SERVICE MANUAL

Laser Printer

EPSON EPL-N2700

SEPG98006

COLOR IMAGING
EPSON

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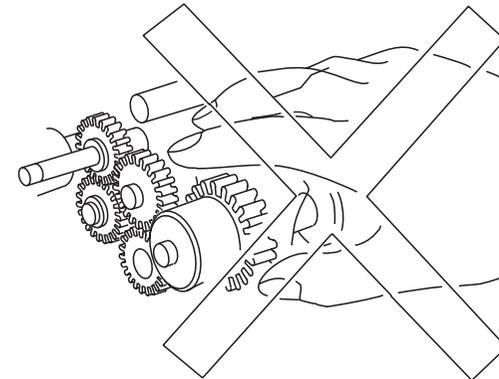
WARNING **Do not touch any live part unless you are instructed to do so by a service procedure.**
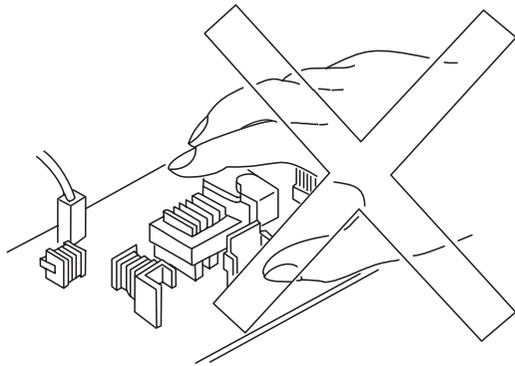
Mechanical Components

If you service gear or roll, 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 is 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 ay 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.

PREFACE

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of EPSON EPL-N2700. 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. The chapters are organized as follows:

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 AND ASSEMBLY

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

CHAPTER 4.   ADJUSTMENTS

Provides Epson-approved methods for adjustment.

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 Assignment
• Electrical Circuit Board Component Layout
• Exploded Diagram
• Electrical Circuit Board Schematic

Revision Status

Revision	Issued Date	Description
0	January 26, 1999	Preliminary version

Contents

Appendix

PRODUCT DESCRIPTION

1.1 Overview

The EPL-N2700 is a business-oriented page printer making the most use of the laser diode and the electrical photo technology. The main feature of the printer are as follows:

ENGINE FEATURES

☐ High-speed, highly reliable A3 Engine (Maximum duty cycle is 100,000 sheets per month).

☐ Resolution is 600 dpi, with a printing speed of 27 ppm when feeding A4 from Cassette 1. (26 ppm for Letter)

☐ Standard paper capacity is 750 sheets, 250 in the MP tray and 500 in the Cassette 1.

☐ Holds optional cassettes to increased paper loading capacity:

- One Lower Cassette (500 sheets) + Large Capacity Paper Cassette (2500 sheets for A4 of Letter)

- Up to three Lower Cassettes

☐ Wide variety of options

- Duplex unit

- 5-bin Multibin unit

- 10-bin Multibin unit.

CONTROLLER FEATURES

☐ A new CPU (166MHz, VR4310) used for a high-speed controller

☐ Use of SDRAM DIMM for an optional RAM will expand the standard 16-MB memory up to 256 MB.

☐ Three types of standard interface

- IEEE l284 based parallel interface (supports ECP)

- RS-232C serial interface

- Ethernet Interface (100/10Base-TX)

☐ One slot for Type B interface card

☐ Supports Enhanced MicroGray

SOFTWARE

☐ Supported Emulation

- ESC/Page [1]
- PCL5e
- ESC/P2
- FX
- 1239X
- EPSON GL2
- PostScript 3 (Optional item provided on a ROM DIMM board)

☐ Rewriting the Flash DIMM
Flash ROM in Slot A and program slot can be rewritten.

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[1]. Uninteded for users

1.2 Basic Specifications

This section describes the basic specifications of the EPL-N2700.

1.2.1 Controller Specifications

CPU

VR4310 / 166MHz

RAM

☐ Standard   16MB (on-board)[*1]

☐ Optional   8MB[*2]/16MB[*2]/32MB/64MB/128MB/
         256MB[*3] (SDRAM type,1 slot)
         Can be expanded up to 256MB.
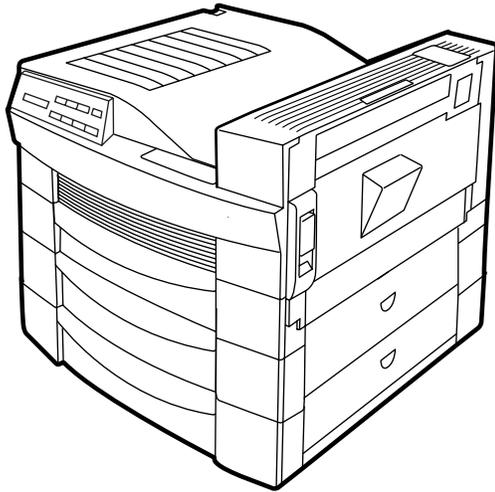
Figure 1-1. Exterior View of the EPL-N2700

