This manual explains the functions and operation of the **MINOLTA Color PagePro Ex** printer. It also gives some troubleshooting tips as well as general precautions to be observed when operating this printer.

To ensure the best performance and effective use of your printer, please read this manual carefully from cover to cover. After you have read through the manual, keep it near your printer for future reference. It should help in solving any operational questions you may have.

Trademark acknowledgments

Color PagePro is a trademark of Minolta in Europe, Japan and Asia.

Minolta is a registered trademark of MINOLTA CO., LTD.

Fiery, the Fiery logo, and Rip-While-Print are registered trademarks of Electronics for Imaging, Inc.

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> **Please follow the instructions given in this manual when handling your printer and do not touch any part of the machine which the manual does not cover. NEVER attempt to disassemble or remodel the printer.**

Safety Information

– The printer should be plugged into an electrical outlet that is easily accessible.
– After installing the expansion memory, the network card, or the hard disk drive, be sure to replace the cover and secure it with the screws provided.
– When moving the printer, two people are required to lift it carefully as explained in Chapter 1 of the instructions.

LASER SAFETY

This is a page printer which operates by means of a laser. There is no possibility of danger from the laser, provided the printer is operated according to the instructions in this manual. Since radiation emitted by the laser is completely confined within protective housing, the laser beam cannot escape from the machine during any phase of user operation.

INTERNAL LASER RADIATION (For all users)

Maximum Radiation power: 1.0×10^{-3} (W) Wavelength: 770- 810 (nm)

This is a class IIIb Laser Diode Assy. that has an invisible laser beam. The printer head unit is NOT A FIELD SERVICE ITEM. Therefore, the printer head unit should not be opened under any circumstances.

For All Countries Users

WARNING

Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

This is a semiconductor laser. The maximum power of the laser diode is 1.0×10^{-3} W and the wavelength is 770- 810 nm.

LASER SAFETY

For Users in Denmark

ADVERSEL

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråing.

Klass 1 laser produkt der opfylder IEC 825 sikkerheds Kravene.

For Users in Finland and Sweden

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

VEROITUS

Laitteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän tuvallisuusluokan 1 ylittävälle näkymättörmälle lasersäteiylle.

VERNING

Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning som överskrider gränsen för laser klass 1.

VARO!

Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Äjä katso säteeseen.

VARNING!

Osynling laserstråining när denna del är öppnad och spärren är urkopplad. Betrakta ej stråien.

LASER SAFETY

For Users in Norway

ADVERSEL

Dersom apparatet brukes på annen måte enn spesifisert i denne bruksan-
visning, kan brukeren utsettes for unsynlig laserstråling som overskrider
grensen for laser klasse 1.

Dette er en halvleder laser. Maksimal effeckt til laserdiode er 10×10^{-3} W
og bølgelengde er 770-810 nm.

USER INSTRUCTIONS

For Users in Australia and New Zealand

WARNING

This is a Class B product. In a domestic environment this product may
cause radio interference in which case the user may be required to take
adequate measures.

For All Users

WARNING

This device must be used with shield interface cables. The use of non-
shielded cable is likely to result in interference with radio communica-
tions and is prohibited under the EMC regulations of your country. Be
sure to use the interface cable that comes with the printer.

OZONE RELEASE

For all users

During printer operation, a small quantity of ozone is released. This amount is not large enough to harm anyone adversely. However, be sure the room where the machine is being used has adequate ventilation, especially if you are printing a high volume of materials, or if the machine is being used continuously over a long period.

WARNING LABEL

<u>Features</u>

1. High quality printing

- A high-powered, 32-bit RISC processor with a 133 MHz, NEC Vr 4300 CPU means faster printing.

- RIP-While-Print$^{®}$ enables the Color PagePro Ex to begin processing new pages while current pages are printing, greatly increasing throughput.

- Continuous Print$^{™}$ enables the Color PagePro Ex to print 600×600 dpi unique pages without pausing, driving the printer at its full rated-engine speed for most print jobs.

- Black Detection increases printing speed for black-only pages.

- Clear text and excellent graphics with true 600 dpi

- Superior graphics
  The printer features halftone output at 2400×600 dpi with 80 MB of standard memory installed. 2400 dpi supports crisp, clean, laser-sharp output in full color. A maximum resolution of 1200×600 dpi is supported if less than 80 MB of memory are installed in the printer.

- Super Fine Micro Toning (Fine-MT) developing system

- 7μm small particle toner

- Color matching technology
  – Apple ColorSync
  – Windows 95/98 ICM
  – Printer embedded color matching

2. Printer Description Language (PDL)

- Adobe PostScript 3

3. High speed printing

- Full color 3ppm, B/W 12ppm
- High performance RISC processor
  - NEC Vr4300/133MHz
- High speed data transfer
  - IEEE 1284 compliant interface
  - Network option (Ethernet/ TokenRing)

4. Versatile paper handling

- Transparency, labels, thick paper, envelopes

5. Compact size

- Width 505mm/ 20"
- Depth 530mm/ 20-3/4"
- Height 403mm/ 15-3/4"

6. Network ready with option

- Ethernet / TokenRing

  Server: UNIX, Windows NT, NetWare 3.X/ 4.X (Bindery & NDS)

  Client: Windows 95/98, Windows 3.1, Windows NT Workstation 4.0,
  Macintosh (only Ethernet)

7. Easy maintenance and operation

- Easy maintenance with cartridge type supplies
- GUI driver

8. Environmentally friendly

- Ozone free
- Power save mode (Energy Star compliant)

Symbols and Terms

This manual uses the following symbols and terms:

⚠ **ATTENTION**

This symbol indicates that a specified course of action is required to avoid causing damage or injury. Please be sure to follow the instructions in this manual exactly, whenever you see this symbol.

This symbol is found at the following locations: "Changing the Oiling Roller", "Changing the Image Transfer Roller Unit and Fusing Unit", "Cleaning the Printer" and "Clearing a Paper Misfeed".
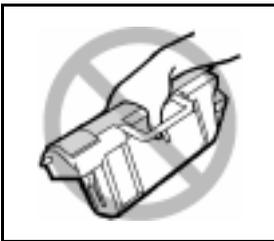
Note

This indicator is used to identify sections that require special attention.

🚫 Action Prohibited

This symbol is used over illustrations throughout this manual to indicate that a specified course of action must not be taken. Do not follow examples that are superimposed with this symbol.

example:

🖴 Indicates features for which a hard disk drive is required.

🔲 Indicates instructions for uses working with networked printers.

CONTENTS

Chapter 1: Installation

Chapter 2: Using the Printer

Contents

Chapter 4: Printer Driver

Chapter 5: Color Management

Contents

Chapter 8: Troubleshooting

Chapter 9: Specifications

Appendix A: Glossary

As an ENERGY STAR® Partner, we have determined that this machine meets the ENERGY STAR® Guidelines for energy efficiency.
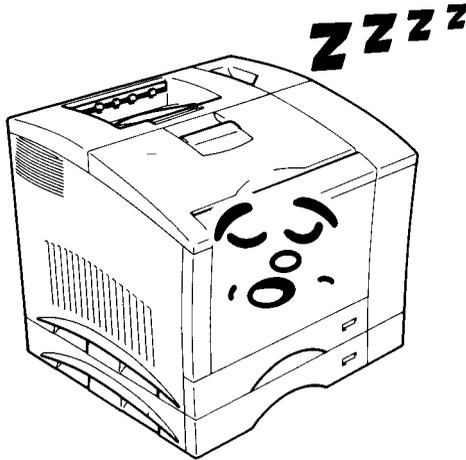
What is an ENERGY STAR® Printer ?

ENERGY STAR® Printers have a feature that allows them to automatically "go to sleep" after a period of inactivity. This auto-feature can reduce a machine's annual electricity cost by 60 percent.

Chapter **1**

Introduction

Precautions for Use

Operating Environment

The operating environmental requirements of the printer are as follows.

Humidity (%)
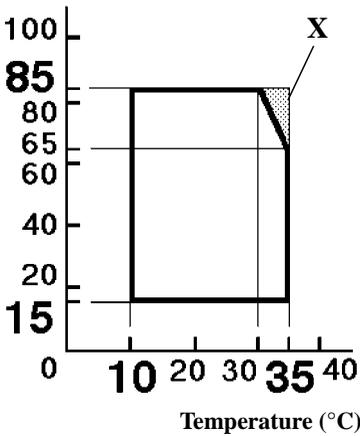
Temperature (°C)

- **Temperature**: 10°C (50°F) to 35°C (86°F) with a fluctuation of 10°C (18°F) per hour.

- **Humidity**: 15% to 85% RH with a fluctuation of 20% per hour.

* The environmental zone marked **"X"** on the left represents a critical environment in which the printer can be left to stand. However, the manufacturer does not ensure optimal paper passage performance and image production in this zone. Be sure to operate the printer within the operating environment identified within the bold line.

Using the Printer

To ensure the optimum performance of the printer, follow the precautions listed below.

- **NEVER** open any printer door, or turn **OFF** the printer during operation.

- **NEVER** bring any magnetized object or flammable gas or liquid near the printer.

- **NEVER** pull on the power cord and **ALWAYS** hold the plug when unplugging it. A damaged cord could result in a fire or cause an electrical shock.

- **NEVER** attempt to unplug the power cord with a wet hand, as it could cause an electrical shock.

- **ALWAYS** unplug the power cord whenever attempting to move the printer. Moving the printer with the power cord plugged in can damage the cord, resulting in a fire or causing an electrical shock.

- **ALWAYS** unplug the power cord when the printer is not to be used for an extended period of time.

- **NEVER** remove any panel or cover unless the procedure is described in the user's manual. The printer contains a high-voltage component which can cause an electrical shock.

- **NEVER** alter the engineering or mechanics of the printer, as a fire or electrical shock could result.

- **NEVER** place a heavy object on the power cord nor pull or bend it, as a fire or electrical shock could result.

- **NEVER** rest the printer upon the power cord or communications cables of other electrical equipment and do not allow such cords or cables to become lodged into the printer's own mechanisms; equipment damage or fire could result.

- **NEVER** drop paper clips, staples, or other small pieces of metal through the vents or other openings of the printer, as a fire or electrical shock could result.

- **NEVER** place a vase or vessel containing water or other fluids on or near the printer as this can cause a fire or electrical shock. Should fluid or any foreign object get inside the printer, immediately turn it **OFF**, unplug the power cord, and call your dealer. A fire or electrical shock could result if the printer is allowed to run without taking necessary action.

- **NEVER** leave the printer running should it become unusually hot, emit smoke, an unusual smell or noise. Should any of these occur, immediately turn **OFF** the printer, unplug it, and call your dealer. A fire or electrical shock could result if the printer is allowed to run without taking necessary action.

Note

= Locate the printer in a Well Ventilated Room =
A negligible amount of ozone is generated during normal operation of this printer. An unpleasant odor may, however, be created in poorly ventilated rooms during extensive printer operations. For a comfortable, healthy, and safe operating environment, it is recommended that the room be well ventilated.

Remarque

= Placer l'imprimante dans une pièce largement ventilée =
Un equantité d'ozone négligable est dégagée pendant le fonctionnement de l'imprimante quand celle-ci est utilisée normalement. Cependant, une odeur désagréable pent être ressentie dans les pièces dont l'aération est insuffisante et lorsqu'une utilisation prolongée de l'imprimante est effectuée. Pour avoir la certitude de travailler dans des conditions de confort, santé et sécurité, il est préférable de bien aérer la pièce où se trouve l'imprimante.

Care of Printer Supplies

Use the following precautions when handling the printer supplies (**toner cartridge, drum cartridge**, and paper).

- Avoid storing the supplies in any of the following places:

- ✓ A place subject to direct sunlight (the **drum cartridge** should not be exposed to fluorescent light, either).

- ✓ A hot place or near an open flame

- ✓ A humid place

- ✓ A dusty place

- Surplus paper, which has been removed from its protective packaging but not yet loaded into the printer tray, should be sealed in a plastic bag and stored in a cool, dark place.

- Use only the **toner cartridge** and toner specifically designed for use with this printer.

- Keep supplies out of the reach of children.

- If your hands should come into direct contact with the toner, wash them with soap and water immediately.

Note

- When removing the **drum cartridge** from the printer, immediately wrap it in a thick cloth to protect it from light.

Moving the Printer

Observe the following precautions when moving the printer.
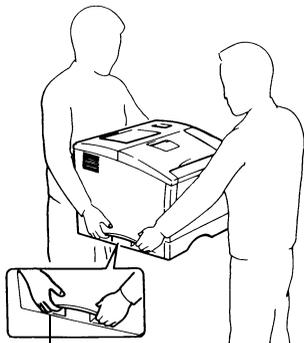
• Since the printer weighs approximately 40kg (88-1/4 lbs.), two people are required to lift it carefully.

• If you need to transport the printer over a long distance, consult your dealer.

Grips

Note: Moving the printer with a third cassette unit (option)

• The **third cassette unit** is attached to the printer through the coupling pins only. Moving the printer with the **third cassette unit** attached is not advised, as there is a strong possibility that the two pieces may separate and become damaged.

Be certain to move the printer and the **third cassette unit** separately.

Chapter 2

Using the Printer

The Printer, Parts and Supplies

Printer

1. Output tray   **2. Power switch**

3. Front cover

4. Control panel

5. Front cover lock release lever

6. Tray 1: multipurpose tray

7. Tray 2: 250 sheet second cassette

8. Tray 3: 250 sheet third cassette (optional)

10. Grips

9. 250 sheet third cassette unit (optional)
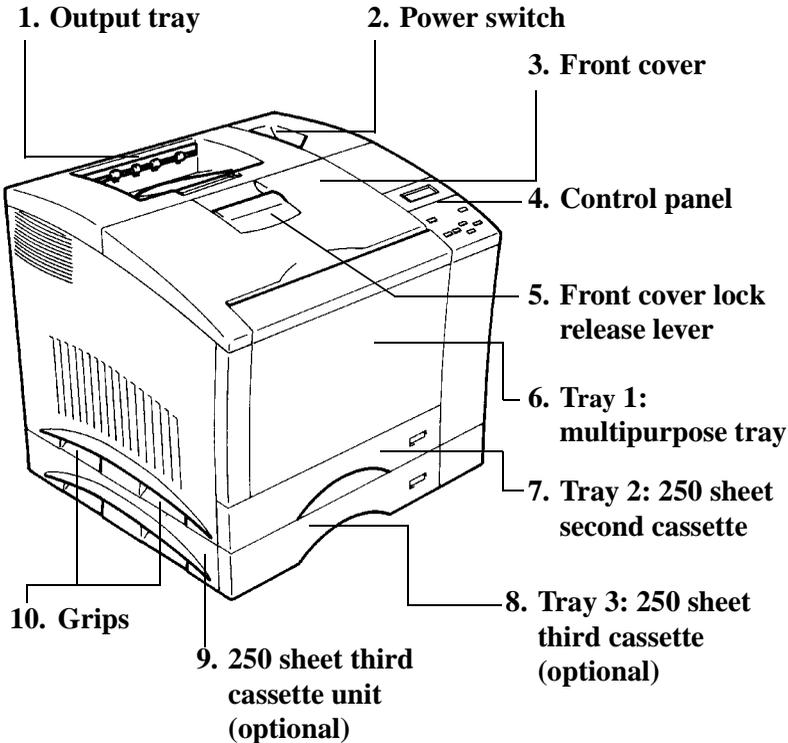
1.   Output tray

The printed paper is output, face down onto this tray. The tray can hold up to 250 sheets of paper. ☞ p. 2-47

2.   Power switch

Use to turn the printer ON and OFF. ☞ p. 2-15

Chapter 2

Using the Printer

3. **Front cover**

   Open the cover by pulling the lever up and swinging the door down to replenish supplies such as the **toner cartridge**, or to clear a paper misfeed.

4. **Control panel**

   - Allows the operator to make various settings.

   - The LCD display shows the current status of the printer. For more details, ☞ p. 2-9

5. **Front cover lock release lever**

   Pull up to unlock the **front cover**.

6. **Tray 1: multipurpose tray**

   - Swing open toward you to load paper.

   - Holds up to 150 sheets of paper. ☞ p. 2-18

7. **Tray 2: 250 sheet second cassette**

   Holds up to 250 sheets of paper. ☞ p. 2-18

8. **Tray 3: 250 sheet third cassette (optional)**

   Holds up to 250 sheets of paper. ☞ p. 2-18

9. **250 sheet third cassette unit (optional)**

   Houses a third cassette, increasing paper capacity to 650 sheets when installed under the printer.

10. **Grips**

    - Two grips are provided on each side of the printer (four in all). Use to carry the printer during installation or relocation.

    - The printer requires two people to be lifted carefully. ☞ p. 1-5

Chapter 2

Using the Printer

11. Network card panel

12. Rear cover lock release lever

Chapter 2

Using the Printer

13. Rear cover

15. Interface connector (parallel connector)

14. Power cord socket
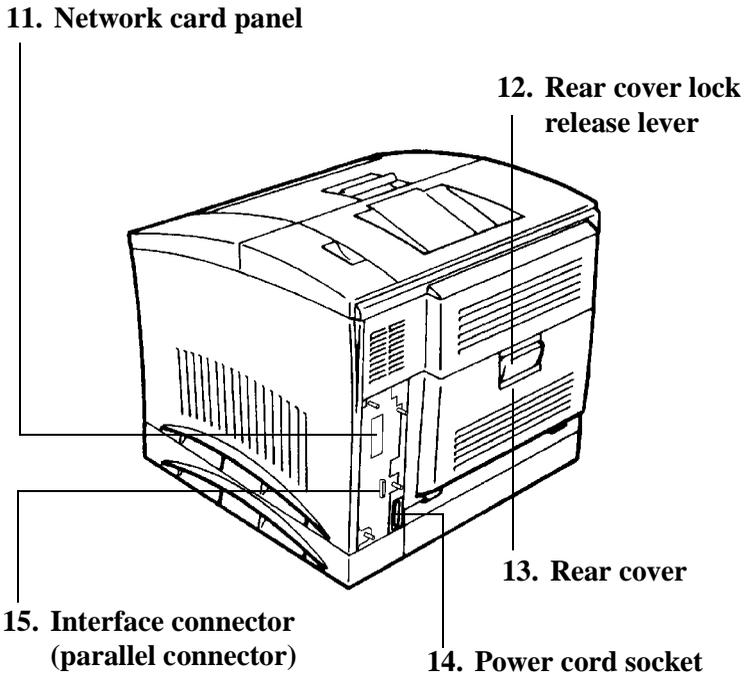
11. Network card panel

Use to mount the optional **network interface card**.

12. Rear cover lock release lever

Pull down to swing open the **rear cover**.

13. Rear cover

Swing open to change the **oiling roller** assembly or clear a paper misfeed.

14. Power cord socket

Connect the **power cord** of the printer to this socket.

15. Interface connector (parallel connector)

Provides connection between the printer and host computer.

Chapter 2

Using the Printer

Supplies and Units

Chapter 2

Using the Printer

1. Waste bottle

2. Toner cartridge

3. Image transfer belt unit

4. Drum cartridge

5. Image transfer roller unit
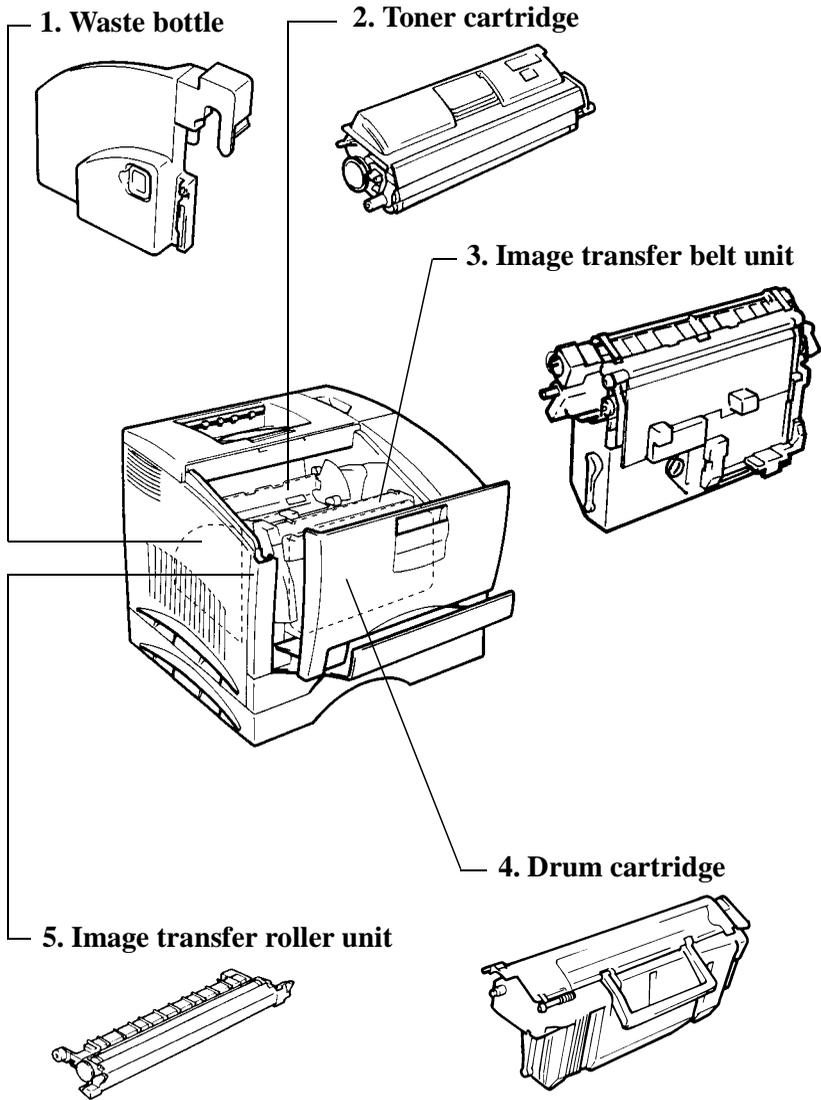
1. **Waste bottle**

   - Collects and contains unused toner.

   - Replace this bottle with a new one when it is full. ☞p. 7-14

   - Dispose of the old container in a plastic bag or according to local regulations.

2. **Toner cartridge**

   - There are four different **color toner cartridges**: Black, Yellow, Magenta (Red) and Cyan (Blue).

   - Replace these cartridges with new ones when necessary. Dispose of old cartridges in a plastic bag or according to local regulations. ☞p. 7-1

3. **Image transfer belt unit**

   - Transfers the toner for each color from the **drum cartridge** onto the **image transfer belt**. Handle with care. ☞p. 7-33

   - Dispose of the old unit in a plastic bag or according to local regulations.

4. **Drum cartridge**

   - Processes the image. Handle with care.

   - Replace this cartridge with a new one when necessary. ☞p. 7-14

   - Dispose of the old cartridge in a plastic bag or according to local regulations.

5. **Image transfer roller unit**

   - Transfers the toner from the **image transfer belt** onto the paper. Handle with care. ☞p. 7-25

   - Dispose of the old unit in a plastic bag or according to local regulations.

Chapter 2

Using the Printer

Using the Printer
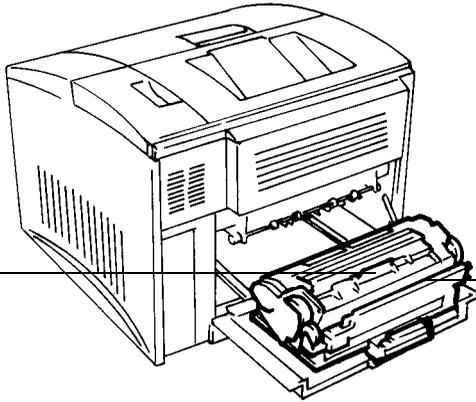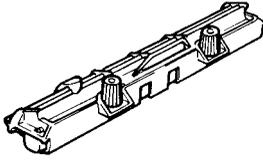
6. Oiling roller

7. Fusing unit
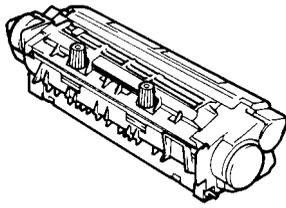
6. Oiling roller

- Oils and cleans the **fusing rollers**.

- Replace the **oiling roller** with a new one when necessary.
  ☞ p. 7-14

- Dispose of the old roller in a plastic bag or according to local regulations.

7. Fusing unit

- Permanently fixes the image onto paper. ☞ p. 7-25

- Dispose of the old unit in a plastic bag or according to local regulations.

Chapter 2

Using the Printer

Control Panel Keys

1. Data indicator

2. Message display

3. Message indicator

4. Cancel key

5. Menu key

6. On Line indicator
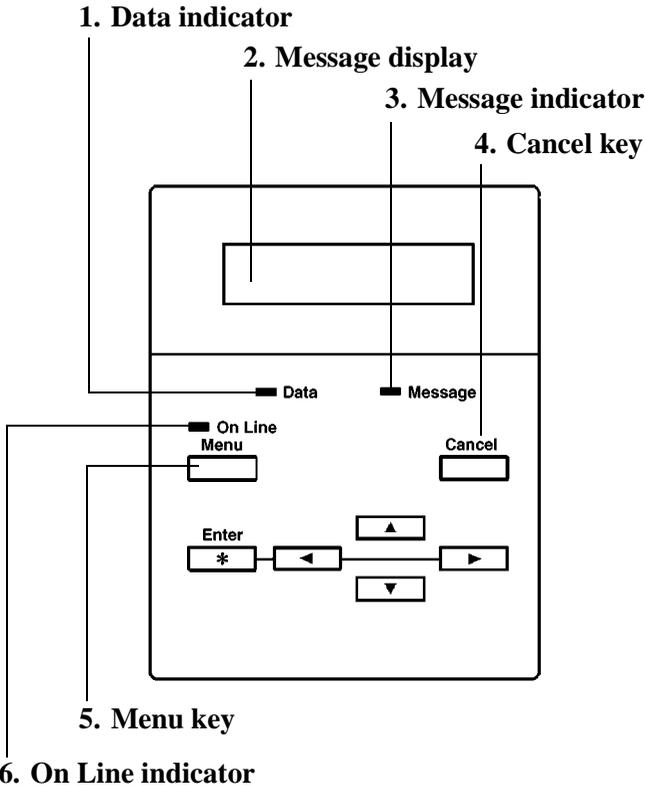
1. Data indicator

- **Data indicator ON**
  Indicates when data received from the host computer is stored in the printer's memory.

- **Data indicator OFF**
  Indicates that no data is stored in the printer's memory; usually immediately after "power on" or "reset."

- **Data indicator blinking**
  Indicates that the printer is receiving data from the host computer.

2-9

2. **Message display**

    • Indicates the current status of the printer.

    • Displays printer menus as well as the selected settings for the various functions of the printer.

3. **Message indicator**

    • **Message indicator blinking**
    Indicates either that the printer is warming up or that an error has occurred.

    • **Message indicator OFF**
    Normal.

4. **Cancel key**

    In setup menus, exits menus entirely, returning to Ready. While printing, the Cancel key stops printing or processing the current job.

5. **Menu key** ☞ p. 3-1

    From Ready or Power Saver mode, enters the setup menus. In setup menus, cancels a setup choice and jumps to a higher level setup menu.

6. **On Line indicator** ☞ p. 2-45

    • **On Line indicator ON**
    Indicates that the printer can receive data from the host computer.

    • **On Line indicator blinking**
    Indicates "power on self test".

    • **On Line indicator OFF**
    Indicates that the printer cannot receive data from the host computer.

7. Enter key

8. UP & DOWN keys

Chapter 2

Using the Printer

```
                                      ■ Data      ■ Message
                             ■ On Line
                               Menu                   Cancel


                             Enter             ┌──▲──┐
                               *      ◄          └──▼──┘      ►
```
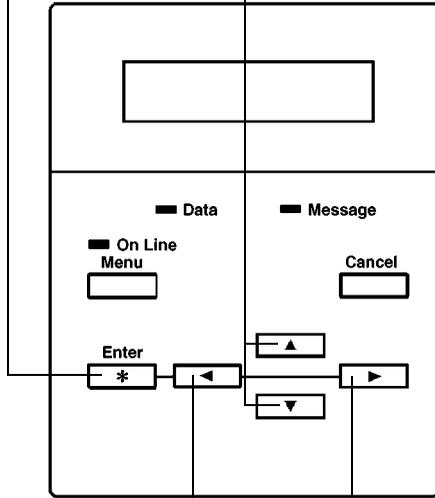
9. LEFT & RIGHT keys

7. Enter key ☞ p. 3-2

Accepts an option and advances to the next item.

8. UP & DOWN keys ☞ p. 3-2

These two keys display the next or the previous setting for the current menu item.

9. LEFT & RIGHT keys

- When entering numbers or text, the RIGHT key advances the cursor.

- When entering numbers or text, the LEFT key backspaces and deletes.

Chapter 2

Using the Printer

Operation and Warning Labels

1. Installing the toner cartridge
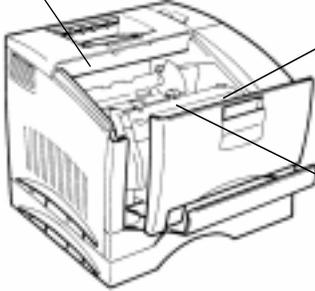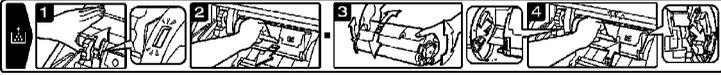
2. Changing the waste bottle, drum cartridge and oiling roller

3. Clearing paper misfeeds
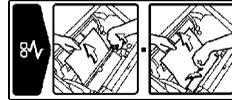
4. Loading paper
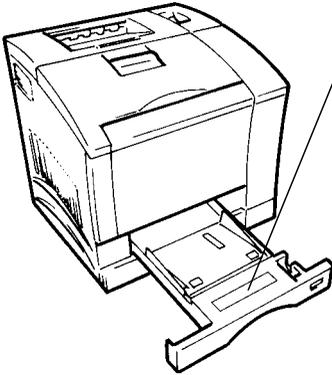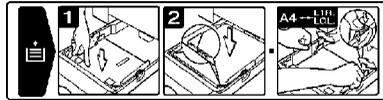
5. CAUTION! Hot Parts Inside
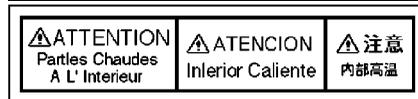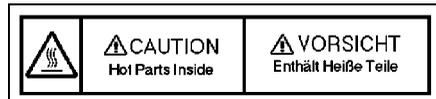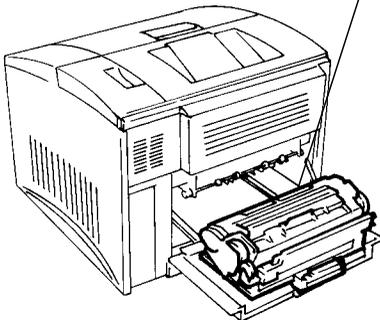
1. **Installing the toner cartridge**

    • Describes how to replace the **toner cartridge**. For details, refer to page 7-1.

2. **Changing the waste bottle, drum cartridge and oiling roller**

    • Describes how to replace the **waste bottle**, **drum cartridge** and **oiling roller**. For details, refer to page 7-14.

    • The **waste bottle**, **drum cartridge** and **oiling roller** are preset to be replaced simultaneously. Replace these three units at the same time.

3. **Clearing paper misfeeds**

    • Describes how to clear the paper path after a misfeed.

    • For details, refer to page 8-9.

4. **Loading paper**

    • Describes how to replenish the paper feed tray.

    • For details, refer topae 2-21.

