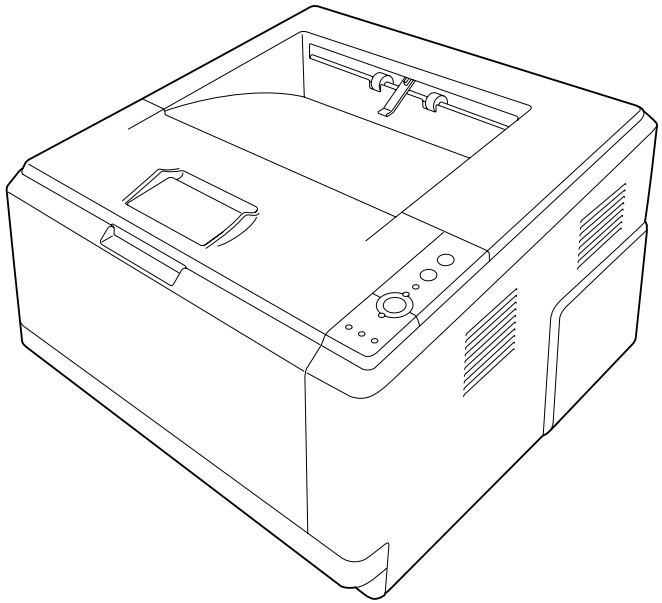
SERVICE MANUAL



A4 monochrome Laser Printer

EPSON AcuLaser M2000D
M2000DN
M2010D
M2010DN

EPSON
EXCEED YOUR VISION

Notice:

The purpose of this manual is to provide the product knowledge and the technical information required for repair or maintenance of EPSON AcuLaser M2000D/M2000DN/ M2010D/M2010DN.

- This manual contains information and sensitive matters, special care should be taken when handling the manual.
- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the product's performance and functions. Some of the descriptions or the appearance of some parts in this manual may differ from those on an actual product.

Manual Configuration

This manual consists of the following seven chapters:

CHAPTER 1	**PRODUCT DESCRIPTIONS** **Describes the main features, basic specifications, consumable products, periodic replacement parts, and controller interface of the product.**
CHAPTER 2	**OPERATING PRINCIPLES** **Describes each mechanism configurations and explains fundamental operating principle of major components including the control system.**
CHAPTER 3	**TROUBLESHOOTING** **Describes the troubleshooting procedures that can help you diagnose and resolve problems. The problems are sorted by displayed error codes and phenomena of abnormal image output.**
CHAPTER 4	**DISASSEMBLY/ASSEMBLY** **Describes the step-by-step procedures for disassembling and assembling of the product.**
CHAPTER 5	**ADJUSTMENT** **Describes the settings and the adjustments to be performed during the maintenance work.**
CHAPTER 6	**MAINTENANCE** **Describes preventive maintenance procedures.**
CHAPTER 7	**APPENDIX** **Provides the additional information such as panel operations, connector pin layouts, parts list, and exploded diagrams for reference.**

Symbols Used in this Manual

Various symbols are used throughout this manual either to provide additional information on a specific topic or to warn of possible danger present during a procedure or an action. Be sure to read and understand the information with these symbols.

	**Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, would result in injury or loss of life.**
	**Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.**
	**Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in personal injury or may cause damage to, or destruction of equipment.**
	**Indicates a prohibited action during maintenance work.**
	**Indicates a mandatory action during maintenance work.**
	■ **Indicates an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently.** ■ **Provides additional information that is related to a specific subject, or comment on the results achieved through a previous action.**
	**Indicates a product reassembly procedure, practice or condition that must be executed in accordance with the specified standards to maintain the product's quality.**
	**Indicates an operating or maintenance procedure, practice or condition that must be executed in accordance with the specified standards to maintain the product's quality.**

Safety

Safety-related Symbols

DANGER	**Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, would result in injury or loss of life.**
WARNING	**Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.**
CAUTION	**Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in personal injury or may cause damage to, or destruction of equipment.**

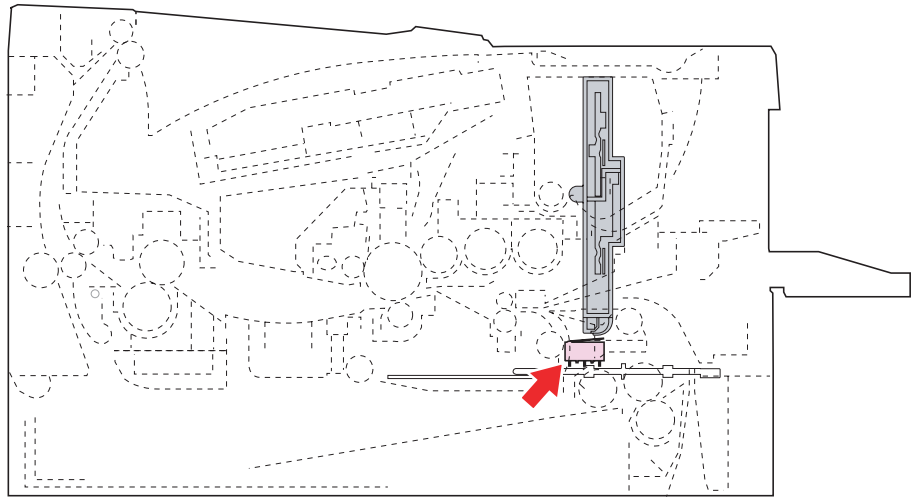
Safety Equipment

DANGER	**Never deactivate the safety equipment installed on the product for any reason whatsoever. (e.g. Making a connection circuit bypasses the safety equipment.)**

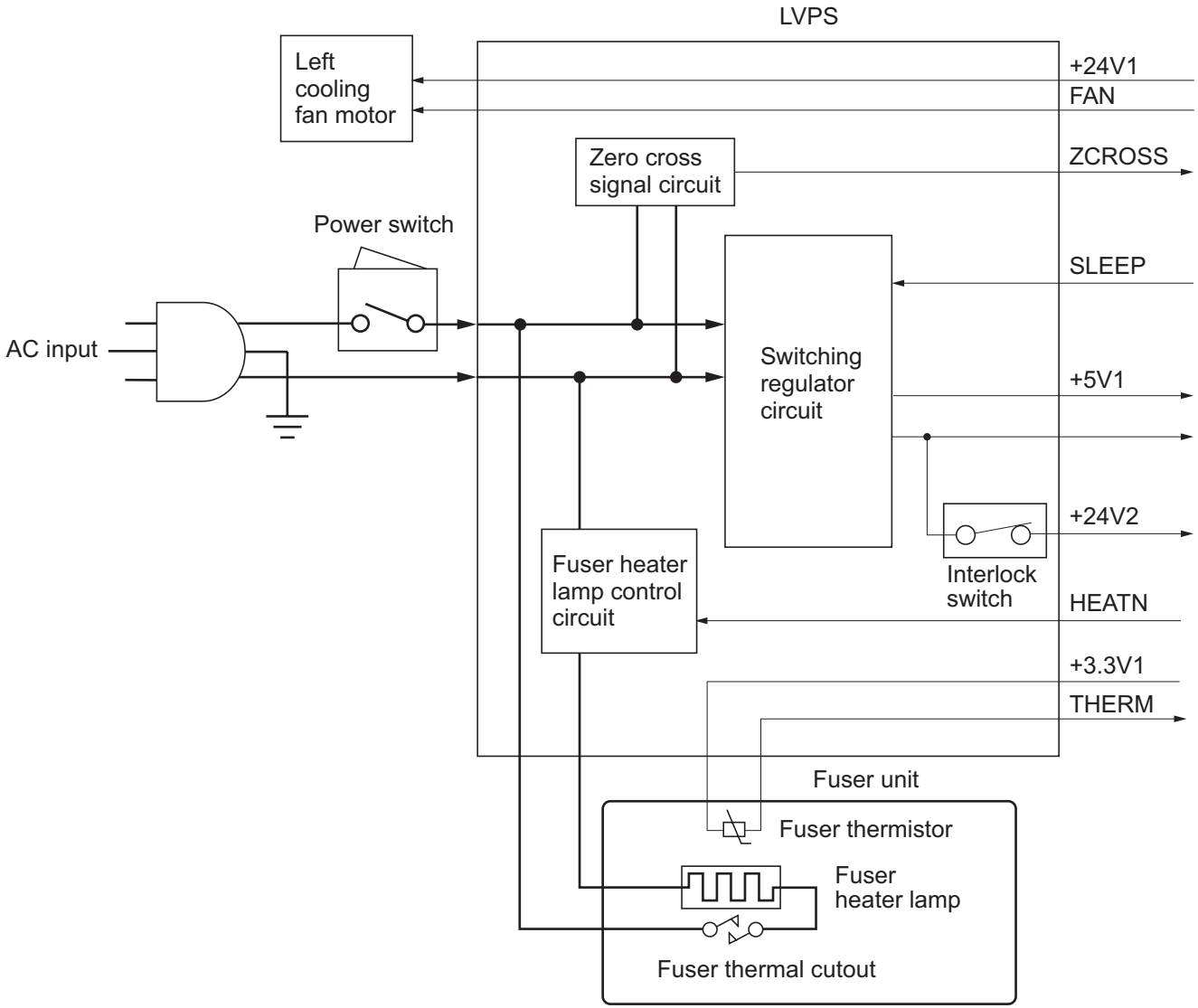
☐ List of Safety Equipment

Name	Function/Purpose
Interlock switch	Shuts off 24 V DC power line when the Top cover is opened.

☐ Location of Safety Equipment

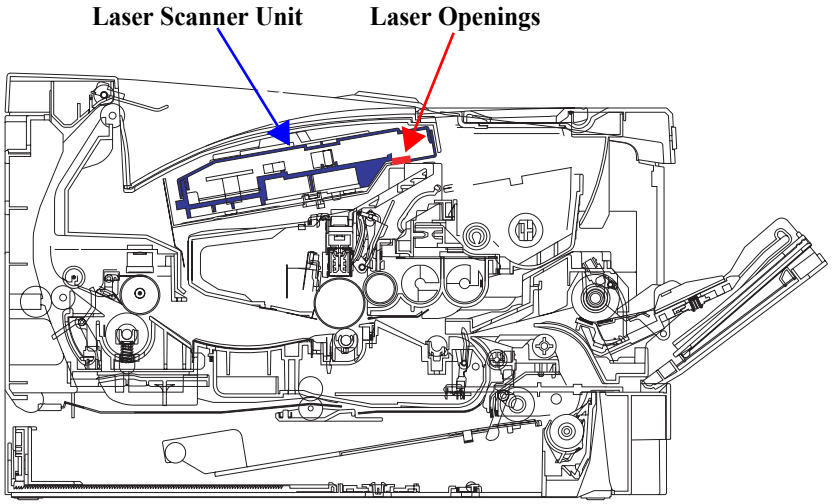


☐ Safety System Wiring Schematic



Laser Beam

☐ Laser Opening Location



☐ Handling Precautions

CAUTION

- **Disassembling and adjustment procedures not specified herein may result in hazardous radiation exposure.**
- **Do not disassemble or attempt to adjust the Laser Scanner unit for any reason whatsoever. When the Laser Scanner unit malfunctions, replace it with a new one.**

Prohibited Matters

- ☐ Never deactivate the safety equipment installed on the product for any reason whatsoever.
- ☐ Never modify the safety equipment or replace it with part not approved by EPSON. Doing so may cause the safety functions to stop working properly, and may result in fire or injury.
- ☐ Never modify the product. If you are instructed to do so, however, fully understand the instruction and perform the modification.

⚠ DANGER

To prevent an electric shock, burn, injury, etc., always turn the printer off and unplug the power cord before starting maintenance work. When the power supply cable must be connected to measure voltage or for any other task, strictly follow the instructions and use extreme caution in working on electronic components.

Pay particular attention to the high-voltage part indicated with the symbol on the left.

Do not touch the high temperature parts indicated with the symbol on the left. Those parts are extremely hot immediately after use. If you need to replace those parts, leave the printer until it cools.

Use the specified service parts for repair and maintenance.

When using compressed air products; such as air duster, for cleaning during repair and maintenance, the use of such products containing flammable gas is prohibited.

⚠ DANGER

Connect the printer to an electrical outlet that matches the printer's rated voltage and power requirements.

Do not connect any other devices to the electrical outlet supplying the printer. Doing so can cause overloading of the electrical circuit and may cause a fire.

Do not use extension cords or power adapters to plug multiple devices into the same outlet. Power plug and electrical outlet should be free from dust or foreign objects.

The printer should be properly grounded to prevent electric shock. The grounding terminal should be one of the followings:

a. One of the electrical outlet

b. One that is grounded by a D-type grounding construction. (The former third-type grounding construction; grounding resistance under 100 Ω).

Power cord should not be deformed or damaged. If the cord is damaged, replace it with a new one dedicated for the product.

After replacing the Fuser Unit or any other parts to which AC voltage is applied, be sure to check the part is properly installed and the connecting cables are not caught between metal parts. Otherwise a fire or an electric shock may occur.

Fuse on the Power Supply Unit must not be replaced under any circumstances.

⚠CAUTION

Before performing repair and maintenance work, read and understand the documents of the product (e.g. service manual). Be sure to follow the specified steps and use the prescribed tools described in the documents.

When disassembling or assembling the product, make sure to wear gloves to avoid injury from metal parts with sharp edges.

Take care not to drop any screws, washers, or clips inside the printer body. Should it fall in, do not boot up your printer until the part has been safely removed.

After reassembling the printer, make sure all the parts and the screws are put back in place and the cables are not caught between metal parts.

Though toner and developer are safe for human body, they may cause irritation to skin and eyes. If toner gets into your eyes, wash it away immediately with water. If irritation continues, see a physician. If toner gets in your mouth, rinse immediately with plenty of water. If swallowed, induce vomiting and consult a physician.

Do not throw used toner cartridges or toner into the flames.

⚠CAUTION

Do not use vacuum cleaner for home use to clean up spills of powdered toners. The very fine particles can cause fire/explosion. Sweep them thoroughly with a broom or wipe them with a cloth moistened with neutral detergent. If a large amount of toner is spilled, use a toner vacuum designed specifically to clean toner.

Ozone gas is generated by the printer as a by-product of the printing process. The amount of gas is too small to be harmful, however, some users may feel uncomfortable under the following conditions. It is desirable to advice the users to ventilate the room when using the printer.

- When using the printer for a long period of time in a room with poor ventilation.
- When printing a large amount of documents at a time.
- When using multiple printers in the same room.

In order to protect sensitive microprocessors and circuitry, use static discharge equipment, such as anti-static wrist straps, when accessing internal components.

Do not use thinner or alcohol when cleaning the product as it may result in discoloration or deformation.

Revision History

This manual is revised when the system, component, or part of the product is modified as a result of continuing improvements to the product's performance and functions. See the table below for recent updates.

Revision	Date of Issue	Description
A	January 16, 2008	First Release
B	February 1, 2008	All chapters: ■ Some connector numbers described in all chapters were corrected. Chapter 3: ■ Service request errors were changed. Chapter 4: ■ An adjustment point was added in the Developing Unit removal procedure. ■ " Disassembly Flowchart" *(p.76)* was changed. ■ " Disassembly Flowchart" *(p.120)* was changed. ■ PF Paper Conveyance Clutch figure was changed. Chapter 5: ■ Firmware update was added in "5.1 Adjustment Item" *(p.141)*. ■ "5.2.2 Updating firmware" *(p.145)* was added. Chapter 7: ■ Some explanations in "7.3.1 Status Sheet" *(p.166)* were corrected.

Contents

Chapter 6MAINTENANCE

Chapter 7APPENDIX

CHAPTER

1

PRODUCT DESCRIPTION

1.1 Product Specifications

AcuLaser M2000D/M2000DN/M2010D/M2010DN is a non-impact monochrome page printer that takes advantage of a laser and electrophotographic technologies.

1.1.1 Basic Specifications

PRINTER SPECIFICATIONS

Item		Spec.
Resolution		600 dpi, 1200 dpi
Print speed (Single-sided / Duplex)		28 ppm / 14 ppm
Warm-up time (23°C, 50% RH)		Less than 17 seconds
Control Panel		No LCD
CPU		64bit RISC CPU (300MHz)
RAM	Standard	Standard model: 32MB Network model: 64MB
	Max.	Standard model: 288MB Network model: 320MB
Interfaces		Standard model: Hi-Speed USB 2.0 (1.1 compatible) and Parallel Port Network model: Hi-Speed USB 2.0 (1.1 compatible) and Ethernet Port
Printer Language		ESC/Page (B/W), FX, ESCP2, I239X, PCL5e, PCL6, Adobe PostScript3 and PDF1.3
Dimensions (Main unit)		378 mm (W) x 390 mm (D) x 255 mm (H)
Weight (Main unit)		Less than 11.5 kg
Power supply		AC 110 V: 60 Hz AC 220 ~ 440 V: 50 Hz / 60 Hz

Item		Spec.
Power consumption (100V/110V/220-240V)	Max.	110 V: 780 W 220 V ~ 240 V: 840 W
	Printing	110 V: 449 W 220 V ~ 240 V: 465 W
	Ready (Eco Fuser ON)	110 V: 7 W 220 V ~ 240 V: 7 W
	Sleep	110 V: 3 W 220 V ~ 240 V: 3 W
	Stand by	0 W
Noise	Printing	53 dB
	Standby	30 dB
Storage and transportation conditions		Temperature: 0 ~ 35 °C Humidity: 15 ~ 80% RH
Life		100,000 pages or five years

OPTIONAL UNIT

Optional paper cassette unit	Capacity: Up to 250 sheets Paper size: A4, A5, B5, Letter, Executive, LGL 13” (GLG), F4”

EXTERNAL VIEW AND PART NAMES

Table 1-1. Part Names

No.	Name	No.	Name
1	Top cover (Cover A)	4	MP tray
2	Control Panel	5	Subtray
3	Standard lower paper cassette	6	Stopper

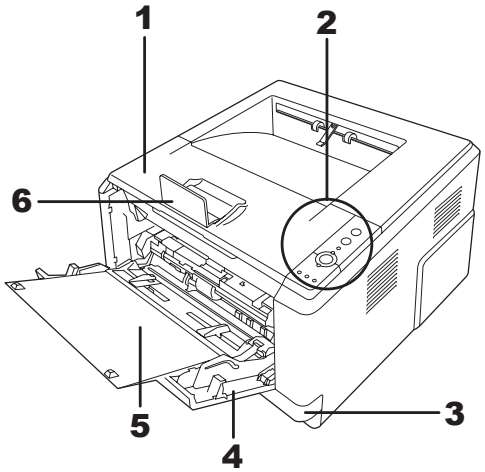


Figure 1-1. Front view

Table 1-2. Part Names

No.	Name	No.	Name
1	Rear cover	5	USB interface connector
2	AC inlet	6	Network interface connector
3	Power switch	7	Parallel interface connector
4	Option cover		

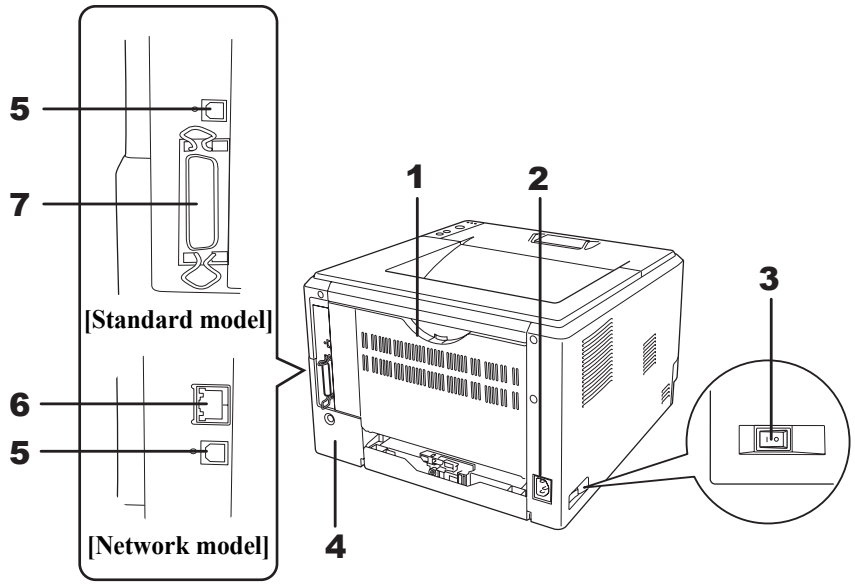


Figure 1-2. Rear view

Table 1-3. Part Names

No.	Name	No.	Name
1	Fuser unit	3	Developer unit
2	Photoconductor unit	4	Toner cartridge

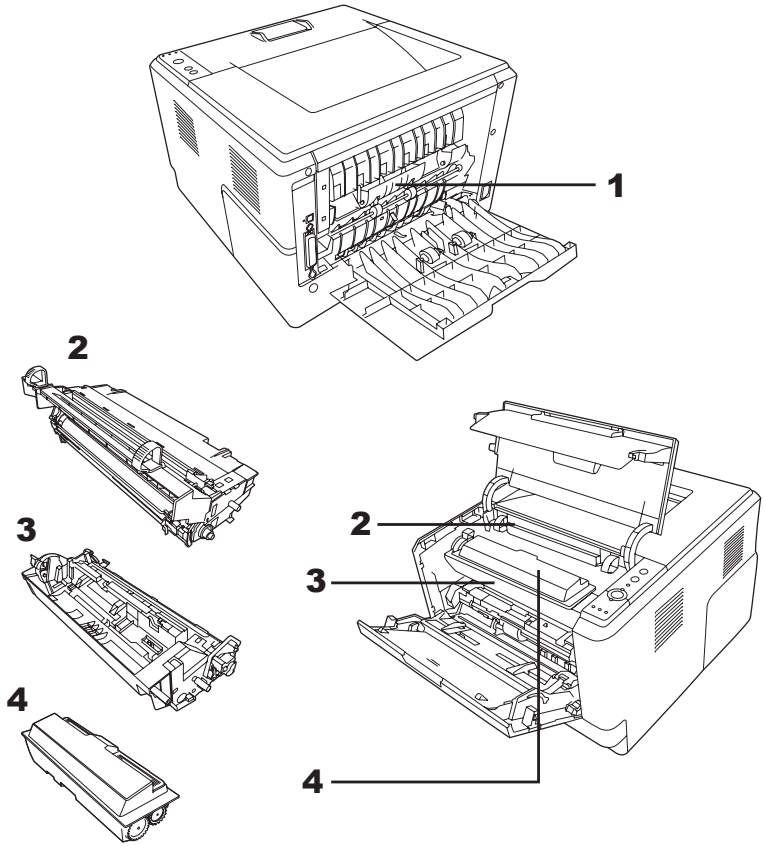


Figure 1-3. Inside the printer

DIMENSIONS AND WEIGHT

The following figure shows the dimensions and weight of the printer.

NOTE 1 : Manufacturing tolerance is ±5 mm in dimensions and ±0.5 kg in weight.
2 : Imaging cartridges are not included in the weight of the main unit.

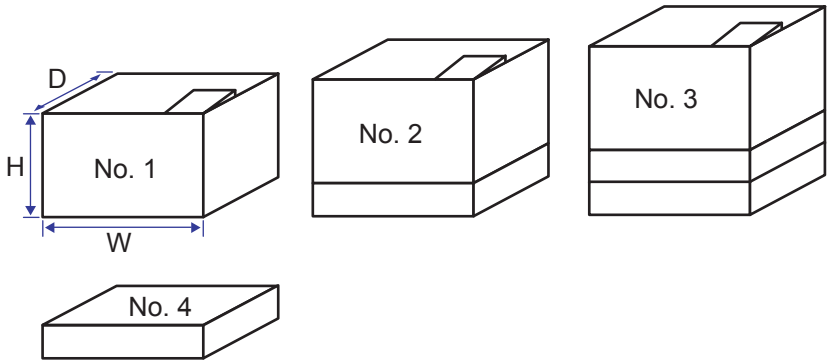


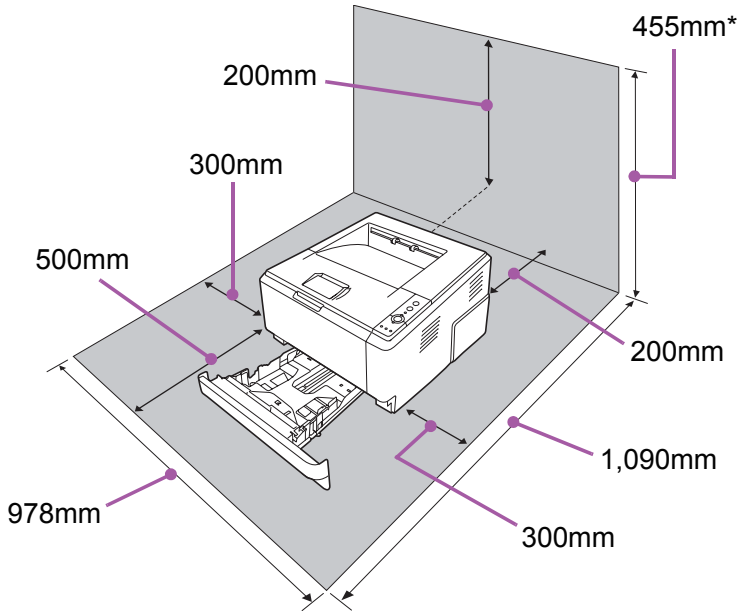
Figure 1-4. Dimensions and Weight

Table 1-4. Dimensions and Weight List

NO.	Configuration	W*1	D	H	Weight
1	Main unit	379mm	390mm	255mm	11.5kg or less
2	Main unit + One Option Feeder	378mm	390mm	355mm	14.5kg
3	Main unit + Two Option Feeders	378mm	390mm	454mm	17.5kg
4	Option Feeder	375mm	390mm	100mm	3.0kg

INSTALLATION SPACE REQUIREMENTS

The following figure shows the dimensions of the space required around the printer. Be sure to provide the space for installation, operation, and maintenance.



*** 655 mm is required when two option feeders are installed.**

Figure 1-5. Installation Space Requirements

1.1.2 Paper Specifications

SUPPORTED PAPERS

Table 1-5. Supported Papers

Paper Feeder		Paper Type		Paper Size	Capacity (Height)	Weight
Standard	Cassette	Standard paper*/Plain paper/Recycled paper		A4, A5, B5, LT, HLT, LGL,GLG, EXE, F4	250 sheets	60 ~ 90 g/m^2
		Fine quality paper		A4, A5, B5, LT, HLT, LGL, GLG, EXE, F4	28 mm	91 ~ 120 g/m^2
	MP tray	Standard paper*/Plain paper/Recycled paper		A4, A5, B5, LT, HLT, LGL, GLT, GLG, EXE, F4	50 sheets	60 ~ 90 g/m^2
		Fine quality paper		A4, A5, B5, LT, HLT, LGL, GLT, GLG, EXE, F4	5 sheets	91 ~ 120 g/m^2
		Special media	Transparency	A4, LT	5 sheets	---
			Postcard	Postcard	20 sheets	190 g/m^2
			Label	A4, LT	5 sheets	---
			Thick paper	A4, A5, B5, LT, EXE	5 sheets	121~ 220 g/m^2
			Envelope	C5, C6, DL, Com10, Monarch, ISO-B5	5 sheets	---
			User defined	Width: 70.00 mm ~ 215.90 mm Length: 148.00mm ~ 356.00 mm*1	50 sheets	60 ~ 90 g/m^2
					5 sheets	91 ~ 220 g/m^2
	Duplex unit	Standard paper*/Plain paper/Recycled paper		A4, LT	---	60 ~ 105 g/m^2
Option	Cassette	Standard paper*/Plain paper/Recycled paper		A4, A5, B5, LT, LGL, GLG, EXE, F4	250 sheets	60 ~ 120 g/m^2
		Fine quality paper		A4, A5, B5, LT, LGL, GLG, EXE, F4	28 mm	91 ~ 120 g/m^2

*: Standard paper: Xerox Premier 80gsm

*1: When 297mm or longer length paper is used, the user needs to support the rear end of the paper with his/her hand.

UNSUITABLE PAPERS

The following types of paper should not be used, otherwise decreased print quality, paper misfeeds, or damage to the printer may occur.

- ☐ Specially-treated papers, such as carbon-backed, non-carbon, heat-sensitive, pressure-sensitive, or acid paper
- ☐ Extremely thick or extremely thin papers
- ☐ Damp paper
- ☐ Art paper, coated paper for color printers
- ☐ Extremely smooth or extremely rough paper, or paper with uneven surface
- ☐ Perforated paper or paper with punched hole
- ☐ Folded, curled, wrinkled, or torn paper
- ☐ Paper of a non-standard shape (not rectangular)
- ☐ Label that peels off easily
- ☐ Papers with glue, staples, or paper clips
- ☐ Inkjet printer paper (Photo Quality Ink Jet Paper, Glossy Paper, Glossy Film, etc.)
- ☐ Printouts printed by a heat-transfer printer or an inkjet printer
- ☐ Transparency for other color laser printers or color photocopiers
- ☐ Printouts printed by another color/monochrome laser printer or a photocopier
- ☐ Sheets of paper stuck together using glue or the like
- ☐ Postcards for inkjet printers
- ☐ Iron-on Transfer Paper (for inkjet printers or laser printers)
- ☐ Paper that deteriorates or discolors at 225 °C or lower
- ☐ When using illustrated postcards, paper feed rollers may be soiled with paper dust and these cards may not be fed properly. In this case, clean the rollers with reference to Chapter 6 “MAINTENANCE” *(p.150)*

PRINTABLE AREA

- ☐ Maximum print area (Printing is guaranteed)

  Paper width: 215.9 mm x Length: 356.0 mm

- ☐ Guaranteed print area

  Area excluding 4-mm margins on all four edges

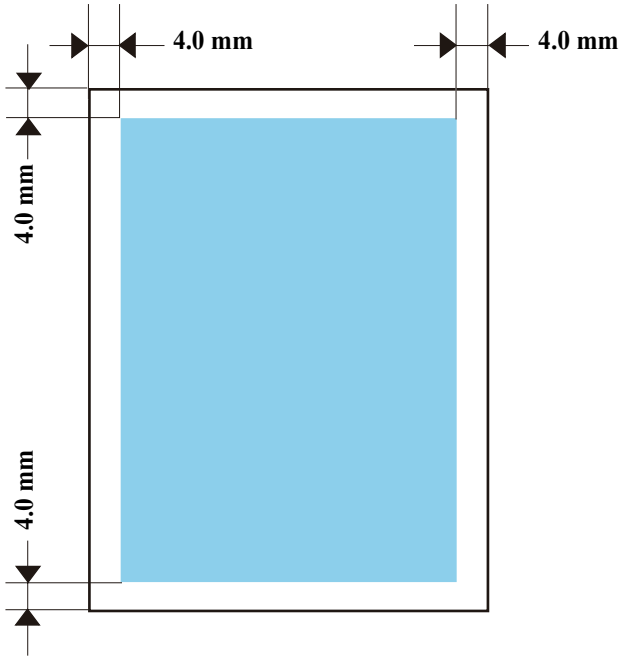
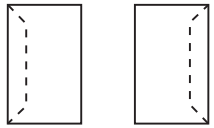
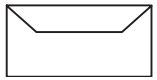
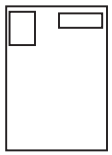
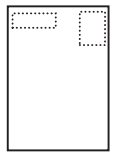


Table 1-6. Guaranteed Print Area

ENVELOPE ORIENTATION

Envelope Size	DL, C6, Com10, Monarch	C5, ISO-B5
Feeding Direction ↑		

POSTCARD ORIENTATION

Postcard type	Postcard Front side printing	Postcard Reverse side printing
Feeding Direction ↑		

⚠CAUTION

- **Load envelopes on the MP tray with the side to be printed face up.**
- **Proper paper feeding is not guaranteed for printing on the backside of envelopes.**

Do not use envelopes that have a tape or glue.

PAPER EJECT/CAPACITY

Paper eject	Capacity	Remarks
Face down	250* sheets	200* sheets for duplex printing.

*: When standard paper (A4) is used.

1.1.3 Replacement Parts

- Consumables
  Toner Cartridge : 8,000 pages / 3,500pages
- Periodic replacement parts
  This printer does not include any parts or units needing periodic replacement.

1.1.4 Controller Specifications

BASIC SPECIFICATIONS

CPU			VR5500 (300MHz)
Enhanced Technology			RIT (NICE)
RAM	Standard (on-board)		Standard model: 32MB Network model: 64MB
	Maximum		Standard model: 288MB Network model: 320MB
	Expansion	Type	SDRAM 90pin DIMM (64MB, 128MB, 256MB)
		Numbers of slot	1 slot
ROM	Type		16-bit width (3.3V)
	Program		16MB
	Font		Included in the program
EEPROM			Serial type 128Kbit
Control panel			Three buttons and six LEDs. No LCD
Printer language			ESC/Page (B/W), FX, ESC2, I239X, PCL5e, PCL6, Adobe PostScript3 and PDF1.3
Auxiliary software			■ Status Sheet printing ■ EpsonNetConfig (Web) (Network model only) ■ USB Ext I/F Status Sheet ■ Network Status Sheet printing (Network model only) ■ PS3 Status Sheet printing ■ PS3 Font List printing ■ PCL Font Sample printing ■ Hex dump ■ MAINTENANCE MODE (only for Engine Status Sheet and Print Log Report)

EXTERNAL INTERFACES

Standard model	USB	2.0 HS
	Parallel	IEEE1284 compliant
Network model	USB	2.0 HS
	Network	100BaseTX/10BaseT

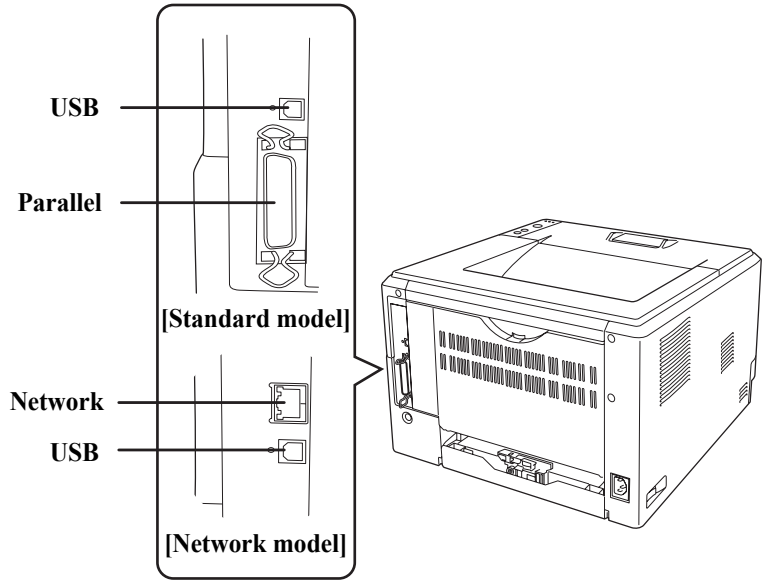


Figure 1-6. External Interfaces

1.2 List of Printer Messages

The following table shows the printer's LEDs indications in each printer status.
The meanings of the symbols used in the table are as follows.

- O:Lights
- ---: Lights or flashes depending on the condition
- X: Off
- Δ1: Flashes on and off at intervals of 0.3 seconds
- Δ2: Flashes on and off at intervals of 0.6 seconds
- Δ3: Flashes on for 0.6 seconds and off for 2.4 seconds

Table 1-7. List of Printer Messages

Sort	Printer Status	LEDs status					
		Error	Memory	Toner	Paper	Ready	Data
Status	ROM CHECK	X	X	X	O	X	X
	RAM CHECK	X	X	O	X	X	X
	Unable Clear Error	X	---	---	---	X	---
	Self Test	X	O	X	X	X	X
	Reset All	Δ1	X	X	X	Δ1	Δ1
	Reset	---	---	---	---	---	---
	Cancel All Print Job	Δ1	Δ1	---	X	Δ1	---
	Cancel Print Job (by panel)	Δ1	X	---	X	Δ1	---
	Writing ROM P	---	---	---	---	X	Δ1
	Form Feed	X	---	---	---	---	Δ1
	☐ Status Sheet ☐ ESC/Page Font Sample ☐ PCL Font Sample ☐ ESCP2 Font Sample ☐ FX Font Sample ☐ 1239X Font Sample ☐ PS3 Status Sheet ☐ PS3 Font List ☐ Engine Status Sheet	X	---	---	---	---	Δ1
	Warming Up	X	---	---	---	Δ1	---
	Offline	Δ3	---	---	---	X	---
	Cancel Print Job (by host)	Δ1	---	---	---	Δ1	---
	Filling toner xx*1 min	---	Δ3	Δ3	Δ3	---	---
	Sleep:	X	---	---	---	Δ3	---
	Ready	X	---	---	---	O	---
	(Printing)	X	---	---	---	---	---
	(Communication with inactive I/F)	---	---	---	---	---	---
	(Job being executed (ready))	---	---	---	---	---	---

*1: "xx" indicates remaining time period (minutes).

Table 1-7. List of Printer Messages

Sort	Printer Status	LEDs status					
		Error	Memory	Toner	Paper	Ready	Data
Warning	Reserve Job Canceled	X	Δ1	---	---	---	---
	Form Data Canceled	X	Δ1	---	---	---	---
	Can't Print	X	Δ1	---	---	---	---
	Collate Disabled	X	Δ1	---	---	---	---
	Image Optimum	X	Δ1	---	---	---	---
	Check Paper Type	X	---	---	Δ1	---	---
	Need Memory	X	Δ1	---	---	---	---
	Toner Low	X	---	Δ1	---	---	---
	Worn Main unit	Δ3	---	X	---	---	---
	NonGenuineToner	X	---	Δ3	---	---	---

*2: For details on the Service Req error code, see "3.4.3 Controller-related Service Call Errors" *(p.47)*.

*3: "WWWW" indicates the jammed or opened point. See "3.4.1 Paper Jam Error" *(p.37)*.

*4: "sss" indicates the Page Size setting of the control panel.

*5: "ttt" indicates the Paper Source setting (except for "Auto") of the control panel.

*6: "sss" indicates the paper size setting in the Tray Menu of the control panel.

Table 1-7. List of Printer Messages

Sort	Printer Status	LEDs status					
		Error	Memory	Toner	Paper	Ready	Data
Error	Service Req Cffff*2	O	O	O	O	O	O
	Service Req Eggg	O	X	X	X	O	O
	Optional RAM Error	O	O	X	X	X	---
	Write Error ROM P	O	O	X	X	X	---
	Jam WWWW*3	O	X	X	O	X	---
	Install Imaging Cart	O	X	O	X	X	---
	Image Cart ID Error	O	X	O	X	X	---
	NonGenuine Toner	Δ1	X	O	X	X	---
	Image Cart R/W Error	O	X	O	X	X	---
	Replace Main Unit	O	Δ2	Δ2	Δ2	X	---
	WWWW*3 Open	O	X	X	X	X	---
	Install LC1	O	X	X	Δ1	X	---
	Install LC2	O	X	X	Δ1	X	---
	Manual Feed sss*4	Δ2	X	X	Δ2	Δ2	---
	Can't Print Duplex	Δ1	X	X	O	X	---
	Paper Out ttt*5 sss*6	O	X	X	Δ1	X	---
	Replace Toner	O	X	O	X	X	---
	Paper Set ttt*5 sss*6	Δ1	X	X	Δ1	X	---
	Print Overrun	Δ1	O	X	X	X	---
	Mem Overflow	Δ1	O	X	X	X	---
	Duplex Mem Overflow	Δ1	O	X	X	X	---
	Invalid Data	Δ1	O	X	X	X	---
	Invalid PS3	O	O	X	X	X	---

CHAPTER

2

OPERATING PRINCIPLES

2.1 Electrical parts layout

POWER WRITING BOARDS

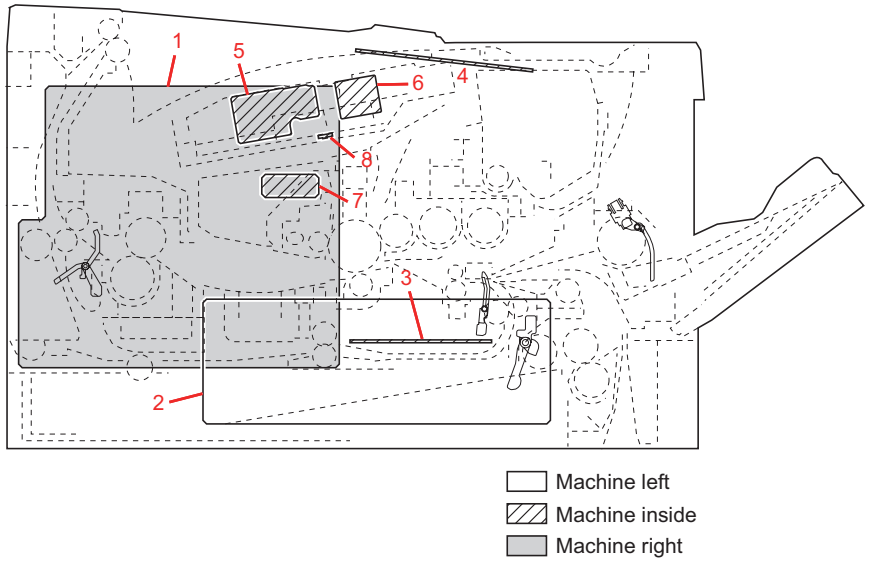


Figure 2-1. Power Writing Boards

1. Main Board Assy.
   - Main controller section:
     Controls the software such as the print data processing and provides the interface with computers.
   - Engine section:
     Controls printer hardware such as high voltage/bias output control, paper conveying system control, and fuser temperature control, etc.
2. LVPS
   After full-wave rectification of AC power source input, switching for converting to 24 V DC for output. Controls the fuser heater lamp.
3. HVPS
   Generates main charging, developing bias, transfer bias.
4. Control Panel Board
   Consists the LED indicators and key switches.
5. APC PWB
   Generates and controls the laser beam.
6. PD PWB
   Controls horizontal synchronizing timing of laser beam.
7. Zener PWB
   Adjusts the drum surface potential.
8. Eraser lamp PWB
   Eliminates the residual electrostatic charge on the drum.

SWITCHES AND SENSORS

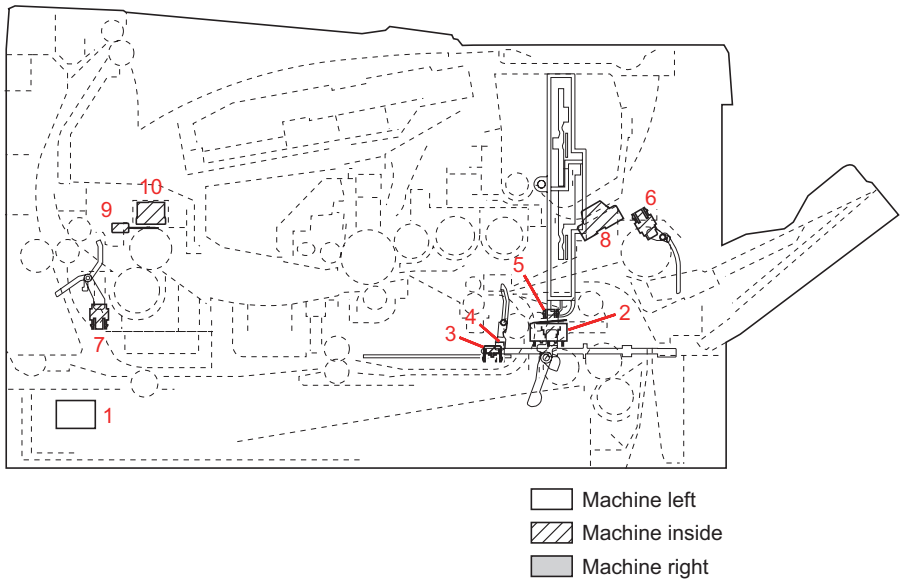


Figure 2-2. Switches and sensors

1. Power switch
   Turns ON/OFF the AC power source.
2. Interlock switch
   Shuts off 24 V DC power line when the top cover is opened.
3. Cassette switch
   Detects open/close cassette.
4. Registration sensor
   Detects the timing of primary paper feed.
5. Paper sensor
   Detects the presence of paper in the cassette.
6. MP paper sensor
   Detects the presence of paper on the MP tray.
7. Exit sensor
   Detects paper jam in the fuser or duplex conveying section.
8. Toner sensor
   Detects the quantity of toner in a toner container.
9. Fuser thermistor
   Measures the heat roller temperature.
10. Fuser thermal cutout
    Shuts off the power source to the fuser heater lamp when the heat roller reaches extremely high temperature.

OTHER ELECTRICAL COMPONENTS

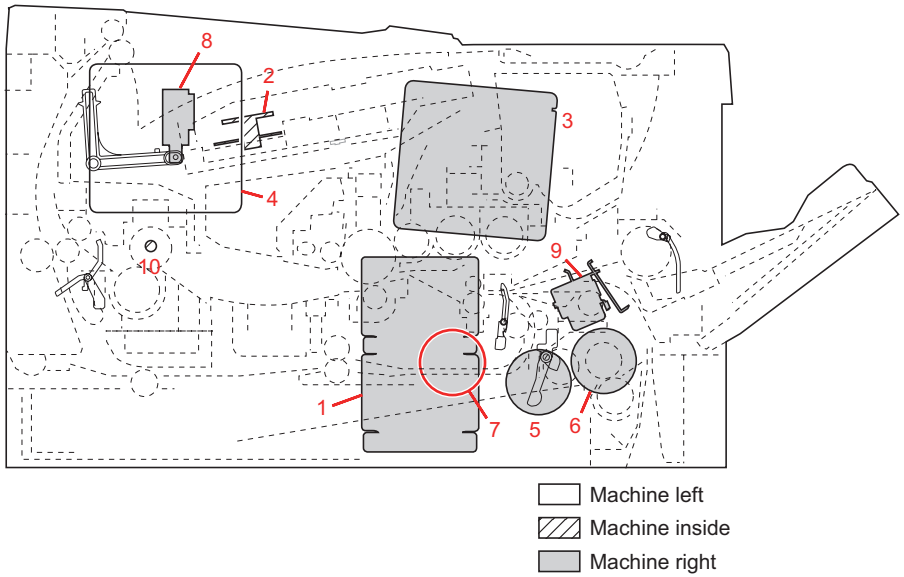


Figure 2-3. Other electrical components

1. Main motor
   Drives the paper feed/conveying section and fuser unit.
2. Polygon motor
   Drives the polygon mirror.
3. Right cooling fan motor
   Cools the interior of machine.
4. Left cooling fan motor
   Cools the interior of machine.
5. Registration clutch
   Controls the secondary paper feed.
6. Paper feed clutch
   Controls the paper cassette paper feed.
7. Developing clutch
   Controls the toner feed.
8. Duplex solenoid
   Controls the paper conveying at the duplex conveying section.
9. MP paper feed solenoid
   Controls the MPF bottom plate of the MP tray.
10. Fuser heater lamp
    Heats the heat roller.

OPTION PAPER FEEDER

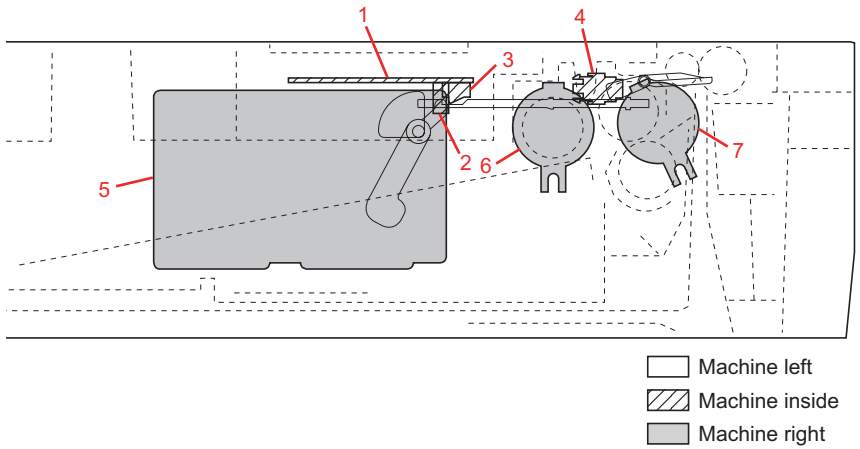


Figure 2-4. Option Paper Feeder

1. PF Main Board
   Controls electrical components in the paper feeder and serial communications with the printer.
2. PF paper sensor
   Detects the presence of paper in the cassette.
3. PF cassette switch
   Detects the existence of the cassette.
4. PF paper feed sensor
   Detects paper jam in the paper feeder.
5. PF paper feed motor
   Drives the paper feed mechanism in the paper feeder.
6. PF paper feed clutch
   Controls the drive of the paper feed roller.
7. PF paper conveying clutch
   Controls the drive of the middle roller.

2.2 Technical Explanation of Print Process

2.2.1 Charging

DRUM SECTION

The durable layer of organic photoconductor (OPC) is coated over the aluminum cylinder base. The OPC tend to reduce its own electrical conductance when exposed to light. After a cyclic process of charging, exposure, and development, the electrostatic image is constituted over the OPC layer. Since the OPC is materialized by resin, it is susceptible to damage caused by sharp edges such as a screwdriver, etc., resulting in a print quality problem. Also, finger prints can cause deterioration of the OPC layer, therefore, the drum (in the drum unit) must be handled with care. Substances like water, alcohol, organic solvent, etc., should be strictly avoided. As with all other OPC drums, the exposure to a strong light source for a prolonged period can cause a print quality problem. The limit is approximately 500 lux for less than five minutes. If the drum (drum unit) remains removed from the printer, it should be stored in a cool, dark place.

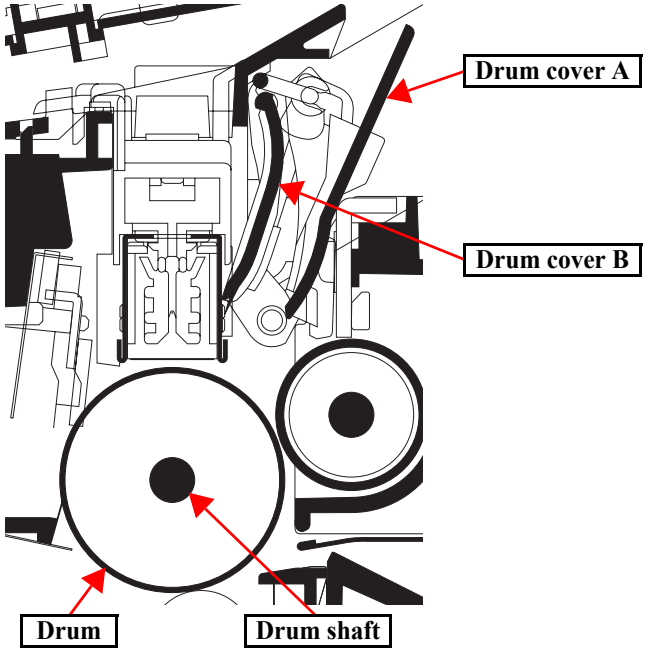


Figure 2-5. Drum section

MAIN CHARGER UNIT

As the drum rotates in a “clean (neutral)” state, its photoconductive layer is given a uniform, positive (+) corona charge dispersed by the main charger wire. Due to high-voltage scorotron charging, the charging wire can get contaminated by oxidization after a long run. Therefore, the charger wire must be cleaned at a specific interval. Cleaning the charging wire prevents print quality problems such as black streaks.

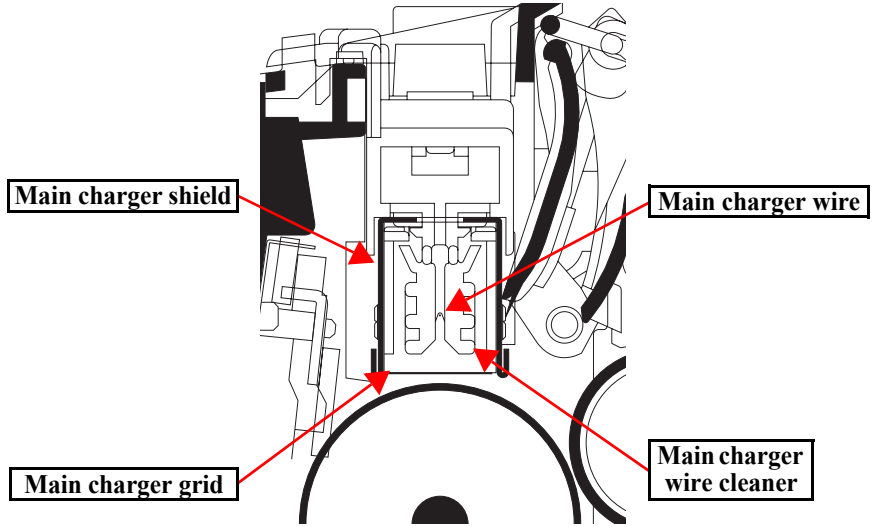


Figure 2-6. Main charger unit

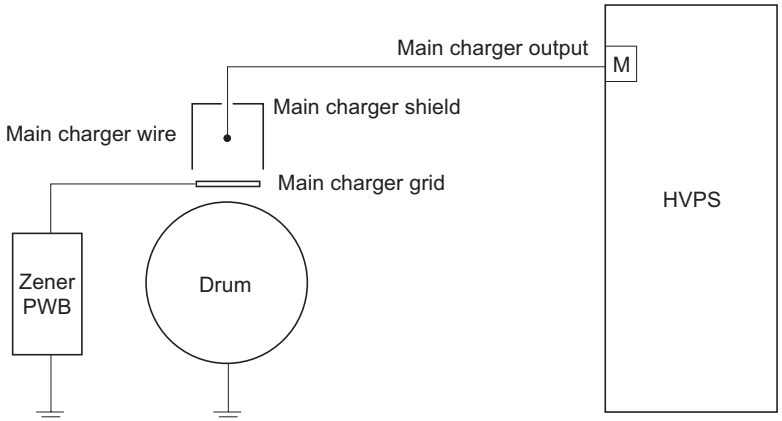


Figure 2-7. Drum unit and main charger unit block diagram

2.2.2 Exposure

LASER SCANNER UNIT (LSU)

The charged surface of the drum is then scanned by the laser beam from the laser scanner unit.
The laser beam (780 nm wavelength) beam is dispersed as the polygon motor revolves to reflect the laser beam over the drum. Various lenses and mirror are housed in the laser scanner unit, adjust the diameter of the laser beam, and focalize it at the drum surface.

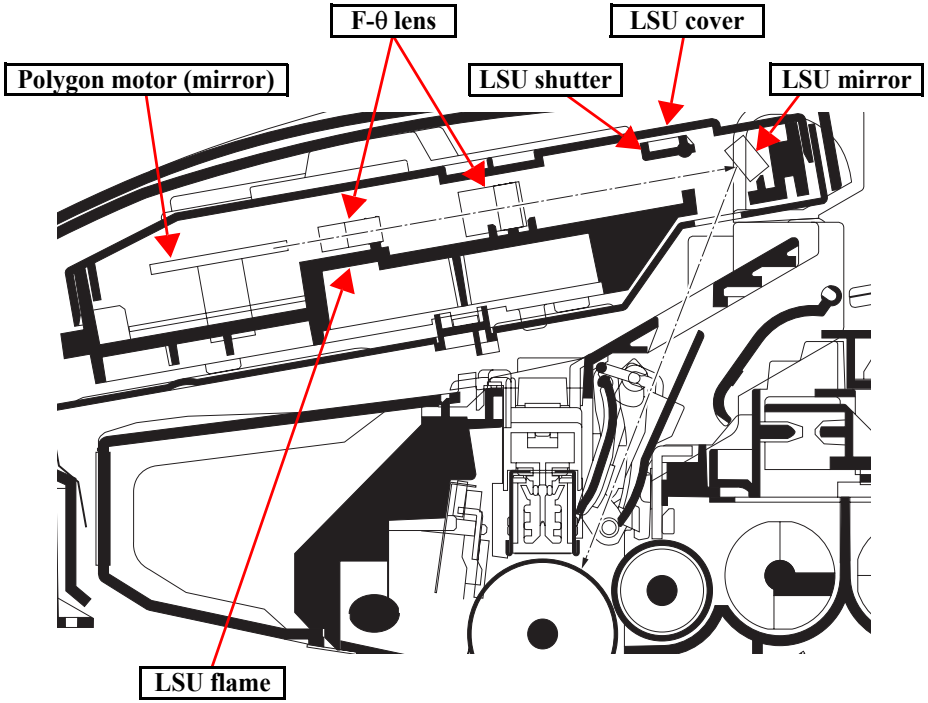


Figure 2-8. Exposure section

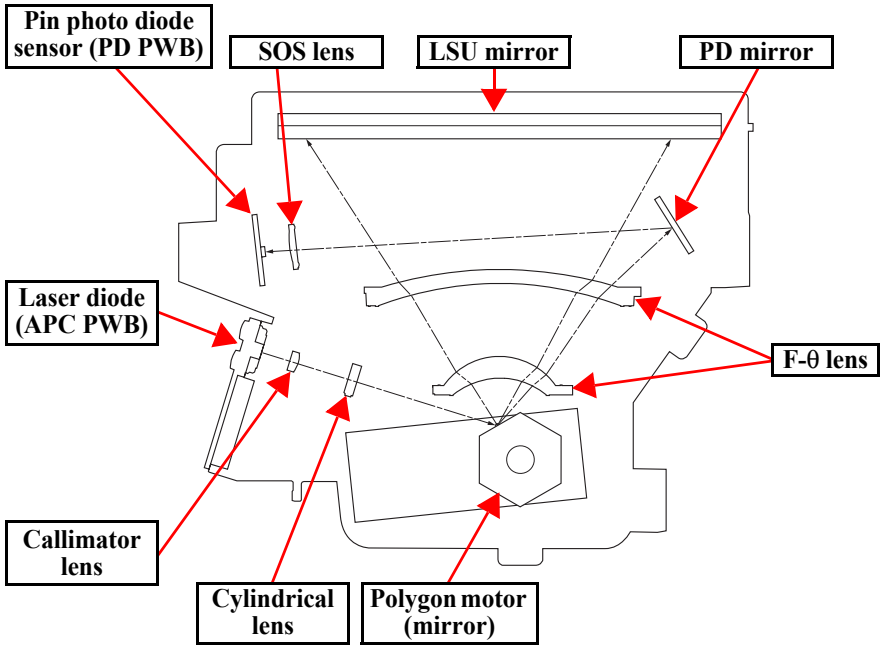


Figure 2-9. Laser scanner unit

2.2.3 Development

The latent image constituted on the drum is developed into a visible image. The developing roller contains a 3-pole (S-NS) magnet roller and an aluminum cylinder rotating around the magnet roller. Toner attracts to the magnet sleeve since it is powdery ink made of black resin bound to iron particles. Developing blade, magnetized by magnet, is positioned approximately 0.3 mm above the magnet sleeve to constitute a smooth layer of toner in accordance with the magnet sleeve revolution.

The developing roller is applied with the AC-weighted, positive DC power source. Toner on the magnet sleeve is given a positive charge. The positively charged toner is then attracted to the areas of the drum which was exposed to the laser light. (The gap between the drum and the magnet sleeve is approximately 0.32 mm.) The non-exposed areas of the drum repel the positively charged toner as these areas maintain the positive charge.The developing roller is also AC-biased to ensure contrast in yielding by compensating the toner's attraction and repelling action during development.

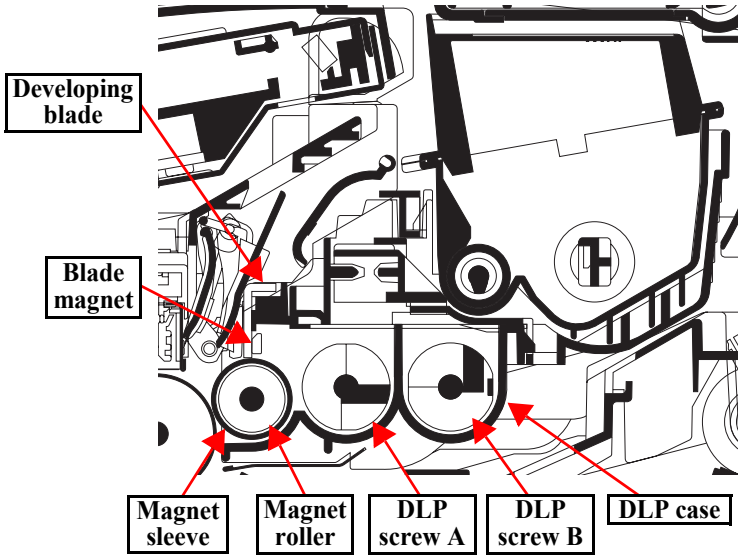


Figure 2-10. Development section

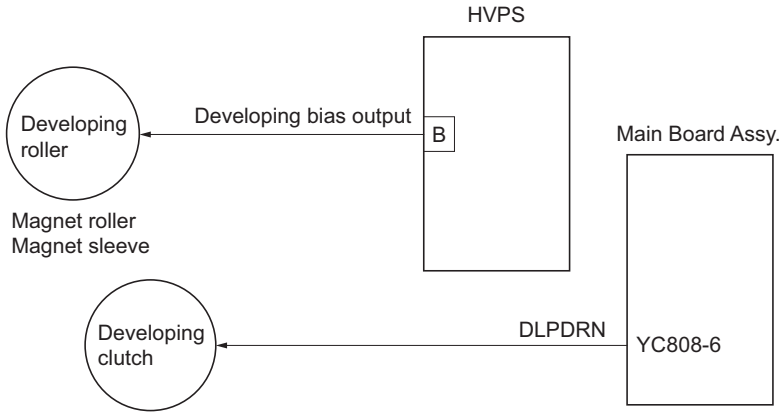


Figure 2-11. Developing section block diagram

2.2.4 Transfer/Separation

The transfer/separation section consists of the transfer roller, discharger brush and paper chute guide. A high voltage generated by the HVPS (High Voltage Power Supply) is applied to the transfer roller for transfer charging. Paper after transfer is separated from the drum.

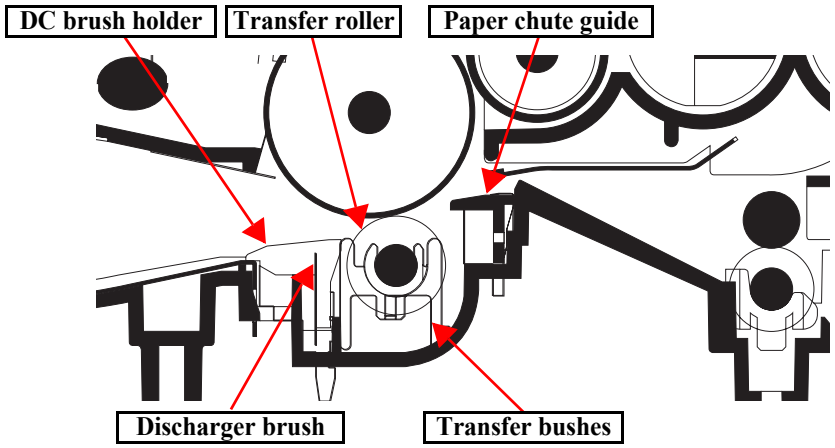


Figure 2-12. Transfer/separation section

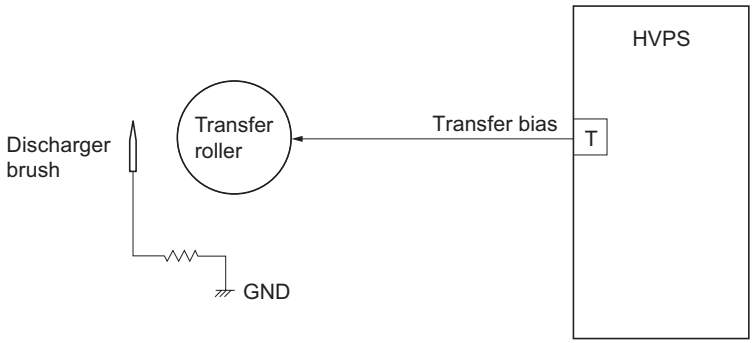


Figure 2-13. Transfer/separation section block diagram

2.2.5 Cleaning

After the transferring process, the drum needs to be physically cleaned of toner which is residual after the development process. The cleaning blade is constantly pressed against the drum and scrapes the residual toner off to the sweep roller. The waste toner is collected at the output end of the sweep roller and sent back to the toner container, into the waste toner reservoir.

After the drum is physically cleaned, it then must be cleaned to the electrically neutral state. This is necessary to erase any residual positive charge, ready to accept the uniform charge for the next print process. The residual charge is canceled by exposing the drum to the light emitted from the eraser lamp (PWB). This lowers the electrical conductivity of the drum surface making the residual charge on the drum surface escape to the ground.

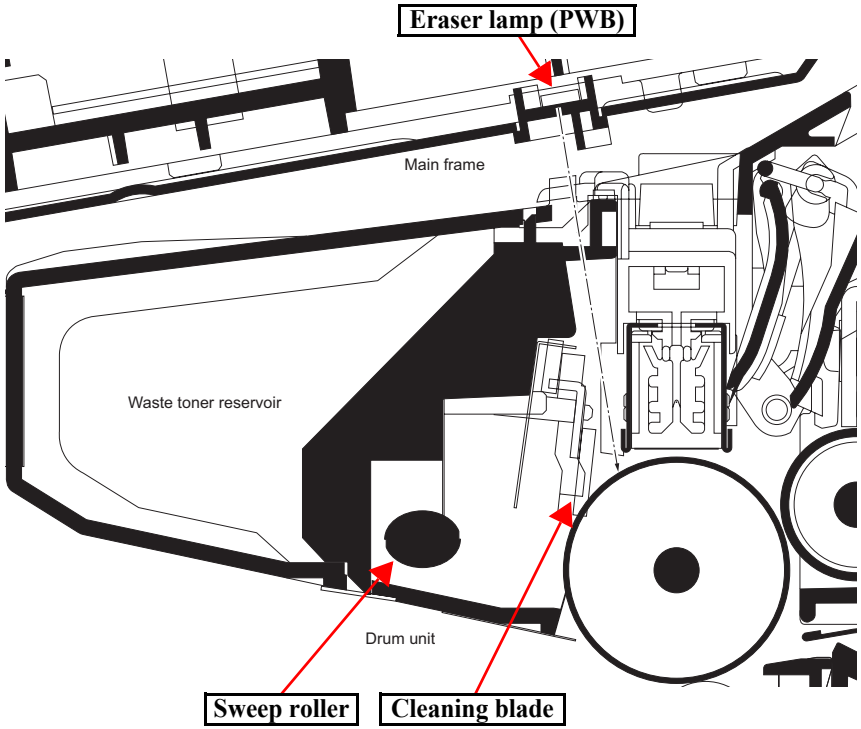


Figure 2-14. Cleaning section

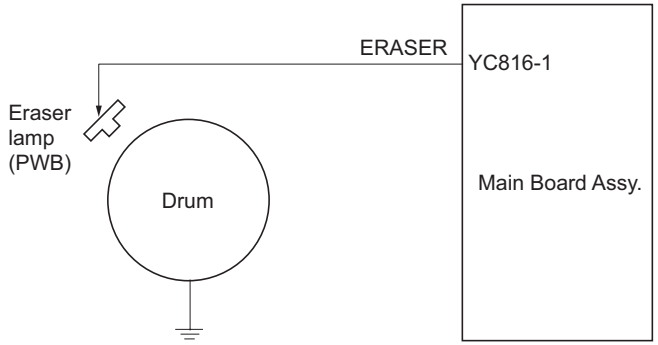


Figure 2-15. Cleaning section block diagram

2.2.6 Fusing

The toner on the paper is molten and pressed into the paper as it passes between the heat roller and the press roller in the fuser unit. The heat roller has a heater lamp inside which continuously turns on and off by the fuser thermistor to maintain the constant temperature onto the heat roller surface. The heat roller is resin coated by florin to prevent toner from accumulating on the roller after a long run. Care must be taken while handling the heat roller not to scratch the roller surface as doing so may result in print problems. Fuser temperature is optimized to the paper type. The heat roller has four separators (claws) which are continuously in contact with its surface. These separators (claws) prevent the paper on which toner has been fused from being wound around the heat roller causing paper jam. The press roller is made of the heat-resistant silicon rubber. This roller is used to strongly press the paper towards the heat roller by means of press springs. The temperature of the heat roller is constantly monitored by the main board assy. using the fuser thermistor. Should the temperature of the heat roller exceed the predetermined value, the fuser thermal cutout is activated to effectively disconnect the heater lamp from power.

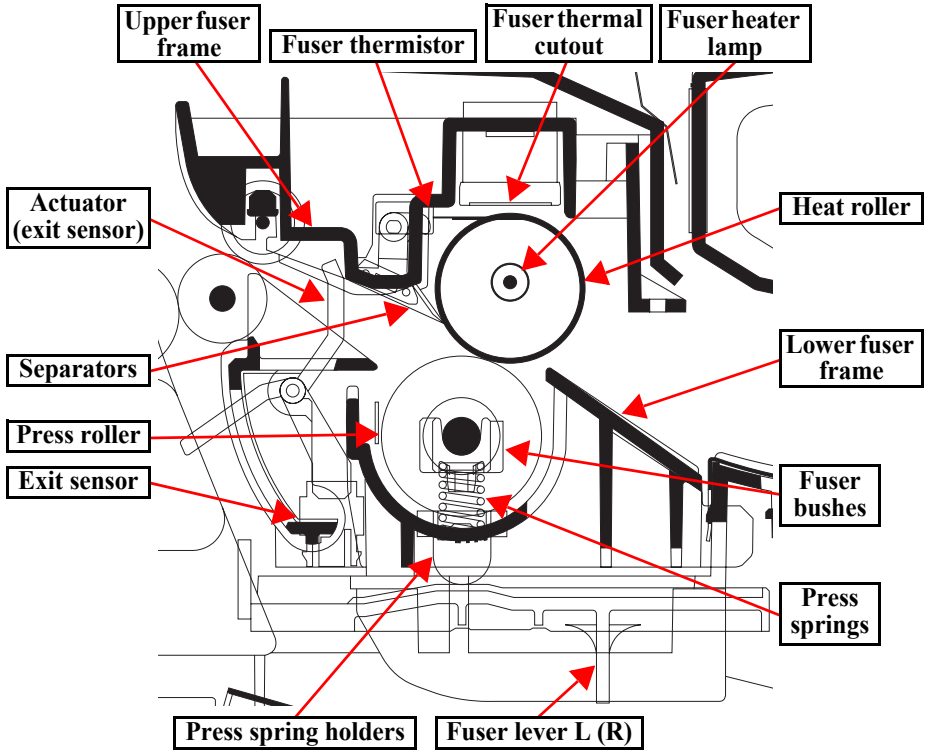


Figure 2-16. Fuser section

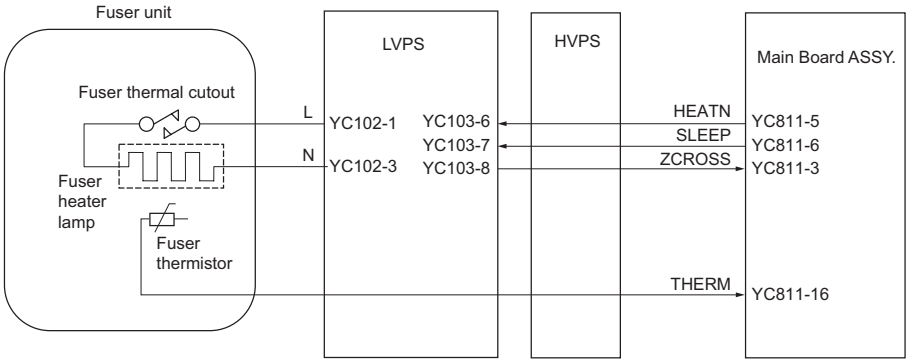


Figure 2-17. Fuser section block diagram

2.2.7 Paper exit section

The paper exit section transports the paper which passed the fuser unit towards the top tray. The paper which passed through the fuser unit turns on the actuator (exit sensor) in the fuser unit, and is led by the guide comprised of the rear cover, frame and the FD cover guide, finally reaching the upper FD roller. The paper is delivered to the top tray by the rotation of the upper FD roller.

