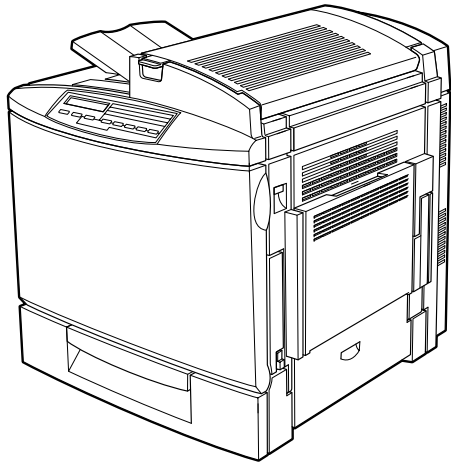


SERVICE MANUAL



A4 Color Laser Printer

EPSON ACULASER COLOR 2000
ACULASER COLOR 1000



EPSON®

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PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1) Personal injury and 2) damage to equipment.

DANGER Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by DANGER Headings.

WARNING Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.

WARNING

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.
5. REPLACE MALFUNCTIONING COMPONENTS ONLY WITH THOSE COMPONENTS BY THE MANUFACTURE; INTRODUCTION OF SECOND-SOURCE ICs OR OTHER NON-APPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.

Safety Information

To prevent accidents during a maintenance procedure, strictly observe the Warnings and Cautions. Do not do anything that is dangerous or not within the scope of this document.

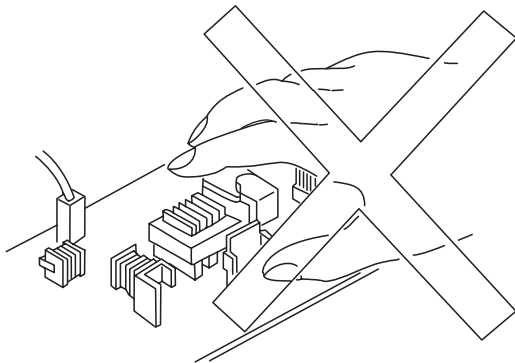
Do not do anything that is dangerous even if not specifically described in this manual. In addition to the descriptions below and those given in this manual, there are many situations and circumstances that are dangerous. Be aware of these when you are working with the printer.

Power Supply and Other Electrical Devices

Before starting any service procedure, switch off the printer power and unplug the power cord from the wall outlet. If you must service the printer when the power is applied, be aware of the potential for electrical shock and do all tasks by following the procedures in this manual.

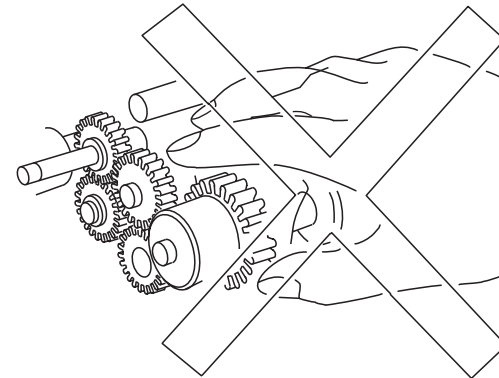


Do not touch any live part unless you are instructed to do so by a service procedure.



Mechanical Components

If you service gear or roller, manually rotate a drive assembly. Never hand-rotate or stop the drive assembly while the main motor is rotating.



Laser Beam



The laser beam used for exposing process during printing is a very powerful, straight, narrow beam of light that produces extreme heat at its focal point. The laser beam in this printer is invisible. Although you cannot see the beam, it can still cause severe damage. Direct eye exposure to the laser beam may cause eye injury or blindness. Never place a mirror or a reflective tool or object in the laser beam path.

To avoid permanent eye damage, follow these directions;

- Before starting any service procedure, switch off the printer power and unplug the power cord from the wall outlet.
- Do not disassemble the ROS Assembly or any laser component that displays Laser Warning Sticker.
- Use caution when you are working around the ROS Assembly or when you are performing laser related repair procedures.
- Do not disassemble the printer in such a way that the laser beam can exit the printer engine during a print cycle.

Safety Component

Make sure fuses, interlock switches, covers, and panels are all functioning properly after you have reinstalled or replaced them.

Warning/Caution Label

WARNING and CAUTION labels are stuck on dangerous parts in the printer to make you aware of the potential dangers that are present when you are working with those parts.

About This Manual

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of the printer. The instructions and procedures included herein are intended for the experienced repair technicians, and attention should be given to the precautions on the preceding page.

Manual Configuration

This manual consists of six chapters and Appendix.

CHAPTER 1.PRODUCT DESCRIPTIONS

Provides a general overview and specifications of the product.

CHAPTER 2.OPERATING PRINCIPLES

Describes the theory of electrical and mechanical operations of the product.

CHAPTER 3.TROUBLESHOOTING

Describes the step-by-step procedures for the troubleshooting.

CHAPTER 4.DISASSEMBLY / ASSEMBLY

Describes the step-by-step procedures for disassembling and assembling the product.

CHAPTER 5.ADJUSTMENT

Provides Epson-approved methods for adjustment.

CHAPTER 6.MAINTENANCE

Provides preventive maintenance procedures and the lists of Epson-approved lubricants and adhesives required for servicing the product.

APPENDIX Provides the following additional information for reference:

- Connector pin assignments
- Electric circuit boards components layout
- Electrical circuit boards schematics
- Exploded diagram & Parts List

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 aware of all symbols when they are used, and always read NOTE, CAUTION, or WARNING messages.



Indicates an operating or maintenance procedure, practice or condition that is necessary to keep the product's quality.



Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.



May indicate an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently. It may also provide additional information that is related to a specific subject, or comment on the results achieved through a previous action.



Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.

Revision Status

Revision	Issued Date	Description
A	June 8, 2000	First Release
B	July 26, 2000	Chap. 3: On page 107, Figure 3-1 "Print Pattern" has been changed. Chap. 4: On page 145, 4.2.3.6 "Rear Controller Cover Removal" has been changed. On page 148, 4.2.4 "C314MAIN Board" has been changed.
C	September 19, 2000	1.4.6 Engine Program Update is deleted. 4.3 MCU Firmware Update is deleted. This function is not supported for mass-production.
D	February 27, 2001	3.2.4.1 Engine Related Service Call Error Messages E021 is added: Transfer Belt Cleaner gap control malfunction E020 and E032: Explanation is corrected: retraction -> gap control
E	October 10, 2001	A new model AcuLaser C1000 has been added. In connection with the addition of the new model, the contents of this manual were reviewed in the chapters PRODUCT DESCRIPTIONS, OPERATING PRINCIPLES, TROUBLESHOOTING, DISASSEMBLY & ASSEMBLY, ADJUSTMENT and APPENDIX.

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CHAPTER

1

PRODUCT DESCRIPTIONS

1.1 Overview

AcuLaser C2000 is an A4 non-impact color page printer driven by a laser and electrophotographic technologies. It has a resolution of 600/300 dpi and print speed is 5 ppm (A4/LT color)/20 ppm (A4/LT B/W). It is also equipped with AcuLaser Color Halftoning as its full color technology.

AcuLaser C1000 is a new host-based color page printer which uses the same engine as AcuLaser C2000. It is equipped with CPGI as its full color technology.

Thanks to use of the same engine, AcuLaser C1000 uses the same optional units (Duplex Printing Unit and Lower Cassette) as used with AcuLaser C2000.

Engine Features

1. High speed print engine at a print speed of 5 PPM for color, and 20 PPM for B/W (when printing A4/LT). The engine is capable of printing true 600 dpi high resolution in full color.
2. Duplex printing supported (A4/LT). Can not print duplex for thick paper, transparency and labels.
3. Higher quality printing is possible with high quality plain paper.
4. Capable of printing thick paper and OHP (exclusive OHP sheets is recommended).
5. Features easy maintenance as a color laser printer. The user can replace all consumables.
 - Toner cartridges (C, M, Y, K)
 - Photoconductor Kit
 - Photoconductor unit, Waste Toner Collector and Print Head Filter included.
 - Fuser Oil Roll
 - Fuser Kit
 - Fuser unit, 2nd Transfer Roll included
 - Transfer Belt Unit
 - Waste Toner Collector (Can be supplied separately.)

6. Standard paper feed includes 2 bins; MP tray (up to 150 sheets) and Lower cassette (up to 500 sheets, A4/LT). Including the optional single Lower cassette (up to 500 sheets, A4/LT), paper feeding of up to 1150 sheets from 3 bins is possible. MP Tray can hold up to 50 sheets of thick paper, transparency or label sheet.
7. Standard paper output can output 500 sheets Face-down.

Controller Features

<AcuLaser C2000>

1. High Speed Controller employing new CPU
 - A new 64-bit RISC CPU R5000 - 266 MHz
 - 64-bit high speed memory SDRAM DIMM
 - Standard RAM is 32 MB (TBD). By installing additional RAM, it is possible to expand the memory to 288 MB (32MB + 256MB). (Furthermore, it is expandable up to 512 MB if remove the standard 32MB RAM then install 256 MB RAM to the slot.)
2. Equipped with Enhanced ASIC (VIP1a). Color management technology has been incorporated into the hardware to achieve high speed processing.
 - AcuLaser Color Halftoning drawing area
 - CCNV (Color conversion)
 - CCMP (Color compression/expansion)
 - CRIT (Character smoothing).
3. Equipped with 2 standard interfaces.
 - IEEE 1284 compatible and ECP compatible parallel Interface
 - Ethernet interface (100Base-TX/10Base-T)
4. By expanding memory with RAM DIMMs, the following functions can be enhanced and speeded up.
 - CPGI drawing area
 - Print Speed

- Resolution
- 5. ROM update function (RCC compatible) when a Flash DIMM is installed.
- 6. Euro symbol supported
- 7. HDD (optional) can be installed

<AcuLaser C1000>

- Host-based controller
 - CPU TMPR4955AF-200 MHz
 - Standard RAM is 16 MB. Adding RAM DIMM expands to a maximum of 256 MB (128 MB x 2 with the standard RAM replaced with 128 MB RAM)
- Color technologies
 - Enhanced ASIC (VIPS) installed
 - CPGI and CRIT (color RIT) installed
- Two types of standard interfaces installed
 - IEEE1284 compatible parallel interface supporting ECP
 - USB I/F
- By expanding memory with RAM DIMMs, the following functions can be enhanced and speeded up.
 - CPGI drawing area
 - Print Speed
 - Resolution

Software Features

<AcuLaser C2000>

1. Color technologies
 - ESC/Page-Color supports B/W printing. (Speeded up in automatic discrimination of color and B/W.) (TBD)
 - Smooth expanding of color images by ESC/Page-Color. (TBD)

- Automatic color adjustment. (at powering on / when cover is closed (excludes paper jam) / at a time after 24hours passed or 100 pages printed since color adjustment have been done previously and returning from standby)
- 2. Job management (TBD)
 - Printing status confirmation and job cancel are enabled for job printed from built-in network by EPSON Direct Print and internal network.
- 3. Through bi-directional EJL and MIB, the printer status and printer environment are monitored.
- 4. Remote panel function through a Web browser (compatible with Java JDK1.1).
- 5. When a HDD (option) is installed, electronic sorting, I/F reception buffer expansion (only for Ethernet I/F) and font registration when PostScript3 mode can be equipped.
- 6. Additional built-in fonts
 - Euro Symbol supported. NLSP Bitmap3 Plus is installed in the main unit font ROM. PCLit771 is added.
- 7. Installed emulations
 - Standard: ESC/Page-Color, PCL5e(B/W), GL-Like(B/W), FX(B/W), ESCP2(B/W), I239X(B/W), ESC/Page(B/W)
 - Options: Adobe Postscript Level3(Kent-Color)
 - Other:
 - EJL, PjL mode
 - RCC mode (firmware update)
 - MCU update mode (mechanical-controller firmware update)
 - DIAG Mode (engine configuration)

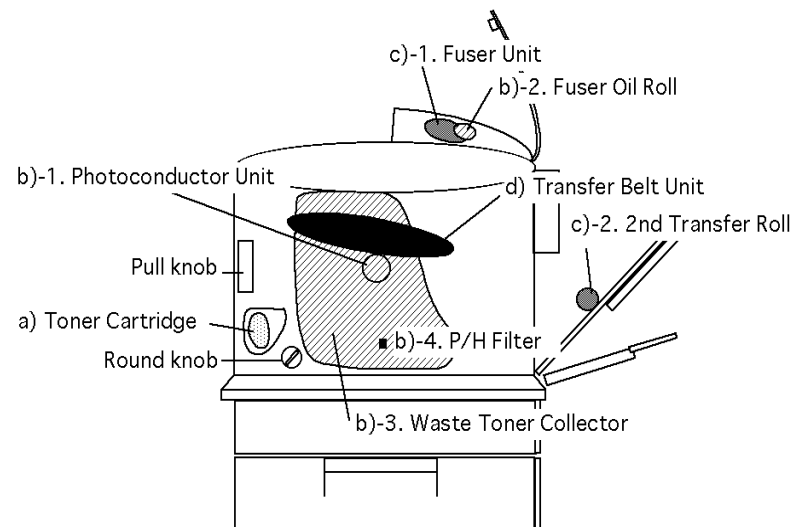
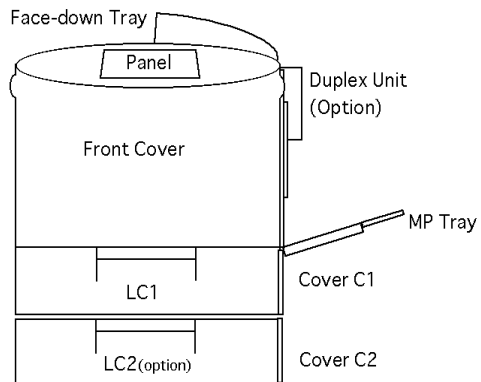
- Auxiliary softwares
 - Status Sheet
 - Network Status Sheet
 - AUX Status Sheet (only when Type-B Level3 installed)
 - PS3 Status Sheet (only when PostScript3 module installed)
 - Font Sample (for each mode)
 - Hex dump
 - Support Mode
 - Maintenance Mode (Engine Status Sheet, for printer engine)

<AcuLaser C1000>

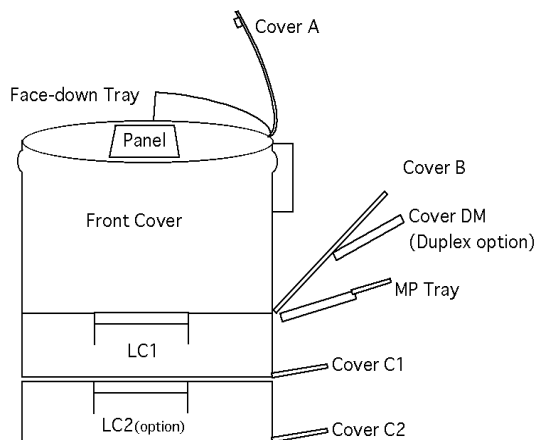
- ESC/PageS installed
 - Color supported
 - Duplex printing supported
- Network compatibility
 - Background job commands establish network connection

Exterior View and Names

1. External view



2. When open all covers except Front cover



3. When open the Front cover

1.2 Controller Unit Specifications

1.2.1 Controller Basic Specifications

<AcuLaser C2000>

CPU

64bit RISC CPU R5000 (266MHz)

ASIC

VIP1a (AcuLaser Color Halftoning, CCNV, CCMP, CRIT, Enhanced MicroGray)

RAM

- SDRAM 64bit width DIMM (168pins, 3.3V)
- 2 slots (install the standard RAM to one slot and SDRAM DIMM must be installed to slot-0)
 - Standard: 32MB (TBD)
 - Optional RAM: 32MB, 64MB 128MB and 256MB (Can be expanded to up to 512MB by installing 256MB to both slots.)

ROM

32bit width

- Program: 4MB (Flash ROM DIMM)
- Fonts: 4MB
- Expansion ROM: 2 slots (ROM DIMM slots) (can be installed and removed only with power off)
- A, B slot: PS3, font ROM module, Overlay ROM module

Host Interface

- Standard
 - Parallel 1ch Bi-directional based on IEEE 1284 standard, B-type connector Compatibility, Nibble, ECP
 - Ethernet 100Base TX / 10Base-T
- Optional
 - Type B 1 slot (Level3 compatible)

Printer Settings

Panel settings, EJM, PJL, HTTP, SNMP and ENPC.

- Storage cell EEPROM 16Kbytes

Control Panel

20-digit LCD, 8-switches, 6-LEDs,

HDD

1 (optional) IDE type

Installation Method

Fixed to main unit

<AcuLaser C1000>

CPU

- CPU TMPR4955AF-200MHz
- Enhanced technology CPGI (supporting monochrome) installed CRIT, RIT

RAM

- SDRAM DIMMs dedicated to use with AcuLaser C1000 (the slot shape is different from PC slots; the same as those for EPL-5900)
 - 2 slots (1 slot for the standard RAM)
 - Expanded RAM 16MB, 32MB, 64MB or 128MB
- Standard: 16MB
- Maximum: 256MB

ROM

32-bit width

- Program: 2MB
- EEPROM: 256 bytes

Panel

2 LEDs

Interfaces

- Standard
- | | |
|----------|--|
| Parallel | 1 ch, IEEE1284 compatible bi-directional, B-type connector
Compatibility, Nibble, ECP |
| Serial | USB 1.1, 1ch |
- Optional
- | | |
|--------|--|
| Type-B | 1 slot (compatible with Level-2)
However, Leo2.1 only |
|--------|--|

Printer Mode

ESC/PageS Printing System

Installation Method

Fixed to main unit

1.2.2 Engine Specifications**Printing Method**

Electrophotographic method using scanning semiconductor laser beam and dry one- component toner.

Resolution

600 dpi (switching with engine)

Print Mode

- B/W mode: Monochrome mode. Offering maximum printing speed of this printer.
- Color mode: Color mode, printing in Y, M, C, K toners.

Speed Mode

- Standard mode: Paper feed at the maximum speed of this printer.
- Half-speed mode: Reduced paper feed rate to ensure fixing on thick paper (exceeding 90 g/m² 24 lb), envelopes, and transparencies.

Printing Speed*1

Table 1-1. Printing Speed

Printing mode	Speed mode	Single-sided printing A4/LT/A5/B	Duplex printing
B/W	Standard mode	20 PPM	13 PPM
	Half-speed mode	3.8 PPM	
Color	Standard mode	5 PPM	5 PPM
	Half-speed mode	2.4 PPM	

First Printing Time

Table 1-2. First Printing Time

Printing mode	Speed mode	Single-sided printing A4/LT/A5/B			Duplex printing
		A4	LT/B	A5	A4/LT
B/W	Standard mode	16 sec.	16 sec.	16 sec.	25 sec.
	Half-speed mode	29 sec.	28 sec.	28 sec.	
Color	Standard mode	25 sec.	25 sec.	25 sec.	37 sec.
	Half-speed mode	38 sec.	38 sec.	37 sec.	

Warm-Up Time (TBD)

- 120 V: 150 sec. (Max.) (at 22°C, 55%RH, rated voltage)
- 220 - 240 V: 160 sec. (Max.) (at 22°C, 55%RH, rated voltage)

Paper Supply

*1: Excluding limits on printing speed described in "Restriction on Printing Speed" on page 59.

Table 1-3. Paper Supply

Paper feed method	Capacity	Paper size	Paper thickness
Standard tray*1	Standard universal tray	150 sheets	Paper Width: 92 to 216 mm Paper Length: 210 to 297 mm
		10 sheets	Envelope (TBD)*2
		50 sheets	92 x 148 to 216 x 297 mm transparencies/labels/thick paper
Cassette unit*3 *4	Standard cassette	500 sheets	A4/LT
		50 sheets	Transparencies (TBD)
	Optional Cassette	500 sheets	A4/LT
		50 sheets	Transparencies (TBD)

*1: Paper size detection and near empty detection are not installed, paper out sensor installed. Paper existence is detected when one sheet of paper (post card or a paper larger than A5T) is set.

- *2: - Flap is on the short edge and is folded :
Set the envelope with flap toward the paper feed roller side.
- Flap is on the long edge and is folded :
Set the envelope in portrait direction and with flap toward right side of paper feed direction.
- Flap is on the short edge and is opened :
Set the envelope with flap opened and toward the opposite side of paper feed roller.
- Flap is opened and sticky with paste : Not supported.
- *3: Each cassette unit has independent Side guide and End guide (combined with paper size detectors) and can be adjusted by user. Maximum 2 cassette units can be installed and the maximum paper capacity is 1150 sheets.
- *4: Each cassette is equipped with paper-out sensor and near-empty sensor.
- * Near-empty is detected when paper remaining is 50 ± 30 sheets. (when using plain paper of 80g/m.)

Duplex Printing (optional)

- Supported size: A4, LT
- Paper type: Plain paper (60 to 90 g/m²)
- Paper size/Paper set direction/Duplex availability

Table 1-4. Paper Size

Paper Type		Paper Size	Paper Set Direction			Duplex Availability
			Standard tray	Standard cassette	Optional cassette	
Standard Paper	A4	210.0 x 297.0mm (8.27 x 11.69")	SEF ^{*1}	SEF	SEF	A ^{*2}
	A5	148.0 x 210.0mm (5.83 x 8.27")	SEF	---	---	UA ^{*3}
	B5	182.0 x 257.0mm (7.16 x 10.12")	SEF	---	---	UA
	ISO-B5	176.0 x 250.0mm (6.93 x 9.84")	SEF	---	---	UA
	Letter (LT)	215.9 x 279.4mm (8.5 x 11.0")	SEF	SEF	SEF	A
	Half Letter (HLT)	139.7 x 215.9mm (5.5 x 8.5")	SEF	---	---	UA
	Legal 13"	215.9 x 330.2mm (8.5 x 13.0")	SEF	---	---	UA
	Legal 14"	215.9 x 355.6mm (8.5 x 14.0")	SEF	---	---	UA
	EXE	184.2 x 266.7mm (7.25" x 10.5")	SEF	---	---	UA
F4	210.0 x 330mm (8.27 x 13")	SEF	---	---	UA	

Table 1-4. Paper Size (continued)

Paper Type		Paper Size	Paper Set Direction			Duplex Availability
			Standard tray	Standard cassette	Optional cassette	
Special Paper (Envelopes)	COM10	104.8 x 241.3mm (4.13 x 9.5")	SEF*4	---	---	UA
	Monarch	98.4 x 190.5mm (3.88 x 7.5")	SEF*4	---	---	UA
	C5	162.0 x 229.0mm (6.38 x 9.02")	SEF*4	---	---	UA
	DL	110.0 x 220.0mm	SEF*4	---	---	UA
	C6	114.0 x 162 mm	SEF*4	---	---	UA

*1: SEF (Short Edge Feed) = Set paper in portrait direction toward paper feed direction.

*2: A = Available

*3: UA = Unavailable

*4: See "Paper Supply" on page 19 for details.

Paper Feed Reference

Center line reference for each paper size and each paper feeder (standard tray/each cassette)

Consumables

- Developer cartridge (black/cyan/magenta/yellow)
- Photoconductor kit (including Photoconductor unit, Fuser oil roll, Waste toner collector, Print head filter)
- Fuser kit (including Fuser unit, Second transfer roll), Transfer belt unit, Waste toner collector (separately).

NOTE: These consumable can be replaced by the user.

Output Paper Capacity

Face-down(FD) only. 500 sheets (using A4/LT, 80g/m² or 20 lb paper)

Dimensions

- Main unit only : 463*1 (W) x 548 (D) x 511 (H) mm

- With Duplex unit installed: 496*1 (W) x 548 (D) x 511 (H) mm
- With optional cassette installed: 463*1 (W) x 548 (D) x 625 (H) mm
- With both of optional cassette and Duplex unit installed: 496*1 (W) x 548 (D) x 625 (H)

Weight

- Main unit only: 44.5kg (includes consumables)
- Duplex unit: 3.0kg

Power Supply

- 100/120V version: 100/120V±10%, 50-60Hz ±3Hz
- 200V version: 220V/240V±10%, 50-60Hz ±3Hz

*1:With standard tray and output tray closed.

Power Consumption

Table 1-5. Power Consumption

Description		Specifications
Maximum rated current		1000W max. (100V / 120V)
		1100W max. (220 to 240 V)
During printing, average*1	B/W printing	700 Wh max.
	Color printing	550 Wh max.
During standby, average		250 Wh max.
During the heater-off state, average*2		45 Wh max.

*1: Excludes optional cassette unit and Duplex unit

*2: Completely suspended. Conformed to the Energy Star program.

Current Consumption

- 120V version: 10.0 A max. (at rated voltage)
- 220 to 240 V version: 6.0 A max. (at rated voltage)

Life

- Main unit : 500,000 pages*1 or 5 years whichever comes earlier. (Including standard tray)
- Optional cassette unit : 500,000sheets or 5 years whichever comes earlier.
- Duplex unit : 500,000 pages (250,000sheets) or 5 years whichever comes earlier.

Noise

- During operation: 55 dB(A) max. (TBD)

*1:Life of 500,000 pages is calculated assuming a B/W : color job ratio of 1:1, and equivalent to 1,250,000images (4imagesx250,000pages + 250,000images). 500,000sheets or 1,250,000images whichever comes earlier is the life of the main unit, also.

- During standby: 41 dB(A) max.

Ozone Concentration

0.1 ppm max. (based on UL standards)

Particles Discharge

Particles concentration 0.25 mg/m³ max. (based on Blue Angel standards)

Toxicity

Photoconductor kit (OPC), toner, and plastic materials are all non-toxic.

1.2.3 Process Specification

- Method: Electrophotographic method using dry one-component developing and Belt transfer
- Light source: Semiconductor Laser
- Photoconductor unit: OPC (Organic Photo Conductor) Drum
- Charging: Needle electrode charger
- Developing: Exposed area development
- Toner: Non-magnetic toner
- Primary transfer: Roller Transfer
- Fixing: Heated belt fixing method (with oil coated mechanism)
- Density adjustment: Automatic (non-user adjustable)

1.2.4 Paper Specification

Paper Type

- Recommended paper: 4024 paper (20 lb) (B/W), FX J paper (TBD)
- Plain paper: Ordinary copy paper, recycled
60g/m² to 90g/m² (16 lb to 24 lb)
- Special paper: Transparencies, Colored paper, Label sheets
Thick paper (91g/m² to 163g/m², Envelope (TBD)

NOTE 1: *lb: Ream weight = lb/500 sheets/17"x22" (431.8 x 558.8mm) g/m²: 1 g/m² = 0.2659763 lb*

NOTE 2: *Before buying large quantities of paper, verify that your printer will print properly with the paper.*

NOTE 3: *Do not use any of the paper types listed below with this printer. They may cause defective printing, paper blockages, or damage to the printer.*

- Carbon paper, non-carbon paper, thermal paper, pressure-sensitive paper, acidic paper
- Paper previously printed in a thermal printer or ink jet printer.
- Extra thick or extra thin paper.
- Damp paper.
- Surface-coated paper or surface-treated color paper.
- Extra smooth or glossy paper. Extra rough paper.
- Paper with significantly different roughness on each surface.
- Paper with punched holes or perforations.
- Folded, curled, or torn paper.
- Irregularly shaped paper or paper with non-perpendicular corners.
- Sheets of labels that peel off easily.

- Paper with glue, staples, or clips attached.
- Special ink jet paper superfine paper, glossy film, etc.
- Transparencies for other color/monochrome laser printers or photocopiers.
- Sheets already printed on other color/monochrome laser printers or photocopiers.
- Sheets of paper stuck together.

Paper Feeding

Table 1-6. Paper Feeding

Paper source	Recommended paper	Plain Paper	Special applications			
			Transparencies	Labels	Thick paper (90 to 163g/m ²)	Envelopes
Standard tray	PA	A	A	A	A	A
Standard cassette	PA	A	NA	NA	NA	NA
Lower cassette unit (Option)	PA	A	NA	NA	NA	NA

PA: Paper feed and image quality assured.

P: Paper feed and image quality assured, but only for the use of ordinary types of paper.

NA: Not available

Printing Area

☐ Maximum printable area:Width 208mm/Length 289mm

☐ Guaranteed printing area

Maximum guaranteed printing area:Width 208mm/Length 289mm
 Entire paper area except for a 4mm margin at each edge of the paper up to the above size. (See the figure below.)

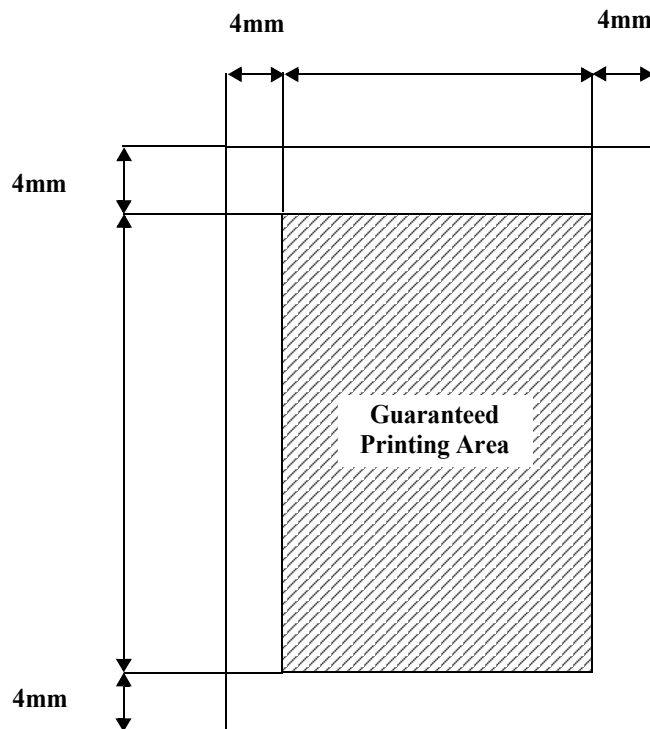


Figure 1-1. Printing Area

1.2.5 Sensors

Photoconductor Unit

Table 1-7. Sensor Specifications - Photoconductor Unit

Detected Conditions	Detection Method	Comments
Mounted/unmounted	Electrical contact detection method	---
New product	Fuse method (Cut fuse in new product)	---
Mounted/unmounted detection at powering on	Electrical contact detection method	<ul style="list-style-type: none"> • Can be mounted/unmounted while power is on • No damage on mechanism • Status is updated when the cover is closed
Consumption	Calculate operating time (motor rotation time)	Added up in 30 sec. unit
Near end	The total operating time of the main motor	2640counts x 30sec. = 1320min.
End of life	The total operating time of the main motor.	3300counts x 30sec. = 1650min. Printing is forbidden in the following timing <ul style="list-style-type: none"> • While printing of up to 100 images(300sec.) is performed after the End of life detection • After printing completed.
Genuine SEC product	Un-compatible rib	---

Fuser Oil Roll

Table 1-8. Sensor Specifications - Fuser Oil Roll

Detected Conditions	Detection Method	Comments
Mounted/unmounted	Actuator	---
Mounted/unmounted detection at powering on	Actuator	<ul style="list-style-type: none"> • Can be mounted/unmounted while power is on • No damage on mechanism • Status is updated when the cover is closed

Waste Toner Collector

Table 1-9. Sensor Specifications - Waste Toner Collector

Detected Conditions	Detection Method	Comments
Mounted/unmounted	Actuator	---
Mounted/unmounted detection at powering on	Actuator	<ul style="list-style-type: none"> • Can be mounted/unmounted while power is on • No damage on mechanism • Status is updated when the
Waste toner collector full	Photo sensor	cover is closed

Print Head Filter

Table 1-10. Sensor Specifications - Print Head Filter

Detected Conditions	Detection Method	Comments
Mounted/unmounted	Waste toner collector can not be installed if the print head filter is not installed.	---

Fuser unit

Table 1-11. Sensor Specifications - Fuser Unit

Detected Conditions	Detection Method	Comments
Mounted/unmounted	Electrical contact detection method (detected by voltage of speed detection trimmer inside the unit)	---
New product	Fuse method (Cut fuse in new product)	---
Mounted/unmounted detection at powering on	Electrical contact detection method	<ul style="list-style-type: none"> • Can be mounted/unmounted while power is on • No damage on mechanism • Status is updated when the cover is closed
Consumption	Total operating time of the fuser motor	Added up in 30 sec. unit
Near end	The total operating time of the fuser motor	28,880 counts
End of life	The total operating time of the main motor.	36,000 counts Printing is forbidden in the following timing <ul style="list-style-type: none"> • While printing of up to 100 images (300sec.) is performed after the End of life detection • After printing completed.

Developer Cartridge

Table 1-12. Sensor Specifications - Developer Cartridge

Detected Conditions	Detection Method	Comments
Mounted/ unmounted	Electrical contact detection method (detected by voltage of speed detection trimmer inside the unit)	---
New product	Fuse method (Cut fuse in new product)	---
Mounted/ unmounted detection at powering on	Electrical contact detection method	<ul style="list-style-type: none"> • Can be mounted/unmounted while power is on • No damage on mechanism • Status is updated when the cover is closed and the rotary rotates once.
Residual toner	Counts images by the mechanical controller.	---
Near end	Counts images by the mechanical controller Counts the luminescent period of the LD.	4,800 images or 3,200 counts of the LD luminescence period , whichever reaches earlier.
End of life	Counts images by the mechanical controller. Reflective photo sensor	6,000 images Detected by the counter whichever reaches 6,000 earlier. Printing is not forbidden.
Genuine SEC product	Un-compatible rib	---

Transfer Belt Unit

Table 1-13. Sensor Specifications - Transfer Belt Unit

Detected Conditions	Detection Method	Comments
Mounted/ unmounted	Returns GND from AIDC sensor for the detection.	---
New product	Fuse method (Cut fuse in new product)	---
Mounted/ unmounted detection at powering on	Returns GND from AIDC sensor for the detection.	<ul style="list-style-type: none"> • Can be mounted/unmounted while power is on • No damage on mechanism • Status is updated when the cover is closed
Consumption	Total operating time of the main motor	Added up in 30 sec. unit
Near end	The total operating time of the main motor	12,000 counts
End of life	The total operating time of the main motor.	15,000 counts Printing is forbidden in the following timing <ul style="list-style-type: none"> • While printing of up to 100 images (300sec.) is performed after the End of life detection • After printing completed.

Standard tray/Optional Feeder/Duplex Unit

**Table 1-14. Sensor Specifications
Standard Tray / Optional Feeder / Duplex Unit**

Unit	Detected Conditions	Detection Method	Comments
Standard tray	Out of paper	Actuator	---

**Table 1-14. Sensor Specifications
Standard Tray / Optional Feeder / Duplex Unit (continued)**

Unit	Detected Conditions	Detection Method	Comments
Optional feeder	Mounted/ unmounted	Communication check with the main unit	It is not guaranteed to be unmounted/mounted while power is on.
Duplex unit	Mounted/ unmounted	Detects the short pin.	Detection is performed only at powering on.

Standard/Optional Cassette

Table 1-15. Sensor Specifications - Standard/Optional Cassette

Detected Conditions	Detection Method	Comments
Mounted/ unmounted	Returns GND from AIDC sensor for the detection.	
Paper size	Actuator (operates together with the end guide)	A4 or LT
Paper near end	Photo sensor	50 +/- 30 sheets (with 80g/m ² paper)
Paper out	Actuator	

1.2.6 Reliability, Durability, Serviceability

MPBF

80,000 pages (200,000 images) min.*1

*1: In color mode, 4 images (YMCK) are printed per sheet. MPBF is calculated assuming a B/W: color job ratio of 1:1.
e.g. : 200,000 = 80,000/2 + (80,000/2 x 4)

MTBF

3,000 hours min.*2

Paper Feeding Reliability

Table 1-16. Paper Feeding Reliability*1

	Single-sided printing	Duplex printing
Paper jam rate	1/2000 sheets (max.)	1/1000 sheets (max.)
Paper misfeed	1/2000 sheets (max.)	---
Multiple sheet feed rate*2	1/500 sheets (max.)	---
Paper creasing	1/1000 sheets (max.)	1/500 sheets (max.)
Leading edge folded (for 1C or more)*3	1/1000 sheets (max.)	1/500 sheets (max.)

*1: Using recommended paper in standard environment (15 to 25°C , 35 to 70%RH)

*2: The values for multiple-sheet feed rate do not include effects at the boundary between original paper and replenished paper, occurring after paper is replenished.

*3: 1C indicates 1mm corner fold.

Printing Start Position Accuracy / Paper Skew

Table 1-17. Printing Start Position Accuracy/Paper Skew*1

	Directions	Single-sided printing	Duplex printing
Print start position accuracy	Main Scanning Direction (c)	±2.0 mm	±3.2 mm
	Sub Scanning Direction (a)	±2.5mm	±2.0 mm

*2: PV (page volume) per month : 8,000pages(average)
calculated assuming the Operating time per month as 300 hours (average).

Table 1-17. Printing Start Position Accuracy/Paper Skew*1

	Directions	Single-sided printing	Duplex printing
Paper skew	Main Scanning Direction (c-a)	±1.5 mm	±2.5 mm (TBD)
	Sub Scanning Direction (a-b)	±2.0mm	±3.5 mm (TBD)

*1: With A4/LT

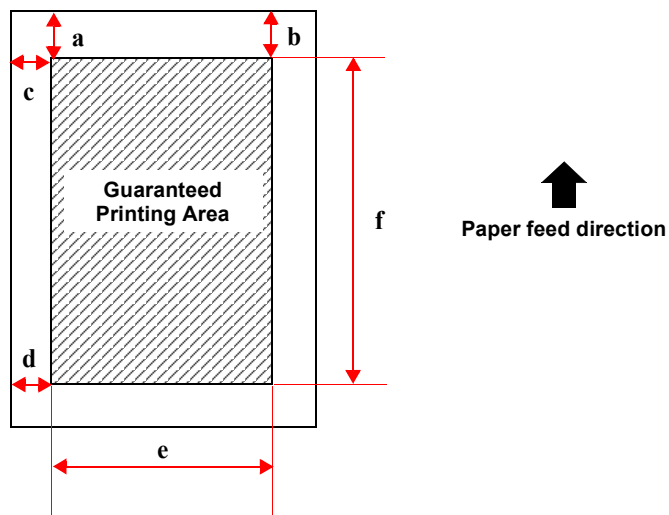


Figure 1-2. Printing Start Position Accuracy/Paper Skew Descriptions

Serviceability

MTTR 30 minutes max. (average)
(Time for service technician to locate and repair a failure.)

Output Paper Curl Height (with A4/LT)

□ Plain paper: ± 30mm max. (same as for duplex printing)

□ Transparencies: ± 15mm max.

(For non-aligned B/W printing with 5% image occupation rate or color printing with 5% image occupation)

1.2.7 Operating Conditions (Including Consumables)

Temperature and Humidity

□ Temperature: 10 to 35°C
□ Humidity: 15 to 85% RH no condensation

Barometric Pressure (Altitude)

760 hPa min. (2,500 m max.)

Levelness

Max. 1° tilt (front-rear or left-right)

Illumination

3,000 lux max. (no direct sunlight)

Printer Peripheral Space (TBD)

Maintain the space shown in the diagram below around the printer to ensure normal printer operation. (Units: mm)

1.2.8 Storage and Transport Environments (Including Consumables)

Temperature and Humidity

Table 1-18. Temperature and Humidity

Conditions	Temperature	Humidity ^{*1}	Guaranteed period
Normal conditions	0 to 35°C	30 to 85%RH	18 months from manufacture
Severe conditions	High: 35 to 40°C ^{*2} Low : -20 to 0°C	High: 85 to 95% RH Low: 10 to 30% RH	1/30 of 18months

*1: With no condensation.

*2: 35 to 55°C when excludes Developer cartridge and Photoconductor unit.

Storage Barometric Pressure (Altitude)

740 to 1013 hPa*1

Dropping (TBD)

- For European model: No abnormalities according to JIS Z0200-1994 Level 1.
- For North America : No abnormalities according to ISTA 2A.

Also, no abnormalities by the dropping with one side supported.*2

Vibration

- Frequency: 5 to 100 Hz (Sweep time : 10 min.)
- Acceleration: 1.0 G (on the vibrator)
- Direction of application: 3 dimensional (along X, Y and Z axes)

*1:613 to 1013 hPa when excludes Developer cartridge and Photoconductor unit.

*2:Drop the short edge of the bottom from a height of 52cm, twice for both edge (total 4 times).

- Time of application: 60 min. along each axis

1.2.9 Electrical Characteristics

The following items do not apply to the Optional Units.

AC Line Noise

- Pulse Width: 50-1000ns
- Pulse Polarity: +/-
- Repeating: Asynchronous
- Mode: Common / Normal
- Voltage: 1kv No component damage to 2kv.

Instantaneous Power Failure

- DIP 100% (at rated voltage - 10%) 1 cycle. No abnormality to quality in print cycle.
- Satisfies the following conditions under the evaluation conformed to "IEC61000-4-11"
 - Falls by 95%, 0.5 cycle : No print error except for slight dot error.
 - Falls by 30%, 25 cycle : No component damage
 - Falls by 95%, 250 cycle : No component damage

Static Electricity Resistance

- Satisfies the following conditions under the 50% Flash over method.
 - Up to ± 7 kv: No hardware error at all.
 - Up to ± 10 kv: No print error except for slight dot error.
 - Up to ± 15 kv: No component damage.
- Satisfies the following conditions under the evaluation conformed to "IEC61000-4-2"
 - Contact discharge 8kV : No device error at all

- internal discharge 15kV : No device error at all

Inrush Current

1/2 cycle 50A max. (in an environment of 23°C min.)

Insulation Resistance

10MΩ max.

Dielectric Strength

No breakdown when the following voltage is applied for one minute.

Table 1-19. Dielectric Strength

	Across Primary and Chassis
100/120V Model	AC1000V
200V Model	AC1500V

Leak Current*1

- 100V model 0.25 mA max.
- 120V model 3.5 mA max.
- 200V model 3.5 mA max.

1.2.10 Applicable Standards and Regulations

The engine specification meets the following standards and regulations. Depending on the destination, some standards and regulations apply to the product only when including controller.

Safety Standards

- 100Vmodels

*1: Measured according to [The Guideline for Leak current of Personal computers]

- US : UL1950 3rd Edition
- Canada : CSA C22.2 No.950-95 3rd
- 200Vmodels
 - Europe : IEC60950 2nd Edition + Amd 1, 2, 3, 4
EN60950 : 1992 + Amd 1, 2, 3, 4
EMKO-TSE (74-SEC) 207/94

Safety Regulations (laser radiation)

- 120V FDA21CFR Chapter 1, Subchapter J, Section 1010,1040
- 200V EN60825-1 + All

*NOTE: Laser power: 1.16 mW Max.
Wavelength: 785 nm ± 10nm*

EMI Standards

- 120V
 - US : 47CFR Part15 SubpartB, ClassB
 - Canada : ICES-003 Issue3 ClassB (C108.8-M1983)
 - Taiwan : CNS13483 ClassB
- 200V
 - EN55022 (CISPR Publication22), ClassB

Power Supply High Frequencies

Comply with high-frequency restriction guidelines.

Power Consumption

Comply with International Energy Star Program standards (45W max. in Standby mode)

Others

- Toner: No effects on the human body (conforming to OSHA, TSCA, EINECS).
- OPC: No effects on the human body (conforming to OSHA).
- Ozone generation: Conforming to UL478, Edition 5.
- Materials: Conforming to Swiss environmental-protection laws (not including CdS).

1.2.11 Consumable Specifications

1.2.11.1 Developer cartridges

Configuration and Life (toner consumption)

Table 1-20. Configuration and Life

Name	Contents	Life*1
Developer Cartridge (black)	Black toner, etc.	6,000 images
Developer Cartridge (cyan)	Cyan toner, etc.	6,000 images
Developer Cartridge (magenta)	Magenta toner, etc.	6,000 images
Developer Cartridge (yellow)	Yellow toner, etc.	6,000 images

*1: The indicated number of images is the approximate number of printable images using A4 continuous printing at 5% image occupation rate. For color printing, this is not the number of sheets printed. The cartridge life varies according to the image occupation rate and type of printing (continuous, intermittent).

Dimensions/weight

- Not packaged: Dimensions = 304.5 (W) x 115 (D) x 76 (H) (mm)
Weight = K/Y/M/C approx. 950g
- Packaged: Dimensions = 426 (W) x 170 (D) x 215 (H) (mm) (TBD)
Weight = K/Y/M/C approx. 1250g

Storage and transport environments

(common to all Developer cartridges)

- Temperature and humidity

Table 1-21. Temperature and Humidity - Developer Cartridge

	Temperature	Humidity	Guaranteed period
Normal condition	0 to 35°C	30 to 85% RH*1	18months from manufacture (packaged)
Sever condition	High: 35 to 40°C*2 Low: -20 to 0°C	High: 85 to 95% RH*1 Low: 10 to 30% RH*1	1/30 of 18months

*1: Storage up to 12 months after package is opened. (in normal environment and no condensations)

*2: No condensation

- Storage barometric pressure (altitude):740 to 1013 hPa
- Package dropping: No abnormalities according to JIS Z0200-1987 Level 1.
- Package vibration: No abnormalities under following conditions
 - Frequency: 10 to 100 Hz (5 min.)
 - Acceleration: 9.8m/s2 (1G)
 - Direction of application: Along X, Y and Z axes
 - Time of application: 60 min. along each axis (X, Y, Z), total 180 min.

1.2.11.2 Photoconductor kit

Configuration and Life

Table 1-22. Photoconductor Kit Specifications

Name	Contents	Life	Life
Photoconductor kit	<ul style="list-style-type: none"> • Photoconductor unit • Waste toner collector • Fuser oil roll • Print head filter 	30,000 images*1	Continuous printing B/W : 30,000 pages Color : 7,500 pages
			Intermittent printing (1P/J) B/W : 10,000 pages Color : 5,000 pages

*1: Standard mode : 9000pages (30,000images)
 Calculated assuming B/W = 4,500pages (3P/J : 7,500images), Color = 4,500pages (2P/J : 22,500images)
 The Photoconductor life varies according to the type of printing (continuous, intermittent).

Dimensions/Weight

- Not packaged
 - Dimensions : 389 (W) x 105 (D) x 69 (H) (mm)
 - Weight : Approx. 780g (Photoconductor unit only)
- Packaged
 - Dimensions : 456 (W) x 320 (D) x 187 (H) (mm)
 - Weight : Approx. 2,180g (includes all components)

Storage and Transport Environment

Same as Developer cartridge.

NOTE: Waste toner collector, Fuser oil roll, Print head filter are included.
 (must be replaced at the same time)

1.2.11.3 Waste Toner Collector

Configuration and Life

Table 1-23. Waste Toner Collector Specifications

Name	Contents	Life
Waste toner collector	Waste toner collector and others	30,000 images*1

*1: The value in standard mode (Assuming Color: 2P/J, B/W: 3P/J Color: B/W ratio = 1:1, and the image occupation rate is average 10% (TBD) of each color)
 The life varies according to the image occupation rate and type of printing (continuous, intermittent).

Dimensions/Weight

- Not packaged
 - Dimensions : 308 (W) x 290 (D) x 54 (H) (mm)
 - Weight : TBD
- Packaged
 - Dimensions : TBD
 - Weight : TBD

Storage and Transport Environment

Same as Developer cartridge.

1.2.11.4 Fuser Kit

Configuration and Life

Table 1-24. Fuser Kit Specifications

Name	Contents	Life
Fuser Kit	Fuser and Second transfer roll included	80,000 sheets*1 (TBD)

*1: In A4/LT single-sided printing.
 B/W (3P/J) : 400,000sheets, Color (2P/J) 400,000sheets
 The cartridge life varies according to the image occupation rate and type of printing (continuous, intermittent).

Dimensions/Weight

- Not packaged
 - Dimensions : TBD
 - Weight : TBD
- Packaged
 - Dimensions : TBD
 - Weight : TBD

Storage and Transport Environment

Same as Developer cartridge.

1.2.11.5 Transfer Belt Unit

Configuration and Life

Table 1-25. Fuser Kit Specifications

Name	Contents	Life
Transfer Belt Unit	Transfer belt and others	100,000 sheets (TBD)

Dimensions/Weight

- Not packaged
 - Dimensions : TBD
 - Weight : TBD
- Packaged
 - Dimensions : TBD

- Weight : TBD

Storage and Transport Environment

Same as Developer cartridge.

1.3 Interface Specifications

The AcuLaser Color 2000 / AcuLaser Color 1000 is equipped with the following host interfaces.

- Parallel Interface (Standard)
- Ethernet Interface (Standard only with AcuLaser C2000)
- USB Interface (Standard only with AcuLaser C1000)
- Optional Host Interface (Type B) - 1 slot

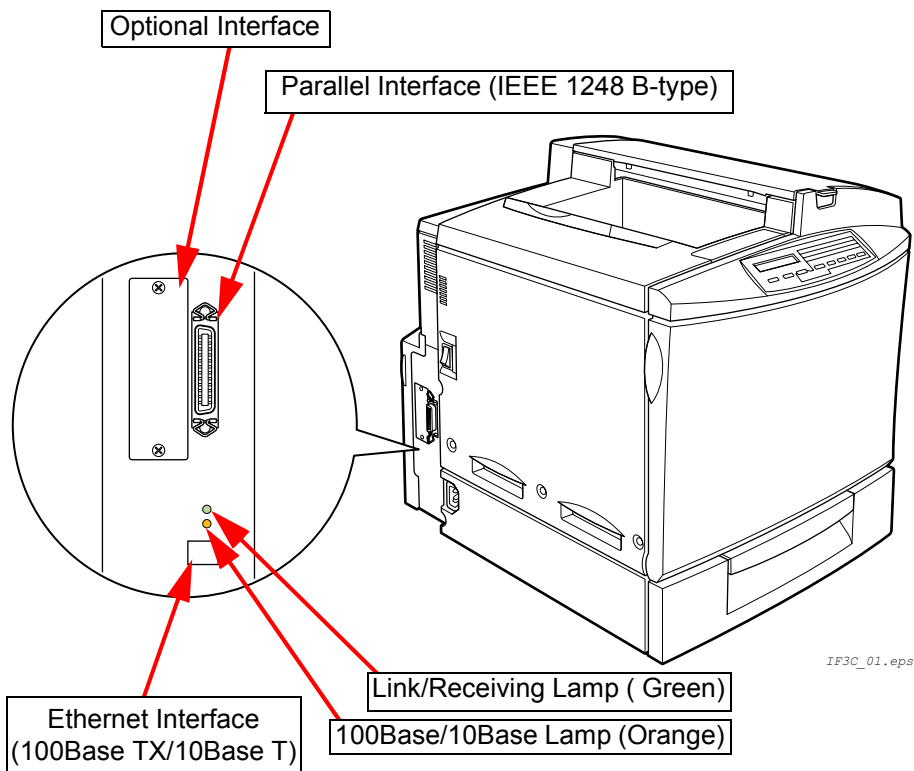


Figure 1-3. Host Interface Location (AcuLaser C2000)

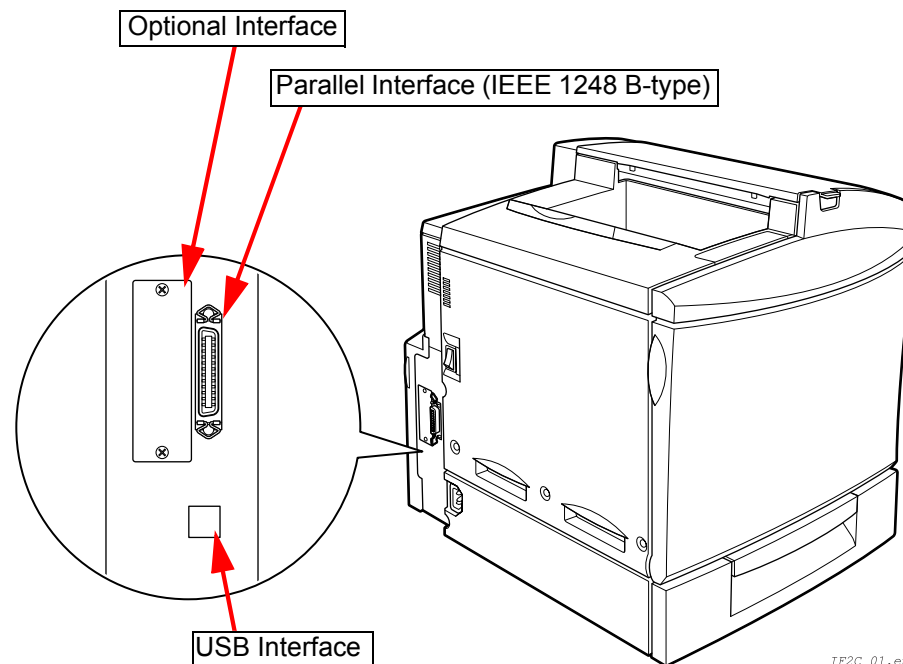


Figure 1-4. Host Interface Location (AcuLaser C1000)

NOTE: With AcuLaser C2000, use/no use can be set for each host interface separately.
 With AcuLaser C1000, host interfaces' actual operations are limited to automatic interface switching only.

1.3.1 Parallel Interface Specifications

- Interface Type IEEE 1284 Bi-directional High Speed Parallel Interface
- Operating Modes Compatibility, Nibble, ECP
- Connector Type Name 57RE-40360-830B (D7A) DDK or the same class of product.
- Compatible Plug Amphenol or comparable products.

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The initial value for this printer Device ID is as shown below. In the following description, in order to make it easier to read, carriage returns have been added, but actually, the character string is continuous without carriage return codes being included. The CMD items are not in the same order. MODE and STATUS items are not included. In the contents of DES items, MFG and MDL are connected by a space.

```
MFG:EPSON;
CMD:PJL,EJL,ESCPL2,ESCP9,PRPXL24-01,PCL,HPGL2-01,ESCPAGE-
04,ESCPAGECOLOR-01**1;
MDL:**2;
CLS:PRINTER;
DES:EPSON**2;
```

**1 "PostScript" is added only when the PostScript 3 module is installed.

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Furthermore, it is possible to redefine the MFG, MDL, DES and CID in the Device ID. Also, the CID Field does not respond with the default value, but does respond with the defined character string if it has been redefined. The Device ID when redefined is as follows. Places with ***** are the user defined character strings.

```
MFG:*****;
CMD:PJL,EJL,ESCPL2,ESCP9,PRPXL24-01,PCL,HPGL2-01,ESCPAGE-
04,ESCPAGECOLOR-01**1;
MDL:*****;
CLS:PRINTER;
DES:*****;
CID:*****;
```

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The default device ID setting for AcuLaser C1000 is as follows:

```
MFG:EPSON;CMD:ESCPAGES-02;MDL: AL-C1000;CLS:PRINTER;DES:EPSON AL-
C1000;
```

Switching between communication modes is achieved by changing the jumper setting (JP102/jumper switch INPT7) on the controller board.

Table 1-26. Communication Mode by JP102 Setting

JP102 Setting	Communication Mode	Explanation
Open	Nibble	ECP communication mode is not supported, and the Reverse mode is only available in the Nibble communication mode.
Short	ECP	ECP communication is supported (ECP is the default setting)

1.3.2 Ethernet Interface Specifications (Only for AcuLaser C2000)

- Interface Types:
10Base T, 100Base TX, Half Duplex, Full Duplex: auto switching when the power is turned On.
- Communication Protocols
 - IPX/SPX (IPX, SPX, NCP, RIP, SAP, PrintServer, RemotePrinter, NDS, SNMP, ENPC)
 - NetBIOS (SMB)
NetBEUI
 - TCP/IP (IP, UDP, Port9100, TCP, LPR, FTP, TELNET, ARP, ICMP, RARP, BOOTP, DHCP, HTTP, IPP, SNMP, ENPC)
 - AppleTalk (ELAP, DDP, ATP, PAP, AARP, NBP, ZIP, RTMP, SNMP, ENPC)
- ENPC: EPSON Network Peripheral Control Protocol
- IPP: Internet printing protocol
- Connector Name RJ45
- Compatible Cable 2-pair STP (10Base T, 100Base TX)

In order to conform to FCC Class B, EN55022 Class B and VCCI Class B, a shielded type cable should be used.

Table 1-27. Pin Arrangement

Pin	Signal Name	I/O	Pin	Signal Name	I/O
1	Tx+	O	5	N.C.	-
2	Tx-	O	6	Rx-	I
3	Rx+	I	7	N.C.	-
4	N.C.	-	8	N.C.	-

- Entity Type : See Type B interface specifications.

1.3.3 USB Interface Specifications (Only for AcuLaser C1000)

The USB interface is compliant with the Universal Serial Bus Specification Rev. 1.1.

This printer indicates 18-digit USB serial numbers. Each digit denotes the information as described below.

- 1, 2 : Number from 00 to 99 specific to model (06 for AcuLaser C1000)
- 3 : P for page printer
- 4, 5 : PC number on the assembly belt
- 6, 7 : Year of assembly
- 8, 9 : Month of assembly
- 10, 11 : Day of assembly
- 12, 13 : Hour of assembly
- 14, 15 : Minute of assembly
- 16, 17 : Second of assembly
- 18 : Reserved digit (0 is normally specified)

The specified USB serial numbers are confirmed in the Status Sheet. The numbers are displayed on the bottom left of the Status Sheet, next to the ROM version.



If the circuit board is replaced for maintenance services or some other reason, the USB serial number must be changed to another USB ID. Consequently, a computer connected to the repaired printer recognizes the printer as a different one, requiring the printer to reinstall a USB port driver.

1.3.4 Optional Interface Specifications

AcuLaser C2000 / AcuLaser C1000 has one Type B optional interface slot as standard.

<AcuLaser C2000>

- Main System Type:
MTP600dpi, PW5100dt600dpi, PRG(*****)rev, AP1300ma, SPD0fast,D4
*NOTE: *****is the ROM version.*
- Printer Name: Same as the Product Name when shipped from the factory.
- Product Name: Product name AL-C2000
- Emulation Type: See the following table.
- Entity Type: See the following table.

Table 1-28. Entity Type

Emulation	Emulation Type	Entity Type
PS*	POSTSCRIPT-00 ^{*1}	LaserWriter ^{*1}
ESC/Page Color	ESCPAGECOLOR-01	EPSONPAGECOLOR1
ESC/Page	ESCPAGE-04	
LJ4	PCL5E-00	EPSONPCL5
I239X	PRPXL24-01	EPSONPRPXL24
GL2	HPGL2-01	EPSONHPGL2
FX	ESCP9	EPSONFX
ESCP2	ESCPL2	EPSONLQ2

*1: Added when the PostScript 3 module is installed.

- Emulation Type
<If Emulation is set to AUTO>
 - When PS is not started: AUTO (Emulation Types 1, 2, 3 . . .)
 - When PS is started: EJL (POSTSCRIPT-00, other Emulation Types 1, 2, 3 . . .)
 <If Emulation is Fixed,>

- EJL (Default Emulation Type, other Emulation Types 1, 2, 3, . . .)
- Entity Type
<If Emulation is set to AUTO>
 - When PS is not started: AUTO (Emulation Types 1, 2, 3 . . .)
 - When PS is started: EJL (POSTSCRIPT-00, other Emulation Types 1, 2, 3 . . .)
 <If Emulation is Fixed>
 - The Default Emulation Type and EPSONPAGECOLOR1 are returned.

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Only Leo2.1 can be used for the Type-B optional interface of AcuLaser C1000.

- Main System Type:
MTP600dpi, PW5100dt600dpi, PRG(*****)rev, AP1300ma, SPD0fast,GDI
*NOTE: *****is the ROM version.*
- Printer Name: AL-C1000
- Product Name: AL-C1000
- Emulation Type: ESCPAGES-02
- Entity Type: EPSONPAGES2 (TBD)

1.4 Control Panel (AcuLaser C2000)

1.4.1 Exterior View and Names (AcuLaser C2000)

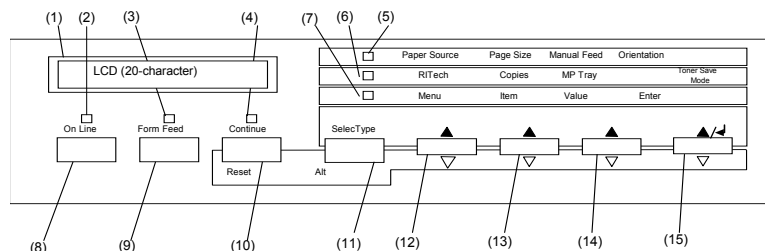


Table 1-29. Control Panel Description

	Name	Remarks
1	LCD Panel	1 line x 20 characters (5 x 7 dot matrix)
2	On Line LED	Color Green
3	Data LED	Color Yellow
4	Continue LED	Color Red
5	One Touch Setting Mode 1 LED	Color Green
6	One Touch Setting Mode 2 LED	Color Green
7	SelecType Mode LED	Color Green
8	On Line Switch	
9	Form Feed Switch	
10	Continue Switch	
11	SelecType/Alt Switch	Doubles as a shift switch.
12	Menu Selection Switch	
13	Item Selection Switch	
14	Value Selection Switch	
15	Enter Switch	

In printers for Taiwan, China and Korea, the panel sheet character string is displayed in Taiwanese, Chinese or Korean, respectively.

1.4.1.1 LED Description (AcuLaser C2000)

LCD (Liquid Crystal Display) (A)

One-line display for 20 characters (5 x 7 dot matrix)
Normally displays printer status. In panel setting mode, LCD displays various setting values.

On Line LED (B)

- On: The printer is on-line.
- Off: The printer is a pause status.

Form Feed LED (C)

- On: Unprinted data remains in the printer. However, the lamp is not lit if the remaining data is not effective print data but other data such as control codes including commands.
- Off: No effective print data remains in the printer. If control codes are not terminated, the indicator lights up.
- Blinking: The printer is processing data.

Continue LED (D)

- Blinking: An error has occurred which can be cleared by pressing the Continue button.

One Touch Setting Mode 1 LED (E)

- On: OneTouch mode 1 is enabled. The following 4 items can be set in this mode: "Paper Source", "Paper Size", "Manual Feed", "Orientation"

OneTouch Mode 2 LED (F)

- On: OneTouch mode 2 is enabled. The following 4 items can be set in this mode: "RITech", "Copies", "Mp Tray Size", "Toner Save Mode"

SelecType Mode (G)

- On: SelecType mode is enabled.

All LEDs

- All LEDs come on when a service-call error has occurred.

1.4.2 Button Functions (AcuLaser C2000)

On Line button (H)

When the printer is on-line, pressing this button puts the printer in off-line to prevent printing. Pressed during panel setting mode, it immediately terminates the setting mode and brings the printer back to on-line status.

Form Feed button (I)

If the Form Feed lamp is lit in off-line status, pressing this button causes the printer to print a page of data. If data for multiple pages has been received, it is printed. If the Form Feed LED is lit because the control codes are not terminated, data received up to that point is printed. The printer does not eject paper when the Form Feed LED is on.

Continue button (J)

While the Continue LED is on, pressing this button clears the error. Also, a warning message indicated during on-line status can be cleared by pressing this button.

SelecType button (K) (or Shift button)

Used to select OneTouch mode 1 / OneTouch mode 2 / SelecType mode, as follows:

- The first push of the button puts the printer in OneTouch mode 1.
- Pressing this button in the OneTouch mode 1 puts the printer in OneTouch mode 2.
- Pressing this button in the OneTouch mode 2 activates the SelecType mode to enter the initial level of SelecType mode. (The "Test Menu" appears.)

Menu button (L)

- Pressing this button activates the SelecType mode. The initial level of the mode ("Test Menu") appears. In the SelecType mode, this button is used to select the setting menu, the primary level of the mode.
- In OneTouch mode 1, used to select the value for "Paper Source".
- In OneTouch mode 2, used to select the item for "RITech".
- In SelecType mode, used to select the setting menu.

NOTE: If this button is pressed with the Shift button held down, setting values and items scroll backward.

Item button (M)

Pressing this button brings up the item that was last selected.

- In OneTouch mode 1, this button is used to select the value for "Paper Size".
- In OneTouch mode 2, this button is used to select the value for "Copies".
- In SelecType mode, this button is used to select the setting item.

NOTE: If this button is pressed with the Shift button held down, setting values and items scroll backward.

Value button (N)

Pressing this button enables the item that was last selected.

- In OneTouch mode 1, used to select the value for “Manual Feed”.
- In OneTouch mode 2, used to select the value for “MP Tray Size”.
- In SelecType mode, used to select the value for the currently selected setting item. The next available value for the item is indicated.

NOTE: If this button is pressed with the Shift button held down, setting values and items scroll backward.

Enter button (O)

Pressing this button generates “Status Sheet” in “Test Menu”.

