropriate L: counter (SP8076 0xx) increments.
- Printing a fax report counts as a job and increments the F: counter (SP 8073).
- Interrupted jobs (paper jam, etc.) are counted, even though they do not finish.
- If a job is paused and re-started, it counts as one job.
- If the finisher runs out of staples during a print and staple job, then the job is counted at the time the error occurs.
- For copy jobs (SP 8072) and scan jobs (SP 8075), the total is calculated by multiplying the number of sets of copies by the number of pages scanned. (One duplex page counts as 2.)
- The first test print and subsequent test prints to adjust settings are added to the number of pages of the copy job (SP 8072).
- When printing the first page of a job from within the document server screen, the page is counted.

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.	
1	B/W	Monochrome
2	Color	Color
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.
- 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.	
1	B/W	Monochrome
2	Color	Color
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.	
1	B/W	Monochrome
2	Color	Color
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.

8171	T: Deliv Jobs/WSD	These SPs count the pages scanned by WS. [0 to 9999999/ **0** / 1]
8175	S: Deliv Jobs/WSD	
8181	T: Scan to Media Jobs	
8185	S: Scan to Media Jobs	
1	B/W	
2	Color	
3	ACS	

8191	T:Total Scan PGS	These SPs count the pages scanned by each application that uses the scanner to scan images. [0 to 9999999/ **0** / 1]
8192	C:Total Scan PGS	
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.
- 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, fax and copy jobs. **Note**: These counters are displayed in the SMC Report, and in the User Tools display.	
8203	F:LSize Scan PGS	[0 to 9999999/ **0** / 1]
	These SPs count the total number of large pages input with the fax jobs. Large size paper (A3/DLT) scanned for scan jobs 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.	
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.)
2	Back	Number of rear sides fed for scanning: With an ADF that can scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex scanning. With an ADF that cannot scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex rear-side scanning.

- When 1 sheet is fed for duplex scanning the Front count is 1 and the Back count is 1.
- If a jam occurs during the job, recovery processing is not counted to avoid double counting. Also, the pages are not counted if the jam occurs before the first sheet is output.

8231	Scan PGS/Mode	[0 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	Mixed 1side/2side	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**
1: Text	Yes	Yes	Yes	Yes	Yes
2: Text/Photo	Yes	Yes	Yes	Yes	Yes
3: Photo	Yes	Yes	Yes	Yes	Yes
4: GenCopy, Pale	Yes	Yes	No	Yes	Yes
5: Map	Yes	Yes	No	Yes	Yes
6: Normal/Detail	Yes	No	Yes	No	No
7: Fine/Super Fine	Yes	No	Yes	No	No
8: Binary	Yes	No	No	Yes	No
9: Grayscale	Yes	No	No	Yes	No

10: Color	Yes	No	No	Yes	No
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 ▪ 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.
8252	C:Scan PGS/ImgEdt	
8255	S:Scan PGS/ImgEdt	
8256	L:Scan PGS/ImgEdt	
8257	O:Scan PGS/ImgEdt	

- The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen.

8281	T:Scan PGS/TWAIN	These SPs count the number of pages scanned using a TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions. [0 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].	
1	A3	
2	A4	
3	A5	
4	B4	
5	B5	
6	DLT	
7	LG	
8	LT	
9	HLT	
10	Full Bleed	
254	Other (Standard)	
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.	
1	1200dpi to	
2	600dpi to 1199dpi	
3	400dpi to 599dpi	
4	200dpi to 399dpi	
5	to 199dpi	

- 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 mode screen go to the C: counter.
8382	C:Total PrtPGS	
8383	F:Total PrtPGS	
8384	P:Total PrtPGS	
8385	S:Total PrtPGS	
8386	L:Total PrtPGS	
8387	O:Total PrtPGS	

- When the A3/DLT double count function is switched on with SP5104, 1 A3/DLT page is counted as 2.
- When several documents are merged for a print job, the number of pages stored are counted for the application that stored them.
- These counters are used primarily to calculate charges on use of the machine, so the following pages are not counted as printed pages:
  - Blank pages in a duplex printing job.
  - Blank pages inserted as document covers, chapter title sheets, and slip sheets.
  - Reports printed to confirm counts.
  - All reports done in the service mode (service summaries, engine maintenance reports, etc.)
  - Test prints for machine image adjustment.
  - Error notification reports.
  - Partially printed pages as the result of a copier jam.

8391	LSize PrtPGS	[0 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.
- 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	
1	Simplex> Duplex	
2	Duplex> Duplex	
3	Book> Duplex	
4	Simplex Combine	
5	Duplex Combine	
6	2>	2 pages on 1 side (2-Up)
7	4>	4 pages on 1 side (4-Up)
8	6>	6 pages on 1 side (6-Up)
9	8>	8 pages on 1 side (8-Up)
10	9>	9 pages on 1 side (9-Up)
11	16>	16 pages on 1 side (16-Up)
12	Booklet	
13	Magazine	

- These counts (SP8421 to SP8427) are especially useful for customers who need to improve their compliance with ISO standards for the reduction of paper consumption.
- Pages that are only partially printed with the n-Up functions are counted as 1 page.

Here is a summary of how the counters work for Booklet and Magazine modes:

Booklet		Magazine	
Original Pages	**Count**	**Original Pages**	**Count**
1	1	1	1
2	2	2	2
3	2	3	2
4	2	4	2
5	3	5	4
6	4	6	4
7	4	7	4
8	4	8	4

8431	T:PrtPGS/ImgEdt	[0 to 9999999/ **0** / 1]
	These SPs count the total number of pages output with the three features below, regardless of which application was used.	
8432	C:PrtPGS/ImgEdt	[0 to 9999999/ **0** / 1]
	These SPs count the total number of pages output with the three features below with the copy application.	
8434	P:PrtPGS/ImgEdt	[0 to 9999999/ **0** / 1]
	These SPs count the total number of pages output with the three features below with the print application.	
8436	L:PrtPGS/ImgEdt	[0 to 9999999/ **0** / 1]
	These SPs count the total number of pages output from within the document server mode window at the operation panel with the three features below.	

8437	O:PrtPGS/ImgEdt	[0 to 9999999/ **0** / 1]
	These SPs count the total number of pages output with the three features below with Other applications.	
1	Cover/Slip Sheet	Total number of covers or slip sheets inserted. The count for a cover printed on both sides counts 2.
2	Series/Book	The number of pages printed in series (one side) or printed as a book with booklet right/left pagination.
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 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.	
1	A3	
2	A4	
3	A5	
4	B4	
5	B5	
6	DLT	
7	LG	
8	LT	
9	HLT	
10	Full Bleed	
254	Other (Standard)	
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.
13	Tray 12	Currently not used.
14	Tray 13	Currently not used.
15	Tray 14	Currently not used.
16	Tray 15	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.	
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.	
1	Normal	
2	Recycled	
3	Special	
4	Thick	
5	Normal (Back)	

6	Thick (Back)
7	OHP
8	Other

8471	PrtPGS/Mag	[0 to 9999999/ **0** / 1]
	These SPs count by magnification rate the number of pages printed.	
1	to 49%	
2	50% to 99%	
3	100%	
4	101% to 200%	
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.	
1	RPCS	
2	RPDL	
3	PS3	
4	R98	
5	R16	
6	GL/GL2	
7	R55	
8	RTIFF	
9	PDF	
10	PCL5e/5c	
11	PCL XL	
12	IPDL-C	

13	BM-Links	**Japan Only**
14	Other	
15	IPDS	

- 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.
1	Sort
2	Stack
3	Staple
4	Booklet
5	Z-Fold
6	Punch
7	Other
8	Inside-Fold
9	Three-IN-Fold
10	Three-OUT-Fold
11	Four-Fold
12	KANNON-Fold
13	Perfect-Bind
14	Ring-Bind

8531	Staples	This SP counts the amount of staples used by the machine. [0 to 9999999/ **0** / 1]

8551	T: PrtBooks/FIN	
8552	O: PrtBooks/FIN	
8554	P: PrtBooks/FIN	
8556	L: PrtBooks/FIN	
1	Perfect-Bind	**Not Used**
2	Ring-Bind	**Not Used**

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.	

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	[0 to 9999999/ **0** / 1]
	These SPs count the total coverage for each color and the total printout pages for each printing mode.	
1	B/W	
2	B/W Printing Pages	

8617	SDK Apli Counter	[0 to 9999999/ **0** / 1]
	These SPs count the total printout pages for each SDK applicaion.	
1	SDK-1	
2	SDK-2	
3	SDK-3	
4	SDK-4	
5	SDK-5	
6	SDK-6	

8621	Func Use Counter **DFU**
1 to 64	Function 001 to Function 064

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:IFAX 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:IFAX 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.

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.	
1	PSTN-1	
2	PSTN-2	
3	PSTN-3	
4	ISDN (G3,G4)	
5	Network	

8711	T:Scan PGS/Comp	[0 to 9999999/ **0** / 1]
	These SPs count the number of compressed pages scanned into the document server, counted by the formats listed below.	
1	JPEG/JPEG2000	
2	TIFF (Multi/Single)	
3	PDF	
4	Other	
5	PDF/Comp	

8 715	S:Scan PGS/Comp	[0 to 9999999/ **0** / 1]
	These SPs count the number of compressed pages scanned by the scan application, counted by the formats listed below.	
1	JPEG/JPEG2000	
2	TIFF (Multi/Single)	
3	PDF	
4	Other	
5	PDF/Comp	

8721	T: Deliv PGS/WSD	[0 to 9999999/ **0** / 1]
8725	S: Deliv PGS/WSD	[0 to 9999999/ **0** / 1]
8731	T: Scan PGS/Media	[0 to 9999999/ **0** / 1]
8735	S: Scan PGS/Media	[0 to 9999999/ **0** / 1]
1	B/W	
2	Color	

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.	
1	PSTN-1	
2	PSTN-2	
3	PSTN-3	
4	ISDN (G3,G4)	
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	Toner_Bottl_Info.	[0 to 9999999/ **0** / 1]
	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	Cvr Cnt: 0-10%	[0 to 9999999/ **0** / 1]
	These SPs count the number of pages for each coverage range.	
11	0 to 2%:BK	
21	3 to 4%:BK	
31	5 to 7%:BK	
41	8 to 10%:BK	

8861	Cvr Cnt: 11-20%	[0 to 9999999/ **0** / 1]
	These SPs count the percentage of dot coverage for black other color toners.	
1	K	Black toner

8871	Cover Cnt: 21-30%	[0 to 9999999/ **0** / 1]
	These SPs count the percentage of dot coverage for black other color toners.	
1	K	Black toner

8881	Cover Cnt: 31% -	[0 to 9999999/ **0** / 1]
	These SPs count the percentage of dot coverage for black other color toners.	
1	K	Black toner

8891	Page/Toner Bottle **DFU**
8901	Page/Toner_Prev1 **DFU**
8911	Page/Toner_Prev2 **DFU**

8921	Cvr Cnt/Total	[0 to 9999999/ **0** / 1]
	Displays the total coverage and total printout number for each color.	
1	Coverage (%): BK	
11	Coverage / P: 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).
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 (%)	
17	Coverage: BW Print Page	
101	Transmission Total: Color	
102	Transmission Total: BW	
103	FAX Transmission	
104	Scanner Transmission: Color	
105	Scanner Transmission: BW	

SR790(B408)/SR3090(D588)
1000-SHEET FINISHER

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

1000-SHEET FINISHER B408/D588

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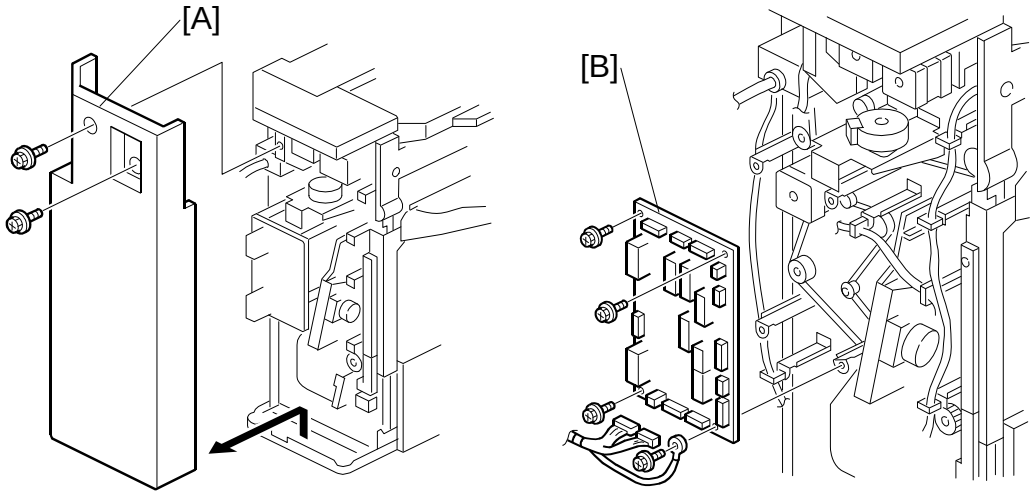
1. REPLACEMENT AND ADJUSTMENT

⚠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

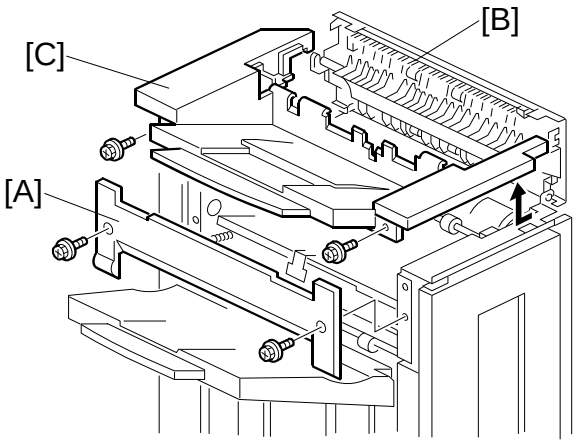
1.1 MAIN PCB



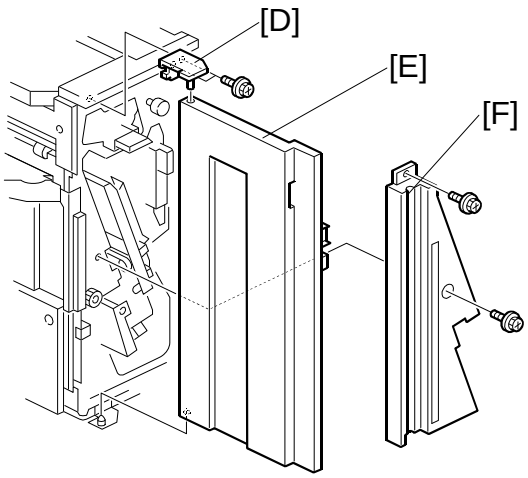
1. Rear cover [A] (x 2)
2. Main PCB [B] (x 4, All)

1.2 STAPLER UNIT

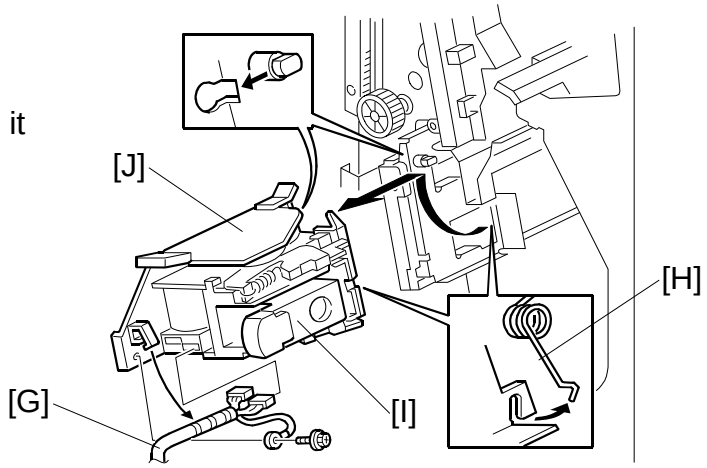
1. Side cover [A] (x 2)
2. Open exit guide plate [B]
3. Upper side cover [C] (x 2)



4. Front cover support plate [D] (x 1)
5. Front cover [E]
6. Front inner cover [F] (x 2)



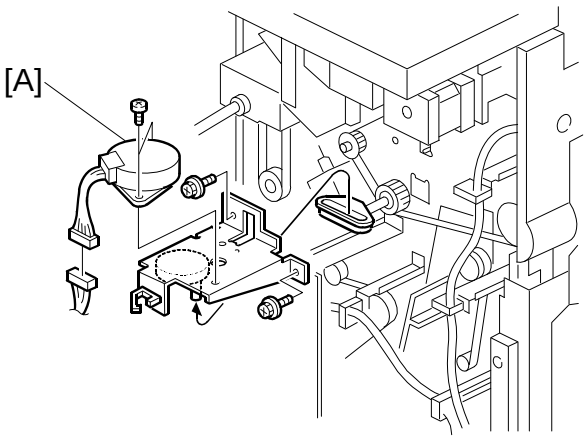
7. Harness [G]
8. Unhook the spring [H]
9. Turn the stapler unit [I] and take it out.
10. Bracket [J] (x 2)



1.3 MOTORS

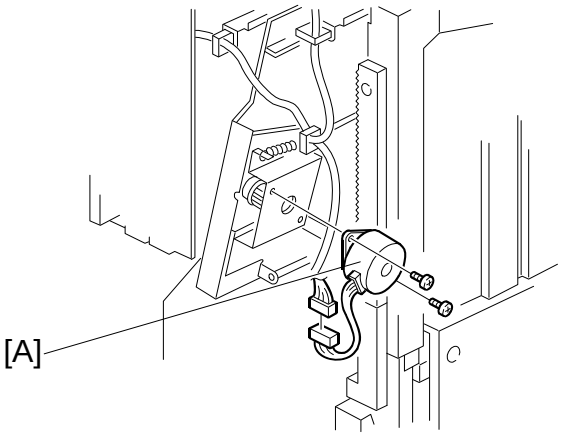
1.3.1 SHIFT MOTOR

1. Rear cover (☛1.1)
2. Shift motor [A] (🔩 x 2, 🖐 x 1)



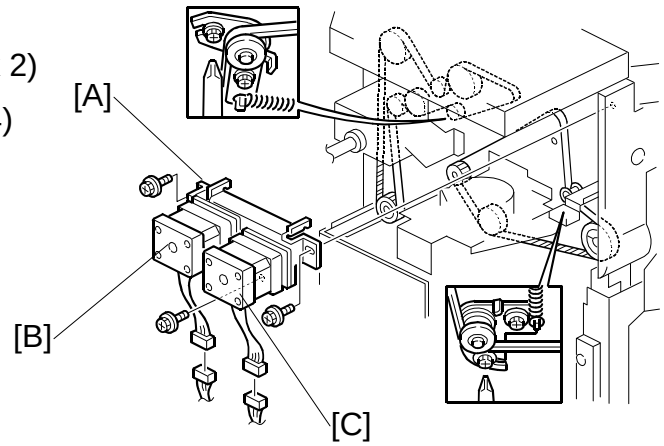
1.3.2 STAPLER MOTOR

1. Rear cover (☛1.1)
2. Stapler motor [A] (🔩 x 2, 🖐 x 1)



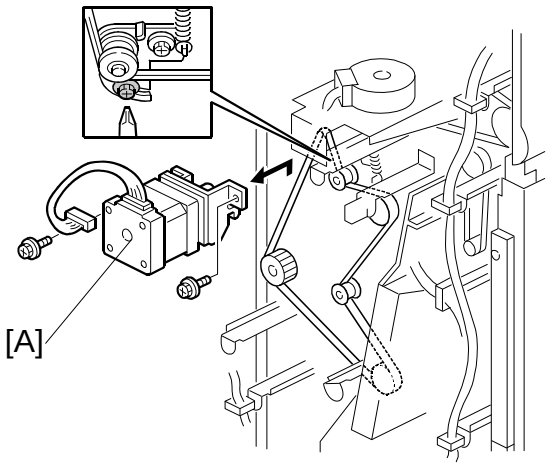
1.3.3 UPPER TRANSPORT MOTOR AND EXIT MOTOR

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

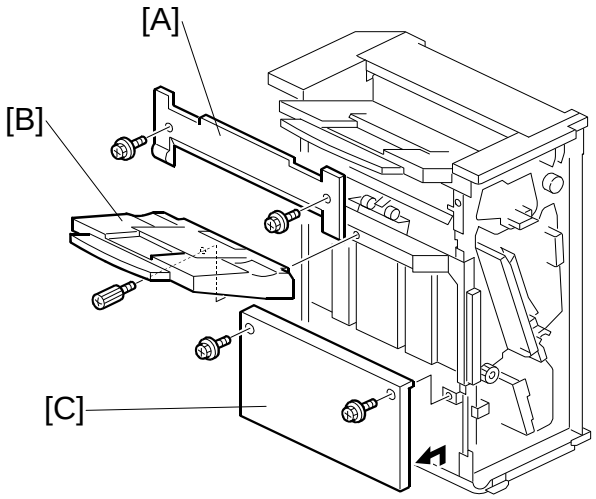
1. Main PCB (☛1.1)
2. Lower transport motor [A] (🔩 x 2, 🖐 x 1)



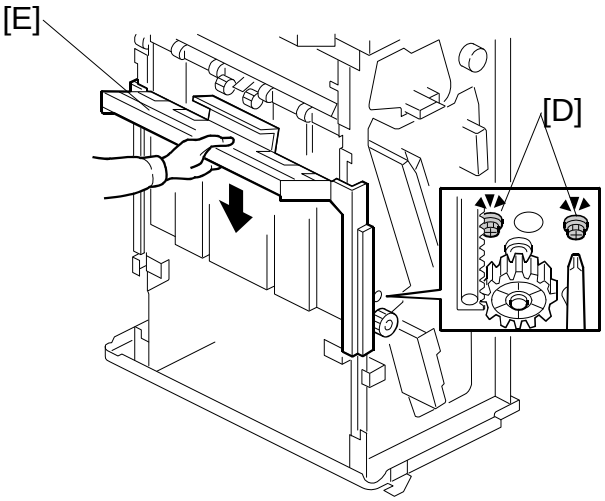
1.4 MOTORS AND SENSORS

1.4.1 PREPARATION

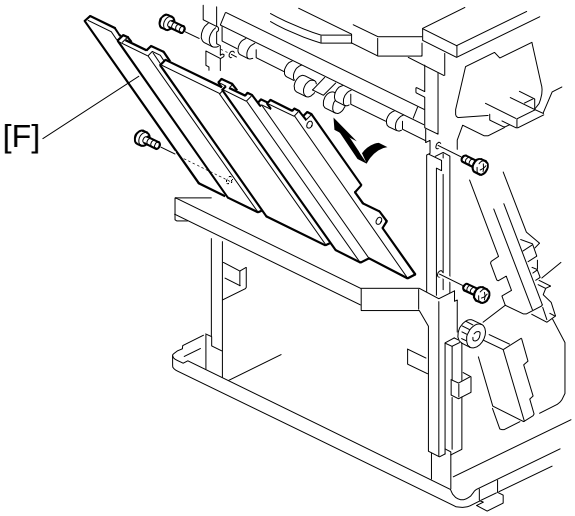
1. Front cover and inner cover (☛1.2)
2. Upper side cover [A] (☞ x 2)
3. Upper tray [B] (☞ x 1)



4. Lower side cover [C] (☞ x 2)
5. Loosen the 2 screws [D].
6. Lower the lower tray guide plate [E].

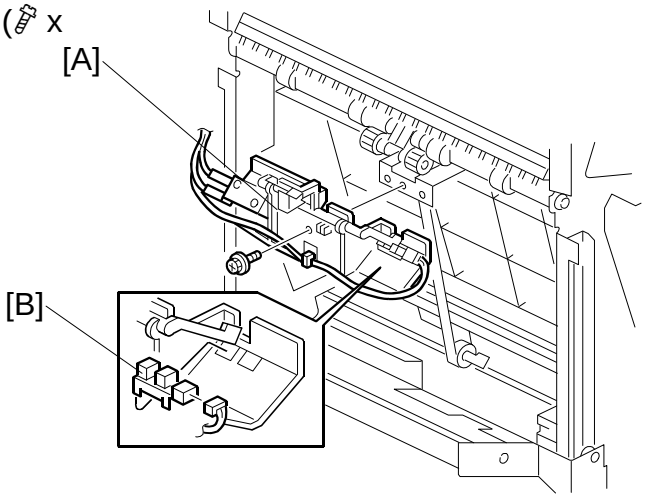


7. Guide plate [F] (☞ x 4)



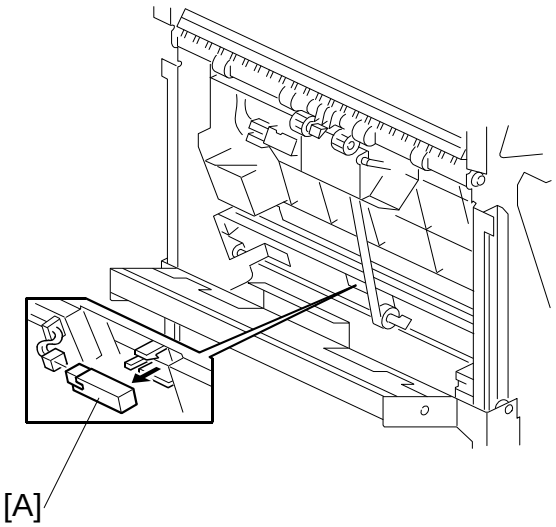
1.4.2 STACK HEIGHT SENSOR

1. Stack height sensor assembly [A] (x 1)
2. Stack height sensor [B] (x 1)



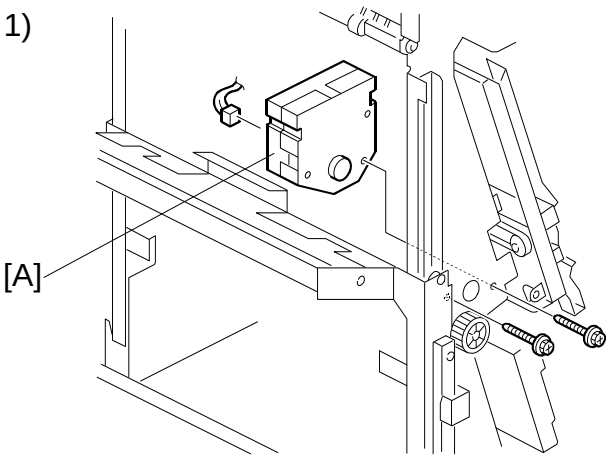
1.4.3 STAPLER TRAY PAPER SENSOR

1. Stapler tray paper sensor [A] (x 1)



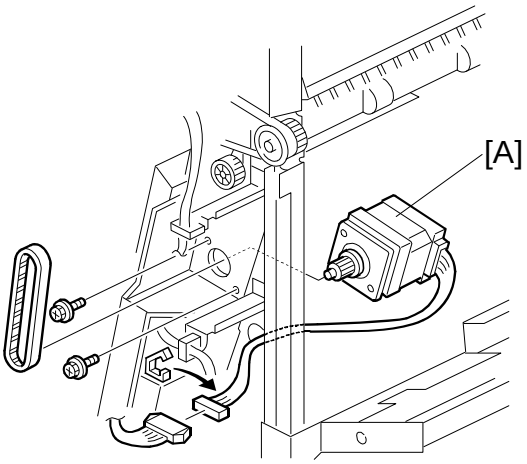
1.4.4 LOWER TRAY LIFT MOTOR

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

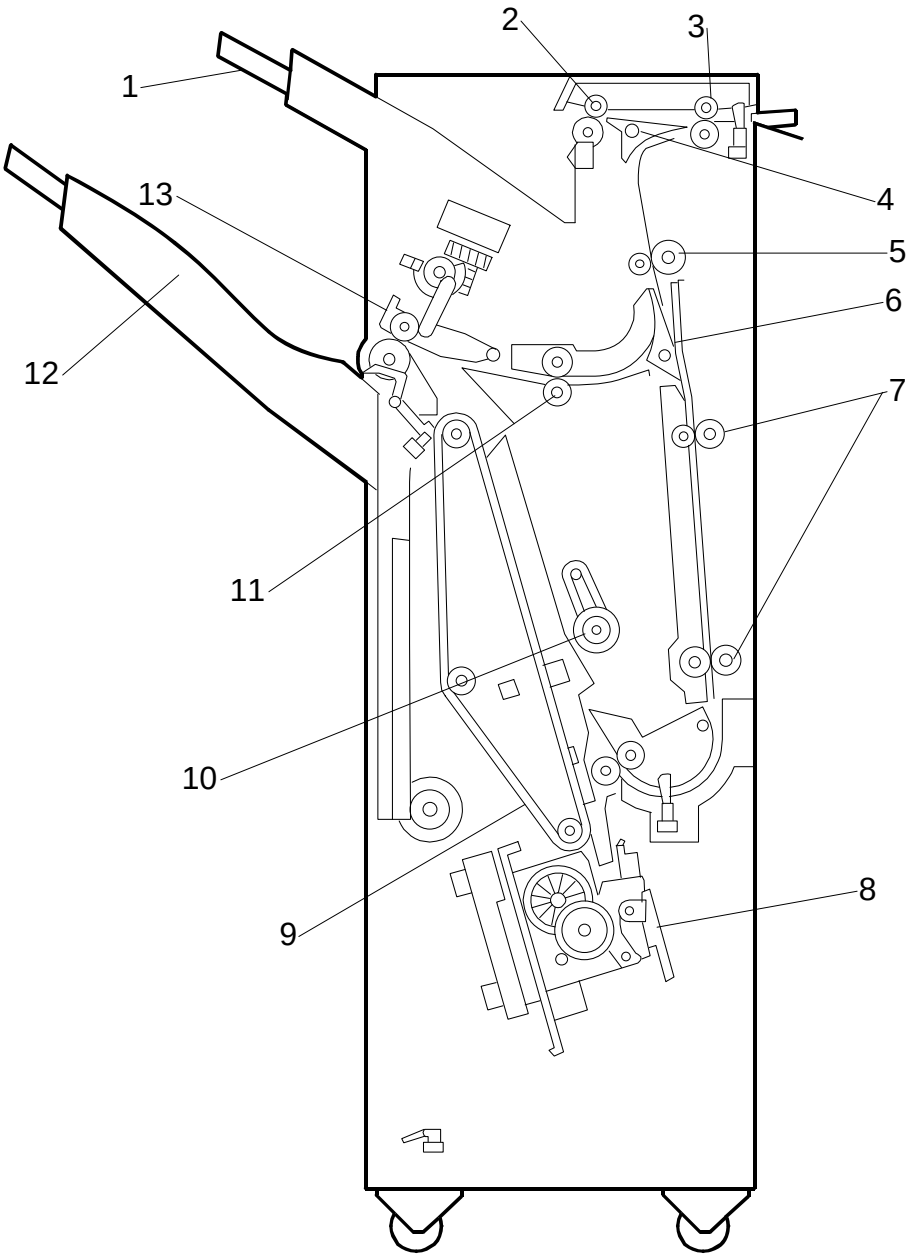
The DIP switches should not be set to any combination other than those listed in the table below.

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.

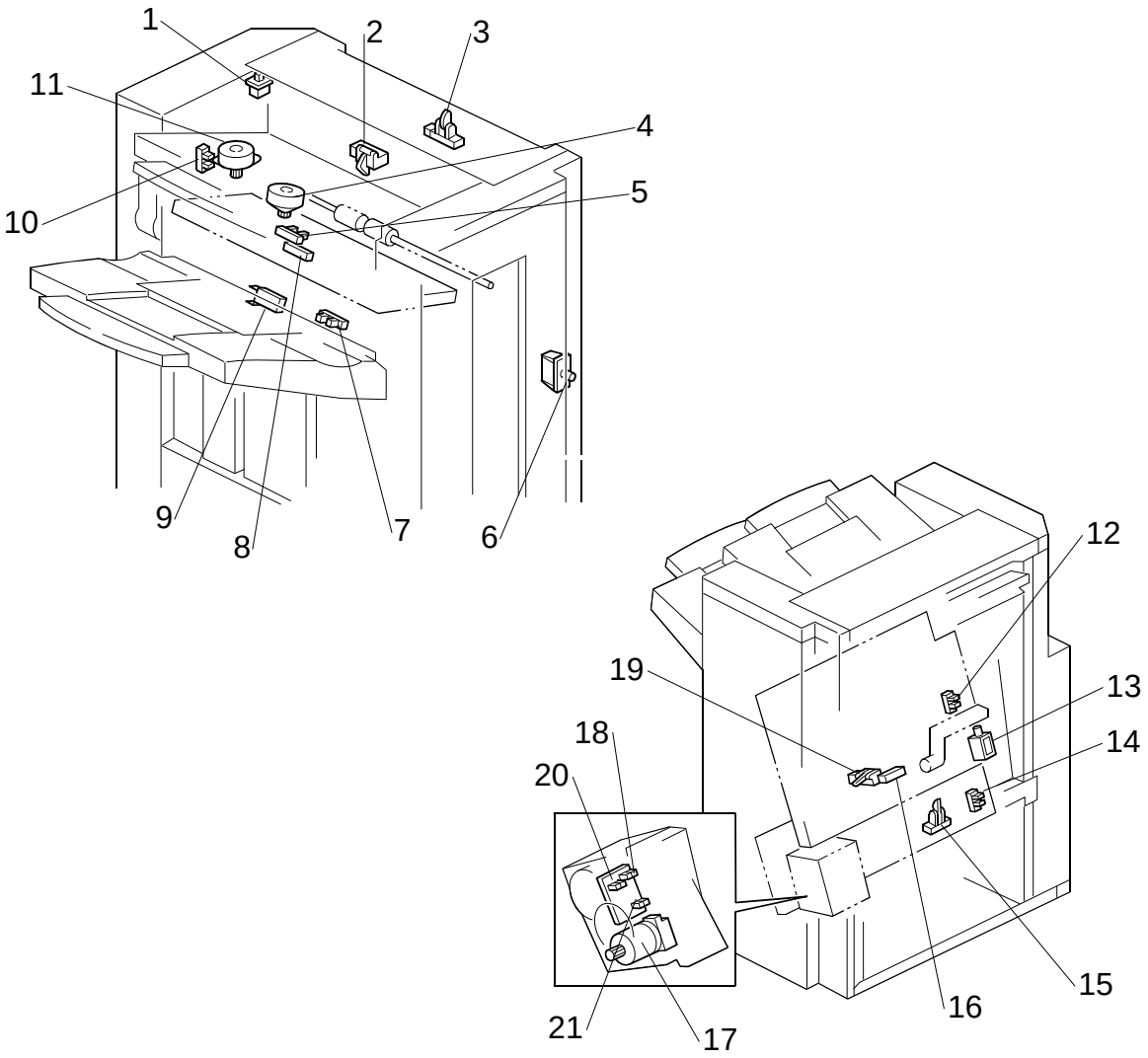
4. DETAILED DESCRIPTIONS

4.1 GENERAL LAYOUT

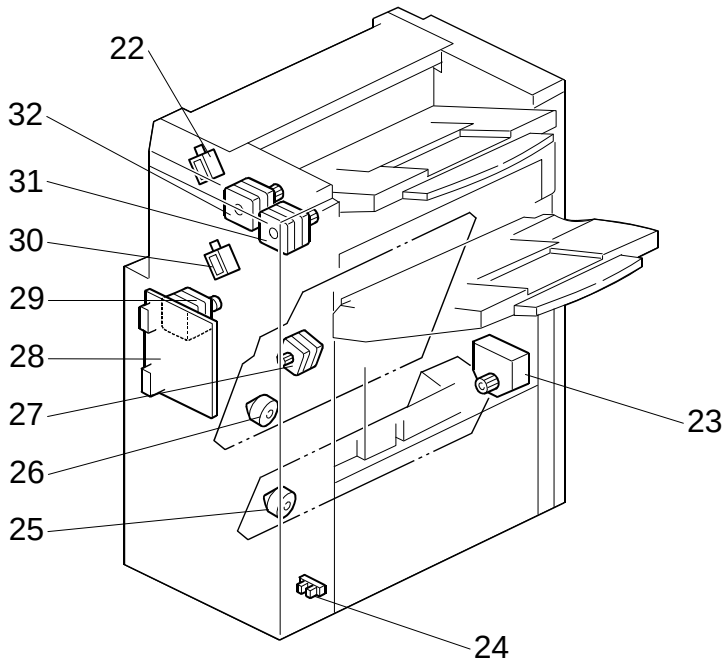


1. Upper Tray
2. Upper Tray Exit Roller
3. Entrance Roller
4. Tray Junction Gate
5. Upper Transport Roller
6. Stapler Junction Gate
7. Lower Transport Rollers
8. Stapler
9. Stack Feed-out Belt
10. Positioning Roller
11. Shift Roller
12. Lower Tray
13. Lower Tray Exit Roller

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



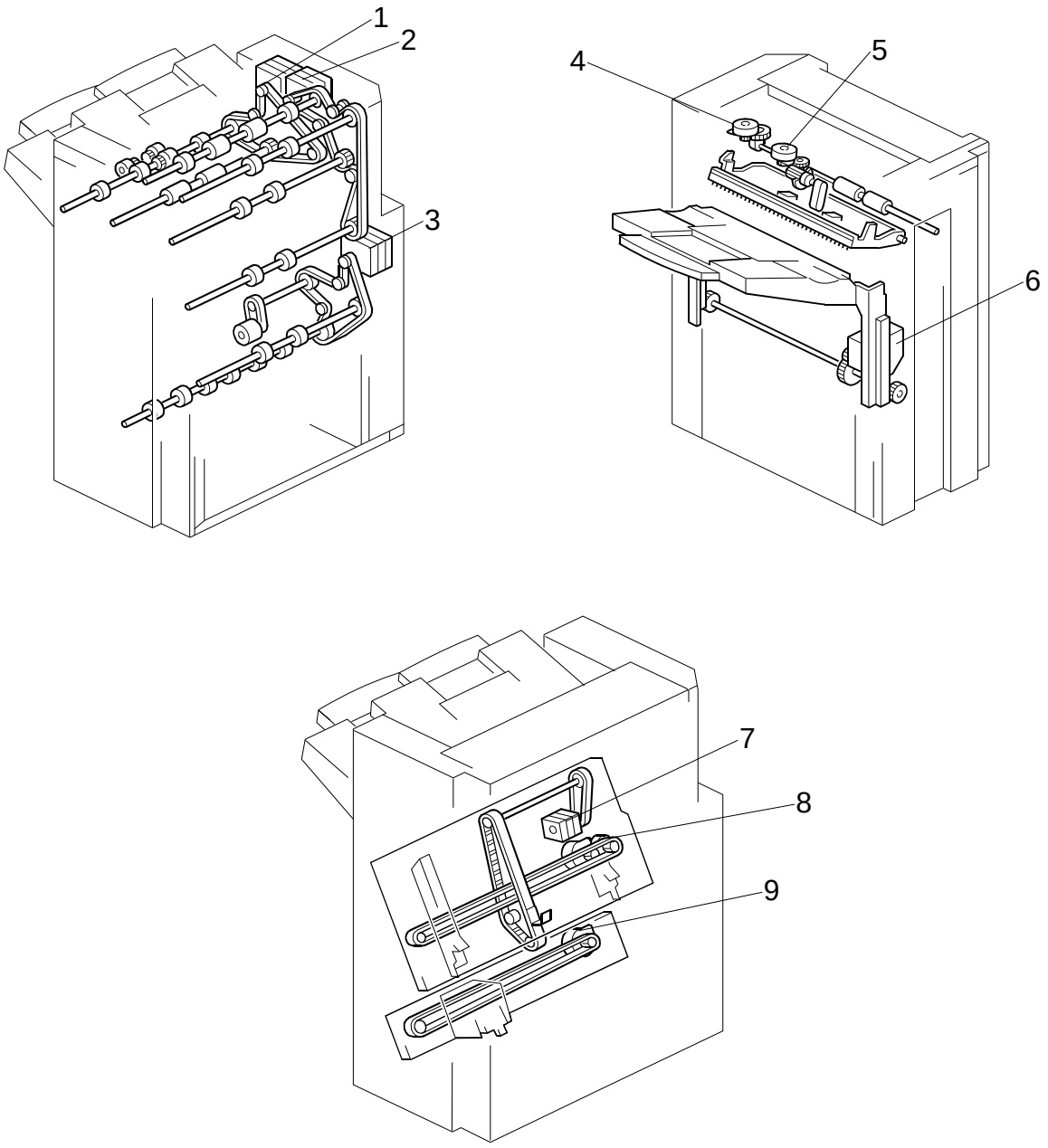
22. Tray Junction Gate Solenoid
23. Lower Tray Lift Motor
24. Lower Tray Lower Limit Sensor
25. Stapler Motor
26. Jogger Fence Motor
27. Stack Feed-out Motor
28. Main Board
29. Lower Transport Motor
30. Stapler Junction Gate Solenoid
31. Exit Motor
32. Upper Transport Motor

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

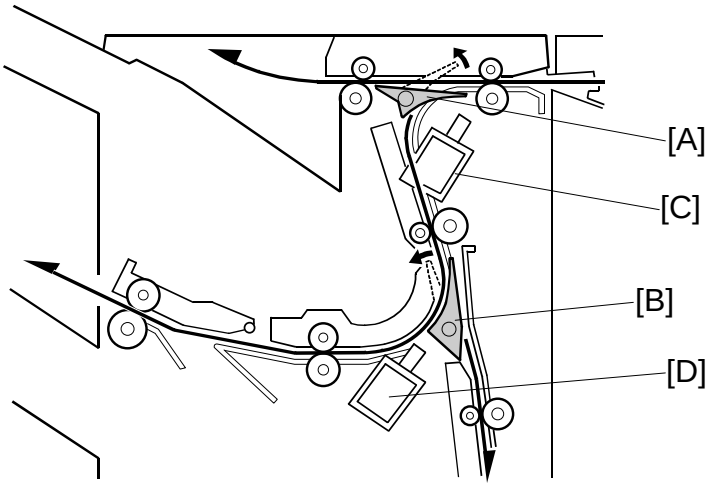
Symbol	Name	Function	Index No.
SOL3	Positioning Roller	Moves the positioning roller.	13
Switches			
SW1	Lower Tray Upper Limit	Detects when the lower tray is at its upper limit position.	9
SW2	Front Door Safety	Cuts the dc power when the front door is opened.	6
SW3	Upper Cover	Cuts the dc power when 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

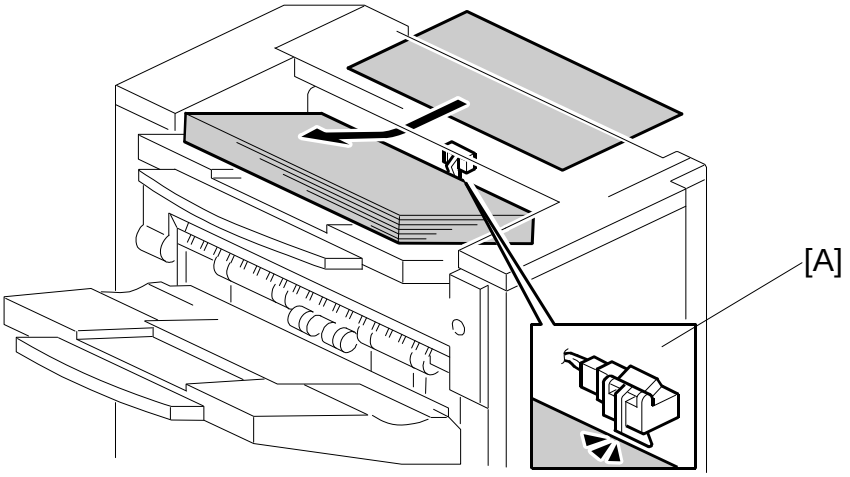
The tray junction gate solenoid turns on and the stapler junction gate solenoid remains off. The copies are sent to the lower tray directly.

Staple Mode

The tray junction gate solenoid and the stapler junction gate solenoid both turn on.

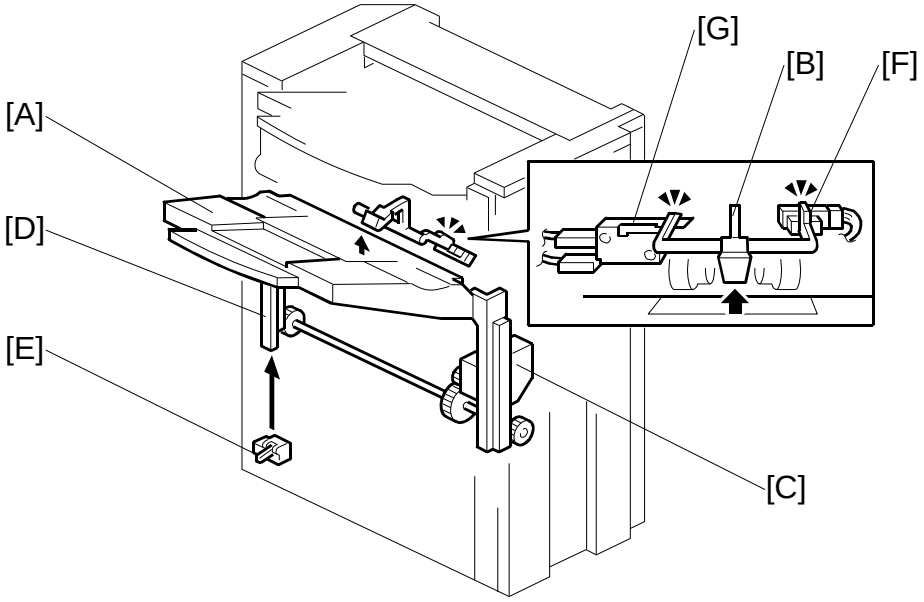
The copies go down to the jogger unit.

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.

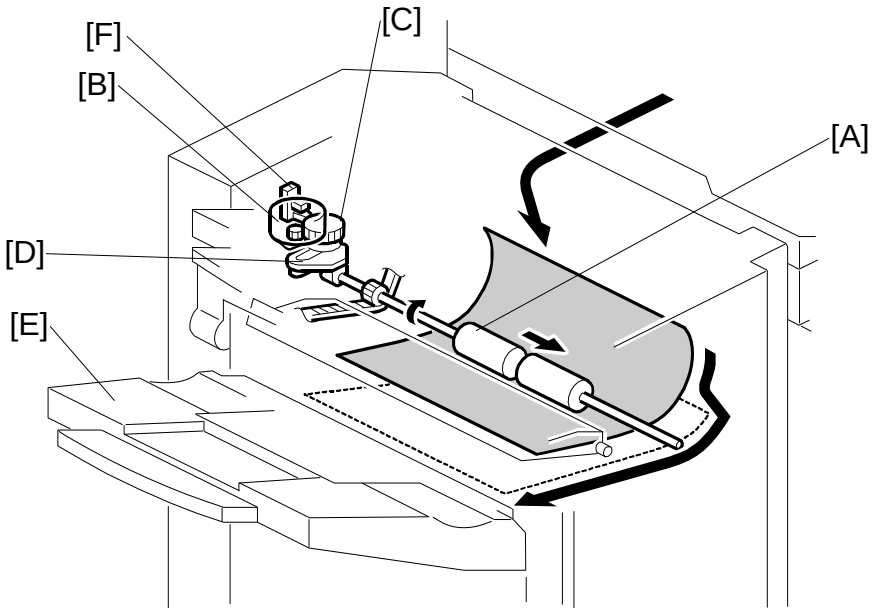
Sort/Stack Mode (Tray Down)

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



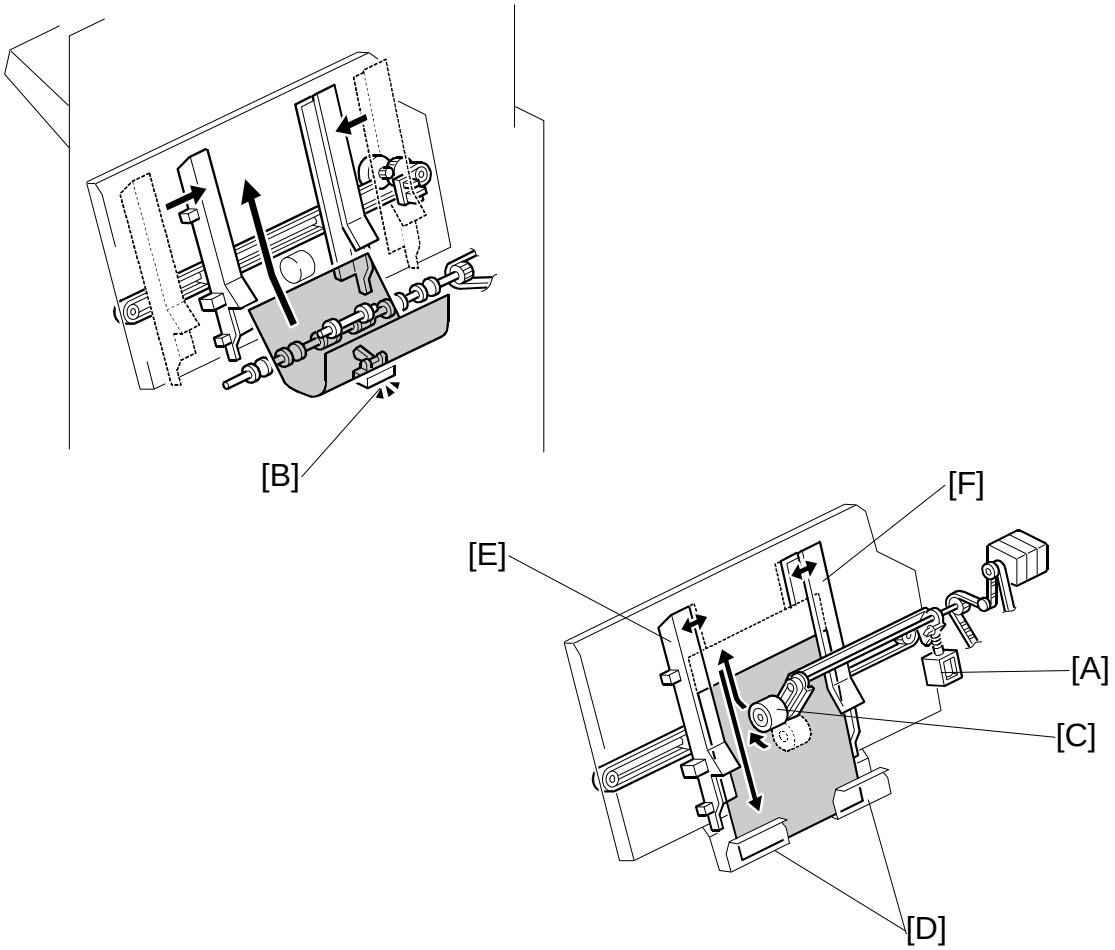
In the sort/stack mode, the shift roller [A] moves from side to side to separate the sets of copies.

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

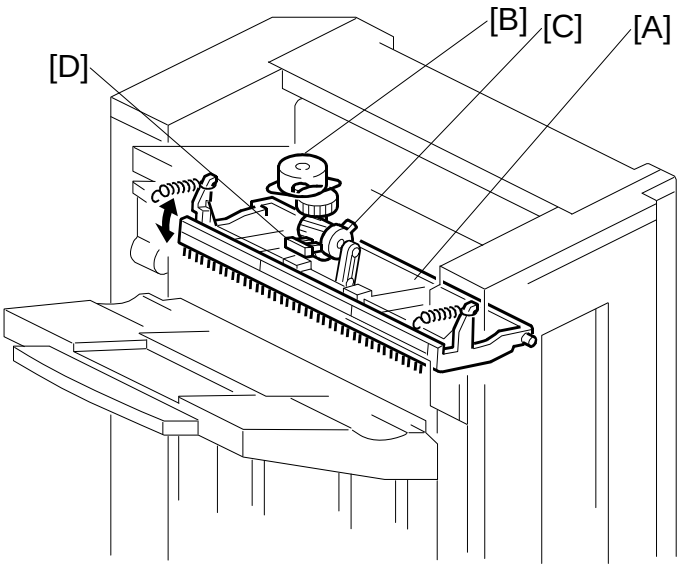


In staple mode, each sheet of copy paper is vertically and horizontally aligned when it arrives in the jogger unit.

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.

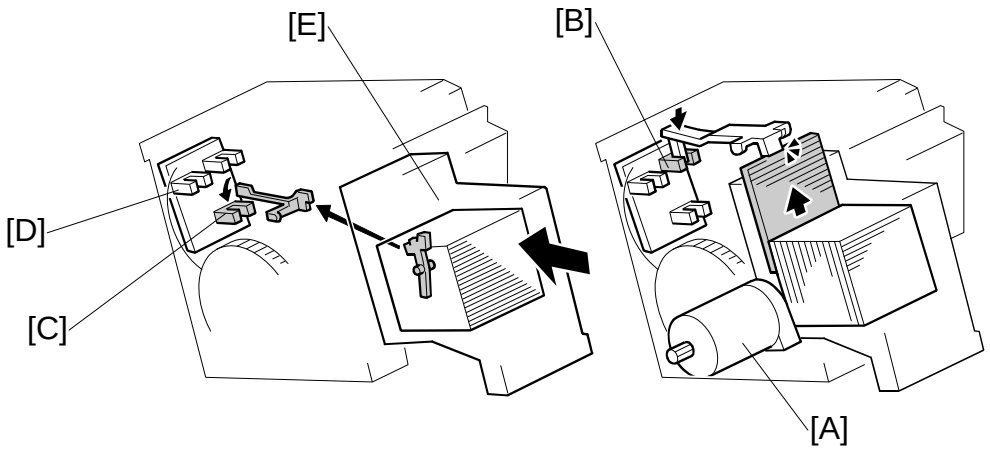
4.10 EXIT GUIDE PLATE



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.

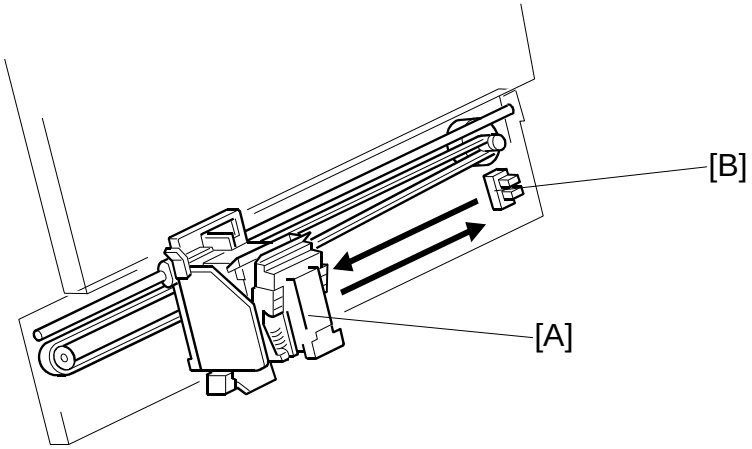
The staple sheet sensor [B] detects the leading edge of the staple sheet at the stapling position to prevent the hammer from operating if there are no staples at the stapling position.

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

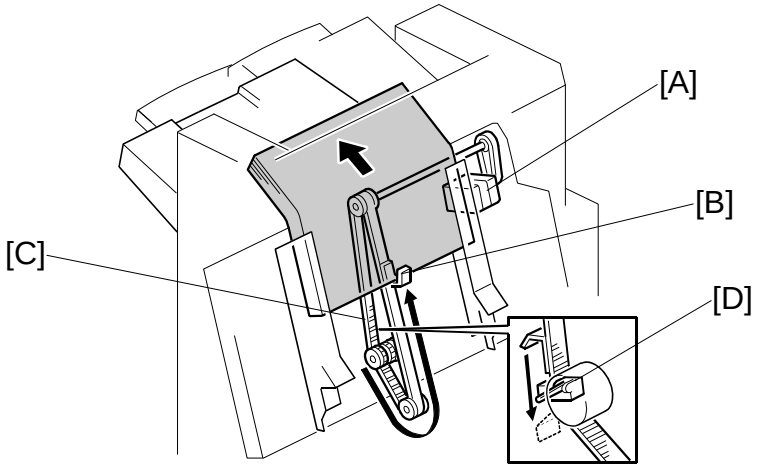


The stapler motor moves the stapler [A] from side to side. After the start key is pressed, the stapler moves from its home position to the stapling position.

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].

SR3000(B793)/SR3100(D589)

BOOKLET FINISHER

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

BOOKLET FINISHER B793/D589

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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

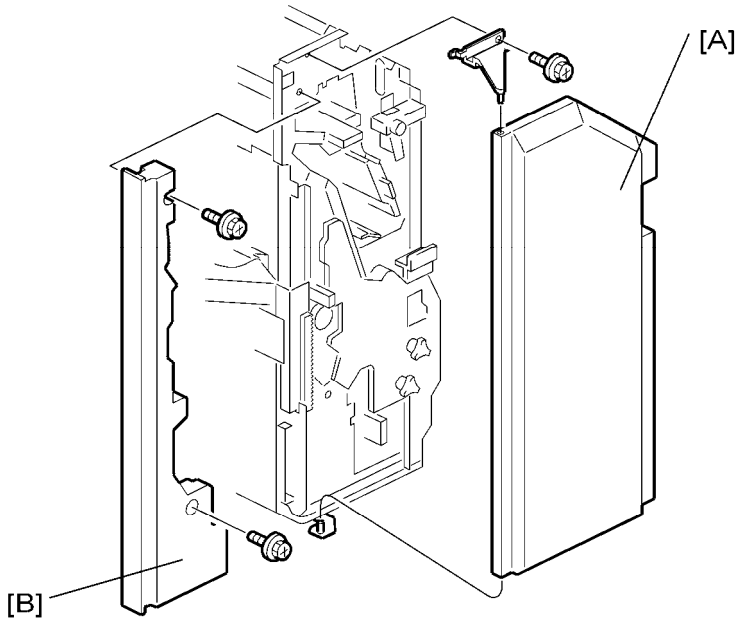
: Clip ring

: E-ring

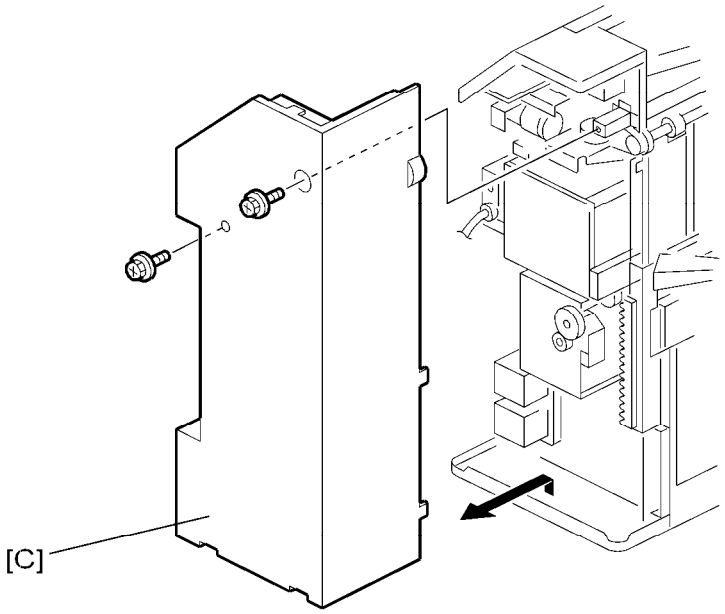
1. REPLACEMENT AND ADJUSTMENT

1.1 COVERS

1.1.1 FRONT/INNER/REAR COVERS

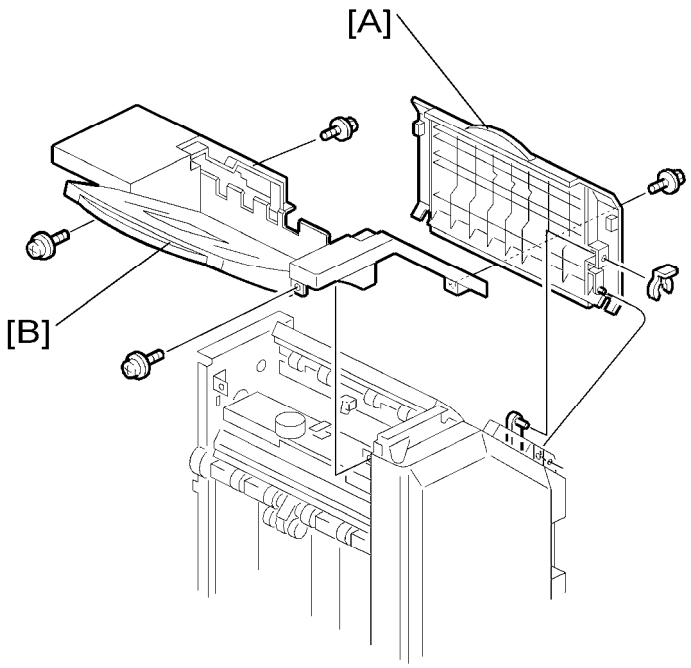


1. Remove the front cover [A] (x 1).
2. Remove the inner cover [B] (x 2).

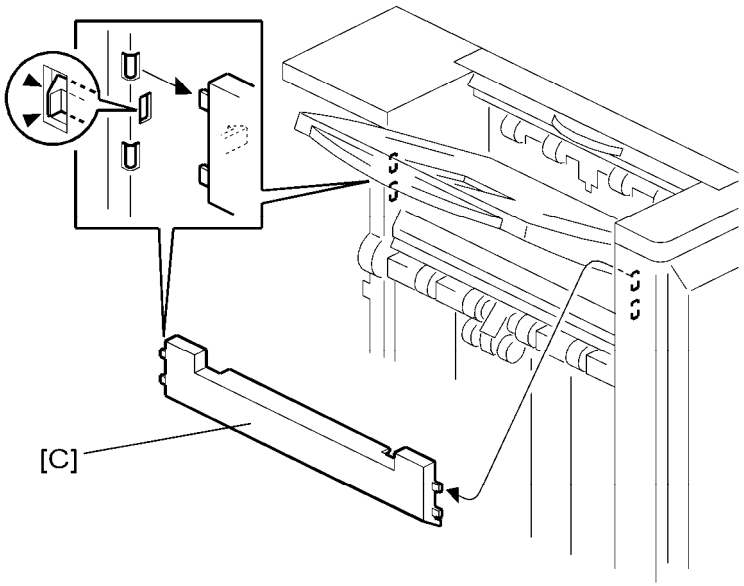


3. Remove the rear cover [C] (x 2).

1.1.2 UPPER COVERS



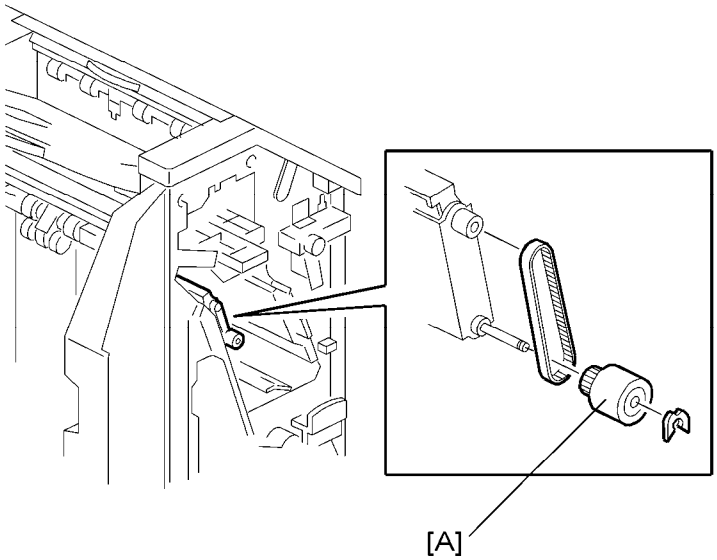
1. Remove the upper cover [A] (x 1).
2. Remove the proof tray [B] (x 4).



3. Remove the upper left cover [C].

1.2 MAIN BODY

1.2.1 POSITIONING ROLLER

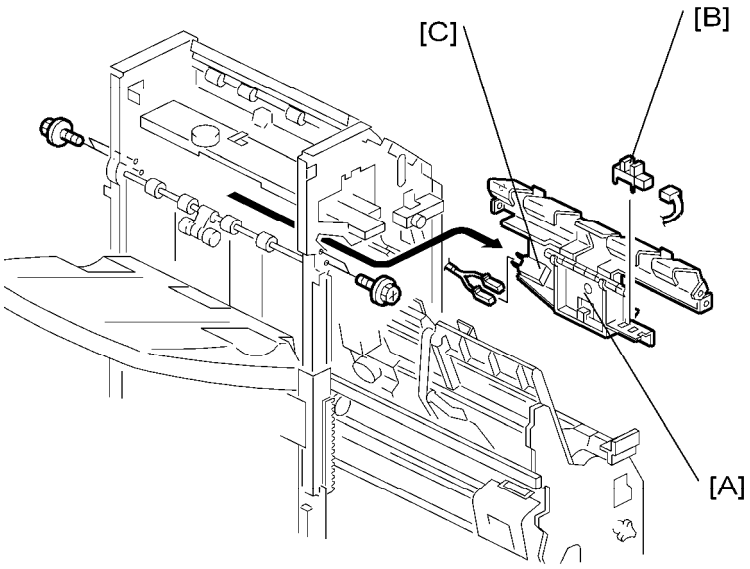


1. Open the front cover.
2. Remove the positioning roller [A] (x 1).

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



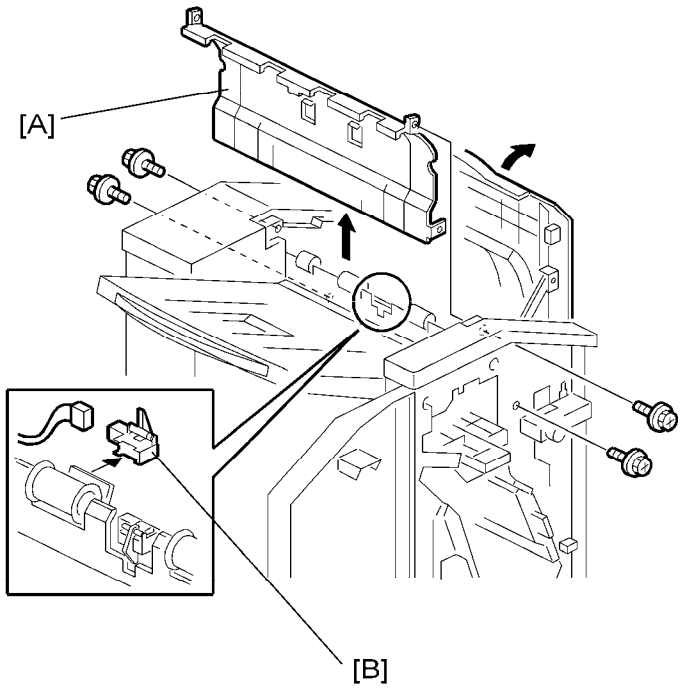
2. Remove the lower guide unit [A] (x 4, x 2).

3. Remove the shift tray position sensor [B] (x 1).

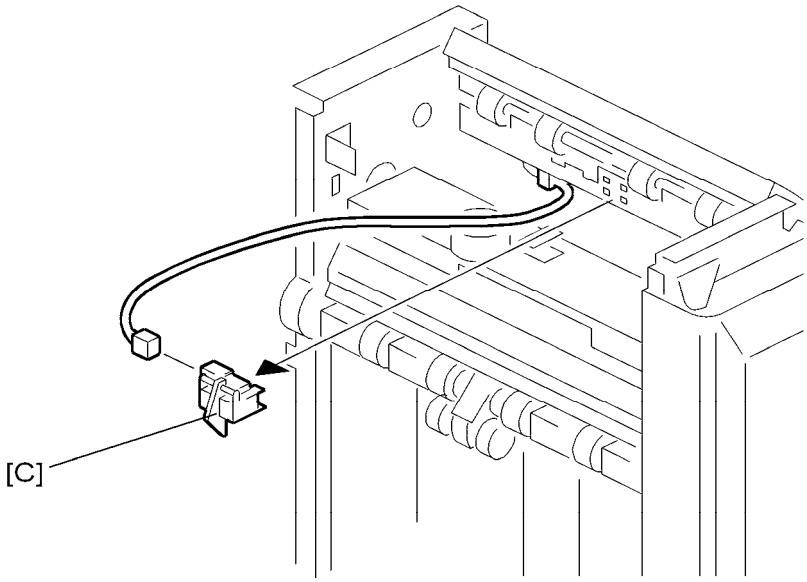
4. Remove the upper limit switch [C] (x 2). (Pull it out from the assembly.)

1.2.3 PROOF TRAY EXIT / FULL SENSOR

1. Remove the front cover, rear cover and proof tray.
2. Open the upper cover.

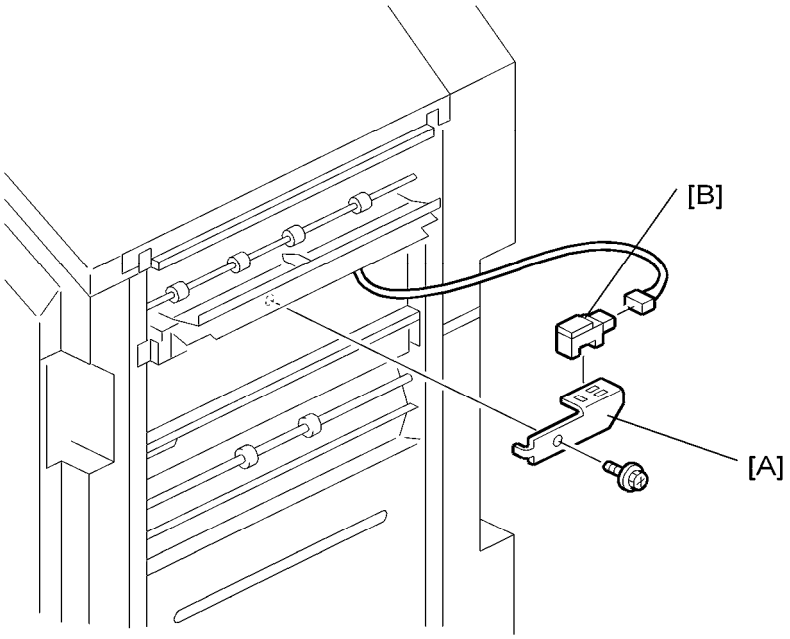


3. Remove the vertical transport guide [A] (x 4).
4. Remove the exit sensor [B] (x 1).



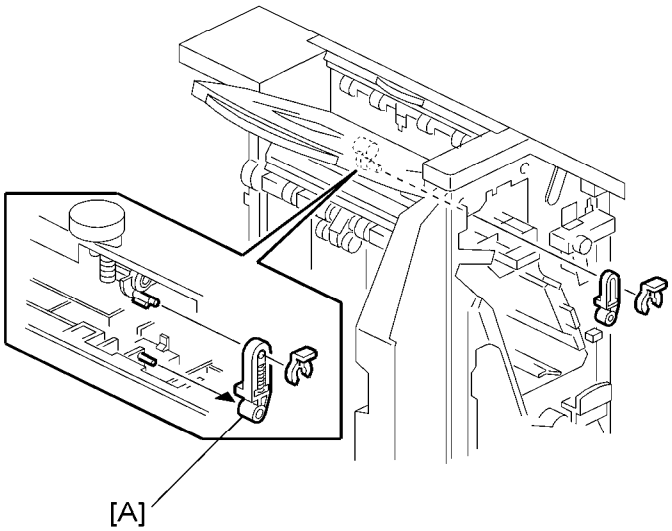
5. Remove the tray full sensor [C] (x 1).

1.2.4 FINISHER ENTRANCE SENSOR

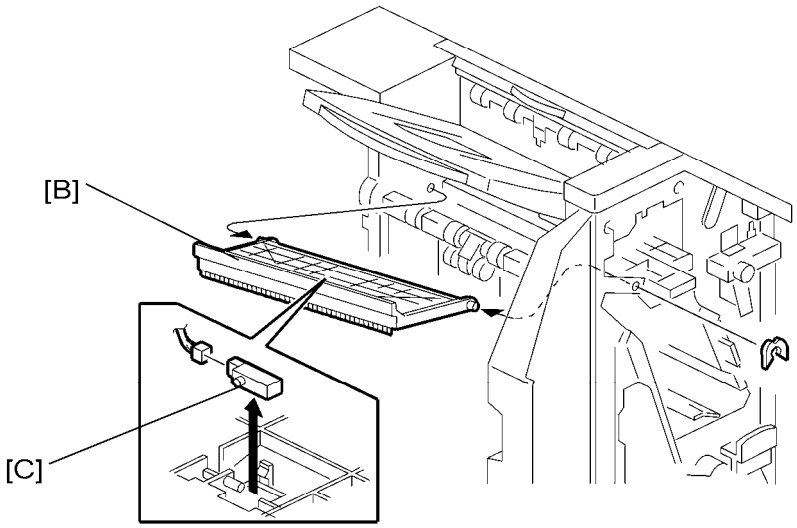


1. Remove the finisher entrance sensor with bracket [A] (x 1).
2. Remove the finisher entrance sensor [B] (x 1).

1.2.5 SHIFT TRAY EXIT SENSOR

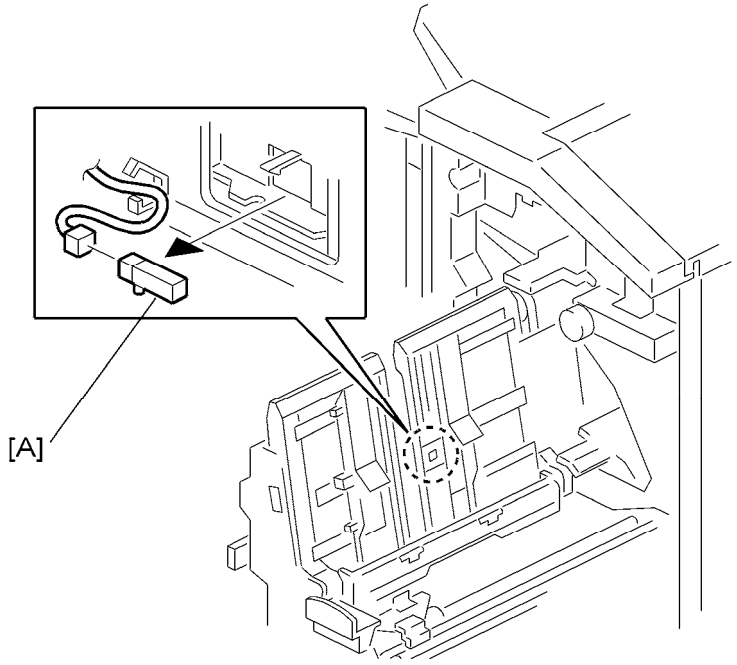


1. Remove the front cover and upper left cover.
2. Remove the link [A] (x 1).



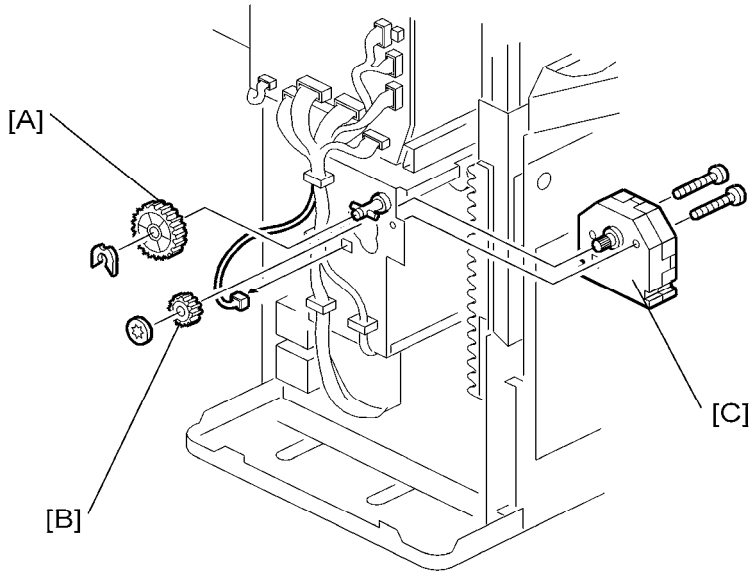
3. Remove the exit guide unit [B].
4. Remove the sensor [C] (x 1).

1.2.6 STAPLE TRAY PAPER SENSOR



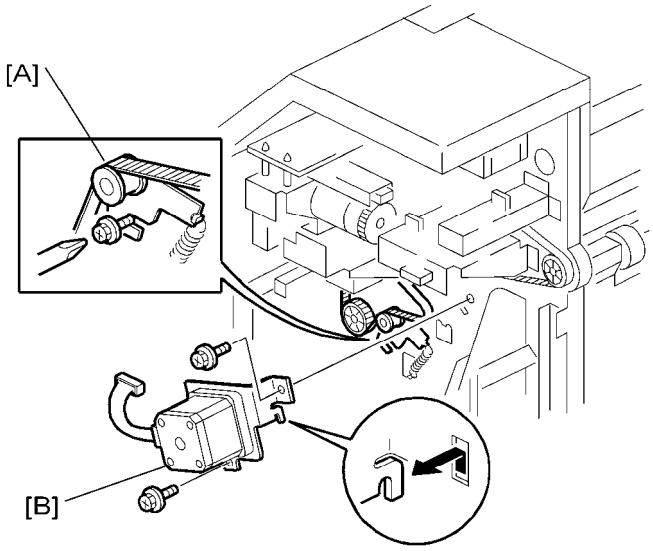
1. Open the front cover.
2. Pull out the staple/fold unit.
3. Remove the staple tray paper sensor [A] (x 1).

1.2.7 SHIFT TRAY MOTOR



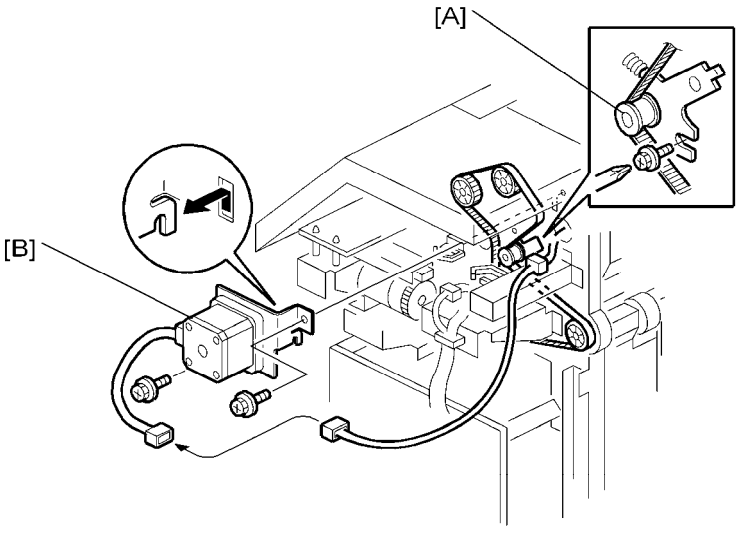
1. Remove the rear cover.
2. Open the front cover, and then pull out the staple/fold unit.
3. Remove the two gears [A], [B].
4. Remove the shift tray motor [C] (x 2, x 1)

1.2.8 ENTRANCE MOTOR



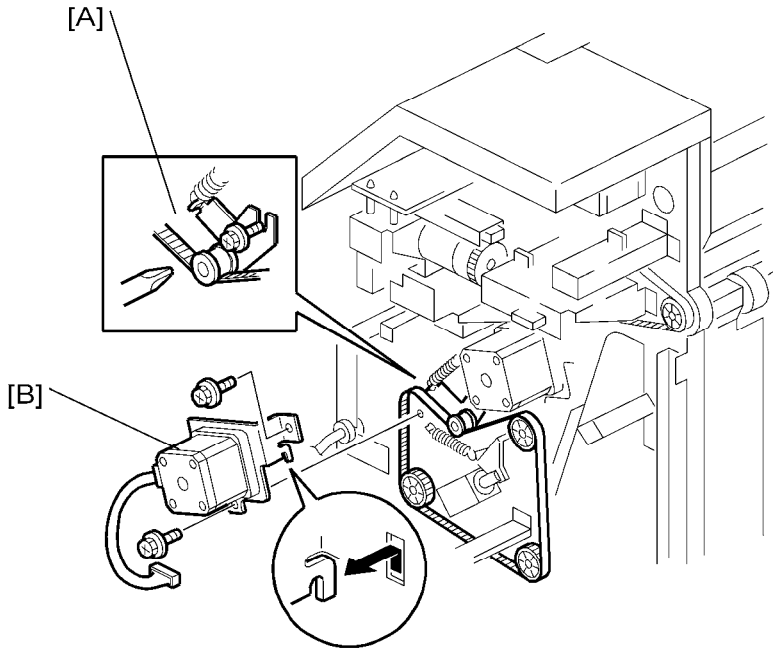
1. Remove the rear cover.
2. Release the belt tension [A].
3. Remove the entrance motor [B] (x 2, x 1).

1.2.9 UPPER TRANSPORT MOTOR



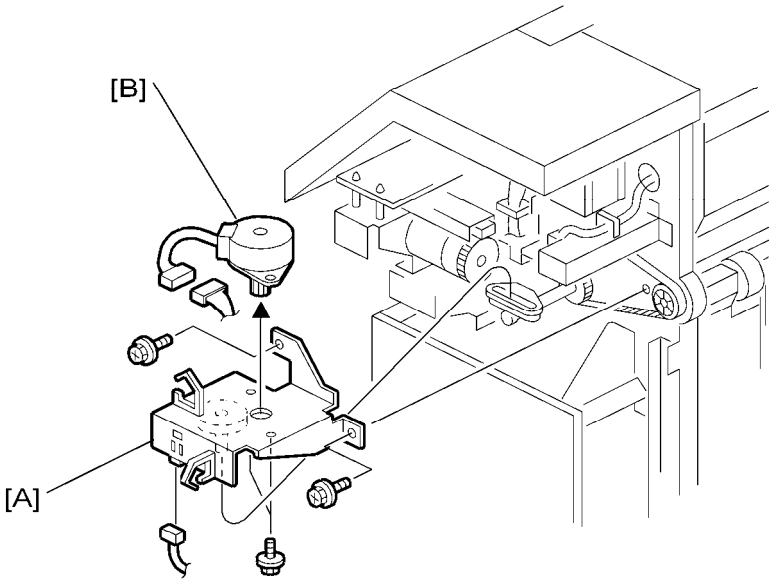
1. Remove the rear cover.
2. Release the belt tension [A].
3. Remove the upper transport motor [B] (x 2, x 1).

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).

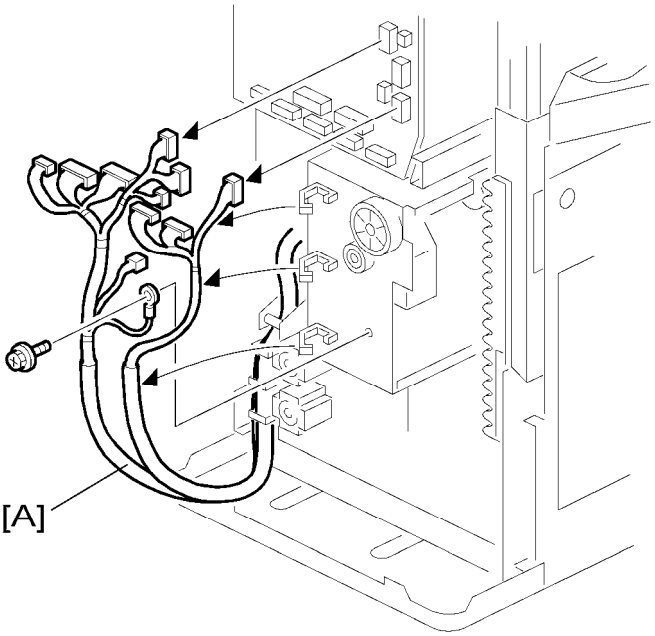
1.2.11 SHIFT MOTOR



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).

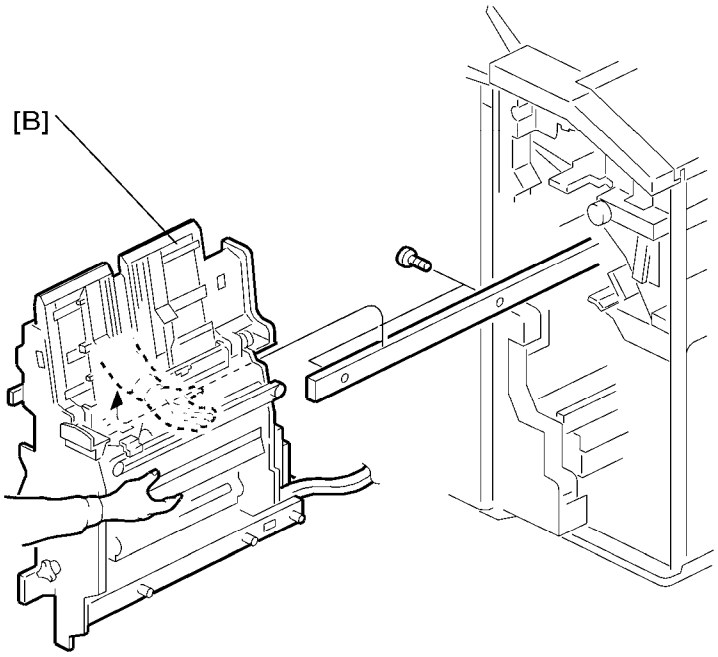
1.3 FOLDER

1.3.1 STAPLE FOLDER UNIT



Folder

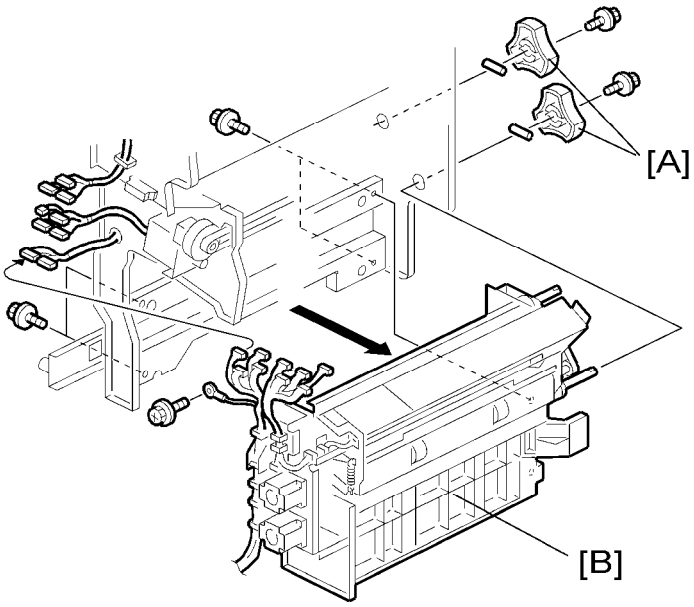
1. Remove the rear cover.
2. Disconnect all connectors and release the harness [A] for the staple folder unit (x 1, x 3).
3. Open the front cover.