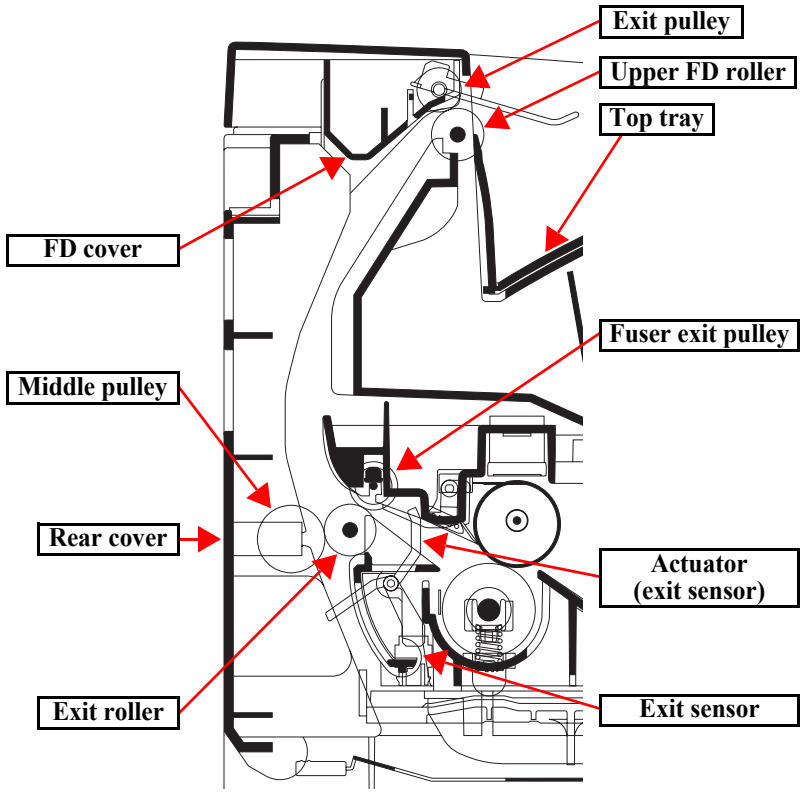


Figure 2-18. Paper exit section

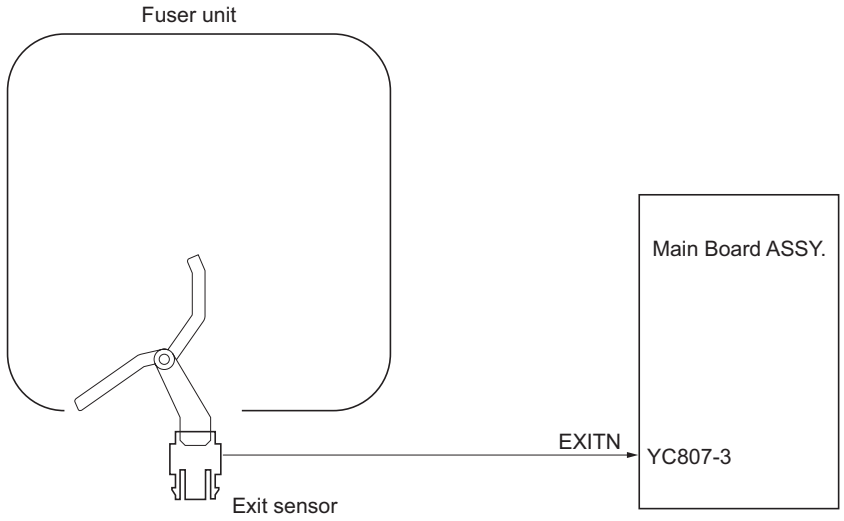


Figure 2-19. Paper exit section block diagram

2.2.8 Duplex/conveying section

The duplex/conveying section consists of conveying path which sends the paper sent from the eject section to the paper feed/conveying section when duplex printing.

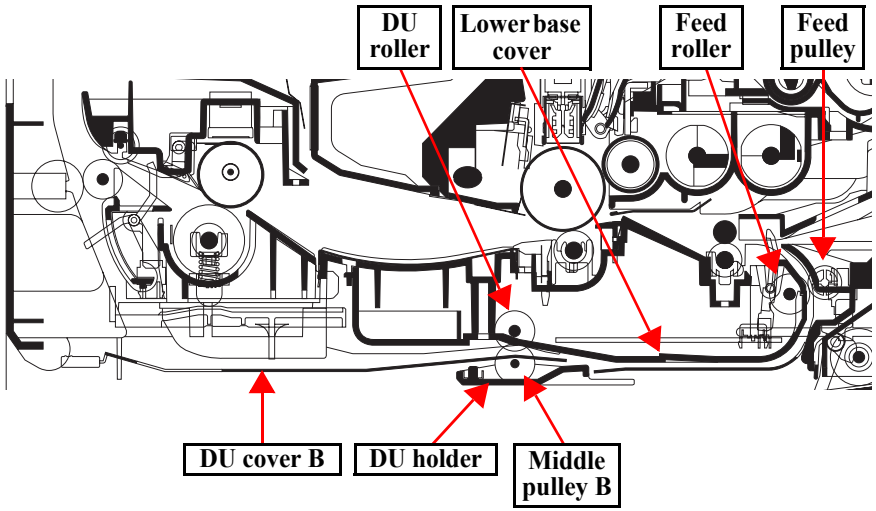


Figure 2-20. Duplex/conveying section

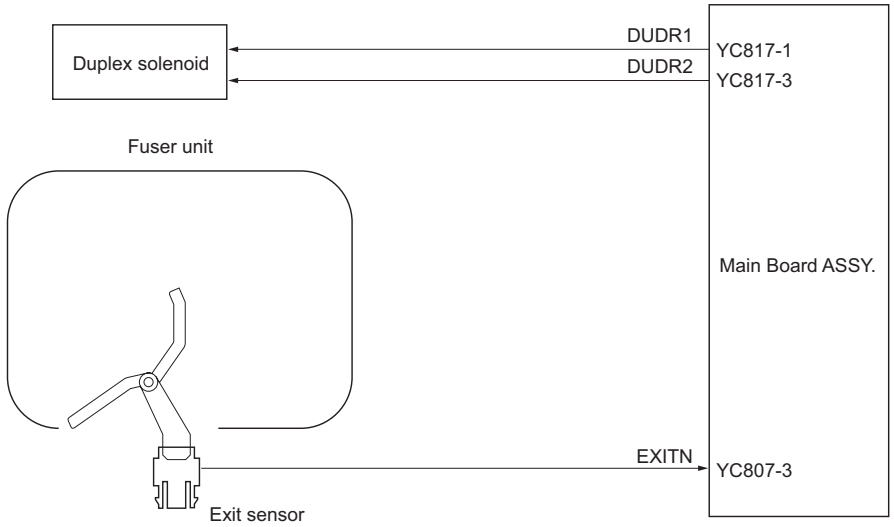


Figure 2-21. Duplex/paper conveying section block diagram

2.3 Paper Feed

Paper feed/conveying section consists of the paper feed unit that feeds paper from the cassette and the MP tray paper feed unit that feeds paper from the MP tray, and the paper conveying section that conveys the fed paper to the transfer/separation section.

2.3.1 Cassette paper feed section

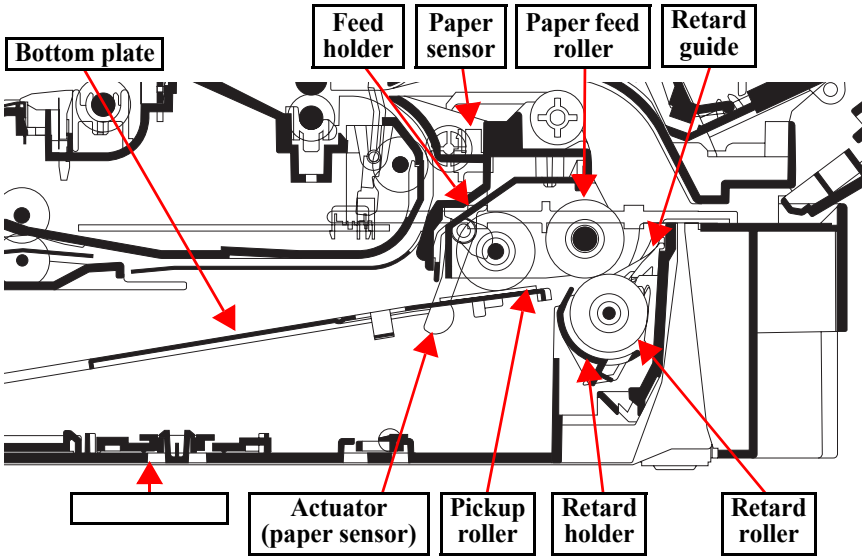


Figure 2-22. Cassette paper feed section

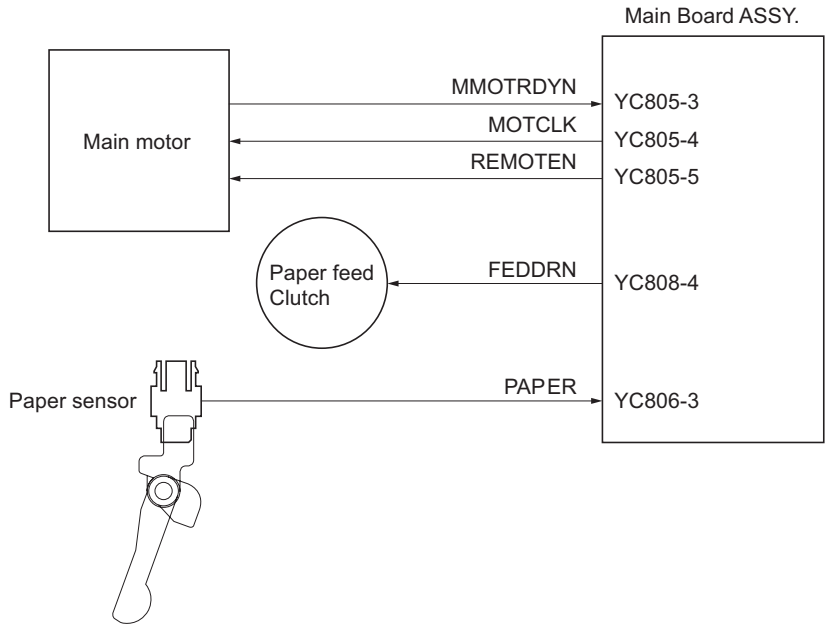


Figure 2-23. Cassette paper feed section block diagram

2.3.2 MP tray paper feed section

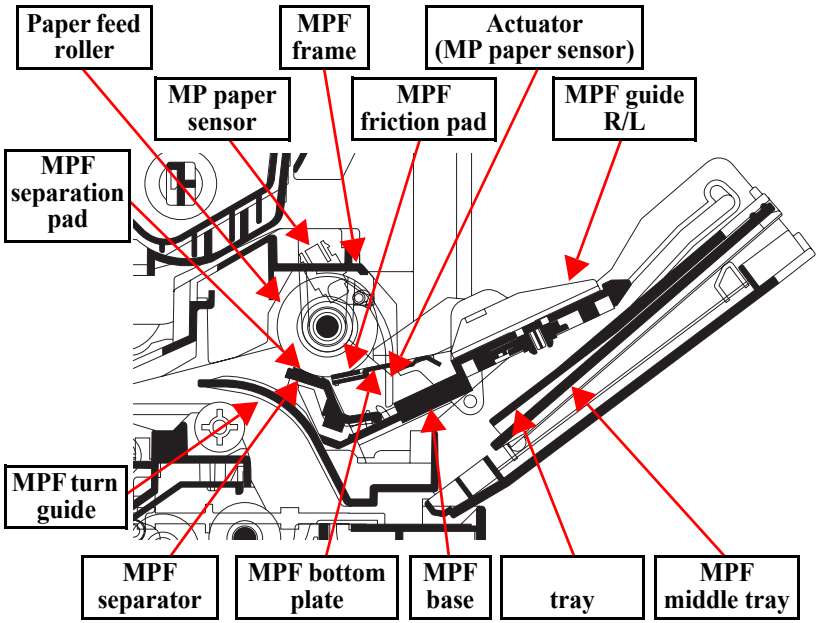


Figure 2-24. MP tray paper feed section

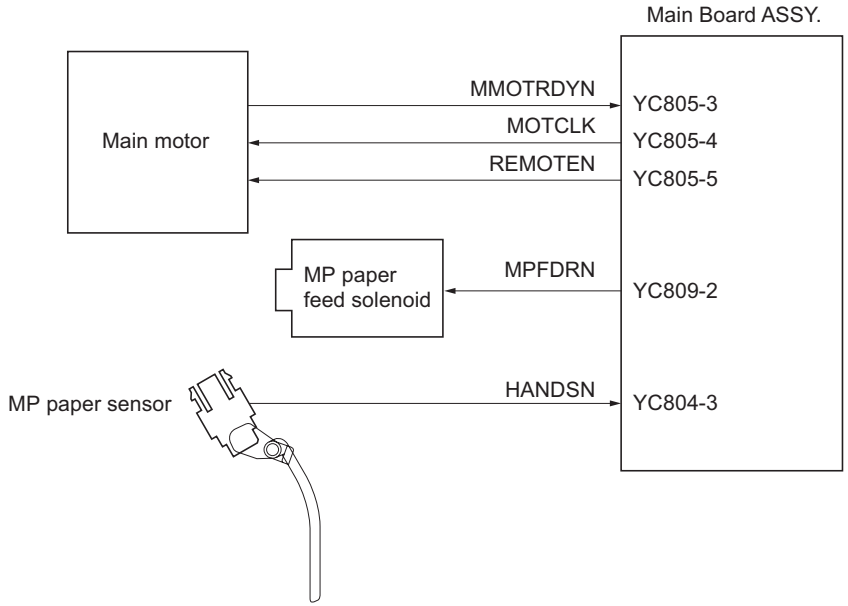


Figure 2-25. MP tray paper feed section block diagram

2.3.3 Paper conveying section

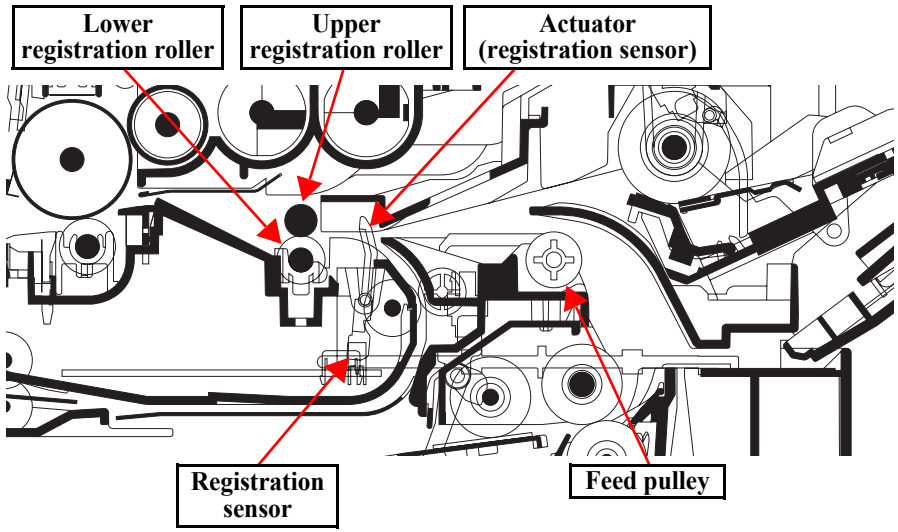


Figure 2-26. Paper conveying section

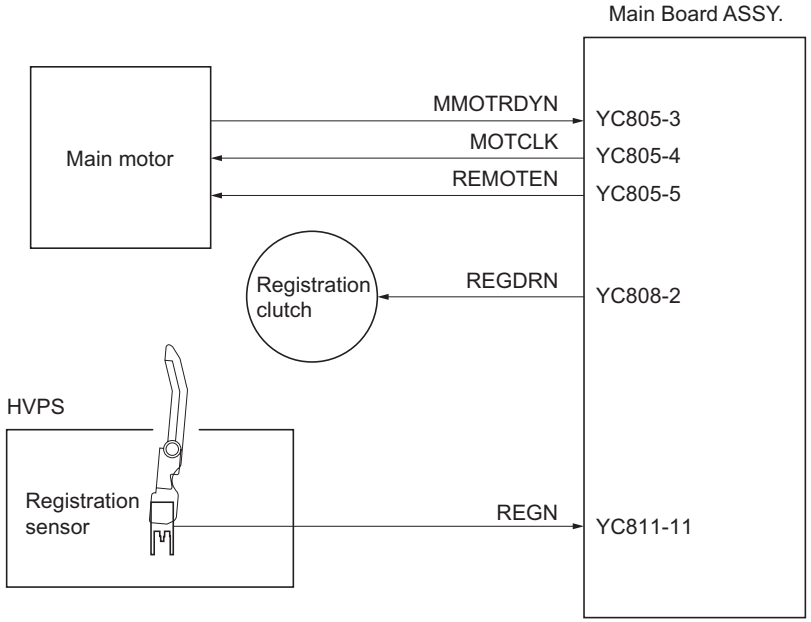


Figure 2-27. Paper conveying section block diagram

2.3.4 Optional cassette paper feed section

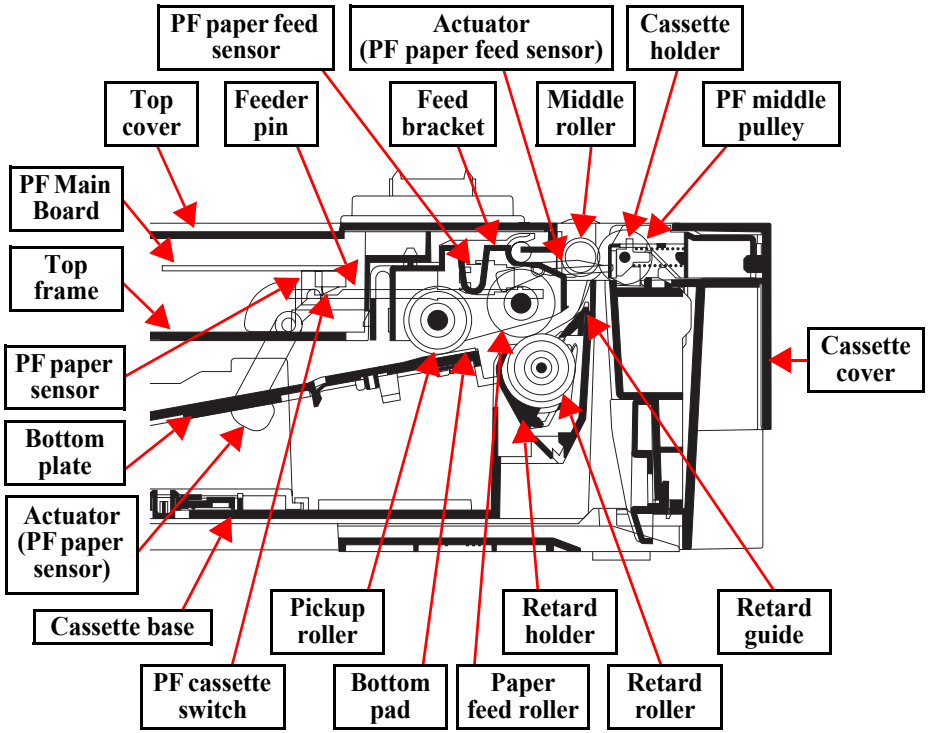


Figure 2-28. Optional cassette paper feed section

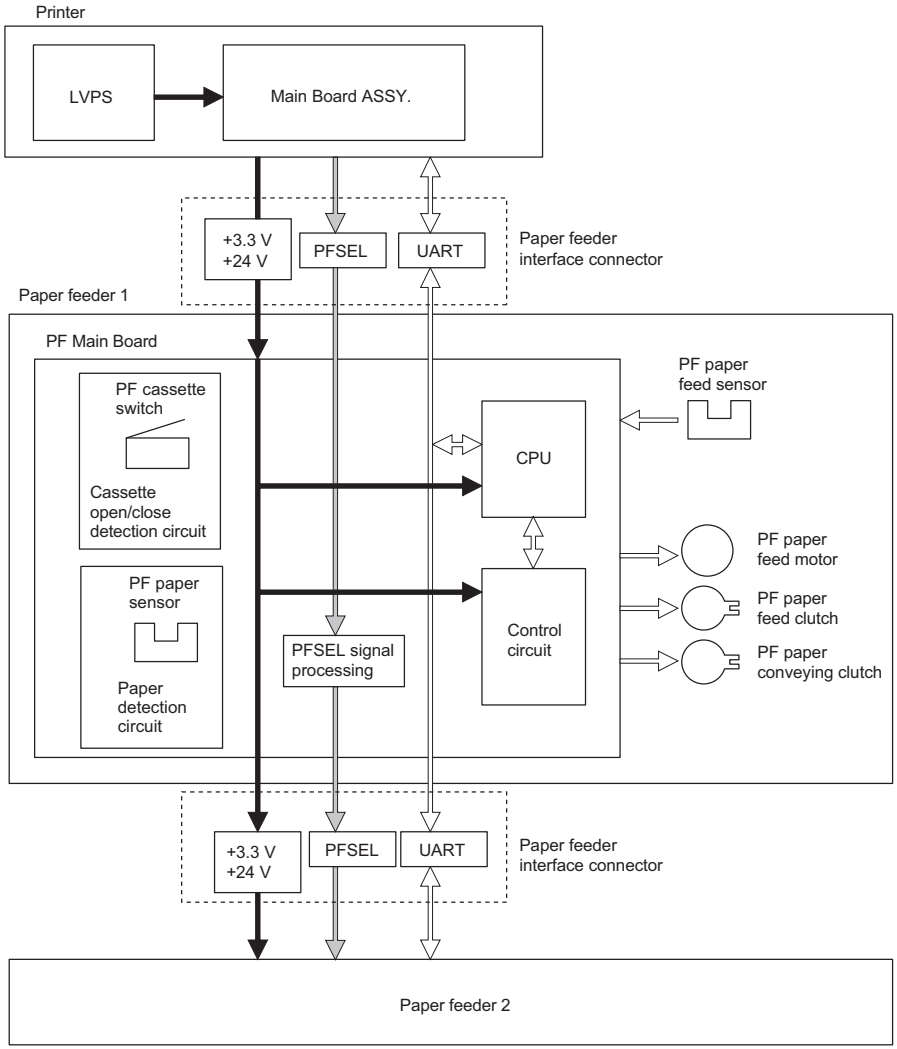


Figure 2-29. Paper feeder block diagram

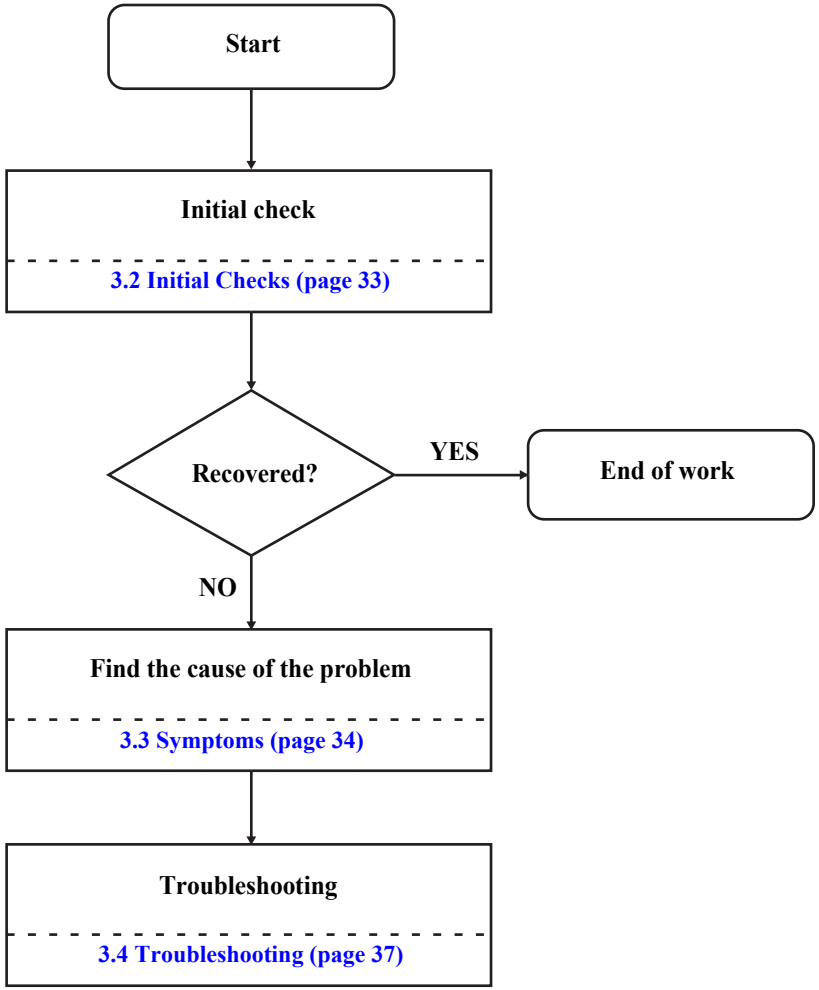
CHAPTER

3

TROUBLESHOOTING

3.1 Troubleshooting Flowchart

Troubleshoot a problem of printer operation or print quality following the flowchart shown below.



3.2 Initial Checks

The followings must be checked before starting troubleshooting.

- ☐ Do the following ambient conditions satisfy the specification?
  - ■ Surrounding space
  - ■ Temperature and humidity
- ☐ Does the paper type or paper condition satisfy the specification?
- ☐ Are the consumables Epson-brand?
- ☐ Is there significant contamination inside the printer?
- ☐ Have the firmwares for the controller and engine controller been upgraded to the latest version?

3.3 Symptoms

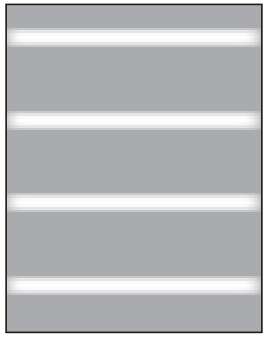
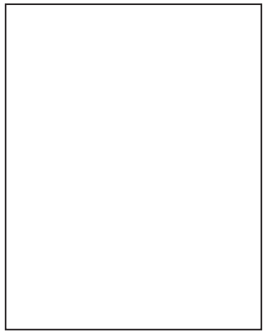
3.3.1 Errors indicated by the LEDs

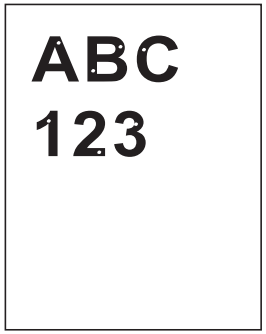
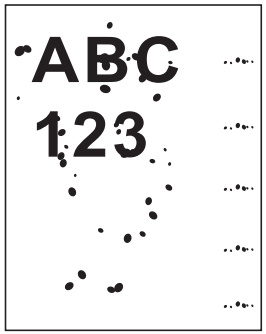
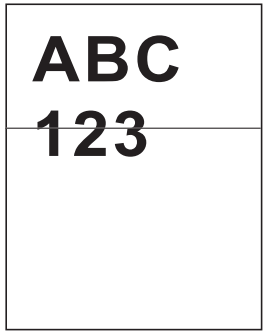
The status of the LEDs are indicated as shown below in the following table.

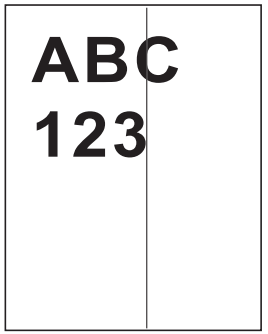
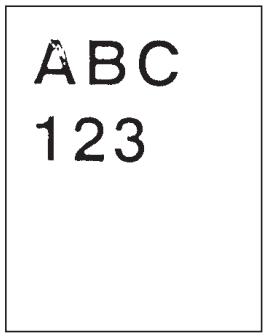
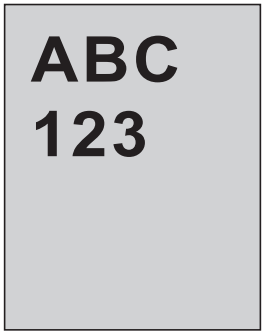
●	Lights
☀	Flashes on and off at intervals of 0.3 seconds.
☀	Flashes on and off at intervals of 0.6 seconds.
◔	Flashes on for 0.6 seconds and off for 2.4 seconds.
○	Off

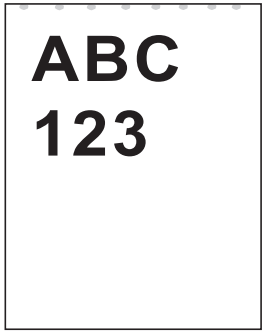
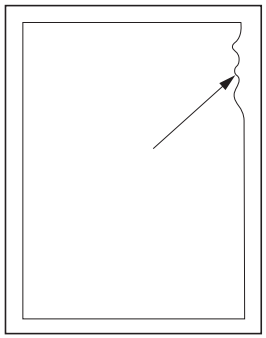
LED Indication	Description	Reference
	A paper jam error is occurring.	Page 37
	An error other than paper jam is occurring.	Page 40

3.3.2 Print Quality Problems

Symptom		Reference
Bands or smudges that appear at regular intervals. Bands or smudges appear on the printout at regular intervals.		Page 57
Completely blank Completely blank pages are printed.		Page 57
Completely black Completely solid black pages are printed.		Page 58

Symptom	Reference
Areas of images are missing Areas of the printed image are missing. 	Page 58
Black dots Black dots appear on the printout. 	Page 59
Horizontal line A horizontal black line appears on the printout. 	Page 59

Symptom	Reference
Vertical line A vertical black line appears on the printout. 	Page 59
Light or faint image The printed image is light or faint. 	Page 59
Dirt on the background The background is dark or dirty, or toner smudges appear partially on the printout. 	Page 60

Symptom	Reference
Toner smudges Toner smudges appear on the top edge or non-printed side of the page. 	Page 60
Wavy image The printed image on the upper right side (scanning start position) of the page is wavy. 	Page 60

3.3.3 Electrical Problems

Symptom	Reference
The machine does not operate when the power switch is turned on.	Page 61
Right cooling fan motor does not operate.	
Left cooling fan motor does not operate.	
Power supply fan motor does not operate.	
Registration clutch does not operate.	
Paper feed clutch does not operate.	
Developing clutch does not operate.	
MP paper feed solenoid does not operate.	
Duplex solenoid does not operate.	
Eraser lamp does not turn on.	
The machine does not detect paper loaded in the cassette.	
A paper jam in the paper feed/conveying section or fuser section is indicated when the power switch is turned on.	
The machine does not detect that the top cover is closed.	

3.3.4 Mechanical Problems

Symptom	Reference
No primary paper feed.	Page 63
No secondary paper feed.	
Skewed paper feed.	
Multiple sheets of paper are fed at one time.	
Paper jams.	
Toner drops on the paper conveying path.	
Abnormal noise is heard.	
Paper becomes wrinkled, creased, or curled.	

3.4 Troubleshooting

3.4.1 Paper Jam Error

When a paper jam error occurs, check the message displayed on the EPSON Status Monitor, or the jam code printed on the Engine Status Sheet in order to find out the jammed point, and check the relevant sensors, rollers, or any other relevant parts for any abnormality.

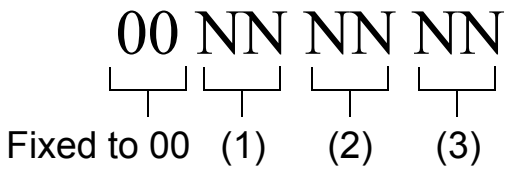
FINDING JAMMED POINT

☐ When a paper jam error message appears

EPSON Status Monitor Message	Jammed Point
Remove cassette 3 and then remove any jammed paper.	①
Remove cassette 2 and then remove any jammed paper.	②
Remove cassette 1 and then remove any jammed paper.	③
Temporarily remove the paper from the MP tray.	④
Open cover B and remove any jammed paper.	⑦⑧
Open the DM tray from either the front or the rear, whichever is accessible from the space from which cassette 1 was removed, and then remove any jammed paper.	⑥
Open cover A and remove the developer unit and photoconductor unit, and then carefully remove any jammed paper.	⑤

☐ When a paper jam error message does not appear

Print the Engine Status Sheet and check the jam code on the printout to find out the jammed point and the cause. The jam code is expressed in 8-digit hexadecimal.



(1) Jammed point information*

Jam code	Explanation
80	Reserved
40	Cassette 3 (option)
20	Cassette 2 (option)
10	Cassette 1
08	MP tray
04	Cover B
02	DM tray
01	Photoconductor unit (inside the printer)

(2) Jam cause information

Jam code	Explanation	Jammed point
10	Paper did not reach the registration sensor.	③④⑥
11	Paper did not go forward from the registration sensor.	⑤
12	The registration sensor detected paper at power-on.	⑤
20	Paper did not reach the fuser sensor.	⑤
21	Paper did not go forward from the fuser sensor.	⑦
22	The fuser sensor detected paper at power-on.	⑦
30	Paper did not reach the PF sensor of the optional cassette 1.	②
31	Paper did not go forward from the PF sensor of the optional cassette 1.	②
32	The PF sensor of the optional cassette 1 detected paper at power-on.	②
40	Paper did not reach the PF sensor of the optional cassette 2.	①
41	Paper did not go forward from the PF sensor of the optional cassette 2.	①
42	The PF sensor of the optional cassette 2 detected paper at power-on.	①
A1	Paper did not reach the exit sensor.	⑧
A3	Paper did not go forward from the exit sensor.	⑥
E0	An error occurs during printing and the printer engine was stopped in the middle of an operation.	---
F0 to FF	Other paper jam errors	---

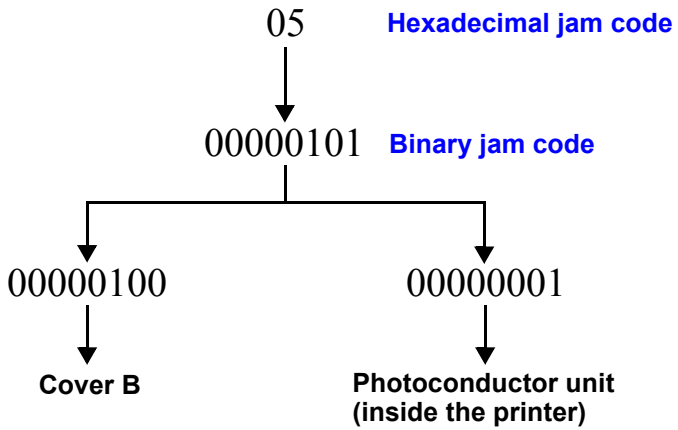
(3) Feeder

Jam code	Explanation
00	MP tray
01	Cassette 1
02	Cassette 2 (option)
03	Cassette 3 (option)
07	Duplex printing

* : When no applicable code is found in the above table, the paper jam is occurring at multiple points. In such case, convert the hexadecimal jam code into binary, and check the binary code to find out the multiple points with reference to the table below.

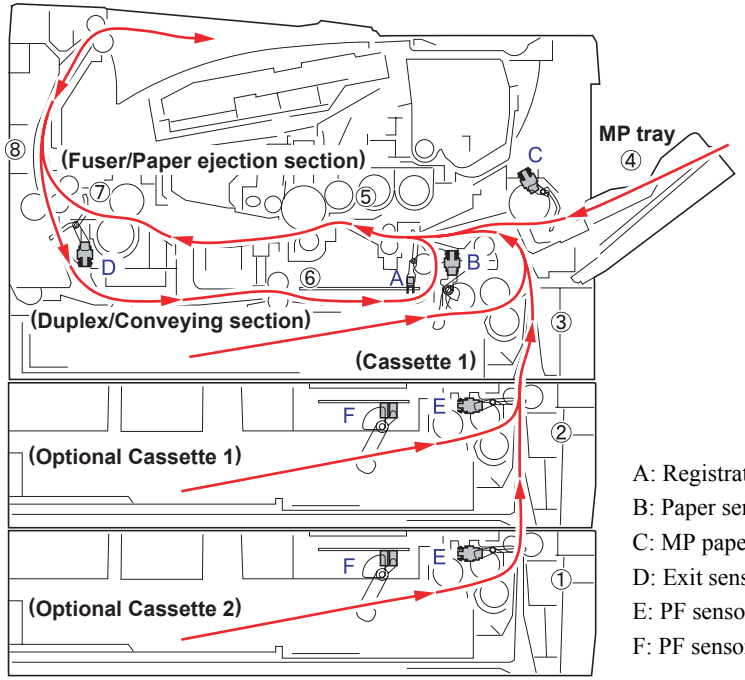
Binary jam code	Jammed point
10000000	Reserved
0**1**000000	Cassette 3 (option)
00**1**00000	Cassette 2 (option)
000**1**0000	Cassette 1
00001000	MP tray
00000100	Cover B
00000010	DM tray
00000001	Photoconductor unit (inside the printer)

Example for reading the binary code:



JAMMED POINT

The diagram below shows the jammed points.



A: Registration sensor
B: Paper sensor
C: MP paper sensor
D: Exit sensor
E: PF sensor
F: PF sensor

3.4.2 LED Indication

The status of the LEDs are indicated as shown below in the following table.

●	Lights
☼	Flashes on and off at intervals of 0.3 seconds.
☼	Flashes on and off at intervals of 0.6 seconds.
☼	Flashes on for 0.6 seconds and off for 2.4 seconds.
○	Off

LED indication	EPSON Status Monitor Message	Explanation	Possible cause / Error-causing Part	Check point / Remedy
	Unable to write to ROM module	Writing to the program ROM could not be performed.	Main Board Assy.	■ Reboot the printer to make the printer perform the writing operation again. ■ Replace the Main Board Assy. (See P.92)
	Developer unit or toner cartridge installed incorrectly	The printer failed to detect the toner cartridge.	Toner cartridge	■ Install the toner cartridge correctly. ■ Replace the toner cartridge. (See P.70)
	Incompatible toner cartridge	The installed toner cartridge is the one for another destination.	Toner cartridge	Replace the toner cartridge with the correct one. (See P.70)

LED indication	EPSON Status Monitor Message	Explanation	Possible cause / Error-causing Part	Check point / Remedy
	Non-genuine toner cartridge installed	The installed toner cartridge is not Epson-brand.	Toner cartridge	Replace the toner cartridge with an Epson-brand cartridge. (See P.70)
	Trouble with toner cartridge	The printer detected that the toner cartridge was faulty.	Toner cartridge	Replace the toner cartridge. (See P.70)
	Cover A open	The cover A is open.	Cover A	Close the cover A.
		The printer does not detect that the cover A is closed.	The actuator that presses the interlock switch on the cover A is damaged.	Replace the cover A (top cover). (See P.113)
			Poor assembling or damage of the link mechanism that presses the interlock switch.	Check if the link mechanism is assembled correctly. If not, reassemble it. If the mechanism is damaged, replace it.
			The interlock switch is faulty.	Replace the interlock switch (LVPS). (See P.75)
	Cassette not installed	The paper cassette is not installed.	Paper cassette	Install the cassette to the printer.
		The printer does not detect that the cassette is installed.	Poor assembling or damage of the link mechanism that presses the paper cassette detection sensor.	Check if the link mechanism is assembled correctly. If not, reassemble it. If the mechanism is damaged, replace it.
			The paper cassette detection sensor is faulty.	Replace the paper cassette detection sensor (HVPS). (See P.75)
	Printer set to Manual Feed	"Manual Feed" is selected on the printer driver.	---	Load paper into the MP tray and press the Start/Stop button.

LED indication	EPSON Status Monitor Message	Explanation	Possible cause / Error-causing Part	Check point / Remedy
	Unable to perform duplex printing	The paper size or type is not supported for duplex printing.	---	Load paper supported for duplex printing.
	Paper out	No paper is loaded on the paper feeder.	---	Load paper on the feeder.
		The printer does not detect paper loaded on the feeder.	Poor assembling or damage of the actuator for detecting paper.	Check if the actuator is assembled correctly. If not, reassemble it. If the actuator is damaged, replace it.
			Poor connection or damage of the paper sensor.	■ Check if the paper sensor is connected to the Main Board Assy. correctly. ■ Replace the paper sensor. (See P.87)
	Toner cartridge at end of service life	The toner cartridge has reached the end of its life.	Toner cartridge	Replace the toner cartridge. (See P.70)
	Incorrect paper size	The paper size selected in the printer driver does not match with that of the loaded paper.	---	Load the correct sized paper on the feeder.
	Page contains too much data to process	The spool file is deleted in the middle of printing and another print job is started, or the data is abnormal due to a communication error.	---	Delete the spool file using the printer driver, and then press the Job Cancel button on the printer.
	Insufficient printer memory	Processing operation is interrupted due to insufficient memory or invalid operation to the memory.	---	■ Lower the print quality setting in the printer driver. ■ Reduce the resolution of the image to be printed. ■ Add more memory to the printer.

LED indication	EPSON Status Monitor Message	Explanation	Possible cause / Error-causing Part	Check point / Remedy
	Not enough printer memory to print using duplex function	The back of the page cannot be printed because the memory is insufficient to process the data for duplex printing. In this case, only front side is printed.	---	■ Turn the frontside-printed paper over and reload it on the printer, and then press the Start/Stop button to print on the back of the paper. ■ Lower the print quality setting in the printer driver. ■ Reduce the resolution of the image to be printed. ■ Add more memory to the printer.
	Unable to process print data	There is something wrong with the print data.	---	Delete the spool file using the printer driver, and then press the Job Cancel button on the printer.
	PostScript module incompatible	The installed PS3ROM module cannot be used by the printer.	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
	General error E001 (Main Board EEPROM error)	The EEPROM (U800) on the Main Board Assy. is inaccessible.	Mounting failure of the EEPROM (U800)	Check if the EEPROM (U800) is properly mounted. If not, fix it.
			The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
			EEPROM (U800) is faulty.	Replace the EEPROM (U800).

LED indication	EPSON Status Monitor Message	Explanation	Possible cause / Error-causing Part	Check point / Remedy
	General error E002 (Main motor error)	The main motor ready signal could not be detected within 2 seconds after the motor becomes ON.	Poor connection between the main motor (CN1) and the Main Board Assy. (YC805).	■ Reconnect the connector properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
			There is some problem in the main motor drive transmission path.	■ Check if the rollers and gears are smoothly rotating. If not, apply grease to the bearings and gears. ■ Check if any of the gears are damaged. If so, replace the damaged gears.
			The main motor is faulty.	Replace the main motor. (See P.92)
			The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
	General error E004 (Polygon motor error)	The polygon motor ready signal could not be detected within 6 seconds after the motor becomes ON.	Poor connection between the polygon motor (laser scanner unit) and the Main Board Assy. (YC819).	■ Reconnect the connector properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
			The laser scanner unit is faulty.	Replace the laser scanner unit. (See P.119)
			The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
	General error E005 (Horizontal synchronization signal error)	The controller could not detect the horizontal synchronization signal within the specified time period.	The laser scanner unit is faulty.	Replace the laser scanner unit. (See P.119)
	General error E008 (Fuser heater cable disconnection)	The fuser heater lamp was turned ON, but the fuser temperature did not rise.	Poor connection of the fuser thermistor.	Check if the connector (YC105) on the LVPS is properly inserted. If not, reconnect it.
			Poor connection of the fuser heater lamp connector.	Check if the connector (YC102) on the LVPS is properly inserted. If not, reconnect it.
			Mounting failure of the fuser thermistor.	Replace the fuser unit. (See P.106)
			Fuser thermal cut-out has been activated.	
			Mounting failure of the fuser heater lamp.	
			The fuser heater lamp has breaks.	

LED indication	EPSON Status Monitor Message	Explanation	Possible cause / Error-causing Part	Check point / Remedy
	General error E009 (Abnormally high fuser heater temperature)	The fuser thermistor detected abnormal high temperature.	The fuser thermistor shorted out.	Replace the fuser unit. (See P.106)
			The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
	General error E010 (Fuser thermistor short-circuit)	The A/D value input from the fuser thermistor is “0” (zero).	Poor connection of the fuser thermistor.	Check if the connector (YC105) on the LVPS is properly inserted. If not, reconnect it.
			The fuser thermistor has breaks.	Replace the fuser unit. (See P.106)
			Mounting failure of the fuser thermistor.	
			Fuser thermal cut-out has been activated.	
			Mounting failure of the fuser heater lamp.	
			The fuser heater lamp has breaks.	
	General error E011 (Zero cross signal error)	The Main Board Assy. did not receive the zero cross signal during a specified time period.	Poor connection between the HVPS (YC202) and the Main Board Assy. (YC811).	■ Reconnect the connector properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
			Poor connection between the LVPS (YC103) and the HVPS (YC201).	Reconnect the connector properly.
			The LVPS is faulty.	Replace the LVPS. (See P.75)
			The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
	General error E016 (Option cassette unit communication error)	The communication between the Main Board Assy. and the PF main board of the option cassette unit cannot be established.	Mounting failure of the option cassette unit.	Check if the unit is properly mounted. If not, fix it.
			Poor connection between the Main Board Assy. (YC818) and the PF interface connector.	■ Reconnect the connector properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
			The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
			Poor connection between the PF main board (YC5) and the PF interface connector.	■ Reconnect the connector properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
			The PF main board is faulty.	Replace the PF main board. (See P.136)

LED indication	EPSON Status Monitor Message	Explanation	Possible cause / Error-causing Part	Check point / Remedy
	General error E998 (Engine communication error)	Communication error between the controller on the Main Board Assy. and the engine controller.	The firmware of the engine controller is faulty.	Reinstall the engine controller firmware. (See P.148)
			The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)

3.4.3 Controller-related Service Call Errors

☐ Remedy

When a controller-related error occurs, first check on the initial check items listed below. If the printer still does not recover, troubleshoot the problem with reference to the tables given on the following pages. Find the error you face in the tables, and replace the error-causing parts one by one.

☐ Initial check

- Is the printer properly grounded?
- Are the connectors properly connected to the controller board?
- Is the DIMM properly installed on the controller board?
- Does the printer recover by turning the power off and back on several times?
- Is there any equipment that causes noise around the printer?

When turning the printer off and on for the above initial check, wait for several seconds before turning it back on. Do not turn it back on immediately after power-off.

☐ Error-causing parts

The status of the LEDs are indicated as shown below in the following table.

●	Light
○	Off

LED indication	Classification	Error code	Explanation	Error-causing parts (or factor)		
				Main Board Assy.	Option RAM DIMM	Noise or other factor
	C/D	0017	Occurrence of an interrupt exception	Causative	Not causative	Causative
	C/D	0081	TLB change exception	Causative	Not causative	Causative
	C/D	0082	TLB exception (load or fetch)	Causative	Not causative	Causative
	C/D	0083	TLB exception (store)	Causative	Not causative	Causative

LED indication	Classification	Error code	Explanation	Error-causing parts (or factor)		
				Main Board Assy.	Option RAM DIMM	Noise or other factor
	C/D	0084	Address error exception (load or fetch)	Causative	Not causative	Causative
	C/D	0085	Address error exception (store)	Causative	Not causative	Causative
	C/D	0086	Bus error exception (store)	Causative	Not causative	Causative
	C/D	0087	Bus error exception (loading or storing data)	Causative	Not causative	Causative
	C/D	0088	System call exception	Causative	Not causative	Causative
	C/D	0089	Breakpoint exception	Causative	Not causative	Causative

LED indication	Classification	Error code	Explanation	Error-causing parts (or factor)		
				Main Board Assy.	Option RAM DIMM	Noise or other factor
	C/D	0090	Reserve instruction exception	Causative	Not causative	Causative
	C/D	0091	Coprocessor disabled exception	Causative	Not causative	Causative
	C/D	0092	FPU exception (invalid operation)	Causative	Not causative	Causative
	C/D	0093	TLB exception	Causative	Not causative	Causative
	C/D	0094	XTLB exception	Causative	Not causative	Causative
	C/D	0095	Cash exception	Causative	Not causative	Causative

LED indication	Classification	Error code	Explanation	Error-causing parts (or factor)		
				Main Board Assy.	Option RAM DIMM	Noise or other factor
	C/D	0096	Trap exception	Causative	Not causative	Causative
	C/D	0097	Floating point exception	Causative	Not causative	Causative
	C/D	0098	Watch exception	Causative	Not causative	Causative
	C/D	0128-254	Undefined trap	Causative	Not causative	Causative
	C/D	0255	NMI exception	Causative	Not causative	Causative
	C/D	0256	Divide-by-zero	Causative	Not causative	Causative

LED indication	Classification	Error code	Explanation	Error-causing parts (or factor)		
				Main Board Assy.	Option RAM DIMM	Noise or other factor
	C/D	0257	Operation overflow exception	Causative	Not causative	Causative
	C/D	0258	Occurrence of break	Causative	Not causative	Causative
	C/D	0800	IPL error (the controller cannot start up due to a problem of itself)	Causative	Not causative	Not causative
	C/D	0998	Engine communication error (only at power-on)	Causative	Not causative	Not causative
	C/D	0999	No Flash ROM program data	Causative	Not causative	Not causative
	C/D	1000	Standard RAM error (no memory space or the like)	Causative	Not causative	Not causative

LED indication	Classification	Error code	Explanation	Error-causing parts (or factor)		
				Main Board Assy.	Option RAM DIMM	Noise or other factor
	C/D	1001	Standard RAM error (memory space is less than minimum stack size or a similar cause)	Causative	Not causative	Not causative
	C/D	1002	Standard RAM error (memory space is less than standard size or a similar cause)	Causative	Not causative	Not causative
	C/D	1020	RAM error (slot 0)	Causative	Causative	Not causative
	C/D	1120	ROM checksum error (bit0 to 7) (program)	Causative	Not causative	Not causative
	C/D	1121	ROM checksum error (bit8 to 15) (program)	Causative	Not causative	Not causative
	C/D	1122	ROM checksum error (bit16 to 23) (program)	Causative	Not causative	Not causative

LED indication	Classification	Error code	Explanation	Error-causing parts (or factor)		
				Main Board Assy.	Option RAM DIMM	Noise or other factor
	C/D	1123	ROM checksum error (bit24 to 31) (program)	Causative	Not causative	Not causative
	C/D	1151	Printer ROM checksum error	Causative	Not causative	Not causative
	C/D	1152	FONT-ROM checksum error	Causative	Not causative	Not causative
	C/D	1153	PS module / checksum error	Causative	Not causative	Not causative
	C/D	1154	Network module / checksum error	Causative	Not causative	Not causative
	C/D	1155	Expansion FONT-ROM / checksum error	Causative	Not causative	Not causative

LED indication	Classification	Error code	Explanation	Error-causing parts (or factor)		
				Main Board Assy.	Option RAM DIMM	Noise or other factor
	C/D	1200	EEPROM writing error	Causative	Not causative	Not causative
	C/D	1210	Limit of the number of writing to EEPROM	Causative	Not causative	Not causative
	C/D	1400	Engine initialization failure	Causative	Not causative	Not causative
	C/D	1700	Error of loopback test of the network circuit	Causative	Not causative	Not causative
	C/D	1703	Error of SRAM R/W of the network circuit	Causative	Not causative	Not causative
	C/D	1999	Other hardware error	Causative	Not causative	Not causative

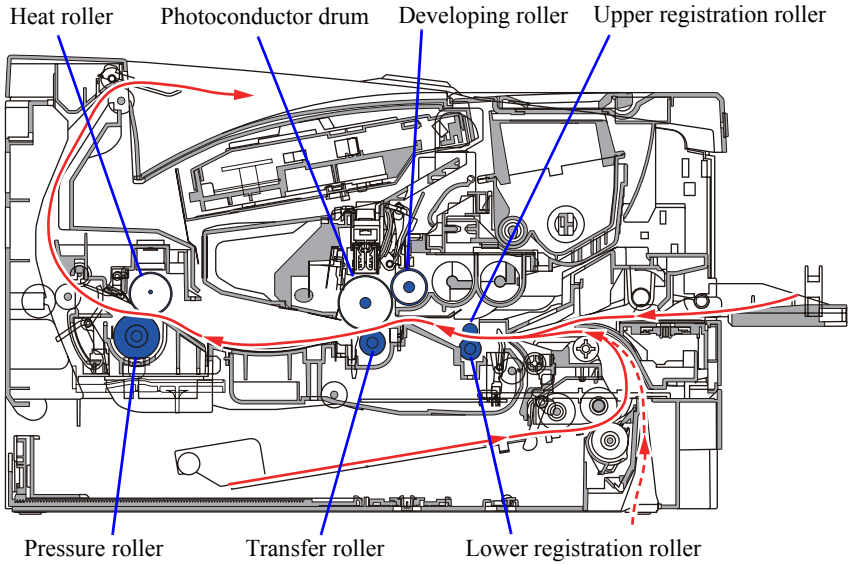
LED indication	Classification	Error code	Explanation	Error-causing parts (or factor)		
				Main Board Assy.	Option RAM DIMM	Noise or other factor
	C/D	2000	Software error	Causative	Not causative	Not causative

3.4.4 Image Quality Problems

BANDS OR SMUDGES THAT APPEAR AT REGULAR INTERVALS

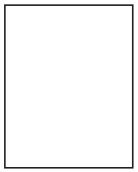
Horizontal bands or smudges appear at regular intervals due to a problem of some roller(s).
Measure the interval and check if the measured value match with any of the values shown below. If it does, replace the appropriate part or unit.

Rollers	Part/Unit to be Replaced	Interval
Upper registration roller	Upper registration roller	25 mm
Lower registration roller	Lower registration roller	38 mm
Transfer roller	Transfer roller	45 mm
Developing roller	Developing unit	63 mm
Heat roller	Fuser unit	73 mm
Pressure roller	Fuser unit	79 mm
Photoconductor drum	Photoconductor unit	94 mm



COMPLETELY BLANK

Completely blank pages are printed.

Sample	Possible cause	Checkpoint & Remedy
	The photoconductor unit or the developing unit is faulty.	■ Open the top cover and check if the photoconductor unit or the developing unit is properly installed. ■ Check if there is something wrong with terminals between the charging unit and the photoconductor unit.
	Transfer bias or developing bias is not normal.	Replace the HVPS.
	■ Poor connection between the developing bias terminal (spring) and the high voltage output terminal B (J401,J402,J403) on the HVPS. ■ Poor connection between the bias terminal (spring) and the transfer bias output terminal T (J201,J202,J203) on the HVPS.	Check if the HVPS is installed at the correct position. If not, correct the position.
	The laser scanner unit is faulty.	Replace the laser scanner unit. (See P.119)
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)

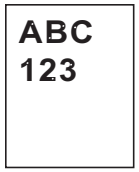
COMPLETELY BLACK

Completely solid black pages are printed.

Sample	Possible cause	Checkpoint & Remedy
	The charging unit is faulty.	■ Open the top cover and check if the photoconductor unit is properly installed. ■ Check if there is something wrong with terminals between the charging unit and the photoconductor unit.
	Poor connection between the main charger terminal (spring) and the main charger output terminal M on the HVPS.	Check if the HVPS is installed at the correct position. If not, correct the position or replace the unit. (See P.75)
	The main charger is faulty.	Replace the HVPS. (See P.75)
	The charging wire has breaks.	Replace the charging unit. (See P.82)
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)

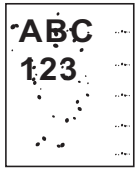
AREAS OF IMAGES ARE MISSING

Areas of the printed image are missing.

Sample	Possible cause	Checkpoint & Remedy
	Developing roller inside the developing unit is faulty.	If the missing area appears at intervals of 63mm, the developing roller in the developing unit may be damaged. Replace the developing unit. (See P.82)
	The photoconductor is faulty.	If the missing area appears at intervals of 94mm, the photoconductor drum in the photoconductor unit may be damaged. Replace the photoconductor unit. (See P.82)
	The fuser unit (heat roller or pressure roller) is faulty.	If the missing area appears at intervals of 73mm or 79mm, the heat roller or the pressure roller inside the fuser unit may be damaged. Replace the fuser unit. (See P.106)
	The paper is inadequate or faulty.	Damp paper or paper with rough surface can cause the problem. Replace the paper with new one.
	Mounting failure of the transfer roller.	Check if both ends of the transfer roller are properly inserted into the bearings. Clean the bearings if they are contaminated with oil or paper dust. Replace the transfer roller if necessary. (See P.82)
	Transfer bias is not normal.	Replace the HVPS (See P.75) or the Main Board Assy. (See P.92)

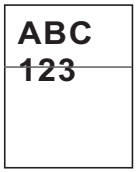
BLACK DOTS

Black dots appear on the printout.

Sample	Possible cause	Checkpoint & Remedy
	The photoconductor unit or the developing unit is faulty.	■ If the black dots appear at intervals of 94mm, the photoconductor drum in the photoconductor unit may be damaged. Replace the photoconductor unit. (See P.82) ■ If the black dots appear at random intervals, toner may be leaking from the developing unit or the photoconductor unit. Replace the photoconductor unit or the developing unit. (See P.82)

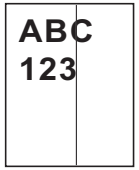
HORIZONTAL LINE

A horizontal black line appears on the printout.

Sample	Possible cause	Checkpoint & Remedy
	The photoconductor unit is not properly grounded.	Check if the drum shaft of the photoconductor unit and the grounding tab on the printer properly contact with each other. Apply a small amount of conductive grease to the grounding tab as necessary.
	The photoconductor unit is faulty.	Replace the photoconductor unit. (See P.82)

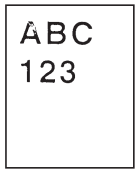
VERTICAL LINE

A vertical black line appears on the printout.

Sample	Possible cause	Checkpoint & Remedy
	The charging wire has acquired oxide on its surface.	Remove the photoconductor unit. Slide the green charger cleaner tab (located at upper side of the photoconductor unit) from side to side several times. When finished, put the tab back into place. (See P.152)
	The photoconductor unit is faulty.	If toner bands are observed on the photoconductor drum after printing, the cleaner blade in the photoconductor unit is not properly functioning. Replace the photoconductor unit. (See P.82)
	The developing roller in the developing unit is faulty.	Replace the developing unit. (See P.82)

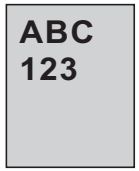
LIGHT OR FAINT IMAGE

The printed image is light or faint.

Sample	Possible cause	Checkpoint & Remedy
	The paper is inadequate or faulty.	Damp paper or paper with rough surface can cause the problem. Replace the paper with new one.
	Mounting failure of the transfer roller.	Check if both ends of the transfer roller are properly inserted into the bearings. Clean the bearings if they are contaminated with oil or paper dust. Replace the transfer roller if necessary. (See P.82)
	Transfer bias is not normal.	Replace the HVPS (See P.75) or the Main Board Assy. (See P.92)

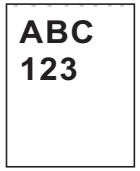
DIRT ON THE BACKGROUND

The background is dark or dirty, or toner smudges appear partially on the printout.

Sample	Possible cause	Checkpoint & Remedy
	Electric potential on the drum surface is not normal.	Replace the photoconductor unit. (See P.82)
	The main charger grid is faulty.	Clean the main charger grid. (See P.152)
	The developing roller in the developing unit is faulty.	Replace the developing unit. (See P.82)

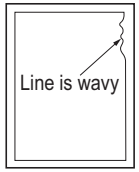
TONER SMUDGES

Toner smudges appear on the top edge or non-printed side of the page.

Sample	Possible cause	Checkpoint & Remedy
	Paper feed and conveying paths are contaminated with toner.	Check the following points for toner smudges, and clean the points if necessary. ■ Paper shoot guide ■ Paper conveying path ■ Photoconductor unit ■ Bottom part of the developing unit ■ Inlet of the fuser unit
	The transfer roller is faulty.	Clean the transfer roller if it is contaminated with toner. Or print low coverage pages continuously until the smudges disappear.

WAVY IMAGE

The printed image on the upper right side (scanning start position) of the page is wavy.

Sample	Possible cause	Checkpoint & Remedy
	The polygon motor in the developing unit is faulty.	Replace the laser scanner unit. (See P.119)
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)

3.4.5 Electrical Problems

Problem	Possible cause	Checkpoint & Remedy
The machine does not operate when the power switch is turned on.	The AC power source is not powered.	Measure the input voltage.
	The power plug is not properly inserted.	Make sure the power plug is properly inserted into the power source.
	The top cover is not completely closed.	Close the top cover completely.
	The power code has breaks.	Check the code for electric continuity. If no continuity is found, replace the code.
	The power switch is faulty.	Check the contact points of the power switch for electric continuity. If no continuity is found, replace the code.
	The fuse on the power supply board has burned out.	Replace the LVPS. (See P.75)
	The interlock switch is faulty.	Check both terminals of the interlock switch for electric continuity. If no continuity is found, replace the LVPS. (See P.75)
	The LVPS is faulty.	Replace the LVPS. (See P.75)
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
Right cooling fan motor does not operate.	The right cooling fan motor coils have breaks.	Check the coils for electric continuity. If no continuity is found, replace the right cooling fan motor. (See P.69)
	Poor connection between the right cooling fan motor and the Main Board Assy. (YC815).	■ Reconnect the connector cable properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
Left cooling fan motor does not operate.	The left cooling fan motor coils have breaks.	Check the coils for electric continuity. If no continuity is found, replace the left cooling fan motor. (See P.113)
	Poor connection between the left cooling fan motor and the LVPS (YC104).	■ Reconnect the connector cable properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
Registration clutch does not operate.	The registration clutch coils have breaks.	Check the coils for electric continuity. If no continuity is found, replace the registration clutch. (See P.98)
	Poor connection between the registration clutch and the Main Board Assy. (YC808).	■ Reconnect the connector cable properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
Paper feed clutch does not operate.	The paper feed clutch coils have breaks.	Check the coils for electric continuity. If no continuity is found, replace the paper feed clutch. (See P.98)
	Poor connection between the paper feed clutch and the Main Board Assy. (YC808).	■ Reconnect the connector cable properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)

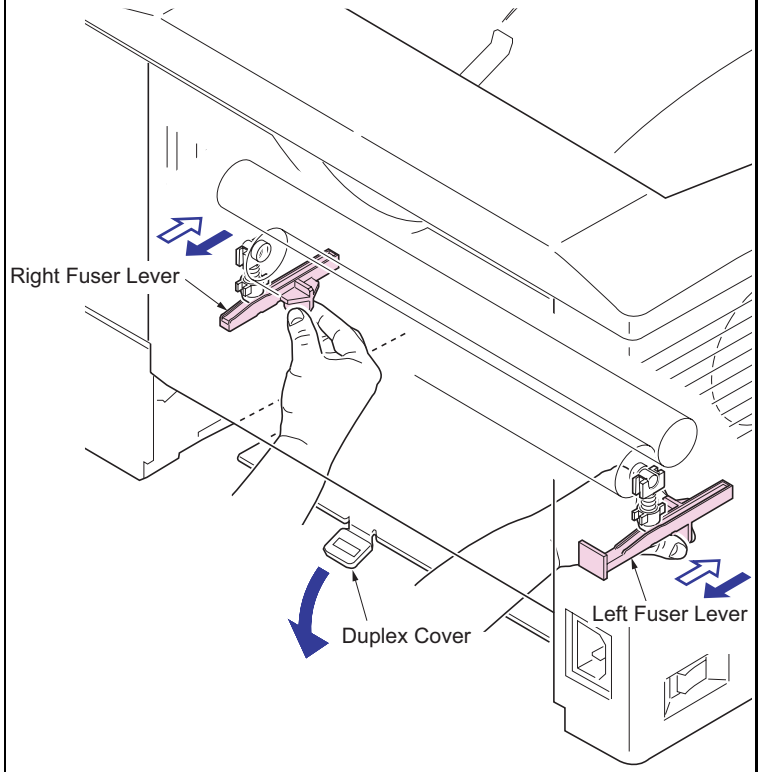
Problem	Possible cause	Checkpoint & Remedy
Developing clutch does not operate.	The developing clutch coils have breaks.	Check the coils for electric continuity. If no continuity is found, replace the developing clutch. (See P.98)
	Poor connection between the developing clutch and the Main Board Assy. (YC808).	■ Reconnect the connector cable properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
MP paper feed solenoid does not operate.	The MP paper feed solenoid coils have breaks.	Check the coils for electric continuity. If no continuity is found, replace the MP paper feed solenoid. (See P.92)
	Poor connection between the MP paper feed solenoid and the Main Board Assy. (YC809).	■ Reconnect the connector cable properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
Duplex solenoid does not operate.	The duplex solenoid coils have breaks.	Check the coils for electric continuity. If no continuity is found, replace the duplex solenoid (paper eject unit). (See P.106)
	Poor connection between the duplex solenoid and the Main Board Assy. (YC817).	■ Reconnect the connector cable properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)

Problem	Possible cause	Checkpoint & Remedy
Eraser lamp does not turn on.	Poor connection between the eraser lamp (YC701) and the Main Board Assy. (YC816).	■ Reconnect the connector cable properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
	The eraser lamp is faulty.	Check the eraser lamp for electric continuity. If no continuity is found, replace the eraser lamp. (See P.119)
	The Main Board Assy. is faulty.	Replace the Main Board Assy. (See P.92)
The machine does not detect paper loaded in the cassette.	The paper sensor is faulty.	Replace the paper sensor. (See P.87)
	Poor connection between the paper sensor and the Main Board Assy. (YC806).	■ Reconnect the connector cable properly. ■ Check the connector cable for electric continuity. If no continuity is found, replace the cable.
A paper jam in the paper feed/ conveying section or fuser section is indicated when the power switch is turned on.	Paper dust or other foreign matter on/ around the registration sensor or the exit sensor.	Remove any paper dust or foreign matter.
	The registration sensor on the HVPS is faulty.	Replace the HVPS. (See P.75)
	The exit sensor is faulty.	Replace the exit sensor (fuser unit). (See P.106)
The machine does not detect that the top cover is closed.	The interlock switch on the LVPS is faulty.	Check both terminals of the interlock switch for electric continuity. If no continuity is found when the switch is turned on, replace the LVPS. (See P.75)

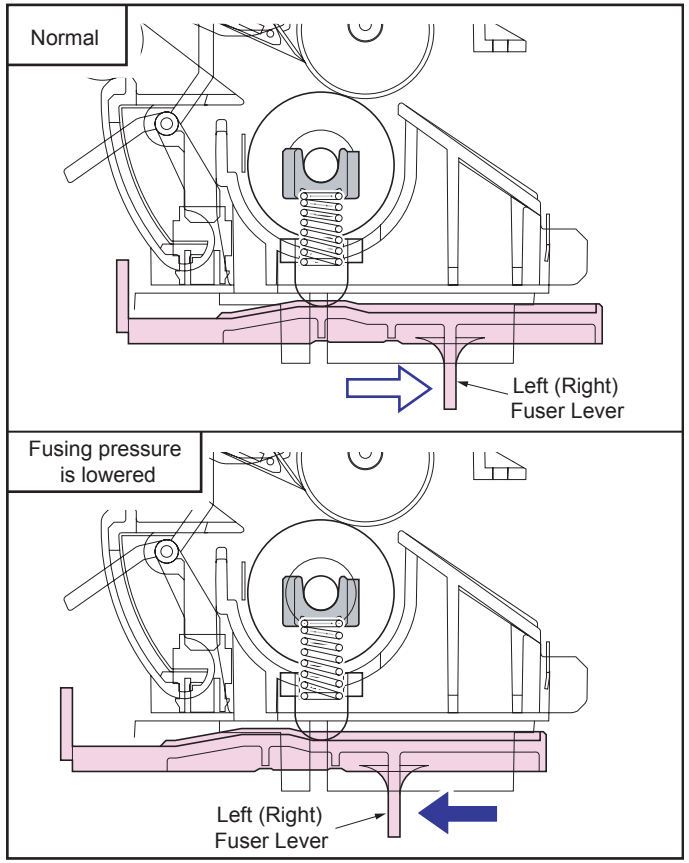
3.4.6 Mechanical Problems

Problem	Possible cause	Remedy
No primary paper feed.	The paper feed roller surface is contaminated with paper dust or other foreign matter.	Clean the roller surface using isopropyl alcohol. (See P.152)
	The paper feed roller has become deformed.	Visually check the paper feed roller for deformation. Replace the roller if deformation is observed. (See P.126)
	Mounting failure of the paper feed clutch.	Visually check the paper feed clutch. If the clutch is not properly installed, fix it.
No secondary paper feed.	The upper or/and lower registration rollers surface is contaminated with paper dust or other foreign matter.	Clean the roller surface using isopropyl alcohol. (See P.152)
	Mounting failure of the registration clutch.	Visually check the registration clutch. If the clutch is not properly installed, fix it.
Skewed paper feed.	The paper guide inside the cassette is not properly adjusted.	Check if the paper guide is properly adjusted or installed. If not, adjust the position or replace the paper guide.
Multiple sheets of paper are fed at one time.	The separation roller or the separation pad is worn out.	If the roller or the pad is worn out, replace it. (See P.126)
	The paper has become curled.	If the paper has become curled, replace the paper.
Paper jams.	The paper has become curled.	If the paper has become curled, replace the paper.
	Poor contact between the upper and lower registration rollers.	If the two rollers do not properly contact with each other, fix it.
	The heat roller or the pressure roller is extremely contaminated, or has become deformed.	Replace the fuser unit. (See P.106)
	Poor contact between the paper eject roller and the fuser paper eject pulley.	If the roller and the pulley do not properly contact with each other, fix it.
Toner drops on the paper conveying path.	The developing unit or the photoconductor unit is extremely contaminated.	Clean the developing unit or the photoconductor unit.
Abnormal noise is heard.	The rollers, roller bearings, and gears do not rotate smoothly.	■ If any obstacles are found, remove them. ■ Apply grease to the bearings and gears if their surface is dry.
	Mounting failure of the paper feed clutch, registration clutch, or developing clutch.	If any abnormality is found, fix it.

Problem	Possible cause	Remedy
Paper becomes wrinkled, creased, or curled.		Lower the fusing pressure using the following procedure. 1. Remove the paper cassette. 2. Open the duplex cover. 3. Slide both left and right fuser levers inward. CAUTION **Lowering the fusing pressure may cause degradation in toner fixity.**



Problem	Possible cause	Remedy
Paper becomes wrinkled, creased, or curled.		



CHAPTER

4

DISASSEMBLY AND ASSEMBLY

4.1 Preliminary Check

4.1.1 Tool List

The tools listed below are required for disassembling the printer.

Tool Name	Code	Usage	Reference
Phillips screwdriver No.2	1080532	For disassembling all of the parts/units	---
Long-nose pliers	1080564	Use as required	---
Tweezers	1080561	Use as required	---

4.1.2 Parts/Units that Should Not be Disassembled

Do not disassemble the following parts or units. Doing so can result in malfunction of the printer.

- ☐ Consumables / After Service Parts

  Do not disassemble the consumables or parts/units that are supplied as After Service Parts.