- In OneTouch mode 1, used to select the value for “Orientation”.
- In OneTouch mode 2, used to select the value for “Toner Save Mode”.
- In SelecType mode, the setting value is confirmed and printing or other functions are activated.

NOTE: If this button is pressed with the Shift button held down, setting values and items scroll backward.

Reset button (Continue button + Alt button) (K + J)

Pressing this button with the Alt button held down causes the printer to stop printing and reset. After the message “Reset” is indicated on the LCD, if the both buttons are kept pressed for more 5 seconds, “Reset All” is indicated and warm boot is performed.

1.4.3 One Touch Setting Modes (AcuLaser C2000)

In the AcuLaser Color 2000, One Touch Setting Modes are as follows.

- One Touch Setting Mode 1 (from left)
 - Paper Source
 - Page Size
 - Manual Feed
 - Orientation
- One Touch Setting Mode 2 (from left)
 - RItech
 - Copies
 - MP Tray Size
 - Toner Save Mode

1.4.4 Panel Setting Item List (AcuLaser C2000)

Test Menu

Item	Value
Status Sheet	
Network Status Sheet*1	
AUX Status Sheet*2	
PS3 Status Sheet*3	
PS3 Font Sample*3	
ESC/Page Font Sample*4	
LJ4 Font Sample	
ESCP2 Font Sample	
FX Font Sample	
I239X Font Sample	

*1: Displayed and can be executed only when the Network I/F=On.

*2: Displayed and can be executed only when the printer is equipped with Level 3 compatible Type B host interface and AUX I/F=On at start-up.

*3: Displayed and can be executed only when the Optional PostScript 3 module is installed.

*4: Not displayed in the panel. It can be set in E.J.L. It is not open to users.

Emulation Menu

Item	Value
Parallel	<u>Auto</u> , LJ4, ESCP2, FX, I239X, PS3 ^{*1} , GL2
Network	<u>Auto</u> , LJ4, ESCP2, FX, I239X, PS3 ^{*1} , GL2
AUX ^{*2}	<u>Auto</u> , LJ4, ESCP2, FX, I239X, PS3 ^{*1} , GL2

*1: Displayed and can be selected only when the Optional PostScript 3 module is installed.

*2: Displayed and can be selected only when the Type B host interface is installed.

Printing Menu

Item	Value
Paper Source	<u>Auto</u> , MP, LC1, LC2 ^{*1}
Page Size	<u>A4</u> , A5, B5, LT, HLT, GLT, EXE, MON, C10, DL, C5, C6, IB5, CTM ^{*2}
Wide A4	<u>Off</u> , On
Orientation	<u>Port</u> , Land (Out Bin setting does not exist)
Copies	<u>1</u> - 999
Quantity ^{*3}	<u>1</u> - 999
Manual Feed	<u>Off</u> , On
Resolution	<u>600</u> , 300
Skip Blank Page ^{*4}	<u>Off</u> , On
Auto Eject Page	<u>Off</u> , On
Duplex ^{*5}	<u>Off</u> , On
Binding ^{*5}	<u>Long Edge</u> , Short Edge
Start Page ^{*5}	<u>Front</u> , Back

*1: Displayed and can be selected only when the optional lower paper cassette is installed.

*2: Paper size for CTM (custom) is minimum 92 x 148mm and maximum 216 x 297mm.

*3: Not displayed in the panel. It can be set in EJL or PjL. It is not stored in NVRAM.

*4: Valid for PCL5e, ESC/Page, ESC/P2, FX and I239X.

*5: Displayed and can be set only when the Duplex unit is installed.

Tray Menu

Item	Value
MP Mode ^{*1}	<u>Normal</u> , Last
MP Tray Size	<u>A4</u> ^{*2} , A5, B5, LT, HLT, GLT, EXE, MON, C10, DL, C5, C6, IB5
LC1 Size ^{*3}	A4, LT
LC2 Size ^{*4}	A4, LT
MP Type	<u>Plain</u> , Letterhead, Recycled, Color, Trnspncy, Labels
LC1 Type	Plain, Recycled, Color
LC2 Type ^{*4}	<u>Plain</u> , Recycled, Color

*1: This function becomes valid for the next job immediately after the setting is changed.

*2: LT is the default value of Letter type controller and A4 is the default value of A4 type controller.

*3: Displayed only. Can not be changed.

*4: Displayed only when the optional lower paper cassette is installed. Paper size is displayed only.

Config Menu

Item	Value
RITech	<u>On</u> , Off
Toner Save	<u>Off</u> , On (Density setting does not exist)
Top Offset	-99.0 - <u>0.0</u> - 99.0 mm step 0.5 mm
Left Offset	-99.0 - <u>0.0</u> - 99.0 mm step 0.5 mm
T Offset B* ¹	-99.0 - <u>0.0</u> - 99.0 mm step 0.5 mm
L Offset B* ¹	-99.0 - <u>0.0</u> - 99.0 mm step 0.5 mm
Size Ignore	<u>Off</u> , On
Auto Cont	<u>Off</u> , On
Page Protect	<u>Auto</u> , On
Image Optimum	<u>Auto</u> , Off, On
Paper Type	<u>Normal</u> , Thick, Trnsprnc

*1: Displayed only when the optional duplex unit is installed. Paper size is displayed only.

Setup Menu

Item	Value
Time Out	0, 5 - <u>60</u> - 300 step 1
Standby* ¹	<u>Enable</u> , Disable
Lang	English
Lang	Français
Sprache	Deutsch
LINGUA	ITALIANO
LENG	ESPAÑOL
SPRÅK	SVENSKA
Sprog	Dansk
Taal	Nederl.
KIELI	SUOMI
Líng	Português
Panel Lock* ²	<u>Off</u> , On
C Toner* ³	E****F, E***□F, E**□□F, E*□□□F, E□□□□F
M Toner* ³	E****F, E***□F, E**□□F, E*□□□F, E□□□□F
Y Toner* ³	E****F, E***□F, E**□□F, E*□□□F, E□□□□F
K Toner* ³	E****F, E***□F, E**□□F, E*□□□F, E□□□□F
Toner Out	<u>Stop</u> , Continue
Photoconductor	100% - 0%
Total Pages* ³	0 - 99999999
Color Pages* ³	0 - 99999999

B/W Pages*3

0 - 99999999

SelectType Init

*1: STANDBYTIME command in EJL is also supported. The default value is 60 minutes.

*2: Not displayed in the panel. It is not listed in the Status Sheet either. It can be set by EJL or EpsonNet WebAssist etc.

*3: This item is display only and setting can not be changed.

Parallel Menu*1

Item	Value
Parallel I/F	<u>On</u> , Off
Speed	<u>Fast</u> , Normal
Bi-D	Nibble, <u>ECP</u> , Off <Default value changed>
Buffer Size	<u>Normal</u> , Maximum, Minimum

*1: If this setting is changed, it becomes valid after warm boot or at power on again. However, reading with EJL, and printing on the status sheet for themselves are immediately reflected.

Network Menu*1

Item	Value
Network I/F	<u>On</u> , Off
Network Config	<u>No</u> , Yes
Get IPAddress*2	Panel, <u>Auto</u> , PING <Default value changed>
IP Byte 1*2	0 - <u>192</u> - 255
IP Byte 2*2	0 - <u>168</u> - 255
IP Byte 3*2	0 - <u>192</u> - 255
IP Byte 4*2	0 - <u>168</u> - 255
SM Byte 1*2	0 - <u>255</u>
SM Byte 2*2	0 - <u>255</u>
SM Byte 3*2	0 - <u>255</u>
SM Byte 4*2	<u>0</u> - 255
GW Byte 1*2	0 - <u>255</u>
GW Byte 2*2	0 - <u>255</u>
GW Byte 3*2	0 - <u>255</u>
GW Byte 4*2	0 - <u>255</u>
Buffer Size	<u>Normal</u> , Maximum, Minimum

*1: If this setting is changed, it becomes valid after warm boot or at power on again. However, reading with EJL, and printing on the status sheet for themselves are immediately reflected.

*2: Displayed and can be selected only when Network Config=Yes. Always listed in the Status Sheet.

AUX Menu*1 *2

Item	Value
AUX I/F	<u>On</u> , Off
AUX Config*3	<u>No</u> , Yes
Get IPAddress*3*4	Panel, Auto, PING
IP Byte 1*3*4	0 - 255
IP Byte 2*3*4	0 - 255
IP Byte 3*3*4	0 - 255
IP Byte 4*3*4	0 - 255
SM Byte 1*3*4	0 - 255
SM Byte 2*3*4	0 - 255
SM Byte 3*3*4	0 - 255
SM Byte 4*3*4	0 - 255
GW Byte 1*3*4	0 - 255
GW Byte 2*3*4	0 - 255
GW Byte 3*3*4	0 - 255
GW Byte 4*3*4	0 - 255
NetWare†*3*4	On, Off
AppleTalk*3*4	On, Off
NetBEUI*3*4	On, Off
AUX Init*3*4	
Buffer Size	<u>Normal</u> , Maximum, Minimum

*1: If this setting is changed, it becomes valid after warm boot or at power on again. However, reading with EJL, and printing on the status sheet for themselves are immediately reflected.

*2: Displayed only when the Type B host interface is installed.

*3: Displayed and can be selected/executed only when Level 3 compatible Type B host interface is installed. This automatically returns to AUX Config= No when the printer status changed to On-line.

*4: Displayed and can be selected/executed only when AUX Config= Yes is selected.

ESC/Page Menu*1

Item	Value
Auto CR	<u>On</u> , Off
Auto FF	<u>On</u> , Off
CR Function	<u>CR</u> , CR+LF
LF Function	<u>CR+LE</u> , LF
FF Function	<u>CR+FE</u> , FF
Error Code	<u>Ignore</u> , Space
Avoid Error	<u>Off</u> , On
PGI	<u>On</u> , Off
TriColorSpace	<u>Normal</u> , sRGB
CM Media Type	<u>Off</u> , Opt1, Opt2

*1: Not displayed on the panel or Status Sheet. Can be specified by E.JL.

LJ4 Menu

Item	Value
Font Source	<u>Resident</u> , Download*1, ROM A*2, ROM B*2
Font Number	0 - available (Max 65535)
Pitch*3	0.44 - <u>10.00</u> - 99.99 cpi step 0.01cpi
Height*3	4.00 - <u>12.00</u> - 999.75 pt step 0.25 pt
SymSet	<u>IBM-US</u> , Roman-8, Roman-9, ECM94-1, 8859-2 ISO, 859-9 ISO, 8859-10 ISO, 8859-15 ISO, PcBlt775, IBM-DN, PcMultiling, PcE.Europe, PcTk437, PcEur858, Pc1004, WiAnsi, WiE.Europe, WiTurkish, WiBALT, DeskTop, PsText, VeInternati, VeUS, MsPublishin, Math-8, PsMath, VeMath, PiFont, Legal, UK, ANSIASCII, Swedis2

Italian, Spanish, German, Norweg1, French2, Windows, McText, Pclcelandic, Pclt774, PcTurk1, PcPortugues, PcEt850, PcTurk2, PcCanFrench, PcSl437, PcNordic, 8859-3 ISO, 8859-4 ISO, WiBaltic, WiEstonian, WiLatvian, Mazowia, CodeMJ, BpBRASCII, BpAbicomp, PcGk437, PcGk851, PcGk869, 8859-7 ISO, WiGreek, Europe3, PcCy855, PcCy866, Pclt866PcUkr866, Pclit771, 8859-5 ISO, WiCyrillic, Bulgarian, Hebrew7, 8859-8 ISO, Hebrew8, PcHe862, Arabic8, PcAr864, 8859-6 ISO, OCR A, OCR B

Form	5 - <u>64</u> - 128 Lines
Source SymSet	0 - <u>277</u> - 3199
Dest SymSet	0 - <u>277</u> - 3199
CR Function	<u>CR</u> , CR+LF
LF Function	<u>LE</u> , CR+LF
Tray Assign	4, <u>4K</u> , 5S

*1: Displayed only when a download font exists.

*2: Displayed only when a optional font ROM is inserted to the ROM socket.

*3: One or the other is displayed, depending on the font type selected. In the case of a fixed pitch font, "Height" is displayed and in the case of a proportional pitch font, "Pitch" is displayed. Both of Pitch and Height may be displayed at the same time. (When FontSource for Font Number is changed while PCL5 does not operate internally.)

GL2 Menu

Item	Value
GLMode	<u>LJ4GL2</u> , GLlike
Scale	<u>Off</u> , A0, A1, A2, A3
Origin	<u>Corner</u> , Center
Pen	<u>Pen0</u> , Pen1, Pen2*1, Pen3*1, Pen4*1, Pen5*1, Pen6*1
End	<u>Butt</u> , Square, Triangular, Round
Join	<u>Mitered</u> , Miteredbeveled, Triangular, Round, Beveled, None
Pen0	0.05 - <u>0.35</u> - 5.00 mm step0.05mm
Pen1	0.05 - <u>0.35</u> - 5.00 mm step0.05mm
Pen2†1	0.05 - <u>0.35</u> - 5.00 mm step0.05mm
Pen3†1	0.05 - <u>0.35</u> - 5.00 mm step0.05mm
Pen4†1	0.05 - <u>0.35</u> - 5.00 mm step0.05mm
Pen5†1	0.05 - <u>0.35</u> - 5.00 mm step0.05mm
Pen6†1	0.05 - <u>0.35</u> - 5.00 mm step0.05mm

*1: Displayed only when GLlike mode is selected.

PS3 Menu*1

Item	Value
Error Sheet	<u>Off</u> , On
Coloration	<u>Color</u> , Mono, TrueCol.
Image Protect	<u>Off</u> , On

*1: Displayed only when optional PostScript3 is installed.

ESCP2 Menu

Item	Value
Font	<u>Courier</u> , Prestige, Roman, Sans serif, Roman T, Orator S, Sans H, Script, OCR A, OCR B
Pitch	<u>10cpi</u> , 12cpi, 15cpi, Prop.
Condensed	<u>Off</u> , On
T.Margin	0.40 - <u>0.50</u> - 1.50 inch step 0.05 inch
Text	1 - <u>66</u> - available (Max:67) Lines
CG Table	<u>PcUSA</u> , Italic, PcMultilin, PcPortugue, PcCanFrenc, PcNordic, PcTurkish2, Pclcelandic, PcE.Europe, BpBRASCII, BpAbicomp, Roman-8, PcEur858, ISO Latin1, 8859-15ISO, PcSI437, PcTurkish1, 8859-9 ISO, Mazowia, CodeMJK, PcGk437, PcGK851, PcGk869, 8859-7 ISO, PcCy855, PcCy866, Bulgarian, PcUkr866, Hebrew7, Hebrew8, PcAr864, PcHe862
Country	<u>USA</u> , France, Germany, UK, Denmark, Sweden, Italy, Spain1, Japan, Norway, Denmark2, Spain2, LatinAmeric, Korea, Legal
Auto CR	<u>On</u> , Off
Auto LF	<u>Off</u> , On
Bit Image	<u>Dark</u> , Light, BarCode
Zero Char	<u>0</u> , Ø

FX Menu

Item	Value
Font	<u>Courier</u> , Prestige, Roman, Sans serif, Script, Orator S, OCR A, OCR B
Pitch	<u>10cpi</u> , 12cpi, 15cpi, Prop.
Condensed	<u>Off</u> , On
T.Margin	0.40 - <u>0.50</u> - 1.50 inch step 0.05 inch
Text	1 - <u>66</u> - available(Max:81) Lines
CG Table	<u>PcUSA</u> , Italic, PcMultilin, PcPortugue, PcCanFrenc, PcNordic, PcTurkish2, Pclcelandic, PcE.Europe, BpBRASCII, BpAbicomp, Roman-8, PcEur858, ISO Latin1, 8859-15ISO
Country	<u>USA</u> , France, Germany, UK, Denmark, Sweden, Italy, Spain1, Japan, Norway, Denmark2, Spain2, LatinAmeric
Auto CR	<u>On</u> , Off
Auto LF	<u>Off</u> , On
Bit Image	<u>Dark</u> , Light, BarCode
Zero Char	<u>0</u> , Ø

I239X Menu

Item	Value
Font	<u>Courier</u> , Prestige, Gothic, Orator, Script, Presenter, Sans serif
Pitch	<u>10cpi</u> , 12cpi, 15 cpi, 17 cpi, 20 cpi, 24 cpi, Prop.
Code Page	<u>437</u> , 850, 858, 860, 863, 865
T.Margin	0.30 - <u>0.40</u> - 1.50 inch step 0.05 inch
Text	1 - <u>67</u> - available (Max: 81) Lines
Auto CR	<u>Off</u> , On

Auto LF	<u>Off</u> , On
Alt. Graphics	<u>Off</u> , On
Bit Image	<u>Dark</u> , Light
Zero Char	<u>0</u> , Ø
Character Set	1, <u>2</u>

Support Menu*1

Item
HDD Format
PS3 HDD Init*2

*1: This setting menu is displayed only when the Support Mode has been activated by hidden operation when the power is turned on. This menu is not displayed if optional HDD does not exist.

*2: Displayed and can be executed only when both of PS3 and HDD are installed.

Maintenance Menu*1

Item	Value
Engine Status Sheet	
Error Log Clear	

*1: This setting menu is displayed only when the Maintenance Mode has been activated by hidden operation when the power is turned on. Always displayed in English regardless of the Lang setting in the Setup Menu.

A list of user setting items which are not included in the Setup Menu are shown below. Depending on the panel initialization menu, these are not cleared when the settings are initialized.

Table 1-30.
User Setting Items Excluded from the Setup Menu

Setting Item	Setting Value	Default Value	Setting Method
PrinterName	32-byte character string	(TBD)	EJL, PrinterName command
MFG in the Device ID	32-byte character string	(Undefined)	EJL
MDL in the Device ID	32-byte character string	(Undefined)	EJL
DES in the Device ID	32-byte character string	(Undefined)	EJL
CID in the Device ID	32-byte character string	(Undefined)	EJL

1.4.5 Explanation of Each Setting Menu and Items (AcuLaser C2000)

The following explains concerning items which are unique specifications in the AcuLaser Color 2000.

1.4.5.1 Printing Menu (AcuLaser C2000)

Paper Source

This selects the paper feeder in the case that the Paper Type = Normal.

- Auto Paper is fed from the paper feeder where the specified type and size of paper are kept.
- MP Paper is fed from the MP tray.
- LC1 Paper is fed from the first level cassette.
- LC2 Paper is fed from the second level cassette.

NOTE: When the paper size setting is "Envelope" (IB5, C10, C5, DI, MON, C6), the paper feeder used is always the MP tray.

NOTE: When the Paper Type = Thick or Trnsprnc, the paper feeder used is always the MP tray

Quantity

This sets the number of copies when copies are being printed in set units. The specification in this setting has priority over the Copies setting. Therefore, if the Quantity is 2 or greater, the setting value specified by Copies becomes invalid. Collate printing is performed using RAM or HDD. When optional HDD is not installed, Quantity setting can be used if RAM capacity is over 64MB. This setting is specified only by PjL, EJL, ESC/Page or ESC/Page-Color command and the setting value can not be stored in memory. If the data for one print job could not be stored in the printer memory, the warning Collate was disabled is displayed and one set only is printed out.

1.4.5.2 Tray Menu (AcuLaser C2000)

MP Type, LC1 Type, LC2 Type

This specifies the type of paper set in the MP tray, LC1/2 Cassette.

Setting Value	Setting Contents	Engine Control	Available Tray
Plain	Plain Paper (copy paper etc.)	Plain paper	MP, LC1&2
Letterhead	Letterhead	Plain paper	MP
Recycled	Recycled paper	Plain paper	MP, LC1&2
Color	Color paper	Plain paper	MP, LC1&2
Trnsprncy	OHP transparency	OHP (half speed)	MP
Labels	Label paper	Label paper (half speed)	MP

<When the setting of Paper Type is envelopes (IB5, C10, C5, DL, MON, C6)>

The paper feeder used is always the MP tray. Engine control is performed as envelopes.

<When Page Size=A5, B5, HLT, GLT, GLG, EXE, F4, CTM>

The paper feeder used is always the MP tray. Paper Type setting is prioritized in selecting engine control mode. MP Type setting is used when Paper Type=Normal.

<If Page Size=A4, LT>

- When Paper Type = Normal
 - If Paper Source = Auto,
From the paper feeders where the paper type specified by a language and available tray in the table above matches, the paper feeder which also matches the specified paper size is selected.
 - If Paper Source = MP, LC1 or LC2, specified paper feeder is selected
- When Paper Type = Thick, Transprnc
 - The paper feeder used is always the MP tray
- Engine control
 - Paper Type setting always takes priority.
 - When Paper Type=Normal, engine control is performed based on the specified value for the selected tray.

NOTE: The type of paper specified when selecting a paper feeder is specified only by a command in ESC/Page or ESC/Page-Color or LJ4.

NOTE: “Bond” is not used to avoid the confusion with “Thick”.

1.4.5.3 Config Menu (AcuLaser C2000)

RItech

See the description in the RItech item in the 97SIS-565 Basic Page-Printer Operating Specifications. This is an outline correction function which is equivalent to that in a single color page printer in B/W printing. In color printing, When in the AcuLaser Color Halftoning mode, outline correction is accomplished by the CRIT function.

Toner Save

See the description in the Toner Save item in the 97SIS-565 Basic Page-Printer Operating Specifications. During color printing, by controlling the half-tone growth and by printing with a low density, toner consumption is reduced.

Paper Type

This sets the printing speed and CM to match the type of paper used.

- Normal (Copy paper, recycled paper, J paper, etc.)
 - Cases where Paper Source = MP, LC1, LC2 or Paper Source = Auto, and the type of paper used is not specified.
 - Printing Speed: Standard Mode
 - CM: As shown below in accordance with the CM Media Type value in the ESC/Page Menu. CM Off: Plain Paper
Opt1:Option1 Opt2: Option2
 - Cases where Paper Source = Auto and the type of paper used is specified.
 - Printing Speed :As shown below in accordance with the type of paper set in the paper feeder that actually feeds the paper (set according to the MP, LC1/2 Type in the Tray Menu).

Paper Type	Printing Speed
Plain	Standard Mode
Letterhead	Standard Mode
Recycled	Standard Mode
Color	Standard Mode
Trnsprncy	Half-speed Mode
Labels	Half-speed Mode

CM : As shown below in accordance with the CM Media Type value in the ESC/Page Menu

CM Media Type	CM
Off *1	See Note 1 below.
Opt1	Option1
Opt2	Option2

*1: When the CM Media Type is Off, the setting is as follows in accordance with the type of paper selected.

Type of Paper	CM
Plain	Plain Paper
Letterhead	Plain Paper
Recycled	Plain Paper
Color	Plain Paper
Trnsprncy	OHP
Labels	Plain Paper

At this time, the type of paper which decides the printing speed and the type of paper that decides the CM may not match, so caution is necessary. In such a case, the Check Paper Type message is displayed.

- Thick (Envelope, Thick Paper, etc.)

Printing Speed : Half-speed Mode

CM : Plain Paper

- Trnsprnc (OHP Sheet)

Printing Speed : Half-speed Mode

CM: OHP

When the paper size setting is Envelop or HAGAKI (Japanese only), printing is done by the engine control for envelope or HAGAKI without relation to this value. Half speed mode is selected when the paper size is CTM and paper length is shorter than 210mm.

1.4.5.4 Setup Menu (AcuLaser C2000)

C Toner

The remaining C (Cyan) toner level is displayed in 5 steps (display only, exclusive readout).

E****F : 100% ≥ Remaining Toner > 75%

E*** F : 75% ≥ Remaining Toner > 50%

E** F : 50% ≥ Remaining Toner > 25%

E* F : 50% ≥ Remaining Toner > 0%

E F : Remaining Toner = 0%

NOTE: (This can be included in the manual.)

The data of remaining toner is stored in the engine. Engine issues Toner empty error etc. for each toner based on the stored data.

M Toner

The remaining M (Magenta) toner level is displayed in 5 steps (display only, exclusive readout). The specifications are the same as for the C Toner.

Y Toner

The remaining Y (Yellow) toner level is displayed in 5 steps (display only, exclusive readout). The specifications are the same as for the C Toner.

K Toner

The remaining K (Black) toner level is displayed in 5 steps (display only, exclusive readout). The specifications are the same as for the C Toner.

Photoconductor

This displays the remaining life of the Photoconductor Unit in %. (display only, exclusive readout) 100% (New) - 20% (Warning) - 0% (end of the service life). The value is automatically reset when installing new Photoconductor Unit.

Read the rotation value from printer engine and takes 3200 as 100% to represent the photoconductor unit's service life. Even if the rotation value exceeds 3200, it is regarded as 3200.

Total Pages

This displays the number of pages printed by the printer up to the present time. (display only) When the number exceeds 99999999, the counter does not count up any more.

Color Pages

This displays the number of color pages only printed by the printer up to the present time. (Display only) When the number exceeds 99999999, the counter does not count up any more.

B/W Pages

This displays the number of single color pages only printed by the printer up to the present time. (Display only) Since in this printer this value indicates the "Total Pages" - "Color Pages," if the Total Pages exceeds 99999999, the correct value will not be displayed.

SelectType Init

This returns the panel setting values to the factory default. This does not reset Total Pages, Color Pages, B/W Pages, CMYK Toner Counter, Parallel/ Network/AUX Menu setting and the counters counted by engine.

1.4.5.5 Maintenance Menu (AcuLaser C2000)

This setting menu is displayed, and selection enabled, only when the Maintenance Mode has been activated by hidden operation when the power is turned on. After that, if the power is turned off, then turned on again, the Maintenance Menu is deleted from the Menu (Maintenance Mode deleted = the printer has switched to the normal mode). Basically, this setting is used for maintenance by service personnel.

Engine Status Sheet

Pressing the Enter switch starts printing of the Engine Status Sheet. If data are remaining in the language, paper is output. Be sure to enter the Maintenance Mode from a normal mode (a mode that is not the Maintenance Mode) after confirming that there are no engine related service calls, then print this sheet. The RITech, Toner Save and Resolution values are set while the printer is started up, and the other values that are printed out are factory settings. After printing is finished, the User Default environment (settings) does not change. during printing, the contents displayed in the LCD blink.

Error Log Clear

This clears the Error Log List stored in memory for display in the Engine Status Sheet.

1.4.6 Service Operations (AcuLaser C2000)

The special service operations supported by AcuLaser C2000 are shown below.

NOTE: Functions other than Hex dump and the Support Mode are not disclosed publicly for users.

Table 1-31. Service Functions

Function	Operating Method
Hex Dump	Turn on the power while pressing the Form Feed switch.
Support Mode	Turn on the power while pressing the Value selection switch.
Initialization of EEPROM	Turn on the power while pressing the On Line + Continue + Menu selection switches.
Panel Setting Value Initialization	Turn on the power while pressing the Continue switch.
Forced Erasure of the Flash ROM A Module	Turn on the power while pressing the Alt + Item Selection + Value Selection + Enter switches.
Program ROM Update	Turn on the power while pressing the On Line + Alt + Value Selection switches.

Table 1-31. Service Functions (continued)

Function	Operating Method
ROM Module Copy	Turn on the power while pressing the On Line + Alt + Enter switches.
Maintenance Mode	Turn on the power while pressing the On Line + Form Feed + Continue switches.
CPU reset when a Service Call occurs.	When a Service Call Error occurs, Press the Alt + Menu Selection + Item Selection + Value Selection + Enter switches.
Printing of the Error Sheet	Following CPU Reset after a Service Call Error occurs, press the Enter switch 2 times.

1.5 Control Panel (AcuLaser C1000)

1.5.1 Exterior View and Names (AcuLaser C100)

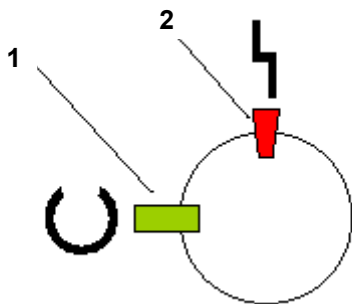


Table 1-32. Control Panel Description

	Name	Remarks
1	Ready LED	Color: Green
2	Error LED	Color: Red

1.5.2 Meanings of LEDs (AcuLaser C100)

Table 1-33. Meaning of LEDs

Ready IED (green)	Error LED (red)	Supplement	Meaning
Off	Off	-	Power off
Off	On	-	Controller fatal errors Video error Data expansion error Standard RAM check error EEPROM access error Software error

Table 1-33. Meaning of LEDs (continued)

Ready IED (green)	Error LED (red)	Supplement	Meaning
Flash 1 *1	Off	-	Warming up, and data receiving, Reset, Calibrating Printer, Cooling Down
Flash 3 *2	Off	-	Warning of consumables (6 kinds)
Flash 1 *1	Flash 1	Green and red LED flash alternately	Engine error
Flash 1 *1	On	-	Protocol error
On	Off	-	Ready to print, Printing Job, Standby, Warning (other than consumables)
On	Flash 1	-	Recoverable errors Check Media Type Install Consumables (6 kinds) Clean Sensor Replace Consumables (6 kinds) Paper Set Invalid Size Underrun Error Mem Overflow Duplex Mem Overflow Invalid AUX I/F Card
On	On	-	Paper Out, Paper Jam, Duplex P-Size Error, Cover Open (3 kinds)

*1: "Flash 1" repeats a cycle of on for 0.3 sec and off for 0.3 sec.

*2: "Flash 3" repeats a cycle of on for 0.6 sec and off for 2.4 sec.

NOTE: After power on, the two LEDs will light up and about 1.5 seconds later they will go out.

During RAM Check, Ready LED will indicate "flash 1" (cycles of on for 0.3 sec and off for 0.3 sec.)

1.5.3 Printer Setting Items (AcuLaser C100)

This section describes setting items for AcuLaser C1000.

NOTE: Since there are no character strings administrated by the printer, the names of setting items and setting values referred to below are only for explanation. Therefore, these names may not match character strings displayed in driver's user interfaces or the Status Sheet.

1.5.3.1 Setting Items for which Printer Stores Settings

Values shown in bold and underlined characters are the factory default setting values.

Table 1-34. Setting Items for which Printer Stores Settings

Setting Item	Setting Values
Standby	30 , 60, 120, 180, OFF
Paper Source Priority	MP Tray *1, LC *1, LC ONLY
MP Tray Size	A4 *1, A5, B5, LT *1, HLT, GLT, EXE, F4, MON, C10, DL, C5, C6, IB5, Yokei#0 *2, Yokei#4 *2, Yokei#6 *2
Toner Out Error	Stop , Continue

*1: The default setting is determined depending on the intended market.

*2: JIS envelope.

Standby

Sets the power saving function to reduce power consumption when the printer is in the standby mode.

The printer can use five setting values, while the driver is limited to:
ON (30 minutes), OFF

Paper Source Priority

Sets a priority order when Auto Selection is selected by Paper Source setting and paper sources match the designated paper size.

This is the same function as the "MP Mode" function of ESC/Page models.

- MP Tray: MP tray > cassette 1 > cassette 2
- LC: Cassette 1 > cassette 2 > MP tray
- LC only: Cassette 1 > cassette 2

However, when printing is to be continued without any paper source which

has any paper of the designated paper size, paper will be fed from paper sources that have paper in the order of MP tray > cassette 1 > cassette 2 if Paper Source Priority is set to MP Tray or LC. Or paper will be fed from paper sources that have paper in the order of cassette 1 > cassette 2 if Paper Source Priority is set to LC ONLY.

The default setting of Paper Source Priority for AcuLaser C1000 is "MP Tray".

"LC ONLY" is a method which replaces ESC/Page models' function realized by recognition of paper types.

MP Tray Size

Assigns a paper size for the MP tray.

If when printing continues after the "Paper Set" error occurrence, the paper size designated by the printing data matches the paper size that is actually fed, the paper size will be stored in memory.

The default value is either "A4" or "LT" depending on the jumper setting (JP101/INPT1) on the controller board.

The paper sizes which can be handled by the MP Tray Size function of AcuLaser C1000 driver is limited to:

- A4, A5, B5, LT, HLT, GLT, EXE, MON, C10, DL, C5, C6, IB5

Toner Out Error

Selects whether "uuuu Toner Out" is to be indicated and printing is to be stopped or "uuuu Toner Low" is to be kept indicated when the amount of remaining toner indicated by the toner counter reaches 0%.

This function is the same as the "Toner Out" function of ESC/Page models.

1.5.3.2 Setting Items for which Settings are Valid only in the Job and are not Stored in Printer (AcuLaser C100)

Table 1-35. Setting Items for which Settings are Valid only in the Job and are not Stored in Printer

Setting Item	Setting Values
Paper Source	Auto, MP, LC1, LC2
Paper Size	A4, A5, B5, LT, HLT, GLT, EXE, F4, MON, C10, DL, C5, C6, IB5, Yokei#0 *1, Yokei#4 *1, Yokei#6 *1, Undefined
Copies	1 to 999
Resolution	300 dpi (FAST), 600 dpi (FINE)
Duplex Printing	ON, OFF
RITech	ON, OFF
Toner Save	ON, OFF
Top Offset	-30 ~ 0 ~ 30 mm
Left Offset	-30 ~ 0 ~ 30 mm
Paper Type	Normal, Thick, Transparency
Size Ignore	ON, OFF
Avoid Error	ON, OFF

*1: JIS envelope.

Users can select setting values above with the driver, and the printer operates according to the selected setting values.

Paper Source

Paper feeders are selected by Paper Source setting.

Actually, however, paper feeders are selected in the following priority order, since the Paper Type and the Paper Size settings influence selection of paper feeders.

Table 1-36. Selection of Paper Feeders

Setting			Conditions	Selected Paper Feeders
Paper Type	Paper Size	Paper Source		
Thick paper	Any	Any		MP tray
Transparency				
Normal	F4 or envelope	Any		MP tray
		MP Tray		MP tray
	Neither F4 nor envelope	LC1		Cassette 1
		LC2		Cassette 2
		Auto Selection	There are paper feeders matching designated paper size	Paper feeders for designated paper size in the priority order
			There are no paper feeders matching designated paper size	Paper feeders having paper in the priority order

NOTE: By the driver, when Paper Type ≠ Normal or Paper Size = F4 or envelope, MP tray can be selected.

Paper Size

A paper size for printing is selected by Paper Size setting.

Like MP Tray Size, Paper Size permits setting of paper sizes supported by the driver.

Copies

The number of multi-copies is designated by Copies setting.

Resolution

A resolution for internal processing is selected by Resolution setting.

- Duplex Printing
Selects simplex printing or duplex printing.

NOTE: *AcuLaser C1000 permits duplex printing only when the paper size is A4 or LT. With any other paper size, selection of duplex printing is invalid, displaying the error message “Can't print duplex”.*
- RITech
The RITech function is enabled or disabled by RITech setting.
- Toner Save
Selects whether the Toner Save function is enabled or disabled.
- Top Offset
Sets the print starting vertical position on a sheet.

The printer permits setting in the range of about -30.0 ~ 30.0 mm in 1-dot increments, while setting by the driver is limited to -9 ~ 9 mm in 1-millimeter increments.

Binding margins for duplex printing with the Top Offset setting value are limited to 0 ~ 30 mm in 1-millimeter increments.
- Left Offset
Sets the print starting horizontal position on a sheet.

The printer permits setting in the range of about -30.0 ~ 30.0 mm in 1-dot increments, while setting by the driver is limited to -9 ~ 9 mm in 1-millimeter increments.

Binding margins for duplex printing with the Top Offset setting value are limited to 0 ~ 30 mm in 1-millimeter increments.
- Paper Type
Printing speed, fuser temperature and other necessary settings are determined for the paper type for use.
- Size Ignore
Selects whether or not to ignore the errors “Paper Set” and “Check Paper Size”.

- Avoid Error
Selects whether or not to avoid occurrence of any of the followings: “Paper Set”, “Invalid Size”, “Mem Overflow”, “Duplex Mem Overflow”

ON: The printer continues printing without displaying any of the above errors.
“Paper Set” does not occur, but “Check Paper Size” appears if the paper size of the fed sheet is not as designated.
None of “Invalid Size”, “Mem Overflow”, and “Duplex Mem Overflow” occurs, but “Print Failure” appears.

OFF: Once any of the aforementioned errors occur, the printer will not recover until receiving a release command through the ESCPAGES-02 protocol.

NOTE: *“Avoid Error” is intended not to suspend the printer for an extended period of time under conditions where sufficient monitoring of the printer is not available, for example, in the case of printing with the printer used as a shared printer.*

1.5.3.3 Setting Items Requiring Control by the Printer for Each Printing or Status Change (AcuLaser C100)

Table 1-37. Setting Items Requiring Control by the Printer for Each Printing or Status Change

Control Item	Range of Values
Total Pages	0 ~ 99999999 pages
Color Pages	0 ~ 99999999 pages
MP Tray Feed Counter	0 ~ 150 pages
LC 1 Feed Counter	0 ~ 500 pages
LC 2 Feed Counter	0 ~ 500 pages
Jam Counts	0 ~ 65535 times
C Toner Change	0 ~ 255
M Toner Change	0 ~ 255
Y Toner Change	0 ~ 255
K Toner Change	0 ~ 255
Photoconductor Change	0 ~ 255
Oil Toll Change	0 ~ 255

Table 1-37. Setting Items Requiring Control by the Printer for Each Printing or Status Change (continued)

Control Item	Range of Values
Error Code	6001 ~ 6999
Total Pages of Error occurrence	0 ~ 99999999 page

- Total Pages
The total number of printed pages in both color and monochrome.
- Color Pages
The total number of printed pages in color
- MP Tray Feed Counter
Counter for the amount of paper remaining on the MP tray.
- LC1 Feed Counter
Counter for the amount of paper remaining on the Lower cassette 1.
- LC2 Feed Counter
Counter for the amount of paper remaining on the Lower cassette 2.
- Jam Counts
The number of paper jams which occurred.
- C Toner Change
Counted up every time a new C Toner Cartridge is detected.
- M Toner Change
Counted up every time a new M Toner Cartridge is detected.
- Y Toner Change
Counted up every time a new Y Toner Cartridge is detected.
- K Toner Change
Counted up every time a new K Toner Cartridge is detected.
- Photoconductor
Counted up every time a new Photoconductor Unit is detected.

- Oil Roll Change
Counted up every time a new Fuser Oil Roll is detected.
- Error Number
Saves the latest engine error code.
- Total Page of Error occurrence
Saves Total Pages at the occurrence of any engine error.

NOTE: Above values will be reset to zero when the InitializeEEPROM command of ESCPAGES-02 protocol is executed. This operation will be performed by a hidden function of the printer driver. The special firmware is necessary to use the information on the 6th item "Jam Counts" through the 14th item "Total Page of Error occurrence".

1.6 About RAM Expansion

With AcuLaser C2000 / AcuLaser C1000, if there is insufficient memory, the following errors occur.

- Mem Overflow
- Image Optimum
- Need Memory
- Duplex Mem Overflow
- Print Underrun (not applicable to AcuLaser C2000)

In these cases, it may be possible to overcome the problem by one of the following methods.

1. Set the resolution on 300 dpi in the case of B/W printing.
2. If printing with color is set, change the compression format (lossy compression)
3. Make the receiving buffer size smaller.
4. Set an I/F which is not used to OFF.

However, in order to definitely avoid problems with insufficient memory, it is necessary to install more memory.

CHECK
POINT



There is no interchangeability between the expansion RAM for AcuLaser C2000, which is a 168-pin type, and that for AcuLaser C1000, which is the dedicated 90-pin type.

1.7 Engine Restrictions and Other Restrictions

1.7.1 Restriction on Printing Speed

1. Transfer voltage control (ATVC) / Density control
At the following timing, process adjustment operation is performed automatically in the printer engine.
: approx.80sec.
 - At powering on
 - Cover is opened/closed when no paper-jam occurring
Printer covers: Front cover, Top cover (cover A), Right cover (cover B), Cassette right side cover (cover C1), Duplex cover (cover DM), Optional cassette cover (cover C2)
 - When recovering from the standby state and also 100pages has been printed or 24hours passed since previous adjustment operation performed.
2. Cooling down
To prevent transparencies from jamming, cooling down of the Fuser is performed at the following timing.
: approx.60sec.
 - When it meets following conditions "O" in the table before starting print on transparencies.

Table 1-38. Cooling Down Timing

		Rotation period of the Fuser (Sec.) ^{*1}		
		0 to 30	30 to 105	105 and above
Rotation period of the Fuser (Sec.) ^{*2}	0 to 30			○
	30 to 120		○	○
	120 to 180	○	○	○

*1: in 3 to 30 min. before the printing

*2: in 0 to 3 min. before the printing

1.7.1.1 Toner Duty Restrictions

200% (to prevent paper or transparencies from sticking to the Fuser)
However, printing is not stopped forcibly when the duty exceeds 200% at the engine side.

1.7.2 Network Environment (Only for AcuLaser C1000)

Table 1-39. Network Environment (Only for AcuLaser C1000)

	Windows 95/98/Me	Windows NT4.0/2000	Mac	Remarks
LPR	○ *1	○ *2	-	
Port 9100	○ *1	○ *2	-	
FTP	× *4	× *4	-	
IPP	× *4	× *4	-	
NetBEUI	× *4	× *3	-	
AppleTalk	-	-	○	
Netware	× *3	× *3	-	
NDPS Gateway	× *4	× *3	-	

○: Recommended environment

×: Print quality is not guaranteed.

NOTE: User can send data to AcuLaser C1000 and printing will be done. But print quality is not guaranteed in this case.

This is because Status Monitor can not communicate with AcuLaser C1000.

<Explanation>

For printing with a host-based printer, the Status Monitor must always communicate with the printer. If this communication is impossible, user can not get any printer status and can not clear any printer error because the printer has no LCD and no switches.

*1: EpsonNet DirectPrint is necessary for use of LPR or Port 9100 on Windows95/98/Me.

*2: For LPR or Port 9100 on Windows NT4.0/2000, Windows standard LPR or EpsonNet Direct Print can be used.

*3: Default setting of NetBEUI and Netware is "ENABLE" in Leo 2.1. But AcuLaser C1000 does not support these protocols because Status Monitor can not communicate with AcuLaser C1000 via these protocols.

The network setup section in AcuLaser C1000 manual describes that user or administrator should set NetBEUI and Netware protocol to DISABLE.

*4: FTP, IPP and NDPS Gateway protocols can not be set to DISABLE and users can send data to AcuLaser C1000 via these protocols. But the Status Monitor can not communicate with the printer via these protocols, so these protocols are

out of guarantee.

AcuLaser C1000 manual describes that these protocols are out of guarantee.

1.7.3 Limitations to Network Printing (Details are now under review) (Only for AcuLaser C1000)

- Only Leo 2.1 is can be used.

Leo 1.x and 2.0 can not be used.

But Leo 2.0 can be updated to Leo 2.1.

The AcuLaser C1000 CD-ROM will contain Leo updating firmware (from Leo 2.0 to Leo 2.1).

- For network printing, additional 32MB RAM is needed (recommended).

In the case of network printing, the printer must be capable of spool for all data on one page before starting to print. Therefore, addition of 32 MB or more memory to the printer is recommend.

1.7.4 Other Information (Only for AcuLaser C1000)

- The Network Status Sheet of Leo can be printed.
- Support of MAC OS X is TBD.

1.8 Handling Precautions

1.8.1 Caution when there is a Power Failure

AcuLaser C2000 / AcuLaser C1000 is equipped internally with nonvolatile memory (E²PROM). This nonvolatile memory preserves the settings for printer functions, and if the power is cut during writing to the nonvolatile memory, the contents of the nonvolatile memory can not be guaranteed, with the result that when the power is turned on again, or when a Reset All is executed, the panel setting values will return to the default settings, or a Service Call Error will occur.

With AcuLaser C2000, an HDD can also be connected to this printer, but if the power is cut during writing to the HDD, the writing contents can not be guaranteed, so a HDD error may occur.

Accordingly, in the following cases, the power to AcuLaser C2000 should not be cut while writing to the nonvolatile memory or to the HDD.

1. From the time the power is turned on until the On Line LED lights up continuously.
2. While the On Line LED is blinking.
3. While the printer is printing (while the paper feed motor is operating).
4. When stopping printing, either it should be made Off-line or the printer should be reset.
5. While the Data LED is lighted up, or when it is blinking.

1.8.2 Caution Regarding High Temperature Parts

The temperature of the Fuser Unit inside the printer becomes high, so if you are opening the printer to remove a paper jam, etc., care should be taken not to touch the Fuser Unit.

1.9 Host Requirements (AcuLaser C1000)

This section describes the conditions of the host PC required for use with AcuLaser C1000, which is a host-based printer.

Recommended Host - Windows

- | | |
|---|--|
| <input type="checkbox"/> CPU | Pentium II 450MHz or higher |
| <input type="checkbox"/> RAM | 96 MB or more |
| <input type="checkbox"/> HDD free space | 500MB or more (for driver spool) |
| <input type="checkbox"/> Interface | IEEE1284 ECP
Resident USB
100BaseTX Ethernet |

Minimum Requirements - Windows

- | | |
|---|--------------------------|
| <input type="checkbox"/> CPU | Pentium 266MHz or higher |
| <input type="checkbox"/> RAM | 64 MB or more |
| <input type="checkbox"/> HDD free space | Same as above |
| <input type="checkbox"/> Interface | Same as above |

Recommended Host - Macintosh

- | | |
|------------------------------------|-----------------------------|
| <input type="checkbox"/> CPU | PowerPC G3 500MHz or higher |
| <input type="checkbox"/> RAM | 128MB or more |
| <input type="checkbox"/> Interface | USB
AppleTalk |

Minimum Requirements - Macintosh

- | | |
|------------------------------------|-------------------|
| <input type="checkbox"/> CPU | PowerPC G3 233MHz |
| <input type="checkbox"/> RAM | 128MB |
| <input type="checkbox"/> Interface | USB
AppleTalk |

1.10 Differences between AcuLaser C2000 and AcuLaser C1000

AcuLaser C1000 is different from AcuLaser C2000 in the following points:

Features that are not supported

- Type-B interfaces are not supported except Leo2.1.
The supported protocols are TCP/IP and AppleTalk.
- Neither PS options nor HDD is supported.
- Can not be used in the DOS environment (emulation mode is unavailable).
- The printer itself does not retain the MIB information.
- The manual feed mode is not supported.

Usability

- Does not have the function to permit, in the case of the Toner Out error occurrence, pressing the Continue switch to continue printing.
- No error status is identified unless the EPSON Status Monitor is used.
- Jobs sent via a network can not be canceled (the Job MIB is not supported).
- The warning of consumable will not be cleared without actual replacement of the consumable.

Operation

- The paper out error will occur only after printing start even if no paper source holds any paper at turning on of power to the printer.
- The Paper Type setting is not supported, but the MP Tray can be excluded from auto selection.
- When "Avoid Error = On" is selected, "Print Failure" warning will occur instead of the error.
- "Can't Print Duplex" warning will occur instead of the error when duplex printing is impossible.

- The printer prints nothing when "Mem Overflow" or "Duplex Mem Overflow" occurs.

Others

- The present remainder of the life of the fuser unit and the transfer belt can not be known (engine status sheet is not available).
- DIAG commands are not supported.
- Screen, LUT can not be changed by an optional DIMM. Screen, LUT can not be changed by an optional DIMM.
- The AIDC value is not known (It is not described on the Status Sheet).
- The mechanical controller firmware can not be updated.

Table 1-40. Differences between AcuLaser C2000 and AcuLaser C1000

		AcuLaser C2000	AcuLaser C1000
Engine Specifications		A4 color, 5/20 ppm	A4 color, 5/20 ppm
CPU		R5000-266MHz (NEC)	TMPR4955AF-200MHz (Toshiba)
ASIC	Memory controller	MR64: E05B51BB	-
	I/O controller	IOBR: E05B52AA IOC3: E05B40BA	-
	Memory and I/O integrated controller	-	DLC: E05B96BA
	Video controller	VIPIa: E05B79BA	VIPS: E05B93BA
Memory	onboard MASKROM	IPL, font 16 Mbits (x16), 2 pieces	None
	ROM-DIMM	3 slots For expanded ROM (code and PS)	1 slot 2MB PROG (IPL, Code) 8 Mbits (x16), 2 pieces
	onboard SDRAM	None	None
	ROM/RAM_DIMM	None	None
	SDRAM-DIMM	2 slots, Max. 512MB	2 slots, Max.256 Standard: 16MB 64 Mbits (x16), 2 pieces
	Serial EEPROM	128 Kbits, for storage of printer settings (made by ATMEL)	2 Kbits (compatible with EIC2) (made by SII)
PWM		AD9561 (made by Analog Devices: 28 pins)	PM-1075 (made by OAK TECH, 52PQFP)
Host I/F	Parallel interface	IEEE1284 compatible, B-type with transceiver IC mounted on MAIN Board	IEEE1284 compatible, B-type slot without transceiver IC ESD protection diode (TBD) mounted on another circuit board. (Parallel or USB Interface Board)
	Ethernet interface	100Base-TX/10Base-T	None
	USB	None	USB 1.1, B-type connector, mounted on another circuit board (FCC connection)
	Optional	Type-B 1 slot (compatible with Level 3)	Type-B 1 slot (compatible with Level 2)
Control Panel	Unit	LCD (20x1), 8 switches 6 LEDs	2 LEDs
Video I/O		NC-L4001 (MLT, A4, 5/20ppm)	←

Table 1-40. Differences between AcuLaser C2000 and AcuLaser C1000 (continued)

		AcuLaser C2000	AcuLaser C1000
Mechanical Controller		Separate unit	←
Expandability	ROM	Expansion by DIMM 72-pin, 3 slots	None
	SDRAM	Expansion by DIMM 144-pin, 2 slots	Expansion by DIMM 90-pin, 2 slots
	Type-B	1ch: connected to IOBR bus	1ch: Normal orientation
	HDD	Supported	Not supported
SSCG		W154 (IC WORKS, 48SOP)	CY24242 (CYPRESS, 28SSOP)
Clock	CPU	266MHz	200MHz
	Bus	66.6666MHz SSCG	66.6666MHz SSCG-L
	Video (crystal oscillator)	47.21300MHz Dot clock x1.5	31.47533MHz Dot clock x1
	USB	None	48.0000MHz (USB1.1: supplied by SSCG)
	Dot	31.47533MHz	←
	Network	50.00000MHz	None
	Video controller	80.00000MHz	None
DMA	I/O		DLC: Video, Parallel I/F, Type B, USB VIPS: Video
Power Supply		5V (from mechanical controller, max 6A) 5V → 3.3V, 2.5V (generated on board)	5V (from mechanical controller, max 6A) 5V → 3.3V (generated on board) 3.3V → 2.5V, 1.5V (generated on board)
Reset		Reset by 5V power	←
Others	RTC	RTC-4543	None

1.11 Differences in Jumper Settings between Intended Markets

For AcuLaser C2000 / AcuLaser C1000, the following settings are made according to intended markets. Settings are determined at the factory because of use of jumper resistance.

<AcuLaser C2000>

Table 1-41. Jumper Setting (IPO0)

RJ0	SW3-1	Built-in Network	
Not installed	OFF	1	Used
Installed	ON	0	Not used

Table 1-42. Jumper Setting (IOP3)

RJ3	SW3-2	Birstream Font	
Not installed	OFF	1	Used
Installed	ON	0	Not used

Table 1-43. Jumper Setting (INPT5)

RJ4	SW3-3		
Not installed	OFF	1	OEM
Installed	ON	0	Brand

<AcuLaser C1000>

Table 1-44. Pattern Jumper (INPT3)

JP101	Intended Markets	
Open	1	Other than Japan
Short	0	Japan

Table 1-45. Pattern Jumper (INPT1)

JP101	Default Setting for MP Tray Paper Size	
Open	1	A4
Short	0	LT

Table 1-46. DIC Jumper Switch (INPT7)

JP102	Parallel Interface Receive Mode	
Open	1	Nibble
Short	0	ECP

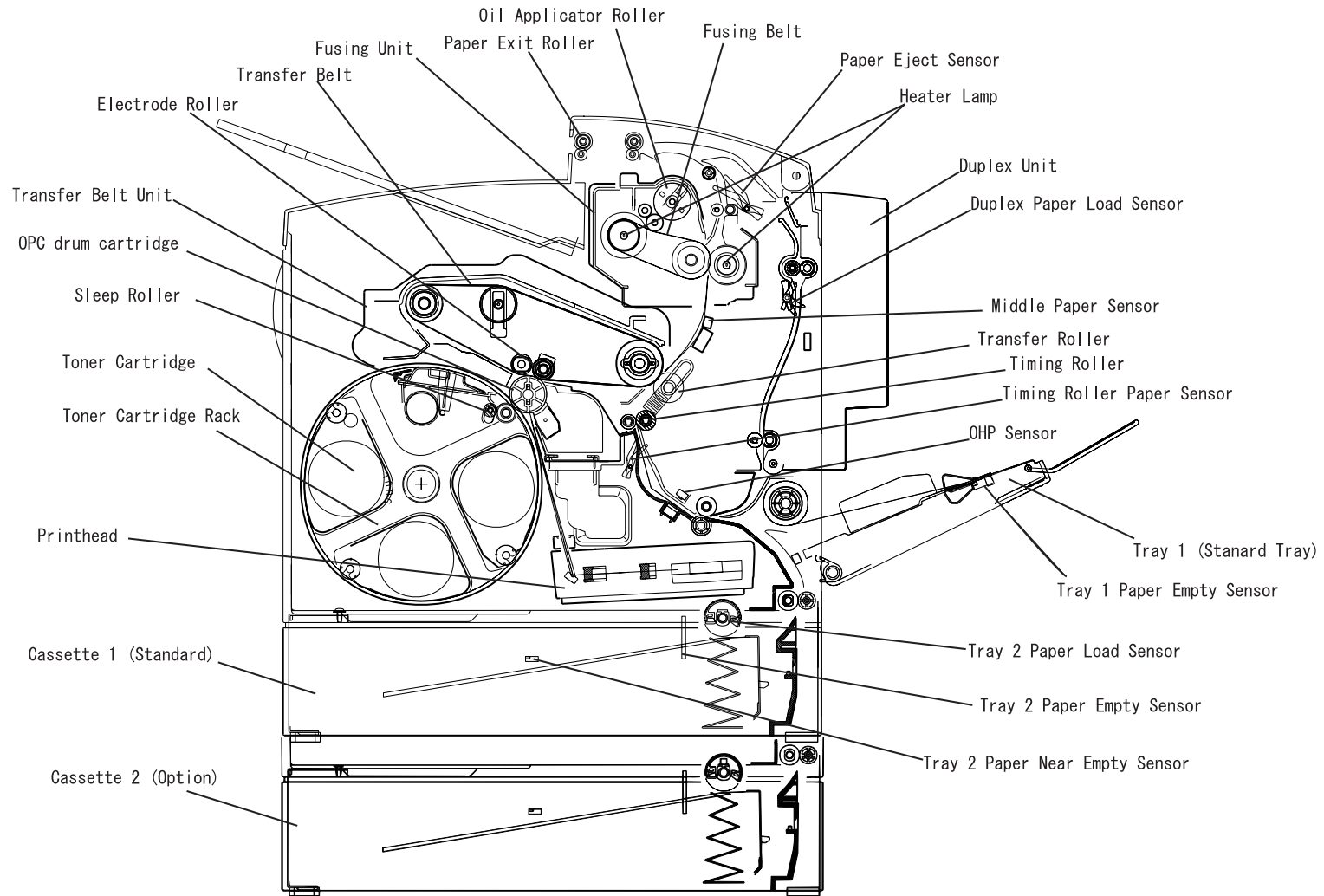
CHAPTER

2

OPERATING PRINCIPLES

2.1 Mechanism Overview

The following figure is the mechanism sectional drawing that helps you understand the basic mechanism of AcuLaser C2000 / AcuLaser C1000.



op39

Figure 2-1. Sectional Drawing

2.1.1 Gear Roller Arrangement

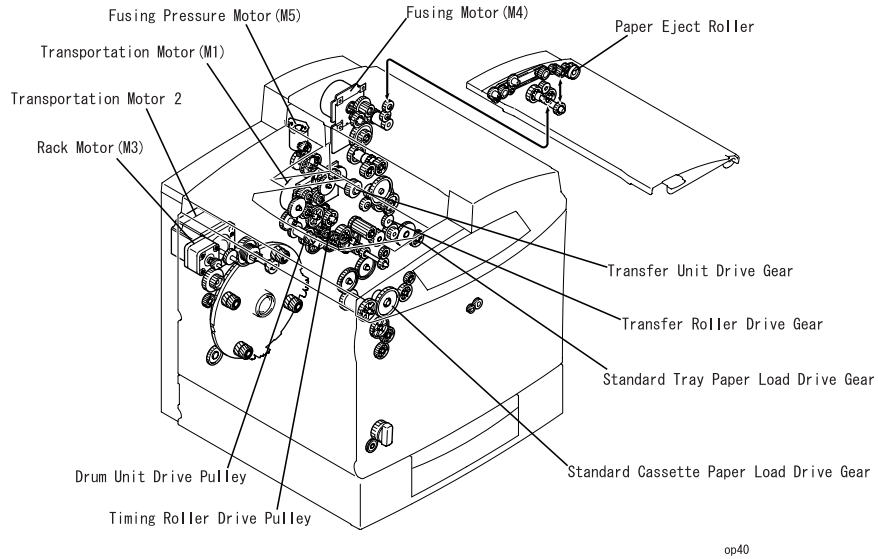


Figure 2-2. Gear Roller Arrangement

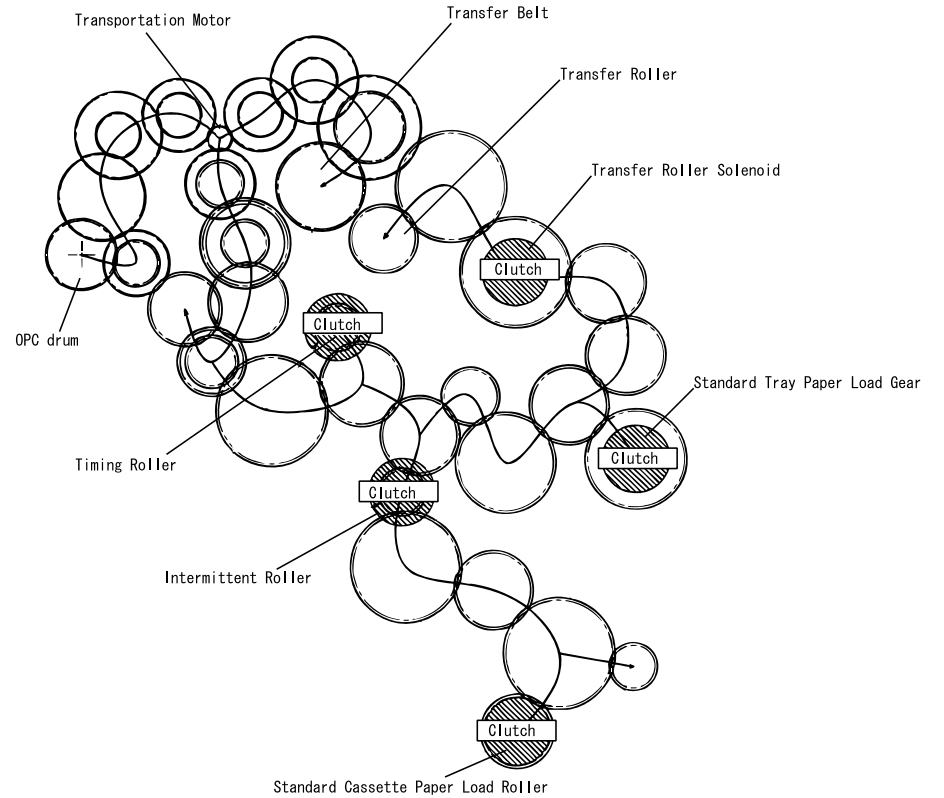
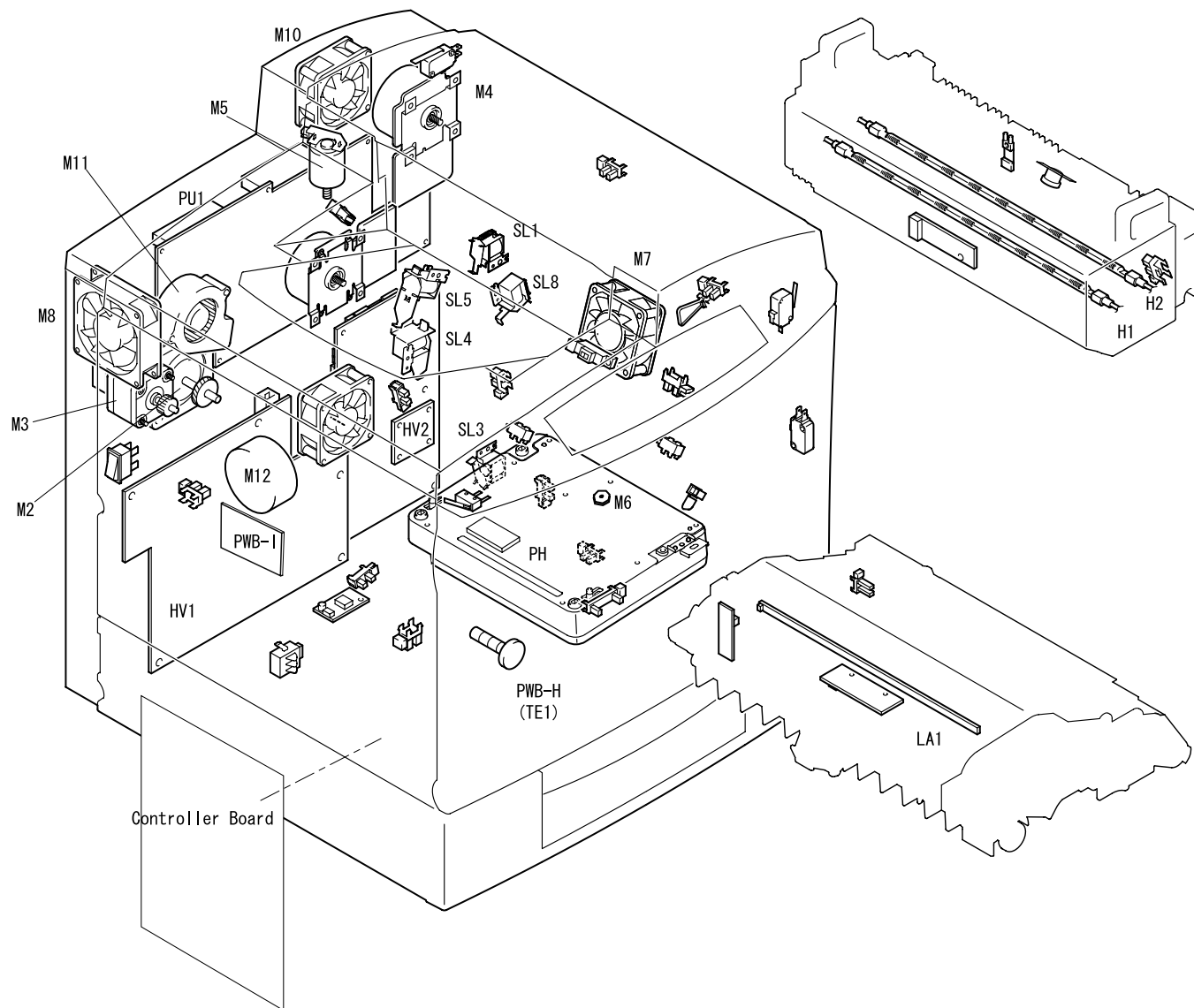
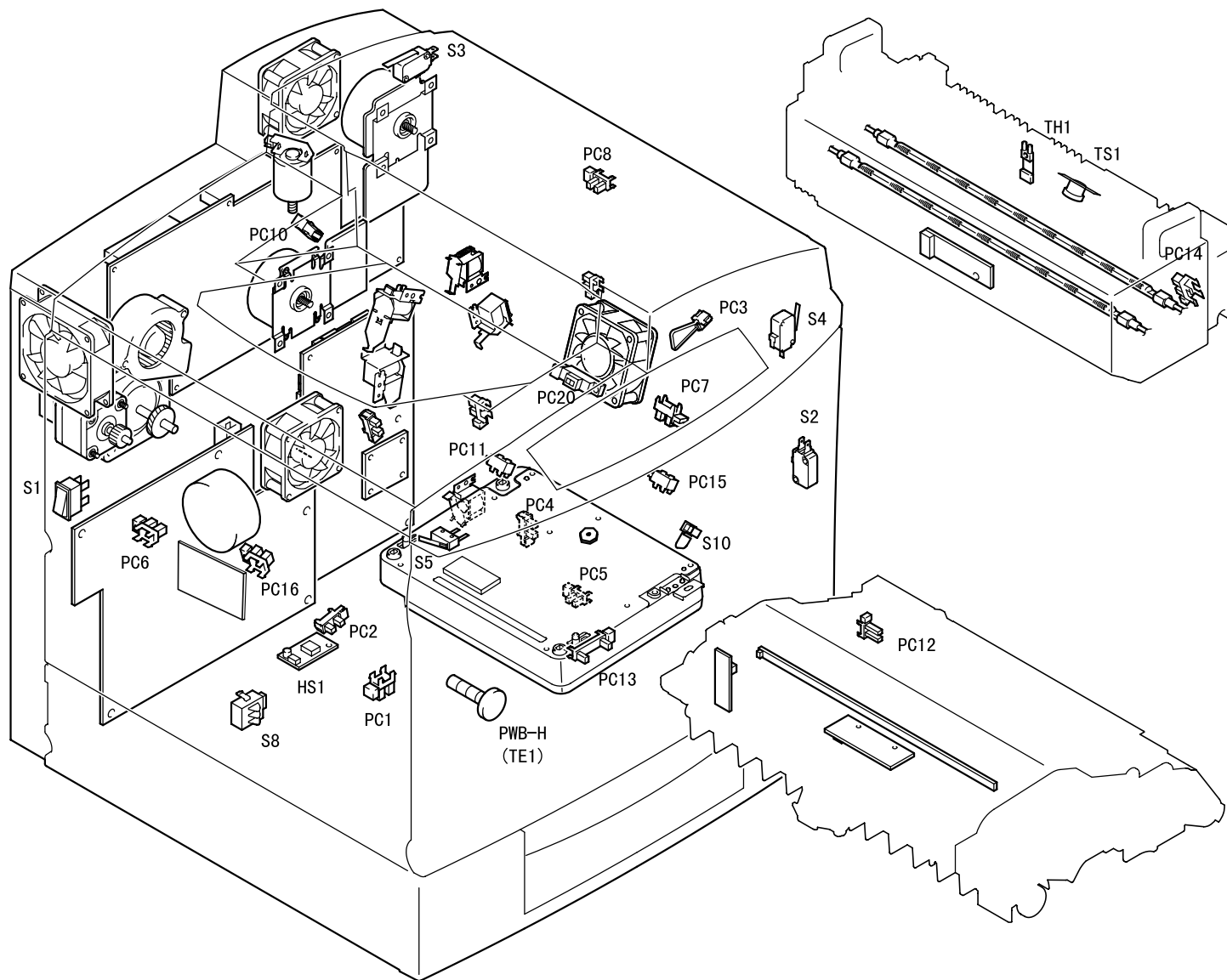


Figure 2-3. Drive Force Transmission



op42

Figure 2-4. Motor, Solenoid Arrangement



op43

Figure 2-5. Switch, Sensor Arrangement

Signal	Name
LA1	Eraser lamp
H1	Heater lamp (Heat applying roller)
H2	Heater lamp (Pressure applying roller)
HS1	Humidity sensor (Standard cassette)
HV1, 2	High pressure unit
M1	Transportation motor
M2	Development motor
M3	Rack motor
M4	Fusing motor
M5	Fusing pressure motor
M6	Polygon motor (P/H built-in)
M7	Suction fan motor
M8	Power supply fan motor
M9	Ozone fan motor
M10	Fusing fan motor
M11	Toner suction fan motor
M12	Belt cleaner motor
PC1	Standard cassette paper empty sensor
PC2	Standard cassette paper near empty sensor
PC3	Standard tray paper empty sensor
PC4	Standard cassette door open sensor
PC5	Timing roller paper sensor
PC6	Rack black position sensor
PC7	Transfer roller pressure sensor
PC8	Paper eject sensor
PC10	Fusing pressure position sensor
PC11	OPC sensor (paper path)
PC12	Transfer belt position sensor
PC13	Waste toner full sensor
PC14	Pressure roller separation sensor
PC15	Standard tray upper position sensor

Signal	Name
PC16	Belt cleaner separation sensor
PC20	Intermittent paper sensor
PH	Print head
PU1	Power supply unit (PWB)
PWB-I	Belt cleaner control board
S1	Power supply switch
S2	Interlock switch front right
S3	Interlock switch upper
S4	Interlock switch right
S5	Interlock switch (CDRH-SW)
S8	Standard cassette paper size switch
S10	Waste toner box print head filter switch
SL3	Standard cassette paper load solenoid
SL4	Intermittent roller solenoid
SL7	Transfer roller pressure solenoid
SL8	Standard tray paper load solenoid
TE1	Toner empty sensor (PWB-H)
TH1	Thermistor 1 (heat roller)
TS1	Thermostat 1 (heat roller)

Unit	Detection Item	Detection Method	Note
OPC	Exist / non-exist detection	Contact point conductivity check method	
	New / old detection	Fuse method	
	Installation and removal detection at power supply ON	Contact point conductivity check method	<ul style="list-style-type: none"> It can be installed and removed with the conductivity on. No mechanism broken. The installation and removal state is updated at cover open / close.
	Used amount detection	Measures the driving period (motor rotational period)	Calculated by 30 seconds interval.
	Near end detection	Main motor driving time accumulated period	2640 count x 30 seconds = 1320 min.
	End detection	Main motor driving time accumulated period	3300 count x 30 seconds = 1650 min. After end detection, print less than 100 images (300 seconds) and stops after printing.
	EPSON genuine product detection	Non-compatible rib	Cannot be installed structurally.