4. Pull out and remove the staple folder unit [B] (x 2).

1.3.2 FOLDER UNIT

1. Remove the staple folder unit.

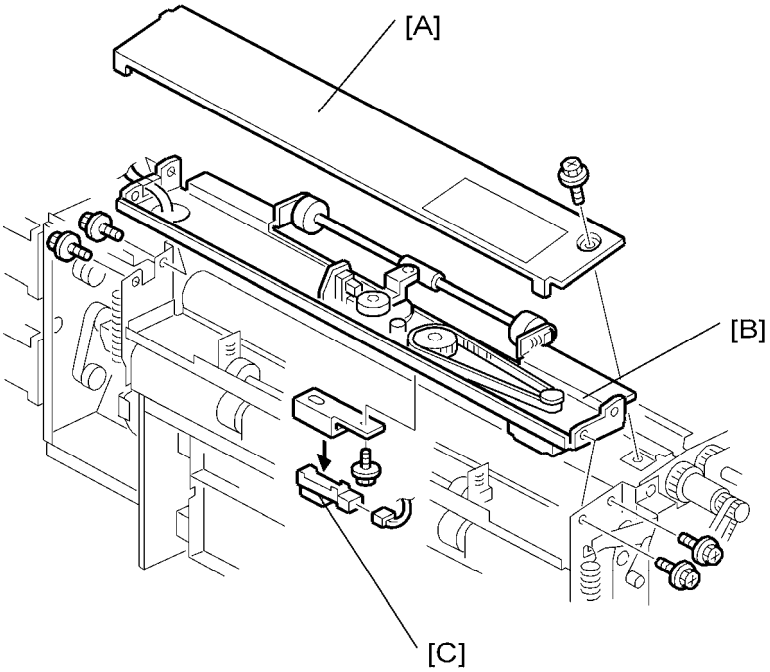


2. Remove the knobs [A] (x 1 each).

3. Disconnect the connectors.

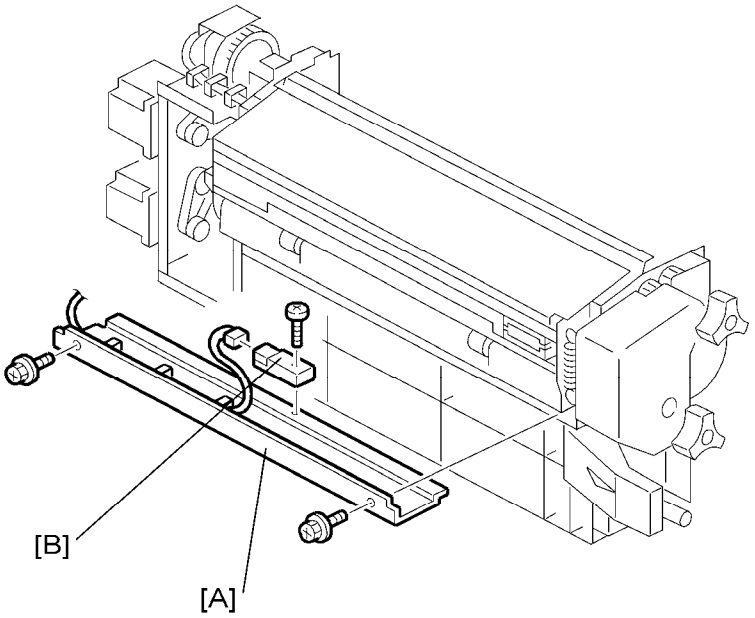
4. Remove the folder unit [B] (x 4).

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).

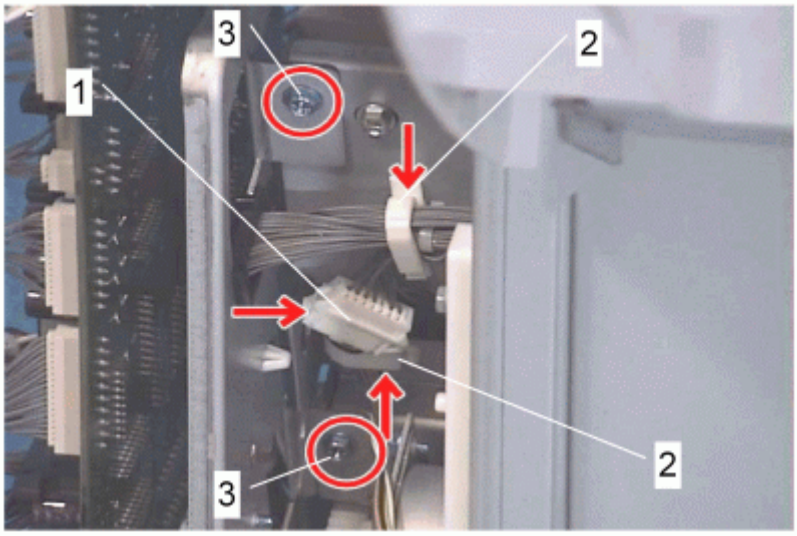
1.3.4 FOLDER UNIT ENTRANCE SENSOR



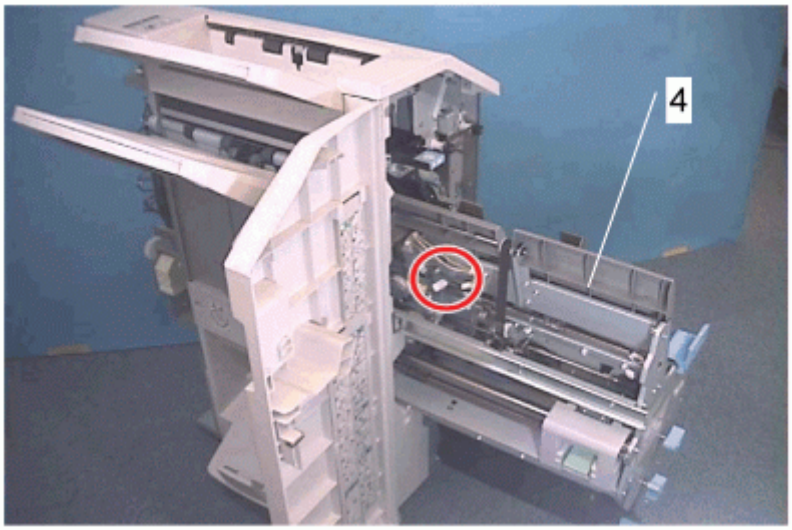
1. Open the front cover.
2. Pull out the staple folder unit.
3. Remove the exit cover [A] (x 2).
4. Remove the entrance sensor [B] (x 1, x 1).

1.3.5 STAPLER UNIT

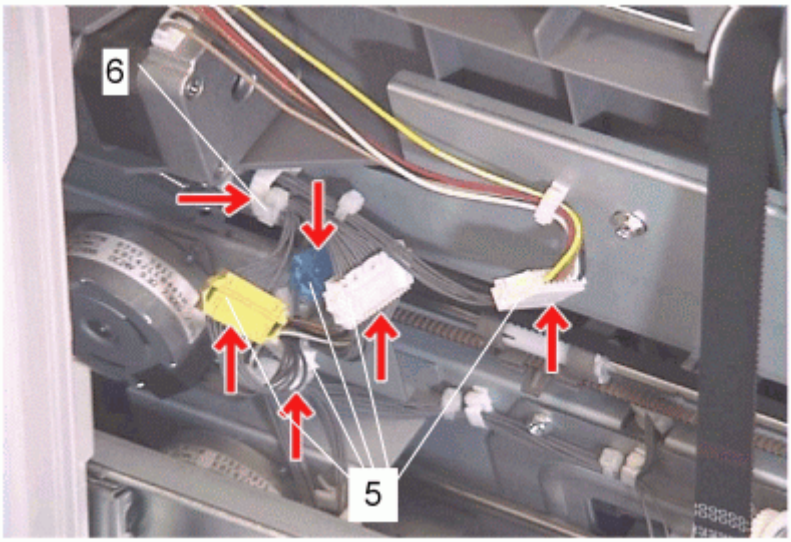
1. Remove the rear cover.



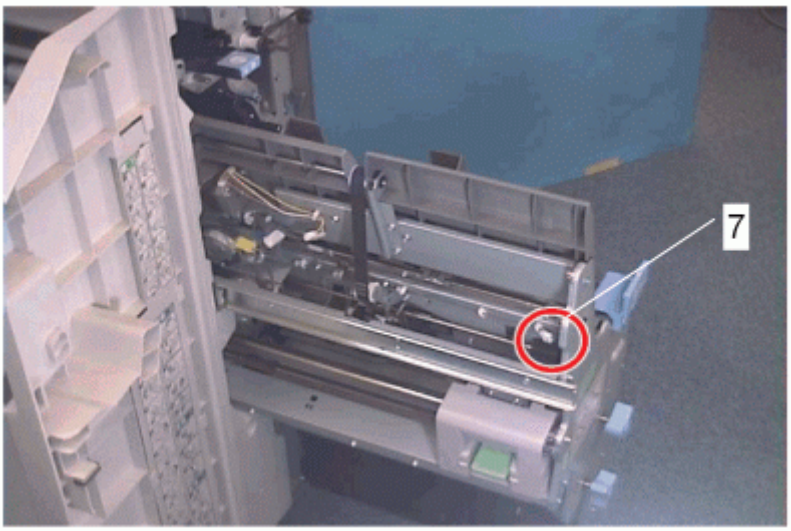
2. Disconnect the connector [1] and release the harness (x 2 [2]).
3. Remove two screws [3].



4. Open the front cover and pull out the staple folder unit [4].

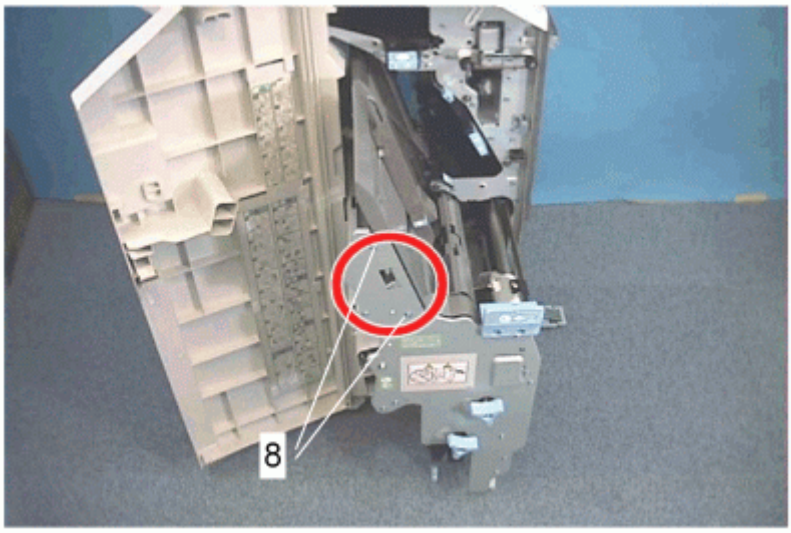


5. Disconnect the connectors and release the harness. (4 connectors [5], 1 clamp [6])

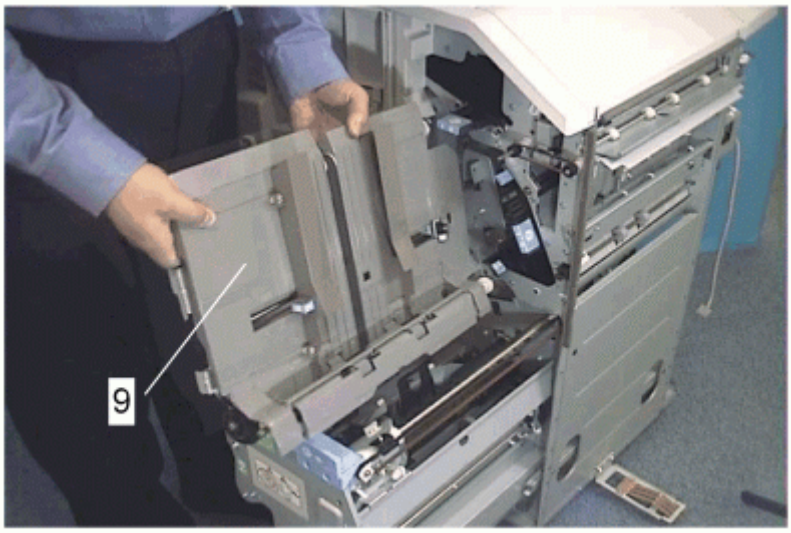


6. Remove a connector [7].

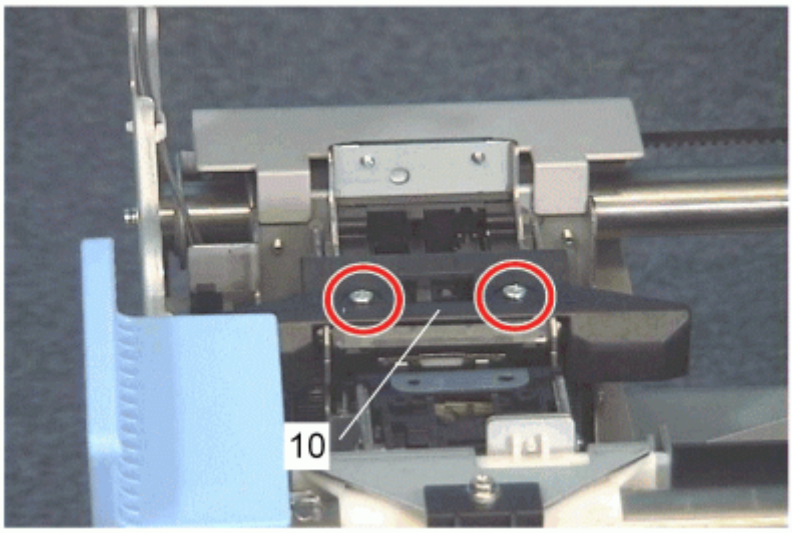
Folder



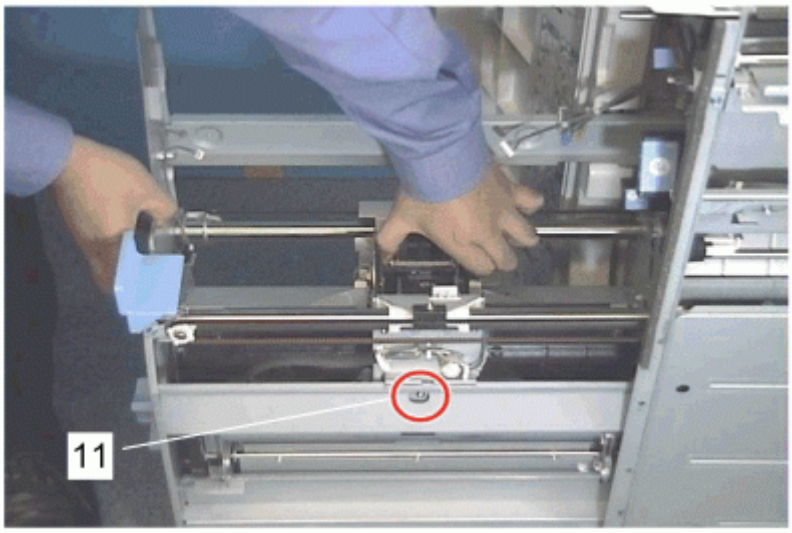
7. Remove 2 screws [8].



8. Remove the staple tray [9].

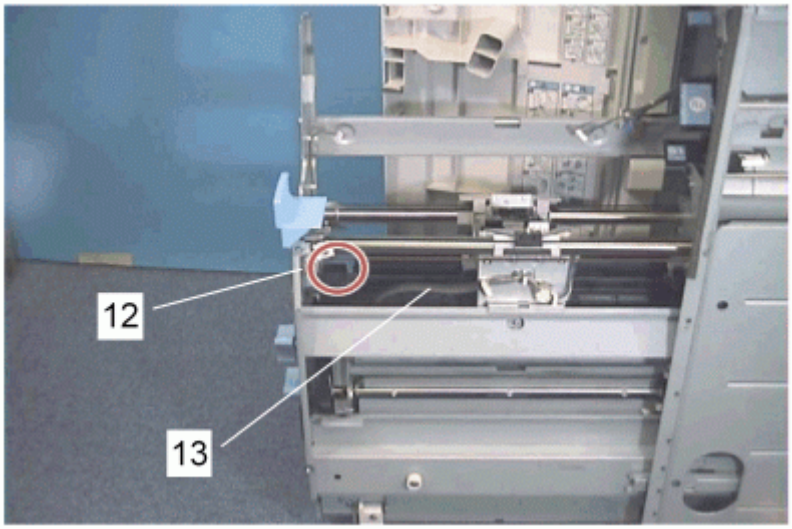


9. Remove the guide [10]. (2 screws)

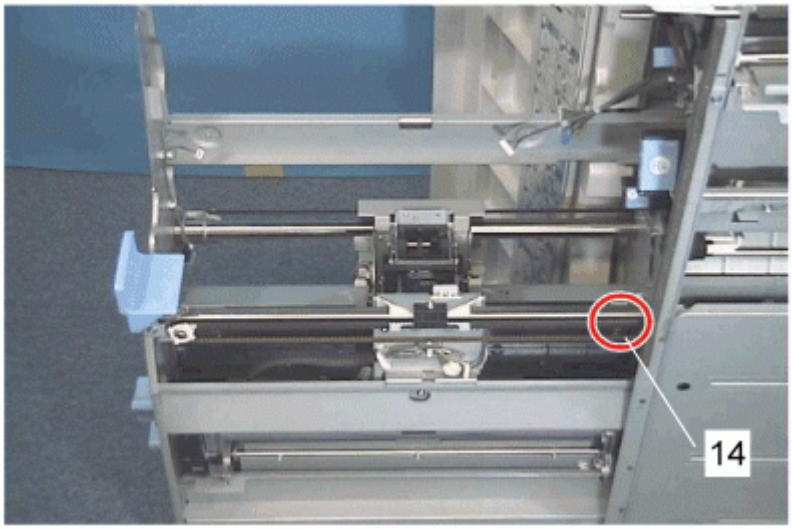


10. Move the stapler unit until its screw come to the hole [11] on the stay.

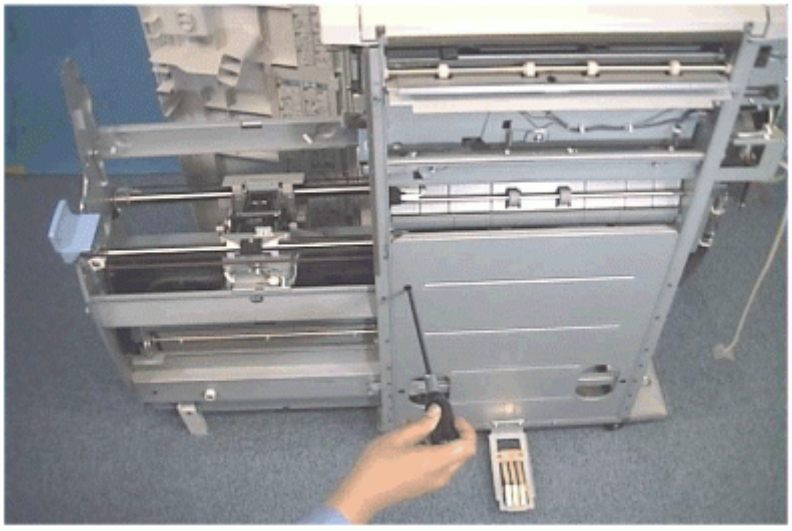
Folder



11. Remove the screw [12] that holds the front of the guide plate [13].

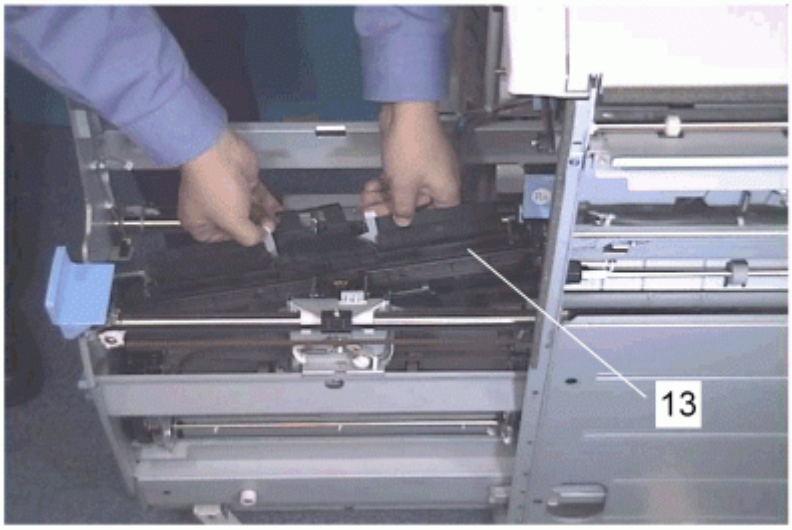


12. Remove the screw [14] that holds the rear of the guide plate.



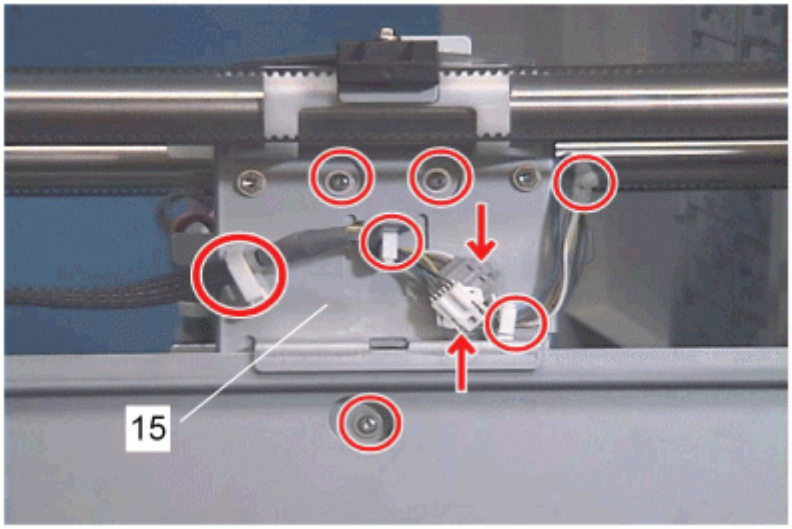
Note

- Remove the rear side screw through the hole in the stay.

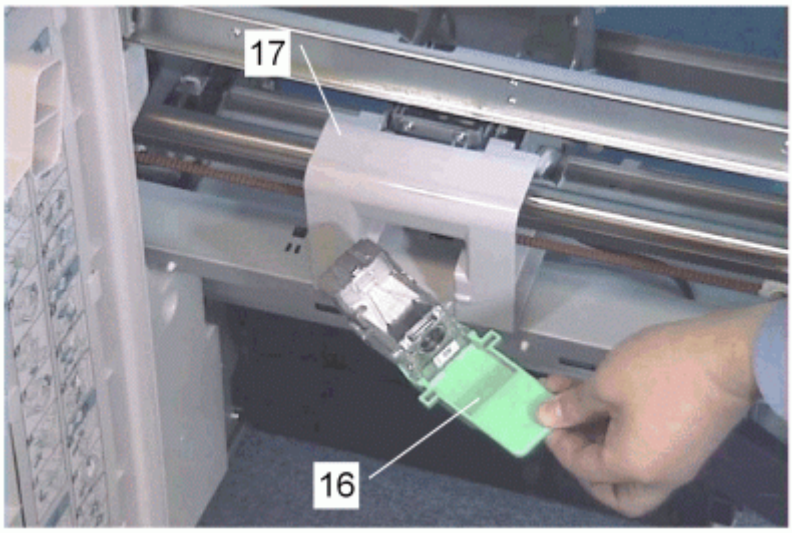


13. Remove the guide plate [13].

Folder

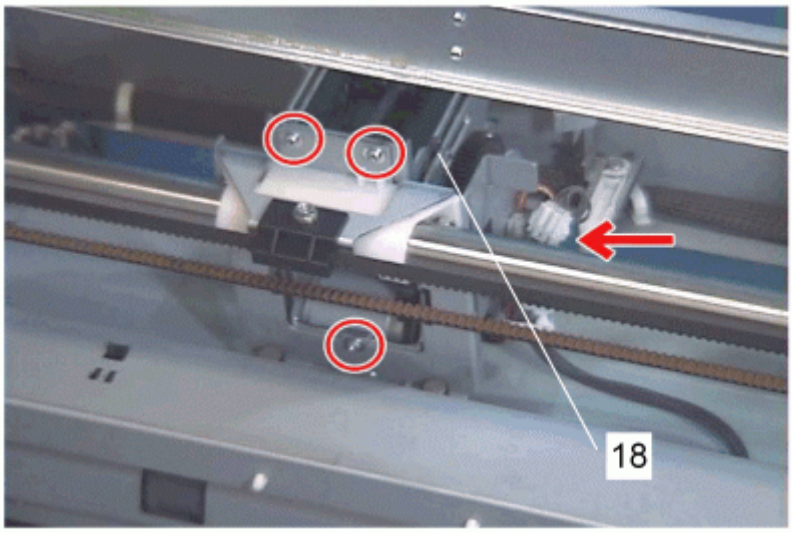


14. Remove the staple folding unit [15] (3 screws, 2 connectors).



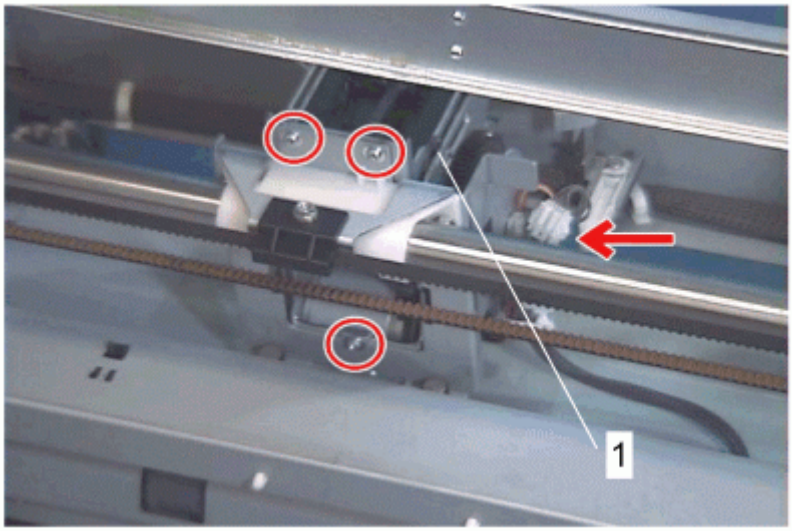
15. Remove the staple cartridge [16].

16. Remove the stapler unit cover [17].



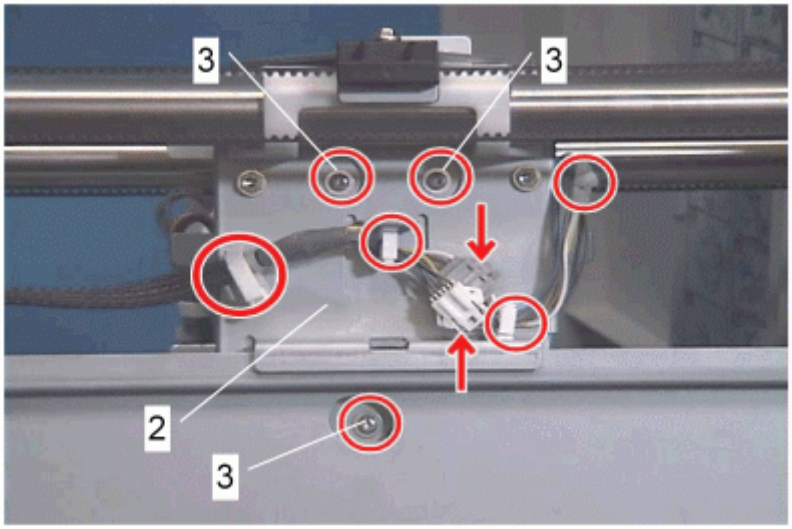
17. Remove the stapler drive unit [18].

Reassembly

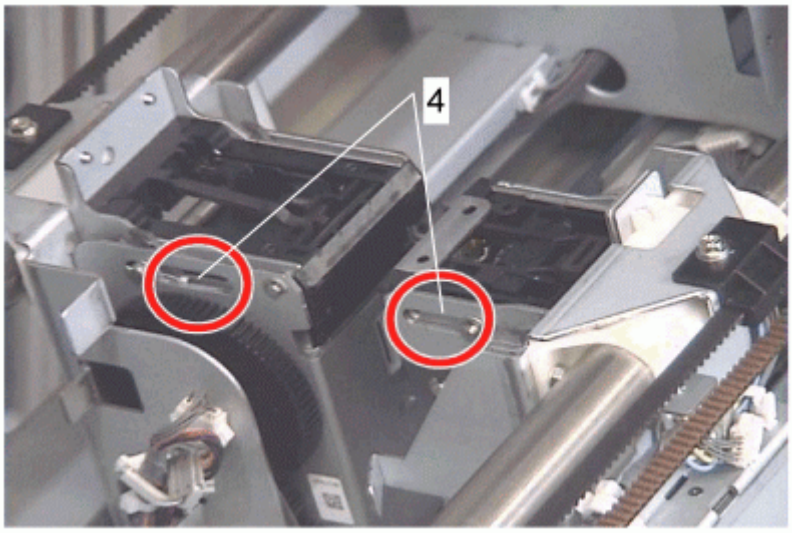


1. Mount the stapler drive unit [1].

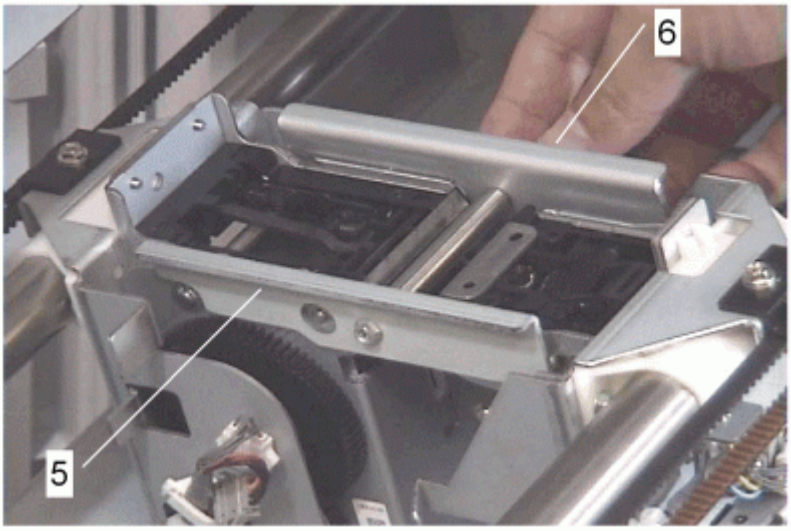
Folder



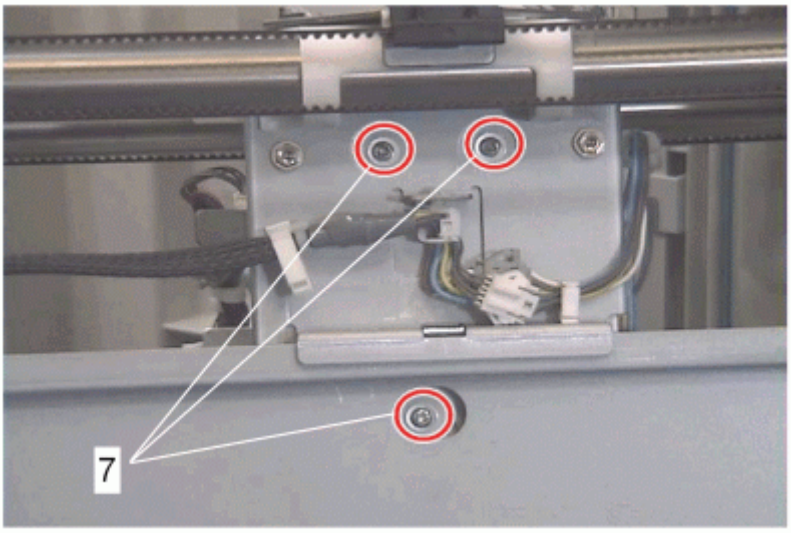
2. Mount the staple folder unit [2]. Do not tighten the screws [3] at this time.



3. Set the special tool in the long hole [4] on both units.



4. Secure the special tool [5] with the knob [6].

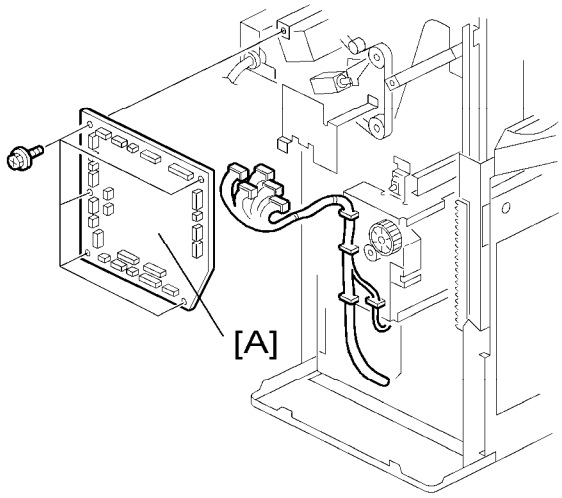


5. Tighten the screws [7] for the stapler folder unit.

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

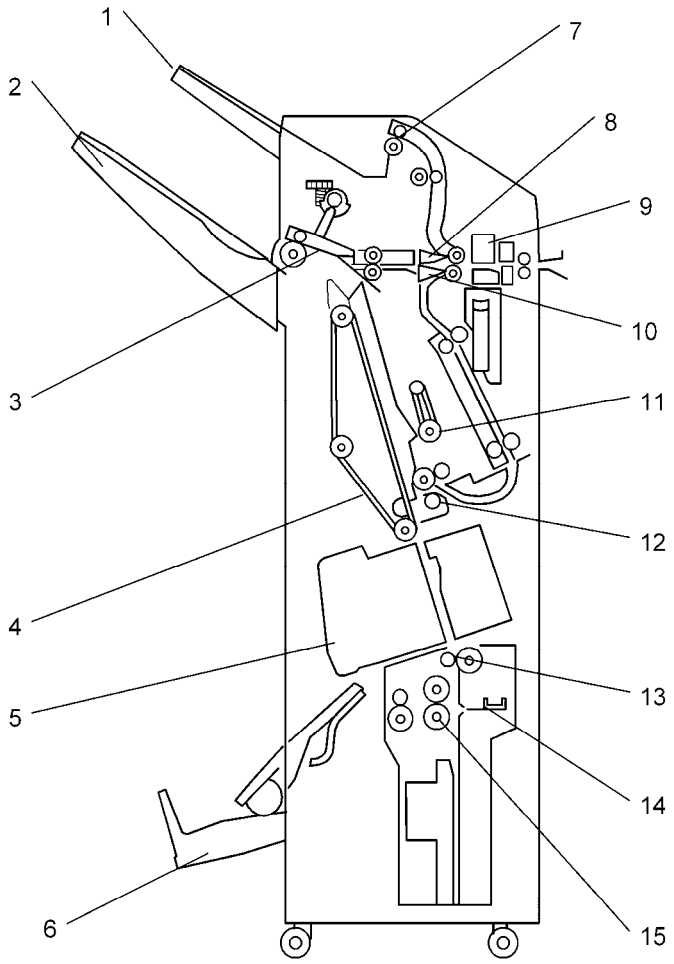
Note

- 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

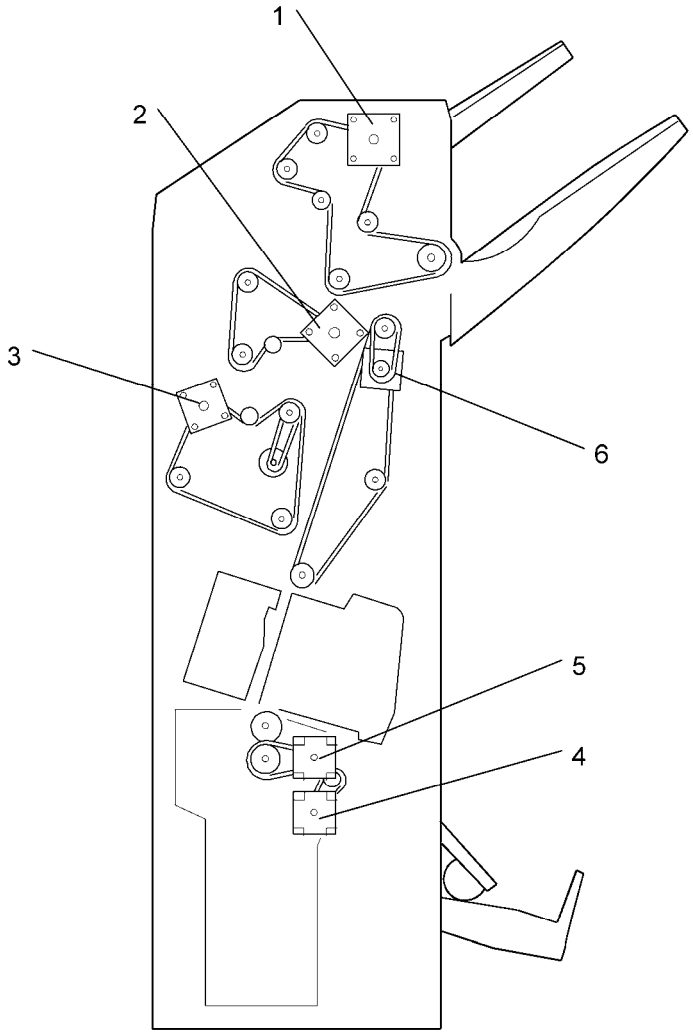
2.1 COMPONENT LAYOUT

2.1.1 MECHANICAL COMPONENT LAYOUT



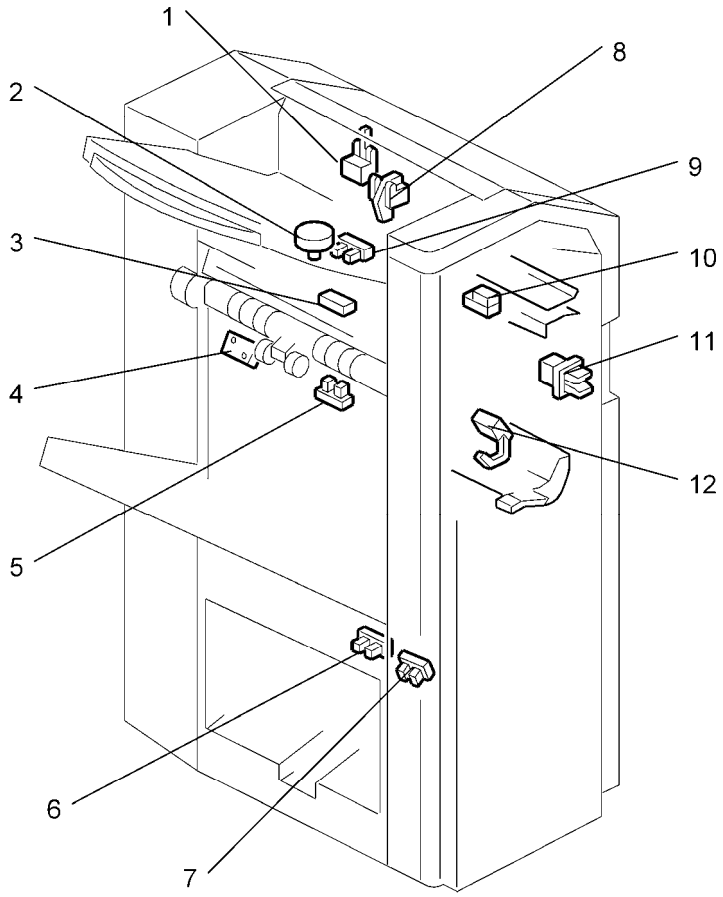
1. Proof Tray	2. Shift Tray	3. Exit Guide Plate
4. Stack Feed Out Belt	5. Staple Unit	6. Booklet Tray
7. Proof Tray Exit Roller	8. Proof Tray Junction Gate	9. Punch Unit
10. Staple Tray Junction Gate	11. Positioning Roller	12. 1st Clamp Roller
13. 2nd Clamp Roller	14. Folder Plate	15. Folder Roller

Drive Layout

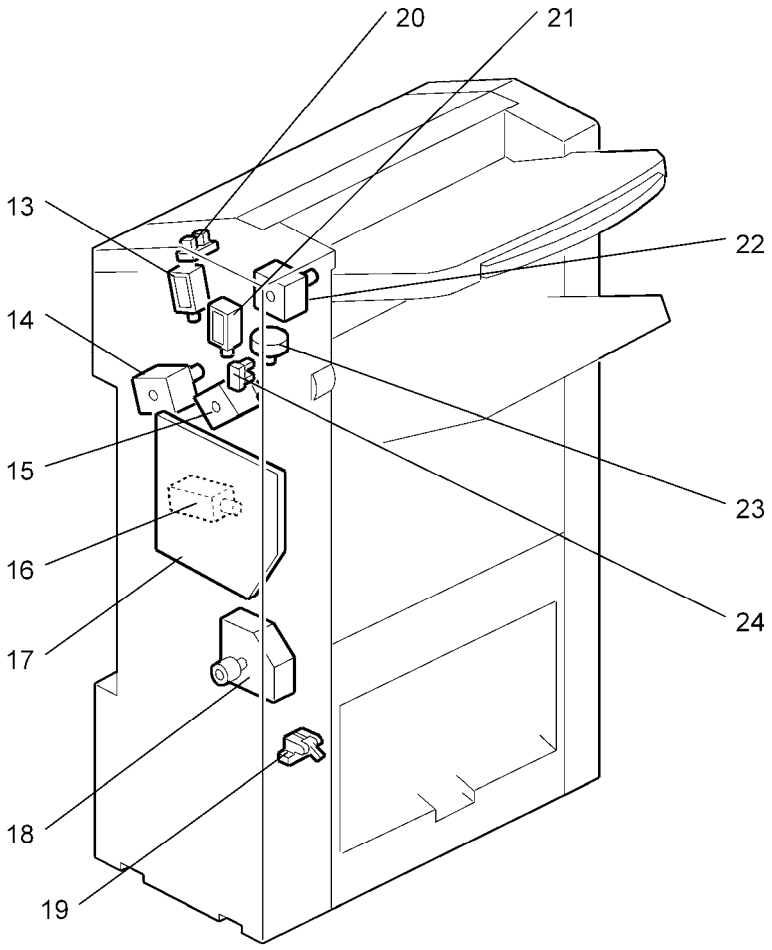


1. Upper Transport Motor
2. Entrance Motor
3. Lower Transport Motor
4. Fold Plate Motor
5. Fold Roller Motor
6. Stack Feed-out Motor

2.1.2 ELECTRICAL COMPONENT LAYOUT

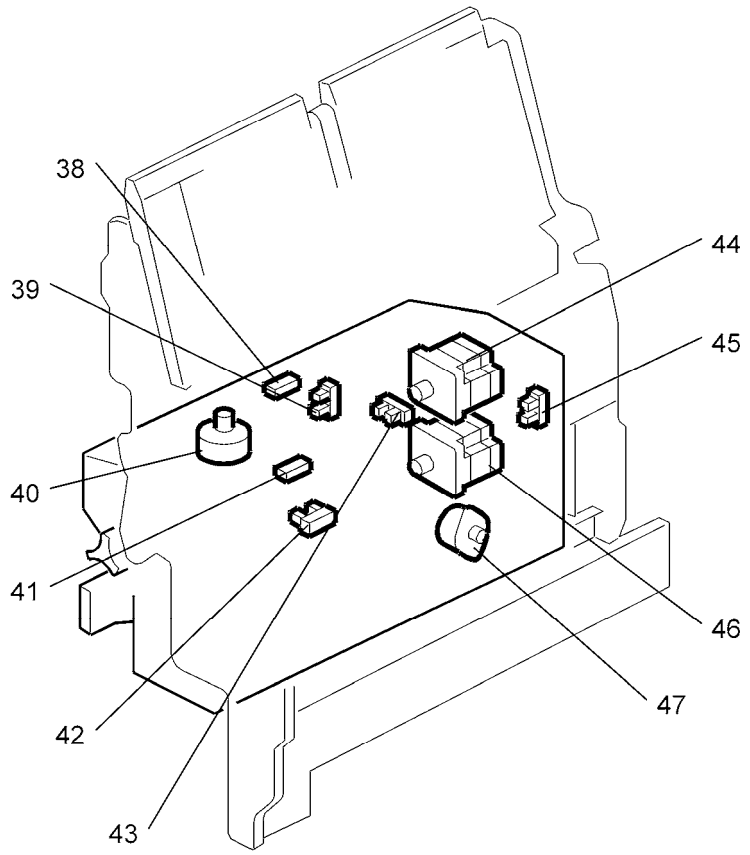


1. Proof Tray Exit Sensor
2. Exit Guide Plate Motor
3. Shift Tray Exit Sensor
4. Upper Limit Switch
5. Shift Tray Position Sensor
6. Rear Booklet Tray Full Sensor
7. Front Booklet Tray Full Sensor
8. Proof Tray Full Sensor
9. Exit Guide Plate HP Sensor
10. Entrance Sensor
11. Front Door Safety Switch
12. Staple Tray Exit Sensor

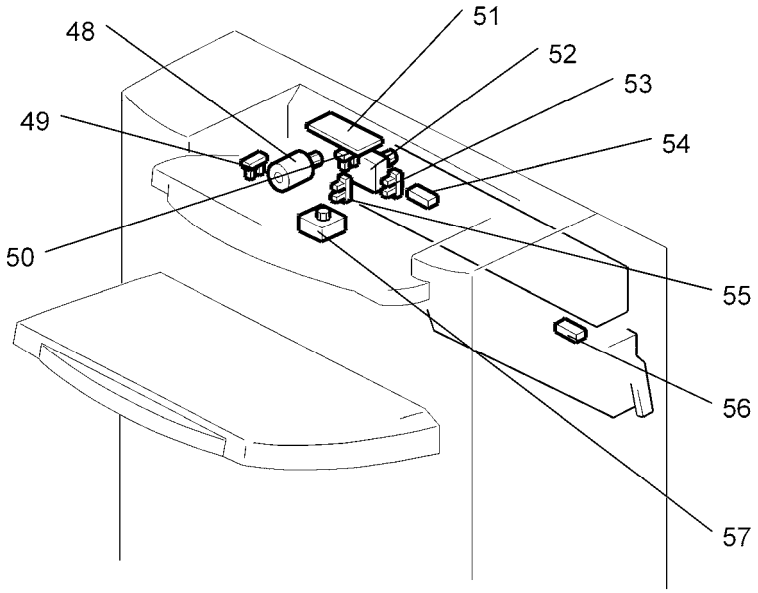


13. Proof Tray Gate Solenoid
14. Lower Transport Motor
15. Entrance Motor
16. Positioning Roller Solenoid
17. Main Board
18. Shift Tray Motor
19. Lower Limit Sensor
20. Upper Cover Sensor
21. Staple Tray Gate Solenoid
22. Upper Transport Motor
23. Shift Motor
24. Shift Motor HP Sensor

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

2.2 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	24	Detects when the side-to-side motion of the shift roller is at home

Item	No.	Purpose
HP Sensor		position
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	49	Controls the timing for activating the punches, to punch holes in the

Electrical Component Descriptions

Item	No.	Purpose
Encoder Sensor		paper at the correct position.
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 Clamp Roller Motor	33	Rotates the upper clamp roller.
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	47	Raises the bottom fence and stapled stack to the correct fold position for the paper size.

Electrical Component Descriptions

Item	No.	Purpose
Motor		
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.
Front Door Safety Switch	11	Cuts dc power when the front door is opened.

Others

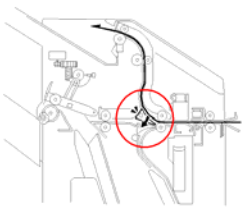
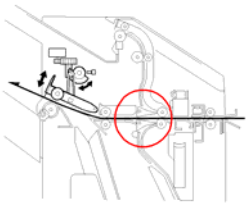
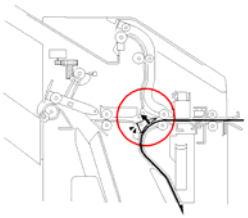
Item	No.	Purpose
Staple Driver Unit	31	Pushes the staples into the paper.
Staple Folder Unit	32	Folds the ends of the staples after stapling

2.3 JUNCTION GATES

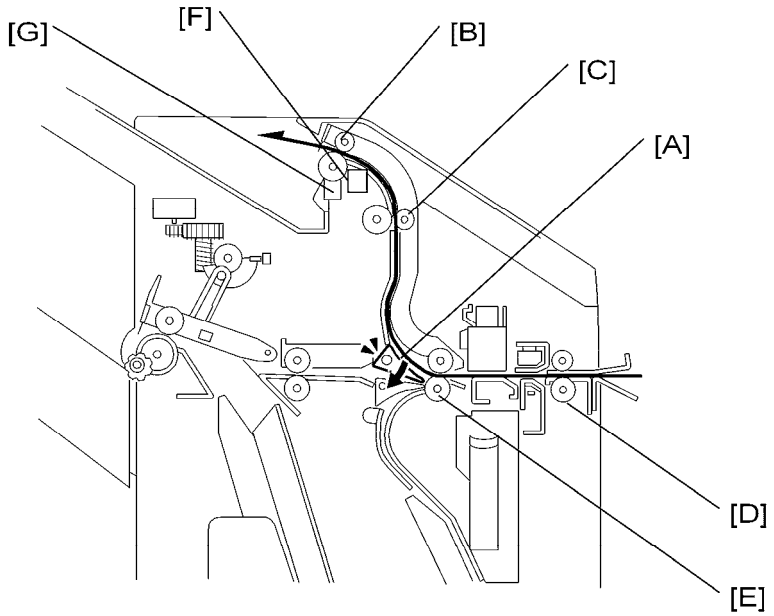
Two junction gates control the path of paper.

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

2.4 PROOF TRAY



Proof Tray Junction Gate Control [A]: Proof Tray Gate Solenoid

Roller Drive:

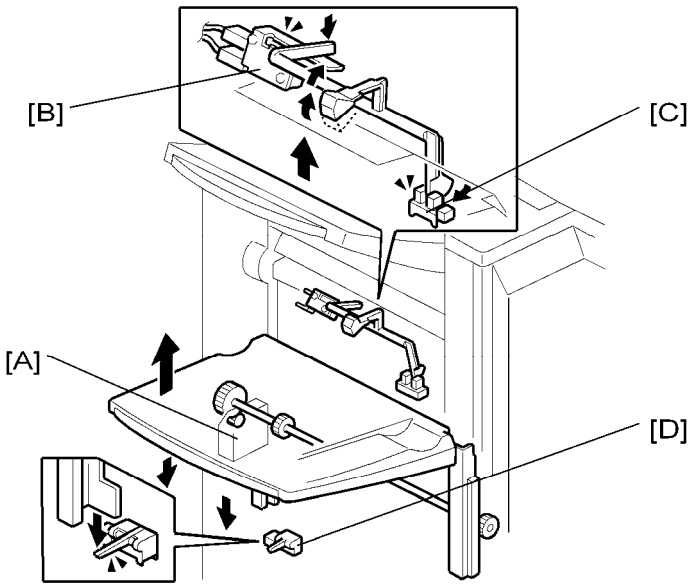
- Proof Tray Exit Roller [B], Proof Tray Transport Roller [C]: Controlled by the Upper Transport Motor
- Entrance Roller [D], Transport Roller [E]: Controlled by the Entrance Motor

Jam Detection: Proof Tray Exit Sensor [F]

Tray Full Detection: Proof Tray Full Sensor [G]

2.5 SHIFT TRAY

2.5.1 UP/DOWN MOTION



The shift tray motor [A] moves the tray up and down.

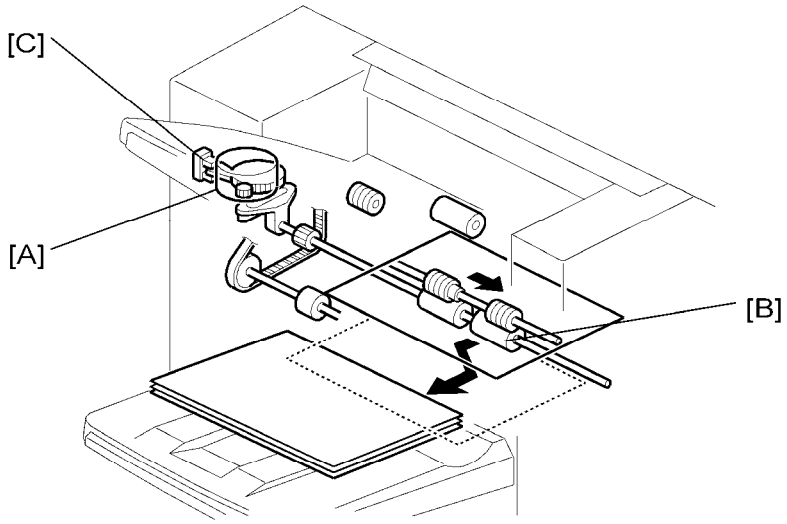
The upper limit switch [B] detects when the tray moves up too far, and cuts power to the shift tray motor.

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.

2.5.2 SIDE-TO-SIDE MOTION



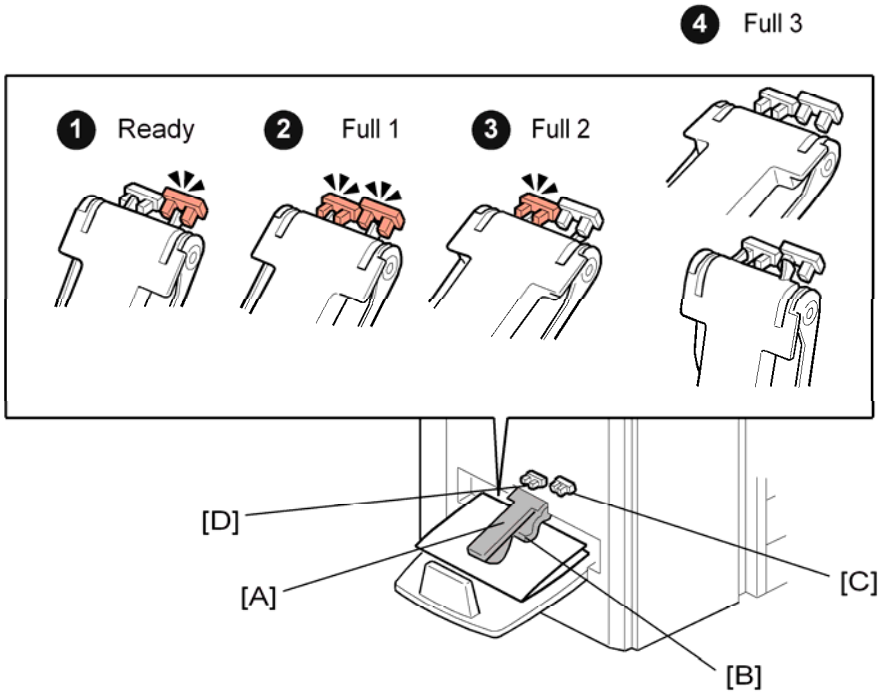
The shift motor [A] moves the shift roller [B] from side to side.

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.

2.6 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)

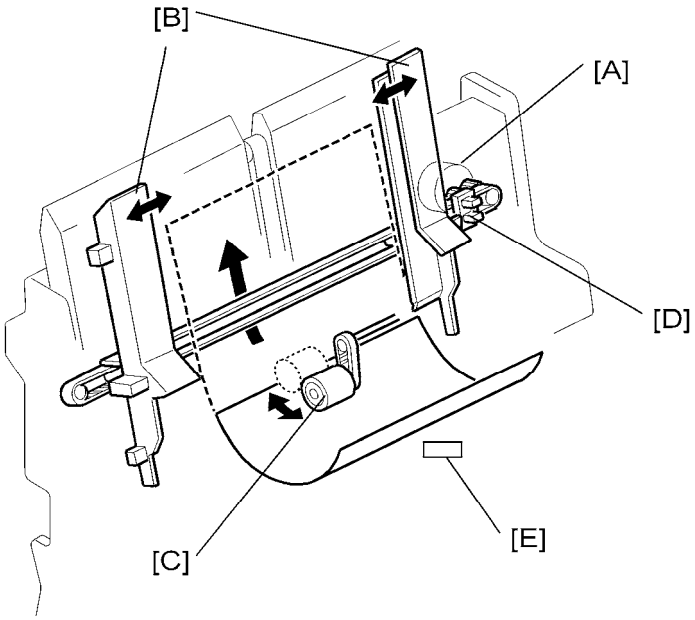
Sheet	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Full 1	**15 Cnt**	-	-	-	-	-	-	-	-	-
Full 2	-	8 Cnt	16 Cnt	19 Cnt	**5 Cnt**	2 Cnt	2 Cnt	2 Cnt	3 Cnt	4 Cnt
Full 3	-	-	-	-	-	-	-	-	-	-

- 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.

2.7 JOGGER UNIT



The jogger is used in corner-staple mode and in booklet mode.

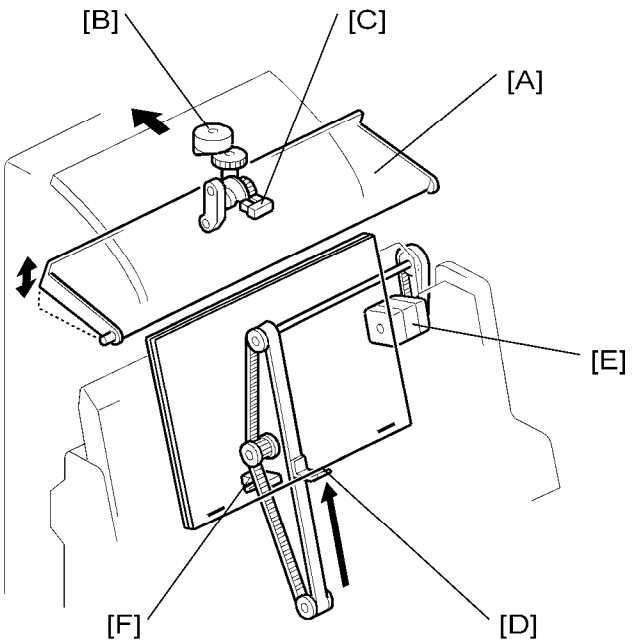
For each sheet of paper when it arrives in the staple tray, the following is done.

- 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.

2.8 EXIT GUIDE PLATE, PAPER FEED OUT



The exit guide plate [A] opens when a stapled stack is fed out.

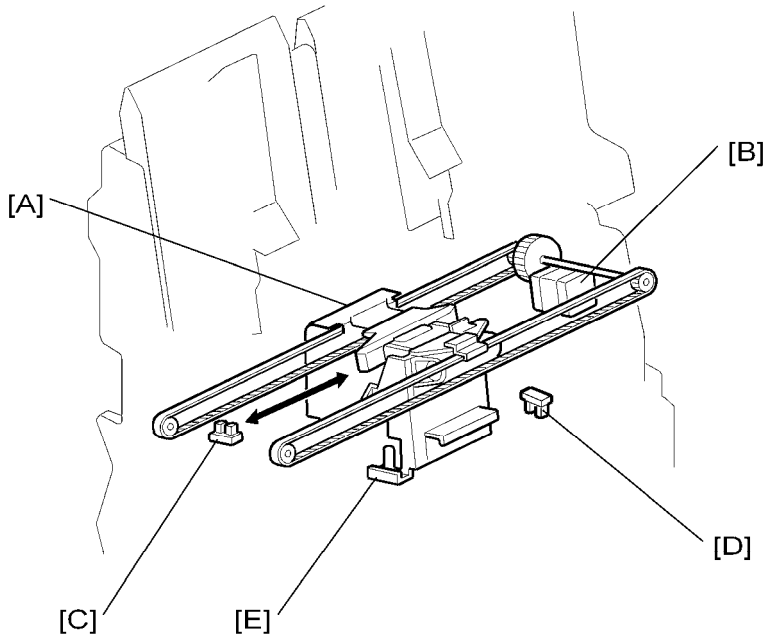
Also it opens every time a sheet is fed to the staple tray, to prevent the paper running into the exit roller during stacking.

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.

2.9 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.

2.10 STACKING FOR BOOKLET STAPLING

2.10.1 OVERVIEW

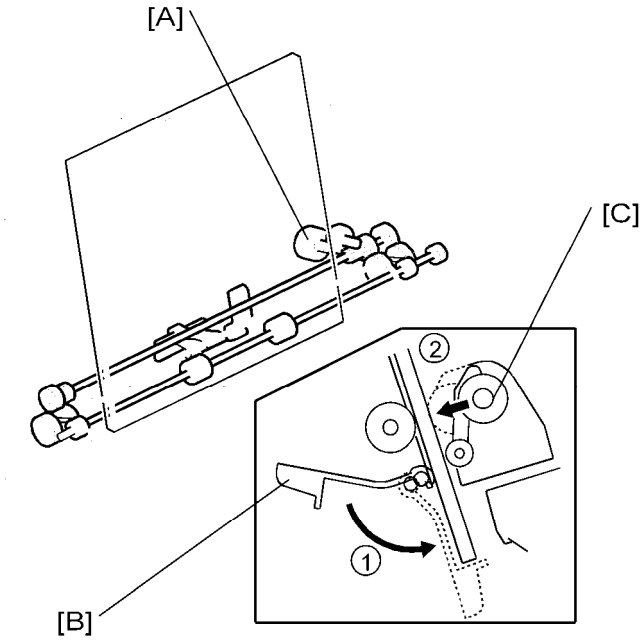
There are two stoppers near the stapler unit. These stoppers hold the stack of paper in the correct position during stacking.

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.

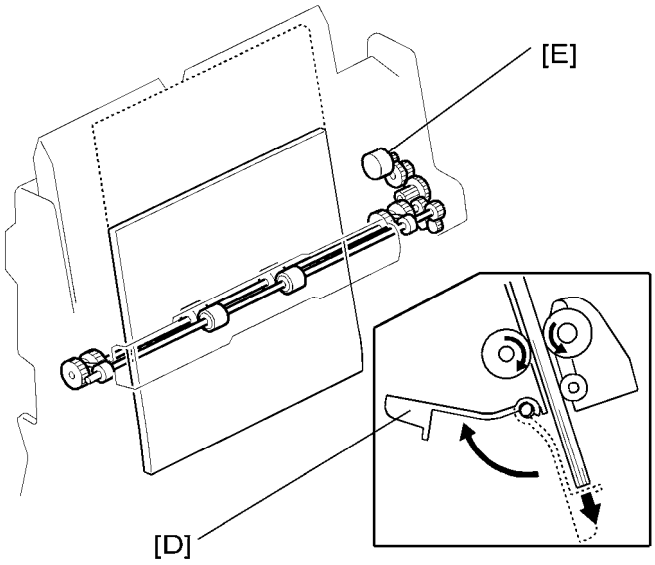
Note

- 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.

2.10.2 8.5 X 14 (LEGAL) OR SHORTER

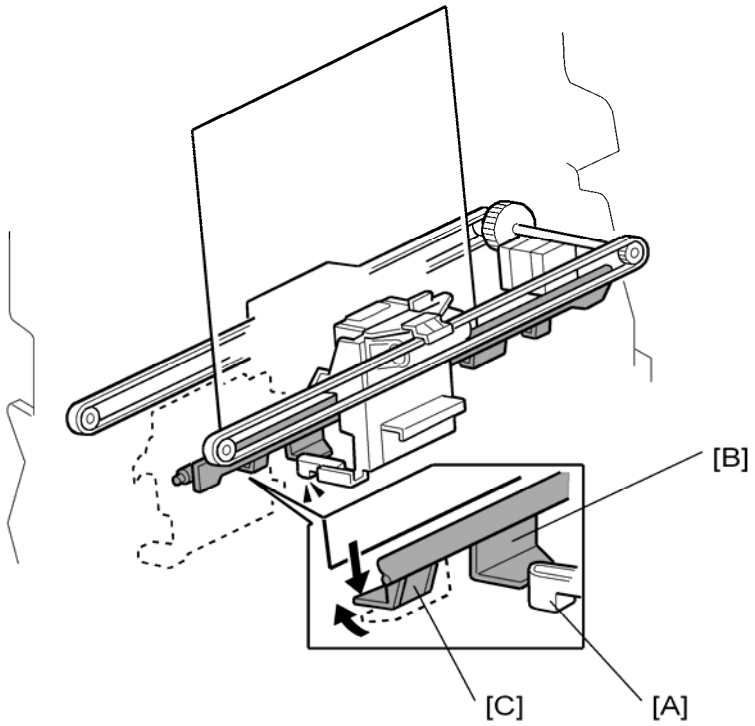


At the start of the set, the upper retraction motor [A] turns on, and stopper S [B] moves down into position to catch the paper ①. The upper retraction motor also moves the upper clamp roller [C] into contact with the stack ②.



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.

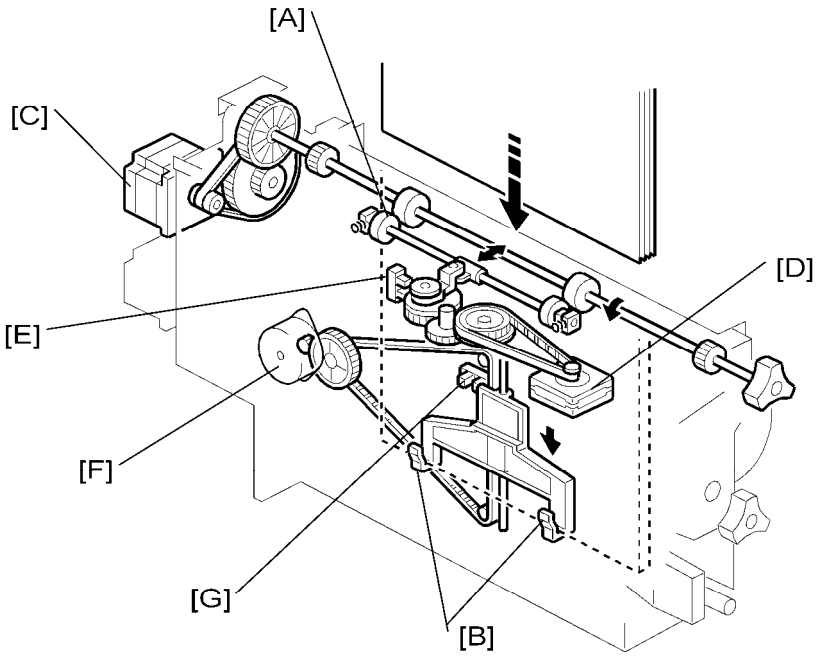
2.10.3 LONGER THAN 8.5 X 14 INCHES



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.

2.11 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.

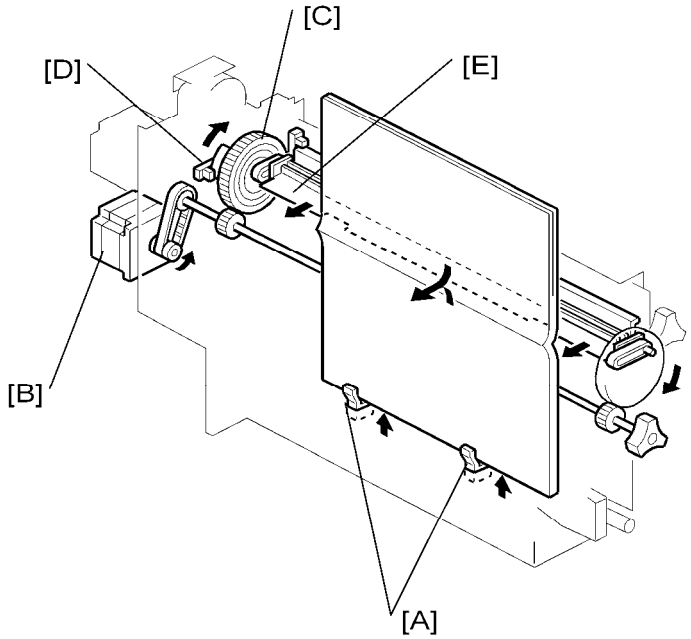
The bottom fence lift motor [F] moves the bottom fence up and down. The bottom fence HP sensor [G] detects when the bottom fence is at home position.

2.12 FOLDER

2.12.1 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.

2.12.2 FOLD PLATE



[A]: Bottom Fence Stack Stoppers. Catches the stack after it is released by the clamp rollers.

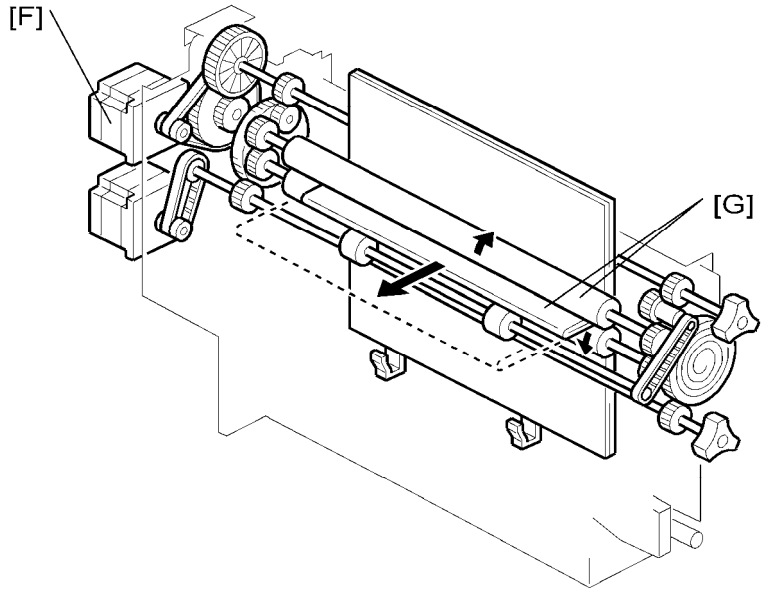
[B]: Fold Plate Motor. Drives the timing belt and gears that move the fold plate.

[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.

2.12.3 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

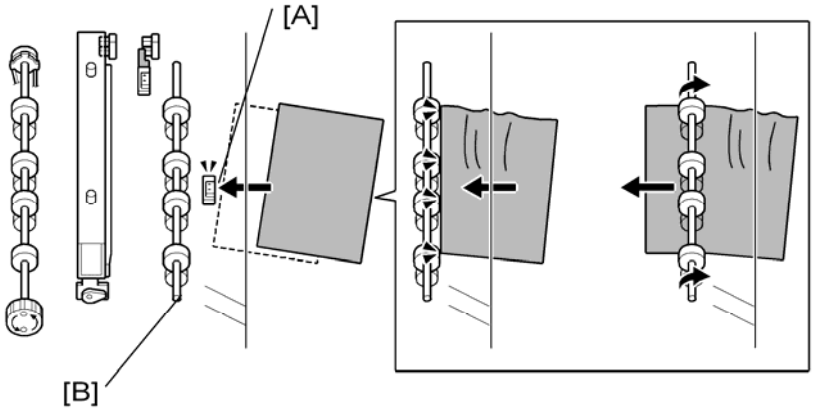
- This cycle can be repeated by changing the setting of SP6136.

[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.

2.13 PUNCH UNIT

2.13.1 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.

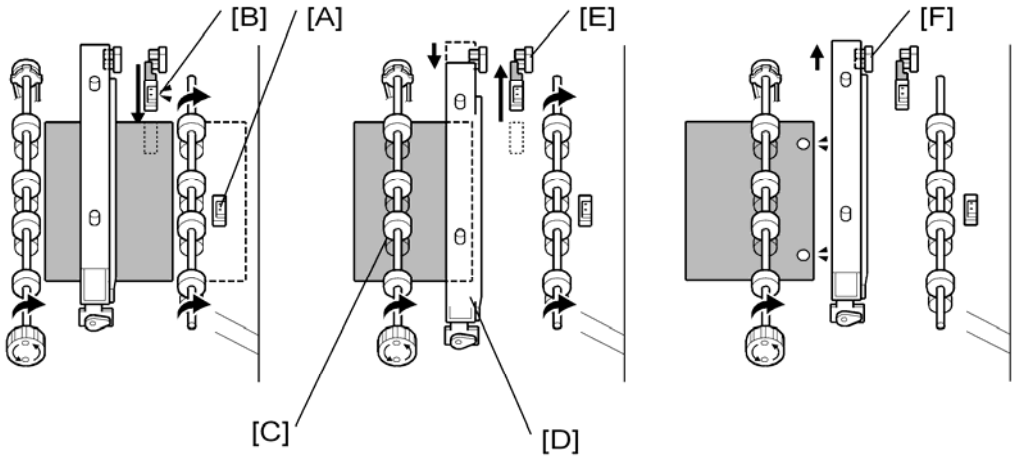
Paper feeds out of the copier. The finisher entrance sensor [A] detects the leading edge of the sheet.

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].

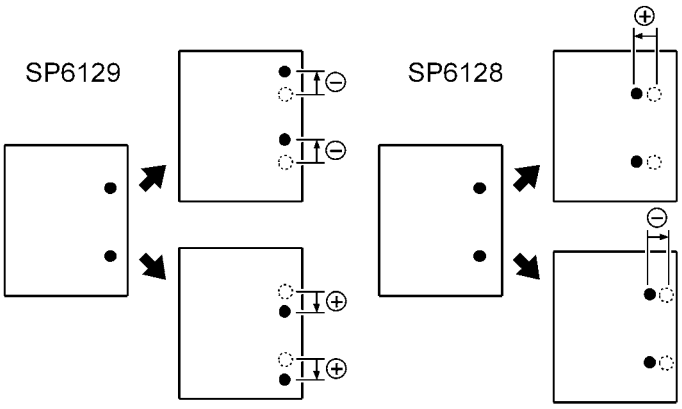
❷

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].

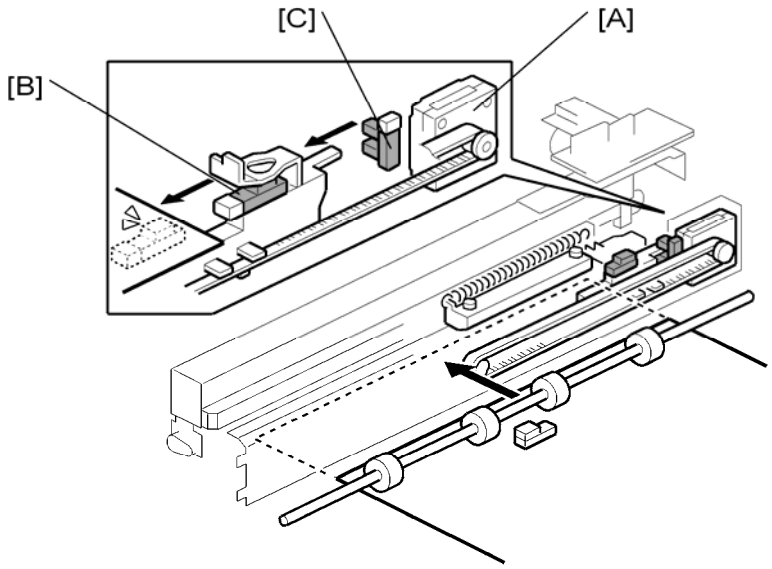


These SP codes adjust the punch hole alignment:

- 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".

2.13.2 PAPER POSITION DETECTION

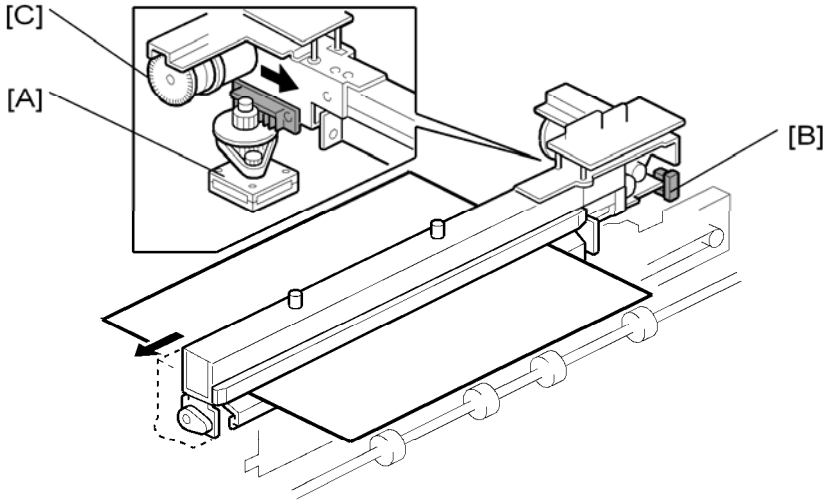


The paper position sensor slide motor [A] extends and retracts the paper position slide that holds the paper position sensor [B].

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.

2.13.3 PUNCH UNIT MOVEMENT

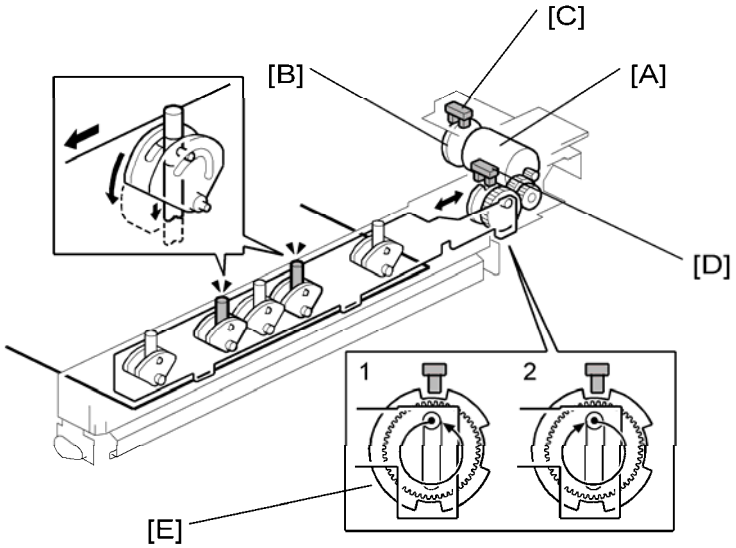


The punch movement motor [A] extends and retracts the punch unit to put it at the correct position for punching.

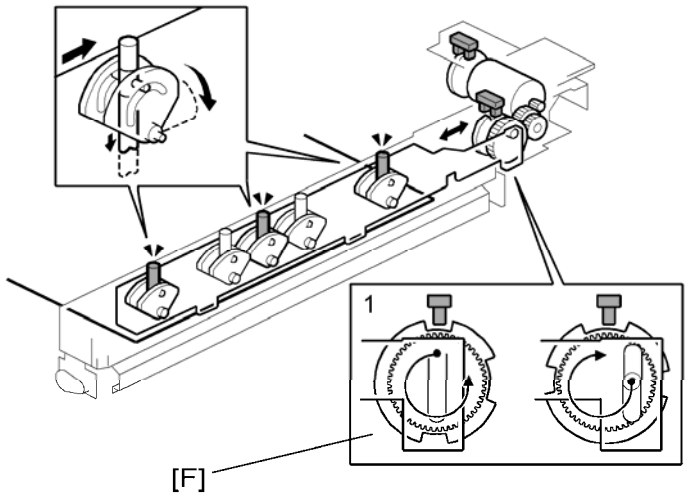
The punch movement HP sensor [B] detects the position when it retracts, switches off the punch movement motor, and stops the punch unit at its home position.

The punch drive motor [C] fires the punches that punch holes in the paper below.

2.13.4 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].

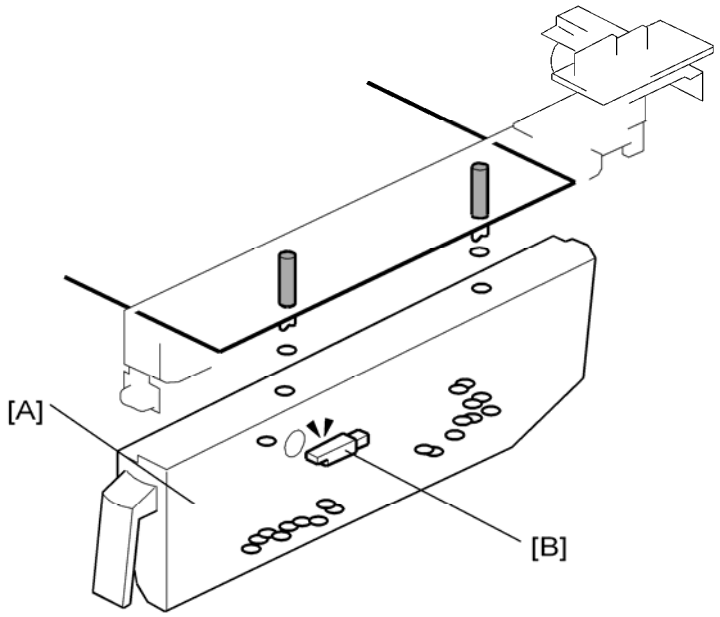
When the punch unit is at the punching position, the punch motor turns until the encoder detects the starting position for 2-hole or 3-hole punching.

- 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.

2.13.5 PUNCH HOPPER MECHANISM



The punchouts fall from the punch unit into the punch hopper [A].

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.

SR3050(D584)/SR3070(D585)

500-SHEET FINISHER

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

500-SHEET FINISHER D372/D585

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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.

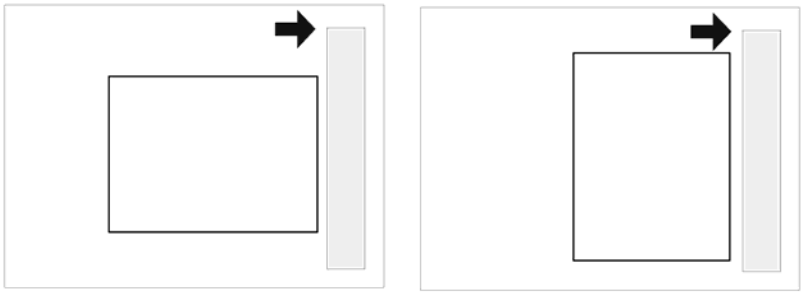
⚠CAUTION

- 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



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.

Trademarks

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- PowerPC® is a registered trademark of International Business Machines Corporation.
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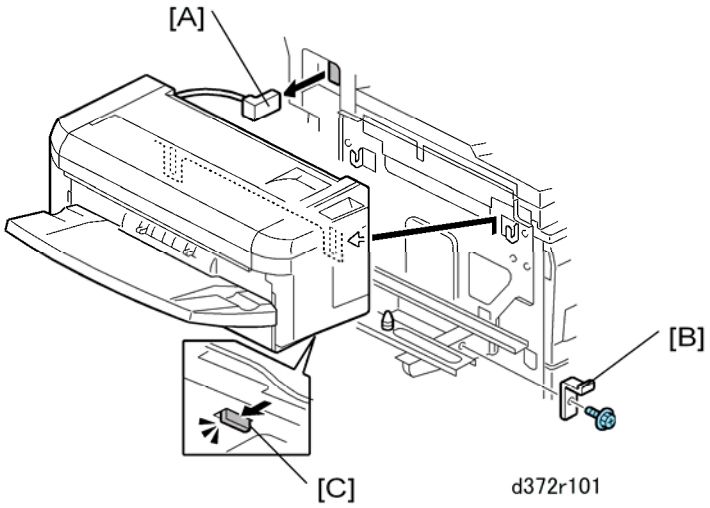
1. REPLACEMENT AND ADJUSTMENT

1.1 COMMON PROCEDURES

1.1.1 DISCONNECTING, REMOVING THE FINISHER

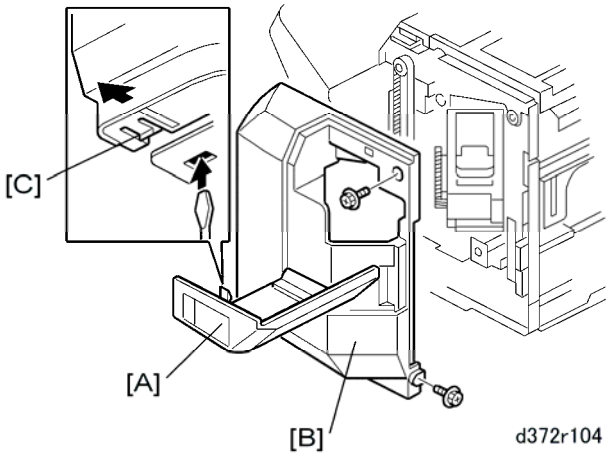
Important

- 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

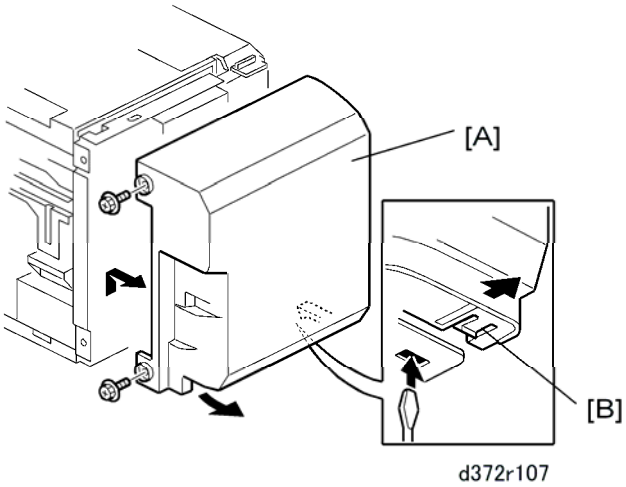


Preparation

- 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.

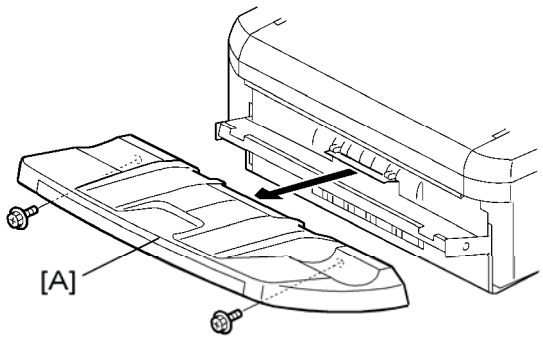
1. Remove the rear cover [A] (🔩 x2)
   Release tab [B] after removing the screws, then raise the bottom of the rear cover to remove it.

1.1.4 TRANSPORT UNIT

Preparation

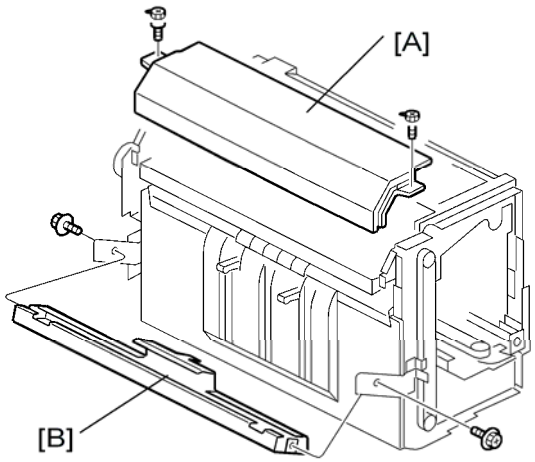
Remove:

- Front cover
- Rear cover



d372d102

1. Remove the paper output tray [A] (x2).



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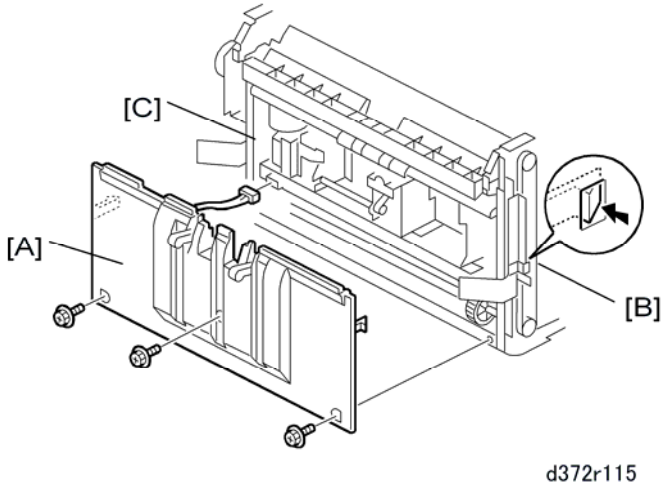
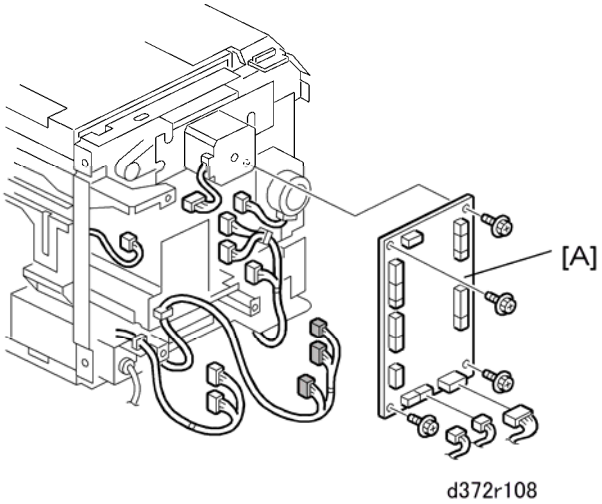
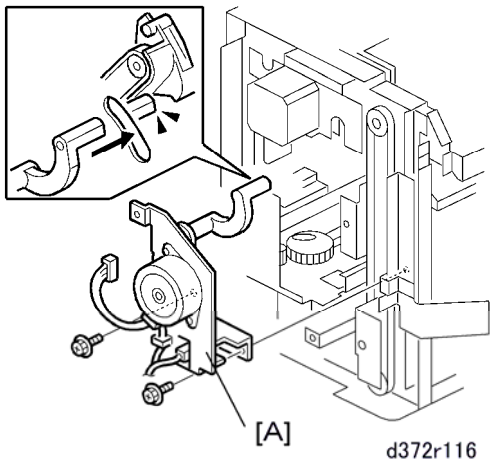
2. Remove the left top cover [A] (x2).
3. Remove the tray support [B] (x2).



