Product: 1999 EPSON Stylus PHOTO 870/1270 Color Ink Jet Printer Service Repair Workshop Manual
Full Download: https://www.arepairmanual.com/downloads/1999-epson-stylus-photo-8701270-color-ink-jet-printer-service-repair-workshop-manual/

SERVICE MANUAL

Color ink jet printer

EPSON Stylus PHOTO 870/1270

SEIJ99013

Sample of manual. Download All 182 pages at:
https://www.arepairmanual.com/downloads/1999-epson-stylus-photo-8701270-color-ink-jet-printer-service-repair-workshop-

Sample of manual. Download All 182 pages at:
https://www.arepairmanual.com/downloads/1999-epson-stylus-photo-870-1270-color-ink-jet-printer-service-repair-workshop-manual/

Product: 1999 EPSON Stylus PHOTO 870/1270 Color Ink Jet Printer Service Repair Workshop Manual
Full Download: https://www.arepairmanual.com/downloads/1999-epson-stylus-photo-870-1270-color-ink-jet-printer-service-repair-workshop-manual/

Notice:

- All rights reserved. No part of this manual may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SEIKO EPSON CORPORATION.
- The contents of this manual are subject to change without notice.
- All effort have been made to ensure the accuracy of the contents of this manual. However, should any errors be detected, SEIKO EPSON would greatly appreciate being informed of them.
- The above not withstanding SEIKO EPSON CORPORATION can assume no responsibility for any errors in this manual or the consequences thereof.

EPSON is a registered trademark of SEIKO EPSON CORPORATION.

General Notice: Other product names used herein are for identification purpose only and may be trademarks or registered trademarks of their respective owners. EPSON disclaims any and all rights in those marks.

Copyright © 1999 SEIKO EPSON CORPORATION. Printed in Japan.

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. NOWORK 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.

PREFACE

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of EPSON Stylus PHOTO 870/1270. 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. TROUBLESHOOTING

Provides the step-by-step procedures for 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.

APPENDIX

Provides the following additional information for reference:

- ***EEPROM Address Map***
- ***Connector Pin Assignments***
- ***Component Layout***
- ***Exploded Diagrams***
- ***Electrical Board Circuit Diagrams***

Revision Status

Revision	Issued Date	Description
A	November 18, 1999	First Release
B	January 5, 2000	• Information in Chapter 1 is fixed. • Parts List for the Stylus Photo 1270 is included.

Table of Contents

PRODUCT DESCRIPTIONS

OPERATING PRINCIPLES

TROUBLESHOOTING

DISASSEMBLY AND ASSEMBLY

ADJUSTMENT

MAINTENANCE

APPENDIX

CHAPTER

1

PRODUCT DESCRIPTIONS

1.1 Overview

The EPSON Stylus PHOTO 870 and EPSON Stylus PHOTO 1270 are designed for both home use and office use. As the enhanced models of Stylus Photo 750 and Stylus Photo 1200, they offer greater performance in both print speed and quality.

1.1.1 Features

The main features of the products are:

- ☐ High-quality color print
  - ■ High-speed 1440x720 dpi bidirectional printing
  - ■ 6 color printing
  - ■ Traditional and New Microweave
- ☐ Two built-in interfaces
  - ■ Bi-directional parallel interface (IEEE-1284 level 1 device)
  - ■ USB I/F
- ☐ Windows/Macintosh exclusive
- ☐ Built-in auto sheet feeder supports multiple sizes of paper.
  - ■ Holds 100 cut sheets
  - ■ Holds 10 envelopes
  - ■ Holds 30 transparency films
- ☐ CSIC keeps track of ink life information on the ink cartridge side.

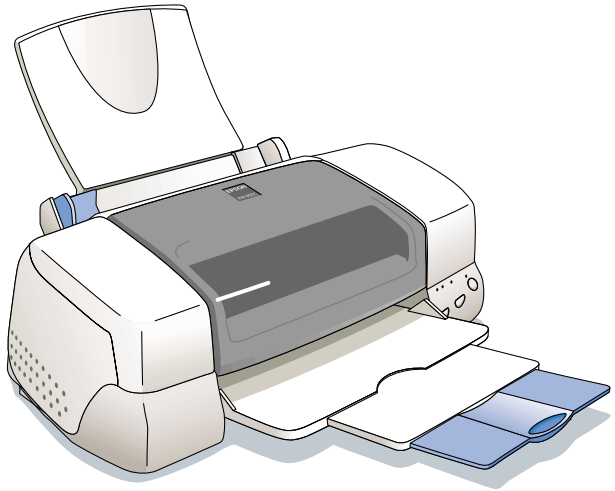


Figure 1-1. Stylus PHOTO 870

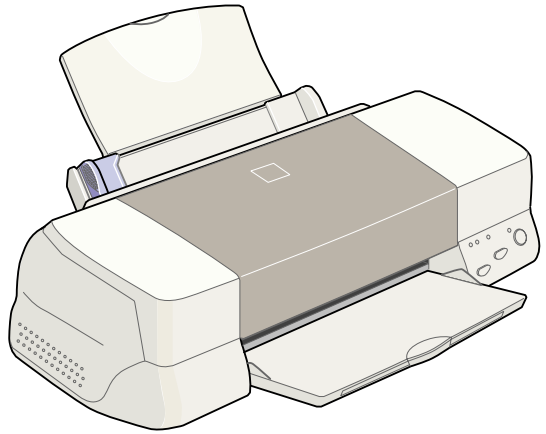


Figure 1-2. Stylus PHOTO 1270

1.1.2 Accessories, Consumable Products, and Options

ACCESSORIES

- ☐ Users guide
- ☐ Ink cartridge
- ☐ CD-ROM (printer driver and utilities)

