SERVICE MANUAL

Color Large Format Inkjet Printer

EPSON Stylus PRO 7500

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 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 EPSON EPSON Stylus PRO 7500. 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.

Contents

This manual consists of six chapters and Appendix.

CHAPTER 1. PRODUCT DESCRIPTIONS

Provides a general overview and specifications of the product.

CHAPTER 2. OPERATING PRINCIPLES

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

CHAPTER 3. TROUBLESHOOTING

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

CHAPTER 4. DISASSEMBLY AND ASSEMBLY

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

CHAPTER 5. ADJUSTMENTS

Provides Epson-approved methods for adjustment.

CHAPTER 6. MAINTENANCE

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

CHAPTER 7. APPENDIX

Provides the following additional information for reference:

- Connector pin assignments
- Parts list
- 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 WARNING, CAUTION or NOTE 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.

Indicates a reassembly procedure, practice, or condition that, if not strictly adhered to, could result in damage to, or nonoperability of, the equipment.

Revision Status

Revision	Issued Date	Description
Rev. A	August 31, 2000	First Release
Rev. B	September 7, 2000	Page 53 Ink cartridge size select mode can not use on SP7500. Page 114 Dip SW setting for ASP Mainboard. Page 130 Caution for the PF motor replacement Page 172 Table 5-4 Main board replacement (Dip SW setting for ASP Mainboard) Page 231 Dip SW setting for ASP Mainboard
Rev.C	September 25,2000	Page 54 Model Name change mode Page 163 Pigment firmware upload procedure. The pigment firmware must be uploaded before the pigment ink initial ink charge.

Product Description

Operating Principles

Troubleshooting

Disassembly & Assembly

Adjustment

Maintenance

Appendix

CHAPTER

1

PRODUCT DESCRIPTION

1.1 Features

The EPSON Stylus Pro 7500 is an 24-inch wide, 6-color ink jet printer with professional color output. It has the same printheads as the EPSON Stylus Pro 9000. The EPSON Stylus Pro 7500 provides the following major features and more.

- Large Format
  A1, full size
  24 inch-full size printing (A1+size supported)
- High-speed throughput

Table 1-1.

Paper	Image Quality	Resolution	Mode	Throughput
Medium Glossy Paper	Fast	720x720dpi	Bi-D MW/MF,240cps	9min
	Beautiful	720x720dpi	Bi-D FOL,333cps	14min
	High Precision	1440x720dpi	Bi-D FOL,4pss, 333cps	27min

- High Image Quality
  Pigment ink in 6 colors is used. Image quality and color reproduction are at the same level as with the Stylus Pro 9500.
- Low running cost
  Six separate ink cartridges so you only have to replace the empty ink cartridge (each cartridge holds 100ml of ink)
- Applicable various media
  Auto cutter provided in addition to the standard roll paper feeder.
- Complete Software Compatibility With EPSON Stylus Pro 9000
  Stylus Pro 9000 commands and Stylus Pro 7000 commands are upward compatible and can be interchanged with the Stylus Pro 9500 commands.
- Latest RIP Technology
  CPSI Pro (software)
  PS Server (Scheduled to go on sale in September, 2000)
- Compact, Low in Cost
  Can be used on a desktop (The stand is an option)

1.1.1 Consumable Products & Options

The consumables and options that can be used with the Stylus Pro 7500 are shown below.

Table 1-2. Consumables & Options

Name	Code	Product
Ink cartridges	T460✶✶✶ T463✶✶✶ T462✶✶✶ T461✶✶✶ T465✶✶✶ T464✶✶✶	Black Ink Cyan Ink Magenta Ink Yellow Ink Light Cyan Ink Light Magenta Ink
Stand	C844022	Optional stand
Paper cutter blade	C815131	Consumable item
Roll Feed Spindle 2”	C811092	For two-inch diameter roll paper
Roll Feed Spindle 3”	C811102	For three-inch diameter roll paper
Doubleweight Matte Paper	S041385	24 in wide/25m long
Glossy Pape - PhotoWeight	S041388	22 in wide/20m long
Premium Glossy Photo Paper	S041390	24 in wide/30.5m long
Premium Semium Semigloss Photo	S041393	24 in wide/30.5m long
Watercolor Paper - Radiant White	S041396 S041352 S041351	24 in wide/18m long A3 Wide / B A3 Wide / B
Glossy Film	S041314	610mm wide/20m long
Synthetic Paper	S041399	24 in wide/45m long
Adhesive Synthetic Paper	S041402	24 in wide/30m long
Rip Station 5100 PS Server Series II	EAI - C850092 Other - C850093	Fiery Adobe® PostScript® 3™ Server
Software RIP (CPSI Pro)		Software RIP (CPSI Pro)
Multi-protocol Ethernet interface card	C82362✶	Type-B 10Base-T
100Mbps Multi-protocol Ethernet interface card	C82363✶	Type-B 100Base-T
IEEE 1394 interface card	C82372✶	IEEE 1394 interface card

✶ Signifies a number that varies by market.