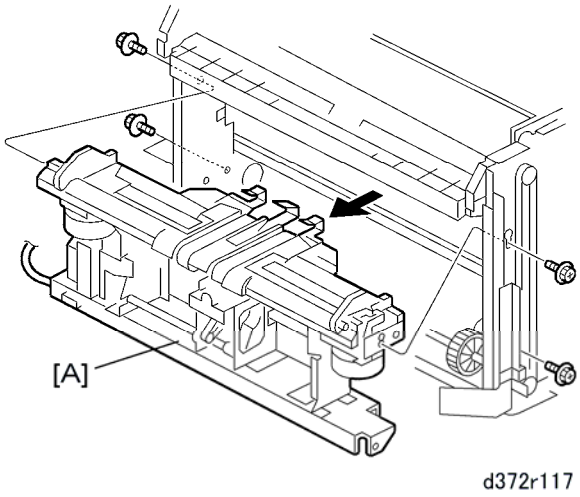
4. Remove the screws of the end fence [A] (x3).
5. Release tabs [B] and [C].
6. Remove the end fence.



7. Remove the main board [A] (x 14, x4)



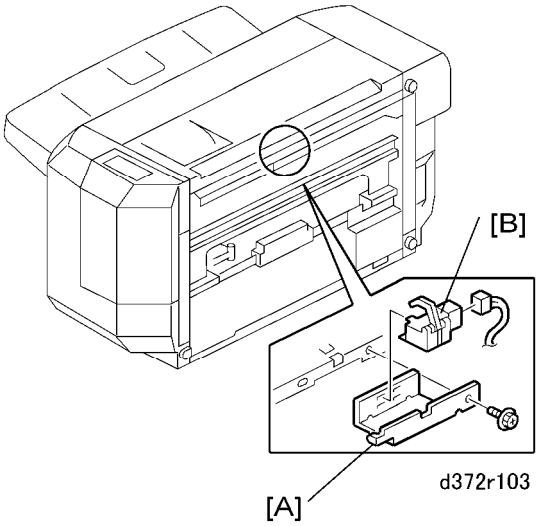
8. Remove the positioning roller arm motor bracket [A] (☞ x2).



9. Remove the transport unit [A] (☞ x3 Rear, ☞ x2 Front).

1.2 SENSORS

1.2.1 ENTRANCE SENSOR

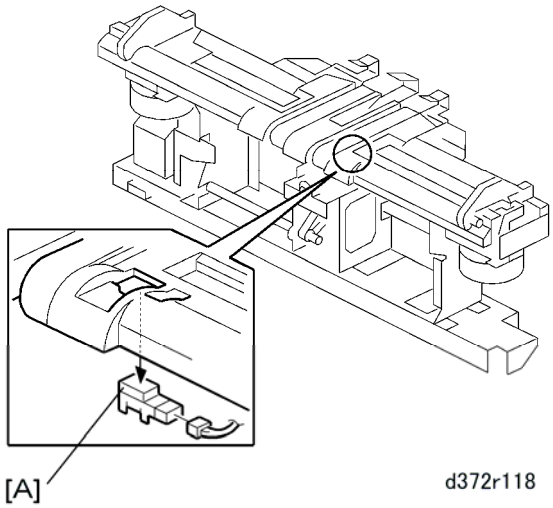


Preparation

- 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



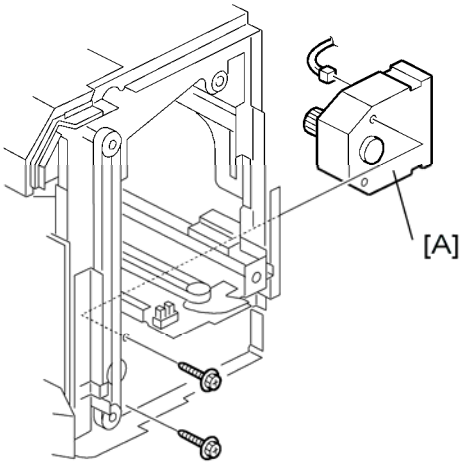
Preparation

- 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



Preparation

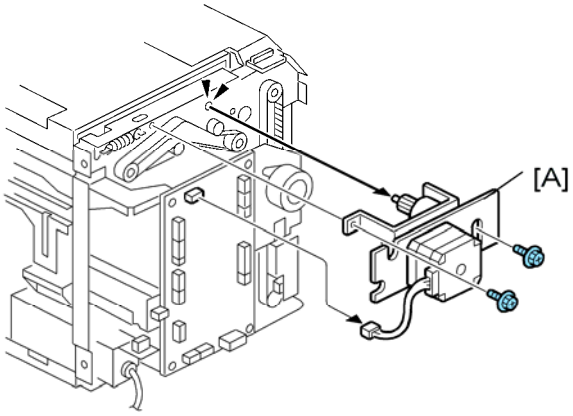
- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the front cover

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.



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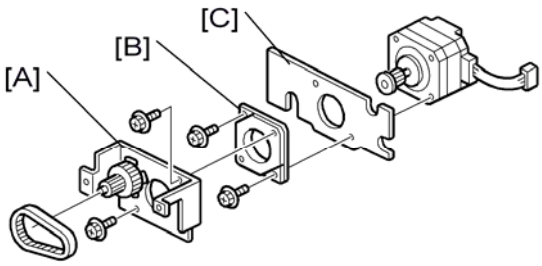
1. Remove the motor bracket [A] (x2, x1)



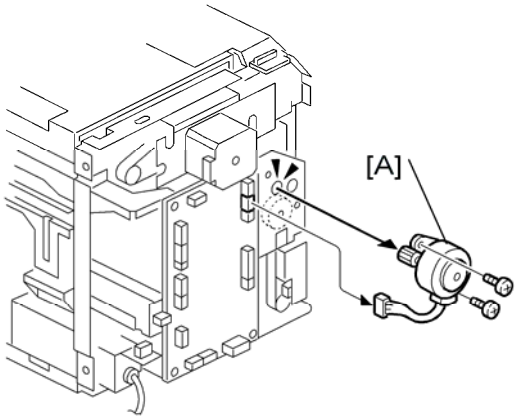
d372r111

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



Preparation

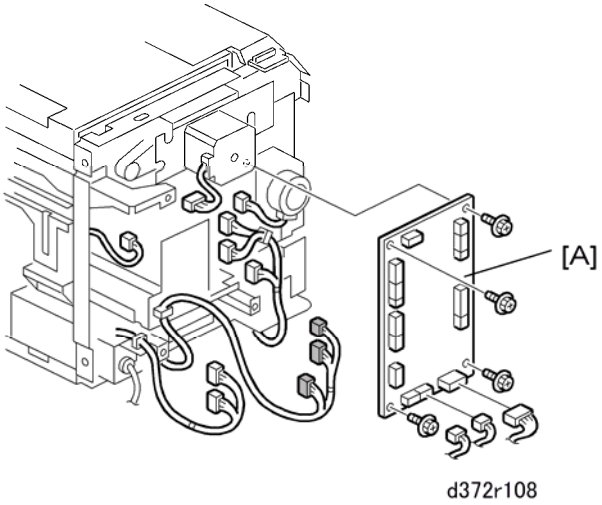
- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the rear cover.

1. Remove the positioning roller arm motor [A] (x2, x1).

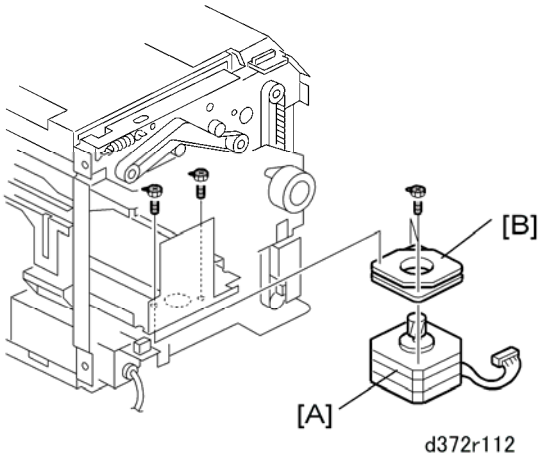
1.3.4 STAPLER MOVEMENT MOTOR

Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the rear cover.

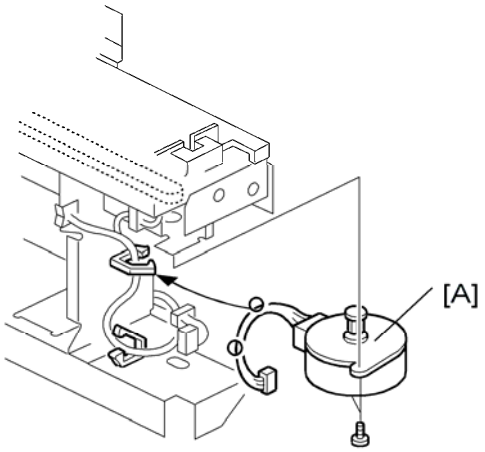


1. Remove the main board [A] (x 14, x4).



2. Remove the stapler movement motor [A] (x2, x1).
3. Remove the bracket [B] (x2).

1.3.5 FRONT FENCE MOTOR



d372r119

Preparation

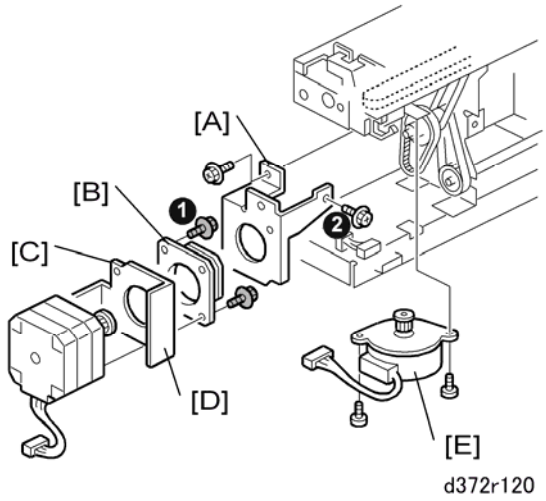
- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the transport unit

1. Remove the front fence motor [A] (x1, x2, x1).

1.3.6 FEED-OUT BELT MOTOR, REAR FENCE MOTOR

Preparation

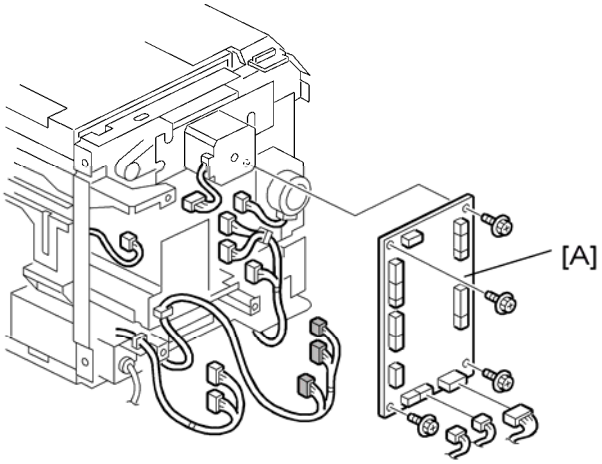
- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the transport unit



1. Remove the feed-out belt motor mount [A] ①, ② (x2).
2. Remove:
   [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

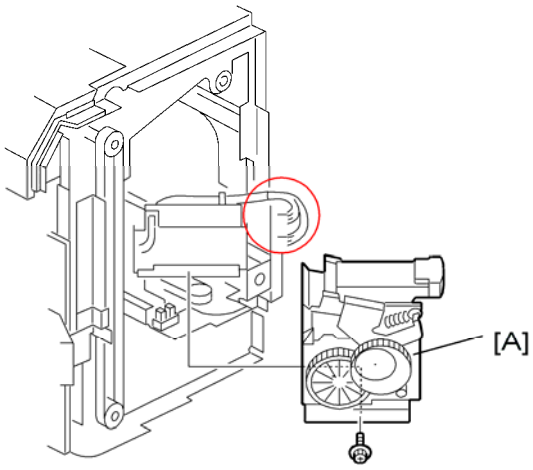
Preparation

- 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



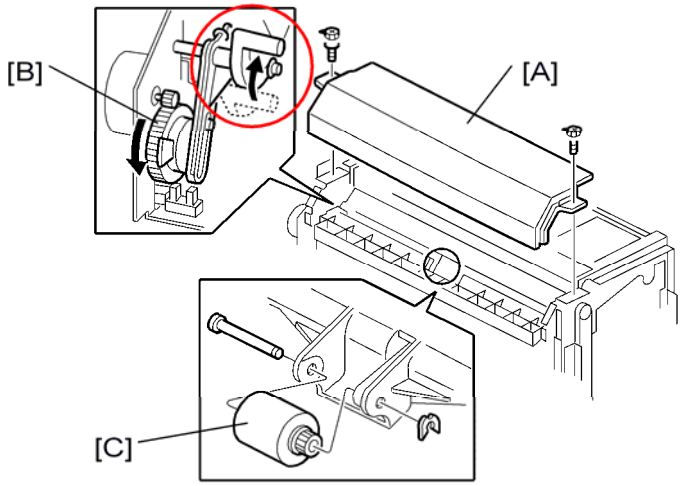
d372r105

Preparation

- Remove the front cover.

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

1.5.2 POSITIONING ROLLER



Preparation

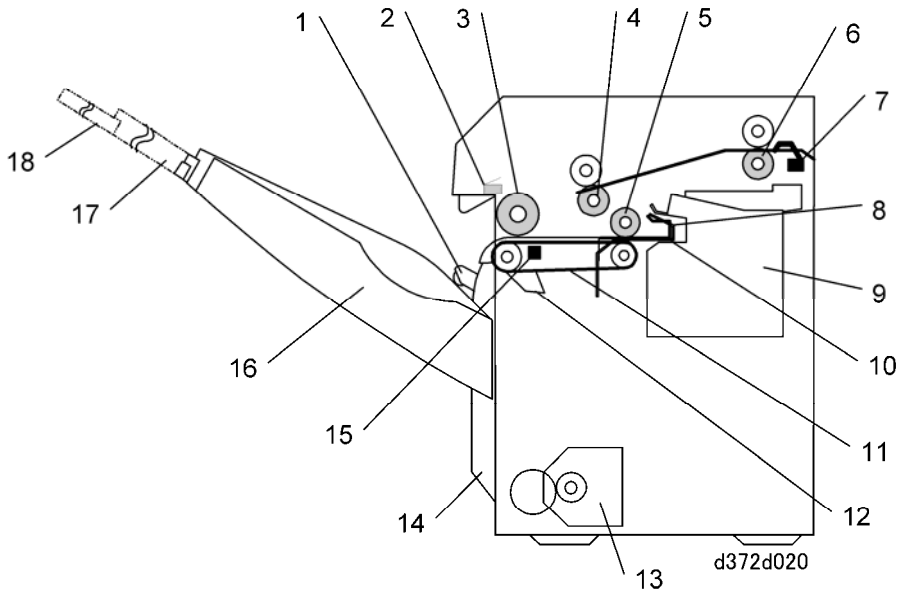
- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the front cover.
- Remove the rear cover.

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

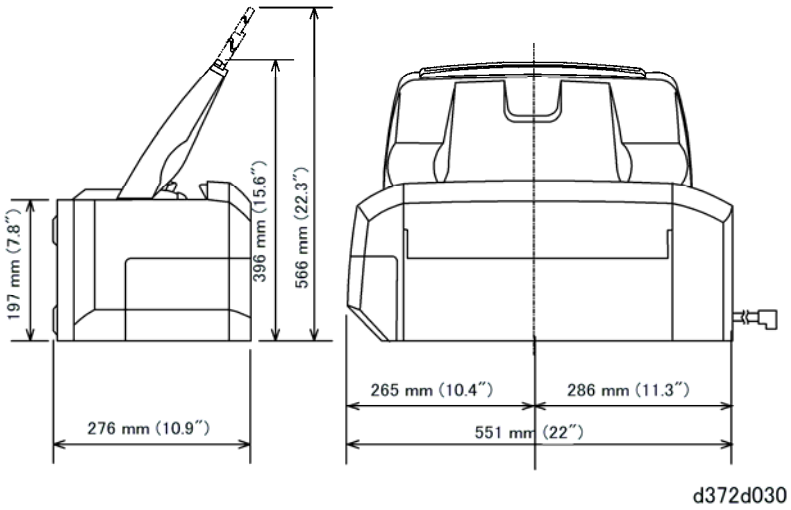
2.1 OVERVIEW

2.1.1 IMPORTANT PARTS

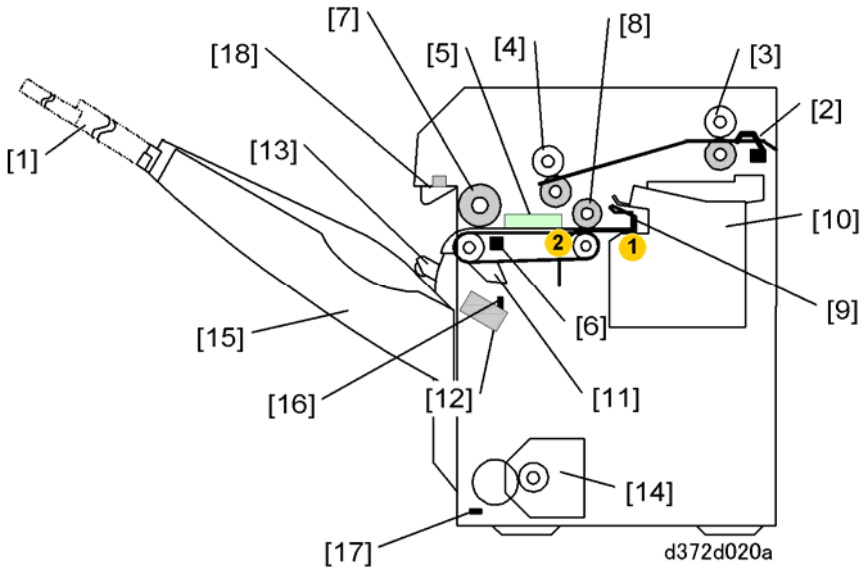


1.	Stack Edge Depressors (x2)	10.	Bottom Fences
2.	Tray Upper Limit Switch	11.	Feed-out Belt
3.	Positioning Roller	12.	Feed-out Belt Pawls (x2)
4.	Exit Roller	13.	Tray Lift Motor
5.	Return Roller	14.	End Fence
6.	Entrance Roller	15.	Paper Sensor
7.	Entrance Sensor	16.	Output Tray
8.	Mobile Fence (x1)	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].

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

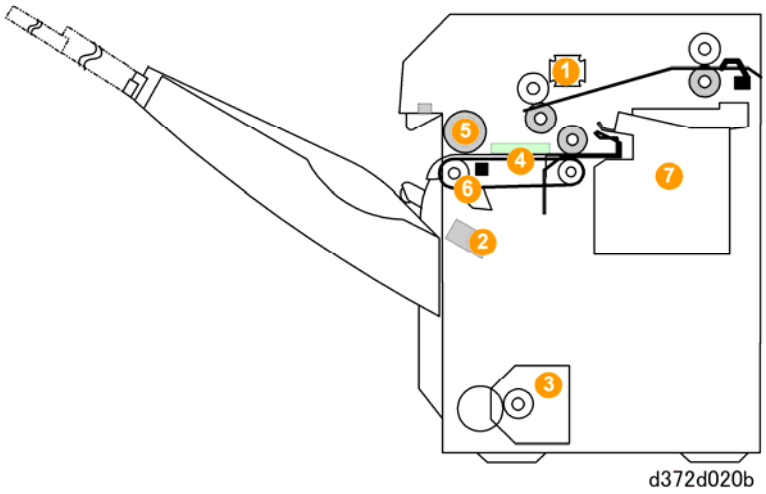
The feed-out belt motor switches on, moves the mobile fence forward and rotates the feed-out belt with the feed-out belt pawls [11]. The mobile fence pushes the stack from ① to ②, then the pawls come around and push the stack out of the finisher. Before the next stack exits, the edge depressor solenoid [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.

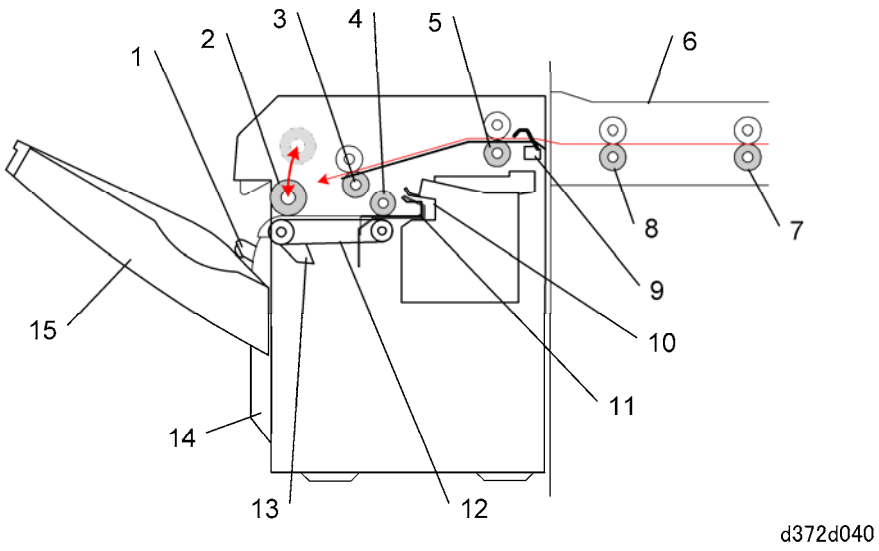
Note

- 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 sure that the stapler is at its home position.

2.2 PAPER TRANSPORT

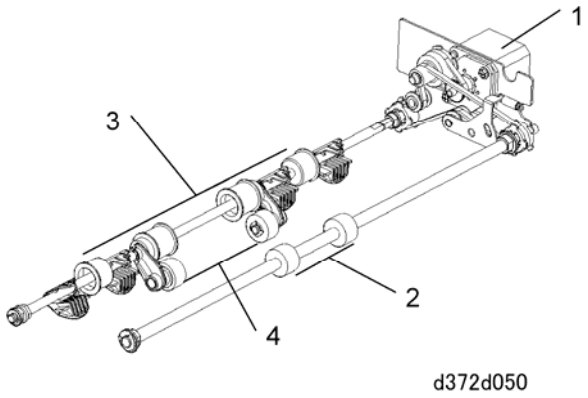
2.2.1 OVERVIEW



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

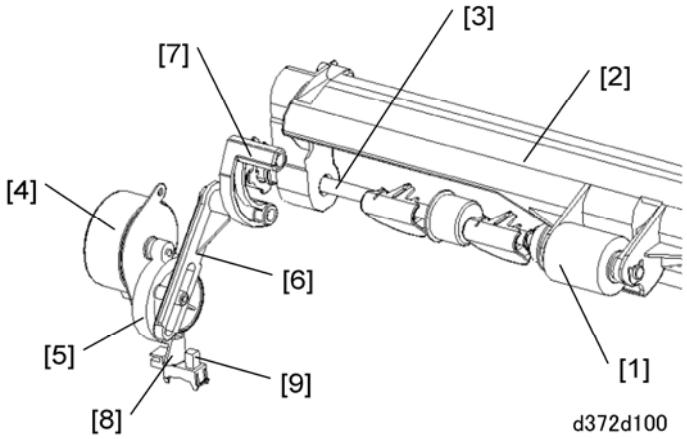


1.	Transport Motor
2.	Entrance Rollers
3.	Exit Rollers (Teflon)
4.	Return Rollers (Sponge)

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.

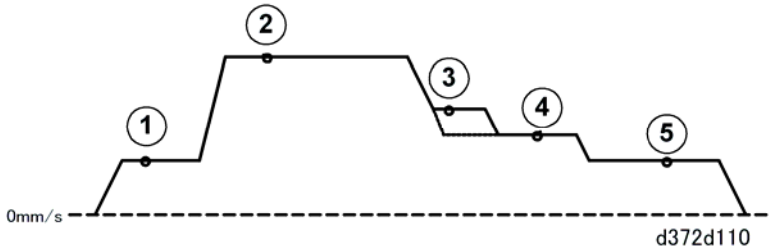
When the positioning roller is raised:

- 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.

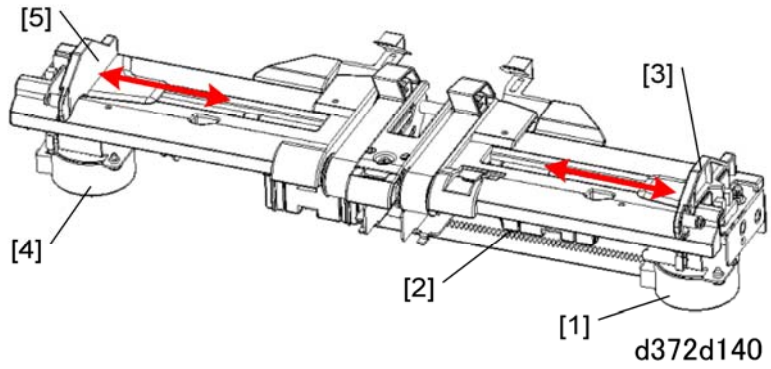
This initialization sequence is executed:

- 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

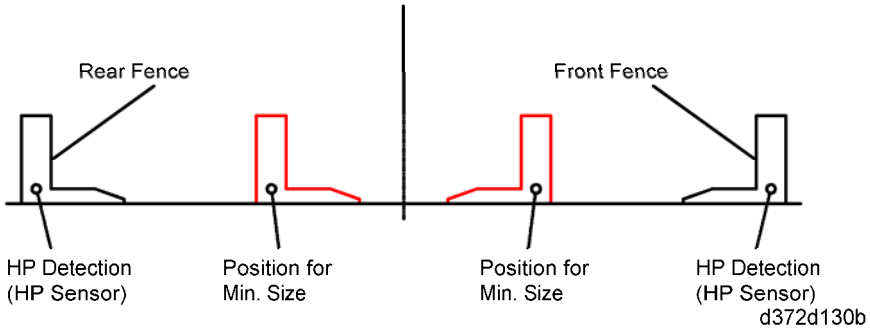
2.3 JOGGING (PAPER ALIGNMENT)

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.

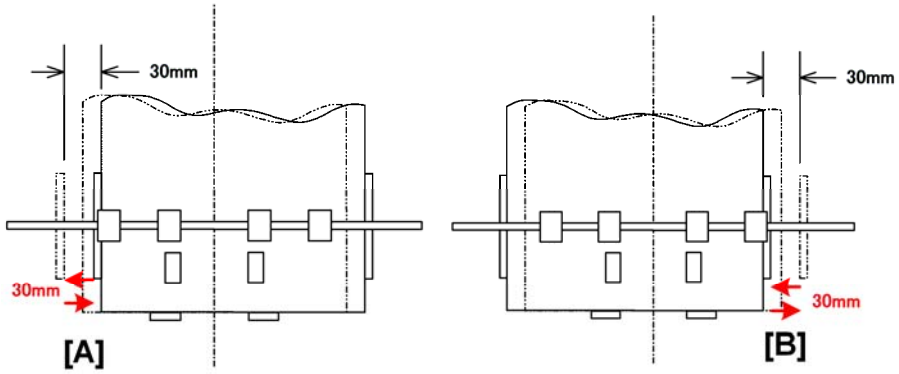
3. The side fences return to the start position after the next sheet has feed 50 mm past the entrance sensor.
4. Steps 2 and 3 are repeated for the next sheet.
5. In stapling mode: After the last page of the document has fed and been aligned on top of the stack by the rear and front fences, the side 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



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The diagram above illustrates the operation of the side fences in shift mode with no stapling.

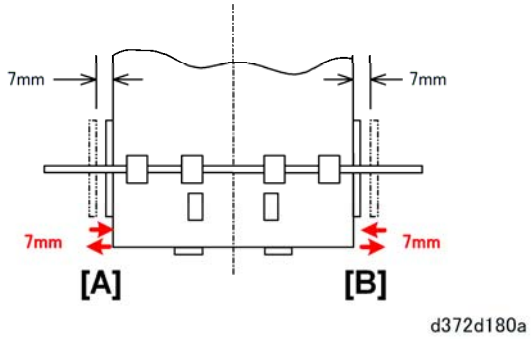
- Every sheet of the first set is pushed by the front fence [A] against the rear fence, which does not move.
- Every sheet of the second set is pushed by the rear fence [B] against the front fence, which does not move.
- The sequence alternates for every set in the print job. At the end of the job, every 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:

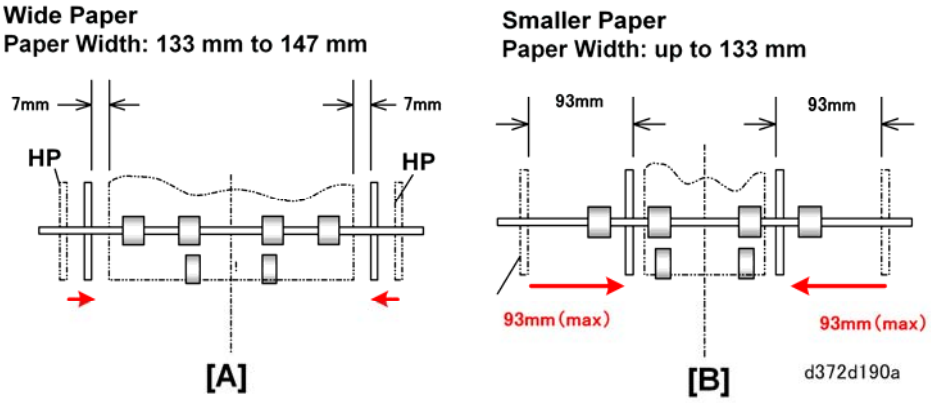
- Standard paper sizes (other than "wide" or "small" paper
- Wide paper sizes (133 to 147 mm)
- Small paper sizes (up to 133 mm)

Standard Paper Sizes



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.

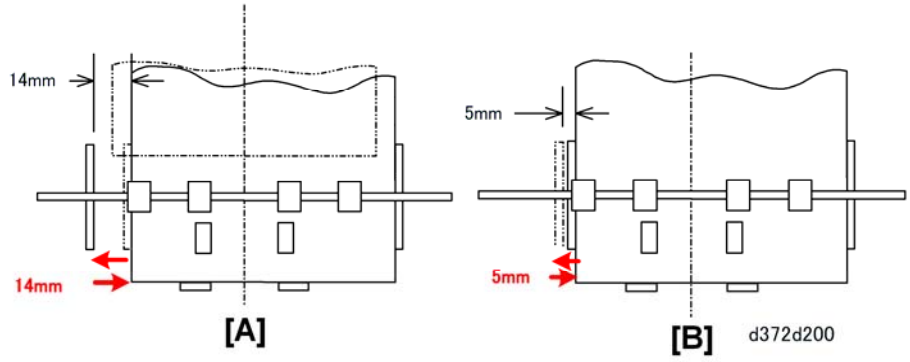
Staple Mode

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

Jogging (Paper Alignment)

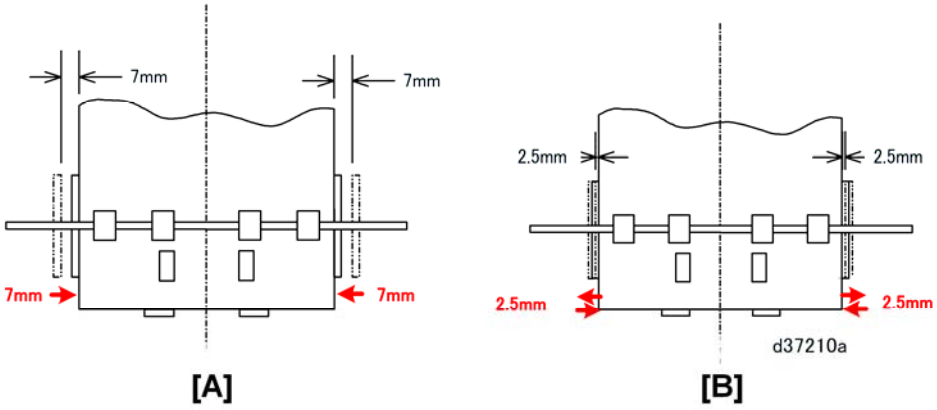
Staple Mode: 1 Staple



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



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.

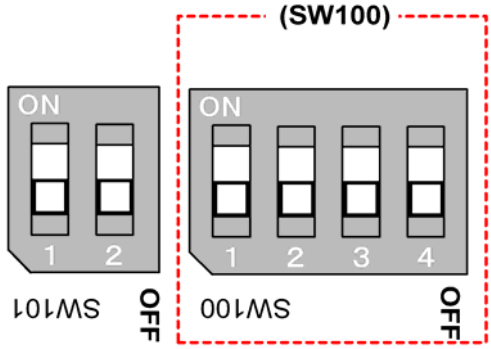
Jogging (Paper Alignment)

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
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

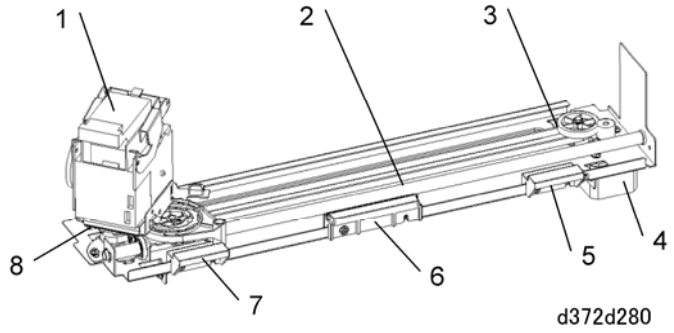
Jogging (Paper Alignment)

1	2	3	4	Adjustment (mm)
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



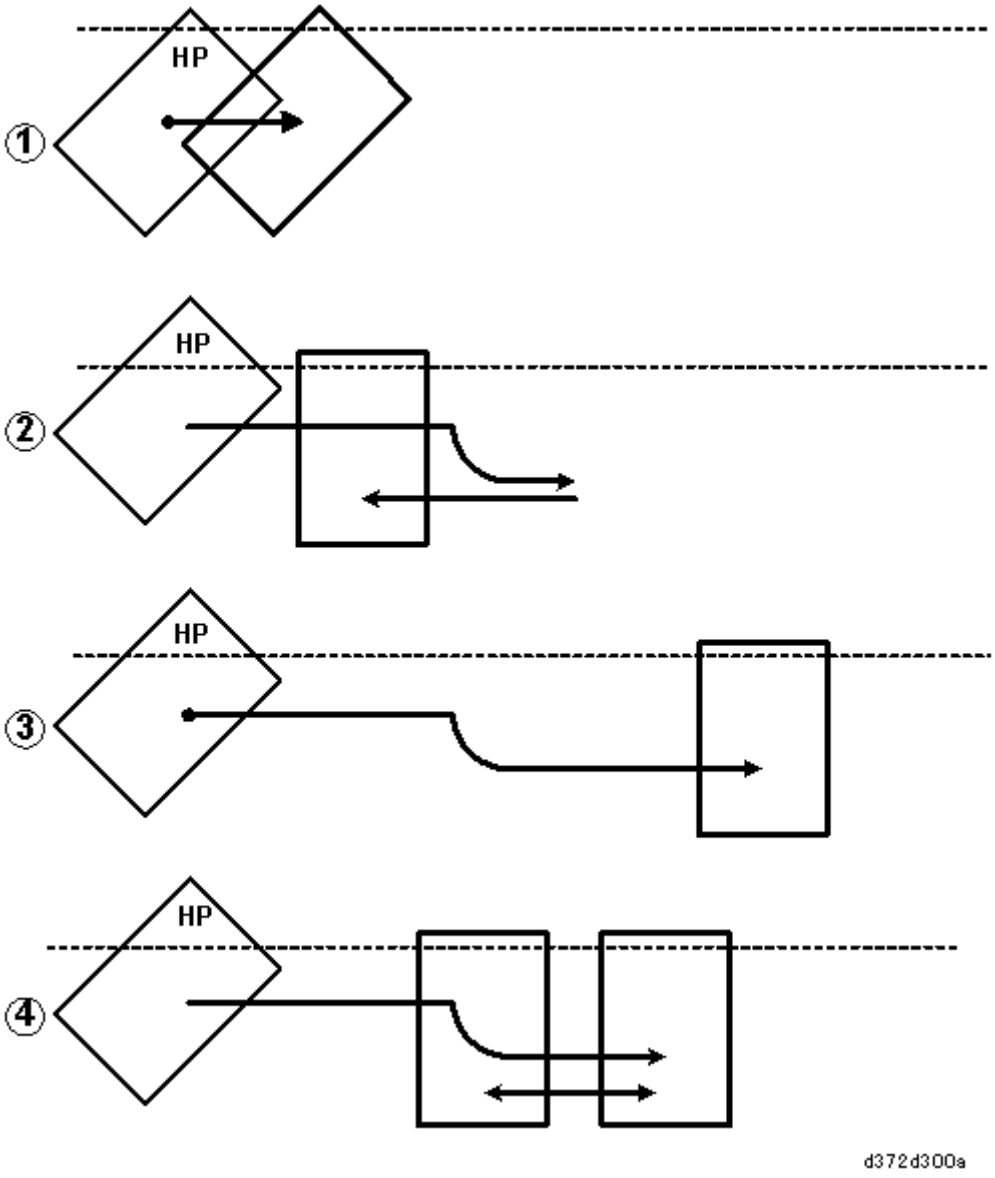
1.	Stapler Unit	5.	Trip Plate – Rear
2.	Guide Rail	6.	Trip Plate – Center
3.	Driver Gear, Timing Belt	7.	Trip Plate – Front
4.	Stapler Movement Motor	8.	Stapler HP Sensor

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.

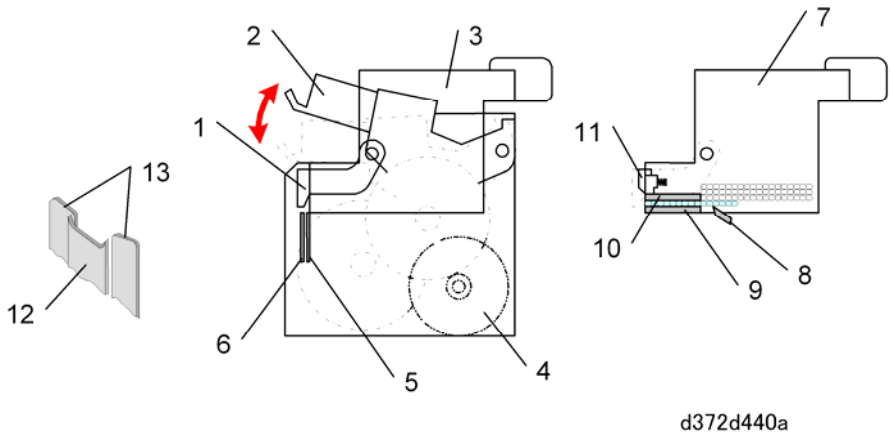
Staple Positions



①	Front Oblique Stapling: 1 Staple
②	Front Straight Stapling: 1 Staple
③	Rear Straight Stapling: 1 Staple
④	2 Staples (Rear then Front)

Stapling

Stapler EH-530



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
  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.

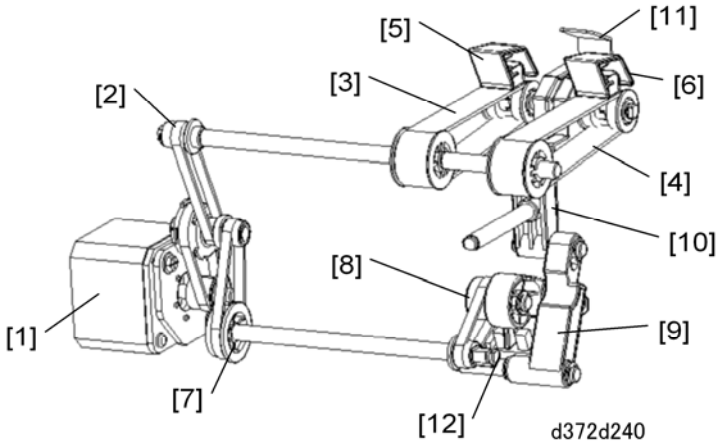
When one of these errors occurs, the exciter current to the stapler motor is switched off.
Both of the HP sensor errors described above are counted as the same error. In either case, the first occurrence of the error is considered a jam, and the second occurrence issues SC742 (Stapler Movement Motor 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

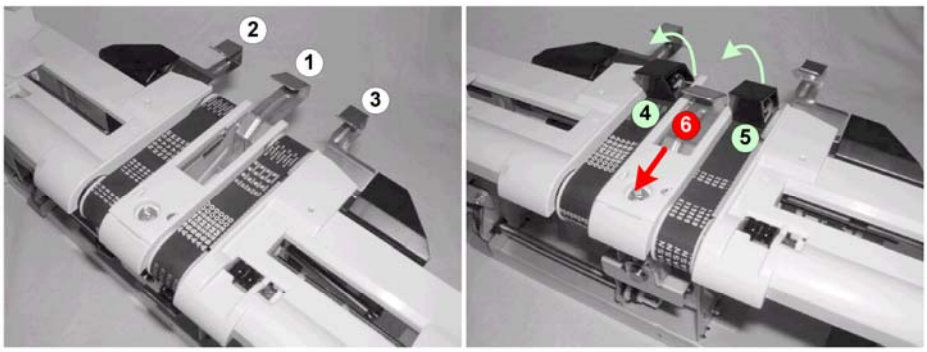
The feed-out belt motor [1] drives the timing belt and shaft [2] that rotates the feed-out belts [3] and [4]. The rear pawl [5] and front pawl [6] attached to the rear and front belts push the stack out of the finisher after stapling.

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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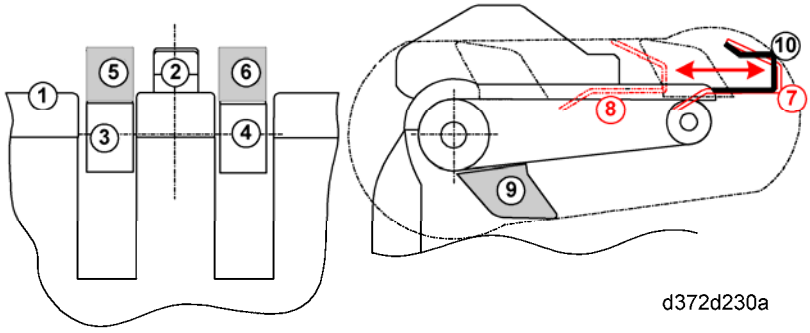
There are three bottom fences. A mobile fence (1) resides between two stationary bottom fences (2) and (3). When the mobile fence (1) is at its home position, the positioning roller and return rollers feed the trailing edge of each sheet against these fences.

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



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:

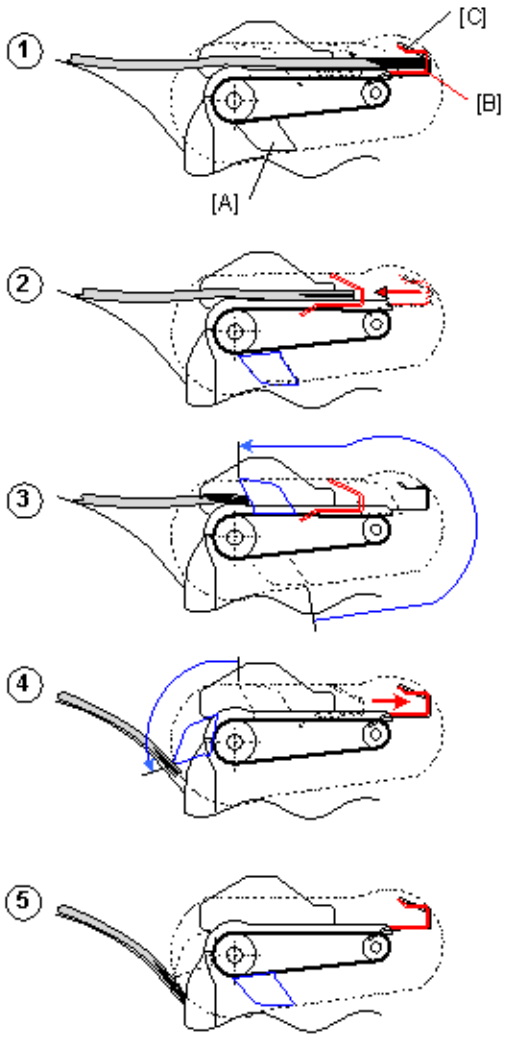
- The stack is on the stapling tray (1).
- The mobile fence (2) has pushed the stack forward to start moving it out of the finisher.
- The front and rear feed-out belts (3) and (4) have rotated the front and rear pawls (5) and (6) behind the stack so they can push the stack out of the finisher.

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.

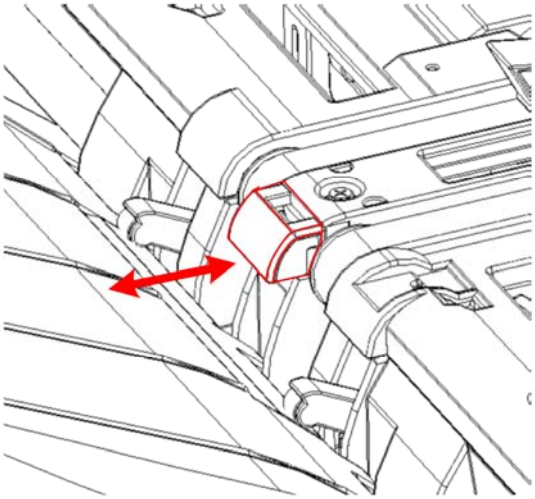
Either of the errors caused by the states of the feed-out belt HP sensor is counted as the same error.

- 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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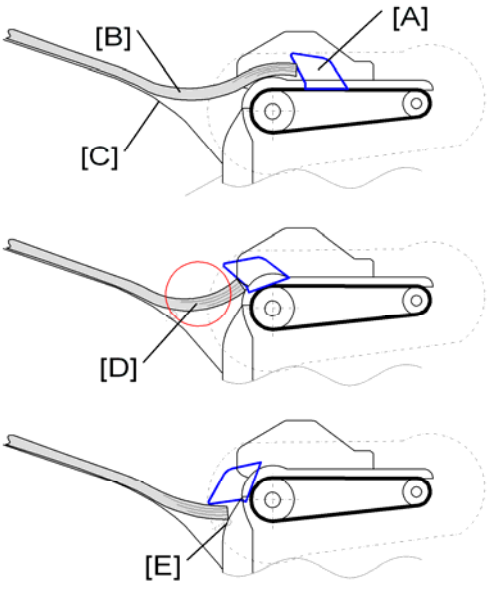
A retractable extension is attached to the center of the stapling tray. The operator can pull it out manually if the trailing edges of the stacks are catching on the end fence and not falling straight down onto the tray.



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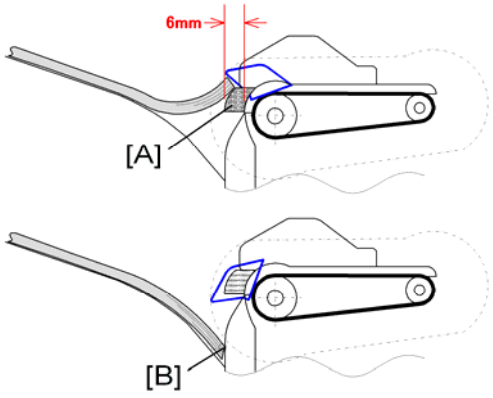
When the feed-out belt pawls [A] push a stack of paper [B] onto the tray [C], a bend [D] forms at the trailing edge. With some types of paper (especially larger paper such as A3), this bend can cause the edge of the stack to catch on the end fence [E] when it falls into the tray.



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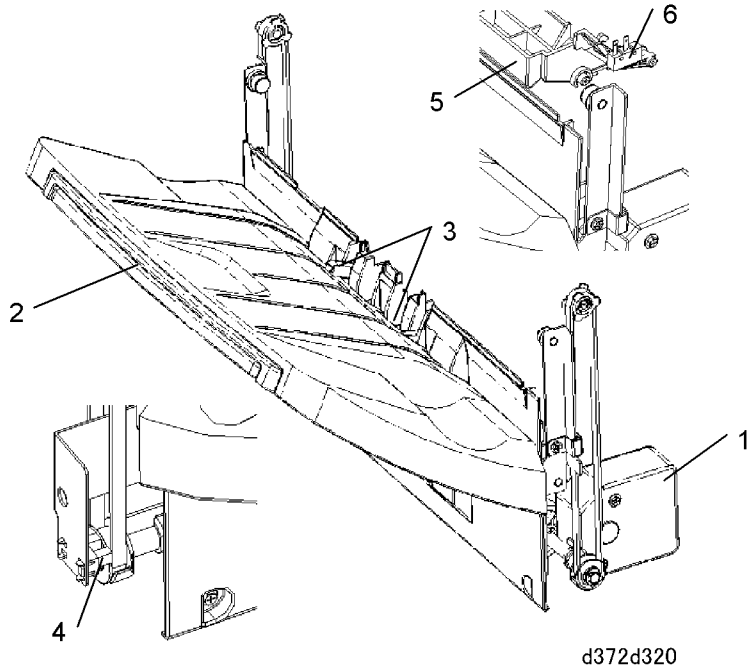
Pulling the stapling tray extension [A] out by hand extends by 6 mm the distance that the pawls must push the trailing edge of the stack. The extra 6 mm forces the edge of the stack to bend more so it will snap down with more force and not catch on the end fence. This prevents the trailing edge of the 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).

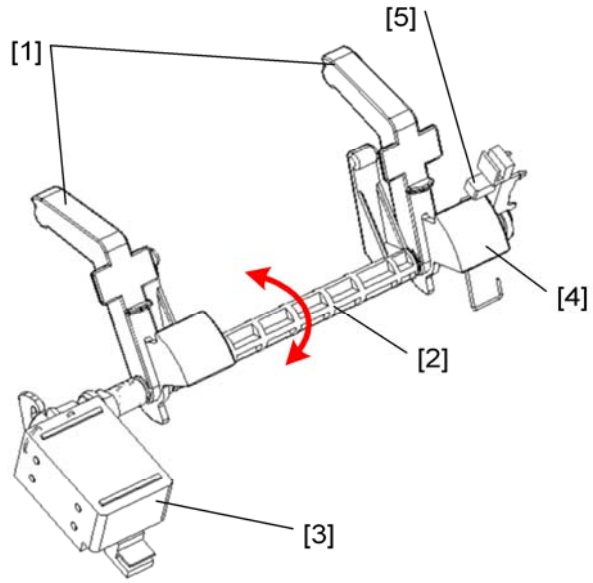
The edge depressors (3) lightly press down on the trailing edges of stacks already on the tray to keep them down against the end fence.

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

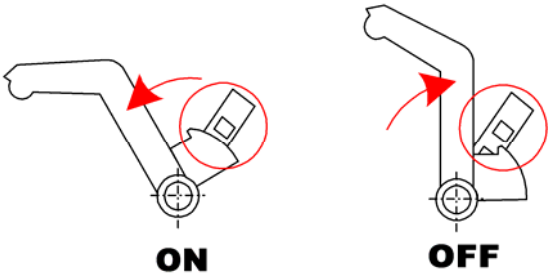
While the feed-out belt motor is running, the tray lift motor switches on (300 ms for shift mode, 500 ms for stapling mode), lowers the output tray, stops, then waits to receive the stack.

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

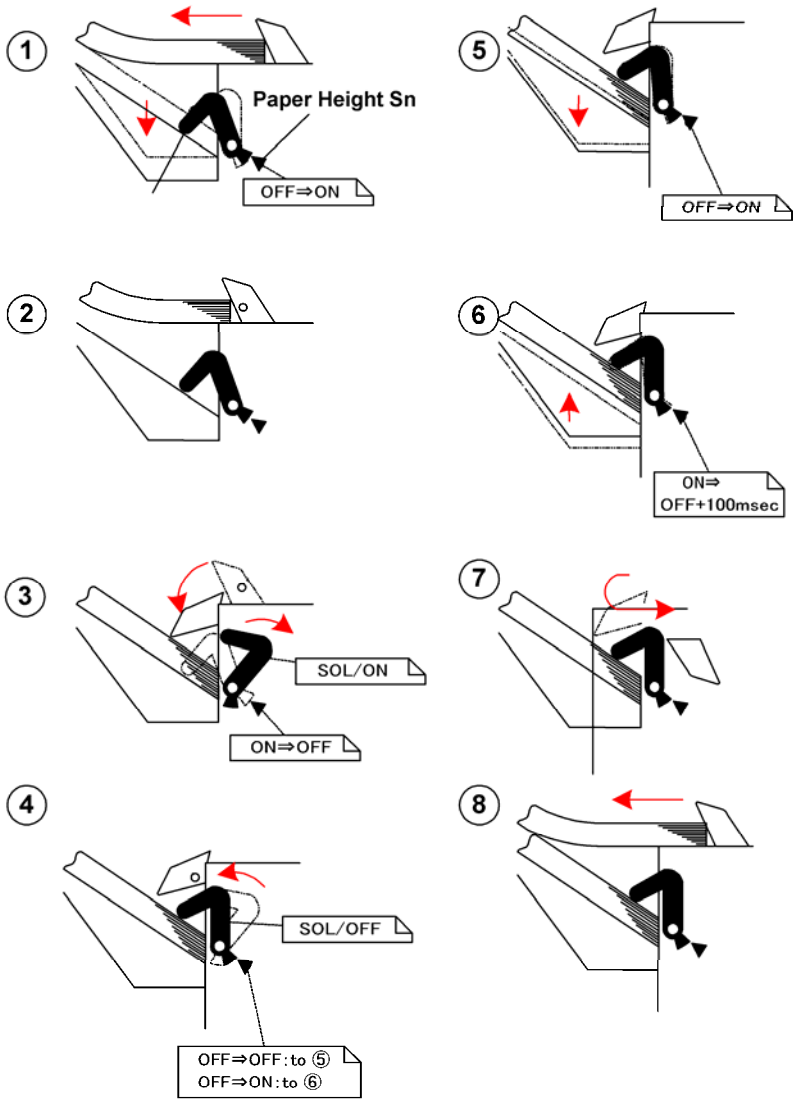
The edge depressors touch the top of the stack, and they are connected to the paper height sensor [5], so this action checks if it is necessary to move the tray up or down.



- 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



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Tray Operation

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.
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,.

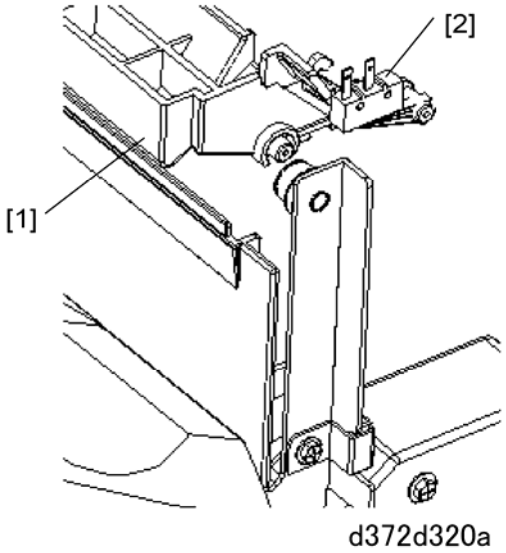
2.6.3 TRAY INITIALIZATION

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



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.
- 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.

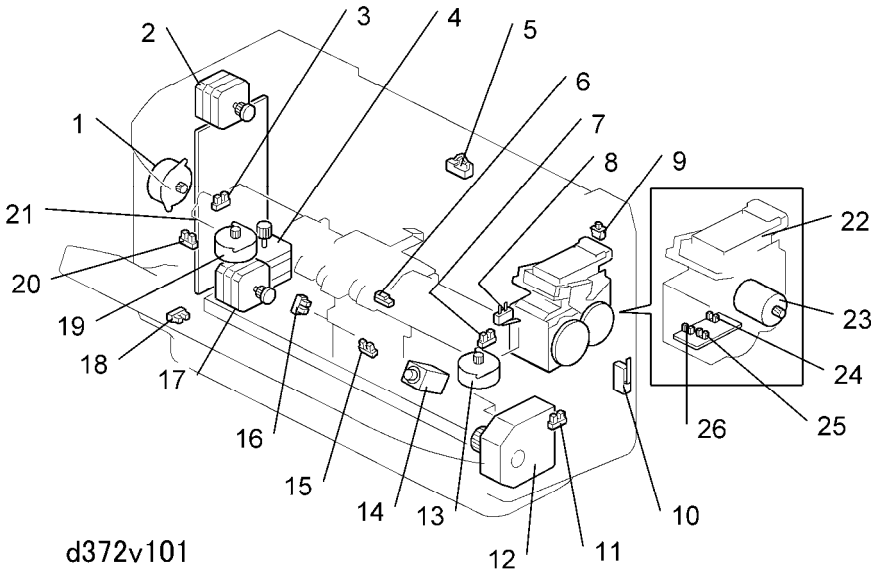
The first occurrence is considered a jam, and the second occurrence causes SC751 (Edge Depressor Solenoid).

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).
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,

Electrical Components

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.

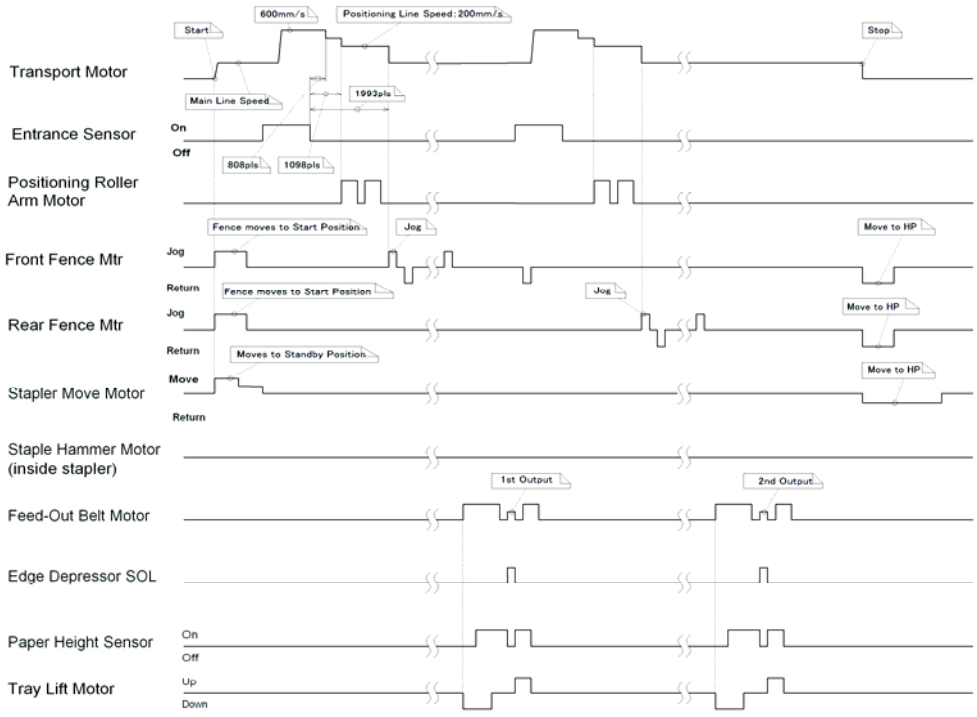
Switches		
SW1	Stapler Door Switch	Detects when the stapler top cover is open or closed.
SW2	Top Cover Switch	Detects when the top cover is opened or closed.
SW3	Tray Upper Limit Switch	If the tray becomes full, the top of the stack will push up a plate that activates this switch and switches off the 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



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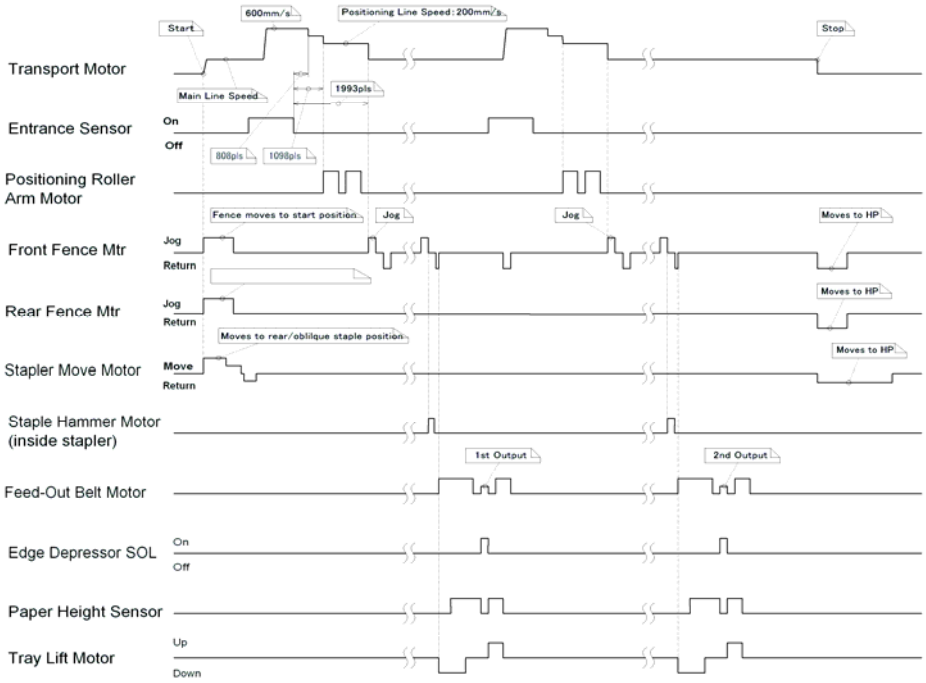
Staple Mode: Rear/Oblique



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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.

Electrical Components

No.	Error	Problem/Solution
		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 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

No.	Error	Problem/Solution
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 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

Electrical Components

No.	Error	Problem/Solution
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:** The tray full sensor went ON with the edge depressor solenoid OFF and paper height sensor OFF. **Solution**: Tray full, remove paper.

No.	Error	Problem/Solution
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**

Electrical Components

No.	Error	Problem/Solution
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. **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

Specifications

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.)	

SH3040(D388)/SH3050(D584)

INTERNAL SHIFT TRAY

REVISION HISTORY		
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		None

INTERNAL SHIFT TRAY (D388/D584)

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1.2 TRAY MOTOR AND HALF TURN SENSOR BOARD 2

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

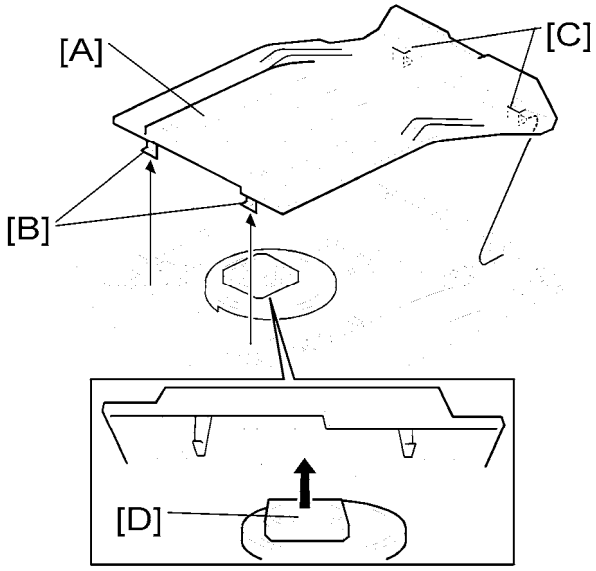
: Clip ring

: Clamp

: E-ring

1. REPLACEMENT AND ADJUSTMENT

1.1 TRAY COVER



1. Remove the tray cover [A] by pressing on the two pawls [B] on the left side of the cover.

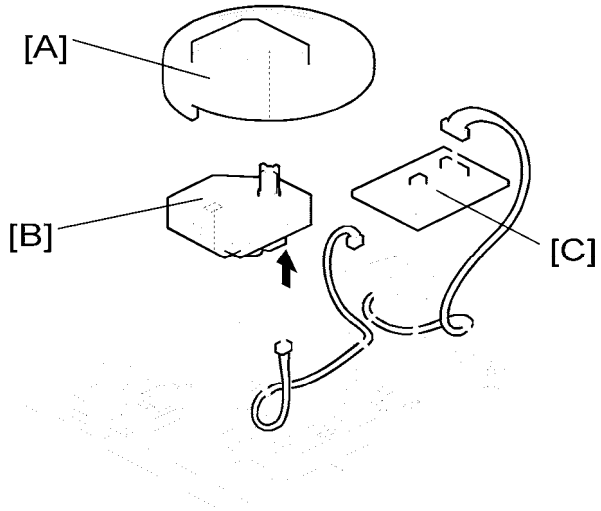
– When Attaching the Tray Cover –

Note

- The right side of the tray cover should be attached first.

1. Fit the pawls [C] on the shift tray.
2. Align the square [D] 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.

1.2 TRAY MOTOR AND HALF TURN SENSOR BOARD



1. Top cover (☛ p.1 "Tray Cover")
2. Slip disc [A]
3. Tray motor [B] (☜ x 1)
4. Half turn sensor board [C] (☜ x 1).

PB3100(D537)/PB3130(D580)

PAPER FEED UNIT

REVISION HISTORY		
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PAPER FEED UNIT (D537/D580)

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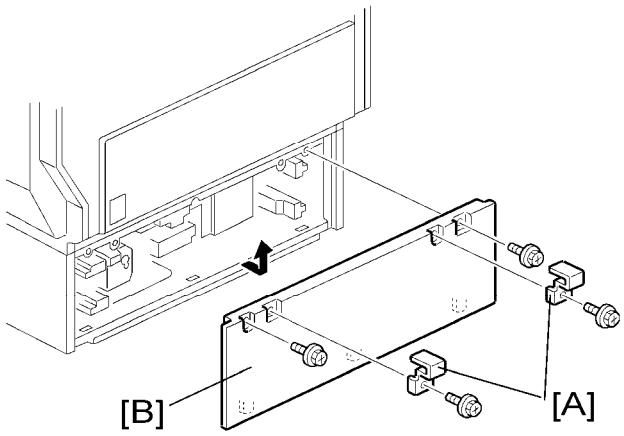
1. REPLACEMENT AND ADJUSTMENT

1.1 EXTERIOR COVER

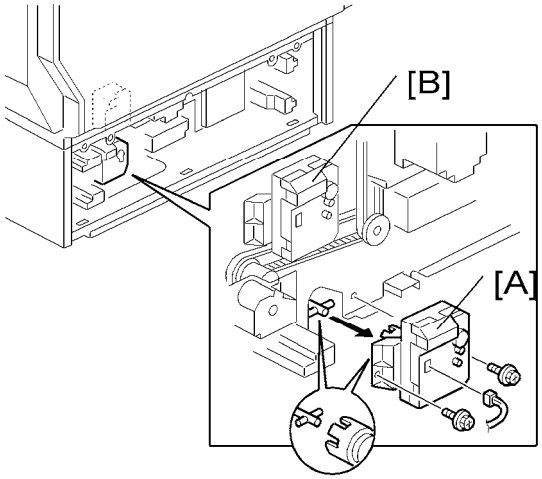
1.1.1 REAR COVER



1. Securing brackets [A] (x 1 each)
2. Rear cover [B] (x 2)

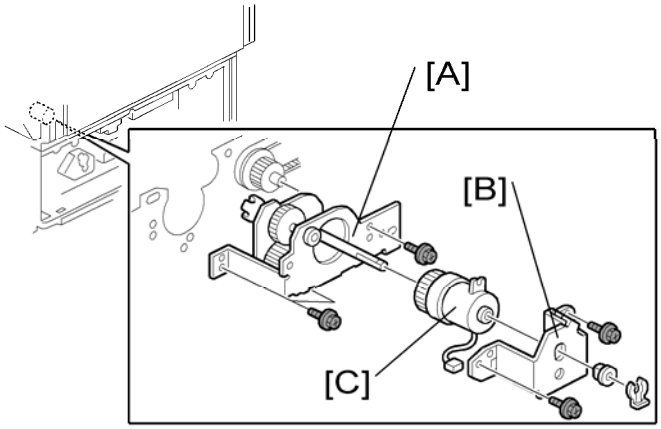
1.2 ELECTRICAL COMPONENTS

1.2.1 LIFT MOTORS

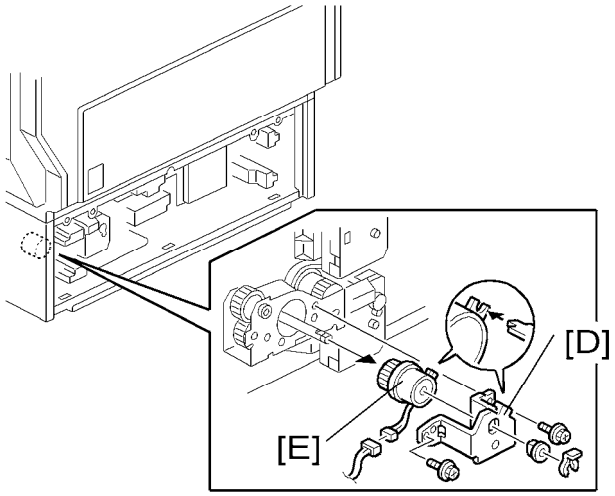


1. Rear cover (☛ "Rear Cover")
2. Lift motors [A][B] (x 2, x 1 each)

1.2.2 UPPER AND LOWER PAPER FEED CLUTCHES

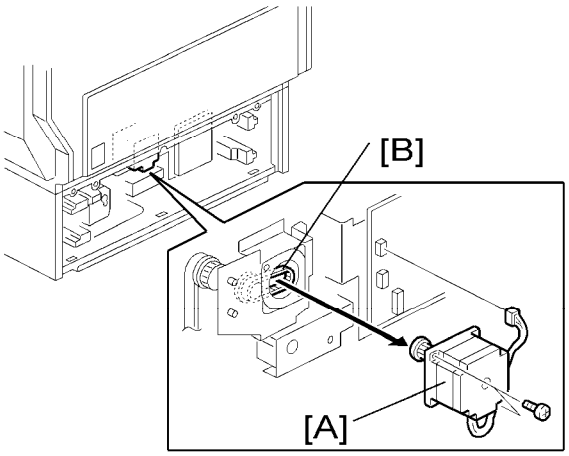


1. Rear cover (☛ "Rear Cover")
2. Upper paper feed gear unit [A] (x 3, x 1)
3. Upper paper feed clutch bracket [B] (x 1, x 2, bushing x 1)
4. Upper paper feed clutch [C]



5. Lower paper feed clutch bracket [D] (x 1, bushing x 1, x 2)
6. Lower paper feed clutch [E] (x 1)

1.2.3 PAPER FEED MOTOR

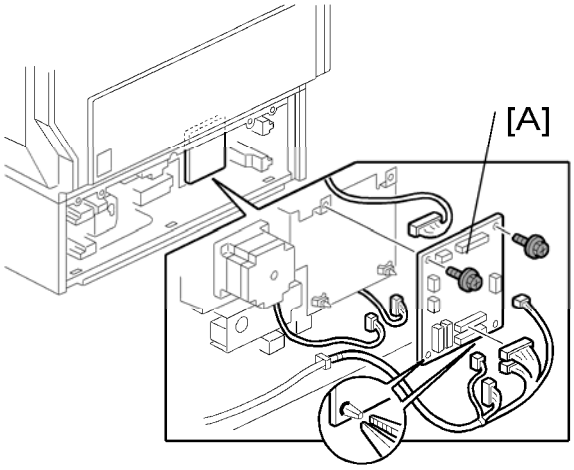


1. Rear cover (☛ "Rear Cover")
2. Paper feed motor [A] (x 1, x 2)

Note

- When installing the paper feed motor, make sure that the gear of the paper feed motor holds the timing belt [B].

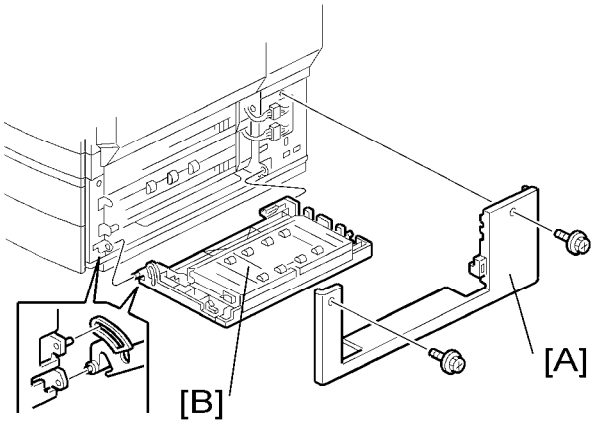
1.2.4 MAIN BOARD



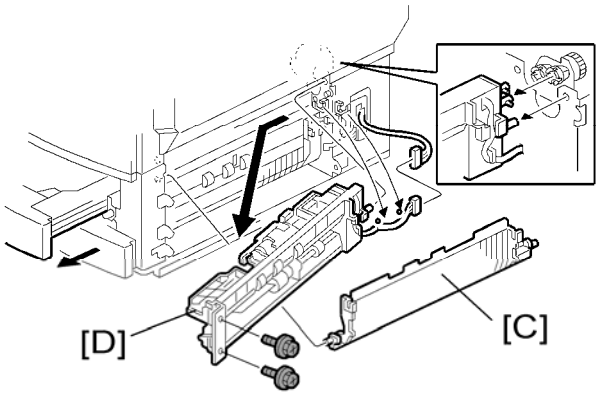
1. Rear cover (☛ "Rear Cover")
2. Main board [A] (All s, x 2, snap pin x 2)

1.3 FEED

1.3.1 PAPER FEED UNIT



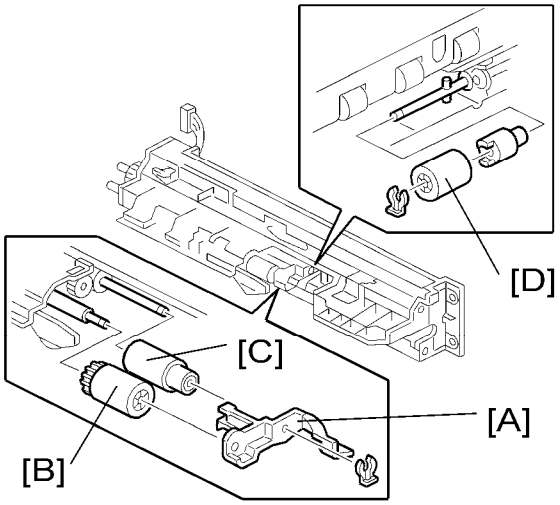
1. Right cover [A] (x 2)
2. Vertical transport guide [B] of the paper feed unit



3. Pull the tray 3 (or 4).
4. Paper guide [C]
5. Paper feed unit [D] (x 2, x 1, x 2)

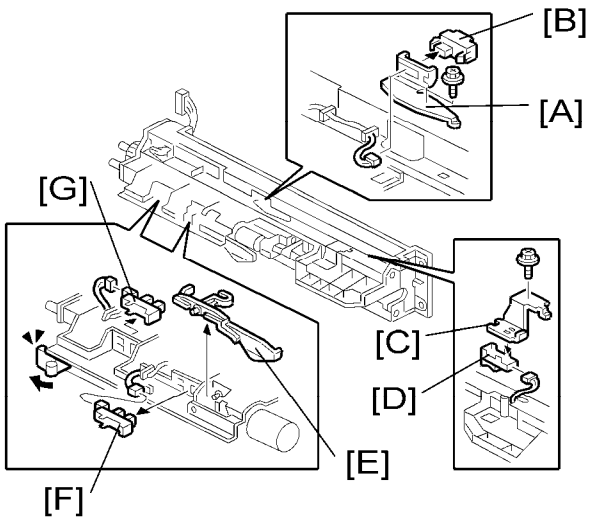
When replacing the paper feed unit of tray 4, do the same.

1.3.2 PICK-UP, PAPER FEED AND SEPARATION ROLLERS



1. Paper feed unit (☛ "Paper Feed Unit)
2. Roller holder [A] (x 1)
3. Pick-up roller [B]
4. Paper feed roller [C]
5. Separation roller [D] (x 1)

1.3.3 LIFT, PAPER END, AND RELAY SENSORS



1. Paper feed unit (☛ "Paper Feed Unit")
2. Vertical transport sensor bracket [A] (x 1)
3. Vertical transport sensor [B] (x 1)
4. Paper feed sensor bracket [C] (x 1)
5. Paper feed sensor [D] (x 1)
6. Paper end sensor filler [E]
7. Paper end sensor [F] (x 1)
8. Lift sensor [G] (x 1)

PB3110(D538)/PB3140(D581)

LARGE CAPACITY TRAY

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LARGE CAPACITY TRAY (D538/D581)

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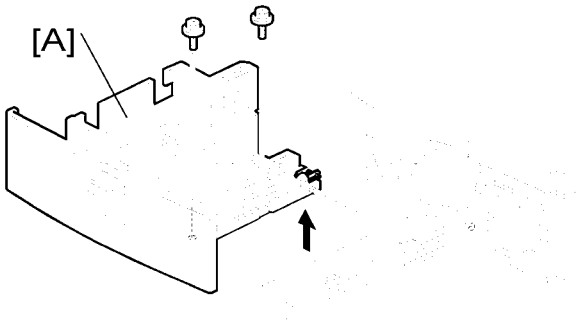
1. REPLACEMENT AND ADJUSTMENT

1.1 EXTERIOR COVER

1.1.1 LEFT AND RIGHT TRAY

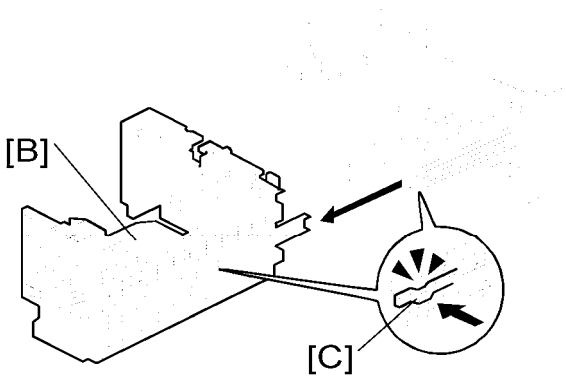


1. Pull the LCT drawer.

Note

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

2. Left tray [A] (x 2)

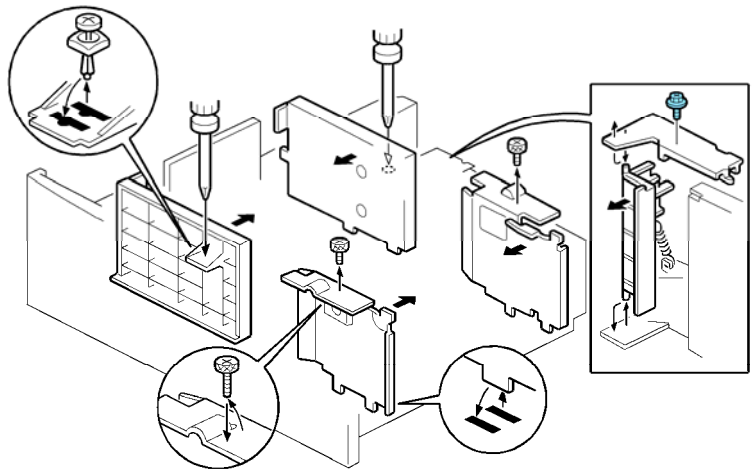


3. Remove the right tray [B] pressing down the stopper [C].

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.

1.1.2 CHANGING THE TRAY SIZE



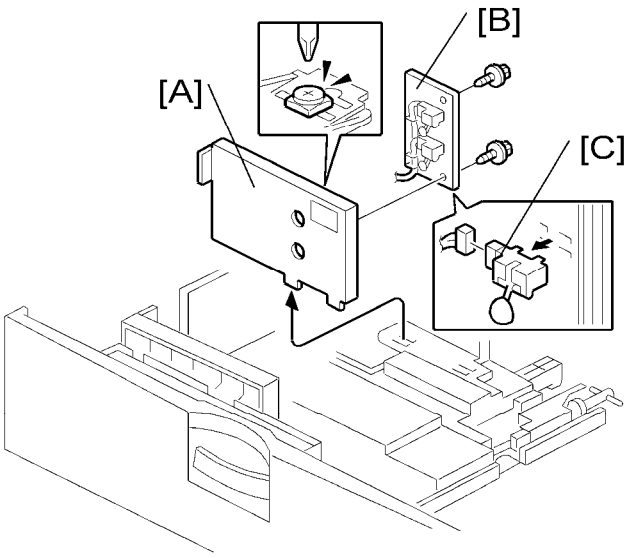
1. Remove the fence screws (x 5).
2. Change the position of the fences.

Note

- Before fastening the screws, set paper in the tray.

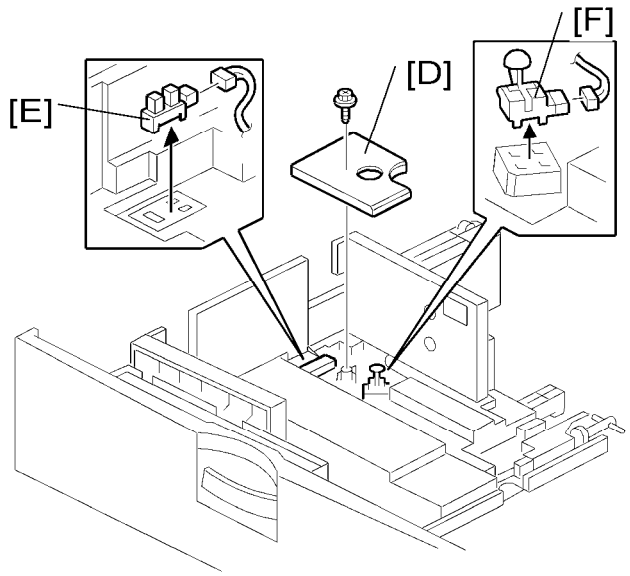
1.2 ELECTRICAL COMPONENTS

1.2.1 PAPER HEIGHT SENSORS ON PAPER STORAGE SIDE



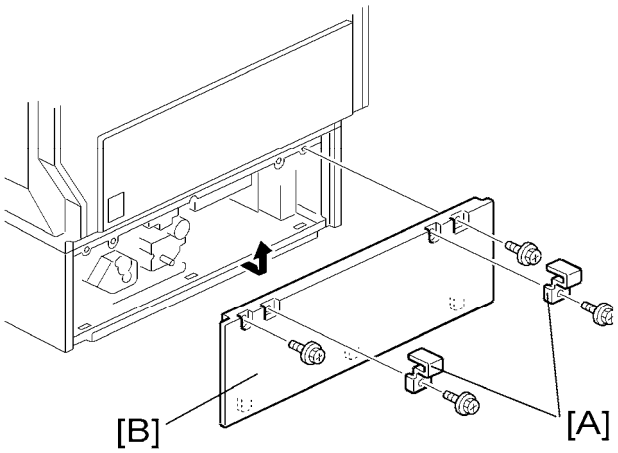
1. Tray (☛ "Left and Right Tray")
2. Rear fence [A] (x 1)
3. Rear fence bracket [B] (x 2)
4. Paper height sensors [C] (x 1 each)

1.2.2 END FENCE HP SENSOR/PAPER END SENSOR 2

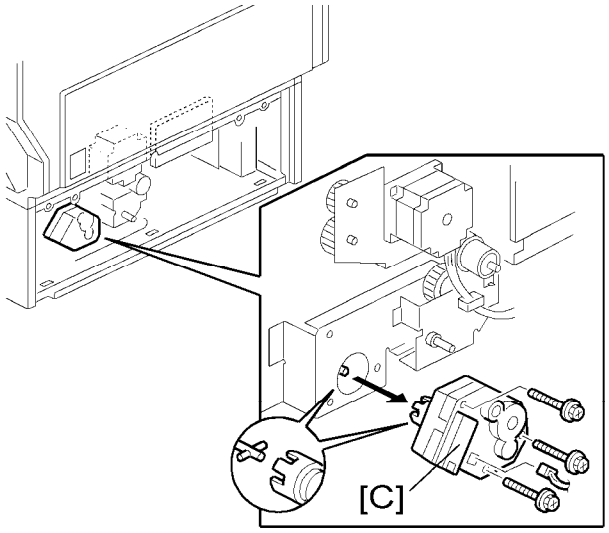


1. Bottom cover [D] (x 1)
2. End fence HP sensor [E] (x 1)
3. Paper end sensor 2 (paper storage side) [F] (x 1)

1.2.3 TRAY LIFT MOTOR

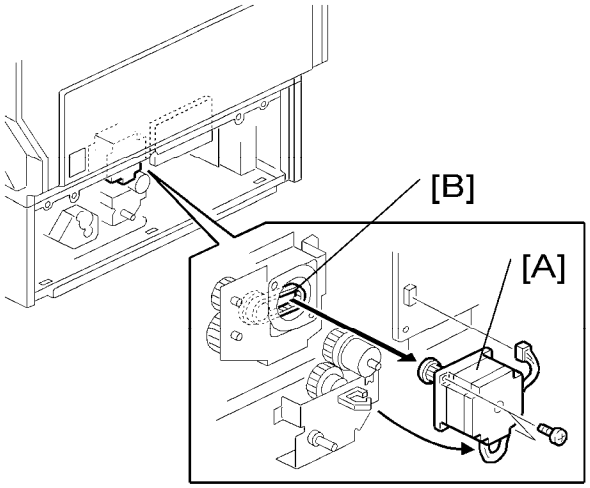


1. Securing brackets [A] (x 1 each)
2. Rear cover [B] (x 2)



3. Tray lift motor [C] (x 1, x 3)

1.2.4 TRAY MOTOR

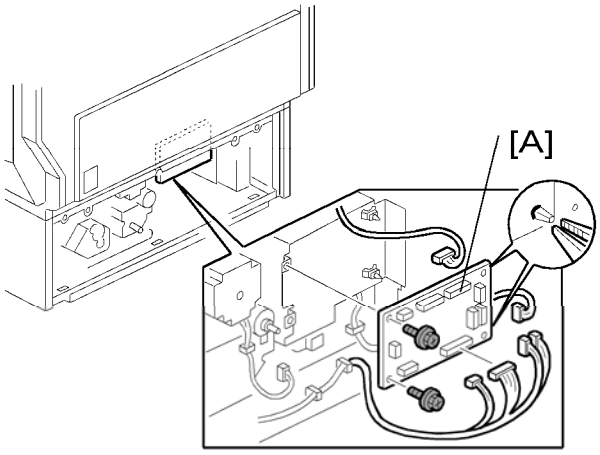


1. Rear cover (☛ "Tray Lift Motor")
2. Tray motor [A] (x 1, x 2)

Note

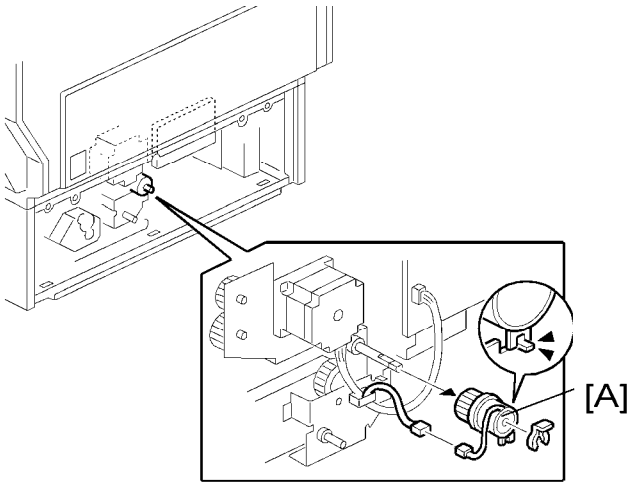
- When installing the tray motor, make sure that the gear of the tray motor holds the timing belt [B].