CONSUMABLE PRODUCTS

NOTE: *The product name of the ink cartridges may vary by location.*

NOTE: *The availability of special media varies by location.*

NOTE: *The products tailed with an asterisk are only available for Stylus PHOTO 1270.*

Table 1-1. Consumable Products

Name	Code
Black ink cartridge	T007
Color ink cartridge	Stylus PHOTO 870: T008 Stylus PHOTO 1270: T009
EPSON Premium Ink Jet Plain Paper (A4)	S041214
EPSON 360 dpi Ink Jet Paper (A4) EPSON 360 dpi Ink Jet Paper (Letter) EPSON 360 dpi Ink Jet Paper (A3)* EPSON 360 dpi Ink Jet Paper (Super A3/B)*	S041059/S041025 S041060/S041028 S041065/S041046 S041066/S041047
EPSON Iron-On Cool Peel Transfer Paper (A4) EPSON Iron-On Cool Peel Transfer Paper (Letter) EPSON Iron-On Cool Peel Transfer Paper (A3)*	S041154 S041153/S041155 S041238
EPSON Photo Quality Ink Jet Paper (A4) EPSON Photo Quality Ink Jet Paper (Letter) EPSON Photo Quality Ink Jet Paper (Legal) EPSON Photo Quality Ink Jet Paper (A3)* EPSON Photo Quality Ink Jet Paper (Super A3/B)* EPSON Photo Quality Ink Jet Paper (B)*	S041061/S041026 S041062/S041029 S041067/S041048 S041068/S041045 S041069/S041043 S041070/S041044

Table 1-1. Consumable Products (continued)

Name	Code
EPSON Photo Quality Ink Jet Card (A6) EPSON Photo Quality Ink Jet Card (5x8″) EPSON Photo Quality Ink Jet Card (8x10″)	S041054 S041121 S041122
EPSON Photo Quality Self Adhesive Sheet (A4)	S041106
EPSON Ink Jet Note Cards A6 (with envelops)	S041147
EPSON Ink Jet Greeting Cards 5x8″ (with envelopes) EPSON Ink Jet Greeting Cards 8x10″ (with envelopes)	S041148 S041149
EPSON Mat Paper-Heavyweight (A4) EPSON Mat Paper-Heavyweight (Letter) EPSON Mat Paper-Heavyweight (A3)* EPSON Mat Paper-Heavyweight (Super A3/Super B)*	S041456/S041258/ S041259 S041257 S041260/S041261/ S041262 S041263/S041264/ S041265
EPSON Photo Paper (A4) EPSON Photo Paper (Letter) EPSON Photo Paper (A3)* EPSON Photo Paper (Super A3/Super B)* EPSON Photo Paper (B)* EPSON Photo Paper (4x6″) EPSON Photo Paper (100 x 150 mm) EPSON Photo Paper (200 x 300 mm) EPSON Photo Paper (89 mmx 7M) EPSON Photo Paper (100 mm x 8M) EPSON Photo Paper (210 mm x 10M) EPSON Photo Paper (329 mm x 10M)*	S041140 S041141 S041142 S041143 S041156 S041134 S041255 S041254 S0xxxxx S0xxxxx S0xxxxx S041233
EPSON Panoramic Photo Paper (210 x 594 mm)	S041145
EPSON Photo Paper Cards (A4)	S041177

Table 1-1. Consumable Products (continued)

Name	Code
Photo Quality Glossy Film (A4) Photo Quality Glossy Film (Letter) Photo Quality Glossy Film (A3)* Photo Quality Glossy Film (Super A3/B)* Photo Quality Glossy Film (B)* Photo Quality Glossy Film (A6)	S041071 S041072 S041073 S041074 S041075 S041107
EPSON Photo Stickers 16 (A6) EPSON Photo Stickers 4 (A6)	S041144 S041176
EPSON Ink Jet Transparencies (A4) EPSON Ink Jet Transparencies (Letter)	S041063 S041064
EPSON Ink Jet Backlight Film (A3)*	S041131

OPTIONS

Table 1-2. Options

Name	Code
Parallel Interface cable (shielded)	C83602*
USB I/F Interface cable (shielded)	C83623*
Roll Paper Holder	C81106*

**: The asterisk is as substitution for the last digit of the product name, which varies by country.*

1.2 Basic Specifications

1.2.1 Printing Specification

PRINT METHOD

On demand ink jet

NOZZLE CONFIGURATION

48 nozzles x 6 (Black, Cyan, Magenta, Yellow, Light cyan, Light magenta)

The following figure shows nozzle configuration viewed from the back of the printhead:

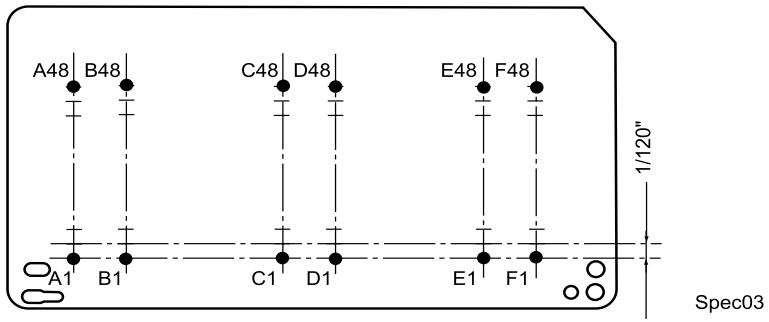


Figure 1-3. Nozzle Configuration

PRINT DIRECTION

Bi-direction with logic seeking

PRINT SPEED & PRINTABLE COLUMNS

Table 1-3. In the Character Mode

Character Pitch	Printable coumns	LQ Speed
10 CPI (Pica)	• 80 (Stylus PHOTO 870) • 127 (Stylus PHOTO 1270)	238 CPS*1