  Example:

  - ■ Toner Cartridge
  - ■ Fuser Unit
  - ■ Laser Scanner Unit

- ☐ Parts/Units that are not described in this manual

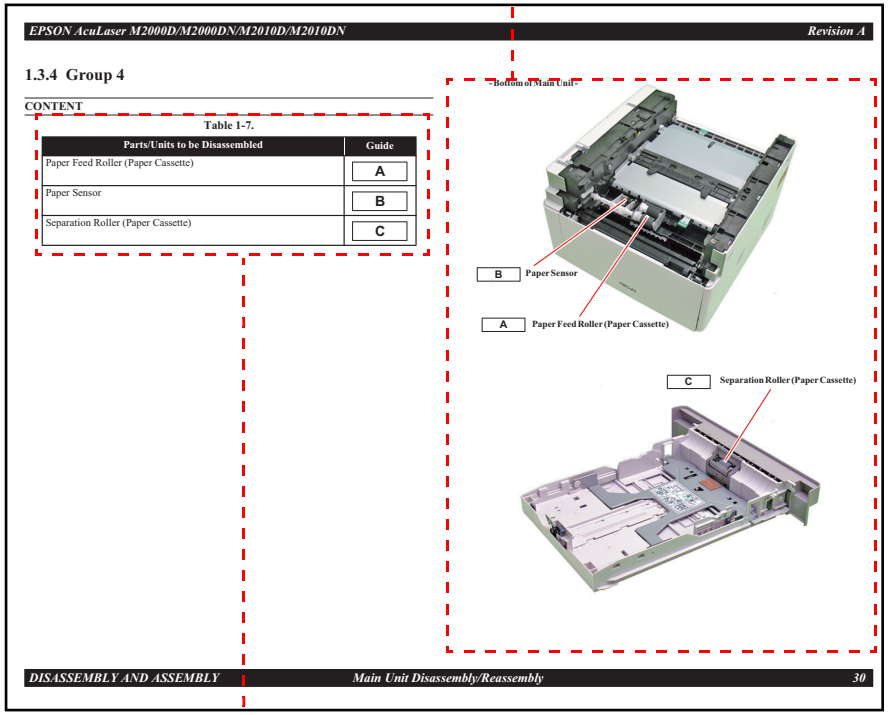
  Do not disassemble any parts/units that are not described in this manual. Especially, the main frame must be kept unchanged from its original state because the frame position has been strictly adjusted at the factory. Never loosen or remove the screws securing the frame.

4.1.3 How to Read this Chapter

PAGE CONFIGURATION

☐ Opening page

Location
Shows location of each part.



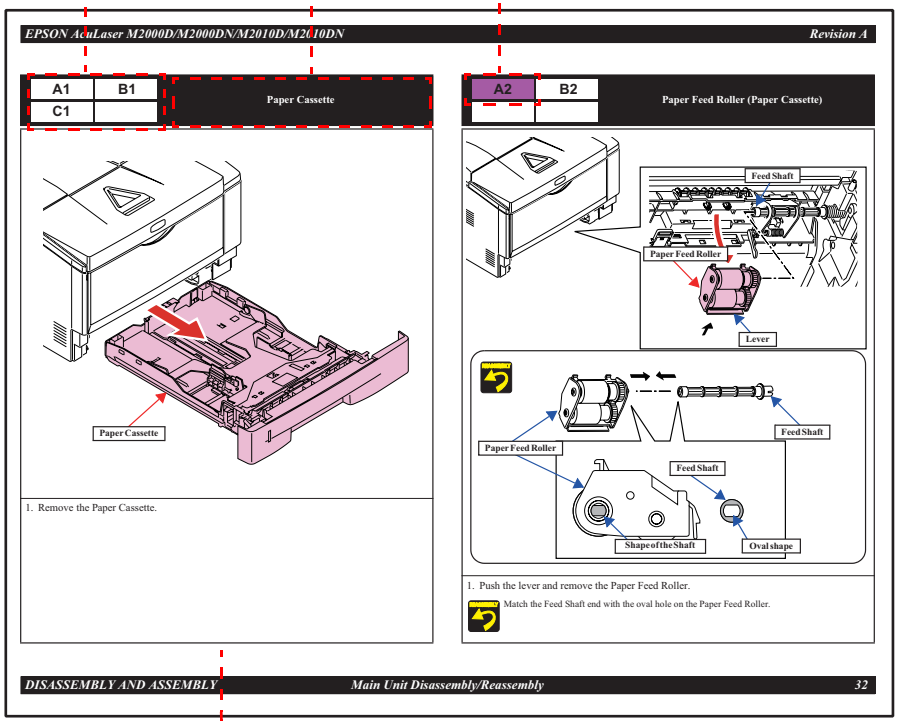
Part Name/Guide
Lists parts or units included in the Group. Each of their disassembly procedure is given with the alphabetic character shown in the Guide column.

☐ Main page

Guide
Guide to indicate the procedural steps.

Part Name
Shows part to be disassembled or operation to be performed in the column.

Final Procedure
The pink Guide indicates that the step is the final step of the disassembly procedure.



Procedure
Describes disassembly procedure. Reassemble the parts or units by reversing the disassembly procedure.

PROCEDURE

1. Find the part/unit you want to remove in the table.
2. Check the alphabetic character “Guide” in the Guide column for the target part/ unit.

Example: When you want to remove the Separation Roller, its “Guide” is “C”.

1.3.4 Group 4

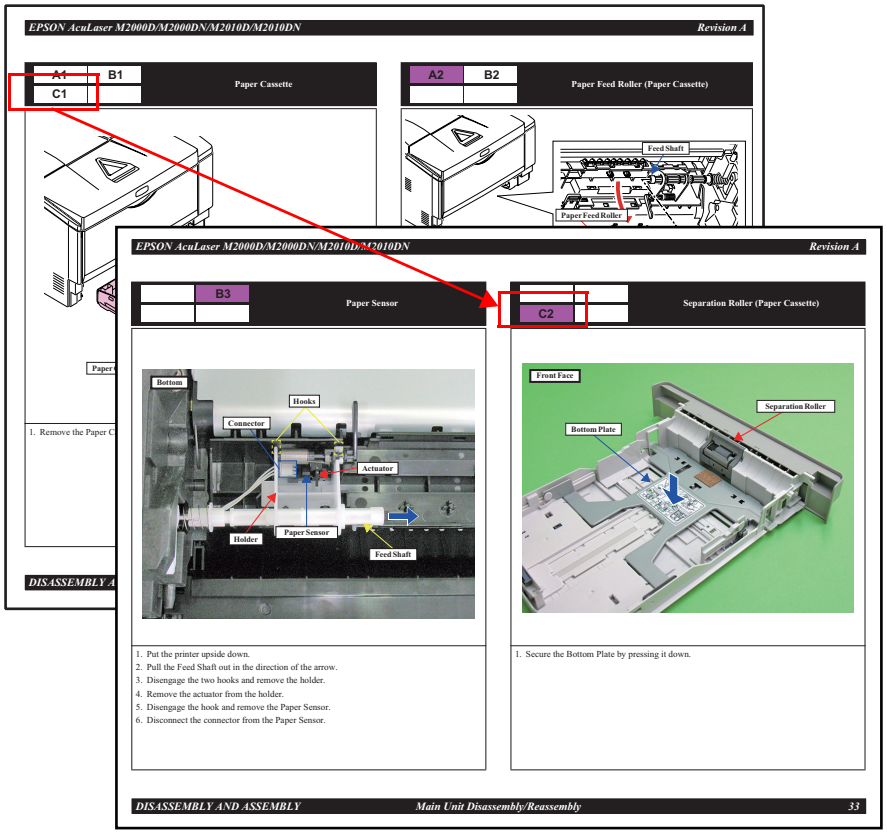
CONTENT

Table 1-7.

Parts/Units to be Disassembled	Guide
Paper Feed Roller (Paper Cassette)	A
Paper Sensor	B
Separation Roller (Paper Cassette)	C

3. Go to main pages, find the columns that has the “Guide” character on the upper left corner, and perform the procedure described in the columns in numerical sequence.

Example: To disassemble the Separation Roller, find columns with “C” on their upper left corner, and follow the procedures in the columns in numerical order.



4.2 List of Disassembly/Reassembly Parts/Units

Table 4-1. List of Disassembly/Reassembly Parts/Units (Main Unit)

Category		parts / units	Reference
Main Unit	Consumables	Toner Cartridge	P. 70
	Exterior Parts	Controller Cover	P. 70
		Front Cover	P. 70
		Top Cover	P. 113
		Right Cover	P. 92
		Left Cover	P. 75
		Rear Cover	P. 70
		Control Panel	P. 113
	Paper Conveyance Parts	Paper Feed Roller (Paper Cassette)	P. 87
		Separation Roller (Paper Cassette)	P. 87
		Paper Feed Roller (MP Tray)	P. 70
		Paper Sensor	P. 87
		MP Paper Sensor	P. 98
		Paper Feed Clutch	P. 98
		MP Paper Feed Solenoid	P. 92
		Registration Clutch	P. 98
		Paper Eject Unit	P. 106
	Development Parts	Developing Unit	P. 82
		Developing Clutch	P. 98
		Photoconductor Unit	P. 82
		Charging Unit	P. 82
		Eraser Lamp	P. 119
		Toner Sensor	P. 98
	Exposure Parts	Laser Scanner Unit	P. 119
	Transfer Parts	Transfer Roller	P. 82
	Fusing Parts	Fuser Unit	P. 106

Table 4-1. List of Disassembly/Reassembly Parts/Units (Main Unit)

Category		parts / units	Reference
Main Unit	Electrical Parts	Main Board Assy.	P. 92
		LVPS Unit	P. 75
		Control Panel Board	P. 113
		HVPS Unit	P. 75
		RFID Board	P. 98
	Other Parts	Main Motor	P. 92
		Left Cooling Fan Motor	P. 113
		Right Cooling Fan Motor	P. 92
		Gear Unit	P. 92

Table 4-2. List of Disassembly/Reassembly Parts/Units (Optional Paper Cassette Unit)

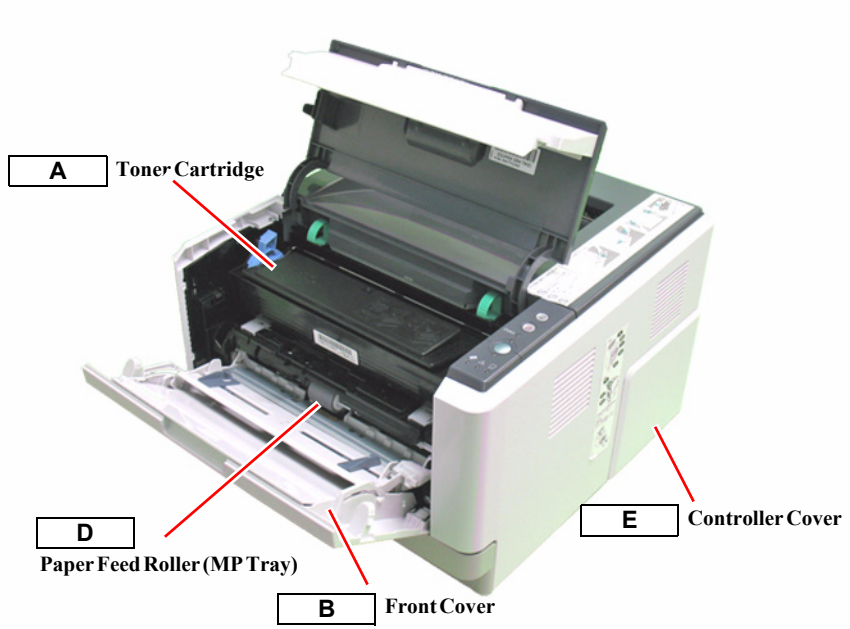
Category		parts / units	Reference
Optional Paper Cassette Unit	Paper Conveyance Parts	Middle Roller	P. 126
		Paper Feed Roller	P. 126
		Separation Roller	P. 126
		PF Paper Feed Motor	P. 131
		PF Paper Feed Clutch	P. 131
		PF Paper Conveyance Clutch	P. 131
		PF Paper Feed Sensor	P. 136
	Electrical Parts	PF Main Board	P. 136

4.3 Main Unit Disassembly/Reassembly

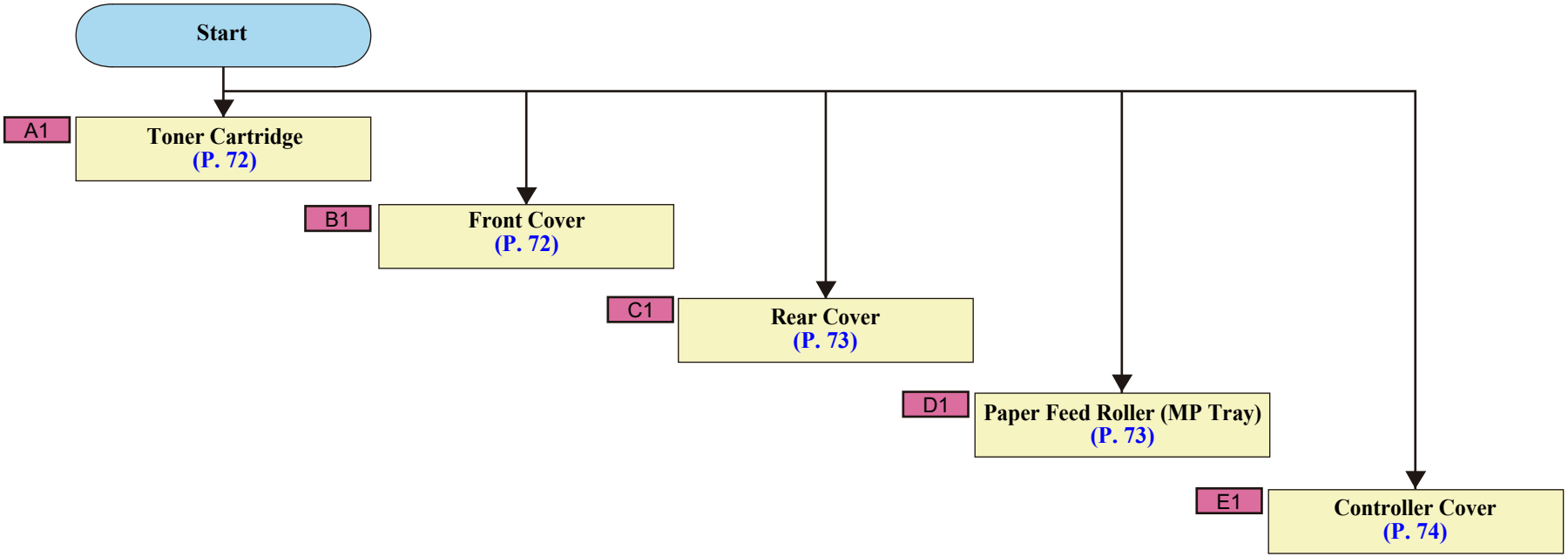
4.3.1 Group 1

CONTENT

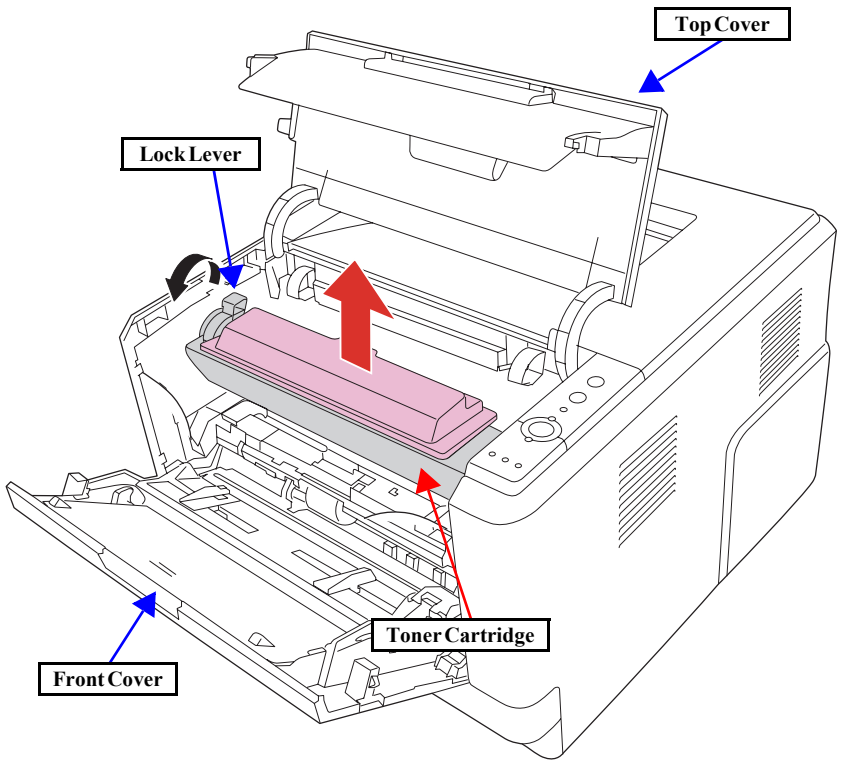
Parts/Units to be Disassembled	Guide
Toner Cartridge	A
Front Cover	B
Rear Cover	C
Paper Feed Roller (MP Tray)	D
Controller Cover	E



DISASSEMBLY FLOWCHART

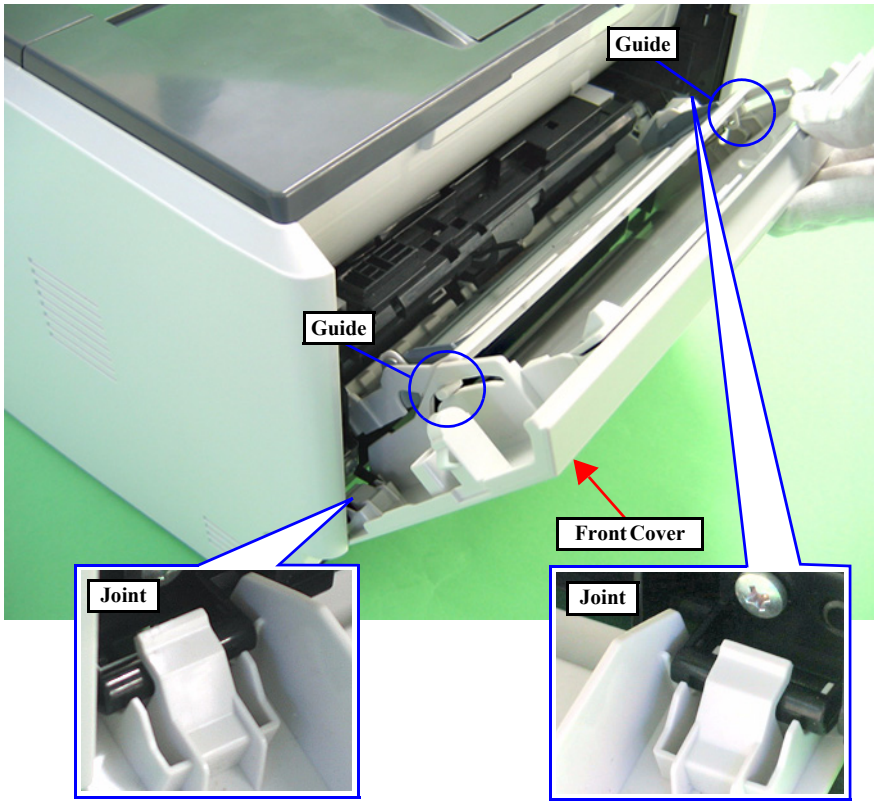


A1 Toner Cartridge



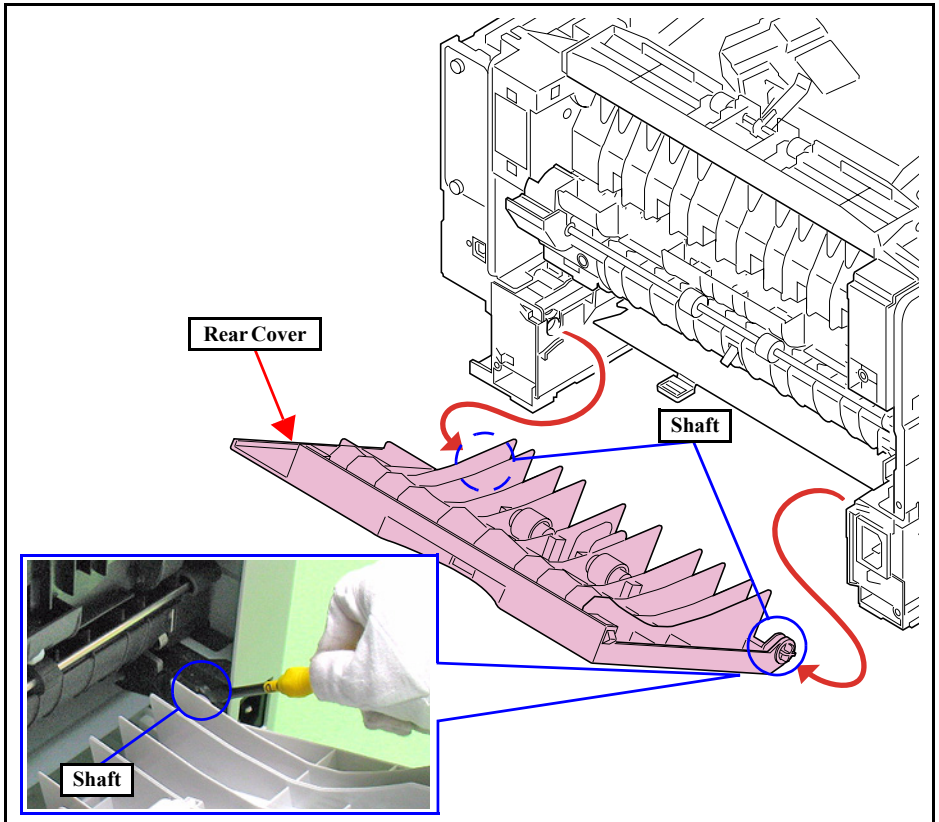
1. Open the Top Cover and the Front Cover.
2. Move the Lock Lever to unlock the Toner Cartridge.
3. Remove the Toner Cartridge.

B1 Front Cover



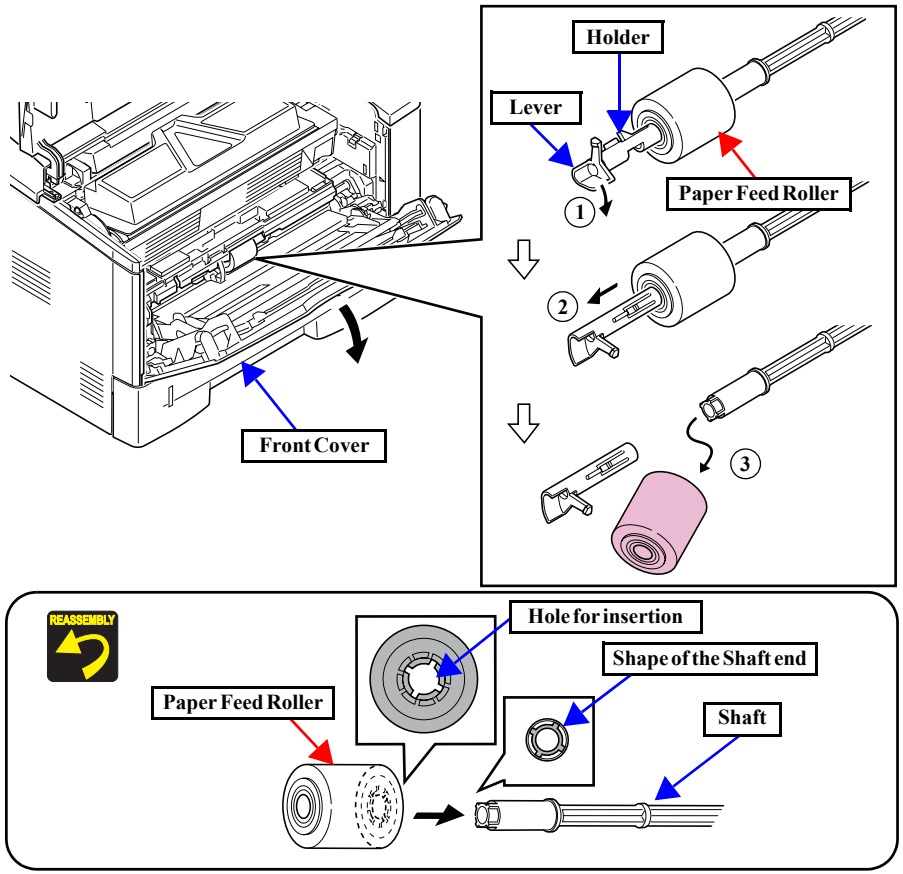
1. Slightly open the Front Cover and disengage both sides of the cover from the MP Tray by bowing the Guide portions of the cover.
2. Pull the Front Cover toward you to disengage its joints on both sides, and remove the cover.

C1 Rear Cover



1. Open the Rear Cover.
2. Pull out the right shaft of the Rear Cover (as seen from the rear) using a flat-blade screwdriver or similar tool, and remove the Rear Cover.

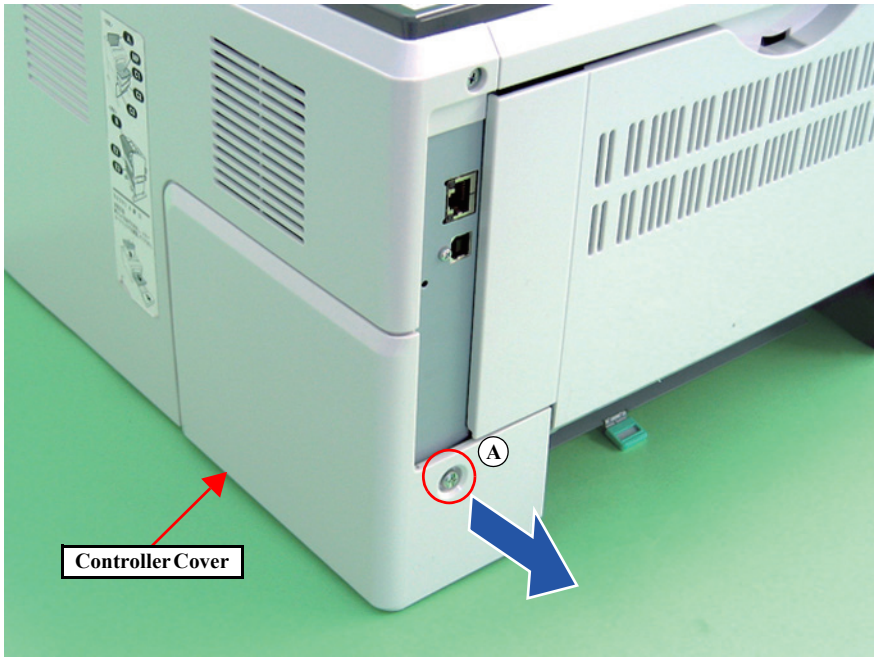
D1 Paper Feed Roller (MP Tray)



1. Open the Front Cover.
2. Pull the lever down (①).
3. Slide the holder out (②).
4. Remove the Paper Feed Roller (③).

REASSEMBLY Match the shaft end with the hole for insertion of the Paper Feed Roller.

		E1	Controller Cover

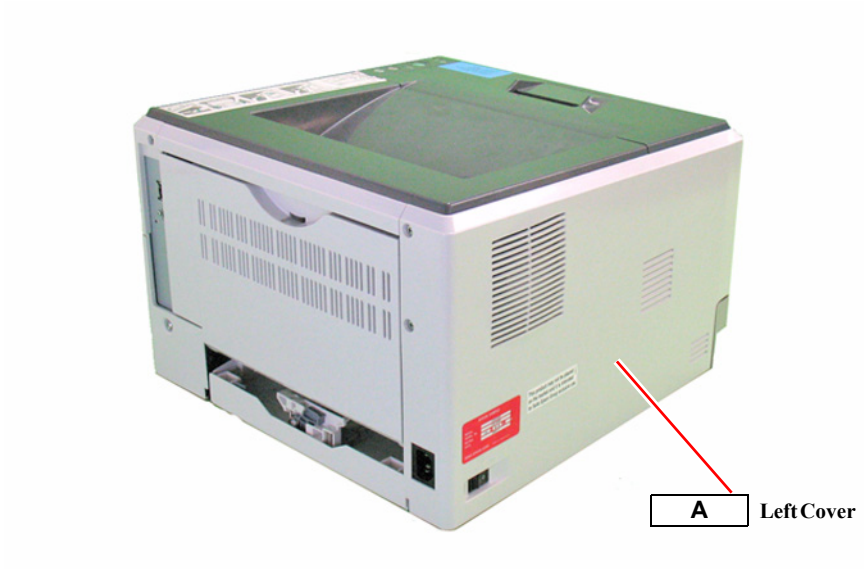


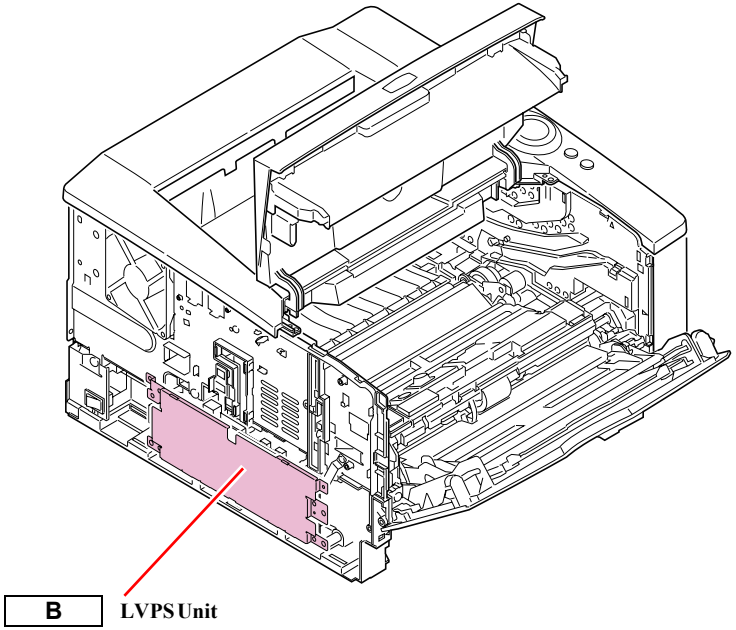
1. Remove the screw.
   A) Silver / M3x6 / S-Tite: One piece
2. Remove the Controller Cover in the direction of the arrow.

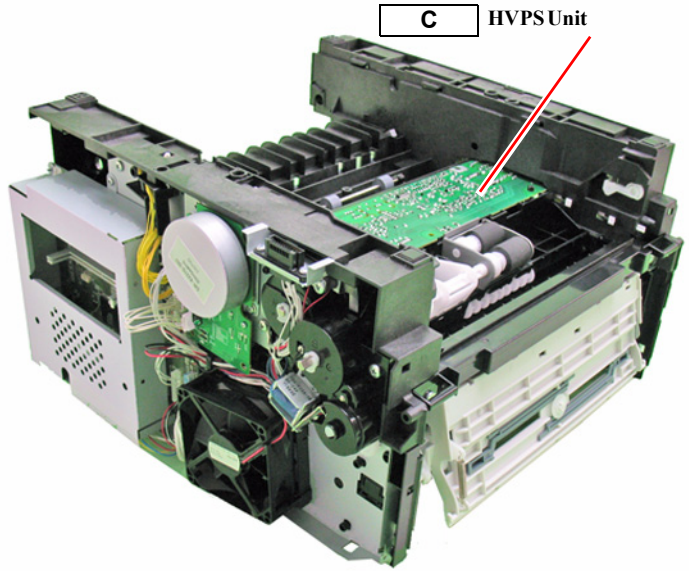
4.3.2 Group 2

CONTENT

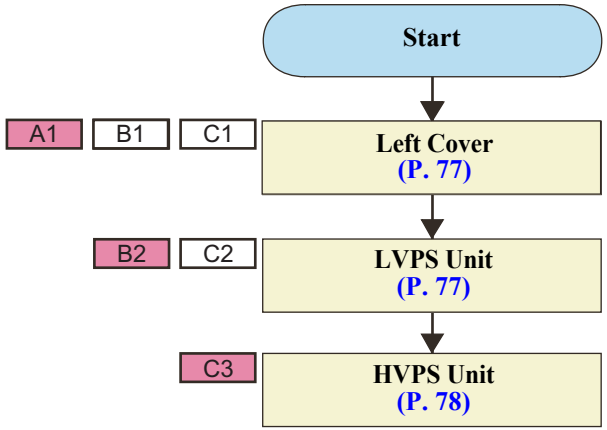
Parts/Units to be Disassembled	Guide
Left Cover	A
LVPS Unit	B
HVPS Unit	C





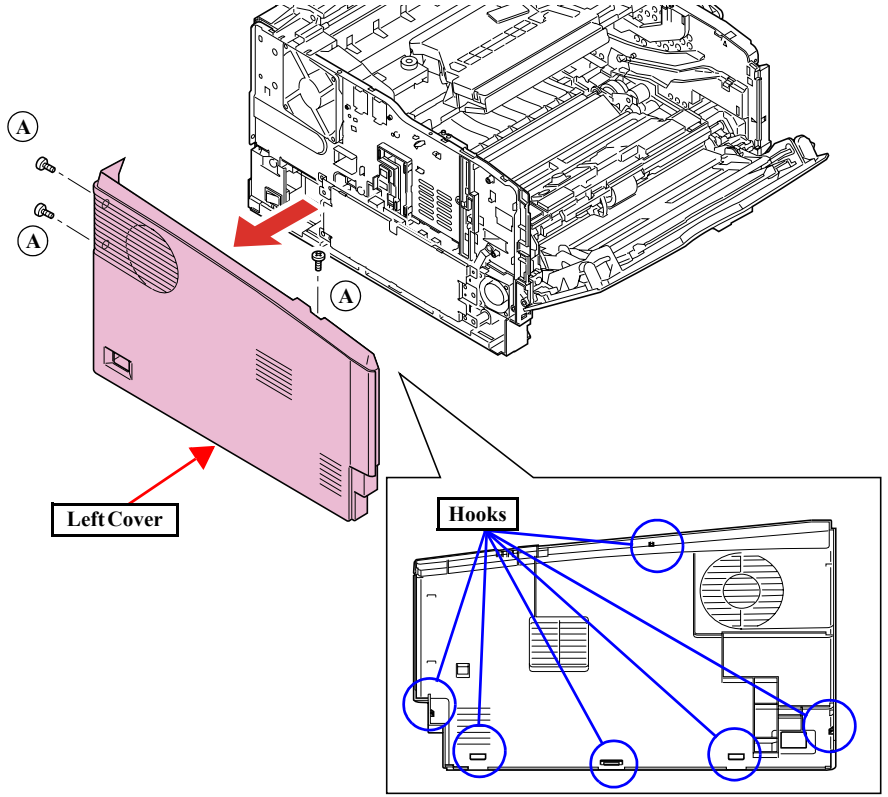


DISASSEMBLY FLOWCHART



A1	B1
C1	

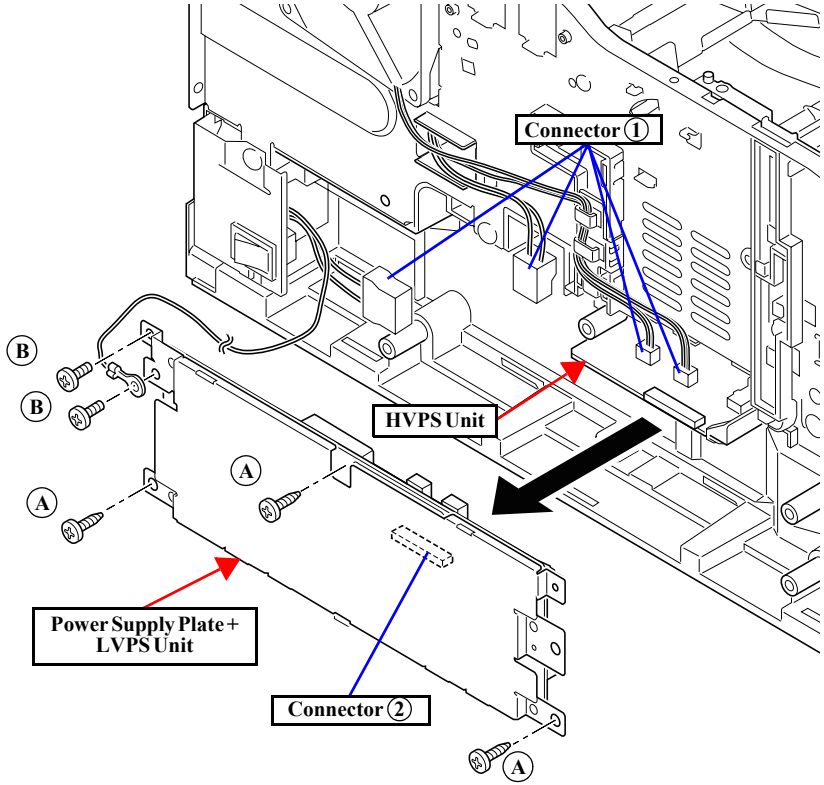
Left Cover



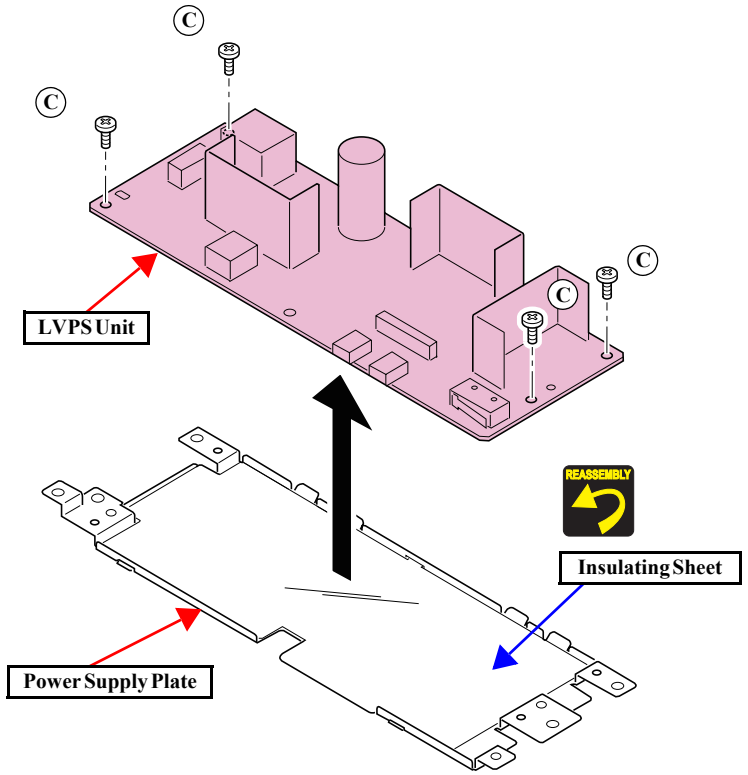
1. Open the Top Cover.
2. Slightly pull out the Paper Cassette.
3. Remove the three screws.
   A) Silver/M3x10/P-Tite: Three pieces
4. Disengage the six hooks of the Left Cover in the order from the rearmost hook to the frontmost one, and remove the Left Cover.

	B2
C2	

LVPS Unit



1. Disconnect the four connectors connected to the LVPS Unit (①).
2. Remove the five screws and the grounding terminal.
   A) Silver/M3x10/P-Tite: Three pieces
   B) Silver/M3x6/S-Tite: Two pieces
3. Disconnect the LVPS Unit and the Power Supply Plate from the connector of the HVPS Unit (②).

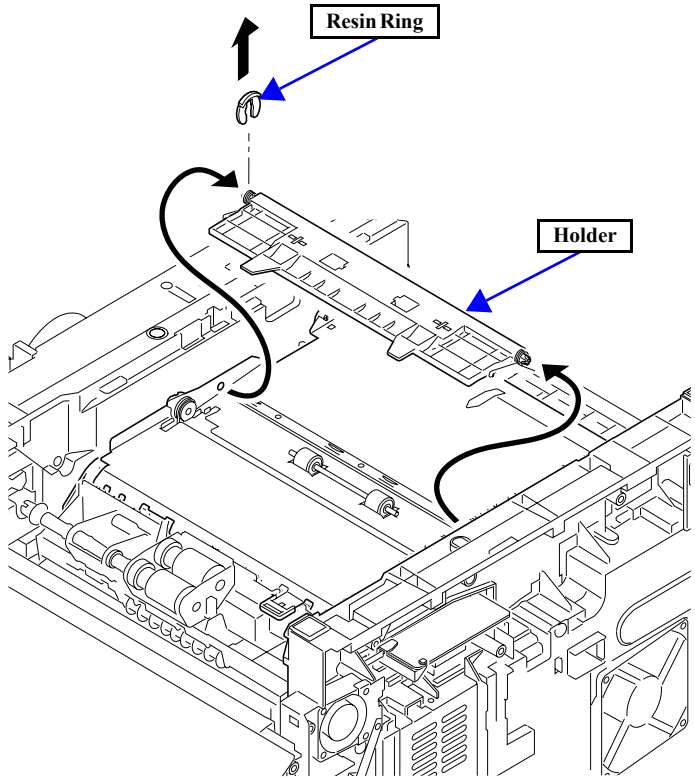


4. Remove the four screws, and remove the LVPS Unit from the Power Supply Plate.
   C) Silver / M3x6 / S-Tite: Four pieces

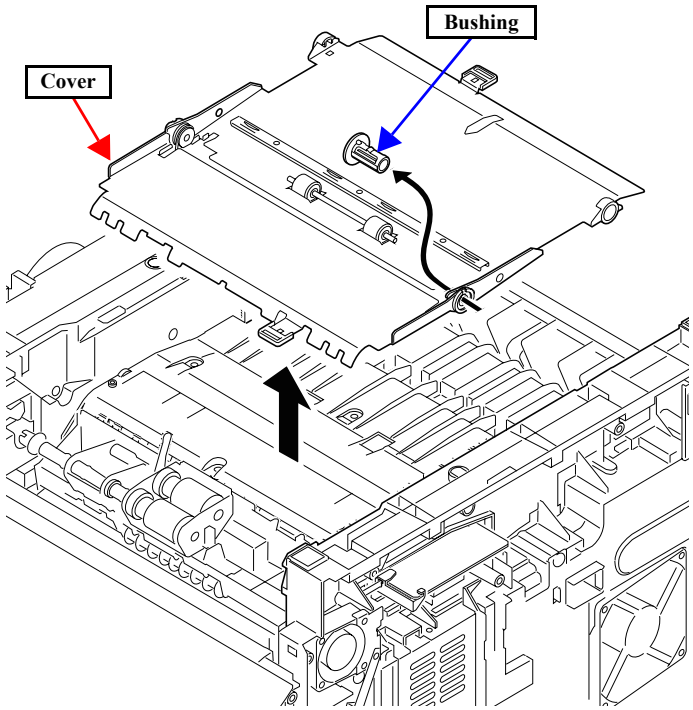
REASSEMBLY Make sure the Insulating Sheet is properly positioned.

C3

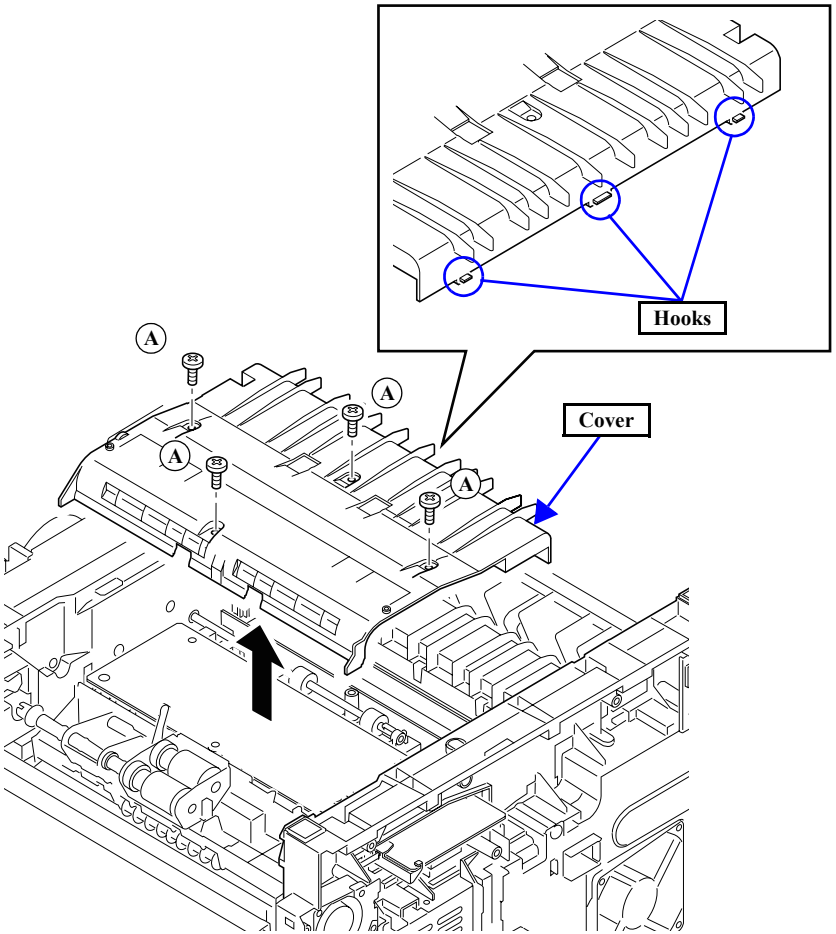
HVPS Unit



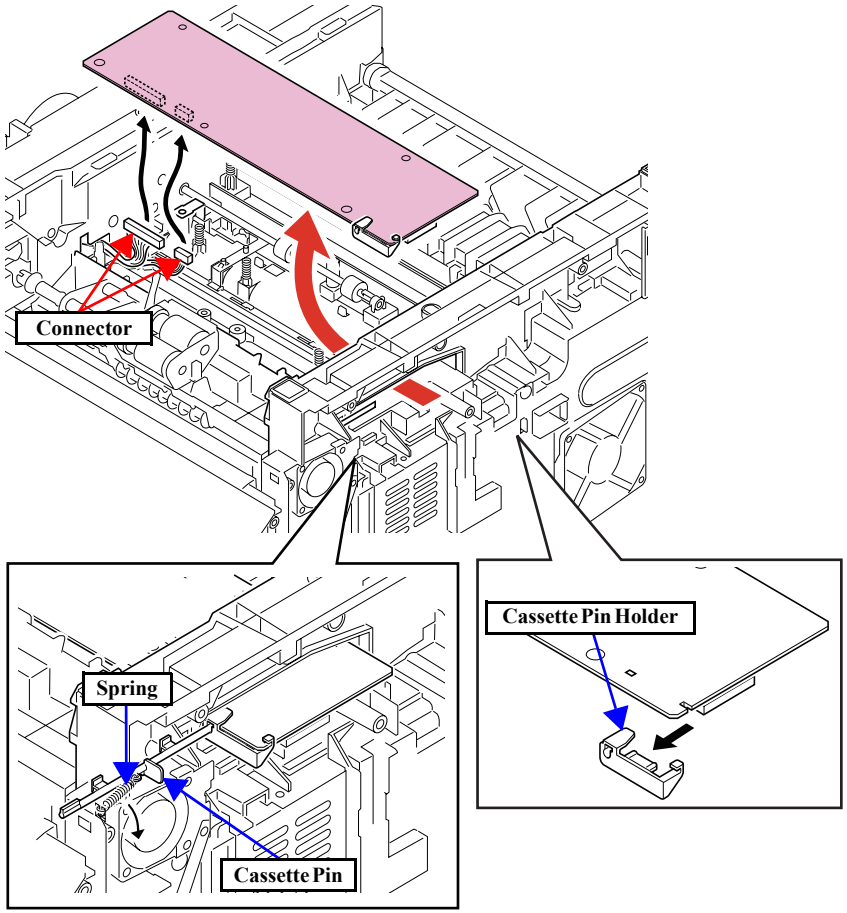
1. Put the printer upside down.
2. Remove the Resin Ring.
3. Remove the holder.



4. Pull out the bushing.
5. Remove the cover.



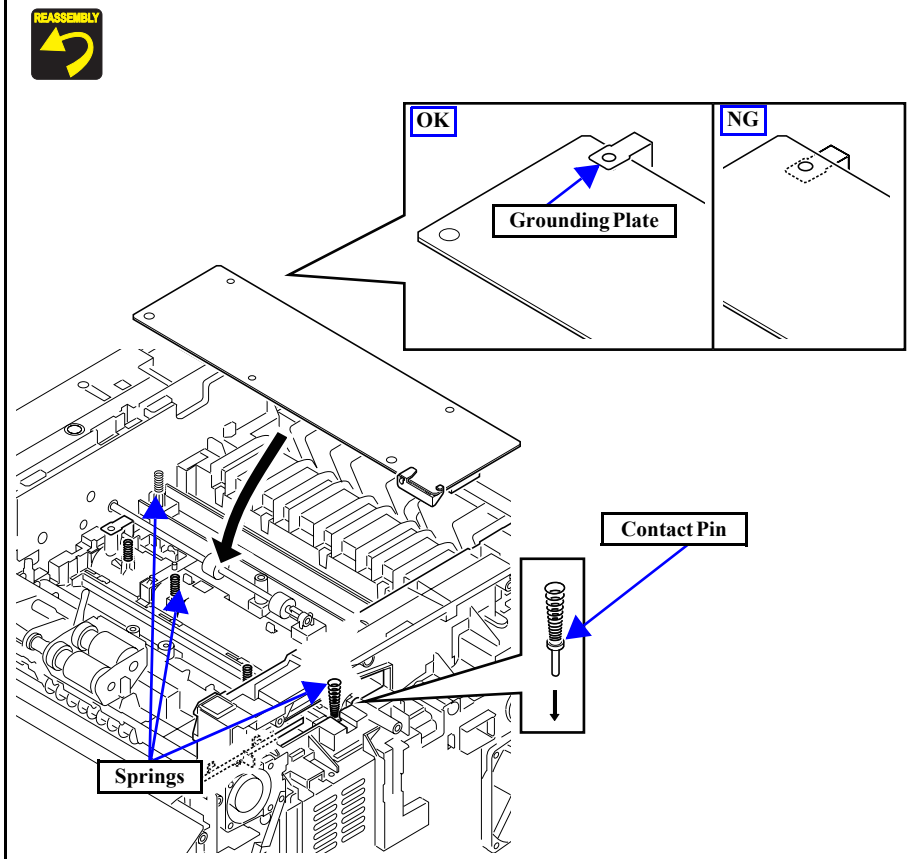
6. Remove the four screws.
   A) Silver/M3x6/P-Tite: Four pieces
7. Disengage the three hooks and remove the cover.



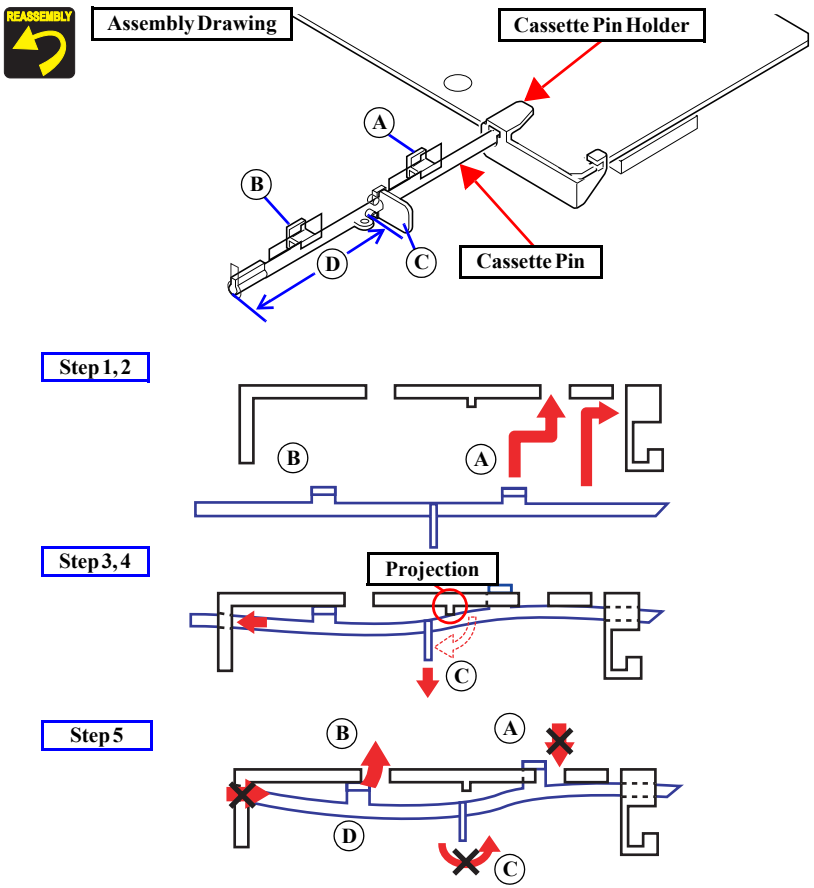
8. Remove the spring from the main unit and the Cassette Pin.
9. Slide the Cassette Pin to remove it.

REASSEMBLY When attaching the spring, first hitch its one end to the main frame, and then hitch the other end to the Cassette Pin.

10. Slightly lift the HVPS Unit to disconnect the two connectors, and then remove the HVPS Unit.
11. Remove the Cassette Pin Holder.



REASSEMBLY
- ☐ The grounding plate end should come above the HVPS Unit.
- ☐ Make sure the Contact Pin is properly positioned.
- ☐ The contact points on the HVPS Unit should properly contact with the springs.



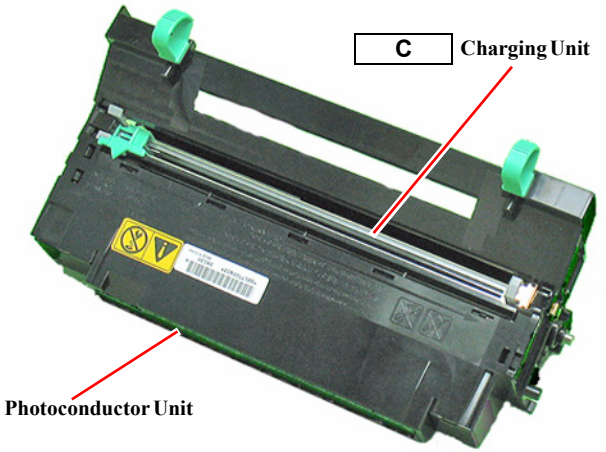
Install the Cassette Pin following the procedure below.

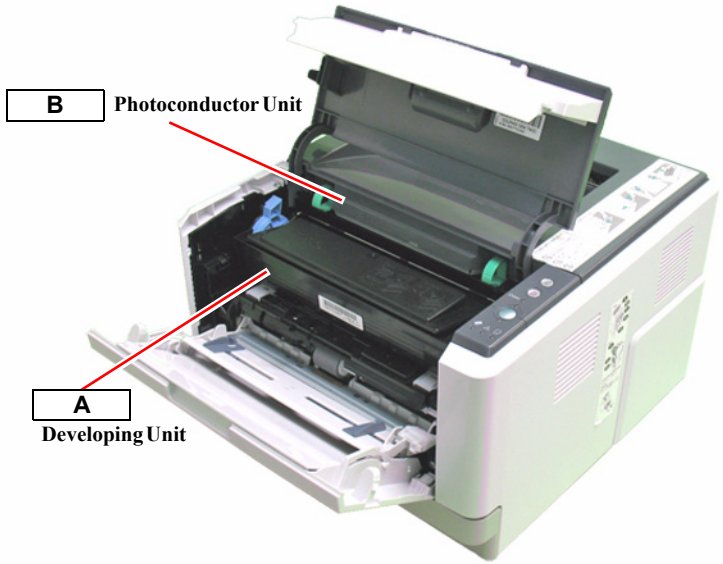
1. Insert the Cassette Pin end into the Cassette Pin Holder.
2. Insert the Ⓐ projection into the hole of the main unit.
   (At this time, do not insert the Ⓑ projection)
3. Pull the Ⓒ tab in the direction of the arrow bowing the Cassette Pin, and slide the Ⓒ tab toward the front side of the main unit until it passes over the projection.
4. Insert the other end of the Cassette Pin into the hole on the front side of the main unit.
5. Pull the Ⓓ portion bowing the pin to insert the Ⓑ projection into the hole of the main unit. At this time, pay attention to the followings.
   - The Ⓐ projection must be kept inserted into the hole of the main unit.
   - The Ⓒ tab must not go back beyond the projection.
   - The Cassette Pin end must be kept inserted into the hole of the main unit.

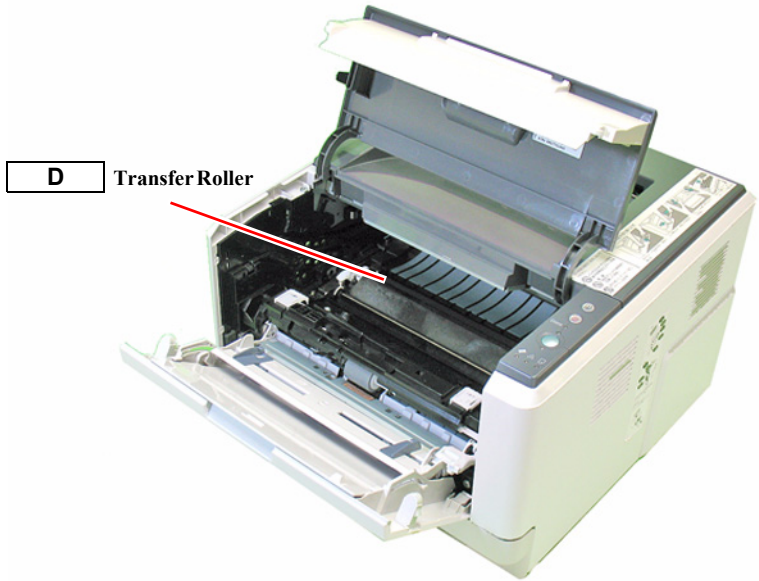
4.3.3 Group 3

CONTENT

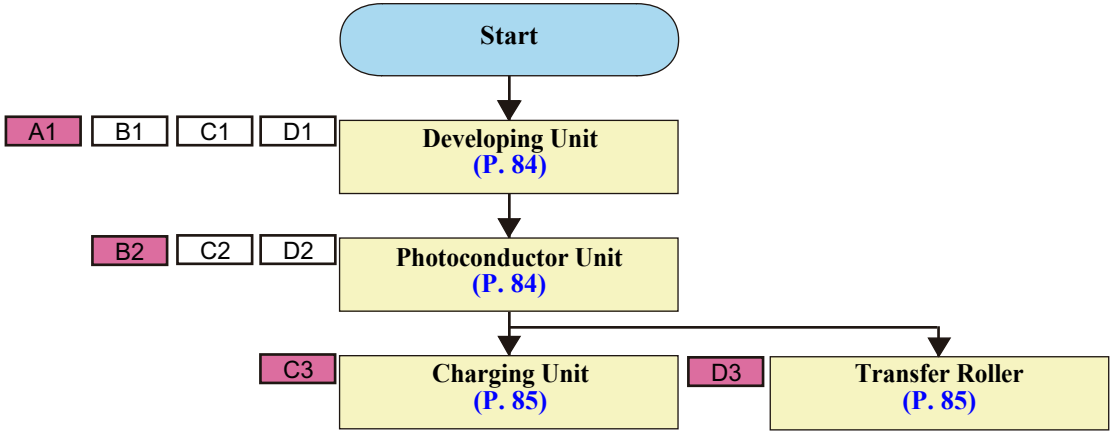
Parts/Units to be Disassembled	Guide
Developing Unit	A
Photoconductor Unit	B
Charging Unit	C
Transfer Roller	D



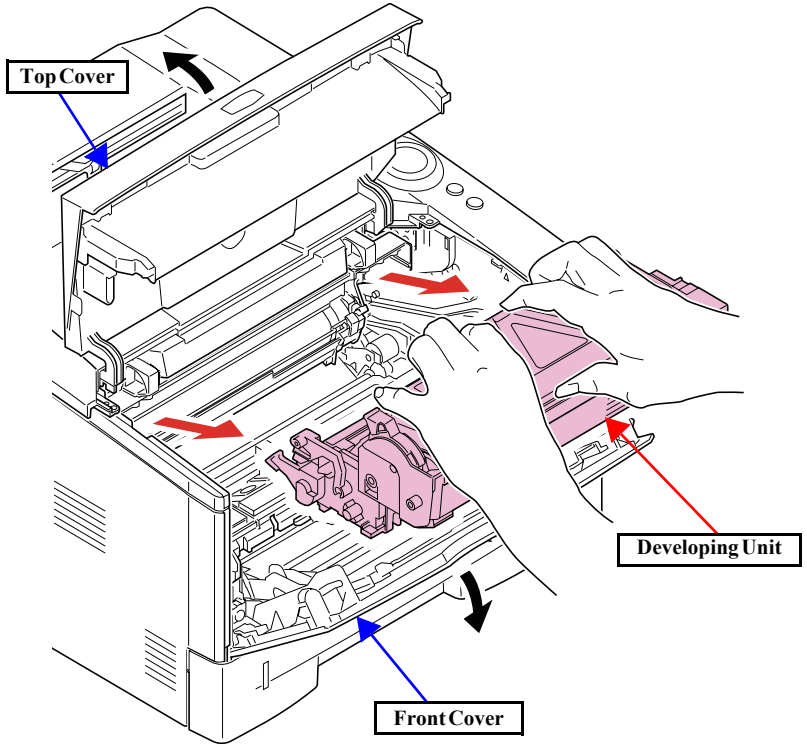




DISASSEMBLY FLOWCHART



A1	B1	Developing Unit
C1	D1	



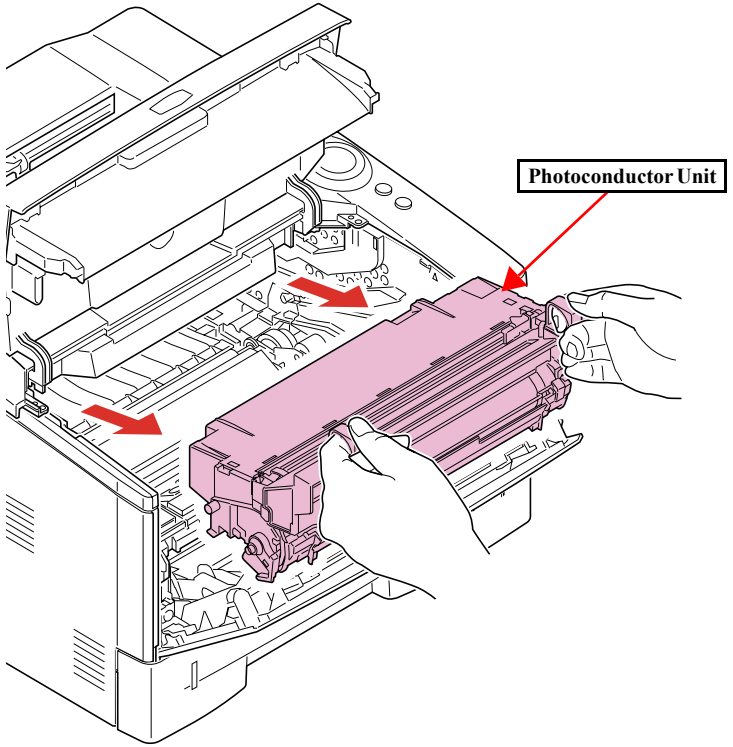
1. Open the Top Cover.
2. Open the Front Cover.
3. Pull the Developing Unit toward you to remove it.

ADJUSTMENT REQUIRED

The following operations must be carried out after the Developing Unit has been replaced with a new one.

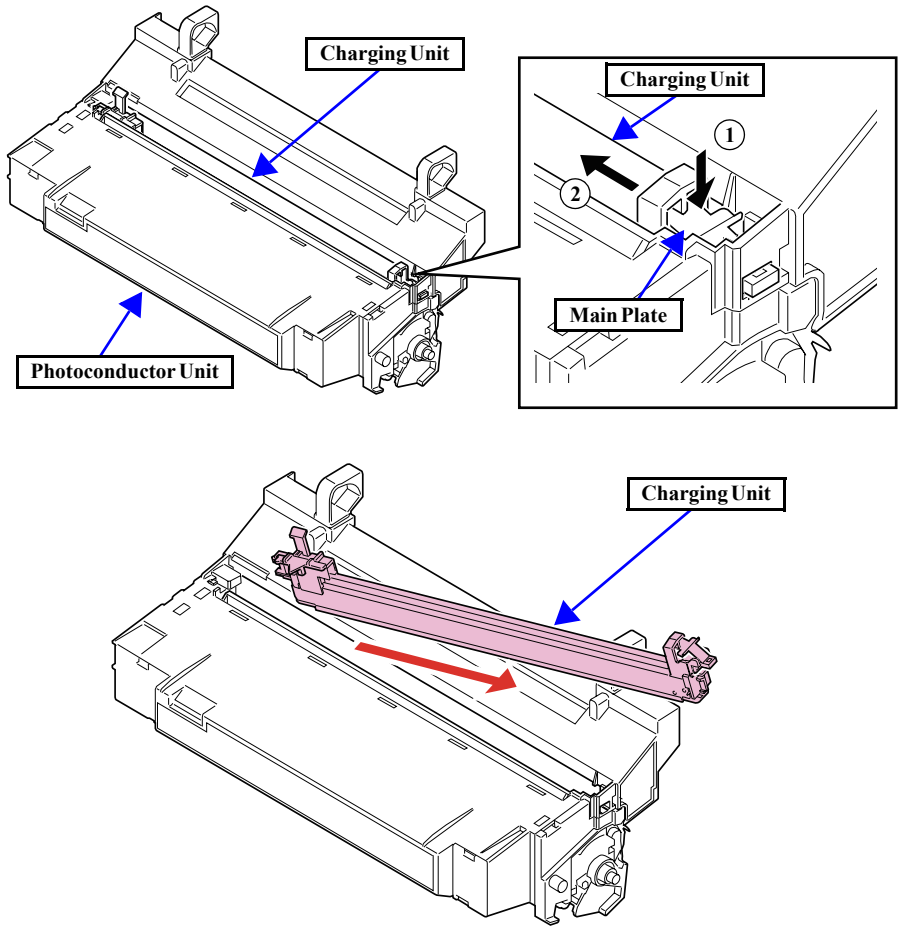
1. Install the toner cartridge for initial filling supplied with the Developing Unit.
2. Turn the printer on while holding down [Start/Stop] and [Information] buttons. The printer will start up in toner filling mode.
3. When the toner filling is completed, remove the toner cartridge for initial filling, and install the toner cartridge in use.

	B2	Photoconductor Unit
C2	D2	



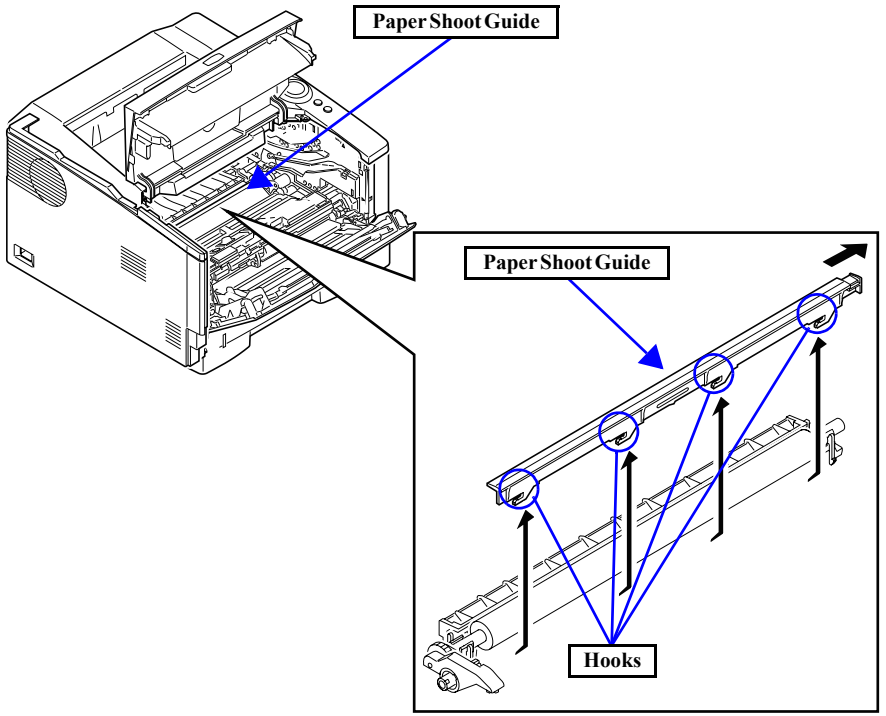
1. Pull the Photoconductor Unit toward you to remove it.

C3 Charging Unit

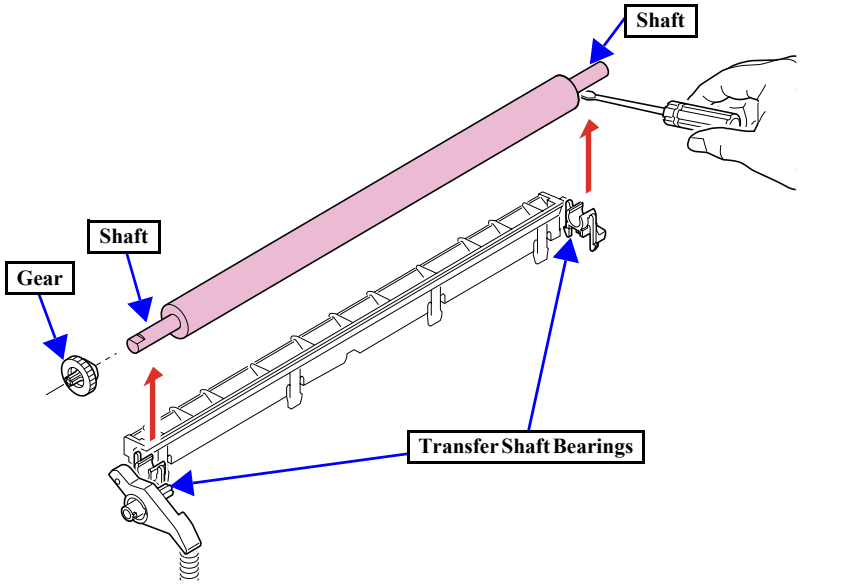


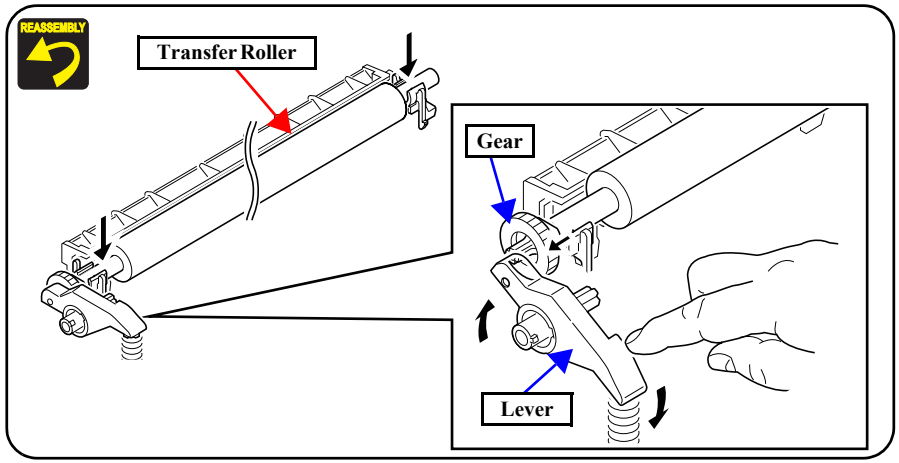
1. While pressing the Main Plate (①), slide the Charging Unit (②).
2. Pull the Charging Unit upward to remove it.