1.2.5 MAIN BOARD



1. Rear cover (☛ "Tray Lift Motor")
2. Main board [A] (All s, x 2, snap x 2)

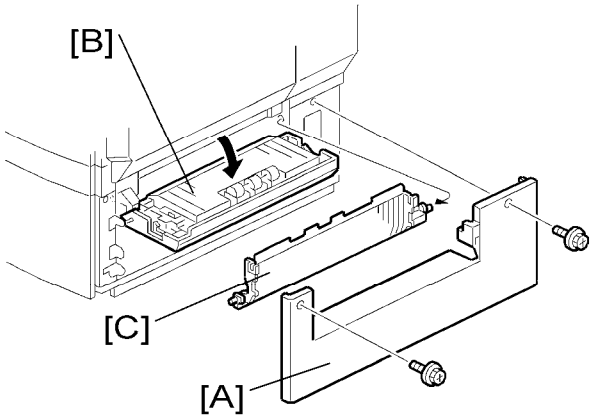
1.2.6 STACK TRANSPORT CLUTCH



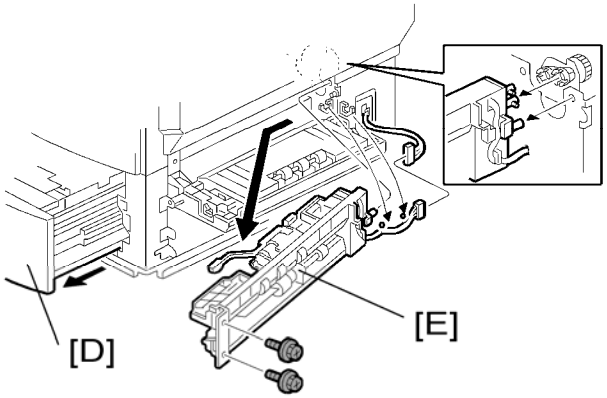
1. Rear cover (☛ "Tray Lift Motor")
2. Stack transport clutch [A] (x 1, x 1)

1.3 FEED

1.3.1 PAPER FEED UNIT

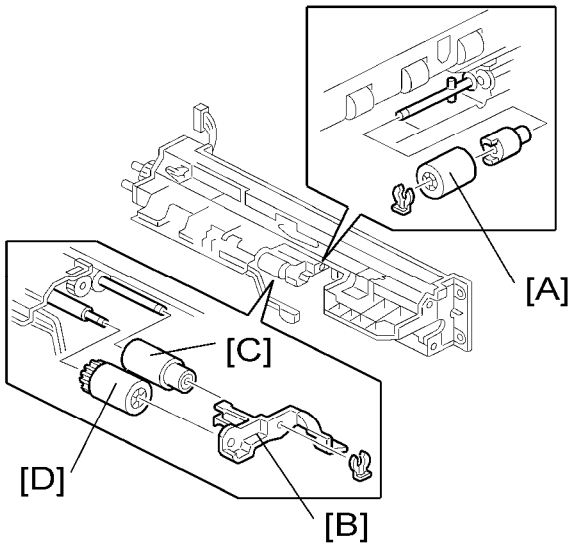


1. Right cover [A]
2. Open the vertical guide plate [B]
3. Guide plate [C]



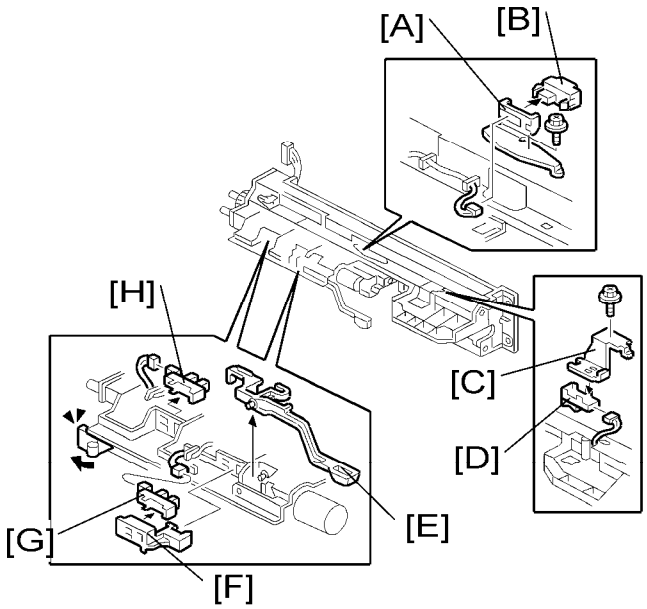
4. Pull the LCT drawer [D].
5. Paper feed unit [E] (x 2 x 1)

1.3.2 PICK-UP, FEED AND SEPARATION ROLLERS



1. Paper feed unit (☛ "Paper Feed Unit")
2. Separation roller [A] (x 1)
3. Roller holder [B] (x 1)
4. Feed roller [C] and pick-up roller [D]

1.3.3 PAPER FEED, PAPER END, LIFT AND RELAY SENSORS



1. Paper feed unit (☛ "Paper Feed Unit")
2. Vertical transport sensor bracket [A] (x 1, x 1)
3. Relay sensor [B]
4. Paper feed sensor bracket [C]
5. Paper feed sensor [D]
6. Paper end feeler [E]
7. Paper end sensor holder [F] (hook x 3)
8. Paper end sensor [G] (x 1, hook x 3)
9. Lift sensor (x 1, hook x 3)

D578
ARDF DF3060

REVISION HISTORY		
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		None

ARDF DF3060 (D578)

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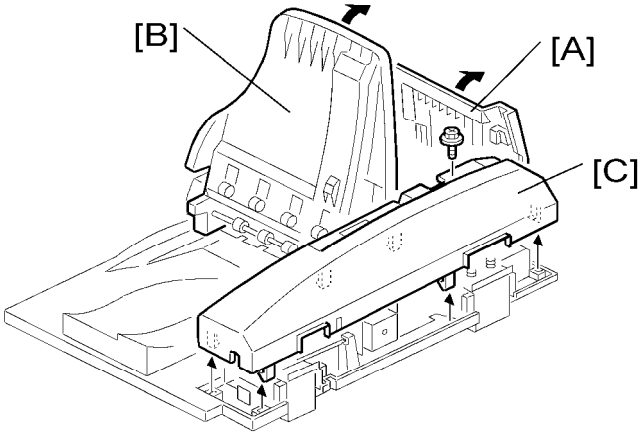
1. REPLACEMENT AND ADJUSTMENT

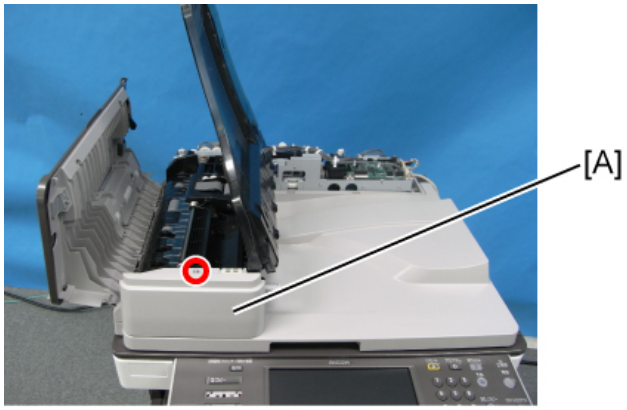
1.1 COVERS AND TRAY

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

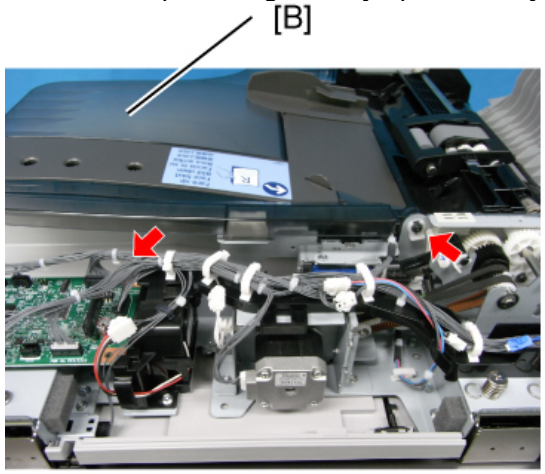


d578r500

1. Open the left cover.
2. Rear cover (☛ p.1 "Rear Cover")
3. Front cover [A] (x 1)

Note

- Keep the original tray open when you remove the front cover.



d578r501

4. Original tray [B] (x 1, x 1)

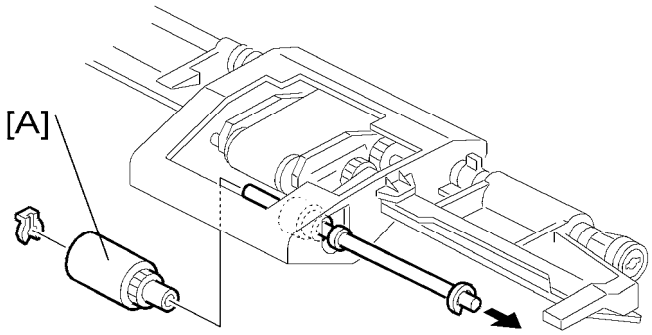
1.2 DOCUMENT FEED COMPONENTS

1.2.1 ORIGINAL FEED UNIT

d578r502

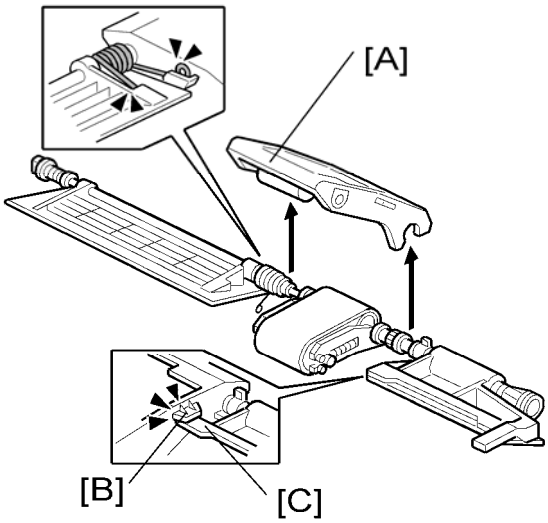
1. Open the left cover.
2. Original feed unit [A].

1.2.2 PICK-UP ROLLER



1. Open the left cover.
2. Original feed unit (☛ p.3 "Original Feed Unit")
3. Pick-up roller [A] (⟲ x 1)

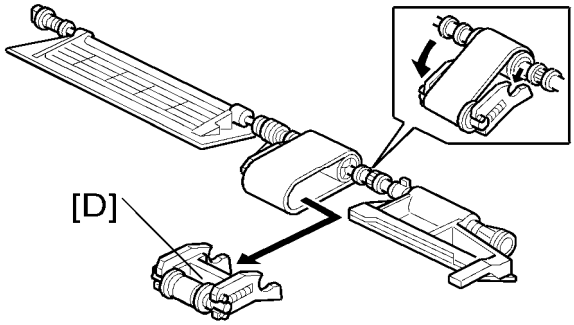
1.2.3 FEED BELT



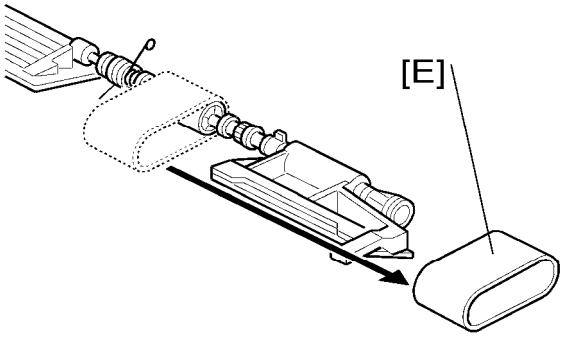
1. Open the left cover.
2. Original feed unit (☛ p.3 "Original Feed Unit")
3. Feed belt cover [A] (spring x 1)

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].

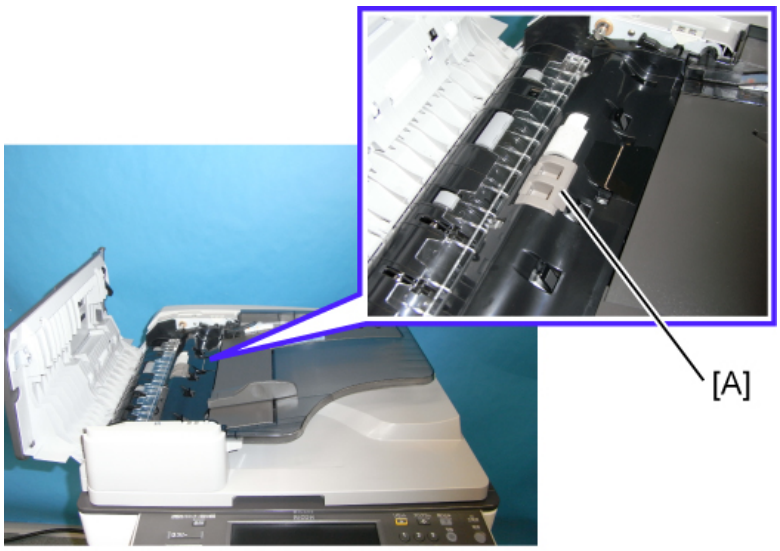


4. Belt tension unit [D]



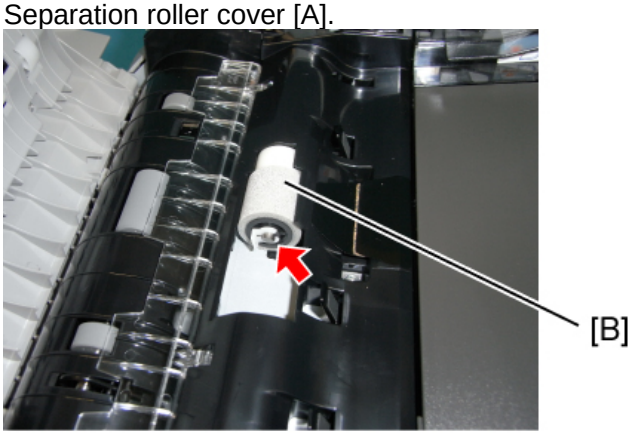
5. Feed belt [E].

1.2.4 SEPARATION ROLLER



d578r503

1. Original Feed Unit (☛ p.3 "Original Feed Unit").
2. Separation roller cover [A].

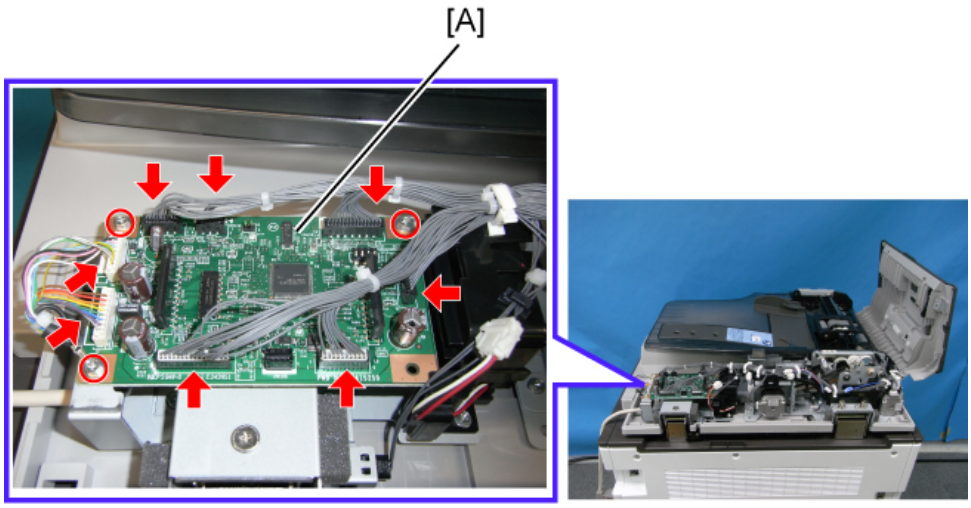


d578r504

3. Separation roller [B] (x 1)

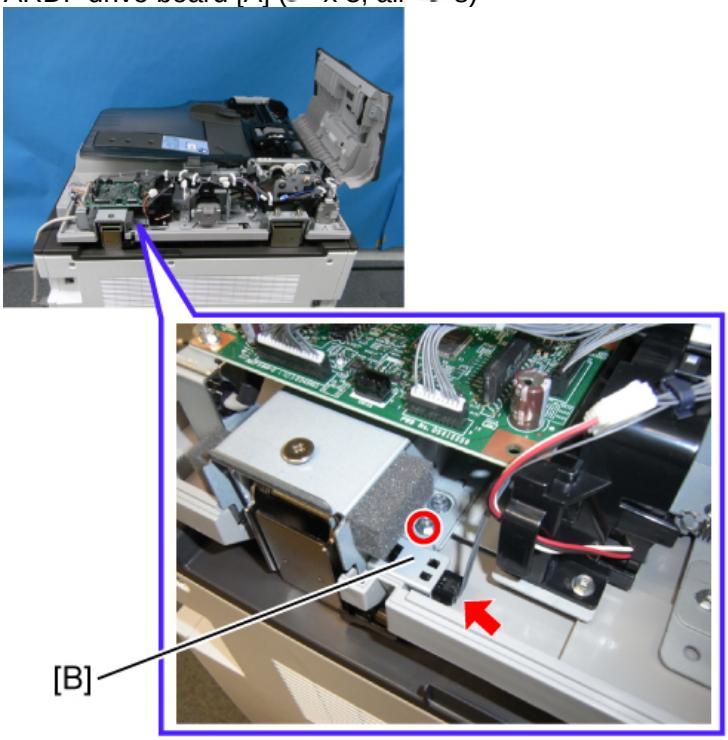
1.3 ELECTRICAL COMPONENTS

1.3.1 ARDF DRIVE BOARD AND DF POSITION SENSOR



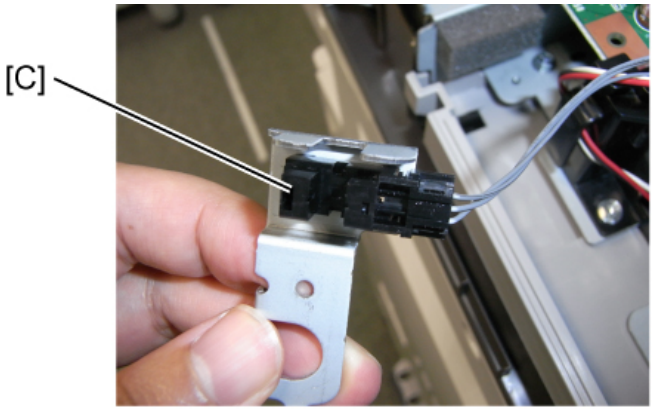
d578r505

1. Rear cover (☛ p.1 "Rear Cover")
2. ARDF drive board [A] (x 3, all s)



d578r506

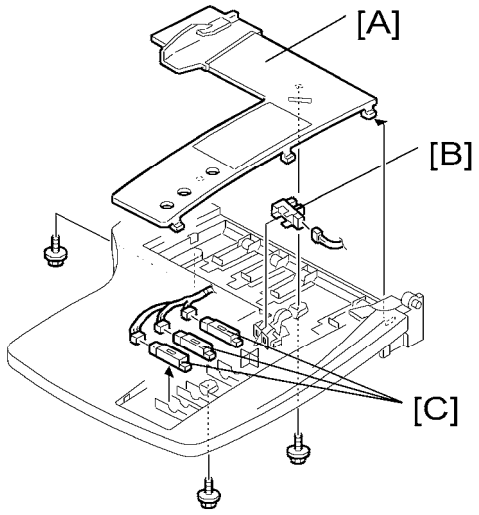
3. DF position sensor with bracket [B] (x 1, x 1)



d578r507

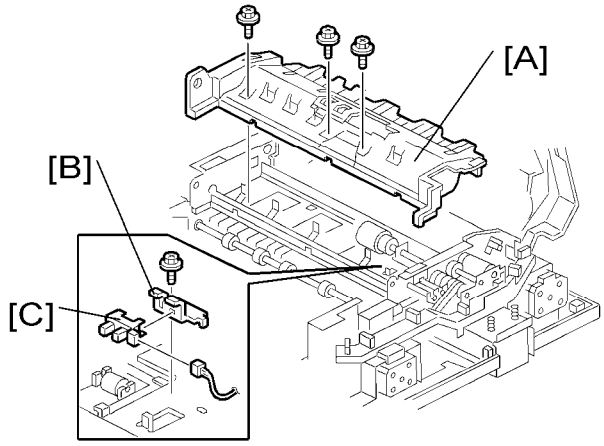
1. DF position sensor [C] (hook x 2)

1.3.2 ORIGINAL LENGTH SENSORS AND TRAILING EDGE SENSOR



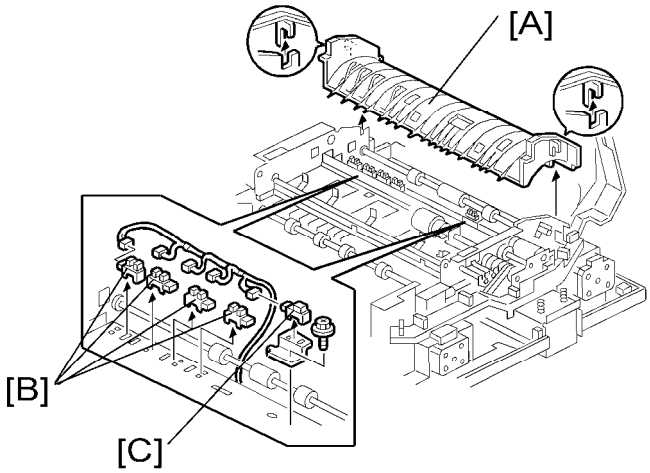
1. Original Tray (☛ p.2 "Front Cover and Original Tray")
2. Tray cover [A] (x 3)
3. Original trailing edge sensor [B] (x 1)
4. Original length sensors [C] (x 1 each)

1.3.3 ORIGINAL SET SENSOR



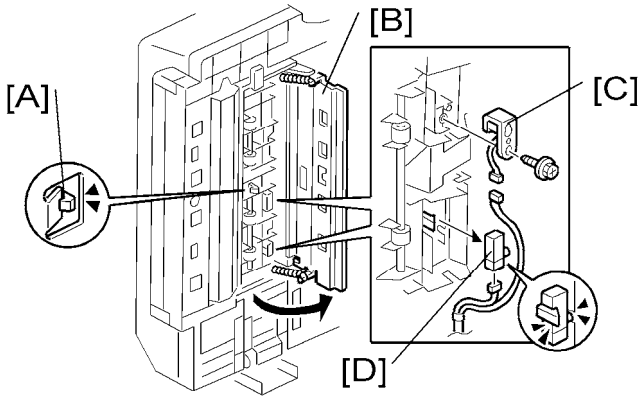
1. Open the left cover.
2. Original feed unit (☛ p.3 "Original Feed Unit")
3. Original tray (☛ p.2 "Front Cover and Original Tray")
4. Original feed-in guide plate [A] (x 3).
5. Original set sensor bracket [B] (x 1)
6. Original set sensor [C]

1.3.4 ORIGINAL SIZE SENSORS AND SKEW CORRECTION SENSOR



1. Original feed-in guide plate (☛ p.8 "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)

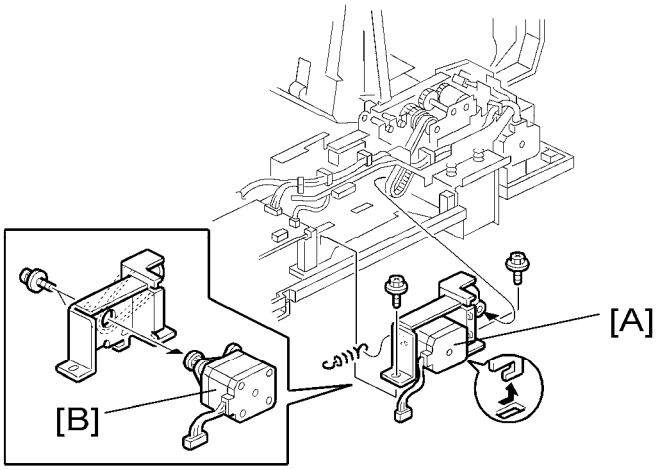
1.3.5 STAMP SOLENOID AND ORIGINAL EXIT SENSOR



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)

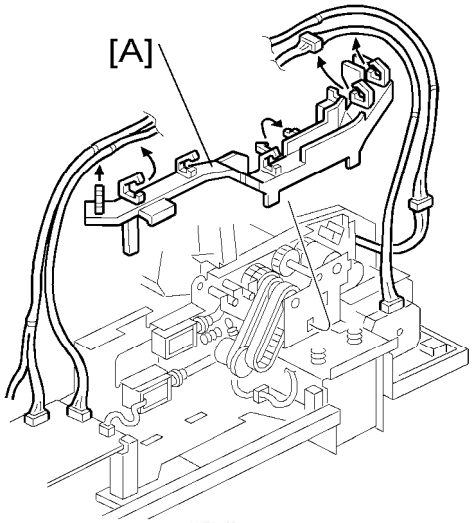
1.4 ORIGINAL FEED DRIVE

1.4.1 FEED MOTOR

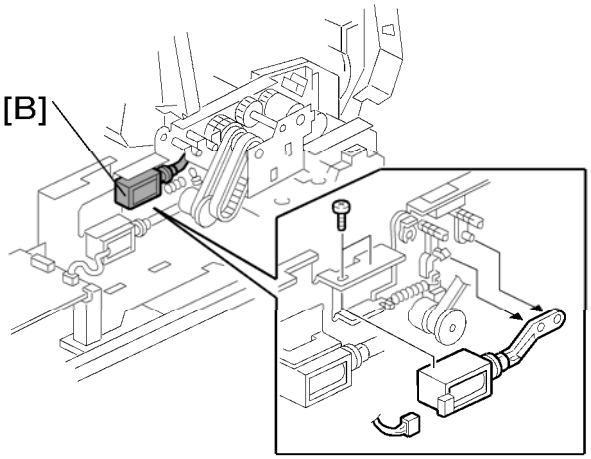


1. Rear cover (☛ p.1 "Rear Cover")
2. Feed motor with bracket [A] (x 2, x 1, spring x 1)
3. Feed motor [B] (x 2)

1.4.2 PICK-UP SOLENOID

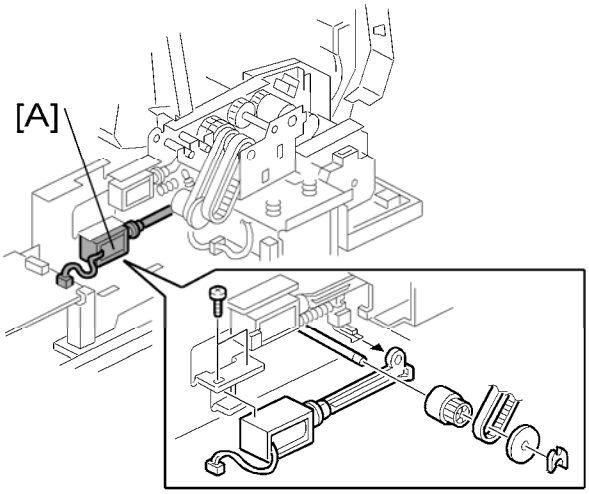


1. Rear cover (☛ p.1 "Rear Cover")
2. Harness guide [A] (all s)



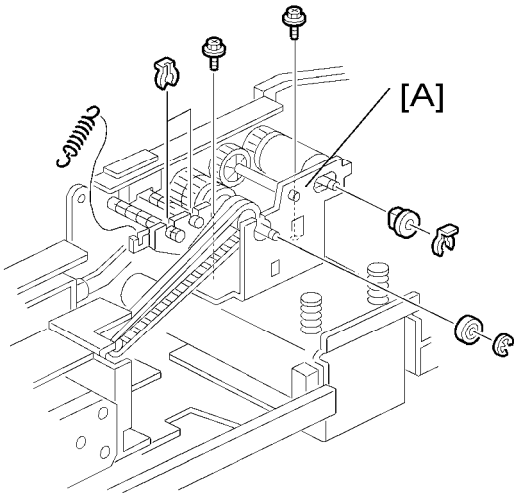
3. Pick-up solenoid [B] (x 2, x 1)

1.4.3 INVERTER SOLENOID

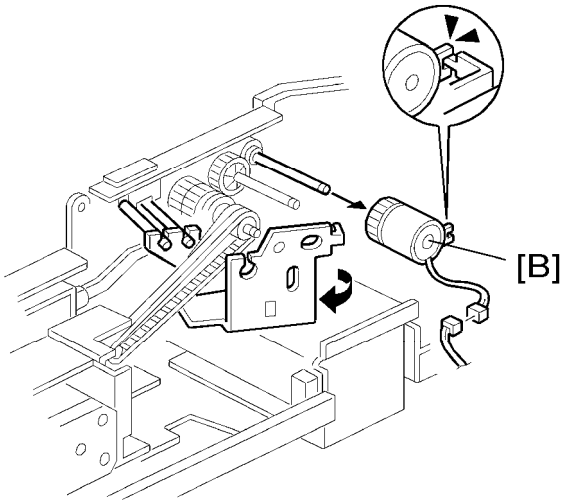


1. Rear cover (☛ p.1 "Rear Cover")
2. Harness guide (☛ p.11 "Pick-up Solenoid")
3. Inverter solenoid [A] (x 2, x 1, x 1, gear x 1, gear cover x 1)

1.4.4 FEED CLUTCH

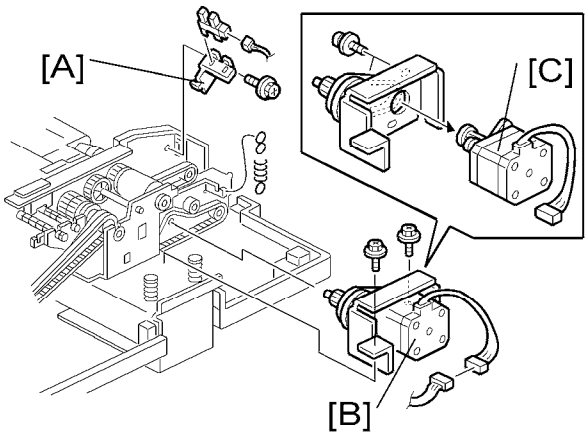


1. Rear cover (☛ p.1 "Rear Cover")
2. Harness guide (☛ p.11 "Pick-up Solenoid")
3. Bracket [A] (x 2, x 3, x 1, bushing x 1, spring x 1)



4. Slide the bracket.
5. Feed clutch [B] (x 1)

1.4.5 TRANSPORT MOTOR



1. Rear cover (☛ p.1 "Rear Cover")
2. Harness guide (☛ p.11 "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)

D579
PAPER FEED UNIT PB3120

REVISION HISTORY		
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PAPER FEED UNIT PB3120 (D579)

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READ THIS FIRST

Safety and Symbols

Replacement Procedure Safety

CAUTION

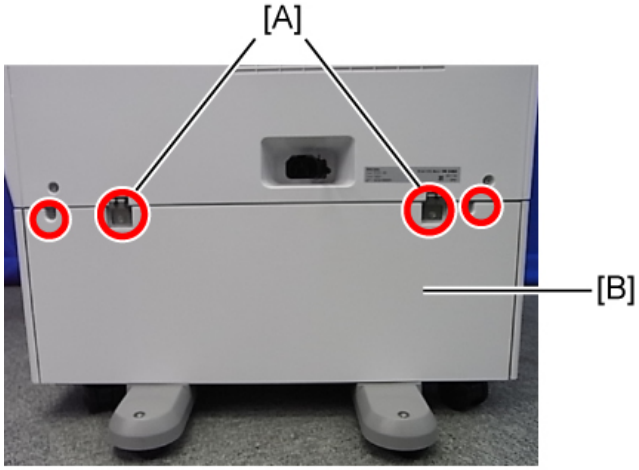
- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

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 REAR COVER

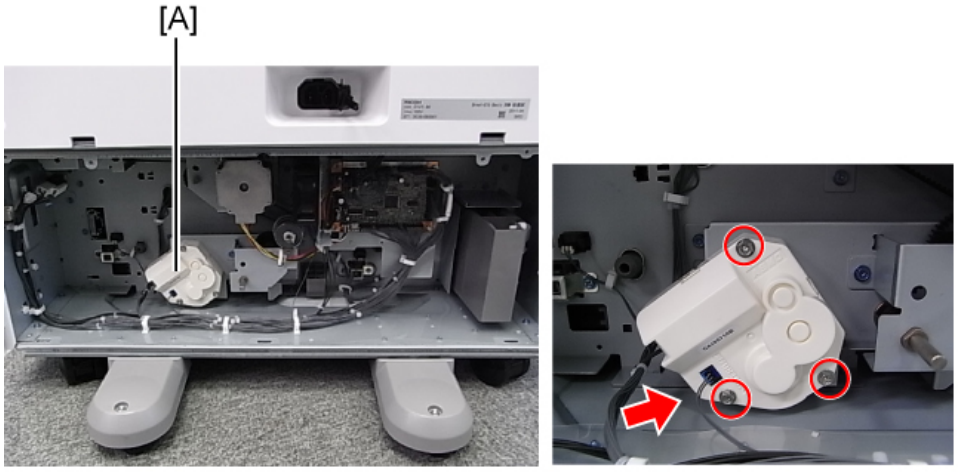


d579r100

1. Securing brackets [A] (x 1 each)
2. Rear cover [B] (x 2)

1.2 MOTORS, CLUTCH AND MAIN BOARD

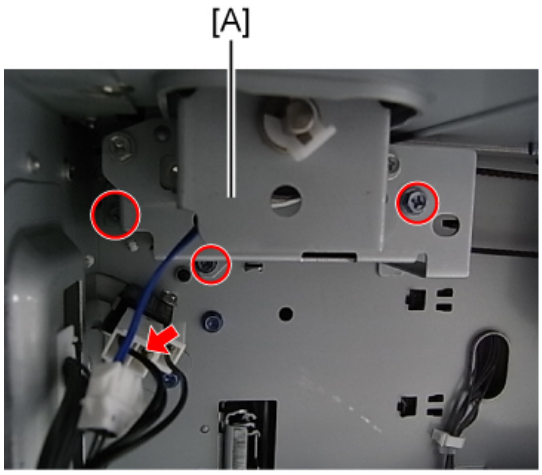
1.2.1 LIFT MOTOR



d579r101

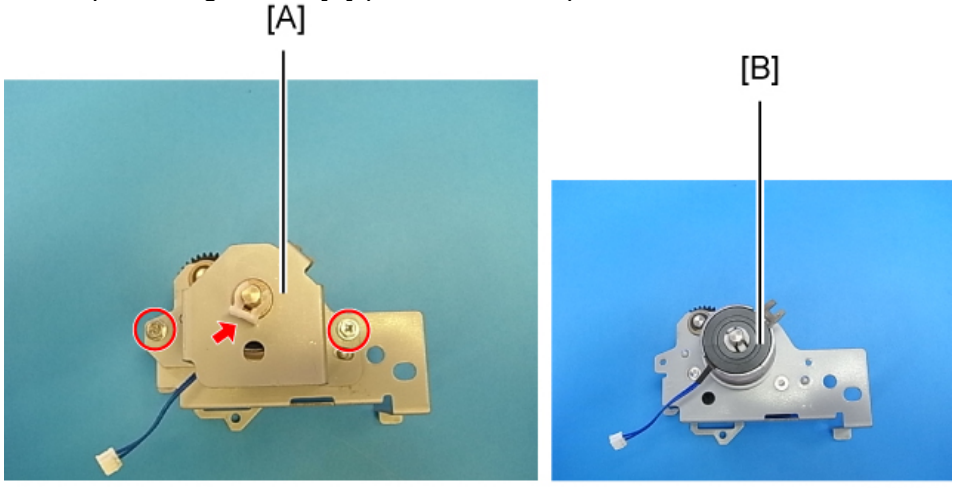
1. Rear cover (p.1 "Rear Cover")
2. Lift motor [A] (x 3, x 1)

1.2.2 PAPER FEED CLUTCH



d579r102

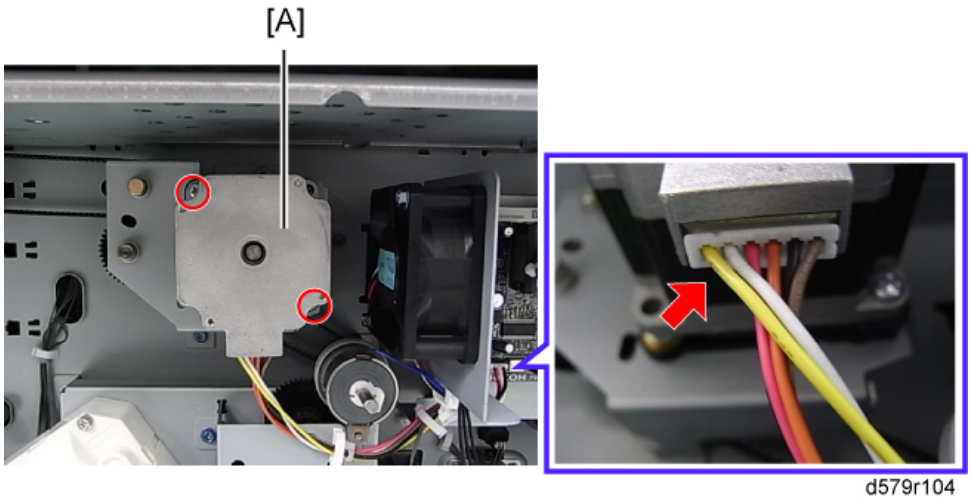
1. Rear cover (☛ p.1 "Rear Cover")
2. Paper feed gear unit [A] (x 3, x 1)



d579r103

1. Paper feed clutch bracket [A] (x 1, x 2, bushing x 1)
2. Paper feed clutch [B]

1.2.3 PAPER FEED MOTOR

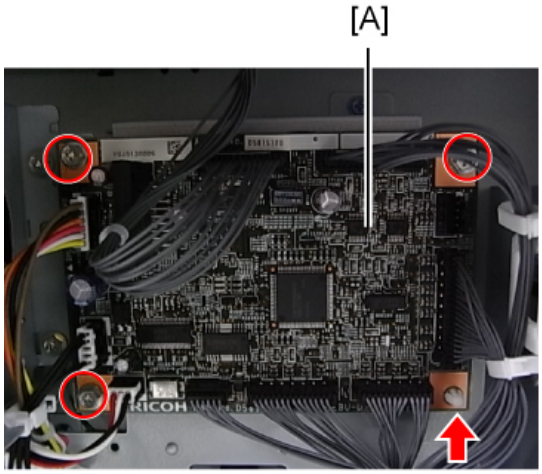


1. Rear cover (☛ p.1 "Rear Cover")
2. Paper feed motor [A] (x 1, x 2)

Note

- When installing the paper feed motor, make sure that the gear of the paper feed motor holds the timing belt [B].

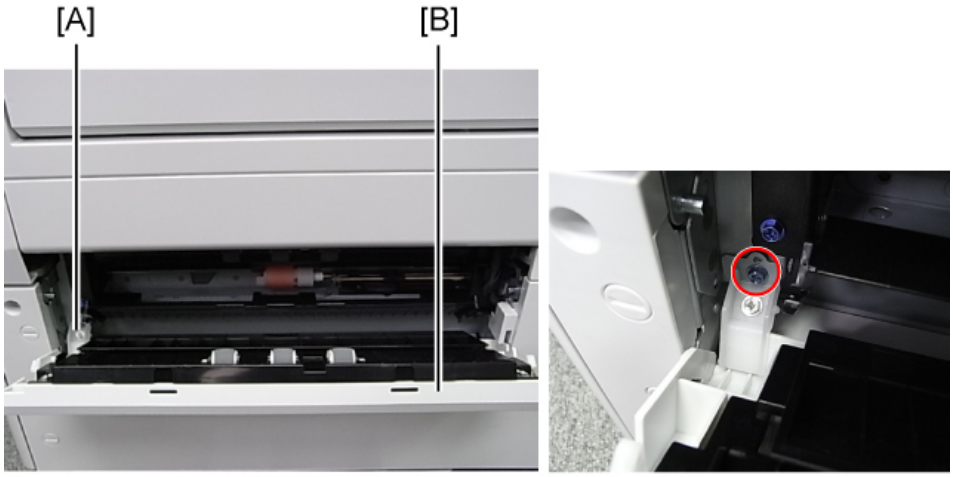
1.2.4 MAIN BOARD



d579r105

1. Rear cover (☛ p.1 "Rear Cover")
2. Main board [A] (All s, x 3, snap pin x 1)

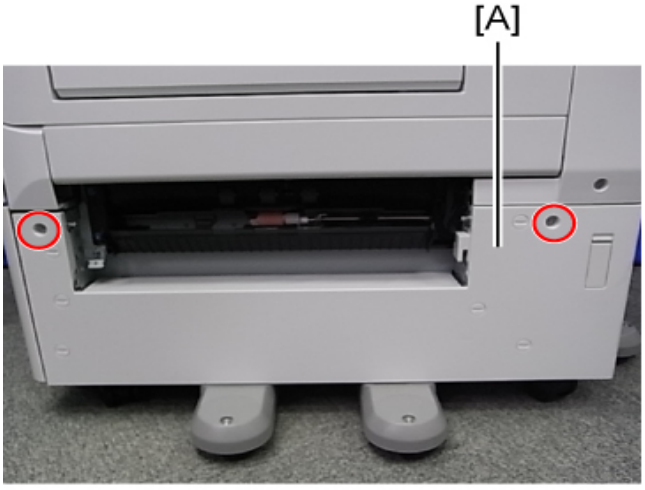
1.3 PAPER FEED UNIT



d579r106

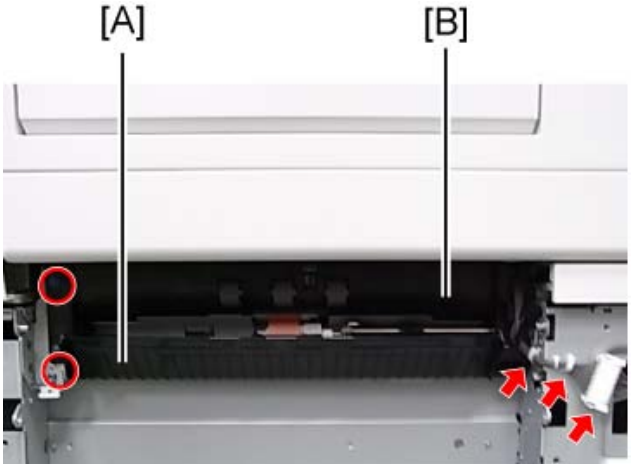
1. Stopper [A] (x 1)
2. Vertical transport guide [B] of the paper feed unit

3. Right cover [A] (x 2)



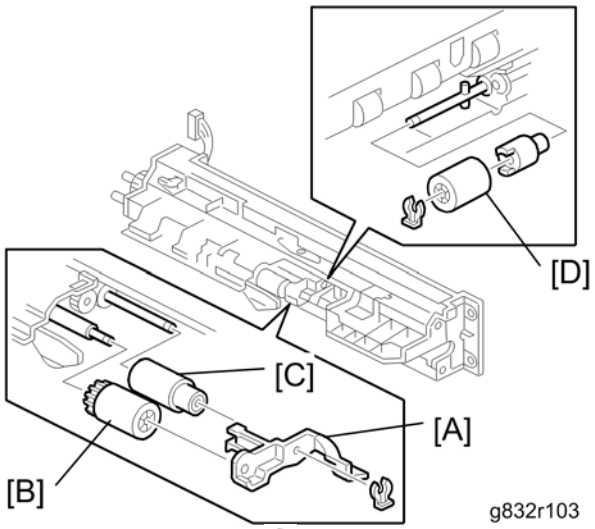
d579r107

4. Pull tray 3.
5. Paper guide [A]
6. Paper feed unit [B]
   (x 2, x 1, x 2)



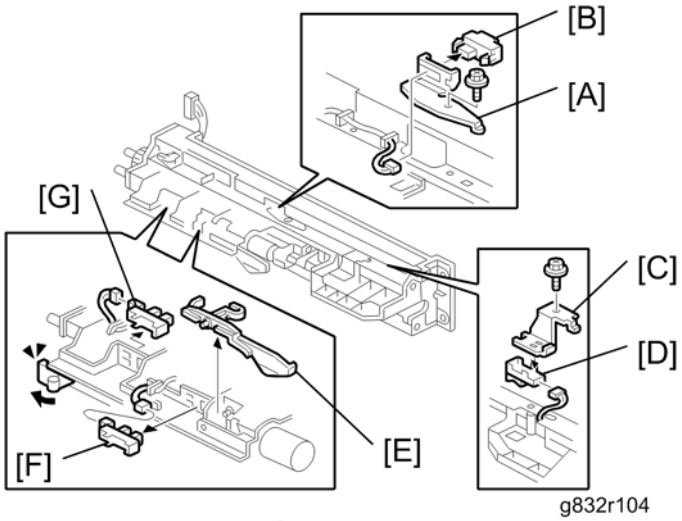
1.4 ROLLERS AND SENSORS

1.4.1 SEPARATION ROLLER, FEED ROLLER AND PICK-UP ROLLER



1. Paper feed unit (☛ p.5 "Paper Feed Unit")
2. Roller holder [A] (x 1)
3. Pick-up roller [B] (x 1)
4. Paper feed roller [C]
5. Separation roller [D] (x 1)

1.4.2 LIFT, PAPER END, AND RELAY SENSORS



1. Paper feed unit (☛ p.5 "Paper Feed Unit")
2. Vertical transport sensor bracket [A] (x 1)
3. Vertical transport sensor [B] (x 1)
4. Paper feed sensor bracket [C] (x 1)
5. Paper feed sensor [D] (x 1)
6. Paper end sensor feeler [E]
7. Paper end sensor [F] (x 1)
8. Lift sensor [G] (x 1)
9.

D582

1 BIN TRAY BN3090

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1 BIN TRAY BN3090 (D582)

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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

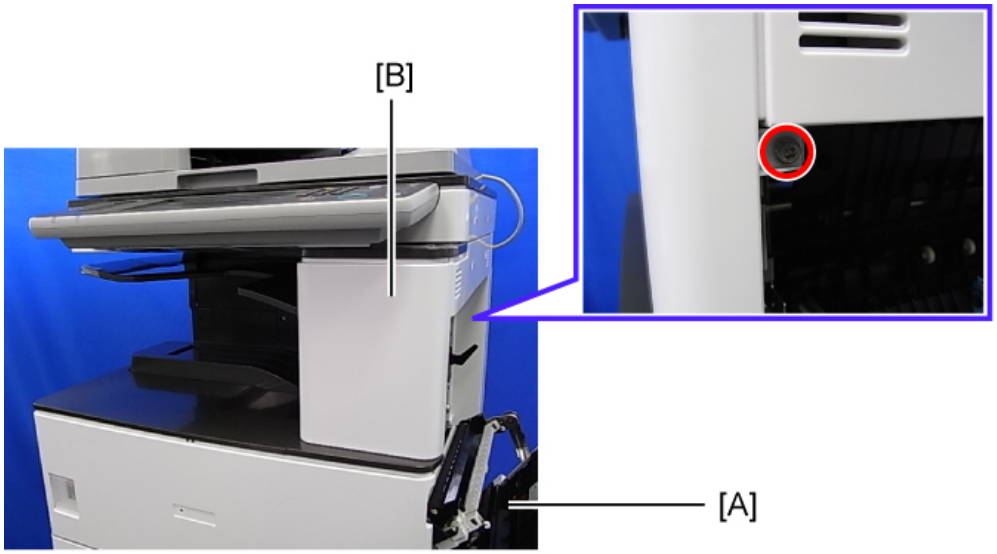
: Clip ring

: E-ring

1. REPLACEMENT AND ADJUSTMENT

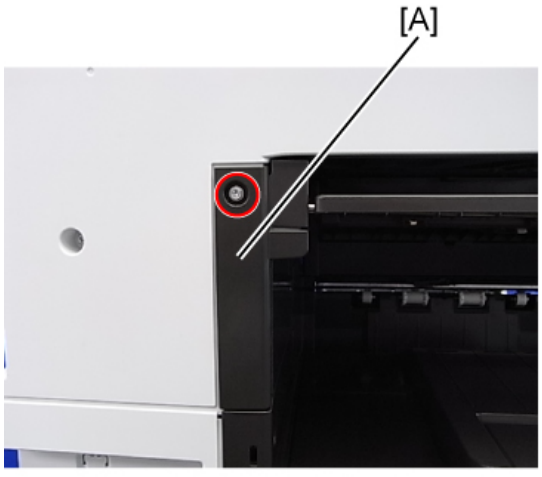
1.1 ELECTRICAL COMPONENTS

1.1.1 PAPER SENSOR



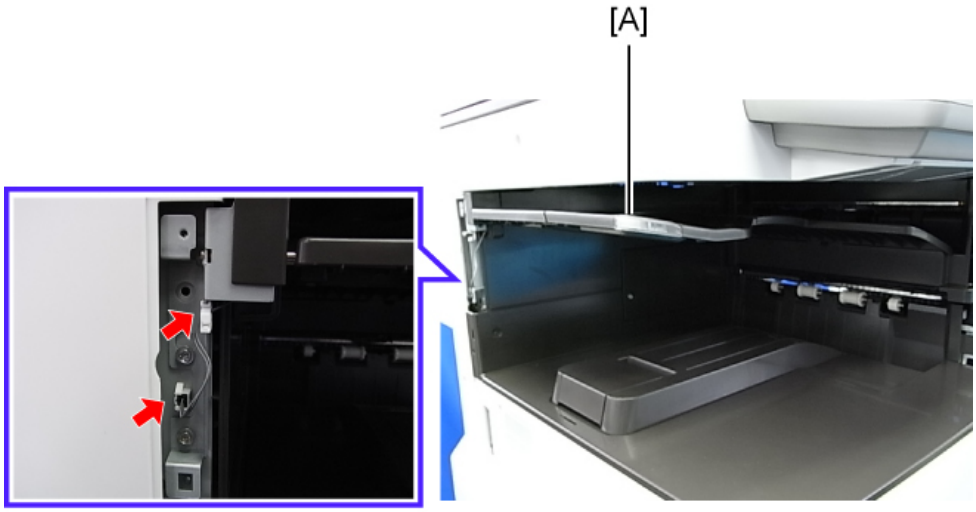
d582r100

1. Open the right door [A] of the machine.
2. Remove the front right cover [B] (x 1).



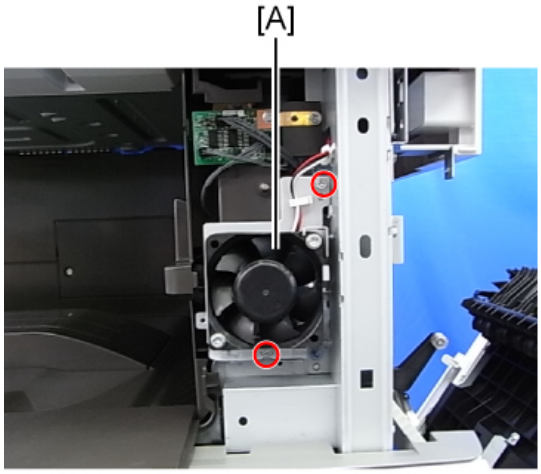
d582r101

3. Remove the support bar cover [A] (x 1).



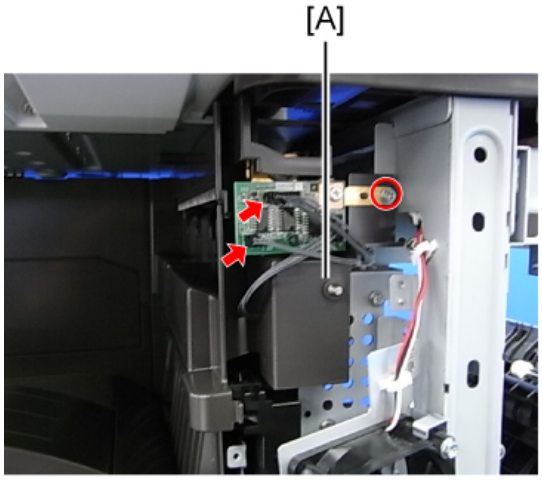
d582r102

4. Remove the 1-bin-tray [A] (x 1, x 1).



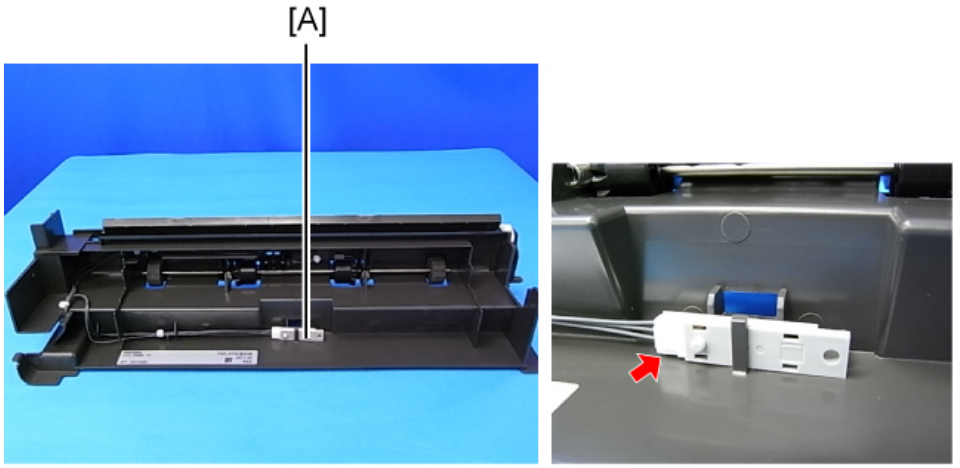
d582r103

5. Remove the fusing fan with bracket [A] (x 2).



d582r104

6. 1-bin sorter unit [A] (x 1, x 2).

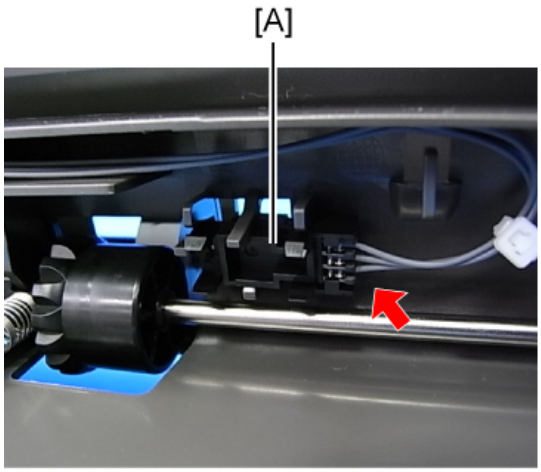


d582r105

7. Paper sensor [A] (x 1, hook).

1.1.2 TRANSPORT SENSOR

1. Remove the 1-bin tray (p.1 "Paper Sensor")
2. Remove the 1-bin sorter unit (p.1 "Paper Sensor")

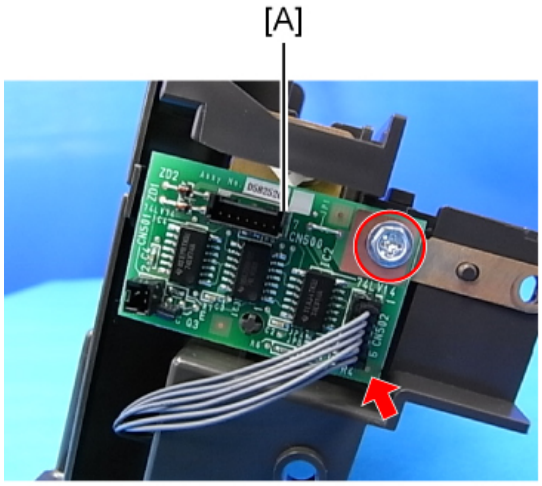


d582r106

3. Transport Sensor [A] (x 1, hook).

1.1.3 1-BIN CONTROL BOARD

1. Remove the 1-bin tray (☛ p.1 "Paper Sensor")
2. Remove the 1-bin sorter unit (☛ p.1 "Paper Sensor")



d582r107

3. 1-bin control board [A] (x 1, x 1).

D584

BRIDGE UNIT BU3050

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BRIDGE UNIT BU3050 (D584)

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1.2 BRIDGE UNIT DRIVE MOTOR.....2

1.3 TRAY EXIT SENSOR 3

1.4 RELAY SENSOR 4

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

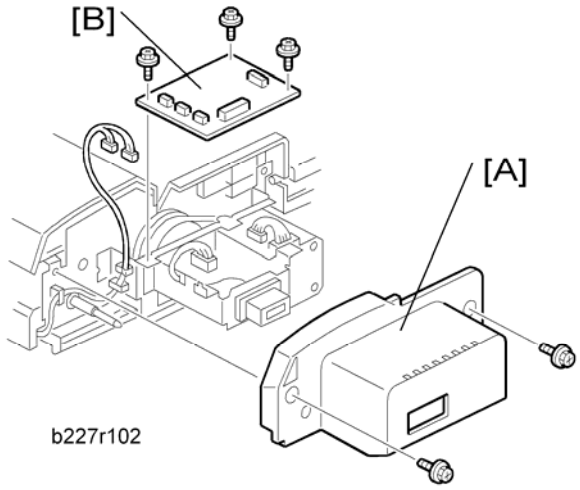
: Connector

: Clip ring

: E-ring

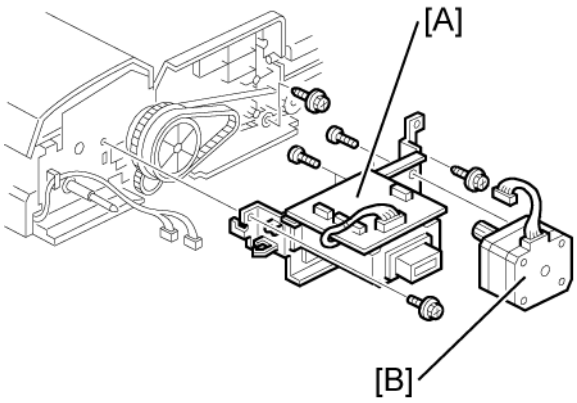
1. REPLACEMENT AND ADJUSTMENT

1.1 BRIDGE UNIT CONTROL BOARD



1. Bridge unit (☛ "Installation Procedure" in the base copier manual)
2. Rear cover [A] (x 2)
3. Bridge unit control board [B] (x 3, x 3)

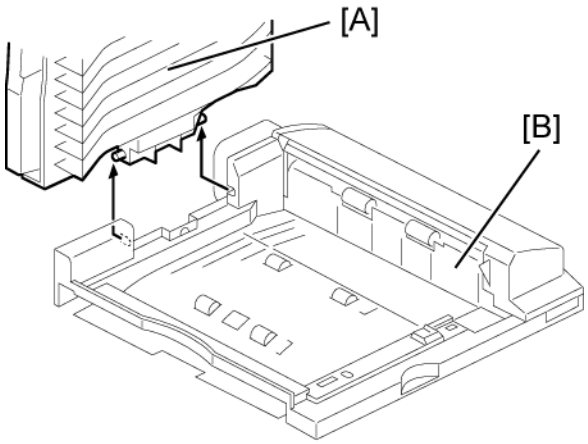
1.2 BRIDGE UNIT DRIVE MOTOR



d584r100

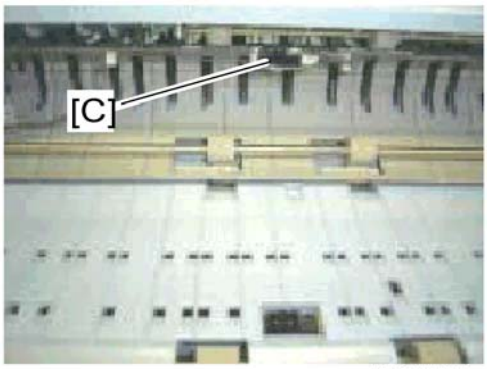
1. Bridge unit (☛ "Installation Procedure" in the base copier manual)
2. Rear cover (☛ p.1 "Bridge Unit Control Board")
3. Bracket [A] (x 3, x 1)
4. Bridge unit drive motor [B] (x 2, x 1)

1.3 TRAY EXIT SENSOR



d584r103

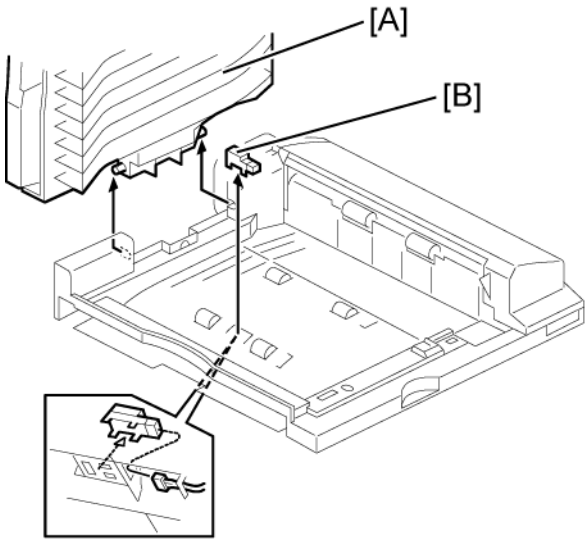
1. Bridge unit (☛ "Installation Procedure" in the base copier manual)
2. Rear cover (☛ p.1 "Bridge Unit Control Board")
3. Paper tray [A]
4. Exit guide [B] (x 1)



b227r503

5. Tray exit sensor [C] (x 1)

1.4 RELAY SENSOR



d584r101

1. Bridge unit (☛ "Installation Procedure" in the base copier manual)
2. Paper tray [A]
3. Relay sensor [B] (x 1)

D586

INTERNAL FINISHER TYPE 3352

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

INTERNAL FINISHER TYPE 3352 (D586)

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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

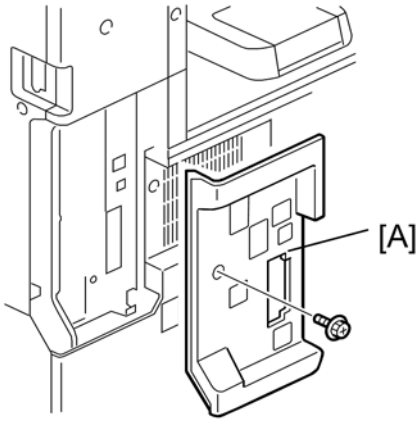
This manual uses the following symbols:

Symbol	Meaning
	See or Refer to
	Connector
	Clamp
	Clip ring
	E-ring
	Screw

1. REPLACEMENT AND ADJUSTMENT

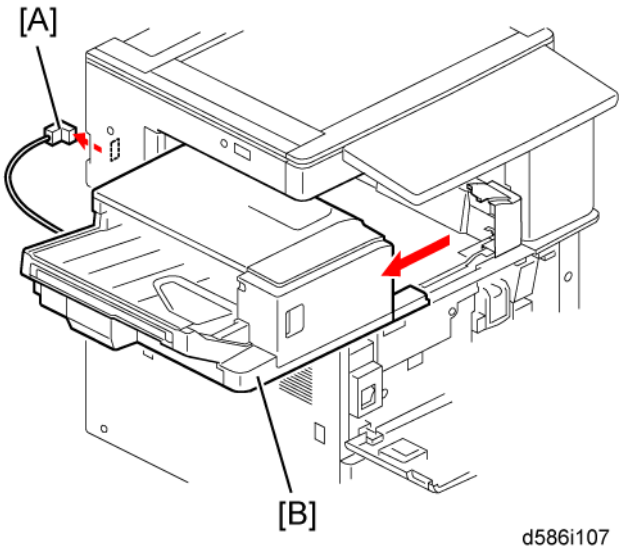
1.1 COMMON PROCEDURES

1.1.1 INTERNAL FINISHER



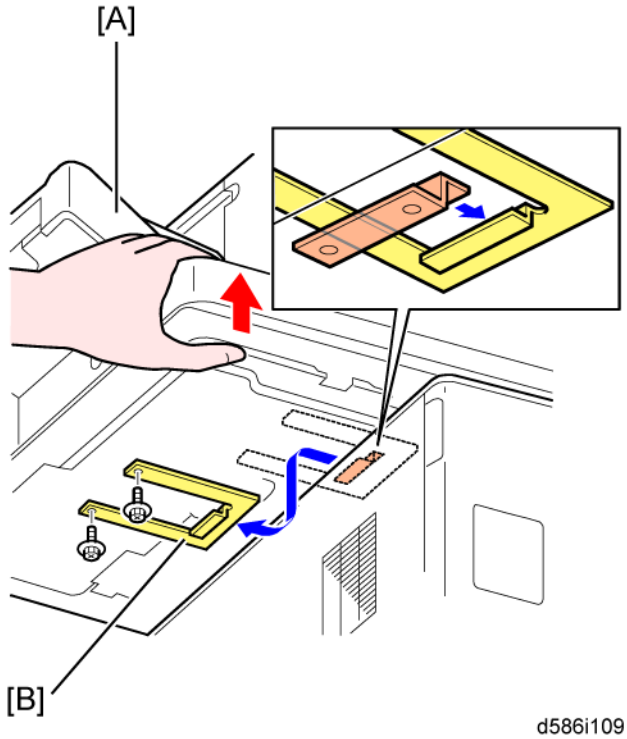
d596i501

1. Remove the controller cover [A] (x 1).



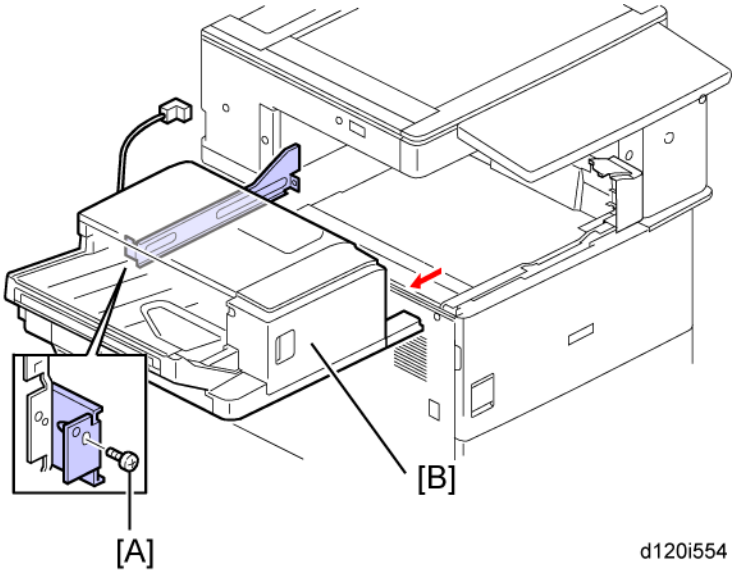
d586i107

2. Disconnect the cable [A] from the inlet of the main machine.
3. Pull out the internal finisher [B].



d586i109

4. Push up the internal finisher [A] from the bottom, and then remove the stopper [B] from the bottom side of the internal finisher (x 2).

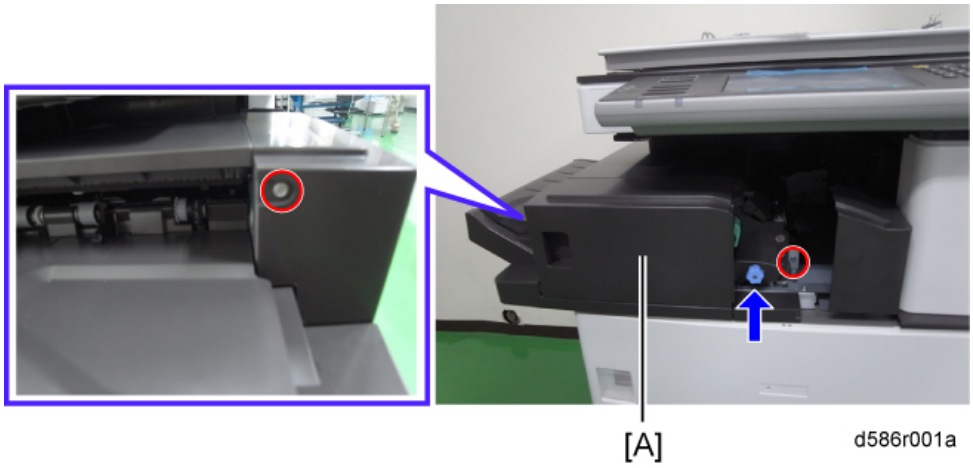


d120i554

5. Remove the screw from the rear rail [A].
6. Remove the internal finisher [B] by pulling it off the main machine.

1.1.2 FRONT COVER

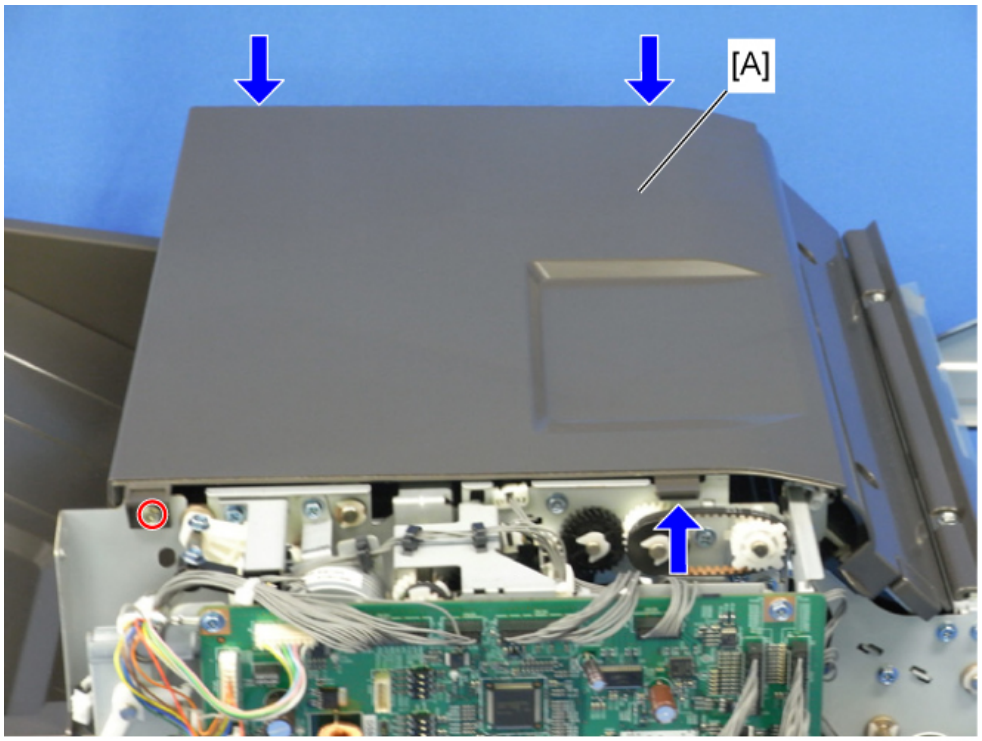
1. Pull out the finisher.



2. Remove the front cover [A] (x 2, Knob x 1).

1.1.3 UPPER COVER

1. Remove:
   - Finisher (☛ p.1 "Internal Finisher")
   - Front cover (☛ p.3 "Front Cover")



d586r002

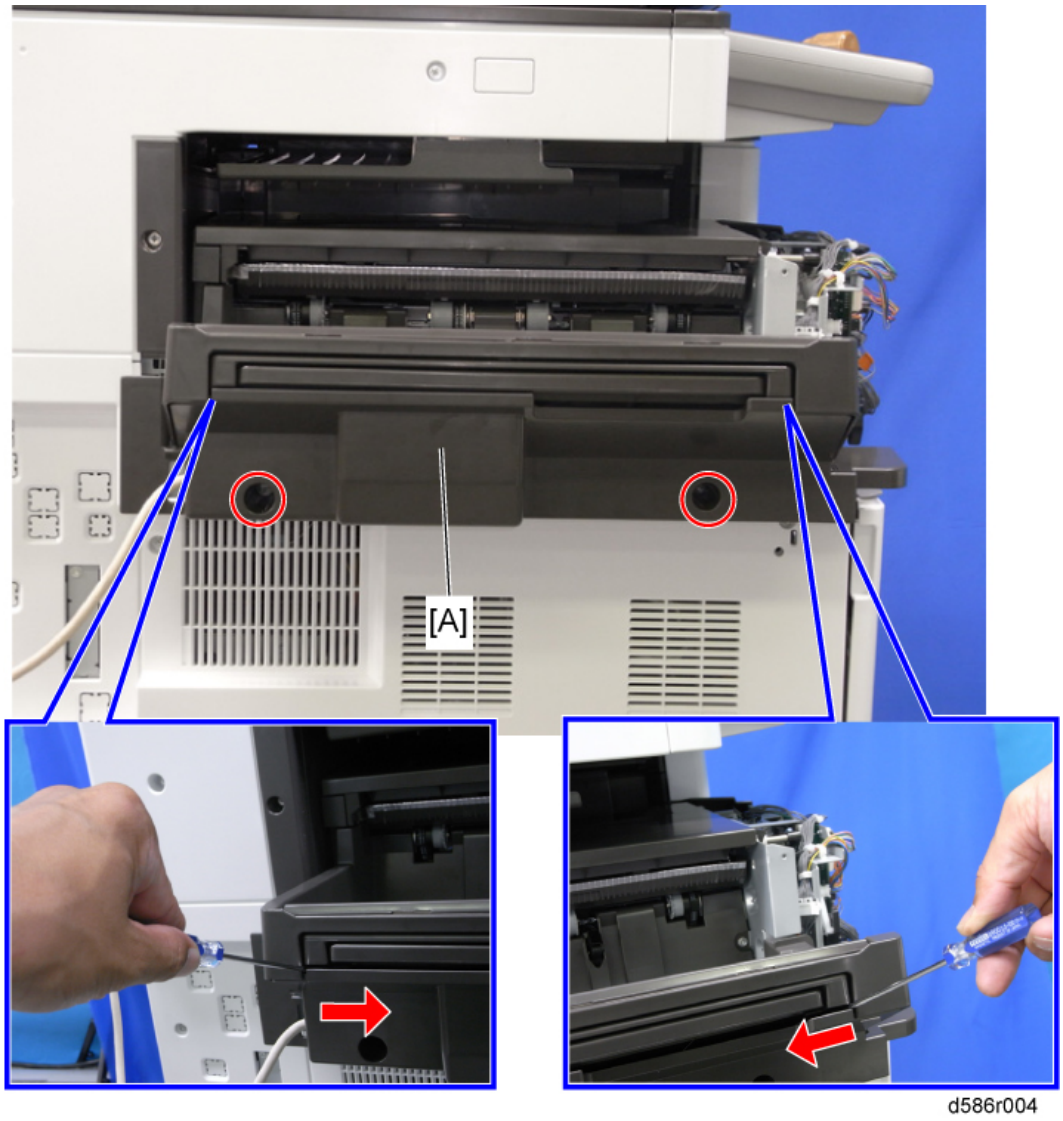
2. Remove the upper cover [A] (x 1, tabs x 3).

Note

- Disconnect the front tab first, and then remove the upper cover.

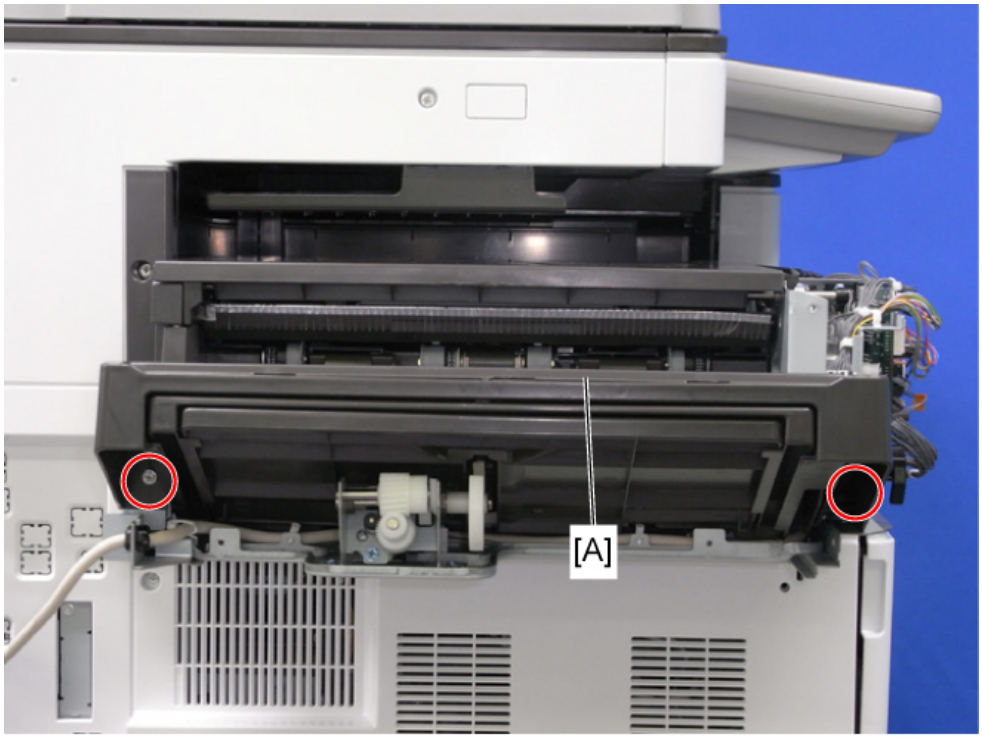
1.1.4 OUTPUT TRAY

1. Remove the front cover (☛ p.3 "Front Cover").



d586r004

2. Remove the lower left cover [A] (x 2).

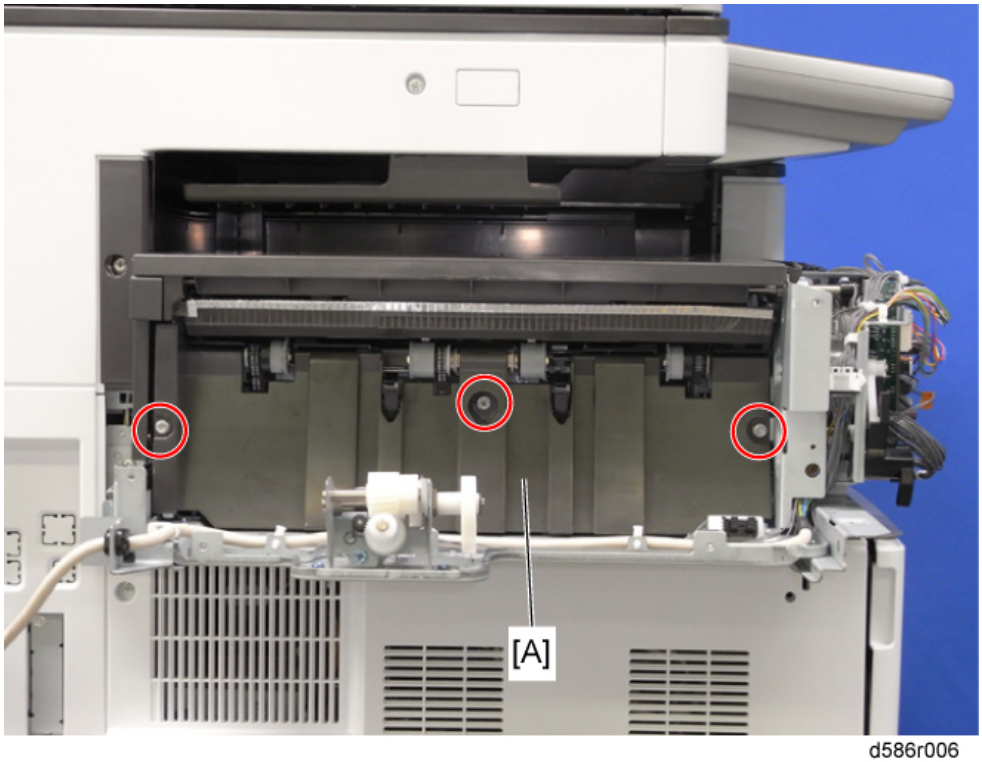


d586r005

3. Remove the output tray [A] (x 2).

1.1.5 EXIT COVER

1. Remove the output tray. (p.5 "Output Tray")



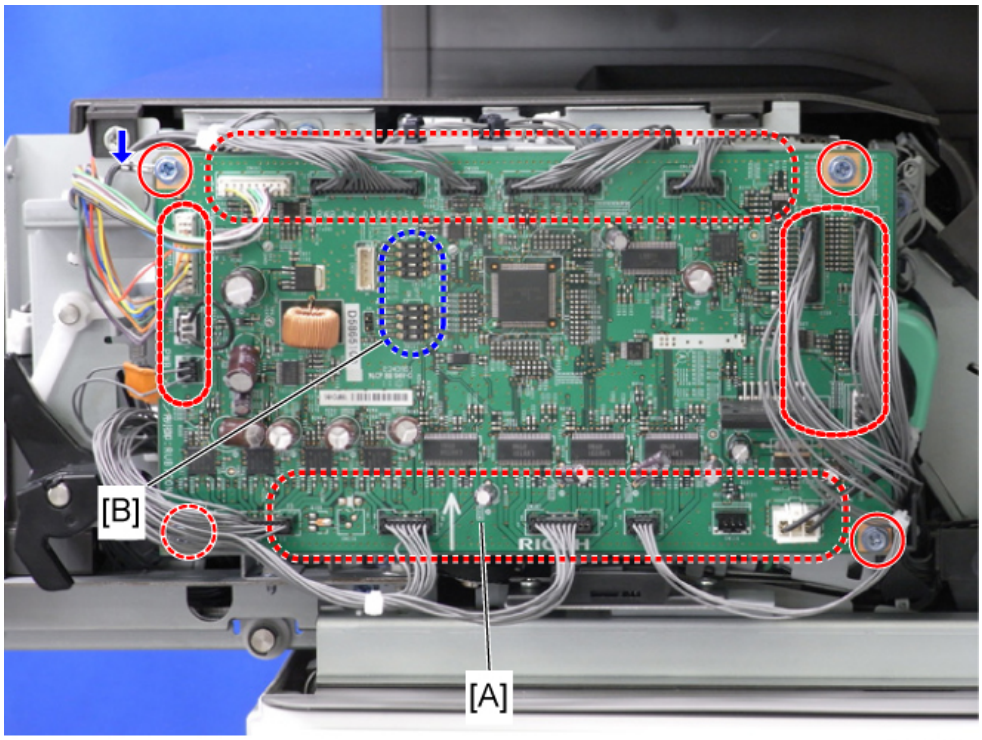
d586r006

2. Remove the exit cover [A] (x 3).

1.2 ELECTRICAL COMPONENTS

1.2.1 CONTROLLER BOARD

1. Remove the front cover. (☛ p.3 "Front Cover")



d586r007

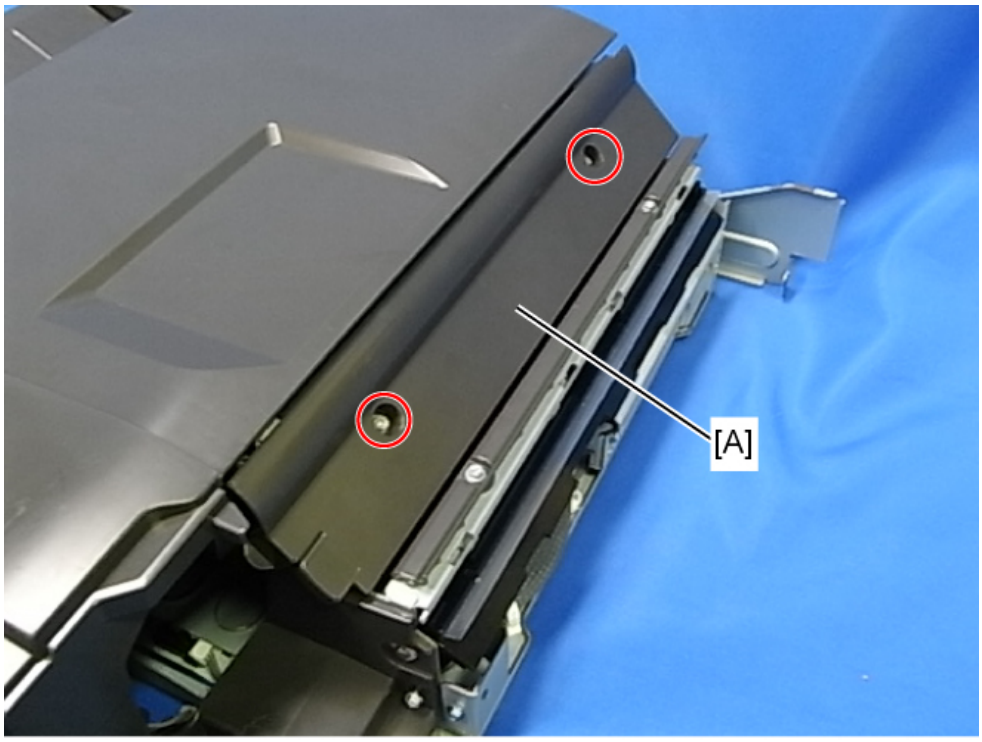
2. Replace the controller board [A] (all s, x 4, grounding cable).

Important

- The settings of the dip switches [B] on the new controller board should be the same as those on the old controller board when the controller board is replaced.