**1: Applies to normal dot printing.*

Table 1-4. In the Raster Graphics Mode

Model	Horizontal Resolution	Printable Area	Available Dot	CR Speed
Stylus PHOTO 870	180 dpi	209.8 mm (8.26″)	1488	60.452/48.26 cm/s (23.8/19 IPS)
	360 dpi	209.8 mm (8.26″)	2976	60.452/48.26 cm/s (23.8/19 IPS)
	720 dpi	209.8 mm (8.26″)	5952	48.26 cm/s (19 IPS)
Stylus PHOTO 1270	180 dpi	322.986 mm (12.716″)	2289	60.452/48.26 cm/s (23.8/19 IPS)
	360 dpi	322.986 mm (12.716″)	4578	60.452/48.26 cm/s (23.8/19 IPS)
	720 dpi	322.986 mm (12.716″)	9156	48.26 cm/s (19 IPS)

CONTROL CODE

- ESC/P Raster command
- EPSON remote command

CHARACTER TABLES

Two international character sets:

- PC437 (US, Standard Europe
- PC850 (Multilingual)

TYPEFACE

Bitmap LQ font

- EPSON Courier 10 CPI

PAPER FEEDING

☐ Feed method:	Friction feed with ASF
☐ Paper path:	Cut-sheet ASF (top entry front out)
☐ Feed speed:	110 msec (10.16 mm feed) 152.4 mm/second, 6.0”/second (fast, continues feed)

INPUT DATA BUFFER

256KB

1.2.2 Paper Specifications

CUT SHEET

- ☐ Size: See the table below:

Table 1-5. Paper Specifications - Cut Sheet

Size	Specifications (width x length)
A3*	297mm (11.7″) x 420mm (16.5″)
A4	210 mm (8.3″) x 297 mm (11.7″)
A5	148 mm x 210 mm
A6	105 mm x 148 mm
B*	279 mm x 432
B4*	257 mm x 364 mm
Letter	216 mm (8.5″) x 279 mm (11.0″)
B5	182 mm (7.2″) x 257 mm (10.1″)
Legal	216 mm (8.5″) x 356 mm (14.0″)
Half Letter	139.7 mm x 215.9 mm
Executive	184.2 mm (7.25″) x 266.7 mm (10.5″)

** For Stylus PHOTO 1270 Only*

- ☐ Quality: Normal paper, Recycled paper
- ☐ Thickness: 0.08 mm (0.003″) - 0.11 mm (0.004″)
- ☐ Weight: 64g/m^2 (17lb.) - 90g/m^2 (24lb.)

EPSON SPECIAL MEDIA

- ☐ Photo Quality Ink Jet Paper

  A3+*, A3*, A4, A6, B5, Letter, Legal, 5″x8″, 5″x10″

  **: For Stylus PHOTO 1270 only.*

- ☐ 360dpi Ink Jet Paper

  A3+*, A3*, A4, A6, B5, Letter, Legal, 5″x8″, 5″x10″

  **: For Stylus PHOTO 1270 only.*

- ☐ Ink Jet Transparencies

  A4, Letter

- ☐ PhotO Quality Glossy Film

  A3+*, A4, A6, Letter

  **: For Stylus PHOTO 1270 only.*

- ☐ Photo Paper 2

  A3+*, A3*, A4, B*, B5, Letter, Photo Quality Card 2 (100 mm x 148 mm), Photo paper Card 2 (175.4 mm x 1136. mm), Panoramic Photo Paper (210 mm x 594 mm)

  **: For Stylus PHOTO 1270 only.*

- ☐ Label Sheet

  A4

- ☐ Backlight Film

  A4 (Stylus PHOTO 870 only), A3 (Stylus PHOTO 1270 only)

- ☐ Iron-on Cool Peel Transfer Paper

  A4, Letter

- ☐ Photo Paper Cards

  A4

- ☐ Photo Stickers

  Photo Stickers A6 (16)
  Photo Stickers A6 (4)

1.2.3 Printing Area

1.2.3.1 Cut Sheet

See the figure below and the following tables for the printing area for Stylus PHOTO 870/Stylus PHOTO 1270.