ROM

☐ Font: 2Mbytes (on-board)

☐ Program: 4Mbytes (on Flash ROM-DIMM board)

☐ Expansion ROM: 3 ROM-DIMM slots (Can be removed/
         installed at power on only)
         Available for NLSP FONT DIMM and
         PostScript 3 DIMM

*1. 8MB (TBD) is allocated for the program area. The RAM Check at startup shows the attached memory size, while the status sheet shows the size with the program code size deducted as well as the attached memory.
*2. Not mentioned in any catalog nor specifications, since they are hardly distributed.
*3. Availability of 256MB RAM, which may be distributed in future, will be determined after the printer is in market.

INTERFACES

☐ Standard interface:

　　■ Parallel interface:
　　　Bidirectional parallel I/F (B type connector)
　　　(IEEE-1284 compliant / Compatibility, Nibble and ECP mode)

　　■ Serial interface:
　　　RS-232C
　　　Ethernet　　100/10BaseTX

☐ Optional interface:　　　Type-B interface slot (1 slot)

CONTROL PANEL

Consists of the 8 push-button switches, 6 LED lamps, and 20-digit LCD

INSTALLATION FORMAT

Direct attachment

OTHER FEATURE

Does not support mechanism controller.

1.2.2 Configuration

The following configuration set on the controller varies according to the destination. (See Table 1-1.) Settings are made in factory using the jumper resistance.

Table 1-1. Configuration Classification

Version (Destination)	Default for Paper Size	NLSP (Slot C)	Chinese character fonts (Slot C)
South American	Letter	Unsupported	Unsupported
European, Pacific, South American, Korean	A4	Unsupported	Unsupported
North European	A4	Supported	Unsupported
Taiwanese	A4	Unsupported	Unsupported

1.2.3 Engine Specifications

PRINTING METHOD

Semiconductor laser beam scan + dry-powdered single-component magnetic toner electro-photographic printing

RESOLUTION

600DPI

PRINTING SPEED

Table 1-2. Printing Speed (Sheet / Minute)

Paper Size	Single Print		Duplex Print	
	MP Cassette	Cassette 1	MP Cassette	Cassette 1
A4 (SEF)*	26.0	27.0	16.9	17.0
A3 (LEF)**	14.1	14.2	8.5	8.5
A5 (SEF)	33.0	–	19.7	–
LTR (SEF)	25.4	26.0	16.7	16.7

SEF: Short Edge First, LEF: Long Edge First

NOTE: *For non-standard size paper, the printer prints at a lower speed since the printer automatically performs cleaning.*

FIRST PRINT

Table 1-3. First Print

Paper Size	Single Print		Duplex Print	
	MP Cassette	Cassette 1	MP Cassette	Cassette 1
A4 (LEF*)	11.2	11.2	20.1	20.1
A3 (SEF**)	13.3	13.3	22.4	22.4
A5 (LEF)	10.9	–	17.7	–
LTR (LEF)	11.3	11.3	20.3	20.3

*SEF: Short Edge First, **LEF: Long Edge First

WARM-UP TIME

60 seconds or less (at 23 °C / at rated voltage)

PAPER SOURCES

☐ Standard

  ■ MP (Multi Purpose) cassette

  ■ Cassette 1 (Universal Paper Cassette)

☐ Optional

  ■ Lower Cassette Unit (Universal Cassette)

  ■ Large Capacity Lower Cassette

  NOTE: *Up to 3 optional Paper Cassette Units can be installed.*

See Table 1-4 for paper source specifications.

