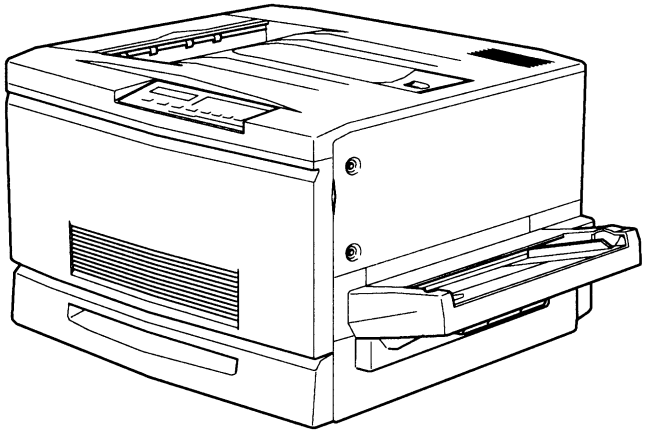
SERVICE MANUAL



Color Laser Printer

EPSON ColorPage EPL-C8000

COLOR IMAGING EPSON

EPSON®

4009762

Notice

- All effort have been made to ensure the accuracy of the contents of this manual. However, should any errors be detected, SEIKO EPSON would greatly appreciate being informed of them.
- The contents of this manual are subject to change without notice.
- All effort have been made to ensure the accuracy of the contents of this manual. However, should any errors be detected, SEIKO EPSON would greatly appreciate being informed of them.
- The above not withstanding SEIKO EPSON CORPORATION can assume no responsibility for any errors in this manual or the consequences thereof.

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 NONAPPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.

About this manual

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of EPL-C8000. 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. DISASSEMBLY / ASSEMBLY AND ADJUSTMENT
Describes the step-by-step procedures for disassembling/assembling and adjusting the product.

CHAPTER 4. DIAGNOSTICS
Provides Epson-approved methods for diagnostics.

CHAPTER 5. TROUBLESHOOTING
Provides the step-by-step procedures for troubleshooting.

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
- Exploded diagram
- Electrical circuit boards schematics

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, if not strictly observed, could result in injury or loss of life.

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

NOTE

Abbreviation

ADC = Automatic Density Control
AG = Analog Ground
ASSY = Assembly
AUX. = Auxiliary
B/W = Black and White
BCR = Bias Charge Roll
Bk = Black
BK = Black
BTR = Bias Transfer Roll
BUR = Back Up Roll
C = Cyan
CART. = Cartridge
CCW = Counterclockwise
CL. = Clutch
CLN = Cleaning (or Cleaner)
CLK = Clock
CONT. = Controller
CR = Charge Roll
CRU = Customer Replaceable Unit
CRUM = CRU Monitor
CW = Clockwise
DB = Developing Bias
DEVE. = Developer
DIAG. = Diagnostic
dpi = dots per inch
DTS = Detach Saw
ELEC. = Electric
EP = Electrophotography
FDR = Feeder
FG = Frame Ground
FRU = Field Replaceable Unit
GND = Ground
H/R = Heat Roll
Hex = Hexadecimal
HVPS = High Voltage Power Supply
I/F = Interface
IBT = Intermediate Belt Transfer
ID = Image Density (or Identification)
L = Left
L/H = Left Hand
L/P = Low Paper
LD = Laser Diode
LEF = Long Edge Feed
LVPS = Low Voltage Power Supply
M = Magenta
MAG. = Magnetic
MCU = Machine Control Unit
MECH. = Mechanical
MOT. = Motor
MSI = Multi Sheet Inserter
N/F = Normal Force
N/P = No Paper
NVM = Non Volatile Memory
O/H = Option Hinge
OHP = Overhead Projector
(In this manual, OHP means OHP film)
OPC = Organic Photo Conductor
P/H = Paper Handling
P/R = Pressure Roll
PCDC = Pixel Count Dispense Control
Pixel = Picture Cell
PPM = Prints Per Minute
PV = Print Volume
PWB = Printed Wiring Board
R = Right
R/H = Right Hand
REGI. = Registration
ROS = Raster Output Scanner
RTN = Return
SEF = Short Edge Feed
SG = Signal Ground
SNR = Sensor
SOL. = Solenoid
SOS = Start Of Scan
SPI = Scans Per Inch
SYNC. = Synchronous
TC = Toner Concentration
TEMP. = Temperature
TR = Transfer
TRANS. = Transport
WDD = Wide Range Dynamic Damper
XERO. = Xerographic
Y = Yellow
YMCBk = Yellow, Magenta, Cyan, Black

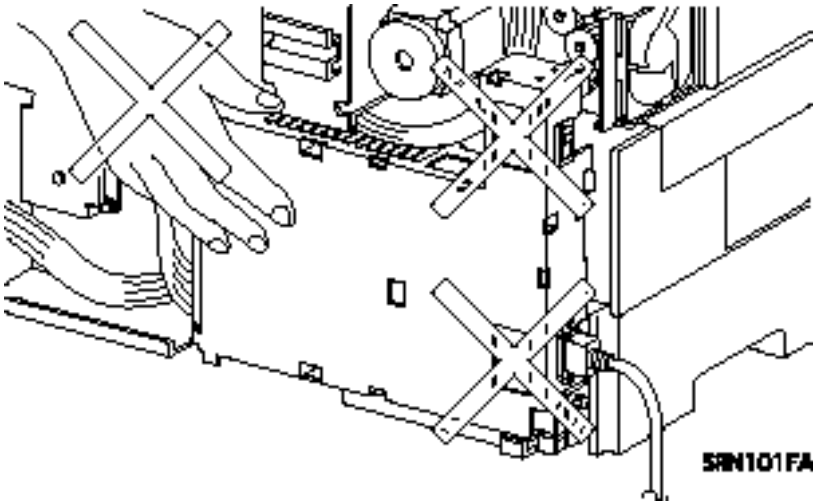
Safety Information

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

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.

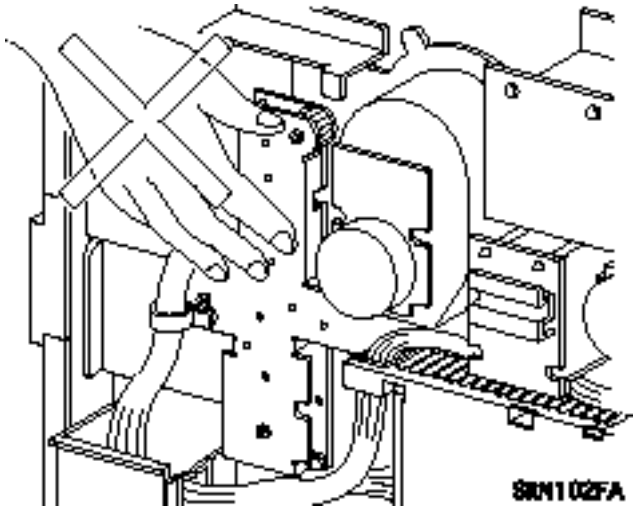
Do not touch any live part unless you are instructed to do so by a service procedure. The LVPS power supply switch/inlet part is live even when the power switch has been turned off. Do not touch any live part.