1.2 Print Specifications

PRINTING SPECIFICATIONS

- Printing System: Ink jet
- Head nozzle arrangement: black = 64 nozzles (32 nozzles x 2 rows)
  Color = 320 nozzles (Cyan, magenta, yellow, light cyan and light magenta, 64 nozzles each (32 nozzles x 2 rows)
- Print direction = Bi-direction (high-speed return, high-speed skip only)
- Print Speed and Printable Area
  - Character mode

Character Quality	High Quality
Character pitch	10cpi (Pica)
Printable area	237 characters
Printing speed	240cps

  - Graphic mode
    See the table below.

Table 1-3. Print Area and Speed

Horizontal resolution (dpi)	Printable area	Max. printable dots	Speed
360	604mm 23.78 inches	8561	24 IPS
720	604mm 23.78 inches	17,123	33.3 IPS/FOL 33.3 IPS/4pass
1440	604mm 23.78 inches	34,246	24 IPS/FOL 33.3 IPS/4pass

CHARACTER SPECIFICATIONS

- Character Code:
  PC437(US, Standerd Europe)
  PC850(Multilingual)
- Type Faces:
  Bitmap LQ fout : EPSON Courier 10 CPI
- Control Code: ESC/P Raster

PAPER FEEDING

Paper feeding method:	Friction feed
Line spacing:	1/6” or programmable at 1/720”
Paper path:	Roll paper/manual
Feed speed:	1/6” 200±10m seconds Continuous 2.5” (63.5mm)/second

PAPER SPECIFICATION

Roll Paper:

[Compatible papers]
The following papers can be loaded in this machine, but it is not guaranteed that they will go through or that the print quality will be good.
• Paper Size = Width: 210 ~ 610 mm
Length: 279 mm ~ 202 m
* However, it should be within the roll size.
• Roll size = 2” or 3” core
Outer diameter: within 150 mm
• Paper thickness = 0.08 ~ 0.05 mm
*1 There should be no wrinkles, fuzz, tearing or folding, of the paper, etc.
*2 The exclusive option (3” roll paper spindle) is necessary when using 3” core roll paper.
[Plain Paper]
Only paper feed operation is guaranteed for the following papers.
• Paper Size = Width: 210 ~ 610 mm
Length: 279 mm ~ 202 m
* However, it should be within the roll size.
• Roll size = 2” or 3” core
Outer diameter: within 150 mm
• Paper thickness = 0.08 ~ 0.11 mm
• Paper weight = 64~90 gf/m^2
• Paper Quality =Plain paper, Recycled paper
*1 There should be no wrinkles, fuzz or tearing of the paper, etc.
*2 The peel strength of the first part of the paper roll should be within 300 ~ 500 gf.
*3 The exclusive option (3” roll paper spindle) is necessary when using 3” core roll paper.
*4 This product should be used in a place with a normal room temperature environment (Temperature: 15~25°C, Relative humidity: 40~60%)
*5 The printable area for roll paper is from the core to the point where it is cut off.
The remaining paper length when the paper is cut off from the roll.
(Reference): approx. 30 cm.
[EPSON Special Paper]
The feed through characteristics and print quality of the following genuine exclusive papers are guaranteed.

Table 1-4. EPSON Special Paper

Type (US)	Paper Size (W x H)	Roll Size
Doubleweight Matte Paper	610mm x 25m (24” x 83’)	2” core, maximum103mm external diameter
Glossy paper - Photo Weight	559mm x 20m (22” x66.4’)	
Premium Glossy Photo Paper	610mm x 30.5m (24” x 101.3’)	
Premium Semigloss Photo paper	610mm x 30.5m (24” x 101.3’)	
Watercolor Paper - Padiant White	610mm x 18m (24” x 59.8’)	
Glossy Film	610mm x 20m (24” x 66.1’)	
Synthetic Paper	610mm x 45m (24” x 149.4’)	
Adhesive Synthetic Paper	610mm x 30m (24” x 99.6’)	

*1: Use at normal room temperature (15~25°C (59~77°F) 40~60% humidity)

*2: At the point where the rear edge comes free from the core (approx. last 30 cm.), print quality is no longer guaranteed.

*3: The printable area for roll paper is from the core to the point where it is cut off.
The remaining paper length when the paper is cut off from the roll. (Reference): approx. 30 cm.

Cut Sheet Paper:

[Papers that can be loaded]
Loading of the following papers into this printer is possible, but for papers other than the following plain paper and exclusive paper, feed through characteristics and print quality are not guaranteed.
• Paper Size: See the table below.

Table 1-5. Specifications of Papers which can be Loaded

Size Name	Dimensions (H x W)	Size Name	Dimensions (H x W)
B2	515 x 728mm	?????	22” x 36”
A4	210 x 297mm	?????	20” x 24”
Super A1	24” x 36”	?????	18” x 22”
A1	594 x 841mm	ANSI D	22” x 34”
A2	420 x 594mm	ANSI C	17” x 22”
Super A3	329 x 483mm	ANSI B	11” x 17”
A3	297 x 420mm	Letter	8.5” x 11”

• Paper Width: Paper length = 297 ~ 728 mm...
0.08 ~ 1.5 mm
Paper Length = 728 ~ 915 mm (36”) ...
0.08 ~ 0.5 mm

*1 There should be no wrinkles, fuzz, tearing or folding, of the paper, etc.

[Plain Paper]
For the following specifications, only the lack of hindrance for paper feed through is guaranteed.
• Paper Size: See the table below.