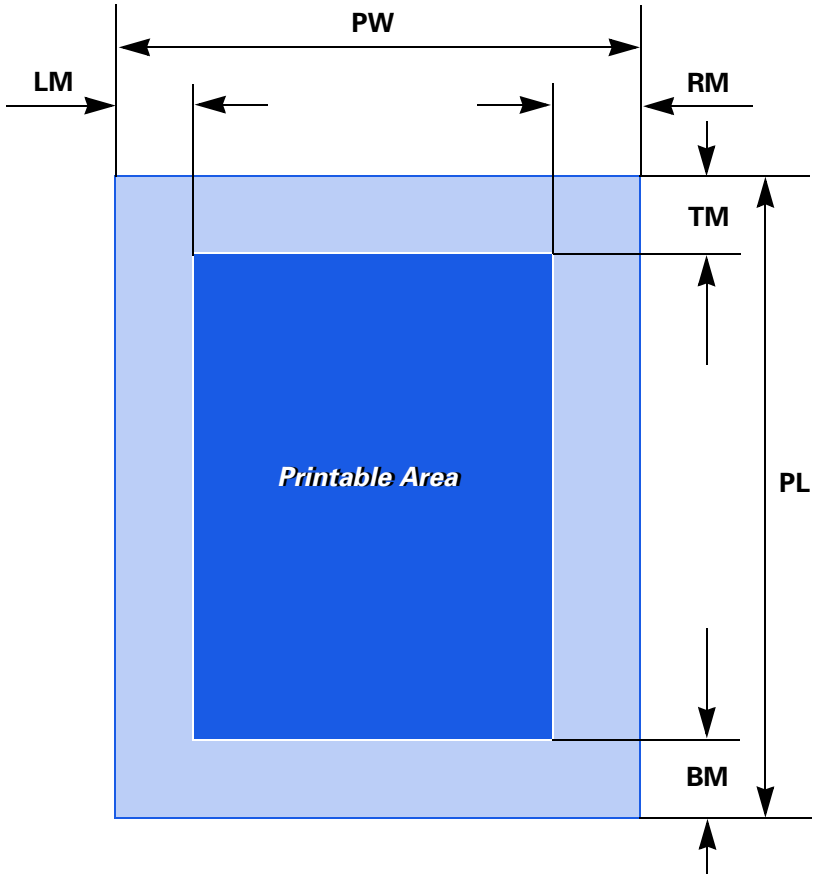


Figure 1-4. Printable Area for Cut Sheet

Table 1-6. Printing Area - Character Mode

Paper Size	Left Margin (minimum)	Right Margin (minimum)	Top Margin (minimum)	Bottom Margin (minimum)
A3*1	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)/
A4	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)/
Letter	3 mm (0.12″)	9 mm (0.35″)	3 mm (0.12″)	14 mm (0.54″)
B5	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)
Legal	3 mm (0.12″)	9 mm (0.35″)	3 mm (0.12″)	14 mm (0.54″)
Statement	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)
Executive	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)

**1: Stylus PHOTO 1270 only.*

Table 1-7. Printing Area - Raster Graphics Mode

Paper Size	Left Margin (minimum)	Right Margin (minimum)	Top Margin (minimum)	Bottom Margin*1 (minimum)
A3+*2	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)/
A3*3	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)/
A4	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)/
Letter	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)
B5	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)
Legal	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)
Statement	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)
Executive	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.54″)

**1: Bottom margin can be reduced to 3mm when paper dimension is defined by using command, otherwise it remains 14mm. As for an area between 3mm and 14mm margin, print quality may decline.*
**2: Stylus PHOTO 1270 only.*
**3: Stylus PHOTO 1270 only.*

1.2.3.2 Envelopes

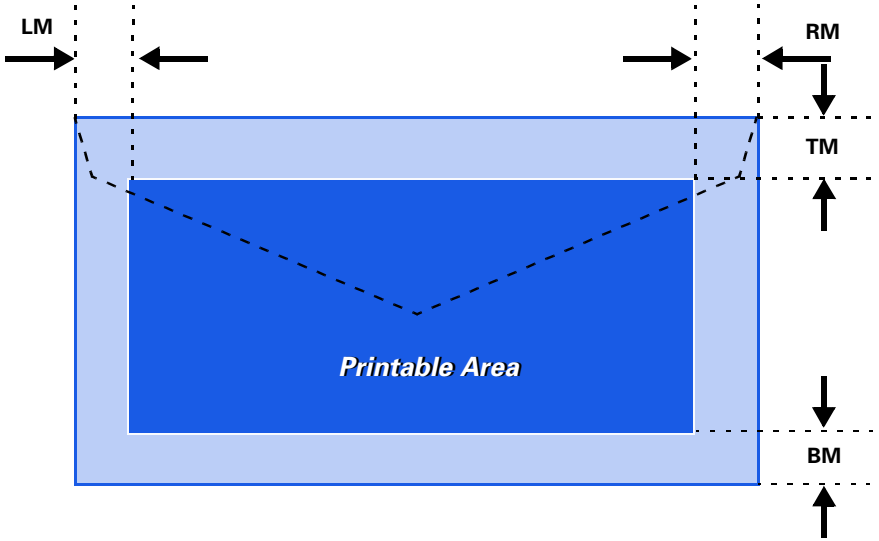


Figure 1-5. Printable Area for Envelopes

Table 1-8. Envelope Margin

Size	Left Margin (minimum)	Right Margin (minimum)	Top Margin (minimum)	Bottom Margin (minimum)
#10	3 mm (0.12″)	28 mm (1.10″)	3 mm (0.12″)	14 mm (0.55″)
DL	3 mm (0.12″)	7 mm (0.28″)	3 mm (0.12″)	14 mm (0.55″)
C6	3 mm (0.12″)	3 mm (0.12″)	3 mm (0.12″)	14 mm (0.55″)

1.2.4 Adjust Lever

Set the adjust lever according to the type of paper as shown in the following table.

Table 1-9. Adjust Lever Setting Position

Paper	Setting Position	Gap
Cut sheet, OHP Sheet, Label, Postcard	Front	0 mm
Envelope	Rear	+0.9 mm

1.2.5 Ink Cartridge

BLACK INK CARTRIDGE

The black ink cartridge specifications for Stylus PHOTO 870 and Stylus PHOTO 1270 are common.

- ☐ Type: Exclusive Cartridge
- ☐ Color: Black
- ☐ Print capacity: 540 pages/A4 (ISO/IEC 10561 Letter Pattern at 360 dpi)
- ☐ Ink life: 2 years from the indicated date of production
- ☐ Storage temperature
  - ■ -20 to 60 °C (storage, within a month at 40°C)
  - ■ -30 to 40 °C (packing storage, within a month at 40 °C)
  - ■ -30 to 60 °C (transit, within 120 hours at 60 °C)
- ☐ Dimension: 20.1 mm (W) x 66.85 mm (D) x 38.5 mm (H)

COLOR INK CARTRIDGE

- ☐ Type: Exclusive Cartridge
- ☐ Color: Cyan, Light cyan, Magenta, Light magenta, Yellow

- Print capacity:
  - **Stylus PHOTO 870**: 220 pages / A4 (360 dpi, 5% duty each color)
  - **Stylus PHOTO 1270**: 330 pages / A4 (360 dpi, 5% duty each color)
- Ink life: 2 years from the indicated date of production
- Storage temperature
  - -20 to 40 °C (storage, within a month at 40°C)
  - -30 to 40 °C (packing storage, within a month at 40 °C)
  - -30 to 60 °C (transit, within 120 hours at 60 °C)
- Dimension:
  - **Stylus PHOTO 870**: 49.1 mm (W) x 66.85 mm (D) x 38.5 mm (H)
  - **Stylus PHOTO 1270 :** 49.1 mm (W) x 84.05 mm (D) x 41.8 mm (H)