Mechanical Components

If you service a driving assembly (e.g., gears), first turn off the power and unplug the power cord. Then manually rotate the assembly.

Do not touch the driving part (e.g., gears) while the assembly (printer) is being driven.



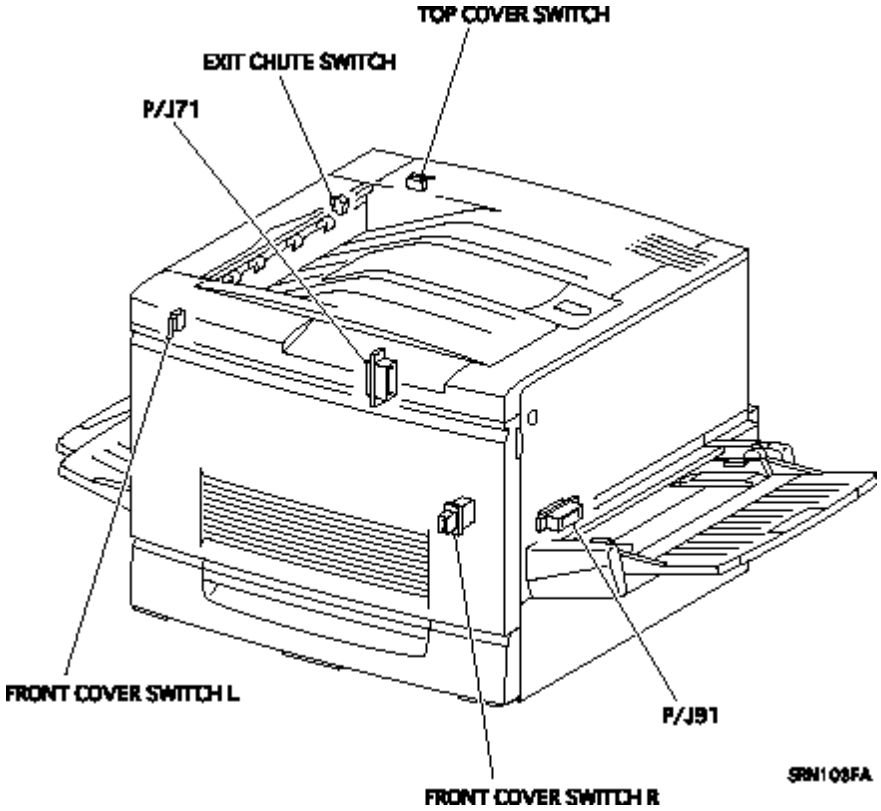
Safety Components

The printer is equipped with safety components (e.g., interlock switches, fuses, thermostat) and safety switches for protecting users and service personnel from injury and the equipment from damage.

The printer has two interlock switches, two safety switches and two interlock connectors that serve as the main safety mechanism.

- ☐ Front Cover Switch R
  This switch is turned off when the Front Cover Assembly is opened. It cuts off the power supply (24VDC, 5VDC-LD) from the power supply unit to stop all operations and disconnects the output (5VDC-LD) circuit from the power supply and stops the laser beam emission.
  This switch consists of the following two switches:
  - ■ A switch that cuts off the power supply (24VDC, 5VDC-LD) to the control circuits and related parts.
  - ■ A switch that directly cuts off the power supply circuit (5VDC-LD) to the laser beam output circuit.
- ☐ Front Cover Switch L
  This is a safety switch. This switch is turned off when the Front Cover Assembly is opened, causing the printer without control units to stop operating.
- ☐ Top Cover Switch
  This is an interlock switch that directly cuts off the power supply (5VDC-LD) circuit to the laser beam output circuit. This switch is turned off when the Top Cover Assembly is removed, cutting off the output (5VDC-LD) circuit from the power supply unit and stopping the laser beam emission.

- Exit Chute Switch
  This switch is a safety switch. This switch is turned off when the Exit Upper Assembly (the cover on the upper left side of the printer) is opened.
- P/J91 (Connector that connects the Main Harness Assembly and Registration Harness Assembly)
  This is an interlock connector that cuts off the power supply (24VDC, 5VDC-LD) to the control circuit and related parts.
  This connector is disconnected when the Main P/H Assembly (pull-out type unit on the right side of the printer) is pulled out, cutting off the output (24VDC, 5VDC-LD) from the power supply and stopping the printer operation without control units.
- P/J71 (Connector that connects the Fuser Connector and Fuser Harness Assembly)
  This is an interlock connector that cuts off the power supply (24VDC, 5VDC-LD) to the control circuit and related parts.
  This connector is disconnected when the Fuser Assembly (pull-out type unit on the left side of the printer) is pulled out, cutting off the output (24VDC, 5VDC-LD) from the power supply and stopping the printer operation without control units.



Laser Beam

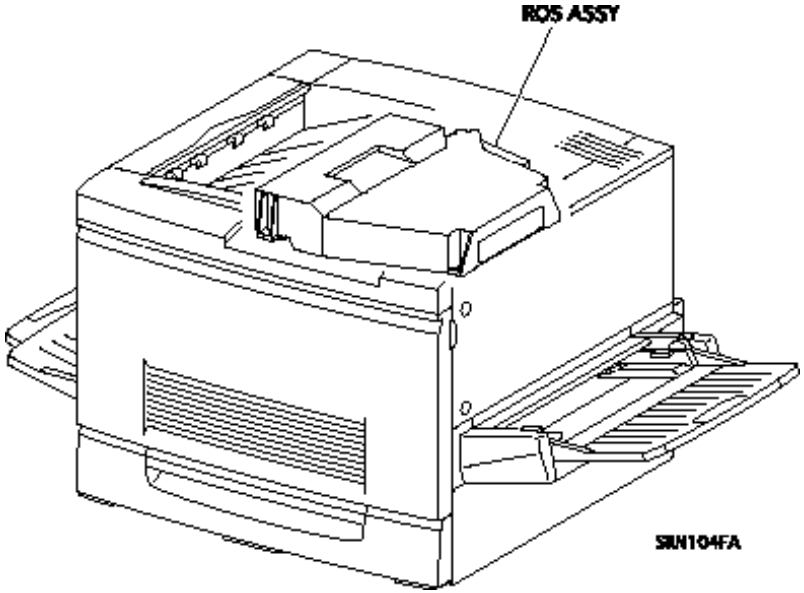
The printer has two interlock switches: the Front Cover Switch R and the Top Cover Switch. The purpose of these switches is to turn off the laser beam emission if any of the printer covers have been opened; this protects the user or service personnel from exposure to the laser beam from the ROS Assembly.

A laser beam may be emitted during a maintenance operation. Do not turn on these interlock switches simultaneously under any circumstances except in a normal operation.