Table 1-6. Specifications of Papers which can be Loaded

Size Name	Dimensions (H x W)	Size Name	Dimensions (H x W)
B2	515 x 728mm	?????	22” x 36”
A4	210 x 297mm	?????	20” x 24”
Super A1	24” x 36”	?????	18” x 22”
A1	594 x 841mm	ANSI D	22” x 34”
A2	420 x 594mm	ANSI C	17” x 22”
Super A3	329 x 483mm	ANSI B	11” x 17”
A3	297 x 420mm	Letter	8.5” x 11”

• Paper Thickness = 0.08 ~ 0.11 mm

• Paper Weight = 64 ~ 90 gf/m^2

• Paper Quality = Plain paper, recycled paper

*1 The paper should be loaded longitudinally.

*2 There should be no wrinkles, fuzz, or tearing, of the paper, etc.

*3 This product should be used in a place with a normal room temperature environment (Temperature: 15~25°C, Relative humidity: 40~60%).

[EPSON Special Papers]
Shown below.

Table 1-7. Specifications of EPSON Special Papers

Size Name	Dimensions (H x W)	Super Fine *1	Photo Print Paper 2	Photo Quality Glossy Film	Art Board
A4	210 x 297mm	O	O	O	–
A3	297 x 420mm	O	O	O*2	–
Super A3	329 x 483mm	O	O	O	–
A2	420 x 594mm	O	–	–	–
LTR	216 x 279mm	O	O	O	–
B	279 x 432mm	O*2	O*2	O*2	–
C	431 x 558mm	O*2	–	–	–
B2	515 x 728mm	–	–	–	O

O: Compatible Paper, –: Nonexistent Type of Paper

*1: Guaranteed for Uni-D printing.

*2: Paper that exists oversees only.

*3: The paper should be loaded longitudinally.

*4: There should be no wrinkles, fuzz or tearing of the paper, etc.

*5: This product should be used in a place with a normal room temperature environment (Temperature: 15~25°C, Relative humidity: 40~60%).

Printable Area: See the table and figure below.

Table 1-8. Printable Area

Heading	Roll Paper	Cut Sheets
PW (width)	210 ~ 610mm (8.27 ~ 24”)	210 ~ 610mm (8.27 ~ 24”)
PL (length)	Max. 90m (298.8’)	297~915mm (11.8~36.4”)
LM (left margin)	3mm/15mm* (0.12~0.59”)	3mm
TM (top)	3mm/15mm*	3mm
RM (right)	3mm/15mm*	3mm
BM (bottom)	3mm/15mm*	14mm

• The printer detects the paper width when the paper is set.

• Any image that exceeds the detected paper width, or the printable area specified by the paper size setting, is not printed.

• The size of the margin of roll paper can be changed from the panel as shown below.

Top and Bottom: 15 mm Left and Right: 3 mm / Top, Bottom, Left and Right: 3 mm / Top, Bottom, Left and Right: 15 mm.

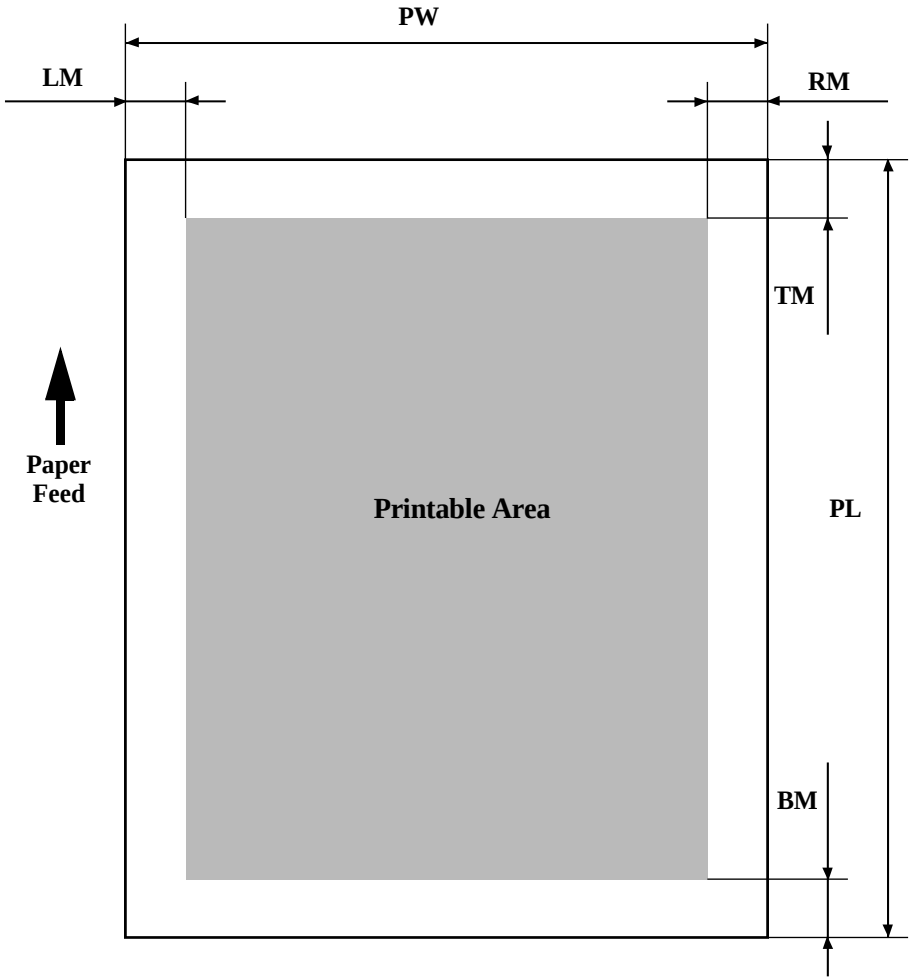


Figure 1-1. Printable Area

Paper Set Lever:

