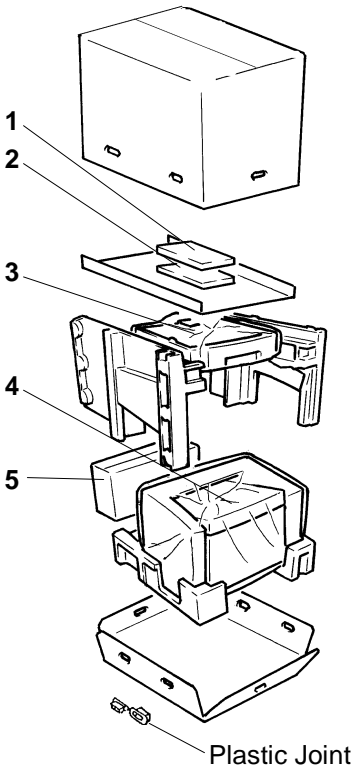


Unpacking Procedure

Set up your printer according to the following procedure. Check that the following items are contained with the printer in the box.



1. Accessories

User Kit including:

- User's Manual
- Printer Driver User's Manual
- Software Diskettes
- End User's License Agreement
- Unpacking/Setting-Up Instructions
- Power Cord

2. Power Cord Instruction

3. 500-Sheet Cassette (A4)

4. Printer

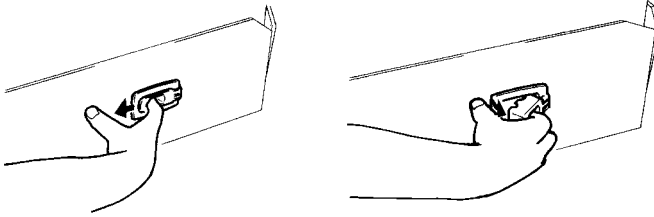
5. Imaging Cartridge

NOTE

Since the printer weighs approximately 55.1 lbs (25 Kg), two people are required to lift it.
--

Unpacking and Setting Up Instruction

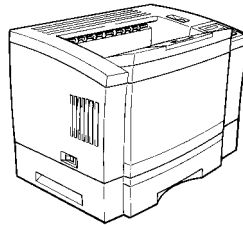
1. Remove the six plastic joints from the box.



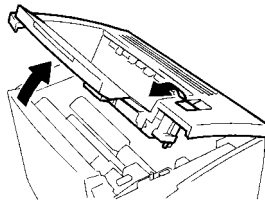
1. Lift up the upper box to take the printer and cassette out of the box. Remove the vinyl bag and all shipping materials.

Setting Up Instructions

1. Place the printer in the location you have chosen.

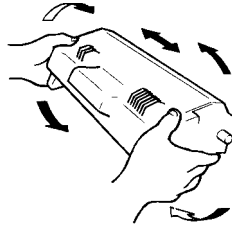


1. Pressing the upper cover lock release button, open the upper cover.
Remove the shipping material inside the printer.

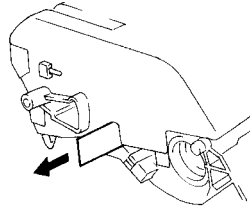


Unpacking and Setting Up Instruction

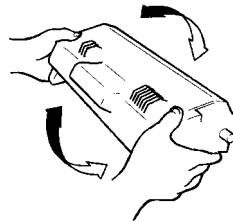
1. Take the imaging cartridge out of the box.
Holding it with both hands, shake it well in the direction of the arrows.



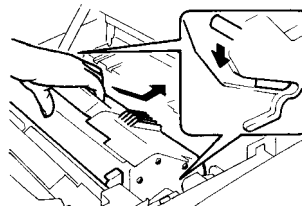
1. Pull the tab outward slowly until the sealing tape is completely removed.



1. Shake the imaging cartridge 4 or 5 times in the direction of the arrows to distribute the toner evenly.

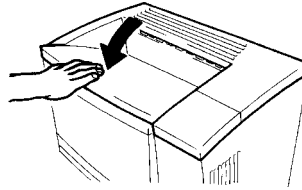


1. Install the imaging cartridge securely into the printer by sliding the pins on each side of the cartridge along the grooves of the cartridge guide.

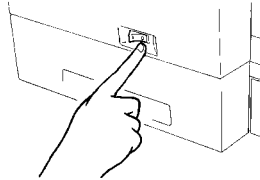


Unpacking and Setting Up Instruction

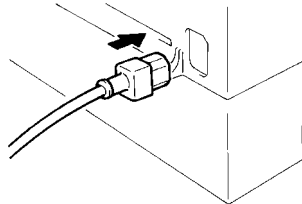
1. Close the upper cover.



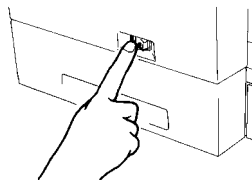
1. Make sure that the power switch of the printer is placed in the OFF position.



1. 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.



1. Press the power switch to the ON position.



1. Open the last page of your User Kit. Fill in the Service Sticker and stick it to the printerframe.

Welcome

Thank you for selecting a Minolta PagePro 20 Printer!

To assist you to easily set up and operate your printer and install the Printer Driver software, the Minolta PagePro 20 Printer comes with a comprehensive *User Kit*. The Minolta PagePro 20 User Kit consists of an *Unpacking and Setting Up Instruction*, a *User's Manual* and a *Software Package*.

The first chapters of the *User's Manual* explain the functions of the printer and how it operates. Besides, they provide you with the troubleshooting tips as well as general precautions you should observe when operating the printer.

The chapters for Windows 95, Windows 3.1 and Status Monitor 20 describe how to install and use the Minolta PagePro 20 Printer Utility. Before reading these chapters, we recommend that you read the previous chapters of the *User's Manual* first, where it is explained how to set up and operate the printer.

At the back you will find the *Software Package* including installation disks of the Printer Utility and Font Manager.

To ensure top performance and effective use of your printer, read this manual carefully from cover to cover, and keep it at hand for future reference.

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This printer includes the software developed by Tokyo Denshi Seikei K.K.

<h2>Chapter 1 Introduction</h2>

1. Printer Features	1-1
2. Printer Parts and Accessories	1-2
3. Control Panel	1-6
Layout for Control Panel	1-6
Indicator Function	1-7
LCD Function	1-7
Key Functions	1-8

<h2>Chapter 2 Setting-Up</h2>

1. Installation Precaution	2-1
Selecting a Location for the Printer	2-1
Power Source	2-1
Grounding.....	2-2
Space Requirements.....	2-3
2. Operational Precaution	2-4
Operating Environment.....	2-4
Operation.....	2-4
Printer Supplies	2-6
3. Setting Up Your Printer	2-7
4. Connecting the Power Cord	2-9
5. Turning the Printer ON and OFF	2-10
Turning the Printer ON.....	2-10
Turning the Printer OFF.....	2-10
6. Printing a Test Page	2-11
Configuration Page.....	2-12
PCL Font List.....	2-13
PCL Demo Print.....	2-15

7. Connecting the Interface Cable	2-16
Interface Port	2-16
8. Moving the Printer	2-17

Chapter 3 Using the Printer

1. Using the Control Panel	3-1
Basic Menu Setting Method	3-1
Tray 1 Paper Size Setting Method	3-2
Job Separation	3-3
2. Understanding the Printer Menus	3-4
Overview of Printer Menus	3-4
Printer Menus	3-6
(1) Print Menu	3-7
(2) PCL Menu	3-10
(3) PS Menu	3-11
(4) System Menu	3-12
(5) Parallel Menu	3-14
(6) Maintenance Menu	3-16
(7) Network Menu	3-17
(8) Test Print	3-19
3. Loading Paper	3-21
Supported Media	3-21
Paper Type	3-21
Paper Size	3-21
Capacity	3-22
Printable Area	3-23
Page Orientation	3-24
Printing on Envelopes	3-25
Printing on Labels	3-26