NOTE

1. *Do not refill the ink cartridge. The ink cartridge is a consumable item.*
2. *Do not use a cartridge whose ink life has expired.*
3. *Ink freezes below -4 °C; however it will be usable again after keeping it for more than 3 hours at room temperature.*

1.2.6 Input Data Buffer

- 256KB

1.2.7 Electric Specification

120V VERSION

- Rated voltage: AC120V
- Input voltage range: AC99~132V
- Rated frequency range: 50~ 60Hz
- Input frequency range: 49.5~ 60.5Hz
- Rated current: 0.4A
- Power consumption: Approx. 18W (ISO10561 Letter Pattern)
Approx. 3.5W in standby mode
Energy Star compliant
- Insulation resistance: 10M ohms min.
(between AC line and chassis, DC 500V)
- Dielectric strength: AC 1000V rms. 1 minute or
AC 1200V rms. 1 second
(between AC line and chassis)

220 - 240V VERSION

- Rated voltage: AC220V - 240V
- Input voltage range: AC198 - 264V
- Rated frequency range: 50 - 60Hz
- Input frequency range: 49.5 - 60.5Hz
- Rated current: 0.2 A
- Power consumption: Approx. 18W (ISO10561 Letter Pattern)
Approx. 3.5W in standby mode
Energy Star compliant
- Insulation resistance: 10M ohms min.
(between AC line and chassis, DC 500V)
- Dielectric strength: AC 1500V rms. 1 minute
(between AC line and chassis)

1.2.8 Reliability

- ☐ Total print volume: 25,000 pages (black, A4, Letter)
  10,000 pages (color, A4, Letter)
- ☐ Printhead life: 3 billion dots/nozzle

1.2.9 Safety, EMC

120 V VERSION

- ☐ Safety standard: UL1950
  CSAC22.2 No.950
- ☐ EMI: FCC part 15 subpart B class B
  CSA C108.8 class B

220 - 240 V VERSION

- ☐ Safety standard: EN 60950 (VDE)
- ☐ EMI: EN 55022 (CISPR Pub.22) class B
  AS/NZS 3548 class B

1.2.10 Acoustic Noise

- ☐ Level: Approximately 42 dB (according to ISO 7779)

1.2.11 CE marking

220-240 V version

Low voltage directive 73/23/EEC	EN60950
EMC Directive 89/336/EEC	EN55022 Class B EN61000-3-2 EN61000-3-3 EN50082-1 IEC801-2 IEC801-3 IEC801-4

1.2.12 Environmental Condition

TEMPERATURE

- ☐ Operating: 10 to 35°C (See the figure below.)
- ☐ Non-operating: -20 to 60°C (in a shipment container)
  1 month at 40°C and 120 hours at 60°C

HUMIDITY*

**: Without condensation*

- ☐ Operating: 20 to 80% RH (See the figure below.)
- ☐ Non-operating: 5 to 85% RH (without condensation)

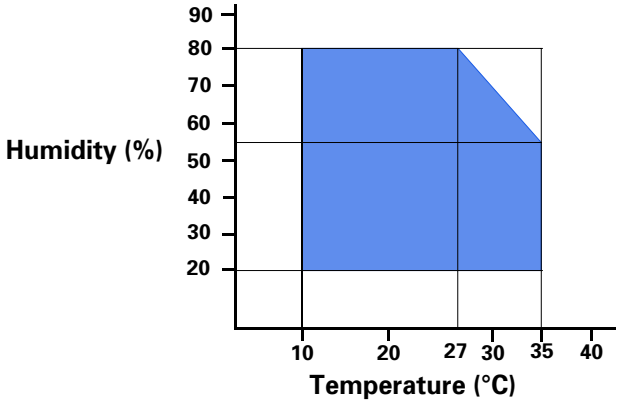


Figure 1-6. Temperature/Humidity Range

RESISTANCE TO SHOCK

- ☐ Operating: 1G, within 1 ms
- ☐ Non-operating: 2G, within 2 ms (in a shipment container)

RESISTANCE TO VIBRATION

- ☐ Operating: 0.15G
- ☐ Non-operating: 0.50G (in a shipment container)

CAUTION

- **When storing the printer, make sure the printhead is capped.**
- **When transporting the printer, ensure the ink cartridges are installed in the printer and the printhead is capped.**
- **If the printer power is off with the printhead left uncapped, turn the printer on with the ink cartridges installed, cap the printhead, and turn the printer off.**
- **Ink freezes at below -4°C. It will be usable again after keeping it for about three hours at 25°C.**

1.3 Interface

The EPSON Stylus PHOTO 870/1270 provide USB and parallel interface as standard.

1.3.1 Parallel Interface (Forward Channel)

- ☐ Transmission mode: 8 bit parallel, IEEE-1284 compatibility mode
- ☐ Synchronization: By STROBE pulse
- ☐ Handshaking: By BUSY and ACKNLG signal
- ☐ Signal level: TTL compatible level
- ☐ Adaptable connector: 57-30360 (amphenol) or equivalent

