SERVICE MANUAL

Color Laser Printer

EPSON ColorPage EPL-C8200

EPSON

SEPG99-003

Notice

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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 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 the EPSON EPL-C8200. 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.

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

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

CHECK POINT / NOTE 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.

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.

WARNING **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.**
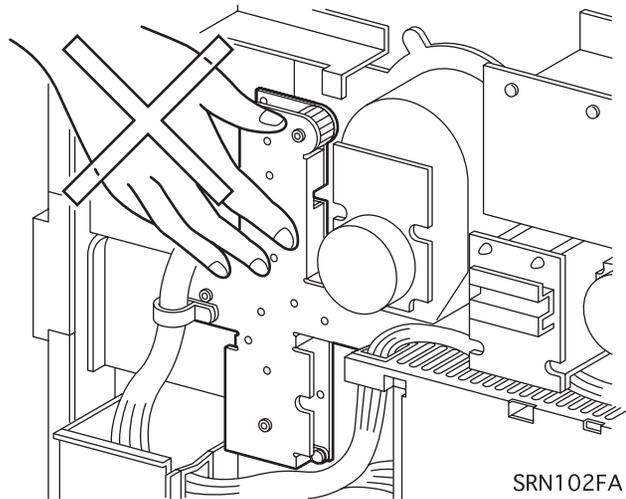

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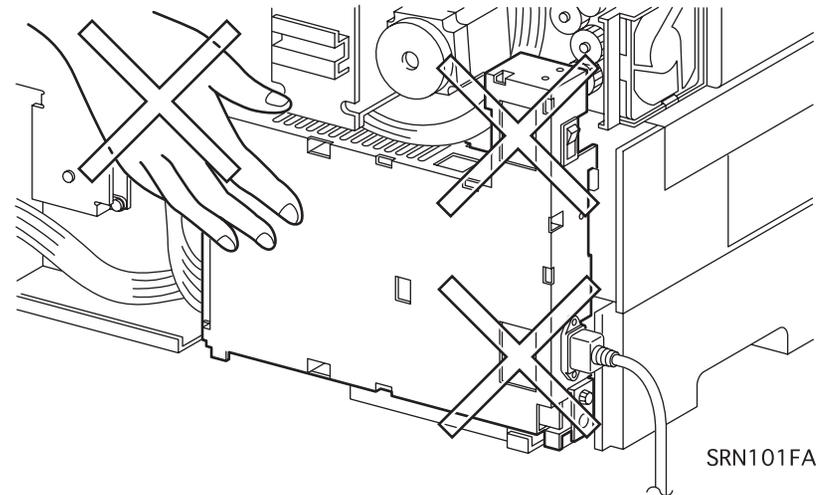
Mechanical Components

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

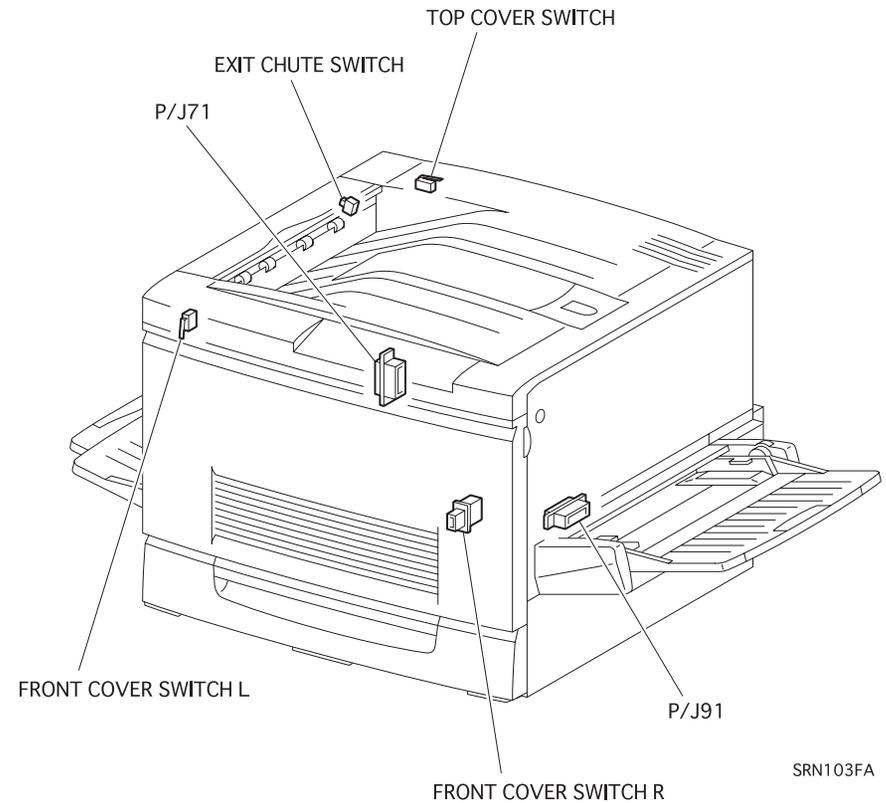| **WARNING**	**Do not touch the driving part (e.g., gears) while the assembly (printer) is being driven.**