Unit	Detection Item	Detection Method	Note
Fusing oil roller	Exist / non-exist detection	Contact point conductivity check method	
	Installation and removal detection at power supply ON	Contact point conductivity check method	<ul style="list-style-type: none"> It can be installed and removed with the conductivity on. No mechanism broken. The installation and removal state is updated at cover open / close.
	New / old detection	Fuse method	
	Used amount detection	Measures the driving period (fusing motor rotational period) TBD	
	End detection	Measures the driving period (fusing motor rotational period) TBD	
	EPSON genuine product detection	Measures the driving period (fusing motor rotational period) TBD	
	Waste toner box	Exist / non-exist detection	Leaf switch
Installation and removal detection at power supply ON		Leaf switch	<ul style="list-style-type: none"> It can be installed and removed with the conductivity on. No mechanism broken. The installation and removal state is updated at cover open / close.
Near full detection		Photo sensor	Stop printing when printing 200 images (average image occupied area 20%) after near full is detected.)

Unit	Detection Item	Detection Method	Note
Print head dust proof filter	Exist / non-exist detection	When it is not installed, the waste toner box cannot be installed.	
Fusing unit	Exist / non-exist detection	Contact point conductivity check method	
	New / old detection	Fuse method (when new one is installed, it is fused off.)	
	Installation and removal detection at power supply ON	Contact point conductivity check method	<ul style="list-style-type: none"> It can be installed and removed with the conductivity on. No mechanism broken. The installation and removal state is updated at cover open / close.
	Used amount detection	Measures the driving period (fusing motor rotational period)	Calculated by 30 seconds interval.
	Near end detection	Measures the driving period (fusing motor rotational period)	28880 count
	End detection	Measures the driving period (fusing motor rotational period)	36000 count After end detection, print less than 100 images (300 seconds) and stops after printing.

Unit	Detection Item	Detection Method	Note
ET cartridge	Exist / non-exist detection	Contact point conductivity check method	
	New / old detection	Fuse method (when new one is installed, it is fused off.)	
	Installation and removal detection at power supply ON	Contact point conductivity check method	<ul style="list-style-type: none"> It can be installed and removed with the conductivity on. No mechanism broken. The installation and removal state is updated when the rack rotates one-round at cover open / close.
	Left amount detection	MCU counts the number of images.	
	Near end detection	<ul style="list-style-type: none"> MCU counts the number of images. Soft count the period of laser diode light emitting time. 	4.8 k images or whichever comes first.
	End detection	<ul style="list-style-type: none"> MCU counts the number of images. Reflective photo sensor. 	6.0 k images or whichever comes first.
	EPSON genuine product detection	Non-compatible rib	Cannot be installed structurally.

Unit	Detection Item	Detection Method	Note
Transfer belt unit	Exist / non-exist detection	Check AIDC sensor GND connection.	
	New / old detection	Fuse method (when new one is installed, it is fused off.)	
	Installation and removal detection at power supply ON	Check AIDC sensor GND connection.	<ul style="list-style-type: none"> It can be installed and removed with the conductivity on. No mechanism broken. The installation and removal state is updated at cover open / close.
		Contact point conductivity check method	<ul style="list-style-type: none"> It can be installed and removed with the conductivity on. No mechanism broken. The installation and removal state is updated when the rack rotates one-round at cover open / close.
	Used amount detection	Transportation motor driving time accumulated period	Calculated by 30 seconds interval.
	Near end detection	Transportation motor driving time accumulated period	12000 count
	End detection	Main motor driving time accumulated period	15000 count After end detection, print less than 100 images (300 seconds) and stops after printing.
Standard tray	No paper detection	Leaf switch	

Unit	Detection Item	Detection Method	Note
Standard cassette	Exist / non-exist detection	Leaf switch	Serves both as paper side detection
	Paper size detection	Leaf switch (working with edge guide)	A4 or letter
	Near end detection	Photo sensor	50 ± 30 sheets (80g/m ²)
	No paper detection	Leaf switch	
Double side print unit	Exist / non-exist detection	Short pin detection	Installation and removal at conducted is not assured. Only at powering on, checks installation and removal.

2.2 Printing Process

The figure below is the flow of the printing process.

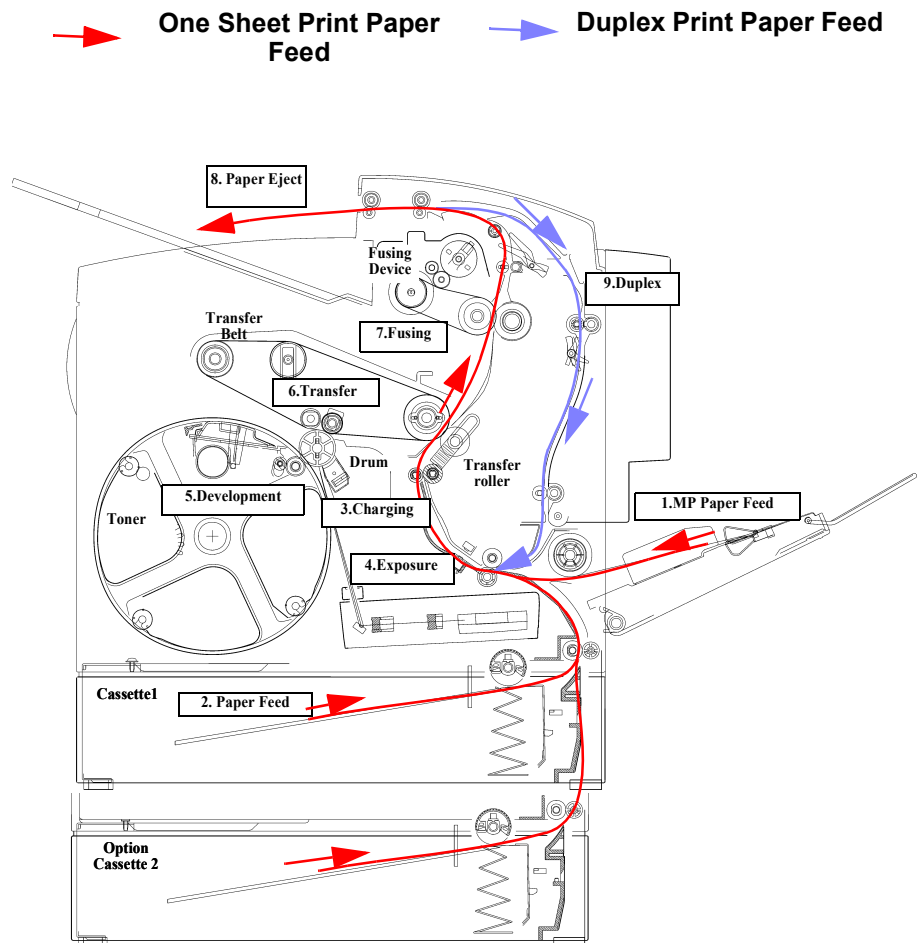


Figure 2-6. Paper Path

No.	Unit Name	Unit Function
1.	Printing process	Paper feed→ Charging→ Exposure→ Development→ Transfer→ Fusing→ Paper Eject
2.	Paper feed	Loads paper from Tray 1, Tray 2, Tray 3 (option).
3.	Charging	Equally charges (-) to the surface of OPC drum by scotron method
4.	Exposure	The laser emits a laser beam toward the OPC drum surface. A laser beam creates the electrostatic latent image on the drum surface.
	OPC drum cleaning	After the mid-transfer, cleaning blade collects toner which did not stick to OPC drum, to the waste toner box.
5.	Development	Provides toner on the electrostatic latent image to create toner image. (Puts toner where exposed by laser beam.)
	Pre-transfer erase	Emits light to erase the remaining electric charge (after-image). Light source: LED
6.	Transfer Primary transfer	Transfer YMCK on the transfer belt.
	Paper transfer	Provides strong electric charge on the back surface of paper to transfer the toner image on the transfer belt to the surface of paper.
	Transfer belt cleaning	After transferring the toner image to paper, the remaining toner on the transfer belt is collected by the cleaning blade to the waste toner bottle.
7.	Suction carrier	Carries image transferred paper smoothly without vibration to the fusing device.
8.	Fusing	Fuses the toner image on paper by the heat and pressure of heat roller + pressure roller.
9.	Paper Eject	Ejects image fused paper to the paper eject tray.

2.2.1 Paper Feed Mechanism

EPSON AcuLaser C2000 has 2 paper feed methods:
Tray 1 (150 sheets) + Tray 2 (500 sheets)

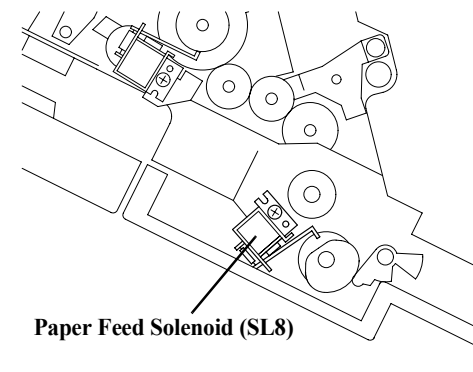
Optional 500 sheets cassette unit (Tray 3) is also available.

2.2.1.1 Tray 1

When the paper feed solenoid (SL 8) is turned ON, the driving power from the transfer motor (M1) is transmitted to the paper feed roller via the paper feed clutch (one-way clutch). Paper pushing plate is pushed to the paper feed roller, and the paper feed roller rotates. The printer feeds the top sheet of paper. Paper fed by the paper feed roller is carried to the timing roller via transportation roller.

- Separation pad method is used in order to separate each paper and prevent feeding the second paper together.
- If paper is OHP, it is detected by OHP sensor (PC11).
- Paper empty switch (S9) detects if there is paper on Tray 1.
- Tray 1 position sensor (PC15) detects if Tray 1 is pulled and the paper pushing plate is ready to push paper to the paper feed roller.

Paper Feed Back View



Paper Feed Front View

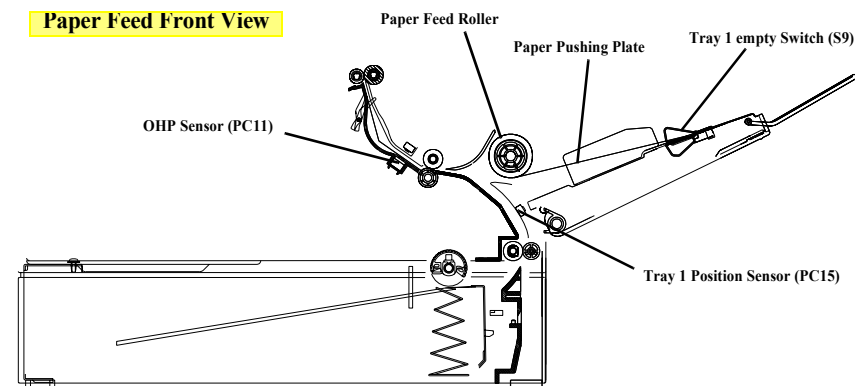


Figure 2-7. Tray 1

2.2.1.2 Tray 2 (Cassette 1)

When Tray 2 paper feed solenoid is turned ON, paper feed roller rotates. When paper feed roller rotates, the printer picks the top sheet of paper from Tray 2.

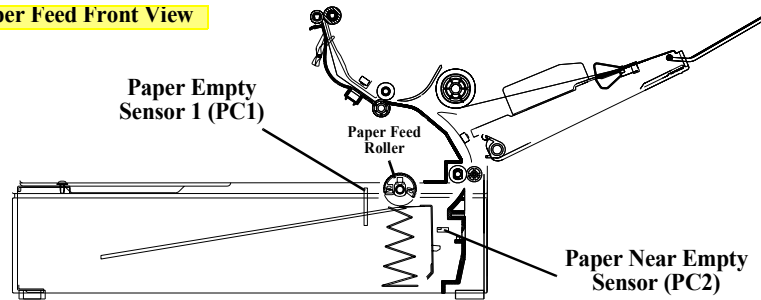
- Paper empty sensor (PC1) detects if there is paper on Tray 2. Paper near empty sensor (PC2) detects and warns when paper on the cassette becomes less than about 20 sheets.
- The paper size switch detects if there is paper on Tray 2 and its paper size.

2.2.1.3 Tray 3 (Cassette 2)

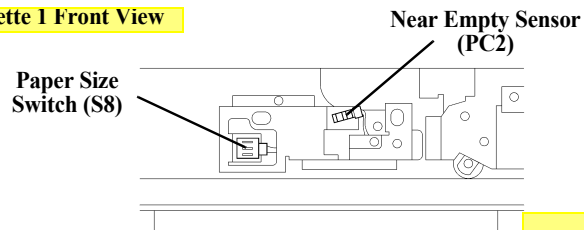
Tray 3 is the optional 500 sheets cassette unit.

Tray 3 paper feed jam is detected by a newly added Tray 3 paper feed sensor. See 2.2.1.2 Tray 2 (Cassette 1) about other structure and functions.

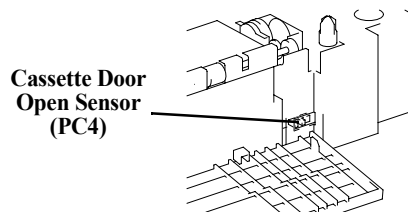
Paper Feed Front View



Cassette 1 Front View



Cassette 1 Right Side View



Tray 2 Back View

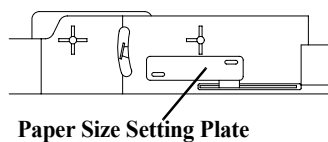


Figure 2-8. Tray 2

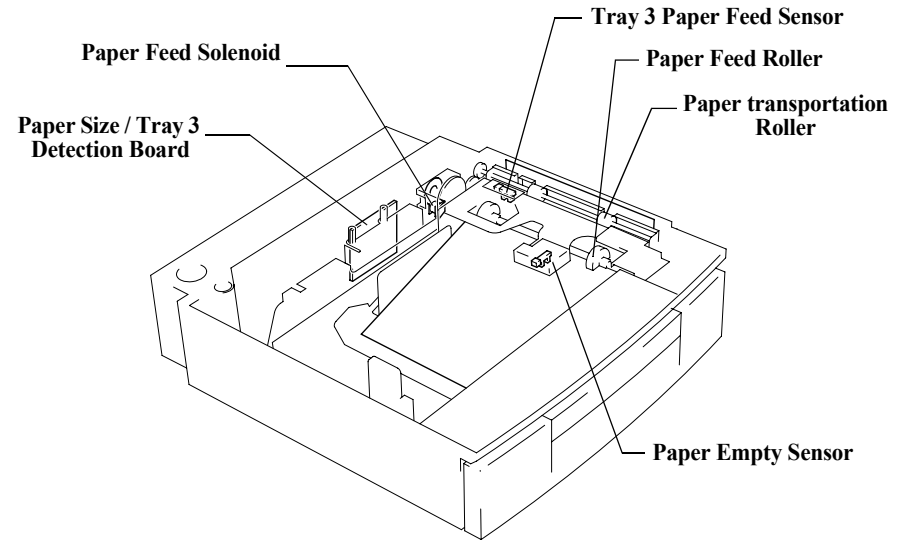


Figure 2-9. Tray 3

2.2.1.4 Timing Roller

Timing roller adjusts paper skewing carried by the paper feed mechanism and rotates as the top of image on the transfer belt comes on the end of paper.

- ❑ Timing sensor (PC5) detects that the top of paper carried by the paper feed mechanism reaches the timing roller.
- ❑ When it detects paper, turns off the intermittent roller solenoid and pauses carrying paper.
- ❑ Timing roller starts rotating when a certain amount of time passed after timing roller solenoid (SL5) is ON. If it fails to do so, load paper again to prevent paper load failure (only for color printing).
- ❑ When paper is longer than specification or smaller than A5 size, it detects paper size error.

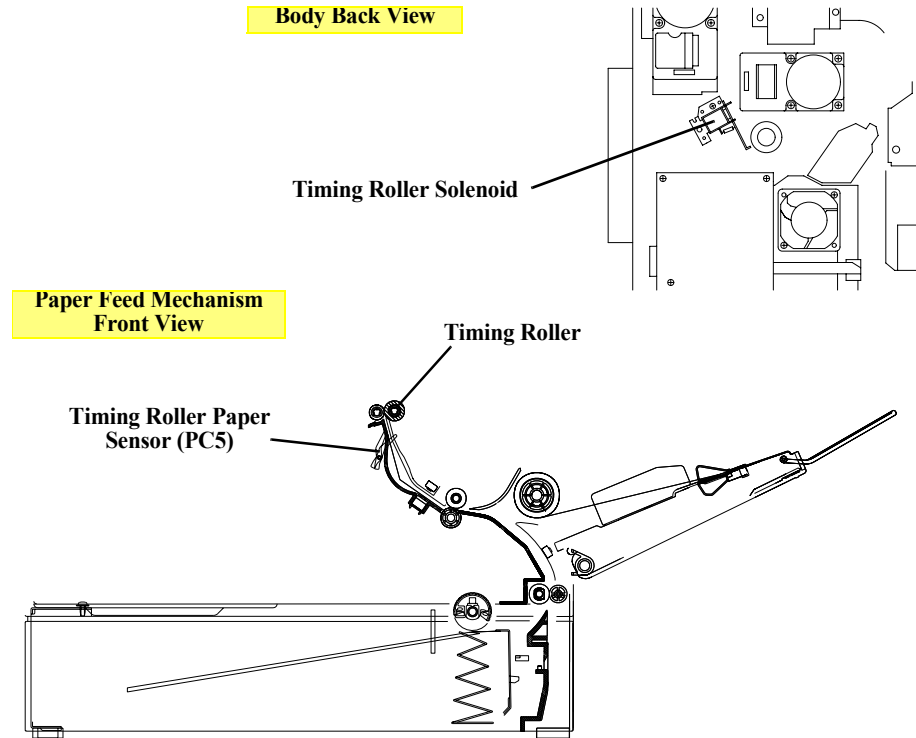


Figure 2-10. Timing Roller

2.2.2 Charging Process

Charging is done by giving static electricity on the OPC drum before laser exposure. Scotron method is adopted for electric charger.

- ❑ Generated ozone will be eliminated by the filter which is attached at ozone fan.

The figure below is OPC drum cartridge.

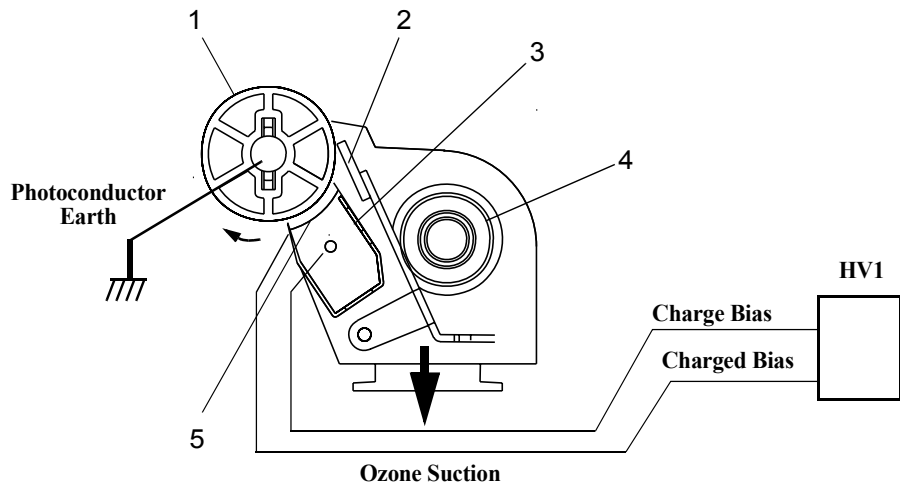


Figure 2-11. Charging Process

No.	Name	Explanation
1	Photoconductor	Creates the latent image by laser beam on the surface of the OPC drum (photoconductor), develops the image by toner, and transfers the image on the transfer belt.
2	Cleaner Blade	Cleans the remaining toner on the photoconductor.
3	Electric Charger	Scotron method charger gives (-) electricity on the photoconductor.
4	Rotation coil	This coil carries waste toner, generated from the photoconductor, to the waste toner bottle.
5	Grid Electrode	Steadily provides electricity, generated by electric discharge, to the photoconductor.

2.2.3 Exposure Process

The printer creates the latent image on the photoconductor by the laser beam emitted from the print head. Printing position is adjusted as described below.

- Main Scanning Printing (Horizontal)
 - By SOS sensor on the laser diode control board (PWB-C), the main scanning printing start position is determined.
- Sub Scanning Printing (Vertical)
 - When it receives PRINT signal from the controller, the engine control board (PWB-A) rotates the polygon motor (M6) and transfer motor.
 - When transfer belt position sensor becomes ON, the print head receives video signal from the controller and adjust the sub scanning printing start position by emitting the laser beam and starts exposure.

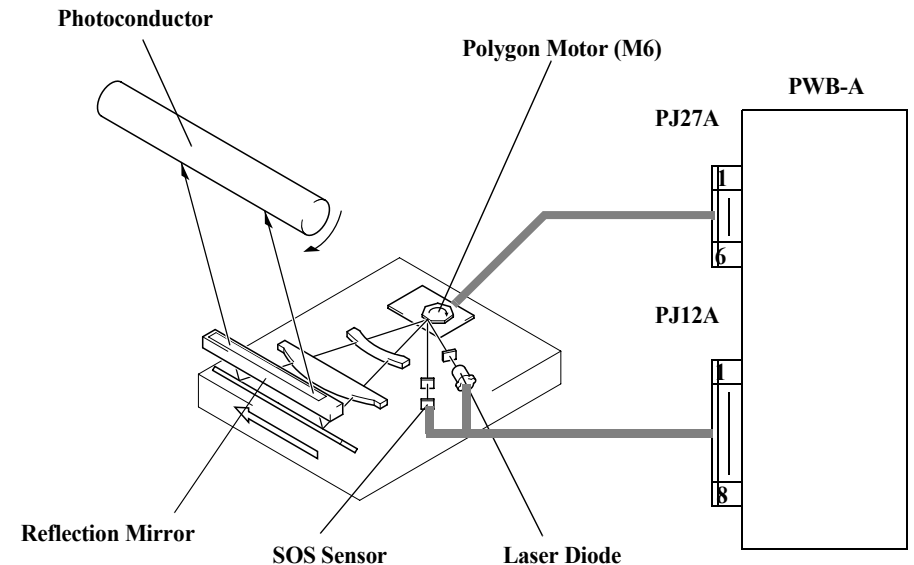


Figure 2-12. Exposure Process

2.2.4 Development Process

Color Development Process

The printer proceeds the following creation process for each toner (YMCK) respectively and creates 4 color toner image on the transfer belt. Then, the printer transfers the toner image on the transfer belt onto paper. Full color image is thus generated on the paper.

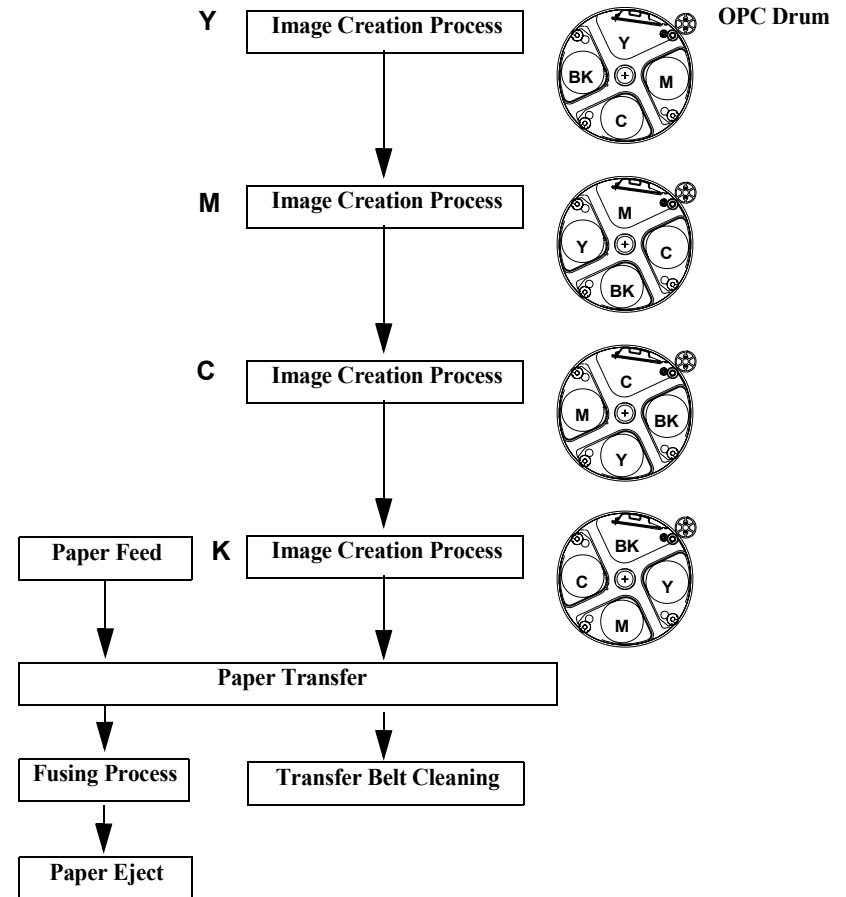


Figure 2-13. Color Development Process

2.2.4.1 Toner Cartridge Rack

- Process: Charging→ Exposure→ Pre-erase→ Mid-Transfer→ Photoconductor Cleaning

There are 4 toner cartridges, Yellow, Magenta, Cyan, Black and they are stored in the rotational toner cartridge rack.

For printing, the printer rotates the toner cartridge rack to shift the respective toner cartridge to the developing position in Y, M, C, K order.

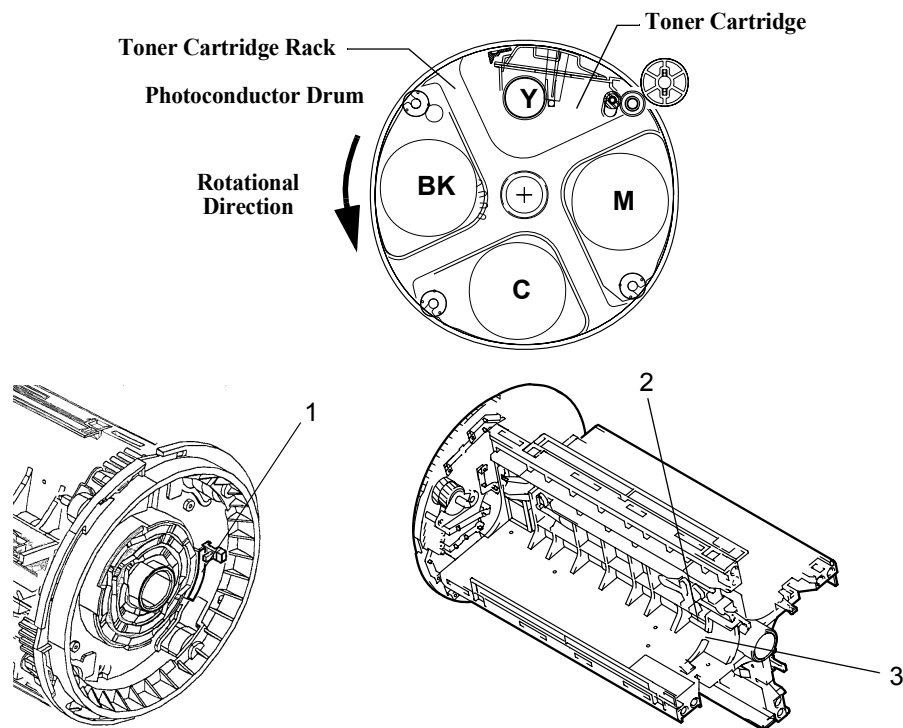


Figure 2-14. Toner Cartridge Rack

No.	Name	Explanation
1	Rack black position detection sensor and light-proof plate	Sensor and light-proof plate detects that the rack black toner is at the developing position.
2	Toner empty detection sensor window	Toner of the toner cartridge detects empty.
3	Toner color rib	Rib determines the toner color when installing the toner cartridge to the rack.

Toner Cartridge Developing Position

Each toner cartridge developing position is precisely determined and preserved by the rack motor. Stepping motor is used for rack motor to control the rack rotational angle precisely.

- Black toner starting position
 - Turn on the rack motor and the rack starts free rotation.
 - When the rack black position detection sensor (PC6) is turned on, stops rack motor.
 - Counter-rotate the developing motor.
 - Rotate the developing motor and adjust the rack to the developing position.
- Each color toner starting position
 - Respective YMC toner starting position is precisely determined by controlling the number of rotation.
 - Turn on the rack motor and rotates the rack 90 degree to the next toner.
 - Stops the rack motor.
 - Counter-rotate the developing motor.
 - Regular-rotate the developing motor to adjust the rack to the developing position.

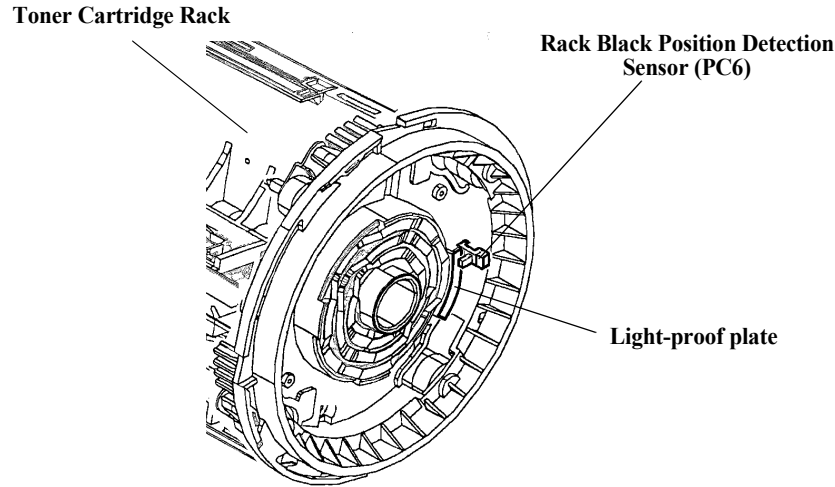


Figure 2-15. Toner Cartridge Developing Position

2.2.4.2 Toner Cartridge

Toner cartridge gives toner on the electrostatic latent image on the photoconductor (OPC drum) to create the toner image. (Development)

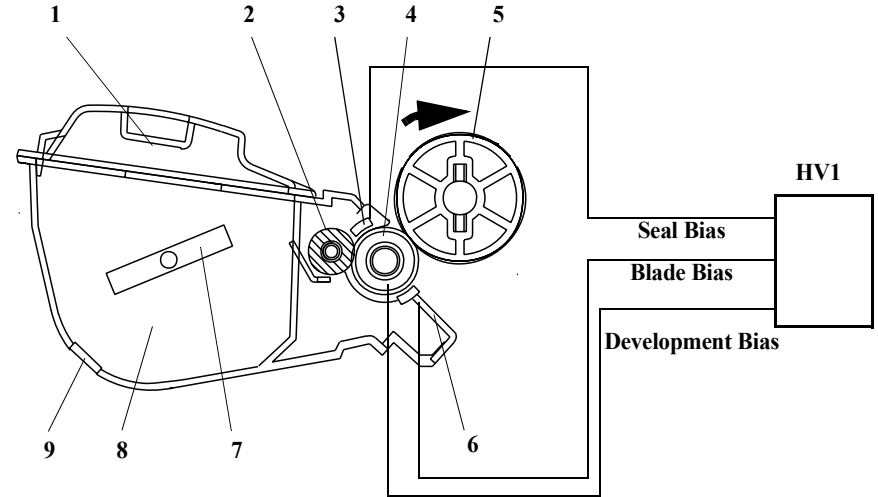


Figure 2-16. Toner Cartridge

No.	Name	Function
1.	Reflection mirror	Reflects LED light of toner empty detection.
2.	Toner transportation roller	Carries toner to the sleeve roller.
3.	Bias seal	Collects toner that did not stick to the OPC drum.
4.	Development roller	Gives toner to the OPC drum and develops electrostatic latent image.
5.	Photoconductor	Electrostatic latent image is created by the laser exposure, developed by the resin sleeve, and the developed toner image is carried to the surface of the transfer belt.

No.	Name	Function
6.	Toner regulation plate	Put the toner thin and equal upon the development roller (rubber). Charges toner (-) electricity by letting toner through between toner regulation plate and developing roller.
7.	Toner agitation wing	Agitates the toner hopper inside and sends toner to the toner sending roller.
8.	Toner hopper	Toner is in.
9.	LED percolation window	LED light for toner empty detection goes through this window.

Development

Toner regulation plate puts toner thin and equal upon the sleeve roller, gives toner on the electrostatic latent image on the OPC drum, and develops toner image on the photoconductor.

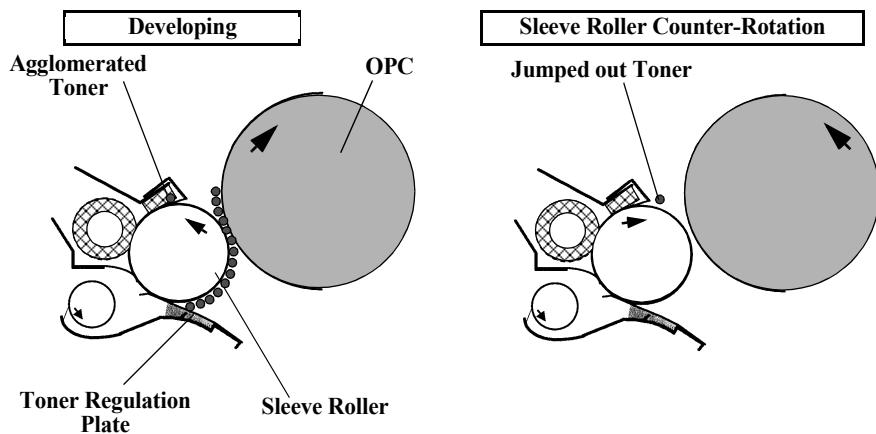


Figure 2-17. Development

Toner Empty Detection

Toner empty detection is done by the following procedure.

The light from the toner empty detection LED (LED1) on the toner empty detection board (PWB-H) is reflected by the reflection mirror inside the toner cartridge. Photo sensor (PT1) measures this reflected light and detects the toner empty by the largeness and length of the reflected light.

Toner empty is detected by the above mentioned optical detection or the value of image counter whichever comes first.

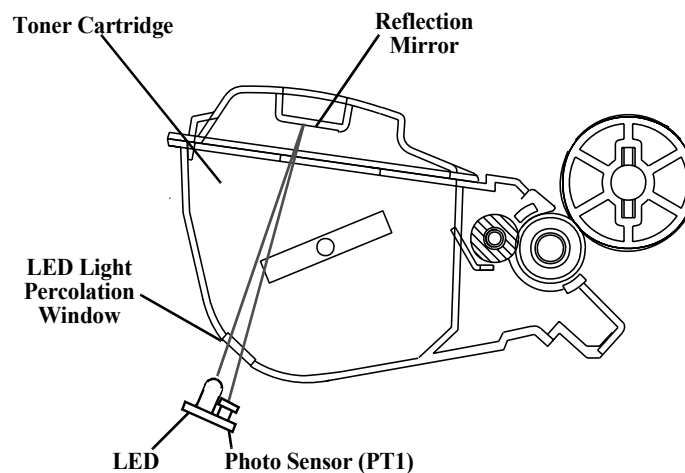


Figure 2-18. Toner Empty Detection

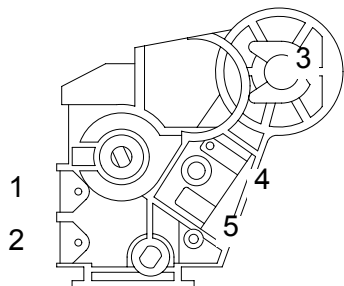
Detection	K Toner	Color (Y, M, C) Toner
Toner Empty	50 ± 20g	50 ± 20g

Toner Near Empty Detection

Toner near empty is detected by the image dot counter (Integrated value of Video Data integrated per line) or the image counter whichever comes first.

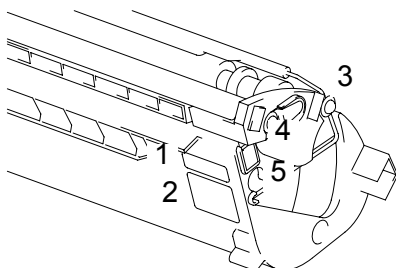
2.2.4.3 Names of Unit Contacting Terminals

1. Drum Cartridge Terminals



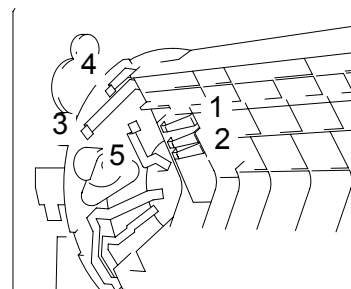
1	New Fuse
2	(2: Dual purpose, detection of D/C)
3	Earth
4	Electrification Bias
5	Charge Bias

2. Toner Cartridge Terminals



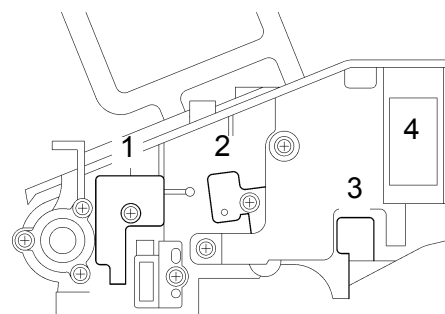
1	New Fuse
2	(2: Dual purpose, detection of T/C)
3	Regulation Bias
4	Collecting Plate Bias
5	Development Bias

3. Toner Rack Terminals



1	New Fuse
2	(2: Dual purpose, detection of T/C)
3	Regulation Bias
4	Seal Bias
5	Development Bias

4. Transfer Belt Unit Terminals



1	Secondary Transfer Bias
2	Primary Transfer Bias
3	Earth
4	Drawer Connector

□ OC (oil coating) Roller Terminals

1	New Fuse
2	
3	Serves both as OC exist detection

2.2.5 Transfer Process

Transfer is done twice: mid-transfer and paper transfer.

2.2.5.1 Mid-Transfer Belt Unit

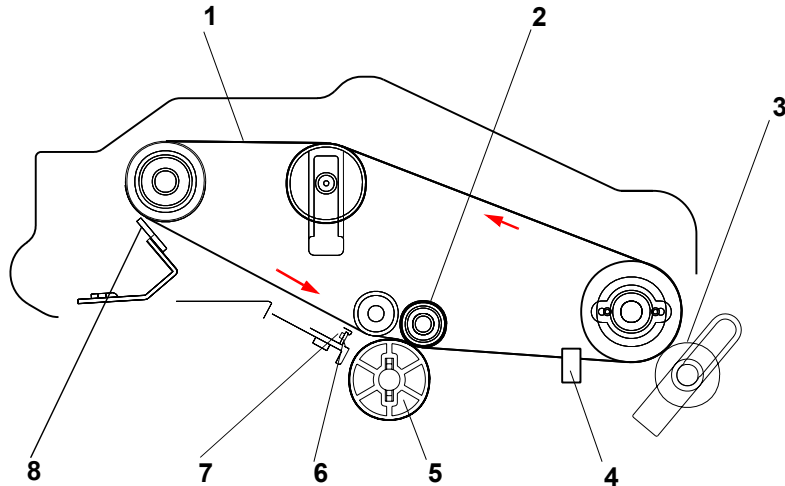


Figure 2-19. Mid-Transfer Belt Unit

No.	Name	Explanation
1	Transfer Belt	Transfers each toner image on the OPC drum to the surface of the belt in Y, M, C, K order in piles.
2	Electrode Roller	Transfers the toner image on the OPC drum to the transfer belt.
3	Transfer Roller	Transfers the toner image to the transfer belt to paper.
4	Transfer Belt Position Sensor (PC12)	Detects the image transferring start timing by the timing of transfer belt moving.
5	Photoconductor	Creates toner image

No.	Name	Explanation
6	Eraser Lamp	Erases electricity on the OPC drum where toner is not on before mid-transfer.
7	AIDC Sensor	Detects the drum cartridge with or without. Measures the density of the AIDC mark which is generated on the OPC drum by toner.
8	Cleaning Blade	Scratches off the waste toner remaining on the transfer belt after paper transfer.

2.2.5.2 Mid-Transfer

Mid-transfer method is belt transfer method.

It transfers the toner image on the OPC drum which is made by the color development process, to the transfer belt in the order of Yellow, Magenta, Cyan, Black in piles.

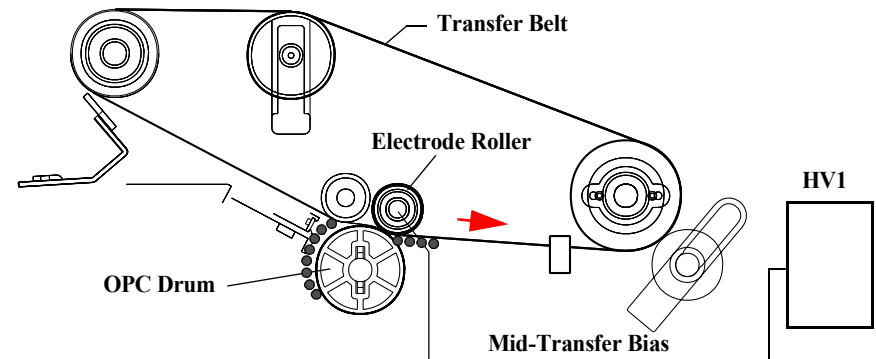


Figure 2-20. Mid-Transfer

2.2.5.3 Paper Transfer

Paper transfer method is roller transfer method.

Transfers the toner image on the transfer belt to the paper by the transfer roller.

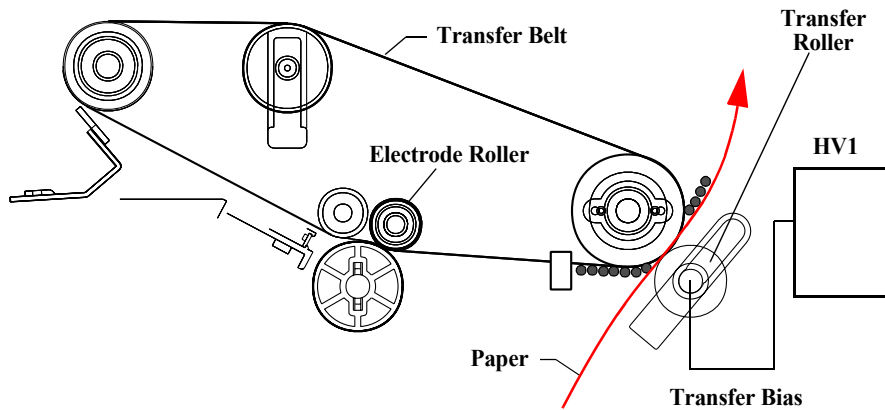


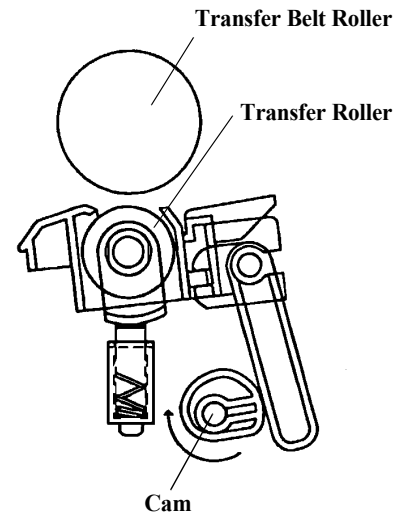
Figure 2-21. Paper Transfer

Transfer Roller Pressed / Estranged

Transfer roller is pressed or estranged to the transfer belt according to its necessity.

- Transfer roller pressure solenoid is turned ON and the driving force from the carrier motor is transmitted to the cam via clutch, then the cam rotates. Transfer roller is pressed to the transfer belt as shown in the figure below (right).
- Transfer roller pressure sensor is turned OFF and detects the transfer roller pressed.
- When the transfer roller pressure solenoid is turned ON again and the cam rotates, the transfer roller is estranged from the transfer roller as shown in the figure below (left).

Transfer Roller Estranged



Transfer Belt Pressed

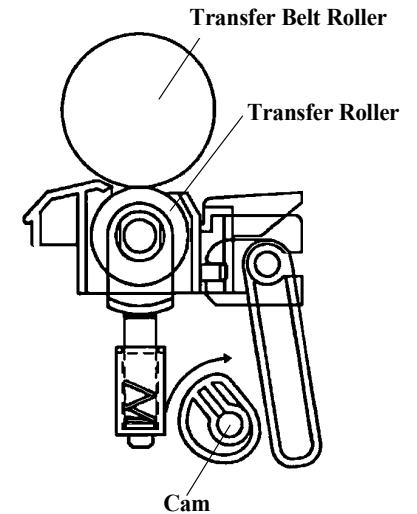


Figure 2-22. Transfer Roller Pressed / Estranged

Pre-Transfer Erase

Pre-transfer erase eliminates the electricity where no toner is on.

24 eraser lamp (LED) is located in one line on the AIDC/Eraser Board. They light the surface of the OPC drum after development.

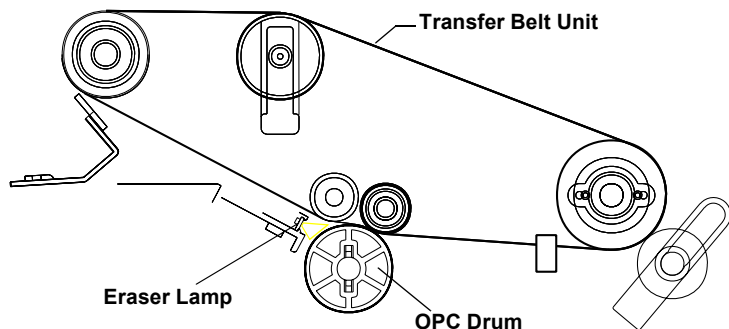


Figure 2-23. Pre-Transfer Erase

Humidity Sensor

Humidity sensor (HS1) rear bottom of the mechanism measures the humidity and temperature of the outside of the mechanism. CPU reads this data and determine the transfer bias.

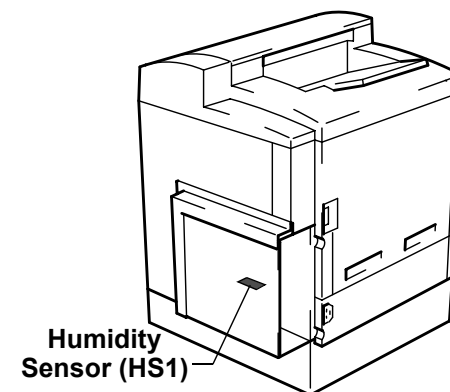


Figure 2-24. Humidity Sensor

AIDC (Automatic Image Density Control)

AIDC detects AIDC mark density made on the OPC drum by AIDC sensor that is located at the same position with eraser lamp and determines the appropriate development bias at printing.

- AIDC density detection is performed by a set of LED and 2 photo sensors.
- AIDC detection is made for respective toner cartridge when powering the switch on or during the pre-rotation when opening or closing the front top right cover.

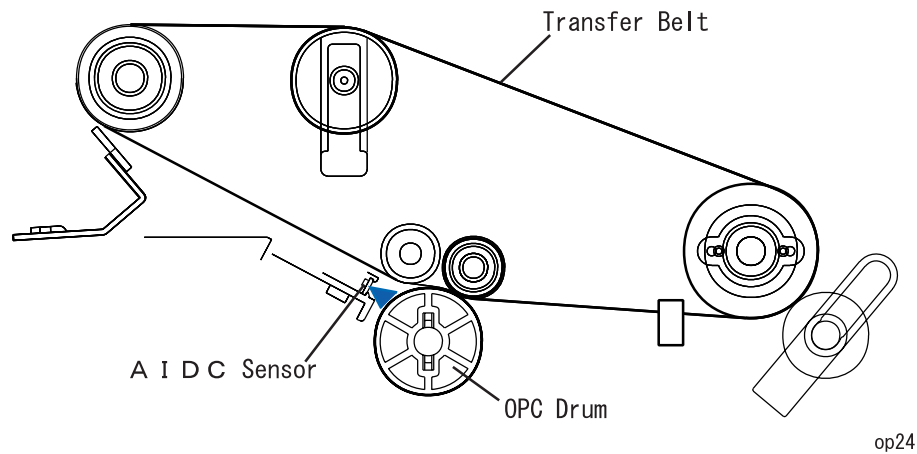


Figure 2-25. AIDC

Transfer Belt Cleaner Estrangement

Transfer belt cleaner is pressed or estranged to the transfer belt according to its necessity.

- Transfer belt cleaner turns cleaner motor ON, rotates cam to rotate the lever holder, and pushes the (↓) part in Figure 2-26 down and estrange the transfer belt cleaner from the transfer belt.
- Belt cleaner estrangement position sensor is turned OFF and detects the estrangement of the transfer belt cleaner.
- Turns the cleaner motor ON and rotates the cam to loosen the lever holder, and then presses the transfer belt cleaner to the transfer belt.
- Pressure is added since the paper transfer is done until the belt goes around.

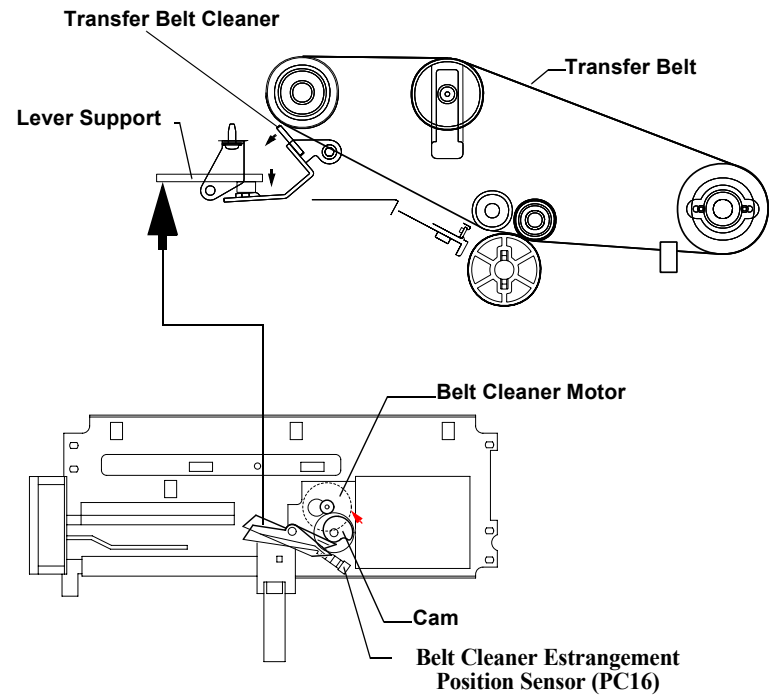


Figure 2-26. Transfer Belt Cleaner Estrangement

2.2.6 Waste Toner Bottle

Waste toner bottle collects waste toner on the transfer belt and the waste toner on the OPC drum.

After the printer transferring the toner image on the transfer belt to paper, the transfer belt cleaner scratches off the waste toner on the transfer belt and the waste toner collecting coil carries waste toner to the waste toner bottle.

After the printer mid-transferring the toner image on the OPC drum, the cleaner blade scratches off the waste toner remaining on the OPC drum and the waste toner collecting coil carries waste toner to the waste toner bottle.

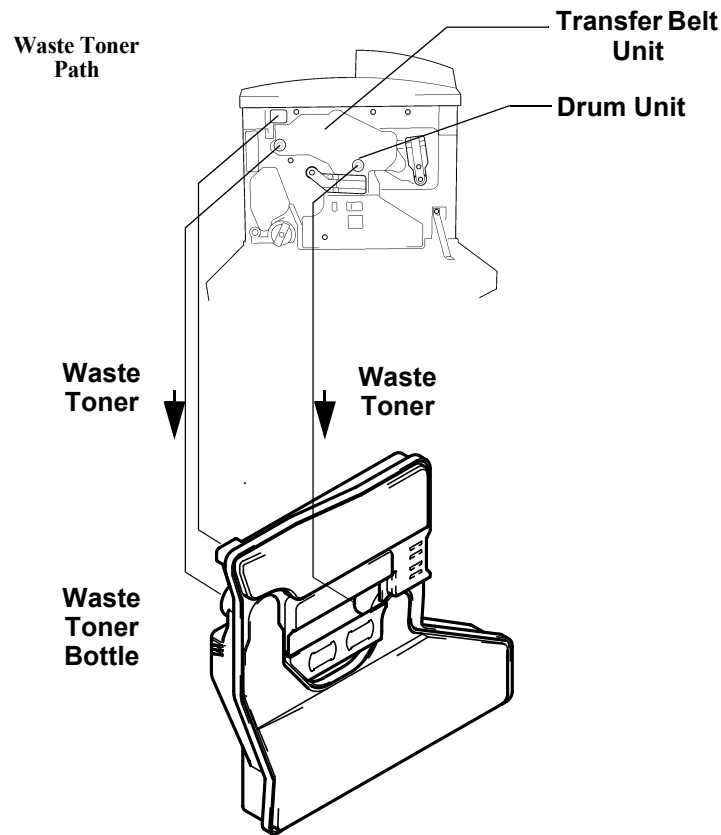


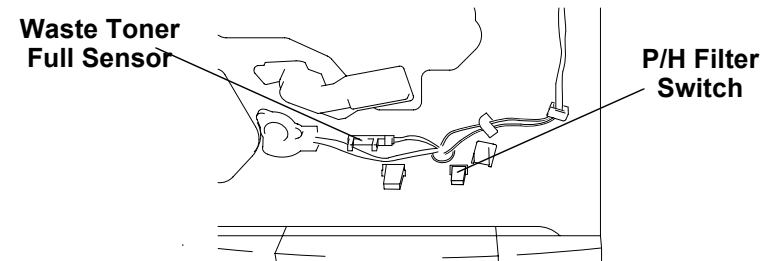
Figure 2-27. Waste Toner Bottle

Waste Toner Bottle Detection

Waste toner bottle P/H filter switch (S10) detects if the waste toner bottle is with or without.

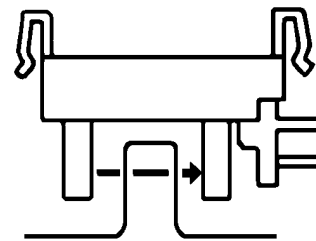
Waste Toner Full Detection

Waste toner full sensor (PC13) detects if the waste toner bottle is full of waste toner or not.



When waste toner is low.

Sensor LED light percolates the bottle and reaches the photo sensor.



When toner full is detected.

When waste toner comes to the point of toner full detection, LED light of the sensor is blocked off by the waste toner and the sensor detects toner full.

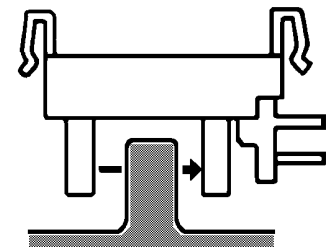


Figure 2-28. Waste Toner Full Detection

2.2.7 Suction Process

Transferred paper is sucked to the carriage path by the suction fan motor (M7) and carried to the fusing device stably.

- Carriage path is short and there is no special device like suction belt.
- The exhaustion of the suction fan is emitted outside through Tray 1 or Duplex unit.

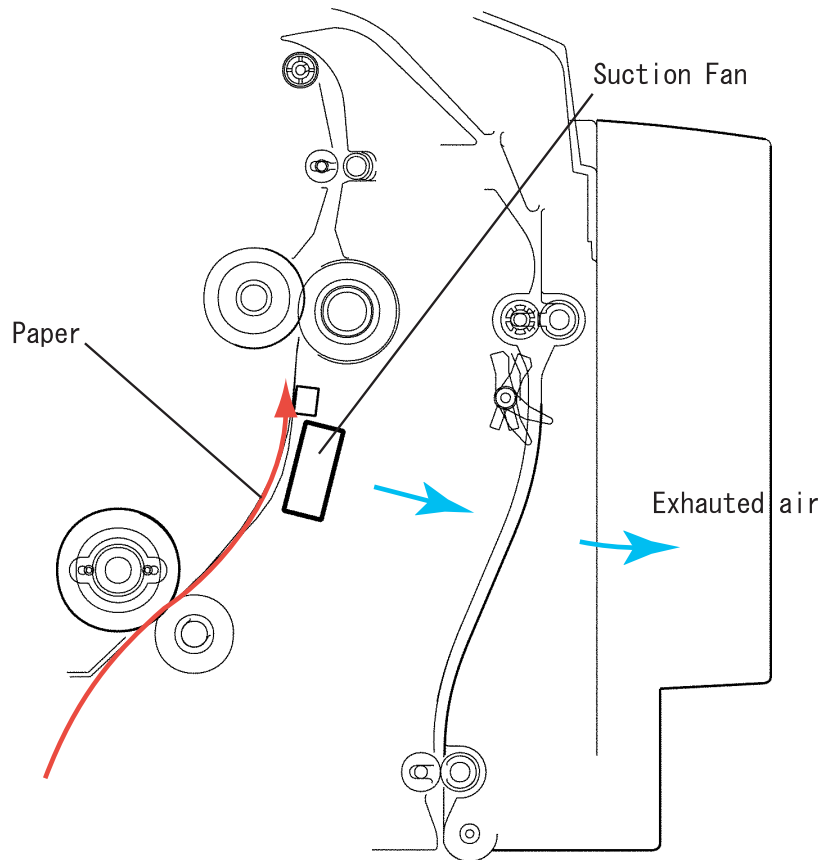


Figure 2-29. Suction Transportation

op28

2.2.8 Fusing Process

2.2.8.1 Fusing Unit

Fusing method is belt heat fusing method. Belt heat fusing method fuses the toner image to the paper by the heat of the fusing belt heated by the heater lamp, and fuses toner by the pressure between the fusing roller and pressure roller.

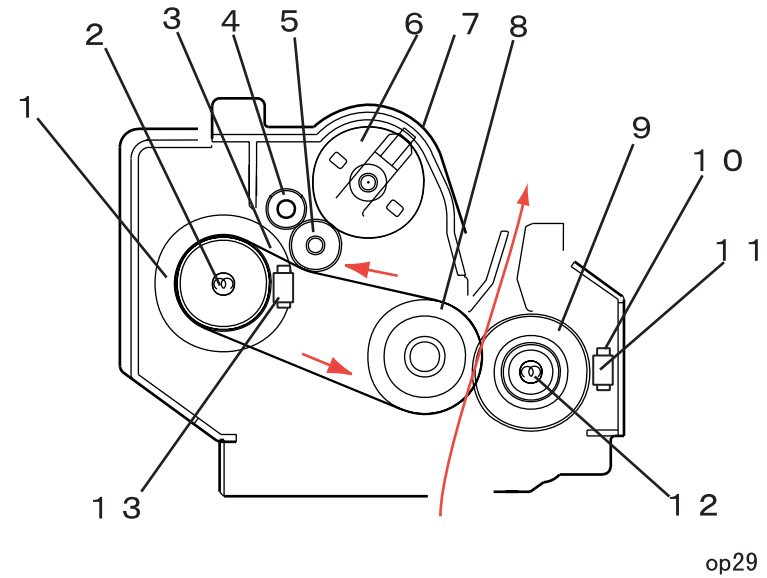


Figure 2-30. Fusing Unit

op29

No.	Name	Explanation
1	Heat Roller	Transmits heat of the heater lamp to the fusing unit.
2	Heater Lamp (H1)	Heats the heat roller by the heat of heater lamp (600W).
3	Fusing Belt	Provides the heat of the heat roller to the fusing roller and paper.
4	Cleaning Roller	Cleans the applying roller.

