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LBP-3260

SERVICE MANUAL

REVISION 0

Canon

RY8-1390-000

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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-3260 (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.

This manual consists of the following chapters:

- Chapter 1: Product information
Features, specifications, operation, 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 9500/233 personal computer and output by an Apple LaserWriter 16/600 PS laser beam printer; final pages were printed on DAINIPPON SCREEN MFG CO. LTD DT-R3100.

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).

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CHAPTER 1

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I. FEATURES

1. High speed printing

Equipped with Motorola's PowerPC 603e, the printer is capable of printing about 32 pages per minute (A4/Letter).

2. Superior print quality

Combination of high resolution printing at 600 DPI and the use of super fine toner offers clear print images.

3. Duplex printing

With the optional duplexing unit installed, the printer can print on both sides of paper.

4. Continuous printing

With the optional paper deck installed in the printer in addition to the standard equipped multi-purpose tray and upper and lower cassettes, up to about 3,100 sheets of paper (75g/m²) can be loaded, enabling continuous printing in large volume.

5. 6-way paper pick-up

Optional 2x500 sheet paper deck and envelope feeder in addition to the standard equipped multi-purpose tray and upper and lower cassettes offer 6-way paper pick-up. The printer can change the paper pick-up source automatically according to the paper type in addition to the paper size.

6. Delivery

With the optional staple stacker installed in addition to the standard face-down tray, up to 2,300 sheets of A4 or Letter size paper (75g/m²) can be delivered (simple stacking).

7. Various delivery methods

With the optional sorter attached to the printer, paper can be delivered in 4 modes: mail box, job separator, stacker and collator.

8. Memory saving technology

Memory Reduction Technology accomplishes printing at 600 DPI with standard equipped memory (8 MB). It also decreases errors, such as memory over flow, and provides stable printing.

9. Energy saving/Toner saving

The printer cuts off the power to the fixing heater when it remains idle for a specified length of time. It can also reduce toner consumption by selecting the economy mode to print light images with less toner.

10. Automatic emulation switching

The printer supports Hewlett-Packard's enhanced PCL6. With the optional PostScript ROM DIMM (Canon Translator Module A-72) installed, the printer can automatically switch between the standard PCL and Adobe® PostScript® 3™.

11. Automatic interface switching

In addition to the standard built-in bicentronics parallel port, optional interfaces can be installed in the printer. The printer can automatically switch between the parallel and expansion interface according to which interface port the data sent from the host computer enters.

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II. SPECIFICATIONS

A. Printer

1. Printer Engine

- | | |
|---------------------------------------|--|
| 1) Type | Desktop page printer (console type when paper deck is installed) |
| 2) Printing method | Electrophotography |
| 3) Printing speed (Note 1) | About 32 pages/min. (A4/Letter), about 18 pages/min. (A3) |
| 4) First print time (Note 2) | 12.9 sec. or less (A4), 14.3 sec. or less (A3) |
| 5) Wait time (Note 3) | 90 sec. or less |
| 6) Resolution | |
| Horizontal | 600 DPI |
| Vertical | 600 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-72 cartridge replacement (about 20,000 A4- or Letter-sized prints; with "DENSITY" in "CONFIG MENU" set to "7" and 4% dot density) |
| Transfer | Roller transfer |
| Separation | Curvature/discharge bias |
| Cleaning | Blade |
| Fixing | Heated rollers (600W, 450W) |
| 8) Paper pick-up | Multi-purpose tray
Cassette
Envelope feeder EF-9 (option)
2,000 Sheet paper deck PD-82 (option)
2x500 Sheet paper deck PD-82K (option) |
| Print paper | Plain paper, colored paper, labels, OHT, envelopes, rough paper, bond paper, transparency paper, recycled paper, letterhead |
| Paper sizes | |
| Multi-purpose tray | Min. 98.4mm(W) × 190.5mm(L) to max. 297mm(W) × 432mm(L) sized plain paper (64g/m ² to 128g/m ² recommended paper) and paper mentioned above. |
| Upper cassette | B4, A4, Legal, Letter-sized plain paper (64g/m ² to 105g/m ² recommended paper), and colored paper. |
| Lower cassette | A3, B4, A4, Ledger, Legal, Letter-sized plain paper (64g/m ² to 105g/m ² recommended paper), and colored paper. |
| Multi-purpose tray capacity | 10mm stack (about 100 sheets of 75g/m ² paper) |
| Cassette capacity | 50mm stack (about 500 sheets of 75g/m ² paper) |
| Cassette types | |
| Upper cassette | Universal (accommodates B4, A4, Legal, Letter sizes) |
| Lower cassette | Universal (accommodates A3, B4, A4, Ledger, Legal, Letter sizes) |
| 9) Print delivery | Face-down/face-up |
| 10) Print tray capacity | |
| Face-down | About 500 sheets (75g/m ² paper) |
| Face-up | About 100 sheets (75g/m ² paper) |