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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.

TOP COVER SWITCH

EXIT CHUTE SWITCH

P/J71

FRONT COVER SWITCH L

FRONT COVER SWITCH R

P/J91

SRN103FA

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.

WARNING

- **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.

ROS ASSY

SRN104FA
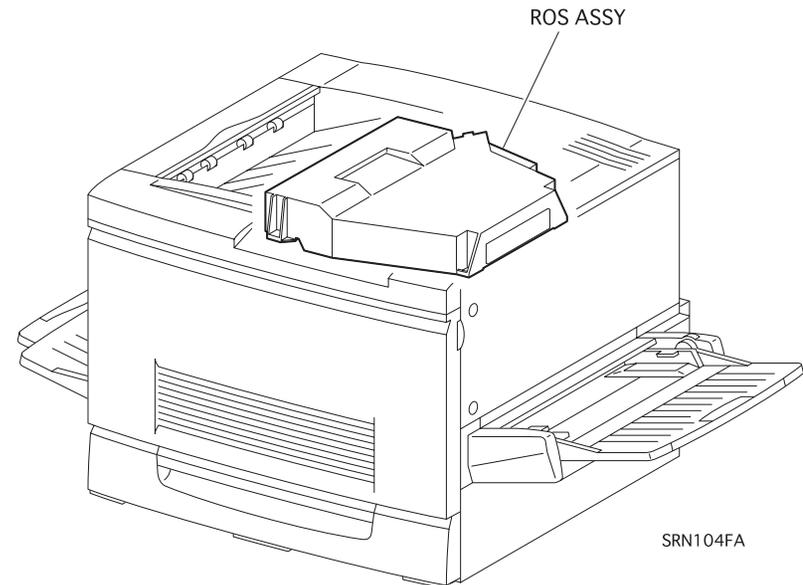
High Temperature Assembly

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.

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

FUSER ASSY

SRN105FA

OIL ROLL ASSY

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.

WARNING	**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.
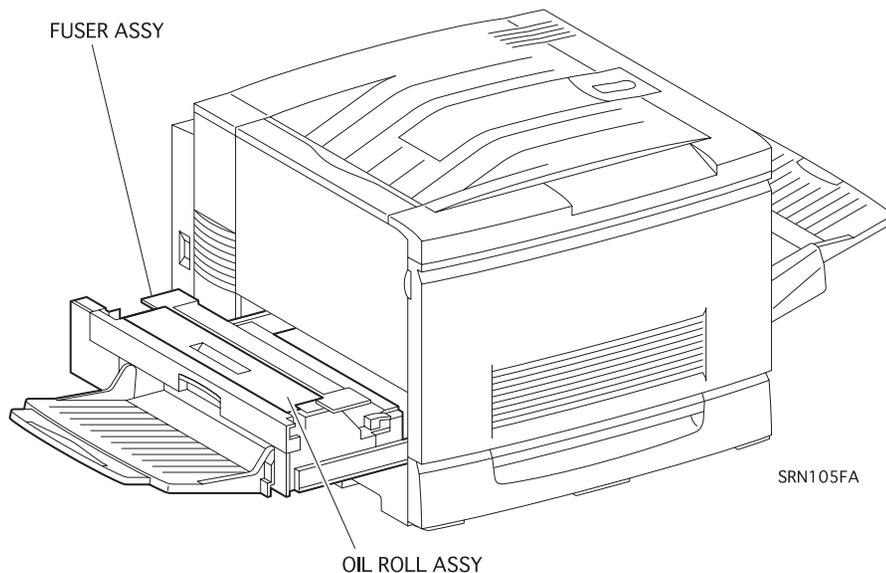
Consumables

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.