Table 1-4. Paper Supply / Paper Size / Capacity

	Paper Source / Capacity		Paper Size Available	Paper Thickness Available
Standard	MP Tray	250 sheets	• Standard size paper within the size of: A5(LEF[*1]) - A3(LEF[*2]) Half Letter - Ledger(SEF) (8.5" x 5.5") (11" x 17") • Custom size paper Any size of paper within the range of: Width: 86 - 297 mm Length: 140 - 432 mm	Normal paper:60 - 90g/m² (16 - 24lb)
		20 sheets	Envelopes (Monarch, C10, DL, C5, C6)	• Special paper (Labels, OHP sheet) • Normal paper: 60 - 90g/m² (16 - 24lb) • Thick paper: 90 - 163 g/m²
			Labels, OHP sheet, Thick paper, Letterhead	
	Cassette 1	500 sheets	A3(SEF), A4(LEF), Ledger (SEF) (11" x 17") Legal (SEF) (14" x 805") Letter (LEF) (11" x 8.5") G.Letter (LEF) (10.5" x 8")	Normal paper: 60 - 90g/m² (16 - 24lb)
Option	Lower Cassette (500-sheet cassette unit [*3])	500 sheets	A3(SEF), A4(LEF), Ledger (SEF) (11" x 17") Legal (SEF) (14" x 805") Letter (LEF) (11" x 8.5") G.Letter (LEF) (10.5" x 8")	Normal paper: 60 - 90g/m² (16 - 24lb)
	Large Capacity Lower Cassette	2500 sheets[*4]	A4 (LEF) Letter (LEF) (11" x 8.5")	Normal paper: 60 - 90g/m² (16 - 24lb)

*1: Set paper with the Long Edge First.
*2: Set paper with the Short Edge First
*3: Up to 3 optional Lower Cassette Units can be installed.
*4: With 80g/m² paper

☐ Number of sheets loaded

■ Standard: 750 sheets (250 + 500)

■ With options: Up to 3,750 sheets in total. (Standard: 250 + 500, Optional 500 + 2,500)

1.2.4 Paper Specifications

See Table 1-5 for the paper sources and their paper availability.

Table 1-5. Paper Sources and their Paper Availability

Type		Size mm (inch)	North America			Europe			Duplex Unit
			MP Cassette	Cassette 1		MP Cassette	Cassette 1		
				500-Sheet Lower cassette	Large Capacity Lower Cassette		500-Sheet Lower cassette	Large Capacity Lower Cassette	
Normal Paper	A3	297 x 420	AC	AM		AA	AM		AC
	A4 (LEF)	210 x 297	AC	AM		AA	AM	AA	AC
	A5 (LEF)	148 x 210	AC			AA			AC
	JIS-B5 (LEF)	182 x 257	AC			AC			AC
	ISO-B5 (LEF)		AC			AA			AC
	LTR (LEF)	215.9 x 279.4 (8.5 x 11")	AA	AM	AA	AA	AM	AA	AC
	HLT (LEF)	139.7 x 215.9 (5.5 x 8.5")	AA			AC			AC
	LGL	215.9 x 355.6 (8.5 x 14")	AA	AM		AA	AM		AC
	EXE (LEF)	184.15 x 266.7 (7.25 x 10.5")	AA			AC			AC
	GLG	215.9 x 330.2 (8.5 x 13")	AA			AC			AC
	GLT (LEF)	203.2 x 266.7 (8 x 10.5")	AA	AM		AC	AM		AC
	B		AA	AM		AC	AM		AC
	F4	210 x 360	AC			AA			AC
	Nonstandard	330 x 275	AC			AC			
special paper	MON	98.43 x 190.5 (37/8 x 7½")	AC			AC			
	C10	104.78 x 241.3 (41/8 x 9½")	AC			AC			
	DL	110 x 220	AC			AC			
	C5	162 x 229	AC			AC			
	C6	114 x 162	AC			AC			

NOTE: *AA: Available (Automatic paper size detection is supported for MP cassette.)*
AM: Available (Manual paper size detection is supported. Paper size is set with dials.)
AC: Available (Paper size is set though the control panel.)

CONSUMABLES AND OPTIONS

Imaging Cartridge

SUPPORTED PAPER SIZES

☐ MP Cassette:

  ■ Width =86 to 297 mm (3.39 to 11.7 ")

☐ Cassette 1:

  ■ Width = 215.9 to 297 mm (3.9 to 11.7 ")

  ■ Length = 203.2 mm to 431.8 mm (8 to 17 ")

  ■ Available paper size = A3 (SEF), A4 (LEF),
    Letter (SEF), Letter (LEF), G.Letter (LEF)

☐ Lower Cassette: Same as for the Cassette 1.

☐ Large Capacity Lower Cassette:

  ■ Available paper size = A4(LEF), Letter(LEF)

PAPER FEED ALIGNMENT

Center alignment for all paper sizes

PAPER EJECTION

☐ Standard: Face-down ejection only
                           Holds up to 500 sheets (75 g / m^2)

☐ With options:

  See Table 1-6 and Table 1-7 for paper ejection capacity with the
  optional 5-bin/10-bin Unit installed.