11) Duplex print		
Auto-duplexing	When duplex unit (option) is installed, and plain paper (64g/m ² to 105g/m ² recommended paper) only.	
Manual duplexing		
(Note 4)	Plain paper (64g/m ² to 128g/m ² recommended paper) on multi-purpose tray only.	
12) Environment		
Temperature	10 to 32.5°C	
Humidity	20 to 80%RH	
Air pressure	760 to 1013hPa (560 ~ 760mmHg/equivalent to 0 ~ 2,600m above the sea level)	
13) Maximum power consumption	About 1,220W (20°C room temperature, rated voltage)	
14) Noise level (Officially announced level based on ISO 9296)		
	Sound power level (1B=10dB)	6.9B or less (printing)
		5.3B or less (standby)
	Sound pressure level (Bystander position)	54dB or less (printing)
		38dB or less (standby)
15) Dimensions	566 (w) × 520 (D) × 540 (H) mm (excluding some projections)	
16) Weight	About 50kg (printer)	
	Aabout 3.4kg (cartridge)	
17) Line voltage requirements	220 to 240V (-10%, +6%) 50/60Hz (±2Hz)	
18) Options	Duplex unit DU-82, envelope feeder EF-9, 2000 sheet paper deck PD-82, 2x500 sheet paper deck PD-82K, sorter S-82, stapler stacker SS-72	

-
- Notes:**
1. A test print at room temperature of 20°C with rated voltage input.
 2. When the printer is in READY state at a room temperature of 20°C, the time from reception of the PRINT signal from the video controller until an A4 or A3-sized print is delivered onto the face-down tray.
 3. At a room temperature of 20°C with rated voltage input, the time from turning ON the printer until the end of the WAIT period.
 4. When manual duplexing, correct the curl of the print delivered in the face-down tray before setting it in the multi-purpose tray.
-

2. Video Controller

1) CPU	RISC processor: Motorola PowerPC 603e
2) RAM	Standard: 8MB
	Maximum: 40MB
3) ROM	4MB
4) ROM DIMM socket	2
5) RAM DIMM socket	3
6) Host interface	Standard: IEEE 1284 compliant parallel
	Option: expansion interface (Ethernet, Token Ring)
7) Language	Standard: PCL 5e/PCL 6
	Option: Adobe® PostScript® 3™
8) Resident fonts	45 Scalable fonts (MicroType font), 8 Bitmap font
9) Optional fonts	136 fonts
10) Scaler	UFST

B. Option

1. Hard disk

- | | |
|-----------------|--|
| 1) Memory | 2.16GB |
| 2) Interface | ATA-3 (IDE) |
| 3) Dimensions | 70 (w) × 12.7 (D) × 100 (H) mm (excluding mounting materials and connector.) |
| 4) Weight | About 0.15kg |
| 5) Power supply | DC5V (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 the eye if it strikes it, be sure not to disassemble the laser/scanner unit. It cannot be adjusted in the field, anyway.

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 (O₃) 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.

D. Power Supply Unit Safety

Care is needed as even though the printer switch may be OFF, there is a possibility that a current may still flow on the primary side. Be sure to remove the power plug before disassembly and assembly of this printer.

IV. PARTS OF THE PRINTER

A. External Views

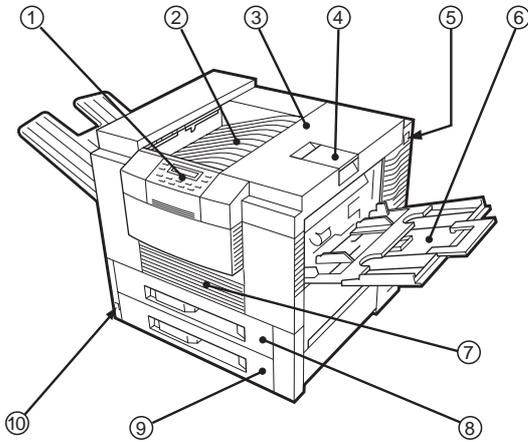


Figure 1-4-1

- 1: Operation panel unit
- 2: Face-down tray
- 3: Upper cover
- 4: Delivery stopper
- 5: Test print switch
- 6: Multi-purpose tray
- 7: Duplex unit door
- 8: Upper cassette
- 9: Lower cassette
- 10: Power switch
- 11: Delivery cover
- 12: Face-up tray
- 13: Parallel interface connector
- 14: Power receptacle
- 15: Option interface connector (option)
- 16: Expansion board slot
- 17: Cleaning brush
- 18: EP-72 cartridge
- 19: Pick-up unit door