〈ROS 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

AG SG

FG SG FG AG

RTN SG RTN AG

AG

Fuser Control

AG

〈FRONT COVER SWITCH L〉

AG

〈EXIT CHUTE SWITCH〉

AG

〈HVPS〉

RTN FG

〈PROCESS MOTOR ASSY〉

〈P/H MOTOR ASY〉

〈ROTARY MOTOR PWB〉

〈LVPS〉

Heater Control

HEATER ON (L) 5VDC

Inlet

Power Switch

Primary Control

Transformer

5VDC Supply

24VDC Supply

Relay

AC L

AC N

FG

5VDC

SG

FG

24VDC

RTN

FG

24VDC-I/L

5VDC-LD

24VDC

SRN106FA

Manual Contents

Revision Status

Revision	Issued Date	Description
(Preliminary revision)		

CHAPTER

1

PRODUCT DESCRIPTIONS

Table of Contents

1.1 Features

The EPSON ColorPage EPL-C8200 is a non-impact color page printer that is designed based on the EPL-C8000. This printer is mainly improved on a controller basis. The main features of the printer are as follows:

Engine features (Same as for EPL-C8000)

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 for a color laser printer.

6. The printer is equipped with the 2 standard paper feed bins; Paper tray (150 sheets; A3W) and standard universal cassette (250 sheets: A3).

7. Installing an optional 500-Sheet Paper Cassette Unit provides 4 bins with a maximum capacity of 900 sheets.
   With a Large Capacity Paper Unit installed, the printer has 5 bins holding up to 1150 sheets.

8. Standard paper ejection is face down (up to 250 sheets). Face-up ejection is also available (up to 150 sheets).

Controller features (Specific to EPL-C8200)

1. Newly developed high-speed controller

   ■ New 64-bit RISC CPU: R5000- 200MHz

   ■ 64-bit high speed memory: SDRAM DIMM
        (Same as EPL-C8000)

   ■ 64MB RAM standard: expandable up to 256MB (2 expansion slots) (Same as EPL-C8000)

2. Color management technology

   Enhanced ASIC supported

   ■ Color management technology included in hardware for faster image manipulation
   ■ AcuLaser Color Halftoning and CRIT (Color RIT) supported
   ■ New compression technology enables further reduction in RAM use compared to EPL-C8000.

3. Monochrome print technology

   ■ AcuLaser Color Halftoning (for Color Copy Station 8200) and RIT supported

4. Two standard interfaces

   ■ Bi-directional parallel I/F: IEEE1284 compliance, ECP
   ■ Ethernet interface (100Base -TX/10Base-T)

5. installation of expansion RAM (DIMMs) improves the following:

   ■ AcuLaser Color Halftoning drawing area
   ■ Print data processing speed
   ■ Resolution

6. Toner save mode for both black and monochrome prints enabled.

7. ROM update function with a flash DIMM installed (for RCC)

8. HDD (Hard Disk Drive) can be installed.

Software features

1. ESC/Page-Color increases AcuLaser Color Halftoning speed.

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

3. Remote panel function using the Web browser (for JAVA JSSK1.1)

4. Electrical sort system with an optional HDD
   Expanded I/F data buffer size (for Ethernet I/F only)
   Font registration in the PostScript3 mode