- **Do not expose yourself to the laser beam to prevent injury (blindness).**
- **Do not open the cover that has the laser beam warning label.**
- **If you disassemble or assemble the printer, turn off the power.**
- **If you need to work on the printer with power applied, strictly follow the instructions in this manual.**
- **If you have to activate the printer while pressing the Front Cover Switch R by hand or with a tool, remove the Top Cover. (Do not turn on these interlock switches simultaneously under any circumstances except in a normal operation.)**
- **Understand how the laser beam functions and take maximum precautions not to injure yourself or anyone around you.**

NOTE: *The laser beam has a narrower frequency band and more coherent phases than any other light (sunlight, electric light). It has excellent monochromaticity and convergence. A thin laser beam reaches long distances. Because of its convergence characteristic, the laser beam converges into one point, causing high density and high temperature. A laser beam is harmful to the human body.*

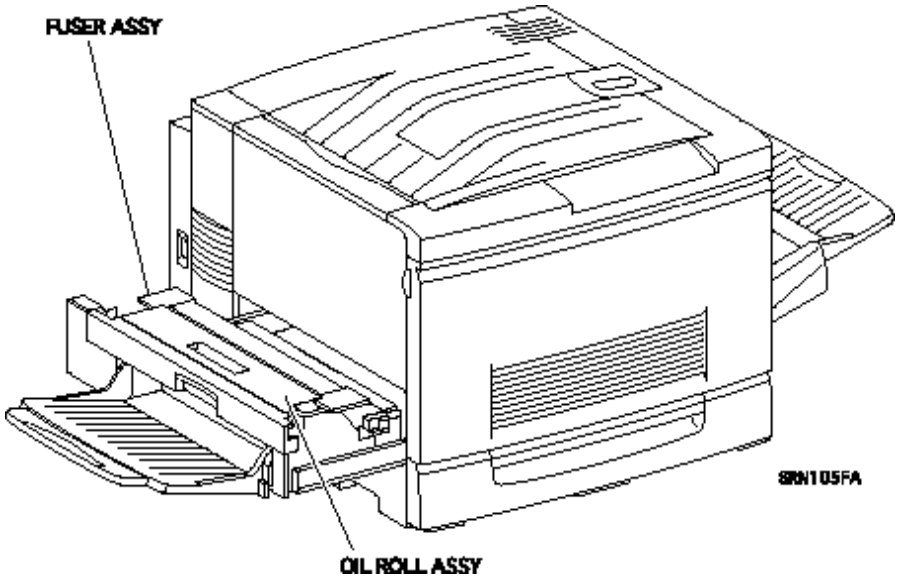
NOTE: *The laser beam in this printer is invisible.*



High Temperature Assembly

To prevent you from becoming injured or burned, do the following: Before working with a high temperature Assembly (e.g., Fuser Assembly), turn off the power, unplug the power cord and wait until it cools down.

The high temperature Assembly is very hot immediately after any printer operations. Wait at least 40 minutes before you start working on the printer.



Parts

To prevent you from becoming injured, keep the following in mind:

- ☐ When handling heavy parts (including the printer itself), use good posture to protect your back whenever you lift, move or place parts.

Do not lift, move or place heavy parts in a body posture that is likely to cause injury to yourself or cause the part to drop.

- ☐ Be careful not to injure yourself with the sharp edges of the parts.
- ☐ Do not work with wet or oily hands-you may drop a part or injure yourself. Dry your hands first.
- ☐ When pulling out a part (including a harness), do not use too much force. Pull out the part carefully and slowly step by step.

Consumables

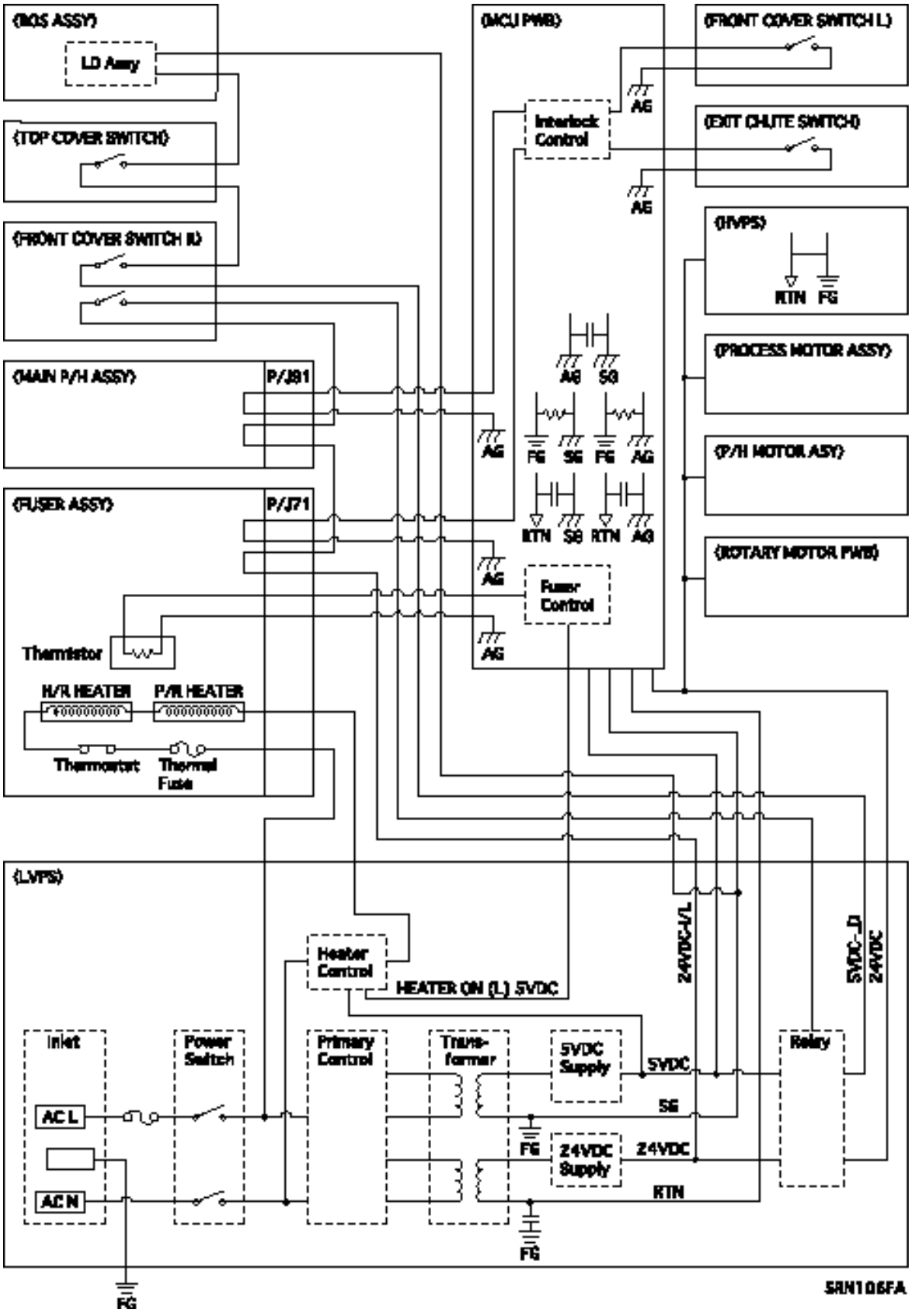
Some parts may cause a particulate explosion or fire if handled improperly. Do not handle these parts near fire or throw into a fire.
Some materials (e.g., Developer or Fuser Oil) may cause bodily injury. Do not swallow or inhale these materials or allow them to come in contact with the eyes.
Help to protect those around you and follow the prohibitions against swallowing or inhaling those materials. Be careful to protect the eyes at all times.
Place a sheet inside or under the printer so that the floor or workbench is protected.
If the Developer or Fuser Oil gets on your clothing, dry it with a cloth and wash with clean water.

