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# LBP-1000

## SERVICE MANUAL

REVISION 0

**Canon**

**JAN. 2000**

**RY8-13A1-000**

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CANON LBP-1000 REV.0 JAN. 2000 PRINTED IN JAPAN (IMPRIME AU JAPON)

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Imprimé au Japon***

Use of this manual should be strictly supervised to avoid disclosure of confidential information.
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## **PREFACE**

This Service Manual contains basic information required for after-sales service of the laser beam printer LBP-1000 (hereinafter referred to as the "printer"). This information is vital to the service technician in maintaining the high print quality and performance of the printer.

The paper feeder, which is prepared for the printer as option, is also described in this manual.

This manual consists of the following chapters:

Chapter 1: Product information

Features, specifications, and installation

Chapter 2: Operation and Timing

A description of the operating principles and timing sequences of the electrical and mechanical systems.

Chapter 3: The Mechanical System

Explanation of mechanical operation, disassembly, reassembly and adjustment procedures

Chapter 4: Troubleshooting

Troubleshooting procedures, reference values and adjustments, maintenance and servicing, etc.

Appendix: General timing chart, general circuit diagram, etc.

Information in this manual is subject to change as the product is improved or redesigned. All relevant information in such cases will be supplied in the Service Information Bulletins.

A thorough understanding of this printer, based on information in this Manual and Service Information bulletins, is required for maintaining its performance and for locating and repairing the causes of malfunctions.

### **DTP system**

This manual was produced on an Apple PowerMacintosh 9500/200 personal computer and output by an Apple LaserWriter 16/600 PS laser beam printer; final pages were printed on AGFA Selectset avantra 25.

All graphics were produced with Macromedia FreeHand (J), and all documents and page layouts were created with QuarkXPress (E).

The video images were captured with SONY digital video camcorder and Radius PhotoDV capture board system, and modified with Adobe Photoshop™ (J).

**CONTENTS**

**CHAPTER 1 PRODUCT INFORMATION**

I. FEATURES.....	1-1	VI. MAINTENANCE AND	
II. SPECIFICATIONS.....	1-3	SERVICING BY THE	
III. ▲ SAFETY INFORMATION.....	1-6	CUSTOMER .....	1-17
IV. PARTS OF THE PRINTER.....	1-7	VII. OPERATION.....	1-18
V. INSTALLATION .....	1-10		

**CHAPTER 2 OPERATION AND TIMING**

I. BASIC OPERATION .....	2-1	C. Scanner System.....	2-22
A. Functions .....	2-1	IV. IMAGE FORMATION SYSTEM....	2-24
B. Basic Operation Sequences ..	2-2	A. Outline .....	2-24
C. Power ON Sequence .....	2-3	B. Printing Process .....	2-25
II. ENGINE CONTROL SYSTEM.....	2-4	V. PICK-UP/FEED SYSTEM .....	2-32
A. Engine Controller PCB .....	2-4	A. Outline .....	2-32
B. Fixing Control Circuit.....	2-9	B. Fixing and Delivery Unit.....	2-35
C. High-voltage Power Supply		C. Paper Jam Detection .....	2-36
Circuit .....	2-12	VI. VIDEO CONTROL SYSTEM.....	2-38
D. Low-voltage Power Supply		A. Video Controller Circuit.....	2-38
Circuit .....	2-14	B. Operation Panel.....	2-43
E. Video Interface Control .....	2-15	C. Self Test .....	2-44
F. Other Controls.....	2-17	VII. PAPER FEEDER.....	2-47
III. LASER/SCANNER SYSTEM .....	2-18	A. Outline .....	2-47
A. Outline .....	2-18	B. Pick-up and Feeding .....	2-48
B. Laser Control Circuit .....	2-19	C. Paper Jam Detection .....	2-51

**CHAPTER 3 THE MECHANICAL SYSTEM**

I. PREFACE.....	3-1	B. Multi-purpose Tray	
II. EXTERNALS .....	3-2	Pick-up Roller.....	3-11
A. Locations.....	3-2	C. Separation Pad (multi-	
III. MAIN UNITS .....	3-7	purpose tray) .....	3-11
A. Laser/Scanner Unit.....	3-7	D. Cassette Pick-up Roller.....	3-12
B. Drive Unit.....	3-7	E. Separation Pad (Cassette) ....	3-12
C. Cassette Pick-up Unit .....	3-8	F. Lower Registration Roller ....	3-13
D. Registration Roller Unit.....	3-8	G. Registration Shutter .....	3-13
E. Fixing Unit .....	3-9	H. Transfer Charging Roller.....	3-14
IV. MAIN PARTS.....	3-10	I. Fixing Film Unit .....	3-14
A. Locations.....	3-10	J. Pressure Roller .....	3-15

<b>V. SWITCHES/SENSORS .....</b>	<b>3-16</b>	<b>VII. MOTOR/FAN.....</b>	<b>3-21</b>
<b>A. Locations.....</b>	<b>3-16</b>	<b>A. Locations.....</b>	<b>3-21</b>
<b>B. Multi-purpose Tray Paper</b>		<b>B. Main Motor.....</b>	<b>3-22</b>
<b>Sensor .....</b>	<b>3-17</b>	<b>C. Cooling Fan .....</b>	<b>3-22</b>
<b>C. Delivery Sensor .....</b>	<b>3-17</b>	<b>VIII. PCBs .....</b>	<b>3-23</b>
<b>D. Interlock Switch .....</b>	<b>3-18</b>	<b>A. Locations.....</b>	<b>3-23</b>
<b>E. Top-of-Page Sensor/</b>		<b>B. Engine Controller PCB .....</b>	<b>3-24</b>
<b>Cassette Paper Sensor/</b>		<b>C. Intermediate PCB .....</b>	<b>3-25</b>
<b>Test Print Switch.....</b>	<b>3-18</b>	<b>D. Video Controller PCB .....</b>	<b>3-26</b>
<b>VI. SOLENOIDS .....</b>	<b>3-19</b>	<b>E. Connector 1 PCB/Connector 2 PCB...</b>	<b>3-27</b>
<b>A. Locations.....</b>	<b>3-19</b>	<b>IX. PAPER FEEDER .....</b>	<b>3-28</b>
<b>B. Multi-purpose Tray</b>		<b>A. Locations.....</b>	<b>3-28</b>
<b>Pick-up Solenoid.....</b>	<b>3-20</b>	<b>B. Disassembly and</b>	
<b>C. Cassette Pick-up Solenoid....</b>	<b>3-20</b>	<b>Reassembly.....</b>	<b>3-29</b>