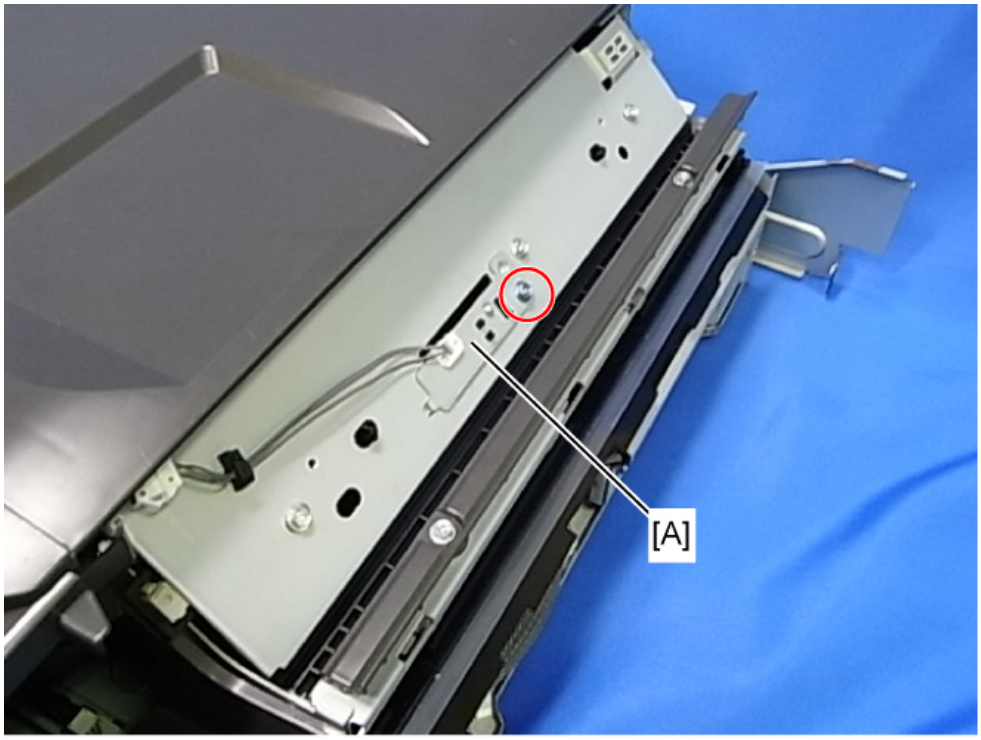
1.2.2 ENTRANCE SENSOR

1. Remove the finisher (☛ p.1 "Internal Finisher").



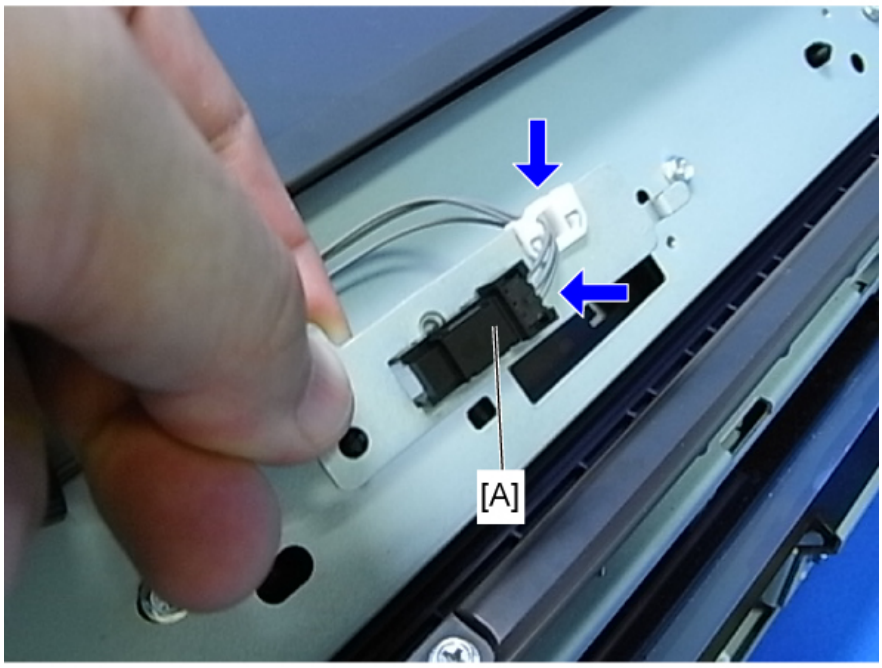
d586r008a

2. Remove the open-close upper cover [A] (x 2).



d586r009a

3. Remove the entrance sensor assembly [A] (x 1).

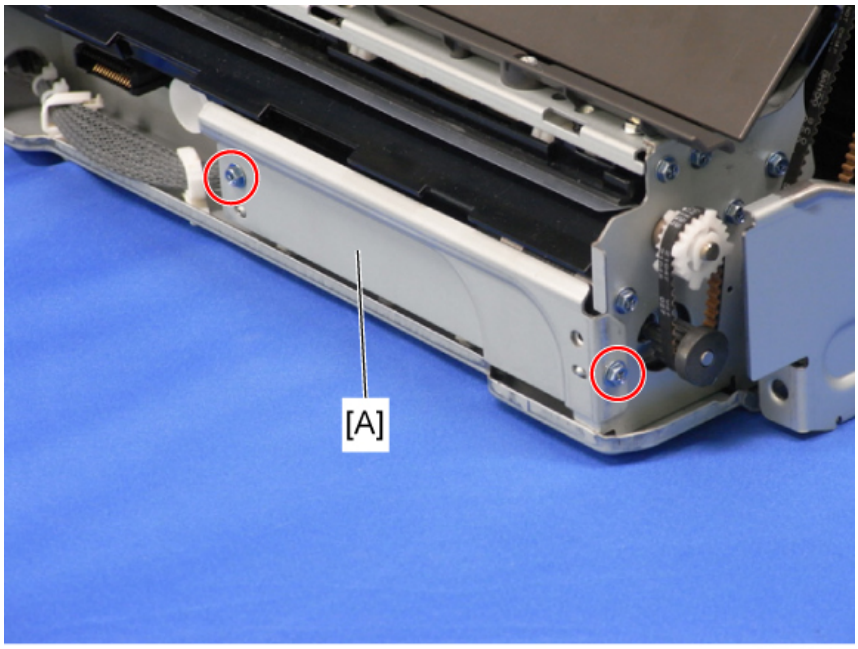


d586r010a

4. Replace the entrance sensor [A] (x1, x 1, hooks x 4).

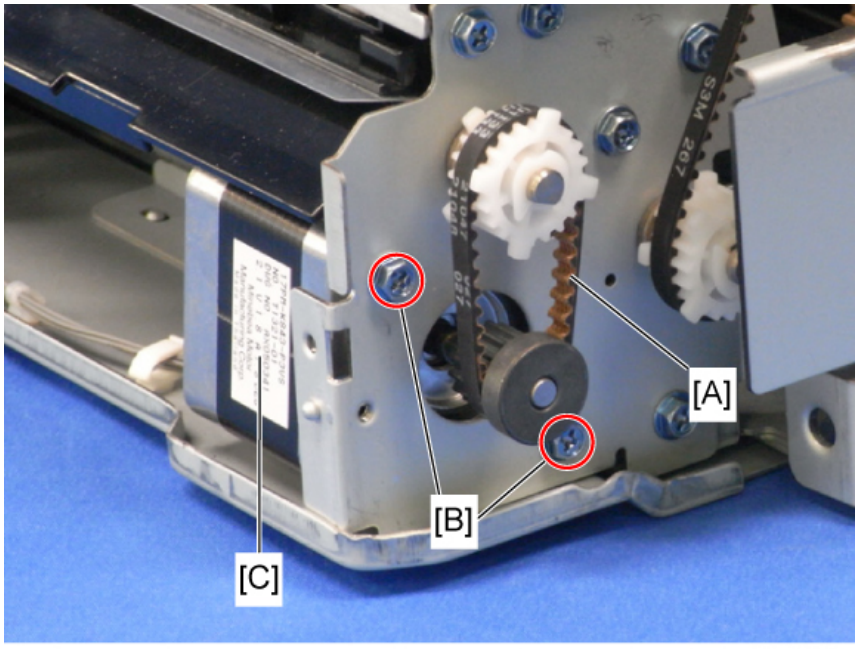
1.2.3 ENTRANCE ROLLER MOTOR

1. Remove the finisher. (☛ p.1 "Internal Finisher")



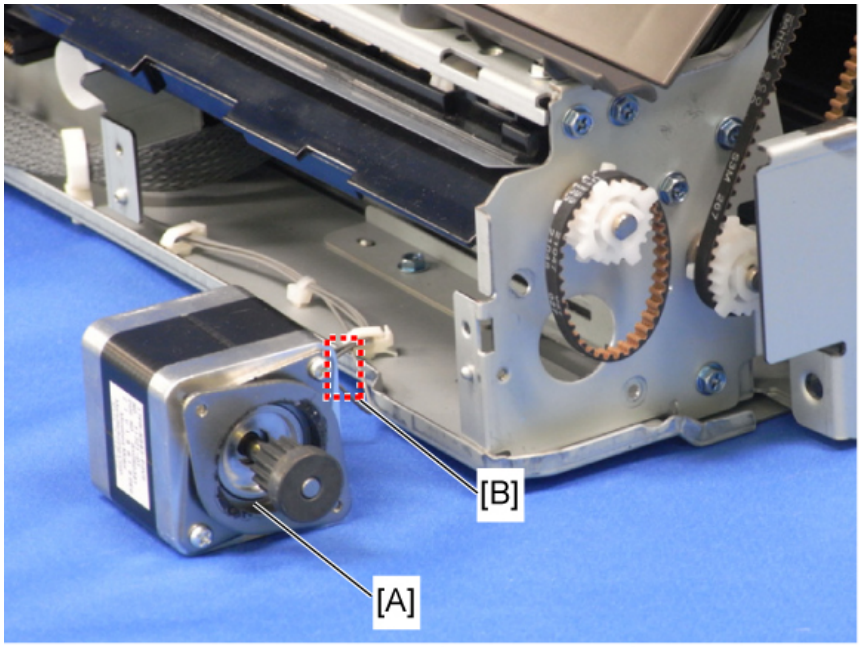
d586r011

2. Remove the rear right cover [A] (x 2).



d586r012

3. Remove the timing belt [A].
4. Remove the two screws [B] of the entrance roller motor [C] (x 2).

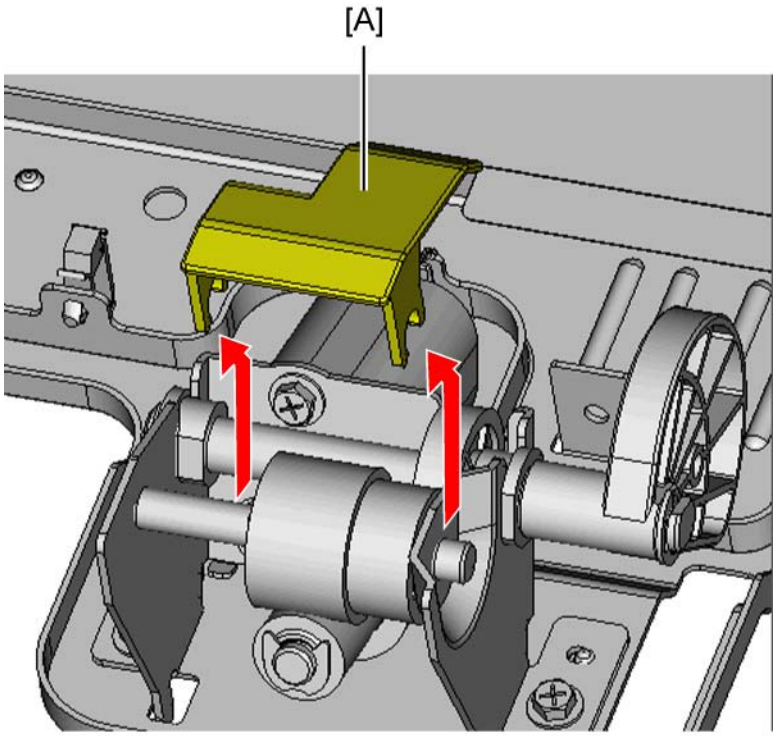


d586r013

5. Replace the entrance roller motor [A] ([B] x 1).

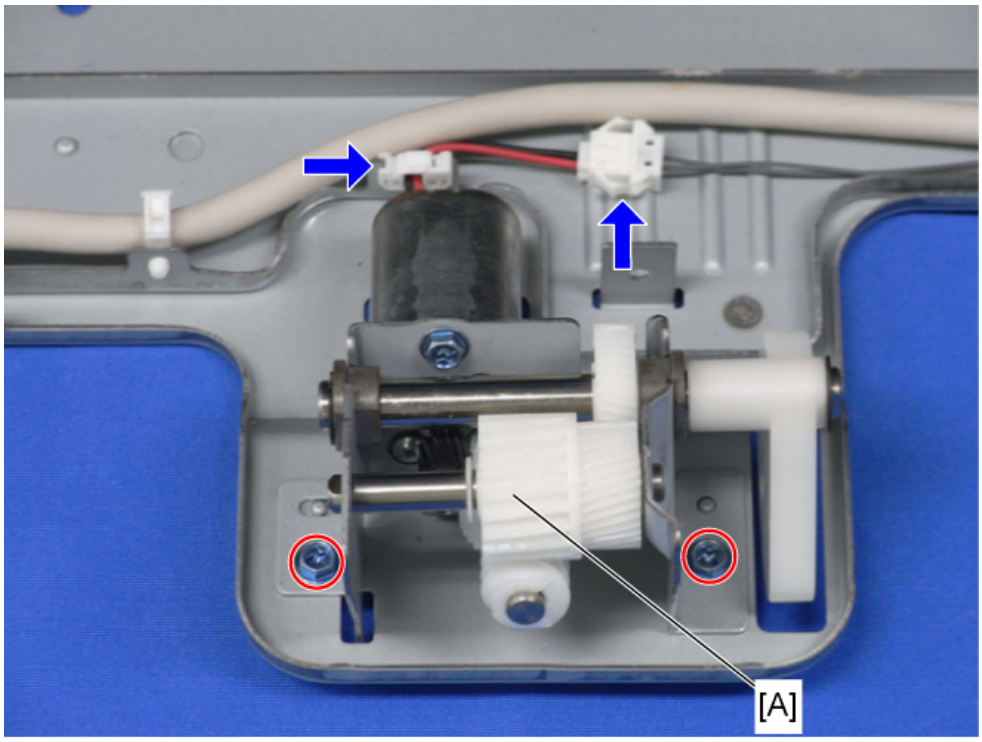
1.2.4 OUTPUT TRAY MOTOR

1. Remove the output tray assembly. (☛ p.5 "Output Tray")



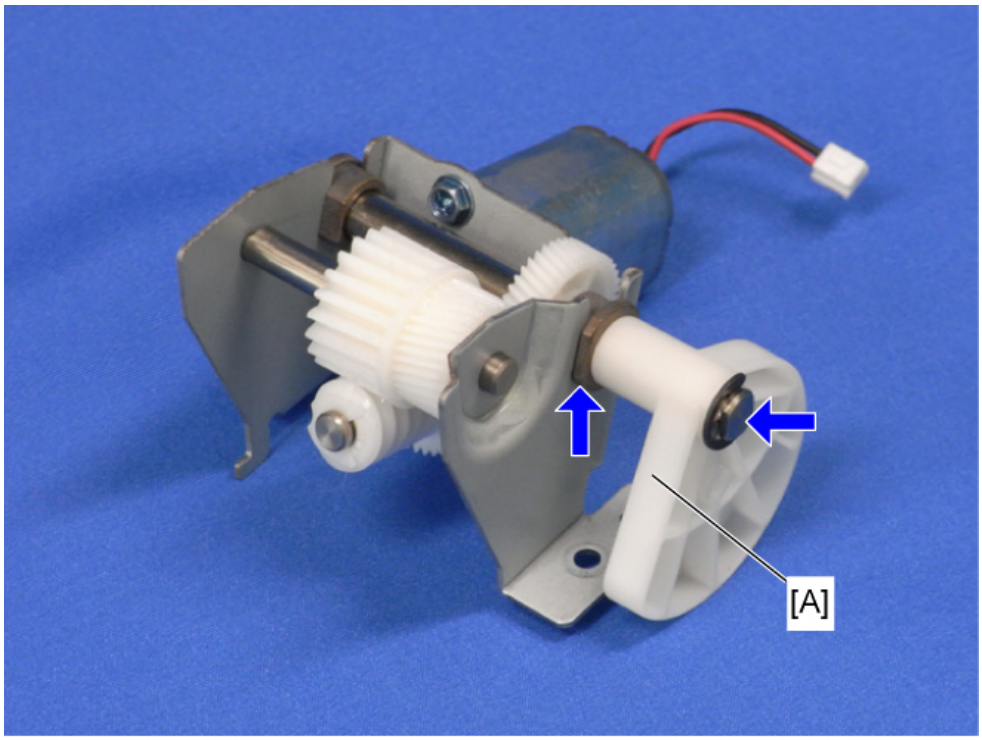
d586r090

2. Remove the output tray motor cover [A] (hook x 2).



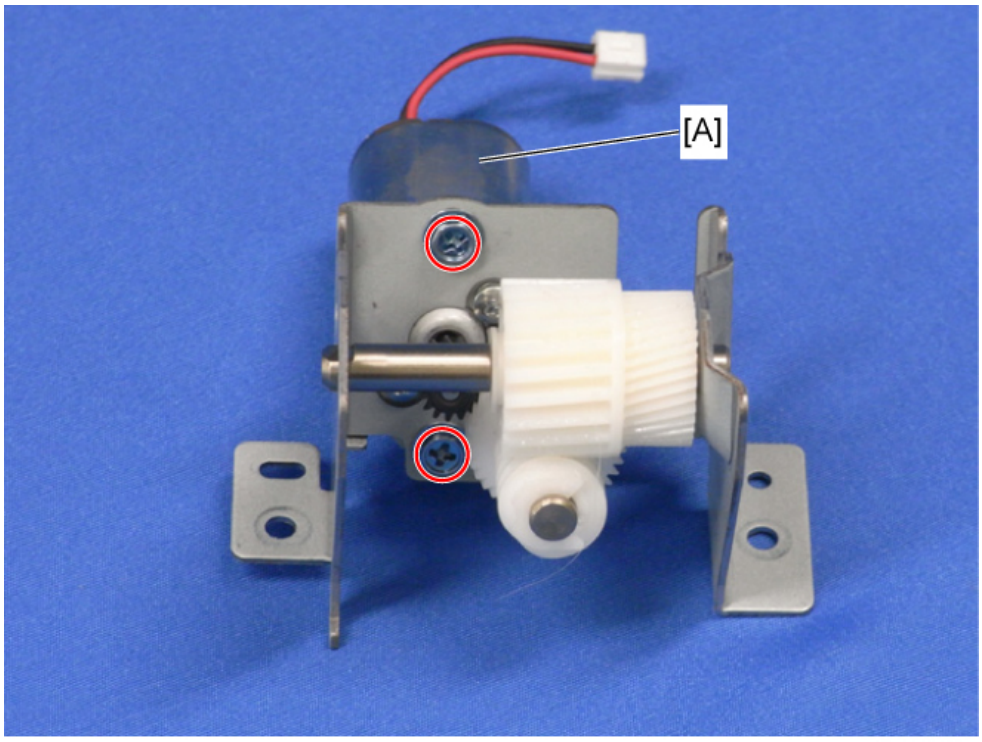
d586r014

3. Remove the output tray motor assembly [A] (x 2, x 1, x 1).



d586r015

4. Remove the cam assembly [A] (x 1, bushing x 1).

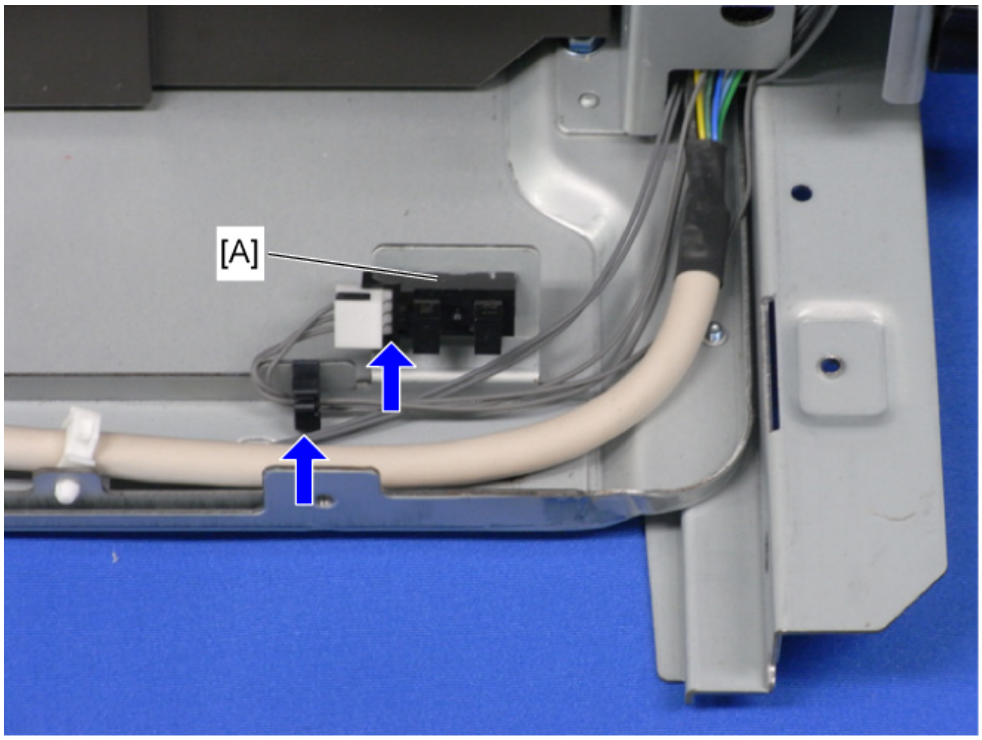


d586r016

5. Replace the output tray motor [A] (x 2).

1.2.5 PAPER OVERFLOW SENSOR

1. Remove the output tray assembly. (☛ p.5 "Output Tray")

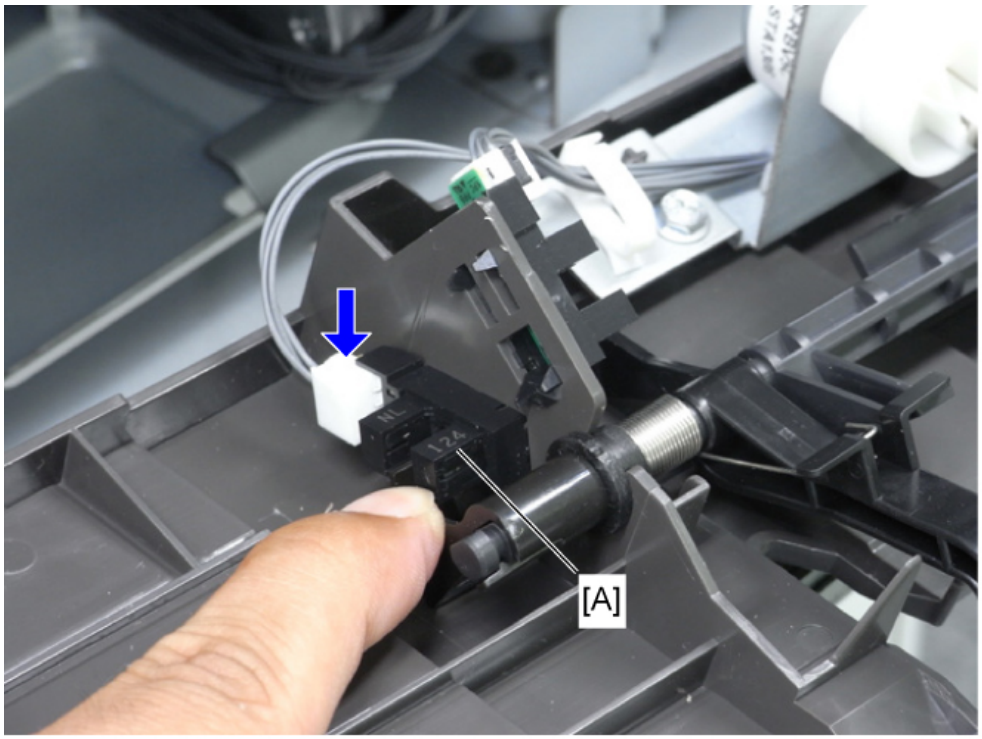


d586r017

2. Replace the paper overflow sensor [A] (x 1, x 1, hooks x 3).

1.2.6 STACK HEIGHT DETECTION LEVER HP SENSOR

1. Remove the exit cover assembly. (☛ p.6 "Exit Cover")



d586r018

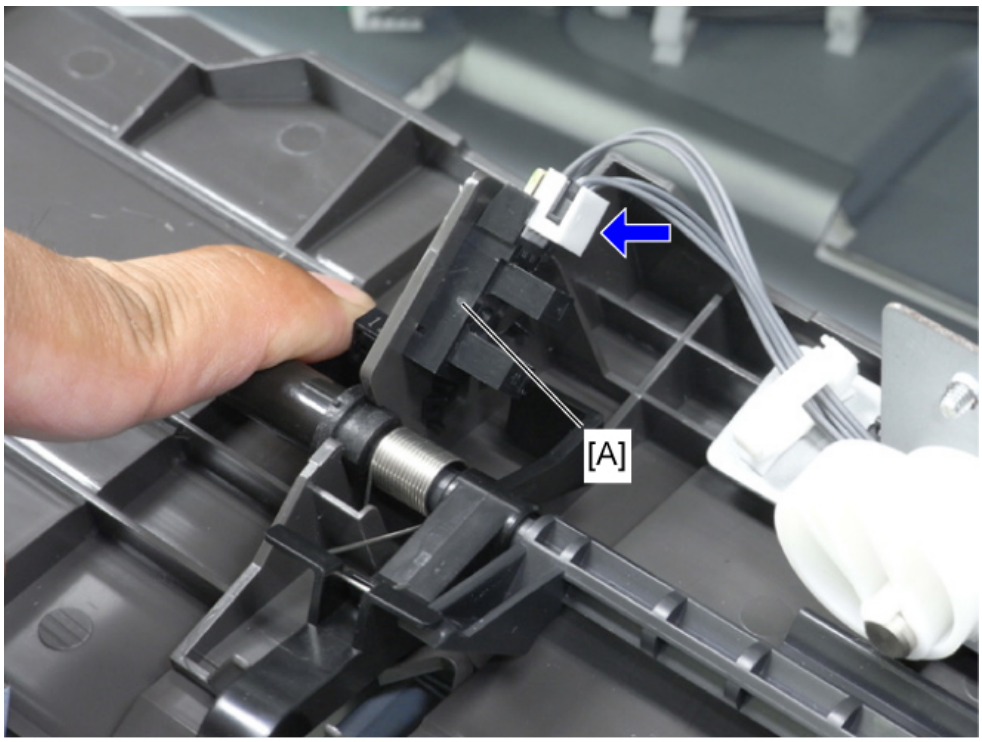
2. Replace the stack height detection lever HP sensor [A] (x 1, hooks x 3).

Note

- The color of the harness connector is white.

1.2.7 STACK HEIGHT DETECTION LEVER SENSOR

1. Remove the exit cover assembly. (☛ p.6 "Exit Cover")



d586r019

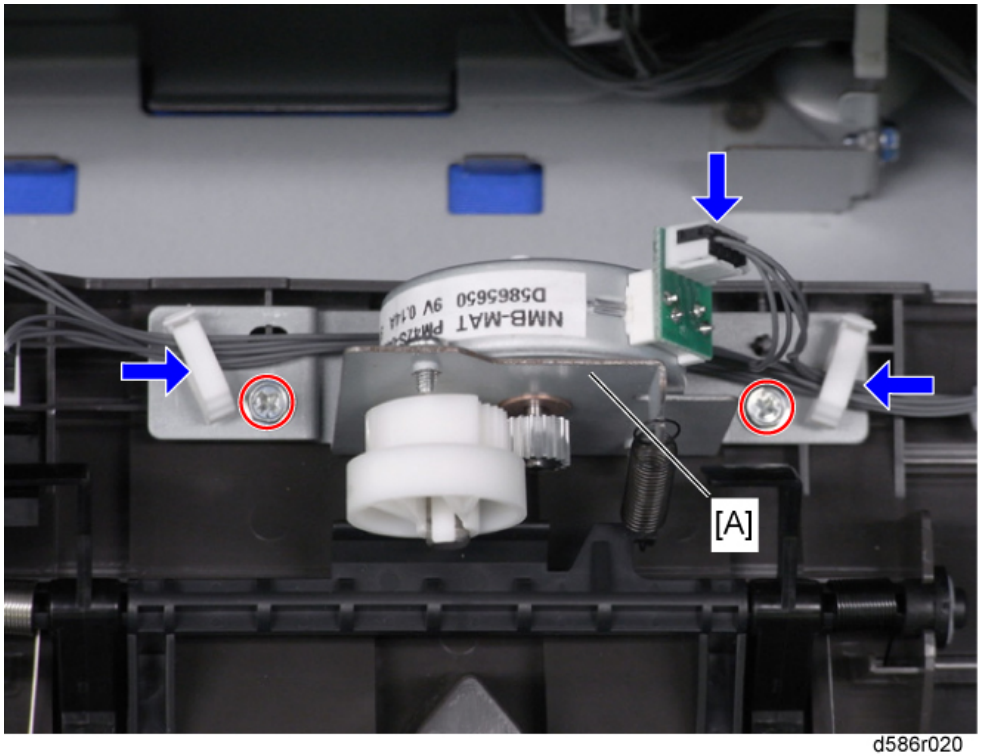
2. Replace the stack height detection lever sensor [A] (x 1, hooks x 3).

Note

- The color of the harness connector is black.

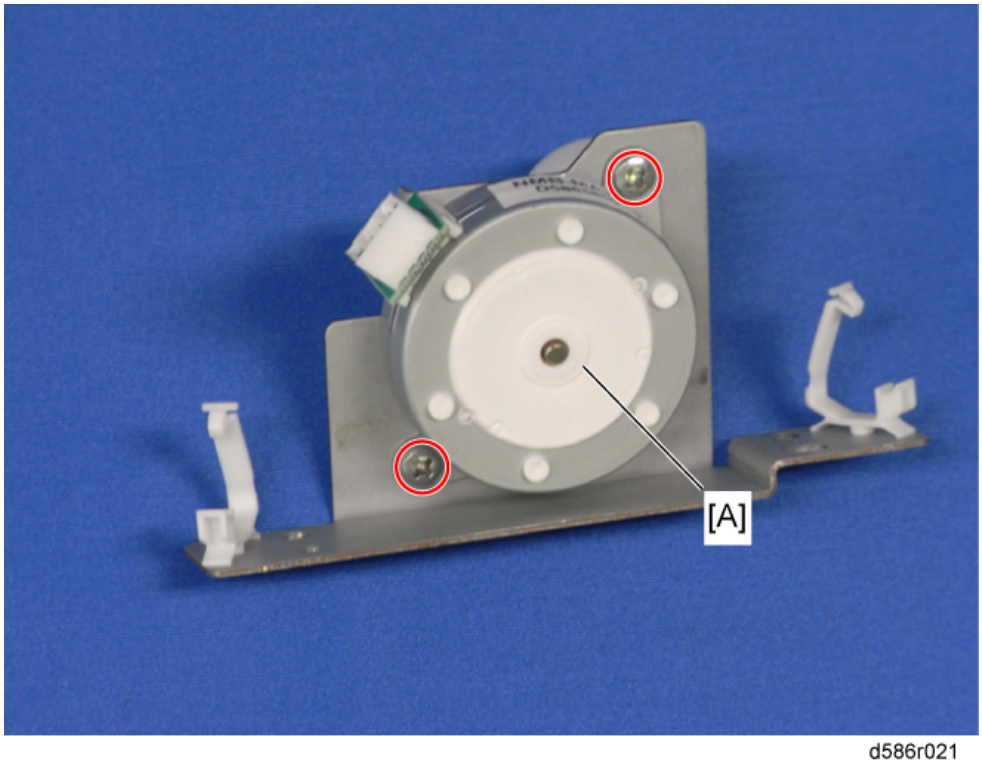
1.2.8 STACK HEIGHT DETECTION LEVER MOTOR

1. Remove the exit cover. (☛ p.6 "Exit Cover")



d586r020

2. Remove the stack height detection lever motor assembly [A] (x 2, x 2, x 1).

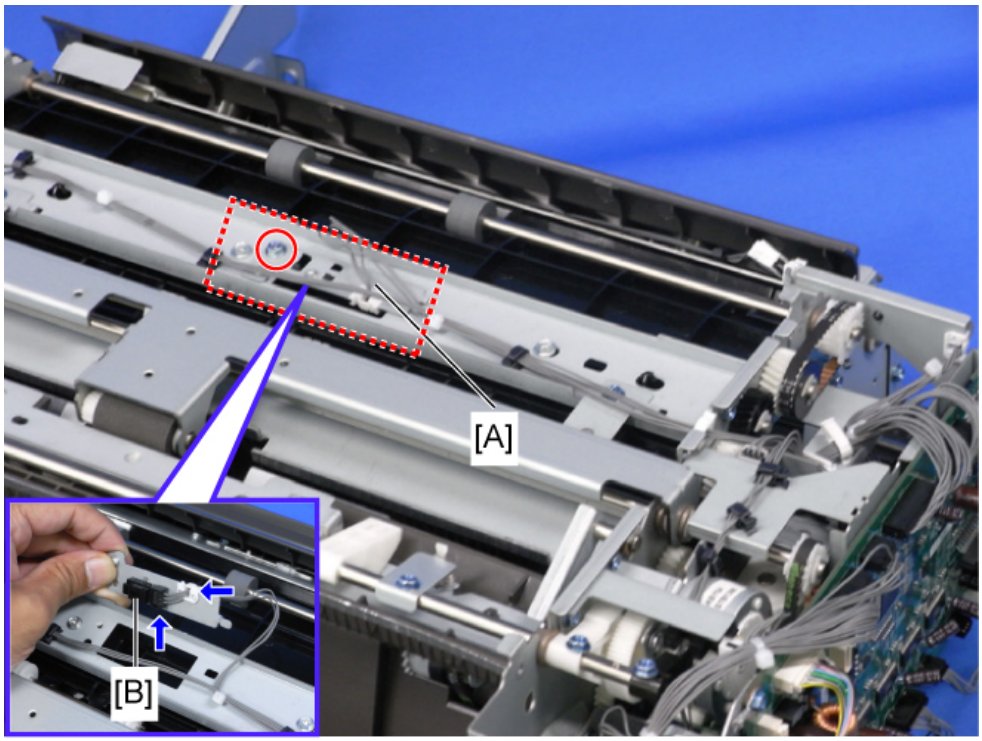


d586r021

3. Replace the stack height detection lever motor [A] (x 2).

1.2.9 FEED SENSOR

1. Remove the upper cover. (☛ p.4 "Upper Cover")



d586r023

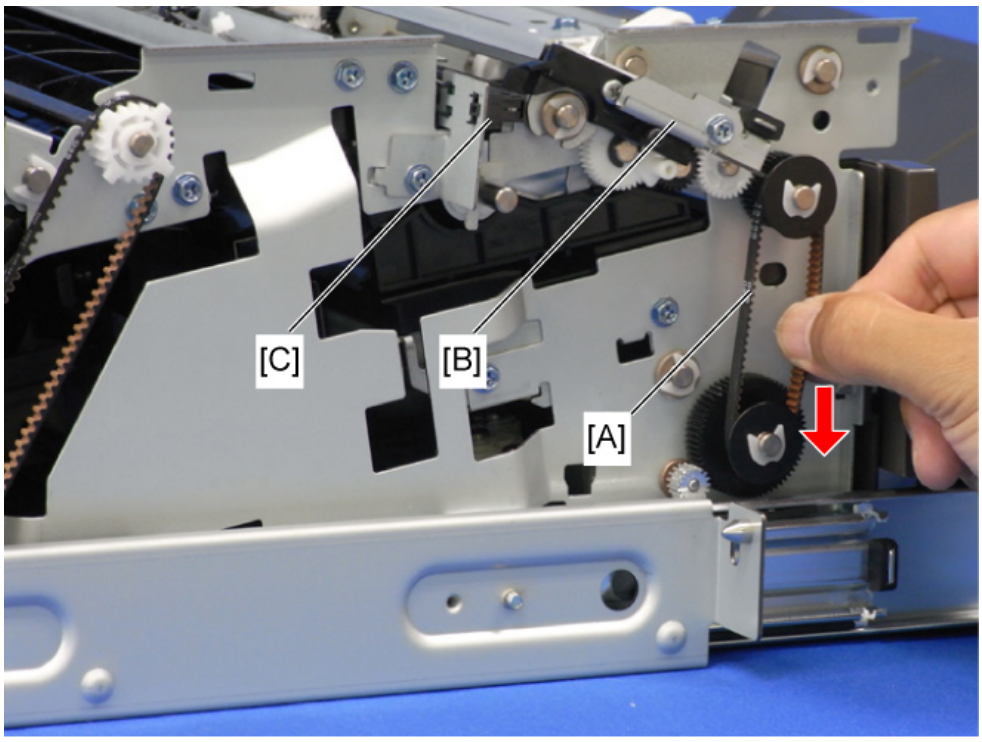
2. Remove the feed sensor assembly [A] (x 1).
3. Replace the feed sensor [B] (x 1, x 1, hooks x 4).

1.2.10 PICK-UP ROLLER HP SENSOR

1. Remove the upper cover. (☛ p.4 "Upper Cover")

d586r024

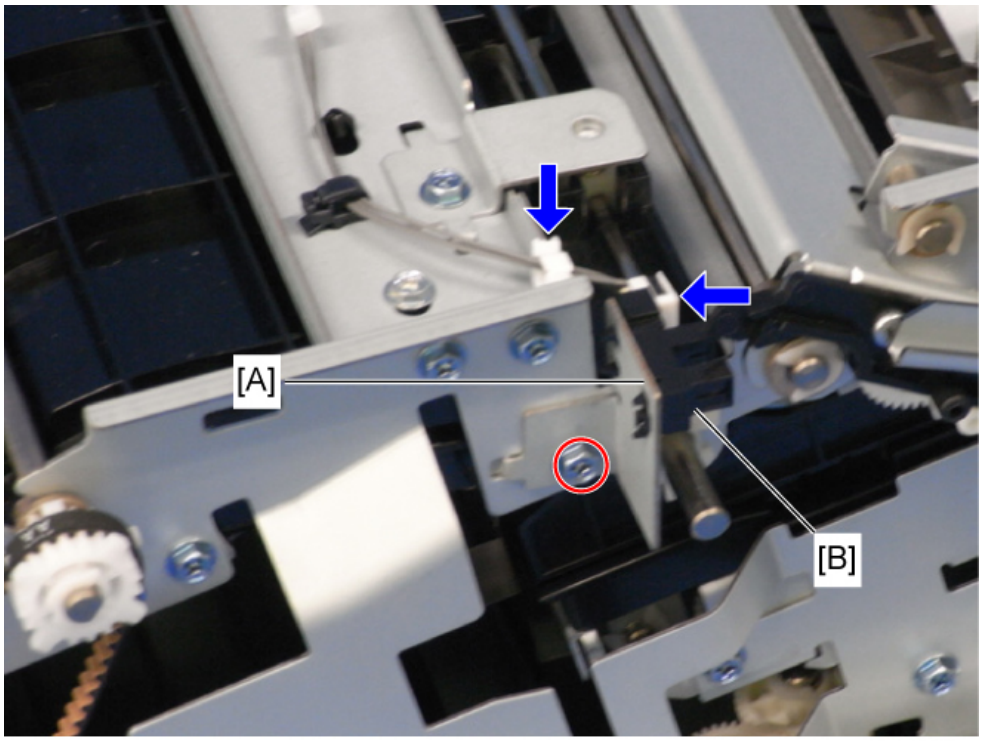
2. Remove the rear cover [A] (x 1).



d586r025

3. Pull down the timing belt [A] to lift the pick-up roller sensor arm assembly [B].

Make sure that the sensor actuator is away from the HP sensor [C].

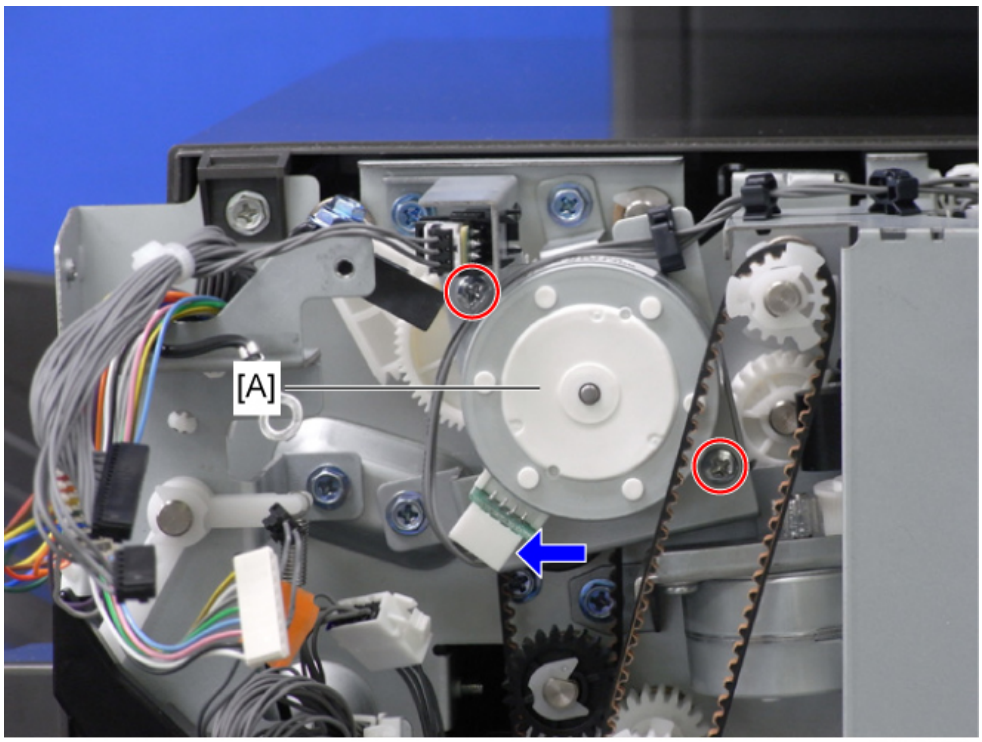


d586r026

4. Remove the pick-up roller HP sensor assembly [A] (x 1, x 1).
5. Replace the pick-up roller HP sensor [B] (x 1, hooks x 3).

1.2.11 EXIT GUIDE PLATE MOTOR

1. Remove the controller board. (☛ p.7 "Controller Board")

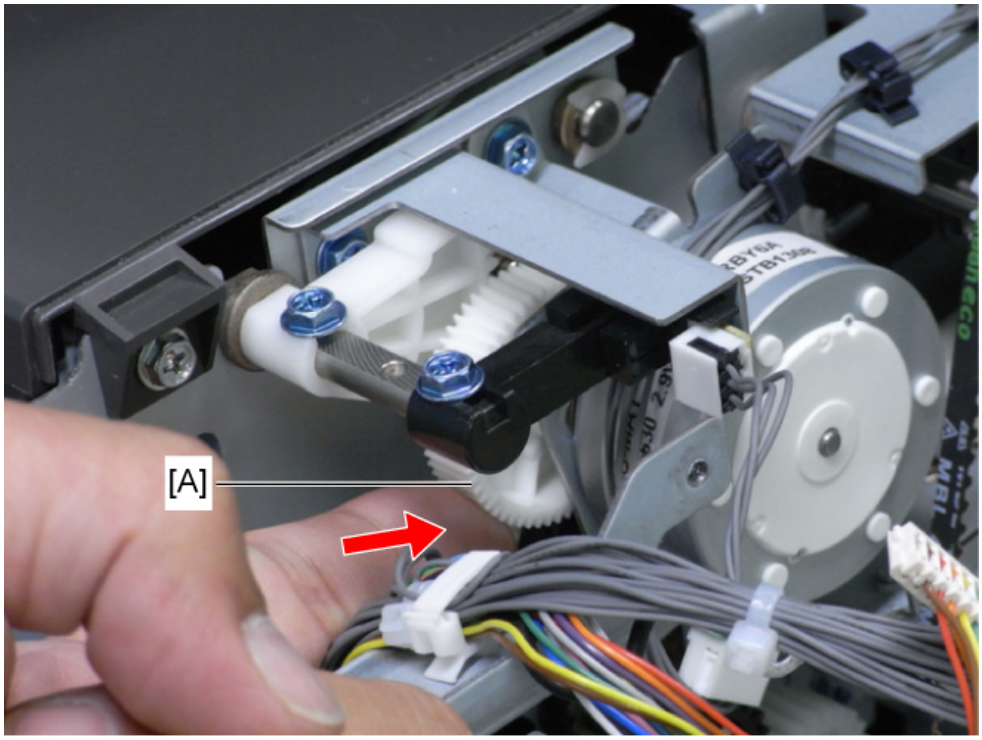


d586r027

2. Replace the exit guide plate motor [A] (x 2, x 1).

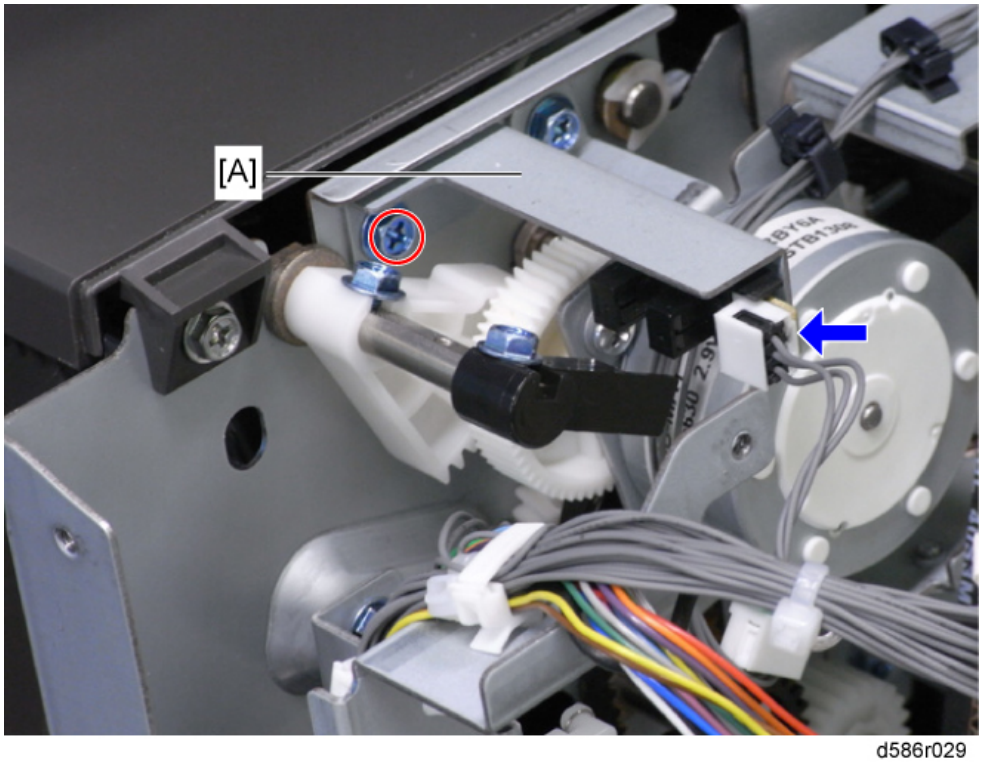
1.2.12 EXIT GUIDE PLATE HP SENSOR

1. Remove the controller board. (☛ p.7 "Controller Board")



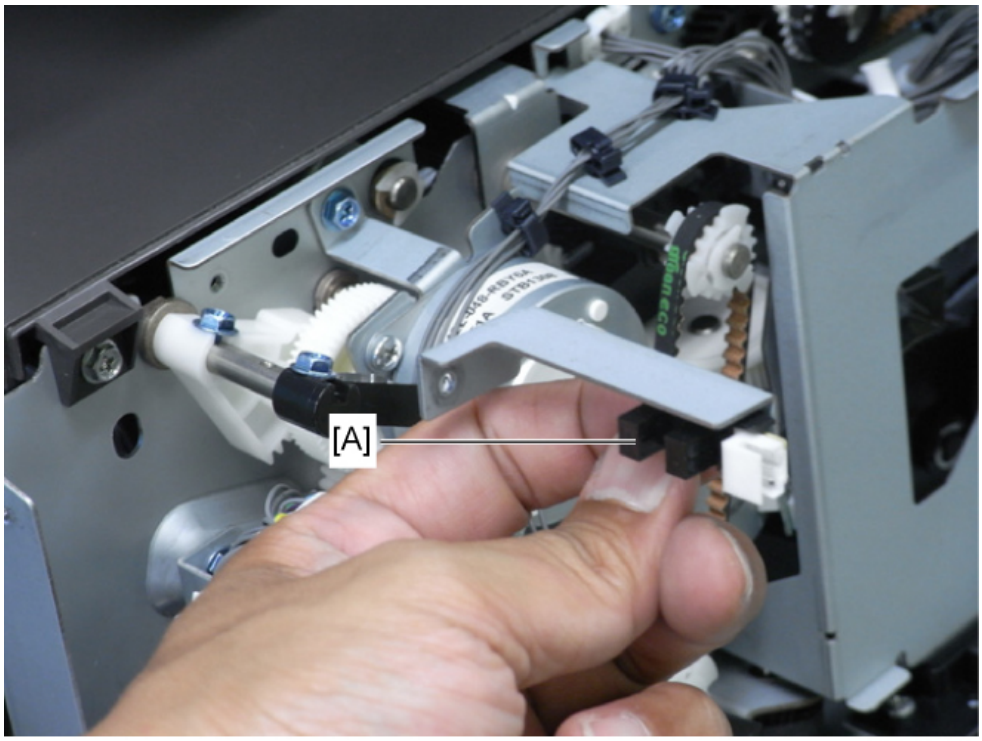
d586r028

2. Rotate the exit guide plate gear [A] counterclockwise to release it from the exit guide HP sensor.



d586r029

3. Remove the exit guide plate HP sensor assembly [A] (x 1, x 1).

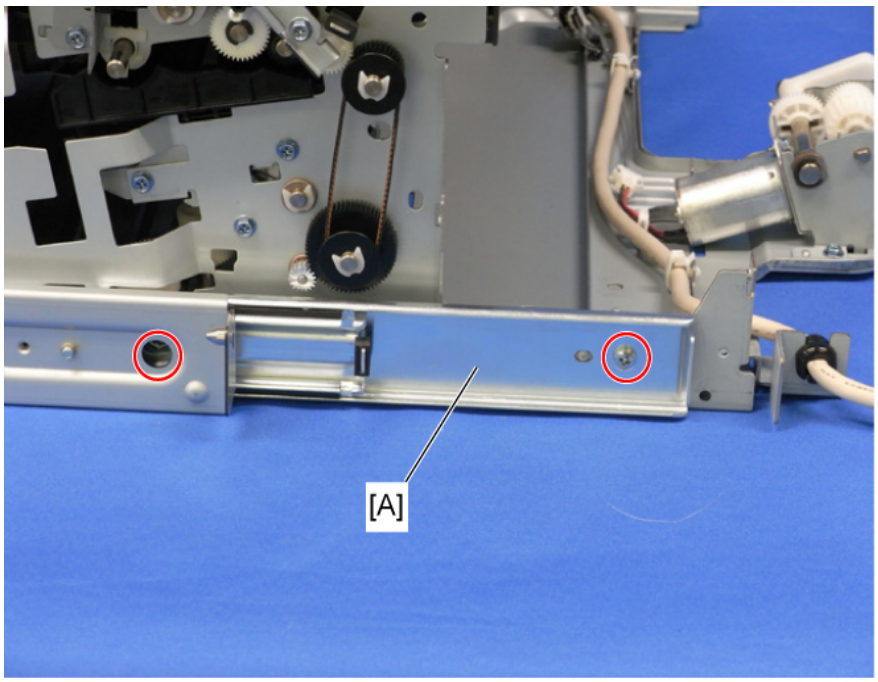


d586r030

4. Replace the exit guide plate HP sensor [A] (hooks x 3).

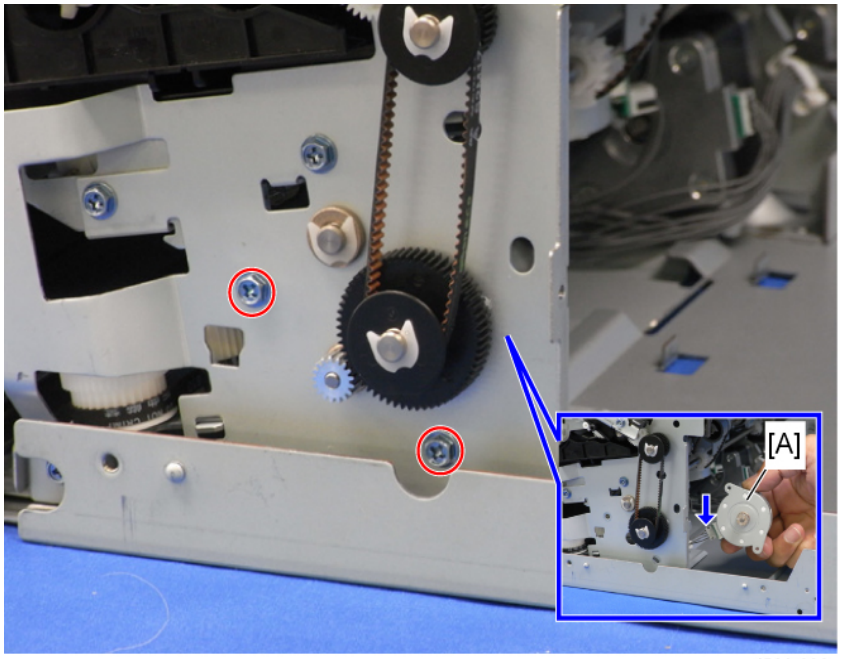
1.2.13 PICK UP ROLLER MOTOR

1. Remove:
   - Exit cover assembly (☛ p.6 "Exit Cover")
   - Rear cover (☛ p.19 "Pick-up Roller HP Sensor")



d586r031

2. Remove the slide rail assembly [A] (x 2).

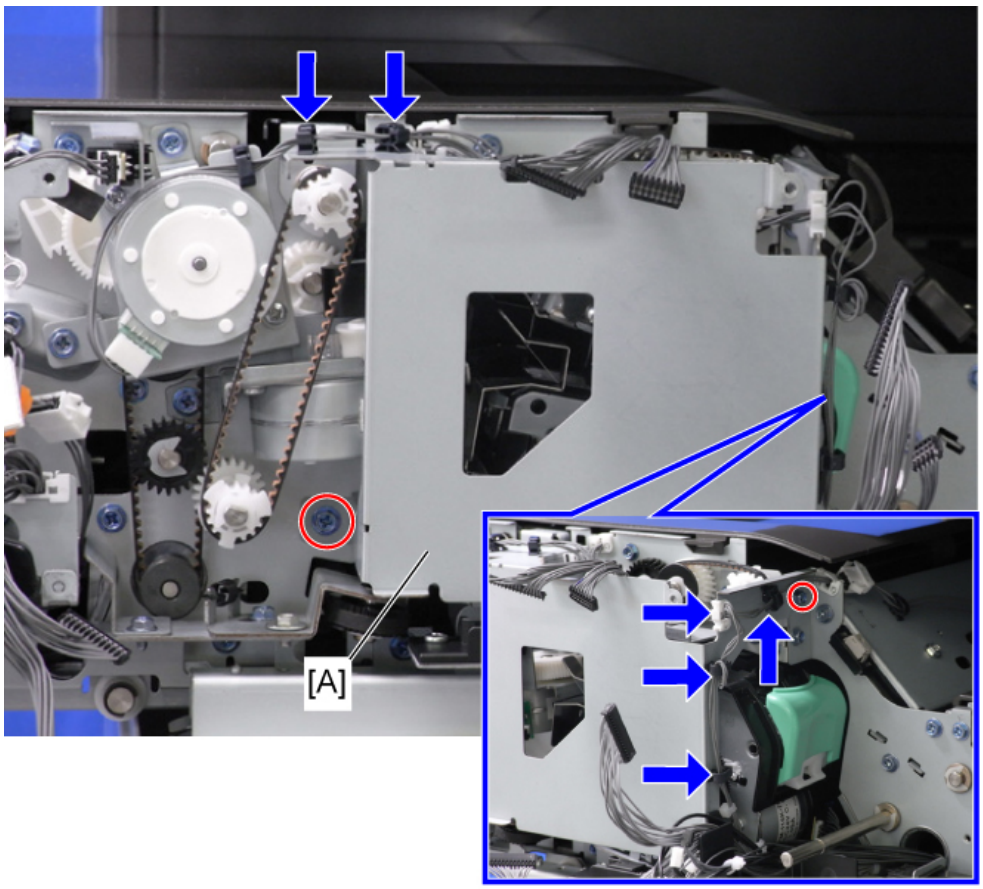


d586r032

3. Replace the pick-up roller motor [A] (x 2, x 1).

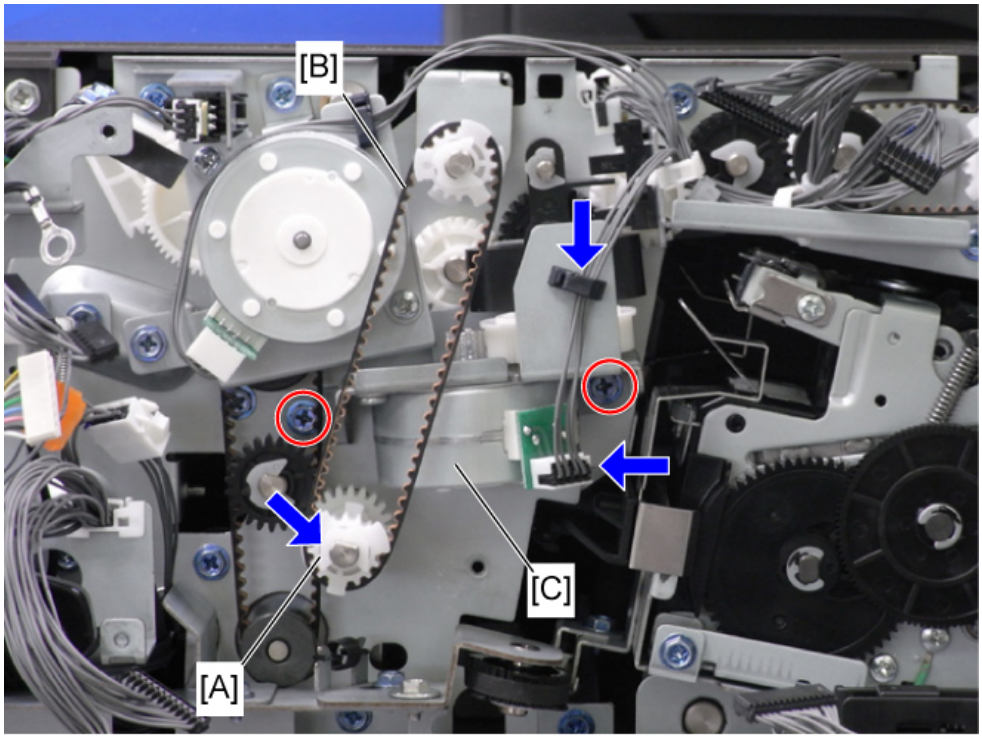
1.2.14 SHIFT ROLLER MOTOR

1. Remove:
   - Open-close upper cover (☛ p.8 "Entrance Sensor")
   - Controller board (☛ p.7 "Controller Board")



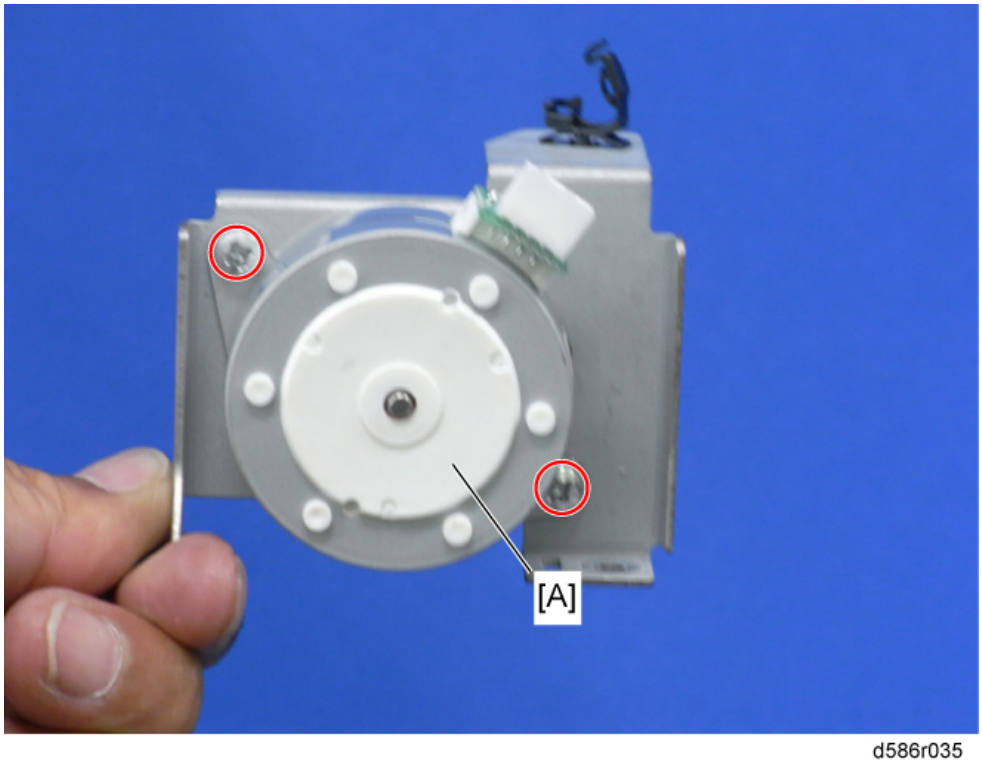
d586r033

2. Remove the controller board bracket [A] (x 2, x 6).



d586r034

3. Remove the gear [A], and then remove the timing belt [B] (x 1).
4. Remove the shift roller motor assembly [C] (x 2, x 1, x 1).



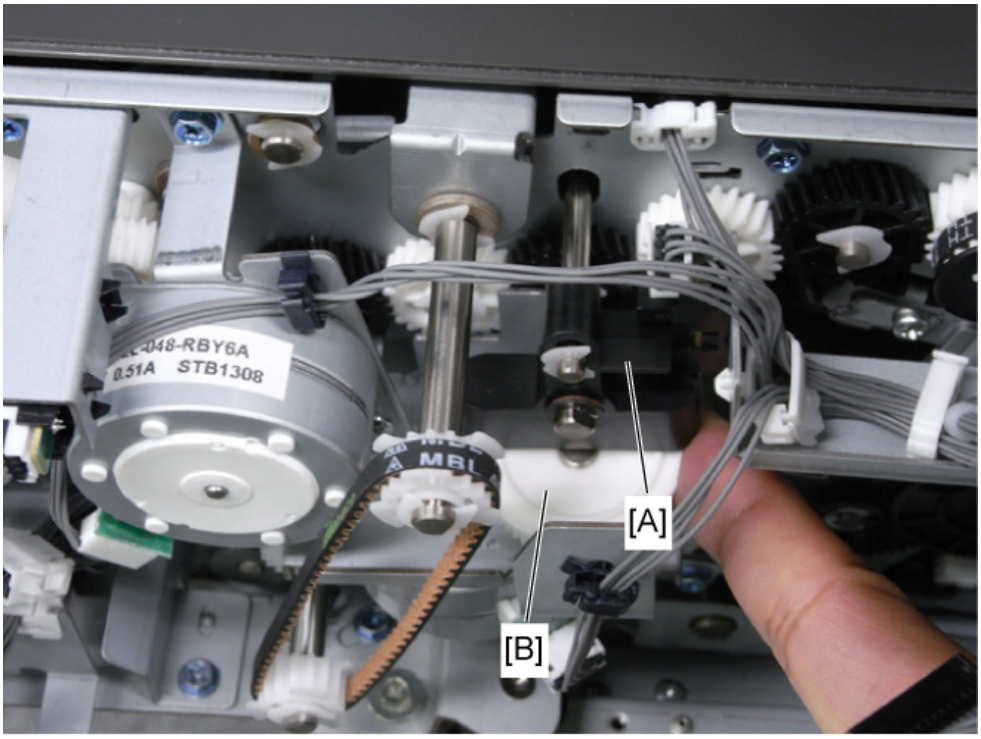
d586r035

5. Replace the shift roller motor [A] (x 2).

When reinstalling the shift roller motor

Note

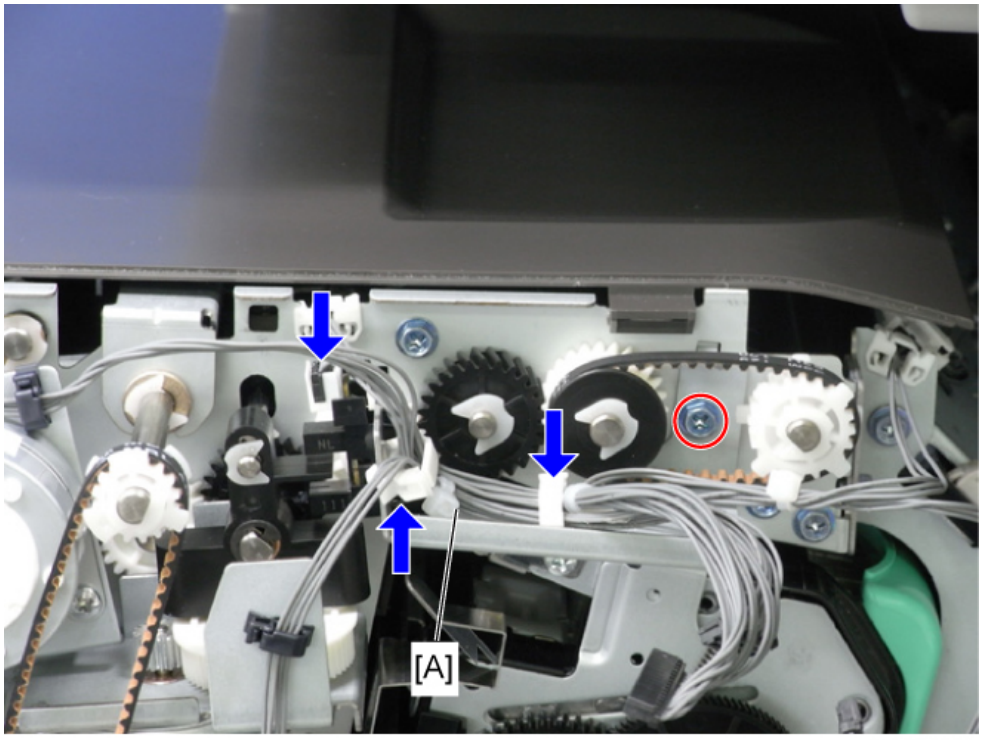
- Make sure that the gears rotate when you turn the knob.
- Make sure that the linkage [A] moves up and down when you rotate the cam [B].



d586r036

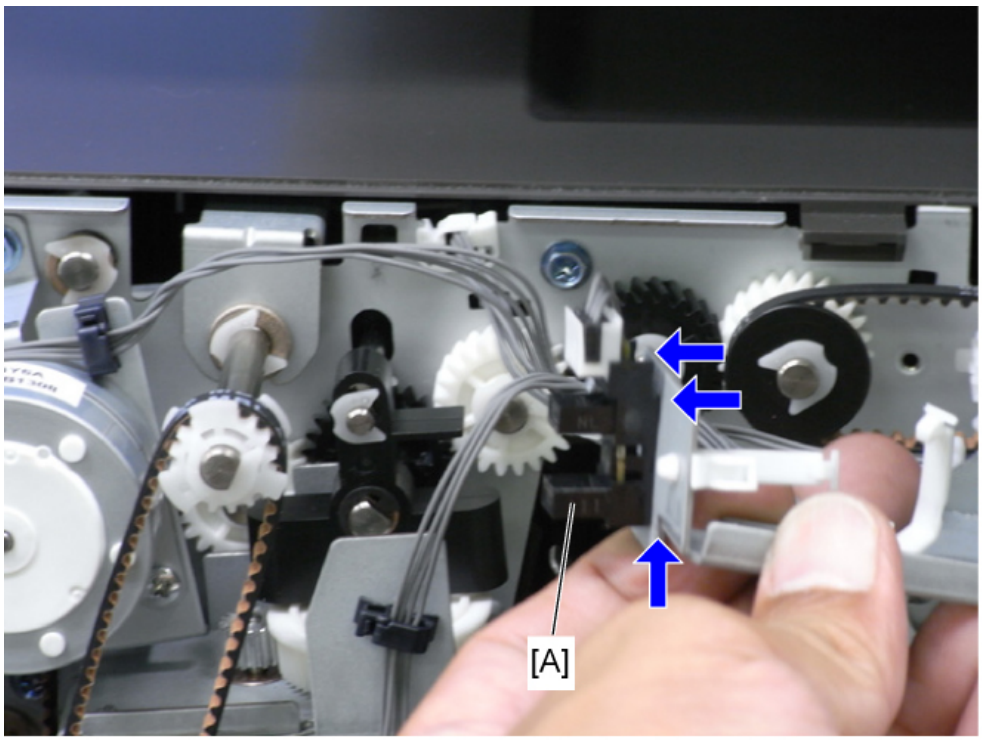
1.2.15 SHIFT ROLLER HP SENSOR

1. Remove the controller board bracket. (☛ p.25 "Shift Roller Motor")



d586r037

2. Remove the shift roller HP sensor assembly [A] (x 1, x 2, x 1).



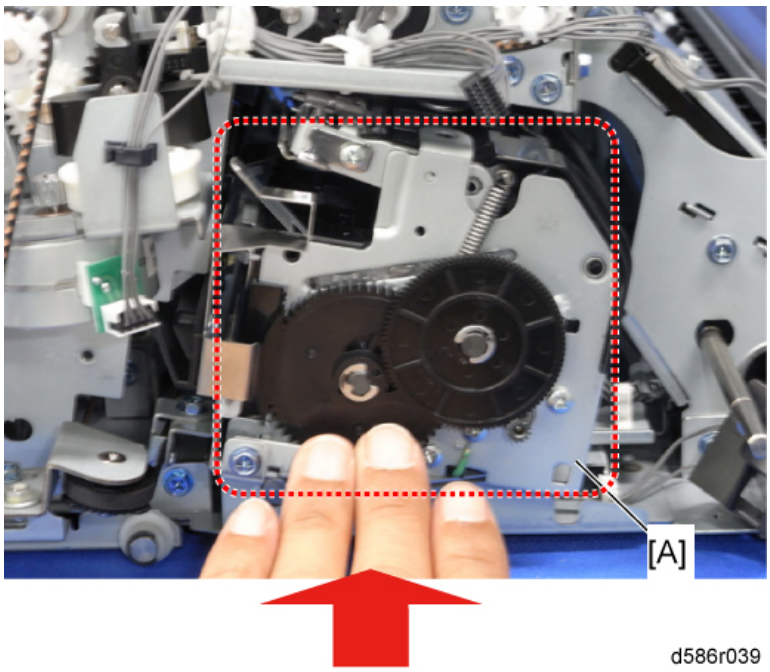
d586r038

3. Replace the shift roller HP sensor [A] (hooks x 3).

1.3 STAPLER UNIT

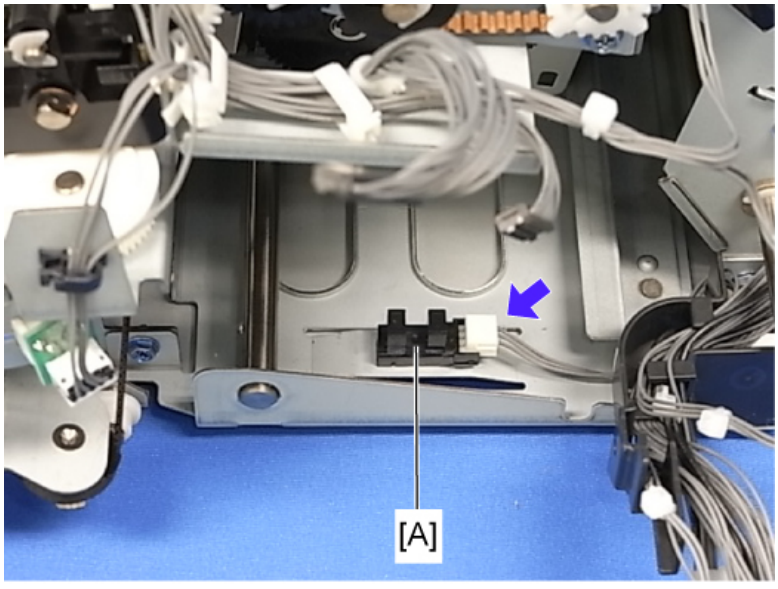
1.3.1 STAPLER UNIT HP SENSOR

1. Remove the controller board bracket (☛ p.25 "Shift Roller Motor")



d586r039

2. Push the stapler unit [A] toward the rear.

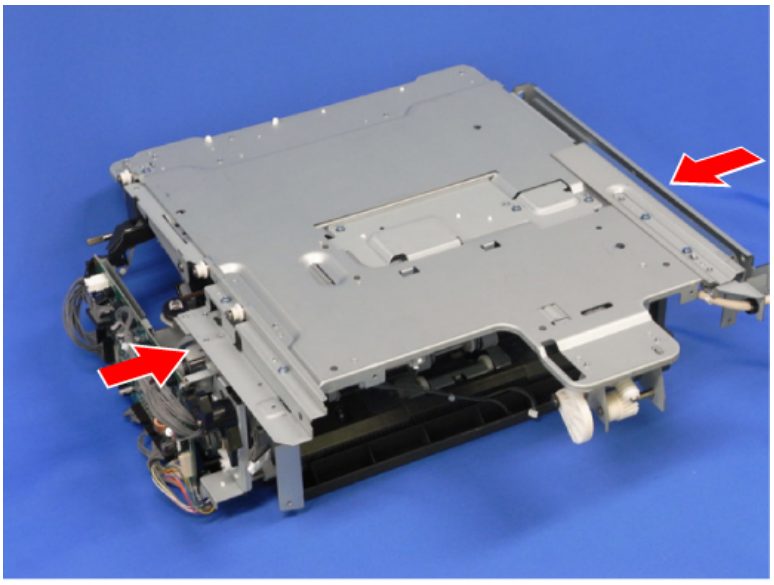


d586r040

3. Replace the stapler unit HP sensor [A] (x 1).

1.3.2 STAPLER UNIT MOTOR

1. Remove:
   - Finisher (☛ p.1 "Internal Finisher")
   - Exit cover assembly (☛ p.6 "Exit Cover")

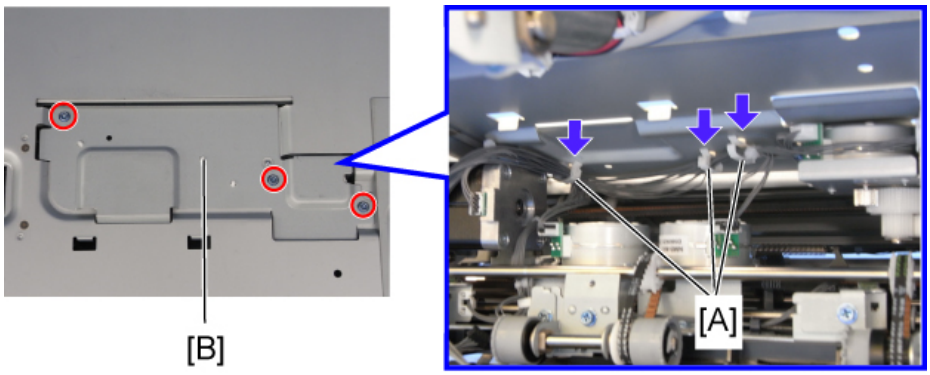


d586r041

2. Turn over the finisher by holding the front and rear side of the finisher.

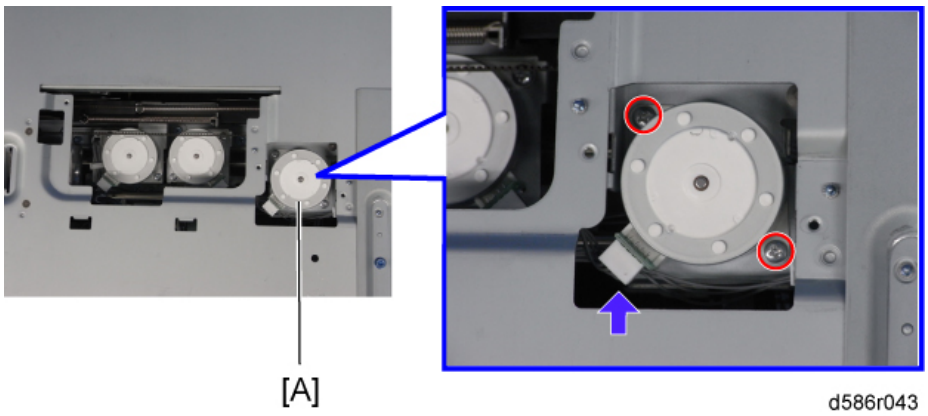
Note

- Be careful not to deform the frame when turning over the finisher.



d586r042

3. Release the harness from the three clamps [A] from the back side of the base cover (x 3).
4. Remove the three screws on the base cover, and then remove the base cover [B] (x 3)



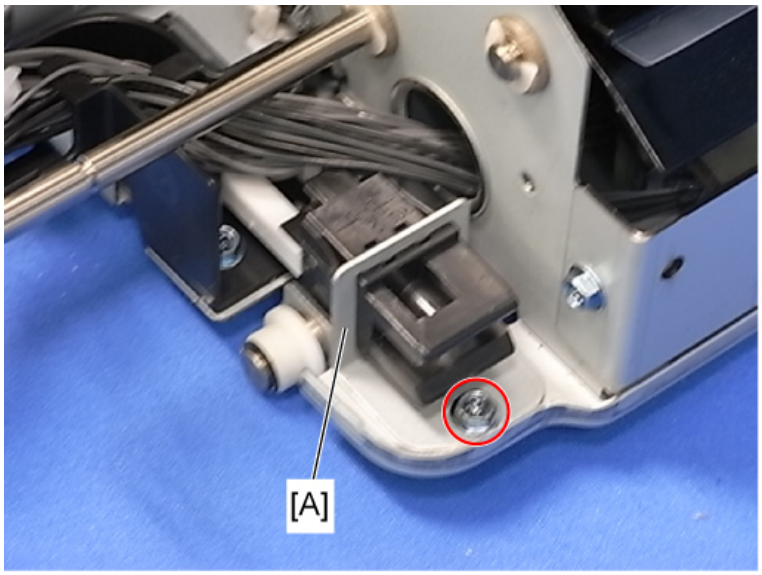
5. Replace the stapler unit motor [A] (x 2, x 1).

1.3.3 STAPLER UNIT

1. Remove the controller board bracket. (☛ p.25 "Shift Roller Motor")
2. Push the stapler unit toward the rear. (☛ p.29 "Stapler Unit HP Sensor")

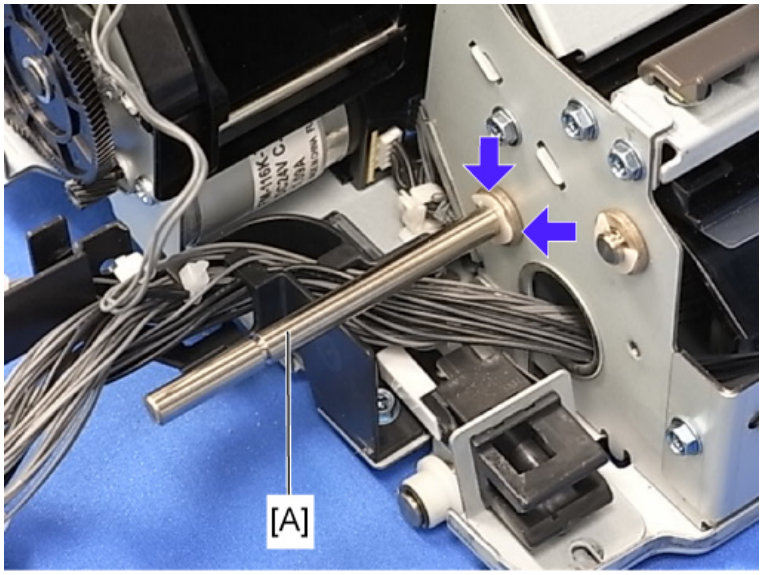
d586r044

3. Remove the back-end positioning fence [A] (x 2).



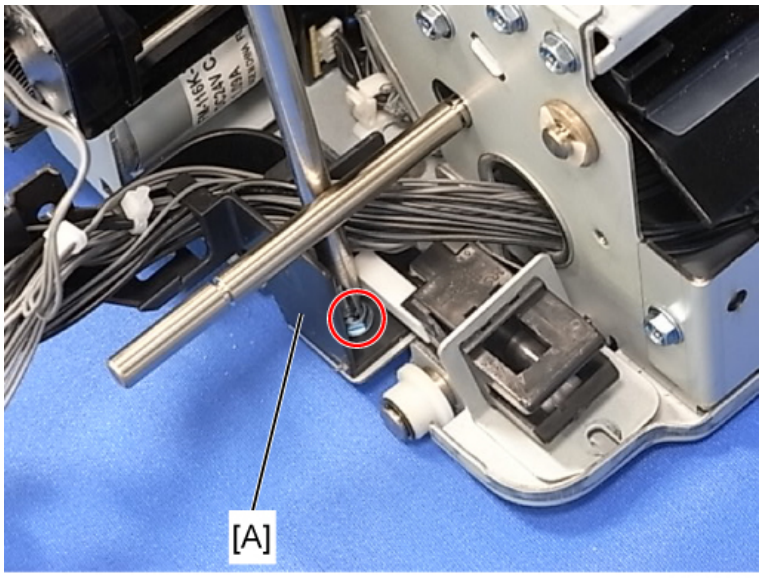
d586r045

4. Remove the cover switch assembly [A] (x 1).



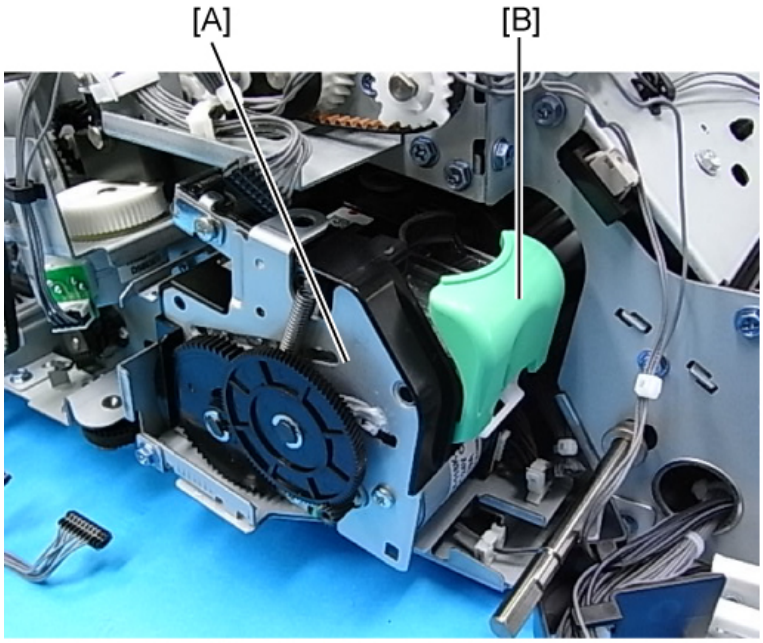
d586r046

5. Remove the one e-ring and one bushing from the process shaft [A].



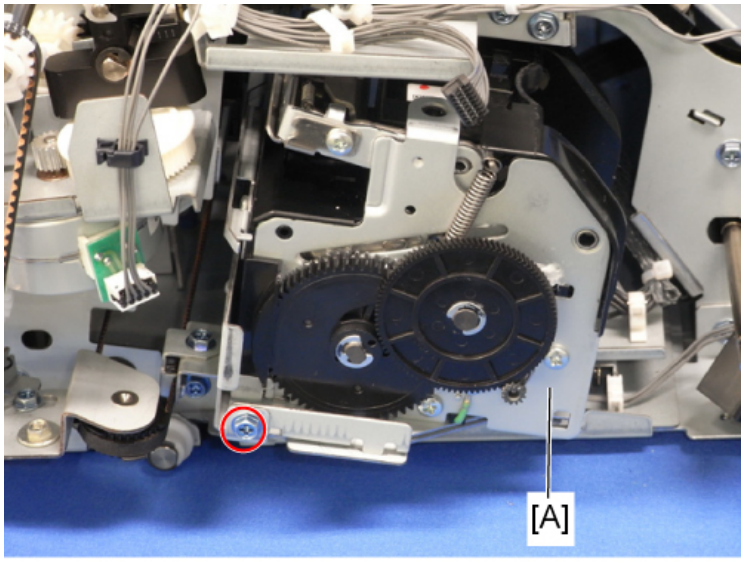
d586r047

6. Remove the harness guide [A] (x 1).



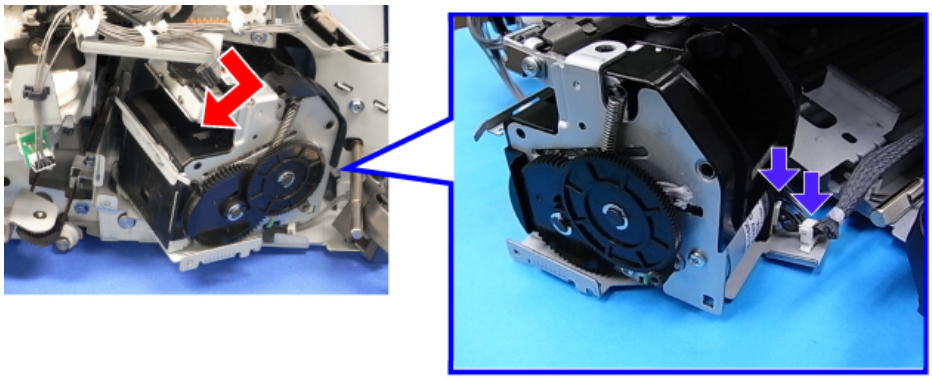
d586r092

7. Move the stapler unit [A] toward the front and remove the cartridge [B].



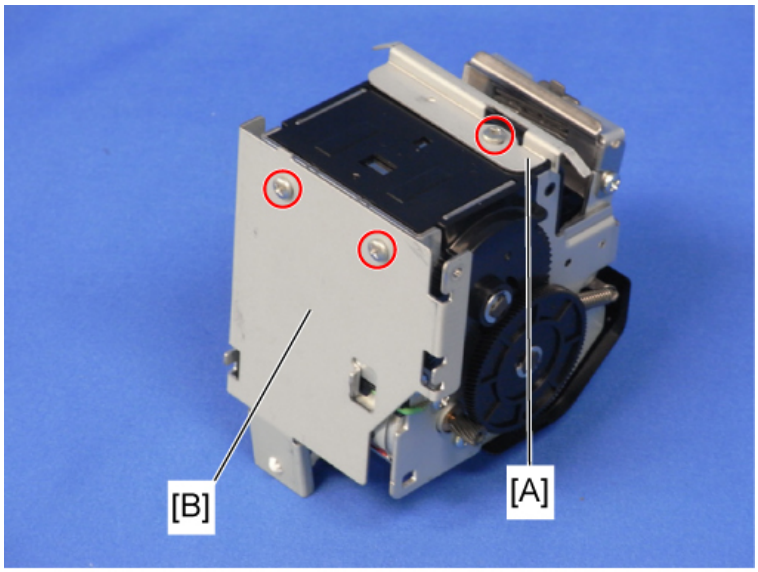
d586r048

8. Remove the screw that holds the stapler unit [A] (x 1).



d586r049a

9. Remove the stapler unit assembly (x 2, x 1).

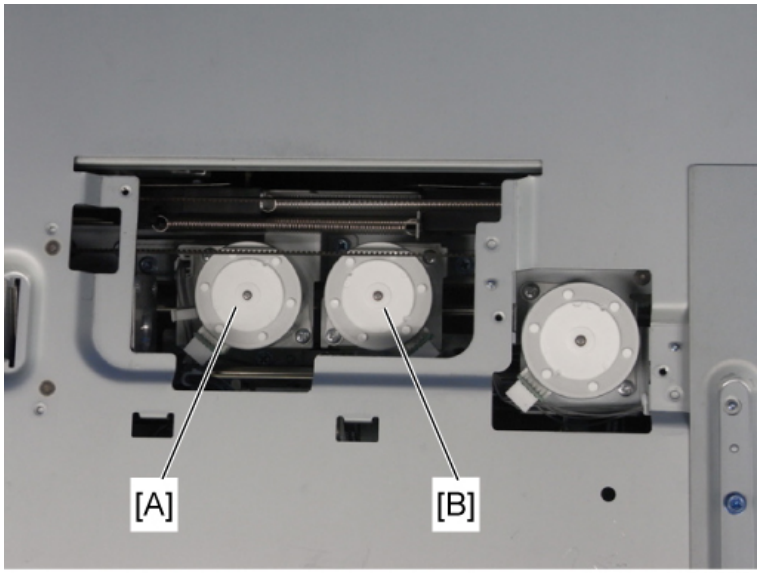


d586r051

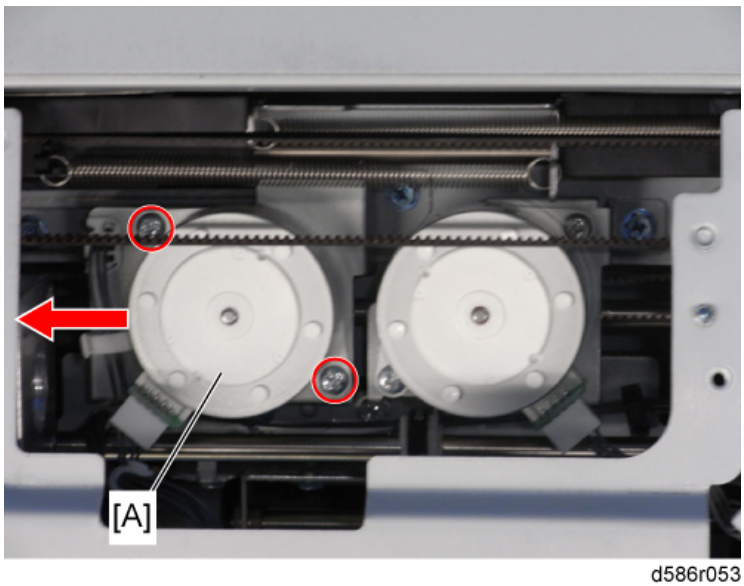
10. Remove the fence guide [A] (x 1).
11. Replace the stapler unit [B] (x 2).