5. **CAUTION! Hot Parts Inside**

    • Alerts you to the high temperature surrounding the area where the label is applied on the **fusing unit**.
    Do not touch this area when you change the **oiling roller** or clear a misfeed.

Chapter 2

Using the Printer

Turning the Printer ON and OFF
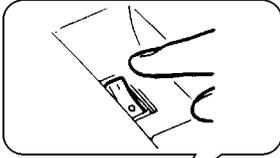
Turning the printer ON

Press the **power switch** to the **I** (ON) position.

Turning the printer OFF

Press the **power switch** to the **O** (OFF) position.
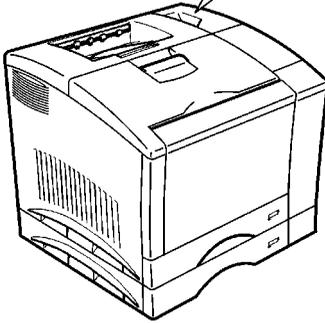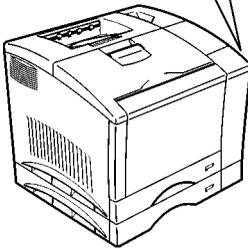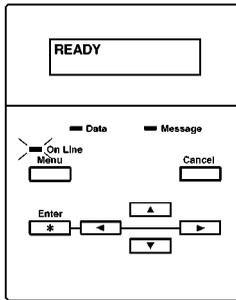
When the printer is On

The printer is ready to print approximately 150 seconds after the **power switch** is turned ON.

Note

- If either the printer stands idle or no print commands are sent from the host computer for **30** minutes (default value), the printer automatically enters the **Power saver mode**.
- The time elapse before the **Power saver mode** can be set through the **SYSTEM SETUP**. For details, see **Chapter 3**.

Chapter 2

Using the Printer

Paper

Precaution

• This printer is designed to print on only the following types of paper.

Type

Paper feeding port	Plain paper weighing: 60 to 90 g/m² 16 to 24 lbs.	Special paper						
		Recycled paper weighing: 60 to 90 g/m² 16 to 24 lbs.	Trans-parency sheet	Labels	Letter-head	Enve-lopes	J-Post (Postcard) size: 100 × 148 mm 4" × 5-3/4"	Thick paper* weighing: 90 to 157 g/m² 24 to 41-1/4 lbs.
Tray 1	❍	❍	❍	❍	❍	❍	❍	❍
Tray 2	❍	❍	❍	None	None	None	None	None
Tray 3	❍	❍	❍	None	None	None	None	None

* Does not support Legal L size thick paper. **L: Lengthwise**

Size

Standard size

Paper feeding port	A4 210×297 mm 8-1/4"×11-3/4"	JIS B5 182×257 mm 7-1/4"×10"	A5 148×210 mm 5-3/4"×8-1/4"	Legal * 8-1/2"×14" 216×356mm	Letter 8-1/2"×11" 216×279mm	Executive 7-1/4"×10-1/2" 184×267mm	Invoice 5-1/2"×8-1/2" 140×216mm
Tray 1	❍	❍	❍	❍	❍	❍	❍
Tray 2	❍	None	None	❍	❍	None	None
Tray 3	❍	None	None	❍	❍	None	None

* Does not support Legal L size thick paper. **L: Lengthwise**

When using legal size paper, only monochrome (black on white) documents can be generated. Be sure to set the driver to Grayscale (Monochrome) when using legal size paper.

Non-standard size (Tray 1 only)

This printer also supports the following size of paper;
Postcard, Com10 Envelope, DL Envelope, C5 Envelope, Monarch Envelope

Capacity

<div align="right">**Unit: sheets**</div>

Paper feeding port	Plain paper weighing: 60 to 90 g/m² 16 to 24 lbs.	Special Paper						
		Recycled paper weighing: 60 to 90 g/m² 16 to 24 lbs.	Trans-parency sheet	Labels	Letter-head	Enve-lopes	J-Post (Postcard) size: 100 × 148 mm 4" × 5-3/4"	Thick paper* weighing: 90 to 157 g/m² 24 to 41-1/4 lbs.
Tray 1	**150**	**150**	**50**	**50**	**50**	**20**	**50**	**50**
Tray 2	**250**	**250**	**50**	**None**	**None**	**None**	**None**	**None**
Tray 3	**250**	**250**	**50**	**None**	**None**	**None**	**None**	**None**

* Does not support Legal L size thick paper.   **L: Lengthwise**

Chapter 2

Using the Printer

Printable Area

- Monochrome (black and white) printing can be done on paper up to 352mm (13-3/4") in length, with the exception of four, 4mm (0.16") margins.

- Color printing can be done on paper up to 293mm (11-1/2") in length, with the exception of four, 4mm (0.16") margins.
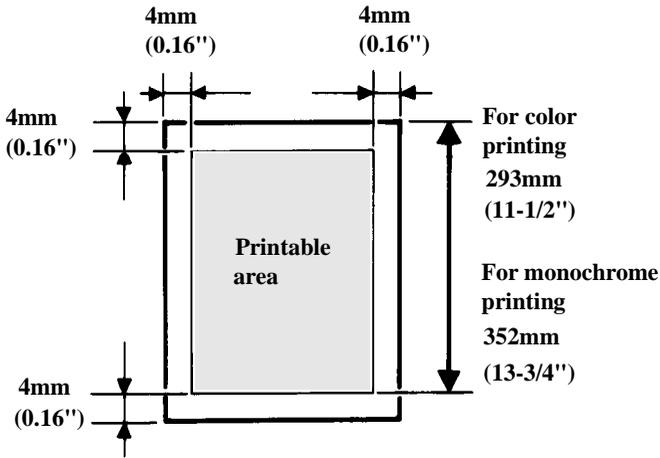
Paper Supplies

Use the following precautions when handling the paper.

- Avoid storing paper in any of the following places:
  A place subject to direct sunlight.
  A hot place or near an open flame.
  A humid place.
  A dusty place.

- Store paper, which has been removed from its wrapper but not loaded into the printer tray, in a sealed plastic bag in a cool, dark place.

- Keep paper supplies out of the reach of children.

Note

* Do not use legal size thick paper (the printer does not support legal size thick paper).

* Do not use the following types of paper to avoid reduced print quality, a misfeed or a print failure:

  ✓ Paper already used in a thermal transfer printer or ink jet printer.

  ✓ Paper that is too thin or too thick.

  ✓ Paper folded, curled or torn.

  ✓ Paper having binding holes or perforations.

  ✓ Paper with surfaces that are too smooth or too rough or with varying surfaces.

  ✓ Paper having special coatings on their surfaces such as carbon paper, heat-sensitive paper and pressure-sensitive paper.

  ✓ Sheets of various sizes.

  ✓ Paper not cut on right angles.

  ✓ Paper bound by glue, staples or clips.

  ✓ Paper affixed with labels which are easily removed.

  ✓ Post cards that are warped or bent.

* Envelopes should meet the following requirements:

  ✓ Sharp folds and edges.

  ✓ General mailing envelopes without seals on the glued portion.

  ✓ Those having flaps the full width of the envelope (unacceptable if the flap is glued).

  ✓ Wrinkle-free, no fasteners.

* Generally, envelopes perform well, but some types may wrinkle. We strongly recommend testing any type of envelope before buying it in large amounts.

* The Following transparencies are recommended:

  ✓ For color printing, Minolta CF-200 (D) or 3M CG3710

  ✓ For monochrome printing, Minolta M-100 (D) or 3M PP2500

To purchase Minolta transparencies, please contact your dealer.

* For more information, refer to page 2-21.

Chapter 2

Using the Printer

Loading Paper

Loading Plain Paper / Recycled Paper

Caution

> • Do not use the following types of paper as it may cause reduced print quality, a misfeed or a failure.
>
>   ✓ Paper already used in a thermal transfer printer or ink jet printer.
>
>   ✓ Paper that is too thin (under 60 g/m^2, 16 lbs.) or too thick (over 157 g/m^2, 41-1/4 lbs.).
>
>   ✓ Paper folded, curled or torn.
>
>   ✓ Paper having holes or perforations.
>
>   ✓ Paper of which surfaces are too smooth, too rough or of varying surfaces.
>
>   ✓ Paper with special coated surfaces such as carbon paper, heat-sensitive and pressure-sensitive paper.
>
>   ✓ Sheets of paper of varying sizes.
>
>   ✓ Paper not cut on right angles.
>
>   ✓ Paper bound by glue, staples or clips.

Tray 1: multipurpose tray

Tray 1

1. Swing open **Tray 1** (multipurpose tray).

2. When loading a long stack of paper, open the **paper support**.

Paper support

3. Load the paper stack on the tray, print side facing up.

    Adjust the **paper guides** to fit the size of the paper.

Face up

Paper guides

Chapter 2

Using the Printer

Note

Paper guide
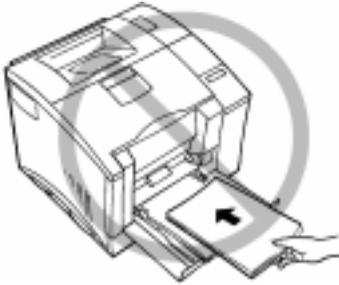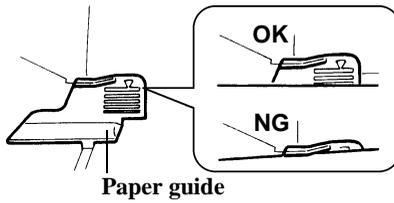
• The paper should be loaded no higher than the maximum according to the **level indicator**.

• When paper remains in the tray, do not stack more paper on top.

• Loading with force may cause a paper misfeed.

• To replenish the paper supply, take out the remaining paper from the tray and add it to the new supply. Fan the paper and load it.

• It is recommended that the paper supply be replenished only when the tray is empty.

How to Set the Paper Size for Tray 1

After loading the paper into **Tray 1**, set the corresponding paper size in the **control panel**.

The default setting for the paper size of **Tray 1** is A4. It is not necessary to reset the menu provided that A4 size paper has been placed in **Tray 1**.

If the size of paper that has been loaded into **Tray 1** does not correspond with the paper size setting of the printer, "PAPER SIZE ERROR" will appear in the **message display** after the document has been printed.
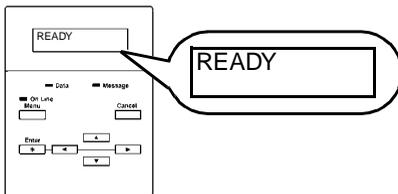
1. Make sure that "READY" is shown on the **message display** and that the **On Line** indicator is lit.

2. Press the **Menu** key four or five times (when an optional hard disk drive is installed).

    Check that "PRINTER SETUP" appears on the **message display**.
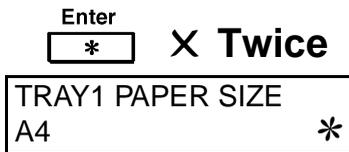
3. Press the **Enter** key on the **control panel** twice.

    Check that "TRAY1 PAPER SIZE A4 ✳" appears on the **message display**.

**Example: Changing from
A4 to EXECUTIVE**

▲ ✕ **Twice**

TRAY1 PAPER SIZE
EXEC

**Example: Changing from
A4 to EXECUTIVE**

Enter
✳ ✕ **Once**

TRAY1 PAPER SIZE
EXEC   ✳

Cancel
✕ **Once**

READY

4. Press the **Up/Down** keys on
   the **control panel** to select the
   paper size setting that
   corresponds to the size of the
   paper in **Tray 1**.

   <LETTER/LEGAL/EXEC/
   INVOICE/A4/A5/JIS B5/
   PSTCRD>

5. Press the **Enter** key.
   Check that an asterisk "✳"
   appears on the right end of the
   message display. The asterisk
   indicates that the setting has
   been confirmed.

6. Press the **Cancel** key on the
   control panel.

   Check that "READY" appears
   on the **message display**.

   Make sure that the **On Line**
   indicator is lit.

   This completes the procedure
   for setting the paper size for
   Tray 1.

Tray 2: second cassette / Tray 3: third cassette (optional)
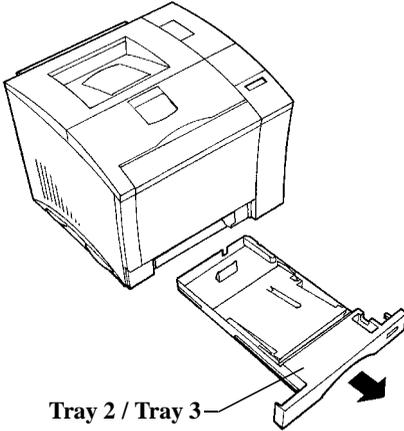
Tray 2 / Tray 3

1. Slide out **Tray 2** (second cassette) or **Tray 3** (third cassette).

Paper lifting plate

2. Press down on the **paper lifting plate** until it locks.

Chapter 2

Using the Printer

2-26
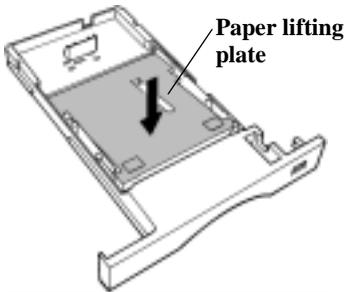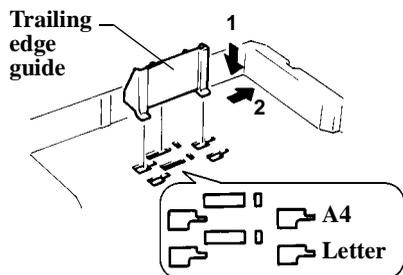
3. Install the **trailing edge guide** to fit the size of the paper to be loaded.

Note

• When loading legal size paper, the **trailing edge guide** is not used. Return it to the guide space in the cassette.

Face down
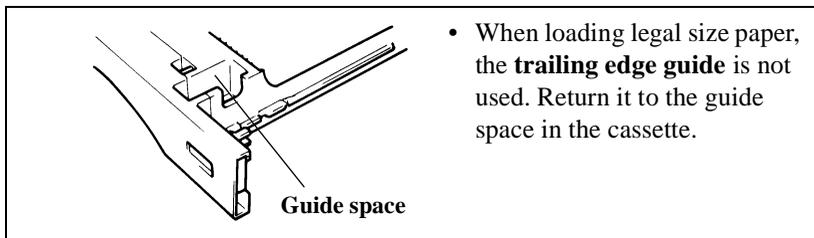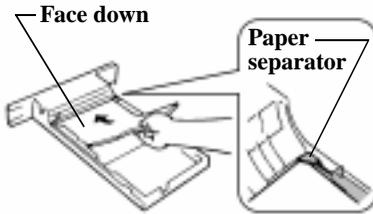
Paper separator

4. Load the paper stack into the cassette, print side down, under the **paper separator** and flush with the front side of the cassette.

Note

OK

NG
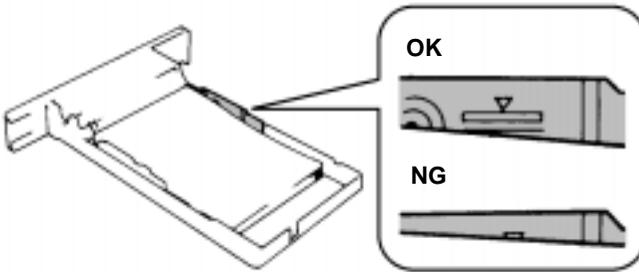
- The paper should be loaded no higher than the maximum on the **level indicator**.
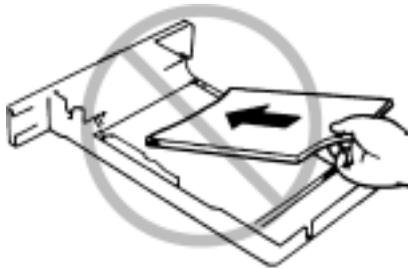
- Do not load additional paper on top of the remaining paper in the paper tray.
- Loading the paper with force may cause a paper misfeed.
- To replenish the paper supply, take out the remaining paper from the tray and add it to the new supply. Fan the paper and load.
- It is recommended that the paper supply be replenished only when the tray is empty.

Chapter 2

Using the Printer

Guide lock lever
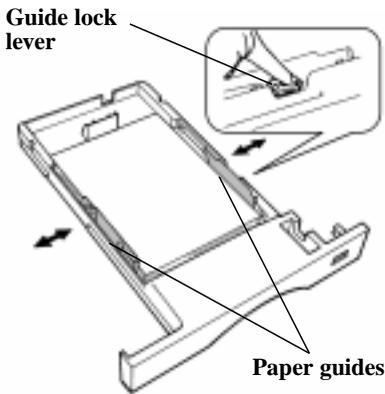
Paper guides

5. Pressing the **guide lock lever**, adjust the **paper guides** to fit the size of the paper.

Paper size indicator
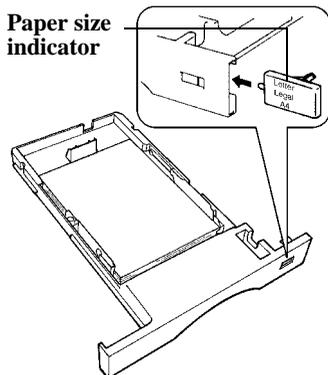
6. Set the **paper size indicator** to the size of the paper used.

Note

• If the **paper size indicator** is not reset to the corresponding size, the document may not print correctly. When you have changed the paper size, always reset the **paper size indicator**.

7.   Slide in the cassette.
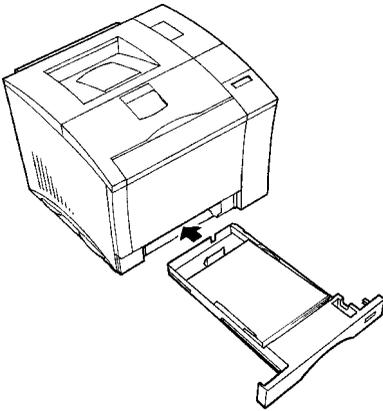
Note

• Make sure that **Tray 2** is completely loaded into the printer whenever you print from **Tray 3**. Printing from **Tray 3** is not possible if **Tray 2** is not completely loaded into the printer.

Loading Transparencies and Labels

Caution

- Labels must be loaded onto **Tray 1** (multipurpose tray) only. Do not load them onto **Tray 2** (second tray) / **Tray 3** (third cassette).
- Wearing gloves is recommended when handling transparencies to protect them from becoming soiled with fingerprints and smears.
  Dirty transparencies may result in an unsatisfactory printed image.

- Do not use the following types of paper as they may cause reduced print quality, a misfeed or a failure.

  ✓ Labels which are easily or partially peeled

  ✓ Labels which are leaking adhesives

    It is highly recommended to test any label's compatibility with the printer before purchasing it in large quantities.

  - Multiple transparencies or labels can be printed continuously but the feeding capability may be affected by the materials used and the operating environment. It may be necessary to load them individually.

- It is necessary to change the media setting whenever transparencies or labels are printed (refer to pages 4-3, 4-17 and 4-27). Remember to change not only the printer driver settings but the media settings on the printer unit as well (please follow the instructions on page 2-34).

- The following transparency types are recommended:

  ✓ For color printing, Minolta CF-200 (D) or 3M CG3710

  ✓ For monochrome printing, Minolta M-100 (D) or 3M PP2500

To purchase Minolta transparencies please contact your dealer.

Tray 1: multipurpose tray
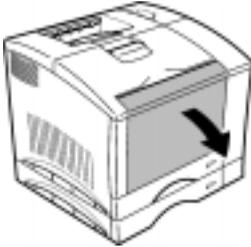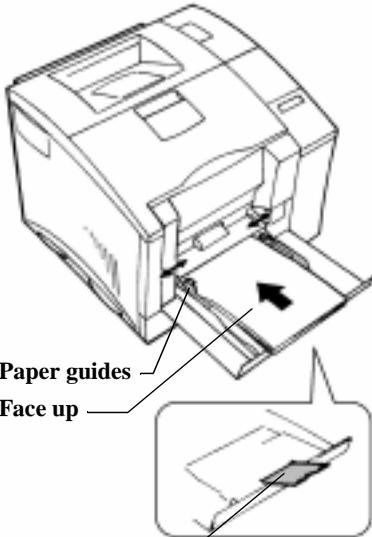
1. Swing open **Tray 1** (multipurpose tray).

2. When loading a long stack of paper, open the **paper support**.

    Load the transparency or label sheet stack on the tray, print side up.

    Adjust the **paper guides** to fit the size of the transparency or label sheets.

Paper guides

Face up

Paper support

Chapter 2

Using the Printer

Note

- Load the recommended transparencies (Minolta CF-200 (D), 3M CG3710, Minolta CF-100 (D) or 3M PP2500) into the tray so that their front sides are **face-side down**.

- Do not load more than 50 sheets on the tray at one time.
- Do not load additional labels or transparencies on top of those remaining in the tray.
- Loading with force may cause a misfeed.
- To replenish the transparency or label sheets, take out those that remain in the tray and add them to the new supply. Fan the transparencies or labels and load them.
- It is recommended that the cassette be replenished only when it is empty.

How to Set the Paper Size for Tray 1

After loading the paper into **Tray 1**, set the corresponding paper size in the **control panel**. For detailed instructions on setting the paper size, refer to page 2-24.

How to Set the Media type for Tray 1

The default setting for this option is "PLAIN PAPER". Whenever transparencies or labels are to be used in **Tray 1**, it is necessary to make the printer setting changes for **TRAY1 MEDIA**.
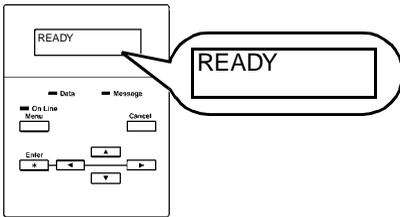
1. Make sure that "READY" is shown on the **message display** and that the **On Line** indicator is lit.

2. Press the **Menu** key four or five times (when an optional hard disk drive is installed).

   Check that "PRINTER SETUP" appears on the **message display**.
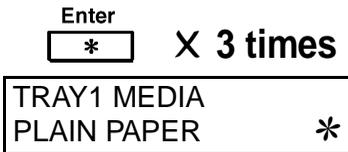
3. Press the **Enter** key on the **control panel** three times.

   Check that "TRAY1 MEDIA PLAIN PAPER *" appears on the **message display**.

Chapter 2 Using the Printer

**Example: Changing from
PLAIN PAPER to TRANSPARENCY**

| ▼ | ✕ **Once** |

TRAY1 MEDIA
TRANSPARENCY

4. Press the **Up/Down** keys on the **control panel** to select the Media setting that corresponds to the type of media in **Tray 1**.

    <PLAIN PAPER/ TRANSPARENCY/THICK PAPER>
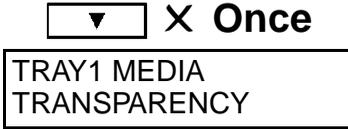
Note

• When printing labels, select either the "PLAIN PAPER" or "THICK PAPER" setting, depending upon the thickness of the labels to be used.

**Example: Changing from
PLAIN PAPER to TRANSPARENCY**
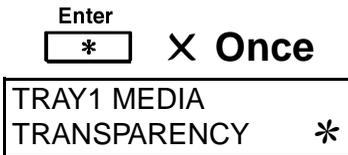
Enter
| ∗ | ✕ **Once** |

TRAY1 MEDIA
TRANSPARENCY   ∗

5. Press the **Enter** key. Check that an asterisk "∗" appears on the right end of the **message display**. The asterisk indicates that the setting has been confirmed.
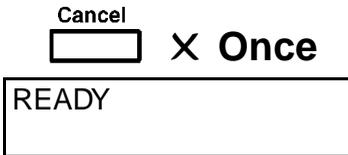
Cancel
| | ✕ **Once** |

READY

6. Press the **Cancel** key on the **control panel**.

    Check that "READY" appears on the **message display**.

    Make sure that the **On Line** indicator is lit.

    This completes the procedure for media setting for **Tray 1**.

Tray 2: second cassette / Tray 3: third cassette (optional)

Note

• Do not load labels onto **Tray 2** or **Tray 3**. Labels can only be loaded onto **Tray 1**.
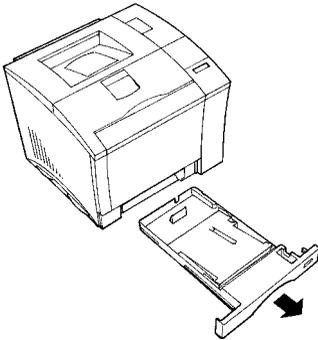
1. Slide out **Tray 2** (second cassette) or **Tray 3** (third cassette).
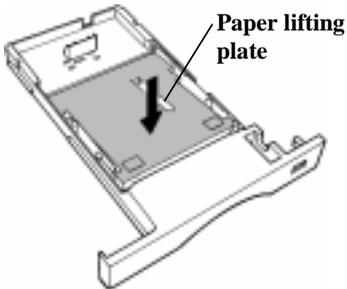
Paper lifting plate

2. Press down on the **paper lifting plate** until it locks.

Chapter 2

Using the Printer

Trailing edge guide

A4

Letter
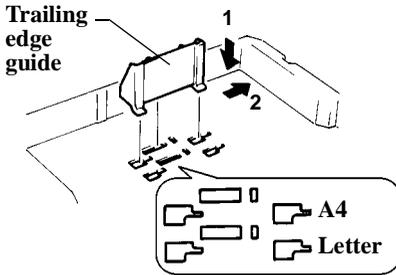
3. Install the **trailing edge guide** to fit the size of the transparencies to be loaded.

Note

Guide space

•   When loading Legal-size transparencies, the **trailing edge guide** is not used. Return it to the guide space in the cassette.

Paper separator

Face down
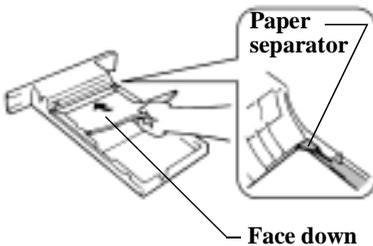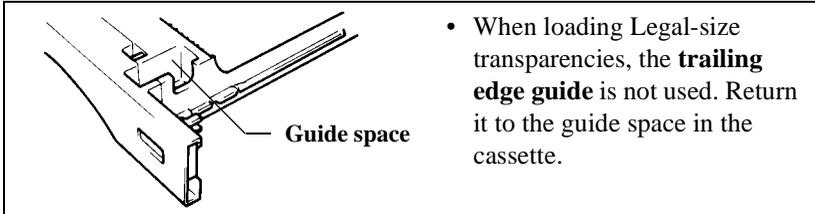
4. Load the transparency stack into the cassette, print side down, under the **paper separator**, and flush with the front side of the cassette.

Note

Face-side up

↑ UP ↑ HAUTE ↑ SOP

The face of the transparency should be facing up

•   Load the recommended transparencies (Minolta CF 200-(D), 3MCG3710, Minolta CF-100 (D) or 3M PP2500) into the cassette so that their front sides are **facing up**.

Chapter 2

Using the Printer
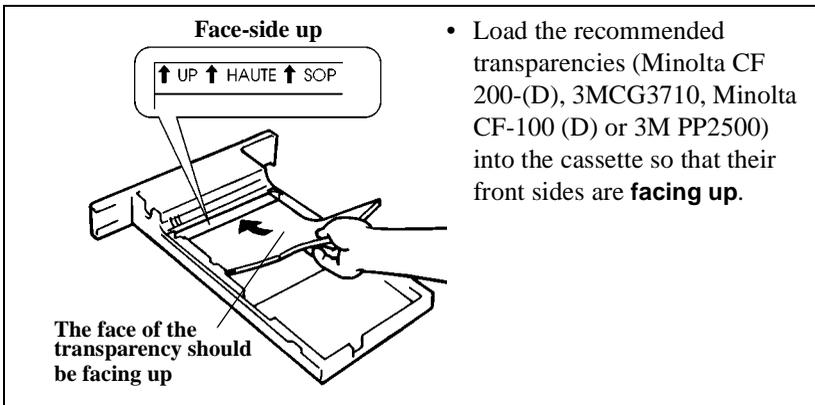
Note
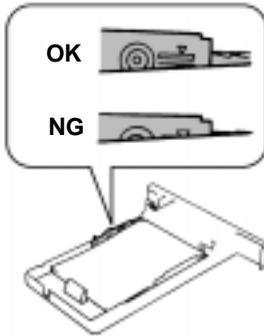
- The transparencies should be loaded no higher than the **maximum level indicator**.

OK

NG

- Do not load additional transparencies on top of those remaining in the tray.
- Loading the transparencies with force may cause a misfeed.
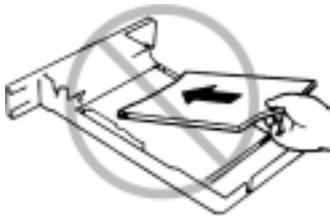
- To replenish the transparencies, take out those that remain in the tray and add them to the new supply. Straighten the edges on a level surface.

- It is recommended that the cassette be replenished only when it is empty.
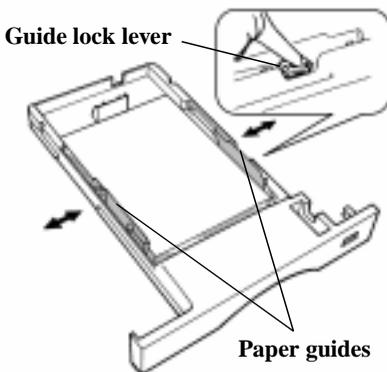
5. While pressing the **paper guide lock lever**, adjust the **paper guides** to the size of the transparencies.

Guide lock lever

Paper guides

Chapter 2

Using the Printer
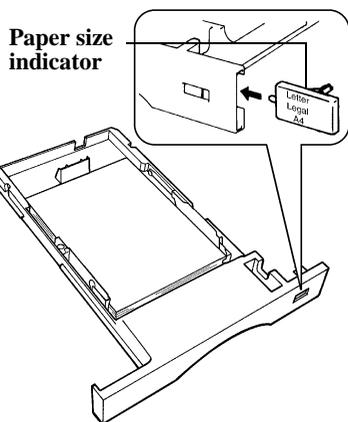
6. Set the **paper size indicator** to fit the size of the transparencies to be used.

Paper size indicator

Note

• If the **paper size indicator** is not reset to the corresponding size, the document may not print correctly. When you have changed the paper size, always reset the **paper size indicator**.

7. Slide in the cassette.
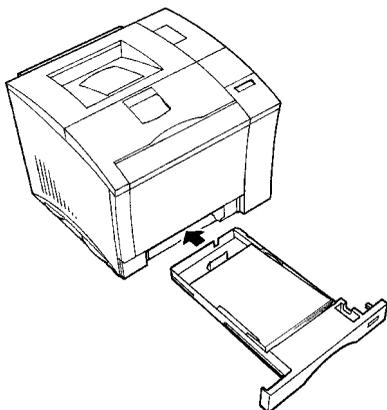
Note

• Make sure that **Tray 2** is completely loaded into the printer whenever you print from **Tray 3**. Printing from **Tray 3** is not possible if **Tray 2** is not completely loaded into the printer.

How to Set the Media type for Tray 2/Tray 3

The default setting for **Tray 2/Tray 3** is "PLAIN PAPER". Whenever transparencies are to be used with **Tray 2/Tray 3**, be sure to make the proper Media setting changes.
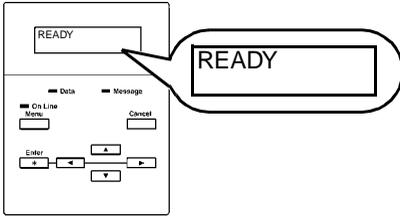
1. Make sure that "READY" is shown on the **message display** and that the **On Line** indicator is lit.

