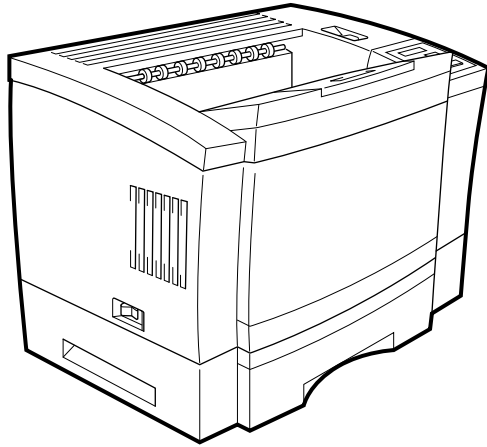# MINOLTA

PageWorks 20

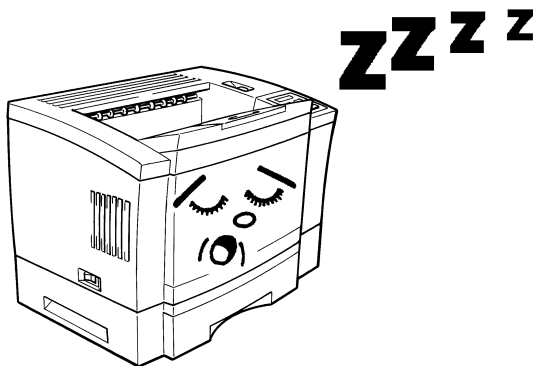## USER'S MANUAL

PageWorks 20

For U.S.A./Canadian Users

As an ENERGY STAR® Partner, Minolta Co., Ltd has determined that this printer meets the ENERGY STAR® Guidelines for energy efficiency.

For Other Country Users

This printer meets the *EPA's ENERGY STAR® Guidelines for energy efficiency.
*The U.S. Environmental Protection Agency

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 Printer's annual electricity costs by over 60 percent.

Safety Information

Laser Safety

This printer 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 provided.

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

Maximum Radiation Power: 8.8×10^{-4}(W)
Wave Length: 770-810 (nm)

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

For United States Users

Laser Safety

This printer is certified as a Class 1 Laser product under the **U.S. Department of Health and Human Service (DHHS)** Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation.

CDRH Regulations

The **Center for Devices and Radiological Health (CDRH)** of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1. Compliance is mandatory for products marketed in the United States. The label shown below indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

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

For other 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 8.8×10^{-4} W and the wavelength is 770-810 nm.

For Denmark Users

> **ADVARSEL**: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsttelse for stråling.
>
> Klasse 1 laser produkt der opfylder IEC825 sikkerheds kravene.

For Finland, Sweden Users

> **VAROITUS!**: Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

> **VARNNING**: Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan använderen utsattas för osynling laserstrålnig, som överskrider gränsen för laserklass 1.

> **VARO**: Avattaessa ja suojalukitus ohitettaessa olet alttiina nakymattomalle lasersateilylle. Aja katso sateeseen.

> **VARNING**: Osynlig laserstråining när denna del är öppnad och spärren är urkopplad. Betrakta ej stråien.

For Norway Users

ADVARSEL: Dersum apparatet brukes på annen måte enn spesifisert i denne bruksanvisning, kan brukeren utsettes for unsynlig laserstråling som overskrider grensen for laser klasse 1.

Dette er en halvleder laser. Maksimal effeckt til laserdiode er 8.8 x 10^{-4}W og bolgelengde er 770-810 nm.

WARNING LABEL
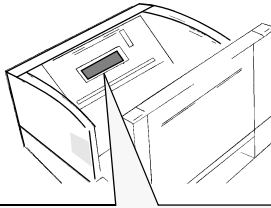
注意ー ここを開くと不可視レーザ光が出ます。ビームを直接見たり、触れたりしないでください。
CAUTION– INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
VORSICHT– UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
ADVARSEL–USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARO! AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEEN
ADVARSEL–USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
VARNING– OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD STRÅLEN ÄR FARLIG
注意： 当您打开这盖时，会出现肉眼看不见的激光射线，请不要直视或接触光线。

FCC/ICES (1/2)

NOTE: Without Minolta Network option.

FCC: Declaration of Conformity	
Product Type	Laser Beam Printer
Product Name	PageWorks 20
Options Accessories	Third Tray Unit, Duplex Unit SIMM (max 64MB), DIMM, Hard Disk (1080MB)
This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.	
Minolta Corporation 101 Williams Drive, Ramsey, New Jersey 07446 Telephone number: 201-825-4000	

USER INSTRUCTIONS (FOR U.S.A. Users)
FCC PART 15 - RADIO FREQUENCY DEVICE WARNING

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to **Part 15 of the FCC Rules**. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- **Re-orient or relocate the receiving antenna.**
- **Increase the separation between the equipment and the receiver.**
- **Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/TV technician for help.**
- **Any changes or modifications not expressly approved by Minolta could void the user's authority to operate this equipment.**
- **A LAN adapter is only to be used in industrial area including commercial areas. Use of a LAN adapter in residential areas is forbidden.**

This device must be used with shielded interface cables. The use of non-shielded cables is likely to result in interference with radio communications and is prohibited under the FCC rules.
The design and production of this unit conform to FCC regulations, and any changes or modifications must be registered with the FCC and are subject to FCC control. Any changes made by the purchaser or user without first contacting the manufacturer will be subject to penalty under FCC regulations.

USER INSTRUCTIONS (For Canadian Users)
INTERFERENCE-CAUSING EQUIPMENT STANDARD
(ICES-003 ISSUE 2) WARNING

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

FCC/ICES (2/2)

> **NOTE:** Installed Minolta Network options. When the Network cable is attached to either of the IEEE 802.3 connectors, the printer meets the requirements of **FCC/ICES Class A**.

USER INSTRUCTIONS (FOR U.S.A. Users)
FCC PART 15-RADIO FREQUENCY DEVICE WARNING

This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to **Part 15 of the FCC Rules**. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device must be used with shielded interface cables. The use of non-shielded cables is likely to result in interference with radio communications and is prohibited under the FCC rules.

The design and production of this unit conform to FCC regulations, and any changes or modifications must be registered with the FCC and are subject to FCC control. Any changes made by the purchaser or user without first contacting the manufacturer will be subject to penalty under FCC regulations.

USER INSTRUCTIONS (For Canadian Users)
INTERFERENCE-CAUSING EQUIPMENT STANDARD
**(ICES-003 ISSUE 2) WARNING**

> This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
>
> Cet appil numérique de la classeA respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

OZONE RELEASE (For all Users)

During printer operation, a small quantity of ozone is released. This amount is not large enough to harm a person 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
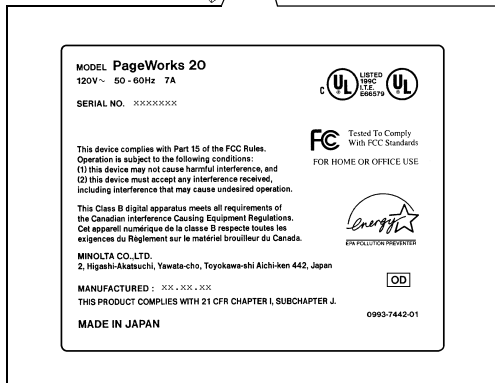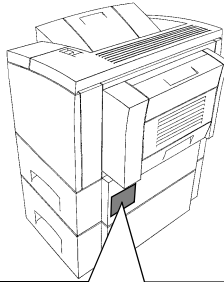
Welcome

Thank you for selecting a Minolta PageWorks 20 Printer!

This User's manual explains the functions of the printer and how it operates. It also provides you with troubleshooting tips as well as general precautions you should observe when operating the printer. To ensure top performance and effective use of your printer, read this manual carefully from cover to cover, and keep it on hand for later reference.

No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into other languages without the express written prior consent from Minolta Co., Ltd.

The contents of this manual are subject to change without notice.

Trademark Acknowledgments

HP, LaserJet 4V and PCL are registered trademarks of Hewlett-Packard Company.

Centronics is a registered trademark of Centronics Data Computer Corporation.

TrueType is a registered trademark of Apple Computer Inc.

IBM is a registered trademark of International Business Machines Corporation.

Intellifont is a trademark of Agfa Corporation.

Adobe, PostScript and the PostScript logo are trademarks of Adobe Systems, Inc.

NetWare is a registered trademarks of Novell Inc.

Minolta is a registered trademark of Minolta Co., Ltd.

PageWorks is a trademark of Minolta in the U.S. and Canada.

Super Fine Micro-Toning and RealTone are trademarks of Minolta Co., Ltd.

All other products or name brands are trademarks or registered trademarks of their respective holders.

U.S.A. Technical Support

If you continue to experience technical difficulty with the operation of your printer product, please contact your support representative:

Toll free at 1-800-459-3250

or via our website at http://www.minoltappd.com.

Hours of operation and toll free nature of our support program is subject to change without prior notice.

Contents

Chapter 3   Using the Printer

Chapter 4   Maintaining Your Printer

Chapter 5   Solving Printer Problems

Chapter 6 Installing Options

Chapter 7 Specifications

Appendix A

Appendix B

Index

Chapter 1

Introduction

Introduction

1. Printer Features

- Outstanding performance with an engine speed of 20ppm and High Speed RISC Processor NR4645/100MHz.

- Image Quality comparable to 1200dpi with Minolta's Super Fine Micro-Toning™ system realizes clear and smooth text data.

- High Quality graphics and photographic images with RealTone™ 2400 (256 gray levels).

- Paper handling versatility comes with A3 Full-Bleed printing, Duplexing, and GUI Driver supporting N-up Printing, etc.

- High Speed Data Transfer with IEEE1284 compliant interface and Network Option (Ethernet).

- Easy Maintenance with All-in-one Imaging Cartridge.

- Space saving design.

- Compatible with optional Adobe® PostScript® Level2.

- Environmentally friendly with Toner Save Mode and Energy Star compliance.

2. Printer Parts and Accessories

1. Upper Cover Lock Release Button

2. Control Panel

3. Tray 2

4. Paper Exit Tray

5. Paper Guide Plates

6. Tray 1 (multipurpose)

7. Power Switch
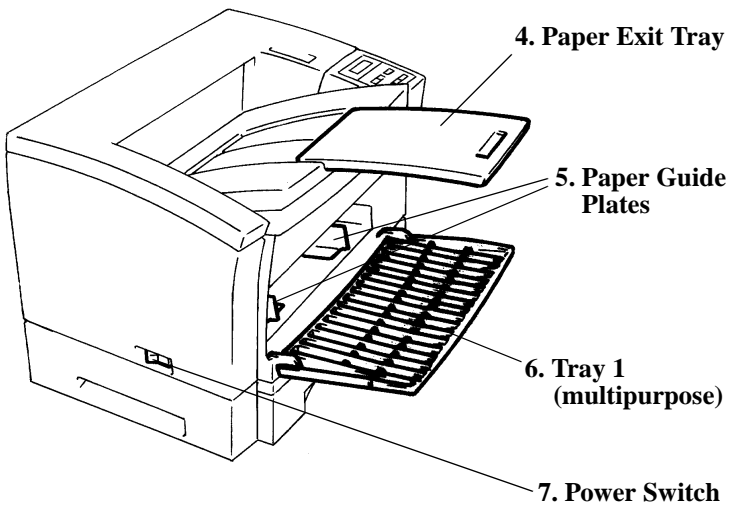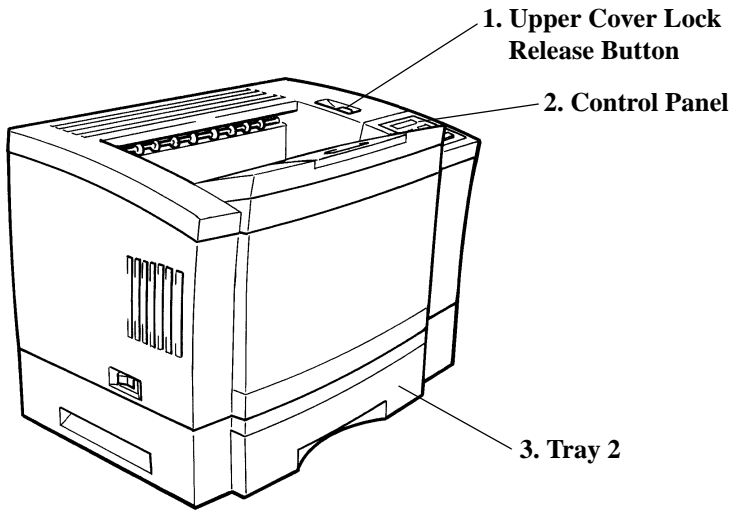
1. Upper Cover Lock Release Button:
Press this button to open the upper cover.

2. Control Panel:
The control panel allows you to set the printing options and displays the current printer status.

3. Tray 2:
Holds up to 500 sheets of Letter size paper.

4. Paper Exit Tray:
The printed paper is fed out face down on this tray.
500 sheet capacity for printed paper.

5. Paper Guide Plates:
Slide these guides left or right according to the paper size being fed.

6. Tray 1 (multipurpose):
150 sheet capacity for plain paper.
Use this tray for special paper.

7. Power Switch:
Turns the printer on and off.

8. Upper Cover Unit

9. Power Cord Socket

10. Parallel Interface Connector

11. Network Cover

12. Fusing Section

13. Imaging Cartridge

14. Sealing Tape

8. Upper Cover Unit:
Open for replacing the imaging cartridge or removing jammed paper.

9. Power Cord Socket:
Connect the power cord to this socket.

10. Parallel Interface Connector:
Provides a parallel interface connection for the host computer.

11. Network Cover:
Remove this cover for installing the optional network card.

12. Fusing Section:
Fixes the toner image to the paper.

13. Imaging Cartridge:
It is important for forming an image.

14. Sealing Tape:
Pull out the sealing tape when installing a new imaging cartridge.

3. Control Panel

Layout for Control Panel

The control panel is comprised of 1 LCD (16 characters by 2 lines),
3 LEDs and 8 keys.
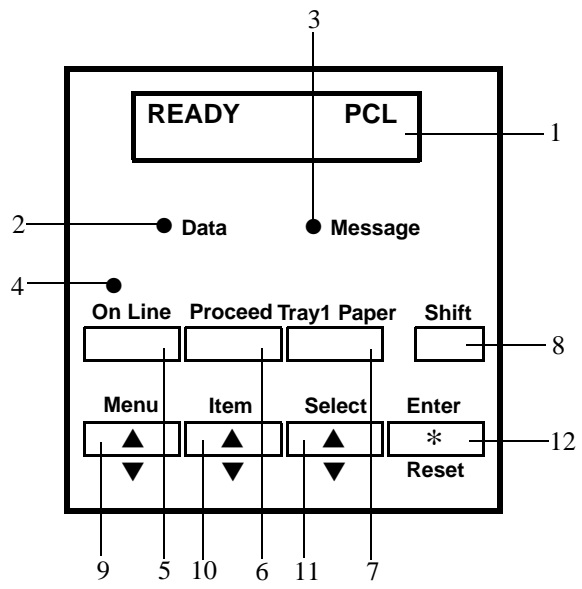
1. LCD
2. Data LED
3. Message LED
4. On Line LED
5. On Line key
6. Proceed key

7. Tray1 Paper key
8. Shift key
9. Menu key
10. Item key
11. Select key
12. Enter/Reset key

Indicator Function

Indicator	On	Off	Blinking
ONLINE	The printer is ready to receive data.	The printer cannot receive data.	Going off-line.
DATA	Data is stored in the printer memory.	No data is stored in the printer memory.	The printer is receiving data and processing data.
MESSAGE	Engine error. The printer requires service.	No error.	Recoverable error such as paper empty, paper misfeed, etc.

LCD Function

The LCD is composed of 16-digits and 2 lines.

```
READY           PCL
TRAY2 IS EMPTY
```

First line: Displays the current printer status and selected printer language.
Second line: Normally, nothing is displayed. However, one of the warning messages listed below may be displayed when needed.

> MAINTENANCE REQ
> TRAY2 IS EMPTY
> TRAY3 IS EMPTY
> TONER IS LOW
> TONER EMPTY
> JOB SEPARATION

When an error occurs, the printer will display an error message on the LCD. For the contents of an error message, see "Understanding Printer Messages" page 5-12.

Key Functions

On Line key

Press the On Line key to switch between on-line and off-line. The
printer should be on-line to receive data.

Proceed key

Press the Proceed key to resume printing after an interruption.
This key is pressed:
- when a paper size error (LOAD message) occurs.
  See "Operator Call Message" page 5-17.
- when the Paper Size Error occurs.
  See "Operator Call Message" page 5-18.
- when the Memory Overflow or Job Too Complex error occurs.
  See "Caution Message" page 5-16.

Tray1 Paper key

Press the Tray1 Paper key to enter the Tray 1 paper size setting
mode. You can enter this mode only from off-line.

Shift key

While holding down the Shift key, press the Menu key. Each menu
is displayed in reverse order.
While holding down the Shift key, press the Item key. Each item is
displayed in reverse order.
While holding down the Shift key, press the Select key. Each user
selection value is displayed in reverse order.

Menu key

Press the Menu key when off-line to enter the menu mode.
Repeated key operation displays the menu group in order.

Item key

Press the Item key in the menu mode to enter the item mode.
Repeated key operation displays the items in order.

Select key

Press the Select key in the item mode or the tray 1 paper size set-
ting mode to enter the user selection mode. Repeated key opera-
tion displays the user selection values in order.

When the Select key is pressed continuously, the numerical value increases at high speed.

Enter/Reset key

Press the Enter/Reset key to save the settings of the user selections.

While holding down the Shift key when off-line, press the Enter/Reset key. The job data is canceled. Returns the printer on-line automatically after canceling the job data.

NOTE

To reset the job data, you must take the printer off-line by pressing the On Line key while printing.

Memo

Chapter 2

Setting Up

Setting Up

Selecting a Location for the Printer

A proper location helps to ensure that your printer provides you with the long service life for which it is designed. Double check to make sure that the location you select has the following characteristics.

- Choose a location that is well-ventilated.
- Make sure there is no chance of ammonia or other organic gasses being generated in the area.
- The power outlet you plan to connect to for power should be nearby and unobstructed.
- Make sure that the machine is not exposed to direct sunlight.
- Avoid areas in the direct air flow of air conditioners, heaters, or ventilators, and areas subjected to temperature and humidity extremes.
- Choose a firm, level surface where the printer will not be exposed to strong vibration.
- Keep the printer away from any objects that might block its heat vents.
- Do not locate the printer near curtains or other combustible objects.
- Choose an area where there is no possibility of the printer being splashed with water or other liquids.
- Make sure that the surrounding area is clean, dry, and free of dust.

Power Source

The power source requirements for this printer are as follows.

- Power source: 120V, 50-60Hz
- Voltage fluctuation: Within $\pm10\%$
- Frequency fluctuation: Within ±3Hz

Chapter 2

Setting Up

NOTES

- Use a power source with minimal voltage and frequency fluctuation.
- Only use an outlet that is rated for the voltage capacity specified for this printer.
- Be sure to plug the power cord all the way into the outlet. The outlet should be located near the printer and easily accessible so you can unplug the power cord immediately should any problem occur.
- Make sure that the outlet is visible, and not hidden behind the printer or any other object.
- If any other electrical equipment is plugged into the same outlet, make sure that the capacity of the outlet is not exceeded.
- If you use an extension cord, make sure its capacity is greater than the power consumption of the printer. Using an extension cord with a lower capacity creates the danger of fire.
- Never use a multiple socket to connect other appliances or machines to the same outlet being used to power the printer.

Grounding

Always ground the printer to guard against the danger of electric shock. To ground the printer, connect the grounding wire to the ground terminal of the electrical outlet you are plugging into or to a grounding contact that complies with local electrical standards in your area.

Contact your Technical Representative if you are unable to make grounding connections yourself.

NOTE

Never connect the grounding wire to a gas pipe, the grounding wire for a telephone, or a water pipe.

Space Requirements

To make printer operation, supply replacement and service mainte-
nance easier, the minimum installation space below is necessary.
Locate the printer in an installation site with adequate space.

Without options

30.5 (774)

23.7 (603)

0.6 (15)

17.3 (440)

3.5 (90)

21.5 (545)

0.6 (15)
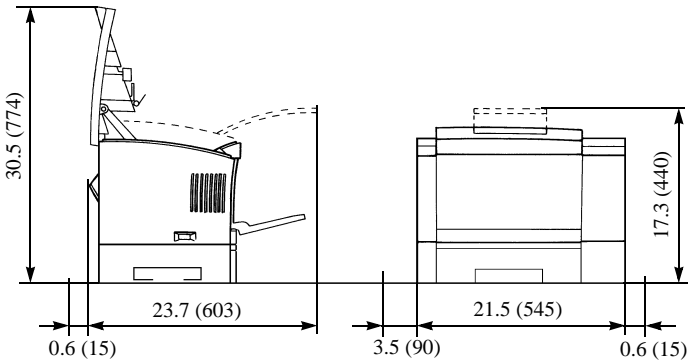
Unit: inch (mm)

Installed with full options

34.6 (880)

29.6 (753)

0.6 (15)

21.3 (541)

3.5 (90)

21.5 (545)

0.6 (15)

Unit: inch (mm)

Chapter 2

Setting Up
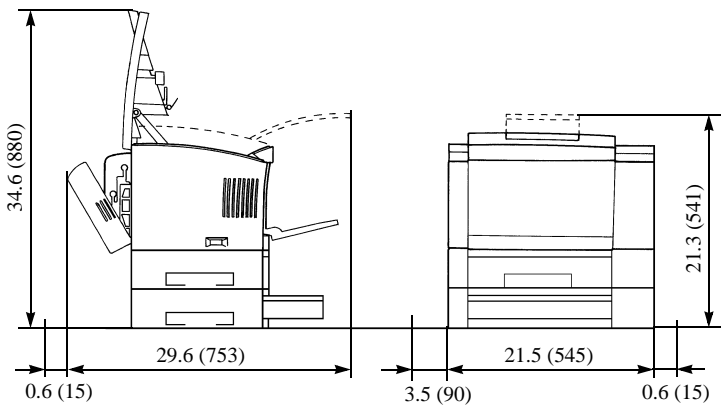
2. Operational Precaution

Operating Environment

The following describes the operating environment required when using the printer.

Temperature: 50°F to 95°F (10°C to 35°C) with a fluctuation of
50°F (10°C) per hour.

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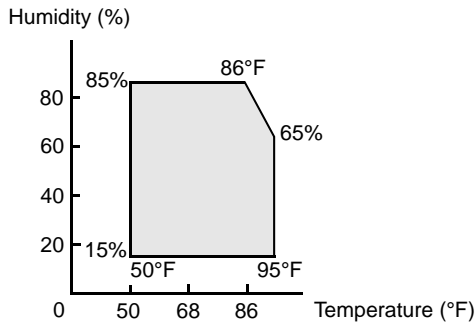
Operation

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

- Never turn the printer off or open any of its covers while a printing operation is being performed.
- Never locate any object that generates magnetic force, flammable gas, or is flammable near the printer.
- When unplugging the power cord, grasp the plug and never pull on the cord. A damaged cord creates the danger of fire or electric shock.
- Never touch the power cord when your hands are wet. Doing so creates the danger of electric shock.
- Always unplug the power cord before moving the printer. Failure to do so can damage the power cord, creating the danger of fire or electric shock.
- Always unplug the power cord if you do not plan to use the printer for a long time.