■ With a 5-bin Unit installed:

Table 1-6. Paper Ejection Capacity with 5-bin Unit

Paper Type	Bin 1		Bin 2 - 4	Bin 5
	Normal	Shifting		
Normal paper (60 - 90 g / m²)	250 sheets	250 sheets	50 sheets	100 sheets
Envelopes, OHP sheets Thick paper (90 - 163 g / m²)	10 sheets (TBD)	–	–	–

NOTE: Each bin is equipped with the full stack sensor.

■ With a 10-bin unit installed:

Table 1-7. Paper Ejection Capacity with 10-bin Unit

	Bin 1	Bin 2 - 20
Normal paper (60 - 90 g / m²)	200 sheets	200 sheets
Envelopes, OHP sheets Thick paper (90 - 163 g / m²)	10 sheets (TBD)	–

NOTE: Each bin is equipped with the full stack sensor.

POWER CONSUMPTION

☐ Printer Main Body: See Table 1-8.

Table 1-8. Power Supply Specification

Item	100V Model	200V Model
Input Voltage	120V ±10% (90 to 132V)	220 - 240V ±10% (198 to 264V)
Rated Frequency	50 - 60Hz ±3Hz	50 - 60Hz ±3Hz
Rated Current	11.5 A	6.0 A
Power Consumption	• Maximum: 1050W • Continuous printing: 750W • Stand-by (Heater ON): 200W • Stand-by (Heater OFF): 45W	

☐ Large Capacity Paper Cassette Unit

DC24 V and DC5 V are supplied from the printer.

■ Average consumption current:
1.0 A or less (24V)
0.5 A or less (5V)

■ Peak current:
1.5 A or less (24V)
0.5 A or less (5V)

☐ Lower Cassette Unit:

DC24 V and DC5 V are supplied from the printer.

■ Average consumption:
TBD (24V)
TBD (5V)

☐ 10-bin Unit:

DC24 V and DC5 V are supplied from the printer.

■ Average consumption current:
1.3 A or less (24V)
0.5 A or less (5V)

■ Power consumption:
32 W or less (TBD)

☐ 5-bin Unit

DC24 V and DC5 V are supplied from the printer.

■ Average consumption current:
1.0 A or less (24V)
0.3 A or less (5V)

■ Power consumption:
24 W or less (TBD)

NOISE:

☐ Stand-by: Approximately 38.0 dB (A) or less

☐ Operating: Approximately 55.0 dB (A) or less

OZONE DENSITY

0.1 ppm or less

TOXICITY

OPC, toner, and plastic materials are all nontoxic.

1.2.5 Process Specifications

☐ Printing system: Dry single-component toner electrophotographic process

☐ Exposing source: Semi-conductor laser beam

☐ Exposed object: OPC drum

☐ Charging system: Rotating charging brush system

☐ Developing system: Exposed area developing system

☐ Toner: Single-component nonmagnetic toner

☐ Transfer system: Roller transfer system

☐ Fixing system: Heat roller system

☐ Density control: Variable developer bias (can be set by yser)

1.2.6 Paper Specifications

PAPER TYPE

☐ Standard paper: Xerox 4024 DP paper 20lb (75 g/m^2)

☐ Normal paper: 60 g/m^2 - 90 g/m^2 (16 lbs - 24 lbs)
Copy paper, bond paper, and recycled paper that are generally used

☐ Special paper: Labels, OHP film, Color paper, Thick paper (90 - 157 g/m^2), DTP paper, and Letterhead

NOTE: *Do not use the following papers in this printer. Use of any of the following papers will causes the printer malfunctions such as print problem and paper jam, and also damage the printer.*

■ Carbon paper, "non-carbon" paper

■ Thermal paper, pressure-sensitive paper, Acidic paper

■ Paper already printed on by thermal-transfer printer or ink jet printer

■ Thin or thick paper (exceeding the specification)

■ Wet (damp) paper

■ Paper with coated or processed color surface

■ Paper with extra smooth or extra rough surface
Paper whose smoothness on the both sides are largely different

■ Paper with perforation or binder holes

■ Folded, curled, or torn paper

■ Paper of irregular shape
Paper cut at off-angle

■ Label sheets that peel too easily

■ Paper with clips, staples, glue, and so on.

■ Paper exclusively designed for ink jet printers (super fine paper, glossy paper, glossy film, and so on.)

■ Transparency film designed for color photo copier or color laser page printer.

■ Paper already printed on with a color/monochrome laser printer or photo copier.