No.	Name	Explanation
5	Applying Roller	Applies oil by cleaning the fusing belt.
6	Oil Supplying Roller	Contains oil and supplies oil to the applying roller.
7	Oil Applying Roller Unit	Applies oil to the fusing belt as needed.
8	Fusing Roller	Fuses toner on the fusing belt and paper to paper.
9	Pressure Roller	Uses rubber roller and applies pressure to paper by pressure spring.
10	Thermistor (TH2)	Detects the surface temperature of the pressure roller.
11	Thermostat (TS2)	When temperature of the pressure roller becomes abnormally high, this thermostat is cut off and turns off the heater lamp.
12	Heater Lamp (H2)	Heats the pressure roller by the heat of heater lamp (600W).
13	Thermistor 1 / Thermostat	Detects the surface temperature of the heat roller. When the sensor detects abnormal high temperature, the thermostat 1 is cut off and turns the heater lamp off.

2.2.8.2 Fusing Temperature Control

Control Circuit

Thermistor 1 (TH1) detects the surface temperature of the heat roller and inputs temperature signal to CPU. Heater lamp (H1) turns on/off according to the heater on/off signal, which is conveyed in the form of Pout signal output according to the thermistor 1 detected temperature.

- The surface temperature of the pressure roller is adjusted by the heater lamp (H2) and thermistor 2.
- Even when the thermistor detects the abnormal high temperature (the surface temperature of the roller exceeded 210°C), if the Pout signal is not turned OFF, the printer turns off the relay of PU1 and turns the heater lamp OFF compulsory.

L	Heater ON
H	Heater OFF

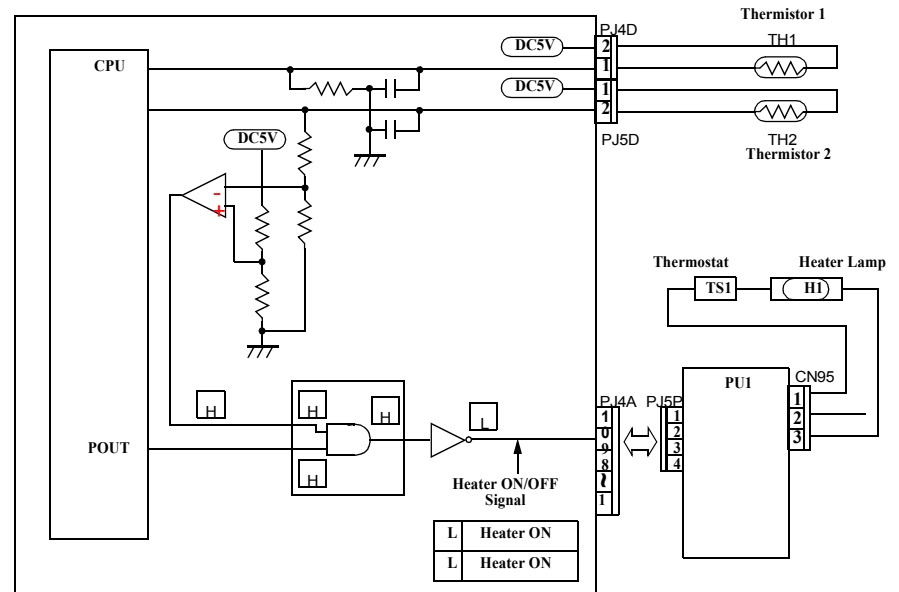


Figure 2-31. Fusing Temperature Control

Temperature Control

When heating the roller, the temperature control drives the fusion motor and fuses the pressure roller. It is estranged on the envelope mode.

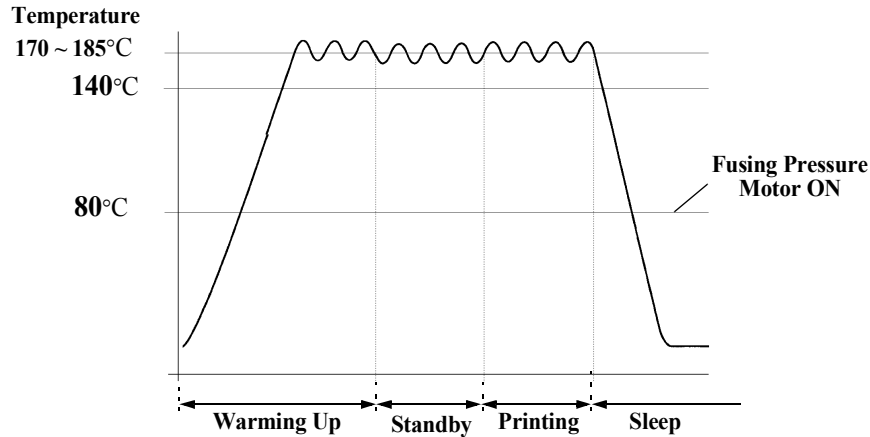


Figure 2-32. Temperature Control

No.	Timing	Temperature Control																		
1	Warm up	When turning the power switch ON, warming up is started and the heater lamp is turned ON. After the pressure roller is heated, pressure is started and the fusion motor is turned ON. Fusion motor is kept to be ON until the temperature of the heat roller becomes 170°C and the pressure roller becomes 140°C. Then the fusion motor is turned OFF to estrange the roller.																		
2	Stand-by	Controls the temperature of the heat roller to be 170°C.																		
3	Printing	CPU reads the exo-mechanical sensor (HS1) and heat roller temperature (TH1) and controls the heat roller temperature as shown below. Note: Heat roller temperature is controlled a little low.																		
		<table border="1"> <thead> <tr> <th>Paper Type</th> <th>Monochrome</th> <th>Color</th> </tr> </thead> <tbody> <tr> <td>Plain Paper</td> <td>175°C ~ 185°C</td> <td>170°C ~ 180°C</td> </tr> <tr> <td>Thick Paper</td> <td>165°C ~ 175°C</td> <td>160°C ~ 175°C</td> </tr> <tr> <td>OHP</td> <td>155°C ~ 160°C</td> <td>155°C ~ 160°C</td> </tr> <tr> <td>Letter Head</td> <td>175°C ~ 185°C</td> <td>170°C ~ 180°C</td> </tr> <tr> <td>Envelope</td> <td>175°C ~ 180°C</td> <td>175°C ~ 180°C</td> </tr> </tbody> </table>	Paper Type	Monochrome	Color	Plain Paper	175°C ~ 185°C	170°C ~ 180°C	Thick Paper	165°C ~ 175°C	160°C ~ 175°C	OHP	155°C ~ 160°C	155°C ~ 160°C	Letter Head	175°C ~ 185°C	170°C ~ 180°C	Envelope	175°C ~ 180°C	175°C ~ 180°C
		Paper Type	Monochrome	Color																
		Plain Paper	175°C ~ 185°C	170°C ~ 180°C																
		Thick Paper	165°C ~ 175°C	160°C ~ 175°C																
		OHP	155°C ~ 160°C	155°C ~ 160°C																
Letter Head	175°C ~ 185°C	170°C ~ 180°C																		
Envelope	175°C ~ 180°C	175°C ~ 180°C																		
4	Sleeping	When it received sleep mode signal from the controller, the printer turns off the heater lamp. It keeps heater lamp OFF condition until it receives the releasing command from the controller. If the printer receives the sleep mode command amid printing, the printer controls sleep after printing.																		

Fusing Speed Switching Control

The printer switches the rotational speed of the carrier motor and fusion motor according to the paper type. See the table below.

Paper Type	Monochrome	Color
Plain Paper	160mm/sec	160mm/sec
Thick Paper	60mm/sec	60mm/sec
OHP	60mm/sec	60mm/sec
Envelope, Label, Post Card	60mm/sec	60mm/sec

Operational Principles of the Fusing Speed Switching Function

1. At the mid-transfer, BK toner transfer on the transfer belt has completed.
2. The printer switches the speed of the carrier motor (M1) and fusion motor (M4) from 160mm/sec to 60mm/sec.
3. Transfer belt rotates once.
4. Timing roller rotates.
5. Paper transfer is started.
6. Paper passes the paper eject sensor (PC8).
7. The printer switches the speed of the carrier motor (M1) and fusion motor (M4) from 60mm/sec to 160mm/sec.



The speed of fusion motor is fine-tuned according to the final caliber of the roller. Never touch the built-in resistance (VR1D).

- Fusing Roller Pressured / Estranged
 - The pressure roller of the fuser is applied to the fusing roller as needed.
 - Pressured
 - When the fusing pressure motor turns on and rotates the pressure, it rotates the sectored gear, pull the pressure roller and pressure the pressure roller to the fusing roller.
 - Fusing pressure position sensor (PC10) turns on and detects the pressure of the pressure roller.
 - Tunes off the fusing pressure motor.
 - Estrangement
 - The fusing pressure motor counter rotates on and loosen the pressure gear to estrange the pressure roller.
 - Pressure roller estrangement sensor supervises the pressure roller estrangement and keeps it estranged for the specified period.
 - Turns off the fusing pressure motor.

NOTE: It is estranged at envelop mode.

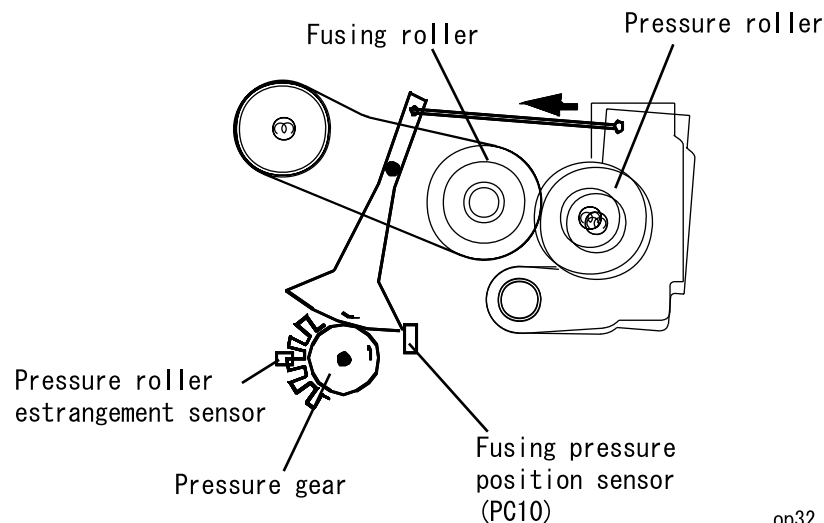


Figure 2-33. Fusing Roller Pressured / Estranged Detection

op32

2.2.8.3 Fusing Oil Roll

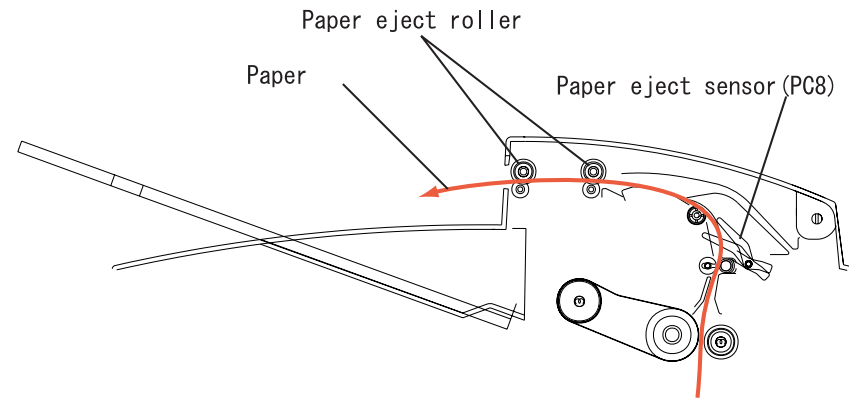
The function of the fusing oil roll is as follows.

- It prevents the toner on the paper before the fusing phase from attaching to the roller.
- Clean the fusing roller surface.
- For color page printer (ex. this product), it makes the copy surface shining like the photographs.

2.2.9 Paper Eject Process

Remove electricity from the image fused paper and eject paper to the paper eject tray.

- Paper eject sensor (PC8) detects paper eject.
- When Duplex unit is installed, the Duplex unit switch back motor controls the paper eject roller.



op33

Figure 2-34. Paper Eject Process

2.2.9.1 Duplex Unit (option)

The figure below shows the paper path when the duplex unit is installed. When the duplex is installed, the paper eject roller is driven by switch back motor and the paper transportation roller is driven by fusing motor. When printing on the back side, the paper eject roller counter-rotates and feeds paper to the duplex unit.

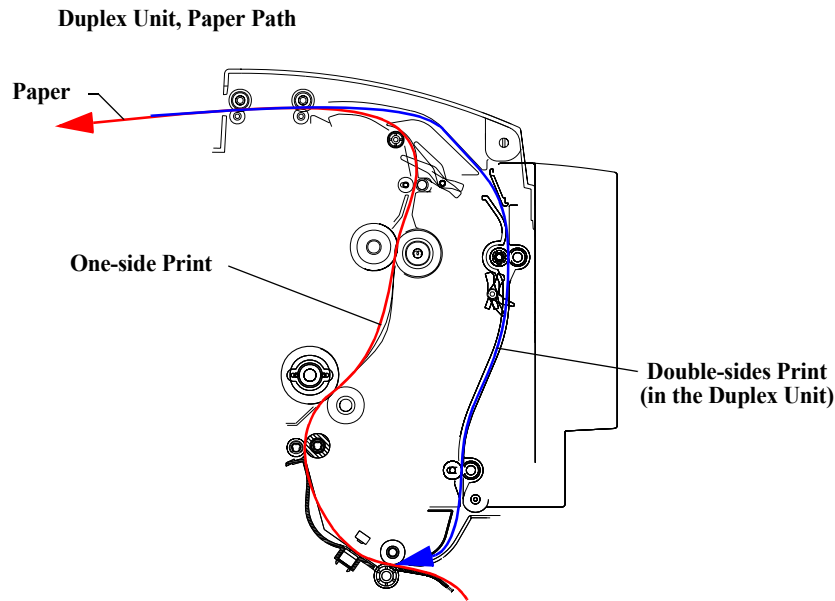


Figure 2-35. Paper Eject

□ Duplex paper load method

■ 2 sheets inside circulation method

When printing A4 / letter paper, print the front of 1st and 2nd page, the back of 1st and 2nd page, print the front of 1st and 3rd page and so on.

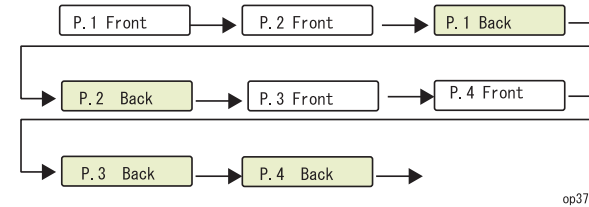


Figure 2-36. 2 Sheet Inside Circulation

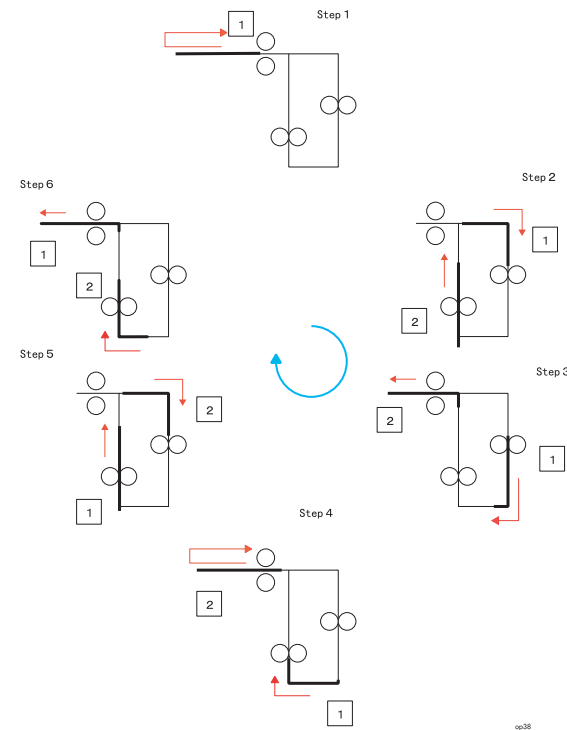


Figure 2-37. 2 Sheets Inside Circulation -- Double-side Printing

Constitution of Main Control Circuit Board (for AcuLaser C1000)

- Main Board Assy: C???MAIN
- Memory Board Assy: C???PROG (IPL, Code)

Specifications (for AcuLaser C1000)**Table 2-2. Major Elements (AcuLaser C1000)**

Name		Location	Remarks
CPU		IC100	TMPR4955AF-200
ASIC	DLC: E05B96BA	IC101	Memory control and I/O control integrated ASIC
	VIPS: E05B93BA	IC600	Video control ASIC
ROM DIMM	Standard ROM DIMM	CN300	1 slot 2MB PROG (IPL, Code)
SDRAM DIMM	Standard/ Optional	CN200	For standard/expanded printer memory (1 slot) New 90-pin. 16, 32, 64, 128 MB (Standard: 16MB)
	Optional	CN201	For printer memory expansion (1 slot) New 90-pin. 16, 32, 64, 128 MB
PWM		IC601	IC for pulse width modulation for connection to VIPS
SSCG		IC500	Clock driver
Reset IC			5V, M51953B (Mitsubishi)
EEPROM		IC102	2 kbits (compatible with EIC2) For storage of printer setting conservation business

CHAPTER

3

TROUBLESHOOTING

3.1 Troubleshooting Method

It is difficult to specify the cause of the trouble for the page printer has the complex mechanical structure. This chapter describes the method to specify the trouble cause from the error symptoms and how to solve the problem.

3.1.1 Troubleshooting Procedure

To find cause of the trouble, you have to follow the service manual and check the printer and the information gathered from the customer. This should be done step by step. Read the repair procedure in the table below.

Remove any parts or unit that are not the genuine products of EPSON.



Be careful to draw the paper feed tray when the paper feed roller is at the middle of the pick up position to avoid breaking part.

Table 3-1. Repair Procedure

Procedure	Solution / Explanation
1. Before starting troubleshooting	Understand what problems user have.
2. Power ON setting position	1. When turning the printer ON, does initialization and engine self-check perform all right? 2. Is there any problem at the setting place?
3. Panel indication	Does the panel indicate "Ready" or the energy-saving mode? 1. Insert the panel connector properly. 2. Perform the paper feed test (engine test) of the self-check function. Refer to Section 3.1.3 3. After confirming the panel indication is all right, start solving the error.

Table 3-1. Repair Procedure (continued)

Procedure	Solution / Explanation
4. Image quality problem	Is the print out image quality meet the customers' expectation? 1. Compare the output image with the image on the printed setting information page. 2. If the output is all white, replace the toner cartridge or pull up the contacting point of the toner cartridge for better contact. 3. If the output is all black, pull up the contacting point of the toner cartridge for better contact.

Table 3-2. Initial Checks

Item	Symptom / Cause	Solution
1. Turning the power ON.	1. Engine does not start at all.	<ul style="list-style-type: none"> Check if the power supply cable is inserted to the printer and plug. Check if the power supply voltage is all right.
	2. Engine cooling fan does not rotate. (Does not rotate when turning the power ON.)	Replace the fuse of the engine power board.
2. Power supply environment.	Power supply voltage is not within $\pm 10\%$ of the one described on the manufacture label.	Use the plug that meets the specification.

Table 3-2. Initial Checks (continued)

Item	Symptom / Cause	Solution
3. Setting environment	1. The place has vibration and inclination.	Place the printer even and stable place that is not subject to vibration.
	2. Temperature and Humidity is not within the specification described in Ch1.	Set the printer where there is no fire nearby and no direct air-conditioning wind.
	3. The setting place is subject to the direct sunlight.	Advise the customer to avoid the direct sunlight using curtain.
	4. The setting place is dusty.	Avoid dusty place to set the printer.
	5. The ammonia gas is generated from diazo copy or floor detergent nearby.	Remove the printer from the ammonia gas.
4. Paper size	The paper type and size is not correct.	Advise the customer to use paper which meets the printer specification.
5. Maintenance	The maintenance is not performed properly.	Clean the paper path. Replace the roller if the surface is noticeably dirty.
	The fusing belt is dirty.	Replace the oil coating roller.
6. Caution in the winter	When setting the printer that is cooled down by the fresh air into the warm room, condensation may be generated inside and may result in the following symptoms. <ul style="list-style-type: none"> • Lens is steamed up and the image is too weak. • Because of charging failure, the image is too strong. • Because paper is wet, paper is corrugated. • Fusing becomes irregular. 	Turn the printer ON and leave the printer for about 20 minutes. Open the drum and toner cartridge after warming them up with the room temperature.

3.1.2 Power is not Applied

Table 3-3. Power Does Not Turn ON

	Check Item	→	Solution
1	Is the power switch ON?	No	Turn the power ON.
2	Is the power cable connected to the printer properly?	No	Connect the power cable to the printer properly.
3	Is the power cable connected to the plug properly?	No	Connect the power cable to the plug properly.
4	Is the connector on the power board inserted correctly?	No	Insert the connectors correctly.
5	Is the fuse on PU1 (power board) blew out?	Yes	Replace the fuse.
		No	Replace the PU1 (power board).

3.1.3 Self Check Function (AcuLaser C2000)

AcuLaser C2000 has the following mode for self-check function.

- Test print
Check the trouble if it is the controller side error or the engine side error.

Procedure

1. Turn the printer OFF.
2. Remove the controller.
3. Remove the jammed paper.
4. Insert the paper on either Tray 1, Tray 2 or Tray 3.
5. Turn the printer ON.
6. Engine feeds a sheet in the priority order of option cassette, paper load cassette, manual tray. If the optional double unit is installed, it also operates.

CAUTION

- If an error is occurred at the option, the printer does not feed paper.
- It takes about 1 minute to complete the paper feed from the test start.

7. If the printer can perform printing normally, you can conclude that there is no error on the engine side except the controller and interface error. The printing pattern is shown below.

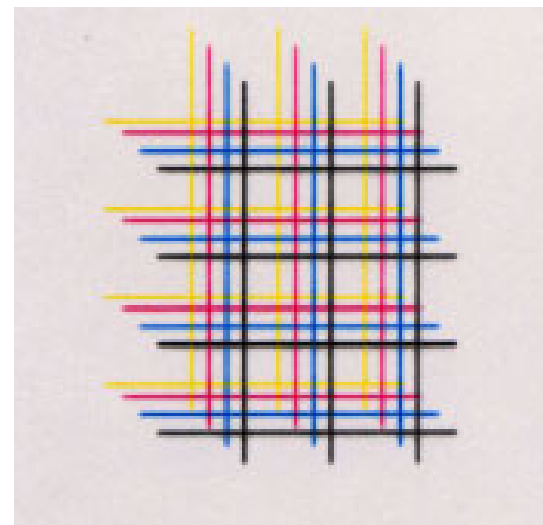


Figure 3-1. Print Pattern

3.2 Printer Message

The messages of AcuLaser C2000 / AcuLaser C1000 are categorized into the following 4 types:

- Status
Indicates the printer status.
Status message is indicated only when no error occurred or during the initialization.
- Error
Indicates the error status.
- Warning
Indicates the warning status. Print job is not halted.
- Service call error
Indicates errors that requires service call.

3.2.1 Messages

3.2.1.1 Printer Messages on AcuLaser C2000

A list of printer messages of AcuLaser C2000 is shown below. Each message is the message when “Lang = English” is set.

As for warning messages, by pressing the Continue switch, the lower order warning messages are displayed in their order.

If the LED message is new for this product, it marked as new at the right end column.

See the following tables for the list of this printer’s printer message.

Table 3-4. Messages (AcuLaser C2000)

LED Message	Category	Status code
(Display when Power is Turned On)	Status	
Service Req Cfff	Service Call Error	6000
Service Req Efff	Service Call Error *1	6001 - 6999
ROM CHECK	Status	
RAM CHECK	Status	
HDD CHECK	Status	
Self Test	Status	
Reset All	Status	1004
Reset	Status	1004
Check Duplex P-Size	Error	4016
Check Media Type	Error	4226
Jam x x x x (x=A,B,C1,C2,DM)	Error*2	4008,4009,4017,4012
uuuu Toner Crtg Out (uuuu=CMYK, only the relevant item is displayed.)	Error	4049 - 4063

Table 3-4. Messages (AcuLaser C2000) (continued)

LED Message	Category	Status code
Install Photocondctr	Error	4022
Install Waste T Box	Error	4023
Install Fuser	Error	4221
Install Oil Roll	Error	4024
Install TransferBelt	Error	4222
Clean Sensor	Error	4228
uuuu Toner Out (uuuu = CMYK, only the relevant item is displayed.)	Error	4065 - 4079
Replace Photocondctr	Error	4028
Replace Waste T Box	Error	4029
Replace Fuser	Error	4223
Replace Oil Roll	Error	4030
Replace Transfer Belt	Error	4224
Printer Open	Error	4002
Cover C1 Open	Error	4037
Cover C2 Open	Error	4037
Manual Feed sss ttt (sss: see *3, ttt:see *4)	Error	1013
Can't Print Duplex	Error	3005
Paper Out sss ttt (sss: see *3, ttt:see *5)	Error	4010
Paper Set sss ttt (sss: see *3, ttt:see *5)	Error	3003
Print Overrun	Error	3000
Mem Overflow	Error	3001

Table 3-4. Messages (AcuLaser C2000) (continued)

LED Message	Category	Status code
Duplex Mem Overflow	Error	3004
Invalid HDD	Error	4202
Invalid PS3	Error	4201
Invalid AUX I/F Card	Error	4014
Invalid ROM A	Error	4003
Invalid ROM B	Error	4003
Write Error ROM A	Error	4006
Write Error ROM P	Error	4006
Reset to Save	Status	
Writing ROM A	Status	1005
Writing ROM P	Status	1005
Menus Locked (Panel Setting Display)	Warning	
PS3 Hard Disk full	Warning	2561
Collate was Disabled	Warning	2013
Check Paper Size	Warning	2004
Image Optimum	Warning	2002
Check Paper Type	Warning	2008
Need Memory	Warning	2003
Format Error ROM A	Warning	2000
Format Error ROM B	Warning	2000
Form Feed	Status	1008
(Displayed during test printing)		1010
Warming Up	Status	1006
Calibrating Printer	Status	1014

Table 3-4. Messages (AcuLaser C2000) (continued)

LED Message	Category	Status code
Cooling Down	Status	1016
Offline	Status	1001
Job Cancel	Status	
uuuu Toner Low (uuuu = CMYK, only the relevant item is displayed.)	Warning	2017 - 2031
Worn Photocondctr	Warning	2010
Waste T Box Nearfull	Warning	2011
Worn Fuser	Warning	2562
Oil Roll Near Empty	Warning	2012
Worn Transfer Belt	Warning	2563
Standby	Status	1007
Ready	Status	1000

*1: See 6.5 Service Call Error Messages.

*2: In some cases a Jam occurs at several places at once. In such a case, maximum 4 places can be displayed and their priority order in display and E.J.L is A->B->C1->C->2->DM. The names of the Jam locations are separated by a single space.

Jam locations and corresponding status are as follows;

- 1) 4012: A
- 2) 4008: B
- 3) 4009: C1, C2
- 4) 4017: DM

*3: Of the Values for Paper Source in the panel setting, the relevant values, except for Auto, are displayed.

*4: Of the Values for Page Size in the panel setting, the relevant values are displayed.

*5: Of the Values for each paper feed size in the Tray Menu in the panel setting item, the relevant values are displayed.

3.2.1.2 Printer Status of AcuLaser C1000

The table below lists printer status items of AcuLaser C1000. These status messages can be checked with the STM

Table 3-5. Printer Status

Printer Status	Type	Status Code
Service Req (Controller Error)	Service call error	6000
Service Req (Engine Error)	Service call error	6001 ~ 6999
Protocol Error	Protocol Error	-
Reset	Status	1004
Check Duplex P-Size	Error	4016
Check Media Type	Error	4226
Jam WWWW *1 (W = A, B, C1, C2, DM)	Error	4008, 4009, 4017, 4012
uuuu Toner Crtg Out (uuuu = CMYK, only uninstalled cartridges are displayed)	Error	4049 ~ 4063
Install Photocondctr	Error	4022
Install Waste T Box	Error	4023
Install Fuser	Error	4221
Install Oil Roll	Error	4024
Install TransferBelt	Error	4222
Clean Sensor	Error	4228
uuuu Toner Out (uuuu = CMYK, only empty cartridges are displayed)	Error	4065... 4079
Replace Photocondctr	Error	4028
Replace Waste T Box	Error	4029
Replace Fuser	Error	4223
Replace Oil Roll	Error	4030
Replace TransferBelt	Error	4224

Table 3-5. Printer Status (continued)

Printer Status	Type	Status Code
Front Cover Open	Error	4002
Cover C1 Open	Error	4037
Cover C2 Open	Error	4037
Paper Out	Error	4010
Paper Set *2 *3	Error	3003
Invalid Size *2	Error	3002
Print Underrun	Error	3000
Mem Overflow *2	Error	3001
Duplex Mem Overflow *2	Error	3004
Invalid AUX I/F Card	Error	4014
Collate was disabled	Warning	2013
Check Paper Size *3	Warning	2004
Image Optimum	Warning	2002
Can't print duplex	Warning	2005
Print Failure	Warning	2568
Need Memory	Warning	2003
Screen Mismatch	Warning	2567
Warming Up	Status	1006
Calibrating Printer	Status	1014
Cooling Down *4	Status	1016
uuuu Toner Low (uuuu = CMYK, only cartridges near end are displayed)	Warning	2017.... 2031
Worn Photoconductor	Warning	2010

Table 3-5. Printer Status (continued)

Printer Status	Type	Status Code
Waste T Box Nearfull	Warning	2011
Worn Fuser	Warning	2562
Oil Roll Near Empty	Warning	2012
Worn Transfer Belt	Warning	2563
Standby	Status	1007
Ready	Status	1000
Printing Job	Status	1002
Engine Operating	Status	1009
Non-active Interface	Status	1012

*1: The relationship between covers where a paper jam occurs and status codes are as listed below. If two or more paper jams occur, the status code to be displayed is determined with the status code 1) given top priority and the other status codes given priority in the order of 2) ~ 4).

- 1) 4012: A
- 2) 4008: B
- 3) 4009: C1, C2
- 4) 4017: DM

*2: When "Avoid Error = ON" is set, none of the errors "Paper Set", "Invalid Size", "Mem Overflow" and "Duplex Mem Overflow" occurs.

*3: When "Size Ignore = ON" is set, neither the error "Paper Set" nor the warning "Check Paper Size" occurs.

*4: This status will be displayed as "Calibration Printer" in the Status Monitor window.

3.2.2 Printer Message Details of Status Messages and Remedies

Below are the status messages that are unique to AcuLaser C2000 / AcuLaser C1000:

3.2.2.1 Details of Status Messages and Remedy (AcuLaser C2000)

- Calibrating Printer
 - Explanation
This is one READY message. At the following timing, engine is automatically calibrated.
 1. At powering on
 2. Cover is opened and closed except for canceling Jam error.
 3. It has printed 100 pages or 24 hours passed from the last calibrating and returned from Standby state.
 - LED
The Continue LED is off. LED blinks.
 - Treatment Method
Wait for about one minute and the printer will automatically resume. Do not open any printer cover while calibrating.
- Cooling Down
Now cooling down the printer engine.
 - Explanation
At the following timing, cooling operation is automatically started. When starts print to OHP sheets, if the internal temperature is too high.
 - LED
The Continue LED is off. LED blinks.
 - Treatment Method
Wait for about one minute and the printer will automatically resume and start printing.

3.2.2.2 Details of Status Messages and Processing (AcuLaser C1000)

Reset

Description: The printer is being reset.
This status occurs as a result of clearing EEPROM, but does not occur by user's operation.

Warming Up

Description: The printer is warming up.

Processing: After warming up for approximately two and a half minutes, the printer will automatically get ready to print.

Calibrating Printer

Description: The printer engine is being adjusted. Engine adjustment is performed automatically in the following situations.

- When power to the printer is turned on
- When a cover is opened and closed except in the case of a paper jam
- When the printer is recovered from standby, provided that 100 sheets have been printed or 24 hours have elapsed after the last adjustment.

Processing: After Calibrating Printer for approximately one minute, the printer will automatically get ready to print. Never open any covers during this period.

Cooling Down (Status Monitor will display this status as "Calibrating Printer")

Description: The printer engine is being cooled down.

- The printer engine is automatically cooled down when internal temperature is too high to print transparencies. Printing will be stopped until the internal temperature becomes suitable for printing transparencies.

An irregular temperature of the fuser is being adjusted.

- If there is an irregular temperature of the fuser after returning from the standby mode, the engine will operate until the temperature is evened up.

Processing: In the case of "cooling down", the printer becomes ready automatically after approximately one minute and resumes printing.
In the case of "adjusting irregular temperature", the printer becomes ready automatically after 2 to 10 seconds and resumes printing. This time depends on the elapsed time and the number of printed sheets after return from the state of standby.

Standby

Description: The printer is in standby mode.

Processing: The printer becomes ready to print upon receiving printing data.

Ready

Description: The printer is ready to print (normal status).

Other status messages

- Printing Job
- Engine Operating
- Non-active Interface

3.2.3 Details of Error Messages and Remedies

Below are the error messages that are unique to AcuLaser C2000 / AcuLaser C1000.

3.2.3.1 Details of Error Messages and Remedy (AcuLaser C2000)

- Check Media Type
 - Explanation
A paper which is not correct OHP sheet is fed. Or printed on OHP sheets although OHP has not been selected.
Does not print and eject the sheet. When duplex is selected, sheet remains in the Duplex unit and paper jam occurs.
 - LED
The On Line LED is off and Continue LED is on.
 - Treatment Method
1) Set correct sheet to the paper feeder.
Press the Continue switch to release the error.
2) Execute Reset or Warmboot.
- Install Photoconductor
 - Explanation
The Photoconductor Unit is not set. Or it is not set correctly.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open the Front cover. Remove the Waste Toner Collector if it is set then reinstall the Photoconductor unit correctly. Reset the Waste Toner Collector then close the Front cover, and the error will be released automatically.
- Install Waste Toner Box
 - Explanation
A Waste Toner Collector is not set. Or it is not set correctly.
 - LED
The On Line LED and Continue LED are off.
- Treatment Method
Open the Front cover, set a Waste Toner Collector, then close the cover. The error will be canceled automatically.
- Install Oil Roll
 - Explanation
The Fuser Oil Roll is not set. Or it is not set correctly.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open the cover-A, set a Fuser Oil Roll, then close the cover-A. The error will be canceled automatically.
- Install Fuser
 - Explanation
The Fuser unit is not set. Or it is not set correctly.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open the cover-A, remove the Fuser Oil Roll if it is set. Set a Fuser unit, then set the Fuser Oil Roll again. Close the cover-A and the error will be canceled automatically.
- Install Transfer Belt
 - Explanation
The Transfer Belt unit is not set.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open the Front cover, remove the Waste Toner Collector and the Photoconductor Unit if they are set. Set a Transfer Belt Unit and reset the Photoconductor Unit and the Waste Toner Collector. Close the Front cover and the error will be canceled automatically.

- Clean Sensor
 - Explanation
The window of sensor for engine calibration is soiled.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open Front Cover and remove Waste Toner Collector. Turn the green lever (at left side o the center) upward then put it back. Reinstall Waste Toner Collector then close Front Cover.
- uuuu Toner Out
 - Explanation
It is detected that there is no toner remaining by the toner end sensor for each color. If it is canceled temporarily by pressing the Continue switch, this error will be produced in every page printed.
When Toner Out = Continue, this error is not produced. u u u u indicates C, M, Y, K toner cartridge, which correspond to the C, M, Y and K toner cartridges, and out of these, those toner cartridges only where it is detected that there is no toner remaining are displayed.
 - LED
The On Line LED is off and Continue LED is on.
(This specification is different from that of AcuLaser C8500.)
 - Treatment Method
 - 1) Replace toner Cartridge.
Open the Front cover, replace empty toner cartridge with new one.
Close all covers and the error will be canceled automatically.
Toner Counter is reset automatically.
 - 2) Press the Continue switch to cancel the error temporarily.
- Replace Photocondctr
 - Explanation
It is regarded that the photoconductor service life is end, based on the total number of revolution of the photoconductor up to now from previous replacement. And printing is stopped.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open the Front Cover and replace Waste Toner Collector, Photo conductor Unit and Print Head Filter with new ones.
Close the Front cover and the error will be canceled automatically. The photoconductor counter is reset automatically and the panel display "Photoconductor" in Setup Menu becomes 100%.
- Replace Waste T Box
 - Explanation
The waste toner box has been sensed to be full of waste toner from the engine, and printing is stopped.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open the Front cover, then replace the Waste Toner Collector with new one. Close the Front cover. The error will be canceled automatically.
- Replace Fuser
 - Explanation
It is regarded that the Fuser Unit service life is end, based on the total number of revolution of the Fuser Unit up to now from previous replacement. And printing is stopped.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open the Cover-A and remove the Fuser Oil Roll, then replace the Fuser Unit with new one. Reset the Fuser Oil Roll. Then open the Cover-B and replace the 2nd Transfer Roll.

- Replace Oil Roll
 - Explanation
End of Fuser Oil Roll life. The remaining life is counted in the engine.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open Cover A and replace Fuser Oil Roll with new one. Close Cover A then the error will be cancelled automatically. Remaining of Fuser Oil Roll returns 100%.
- Replace Transfer Belt
 - Explanation
It is regarded that the Transfer Belt Unit service life is end, based on the total number of revolution of the Transfer Belt up to now from previous replacement. And printing is stopped.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Open the Front cover. Then remove the Photoconductor Unit and replace the Transfer Belt Unit with new one. Then reset Photoconductor Unit. Close the Front cover, then the error will be canceled automatically.
- Printer Open
 - Explanation
Front cover, Cover-A, Cover-B or Cover DM is/are open.
 - LED
The On Line LED and Continue LED are off.
 - Treatment Method
Close all cover and the error will be canceled automatically.

3.2.3.2 Details of Error Status and Remedy (AcuLaser C1000)

- Check Duplex P-Size
 - Description: Since the paper size fed in duplex printing was different from the paper size in a paper cassette detected (or the paper size in the MP tray specified by data), printing stopped and a paper jam occurred.
The printer will recover from this error when the detection of the paper jam is canceled.
After error recovery, the data for one page is recovered if it is still retained in the printer memory, but if the data cannot be recovered, the printer returns a status of resending request. Recovery is achieved when a flying start is not performed.
 - Remedy: Insert paper of the appropriate size, open covers over paper feeding routes and remove jammed paper, then close the covers. Printing resumes from the jammed page. Pop-up display of the EPSON Status Monitor disappears after error recovery.
- Check Media Type
 - Description: Since paper other than transparencies was fed for transparency printing, or a transparency was fed for non-transparency printing, the printer canceled printing and ejected the sheet.
If a transparency is fed by mistake for duplex printing, the sheet remains in the duplex print unit, thus causing a paper jam.
The Continue command of the ESCPAGES-02 protocol releases the error in the printer engine, and the printer recovers from the error. The ResetPrinter command releases the error in the printer engine and resets the printer to the initial status.
After error recovery by the Continue command, the data for one page is recovered if it is still retained in the printer memory, but if the data cannot be recovered, the printer returns a status of resending request. Recovery is achieved when a flying start is not performed.

- Remedy: If a wrong paper was loaded, reinsert the appropriate paper and select [Reprint] in the EPSON Status Monitor. When driver settings are to be changed for reprinting, select [Cancel Printing] in the EPSON Status Monitor.
- JamWWWW (W=A, B, C1, C2, DM)
- Description: A paper jam occurrence. The error status information indicates only one paper jam location as “below the cover A” (paper ejecting area), “below the cover B” (inside of the printer), “below the cover C1” or “below the cover C2” (paper feeding area), or “below the cover DM” (duplex print unit); it cannot indicate multiple locations. The printer will recover from this error when the detection of the paper jam is canceled. After error recovery, the data for one page is recovered if it is still retained in the printer memory, but if the data cannot be recovered, the printer returns a status of resending request. Recovery is achieved when a flying start is not performed.
- Remedy: Remove the jammed paper and close the covers. Printing resumes from the jammed page. Pop-up display of the EPSON Status Monitor disappears after error recovery.
- uuuu Toner Crtg Out (uuuu = CMYK, only uninstalled cartridges are displayed)
Install Photocondctr
Install Waste T Box
Install Fuser / Install Oil Roll
Install TransferBelt
- Description: Consumables are not installed, or are not installed correctly. The printer will recover from the error when it detects the correct installation of the consumables.
- Remedy: Install consumables properly and close the opened covers. Then the error will disappear, thus the pop-up display of the EPSON Status Monitor will disappear.
- Clean Sensor
- Description: The sensor window for the printer engine adjustment is soiled. The printer will recover from the error when the detection of soiling in the printer head filter is canceled.
- Remedy: Open the front cover, clean the printer head filter and close the cover. Then the error will disappear, thus the pop-up display of the EPSON Status Monitor will disappear.
- uuuu Toner Out (uuuu = CMYK, only empty cartridges are displayed)
Replace Photocondctr
Replace Waste T Box
Replace Fuser
Replace Oil Roll
Replace TransferBelt
- Description: The life of consumables has expired. If the life of consumables has expired during printing, operation stops before starting to print the next page. The printer will recover from these errors when a remaining life of consumables is detected.
- Remedy: Replace the relevant consumable and close the opened covers. Then the error will disappear, thus the pop-up display of the EPSON Status Monitor will disappear. Even when the “uuuu Toner Out” error has occurred, if you cancel the printing once and select “Toner Out Continue” by printer setting, the “uuuu Toner Out” error will not occur thereafter, with “uuuu Toner Low” remaining displayed instead.
- Front Cover Open
Cover C1 Open
Cover C2 Open
- Description: The printer cover is open. The printer will recover from these errors when the closing of the cover is detected. You cannot identify which cover is open among the front cover, the cover A, the cover B, and the cover DM, or between the Cover C1 and C2.

Remedy: When the cover is closed, the error will disappear, thus the pop-up display of the EPSON Status Monitor will disappear.

Paper Out

Description: Since the selected paper source is not loaded with paper, operation stops before printing. When paper is detected in the selected paper source, the printer will recover from the error and start printing. Even if all the paper sources have no paper, the error does not appear unless printing is activated.

Remedy: When paper is inserted in the selected paper source, the error will disappear, thus the pop-up display of the EPSON Status Monitor will disappear.

Paper Set

Description: Since the paper size specified by printing data differs from the paper size recognized by the size detecting means of the Paper Source, operation stops before printing. The Continue command of the ESCPAGES-02 protocol releases the printer engine from the error, thus the printer recovers from the error and starts printing. The ResetPrinter command releases the printer engine from the error in the printer engine, resetting the printer to the initial status.

This error does not occur when the specified paper size is an undefined paper size, or when "Size Ignore = ON" or "Avoid Error = ON" is selected.

Remedy: Insert appropriate paper and select [Continue] in the EPSON Status Monitor. When driver settings are to be changed for reprinting, select [Cancel Printing] in the EPSON Status Monitor.

Invalid Size

Description: Since a larger paper size than A4/LT such as A3 is specified, or a different feeding direction is selected such as A4 Long Edge Feed, operation stops before printing. The Continue command of the ESCPAGES-02 protocol releases the printer from the error, and printing resumes

from the next page. When "Avoid Error = ON" is set, the printer displays the "Print Failure" error status instead of this error, and resumes printing the next page.

Remedy: To print pages subsequent to the occurrence of "Invalid Size", select [Continue] in the EPSON Status Monitor. When driver settings are to be changed for reprinting, select [Cancel Printing] in the EPSON Status Monitor. Actually, the printer driver will clip image to A4 or Letter size, so this error will not occur.

Print Underrun

Description: Printing was not successful since the data constituting the band for printing was not completely received at printing by flying start, or the memory was insufficient after a flying start due to "Near Buffer Full". Resetting the printer to the initial status by the ResetPrinter command of the ESCPAGES-02 protocol releases the printer from the error.

Remedy: If data receiving is not completed, select [Reprint] in the EPSON Status Monitor, and the driver will resend data without a flying start, so that printing can be performed successfully in some cases. When driver settings are to be changed for reprinting, select [Cancel Printing] in the EPSON Status Monitor.

Mem Overflow

Description: Data for one page was not saved due to an insufficient memory. The Continue command of the ESCPAGES-02 protocol releases the printer from the error, and printing resumes from the next page. When "Avoid Error = ON" is set, the printer displays the "Print Failure" error status instead of this error, and resumes printing the next page.

Remedy: To print pages subsequent to the occurrence of "Mem Overflow", select [Continue] in the EPSON Status Monitor. When driver settings are to be changed for reprinting, select [Cancel Printing] in the EPSON Status Monitor.

Duplex Mem Overflow

Description: Data for the front page (the second page of duplex) was not saved due to an insufficient memory. The Continue command of the ESCPAGES-02 protocol releases the printer from the error, and printing resumes from the next combination of the front and back pages. When "Avoid Error = ON" is set, the printer displays the "Print Failure" error status instead of this error, and resumes printing the next combination of the front and back pages.

Remedy: To print pages subsequent to the occurrence of "Mem Overflow", select [Continue] in the EPSON Status Monitor. When driver settings are to be changed for reprinting, select [Cancel Printing] in the EPSON Status Monitor.

Invalid AUX I/F Card

Description: An interface card that cannot be used is installed. Since the printer checks an interface card only when it is turned on, the printer does not recover from this error while the power to the printer is on. Only interface cards compatible with expansion of background job commands are supported. Even if this error has occurred, the following operation is possible.

- Display this status in EPW!
- Type B firmware update

Remedy: Turn off the printer, remove an invalid interface card, and turn power on again.

3.2.4 Details of Warning Messages and Remedies

This section provides the details of warning messages and remedies that are specific to AcuLaser C2000 / AcuLaser C1000.

3.2.4.1 Details of Warning Messages and Remedy (AcuLaser C2000)

uuuu Toner Low

■ Explanation

This notifies the user of the warning message that the remaining toner of each color (Y, M, C, K) is low. The remaining toner value for each color is calculated from the engine's remaining toner sensor (actually, the dispensing time), and this message is displayed with the remaining toner is approximately 80%. u u u u indicates CMYK, which correspond to the C, M, Y and K toner cartridges, and out of these, the toner cartridges only where it is detected that the remaining toner is low are displayed.

■ Treatment Method

Display of this message is canceled by any one of the following.

- 1) Press the Continue switch.
- 2) Reset the printer.
- 3) Replace the Toner Cartridge indicated by the message with a new one.

- Worn Photoconductor
 - Explanation
This is a warning message that informs the user that the Photoconductor Unit has almost reached the end of its service life. Photoconductor in the Setup Menu becomes less than 20%.
 - Treatment Method
Use of the photoconductor unit is possible until the “Replace Photoconductor” error is displayed, but basically, it is better to replace it right away. Display of this message is canceled by any one of the following.
 - 1) Press the Continue switch.
 - 2) Reset the printer.
 - 3) Replace the Photoconductor Unit with a new one. At the same time, Fuser Oil Roll, Waste Toner Collector and Print Head Filter should be replaced.
- Waste T Box Nearfull
 - Explanation
This warning message notifies the user that the Waste Toner Collector is nearly full. The Waste Toner When Collector full state is detected, this warning is produced.
 - Treatment Method
Basically, it is better to replace it right away. Or exchanging Photoconductor Kit will also do. Display of this message is canceled by any one of the following.
 - 1) Press the Continue switch.
 - 2) Reset the printer.
 - 3) Replace the Waste Toner Collector with a new one.
- Worn Fuser
 - Explanation
This is a warning message that informs the user that the Fuser Unit has almost reached the end of its service life.
 - Treatment Method
Use of the Fuser unit is possible until the “Replace Fuser” error is displayed, but basically, it is better to replace it right away. Display of this message is canceled by any one of the following.
 1. Press the Continue switch.
 2. Reset the printer.
 3. Replace the Fuser Unit with a new one. At the same time, 2nd Transfer Roll should be replaced.
- Oil Roll Near Empty
 - Warning is issued when Fuser Oil Roll remaining becomes 20%. The engine counts Fuser Oil Roll remaining.
 - Remedy:
Use of the Oil Roll is possible until the “Replace Oil Roll” error is displayed, but basically, it is better to replace it right away. Display of this message is canceled by any one of the following.
 1. Press the Continue switch.
 2. Reset the printer.
 3. Replace the Fuser Oil Roll with a new one.

Worn Transfer Belt

■ Explanation

This is a warning message that informs the user that the Transfer Belt has almost reached the end of its service life.

■ Treatment Method

Use of the Transfer Belt is possible until the "Replace TransferBelt" error is displayed, but basically, it is better to replace it right away. Display of this message is canceled by any one of the following.

1. Press the Continue switch.
2. Reset the printer.
3. Replace the Transfer Belt Unit with a new one.

3.2.4.2 Details of Warning Status and Remedy (AcuLaser C2000)

Collate was disabled

Description: All the one-page band data which is designated for multi-copying was not saved completely. The printer is released from this warning by the ResetFlag command of the ESCPAGES-02 protocol. This warning status may occur before completing sending data for one page. In such a case, if the data sending is continued, only one sheet will be printed.

Remedy: The warning occurs only when a flying start is performed, and since data are resent "the number of copies n - 1" times, this warning status is not displayed in the user interface.

Check Paper Size

Description: The paper size that was actually fed differed from the paper size recognized by the paper size detecting means of the Paper Source (or the paper size in the MP tray specified by data). The printer is released from this warning by the ResetFlag command of the ESCPAGES-02 protocol. This warning does not occur when the specified paper size is an undefined paper size or when "Size Ignore = ON" is selected.

Remedy: Clicking the [Close] button will close the pop-up display of the EPSON Status Monitor. However, if an error of higher priority occurs just after that, the display changes to the error display. From this point, the printer will follow the error recovery procedure, and the status will never go back to the "Check Paper Size" warning.

Image Optimum

Description: Due to an insufficient printer memory, printing was performed with non-reversible compression. The printer does not process non-reversible compression, but the received data are already non-reversible compressed. This warning is cleared by the ResetFlag command of the ESCPAGES-02 protocol.

Remedy: Clicking the [Close] button will close the pop-up display of the EPSON Status Monitor. However, if an error of higher priority occurs just after that, the display changes to the error display. From this point, the printer will follow the error recovery procedure, and the status will never go back to the "Image Optimum" warning.

Can't print duplex

Description: Since duplex printing was impossible due to restrictions on duplex printing, simplex printing was performed. Due to the fact that the printer does not transpose the pages of sent data, simplex printing proceeds in the order of the back page first and then the front page. The printer is released from this warning by the ResetFlag command of the ESCPAGES-02 protocol. This status is the "Can't print duplex" error in ESC/Page models. However, since this status can not occur in normal operations, it is changed to a warning.

Remedy: Clicking the [Close] button will close the pop-up display of the EPSON Status Monitor. However, if an error of higher priority occurs just after that, the display changes to the error display. From this point, the printer will follow the error recovery procedure, and the status will never go back to the "Can't print duplex" warning. Due to restrictions checked by the driver, this error can not occur practically.

Print Failure

Description: Although an error equivalent to the "Invalid Size", "Mem Overflow" or "Duplex Mem Overflow" has occurred, printing has been continued displaying this warning, since "Avoid Error = ON" has been set. In any EPSON printers other than host based, the relevant one of these three messages will be displayed about 5 seconds and then cleared automatically if "Avoid Error = ON". But with a host based printer, Status Monitor cannot monitor these messages, so the error message will be cleared immediately and status monitor will display this Warning message.

Remedy: Clicking the [Close] button will close the pop-up display of the EPSON Status Monitor. However, if an error of higher priority occurs just after that, the display changes to the error display. From this point, the printer will follow the error recovery procedure, and the status will never go back to the "Print Failure" warning.

Need Memory

Description: Printing was performed by a flying start as a result of buffer-full status. However, if sufficient memory is not available for printing, the "Print Underrun" error occurs. This status does not occur in printing via a network connection where a flying start is not applicable. The print result will be at the same level in quality as with sufficient memory.

Remedy: Clicking the [Close] button will close the pop-up display of the EPSON Status Monitor. However, if an error of higher priority occurs just after that, the display changes to the error display. From this point, the printer will follow the error recovery procedure, and the status will never go back to the "Need Memory" warning.

Screen Mismatch

Description: Since color screen adjustment for printing image does not match the printer internal color screen, printing has continued displaying this warning.

Remedy: This warning will occur when the screen matching between driver and printer is not achieved. Clicking the [Close] button will close the pop-up display of the EPSON Status Monitor. However, if an error of higher priority occurs just after that, the display changes to the error display. From this point, the printer will follow the error recovery procedure, and the status will never go back to the "Screen Mismatch" warning.

- uuuu Toner Low (uuuu = CMYK, only cartridges near end are displayed)
- Worn Photoconductor
- Waste T Box Nearfull
- Worn Fuser
- Oil Roll Near Empty
- Worn Transfer Belt

Description: These warnings indicate that consumables should be replaced soon.
 For toners, they also indicate which of CMYK toners have to be replaced.
 The warnings related to consumables will be cleared when the status of end or near end is not detected any longer. The ResetFlag command of the ESCPAGES-02 protocol also clears the warning.
 However, a function to clear the warnings for consumables from the EPSON Status Monitor is not supported.
 Each consumable can be used until the status changes to the replace error, but it is desirable to replace it when the warning appears.

Remedy: After printing, the EPSON Status Monitor pop-up appears, but this display will disappear when the [Close] button is clicked or the relevant consumable is replaced.
 "Other warnings = OFF" can be selected in the Monitoring Preferences settings of the EPSON Status Monitor.

3.2.5 Service Call Error Messages

There are two types of service call errors; engine related and controller related ones, as shown in the following sections.

3.2.5.1 Engine Related Service Call Error Messages

<AcuLaser C2000>

Table 3-6. Engine Related Service Call Error Messages (AcuLaser C2000)

Error Category e	Error Code fff	Explanation
E	004	(2-4) Engine board malfunction
E	008	(2-8) Main motor malfunction
E	009	(2-9) Fuser motor malfunction
E	011	(2-11) Transfer Belt fan malfunction
E	012	(2-12) Power supply cooling fan malfunction
E	013	(2-13) Inside cooling fan malfunction
E	014	(2-14) Suction fan malfunction
E	015	(2-15) Fuser fan malfunction
E	016	(2-16) Polygon motor malfunction
E	018	(2-18) Laser malfunction
E	020	(2-20) 2nd transfer roller gap control malfunction
E	021	(2-21) Transfer Belt Cleaner gap control malfunction
E	022	(2-22) Transfer Belt rotation malfunction
E	023	(2-23) Toner cartridge rack malfunction
E	024	(2-24) Heater roller heating malfunction
E	025	(2-25) Heater roller low temperature malfunction

**Table 3-6. Engine Related Service Call Error Messages
(AcuLaser C2000) (continued)**

Error Category e	Error Code fff	Explanation
E	026	(2-26) Heater roller high temperature malfunction
E	027	(2-27) Heater roller thermistor malfunction
E	028	(2-28) Pressure roller heating malfunction
E	029	(2-29) Pressure roller low temperature malfunction
E	030	(2-30) Pressure roller high temperature malfunction
E	031	(2-31) Heater roller thermistor malfunction
E	032	(2-32) Fuser roller gap control malfunction
E	033	(2-33) OHP detection sensor malfunction
E	034	(2-34) Multiple manual feeder pusher malfunction
E	041	(2-41) Main unit memory counter malfunction
E	042	(2-42) Main unit memory data malfunction
E	043	(2-43) Main unit memory access malfunction
E	044	(2-44) Main unit memory installation incorrectness
E	998	Engine communication error

<AcuLaser C1000>

All error codes for service call can be seen on the EPSON Status Monitor.

**Table 3-7. Engine Related Service Call Error
(AcuLaser C1000)**

Error Code	Description
6004	(2-4) Engine board error
6008	(2-8) Main motor error
6009	(2-9) Fuser motor error
6011	(2-11) Transfer belt fan error
6012	(2-12) Power supply cooling fan error
6013	(2-13) Internal cooling fan error
6014	(2-14) Suction fan error
6015	(2-15) Fuser fan error
6016	(2-16) Polygon motor error
6018	(2-18) Laser error
6020	(2-20) 2nd transfer roller gap control error
6021	(2-21) Transfer Belt Cleaner gap control error
6022	(2-22) Transfer Belt rotation error
6023	(2-23) Toner Cartridge rack error
6024	(2-24) Heater roller heating error
6025	(2-25) Heater roller low temperature error
6026	(2-26) Heater roller high temperature error
6027	(2-27) Heater rollers thermistor error
6028	(2-28) Pressure roller heating error
6029	(2-29) Pressure roller low temperature error
6030	(2-30) Pressure roller high temperature error
6031	(2-31) Pressure roller thermistor error

**Table 3-7. Engine Related Service Call Error
(AcuLaser C1000) (continued)**

Error Code	Description
6032	(2-32) Fuser roller gap control error
6033	(2-33) Transparency detection sensor error
6034	(2-34) Multiple manual feeder pusher error
6041	(2-41) Main unit memory counter error
6042	(2-42) Main unit memory data error
6043	(2-43) Main unit memory access error
6044	(2-44) Main unit memory installation error
6998	Engine communication error

3.2.5.2 Engine Related Service Call Error Troubleshooting

Fusing Unit is Abnormal

No.	Check Item		Solution
1	Check the connection between the fusing unit and connector.	-	Remove the fusing unit and install it again.
2	Does heater lamp 1 (H1) light on when turning the printer on?	No	Replace the fusing unit.
3	Does heater lamp 2 (H2) light on when turning the printer on?	No	Replace the fusing unit.
Others			Replace PU1 (power board). Replace PWB-A.

The abnormal fusing unit is caused by abnormal heat roller temperature up, abnormal heat roller low temperature, abnormal heat roller high temperature, abnormal heat roller thermistor, abnormal pressure roller temperature up, abnormal pressure roller low temperature, abnormal temperature high temperature, abnormal pressure roller thermistor.

1. When the temperature of the heat roller does not go up by the specified value for 22 to 40 seconds after warm-up is started. Same can be said for the pressure roller temperature.
2. When the temperature of the pressure roller does not reach 80°C for 90 seconds after warm-up. It is detected as abnormal pressure roller heat up.
3. When the temperature of the heat roller does not reach does not reach 170°C within 140 seconds after the temperature of pressure roller reaches 80°C after warm-boots, it detects as abnormal heat roller temperature up.
4. When the temperature of the pressure roller does not reach 130°C within 70 seconds after the temperature of the heat roller becomes more than 170°C AND when the temperature of the pressure roller does not reach 150°C within 140 seconds, it detects as the abnormal pressure roller temperature up.

5. During printing or stand-by state, when the temperature of the heat roller goes below 70°C, it detects as abnormal heat roller low temperature. Pressure roller temperature is detected as abnormal pressure roller low temperature.
6. When the temperature of the heat roller goes above 210°C during the temperature control, it detects as abnormal heat roller high temperature. Pressure roller is detected as abnormal pressure roller high temperature.
7. For heat roller, the hard shuts down at 220°C and the thermostat shuts down at 210°C. Pressure roller hard shuts down at 205°C and thermostat shuts down at 150°C.

Power Supply Cooling Fan Motor is Abnormal

Abnormal fan motor is detected when any of the following 5 abnormality is occurred; power supply cooling fan motor, mechanism cooling fan motor, suction fan motor, transfer belt fan motor and fusing fan motor.

- Power Supply Cooling Fan Motor is abnormal

No.	Check Item		Solution
1	At the power ON initialization sequence, does the power supply fan motor (M8) rotate? Check the rotation by its sound or by hand feeling the wind.	No	Remove connector PJ16A and insert it again. Replace the power supply fan motor.
Others			Replace PWB-A.

Power supply fan motor (M8) rotates by two rotational speed; full speed / half speed.

When the power supply fan lock signal becomes active for 0.5 seconds, the printer detects that power supply fan motor is abnormal.

	Mechanical Condition	Operation of Fan Motor
1	When the front / fusing cover / transportation cover is opened.	Half speed
2	When the power supply fan motor is abnormal.	Stop
3	When any error occurred during printing. (except when the power supply fan motor is abnormal.)	Full speed for 15 seconds and then half speed
4	When any error occurred during non-printing. (except when the power supply fan motor is abnormal.)	Half speed
5	When turning the power switch ON.	Full speed for 2 seconds and then half speed.
6	Warming up.	Half speed

	Mechanical Condition	Operation of Fan Motor
7	Pause mode	Stop
8	During printing	<ul style="list-style-type: none"> • When printing is started: half speed • 20 seconds after printing is started: full speed • 15 seconds after printing is completed: half speed • At other time: half speed.

Mechanism Cooling Fan Motor is abnormal

No.	Check Item		Solution
1	At the power ON initialization sequence, does the mechanism cooling fan motor (M9) rotate? Check the rotation by its sound or by hand feeling wind.	No	Remove connector PJ28A and insert it again. Replace the fan motor.
Others			Replace PWB-A.

Ozone fan motor (M9) rotates full-time while polygon motor rotates.

- When polygon motor (M6) is ON: full speed
- Stops by opening cover.
Cover: front cover, fusing cover, transportation cover, paper feed cassette door, double unit door.

When the mechanism cooling fan lock signal becomes active for 0.5 seconds, the printer detects that mechanism cooling fan motor is abnormal.

Suction Fan Motor is abnormal

No.	Check Item		Solution
1	At the power ON initialization sequence, does the suction fan motor (M7) rotate? Check the rotation by its sound or by hand feeling wind.	No	Remove connector PJ3A and insert it again. Replace the fan motor.
Others			Replace PWB-A.

Suction fan motor (M7) rotates by two rotational speed; full speed / half speed.

- When transportation motor (M1) is rotating: Full speed
- When transportation motor (M1) is not operating: Half speed
- Cover open: Stop
- Other time: Half speed

When the suction fan lock signal becomes active for 0.5 seconds, the printer detects that suction fan motor is abnormal.

Transfer Belt Fan Motor is abnormal

No.	Check Item		Solution
1	At the power ON initialization sequence, does the toner absorption fan motor (M11) rotate? Check the rotation by its sound or by hand feeling wind.	No	Remove connector PJ30A and insert it again. Replace the fan motor.
Others			Replace PWB-A.

Toner absorption fan motor (M11) rotates full-time while transportation motor (M1) rotates.

- When transportation motor (M1) is rotating: Full speed
- Cover open: Stop

When the transfer belt fan lock signal becomes active for 0.5 seconds, the printer detects that transfer belt fan motor is abnormal.

Fusing Fan Motor is abnormal

No.	Check Item		Solution
1	At the power ON initialization sequence, does the fusing fan motor (M10) rotate? Check the rotation by its sound or by hand feeling wind.	No	Remove connector PJ29A and insert it again. Replace the fan motor.
Others			Replace PWB-A.

Fusing fan motor (M10) rotates by two rotational speed; full speed / half speed.

- When fan is booted or warm-up is completed: Full speed for 2 seconds, and then half speed
- When transportation motor (M1) is rotating: Full speed
- When warm-up is completed: Half speed
- Cover open, pause: Stop

When the fusing fan lock signal becomes active for 0.5 seconds, the printer detects that fusing fan motor is abnormal.

Main Motor is abnormal

No.	Check Item		Solution
1	Does the transportation motor (M1) rotate during printing?	No	Remove connector PJ21A and insert it again.
		Yes	Check that no weight applies on the each roller or gears.
Others			Replace PWB-A.

Detection of transportation motor (M1) rotation is detected 1 second after transportation motor (M1) starts rotating until the transportation motor (M1) stops.

When the transportation motor M_Lock signal becomes active for 0.5 seconds, the printer detects that the transportation motor is abnormal.

Fusing Motor is abnormal

No.	Check Item		Solution
1	Does the fusing motor (M4) rotate during printing?	No	Remove connector PJ22A and insert it again.
		Yes	Check that no weight applies on the each roller or gears.
Others			Replace PWB-A.

Detection of fusing motor (M4) rotation is detected 1 second after fusing motor (M4) starts rotating until the fusing motor (M4) stops.

When the fusing motor M_Lock signal becomes active for 0.5 seconds, the printer detects that the fusing motor is abnormal.