NOTE: *The printer has the following consumable parts:*

- *Drum Cartridge*
- *Oil Roll Assembly*
- *Toner Cartridge M*
- *Toner Cartridge Bk*
- *Waste Toner Box*
- *Toner Cartridge Y*
- *Toner Cartridge C*

Improper Printer Use

Modifying, revising, tampering with the printer, especially to the safety mechanism, is strictly prohibited in all circumstances.


(BOS ASSY)
LD Assy
(TOP COVER SWITCH)
(FRONT COVER SWITCH R)
(MAIN P/H ASSY)
P/J91
(FUSER ASSY)
P/J71
Thermistor
H/R HEATER
P/R HEATER
Thermostat
Thermal Fuse
(MCU PWB)
Interlock Control
Fuser Control
Heater Control
HEATER ON (L) 5VDC
(FRONT COVER SWITCH L)
(EXIT CHUTE SWITCH)
(HVPS)
RTN FG
(PROCESS MOTOR ASSY)
(P/H MOTOR ASSY)
(ROTARY MOTOR PWB)
AG SG
FG SG FG AG
RTN SG RTN AG
(LVPS)
Inlet
AC L
AC N
Power Switch
Primary Control
Trans-former
5VDC Supply
24VDC Supply
5VDC
SG
24VDC
RTN
Relay
24VDC-L
5VDC-D
24VDC
FG
SRN106FA

Manual Contents

Revision Status

Revision	Issued Date	Description
Rev. 0 (Preliminary revision)	August 07, 1998	1st release
Rev. A	September 28, 1998	2nd release
Rev. B	August 23, 1999	The manual is mainly revised on the following points: **[Chapter 1]** • Page 1-4: Paper Out Sensor is added. • Page 1-6: IBT Cleaner is eliminated from the regularly replaced parts. • Page 1-30: NOTE is added to Section 1.5.4. **[Chapter 3]** • Page 3-2: Change in Table 3-1. • Page 3-6: NOTE is added to Section 3.2.3.1 under “Preparation”. • Page 3-96: Section 3.2.12.21 “FUSER IN SENSOR Removal” is added. • Page 3-97: Section 3.2.12.22 “FUSER CHUTE FAN Removal” is added. • Page 3-119: CHECK POINT box is added. • Page 3-121: New adjustment item “DEVE. SPACER Selection” is added. **[Chapter 4]** • Page 4-1: Change in the procedure for Test Print my MCU PWB. • Pages 4-3, 4-7, 4-61: DIAGNOSTIC DATA DISK is replaced by SELF TRAINING KIT (#F728). **[Chapter 7:]** • Fuser relating exploded diagrams and controller are mainly replaced.

CHAPTER

1

PRODUCT DESCRIPTIONS

Contents

1.1 Features

EPL-C8000 is a non-impact color page printer that makes the most use of the semi-conductor laser and electrophotographic technology.

☐ Engine

1. Designed for performance in true business environments. Supports sizes from A5 to A3W. Printing speed (on A4/Letter) is 4ppm for color printing, 16ppm for monochrome printing.
2. Supports high-resolution full color (True 600dpi).
3. Can generate high-quality prints on special (dedicated) paper.
4. Supports thick sheets and OHP (dedicated OHP sheets).
5. Easy to maintain.
6. 2 Standard paper feed bins= paper tray (150 sheets; A3W) and standard universal cassette (250 sheets: A3).
   When the optional Large Capacity Paper unit attached, total capacity is up to 1150sheets with 5 bins.
7. Standard paper ejection is face down (up to 250 sheets). Face-up ejection is also available (up to 150 sheets).

☐ Controller features

1. Newly developed high-speed controller
   - New 64-bit RISC CPU: R4700 - 133MHz
   - 64-bit high speed memory: SDRAM DIMM
   - 64MB RAM standard: expandable up to 256MB (2 expansion slots)
2. Color management technology
   - AcuLaser Color Halftoning included
   - RGB multivalue input processing (Controller carries out binarization processing: color mapping, color correction, and screening.)
   - Enhanced ASIC (AcuLaser Color Halftoning, CCNV)
3. Data compression technology
   - Multivalue data compression: reduces RAM use and increses host-I/F data transfer speed.
4. Firmware Program is executed on the RAM.
   At the power on, compressed ROM program data is expanded into RAM by lPL in the MASK ROM.
   - RAM execution increases processing speed (fast access, 64-bit processing instead of 32-bit)
   - Program compression reduces usage of program memory in ROM
5. Bi-directional I/F conforms to IEEE1284 ECP
   - ECP-based high-speed data transfer (to/from host)
   - Printer can return status to host.
6. Includes two Type-B interface slots.
7. installation of expansion RAM (DIMMs) provides improvements in the following.
   - Drawing area for AcuLaser Color Halftoning, Enhanced Micro Gray.
   - Print data processing speed
   - Resolution
8. Includes toner-save mode (color, monochrome)

9. ROM update by flash-DIMM installation

10. Includes RIT and Enhanced Micro Gray monochrome technologies

☐ Software features

1. ESC/Page-Color

   - Printer pages: High Speed priority. Color correction and color adjustment can be set for each object. (But 1 resolution and screen type [gradation=LPI] per page.)
   - Driver page: Fast processing (on fast PC). Color correction and color adjustment can be set for each object.
   - Image: Full color (WYSIWYG).

2. Bidirectional EJL can retrieve printer status and monitor the printer environment.

3. The following emulation modes are fully compatible with EPL-5700: LJ4, GL2, ESCP2, FX, I239X, and ESC/Page (monochrome).