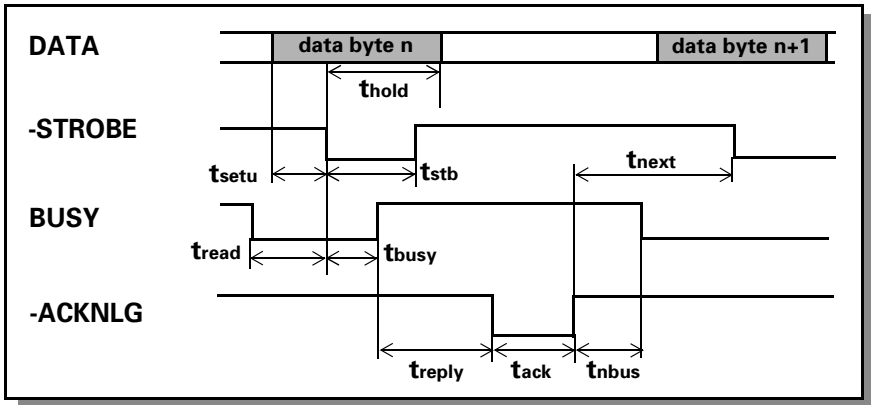


Figure 1-7. Data Transmission Timing

Table 1-10. Parameters

Parameter	Minimum	Maximum
tsetup	500ns	-
thold	500ns	-
tstb	500ns	-
tready	0	-
tbusy	-	500ns
tt-out*1	-	120ns
tt-in*2	-	200ns
treply	0	-
tack	500ns	10us
tnbusy	0	-
tnext	0	-

**1: Rise and fall time of every output signal.*
**2: Rise and fall time of every input signal.*

Typical timing for tack is shown below.

Table 1-11. Typical Time of Tack

Parallel I/F Mode	Typical Time of tack
High Speed	1us
Normal Speed	3us

Table 1-12.
Signal Level: TTL Compatible (IEEE-1284 level 1 device)

Parameter	Minimum	Maximum	Condition
VOH*	-	5.5V	
VOL*	-0.5V	-	
IOH*	-	0.32mA	VOH = 2.4V
IOL*	-	12mA	VOL = 0.4V
CO	-	50pF	
VIH	-	2.0V	
VIL	0.8V	-	
IIH	-	0.32mA	VIH = 2.0V
IIL	-	12mA	VIL = 0.8V
CI	-	50pF	

* *A low logic level on the Logic H signal is 2.0V or less when the printer is powered off, and this signal is equal to or exceeding 3.0V when the printer is powered on. The receiver shall provide an impedance equivalent to 7.5K ohm to ground.*

Table 1-13. Connector Pin Assignment and Signals

Pin No.	Signal Name	Return GND Pin	In/Out	Functional Description
1	-STROBE	19	In	The strobe pulse. Read-in of data is performed at the falling edge of this pulse.
2-9	DATA0-7	20-27	In	The DATA0 through DATA7 signals represent data bits 0 to 7, respectively. Each signal is at high level when data is logical 1 and low level when data is logical 0.
10	-ACKNLG	28	Out	This signal is a negative pulse indicating that the printer can accept data again.
11	BUSY	29	Out	A high signal indicates that the printer cannot receive data.
12	PE	28	Out	A high signal indicates paper-out error.
13	SLCT	28	Out	Always at high level when the printer is powered on.
14	-AFXT	30	In	Not used.
15	NC	-	-	Not connected
16	GND	-	-	Signal GND
17	Chassis GND	-	-	Chassis GND
18	Logic H	-	Out	Pulled up to +5V via 3.9 K ohm resistor.
19-30	GND	-	-	Signal GND
31	-INIT	30	In	The falling edge of a negative pulse or a low signal on this line causes the printer to initialize. Minimum 50us pulse is necessary.
32	-ERROR	29	Out	A low signal indicates printer error condition.
33	GND	-	-	Signal GND
34	NC	-	-	Not connected
35	+5V	-	Out	Pulled up to +5V via 3.3K ohm resistor.
36	-SLIN	30	In	Not used.

NOTE: *In/Out refers to the direction of signal flow seen from the printer side.*

1.3.2 Parallel Interface (Reserve Channel)

- ☐ Transmission mode: IEEE-1284 nibble mode
- ☐ Adaptable connector See forward channel.
- ☐ Synchronization: Refer to the IEEE-1284 specification.
- ☐ Handshaking: Refer to the IEEE-1284 specification.
- ☐ Data trans. timing: Refer to the IEEE-1284 specification.
- ☐ Signal level: IEEE-1284 level 1 device (See forward channel.)

Table 1-14. Connector Pin Assignment and Signals

Pin No.	Signal Name	Return GND Pin	In/Out	Functional Description
1	HostClk	19	In	Host clock signal.
2-9	DATA0-7	20-27	In	The DATA0 through DATA7 signals represent data bits 0 to 7, respectively. Each signal is at high level when data is logical 1 and low level when data is logical 0. These signals are used to transfer the 1284 extensibility request values to the printer.
10	PtrClk	28	Out	Printer clock signal.
11	PtrBusy / DataBit-3,7	29	Out	Printer busy signal and reverse channel transfer data bit 3 or 7.
12	AckDataReq / DataBit-2,6	28	Out	Acknowledge data request signal and reverse channel transfer data bit 2 or 6.
13	Xflag / DataBit-1,5	28	Out	X-flag signal and reverse channel transfer data bit 1 or 5.
14	HostBusy	30	In	Host busy signal.
31	-INIT	30	In	Not used.
32	-DataAvail / DataBit-0,4	29	Out	Data available signal and reverse channel transfer data bit 0 or 4.
36	1284-Active	30	In	1284 active signal.
18	Logic-H	-	Out	Pulled up to +5V via 3.9K ohm resistor.
35	+5V	-	Out	Pulled up to +5V via 3.3K ohm resistor.
17	Chassis GND	-	-	Chassis GND
16,33, 19-30	GND	-	-	Signal GND
15,34	NC	-	-	Not connected

NOTE: *In/Out refers to the direction of signal flow from the printer's point of view.*

EXTENSIBILITY REQUEST

The printer responds affirmatively when the extensibility request values are 00H or 04H, which means:

- 00H: Request Nibble Mode Reverse Channel Transfer.
- 04H: Request Device ID;
  Return Data Using Nibble Mode Rev Channel Transfer.