- By opening the paper Set lever, paper support is canceled and the paper can be set.
- By closing the paper Set lever, the set paper is held in place and printing is enabled.
- If the paper Set lever is opened during printer operation, the “SECURE PAPER LEVER” error occurs.

INK (DYE INK CARTRIDGE)

- ☐ Form: Exclusive Ink Cartridge
- ☐ Ink Colors: Black, Magenta, Light Magenta, Cyan, Light Cyan, Yellow
- ☐ Quantity: 110 ml
- ☐ Effective Ink Volume: 83.0g or more
- ☐ Life:
  A1: Approx. 28 pages (720 dpi, when the printed share of the paper surface used by each color is 40%.)
  A1: Approx. 11 pages (720 dpi, when the printed share of the paper surface used by each color is 100%.)
  D Size: Approx. 26 pages (720 dpi, when the printed share of the paper surface used by each color is 40%.)
  A4: Approx. 3800 pages (360 dpi, when the printed share of the paper surface used by each color is 5%.)
- ☐ Dimensions: 25.1 x 141.1 x 105.3 mm (Width x Depth x Height)
- ☐ Weight: Approx. 200 g
- ☐ Effective Period: Approx. 2 years from manufacture.
- ☐ Storage Temperature: See the table below.

Table 1-9. Ink Cartridge Storage Environment

Condition	Temperature	Cautions
During transport when loaded	-30~60°C	• If 60°C, within 120 hrs. • If 40°C, within 1 month
Storage when packed	-30~40°C	If 40°C, within 1 month
When loaded in the printer	-20~40°C	If 40°C, within 1 month

Usable ink cartridges: For Stylus Pro 7500 100 ml Ink Cartridge
For Stylus Pro 9500 200 ml Ink Cartridge *1

NOTE: *If the above ink cartridge *1) uses, it is necessary to set it according to 1.9 "Ink Cartridge Size Select."*

ELECTRICAL SPECIFICATIONS

Table 1-10. Electrical Specifications

	120V Model	220-240V Model
Rated voltage range	AC120V	AC220~240V
Input voltage range	AC90~132V	AC198~264V
Rated frequency range	50~60Hz	
Input frequency range	49.5~60.5Hz	
Rated current	1.0A (Max. 1.6A)	0.5A (Max.0.8A)
Power consumption	standby mode = 15W or less Energy Star Compliant	
Insulation resistance	10MΩ minimum (between AC line and chassis, DC 500 V)	
Dielectric strength	AC 1,000V rms per minute or AC 1,200V rms per second (between AC line and chassis)	AC 1,500V rms per minute (between AC line and chassis)

CONFORMITY/SAFETY APPROVALS

Safety Standards:

US Model	UL 1950, CSA 22.2 No. 950
European Model	EN60950 (VDE)

EMC:

US Model	FCC part 15 subpart B class B CSA C108.8 class B
European Model	EN 55022 (CISPR Pub. 22) class B EN 61000-3-2 EN 61000-3-3 EN 50082-1 IEC 801-2 IEC 801-3 IEC 801-4
Australian Model	AS/NZS 3548 class B

International Energy Star Compliant
(EPA MOU2.1 Category Large Format Printer)

RELIABILITY

- Life
  [Body] 20,000 Pages (A1)
  [Print Head] 2 billion dots/nozzle
  [Cutter] 2,000 Sheets (A1)

- Periodic Replacement Parts
  Maintenance Kit, Stylus Pro 7500 (No. 1054038)
  This kit consists of the following parts.
  Waste ink absorbent, pump assembly, cap assembly, flushing box assembly, head cleaner (approximately 12,000 sheets (A1, criterion)

ENVIRONMENTAL CONDITIONS

☐ Temperature&Humidity

See the following table.

Table 1-11. Environmental Conditions

Condition	Temperature	Humidity	Notes
Operating	10~35°C (50~95°F)	20~80%	• Less than a month at 40°C (104°F) • Less than 120 hours at 60°C (140°F) • With no freezing
Storage	-20~40°C (-4~104°F)	20~85%	
Transportation	-20~60°C (-4~140°F)	5-85%	

*1 When storing the printer, make sure the printheads are in the home (capped) position. If necessary switch power on, wait for the printheads to move to the home position, and then switch power off.

*2 Before transporting the printer, remove the ink cartridges and turn the ink valves screws to the closed position. Also make sure the printheads are in the home, capped, position. After transporting the printer, install new ink cartridges.