Chapter 2

Setting Up

- Never try to remove any panel or cover that is secured. The interior of the printer contains high-voltage circuitry which creates the danger of electric shock when exposed.
- Never try to modify the printer. Doing so creates the danger of fire or electric shock.
- Never place any heavy objects on the power cord, or pull on it or bend it. Doing so creates the danger of fire or electric shock.
- Always make sure the printer is not setting on the electrical cord or communications cables of any other electrical equipment. Also make sure that cords and cables do not get into the printer's mechanism. Any of these conditions create the danger of malfunction and fire.
- Always take care so that paper clips, staples, or other small pieces of metal do not get into the printer through its vents or other openings. Such objects create the danger of fire or electric shock.
- Never place containers of water or any other liquid on the printer. Liquids getting into the printer create the danger of fire or electric shock.
- Should metal or liquid accidently get inside the printer, immediately turn it off, unplug the power cord, and contact your technical representative. Failure to take immediate action creates the danger of fire or electric shock.
- Always turn the printer off immediately whenever it becomes very hot, or when it emits smoke, an unusual odor, or noise. Immediately turn off the printer, unplug it, and contact your technical representative. Failure to take immediate action creates the danger of fire or electric shock.

NOTE

Be sure to locate the printer in a well-ventilated location. A negligible amount of ozone is generated during normal operation of this printer. Because of this, an unpleasant odor may result when the printer is used for extensive printing in a poorly ventilated area. For comfortable, healthy, and safe operation, be sure to locate the printer in a well-ventilated area.

Printer Supplies

Note the following precautions when handling the printer supplies such as the imaging cartridge and paper.

- Avoid storing the supplies in the following locations.
  Areas subjected to direct sunlight. Keep the imaging cartridge away from fluorescent light as well.
  Areas exposed to open flame.
  Areas subjected to high humidity.
  Areas subjected to large amounts of dust.
- Keep paper that has been removed from its wrapper but not yet loaded into the printer tray in a sealed plastic bag, which is stored in a cool, dark location.
- Use only the imaging cartridge expressly specified for this printer.
- Keep supplies out of the reach of small children.
- Should your hands become soiled with toner, immediately wash them with soap and water.

NOTE

Whenever you remove the imaging cartridge from the printer, immediately cover it with a cloth to prevent light from striking it.

Set up your printer according to the following procedure.

NOTES

- Keep all the boxes and packing materials that the printer comes in for later use when transporting the printer.
- Since the printer weighs approximately 55.1 lbs (25 kg), two people are required to lift it.
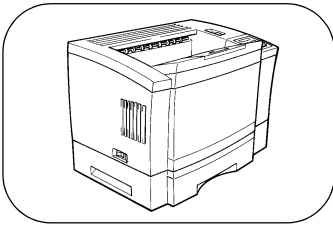
1. Place the printer in the location you have chosen.

Upper Cover Upper Cover Lock Release Button
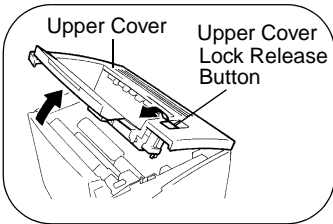
2. Pressing the upper cover lock release button, open the upper cover.
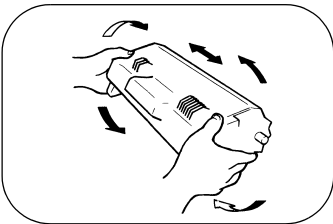
3. Take the imaging cartridge out of the box.

   Holding it with both hands, shake it well in the direction of the arrows.

Chapter 2

Setting Up
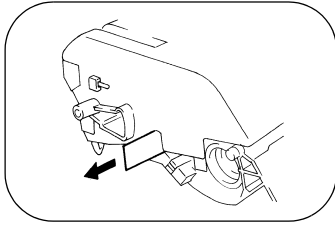
4. Pull the tab outward slowly until the sealing tape is completely removed.
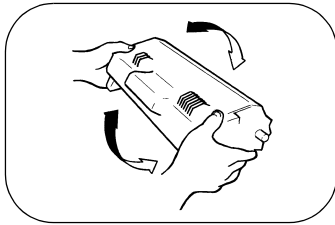
5. Shake the imaging cartridge 4 or 5 times in the direction of the arrows to distribute the toner evenly.
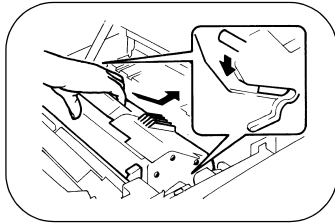
6. Install the imaging cartridge securely into the printer by sliding the pins on each side of the cartridge along the grooves of the cartridge guide.
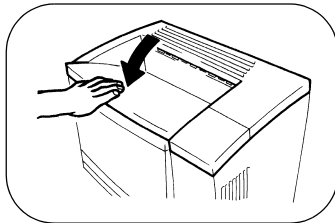
7. Close the upper cover.

4. Connecting the Power Cord

Connect the power cord according to the following procedure.
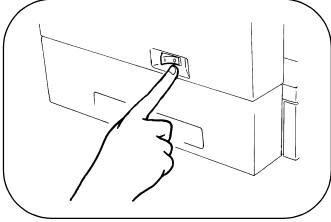
1. Make sure that the power switch of the printer is placed in the ❍ (OFF) position.
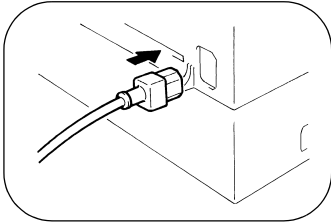
2. Plug one end of the power cord into the printer's power cord socket and plug the other end of the power cord into the power outlet.

Turning the Printer ON
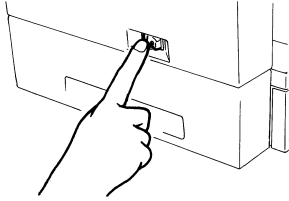
Press the power switch to the |(ON) position.

NOTE

This printer will automatically go into power save mode a given period of time after the last activity.
See "System Menu" page 3-12.

When you turn the printer on, the following takes place.

1. All the LED's light up and then go out.
2. Asterisks appears on the display from left to right.
3. The message **SELF TEST** appears on the display.

   When the printer detects an error during an initialization or diagnostic, an error massage appears on the display.
   For details, see "Understanding Printer Messages" page 5-12.

4. The message **WARMING UP** appears on the display.
5. The message **READY** is displayed after warming up is completed.

This takes about 70 seconds. The printer is now ready to print.

Turning the Printer OFF
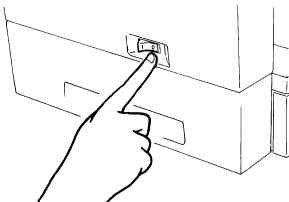
Make sure that the printer is nothing operating.
Press the power switch to the ❍ (OFF) position.

To make sure the printer works correctly before connecting the printer to the computer, print a configuration page according to the following procedure.

```
┌─────────────────────────┐
│  ┌───────────────────┐  │
│  │ READY        PCL  │  │
│  │                   │  │
│  └───────────────────┘  │
│                         │
│   ● Data    ● Message   │
│  ●                      │
│ On Line Proced Tray1 Paper  Shift │
│ ┌──┐  ┌──┐  ┌──┐    ┌──┐ │
│ └──┘  └──┘  └──┘    └──┘ │
│                         │
│ Menu  Item  Select  Enter │
│ ┌──┐  ┌──┐  ┌──┐    ┌──┐ │
│ │▲ │  │▲ │  │▲ │    │ * │ │
│ │▼ │  │▼ │  │▼ │    Reset │
│ └──┘  └──┘  └──┘    └──┘ │
└─────────────────────────┘
```
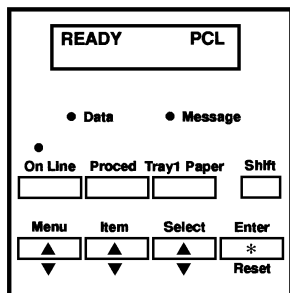
1. Load Letter paper into tray 1.

   →See "Loading Paper in Tray 1"
   page 3-29.

2. Using the control panel, select TEST PRINT from the menu mode. Select CONFIG PRINT from the item mode. Press the Enter key to start printing.

   →See "Test Print" page 3-19.

3. If an error message appears, see "Understanding Printer Messages" on page 5-12 for more information.

Config Print

MINOLTA PageWorks20
-- Configuration Page --

Operation Panel Menu Map

PRINT MENU
COPIES	=	1
PAPER SIZE	=	LETTER
ORIENTATION	=	PORTRAIT
PAPER TRAY	=	AUTOMATIC
DUPLEX	=	OFF
FORM LENGTH	=	60
RESOLUTION	=	600
PRINT QUALITY	=	FINEART
TONER DENSITY	=	MEDIUM
PAGE PROTECTION	=	OFF

PCL MENU
FONT NUMBER	=	0
PITCH	=	10.00
POINT SIZE	=	12.00
SYMBOL SET	=	ROMAN-8

SYSTEM MENU
LANGUAGE	=	PCL
POWER SAVE	=	45
AUTO CONTINUE	=	OFF
SPECIAL PAPER	=	NONE
TRAY 1 MEDIA	=	PLAIN PAPER
TRAY 2 MEDIA	=	PLAIN PAPER

PARALLEL MENU
IO BUFFER SIZE	=	AUTO
HIGH SPEED	=	ON
BI-DIRECTION	=	ON
TIMING	=	A-B-A
TIME OUT	=	60

MAINTENANCE MENU
DISPLAY LANGUAGE	=	ENGLISH
FACTORY DEFAULT		

TEST PRINT
CONFIG PRINT
PCL FONT LIST
PCL DEMO PRINT

Printer Information

Firmware Version	=	1.0
PCL Installed Fonts	=	45

Paper Count
Total Count	=	0
Large Page Count	=	0
Page Count (for Maintenance)	=	0
Maintenance Count	=	60000

Memory
Total Size (MB)	=	4
IO Buffer Size (KB)	=	256

Paper Trays
Tray 1 (Multipurpose)
= LETTER (PLAIN PAPER)
Tray 2 (Upper)
= LETTER (PLAIN PAPER)

Installed Options

Third Tray Unit	=	Not Installed
Duplex Unit	=	Not Installed
Network Card	=	Not Installed
PostScript ROM	=	Not Installed
Hard Disk	=	Not Installed
Add SIMM Memory (MB)	=	

This printer includes the software that is developed by Tokyo Denshi Sekei K.K.

PCL Font List

MINOLTA PageWorks 20
PCL Typeface List

Internal Scalable Typefaces and Bitmapped Fonts

Typeface	Pitch/Point	Escape Sequence	Font #
Courier	Scale	\<esc\>(☐\<esc\>(s0p▓▓h0s0b4099T	000
CG Times	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s0b4101T	001
CG Times Bold	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s3b4101T	002
CG Times Italic	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s0b4101T	003
CG Times Bold Italic	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s3b4101T	004
CG Omega	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s0b4113T	005
CG Omega Bold	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s3b4113T	006
CG Omega Italic	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s0b4113T	007
CG Omega Bold Italic	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s3b4113T	008
Coronet	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s0b4116T	009
Clarendon Condensed	Scale	\<esc\>(☐\<esc\>(s1p▒▒v4s3b4140T	010
Univers Medium	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s0b4148T	011
Univers Bold	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s3b4148T	012
Univers Medium Italic	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s0b4148T	013
Univers Bold Italic	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s3b4148T	014
Univers Medium Condensed	Scale	\<esc\>(☐\<esc\>(s1p▒▒v4s0b4148T	015
Univers Bold Condensed	Scale	\<esc\>(☐\<esc\>(s1p▒▒v4s3b4148T	016
Univers Medium Condensed Italic	Scale	\<esc\>(☐\<esc\>(s1p▒▒v5s0b4148T	017
Univers Bold Condensed Italic	Scale	\<esc\>(☐\<esc\>(s1p▒▒v5s3b4148T	018
Antique Olive	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s0b4168T	019
Antique Olive Bold	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s3b4168T	020
Antique Olive Italic	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s0b4168T	021
Garamond Antiqua	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s0b4197T	022
Garamond Halbfett	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s3b4197T	023
Garamond Kursiv	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s0b4197T	024
Garamond Kursiv Halbfett	Scale	\<esc\>(☐\<esc\>(s1p▒▒v1s3b4197T	025
Marigold	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s0b4297T	026
Albertus Medium	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s1b4362T	027
Albertus Extra Bold	Scale	\<esc\>(☐\<esc\>(s1p▒▒v0s4b4362T	028

▓▓Pitch: .10 - 576   ☐Symbol set   ▒▒Point size: .25 - 999.75

Chapter 2

Setting Up

Arial	Scale	<esc>(☐<esc>(s1p▨v0s0b16602T	029
Arial Bold	Scale	<esc>(☐<esc>(s1p▨v0s3b16602T	030
Arial Italic	Scale	<esc>(☐<esc>(s1p▨v1s0b16602T	031
Arial Bold Italic	Scale	<esc>(☐<esc>(s1p▨v1s3b16602T	032
Times New Roman	Scale	<esc>(☐<esc>(s1p▨v0s0b16901T	033
Times New Roman Bold	Scale	<esc>(☐<esc>(s1p▨v0s3b16901T	034
Times New Roman Italic	Scale	<esc>(☐<esc>(s1p▨v1s0b16901T	035
Times New Roman Bold Italic	Scale	<esc>(☐<esc>(s1p▨v1s3b16901T	036
ABXΔEφγηιφϒʹ≥×∂÷≠≈│ℑ#∃≅ ↔⊥ ‾{|}~12 Symbol	Scale	<esc>(19M<esc>(s1p▨v0s0b16686T	037
✂✁✆✇✈✎✐✍♐♒♓♍⊙⊙⊙⊙⊙✦✧✭★ ϒΠ⊕✤❝❞🗁🗎 Wingdings	Scale	<esc>(579L<esc>(s1p▨v0s0b31402T	038
Courier Bold	Scale	<esc>(☐<esc>(s0p▨h0s3b4099T	039
Courier Italic	Scale	<esc>(☐<esc>(s0p▨h1s0b4099T	040
Courier Bold Italic	Scale	<esc>(☐<esc>(s0p▨h1s3b4099T	041
Letter Gothic	Scale	<esc>(☐<esc>(s0p▨h0s0b4102T	042
Letter Gothic Bold	Scale	<esc>(☐<esc>(s0p▨h0s3b4102T	043
Letter Gothic Italic	Scale	<esc>(☐<esc>(s0p▨h1s0b4102T	044
ABCDEfghijÀÂ°ÇÑ¡¿£§êê#$@¨^'‹|›~12 Line Printer	16.66/8.5	<esc>(8U<esc>(s0p16.66h8.5v0s0b0T	045
ABCDEfghij¡¢³´¶¹»½Å#$@«¨`‹|›¨12 Line Printer	16.66/8.5	<esc>(0N<esc>(s0p16.66h8.5v0s0b0T	046
ABCDEfghijíó╎╎┑┰┒┚┸#$@½¨`‹|›¨12 Line Printer	16.66/8.5	<esc>(10U<esc>(s0p16.66h8.5v0s0b0T	047
ABCDEfghijíó╎╎┑┰┒┚┸#$@øℓ¨`‹|›¨12 Line Printer	16.66/8.5	<esc>(11U<esc>(s0p16.66h8.5v0s0b0T	048
ABCDEfghijíó╎╎ Å╝┰¢┸#$@ø½¨`‹|›¨12 Line Printer	16.66/8.5	<esc>(12U<esc>(s0p16.66h8.5v0s0b0T	049
ABCDEfghij #$@ ©°§¶†™12 Line Printer	16.66/8.5	<esc>(1U<esc>(s0p16.66h8.5v0s0b0T	050

PCL Demo Print

MINOLTA

PageWorks 20
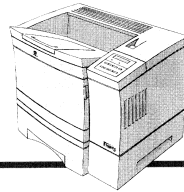
High-Speed Printing (20ppm)

Superior Quality (1200dpi Class)

Large Size Printing (to Super B Size)

45 **Outline Fonts**

Efficient Document Management
(n-Up, Booklet, Watermark, Job Separation)

Duplex Option (High-Speed Duplex Printing)

Adobe® PostScript® Level 2 Option

Network Option (Multiple Protocol)

Environment Friendly (Power Save, Toner Save)

Adobe, PostScript and the PostScript Logo are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions

7. Connecting the Interface Cable

You can connect the printer to your computer using the printer's parallel ports. For more information, see "Specifications" page 7-10.
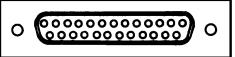
IMPORTANT

You must purchase an IEEE 1284 type-B cable. If you try to use any other cable, you may damage the printer's port.

NOTE

Always use a shielded interface cable. Use of an unshielded cable can result in radio interference with data.

Interface Port

	Parallel Port
PRINTER	 Centronics 36-pin connector
IBM PC AT or compatible	 EIA 25-pin connector
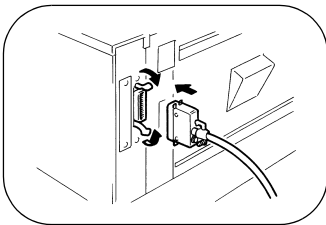
1. Make sure that the power switch of the computer and printer is turned off.

2. Connect one end of the interface cable to the printer port of the computer.

3. Then connect the other end of the interface cable to the interface connector on the backside of the printer.

When moving the printer, follow the notes below.

NOTES

- Since the printer weighs approximately 55.1 lbs (25 kg), two people are required to lift it.
- When transporting the printer, remove the imaging cartridge first.
- Whenever you remove the imaging cartridge from the printer, immediately cover it with a cloth to prevent light from striking it.
- When an option is installed, remove the option from the printer and carry the printer separately.
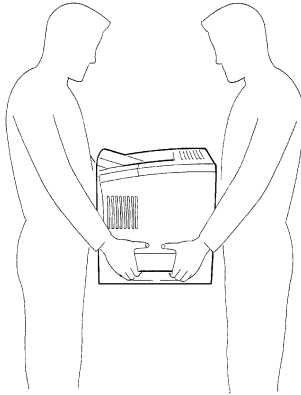
Memo

Chapter 3

Using Your Printer

Using Your Printer

The control panel allows you to control most of the printing options. If you use your software to control print jobs, you do not have to change the control panel settings repeatedly. Any software setting will override the control panel settings.

Use the control panel when:
- Your software does not allow you to make the user selection.
- You are making printer configuration changes which software cannot control.
- You need to identify the fonts available in the printer's memory.
- You need to print a test print.
- You need to switch between on-line and off-line.

Basic Menu Setting Method

1. Press the **On Line** key to take the printer off-line.
2. Press the **Menu** key as many times as necessary to select the menu group you want to set.
3. Press the **Item** key as many times as necessary to select the item you want to set.
   Pressing the **Menu** key will return you to the menu mode.
4. Press the **Select** key as many times as necessary to change the user selection.
   Pressing the **Menu** key will return you to the menu mode.
   Pressing the **Item** key will return you to the item mode.
5. Press the **Enter** key to save your selection.
   An asterisk (*) appears at the right of the setting.
6. Press the **On Line** key to return the printer on-line.

- The printer should be off-line to select the printer menus.
- Pressing the On Line key will return the printer on-line from any menu mode.
- When a key operation is not performed for 30 seconds or more in any menu mode, the printer will return on-line automatically.

Tray 1 Paper Size Setting Method

You can enter the tray1 paper size setting mode only from off-line.

1. Press the **On Line** key to take the printer off-line.
2. Press the **Tray1 Paper** key to enter the tray 1 paper size setting mode.
3. Press the **Select** key as many times as necessary to select the paper size you want to specify.
4. Press the **Enter** key to save your selection.
   An asterisk (*) appears at the right of the setting.
   The printer returns on-line automatically.

The paper sizes displayed in the tray 1 paper size setting mode are as follows.

ITEM	FACTORY DEFAULT	USER SELECTION
TRAY1 PAPER SIZE	LETTER	LETTER, LEGAL, LEDGER, EXEC, C5, DL, MONARC, COM10, A4, A3, A3+, B4, JIS B5, ISO B5, UNIVERSAL, JOB SEPARATION

- If the paper in tray 1 has been used up, reload the paper and the printer resumes printing automatically.
- If you select UNIVERSAL, the printer feeds paper from tray 1 irrespective of the paper size setting on the computer only when you specify tray 1 as the paper source.
- If you select JOB SEPARATION, tray 1 becomes the separator source.

Job Separation

Your printer can insert a blank page between print jobs. This may be helpful when there is more than one person using the printer.

1. Load the separator sheets in tray 1. You don't need to specify the paper size and the direction of the loaded separator sheet.
2. Press the **Tray1 Paper** key to enter the tray 1 paper size setting mode.
3. Press the **Select** key as many times as necessary to select JOB SEPARATION.
4. Press the **Enter** key to save your selection.
   An asterisk (*) appears at the right of the setting.
   The printer returns on-line automatically.

While the printer is READY or OFFLINE, the printer displays JOB SEPARATION on the control panel.

- If you select JOB SEPARATION, you cannot specify tray 1 as the paper source.
- If selecting JOB SEPARATION, the paper loaded in tray 1 is inserted as a separator sheet between print jobs.
- If you select MANUAL FEED, you cannot specify JOB SEPARA-TION.
- If selecting JOB SEPARATION, when the paper source is set to tray 1, tray 2 becomes the default paper source.
- When a separator sheet misfeed occurs, the printer does not perform jam recovery for a separator sheet.

USEFUL TIP

The printer driver for this printer can also be used to insert a blank page between print jobs.
For details, See the Printer Driver User's Manual.

Overview of Printer Menus

MENUS

PRINT MENU	see page 3-7
PCL MENU	see page 3-10
PS MENU	see page 3-11
SYSTEM MENU	see page 3-12
PARALLEL MENU	see page 3-14
MAINTENANCE MENU	see page 3-16
NETWORK MENU	see page 3-17
TEST PRINT	see page 3-19

PRINT MENU
COPIES
PAPER SIZE
ORIENTATION
PAPER TRAY
DUPLEX
FORM LENGTH
RESOLUTION
PRINT QUALITY
TONER DENSITY
PAGE PROTECTION

PCL MENU
FONT NUMBER
PITCH
POINT SIZE
SYMBOL SET

PS MENU
JAM RECOVER

SYSTEM MENU
LANGUAGE
POWER SAVE
AUTO CONTINUE
SPECIAL PAPER
TRAY1 MEDIA
TRAY2 MEDIA
TRAY3 MEDIA

NOTE

Menu items in *italics* appear only when
the required option is installed.