## **CHAPTER 4 TROUBLESHOOTING**

<b>I. PREFACE.....</b>	<b>4-1</b>	<b>B. Electrical Adjustment .....</b>	<b>4-27</b>
<b>A. Malfunction Diagnosis</b>		<b>C. Variable Resistors, LEDs,</b>	
<b>Flowchart .....</b>	<b>4-1</b>	<b>Test Pins, Jumpers and</b>	
<b>B. Initial Check.....</b>	<b>4-4</b>	<b>Switches on PCBs .....</b>	<b>4-28</b>
<b>C. Test Print .....</b>	<b>4-5</b>	<b>VIII. MAINTENANCE AND</b>	
<b>II. IMAGE DEFECTS .....</b>	<b>4-8</b>	<b>SERVICING .....</b>	<b>4-31</b>
<b>III. PAPER JAMS</b>		<b>A. Periodic Replacement</b>	
<b>TROUBLESHOOTING.....</b>	<b>4-14</b>	<b>Parts .....</b>	<b>4-31</b>
<b>IV. PAPER TRANSPORT</b>		<b>B. Expected Service Lives of</b>	
<b>TROUBLESHOOTING.....</b>	<b>4-19</b>	<b>Consumable Parts .....</b>	<b>4-31</b>
<b>V. MALFUNCTION</b>		<b>C. Periodic Service.....</b>	<b>4-31</b>
<b>TROUBLESHOOTING.....</b>	<b>4-20</b>	<b>D. Cleaning during a Service</b>	
<b>VI. MALFUNCTION STATUS</b>		<b>Visit .....</b>	<b>4-32</b>
<b>TROUBLESHOOTING.....</b>	<b>4-21</b>	<b>E. Standard Tools.....</b>	<b>4-34</b>
<b>VII. MEASUREMENT AND</b>		<b>F. Special Tools .....</b>	<b>4-35</b>
<b>ADJUSTMENT .....</b>	<b>4-27</b>	<b>G. Solvents and Oil List .....</b>	<b>4-36</b>
<b>A. Mechanical Adjustment .....</b>	<b>4-27</b>	<b>IX. LOCATION OF CONNECTORS....</b>	<b>4-37</b>

## **APPENDIX**

<b>I. GENERAL TIMING CHART .....</b>	<b>A-1</b>	<b>III. LIST OF SIGNALS .....</b>	<b>A-5</b>
<b>II. GENERAL CIRCUIT DIAGRAM...</b>	<b>A-3</b>	<b>IV. MESSAGE TABLE.....</b>	<b>A-11</b>

# **CHAPTER 1**

## **PRODUCT INFORMATION**

<b>I. FEATURES.....</b>	<b>1-1</b>	<b>VI. MAINTENANCE AND</b>	
<b>II. SPECIFICATIONS.....</b>	<b>1-3</b>	<b>SERVICING BY THE</b>	
<b>III. ▲ SAFETY INFORMATION.....</b>	<b>1-6</b>	<b>CUSTOMER .....</b>	<b>1-17</b>
<b>IV. PARTS OF THE PRINTER.....</b>	<b>1-7</b>	<b>VII. OPERATION.....</b>	<b>1-18</b>
<b>V. INSTALLATION .....</b>	<b>1-10</b>		



## I. FEATURES

### 1. High speed printing

With a built-in high-speed video controller employing a high-performance RISC processor PowerPC for its compact design, this printer has capabilities of printing a maximum of 10 pages per minute in A4 or letter-size paper.

### 2. High resolution

This printer provides clear images and characters using Super Fine Particle Toner and Automatic Image Refinement for its printer engine corresponding to 1200 dpi.

### 3. Paper handling for various media

This printer is capable of handling various paper media. The cassette can accommodate from A5 to legal-size plain paper. Special media, such as OHTs, labels, and envelopes can be printed from the multi-purpose tray. With the optional paper feeder installed in the printer, up to 600 sheets can be loaded.

### 4. Memory saving technology

The Memory Reduction Technology enables printing on A4 or letter-size paper at the resolutions of 1200 × 1200 dpi with only 4 Mbytes of memory.

### 5. Energy saving/Toner consumption reduction

Energy saving functions, such as the On-Demand Fixing Method, enable low-power consumption. The Economy Mode allows the printer to use less toner than usual for lighter printing so that the toner consumption can be reduced.

### 6. PDL auto-switching

This printer supports the Hewlett-Packard's PCL6 printer language. Also, Adobe PostScript 3 can be provided by installing the optional Canon Adobe PostScript 3 Module A-32. This enables PDL auto-switching for PCL and PostScript based on the received data.

### 7. Interface feature

This printer utilizes two IEEE 1284 Standard parallel interfaces, one supports ECP and the other supports the Compatible and Nibble protocols. The optional adapter enables this printer to employ a third party network module.