■ Paper pasted together

> **CAUTION**
> ⚠
>
> **Use of illustrated postcard may leave paper debris on the paper loading roller, which causes the printer to feed paper improperly. If this problem occurs, clean the paper loading roller. (Refer to Chapter 6 "Maintenance" for cleaning method.)**

PAPER PATH AVAILABILITY

Table 1-9. Paper Path Availability

	Standard paper	Normal paper	Special Paper				
			OHP sheet	Postcard	Label	Thick paper	Envelope
MP Cassette	RF	R	P	P	P	P	P
Cassette 1	RF	R	N	N	N	N	N
500-sheet lower cassette unit	RF	R	N	N	N	N	N
Large Capacity Lower Cassette	RF	R	N	N	N	N	N
Duplex Unit	RF	R	N	N	N	N	N

RF: Reliable feeding and good image quality.

R: Reliable feeding and good image quality, but limited to paper generally available.

P: Possible, but limited to paper generally available.

N: Not supported

PRINTABLE AREA

☐ Printable area: TBD

☐ Guaranteed print area:Area other than 4 mm inward from each edge. (See Figure 1-2.)

> *NOTE:Guaranteed printable area may vary depending on the printer mode.*
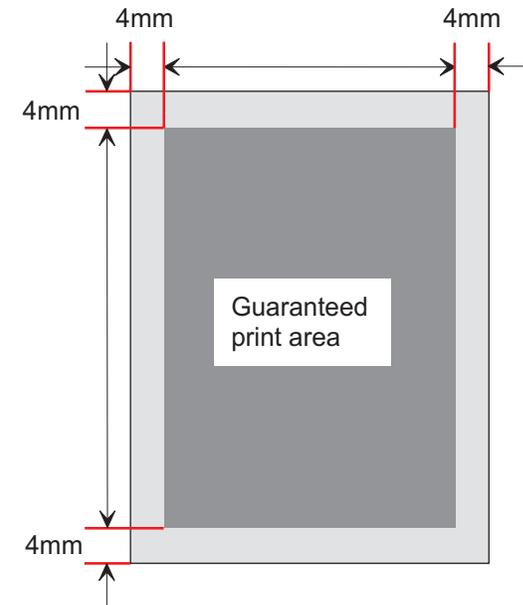
Figure 1-2. Guaranteed Printable Area

1.2.7 Reliability, Durability, And Maintainability

MPBF

60,000 sheets (For single-side print)

NOTE: *MPBF is an average number of sheets printed between failures, where "failure" indicates a condition that requires part replacement or that cannot be corrected by user.*

PRINT VOLUME

☐   Maximum = 100,000 sheets / month

☐   Average = 10,000 sheets / month

MTBF

3,000 H (10 months) or more

PAPER FEED RELIABILITY

When standard paper is used in the standard environment:

Table 1-10. Paper Feed Reliability

	Single-side Print	Duplex print
Jam rate [1]	1/2000 or less	1/1000 or less
Feed failure	1/2000 or less	TBD
Multiple paper feeds	1/500 or less	TBD
Paper wrinkle	1/1000 or less	1/500 or less
Edge bent	1/1000 or less for 1C or more (Less than 1C is disregarded.) [2]	1/500 or less

[1]: Multiple feed is not included.
[2]: 1C means 1 corner bent by 1 mm or less.

PRINT POSITION ACCURACY
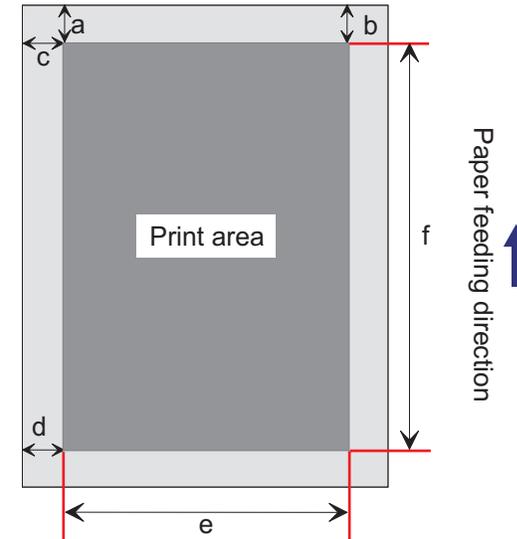
Table 1-11. Print Position Accuracy

Single-side print	Main scan direction (c) Sub scan direction (a)	±2.mm TBD
Duplex print	Main scan direction (c) Sub scan direction (a)	±3.mm TBD

SKEW

Table 1-12. Paper Skew

Print mode	Direction	A4 (LEF)	A3 (SEF)
Single-side print	Main scan direction (c − d)	±2.mm TBD	TBD
	Sub scan direction (a − b)	±1.5.mm TBD	
Duplex print	Main scan direction (c − d)	±3.mm TBD	TBD
	Sub scan direction (a − b)	±2.5.mm TBD	

DURABILITY

5 years or 600,000 sheet, whichever comes first.