*3 If the temperature drops below -15°C (5°F), the ink in the cartridges and printheads freezes. The ink thaws completely after three hours at 25°C (77°F).

*4 If kept in an environment with a temperature of -15°C or lower, the ink inside the print head and the ink cartridge will freeze. Once ink is frozen, a period of approximately 3 hours in a 25°C environment is required until the ink can be used again.

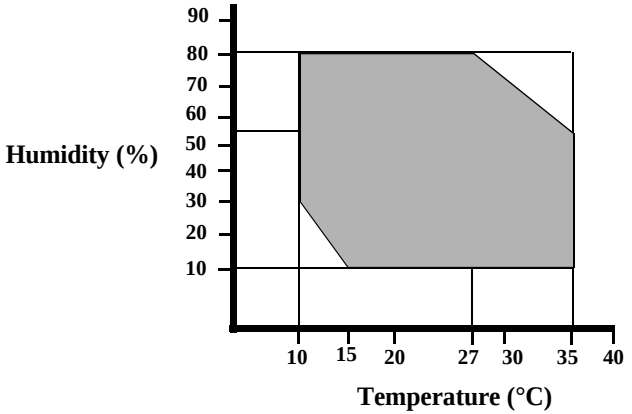


Figure 1-2. Environmental Conditions: Temperature / Humidity

☐ Vibration&Shock

See the following table.

Table 1-12. Vibration and Shock

Condition	Vibration Resistance	Shock Resistance	Notes
Operating	0.15G 10~55Hz	1G maximum 1ms	X/Y/Z directions
Storage	0.5G 10~55Hz	2G maximum 2ms	

CONTROLLER SPECIFICATIONS

- CPU
  Hitachi SH7043 33 Mhz
- ROM
  [Program]: CPU internal = 128 KB, External = 1 MB
  [Fonts]: Not Loaded
- RAM
  10 MB (Fixed)
- Interface
  [Standard] IEEE 1284 Interface
  USB Interface
  Option Type B Interface Card Slot (x 1)

CUTTING SPECIFICATIONS

- Mechanical Conditions
  - Distance between Cutting Position and Cutter Marks
    L1 = 47.5 mm
  - Shortest cutting length L2 during 3-stage cutting = 100 mm
    * (Paper width detection = OFF and) during manual cutting, L2 = 47.5 mm
  - Shortest cutting length L3 = 20 mm
  - Let the distance the paper is pulled out from the cut position by printing and paper feed in the forward paper feed direction be (L+).
  - Let the distance the paper is pulled back from the cut position by reverse paper feed be (L–).
  - L1 should be greater than L3.

Cutting conditions and cutting system: See the table below.

Table 1-13. Cutting Conditions and Cutting System

Cutting Conditions	Cutting System
Initial cut (Manual cutting when the paper is on the top edge sensor and the lever is down, and the "Cut/Eject" button is pressed.)	When paper width sensor = ON. 4-stage cutting with the paper fed distance L1. When paper width sensor = OFF. 3-stage cutting with the paper fed distance L2.
Auto cutting after printing is finished and reset is activated during printing.	3-stage cutting. However, if (L+) is shorter than L2, 3-stage cutting after feeding the paper distance L2.
Manual cutting during printing.	Same as above.
Manual cutting while in the normal standby state.	When paper width sensor = ON. 4-stage cutting with the paper fed distance L1. When paper width sensor = OFF. 3-stage cutting with the paper fed distance L2.
Manual cutting after paper feed in the forward paper feed direction.	Same as above.
Manual cutting after printing with Auto cutting OFF and with Auto cutting ON.	If L1 + (L+) _ L2, 3-stage cutting with the paper fed distance L1. If L1 + (L+) < L2, 3-stage cutting with the paper fed distance L2 – (L+).

EXTERNAL DIMENSIONS / INSTALLATION ENVIRONMENT / WEIGHT

☐ External Dimensions
1100 x 572 x 560 (Width x Depth x Height)
See the figure below.