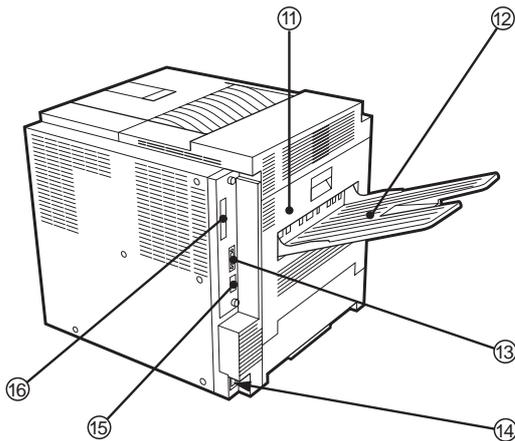


Figure 1-4-2

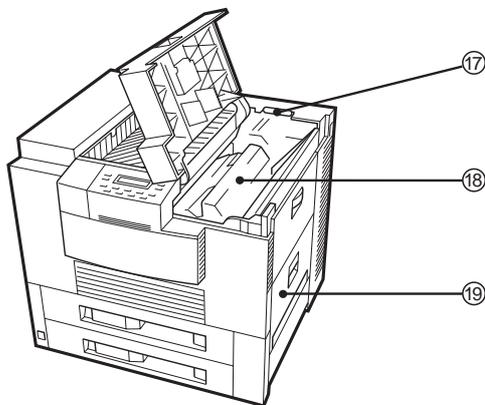


Figure 1-4-3

B. Cross-sectional Views

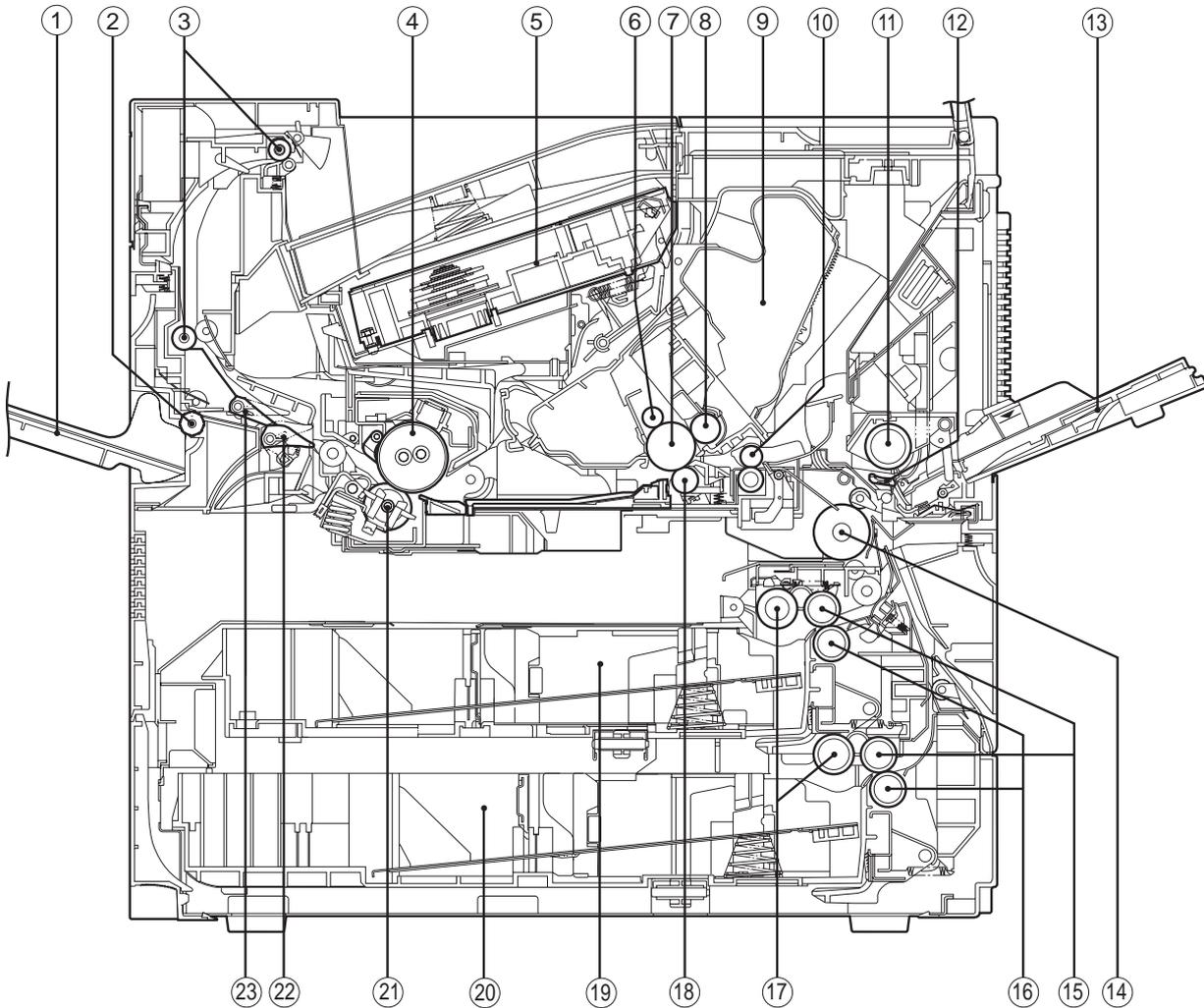


Figure 1-4-4

- | | |
|---------------------------------------|------------------------------|
| 1: Face-up tray | 13: Multi-purpose tray |
| 2: Face-up delivery roller | 14: Feed roller 1 |
| 3: Face-down delivery roller | 15: Feed roller 2 |
| 4: Upper fixing roller | 16: Separation roller |
| 5: Laser/scanner unit | 17: Pick-up roller |
| 6: Primary charging roller | 18: Transfer charging roller |
| 7: Photosensitive drum | 19: Upper cassette |
| 8: Developing cylinder | 20: Lower cassette |
| 9: EP-72 cartridge | 21: Lower fixing roller |
| 10: Registration roller | 22: Duplex deflector |
| 11: Multi-purpose tray pick-up roller | 23: Face-up deflector |
| 12: Separation pad | |

V. INSTALLATION

A. Notes

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 passes 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 conditions at the installation location.