Menu

☐ ✕ **4 or 5 times**
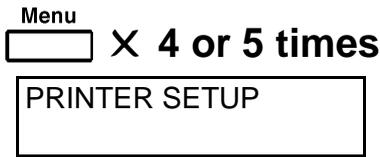
PRINTER SETUP

2. Press the **Menu** key four or five times (when an optional hard disk drive is installed).

   Check that "PRINTER SETUP" appears on the **message display**.

Example : TRAY 2 MEDIA

Enter

☐ ✳ ✕ **4 times**

TRAY2 MEDIA
PLAIN PAPER   ✳
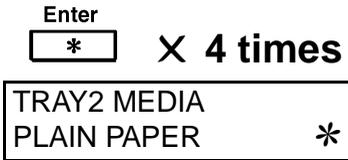
3. Press the **Enter** key on the **control panel** 4 or 5 times.

   Check that "TRAY2 MEDIA PLAIN PAPER ✳" or "TRAY3 MEDIA PLAIN PAPER ✳" appears on the **message display**.

Note

- An asterisk will appear next to the selected media in the **message display**.
- "TRAY3 MEDIA XXXX" appears only when a **250 sheet third cassette unit** is attached to the printer.

**Example: Changing from
PLAIN PAPER to TRANSPARENCY**

▲ ✕ **Once**

TRAY2 MEDIA
TRANSPARENCY

4. Press the **Up/Down** keys on the **control panel** to select the Media setting that corresponds to the type of media in **Tray 1**.

   <PLAIN PAPER/
   TRANSPARENCY>

**Example: Changing from
PLAIN PAPER to TRANSPARENCY**

Enter
＊ ✕ **Once**

TRAY2 MEDIA
TRANSPARENCY   ＊

5. Press the **Enter** key. Check that an asterisk "＊" appears on the right end of the **message display**. The asterisk indicates that the setting has been confirmed.

Cancel
✕ **Once**

READY

6. Press the **Cancel** key on the **control panel**.

   Check that "READY" appears on the **message display**.

   Make sure that the **On Line** indicator is lit.

   This completes the procedure for media setting for **Tray 2/ Tray 3**.

Loading Special Paper (Letterhead/ Envelopes/ Post-cards/ Thick Paper)

Caution

- Do not use legal L size thick paper (the printer does not support legal size thick paper).

- Do not use the following types of paper to avoid reduced print quality, a misfeed or a print failure.

  ✓ Paper already used in a thermal transfer printer or ink jet printer.

  ✓ Paper that is too thin or too thick.

  ✓ Paper folded, curled or torn.

  ✓ Paper having binding holes or perforations.

  ✓ Paper with surfaces that are too smooth or too rough or with varying surfaces.

  ✓ Paper having special coatings on their surfaces such as carbon paper, heat-sensitive paper and pressure-sensitive paper.

  ✓ Sheets of various sizes.

  ✓ Paper not cut on right angles.

  ✓ Paper bound by glue, staples or clips.

  ✓ Paper affixed with labels which are easy to peel.

  ✓ Post cards that are warped or bent.

- Envelopes should meet the following requirements:

  ✓ Sharp folds and edges.

  ✓ General mailing envelopes without seals on the glued portion.

  ✓ Those having flaps the full width of the envelope (unacceptable if the flap is glued).

  ✓ Wrinkle-free, no fasteners.

- Generally, envelopes perform well, but some types may wrinkle. We strongly recommend testing any type of envelope before buying it in large amounts.

- Multiple documents can be printed continuously on specialty paper but the feeding capability may be affected by the materials used and the operating environment. It may be necessary to load them individually.

Chapter 2

Using the Printer

Tray 1: multipurpose tray

1. Swing open **Tray 1** (multipurpose tray).
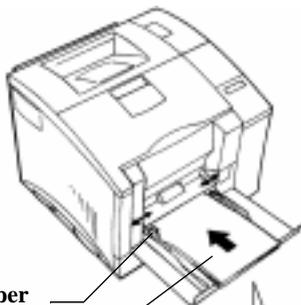
2. To load a long stack of paper, open the **paper support**.

   Load the paper stack on the tray, print side facing up.

   Adjust the **paper guides** to fit the size of the paper.

Paper guides

Face up

Paper support

Face up
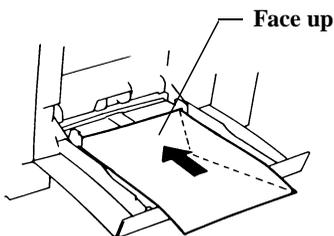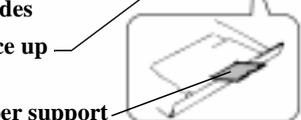
3. When printing envelopes, fold their flaps securely and load them on the tray with their flap side down.

   When printing letterhead, load it on the tray with the header at the take-up end.

Note

• Generally, envelopes take to printing well but some types may wrinkle. We strongly recommend testing any type of envelope with the printer before buying it in large quantities
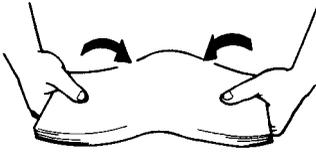
4. When printing paper, load it on the tray after smoothing any folds or wrinkles.

5. Specify the Media setting for **Tray 1**. ☞ p. 2-34.

Note
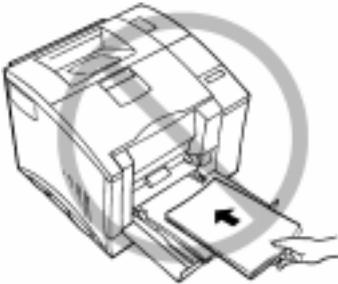
- Do not load more than 50 sheets on the tray at one time.

- Do not load additional sheets of paper on top of those remaining in the tray.

- If you load them forcibly, it may cause a misfeed.

- To replenish the tray, take out the remaining paper and add it to the new supply. Fan the paper and load it into the cassette.

- It is recommended that the cassette be replenished only when it is empty.

Printing

Paper can be fed through the printer from either **Tray 1** (multi-purpose tray), **Tray 2** (second cassette) or **Tray 3** (third cassette). This will allow you to use the paper source that best suits your application.
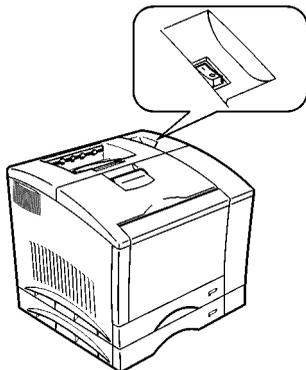
1. Turn the printer on.
    ☞ p. 2-15
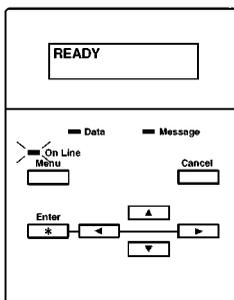
Check that "READY" is shown on the **message display**.

Check that the **On Line** indicator lights up.
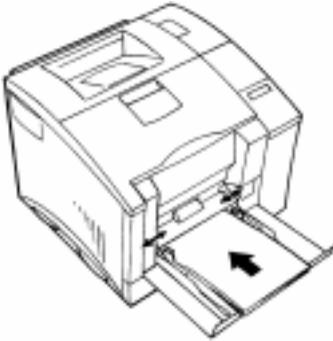
2. Load the paper.
   Tray 1 (multipurpose tray)
   ☞ pp. 2-21, 2-24, 2-32, 2-34, 2-43, 2-44
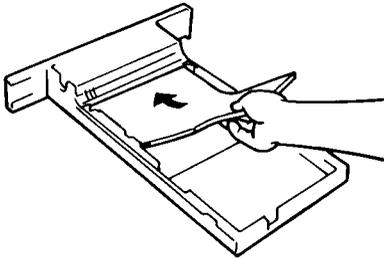
   Tray 2 (second cassette) /
   Tray 3 (third cassette)
   ☞ pp. 2-36, 2-36, 2-40
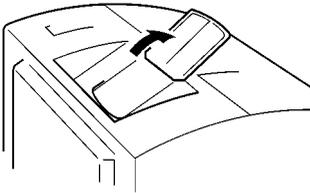
3. To print long paper, open the **paper support** in the **output tray**.
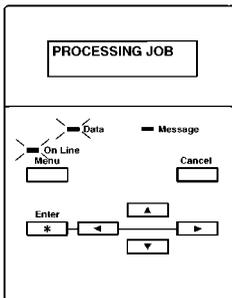
4. Input a print command from the host computer. The "READY" message will change to "PROCESSING JOB" in the **message display**.

   The **Data** indicator light will blink.

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PROCESSING JOB
FROM TRAY XX

Data   Message
On Line
Menu   Cancel

Enter
*   ◄   ►
▲
▼
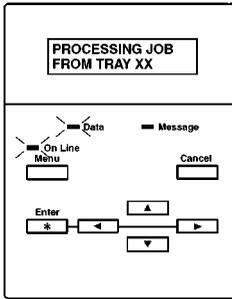
5. The **message display** will change from "PROCESSING JOB" to "PROCESSING JOB FROM TRAY XX".
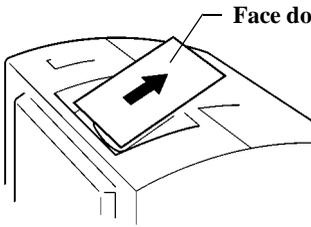
Face down

6. The printed paper feeds out onto the **output tray** with the image face down.

7. After the document has finished printing, the **Data** indicator will turn off and "READY" will appear in the **message display**.

Note

• The output tray can hold up to 250 sheets of paper.
  Be careful not to exceed this limit when making multiple prints.

Chapter 2

Using the Printer

Chapter **3**

Changing the Printer Settings

Setting the MENU Utilities

The MENU utilities are settings that you can change to suit your particular operating needs.

Refer to Appendix B for descriptions of the various settings available through the MENU utilities.
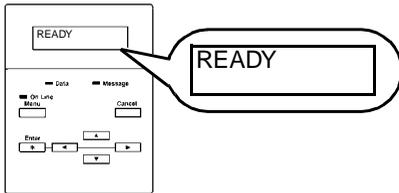
1. Make sure that "READY" is shown on the **message display** and that the **On Line** indicator is lit.

Menu key (times (approx.))	Setting Groups
1 *1	CHECK AND PRINT
2	PRINT PAGES FROM LIST
3	RESETS
4	SYSTEM SETUP
5	PRINTER SETUP
6	PS SETUP
7	VISUALCAL
8	COLOR ADJUSTMENT
9	I/O PORT SETUP
10 *2	NETWORK PROTOCOL SETUP
11 *2	NETWORK SERVICES SETUP
12	PANEL LANGUAGE

2. Repeatedly press the **Menu** key on the **control panel** until the desired menu is found (refer to the menu table).

*1: Displayed only when the optional hard disk drive is installed.

*2: Displayed only when the optional network interface card is installed.

Example: PRINTER SETUP

Menu
☐ ✕ **4 or 5 times**

PRINTER SETUP

Example: TRAY1 PAPER SIZE

Enter

[∗] ✕ **Twice**

```
TRAY1 PAPER SIZE
A4                    ∗
```
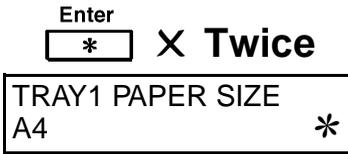
3. Press the **Enter** key on the **control panel** until the desired item is found.

Example: Changing from A4 to LETTER

[▼] ✕ **4 times**

```
TRAY1 PAPER SIZE
LETTER
```
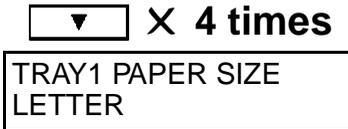
4. Press the **Up/Down** keys on the **control panel** to select the desired setting.

Example: Changing from A4 to LETTER
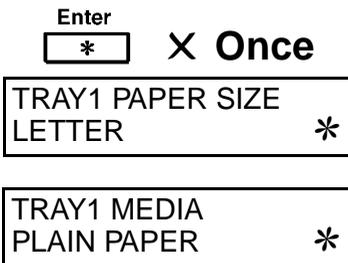
Enter

[∗] ✕ **Once**

```
TRAY1 PAPER SIZE
LETTER                ∗
```

```
TRAY1 MEDIA
PLAIN PAPER           ∗
```

5. Press the **Enter** key. Check that an asterisk "∗" appears on the right end of the **message display**. The asterisk indicates that the setting has been confirmed. The printer will automatically proceed to the next item.

Chapter 3

Changing the Printer Settings

```
Cancel
┌──────┐
│      │  ✕ Once
└──────┘
┌─────────────────┐
│ READY           │
│                 │
│                 │
└─────────────────┘
```
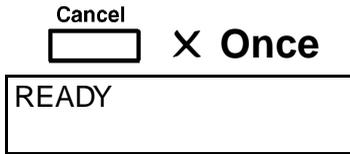
6. Press the **Cancel** key on the **control panel** to exit the MENU utilities.

   Check that "READY" appears on the **message display**.

   Make sure that the **On Line** indicator is lit.

   The procedure for setting the MENU utilities is complete.

Note

- To quit the MENU utilities and return to the READY mode (anytime between steps 2 through 4), press the **Cancel** key.
- The printer will automatically go into the READY mode if 30 seconds are allowed to pass without pressing a control panel key while setting the MENU utilities.
- When the printer returns to the READY mode automatically or by pressing the **Cancel** key, all settings that were previously saved by pressing the **Enter** key will not be effected.

Chapter 3

Changing the Printer Settings

Outline of Settings for the MENU Utilities

1. CHECK AND PRINT

This option allows you to output one copy of a multi-copy-print job and check it before outputting the remaining copies.

2. PRINT PAGES FROM LIST

Displays the printer's resident pages.

2-1.   PRINT CONFIGURATION

Select this option to printout the internal settings of the configuration menu.

2-2.   PRINT TEST PAGE

Select this option to print the demonstration page.

2-3.   PRINT PS FONT LIST

Select this option to print a list of the internal and any external fonts stored in or accessible to the printer in PostScript.

2-4.   PRINT JOB LOG

Select this option to print the Job Log list page when an optional hard disk drive is installed.

3. RESETS

This settings group clears all jobs, formats the hard disk drive (if the hard disk option is installed), and resets other default settings.

3-1.   CLEAR LOG/QUEUES

Select this option to clear all print jobs stored in the printer.

3-2.   FORMAT DISK

Select this option to format the hard disk drive of the printer.

Chapter 3

Changing the Printer Settings

3-3. RESET COLOR

Select this option to reset all color settings to their factory defaults.

3-4. RESTORE DEFAULTS

Select this option to reset the printer settings to their factory defaults.

3-5. RESTART PRINTER

Select this option to restart the printer.

4. SYSTEM SETUP

This settings group specifies system settings for the printer, as well as allows you to set or change the administrator password. This password is used to limit access to the Setup menus.

4-1. PRINTER NAME

Use this option to assign a name to the printer. The printer name can be up to 16 characters.

4-2. PRINT START PAGE

Use this option to have a Start page printed when the printer restarts to verify that it is working properly. The Start page contains such information as: printer name, amount of memory installed, and options installed on the printer.

4-3. PUBLISH PRINTD Q

This option appears only when the optional hard disk drive is installed. Use this option to enable users to print to the printed queues. The printed queue is a storage area that stores the most recently printed jobs, making it convenient to reprint those jobs.

4-4. JOBS TO SAVE

This option appears only if **PUBLISH PRINTD Q** is set to **YES**. Use this option to specify the number of jobs to be stored in the printed queue.

4-5. POWER SAVER (M)

Use this option to select the length of time during which there is no printer activity before the Color PagePro Ex switches to Power Saver mode. Full power mode is automatically restored when the printer receives a network print job or any button on the operation panel is pressed.

4-6. CHANGE PASSWORD

Use this option to set or change the administrator password for the printer. In most cases, only the system administrator should have access to this password.

When you select **YES** in the **CHANGE PASSWORD** screen, you are prompted to enter the new password.

• **NEW PASSWORD**

To enter a new password, use the up arrow button to scroll through characters and the right arrow button to move from character to character.

The password can be any combination of letters and numbers up to 16 characters. When you are finished, press the **Enter** key. All printer setup menus, with the exception of "Check and Print" and "Print Pages" become inaccessible without first entering a password.

• **VERIFY PASSWORD**

To verify a new or existing password, you must enter the password a second time.

Chapter 3

Changing the Printer Settings

5. PRINTER SETUP

This settings group specifies paper and toner settings.

5-1. DEFAULT PAPER

Use this option to specify the default paper size.
Information pages from the **PRINT PAGES FROM LIST** menu
(Job Log list, Configuration page, PS Fonts List, and Test page)
are printed on the default paper size, either A4 or LETTER.

5-2. TRAY1 PAPER SIZE

Select this item to display and change the paper size for Tray 1.

5-3. TRAY1 MEDIA

Select this item to display and change the media type for Tray 1.

5-4. TRAY2 MEDIA

Select this item to display and change the media type for Tray 2.

5-5. TRAY3 MEDIA

Select this item to display and change the media type for Tray 3.

5-6. TONER LOW

Use this option to specify the reaction of the printer when toner
in a cartridge is low. Select **CONTINUE** to print even when
toner is low; select **STOP** to stop printing when the toner is low.
If **STOP** is selected and a print job is sent while toner is low, the
printer waits until the **Enter** key is pressed before the job will
be printed. When the toner has been replaced and the **Enter** key
is pressed, the job is printed.

5-7. REPLACE TONER

Select this item to replace the toner cartridge. See page 7-1 for
instructions.

6. PS SETUP

Use this settings group to specify PostScript settings for the printer.

The PostScript setup menus enable you to set Postscript printing options.

6-1. PRINT TO PS ERR

Use this option to specify if a portion of a print job that has been processed before encountering a PostScript error is printed. Select **YES** to print the portion of the job that was processed and a description of the PostScript error, which may help you troubleshoot the error; select **NO** to cancel printing when a PostScript error occurs.

6-2. COVER PAGE

Use this option to specify whether a Cover (job summary) page will be printed at the end of each print job. Select **YES** to print a page with the name of the user who sent the job, the document name, the printer name, the number of pages printed, and the status of the job.
If a PostScript error occurred and **PRINT TO PS ERR** is set to **YES**, the error message will be printed on the Cover page, along with the job status.

7. VISUALCAL

Use these menu options to compensate for normal print fluctuations.

7-1. RESOLUTION

Select a resolution setting from the following options:
600×600 dpi, 1200×600 dpi, 2400×600 dpi. The level of resolution that is specified here will affect other VISUALCAL settings.

Chapter 3

Changing the Printer Settings

7-2. PRINT LIMITS

The limits you select are used by the printer to adjust high-
lights, shadows, and contrasts.

Select **YES** and press the **Enter** key to print the LIMITS PAGE
which contains the highlight, shadow, and contrast chart.

Note

- If you cannot see any circle in a given row, enter 9.
- If you see circles in every column, enter 0.
- If your answers are out of range, VisualCal regenerates a test pattern
  closer to your specific printer response.
- If values are still out of range, reset the printer default color values. If
  that does not help, your printer may require maintenance.

Chapter 3

Changing the Printer Settings

7-3. BLACK START

Use this option to adjust the black start value.

7-4. BLACK END

Use this option to adjust the black end value.

7-5. CYAN START

Use this option to adjust the cyan start value.

7-6. CYAN END

Use this option to adjust the cyan end value.

7-7. MAGENTA START

Use this option to adjust the magenta start value.

7-8. MAGENTA END

Use this option to adjust the magenta end value.

7-9. YELLOW START

Use this option to adjust the yellow start value.

7-10. YELLOW END

Use this option to adjust the yellow end value.

7-11. 30% MATCH

Use this option to adjust the 30% match value.

7-12. PRINT GRAYS

The gray patch you select is used by the printer to balance all colors.

Select **YES** and press the **Enter** key to print the GRAY BAL-ANCE PAGE which contains the gray balance chart.

Chapter 3

Changing the Printer Settings

7-13. BEST PATCH (ROW)

Use this option to adjust the color patch (row) according to the gray balance page.

7-14. BEST PATCH (COL)

Use this option to adjust the color patch (column) according to the gray balance page.

7-15. PRINT COLOR TEST

Select **YES** and press the **Enter** key to print the **CURRENT COLOR TEST PAGE** and **NEW COLOR TEST PAGE**. After these test pages have printed, the **APPLY CHANGES** message will appear. Select **YES** to save all changes. Select **NO** to exit this option without saving changes.

8. COLOR ADJUSTMENT

These menu options allow you to change the brightness and color balance as you like.

8-1. RESOLUTION

Select a resolution setting from the following options: 600×600 dpi, 1200×600 dpi, 2400×600 dpi. The level of resolution that is specified here will affect other COLOR ADJUSTMENT settings.

8-2. BRIGHTNESS

Use this option to adjust the brightness.

8-3. ADJUST COLOR

Use this option to adjust the color balance of each color (cyan, magenta, yellow, red, green, blue).

8-4. PRINT COLOR TEST

Select **YES** and press the **Enter** key to print the **CURRENT COLOR TEST PAGE** and **NEW COLOR TEST PAGE**.
After these test pages have printed, the **APPLY CHANGES** message will appear. Select **YES** to save all changes. Select **NO** to exit this option without saving changes.

9. I/O PORT SETUP

The I/O Port Setup menus allow you to specify and set up the network port type including Ethernet (if the option is installed), Token Ring (if the option is installed), or parallel port.
For details, refer to the *Network Interface Card User's Manual* that comes with the printer.

10. NETWORK PROTOCOL SETUP

Network Protocol Setup options are used to specify and setup TCP/IP, AppleTalk, and IPX (Novell) network protocols.
For details, refer to the *Network Interface Card User's Manual*.

11. NETWORK SERVICES SETUP

The Network Service Setup menus allow you to establish network service for your printer.
For details, refer to the *Network Interface Card User's Manual*.

12. PANEL LANGUAGE

This setting specifies the language of the operation panel and the resident pages.

Chapter 3

Changing the Printer Settings

Chapter **4**

Printer Driver

Conventions

The following icons are used in this manual:

Indicates features for which a hard disk drive is required.

Indicates instructions for users working with networked printers.

Configuring PostScript Printing Options for Windows 95/98

This section describes configuring printing options for Windows 95/98 using the Adobe PostScript printer driver provided on the Color PagePro Ex Printer Drivers CD-ROM. It also describes where these options can be set if you are using Windows 95/98, Windows NT 4.0, and Windows 3.1 x operating systems.

See *Set-up Guide* for instructions on how to connect the printer to a computer or to a network, and how to install the printer driver for Color PagePro Ex.

Note

• This driver supports PostScript 3 features.

Custom print options available from the drivers are described in "Color PagePro Ex Print Options for Windows" at the end of this chapter.

The screen images that appear in the following sections are examples of the printer driver operating in a Windows 95-based operating environment. Settings for the printer driver are the same for both Windows 95 and Windows 98.

Chapter 4

Printer Driver

To Configure PostScript Printing Options:

1. Click the Windows 95/98 **Start** button, point to **Settings**, and then
   click **Printers**.

2. Click the **Minolta Color PagePro Ex** printer icon to select it.

3. Choose **Properties** from the **File** menu.

The Printer Properties dialog box appears, with the **General** tab
displayed.
PostScript printing options are set from tabs in this dialog box.

Chapter 4

Printer Driver

4. Choose the **Paper** tab.
   Use the **Paper** tab to specify print job options.
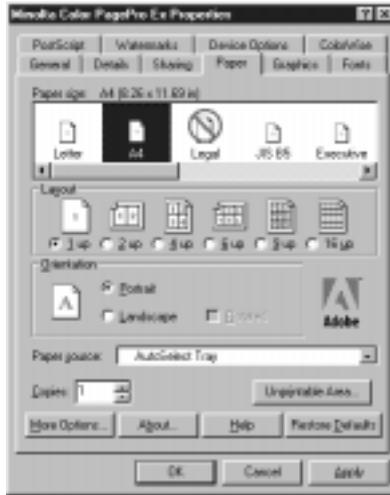
5. Click the **More Options** button in the **Paper** tab to open the **More Paper Options** dialog box.

   Use the **More Paper Options** dialog box to specify the type of media to print on.
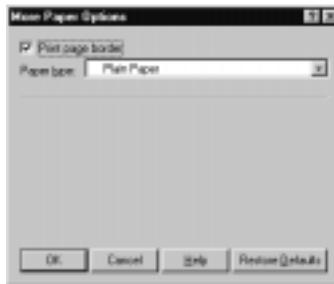
6. Choose the **Device Options**, **Output** tab.
   Specify the use of features relating to optional devices installed on
   your printer using options in this tab.

💿 Check and Print and Electronic Collation are available only on
   printers with a hard disk drive.

Printer Driver   Chapter 4

Note

- The resolution setting for printer output can be changed through the **Resolution** list of the **Device Options** tab. Please note that the Resolution option that is located in the Graphics tab cannot be changed.
- The following resolution settings are available through the **Device Options** tab:

    High Grade: 2400×600 dpi
    Normal: 1200×600 dpi
    Draft: 600×600 dpi

- **High Grade** can be selected from the Resolution list when the memory capacity of the printer is 80 MB or more and the **Printer Memory** setting is correct.

7. Choose the **Device Options**, **Options** tab.
   Optional print devices installed on your printer are specified from the **Device Options**, **Options** tab.

Note

- Features related to optional devices such as a hard disk or paper feed unit will only be enabled in Windows printer drivers when you have specified your installed options using the Device Options, Options tab.

Chapter 4

Printer Driver

8. To change a setting, select a device option in the **Available Options** area, and click **Add** or **Remove**. Click **OK**.

9. Choose the **ColorWise** tab.
   Use options in the ColorWise tab to specify color control settings for your print job.

10. Choose the **Watermarks** tab.

Use options in this tab to print a watermark on the copies of a print job. Supplied watermarks can also be editing using options in this tab.

Configuring PostScript Printing Options for Windows 3.1

This section describes configuring printing options for Windows 3.1 systems using the Adobe PostScript printer driver v3.1.1. from the Color PagePro Ex Printer Drivers CD-ROM.

Note

• This driver supports PostScript 3 features.

To Configure PostScript Printing Options:

1. In the Printers dialog box, select the **Color PagePro Ex** in the Installed Printers list box and click **Setup.**
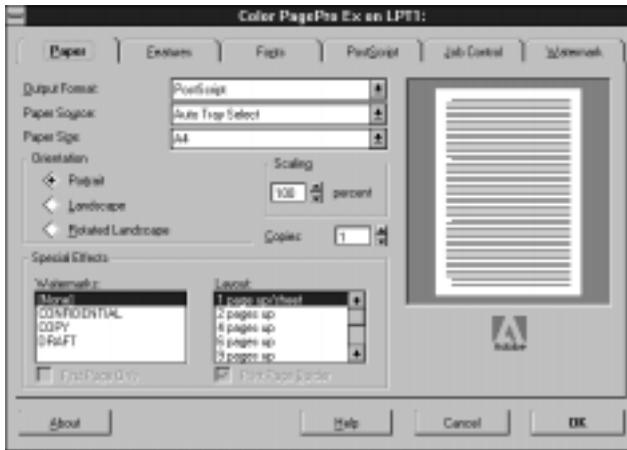
2. Select options from tabs in this dialog box.

Note

- The following resolution settings for printer output are available through the **Resolution** list of the **Features** tab.
    High Grade: 2400×600 dpi
    Normal: 1200×600 dpi
    Draft: 600×600 dpi
- **High Grade** can be selected from the Resolution list when the memory capacity of the printer is 80 MB or more and the **Printer Memory** setting in the **Features** tab is set correctly.

Chapter 4

Printer Driver

Configuring PostScript Printing Options for Windows NT 4.0

This section describes configuring printing options for Windows NT 4.0 systems.

On Windows NT 4.0 PostScript printing options are set from the Printer Properties dialog box and the Default Document Properties dialog box.

Note

• This driver supports PostScript 3 features.

To Configure PostScript Printing Options:

1. Click the **Start** button in the Windows NT 4.0 taskbar, point to **Settings**, and then click **Printers**. Right-click the **Minolta Color PagePro Ex** printer icon, and choose **Properties** from the **File** menu.

2. Click the **Device Settings** tab.
   All print options, including custom print options, can be set from tabs and scroll lists in this dialog box.

Chapter 4

Printer Driver
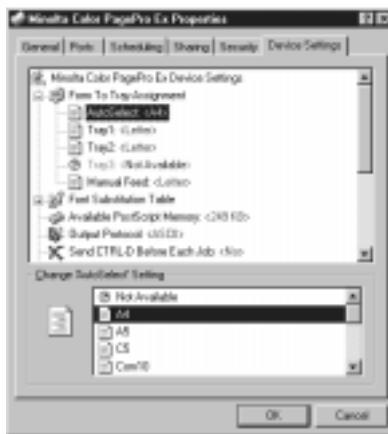
Note

> • You can also set custom print options from the Default Document Properties dialog box. This dialog box contains only those options that are specific to the Color PagePro Ex printer.

3. Right-click the **Color PagePro Ex** printer icon, and choose **Document Defaults** from the **File** menu.
   The Document Defaults dialog box appears.

   When you print from applications, this dialog box appears when you choose **Print**, and click the **Properties** button in the Print dialog box.

4. To change a setting, select an item in the scroll list. Options relating to the selected item appear in a submenu. To select an option, choose a setting from the submenu and click **OK**.

Chapter 4

Printer Driver

Note

- The resolution setting for printer output can be changed through the **Resolution** item under **Printer Features** in the **Advanced** tab. Please note that the **Resolution** item that is located under **Graphic** cannot be changed.
- The following resolution settings are available through the **Resolution** item under **Printer Features**:

  High Grade: 2400×600 dpi
  Normal: 1200×600 dpi
  Draft: 600×600 dpi
- **High Grade** can be selected from the Resolution list when the memory capacity of the printer is 80 MB or more and the **Printer Memory** setting is correctly set in the **Device Settings** tab of the **Properties** dialog.

Chapter 4

Printer Driver

Color PagePro Ex Print Options for Windows

The printer drivers that come with your printer have been customized to provide additional print options specific to your Color PagePro Ex printer. These options have been integrated into the driver interface. PostScript printer driver interfaces vary between Windows 95/98, Windows NT 4.0, and Windows 3.1x operating systems, the printing features available from each driver, on each platform are the virtually the same.

The following table describes custom print options available using the PostScript printer driver using Windows 95/98, Windows NT 4.0, and Windows 3.1x operating systems.

Print option	Description
Black Printing **Glossy Black/** **Non-glossy Black** (Non-glossy Black is the default)	There are two Black Printing options that you can select from: Glossy and Non-glossy. The Glossy option generates a natural sheen to the black areas of graphic images.
Brightness **85% to 115%** (100% is the default)	Adjust the color production on all color channels to make the printed output lighter or darker.
Check and Print (No is the default)	Allows you to print a single copy of a multiple copy job that can be visually checked before printing additional copies. When the Check and Print copy has been printed, you can specify the number of additional copies of the job to print using the Check and Print screens at the printer's operation panel. ✎ Check and Print is available only on printers with a hard disk drive.

Color PagePro Ex Print Options for Windows

CMYK Simulation SWOP-Coated/DIC/ Euroscale/None (None is the default)	CMYK simulation settings can be used to simulate popular offset printing press standards. Select SWOP-Coated to simulate printing to a standard American offset press; Euroscale to simulate a European offset press, or DIC to simulate a standard Japanese offset press. For more information see page 5-20.
ColorWise Business Color (only for Windows 95/98)	Before an RGB image can be printed, the file's color data must be converted to the printer's CMYK color space. Color rendering dictionaries allow you to apply optimal gamut mapping methods to text, photographs and illustrations. ColorWise Business Color specifies the application of the Presentation color rendering dictionary to photographic illustration and text objects in a document. Use this option if you are printing documents created in office applications that include color charts or mixed graphic and text elements. **Note:** When ColorWise Business Color is selected CRD settings are disabled.
ColorWise Expert Mode (only for Windows 95/98)	ColorWise Expert Mode enables CRD settings. You may select any combination of these settings to customize the printing of text graphic and illustration objects in your documents. Use this option if you are printing documents with a natural range of colors as in a continuous tone photograph.