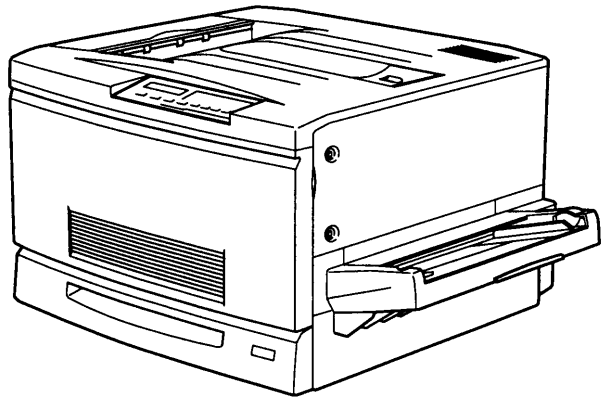


Figure 1-1. Exterior View of EPL-C8000

1.2 Specifications

This section describes specifications for this printer.

1.2.1 Basic Specifications

- ☐ Method: Semi-conductive laser beam scanning and dry electrophotographic process
- ☐ Resolution: 600 DPI
- ☐ Print mode:
  - ■ B/W mode: Standard monochrome print mode that supports the fastest speed.
  - ■ Color mode: Color mode which uses the color toner of Y, M, C, and BK.
- ☐ Speed mode:
  - ■ Standard mode: Transports paper at the highest speed supported by the printer.
  - ■ Half speed mode: Low speed mode that enables better fusing for thick paper (over 105g/m^2) envelopes, and OHP sheet.
- ☐ Print Speed: See Table 1-1.

Table 1-1. Speed Mode

Print mode	Speed mode	LT/A4 LEF 2UP (*1)	B(LD)/A3 SEF (*2)
B/W	Standard mode	16 PPM or more	8PPM or more
	Half speed mode	2.7 PPM or more	1.3PPM or more
Color	Standard mode	4 PPM or more	2PPM or more
	half speed mode	1.8 PPM or more	0.9PPM or more

Notes:

**1. In this mode, the printer prints tow print images on the IBT belt and the images are transferred in sequence onto two sheets of paper. It is available for LT/A4 (LEF) or smaller.*

**2. [LEF, or Long Edge Feed]*
The longer edge of the paper is the top toward the paper feed direction.
[SEF, or Short Edge Feed]
The shorter edge of the paper is the top toward the paper feed direction.

- ☐ First print*:
  - Face-up B/W: 20 seconds or less (LT/A4 LEF)
  - Color: 42.6 seconds or less (LT/A4 LEF)
  - Face-down B/W: 24.9 seconds or less (LT/A4 LEF)
  - Color: 47.6 seconds or less (LT/A4 LEF)

  NOTE:*Fist print is defined as the duration taken after receiving the start command until outputting the first print. It is applicable when a feeder is selected in the standard mode. (Not applied during the process control operation.)*

- ☐ Warm-up time: Within 300 seconds (at 22 degree Celsius, 58% Rh, rated voltage)

☐ Paper Handling: See Table 1-2.

Table 1-2. Paper Feeding

Paper source		Available feeder	Capacity (Thickness)	Paper size	Available paper thickness
Standard Tray (MSI) *1 *5		—	150 sheets (16mm)	90 x 139.7 - 330.2 x 457.2 mm	60 - 105g/m^2 , 16 - 20 lb (Normal paper, Recommended paper)
			75 sheets	90 x 139.7 - 330.2 x 457.2 mm OHP sheet/Labels/Thick paper	105 - 220g/m^2 (Thick paper, Special paper)
			20 sheets	Envelopes *4 Monarch, C10, DL, C6	
Cassette Unit *2 *6	Standard universal cassette	Standard feeder	250 sheets (28mm)	B5 LEF, Letter LEF, A4 LEF, B4, A3, Legal, Executive LEF, Ledger (B)	60 - 105g/m^2 (Normal paper, Recommended paper)
	A3W cassette (option)	Standard feeder	250 sheets (28mm)	A3W (304.8 x 420 - 330.2 x 457.2 mm)	60 - 105g/m^2 (Normal paper, Recommended paper)
	Large capacity paper cassette unit (option) *3	250 x 3 feeder (option)	250 sheets (28mm)	Letter LEF, A4LEF, B4, A3, Legal LEF, Executive LEF, Ledger (B)	60 - 105g/m^2 (Normal paper, Recommended paper)

Notes:

**1. Change the side guide in the MSI tray for the paper whose width is more than 304.8mm (12").*

**2. Each paper cassette is equipped with 2 separate paper guides, side guide and end guide, which also serves to detect paper size. They are adjusted by users. Maximum of 4 cassette unit including one standard and optional paper cassettes (250 sheets x 3) can be used. With these installed, the printer can hold up to 1150 sheets.*

**3. Composed of 3 paper cassettes (each holds 250 sheets). This paper cassette unit is compatible with the standard universal cassette, and either paper cassette can accommodate it.*

**4. Note the following points when setting envelopes:*
- *Must be loaded with the longer edge first.*
- *Set envelopes with their flaps open and set to the rear end toward paper feeding direction.*
- *The minimum length with a flap open is 143mm.*
- *The minimum width is 90mm.*

**5. Out of paper sensor installed.*

**6. Out of paper sensor and near end sensor installed. Near end sensor is actuated when the remaining paper is 40 ± 30 sheets*.*
** Applicable to paper of 64g/m^2.*

☐ Paper Size: See Table 1-3 in the next page.

Table 1-3. Paper Size Availability

Paper	Size	Paper setting orientation			2UP mode availability	Notes
		Standard tray (MSI)	Standard cassette	A3W cassette		
Normal paper						• LEF: Long edge is loaded first. • SEF: Short edge is loaded first. • 2UP is available only for paper size of LT(LEF) or smaller. For custom size paper, paper length along the loading direction must be 8.5 inch or shorter. As for envelopes, the total length including the opened flap part must be 8.5 inch or shorter. • The minimum size of paper set in the standard universal paper cassette is EXE (LEF). • The maximum size of paper set in the MSI tray is 330.2 x 457.2 mm (13” x 18”). • When setting envelopes (LEF*), open their flaps and set the rear ends of the flaps toward paper feeding direction. • A3W cassette have capability for only A3W paper.
A3W	328 x 453mm	SEF		SEF	Unavailable	
A3	297 x 420mm	SEF	SEF		Unavailable	
A4	210 x 297mm	LEF	LEF		Available	
A5	148 x 210mm	LEF			Available	
B4	257 x 364mm	SEF	SEF		Unavailable	
B5	182 x 257mm	LEF			Available	
I-B5	176 x 250	LEF			Available	
LT	8.5 x 11” (215.9 x 279.4mm)	LEF	LEF		Available	
HLT	5.5 x 8.5” (139.7X215.9mm)	LEF			Available	
LG	8.5 x l4” (215.9X355.6mm)	SEF	SEF		Unavailable	
EXE	7.25 x 10.5” (184.15X266.7mm)	LEF	LEF		Available	
GLG	8.5 x 13” (215.9X330.2mm)	SEF			Unavailable	
GLT	8 x 10.5” (203.2 x 266.7mm)	LEF			Available	
B (LD)	11 x 17” (279.4 x 431.8mm)	SEF	SEF		Unavailable	
F4	210 x 330	SEF			Unavailable	
Special paper						
OHP Sheet	8.5 x 11” (210 x 297mm)	LEF			Available	
MON	3 7/8” x 71/2” (98.43 x 190.5mm)	LEF*			Available	
C10	41/8 x 91/2 (104.78 x 241.3mm)	LEF*			Available	
DL	110 x 220mm	LEF*			Available	
C6	114 x 162	LEF*			Available	