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## II. SPECIFICATIONS

### A. Printer

#### 1. Printer Engine

- |                                     |  |
|-------------------------------------|--|
| 1) Type                             | Desk-top page printer  |
| 2) Printing method                  | Electrophotography   |
| 3) Printing speed <b>(Note 1)</b>   | About 10 pages/min. (A4, Letter, B5-JIS)   |
| 4) First print time <b>(Note 2)</b> | About 16.6 seconds   |
| 5) Wait time                        | 10 seconds or less (20°C room temperature)   |
| 6) Resolution                       |  |
| Horizontal                          | 1200 DPI   |
| Vertical                            | 1200 DPI   |
| 7) Image formation system           |  |
| Laser                               | Semiconductor laser  |
| Scanning system                     | Rotating six-faced prism mirror (Scanning mirror)  |
| Photosensitive drum                 | OPC  |
| Charging                            | Roller charging  |
| Exposure                            | Laser scanning   |
| Toner                               | Magnetic single-component dry toner  |
| Development                         | Toner projection development   |
| Toner supply                        | By EP-32 cartridge replacement (about 5,000 A4-sized prints: with image density set in the middle and 4% dot density ratio <b>(Note 3)</b> .)  |
| Transfer                            | Roller transfer  |
| Separation                          | Curvature  |
| Cleaning                            | Blade  |
| Fixing                              | On-demand fixing method  |
| 8) Pick-up                          | Multi-purpose tray   |
|                                     | Cassette   |
|                                     | Paper feeder (option)  |
| Print paper                         | Plain paper, colored paper, labels, recycled paper, OHTs, and envelopes  |
| Paper sizes                         |  |
| Multi-purpose tray                  | Min. (vertical feeding only) 76.2mm(W) × 127mm(L) to max. 215.9mm(W) × 355.6mm(L) sized plain paper (60g/m <sup>2</sup> to 163g/m <sup>2</sup> recommended paper) and paper mentioned above. |
| Cassette                            | Letter, Legal, Executive, A4, A5, B5-JIS sized plain paper (60g/m <sup>2</sup> to 105g/m <sup>2</sup> recommended paper) and colored paper.  |
| Multi-purpose tray capacity         | 12mm stack (about 100 sheets of 80g/m <sup>2</sup> paper or 10 envelopes)  |
| Cassette capacity                   | 26mm stack (about 250 sheets of 80g/m <sup>2</sup> paper)  |
| Cassette type                       | Universal (Letter, Legal, Executive, A4, A5, B5-JIS sizes)   |
| 9) Delivery                         | Face-down/face-up  |
| Face-down tray capacity             | About 150 sheets (80g/m <sup>2</sup> paper)  |
| Face-up tray capacity               | About 50 sheets (80g/m <sup>2</sup> paper)   |
| 10) Duplex print <b>(Note 5)</b>    |  |
| Manual duplexing                    | Plain paper (60g/m <sup>2</sup> to 163g/m <sup>2</sup> recommended paper) on multi-purpose tray only. <b>(Note 4)</b>  |
| 11) Environment                     |  |
| Temperature                         | 10 to 32.5°C   |
| Humidity                            | 20 to 80%RH  |
| Air pressure                        | 747 to 1013hPa (560 ~ 760mmHg/equivalent to 0 ~ 2,600m above the sea level)  |

12) Maximum power consumption	750W or less (20°C room temperature with the rated voltage input. Including cases exceeding a second at its peak value.)
13) Noise level (Officially announced level based on ISO 9296)	Sound power level (1B=10dB) 6.2B or less (printing) 4.0B or less (standby) Sound pressure level (Bystander position) 49dB or less (printing) 36dB or less (standby) The above figures are the values measured when all the options are installed.
14) Dimensions	399 (w) × 414 (D) × 258.7 (H) mm
15) Weight	About 11.5kg (printer) About 1.2kg (cartridge) About 1.0kg (cassette)
16) Line voltage requirements	220 to 240V (-10%, +6%) 50/60Hz (±2Hz)
17) Option	Paper feeder

- 
- Notes:**
1. A test print at the room temperature of 20°C with the rated voltage input.
  2. When the printer is in the READY state at the room temperature of 20°C with the rated voltage input, the time from the reception of the print instruction command from the video controller to the end of the delivery of a A4-size print in face-down.
  3. The dot ratio of 4% is equivalent to the printing ratio of 5%.
  4. The size smaller than A4 is 100g/m<sup>2</sup> to 163g/m<sup>2</sup>.
  5. When manual duplexing, uncurl the paper delivered into the face-down tray and then set it in the multi-purpose tray.
- 

### 2. Video Controller

1) CPU	RISC Processor (PowerPC401 66MHz)
2) Memory (RAM)	4Mbytes (Expandable to a maximum of 36Mbytes with an option)
3) Memory (ROM)	4Mbytes (Expandable with an option)
4) RAM slot	2
5) ROM slot	3
6) Host interface	IEEE 1284 Standard parallel interface
7) Language	Standard: PCL5e plus PCL6 Standard: Adobe PostScript Level 3
8) Resident font	45 scalable fonts (Micro Type fonts), 27 True Type fonts, 9 Bitmap fonts
9) Optional font	136 fonts for A-32 module
10) Scaler	UFST

Specifications are subject to change with product modification.
---

**B. Option**

**1. Paper feeder**

- |                 |  |
|-----------------|--|
| 1) Paper        | Universal (Letter, Legal, Executive, A4, A5, B5-JIS sizes) |
| 2) Capacity     | 26mm stack (about 250 sheets of 80g/m <sup>2</sup> paper)  |
| 3) Dimensions   | 393 (W) × 395 (D) × 83.5 (H) mm                            |
| 4) Weight       | About 2kg (paper feeder)<br>About 1kg (cassette)           |
| 5) Power supply | DC24V (supplied from the printer)                          |

Specifications are subject to change with product modification.

### III. SAFETY INFORMATION

#### A. Laser safety

An invisible laser beam is irradiated within the laser/scanner unit.

Since the laser beam can injure your eye, be sure not to disassemble the laser/scanner unit. Also, it cannot be adjusted in the field.

The label shown below is attached to the laser/scanner unit cover.



Figure 1-3-1

#### B. Toner safety

Composed of plastic and minute colored components, toner is a non-poisonous substance.

If toner adheres to your skin or clothes, remove as much of it as possible with dry tissue paper, then wash with cold water. If you use hot water, the toner will gel and become difficult to remove.

As toner easily breaks down vinyl materials, avoid letting toner come into contact with vinyl.