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CRD Rendering Styles Photographic/ Presentation/OHT/ None	Before an RGB image can be printed, the file's color data must be converted to the printer's CMYK color space. Color rendering dictionaries apply optimal gamut mapping methods to documents that contain text, photographs and illustrations. The Photographic CRD optimizes the range of colors on the printer to produce the best results for photographic or bitmapped images. The Presentation CRD optimizes the output of pure, saturated colors such as those used in business presentations. The OHT (Transparency) CRD improves the correspondence between monitor colors and printed color on transparency paper. For additional information on Color Rendering Dictionaries, see page 5-19. **Note:** Color rendering dictionaries cannot be used with CMYK files.
Device Options	Optional printer accessories installed on your printer must be specified from the printer driver to enable their related features. For example, the Check and Print feature will not be enabled unless a hard disk drive has been specified as device installed on the printer. Options include: 250-sheet third cassette unit, Hard Disk.

Electronic Collation (No is the default)	Electronic collation allows the pages of each copy of a print job to be printed in sequence. If chosen, a file is downloaded to the hard disk drive, stored, and printed multiple times. 💾 This feature is automatically enabled only if a hard disk drive is installed in the controller. If there is no hard disk drive installed and electronic collation is chosen, then a "Conflict" screen will appear that alerts the user that a hard disk drive is required. If the user misrepresents to the controller that a hard disk drive is installed when it truly is not, then the job will print without collation. Whichever of these two settings is set to On is the setting that will be enabled. However, if Application Collation is set to On, the Application Collation setting will take precedence.
Grayscale	By default your printer is set to print documents in color (CMYK). Select Grayscale to print documents in grayscale. Note many applications offer black and white or grayscale printing options. Use the application's grayscale option, if available, for more efficient processing time.
CM Profiles (only for Windows 95/98)	The Adobe PostScript 4.2.4 driver for Windows 95/98 can convert RGB colors of a file to a specified CMYK device target using ICM (Image Color Matching) technology. Choose this option to specify the use of an ICM device profile installed on your computer. For more information on rendering styles, see page 5-19.

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Paper or envelope size	Paper and envelope sizes supported by the printer can be specified by name. Options include: A4, A5, JIS B5, Letter, Legal, Executive, Invoice.
Paper source	Paper trays can be specified by name. Options include: Auto Select Tray, Tray1, Tray2, Tray3, Manual Feed. Installed optional tray that has been specified in the driver can also be specified by name. (See "Device Options".)
Paper Type Media Type)	Media types supported by the printer can be specified by name. Options include: Plain Paper, Transparency, Envelope, Thick Paper. Choosing the correct media optimizes the fuser's application of toner. **Note:** When Transparency paper is specified, the Transparency Color Rendering Dictionary is automatically applied to text, illustrations and photographs in the document.
Resolution Draft/Normal/High Grade (Normal is the default)	Allows you to set the level of resolution that is used for printing. Choose from **Draft** (600×600 dpi), **Normal** (1200×600 dpi) or **High Grade** (2400×600 dpi). An increase in printing time may be noticed when using resolution settings with higher dpi ratios. **High Grade** can be selected from the Resolution list when the memory capacity of the printer is 80 MB or more and the **Printer Memory** setting is correct.

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RGB Source **EFIRGB/sRGB (PC)/** **Apple Standard/Off** (sRGB is the default)	RGB source profiles allow you to define the color space characteristics (such as the white point, gamma and type of phosphors) of the image's source. When a source is specified, the image's RGB data can be optimally converted to the color space and gamut of the Color PagePro Ex printer. The EFIRGB setting is optimal for color conversions that will be sent to the Color PagePro Ex printer. The sRGB (PC) setting specifies the source space of a generic Windows computer monitor. The Apple Standard setting specifies the source space of all standard Macintosh monitors. **Note:** The RGB source setting overrides any source color space profile you may have specified using other color management systems. In cases where you don't want this setting to override another specified source color space, select Off. For additional information on source profiles, see page 5-18.
Watermarks (None is the default)	A watermark is message that can be printed on the pages of a document to convey additional information to the reader about its content. You can print a water mark on the first page of the print job, or all pages of the print job. The supplied watermarks can be edited, or you can create new watermarks for your documents.

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Configuring PostScript Printing Options for Macintosh

Once you have installed the PostScript printer driver v. 8.5.1 you can print to the Color PagePro Ex just as you would print to any other printer. Simply specify the Color PagePro Ex as the current printer by clicking on its icon in the Chooser desk accessory, then click the Set Up button to select the printer's corresponding PPD. You will need to choose the Page Setup dialog box from your application's file menu to set general printing options for your printer. Additional print options can then be specified from your application's Print dialog box.

Note

• This driver supports PostScript 3 features.

To select the Color PagePro Ex as the current printer:

1. Make sure that the printer is connected to your network and turned on.

2. Make sure that AppleTalk is enabled in the control panel.

3. Select **Chooser** from the Apple menu.

4. Click the **AdobePS** icon to select it.

5. If your network is divided into zones, select the zone in which the printer is located.
   The names of all supported printers in the selected zone are displayed in the Chooser window.

6. Select the **Color PagePro Ex** from the list of printers that appears.

If your system administrator has enabled all connections to the printer, you can select Color PagePro Ex_Direct to print to the direct connection, Color PagePro Ex_Print to print to the Print queue, or Color PagePro Ex_Hold to print to the Hold queue.

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If your system administrator disabled the direct connection, or the Print or Hold queues, their corresponding names will not appear in the list.

Note

- The first time you select the printer's Direct, Print or Hold queues, you will be prompted to select a PPD.
- The Print queue and Hold queue options are only available when an optional hard disk drive is installed in the printer. Without the optional hard disk drive, Direct queue is the only queuing option available.

If any optional devices have been installed on the printer, click **Setup...**.
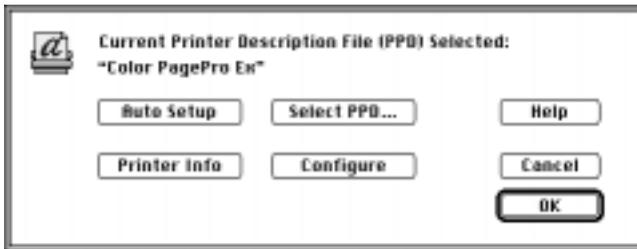
Next, click **Auto Setup** or **Configure** to specify which optional devices have been installed on the printer.

The Color PagePro Ex will remain selected as the current printer until you choose a new printer from the Chooser or the Page Setup dialog box.

On the Macintosh, custom print options are specified in the Page Setup and Print dialog boxes.

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To print from a Macintosh application:

1. Make sure that any printer description files needed by the application are installed on your Macintosh.
   Refer to "Installing the Adobe PostScript printer driver" in the Setup Guide.

2. Open the file you want to print from within the application.

3. Choose **Page Setup** from your application's **File** menu.

4. Select the **Color PagePro Ex** from a list of available printers.

5. Select the printing options you want from the Page Setup dialog box.
   PostScript and Page Attribute options can be specified from this dialog box.

6. Choose **Print** from the application's **File** menu.
   Choose the number of copies you would like to print, the range of pages to print, and the paper source (tray) to print from.

7. Choose additional Printer Specific Options from the drop-down list.

Each printer specific print option is described in the following section.

Note

- Options selected from the Print dialog box override any duplicate settings specified in the Printer Setup on the printer.
- The resolution setting for printer output can be changed through the **Resolution** drop-down list of the **Printer Specific Options** dialog. The following resolution settings are available:
    High Grade: 2400×600 dpi
    Normal: 1200×600 dpi
    Draft: 600×600 dpi
- **High Grade** can be selected from the **Resolution** drop-down list menu when the memory capacity of the printer is 80 MB or more and the **Installed Memory** setting is set correctly.
- For instructions on specifying the **Installed Memory** setting, see p. 4-19f..

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To use the Color PagePro Ex ICC printer profile:

The Color PagePro Ex Draft ICC, Color PagePro Ex Normal ICC and Color PagePro Ex HiGrade ICC printer profiles can be found in the **ColorSync™ 2.0** folder which comes on the Color PagePro Ex Printer Drivers CD-ROM. These 3 profiles have been included as separate, resolution tools.

An additional monitor profile called EFIRGB ICC is also included in the Color Sync folder.

1. With the document to be printed open, choose Print from the File menu.

2. Choose **Color Matching** from the pop-up menu under the Printer pop-up menu in the Print dialog box.

3. Choose **ColorSync Color Matching** or **PostScript Color Matching** from the Print Color pop-up menu.

4. Select a Color PagePro Ex ICC printer profile (Hi Grade, Normal or Draft) from the **Printer Profile** drop-down list. Make sure that the printer profile that you select matches the Resolution setting of the Printer Specific Options.

Note

• PostScript Color Matching must be specified in the Color Matching section of the Print dialog box to enable the use of CRDs.

Color PagePro Ex Print Options for Macintosh

The PostScript drivers that come with your printer have been customized to provide additional print options specific to your Color PagePro Ex printer. These options have been transparently integrated into the PostScript driver interface.

Color PagePro Ex PostScript print options are described in the following table.

Print option	Description
Black Printing **Glossy Black/** **Non-glossy Black** (Non-glossy black is the default)	There are two Black Printing options that you can select from: Glossy and Non-glossy. The Glossy option generates a natural sheen to the black areas of graphic images.
Brightness **85% to 115%** (100% is the default value)	Adjust the color production on all color channels to make the printed output lighter or darker.
Check and Print (No is the default)	Allows you to print a single copy of a multiple copy job that can be visually checked before printing additional copies. When the Check and Print copy has been printed, you can specify the number of additional copies of the job to print using the Check and Print screens at the printer's operation panel. Check and Print is available only on printers with a hard disk drive.

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CMYK Simulation SWOP/DIC/Euroscale/ None (None is the default value)	CMYK simulation settings can be used to simulate popular offset printing press standards. Select SWOP to simulate printing to a standard American offset press; Euroscale to simulate a European offset press, or DIC to simulate a standard Japanese offset press. For more information see page 5-20.
Color Mode: Color/Monochrome (Color is the default value)	By default your printer is set to print documents in color (CMYK). Select Monochrome to optionally print documents in grayscale.
CRD Rendering Styles Photographic/ Presentation/OHT/ None	Before an RGB image can be printed, the file's color data must be converted to the printer's CMYK color space. Color rendering dictionaries apply optimal gamut mapping methods to documents that contain text, photographs and illustrations. The Photographic CRD optimizes the range of colors on the printer to produce the best results for photographic or bitmapped images. The Presentation CRD optimizes the output of pure, saturated colors such as those used in business presentations. The OHT (Transparency) CRD improves the correspondence between monitor colors and printed color on transparency paper. For additional information regarding Color Rendering Dictionaries, see page 5-19. **Note:** Color rendering dictionaries cannot be used with CMYK files. Note also that PS Color Matching must be specified in the Print dialog box to enable the use of CRDs.

Electronic Collation (No is the default)	Electronic collation allows the pages of each copy of a print job to be printed in sequence. If chosen, a file is downloaded to the hard disk drive, stored, and printed multiple times. 📀 This feature is automatically enabled only if a hard disk drive is installed in the controller. If there is no hard disk drive installed and electronic collation is chosen, then a "Conflict" screen will appear that alerts the user that a hard disk drive is required. If the user misrepresents to the controller that a hard disk drive is installed when it truly is not, then the job will print without collation. Whichever of these two settings is set to On is the setting that will be enabled. However, if both Electronic Collation and Application Collation are set to On, the Application Collation setting will take precedence.
ICC Profiles	The Adobe PostScript 8.5.1 driver can convert RGB colors of a file to a specified CMYK device target using ICC technology. Choose this option to specify the use of an ICC device profile installed on your computer. For more information on rending styles, see page 5-17. For information on how to install and use the Color PagePro Ex ICC printer profile, refer to the Set-up Guide and page 4-23.

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Media Type	Media types supported by the printer can be specified by name. Options include: Plain Paper, Transparency, Envelope, Thick Paper. Choosing the correct media optimizes the fuser's application of toner. **Note:** When Transparency paper is specified, the Transparency Color Rendering Dictionary is automatically applied to text, illustrations and photographs in the document.
Paper or envelope size	Paper and envelope sizes supported by the printer can be specified by name. Options include: A4, A5, JIS B5, Letter, Legal, Executive, Invoice, Postcard, Com10, DL, C5, Monarch. The Paper option is located in the File>Page Setup dialog box.
Paper source	Paper trays can be specified by name. Options include: Auto Select, Tray1, Tray2, Tray3, Manual Feed. Installed optional trays that have been specified in the driver can also be specified by name.
Resolution Draft/Normal/High Grade (Normal is the default)	Allows you to set the level of resolution that is used for printing. Choose from **Draft** (600×600 dpi), **Normal** (1200×600 dpi) or **High Grade** (2400×600 dpi). An increase in printing time may be noticed when using resolution settings with higher dpi ratios. **High Grade** can be selected from the Resolution list when the memory capacity of the printer is 80 MB or more and the **Printer Memory** setting is correct.

RGB Source **EFIRGB/sRGB (PC)/** **Apple Standard/Other/** **Off** (sRGB is default value)	RGB source profiles allow you to define the color space characteristics (such as the while point, gamma and type of phosphors) of the image's source. When a source is specified, the image's RGB data can be optically converted to the color space and gamut of the Color PagePro Ex printer. The EFIRGB setting is optimal for color conversions that will be sent to the Color PagePro Ex printer. The sRGB (PC) setting specifies the source space of a generic Windows computer monitor. The Apple Standard setting specifies the source space of all standard Macintosh monitors. **Note:** The RGB source setting overrides any source color space profile you may have specified using other color management systems. In cases where you don't want this setting to override another specified source color space, choose Off from the RGB Source pop-up menu. For additional information regarding source profiles, see page 5-18.

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Chapter 5

Color Management

Introduction

This chapter introduces concepts that are basic to color theory. You will encounter some of these concepts (such as hue, saturation, and brightness) when you work with color in applications; others provide useful background information. Color is a complex topic, so consider this a starting point for experimentation and further research.

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Color Management

The Properties of Color

What we call "color" is really a perceptual ability unique to humans and a small number of animal species. Color theory is an attempt to systematize the properties of color perception, which by nature is relative and changeable. A color appears different depending on the other colors around it, and individuals vary in their abilities to perceive color.

The physics of color

The human eye can see electromagnetic radiation at wavelengths between 400 nanometers (purplish blue) and 700 nanometers (red). This range is called the visible spectrum of light. We see pure **spectral light** as intensely saturated or pure colors. Sunlight at midday, which we perceive as white or neutral light, is composed of light from across the visible spectrum in more or less equal proportions. Shining sunlight through a prism separates it into its spectral components, resulting in the familiar rainbow of colors.

Like the sun, most light sources we encounter in our daily environment emit a mixture of many light wavelengths, although the particular distribution of wavelengths can vary considerably. Light from a tungsten light bulb, for example, contains much less blue light than sunlight. Tungsten light appears white to the human eye which, up to a point, can adjust to the different light sources. However, color objects appear different under tungsten light than they do under sunlight because of the different spectral makeup of the two light sources.

The mixture of light wavelengths emitted by a light source is reflected selectively by different objects. Different mixtures of reflected light appear as different colors. Some of these mixtures appear as relatively saturated colors, but most appear to us as grays or impure hues of a color.

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CIE color model

In the 1930s, the Commission Internationale de l'Eclairage (CIE) defined a standard **color space**, a way of defining colors in mathematical terms, to help in the communication of color information. This color space is based on research on the nature of color perception.

By mixing any two spectral colors in different proportions, we can create all the colors found between them. For example, it is possible to create the same gray by mixing blue-green and red light or by mixing yellow-green and blue-violet light. This is possible because of a phenomenon peculiar to color vision called **metamerism**. The eye does not distinguish individual wavelengths of light. Therefore, different combinations of spectral light can produce the same perceived color.

Hue, saturation, and brightness

A color can be described in terms of three varying characteristics:

- Hue, or tint (the qualitative aspect of a color-red, green, or orange)
- Saturation, or the purity of the color
- Brightness, or relative position between white and black.

Many computer applications include dialog boxes in which you choose colors by manipulating hue, saturation, and brightness. For example, Photoshop uses a square Color Picker which can be reconfigured according to your preference.

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Additive and subtractive color systems

Color devices used in desktop publishing and printing simulate the range of visible colors using a set of primary colors that are combined to create other colors. There are two methods of creating a range of colors from a set of primary colors. Computer monitors and scanners use the **additive color model**. Printing technologies, including Color PagePro Ex print devices and offset presses, use the **subtractive color model**.

Additive (RGB) color

Color devices that use the additive color model make a range of colors by combining varying amounts of red, green, and blue light. These colors are called the **additive primaries**. White is created by adding the maximum amount of red, green, and blue light available. Black occurs wherever all three colors are absent. Grays are created by adding varying amounts of all three colors together. Combining varying amounts of any two of the additive primaries creates a third, saturated hue.

A familiar device that uses this color model is the computer monitor. Monitors have red, green, and blue **phosphors** that emit varying amounts of light to display a given color. Scanners create digital representations of colors by measuring their red, green, and blue components through colored filters.

Subtractive (CMY and CMYK) color

The subtractive color model is used in color printing, and in color photographic prints and transparencies. While the additive color model simulates the visible spectrum of color by adding light of three primary hues, the subtractive color model uses a "white" or neutral light source containing light of many wavelengths. Inks, toners, or other **colorants** are used to selectively absorb (subtract) certain wavelengths of light that otherwise would be reflected or transmitted by the media in question.

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The **subtractive primaries** are cyan, magenta, and yellow; they absorb red, green, and blue light, respectively. Combining any two subtractive primaries creates a new color that is relatively pure or saturated. For example, you can make red by combining magenta and yellow, which absorb green and blue light, respectively. White occurs when no colorant is applied. Combining all three subtractive primaries in theory yields black, but due to deficiencies of cyan, magenta, and yellow colorants, combining these three primaries actually yields a muddy brown. Black colorant is added to compensate for the deficiencies of cyan, magenta, and yellow colorants, and consequently color printing uses four **process colors**: **C**yan, **M**agenta, **Y**ellow, and blac**K** (CMYK). The use of black ink helps in producing rich solid blacks and also allows for improved rendition of black text.

Print device gamut

Different color reproduction techniques have different color capabilities, or gamuts. Color transparency films have comparatively large gamuts, as do color monitors. The color gamut that can be produced using CMYK toners on paper is smaller. This is why some colors that can be displayed on a color monitor, especially bright saturated colors, cannot be reproduced exactly by your print device–nor, for that matter, can they be reproduced on press using process colors. Moreover, different print devices have different gamuts–some colors that your print device can produce cannot be reproduced on an offset press, and vice versa. The following illustration provides a graphical representation of this concept.

Color transparency film

RGB monitor

Offset press (white)
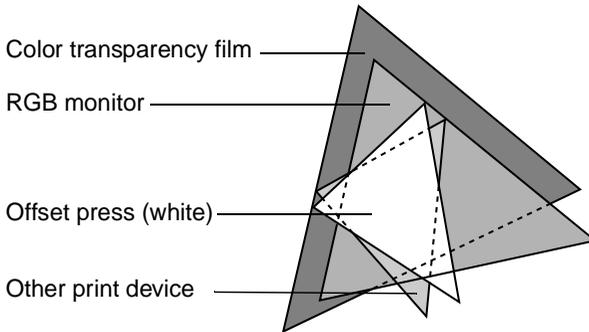
Other print device

You need to account for the gamut of your print device when designing on a color monitor. When printed, colors that fall outside the print device's gamut are "mapped" to printable colors. This process, referred to as gamut mapping, takes place when color data is converted or adjusted to meet the color space and gamut requirements of a print device.

The Color PagePro Ex is specially designed to perform gamut mapping at high speed with high quality results. It provides these color management features automatically, using either built-in default settings or settings that you specify for a particular print job. For added flexibility, the Color PagePro Ex color management system can also be used in combination with color management systems on Macintosh and Windows computers. See page 5-19.

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Controlling Printed Color

When working with color materials, whether they be presentations, illustrations, or complicated page designs, you make aesthetic decisions about the colors you use. Once you have decided on your goal, you then need to realize it in print. Your color printing system becomes an ally in this creative process to the extent that you can get results that are predictable.

- If you have designed a brochure to print on the Color PagePro Ex, you want the printed colors to match the design specification.

- If you are printing presentations on the Color PagePro Ex, you want to preserve the vivid colors in the monitor display.

- If you are working with color that will print on press, you want the Color PagePro Ex output to match prepress proofs.

The type of print job and the final print device either the Color PagePro Ex printer or an offset press, determine the methodology you use to achieve optimal results.

No matter what your goals are, two hardware factors always impact color print output: print device consistency and the range of colors the print device can print, known as its **gamut**. These factors are covered briefly in this chapter. Creating successful color documents and presentations also requires an understanding of color management software as it is implemented by the Color PagePro Ex and on your desktop computer. Most of this chapter is devoted to discussing the various elements of color management that contribute to predictable color results.

Maintaining print device consistency

The factors described below affect print device can greatly affect printed color. For best results, use the consumables recommended by the manufacturer of your printer.

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Paper Stock and toner

The paper and toner used by the print device can greatly affect printed color. For best results, use the consumables recommended by the manufacturer of your printer.

Maintenance

Problems such as streaking and insufficient or excessive amounts of one or more toners arise when a print device does not receive periodic maintenance. In addition to having it serviced regularly, monitor the color production of your printer by making standard test prints at regular intervals. You can do this easily by printing the Color PagePro Ex Test Page from the panel. Save the prints and show them to your system or site administrator if recalibration becomes necessary.

Note

• If the Gray Balance page is printed after the Limits calculations have been made, the gray field on which the CMY patches appear on the Limits page will use the new density and luminosity calibration settings.

Calibrating the printer using VisualCal

To perform VisualCal calibration:

Use the **VISUALCAL** menu from the control panel in order to reset the printer's toner density and luminosity setting. For instructions, see page 3-8.

To perform color adjustment:

Use the **COLOR ADJUSTMENT** menu from the control panel in order to adjust the brightness and the color balance. For instructions, see page 3-11.

Note

• Changes made using **COLOR ADJUSTMENT** are retained until the printer is recalibrated. Or reset the adjusted colors to the last calibration made using the **RESET ALL** option in the **ADJUST COLOR** screen; recalibrate the printer using VisualCal, or reset the printer's color production to factory defaults using the operation panel's **RESET COLOR** option.

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Using color effectively

The ability to print in color can greatly increase the effectiveness of your message, whether you are printing a presentation or a newsletter, or proofing an ad concept that will later be printed on press. Some potential benefits of using color include:

- Conveying information rapidly by using color cues

- Making use of the emotive aspects of different colors

- Increasing impact and message retention

Color can also be a source of distraction and discord if it is used poorly. This section outlines some tips and concepts that will prove useful as you approach designing color materials.

A few rules of thumb

Try some of the following strategies for creating successful color materials:

- Rather than applying colors indiscriminately, use color to aid comprehension.
  In presentations, graphs, and charts, use color to highlight patterns and emphasize differences.

- In general, fewer colors work better than many colors.

- Use red as an accent color. Red is particularly effective when used in otherwise monochromatic materials.

- Consider the tastes of your target audience when choosing colors.

- Keep a file of printed color pieces that appeal to you or strike you as effective. Refer to it for ideas when designing your own documents.

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Color wheel

A color wheel is a helpful tool for understanding the interrelation of colors. The colors on one side of the color wheel, from magenta to yellow, appear to most people to be warm colors, while those on the other side, from green to blue, appear to be cool. The distance between two colors on the color wheel can help predict how they will appear when seen side by side. Colors opposite one another on the wheel are called complements, and create a striking contrast side by side. This can be the basis for a bold graphical design, but it is an effect you should use with discretion since it can be visually fatiguing. Other bold combinations to consider are split complements (a color and the two colors adjacent to its complement) and triads (three colors evenly spaced on the color wheel). Colors adjacent to one another on the color wheel result in subtle harmonies.

The color wheel simplifies color relationships for the purpose of clarity, showing only saturated or pure colors. Adding the myriad variations of each hue to the palette (more or less saturated, darker or lighter) creates a wealth of possibilities. Taking a pair of complements from the color wheel and varying the saturation and brightness of one or both colors produces a very different result from the pure complements. Combining a light tint of a warm color with a darker shade of its cooler complement often gives pleasing results. Combining a darker shade of a warm color with a light tint of its cooler complement produces an unusual effect you may like.

Once you have mastered the concept of the color wheel, you have a good framework for experimenting with color combinations. Many books targeted at graphic designers show groups of preselected color combinations. Some are organized by themes or moods, and some are based on a custom color system such as PANTONE. The more you develop a critical facility for judging color combinations, the more you will be able to trust your own eye for color.

Color and text

It is not a coincidence that the overwhelming majority of text you see is printed in black toner on white paper. Text in black on white is highly legible and is not fatiguing to read for extended periods. For many color materials, using black text on a white background and confining color to graphic elements and headings is a good choice.

Color text can add flair to documents printed on paper when used skillfully, and is widely used in presentations. When using color text, avoid dazzling text and background combinations created from primary complements, especially red and cyan or red and blue; they are visually fatiguing and hard to read. Color text is more legible when distinguished from its background by a difference in lightness for example, dark blue text on a light beige background. In addition, using many different colors in a string of text makes for a confused appearance and is hard to read. However, using a single highlight color is an effective way to draw the reader's eye to selected words.

When using color text, keep in mind that small font sizes typically do not print in color with the same sharpness as in black. In most applications, black text prints exclusively in black toner while color text usually prints with two or more toners. Any misregistration between the different toners on paper causes color text to lose definition. You can make test prints to find the smallest point size at which color text prints clearly. When using high-end graphics applications that allow you to specify color as percentages of cyan, magenta, yellow, and black, you can create pure cyan or pure magenta text that prints with the same sharpness as black text. (Pure yellow text is extremely hard to read on anything but a dark or complementary background.)

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Raster images and vector images

Two broad categories of artwork can be printed from a personal computer to a color printer: raster and vector images.

A raster image, also referred to as a bitmap, is composed of a grid of pixels, each assigned a particular color value. The grid, when sufficiently enlarged, resembles a mosaic made from square tiles. Examples of raster images include scans and images created in painting or pixel-editing applications, such as Photoshop and Painter.

The amount of information found in a raster depends on its resolution and bit depth. The resolution of a raster describes the density of the pixels and is specified in pixels per inch (ppi). The bit depth is the number of bits of information assigned to each pixel. Black and white rasters require only one bit of information per pixel. For photographic quality color, 24 bits of RGB color information are required per pixel, yielding 256 separate levels of red, green, and blue. For CMYK images, 32 bits per pixel are required.

When printing raster artwork, the quality of the output depends on the resolution of the raster. If the raster's resolution is too low, individual pixels become visible in the printed output as small squares. This effect is sometimes called "pixelation".

In **vector images**, picture elements are defined mathematically as lines or curves between points–hence the term "vector". Picture elements can have solid, **gradient,** or patterned color fills. Vector artwork is created in illustration and drawing applications such as Illustrator and CorelDRAW. Page layout applications such as QuarkXPress also allow you to create simple vector artwork with their drawing tools. PostScript fonts are vector-based as well.

Vector artwork is resolution-independent; it can be scaled to any size without danger of pixels becoming visible in printed output.

Optimizing files for processing and printing

The following sections provide tips on how to create image files that produce the highest possible print quality while minimizing the processing time and disk space they require.

Resolution of raster images

While a 72 ppi raster image appears sharp on a monitor, the same image would likely appear pixelated when printed to the printer. Color print devices are capable of much greater detail than monitors, and require correspondingly higher resolution image files. However, high-resolution files can be large, and therefore cumbersome to transmit over a network, process for printing, store on disk, and edit.

Beyond a certain threshold, a higher image resolution greatly increases file size while having a minimal effect on output quality. The optimal image resolution depends on the resolution of the final print device. Aim for the resolution that optimizes both file size and output quality.

The resolution of a raster, along with its bit depth and physical dimensions, determine its file size. The following table shows the file sizes of color raster images at different dimensions and resolutions.

| Image size | File size at | | | |
| | 100 ppi | 150 ppi | 200 ppi | 400 ppi |
	RGB/CMYK	RGB/CMYK	RGB/CMYK	RGB/CMYK
3" × 4"	0.4/0.5MB	0.8/1.0MB	1.4/1.8MB	5.5/7.3MB
5" × 7"	1.0/1.3MB	2.3/3.0MB	4.0/5.3MB	16.0/21.4MB
8.5" × 11"	2.7/3.6MB	6.0/8.0MB	10.7/14.3MB	42.8/57.1MB

Chapter 5

Color Management

In this table, the shaded area indicate that 200 ppi is typically the best trade-off between image quality and file size. However, higher resolutions (e.g., 250 to 300 ppi) may be needed for offset printing, when quality is of the utmost importance, or for images containing sharp diagonal lines.

To find the best image resolution for your purposes, make test prints of some raster artwork at different resolutions. Start with a high-resolution image (400 ppi) and save versions at progressively lower resolutions, down to 100 ppi, using a pixel-editing application such as Photoshop. Always save a copy of the original high-resolution version in case you need to revert to it. The high-resolution data cannot be recreated from a lower resolution version.

Print the files and examine the output. You will likely begin to see a marked deterioration in output quality at resolutions below 200 ppi, while above 200 ppi the improvement may be very subtle.

Image quality

100 ppi   200 ppi   300 ppi   400 ppi
Image resolution
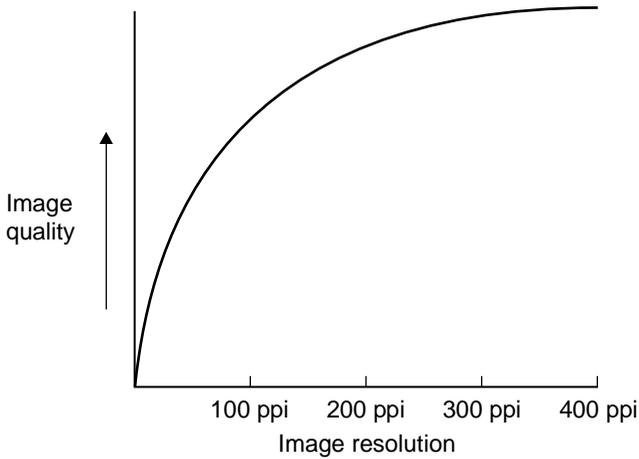
Raster images prepared for offset printing may need to be at higher resolutions than needed for proofing on your printer.

Scaling

Ideally, each raster image should be saved at the actual size it will be placed into the document and at the optimal resolution for the print device. If the image resolution is correct for the print device, there is no quality advantage to be gained by scaling an image down to a percentage of its actual size. If you scale a large image down to a percentage of its actual size, you incur unnecessary file transfer time because the image data for the entire large image is sent to the printer. If an image is placed multiple times at a markedly different sizes in a document, save a separate version of the image at the correct size for each placement.

If you need to place an image at greater than 100% in a document, remember that the output image resolution is affected. For example, if you scale a 200 ppi image to 200%, the image is printed at 100 ppi.