- Paper aligning: Single side aligning (front side) for all sizes (both standard tray (MSI) and each cassette)
- Consumables:
  - TONER CARTRIDGE (Black, Cyan, Magenta, Yellow)
  - DRUM CARTRIDGE (including one WASTE TONER BOX)
  - WASTE TONER BOX
  - OIL ROLL
- Regular replaced parts:
  - MAIN FUSER ASSEMBLY
  - Air filter (replaced with the MAIN FUSER ASSEMBLY
  - 2ND BTR ASSEMBLY
- Paper Output:
  - Face-down (FD):
    250 sheets (B5/EXE or larger, up to 105g/m^{2}or 28lb
  - Face-up (FU):
    150 sheets (smaller than A4), 50 sheets (A4 or larger)

  See Table 1-4 for the FD availability for each paper size.

Table 1-4. Face-Down Output Availability

	Paper Size	FD Availability	Paper Size	FD Availability *1
Normal paper	A3W	Available	HLT	Unavailable
	A3	Available	LG	Available
	A4	Available	EXE	Available
	A5	Unavailable	GLG	Available
	B4	Available	GLT	Available
	B5	Available	B(LD)	Available
	LT	Available	F4	Available
	I-B5	Unavailable		
Special paper	OHP sheet	FU *2	C10	FU *2
	Card stock	FU *2	DL	FU *2
	MON	FU *2	C6	FU *2

Notes:

**1. The minimum size available for FD ejection is 182 mm toward paper feeding direction.*

**2. FU*2 means face-up ejection for OHP sheet, thick paper, and envelopes.*

- Dimensions (without option):
  728 (W)* mm x 641 (D)* mm x 490 (H) mm (tolerances: ± 1%)
  * When the standard tray (MSI) and Output tray (FU) are stored.)
- Weight: 68.4 kg ± 1% (without option)
- Voltage: 110V/120V ± 10%, 50/60Hz ± 3Hz
  220V/240V ± 10%, 50/60Hz ± 3Hz
- Power consumption, Rated current: See Table 1-5.

Table 1-5. Power Consumption Specifications

Power consumption	Operating (color)	• Average: 400Wh or less • Maximum: 1100W or less (Fuser: On)
	Operating (B/W)	• Average: 500Wh or less • Maximum: 1100W or less (Fuser: On)
	Standby mode	• Average: 250Wh or less • Maximum: 1000W or less (Fuser: On) 100W or less (Fuser: Off)
	Energy save mode *1	• Average: 200Wh or less • Maximum: 1000W or less (Fuser: On) 100W or less (Fuser: Off)
	Energy save mode *2	• Average: 45Wh or less • Maximum: 1000W or less (Fuser: On) 100W or less (Fuser: Off)
Rated current	• 100 V:	11A or less (at rated voltage)
	• 115V:	10A or less (at rated voltage)
	• 240V:	5A or less (at rated voltage)

Notes:

**1. Saves more energy than in standby mode.Time required for warning up is shorter.*

**2. Completely non-operating condition. Complies with the Energy Star.*

- Product life
  - Printer:
    Approximately 180,000 printed pages on A4 LEF (450,000 images) or five years, whichever comes first.
  - Standard tray (MSI): 72,000 sheets
  - 250 sheets x 3 feeders: 135,000 sheets (45,000 sheets x 3)
- Acoostic Noise: Operating = 54.8dB (A) or less
  Stand-by = 38.3dB (A) or less
  Energy Save mode 1 = 38.3dB (A) or less
  Energy Save mode 2 = 35.0dB (A) or less
- Ozone emission: 0.02 ppm (time waited average value) or less.
- Toxicity: Photo conductor, toner, carrier, plastic material have no effect on human body.

1.2.2 Paper Specification

☐ Paper specifications: See Table 1-6.

Table 1-6. Paper Specifications

	Paper Type
Recommended paper	4024 paper (B/W), X-pression paper (color)
Normal Paper	Normal copier paper, Recycled paper, 60g/m^2 - 105g/m^2 (16lb - 28lb)
Special Paper	OHP film, Card stock, Labels, Color paper, Thick paper (105g/m^2 - 220g/m^2), DTP paper , Envelopes

NOTE: *lb: Ream Weight = lb/500sheets/17" x 22"*
*1*g/m^2 *= 0.2659763 lb*

NOTE: *Before purchasing a large amount of paper, try it out and check that it is properly fed.*

NOTE: *Avoid using the types of paper listed below to prevent abnormal printing, paper jam, and printer malfunction.*

- *Carbon paper, non-carbon paper, thermal paper, impact paperm, acidic paper*
- *Paper that has gone through a thermal or an ink-jet printer.*
- *Paper that is too thick or thin.*
- *Wet (damp) paper*
- *Paper to which a special coating has been applied, or colored paper that has gone through surface process.*
- *Paper that has been lubricated (too smooth or slippery).*
- *Paper whose texture is different on the front and back.*
- *Paper with holes for binders and perforations.*
- *Paper with irregular shape or not cut with right angles.*
- *Paper with labels that come off and stick easily.*
- *Paper with glue, staples, or paper clips attached.*
- *Special ink-jet paper (Super Fine Paper, glossy film, and so on.)*
- *OHP sheets for other color laser printers, monochrome printers, and photocopiers.*
- *Paper that has gone through other color laser printers, monochrome printers, and photocopiers.*
- *Pasted paper*

☐ Paper path classification: See Table 1-7.

Table 1-7. Paper Usability for Each Paper Path

Paper path	Recom-mended paper	Normal paper	Special paper				
			OHP sheet	Postcard	Labels	Thick paper*1	Envelopes *2
Standard (MSI) tray	RF	P	P	P	P	P	P
Standard universal cassette	RF	P	N	N	N	N	N
A3W cassette *3	RF	P	N	N	N	N	N
Large capacity paper cassette *3	RF	P	N	N	N	N	N

Notes:

**1. 105 - 220g/m^2*
**2. MON, C10, DL, C6*
**3. Option*
**4. RF: Reliable feeding and good image quality*
P: Possible, but limited to paper generally available
N: Not supported

☐ Guaranteed print area: See Figure 1-2.

■ Maximum guaranteed print area:
Area with margins of 4 mm from each side
Applied to a paper size up to 297mm (11.7”) width x 431.8mm (17”) length.