Fusing Pressure / Estrangement is abnormal

No.	Check Item		Solution
1	Does the fusing unit upshot?	Yes	Install the fusing unit correctly.
2	Does the fusing pressure motor (M5) rotate? Check by its sound.	No	Remove connector PJ25A and insert it again. Replace fusing pressure motor.
		Yes	Replace the fusing pressure position sensor. Replace the pressure roller estrangement sensor.
Others			Replace PWB-A.

When one of the following items is detected, the printer detects that the driving motor is abnormal.

1. When the pressure state is not detected 4 seconds after the printer starts pressure roller to pressure.
2. When the estrangement state is not detected 4 seconds after the printer starts pressure roller to estrange.

Laser is abnormal

No.	Check Item		Solution
1	Check the connector on the mechanical control board of the print head and polygon motor.	-	Remove the connector PJ27A and insert it again. Remove the connector PJ12A and insert it again.
2	-	-	Replace the print head unit. Replace the laser safety switch.
Others			Replace PWB-A.

When one of the following items is detected, the printer detects that the laser is abnormal.

1. When the polygon motor M_Lock signal becomes inactive for 0.4 seconds 8 seconds after the polygon motor (M6) starts driving until the polygon motor (M6) stops, the printer detects that the laser is abnormal.
2. When the LD_SOS signal is not detected for the specified time after the polygon motor is turned on and laser emission is started, the printer detects that the laser is abnormal.
3. When LD_SOS signal is not detected during the printing (during laser emission), the printer detects laser is abnormal.

Transfer Belt Rotation is Abnormal

No.	Check Item		Solution
1	During printing, does the transfer belt rotate? (Open the front cover and check it.)	No	Check if the transfer belt unit is installed correctly.
		No	Replace the transfer belt unit.
Others			Replace PWB-A.

1. The transfer belt rotation is detected since the transfer belt starts rotating until the transfer belt stops.
2. While the transfer belt is rotating, if the transfer belt position sensor (PC12) does not change, it is detected that the transfer belt is abnormal.

Transfer Belt Cleaner Pressure / Estrangement is Abnormal

No.	Check Item		Solution
1	During printing, does the belt cleaner motor rotate? (Check it by its sound.) Or remove the left cover, take a look from the front bottom and check it by the lever operation.	No	Remove connector PJ32A, PJ33A and insert it again. Remove connector PJ51, PJ61 and insert it again.
2	Does the sensor light shielding plate of the sensor shut the light off?	No	Replace the belt cleaner estrangement sensor.
Others			Replace PWB-A.

1. The belt cleaner pressure is detected along with the color print and special print pressure / estrangement operation.
2. When the belt cleaner estrangement sensor (PC16) does not change within the specified period after the belt cleaner motor starts rotating, it is detected that the belt cleaner is abnormal.

Developer Rack Rotation is Abnormal

No.	Check Item		Solution
1	During printing, does the rack motor (M3) rotate?	No	Remove connector PJ32A, PJ33A and insert it again. Remove connector PJ41 and insert it again.
2	With the power off, press the rack release button and check if you can rotate the toner rack manually.	Yes	Replace the rack black position sensor (PC6).
Others			Replace PWB-A.

- When initializing the toner rack position, if the rack black position sensor (PC6) does not become ON within 3 seconds, it is detected that toner rack is abnormal.
- When the black toner should be at the development position, if the rack black position sensor (PC6) does not become ON within 0.3 seconds, it is detected that the toner rack is abnormal.
- When the rack black position sensor (PC6) becomes ON within 0.3 seconds after the rack motor (M3) is halted, it is detected that the toner rack is abnormal.

Multi Manual Paper Load Push-up is Abnormal

No.	Check Item		Solution
1	Does the manual tray push paper to the paper load roller?	No	Arrange paper on the manual tray.
2	Does the manual tray paper load roller one-way clutch have the claws?	No	Replace the one-way clutch gear.
		Yes	Replace the manual tray paper load solenoid.
Others			Replace PWB-A.

- MPT push-up tray position is detected while loading paper from the manual tray.
- If the output of the manual tray upper position sensor (PC15) does not change even after the specified amount of time passed after the manual tray paper load solenoid (SL8) becomes ON, it is detected that the MPT push-up plate is abnormal.

OHP Sensor is Abnormal

No.	Check Item		Solution
1	Are the light emission window and light receiving window of OHP sensor dirty?	No	Clean the OHP sensor window.
2	Does any dust or a bit of paper attach on the other side OHP sensor reflective window?	Yes	Clean the OHP sensor reflective window.
Others			Replace PWB-A.

- OHP sensor is detected while the transportation motor (M1) is pre-rotating.
- Since no paper exist during the pre-rotation, if the sensor detects it is not OHP, it detects that the OHP sensor is abnormal.

3.2.5.3 Controller Related Service Call Error Messages

<AcuLaser C2000>

Table 3-8. Controller Related Service Call Error Messages
(AcuLaser C2000)

Error Category e	Error Code ffff	Explanation
C	0017	CPU Error (Undefined interrupt occurred)
C	0081	CPU Error (TLB correction exception)
C	0082	CPU Error (TLB miss exception [Load/Fetch])
C	0083	CPU Error (TLB miss exception [Store])
C	0084	CPU Error (Address Error Exception [Load/Fetch])
C	0085	CPU Error (Address Error Exception [Store])
C	0086	CPU Error (Bus Error Exception [Fetch])
C	0087	CPU Error (Bus Error Exception [Load/Store])
C	0088	CPU Error (SYSCALL Exception)
C	0089	CPU Error (Break Exception)
C	0090	CPU Error (Reserve Command Exception)
C	0091	CPU Error (Coprocessor Not Used Exception)
C	0092	CPU Error (FPU Exception)
C	0093	CPU Error (TLB Exception)
C	0094	CPU Error (XTLB Exception)
C	0095	CPU Error (Cache Exception)
C	0096	CPU Error (Trap Exception)
C	0097	CPU Error (FPU Exception)
C	0098	CPU Error (Watch Exception)
C	0128-0254	CPU Error (Undefined Trap)
C	0255	CPU Error (NMI Exception)
C	0256	CPU Error (Divide by 0)
C	0257	CPU Error (Computation Overflow)
C	0258	CPU Error (Break was generated)

Table 3-8. Controller Related Service Call Error Messages
(AcuLaser C2000) (continued)

Error Category e	Error Code ffff	Explanation
C	0800	IPL Error (Controller defective.)
C	0998	Engine communication error (At power on)
C	0999	Engine firmware in Flash ROM is not exist.
C	1002	Standard RAM Error (When RAM equivalent to the standard size is not installed, etc.)
C	1010	Verify Error
C	1020	RAM Error (Slot 0)
C	1021	RAM Error (Slot 1)
C	1100	ROM Check Sum Error (bits 0~15) (Font)
C	1101	ROM Check Sum Error (bits 16~31) (Font)
C	1120	ROM Check Sum Error (bits 0~7) (Program)
C	1121	ROM Check Sum Error (bits 8~15) (Program)
C	1122	ROM Check Sum Error (bits 16~23) (Program)
C	1123	ROM Check Sum Error (bits 24~31) (Program)
C	1170	Optional Font ROM Check Sum Error
C	1180	Optional ROM Module A Check Sum Error
C	1181	Optional ROM Module B Check Sum Error
C	1185	Unsupported ROM Module
C	1200	EEPROM Write Error
C	1210	EEPROM Write Count Limit
C	1400	Engine Initialization Malfunction
C	1500	CCNV Hardware Error
C	1550	Compression SRAM Initialization Hardware Error
C	1600	Video Related Hardware Error (including PWM IC calibration error)
C	1610	Video Related Hardware Error (VCNV error)
C	1700	Internal Network Hardware Error

**Table 3-8. Controller Related Service Call Error Messages
(AcuLaser C2000) (continued)**

Error Category e	Error Code ffff	Explanation
C	1999	Other Hardware Error
C	2000	Software Error

<AcuLaser C1000>

All status codes for controller errors in AcuLaser C1000 are 6000. However, due to a communication failure, a status 6000 often cannot be returned.

**Table 3-9. Controller Related Service Call Errors
(AcuLaser C1000)**

Internal Error Code	Description
0017	CPU Error (Undefined interrupt occurred)
0081	CPU Error (TLB correction exception)
0082	CPU Error (TLB miss exception [Load/Fetch])
0083	CPU Error (TLB miss exception [Store])
0084	CPU Error (Address Error Exception [Load/Fetch])
0085	CPU Error (Address Error Exception [Store])
0086	CPU Error (Bus Error Exception [Fetch])
0087	CPU Error (Bus Error Exception [Load/Store])
0088	CPU Error (SYSCALL Exception)
0089	CPU Error (Break Exception)
0090	CPU Error (Reserve Command Exception)
0091	CPU Error (Coprocessor Not Used Exception)
0092	CPU Error (FPU Exception)
0093	CPU Error (TLB Exception)
0094	CPU Error (XTLB Exception)
0095	CPU Error (Cache Exception)

**Table 3-9. Controller Related Service Call Errors
(AcuLaser C1000) (continued)**

Internal Error Code	Description
0096	CPU Error (Trap Exception)
0097	CPU Error (FPU Exception)
0098	CPU Error (Watch Exception)
0128-0254	CPU Error (Undefined Trap)
0255	CPU Error (NMI Exception)
0256	CPU Error (Divide by 0)
0257	CPU Error (Computation Overflow)
0258	CPU Error (Break was generated)
0800	IPL Error (Controller defective.)
0998	Engine communication error (At power on)
0999	Engine firmware in Flash ROM is not exist.
1002	Standard RAM Error (When RAM equivalent to the standard size is not installed, etc.)
1010	Verify Error
1020	RAM Error (Slot 0)
1021	RAM Error (Slot 1)
1120	ROM Check Sum Error (bits 0~7) (Program)
1121	ROM Check Sum Error (bits 8~15) (Program)
1122	ROM Check Sum Error (bits 16~23) (Program)
1123	ROM Check Sum Error (bits 24~31) (Program)
1200	EEPROM Write Error
1210	EEPROM Write Count Limit
1400	Engine Initialization Malfunction
1500	CCNV Hardware Error
1550	Compression SRAM Initialization Hardware Error
1600	Video Related Hardware Error (including PWM IC calibration error)

**Table 3-9. Controller Related Service Call Errors
(AcuLaser C1000) (continued)**

Internal Error Code	Description
1610	Video Related Hardware Error (VCNV error)
1999	Other Hardware Error
2000	Software Error

3.3 Image Quality Troubleshooting

This section describes how to identify, based on the printing result, the location developing the error.

Table 3-10. Image Quality Troubleshooting



Abnormal Image	Cause	Step	Solution
No image (all white) 	OHP is selected and plain paper is loaded. (white paper eject mode)	1	Configure the paper load device and paper type by driver.
	<ul style="list-style-type: none"> Bias contact failure (toner cartridge) Contact failure (transfer roller) 	1	<ul style="list-style-type: none"> Re-install the toner cartridge. If it occurs for one color, replace the color toner cartridge. Re-install the transfer roller unit.
	<ul style="list-style-type: none"> Connector contract failure (P/H) Data output failure 	2	<ul style="list-style-type: none"> remove P/H connector PJ12A and insert it again. Replace the print head.
All black 	<ul style="list-style-type: none"> Bias setting failure (photoconductor) Charging failure (photoconductor) 	1	Replace the photoconductor.
		2	Replace HV1 (high voltage) board.

Table 3-10. Image Quality Troubleshooting (continued)

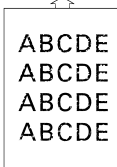
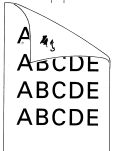
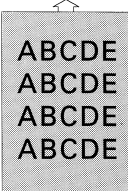
Abnormal Image	Cause	Step	Solution
White out / Black point 	Foreign objects on the toner cartridge.	1	Replace the toner cartridge.
	Foreign objects on the photoconductor.	2	Replace the photoconductor.
	Foreign objects on the transfer belt.	3	<ul style="list-style-type: none"> Clean the transfer belt. Replace the transfer belt unit.
	Foreign objects on the transfer belt.	4	<ul style="list-style-type: none"> Clean the fusing belt. Replace the oil coating roller. Replace the fusing unit.
Back of paper gets dirty 	Paper path is dirty.	1	<ul style="list-style-type: none"> Clean the paper path. Replace the toner cartridge.
	Transfer roller is dirty.	2	Replace the transfer roller unit.
	Fusing pressure roller is dirty.	3	<ul style="list-style-type: none"> Clean the pressure roller. Replace the oil coating roller.
Image is overlapping 	<ul style="list-style-type: none"> Foreign object on the developer. Used toner low consumption mode too much. 	1	Replace the toner cartridge.
	High density	2	<ul style="list-style-type: none"> Replace the photoconductor. Replace HV1 (high voltage board).

Table 3-10. Image Quality Troubleshooting (continued)




Abnormal Image	Cause	Step	Solution
Low image density 	OPC drum is at the end of life. AIDC failure	1	Replace the drum cartridge.
	Middle transfer failure Paper transfer failure Contact failure (transfer roller)	2	<ul style="list-style-type: none"> Replace the transfer belt unit. Re-install the transfer roller unit. Replace the transfer roller.
		3	Replace HV1 (high voltage board).
White line. Black line. 	<ul style="list-style-type: none"> Foreign object or scratch on the developer. Scratch on the OPC drum. 	1	<ul style="list-style-type: none"> Replace the drum cartridge. Replace the toner cartridge.
	Scratch on the transfer belt.	2	Replace the transfer belt unit.
	Scratch on the fusing belt.	3	Replace the fusing unit.
	PH dust proof filter is dirty.	4	Clean PH dust proof filter.
Offset image 	<ul style="list-style-type: none"> Image memory Transfer belt offset 	1	<ul style="list-style-type: none"> Replace the OPC drum. Replace the transfer belt unit.
	Fusing offset	2	<ul style="list-style-type: none"> Replace the oil coating roller. Replace the fusing unit.

Table 3-10. Image Quality Troubleshooting (continued)



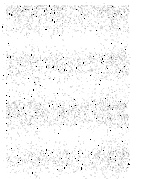


Abnormal Image	Cause	Step	Solution
Color overlay offset 	Toner cartridge installation failure	1	Re-install the toner cartridge.
	Middle transfer failure	2	Replace the transfer belt unit.
Color duplication failure 	AIDC failure	1	Re-install the transfer belt unit.
	Paper transfer failure	2	Replace the transfer belt unit.
Varied density 	Contact failure	1	Re-install the transfer roller unit. Replace the transfer roller unit.
	If this error occurs only for one side, toner cartridge is not installed firmly.	2	Re-install the toner cartridge or replace it.

Table 3-10. Image Quality Troubleshooting (continued)

Abnormal Image	Cause	Step	Solution
	Paper is wet.	1	Use paper after kept in the room for a while.
	White smear	2	Replace the fusing unit.
	If it occurs only for the optional duplex paper feed.	3	Replace the optional duplex unit.
	1-2 mm pitch	-	Replace the print head.
	35mm develop pitch irregularity	-	Replace the color toner cartridge.
	75mm transfer roller		Replace the transfer roller unit.
	95mm OPC drum	-	Replace the OPC drum.
	204mm fusing belt	-	Replace the fusing unit.
	Rear end 35mm		Replace the fusing unit.
	Line and point that occurs at the regular page.		Replace the belt unit.

CHAPTER

4

DISASSEMBLY AND ASSEMBLY

4.1 Overview

This chapter describes disassembly/assembly of the AcuLaser C2000 / AcuLaser C1000.

4.1.1 Cautions

Read the following caution before disassembling the printer.

- Caution on disassembling/ adjusting the printer.



- Be sure to turn the printer power off and disconnect the power cable from the AC socket.
- Since the printer weighs 44.5kg, including the optional units, be sure to carry it with 2 people.
- When servicing parts around the fuser, make sure the fuser and adjacent parts are cool enough.
- Before printing, check that all printer parts are installed.
- If you need to operate the printer before reassembling, note the points below:
 1. Be careful not to get you hand or clothes caught in the rotating parts such as rollers and cooling fan.
 2. Never touch the components in the electrical circuit or high voltage circuit.

- Caution on lithium battery replacement








- When replacing the old lithium battery with a new one, be sure to use the one that is specified by the parts list or equivalent.
- When installing the new battery, be sure to set it correctly paying attention to its polarity.
- Be suer to dispose of the old battery according to the local regulations.
- Do not throw away the old battery to the personal land.

4.1.2 Service Tools

Name	Availability	Part Code
Phillips Screwdriver (No.1)	Commercially available	B743800100
Phillips Screwdriver (No.2)	Commercially available	B743800200
Standard Screwdriver	Commercially available	B74300100
Tweezers	Commercially available	B64100100
Pliers	Commercially available	B740400100

4.1.3 Screws, Small Parts

The table below lists the screws and small parts used in AcuLaser C2000 / AcuLaser C1000. Be sure to use them at the correct positions that are specified with the reference numbers in the exploded diagrams.

Appearance	Reference Number	D x L (mm), Color	Application
 9735	3541	3 x 8, Silver	For Housing part installation
 9735	3504	3 x 8, Copper	For internal part installation
 9739	3704	3 x 8, Copper	For internal part installation
 9646	1308	3 x 8, Silver	For lever, tab installation
 9712	8301	-	For metallic housing installation

4.1.4 Fuses

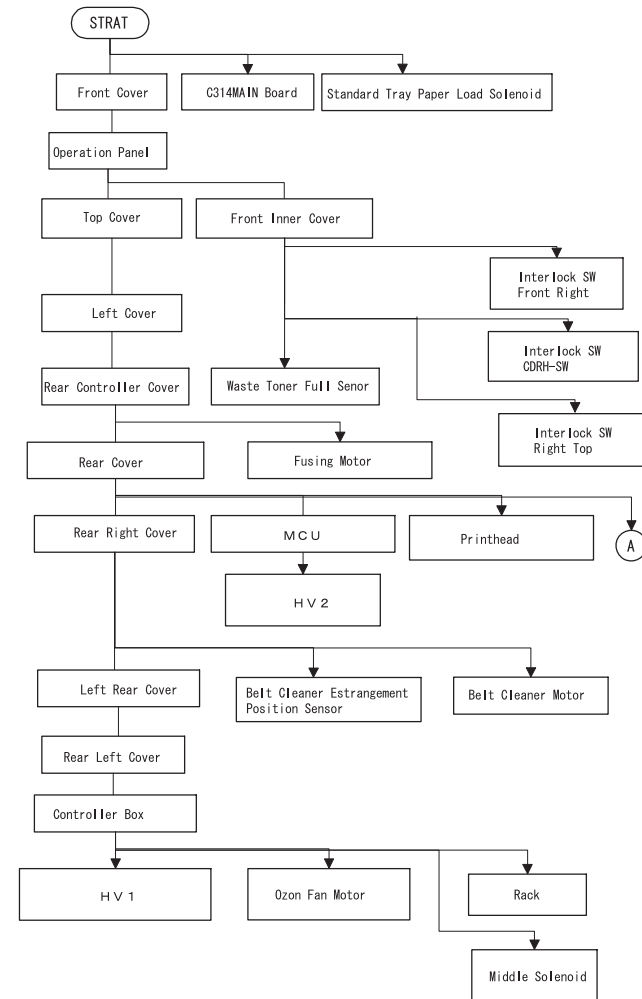
The fuses used in AcuLaser C2000 / AcuLaser C1000 are as shown below:

Board Name	Symbol	Specifications
HV1	F1	125V-3.15A
HV2	F001	125V-3.15A
PU1	F1	100V:AC125V-10A 220V:AC250V-5.0A
	F2A	100V:AC250V-15A 220V:AC250V-5.0A

4.2 Disassembling Procedure

4.2.1 Overview

See the following page for the disassembling flowcharts.



DisFlow

Figure 4-1. Disassembly Flowchart - 1

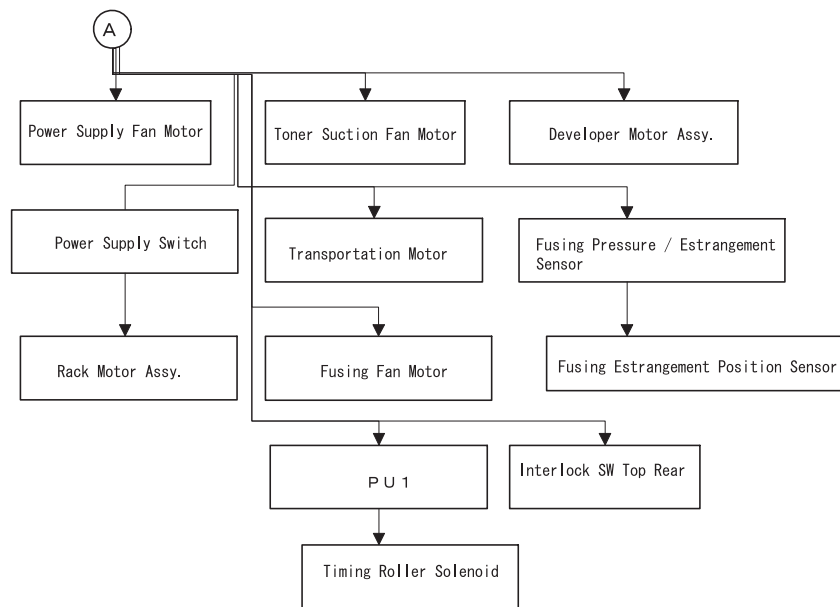
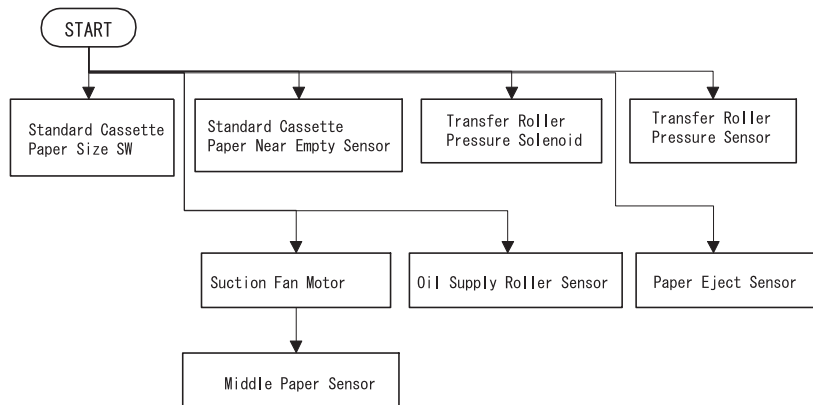


Figure 4-2. Disassembly Flowchart - 2

DisFlow2

4.2.2 Before Disassembling the Printer

1. Remove the standard cassette and Large Capacity Paper Cassette if installed.
2. Open the Front Cover.
3. Remove the Toner Cartridge (Y/M/C/K), Drum Cartridge, Transfer Belt, Oil Roller, and Fuser Unit.

NOTE: Do not remove the P/H dust proof filter to prevent toner from spilling over the Print Head during servicing.

4.2.3 Outer Cover Removal

4.2.3.1 Front Cover Removal

1. Perform the pre-operation. (See “Before Disassembling the Printer” on page -142.)
2. Remove 1 screw securing the band.
3. Open the Front Cover to the right and remove the right and left hinge pins from the Front Cover.
4. Remove the Front Cover.

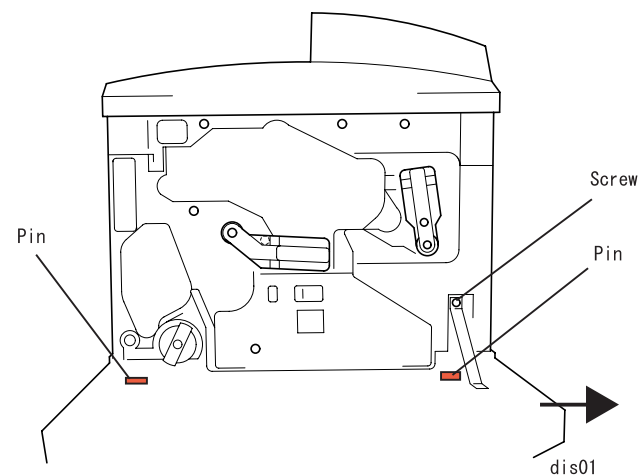


Figure 4-3. Front Cover Removal

4.2.3.2 Operation Panel Removal

1. Remove the Front Cover. (See “Front Cover Removal” on page -142.)
2. Remove the screws securing the Operation Panel. (3 from the front and 1 from the top)
3. Disconnect the harness from the connector on the Operation Panel and remove the Operation Panel.

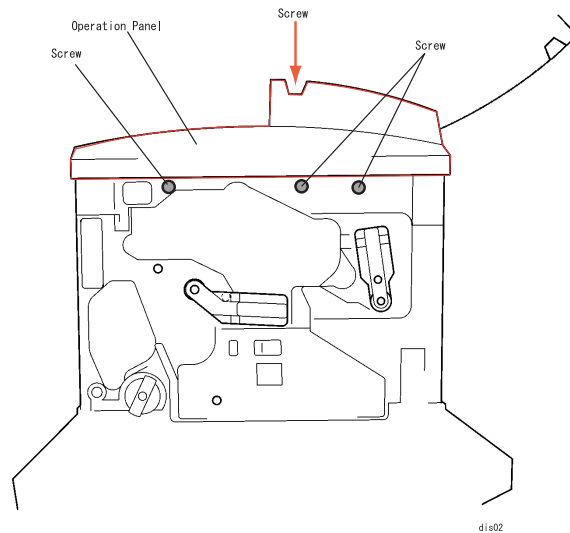


Figure 4-4. Operation Panel Removal

4.2.3.3 Front Inner Cover Removal

1. Remove the Operation Panel. (See “Operation Panel Removal” on page -143.)
2. Peel off the label on the rack rotation tab a little and remove 1 screw securing the rack rotation tab to the printer frame.
3. Peel off the label on the transfer roller estrangement lever a little and remove 2 screws securing the transfer roller estrangement lever to the printer frame.
4. Remove 3 screws securing the Front Inner Cover to the printer frame.
5. Release the left hook on the Front Inner Cover and remove the Front Inner Cover.

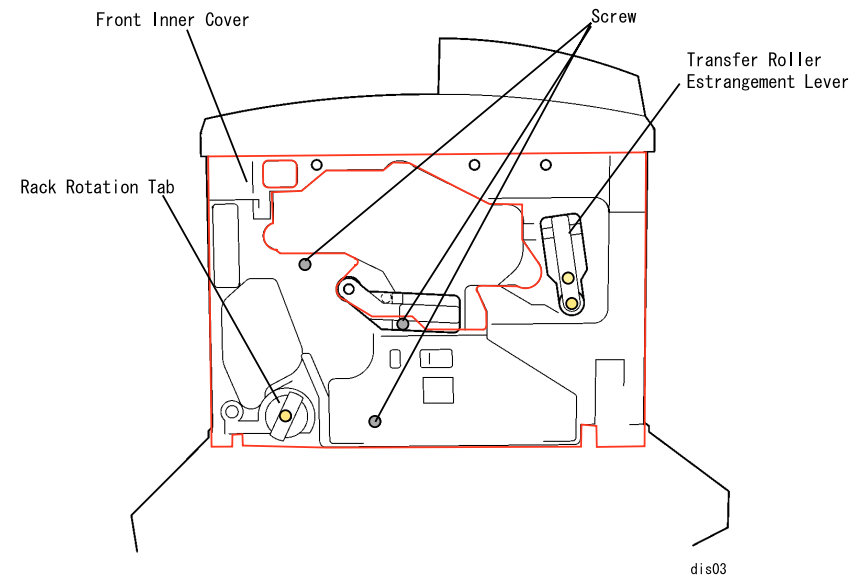


Figure 4-5. Front Inner Cover Removal

4.2.3.4 Top Cover Removal

1. Remove the Operation Panel. (See “Operation Panel Removal” on page -143.)
2. Remove the cover for the optional unit cover located at the top rear side of the Top Cover.
3. Remove 2 screws (1 under the option cover and the other at the rear right securing the Top Cover and Rear Cover together), and remove the Top Cover.

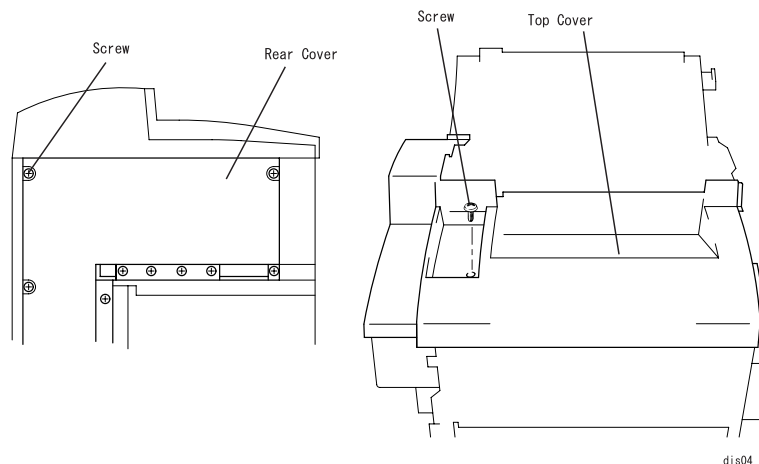


Figure 4-6. Screws Fixing the Top Cover

4. Through the transfer belt installation hole, release the hook fixing the Top Cover to the printer frame and remove the Top Cover.

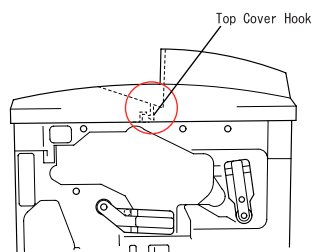


Figure 4-7. Hook on the Top Cover

4.2.3.5 Left Cover Removal

1. Remove the Top Cover. (See “Top Cover Removal” on page -144.)
2. Remove 3 screws securing the Left Cover.
3. Pull the Left Cover to the front and lift it up to release 3 hooks at the bottom.
4. Move the Left Cover down to release 3 hooks along the top edge, and remove the Left Cover.

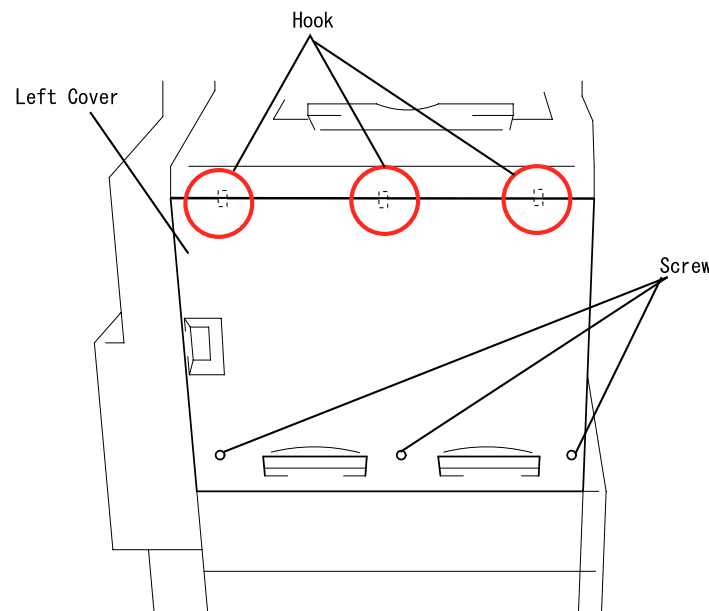


Figure 4-8. Left Cover Removal



When installing the Left Cover to the printer frame, be sure to set the reinforcing plate between them and fasten the screws.

4.2.3.6 Rear Controller Cover Removal

1. Remove 4 screws securing the Controller Cover to the rear side of the printer (Rear side: 3 screws, Left side: 1 screw).

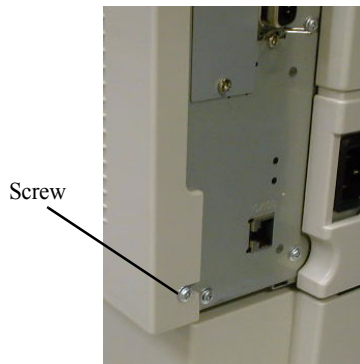


Figure 4-9. Rear Controller Cover Removal

4.2.3.7 Rear Cover Removal

1. Remove the Rear Controller Cover. (See “Rear Controller Cover Removal” on page -145.)
2. Remove 11 screws securing the Rear Cover and remove the Rear Cover.

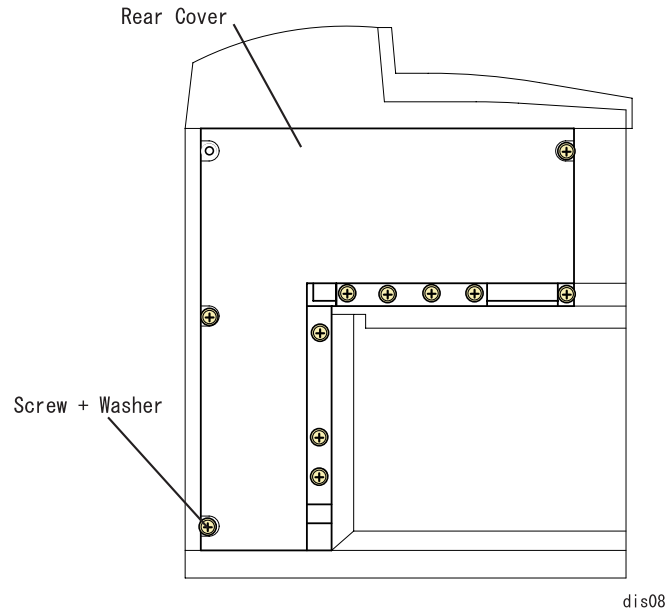


Figure 4-10. Rear Cover Removal

CHECK POINT



Among the screws securing the Rear Cover, the bottom one has a washer. This is to allow electrical continuity between the coated cover and printer frame.

4.2.3.8 Rear Right Cover Removal

1. Remove the Rear Cover. (See “Rear Cover Removal” on page -146.)
2. Remove 4 screws securing the Rear Right Cover and remove the Rear Right Cover.

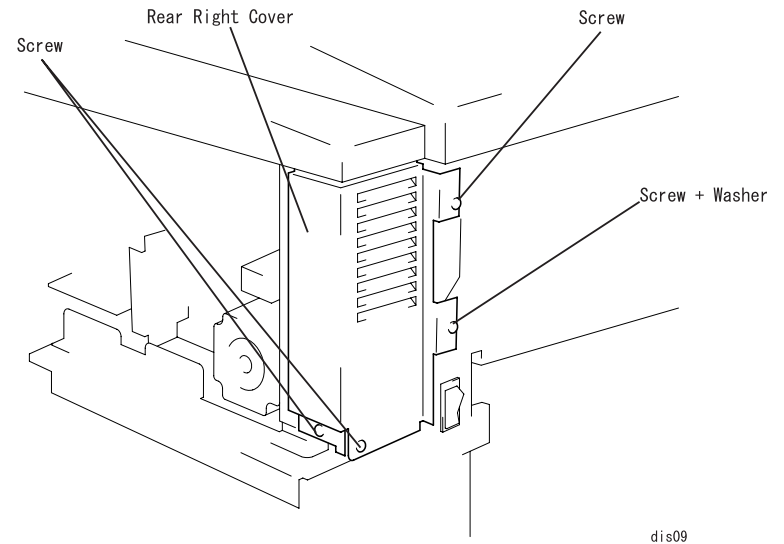


Figure 4-11. Rear Right Cover Removal

CHECK POINT



As shown in the figure above, one of the screws securing the Rear Right Cover has a washer. This is to allow electrical continuity between the coated cover and printer frame.

4.2.3.9 Left Rear Cover Removal

1. Remove the Rear Right Cover. (See "Rear Right Cover Removal" on page -146.)
2. Remove 1 screw securing the Left Rear Cover and remove the Left Rear Cover.

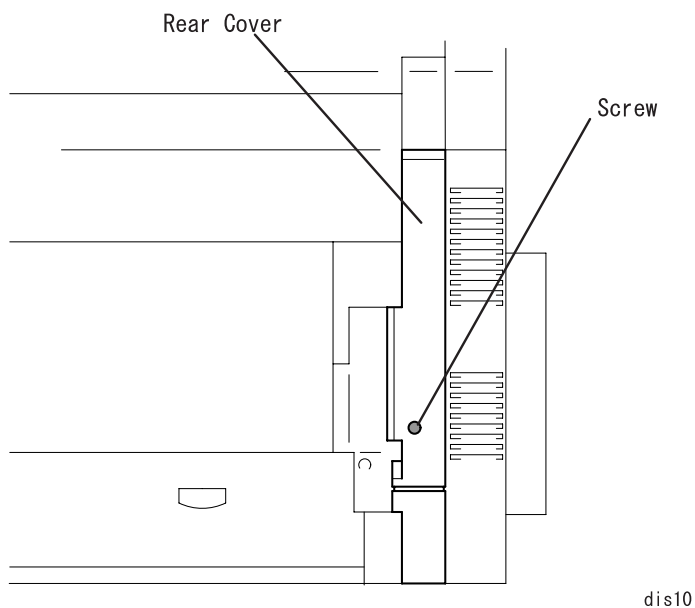


Figure 4-12. Left Rear Cover Removal

4.2.3.10 Rear Left Cover Removal

1. Remove the Left Rear Cover. (See "Left Rear Cover Removal" on page -147.)
2. Remove 3 screws securing the Rear Left Cover and remove the Rear Left Cover.

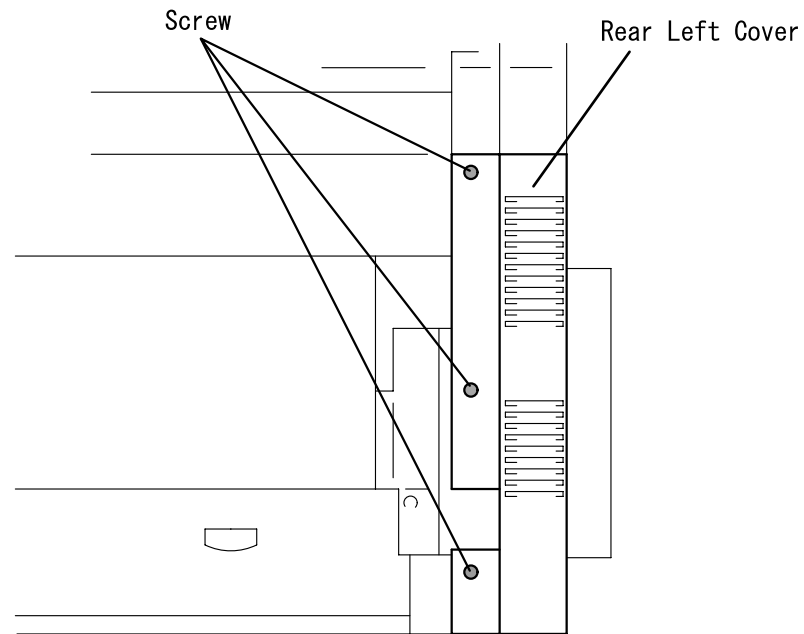


Figure 4-13. Rear Left Cover Removal

4.2.4 C314MAIN Board

4.2.4.1 C314MAIN Board Removal

1. Remove the Rear Controller Cover (See "Rear Controller Cover Removal" on page 145.)
2. Remove 7 screws securing the C314MAIN Board to the Controller Box.

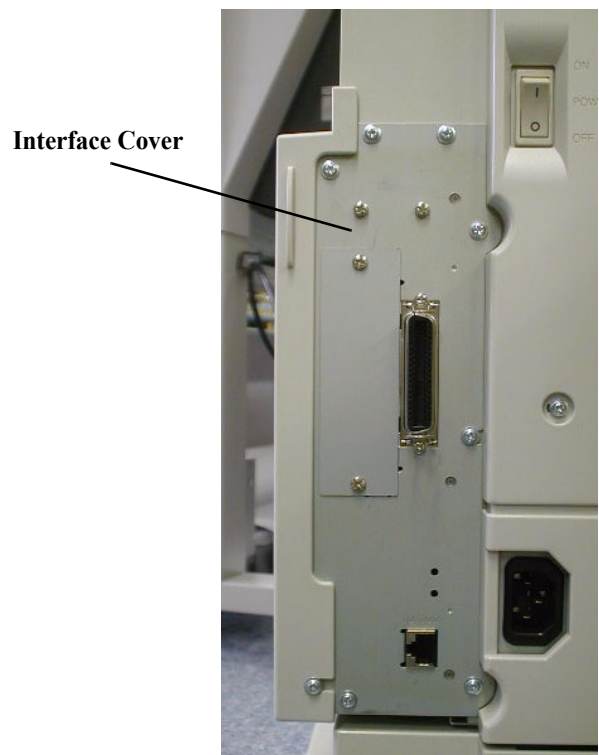


Figure 4-14. C314MAIN Board Removal

3. Remove a screw (A) securing the C314MAIN Board and an earth wire of the Control Panel harness.
Remove the harness from the connector of the MAIN Board.

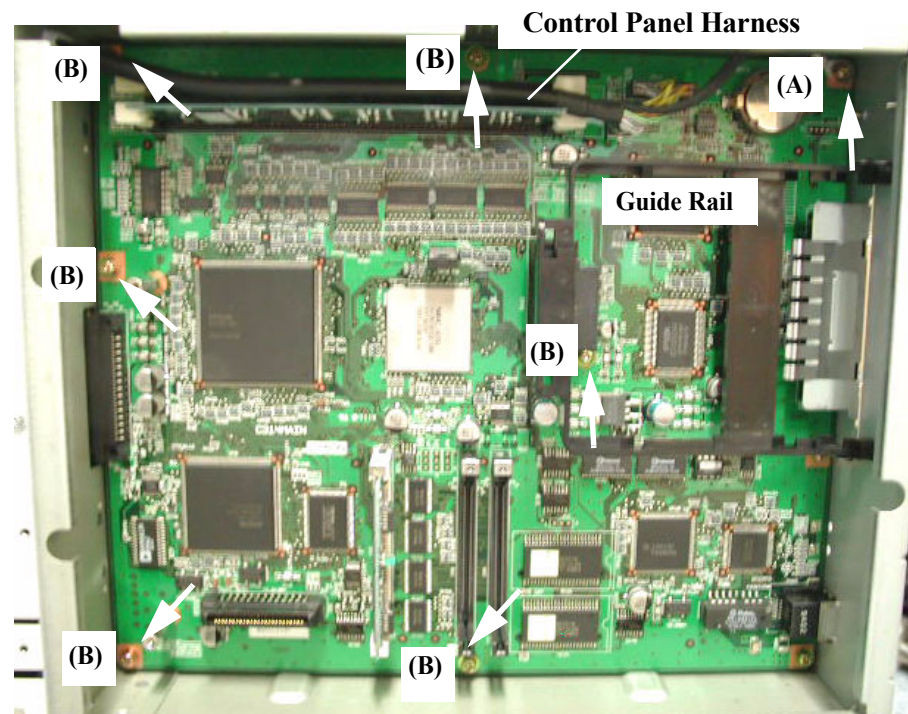


Figure 4-15. Screws of the C314MAIN Board (1)

4. Remove 6 screws (B) securing the Controller Box to the C314MAIN Board.
5. Pull out the C314MAIN Board with the Interface Cover.

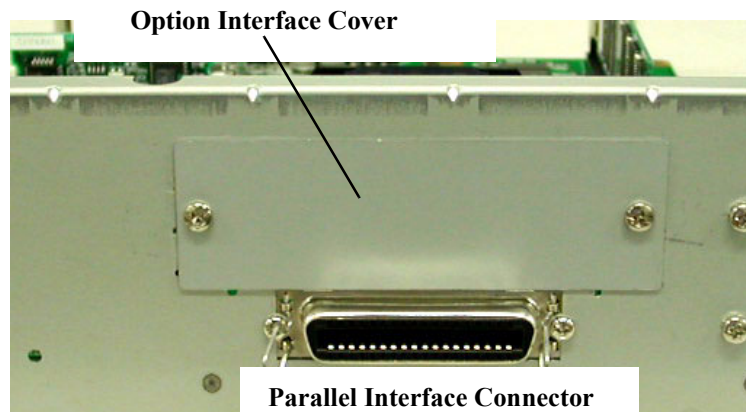


Figure 4-16. Option Interface Cover Removal

6. Remove 2 screws securing the Option Interface Cover to the C314MAIN board.
7. Remove 2 screws securing the Parallel Interface Connector to the Interface Cover.
8. Remove the Guide Rail for the Option Interface Connector.
9. Remove 2 screws securing the Interface Cover to the C314MAIN Board.

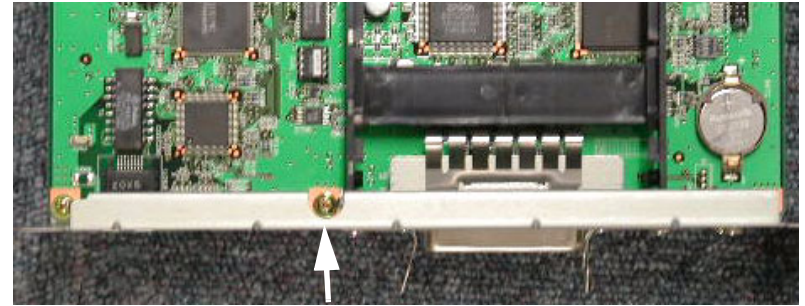


Figure 4-17. Screws of the C314MAIN Board (2)

4.2.4.2 Controller Box Removal

1. Remove the Rear Right Cover. (See "Rear Left Cover Removal" on page 147.)
2. Remove 8 screws securing the Control Box. (Note: 2 screws among 8 screws are securing both the Controller Box and the MCU.)
3. Remove the Controller Box.

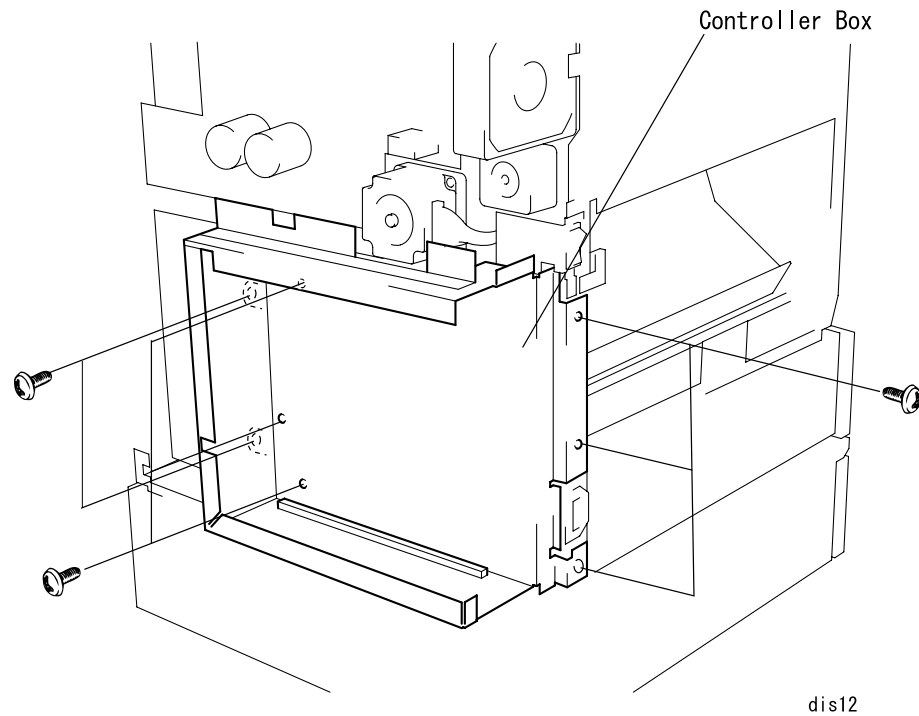


Figure 4-18. Controller Box Removal

4.2.5 MCU (PWB-A Board) Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Disconnect the twenty 9 connectors for the MCU and remove 3 screws securing the MCU.

NOTE: MCU is secured with 5 screws but two of them are removed when the Controller Box is removed.

4. Remove the MCU by pulling it to the left making sure the connector on

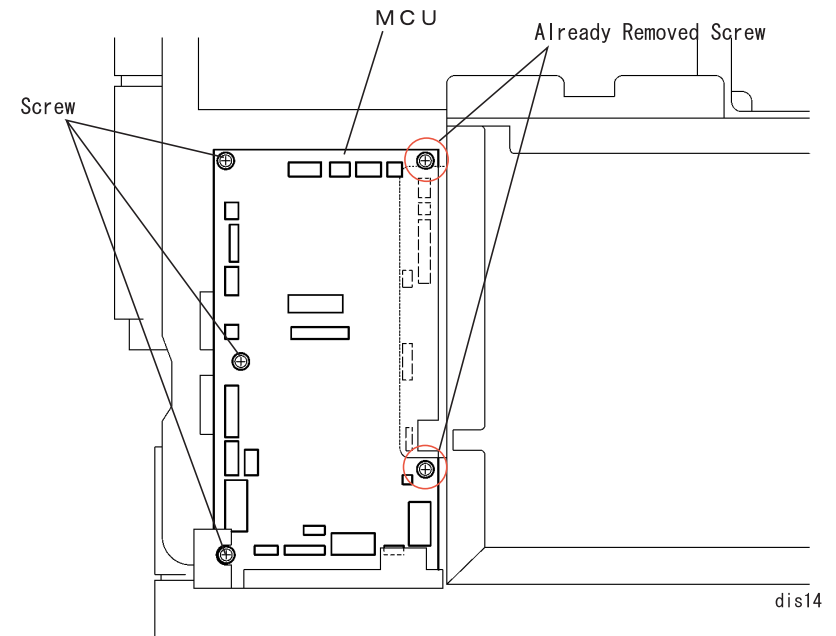


Figure 4-19. MCU (Mechanical Controller Board) Removal

**CHECK
POINT**

The connector PJ6 on the MCU is blank.

4.2.6 PU1 (Power Supply Board) Removal

1. Remove the Rear Controller Cover. (See “Rear Controller Cover Removal” on page -145.)
2. Remove the Rear Left Cover. (See “Rear Left Cover Removal” on page -147.)
3. Disconnect 5 connectors for the PU1.
4. Remove 4 screws, board support, and contact plate. Then remove the PU1.

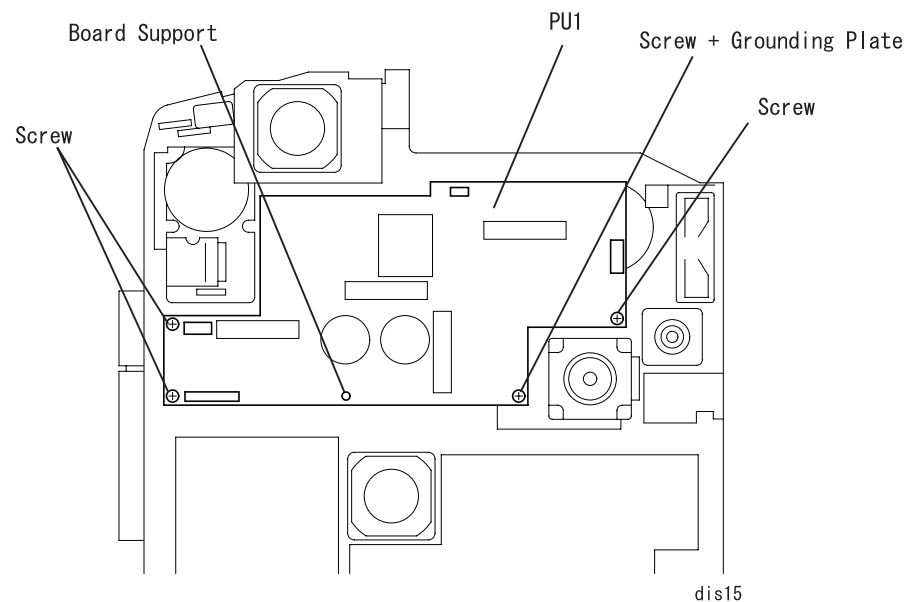


Figure 4-20. PU1 (Power Supply Board) Removal

4.2.7 High Voltage Board (HV1, HV2) Removal

4.2.7.1 HV1 (High Voltage Board) Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the Controller Box. (See "Controller Box Removal" on page 150.)
4. Remove 6 connectors, 2 screws, and 4 board supports from the HV1 Board.
5. Remove the insulation sheet under the HV1.

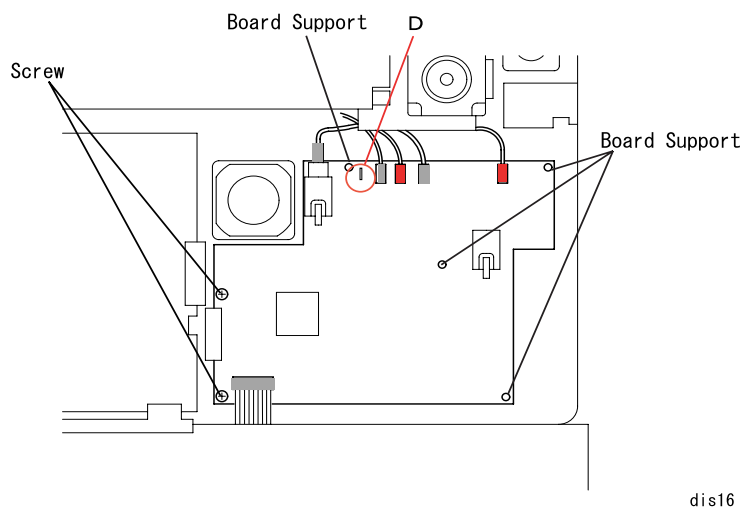


Figure 4-21. HV1 (High Voltage Board) Removal

4.2.7.2 HV2 (High Voltage Board) Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Disconnect the twenty 9 connectors from the MCU and discharge harness for the HV2 and the transfer roller from the transfer roller.
4. Remove 2 screws securing the PWB-A support plate to the printer frame.
5. Remove 2 screws securing the PWB-A and Controller Box. (See "Controller Box Removal" on page 150.)
6. Remove the PWB-A support plate.
7. Remove 2 connectors, 3 board supports, and 1 screw from the PPWB-A support plate, and remove the HV2 Board.

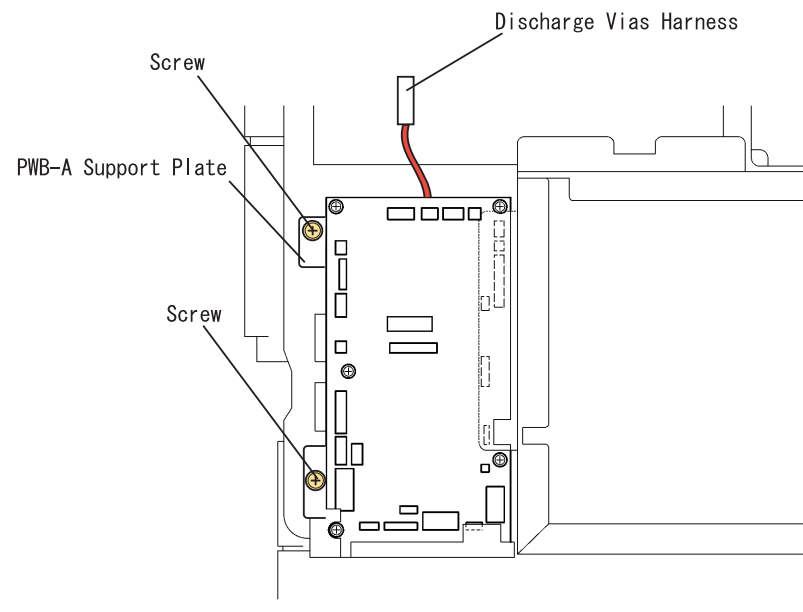
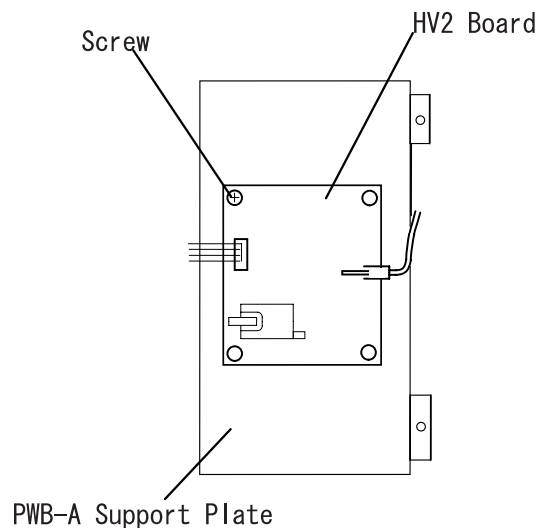


Figure 4-22. PWB-A Support Plate Removal



The D terminal on the HV1 is not used.

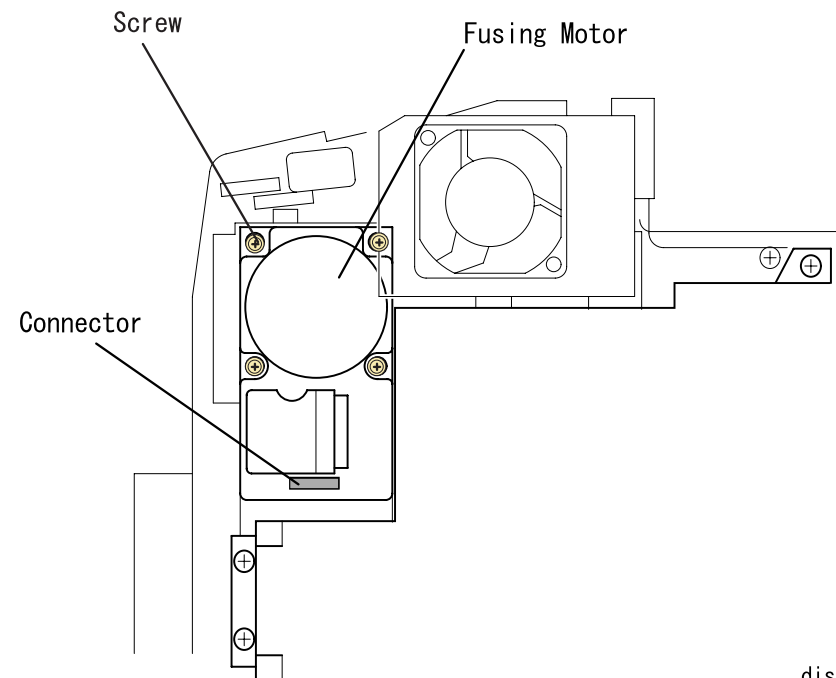


dis18

Figure 4-23. HV2 (High Voltage Board) Removal

4.2.8 Fusing Motor Removal

1. Disconnect the fusing motor harness from the fuser motor board.
2. Remove 4 screws securing the Fusing Motor and remove the Fusing Motor.



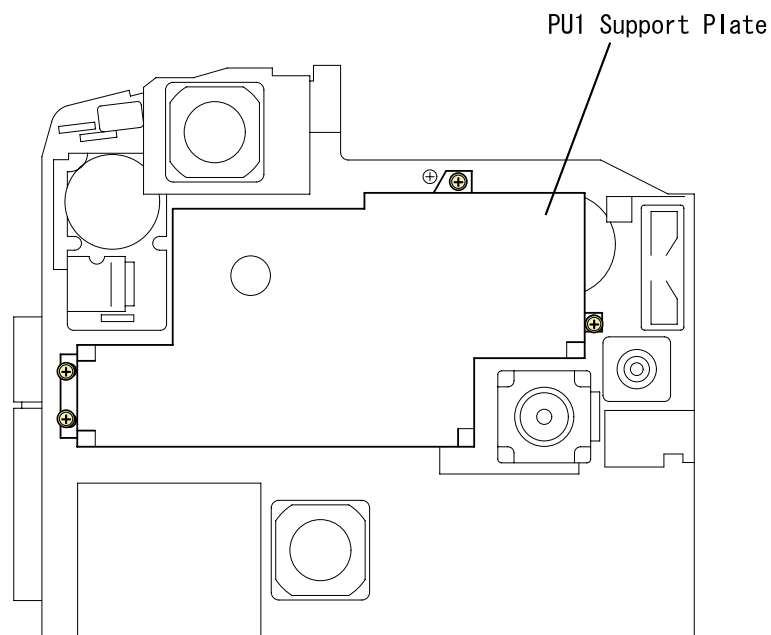
dis19

Figure 4-24. Fusing Motor Removal

4.2.9 Transfer Motor Removal

4.2.9.1 PU1 Support Plate Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove 5 harnesses connecting to the PU1 from the connectors. (See "PU1 (Power Supply Board) Removal" on page -151.)
4. Remove 4 screws securing the PU1 Support Plate and remove the PU1 Support Board.

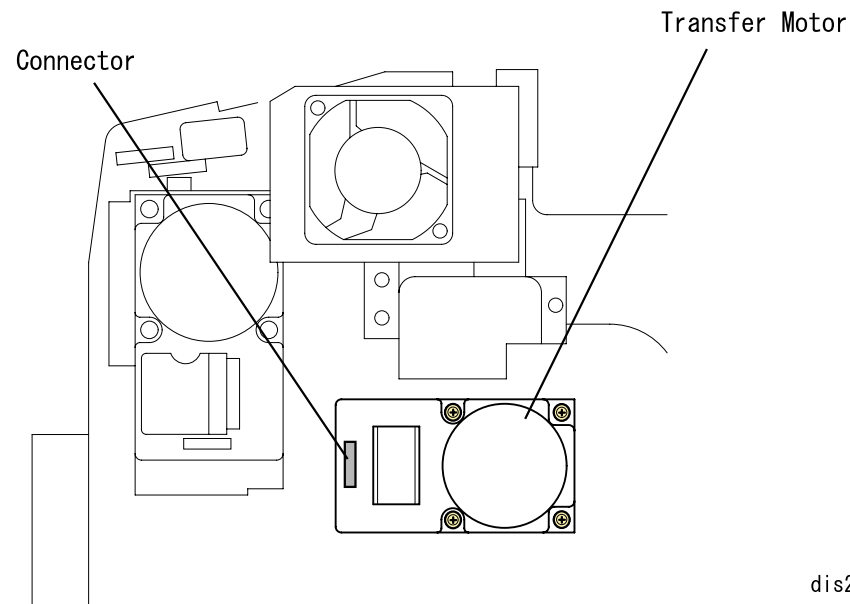


dis20

Figure 4-25. PU1 Support Plate Removal

4.2.9.2 Transfer Motor Removal

1. Remove the PU1 Support Board. (See "PU1 Support Plate Removal" on page -154.)
2. Remove the transfer motor connector and 4 screws securing the Transfer Motor, and remove the Transfer Motor.



dis21

Figure 4-26. Transfer Motor Removal

4.2.10 Fusing Pressure Motor Removal

1. Remove the PU1 Support Board. (See "PU1 Support Plate Removal" on page -154.)
2. Remove the harnesses from the connectors on the Fusing Pressure Motor.
3. Remove 4 screws securing the Fusing Pressure Motor Support Board to the printer frame and the grounding screw.
4. Remove 2 screws securing the Fusing Pressure Motor, and remove the Fusing Pressure Motor.

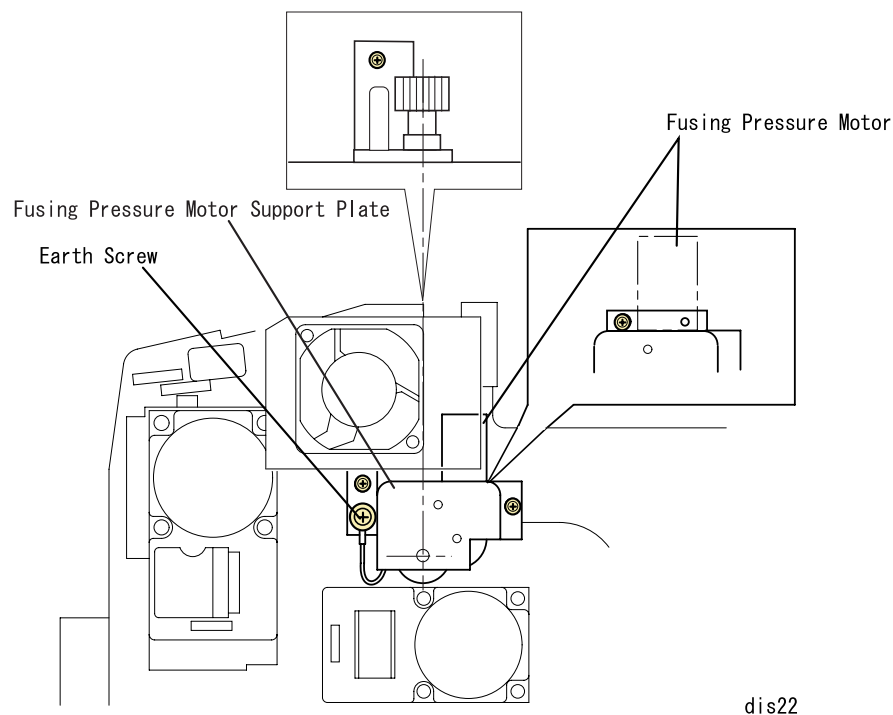


Figure 4-27. Fusing Pressure Motor Removal

4.2.11 Fan Motor Removal

4.2.11.1 Power Supply Fan Motor Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Right Cover. (See "Rear Right Cover Removal" on page -146.)
3. Free the harness from 5 harness clamps.
4. Disconnect the power supply fan motor harness and remove 2 long screws securing the Power Supply Fan Motor, and remove the Power Supply Fan Motor.