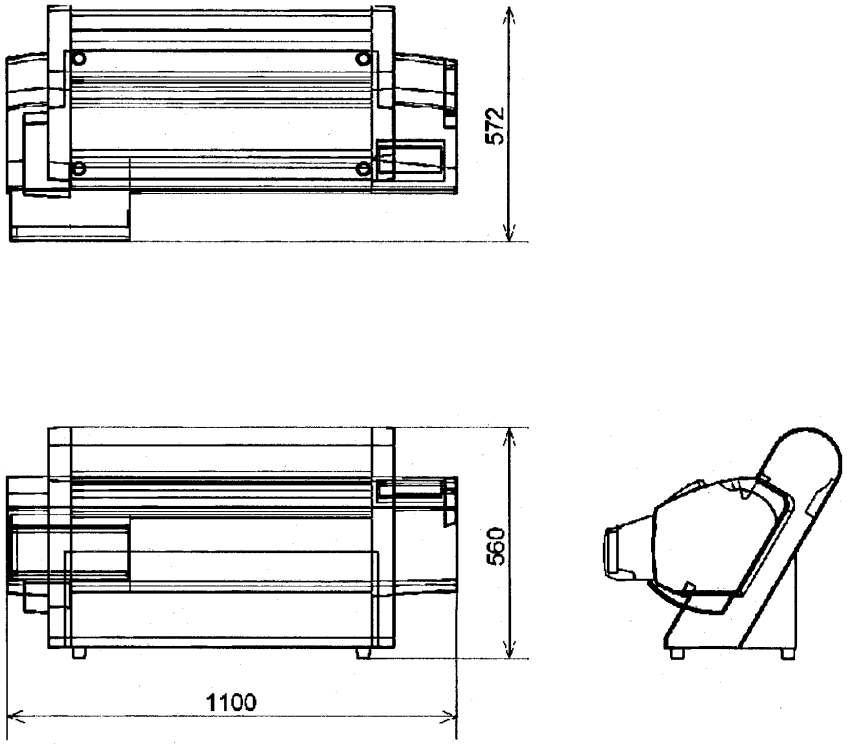
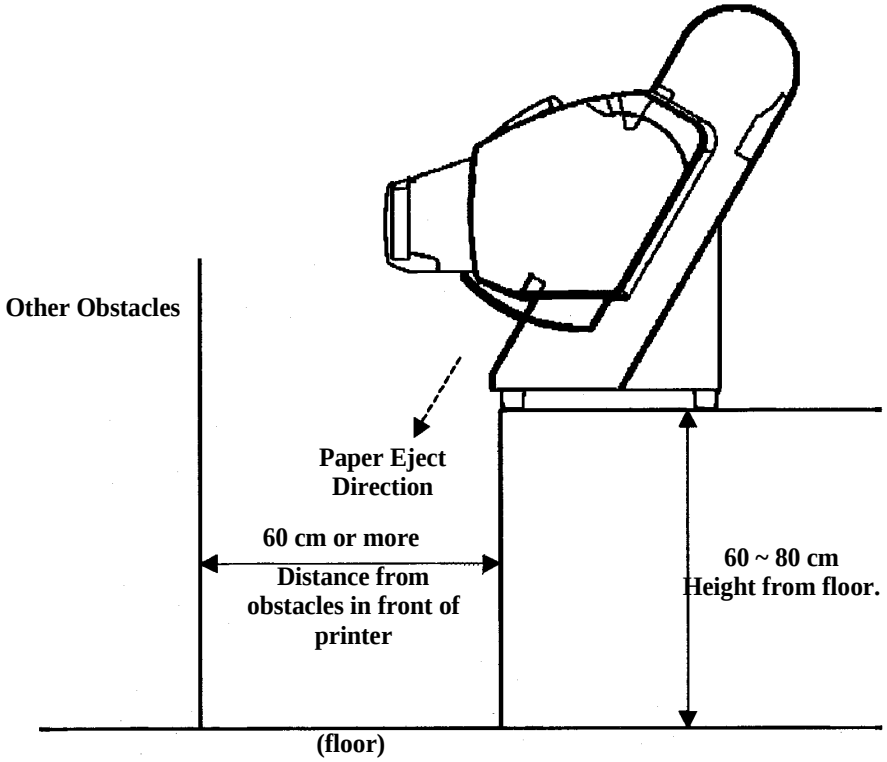


Figure 1-3. External Dimensions

☐ Installation Environment.
See the figure below.



*** Consideration should be given so that printed matter falling during paper Eject is not damaged.**
*** The distance between the rubber feet on the front of the printer and the edge of the desk should be insignificant.**

Figure 1-4. Installation Environment

☐ Weight
Approx. 43.5 kg (Not including consumables and the optional stand.

1.3 Interfaces

This printer is equipped with a parallel and a USB interface as standard equipment. As an option, it can also be equipped with a Type B Interface.

1.3.1 Parallel Interface

COMPATIBILITY MODE

- Data transfer format: 8-bit parallel, IEEE-1284 interchangeable
- Synchronization Method: External supply / by Strobe pulse.
- Handshake: By BUSY and /ACKNLG signals.
- Logic Level: TTL compatible level (IEEE-P1284 Level 1 device)
- Applicable Connector: 57-30360 (Amphenol) 36-pin or comparable product.
  * It is recommended that the shortest possible interface cable be used.
- Signal Arrangement and Signal Names: See the table below.

Table 1-14. Parallel Interface (Compatibility Mode)

Pin No.	Signal Name	Return Pin No.	Source	Function
1	/STROBE	19	Center Machine	Strobe pulse (When Low, data can be read. When High, data cannot be received from the PC.)
2	DATA1	20	Center Machine	Data Signal
3	DATA2	21	Center Machine	
4	DATA3	22	Center Machine	
5	DATA4	23	Center Machine	
6	DATA5	24	Center Machine	
7	DATA6	25	Center Machine	
8	DATA7	26	Center Machine	
9	DATA8	27	Center Machine	
10	/ACKNLG	28	Printer	When Low, it indicates that data processing is finished and preparation for reception of the next data is completed.
11	BUSY	29	Printer	When High, it indicates that the state is such that data reception is impossible.
12	PE	28	Printer	When High, it indicates that the printer has no paper.
13	SLAC	28	Printer	Normally High Level 1.0 K ohms, pulled up to 5 v.
14	/AFXT	30	Center Machine	Not used.
31	/INIT	30	Center Machine	At a Low pulse with a pulse width of 50_ or greater, it is set in the initialization state.