D3 Transfer Roller



1. Slide the Paper Shoot Guide to disengage the hooks.
2. Remove the Paper Shoot Guide.





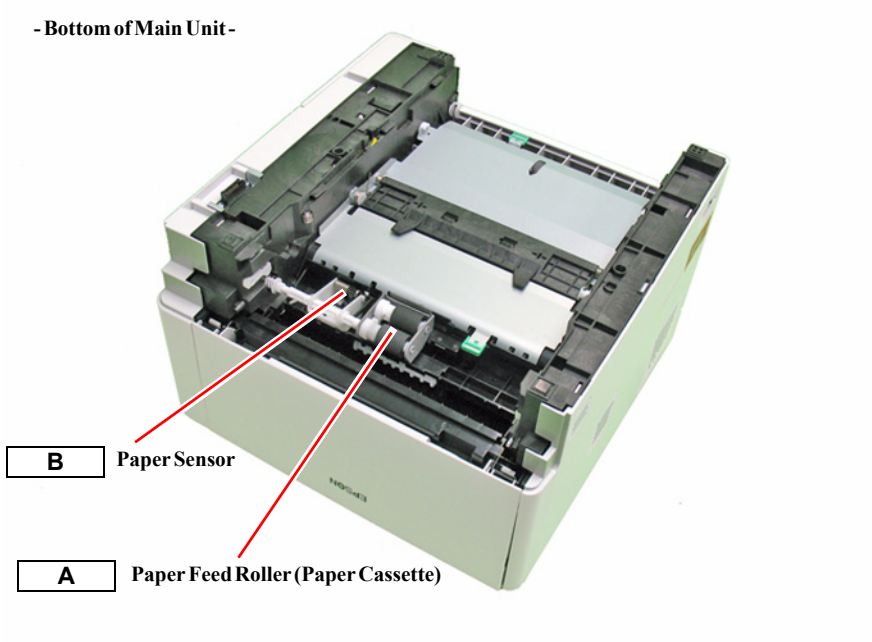
3. Pull the Transfer Roller Shafts from the bearings, and remove the Transfer Roller.
4. Remove the gear from the Transfer Roller.

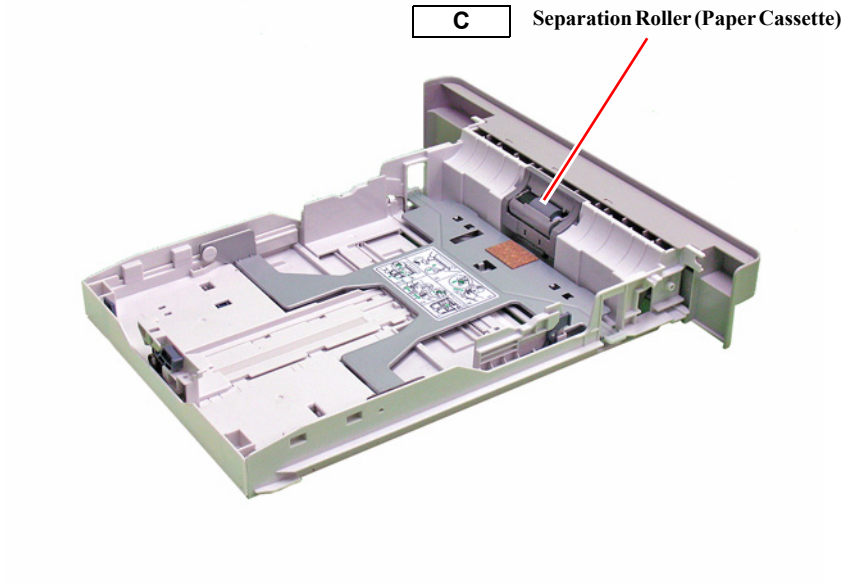
REASSEMBLY When attaching the Transfer Roller, push the release lever to lift its front end, and put the gear shaft under the front end of the lever.

4.3.4 Group 4

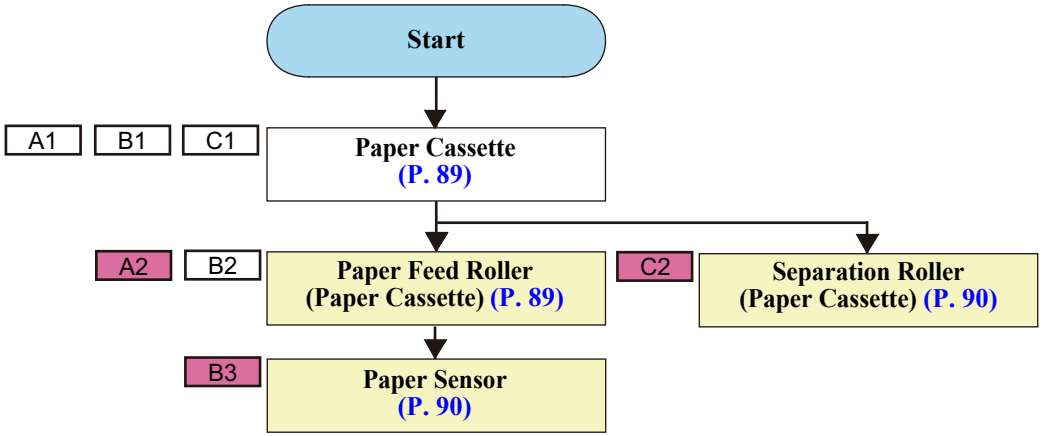
CONTENT

Parts/Units to be Disassembled	Guide
Paper Feed Roller (Paper Cassette)	A
Paper Sensor	B
Separation Roller (Paper Cassette)	C



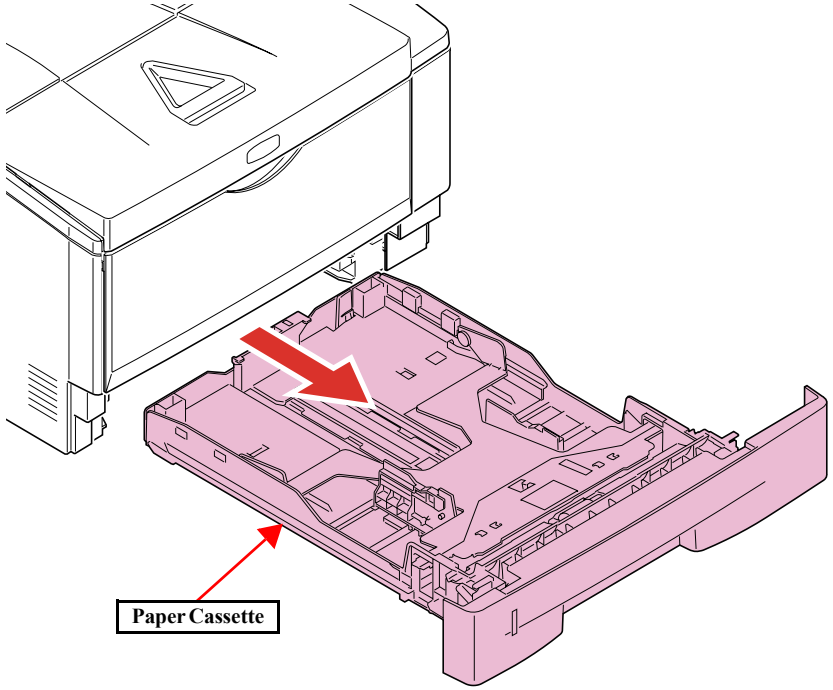


DISASSEMBLY FLOWCHART



A1	B1
C1	

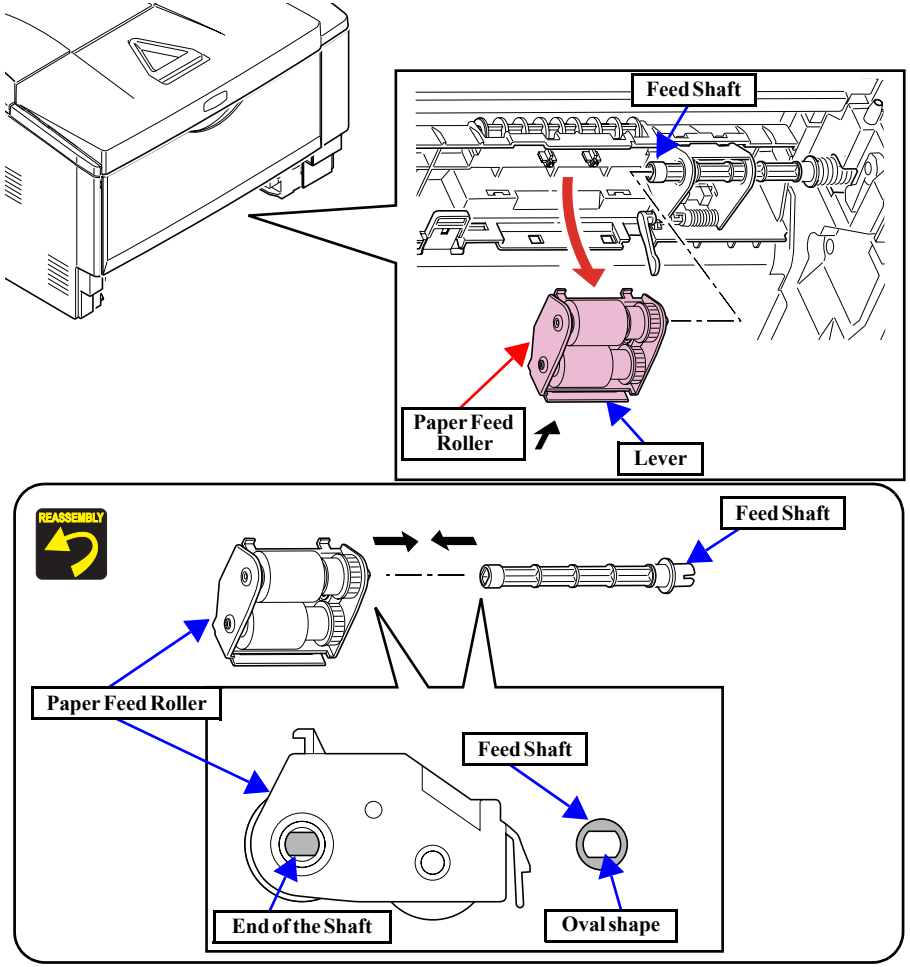
Paper Cassette



1. Remove the Paper Cassette.

A2	B2

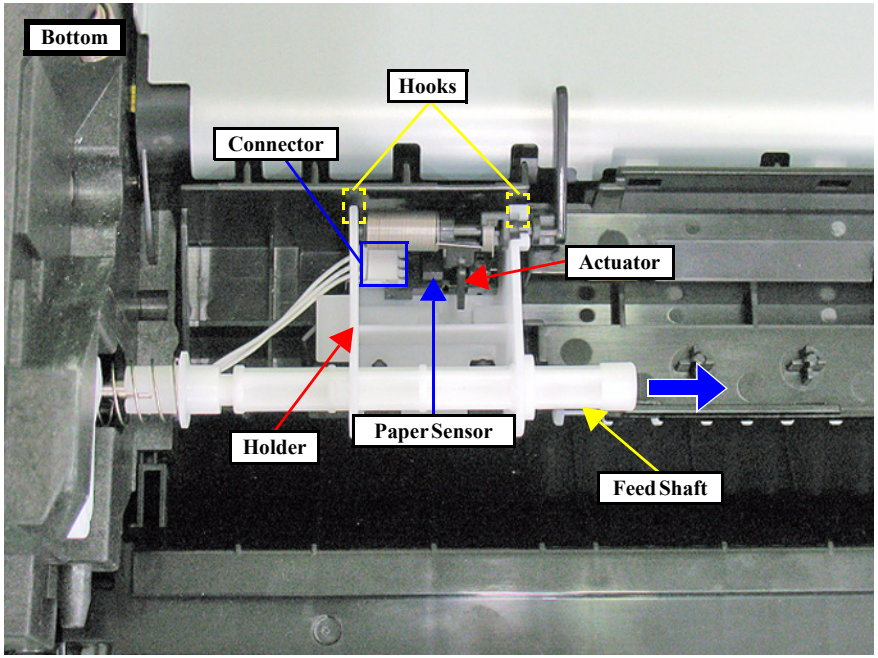
Paper Feed Roller (Paper Cassette)



1. Push the lever and remove the Paper Feed Roller.

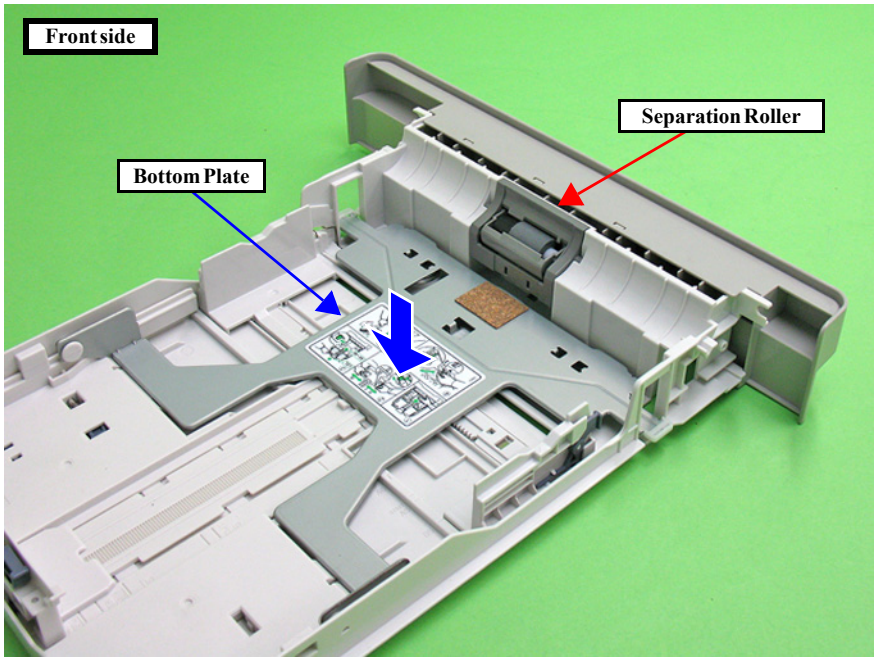
REASSEMBLY Match the Feed Shaft end with the oval hole on the Paper Feed Roller.

B3 Paper Sensor

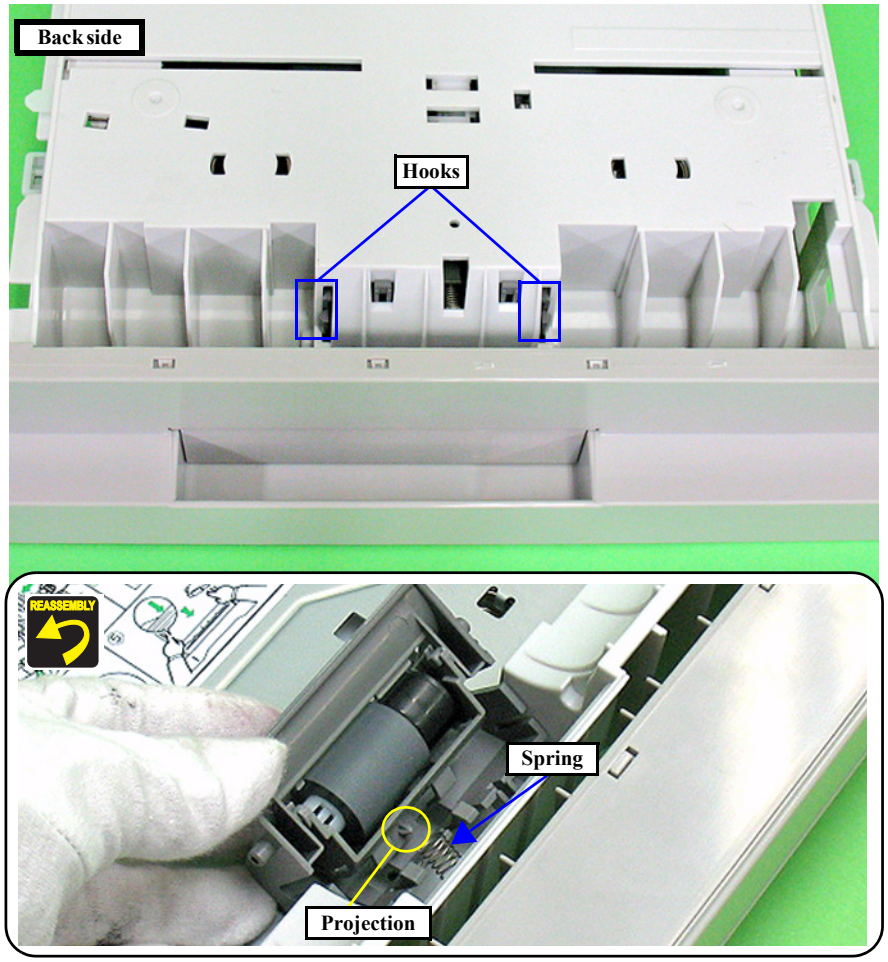


1. Put the printer upside down.
2. Pull the Feed Shaft out in the direction of the arrow.
3. Disengage the two hooks and remove the holder.
4. Remove the actuator from the holder.
5. Disengage the hook and remove the Paper Sensor.
6. Disconnect the connector from the Paper Sensor.

C2 Separation Roller (Paper Cassette)



1. Secure the Bottom Plate by pressing it down.



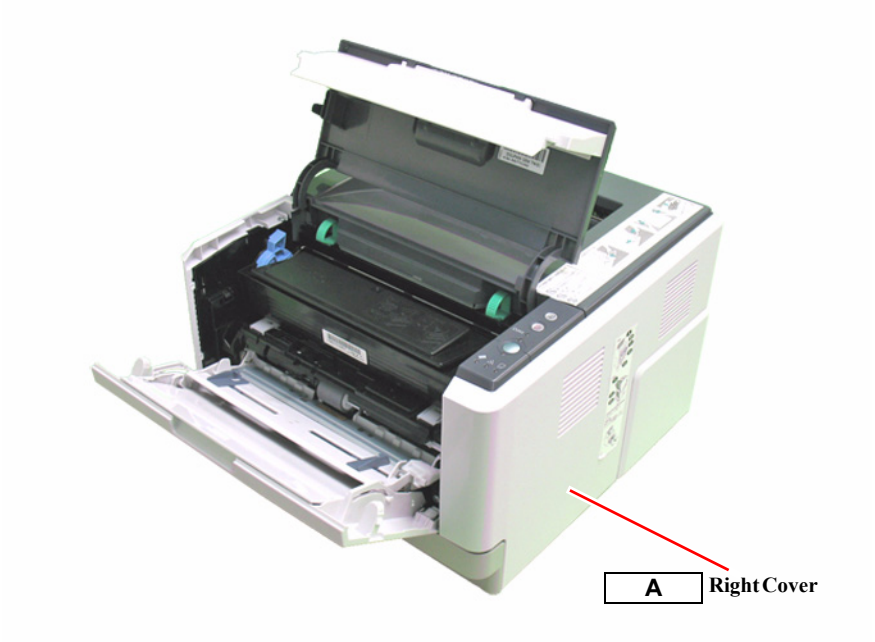
2. Disengage the two hooks from the back of the cassette, and remove the Separation Roller.

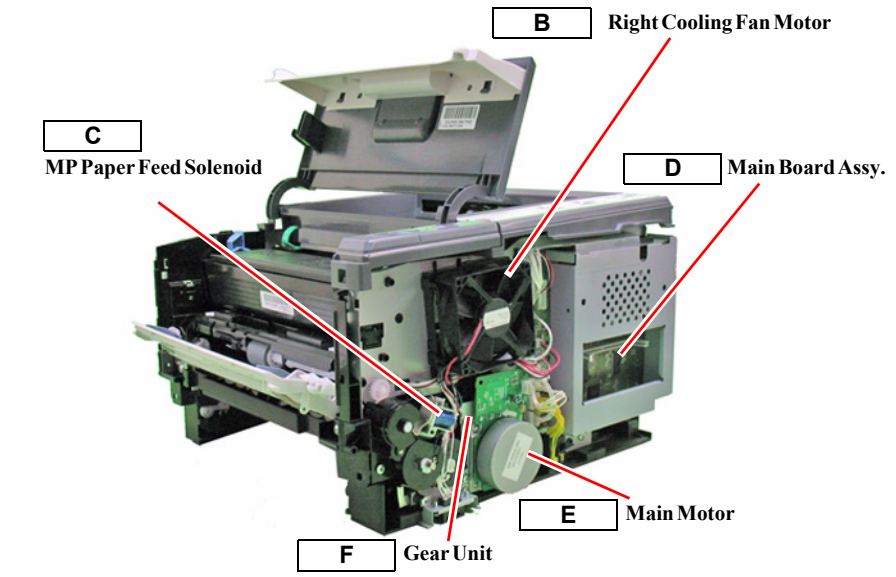
REASSEMBLY Attach the spring to the projection of the separation Roller holder.

4.3.5 Group 5

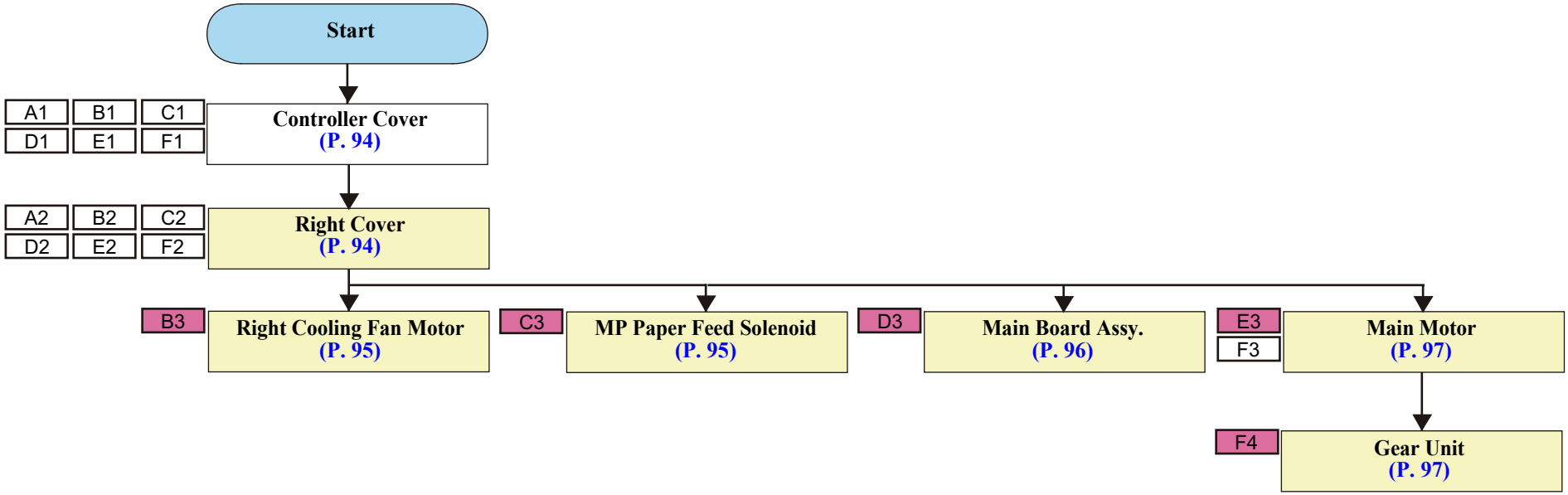
CONTENT

Parts/Units to be Disassembled	Guide
Right Cover	A
Right Cooling Fan Motor	B
MP Paper Feed Solenoid	C
Main Board Assy.	D
Main Motor	E
Gear Unit	F

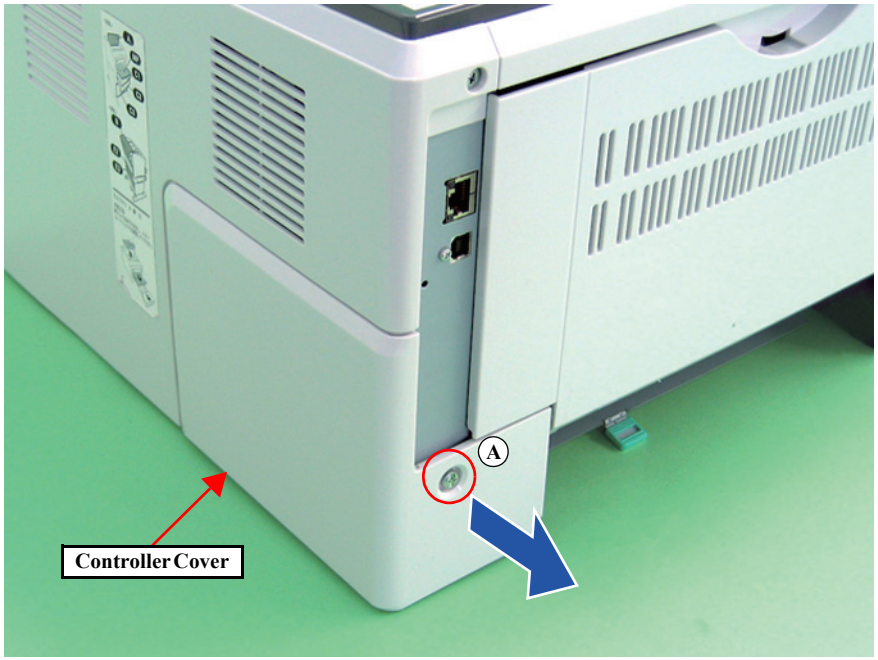




DISASSEMBLY FLOWCHART

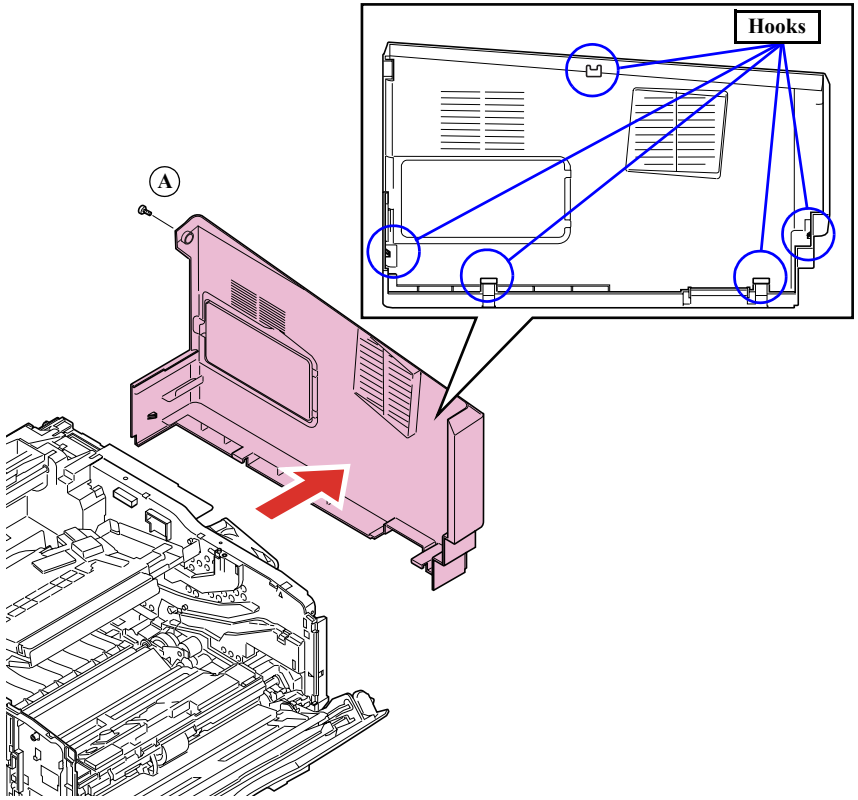


A1	B1	C1	Controller Cover
D1	E1	F1	



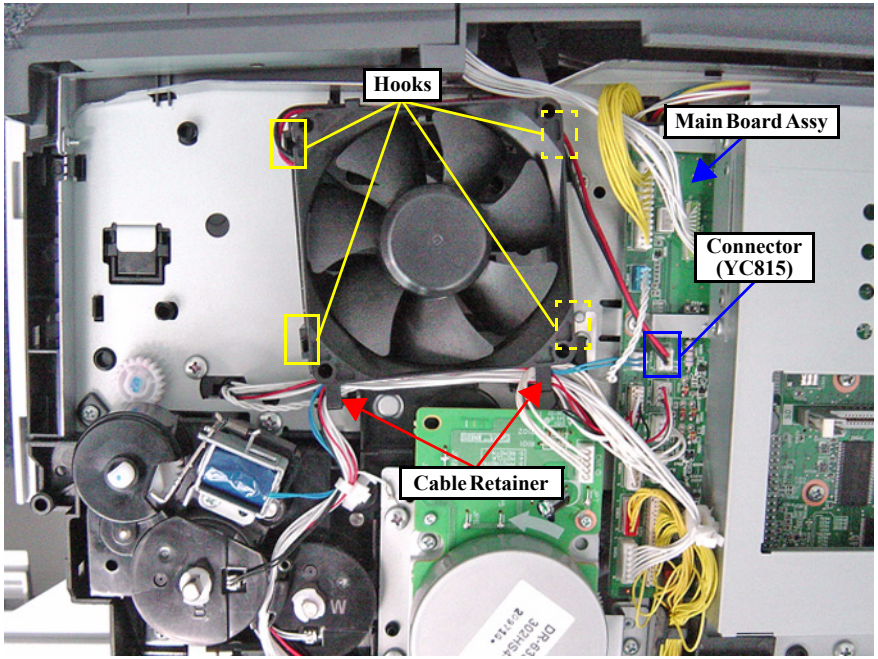
1. Remove the screw.
   A) Silver / M3x6 / S-Tite: One piece
2. Remove the Controller Cover in the direction of the arrow.

A2	B2	C2	Right Cover
D2	E2	F2	



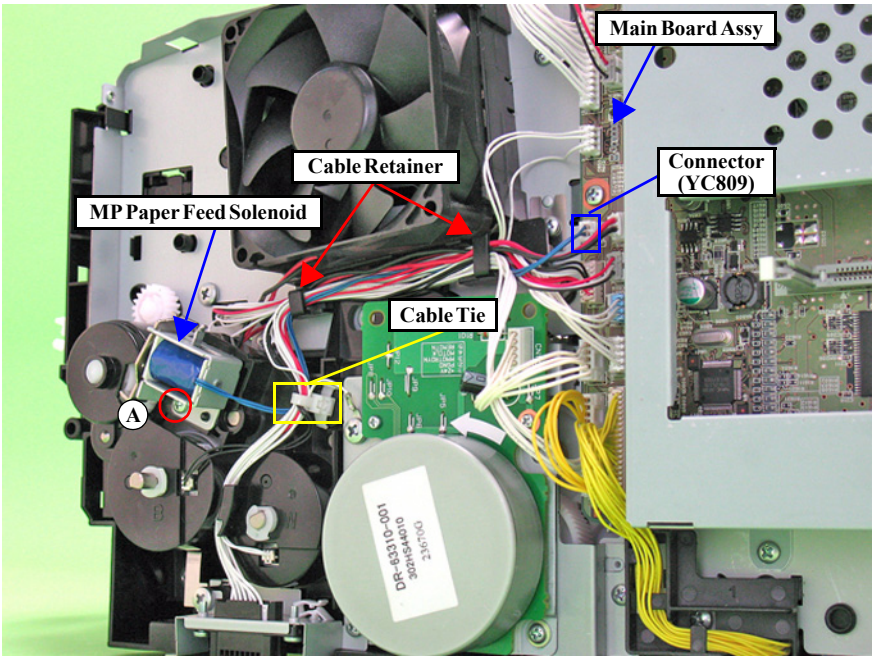
1. Open the Front Cover.
2. Slightly pull out the Paper Cassette.
3. Remove the screw.
   A) Silver / M3x10 / P-Tite: One piece
4. Disengage the five hooks of the Right Cover in the order from the rearmost hook to the frontmost hook, and remove the Right Cover.

B3 Right Cooling Fan Motor



1. Disconnect the connector from the Main Board Assy.
2. Release the cables from the two cable retainers.
3. Disengage the four hooks and remove the Right Cooling Fan Motor.

C3 MP Paper Feed Solenoid



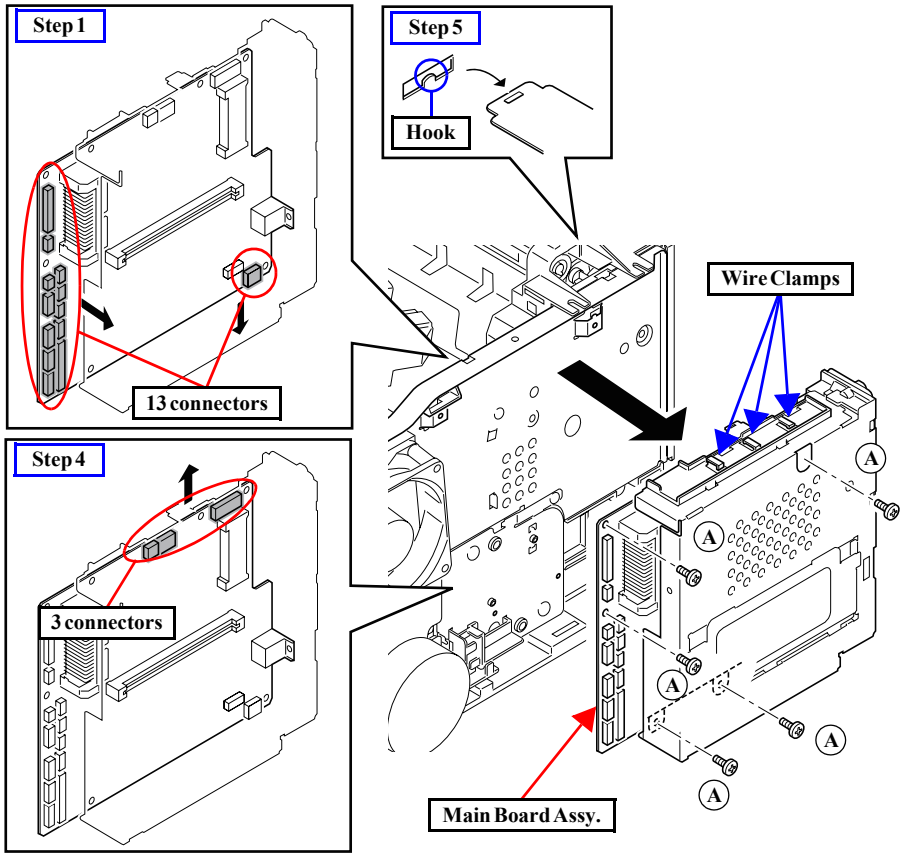
1. Disconnect the connector from the Main Board Assy.
2. Release the cables from the two cable retainers.

CAUTION Be careful not to damage the cables when cutting the cable tie in the following step.

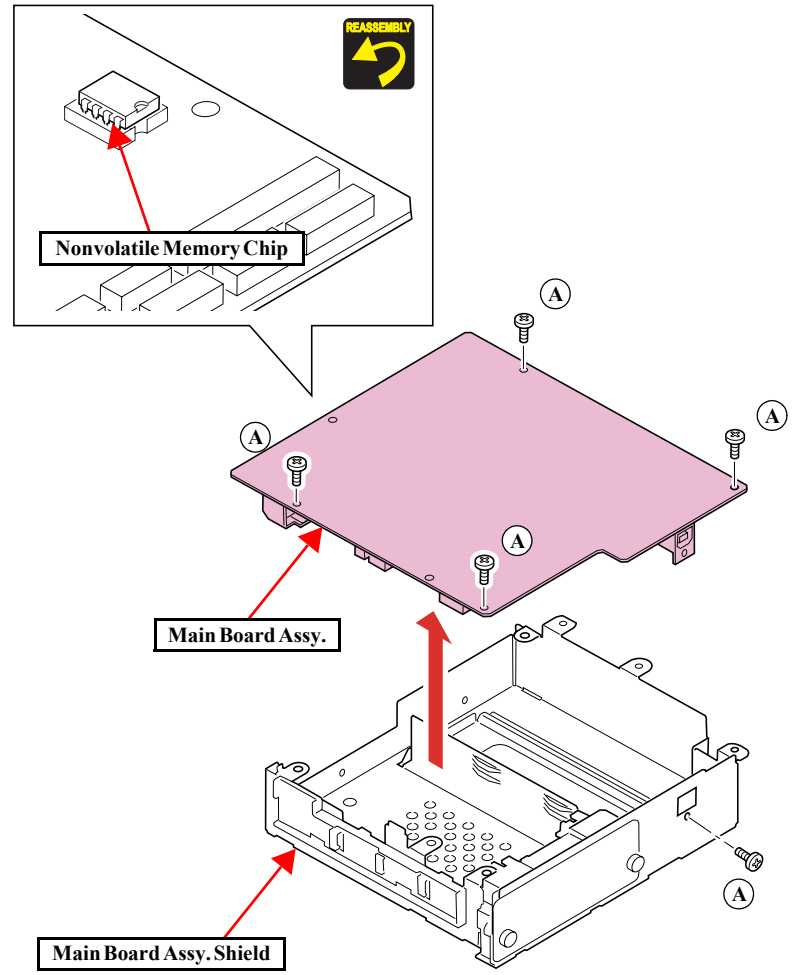
3. Cut the Cable Tie and release the cables.
4. Remove the screw, and remove the MP Paper Feed Solenoid.
   A) Silver / M3x6 / P-Tite: One piece

D3

Main Board Assy.



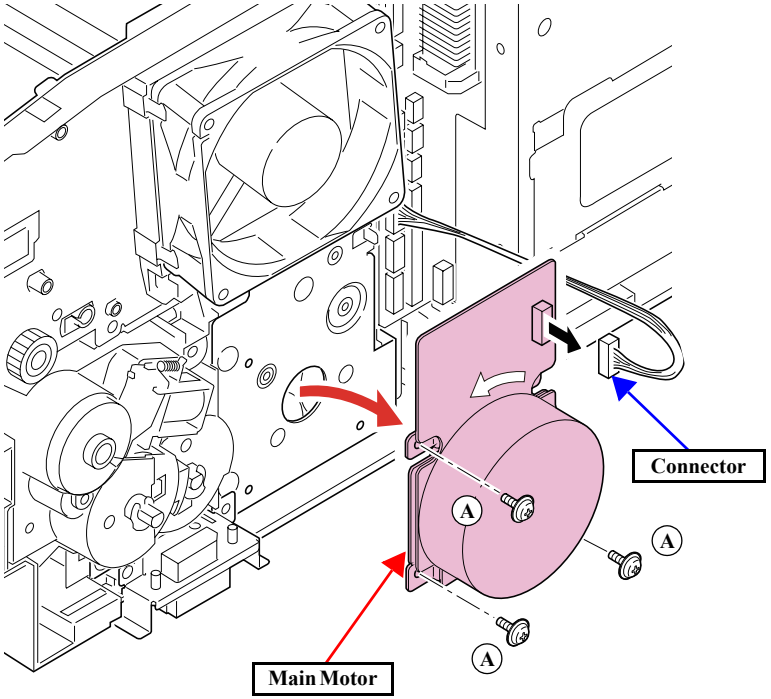
1. Disconnect the 13 connectors from the Main Board Assy.
2. Release the cables from the Wire Clamps.
3. Remove the five screws.
   A) Silver/M3x6/S-Tite: Five pieces
4. Disconnect the 3 connectors from the Main Board Assy.
5. Disengage the hook and remove the Main Board Assy. together with the Main Board Assy. Shield.



6. Remove the five screws and Shield.
   A) Silver/M3x6/S-Tite: Five pieces

REASSEMBLY When replacing the Main Board Assy. with a new one, make sure to remove the nonvolatile memory chip from the old board and insert it into the IC socket on the new board. Be careful not to insert the chip upside down . Doing so can damage the chip.

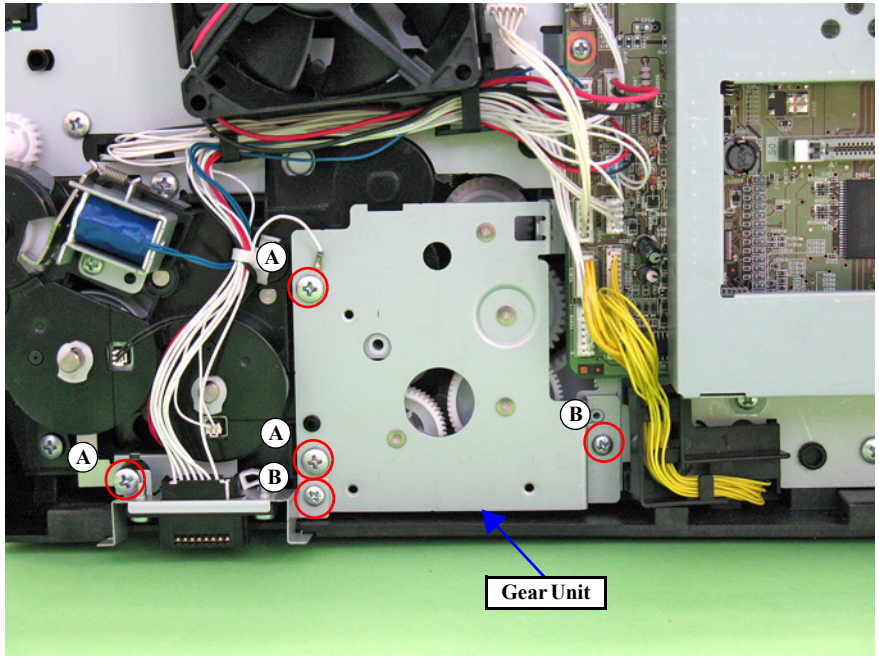
E3 F3 **Main Motor**



1. Disconnect the connector from the Main Motor.
2. Remove the three screws, and remove the Main Motor.
   A) Silver/M3x6/Cup: Three pieces

CAUTION Never turn the Main Motor in the reverse direction of the arrow indicated on the Main Motor Board. Doing so may damage the Photoconductor Unit.

F4 **Gear Unit**

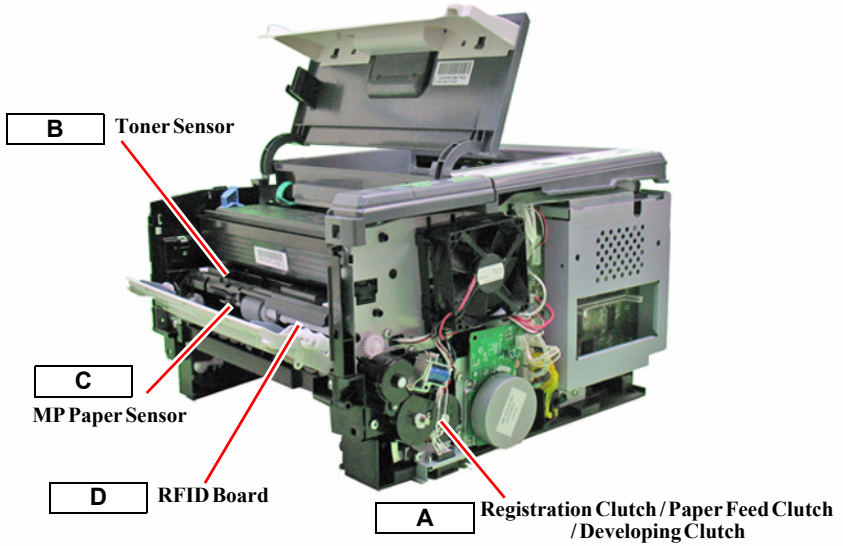


1. Remove the five screws, and remove the Gear Unit.
   A) Silver/M3x10/P-Tite: Three pieces
   B) Silver/M3x6/S-Tite: Two pieces

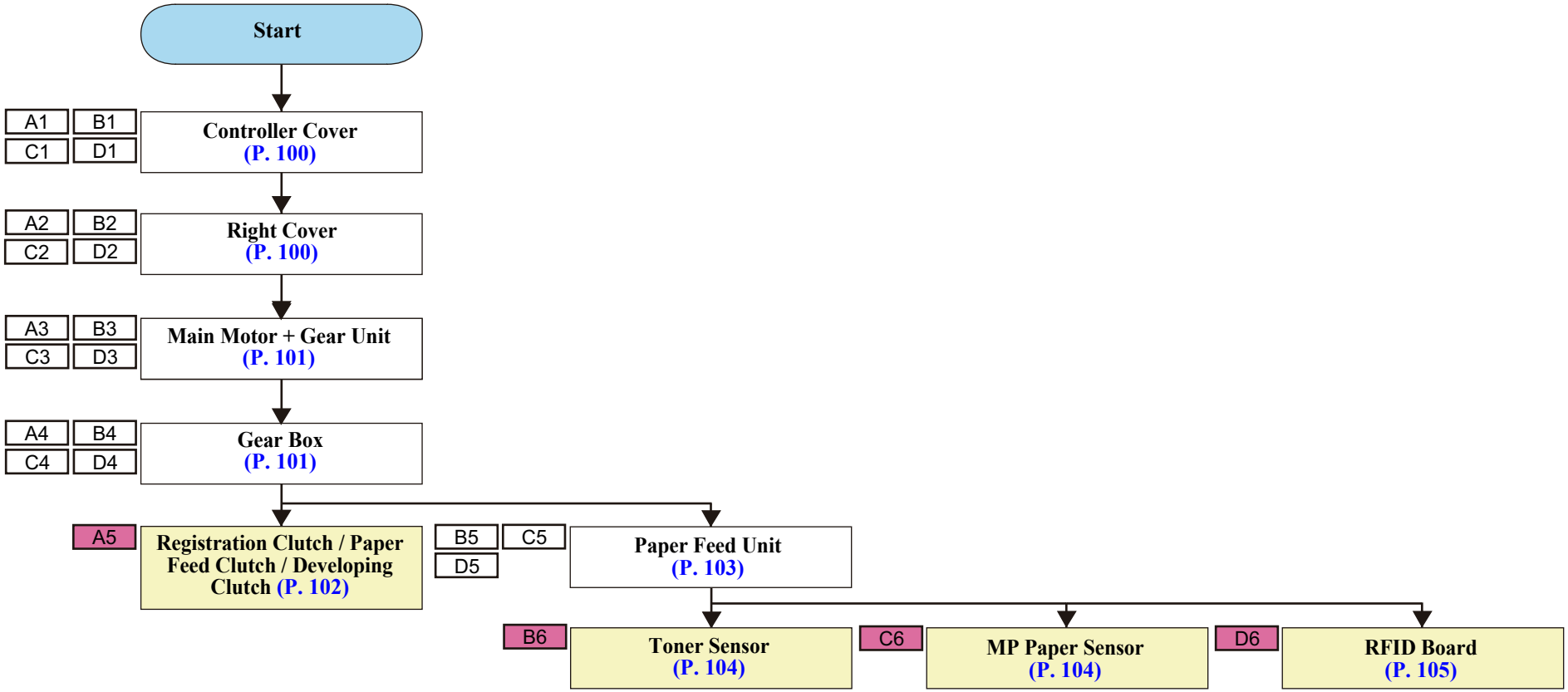
4.3.6 Group 6

CONTENT

Parts/Units to be Disassembled	Guide
Registration Clutch / Paper Feed Clutch / Developing Clutch	A
Toner Sensor	B
MP Paper Sensor	C
RFID Board	D

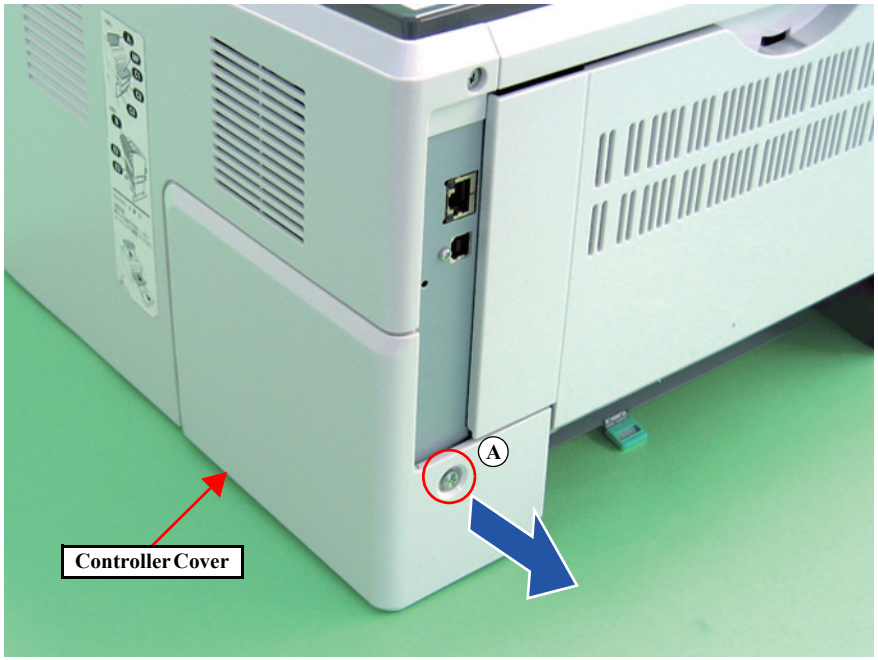


DISASSEMBLY FLOWCHART



A1	B1
C1	D1

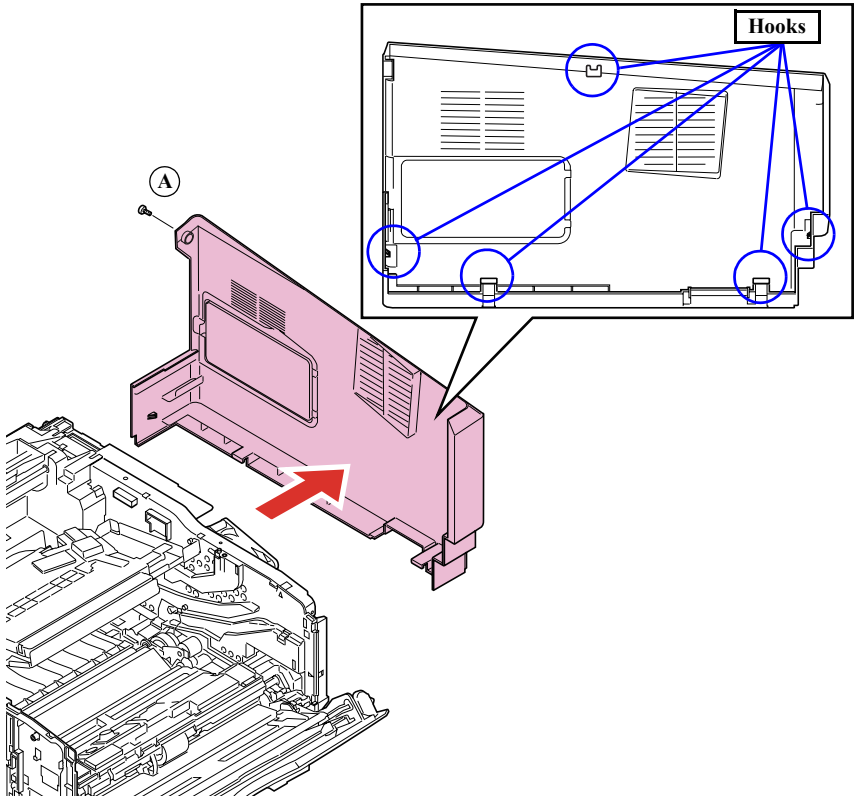
Controller Cover



1. Remove the screw.
   A) Silver / M3x6 / S-Tite: One piece
2. Remove the Controller Cover in the direction of the arrow.

A2	B2
C2	D2

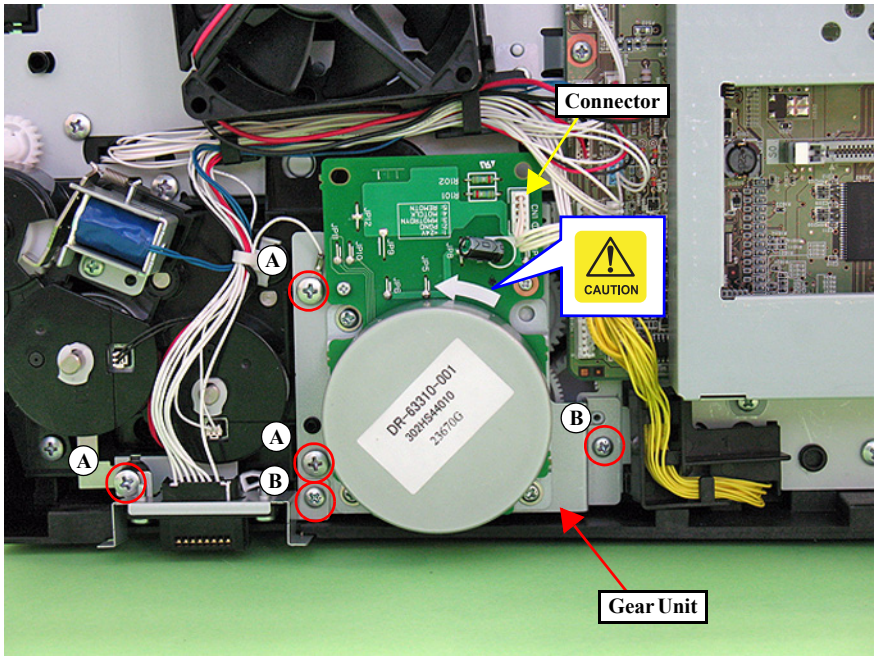
Right Cover



1. Open the Front Cover.
2. Slightly pull out the Paper Cassette.
3. Remove the screw.
   A) Silver / M3x10 / P-Tite: One piece
4. Disengage the five hooks of the Right Cover in the order from the rearmost hook to the frontmost hook, and remove the Right Cover.

A3	B3
C3	D3

Main Motor + Gear Unit

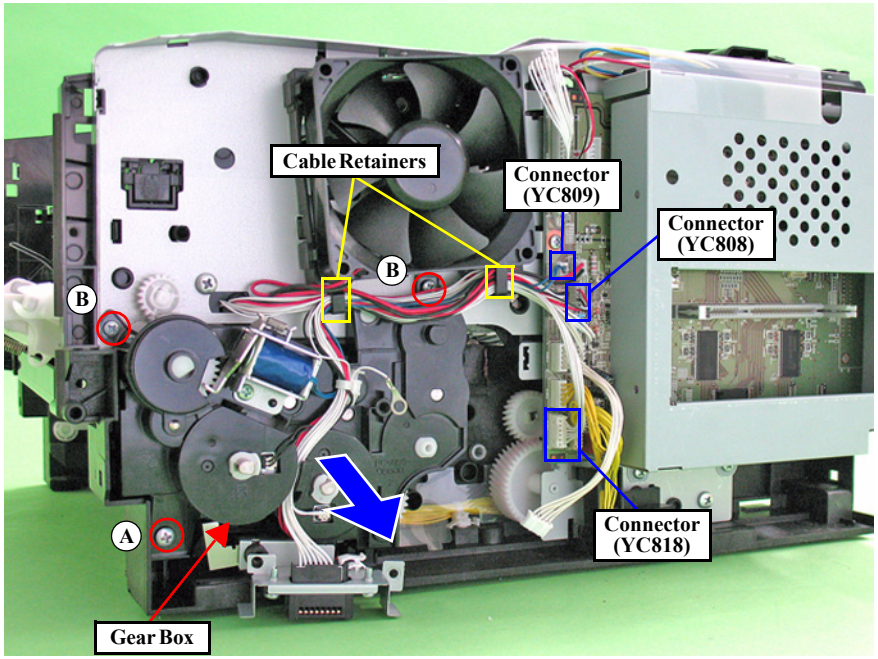


1. Disconnect the connector from the Main Motor.
2. Remove the five screws, and remove the Main Motor and the Gear Unit.
   A) Silver/M3x6/P-Tite: Three pieces
   B) Silver/M3x6/S-Tite: Two pieces

CAUTION Never turn the Main Motor in the reverse direction of the arrow indicated on the Main Motor Board. Doing so may damage the Photoconductor Unit.

A4	B4
C4	D4

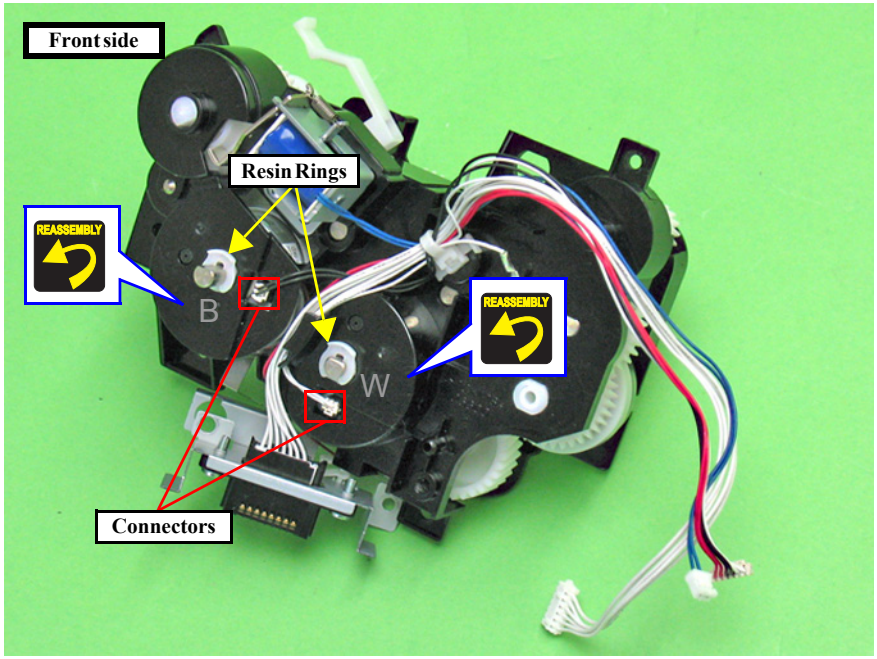
Gear Box



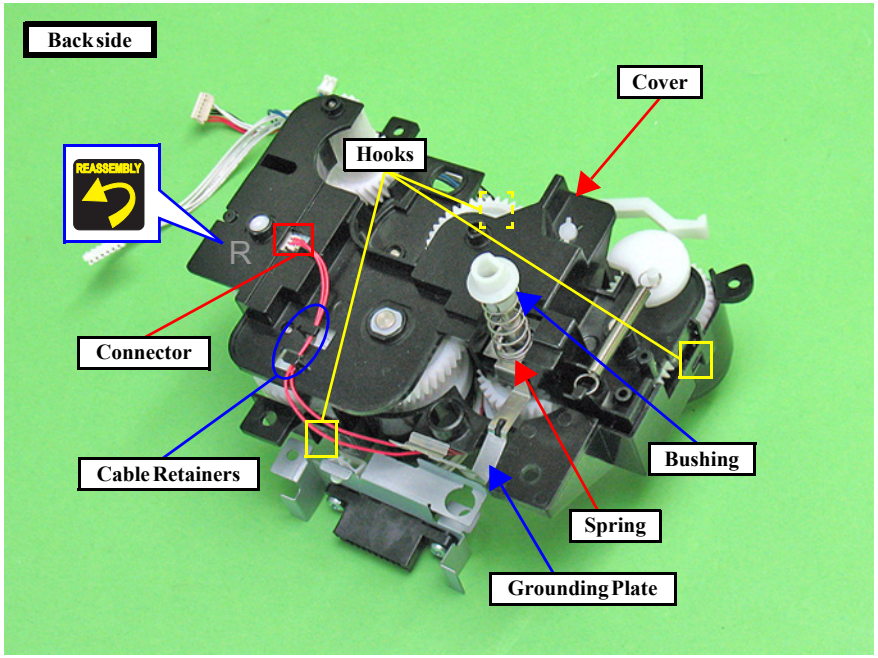
1. Disconnect the three connectors from the Main Board Assy.
2. Release the cables from the two cable retainers.
3. Remove the three screws.
   A) Silver/M3x10/P-Tite: One piece
   B) Silver/M3x6/S-Tite: Two pieces
4. Remove the Gear Box.

A5

Registration Clutch / Paper Feed Clutch / Developing Clutch



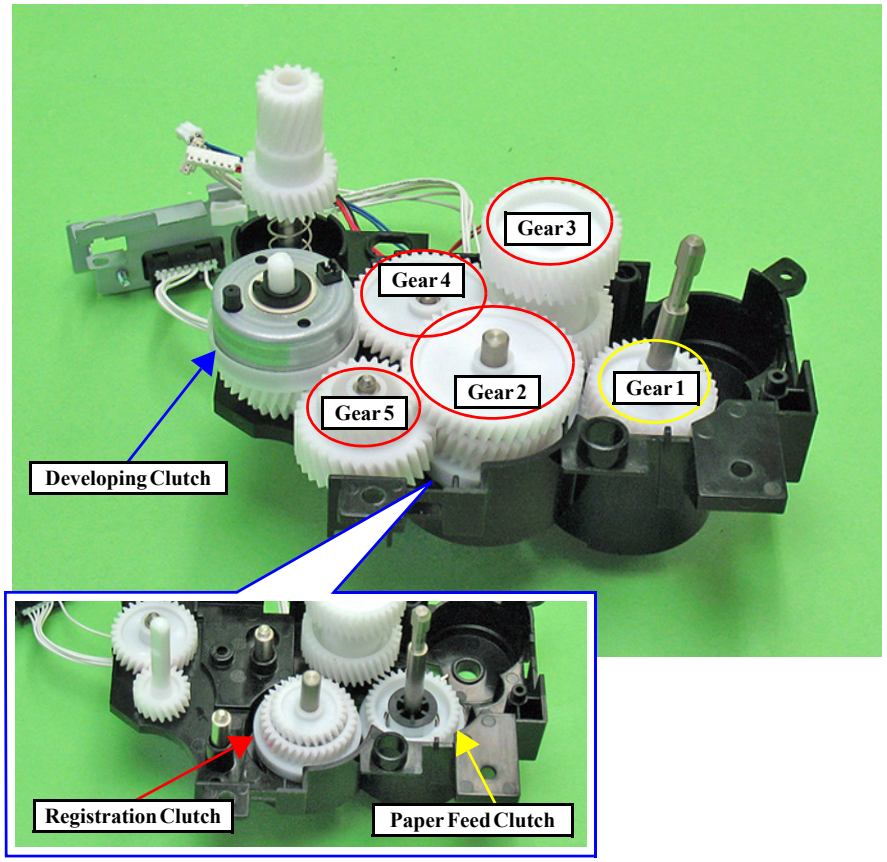
1. Disconnect the two connectors.
2. Remove the two Resin Rings.



3. Disconnect the connector, and release the cable from the cable retainers.
4. Disengage the hook and remove the bushing.
5. Remove the spring and the Grounding Plate.
6. Disengage the three hooks and remove the cover.

REASSEMBLY

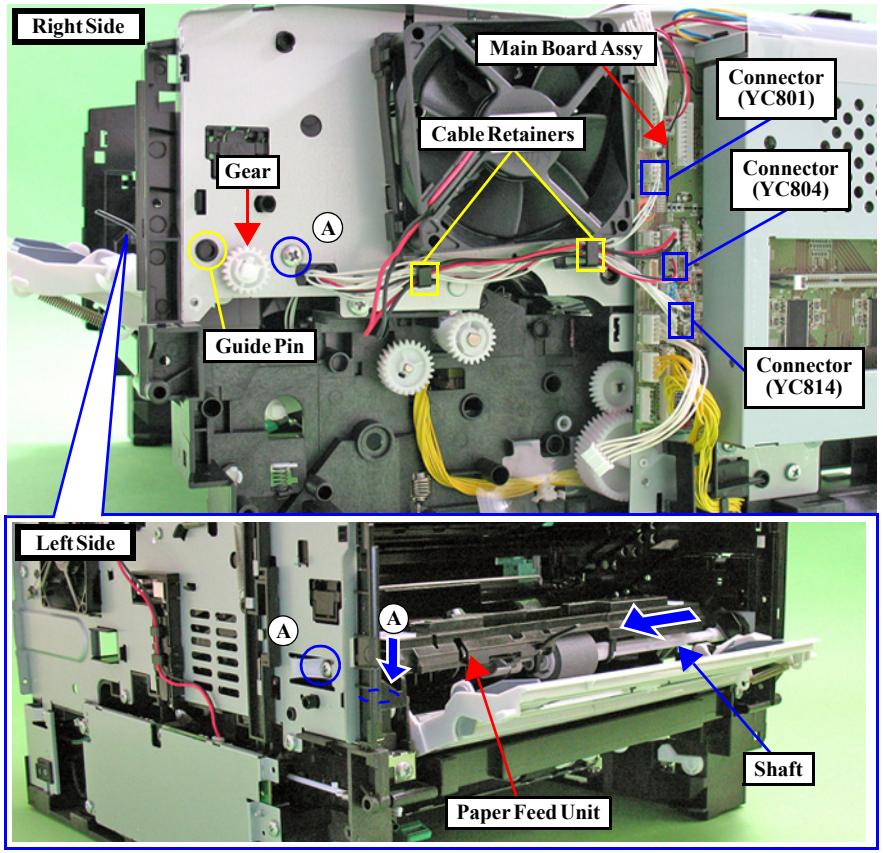
- ☐ Make sure that the connector connected to the clutch is fitted into the cutout.
- ☐ When connecting the connectors, make sure to match the cable color with the color indicated on the cover. (R = Red, B = Black, W = White)



7. Remove the Developing Clutch.
8. Remove the Gear 1, and remove the Paper Feed Clutch.
9. Remove the Gear 2, Gear 3, Gear 4, and Gear 5 in that order, and remove the Registration Clutch.

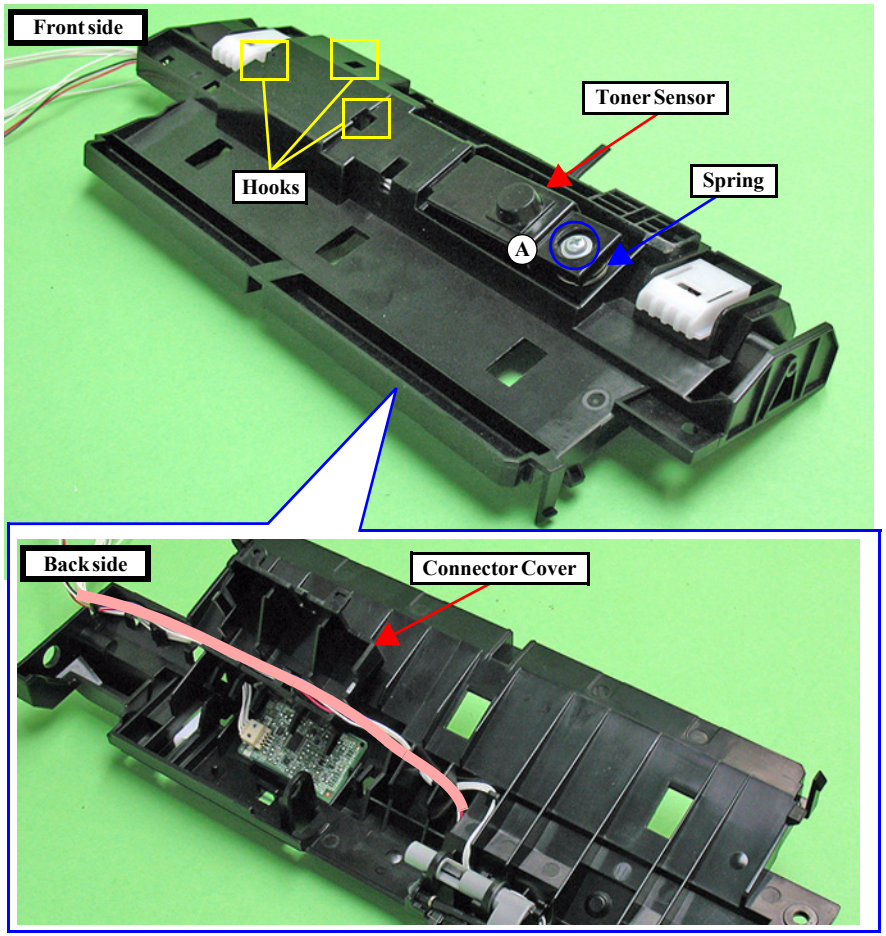
	B5
C5	D5

Paper Feed Unit



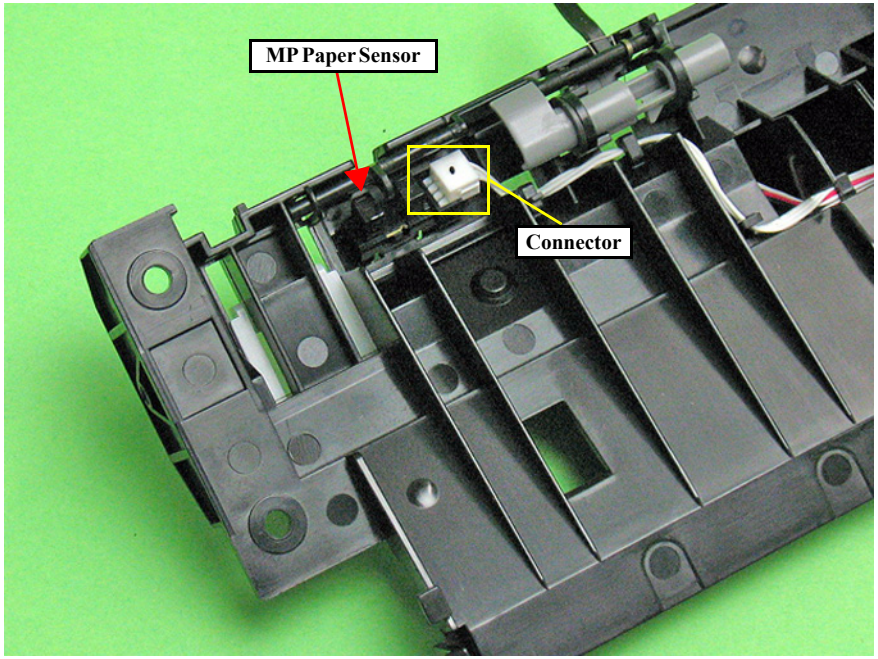
1. Disconnect the three connectors from the Main Board Assy.
2. Release the cables from the two cable retainers.
3. Remove the three screws.
   A) Silver / M3x10 / P-Tite: Three pieces
4. Disengage the hook and remove the gear.
5. Remove the shaft from the Paper Feed Roller, and pull out the shaft in the direction of the arrow.
6. Remove the Paper Feed Unit pulling out its positioning pin and the cables.

B6 Toner Sensor



1. Remove the screw, and remove the spring.
   A) Silver / M3x10 / Washer P-Tite: One piece
2. Disengage the three hooks and remove the Connector Cover.
3. Release the cable from the cable retainers on the Connector Cover.
4. While pulling out the cable, remove the Toner Sensor.