#### C. Ozone safety

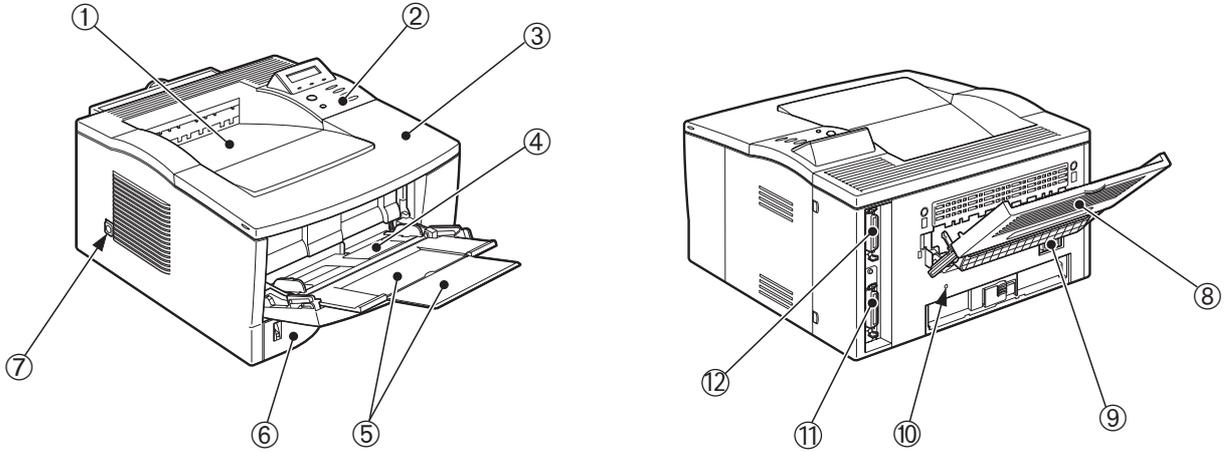
An infinitesimal amount of ozone gas (O<sub>3</sub>) is generated during corona discharge from the charging roller used in this printer. The ozone gas is emitted only when the printer is operating.

This printer meets the ozone emission reference value set by Underwriters Laboratory (UL) at the time it is shipped from the factory.

**IV. PARTS OF THE PRINTER**

**A. External Views**

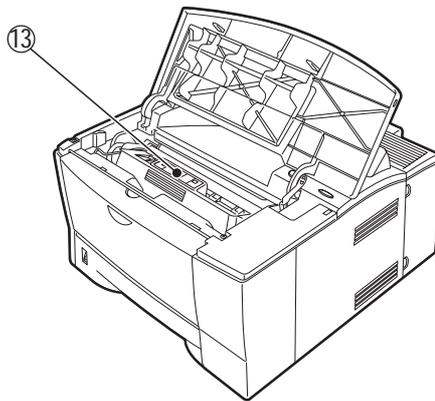
**1. Printer**



**Figure 1-4-1**

- 1: Face-down tray
- 2: Operation panel
- 3: Top cover
- 4: Multi-purpose tray
- 5: Expansion trays
- 6: Cassette

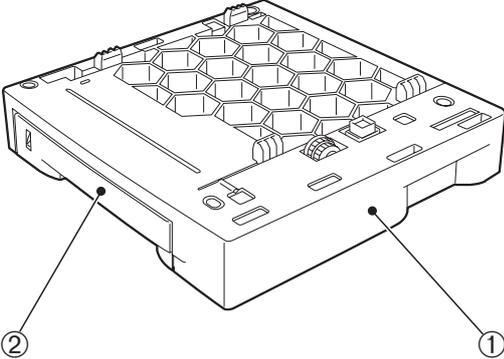
- 7: Power switch
- 8: Face-up tray
- 9: Power receptacle
- 10: Test print switch
- 11: Parallel interface connector 2
- 12: Parallel interface connector 1