Printing on Thick paper	3-26
Printing on Transparencies.....	3-26
Printing on Custom Paper	3-26
Duplex Printing	3-27
Paper Type	3-28
Paper Size.....	3-28
Loading Paper in Tray 1.....	3-29
Loading Paper in Tray 2.....	3-31
Loading Paper in Tray 3.....	3-33
Automatic Tray Setting.....	3-35
Using Manual Feed	3-36
Special Paper Tray Setting	3-37
4. Printing.....	3-38
5. Understanding Fonts	3-40
Fonts.....	3-40
Scalable Fonts.....	3-40
Bitmap Fonts	3-40
Minolta Font Manager.....	3-40

Chapter 4 Maintaining Your Printer

1. Supplies for Maintenance	4-1
2. Replacing the Imaging Cartridge	4-2
3. Cleaning Your Printer	4-4
External Cleaning	4-5
Internal Cleaning	4-6

Chapter 5 Solving Printer Problems

1. Clearing A Paper Misfeed	5-1
Paper Misfeed in Tray 1	5-1

Paper Misfeed in Tray 2 or Tray 3	5-3
Paper Misfeed inside the Printer	5-5
Paper Misfeed in the Duplex Unit	5-6
2. Printing Problems.....	5-8
3. Print Quality Problems.....	5-9
4. Understanding Printer Messages	5-12
(1) Status Messages	5-13
(2) Warning Messages	5-15
(3) Caution Messages	5-16
(4) Operator Call Messages	5-17
(5) Service Call Messages	5-19

Chapter 6 Installing Options

1. Installing the Third Tray Unit	6-1
2. Installing the Duplex Unit	6-3
3. Installing the Network Card	6-5
4. Installing the Adobe PostScript ROM-DIMM and Hard Disk	6-7
5. Installing the SIMM.....	6-11

Chapter 7 Specifications

1. Printer.....	7-1
2. Third Tray Unit (Optional)	7-5
250-Sheet Universal Third Tray Unit.....	7-5
500-Sheet Third Tray Unit (Letter).....	7-6
500-Sheet Third Tray Unit (A4).....	7-7
3. Duplex Unit (Optional).....	7-8

4. SIMM7-9
5. Interface Connector and Cable7-10

Chapter 1 Printer Driver for Windows 95

Introduction 1-1
System Requirements 1-1
Installing the Printer Driver 1-2
 Plug and Play 1-2
 Manual Installation..... 1-5
 Setting the Printing Options 1-11
 General Button Operations..... 1-11
 Printer Properties Window 1-11
 General..... 1-12
 Details..... 1-13
 Setup 1-15
 Paper 1-25
 Graphics 1-30
 Fonts..... 1-32
 Device Option 1-33
Printing Documents 1-35
Installing the Minolta Font Manager 1-36

Chapter 2 Minolta Status Monitor 20

Introduction 2-1
System Requirements 2-2
Installing the Minolta Status Monitor 2-3
 Understanding the Status Monitor 2-4
 Status Icon 2-8
 Status Monitor Menus 2-9

Settings.....	2-9
Choose Printer.....	2-9
Alert	2-10
Monitoring Interval	2-11
View.....	2-11
Toolbar	2-11
Recommended Action.....	2-11
Refresh	2-11
Help	2-12
Help Topics	2-12
About Minolta Status Monitor	2-12
User Setting Items.....	2-13

Chapter 3 Printer Driver for Windows 3.1

Introduction	3-1
System Requirements	3-1
Installing the Printer Driver	3-2
Selecting the Printer Port	3-5
Selecting Timeout Options	3-6
Choosing the Default Printer	3-7
Setting the Printing Options	3-8
General Button Operations.....	3-8
Printer Setup Window.....	3-8
Setup	3-9
Paper	3-19
Graphics	3-24
Fonts.....	3-25
Device Options	3-26
Printing Documents	3-28
Installing the Minolta Font Manager.....	3-29

Appendix A

Character Sets	A-1
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Appendix B

Font Lists	B-1
------------------	-----

General Information

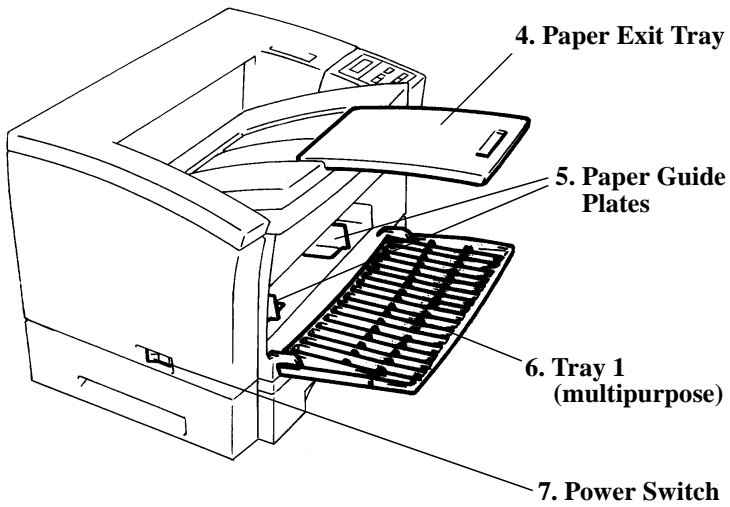
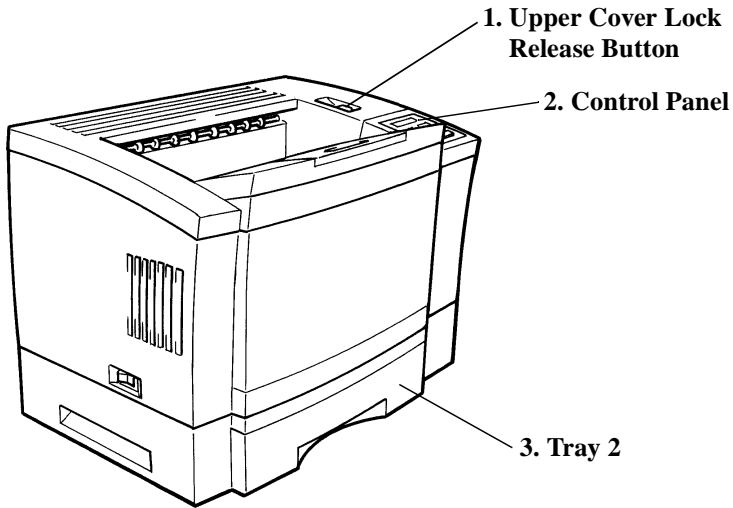
Declaration of Conformity	1
End User License Agreement	2
Addresses MINOLTA-Partners in Europe	10
MINOLTA Guarantee Certificate	12
We do good service.....	24

Chapter 1

Introduction

- ÷ 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 RealToneII 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:

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 A4 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):