1.3.4 JOGGER FENCE MOTORS

1. Remove:
   - Finisher (☛ p.1 "Internal Finisher")
   - Exit cover assembly (☛ p.6 "Exit Cover")
2. Turn over the finisher. (☛ p.30 "Stapler Unit Motor")
3. Remove the base cover. (☛ p.30 "Stapler Unit Motor")



d586r052



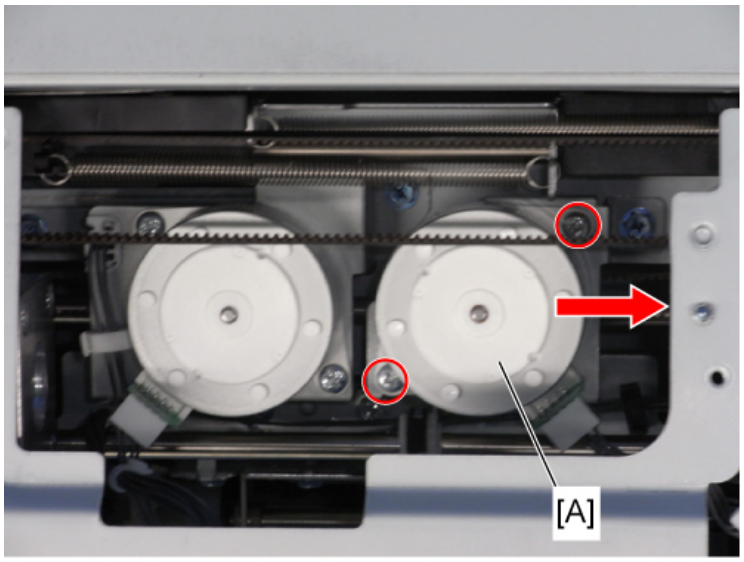
d586r053

4. Replace the jogger fence motor (front) [A] (x 2, x1).

Note

- When reassembling, make sure that the pulley of the motor meets the timing belt.

d586r081

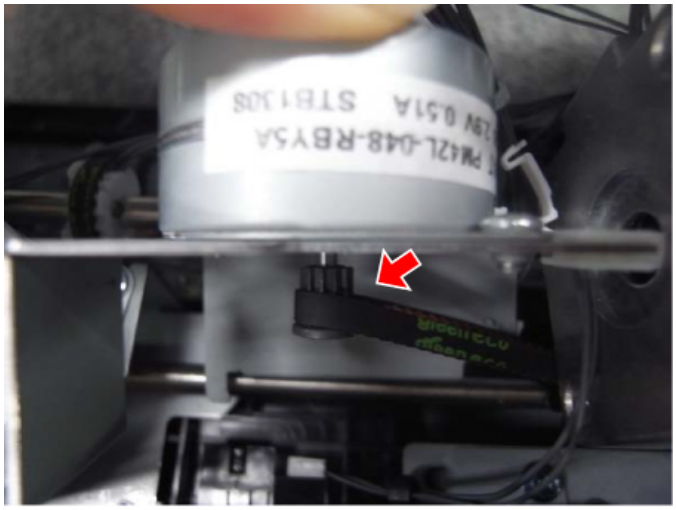


d586r054

5. Replace the jogger fence motor (back) [A] (x 2, x1).

Note

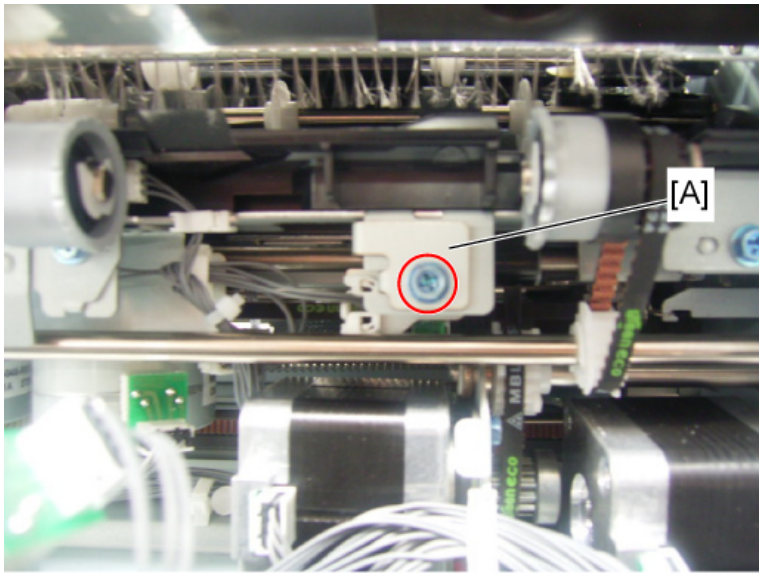
- When reassembling, make sure that the pulley of the motor meets the timing belt.



d586r082

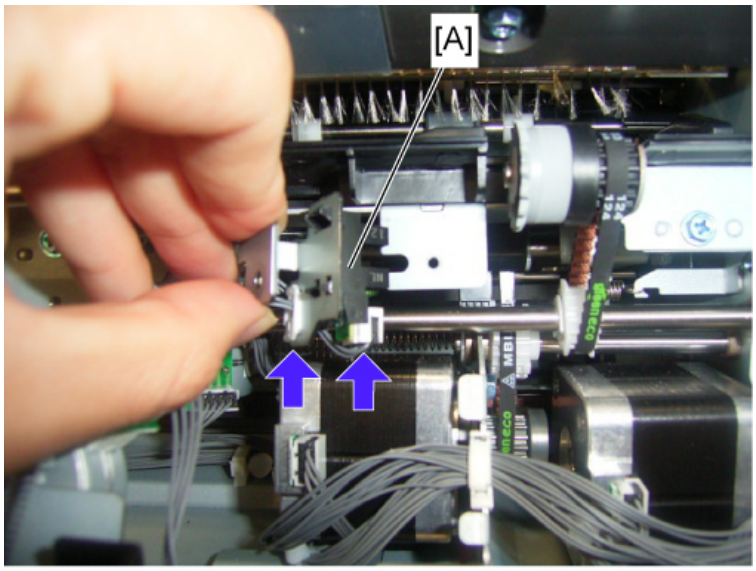
1.3.5 JOGGER FENCE HP SENSOR (FRONT)

1. Remove:
   - Finisher (☛ p.1 "Internal Finisher")
   - Exit cover assembly (☛ p.6 "Exit Cover")



d586r079

2. Remove the jogger fence HP sensor (front) assembly [A] (x 1).

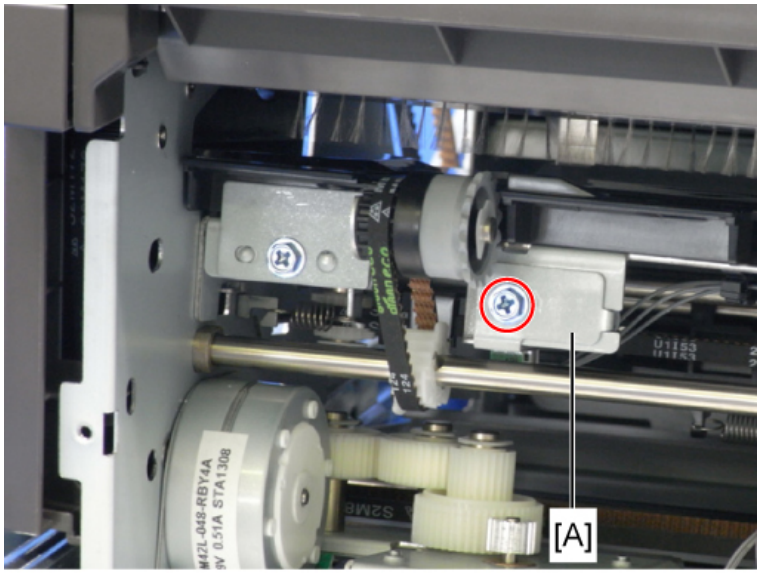


d586r063

3. Replace the jogger fence HP sensor (front) [A] (x 1, x 1).

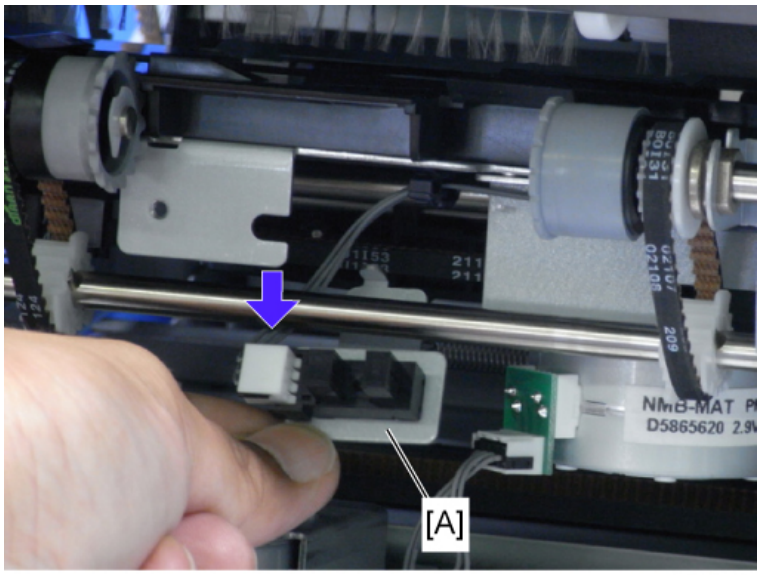
1.3.6 JOGGER FENCE HP SENSOR (BACK)

1. Remove the exit cover assembly. (☛ p.6 "Exit Cover")



d586r064

2. Remove the jogger fence HP sensor (back) assembly [A] (x 1).

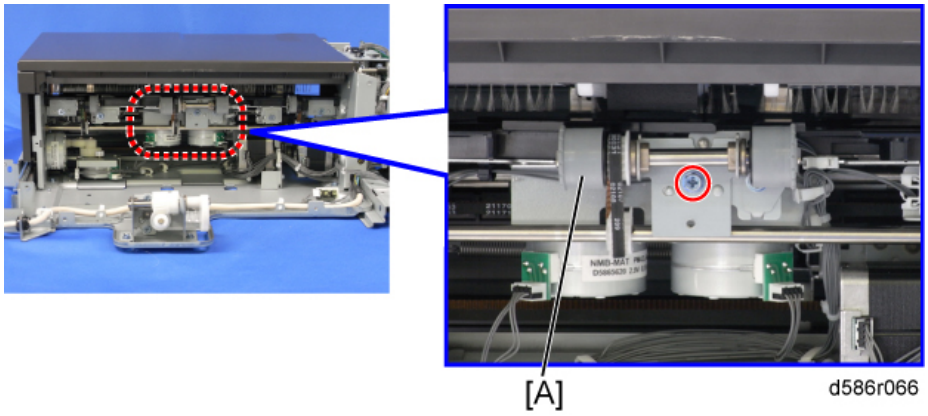


d586r065

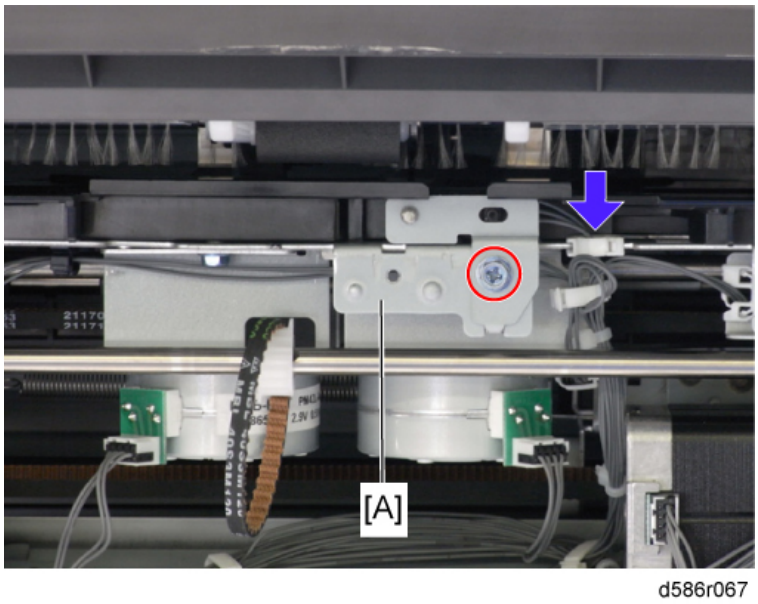
3. Replace the jogger fence HP sensor (back) [A] (x 1).

1.3.7 STAPLE TRAY PAPER SENSOR

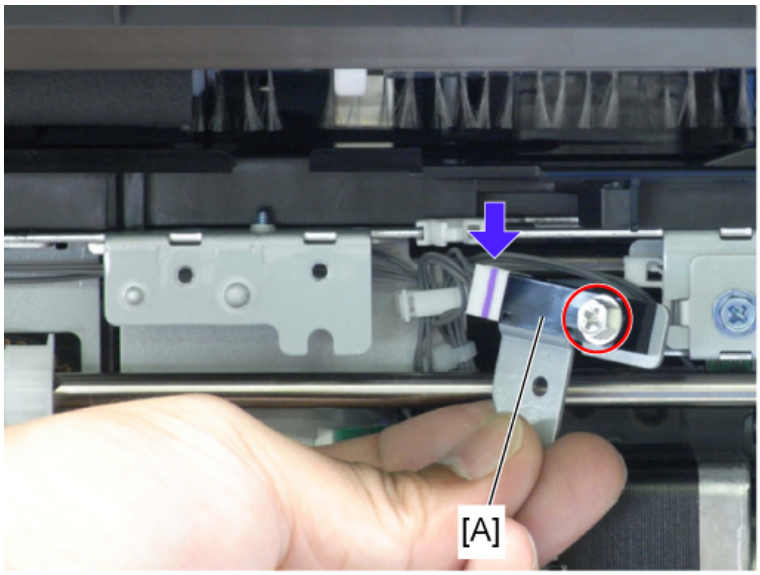
1. Remove the exit cover assembly. (☛ p.6 "Exit Cover").



2. Remove the exit roller assembly [A] (x 1).



3. Remove the staple tray paper sensor assembly [A] (x 1, x1).

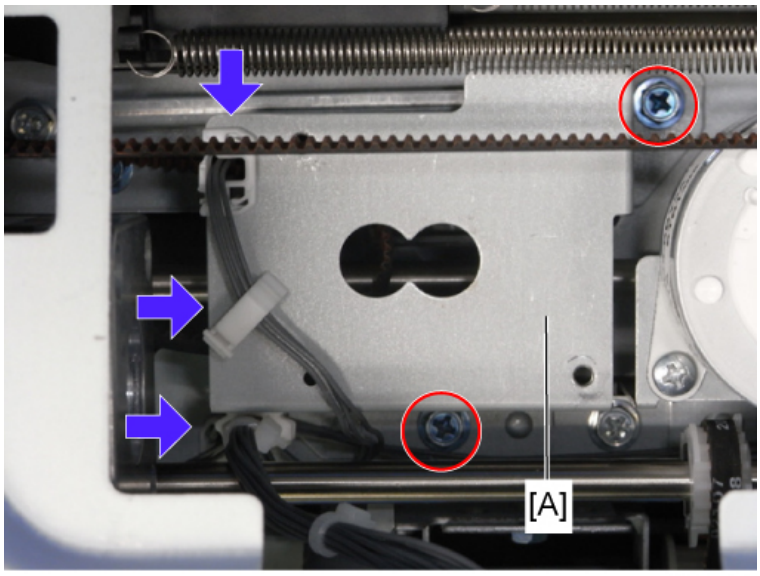


d586r068

4. Replace the staple tray paper sensor [A] (x 1, x 1).

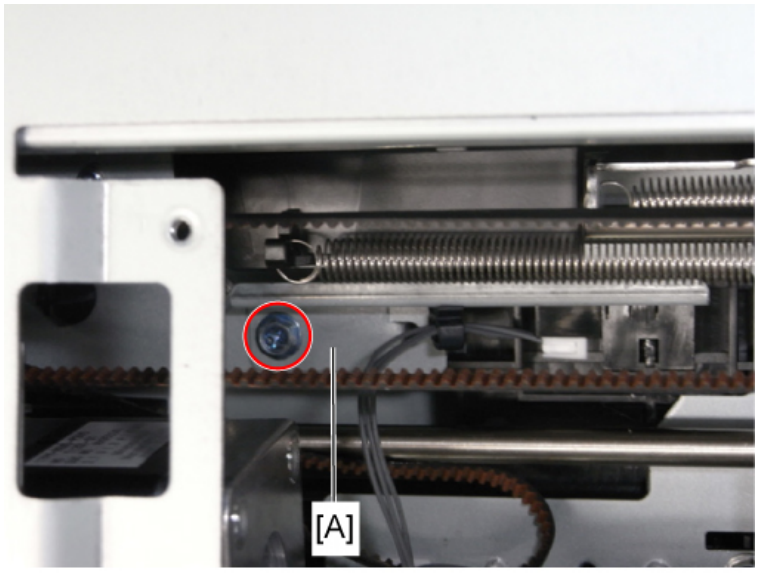
1.3.8 PAPER EXIT SENSOR

1. Remove the jogger fence motor (front). (☛ p.36 "Jogger Fence Motors")



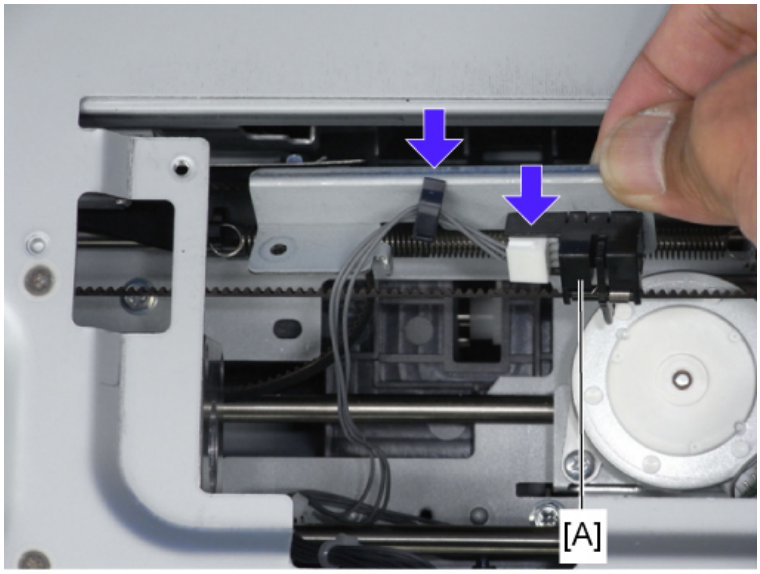
d586r069

2. Remove the motor bracket [A] (x 2, x 3).



d586r070

3. Remove the paper exit sensor assembly [A] (x 1).



d586r071

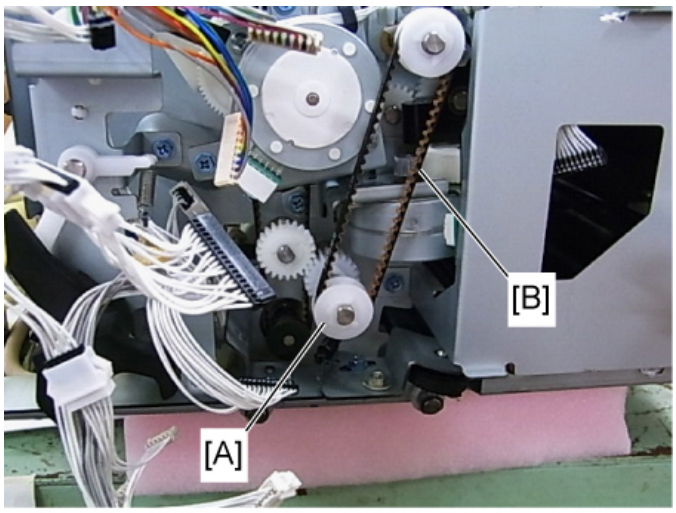
4. Replace the paper exit sensor [A] (x 1, x 1).

Note

- When reinstalling the paper exit sensor, make sure that the feeler does not hook the timing belt.

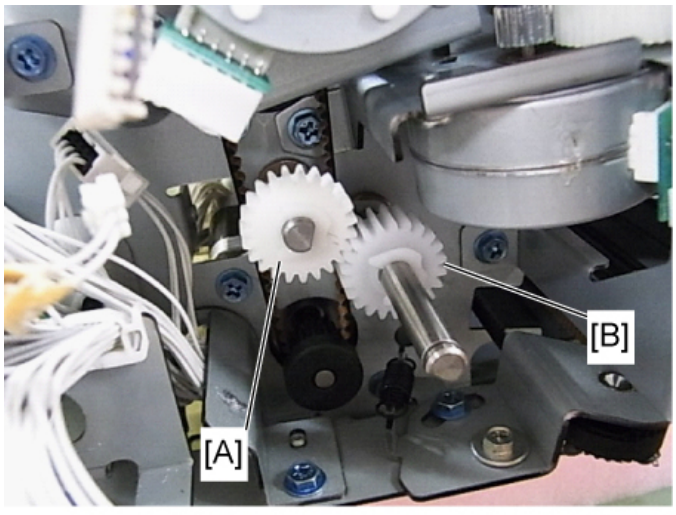
1.3.9 EXIT ROLLER MOTOR

1. Remove:
   - Finisher (☛ p.1 "Internal Finisher")
   - Exit cover assembly (☛ p.6 "Exit Cover")
   - Controller board (☛ p.7 "Controller Board")
   - Rear cover (☛p.19 "Pick-up Roller HP Sensor")
   - Jogger Fence HP Sensor (Back) (☛ p.40 "Jogger Fence HP Sensor (Back)")



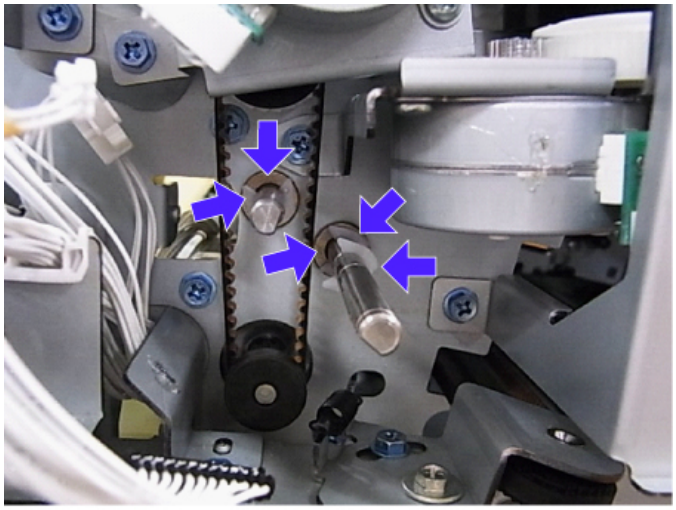
d586r083

2. Remove the pulley [A] and the timing belt [B].



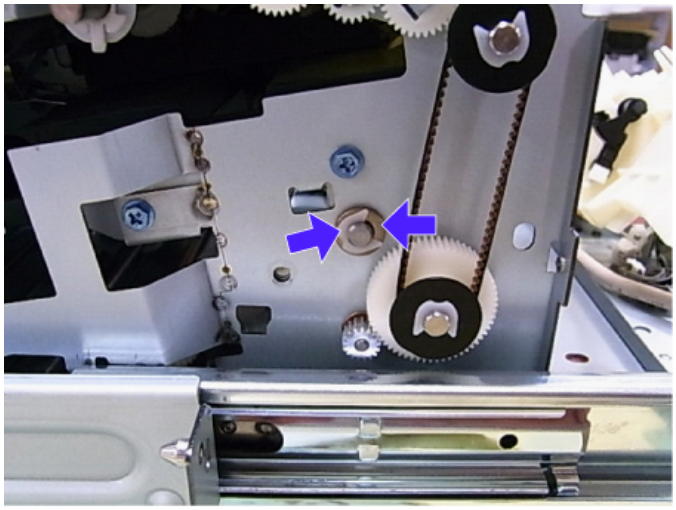
d586r084

3. Remove the gear [A] and the one-way clutch gear [B] (℃ x1).



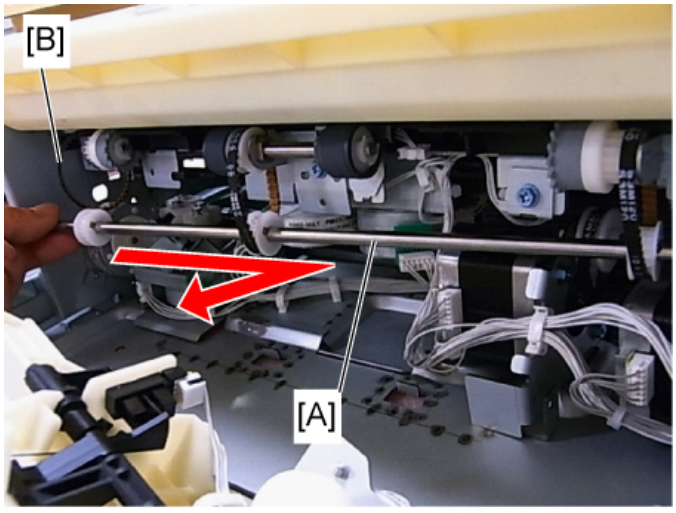
d586r085

4. Remove three e-rings and two bushings.



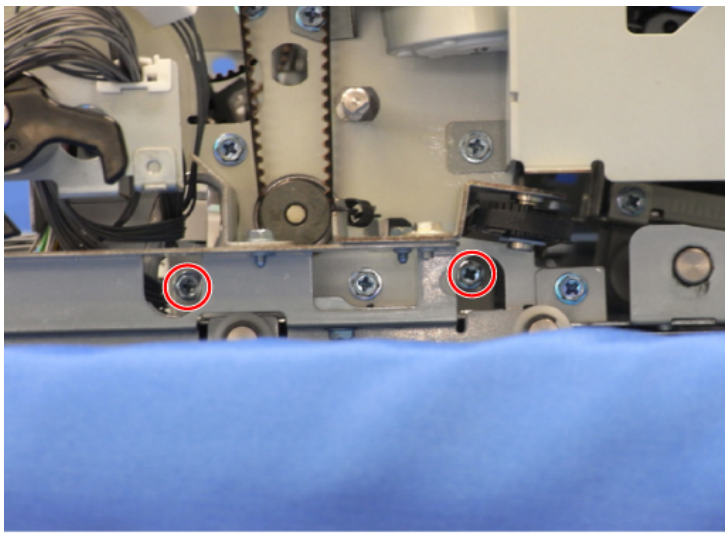
d586r086

5. Remove the e-ring and the bushing.



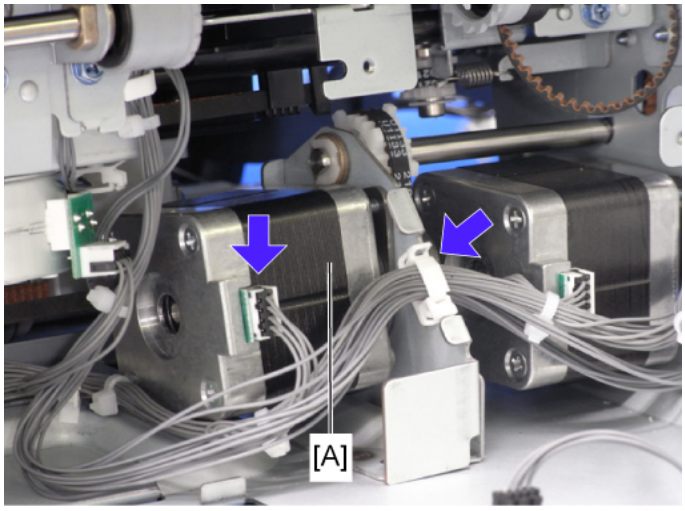
d586r087

6. Remove the shaft [A] by first removing the belt [B].



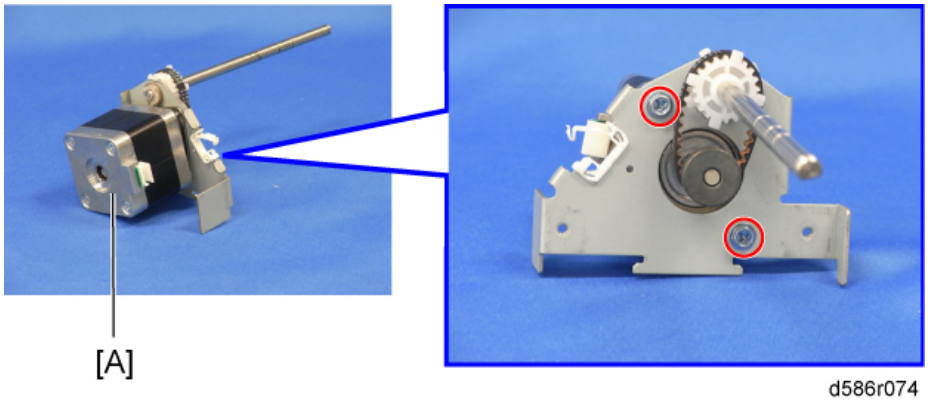
d586r072

7. Remove the screws of the exit roller motor assembly. (x 2).



d586r073

8. Remove the harness and exit roller motor assembly [A] (x 1, x 1).

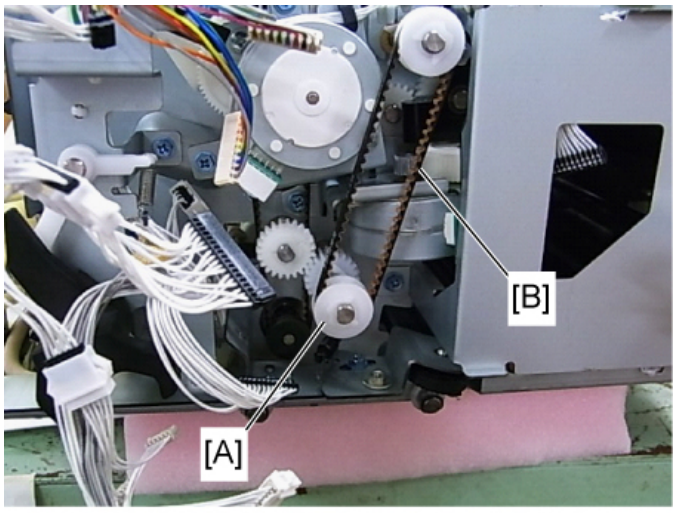


d586r074

9. Replace the exit roller motor [A] (x 2).

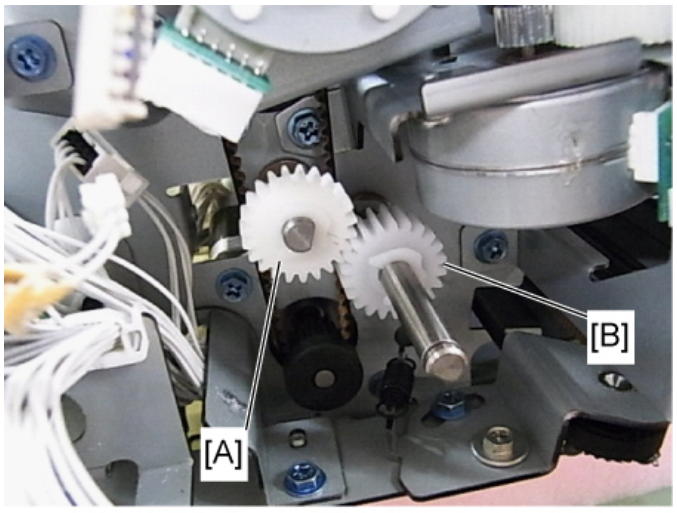
1.3.10 FEED ROLLER MOTOR

1. Remove:
   - Finisher (☛ p.1 "Internal Finisher")
   - Exit cover assembly (☛ p.6 "Exit Cover")
   - Controller board (☛ p.7 "Controller Board")
   - Rear cover (☛p.19 "Pick-up Roller HP Sensor")
   - Jogger Fence HP Sensor (Back) (☛ p.40 "Jogger Fence HP Sensor (Back)")



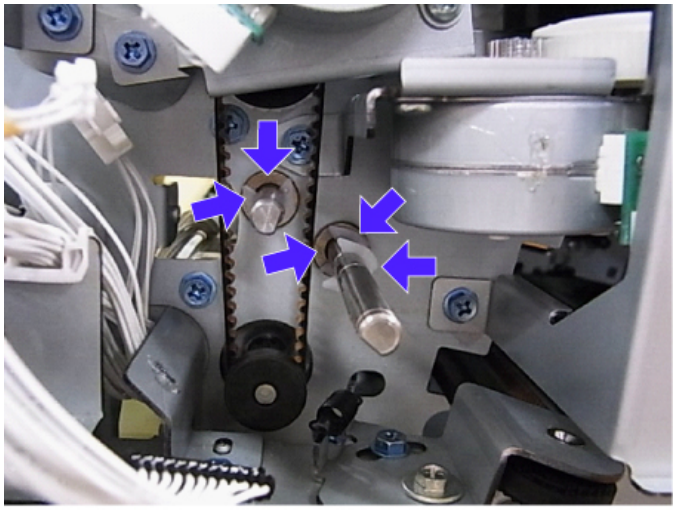
d586r083

2. Remove the pulley [A] and the timing belt [B].



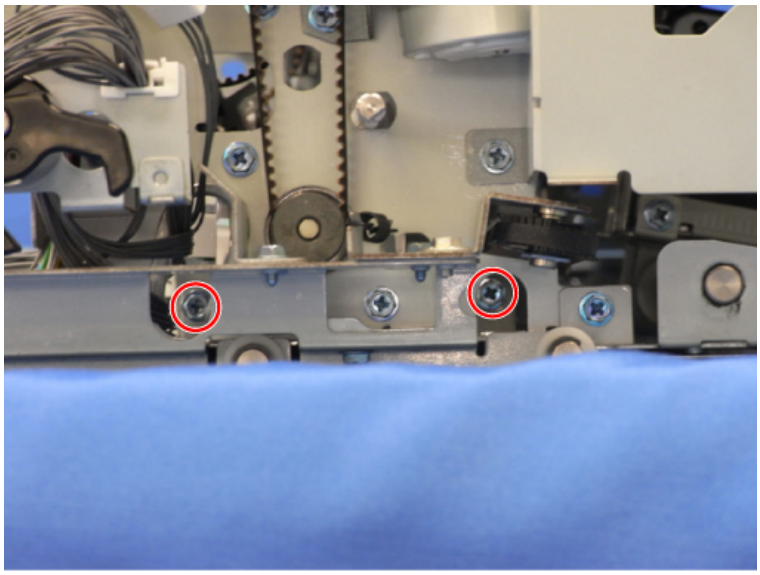
d586r084

3. Remove the gear [A] and the one-way clutch gear [B] (© x1).



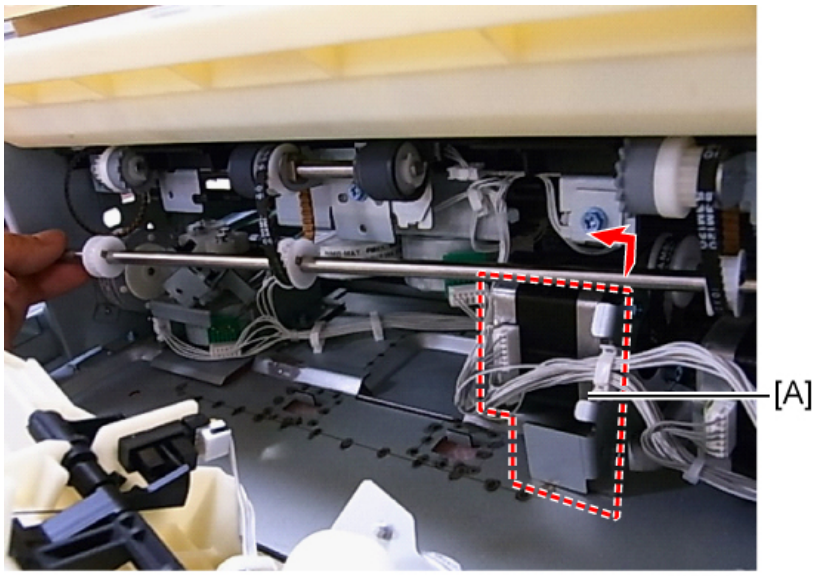
d586r085

4. Remove three e-rings and two bushings.



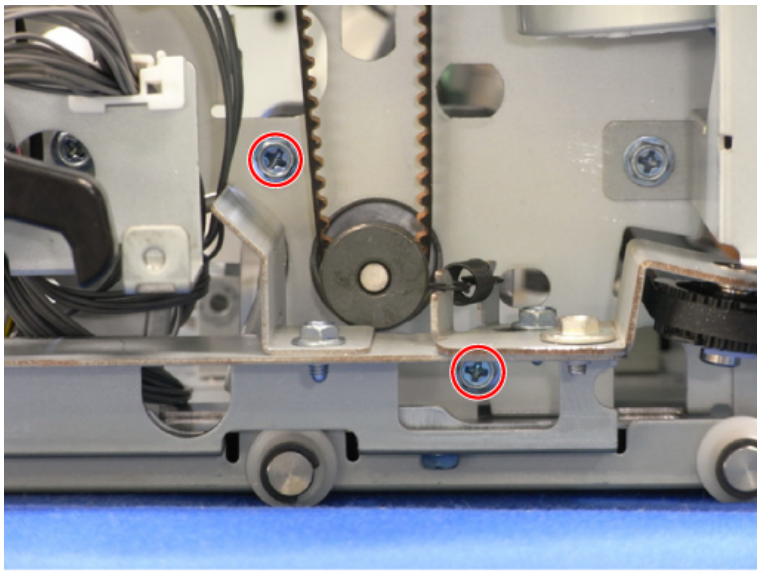
d586r072

5. Remove the screws of the exit roller motor assembly (x 2).



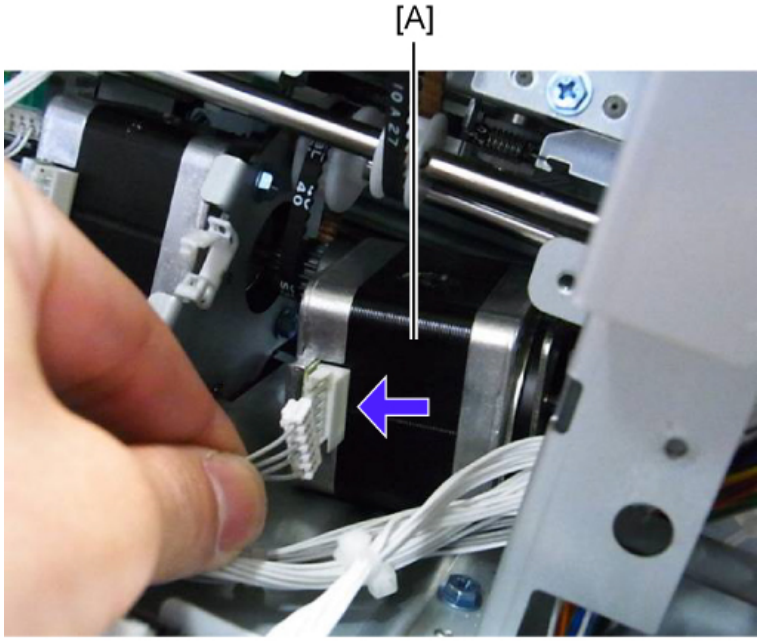
d586r089

6. Displace the exit roller motor assembly [A] to the rear.



d586r075

7. Remove the screws of the feed roller motor (x 2).

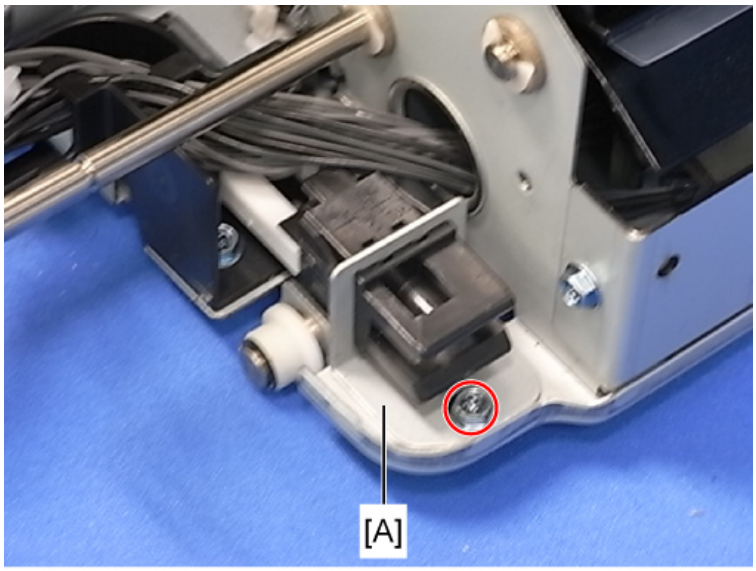


d586r088

8. Replace the feed roller motor [A] (x 1).

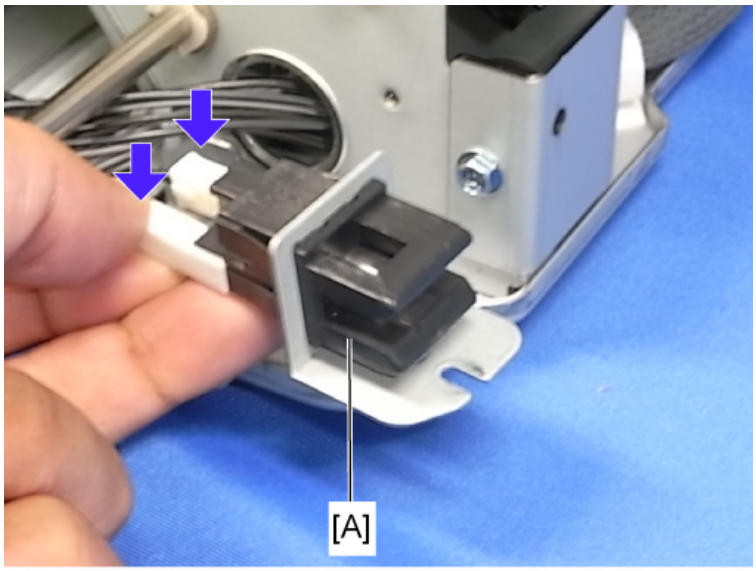
1.3.11 COVER SWITCH

1. Remove the front cover (☛ p.3 "Front Cover").



d586r077

2. Remove the cover switch assembly [A] (x 1).



d586r078

3. Replace the cover switch [A] (x 2, hook x 4).

D587

PUNCH KIT PU3020

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PUNCH KIT PU3020 (D587)

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READ THIS FIRST

Safety and Symbols

Replacement Procedure Safety

Note

- 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

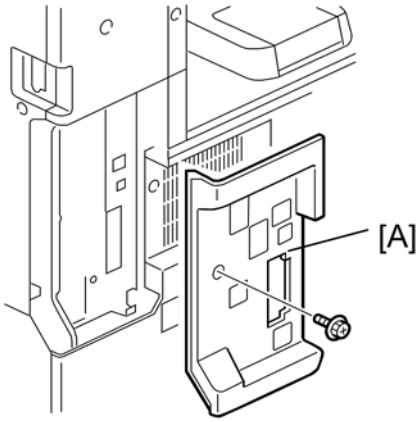
This manual uses the following symbols:

Symbol	Meaning
	See or Refer to
	Connector
	Clamp
	Clip ring
	E-ring
	Screw

1. REPLACEMENT AND ADJUSTMENT

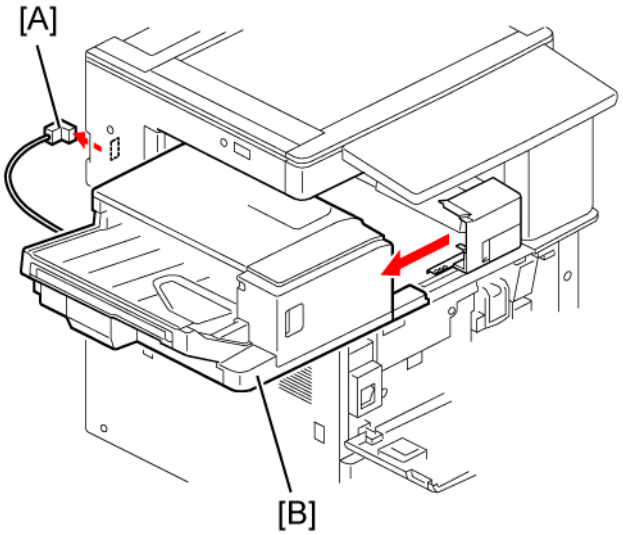
1.1 ELECTRICAL COMPONENTS

1.1.1 PUNCH UNIT



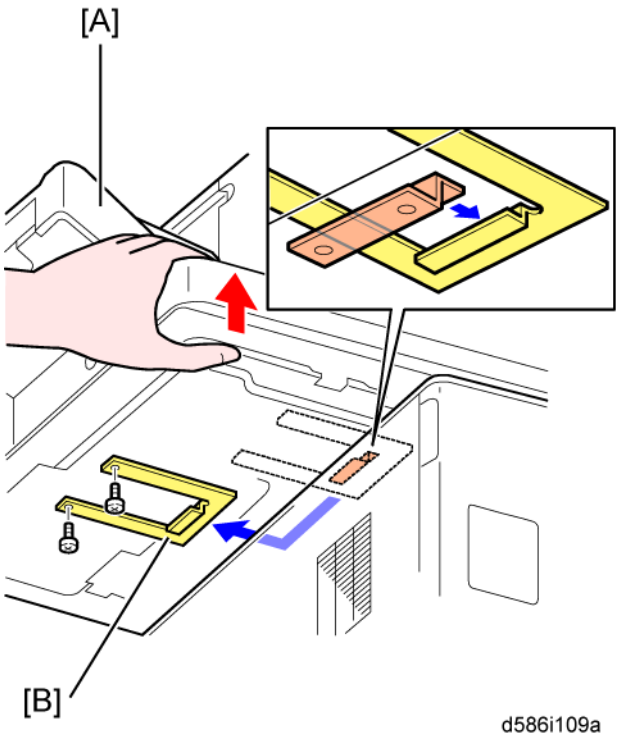
d596i501

1. Remove the controller cover [A] (x 1).

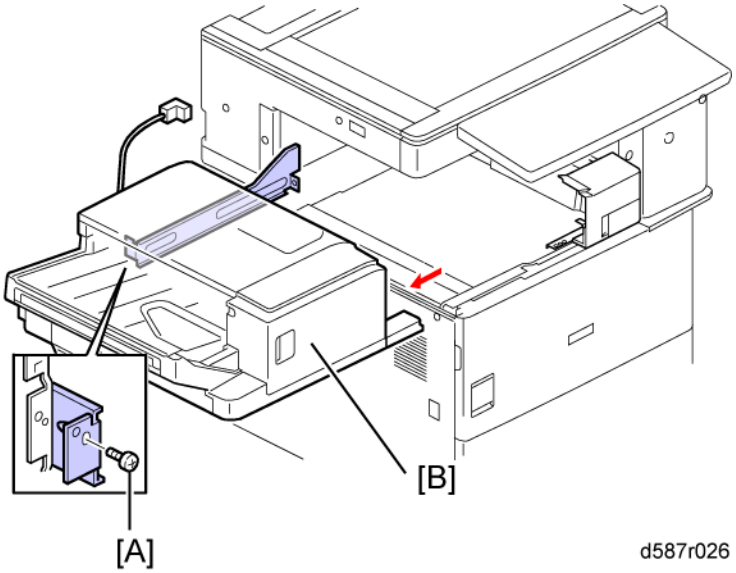


d587r027

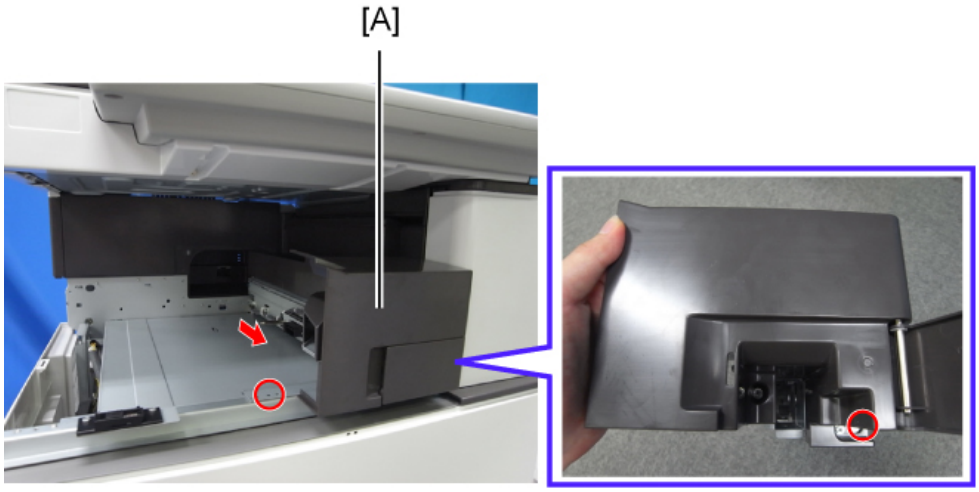
2. Disconnect the cable [A] from the inlet of the main machine.
3. Pull out the internal finisher [B].



4. Push up the internal finisher [A] from the bottom, and then remove the stopper [B] from the bottom side of the internal finisher (x 2).

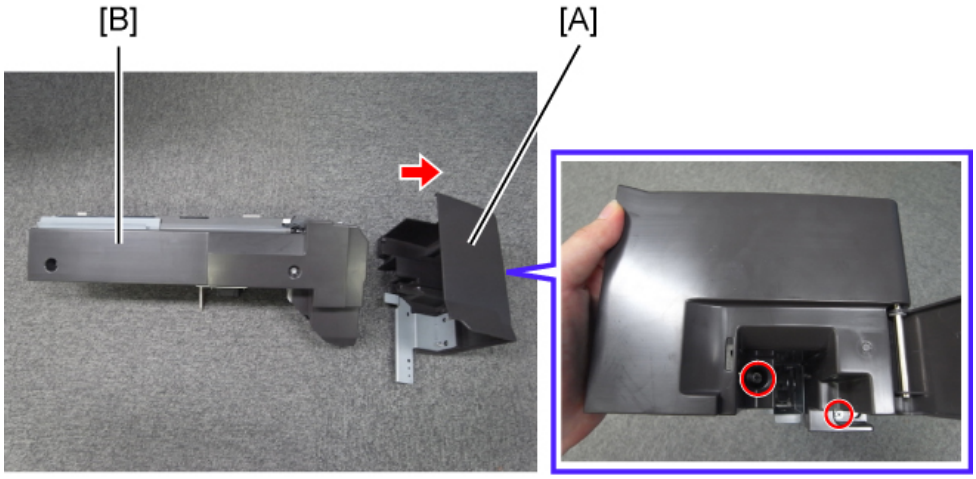


5. Remove the screw from the rear rail [A].
6. Remove the internal finisher [B] by pulling it off the main machine.



d587r025

7. Remove the punch unit [A] from the main machine (x 2).

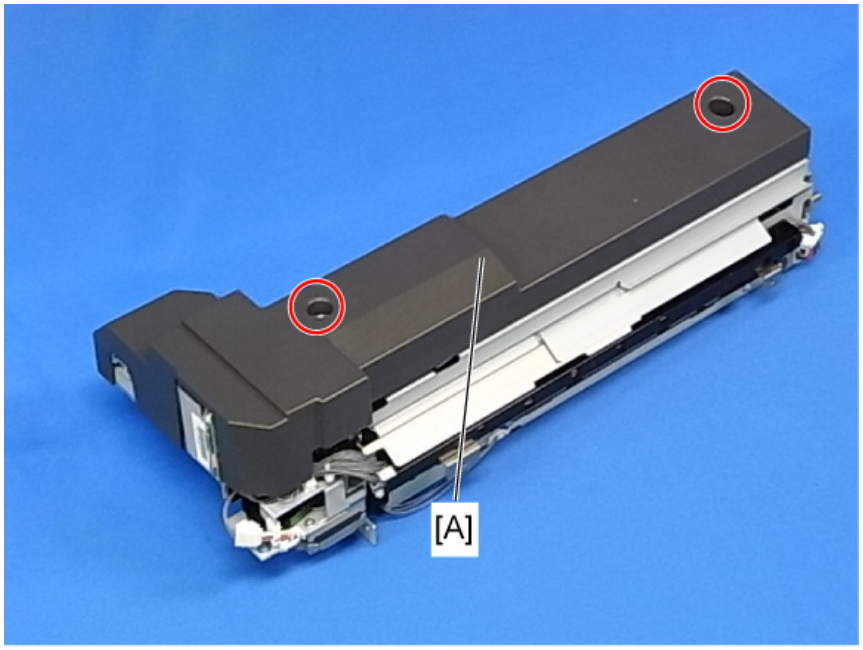


d587r028

8. Remove the punch cover [A] from the punch unit [B] (x 2).

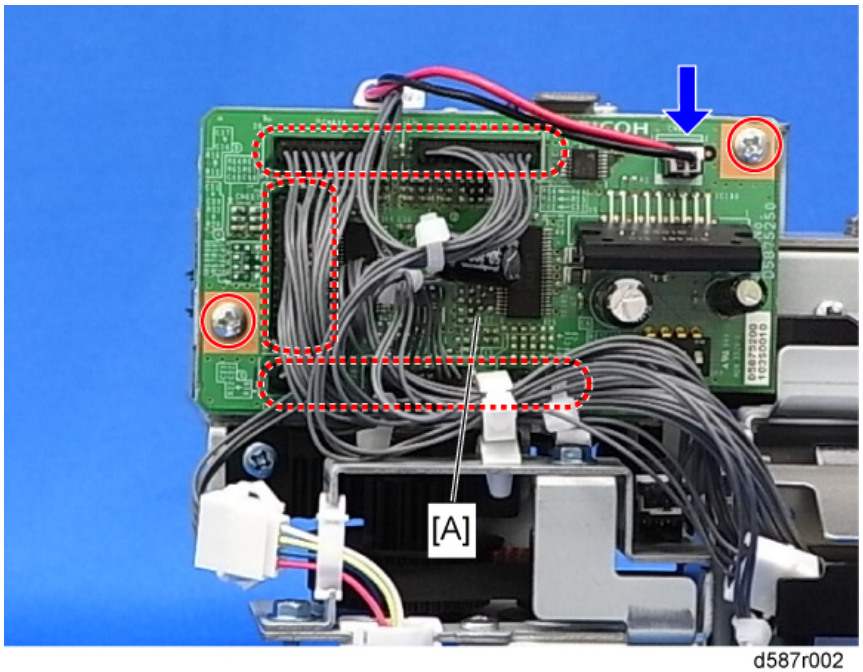
1.1.2 CONTROLLER BOARD

1. Remove the punch unit. (☛ p.1 "Punch Unit")



d587r001

2. Remove the upper cover [A] (x 2).



d587r002

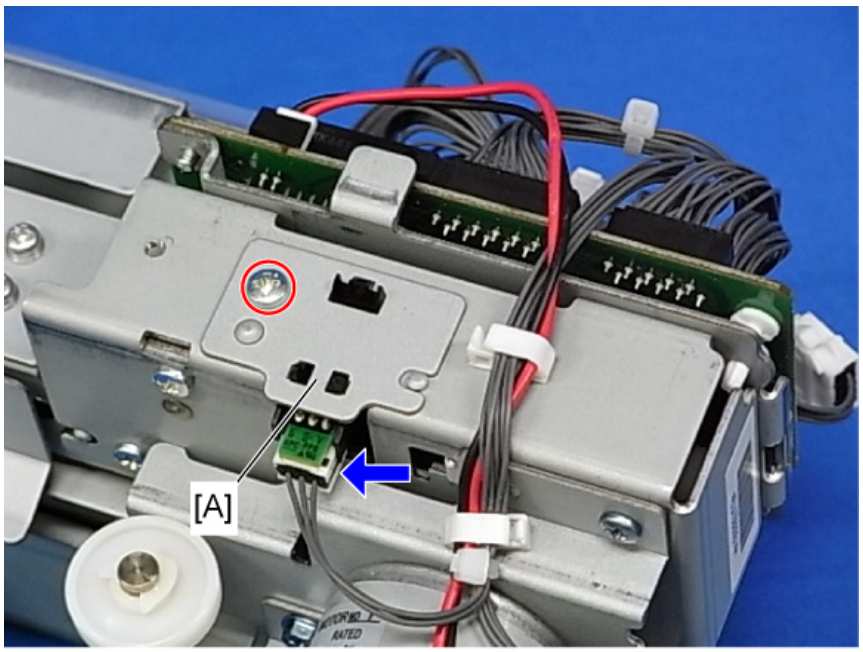
3. Replace the punch unit controller board [A] (x 2, all s).

Note

- After installing the new controller board, set the DIP switches on the new controller board to the same settings as the old board.

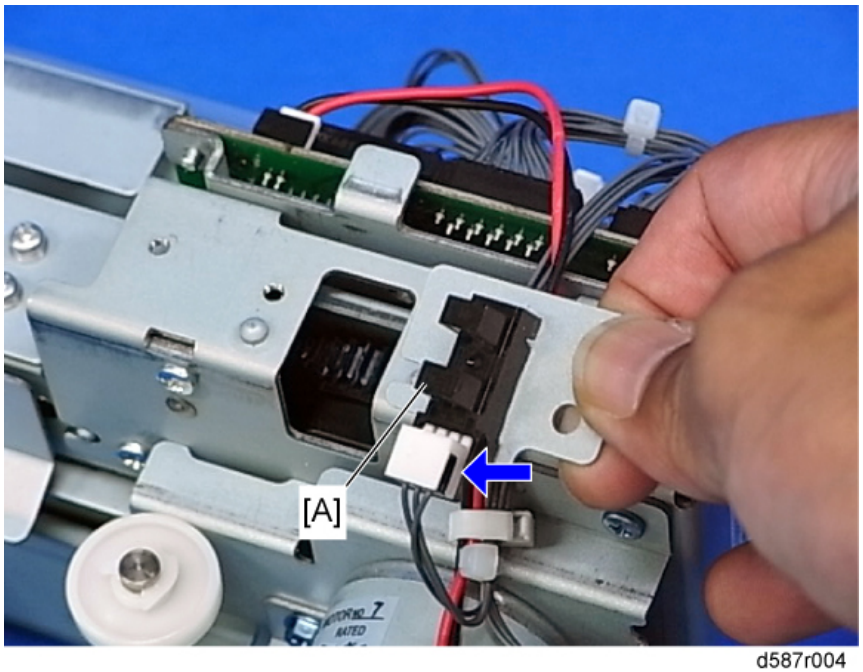
1.1.3 PUNCH POSITION SENSOR

1. Remove the upper cover. (☛ p.4 "Controller Board")



d587r003

2. Remove the punch position sensor assembly [A] (x 1).

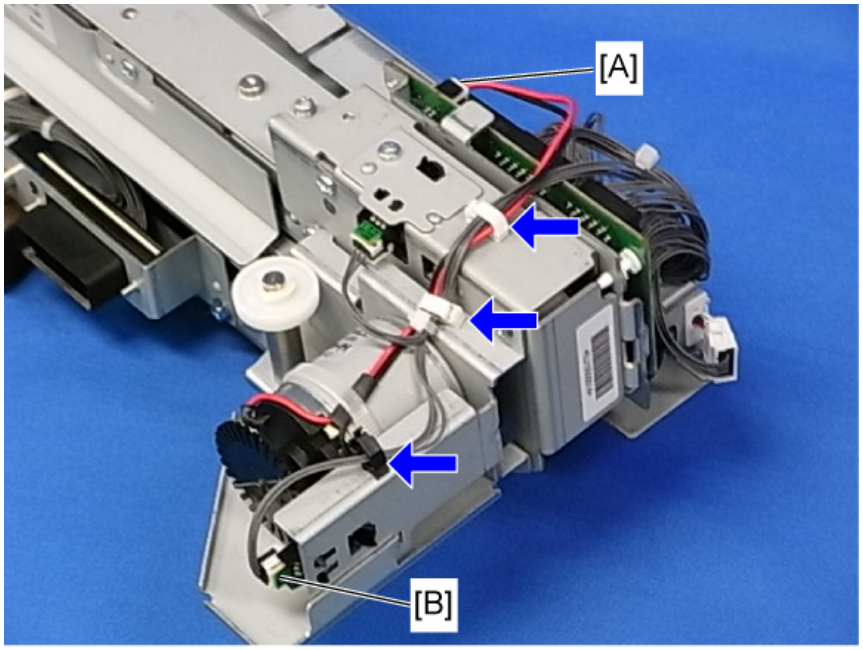


d587r004

3. Replace the punch position sensor [A] (x 1, hooks x 3).

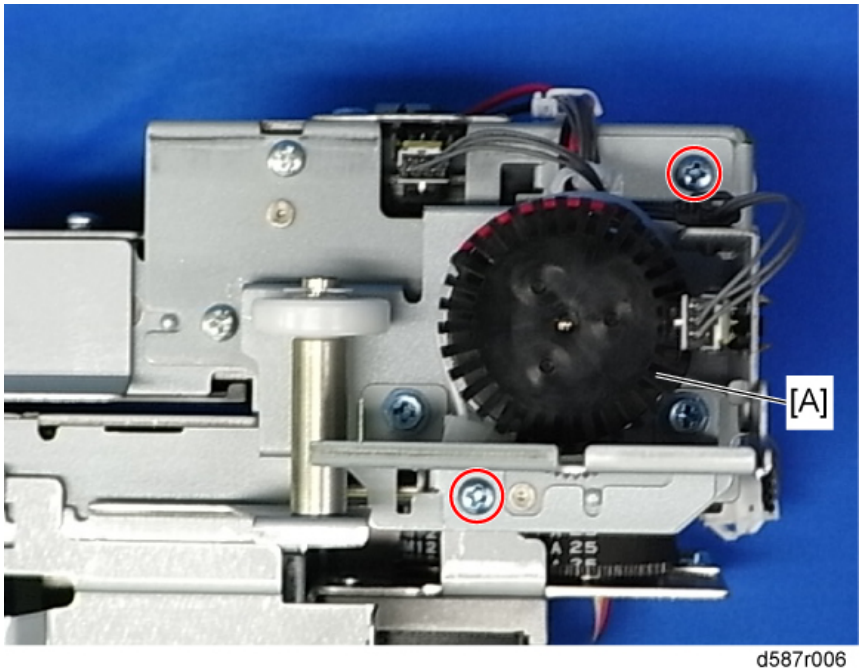
1.1.4 PUNCH DRIVE MOTOR

1. Remove the upper cover.(☛ p.4 "Controller Board")



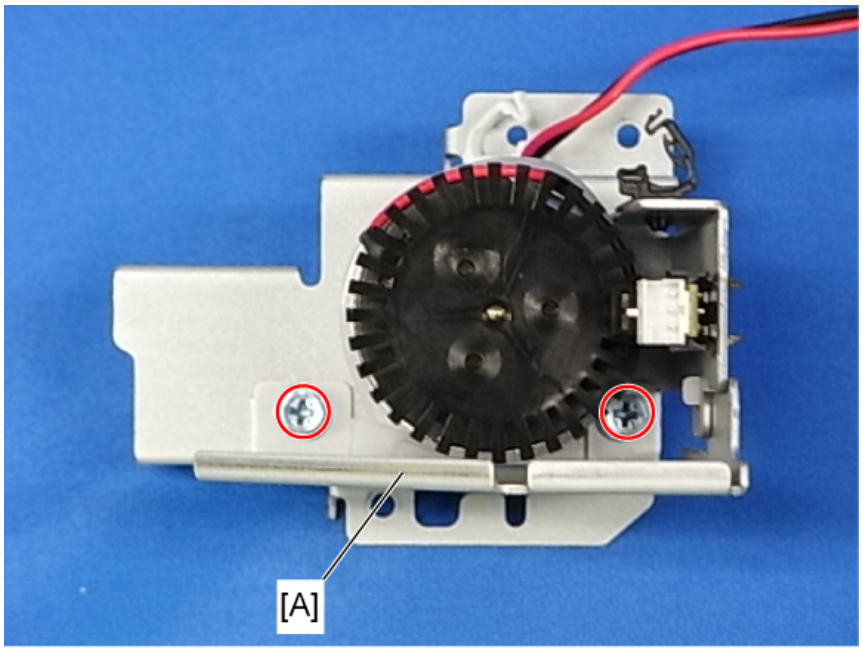
d587r005

2. Disconnect the punch drive motor connector [A] and the punch encoder sensor connector [B] (x 3).



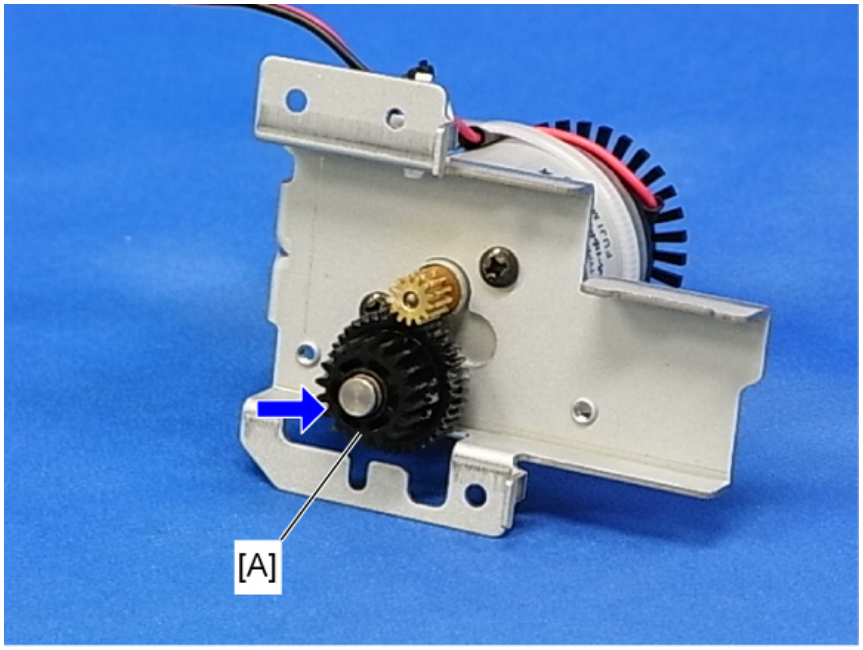
d587r006

3. Remove the punch drive motor assembly [A] (x 2).



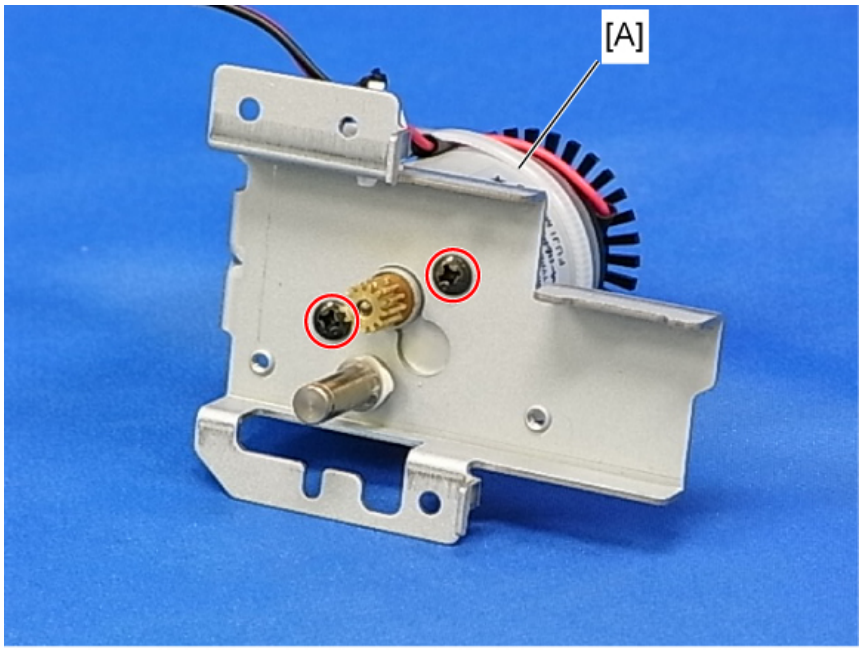
d587r007

4. Remove the motor cover [A] (x 2).



d587r008

5. Remove the 2nd transmission gear [A] (x 1).

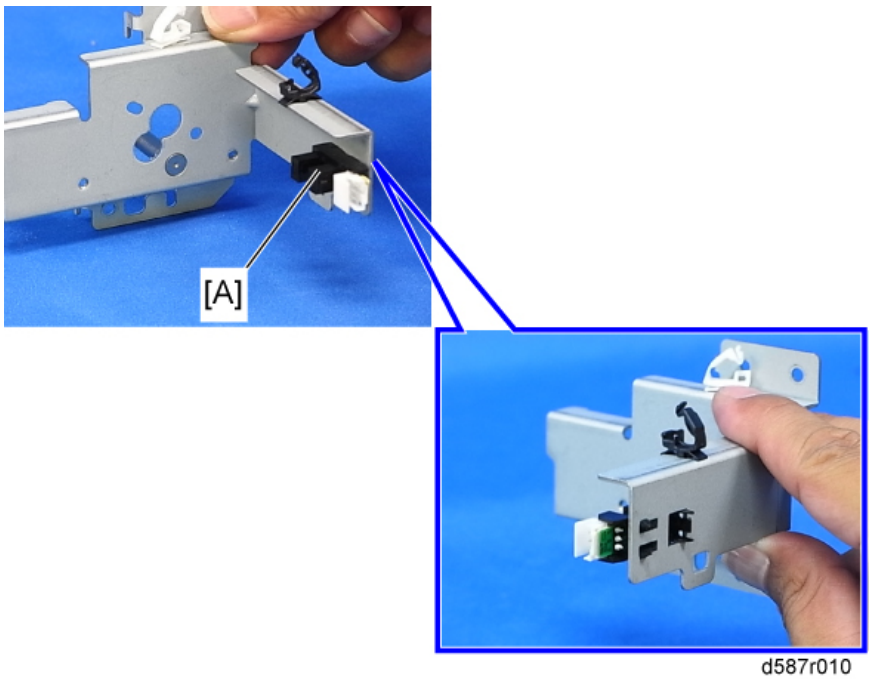


d587r009

6. Replace the punch drive motor [A] (x 2).

1.1.5 PUNCH ENCODER SENSOR

1. Remove the punch drive motor. (☛ p.6 "Punch Drive Motor")

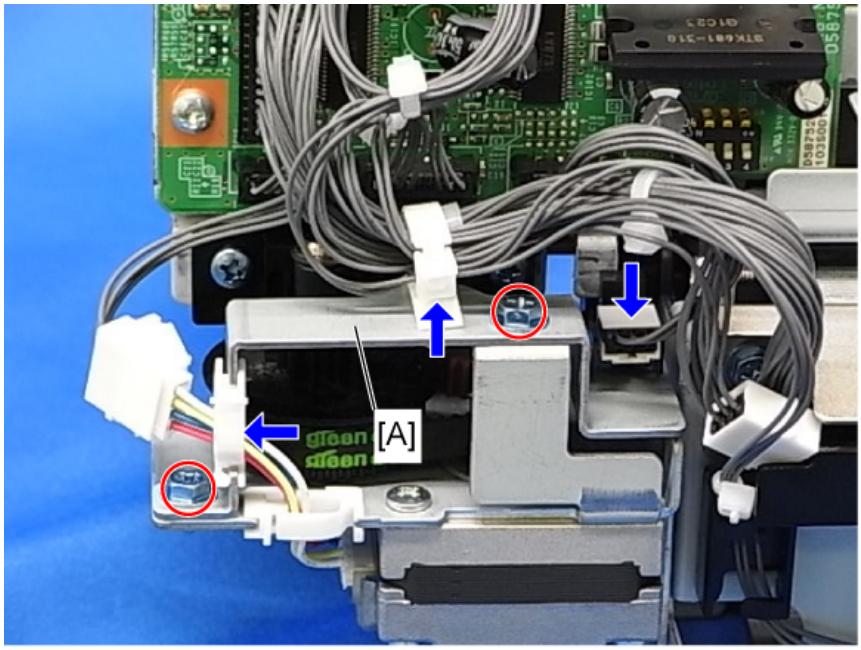


d587r010

2. Replace the punch encoder sensor [A] (hooks x 3).

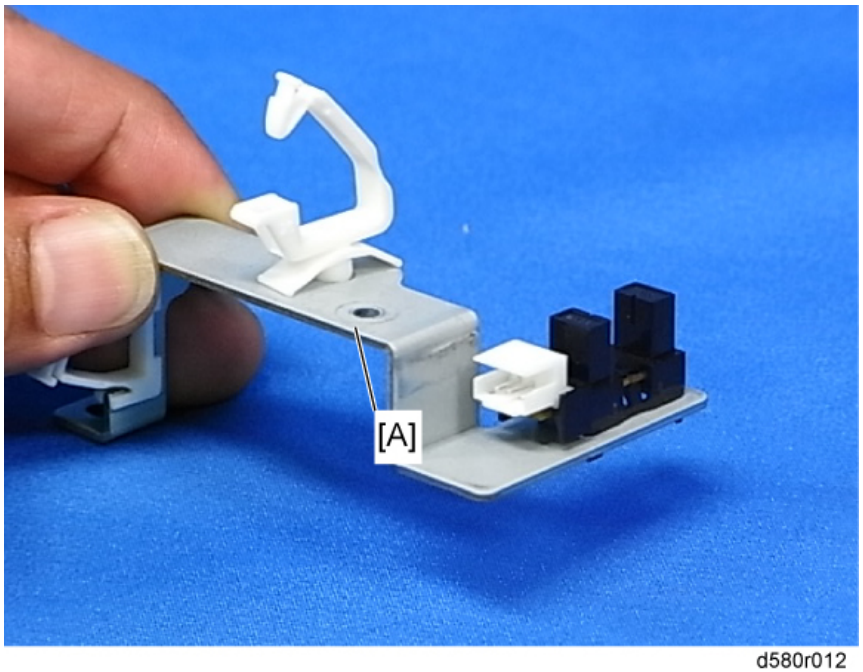
1.1.6 PUNCH UNIT HP SENSOR

1. Remove the upper cover. (☛ p.4 "Controller Board")



d587r011

2. Remove the punch unit HP sensor assembly [A] (x 2, x 2, x 1).

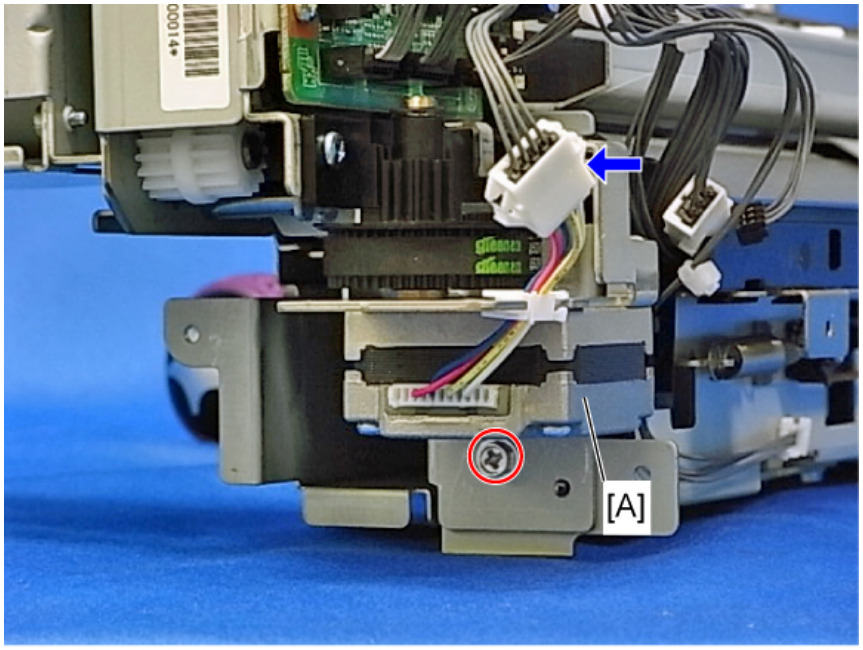


d580r012

3. Replace the punch unit HP sensor [A] (hooks x 3).

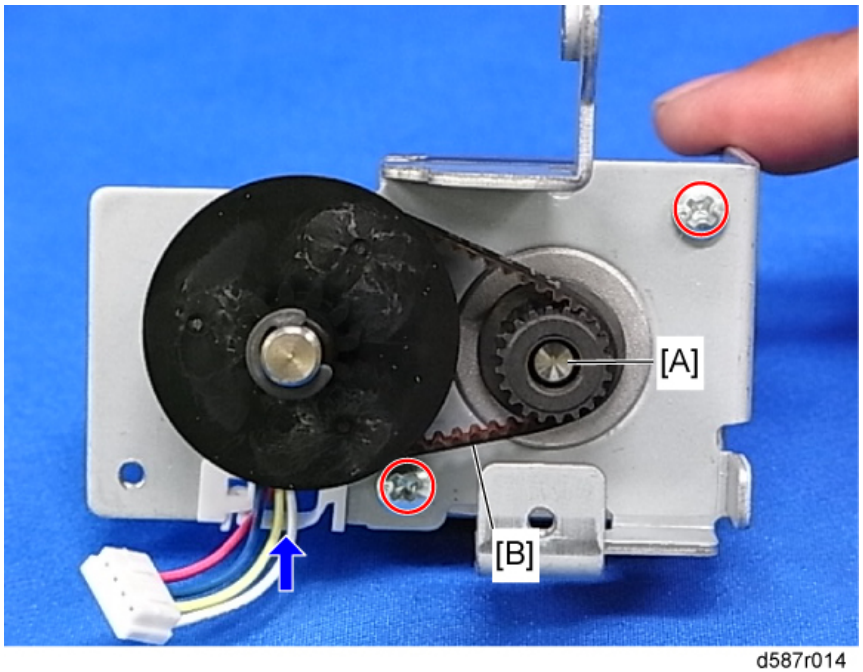
1.1.7 PUNCH MOVEMENT MOTOR

1. Remove the punch unit HP sensor assembly. (☛ p.9 "Punch Unit HP Sensor")



d587r013

2. Remove the punch movement motor assembly [A] (x 1, x 1).

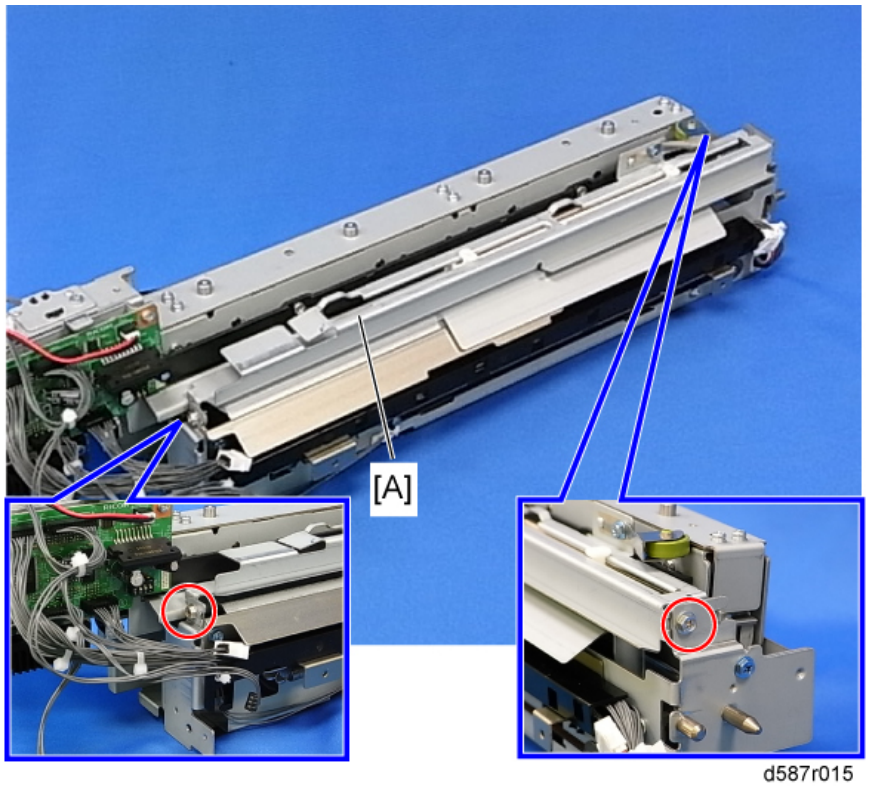


d587r014

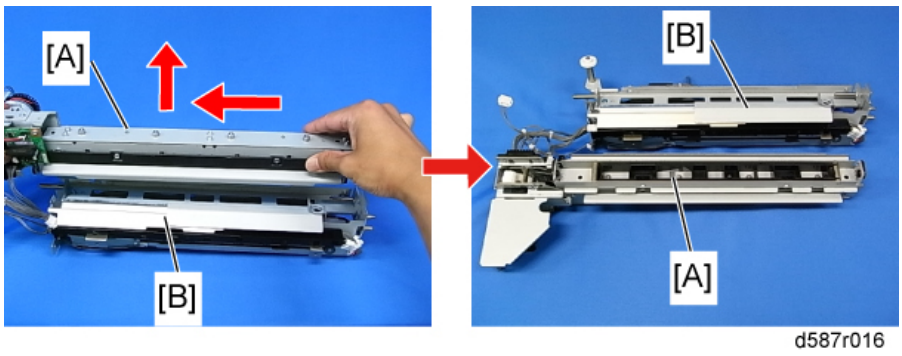
3. Replace the punch movement motor [A] (timing belt [B] x 1, x 2, x 1).

1.1.8 PUNCH UNIT SEPARATION

1. Remove the punch movement motor assembly. (☛ p.10 "Punch Movement Motor")



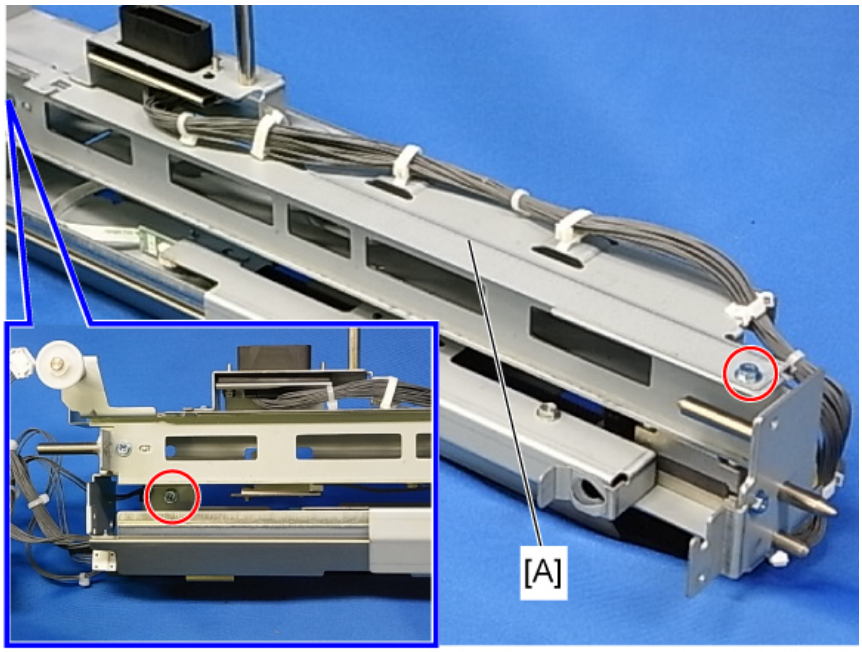
2. Remove the upper entrance guide plate [A] (x 2).