5. Full compatibility with the EPL-N2700:
       LJ4, GL2, 1239X, ESC/Page (monochrome)

6. Supports PostScript3 when used with an optional EPSON RIP Station XXXX or Adobe PostScrip 3 Module.

7. Used with SC6000 (optional), color copy (EPSON Color Copy Station) is enabled.

8. Font Management function by the EPSON FONT Manager
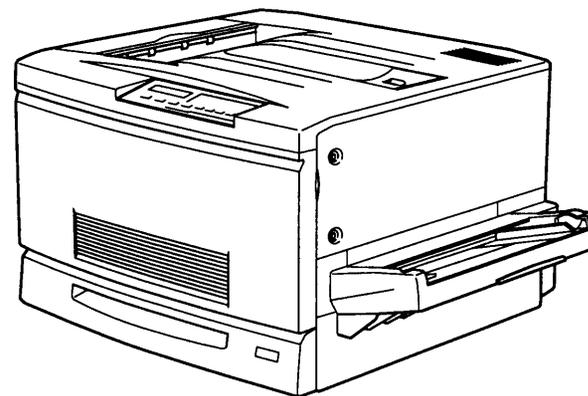   Supports 96 screen fonts, including 31 fonts supported by the printer.

Figure 1-1. Exterior View of the EPL-C8200

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^{*1} 2UP ^{*2}	B(LD)/A3 SEF^{*1}
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

1: [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.

2: In this mode, the printer prints two 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.

□ 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: *First 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 °C, 55% 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] [*6]		—	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 [*5] Monarch, C10, DL, C6	
Cassette Unit[*2] [*7]	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)
	Optional A3W cassette	Standard feeder	250 sheets (28mm)	A3W (304.8 x 420 - 328 x 453 mm)	60 - 105g/m^2 (Normal paper, Recommended paper)
	Optional Large Capacity Paper Unit [*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)
	Optional 500-Sheet Paper Cassette Unit [*4]	250 x 2 feeder (option)			

*1: Change the side guide position in the MSI tray for paper whose width is more than 304.8mm (12")
*2: Each casssettes is equipped with the side guide and end guide that also serve to detect paper size. They are set by the user. With an optional Large Capacity Paper Unit installed, 4 cassettes (maximum) can be used and, including a standard tray, up to 1150 sheets can be set.
*3: Composed of 3 paper cassetts (each holds 250 sheets). Each paper cassette unit is compatible with a standard universal cassette and can be set in any slot.
*4: Composed of 2 paper cassetts (each holds 250 sheets). Each paper cassette unit is compatible with a standard universal cassette and can be inserted in any slot.
*5: Note the following points when setting envelopes:
    - Open flaps and set them facing to the tailing side.
    - Set envelopes with the longer edges first. Length (excluding flap) must be shorter than width.
    - The minimum length with a flap open must be 143mm.
    - The minimum width must be 90mm.
*6: Paper out condition is detected.
*7: Paper out and paper near empty conditions are detected for each cassette.
    Paper near empty condition: 40 sheets ± 30 sheets (condition: Fuji Xerox L paper, 64g/m^2)

□ Paper size: See Table 1-3 .

Table 1-3. Paper Size / 2-UP Mode 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.
A3W	328 x 453mm	SEF		SEF	Unavailable	• SEF: Short edge is loaded first.
A3	297 x 420mm	SEF	SEF		Unavailable	• 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.
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	• The minimum size of paper set in the standard universal paper cassette is EXE (LEF).
LT	8.5 x 11" (215.9 x 279.4mm)	LEF	LEF		Available	• The maximum size of paper set in the MSI tray is 330.2 x 457.2 mm (13" x 18").
HLT	5.5 x 8.5" (139.7X215.9mm)	LEF			Available	• When setting envelopes (LEF*), open their flaps and set the rear ends of the flaps toward paper feeding direction.
LG	8.5 x l4" (215.9X355.6mm)	SEF	SEF		Unavailable	• A3W cassette have capability for only A3W paper.
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

☐ Regularly replaced parts:

   ■ MAIN FUSER ASSEMBLY
   ■ Air filter (replaced with the MAIN FUSER ASSEMBLY
   ■ BELT CLEANER 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 FD availability for each paper size.