**Figure 1-4-2**

- 13: EP-32 cartridge

**2: Paper feeder**



**Figure 1-4-3**

- 1: Paper feeder
- 2: Cassette

## B. Cross-sectional views

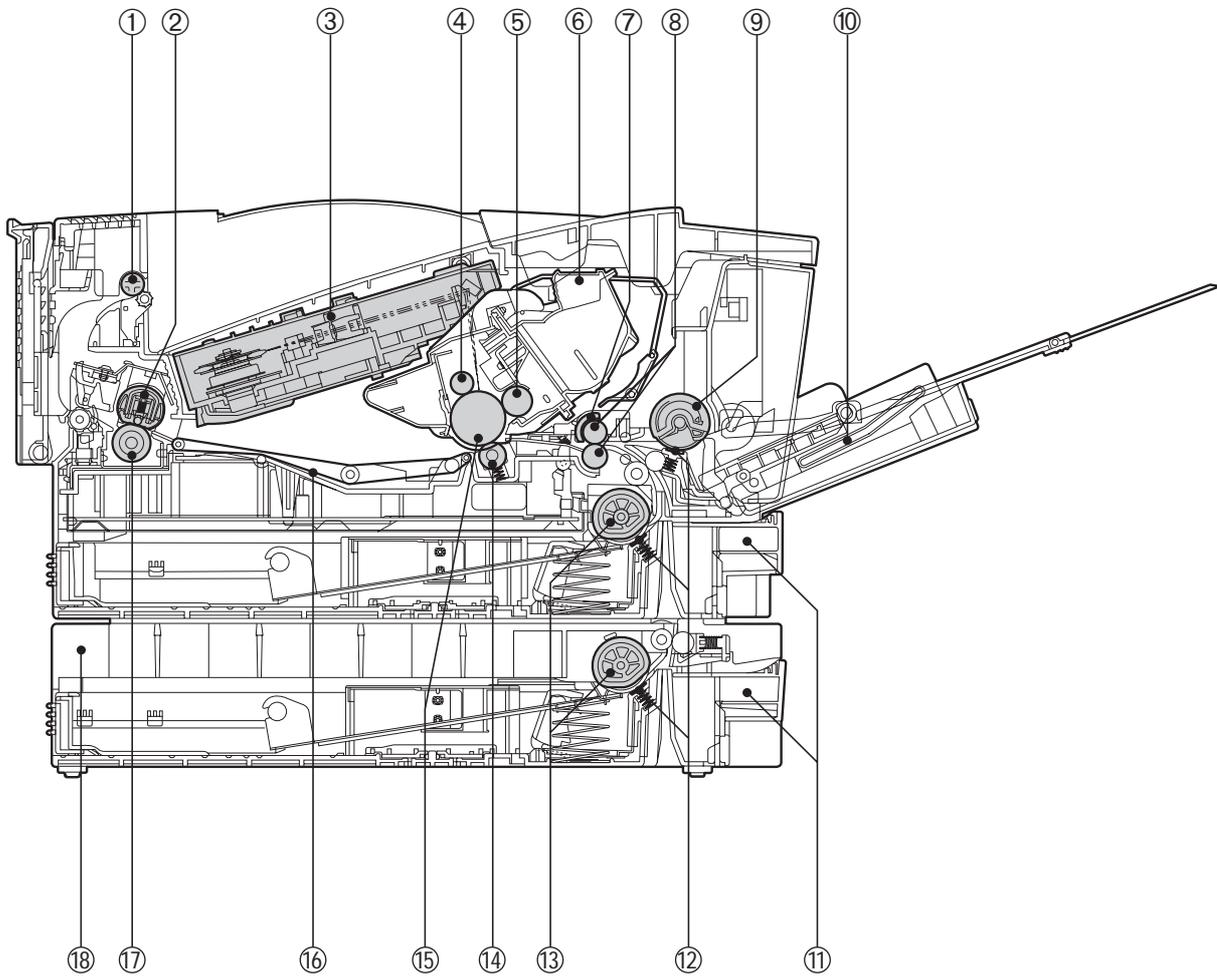


Figure 1-4-4

- |                                      |                              |
|--------------------------------------|------------------------------|
| 1: Delivery roller                   | 10: Multi-purpose tray       |
| 2: Fixing film unit                  | 11: Cassette                 |
| 3: Laser/scanner unit                | 12: Separation pad           |
| 4: Primary charging roller           | 13: Cassette pick-up roller  |
| 5: Developing cylinder               | 14: Transfer charging roller |
| 6: EP-32 cartridge                   | 15: Photosensitive drum      |
| 7: Registration shutter              | 16: Feed belt                |
| 8: Registration roller               | 17: Pressure roller          |
| 9: Multi-purpose tray pick-up roller | 18: Paper feeder (option)    |

# V. INSTALLATION

## A. Outline

This printer is packaged and shipped from the factory after careful adjustments and rigorous inspections.

When installing the printer, it is important to demonstrate its performance in the same way as when it passed the factory inspection.

The service engineer must sufficiently understand the performance of the printer, install it correctly in a location with an appropriate environment, and conduct sufficient checks of the unit.

## B. Location Selection

Before taking the printer to the customer's premises, you should confirm the following installation conditions.

### 1. Power supply

Use the following power supplies:

- Alternating current (AC): -10% and +6% of rated voltage
- Power frequency: 50/60Hz±2Hz

### 2. Operating environment

Install in a location that meets the following conditions:

- Level, flat surface
- Temperature, humidity within the following ranges:  
Surrounding temperature: 10 to 32.5°C  
Surrounding humidity: 20 to 80%RH (relative humidity)
- Cool, well-ventilated space

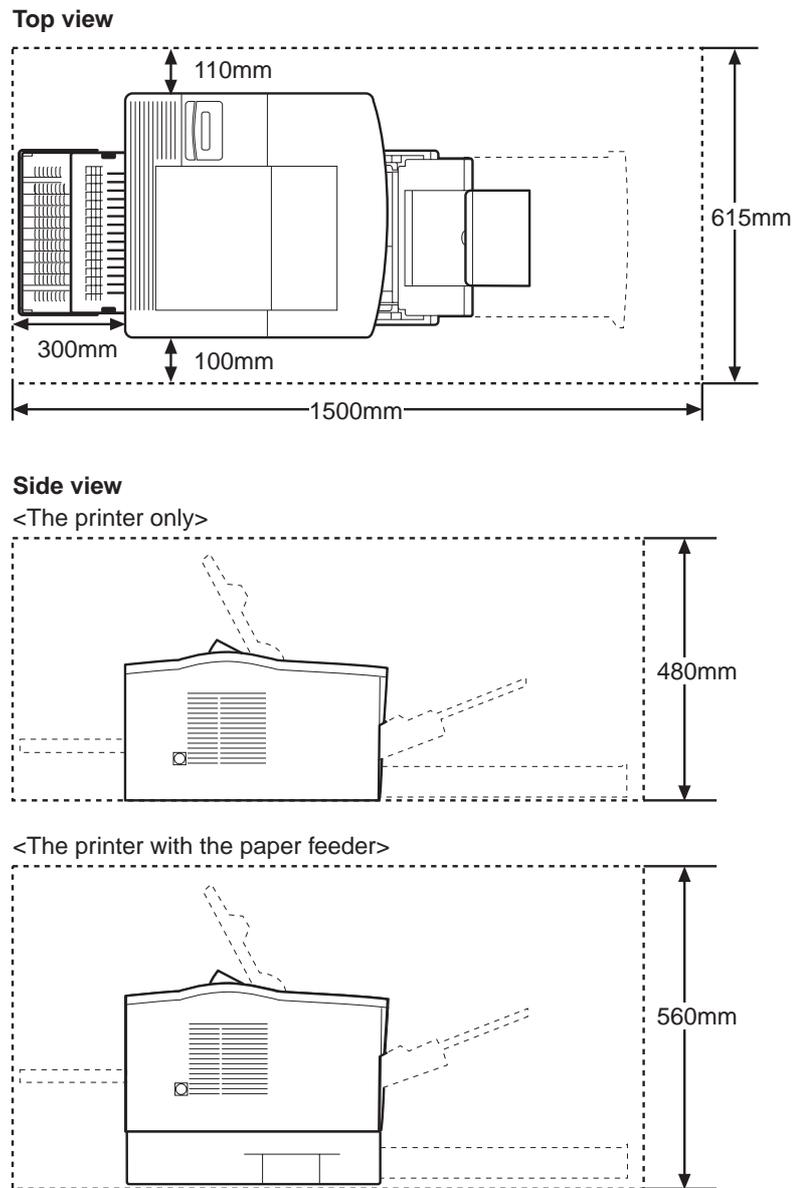
### Do not install in the following locations:

- Exposed to direct sunlight  
If you cannot avoid such a location, hang heavy curtains, etc. to shut out the direct sunlight.
- Near magnets and devices that emit a magnetic field.
- Areas with vibration
- Dusty places
- Near fire or water
- Room with ultrasonic heater

### 3. Installation space

Install the printer at a suitable distance from the walls, leaving enough room to operate it (see Figure 1-5-1).

When installing the printer on a desk, be sure that it is large enough to accommodate the printer's feet (rubber pads) and strong enough to stand its weight.



**Figure 1-5-1**

### C. Unpacking and Installation

Condensation appear on metal surfaces in the printer when brought from a cold area into a warm area. Since the condensation can cause various troubles including print defects, in such a case, leave it in the carton at room temperature for at least an hour so that it is acclimatized to room temperature.

When installing the option, be sure that the printer is powered OFF.

#### 1. Printer

- 1) Open the printer packaging.
- 2) Take out the accessories. Confirm that the power cord, the EP-32 cartridge, the CD-ROM, and manuals, etc are included.
- 3) Take the plastic bag off the printer and peel off the tape securing the components. Confirm that none of the covers were scratched or deformed during shipment.
- 4) Take out the cassette from the printer, and remove the packing materials and the plastic material (stopper) holding the lifting plate from the cassette.

#### 2. Cartridge

- 1) Open the bag holding the cartridge and take out the cartridge.
- 2) Hold the cartridge as shown in Figure 1-5-5 and slowly rock it to right and left 5 to 6 times so that the toner is evenly distributed.
- 3) Place the cartridge on a flat surface. While holding down on the top of the cartridge with one hand, grasp the tab with the other hand and gently pull out the sealing tape.
- 4) Open the top cover of the printer and load the cartridge in the printer. Make sure to insert the cartridge until it firmly contacts with the back of the slot.

#### 3. Paper feeder

- 1) Open the paper feeder packaging.
- 2) Take the plastic bag off the paper feeder and peel off the tape securing the components. Confirm that the paper feeder was not scratched or deformed during shipment.
- 3) Take out the cassette from the paper feeder, and remove the packing materials and the plastic material (stopper) holding the lifting plate from the cassette.
- 4) Place the paper feeder on a flat surface.
- 5) Lift the printer, and align the positioning pins of the paper feeder with the positioning holes of the printer.

#### 4. Operation confirmation

- 1) Take out the cassette.
- 2) Set the side guide plate to the position corresponding to the paper size.
- 3) Lower the lifting plate and lock it with the pressure release lever.
- 4) Load paper in the cassette.
- 5) Plug the power cord into the printer and outlet, and turn the power switch ON. Be sure to use the enclosed power cord.
- 6) After the printer enters the STANDBY mode, press the test print switch (see Figure 1-4-2) to make a test print. Check if the density of the output image is correct.
- 7) Keep clean around the printer and ensure that it is ready for use at anytime.

#### 5. Operation cautions

- a. When powering ON, the printer must be powered ON after the host computer. When powering OFF, the printer must be powered OFF before the host computer. If the host computer is powered ON/OFF while the printer is ON, the noise may enter the printer through the cables connecting the printer and host computer together, and an error may occur.
- b. When plugging/unplugging the connector attaching the printer and host computer together,

be sure to power OFF both the printer and host computer, and to unplug the power cord from the outlet. If the connector is plugged/unplugged while the printer is ON, it may break the printer down.

- c. When installing and uninstalling the Adobe PostScript Module A-32, flash ROM, or Expansion RAM DIMM (all of these are options), be sure to switch OFF the printer.
- d. A maximum length of three meters of shielded cable must be used for connecting the printer and host computer.

**D. Storing, Handling the EP-32 cartridge**

Whether the cartridge is still sealed in its box or installed in the printer, the effect of the natural environment will change it over time regardless of the number of prints. As the progression of this natural change depends on the storage or installation environment, take sufficient care in storing and handling the cartridges.

**1. Before unsealing the box**

When the cartridge is stored in a warehouse, workshop, etc., be sure to keep it within the ranges shown in Table 1-5-1. Note the following points:

- 1) Avoid locations in direct sunlight.
- 2) Do not leave in areas exposed to strong vibration.
- 3) Do not bump or drop.

**Table 1-5-1 Environmental conditions**

Temperature	Normal (total storage time × 9/10)		0 to 35°C
	Severe (total storage time × 1/10)	High	35 to 40°C
		Low	-20 to 0°C
Temperature change (within 3 minutes or so)			40°C→15°C -20°C→25°C
Relative humidity	Normal (total storage time × 9/10)		35 to 85% RH
	Severe (total storage time 1/10)	High	85 to 95% RH
		Low	10 to 35% RH
Air pressure			345 to 1013 hPa (460 to 760 mmHg)

**Note:** Total storage time is the valid time span following the manufacture date displayed on the cartridge box.

**2. Storing unsealed parts**

As an organic photoconductor (OPC) is used in the photosensitive drum, it will deteriorate if exposed to strong light. As there is also toner in the cartridge, be sure to explain to the customer the need to be careful in handling and storing unsealed cartridges.