DEVICE ID

The printer sends the following device ID string when requested.

Stylus PHOTO 870

- When IEEE1284.4 is enabled,

  [00H][5AH]
  MFG:EPSON;
  CMD:ESCPL2,BDC,D4;
  MDL:Stylus[SP]Photo[SP]870;
  CLS:PRINTER;
  DES:EPSON[SP]Stylus[SP]Photo[SP]870;

- When IEEE1284.4 is disabled,

  [00H][57H]
  MFG:EPSON;
  CMD:ESCPL2,BDC;
  MDL:Stylus[SP]Photo[SP]870;
  CLS:PRINTER;
  DES:EPSON[SP]Stylus[SP]Photo[SP]870;

Stylus PHOTO 1270

- When IEEE1284.4 is enabled,

  [00H][5CH]
  MFG:EPSON;
  CMD:ESCPL2,BDC,D4;
  MDL:Stylus[SP]Photo[SP]1270;
  CLS:PRINTER;
  DES:EPSON[SP]Stylus[SP]Photo[SP]1270;

- When IEEE1284.4 is disabled,

  [00H][59H]
  MFG:EPSON;
  CMD:ESCPL2,BDC;
  MDL:Stylus[SP]Photo[SP]1270;
  CLS:PRINTER;
  DES:EPSON[SP]Stylus[SP]Photo[SP]1270;

NOTE 1:*[00H] denotes a hexadecimal value of zero.*

NOTE 2:*MDL value depends on the EEPROM setting.*

NOTE 3:*CMD value depends on the IEEE1284.4 setting.*

1.3.3 USB Interface

- Standard: Based on:
  "Universal Serial Bus Specifications Rev. 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
- Recommended cable length:2 meters

Table 1-15. Connector Pin Assignment and Signals

Pin No.	Signal Name	I/O	Function Description
1	VCC	-	Cable power. Max. power consumption is 2mA.
2	-Data	Bi-D	Data
3	+Data	Bi-D	Data, pulled up to +3.3 V via 1.5K ohm resistor.
4	Ground	-	Cable ground

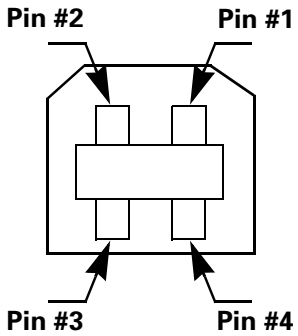


Figure 1-8. USB Pin Assignment

1.3.4 Prevention of Data Transfer Time-out

Generally, hosts abandon data transfer to peripherals when the peripheral is in the busy state for dozens of seconds continuously. To prevent this kind of time-out, the printer receives data very slowly, several bytes per minute, even if the printer is in the busy state. The slowdown starts when the remaining input buffer becomes several hundreds of bytes, and the printer finally gets into the busy state continuously when the input buffer is full.
USB and IEEE1284.4 on the parallel interface do not require such function.

1.3.5 Interface Selection

The printer has two built-in interfaces: the USB and parallel interface. These interfaces are selected automatically.

- Automatic Selection
  In this automatic interface selection mode, the printer is initialized to the idle state while scanning which interface receives data when it is powered on. Then the interface which received data first is selected. When the host stops data transfer and the printer is in the stand-by state for seconds, the printer is returned to the idle state. As long as the host sends data or the printer interface is in the busy state, the selected interface is let as it is.
- Interface State and Interface Selection
  When the parallel interface is not selected, the interface gets into the busy state. When the printer is initialized or returned to the idle state, the parallel interface gets into the ready state. Note that the interrupt signal such as the -INIT signal on the parallel interface is not effective while that interface is not selected.

1.3.6 IEEE1284.4 Protocol

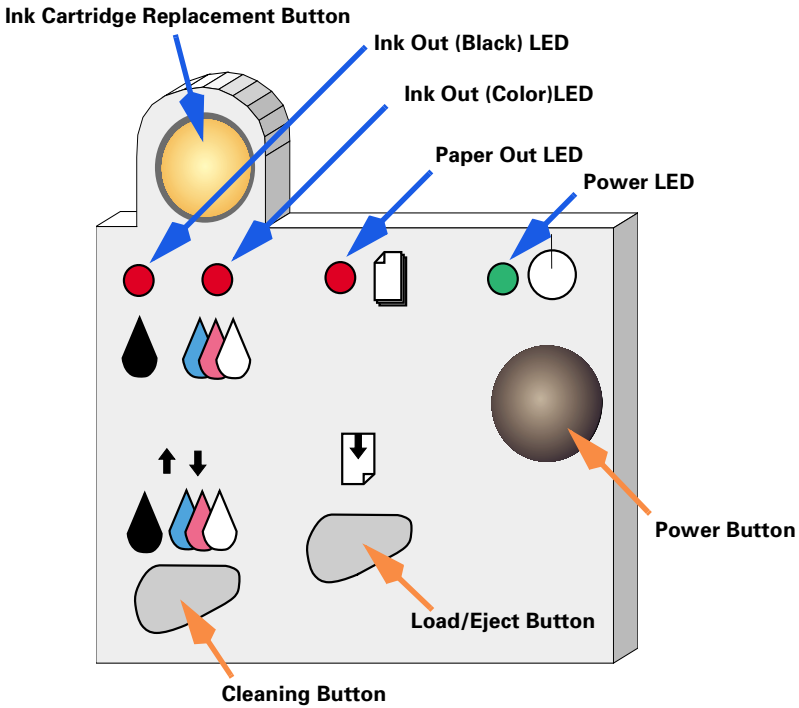
The packet protocol described by IEEE1284.4 standard allows a device to carry on multiple exchanges or conversations which contain data and/or control information with another device at the same time across a single point-to-point link. The protocol is not, however, a device control language. It does provide basic transport-level flow control and multiplexing services. The multiplexed logical channels are independent of each other and blocking of one has no effect on the others. The protocol operates over IEEE1284.