MAINTAINABILITY

MTTR* = Within 30 minutes (average)
MTTR: Mean Time To Repair

EJECTION CURL

☐ Normal paper: ± 15 mm or less (TBD)

☐ OHP Sheet: ± 10 mm or less (TBD)

OPERATING CONDITIONS (INCLUDING CONSUMABLES)

☐ Temperature: 10 to 35°C

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

☐ Air Pressure (Altitude):760hPa or more (below 2500m)

☐ Tilt: 1° or less (rear ↔ back, right ↔ left)

☐ Ambient Illumination: 3000 lux or less
(Must avoid direct sunlight.)

☐ Space Requirement:

To ensure proper operation of the printer, sufficient open space must be left around printer, as indicated in Figure 1-3.

< Top View >

734 mm (With the Right Cover open)

950 mm (With the Cassette extended to the maximum)
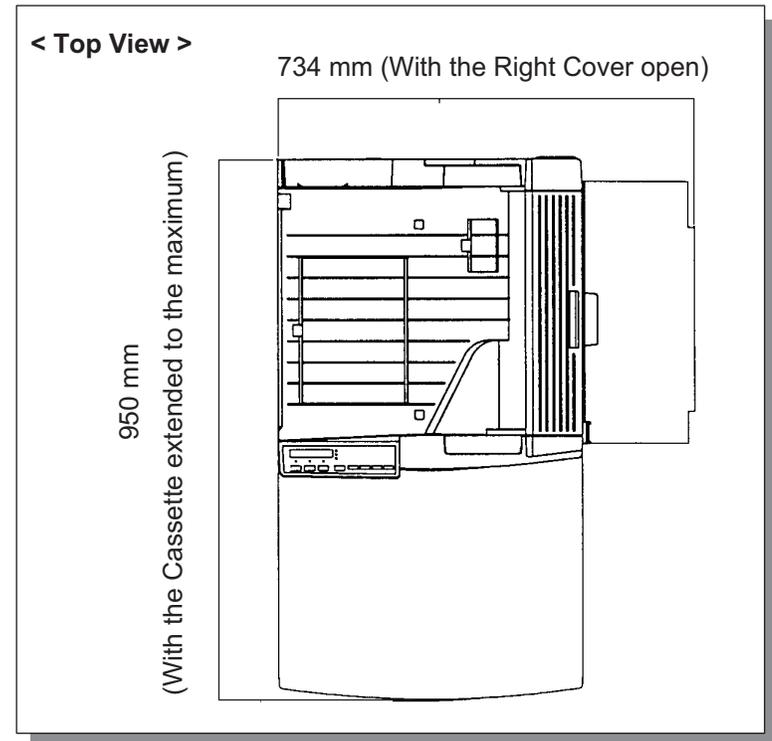
Figure 1-3. Space Requirement

1.2.8 Environmental Condition For Storage And Transportation (Including Consumable Items)

TEMPERATURE AND HUMIDITY

Table 1-13. Environmental Conditions - Main Unit

Item		Conditions
Temperature	Normal	0 to 35°C
	Extreme (1/30 of the total storage period) — High temperature	35 to 40°C *1
	Extreme (1/30 of the total storage period) — Low temperature	-20 to 0°C
Humidity	Normal	30 to 80%RH
	Extreme (1/30 of the total storage period) — High humidity	85 to 95%RH
	Extreme (1/30 of the total storage period) — Low humidity	10 to 30%RH
Storage duration		Within 18 months from the production

*1: 35 - 55 °C without an ET Cartridge

AIR PRESSURE

74.0 to 101.3 kPa (Max. 555 - 760 mm Hg)

DROP TOLERANCE

No damage when tested in accordance with JIS Z0200-1987 level 1

☐ Direction: 1 corner, 6 sides, 3 edges

VIBRATION TOLERANCE

☐ Vibration: 5 to 100Hz / 100 to 5Hz

☐ Acceleration: 1G

☐ Sweep time: 10 minutes (one way)

☐ Direction: Three directions (X/Y/Z)

☐ Time: 60 minutes in each direction

1.2.9 Electrical Specifications

AC LINE NOISE

☐ Pulse width: 50 to 1000 ns

☐ Pulse polarity: + / -

☐ Repetition: Asynchronous

☐ Modes: Common / Normal

☐ Voltage: 1KV
                        (Parts must be able to withstand 2KV without
                        damage)

TRANSIENT OUTAGE

DIP 100% (at rated voltage - 10%) 1 cycle
(No abnormal print quality)