**a. Storage environment**

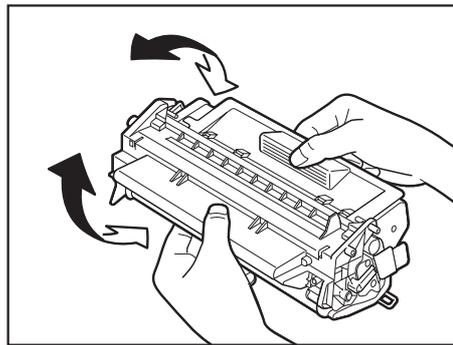
- 1) Be sure to store in the protective bag.
- 2) Avoid locations exposed to direct sunlight, near windows, etc. Do not leave the cartridge in cars for any extended period of time as heat can damage it.
- 3) Avoid high, low, and changeable temperature/humidity locations.
- 4) Avoid sites with corrosive gases (pesticides) or salt in the air.
- 5) Store the cartridge within a range of 0 to 35°C.
- 6) Do not place the cartridge near CRT displays, disk drives, or floppy disks.
- 7) Store the cartridge out of reach of children.

**b. Effective life**

Cartridges are effective for 2.5 years following the date of manufacture, which is displayed in an abbreviated form on the cartridge. The cartridge life span is also displayed (month and year) on the cartridge box as 2.5 years from the date of manufacture. Cartridges should be used within their life spans, as image quality will deteriorate after the expiry date.

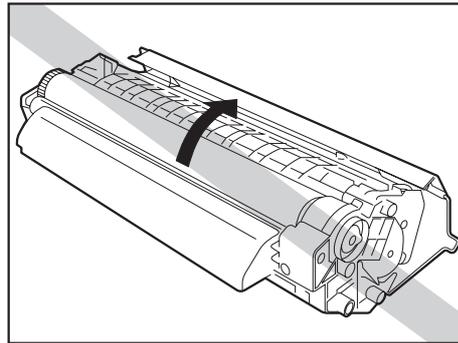
**3. Handling**

- 1) When loading a new cartridge into the printer, or when blank spots appear on output images due to uneven distribution of the toner during use, hold the cartridge at each end as shown in the figure below. Slowly rock it 5 to 6 times at a 45-degree angle to evenly distribute the toner, and reload it into the printer. Do not shake the cartridge in any other ways, as toner may leak from the developing cylinder or the cleaner unit.



**Figure 1-5-2**

- After loading the cartridge in the printer, print 3 to 5 sheets of test patterns and check for toner leakage to prevent output image from dirt.
- 2) Remove the cartridge from the printer before transporting it. During transportation, the cartridge must be kept in the protective bag or thick cloth to prevent direct exposure to light.
  - 3) Avoid placing the cartridge near CRT displays, disk drives or floppy disks, as the magnetism generated by the cartridge may destroy the data.
  - 4) As the photosensitive drum is sensitive to strong light, do not expose the cartridge to direct sunlight or strong light. If it is exposed to strong light, image defects (black lines), may appear on printed images. In such cases, leaving the cartridge in the dark for a day will rectify the problem. However, if the drum has been exposed to strong light for an extended period of time, leaving it in the dark may not erase the black lines.
  - 5) Do not open the photosensitive drum protective shield by hand nor touch the drum surface. Do not clean the drum.
  - 6) Do not stand the cartridge on end nor place it upside down. Always place it with the label side on top.
  - 7) Do not disassemble the cartridge.



**Figure 1-5-3**

## VI. MAINTENANCE AND SERVICING BY THE CUSTOMER

Table 1-6-1 shows the maintenance the customer should conduct to ensure optimum machine performance at all times.

### 1. Cartridge

Rock the cartridge or replace, when necessary.

### 2. Transfer guide unit

When replacing the cartridge, wipe the transfer guide unit with a tightly wrung wet soft cloth, and then with a dry cloth.

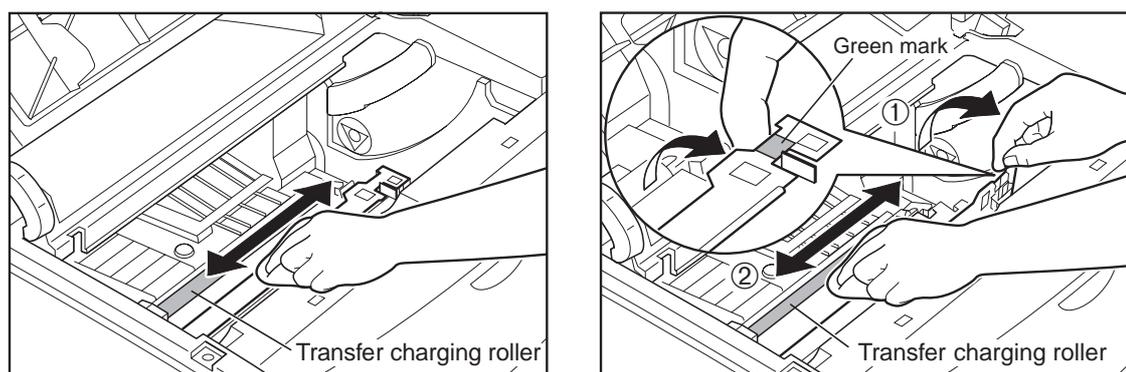


Figure 1-6-1

### 3. Pressure roller

When black spots adhere to the surface or the back of the print, clean the pressure roller as below.

- 1) Open the face-up tray to switch to the face-up delivery.
- 2) Open the multi-purpose tray, and then load A4-size print paper.
- 3) Press the Go key to off-line the printer.
- 4) Keep pressing the Menu key until the "TEST MENU" message appears in the upper line of the status display panel.
- 5) Keep pressing the Item key until the "CLEANING PAGE" message appears in the lower line of the status display panel. Press Go key after the message appears so that the printer feeds the paper and starts cleaning the pressure roller.
- 6) Press the Go key to set the printer off-line.

## VII. OPERATION

### A. The Operation Panel

The operation panel is used to perform basic printer operations, make printer configuration changes that software applications cannot control, identify available typefaces, and check the status of the printer.

The operation panel consists of the status indication display, three indicator lights, and six menu and operation keys.