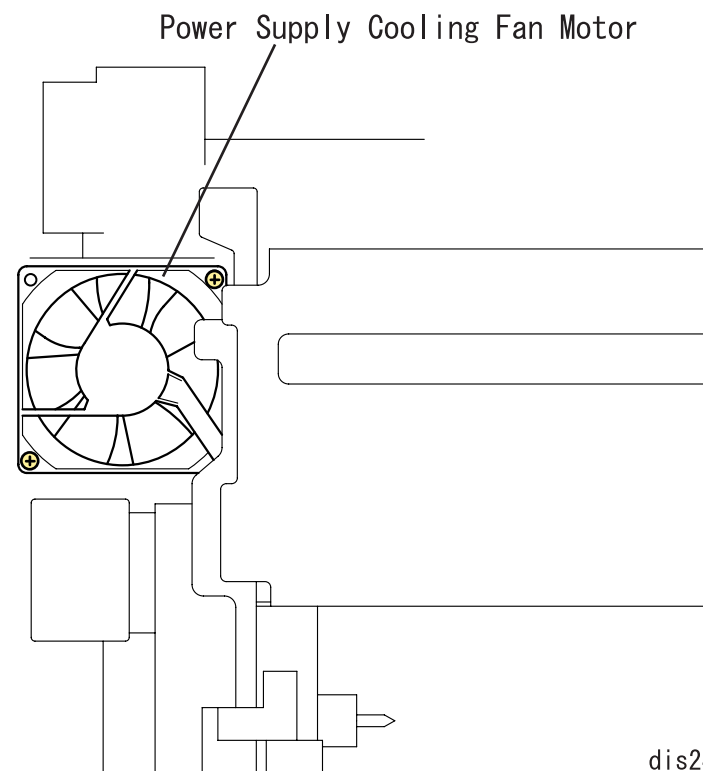


Figure 4-28. Power Supply Cooling Fan Motor Removal

4.2.11.2 Fusing Fan Motor Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Free the fusing fan motor harness from 4 harness clamps.
3. Disconnect 1 fusing fan motor connector and remove 2 long screws securing the Fusing Fan Motor, and remove the Fusing Fan Motor.

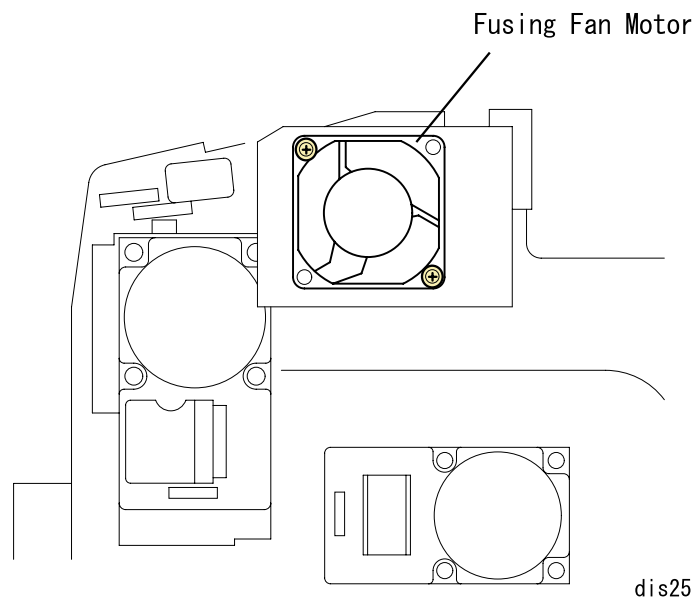


Figure 4-29. Fusing Fan Motor Removal

4.2.11.3 Transfer Belt Fan Motor Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Right Cover. (See "Rear Right Cover Removal" on page -146.)
3. Remove the PU1 Support Board Removal. (See "PU1 Support Plate Removal" on page -154.)
4. Free the toner sucking fan harness from 4 harness clamps.
5. Disconnect the connector for the toner sucking fan and remove 2 long screws.

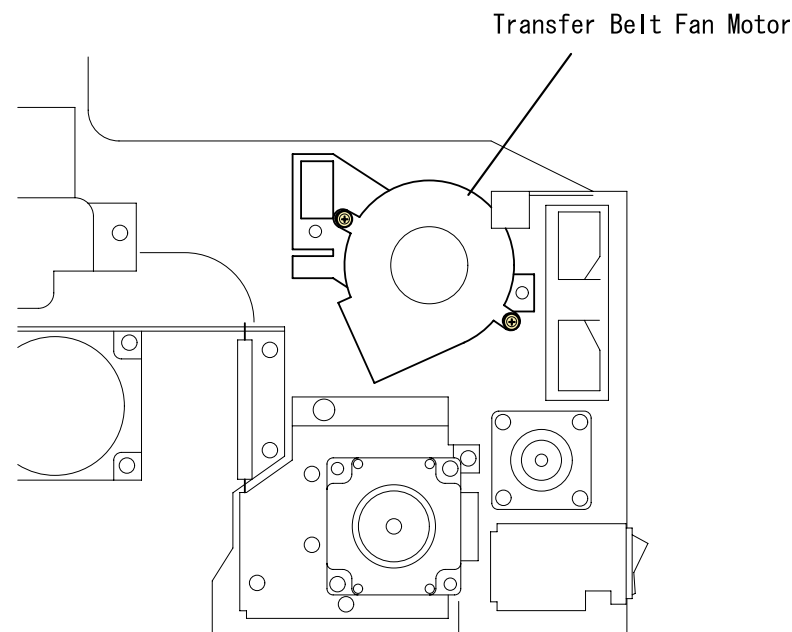
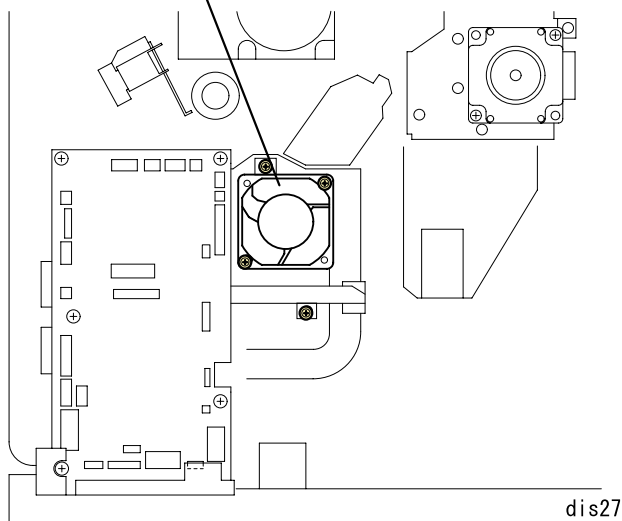


Figure 4-30. Transfer Belt Fan Motor Removal

4.2.11.4 Cooling Fan Motor Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the PU1 Support Board. (See "PU1 Support Plate Removal" on page -154.)
4. Remove the Controller Box. (See "Controller Box Removal" on page 150.)
5. Remove the HV1 (High Voltage Board). (See "HV1 (High Voltage Board) Removal" on page -152.)
6. Free the ozone fan harness from 2 harness clamps located under the PWB-A.
7. Disconnect the ozone fan harness and remove 2 screws.
8. Remove 2 long screws securing the ozone fan bracket.

Mechanism Cooling Fan Motor

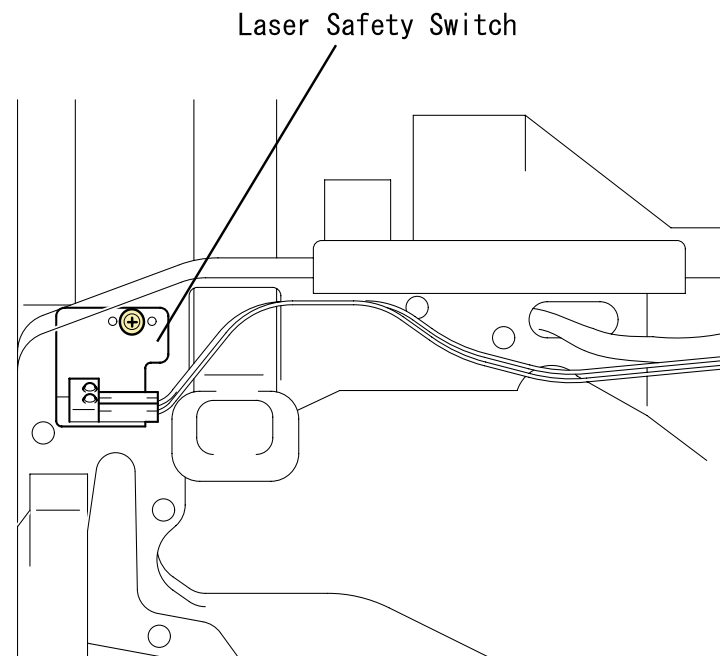


dis27

Figure 4-31. Cooling Fan Motor

4.2.12 Laser Safety Switch (CDRH-SW) Removal

1. Remove the Front Inner Cover. (See "Front Inner Cover Removal" on page -143.)
2. Disconnect 2 connectors for the safety switch located at the top left of the Front Cover and remove 1 screw.



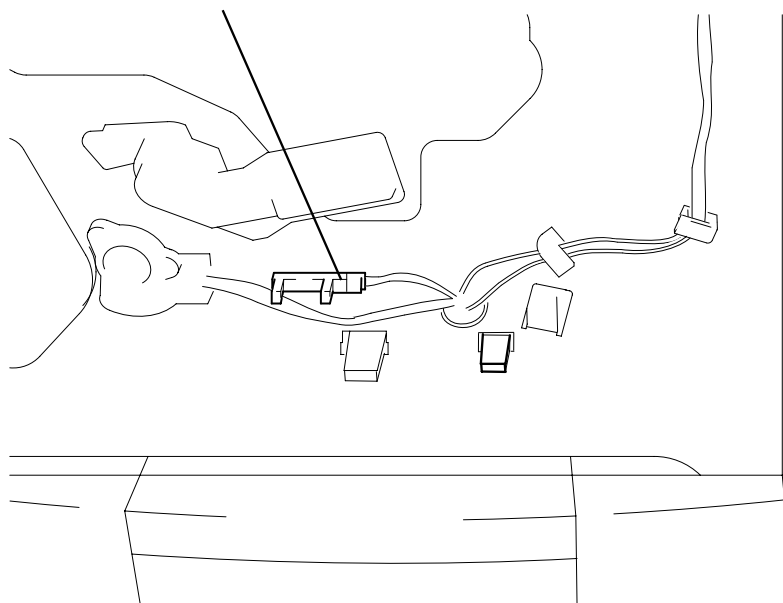
dis28

Figure 4-32. Laser Safety Switch (CDRH-SW) Removal

4.2.13 Waste Toner Full Sensor Removal

1. Remove the Front Cover. (See “Front Cover Removal” on page -142.)
2. Remove the Operation Panel. (See “Operation Panel Removal” on page -143.)
3. Remove the Front Inner Cover. (See “Front Inner Cover Removal” on page -143.)
4. Disconnect the harness for the Waste Toner Full Sensor from the connector.
5. Remove the Waste Toner Full Sensor.

Waste Toner Full Sensor



dis29

Figure 4-33. Waste Toner Full Sensor Removal

4.2.14 MP Tray Paper Load

4.2.14.1 Paper Load Cover Removal

1. Open the standard MP tray.
2. Remove 1 screw securing the Paper Load Cover.
3. Release 4 hooks securing the Paper Load Cover to the standard tray.

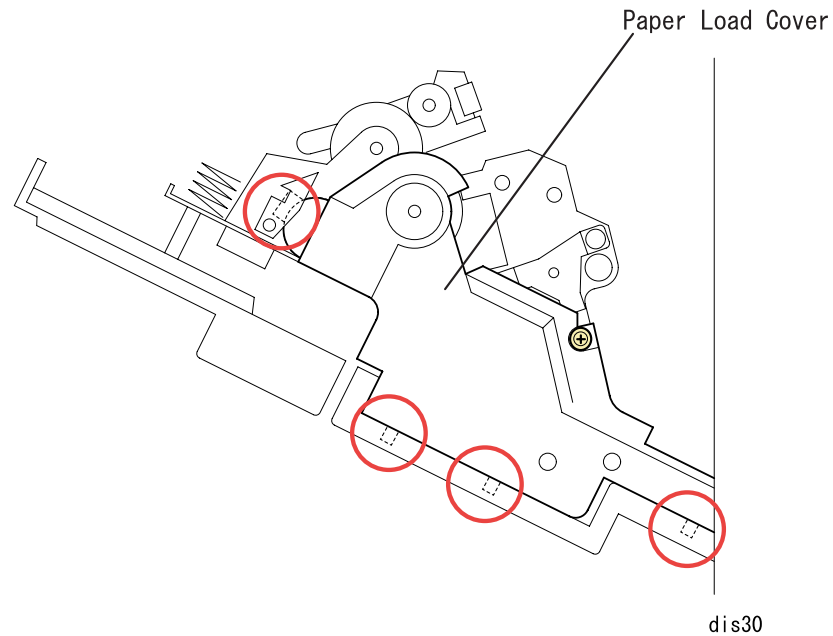


Figure 4-34. Paper Load Cover Removal

4.2.14.2 MP Tray Paper Load Solenoid Removal

1. Open the standard MP tray.
2. Remove the Paper Load Cover. (See "Paper Load Cover Removal" on page -159.)
3. Disconnect the harness for the MP Tray Paper Load Solenoid from the connector.
4. Remove 1 screw securing the MP Tray Paper Load Solenoid.

MP Tray Paper Load Solenoid

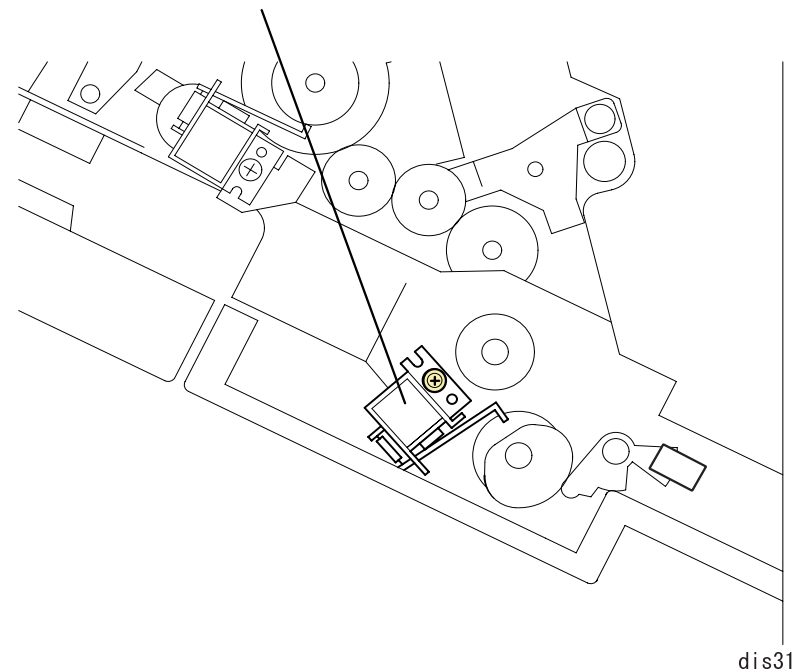
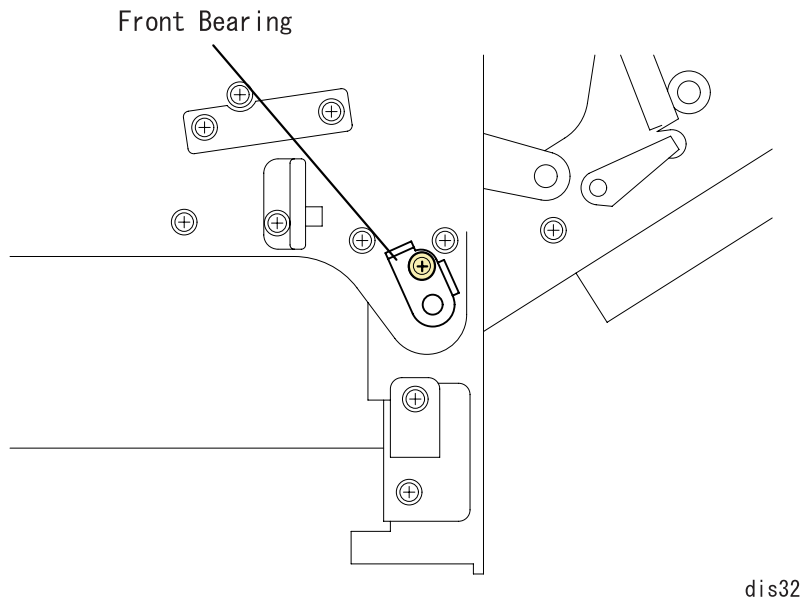


Figure 4-35. Manual Feed Tray Paper Load Solenoid Removal

4.2.15 MP Tray Paper Load Unit

4.2.15.1 Front Bearing for the MP Tray Paper Load Unit Removal

1. Remove the Front Cover. (See "Front Cover Removal" on page -142.)
2. Remove the Front Inner Cover. (See "Front Inner Cover Removal" on page -143.)
3. Remove 1 screw securing the Front Bearing.
4. Remove the Front Bearing for the MP Tray Paper Load Unit.

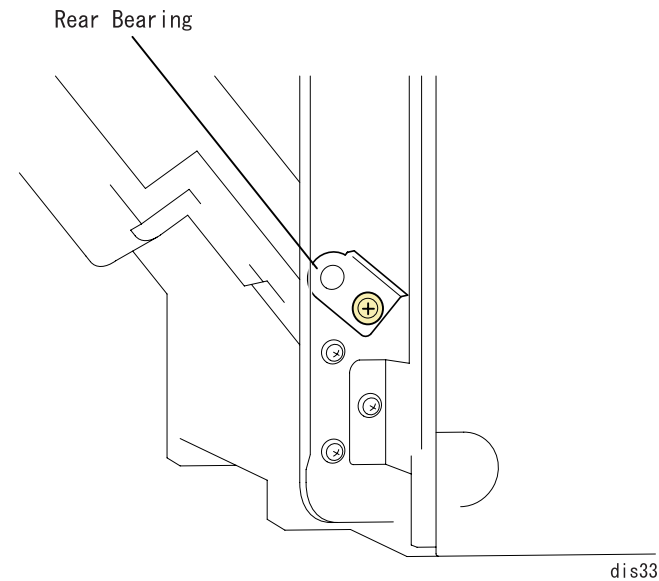


dis32

Figure 4-36. Front Bearing for the MP Tray Paper Load Unit

4.2.15.2 MP Tray Paper Load Unit Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the Front Bearing. (See "Front Bearing for the MP Tray Paper Load Unit Removal" on page -160.)
4. Remove 1 screw securing the rear bearing.
5. Disconnect the harness for the MP Tray Paper Load Unit from the connector on the MCU.
6. Watching out for the spring, remove the front and rear bearing, and remove the MP Tray Paper Load Unit.



dis33

Figure 4-37. MP Tray Paper Load Unit Removal

4.2.16 Paper Cassette

4.2.16.1 Paper Size Switch Removal

NOTE: If the optional 500 Sheet Paper Cassette Unit is installed, remove it.

1. Prepare the thick buffer and lay the printer there on its left side down.
2. Release the fixing tab for the Paper Size Switch.
3. Disconnect the harness from the connector on the sensor.

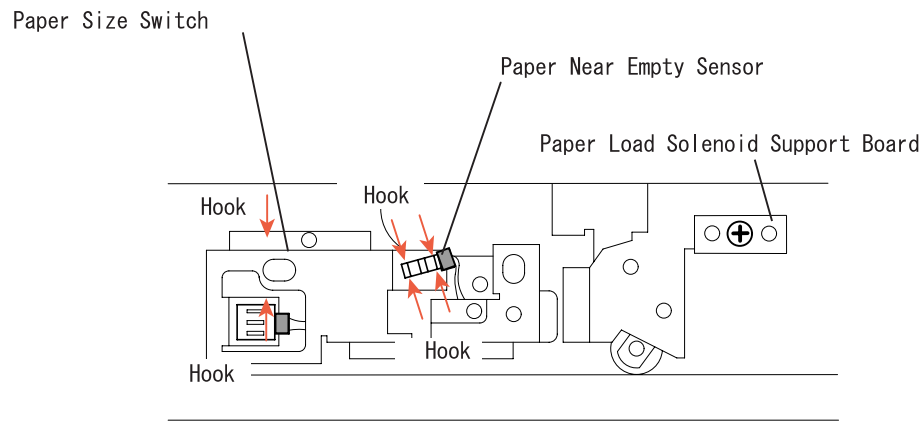


Figure 4-38.

Paper Size Switch / Paper Near Empty Sensor Removal

4.2.16.2 Paper Near Empty Sensor Removal

1. Prepare the thick buffer and lay the printer there on its left side down.
2. Release the fixing tab for the Paper Near Empty Sensor.
3. Remove the harness from the connector on the sensor.

4.2.16.3 Cassette Paper Load Solenoid Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the PWB-B Support Plate. (See "HV2 (High Voltage Board) Removal" on page -152.)
4. Remove the MP Tray Paper Load Unit. (See "MP Tray Paper Load Unit Removal" on page -160.)
5. Remove 1 screw securing the support plate and remove the Paper Load Solenoid. (See Figure 4-38, "Paper Size Switch / Paper Near Empty Sensor Removal")

dis34

4.2.17 Transfer Mechanism

4.2.17.1 Timing Roller Solenoid Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the PU1 Support Plate. (See "PU1 Support Plate Removal" on page -154.)
4. Remove the harness of the Timing Roller Solenoid from the MCU connector.
5. Remove 1 screw securing the Timing Roller Solenoid to the main frame.

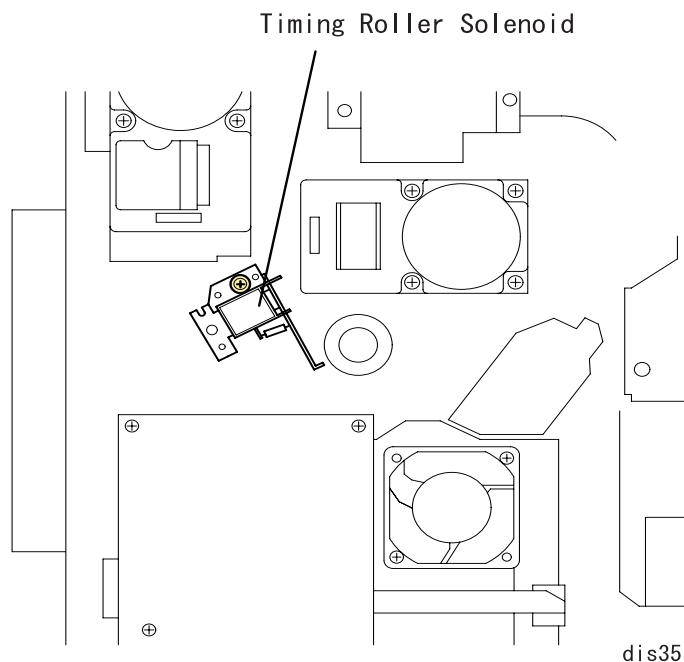


Figure 4-39. Timing Roller Solenoid Removal

4.2.17.2 Middle Roller Solenoid Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the PWB-A Support Plate. (See "MCU (PWB-A Board) Removal" on page -150.)
4. Remove the connector of the Middle Roller Solenoid and 1 screw.

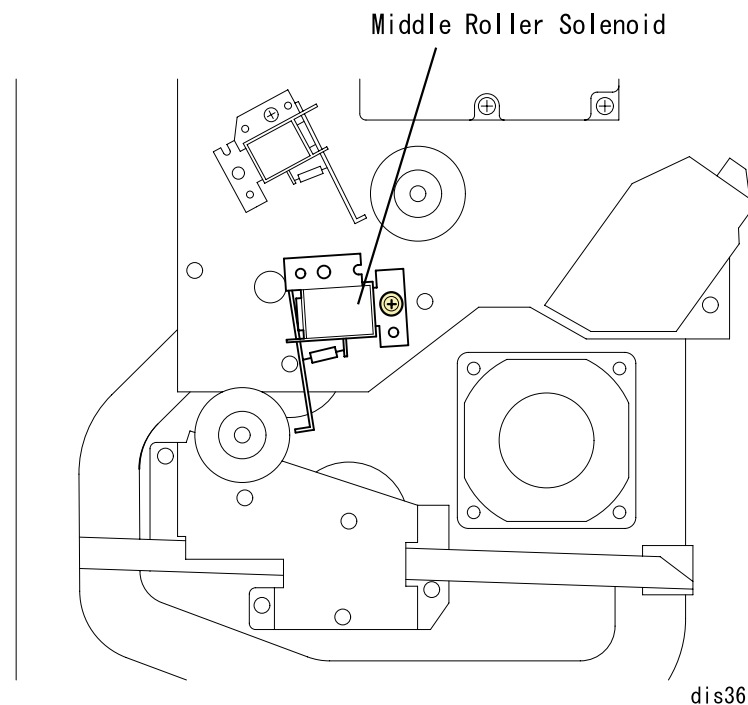
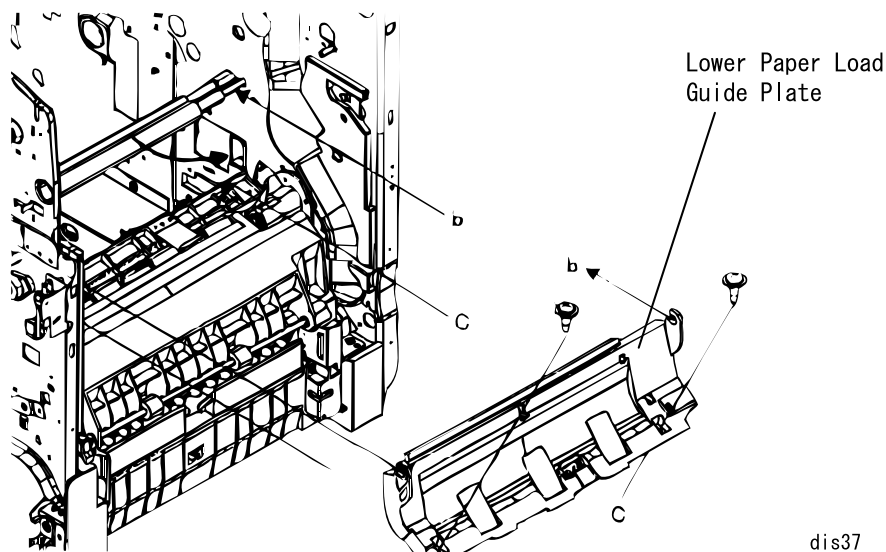


Figure 4-40. Middle Roller Solenoid Removal

4.2.17.3 Lower Paper Load Guide Removal

1. Lift the bottom end (green part) of the Upper Paper Load Guide and release the hook of Timing Roller.
2. Remove 2 screws securing the Lower Paper Load Guide.
3. Lift the bottom end of the Bottom Paper Load Guide and release the hook of Timing Roller.

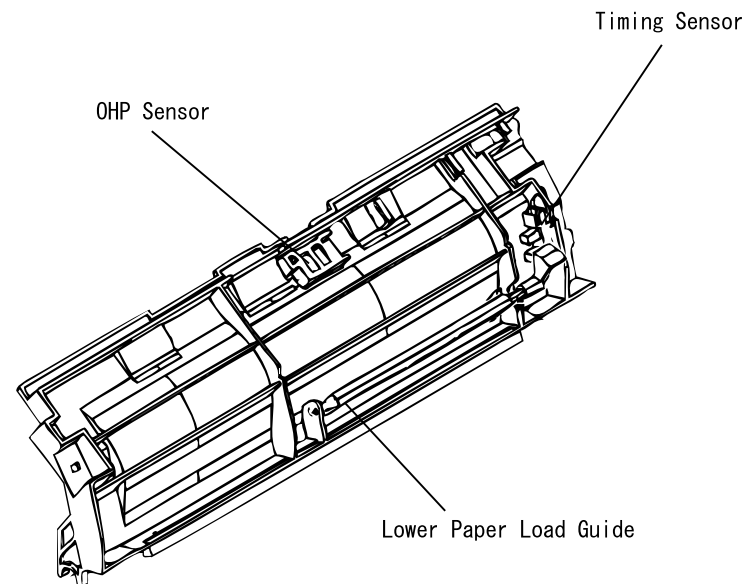


dis37

Figure 4-41. Lower Paper Load Guide Removal

4.2.17.4 Timing Sensor Removal

1. Remove the Lower Paper Load Guide. (See “Lower Paper Load Guide Removal” on page -163.)
2. Release the hook securing the Timing Sensor to the Lower Paper Load Guide.



dis38

Figure 4-42. Timing Sensor Removal

4.2.18 OHP Sensor Removal

1. Remove the Lower Paper Load Guide. (See “Lower Paper Load Guide Removal” on page -163.)
2. Release the hook securing the OHP Sensor to the Lower Paper Load Guide. (See Figure 4-42. “Timing Sensor Removal” on page -163.)

4.2.19 Developer Mechanism

4.2.19.1 Toner Empty Sensor Removal

1. Remove the Front Cover. (See "Front Cover Removal" on page -142.)
2. Remove the Front Inner Cover. (See "Front Inner Cover Removal" on page -143.)
3. Remove the connector of the Toner Empty Sensor.
4. Remove 2 screws securing the Toner Empty Sensor to the main frame.

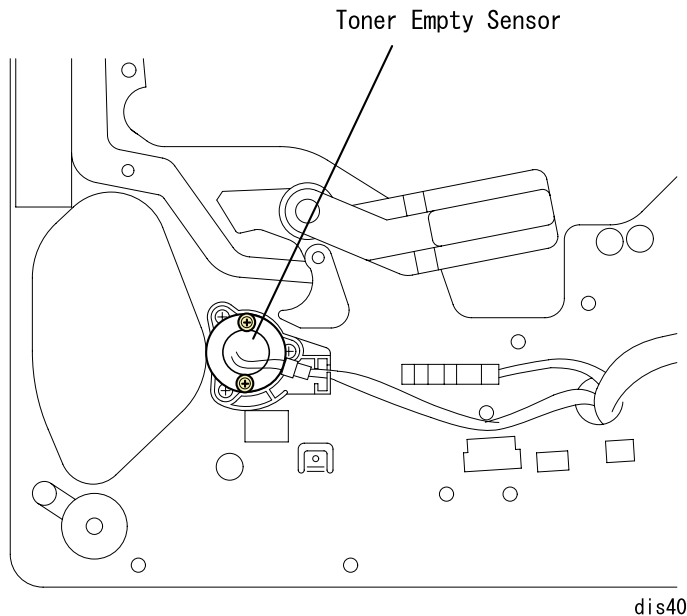


Figure 4-43. Toner Empty Sensor Removal

4.2.19.2 Front Side Rack Bearing Removal

1. Remove the Toner Empty Sensor.
2. Remove 3 screws securing the Front Side Rack Bearing.

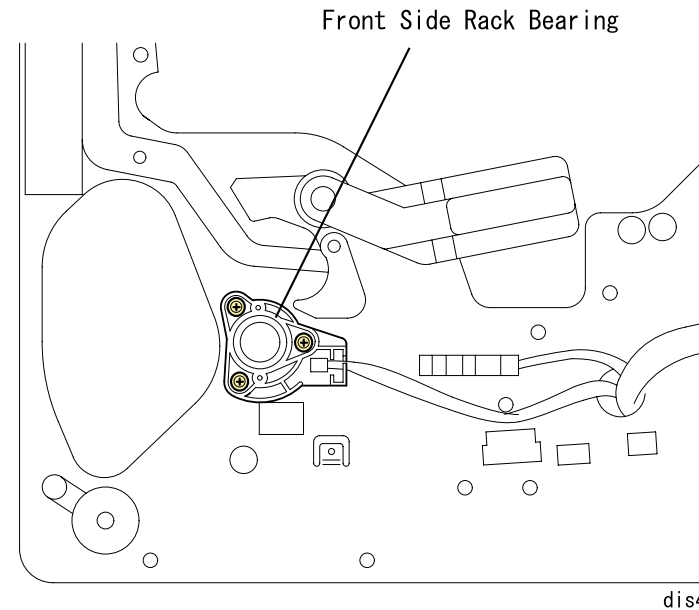


Figure 4-44. Front Side Rack Bearing Removal

4.2.19.3 Rack Lock Lever Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the Controller Box. (See "Controller Box Removal" on page 150.)
4. Remove the Left Cover. (See "Left Cover Removal" on page -144.)
5. Remove 2 screws securing the Rack Lock Lever to the main frame.

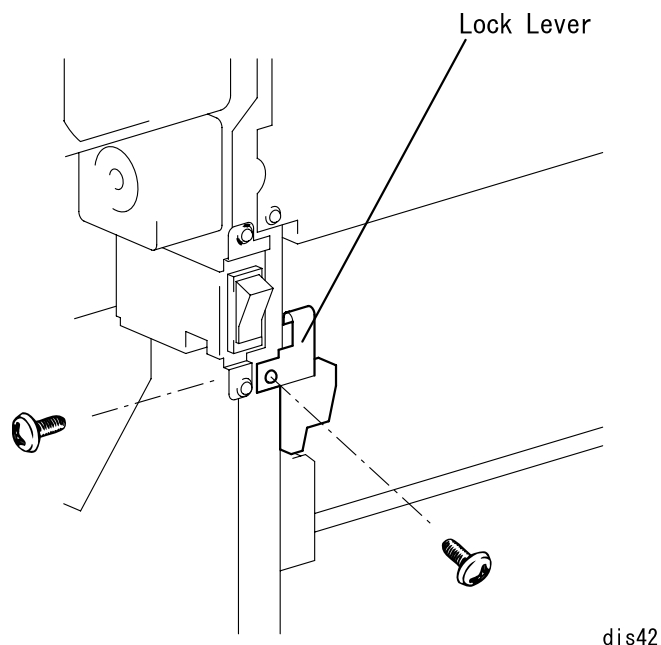


Figure 4-45. Rack Lock Lever Removal

4.2.19.4 Rack Black Position Sensor Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the HV1 (High Voltage Board). (See "HV1 (High Voltage Board) Removal" on page -152.)
4. Remove 1 screw securing the Rack Black Position Sensor and 1 connector.

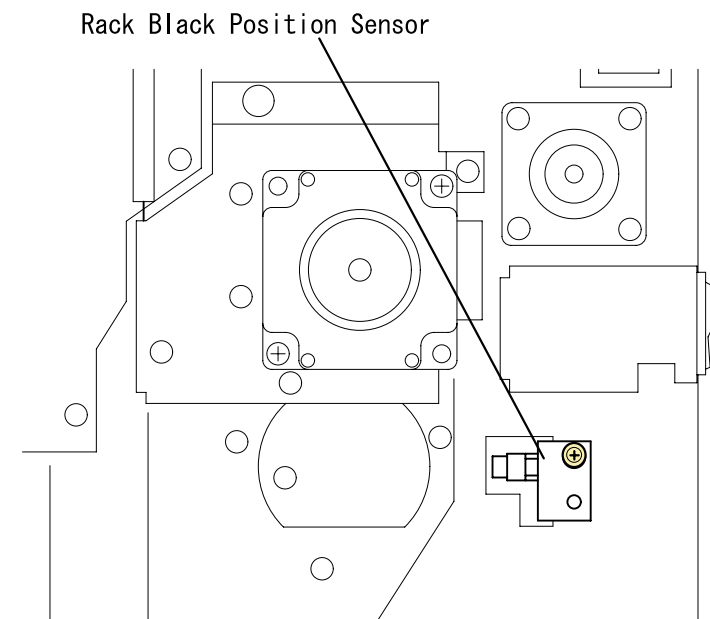


Figure 4-46. Rack Black Position Sensor Removal

4.2.19.5 Developer Motor Assy. Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the PU1 Support Plate. (See "PU1 Support Plate Removal" on page -154.)
4. Remove 1 Tension Spring installed on the installation plate of Developer Motor Assy. and Transfer Motor.
5. Remove the harness from 4 harness cramps of Developer Motor Installation Plate.
6. Remove 4 screws securing Developer Motor Assy. and 1 harness.

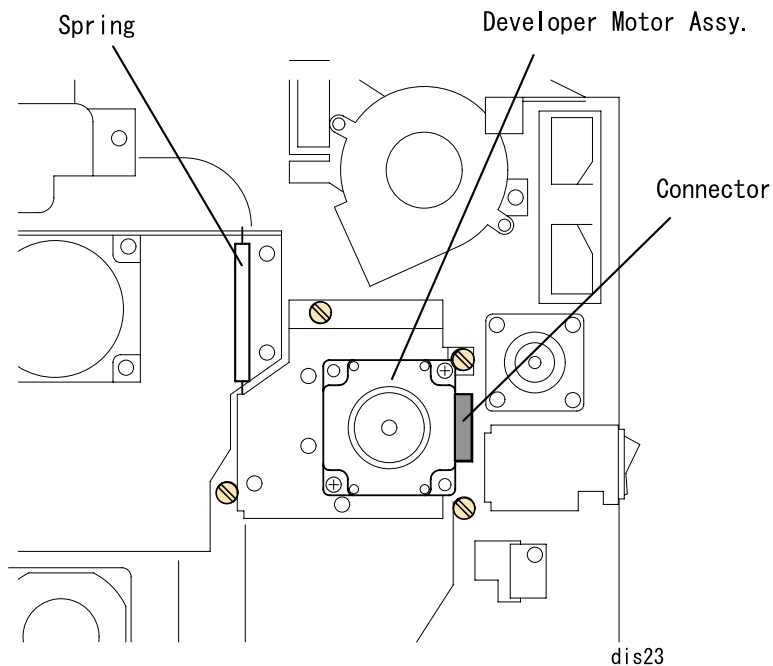


Figure 4-47. Developer Motor Assy. Removal

4.2.19.6 Rear Rack Bearing Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the PU1 Support Plate. (See "PU1 Support Plate Removal" on page -154.)
4. Remove Developer Motor Assy. (See "Developer Motor Assy. Removal" on page -166.)
5. Remove 3 connectors of Rear Rack Bearing and 4 screws.
6. Slowly pull Front Bearing and remove it.

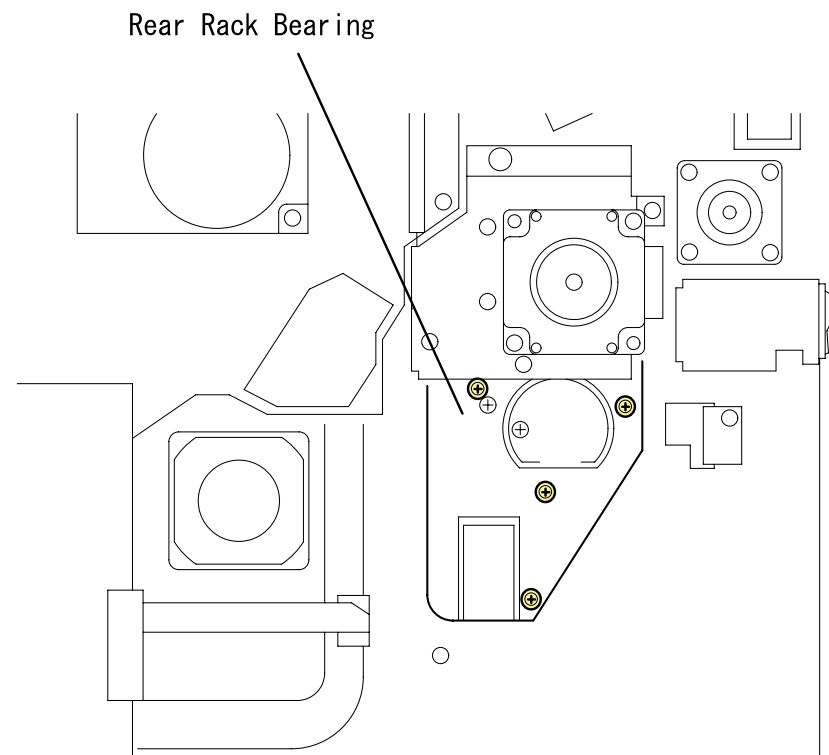


Figure 4-48. Rear Rack Bearing Removal

4.2.19.7 Rack Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the PU1 Support Plate. (See "PU1 Support Plate Removal" on page -154.)
4. Remove the Developer Motor Assy. (See "Developer Motor Assy. Removal" on page -166.)
5. Remove the Left Frame Plate. (See "Left Frame Plate Removal" on page -172.)
6. Remove the Toner Empty Sensor. (See "Rear Cover Removal" on page -146.)
7. Remove the Front Side Rack Bearing. (See "Front Side Rack Bearing Removal" on page -164.)
8. Remove the Rack Lock Lever. (See "Rack Lock Lever Removal" on page -165.)
9. Remove the Rack Black Position Sensor. (See "Rack Black Position Sensor Removal" on page -165.)
10. Remove the Developer Motor Assy. (See "Developer Motor Assy. Removal" on page -166.)
11. Remove the Rear Rack Bearing. (See "Rear Rack Bearing Removal" on page -166.)
12. Press the rack release button from the front side. (You can also release the E ring of the Rack Release Lever to release the Lever.)
13. Pull the Rack to the front and remove it. Be careful not to hang the rear end.

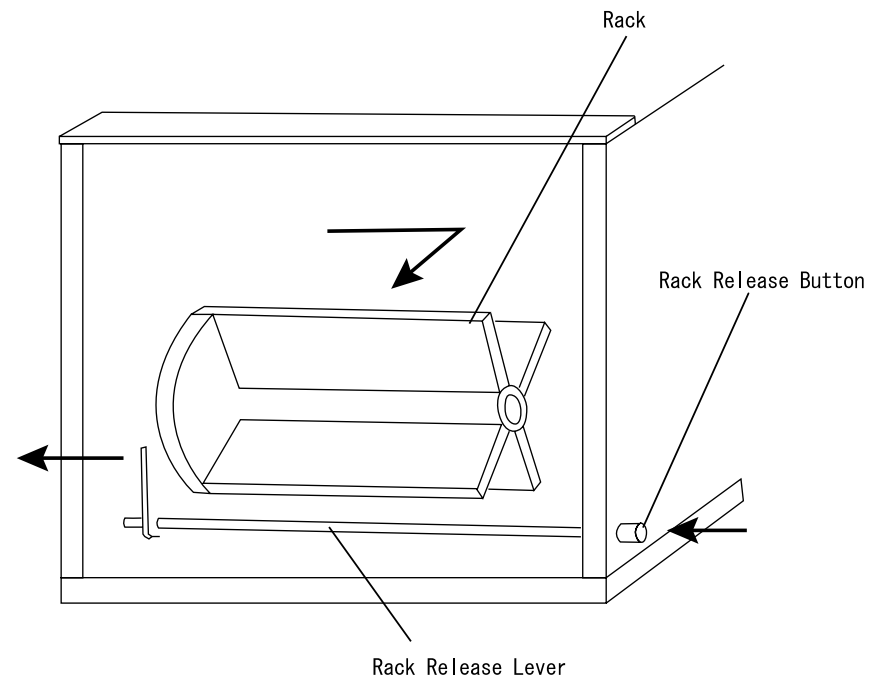


Figure 4-49. Rack Removal

4.2.20 PH (Print Head) Mechanism

4.2.20.1 PH Connector Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove 2 PH connectors from MCU (PWB-A) Board.
4. Remove PH harness from the harness duct.

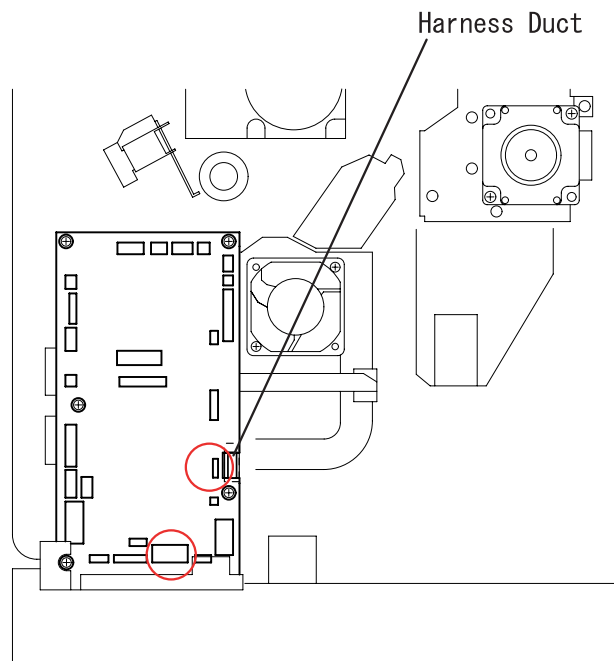


Figure 4-50. PH Connector Removal

4.2.20.2 PH Cover Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove 2 PH connectors from MCU (PWB-A) Board.
4. Remove the PH harness from the harness duct.

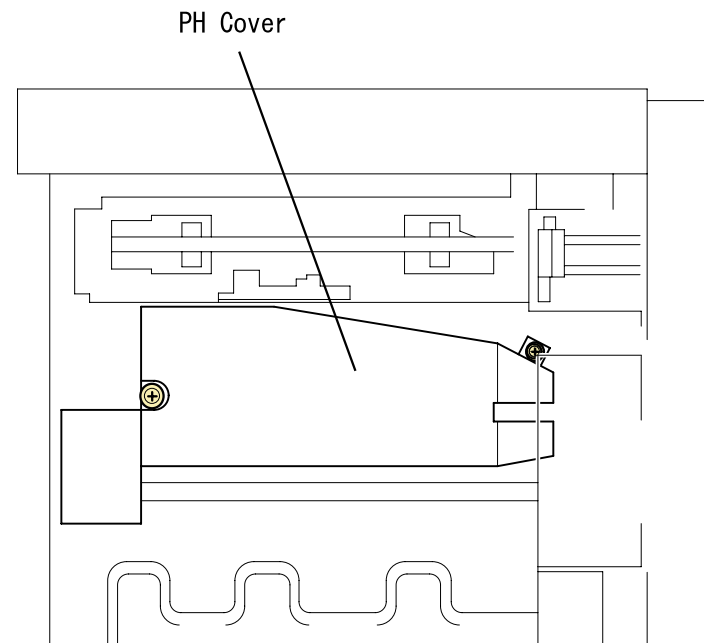


Figure 4-51. PH Cover Removal

4.2.20.3 PH Removal

1. Remove the PH connector. (See "PH Connector Removal" on page -168.)
2. Remove 4 screws securing PH.



Never conduct electricity with PH removed. It will emit invisible laser light and it may result in losing the eyesight.

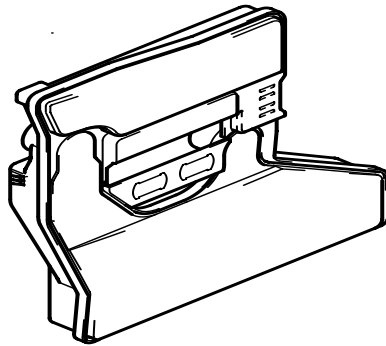


Figure 4-52. PH Removal

4.2.21 Transfer Mechanism

4.2.21.1 Transfer Roller Pressure Solenoid Removal

1. Remove the Paper Load Cover. (See "Paper Load Cover Removal" on page -159.)
2. Remove the harness of the transfer roller pressure solenoid from the connector.
3. Remove 1 screw securing the transfer roller pressure solenoid.

Transfer Roller Pressure Solenoid

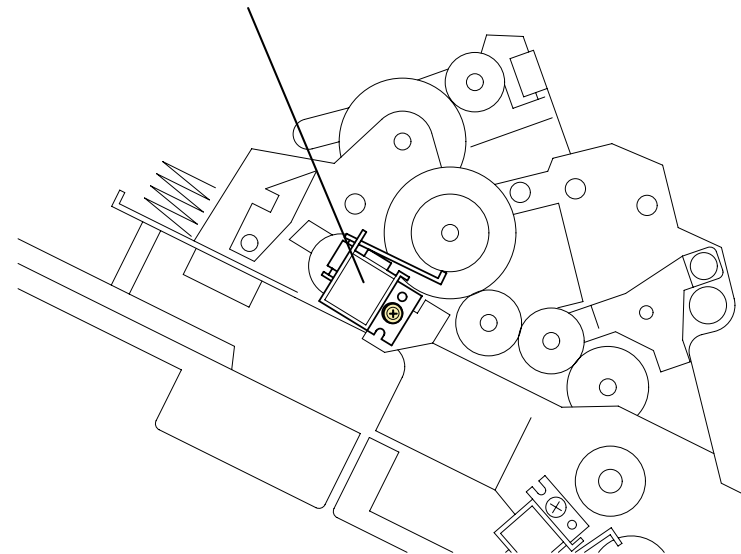


Figure 4-53. Transfer Roller Pressure Solenoid Removal

4.2.21.2 Transfer Roller Pressure Sensor Removal

1. Open the standard tray.
2. Remove the fusing cover and duplex unit if installed.

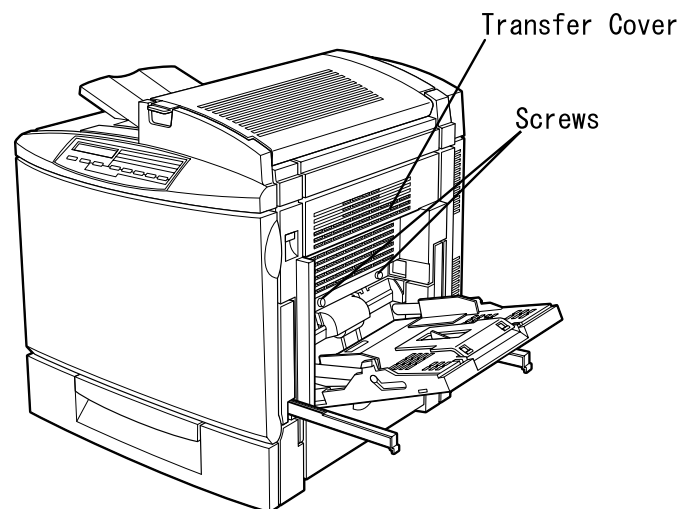


Figure 4-54. Transfer Cover

3. Remove the hook of the transfer roller pressure sensor.
4. Remove the harness from the sensor connector.

Transfer Roller Pressure Sensor

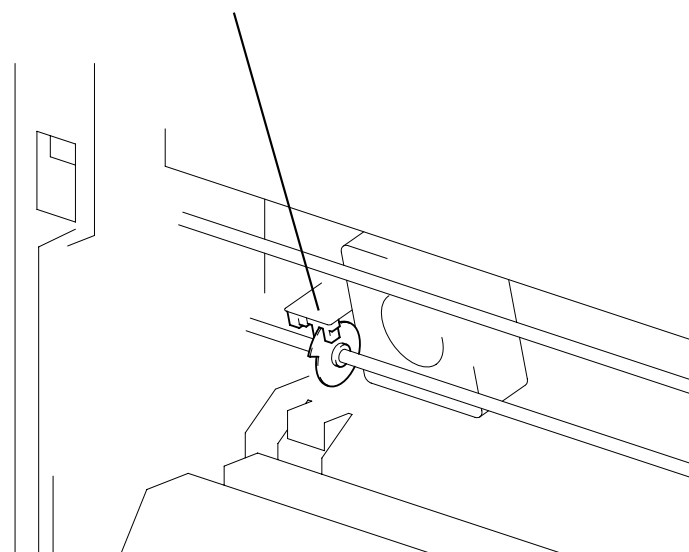


Figure 4-55. Transfer Roller Pressure Sensor

4.2.21.3 Suction Fan Motor Removal

1. Open the standard tray.
2. Remove the transfer cover and duplex unit if installed. (2 screws) (See "Transfer Roller Pressure Sensor Removal" on page -170.)
3. Remove the harness of the Suction Fan from the Harness Saddle, which secures the harness to the Standard Tray at 3 points.
4. Remove 2 long screws securing the suction fan.

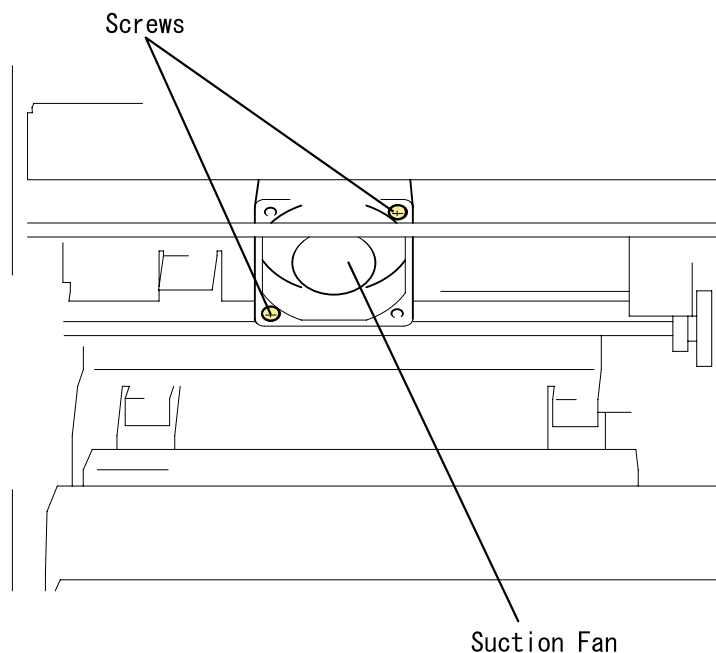


Figure 4-56. Suction Fan Motor Removal

4.2.21.4 Middle Paper Sensor Removal

1. Remove the suction fan. (See "Suction Fan Motor Removal" on page -171.)
2. Remove the harness from the middle paper sensor connector.
3. Remove 1 screw securing the middle paper sensor.

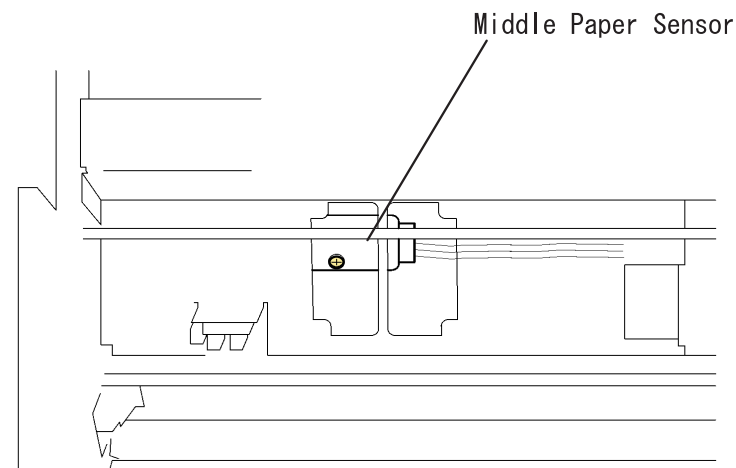


Figure 4-57. Middle Paper Sensor Removal

4.2.22 Belt Cleaner Mechanism

4.2.22.1 Left Upper Support Plate Removal

1. Remove the Operation Panel. (See "Operation Panel Removal" on page -143.)
2. Remove the Front Inner Cover. (See "Front Inner Cover Removal" on page -143.)
3. Remove the Top Cover. (See "Top Cover Removal" on page -144.)
4. Remove the Left Cover. (See "Left Cover Removal" on page -144.)
5. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
6. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
7. Remove 5 screws securing the left upper support plate. (Upper side: 3 screws, Front rear side: 1 screw each)

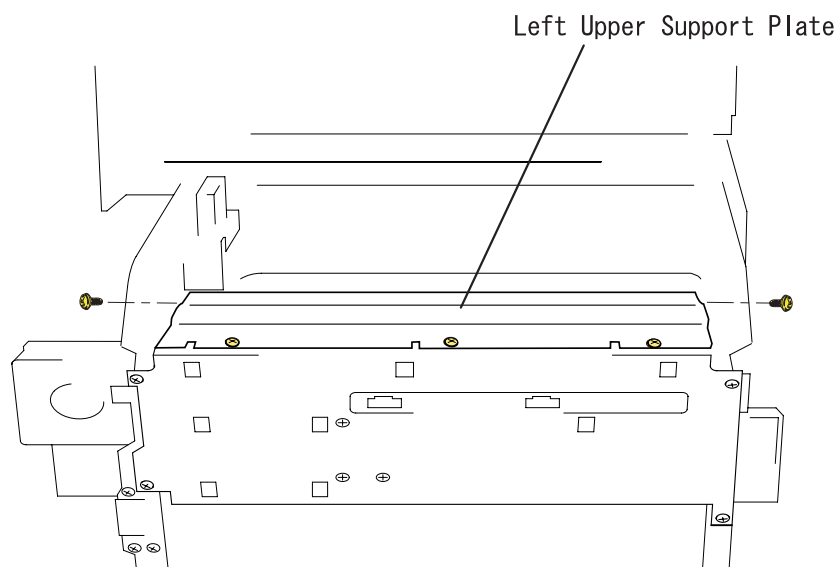


Figure 4-58. Left Upper Support Plate Removal

4.2.22.2 Left Frame Plate Removal

1. Remove the Left Upper Support Plate. (See "Left Upper Support Plate Removal" on page -172.)
2. Remove the harness from the harness saddle at the left frame.
3. Remove 4 screws securing the left frame plate.
4. Remove the harnesses from 4 connectors of the belt cleaner control board on the left frame.

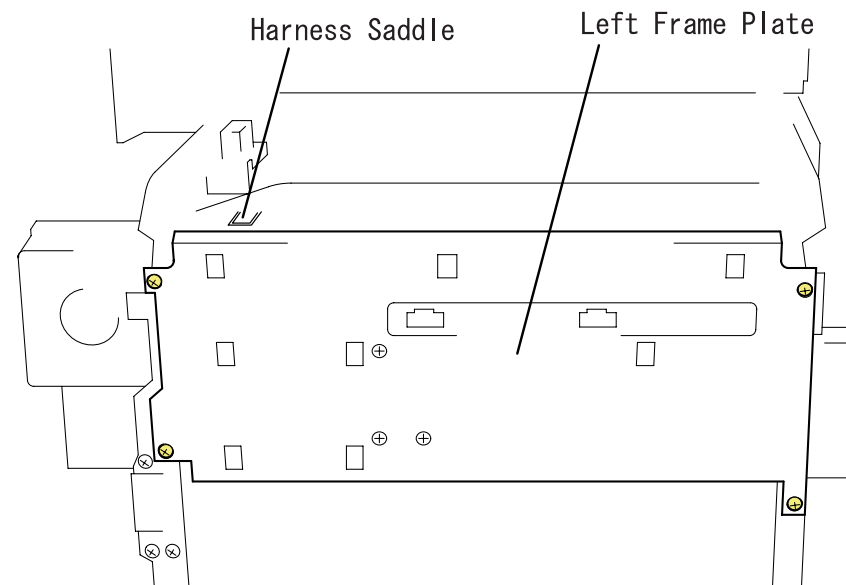


Figure 4-59. Left Frame Plate Removal

4.2.22.3 Belt Cleaner Estrangement Position Sensor Removal

1. Remove the Left Frame Plate. (See “Left Frame Plate Removal” on page -172.)
2. Release the hook of the belt cleaner estrangement position sensor.

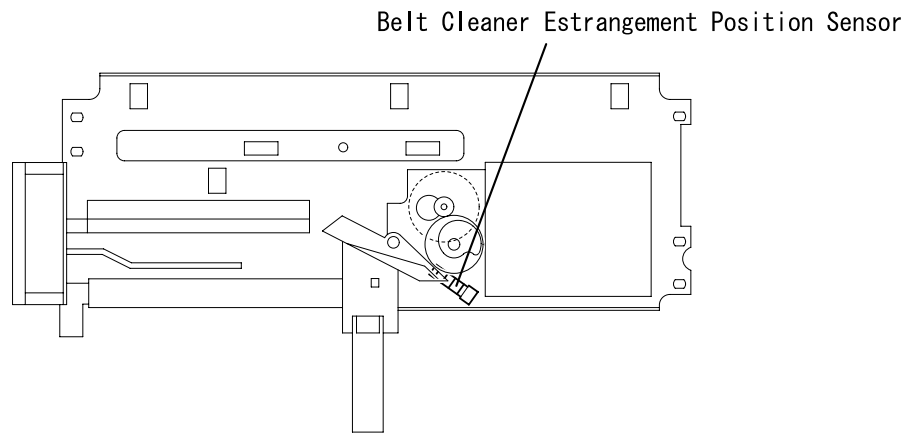


Figure 4-60. Belt Cleaner Estrangement Position Sensor Removal

4.2.22.4 PWB-I (Belt Cleaner Control Board) Removal

1. Remove the Left Frame Plate. (See “Left Frame Plate Removal” on page -172.)
2. Remove 4 screws securing the PWB-I (Belt Cleaner Control Board).

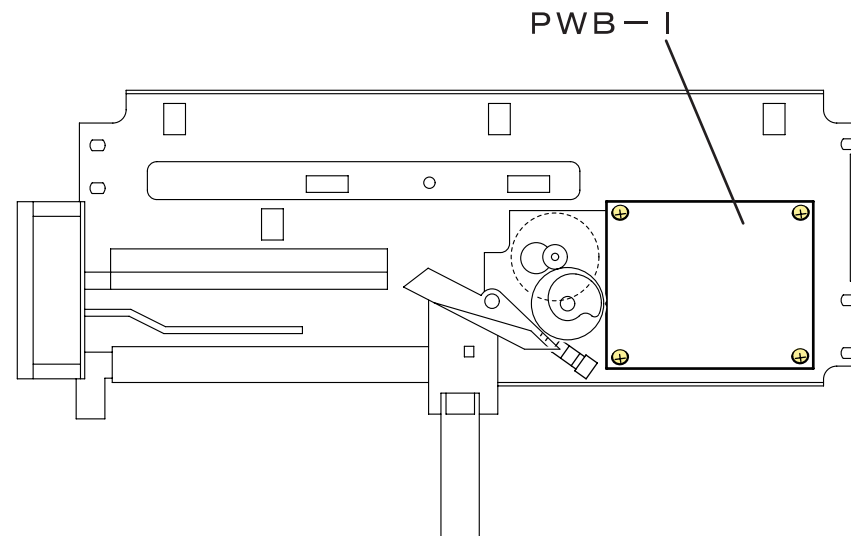


Figure 4-61. PWB-I (Belt Cleaner Control Board) Removal

4.2.23 Fusing Mechanism

4.2.23.1 Pressure Roller Estrangement Sensor Removal

1. Remove the Fusing Pressure Motor. (See “Fusing Pressure Motor Removal” on page -155.)
2. Remove 1 screw and 1 connector of the pressure roller estrangement sensor.

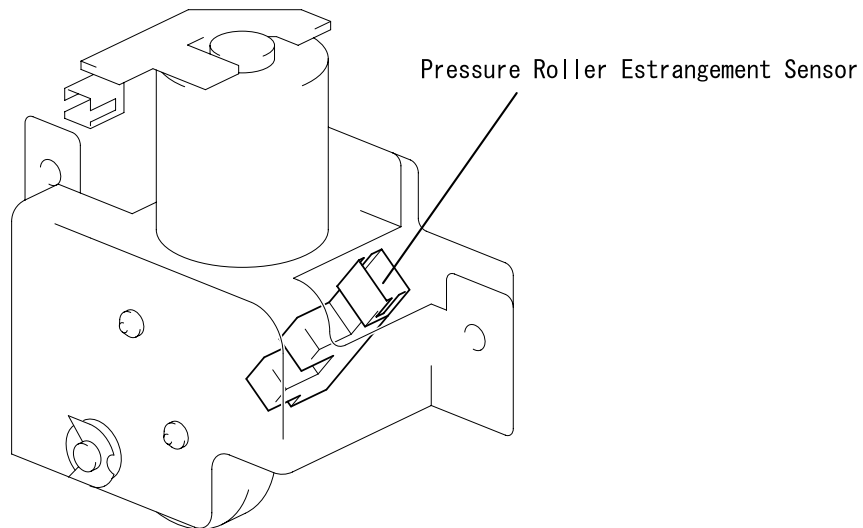


Figure 4-62. Pressure Roller Estrangement Sensor Removal

4.2.24 Paper Eject Mechanism

4.2.24.1 Paper Eject Sensor Removal

1. Open the fusing cover.
2. Remove 4 screws securing the sensor support plate.
3. Remove 1 connector securing the paper eject sensor.
4. Release the paper eject sensor hook.