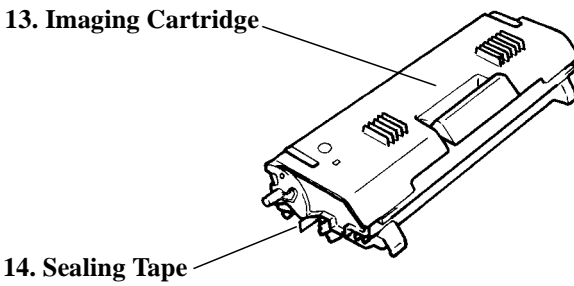
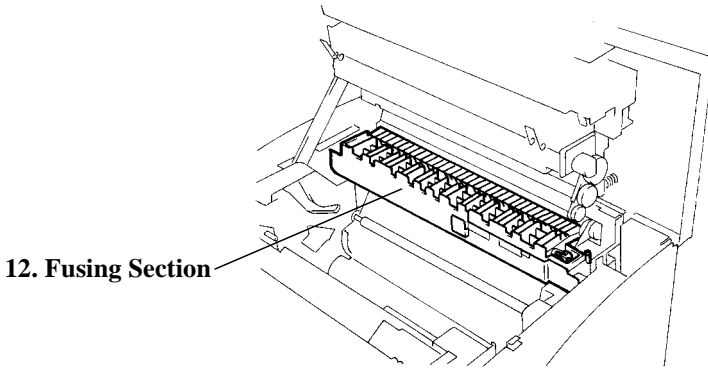
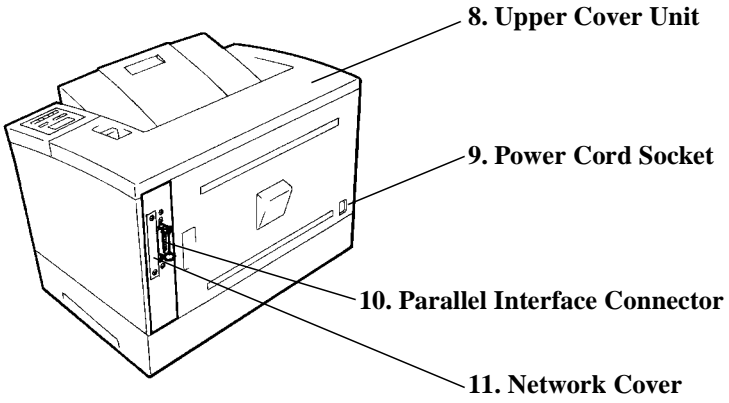
150 sheet capacity for plain paper.

Use this tray for special paper.

7. Power Switch:

Turns the printer on and off.

2. Printer Parts and Accessories



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.

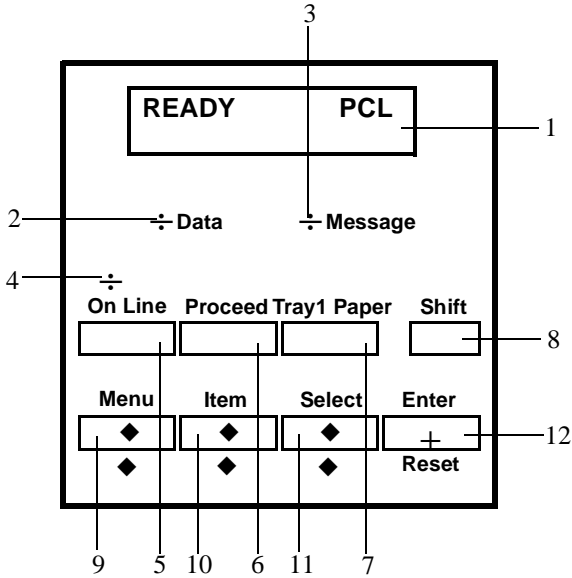
14. Sealing Tape:

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 | 7. Tray1 Paper key |
| 2. Data LED | 8. Shift key |
| 3. Message LED | 9. Menu key |
| 4. On Line LED | 10. Item key |
| 5. On Line key | 11. Select key |
| 6. Proceed 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 TRAY2 IS EMPTY	PCL
---------------------------------------	------------

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.

3. Control Panel

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 setting mode to enter the user selection mode. Repeated key operation displays the user selection values in order.

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.

Chapter 2

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: 230-240V, 50Hz
- ÷ Voltage fluctuation: Within $\pm 7\%$
- ÷ Frequency fluctuation: Within $\pm 3\text{Hz}$

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.

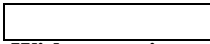
Contact your Technical Representative if you are unable to make grounding connections yourself.

NOTE

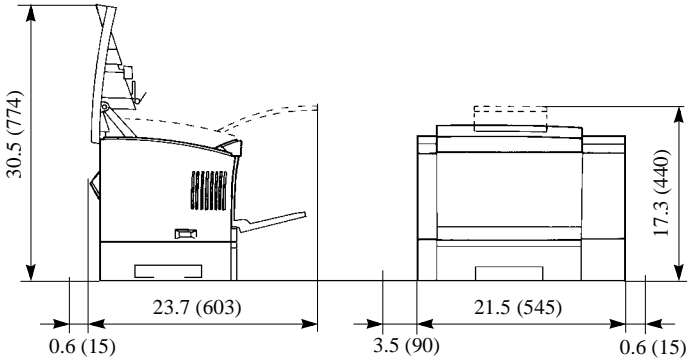
Never connect the grounding wire to a gas pipe, the grounding wire for a telephone, or a water pipe.

Space Requirements

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



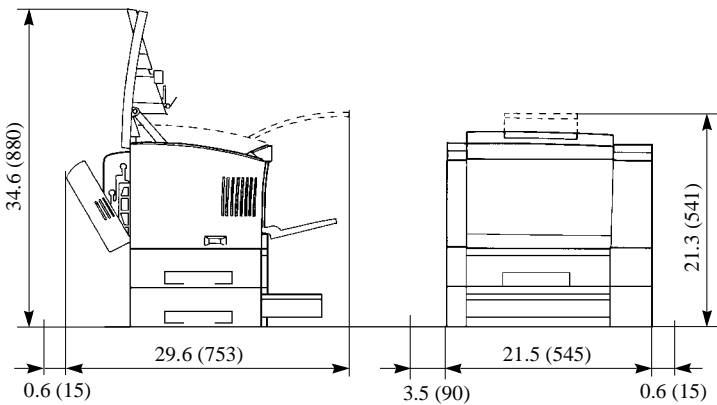
Without options



Unit: inch (mm)



Installed with full options



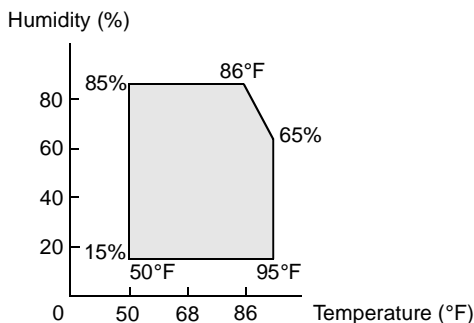
Unit: inch (mm)

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.

- ÷ 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 accidentally 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.

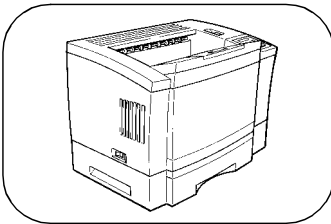
NOTE

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

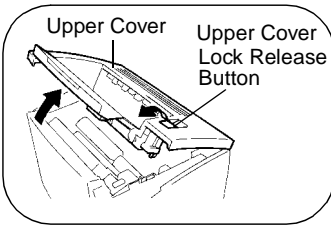
Set up your printer according to the following procedure.

NOTES

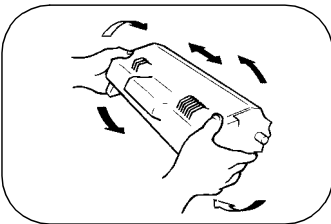
- Keep all the boxes and packing materials that the printer comes in for later use when transporting the printer.
- Since the printer weighs approximately 55.1 lbs (25 kg), two people are required to lift it.



1. Place the printer in the location you have chosen.



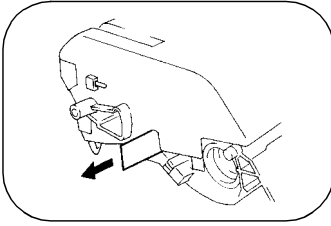
2. Pressing the upper cover lock release button, open the upper cover.