1. Power supply

Use the following power supplies:

- Alternating current (AC): -10%, +6% of the 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: 10to 32.5°C
Surrounding humidity: 20 to 80%RH (relative humidity), without condensation
- 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

3. Installation space

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

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

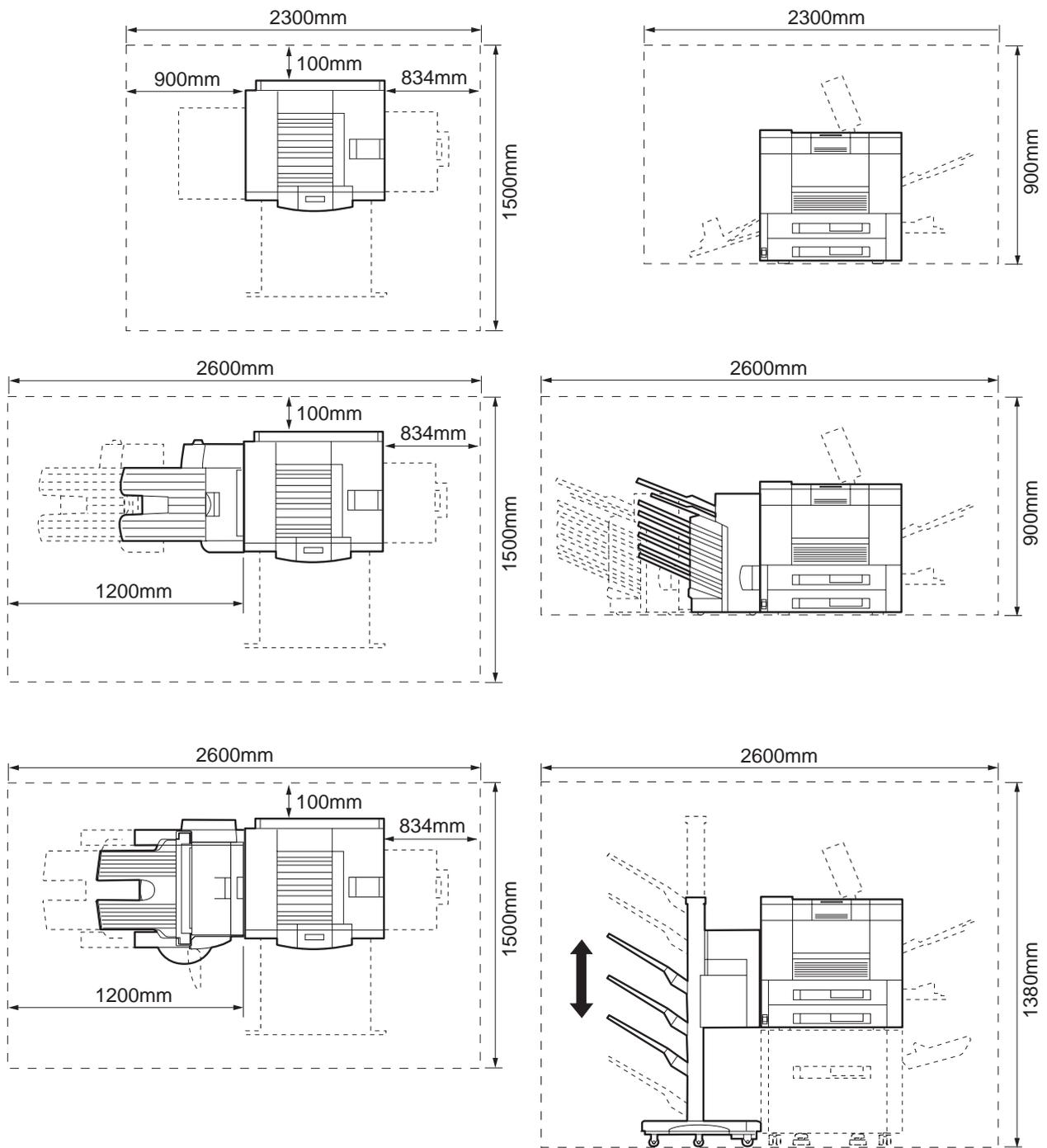


Figure 1-5-1

C. Unpacking and Installation

Condensation will form on metal surfaces when brought into a warm room from the cold. Therefore, when moving the printer to a warm environment, leave it packed in its box for at least an hour to acclimatize to room temperature.

1. Printer

- 1) Open the printer packaging.
- 2) Take out the accessories. Confirm that the power cord, cartridge, and face-up tray are included.
- 3) The printer weighs approx. 50kg, therefore 4 people may be needed to lift the printer and to move to the installation area.
- 4) Take the plastic bag off the printer and peel the tape off each part. Check that none of the covers were scratched or deformed during shipment.
- 5) Open the delivery cover, and remove the pressure release spacer from the fixing unit.
- 6) Open the upper cover, and remove the tape and the packing materials from inside the printer.
- 7) Pull the two cassettes out of the printer and remove the packaging from the cassette.