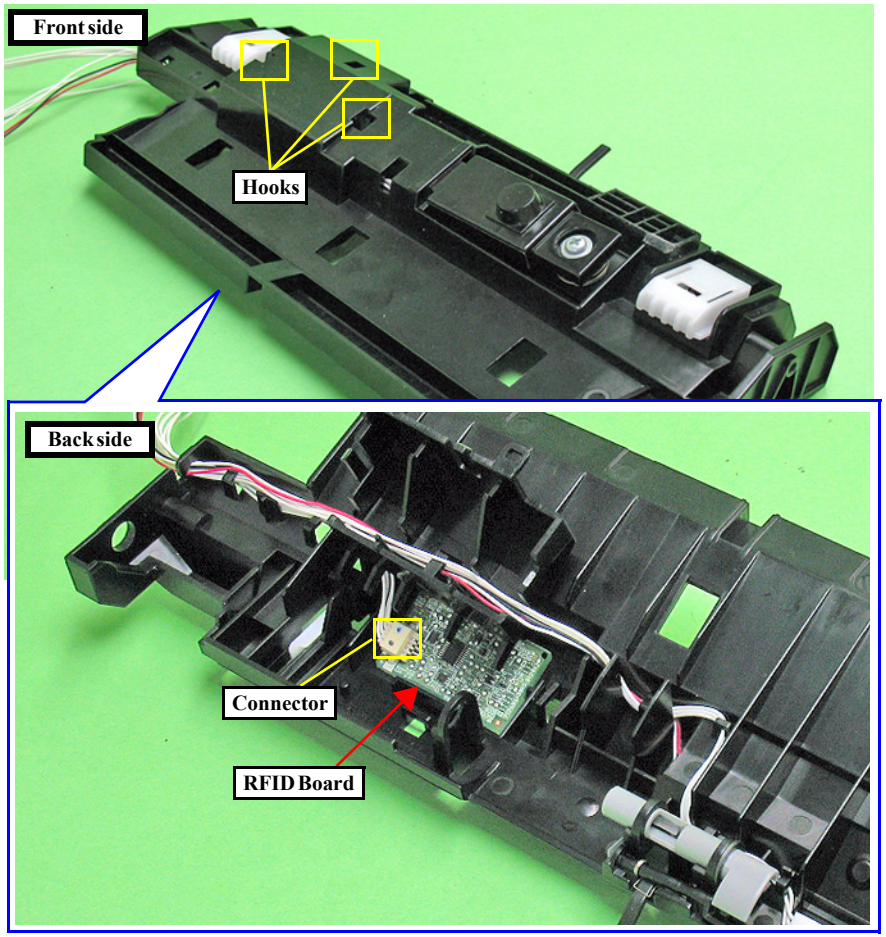
C6 MP Paper Sensor



1. Disengage the hook and remove the MP Paper Sensor from the Paper Feed Assy.
2. Disconnect the connector from the MP Paper Sensor.

D6

RFID Board

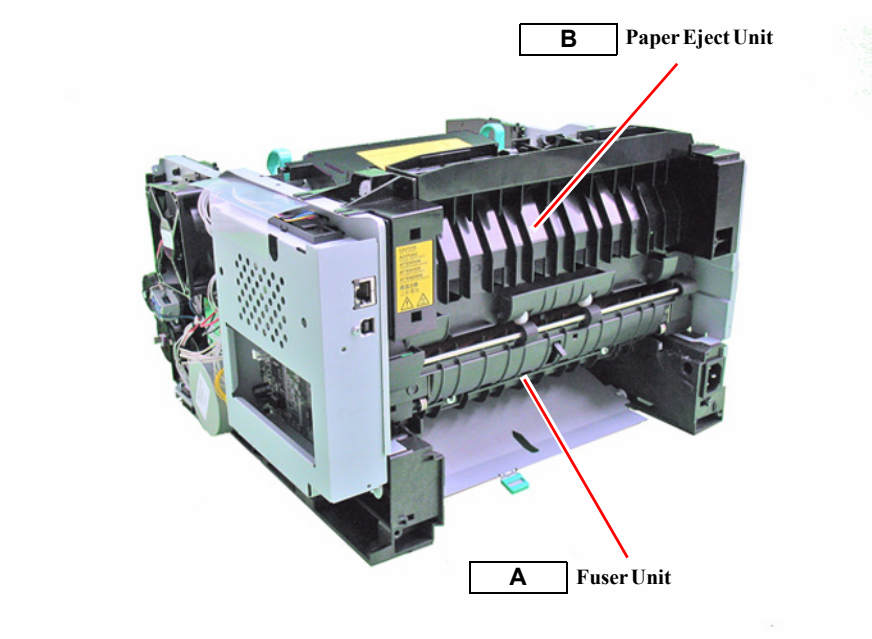


1. Disengage the three hooks and remove the connector cover.
2. Remove the RFID Board from the Paper Feed Unit. (The board is secured to the unit with double-faced tape.)
3. Disconnect the connector from the RFID Board.

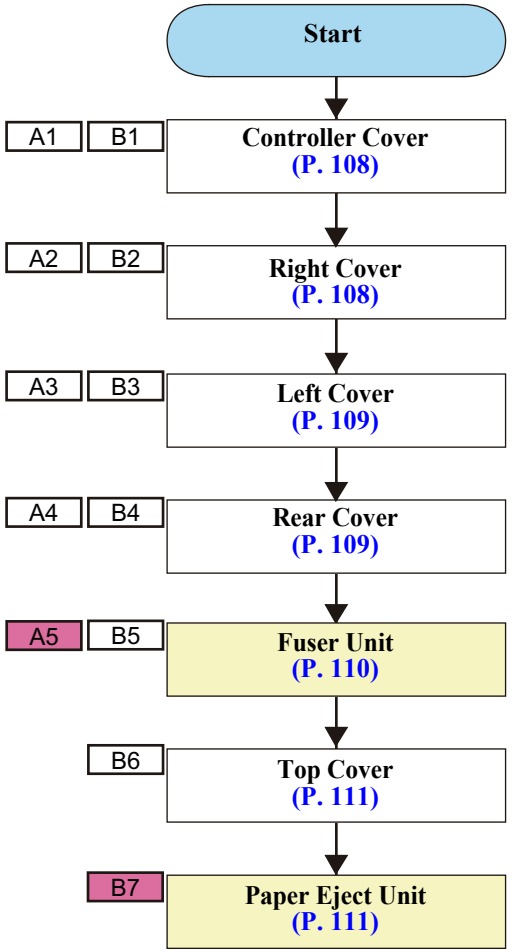
4.3.7 Group 7

CONTENT

Parts/Units to be Disassembled	Guide
Fuser Unit	A
Paper Eject Unit	B

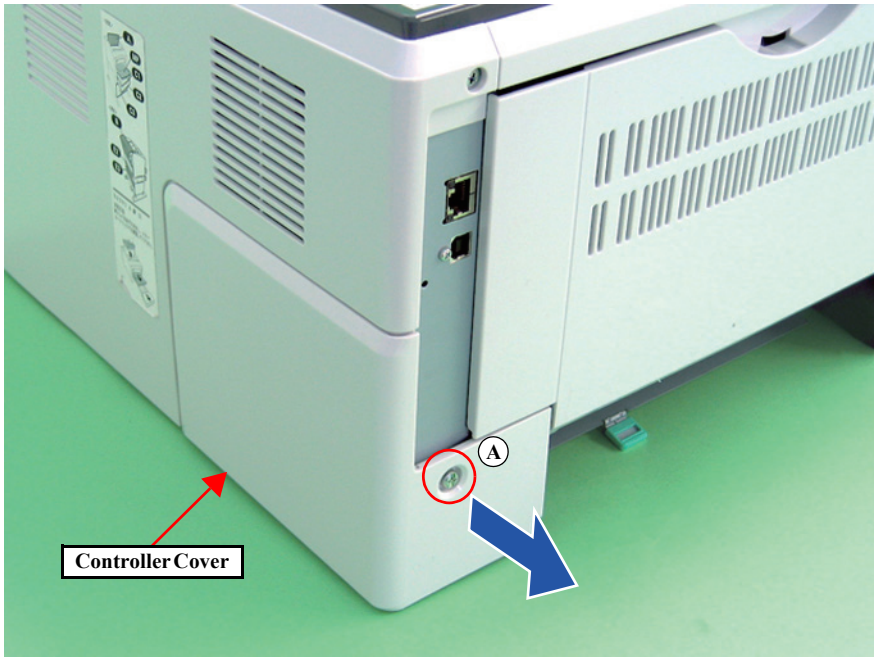


DISASSEMBLY FLOWCHART



A1	B1

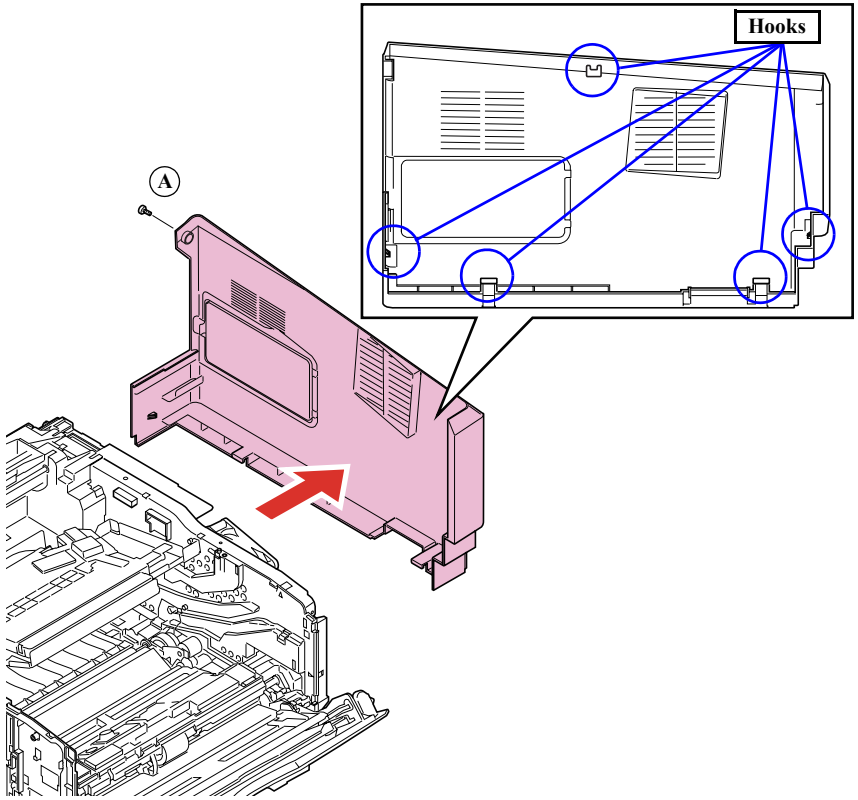
Controller Cover



1. Remove the screw.
   A) Silver / M3x6 / S-Tite: One piece
2. Remove the Controller Cover in the direction of the arrow.

A2	B2

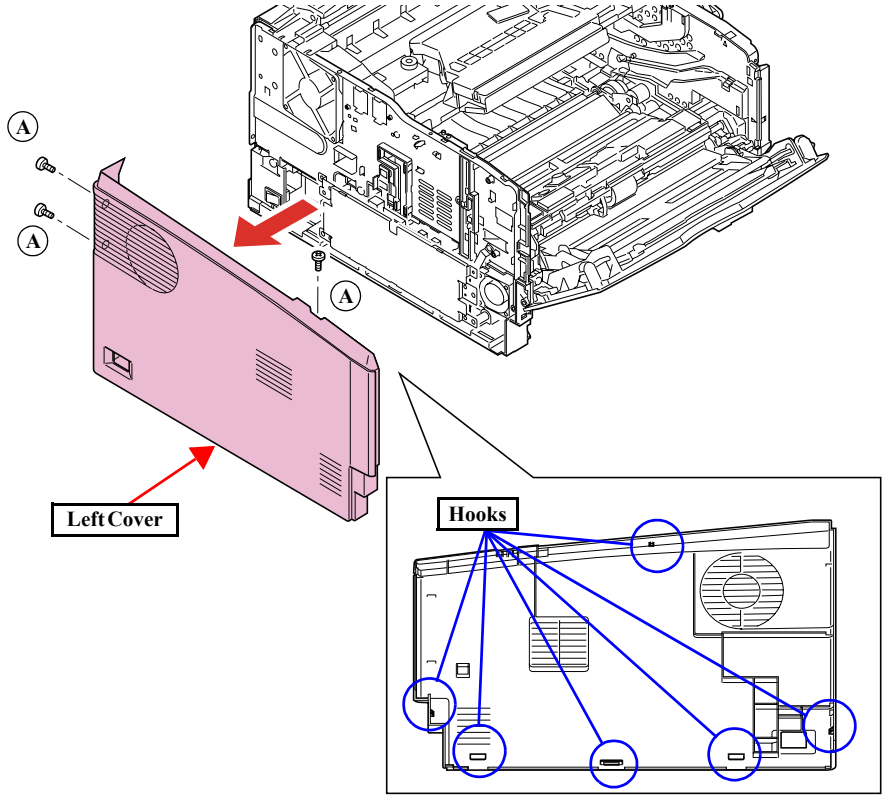
Right Cover



1. Open the Front Cover.
2. Slightly pull out the Paper Cassette.
3. Remove the screw.
   A) Silver / M3x10 / P-Tite: One piece
4. Disengage the five hooks of the Right Cover in the order from the rearmost hook to the frontmost hook, and remove the Right Cover.

A3	B3

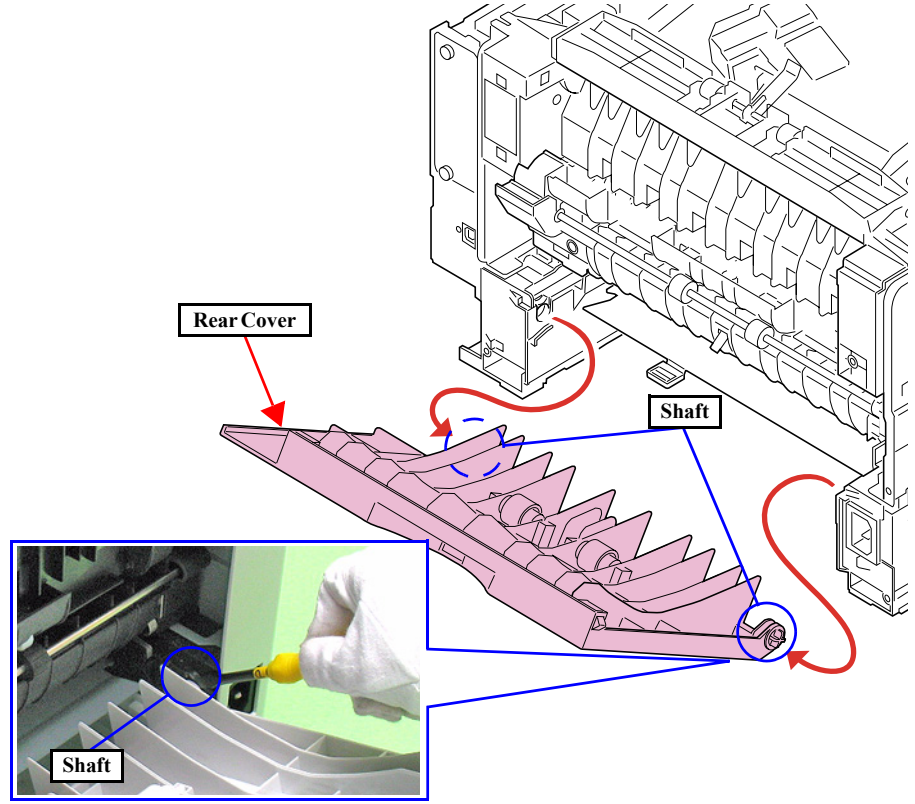
Left Cover



1. Open the Top Cover.
2. Slightly pull out the Paper Cassette.
3. Remove the three screws.
   A) Silver / M3x10 / P-Tite: Three pieces
4. Disengage the six hooks of the Left Cover in the order from the rearmost hook to the frontmost one, and remove the Left Cover.

A4	B4

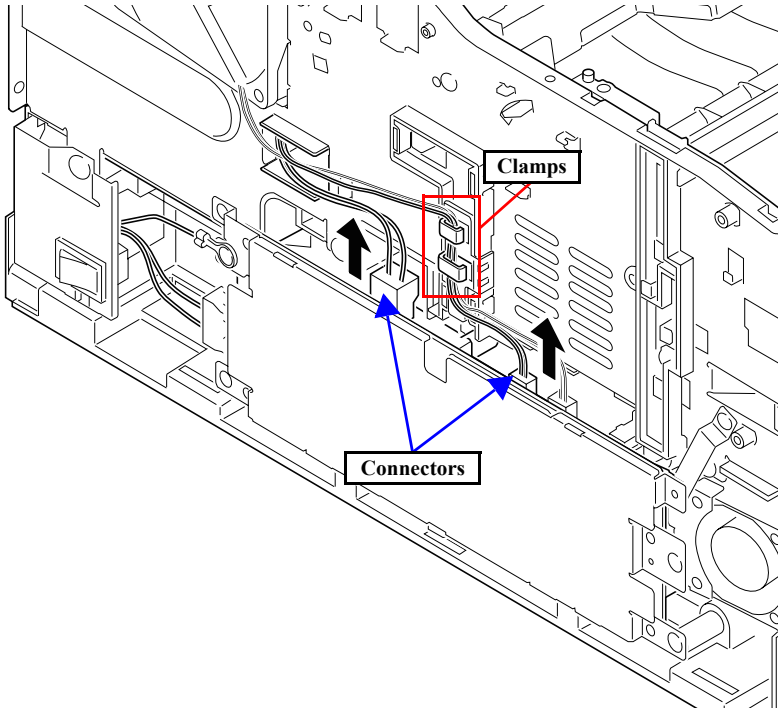
Rear Cover



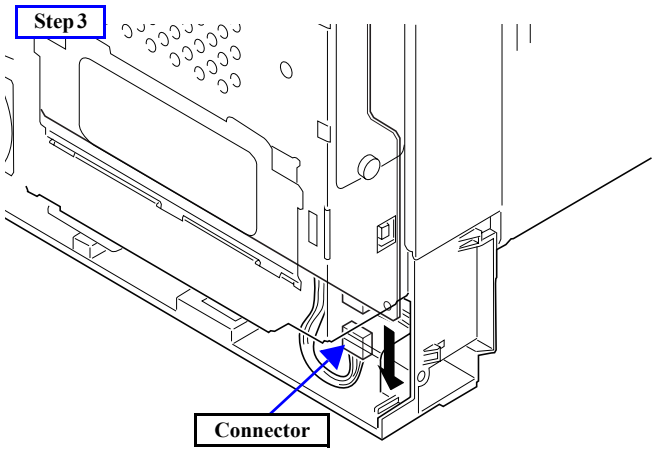
1. Open the Rear Cover.
2. Pull out the right shaft of the Rear Cover (as seen from the rear) using a flat-blade screwdriver or similar tool, and remove the Rear Cover.

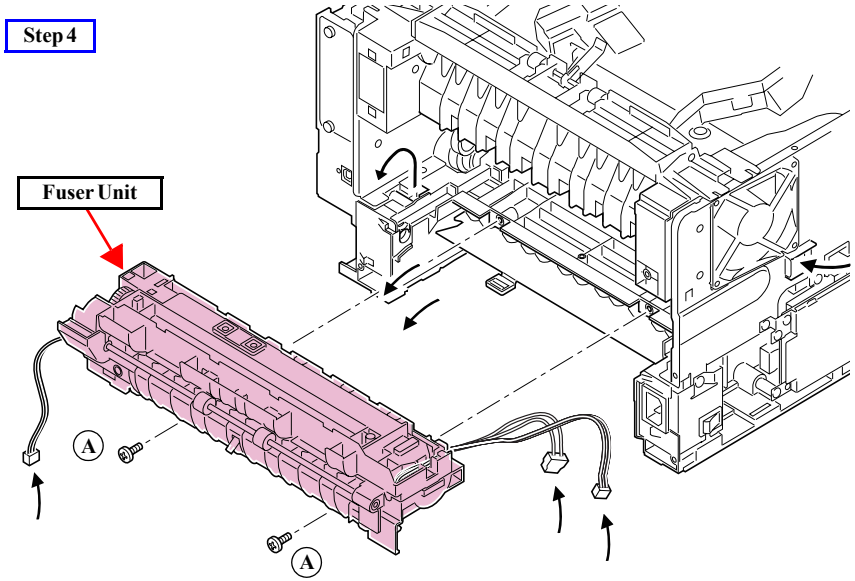
A5	B5

Fuser Unit



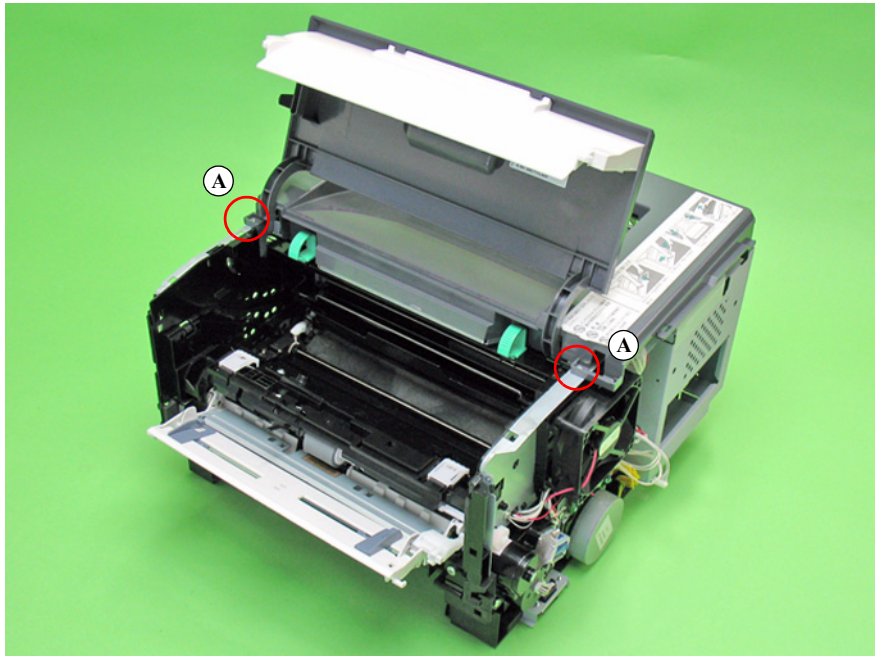
1. Disconnect the two connectors from the LVPS Unit.
2. Release the cables from the Clamps.





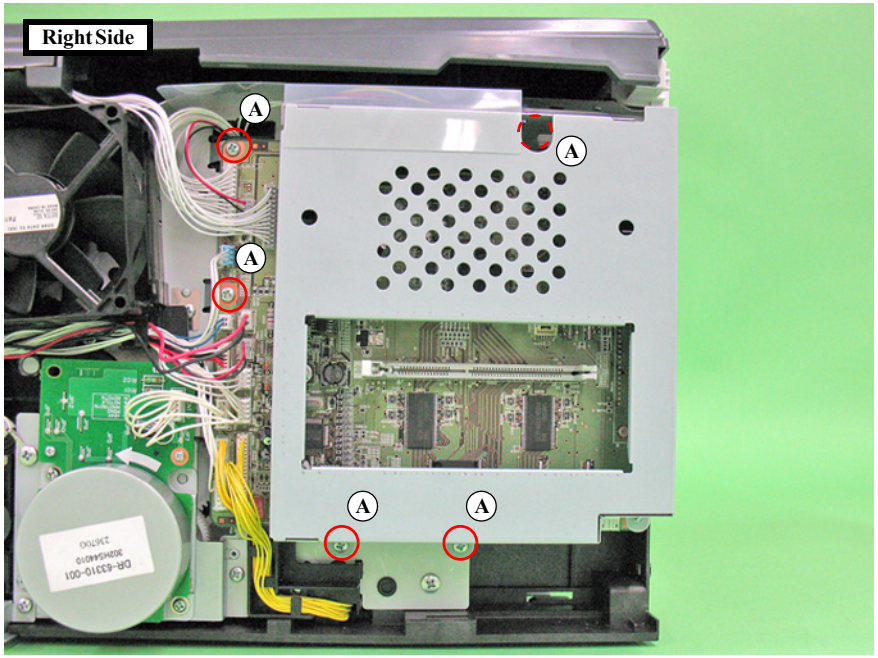
3. Disconnect the connector from the Main Board Assy.
4. Remove the two screws, and remove the Fuser Unit while pulling out the cables through the holes.
   A) Silver/M3x6/P-Tite: Two pieces

B6 Top Cover



1. Remove the two screws, and remove the Top Cover.
   A) Silver / M3x6 / P-Tite: Two pieces

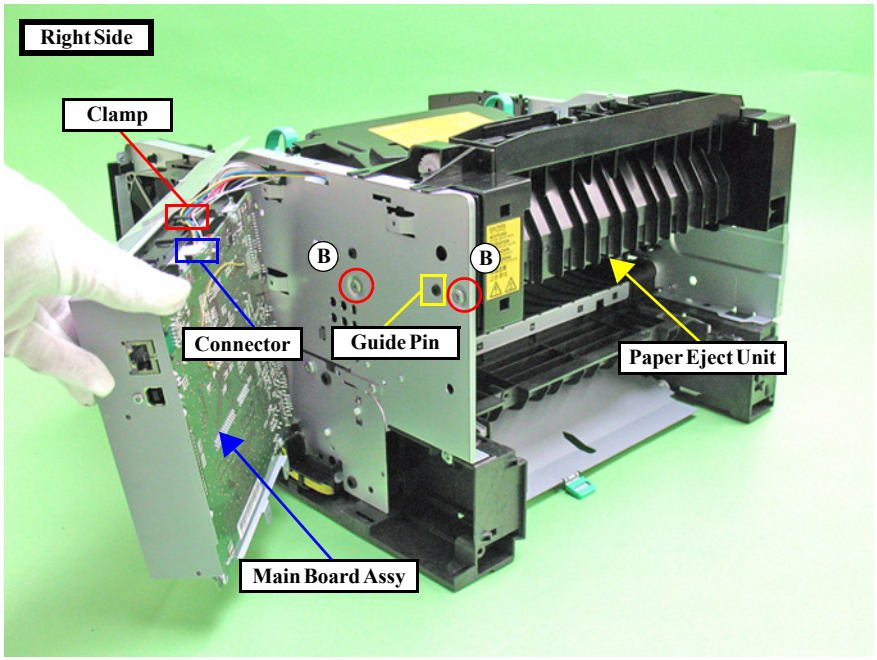
B7 Paper Eject Unit



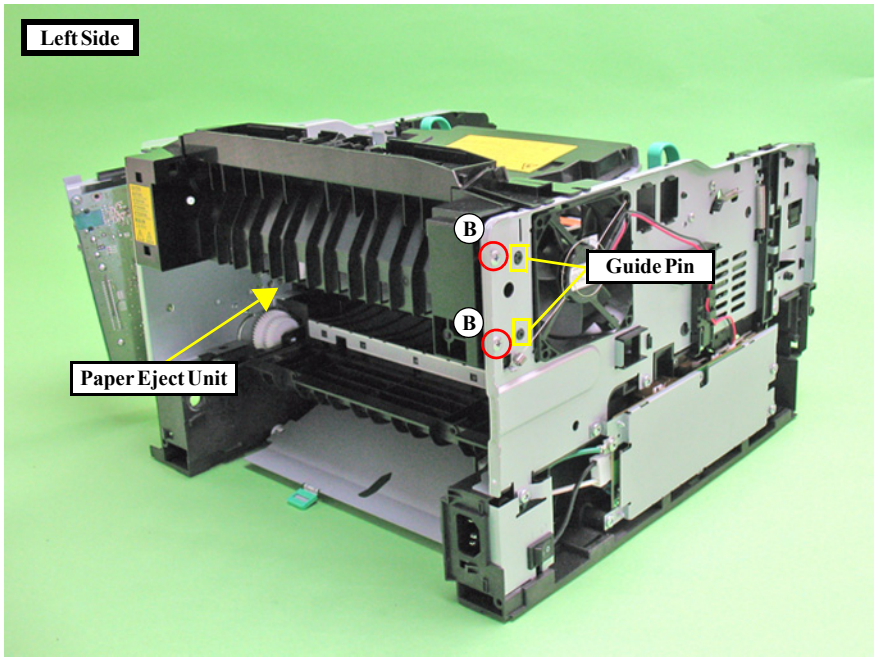
1. Remove the five screws and remove the Shield Box together with the Main Board Assy.
   A) Silver / M3x6 / S-Tite: Five pieces

CHECK POINT

Remove the Shield Box from the main unit with the cables connected to the Main Board Assy. Be careful not to disconnect the connectors by making the Shield Box apart from the main unit too much.



2. Disconnect the connector from the Main Board Assy, and release the cable from the Clamp.
3. Remove the two screws.
   B) Silver/M3x10/P-Tite: Two pieces
4. Pull out the guide pin of the Paper Eject Unit from the hole.

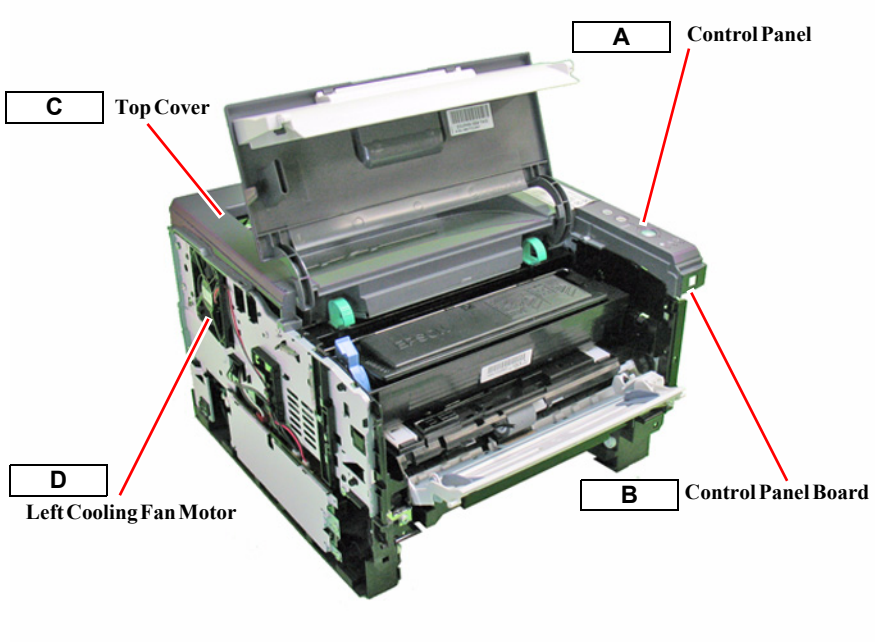


5. Remove the two screws.
   B)Silver/M3x10/P-Tite: Two pieces
6. Pull out the guide pin of the Paper Eject Unit from the hole, and remove the Paper Eject Unit.

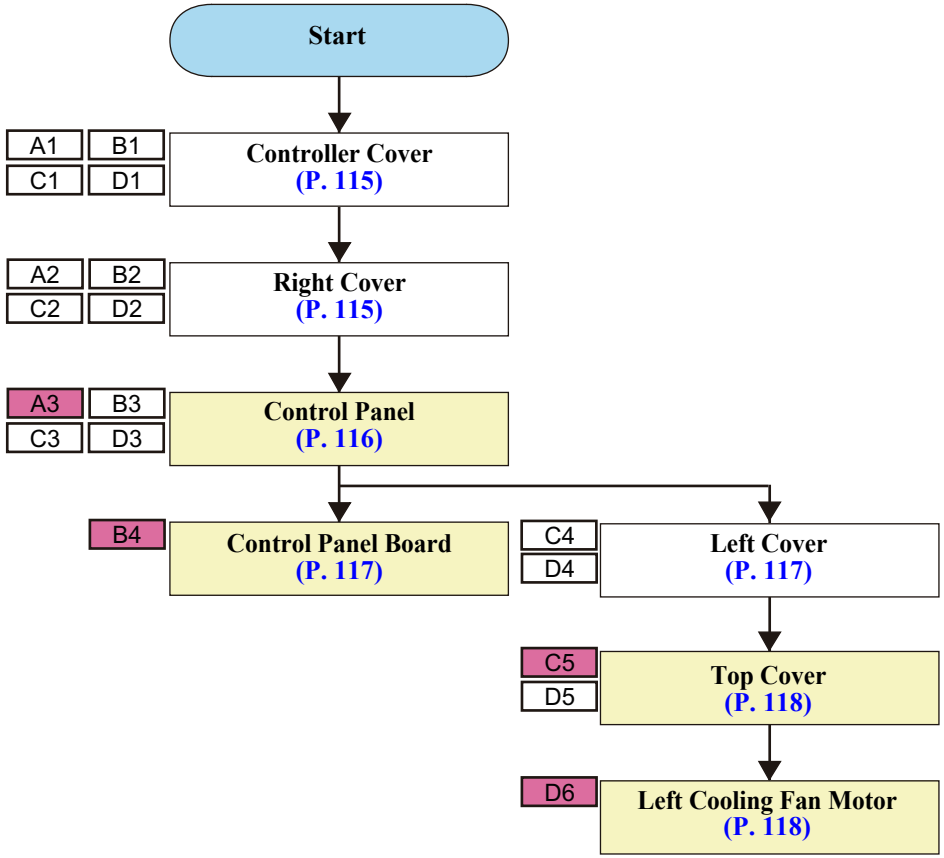
4.3.8 Group 8

CONTENT

Parts/Units to be Disassembled	Guide
Control Panel	A
Control Panel Board	B
Top Cover	C
Left Cooling Fan Motor	D

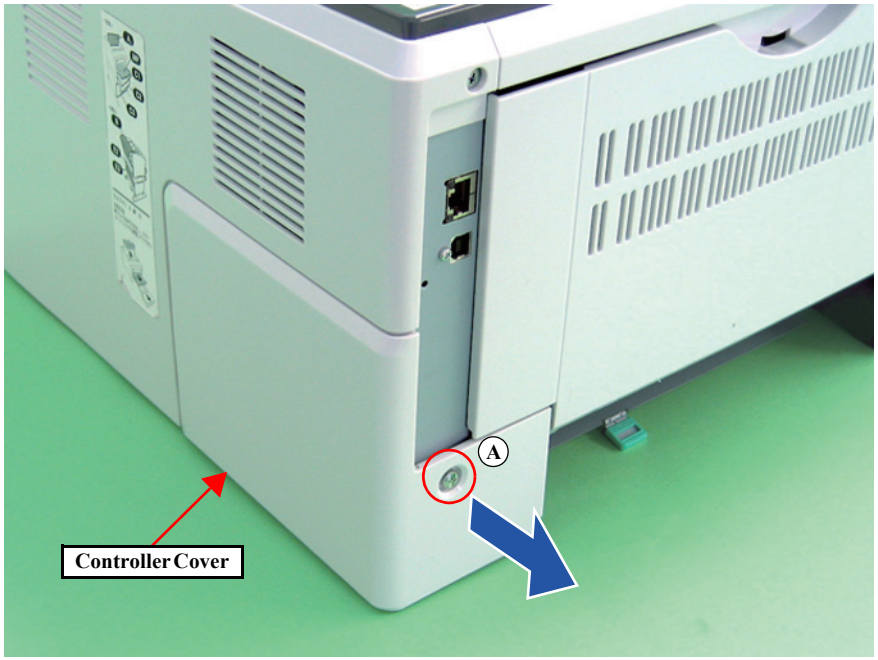


DISASSEMBLY FLOWCHART



A1	B1
C1	D1

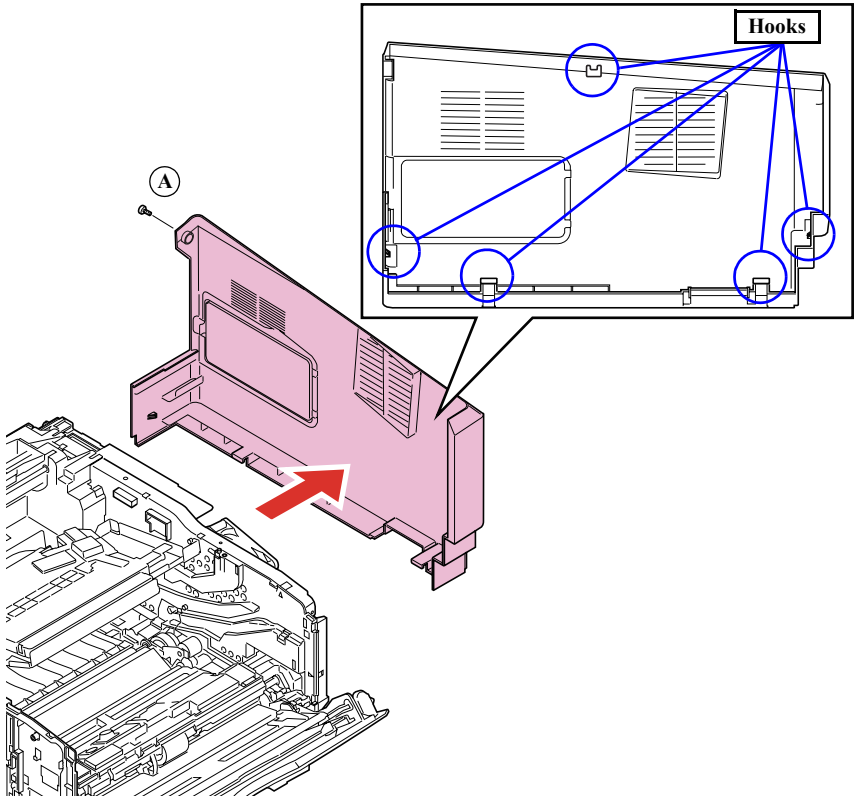
Controller Cover



1. Remove the screw.
   A) Silver / M3x6 / S-Tite: One piece
2. Remove the Controller Cover in the direction of the arrow.

A2	B2
C2	D2

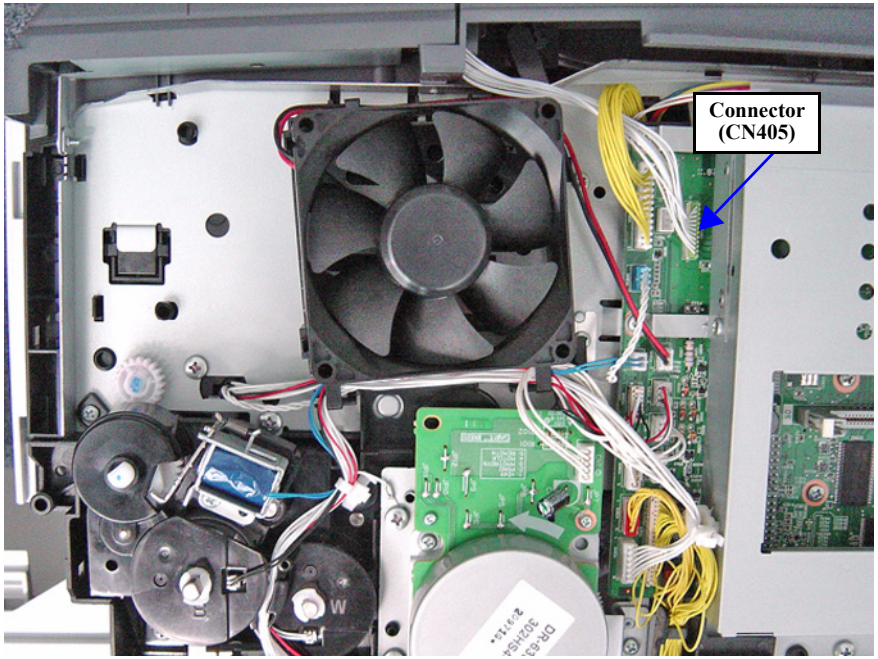
Right Cover



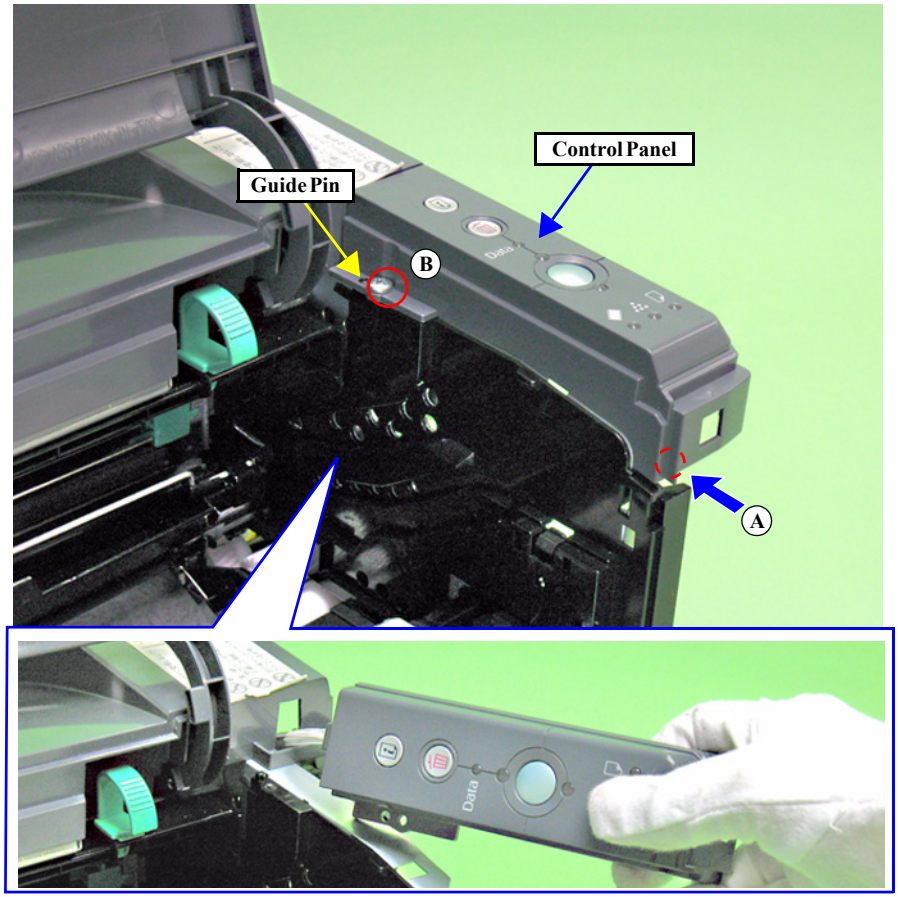
1. Open the Front Cover.
2. Slightly pull out the Paper Cassette.
3. Remove the screw.
   A) Silver / M3x10 / P-Tite: One piece
4. Disengage the five hooks of the Right Cover in the order from the rearmost hook to the frontmost hook, and remove the Right Cover.

A3	B3
C3	D3

Control Panel

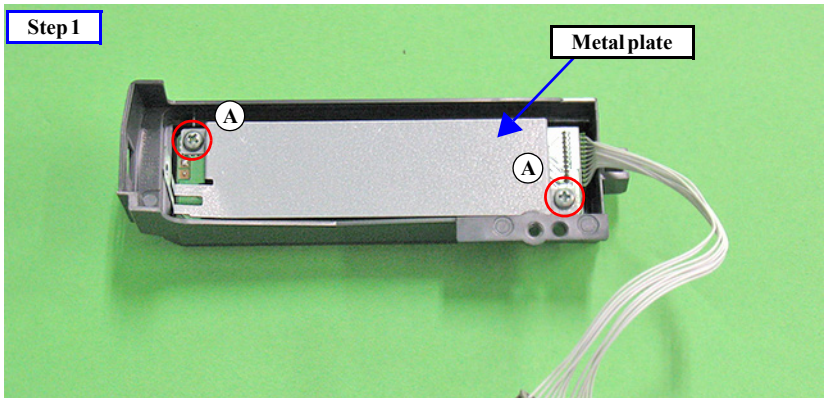


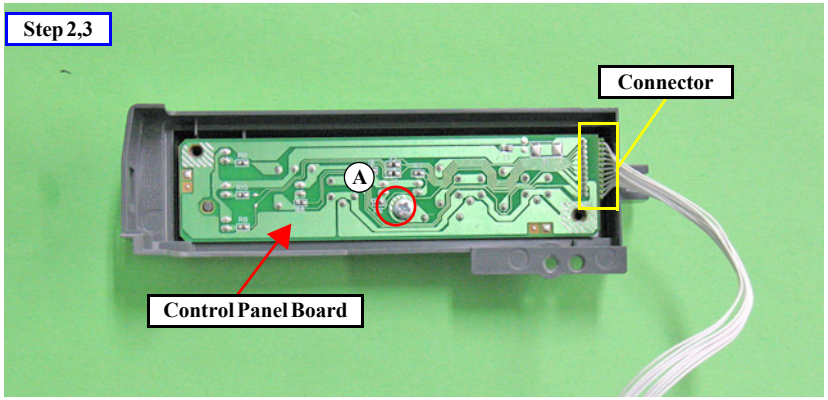
1. Disconnect the connector from the Main Board Assy.



2. Open the Top Cover.
3. Remove the two screws.
   A) Silver/M3x6/S-Tite: One piece
   B) Silver/M3x10/P-Tite: One piece
4. Pull out the tab from the guide pin, and remove the Control Panel while pulling out the cable.

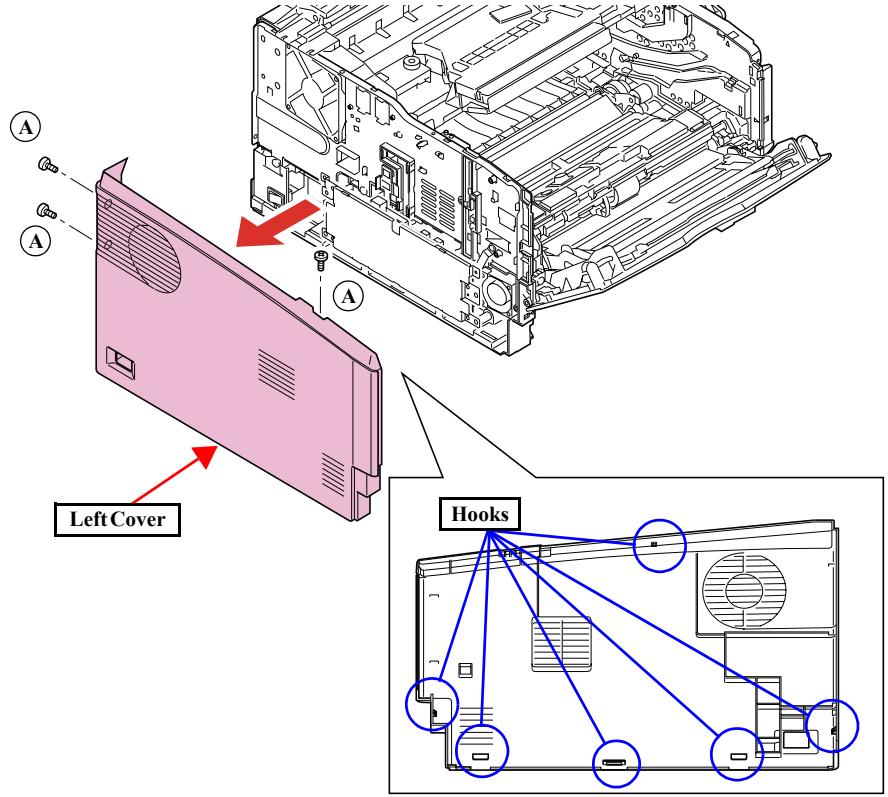
B4 Control Panel Board





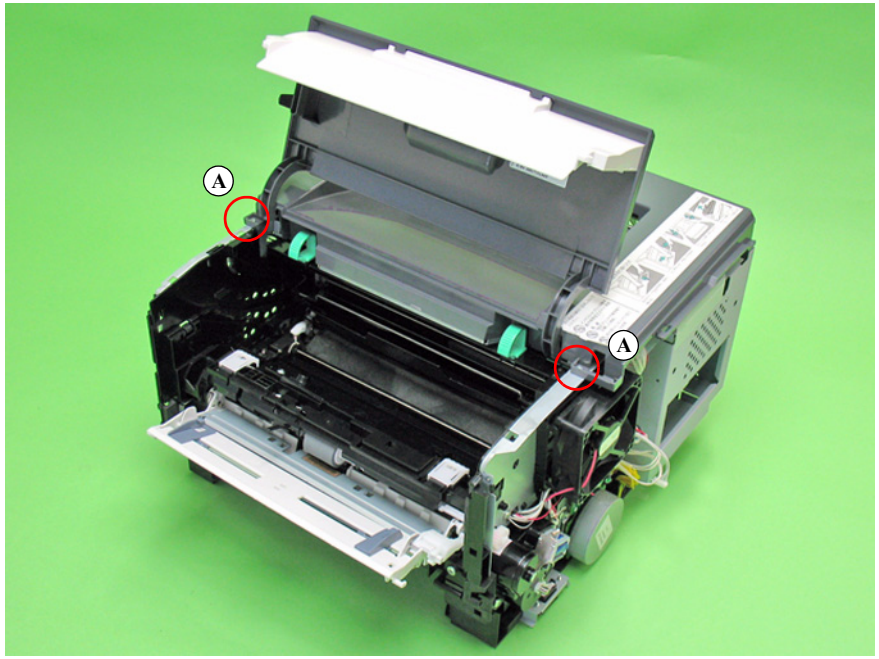
1. Remove the two screws, and remove the metal plate.
   A) Silver / M3x6 / P-Tite: Two pieces
2. Remove the screw, and remove the Control Panel Board.
   A) Silver / M3x6 / P-Tite: One piece
3. Disconnect the connector from the Control Panel Board.

C4 D4 Left Cover



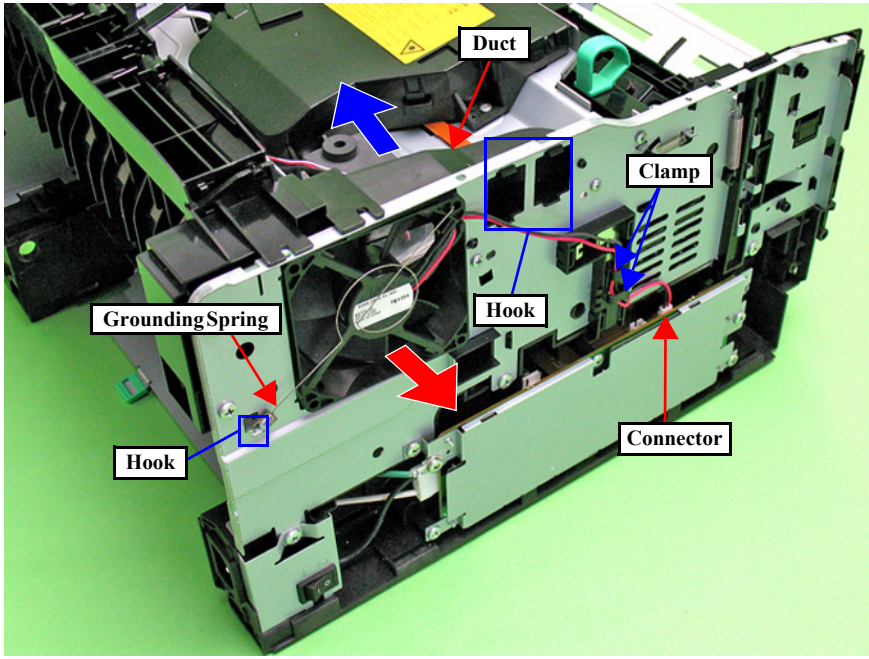
1. Open the Top Cover.
2. Slightly pull out the Paper Cassette.
3. Remove the three screws.
   A) Silver / M3x10 / P-Tite: Three pieces
4. Disengage the six hooks of the Left Cover in the order from the rearmost hook to the frontmost one, and remove the Left Cover.

C5 D5 Top Cover



1. Remove the two screws, and remove the Top Cover.
   A) Silver / M3x6 / P-Tite: Two pieces

D6 Left Cooling Fan Motor

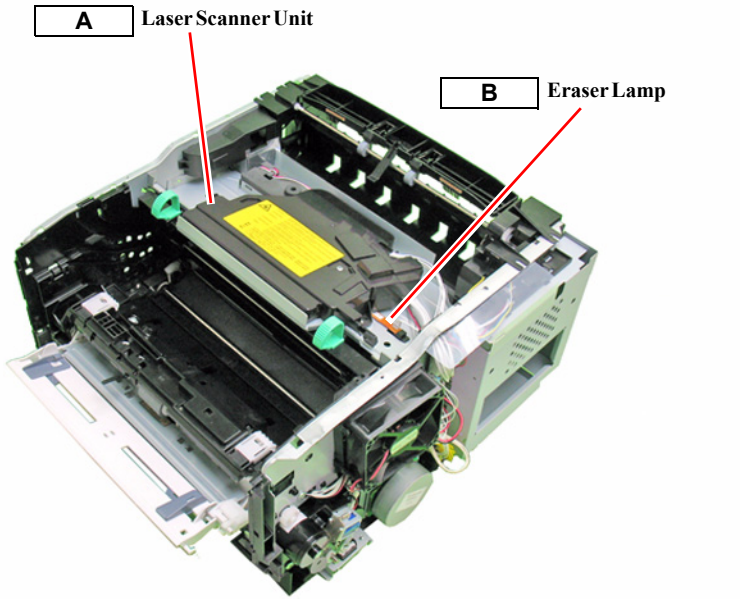


1. Disconnect the connector from the LVPS Unit, and release the cables from the two Clamps.
2. Disengage the four hooks and remove the Duct.
3. Disengage the grounding spring from the hook, and remove the Left Cooling Fan Motor.

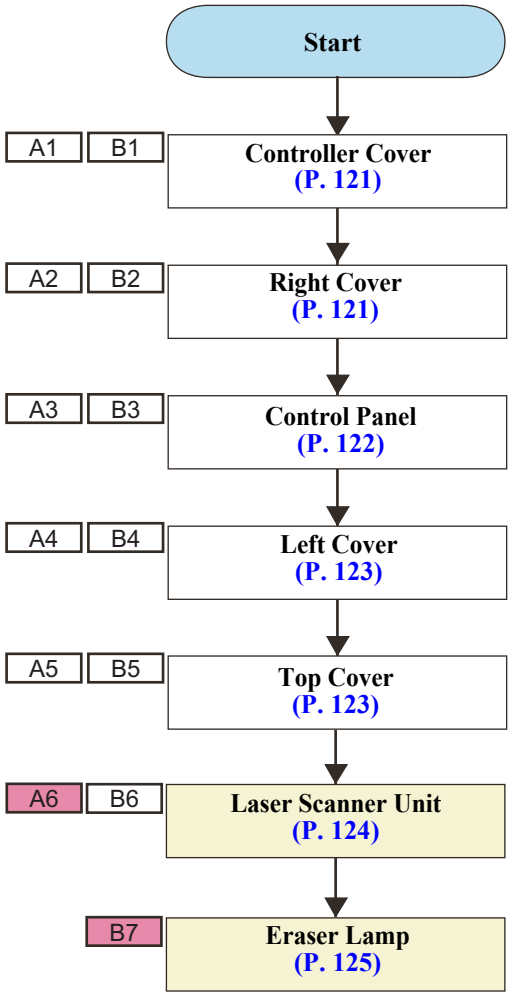
4.3.9 Group 9

CONTENT

Parts/Units to be Disassembled	Guide
Laser Scanner Unit	A
Eraser Lamp	B

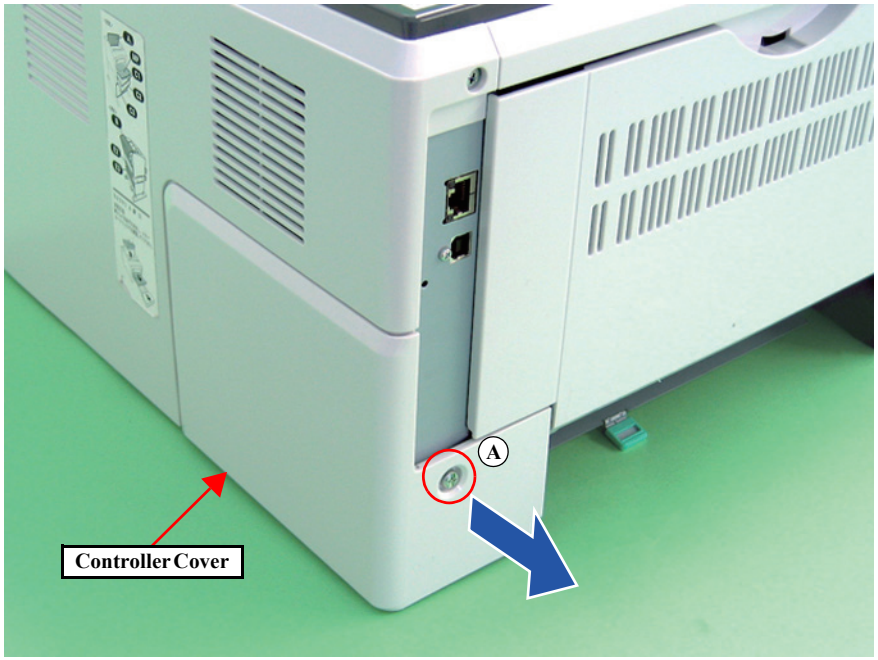


DISASSEMBLY FLOWCHART



A1	B1

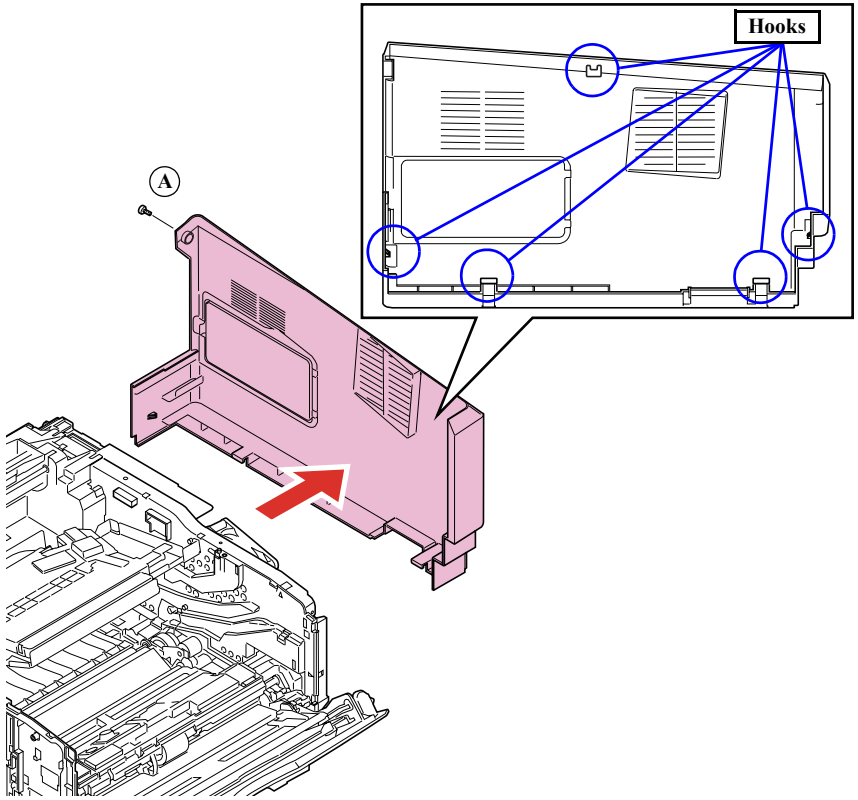
Controller Cover



1. Remove the screw.
   A) Silver / M3x6 / S-Tite: One piece
2. Remove the Controller Cover in the direction of the arrow.

A2	B2

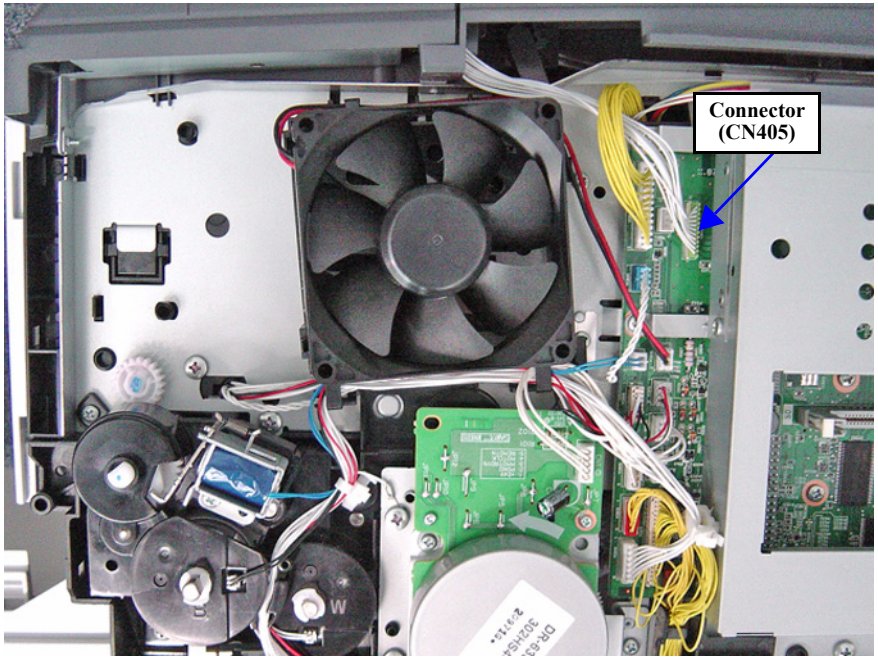
Right Cover



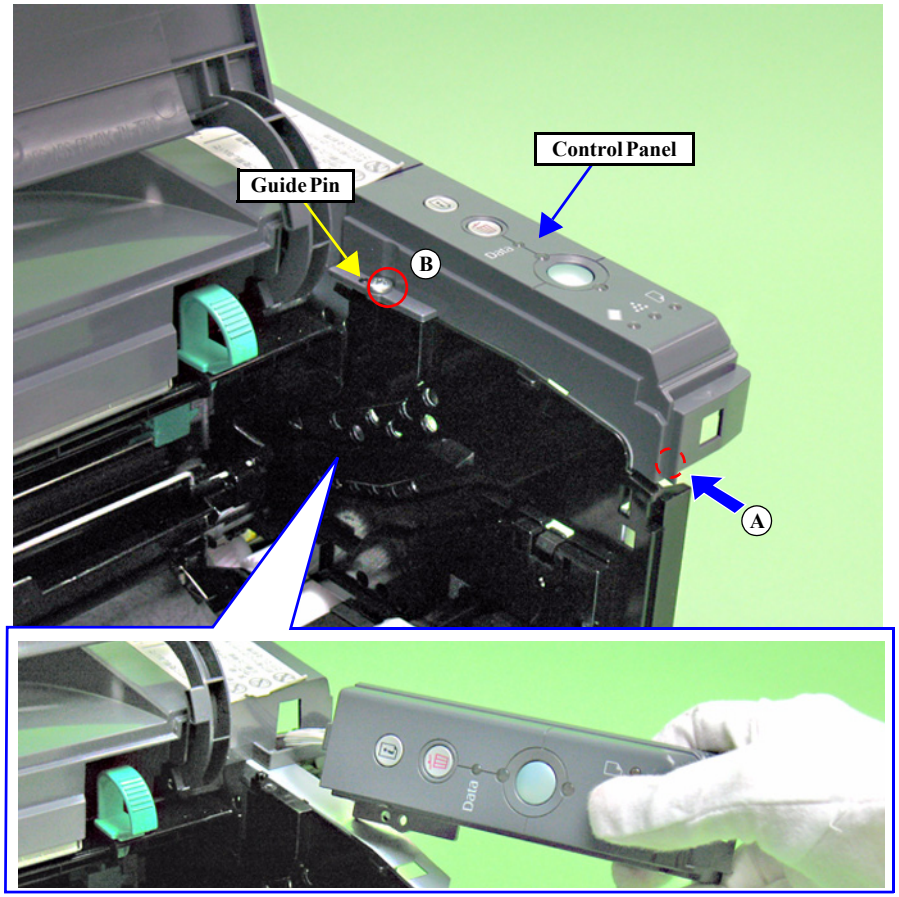
1. Open the Front Cover.
2. Slightly pull out the Paper Cassette.
3. Remove the screw.
   A) Silver / M3x10 / P-Tite: One piece
4. Disengage the five hooks of the Right Cover in the order from the rearmost hook to the frontmost hook, and remove the Right Cover.

A3	B3

Control Panel



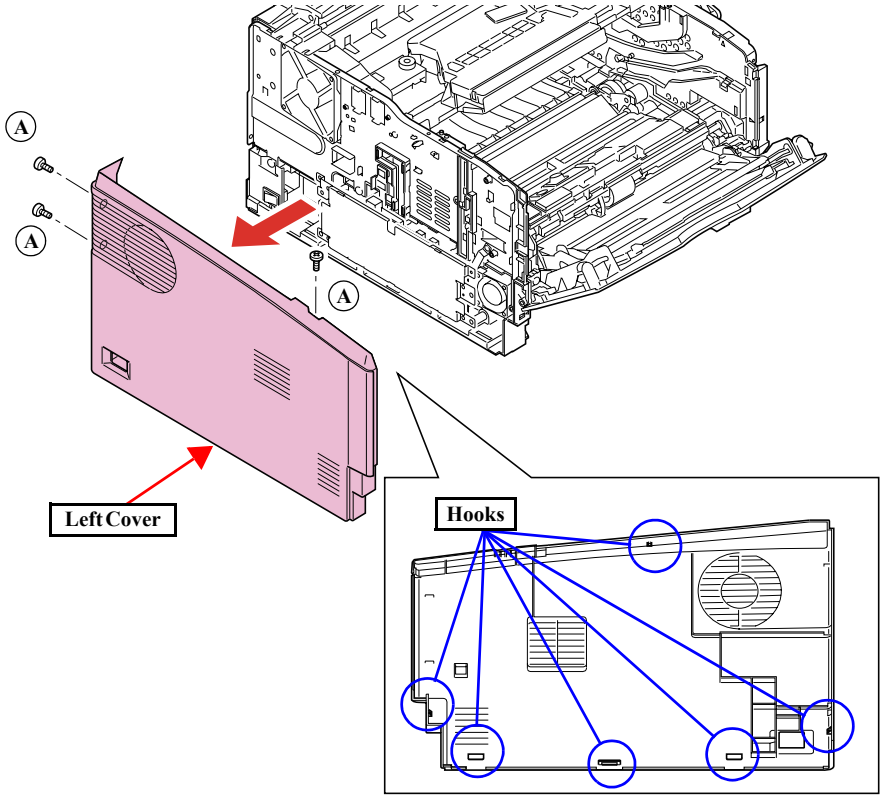
1. Disconnect the connector from the Main Board Assy.



2. Open the Top Cover.
3. Remove the two screws.
   A) Silver/M3x6/S-Tite: One piece
   B) Silver/M3x10/P-Tite: One piece
4. Pull out the tab from the guide pin, and remove the Control Panel while pulling out the cable.

A4	B4

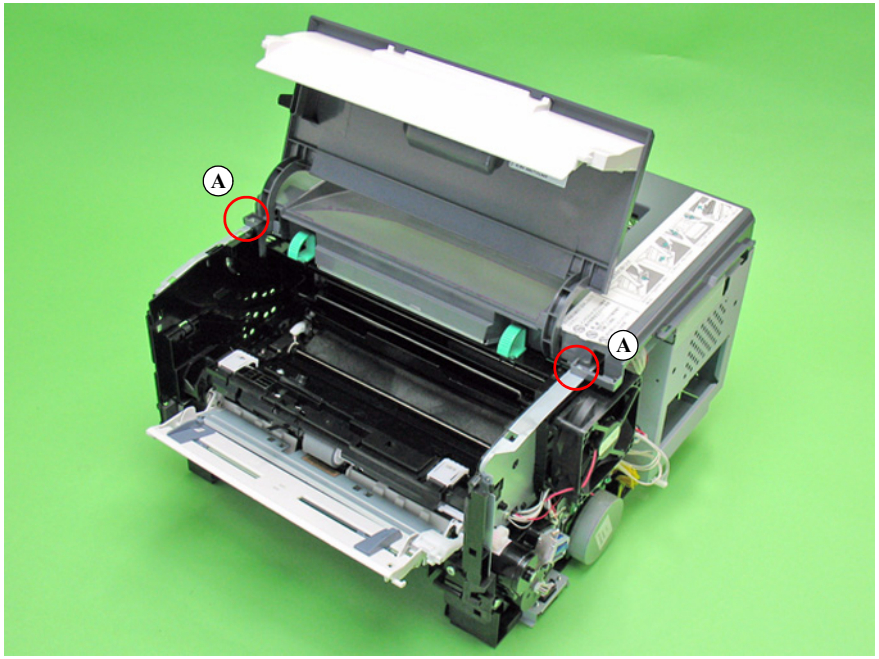
Left Cover



1. Open the Top Cover.
2. Slightly pull out the Paper Cassette.
3. Remove the three screws.
   A) Silver / M3x10 / P-Tite: Three pieces
4. Disengage the six hooks of the Left Cover in the order from the rearmost hook to the frontmost one, and remove the Left Cover.

A5	B5

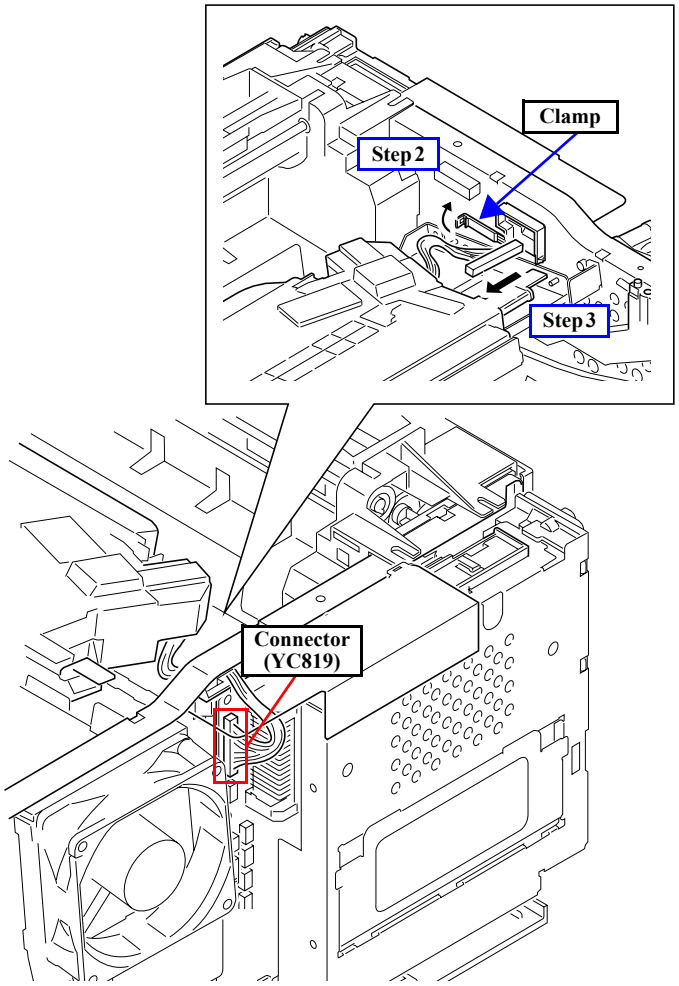
Top Cover



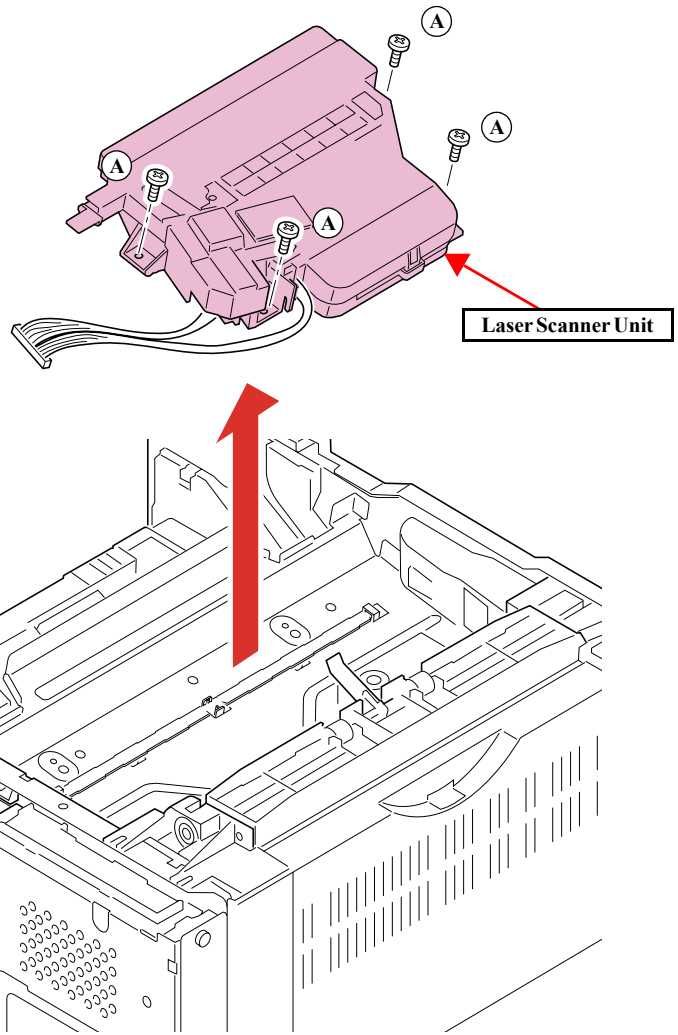
1. Remove the two screws, and remove the Top Cover.
   A) Silver / M3x6 / P-Tite: Two pieces

A6	B6

Laser Scanner Unit



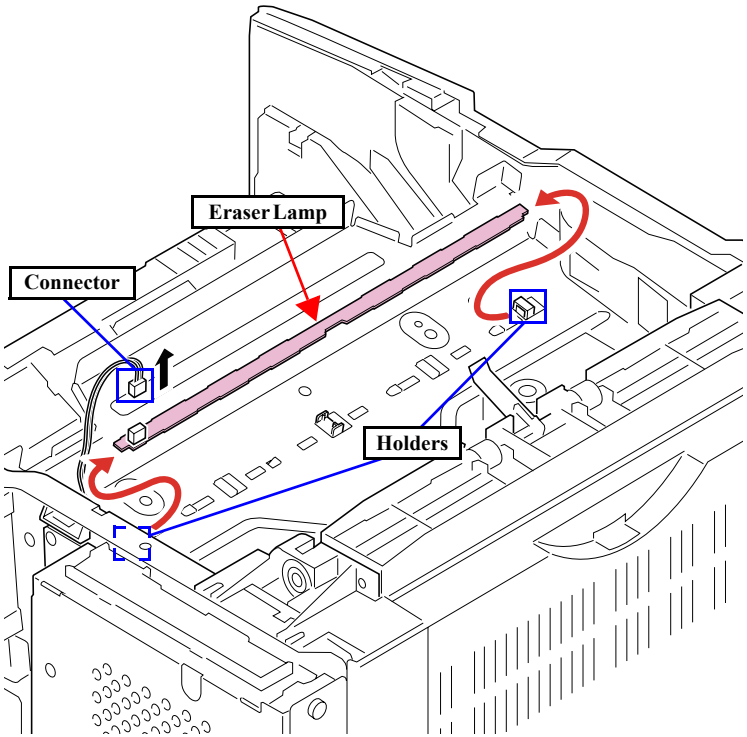
1. Disconnect the connector from the Main Board Assy.
2. Release the cables from the Clamp.
3. Pull the connector toward inside of the printer.