Chapter 3

Using Your Printer

PARALLEL MENU	MAINTENANCE MENU	*NETWORK MENU*	TEST PRINT
IO BUFFER SIZE HIGH SPEED BI-DIRECTION TIMING *ADOBE PROTOCOL* TIME OUT	DISPLAY LANGUAGE FACTORY DEFAULT *SERVICE MESSAGE*	*IP ADDRESS* *SUBNET MASK* *GATEWAY* *NETWARE FRAME*	CONFIG PRINT PCL FONT LIST PCL DEMO *PS CONFIG PRINT* *PS FONT LIST* *NETWORK CONFIG PRINT*
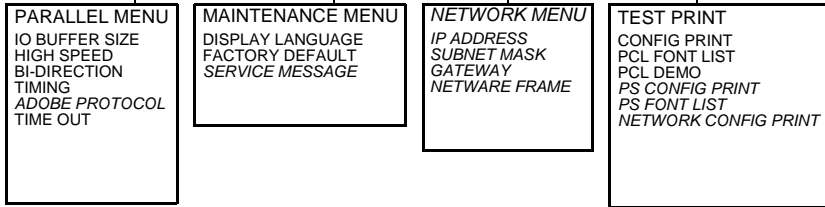
Printer Menus

The printer has six standard menus and two optional menus that allow you to configure the printer.
Some of the items or values are displayed only when a specific option is installed. Other items or values may only be effective for a particular printer language. You can select these items or values at any time, but they only affect printer function when you use the specified printer language. The standard and optional menus are as follows.

   (1) Print Menu
   (2) PCL Menu
   (3) PS Menu
   (4) System Menu
   (5) Parallel Menu
   (6) Maintenance Menu
   (7) Network Menu
   (8) Test Print
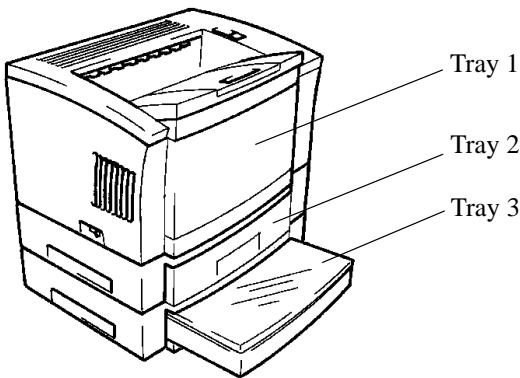
Tray 1
Tray 2
Tray 3

(1) Print Menu

ITEM	FACTORY DEFAULT	USER SELECTION
COPIES	1	1 to 999
PAPER SIZE	LETTER	LETTER LEGAL LEDGER EXEC A4, A3, B4, JIS B5
ORIENTATION	PORTRAIT	PORTRAIT LANDSCAPE
PAPER TRAY	AUTOMATIC	TRAY 1 TRAY 2 *TRAY 3* MANUAL FEED AUTOMATIC
DUPLEX	*OFF*	*OFF* *SHORT-EDGE BIND* *LONG-EDGE BIND*
FORM LENGTH	60	5 to 128
RESOLUTION	600	300 600
PRINT QUALITY	FINEART	FINEART TONER SAVE
TONER DENSITY	MEDIUM	STANDARD EXTRA LIGHT LIGHT MEDIUM LIGHT MEDIUM MEDIUM DARK DARK EXTRA DARK
PAGE PROTECTION	OFF	OFF ON

COPIES

Specifies the number of copies you want to print.

PAPER SIZE

Specifies the paper size you want to use for printing.

ORIENTATION

Selects the direction of the print on the page.
Portrait orientation means the page is taller than it is wide when you view the printed text upright.
Landscape orientation means the page is wider than it is tall when you view the printed text upright.

PAPER TRAY

Specifies the paper source. If AUTOMATIC is selected, the printer will automatically search all paper trays for the required paper size.
For more information, see "Automatic Tray Switching" page 3-35.

DUPLEX

This item appears only when the printer is equipped with the duplex unit.
Specifies whether to print on both sides of the paper. If you attempt duplex printing, you can choose either short edge or long edge.
For more information, see "Duplex Printing" page 3-27.

FORM LENGTH

Specifies the number of lines per page.

RESOLUTION

Selects 300 or 600 dpi (dots per inch) as the print resolution. Higher resolution prints more slowly but produces higher-quality graphics, whereas lower resolution prints faster but produces lower-quality graphics.

PRINT QUALITY

Selects the text quality you want to use for your printed document.

STANDARD: Normal quality printing.

FINEART: Smooths the jagged edges of the printed image. More effective when printing at 600 dpi.

TONER SAVE: Toner Save allows you to use less toner when printing.

TONER DENSITY

Selects the density of the toner applied to the page. This setting can be fine-adjusted in 7 different steps.

PAGE PROTECTION

Page Protection allows you to make sure the entire page is processed before it is printed. Set the setting to ON only when the JOB TOO COMPLEX error occurs. If Page Protection is set to ON, printing speed may be slowed.

NOTE

The settings you make in the print menu may be overridden by the settings you make with your printer driver.

Chapter 3

Using Your Printer

Chapter 3

Using Your Printer

(2) PCL Menu

ITEM	FACTORY DEFAULT	USER SELECTION
FONT NUMBER	0	0 to 50
PITCH	10.00	0.44 to 99.99
POINT SIZE	12.00	4.00 to 999.75
SYMBOL SET	ROMAN-8	ROMAN-8, ISO L1, ISO L2, ISO L5, PC-8, PC-8 DN, PC-850, PC-852, PC-8 TK, WIN L1, WIN L2, WIN L5, DESKTOP, PS TEXT, VN INTL, VN US, MS PUBL, MATH-8, PS MATH, VN MATH, PIFONT, LEGAL, ISO 4, ISO 6, ISO 11, ISO 15, ISO 17, ISO 21, ISO 60, ISO 69, WIN 3.0, MC TEXT, SYMBOL, WING

FONT NUMBER

Font Number is the number you use to select a font from the control panel.

PITCH

Pitch is the number of characters printed per horizontal inch. This setting is for a mono-space scalable font.

POINT SIZE

Point Size is font height. This setting is for a proportional scalable font.

SYMBOL SET

Symbol Set is a set of alphabetic and numeric characters, punctuation, and special symbols used when printing with a selected font.

(3) PS Menu

This item appears only when PostScript is installed.

ITEM	FACTORY DEFAULT	RANGE OF USER SELECTION
JAM RECOVER	ON	ON OFF

JAM RECOVER

When Jam Recover is set to OFF, the printer does not reprint a page that has misfed.

When the Jam Recover is set to ON, the printer keeps the image for a printed page until the printer signals that the page has successfully exited the printer. Then the printer reprints all misfed pages. However, printing speed may be slowed.

Chapter 3

Using Your Printer

(4) System Menu

ITEM	FACTORY DEFAULT	USER SELECTION
LANGUAGE	PCL	PCL *PS* *AUTO*
POWER SAVE	45	0 to 180
AUTO CONTINUE	OFF	OFF 20sec, 30sec, 60sec, 90sec, 120sec
SPECIAL PAPER	NONE	NONE
TRAY 1 MEDIA	PLAIN PAPER	TRAY 1 *TRAY 3* PLAIN PAPER
TRAY 2 MEDIA	PLAIN PAPER	THIN PAPER TRANSPARENCY ENVELOPE PLAIN PAPER
TRAY 3 MEDIA	*PLAIN PAPER*	THIN PAPER *PLAIN PAPER* *THIN PAPER*

LANGUAGE

The printer language defines how the computer communicates with the printer. If you select AUTO, the printer language will be switched automatically. However, neither PS nor AUTO will appear if PostScript is not installed.

POWER SAVE

The Power Save setting determines the length of time the printer waits after the last job is printed before it goes into a reduced power state. A value of zero means that it does not go into power save mode. When the printer receives the next job, the power save mode is canceled. The power save mode is also cancelled automatically by pressing any key, removing and reinstalling the paper tray, or opening and closing the upper cover.

AUTO CONTINUE

When a recoverable error has occurred, set the length of time that the printer takes to return to the on-line state automatically.

Recoverable errors: **MEMORY OVERFLOW**
                             JOB TOO COMPLEX

SPECIAL PAPER

Specifies the paper source which the special paper is loaded in. See "Special Paper Tray Setting" page 3-37.

TRAY 1 MEDIA

Specifies the media type that is loaded in tray 1 to get the best possible result on the paper.

PLAIN PAPER: 75 to 157 g/m^2

THIN PAPER: 60 to 75 g/m^2

TRANSPARENCY: Transparencies

ENVELOPE: Envelopes

TRAY 2 MEDIA

Specifies the media type that is loaded in tray 2 to get the best possible result on the paper.

TRAY 3 MEDIA

This item appears only when the optional third tray unit is installed. Specifies the media type that is loaded in tray 3 to get the best possible result on the paper.

(5) Parallel Menu

ITEM	FACTORY DEFAULT	USER SELECTION
IO BUFFER SIZE	AUTO	16K, 64K, 256K, 1M AUTO
HIGH SPEED	ON	OFF ON
BI-DIRECTION	ON	OFF ON
TIMING	A-B-A	A-B-A A-B B-A
ADOBE PROTOCOL	STANDARD	STANDARD BINARY TBCP
TIME OUT	60	5 to 300

IO BUFFER SIZE

Selects the receiving buffer size. If AUTO is selected, the printer automatically sets the buffer size depending on the amount of memory carried in the printer.

HIGH SPEED

Sets whether it transfers data at high speed. Basically, you don't need to change the setting. However, depending on the PC you are using, you may not be able to run at high speed. In such a case, set the setting to OFF.

BI-DIRECTION

Sets whether to enable bi-directional communication. Basically, you don't need to change the setting. However, depending on the PC you are using, it may not support bi-directional communication. In such case, set the setting to OFF after verifying the PC specification.

Chapter 3

Using Your Printer

TIMING

Sets the timing of "Busy to Ack" in the communication format between the printer and PC. Basically, you don't need to change the setting. However, depending on the PC you are using, it may not be able to support a proper communication between the printer and PC. In such a case, change the setting after verifying the PC specification.

A-B: Ack in Busy.

A-B-A: Ack while Busy.

B-A: Ack after Busy.

ADOBE PROTOCOL

This item appears only when PostScript is installed.

Standard: Tells the driver to send data to the printer in a ASCII format.

Binary: Tells the driver to send data to the printer in a binary format.

TBCP: This allows you to change between ASCII and binary format by a particular control code.

TIME OUT

The Time Out setting determines the time out period from the end of the print job to the ready state. After the time out period, the printer searches for next data from interface channel.

(6) Maintenance Menu

ITEM	FACTORY DEFAULT	USER SELECTION
DISPLAY LANGUAGE	ENGLISH	ENGLISH DEUTSCH FRANCAIS ITALIANO NEDERLANDS DANSK ESPAÑOL CESKY
FACTORY DEFAULT		
SERVICE MESSAGE	ON	ON
		OFF

DISPLAY LANGUAGE

The Display Language setting determines the language of the text that appears on the control panel. The setting becomes effective by restarting the printer after making changes.

FACTORY DEFAULT

The printer settings except the network menu and parallel menu settings are set to the factory default values.

SERVICE MESSAGE

This item appears only when the **MAINTENANCE REQ** message is displayed on the control panel. You can clear the message by changing this setting to OFF. If the **MAINTENANCE REQ** message appears, the printer is approaching the maintenance interval. See "Maintaining Your Printer" page 4-1.

(7) Network Menu

This item appears only when the optional network card is installed. Using the software utility available with the optional network card enables making of the settings in detail. For details, see the manual for the network card.

ITEM	FACTORY DEFAULT	USER SELECTION
IP ADDRESS	*198, 102, 102, 254*	xxx, xxx, xxx, xxx
SUBNET MASK	*255, 255, 255, 0*	xxx, xxx, xxx, xxx
GATEWAY	*0, 0, 0, 0*	xxx, xxx, xxx, xxx
NETWARE FRAME	AUTO	AUTO ETHERNET 2 IEEE 802.3 IEEE 802.2 SNAP+IEEE 802.2

IP ADDRESS

Types an IP address. This is the numerical value to distinguish all networks utilizing the TCP/IP protocol. The value in each field must be a number from 0 to 255.

SUBNET MASK

Types a subnet mask address. This number combined with the IP address identifies which network your computer is on. The value in each field must be a number from 0 to 255.

GATEWAY

Types a default gateway address. A gateway is a connection or interchange point that connects two networks that would otherwise be incompatible.

NETWARE FRAME

Specifies a NetWare frame type. If NetWare frame is set to AUTO, a proper frame type is automatically selected.

NOTE

Any setting changes you make in the network menu becomes effective by pressing the On Line key.

CAUTION

Pressing the On Line key after making the network settings will restart the network card immediately. The printer continues displaying "READY" on the control panel while the network card is being restarted. However, access to the network card is disabled until the LED for the network card lights up steadily.

Chapter 3

Using Your Printer

(8) Test Print

A test print is printed out with the paper size and paper tray settings you made in the print menu. For details, see "Print Menu" page 3-6.

ITEM
CONFIG PRINT
PCL FONT LIST
PCL DEMO PRINT
PS CONFIG PRINT
PS FONT LIST
NETWORK CONFIG
PRINT

1. Press the **On Line** key to take the printer off-line.
2. Press the **Menu** key as many times as necessary to select the test print menu.
3. Press the **Item** key as many times as necessary to select the item you want to print.
4. Press the **Enter** key to start printing.

   The printer returns on-line automatically.

CONFIG PRINT

Prints the internal settings of the control panel, printer information and installed options. Config print is printed out in the display language you selected.

PCL FONT LIST

Prints a font list used in PCL. It includes typeface, pitch, point size, escape sequence and font number.

PCL DEMO PRINT

Prints the demo page for PCL. PCL demo print is printed out in the display language you selected.

PS CONFIG PRINT

Prints various information for PS, RAM capacity and so on. PS config print is printed out in the display language you selected.

PS FONT LIST

Prints a font sample that shows all the fonts available in PS.

NETWORK CONFIG PRINT

Prints the contents of the setting or the status of the network. If the printer detects a network error after turning the printer on, the printer automatically prints out a network config page. At this time, check the contents for an error.

Supported Media

Use only supported sizes or weights of paper. Do not use other media which may not meet the media specifications for this printer.

Paper Type

- Plain paper: 60 to 90 g/m^2 (16 to 24 lb)
  Recycled paper: 60 to 90 g/m^2 (16 to 24 lb)
- Special paper (Tray 1 only):
  transparencies, labels, envelopes, letterhead,
  thick paper: 91 to 157 g/m^2 (24 to 41 lb)

Paper Size

Paper Type	Paper Size	
Plain/Recycled paper	A3	(297mm x 420mm)
	Super B (A3+)	(328mm x 453mm)
	A4	(210mm x 297mm)
	B4	(257mm x 364mm)
	JIS B5	(182mm x 257mm)
	Letter (LTR)	(8.5" x 11")
	Legal (LGL)	(8.5" x 14")
	Ledger (LGR)	(11" x 17")
	Executive (EXEC)	(7.25" x 10.5")
Special paper	ISO B5	(176mm x 250mm)
	Com-10	(4.125" x 9.5")
	C5	(162mm x 229mm)
	DL	(110mm x 220mm)
	Monarch	(3.875" x 7.5")
	Universal*	(92 to 330mm x 140 to 483mm)

*Universal size (custom size) can be set by using the printer driver.
 For details, see the Printer Driver User's Manual.

Chapter 3

Using Your Printer

Paper Size	Paper Source		
	Tray1	Tray 2	Tray 3*
A3	◯		◯
Super B (A3+)	◯		
A4	◯		◯
B4	◯		◯
JIS B5	◯		◯
Letter (LTR)	◯	◯	◯
Legal (LGL)	◯		◯
Ledger (LGR)	◯		◯
Executive (EXEC)	◯		◯
ISO B5 (envelope)	◯		
Com-10 (envelope)	◯		
C5 (envelope)	◯		
DL (envelope)	◯		
Monarch (envelope)	◯		
Universal (custom size)	◯		

*Tray 3: Optional 250-Sheet Universal Tray

Capacity

- Tray 1:
  Plain/recycled paper: Up to 150 Sheets
  Special paper:
  -Thick paper, letter head, labels, envelopes: Up to 10 sheets
  -Transparencies: Up to 5 sheets

- Tray 2:
  Plain/recycled paper: Up to 500 sheets

- Tray 3 (optional):
  Plain/recycled paper: Up to 250 sheets

Printable Area

One-sided printing

Margins of 5 mm (0.2 inch) along the four edges of the document.

5 mm (0.2 inch)

5 mm (0.2 inch)

Printable area

5 mm (0.2 inch)

5 mm (0.2 inch)
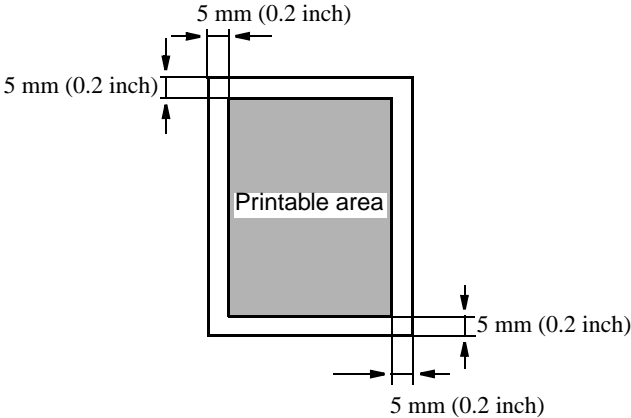
Double-sided printing

Margins of 7.5 mm (0.3 inch) along the four edges of the document.

7.5 mm (0.3 inch)

7.5 mm (0.3 inch)

Printable area

7.5 mm (0.3 inch)

7.5 mm (0.3 inch)

Chapter 3

Using Your Printer
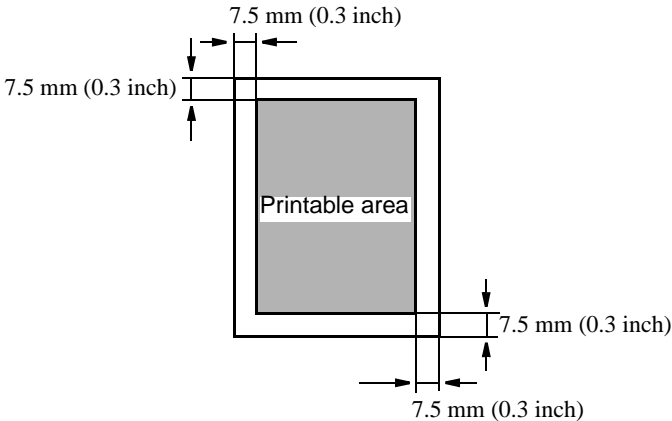
Printing Orientation

For all paper sizes, the printer prints on the paper face up from any tray.

Paper loaded crosswise:
(A4, JIS B5, Letter)

The direction of
paper loading
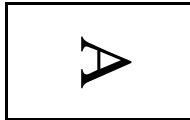
Printing at portrait
orientation

Printing at landscape
orientation

Paper loaded lengthwise:
(A3, Super B, B4, Ledger, Legal, Executive, Envelopes, Universal)

The direction of
the paper loading
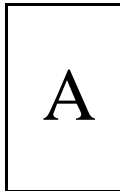
Printing at portrait
orientation
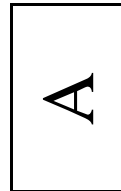
Printing at landscape
orientation

Printing on Envelopes

- Tray 1 only.
- The following lists the envelope sizes you can specify from the control panel or printer driver.

ISO B5	(176mm x 250mm)
COM10 (Commercial-10)	(4.125" x 9.5")
C5	(162mm x 229mm)
DL	(110mm x 220mm)
Monarch	(3.875" x 7.5")

- Select the envelope size you want to print in the tray1 paper size setting mode.
  See "Tray 1 Paper Size Setting Method" page 3-2.
- Load envelopes face up.
- The top edge of the envelopes should be loaded facing the left paper guide plate.
- Specify envelope as the media type from the control panel.
  See "Understanding the Printer Menus" page 3-11.
- Do not specify duplex printing.

Note the following points whenever printing on envelopes.

- Make sure that all edges are created sharply and that all flaps are folded correctly.
- Do not use envelopes that are self-adhesive. Use only envelopes that have standard adhesive that sticks after it is moistened.
- Use envelopes whose flaps run the entire length of the envelope. Envelopes that seal at on end will not feed properly.
- Do not use envelopes that have a window. Such envelopes can seriously damage the printer.
- Do not use envelopes that are wrinkled.
- Never use envelopes that have clasps or any other type of fastener that can damage the printer.
- Do not store envelopes in an area that is subject to high humidity.

Chapter 3

Using Your Printer

Printing on Labels

- Tray 1 only.
- Load labels face up.
- Use only labels designed for laser printers or plain paper copiers.
- Do not specify duplex printing.

Printing on Thick Paper

- Tray 1 only.
- Load thick paper face up.
- Do not specify duplex printing.

Printing on Transparencies

Be careful when you handle transparencies. Fingerprints on the surface of the transparency can cause poor print quality.

- Tray 1 only.
- Use only transparencies designed for laser printers or plain paper copiers.
- Load transparencies face up.
- Specify transparency as the media type from the control panel. See "Understanding the Printer Menus" page 3-12.
- Do not specify duplex printing.

Printing on Custom Paper

If you cannot specify the custom paper size with your software application, you cannot print on the custom paper.

- Tray 1 only.
- Load custom paper face up.
- Do not specify "LONG-EDGE BIND" in the duplex mode.

Duplex Printing

Enables printing on both sides of the paper only when the printer is equipped with the duplex unit.

If you attempt duplex printing, you can choose either Bind Long Edge or Bind Short Edge.

(1) Bind Long Edge

A | A

Portrait

A
A
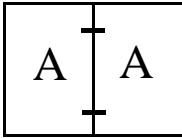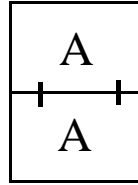
Landscape

(2) Bind Short Edge

A
A

Portrait

A | A
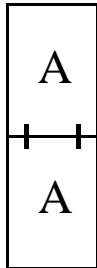
Landscape

NOTE

To attempt duplex printing, you may need to add more memory (an additional 8MB recommended).

The supported paper types and sizes for duplex printing are as follows.

Paper Type

- Plain paper: 60 to 90 g/m^2 (16 to 24 lb)
- Recycled paper: 60 to 90 g/m^2 (16 to 24 lb)

NOTE

Do not use **special paper** (**transparencies**, **labels**, **envelopes**, **letterhead** and **thick paper**) for duplex printing.

Paper Size

A3, Super B, A4, B4, JIS B5, Letter, Legal, Ledger, Executive, Custom*.

*Do not perform duplex printing for a custom size smaller than A5 size.

NOTES

- When printing for Super B size, you may need to add more memory.
- You cannot combine duplex printing for a **custom size** with **LONG-EDGE BIND**.

Remember the following when you attempt duplex printing.

- The same size page is printed on the front and back of the paper.
- Always specify "PLAIN PAPER" for the media type setting.
  See "Understanding the Printer Menus" page 3-12.
- The first page is printed out on the paper face down.

Loading Paper in Tray 1
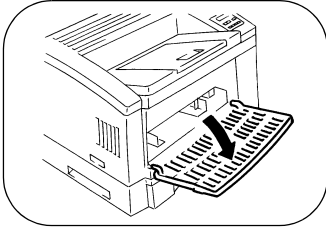
1. Open tray 1.
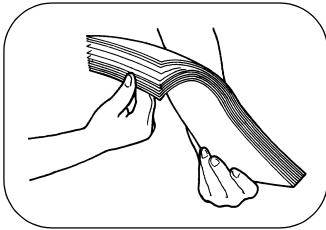
2. Fan the paper thoroughly and align the edges.
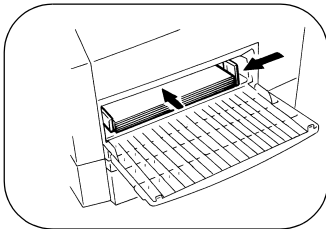
3. Adjust the paper guide plates to fit the paper size and load paper face up in the tray.