2. Cartridge

- 1) Open the bag holding the cartridge and take out the cartridge.
- 2) Remove the tape and the black sheet from the cartridge.
- 3) Hold the cartridge on each side as shown in figure 1-5-2 and slowly rock it 5 to 6 times to evenly distribute the toner.
- 4) 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 and gently pull out the sealing tape.
- 5) Open the upper cover of the printer, and load the cartridge with both hands. Slowly insert it until it firmly contacts with the back of the slot.

3. Unpacking and installing the hard disk

Note: 1. Before handling the hard disk, be sure to touch the metal part of the printer to discharge electrical static from your body in order to avoid causing damage to the PCB by the difference in static charge at that time.

2. When removing the PCB at the back of the printer, be sure not to touch the electrical parts on the PCB. Make sure not to touch especially the electrical elements.

- 1) Open the hard disk packaging.
- 2) Remove the pad and then take out the hard disk from its box.
- 3) Remove the plastic bag holding the hard disk.
- 4) If the optional expansion board is installed in the printer, remove the board.
- 5) Loosen the 2 screws at the left back of the printer and pull out the PCB.

6) Remove the 2 screws on the PCB.

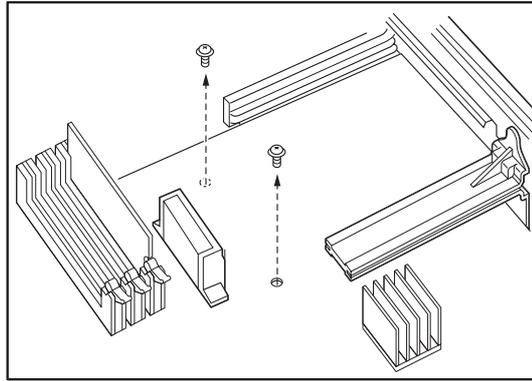


Figure 1-5-2

7) Insert the claw of the hard disk into the hole of the PCB.

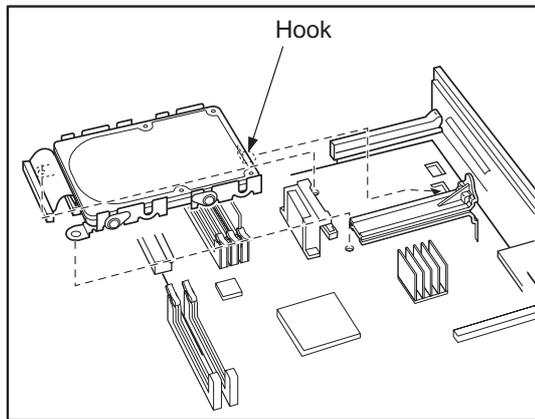


Figure 1-5-3

8) Fix the hard disk with the enclosed 2 screws and then connect the connector.

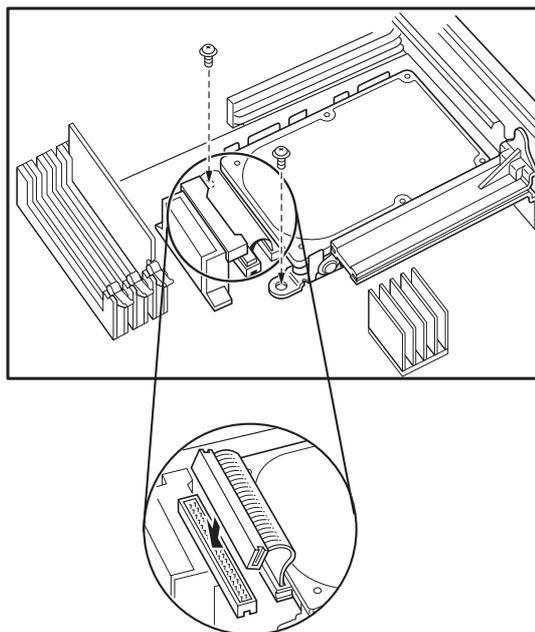


Figure 1-5-4

- 9) Install the PCB into the printer and fix it with 2 screws.
- 10) Turn ON the printer switch.
- 11) Press the On Line key when the printer becomes READY to take the printer off-line.
- 12) Press the Menu key to select "CONFIG MENU."
- 13) Press the Item key to select "FORMAT DISK."
- 14) Press the Enter key.
"+FORMAT DISK -IGNORE DISK" appears in the display.
- 15) Press the +Plus/-Minus key.
"+REALLY FORMAT -IGNORE DISK" appears in the display.
- 16) Press the +Plus/-Minus key.
"FORMATTING..." appears in the display, Disk LED lights up and formatting starts.
- 17) When the printer completes formatting the hard disk, "DISK FMT RESTART" appears in the display, and the printer restarts automatically.