3. Slide the upper part of the punch unit [A], and separate it from the lower part [B].

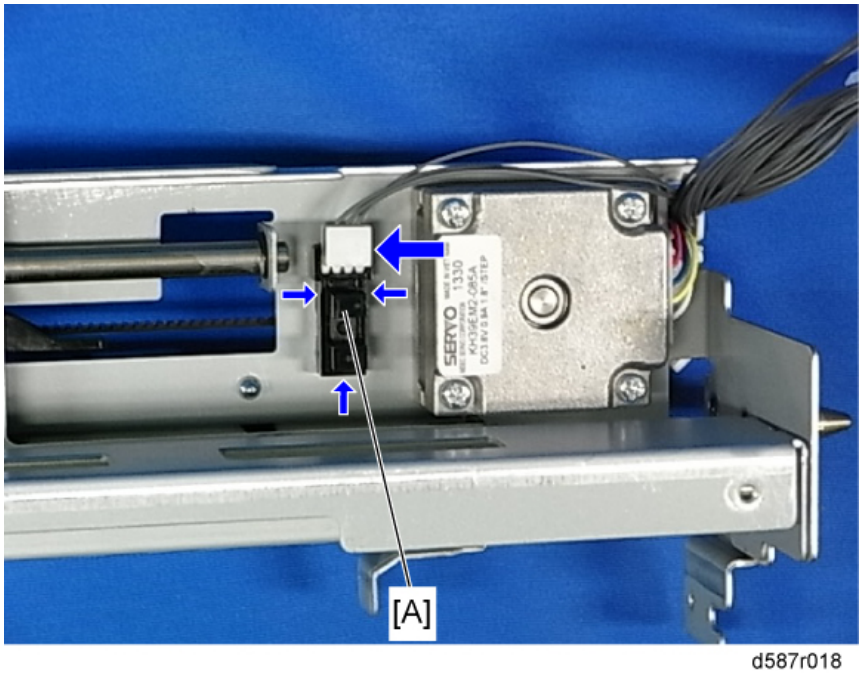
1.1.9 PAPER POSITION DETECTION UNIT HP SENSOR

1. Separate the punch unit. (☛ p.11 "Punch Unit Separation")



d587r017

2. Remove the punch unit drawer bracket assembly [A] (x 2).

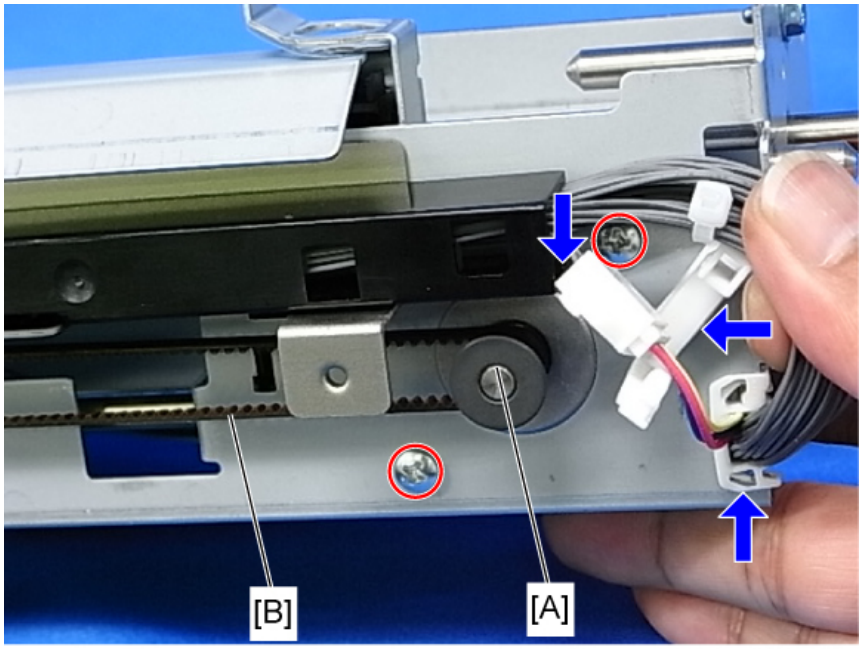


d587r018

3. Replace the paper position detection HP sensor [A] (x 1, hooks x 3).

1.1.10 PAPER POSITION SENSOR UNIT MOTOR

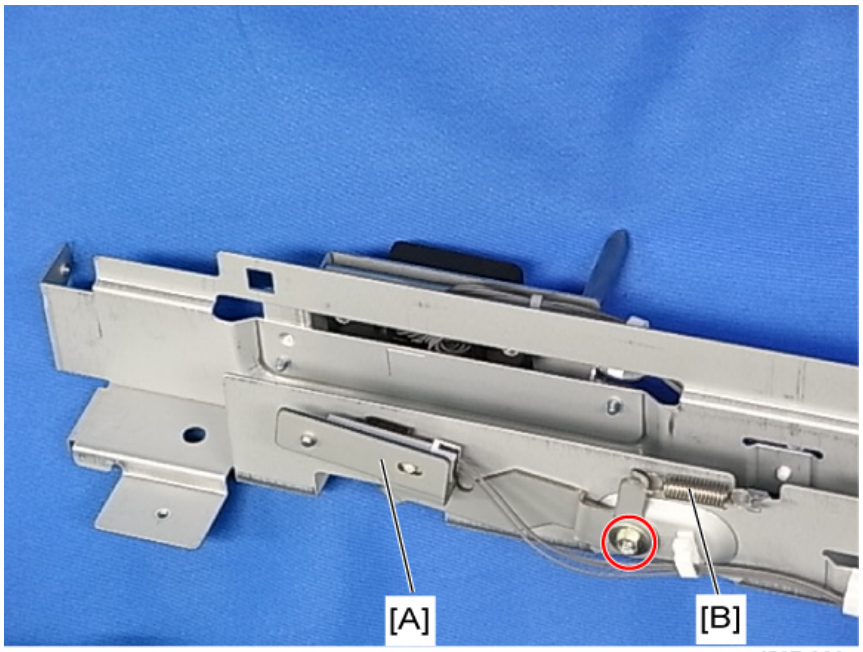
1. Remove the punch unit drawer bracket assembly. (☛ p.12 "Paper Position Detection Unit HP Sensor")



2. Replace the paper position sensor unit motor [A] (timing belt [B] x 1, x 2, x 2, x 1).

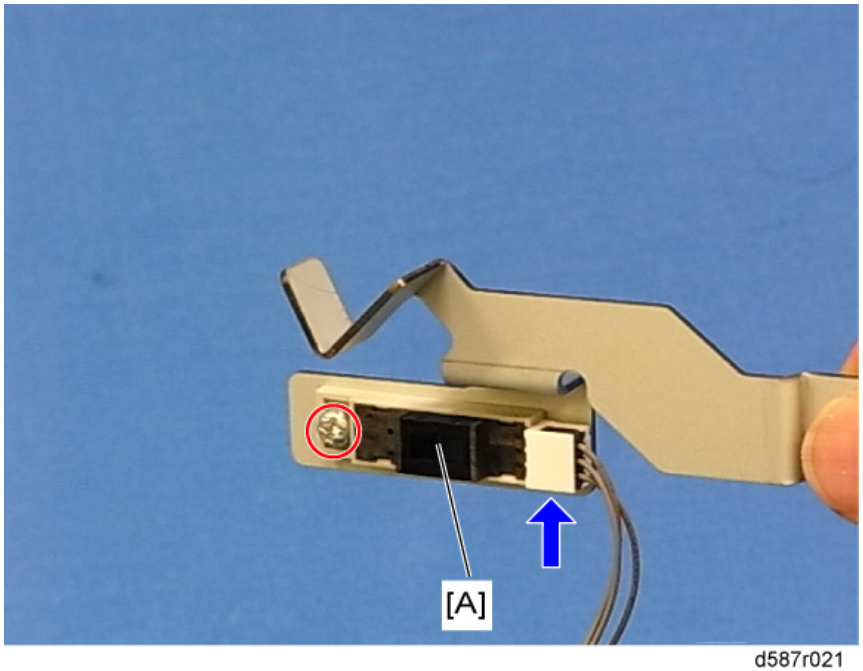
1.1.11 PUNCH HOPPER FULL SENSOR

1. Remove the punch unit drawer bracket assembly. (☛ p.12 "Paper Position Detection Unit HP Sensor")



d587r020

2. Remove the punch hopper full sensor assembly [A] (spring [B] x 1, x 1).

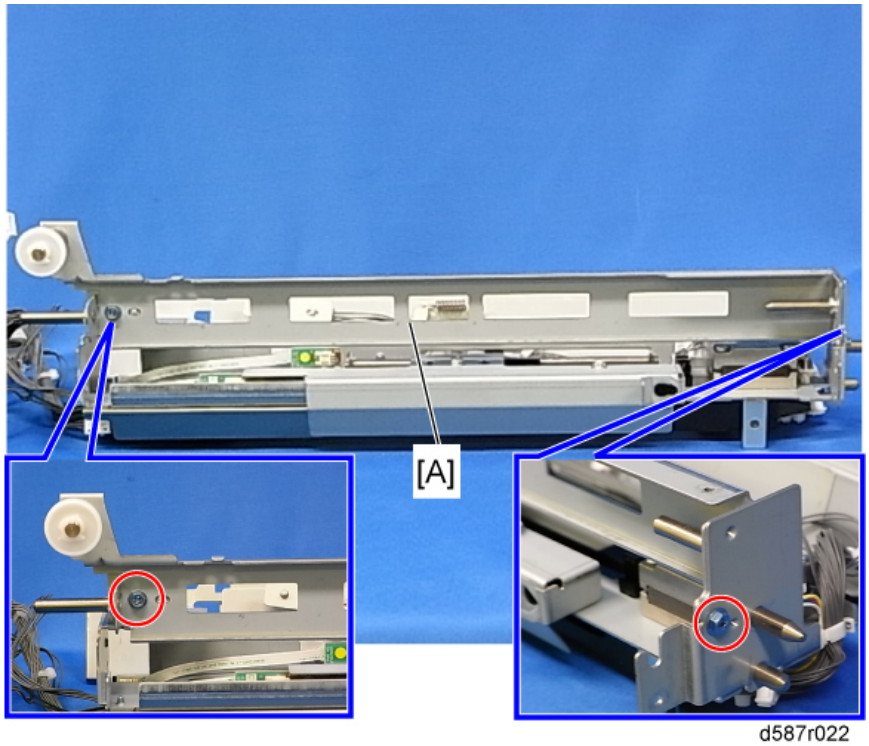


d587r021

3. Replace the punch hopper full sensor [A] (x 1, x 1).

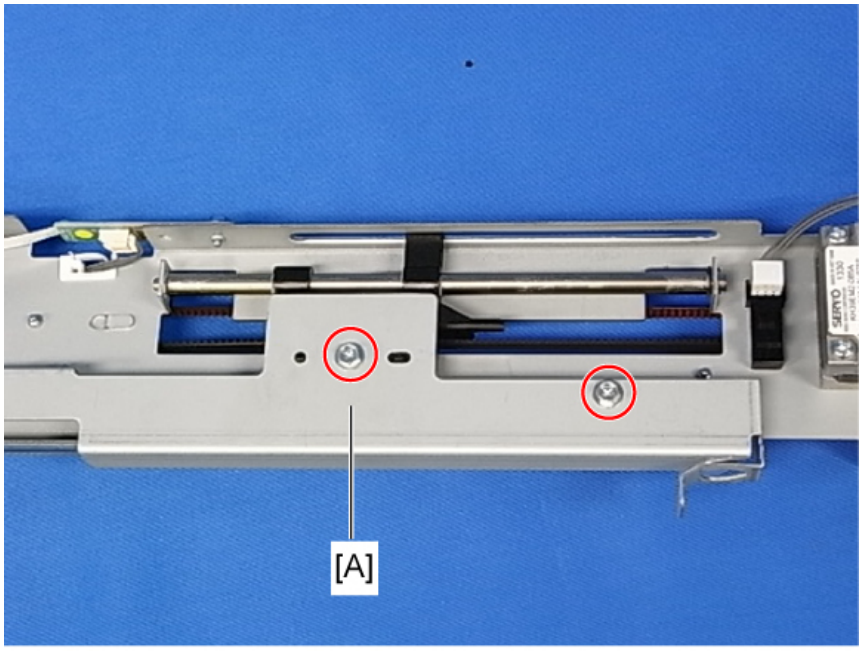
1.1.12 PAPER POSITION SENSOR

1. Remove the punch unit drawer bracket assembly. (☛ p.12 "Paper Position Detection Unit HP Sensor")



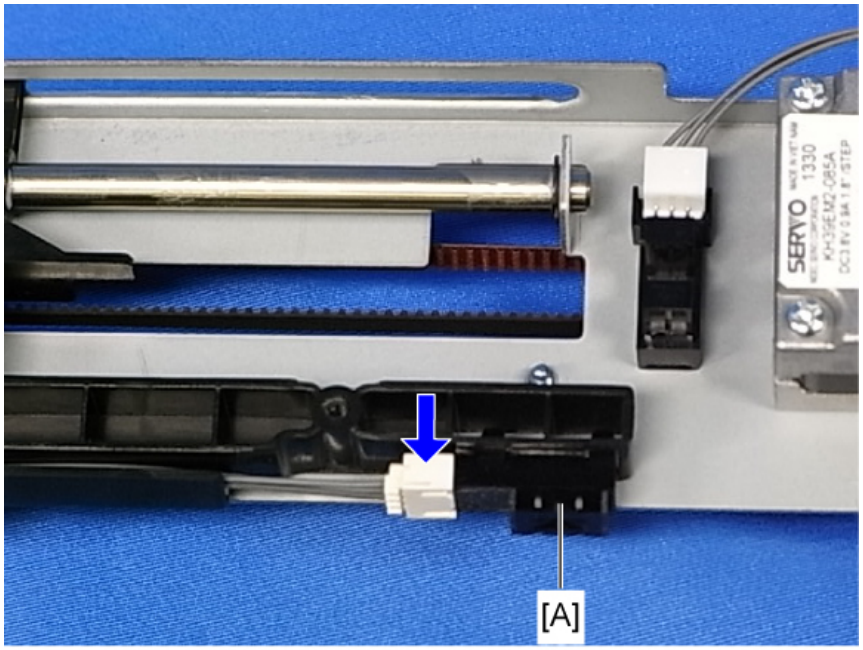
d587r022

2. Remove the punch unit slide frame [A] (x 2).



d587r023

3. Remove the movement lower guide plate [A] (x 2).



d587r024

4. Replace the paper position sensor [A] (x 1, hooks x 4).
5.

D595

PRINTER/SCANNER UNIT TYPE 3352

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PRINTER/SCANNER UNIT TYPE 3352 (D595)

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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:

- Failure to obey warning information could result in serious injury or death.

- Obey these guidelines to ensure safe operation and prevent minor injuries.

- 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.

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

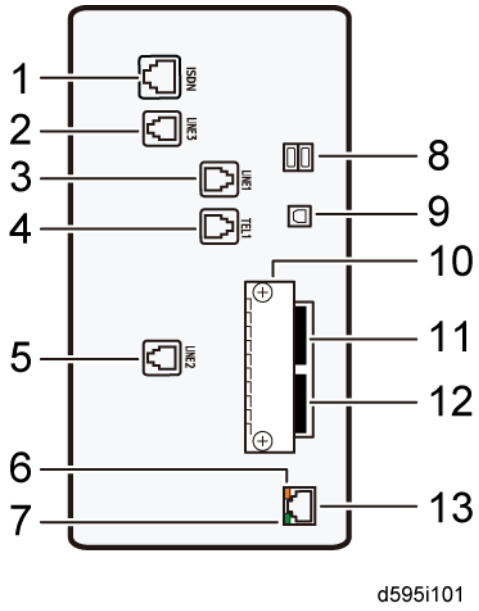
1. INSTALLATION

1.1 CONTROLLER BOARD SLOTS

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.



d595i101

Board Slots

No.	Name	Description
1	ISDN	Jack for ISDN connection (**Japan Only**)
2	Line 3	Jack for a 3rd line connection to the Fax Interface Unit (D596) (G3) when this option is installed.
3	Line 1	Jack for the main telephone line from the outside for connection to Fax Option (D596).
4	TEL1	Jack for telephone connection
5	Line 2	Jack for a 2nd line connection to the Fax Interface Unit (D596) (G3) when this option is installed.

No.	Name	Description
6	Orange LED	Lights when the network is connected and operating.
7	Green LED	Lights when 10BASE-TX or 100BASE-TX is operating.
8	USB-A	Both USB slots are used for the Bluetooth option and a card authentication device.
9	USB-B	Built-in for connection of USB devices (USB 2.0)
10	Board Slot	Optional interface boards are installed here.
11	SD Card Slot 1	For options provided on SD cards. The application SD card (with the exception of the VM card) can be installed in both Slot 1 and Slot 2. If more than two application is to be used, move the applications to the same SD card with SP5873.
12	SD Card Slot 2	For options provided on SD cards and servicing. The application SD card (with the exception of the VM card) can be installed in both Slot 1 and Slot 2. The VM card must be installed in Slot 2.
13	Ethernet	Standard LAN connection point. 100BASE-TX/10BASE-T LAN

- Only two SD Card slots are available for applications.
- To install more applications, they must be moved onto one SD Card.

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)
D377	IEEE 802.11a/g Interface Unit Type J (D377) -or- IEEE 802.11g Interface Unit Type K (D377)
B870	Optional Counter Interface Unit Type A (B870)
D377	File Format Converter Type E (D377)
G874	Gigabit Ethernet Board Type A (G874)
B829	Copy Data Security Unit Type F (B829)

SD Card Slots

The following options are provided on SD cards.

- Two SD card slots are available.
- The VM application SD card must be installed in Slot 2 (lower).
- Other applications can be installed in either Slot 1 or Slot 2. If more than one application is required, applications can be moved onto one SD card with SP5873-1.

No.	SD Card Appliacations
D430	Browser Unit Type E (D430)
D594	VM Card Type N (D594)
D595	PostScript3 Unit Type 3352 (D595)
D595	IPDS Unit Type 3352 (D595)
D595	Printer Unit Type 3352 (D595)
D595	Printer/Scanner Unit Type 3352 (D595)
D595	Scanner Enhance Option Type 3352 (D595)

USB Slots

The following option is provided on a USB Device.

No.	USB Device
D566	Bluetooth Interface Unit Type D (D566)

1.2 SD CARD APPLI MOVE

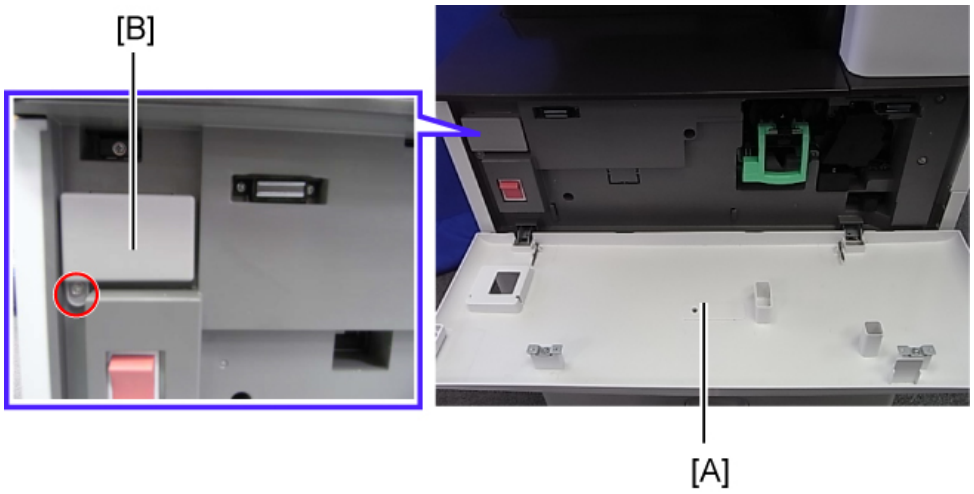
1.2.1 OVERVIEW

The service program "SD Card Appli Move" (SP5-873) lets you move application programs from one SD card to another SD card.

If more than one application is required, the applications must be moved to one SD card with SP5873-1 (PostScript 3, IPDS unit, etc.).

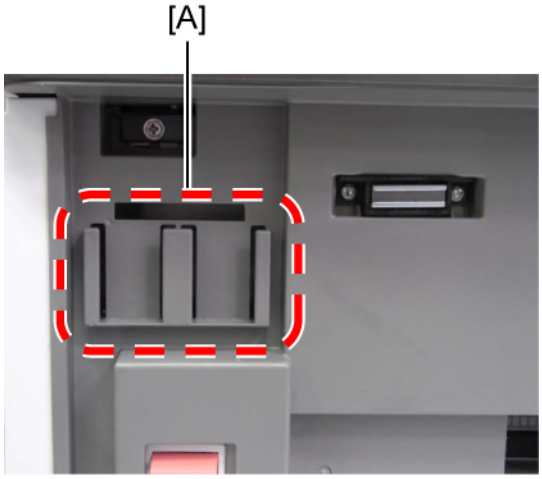
Be very careful when you do the SD Card Appli Move procedure:

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



d595i102

- Open the front cover [A], and then remove the bracket [B].



d595i103

Keep the SD cards here [A] after you move the application program from one card to another card. This is done for the following reasons:

- The SD card can be the only proof that the user is licensed to use the application program.
- You may need to check the SD card and its data to solve a problem in the future.

- See the tables below for details on which modules can and cannot be moved.

SD cards and Included Modules

The following table shows the SD cards and modules included on each card.

Module Type	SD Card							
	SD Card provided with the SP Model	Printer Unit	Scanner Enhance Option	Printer/Scanner Unit	VM card	PS3 Unit	IPDS Unit	Browser Unit
App2Me*[1]	○	-	-	-	-	-	-	-
Printer	○	●	-	○	-	-	-	-
Scanner	○	-	○	○	-	-	-	-
PDF direct	○	●	-	○	-	○	-	-
Java-VM	○	-	-	-	●	-	-	-
PS	-	-	-	-	-	○	-	-
IPDS	-	-	-	-	-	-	○	-
Browser	-	-	-	-	-	-	-	○

●: Cannot move to another SD card.

*1: To use App2Me on models other than the SP model, it must be downloaded from the App2Me Web site. Java-VM is required.

The VM card and service SD cards must be installed in slot 2. Other SD cards can be installed in either slot.

Java-VM cannot be moved to another card.

The Printer function cannot be moved to another card.

1.2.2 MOVE EXEC

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

Important

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

1. Turn off the main power switch.
2. Make sure that a target SD card is in SD Card Slot 1. The application program is moved to this SD card.
3. Insert the source SD card with the application program in SD Card Slot 2.The application program is copied from this source SD card.
4. Turn on the main power switch.
5. Start the SP mode.
6. Select SP5-873-001 "Move Exec".
7. Follow the messages shown on the operation panel.
8. Turn off the main switch.
9. Remove the source SD card from SD Card Slot 2.
10. Turn the main switch on.
11. Check that the application programs run normally.

1.2.3 UNDO EXEC

"Undo Exec" (SP5-873-002) lets you move back application programs from an SD card in SD Card Slot 1 to the original SD card in SD Card Slot 2. You can use this program when, for example, you have mistakenly copied some programs by using Move Exec (SP5-873-001).

Important

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

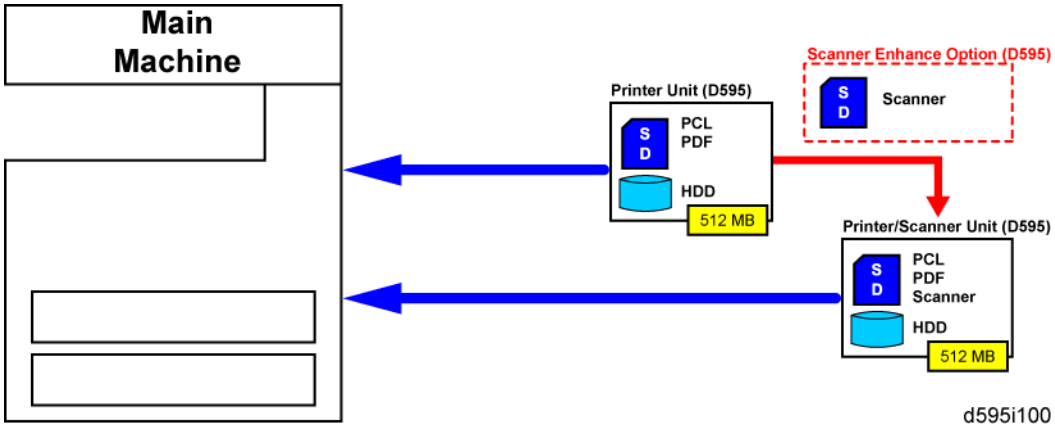
1. Turn off the main power switch.
2. Insert the original SD card in SD Card Slot 2. The application program is copied back into this card.
3. Insert the SD card with the application program in SD Card Slot 1.The application program is copied back from this SD card.
4. Turn on the main power switch.
5. Start the SP mode.
6. Select SP5-873-002 "Undo Exec."
7. Follow the messages shown on the operation panel.
8. Turn off the main switch.
9. Remove the SD card from SD Card Slot 2.
10. Turn on the main power switch.
11. Check that the application programs run normally.
12. Make sure that the machine can recognize the option.

1.3 PRINTER AND P/S OPTIONS

1.3.1 OVERVIEW

This section describes the installation of the following items (these procedures apply to the Basic models only, not the SP models):

- Printer Unit
- Printer/Scanner Unit
- HDD
- 512 MB Memory. Optional memory is required for each unit.
- Scanner Enhance Option



Main Units

The two main units are:

- **Printer Unit Type 3352.** For customers who do not require the extended scanning features but need more printing capability (PCL printer language is provided). The 512 MB memory is required.
- **Printer/Scanner Unit Type 3352.** 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 512 MB memory unit is required.

Separate Options

There are three separate options: HDD, 512 MB memory and PS3.

- **HDD.** Provided with the 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.
- **512 MB memory.** Not provided with any option. However, the Printer Unit and Printer/Scanner Unit require installation of the 512 MB memory.

- **PostScript 3 Unit.** The PS3 option can be used with the Printer Unit or the Printer/Scanner Unit.

Enhance Option

The Scanner Enhance Option Type 3352 updates the Printer Unit by adding the advanced scanning features.

1.3.2 KIT CONTENTS

Check the accessories and their quantities against the list below. 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.

- PU: Printer Unit
- P/S: Printer/Scanner Unit
- SEO: Scanner Enhance Unit

	Description	Qty	Kit Contents		
			PU	P/S	SEO
1.	512 MB Memory*1	1	No	No	No
2.	HDD*2	1	Yes	Yes	No
3.	Screws	2	Yes	Yes	
4.	SD Card	1	Yes	Yes	Yes
5.	NA Keytop Set*3	1	Yes	Yes	Yes
	EU Keytop Set*3	1	Yes	Yes	Yes
6.	Ferrite Core	1	Yes	Yes	Yes

*1: The 512 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 Unit or Printer/Scanner Unit kit.

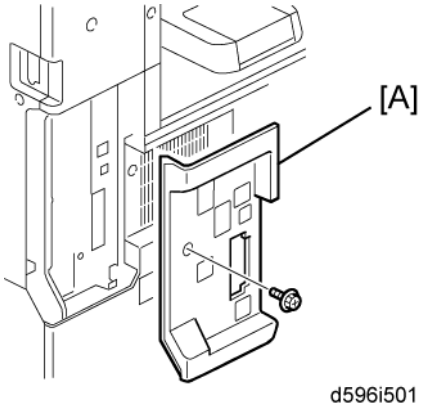
*3: The number of keytops provided varies:

Kit	Keytops			
	Copy	Document Server	Printer	Scanner
Printer Unit	1	1	1	-
Printer/Scanner Unit	1	1	1	1
Scanner Enhance Unit	-	-	-	1

1.3.3 PRINTER, PRINTER/SCANNER UNIT INSTALLATION (FOR BASIC MODELS)

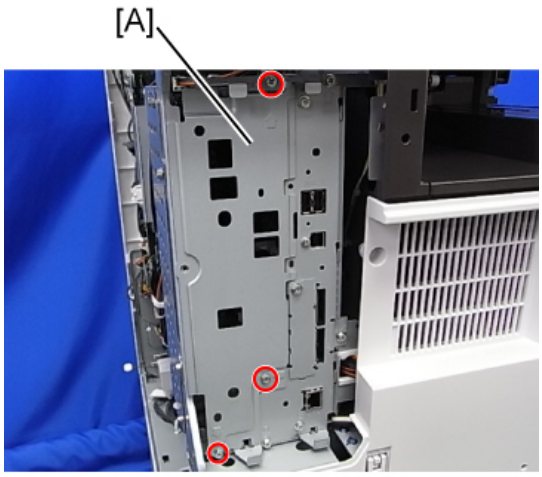
⚠CAUTION

- Turn off the main power switch and disconnect the power supply cord.



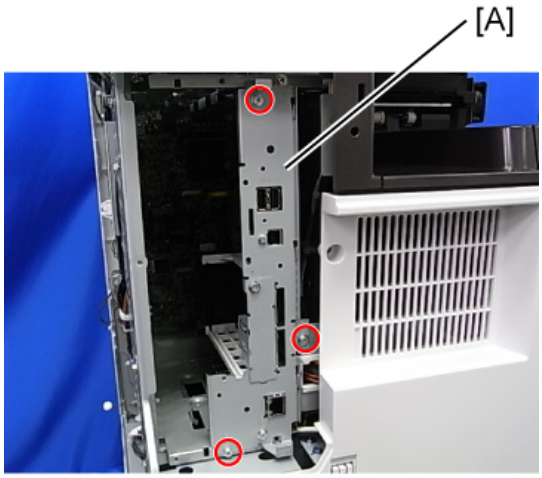
d596i501

1. Remove the controller cover [A] (x1).



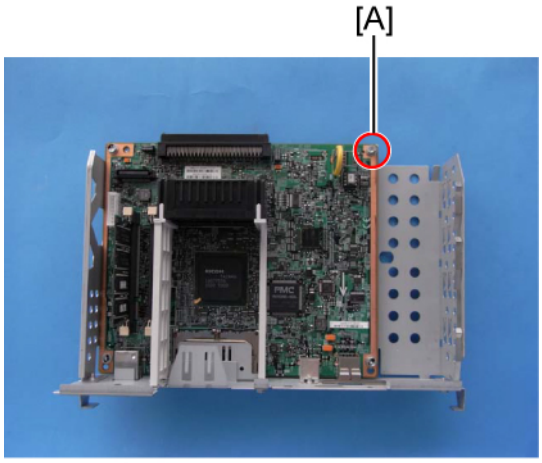
d120r144

2. Remove the FCU faceplate [A] (x3).



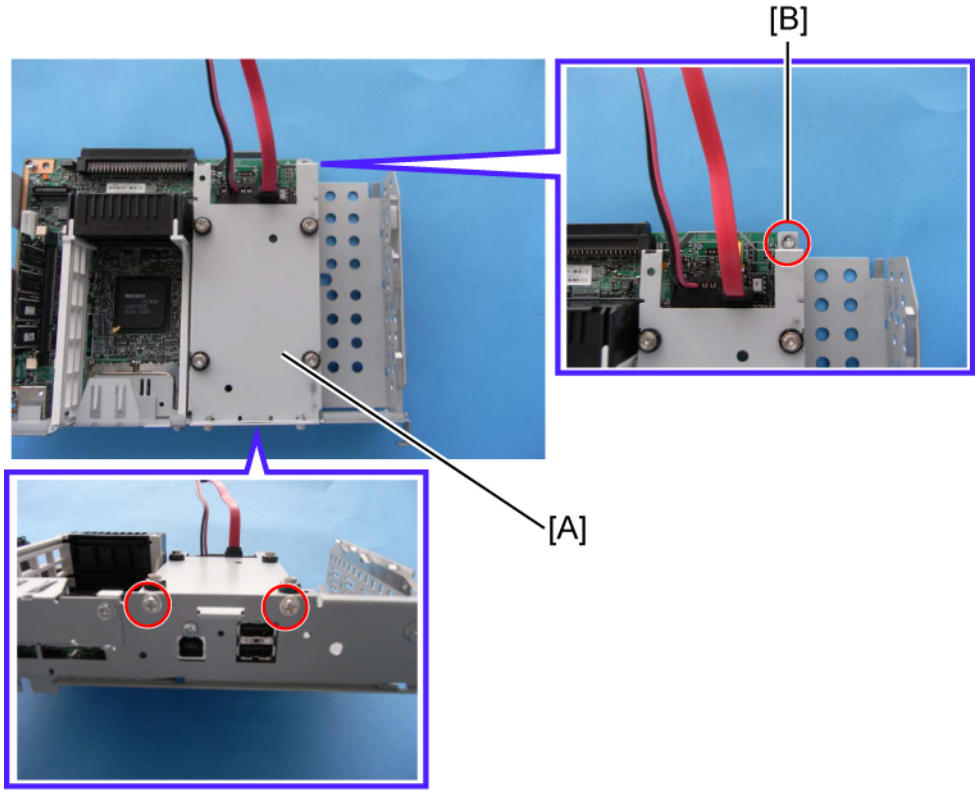
d120r145

3. Remove the controller board unit [A] (x3).



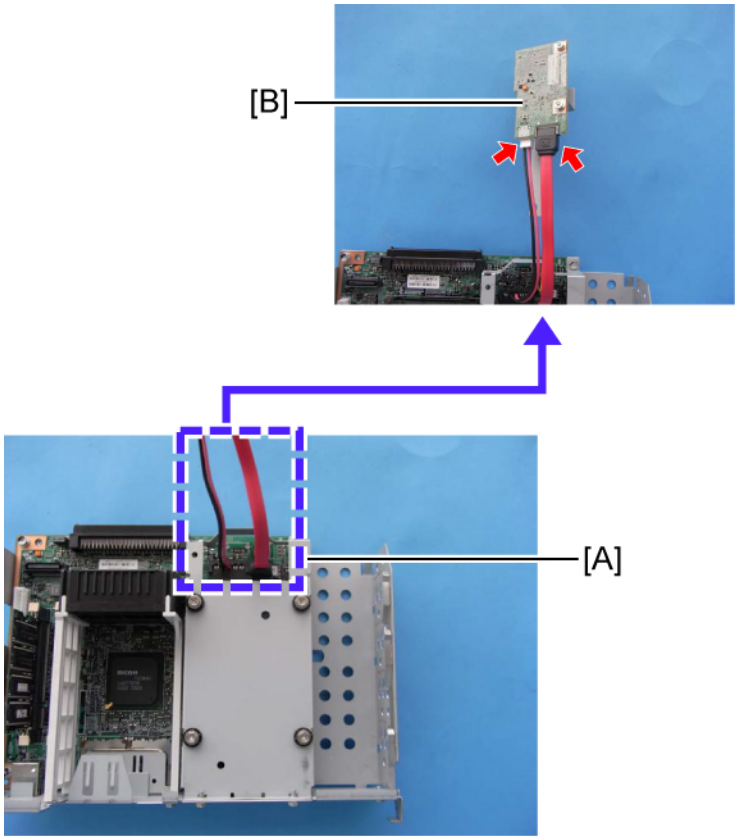
d120i509

4. Remove the screw [A] on the controller board.



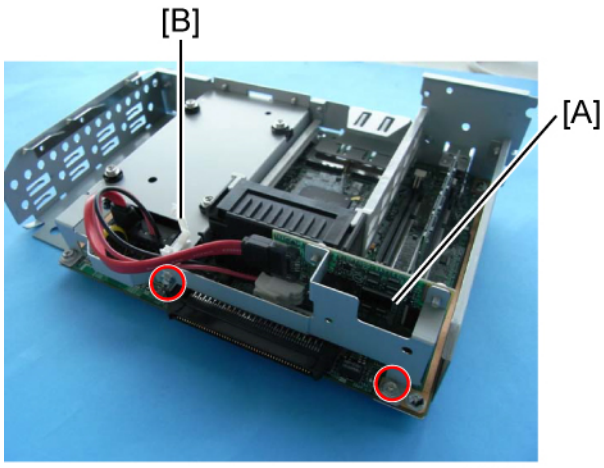
d120i510

5. Install the HDD unit [A] on the controller board unit (x 3). Use the screw removed in step 4 at [B].



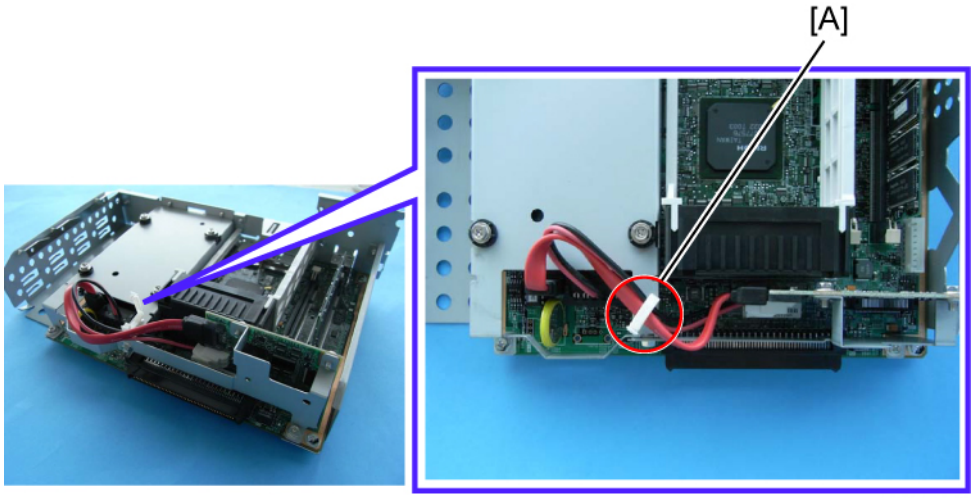
d120i511

6. Connect the two cables [A] from the HDD unit to the connecting board [B] (x 2).



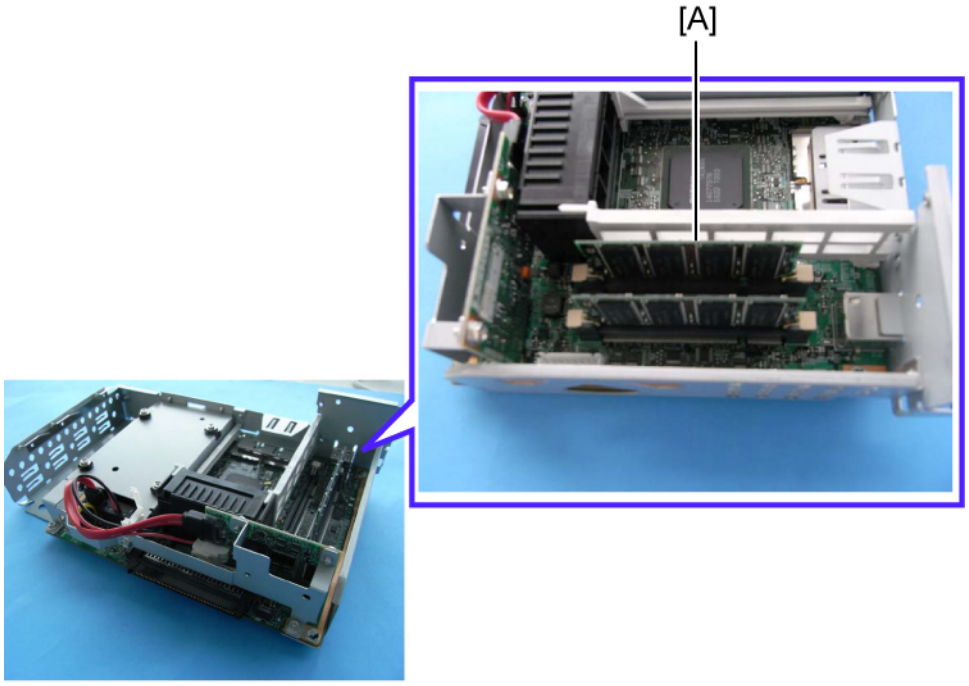
d120i512

7. Connect the connecting board unit [A] to the controller board (x 2).
8. Install the harness clamp [B] on the HDD unit.



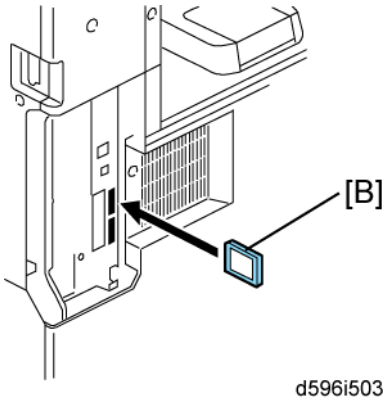
d120i513

9. Clamp the cables [A] to prevent them from sticking out.



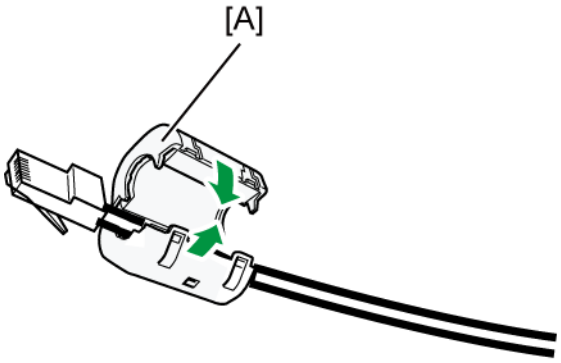
d596i104

10. Install the 512 MB memory [A].
11. Reinstall the controller board unit with the HDD.



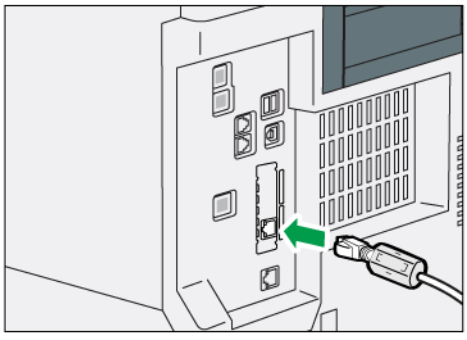
d596i503

12. Insert the SD card [B] in SD card Slot 1 or Slot 2.
13. Cycle the machine power off/on.
14. Format the HDD with SP5832-1.
15. Do SP5853 to copy the preset stamp data from the firmware to the hard disk.
16. Do SP5846-040 to copy the address book to the hard disk from the controller board.
17. Do SP5846-041 to let the user get access to the address book.
18. Reattach the controller cover (x1).



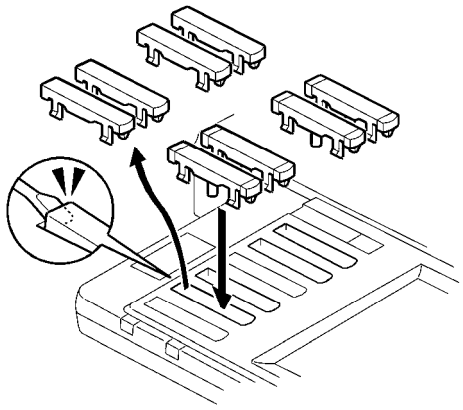
d596i508

19. Attach the supplied ferrite core [A] at the machine end of the Ethernet cable.



d596i513

20. Connect the Ethernet interface cable to the 10BASE-T/100BASE-TX port.
21. Connect the other end of the Ethernet interface cable to a network connection device such as a hub.



d383i105

22. 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.

23. Replace the blank keytops with the keytops received in the kit from top to bottom:
    - 1st Copy
    - 2nd Document Server
    - 4th Printer
    - 5th Scanner
24. Connect the machine power cord and turn on the main power switch.
25. 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).

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 main power switch 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.

1.3.4 SCANNER ENHANCE OPTION (FOR BASIC MODELS)

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).

1. Turn off the main power switch.
2. Remove the cover (x1).
3. Confirm that the Printer Unit SD card is in SD Card Slot 1.
4. Put the option SD Card (Scanner Enhance Option) in SD Card Slot 2.
5. Turn on the main power switch.
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 off the main power switch.
10. Remove the option SD card from SD Card Slot 2.
11. Turn on the main power switch.
12. Go into the User Tools mode and confirm that update was successful.
    User Tools> System Settings> Administrator Tools> Firmware Version> Next
13. Turn off the main power switch 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 off the main power switch.
2. Confirm that the Printer Unit SD card is in SD Card Slot 1.
3. Put the empty SD card (Scanner Enhance Option D595) in SD Card Slot 2.
4. Turn on the main power switch.
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 off the main power switch.
8. Remove the restored SD card from SD Card Slot 2.
9. Turn on the main power switch.
10. Go into the User Tools mode and confirm that undo was successful.
    User Tools> System Settings> Administrator Tools> Firmware Version> Next
11. Turn off he main power switch 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 more than one application is required…

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 SD Card Slot 2 (lower).

SD Card Options	SD Card Size	Module Size
Printer Unit Type 3352	32 MB	8.3 MB
Printer/Scanner Unit Type 3352	32 MB	9.3 MB
Scanner Enhance Option Type 3352	16 MB	3 MB
PostScript3 Unit Type 3352	64 MB	14.6 MB
IPDS Unit Type 3352	32 MB	10.5 MB
Browser Unit Type E *[1]	32 MB	14.7 MB

*1: Browser Unit Type E cannot be moved to a 16MB SD card.

1.4 INSTALLING CONTROLLER OPTIONS

1.4.1 IEEE 1284 INTERFACE BOARD (B679)

Accessories

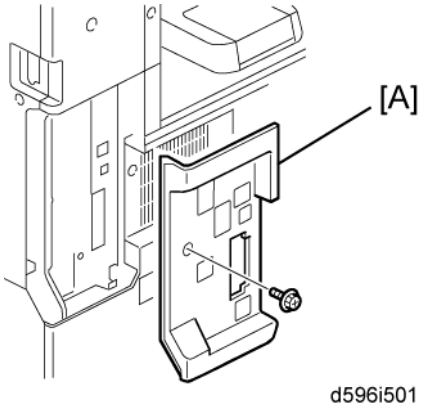
Check the accessories and their quantities against the following list:

No	Description	Quantity
1	IEEE 1284 Interface Board B679	1

Installation

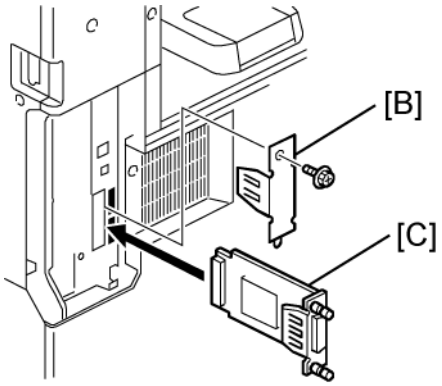
CAUTION

- Turn off the main power switch and disconnect the power supply cord.



d596i501

1. Remove the controller cover [A] (x1).



d596i504

2. Remove the cover [B] of the board slot (x1).
3. Install the interface board [C] (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 controller cover (x1).

Important

- If a finisher other than the internal finisher is installed, remove it before you attach the parallel cable. Install the finisher again after you connect the parallel cable.

1.4.2 IEEE 802.11A/G OR G (D377)

Accessories

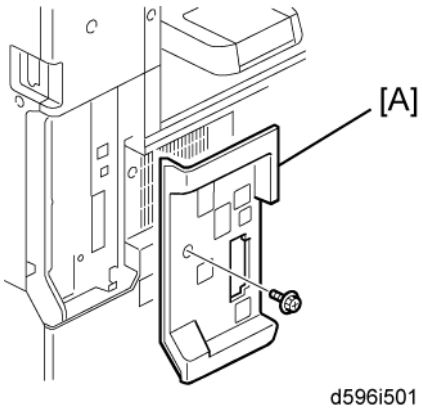
Check the accessories and their quantities against the following list:

No	Description	Quantity
1	IEEE 802.11a/b Interface Board -or- IEEE 802.11g Interface Board	1
2	Antenna Cables	2
3	Antenna Clamps	8

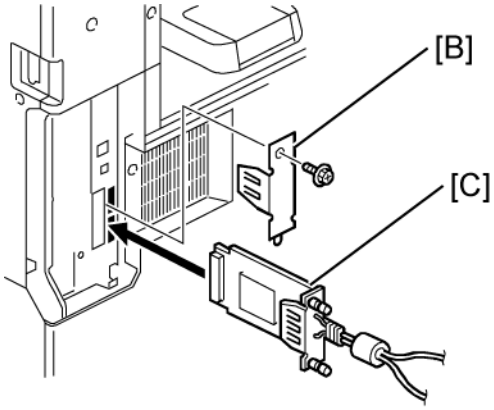
Installation

CAUTION

- Turn off the main power switch and disconnect the power supply cord.



1. Remove the controller cover [A] (x1).



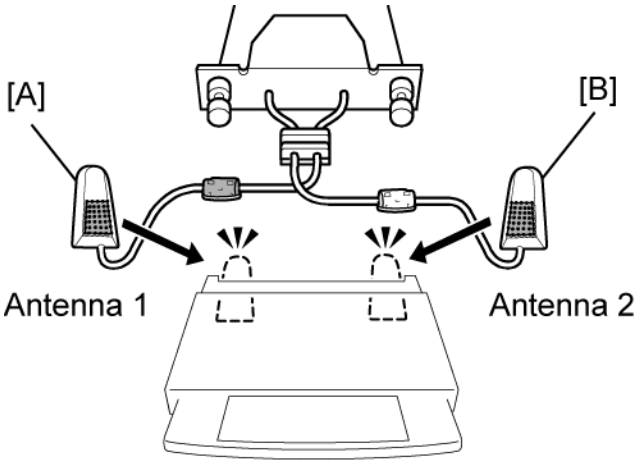
d596i505

2. Remove the cover [B] of the board slot (x1).
3. Insert the interface card [C] as shown above.

Note

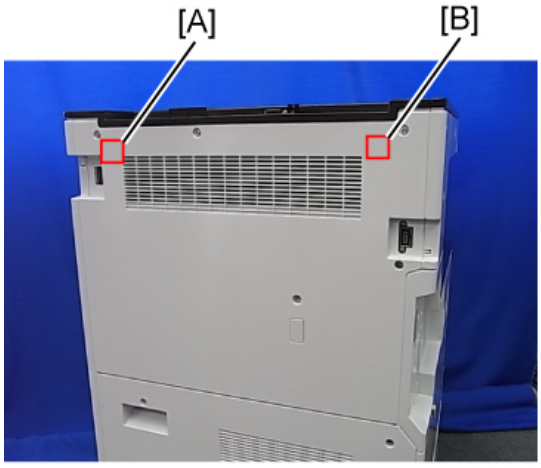
- Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.

4. Look at the markings on the antenna bracket.
5. Look at the ferrite core of the antenna cable.



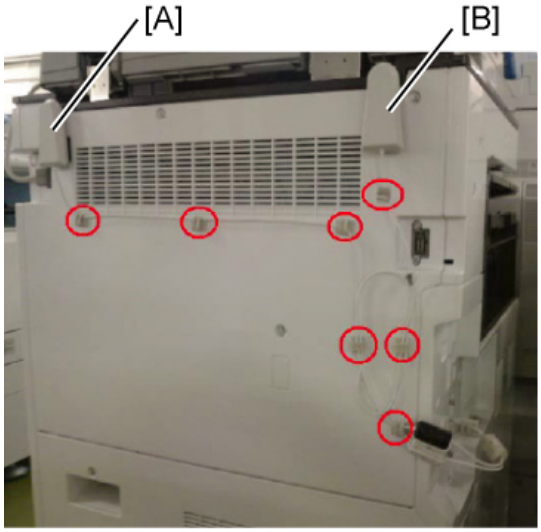
d596i509

- **ANT1**. Antenna 1 [A] transmits and receives. It must be installed on the left rear corner of the main machine. (The core on the Antenna 1 cable is black.)
- **ANT2**. Antenna 2 [B] only receives. It is installed on the right rear corner of the machine. (The core on the Antenna 2 cable is white.)



596i510

6. Peel off the double-sided tapes on the Velcro fasteners, and then attach them to the right rear [A] and left rear [B] of the machine.



d596i511

7. Attach Antenna 1 [B] to the left rear of the machine. (The core on the Antenna 1 cable is black.)
8. Attach Antenna 2 [A] to the right rear of the machine. (The core on the Antenna 2 cable is white.)
9. Attach the clamps as shown above.
10. Set the cables of Antenna 1 and 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

   - Select “Interface Settings”> “Network” > “LAN Type”. The “LAN Type” (default: Ethernet) must be set for either Ethernet or wireless LAN.
3. Select “Interface Settings”> “Wireless LAN”. Only the wireless LAN options show.
4. Set the “Communication Mode“.
5. Enter the “SSID setting”. (The setting is case sensitive.)
6. Set the “Ad-hoc Channel”. You need this setting when Ad Hoc Mode is selected. The allowed range for the channel settings may vary for different countries.
   - Region A (mainly Europe and Asia)

     Range: 1-13, 36, 40, 44 and 48 channels (default: 11)

     Note

     - In some countries, only the following channels are available:
     - Range: 1-11 channels (default: 11)
   - Region B (mainly North America)

     Range: 1-11, 36, 40, 44 and 48 channels (default: 11)
7. Set the “Security Method” to specify the encryption of the Wireless LAN.
   - 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.

     Range of Allowed Settings:

     64 bit: 10 characters

     128 bit: 26 characters
   - Specify “WPA” when “Communication Mode” is set to “Infrastructure Mode”. Set the “WPA Encryption Method” and “WPA Authent. Method”.
     - WPA Encryption Method:

       Select either "TKIP" or "CCMP (AES)".
     - WPA Authent. Method:

       Select either “WPA-PSK”, “WPA”, “WPA2-PSK", or “WPA2”.

       If you select “WPA-PSK” or “WPA2-PSK”, enter the pre-shared key (PSK) of 8 - 63 characters in ASCII code.

When “WPA” or “WPA2” are selected, authentication settings and certificate installation settings are required.

8. Press “Wireless LAN Signal” to check the machine's radio wave status using the operation panel.
9. Press “Restore Factory Defaults” 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 802.11 Wireless LAN

The following SP commands and UP modes can be set for IEEE 802.11

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 008	Transmission Speed	Sets the transmission speed. Auto, 54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps, 11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps (default: Auto).
5840 011	WEP Key Select	Used to select the WEP key (Default: 00).
5840 023	WPA Key Select	Used to select the WPA encryption method. TKIP or CCMP
5840 024	WPA Authentication Select	Used to select the WPA authentication method. WPA, WPA-PSK, WPA2 or WPA2-PSK
5810 025	Pre-Shared Key	Used to set the pre-shared key (8 – 63 characters).
UP mode	Name	Function

SP No.	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.
	WPA Encryption Method	Used to confirm the current WPA encryption setting.
	WPA Authent. Method	Used to confirm the current WPA authentication setting and pre-shared key.

1.4.3 BLUETOOTH UNIT (D566)

Accessories

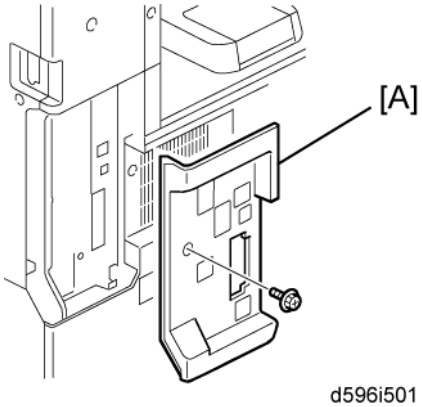
Check the accessories and their quantities against the following list:

No	Description	Quantity
1	Bluetooth Interface Unit Type D (D566)	1

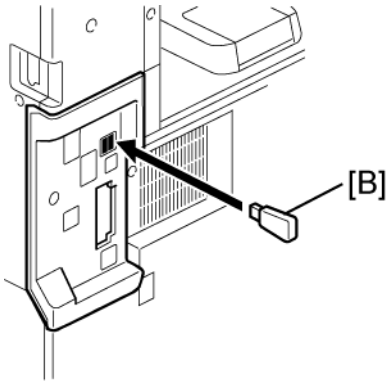
Installation

CAUTION

- Turn off the main power switch and disconnect the power supply cord.



1. Remove the controller cover [A] (x1).



d595i507

2. Insert the Bluetooth unit [B] into one of the USB slots.
3. Make sure that the machine can recognize the option (see ‘Check All Connections’).

Note

- Bluetooth Unit and IEEE 802.11a/g or g Interface Unit cannot be set simultaneously.

1.4.4 POSTSCRIPT 3 UNIT (D595)

Accessories

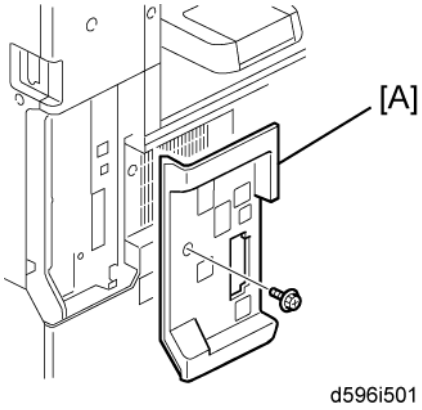
Check the accessories and their quantities against the following list:

No	Description	Quantity
1	PostScript 3 Emulation SD Card (D595)	1
2	Decal	1

Installation

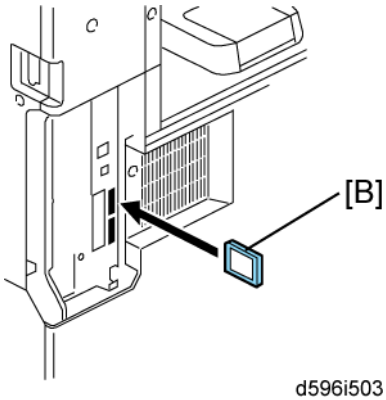
CAUTION

- Turn off the main power switch and disconnect the power supply cord.



d596i501

1. Remove the controller cover [A] (x1).



d596i503

2. Insert the SD card [B] into SD Card Slot 1 or Slot 2.
3. Reattach the controller cover (x1).
4. Attach the “Adobe PostScript 3” decal to the front cover.

1.4.5 GIGABIT ETHERNET (G874)

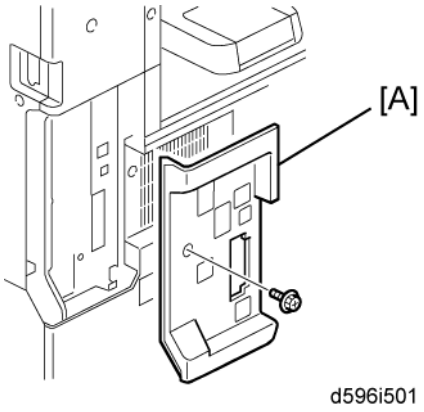
Accessories

Check the accessories and their quantities against the following list:

No	Description	Quantity
1	Gigabit Ethernet (G874)	1
2	Ferrite Core	1

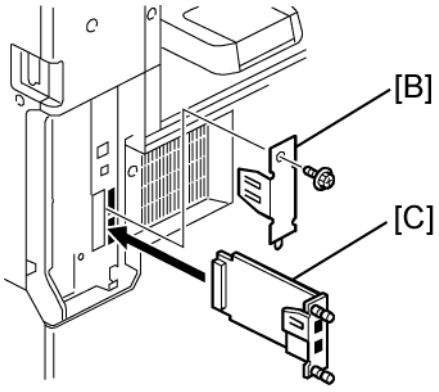
Installation

1. Switch the machine off.



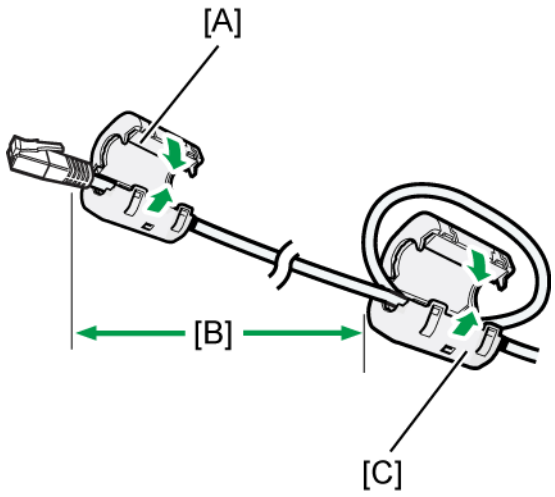
d596i501

2. Remove the controller cover [A] (x1).



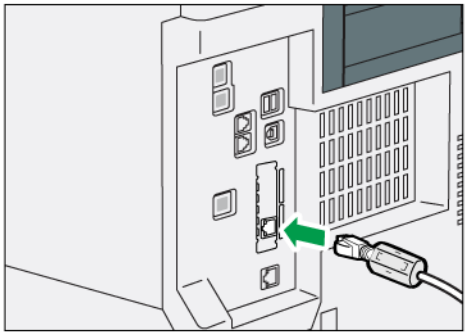
d596i506

3. Remove the board cover [B] (x 2).
4. Insert the Gigabit Ethernet Board [C] into the slot and fasten it with the screws.



d596i512

5. Attach the ferrite core [A] supplied with the machine to the machine end of the Ethernet cable. Make a loop about 10 cm (4 inch) [B] from the end and attach the ferrite core [C] supplied with the optional Gigabit Ethernet board.



d596i513

6. Connect the Ethernet interface cable to the 10BASE-T/100BASE-TX port.
7. Connect the other end of the Ethernet interface cable to a network connection device such as a hub.
8. Switch the machine on.
9. 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

1.4.6 IPDS UNIT

Accessories

Check the accessories and their quantities against the table below.

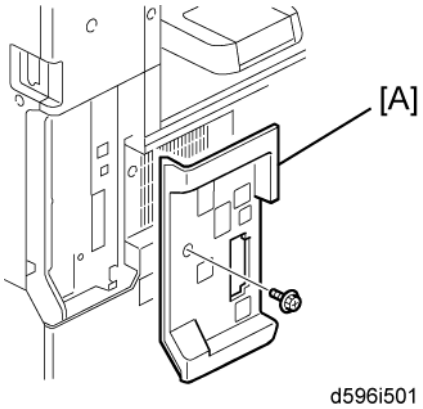
No.	Description	Q'ty
1	IPDS Emulation SD Card	1
2	Decal	1

Installation

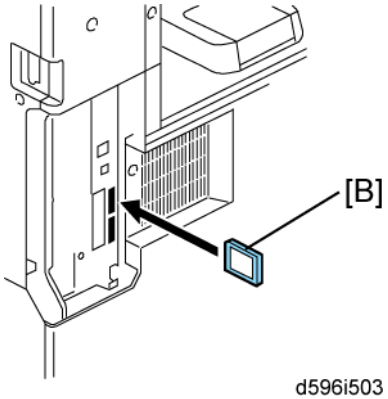
1. Check the software version.
   - Make sure the following versions are installed:

Firmware Name	Version	Firmware Number
System/Copy	**V1.13 or later**	**D0205331K**
NCS	V7.14 or later	D0205334B
Websys	V1.09 or later	D0205335B
Printer	V1.03 or later	D0205338D
IPDS	V4.732 or later	D0195336A

2. If necessary, update the firmware to the version(s) listed above.
3. Turn off the main power switch.



4. Remove the controller cover [A] (x1).



5. Insert the IPDS SD card [B] into SD Card Slot 1 or Slot 2.

Important

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

6. Reattach the cover and turn on the main power switch.
7. Do one of the following ("A" or "B") to enable the IPDS function.

A. [Enable the IPDS function via telnet]

1. Connect the machine via telnet.
2. Execute the following commands:

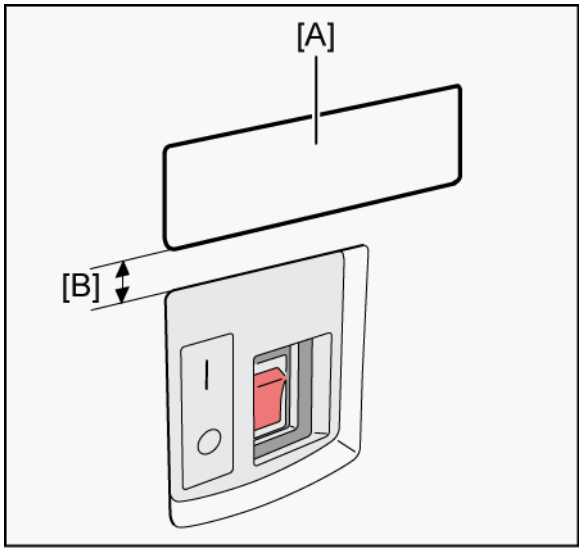
msh> **set ipds up**

***If you want to stop the function.

msh> **set ipds down**

B. [Enable the IPDS option via WebImageMonitor]

1. Log in to WebImageMonitor.
2. Change the setting to enable IPDS.



d596i514

8. Attach the decal [A] as shown above.
   - Line up the left side of the decal with the left edge of the main power switch. ([B]: 10 mm or more)

1.5 CHECK ALL CONNECTIONS

1. Connect the machine's power cord and turn on the main power 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

2.1.1 SP1-XXX (SERVICE MODE)

1001	Bit Switch			
001	Bit Switch 1		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	DFU	-	-
	bit 3	**No I/O Timeout**	0: Disable	1: Enable
		Enable: The MFP I/O Timeout setting will have no effect. I/O Timeouts will never occur.		
	bit 4	**SD Card Save Mode**	0: Disable	1: Enable
		Enable: Print jobs will be saved to an SD Card in the GW SD slot (☛ p.47 "Card Save Function").		
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	**[RPCS,PCL]: Printable area frame border**	0: Disable	1: Enable
		Enable: The machine prints all RPCS and PCL jobs with a border on the edges of the printable area.		

1001	Bit Switch			
002	Bit Switch 2		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	**Applying a collation Type**	Shift Collate	Normal Collate
		A collation type (shift or normal) will be applied to all jobs that do not already have a ‘Collate Type’ configured. Note ▪ If #5-0 is enabled, this Bit Switch has no effect.		
	bit 3	**[PCL5e/c,PS]: PDL Auto Switching**	0: Enable	1: Disable
		Disable: The MFPs ability to change the PDL processor mid-job. Some host systems submit jobs that contain both PS and PCL5e/c. If Auto PDL switching is disabled, these jobs will not be printed properly.		
	bit 4	DFU	-	-
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	DFU	-	-

1001	Bit Switch			
003	Bit Switch 3		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	**[PCL5e/c]: Legacy HP compatibility**	0: Disable	1: Enable
		Enable: Uses the same left margin as older HP models such as HP4000/HP8000. In other words, the left margin defined in the job (usually "<ESC>*r0A") will be changed to "<ESC>*r1A"		
	bit 3	DFU	-	-
	bit 4	DFU	-	-
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	DFU	-	-

1001	**Bit Switch**			
004	Bit Switch 4 **DFU**		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	DFU	-	-
	bit 3	**IPDS print-side reversal**	0: Disable	1: Enable
		Enable: Increases printing speed but simplex pages may be printed on the back side of the sheet.		
	bit 4	DFU	-	-
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	DFU	-	-

1001	Bit Switch			
005	Bit Switch 5		0	1
	bit 0	**Show "Collate Type", "Staple Type" and "Punch Type" buttons on the operation panel.**	Disable	Enable
		If enabled, users will be able to configure a Collate Type, Staple Type, and Punch Type from the operation panel. The available types will depend on the device and configured options. After enabling the function, the settings will appear under: "User Tools > Printer Features > System"		
	bit 1	**Multiple copies if a paper size or type mismatch occurs**	0: Disable (Single copy)	1: Enable (Multiple copy)
		If a paper size or type mismatch occurs during the printing of multiple copies, only a single copy is output by default. Using this Bit Switch, the device can be configured to print all copies even if a paper mismatch occurs.		
	bit 2	DFU	-	-
	bit 3	**[PS] PS Criteria**	Pattern3	Pattern1
		Change the number of PS criterion used by the PS interpreter to determine whether a job is PS data or not. Pattern3: includes most PS commands. Pattern1: A small number of PS tags and headers		
	bit 4	**Increase max number of the stored jobs to 1000 jobs.**	Disable (100)	Enable (1000)
		Enable: Changes the maximum number of jobs that can be stored on the HDD via Job Type settings to 1000. The default is 100.		
	bit 5	DFU	-	-
	bit 6	**Method for determining the image rotation for the edge to bind on.**		

	bit 7	If enabled, the image rotation will be performed as they were in the specifications of older models for the binding of pages of mixed orientation jobs. The old models are below: - PCL: Pre-04A models - PS/PDF/RPCS:Pre-05S models	0: Disable	1: Enable
		Letterhead mode printing		

1001	Bit Switch		
006	Bit Switch 6 **DFU**	-	-

1001	Bit Switch			
007	Bit Switch 7		0	1
	bit 0	**Print path**	0: Disable	1: Enable
		If enabled, simplex pages (in mixed simplex/duplex PS/PCL5 jobs only) and the last page of an odd paged duplex job (PS, PCL5, PCL6), are always routed through the duplex unit. Not having to switch paper paths increases the print speed slightly.		
	bit 1 to 7	DFU	-	-

1001	Bit Switch		
008	Bit Switch 8 **DFU**	-	-

1001	Bit Switch			
009	Bit Switch 9		0	1
	bit 0	**PDL Auto Detection timeout of jobs submitted via USB or Parallel Port (IEEE 1284).**	"Disabled (Immediately)"	"Enabled (10 seconds)"
		To be used if PDL auto-detection fails. A failure of PDL autodetection doesn't necessarily mean that the job can't be printed. This bit switch tells the device whether to time-out immediately (default) upon failure or to wait 10 seconds.		
	bit 1	DFU	-	-
	bit 2	**Job Cancel**	Disabled (Not cancelled)	Enabled (Cancelled)
		If this bit switch, all jobs will be cancelled after a jam occurs. Note: If this bitsw is enabled, printing under the following conditions might result in problems: - Job submission via USB or Parallel Port - Spool printing (WIM >Configuration > Device Settings > System)		
	bit 3	**PCL/PS bypass tray paper rotation (SEF/LEF)**	0: Disable	1: Enable
		This bitsw causes the device to revert to the behavior of previous generations. It only takes effect if "Bypass Tray Setting Priority" = "Driver/Command". Previous spec (bitsw=1): If a standard sized paper mismatch occurred in the bypass tray, the MFP always prompted for SEF paper. If this bitsw=0 (default) then in the event of a standard sized paper mismatch, the MFP will always prompt for paper of the rotation (SEF/LEF) determined by the MFP bypass tray paper setting or by the bypass tray sensor.		
	bit 4	**Response to PJL USTATUS when multiple collated copies are printed**	0: Disable	1: Enable

		When enabled, if multiple collated copies are printed, the device no longer responds to PJL USTATUS with the number of pages in the current copy. Instead the device will return the total number of pages for all copies.		
	Bit 5 to 7	DFU	-	-

1003	[Clear Setting]
1003 1	Initialize Printer System
	Initializes settings in the "System" menu of the user mode.
1003 3	Delete Program

1004	[Print Summary]
1004 1	Print Summary
	Prints the service summary sheet (a summary of all the controller settings).

1005	[Display Version]
1005 1	Disp. Version
	Displays the version of the controller firmware.

1006	[Sample/Locked Print]	*CTL	**0**: Linked, 1: On
1006 1	Enables and disables the document server. When you select "0," the document server is enabled or disabled in accordance with Copy Service Mode SP5-967. When you select "1," the document server is enabled regardless of Copy Service Mode SP5-967.		

1110	**[Media Print]**	
1110 002	0: Disable 1: Enable	Selects the setting for the media print device.

2.2 SCANNER SERVICE TABLES

2.2.1 SP1-XXX (SYSTEM AND OTHERS)

1004	**[Compression Type]**		
	Selects the compression type for binary picture processing.		
1004 1	Compression Type	*CTL	[1 to 3 / **1** / 1/step] 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. This SP is activated only when the machine uses TWAIN scanning.		
1005 1	Range from 0 to 5 mm	*CTL	[0 to 5 / **0** / 1 mm/step]

1009	**[Remote scan disable]**	*CTL	[0 or 1 / **0** / -] 0: enable, 1: disable
1009 1	Enable or disable remote scan.		

1010	**[Non Display Clear Light PDF]**	*CTL	[0 or 1 / **0** / -] 0: Display, 1: No display
1010 1	Enable or disable remote scan.		

2.2.2 SP2-XXX (SCANNING-IMAGE QUALITY)

2021	**[Compression Level (Gray-scale)]**		
	Selects the compression ratio for grayscale processing mode (JPEG) for the three settings that can be selected at the operation panel.		
2021 1	Level 3 (Middle Image Quality)	*CTL	[5 to 95 / **40** / 1 /step]
2021 2	Level 2 (High Image Quality)		[5 to 95 / **50** / 1 /step]
2021 3	Level 4 (Low Image Quality)		[5 to 95 / **30** / 1 /step]
2021 4	Level 1 (Highest Image Quality)		[5 to 95 / **60** / 1 /step]
2021 5	Level 5 (Lowest Image Quality)		[5 to 95 / **20** / 1 /step]

2024	**[Compression ratio of ClearLight PDF]**		
	Selects the compression ratio for clearlight PDF for the two settings that can be selected at the operation panel.		
2024 1	Compression Ratio (Normal image)	*CTL	[5 to 95 / **25** / 1 /step]
2024 2	Compression Ratio (High comp image)		[5 to 95 / **20** / 1 /step]

2.3 CARD SAVE FUNCTION

2.3.1 OVERVIEW

Card Save:

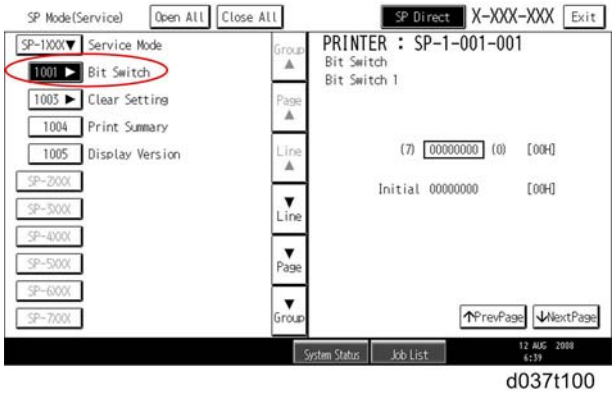
- The Card Save function is used to save print jobs received by the printer on an SD card with no print output. Card Save mode is toggled using printer Bit Switch #1 bit number 4. Card Save will remain enabled until the SD card becomes full, or until all file names have been used.
- Captures are stored on the SD card in the folder /prt/cardsave. File names are assigned sequentially from PRT00000.prn to PRT99999.prn. An additional file PRT.CTL will be created. This file contains a list of all files created on the card by the card save function.
- Previously stored files on the SD card can be overwritten or left intact. Card Save SD has “Add” and “New” menu items.
  - **Card Save (Add):** Appends files to the SD Card. Does not overwrite existing files. If the card becomes full or if all file names are used, an error will be displayed on the operation panel. Subsequent jobs will not be stored.
  - **Card Save (New):** Overwrites files in the card's /prt/cardsave directory.

Limitation:

- Card Save cannot be used with PJL Status Readback commands. PJL Status Readbacks will not work. In addition they will cause the Card Save to fail.

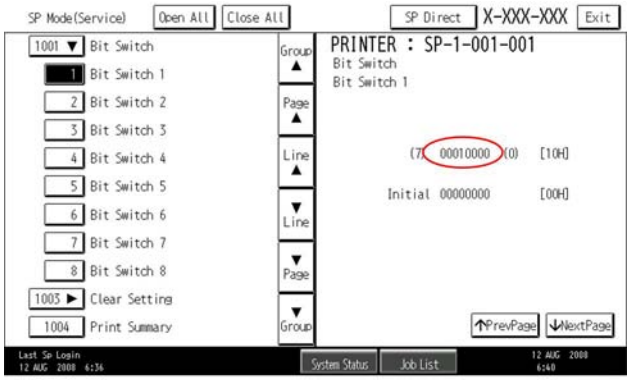
2.3.2 PROCEDURE

1. Turn off the main power switch.
2. Insert the SD card into slot 2. Then turn on the main power switch.
3. Enter SP mode.
4. Select the “Printer SP”.
5. Select SP-1001 "Bit Switch”.



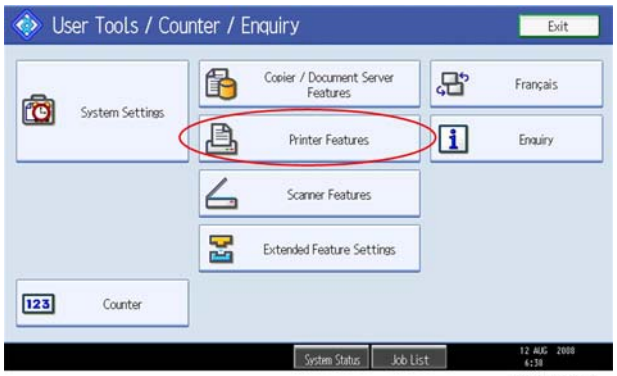
d037t100

6. Select “Bit Switch 1 Settings” and use the numeric keypad to turn bit 4 ON and then press the “#” button to register the change. The result should look like: **00010000**. By doing this, Card Save option will appear in the “List/Test Print” menu.



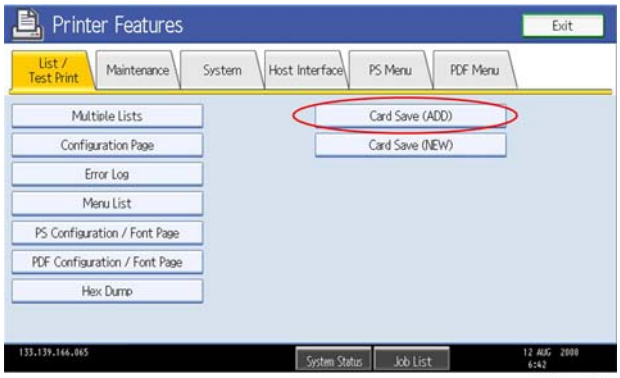
d037t103

7. Press “Exit” to exit SP Mode.
8. Press the “User Tools/Counter” button.
9. Select “Printer Features”.



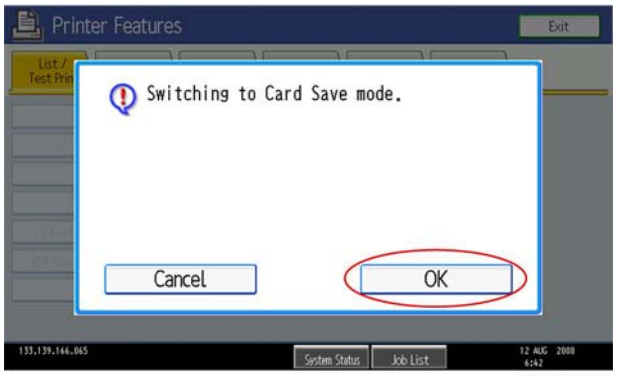
d037t101

10. Card Save (Add) and Card Save (New) should be displayed on the screen. Select Card Save (Add) or Card Save (New).



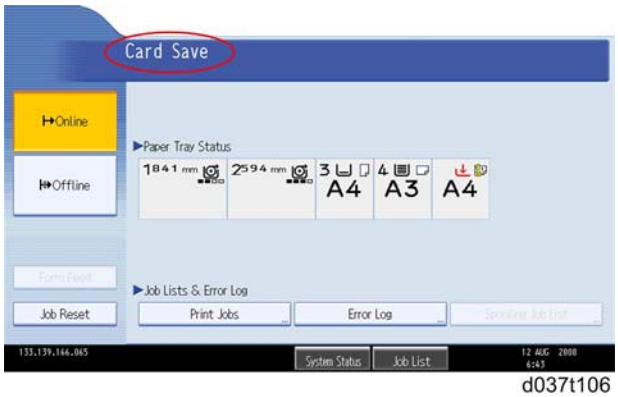
d037t104

11. Press “OK” and then exit the “User Tools/Counter” menu.



d037t105

12. Press the “Printer” button.
13. Card Save should be displayed in the top left of the display panel.



d037t106

14. Send a job to the printer. The Communicating light should start blinking as shown below.

d596i507

15. As soon as the printer receives the data, it will be stored on the SD card automatically with no print output. Nothing is displayed on the screen, indicating that a Card Save operation was successful.
16. Press “Offline” and then the “Clear/Stop” button to exit Card Save mode.

d037t106a

17. Change the Bit Switch Settings back to the default **00000000**. Press the "#" button in the numeric keypad to register the changes.
18. Remove the SD card after the main power switch is turned off.

Error Messages

Card Save error messages:

- **Init error:** A card save process (i.e. card detection, change to kernel mode) failed to initialize.
- **Card not found:** Card cannot be detected in the slot.
- **No memory:** Insufficient working memory to process the job.
- **Write error:** Failed to write to the card.
- **Other error:** An unknown error occurred.

If an error occurs, pressing "OK" will cause the device to discard the job and return to the ready state.

3. SPECIFICATIONS

3.1 PRINTER SPECIFICATIONS

Printer Languages:	PCL 6/5e PDF Direct Adobe PostScript 3 (optional) IPDS (optional) MediaPrint: JPEG/TIFF (optional)
Resolution and Gradation:	PCL 5e: 300 x 300 dpi 600 x 600 dpi : Fast (1-bit) PCL 6: 600 x 600 dpi : Fast (1-bit) PDF Direct: 300 x 300 dpi/600 x 600 dpi PS3: 300 x 300 dpi/600 x 600 dpi XPS: 600 x 600 dpi : Fast (1-bit) IPDS: 300 x 300 dpi/ 600 x 600 dpi
Printing speed:	C1a: 23 ppm C1b: 28 ppm C1c: 33 ppm

Resident Fonts:	PCL 6/5e (Standard): 45 Compatible fonts 13 International fonts 6 Bitmap fonts Adobe PostScript 3 (Optional): 136 fonts IPDS (Optional): 108 fonts
Host Interfaces:	USB2.0 Type A and Type B: Standard Ethernet (100 Base-TX/10 Base-T): Standard Gigabit Ethernet (1000 Base-T): Optional IEEE1284 parallel x 1: Optional IEEE802.11a/b/g (Wireless LAN): Optional Bluetooth (USB type): Optional
Network Protocols:	TCP/IP (IPv4, IPv6), IPX/SPX

3.2 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.

3.3 IEEE 802.11A/B/G SPECIFICATIONS

Standard applied	IEEE802.11a/b/g
Network protocols	TCP/IP, Apple Talk, NetBEUI, IPX/SPX, SMB
Frequency range (Center Frequency) (US model)	▪ 2412 - 2462 MHz (1-11 channels) ▪ 5180 - 5320 MHz (36, 40, 44, 48, 52, 56, 60, and 64 channels)
Frequency range (Center Frequency) (EU model)	▪ 2412 - 2472 MHz (1-13 channels) ▪ 5180 - 5320 MHz (36, 40, 44, 48, 52, 56, 60, and 64 channels)

3.4 BLUETOOTH SPECIFICATIONS

Transmission Specifications	Based on Bluetooth Ver2.0+EDR
Transmission Speed	▪ Asynchronous Communication : Approximately 2.1 Mbps (Max) ▪ Synchronous Communication : Approximately 1.3 Mbps (Max)
Profile	Hard Copy Cable Replacement Profile (HCRP), Serial Port Profile (SPP), Basic Imaging Profile (BIP)

3.5 SCANNER SPECIFICATIONS

Standard Scanner Resolution:	Main scan/Sub scan 600 dpi
Available scanning Resolution Range:	Twain Mode: 100 to 1200 dpi Delivery Mode: 100/200/300/400/600 dpi
Grayscales:	1 bit or 8 bits/pixel each for RGB
Scanning Throughput (ARDF mode):	BW: 50 ipm (A4LEF / BW Text/ Photo / 200dpi /Compression: On (MH)) FC: 29 ipm (A4LEF / FC Text / Photo / 200dpi / Compression: Standard)
Interface:	Ethernet 10Base-T / 100Base-TX, Gigabit Ethernet (1000Base-T), Wireless LAN (IEEE 802.11a/b/g)
Compression Method:	B&W: TIFF (MH, MR, MMR), Gray Scale Full Color: JPEG

3.6 SOFTWARE ACCESSORIES

3.6.1 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 XP, Server 2003, Vista, Server 2008, 7	Mac OS X 10.2 or later
PCL 6	Yes	No
PCL 5e	Yes	No
PS3	Yes	Yes
RPCS	No	No

Utility Software

Software	Description
Agfa Monotype Font Manager 2000 (Win XP, Vista)	A font management utility with screen fonts for the printer.

3.6.2 SCANNER

The scanner driver is provided on one CD-ROM.

Scanner Driver

- Network Twain Driver for Win XP/Server 2003/Vista/Server 2008/7

D596
FAX OPTION TYPE 3352

REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
8	01/10/2012	Corrected step 24. SP1000-001 to SP3-102.

FAX OPTION TYPE 3352 (D596)

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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.

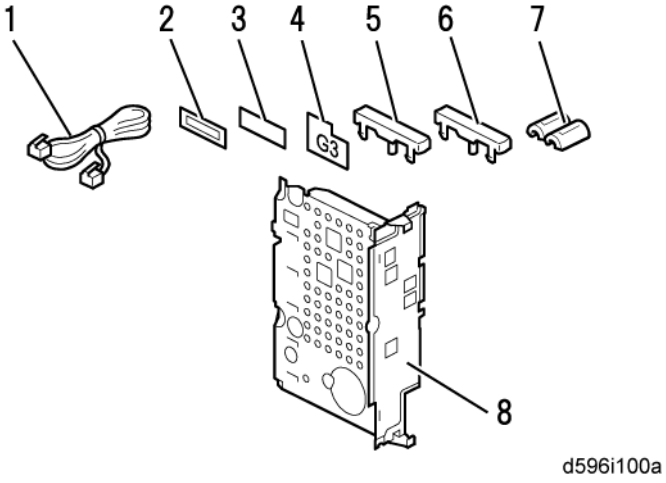
1. INSTALLATION

1.1 FAX UNIT (D596)

1.1.1 ACCESSORY CHECK

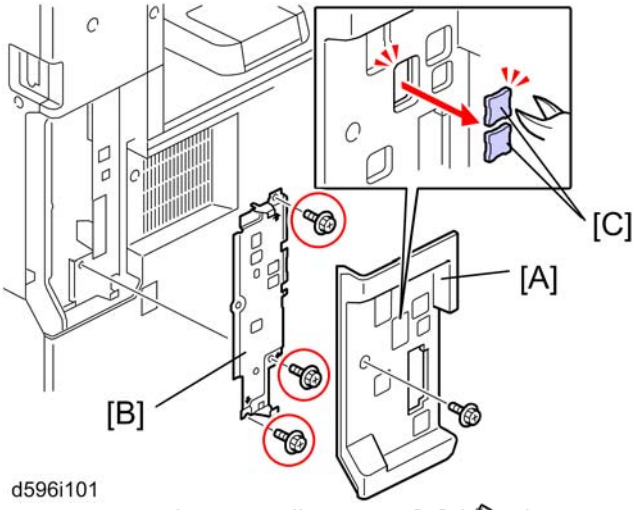
Check the quantity and condition of the accessories against the following list.

No.	Description	Q'ty
1.	Telephone Cable (NA only)	1
2.	Serial Number Label	1
3.	FCC Label (NA only)	1
4.	G3 Decal	1
5.	Fax Keytops	2
6.	Copy Keytops	2
7.	Ferrite Core	1
8.	Fax Unit	1



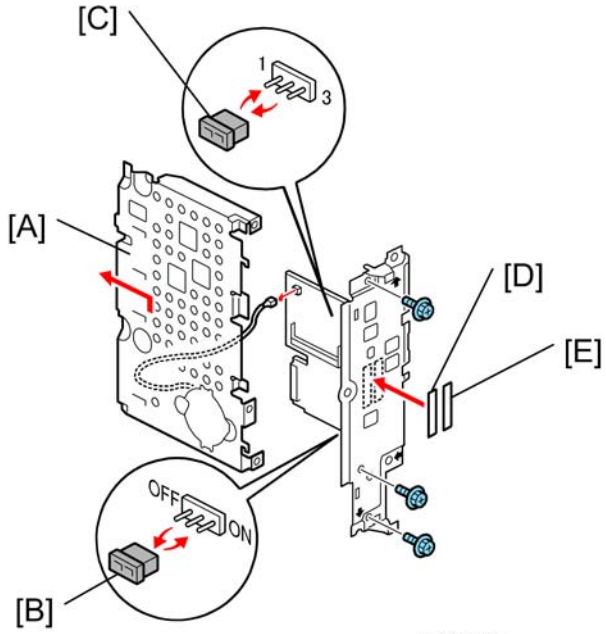
d596i100a

1.1.2 FAX INSTALLATION



d596i101

1. Remove the controller cover [A] (x1).
2. Remove the left cover plate [B] (x3)
   - Keep these three screws. These will be used in a later step.
3. Remove the knockouts [C].
   - LINE 1 for the 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 LINE 1, LINE 2, and LINE 3.



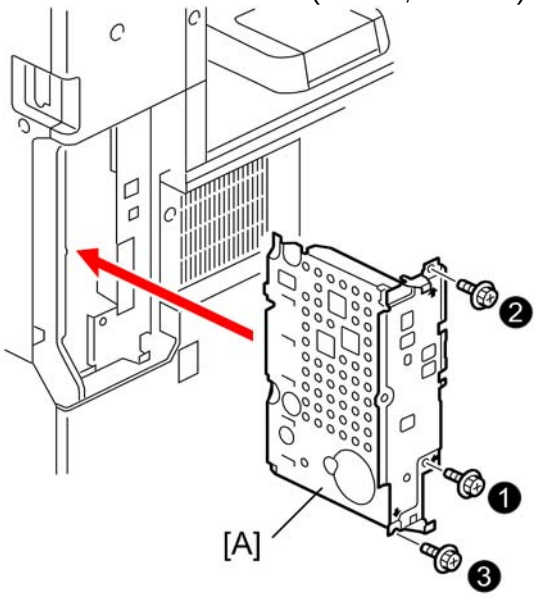
d596i102a

4. Remove the FCU cover [A] (x 3, x 1).
5. Move the jumper switch [B] from "OFF" to "ON".

   Note

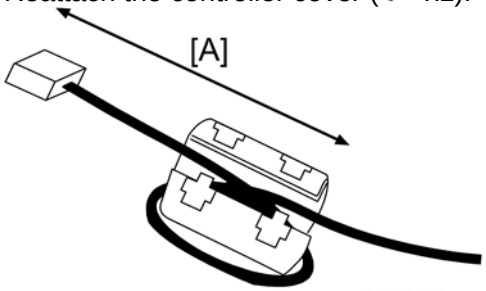
   - The machine may issue SC819, SC820 if the jumper switch is not set to "ON" correctly. (Sometimes these SC codes are not issued.)
6. **For installation in Brazil,** move the jumper switch (CN613) [C] from "3" to "1".
7. Fill in the serial number on the serial number label [D].
8. Attach the serial number label [D] and FCC label [E] to the face plate of the fax unit.
9. If the 32 MB Memory (option) will be installed, do this now. (p.9 "Memory Unit (G578)")
10. If one or two G3 interface units (options) will be installed, do this now. (p.14 "G3 Interface Unit (D596-11/-12)")

11. Reattach the FCU cover (x 3, x 1).



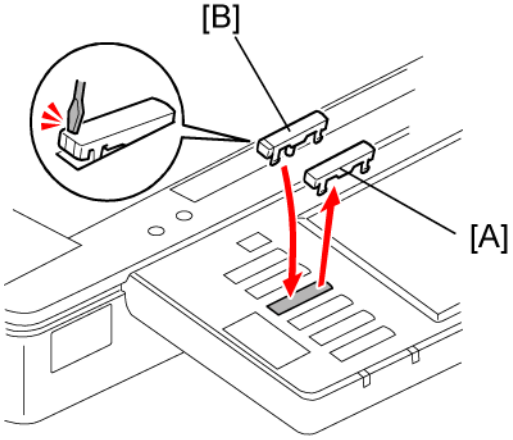
d596i103

12. Slide the fax unit [A] into the machine.
13. Secure screws in the numeric order shown above (x3).
    - These screws were removed in step 2.
    - Follow the numeric order. Otherwise, a connection error may occur.
14. Reattach the controller cover (x1).