☐ Maximum printable area:
320mm (12.6”) width x 449.2mm (17.7”) length

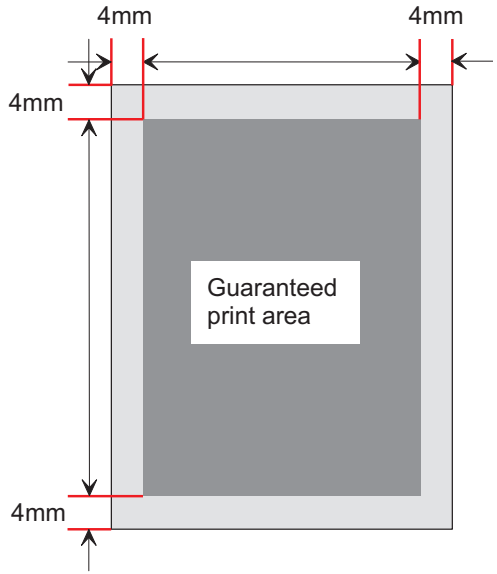
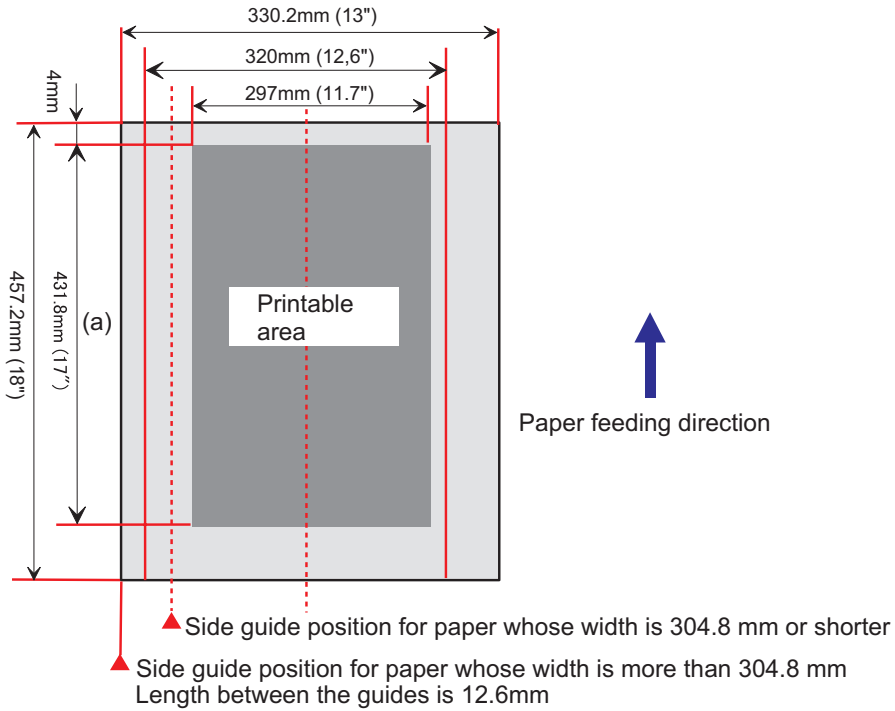


Figure 1-2. Guaranteed Print Area

☐ Printable area:
Paper whose width is 304.8mm (12”) or shorter: From the edge
Paper whose width is longer than 304.8mm (12”)*: From the point with a margin of 5mm

** When loading paper whose width is more than 304.8 mm (12”), the standard cassette (MSI) is shifted and print position starts with a margin of 5 mm from the paper edge (a). This change is applied to paper loaded from the A3W cassette.*

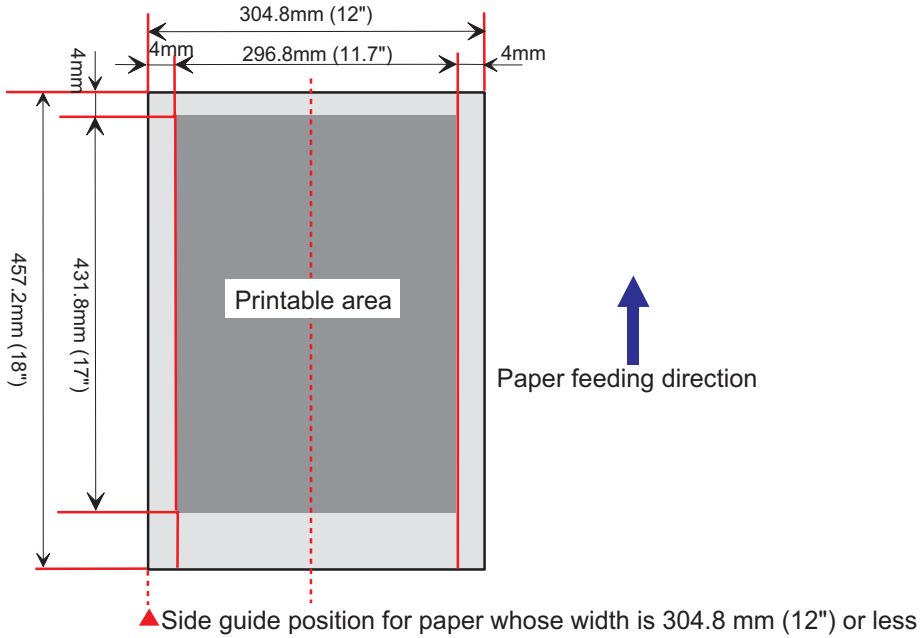
■ When the standard tray (MSI) or A3W cassette is used.



Maximum size of paper: 330.2 mm(13") width x 457.2 mm (18") length
Printable area: 320.0 mm(12.6") width x 449.2 mm (17.7") length
Guaranteed print area: 297 mm(11.7") width x 431.8 mm (17") length

Figure 1-3. Printable Area 1

■ When the standard universal cassette or large capacity paper cassette unit is used.



Maximum size of paper: 304.8 mm (12") width x 457.2 mm (18") length
Printable area: 296.8 mm(11.7") width x 449.2 mm (17.7") length
Guaranteed print area: 296.8 mm(11.7") width x 431.8 mm (17") length

Figure 1-4. Printable Area 2

1.2.3 Reliability and Durability

☐ MPBF:
- Printer including standard tray (MSI):
  38,000 pages or more (95,000 images or more*)
- Printer including optional 250 sheet x 3 feeders:
  32,000 pages or more (80,000 images or more*)

NOTE:*Figured out based on the MPBF in condition that the job ratio of the color and monochrome prints is 1 : 1, since 1 page of color print is formed with 4 images.*

☐ Paper Feed Reliability: See Table 1-8.