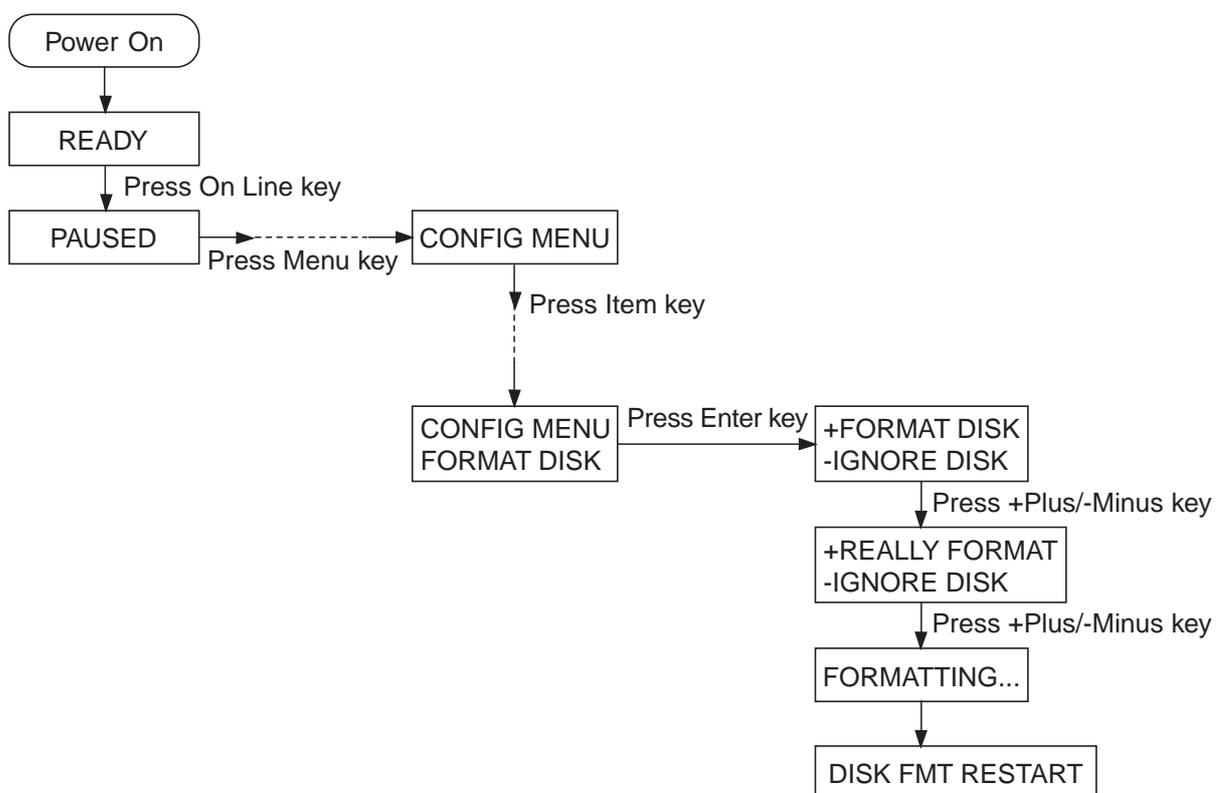


Figure 1-5-5

4. Operation confirmation

- 1) Load paper in the lower cassette.
- 2) Insert the power plug into the outlet and the printer, then turn the power switch ON.
After the printer enters STANDBY mode, press the test print switch to make a test print.
Check that the density of the output image is correct
- 3) Clean around the printer and ensure that it is ready for use at anytime.

5. Operation precautions

- 1) Turn ON the power of external equipment then the printer. Turn the power OFF in the reverse sequence. If the power of external equipment is turned ON/OFF while the printer is ON, noise may be transmitted through the connection cable between the external equipment and the printer, and error may occur on the printer.
- 2) Turn off the power of both the printer and the external equipment before plugging/unplugging the connector between the two. Doing so while the power is ON could cause malfunctions.

D. Storing, Handling the EP-72 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 Storage temperature and humidity 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. After unsealing the box

As an organic photoconductor (OPC) is used in the photosensitive drum, it will deteriorate if exposed to strong light. As there is 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 aluminum bag.
- 2) Avoid locations exposed to direct sunlight, near windows, etc. Do not leave them in cars for any extended period of time as heat can damage the cartridges.
- 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 leave cartridges near CRT displays, disk drives or floppy disks.
- 7) Store the cartridges 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 the toner in an already loaded cartridge hardens and blank spots appear on output images, hold the cartridge at each end as shown in the below figure and slowly rock it about 45° in each direction 5 to 6 times. This will evenly distribute the toner, and then reload it into the printer. Do not shake the cartridge in any other way, as toner may leak from the developing cylinder or the cleaning unit.

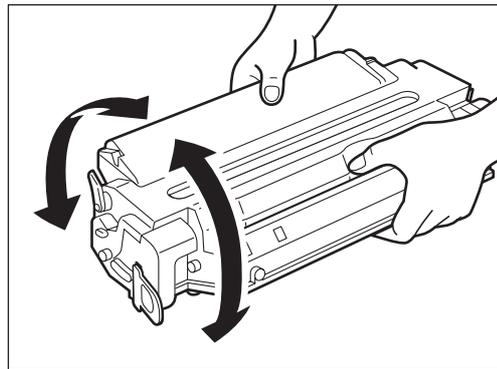


Figure 1-5-6

To ensure that toner does not leak and dirty the images, be sure to print 3 to 5 pages of test patterns after loading the cartridge in the printer.