4. Remove the four screws, and remove the Laser Scanner Unit.
   A) Silver / M3x6 / P-Tite: Four pieces

B7

Eraser Lamp

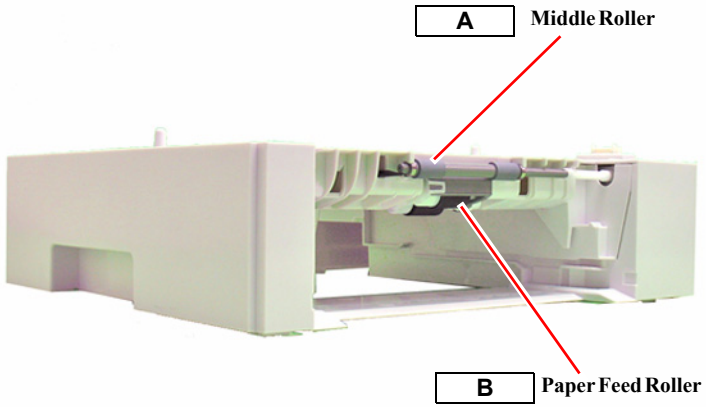


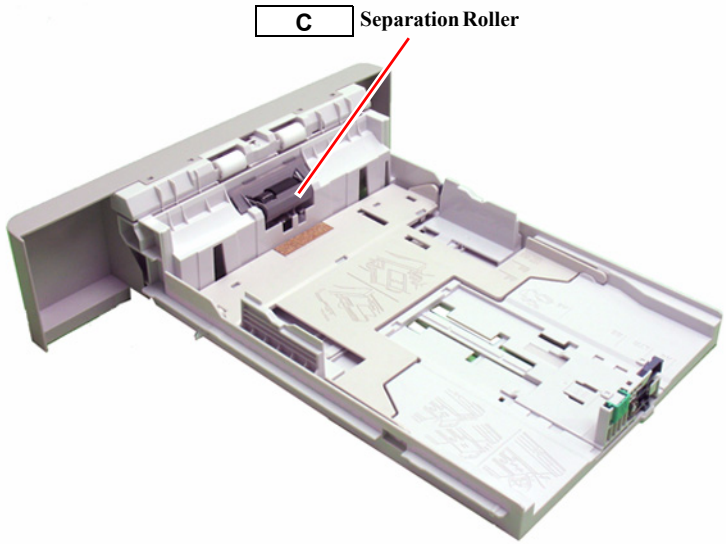
1. Disconnect the connector from the Eraser Lamp.
2. Remove the Eraser Lamp from both left and right holders.

4.3.10 Group 10

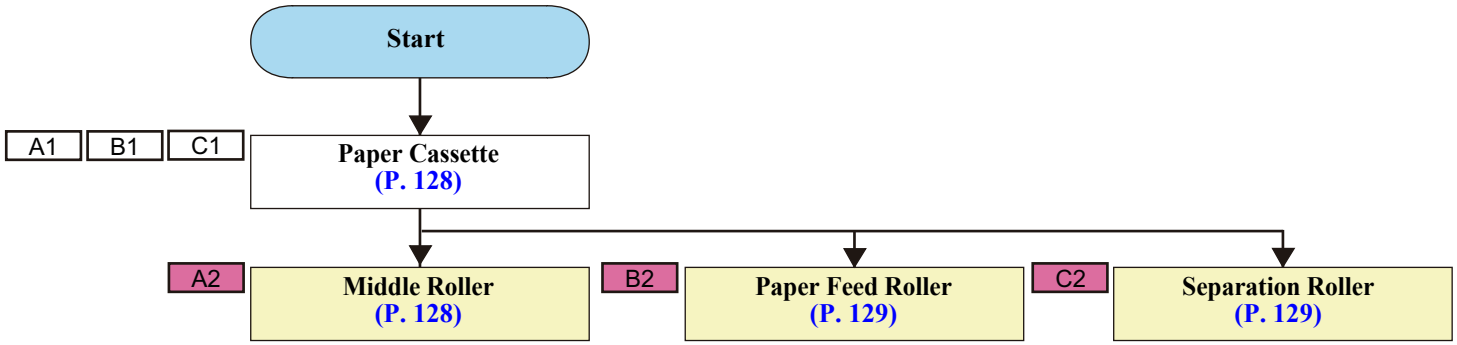
CONTENT

Parts/Units to be Disassembled	Guide
Middle Roller	A
Paper Feed Roller	B
Separation Roller	C



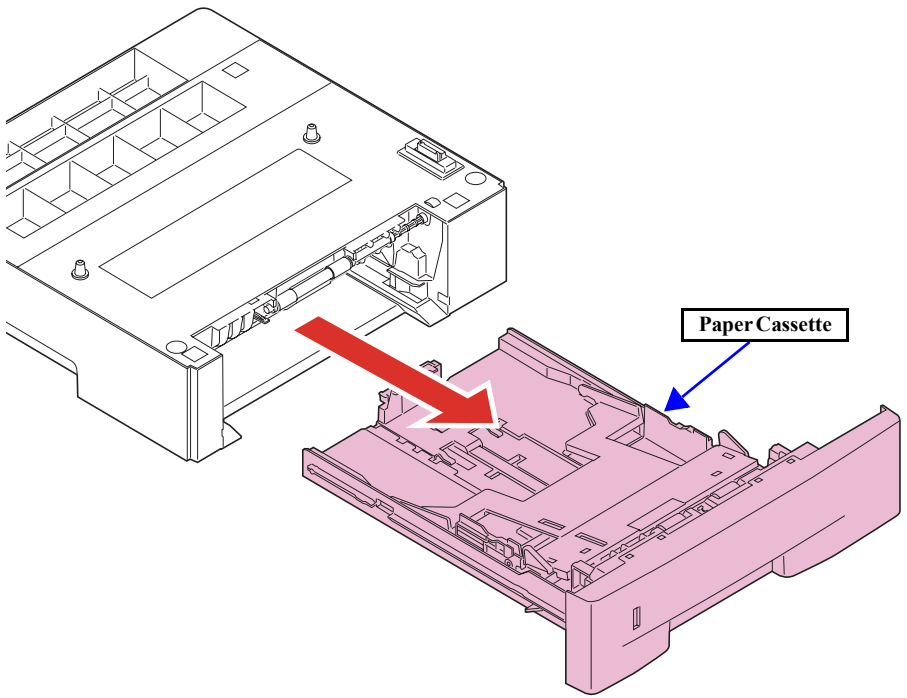


DISASSEMBLY FLOWCHART



A1	B1
C1	

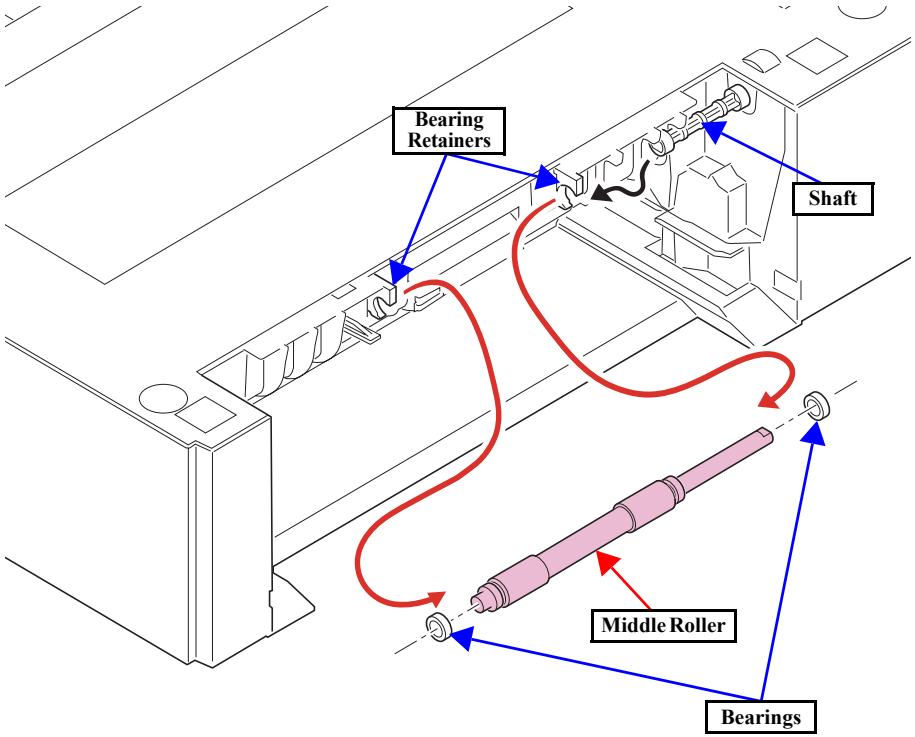
Paper Cassette



1. Remove the Paper Cassette.

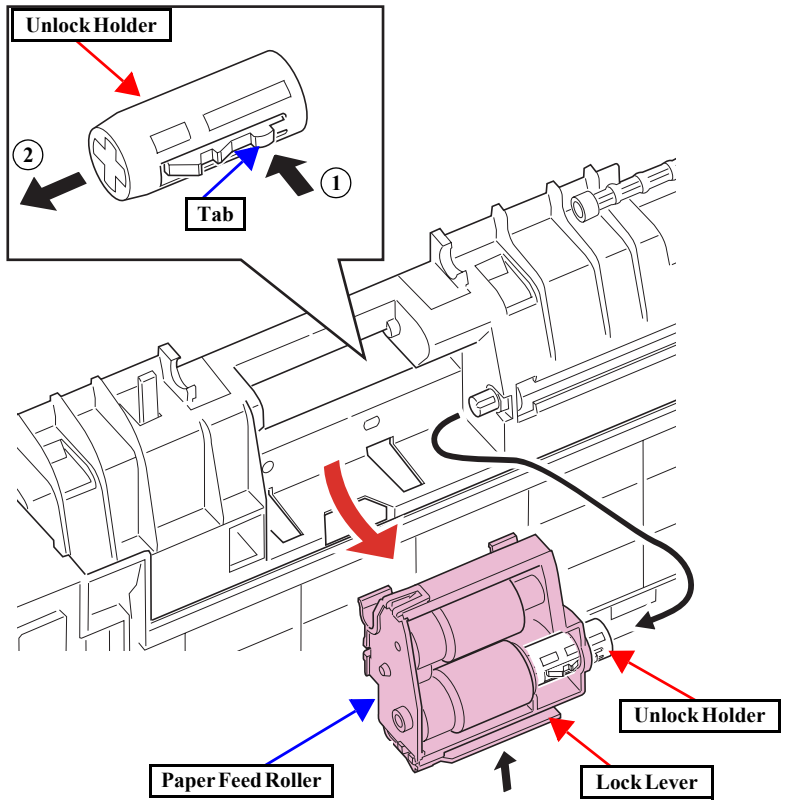
A2	

Middle Roller



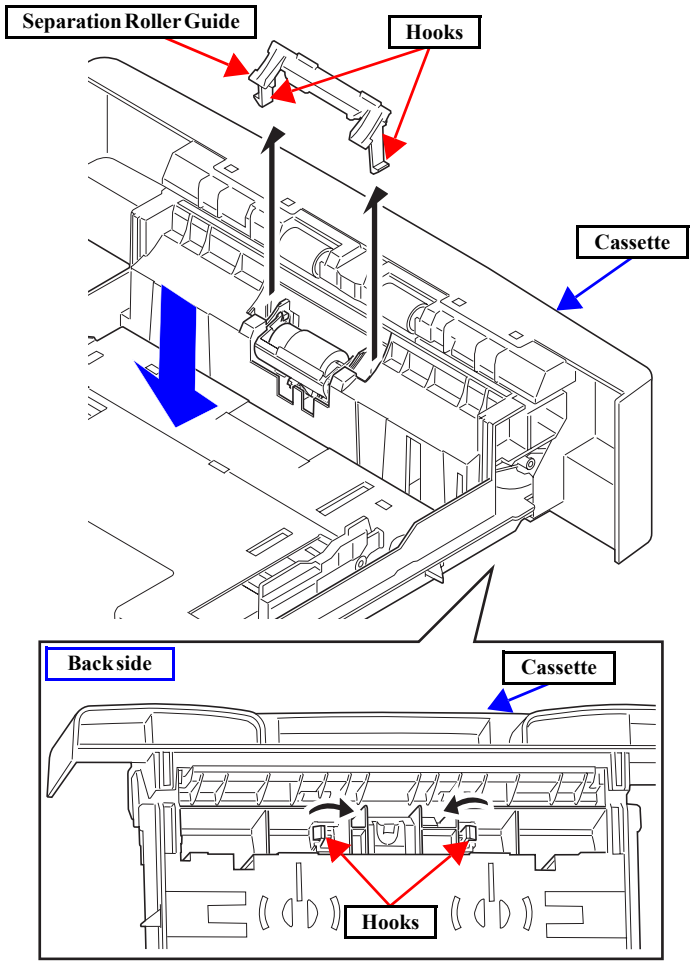
1. Remove the Middle Roller from the shaft and the two bearing retainers.
2. Remove the two bearings from the Middle Roller.

B2 Paper Feed Roller

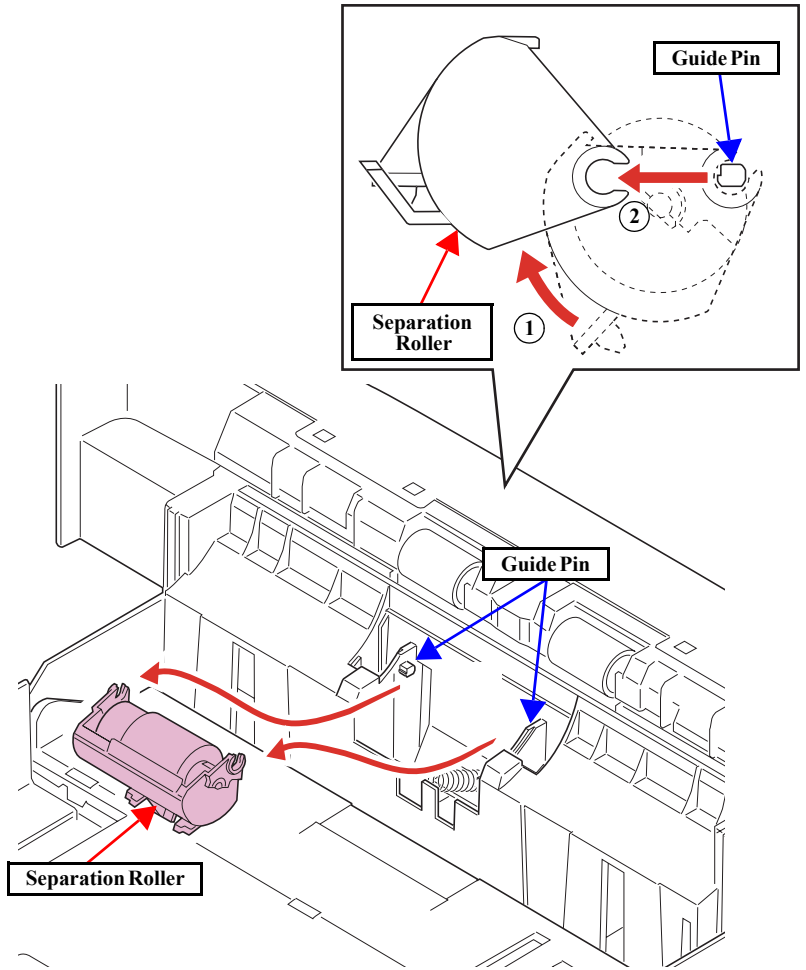


1. While pressing the tab (①), slide the Unlock Holder (②).
2. Push the Lock Lever and remove the Paper Feed Roller.

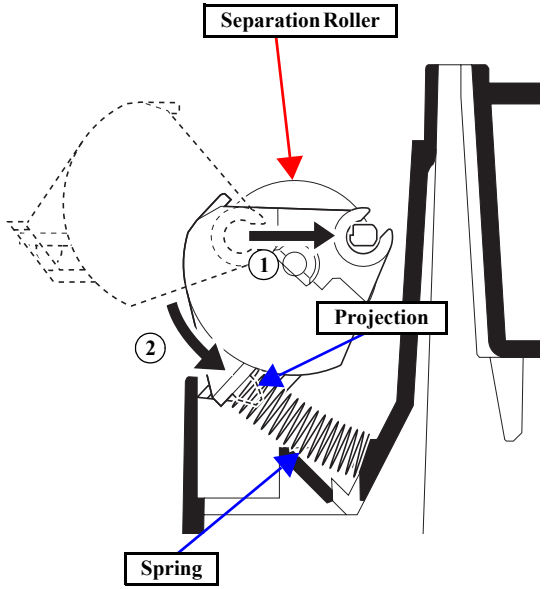
C2 Separation Roller



1. Secure the Bottom Plate by pressing it down.
2. Disengage the two hooks from the back of the cassette, and remove the Separation Roller Guide.



3. Rotate the Separation Roller to remove it from the guide pins.



REASSEMBLY

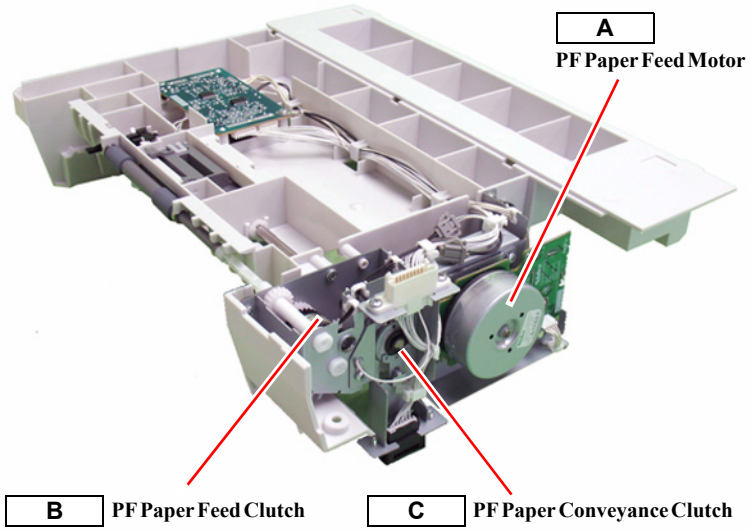
Install the Separation Roller following the procedure below.

1. Insert the grooves of the Separation Roller over the guide pins of the Cassette.
2. Insert the spring over the projection on the Separation Roller.

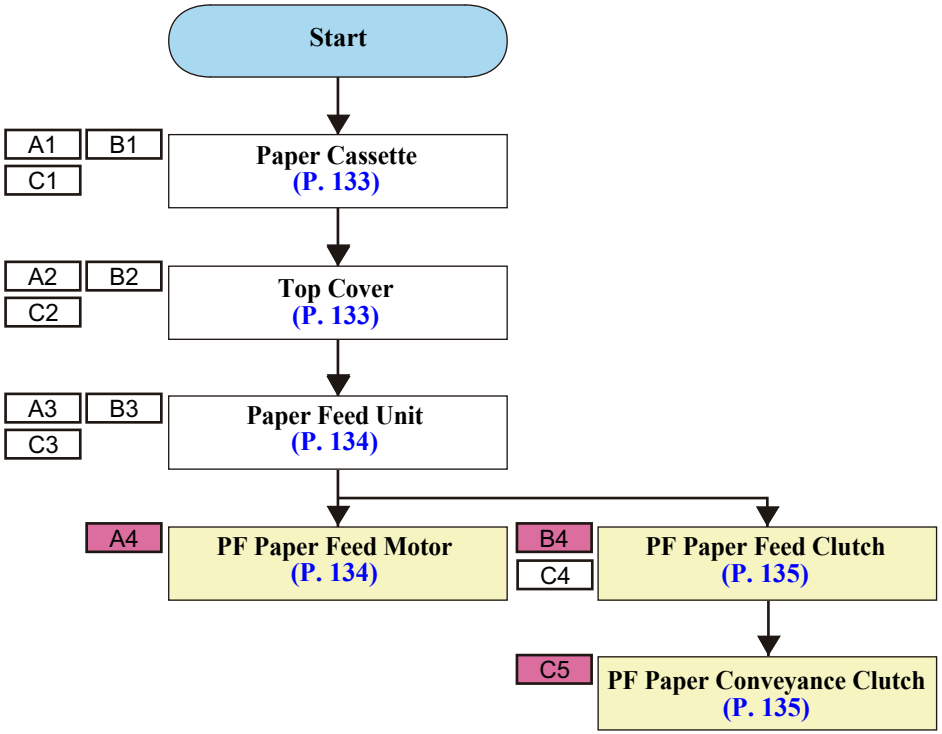
4.3.11 Group 11

CONTENT

Parts/Units to be Disassembled	Guide
PF Paper Feed Motor	A
PF Paper Feed Clutch	B
PF Paper Conveyance Clutch	C

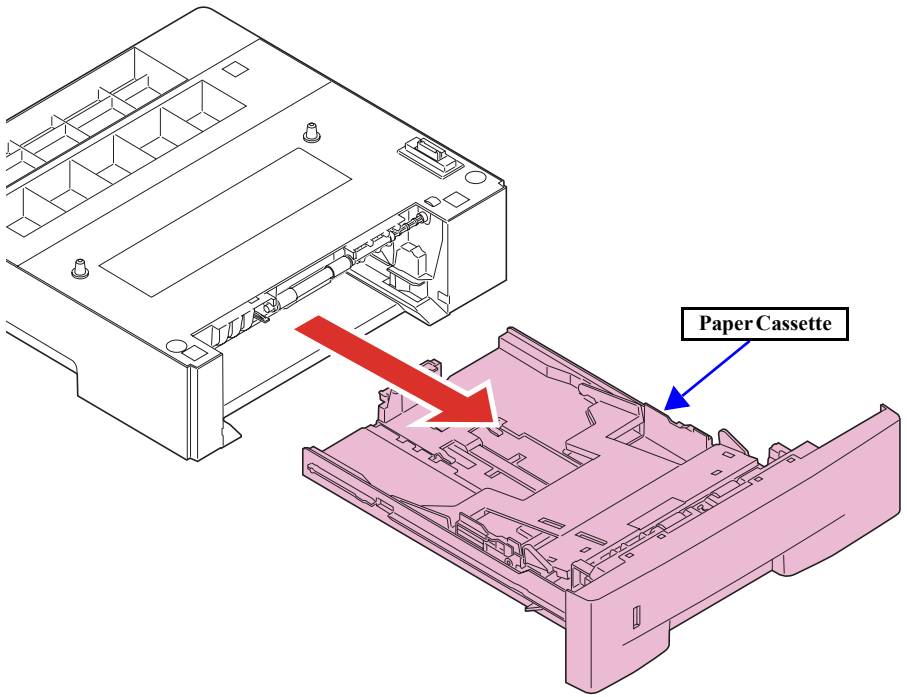


DISASSEMBLY FLOWCHART (CONSUMABLES)



A1	B1
C1	

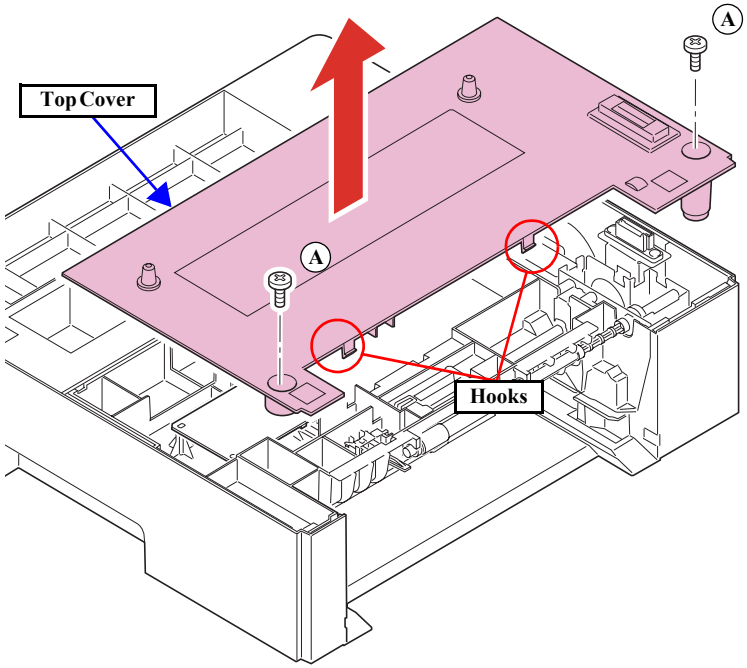
Paper Cassette



1. Remove the Paper Cassette.

A2	B2
C2	

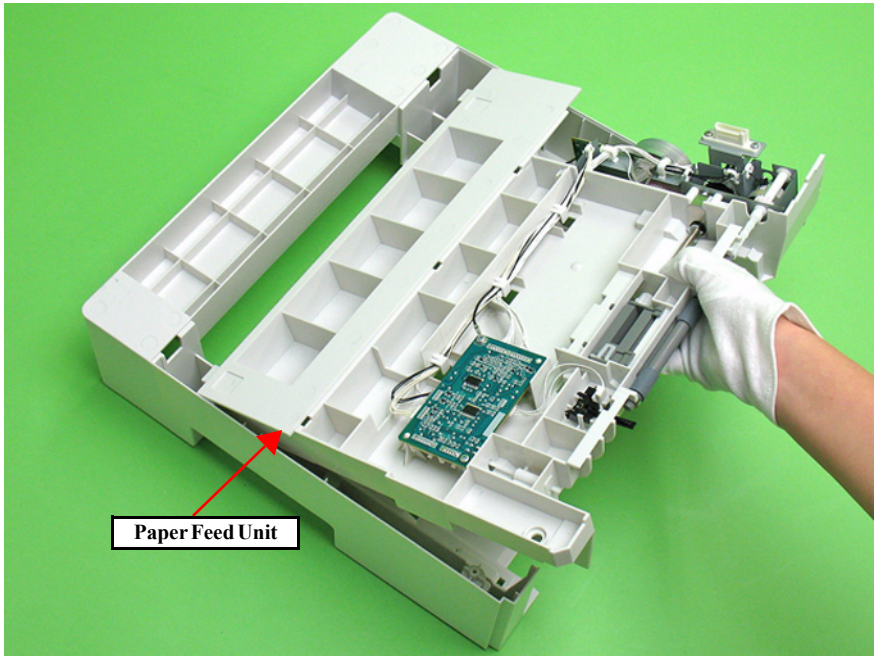
Top Cover



1. Remove the two screws.
   A) Silver / M3x6 / S-Tite: Two pieces
2. Disengage the two hooks by inserting a flat-blade screwdriver or similar tool into a gap between the Top Cover and the Paper Feed Unit, and remove the Top Cover.

A3	B3
C3	

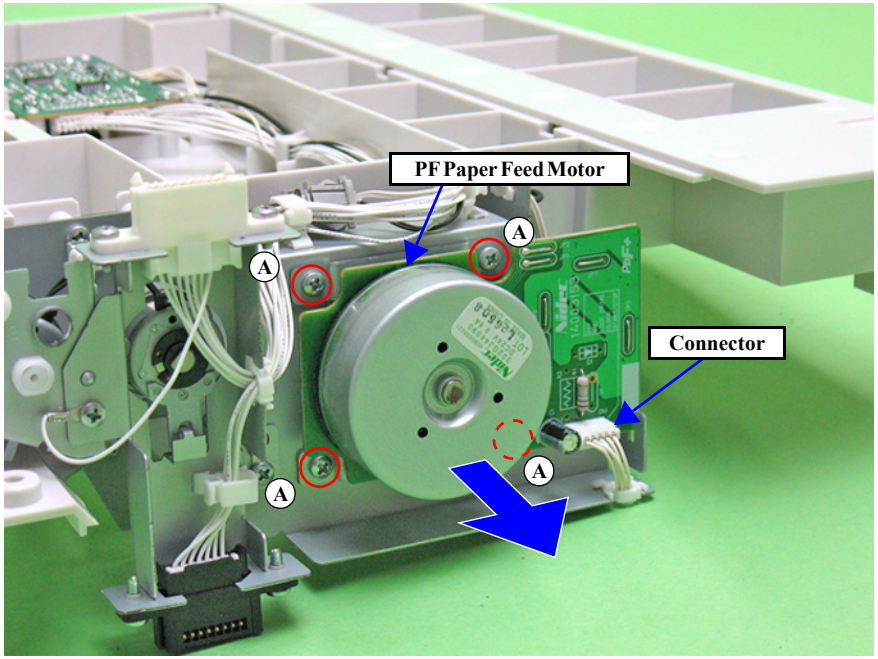
Paper Feed Unit



1. Remove the Paper Feed Unit upward.

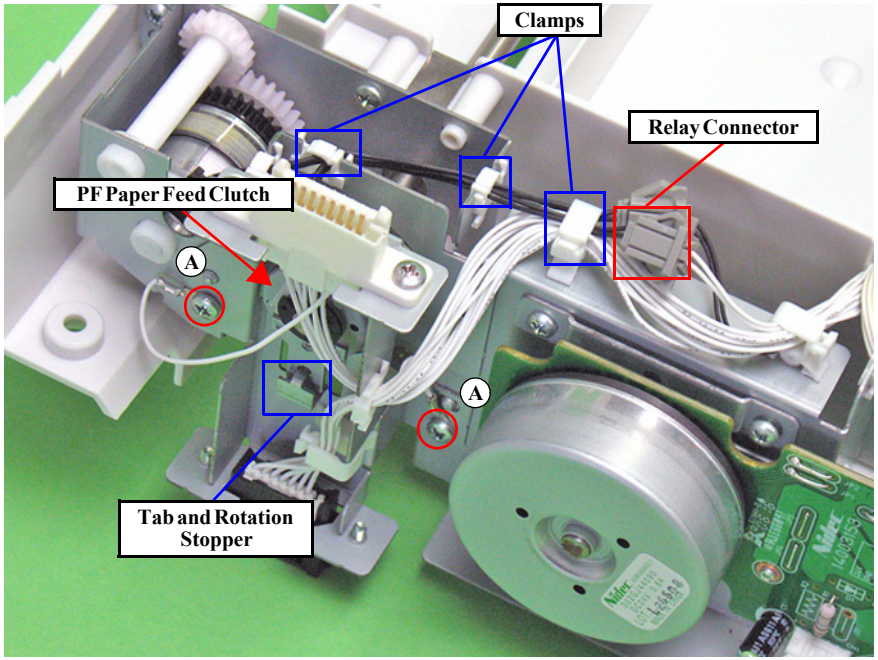
A4	

PF Paper Feed Motor



1. Remove the four screws.
   A) Silver / M3x6 / S-Tite: Four pieces
2. Disconnect the connector from the PF Paper Feed Motor, and remove the motor.

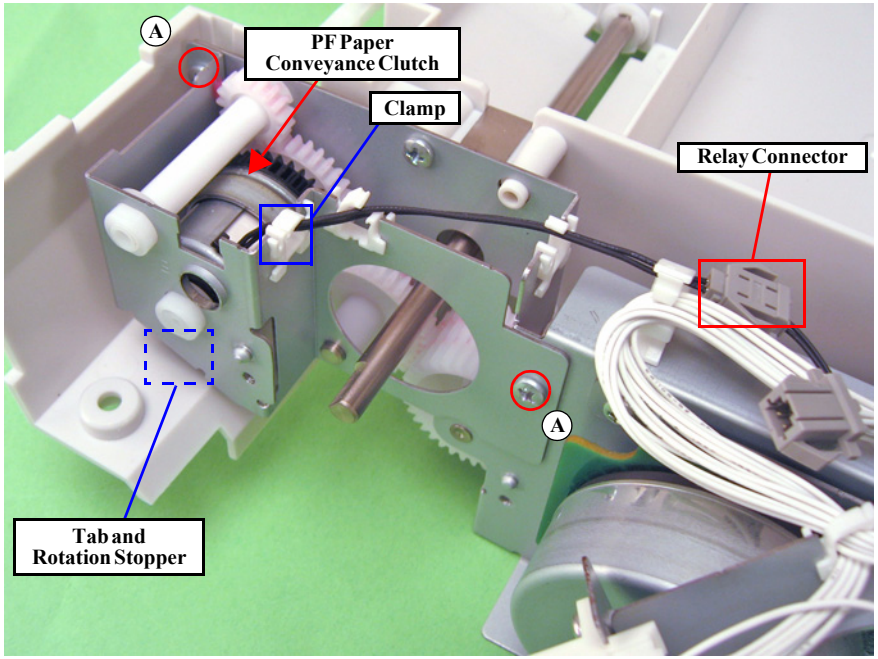
B4 / C4 — PF Paper Feed Clutch



1. Release the cables from the three clamps and disconnect the relay connector.
2. Remove the two screws that secure the grounding terminal, and remove the metal plate.
   A) Silver/M3x6/S-Tite: Two pieces
3. Remove the PF Paper Feed Clutch.

REASSEMBLY
- ☐ Connect the connector to the relay connector connected to the white cable.
- ☐ Match the tab of the metal plate with the Rotation Stopper of the Paper Feed Clutch.
- ☐ The grounding terminals should be screwed with the metal plate.

C5 — PF Paper Conveyance Clutch



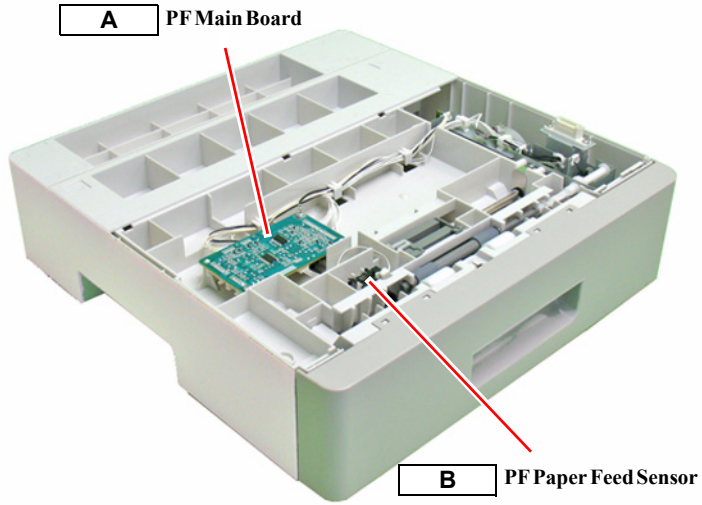
1. Release the cables from the clamp and disconnect the relay connector.
2. Remove the two screws, and remove the metal plate.
   A) Silver/M3x6/S-Tite: Two pieces
3. Remove the PF Paper Conveyance Clutch.

REASSEMBLY
- ☐ Connect the connector to the relay connector connected to the black cable.
- ☐ Match the tab of the metal plate with the Rotation Stopper of the Paper Conveyance Clutch.

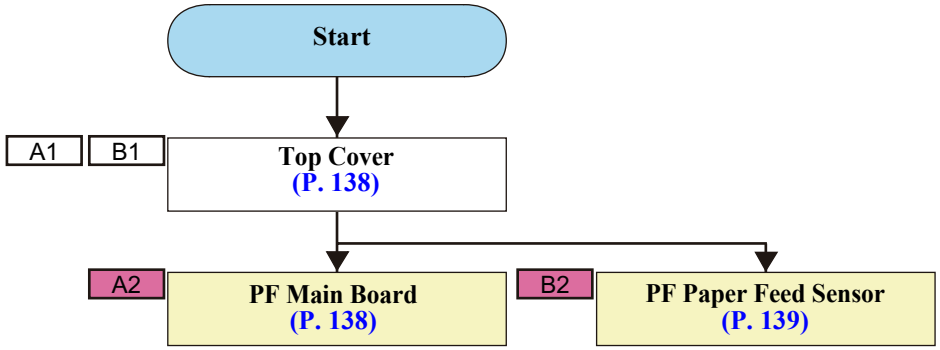
4.3.12 Group 12

CONTENT

Parts/Units to be Disassembled	Guide
PF Main Board	A
PF Paper Feed Sensor	B

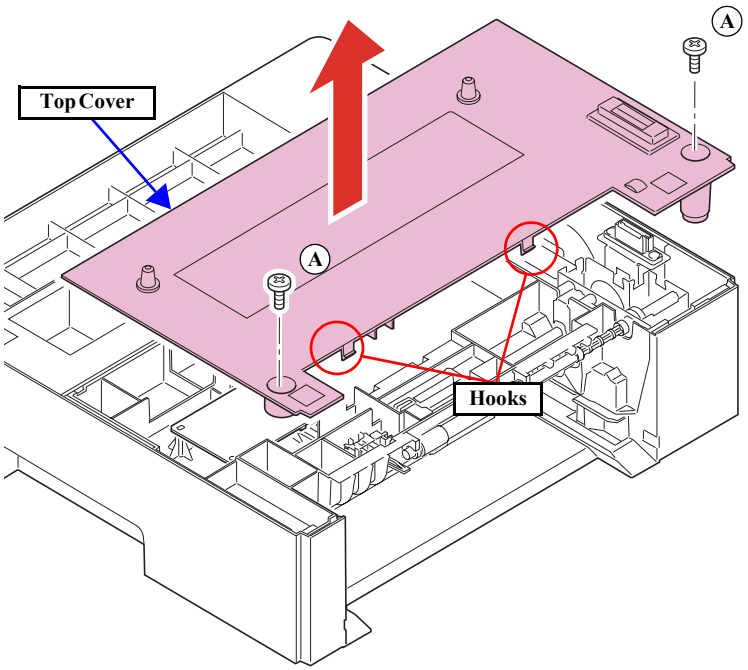


DISASSEMBLY FLOWCHART (CONSUMABLES)



A1	B1

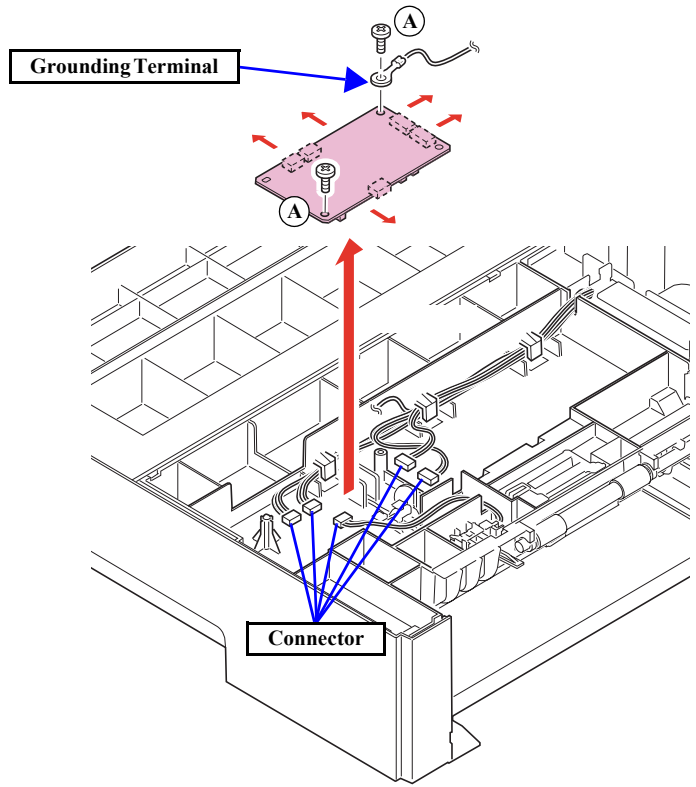
Top Cover



1. Remove the two screws.
   A) Silver / M3x6 / S-Tite: Two pieces
2. Disengage the two hooks by inserting a flat-blade screwdriver or similar tool into a gap between the Top Cover and the Paper Feed Unit, and remove the Top Cover.

A2	

PF Main Board

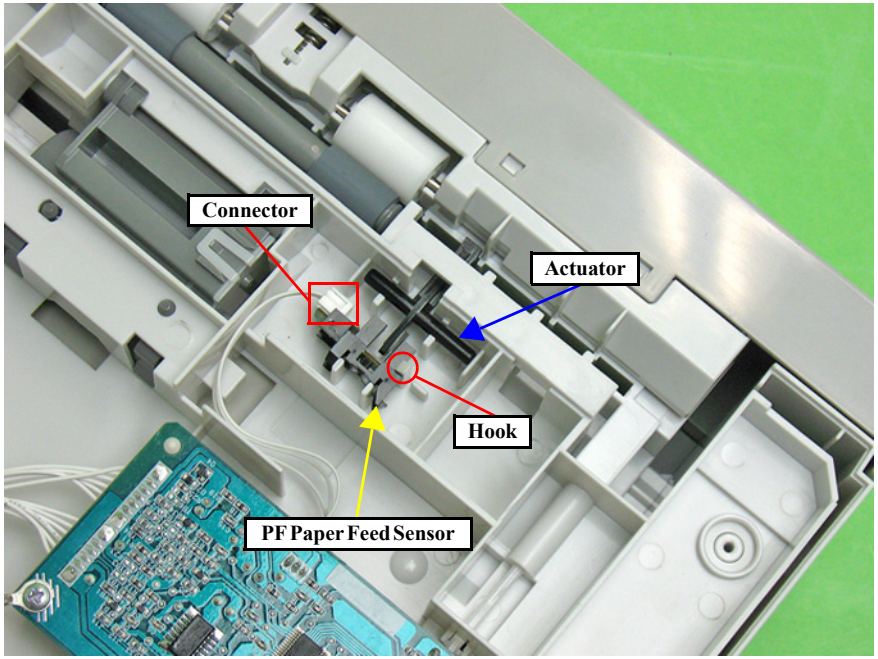


1. Remove the two screws.
   A) Silver / M3x6 / S-Tite: Two pieces
2. Disconnect the five connectors, and remove the PF Main Board.

REASSEMBLY The grounding terminal should be screwed together with the PF Main Board.

B2

PF Paper Feed Sensor



1. Remove the actuator.
2. Disengage the hook and remove the PF Paper Feed Sensor.
3. Disconnect the connector from the PF Paper Feed Sensor.

CHAPTER

5

ADJUSTMENT

5.1 Adjustment Item

The table below shows the adjustment item (including life counter clear) required when the specified part/unit is fixed or replaced.

Part/Unit	Timing	Item	Adjustment Procedure	Required Jig & Tool	Reference
Main Board Assy.	After replaced with a new one	Writing of USB-ID	Execute the item using the dedicated program.	EPSON Page Printer Main Board Initialization Tool	Page 142
	As needed	Updating of controller firmware	Execute the item using the dedicated program.	Firmware Update Tool	Page 145
	As needed	Updating of engine controller firmware	Execute the item using the dedicated program.	Firmware Update Tool	

5.2 Adjustment

5.2.1 Writing USB ID

PURPOSE

This printer includes USB interface as standard. A unique USB ID has been assigned to each printer to be identified by a host PC connected via the USB interface. The USB ID information is stored on the nonvolatile memory on the Main Board. Therefore, whenever the Main Board is replaced, the ID must be written to the new board. As for this product, the model ID information is stored, it must also be written to the board.

REQUIRED TOOL

The program to be used for writing the USB-ID and the required operating environment are as follows.

- ☐ Program name

  EPSON Page Printer Main Board Initialization Tool

- ☐ Operating environment
  - ■ OS

    Windows95/OSR2.0 or later, Windows98, Windows Me, Windows 2000/XP

  - ■ Interface to be used

    USB

INSTALLING THE PROGRAM & BASIC OPERATION

1. Copy a set of files of "Main Board initial setting tool" to a folder created on the PC.

CHECK POINT

The set of files of "Main Board initial setting tool" must be stored in one folder.

2. Double click on the program icon [ ] to start up the program, and select the model name in the [Model Selection].
3. In the [Port Selection], select the port connected to the printer.

CHECK POINT

The "Auto selection" allows you to search printers connected to the PC, and establish a connection with the first detected printer. When multiple printers are connected, however, specify the port name rather than using the "Auto selection" since a printer detected by the auto detection varies according to the communication status.

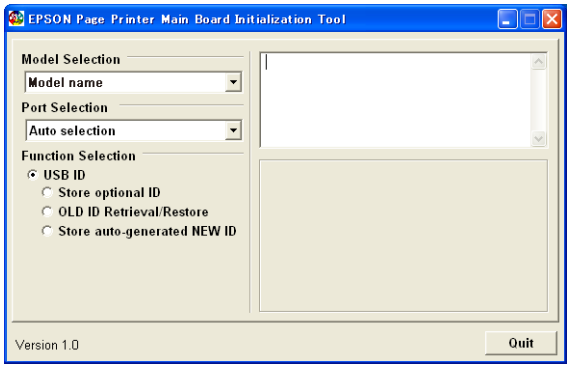


Figure 5-1. Basic Operation

WRITING METHOD

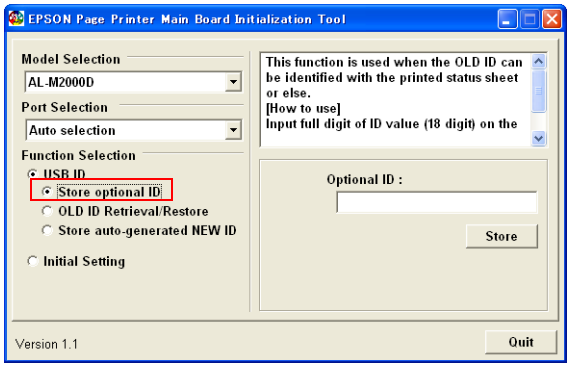
☐ USB ID

The method of writing USB ID differs according to the condition of the main board. Referring to the following table, figure out what to do depending on the condition. For the operational procedure, follow the instructions shown by the program.

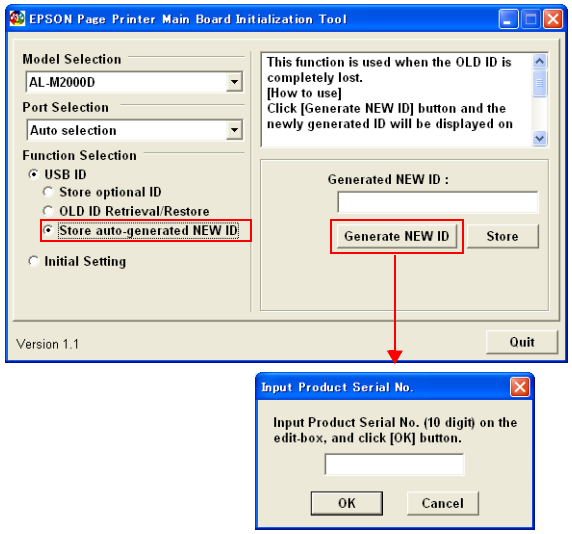
Table 5-1. Writing Method

Condition of Main Board	Check of the previous ID	Writing method (button name)	Description
Communication between PC and the Main Board. is impossible.	The previous ID can be confirmed by a status sheet or any other sheet that has already been printed out.	Store optional ID	Enter the previous ID to write it to the new Main Board.
	There is no way to confirm the previous ID.	Store auto-generated NEW ID	The program automatically creates the new ID from the serial number of the printer and write it into the new Main Board.
Communication between PC and the Main Board is possible.	(The previous ID can be retrieved from the previous Main Board)	OLD ID Retrieval/ Restore	Retrieve the ID from the old board, and then enter the retrieved ID into the new board.

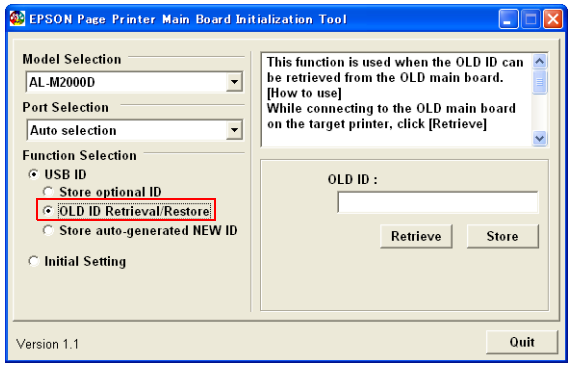
■ Store optional ID



■ Store auto-generated NEW ID

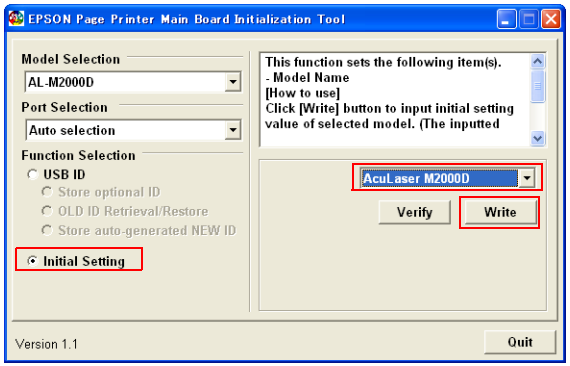


■ OLD ID Retrieval/Restore



☐ Model ID

Select [Initial Setting], and select the model name, then click the [Write] button.



CONFIRMING THE WRITTEN ID

When writing USB ID is finished, print a status sheet to confirm that the serial number printed on the sheet is identical to that on the label attached to the printer. (Refer to "7.3.1 Status Sheet" on page 166)

5.2.2 Updating firmware

This section explains how to update the firmwares.

- Controller firmware
- Engine controller firmware

OUTLINE

Unit	Data format	Operation	
		Panel operation	Tool
Controller	RCC	Not required	Required
	CRB	Required	Required
Engine Controller	XE	Required	Required

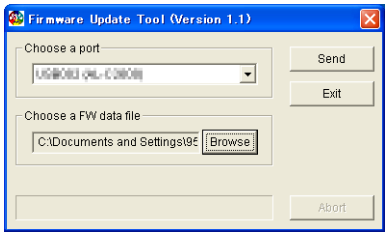
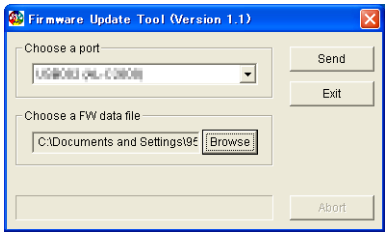
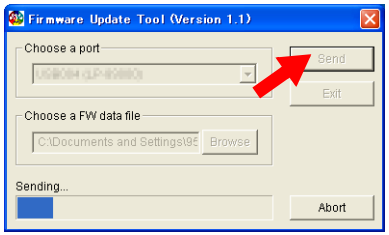
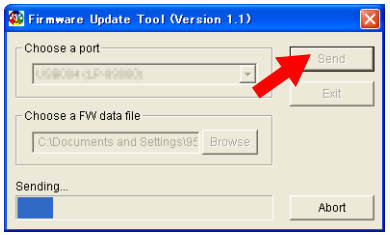
First use the RCC file to update the controller firmware. Only when the update using the RCC file is failed, use the CRB file.

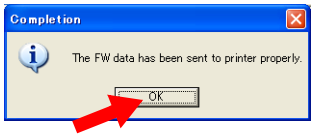
TOOL

Firmware update is executed by transmitting data for updating the program from the computer via USB using the exclusive software tool. Make sure to use the software tool described below.

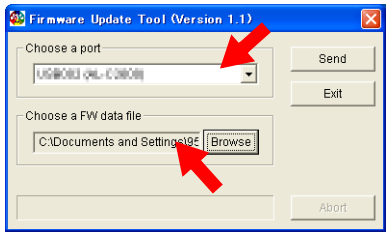
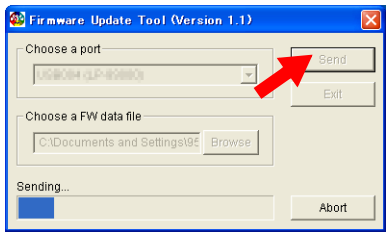
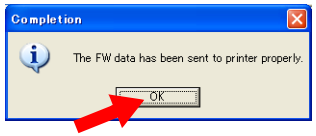
- Tool Name: Firmware Update Tool

5.2.2.1 Controller Firmware Update

	Procedure	RCC data format	CRB data format
1	Check the current version.	Print a status sheet, and check the current firmware version.	Print a status sheet, and check the current firmware version.
2	Connect the printer with the computer.	Connect the printer to the computer with a USB cable. Confirm that the Ready light turns on.	After turning the power off for both the printer and computer, connect them with a USB cable. CAUTION **Before connecting the USB cable, make sure to disconnect other interface cables from the product.**
3	Prepare the update data.	Turn the computer on and copy the program update file (the extension is RCC) onto the computer.	Turn the computer on and copy the program update file (the extension is CRB) onto the computer.
4	Start up the Printer.	---	While holding down the [Job Cancel] and [Information] buttons, turn the printer on. Hold the buttons until the Ready light starts blinking.
5	Prepare to send the data.	Start up the Firmware Update Tool. Specify the port and the program update file on the selection window of the tool. 	Start up the Firmware Update Tool. Specify the port and the program update file on the selection window of the tool. 
6	Transmit the data.	Click [Send] on the Firmware Update Tool screen. 	Click [Send] on the Firmware Update Tool screen. 

Procedure		RCC data format	CRB data format
7	Execute the update.	When the transfer is complete, “completed” window pops up. Click [OK]. 	“Completion” pop-up window will be displayed when the data transfer is finished. Click on the [OK]. While receiving data, the Ready light blinks and the Paper, Toner, Memory lights turn on. 
8	Reboot the Printer.	After confirming that the Ready light turns on, turn the printer power off and turn back on again.	After confirming that the Ready light blinks, turn the printer power off and turn back on again.
9	Print the status sheet.	Prints the status sheet.	Prints the status sheet.
10	Check the version on the status sheet.	Confirm that the program firmware version has been updated correctly by comparing the status sheet with that printed in step 1. Refer to “ 1.21 Status Sheet” (p74)	Confirm that the program firmware version has been updated correctly by comparing the status sheet with that printed in step 1. Refer to “ 1.21 Status Sheet” (p74)

5.2.2.2 Engine Controller Firmware Update

	Procedure	Method
1	Check the current version.	Print a status sheet or engine status sheet, and check the current firmware version.
2	Connect the printer with the computer.	After turning the power off for both the printer and computer, connect them with a parallel or USB cable. CAUTION **Make sure to disconnect other unnecessary interface cables from the printer in advance.**
3	Prepare the update data.	After turning the computer back on, copy the program data for the update (file name.EX) to any route directory of the computer.
4	Start up the Printer.	While holding down the [Start/Stop] and [Job Cancel] buttons, turn the printer on. Hold the buttons until the Ready light starts blinking.
5	Prepare to send the data.	Run the Firmware Update Tool. Select the port and FW data file on the Firmware Update Tool screen. 
6	Transmit the data.	Click [Send] on the Firmware Update Tool screen. 
7	Execute the update.	A “Complete” pop-up window will appear when the transmission is finished. Click the [OK].  When the update is completed, the Ready light blinks and the Error light turns on. CAUTION **If the status of the lights is different from the above, the update is failed.**

Procedure		Method
8	Confirm the checksum.	When updating the program data is finished, the checksum will be indicated on the LCD panel. Confirm the checksum.
9	Reboot the Printer.	Turn the printer off and back on.
10	Print the status sheet.	Prints the status sheet.
11	Check the version on the status sheet.	Check the firmware version printed on the status sheet or engine status sheet and confirm that the firmware is updated.

CHAPTER

6

MAINTENANCE

6.1 Cleaning

Clean the parts listed in the table below according to the printer condition.

Table 6-1. Cleaning

Unit	Cleaning point	Clean the point when ;
Main unit	Printer exterior surface	The surface is contaminated.
	Inside of the unit	Servicing
	Charging wire	Print quality problem occurs.
	Paper feed roller & Separation roller (Standard cassette)	An abnormality is observed in paper feeding/conveying operations. ■ Paper jam frequently occurs ■ Paper cannot be fed normally
	Paper feed roller & Separation roller (MP tray)	
Optional cassette unit	Paper feed roller & Separation roller (Optional cassette unit)	

DANGER

Make sure to turn the power switch OFF and unplug the power code before cleaning to avoid electric shock, burn or any other injuries.

CAUTION

- **Do not use alcohol, thinner, or any other solvents.**
- **Be extremely careful not to make the internal parts of the printer get wet.**
- **A hard brush or cloth can scratch the product. Do not use them to wipe the product.**

MAIN UNIT

☐ Printer exterior surface

Wipe the surface clean with a cloth wrung out of water.

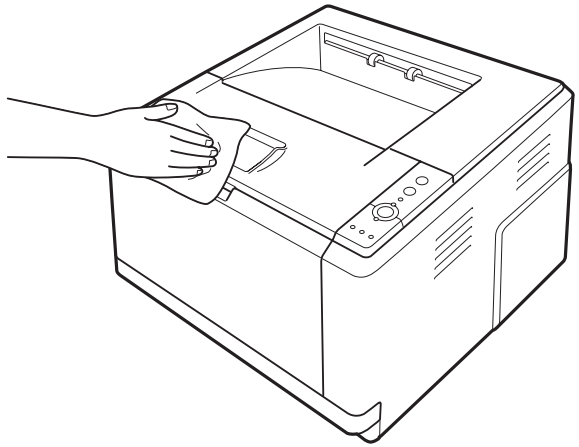


Figure 6-1. Cleaning the Printer Surface

☐ Inside of the printer

Remove the Developing unit and the photoconductor unit, and wipe off any paper dust or dirt inside the printer with a dry soft cloth.

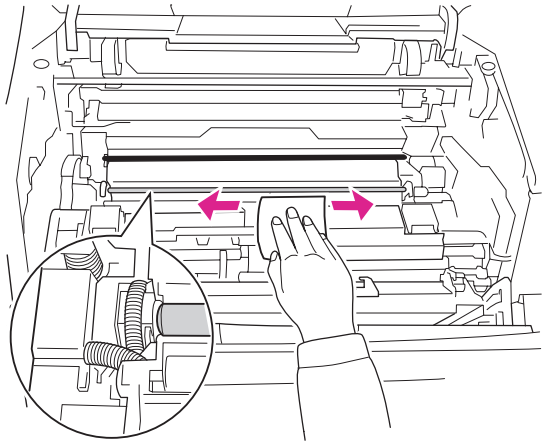


Figure 6-2. Inside of the printer

☐ Charging wire

Slide the green tab of the photoconductor unit from side to side several times. When finished, put the tab back into place.

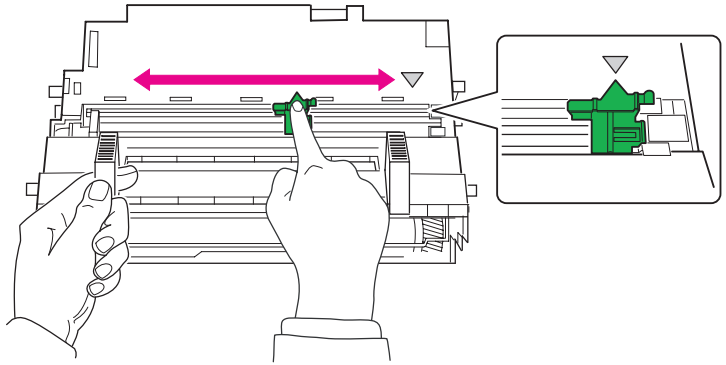


Figure 6-3. Cleaning the Charging Wire

☐ Paper feed roller & Separation roller (Standard cassette)

While rotating the roller manually, wipe its rubber surface with a cloth wrung out of water.

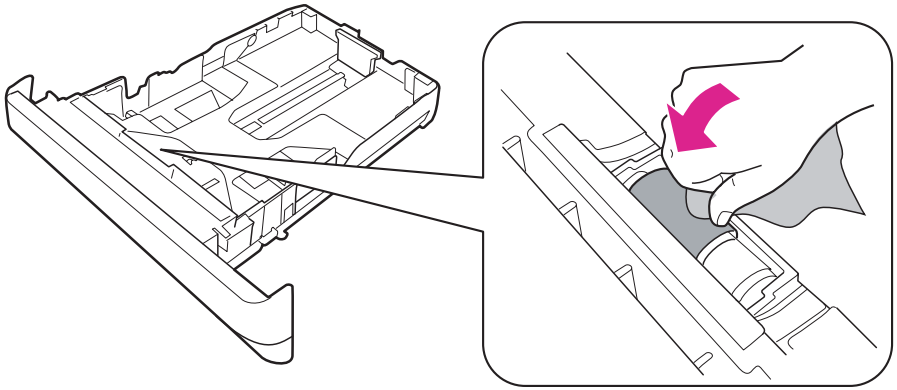


Figure 6-4. Cleaning Paper Feed Roller & Separation Roller

☐ Paper feed roller & Separation roller (MP tray)

Clean the surface of the roller located at the position shown below using a cloth wrung out of water.

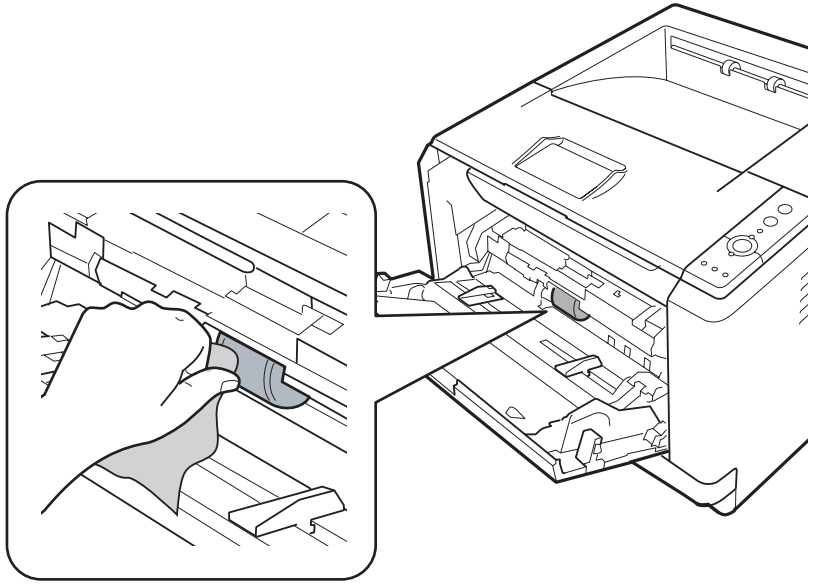


Figure 6-5. Cleaning Paper Feed Roller & Separation Roller

OPTIONAL CASSETTE UNIT

- ☐ Paper feed roller & Separation roller (Optional cassette unit)

  While rotating the roller manually, wipe its rubber surface with a cloth wrung out of water.

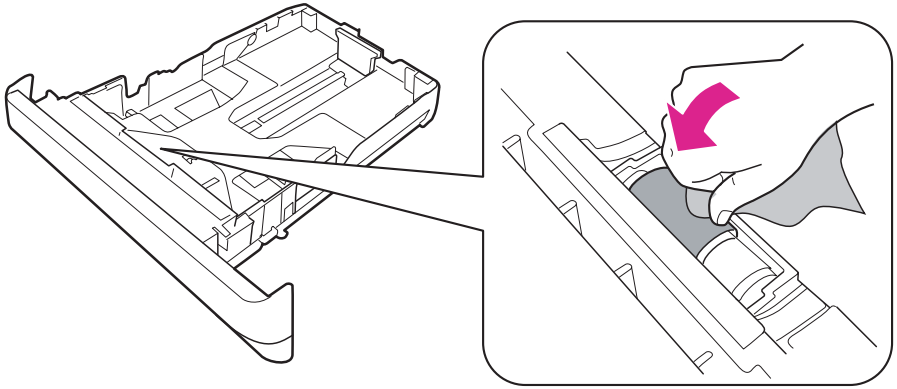


Figure 6-6. Cleaning Paper Feed Roller & Separation Roller

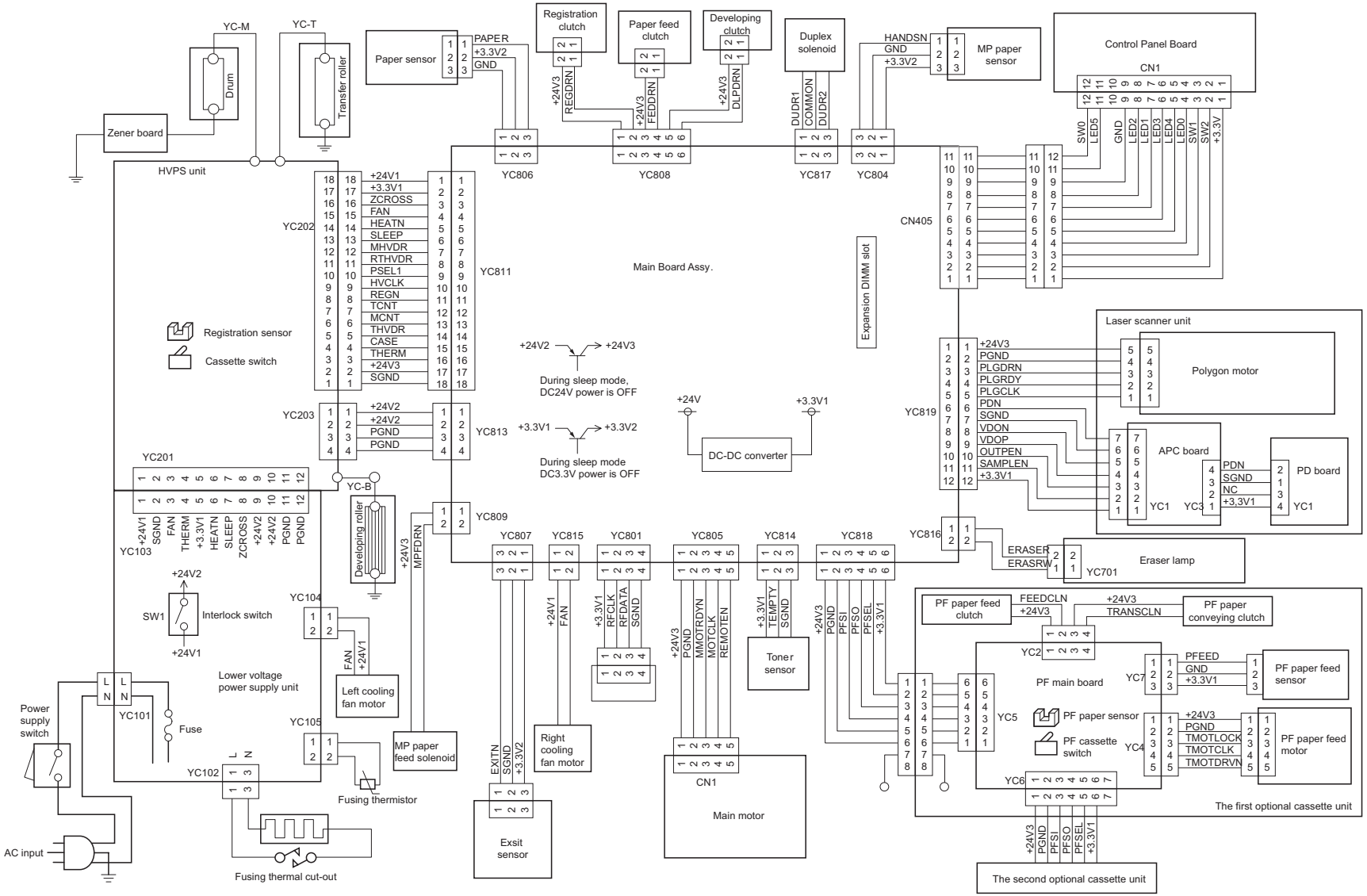
CHAPTER

7

APPENDIX

7.1 Connection Summary

7.1.1 Connection Diagram



7.1.2 Board Connection Summary

LVPS UNIT

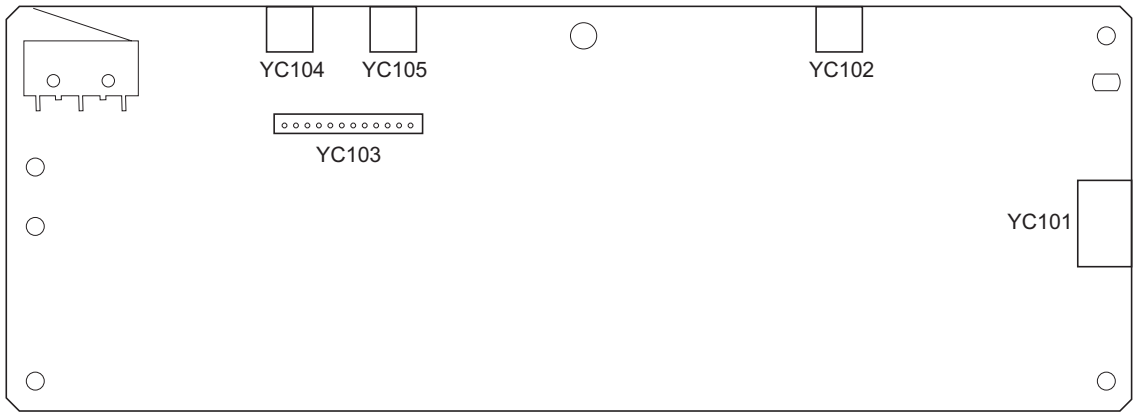


Figure 7-1. Board Diagram

Connector No.	Destination	Pin No.	Signal Name	I/O	Measured Voltage	Function
YC101	AC inlet	1	LIVE	I	AC100V	AC power source
		2	NEUTRAL	I	AC100V	AC power source
YC102	Fuser heater lamp	1	HEATER COM	O	AC100V	Fuser heater lamp output
		2	N.C.	-	-	Not used
		3	HEATER LIVE	O	AC100V	Fuser heater lamp output
YC103	HVPS unit	1	+24V1	O	DC24V	DC24V power source
		2	SGND	-	-	Ground
		3	FAN	I	DC0V/24V	Left cooling fan motor: On/Off
		4	THERM	O	Analog	Fuser thermistor detection voltage
		5	+3.3V	I	DC3.3V	DC3.3V power source
		6	HEATN	I	DC0V/3.3V	Fuser heater lamp: On/Off
		7	SLEEP	I	DC0V/3.3V	Sleep mode signal: On/Off
		8	ZCROSS	O	DC0V/3.3V (pulse)	Zero cross signal
		9	+24V2	O	DC24V	DC24V power source via the interlock switch

Connector No.	Destination	Pin No.	Signal Name	I/O	Measured Voltage	Function
YC103	HVPS unit	10	+24V2	O	DC24V	DC24V power source via the interlock switch
		11	PGND	-	-	Ground
		12	PGND	-	-	Ground
YC104	Left cooling fan motor	1	+24V1	O	DC24V	DC24V power source
		2	FAN	O	DC0V/24V	Left cooling fan motor: On/Off
YC105	Fuser thermistor	1	+3.3V1	O	DC3.3V	DC3.3V power source
		2	THERM	I	Analog	Fuser thermistor detection voltage

MAIN BOARD ASSY.