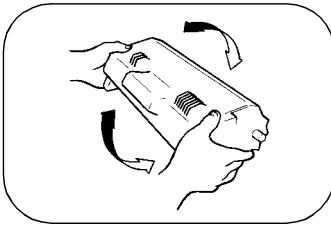
3. Take the imaging cartridge out of the box.

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

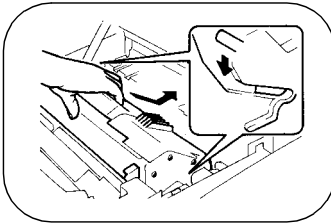
3. Setting Up Your Printer



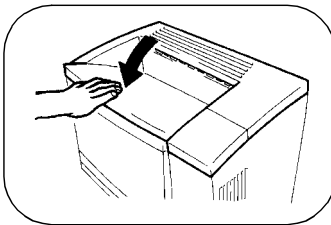
4. Pull the tab outward slowly until the sealing tape is completely removed.



5. Shake the imaging cartridge 4 or 5 times in the direction of the arrows to distribute the toner evenly.



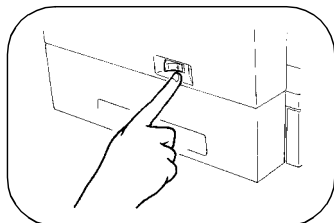
6. Install the imaging cartridge securely into the printer by sliding the pins on each side of the cartridge along the grooves of the cartridge guide.



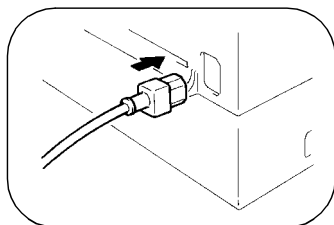
7. Close the upper cover.

4. Connecting the Power Cord

Connect the power cord according to the following procedure.

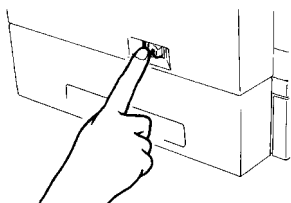


1. Make sure that the power switch of the printer is placed in the ■ (OFF) position.



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.

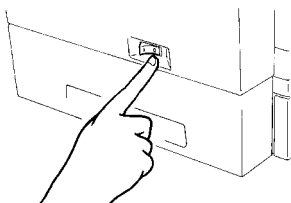
When the printer detects an error during an initialization or diagnostic, an error message appears on the display.

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.

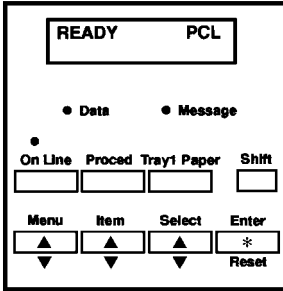
Turning the Printer OFF



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.



1. Load A4 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 PagePro20

-- Configuration Page --

Operation Panel Menu Map

PRINT MENU
 COPIES = 1
 PAPER SIZE = A4
 ORIENTATION = PORTRAIT
 PAPER TRAY = AUTOMATIC
 DUPLEX = OFF
 FORM LENGTH = 64
 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 = PC-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) = A4 (PLAIN PAPER)
 Tray 2 (Upper) = A4 (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 encloses the software that is developed by Tokyo Densoh Seiki K.K.

PCL Font List

MINOLTA PagePro 20 PCL Typeface List

Internal Scalable Typefaces and Bitmapped Fonts


Typeface	Pitch/Point	Escape Sequence	Font #
Courier	Scale	<esc>[<esc>(s0p[0]h9s0b4099T	000
CG Times	Scale	<esc>[<esc>(s1p[0]v0s0b4101T	001
CG Times Bold	Scale	<esc>[<esc>(s1p[0]v0s3b4101T	002
<i>CG Times Italic</i>	Scale	<esc>[<esc>(s1p[0]v1s0b4101T	003
<i>CG Times Bold Italic</i>	Scale	<esc>[<esc>(s1p[0]v1s3b4101T	004
CG Omega	Scale	<esc>[<esc>(s1p[0]v0s0b4113T	005
CG Omega Bold	Scale	<esc>[<esc>(s1p[0]v0s3b4113T	006
<i>CG Omega Italic</i>	Scale	<esc>[<esc>(s1p[0]v1s0b4113T	007
<i>CG Omega Bold Italic</i>	Scale	<esc>[<esc>(s1p[0]v1s3b4113T	008
<i>Coronet</i>	Scale	<esc>[<esc>(s1p[0]v1s0b4116T	009
Clarendon Condensed	Scale	<esc>[<esc>(s1p[0]v4s3b4140T	010
Univers Medium	Scale	<esc>[<esc>(s1p[0]v0s0b4148T	011
Univers Bold	Scale	<esc>[<esc>(s1p[0]v0s3b4148T	012
<i>Univers Medium Italic</i>	Scale	<esc>[<esc>(s1p[0]v1s0b4148T	013
<i>Univers Bold Italic</i>	Scale	<esc>[<esc>(s1p[0]v1s3b4148T	014
Univers Medium Condensed	Scale	<esc>[<esc>(s1p[0]v4s0b4148T	015
Univers Bold Condensed	Scale	<esc>[<esc>(s1p[0]v4s3b4148T	016
<i>Univers Medium Condensed Italic</i>	Scale	<esc>[<esc>(s1p[0]v5s0b4148T	017
<i>Univers Bold Condensed Italic</i>	Scale	<esc>[<esc>(s1p[0]v5s3b4148T	018
Antique Olive	Scale	<esc>[<esc>(s1p[0]v0s0b4168T	019
Antique Olive Bold	Scale	<esc>[<esc>(s1p[0]v0s3b4168T	020
<i>Antique Olive Italic</i>	Scale	<esc>[<esc>(s1p[0]v1s0b4168T	021
Garamond Antiqua	Scale	<esc>[<esc>(s1p[0]v0s0b4197T	022
Garamond Halbfett	Scale	<esc>[<esc>(s1p[0]v0s3b4197T	023
<i>Garamond Kursiv</i>	Scale	<esc>[<esc>(s1p[0]v1s0b4197T	024
<i>Garamond Kursiv Halbfett</i>	Scale	<esc>[<esc>(s1p[0]v1s3b4197T	025
<i>Martypol</i>	Scale	<esc>[<esc>(s1p[0]v0s0b4297T	026
Albertus Medium	Scale	<esc>[<esc>(s1p[0]v0s1b4362T	027
Albertus Extra Bold	Scale	<esc>[<esc>(s1p[0]v0s4b4362T	028

Pitch: .10 - 576

Symbol set

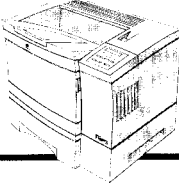
Point size: .25 - 999.75









PCL Demo Print



MINOLTA

PagePro 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)**

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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.


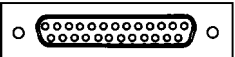
IMPORTANT

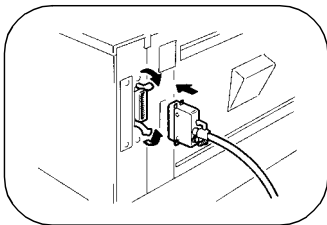
You must purchase an IEEE 1284 type-B cable. If you try to use any other cable, you may damage the printer's port.

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

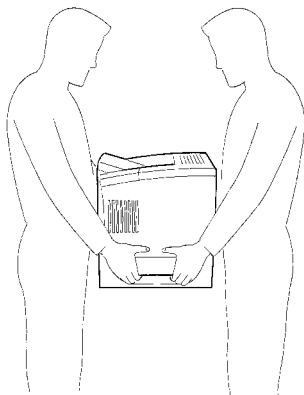


1. Make sure that the power switch of the computer and printer is turned off.
2. Connect one end of the interface cable to the printer port of the computer.
3. Then connect the other end of the interface cable to the interface connector on the backside of the printer.