- Automatic Selection
  An initial state is compatible interface and starts IEEE1284.4 communication when magic strings (1284.4 synchronous commands) are received.
- On
  An initial state is IEEE1284.4 communication and data that received it by the time it is able to take synchronization by magic string (1284.4 synchronous commands) is discarded.
- Off
  An initial state is compatible interface and never starts IEEE1284.4 communication even if magic strings (1284.4 synchronous commands) are received.

1.4 Operations

1.4.1 Buttons

- ☐ Operating button
- ☐ Load/Eject button
- ☐ Cartridge replacement button
- ☐ Cleaning button



1.4.2 LED Indicators

- ☐ **Power**
  Lights when the power switch is “ON” and AC power is supplied.
- ☐ **Paper Out**
  Lights during the paper out condition, and blinks during the paper jam condition.
- ☐ **Ink Out (Black)**
  Lights during no black ink condition, and blinks during the black ink low condition.
- ☐ **Ink Out (Color)**
  Lights during no color ink condition, and blinks during the color ink low condition.

1.4.3 Panel Functions

Table 1-16. Panel Functions

Buttons	Function
Load / Eject	• Loads or ejects paper. • Returns the printhead from the ink cartridge replacement position to the capping position.
Ink Cartridge Replacement	• Starts the ink cartridge replacement sequence. • Moves the carriage to the cartridge replacement position. • Returns the carriage from the ink cartridge replacement position.
Cleaning (Push for 3 seconds)	• Starts a head cleaning. • In the condition of "Ink Low", "Ink Out", or "No Ink Cartridge", starts the ink cartridge replacement sequence. • Returns the carriage from the ink cartridge replacement position.

Table 1-17. Power-on Panel Functions

Switch	Pressing with Power On Function
Load / Eject	• Starts status printing. *1
Cleaning	• Changes code pages / Selects IEEE1284.4 mode for parallel I/F.*2
Load/Eject + Cleaning	• Enters the special settings mode. (Factory use only). *3

**1: One of the actions in Table 1-18 is carried out according to the content of 1BH of EEPROM.*
**2: Not intended for users.*
**3: See Section 1.4.4. (Not intended for users.)*

Table 1-18. Content of 1BH of EEPROM

[bit7] [bit6]	Actions
00*1	Print firmware version, ink counter, selected code page and nozzle check pattern.
11	
01	Hex-dump mode
10	Self test mode

**1: Factory default setting*

1.4.4 Special Setting Mode

To enter the special setting mode, press Load/Eject button and Cleaning button while turning on the printer. The Paper Out LED starts blinking. While it is blinking (for three seconds), press the specified button to activate the desirable setting mode.

NOTE: *Special setting modes are not intended for users.*

Table 1-19. Special Setting Modes

Switch	Function
Load / Eject	• Resets EEPROM and timer IC.
Cleaning (Push for 10 seconds)	• Resets the ink overflow counter in EEPROM.

☐ EEPROM/Timer IC reset

The following is reset with this operation:

- Interface selection (04H)
- Power off timer (6CH, 6DH)

☐ Waste ink counter reset

The following is reset with this operation:

- Ink counter A0 (50H, 5DH)
- Ink counter A80 (5EH, 5FH)

1.4.5 Printer Condition and Panel Status

Table 1-20 shows various errors and printer status.

Table 1-20. Printer Condition and Panel Status

Printer Status	Indicators				Priority
	Power	Ink Out (Black)	Ink Out (Color)	Paper Out	
Power on condition	On	--	--	--	9
Ink sequence	Blinks	--	--	--	6
Ink cartridge replacement mode	Blinks	--	--	--	5
Data processing	Blinks	--	--	--	8
Paper out	--	--	--	On	4
Paper jam condition	--	Off	Off	Blinks	3
No ink cartridge or ink end (black)	--	On	--	--	7
Ink level low (black)	--	Blinks	--	--	7
No ink cartridge or ink end (color)	--	--	On	--	7
Ink level low (color)	--	--	Blinks	--	7
Enter EEPROM and Timer IC reset	--	On (for one second only)			-
Maintenance request	Blinks	Blinks	Blinks	Blinks	2
Fatal error	Blinks	On	On	Blinks	1

NOTE: *"--" means "no effect".*

1.4.6 Errors

INK OUT

When the printer runs out most of the ink of any color, it warns of an ink low condition and keeps printing. When the ink cartridge is completely empty, the printer stops printing and generates Ink out error. In this condition, the ink cartridge must be replaced with a new one. Note an ink cartridge that is once taken out must not be used again. Reinstalling of ink cartridges whose ink level is not full upsets the ink level detection and may cause serious problems in the printheads.

PAPER OUT

When the printer fails to load a sheet of paper, it goes into the Paper Out error condition.

PAPER JAM

When the printer fails to eject a sheet of paper, it goes into the Paper Jam error condition.

NO INK CARTRIDGE

When the printer detects that an ink cartridge is missing, it goes into the No Ink Cartridge error condition.

MAINTENANCE REQUEST

When the total quantity of waste ink collected during cleanings and flushing reaches the limit, printer indicates the Maintenance Request error and stops printing. The absorber must be replaced by a servicer.

FATAL ERRORS

When the printer detects a carriage control error or CG access error, it goes into a fatal error condition.

Sample of manual. Download All 182 pages at https://www.arepairmanual.com/downloads/1999-epson-stylus-photo-870-1270-color-ink-jet-printer-service-repair-workshop-manual/

Product: 1999 EPSON Stylus PHOTO 870/1270 Color Ink Jet Printer Service Repair Workshop Manual
Full Download: https://www.arepairmanual.com/downloads/1999-epson-stylus-photo-870-1270-color-ink-jet-printer-service-repair-workshop-manual/