   Load A4, JIS B5 and LTR with the long edge toward the back of the tray.
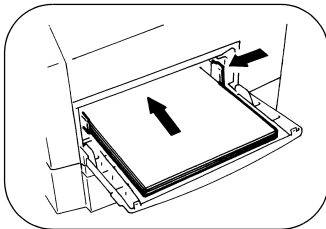
Load A3, A3+, B4, LGL, LGR, EXEC, envelopes and Custom with the short edge toward the back of the tray.

NOTE

Do not stack paper higher than the ▼ mark.

4. Specify the tray 1 paper size.

─See "Tray 1 Paper Size Setting
   Method" page 3-2.

5. Specify the tray 1 media type.

─See "System Menu" page 3-12.
─See "Basic Menu Setting
   Method" page 3-1.

Loading Paper in Tray 2
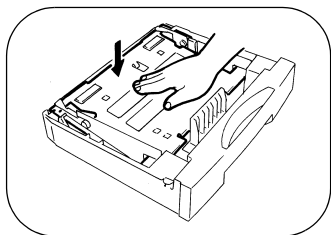
1. When the paper tray is in the printer, pull it out and remove it.

2. Press down the paper lifting plate until it locks.
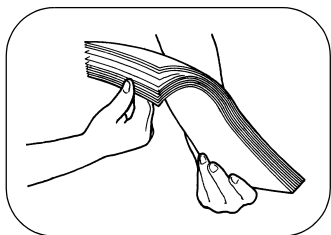
3. Fan the paper thoroughly and align the edges.
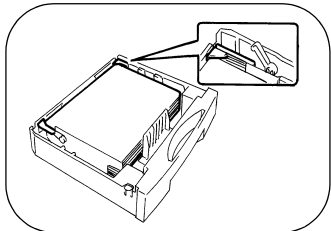
4. Load paper face up, placing it under the two clips in the tray.

   Letter size only.
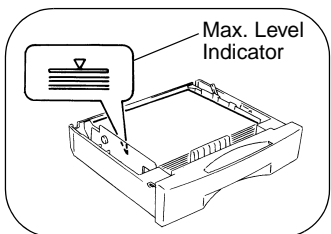
Max. Level Indicator

NOTES

Do not load paper beyond the Max. Level Indicator.

Do not add more paper until all sheets have been used up.
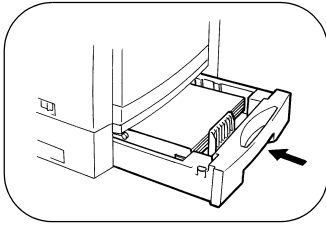
5. Slide the tray securely into position.

6. Specify the tray 2 media type.

—See "System Menu" page 3-12.

—See "Basic Menu Setting Method" page 3-1.

USEFUL TIP

Tray 2 and tray 3 can be used interchangeably.
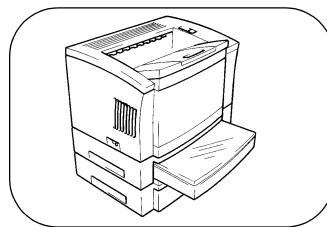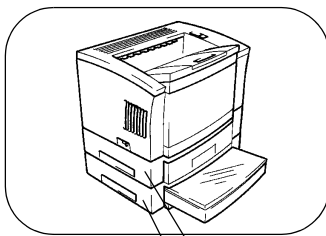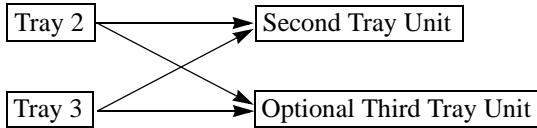
Second Tray Unit

Optional Third Tray Unit

Chapter 3

Using Your Printer

Loading Paper in Tray 3
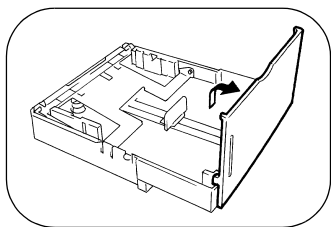
1. When the paper tray is in the tray unit, pull it out and remove it.

2. Open the paper cover.
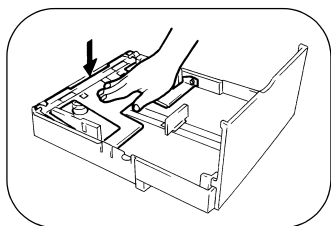
3. Press down the paper lifting plate until it locks.
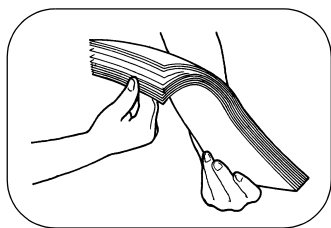
4. Fan the paper thoroughly and align the edges.
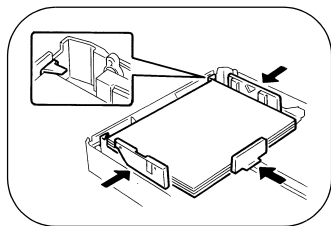
5. Load paper face up, placing it under the two clips in the tray.

   Adjust the paper guide plates to fit the paper size.

   Load A4, JIS B5 and LTR with the long edge toward the back of the tray.
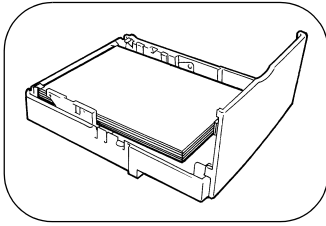
Load A3, B4, LGL, LGR and EXEC with the short edge toward the back of the tray.
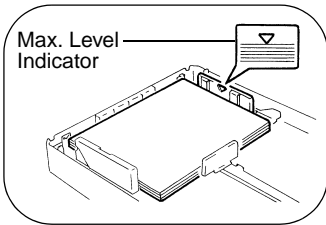
Max. Level Indicator

NOTES

Do not load paper beyond the Max. Level Indicator.

Do not add more paper until all sheets have been used up.
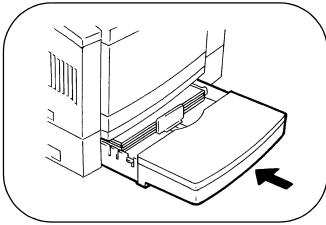
6. Close the paper cover.

Slide the tray securely into position.

7. Specify the tray 3 media type.

— See "System Menu" page 3-12.

— See "Basic Menu Setting Method" page 3-1.

USEFUL TIP

Tray 2 and tray 3 can be used interchangeably.

See page 3-32.

Automatic Tray Setting

If you select AUTOMATIC or Auto for the paper source from the control panel or printer driver, the printer will automatically search all paper trays for the required paper size. At this time, the paper source is selected in the priority order of tray 2, tray 3 and tray 1. For more information, see the Printer Driver User's Manual.

If the tray currently selected for use runs out of paper and there is another tray loaded with paper of the same size, the printer automatically selects that tray to permit an uninterrupted print cycle. However, a tray that is designated for special paper is excluded from automatic tray switching.

1. Press the **On Line** key to take the printer off-line.
2. Press the **Menu** key as many times as necessary to select the print menu.
3. Press the **Item** key as many times as necessary to select the paper source.
4. Press the **Select** key to select AUTOMATIC.
5. Press the **On Line** key to return the printer on-line.

USEFUL TIPS

This feature is a great advantage when you need to make a large number of prints on the same size paper. For example, you can make up to 1,150 prints without interruption by using tray 1, tray 2 and optional tray 3.

NOTE

If you specify JOB SEPARATION or UNIVERSAL, tray 1 will not be selected in the automatic paper source mode.

Using Manual Feed

Using manual feed is useful when you temporarily want to print on paper that is not loaded in any tray. The manual feed feature allows you to print on custom sizes of paper, envelopes, labels and transparencies.

1. Select Manual Feed as the paper source from the control panel or printer driver.

   See "Understanding the Printer Menus" page 3-7.

   See the Printer Driver User's Manual.

2. Send a print command from your computer. The control panel displays Manual Feed and the specified paper size. The printer goes off-line.

3. Remove any paper remaining in tray 1.

4. Adjust the paper guides to fit the specified paper size and load paper in tray 1.

   See "Loading Paper in Tray 1" page 3-29.

5. Press the **On Line** key to start printing.

6. If the print data is multi page, the printer makes multiple prints.

7. Reload the paper which was loaded previously in tray 1 after printing is completed.

Special Paper Tray Setting

When you load special paper in the tray, it can be specified as the special paper tray so that the other users will not use the special paper by mistake.

1. Press the **On Line** key to take the printer off-line.
2. Press the **Menu** key as many times as necessary to select the System menu.
3. Press the **Item** key as many times as necessary to select SPECIAL PAPER.
4. Press the **Select** key to select the tray you are loading special paper in.
5. Press the **Enter** key to save your selection.
   An asterisk (*) appears at the right of the setting.
6. Press the **On Line** key to return the printer on-line.

The tray selected for the special paper mode will not be selected in the automatic paper source mode.

NOTE

Tray 1 and tray 3 can be specified as the special paper tray.

Chapter 3

Using Your Printer

4. Printing

There are three sources to print from: tray 1, tray 2 and tray 3. Select the printing source according to your needs.
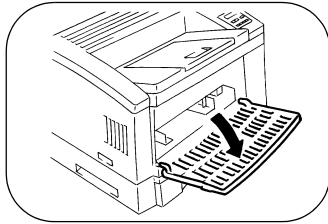
1. Open tray 1.
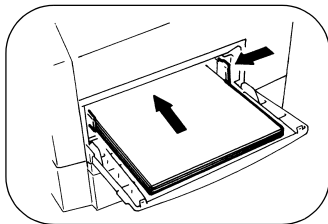
2. Load paper in tray 1, tray 2 or tray 3.

→See "Loading Paper in Tray 1" page 3-29.

→See "Loading Paper in Tray 2" page 3-31.

→See "Loading Paper in Tray 3" page 3-33.

NOTE

If special paper is loaded, the printer is unable to make multiple prints.
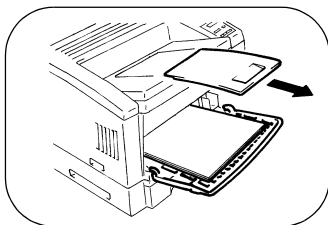
3. Pull out the paper exit tray if the loaded paper is larger than B4 size.
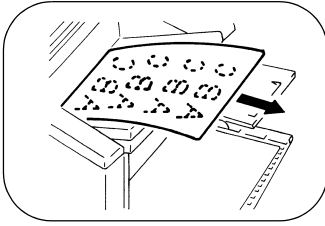
4. Send a print command from the computer.

The printed paper is fed out face down on the paper exit tray.

NOTES

The paper exit tray can hold a maximum of 500 sheets of paper. Use care not to exceed this limit when making multiple prints.

Chapter 3

Using Your Printer

5. Understanding Fonts

Font

A font is a specific group of characters that have common style and size characteristics. Your printer can store a variety of different fonts in its memory for printing. Since these fonts reside in printer memory, they are called *resident fonts*.

The PageWorks 20 uses two types of resident fonts: *scalable fonts* and *bitmap fonts*. Appendix B of this User's Manual contains a table that shows samples of all the available resident fonts.

In addition to resident fonts, you can also download non-resident soft fonts for printing.

Scalable Fonts

Scalable fonts (also called *outline font*) can be enlarged or reduced (scaled) to suit your printing needs. There are few limitations on the sizes that you can specify for scalable fonts.

Bitmap Fonts

A bitmap font is stored in printer memory as a set of characters and symbols with a specific size and unique design. Each bit of the font is precisely mapped, so this type of font cannot be scaled to different sizes.

The PageWorks 20 maintains 10 TrueType fonts and 35 Intellifont typefaces in memory.

Minolta Font Manager

The Minolta Font Manager has screen fonts for Windows 3.1x and Windows 95, and contains 96 True Type fonts. They can all be displayed and printed as scalable fonts.

Chapter 4

Maintaining Your Printer

Maintaining Your Printer

1. Supplies for Maintenance

The following table lists the approximate replacement interval for each supplies.

Supply	Page Count *	Replacement by
Imaging Cartridge	10,000 pages	User

* Approximate A4-size page count based on 5% coverage of toner.

Supply	Problem	Replacement by
Fusing Unit	Paper misfeeds most often in the fusing section	Tech Rep
Image Transfer Unit	Poor print quality	Tech Rep
Paper Take-up Roller	Paper is not fed	Tech Rep

If the above problems occur after showing the **MAINTENANCE REQ** message, it is time to replace the supplies. Please contact your Technical Representative.

 CAUTION

For proper printer operation, use only Minolta supplies.

2. Replacing the Imaging Cartridge

The imaging cartridge contains the print drum and a supply of toner. If you print typical business A4 size page with 5% coverage of toner, the imaging cartridge lasts approximately 10,000 pages. However, the life of the imaging cartridge varies with the density of toner for your pages.

If the **TONER IS LOW** message appears on the control panel, the toner level in the imaging cartridge is getting low and print quality will degrade. You need to get ready to replace the imaging cartridge. To use as much of the remaining toner as possible, remove the imaging cartridge, shake it 2 or 3 times and reinstall it in the printer. If print quality is not satisfactory, you should replace the imaging cartridge with a new one according to the following procedure.

If the **TONER EMPTY** message appears on the control panel, the toner in the imaging cartridge has run out. You must replace the imaging cartridge with a new one immediately.
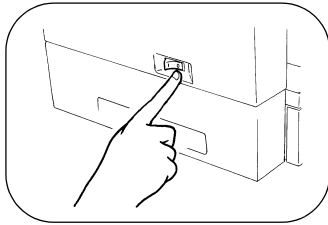
1. Turn the printer off and then disconnect the power cord and interface cable from the printer.
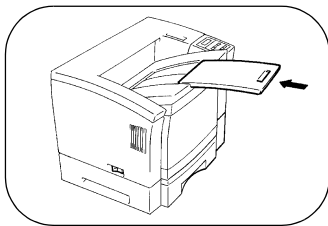
2. If you have pulled out the paper exit tray, push it into the printer before opening the upper cover.
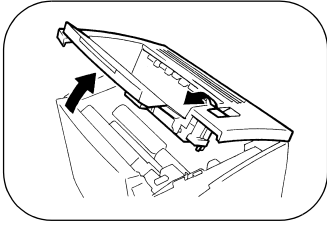
3. Pressing the upper cover lock release button, open the upper cover.
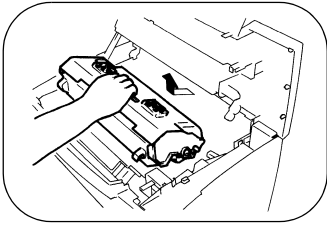
4. Remove the old imaging cartridge from the printer.
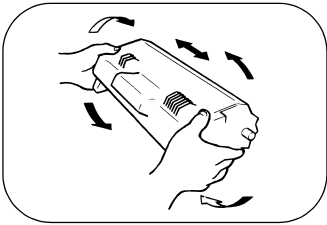
5. Take a new imaging cartridge out of the box.

   Holding it with both hands, shake it well in the direction of the arrows.
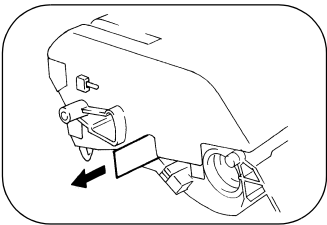
6. Pull the tab outward slowly until the sealing tape is completely removed.

Chapter 4

Maintaining Your Printer
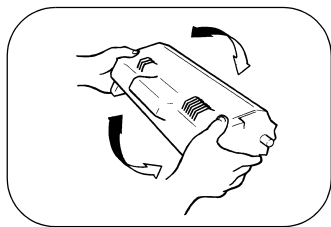
7. Shake the imaging cartridge 4 or 5 times in the direction of the arrows to distribute the toner evenly.
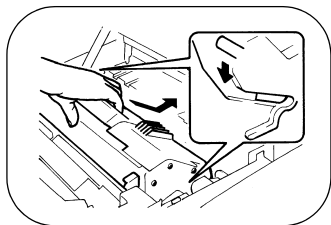
8. Install the imaging cartridge securely into the printer by sliding the pins on each side of the cartridge along the grooves of the cartridge guide.
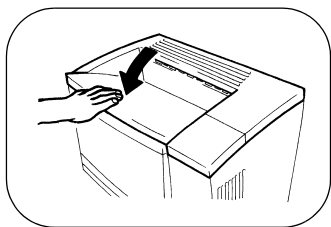
9. Close the upper cover.

Accumulated dust and lint on the inside and outside of the printer impairs printer performance and print quality. Clean the printer at regular intervals.

NOTE

Before starting the cleaning procedure, be sure to turn the power switch off and unplug the power cord.
Use only a soft cloth. Do not use abrasives and corrosive detergent.

CAUTION

The fusing section has become quite hot during operation. Do not touch the area as it may cause a burn.

Fusing Section
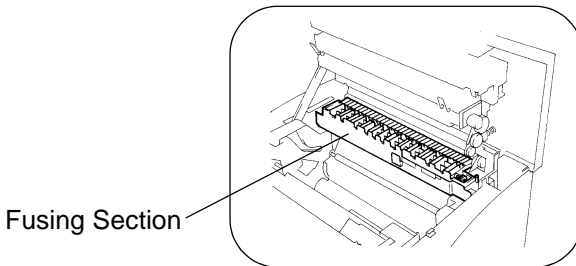
External Cleaning
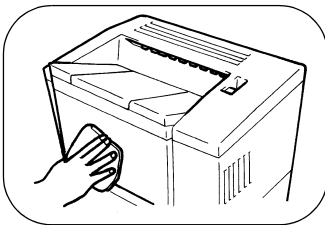
Wipe off dirt and stains around the printer with a soft cloth dampened with a mild detergent.

Internal Cleaning
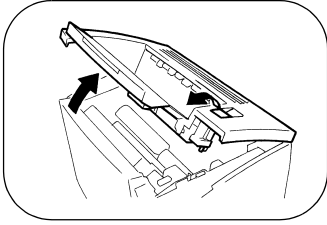
1. Open the upper cover.
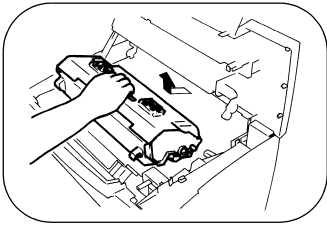
2. Remove the imaging cartridge.

NOTE

Whenever you remove the imaging cartridge from the printer, immediately cover it with a cloth to prevent light from striking it.
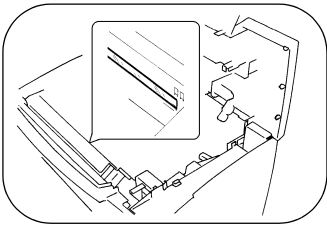
3. Clean the window glass of the print head unit using a dry soft cloth.
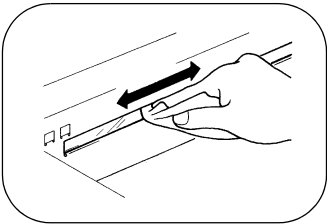
Chapter 5

Solving Printer Problems

Chapter 5

Solving Printer Problems

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

CAUTION

The fusing section has become quite hot during operation. Do not touch the area as it may cause a burn.

Fusing Unit
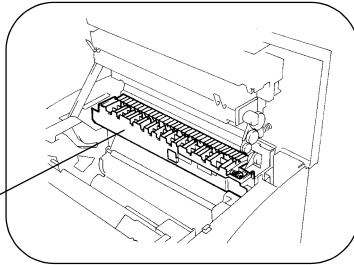
Paper Misfeed in Tray 1
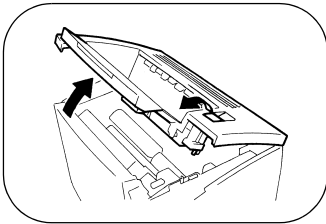
1. Pressing the upper cover lock release button, open the upper cover.

NOTE

If you have pulled out the paper exit tray, push it into the printer before opening the upper cover.
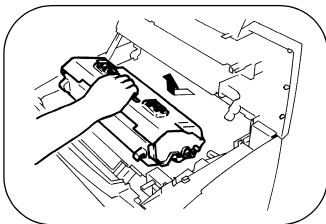
2. Remove the imaging cartridge.

NOTE

Whenever you remove the imaging cartridge from the printer, immediately cover it with a cloth to prevent light from striking it.
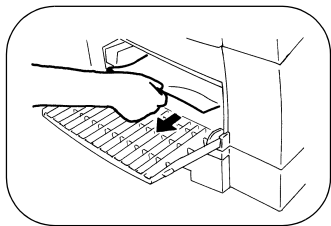
3. Pull out the misfed paper in tray 1.
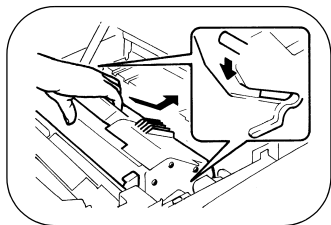
4. Check that no misfed paper
   remains in the printer.
   Reinstall the imaging cartridge.
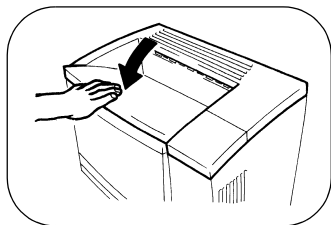
5. Close the upper cover.

Paper Misfeed in Tray 2 or Tray 3
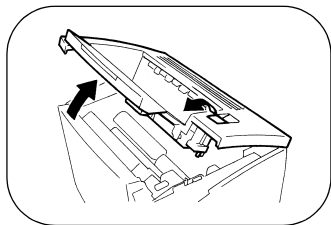
1. Pressing the upper cover lock release button, open the upper cover.

   NOTE

   > If you have pulled out the paper exit tray, push it into the printer before opening the upper cover.
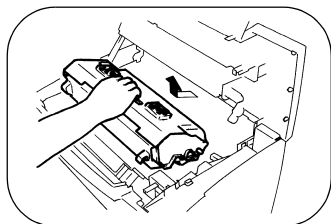
2. Remove the imaging cartridge.

   NOTE

   > Whenever you remove the imaging cartridge from the printer, immediately cover it with a cloth to prevent light from striking it.
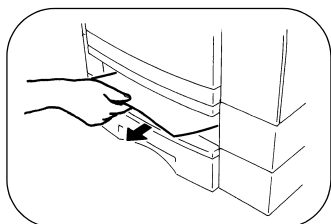
3. Pull out tray 2 or tray 3, and remove the misfed paper.
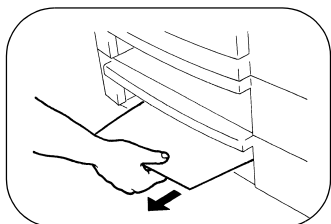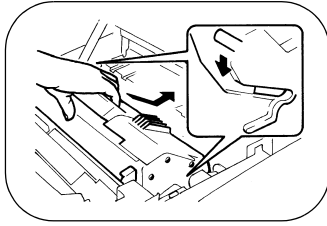
Chapter 5

Solving Printer Problems

4. Check that no misfed paper
   remains in the printer.

   Reinstall the imaging cartridge.
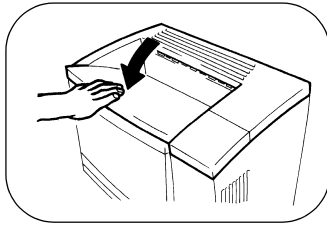
5. Close the upper cover.