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.



Chapter 3

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 tray 1 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	A4	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.

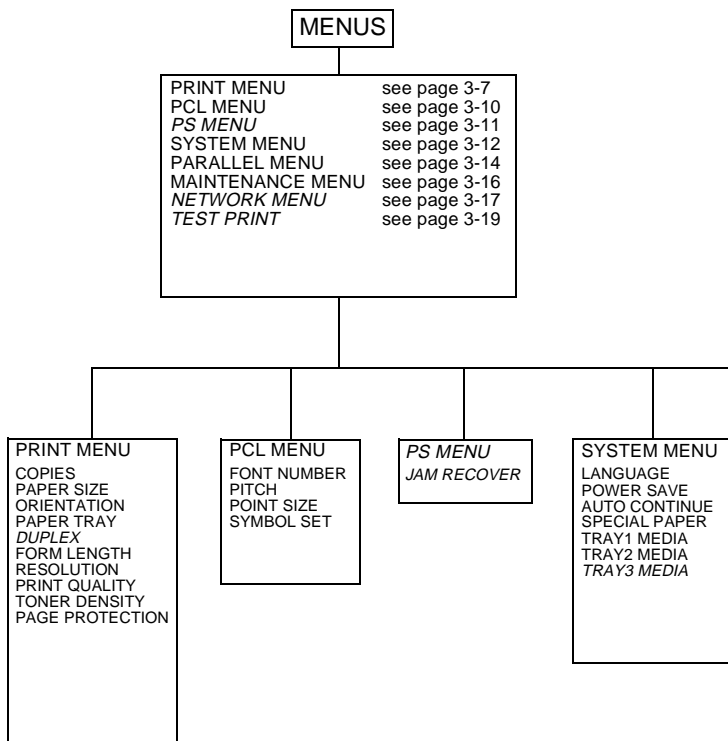
While the printer is **READY** or **OFFLINE**, the printer displays **JOB SEPARATION** on the control panel.

- 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 SEPARATION**.
- 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.

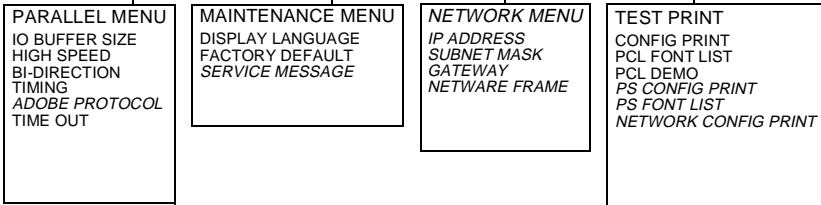
Overview of Printer Menus



NOTE

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

2. Understanding the Printer Menus

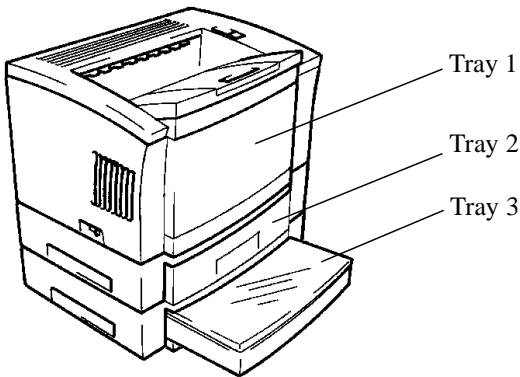


Printer Menu

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



(1) Print Menu

ITEM	FACTORY DEFAULT	USER SELECTION
COPIES	1	1 to 999
PAPER SIZE	A4	LETTER LEGAL LEDGER EXEC A4, A3, B4, JIS B5 PORTRAIT
ORIENTATION	PORTRAIT	LANDSCAPE TRAY 1
PAPER TRAY	AUTOMATIC	TRAY 2 TRAY 3 MANUAL FEED AUTOMATIC
<i>DUPLEX</i>	<i>OFF</i>	<i>OFF</i> <i>SHORT-EDGE BIND</i> <i>LONG-EDGE BIND</i>
FORM LENGTH	64	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

2. Understanding the Printer Menus

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.
--

(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	PC-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
<i>JAM RECOVER</i>	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.

(4) System Menu

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

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. 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.

PLAIN PAPER: 75 to 157 g/m²

THIN PAPER: 60 to 75 g/m²

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
<i>ADOBE PROTOCOL</i>	STANDARD	<i>STANDARD</i> <i>BINARY</i> <i>TBCP</i>
TIME OUT	15	5 to 300

IO BUFFER SIZE

Selects the receiving buffer size. If AUTO is selected, the printer sets the buffer size automatically 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 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 a case, set the setting to OFF after verifying the PC specification.

TIMING

Sets the timing of “Busy to Ack” in the communication format between the printer and PC. Normally, 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
<i>IP ADDRESS</i>	<i>198, 102, 102, 254</i>	xxx, xxx, xxx, xxx
<i>SUBNET MASK</i>	<i>255, 255, 255, 0</i>	xxx, xxx, xxx, xxx
<i>GATEWAY</i>	<i>0, 0, 0, 0</i>	xxx, xxx, xxx, xxx
<i>NETWARE FRAME</i>	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.

2. Understanding the Printer Menus

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.

(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
<i>PS CONFIG PRINT</i>
<i>PS FONT LIST</i>
<i>NETWORK CONFIG PRINT</i>

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/m² (16 to 24 lb)
Recycled paper: 60 to 90 g/m² (16 to 24 lb)
- ÷ Special paper (Tray 1 only):
transparencies, labels, envelopes, letterhead,
thick paper: 91 to 157 g/m² (24 to 41 lb)

Paper Size

Paper Type	Paper Size
Plain/Recycled paper	A3 (297mm x 420mm)
	Super A3 (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.

3. Loading Paper

Paper Size	Paper Source		
	Tray1	Tray 2	Tray 3*
A3	■		■
Super A3 (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 (multipurpose):

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:

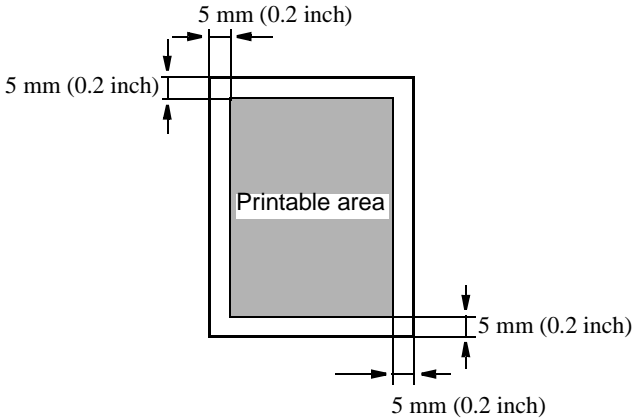
Plain/recycled paper: Up to 500 sheets

÷ Tray 3 (optional):

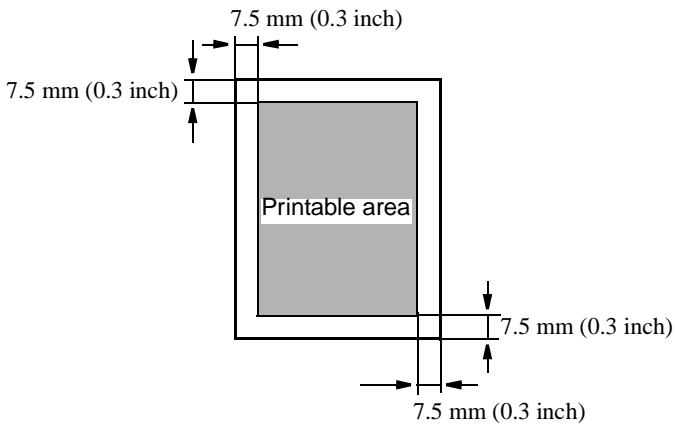
Plain/recycled paper: Up to 250 sheets

Printable Area

One-sided printing Margins of 5 mm (0.2 inch) along the four edges of the document.