Table 1-14. Parallel Interface (Compatibility Mode)

Pin No.	Signal Name	Return Pin No.	Source	Function
32	/ERROR	29	Center Machine	When Low, it indicates that the printer is in an error state.
36	/SLIN	30	----	Not used.
18	Logic H	----	----	Normally High Level 3.9 K ohms, pulled up to 5 V.
35	+5V	----	----	Normally High Level 1.0 K ohms, pulled up to 5 V.
17	Chassis GND	----	----	Chassis GND.
16,33, 19-30	GND	----	----	Signal GND.
15,34	NC	----	----	Not connected.

NOTE: *If it is active in the Low state, a ” /” is included with the signal name.*

*1 The return side means the twisted pair return and is connected to the signal ground level. Furthermore, when interfacing, a twisted pair cable should definitely be used for each signal and the return side should definitely connected. Also, use of a shielded cable and connection to the chassis ground of the center machine and the printer, respectively are effective countermeasures against noise.

*2 All the interface conditions are TTL level standard conditions. The rise and fall time of each signal is 0.2 _s or less.

*3 For details on the timing of each signal, see the “Data Transmission Timing” diagram in the figure below.

*4 There must not be any data transfer with disregard of the /ACKNLG or BUSY signals. (Data transfer to this printer must be performed when/ACKNLG is confirmed or when BUSY is in the “LOW” state.)

*5 If appropriate character codes are set for DATA 1~8 of the interface connector (as opposed to “1” for GND open and “0” for short circuit), and BUSY and /STROBE are connected, an external device is not used and a printing test can be performed, which includes the interface circuits.

*6 The printer is in the following states when the PE signal line enters the Assert state (“L” Level).

- Out of paper error occurring (ST:00 ER:06 state)
- Other paper errors occurring (ST:00 ER:0E, 12, 13, 14, 15, 16 state)

☐ Data Transmission Timing

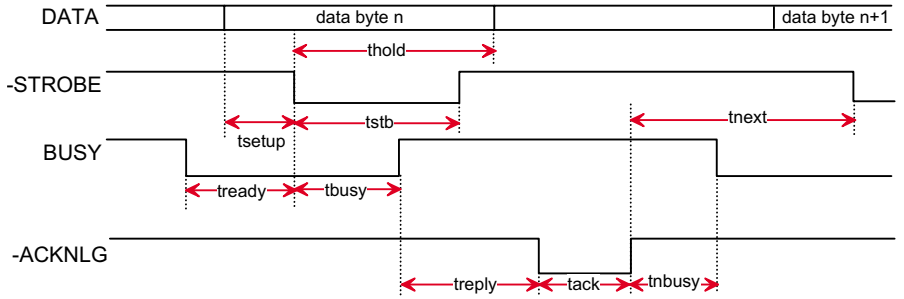


Figure 1-5. Data Transmission Timing

Table 1-15. Timing Chart Parameter

Parameter	Minimum	Maximum
tsetup	500 ns	-
thold	500 ns	-
tstb	500 ns	-
tready	0	-
tbusy	-	500 ns
tt-out*	-	120 ns
tt-in**	-	200 ns
treply	0	-
tack	Typical 2 us	
tnbusy	0	-
tnext	0	-

NIBBLE MODE

- ☐ Data Transfer Format: IEEE-1284 Nibble Mode
- ☐ Synchronization System: Compatible with IEEE-1284 Specifications
- ☐ Handshake: Compatible with IEEE-1284 Specifications
- ☐ Logic level: TTL level (IEE-P1284 Level 1 device)
- ☐ Data transfer timing: Compatible with IEEE-1284 Specifications
- ☐ Expansion Request Data: If the expansion request data value is 00H or 04H, the request is received. The meanings of these values are as shown below.
  00H: Request to carry out reverse channel transfers in the Nibble mode.
  04H: Request to return the ID of the device using the Nibble mode for reverse channel transfers.
- ☐ Device ID: [00H] [47H]
  MFG: EPSON
  CMD: ESCPL2, BDC;
  MDL:Stylus [SP] Pro [SP] 7500
  CLS: PRINTER
  DES: EPSON [SP] Stylus [SP] Pro [SP] 7500;
  *: [SP] is code 20<H>.
- ☐ See the table below for the signal layout and signal names.

Table 1-16. Parallel Interface-Nibble Mode

Pin No.	Signal Name	Return Pin	In/ Out	Functional Description
1	HostClk	19	I	Host side clock signal.
2-9	Data1-8	20-27	I	Data signal
10	PtrClk	28	O	Printer side clock signal
11	PtrBusy/ DataBit-3,7	29	O	Printer side BUSY signal and data bit 3 or data bit 7 in the reverse channel.
12	AckDataReq/ DataBit-2,6	28	O	ACK data request signal and data bit 2 or 6 in the reverse channel.
13	Xflag/DataBit-1,5	28	O	Xflag signal and data bit 1 or 5 in the reverse channel.
14	HostBusy	30	I	Host side BUSY signal.
31	-INIT	30	I	Not used.
32	-DataAvail/ DataBit-0,4	29	O	Data available signal and data bit 0 or 4 in the reverse channel.
36	1284-Active	30	I	1284 Active signal.
18	Logic-H	----	O	Normally High Level 3.9 K ohms, pulled up to 5 V.
35	+5V	----	O	Normally High Level 1.0 K ohms, pulled up to 5 V.
17	Chassis GND	----	----	Printer chassis ground.
16,33, 9-30	GND	----	----	GND for twisted pair return.
15,34	NC	----	----	Not used.