Paper Misfeed Inside the Printer
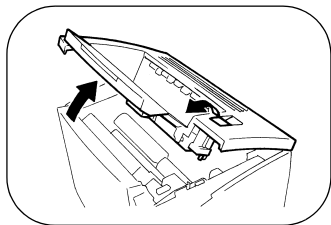
1. Pressing the upper cover lock release button, open the upper cover.

   NOTE

   > If you have pulled out the paper exit tray, push it into the printer before opening the upper cover.
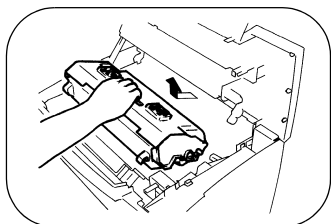
2. Remove the imaging cartridge.

   NOTE

   > Whenever you remove the imaging cartridge from the printer, immediately cover it with a cloth to prevent light from striking it.
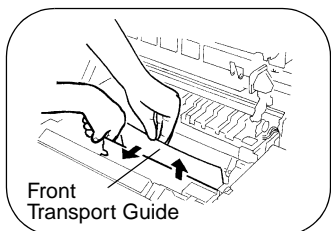
3. When the paper is not being fed as far as the fusing unit, pull the misfed paper upward and out after opening the front transport guide.

   Front Transport Guide
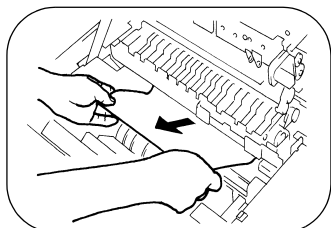
4. When the paper is being fed into the fusing unit, pull the misfed paper toward you and out.

Chapter 5

Solving Printer Problems
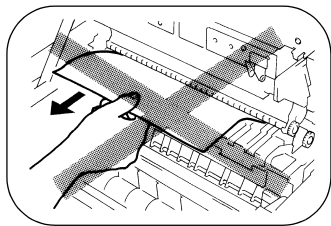
NOTES

The image which was transferred to the paper is not fixed.Be careful or your hands will become dirty.

Do not pull out the paper in the direction (the exit side of the fusing unit) of the arrow.
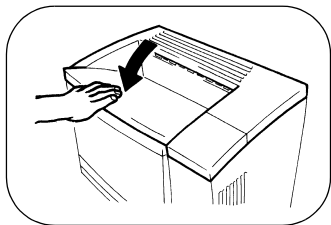
5. Reinstall the imaging cartridge and close the upper cover.

Paper Misfeed in the Duplex Unit
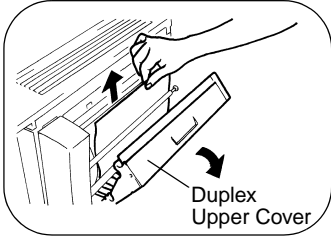
1. Open the duplex upper cover and pull out the misfed paper.

Duplex Upper Cover
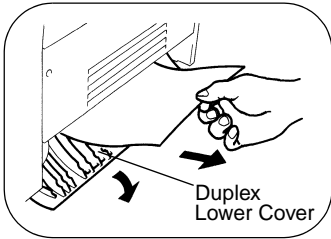
2. Open the duplex lower cover and remove the misfed paper.

Duplex Lower Cover

Chapter 5

Solving Printer Problems
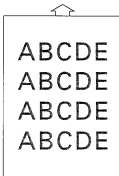
2. Printing Problems

The following provides information on most printing problems you might encounter. If the advice provided here does not solve your problem, contact your Technical Representative.
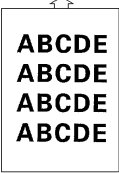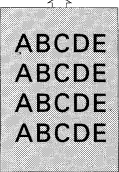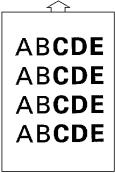
Symptom	Cause	Action
No Printing	The printer is off-line.	Press the On Line key to take the printer on-line.
	The interface cable is not securely connected to the printer and computer or defective.	Reconnect the inter-face cable or replace the interface cable.
	You are not using the printer driver for Page-Works 20.	Change the default printer setting to the PageWorks 20.
	The printer port set-ting is incorrect.	Change the setting.
	There is no paper in the specified paper source.	Load paper in the spec-ified paper source.
	There is a paper mis-feed.	Remove the misfed paper. See page 5-1, 5-3, 5-5 or 5-7.
	You are selecting Man-ual Feed.	Load the selected paper size in the multipur-pose tray and press the On Line key to print.
	The printer may need service.	Contact your technical representative.
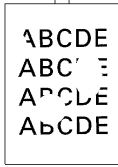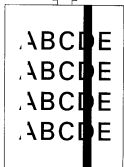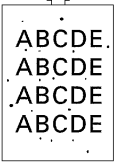
3. Print Quality Problems

The following provides information on most print quality problems you might encounter. If the advice provided here does not solve your problem, contact your Technical Representative.

Symptom	Cause	Action
Blank pages	The toner sealing tape has not been pulled out.	Remove the imaging cartridge and pull out the toner sealing tape.
	The imaging cartridge may be defective.	Replace the imaging cartridge if necessary.
Black pages	The imaging cartridge may be defective.	Replace the imaging cartridge if necessary.
Print out too light	The toner density setting made with the Device Option dialog box may be too light.	Change the setting.
	The imaging cartridge may be running out of toner.	Remove the imaging cartridge and shake it several times. Replace the imaging cartridge if necessary.

Symptom	Cause	Action
Print out too dark **ABCDE** **ABCDE** **ABCDE** **ABCDE**	The toner density setting made with the Device Option dialog box may be too dark.	Change the setting.
	The imaging cartridge may be defective.	Replace the imaging cartridge if necessary.
Blurred background ABCDE ABCDE ABCDE ABCDE	The imaging cartridge may be defective.	Replace the imaging cartridge if necessary.
Uneven print density AB**CDE** AB**CDE** AB**CDE** AB**CDE**	The toner may be unevenly distributed inside the imaging cartridge.	Remove the imaging cartridge and shake it several times.
	The imaging cartridge may be defective.	Replace the imaging cartridge if necessary.

Symptom	Cause	Action
Irregularities ABCDE ABC E ArCLE AьCDE	The paper may have absorbed some moisture due to high humidity.	Replace the paper you are using with dry paper.
White or black lines ABCDE ABCDE ABCDE ABCDE	The imaging cartridge may be defective.	Replace the imaging cartridge if necessary.
Toner smudges ABCDE ABCDE ABCDE ABCDE	The paper you are using is improper.	Use only supported sizes or weights of paper.
	The imaging cartridge may be defective.	Replace the imaging cartridge if necessary.

Chapter 5

Solving Printer Problems

4. Understanding Printer Messages

If a message appears on the control panel, refer to the following sections for the description of each message and the action to take.

(1) Status messages

Display the current printer status.

(2) Warning messages

Display a warning message.

(3) Caution messages

The message LED blinks and a caution message is displayed. Requests you to perform a necessary task before resuming printing.

(4) Operator call messages

The message LED blinks and an operator call message is displayed. The printer goes off-line and request you to perform a necessary task before resuming printing.

(5) Service call messages

The message LED lights up and a service call message is displayed. If the message appears repeatedly, you need to call your Technical Representative.

(1) Status Messages

MESSAGE	DESCRIPTION
READY (emulation)	The printer is ready to print.
OFFLINE	The printer is off-line.
PROCESSING (emulation) (user name)	The printer is processing data.
PRINTING (emulation) (user name)	The printer is printing.
RESET	The printer is resetting. Returns the printer on-line automatically after resetting.
TRAY1 PAPER SIZE (paper)	The printer is in the tray 1 paper size setting mode.
PRINT MENU (ex. one of the printer menus)	The printer is in the print menu mode.
CONFIG PRINT (ex. one of the test prints)	The printer is printing a config print.
POWER SAVE	The printer is in a reduced energy consumption mode. If receiving data, starts processing data after warming up. The power save mode is also can-celed by pressing any key, removing and reinstalling the tray, or opening and closing the cover.
WARMING UP	The printer is warming up.
SELF TEST	An initialization and diagnostic are being executed.

emulation: the selected printer language.

user name: the user name (up to 8 characters). For details, see "Printer Driver User's Manual".

paper: the current paper size setting.

Chapter 5

Solving Printer Problems

The following table lists the warning messages which are displayed in the second line on the control panel when the printer is READY or OFFLINE.

MESSAGE	DESCRIPTION & ACTION
MAINTENANCE REQ	The printer is approaching the maintenance interval. You can clear this message by changing the service message setting to OFF. See "Maintaining Your Printer" page 4-1.
TRAY2 IS EMPTY	No paper in tray 2. Load paper in tray 2.
TRAY3 IS EMPTY	No paper in tray 3. Load paper in tray 3.
TONER IS LOW	The imaging cartridge is low on toner. See "Maintaining Your Printer" page 4-2.
TONER EMPTY	The imaging cartridge is out of toner. Replace the imaging cartridge. See "Maintaining Your Printer" page 4-2.
JOB SEPARATION	This is displayed if you select job separation in the tray 1 paper size setting mode.

(2) Warning Messages

If one of the following warning messages appears, the printer continues printing without stopping. By pressing any key after completing printing, the printer returns to the ready condition. When receiving the next job, the message is automatically cleared.

MESSAGE	DESCRIPTION
IMAGE ADAPT (user name)	The printer performed compression of an image data.

user name: the user name (up to 8 characters). For details, see "Printer Driver User's Manual".

If the Image Adapt message appears, the following action is required according to your needs.

IMAGE ADAPT:

When printing too complex bitmap data, the printer automatically performs compression of the image data before a memory overflow occurs. Therefore, some of the image data may deteriorate. To correct this printing problem, you need to add more memory.

Chapter 5

Solving Printer Problems

(3) Caution Messages

If Auto Continue is ON, the printer returns on-line automatically after waiting for the time specified and then resumes processing, but some data may be lost.

If Auto Continue is OFF, the printer returns on-line after you press the Proceed key and then resumes processing, but some data may be lost.

MESSAGE	DESCRIPTION
MEMORY OVERFLOW (user name)	The printer received more data from the computer than it can fit into its internal memory.
JOB TOO COMPLEX (user name)	The data sent cannot be processed because it is too complex.

user name: the user name (up to 8 characters). For details, see "Printer Driver User's Manual".

If one of these messages appears, the following action is required.

MEMORY OVERFLOW:

You may need to add more memory. By printing at 300 dpi, print quality deteriorates but the memory overflow problem is reduced.

JOB TOO COMPLEX:

If the JOB TOO COMPLEX error occurs, some print data may be lost. In this case, set Page Protection to ON. Printing speed may be slowed but the Job Too Complex problem is reduced. If it happens again, you need to add more memory or reduce the print data.

Chapter 5

Solving Printer Problems

(4) Operator Call Messages

MESSAGE	DESCRIPTION AND ACTION
MANUAL FEED (paper) (user name)	Load the specified paper in tray 1. Press the On Line key to print.
LOAD (paper) (user name)	Load the specified paper into any tray.
LOAD (tray xx) (paper) (user name) *Printing	The correct paper has not been loaded in tray xx. Load the specified paper in tray xx. If tray xx is tray 1, you need to make the paper size setting changes in the tray 1 paper size setting mode according to your needs, after loading the specified paper. See page 3-2.
LOAD (tray xx) (paper) *Stand-by	There is no specified paper in the tray (tray xx) you specified from the control panel. Load the specified paper in tray xx or make the paper size and paper tray setting changes in the print menu at the control panel. See page 3-1 and 3-7.
LOAD TRAY 2 NO TRAY	Install tray 2 or make the paper tray setting changes in the print menu.
LOAD TRAY 3 NO TRAY	Install tray 3 or make the paper tray setting changes in the print menu.
OUT OF PAPER ALL TRAYS	There is no paper in all trays. Load paper into any tray.
COVER OPEN	The upper cover is open. Close the upper cover.
DUPLEX OPEN	The duplex upper or lower cover is open. Close the duplex cover.

Chapter 5

Solving Printer Problems

MESSAGE	DESCRIPTION AND ACTION
PAPER JAM1 INPUT (user name)	The printer has detected a paper misfeed in the input area. Remove the misfed paper and close the upper cover. See page 5-1 or 5-3.
PAPER JAM2 DRUM (user name)	The printer has detected a paper misfeed in the drum area. Remove the misfed paper and close the upper cover. See page 5-5.
PAPER JAM3 OUTPUT (user name)	The printer has detected a paper misfeed in the output area. Remove the misfed paper and close the upper cover. See page 5-5.
PAPER JAM4 DUPLEX (user name)	The printer has detected a paper misfeed in the duplex unit. Remove the misfed paper and close the duplex cover. See page 5-7.
PAPER SIZE ERROR (user name)	The printer performed printing with the wrong size paper or fed multiple sheets. Make sure the paper is loaded correctly in the paper source and then press the Proceed key, or open and close the upper cover.

tray: the specified tray.

paper: the current paper size setting.

user name: the user name (up to 8 characters). For details, see "Printer Driver User's Manual".

Chapter 5

Solving Printer Problems

(5) Service Call Messages

MESSAGE	DESCRIPTION AND ACTION
FATAL ERROR 1 ROM	ROM is faulty. Turn the printer off, then back on. If it happens again, call your Technical Representative.
FATAL ERROR 2 PS ROM	PS ROM is faulty. Remove the faulty PS ROM and try another one.
FATAL ERROR 3 RAM	RAM is faulty. Turn the printer off, then back on. If it happens again, call your Technical Representative.
FATAL ERROR 4 SIMM RAM (number)	SIMM RAM is faulty. number: SIMM slot number. Remove the faulty SIMM RAM and try another one.
FATAL ERROR 5 EEPROM	EEPROM is faulty. Turn the printer off, then back on. If it happens again, call your Technical Representative.
FATAL ERROR 6 HARD DISK	Hard disk is defective. Turn the printer off and call your Technical Representative.
FATAL ERROR 7 NETWORK BOARD	Network board is defective. Turn the printer off and call your Technical Representative.
FATAL ERROR 8 INTERFACE (number)	A communication error occurred at the interface. number: 1: engine. 　　　　2: network Turn the printer off, then back on. If it happens again, call your Technical Representative.
FATAL ERROR 21 FUSER	A fuser error. Turn the printer off and call your Technical Representative.

MESSAGE	DESCRIPTION AND ACTION
FATAL ERROR 22 HSYNC	A laser diode error. Turn the printer off and call your Technical Representative.
FATAL ERROR 23 POLYGON	A polygon motor error. Turn the printer off and call your Technical Representative.
FATAL ERROR 24 MOTOR	A main motor error. Turn the printer off and call your Technical Representative
FATAL ERROR 25 FAN	A fan motor error. Turn the printer off and call your Technical Representative.

Chapter 5

Solving Printer Problems

Chapter 6

Installing Options

Chapter 6

Installing Options

1. Installing the Third Tray Unit

- Take the tray unit out of the shipping box.
- Remove the plastic bag and all shipping materials.
- Turn the printer off and then disconnect the power cord and interface cable from the printer.
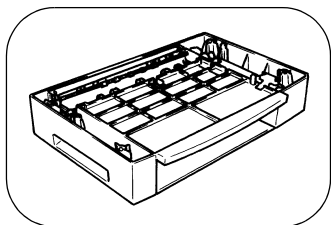
1. Place the tray unit in the location you have chosen.

   Pull out the paper tray beforehand.
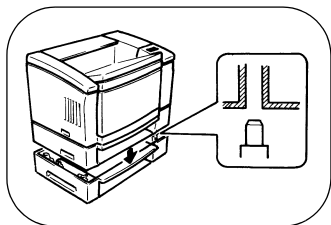
2. Set the printer onto the third tray unit using the coupling pins as a guide.

   NOTE

   Since the printer weighs approximately 55.1 lbs (25 kg), two people are required to lift it.
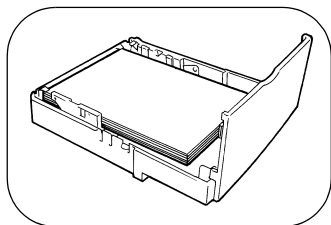
3. Load paper you want to print.

   → See "Loading Paper in Tray 3" page 3-33.
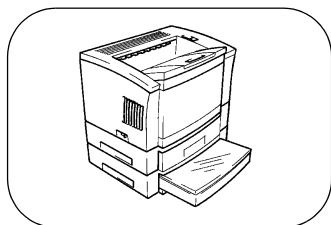
4. Slide the paper tray into the tray unit.

5. Connect the power cord to the printer and then turn the printer on.

6. Print a config print and verify the Third Tray Unit setting in the Installed Options.

Installed Options

Third Tray Unit	= Installed
Duplex Unit	= Not Installed
Network Card	= Not Installed
PostScript ROM	= Not Installed
Hard Disk	= Not Installed
Add SIMM Memory (MB)	= 0

Chapter 6

Installing Options

2. Installing the Duplex Unit

When you want to print on both sides of the paper, the duplex unit is necessary.

NOTE

You may need to add more memory (an additional 8MB recommended) to print on both sides of the paper.

- Take the duplex unit out of the shipping box.
- Remove the plastic bag and all shipping materials.
- Turn the printer off and then disconnect the power cord and interface cable from the printer.
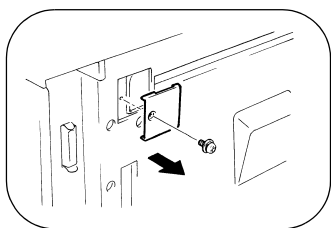
1. Remove the cover on the backside of the printer.

   (Use a plus screwdriver.)
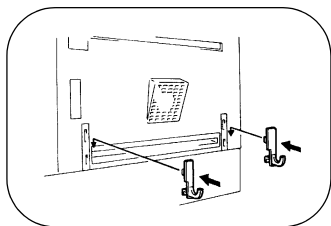
2. Attach the two duplex brackets (included with the duplex unit) to the backside of the printer in the holes provided for them.

   Press down on them until you hear a click.
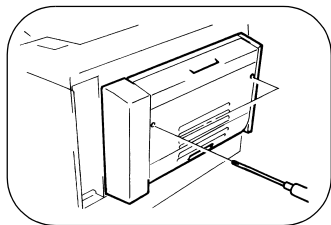
3. Hook the duplex unit onto the brackets and engage the connector and gear.

   Secure it to the printer with two screws.

   (Use a plus screwdriver.)

   ### NOTE

   Hold up the duplex unit with your hand until you secure it with the screws.

Installing Options

4. Connect the power cord to the printer and then turn the printer on.

→See "Connecting the power Cord" page 2-9.

→See "Turning the Printer ON and OFF" page 2-10.

5. Print a config print and verify the Duplex Unit setting in the Installed Options.

→See "Test Print" page 3-19.

Installed Options

Third Tray Unit	= Not Installed
Duplex Unit	= Installed
Network Card	= Not Installed
PostScript ROM	= Not Installed
Hard Disk	= Not Installed
Add SIMM Memory (MB)	= 0

Installing the network card enables you to connect the printer to a local area network (LAN) using an Ethernet network.

WARNING

> The network card is easily damaged by static electricity. Touch something metal before you touch the network card.

- Take the network card out of the shipping box.
- Turn the printer off and then disconnect the power cord and interface cable from the printer.
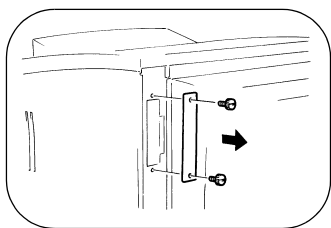
1. Loosen the two thumbscrews to remove the network cover on the backside of the printer.
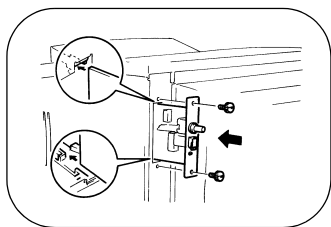
2. Insert the network card into the opening at the back of the printer. The rails on the inside of the opening guide the network card to the connector at the back of the opening.

   Make sure it is seated firmly.

   Tighten the two thumbscrews to secure the network card in the printer.

   ### NOTE

   > When transporting the printer, the removed cover and screws are needed. Keep them safe.

Chapter 6

Installing Options

3. Connect the power cord to the printer and then turn the printer on.

4. Print a config print and verify the Network Card setting in the Installed Options.

Installed Options

Third Tray Unit	= Not Installed
Duplex Unit	= Not Installed
Network Card	= Installed
PostScript ROM	= Not Installed
Hard Disk	= Not Installed
Add SIMM Memory (MB)	= 0

Chapter 6

Installing Options

4. Installing the Adobe PostScript ROM-DIMM and Hard Disk

This printer provides a socket for the installation of an Adobe Post-Script ROM-DIMM. When installing the ROM-DIMM, the printer can function as a PostScript printer. The Hard Disk that is installed with the Adobe PostScript ROM-DIMM is used for downloading available PostScript fonts.

WARNING

The Adobe PostScript ROM-DIMM is easily damaged by static electricity. Touch something metal before you touch the ROM-DIMM.

- Take the Adobe PostScript ROM-DIMM and Hard Disk out of the shipping box.
- Turn the printer off and then disconnect the power cord and inter-face cable from the printer.
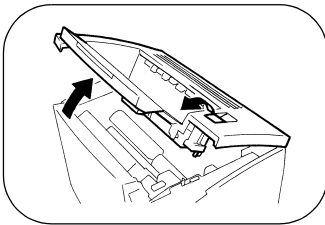
1. Pressing the upper cover lock release button, open the upper unit.

2. Loosen two screws to remove the right side cover.
(Use a plus screwdriver.)

3. Remove the right side cover.

4. Remove the four screws.
   (Use a plus screwdriver.)

5. Open the metal cover.
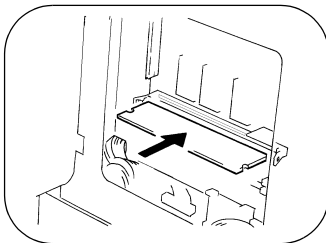
6. Insert the DIMM all the way into the DIMM socket at a 90 degree angle, and push the DIMM until it snaps into place.

7. Install the Hard Disk and tighten the four screws.
   (Use a plus screwdriver.)

8. Connect the Hard Disk cable to the Hard Disk connector on the controller board.

NOTE

The Hard Disk can be installed only when the Adobe PostScript ROM-DIMM is installed.

9. Close the metal cover and tighten the four screws.
   Attach the right side cover.

10. Close the upper cover.

11. Connect the power cord to the printer and then turn the printer on.

→See "Connecting the power Cord" page 2-9.

→See "Turning the Printer ON and OFF" page 2-10.