Double-sided printing Margins of 7.5 mm (0.3 inch) along the four edges of the document.



Printing Orientation

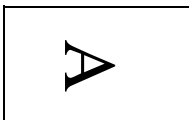
For all paper sizes, the printer prints on the paper face up from any tray.

Paper loaded crosswise:

(A4, JIS B5, Letter)



The direction of paper loading



Printing at portrait orientation



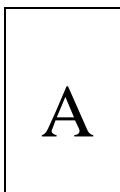
Printing at landscape orientation

Paper loaded lengthwise:

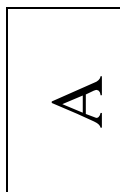
(A3, Super A3, B4, Ledger, Legal, Executive, Envelopes, Universal)



The direction of the paper loading



Printing at portrait orientation



Printing at landscape orientation

Printing on Envelopes

- Tray 1 (multipurpose) 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 one 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.

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 Menu” 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.

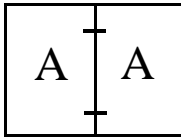
- Tray 1 only.
- Load custom paper face up.
- Do not specify “LONG-EDGE BIND” in the duplex mode.

Duplex Printing

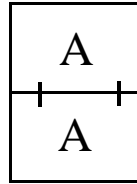
Enables printing on both sides of the paper only when the printer is equipped with the duplex unit.

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

(1) Bind Long Edge

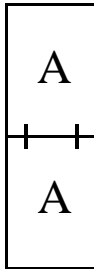


Portrait

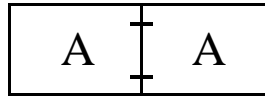


Landscape

(2) Bind Short Edge



Portrait



Landscape

NOTE

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

3. Loading Paper

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

Paper Type

- Plain paper: 60 to 90 g/m² (16 to 24 lb)
- Recycled paper: 60 to 90 g/m² (16 to 24 lb)

NOTE

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

Paper Size

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

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

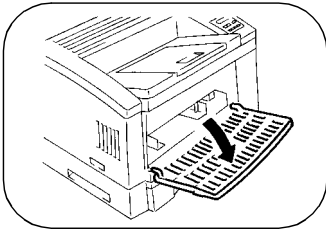
NOTE

- When printing for Super A3 size, you may need to add more memory.
- You cannot combine duplex printing for a **custom size** with **LONG-EDGE BIND**.

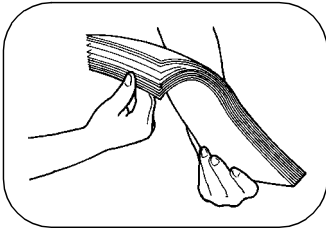
Remember the following when you attempt duplex printing.

- ÷ 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.

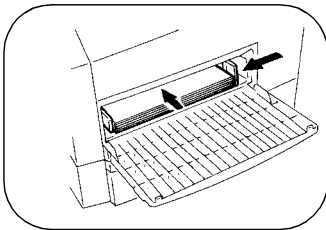
Loading Paper in Tray 1



1. Open tray 1.

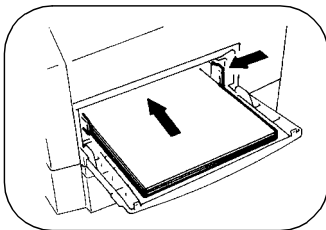


2. Fan the paper thoroughly and align the edges.




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.

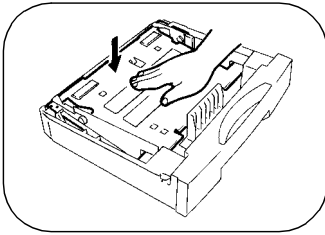
↓ See “Tray 1 Paper Size Setting Method” page 3-2.

5. Specify the tray 1 media type.

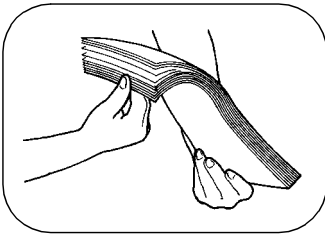
↓ See “System Menu” page 3-12.

↓ See “Basic Menu Setting Method” page 3-1.

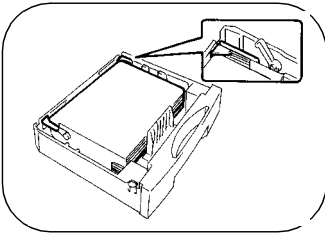
Loading Paper in Tray 2



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.

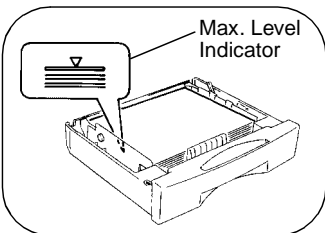


3. Fan the paper thoroughly and align the edges.



4. Load paper face up, placing it under the two clips in the tray.

A4 size only.

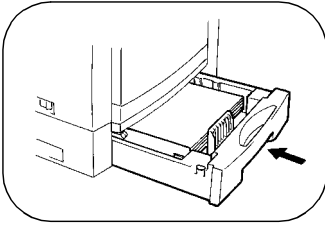


NOTES

Do not load paper beyond the Max. Level Indicator.

Do not add more paper until all sheets have been used up.

3. Loading Paper



5. Slide the tray securely into position.

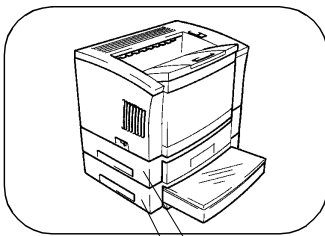
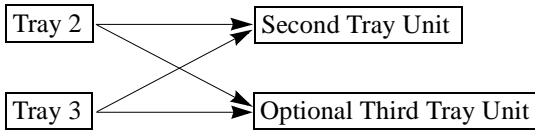
6. Specify the tray 2 media type.

↓ See “System Menu” page 3-12.

↓ See “Basic Menu Setting Method” page 3-1.

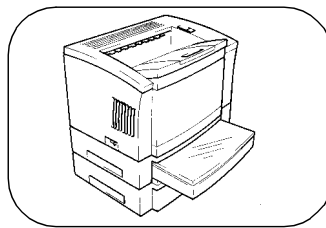
USEFUL TIP

Tray 2 and tray 3 can be used interchangeably.

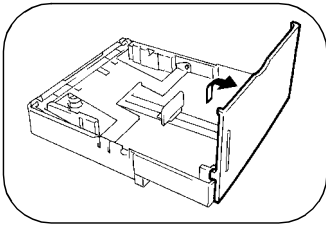


Second Tray Unit

Optional Third Tray Unit

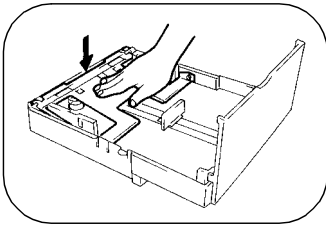


Loading Paper in Tray 3

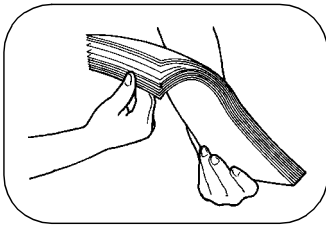


1. When the paper tray is in the tray unit, pull it out and remove it.

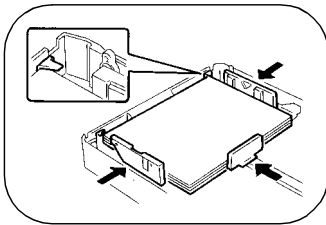
2. Open the paper cover.