ELECTROSTATIC TOLERANCE

☐ Up to 10KV: No hard error, no user-nonrecoverable
                        software error

☐ Up to 15KV: No damage to parts

SURGE CURRENT

1/2-cycle / Not above 50A

INSULATION RESISTANCE

10M Ω or more

DIELECTRIC STRENGTH

Insulation shall not break down when the following voltage is applied
between primary circuit and chassis for 1 minute:

☐ 100V version: AC1000V

☐ 200V version: AC1500V

LEAKAGE CURRENT

3.5mA or less

1.2.10 Safety Approval

SAFETY REGULATION

Table 1-14. Safety Regulation

Model	Applicable Standard
100V version	• UL 1950 • CSA 22.2 No.950
200V version	• TUV-GS (EN60950) • CCIB • Complies with a safety regulation of the following countries: Russia, Singapore, Hong Kong (IEC950), Korea

SAFETY REGULATION (LASER RADIATION)

Table 1-15. Safety Regulation (Laser Radiation)

Model	Applicable Standard
100V version	FDA (NCDRH) Class 1
200V version	TUV-GS (EN60825)

EMC

Table 1-16. Safety Regulation (EMC)

Model	Applicable Standard
100V version	• CNS 13438 (for Taiwan) • FCC Part15 Subpart B Class B / CSA C108.8 Class B
200V version	• EC EMC directive 89/336/EEC • EN55022 Class B • EN61000-3-2 • EN61000-3-3 • EN50082-1 • AS/NZS 3548 class B (for Australia) • Korea EMC class B

POWER CONSUMPTION

In compliance with International Energy Star program

OTHERS

☐ Toner:
   No effect on human health.
   (In compliance with OSHA, TSCA, EINECS, worker safety laws and CSCL)

☐ OPC:
   No effect on human health. (In compliance with OSHA)

☐ Ozone:
   In compliance with UL478 5th Edition

☐ Materials:
   In compliance with Swiss environment protection law (no CdS content)

1.2.11 Consumable Item

This printer's only consumable part is the Imaging Cartridge.

SPECIFICATIONS

Table 1-17. Imaging Cartridge Specifications

Name	Components	Life	Weight
ET Cartridge	• OPC Drum • Charging unit • Development unit • Single-component unmagnetic black toner	Average: 15,000 pages [*1] [*2]	Approximately 2.5 Kg

*1: Toner life is estimated based on continuous printing on A4 (LEF) size paper with 5% print coverage. Toner life will vary according to print coverage and printing method (continuous or intermittent, print density, and toner-save mode).

*2: If the number of photo conductor rotation reaches the values equivalent to 25,000 sheets (A4 LEF / continuous) before toner life-end is detected, the printer detects the condition as toner empty, same as the condition "ET Toner Cartridge has expired its life".

ENVIRONMENTAL CONDITION FOR STORAGE AND TRANSPORTATION

Table 1-18. Environmental Conditions - Consumables

Item		Conditions
Temperature Normal		0 to 35°C
Extreme (1/30 of the total storage period)	High temperature	35 to 40°C
	Low temperature	-20 to 0°C
Humidity Normal		30 to 85%RH
Extreme (1/30 of the total storage period)	High humidity	85 to 95%RH
	Low humidity	10 to 30%RH

☐ Air Pressure: 74.0 - 101.3 KPa (555 to 760mmHg)

☐ Storage duration   Within 18 months from the production (unpacked)

DROP TEST

Same as for the printer main body.
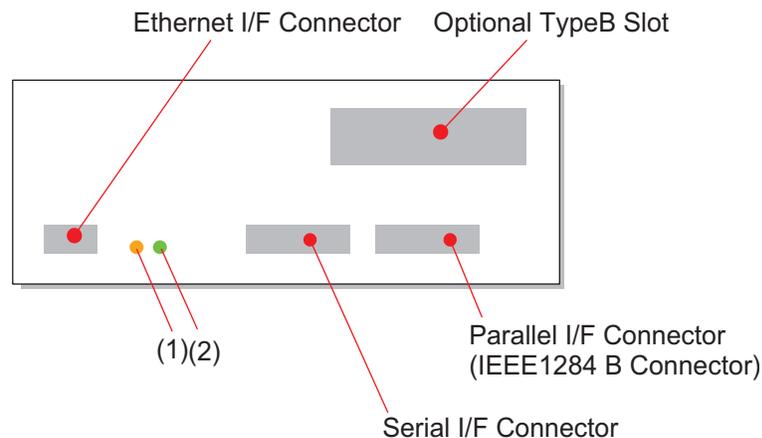
VIBRATION

Same as for the printer main body.