Chapter 5

Color Management

Color management on the Color PagePro Ex

The Color PagePro Ex uses a simple and flexible color architecture that produces excellent color results with default settings. It also allows you to customize your color results using various color controls.

The diagram below illustrates the controls in the Color PagePro Ex color management process that affect color data conversions. You access these controls via print options when you send a print job.

Settings for the following Color PagePro Ex options can be specified via print dialog box options when you send a job. Some can also be set as defaults by the administrator during Color PagePro Ex setup. Setting specified via the print dialog override any equivalent settings at the printer's panel.

Color print option	What it does
RGB Source EFIRGB/sRGB (PC)/ Apple Standard/Off (Default value is sRGB)	Applies an RGB source space definition to RGB data (see page 5-18).
Color Rendering Dictionary Photographic/Presentation/ OHT/None (Default value for photographs: Photographic; for text: Presentation; for illustrations: Presentation)	Applies a Color PagePro Ex color rendering dictionary (CRD) to objects (text, photographs and illustrations) in a RGB data file (see page 5-18).
Brightness 85% to 115% (Default value is 100%)	Performs a color adjustment on all color channels to make the printed output lighter or darker.

Color print option	What it does
CMYK Simulation SWOP/DIC/Euroscale/ None (Default value is None)	Adjusts CMYK color data to simulate an offset press standard or a custom color gamut defined at your site. Choosing None bypasses simulation (see page 5-20).

Explanations of how these setting affect your print jobs are provided in the following sections.

RGB Source

The RGB Source option is used to provide a source color space definition for RGB data in your document. The setting you specify for this option overrides any source color space profiles you may have specified using other color management systems. For example, if you specified a ColorSync System Profile on the Macintosh computer, the RGB Source setting specified in the Print dialog box overrides it. In cases where you don't want this setting to override another specified source color space, choose Off.

RGB Source	Description
EFIRGB	The source color space defined by this set-ting is optimal for color conversions that will be sent to a Color PagePro Ex print device. It also allows for consistent output across different operating systems.
sRGB (PC)	The sRGB (PC) setting specifies the source space of a generic Windows computer mon-itor.
Apple Standard	The Apple Standard setting specifies the source space of all standard Macintosh computer monitors.

PostScript RGB data is converted to CMYK data using the CRD specified by the Rendering Style option (see page 5-19). This type of RGB data contains its own source color space information which is used as a reference point for the conversion.

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Color Management

Non-PostScript RGB data is converted using a general under-color-removal conversion method. Non-PostScript RGB data does not contain source color space information and so cannot be converted using a CRD.

Rendering styles

The Rendering Style option is used to specify a CRD for color conversions. The following table describes the color rendering styles (CRDs) for Color PagePro Ex software and provides guidelines on when to use each one. Each color rendering style uses a different gamut mapping method, such as Photographic or Presentation, designed for a particular kind of color usage.

Rendering style	Best used for
Photographic—Preserves tonal relationships in images rather than exact colors. This rendering style maps out-of-gamut RGB colors to printable colors in a way that retains differences in lightness. Color accuracy is sacrificed slightly in favor of presenting color relationships in the way the human eye perceives them. Photographic rendering typically gives less saturated output when printing out-of-gamut RGB colors than Presentation Color rendering does.	Continuous tone photographs, including scans and images from stock photography CDs
Presentation—Creates bright saturated colors. This rendering style does not try to match printed colors precisely to displayed colors but instead provides vibrant, dense colors. Photographic images, however, are treated the same way as by the Photographic rendering style.	Artwork and graphs in presentations and continuous tone photographs
OHT (Transparency)—Improves the correspondence between monitor color and printed color on transparency paper.	Artwork and graphs printed on transparency paper

Note

- The rendering styles referred to in the table cannot be used when speci-
fying a target device profile with a color management system such as
ICM or ColorSync.

CMYK simulation

There are several print option settings that affect output when printing
press proofs or simulations. These options affect CMYK data only.

The CMYK Simulation setting specifies the offset press standard or
other color gamut that you want to simulate.

The CMYK Simulation setting you should specify depends on the
press standard for which the CMYK data was separated. For example,
for images that were separated for SWOP, a standard of specifications
for separations, proofs, and color printing, choose SWOP as the
CMYK Simulation setting. For images that were separated for a
Japanese standard of specifications for separations, choose DIC; for a
European standard of specifications, choose Euroscale. For images
that were separated using a custom separation (such as a device-
specific separation or a separation produced with an ICC-profile),
choose None as the CMYK Simulation setting.

Grayscale—Use this option for printing grayscale CMYK data. If
you print RGB data with the Grayscale option, the data is converted to
CMYK without using a custom CRD; instead, a generic color
conversion is performed. Photoshop RGB images saved in EPS
format, however, may activate color rendering dictionaries even if the
Grayscale option is selected.

Swatch color matching

When you use applications that allow you to specify color as CMYK
data, swatch color matching allows you to match color output from
presses or other printers. Reference pages of CMYK data and
PANTONE colors are provided on the Color PagePro Ex Printer
Drivers CD-ROM. By choosing a color from one of these pages, and
specifying the CMYK percentages shown beside the color from your

application, you can be sure of obtaining the same color from the printer.

The Macintosh or Windows CMYK Reference Pages are PostScript files print pages of swatches in graduated combinations of yellow, magenta, and cyan, and smaller patches that include 25%, 50% and 75% black. The process colors are shown in 10% increments. You can produce these colors from any application that allows you to specify colors as CMYK percentages.

The PANTONE color matching system is standard color system within the graphic arts and prepress industries. It specifies hundreds of spot colors, each identified with a unique number. Each PANTONE color is simulated on the printer by printing an appropriate combination of process (CMYK) colors. The ability to simulate PANTONE colors is a basic form of color management.

Color PagePro Ex support for the PANTONE color matching system consists of Macintosh and Windows PANTONE Reference files. By downloading these PostScript files to the printer, you can print out the color reference pages.

With the PANTONE Reference, you can quickly print a file of PANTONE color simulations, illustrated with their CMYK percent values, on the Color PagePro Ex printer. You can give the PANTONE Reference page to designers who specify PANTONE colors in their Macintosh and Windows applications. Designers can pick colors from the file and then specify the colors in their applications by entering the CMYK values manually.

To make color matching more reliable, calibrate your Color PagePro Ex before printing the reference pages and your final output. See page 5-9.

Note

• Swatch color matching is not suitable for matching monitor and printer color.

Chapter **6**

Fonts

PostScript and TrueType fonts

The Color PagePro Ex includes 136 built-in PostScript and TrueType fonts.

Note

- All fonts that are pre-installed on your printer have also been included on the Color PagePro Ex Printer Drivers CD-ROM. For information on how to install these fonts on your computer, see the instructions for installing additional software in the *Setup Guide*.

Adobe Type 1 PostScript fonts

The Color PagePro Ex includes 117 Adobe Type 1 fonts:

- AlbertusMT, AlbertusMT-Italic, AlbertusMT-Light

- AntiqueOlive-Roman, AntiqueOlive-Bold, AntiqueOlive-Compact, AntiqueOlive-Italic

- AvantGarde-Book, AvantGarde-BookOblique, AvantGarde-Demi, AvantGarde-DemiOblique

- Bodoni, Bodini-Bold, Bodoni-Italic, Bodoni-BoldItalic, Bodoni-Poster, Bodoni-PosterCompressed

- Bookman-Demi, Bookman-DemiItalic, Bookman-Light, Bookman-LightItalic

- Carta

- Clarendon, Clarendon-Bold, Clarendon-Light

- CooperBlack, CooperBlack-Italic

- Copperplate-ThirtyThreeBC, Copperplate-ThirtyTwoBC

- Coronet

- Courier, Courier-Bold, Courier-Oblique, Courier-BoldOblique

- Eurostile, Eurostile-Bold, Eurostile-ExtendedTwo, Eurostile-BoldExtendedTwo

- GillSans, GillSans-Bold, GillSans-Italic, GillSans-BoldItalic, GillSans-Condensed, GillSans-BoldCondensed, GillSans-Light, GillSans-LightItalic, GillSans-ExtraBold

- Goudy, Goudy-Bold, Goudy-Italic, Goudy-BoldItalic, Goudy-ExtraBold

- Helvetica, Helvetica-Bold, Helvetica-BoldOblique, Helvetica-Condensed, Helvetica-Condensed-Bold, Helvetica-Condensed-BoldObl, Helvetica-Condensed-Oblique, Helvetica-Narrow, Helvetica-Narrow-Bold, Helvetica-Narrow-BoldOblique, Helvetica-Narrow-Oblique, Helvetica-Oblique

- JoannaMT, JoannaMT-Bold, JoannaMT-Italic, JoannaMT-Bold-Italic

- LetterGothic, LetterGothic-Bold, LetterGothic-BoldSlanted, LetterGothic-Slanted

- LubalinGraph-Book, LubalinGraph-BookOblique, LubalinGraph-Demi, LubalinGraph-DemiOblique

- Marigold

- MonaLisa-Recut

- NewCenturySchlbk-Roman, NewCenturySchlbk-Bold, NewCenturySchlbk-Italic, NewCenturySchlbk-BoldItalic

- Optima, Optima-Bold, Optima-Italic, Optima-BoldItalic

- Oxford

- Palatino-Roman, Palatino-Bold, Palatino-Italic, Palatino-Bold-Italic

- StempelGaramond-Roman, StempelGaramond-Bold, StempelGaramond-Italic, StempelGaramond-BoldItalic

- Symbol

- Tekton

- Times-Roman, Times-Bold, Times-Italic, Times-BoldItalic

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- Univers, Univers-Bold, Univers-BoldExt, Univers-BoldExtObl, Univers-BoldOblique, Univers-Condensed, Univers-CondensedBold, Univers-CondensedBoldOblique, Univers-CondensedOblique, Univers-Extended, Univers-ExtendedObl, Univers-Light, Unviers-LightOblique, Univers-Oblique

- ZapfChancery-MediumItalic

- ZapfDingbats

TrueType fonts

The Color PagePro Ex includes 19 TrueType fonts:

- Apple-Chancery

- ArialMT, Arial-BoldMT, Arial-ItalicMT, Arial-BoldItalicMT

- Chicago

- Geneva

- HoeflerText-Regular, HoeflerText-Black, HoeflerText-Italic, HoeflerText-BlackItalic, HoeflerText-Ornaments

- Monaco

- NewYork

- TimesNewRomanPSMT, TimesNewRomanPS-BoldMT, TimesNewRomanPS-ItalicMT, TimesNewRomanPS-BoldItalicMT

- Wingding-Regular

Chapter 6

Fonts

Chapter

Maintaining Your Printer

7

Changing Cartridges

🔋 Changing the Toner Cartridge

- There are four **color toner cartridges**: Black, Yellow, Magenta (Red) and Cyan (Blue). When any of the **color toner cartridges** run out, replace them with new ones.

- When any **color toner cartridge** begins to run short of toner, **"TONER LOW"** is displayed. Remove the corresponding cartridge, shake it several times, and reload it into the printer (this will evenly distribute the toner remaining in the cartridge). Prepare a new cartridge as a replacement.

- When any **color toner cartridge** runs out of toner, **"REPLACE TONER"** is displayed after the current job is printed out. While this message is displayed, any print job cannot be printed.

  Change the appropriate cartridge by using the following procedure:

- The **toner cartridges** can be changed in either the **Auto mode** or **Manual mode** of the Maintenance Menu. Each mode demands a specific procedure. Use the correct procedure according to the selected mode. ☞pp. 7-2, 7-10

- Dispose of the old cartridge in a plastic bag according to your local regulations, or return it to your dealer.

Maintaining Your Printer

Changing the Toner Cartridge (Auto Mode)

The Auto Mode automatically enables the carriage that holds the **toner cartridges** inside of the printer to rotate to the exact position for proper **toner cartridge** replacement. The **printer cover** must be closed when using the Auto Mode. The following section describes the procedure for replacing the **toner cartridges**.

Example: Color Toner Cartridge Magenta (Red)

REPLACE TONER
MAGENTA

1. Make sure that "REPLACE TONER" is shown on the **message display**.

Menu

☐ ✕ **4 or 5 times**

PRINTER SETUP

2. Press the **Menu** key four or five times (when an optional hard disk drive is installed) until "PRINTER SETUP" appears on the **message display**.

Enter

✱ ✕ **6 or 7 times**

REPLACE TONER
NONE

3. Press the **Enter** key on the **control panel** six or seven times.

   Check that "REPLACE TONER, NONE" appears on the **message display**.

Down key	Up key	Color
—	5 times	NONE
Once	4 times	CYAN (Blue)
Twice	3 times	MAGENTA (Red)
3 times	Twice	YELLOW
4 times	Once	BLACK
5 times	—	NONE

4. Press the **Up/Down** keys on the **control panel** to select the cartridge to be replaced.

**Example: Color Toner
Cartridge Magenta (Red)**

| ▼ | ✕ **Twice** |

REPLACE TONER
MAGENTA

Enter
✱

5. Press the **Enter** key on the
    control panel.

**Example: Color Toner
Cartridge Magenta (Red)**

REPLACING TONER
MOVING MAGENTA

Check that "REPLACING
TONER MOVING XXXXX"
appears on the **message
display**.

You will hear the sound of the
printer operating.

**Example: Color Toner
Cartridge Magenta (Red)**

REPLACING TONER
CHANGE NOW MAG

6. Make sure that the sound of
    printer operation has stopped,
    indicating that the printer has
    finished cycling.

    Wait for "REPLACING
    TONER, CHANGE NOW
    MAG"

7. Grasp and pull down the **front cover lock release lever** to swing open the **front cover**.
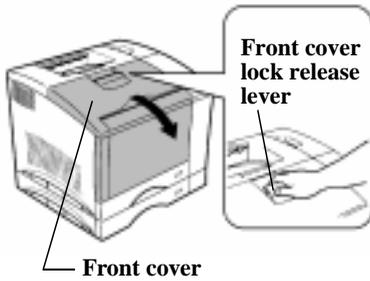
Front cover lock release lever

Front cover
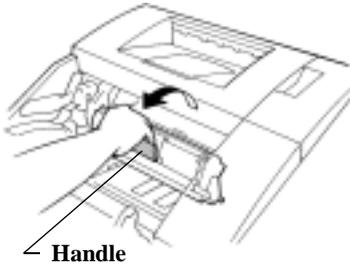
8. Hold the handle of the used **toner cartridge** and pull it toward you.

Handle
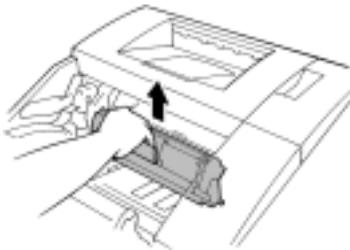
9. Raise the left side of the **toner cartridge** first, then the right.

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Maintaining Your Printer
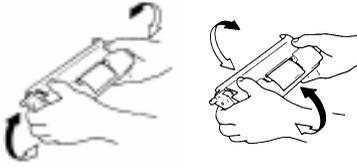
10. Remove the new **toner cartridge** from its carton and holding the cartridge as shown, shake it well.

Note

Roller

• Never touch the **roller** in the **toner cartridge**. Print quality will be reduced.

Roller protective shutter

Toner color label
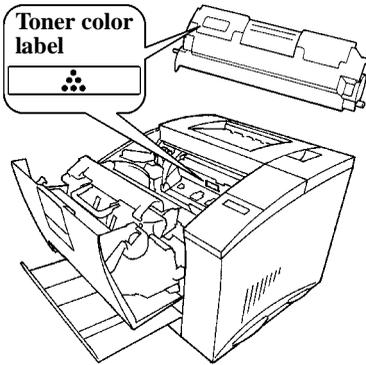
11. Make sure that the label on the **toner cartridge rack** is the same color as the **toner cartridge**.
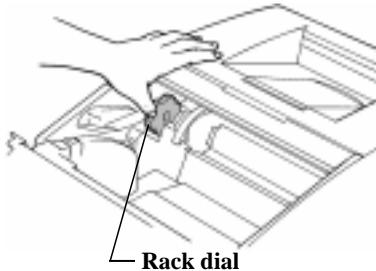
12. When installing the cartridge, hold the **rack dial** with your hand to prevent the rack from rotating.

Rack dial

13. Holding the new cartridge as shown, insert the **green pin** on the right side of the cartridge into the **green installation guide** of the rack.

Green pin

Green installation guide

Changing Cartridges
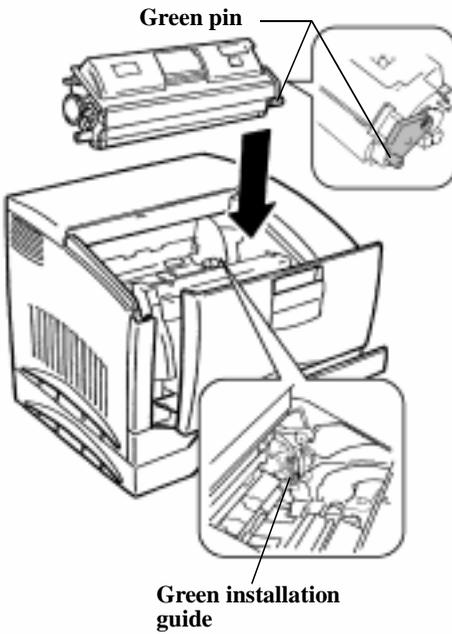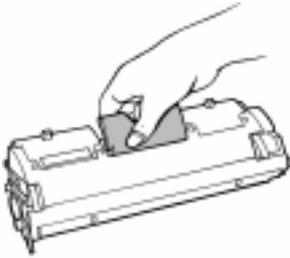
Green pin

Green installation guide
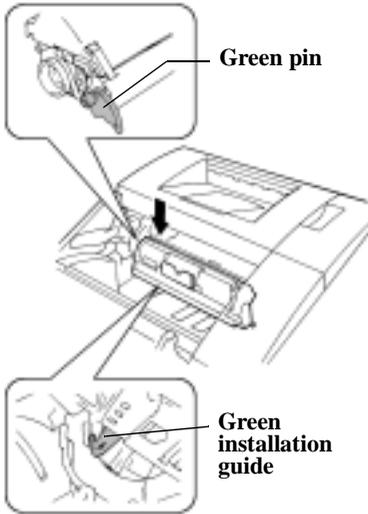
14. Insert the **green pin** on the left side of the cartridge into the **green installation guide** of the rack.

OK (LOCKED)   NG (UNLOCKED)

Toner cartridge lock plate
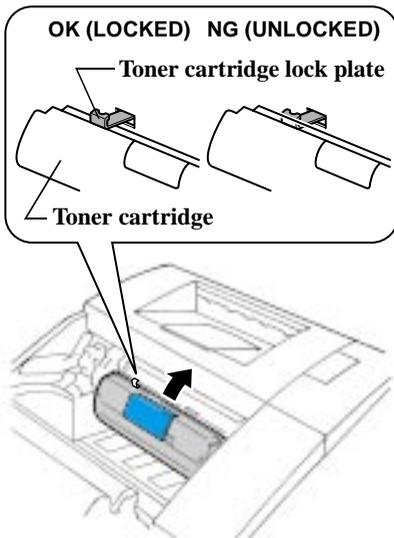
Toner cartridge

15. Firmly press the **cartridge** into the rack until it clicks into place.
Make sure that the **toner cartridge** is installed properly and is held in position by the **toner cartridge lock plate** (refer to the illustration).
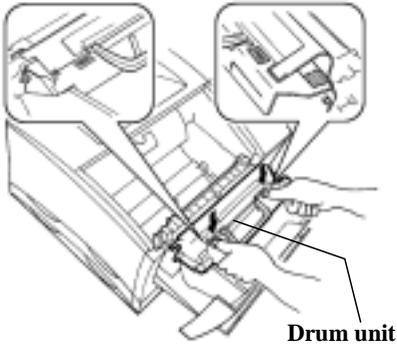
16. Once the **toner cartridge** has been installed, secure the **drum unit** into place by applying pressure at its top where the "**Press**" label is affixed. The **drum unit** will lock into place when it has been correctly inserted into the printer.

Drum unit

Note

• Before shutting the printer's exterior cover, make sure that the **drum unit** is securely installed by applying pressure at its top where the "**Press**" label is affixed.

17. Gently close the **front cover**. Do not slam the **front cover** to avoid causing damage to the printer.

OK (LOCKED)   NG (UNLOCKED)
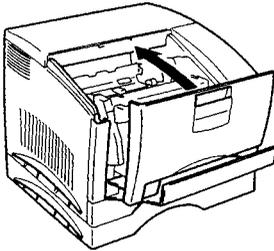
Front cover lock release lever
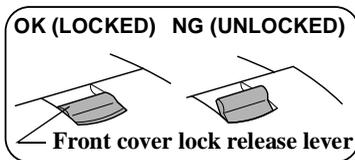
18. Make sure that the **front cover** is completely closed.

    You will hear the sound of the printer operating.
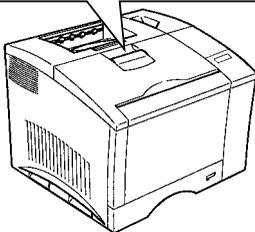
Example: Color Toner Cartridge Magenta (Red)

```
READY
```
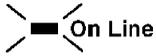
On Line

19. Wait until the sound of printer operation has stopped, indicating that the printer is ready.

"READY" will appear.

Make sure that the **On Line** indicator is lit.

Changing the Toner Cartridge (Manual Mode)

The **toner cartridge dial** inside of the **printer** allows you to manually rotate the **toner cartridge rack** for **toner** replacement. Refer to page 7-2 for instructions on how to replace **toner cartridges** using the Auto Mode.

Front cover lock release lever
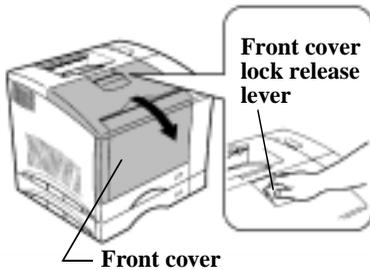
Front cover

1. Grasp and pull down on the **front cover lock release lever** to swing open the **front cover**.

Removal/inserting position indicator

Toner cartridge rack

Toner cartridge rack dial
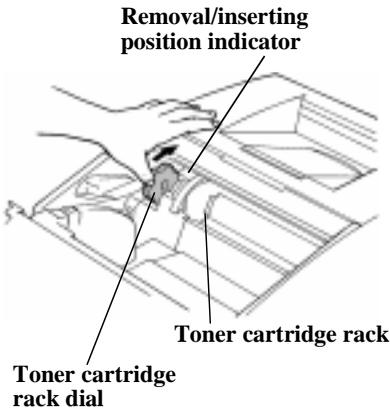
2. Turn the **toner cartridge rack dial** clockwise to turn the **toner cartridge rack** (the dial will not rotate counter-clockwise).

   The **toner cartridges** are attached to the rack in the order of Black, Yellow, Magenta (Red) and Cyan (Blue). Turn the rack to the particular cartridge to be changed.

You will feel the dial tighten
while turning it.
This is the position for
removing the cartridge.

**Toner cartridge
rack dial**

**Toner cartridge
rack**

**Cyan (Blue)
toner
cartridge**

**Black
toner
cartridge**

BLK **CYN**

**Yellow
toner
cartridge**

YEL **MAG**

**Magenta (Red)
toner cartridge**

<Printer side view>

**Removal position
indicator: ALL GREEN**

OK   NG
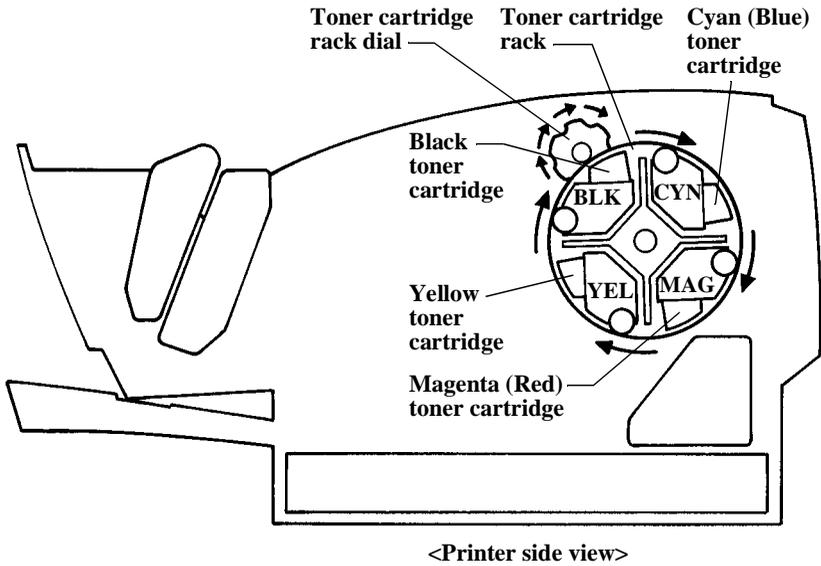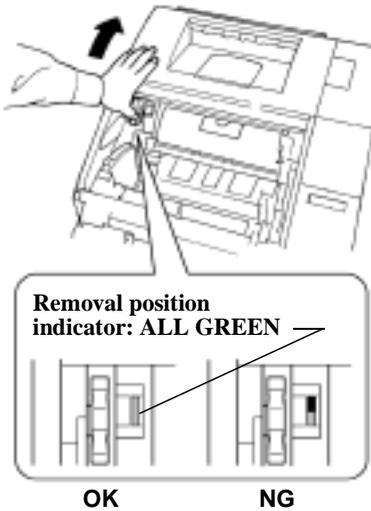
3. To confirm the rack is positioned for removing the cartridge, use the **position confirmation window** beside the dial. The **removal position indicator** will alert the user to the proper removal position.

Note

• Before installing or removing the **toner cartridge**, always make sure that the rack is in the proper position.
   Never install or remove the **toner cartridge** if the rack is not properly positioned.

4. For further instructions on replacing the **toner cartridge**, refer to page 7-4.

Note

• Before shutting the printer's exterior cover, make sure that the **drum unit** is securely installed by applying pressure at its top where the "**Press**" label is affixed.

Chapter 7
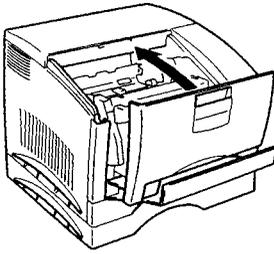
Maintaining Your Printer

5. Gently close the **front cover**. Do not slam the **front cover** to avoid causing damage to the printer.

OK (LOCKED)   NG (UNLOCKED)

Front cover lock release lever
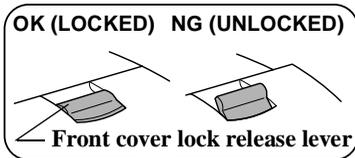
6. Make sure that the **front cover** is completely closed.

   You will hear the sound of the printer operating.
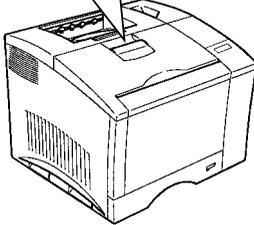
READY

7. Wait until the sound of the printer operation has stopped, indicating that the printer is ready.

   Check that "READY" appears on the **message display**.

Changing the Drum Cartridge, Waste Bottle and Oiling Roller

- The **drum cartridge** can provide up to 20,000 images of A4/letter-size prints. One image is equal to one cycle of the **drum cartridge**. The **drum cartridge** operates once (one image) to provide one monochrome print. In comparison, the **drum cartridge** operates four times (four images) to provide one color print.

- When 20,000 images is calculated as color prints, around 5,000 sheets can be printed. (This value will vary according to the color-to-monochrome print ratio, image conditions, etc.)

- Change the **drum cartridge** together with the **waste bottle** and **oiling roller** (these parts are preset to be replaced at the same time).

- When the **waste bottle** is filled with toner, **"REPLACE WASTE BOTTLE"** is displayed. Change the **drum cartridge**, **waste bottle** and **oiling roller** according to the following procedure.

- When the **drum cartridge** is almost ready to be replaced, **"DRUM ALMOST USED"** is displayed. This message indicates that it is now time to prepare a new **drum cartridge**.

- A **"REPLACE DRUM"** display indicates that it is now necessary to replace the **drum cartridge**. Change the **drum cartridge**, **waste bottle** and **oiling roller** according to the following procedures.

- Dispose of the old **drum cartridge**, **waste bottle** and **oiling roller** in plastic bags according to your local regulations, or return them to your dealer.

🖳 **Changing the Drum Cartridge**
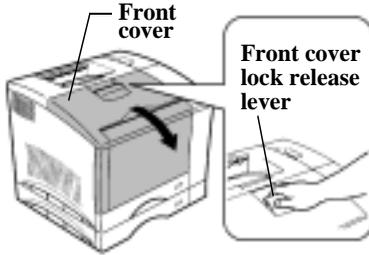
Front cover

Front cover lock release lever

1. Grasp and pull down the **front cover lock release lever** and swing open the **front cover**.

Grip
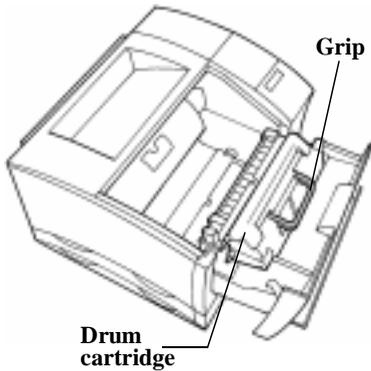
Drum cartridge

2. Holding onto the grip, pull out the **drum cartridge**.
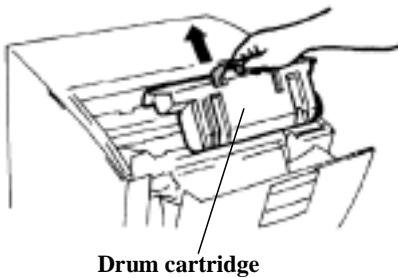
Drum cartridge

3. Take the new **drum cartridge** out of its carton.

Note

Drum protective shutter
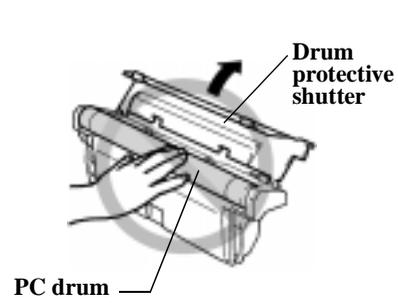
PC drum

- Do not touch the **drum protective shutter** of the **drum cartridge**. Also, never touch the **internal PC drum**. This will reduce print quality.

- If the **drum cartridge** will not be immediately installed in the printer, be sure to cover it with a cloth to shield it from light.

Green handle

Guiding pin

Front slot
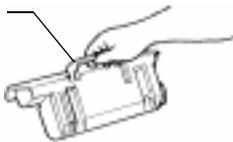
Front slot

4. HOLD THE GREEN HANDLE of the **drum cartridge** when installing it into the printer.
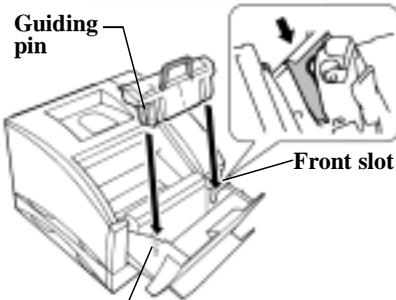
   Install the **drum cartridge** into the printer by aligning its **pins** with the **slots** inside the **printer frame**.

Note

Drum protective shutter
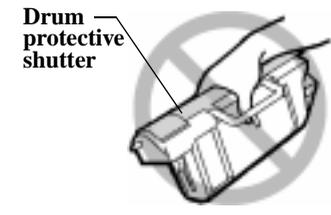
- DO NOT GRASP or handle the **drum protective shutter** during installation. This may damage the **transfer belt unit**.