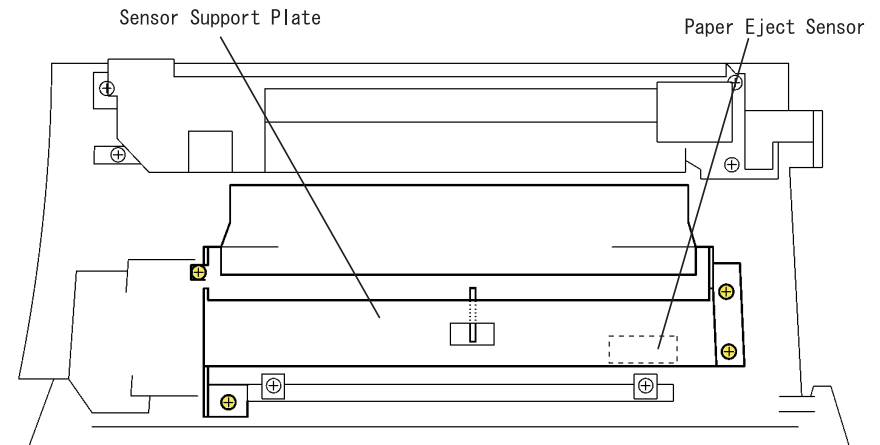


Figure 4-63. Paper Eject Sensor Removal

4.2.25 Rack Motor Assy.

4.2.25.1 Power Switch Removal

1. Remove the Rear Controller Cover. (See "Rear Controller Cover Removal" on page -145.)
2. Remove the Rear Cover. (See "Rear Cover Removal" on page -146.)
3. Remove the Rear Right Cover. (See "Rear Right Cover Removal" on page -146.)
4. Remove 2 screws securing the Power Switch.

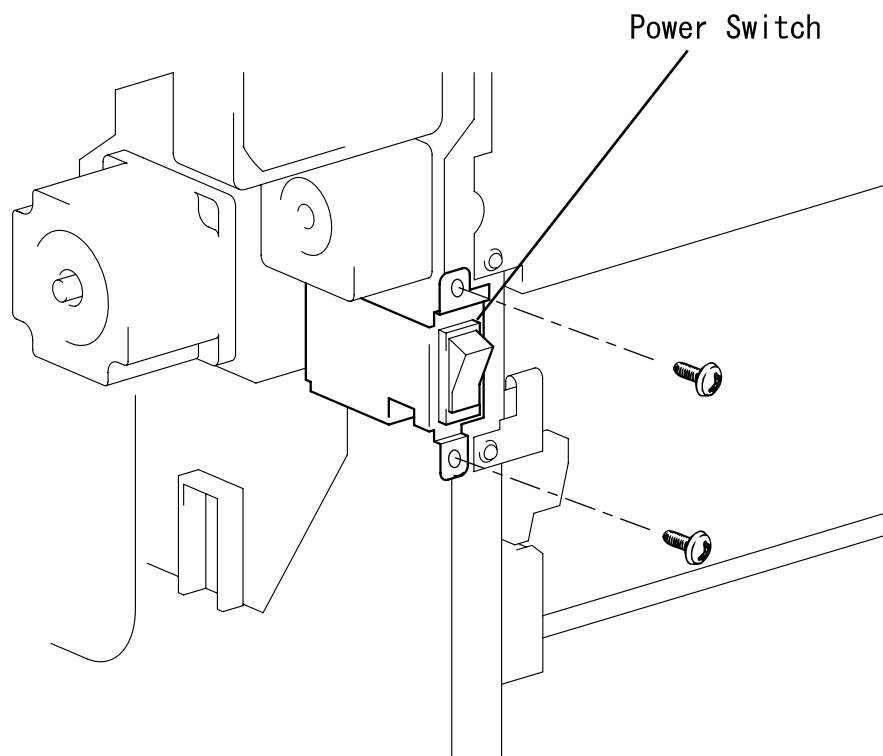


Figure 4-64. Power Switch

4.2.25.2 Rack Motor Assy. Removal

1. Remove 2 screws securing the power fan installation plate to the printer and remove the power fan.
2. Remove the power switch. (See "Power Switch Removal" on page -175.)
3. Remove 1 connector and 2 screws of Rack Motor Assy.
4. Remove Rack Motor Assy.

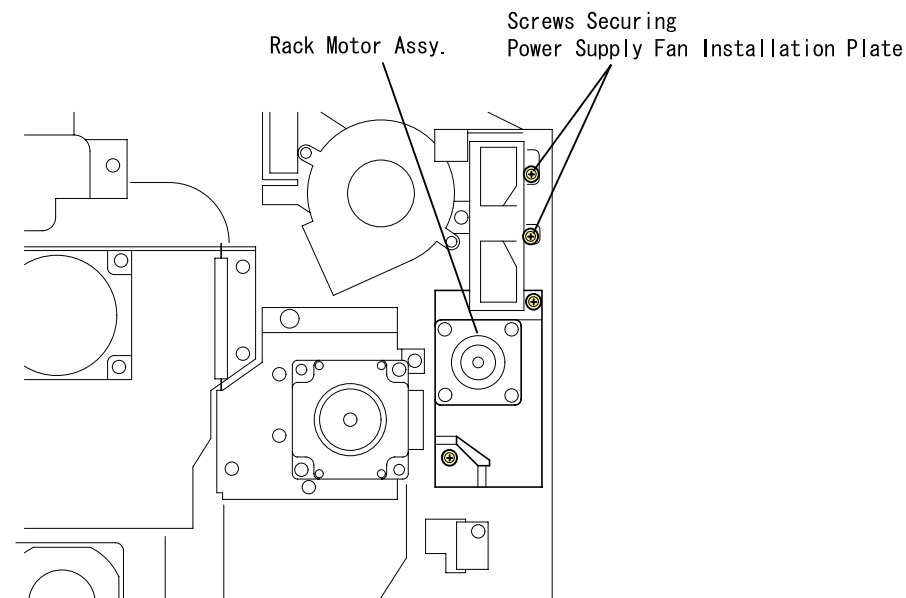


Figure 4-65. Rack Motor Assy. Removal

4.2.26 Duplex Unit

4.2.26.1 Duplex Paper Feed Sensor Removal

1. Remove 2 screws securing the Duplex Unit to the printer.
2. Remove the sensor cover.
3. Release the hook of the Duplex Paper Feed Sensor.

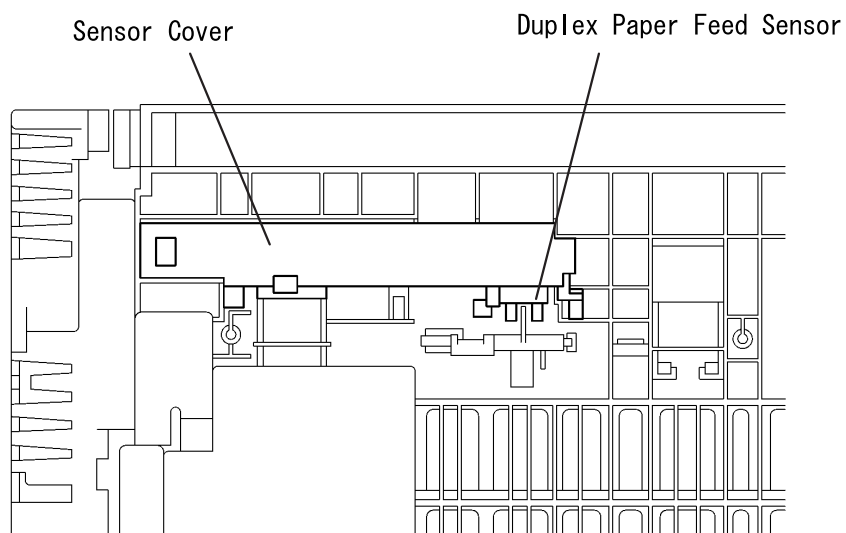


Figure 4-66. Duplex Paper Feed Sensor Removal

4.2.26.2 Duplex Unit Board Cover Removal

1. Remove 1 screw securing the board cover to the duplex unit.

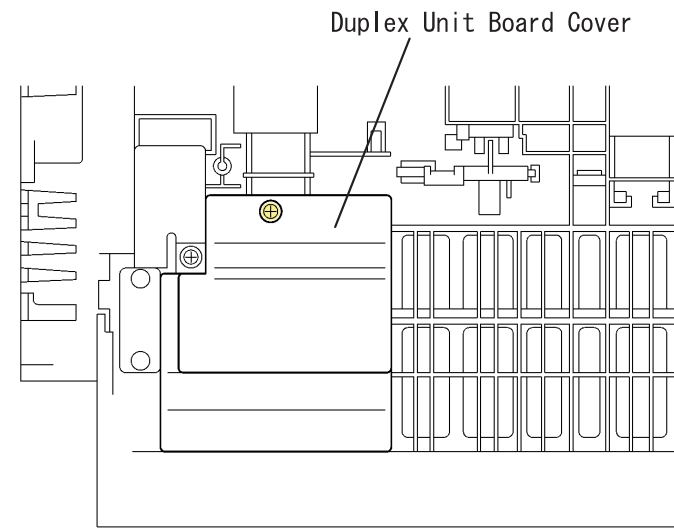


Figure 4-67. Duplex Unit Board Cover Removal

4.2.26.3 Duplex Unit Board (PWB-AD) Removal

1. Remove the Board Cover. (See “Duplex Unit Board Cover Removal” on page -176.)
2. Remove the harness from 3 connectors on the Duplex Unit Board (PWB-AD).
3. Remove 2 screws securing the Duplex Unit Board (PWB-A).

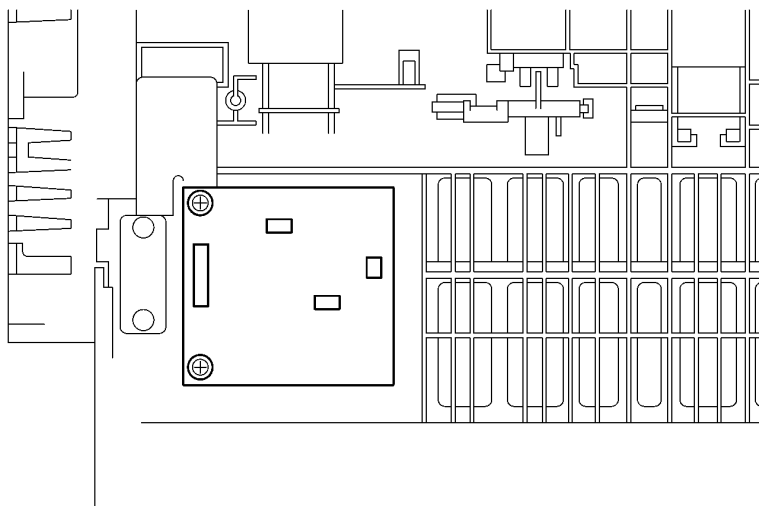


Figure 4-68. Duplex Unit Board (PWB-AD) Removal

4.2.26.4 Motor Cover Removal

1. Remove 1 screw securing the Motor Cover.
2. Release 1 hook securing the Motor Cover to the Duplex Unit.

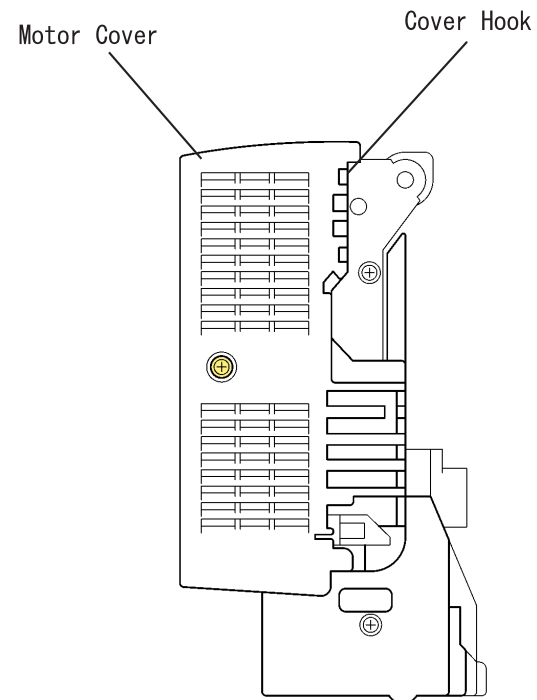


Figure 4-69. Motor Cover

4.2.26.5 Motor Plate Removal

1. Remove 2 motor connectors from the Motor Plate and 3 screws securing the Plate.

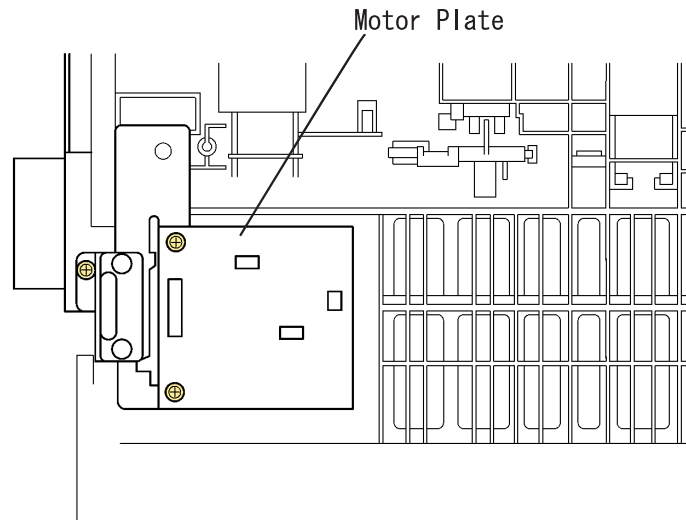


Figure 4-70. Motor Plate Removal

4.2.26.6 Reverse Motor Removal

1. Remove 3 screw securing the Motor Plate.
2. Remove the harness from 3 harness saddles.
3. Remove 2 screws securing the Switch Back Motor.

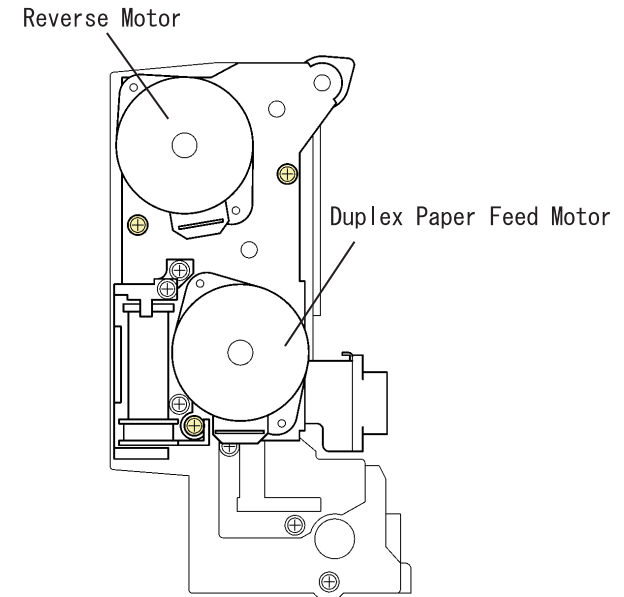


Figure 4-71. Reverse Motor / Duplex Paper Load Motor

4.2.26.7 Duplex Paper Load Motor Removal

1. Remove 3 screw securing the Motor Plate.
2. Remove the harness from 3 harness saddles.
3. Remove 2 screws securing the Duplex Paper Load Motor. (See Figure 4-71. "Reverse Motor / Duplex Paper Load Motor" on page -178.)

4.3 Program ROM Update (AcuLaser C2000)

The firmware of this printer is stored on the Flash-ROM DIMM (program ROM) on the controller circuit board (C314MAIN). There are 2 ways to update firmware. (See “Control Panel (AcuLaser C2000)” on page -38.)

4.3.1 Program ROM Update

This section explains the method of downloading the firmware form the parallel interface.

1. Store the firmware (*.crb) to the arbitrary folder of HDD of PC in advance.
2. Connect the printer and PC via parallel interface cable.
3. Set this printer to the default by the Windows printer configuration. Set the printer port to LPT1: or the appropriate port.
4. On the panel, while pressing “On Line”, “Alt” and “Value Selection Switch”, turn the printer ON.

The printer displays “Program Device” > “Version *.*” > “Please Send Data” and the printer waits for the data coming.

NOTE: At this point, if you want to cancel updating, turn off the printer. If you turn off the printer, firmware remains as is.

5. Input the following command line to PC and transfer the new firmware.
> copy _*.crb _lpt1 [return]
6. When the printer displays “OLD: **** NEW: ****”, press “Enter Switch”.
Display indicates “Erasing Device” > “Prig ...” and writing to DIMM will be started.

NOTE: At this point, if you want to cancel updating, press “Menu Selection Switch”. Display indicates “WAIT_RESET” and firmware remains as is.



After pressing the “Enter Switch”, you cannot return to the former state of firmware.

7. When the display indicates “Checksum ROM Data”, the transfer is completed. Turn off and on the printer or press the “Enter Switch” to reboot the printer. The printer becomes ready to print. Printer will operates with new firmware.

4.3.1.1 Error Indication and Remedies

<END: CMD Error: CONT>

- Cause: Data of different model is transferred.
After data transfer, the printer indicates this error before version check.
- Remedy:
When “Menu Selection Switch” is pressed, the printer indicates “WAIT_RESET” and the firmware remains as is.

NOTE: “Enter Switch” lets the update goes on and the update will be done correctly, but the printer does not operate.

<END: CMD Error: CONT>

- Cause: No CRB file for data file.
After data transfer, the printer displays this error before the version check.
- Remedy:
When “Menu Selection Switch” is pressed, the printer indicates “WAIT_RESET” and the firmware remains as is.

NOTE: “Enter Switch” lets the update goes on and the update will be done correctly, but the printer soon stops because of error.

□ <END: Write. ER: CONT>

- Cause: Verify error during writing or erasing
Same for when the verify error is occurred during DIMM erase and write and when the address write is out of range. Printer display indicates this error. DIMM pin contact failure and DIMM failure causes this error.
- Remedy:
When "Menu Selection Switch" is pressed, the printer indicates "WAIT_RESET" and the firmware remains as is.

NOTE: "Enter Switch" lets writing operation goes on regardless of error, but the printer may become unable to reboot because of checksum error.

□ <END: ADR. Error: CONT>

- Cause: DIMM write address is out of range.
The data transferred from PC is converted and data different from data file is sent or the content of the data file has problem.
- Remedy:
When "Menu Selection Switch" is pressed, the printer indicates "WAIT_RESET" and the firmware remains as is.

NOTE: "Enter Switch" lets the update goes on and the update will be done correctly, but the printer soon stops because of error.

□ Service Call Error C*****

- Cause: Checksum error
Writing to DIMM is failed. When you finished it without reading off the data, DIMM update program does not boot at the power on and the printer indicates error.
- Remedy:
Press "On Line", "Alt" and "Value Selection Switch" twice at the same time. This will release error and DIMM update program is executed and you can update the data.

4.3.2 DIMM Module Copy

This section explains the method of directly copying the firmware or font data to DIMM module.

1. Install the target DIMM to socket A and master DIMM to socket B.
2. On the panel, while pressing the "READY_TO_PRINT", "Alt" and "Enter Switch", turn on the printer.
3. When the display indicates "ROM Copy Mode", press "Enter Switch". The printer enters to the DIMM copy mode.
4. Display indicates "C*****" error" and the copy is completed.



- When removing and inserting the DIMM, make sure that the printer is OFF. Otherwise, you may damage DIMM.
- When DIMM is not installed at socket B, the firmware of the DIMM module connected to PROG socket will be copied to the target DIMM.

CHAPTER

5

ADJUSTMENT

5.1 Overview

AcuLaser C2000 / AcuLaser C1000 does not require any adjustment on hardware side. With AcuLaser C1000, however, the USB ID must be written after replacing the Main Board Assy. The next section describes how to write the USB ID.

5.2 USB ID Input (Only for AcuLaser C1000)

AcuLaser C1000 comes with the USB interface as standard, and the PC connected to the AcuLaser C1000 via the USB interface identifies the printer by referring to the USB ID information specific to each printer.

Since this USB ID information is stored on EEPROM on the MAIN Board of the printer, you have to re-define the ID information by the procedure described below when you have replaced the MAIN Board for repair.



When you repair the printer and re-define the USB ID information, you have to tell the user to uninstall the previously installed printer driver as it is referring to the old USB ID information.

The program for USB ID input and the supported operating environment are as follows:

- Program
USBID_HBE.exe
- Operating environment
 - OS: Windows95 OSR2.0 or later or Windows98
 - Port used: LPT1 ~ LPT3 (Windows95/98)

5.2.1 Installation Procedure for Program

Copy the adjustment program file (USBID_HBE.exe) onto the desktop or into a folder.

5.2.2 Procedure for Program Operation



- Do not start the adjustment program before connecting the parallel cable to the printer.
- This program can not be executed together with EPW (Epson Printer Window) on Windows 95/98. Be sure to terminate the EPW before starting the adjustment program.
- If the power to the printer is turned off or the parallel cable is disconnected during running of the adjustment program, be sure to restart the program.
- On the “Details of Display” tab of “Property of Screen”, do not change “font size.”

1. When you execute the program “USBID_HBE.exe”, the menu window shown below will appear.
2. Select the model name “AcuLaser C1000”, then click the OK button.

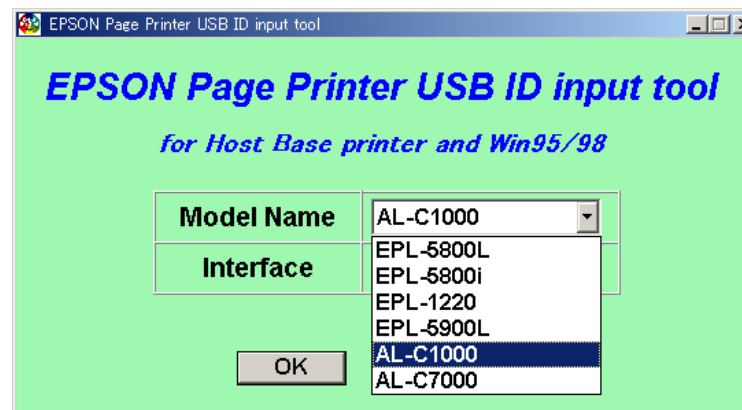


Figure 1-1. Program Start Window

3. When the window as shown in Figure 5-2 is displayed, check “USB ID input” and click the OK button.

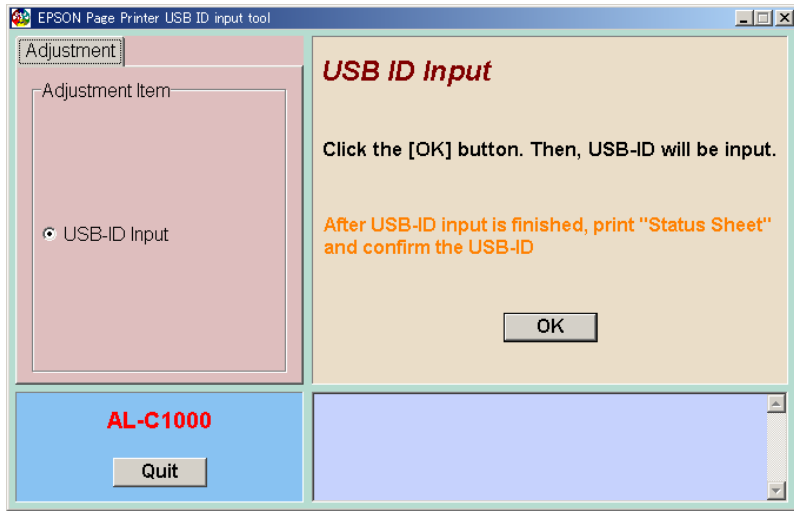
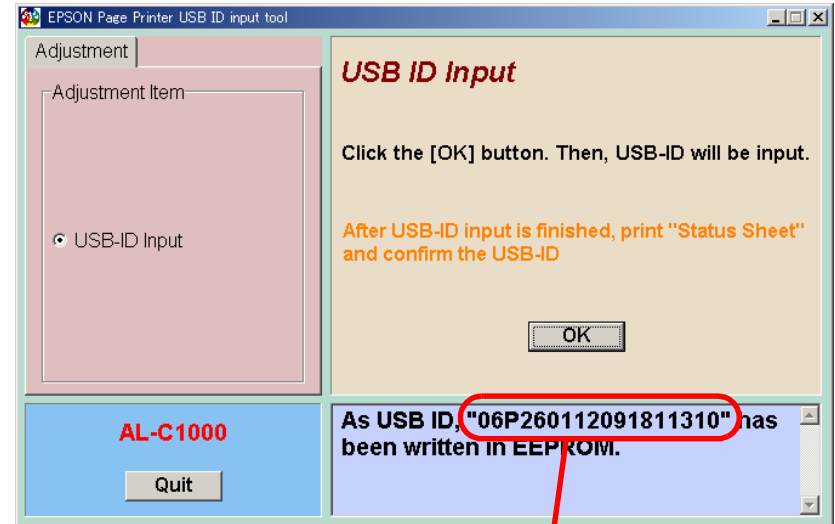


Figure 1-2. USB ID Input Window (1)

- When the following window is displayed, the USB ID information (18 digits in total) is stored in EEPROM on the main board of the printer. Take a note of the USB ID value displayed in the status window in the bottom area of the program for your later check of the inputted USB ID.



Take a note of this number

Figure 1-3. USB ID Input Window (2)

5.2.3 USB ID Confirmation



Once you have input a new USB ID, never forget to confirm it on the status sheet.

1. Open the properties of printer driver and select [Optional settings].
2. Click on [Status Sheet] and the printer prints the status sheet. Then, check if the USB ID value printed at the bottom of sheet matches the value that taken a note.

CHAPTER

6

MAINTENANCE

6.1 Maintenance

This chapter explains the maintenance of AcuLaser C2000 / AcuLaser C1000. The maintenance of AcuLaser C2000 / AcuLaser C1000 is designed for users to do maintenance.

No lubrication or adhesion is required for AcuLaser C2000 / AcuLaser C1000.

6.1.1 Replacement Parts

For AcuLaser C2000 / AcuLaser C1000, the maintenance kit which includes required maintenance parts is available and thereby users can perform the maintenance. The following table shows the maintenance kit.

Name	Code	Replacement Timing	Note
ET cartridge (Yellow)		6,000 sheets	User replacement
ET cartridge (Magenta)		6,000 sheets	User replacement
ET cartridge (Cyan)		6,000 sheets	User replacement
ET cartridge (Black)		6,000 sheets	User replacement
OPC drum unit kit • OPC unit • Fusing oil roll • Waste toner box • Print head filter		<ul style="list-style-type: none"> • Monochrome <ul style="list-style-type: none"> - Continuous printing: 30,000 sheets - 1 sheet printing: 10,000 sheets • Color <ul style="list-style-type: none"> - Continuous printing: 7,500 sheets - 1 sheet printing: 5,000 sheets 	User replacement (Should be replaced at the same time.)
Fusing unit kit • Fusing unit • 2nd Transfer Roll		80,000 sheets	User replacement
Transfer belt		100,000 images	User replacement
Waste Toner Box		-	User replacement
Fusing oil roll (TBD)		-	User replacement

NOTE: Replacement timing is calculated in consideration for the product reliability and thereby it does not force the replacement at the described timing. Still, the replacement at the described timing is recommended for the product quality maintenance.

6.1.2 Cleaning

Clean the outer dirt by the dry and soft clean cloth. If the dirt is not easy to remove, use the neutral detergent. Vacuum the outer dust and paper strips. The following table shows the specific cleaning method you have to use for the specific parts. Otherwise, it may have the bad affect on the product function.

Cleaning Part	Cleaning Method	Note
Paper load roller	Clean the roller surface with the dry and soft clean cloth.	User cleaning



Do not use thinner or benzene since it may deteriorate the plastic parts and rubber parts.

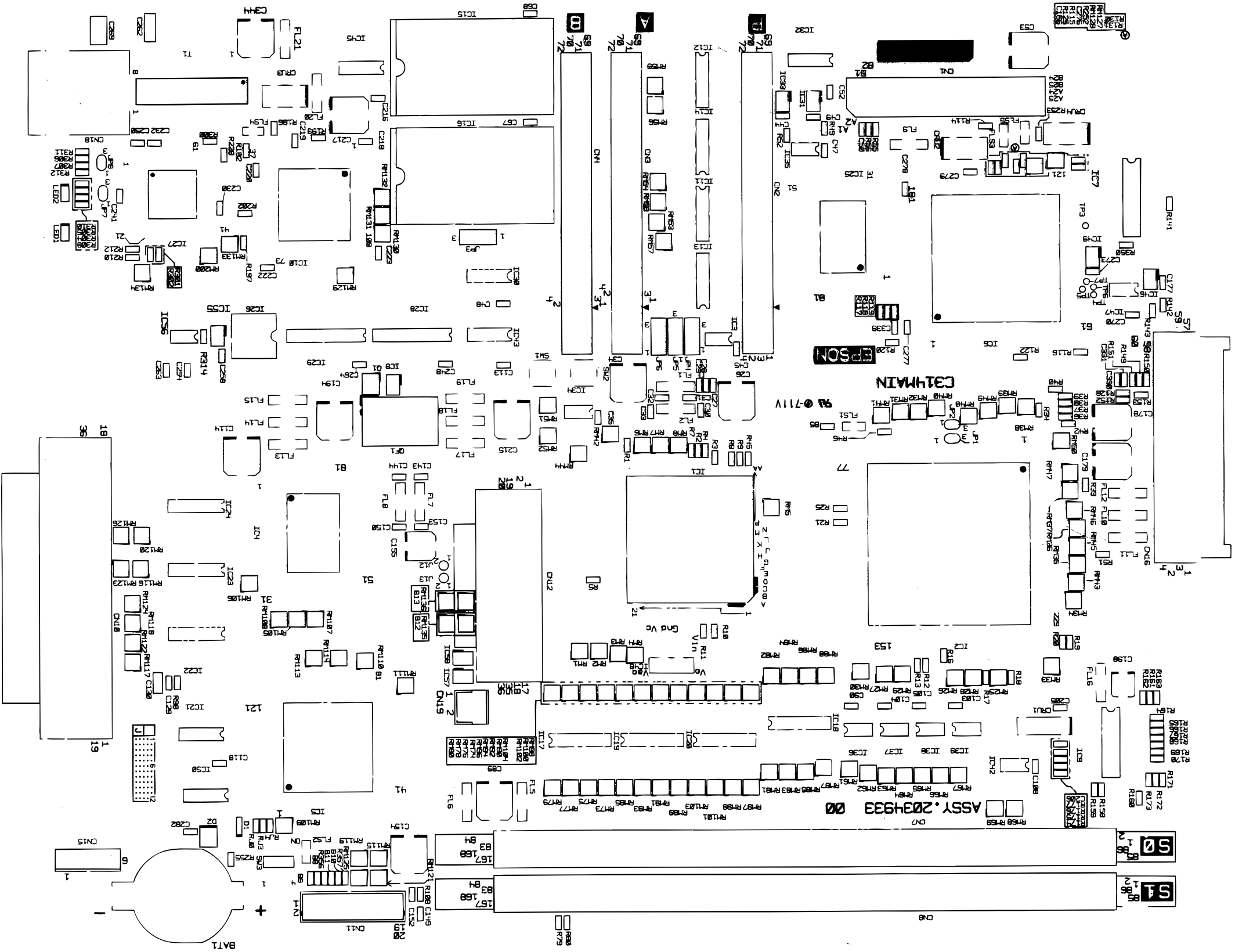
CHAPTER

7

APPENDIX

7.1 Component Layout

The following pages show the component layout of AcuLaser C2000 / AcuLaser C1000.



CN405 CN401 CN402

EPSON
C434 MAIN

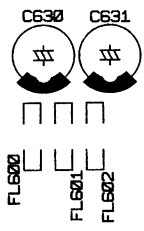
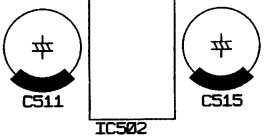
C639

OVI
C538
IC603

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19

ASSY.2055974 00

SW500
SW100
NMI
RESET



IC502

IC601

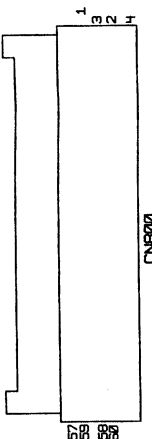
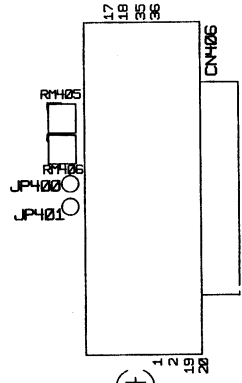
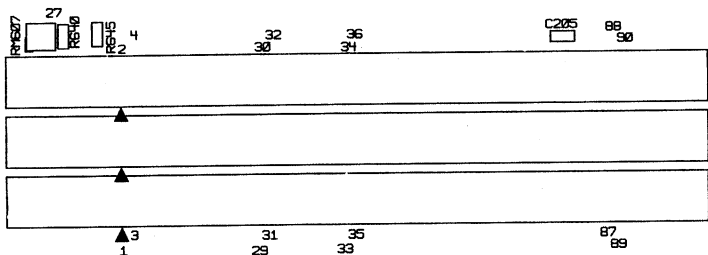
CRU600

IC600

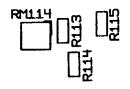
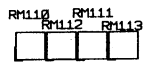
IC501

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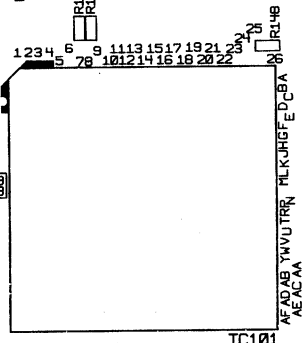


C413



RH110 RH111
RH112 RH113

RH114 RH115
RH116



IC101

IC103
OVI

IC100

C130

C129

DN401

RH400

CN403

DF400

DN400

JP100
OPEN INDEBLE
SHORT:EDP
JP102
JP101

R423
R422

R413
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R415

121

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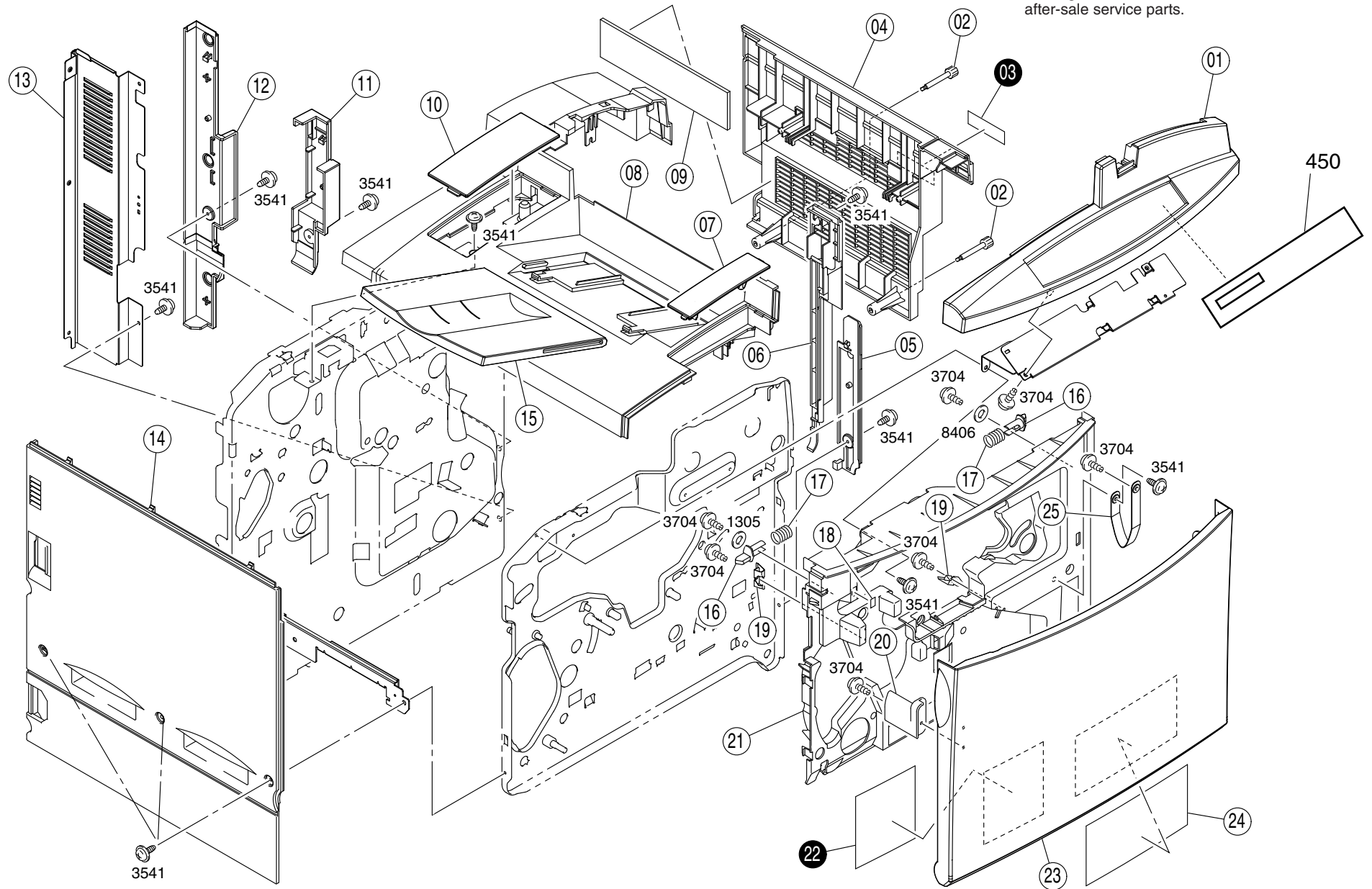
RH676

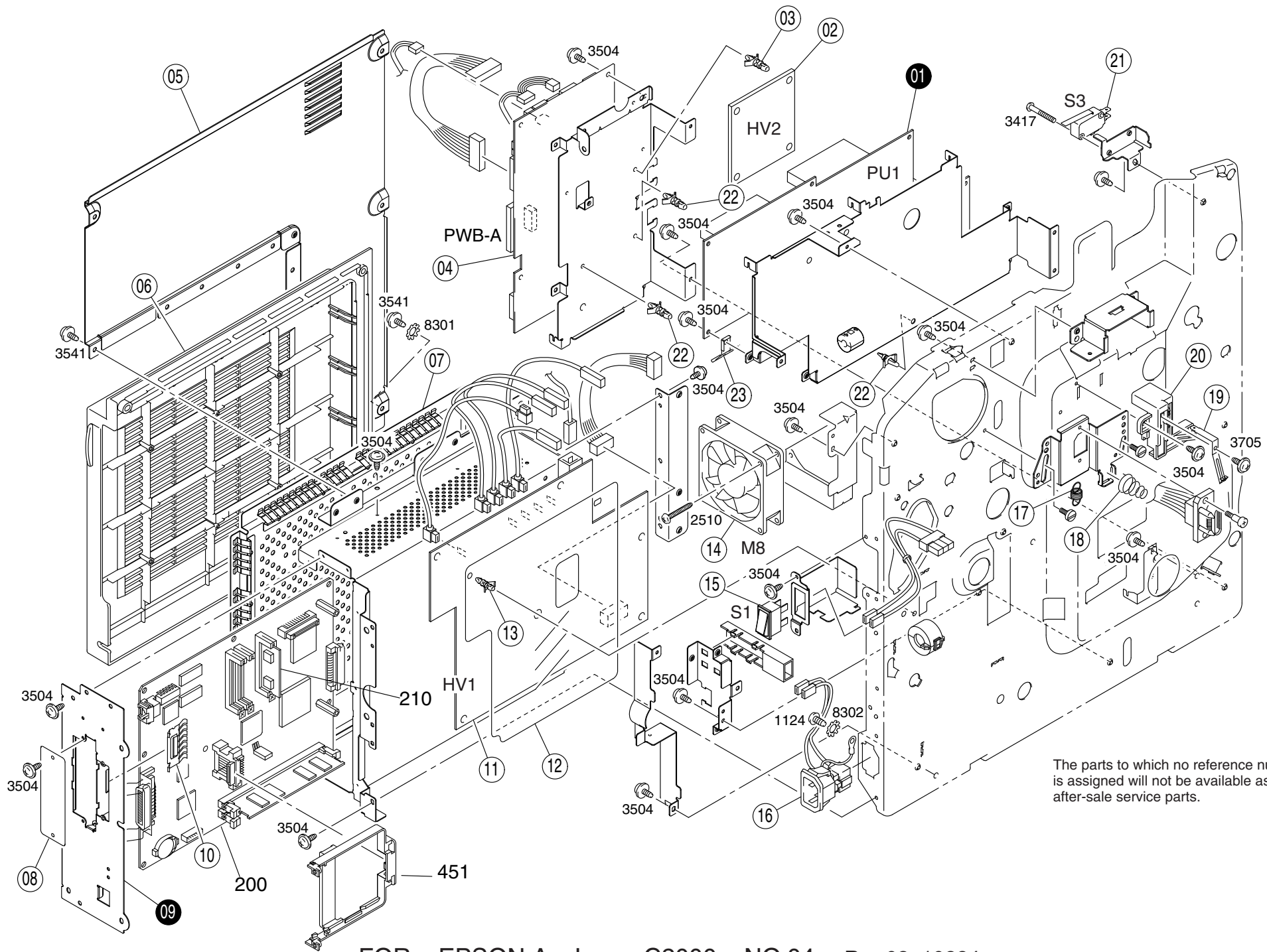
RH677

7.2 Exploded Diagram

The following pages show the exploded diagram for EPSON AcuLaser C2000 / AcuLaser C1000.

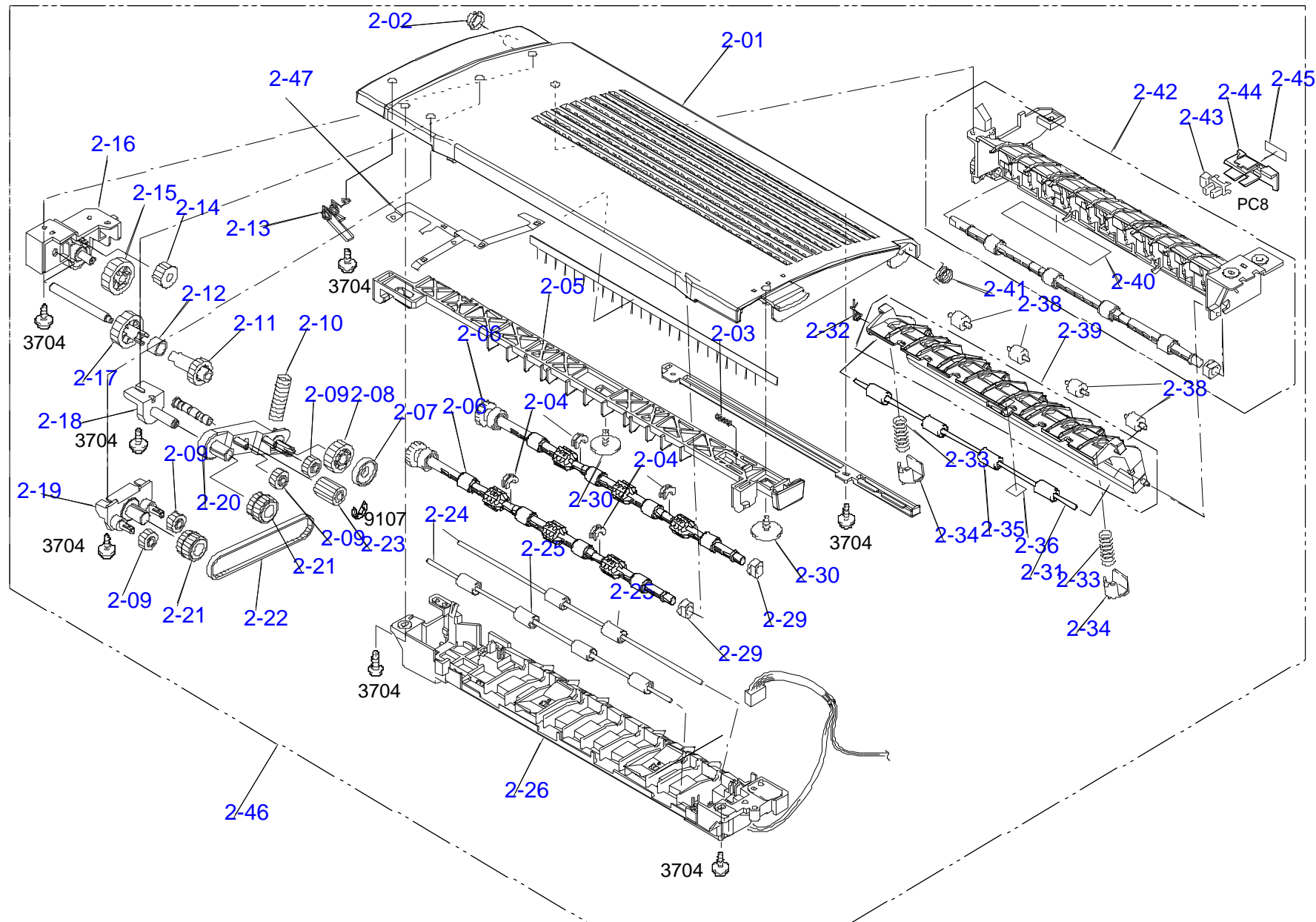
The parts to which no reference number is assigned will not be available as after-sale service parts.



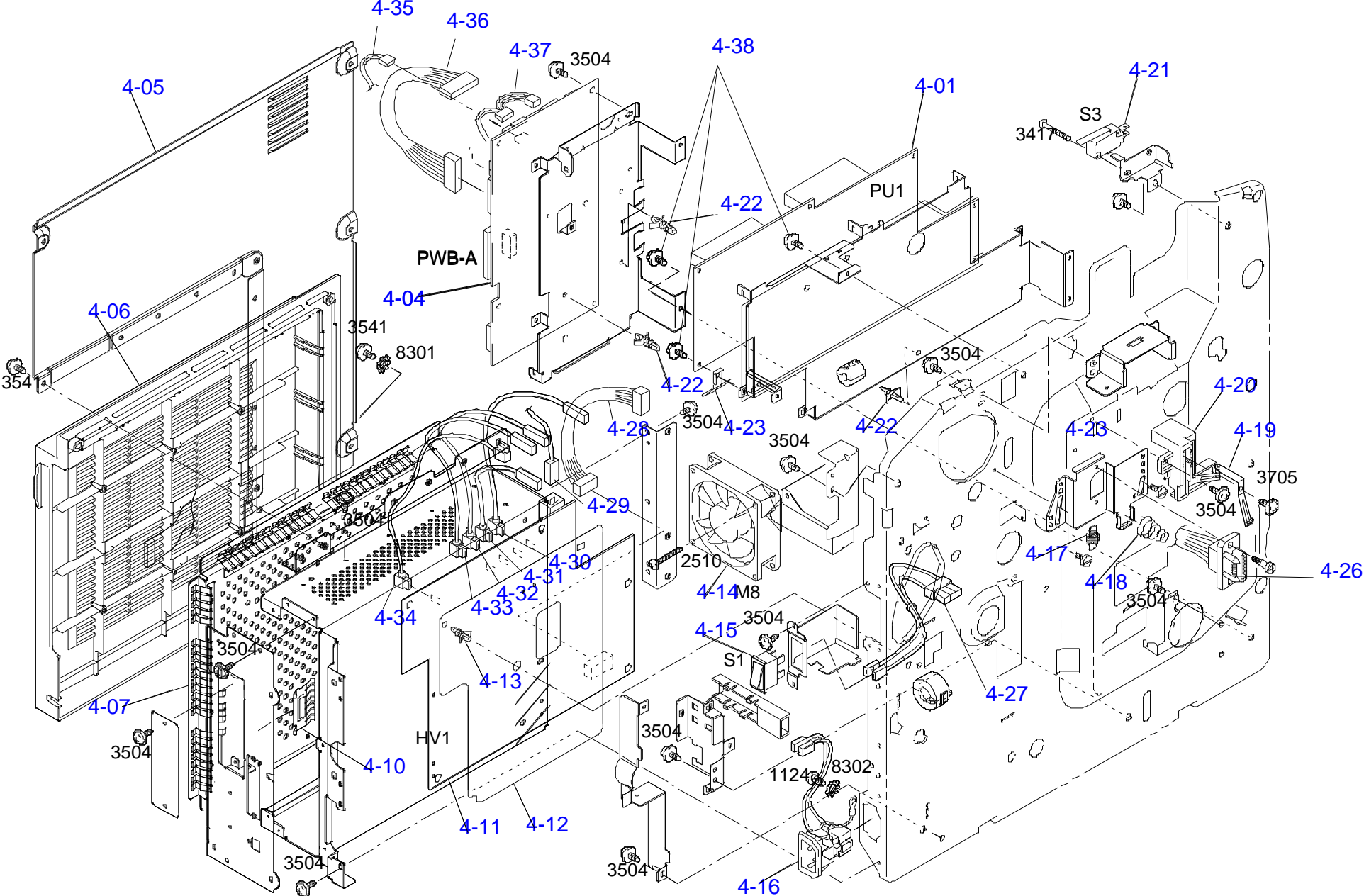


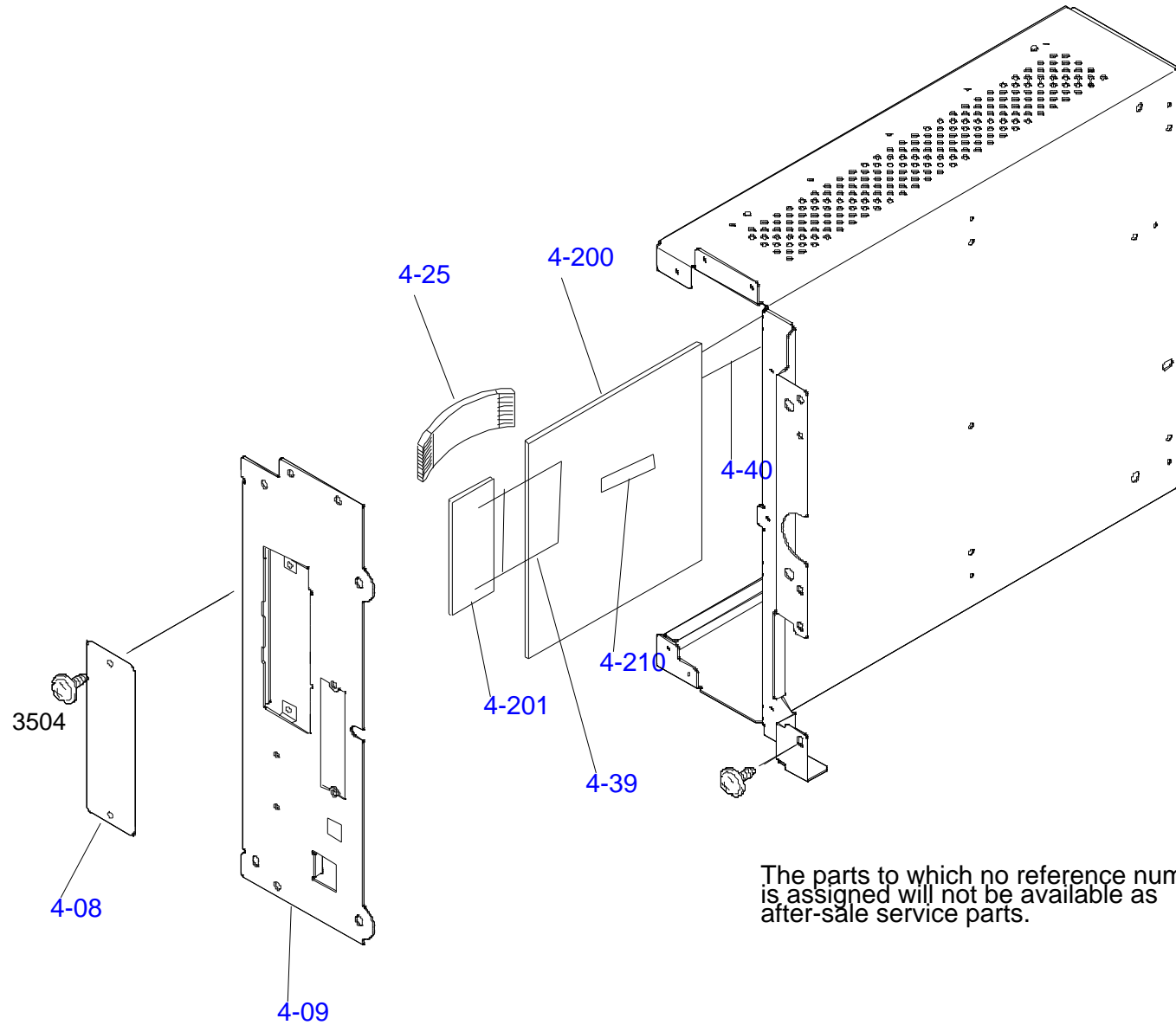
The parts to which no reference number is assigned will not be available as after-sale service parts.

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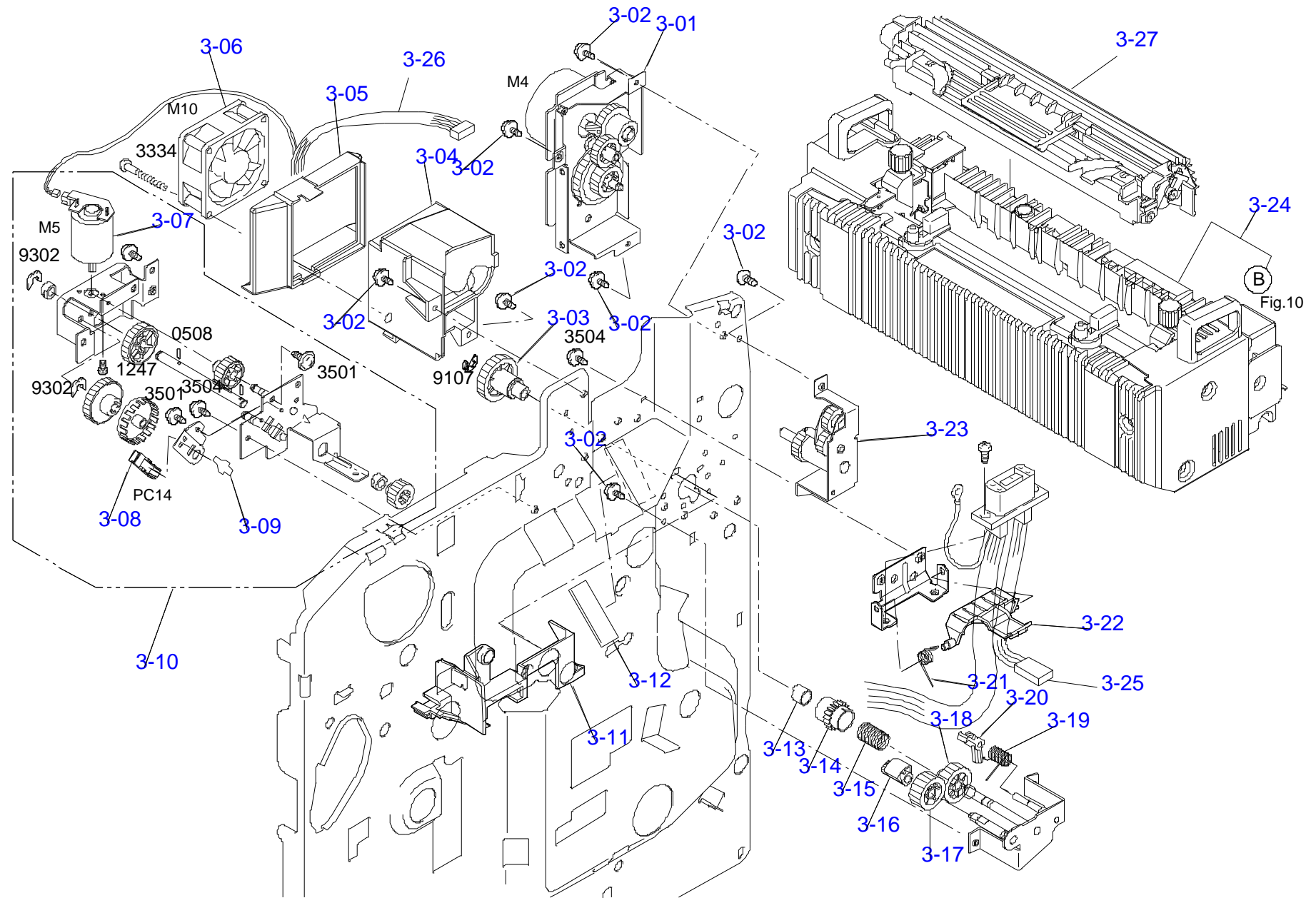
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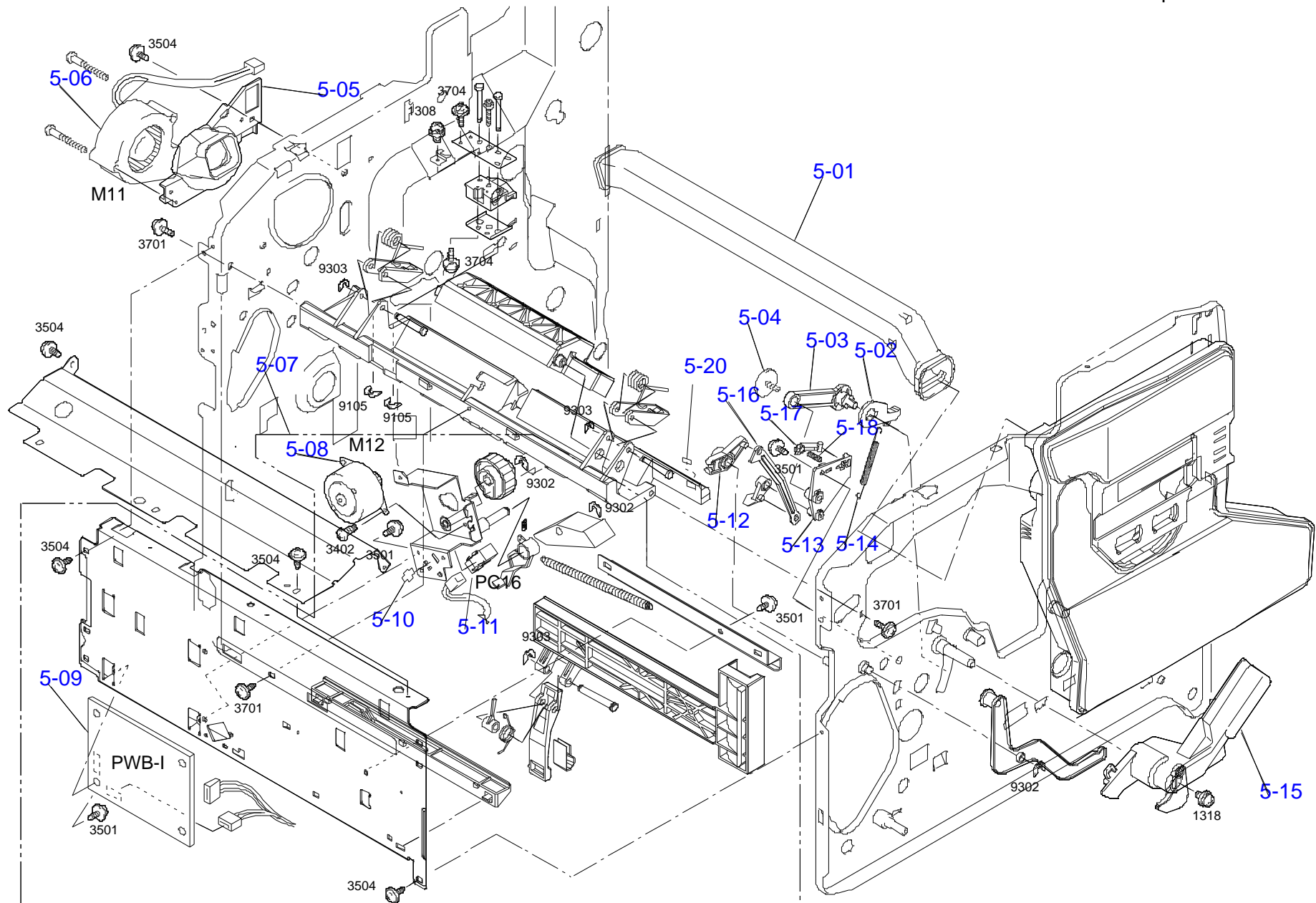
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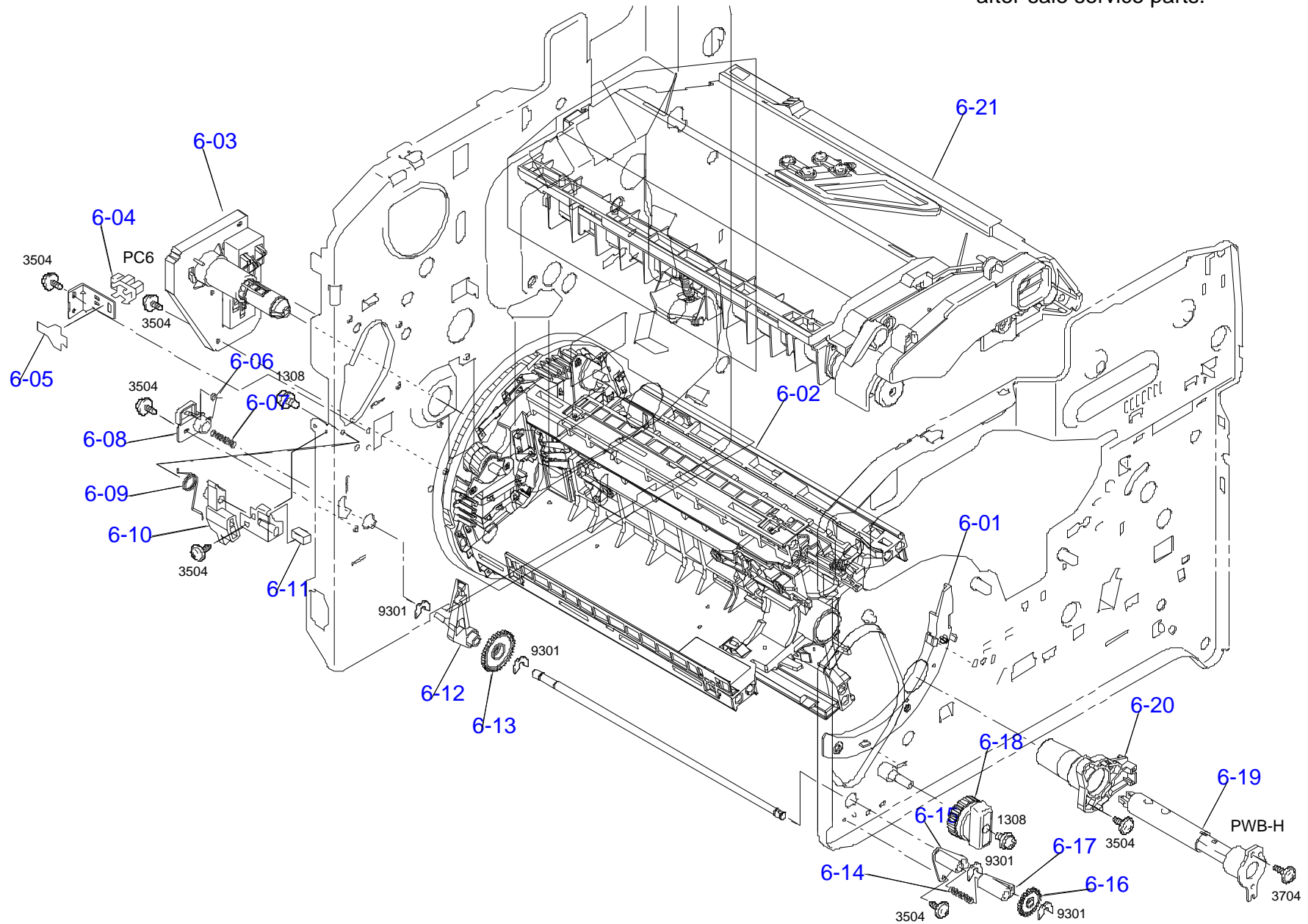