Chapter 6

Installing Options

12. Print a config print and verify the PostScript ROM and Hard Disk settings in the Installed Options.

Installed Options

Third Tray Unit	=	Not Installed
Duplex Unit	=	Not Installed
Network Card	=	Not Installed
PostScript ROM	=	Installed
Hard Disk	=	Installed
Add SIMM Memory (MB)	=	0

Chapter 6

Installing Options

5. Installing the SIMM

You can expand printer memory by adding single in-line memory (SIMM).

Your printer provides 4MB as standard memory and has two memory connectors into which you can install SIMMs to expand the total memory available up to the maximum 68MB. SIMMs with 4MB, 8MB, 16MB, or 32MB of memory are available from a computer shop.

WARNING

The SIMM is easily damaged by static electricity. Touch something metal before you touch the SIMM.

- Take the SIMM out of the shipping box.
- Turn the printer off, and then disconnect the power cord and interface cable from the printer.
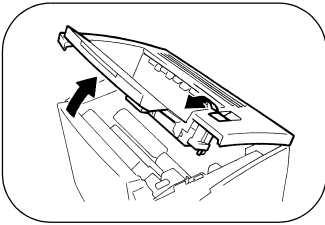
1. Pressing the upper cover lock release button, open the upper cover.
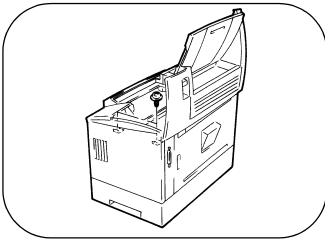
2. Loosen two screws to remove the right side cover.
   (Use a plus screwdriver.)
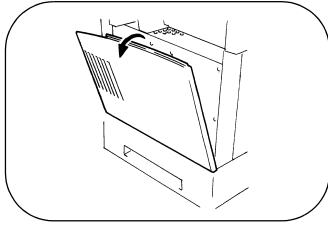
3. Remove the right side cover.
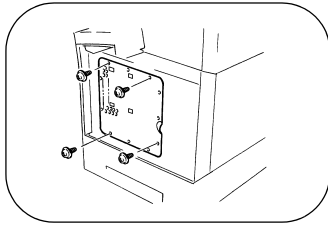
4. Remove the four screws.
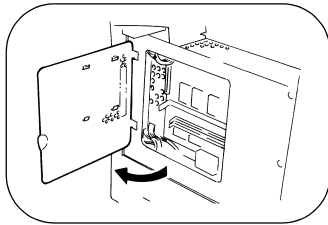
5. Open the metal cover.
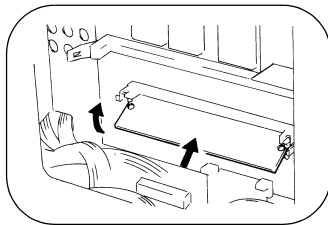
6. Insert the SIMM all the way into the upper memory connector at a 45 degree angle, and push the SIMM up until it snaps into place.

NOTES

When you install two SIMMs, the first one must be inserted into the upper memory connector (slot 1).

When you install two different memory size of SIMM, install the large size of SIMM into the upper memory connector (slot 1).

Chapter 6

Installing Options
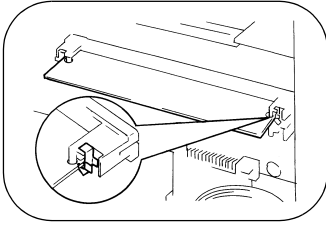
7. Make sure both metal clips on the connector are pushed through the holes on the SIMM.

8. If installing a second SIMM, repeat steps 6 to 7.
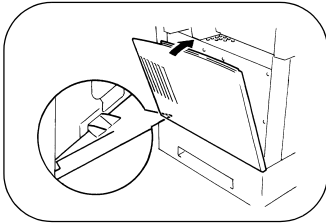
9. Close the metal cover and tighten the four screws.
   Attach the right side cover.
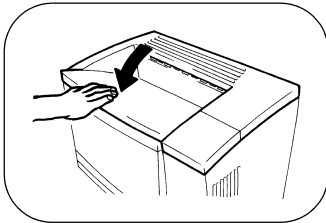
10. Close the upper cover.

11. Connect the power cord to the printer and then turn the printer on.

→ See "Connecting the power Cord" page 2-9.

→ See "Turning the Printer ON and OFF" page 2-10.

Chapter 6

Installing Options

12. Print a config print and check
the Add SIMM Memory in the
Installed Options.

Installed Options

Third Tray Unit	= Not Installed
Duplex Unit	= Not Installed
Network Card	= Not Installed
PostScript ROM	= Not Installed
Hard Disk	= Not Installed
Add SIMM Memory (MB)	= XX

Chapter 6

Installing Options

Chapter 7

Specifications

Specifications

Name	PageWorks 20
Type	Desktop laser beam printer
Printing system	Minolta Super Fine Micro-Toning™ system
Exposure system	Laser diode + Polygon mirror scanning
Resolution	600 dots per inch
Printing speed	First print One sided: within 16.0 sec. (A4C or LetterC) Double sided: within 26.0 sec. (A4C or LetterC) Multiple Print One sided: 20.0 pages/min (A4C or LetterC) Double sided: 12.5 pages/min (A4C or LetterC)
Paper feeding system	2-way system Tray 1 + Tray2 (3-way system: + Tray 3)
Paper type	Plain paper: 60 to 90 g/m^2 (16 to 24 lb) Recycled paper: 60 to 90 g/m^2 (16 to 24 lb) Special paper: transparencies, labels, envelopes, letterhead, thick paper: 91 to 157 g/m^2 (24 to 41 lb)
Paper size	A3, Super B, A4, B4, JIS B5, ISO B5, Letter, Legal, Ledger, Executive, C5, DL, Monarch, Commercial-10 Tray 1: - width 3.6 to 13.0 inches (92 to 330 mm) - length 5.5 to 19.0 inches (140 to 483 mm) Tray 2: Letter size only

Paper input	Tray 1:
	- Plain paper: Up to 150 sheets
	- Recycled paper: Up to 150 sheets
	- Special paper
	  Transparencies: Up to 5 sheets
	  Letter head, Labels, Envelopes, Thick paper:
	  Up to 10 sheets
	Tray 2:
	- Plain paper: Up to 500 sheets
	- Recycled paper: Up to 500 sheets

Paper exit system	Face down exit system
Paper output	500 prints maximum
Warm-up time	Within 70sec. during power supply at 73°F (23°C)
Acoustic noise	53dB (A) or less (operating) 38dB (A) or less (standby)
Operating environment	Temperature 50°F to 95°F (10°C to 35°C) with a fluctuation of 50°F (10°C) per hour. Humidity 15% RH to 85% RH with a fluctuation of 20% RH per hour.
Storage environment	Temperature 32°F to 95°F (0°C to 35°C) with a fluctuation of 50°F (10°C) per hour. Humidity 10% RH to 85% RH.
Power supply	120V, 50-60Hz Voltage fluctuation within +6%, -10% Frequency fluctuation within ±0.3Hz
Power consumption	750W maximum Standby (average): 200W or less Power save (average): 45W or less

Chapter 7

Specifications

Machine life	360,000 prints or 5 years
Imaging cartridge life	10,000 prints or more (black-to-white ratio of 5% or less)
Dimensions	21.5 (W) x 15.1 (D) x 15.9 (H) inches (545 x 383 x 403 mm)
Weight	Printer: approximately 55.1 lbs (25 kg) Imaging Cartridge: approximately 4.2 lbs (1.9 kg)
Interface	Parallel Interface Centronics (IEEE1284-typeB/Compatible, Nibble and ECP) Option: Ethernet (TCP/IP, IPX/SPX, EtherTalk), EIDE
Emulations	Standard: PCL5e (HP LaserJet 4V compatible) Option: Adobe PostScript Level2
CPU	NKK NR4645/100MHz
Fonts	1 bitmap font: Line Printer 35 scalable fonts: Intellifont 10 outline fonts: TrueType font Minolta Font Manager (96 scalable fonts)
Memory	Standard: ROM 1MB x 4 RAM 2MB x 2 (expandable up to 68MB) Option: ROM-DIMM (1 slot) RAM-SIMM (2 slots available) RAM capacity: 4, 8, 16, 32MB
Accessories	Imaging Cartridge, Letter Tray, Power Cord, User's Manual, Printer Driver User's Manual, Software Diskettes (4 pcs.)

Chapter 7

Specifications

Options	250-Sheet Universal Third Tray Unit
	500-Sheet Third Tray Unit (Letter)
	500-Sheet Third Tray Unit (A4)
	Paper Tray
	- Universal Tray
	- A4 Tray
	- Letter Tray
	Duplex Unit
	Network Card
	SIMM (4MB/8MB/16MB/32MB)
	Adobe Postscript Level 2 DIMM
	2.5" Hard Disk Unit

Chapter 7

Specifications

2. Third Tray Unit (optional)

Name	250-Sheet Universal Third Tray Unit
Paper feeding system	1-way system
Paper type	Plain paper: 60 to 90 g/m^2 (16 to 24 lb) Recycled paper: 60 to 90g/m^2 (16 to 24 lb)
Paper size	A3, A4, B4, JIS B5, Ledger, Legal, Letter, Executive
Capacity	Plain paper: Up to 250 sheets Recycled paper: Up to 250 sheets
Operating environment	Temperature 50°F to 95°F (10°C to 35°C) with a fluctuation of 50°F (10°C) per hour. Humidity 15% RH to 85% RH with a fluctuation of 20% RH per hour.
Power supply	Supplied from printer
Dimensions	Unit: 21.5 (W) x 14.8 (D) x 4.2 (H) inches (545 x 377 x 106 mm) Tray: 14.8 (W) x 18.2 (D) x 3.1 (H) inches (375 x 462 x 79 mm)
Weight	Unit: approximately 7.7 lbs (3.5 kg) Tray: approximately 5.3 lbs (2.4 kg)

Specifications

Name	500-Sheet Third Tray Unit (Letter)
Paper feeding system	1-way system
Paper type	Plain paper: 60 to 90 g/m^2 (16 to 24 lb) Recycled paper: 60 to 90g/m^2 (16 to 24 lb)
Paper size	Letter
Capacity	Plain paper: Up to 500 sheets Recycled paper: Up to 500 sheets
Operating environment	Temperature 50°F to 95°F (10°C to 35°C) with a fluctuation of 50°F (10°C) per hour. Humidity 15% RH to 85% RH with a fluctuation of 20% RH per hour.
Power supply	Supplied from printer
Dimensions	Unit: 21.5 (W) x 14.8 (D) x 4.2 (H) inches (545 x 377 x 106 mm) Tray: 14.8 (W) x 12.6 (D) x 3.1 (H) inches (375 x 320 x 79 mm)
Weight	Unit: approximately 7.7 lbs (3.5 kg) Tray: approximately 3.7 lbs (1.7 kg)

Chapter 7

Specifications

Name	500-Sheet Third Tray Unit (A4)
Paper feeding system	1-way system
Paper type	Plain paper: 60 to 90 g/m^2 (16 to 24 lb) Recycled paper: 60 to 90g/m^2 (16 to 24 lb)
Paper size	A4
Capacity	Plain paper: Up to 500 sheets Recycled paper: Up to 500 sheets
Operating environment	Temperature 50°F to 95°F (10°C to 35°C) with a fluctuation of 50°F (10°C) per hour. Humidity 15% RH to 85% RH with a fluctuation of 20% RH per hour.
Power supply	Supplied from printer
Dimensions	Unit: 21.5 (W) x 14.8 (D) x 4.2 (H) inches (545 x 377 x 106 mm) Tray: 14.8 (W) x 12.6 (D) x 3.1 (H) inches (375 x 320 x 79 mm)
Weight	Unit: approximately 7.7 lbs (3.5 kg) Tray: approximately 3.7 lbs (1.7 kg)

Chapter 7

Specifications

3. Duplex Unit (optional)

Name	Duplex Unit
Paper feeding system	1-way system
Paper type	Plain paper: 60 to 90 g/m^2 (16 to 24 lb) Recycled paper: 60 to 90 g/m^2 (16 to 24 lb)
Paper size	A3, Super B, A4, B4, JIS B5, Ledger, Legal, Letter, Executive
Operating environment	Temperature 50°F to 95°F (10°C to 35°C) with a fluctuation of 50°F (10°C) per hour. Humidity 15% RH to 85% RH with a fluctuation of 20% RH per hour.
Power supply	Supplied from printer
Dimensions	16.7 (W) x 2.8 (D) x 9.6 (H) inches (424 x 71 x 244 mm)
Weight	Approximately 5.1 lbs (2.3 kg)

Specifications

Name	SIMM (single in-line memory module)
Capacity	4, 8, 16, 32MB
Parity	Non-parity
Access speed	70 nsec. or faster
Number of pins	72

5. Interface Connector and Cable

Be sure to use only a parallel interface cable that meets the specifications described below.

Length:
Less than 5 feet (1.5 meters)

Connectors:
Printer: Centronics 36-pin connector
Computer: EIA 25-pin connector

Cable type:
Shielded type. Each signal and ground pair should be twisted.

IEEE 1284 type-B connector pin assignments

```
        PIN                PIN
        No.                No.

        1  - □    □ -  19
        2  - □    □ -  20
        3  - □    □ -  21
        4  - □    □ -  22
        5  - □    □ -  23
        6  - □    □ -  24
        7  - □    □ -  25
        8  - □    □ -  26
        9  - □    □ -  27
       10  - □    □ -  28
       11  - □    □ -  29
       12  - □    □ -  30
       13  - □    □ -  31
       14  - □    □ -  32
       15  - □    □ -  33
       16  - □    □ -  34
       17  - □    □ -  35
       18  - □    □ -  36
```
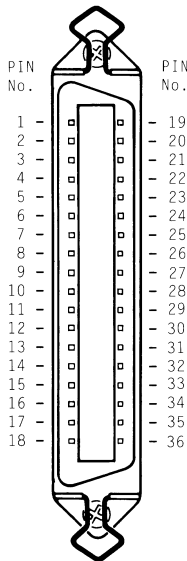
NOTE

Minolta does not warrant the use of any particular cable. The user assumes all responsibility as to the quality and performance of the cable.

Pin#	Compatible	Nibble	ECP
1	nStrobe	HostClk	HostClk
2	Data 1 (Least Significant Bit)		
3	Data 2		
4	Data 3		
5	Data 4		
6	Data 5		
7	Data 6		
8	Data 7		
9	Data 8 (Most Significant Bit)		
10	nAck	PtrClk	PeriphClk
11	Busy	PtrBusy	PeriphAck
12	PError	AckDataReq	nAckReverse
13	Select	Xflag	Xflag
14	nAutoFd	HostBusy	HostAck
15	Not defined		
16	Logic Gnd		
17	Chassis Gnd		
18	Peripheral Logic High		
19	Signal Ground (nStrobe)		
20	Signal Ground (Data 1)		

Chapter 7

Specifications

Pin#	Compatible	Nibble	ECP
21	Signal Ground (Data 2)		
22	Signal Ground (Data 3)		
23	Signal Ground (Data 4)		
24	Signal Ground (Data 5)		
25	Signal Ground (Data 6)		
26	Signal Ground (Data 7)		
27	Signal Ground (Data 8)		
28	Signal Ground (PError, Select, nAck)		
29	Signal Ground (Busy, nFault)		
30	Signal Ground (nAutoFd, nSelectIn, nInt)		
31	nInt	nInt	nReverseRequest
32	PError	AckDataReq	nAckReverse
33	nFault	nDataAvail	nPeriphRequest
34	Not defined		
35	Not defined		
36	NSelectIn	IEEE 1284 active	IEEE 1284 active

Appendix A

Character Sets

Character Sets

7J Desktop

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	" 176	— 192	‹ 208	ª 224	´ 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	¶ 161	" 177	± 193	› 209	º 225	` 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	§ 162	µ 178	× 194	« 210	æ 226	^ 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	† 163	‰ 179	÷ 195	» 211	Æ 227	¨ 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	‡ 164	• 180	° 196	‚ 212	ð 228	~ 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	© 165	● 181	′ 197	„ 213	Đ 229	ˇ 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	® 166	○ 182	″ 198	· 214	ij 230	˘ 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	™ 167	○ 183	¼ 199	¡ 215	IJ 231	˝ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	‰ 168	■ 184	½ 200	¿ 216	ł 232	° 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	¢ 169	■ 185	¾ 201	Pt 217	Ł 233	˙ 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	– 170	□ 186	¹ 202	ℓ 218	œ 234	¯ 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	— 171	□ 187	² 203	£ 219	Œ 235	¸ 251
C	12	28	, 44	< 60	L 76	\ 92	l 108	| 124	140	156	… 172	' 188	³ 204	¥ 220	ø 236	˛ 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	fi 173	¬ 189	/ 205	¤ 221	Ø 237	· 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	fl 174	| 190	| 206	ƒ 222	þ 238	ı 254
F	15	31	/ 47	? 63	O 79	_ 95	o 111	▓ 127	143	159	175	¯ 191	207	ß 223	Þ 239	255

1E ISO4: United Kingdom

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	176	192	208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	162	178	194	210	226	242
3	3	19	£ 35	3 51	C 67	S 83	c 99	s 115	131	147	163	179	195	211	227	243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	168	184	200	216	232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	169	185	201	217	233	249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	170	186	202	218	234	250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	171	187	203	219	235	251
C	12	28	, 44	< 60	L 76	\ 92	l 108		124	140	156	172	188	204	220	236	252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	173	189	205	221	237	253
E	14	30	. 46	> 62	N 78	^ 94	n 110	‾ 126	142	158	174	190	206	222	238	254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▒ 127	143	159	175	191	207	223	239	255

0U ISO 6: ASCII

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	176	192	208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	162	178	194	210	226	242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	163	179	195	211	227	243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	168	184	200	216	232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	169	185	201	217	233	249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	170	186	202	218	234	250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	171	187	203	219	235	251
C	12	28	, 44	< 60	L 76	\ 92	l 108	| 124	140	156	172	188	204	220	236	252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	173	189	205	221	237	253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	174	190	206	222	238	254
F	15	31	/ 47	? 63	O 79	_ 95	o 111	▨ 127	143	159	175	191	207	223	239	255

0S ISO 11: Swedish

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	É 64	P 80	é 96	p 112	128	144	160	176	192	208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	162	178	194	210	226	242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	163	179	195	211	227	243
4	4	20	¤ 36	4 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	168	184	200	216	232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	169	185	201	217	233	249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	170	186	202	218	234	250
B	11	27	+ 43	; 59	K 75	Ä 91	k 107	ä 123	139	155	171	187	203	219	235	251
C	12	28	, 44	< 60	L 76	Ö 92	l 108	ö 124	140	156	172	188	204	220	236	252
D	13	29	- 45	= 61	M 77	Å 93	m 109	å 125	141	157	173	189	205	221	237	253
E	14	30	. 46	> 62	N 78	Ü 94	n 110	ü 126	142	158	174	190	206	222	238	254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▨ 127	143	159	175	191	207	223	239	255

0I ISO 15: Italian

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	§ 64	P 80	ù 96	p 112	128	144	160	176	192	208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	162	178	194	210	226	242
3	3	19	£ 35	3 51	C 67	S 83	c 99	s 115	131	147	163	179	195	211	227	243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	168	184	200	216	232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	169	185	201	217	233	249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	170	186	202	218	234	250
B	11	27	+ 43	; 59	K 75	° 91	k 107	à 123	139	155	171	187	203	219	235	251
C	12	28	, 44	< 60	L 76	ç 92	l 108	ò 124	140	156	172	188	204	220	236	252
D	13	29	- 45	= 61	M 77	é 93	m 109	è 125	141	157	173	189	205	221	237	253
E	14	30	. 46	> 62	N 78	^ 94	n 110	ì 126	142	158	174	190	206	222	238	254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▓ 127	143	159	175	191	207	223	239	255

2S ISO 17: Spanish

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	§ 64	P 80	` 96	p 112	128	144	160	176	192	208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	162	178	194	210	226	242
3	3	19	£ 35	3 51	C 67	S 83	c 99	s 115	131	147	163	179	195	211	227	243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	168	184	200	216	232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	169	185	201	217	233	249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	170	186	202	218	234	250
B	11	27	+ 43	; 59	K 75	¡ 91	k 107	° 123	139	155	171	187	203	219	235	251
C	12	28	, 44	< 60	L 76	Ñ 92	l 108	ñ 124	140	156	172	188	204	220	236	252
D	13	29	- 45	= 61	M 77	¿ 93	m 109	ç 125	141	157	173	189	205	221	237	253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	174	190	206	222	238	254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▓ 127	143	159	175	191	207	223	239	255

1G ISO 21: German

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 / 48	§ / 64	P / 80	` / 96	p / 112	128	144	160	176	192	208	224	240
1	1	17	! / 33	1 / 49	A / 65	Q / 81	a / 97	q / 113	129	145	161	177	193	209	225	241
2	2	18	" / 34	2 / 50	B / 66	R / 82	b / 98	r / 114	130	146	162	178	194	210	226	242
3	3	19	# / 35	3 / 51	C / 67	S / 83	c / 99	s / 115	131	147	163	179	195	211	227	243
4	4	20	$ / 36	4 / 52	D / 68	T / 84	d / 100	t / 116	132	148	164	180	196	212	228	244
5	5	21	% / 37	5 / 53	E / 69	U / 85	e / 101	u / 117	133	149	165	181	197	213	229	245
6	6	22	& / 38	6 / 54	F / 70	V / 86	f / 102	v / 118	134	150	166	182	198	214	230	246
7	7	23	' / 39	7 / 55	G / 71	W / 87	g / 103	w / 119	135	151	167	183	199	215	231	247
8	8	24	(/ 40	8 / 56	H / 72	X / 88	h / 104	x / 120	136	152	168	184	200	216	232	248
9	9	25	) / 41	9 / 57	I / 73	Y / 89	i / 105	y / 121	137	153	169	185	201	217	233	249
A	10	26	* / 42	: / 58	J / 74	Z / 90	j / 106	z / 122	138	154	170	186	202	218	234	250
B	11	27	+ / 43	; / 59	K / 75	Ä / 91	k / 107	ä / 123	139	155	171	187	203	219	235	251
C	12	28	, / 44	< / 60	L / 76	Ö / 92	l / 108	ö / 124	140	156	172	188	204	220	236	252
D	13	29	- / 45	= / 61	M / 77	Ü / 93	m / 109	ü / 125	141	157	173	189	205	221	237	253
E	14	30	. / 46	> / 62	N / 78	^ / 94	n / 110	ß / 126	142	158	174	190	206	222	238	254
F	15	31	/ / 47	? / 63	O / 79	‾ / 95	o / 111	▓ / 127	143	159	175	191	207	223	239	255

0D ISO 60: Norwegign V1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	176	192	208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	162	178	194	210	226	242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	163	179	195	211	227	243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	168	184	200	216	232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	169	185	201	217	233	249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	170	186	202	218	234	250
B	11	27	+ 43	; 59	K 75	Æ 91	k 107	æ 123	139	155	171	187	203	219	235	251
C	12	28	, 44	< 60	L 76	Ø 92	l 108	ø 124	140	156	172	188	204	220	236	252
D	13	29	- 45	= 61	M 77	Å 93	m 109	å 125	141	157	173	189	205	221	237	253
E	14	30	. 46	> 62	N 78	^ 94	n 110	‾ 126	142	158	174	190	206	222	238	254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▨ 127	143	159	175	191	207	223	239	255