Note

Drum protective shutter

• When the **drum cartridge** is correctly installed into the printer, the **drum protective shutter** will automatically open. Be careful not to disturb or apply pressure to the shutter.

5. Finally, insert the **drum unit** as far as it will go into the printer by applying pressure at its top where the "**Press**" label is affixed. The **drum unit** will lock into place when it has been correctly inserted into the printer.

Drum unit

Note

• DO NOT PRESS on the **drum protective shutter** during installation.
This may damage the **drum cartridge**.

Drum protective shutter

Changing the Waste Bottle

Waste bottle

6. Remove the old **waste bottle** from the printer.

Cap
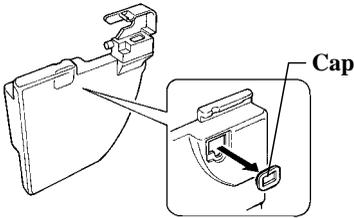
7. Remove the cap from the old toner **waste bottle** and place it into the mouth of the old bottle to prevent spills.
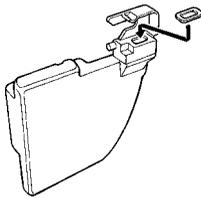
8. Make sure that the shutter of the **image transfer belt unit** is closed.

Image transfer belt unit

Shutter

OK (Close)   NG (Open)

Waste bottle

Slot

Green label

Waste bottle guide
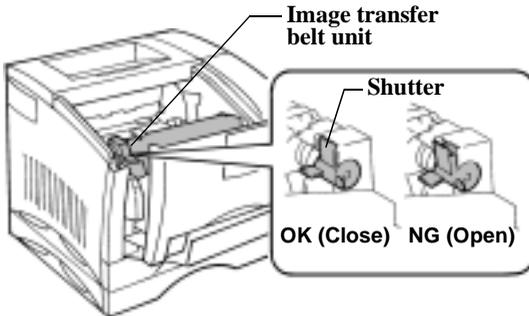
Image transfer belt unit
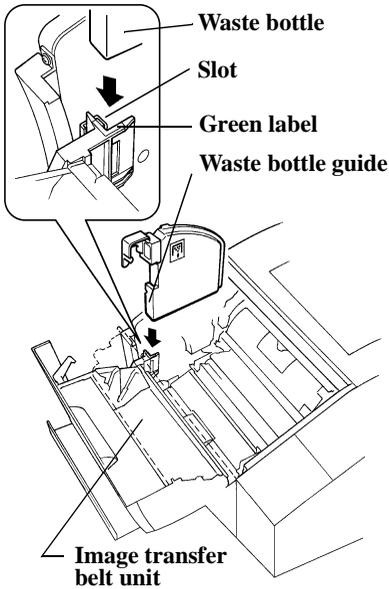
9. Remove the new **waste bottle** from its carton.

   Slide the **waste bottle** into the slot located behind the **image transfer belt unit** on the left side of the printer.

   Install the new **waste bottle** behind the **image transfer belt unit** (drawn in the diagram with dash marks) inside of the printer.
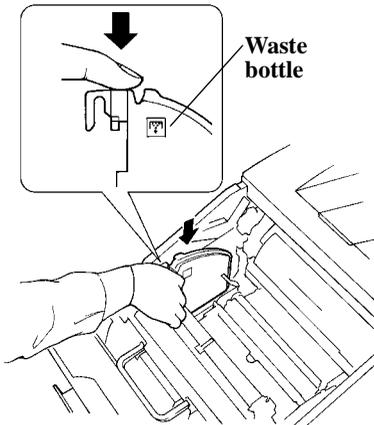
Waste bottle

10. Press down on the **waste bottle** until it clicks into place.
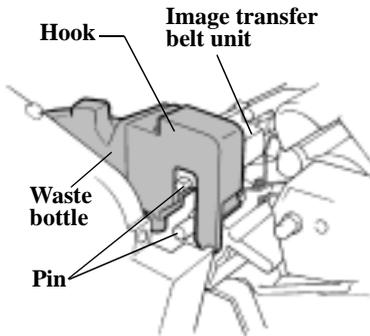
Hook — **Image transfer belt unit**

Waste bottle

Pin

11. Make sure that the hook of the **waste bottle** is engaged securely by the pins of the **image transfer belt unit**.

12. Gently close the **front cover**. Do not slam the **front cover** to avoid causing damage to the printer.

OK (LOCKED)   NG (UNLOCKED)

Front cover lock release lever

13. Make sure that the **front cover** is completely closed.

    You will hear the sound of the printer operating. The printer returns to the READY mode.

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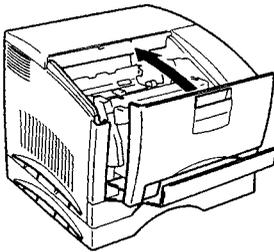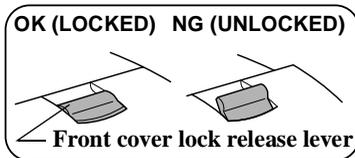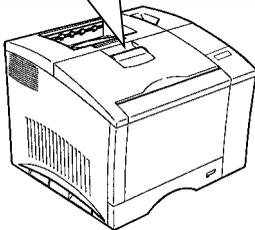
◎ Changing the Oiling Roller

14. Swing open the **rear cover**.
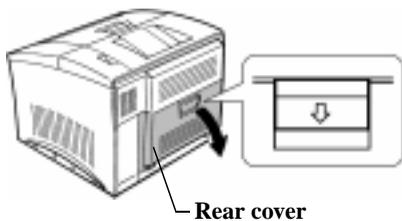
Rear cover

Fusing unit
lock release button
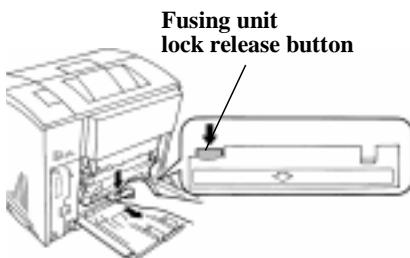
15. Push and hold the **fusing unit lock release button** and slide out the **fusing unit**.

⚠ ATTENTION

CAUTION! Hot Parts Inside label
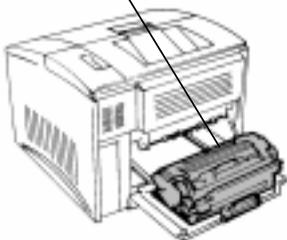
- The **fusing unit** is hot. Be careful not to touch the area surrounding the CAUTION! Hot Parts Inside label.

- Before changing the **oiling roller**, wait until the surface temperature of the **fusing unit** cools to a safe level.

---
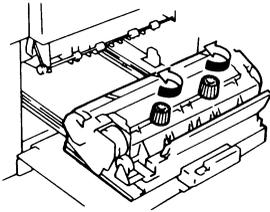
16. Loosen both of the **oiling roller's installation screws**.
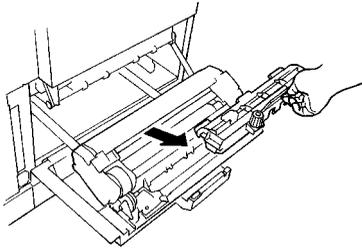
17. Holding onto the grip, take out the **oiling roller**.

Fusing unit

Bed of oiling roller
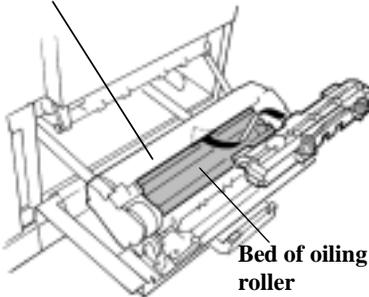
18. Remove the new **oiling roller** from its carton.

    Install the new **oiling roller** by inserting the tabs on its front end under the edge of the **fusing unit**.

1

2

Fusing unit

Note

• Do not touch the **oiling roller** as its surface is covered with silicone oil.
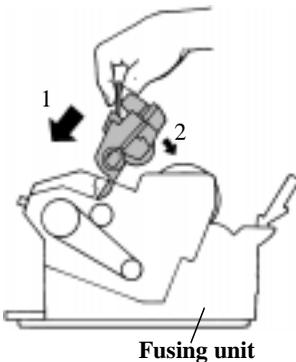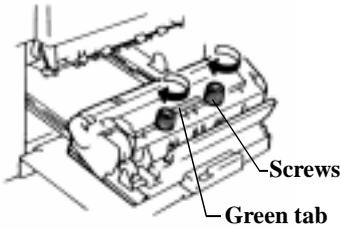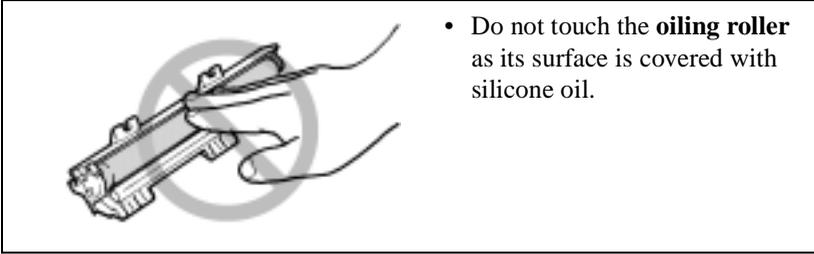
Screws

Green tab

19. Tighten both of the **oiling roller's installation screws**. Gently press down on the green tab while tightening the screws of the **oiling roller**. Tighten the screws so that the spring action of the cover is completely closed.
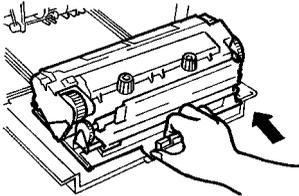
20. Insert the **fusing unit** until it clicks into place.

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OK (LOCKED)

NG (UNLOCKED)

21. Make sure that the **fusing unit lock release button** is pushed up as shown.
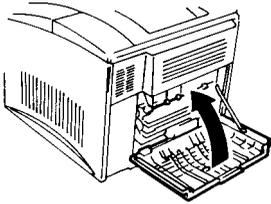
22. Close the **rear cover** until it clicks, locking into place.

OK (LOCKED) **NG (UNLOCKED)**
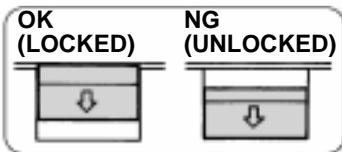
23. Make sure that the **rear cover lock release lever** is pushed up as shown.

   You will hear the sound of the printer operating. The printer returns to the READY mode.
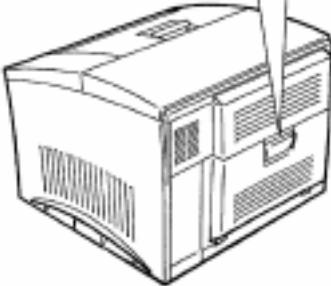
Changing the Image Transfer Roller Unit and Fusing Unit

- The **image transfer roller unit** and **fusing unit** can provide up to 100,000 A4/ letter-size prints (this value will vary with the color to monochrome print ratio, image conditions, etc).

- Change the **image transfer roller unit** and **fusing unit** at the same time.

- Dispose of the old **image transfer roller unit** and **fusing unit** in plastic bags, according to your local regulations or return them to your dealer.

Changing the Image Transfer Roller Unit
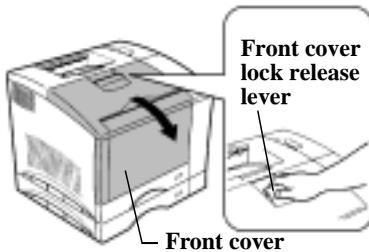
Front cover lock release lever

Front cover

1. Grasp and pull down the **front cover lock release lever** and swing open the **front cover**.

Image transfer roller unit
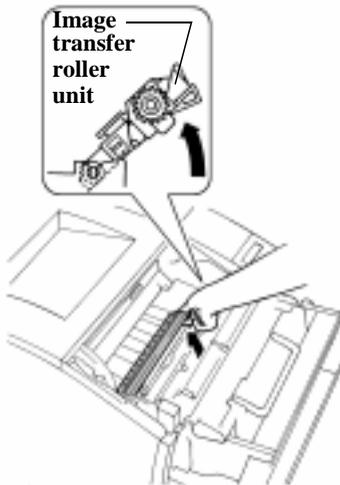
2. Lift the **image transfer roller unit** to the position shown.

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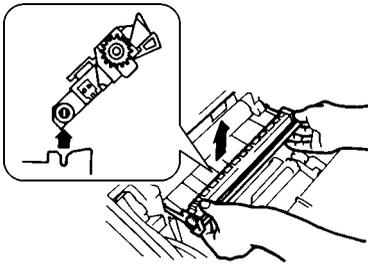
3. Pull out the **image transfer roller unit**.

Note
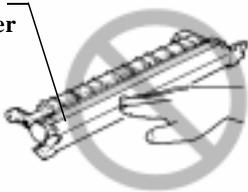
| Image transfer roller | • Do not touch the surface of the **image transfer roller** as this may lead to reduced print quality. |
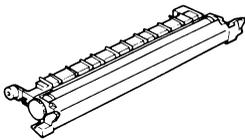
4. Remove the new **image transfer roller unit** from its carton.
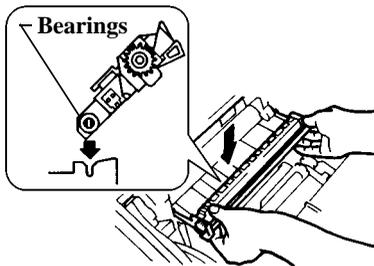
5. Insert both bearings of the **image transfer roller unit** into the guides as shown.

Bearings
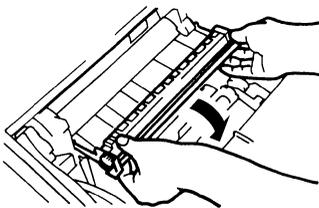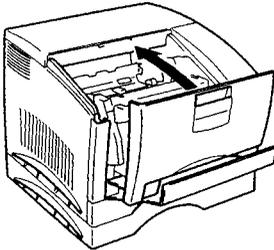
6. Install the **image transfer roller unit**.
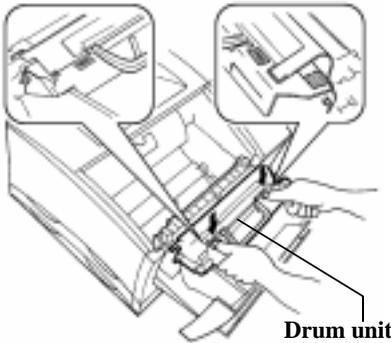
7. Once the **image transfer roller unit** has been installed, secure the **drum unit** into place by applying pressure at its top where the "**Press**" label is affixed. The **drum unit** will lock into place when it has been correctly inserted into the printer.

Drum unit

Note

• Before shutting the printer's exterior cover, make sure that the **drum unit** is securely installed by applying pressure at its top where the "**Press**" label is affixed.
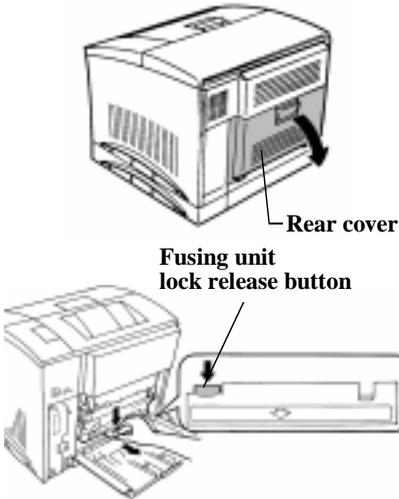
8. Gently close the **front cover**. Do not slam the **front cover** to avoid causing damage to the printer.

OK (LOCKED)   NG (UNLOCKED)

Front cover lock release lever
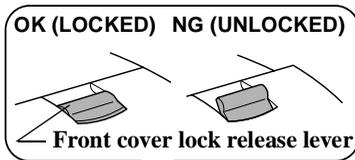
9. Make sure that the **front cover** is completely closed.

You will hear the sound of the printer operating. The printer returns to the READY mode.
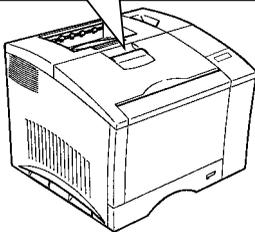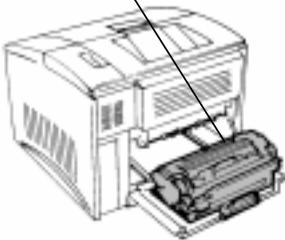
Changing the Fusing Unit

10. Open the **rear cover**.

Rear cover

**Fusing unit
lock release button**

11. Push and hold the **fusing unit
    lock release button** and slide
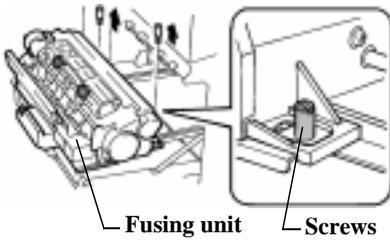   out the **fusing unit**.

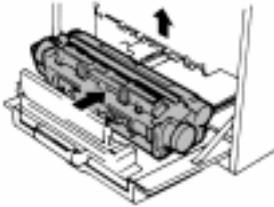| ⚠ **ATTENTION** |
| --- |

CAUTION! Hot Parts Inside label

- The **fusing unit** is hot. Be
  careful not to touch the area
  surrounding the CAUTION!
  Hot Parts Inside label.

- Before changing the **fusing
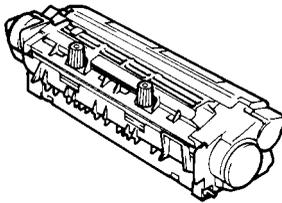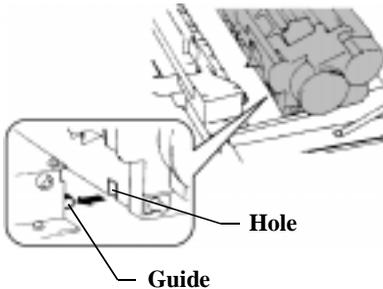 unit**, wait until its surface
  cools to a safe level.

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12. Remove both screws of the **fusing unit.**
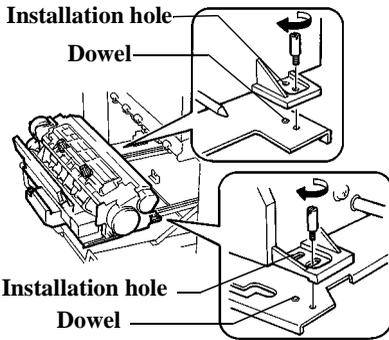
Fusing unit **Screws**

13. Slide out the **fusing unit** in the direction shown.

    Remove the **fusing unit** from its mount.

14. Remove the new **fusing unit** from its carton.

15. Insert the guide of the **fusing unit** mount into the **installation hole** of the new **fusing unit** as shown.

Hole

Guide

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Installation hole

Dowel

Installation hole

Dowel

16. Install the **fusing unit** by inserting the dowel of the mount into the **fusing unit's installation hole**.
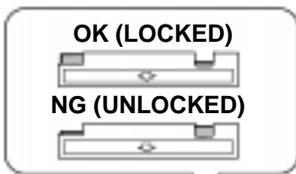
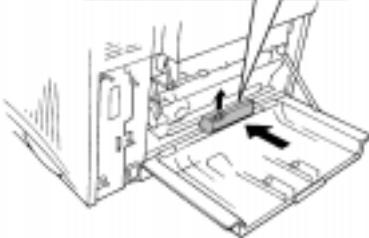17. Secure the **fusing unit** with the **installation screws**.
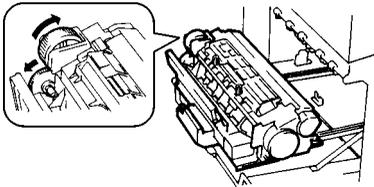
18. Turn the **misfeed clearing dial** of the **fusing unit** counterclockwise and make sure that the white gear shown rotates smoothly.
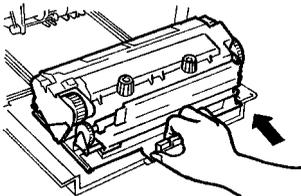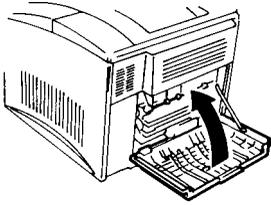
19. Insert the **fusing unit** until it clicks into place.

OK (LOCKED)

NG (UNLOCKED)

20. Make sure that the **fusing unit lock release button** is pushed up as shown.

21. Close the **rear cover**.

    The **rear cover** will click when it is closed completely.

**OK
(LOCKED)** **NG
(UNLOCKED)**
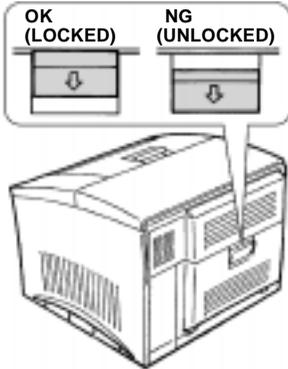
22. Make sure that the button of the **rear cover lock release lever** is pushed up as shown.

    You will hear the sound of the printer operating. The printer returns to the READY mode.

Changing the Image Transfer Belt Unit

- The **image transfer belt unit** provides A4/letter-size prints of up to about 150,000 images. One image is equal to one cycle of the **transfer belt**. The **image transfer belt unit** operates once (one image) per monochrome print.
  In comparison, the **image transfer belt unit** operates four times (four images) per color print.

- When 150,000 images are calculated in terms of color prints, about 37,500 sheets can be printed. (This value will vary according to the color-to-monochrome print ratio, image conditions, etc.)

- Dispose of the old **image transfer belt unit** in a plastic bag, according to your local regulations or return it to your dealer.

Front cover lock release lever

Front cover

1. Grasp and pull down the **front cover lock release lever** and swing open the **front cover**.

Grip

Drum cartridge

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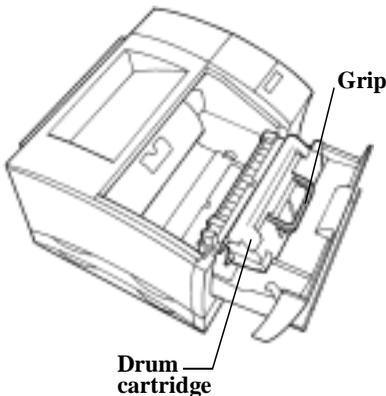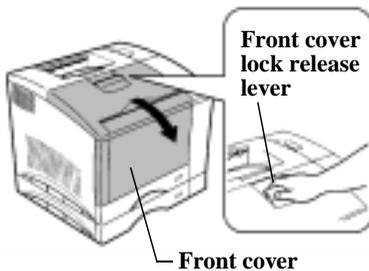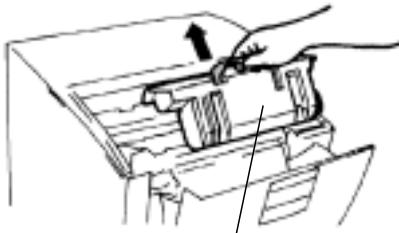
2. Holding the grip, pull out the **drum cartridge**.

Drum cartridge

Note

Drum protective shutter
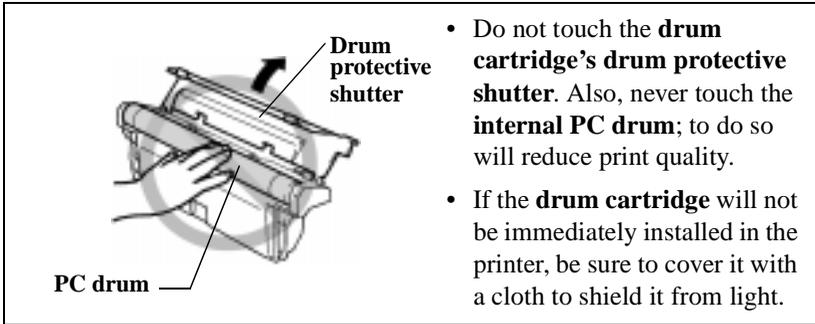
PC drum

• Do not touch the **drum cartridge's drum protective shutter**. Also, never touch the **internal PC drum**; to do so will reduce print quality.

• If the **drum cartridge** will not be immediately installed in the printer, be sure to cover it with a cloth to shield it from light.
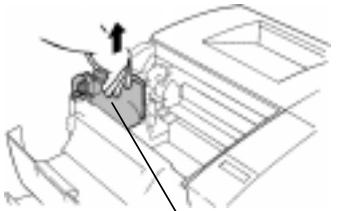
3. Remove the **waste bottle** from the printer.

Waste bottle

Left side grip

Right side grip
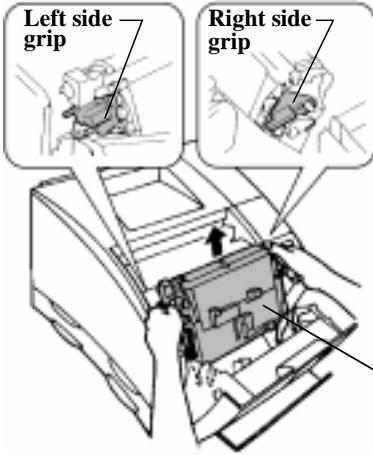
4. Holding the grips, pull out the **image transfer belt unit**.

Image transfer belt unit

5. Take the new **image transfer belt unit** out of its carton.

Note

Left side grip

Right side grip

• When installing the **image transfer belt unit**, be sure to hold onto the grips. NEVER handle the shutter, to avoid damaging the **image transfer belt**.

Image transfer belt shutter

Lock **Unlock**

Belt fixing brackets
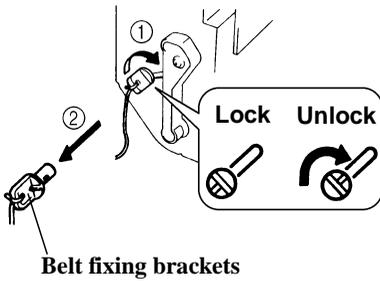
6. The **belt fixing brackets** come locked like a key into both sides of the **image transfer belt unit**.

  -1 Turn the **belt fixing bracket** on the left side of the **image transfer belt unit** to the position shown to unlock the bracket.

  -2 Pull out the **belt fixing bracket**.

  Unlock and pull out the **belt fixing bracket** from the right side of the **image transfer belt unit** following the same procedure as used for the left side.

Rear slot **Front slot**
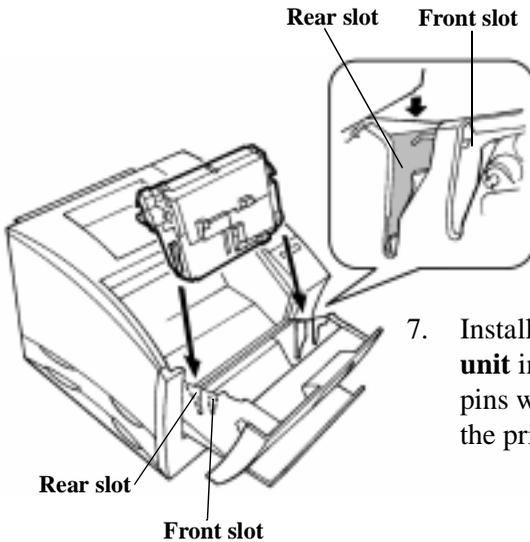
7. Install the **image transfer belt unit** in the printer, aligning its pins with the rear slots inside the printer's frame.

Rear slot

Front slot

8. Check that the connector from the **image transfer belt unit** is securely connected to the printer's connector.
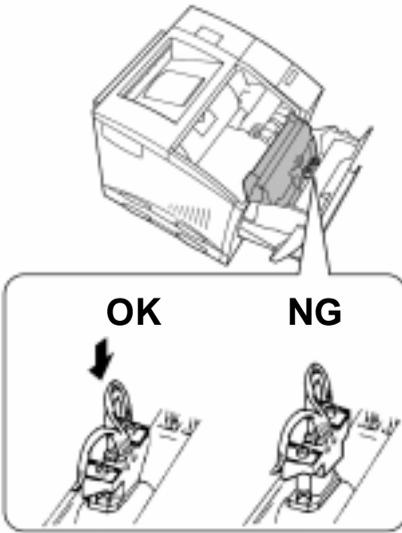
OK   **NG**

9. Make sure that the shutter of the **image transfer belt unit** is closed.

Image transfer belt unit

Shutter

OK (Close)   **NG (Open)**

Waste bottle

Slot

Green label

Waste bottle guide
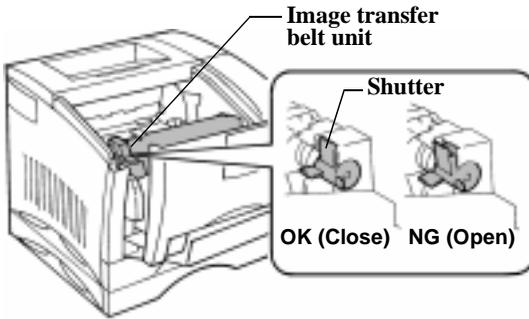
Image transfer belt unit
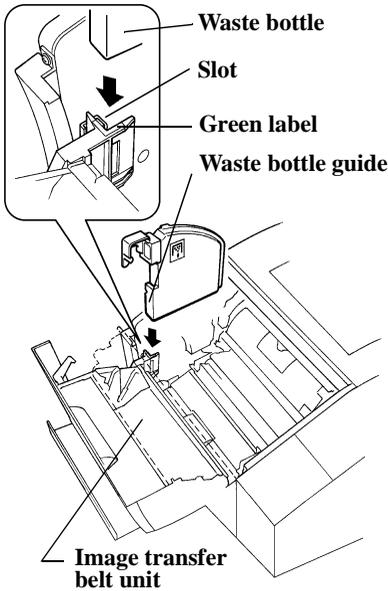
10. Slide the **waste bottle** into the slot located behind the **image transfer belt unit** on the left side of the printer. (The shape of the **image transfer belt unit** is drawn in the diagram with dash marks.)

Waste bottle

11. Press down on the **waste bottle** until it clicks into place.

Hook

Image transfer belt unit

Waste bottle

Pin
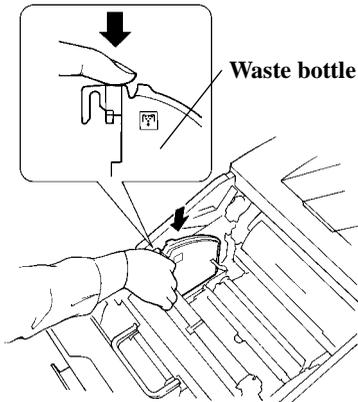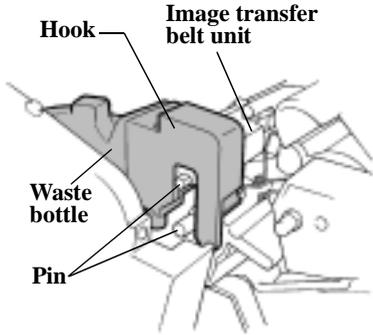
12. Make sure that the hook of the **waste bottle** is engaged securely by the pins of the **image transfer belt unit**.
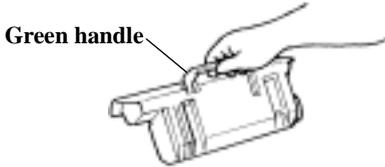
Green handle

13. HOLD THE GREEN HANDLE of the **drum cartridge** when installing it into the printer.

Note
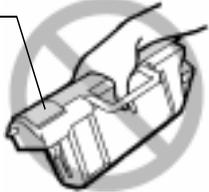
Drum protective shutter

• DO NOT HANDLE the **drum protective shutter** during installation to avoid damaging the **transfer belt unit**.