NOTE: *In (I) and Out (O) refer to the dirction of signal flow from the printer's point of view.*

ECP MODE

- ☐ Data Transfer Format: IEEE-1284 ECP Mode
- ☐ Synchronization System: Compatible with IEEE-1284 Specifications
- ☐ Handshake: Compatible with IEEE-1284 Specifications
- ☐ Logic level: TTL level (IEE-P1284 Level 1 device)
- ☐ Data transfer timing: Compatible with IEEE-1284 Specifications
- ☐ Expansion Request Data: If the expansion request data value is 10H or 14H, the request is received. The meanings of these values are as shown below.
  10H:Request to carry out transfers in the ECP mode.
  14H:Request to return the ID of the device using the ECP mode.
- ☐ Device ID: [00H] [47H]
  MFG: EPSON
  CMD: ESCPL2, BDC;
  MDL:Stylus [SP] Pro [SP] 7500
  CLS: PRINTER
  DES: EPSON [SP] Stylus [SP] Pro [SP] 7500;
  *: [SP] is code 20<H>
- ☐ See the table below for the signal layout and signal names.

Table 1-17. Parallel Interface (ECP Mode)

Pin No.	Signal Name	Return Pin	Source	Function
1	HostClk	19	Center Machine	Transfers data or address information from the host to the printer.
2	DATA1	20	Center Machine	Each signal indicates parallel data information from the first bit to the 8th bit. "HIGH" is shown by a "1" in the data and "LOW" is shown by a "0" in the data. These show the address from the host to the printer or from printer to the host, or data.
3	DATA2	21	Center Machine	
4	DATA3	22	Center Machine	
5	DATA4	23	Center Machine	
6	DATA5	24	Center Machine	
7	DATA6	25	Center Machine	
8	DATA7	26	Center Machine	
9	DATA8	27	Center Machine	
10	PeriphClk	28	Printer	Transfers data from the printer to the host.
11	PeriphAck	29	Printer	The printer uses this signal for forward direction flow control. Also, this signal offers data bit 9, used in judging whether the information output in the reverse direction data signals contains command information or data information.

Table 1-17. Parallel Interface (ECP Mode)

Pin No.	Signal Name	Return Pin	Source	Function
12	nAckReverse	28	Printer	Drives the printer in the Low state and approves nReverseRequest.
13	Xflag	28	Printer	X-flag signal and data bit 1 or data bit 5 in the reverse channel.
14	HostAck	30	Center Machine	The printer uses this signal for reverse direction flow control. Also, this signal offers data bit 9, used in judging whether the information output in the forward direction data signals contains command information or data information.
31	nReverseRequest	30	Center Machine	Sets this signal "LOW" to switch the channel to the reverse direction.
32	nPeriphRequest	29	Printer	This signal is used for generating host interrupts.
18	PeriphLogic H	29	Printer	Normally High Level 3.9 K ohms, pulled up to 5 V.
35	+5V	----	Printer	Normally High Level 1.0 K ohms, pulled up to 5 V.
17	Chassis	----	O	Printer chassis ground.
16,33, 19-30	GND	----	----	Ground for twisted pair return.
15,34	NC	----	----	Not used.
36	1284-Active	30	Center Machine	1284 active signal. "HIGH" while in the ECP mode.

NOTE: *If it is active in the Low state, a " /" is included with the signal name.*

1.3.2 USB Interface

- ☐ Standard :"Universal Serial Bus Specifications Revision 1.0"
  "Universal Serial Bus Device Class Definition for Printing Devices Version 1.0"
- ☐ Bit rate :12Mbps (Full speed device)
- ☐ Data encoding :NRZI
- ☐ Adaptable connector :USB series B
- ☐ Suggested cable length :2 meters
- ☐ Device ID <00H><4EH>
  MFG: EPSON
  CMD: ESCPL2, BDC
  MDL: Stylus[SP] Pro[SP] 7500
  CLS: PRINTER
  DES: EPSON [SP] Stylus [SP] Pro [SP] 7500
- ☐ Signal Arrangement and Signal Names: See the table below.

Table 1-18. USB Interface

Pin no.	Signal name	In/Out	Description
1	VCC	-	Cable power, max. power consumption is 100mA
2	-Data	bi-directional	data
3	+Data	bi-directional	data, pull up to +3.3V via 1.5K Ω resistor
4	Ground	-	Cable ground

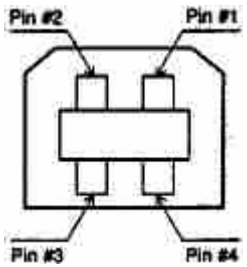


Figure 1-6. Pin Assignment

NOTE: *When connecting to the USB interface, e sure to set the parallel interface item in the printer's settings menu on "PARA.I/F = COMPAT"*

1.3.3 TYPE-B Optional Type B Interface

- Installable Option: A Type B interface (Level 2, 1200 mA type) can be used.