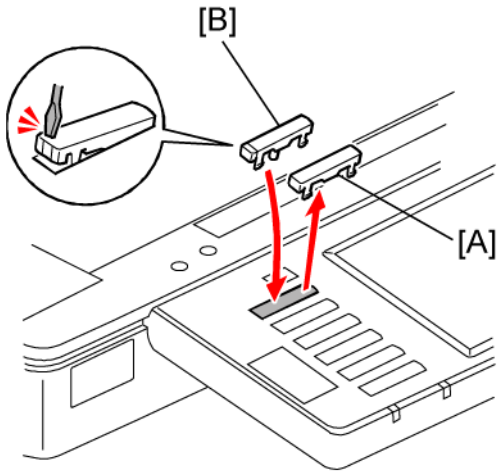
d346i912a

15. Attach the ferrite core to the telephone cord. The end of the ferrite core must be about 6 cm (2.4") [A] from the end of the cable.
16. Connect the telephone cord to the "LINE 1" jack.



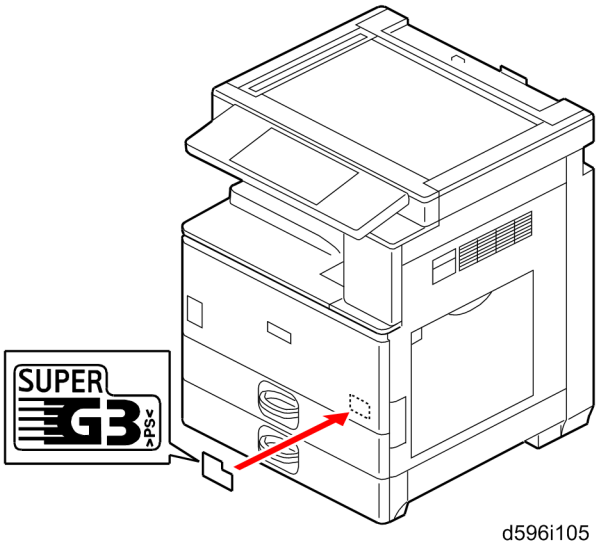
d596i104

17. Remove the dummy keytop [A] (3rd from the top) and replace it with a facsimile keytop [B].



d596i104a

18. Remove the dummy keytop [A] (1st from the top) and replace it with a copy keytop [B].



d596i105

19. Attach the G3 decal to the front of the machine.
20. Connect the power cord to the machine.
21. Make sure that the plug is grounded properly at the power source.
22. Switch the machine on.

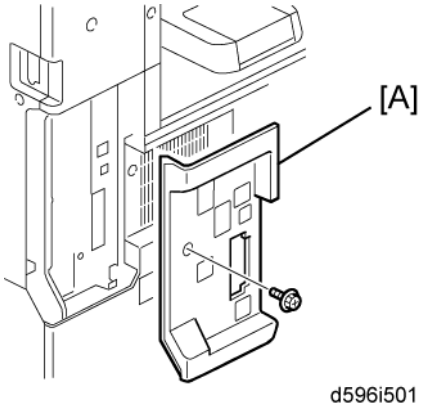
Note

- 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.

23. Check the clock settings (date and time) with the User Tools.
24. Do SP3-102 in the fax SP mode and enter the serial number for the fax unit.
25. Enter the correct country code with SP1101-016 (System SW 0F, Country/area code for functional settings).
26. Exit the SP mode, and turn the machine power switch OFF and ON.

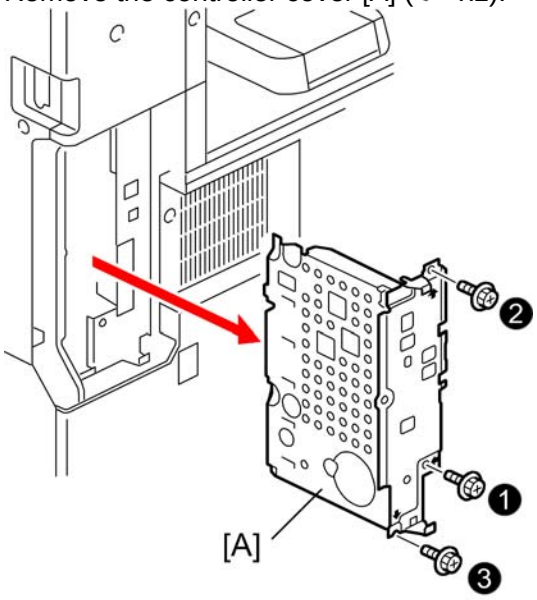
1.2 FAX UNIT OPTIONS

1.2.1 MEMORY UNIT (G578)



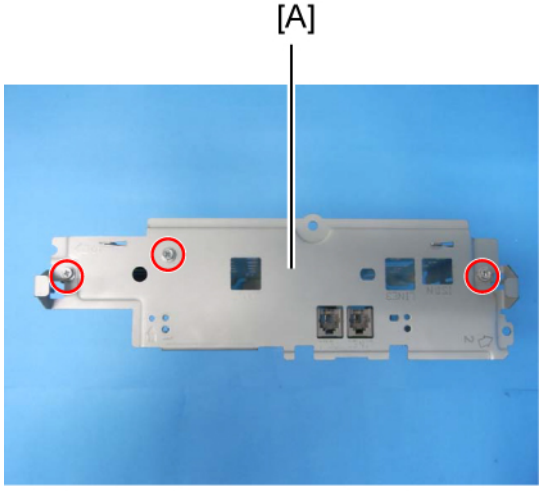
d596i501

1. Remove the controller cover [A] (x1).



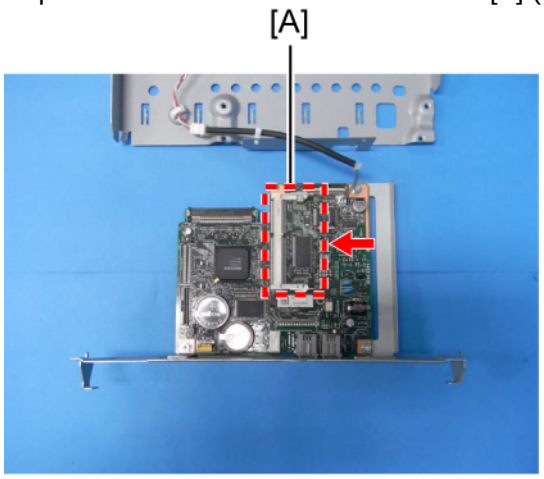
d596i103b

2. Remove the fax unit [A] (x3).



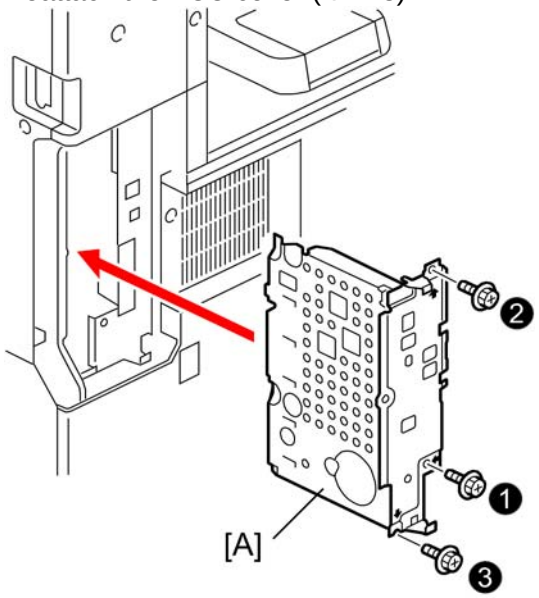
d596i800

3. Separate the FCU from the FCU cover [A] (x3).



d596i801

4. Install the memory option in the position [A] on the FCU board.
5. Reattach the FCU cover (x3).



d596i103

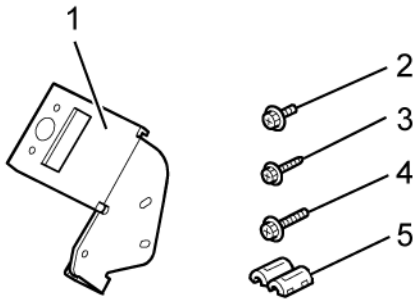
6. Slide the fax unit [A] into the machine (x3).
7. Reattach the controller cover (x1).

1.2.2 HANDSET (D593)

Accessory Check

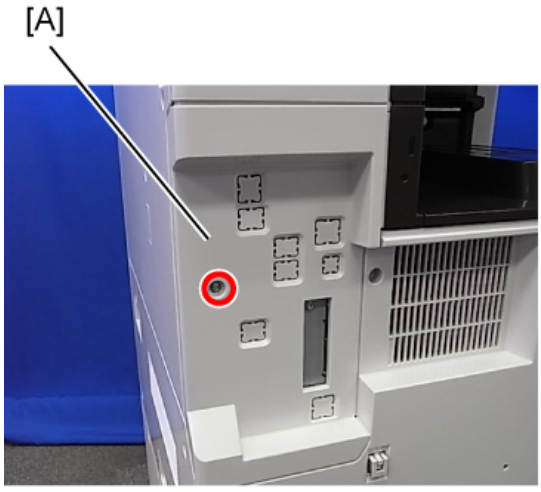
Check the quantity and condition of the accessories against the following list.

No.	Description	Q'ty
1	Bracket	1
2	Screw – M3 x 6	2
3	Tapping Screw – M3 x 10	1
4	Screw – M4 x 12	1
5	Ferrite core	1



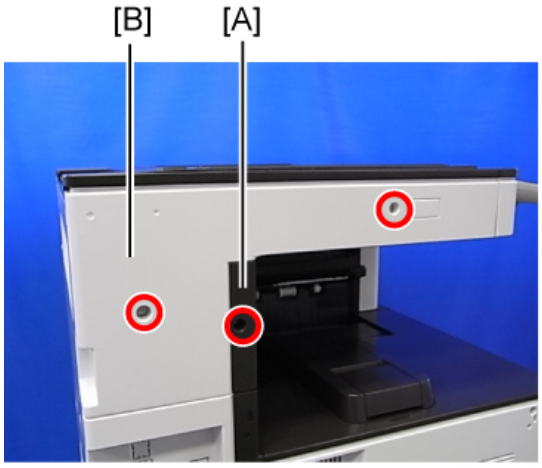
d593i100a

Installation Procedure



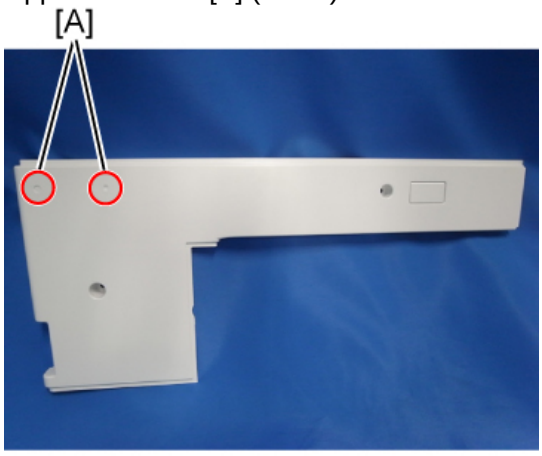
d120r117

1. Remove the controller cover [A] (x 1)



d120r516

2. Remove the left frame cover [A] (x1).
3. Upper left cover [B] (x 2)

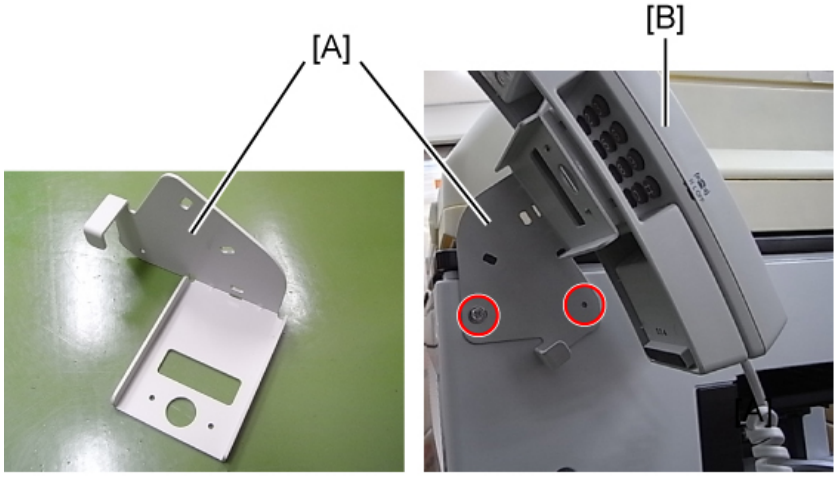


d596i804

4. Make 2 holes [A] in the upper left cover with a screwdriver as shown.

Note

- Drill a hole from the outside of the cover with a screwdriver.



d596i802

5. Attach the bracket [A] to the upper left cover (x 2: M4x12 for the left hole, M3x10 tapping screw for the right hole), and then reinstall the upper left cover (x 2).
6. Attach the cradle to the handset bracket (x 2: M3x6).
7. Set the handset [B] on the handset bracket.

d5796i803

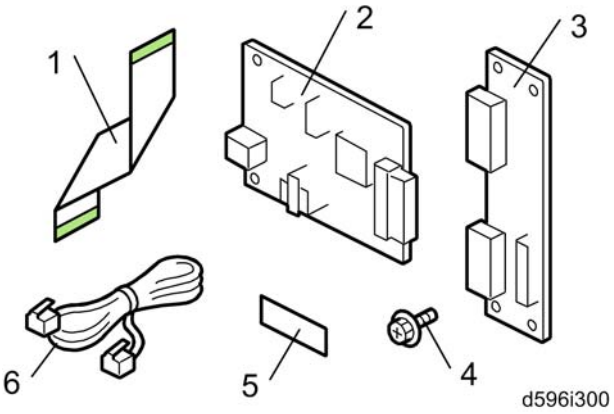
8. Clamp the handset cord as shown [A].
9. Reassemble the machine.

1.3 G3 INTERFACE UNIT (D596-11/-12)

1.3.1 ACCESSORY CHECK

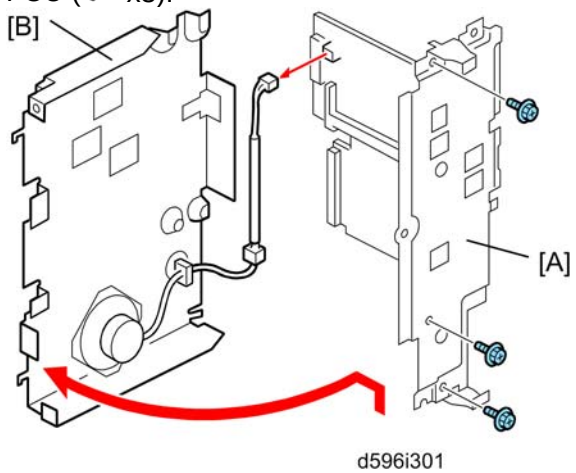
Check the quantity and condition of the accessories against the following list.

No.	Description	Q'ty
1.	FFC (Flat Flexible Cable)	1
2.	G3 Board	1
3.	CCUIF	1
4.	Screws M3 x 6	6
5.	FCC Label (NA only)	1
6.	Telephone Cable (NA)	1

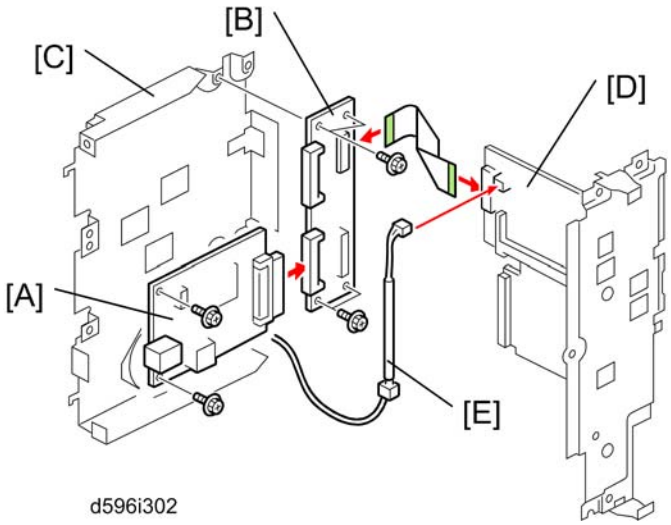


1.3.2 G3 INTERFACE INSTALLATION

1. If the fax unit is already installed in the machine, remove the controller cover (x1) and FCU (x3).



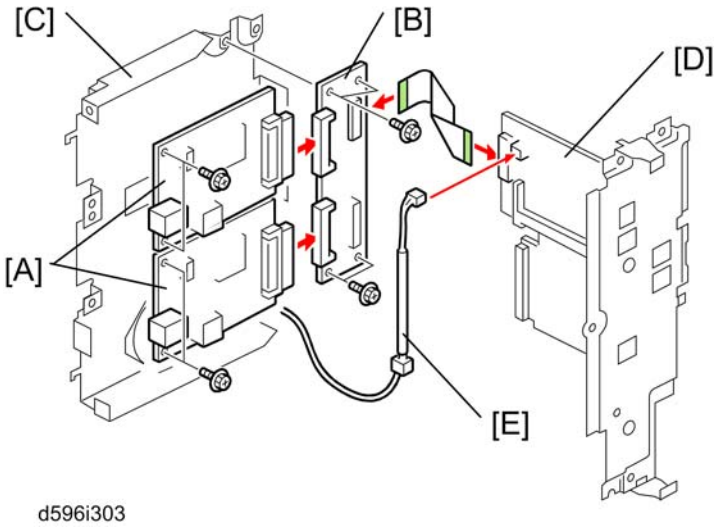
2. Separate the FCU [A] from the FCU cover [B] (x3, x1).
   One G3 Unit



d596i302

3. Connect the G3 interface unit [A] and CCUIF [B] (edge connector).
   - Fasten the connected G3/CCUIF to the FCU cover [C].
   - G3: (x2)
   - CCUIF (x4)
4. Connect the FCU [D] and CCUIF [B] (FFC x1).
5. Reconnect the speaker harness [E] (x1)

Two G3 Units

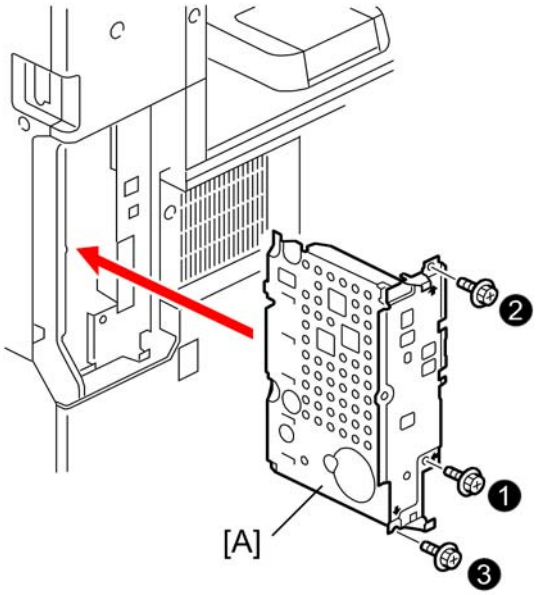


d596i303

6. Connect the G3 interface units [A] to the CCUIF [B] (edge connector).
   - Fasten the connected G3/CCUIF to the cover [C].
   - G3: (x2 each)
   - CCUIF (x4)
7. Connect the FCU [D] and CCUIF [B] (FFC x1).
8. Reconnect the speaker harness [E] (x1).

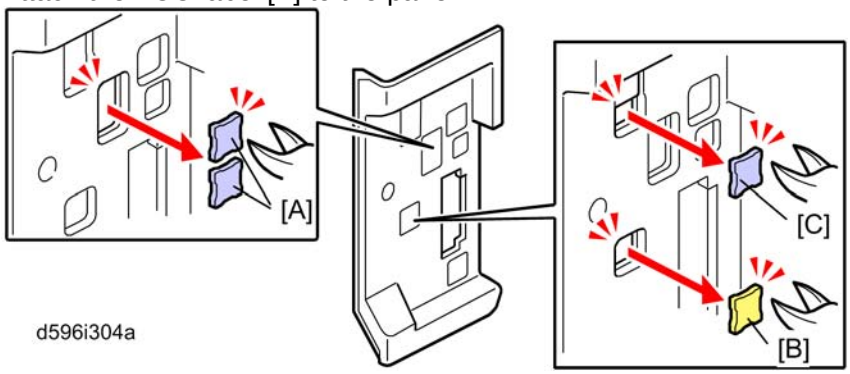
For One and Two G3 Units Installation

9. Attach the serial number decal to the face plate of the fax unit if the serial number decal is not attached to the fax unit.
10. If the 32 MB Memory (option) will be installed, do this now. (p.9 "Memory Unit (G578)")
11. Reattach the FCU cover (x 3, x 1).



d596i103

12. Slide the fax unit [A] into the machine.
13. Secure screws in the numeric order shown above (x3).
    - Follow the numeric order. Otherwise, a connection error may be issued.
14. Attach the FCC label [B] to the panel.



d596i304a

15. Remove the knockouts [A] from the controller cover.
    - LINE 1 [A] for the Fax Unit
    - If one G3 Unit will be installed, remove the knockout for LINE 1 [A] and LINE 2 [B].
    - If two G3 Units will be installed, remove the knockouts for LINE 1, LINE 2 [B], and LINE 3 [C].
16. Reattach the controller cover (x1).
17. **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).
18. Plug in the machine. Then turn on the main power switch.

    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.
19. 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.
20. Print the system parameter list. Make sure that "G3-2" (single port) and "G3-3" (dual port) are listed as an option.
21. Set up and program the item required for PSTN-2 communication.
22. Check the clock settings (date and time) with the User Tools.

2. REPLACEMENT AND ADJUSTMENT

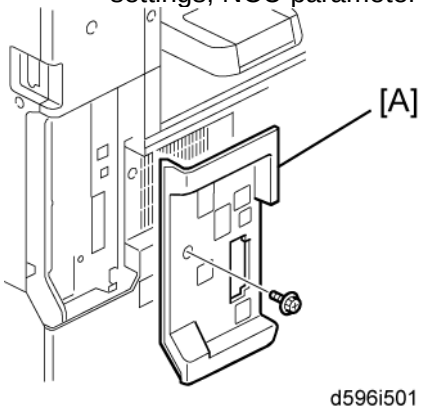
2.1 FCU

2.1.1 SRAM DATA TRANSFER PROCEDURE

When you replace the FCU board, transfer the SRAM data from the old FCU board to the new FCU board. Do the following procedure to back up the SRAM data.

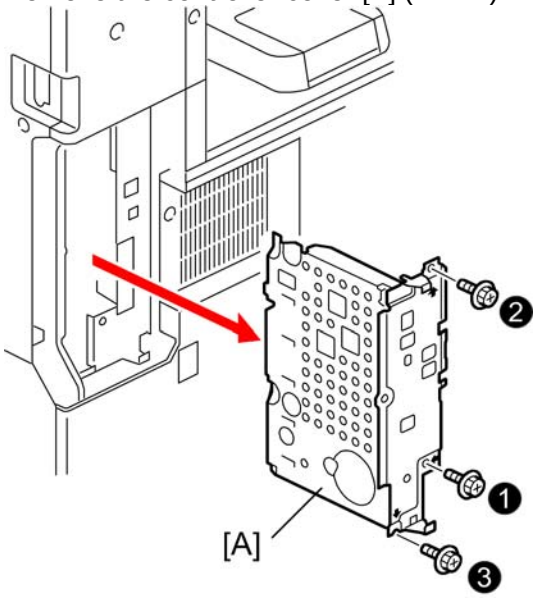
Note

- The following data can be transfered: TTI, RTI, CSI, Fax bit switch settings, RAM address settings, NCU parameter settings



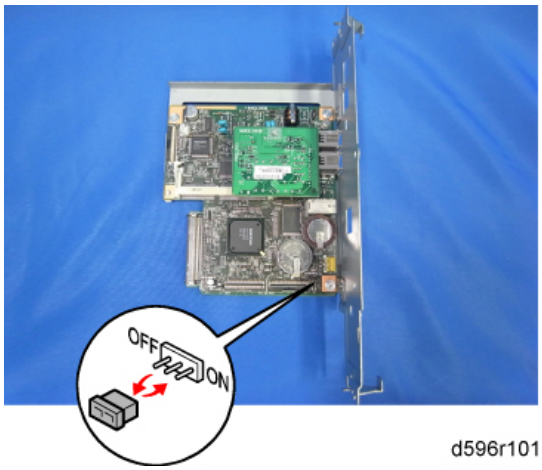
d596i501

1. Remove the controller cover [A] (x1).



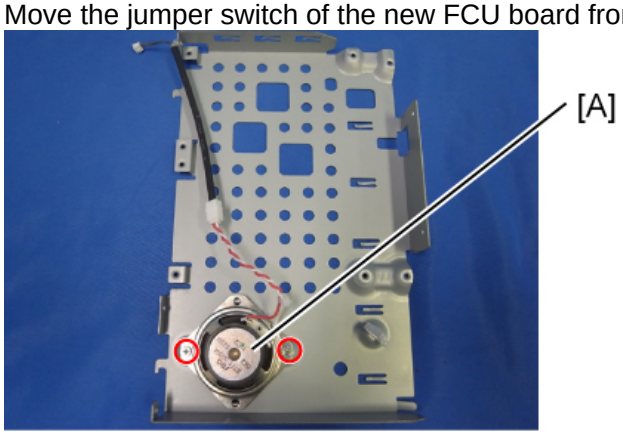
d596i103b

2. Remove the fax unit [A] (x3).
3. Separate the FCU cover from the fax unit (x3, x1).
4. Replace the FCU board.



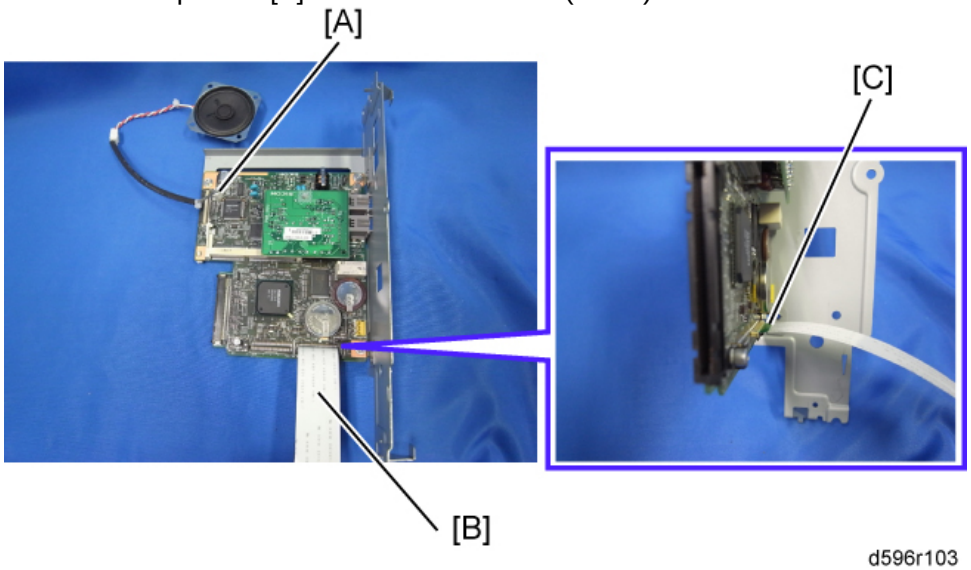
d596r101

5. Move the jumper switch of the new FCU board from "OFF" to "ON".



d596r102

6. Remove the speaker [A] from the FCU cover (x 2).

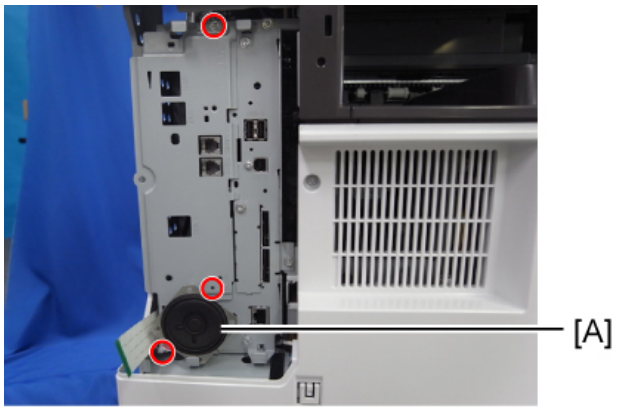


d596r103

7. Connect the speaker harness to the new FCU [A].
8. Connect a flat flexible cable [B] to the new FCU board. This cable is shipped with the new FCU board.

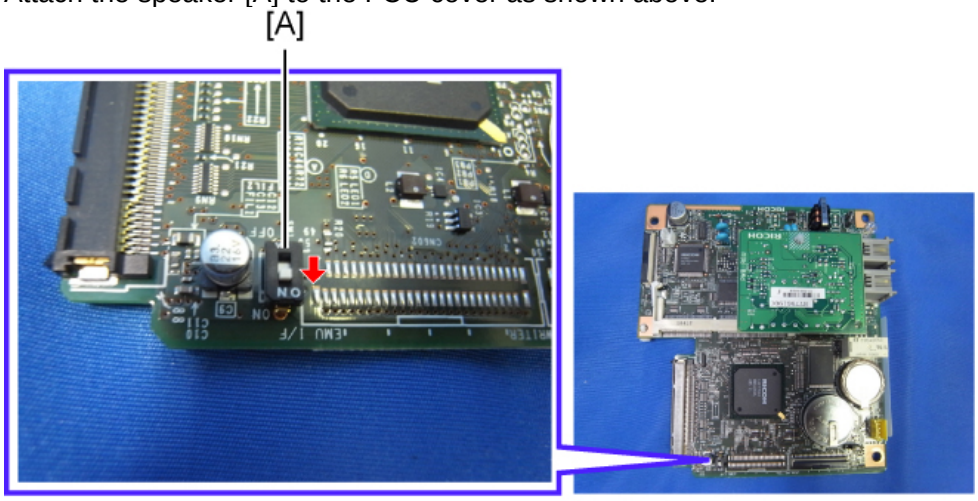
Important

- The green side [C] of the flat flexible cable must face outward as shown above.



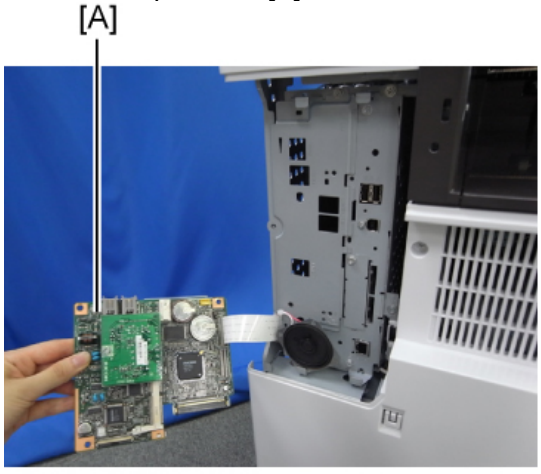
d596r105

9. Install the FCU board and fax unit (x 3).
10. Attach the speaker [A] to the FCU cover as shown above.



d596r106

11. Move the Dip Switch [A] of the old FCU from “OFF” to “ON”.



d596r107

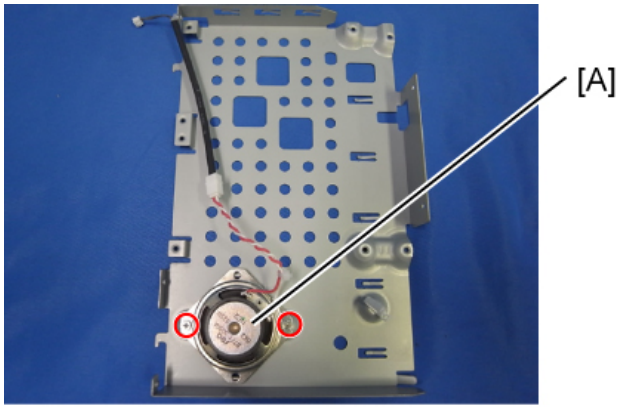
12. Connect the flat flexible cable to the old FCU board [A].
13. Turn on the main power switch.
14. SRAM data transmission starts. When the transmission is completed, you will hear a beeper sound.

Note

- The beeper sound is the same volume as the speaker sound.
- The beeper sounds even if the sperker sound is turned off.

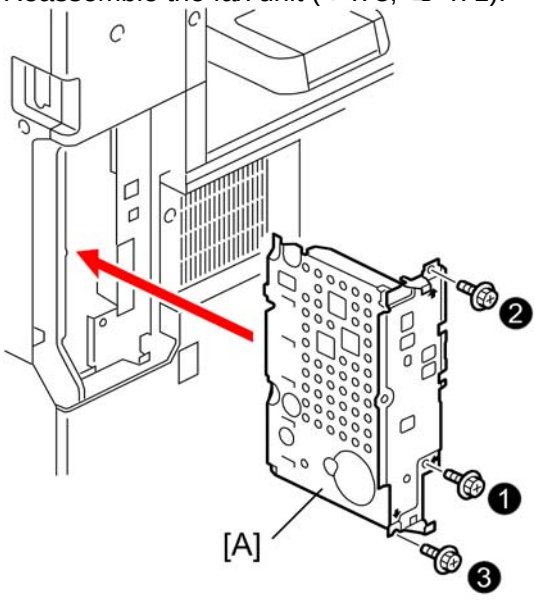
- If the beeper does not sound, turn the main power switch on and off repeatedly and do the transmission procedure 2 or 3 times.
- If the beeper does not sound after turning the main switch on and off 3 times, you need to input the settings stored in SRAM memory manually.

15. When “Ready” appears on the copy display, turn off the main power switch, and then disconnect the flat flexible cable from the old FCU board.
16. Remove the FCU board and fax unit cover from the main machine (x 3).
17. Disconnect the flat flexible cable from the new FCU board.



d596r102

18. Reattach the speaker [A] to the FCU cover (x 2).
19. Reassemble the fax unit (x 3, x 1).



d596i103

20. Slide the fax unit [A] into the machine.
21. Reattach the controller cover (x1).
22. Turn on the main power switch, then do SP6-101 to print the system parameter list.
23. Check the system parameter list to make sure that the data was transferred correctly.
24. Set the correct date and time with the User Tools: User Tools > System Settings > Timer Setting > Set Date/Time.

Note

- If any of the SRAM data was not transferred, input those settings manually.

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. ▪ The machine at the other end may be incompatible. ▪ Replace the 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. ▪ Try changing the tx level and/or cable equalizer settings. ▪ Replace the FCU. ▪ 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. **Cross reference** Tx level - NCU Parameter 01 (PSTN) Cable equalizer - G3 Switch 07 (PSTN) Dedicated Tx parameters in Service Program Mode
0-05	Modem training fails even G3 shifts down to 2400 bps.	▪ Check the line connection. ▪ Try adjusting the tx level and/or cable equalizer. ▪ Replace the FCU. ▪ Check for line problems. **Cross reference** See error code 0-04.

Code	Meaning	Suggested Cause/Action
0-06	The other terminal did not reply to DCS	▪ Check the line connection. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ Replace the 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. ▪ Replace the 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 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. ▪ Replace the 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/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 in Service Program Mode
0-14	Non-standard post message response code received	▪ 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 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

Code	Meaning	Suggested Cause/Action
0-16	CFR or FTT not detected after modem training in confidential or transfer mode	▪ Check the line connection. ▪ Replace the 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.
0-17	Communication was interrupted by pressing the Stop key	If the Stop key was not pressed and this error keeps occurring, replace the operation panel or the operation panel drive board.
0-20	Facsimile data not received within 6 s of retraining	▪ Check the line connection. ▪ Replace the 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 and line. ▪ Check for line noise or other line problems. ▪ Replace the 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
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. ▪ Replace the 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

Code	Meaning	Suggested Cause/Action
0-23	Too many errors during reception	▪ Check the line connection. ▪ Replace the 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
0-29	Data block format failure in ECM reception	▪ Check for line noise or other line problems. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU.
0-30	The other terminal did not reply to NSS(A) in AI short protocol mode	▪ Check the line connection. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ The other terminal may not be compatible. **Cross reference** Dedicated tx parameters - Section 4
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.
0-33	The data reception (not ECM) is not completed within 10 minutes.	▪ Check the line connection. ▪ The other terminal may have a defective modem/FCU.
0-52	Polarity changed during communication	▪ Check the line connection. Retry communication.
0-55	FCU does not detect the SG3.	▪ FCU firmware or board defective. ▪ SG3 firmware or board defective.
0-56	The stored message data exceeds the capacity of the mailbox in the SG3.	SG3 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.

Code	Meaning	Suggested Cause/Action
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.
0-76	The calling terminal fell back to T.30 mode, because it could not detect a JM in response to 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 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.
0-81	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.	
0-83	The line was disconnected due to a timeout in the V.34 control channel restart sequence.	
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 main power switch, then turn it back on. ▪ If the same error is frequent, replace the FCU.

Code	Meaning	Suggested Cause/Action
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 main power switch, 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 (default) times within the same ECM frame.	▪ Try using a lower data rate at the start. ▪ Try adjusting the cable equalizer setting.
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.
2-22	Counter overflow error of JBIG chip	If error occurs frequently, change the settings for resolution, paper size, compression type.
2-23	JBIG compression or reconstruction error	Turn off the machine, then turn it back on.
2-24	JBIG ASIC error	▪ Turn off the machine, then turn it back on.
2-25	JBIG data reconstruction error (BIH error)	▪ JBIG data error ▪ Check the sender's JBIG function. ▪ Update the FCU 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.

Code	Meaning	Suggested Cause/Action
2-50	The machine resets itself for a fatal FCU system error	▪ If this is frequent, update the ROM, or replace the FCU.
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 for line problems. ▪ Replace the FCU.
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.
5-00	Data reconstruction not possible	Replace the FCU.
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.
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.
5-25	SAF file access error	▪ Replace an SD card or HDD. ▪ Replace the FCU.
6-00	G3 ECM - T1 time out during reception of facsimile data	▪ Try adjusting the rx cable equalizer. ▪ Replace the FCU.
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 for a bad line or defective remote terminal. ▪ Replace the FCU.

Code	Meaning	Suggested Cause/Action
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 for a bad line or defective remote terminal. ▪ Replace the FCU. ▪ 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.
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.
13-24	SIP authentication error	▪ Registered password in the device does not match the password in the SIP server.
13-25	Network I/F setting error	▪ IPV4 is not active in the active protocol setting. ▪ IP address of the device is not registered.
13-26	Network I/F setting error at power on	▪ Active protocol setting does not match the I/F setting for SIP server. ▪ IP address of the device is not registered.

Code	Meaning	Suggested Cause/Action
13-27	IP address setting error	▪ IP address of the device is not registered.
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.
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

Code	Meaning	Suggested Cause/Action
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 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
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.

Code	Meaning	Suggested Cause/Action
14-13	Send Cancelled	▪ Processing is interrupted because the user pressed Stop.
14-14	Security Locked File Error	▪ Update the software because of the defective software.
14-15	Mail Data Error	▪ The transmitting a mail is interrupted via DCS due to the incorrect data. ▪ Update the software because of the defective software.
14-16	Maximum Division Number Error	▪ When a mail is divided for the mail transmission and the division number of a mail are more than the specified number, the mail transmission is interrupted. ▪ Update the software because of the defective software.
14-17	Incorrect Ticket	▪ Update the software because of the defective software.
14-18	Access to MCS File Error	▪ The access to MCS file is denied due to the no permission of access. ▪ Update the software because of the defective software.
14-20	SMTP Authentication error	Make sure the administrator's e-mail address is same as the SMTP authentication address or POP before SMTP address.
14-21	Transmission error of S/MIME	Register the correct user certificate and device certificate.
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.
14-62	Transmission Error due to the existence of zero line page	▪ When the 0 line page exists in received pages with G3 communication, the transmission is interrupted.
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.
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.

Code	Meaning	Suggested Cause/Action
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.
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.

Code	Meaning	Suggested Cause/Action
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. ▪ 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	MDN 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).

Code	Meaning	Suggested Cause/Action
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 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 an 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.
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.
F0-xx	V.34 modem error	▪ Replace the FCU.
F6-xx	SG3 modem error	▪ Update the SG3 modem ROM. ▪ Replace the SG3 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.]
	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.]

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.]
	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.]
	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 (when using H.323) or 5060 (when using SIP)?	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 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.
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/SIP server installed correctly?	Contact the network administrator.
6	Gatekeeper/SIP server power switched on?	Contact the network administrator.
7	IP address/host name of Gatekeeper/SIP server correct?	Check the IP address/host name.
8	DNS server registered when Gatekeeper/SIP server host name specified?	Contact the network administrator.
9	Enable H.323/Enable SIP SW is set to on?	Check the settings. See User Parameter SW 34 Bit 0/SW 34 Bit 1
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 via 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.
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 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/SIP server installed correctly?	Contact the network administrator. Note ▪ The sender machine displays this error code when the sender fax is a Ricoh model.
4	Power to Gatekeeper/SIP server switched on?	Contact the network administrator. Note ▪ The sender machine displays this error code when the sender fax is a Ricoh model.

5	IP address/host name of Gatekeeper/SIP server correct on the sender's side?	Request the sender to check the IP address/host name. Note ▪ The sender machine displays this error code when the sender fax is a Ricoh model.
6	DNS server registered when Gatekeeper/SIP server host name specified on sender's side?	Contact the network administrator. Note ▪ The sender machine displays this error code when the sender fax is a Ricoh model.
7	Enable H.323/Enable SIP SW is set to on?	Request the sender to check the settings. User Parameter SW 34 Bit 0/SW 34 Bit 1 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/SIP server?	Contact the network administrator. Note ▪ The sender machine displays this error code when the sender fax is a Ricoh model.

4. SERVICE TABLES

4.1 BEFOREHAND

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 TABLES

4.2.1 SP1-XXX (BIT SWITCHES)

☛ p.55 "Bit Switches"

1	Mode No.		Function
101	System Switch		
	001 – 032	00 – 1F	Change the bit switches for system settings for the fax option ☛ p.55 "System Switches"
102	Ifax Switch		
	001 – 016	00 – 0F	Change the bit switches for internet fax settings for the fax option ☛ p.69 "I-Fax Switches"
103	Printer Switch		
	001 – 016	00 – 0F	Change the bit switches for printer settings for the fax option ☛ p.75 "Printer Switches"
104	Communication Switch		
	001 – 032	00 – 1F	Change the bit switches for communication settings for the fax option ☛ p.81 "Communication Switches"
105	G3-1 Switch		
	001 – 016	00 – 0F	Change the bit switches for the protocol settings of the standard G3 board ☛ p.89 "G3 Switches"
106	G3-2 Switch		
	001 – 016	00 – 0F	Change the bit switches for the protocol settings of the optional G3 board ☛ p.96 "G3-2 and G3-3 Switches"
107	G3-3 Switch		
	001 – 016	00 – 0F	Change the bit switches for the protocol settings of the optional G3 board ☛ p.96 "G3-2 and G3-3 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	Change the bit switches for optional IP fax parameters ☛ p.103 "IP Fax Switches"

4.2.2 SP2-XXX (RAM DATA)

2	Mode No.		Function
101	RAM Read/Write		
	001		Change RAM data for the fax board directly. ☛ p.128 "Service RAM Addresses"
102	Memory Dump		
	001	G3-1 Memory Dump	Print out RAM data for the fax board. ☛ p.128 "Service RAM Addresses"
	002	G3-2 Memory Dump	Print out RAM data for the optional SG3 board.
	003	G3-3 Memory Dump	Print out RAM data for the optional SG3 board.
	004	G4 Memory Dump	Not used
103	G3-1 NCU Parameters		
	001 – 023	CC, 01 – 22	NCU parameter settings for the standard G3 board. ☛ p.110 "NCU Parameters"
104	G3-2 NCU Parameters		
	001 – 023	CC, 01 – 22	NCU parameter settings for the optional G3 board. ☛ p.110 "NCU Parameters"
105	G3-3 NCU Parameters		
	001 – 023	CC, 01 – 22	NCU parameter settings for the optional G3 board. ☛ p.110 "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.
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	Not used
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	Not used
	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)".
	002	PSTN Access Number	Enter the PSTN access number for the G3-3 line.
	003	Memory Lock Disabled	Not used
	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 settings.)
	002	PSTN Access Number	
	003	Memory Lock Disabled	
106	004	Transmission Disabled	
107	IPFAX Port Settings		
	001	H323 Port	Sets the H323 port number.
	002	SIP Port	Sets the SIP port number.
	003	RAS Port	Sets the RAS port number.
	004	Gatekeeper port	Sets the Gatekeeper port number.
	005	T.38 Port	Sets the T.38 port number.
	006	SIP Server Port	Sets the SIP port number.
	007	IPFAX Protocol Priority	Select "H323" or "SIP".
201	FAX SW		
	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 settings.)
107	001	Charge ROM Version	**Not used** (Do not change the settings.)

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	
	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.
	002	G3-1 (All Communications)	Prints the protocol dump list of all communications for the G3-1 line.
	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 settings.)
	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.
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		
	001	All log files	These log print out functions are for designer use only.
	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)
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**

4.3 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

<table>
<tr><th colspan="3">System Switch 00 (SP No. 1-101-001)</th></tr>
<tr><th>No</th><th>Function</th><th>Comments</th></tr>
<tr><td>0</td><td>Dedicated transmission parameter programming
0: Disabled
1: Enabled</td><td>Set this bit to 1 before changing any dedicated transmission parameters.
This setting is automatically reset to "0" after turning off and on.</td></tr>
<tr><td>1</td><td>Not used</td><td>Do not change</td></tr>
<tr><td>2</td><td>Technical data printout on the Journal
0: Disabled
1: Enabled</td><td>1: Instead of the personal name, the following data are listed on the Journal for each G3 communication.</td></tr>
<tr><td></td><td colspan="2">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.</td></tr>
<tr><td></td><td colspan="2">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</td></tr>
<tr><td>3</td><td>Not used</td><td>Do not change this setting.</td></tr>
</table>

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. This shows error locations when ECM is turned off.
5	G3/G4 communication parameter display 0: Disabled 1: Enabled	This is a fault-finding aid. The LCD shows the key parameters (see "G3 Communication Parameters" below this table). This is normally disabled because it cancels the CSI display for the user. 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 312: 31200 bps 288: 28800 bps 264: 26400 bps 240: 24000 bps 216: 21600 bps 192: 19200 bps 168: 16800 bps 144: 14400 bps 120: 12000 bps 96: 9600 bps 72: 7200 bps 48: 4800 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.)

<table>
<tr><th colspan="5">System Switch 02 (SP No. 1-101-003)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td>0</td><td colspan="3">Not used</td><td>Do not change these settings.</td></tr>
<tr><td>2</td><td colspan="3">Forced reset after transmission stalls
0: Off
1: On</td><td>With this setting on, the machine resets itself automatically if a transmission stalls and fails to complete the job.</td></tr>
<tr><td>3</td><td colspan="3">Not used</td><td>Do not change these settings.</td></tr>
<tr><td>4</td><td colspan="3">File retention time
0: Depends on User Parameter 24 [18(H)]
1: No limit</td><td>1: A file that had a communication error will not be erased unless the communication is successful.</td></tr>
<tr><td>5</td><td colspan="3">Not used</td><td>Do not change this setting.</td></tr>
<tr><td rowspan="7">6-7</td><td colspan="3">Memory read/write by RDS</td><td rowspan="7">(0,0): All RDS systems are always locked out.
(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.</td></tr>
<tr><td>Bit 7</td><td>Bit 6</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>Always disabled</td></tr>
<tr><td>0</td><td>1</td><td>User selectable</td></tr>
<tr><td>1</td><td>0</td><td>User selectable</td></tr>
<tr><td>1</td><td>1</td><td>Always enabled</td></tr>
<tr><td colspan="3"></td></tr>
</table>

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 - Not used (Do not change the factory settings.)
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	Print timing of communication reports on the Journal when no image data was exchanged. 0: After DCS/NSS communication (default), 1: After polling	0: The data is listed on the Journal only when image data is sent. 1: The data is listed on the Journal is printed when any data is sent.
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 error report 0: No 1: Yes	1: Error codes are printed on the error reports. This can be used for detecting an error which occurs rarely.
4	Not used	Do not change this setting.
5	Power failure report 0: Disabled 1: Enabled (default)	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. **NOTE:** If "0" is selected, no reports are printed and no one may recognize that fax data is gone due to a power failure.
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. **NOTE:** The memory size is limited. Use this bit switch only when some log reports are necessary.
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. **NOTE:** This bit is useful if the communication lines at a customer site are not all the same quality.
1-3	Not used	Do not change these settings.
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 direct sending with ScanRouter cannot be selected.
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 is possible while the external handset is off-hook. However, manual tx during handset off-hook may not be sent to a correct direction. Manual 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	12: Asia	
	01: Germany	13: Japan	
	02: UK	14: Hong Kong	
	03: Italy	15: South Africa	
	04: Austria	16: Australia	
	05: Belgium	17: New Zealand	
	06: Denmark	18: Singapore	
	07: Finland	19: Malaysia	
	08: Ireland	1A: China	
	09: Norway	1B: Taiwan	
	0A: Sweden	1C: Korea	
	0B: Switz.	1D: Brazil	
	0C: Portugal	20: Turkey	
	0D: Holland	21: Greece	
	0E: Spain	22: Hungary	
	0F: Israel	23: Czech	
	10: ---	24: Poland	
	11: USA		

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). **NOTE:** If "1" is selected, it is possible that sent data is printed on two sheets of paper.
1-2	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)

<table>
<tr><th colspan="5">System Switch 15 (SP No. 1-101-022)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td>0</td><td colspan="3">Not used</td><td>Do not change the settings.</td></tr>
<tr><td>1</td><td colspan="3">Going into the Energy Saver mode automatically
0: Enabled
1: Disabled</td><td>1: The machine will restart from the Energy Saver mode quickly, because the +5V power supply is active even in the Energy Saver mode. The LED of the operation switch is flashing instead of entering Energy Saver mode.
Use this setting if an external telephone has to be used when the machine is in the Energy Saver mode.</td></tr>
<tr><td>2-3</td><td colspan="3">Not used</td><td>Do not change these settings.</td></tr>
<tr><td rowspan="6">4-5</td><td colspan="3">Interval for preventing the machine from entering Energy Saver mode if there is a pending transmission file.</td><td rowspan="6">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.</td></tr>
<tr><td>Bit 5</td><td>Bit 4</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>1 min</td></tr>
<tr><td>0</td><td>1</td><td>30 min</td></tr>
<tr><td>1</td><td>0</td><td>1 hour</td></tr>
<tr><td>1</td><td>1</td><td>24 hours</td></tr>
<tr><td>6-7</td><td colspan="3">Not used</td><td>Do not change</td></tr>
</table>

<table>
<tr><th colspan="3">System Switch 16 (SP No. 1-101-023)</th></tr>
<tr><th>No</th><th>Function</th><th>Comments</th></tr>
<tr><td>0</td><td>Parallel Broadcasting
0: Disabled
1: Enabled</td><td>1: The machine sends messages simultaneously using all available ports during broadcasting.
NOTE: If a customer wants to keep a line available for fax reception or other reasons, select "0" (Disable).</td></tr>
<tr><td>1</td><td>Priority setting for the G3 line.
0: PSTN-1 > PSTN-2 or 3
1: PSTN-2 or 3 > PSTN-1</td><td>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.</td></tr>
<tr><td>2-7</td><td>Not used</td><td>Do not change these settings.</td></tr>
</table>

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 1: Enabled	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 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) **NOTE:** If a customer wants a larger available memory size, decrease this threshold.

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)
1-7	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 for a memory transmission, the successfully scanned pages are transmitted. 1: If the SAF memory becomes full during scanning for a memory transmission, the file is erased and no pages are transmitted. Note ▪ 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. **NOTE:** The file numbers may not be printed in the sequential order. If a customer does not like this numbering, select "0".
4	Action when authorized reception is enabled but authorized RTIs/CSIs are not yet programmed 0: Faxes can be received if the sender has an RTI or CSI 1: All fax reception is disabled	0: If the user has stored no acceptable sender RTIs or CSIs, the user can select “ON” in the authorized reception setting but the setting becomes invalid (“OFF”). 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 "0", then enable Authorized Reception. Otherwise, keep this bit at "1 (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: Enabled 1: Disabled	0: When an original jams, or the SAF memory overflows during scanning, a report will be printed. 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	-
1	B4	
2	A3	
3-6	Reserved	
7	Not used	
	0: Off (not selected), 1: On (selected) 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.	

<table>
<tr><th colspan="3">I-fax Switch 01 (SP No. 1-102-002)</th></tr>
<tr><th>No</th><th>Function</th><th>Comments</th></tr>
<tr><td colspan="2">Original Line Resolution of TX Attachment File</td><td>These settings set the maximum resolution of the original that the destination can receive.</td></tr>
<tr><td>0</td><td>200x100 Standard</td><td rowspan="7">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.</td></tr>
<tr><td>1</td><td>200x200 Detail</td></tr>
<tr><td>2</td><td>200x400 Fine</td></tr>
<tr><td>3</td><td>300 x 300 Reserve</td></tr>
<tr><td>4</td><td>400 x 400 Super Fine</td></tr>
<tr><td>5</td><td>600 x 600 Reserve</td></tr>
<tr><td>6</td><td>Reserve</td></tr>
<tr><td>7</td><td colspan="2">mm/inch</td></tr>
<tr><td></td><td colspan="2">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.</td></tr>
</table>

I-fax Switch 02 (SP No. 1-102-003)		
No	**Function**	**Comments**
0	RX Text Mail Header Processing	
	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.	
	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
	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 Memory Unit in order to have enough SAF (Store and Forward) memory to receive images at 400 x 400 resolution.

I-fax Switch 03 - Not used (do not change these settings)

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.	
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)
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 0: Off 1: On	1: Default. 10 mm of the trailing edge of the previous page are repeated at the top of the next page. 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 1: Enabled	0: The machine informs the transmitting machine of the print width depending on the paper size available from the paper feed stations. 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 User Parameter Switch 0F (15), or which is used for the Specified Cassette Selection feature.
1	2nd paper feed station usage for fax printing 0: Enabled 1: Disabled	
2	3rd paper feed station usage for fax printing 0: Enabled 1: Disabled	
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) Default: 6 mm	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: 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.

<table>
<tr><th colspan="8">Printer Switch 04 (SP No. 1-103-005)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th colspan="4">Comments</th></tr>
<tr><td rowspan="7">0
to
4</td><td colspan="7">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.</td></tr>
<tr><td>Bit 4</td><td>Bit 3</td><td>Bit 2</td><td>Bit 1</td><td>Bit 0</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 mm</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>5 mm</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>20 mm</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>155 mm</td></tr>
<tr><td colspan="7">For A5 sideways and B5 sideways paper
[Maximum reducible length] = [Paper length] + 0.75 x (N x 5mm)</td></tr>
<tr><td rowspan="6">5
6</td><td colspan="7">Length of the duplicated image on the next page, when page separation has taken place.</td></tr>
<tr><td colspan="2">Bit 6</td><td colspan="3">Bit 5</td><td colspan="2">Setting</td></tr>
<tr><td colspan="2">0</td><td colspan="3">0</td><td colspan="2">4 mm</td></tr>
<tr><td colspan="2">0</td><td colspan="3">1</td><td colspan="2">10 mm</td></tr>
<tr><td colspan="2">1</td><td colspan="3">0</td><td colspan="2">15 mm</td></tr>
<tr><td colspan="2">1</td><td colspan="3">1</td><td colspan="2">Not used</td></tr>
<tr><td>7</td><td colspan="3">Not used.</td><td colspan="4">Do not change the setting.</td></tr>
</table>

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**
0-3	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)

<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>0</td><td colspan="3">Paper size selection priority
0: Width
1: Length</td><td>0: A paper size that has the same width as the received data is selected first.
1: A paper size which has enough 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="3">3-4</td><td colspan="3">Printing the sample image on reports</td><td rowspan="3">"Same size" means the sample image is printed at 100%, even if page separation occurs.
User Parameter Switch 19 (13H) bit 4</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>
</table>

	0	1	50% reduction (sub-scan only)	must be set to "0" to enable this switch. Refer to Detailed Section Descriptions for more on this feature.
	1	0	Same size	
	1	1	Not used	
5-6	Not used			Do not change the settings.
7	Equalizing the reduction ratio among separated pages (Page Separation) 0: Enabled 1: Disabled			0: When page separation has 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)
0: Disabled
1: Enabled</td><td>1: Reception will not go ahead if the 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.</td></tr>
</table>

<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="8">2-3</td><td colspan="3">Wrong connection prevention method</td><td rowspan="8">(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 colspan="3"></td></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>

Communication Switch 02 (SP No. 1-104-003)			
No	**Function**	**Comments**	
0	G3 Burst error threshold 0: Low 1: High	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.	
		100 dpi	6(L) → 12(H)
		200 dpi	12(L) → 24(H)
		300 dpi	18(L) → 36(H)
		400 dpi	24(L) → 48(H)
1	Acceptable total error line ratio 0: 5% 1: 10%	If the error line ratio for a page exceeds the acceptable ratio, RTN will be sent to the other end.	
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)

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**
0-3	Not used	Do not change the settings.
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.
5-7	Not used	Do not change the settings.

Communication Switch 0C - 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 automatic dialing attempts	06 to FF (Hex), unit = 2 s (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.)

<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>0</td><td colspan="3">Inch-to-mm conversion during transmission
0: Disabled, 1: Enabled</td><td>0: In immediate transmission, data 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="6">6-7</td><td colspan="3">Available unit of resolution in which fax messages are received</td><td rowspan="6">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>1</td><td>1</td><td>Not used</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 the received SUB code 0: Disconnect the line 1: Receive the message (using normal reception mode)	Change this setting when the customer requires.

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.)
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="7">0
1</td><td colspan="3">Monitor speaker during communication (tx and rx)</td><td rowspan="7">(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 colspan="3"></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>

G3 Switch 01 (SP No. 1-105-002)		
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 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)
1-6	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. $\sqrt{NTransmit \leq NResend}$ 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 1: Detection (Japan and Korea 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.

G3 Switch 05 (SP No. 1-105-006)

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	
	0	0	1	1	33.6	
	Other settings - Not used					

<table>
<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="8">G3 Switch 06 (SP No. 1-105-007)</th></tr>
<tr><th>No</th><th colspan="6">Function</th><th>Comments</th></tr>
<tr><td rowspan="19">0-3</td><td colspan="6">Initial Rx modem rate(kbps)</td><td rowspan="19">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>
<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 colspan="6">Other settings - Not used</td></tr>
<tr><td rowspan="3">4-7</td><td colspan="7">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="3">Types</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td colspan="3">V.27ter</td></tr>
</table>

	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
	0	1	0	1	V.27ter, V.29, V.17/V33, V.34
	Other settings - Not used				

G3 Switch 07 (SP No. 1-105-008)

No	Function	Comments
0-1	PSTN cable equalizer (tx mode: Internal) Bit 1 / Bit 0 / Setting: 0 0 None 0 1 Low 1 0 Medium 1 1 High	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.
2-3	PSTN cable equalizer (rx mode: Internal) Bit 3 / Bit 2 / Setting: 0 0 None 0 1 Low 1 0 Medium 1 1 High	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.
4	PSTN cable equalizer (V.8/V.17 rx mode: External) 0: Disabled 1: Enabled	Keep this bit at "1".
5-7	Not used	Do not change the settings.

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 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.</td></tr>
<tr><td>7</td><td colspan="3">Not used</td><td>Do not change the settings.</td></tr>
</table>

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 0: Disabled 1: Enabled	If the customer wants to hear an alarm after each error communication, change this bit to "1".
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 colspan="3"></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>

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)
1-6	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 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. $\sqrt{NTransmit \leq NResend}$ 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 1: Detection (Japan and Korea 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.
4-7	Not used	Do not change the settings.

G3-2 Switch 05 (SP No. 1-106-006)

<table>
<tr><th>No</th><th colspan="5">Function</th><th>Comments</th></tr>
<tr><td rowspan="19">0-3</td><td colspan="5">Initial Tx modem rate (kbps)</td><td rowspan="19">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>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>
<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 colspan="5">Other settings - Not used</td></tr>
</table>

<table>
<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="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="19">0-3</td><td colspan="6">Initial Rx modem rate(kbps)</td><td rowspan="19">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>
<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 colspan="6">Other settings - Not used</td></tr>
</table>

<table>
<tr><td>4-7</td><td>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
<table>
<tr><th>Bit 7</th><th>Bit 6</th><th>Bit 5</th><th>Bit 4</th><th>Types</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>V.27ter</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>V.27ter</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>V.27ter</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>V.27ter</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td><td>V.27ter</td></tr>
<tr><td colspan="5">Other settings - Not used</td></tr>
</table></td></tr>
</table>

<table>
<tr><th colspan="3">G3-2 Switch 07 (SP No. 1-106-008)</th></tr>
<tr><th>No</th><th>Function</th><th>Comments</th></tr>
<tr><td>0-1</td><td>PSTN cable equalizer
(tx mode: Internal)
<table>
<tr><th>Bit 1</th><th>Bit 0</th><th>Setting</th></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></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.
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>2-3</td><td>PSTN cable equalizer
(rx mode: Internal)
<table>
<tr><th>Bit 3</th><th>Bit 2</th><th>Setting</th></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></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.
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>
</table>

4	PSTN cable equalizer (V.8/V.17 rx mode: External) 0: Disabled 1: Enabled	Keep this bit at "1".
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.
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>
</table>

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)

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.

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 0: Modem speed 1: No limitation	Selects the transmit speed for IP Fax 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	CCM connection 0: No CCM connection 1: CCM connection	When "1" is selected, only the connection call message with H.323 or no tunneled H.245 is transmitted via CCM.

4	Message reception selection from non-registered SIP server 0: Answer 1: Not answer	0: This answers the INVITE message from the SIP server not registered for the machine. 1: This does not receive the INVITE message from the SIP server not registered for the machine and send a refusal message.
5	ECM communication setting 0: No limit for image compression 1: Limit for image compression	0: This does not limit the type of the image compression with ECM communication. 1: When the other end machine is Ciscco, this permits the image compression other than JBIG or MMR with ECM communication.
6-7	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	Not used	Do not change this setting.
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 1: PPRx4	When "0" is selected, the transmission condition is decided by error frame 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	
	0	1	1	0	14.4	
4-5	Modem setting for transmission					Sets the modem type for transmission. The default is "00" (V29).
	Bit 5	Bit 4	Types			
	0	0	V29			
	0	1	V17			
	1	0	Not used			
	1	1	Not used			
6-7	Not used					Do not change these settings.

<table>
<tr><th colspan="7">IP Fax Switch 06 (SP No. 1-111-007)</th></tr>
<tr><th>No.</th><th colspan="5">Function</th><th>Comments</th></tr>
<tr><td>0-3</td><td colspan="6">Modem bit rate setting for reception
Sets the modem bit rate for reception. The default is "0110" (14.4K bps).</td></tr>
<tr><td rowspan="7">4-7</td><td colspan="6">Modem setting for reception
Sets the modem type for reception. The default is "0100" (V27ter, V29, V17).</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 colspan="6">Other settings - Not used</td></tr>
</table>

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 no CSI registration 0: Not transmitted 1: Transmitted	When "0" is selected, frame data is enabled. When "1" is selected, the transmitted data is all spaces.
6-7	Not used	Do not change these settings.

IP Fax Switch 08 (SP No. 1-111-009)				
No.	**Function**			**Comments**
0-1	T1 timer adjustment			Adjusts the T1 timer. The default is "00" (35 seconds).
	Bit 1	Bit 0		
	0	0	35 s	
	0	1	40 s	
	1	0	50 s	
	1	1	60 s	
2-3	T4 timer adjustment			Adjust the T4 timer. The default is "00" (3 seconds).
	Bit 3	Bit 2		
	0	0	3 s	
	0	1	3.5 s	
	1	0	4 s	
	1	1	5 s	
4-5	T0 timer adjustment			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).
	Bit 5	Bit 4		
	0	0	75 s	
	0	1	120 s	
	1	0	180 s	
	1	1	240 s	
6-7	Not used			Do not change these settings.

<table>
<tr><th colspan="5">IP Fax Switch 09 (SP No. 1-111-010)</th></tr>
<tr><th>No.</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td>0</td><td colspan="3">Network I/F setting for SIP connection
0: IPv4
1: IPv6.</td><td>Selects the connection type (IPV4 or IPV6) to connect to the SIP server.</td></tr>
<tr><td>1</td><td colspan="3">Network I/F setting for Fax communication
0: Same setting as SIP server connection
1: Automatic setting</td><td>0: The I/F setting for fax communication follows the setting for SIP server connection.
1: The negotiation between the SIP server and the device decides whether IPv4 or IPv6 is used for the I/F setting for fax communication.</td></tr>
<tr><td>2</td><td colspan="3">Record-route setting
0: Disable
1: Enable</td><td>0: Disables the record-route function of the SIP server.
1: Enables the record-route function of the SIP server.</td></tr>
<tr><td rowspan="6">3-4</td><td colspan="3">re-INVITE transmission delay timer setting</td><td rowspan="6">This changes the interval for transmit re-INVITE after receiving the ACK message transmitted by T.38 device.</td></tr>
<tr><td>Bit 4</td><td>Bit 3</td><td></td></tr>
<tr><td>0</td><td>0</td><td>No delay</td></tr>
<tr><td>0</td><td>1</td><td>1 sec</td></tr>
<tr><td>1</td><td>0</td><td>2 sec</td></tr>
<tr><td>1</td><td>1</td><td>3 sec</td></tr>
<tr><td>5-7</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					
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	Asia	18	12
	Germany	01	01	Japan	19	13
	UK	02	02	Hong Kong	20	14
	Italy	03	03	South Africa	21	15
	Austria	04	04	Australia	22	16
	Belgium	05	05	New Zealand	26	17
	Denmark	06	06	Singapore	24	18
	Finland	07	07	Malaysia	25	19
	Ireland	08	08	China	26	1A
	Norway	09	09	Taiwan	27	1B
	Sweden	10	0A	Korea	28	1C
	Switzerland	11	0B	Brazil	29	1D
	Portugal	12	0C	Turkey	32	20
	Holland	13	0D	Greece	33	21
	Spain	14	0E	Hungary	34	22
	Israel	15	0F	Czech	35	23
	USA	17	11	Poland	36	24

Address	Function	Unit	Remarks
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). Italy: See Note 2.
680509	PSTN dial tone reset time (LOW)		
68050A	PSTN dial tone reset time (HIGH)		
68050B	PSTN dial tone continuous tone time		
68050C	PSTN dial tone permissible drop time		
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

Address	Function	Unit	Remarks
680516	PSTN busy tone frequency lower limit (low byte)		detection is disabled.
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)		
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	-

Address	Function	Unit	Remarks
68052B	Busy tone OFF time: range 1		
68052C	Busy tone ON time: range 2		
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: 0, Bit 0: 0 = 75% Bits 2 and 3 must always be kept at 0. Bit 1: 0, Bit 0: 0 = 50% Bits 2 and 3 must always be kept at 0. Bit 1: 0, Bit 0: 0 = 25% Bit 1: 0, Bit 0: 0 = 12.5% 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 detection is disabled.
680537	International dial tone frequency lower limit (low byte)		
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)		-

Address	Function	Unit	Remarks
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	-	-
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).

Address	Function	Unit	Remarks
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).
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)		

Address	Function	Unit	Remarks
68055D	PSTN access pause time	20 ms	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.
68055E	Progress tone detection level, and cadence detection enable flags	Bit 7: 0, Bit 6: 0, Bit 5: 0 = -25.0 dBm Bit 7: 0, Bit 6: 0, Bit 5: 1 = -35.0 dBm Bit 7: 0, Bit 6: 1, Bit 5: 0 = -30.0 dBm Bit 7: 1, Bit 6: 0, Bit 5: 0 = -40.0 dBm Bit 7: 1, Bit 6: 1, Bit 5: 0 = -49.0 dBm Bits 2, 0 - See Note 2.	
68055F To 680564	**Not used**	-	Do not change the settings.
680565	Long distance call prefix (HIGH)	BCD	For a code of 0: 680565 – FF 680566 - FF
680566	Long distance call prefix (LOW)	BCD	
680567 to 680571	**Not used**	-	Do not change the settings.
680572	Acceptable ringing signal frequency: range 1, upper limit	1000/ N (Hz).	SP2-103-003 (parameter 02).
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).

Address	Function	Unit	Remarks
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 Bit 1:0, Bit 0: 0 = 200 ms Bit 1:0, Bit 0: 1 = 800 ms Other Not used Bits 2 and 3 - Handset on-hook detection time Bit 3: 0, Bit 2: 0 = 200 ms Bit 3: 0, Bit 2: 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 detection is disabled.
6805A7	Acceptable CNG detection frequency upper limit (low byte)		
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.

Address	Function	Unit	Remarks
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)		
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.**		

Address	Function	Unit	Remarks
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 be changed to 30 s. Change this bit to “1” if communication errors occur frequently during V.17 reception.
6805E3	Bits 0 and 1 – DCV (TIP/RING) Voltage Bit 1:0, Bit 0: 0 = 3.1 V Bit 1:0, Bit 0: 1 = 3.2 V Bit 1:1, Bit 0: 0 = 3.35 V Bit 1:1, Bit 0: 1 = 3.5 V Bits 2 and 3 – MINI (minimum loop electric current) Bit 2:0, Bit 3: 0 = 10 mA Bit 2:0, Bit 2: 1 = 12 mA Bit 2:1, Bit 3: 0 = 14 mA Bit 2:1, Bit 3: 1 = 16 mA Bits 6 and 7 – ACIM (AC impedance) Bit 7:0, Bit 6: 0 Bit 5:0, Bit 4: 0= 600 Bit 7:0, Bit 6: 0 Bit 5:1, Bit 4: 0= TBR21		
6805E4	Bit 0 – OHS (on hook speed) 0: OHS=0 1: OHS=1 Bit 1 – SQ (spark quench) 0: SQ=00 1: SQ=11 Bit 2 – RZ (call signal Impedance) 0: RZ=0 (high) 1: RZ=1 (low) Bit 3 – RT (call signal detection level) 0: RT=0 (low) 1: RT=1 (high) Bit 4 – ILIM (DC limitation) 0: ILIM=0 (CTR 21) 1: ILIM=1 (other than CTR 21) Bit 5 –FILTER 0: FILTER=0 (around 5Hz) 1: FILTER=1 (around 200Hz) Bits 6 to 7 – Calibration in off hook state Bit 6:0, Bit 7: 0 = off hook to ACAL:128 ms, off hook to MCAL: 1000 ms Bit 6:1, Bit 7: 0 = off hook to ACAL:128 ms, off hook to MCAL: 500 ms Bit 6:0, Bit 7: 1 = off hook to ACAL:128 ms (no MCAL) Bit 6:1, Bit 7: 1 = off hook to ACAL:8 ms (no MCAL)		

Address	Function	Unit	Remarks
6805E5	Bits 0 to 6 – **Not used** Bits 7 – Energy saving for DSP, COMBLK, SiDAA 0: Does not save energy 1: Saves energy		

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:
   - $-0.5 \times N_{680552}/_{680554} - 3.5$ dBm
   - $-0.5 \times N_{680555}$ dBm

   Low frequency tone:
   - $-0.5 \times (N_{680552}/_{680554} + N_{680553}) - 3.5$ dBm
   - $-0.5 \times (N_{680555} + N_{680553})$ dBm

   Note
   - N_{680552}, for example, means the value stored in address 680552(H)
6. 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. 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) - all the parameters are disabled.

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.

Switch 01

No	FUNCTION						COMMENTS
0-4	Tx level						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.
	Bit4	Bit3	Bit2	Bit1	Bit0		
	0	0	0	0	0	0	
	0	0	0	0	1	–1	
	0	0	0	1	0	–2	
	0	0	0	1	1	–3	
	0	0	1	0	0	–4	
	↓	↓	↓	↓	↓	↓	
	0	1	1	1	1	–15	
	1	1	1	1	1	Disabled	

5-7	Cable equalizer Bit 7: 0, Bit 6: 0, Bit 5: 0 = None Bit 7: 0, Bit 6: 0, Bit 5: 1 = Low Bit 7: 0, Bit 6: 1, Bit 5: 0 = Medium Bit 7: 0, Bit 6: 1, Bit 5: 1 = High Bit 7: 1, Bit 6: 1, Bit 5: 1 = Disabled	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 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
0-3	Initial Tx modem rate					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 ▪ Do not use settings other than listed on the left. If the setting is "Disabled", the bit switch setting is used.
	Bit3	Bit2	Bit1	Bit0	bps	
	0	0	0	0	Not used	
	0	0	0	1	2400	
	0	0	1	0	4800	
	0	0	1	1	7200	
	0	1	0	0	9600	
	0	1	0	1	12000	
	0	1	1	0	14400	
	0	1	1	1	16800	
	1	0	0	0	19200	
	1	0	0	1	21600	
	1	0	1	0	24000	
	1	0	1	1	26400	
	1	1	0	0	28800	
	1	1	0	1	31200	
	1	1	1	0	33600	
	1	1	1	1	Disabled	

	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 Bit 1: 0, Bit 0: 0 = Inch-mm conversion available Bit 1: 0, Bit 0: 1 = Inch only Bit 1: 1, Bit 0: 0 = Not used Bit 1: 1, Bit 0: 1 = Disabled	If "inch only" is selected on the machine uses inch-based resolutions for scanning, the printed copy may be slightly distorted at the other end if that machine uses mm-based resolutions. If the setting is "Inch-mm conversion available ", Inch-mm conversion become effective to the special senders. If the setting is "Disabled", the bit switch setting is used.
2-3	DIS/NSF detection method Bit 3: 0, Bit 2: 0 = First DIS or NSF Bit 3: 0, Bit 2: 1 = Second DIS or NSF Bit 3: 1, Bit 2: 0 = Not used Bit 3: 1, Bit 2: 1 = Disabled	(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 second DIS or NSF before sending DCS or NSS. If the setting is "Disabled", the bit switch setting is used.
4	V.8 protocol 0: Off 1: Disabled	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.
5	Compression modes available in transmit mode 0: MH only 1: Disabled	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.
6-7	ECM during transmission Bit 7: 0, Bit 6: 0 = Off Bit 7: 0, Bit 6: 1 = On Bit 7: 1, Bit 6: 0 = Not used Bit 7: 1, Bit 6: 1 = Disabled	For example, if ECM is switched on but is not wanted when sending to a particular terminal, use the (0, 0) setting. Note ▪ 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.

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	MH Compression mode for e-mail attachments **0**: Off 1: On	Switches MH compression on and off for files attached to e-mails for sending.
1	MR Compression mode for e-mail attachments **0**: Off 1: On	Switches MR 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 **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 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 attachment: 200 x 100 **0**: Off 1: On	Sets the line resolution of the e-mail attachment as 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		
No	**FUNCTION**	**COMMENTS**
0	Full mode address selection 0: Full mode address 1: No full mode (simple mode)	If the other ends have the addresses, which have the full mode function flag ("0"), this machine determines them as full mode standard machines. ▪ This machine attaches the "demand of reception confirmation" to a message when transmitting. ▪ This machine updates the reception capability to the address book when receiving.

1-7	**Not used**	Do not change these settings.

Switch 05		
No	**FUNCTION**	**COMMENTS**
0	Directr transmission selection to SMTP server 0: ON 1: OFF	Allows or does not allow the direct transmission to SMTP server.
1-7	Not used	Do not change these 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)

4.6 SERVICE RAM ADDRESSES

⚠CAUTION

- 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: Not used
6800A0 to 6800AF(H) - G3-3 bit switches: Not used
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: Not used
Bit 7: Journal 0: Off, 1: On
6800D4(H) - User parameter switch 04 (SWUSR_04: Automatic report printout)
Bit 0: Not used
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: 0, Bit 1: 0 = The machine receives all the fax messages.
Bit 2: 0, Bit 1: 1 = The machine receives the fax messages with RTI or CSI.
Bit 2: 1, Bit 1: 0 = The machine receives the fax messages with the same ID code.
Bit 2: 1, Bit 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): Not used

6800D7(H) - User parameter switch 07 (SWUSR_07)
Bit 0 Ringing 0: Off, 1: On
Bit1: Automatic answering message 0: Off, 1: On
Bit 2: Parallel memory transmission 0: Off, 1: On
Bits 3 and 4: Not used
Bit 5: Remote control 0: Off, 1: On
Bits 6 and 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)
Bits 0 to 2: Not used
Bit 3: Page reduction 0: Off, 1: On
Bits 4 and 5: Not used
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)
Bits 0 and 1: Not used
Bit 2: White original detection 0: Off, 1: On (alarm and alert message on the LCD)
Bit 3: Receive rejection for 1300 Hz transmission 0: Off (receive), 1: On (not receive)
Bit 5: Not used
Bit 6: Printout of messages received while acting as a forwarding station 0: Off, 1: On
Bit 7: Not used

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: Not used
Bit 3: Fax mode settings, such as resolution, before a mode key (Copy/Fax/Printer/Scanner) is pressed 0: Not cleared, 1: Cleared
Bits 4 to 6: Not used
Bit 7: Not used

6800DF(H) - User parameter switch 15 (SWUSR_0F)
(This switch is not printed on the user parameter list.)
Bits 0, 1 and 2: Cassette for fax printout
Bit 2: 0, Bit 1: 0, Bit 0: 1 = 1st paper feed station
Bit 2: 0, Bit 1: 1, Bit 0: 0 = 2nd paper feed station

Bit 2: 0, Bit 1: 1, Bit 0: 1 = 3rd paper feed station
Bit 2: 1, Bit 1: 0, Bit 0: 0 = 4th paper feed station
Bit 2: 1, Bit 1: 0, Bit 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)

(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: Not used
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
Bits 4 to 6: Not used
Bit 7: Japan only

6800E3(H) - User parameter switch 19 (SWUSR_13)

Bit 0: Not used
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: Not used
Bit 3: 90° image rotation during B5 portrait Tx (This switch is not printed on the user parameter list.) 0: Off, 1: On
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
0	0	0	0	0 min.
0	0	0	1	1 min.
↓	↓	↓	↓	↓
1	1	1	0	14 min.

1	1	1	1	15 min.

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 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)

(This switch is not printed on the user parameter list.)

Bit 0: Dial tone detection (PSTN 1) 0: Disabled, 1: Enabled

Bits 1 to 7: Not used

6800E7(H) – User parameter switch 23 (SWUSR_17): Not used

6800E8(H) - User parameter switch 24 (SWUSR_18): Not used

6800E9(H) - User parameter switch 25 (SWUSR_19)

Bit 0: Not used

Bit 1: Reception mode switch timer 0: Off, 1: On (switching Fax or Fax/Tel)

Bit 2: Mode priority switch 0: Fax first, 1: Tel first

Bit 3: Dial in function (Japan Only)

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) and 6800EB(H) - User parameter switches 26 and 27 (SWUSR_1A and 1B): Not used

6800EC(H) - User parameter switch 28(SWUSR_1C): Not used

6800ED(H) - User parameter switch 29(SWUSR_1D): Not used

6800EE(H) and 6800EF(H) - User parameter switches 30 and 31 (SWUSR_1E and 1F): Not 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 putout 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

Bits 2 to 7: Not used

6800F3(H) - User parameter switch 35 (SWUSR_23)

Redial interval when sending a backup file

6800F4(H) - User parameter switch 36 (SWUSR_24)

Maximum number of redials when sending a backup file

6800F5-6800F8(H) - User parameter switch 37 (SWUSR_25)

Bit 0: Stop sending a backup file if the destination folder becomes full while the machine is sending or waiting to send a fax or the backup file 0: Disabled, 1: Enabled

Bit 1: Not used

Bit 2 and 3: Backup file is printed along with the TX communication failure report when a backup file transmission failure occurs. 00: Do not print, 01: Print first page only, 10: Print whole file
Bit 4: Display the sender's information in the file name of documents that are forwarded to folder destinations. 0: Disabled, 1: Enabled
Bit 5: Limit the file names of documents that are forwarded to folder destinations to plain characters only. 0: Disabled, 1: Enabled
Bit 6 to 7: Not used

6800F9(H) - User parameter switch 40 (SWUSR_28)

Bit 0: When memory space is insufficient, the machine prints and then deletes the oldest faxes, creating memory space for storage of new faxes. 0: Disabled, 1: Enabled
Bit 1 to 7: Not used

6800FF(H) - User parameter switch 45 (SWUSR_2D)

Bit 0 and 1: File format for files transmitted to e-mail addresses and folders registered as forwarding, destinations of backup file transmission, receivers for Personal Box, or end receivers for Transfer Box. 0: PDF 1: PDF/A
Bit 2 to 7: Not used

680100 to 68010F(H) - G4 Parameter Switches – Not used
680110 to 68012F(H) - G4 Internal Switches – Not used
680130 to 68016F(H) - Service Switches
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 – Not used
6801BA to 6801C3(H) - Own fax number (PSTN) – Not used
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) - Not used
680230 to 680246(H) - PSTN-3 RTI (Max. 20 characters - ASCII) - Not used
680247 to 680286(H) - TTI 1 (Max. 64 characters - ASCII) - See the following note.
680287 to 6802C6(H) - TTI 2 (Max. 64 characters - ASCII) - Not used
6802C7 to 680306(H) - TTI 3 (Max. 64 characters - ASCII) - Not used
680307 to 68031A(H) - PSTN-1 CSI (Max. 20 characters - ASCII)
68031B to 68032E(H) - PSTN-2 CSI (Max.20 characters - ASCII) - Not used
68032F to 680342(H) - PSTN-3 CSI (Max.20 characters - ASCII) - Not used
680343(H) - Number of PSTN-1 CSI characters (Hex)
680344(H) - Number of PSTN-2 CSI characters (Hex) - Not used
680345(H) Number of PSTN-3 CSI characters (Hex) - Not used

Note

- If the number of characters is less than the maximum (20 for RTI, 32 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, /// , 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)
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)
6804A8(H) - Machine code (Check ram 4)
68AFDA(H) - IP-Fax backup data 00 - 600 (H) - Not used
69A614(H) - Own e-mail address for internet fax (Max. 128 characters - ASCII)
69A794(H) - User code for fax e-mail account (Max. 192 characters - ASCII)
69A854(H) – Password for fax e-mail account (Max. 128 characters - ASCII)
69A914(H) - Transmission mail size restriction for internet fax (Max. 4 bit)
69A918(H) - E-mail address for SMTP reception (Max. 128 characters - ASCII)
69A998(H) – Destination number for reception report e-mail (Max. 4 byte)
69FB40(H) to 69FDC0(H) - SIP server address (Read only)
69FB40(H) - Proxy server - Main (Max. 128 characters - ASCII)
69FBC0(H) - Proxy server - Sub (Max. 128 characters - ASCII)
69FC40(H) - Redirect server - Main (Max. 128 characters - ASCII)
69FCC0(H) - Redirect server - Sub (Max. 128 characters - ASCII)
69FD40(H) - Registrar server - Main (Max. 128 characters - ASCII)
69FDC0(H) - Registrar server - Sub (Max. 128 characters - ASCII)
69FE40(H) - Gatekeeper server address - Main (Max. 128 characters - ASCII)
69FEC0(H) - Gatekeeper server address - Sub (Max. 128 characters - ASCII)
69FF40(H) - Arias Number (Max. 128 characters - ASCII)
69FFC0(H) - SIP user name (Max. 128 characters - ASCII)
6A0040H(H) - **SIP digest authentication password** (Max. 128 characters - ASCII)
6A00C0H(H) - Gateway address information (Max. 7100 characters - ASCII)
6A1C7C(H) - Stand-by port number for H.323 connection
6A1C7E(H) - Stand-by port number for SIP connection
6A1C80(H) - RAS port number
6A1C82(H) - Gatekeeper port number
6A1C84(H) - Port number of data waiting for T.38

6A1C86(H) - Port number of SIP server
6A1C88(H) - Priority for SIP and H.323 0: H.323, 1: SIP
6A1C89(H) - SIP function 0: Disabled, 1: Enabled
6A1C8A(H) - H.323 function 0: Disabled, 1: Enabled
6A1C8B(H) - **SIP digest authentication function** 0: Disabled, 1: Enabled
6B9000 to 6B91FF(H) - Error code (Max. 512 byte)
6B9200 to 6BD61F - Reception results (Max. 17440 byte)
6BD620 to 6BDFA7 - Transmission error (Max. 2440 byte)
6BEBFE(H) - 6BEC1E (H) - Dial tone detection parameter (Max. 11 x 3 lines)
This initializes following order. [0x04, 0x40, 0x03, 0x60, 0x64, 0xf4, 0x01,0x64, 0x04, 0xc8, 0x00]
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. SPECIFICATIONS

5.1 GENERAL SPECIFICATIONS

5.1.1 FCU

Type:	Desktop type transceiver
Circuit:	PSTN (max. 3ch.) PABX
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) See Note1 16 x15.4 line/mm (Super Fine) See Note 1 200 x 100 dpi (Standard) 200 x 200 dpi (Detail) 400 x 400 dpi (Super Fine) See Note 1 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 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:	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: 16 MB (4 MB + 12 MB) (Print 8 MB + Scanner: 8 MB)

5.2 CAPABILITIES OF PROGRAMMABLE ITEMS

The following table shows the capabilities of each programmable items.

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 Expansion Memory are installed.

	Without the Expansion Memory	With the Expansion Memory
Memory Transmission file	400	400
Maximum number of page for memory transmission	1000	1000
Memory capacity for memory transmission (Note1)	320	2240

Note

- Measured using an ITU-T #1 test document (Slerexe letter) at the standard resolution, the auto image density mode and the Text mode.

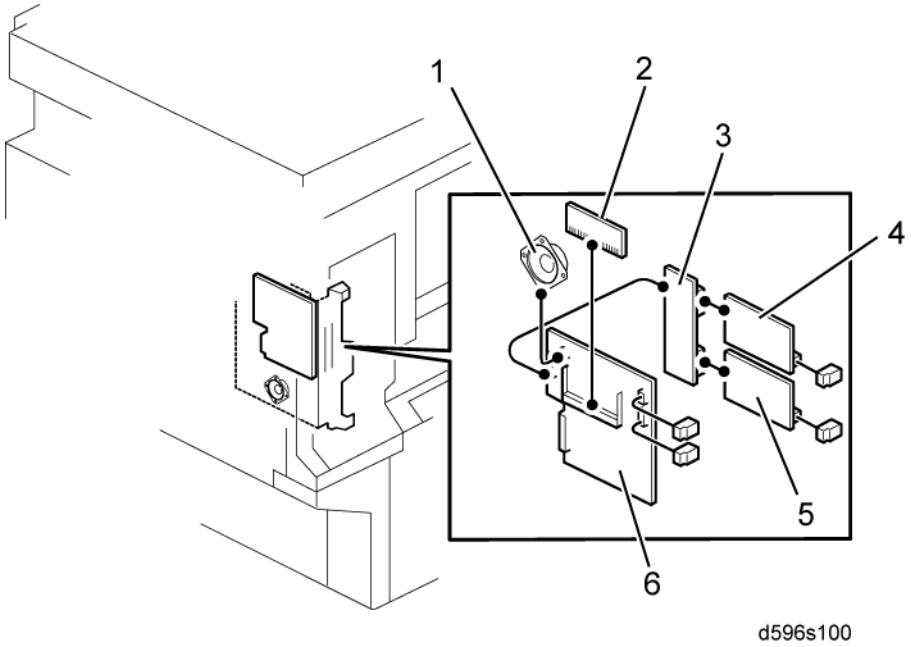
5.3 IFAX SPECIFICATIONS

Connectivity:	Local area network Ethernet 100base-Tx/10base-T IEEE802.11a/g, g (wireless LAN), 1000 Base-T
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) Condition: ITU-T #1 test document (Selerexe 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).

5.4 IP-FAX SPECIFICATIONS

Network:	Local Area Network Ethernet/10base-T, 100base-TX IEEE802.11a/g, g (wireless LAN), 1000 Base-T
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 function:	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 function:	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.

5.5 FAX UNIT CONFIGURATION



Component	Code	No.	Remarks
FCU	D596	6	Included with the fax unit
Speaker		1	
CCU I/F Board	D596	3	Included with optional G3 Unit
SG3 Board		4	
SG3 Board	D596	5	Included with optional G3 Unit
Expansion Memory	G578	2	Optional
Handset Type 3352	D593	-	Optional