- 2) When transporting the printer, remove the cartridges.
Either insert the cartridge in the aluminum bag or wrap it in a thick cloth to ensure light does not penetrate it.
- 3) Do not leave the cartridge near CRT displays, disk drives, or floppy disks.
The magnetism generated by the cartridge may destroy their data.
- 4) As the photosensitive drum is sensitive to strong light, do not expose the cartridge to direct sunlight or strong light (1500 lux or more). If it is exposed to strong light, blank spots or black lines may appear on images.
Should this happen, temporarily turn OFF the printer. The distorted images such as blank spots or black lines are likely to disappear. However, if the drum was exposed to strong light for a long period of time, it is possible the black lines, etc., will remain.
- 5) Do not open the photosensitive drum protective shield by hand nor touch the drum surface.
Do not clean the drum.
- 6) Do not place the cartridge on its end or upside down. Always place it with the label side facing upward.
- 7) Do not disassemble the cartridge.

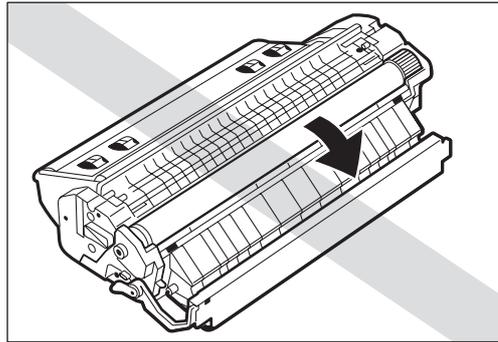


Figure 1-5-7

VI. MAINTENANCE AND SERVICING BY THE CUSTOMER

To maintain the optimum performance of the printer, the following maintenance should be performed by the customer.

1. Cartridge

Shake or replace the cartridge as the occasion demands.

2. Transfer guide, registration guide

When replacing the cartridge, clean the transfer guide and registration guide with soft flannel cloth.

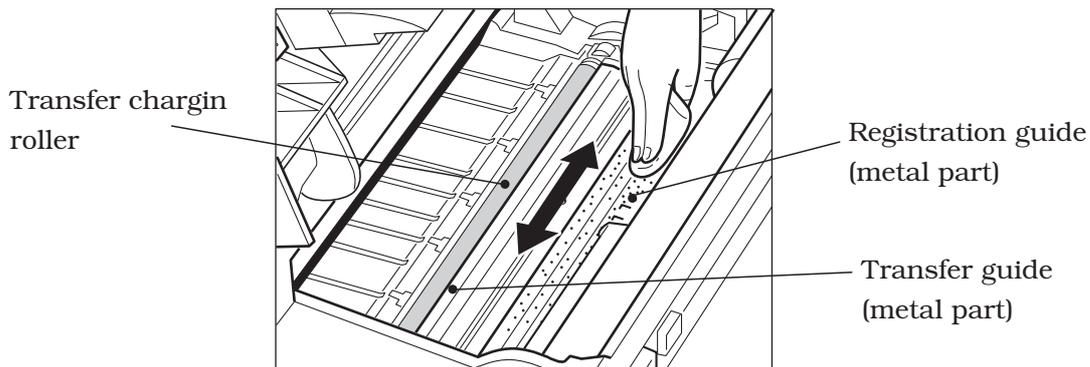


Figure 1-6-1

3. Static charge eliminator

When replacing the cartridge, clean the static charge eliminator with the cleaning brush attached inside the printer.

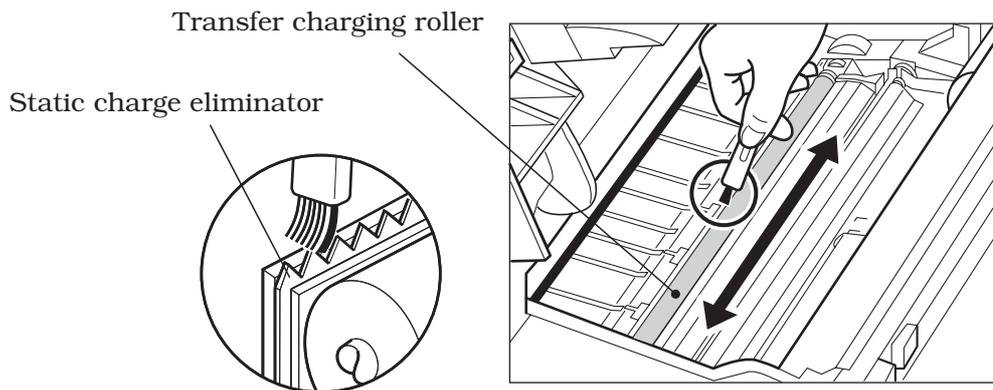


Figure 1-6-2

4. Fixing unit

When replacing the cartridge, clean the fixing unit following the procedure below.

- 1) Open the multi-purpose tray and load one sheet of A4 or Letter size paper into the tray.
- 2) Press the On Line key to take the printer off-line.
- 3) Press the Menu key to select "PCL MENU."
- 4) Press the Item key to select "PAGESIZE."
- 5) Press the +Plus/-Minus key to select either A4 or Letter, and then press the Enter key.
- 6) Press the Menu key to select "FEEDER MENU."
- 7) Press the Item key to select "MPTSIZE."
- 8) Press the +Plus/-Minus key to select either A4 or Letter, and then press the Enter key.
- 9) Press the Menu key to select "TEST MENU."
- 10) Press the Item key to select "CLEANING PAGE" , and then press the Enter key. "LOAD PLAIN A4 (or LETTER) IN MANUAL" will appear in the display and the Continue LED and Form Feed LED will light up.
- 11) Press the Continue key to print the Cleaning Page. "LOAD BLANK SIDE UP IN MANUAL" will appear and the Continue LED will light up.