1F ISO 69: French

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	à 64	P 80	μ 96	p 112	128	144	160	176	192	208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	162	178	194	210	226	242
3	3	19	£ 35	3 51	C 67	S 83	c 99	s 115	131	147	163	179	195	211	227	243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	168	184	200	216	232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	169	185	201	217	233	249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	170	186	202	218	234	250
B	11	27	+ 43	; 59	K 75	° 91	k 107	é 123	139	155	171	187	203	219	235	251
C	12	28	, 44	< 60	L 76	ç 92	l 108	ù 124	140	156	172	188	204	220	236	252
D	13	29	- 45	= 61	M 77	§ 93	m 109	è 125	141	157	173	189	205	221	237	253
E	14	30	. 46	> 62	N 78	^ 94	n 110	¨ 126	142	158	174	190	206	222	238	254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▓ 127	143	159	175	191	207	223	239	255

Character Sets

0N ISO 8859/1 Latin 1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	° 176	À 192	Ð 208	à 224	ð 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	¡ 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	¢ 162	² 178	Â 194	Ò 210	â 226	ò 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	12	28	, 44	< 60	L 76	\ 92	l 108		124	140	156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	173	½ 189	Í 205	Ý 221	í 237	ý 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
F	15	31	/ 47	? 63	O 79	_ 95	o 111	▓ 127	143	159	¯ 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

2N ISO 8859/2 Latin 2

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	° 176	Ŕ 192	Đ 208	ŕ 224	đ 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	Ą 161	ą 177	Á 193	Ń 209	á 225	ń 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	˘ 162	˛ 178	Â 194	Ň 210	â 226	ň 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	Ł 163	ł 179	Ă 195	Ó 211	ă 227	ó 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	Ľ 165	ľ 181	Ĺ 197	Ő 213	ĺ 229	ő 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	Ś 166	ś 182	Ć 198	Ö 214	ć 230	ö 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	§ 167	ˇ 183	Ç 199	× 215	ç 231	÷ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	¨ 168	˛ 184	Č 200	Ř 216	č 232	ř 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	Š 169	š 185	É 201	Ů 217	é 233	ů 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	Ş 170	ş 186	Ę 202	Ú 218	ę 234	ú 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	Ť 171	ť 187	Ë 203	Ű 219	ë 235	ű 251
C	12	28	, 44	< 60	L 76	\ 92	l 108	| 124	140	156	Ź 172	ź 188	Ě 204	Ü 220	ě 236	ü 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	173	˝ 189	Í 205	Ý 221	í 237	ý 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	Ž 174	ž 190	Î 206	Ţ 222	î 238	ţ 254
F	15	31	/ 47	? 63	O 79	_ 95	o 111	▓ 127	143	159	Ż 175	ż 191	Ď 207	ß 223	ď 239	˙ 255

5N ISO 8859/9 Latin 5

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	° 176	À 192	Ğ 208	à 224	ğ 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	¡ 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	¢ 162	² 178	Â 194	Ò 210	â 226	ò 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	12	28	, 44	< 60	L 76	\ 92	l 108	¦ 124	140	156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	- 173	½ 189	Í 205	İ 221	í 237	ı 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	® 174	¾ 190	Î 206	Ş 222	î 238	ş 254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▓ 127	143	159	- 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

1U Legal

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	° 96	p 112	128	144	160	176	192	208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	162	178	194	210	226	242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	163	179	195	211	227	243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	168	184	200	216	232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	169	185	201	217	233	249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	170	186	202	218	234	250
B	11	27	+ 43	; 59	K 75	[91	k 107	§ 123	139	155	171	187	203	219	235	251
C	12	28	, 44	$\overline{}$ 60	L 76	® 92	l 108	¶ 124	140	156	172	188	204	220	236	252
D	13	29	- 45	= 61	M 77	] 93	m 109	† 125	141	157	173	189	205	221	237	253
E	14	30	. 46	c 62	N 78	© 94	n 110	™ 126	142	158	174	190	206	222	238	254
F	15	31	/ 47	? 63	O 79	$\overline{}$ 95	o 111	▒ 127	143	159	175	191	207	223	239	255

12J MC Text

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	Ä 128	ê 144	† 160	∞ 176	¿ 192	– 208	‡ 224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	Å 129	ë 145	° 161	± 177	¡ 193	— 209	· 225	Ò 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	Ç 130	í 146	¢ 162	≤ 178	¬ 194	" 210	, 226	Ú 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	É 131	ì 147	£ 163	≥ 179	√ 195	" 211	„ 227	Û 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	Ñ 132	î 148	§ 164	¥ 180	ƒ 196	' 212	‰ 228	Ù 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	Ö 133	ï 149	• 165	µ 181	≈ 197	' 213	Â 229	ı 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	Ü 134	ñ 150	¶ 166	∂ 182	Δ 198	÷ 214	Ê 230	^ 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	á 135	ó 151	ß 167	Σ 183	« 199	◇ 215	Á 231	~ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	à 136	ò 152	® 168	∏ 184	» 200	ÿ 216	Ë 232	¯ 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	â 137	ô 153	© 169	π 185	… 201	Ÿ 217	È 233	˘ 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	ä 138	ö 154	™ 170	∫ 186	202	/ 218	Í 234	˙ 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	ã 139	õ 155	´ 171	ª 187	À 203	¤ 219	Î 235	° 251
C	12	28	, 44	< 60	L 76	\ 92	l 108	| 124	å 140	ú 156	¨ 172	º 188	Ã 204	‹ 220	Ï 236	¸ 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	ç 141	ù 157	≠ 173	Ω 189	Õ 205	› 221	Ì 237	˝ 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	é 142	û 158	Æ 174	æ 190	Œ 206	fi 222	Ó 238	˛ 254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	127	è 143	ü 159	Ø 175	ø 191	œ 207	fl 223	Ô 239	ˇ 255

8M Math-8

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	∴ 64	Π 80	∵ 96	π 112	128	144	160	― 176	⊕ 192	Å 208	⌈ 224	⌉ 240
1	1	17	√ 33	1 49	A 65	P 81	α 97	ρ 113	129	145	↑ 161	∀ 177	⊙ 193	⊣ 209	⌊ 225	⌋ 241
2	2	18	″ 34	2 50	B 66	Σ 82	β 98	σ 114	130	146	→ 162	∃ 178	⊗ 194	⊢ 210	⌠ 226	⌡ 242
3	3	19	° 35	3 51	Γ 67	T 83	γ 99	τ 115	131	147	↓ 163	⊤ 179	⊖ 195	⌊ 211	⎰ 227	⎱ 243
4	4	20	∞ 36	4 52	Δ 68	Υ 84	δ 100	υ 116	132	148	← 164	⊥ 180	⊘ 196	∃ 212	⌈ 228	⌉ 244
5	5	21	÷ 37	5 53	E 69	Φ 85	ε 101	φ 117	133	149	⇑ 165	∪ 181	∧ 197	∫ 213	∫ 229	⌡ 245
6	6	22	∝ 38	6 54	Z 70	X 86	ζ 102	χ 118	134	150	⇒ 166	∩ 182	∨ 198	∮ 214	φ 230	⌡ 246
7	7	23	′ 39	7 55	H 71	Ψ 87	η 103	ψ 119	135	151	⇓ 167	∈ 183	V̲ 199	∠ 215	⌡ 231	⌡ 247
8	8	24	(40	8 56	Θ 72	Ω 88	θ 104	ω 120	136	152	⇐ 168	∋ 184	¬ 200	∅ 216	⌐ 232	⌐ 248
9	9	25	) 41	9 57	I 73	∇ 89	ι 105	ϑ 121	137	153	↕ 169	∉ 185	∘ 201	ℵ 217	‖ 233	⟩ 249
A	10	26	× 42	e 58	K 74	∂ 90	κ 106	φ 122	138	154	↔ 170	⊂ 186	· 202	⊐ 218	∠ 234	⌡ 250
B	11	27	+ 43	ε 59	Λ 75	ς 91	λ 107	ϖ 123	139	155	↨ 171	⊃ 187	• 203	⊃ 219	/ 235	\ 251
C	12	28	, 44	< 60	M 76	≤ 92	μ 108	≃ 124	140	156	⇔ 172	⊄ 188	● 204	ℭ 220	― 236	⟨ 252
D	13	29	─ 45	= 61	N 77	≠ 93	ν 109	≡ 125	141	157	⇌ 173	ⅅ 189	○ 205	ℑ 221	= 237	∓ 253
E	14	30	. 46	> 62	Ξ 78	≥ 94	ξ 110	≢ 126	142	158	⇆ 174	⊆ 190	† 206	ℜ 222	∗ 238	± 254
F	15	31	/ 47	≈ 63	O 79	― 95	ο 111	▓ 127	143	159	― 175	⊇ 191	‡ 207	ℬ 223	≅ 239	255

6J Microsoft Publishing

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					2		'					°			Ω	
	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1			1								'	●	`	`		
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2			″			℞					″	●	´	´		
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3			3		Š	‰	š				ˆ	●	ˆ	ˆ		
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4			4			™					~	°	˜	˜		
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5			5									○	¯	¯		1
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6			7									○	˘	˘	IJ	ij
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7			'									■	·	·	Ŀ	ŀ
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8			9									■	¨	¨	Ł	ł
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9			0		Ÿ						fi	■				
	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A			8		Ž		ž				fl	□	°	°		
	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B			†								ff	□	˛	˛		
	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C			‚	″			ℓ				ffi	□				
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D			—	‡	—						ffl	‰	˝	˝		
	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E			…		–	6		"		Pt	‹	♦	˛	˛		
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F			/		Œ	‗	œ			ƒ	›	◇	ˇ	ˇ	'n	
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

10U PC-8 (Cord Page 437)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	► 16	32	0 48	@ 64	P 80	` 96	p 112	Ç 128	É 144	á 160	⠿ 176	└ 192	⊥ 208	α 224	≡ 240
1	☺ 1	◄ 17	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	☻ 2	↕ 18	" 34	2 50	B 66	R 82	b 98	r 114	é 130	Æ 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	♥ 3	‼ 19	# 35	3 51	C 67	S 83	c 99	s 115	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	♦ 4	¶ 20	$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	♣ 5	§ 21	% 37	5 53	E 69	U 85	e 101	u 117	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	♠ 6	▬ 22	& 38	6 54	F 70	V 86	f 102	v 118	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	μ 230	÷ 246
7	• 7	↨ 23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	◘ 8	↑ 24	(40	8 56	H 72	X 88	h 104	x 120	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	○ 9	↓ 25	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	· 249
A	◙ 10	→ 26	* 42	: 58	J 74	Z 90	j 106	z 122	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	♂ 11	← 27	+ 43	; 59	K 75	[91	k 107	{ 123	ï 139	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	♀ 12	∟ 28	, 44	< 60	L 76	\ 92	l 108		124	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
D	♪ 13	↔ 29	- 45	= 61	M 77	] 93	m 109	} 125	ì 141	¥ 157	¡ 173	╜ 189	═ 205	▌ 221	φ 237	² 253
E	♫ 14	▲ 30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	Pt 158	« 174	╛ 190	╬ 206	▐ 222	ε 238	■ 254
F	☼ 15	▼ 31	/ 47	? 63	O 79	‾ 95	o 111	⌂ 127	Å 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	255

11U PC-8 Danish/Norwegian

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	► 16	32	0 48	@ 64	P 80	` 96	p 112	Ç 128	É 144	á 160	⠿ 176	└ 192	⊥ 208	α 224	≡ 240
1	☺ 1	◄ 17	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	æ 145	í 161	▓ 177	┴ 193	╤ 209	ß 225	± 241
2	● 2	↕ 18	" 34	2 50	B 66	R 82	b 98	r 114	é 130	Æ 146	ó 162	▦ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	♥ 3	‼ 19	# 35	3 51	C 67	S 83	c 99	s 115	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	♦ 4	¶ 20	$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	∫ 244
5	♣ 5	§ 21	% 37	5 53	E 69	U 85	e 101	u 117	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	∫ 245
6	♠ 6	▬ 22	& 38	6 54	F 70	V 86	f 102	v 118	å 134	û 150	õ 166	╢ 182	╞ 198	╓ 214	μ 230	÷ 246
7	● 7	↨ 23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	ù 151	Õ 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	◘ 8	↑ 24	(40	8 56	H 72	X 88	h 104	x 120	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	○ 9	↓ 25	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	Ö 153	ã 169	╣ 185	╔ 201	┘ 217	Θ 233	· 249
A	◙ 10	→ 26	* 42	: 58	J 74	Z 90	j 106	z 122	è 138	Ü 154	Ã 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	♂ 11	← 27	+ 43	; 59	K 75	[91	k 107	{ 123	ï 139	ø 155	ℓ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	♀ 12	∟ 28	, 44	< 60	L 76	\ 92	l 108		124	î 140	£ 156	'n 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
D	♪ 13	↔ 29	- 45	= 61	M 77	] 93	m 109	} 125	ì 141	Ø 157	¡ 173	╜ 189	═ 205	▐ 221	φ 237	² 253
E	♫ 14	▲ 30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	L 158	³ 174	╛ 190	╬ 206	▌ 222	ε 238	■ 254
F	☼ 15	▼ 31	/ 47	? 63	O 79	‾ 95	o 111	△ 127	Å 143	⊦ 159	¤ 175	┐ 191	⊥ 207	▬ 223	∩ 239	255

12U PC-850 Multilingual

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	► 16	32	0 48	@ 64	P 80	` 96	p 112	Ç 128	É 144	á 160	▦ 176	└ 192	ð 208	Ó 224	- 240
1	☺ 1	◄ 17	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	æ 145	í 161	▓ 177	┴ 193	Đ 209	ß 225	± 241
2	☻ 2	↕ 18	" 34	2 50	B 66	R 82	b 98	r 114	é 130	Æ 146	ó 162	▦ 178	┬ 194	Ê 210	Ô 226	= 242
3	♥ 3	‼ 19	# 35	3 51	C 67	S 83	c 99	s 115	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 243
4	♦ 4	¶ 20	$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	ñ 164	┤ 180	─ 196	È 212	õ 228	¶ 244
5	♣ 5	§ 21	% 37	5 53	E 69	U 85	e 101	u 117	à 133	ò 149	Ñ 165	Á 181	┼ 197	ı 213	Õ 229	§ 245
6	♠ 6	▬ 22	& 38	6 54	F 70	V 86	f 102	v 118	å 134	û 150	ª 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7	• 7	↨ 23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8	◘ 8	↑ 24	(40	8 56	H 72	X 88	h 104	x 120	ê 136	ÿ 152	¿ 168	© 184	╚ 200	Ï 216	Þ 232	° 248
9	○ 9	↓ 25	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	◎ 10	→ 26	* 42	: 58	J 74	Z 90	j 106	z 122	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B	♂ 11	← 27	+ 43	; 59	K 75	[91	k 107	{ 123	ï 139	ø 155	½ 171	╗ 187	╦ 203	█ 219	Ù 235	¹ 251
C	♀ 12	∟ 28	, 44	< 60	L 76	\ 92	l 108	| 124	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	ý 236	³ 252
D	♪ 13	↔ 29	- 45	= 61	M 77	] 93	m 109	} 125	ì 141	Ø 157	¡ 173	¢ 189	═ 205	¦ 221	Ý 237	² 253
E	♫ 14	▲ 30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	× 158	« 174	¥ 190	╬ 206	Ì 222	¯ 238	■ 254
F	☼ 15	▼ 31	/ 47	? 63	O 79	̅ 95	o 111	⌂ 127	Å 143	ƒ 159	» 175	┐ 191	¤ 207	▀ 223	´ 239	255

17U PC 852 Latin 2

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	► 16	32	0 48	@ 64	P 80	` 96	p 112	Ç 128	É 144	á 160	▦ 176	└ 192	đ 208	Ó 224	- 240
1	☺ 1	◄ 17	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	Ĺ 145	í 161	▓ 177	┴ 193	Ð 209	ß 225	˝ 241
2	☻ 2	↕ 18	" 34	2 50	B 66	R 82	b 98	r 114	é 130	ĺ 146	ó 162	▦ 178	┬ 194	Ď 210	Ô 226	˛ 242
3	♥ 3	‼ 19	# 35	3 51	C 67	S 83	c 99	s 115	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ń 227	ˇ 243
4	♦ 4	¶ 20	$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	Ą 164	┤ 180	─ 196	ď 212	ń 228	˘ 244
5	♣ 5	§ 21	% 37	5 53	E 69	U 85	e 101	u 117	ů 133	Ľ 149	ą 165	Á 181	┼ 197	Ň 213	ň 229	§ 245
6	♠ 6	▬ 22	& 38	6 54	F 70	V 86	f 102	v 118	ć 134	ľ 150	Ž 166	Â 182	Ă 198	Í 214	Š 230	÷ 246
7	• 7	↨ 23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	Ś 151	ž 167	Ě 183	ă 199	Î 215	š 231	¸ 247
8	◘ 8	↑ 24	(40	8 56	H 72	X 88	h 104	x 120	ł 136	ś 152	Ę 168	Ş 184	└ 200	ě 216	Ŕ 232	° 248
9	○ 9	↓ 25	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	Ö 153	ę 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	◙ 10	→ 26	* 42	: 58	J 74	Z 90	j 106	z 122	Ő 138	Ü 154	170	║ 186	╩ 202	┌ 218	ŕ 234	· 250
B	♂ 11	← 27	+ 43	; 59	K 75	[91	k 107	{ 123	ő 139	Ť 155	ź 171	┐ 187	╦ 203	█ 219	Ű 235	ű 251
C	♀ 12	∟ 28	, 44	< 60	L 76	\ 92	l 108		124	î 140	ť 156	Č 172	┘ 188	╠ 204	▄ 220	ý 236	Ř 252
D	♪ 13	↔ 29	- 45	= 61	M 77	] 93	m 109	} 125	Ź 141	Ł 157	ş 173	Ż 189	═ 205	Ţ 221	Ý 237	ř 253
E	♫ 14	▲ 30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	× 158	« 174	ż 190	╬ 206	Ů 222	ţ 238	■ 254
F	☼ 15	▼ 31	/ 47	? 63	O 79	_ 95	o 111	△ 127	Ć 143	č 159	» 175	┐ 191	¤ 207	▀ 223	´ 239	255

9T PC-Turkish

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	► 16	32	0 48	@ 64	P 80	` 96	p 112	Ç 128	É 144	á 160	▦ 176	└ 192	╨ 208	α 224	≡ 240
1	☺ 1	◄ 17	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	æ 145	í 161	▓ 177	┴ 193	╤ 209	ß 225	± 241
2	☻ 2	↕ 18	" 34	2 50	B 66	R 82	b 98	r 114	é 130	Æ 146	ó 162	▦ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	♥ 3	‼ 19	# 35	3 51	C 67	S 83	c 99	s 115	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	♦ 4	¶ 20	$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	∫ 244
5	♣ 5	§ 21	% 37	5 53	E 69	U 85	e 101	u 117	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	┘ 245
6	♠ 6	▬ 22	& 38	6 54	F 70	V 86	f 102	v 118	å 134	û 150	Ğ 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	• 7	↨ 23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	ù 151	ğ 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	◘ 8	↑ 24	(40	8 56	H 72	X 88	h 104	x 120	ê 136	İ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	○ 9	↓ 25	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	Ö 153	┌ 169	╣ 185	╔ 201	┘ 217	Θ 233	· 249
A	◙ 10	→ 26	* 42	: 58	J 74	Z 90	j 106	z 122	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	♂ 11	← 27	+ 43	; 59	K 75	[91	k 107	{ 123	ï 139	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	♀ 12	∟ 28	, 44	< 60	L 76	\ 92	l 108	| 124	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
D	♪ 13	↔ 29	- 45	= 61	M 77	] 93	m 109	} 125	ı 141	¥ 157	¡ 173	╜ 189	═ 205	▌ 221	φ 237	² 253
E	♫ 14	▲ 30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	Ş 158	« 174	╛ 190	╬ 206	▐ 222	ε 238	■ 254
F	☼ 15	▼ 31	/ 47	? 63	O 79	_ 95	o 111	⌂ 127	Å 143	ş 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	255

5M PS Math

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	≅ 64	Π 80	‾ 96	π 112	128	144	160	° 176	ℵ 192	∠ 208	◇ 224	240
1	1	17	! 33	1 49	A 65	Θ 81	α 97	θ 113	129	145	ϒ 161	± 177	ℑ 193	∇ 209	⟨ 225	⟩ 241
2	2	18	∀ 34	2 50	B 66	P 82	β 98	ρ 114	130	146	′ 162	″ 178	ℜ 194	® 210	® 226	∫ 242
3	3	19	# 35	3 51	X 67	Σ 83	χ 99	σ 115	131	147	≤ 163	≥ 179	℘ 195	© 211	© 227	⌠ 243
4	4	20	∃ 36	4 52	Δ 68	T 84	δ 100	τ 116	132	148	∕ 164	× 180	⊗ 196	™ 212	™ 228	⎮ 244
5	5	21	% 37	5 53	E 69	Y 85	ε 101	υ 117	133	149	∞ 165	∝ 181	⊕ 197	∏ 213	Σ 229	⌡ 245
6	6	22	& 38	6 54	Φ 70	ς 86	φ 102	ϖ 118	134	150	ƒ 166	∂ 182	∅ 198	√ 214	⌠ 230	⎞ 246
7	7	23	∋ 39	7 55	Γ 71	Ω 87	γ 103	ω 119	135	151	♣ 167	• 183	∩ 199	· 215	⎧ 231	⎟ 247
8	8	24	(40	8 56	H 72	Ξ 88	η 104	ξ 120	136	152	♦ 168	÷ 184	∪ 200	¬ 216	⎨ 232	⎠ 248
9	9	25	) 41	9 57	I 73	Ψ 89	ι 105	ψ 121	137	153	♥ 169	≠ 185	⊃ 201	∧ 217	⌈ 233	⌉ 249
A	10	26	* 42	: 58	ϑ 74	Z 90	φ 106	ζ 122	138	154	♠ 170	≡ 186	⊇ 202	∨ 218	⎩ 234	⎭ 250
B	11	27	+ 43	; 59	K 75	[91	κ 107	{ 123	139	155	↔ 171	≈ 187	⊄ 203	⇔ 219	⌊ 235	⌋ 251
C	12	28	, 44	< 60	Λ 76	∴ 92	λ 108	| 124	140	156	← 172	… 188	⊂ 204	⇐ 220	⎛ 236	⎞ 252
D	13	29	− 45	= 61	M 77	] 93	μ 109	} 125	141	157	↑ 173	⎟ 189	⊆ 205	⇑ 221	⎨ 237	⎬ 253
E	14	30	. 46	> 62	N 78	⊥ 94	ν 110	~ 126	142	158	→ 174	— 190	∈ 206	⇒ 222	⎝ 238	⌋ 254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	127	143	159	↓ 175	↵ 191	∉ 207	⇓ 223	⎪ 239	255