Table 1-4. Face-Down Output Availability

	Paper Size	FD Availability	Paper Size	FD Availability
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*	C10	FU*
	Postcard	FU*	DL	FU*
	MON	FU*	C6	FU*

NOTE

1. *The minimum paper size available for FD ejection is 182 mm in the paper feeding direction x 210 mm vertical to the paper feeding direction.*
2. *"FU*" in the FD availability columns means face-up ejection for OHP, thick paper, and envelope.*

☐ 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[*1]	• Average: 200Wh or less • Maximum: 1000W or less (Fuser: On) 100W or less (Fuser: Off)
	Energy save mode 2[*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)	

*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)

☐ Acoustic 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"
*   1g/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 paper, 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 source classification:See Table 1-7.

Table 1-7. Paper Usability for Each Paper Source

Paper source	Recommended paper	Normal paper	Special paper				
			OHP sheet	Postcard	Labels	Thick paper*1	Envelope *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 Unit*3 500-Sheet Paper Cassette Unit	RF	P	N	N	N	N	N

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

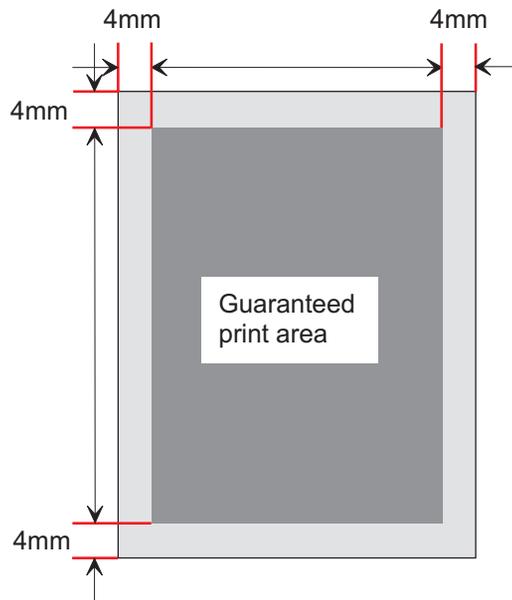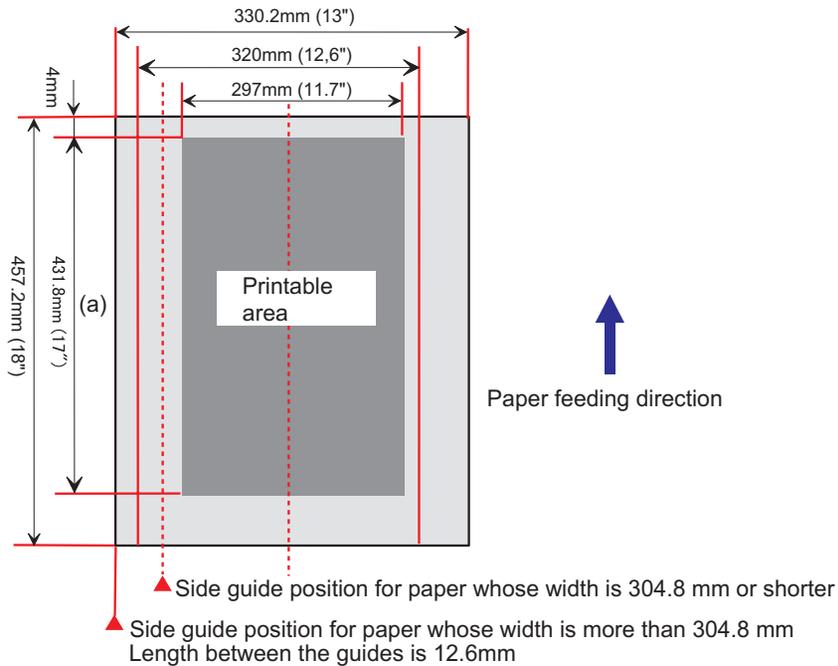□ Guaranteed print area: See Figure 1-2.

Figure 1-2. Guaranteed Print Area

□ Maximum guaranteed print area:
Area with a margin 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

☐ 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.

Side guide position for paper whose width is 304.8 mm or shorter

Side guide position for paper whose width is more than 304.8 mm
Length between the guides is 12.6mm

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, Large Capacity Paper
Unit, or 500-Sheet Paper Cassette Unit is used.