1.3 External Interface Specifications

The EPL-N2700 supports the following interfaces.

- Bidirectional parallel I/F (standard)

- RS-232C serial (standard)

- Ethernet I/F

- Type-B interface slot (option)

See Figure 1-4 for the locations of the Interface slots.

Ethernet I/F Connector   Optional TypeB Slot

(1)(2)

Serial I/F Connector

Parallel I/F Connector
(IEEE1284 B Connector)

(1) 100Base/10Base Lamp (Color: Orange)

(2) Link/Reception Lamp (Color: Green)

Figure 1-4. Interface Slot Location

1.3.1 Host Interface Usage Configurations

The EPL-N2700 has the automatic interface switching mode. however, the interface to be used can be fixed by a control panel operation.

Table 1-19. Host Interface Usage Configurations

	Parallel I/F	Serial I/F	Ethernet I/F	Type B I/F
1. Automatic I/F switching	Usable	Usable	Usable	Usable
2. Fixed I/F (Parallel)	Usable	Not Usable	Not Usable	Not Usable
3. Fixed I/F (Serial)	Not Usable	Usable	Not Usable	Not Usable
4. Fixed I/F (Ethernet)	Not Usable	Not Usable	Usable	Usable
5. Fixed I/F (Type B I/F))	Not Usable	Not Usable	Not Usable	Usable

1.3.2 Parallel Interface

- ☐ Interface type: IEEE1284 bidirectional high-speed parallel interface

- ☐ Operation modes: Compatibility, Nibble, ECP

- ☐ Connector: 57RE-40360-830B(D7A) DDK or equivalent

- ☐ Applicable plug: Amphenole equivalent

- ☐ Device ID:

```
*1;
MFG:   EPSON;
CMD:   PJL, EJL, ESCPL2-00, ESCP9-84, PRPXL24-01, HP ENHANCED
       PCL5, HPGL2-01, ESCPAGE-04, ESCPAGE-04∗∗ *2;
MDL:   *3
CLS:   PRINTER;
DES:   EPSON EPL-N2700;
```

1. Total length of Device ID + 2 (hex) are entered in hexadecimal.

2. The following character string appears when an optional ROM DIMM is installed:
- PostScript 3 DIMM: ,POSTSCRIPT (TBD)

3. Displays model name: EPL-N2700

NOTES:

- ■ *Page returns have been inserted in the explanation above to make it easier to read, but it is actually given in a serial string format without any breaks.*

- ■ *The CMD parameters are shown in random order. The items MODE and STATUS are not included.*

- ■ *DES has the values for the MFG and MDL which are connected with a space in between.*

1.3.3 Serial Interface

- ☐ Type: RS-232C

- ☐ Synchronization: Asynchronous

- ☐ Transmission rates: 300 to 115200 bps

- ☐ Parity bit: Even, Odd or NONE

- ☐ Start bit: 1

- ☐ Stop bit: 1 / 2

- ☐ Data length: 7 or 8 bits

- ☐ Hardware protocols: DTR/DSR

- ☐ Software protocol: XON/XOFF (Robust mode is supported)

- ☐ Connector: 17LE-13250-27(D57) DDK or equivalent

1.3.4 Ethernet I/F

☐ I/F type: 10BaseT, 100BaseT, Half Duplex, Full
                               Duplex (Switched at power on)

☐ Communication protocol:

   ■ IPX/SPX (IPX, SPX, NCP, RIP, SAP, PrintServer,
     RemotePrinter, NDS, SNMP)

   ■ NetBIOS (SMB)
     NetBEUI

   ■ TCP/IP (IP, UDP, TCP, LPR, FTP, TELNET, APR, ICMP,
     RARP, BOOTP, DHCP, SNMP, HTTP)

   ■ AppleTalk (ELAP, DDP, ATP, PAP, AARP, NBP, ZIP, RTMP)
     (When AppleTalk is used, items such as printer name must be
     set on the Web browser. EPSON Net and EPSON Net2 can not
     be used.)

☐ Connector: RJ45

☐ Applicable cable: 2-pair category 3, 4 or 5 UTP (10BaseT,
                               100BaseT)
                               (To conforms with ECC Class B, EN55022
                               Class B, VCCI Class B, a shielded cable must
                               be used.) (TBD)

☐ Pin assignment: See Table 1-20.

Table 1-20. Ethernet I\F Pin Assignment

1	Tx+	O
2	Tx-	O
3	Rx+	I
4	N.C.	–
5	N.C.	–
6	Rx-	I
7	N.C.	–
8	N.C.	–