10J PS Text

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	─ 176	192	— 208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	¡ 161	– 177	` 193	209	Æ 225	æ 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	¢ 162	† 178	´ 194	210	226	242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	£ 163	‡ 179	^ 195	211	^{a} 227	243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	/ 164	· 180	~ 196	212	228	244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	¥ 165	─ 181	─ 197	213	229	^{1} 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	ƒ 166	¶ 182	˘ 198	214	230	246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	§ 167	• 183	˙ 199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	¤ 168	, 184	¨ 200	216	Ł 232	ł 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	' 169	„ 185	201	217	Ø 233	ø 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	" 170	" 186	° 202	218	Œ 234	œ 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	« 171	» 187	¸ 203	219	º 235	ß 251
C	12	28	, 44	< 60	L 76	\ 92	l 108		124	140	156	‹ 172	… 188	204	220	236	252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	› 173	‰ 189	˝ 205	221	237	253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	fi 174	190	˛ 206	222	238	254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	127	143	159	fl 175	¿ 191	ˇ 207	223	239	255

15U Pi Font

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	‾ 48	∷ 64	℘ 80	⌐ 96	⌐ 112	128	144	160	176	192	208	224	240
1	1	17	33	˘ 49	Δ 65	℘ 81	└ 97	┘ 113	129	145	161	177	193	209	225	241
2	2	18	„ 34	ˇ 50	66	℞ 82	⌢ 98	⌢ 114	130	146	162	178	194	210	226	242
3	3	19	‚ 35	˙ 51	67	Σ 83	⌣ 99	⌣ 115	131	147	163	179	195	211	227	243
4	4	20	" 36	↗ 52	68	84	+ 100	⊤ 116	132	148	164	180	196	212	228	244
5	5	21	" 37	↘ 53	69	85	⊢ 101	⊣ 117	133	149	165	181	197	213	229	245
6	6	22	' 38	↙ 54	ƒ 70	86	— 102	⊥ 118	134	150	166	182	198	214	230	246
7	7	23	' 39	↖ 55	71	87	‖ 103		119	135	151	167	183	199	215	231	247
8	8	24	⟨ 40	Δ 56	ℏ 72	88	∪ 104	⊔ 120	136	152	168	184	200	216	232	248
9	9	25	⟩ 41	▷ 57	73	89	∩ 105	∏ 121	137	153	169	185	201	217	233	249
A	10	26	™ 42	∇ 58	74	90	⟦ 106	⟧ 122	138	154	170	186	202	218	234	250
B	11	27	SM 43	◁ 59	75	⟦ 91	⟦ 107	⟧ 123	139	155	171	187	203	219	235	251
C	12	28	® 44	≪ 60	ℒ 76	‖ 92	□ 108	■ 124	140	156	172	188	204	220	236	252
D	13	29	© 45	§ 61	ℓ 77	⟧ 93	◇ 109	◆ 125	141	157	173	189	205	221	237	253
E	14	30	℗ 46	≫ 62	78	‹ 94	110	126	142	158	174	190	206	222	238	254
F	15	31	47	¶ 63	79	› 95	111	▧ 127	143	159	175	191	207	223	239	255

8U Roman-8

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	¯ 176	â 192	Å 208	Á 224	Þ 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	À 161	Ý 177	ê 193	î 209	Ã 225	þ 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	Â 162	ý 178	ô 194	Ø 210	ã 226	· 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	È 163	° 179	û 195	Æ 211	Ð 227	µ 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	Ê 164	Ç 180	á 196	å 212	ð 228	¶ 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	Ë 165	ç 181	é 197	í 213	Í 229	¾ 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	Î 166	Ñ 182	ó 198	ø 214	Ì 230	— 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	Ï 167	ñ 183	ú 199	æ 215	Ó 231	¼ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	´ 168	¡ 184	à 200	Ä 216	Ò 232	½ 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	` 169	¿ 185	è 201	ì 217	Õ 233	ª 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	^ 170	¤ 186	ò 202	Ö 218	õ 234	º 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	¨ 171	£ 187	ù 203	Ü 219	Š 235	« 251
C	12	28	, 44	< 60	L 76	\ 92	l 108	| 124	140	156	~ 172	¥ 188	ä 204	É 220	š 236	■ 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	Ù 173	§ 189	ë 205	ï 221	Ú 237	» 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	Û 174	ƒ 190	ö 206	ß 222	Ÿ 238	± 254
F	15	31	/ 47	? 63	O 79	¯ 95	o 111	▒ 127	143	159	£ 175	¢ 191	ü 207	Ô 223	ÿ 239	255

13J Ventura International

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	„ 160	‰ 176	â 192	Å 208	Á 224	Œ 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	À 161	" 177	ê 193	î 209	Ã 225	œ 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	Â 162	" 178	ô 194	Ø 210	ã 226	¶ 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	È 163	° 179	û 195	Æ 211	ã 227	† 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	Ê 164	Ç 180	á 196	å 212	å 228	‡ 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	Ë 165	ç 181	é 197	í 213	Í 229	— 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	Î 166	Ñ 182	ó 198	ø 214	Ì 230	– 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	Ï 167	ñ 183	ú 199	æ 215	Ó 231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	© 168	¡ 184	à 200	Ä 216	Ò 232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	® 169	¿ 185	è 201	ì 217	Õ 233	a 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	™ 170	¤ 186	ò 202	Ö 218	õ 234	o 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	‹ 171	£ 187	ù 203	Ü 219	Š 235	« 251
C	12	28	, 44	< 60	L 76	\ 92	l 108	| 124	140	156	› 172	¥ 188	ä 204	É 220	š 236	• 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	Ù 173	§ 189	ë 205	ï 221	Ú 237	» 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	Û 174	ƒ 190	ö 206	ß 222	Ÿ 238	254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	127	143	159	175	¢ 191	ü 207	Ô 223	ÿ 239	… 255

6M Ventura Math

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	≅ 64	Π 80	‾ 96	π 112	128	144	◇ 160	® 176	≤ 192	↓ 208	⌉ 224	∏ 240
1	1	17	! 33	1 49	A 65	Θ 81	α 97	θ 113	129	145	√ 161	⊃ 177	♦ 193	← 209	· 225	™ 241
2	2	18	∀ 34	2 50	B 66	P 82	β 98	ρ 114	130	146	⌊ 162	⊇ 178	≥ 194	® 210	∠ 226	⇐ 242
3	3	19	# 35	3 51	X 67	Σ 83	χ 99	σ 115	131	147	⌈ 163	⌠ 179	∂ 195	″ 211	⌋ 227	⇔ 243
4	4	20	∃ 36	4 52	Δ 68	T 84	δ 100	τ 116	132	148	⎪ 164	⌡ 180	ℵ 196	f 212	228	∨ 244
5	5	21	% 37	5 53	E 69	Y 85	ε 101	υ 117	133	149	⌊ 165	♣ 181	′ 197	ℑ 213	{ 229	∑ 245
6	6	22	& 38	6 54	Φ 70	ς 86	φ 102	ϖ 118	134	150	⎨ 166	⊕ 182	ℜ 198	© 214	⌠ 230	™ 246
7	7	23	϶ 39	7 55	Γ 71	Ω 87	γ 103	ω 119	135	151	⎪ 167	⊗ 183	℘ 199	± 215	⌡ 231	⎪ 247
8	8	24	(40	8 56	H 72	Ξ 88	η 104	ξ 120	136	152	⇑ 168	⊆ 184	∞ 200	→ 216	232	⌋ 248
9	9	25	) 41	9 57	I 73	Ψ 89	ι 105	ψ 121	137	153	⇒ 169	∪ 185	♠ 201	↑ 217	¬ 233	∅ 249
A	10	26	* 42	: 58	ϑ 74	Z 90	φ 106	ζ 122	138	154	⇓ 170	— 186	∝ 202	≠ 218	∇ 234	∩ 250
B	11	27	+ 43	; 59	K 75	[91	κ 107	{ 123	139	155	¢ 171	… 187	• 203	≡ 219	⌠ 235	∈ 251
C	12	28	, 44	< 60	Λ 76	∴ 92	λ 108	| 124	140	156	⊂ 172	⎪ 188	/ 204	° 220	⌡ 236	© 252
D	13	29	— 45	= 61	M 77	] 93	μ 109	} 125	141	157	⌡ 173	∧ 189	♥ 205	↔ 221	⌉ 237	∉ 253
E	14	30	. 46	> 62	N 78	⊥ 94	ν 110	~ 126	142	158	⎪ 174	↵ 190	× 206	⌉ 222	⌡ 238	⌉ 254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	127	143	159	} 175	≈ 191	ϒ 207	⌠ 223	÷ 239	⟨ 255

14J Ventura US

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	' 96	p 112	128	144	„ 160	‰ 176	192	208	224	240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	161	" 177	193	209	225	241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	162	" 178	194	210	226	¶ 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	163	° 179	195	211	227	† 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	‡ 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	— 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	– 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	© 168	184	200	216	232	248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	® 169	185	201	217	233	249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	™ 170	186	202	218	234	250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	171	187	203	219	235	251
C	12	28	, 44	< 60	L 76	\ 92	l 108	| 124	140	156	172	188	204	220	236	• 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	173	§ 189	205	221	237	253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	174	190	206	222	238	254
F	15	31	/ 47	? 63	O 79	_ 95	o 111	127	143	159	175	¢ 191	207	223	239	… 255

9U Windows 3.0 Latin 1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	° 176	À 192	Ð 208	à 224	ð 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	' 145	¡ 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	' 146	¢ 162	² 178	Â 194	Ò 210	â 226	ò 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	12	28	, 44	< 60	L 76	\ 92	l 108	| 124	140	156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	- 173	½ 189	Í 205	Ý 221	í 237	ý 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▓ 127	143	159	¯ 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

19U Windows 3.1 Latin 1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	° 176	À 192	Ð 208	à 224	ð 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	' 145	¡ 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	' 130	' 146	¢ 162	² 178	Â 194	Ò 210	â 226	ò 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	f 131	" 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	„ 132	" 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	… 133	• 149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	† 134	– 150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	‡ 135	— 151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	^ 136	~ 152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	‰ 137	™ 153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	Š 138	š 154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	‹ 139	› 155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	12	28	, 44	< 60	L 76	\ 92	l 108		124	Œ 140	œ 156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	- 173	½ 189	Í 205	Ý 221	í 237	ý 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▓ 127	143	Ÿ 159	‾ 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

9E Windows 3.1 Latin 2

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	° 176	Ŕ 192	Đ 208	í 224	đ 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	' 145	˘ 161	± 177	Á 193	Ń 209	á 225	ń 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	, 130	' 146	˛ 162	˛ 178	Â 194	Ň 210	â 226	ň 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	" 147	Ł 163	ł 179	Ă 195	Ó 211	ă 227	ó 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	„ 132	" 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	… 133	• 149	Ą 165	μ 181	Ĺ 197	Ő 213	Í 229	ő 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	† 134	– 150	¦ 166	¶ 182	Ć 198	Ö 214	ć 230	ö 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	‡ 135	— 151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	¨ 168	¸ 184	Č 200	Ř 216	č 232	ř 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	‰ 137	™ 153	© 169	ą 185	É 201	Ů 217	é 233	ů 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	Š 138	š 154	Ş 170	ş 186	Ę 202	Ú 218	ę 234	ú 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	‹ 139	› 155	« 171	» 187	Ë 203	Ű 219	ë 235	ű 251
C	12	28	, 44	< 60	L 76	\ 92	l 108		124	Ś 140	ś 156	¬ 172	Ľ 188	Ě 204	Ü 220	ě 236	ü 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	Ť 141	ť 157	- 173	˝ 189	Í 205	Ý 221	í 237	ý 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ž 142	ž 158	® 174	ľ 190	Î 206	Ţ 222	î 238	ţ 254
F	15	31	/ 47	? 63	O 79	_ 95	o 111	▒ 127	Ź 143	ź 159	Ż 175	ż 191	Ď 207	ß 223	ď 239	· 255

5T Windows 3.1 Latin 5

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	@ 64	P 80	` 96	p 112	128	144	160	° 176	À 192	Ğ 208	à 224	ğ 240
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	' 145	¡ 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114	, 130	' 146	¢ 162	² 178	Â 194	Ò 210	â 226	ò 242
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115	ƒ 131	" 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	„ 132	" 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117	… 133	• 149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	† 134	– 150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119	‡ 135	— 151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	8	24	(40	8 56	H 72	X 88	h 104	x 120	^ 136	~ 152	¨ 168	, 184	È 200	Ø 216	è 232	ø 248
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121	‰ 137	™ 153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	10	26	* 42	: 58	J 74	Z 90	j 106	z 122	Š 138	š 154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	11	27	+ 43	; 59	K 75	[91	k 107	{ 123	‹ 139	› 155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	12	28	, 44	< 60	L 76	\ 92	l 108	| 124	Œ 140	œ 156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	- 173	½ 189	Í 205	İ 221	í 237	ı 253
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	® 174	¾ 190	Î 206	Ş 222	î 238	ş 254
F	15	31	/ 47	? 63	O 79	‾ 95	o 111	▓ 127	143	Ÿ 159	‾ 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

19M Symbol

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0 48	≅ 64	Π 80	‾ 96	π 112	128	144	160	° 176	ℵ 192	∠ 208	◊ 224	240
1	1	17	! 33	1 49	Α 65	Θ 81	α 97	θ 113	129	145	ϒ 161	± 177	ℑ 193	∇ 209	⟨ 225	⟩ 241
2	2	18	∀ 34	2 50	Β 66	Ρ 82	β 98	ρ 114	130	146	′ 162	″ 178	ℜ 194	® 210	® 226	∫ 242
3	3	19	# 35	3 51	Χ 67	Σ 83	χ 99	σ 115	131	147	≤ 163	≥ 179	℘ 195	© 211	© 227	⌠ 243
4	4	20	∃ 36	4 52	Δ 68	Τ 84	δ 100	τ 116	132	148	/ 164	× 180	⊗ 196	™ 212	™ 228	│ 244
5	5	21	% 37	5 53	Ε 69	Υ 85	ε 101	υ 117	133	149	∞ 165	∝ 181	⊕ 197	Π 213	Σ 229	⌡ 245
6	6	22	& 38	6 54	Φ 70	ς 86	φ 102	ϖ 118	134	150	ƒ 166	∂ 182	∅ 198	√ 214	⌈ 230	⌉ 246
7	7	23	∍ 39	7 55	Γ 71	Ω 87	γ 103	ω 119	135	151	♣ 167	• 183	∩ 199	· 215	│ 231	│ 247
8	8	24	(40	8 56	Η 72	Ξ 88	η 104	ξ 120	136	152	♦ 168	÷ 184	∪ 200	¬ 216	⌊ 232	⌋ 248
9	9	25	) 41	9 57	Ι 73	Ψ 89	ι 105	ψ 121	137	153	♥ 169	≠ 185	⊃ 201	∧ 217	⌜ 233	⌝ 249
A	10	26	∗ 42	: 58	ϑ 74	Ζ 90	ϕ 106	ζ 122	138	154	♠ 170	≡ 186	⊇ 202	∨ 218	│ 234	│ 250
B	11	27	+ 43	; 59	Κ 75	[91	κ 107	{ 123	139	155	↔ 171	≈ 187	⊄ 203	⇔ 219	⌊ 235	⌋ 251
C	12	28	, 44	< 60	Λ 76	∴ 92	λ 108	│ 124	140	156	← 172	… 188	⊂ 204	⇐ 220	⌠ 236	⌡ 252
D	13	29	− 45	= 61	Μ 77	] 93	μ 109	} 125	141	157	↑ 173	│ 189	⊆ 205	⇑ 221	{ 237	} 253
E	14	30	. 46	> 62	Ν 78	⊥ 94	ν 110	∼ 126	142	158	→ 174	— 190	∈ 206	⇒ 222	⌊ 238	│ 254
F	15	31	/ 47	? 63	Ο 79	‾ 95	ο 111	127	143	159	↓ 175	↵ 191	∉ 207	⇓ 223	│ 239	255

579L Wingdings

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Appendix B

Font Lists

Printer Resident Fonts
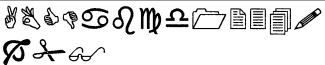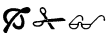
Agfa Intellifont (35 fonts)

NAME	PRINT SAMPLE
Albertus Medium	**ABCDabcd1234!"#$**
Albertus Extra Bold	**ABCDabcd1234!"#$**
Antique Olive	ABCDabcd1234!"#$
Antique Olive Italic	*ABCDabcd1234!"#$*
Antique Olive Bold	**ABCDabcd1234!"#$**
CG Omega	ABCDabcd1234!"#$
CG Omega Italic	*ABCDabcd1234!"#$*
CG Omega Bold	**ABCDabcd1234!"#$**
CG Omega Bold Italic	***ABCDabcd1234!"#$***
CG Times	ABCDabcd1234!"#$
CG Times Italic	*ABCDabcd1234!"#$*
CG Times Bold	**ABCDabcd1234!"#$**
CG Times Bold Italic	***ABCDabcd1234!"#$***
Clarendon Condensed Bold	**ABCDabcd1234!"#$**
Coronet	*ABCDabcd1234!"#$*
Courier	ABCDabcd1234!"#$
Courier Italic	*ABCDabcd1234!"#$*
Courier Bold	**ABCDabcd1234!"#$**
Courier Bold Italic	***ABCDabcd1234!"#$***
Garamond Antique	ABCDabcd1234!"#$
Garamond Kursiv	*ABCDabcd1234!"#$*
Garamond Halbfett	**ABCDabcd1234!"#$**
Garamond Kursiv Halbfett	***ABCDabcd1234!"#$***
Letter Gothic	ABCDabcd1234!"#$
Letter Gothic Italic	*ABCDabcd1234!"#$*

NAME	PRINT SAMPLE
Letter Gothic Bold	ABCDabcd1234!"#$
Marigold	ABCDabcd1234!"#$
Univers Medium	ABCDabcd1234!"#$
Univers Medium Italic	*ABCDabcd1234!"#$*
Univers Bold	**ABCDabcd1234!"#$**
Univers Bold Italic	***ABCDabcd1234!"#$***
Univers Condensed Medium	ABCDabcd1234!"#$
Univers Condensed Medium Italic	*ABCDabcd1234!"#$*
Univers Condensed Medium Bold	**ABCDabcd1234!"#$**
Univers Condensed Medium Bold Italic	***ABCDabcd1234!"#$***

TrueType Fonts (10 fonts)

NAME	PRINT SAMPLE
Arial	ABCDabcd1234!"#$
Arial Italic	*ABCDabcd1234!"#$*
Arial Bold	**ABCDabcd1234!"#$**
Arial Bold Italic	***ABCDabcd1234!"#$***
Times New Roman	ABCDabcd1234!"#$
Times New Roman Italic	*ABCDabcd1234!"#$*
Times New Roman Bold	**ABCDabcd1234!"#$**
Times New Roman Bold Italic	***ABCDabcd1234!"#$***
Symbol	ABXΔαβχδ1234!©#∃
Wingdings	✌✎✐☜♋♏♐📁📄📕📑✏✂✄✍

Bitmap Font (1 font)

NAME	PRINT SAMPLE
Line Printer (16.67pitch, 8.5 point)	A B C D a b c d 1 2 3 4 ! ▓ # $

Additional Screen Fonts (65 fonts)

NAME	PRINT SAMPLE
Albertus Bold	**ABCDabcd1234!"#$**
Albertus Medium Italic	ABCDabcd1234!"#$
Antique Olive Compact	**ABCDabcd1234!"#**
Arial Narrow	ABCDabcd1234!"#$
Arial Narrow Italic	*ABCDabcd1234!"#$*
Arial Narrow Bold	**ABCDabcd1234!"#$**
Arial Narrow Bold Italic	***ABCDabcd1234!"#$***
Bodoni	ABCDabcd1234!"#$
Bodoni Italic	*ABCDabcd1234!"#$*
Bodoni Bold	**ABCDabcd1234!"#$**
Bodoni Bold Italic	***ABCDabcd1234!"#$***
Bodoni Black	**ABCDabcd1234!"#$**
Book Antiqua	ABCDabcd1234!"#$
Book Antiqua Italic	*ABCDabcd1234!"#$*
Book Antiqua Bold	**ABCDabcd1234!"#$**
Book Antiqua Bold Italic	***ABCDabcd1234!"#$***
Bookman Old Style	ABCDabcd1234!"#$
Bookman Old Style Italic	*ABCDabcd1234!"#$*
Bookman Old Style Bold	**ABCDabcd1234!"#$**
Bookman Old Style Bold Italic	***ABCDabcd1234!"#$***
Century Gothic	ABCDabcd1234!"#$
Century Gothic Italic	*ABCDabcd1234!"#$*

NAME	PRINT SAMPLE
Century Gothic Bold	**ABCDabcd1234!"#$**
Century Gothic Bold Italic	***ABCDabcd1234!"#$***
Century Schoolbook	ABCDabcd1234!"#$
Century Schoolbook Italic	*ABCDabcd1234!"#$*
Century Schoolbook Bold	**ABCDabcd1234!"#$**
Century Schoolbook Bold Italic	***ABCDabcd1234!"#$***
Clarendon Book	ABCDabcd1234!"#$
Clarendon Bold	**ABCDabcd1234!"#$**
Clarendon Extended Bold	**ABCDabcd1234!"#$**
Gill Sans	ABCDabcd1234!"#$
Gill Sans Italic	*ABCDabcd1234!"#$*
Gill Sans Bold	**ABCDabcd1234!"#$**
Gill Sans Bold Italic	***ABCDabcd1234!"#$***
Gill Sans Condensed	ABCDabcd1234!"#$
Gill Sans Condensed Bold	**ABCDabcd1234!"#$**
Gill Sans Extra Bold	**ABCDabcd1234!"#$**
Gill Sans Light	ABCDabcd1234!"#$
Gill Sans Light Italic	*ABCDabcd1234!"#$*
Goudy Old Style	ABCDabcd1234!"#$
Goudy Old Style Italic	*ABCDabcd1234!"#$*
Goudy Old Style Bold	**ABCDabcd1234!"#$**
Goudy Old Style Bold Italic	***ABCDabcd1234!"#$***
Goudy Old Style Extra Bold	**ABCDabcd1234!"#$**

NAME	PRINT SAMPLE
Granite	ABCDabcd1234!"#$
Granite Italic	*ABCDabcd1234!"#$*
Granite Bold	**ABCDabcd1234!"#$**
Granite Bold Italic	***ABCDabcd1234!"#$***
Letter Gothic Bold Italic	ABCDabcd1234!"#$
Microstyle	ABCDabcd1234!"#$
Microstyle Bold	**ABCDabcd1234!"#$**
Microstyle Extended	ABCDabcd1234!"#$
Microstyle Extended Bold	**ABCDabcd1234!"#$**
Monotype Corsiva	*ABCDabcd1234!"#$*
Monotype Sorts	✤✜✣✤❀✿❄✺➳➠✓✓✂❿
Cooper Black	**ABCDabcd1234!"#$**
Cooper Black Italic	***ABCDabcd1234!"#$***
Seattle	ABCDabcd1234!"#$
Univers Extended Medium	ABCDabcd1234!"#$
Univers Extended Medium Italic	*ABCDabcd1234!"#$*
Univers Extended Bold	**ABCDabcd1234!"#$**
Univers Extended Bold Italic	***ABCDabcd1234!"#$***
Univers Light Condensed	ABCDabcd1234!"#$
Univers Light Condensed Italic	*ABCDabcd1234!"#$*

Index

Memo

MINOLTA

1997. 7   0993-7701-03