C434-MECH-002

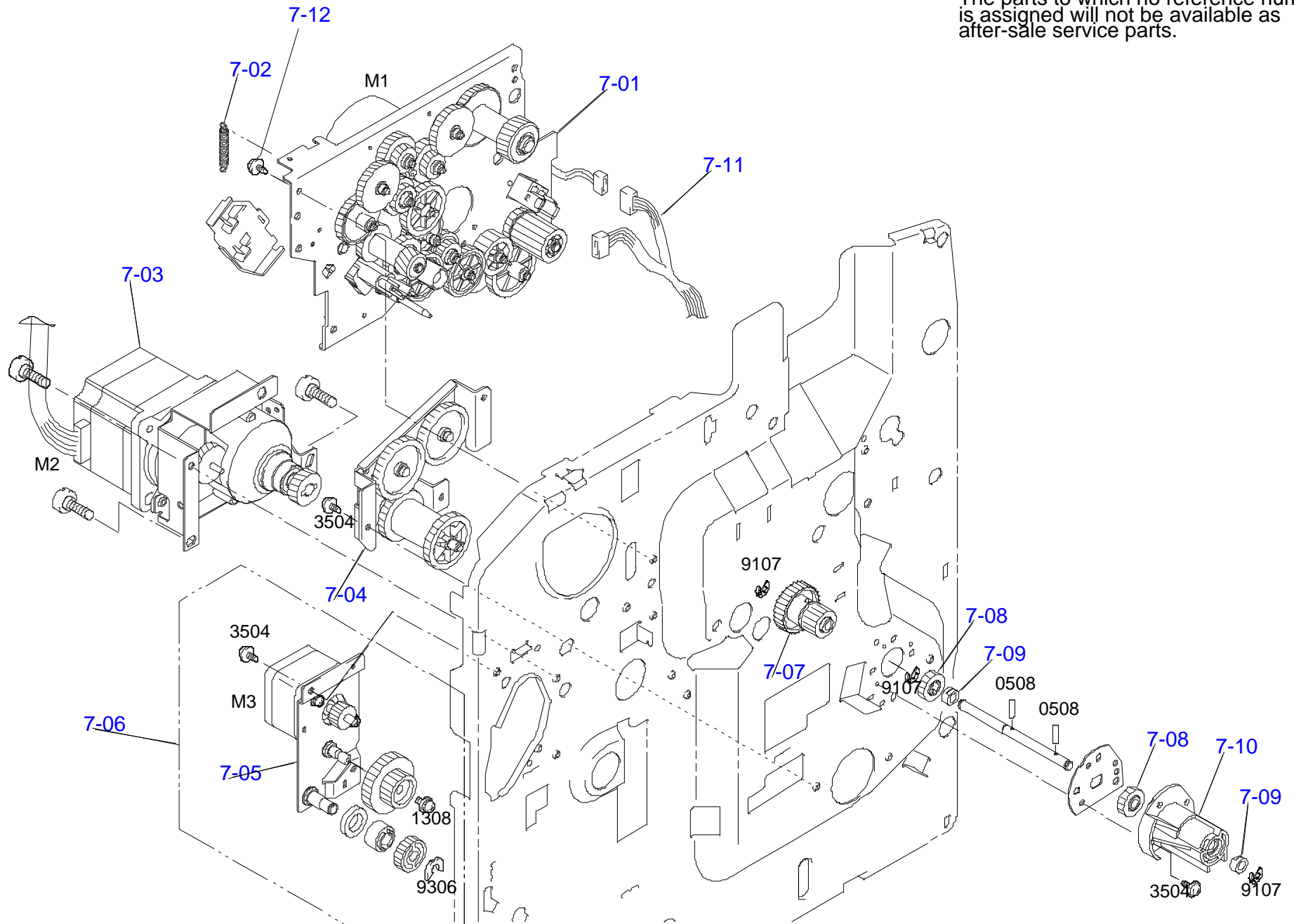
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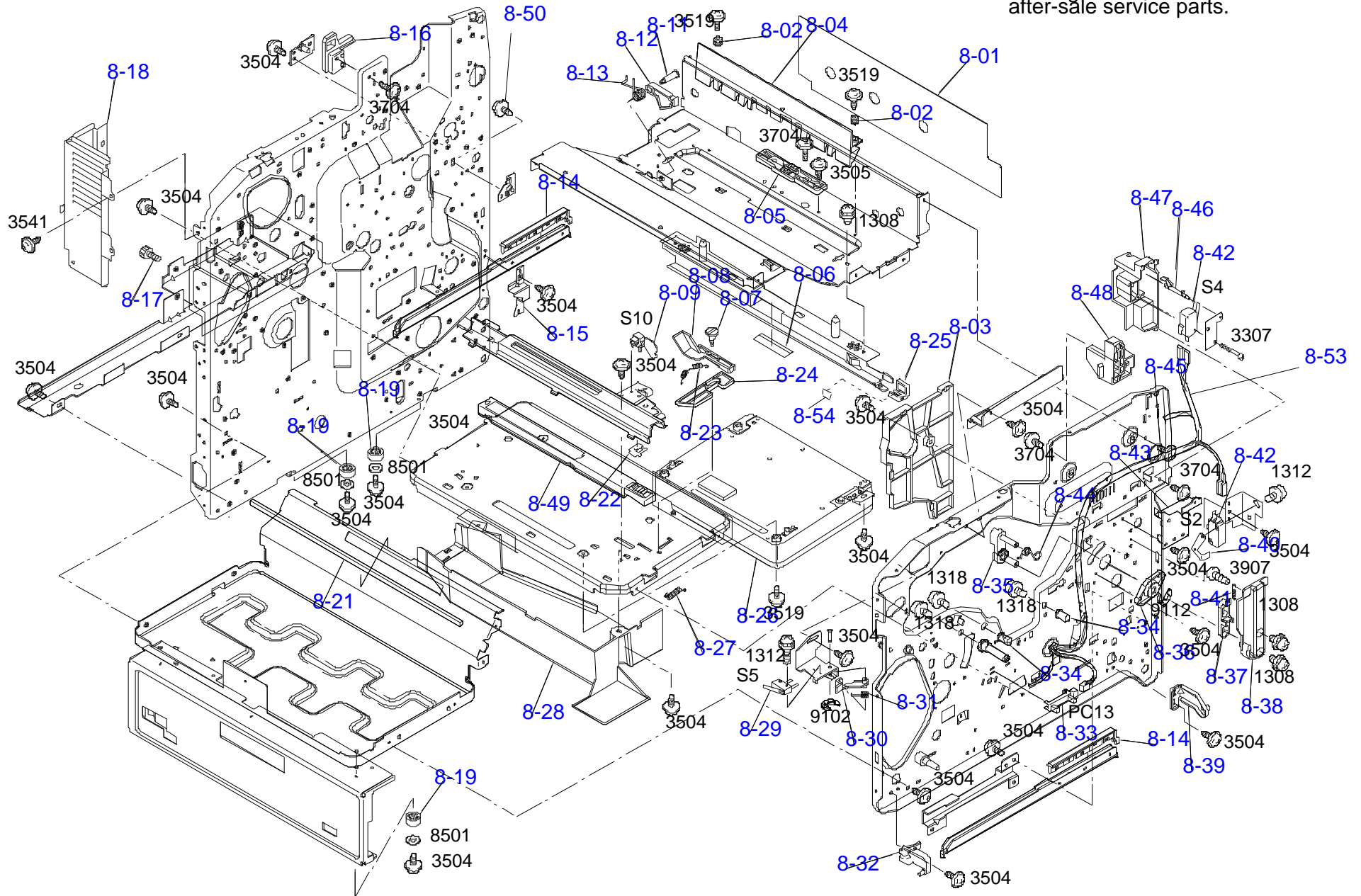
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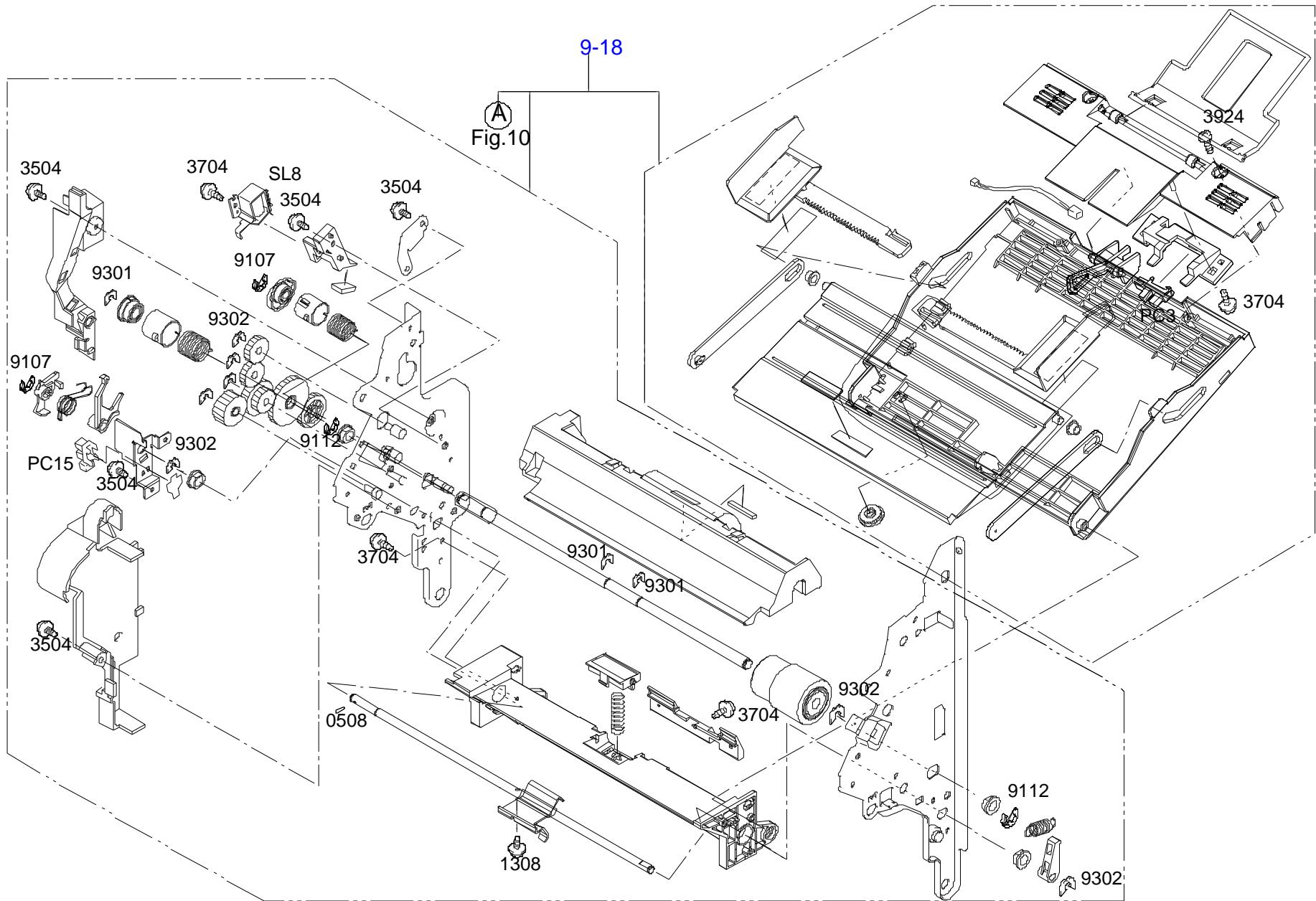
The parts to which no reference number is assigned will not be available as after-sale service parts.



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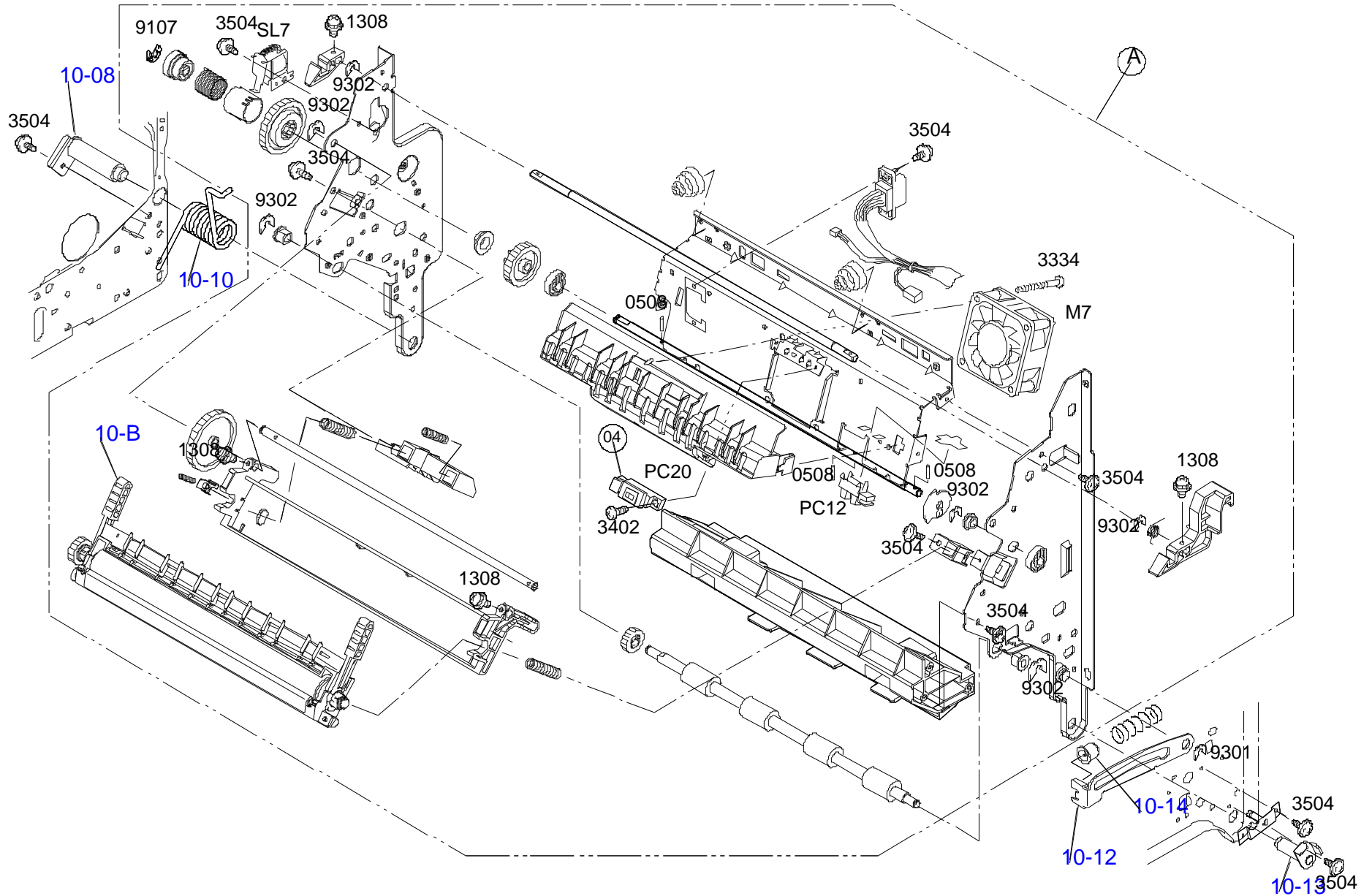


The parts to which no reference number is assigned will not be available as after-sale service parts.

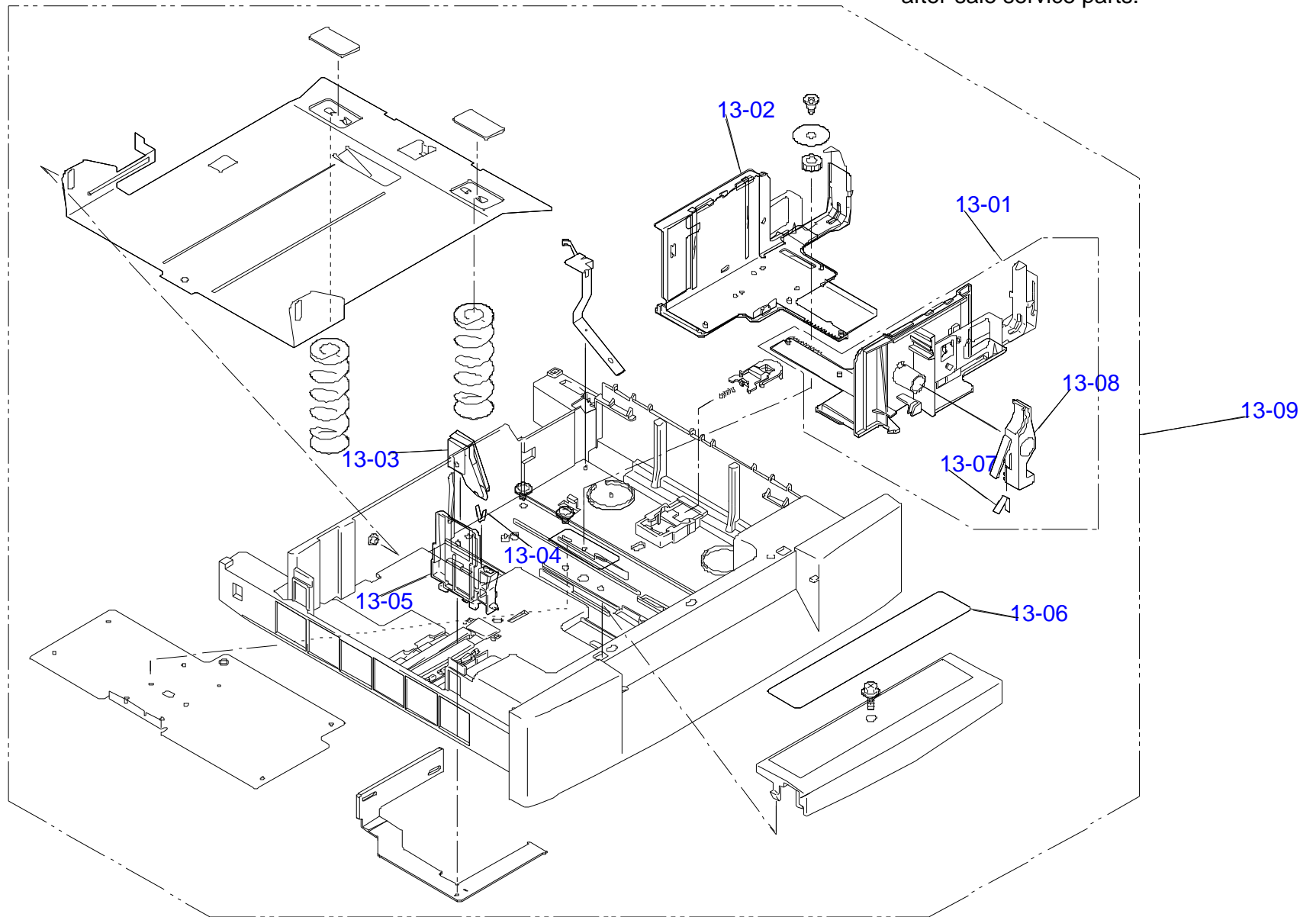


C434-MECH-007

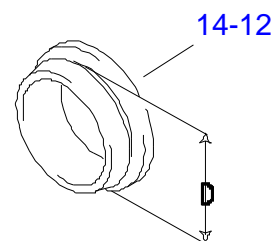
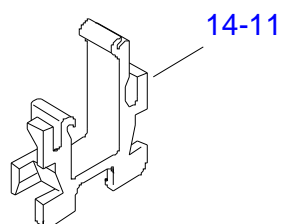
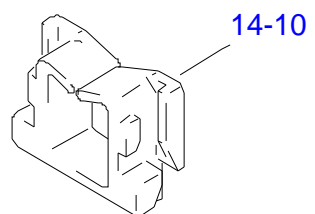
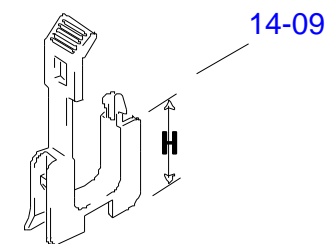
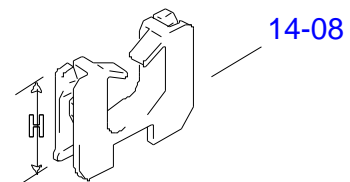
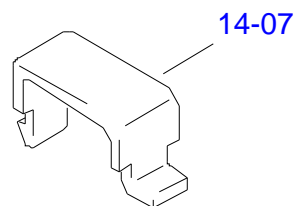
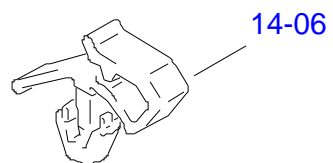
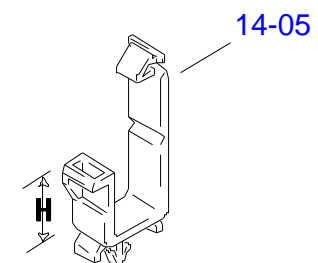
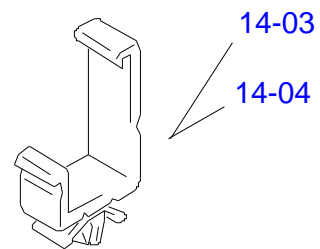
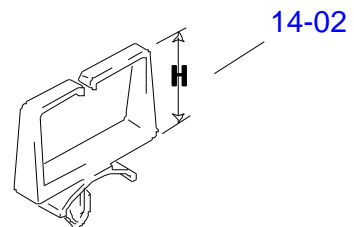
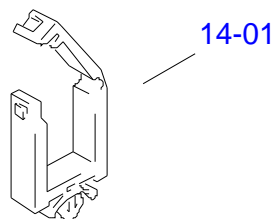
The parts to which no reference number is assigned will not be available as after-sale service parts.



The parts to which no reference number is assigned will not be available as after-sale service parts.



C434-TOOL-001



7.3 Parts List

The numbers on the list corresponds with numbers in the exploded diagrams. For example, 1-01 corresponds with 01 on the exploded diagram 1.

Table 7-1 is for the main body of EPSON AcuLaser C2000 / AcuLaser C1000, Table 7-2 is for the 500 Sheet Paper Cassette Unit and Table 7-3 is for Duplex Unit.

Table 7-1. Parts List (Main Unit)

Number	Name
1-01	COVER
1-02	SCREW
1-03	LABEL
1-04	RIGHT COVER
1-05	RIGHT COVER
1-06	RIGHT COVER
1-07	COVER
1-08	TOP COVER
1-09	FILTER
1-10	COVER
1-11	RIGHT COVER
1-12	RIGHT COVER
1-13	REAR COVER
1-14	LEFT COVER
1-15	TRAY
1-16	PAWL
1-17	PRESSURE SPRING
1-18	LABEL
1-19	PLATE SUPRING

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
1-20	SET PLATE
1-21	COVER
1-22	LABEL
1-23	FRONT COVER
1-24	LABEL,DC/PH/I.T.U CHANGE
1-25	BAND
2-01	COVER ASSY
2-02	BUSHING
2-03	PRESSURE SPRING
2-04	BUSHING
2-05	LEVER
2-06	ROLLER ASSY
2-07	COLLAR
2-08	GEAR
2-09	GEAR
2-10	PRESSURE SPRING
2-11	GEAR
2-12	COLLASR
2-13	TORSION SPRING
2-14	GEAR
2-15	GEAR
2-16	HOLDER
2-17	GEAR
2-18	HOLDER
2-19	HOLDER

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
2-20	LEVER
2-21	PULLEY
2-22	TIMINGBELT
2-23	GEAR
2-24	SHAFT
2-25	ROLL
2-26	GUIDE ASSY
2-27	TORSION SPRING
2-28	SET PLATE
2-29	BUSHING
2-30	SCREW
2-31	SHAFT
2-32	TORSION SPRING
2-33	PRESSURE SPRING
2-34	HOLDER
2-35	ROLL
2-37	TORSION SPRING
2-38	ROLL
2-39	GUIDE ASSY
2-40	LABEL
2-41	TORSION SPRING
2-42	GUIDE ASSY
2-43	SOLID STATE SWITCH
2-44	BRACKET
2-45	STOPPER

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
2-46	GUIDE ASSY
3-01	FUSING UNIT DRIVE ASSY
3-02	SCREW
3-03	GEAR
3-04	DUCT
3-05	DUCT
3-06	FUN MOTOR
3-07	ALIENATION MOTOR ASSY
3-08	SOLID STATE SWITCH
3-09	STOPPER
3-10	STOP PLATE ASSY
3-11	CIVER
3-12	PROTECTION
3-13	COLLAR
3-14	RATCHET
3-15	TORSION SPRING
3-16	REGULATING PLATE
3-17	GEAR
3-18	GEAR
3-19	TORSION SPRING
3-20	PAWL
3-21	TORSION SPRING
3-22	SHUTTER
3-23	FUSING UNIT DRIVE 3 ASSY
3-24	FUSER UNIT 220V

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
3-25	FUSER OIL ROLL
3-36	LABEL
4-01	POWER SUPPLY
4-02	HV TRANSFORMER
4-03	PWB SUPPORT 6.35H
4-04	PWB ASSY
4-05	REAR COVER
4-06	COVER
4-07	COVER
4-08	COVER
4-09	BRACKET
4-10	GROUND PLATE
4-11	HV TRANSFORMER
4-12	COVER
4-13	PWB SUPPORT9.53H
4-14	FUN MOTOR
4-15	SWITCH
4-16	HARNESS ASSY
4-17	TENSION SPRING
4-18	PRESSURE SPRING
4-19	CONTACT
4-20	GUIDE ASSY
4-21	MICRO SWITCH
4-22	PWB SUPPORT
4-23	EARTH GROUND

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
5-01	DUCT ASSY
5-02	LEVER
5-03	LEVER
5-04	SCREW
5-05	DUCT
5-06	FUN MOTOR
5-07	LEVER ASSY
5-08	MOTOR
5-09	PWB ASSY
5-10	STOPPER
5-11	SOLID STATE SWITCH
5-12	LEVER
5-13	HOLDER
5-14	TENSION SPRING
5-15	LEVER ASSY
5-16	LEVER
5-17	LEVER
5-18	PRESSURE SPRING
6-01	GUIDE
6-02	RACK ASSY
6-03	AXLE PLATE ASSY
6-04	SOLID STATE SWITCH
6-05	STOPPER
6-06	TPRSION SPRING
6-07	PRESSURE SPRING

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
6-08	BUSHING
6-09	TORSION SPRING
6-10	LEVER
6-11	SOUND SHIELD
6-12	LEVER
6-13	GEAR
6-14	PRESSURE SPRING
6-15	BUSHING
6-16	GEAR
6-17	LEVER
6-18	KNOB ASSY
6-19	PWB ASSY
6-20	SHAFT
6-21	TRANSFER BELT UNIT
7-01	DRIVING ASSY
7-02	TENSION SPRING
7-03	MOTOR ASSY
7-04	DRIVING ASSY
7-05	MOTOR ASSY
7-06	MOTOR ASSY
7-07	CLUTCH ASSY
7-08	GEAR
7-09	BUSHING
7-10	HOLDER
8-01	PROTECTION

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
8-02	SPACER
8-03	COVER
8-04	GUIDE
8-05	HOLDER ASSY
8-06	SHIELD PLATE
8-07	SHOULDER SCREW
8-08	LEVER
8-09	SWITCH
8-10	COVER
8-11	SHOULDER SCREW
8-12	LEVER
8-13	TORSION SPRING
8-14	CAP
8-15	BRACKET
8-16	STOPPER
8-17	SCREW
8-18	REAR COVER
8-19	RUBBER FOOT
8-20	COLLAR
8-21	SEAL
8-22	STOPPER
8-23	TENSION SPRING
8-24	LEVER
8-25	GUIDE
8-26	PRINT HEAD ASSY

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
8-27	TENSION SPRING
8-28	DUCT
8-29	MICRO SWITCH
8-30	LEVER
8-31	TORSION SPRING
8-32	HINGE
8-33	SOLID STATE SWITCH
8-34	PIN
8-35	LEVER
8-36	BUSHING
8-37	LEVER
8-38	LEVER
8-39	HINGE
8-40	PLATE NUT
8-41	TENSION SPRING
8-42	MICRO SWITCH
8-43	CALKING ASSY
8-44	TORSION SPRING
8-45	SCREW
8-46	LEVER
8-47	HOLDER
8-48	STOPPER
8-49	PRINT HEAD FILTER
9-01	SOLENOID
9-02	TORSION SPRING

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
9-03	GEAR
9-04	GEAR
9-05	CAM
9-06	CLUTCH SPRING
9-07	DRUM
9-08	SOLID STATE SWITCH
9-09	STOPPER
9-10	SEPARATOR ASSY
9-11	SPONGE
9-12	ROLLER
9-13	ACTUATOR
9-14	HOLDER
9-15	TRAY
9-16	COVER
9-17	MULTIPLE TRAY ASSY
9-18	SIDE OPEN ASSY
10-01	FUN MOTOR
10-02	STOPPER
10-03	SOLID STATE SWITCH
10-04	SENSOR ASSY
10-05	SOLENOID
10-06	TORSION SPRING
10-07	DRUM
10-08	CALKING ASSY
10-09	GEAR

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
10-10	TORSION SPRING
10-11	ROLLER
10-12	LEVER
10-13	SHAFT ASSY
10-14	HOLDER
10-15	DUCT
10-B	SECOND TRANSFER ROLL
11-01	ROLLER
11-02	ROLL
11-03	GEAR
11-04	HANDLE
11-05	SOLID STATE SWITCH
11-06	ROLLER
11-07	GUIDE ASSY
11-08	TORSION SPRING
11-09	BUSHING
11-10	CLUTCH ASSY
11-11	DUCT
11-12	FUN MOTOR
11-13	BUSHING
11-14	STOPPER
11-15	SOLID STATE SWITCH
11-16	ROLLER
11-17	LEVER
11-18	TORSION SPRING

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
11-19	HOLDER ASSY
11-20	SCREW
11-21	SEAL
11-22	FILTER
11-23	GUIDE
11-24	GUIDE
11-25	GEAR
11-26	STOPPER
11-27	SOLID STATE SWITCH
11-28	GUIDE
11-29	CALKING ASSY
11-30	GUIDE ASSY
12-01	TRANSPORT ASSY
12-02	HOLDER
12-03	STOPPER
12-04	PLATE SPRING
12-05	GEAR
12-06	GEAR
12-07	TORSION SPRING
12-08	HOLDER
12-09	DRUM
12-10	GEAR
12-11	TORSION SPRING
12-12	GEAR
12-13	SOLID STATE SWITCH

Table 7-1. Parts List (Main Unit) (continued)

Number	Name
12-14	COLLAR
12-15	HOLDER
12-16	HUMIDITY CONVERSION EL
12-17	SWITCH(SW21)
12-18	BUSHING
12-19	ROLLER ASSY
12-20	TORSION SPRING
12-21	SHAFT
12-22	ACTUATOR
12-23	BUSHING
12-24	SOLENOID
12-25	GUIDE
12-26	RUBBER FOOT
12-27	GUIDE
12-28	GUIDE
13-01	REGULATING PLATE ASSY
13-02	REGULATING PLATE ASSY
13-03	REGULATING PLATE ASSY
13-04	PLATE SPRING
13-05	REGULATING PLATE
13-06	LABEL
13-07	PLATE SPRING
13-08	LEVER
13-09	CASSETTE ASSY

Table 7-2. Parts List (500 Sheet Paper Cassette Unit)

Number	Name
14-01	GUIDE ASSY
14-02	ROLL
14-03	PLATE SPRING
14-04	GUIDE
14-05	GUIDE
14-06	PLATE SPRING
14-07	RUBBER FOOT
14-08	PLATE SPRING
14-09	GUIDE
14-10	COUPLING
14-11	COUPLING
14-12	COUPLING
14-13	SCREW
15-01	ROLLER
15-02	SOLID STATE SWITCH
15-03	CLUTCH
15-04	BUSHING
15-05	GEAR
15-06	BUSHING
15-07	STOP RING
15-08	STOPPER
15-09	SOLID STATE SWITCH
15-10	STOPPER
15-11	PWB ASSY
15-12	PLATE SPRING

Table 7-2. Parts List (500 Sheet Paper Cassette Unit) (continued)

Number	Name
15-13	PUSH BUTTON SWITCH
15-14	SHAFT
15-15	JOINT
15-16	ROLLER ASSY
15-17	JOINT
15-18	SOLID STATE SWITCH
15-19	HOLDER
15-20	BUSHING
15-21	GEAR

Table 7-3. Parts List (Duplex Unit) (continued)

Number	Name
16-14	TORSION SPRING
16-15	PULLEY
16-16	WIRE
16-17	HOLDER
16-18	PWB ASSY
16-19	ACUTUATOR
16-20	TORSION SPRING
16-21	COVER
16-22	COVER
16-23	HARNESS ASSY
16-24	SOLID STATE SWITCH
16-25	STOPPER
16-26	SHOULDER SCREW
16-27	SPRING
16-28	GEAR
16-29	ROLL
16-30	BUSHING
16-31	ROLLER
16-32	PRESSURE SPRING
16-34	PAWL

Table 7-3. Parts List (Duplex Unit)

Number	Name
16-01	GEAR
16-02	GEAR
16-03	GEAR
16-04	GEAR
16-05	GUIDE
16-06	GEAR
16-07	COLLAR
16-08	MOTOR
16-09	REAR COVER
16-10	PLATE SPRING
16-11	HOLDER
16-12	BRACKET
16-13	COLLAR

7.4 Circuit Diagram

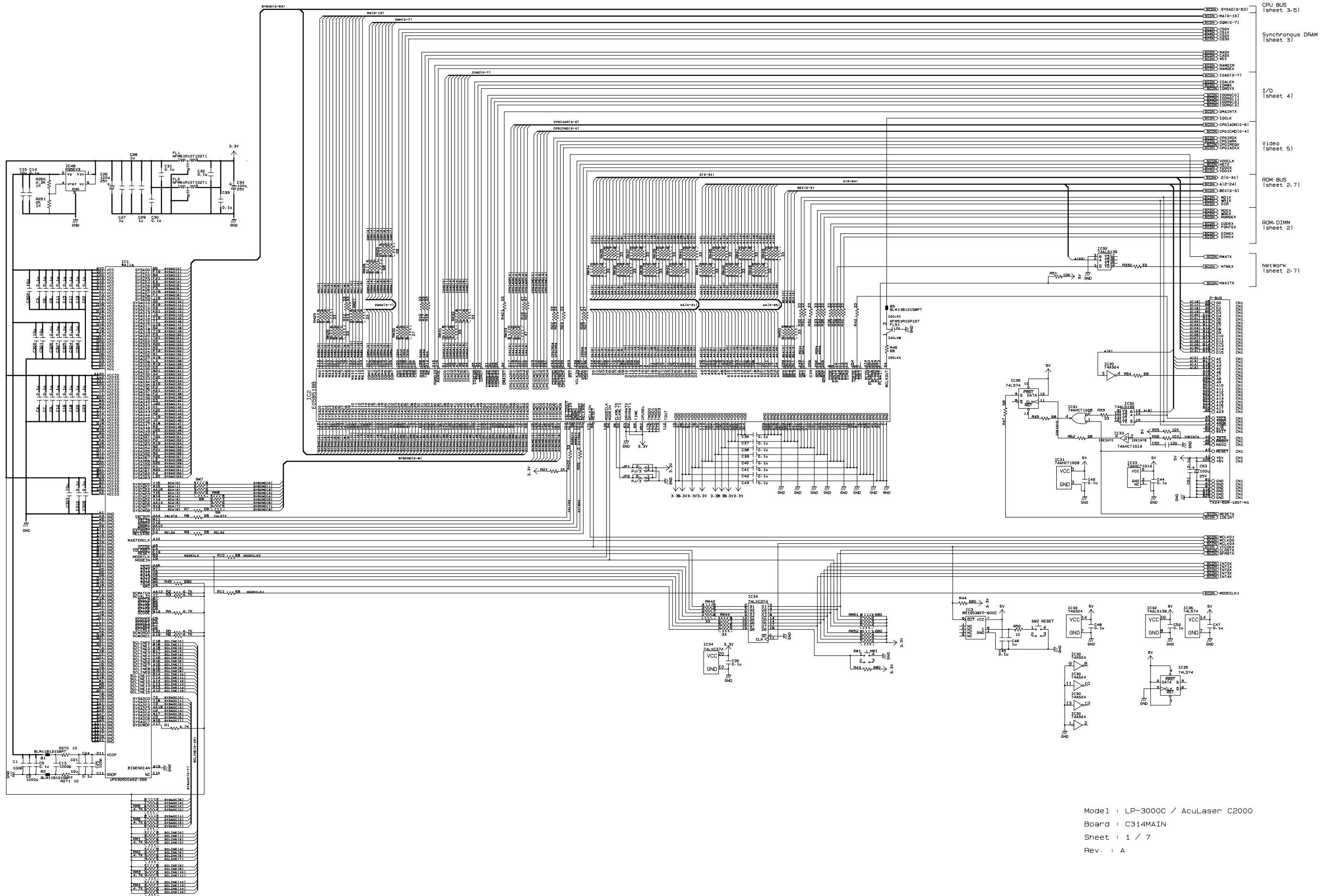
The following pages show circuit diagram of the controller.

<AcuLaser C2000>

- C314MAIN 1/7
- C314MAIN 2/7
- C314MAIN 3/7
- C314MAIN 4/7
- C314MAIN 5/7
- C314MAIN 6/7
- C314MAIN 7/7

<AcuLaser C1000>

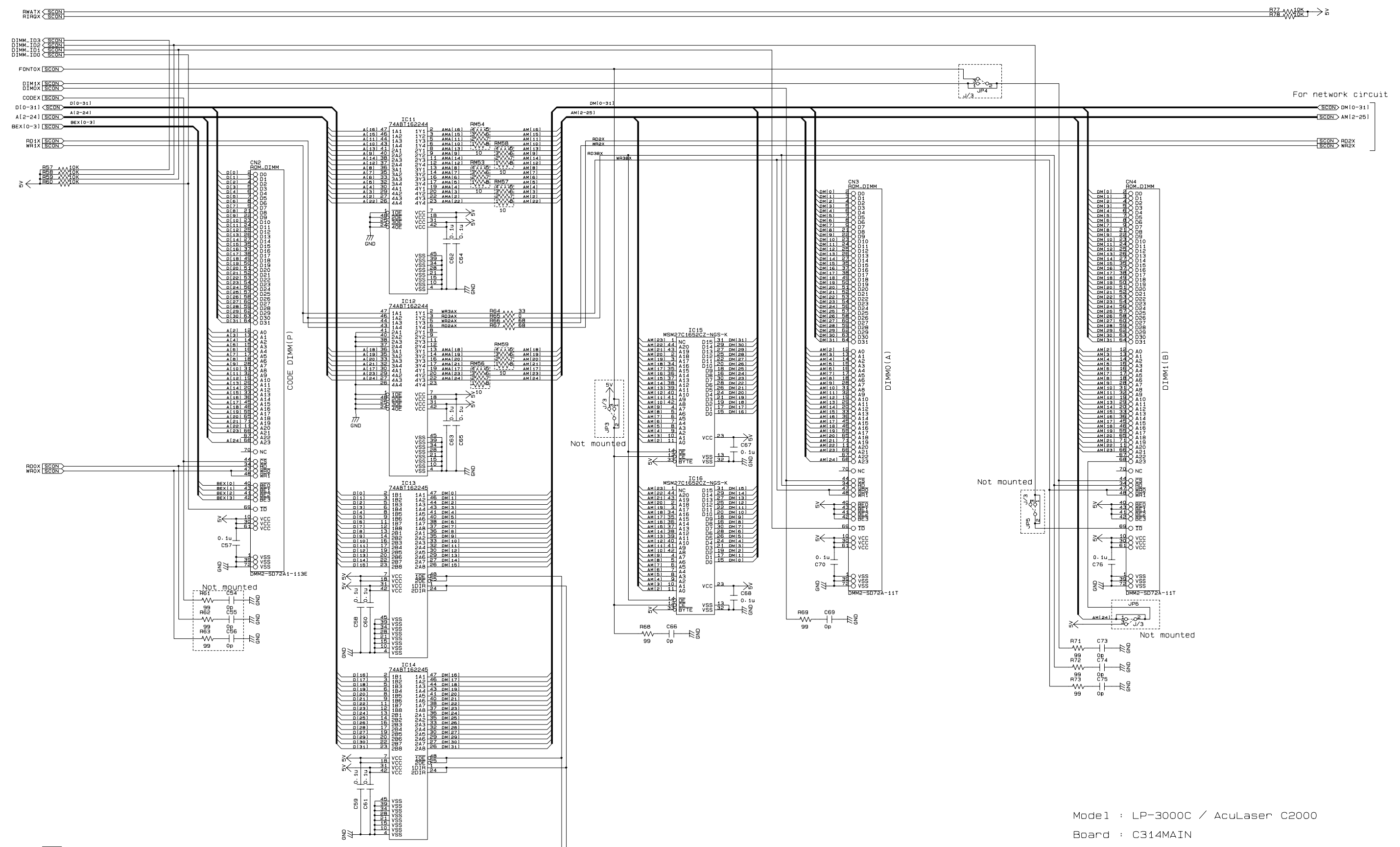
- C434MAIN - 1/4
- C434MAIN - 2/4
- C434MAIN - 3/4
- C434MAIN - 4/4



- CPU BUS (sheet 3-6)
- Synchronous DRAM (sheet 3)
- I/O (sheet 4)
- Video (sheet 5)
- ROM BUS (sheet 2,7)
- ROM DIMM (sheet 2)
- Network (sheet 2,7)

Model : LP-3000C / AcuLaser C2000
 Board : C314MAIN
 Sheet : 1 / 7
 Rev. : A

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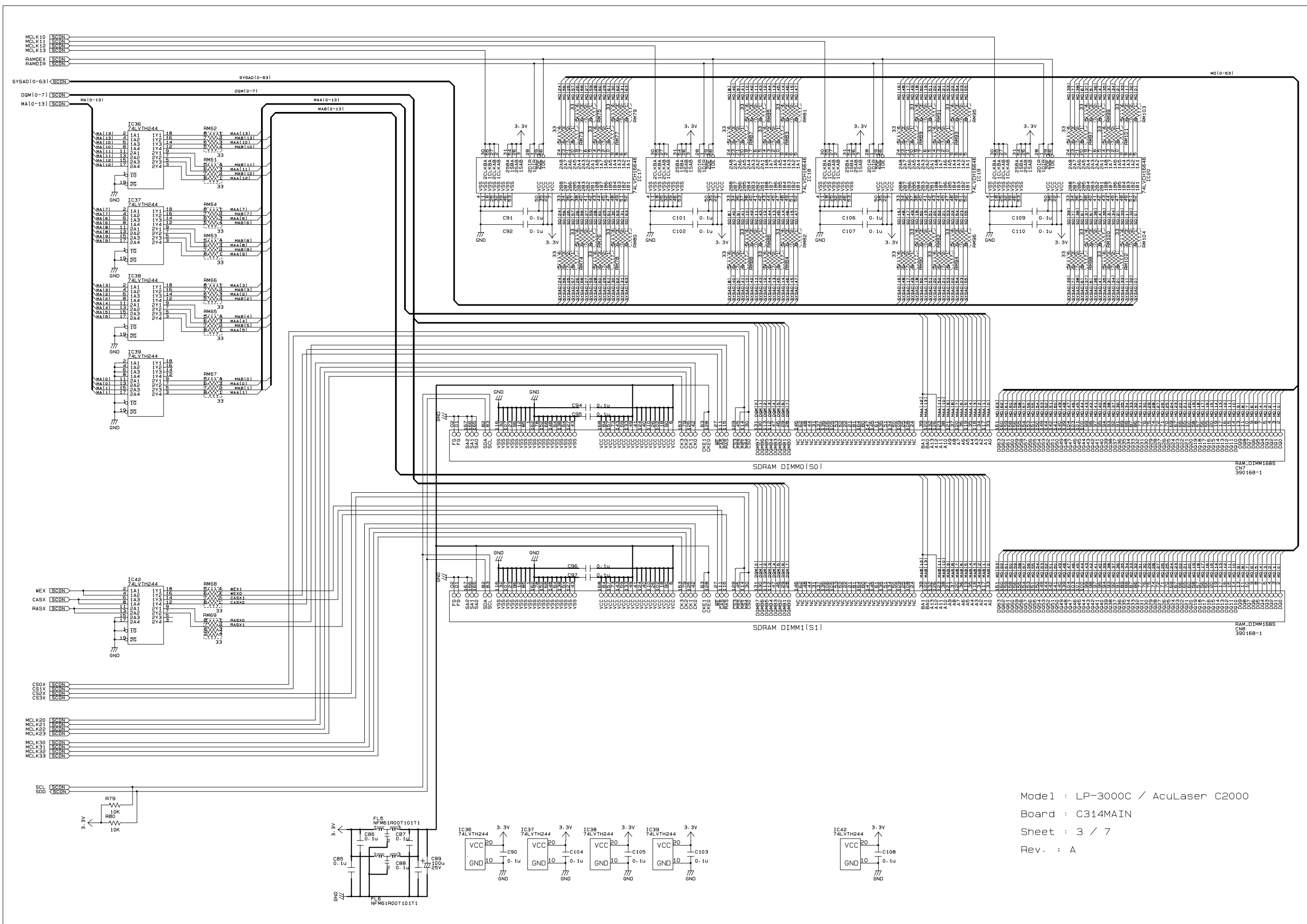
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Model : LP-3000C / AcuLaser C2000
 Board : C314MAIN
 Sheet : 2 / 7
 Rev. : A



Model : LP-300C / AcuLaser C2000
 Board : C314MAIN
 Sheet : 3 / 7
 Rev. : A

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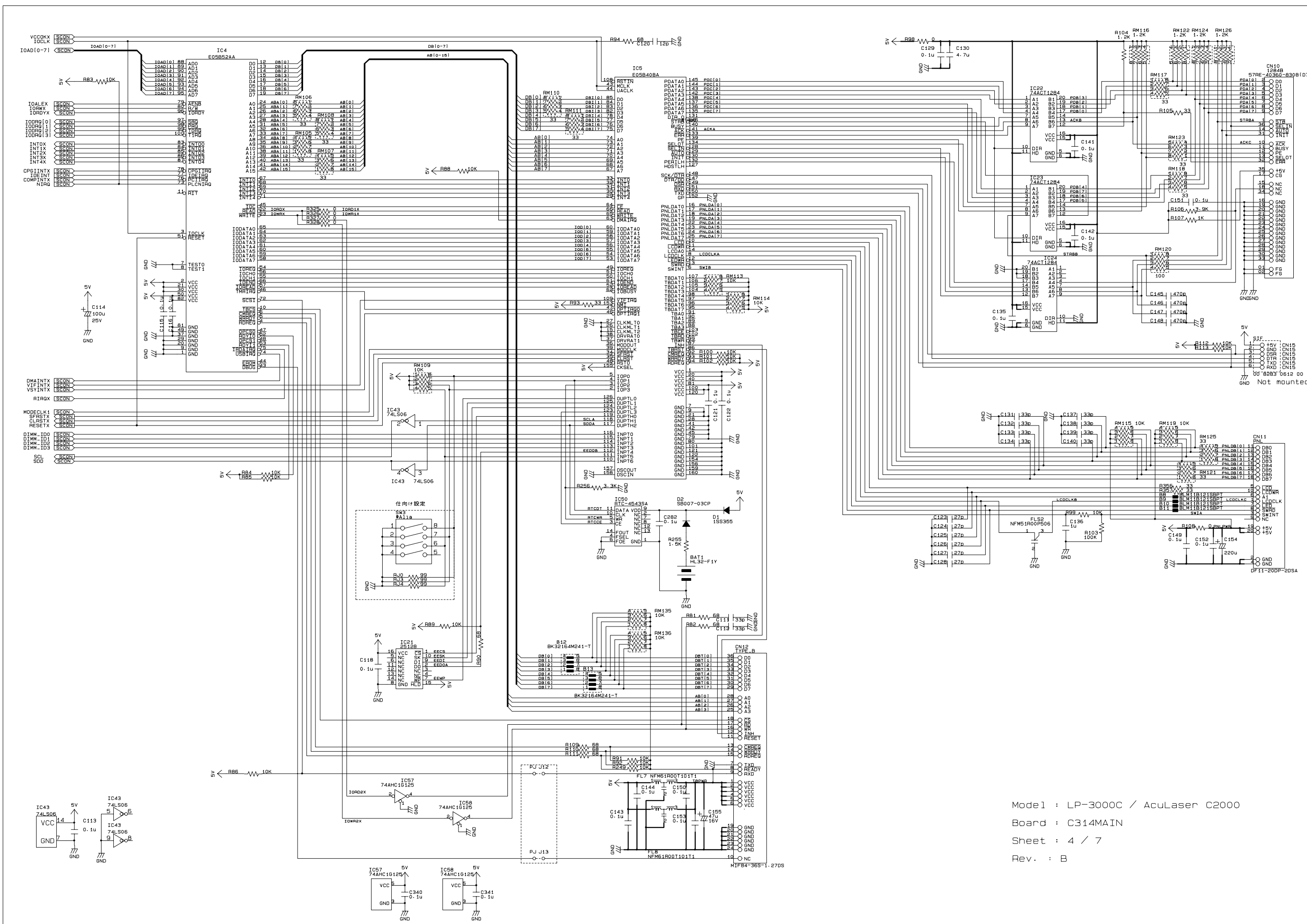
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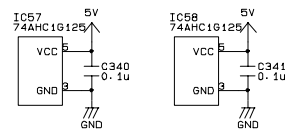
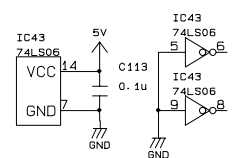
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Mode1 : LP-3000C / AcuLaser C2000
 Board : C314MAIN
 Sheet : 4 / 7
 Rev. : B



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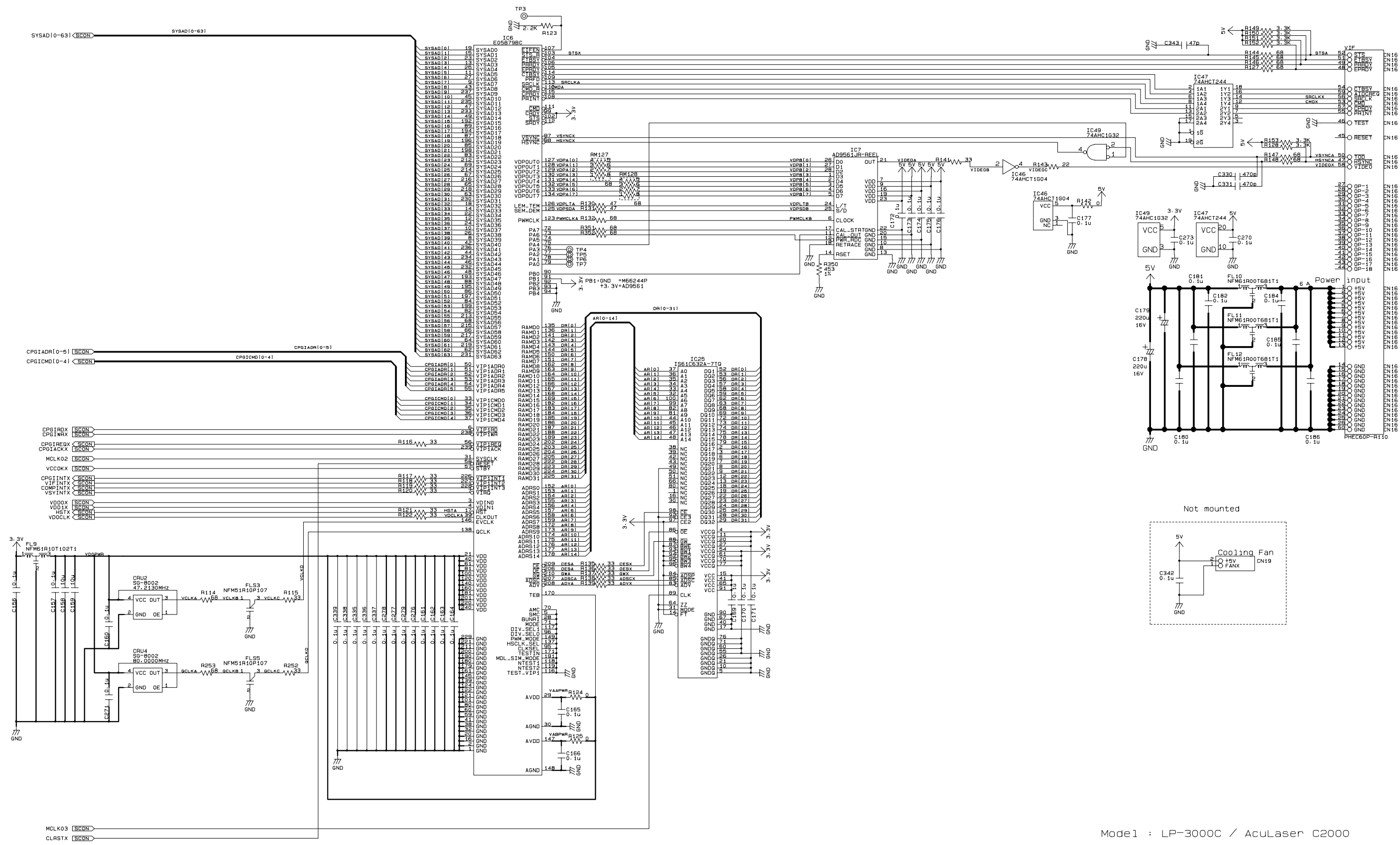
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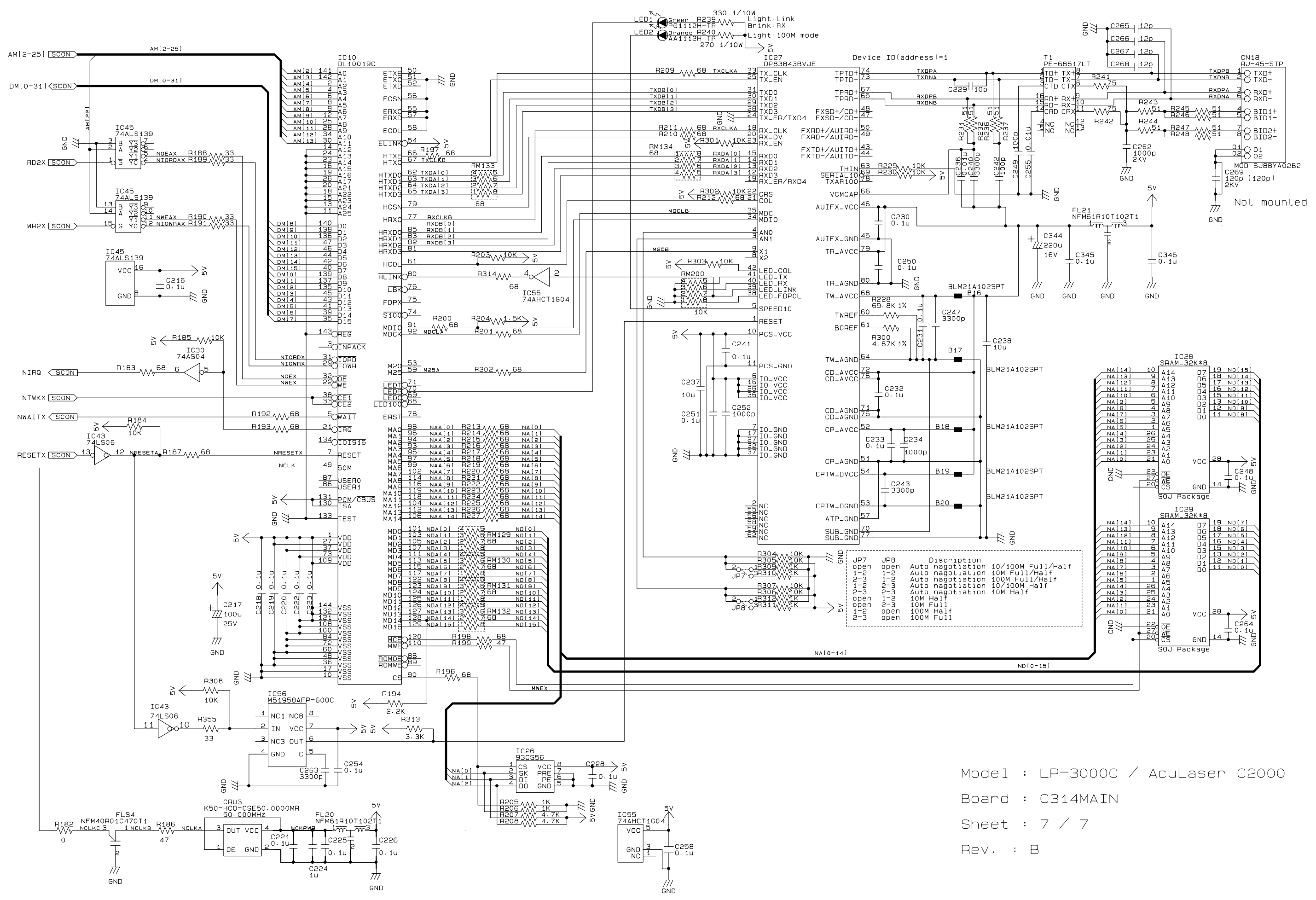
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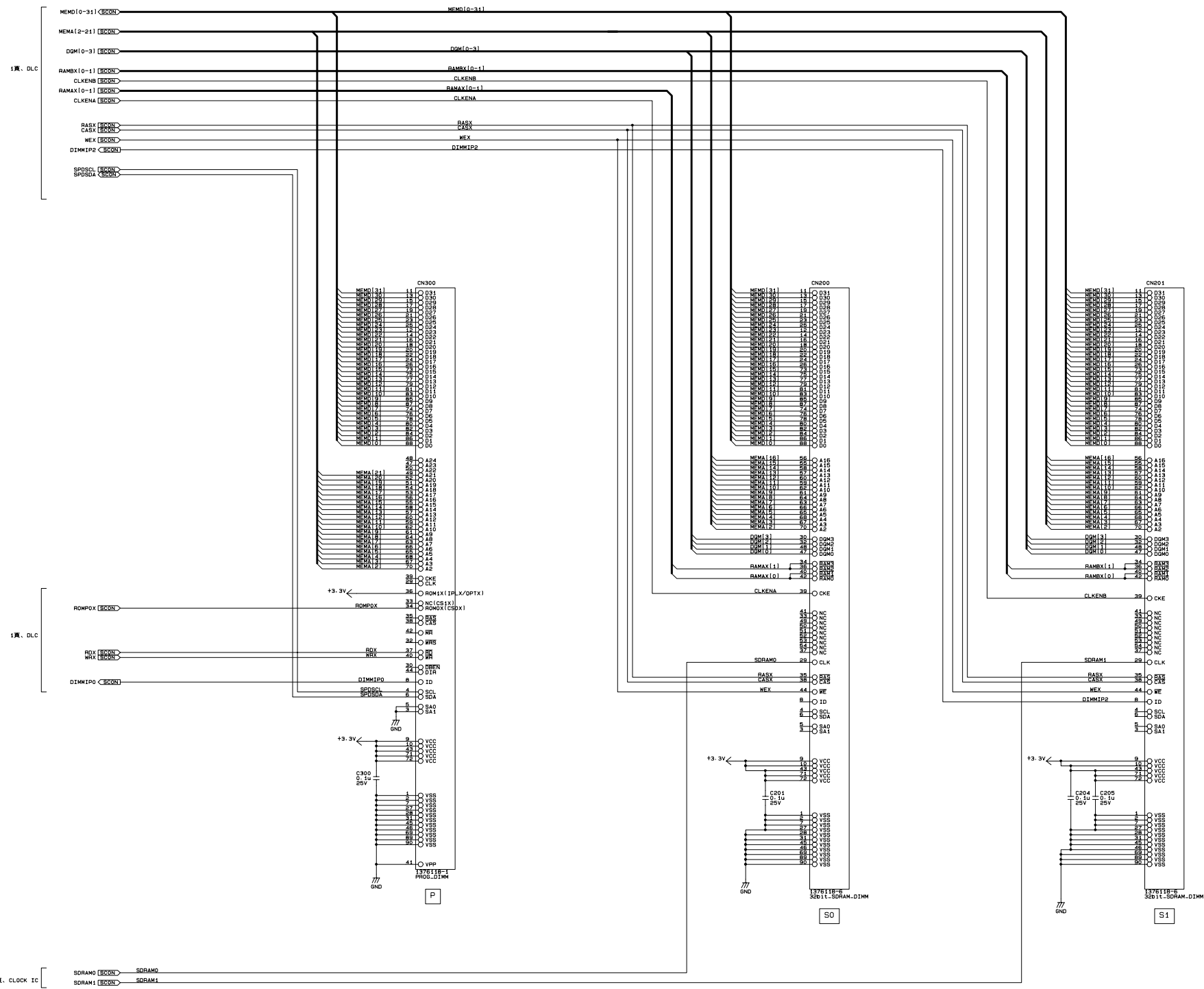
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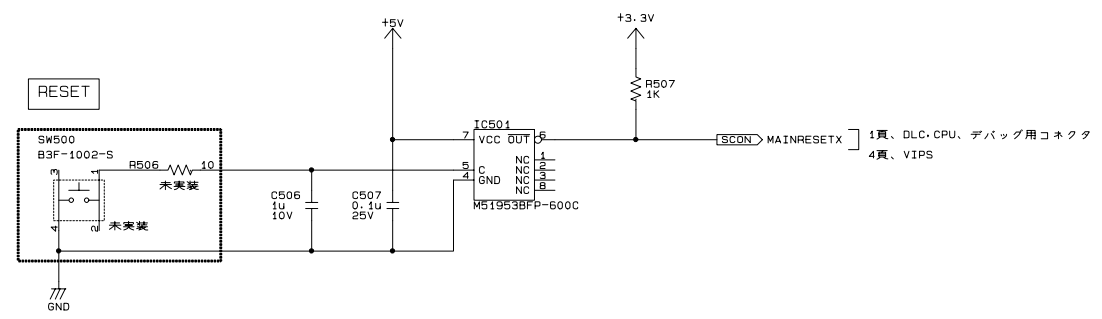
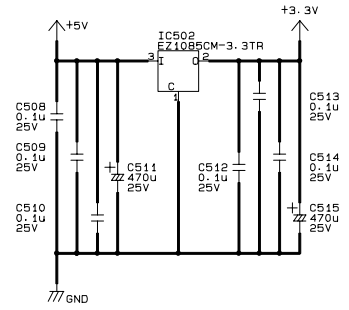
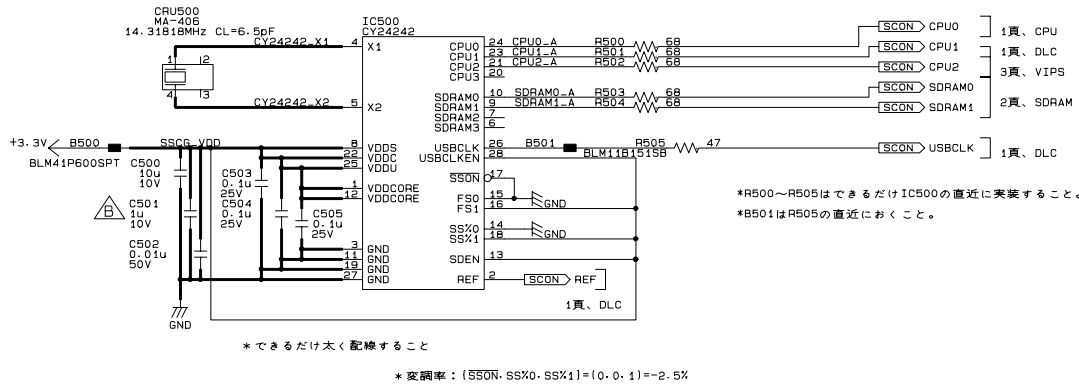
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Mode1 : LP-3000C / AcuLaser C2000
 Board : C314MAIN
 Sheet : 7 / 7
 Rev. : B





注) JP*は部品実装ではなくアートワークでパターン化

Model: LP-2000C
 AcuLaser C1000
 Board: C434MAIN BOARD
 Rev.: B
 Sheet: 3 of 4