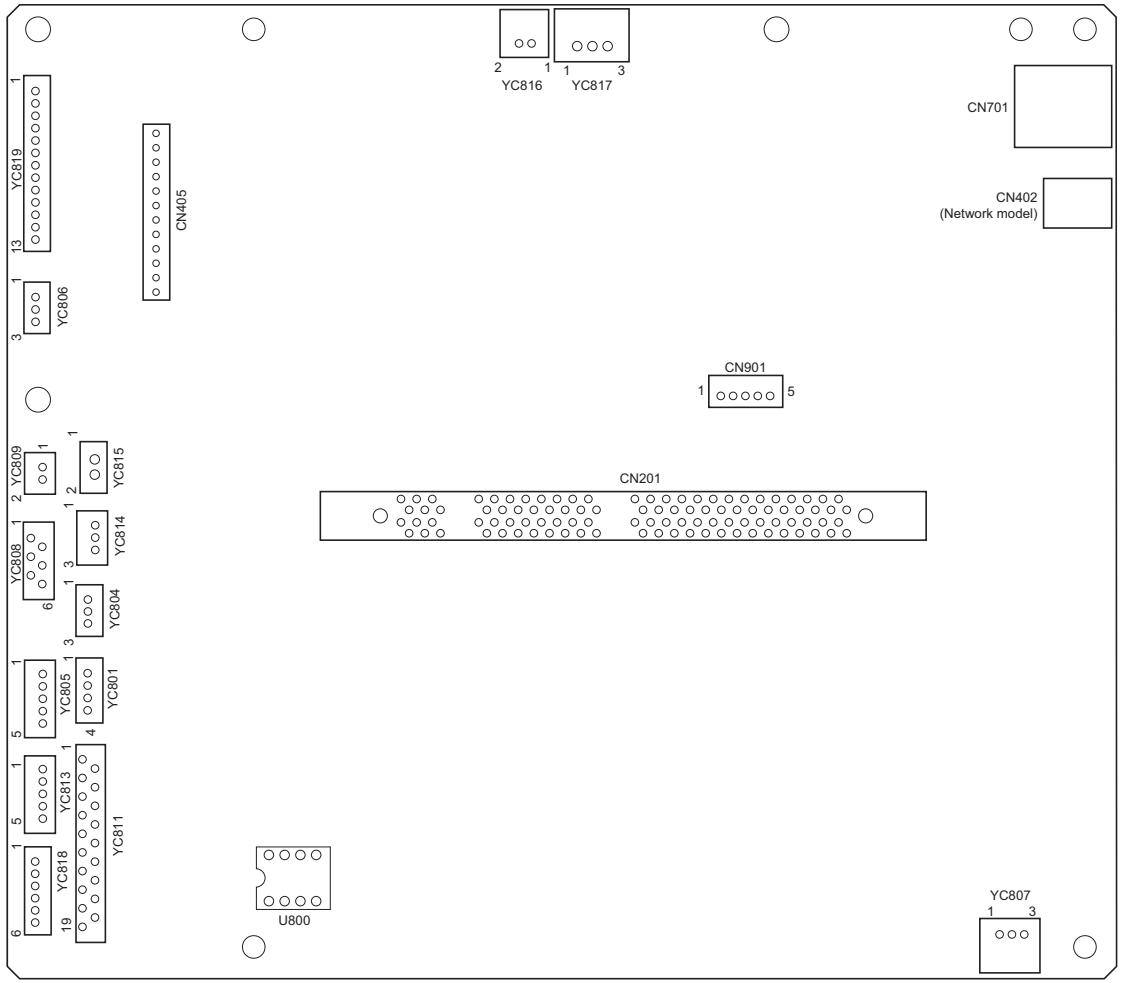


Figure 7-2. Board Diagram

Connector No.	Destination	Pin No.	Signal Name	I/O	Measured Voltage	Function
CN405	Control panel board	1	+3.3V	O	DC3.3V	DC3.3V power source
		2	SW2	I	Analog	Job Cancel button: On/Off
		3	SW1	I	Analog	Information button: On/Off
		4	LED0	O	DC3.3V/0V	Ready LED: On/Off
		5	LED4	O	DC3.3V/0V	Toner LED: On/Off
		6	LED3	O	DC3.3V/0V	Memory LED: On/Off
		7	LED1	O	DC3.3V/0V	Data LED: On/Off
		8	LED2	O	DC3.3V/0V	Error LED: On/Off
		9	GND	-	-	Ground
		10	LED5	O	DC3.3V/0V	Paper LED: On/Off
		11	SW0	I	Analog	Start/ Stop button: On/Off
YC804	MP paper sensor	1	+3.3V2	O	DC3.3V	DC3.3V power source
		2	SGND	-	-	Ground
		3	HANDSN	I	DC0V/3.3V	MP paper sensor: On/Off
YC805	Main motor	1	+24V3	O	DC24V	DC24V power source
		2	PGND	-	-	Ground
		3	MMOTRDYN	I	DC0V/3.3V	Main motor ready signal
		4	MMOTCLK	O	DC0V/3.3V (pulse)	Main motor clock signal
		5	REMOTEN	O	DC0V/3.3V	Main motor: On/Off
YC806	Paper sensor	1	SGND	-	-	Ground
		2	+3.3V2	O	DC3.3V	DC3.3V power source
		3	PAPER	I	DC0V/3.3V	Paper sensor: On/Off
YC807	Exit sensor	1	+3.3V2	O	DC3.3V	DC3.3V power source
		2	SGND	-	-	Ground
		3	EXITN	I	DC0V/3.3V	Exit sensor: On/Off
YC808	Registration clutch Paper feed clutch Developing clutch	1	+24V3	O	DC24V	DC24V power source
		2	REGDRN	O	DC0V/24V	Registration clutch: On/Off
		3	+24V3	O	DC24V	DC24V power source
		4	FEDDRN	O	DC0V/24V	Paper feed clutch: On/Off
		5	+24V3	O	DC24V	DC24V power source
		6	DLPDRN	O	DC0V/24V	Developing clutch: On/Off

Connector No.	Destination	Pin No.	Signal Name	I/O	Measured Voltage	Function
YC809	MP paper feed solenoid	1	+24V3	O	DC24V	DC24V power source
		2	MPFDRN	O	DC0V/24V	MP paper feed solenoid: On/Off
YC811	HVPS unit	1	+24V1	I	DC24V	DC24V power source
		2	+3.3V1	O	DC3.3V	DC3.3V power source
		3	ZCROSS	I	DC0V/3.3V (pulse)	Zero cross signal
		4	FAN	O	DC0V/24V	Left cooling fan motor: On/Off
		5	HEATN	O	DC0V/3.3V	Fuser heater lamp: On/Off
		6	SLEEP	O	DC0V/3.3V	Sleep mode signal: On/Off
		7	MHVDR	O	DC0V/3.3V	Main charger output signal: On/Off
		8	RTHVDR	O	DC0V/3.3V	Transfer (reverse) bias output signal: On/Off
		9	PSEL1	O	DC0V/3.3V	Transfer (reverse) bias control signal: On/Off
		10	HVCLK	O	DC0V/3.3V (pulse)	Developing bias clock signal
		11	REGN	I	DC0V/3.3V	Registration sensor: On/Off
		12	TCNT	O	PWM	Transfer current control signal
		13	MCNT	O	PWM	Main charger output control signal
		14	THVDR	O	DC0V/3.3V	Transfer bias output signal: On/Off
		15	CASE	I	Analog	Cassette switch: On/Off
		16	THERM	I	Analog	Fuser thermistor detection voltage
		17	+24V3	O	DC24V	DC24V power source
		18	SGND	-	-	Ground
YC813	HVPS unit	1	+24V2	I	DC24V	DC24V power source
		2	+24V2	I	DC24V	DC24V power source
		3	PGND	-	-	Ground
		4	PGND	-	-	Ground
YC814	Toner sensor	1	+3.3V1	O	DC3.3V	DC3.3V power source
		2	TEMPTY	I	DC0V/3.3V	Toner quantity detection signal
		3	SGND	-	-	Ground
YC815	Right cooling fan motor	1	+24V1	O	DC24V	DC24V power source
		2	FAN	O	DC0V/24V	Right cooling fan motor: On/Off
YC816	Eraser lamp	1	ERASER	O	DC0V/24V	Eraser lamp: On/Off
		2	ERASRW	O	DC24V	DC24V power source

Connector No.	Destination	Pin No.	Signal Name	I/O	Measured Voltage	Function
YC817	Duplex solenoid	1	DUDR1	O	DC0V/24V	Duplex solenoid (activate): On/Off
		2	COMMON	O	DC24V	DC24V power source
		3	DUDR2	O	DC0V/24V	Duplex solenoid (return): On/Off
YC818	The first optional cassette unit	1	+24V3	O	DC24V	DC24V power source
		2	PGND	-	-	Ground
		3	PFSI	I	DC0V/3.3V (pulse)	Serial communication data input signal
		4	PFSO	O	DC0V/3.3V (pulse)	Serial communication data output signal
		5	PFSEL	O	DC0V/3.3V	Paper feeder selection signal
		6	+3.3V1	O	DC3.3V	DC3.3V power source
YC819	Laser scanner unit	1	+24V3	O	DC24V	DC24V power source
		2	PGND	-	-	Ground
		3	PLGDRN	O	DC0V/3.3V	Polygon motor: On/Off
		4	PLGRDY	I	DC0V/3.3V	Polygon motor ready signal
		5	PLGCLK	O	DC0V/3.3V (pulse)	Polygon motor clock signal
		6	PDN	I	DC0V/3.3V (pulse)	Horizontal synchronizing signal
		7	SGND	-	-	Ground
		8	VDON	O	DC0V/3.3V (pulse)	Video data signal (+)
		9	VDOP	O	DC0V/3.3V (pulse)	Video data signal (-)
		10	OUTPEN	O	DC0V/3.3V	Laser output enable signal
		11	SAMPLEN	O	DC0V/3.3V	Sample/hold timing switching signal
		12	+3.3V1	O	DC3.3V	DC3.3V power source

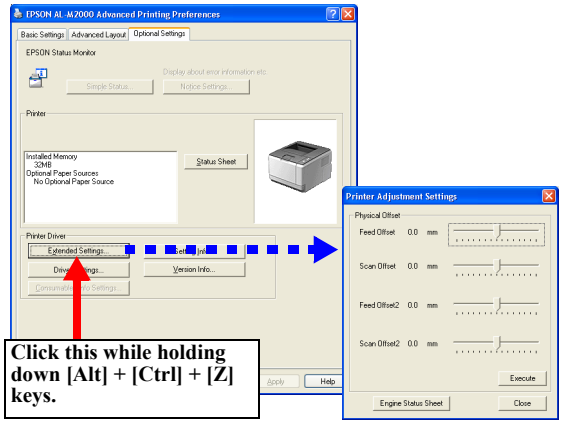
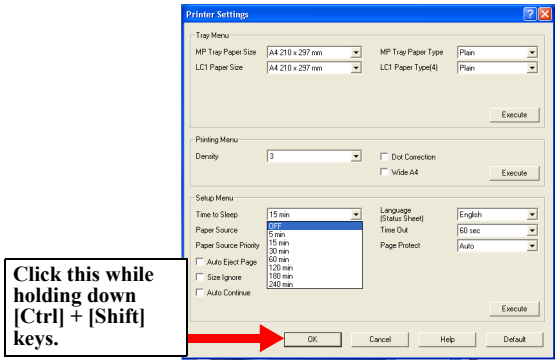
7.2 Control Panel Special Operations

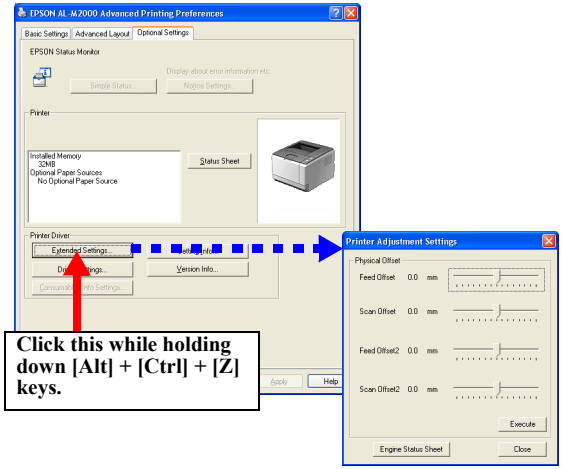
This printer provides the special functions listed in the following table by means of the special button operations.

Never disclose these special operations to the users. They are intended to be used for product development and service.

7.2.1 Operation Method & Functions

Function	Operation Method	Explanation
Hexadecimal dump	Turn the power ON while holding down the [Start/Stop] button.	Printing is made in hexadecimal dump.
Reset of the maintenance unit counter	Turn the power ON while holding down the [Start/Stop] and [Information] buttons.	The life counter of the maintenance unit is reset. After this function is executed, the printer goes into the toner charging mode.
Initialization of the EEPROM	Turn the power ON while holding down the [Start/Stop], [Job Cancel], and [Information] buttons.	All information stored in the EEPROM of the controller is cleared. CAUTION **Note that information on the printer operational history such as total printed pages is also erased.**
Initialization of the control panel settings	Turn the power ON while holding down the [Job Cancel] button.	All the settings made by the control panel are returned to their default.
Update of the controller firmware	Turn the power ON while holding down the [Job Cancel] and [Information] buttons.	The printer enters into the mode for updating the controller firmware. (Use this mode when updating the firmware using the files formatted in other than RCC format.)
Update of the engine controller firmware	Turn the power ON while holding down the [Start/Stop] and [Job Cancel] buttons.	The printer enters into the mode for updating the engine controller firmware.
Reset of the CPU / Printing the error analysis sheet	Press the [Information] button while a service request error is occurring.	Information for analyzing errors is printed. (On-site analysis of the printed information is not possible.)

Function	Operation Method	Explanation
Maintenance mode (Printing Engine Status Sheet and Print Log Report)	Turn the power ON while holding down the [Information] button, and press the [Information] button again when the printer is started up.	The Engine Status Sheet and the Print Log Report are printed.
	1. Select the [Optional settings] tab of the printer driver. 2. Click the [Extended setting] button while holding down the [Alt], [Ctrl], and [Z].  	
Support mode (Setting power save mode to OFF)	1. Open the printer's property using the control panel. 2. Select the [Optional settings] tab and press the [Printer setting] button. 3. Click the [OK] button while holding down the [Ctrl] and [Shift] keys.  	"OFF" (not goes into the power save mode) is added to the time settings for the power save mode.

Function	Operation Method	Explanation
Printer adjustment mode (Setting of physical offset)	1. Select the [Optional settings] tab of the printer driver. 2. Click the [Extended setting] button while holding down the [Alt], [Ctrl], and [Z].  	Physical offset can be configured. For more details, see “7.2.2 Special Menu” on page 165.

7.2.2 Special Menu

The following special adjustment menu is provided.
The underlined values are default values.

PRINTER ADJUSTMENT FUNCTION

Setting item	Settings	Explanation
Vertical	-3.5 ~ 0.0 ~ 3.5	Physical offset for the front of a page is configured. The unit is “mm”. The value can be changed in increments of 0.5mm.
Horizontal	-3.5 ~ 0.0 ~ 3.5	
Vertical (back of a page)	-3.5 ~ 0.0 ~ 3.5	Physical offset for the back of a page is configured. The unit is “mm”. The value can be changed in increments of 0.5mm.
Horizontal (back of a page)	-3.5 ~ 0.0 ~ 3.5	

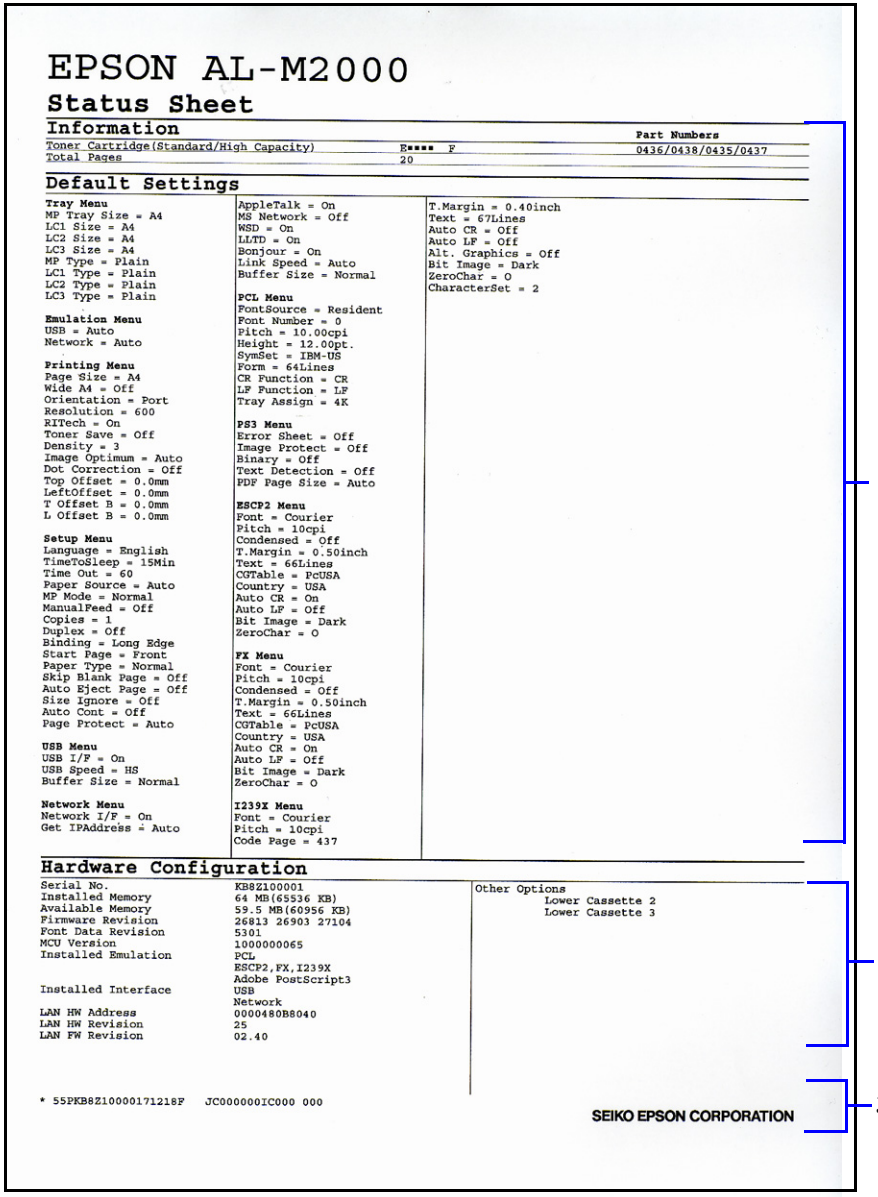
7.3 Information Sheet

7.3.1 Status Sheet

The information printed on the status sheet are described in the table below.

Table 7-1. Status Sheet Information

Location	Item	Explanation
1	Printer information / Printer setup	Information on the following items is printed. ■ Consumables life ■ Operational history ■ Main unit information ■ Settings information
2	Hardware environment	Information on the following items is printed. ■ Interfaces ■ Paper feeders ■ Optional parts/units
3	Footer information	The character string includes the following information. ■ Program ROM device type * : Writable Space: Not writable ■ USB ID 55Pxxxxxxxxxxxxxx ■ The latest USB communication mode H: HS F: FS Space: No USB connection ■ USB communication mode D: Connected with a D4-compatible equipment Space: Connected with a non D4-compatible equipment ■ Type-B level This is not supported. A space is always indicated. ■ Result of IEEE1284 negotiation This is not supported. A space is always indicated. ■ Number of paper jam occurrences JCxxxxxx: the number of times is indicated in 6-digit ■ Toner cartridge information (ICxxx yyy) xxx: the number of toner cartridge replacements yyy: the number of operations cancelling toner cartridge errors



EPSON AL-M2000

Status Sheet

Information

		Part Numbers
Toner Cartridge(Standard/High Capacity)	E**** F	0436/0438/0435/0437
Total Pages	20	

Default Settings

Tray Menu
MP Tray Size = A4
LC1 Size = A4
LC2 Size = A4
LC3 Size = A4
MP Type = Plain
LC1 Type = Plain
LC2 Type = Plain
LC3 Type = Plain

Emulation Menu
USB = Auto
Network = Auto

Printing Menu
Page Size = A4
Wide A4 = Off
Orientation = Port
Resolution = 600
RITech = On
Toner Save = Off
Density = 3
Image Optimum = Auto
Dot Correction = Off
Top Offset = 0.0mm
LeftOffset = 0.0mm
T Offset B = 0.0mm
L Offset B = 0.0mm

Setup Menu
Language = English
TimeToSleep = 15Min
Time Out = 60
Paper Source = Auto
MP Mode = Normal
ManualFeed = Off
Copies = 1
Duplex = Off
Binding = Long Edge
Start Page = Front
Paper Type = Normal
Skip Blank Page = Off
Auto Eject Page = Off
Size Ignore = Off
Auto Cont = Off
Page Protect = Auto

USB Menu
USB I/F = On
USB Speed = HS
Buffer Size = Normal

Network Menu
Network I/F = On
Get IPAddress = Auto

AppleTalk = On
MS Network = Off
WSD = On
LLTD = On
Bonjour = On
Link Speed = Auto
Buffer Size = Normal

PCL Menu
FontSource = Resident
Font Number = 0
Pitch = 10.00cpi
Height = 12.00pt.
SymSet = IBM-US
Form = 64Lines
CR Function = CR
LF Function = LF
Tray Assign = 4K

PS3 Menu
Error Sheet = Off
Image Protect = Off
Binary = Off
Text Detection = Off
PDF Page Size = Auto

ESCP2 Menu
Font = Courier
Pitch = 10cpi
Condensed = Off
T.Margin = 0.50inch
Text = 66Lines
CGTable = PcUSA
Country = USA
Auto CR = On
Auto LF = Off
Bit Image = Dark
ZeroChar = 0

FX Menu
Font = Courier
Pitch = 10cpi
Condensed = Off
T.Margin = 0.50inch
Text = 66Lines
CGTable = PcUSA
Country = USA
Auto CR = On
Auto LF = Off
Bit Image = Dark
ZeroChar = 0

I239X Menu
Font = Courier
Pitch = 10cpi
Code Page = 437

T.Margin = 0.40inch
Text = 67Lines
Auto CR = Off
Auto LF = Off
Alt. Graphics = Off
Bit Image = Dark
ZeroChar = 0
CharacterSet = 2

Hardware Configuration

Serial No.	KB8Z100001
Installed Memory	64 MB(65536 KB)
Available Memory	59.5 MB(60956 KB)
Firmware Revision	26813 26903 27104
Font Data Revision	5301
MCU Version	1000000065
Installed Emulation	PCL ESCP2,FX,I239X Adobe PostScript3
Installed Interface	USB Network
LAN HW Address	0000480B8040
LAN HW Revision	25
LAN FW Revision	02.40

Other Options
Lower Cassette 2
Lower Cassette 3

* 55PKB8Z10000171218F JC000000IC000 000

SEIKO EPSON CORPORATION

1
2
3

Figure 7-3. Status Sheet Example

7.3.2 Engine Status Sheet

Table 7-2. Engine Status Sheet Information

Location	Item		Unit	Explanation
1	Total Counts	Total Pages	pages	Total number of printed pages
		Jam Counts	times	Number of paper jam occurrences
2	Toner Cartridge	Remain	%	Remaining amount of toner
		Total Dots	---	Total number of dots
		Changes	times	Number of detections of new toner cartridges
		Capacity	pages	Remaining toner capacity
		Consumed	---	Amount of toner consumption
		Pages	pages	Total number of pages printed using the cartridge.
3	Maintenance Unit	Remain	%	The current usage level of the maintenance unit
		Pages	pages	Total number of pages printed since the unit is installed.
		Changes	times	Number of replacements of the unit
4	Printer Adjust Menu	Feed Offset	mm	The offset values specified using the printer adjustment function.
		Scan Offset	mm	
		Feed Offset2	mm	
		Scan Offset2	mm	
5	Power On		times	Number of power-on times
	Sleep		times	Number of times returned from the power save mode
6	MCU		---	Engine controller firmware version (A 10-digit number)

Table 7-2. Engine Status Sheet Information

Location	Item	Unit	Explanation
7	Error Log		The following information for each error is printed; panel messages, EJL status code, the number of printed pages, jam code, paper size, paper type, date and time. Up to 20 errors are printed in reverse chronologic order. The target errors are paper jam errors and service request errors that occurred after "Ready" status. ■ JAM — Jam status code is expressed in hexadecimal eight-digit character string. See "3.4.1 Paper Jam Error" on page 37 for explanation on how to read the code. ■ Size — Paper size indicated on the control panel ■ Type — Paper type name used to be identified by the engine ■ Date/Time — Paper jam occurrence date and time

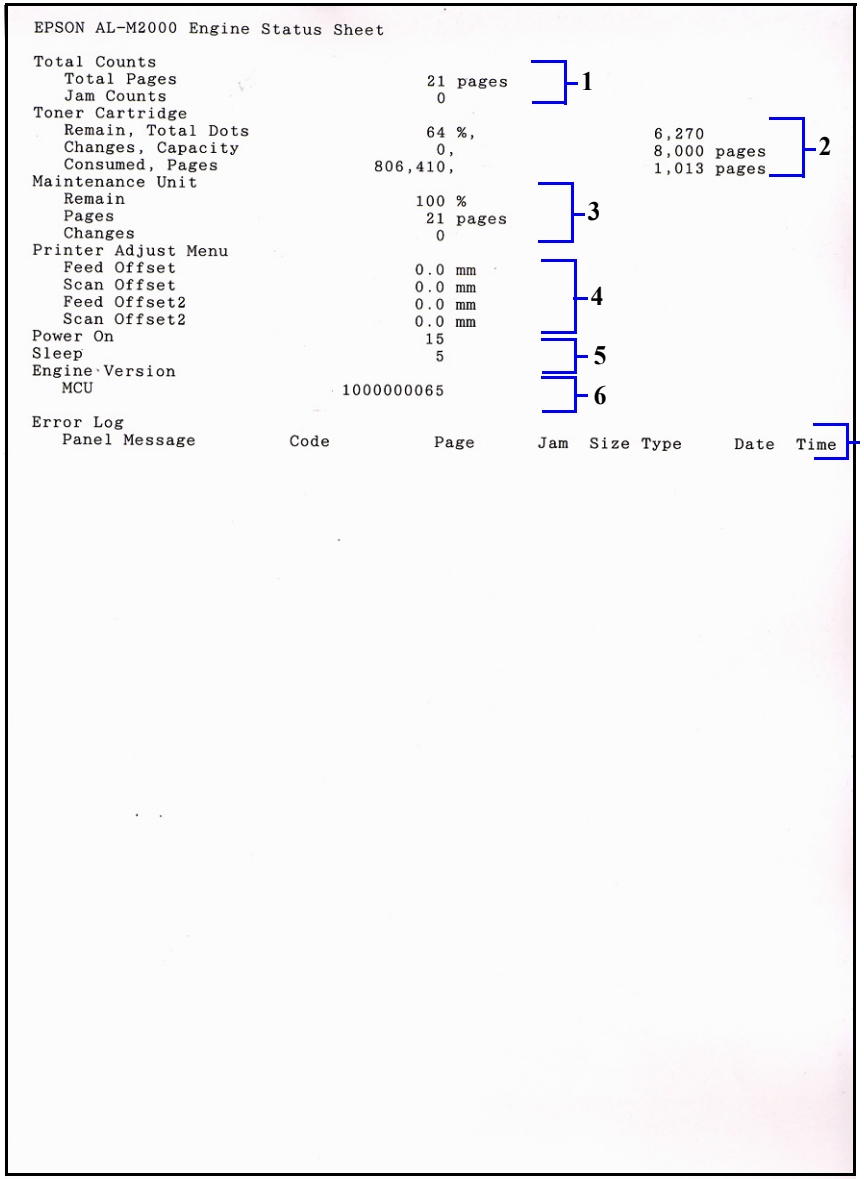


Figure 7-4. Engine Status Sheet Example

7.3.3 Print Log Report

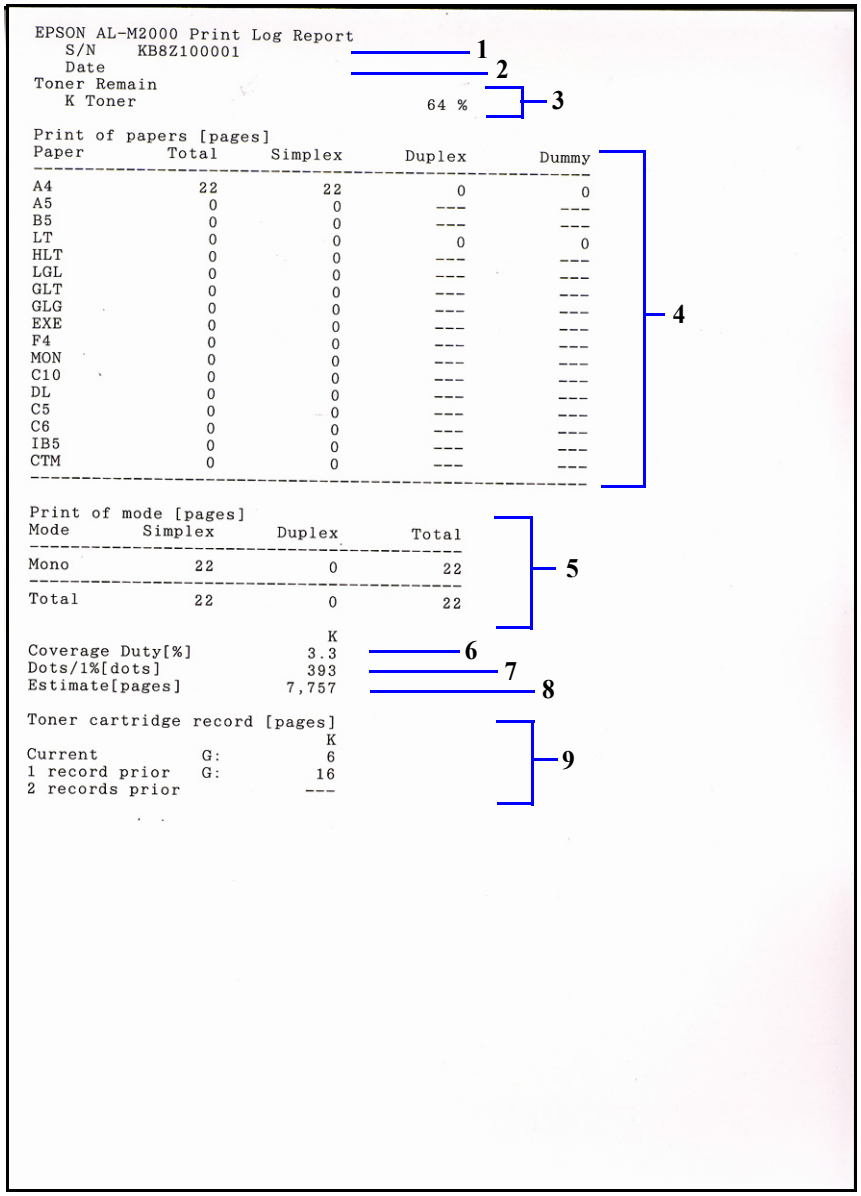
Table 7-3. Print Log Report Information

Location	Item		Unit	Explanation
1	S/N		---	The serial number of the main unit
2	Date		yyyy/mm/dd hh:mm	The local year / month / date / time information is printed. Not printed when the time has not been synchronized.
3	Toner Remain	K Toner	%	Remaining amount of K toner
4	Print of papers	Total	pages	Total number of printed pages
		Simplex	pages	Total number of printed simplex pages
		Duplex	pages	Total number of printed duplex pages
		Dummy	pages	Number of pseudo pages added for duplex printing
5	Print of mode		pages	Total number of printed pages per print mode
6	Coverage Duty		%	The proportion of printed dots to the total number of dots available on one page per color (each time one page is printed, the coverage percentage is averaged)
7	Dots/1%		dots	Number of dots printed using 1% of toner (each time the toner amount decreases by 1%, the value is updated)
8	Estimate		pages	Number of pages printable using the remaining toner amount (calculated based on the values of 6 and 7)

Table 7-3. Print Log Report Information

Location	Item		Unit	Explanation
9	Toner cartridge record	Current	G or N / pages	Toner cartridge type* and the number of printed pages at the time this Print Log Report is printed
		1 record prior	G or N / pages	Toner cartridge type* replaced last time and the number of printed pages using the cartridge
		2 record prior	G or N / pages	Toner cartridge type* replaced the time before last and the number of printed pages using the cartridge

*: G = genuine, N = not genuine



EPSON AL-M2000 Print Log Report
S/N KB8Z100001 — 1
Date — 2
Toner Remain
K Toner 64 % — 3

Print of papers [pages]

Paper	Total	Simplex	Duplex	Dummy
A4	22	22	0	0
A5	0	0	---	---
B5	0	0	---	---
LT	0	0	0	0
HLT	0	0	---	---
LGL	0	0	---	---
GLT	0	0	---	---
GLG	0	0	---	---
EXE	0	0	---	---
F4	0	0	---	---
MON	0	0	---	---
C10	0	0	---	---
DL	0	0	---	---
C5	0	0	---	---
C6	0	0	---	---
IB5	0	0	---	---
CTM	0	0	---	---

— 4

Print of mode [pages]

Mode	Simplex	Duplex	Total
Mono	22	0	22
Total	22	0	22

— 5

	K
Coverage Duty[%]	3.3 — 6
Dots/1%[dots]	393 — 7
Estimate[pages]	7,757 — 8

Toner cartridge record [pages]

	K
Current G:	6
1 record prior G:	16
2 records prior	---

— 9

Figure 7-5. Print Log Report Example

7.4 Exploded Diagram / Parts List

ACULASER M2000D/M2010D

Table 7-4. Case

Ref. No.	Name
01-005	STOPPER PAPER
01-014	COVER LEFT
01-015	COVER RIGHT
01-016	COVER DIMM
01-017	SCREW BOX
01-A01	COVER TOP SUB ASSY SP
01-A02	LID TOP SP E
01-A03	COVER FRONT SP
01-A04	PANEL ASSY SP

Only numbered Service Parts are available.

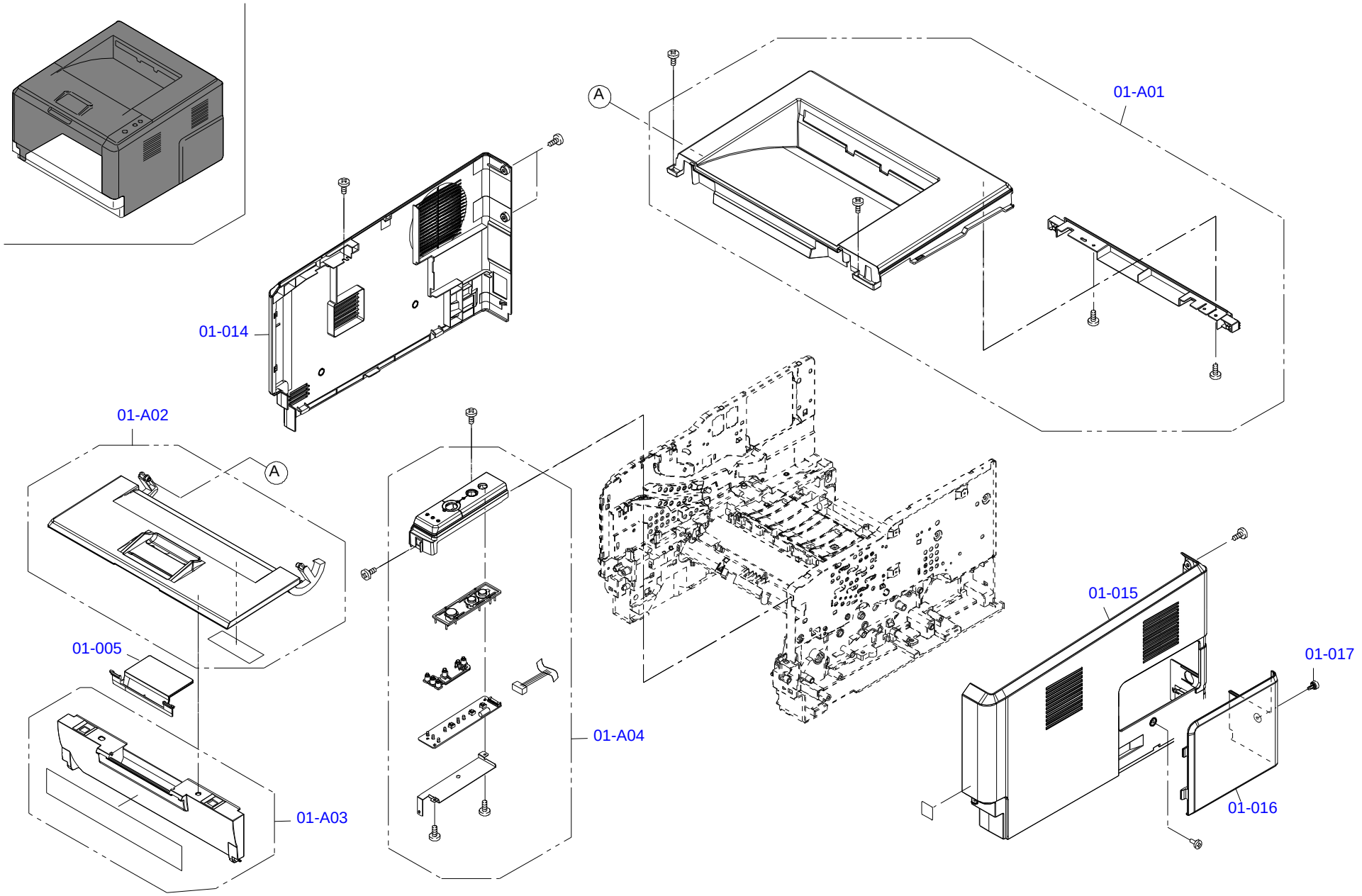


Table 7-5. Electric

Ref. No.	Name
11-001	“BOARD ASSY,MAIN”
11-002	SWITCHING REGULATOR 230V
11-003	LEVER LOCK CASSETTE
11-005	SPRING INTERLOCK SW
11-006	PIN CASSETTE
11-007	SPRING PIN CASSETTE
11-011	COVER BASE LOW
11-012	SPRING LOCK CASSETTE
11-013	LEVER LOCK CASSETTE L
11-014	BKT FAN R
11-018	HOLDER PIN CASSETTE
11-020	SPRING EARTH FAN
11-021	MOTOR FAN 80
11-024	MOTOR FAN 80
11-027	HIGH VOLTAGE UNIT
11-028	CONN.CORD ASSY CONTROL-H.V.UNIT S03391
11-029	CONN.CORD ASSY CONTROL-H.V.UNIT S03392
11-030	CONN.CORD ASSY PWS-INLET S03238
11-031	CONN.CORD ASSY CONTROL-ERASER S03252
11-032	AC CORD ASSY

Only numbered Service Parts are available.

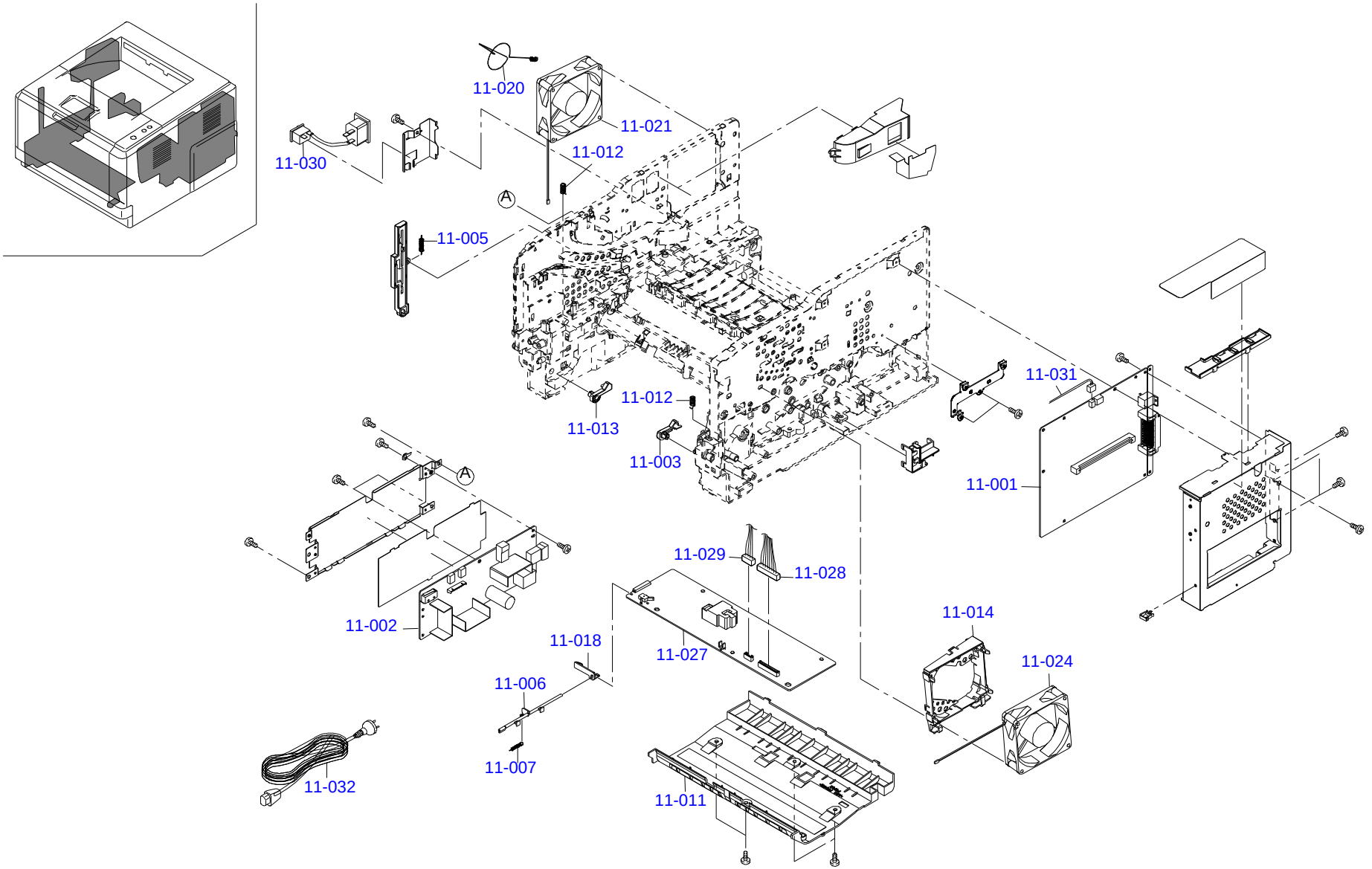


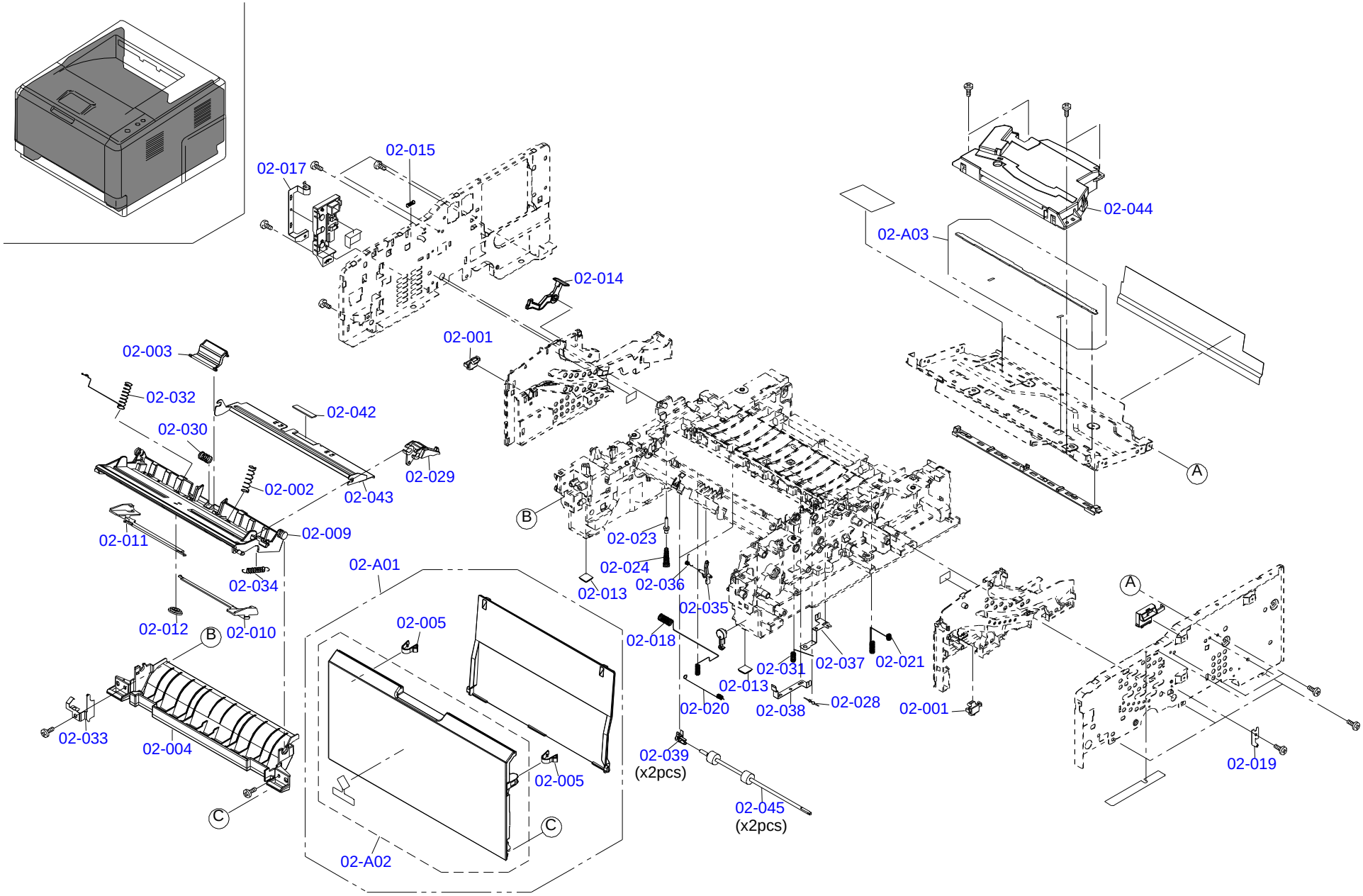
Table 7-6. Mechanism

Ref. No.	Name
02-001	LOCK COVER TOP R
02-002	SP BOTTOM MPF L
02-003	SEPARATOR MPF ASSY
02-004	GUIDE TURN MPF
02-005	LOCK COVER
02-009	BASE MPF
02-010	GUIDE MPF R
02-011	GUIDE MPF L
02-012	GEAR MPF /A-49 MPF A4
02-013	FOOT /43307C0007 A4
02-014	LEVER STOPPER DLP
02-015	SPRING STOPPER DLP
02-017	PLATE CONTACT MC
02-018	SPRING MC
02-019	PLATE EARTH DRUM
02-020	SPRING EARTH DU FEED
02-021	SPRING EARTH DU PLATE
02-023	PIN CONTACT BIAS
02-024	SPRING PIN BIAS
02-028	M.GLAZE R. 100MJ 1/2W
02-029	BRACKET BOTTOM
02-030	SPRING SEPARATOR
02-031	SPRING CONTACT TC
02-032	SPRING EARTH MPF
02-033	PLATE EARTH BOTTOM
02-034	SPRING BRACKET
02-035	ACTUATOR REGIST
02-036	SPRING ACTUATOR REG
02-037	PLATE EARTH HV
02-038	PLATE ERATH PAPER CHUTE

Table 7-6. Mechanism

Ref. No.	Name
02-039	BUSH 4 DU ROLL
02-042	PAD FRICTION MPF
02-043	PLATE BOTTOM MPF
02-044	LK-130
02-045	ROLLER DU
02-A01	TRAY MPF ASSY SP
02-A02	COVER MPF ASSY SP
02-A03	ERASER KIT

Only numbered Service Parts are available.

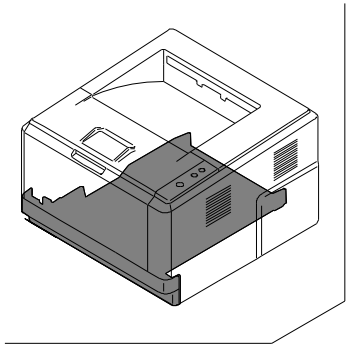


FOR EPSON AcuLaser M2000D/DN,EPSON AcuLaser M2010D/DN NO.02 Rev.01 CA07

Table 7-7. Mechanism

Ref. No.	Name
03-001	GUIDE SIDE L
03-002	GUIDE SIDE R
03-003	LEVER BASE CAS REAR
03-004	SPRING BASE CAS REAR
03-005	GUIDE RETARD
03-006	HOLDER RETARD
03-007	SPRING FIX
03-008	SIZE FIX
03-010	COVER CASSETTE
03-013	CURSOR END
03-014	LOCK BOTTOM
03-015	SPRING BOTTOM L
03-016	SPRING BOTTOM R
03-017	SPRING LOCK BOTTOM
03-018	GEAR CASSETTE
03-019	SPRING RETARD
03-020	PAD BOTTOM
03-024	RETARD ROLL ASSY /43487V0005 A4
03-025	PLATE SIDE GUIDE /A49 CASSETTE A4
03-026	SPRING STOPPER /A49 CASSETTE A4
03-027	LEVER REAR
03-028	LEVER SIDE
03-A01	CT-130SE

Only numbered Service Parts are available.



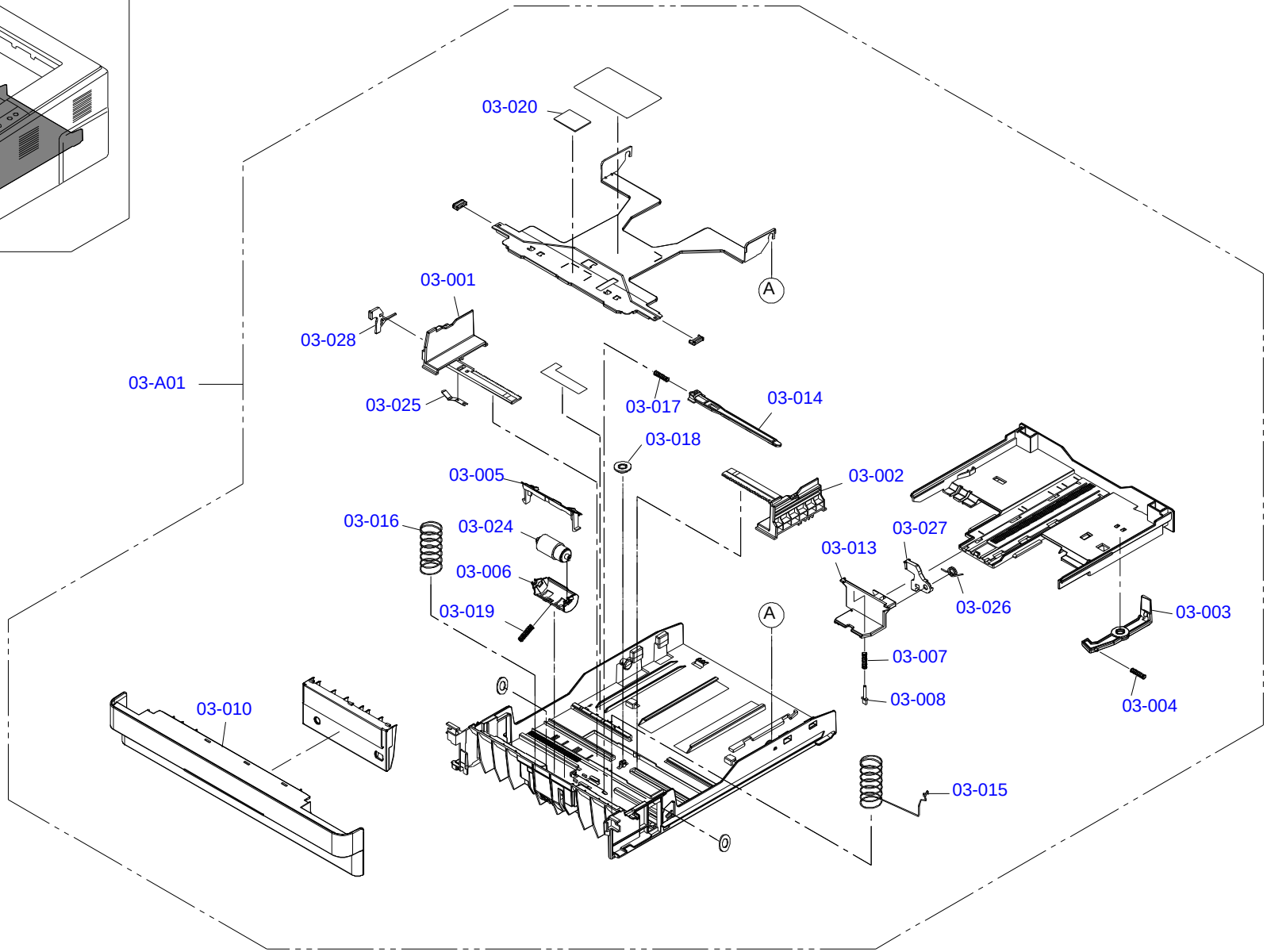


Table 7-8. Mechanism

Ref. No.	Name
04-001	RING STOPPER /A-49 FEED A4
04-002	BUSH REGIST C /B-11 FRAME A3
04-003	BUSH TC R /A-49 FEED A4
04-012	RING STOPPER /A-49 FEED A4
04-013	SPRING EARTH REG UP
04-014	SPRING EARTH REG LOW
04-017	SPRING EARTH DLP PLATE
04-018	FRAME FEED
04-019	SPRING EARTH BRUSH
04-021	PULLEY FEED
04-022	ACTUATOR EMPTY A
04-023	ACTUATOR EMPTY B
04-026	SPRING PULLEY
04-028	FRAME MPF
04-029	SHAFT FEED MPF
04-030	ACTUATOR MPF
04-031	BASE IC PWB
04-032	GEAR Z20S MPF
04-033	SPRING ACTUATOR
04-034	ROLLER M/P ASSY
04-035	SPRING REGIST L
04-036	HOLDER FEED M/P
04-037	SPRING ACTUATOR
04-040	ROLLER REGIST UP
04-041	P.W.B RFID WITH SOFTWARE
04-042	BUSH REGIST
04-043	BUSH 6 EW
04-044	SPRING REGIST R
04-045	GEAR Z14R REG UP
04-046	GEAR Z21L-Z23L REG LOW

Table 7-8. Mechanism

Ref. No.	Name
04-047	GEAR Z16L TC
04-048	BUSH TC R
04-049	LEVER RELEASE TC L
04-050	SPRING RELEASE TC L
04-051	ROLLER TRANSFER E
04-052	SPRING REGIST C
04-053	CONN.CORD ASSY CONTROL-RFID S03244
04-054	CONN.CORD ASSY CONTROL-MPFSENSOR S03251
04-055	CONN.CORD ASSY CONTROL-P.SENS0R S03304
04-056	SPRING TE SENSOR /A-49 DLP A4
04-057	SPRING LEVER LOCK L
04-058	SPRING LEVER LOCK R
04-059	BUSH REGIST
04-060	PULLEY EXIT /A-49 FUSER A3
04-061	HOLDER DC BRUSH ASSY
04-062	LEVER LOCK DLP
04-A01	HOLDER FEED ASSY
04-A02	EMPTY SENSOR KIT SP
04-A03	SENSOR OPT. KIT SP
04-A04	REGIST LOW KIT

Only numbered Service Parts are available.

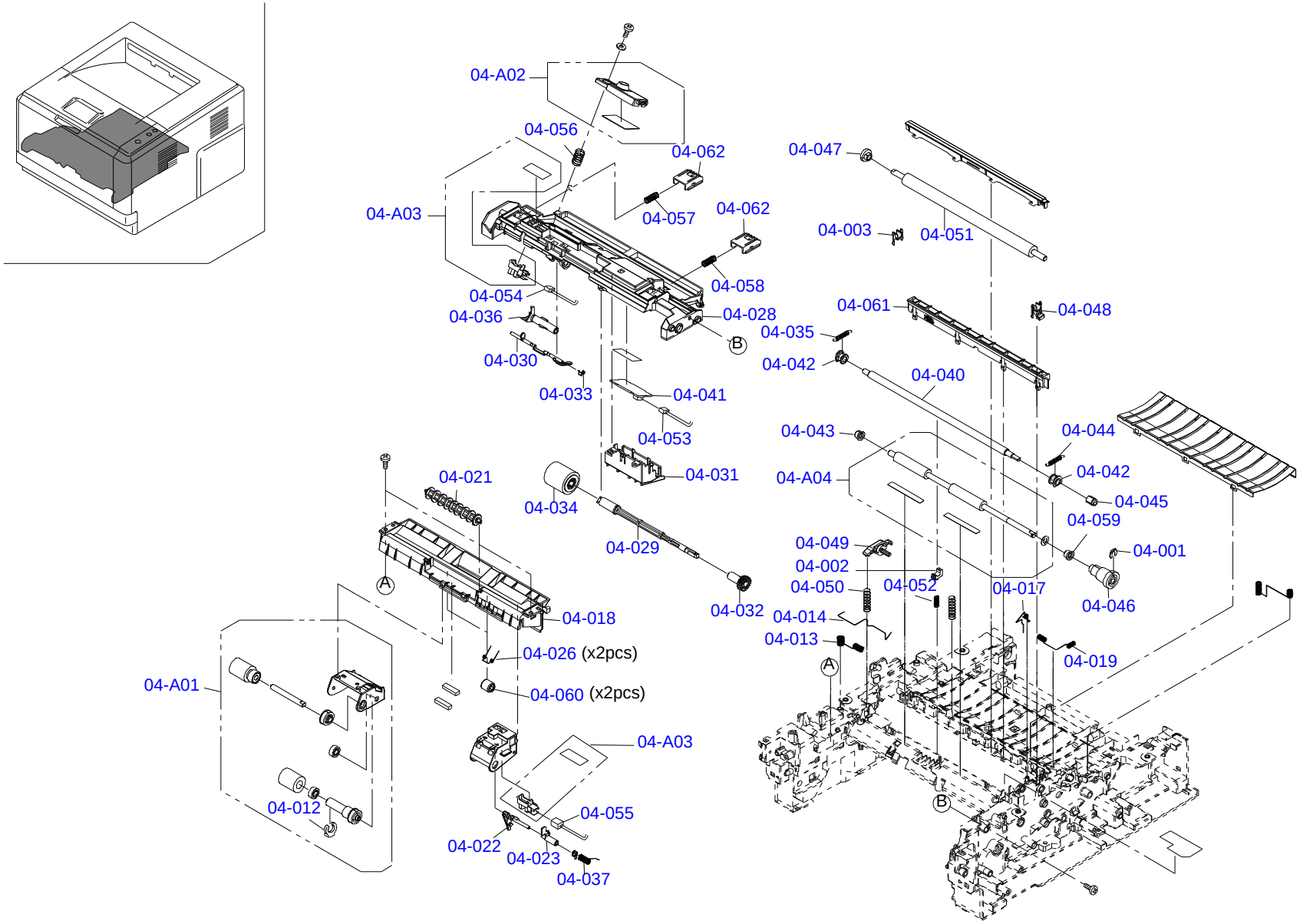
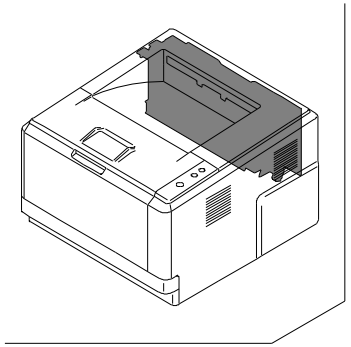


Table 7-9. Mechanism

Ref. No.	Name
05-001	GEAR Z25 JOINT
05-002	GEAR Z22 /B-11 FRAME A4
05-003	LEVER SOLENOID /B-11 FD A3
05-004	STUD SCREW M3
05-005	LOCK COVER
05-006	BUSH DU
05-007	BUSH DU
05-009	COVER FRAME FD
05-010	ROLLER FD UP
05-011	COVER FD
05-014	PULLEY EXIT
05-016	PAD SOLENOID /FS-1000 A4
05-017	SPRING EARTH
05-018	SPRING EXIT
05-019	DISCHARGER FD
05-020	SPRING PULLEY
05-021	LABEL FUSER CAUTION
05-022	GEAR Z21S
05-023	GEAR FD Z29 /43397B0051 A4
05-024	PULLEY EXIT /A-49 FUSER A3
05-026	GEAR CLUTCH ASSY A SP
05-027	GEAR CLUTCH ASSY B SP
05-028	SPRING COVER MFP
05-A01	COVER REAR ASSY SP
05-A02	SOLENOID ASSY SP

Only numbered Service Parts are available.



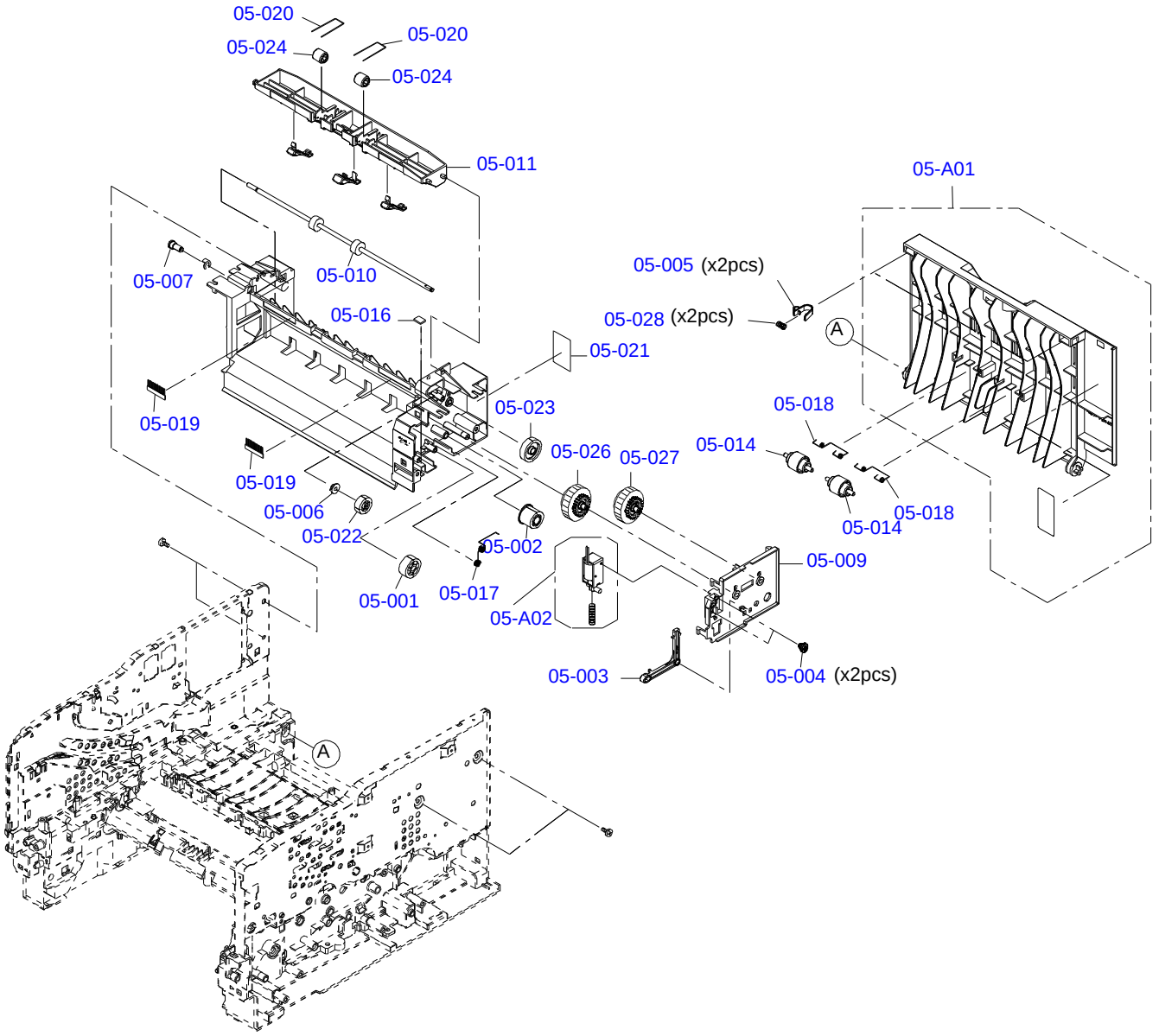
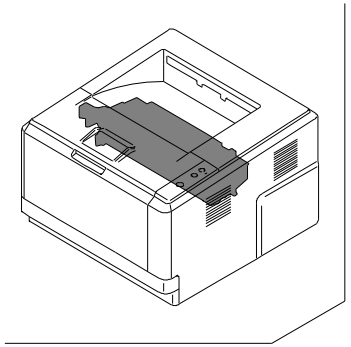


Table 7-10. Mechanism

Ref. No.	Name
06-001	MC-130
06-A01	DK-130SE

Only numbered Service Parts are available.



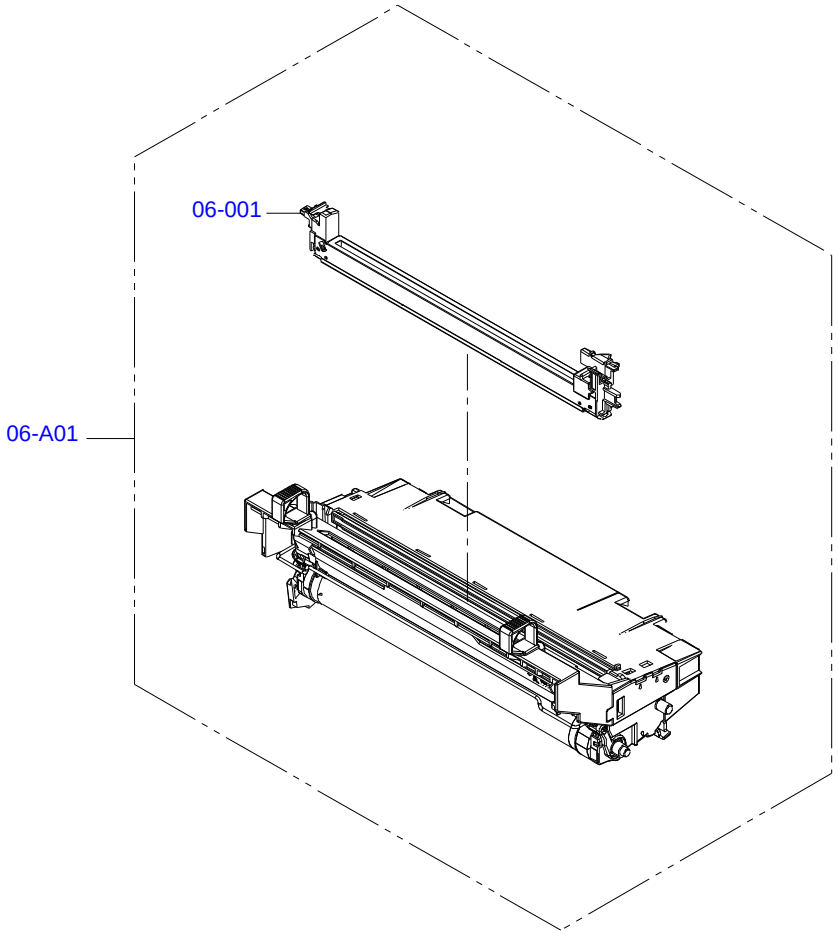
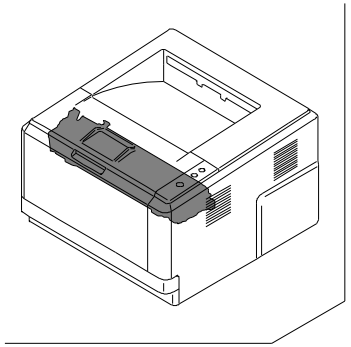


Table 7-11. Mechanism

Ref. No.	Name
07-001	DV-130(E) WITH TC

Only numbered Service Parts are available.



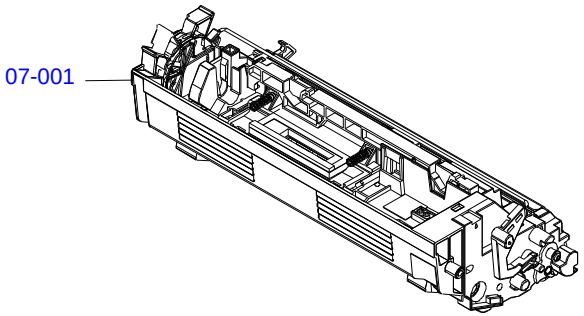


Table 7-12. Mechanism

Ref. No.	Name
08-043	LEVER FUSER R
08-044	LEVER FUSER L
08-A01	FK-130(E)

Only numbered Service Parts are available.