Front slot

Guiding pin

Front slot
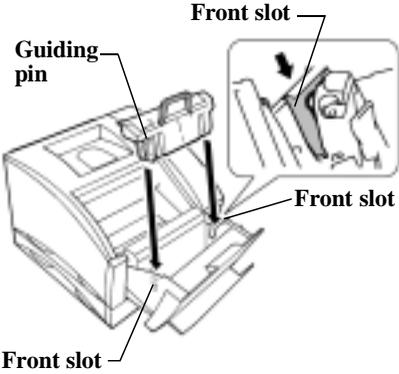
Front slot

14. Align the **drum cartridge's pins** with the front slots inside the printer for easy installation.

Drum unit
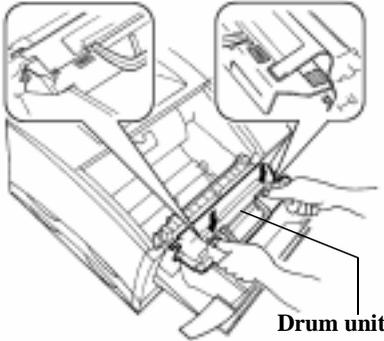
15. APPLY PRESSURE ONLY TO THE GREEN SQUARES on the top face of the **drum cartridge** until it clicks into place.

Note

Drum protective shutter

• DO NOT PRESS ON the **drum protective shutter** during installation. Doing so may damage the **drum cartridge**.
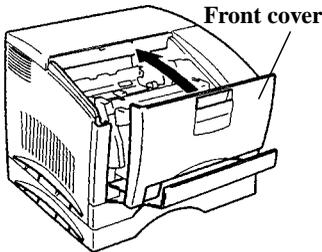
Front cover

16. Gently close the **front cover**. Do not slam the **front cover** to avoid causing damage to the printer.

OK   **NG**

17. Make sure that the **front cover** is completely closed.

You will hear the sound of the printer operating. The printer returns to the READY mode.

Maintaining Your Printer
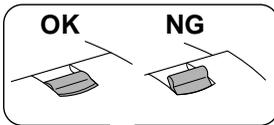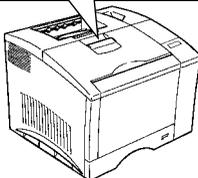
Cleaning the Printer

Dust, dirt, and paper debris on the outer surfaces and inside the printer can interfere with printer performance. Clean the printer regularly.

Note

- Before cleaning, be sure to turn OFF the power switch and unplug the power cord from the outlet.
- Use a soft cloth for cleaning. Do not use abrasives or corrosive detergents.

⚠ ATTENTION

The **fusing unit** inside the **rear cover** can become very hot during operation. To avoid burning yourself, avoid touching the area or the **fusing unit**.

Cleaning the Outside
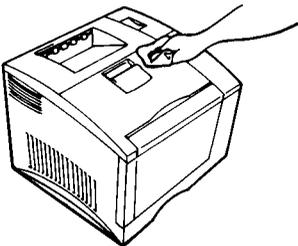
1. Using a soft cloth and a mild dishwashing detergent, wipe the outside of the printer.

Cleaning the Inside
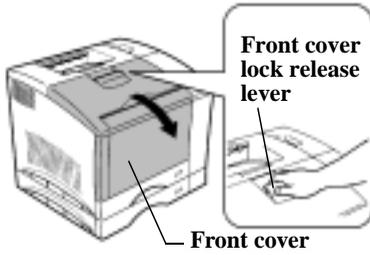
1. Grasp and pull down the **front cover lock release lever** to swing open the **front cover**.

Front cover lock release lever
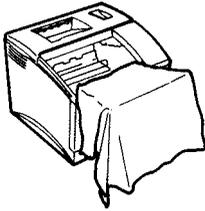
Front cover

Note

• Whenever the printer is open, drape the **front cover** with a cloth so that the **drum cartridge** is not exposed to light.

2. Lift the **misfeed clearing lever**.

Misfeed clearing lever
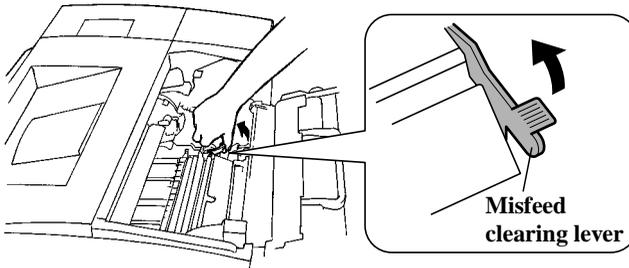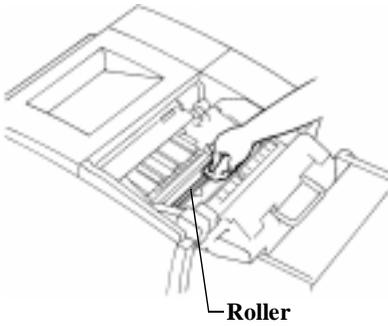
3. Using a soft cloth, wipe dirt and paper debris off the **roller** as shown.

Roller

Note

Image transfer roller

Roller

• Do not touch the surface of the **image transfer roller** as it may cause reduced print quality.
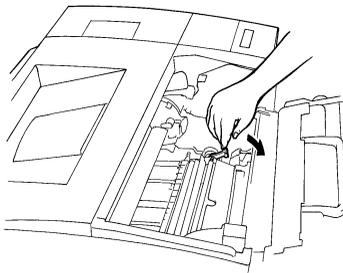
4. Return the **misfeed clearing lever** to the "down" position.
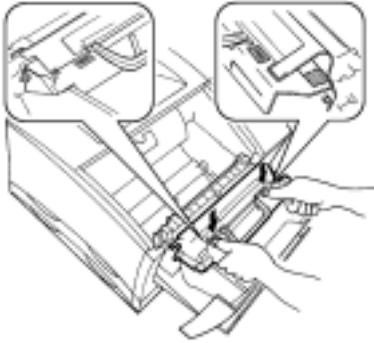
5. Before closing the **front cover**, secure the **drum unit** into place by applying pressure at its top where the "**Press**" label is affixed. The **drum unit** will lock into place when it has been correctly inserted into the printer.

Note

• Before shutting the printer's exterior cover, make sure that the **drum unit** is securely installed by applying pressure at its top where the "**Press**" label is affixed.

Front cover

6. Gently close the **front cover**. Do not slam the **front cover** to avoid causing damage to the printer.

OK (LOCKED)   NG (UNLOCKED)
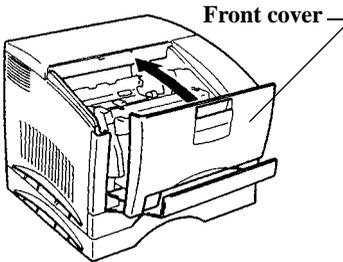
Front cover lock release lever
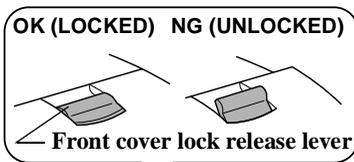
7. Make sure that the **front cover** is completely closed.

You will hear the sound of the printer operating. The printer returns to the READY mode.
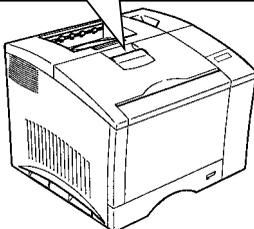
Chapter **8**

Troubleshooting

How to Troubleshoot

Use this section as a reference for solving routine problems before calling your technical representative. Many of these troubleshooting tips provide quick and easy remedies to some common situations. If the problems persist however, please contact your dealer.

Diagnosing Your Printer

Different steps of action should be taken for different trouble symptoms. First, find out which one of the following categories your printer's symptom fits into, then go to the corresponding action pages.

Troubleshooting the Data Transfer Cycle

This refers to a situation in which a problem occurs before the printout data is sent from the computer.

Typical symptoms include:

- **The printer does not turn ON.**

  See page 8-3.

Troubleshooting the Print Cycle

The printer fails to print data that has been received from the host computer.

Typical symptoms include:

- **The printer does not accept the data.**
- **An error occurs, disabling the printer.**
- **A paper problem such as a misfeed occurs, disabling the printer.**

  See page 8-4.

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Troubleshooting

Improving Print Quality

Typical symptoms include:

- **Poor print quality.**

- **Print results are not consistent with settings.**

- **The printer requires excessive time in order to complete the print cycle.**

    See page 8-18.

Problems During the Data Transfer and Print Cycle

Troubleshooting the Data Transfer Cycle

Symptom	Cause	Action
The printer power is not turned ON.	The power cord is unplugged or loose.	Plug the power cord into the printer and outlet.
	The power outlet may be faulty.	Plug another electrical appliance into the out-let to test if it works properly.
The LCD display is blank and the printer makes no sound but the printer can be turned ON.	The voltage of the printer does not match the power outlet volt-age.	Check the power out-let for correct voltage.

Troubleshooting the Print Cycle

Symptom	Cause	Action
The Data indicator does not light up and the printer does not start a print cycle.	The interface cable is unplugged.	Connect it securely. ☞ "Set-up Guide"
	The interface cable may not be compatible with the specifications of the computer and/or printer.	Check the model code and specifications of the interface cable and make sure that they are compatible with the specifications of the computer and printer. ☞ "Set-up Guide"
The Message indicator lights up and the print cycle does not start.	The printer has detected an error. The details of the error are shown on the message display.	See the "Messages" section to determine the necessary remedy. ☞p. 8-6
The print cycle cannot be interrupted (the Data indicator remains on).	Data is stored in the printer's memory.	From the Reset Menu run "CLEAR LOG/ QUEUES" to reset the data stored in the memory. For details, see ☞Chapter 3

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Symptom	Cause	Action
A paper misfeed.	Possible causes include: • Paper does not meet specifications required. • Paper is not loaded properly in the tray. • Transparencies have not been fanned thoroughly before loading. • The optional third cassette unit is not installed properly. • The fusing unit requires replacement.	Once you have identified the cause of the problem, use the corresponding reference pages listed below and follow the instructions provided. • For the types of paper that can be used, ☞p. 2-17 • Reload the paper/transparencies. ☞pp. 2-21, 2-31 • To clear a paper misfeed, ☞p. 8-9 • Reinstall the third cassette unit. ☞"Set-up Guide" • Change the fusing unit. ☞p. 7-25
Double feed.	Sheets of the paper stack are stuck together.	Fan the paper stack thoroughly and reload it.

Messages

LCD Message	Description	Action
WARMING UP	The printer is warming up.	Wait a few moments for the printer to warm up.
OFFLINE	Printer cannot receive data from host computer.	Press the Enter key to take the printer on line.
PROCESSING JOB	• Receiving data from the host computer. • The printer is processing a print image.	Wait for a few moments.
TRAY X PAPER LOW	Tray 2 or Tray 3 is almost out of paper.	Prepare more paper to replenish the tray.
LOAD XXX TRAY X	The specified cassette does not contain the right size of paper.	Change the paper size in the cassette. ☞p.2-17
MANUALLY FEED XXX	Manual Feed is selected in the printer setup dialog, and Tray 1 does not contain the right size of paper.	Load the paper of the specified size into Tray 1 (multipurpose tray).
PAPER OUT TRAY X	Tray 1, Tray 2 or Tray 3 is empty.	Add paper. ☞p. 2-21
TONER LOW XXX	The toner is low but can still print.	Ready a new toner cartridge for replacement.
REPLACE TONER XXXXX	The toner is empty.	Change the toner cartridge. ☞p. 7-1
REPLACING TONER MOVING XXXXX	The toner cartridge is moving into the replacement position.	Wait for a few moments.

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Problems During the Data Transfer and Print Cycle

LCD Message	Description	Action
DRUM ALMOST USED	The drum cartridge is almost ready to be replaced.	The drum cartridge, waste bottle, and oiling roller are on the same replacement cycle. Prepare to replace them at the same time.
REPLACE DRUM	The drum cartridge requires replacement.	The drum cartridge, waste bottle, and oiling roller are on the same replacement cycle. Replace all three units together. ☞p. 7-14
REPLACE WASTE BOTTLE	The waste bottle is full.	
INSERT XXX TONER	The displayed toner cartridge is missing.	Load the toner cartridge. ☞p. 7-1
INSERT DRUM	The drum cartridge is missing.	Load the drum cartridge. ☞p. 7-14
INSERT WASTE BOTTLE	The waste bottle is missing.	Insert the waste bottle. ☞p. 7-18
INSERT OILING ROLLER	The oiling roller or fusing unit is missing.	Load the oiling roller. ☞p. 7-21
		Load the fusing unit.☞p. 7-25
COVER OPEN	The front cover or the rear cover of the printer are not closed correctly.	Close the front cover.☞p. 2-1
		Close the rear cover. ☞p. 2-3

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Troubleshooting

8-7

LCD Message	Description	Action
PAPER JAM 1 INPUT	A paper jam occurred near the paper in-take section.	Remove the misfed sheet of paper. For details, ☞p. 8-9
PAPER JAM 2 DRUM	A paper jam occurred between the paper in-take and the fusing section.	
PAPER JAM 3 OUTPUT	A paper jam occurred between the fusing section and the paper exit section.	
FATAL ERROR #XX	The printer has mal-functioned and is una-ble to run a print cycle.	Turn OFF the power switch and turn it ON again.
		Contact your dealer and provide the mal-function code (#XX) shown on the screen.

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Troubleshooting

Clearing a Paper Misfeed

When a paper misfeed occurs in the printer, remove the paper according to the following procedure.

⚠ ATTENTION

- The **fusing unit** inside the **rear cover** can become very hot during operation. Do not touch the area to avoid injury.

---
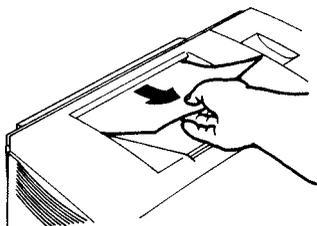
1. Pull the paper from the **paper exit port** out toward you.
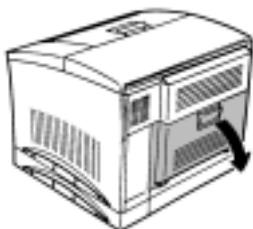
2. Swing open the **rear cover**.
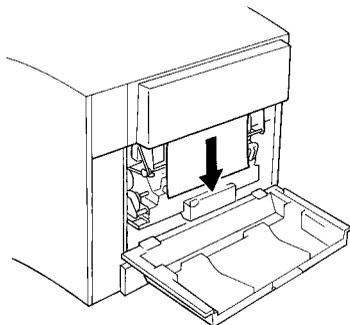
3. Pull down the paper from the **paper-exit port**.

**Fusing unit
lock release button**
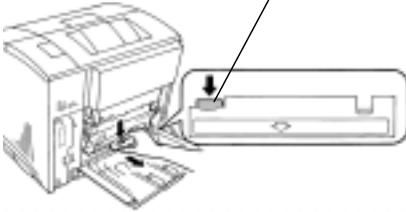
4. Push and hold the **fusing unit
lock release button** and slide
out the **fusing unit**.

⚠ ATTENTION
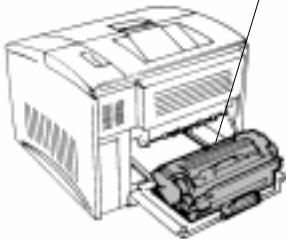
**CAUTION! Hot Parts Inside
label**
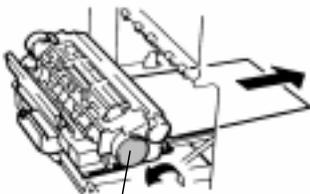
• The **fusing unit** is hot. Be
careful not to touch the area
surrounding the CAUTION!
Hot Parts Inside label.

---

5. While turning the **misfeed
clearing dial** of the **fusing
unit** counterclockwise, pull
out the paper from the **fusing
unit**.

**Misfeed
clearing dial**
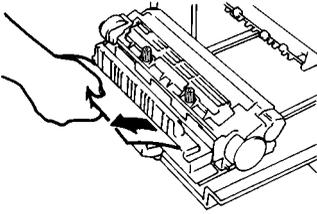
6. Pull out the paper from the **fusing unit**.
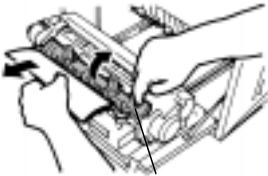
7. Lift the **misfeed clearing guide** of the **fusing unit** and pull out the paper.

Misfeed clearing guide
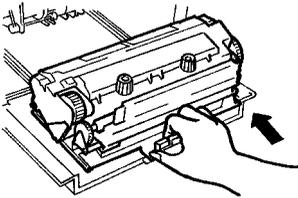
8. Push in the **fusing unit** until it locks back into position.

OK (LOCKED)

NG (UNLOCKED)
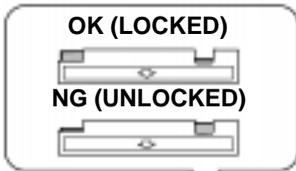
9. Make sure that the **fusing unit lock release button** is pushed up as shown.
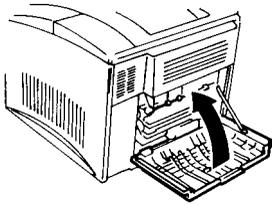
10. Close the **rear cover**, locking it into place.

11. Make sure that the button of the **lock release lever** is pushed up as shown.

OK (LOCKED)   NG (UNLOCKED)

Front cover

Front cover lock release lever
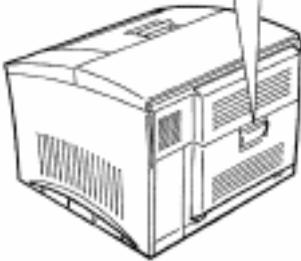
12. Grasp and pull down the **front cover lock release lever** and swing open the **front cover**.
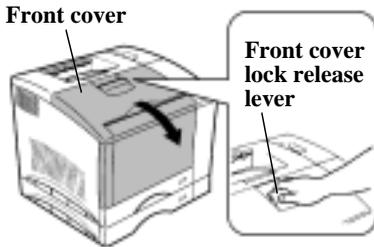
Note
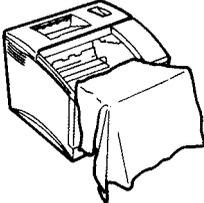
• Whenever the printer is open, drape the **front cover** with a cloth to protect the **drum cartridge** from light.

13. Lift the **misfeed clearing lever**.

Misfeed clearing lever
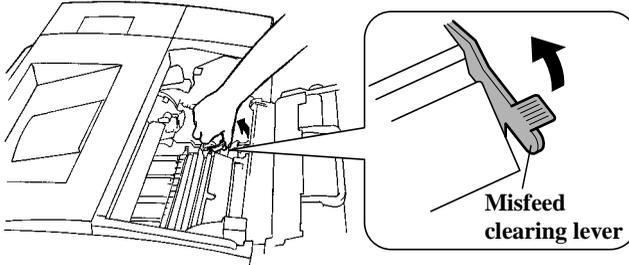
14. Pull out the paper from the **rear rollers**.

Note
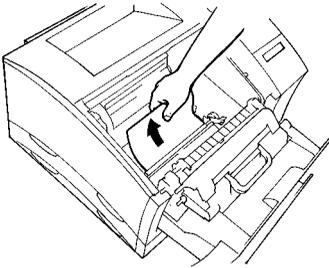
Image transfer roller

• Do not touch the surface of the **image transfer roller**. It may lead to reduced print quality.

15. Push down on the **misfeed clearing lever**.
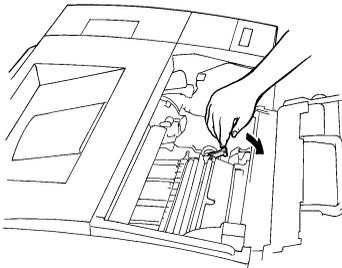
16. Lift the **misfeed clearing guide**.

Misfeed
clearing
guide
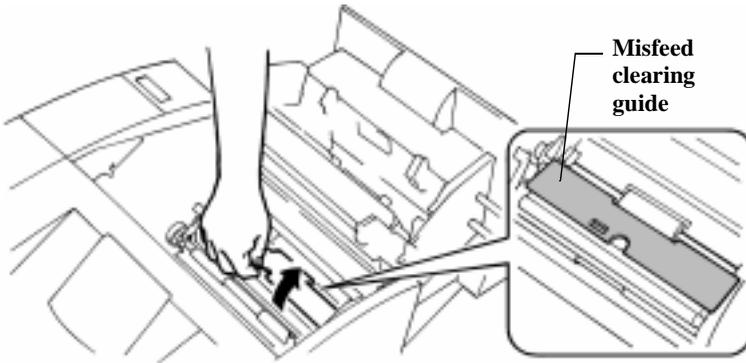
17. Pull out the paper from the **rollers** toward the top.
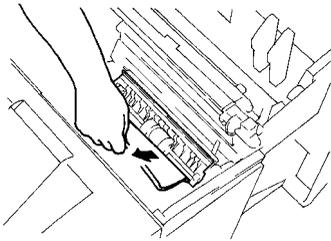
18. Close the **misfeed clearing guide**.

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Troubleshooting
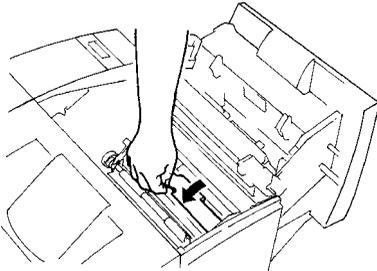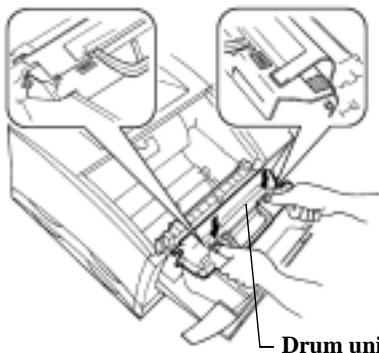
19. After clearing the misfeed, secure the **drum unit** into place by applying pressure at its top where the "**Press**" label is affixed. The **drum unit** will lock into place when it has been correctly inserted into the printer.

Drum unit

Note

• Before shutting the printer's exterior cover, make sure that the **drum unit** is securely installed by applying pressure at its top where the "**Press**" label is affixed.

20. Gently close the **front cover**. Do not slam the **front cover** to avoid causing damage to the printer.

OK (LOCKED)   NG (UNLOCKED)
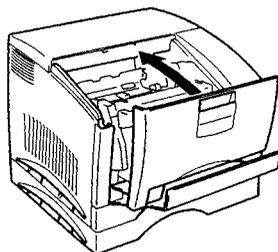
Front cover lock release lever

21. Make sure that the **front cover** is completely closed.

    You will hear the sound of the printer operating. The printer returns to the READY mode.

8-15
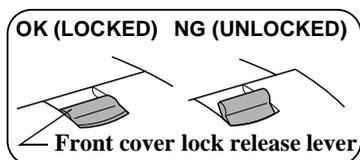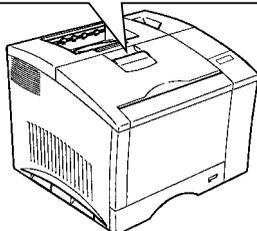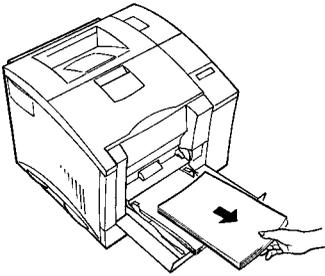
22. Pull out the paper misfed in
    Tray 1.
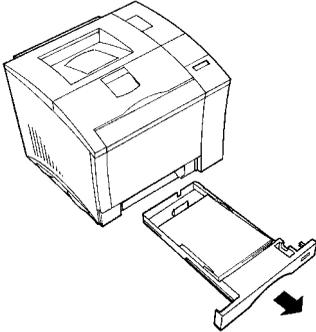
23. Slide out the second cassette.
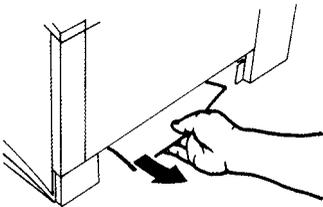
24. Pull out the paper from the
    paper path toward you.
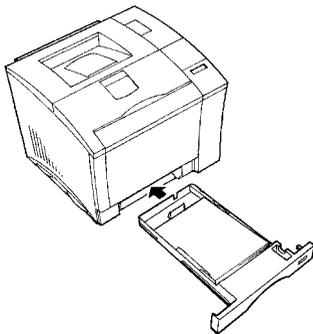
25. Replace the second cassette.

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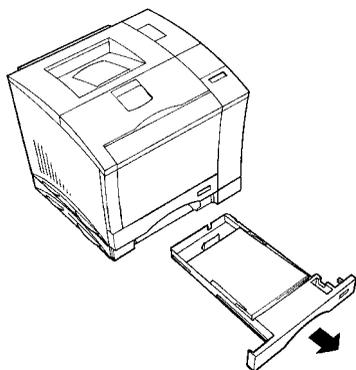
26. Slide out the third cassette (option).
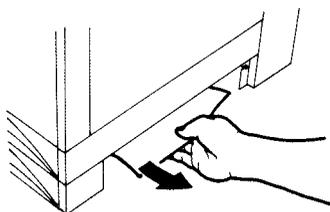
27. Pull out the paper from the paper path toward you.
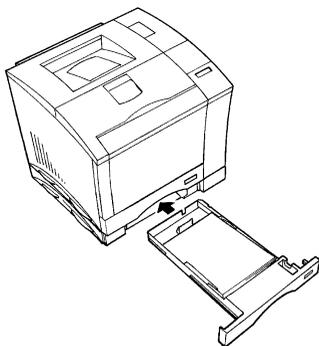
28. Replace the third cassette.

Improving Print Quality

Symptom	Cause	Action
Image is too light	The print density setting on the host computer is not set properly.	Adjust the print density setting on the host computer to the desired level.
	The paper loaded in the tray is damp.	Replace the old paper with fresh, dry paper. ☞p. 2-21
	The toner cartridge is running out of toner.	Remove the toner cartridge and shake it to better distribute the toner. ☞p.7-1
		Replace the old toner cartridge with a new one. ☞p. 7-1
	The toner cartridge may be defective.	Remove and check the cartridge for damage. Install a new cartridge if necessary. ☞p. 7-1
	The image transfer roller unit requires replacement.	Change the image transfer roller unit. ☞p. 7-25
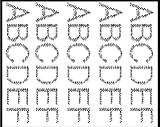
Chapter 8

Troubleshooting

Symptom	Cause	Action
Image is too dark	The print density setting on the host computer is not set properly.	Adjust the print density setting on the host computer to the desired level.
	The toner cartridge may be defective.	Change the cartridges and/or the transfer belt unit. • See Toner Cartridge ☞p. 7-1 • See Drum Cartridge ☞p. 7-14 • See Image Transfer Belt Unit ☞p. 7-32
	The drum cartridge may be defective.	
	The image transfer belt unit may be defective.	
	The image transfer roller unit requires replacement.	Change the image transfer roller unit. ☞p. 7-25
The toner smudges	The toner cartridge may be defective.	Change the cartridges and/or the transfer belt unit. • See Toner Cartridge ☞p. 7-1 • See Drum Cartridge ☞p. 7-14 • See Image Transfer Belt Unit. ☞p. 7-32
	The drum cartridge may be defective.	
	The image transfer belt unit may be defective.	
	The image transfer roller unit requires replacement.	Change the image transfer roller unit. ☞p. 7-25
	The oiling roller requires replacement.	Change the oiling roller. ☞p. 7-21

Symptom	Cause	Action
Partial void image	The paper being used does not meet size specifications.	For information regarding paper specifications. ☞p. 2-17
	The paper loaded in the tray is damp.	Replace the old paper with fresh dry paper. ☞p. 2-21
	The toner cartridge may be defective.	Change the cartridges and/or the transfer belt unit. • See Toner Cartridge ☞p. 7-1 • See Drum Cartridge ☞p. 7-14 • See Image Transfer Belt Unit ☞p. 7-32
	The drum cartridge may be defective.	
	The image transfer belt unit may be defective.	
	The image transfer roller unit requires replacement.	Change the image transfer roller unit. ☞p. 7-25
Inconsistent image density	Toner is not distributed evenly inside the cartridge.	Remove the toner cartridge and shake it several times. ☞p.7-1
	The drum cartridge may be defective.	Change the drum cartridge. ☞p. 7-14
	The image transfer roller unit requires replacement.	Change the image transfer roller unit. ☞p. 7-25
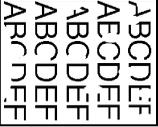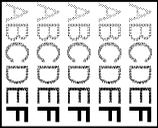
Chapter 8

Troubleshooting

Symptom	Cause	Action
White lines	The toner cartridge may be defective.	Change the cartridges and/or the transfer belt unit. • See Toner Cartridge ☞p. 7-1 • See Drum Cartridge ☞p. 7-14 • See Image Transfer Belt Unit ☞p. 7-32
	The drum cartridge may be defective.	
	The image transfer belt unit may be defective.	
	The image transfer roller unit requires replacement.	Change the image transfer roller unit.☞p. 7-25
Black (or color) stripes	The printer's internal paper path is dirty.	Run several prints to flush out the debris.
	The toner cartridge may be defective.	Change the cartridges and/or the transfer belt unit. • See Toner Cartridge ☞p. 7-1 • See Drum Cartridge ☞p. 7-14 • See Image Transfer Belt Unit ☞p.7-32
	The drum cartridge may be defective.	
	The image transfer belt unit may be defective.	
	The image transfer roller unit requires replacement.	Change the image transfer roller unit.☞p. 7-25
	The oiling roller requires replacement.	Change the oiling roller. ☞p. 7-21
Soiled back side	The printer's internal paper path is dirty.	Run several prints to flush out the debris.
	The oiling roller requires replacement.	Change the oiling roller. ☞p. 7-21

Symptom	Cause	Action
Blurred back-ground	The toner cartridge may be defective.	Change the cartridges. • See Toner Cartridge ☞p. 7-1 • See Drum Cartridge ☞p. 7-14
	The drum cartridge may be defective.	
Black pages	The toner cartridge may be defective.	Change the cartridges. • See Toner Cartridge ☞p. 7-1 • See Drum Cartridge ☞p. 7-14
	The drum cartridge may be defective.	
Blank pages	The drum cartridge may be defective.	Change the cartridges and/ or the transfer belt unit. • See Drum Cartridge ☞p.7-14 • See Image Transfer Roller Unit ☞p. 7-25 • See Image Transfer Belt Unit ☞p. 7-32
	The image transfer roller unit may be defective.	
	The image transfer belt unit may be defective.	
Paper wrinkles during printing.	Possible causes include: • The paper being used is not compati-ble with the printer. • Paper is not loaded properly in the tray. • The fusing unit requires replace-ment.	Check these conditions closely and take necessary action. • Compatible types of paper. ☞p. 2-17 • ☞p. 2-21 • ☞p. 7-28

Symptom	Cause	Action
The print image is not fixed and easily smears.	The paper loaded in the tray is damp.	Replace the old paper with fresh dry paper. ☞p. 2-21
	The paper being used is not compatible with the printer.	Compatible types of paper.☞p. 2-17
	The fusing unit requires replacement.	Change the fusing unit. ☞p. 7-28
Incorrect image registration (lines are bro-ken or characters are out of posi-tion).	The print parameters and paper settings of the application soft-ware are different from the settings on the control panel.	Make sure that the settings for the application software correspond with the control panel settings, especially the media options.
The print results do not represent the control panel settings.	The printer driver set-tings are different from the control panel settings.	Adjust the print settings through the printer driver.
		Make sure that the printer driver and control panel set-tings correspond. ☞Chapter 3

Symptom	Cause	Action
The printer takes too long to output prints.	The printer was in Power Saver mode when the print command was issued.	Using the POWER SAVER item of the SYSTEM SETUP menu, increase the time elapse that should occur before the printer enters the Power Saver mode. Details ☞pp. 3-1, 3-6
	The printer setting was for color transparency (transparency sheet) or thick paper printing.	Wait a few moments.
		Change the TRAY X MEDIA setting if they do not correspond. Details ☞pp. 3-1, 3-7
	The amount of memory installed is not sufficient to process the print data.	Install the optional expansion memory, which will allow the print cycle to run faster.