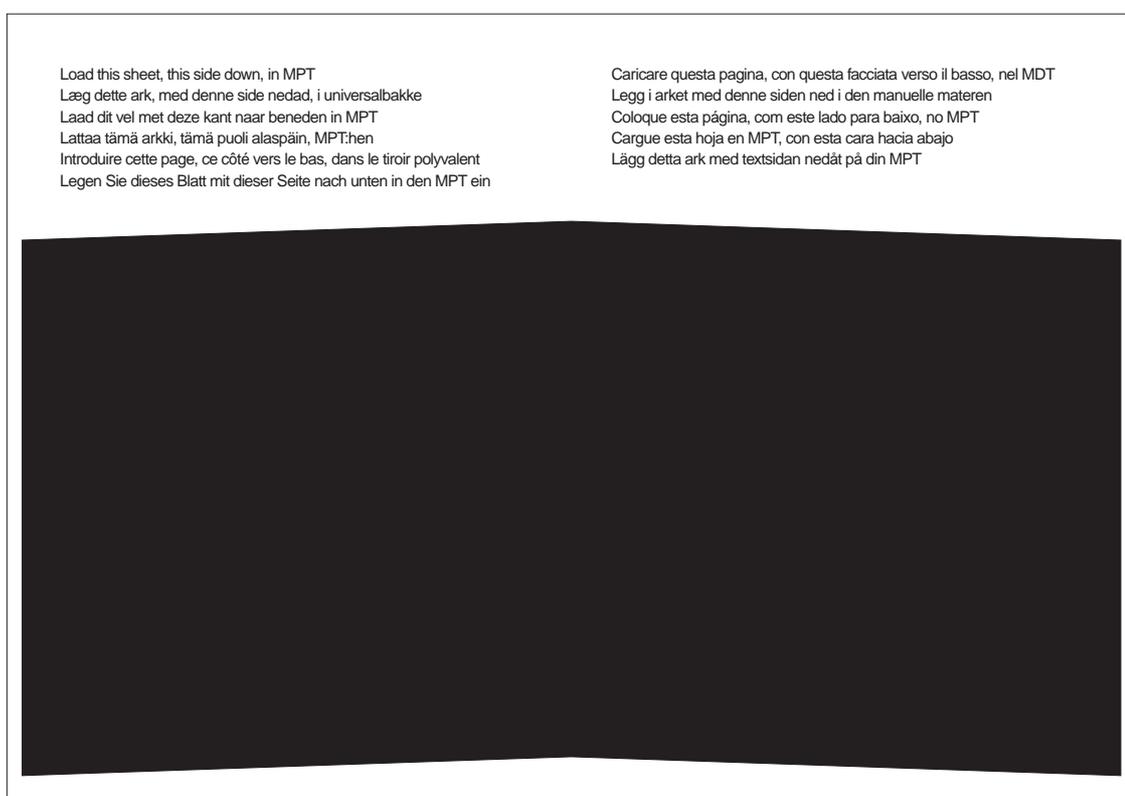


Figure 1-6-3

12) Place the printed Cleaning Page into the multi-purpose tray with the printed side face-down.

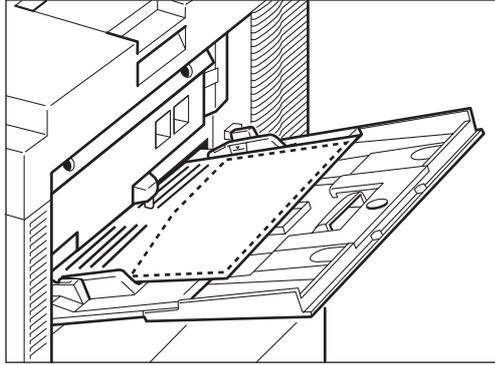


Figure 1-6-4

13) Press the Continue key to feed the Cleaning Page on the other side of the paper. "LOAD CLEANING PAGE IN MANUAL" will appear and the Continue LED will light up.

14) Place the Cleaning Page into the multi-purpose tray.

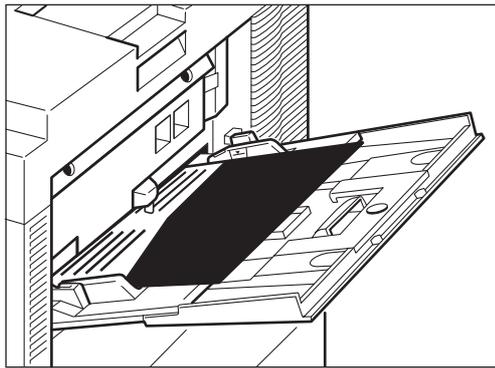


Figure 1-6-5

15) Press the Continue key to feed the Cleaning Page through the printer to clean the fixing unit.