3. Press down the paper lifting plate until it locks.



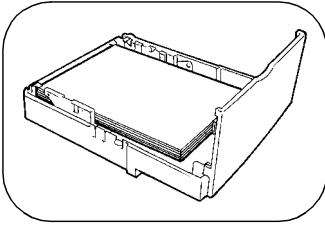
4. Fan the paper thoroughly and align the edges.



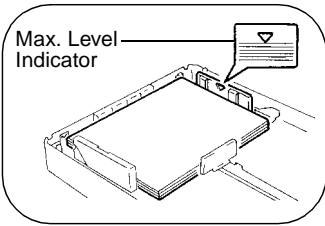
5. Load paper face up, placing it under the two clips in the tray. Adjust the paper guide plates to fit the paper size.

Load A4, JIS B5 and LTR with the long edge toward the back of the tray.

3. Loading Paper



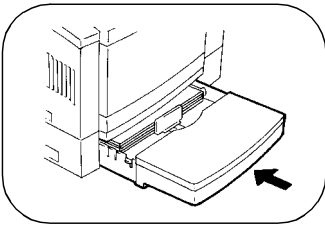
Load A3, B4, LGL, LGR and EXEC with the short edge toward the back of the tray.



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 for the paper source, 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.

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.

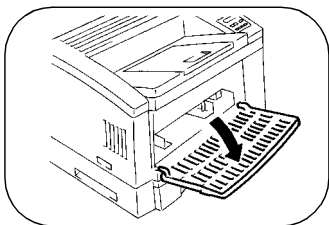
The tray selected for the special paper mode will not be selected in the automatic paper source mode.

NOTE

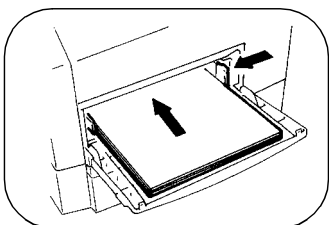
Tray 1 and tray 3 can be specified as the special paper tray.

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.

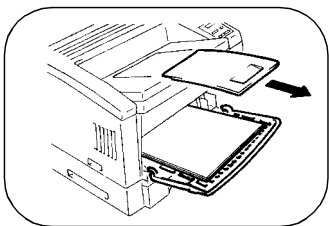
↓ See “Loading Paper in Tray 1”
page 3-29.

↓ See “Loading Paper in Tray 2”
page 3-31.

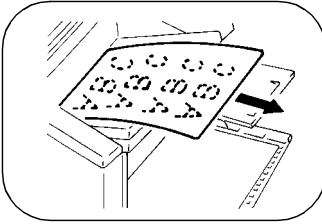
↓ See “Loading Paper in Tray 3”
page 3-33.

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.

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 PagePro 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 PagePro 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

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

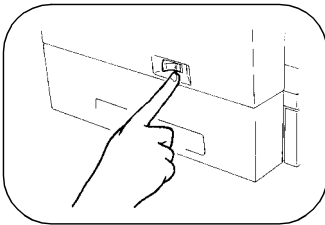
For proper printer operation, use only Minolta supplies.
--

2. Replacing the Imaging Cartridge

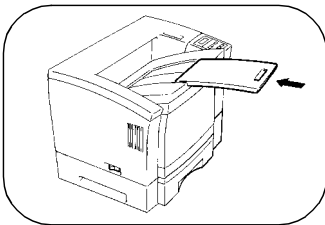
The imaging cartridge contains the print drum and a supply of toner. If you print typical business A4 size page with 5% coverage of toner, the imaging cartridge lasts approximately 10,000 pages. However, the life of the imaging cartridge varies with the density of toner for your pages.

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.

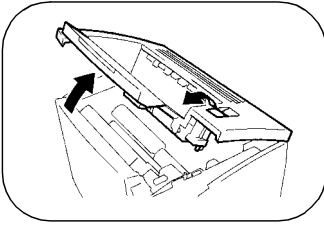


1. Turn the printer off and then disconnect the power cord and interface cable from the printer.

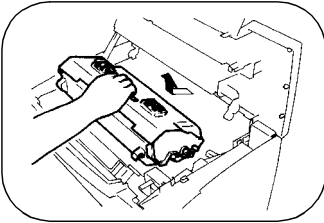


2. If you have pulled out the paper exit tray, push it into the printer before opening the upper cover.

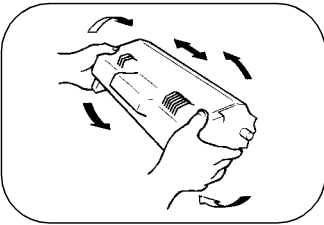
2. Replacing the imaging cartridge



3. Pressing the upper cover lock release button, open the upper cover.

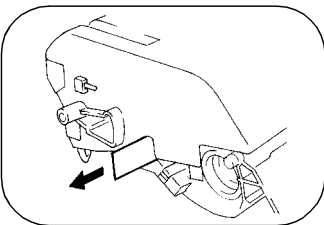


4. Remove the old imaging cartridge from the printer.



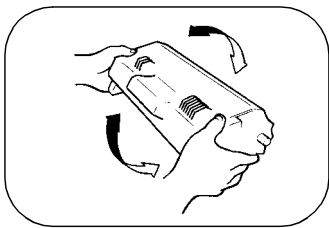
5. Take a new imaging cartridge out of the box.

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

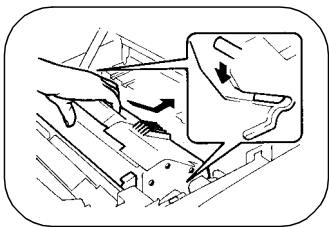


6. Pull the tab outward slowly until the sealing tape is completely removed.

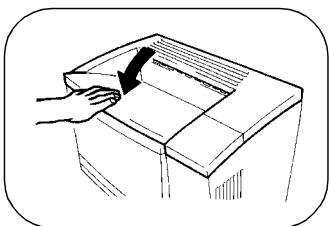
2. Replacing the imaging cartridge



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.

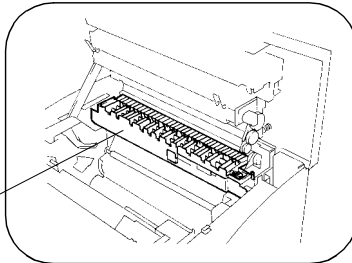
NOTE

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.

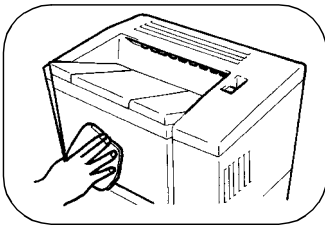
CAUTION

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

Fusing Section

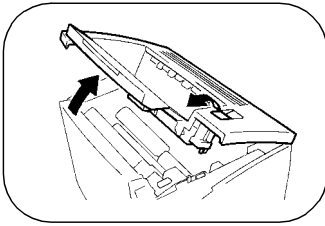


External Cleaning

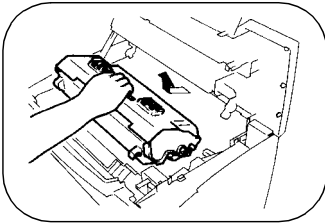


Wipe off dirt and stains around the printer with a soft cloth dampened with a mild detergent.

Internal Cleaning



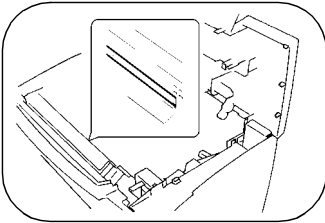
1. Open the upper cover.



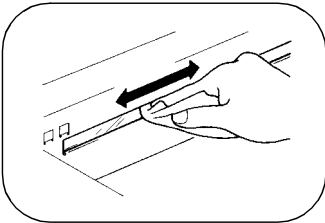
2. Remove the imaging cartridge.