Table 1-8. Paper Feed Reliability

	Recommended paper	Normal paper	Special paper *
☐ Standard paper tray			
Paper jam rate	1/500 or less	1/100 or less	1/100
Multiple feeding rate	1/80 or less	1/50 or less	1/50
☐ Standard universal cassette/Large capacity paper cassette (option)			
Paper jam rate	1/3,000 or less	1/2,000 or less	
Multiple feeding rate	1/800 or less	1/500 or less	
☐ A3W cassette (option)			
Paper jam rate	1/2,000 or less		
Multiple feeding rate	1/500 or less		

** Do not feed envelopes at high temperature to avoid adhering.*

** Statistics for envelopes only applies to front face feeding under normal temperature. (back side feeding is not included.)*

NOTE:*Paper jam or multiple feeding occurred to the top sheet of an added stack of paper is ignored.*

☐ Print position accuracy:
- ■ Main scan direction: Reference position (c) ± 2.5 mm
- ■ Sub scan direction: Reference position (a) ± 2.0 mm

See Figure 1-4.

☐ Paper skew: See Figure 1-4 and Table 1-9.

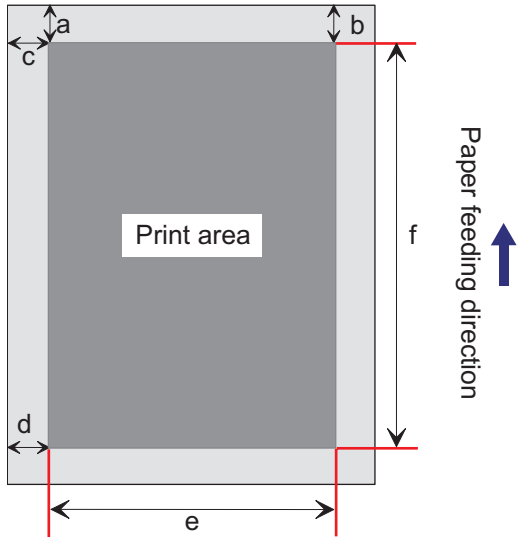


Figure 1-5. Paper Skew

Table 1-9. Paper Skew

Direction	A4 (landscape)	A3
Main scan direction (|c-d|)	±1.5mm(f=196mm)	±3.0mm(f=406mm)
Sub scan direction (|a-b|)	±2.0mm(e=271mm)	±2.0mm(f=271mm)

- Durability:
  - Printer itself:
    180,000 sheets (450,000 images) A4 LEF or 5 years, whichever comes first. Parts regularly replaced by the service is ignored.

  ** 450,000 for monochrome print only. In color printing, one page is formed with 4 images, and the value "180,000" sheets is figured out in the condition that the job ratio of monochrome and color printings is 1:1.*

  - Standard tray (MSI): 72,000 sheets
  - 250sheets x 3 feeders: 135,000 sheets (45,000 sheets x 3)
- MTTR: Within 30 minutes (average)
- Curl height at ejection:
  Less than ±15mm (Color printing with the image ratio of 5 % in non-aligned condition, which varies depending on the image rate and aligning pattern.)

1.2.4 Operating Environment (including options)

- ☐ Temperature: 10 to 32 °C
- ☐ Humidity: 15% to 85% RH (without condensation)
- ☐ Air pressure(altitude): 760hPa or more (2500 meters or less)
- ☐ Levelness:
  - ■ Front- rear direction on the table: 5mm or less (within 641mm)
  - ■ Right - left direction on the table:10mm or less (within 560mm)
- ☐ Luminosity: 3000 lux or less (not to exposed to direct sunlight)
- ☐ Surrounding environment:
  See Figure 1-6.

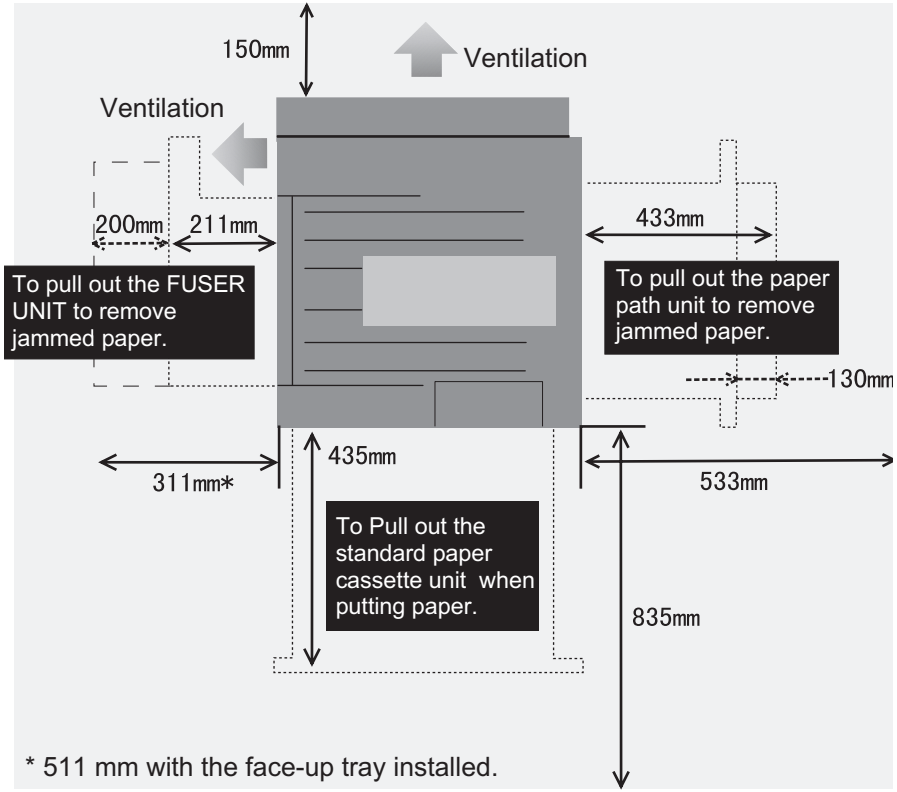


Figure 1-6. Space Requirement

1.2.5 Environmental Conditions for Storage and Transportation

- ☐ temperature and Humidity: See Table 1-10.

Table 1-10. Environmental Conditions 1

	Temperature	Humidity	Guaranty
Normal condition	0 - 35 °C	15 - 80%RH*	For 12 months
Extreme condition	High: 35 - 40 °C Low: -20 - 0 °C	High: 80 - 85%RH* Low: 5 - 15%RH*	One month (Max.)

* *Without condensation.*

- ☐ Storage air pressure (altitude):
  0 - 2500m (0 up to 15000m is possible during air shipping, but the air pressure in the cargo room must be 0.2 hPA or more.)
- ☐ Drop test: See Table 1-11.

Table 1-11. Drop Test

	Height	Test times
Free drop	Bottom: 457 mm (18”)	Once
	Other than bottom: 305mm (12”)	Once for each surface (total of 5 times)
Ridge drop	457 mm (18”)	Once for each side (total of 4 times)

- ☐ Resistance to vibration:
  - ■ Frequency: 2 - 500 Hz
  - ■ Acceleration: 12.6 m/s² (on a vibrating board)*1
  - ■ Direction: 3 directions (X, Y, Z) *2
  - ■ Duration: 30 minutes (single way)

1.Overall rms value
2.Z: vertical, X and Y: horizontal