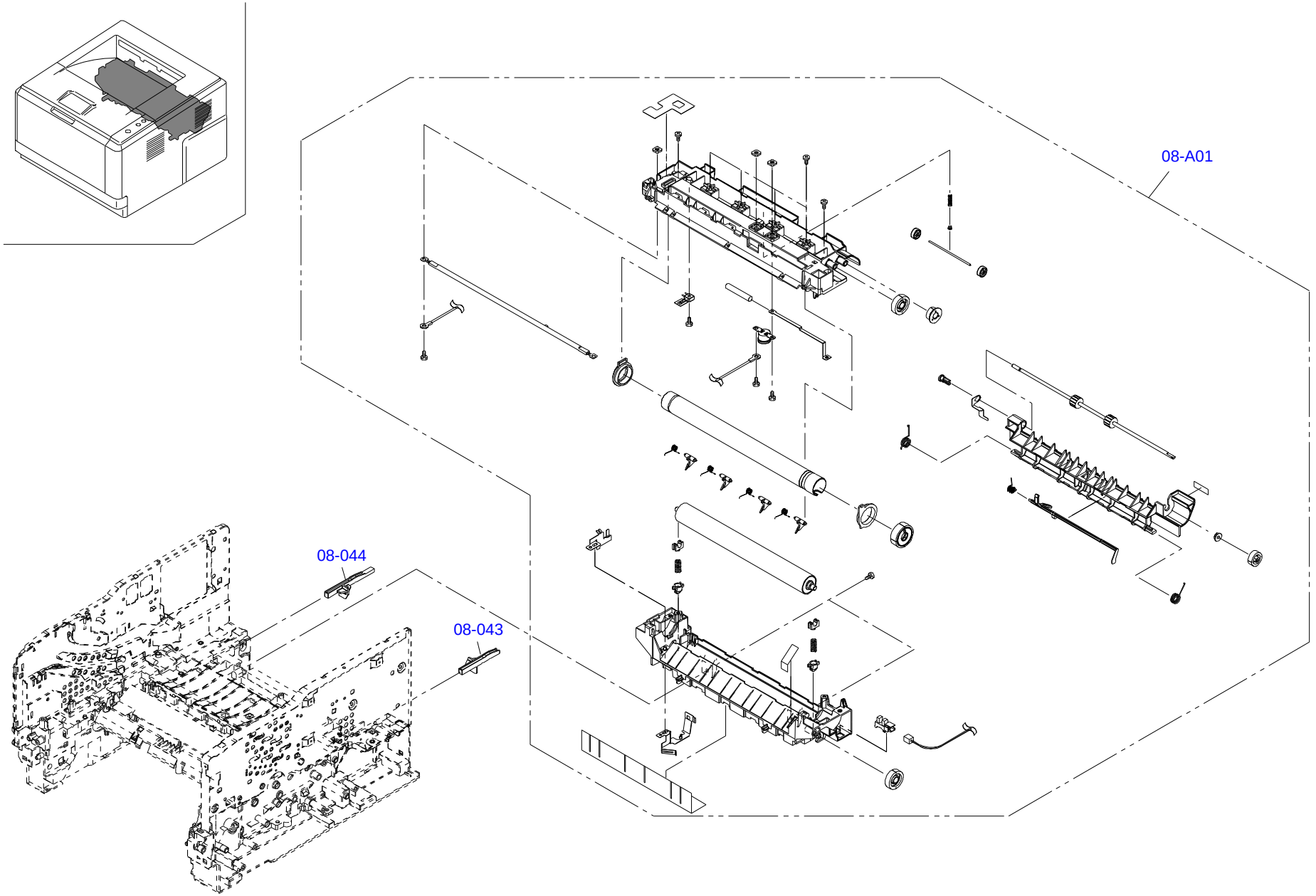


Table 7-13. Mechanism

Ref. No.	Name
09-030	SOLENOID MPF
09-031	RING STOPPER /A-49 FEED A4
09-033	“BAND,RSG-100(KITAGAWA)”
09-034	BUSH DU
09-035	GEAR Z25R DU FEED
09-036	GEAR Z26L DU MID
09-037	SPRING EARTH CASSETTE
09-040	SHAFT FEED
09-041	CONN.CORD ASSY CONTROL-MAIN MOTOR S03245
09-043	CONN.CORD ASSY CONTROL-PF S03247
09-044	PIN DRAWER
09-047	PIN GEAR DRIVE
09-048	GEAR Z42R FREE 2
09-049	GEAR Z58L
09-050	GEAR Z64R-Z21L
09-051	GEAR Z44R
09-052	GEAR Z35S FREE
09-053	GEAR Z42R FREE
09-054	GEAR Z32L DRUM
09-055	GEAR Z54R-Z24R
09-056	SPRING FREE FUSER
09-057	GEAR Z27R FREE 2
09-058	SPRING FREE DRUM
09-059	MOTOR MAIN
09-060	CONN.CORD ASSY CONTROL-F/RCLUTCH S03308
09-063	“BAND,RSG-100(KITAGAWA)”
09-A01	DR-130

Only numbered Service Parts are available.

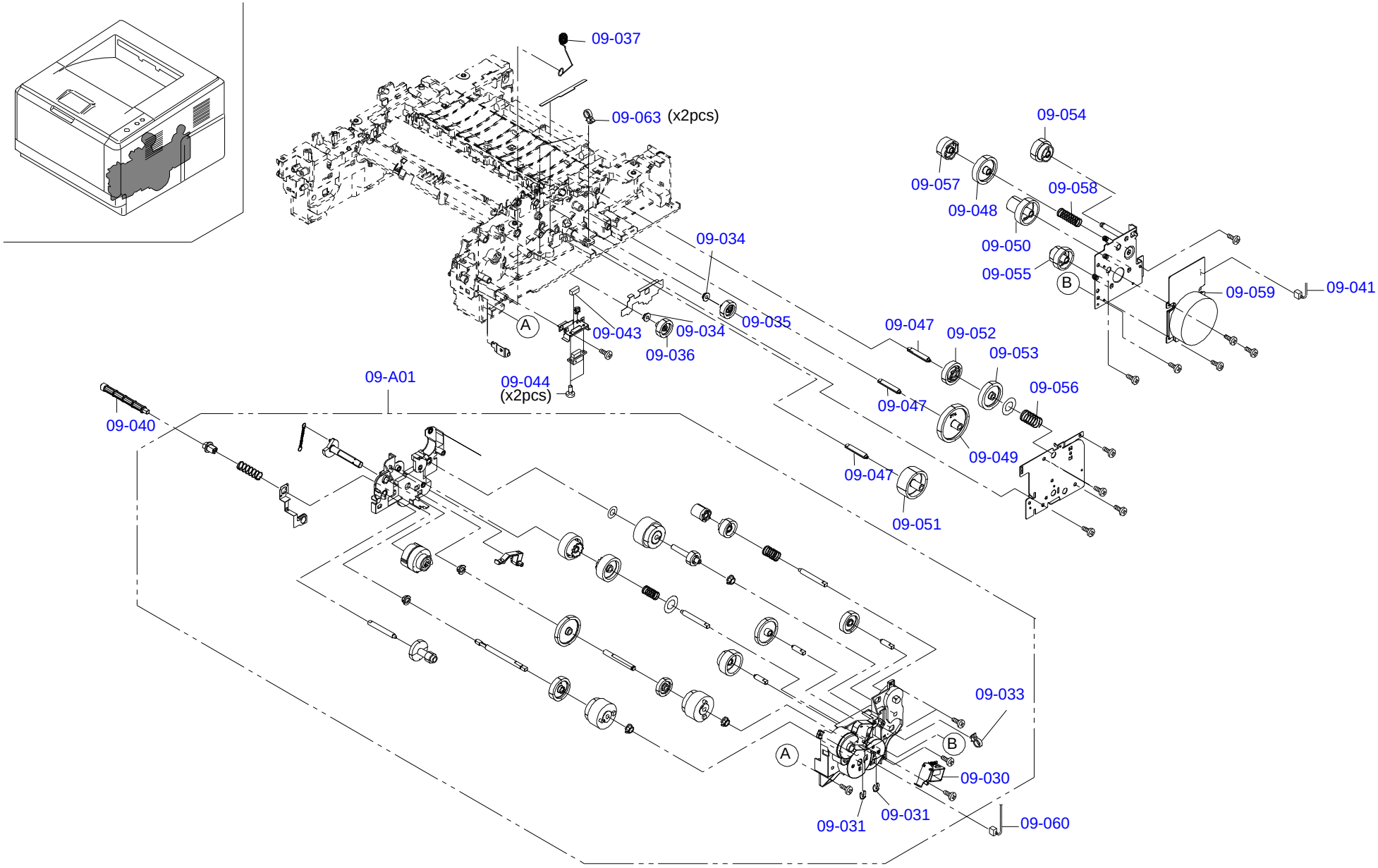
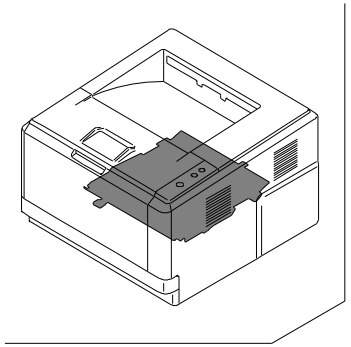
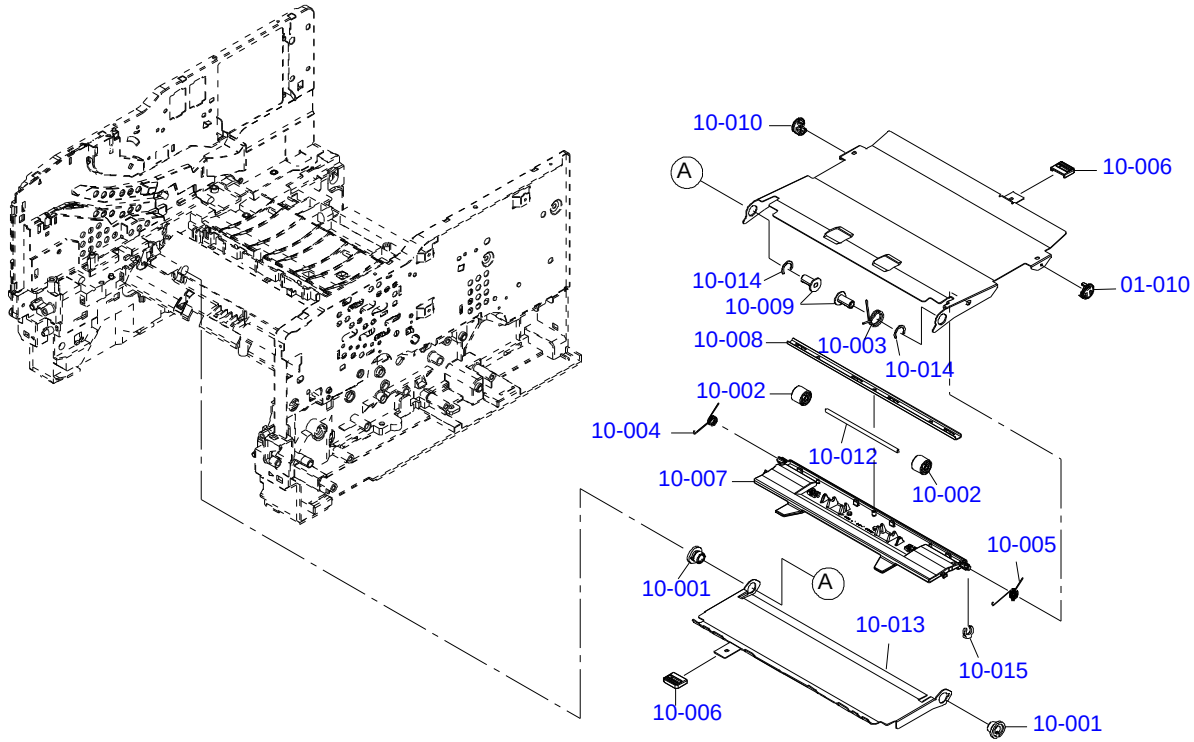


Table 7-14. Mechanism

Ref. No.	Name
10-001	BUSH DU /B-11 FRAME A3
10-002	PULLEY MID /B-11 FRAME A4
10-003	SPRING DU R /B-11 FRAME A4
10-004	SPRING HOLDER L /B-11 FRAME A4
10-005	SPRING HOLDER R /B-11 FRAME A4
10-006	LEVER DU /B-11DU A3
10-007	HOLDER DU /B-11 DU A1
10-008	STAY DU /B-11 DU A3
10-009	STOPPER BUSH /B-11 DU A4
10-010	COLLER DU /B-11 DU A3
10-012	SHAFT PULLEY /B-11 FRAME A4
10-013	PLATE COVER DU
10-014	C STOP RING /X9.5 X 0.6T S-CR
10-015	RING STOPPER /A-49 FEED A4

Only numbered Service Parts are available.





ACULASER M2000DN/M2010DN

Table 7-15. Case

Ref. No.	Name
01-005	STOPPER PAPER
01-014	COVER LEFT
01-015	COVER RIGHT
01-016	COVER DIMM
01-017	SCREW BOX
01-A01	COVER TOP SUB ASSY SP
01-A02	LID TOP SP E
01-A03	COVER FRONT SP
01-A04	PANEL ASSY SP

Only numbered Service Parts are available.

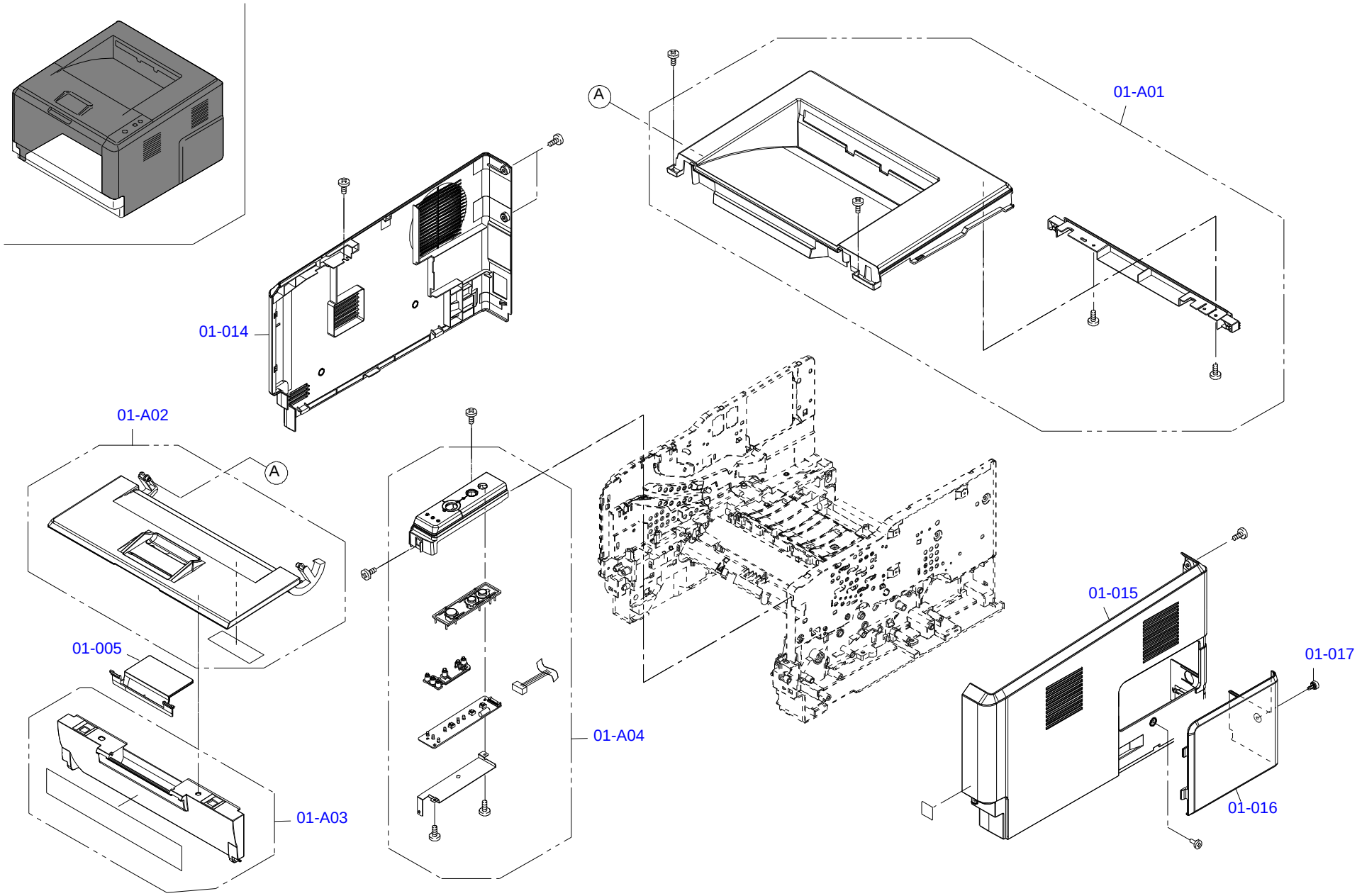


Table 7-16. Electric

Ref. No.	Name
11-001	“BOARD ASSY,MAIN”
11-002	SWITCHING REGULATOR 230V
11-003	LEVER LOCK CASSETTE
11-005	SPRING INTERLOCK SW
11-006	PIN CASSETTE
11-007	SPRING PIN CASSETTE
11-011	COVER BASE LOW
11-012	SPRING LOCK CASSETTE
11-013	LEVER LOCK CASSETTE L
11-014	BKT FAN R
11-018	HOLDER PIN CASSETTE
11-020	SPRING EARTH FAN
11-021	MOTOR FAN 80
11-024	MOTOR FAN 80
11-027	HIGH VOLTAGE UNIT
11-028	CONN.CORD ASSY CONTROL-H.V.UNIT S03391
11-029	CONN.CORD ASSY CONTROL-H.V.UNIT S03392
11-030	CONN.CORD ASSY PWS-INLET S03238
11-031	CONN.CORD ASSY CONTROL-ERASER S03252
11-032	AC CORD ASSY

Only numbered Service Parts are available.

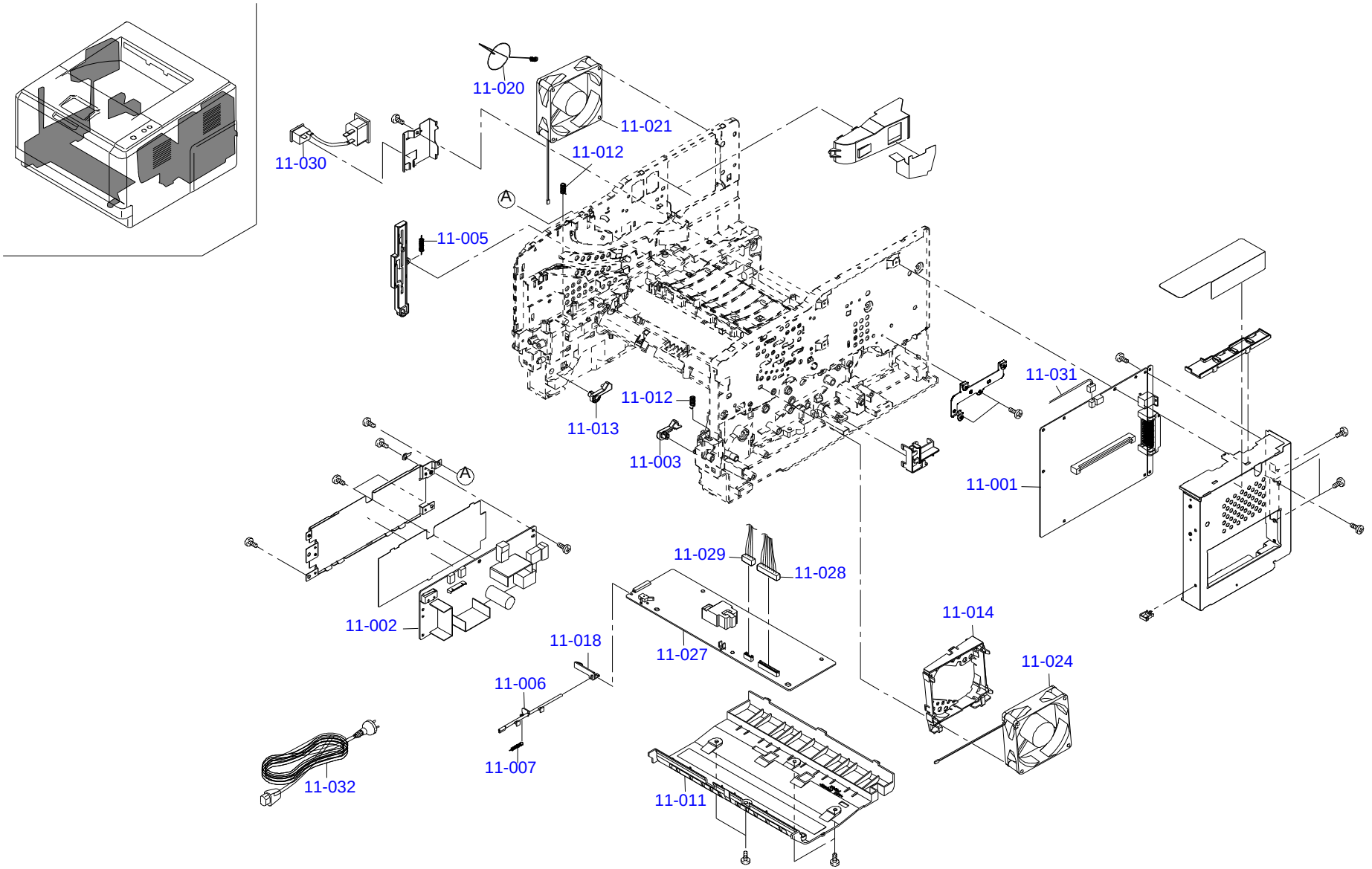
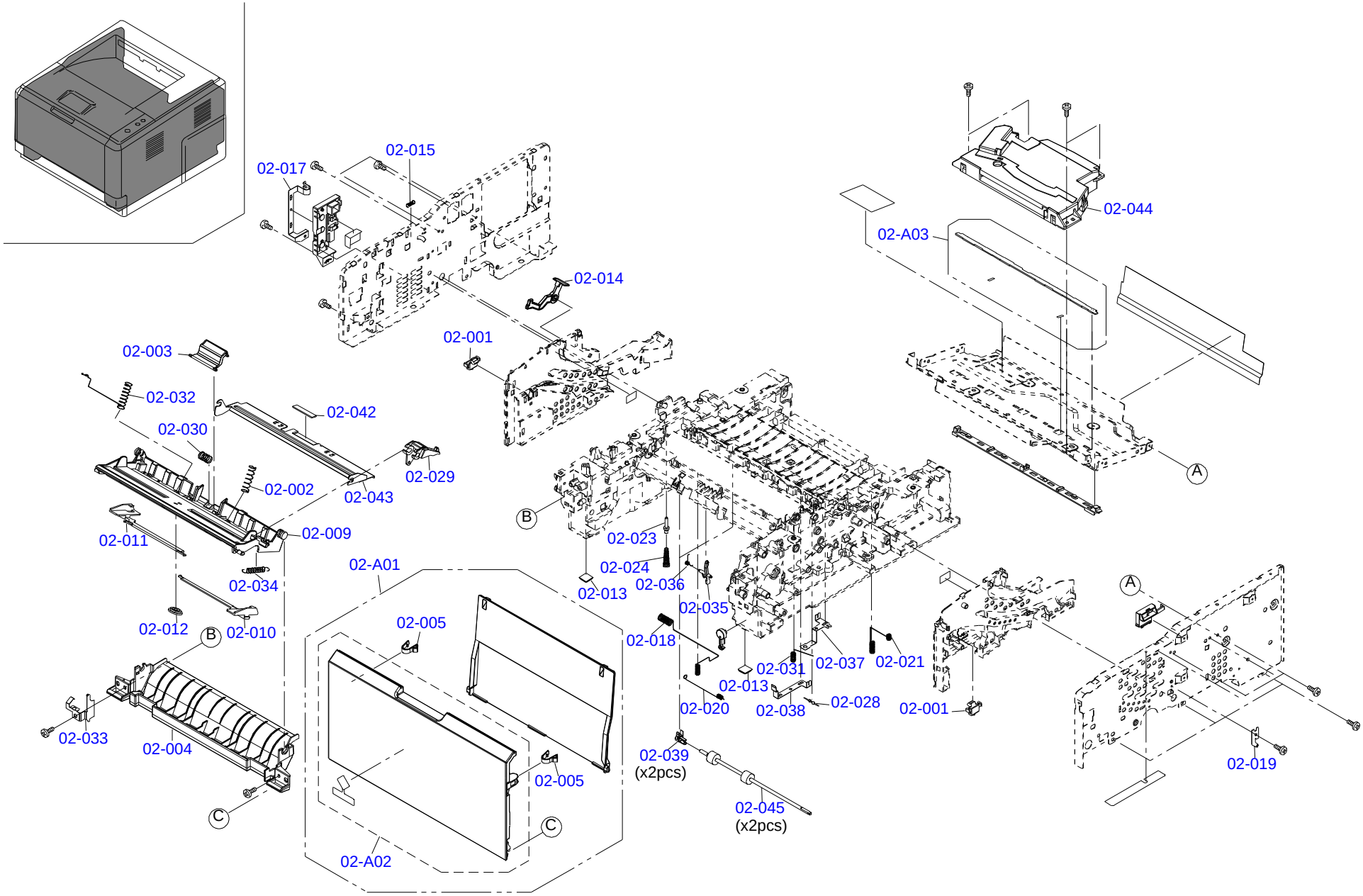


Table 7-17. MECA

Ref. No.	Name
03-001	GUIDE SIDE L
03-002	GUIDE SIDE R
03-003	LEVER BASE CAS REAR
03-004	SPRING BASE CAS REAR
03-005	GUIDE RETARD
03-006	HOLDER RETARD
03-007	SPRING FIX
03-008	SIZE FIX
03-010	COVER CASSETTE
03-013	CURSOR END
03-014	LOCK BOTTOM
03-015	SPRING BOTTOM L
03-016	SPRING BOTTOM R
03-017	SPRING LOCK BOTTOM
03-018	GEAR CASSETTE
03-019	SPRING RETARD
03-020	PAD BOTTOM
03-024	RETARD ROLL ASSY /43487V0005 A4
03-025	PLATE SIDE GUIDE /A49 CASSETTE A4
03-026	SPRING STOPPER /A49 CASSETTE A4
03-027	LEVER REAR
03-028	LEVER SIDE
03-A01	CT-130SE

Only numbered Service Parts are available.



FOR EPSON AcuLaser M2000D/DN,EPSON AcuLaser M2010D/DN NO.02 Rev.01 CA07

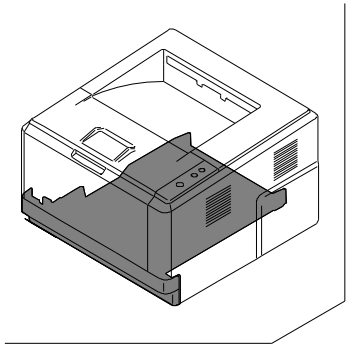
Table 7-18. Mechanism

Ref. No.	Name
04-001	RING STOPPER /A-49 FEED A4
04-002	BUSH REGIST C /B-11 FRAME A3
04-003	BUSH TC R /A-49 FEED A4
04-012	RING STOPPER /A-49 FEED A4
04-013	SPRING EARTH REG UP
04-014	SPRING EARTH REG LOW
04-017	SPRING EARTH DLP PLATE
04-018	FRAME FEED
04-019	SPRING EARTH BRUSH
04-021	PULLEY FEED
04-022	ACTUATOR EMPTY A
04-023	ACTUATOR EMPTY B
04-026	SPRING PULLEY
04-028	FRAME MPF
04-029	SHAFT FEED MPF
04-030	ACTUATOR MPF
04-031	BASE IC PWB
04-032	GEAR Z20S MPF
04-033	SPRING ACTUATOR
04-034	ROLLER M/P ASSY
04-035	SPRING REGIST L
04-036	HOLDER FEED M/P
04-037	SPRING ACTUATOR
04-040	ROLLER REGIST UP
04-041	P.W.B RFID WITH SOFTWARE
04-042	BUSH REGIST
04-043	BUSH 6 EW
04-044	SPRING REGIST R
04-045	GEAR Z14R REG UP
04-046	GEAR Z21L-Z23L REG LOW

Table 7-18. Mechanism

Ref. No.	Name
04-047	GEAR Z16L TC
04-048	BUSH TC R
04-049	LEVER RELEASE TC L
04-050	SPRING RELEASE TC L
04-051	ROLLER TRANSFER E
04-052	SPRING REGIST C
04-053	CONN.CORD ASSY CONTROL-RFID S03244
04-054	CONN.CORD ASSY CONTROL-MPFSENSOR S03251
04-055	CONN.CORD ASSY CONTROL-P.SENS0R S03304
04-056	SPRING TE SENSOR /A-49 DLP A4
04-057	SPRING LEVER LOCK L
04-058	SPRING LEVER LOCK R
04-059	BUSH REGIST
04-060	PULLEY EXIT /A-49 FUSER A3
04-061	HOLDER DC BRUSH ASSY
04-062	LEVER LOCK DLP
04-A01	HOLDER FEED ASSY
04-A02	EMPTY SENSOR KIT SP
04-A03	SENSOR OPT. KIT SP
04-A04	REGIST LOW KIT

Only numbered Service Parts are available.



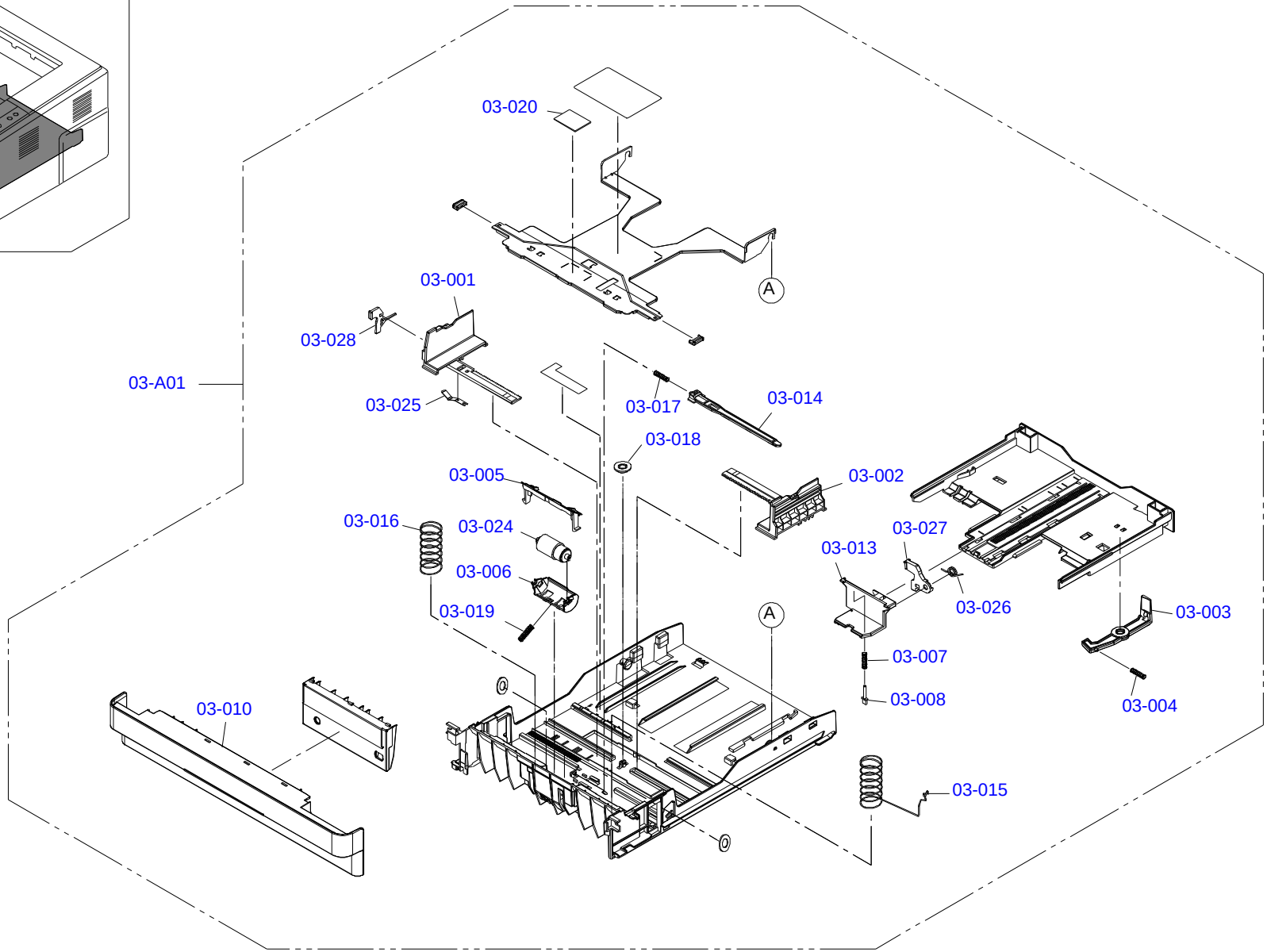


Table 7-19. Mechanism

Ref. No.	Name
04-001	RING STOPPER /A-49 FEED A4
04-002	BUSH REGIST C /B-11 FRAME A3
04-003	BUSH TC R /A-49 FEED A4
04-012	RING STOPPER /A-49 FEED A4
04-013	SPRING EARTH REG UP
04-014	SPRING EARTH REG LOW
04-017	SPRING EARTH DLP PLATE
04-018	FRAME FEED
04-019	SPRING EARTH BRUSH
04-021	PULLEY FEED
04-022	ACTUATOR EMPTY A
04-023	ACTUATOR EMPTY B
04-026	SPRING PULLEY
04-028	FRAME MPF
04-029	SHAFT FEED MPF
04-030	ACTUATOR MPF
04-031	BASE IC PWB
04-032	GEAR Z20S MPF
04-033	SPRING ACTUATOR
04-034	ROLLER M/P ASSY
04-035	SPRING REGIST L
04-036	HOLDER FEED M/P
04-037	SPRING ACTUATOR
04-040	ROLLER REGIST UP
04-041	P.W.B RFID WITH SOFTWARE
04-042	BUSH REGIST
04-043	BUSH 6 EW
04-044	SPRING REGIST R
04-045	GEAR Z14R REG UP
04-046	GEAR Z21L-Z23L REG LOW

Table 7-19. Mechanism

Ref. No.	Name
04-047	GEAR Z16L TC
04-048	BUSH TC R
04-049	LEVER RELEASE TC L
04-050	SPRING RELEASE TC L
04-051	ROLLER TRANSFER E
04-052	SPRING REGIST C
04-053	CONN.CORD ASSY CONTROL-RFID S03244
04-054	CONN.CORD ASSY CONTROL-MPFSENSOR S03251
04-055	CONN.CORD ASSY CONTROL-P.SENS0R S03304
04-056	SPRING TE SENSOR /A-49 DLP A4
04-057	SPRING LEVER LOCK L
04-058	SPRING LEVER LOCK R
04-059	BUSH REGIST
04-060	PULLEY EXIT /A-49 FUSER A3
04-061	HOLDER DC BRUSH ASSY
04-062	LEVER LOCK DLP
04-A01	HOLDER FEED ASSY
04-A02	EMPTY SENSOR KIT SP
04-A03	SENSOR OPT. KIT SP
04-A04	REGIST LOW KIT

Only numbered Service Parts are available.

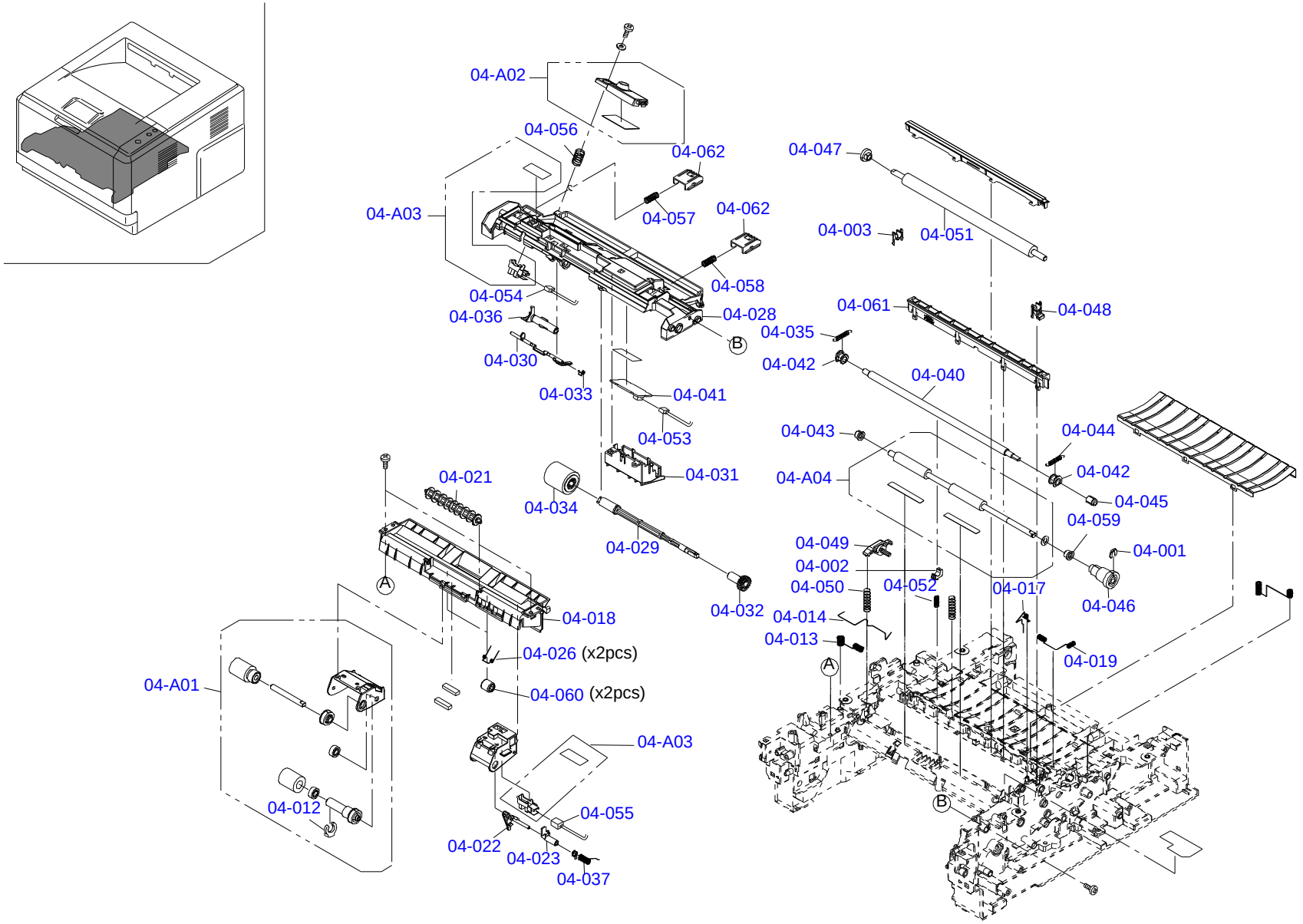
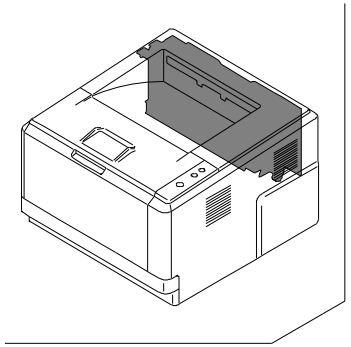


Table 7-20. Mechanism

Ref. No.	Name
05-001	GEAR Z25 JOINT
05-002	GEAR Z22 /B-11 FRAME A4
05-003	LEVER SOLENOID /B-11 FD A3
05-004	STUD SCREW M3
05-005	LOCK COVER
05-006	BUSH DU
05-007	BUSH DU
05-009	COVER FRAME FD
05-010	ROLLER FD UP
05-011	COVER FD
05-014	PULLEY EXIT
05-016	PAD SOLENOID /FS-1000 A4
05-017	SPRING EARTH
05-018	SPRING EXIT
05-019	DISCHARGER FD
05-020	SPRING PULLEY
05-021	LABEL FUSER CAUTION
05-022	GEAR Z21S
05-023	GEAR FD Z29 /43397B0051 A4
05-024	PULLEY EXIT /A-49 FUSER A3
05-026	GEAR CLUTCH ASSY A SP
05-027	GEAR CLUTCH ASSY B SP
05-028	SPRING COVER MFP
05-A01	COVER REAR ASSY SP
05-A02	SOLENOID ASSY SP

Only numbered Service Parts are available.



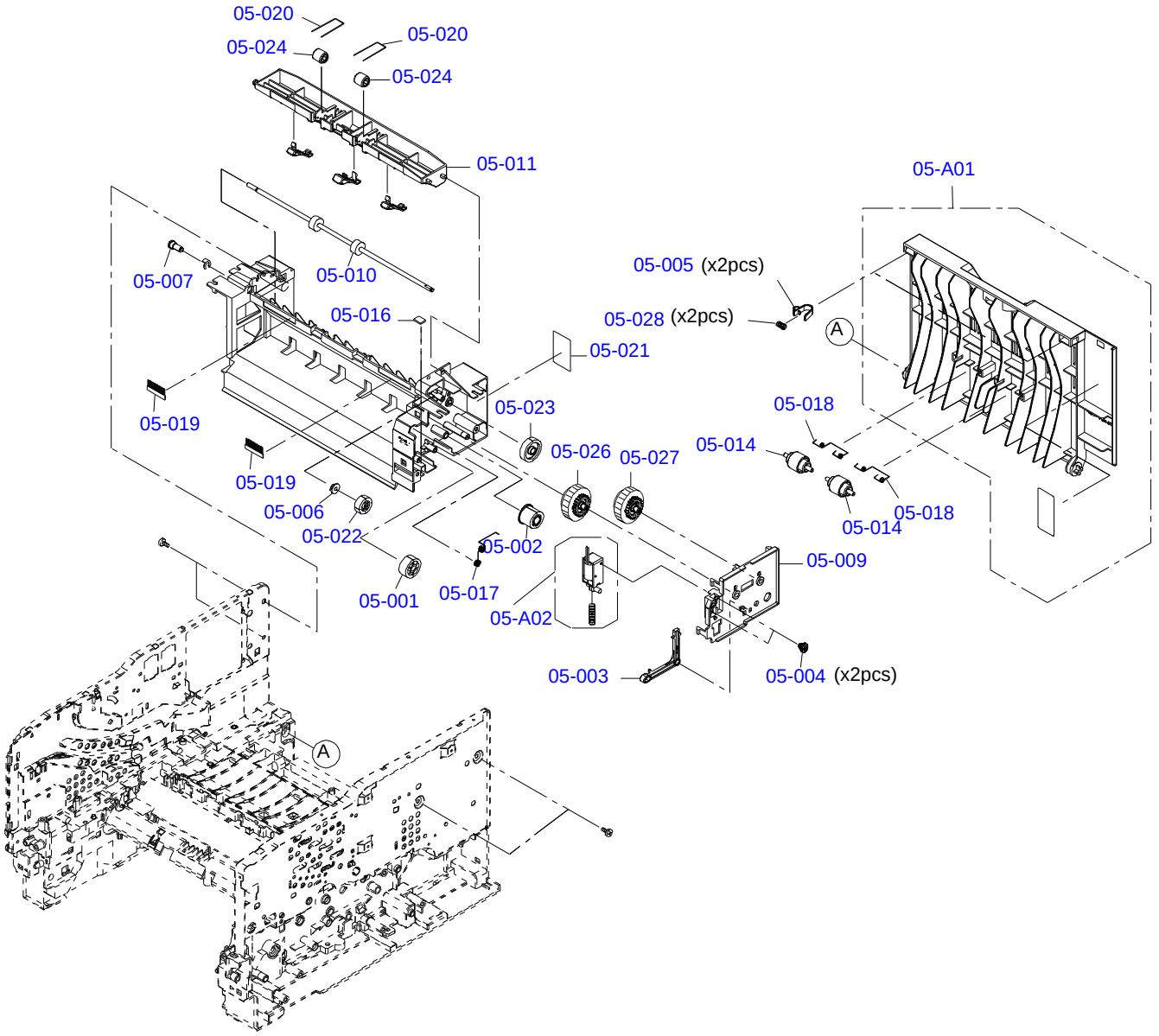
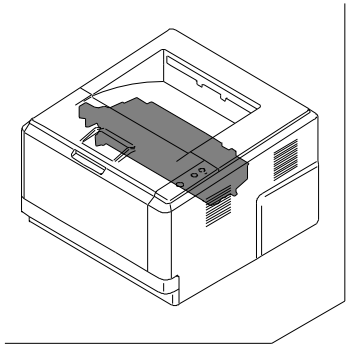


Table 7-21. Mechanism

Ref. No.	Name
06-001	MC-130
06-A01	DK-130SE

Only numbered Service Parts are available.



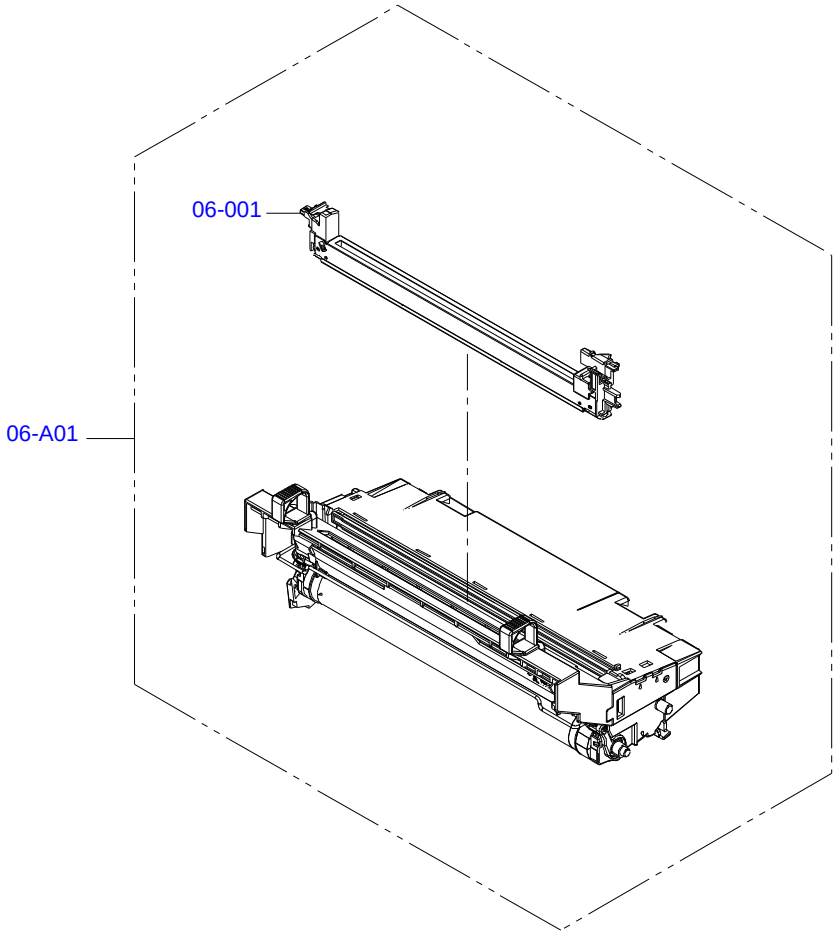
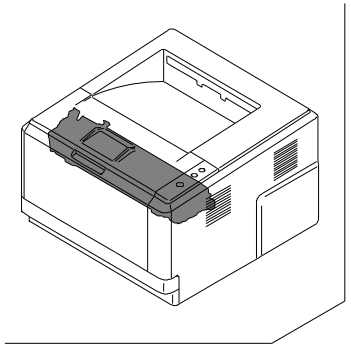


Table 7-22. Mechanism

Ref. No.	Name
07-001	DV-130(E) WITH TC

Only numbered Service Parts are available.



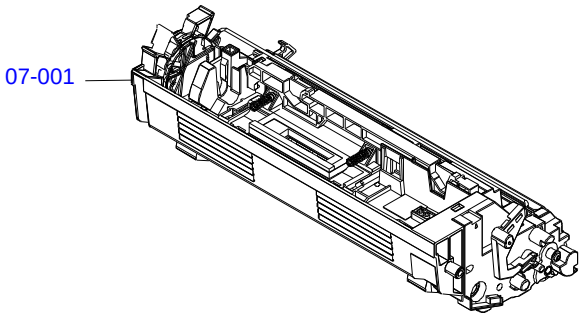


Table 7-23. Mechanism

Ref. No.	Name
08-043	LEVER FUSER R
08-044	LEVER FUSER L
08-A01	FK-130(E)

Only numbered Service Parts are available.

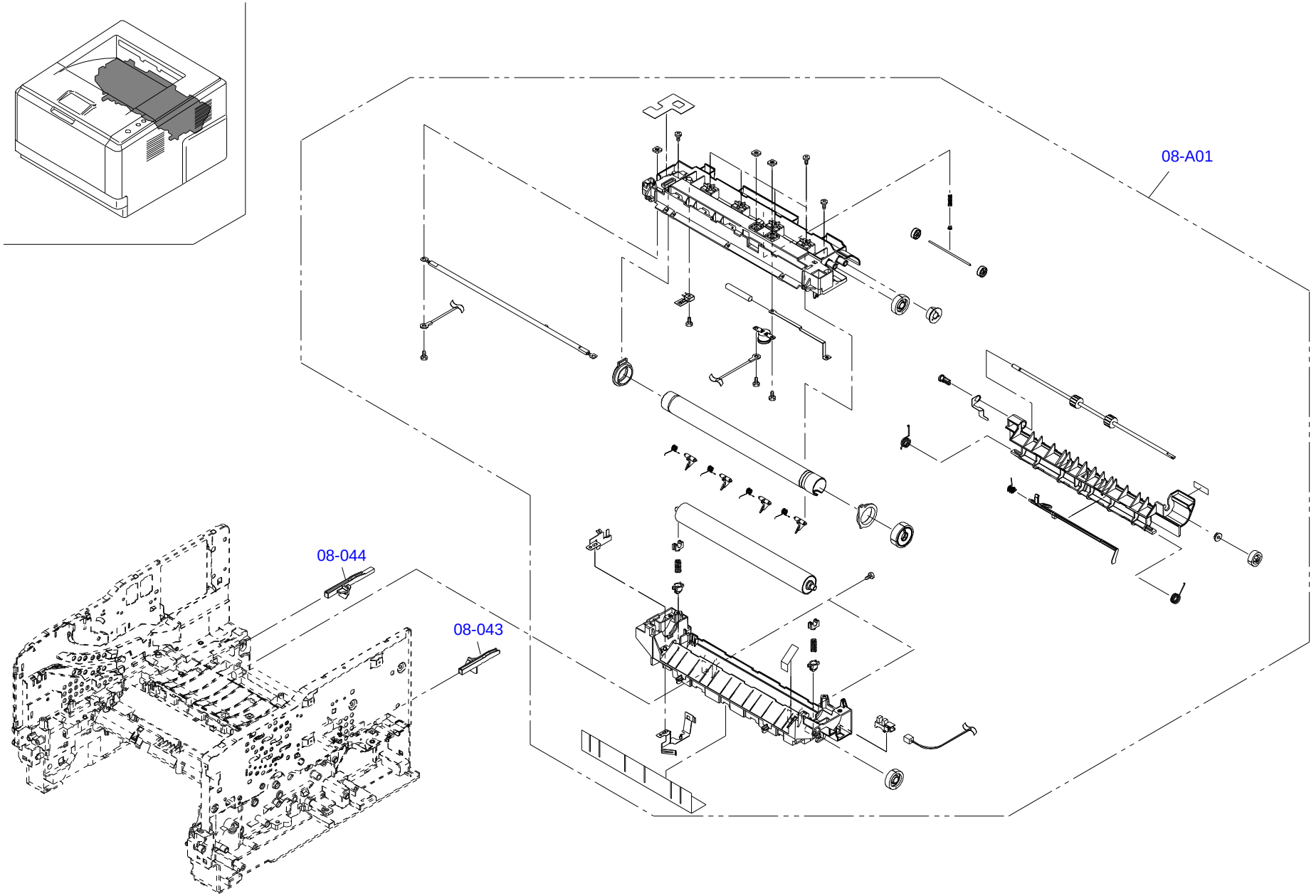


Table 7-24. Mechanism

Ref. No.	Name
09-030	SOLENOID MPF
09-031	RING STOPPER /A-49 FEED A4
09-033	“BAND,RSG-100(KITAGAWA)”
09-034	BUSH DU
09-035	GEAR Z25R DU FEED
09-036	GEAR Z26L DU MID
09-037	SPRING EARTH CASSETTE
09-040	SHAFT FEED
09-041	CONN.CORD ASSY CONTROL-MAIN MOTOR S03245
09-043	CONN.CORD ASSY CONTROL-PF S03247
09-044	PIN DRAWER
09-047	PIN GEAR DRIVE
09-048	GEAR Z42R FREE 2
09-049	GEAR Z58L
09-050	GEAR Z64R-Z21L
09-051	GEAR Z44R
09-052	GEAR Z35S FREE
09-053	GEAR Z42R FREE
09-054	GEAR Z32L DRUM
09-055	GEAR Z54R-Z24R
09-056	SPRING FREE FUSER
09-057	GEAR Z27R FREE 2
09-058	SPRING FREE DRUM
09-059	MOTOR MAIN
09-060	CONN.CORD ASSY CONTROL-F/RCLUTCH S03308
09-063	“BAND,RSG-100(KITAGAWA)”
09-A01	DR-130

Only numbered Service Parts are available.

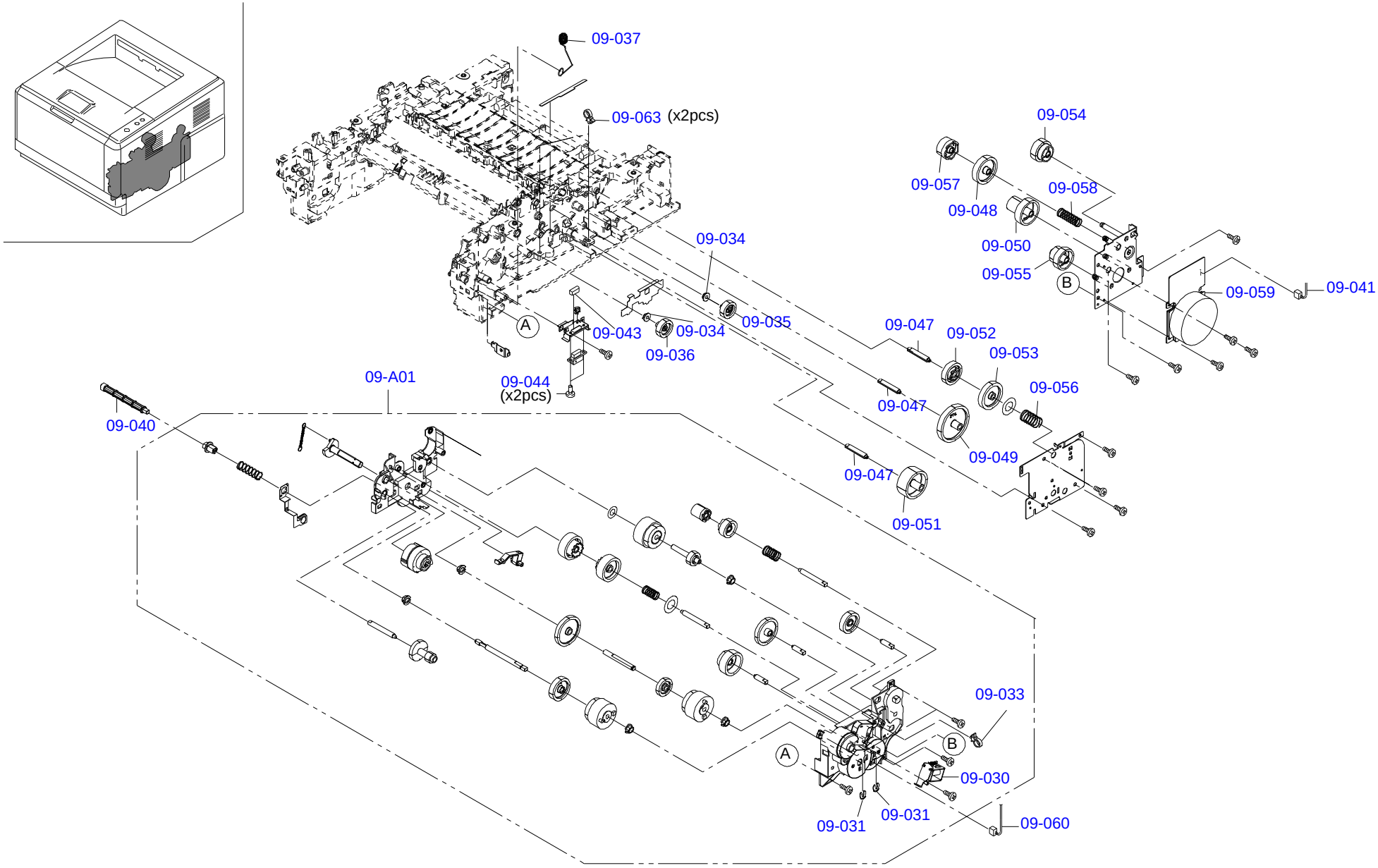
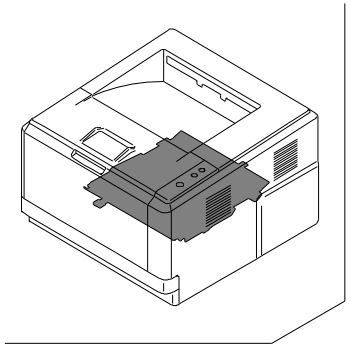
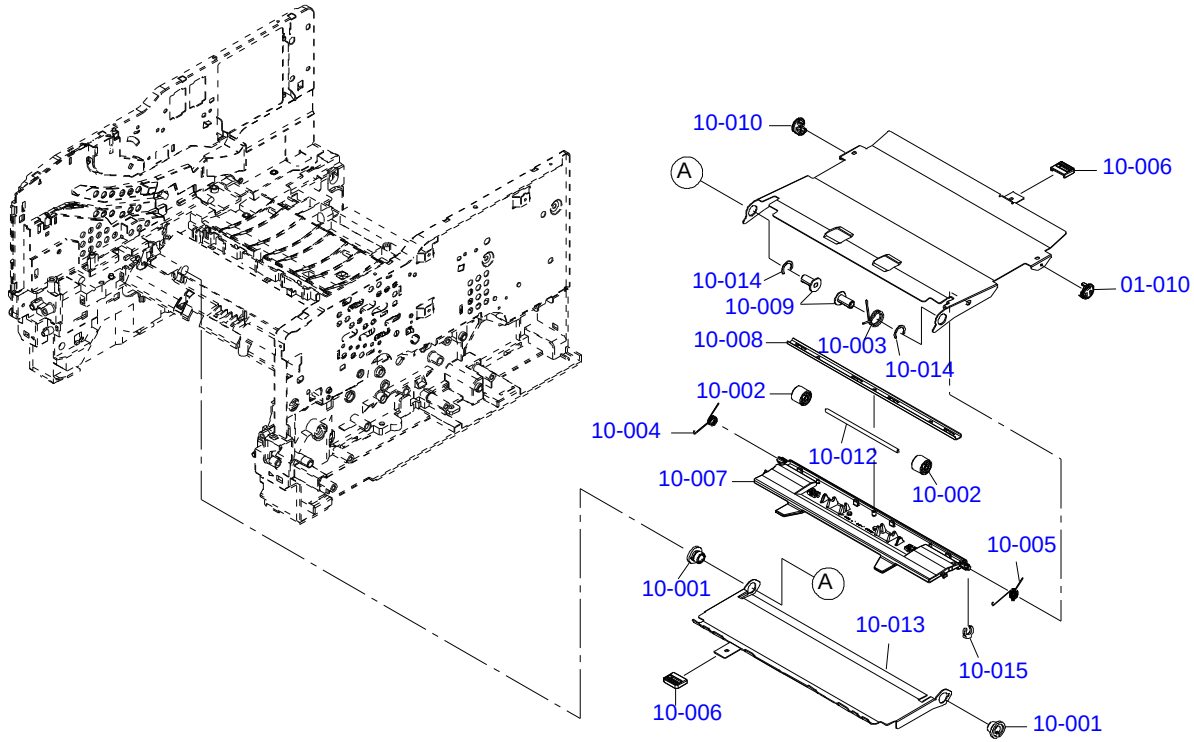


Table 7-25. Mechanism

Ref. No.	Name
10-001	BUSH DU /B-11 FRAME A3
10-002	PULLEY MID /B-11 FRAME A4
10-003	SPRING DU R /B-11 FRAME A4
10-004	SPRING HOLDER L /B-11 FRAME A4
10-005	SPRING HOLDER R /B-11 FRAME A4
10-006	LEVER DU /B-11DU A3
10-007	HOLDER DU /B-11 DU A1
10-008	STAY DU /B-11 DU A3
10-009	STOPPER BUSH /B-11 DU A4
10-010	COLLER DU /B-11 DU A3
10-012	SHAFT PULLEY /B-11 FRAME A4
10-013	PLATE COVER DU
10-014	C STOP RING /X9.5 X 0.6T S-CR
10-015	RING STOPPER /A-49 FEED A4

Only numbered Service Parts are available.



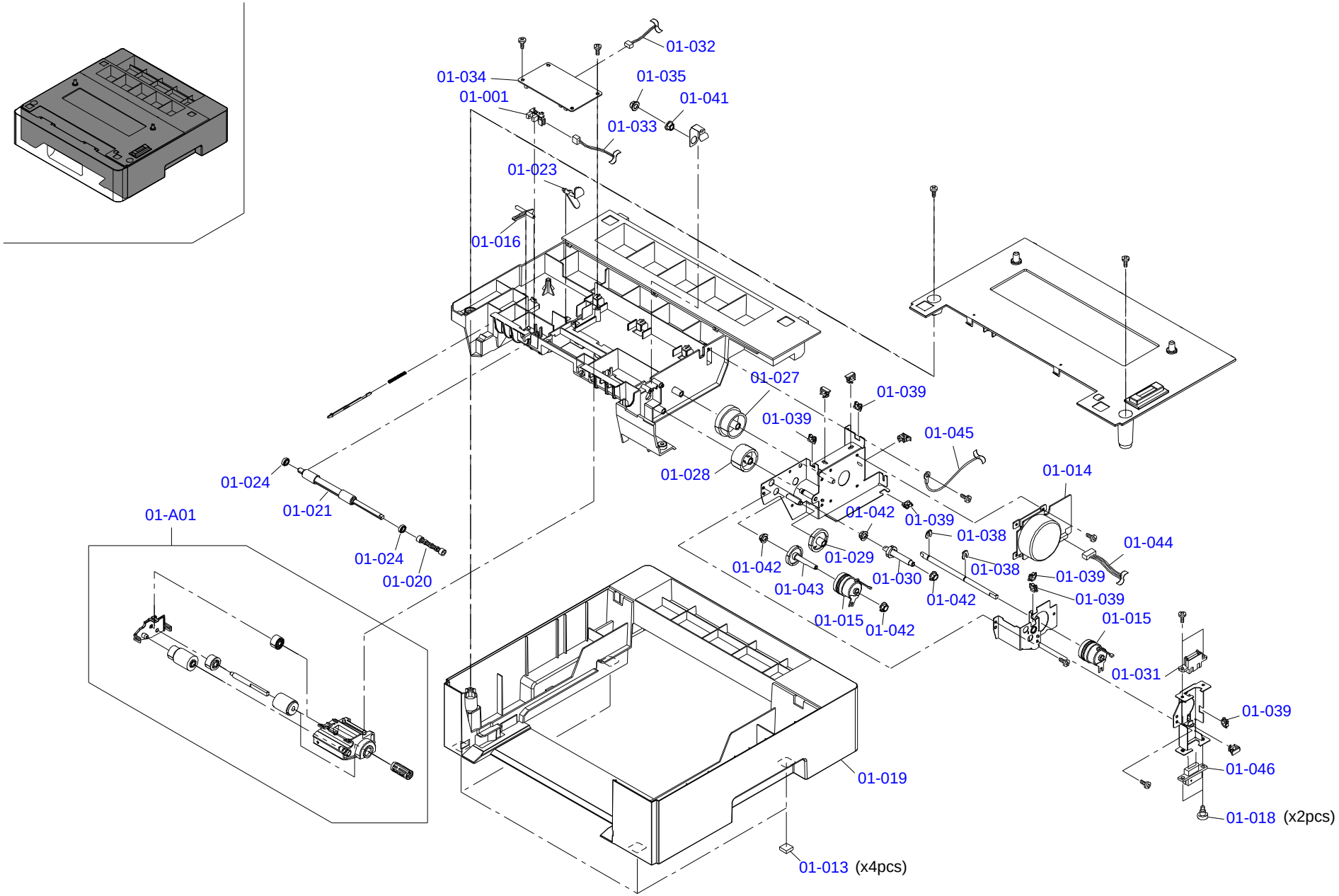


OPTION CASSETTE UNIT

Table 7-26. Option

Ref. No.	Name
01-001	SENSOR OPT.
01-013	FOOT /43307C0007 A4
01-014	MOTOR FEED
01-015	CLUTCH REG
01-016	ACTUATOR
01-018	PIN DRAWER
01-019	BASE (EP)
01-020	SHAFT MIDDLE C
01-021	ROLLER MIDDLE ASSY
01-023	ACTUATOR FEEDER PE /A-49 FEEDER A3
01-024	BEARING 106
01-027	GEAR Z64L-Z47S
01-028	GEAR Z36S
01-029	GEAR Z35S
01-030	GEAR Z17S MIDDLE
01-031	CONN.CORD ASSY S03310
01-032	CONN.CORD ASSY S03313
01-033	CONN.CORD ASSY S03311
01-034	P.W.B BOARD ASSY PF CONT WITH SOFTWARE
01-035	BUSH 6
01-038	RING STOPPER /A-49 FEED A4
01-039	ACCESS.EDGING
01-041	BUSH 6 EW
01-042	BUSH FEED DRIVE
01-043	GEAR Z30S CLUTCH
01-044	CONN.CORD ASSY S03312
01-045	CONN.CORD ASSY S03390
01-046	CONN.CORD ASSY S03314
01-A01	BRACKET FEED ASSY SP

Only numbered Service Parts are available.

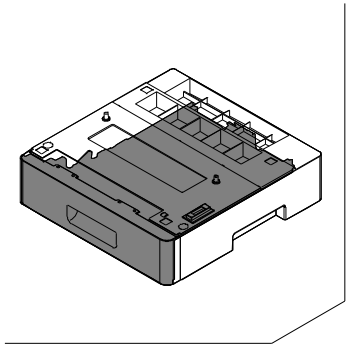


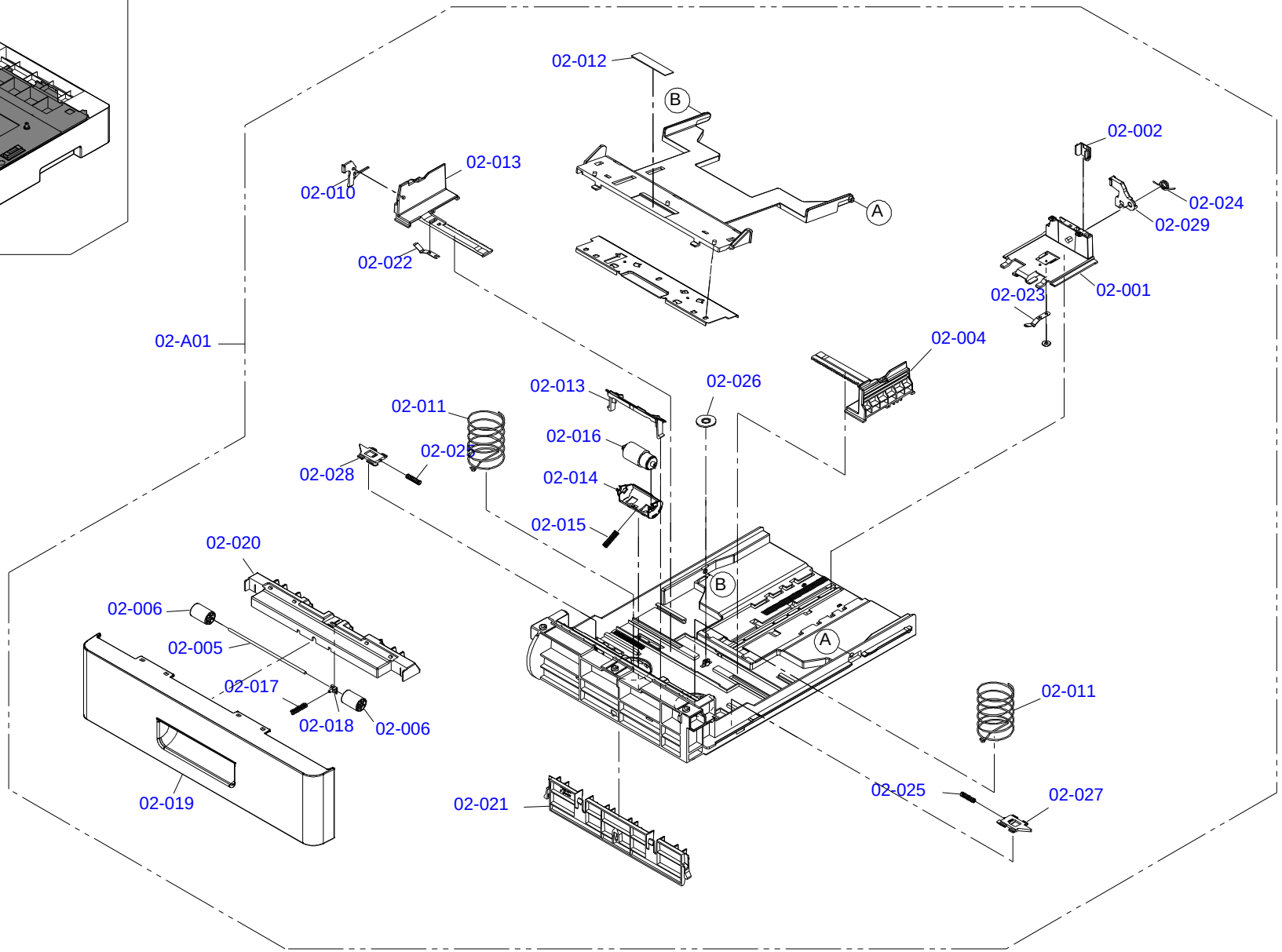
FOR 250 Sheet Paper Cassette Unit NO.01 Rev.01

Table 7-27. Option

Ref. No.	Name
02-001	STOPPER PAPER
02-002	POSITIONING FOLIO PAPER
02-003	GUIDE SIDE L
02-004	GUIDE SIDE R
02-005	SHAFT MID MP
02-006	PULLEY MID MP
02-010	LEVER SIDE
02-011	SPRING CASSETTE
02-012	PAD BOTTOM
02-013	GUIDE RETARD
02-014	HOLDER RETARD
02-015	SPRING RETARD
02-016	RETARD ROLLER ASSY
02-017	SPRING FEED
02-018	STOPPER SPRING FEED
02-019	COVER CASSETTE (EP)
02-020	HOLDER CASSETTE (EP)
02-021	GUIDE CASSETTE (EP)
02-022	PLATE SIDE GUIDE /A49 CASSETTE A4
02-023	PLATE STOPPER /A49 CASSETTE A4
02-024	SPRING STOPPER /A49 CASSETTE A4
02-025	SPRING LOCK /A-49 CASSETTE A4
02-026	GEAR CASSETTE /A-49 CASSETTE A4
02-027	LOCK CASSETTE R /A-49 CASSETTE A4
02-028	LOCK CASSETTE L /A-49 CASSETTE A4
02-029	LEVER REAR
02-A01	CT-131SE

Only numbered Service Parts are available.





FOR 250 Sheet Paper Cassette Unit NO.02 Rev.01