Side guide position for paper whose width is 304.8 mm(12") or less
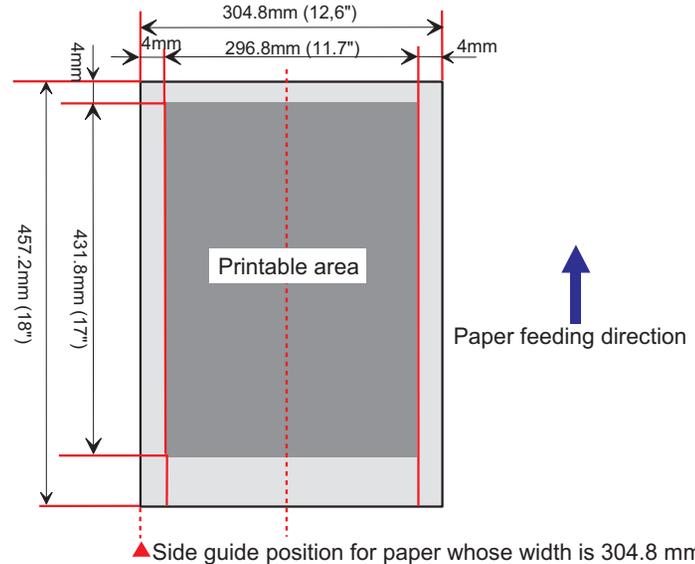
Maximum size of paper: 304.8 mm(11.2") width x 457.2 mm (18") length
Printable area: 296.8 mm(11.7") width x 449.2 mm (17.7") length
Guaranteed print area: 296.8 mm(11.7") width x 431.8 mm (17") length

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 Unit / 500-Sheet Paper Cassette Unit(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 apply to front face feeding under normal temper-ature. (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) $\pm$ 2.5 mm

   ■ Sub scan direction:Reference position (a) $\pm$ 2.0 mm

   See Figure 1-5.

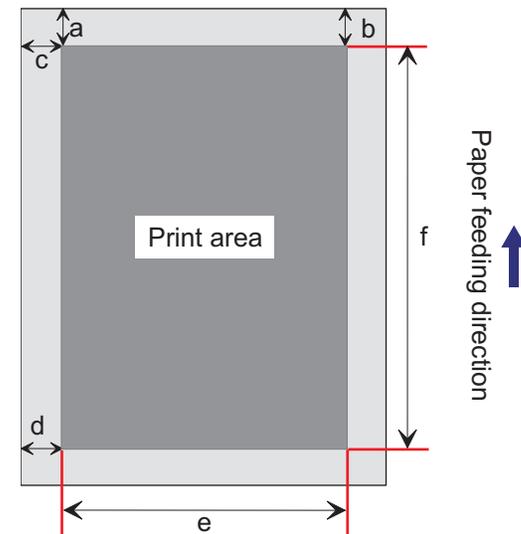☐ Paper skew: See Figure 1-5 and Table 1-9.

Figure 1-5. Paper Skew

Table 1-9. Paper Skew

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

□ Durability:

■ Printer:
180,000 sheets* (450,000 images) A4 LEF or 5 years,
whichever comes first. Parts regularly replaced by the service is
ignored.
* 450,000 sheets if the printer is used 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

☐   Temperature: 10 to 32∘C

☐   Humidity: 15% to 85% RH (without condensation)

☐   Air pressure (altitude):760 hPa or more (2500 meters or less)

☐   Levelness:

    Front - rear direction on the table:5mm or less (within 641mm)

    Right - left direction on the table:10 mm or less (within 560mm)

☐   Luminosity: 3000 lux or less (not to exposed to direct sunlight)