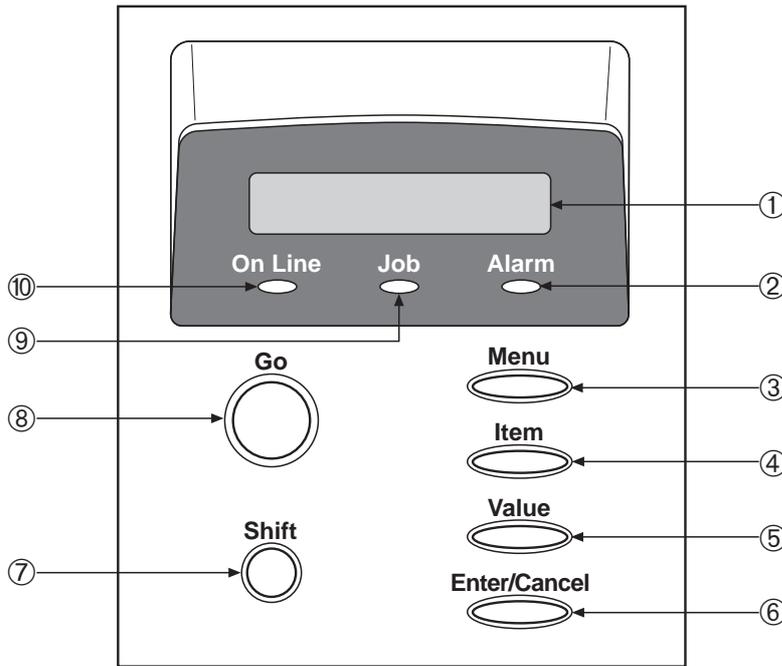


Figure 1-7-1

- **Status indication display (2-line, 16-segment LCD): 1**

Indicates the printer status and menu setting, and displays messages.

- **Alarm indicator: 2**

**ON:**

An error has occurred and printing has stopped.

**OFF:**

Operation in normal and there is no error.

- **Menu key: 3**

With the printer off-line, press the Menu key to scroll through the menu names and return to the first menu name. To scroll back through the menu names in the opposite direction, press the Shift and Menu keys.

Depending on what options have been installed, some menu names may not appear.

- **Item key: 4**

With a menu name displayed, press the Item key to scroll through all the items on the menu and return to the first item. To scroll back through the items in the opposite direction, press the Shift and Item keys.

Depending on what options you have installed, some items may not appear.

- **Value key: 5**

With an item name displayed, press Value key to step through the item's values. Press Shift and Value keys to step through the values in reverse order. Some items have a large range of numbers from which to choose a value.

- **Enter/Cancel key: 6**

Save a value you selected for an item in the menu. An asterisk (\*) marks the value designated as the current default.

Press Shift and Enter/Cancel keys to exit the current mode and access the RESET MENU. Choose RESET=PRINTER and press Enter key to clear all resources in the printer memory but leave the menu settings unaffected. If there other jobs are in the print que, these will be printed after the printer has been reset. If you choose RESET=MENU the factory default values are restored for most menu items.

- **Shift key: 7**

Press the Shift and another keys to access the alternate function. Allows you to execute the alternate function of dual function keys. The two functions on the dual function keys are separated by a slash in the key name on the operation panel.

- **Go: 8**

Takes the printer off-line and back on-line. When the On Line indicator is on, the printer is ready to receive data and print. When the On Line indicator is off, the printer is off-line and the other keys on the operation panel can be used to view and change settings.

Resumes printing after the printer display a message and stops printing. For most situations, after you press Go key, the message clears and printing resumes.

To perform a form feed and print any date remaining in the form printer, press Go key twice in succession.

To reset the printer settings to their default values, hold down this key while turning ON the printer. This resets all setting except the PAGE COUNT field on the TEST PRINT page.

- **Job indicator: 9**

**ON:**

A page buffer has been composed and is currently stored in printer memory.

**OFF:**

There is no data stored in printer memory.

- **On Line indicator: 10**

**ON:**

The printer is on-line.

**Blinking:**

The printer is processing a print job.

**OFF:**

The printer is off-line.

### B. Operation Panel Menus

You can access the following menus through the operation panel:

- PCL MENU
- FEEDER MENU
- CONFIG MENU
- MEMCONFIG MENU
- PARALLEL 1 MENU
- PARALLEL 2 MENU
- TEST MENU
- LANGUAGE MENU
- RESET MENU

#### 1. Accessing and selecting menu items

Follow these steps to access the menus and make selections:

- 1) Check the operation panel and be sure the Job indicator is OFF.
- 2) Press the Go key to set the printer off-line. The On Line indicator goes OFF and PAUSED is displayed in the top line.
- 3) Press the Menu key to display the name of the first menu. Press the Menu key until you see the menu.
- 4) Press the Item key to display the name of the first item on the menu. Press the Item key until you see the item.
- 5) Press the Value key until you display the values you want to change.
- 6) If you want to change the setting, press the Value key until the value you want is displayed. Then press the Enter key.
- 7) Press the Go key to set the printer on-line.

Figure 1-7-2 lists the Menu Operation Flow.

#### 2. Confirming menu selections

There are two ways the selections made through the operation panel can be reviewed:

- Scroll through the menu items to check all selections marked with an asterisk.
- Make a Test Print. The printed output lists all settings that are in effect. See the Printing the Test Print section for more information.

#### 3. Restoring the default settings

Types of default settings are as follows:

- Factory default settings are those set for each menu item at the factory. The printer uses these settings changed.
- Temporary default settings are those set by the application software for the current print job.
- Permanent default settings are those set through the operation panel. These selections remain in effect even when the printer is turned OFF, or send a different request through the application.

**4. Resetting the default values**

The printer can be reset in three ways:

- The reset printer function (RESET=PRINTER) clears the memory of all fonts, macros or page information and does not affect the menu settings.
- The reset menu function (RESET=MENU) clears the memory of all fonts, macros, and page information and restores most of the menu settings to their factory defaults.
- A cold reset clears the memory and restores all menu settings to their factory default settings, with the exception of the page count value.

## CHAPTER 1

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