Chapter 8

Troubleshooting

Chapter **9**

Specifications

Specifications of Printer

Type:	Desktop full color laser beam printer
Printing system:	Electrostatic dry powdered imaging system
Exposure system:	Laser diode and polygon mirror scanning
Print density:	600 dpi × 600 dpi (Draft Mode) 1200 dpi × 600 dpi (Normal Mode) 2400 dpi × 600 dpi (High Grade Mode, needs minimum 80 MB RAM)
Paper feeding system:	2-way system (TRAY 1: multipurpose tray, TRAY 2: 250-sheet second cassette)

Paper size:

Standard size:

A4, A5, JIS B5, Letter 8-1/2" × 11", Legal 8-1/2" × 14",
Executive 7-1/4" × 10-1/2"
Invoice 5-1/2" × 8-1/2"
＊All paper sizes are lengthwise only.

Paper feeding port	A4	JIS B5	A5	Legal[*1]	Letter	Executive	Invoice
Tray 1	❍	❍	❍	❍	❍	❍	❍
Tray 2	❍	None	None	❍	❍	None	None
Tray 3 [*2]	❍	None	None	❍	❍	None	None

[*1] Does not support legal size thick paper.

[*2] Optional 250-sheet third cassette unit

Non-standard size (Tray 1 only):

Postcard, Com10 Envelope, DL Envelope, C5 Envelope,
Monarch Envelope

Paper types:

Plain paper 60 to 90 g/m^2 (16 to 24 lbs.),
Recycled paper 60 to 90 g/m^2 (16 to 24" lbs.),
Thick paper 90 to 157 g/m^2 (24-1/4 to 41-3/4 lbs.),
Transparencies sheet, Labels, Letterhead, Envelopes,
J-Post (postcard 100 $\times$ 148 mm, 4" $\times$ 5-3/4")

Paper feeding port	Plain-paper	Special paper						
		Recycled paper	Transparency sheet	Labels	Letterhead	Envelopes	J-Post (Postcard)	Thick paper[*3]
Tray 1	❍	❍	❍	❍	❍	❍	❍	❍
Tray 2	❍	❍	❍	None	None	None	None	None
Tray 3[*4]	❍	❍	❍	None	None	None	None	None

[*3] Does not support legal size thick paper.

[*4] Optional 250-sheet third cassette unit

Paper capacity:

Paper feeding port	Plain-paper	Special paper						
		Recycled paper	Transparency sheet	Labels	Letterhead	Envelopes	J-Post (Postcard)	Thick paper[*5]
Tray 1	150	150	50	50	50	20	50	50
Tray 2	250	250	50	None	None	None	None	None
Tray 3[*6]	250	250	50	None	None	None	None	None

[*5] Does not support legal size thick paper.

[*6] Optional 250-sheet third cassette unit

Chapter 9

Specifications

Paper exit system:	Face down exit system (Plain Paper 250 print maximum)
System speed:	77 mm/ seconds
Warm-up time:	Within 150 seconds (when power is supplied at 23°C / 73.4° F)
Developing system:	Fine Micro Toning system
PC drum:	OPC (Organic Photoconductor)
PC charging system:	Rotation brush charging system
Image transfer system:	Belt image transfer system, and roller image transfer system
PC drum cleaning system:	Cleaning blade system
Paper separating System:	Curvature separating system and charge neutralizing pin
Fusing system:	Heat belt fusing system
Acoustic noise:	39 dB (A) or less (idle state)/ 55 dB (A) or less (during operation)
Power supply:	AC 220 - 240V 50/60Hz
Power consumption:	During operation 800W or less/ during idle state (average), 45W or less (when the heater lamp is OFF)
PDL:	Adobe PostScript 3
CPU:	NEC Vr4300, 133MHz
Memory:	• ROM 16MB • DRAM 80MB. Expansion up to 112MB is possible with options.
Interface:	• Parallel (IEEE 1284 Type C connector) • Ethernet (For use only with an optional network card.) • TokenRing (For use only with an optional network card.)
Font:	Adobe 136 PS3 Fonts

Chapter 9

Specifications

| **Host Computer OS:** | Windows 95, Windows 98, Windows 3.1, Windows NT Workstation 4.0, Macintosh |
| **Features:** | Power saving mode for Energy Star application |

Supply replacement:

- Drum cartridge :
  Monochrome prints : after 20,000 sheets
  (when the black-to-white ratio is 5% on multi prints)
  Full color prints : after 5,000 sheets
  (when the color-to-white ratio is 20% on multi prints)
- Black toner cartridge : after 4,500 sheets
  (when the black-to-white ratio is 5% on multi prints)
- Color toner cartridge (Yellow/ Magenta/ Cyan) : after 3,500 sheets (when the color-to-white ratio is 20% on multi prints)
- Waste bottle :
  Monochrome prints to 20,000 sheets
  (when the black-to-white ratio is 5% on multi prints)
  Full color prints to 5,000 sheets
  (when the color-to-white ratio is 20% on multi prints)
- Oiling roller :
  Monochrome prints to 20,000 sheets
  (when the black-to-white ratio is 5% on multi prints)
  Full color prints to 5,000 sheets
  (when the color-to-white ratio is 20% on multi prints)
- Image transfer belt unit : after 150,000 images
- Image transfer roller unit : after 100,000 prints
- Fusing unit : after 100,000 prints

| **Dimensions:** | Width 505 mm (20"), Depth 530 mm (20-3/4"), Height 403 mm (15-3/4") |

Chapter 9
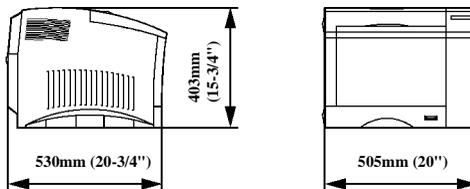
Specifications

Weight: Approximately 40 kg (88-1/4 lbs.) including the drum cartridge and toner cartridge

Operating environment:

 Temperature: 10°C (50°F) to 35°C (86°F) with a fluctuation of 10°C (18°F) per hour.
 Humidity: 15% to 85% RH with a fluctuation of 20% per hour.

Humidity (%)

100
85
80
65
60
40
20
15

 0   10 20 30 35 40

Temperature (°C)

X
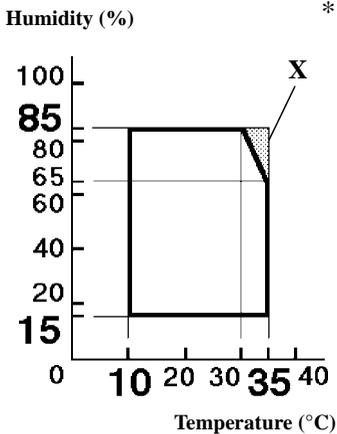
* The environmental zone marked by "**X**" on the left represents a critical environment in which the printer can be left to stand. However, the manufacturer does not ensure optimal paper passage performance and image production in this zone. Be sure to operate the printer within the operating environment identified within the bold line.

Options: • 250-sheet third cassette unit
                          • Network card (Ethernet board, Token Ring board)
                          • Expansion memory 168 pin SDRAM DIMM, non-parity, 10 nanosecond-access speed 16MB/ 32MB/ 64 MB/ 128MB SDRAM Modules (3 slots available)

Specifications of 250-sheet Third Cassette Unit

Paper feeding system: 1-way system

Paper types: Plain paper, recycled paper 60 - 90 g/m² (16 to 24 lbs.), transparency sheet

Paper size: A4, letter 8-1/2" × 11", legal 8-1/2" × 14"
*All paper sizes are lengthwise only

Paper capacity: Plain and recycled paper/250 sheets, transparency sheet/50 sheets

Power supply: Supplied from the printer

Dimensions: Width 505 mm (20"), Depth 479 mm (18-3/4"), Height 78 mm (3")

479mm (18-3/4")   **505mm (20")**   **78mm (3")**
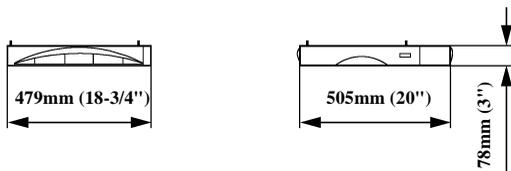
Weight: Approx. 6.2 kg (13-3/4 lbs.) including the Cassette

Chapter 9

Specifications

Appendix

Glossary

A

Glossary

The following definitions apply specifically to Minolta Color PagePro Ex Printers.

Bitmap font

A font in which the character images are defined by bit maps. With bitmapped fonts, a separate set of definitions is required for each point size. For example, Times 10 point and Times 12 point are considered separate fonts. See also *Scalable fonts*.

Black Printing

There are two Black Printing options that you can select from: Glossy and Non-glossy. The Glossy option generates a natural sheen to the black areas of graphic images.

Brightness

The lightness or darkness of an image. Decreasing brightness darkens the overall image. Increasing brightness lightens the overall image.

CMY

Cyan, magenta, and yellow. These color toners are used to create the subtractive system array of printed colors.

ColorSync

A Macintosh-based system that is designed to adjust the colors of an image that are output by a printer (or other device) so that they closely resemble their onscreen appearance.

Default

A setting automatically used when you or your application software do not make a selection. The settings that are in effect when you turn on or reset the printer are called power-on defaults. See also *Factory default*.

Drum

The part of the printer mechanism where the image is formed.

Factory default

The settings that are programmed into a printer at the factory. The printer uses these settings unless they are replaced by user settings selected from the control panel or through application software.

Font

A complete set of characters and symbols in one size, typeface, and style. Size refers to the character height and is usually measured in points (1/72 inch). Typeface refers to the character design, such as Courier, Times, or Helvetica. Style refers to the character's appearance, such as Italic or Bold. Typical examples of fonts are 12-point Courier Bold and 10-point Times Italic.

Fusing unit

The internal part of a page printer that bonds the toner to the paper. It consists of heat and pressure rollers that the paper passes through after toner has been applied.

Grayscale

A series of shades that range from black to white. When color images are printed in black and white, the brightness of a color is registered using this series of shades.

Halftoning

A method of expressing the varying densities of a color using dots.

Image Color Matching

A Windows 95/98-based system that is designed to adjust the colors of an image that are output by a printer (or other device) so that they closely resemble their onscreen appearance.

Image Transfer unit

The part inside of a page printer that transfers the image from the photoconductive drum to the paper.

Appendix A

Glossary

Interface

The means by which information is transferred from one part of a system to another. Refers to the format and procedure for transmitting data as well as the hardware used to enable the transmission.

Interface connector

The part used to connect a kind of cable for data transfer from another system.

Local printer

A printer that is directly connected to your computer, as opposed to a remote or network printer.

Media

Materials upon which data is printed, such as envelopes, plain paper, thick paper, and transparency film.

Memory

Where the data of a computer or peripheral device is saved and from where it can be retrieved. Data is usually saved in units called bytes (binary terms).

Network card

A part that is installed in the computer in order for the computer to be connected to a network environment.

Orientation

The direction of print on a page. Printing such that the shorter edges of the paper are at the top and bottom is called portrait orientation. Printing such that the longer edges of the paper are at the top and bottom is called landscape orientation.

Page description language

A set of codes that describe the placement of text and graphics on a page. PostScript is an example of a page description language.

Appendix A

Glossary

Parallel cable

A data cable which transfers multiple bits of information simultaneously along each of its wires from the computer to the printer.

Parallel interface

This term is used to describe the connection between a computer and a peripheral device such as a printer. Through this type of connection, the synchronized transfer of multi-bit data is enabled via multiple wires over a limited distance. The Centronics interface is a typical example of a parallel interface.

Port

A connection through which the computer sends information to other devices. Parallel ports send multiple bits of data at a time and are usually used for printers. Serial ports send one bit at a time and are often used for modems.

PostScript font

A type of scalable-outline font that is faithful to the standards of quality that are generally adopted in the typographical industry. When installed or downloaded to a PostScript-compatible printer, PostScript fonts can be used to produce smoother text than bitmapped fonts. See also Bitmap font and Scalable font.

PostScript printer driver

The program that enables a computer to send a print job in PostScript.

Power Save

This is a setting which is used to conserve energy by enabling the printer to operate in a "power save mode" during a specified period.

Printable area

The area of the page in which the printer is able to print. Page printers have a nonprint margin on each edge of the paper. The printable area is the space within these margins.

Appendix A

Glossary

Printer driver

Software that controls the various functions of the printer from the host computer. The printer driver sends data from an application in a format that the printer can accept so that the document can be printed.

Print job

A document that an application has processed and sent either directly to the printer or to the print queue.

RAM

Random Access Memory. The portion of the printer's memory used as a buffer and for storing user-defined characters. All data stored in RAM is lost when the printer is turned off.

Reset

Clears the print buffer and places the printer on-line. Unlike initialization, reset leaves the currently selected settings in effect. Reset does not restore the power-on defaults.

Resolution

Refers to printing clarity. Resolution depends on the number of dots per inch. High resolution (more dots) is finer and more precise than low resolution, which is coarser with rougher edges.

ROM

Read Only Memory. A portion of memory that can only be read and cannot be used for data storage. ROM retains its contents when you turn off the printer.

Saturation

The level of color vividness. Higher saturation levels produce lively colors while lower saturation levels produce somber grays.

Scalable font

A font capable of being printed in any point size. The outlines of curves in scalable fonts are defined so that they appear smooth even when enlarged.

Spooling

Sending a document to a print queue rather than directly to the printer. The computer stores the print queue on the hard disk and then sends the print jobs to the printer in order to be received. Spooling frees the application that you are using for other tasks.

TrueType fonts

Scalable outline fonts that use a single outline for both screen display and printing. TrueType fonts can be scaled to any point size and print exactly as they appear on the screen with higher resolution.

Appendix A

Glossary

Appendix

Quick Reference

B

Quick Reference

Printer Menus

← **Menu** →
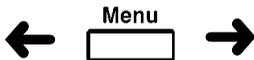
CHECK AND PRINT *3	PRINT PAGES FROM LIST	RESETS	SYSTEM SETUP	PRINTER SETUP	PS SETUP
	PRINT CON-FIGURATION	CLEAR LOG/QUEUES *3	PRINTER NAME	DEFAULT PAPER	PRINT TO PS ERR
	PRINT TEST PAGE	FORMAT DISK *3	PRINT START PAGE	TRAY1 PAPER SIZE	COVER PAGE
	PRINT PS FONT LIST	RESET COLOR	PUBLISH PRINTD Q *3	TRAY1 MEDIA	
	PRINT JOB LOG *3	RESTORE DEFAULTS	JOBS TO SAVE*3	TRA 2 MEDIA	
		RESTART PRINTER	POWER SAVER(M)	TRAY3 MEDIA *4	
			CHANGE PASSWORD	TONER LOW	
				REPLACE TONER	

Note

∗1: Displayed when an Ethernet-type network interface card is installed in the printer.

∗2: Displayed when a Token Ring-type network interface card is installed in the printer.

∗3: Displayed when the optional hard disk drive is installed.

∗4: Displayed when the optional 250-sheet third cassette unit is installed.

Appendix B

Quick Reference

Menu ← →

VISUALCAL	COLOR ADJUSTMENT	I/O PORT SETUP	NETWORK PROTOCOL SETUP [1][2]	NETWORK SERVICE SETUP [1][2]	PANEL LANGUAGE
RESOLUTION	RESOLUTION	ETHERNET [1]	TCP/IP-ETHERNET [1]	ENABLE SERVER	SELECT
PRINT LIMITS	BRIGHTNESS	ETHERNET SPEED [1]	ETH. IP ADDRESS [1]	ENABLE NDS	
BLACK START	ADJUST COLOR	TOKEN RING [2]	ETH. SUBNET MASK [1]	ENABLE BINDERY	
BLACK END	PRINT COLOR TEST	TOKEN RING SPEED [2]	TCP/IP-TOKEN R [2]	POLL INT (SEC)	
CYAN START		MAX.FRAME SIZE [2]	T.R. IP ADDRESS [2]	ENABLE SMB	
CYAN END		SOURCE ROUTING [2]	T.R. SUBNET MASK [2]		
MAGENTA START		REQ. ALL ROUTE [2]	GATEWAY ADDRESS		
MAGENTA END		RESP ALL ROUTE [2]	ENABLE APPLETALK [1]		
YELLOW START		PARALLEL PORT	APPLETALK ZONE [1]		
YELLOW END		I/O TIMEOUT	ENABLE NOVELL		
30% MATCH		IGNORE EOF	ETHERNET 802.3 [1]		
PRINT GRAYS			ETHERNET 802.2 [1]		
BEST PATCH (ROW)			ETHERNET II [1]		
ENTER PATCH (COL)			ETHERNET SNAP [1]		
PRINT COLOR TEST			TOKEN RING 802.2 [2]		
			TOKEN RING SNAP [2]		

Appendix B

Quick Reference

List of MENU Utilities

MENU	ITEM	SETTING
CHECK AND PRINT[*3]	*[Job name] [User name]*	*Use the arrow keys to select unprinted job and press Enter to start printing.*
PRINT PAGES FROM LIST	**PRINT CONFIGURATION**	Press Enter to print.
	PRINT TEST PAGE	Press Enter to print.
	PRINT PS FONT LIST	Press Enter to print.
	PRINT JOB LOG [*3]	*Press Enter to print.*
RESETS	*CLEAR LOG/QUEUES*[*3]	**NO** */ YES*
	FORMAT DISK [*3]	**NO** */ YES*
	RESET COLOR	**NO** / YES
	RESTORE DEFAULTS	**NO** / YES
	RESTART PRINTER	**NO** / YES
SYSTEM SETUP	**PRINTER NAME**	Use the arrow keys to change the printer name.
	PRINT START PAGE	**NO** / YES
	PUBLISH PRINTD Q [*3]	**YES** */ NO*
	JOBS TO SAVE [*3]	*Use the arrow keys to change the number of jobs in the print queue.*
	POWER SAVER (M)	**30 MIN** / 1 HOUR / 2 HOURS / 3 HOURS
	CHANGE PASSWORD	**NO** / YES
PRINTER SETUP	**DEFAULT PAPER**	**A4** / LETTER
	TRAY1 PAPER SIZE	**A4** / A5 / JIS B5 / PSTCRD / LETTER / LEGAL / EXEC / INVOICE

MENU	ITEM	SETTING
PRINTER SETUP	**TRAY1 MEDIA**	**PLAIN PAPER /** TRANSPARENCY / THICK PAPER
	TRAY2 MEDIA	**PLAIN PAPER /** TRANSPARENCY
	TRAY3 MEDIA[*4]	*PLAIN PAPER /* *TRANSPARENCY*
	TONER LOW	**CONTINUE** / STOP
	REPLACE TONER	NONE / BLACK / YELLOW / MAGENTA / CYAN
PS SETUP	**PRINT TO PS ERR**	**NO** / YES
	COVER PAGE	**NO** / YES
VISUALCAL	**RESOLUTION**	600×600 / 1200×600 / 2400×600
	PRINT LIMITS	YES / NO
	BLACK START	0 to 9 (**4**)
	BLACK END	0 to 9 (**4**)
	CYAN START	0 to 9 (**4**)
	CYAN END	0 to 9 (**4**)
	MAGENTA START	0 to 9 (**4**)
	MAGENTA END	0 to 9 (**4**)
	YELLOW START	0 to 9 (**4**)
	YELLOW END	0 to 9 (**4**)
	30% MATCH	0 to 9 (**4**)
	PRINT GRAYS	YES / NO
	BEST PATCH (ROW)	–4 to 4 (**0**)
	BEST PATCH (COL)	R / ALL / M / B / C / G / Y
	PRINT COLOR TEST	YES / NO

List of MENU Utilities

MENU	ITEM	SETTING
COLOR ADJUSTMENT	RESOLUTION	600×600 / 1200×600 / 2400×600
	BRIGHTNESS	–5 (darkest) to 5 (lightest) (**0**)
	ADJUST COLOR	RED / YELLOW / GREEN / CYAN / BLUE / MAGENTA / NONE / RESET ALL
	PRINT COLOR TEST	YES / NO
I/O PORT SETUP	*ETHERNET* [*1]	*OFF* / *ON*
	ETHERNET SPPED [*1]	*AUTO DETECT* / *100 / 10 AUTO /10 AUI / 10 TWISTED PAIR*
	TOKEN RING [*2]	*OFF* / *ON*
	TOKEN RING SPEED [*2]	*AUTO DETECT* / *4M BPS / 16M BPS*
	MAX. FRAME SIZE [*2]	*0.5 K / 1 K / 2 K / 4 K*
	SOURCE ROUTING [*2]	*OFF* / *ON*
	REQ. ALL ROUTE [*2]	*OFF* / *ON*
	RESP ALL ROUTE [*2]	*OFF* / *ON*
	PARALLEL PORT	**ON** / OFF
	I/O TIMEOUT	5 SECONDS to 300 SECONDS (**15 SECONDS**)
	IGNORE EOF	**YES** / NO
NETWORK PROTOCOL SETUP[*1*2]	*TCP/IP-ETHERNET* [*1]	*NO* / *YES*
	ETH. IP ADDRESS [*1]	*XXX.XXX.XXX.XXX* *Use the arrow keys to assign the printer an Ethernet IP Address.*
	ETH. SUBNET MASK [*1]	*XXX.XXX.XXX.XXX* *Use the arrow keys to modify the subnet mask.*
	TCP/IP-TOKENRING [*2]	*NO* / *YES*
	T.R. IP ADDRESS [*2]	*XXX.XXX.XXX.XXX* *Use the arrow keys to assign the printer a Token Ring IP Address.*
	T.R. SUBNET MASK [*2]	*XXX.XXX.XXX.XXX* *Use the arrow keys to modify the subnet mask.*

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MENU	ITEM	SETTING
NETWORK PROTOCOL SETUP[*1][*2]	*GATEWAY ADDRESS*	*XXX.XXX.XXX.XXX* *Use the arrow keys to specify the gateway address.*
	ENABLE APPLETALK [*1]	**NO** / *YES*
	APPLETALK ZONE [*1]	*Use the arrow keys to select Zone name*
	ENABLE NOVELL	**NO** / *YES*
	ETHERNET 802.3 [*1]	**NO** / *YES*
	ETHERNET 802.2 [*1]	**NO** / *YES*
	ETHERNET II [*1]	**NO** / *YES*
	ETHERNET SNAP [*1]	**NO** / *YES*
	TOKEN RING 802.2 [*2]	**NO** / *YES*
	TOKEN RING SNAP[*2]	**NO** / *YES*
NETWORK SERVICES SETUP[*1][*2]	*ENABLE PSERVER*	**NO** / *YES*
	ENABLE NDS	**NO** / *YES*
	ENABLE BINDERY	**NO** / *YES*
	POLL INT (*SEC*)	*1 seconds to 999 seconds* (**15**)
	ENABLE SMB	**NO** / *YES*
PANEL LANGUAGE	**SELECT**	**ENGLISH** / DEUTSCH / FRANCAIS / ITALIANO / NEDERLANDS / DANSK / ESPAÑOL / CESKY

• Items in italics indicate optional units and accessories that are displayed only when installed.

*1: Displayed when an Ethernet-type network interface card is installed in the printer.

*2: Displayed when a Token Ring-type network interface card is installed in the printer.

*3 : Displayed when the optional hard disk drive is installed.

*4 : Displayed when the optional 250-sheet third cassette unit is installed.

Appendix B

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Appendix **C**

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General
Information

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Denmark • Minolta Danmark a/s, Valhøjs Allé 160, 2610 Rødovre ☎ 36 37 04 50 eller 36 37 04 52, e-mail: printer@minolta.dk

Finland • Renatus Oy, P.O. Box 93, 02201 Espoo ☎ 09-42061, Fax 09-4206 200

France • Minolta France Sa., Div. Equipement de Bureau, 365-367 Route de Saint Germain, 78424 Carrieres Sur Seine Cedex ☎ 1-3086-6274, Fax 1-3086-6287

Germany • Minolta Germany, Minoltaring 11, 30855 Langenhagen ☎ 0 18 03 - 22 74 04 (Ortstarif), Fax 0 18 03 - 23 74 04 (Ortstarif)

Hungary • Minolta Magyarorszag KFT, Galvani u. 4, 1117 Budapest ☎ 01-206-22-44, Fax 01-206-1849

Iceland • Magnús Kjaran H.F., Sidumúli 14, 108 Island ☎ 00354/5/10 55 00, Fax 00354/5/10 55 09

Italy • Minolta Italia, Via Stephenson 37, 20157 Milano ☎ 02-39011-1, Fax 02-39011-219

Netherland • Kopieersystemen Netherland B.V., Schipholweg 343, 1171 PL Badhoevedorp ☎ 020-6584222, Fax 020-6597436

Norway • Minolta Norway A.S, Nedre Rommen 3, 0988 Oslo, ☎ 22 78 98 00, Fax 22 78 98 50

Poland • Minolta Polska sp.zo.o., Ul. Nowolipie 7A, 00-146 Warszawa ☎ 02-311-488, Fax 02-635-37-56

Portugal • Minolta Portugal Lda., Av. do Brasil 33a, 1700 Lisboa ☎ 01-79300-16, Fax 01- 7969547

Romania • Minolta Romania SRL, Soseaua Oltenitei 35-37, etaj 8, Sector 4, 712 12 Bucuresti ☎ 0330-68-35, Fax 0330-70-02

Slovakia • Minolta Slovakia s r.o.,Prievozská 18, 821 09 Bratislava ☎ 07-586-2555, Fax 07-586-2313

Slovenia • Minolta Slovenia d.o.o., Ptujska 19, 1000 Ljubljana ☎ 061-168-11-05, Fax 061-168-10-28

Spain • Minolta Business Equipment Spain S.A., Paseo de la Castellana 254, 28046 Madrid ☎ 91- 7337811, Fax 91-7332262

Sweden • Minolta Business Equipment Ab, Albygatan 114, 17109 Solna ☎ 08-627 75 00, Fax 08-627 76 07

Switzerland • Messerli Informationstechnik Océ (Schweiz) AG, Sägereistrasse 29, 8152 Glattbrugg ☎ 01/829 14 14, Fax 01/829 14 11

United Kingdom • Minolta U.K. BEO, Rooksley Park, Precedent Drive /Rooksley, Milton Keynes MK 13 8Hf ☎ 0345-211-211, Fax 01908-200-379

Ukraina • Minolta Ukraina, Bulvar Lesi Ukrainki 26, 252 133 Kiev 133/Ukraine ☎ 044-296-65-66, Fax 044-295-00-70

Yugoslavia • Minolta d.o.o. Beograd, Blagoja Parovica 21, 11 000 Beograd ☎ 011-550-997, Fax 011-544-982

Zagreb • Minolta Zagreb d.o.o., Supilova 7, 41000 Zagreb ☎ 01-611-6655, Fax 01-611-6656

MINOLTA GUARANTEE CERTIFICATE

1. DEFINITIONS

„MINOLTA":   MINOLTA GmbH Registered Office

„the Unit":   the MINOLTA product for which this Users's Manual is valid

„the Software":   MINOLTA unit driver Software. In the case that software supplied by other manufacturers is added to or purchased with the MINOLTA unit, only the terms of guarantee by those original manufacturers are valid

„the Unit Guarantee Period":   One year commencing the date of purchase of the Unit

„the Software Guarantee Period":Ninety (90) days commencing the date of purchase of the Software

„the Operating Instuctions":   Those instructions contained in the manuals supplied with both the Unit and the Software

„Valid Receipt":   a receipt indicating the date of purchase, the location of purchase, the purchase price, the MINOLTA dealers´s address, the Unit and/or Software type and serial number

2. SCOPE OF GUARANTEE

2.1. UNIT

Subject to Clause 2.3 this Guarantee covers all material and production faults in the Unit which are notified by the purchaser to MINOLTA within the Unit Guarantee Period

2.2. SOFTWARE

Subject to Clause 2.3 this Guarantee covers all faults with the Software which are notified by the purchaser to MINOLTA within the Software Guarantee Period

2.3. EXCLUSIONS

This Guarantee does not cover damage to Units and Software resulting from, but not limited, to the following:

a)   dropping, impact, sand, moisture, misuse, unauthorized interference of third parties, chemical corrosion, non-observance of the Operating Instructions, damage in transit or force majeure;

b)   the use of accessories, units or material not produced, distributed licenced or authorised by MINOLTA; and

c)   repairs or alterations carried out by any workshop not authorised by MINOLTA

This Guarantee does not cover damage to Software resulting from the purchaser's failure to install the Software in accordance with the Installation Instructions on a computer suitable for the intended purpose

3. REPAIR AND REPLACEMENT

3.1. UNIT

During the Unit Guarantee Period MINOLTA will either repair or replace faulty Units falling within Clause 2.1. MINOLTA will inform the purchaser as to the choice of remedy within a reasonable time of inspecting the faulty Unit

3.2. SOFTWARE

During the Software Guarantee Period MINOLTA will replace faulty Software falling within Clause 2.2 within a reasonable time of inspecting the faulty Software

3.3 FAILURE

Should MINOLTA fail to repair or replace the faulty Unit or faulty Software within the time limit specified in Clauses 3.1 and 3.2 the purchaser shall be entitled to claim a refund of the purchase price once the purchaser returns the faulty Unit or Software to MINOLTA

4. VALIDITY OF GUARANTEE

This Guarantee is only valid for all new Units and new Software purchased from an authorised MINOLTA dealer

5. CLAIMS UNDER GUARANTEE

If a purchaser wishes to make a claim under this Guarantee he/she must present a Valid Receipt relating to the faulty Unit or faulty Software

MINOLTA reserves the right to verify the validity of the receipt

6. REIMBURSEMENT OF COSTS

If Units or Software presented to MINOLTA for repair or replacement show either no fault symptoms or fault symptoms resulting from any matter referred to in Clause 2.3 any costs incurred by MINOLTA are to be borne by the purchaser

7. CONSEQUENTIAL LOSS

MINOLTA shall not be liable for any consequential or indirect loss suffered by the purchaser whether this loss arises from breach of duty in contract or tort in any otherway (including loss arising from MINOLTA's negligence). Non-exhaustive illustrations of consequential or indirect loss would be:

a) loss of profit;
b) loss of contracts;
c) damage to property of the purchaser or anyone else;
d) data loss; and
e) personal injury to the purchaser or anyone else (but only so far as such injury is not caused by MINOLTA's negligence).

8. STATUTORY RIGHTS

This Guarantee does not affect the purchaser's statutory rights.
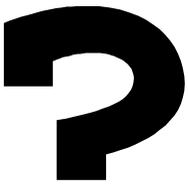
We do good service...

Often you can find the quickest solution to a problem or malfunction in the User Kit. Please refer to the chapter Troubleshooting.

From our internet website **(http://www.service.minolta.de)** you can get the latest printer driver updates and answers to various questions.

Minolta's hotline (see pages 9 and 10 in chapter General Information) supports you with the solution to many problems.

Your technical representative will help you as well.

Please note the date of purchase (.), the telephone hotline (&) and the serial number (#) on the sticker. In order to benefit from a quick and efficient support, you should always keep the sticker at hand, e.g. at the printerframe.