☐   Surrounding environment:See Figure 1-6.
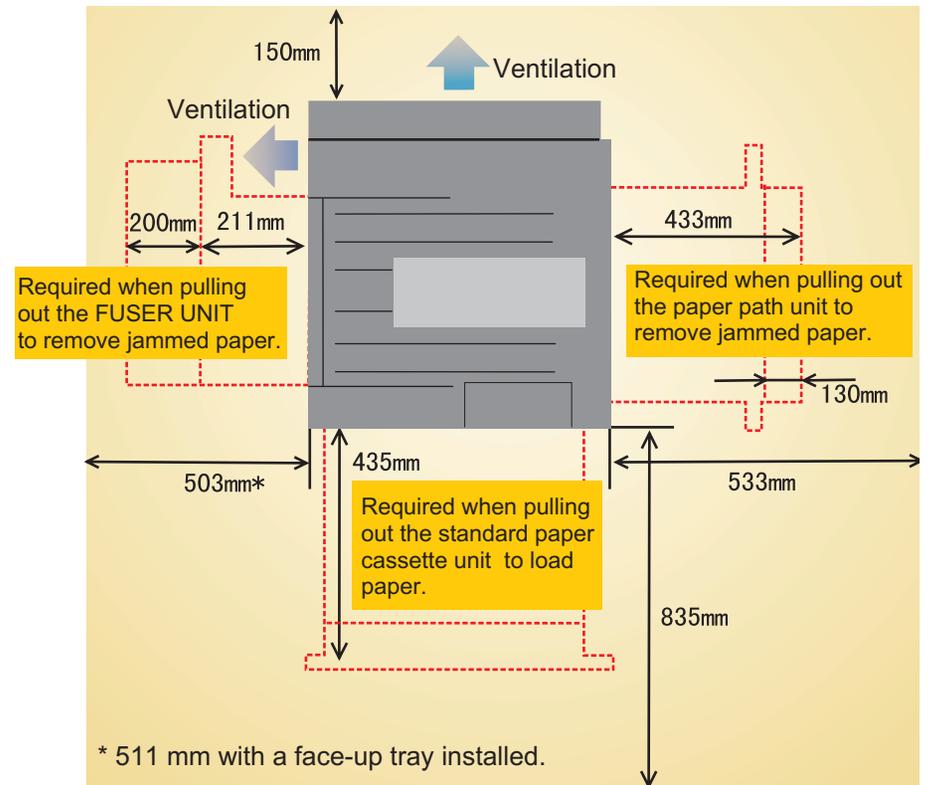

Figure 1-6. Space Requirement

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[*1]	For 12 months
Extreme condition	High: 35 - 40 °C Low: -20 - 0 °C	High: 80 - 95%RH* Low: 5 - 15%RH*	One month (Max.)

*1: Without condensation.

☐ Storage air pressure (altitude)
   0 - 2500 meters (0 up to 15000m is possible during air shipping, but the air pressure in the cargo room must be 0.7 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/s^2 (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

1.2.6 Electrical Specifications

☐ AC line noise

- Pulse width: 50 to 1000 ns
- Pulse polarity: +/−
- Repeat: Not synchronized
- Modes: Common/normal
- Voltage: 1kv (However, the parts can withstand up to 2kv without damage.)

☐ Instant cutoff: DIP 100% (at rated voltage-10%) for one cycle with normal print quality.

☐ Electrostatic durability:
   No possibility of any error which affects on print quality under the following conditions.

- Atmospheric discharging:± 8KV
- Contact discharging:± 6KV

☐ Rush current: 1/2 cycle, 100A or less

☐ Insulation resistance: 10 M Ω or more

☐ Dielectric strength:
   There is no breakdown when the following voltages are applied for one minute.

- 100V/120V model:
   AC 2000V (Between primary and secondary sides)
   AC 1000V (Between primary side and chassis)
- 220V/240V model:
   AC 2000V (Between primary and secondary sides)
   AC 1500V (Between primary side and chassis)

☐ Leakage current:

- ■ 100 V model: 0.5mA or less
- ■ 120V model: 3.5mA or less
- ■ 220V/240V model: 3.5mmA or less
- ■ Condition: 1.5K Ω, 0.15uF
                     (between non-metallic parts and frames)

1.2.7 Process Specifications

☐ Printing method: Dry electrophotographic with 2 ingredients Using the intermediate belt transfer system

☐ Light source: Semi-conductive laser beam

☐ Exposed object: OPC drum (organic photo conductor)

☐ Charging method: Roller transfer system

☐ Developing method: Exposed part developing system

☐ Toner: Single-ingredient nonmagnetic toner with carrier

☐ 1st transfer: Intermediate belt transfer system

☐ 2nd transfer: Roller transfer system

☐ Fusing: Heat roller system

☐ Density adjustment: Automatic (can not be set by user)