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

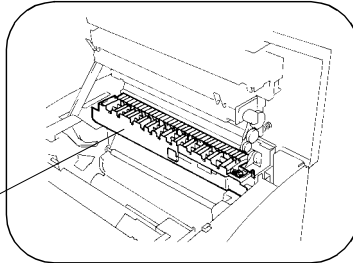
Solving Printer Problems

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

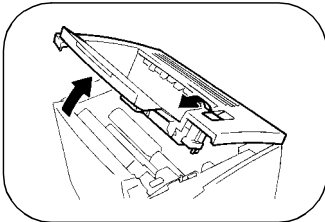
CAUTION

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

Fusing Section



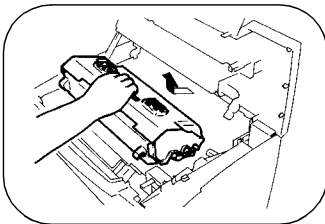
Paper Misfeed in Tray 1



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.

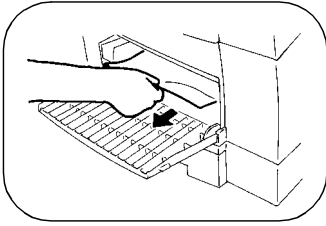


2. Remove the imaging cartridge.

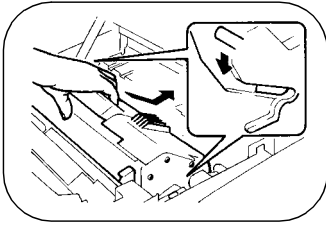
NOTE

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

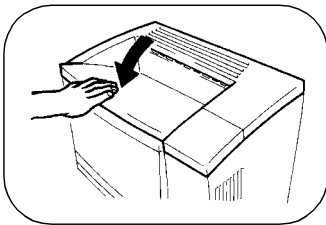
1. Clearing A Paper Misfeed



3. Pull out the misfed paper in tray 1.

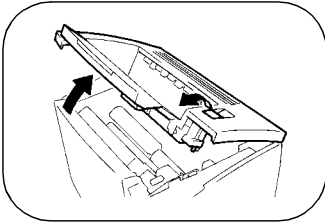


4. Check that no misfed paper remains in the printer.
Reinstall the imaging cartridge.



5. Close the upper cover.

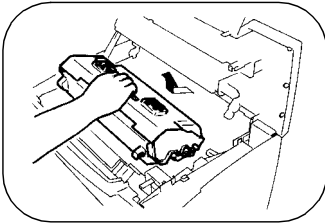
Paper Misfeed in Tray 2 or Tray 3



1. Pressing the upper cover lock release button, open the upper cover.

NOTE

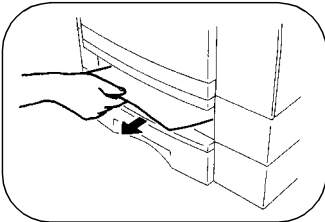
If you have pulled out the paper exit tray, push it into the printer before opening the upper cover.



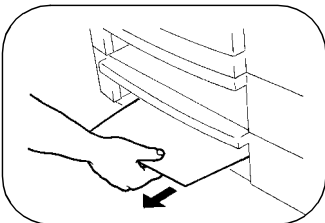
2. Remove the imaging cartridge.

NOTE

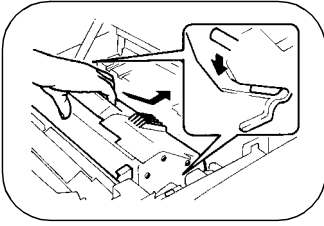
Whenever you remove the imaging cartridge from the printer, immediately cover it with a cloth to prevent light from striking it.



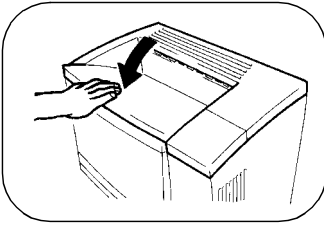
3. Pull out tray 2 or tray 3, and remove the misfed paper.



1. Clearing A Paper Misfeed

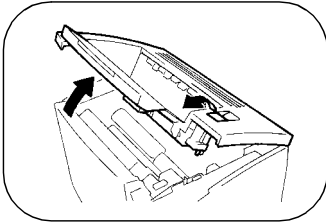


4. Check that no misfed paper remains in the printer.
Reinstall the imaging cartridge.



5. Close the upper cover.

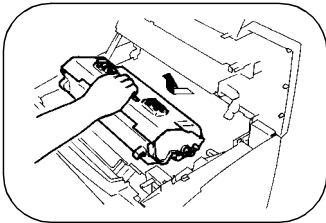
Paper Misfeed Inside the Printer



1. Pressing the upper cover lock release button, open the upper cover.

NOTE

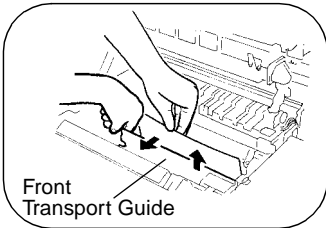
If you have pulled out the paper exit tray, push it into the printer before opening the upper cover.



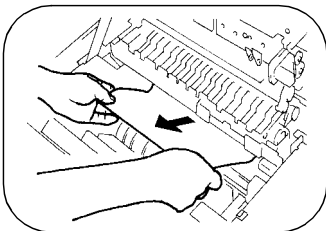
2. Remove the imaging cartridge.

NOTE

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

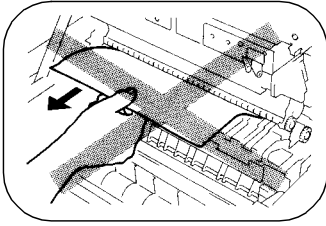


3. When the paper is not being fed as far as the fusing unit, pull the misfed paper upward and out after opening the front transport guide.



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

1. Clearing A Paper Misfeed

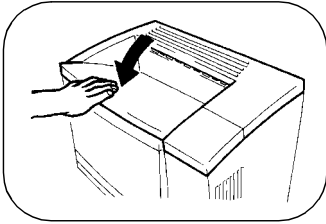


NOTES

The image which was transferred to the paper is not fixed.

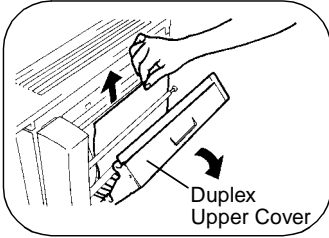
Be careful or your hands will become dirty.

Do not pull out the paper in the direction (the exit side of the fusing unit) of the arrow.

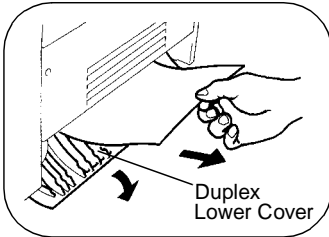


5. Reinstall the imaging cartridge and close the upper cover.

Paper Misfeed in the Duplex Unit



1. Open the duplex upper cover and pull out the misfed paper.



2. Open the duplex lower cover and remove the misfed paper.


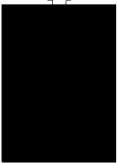
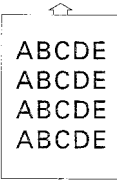
2. Printing Problems

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.

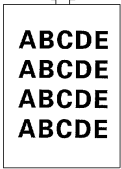
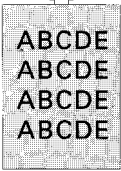
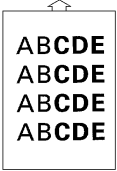
Symptom	Cause	Action
No Printing	The printer is off-line.	Press the On Line key to take the printer on-line.
	The interface cable is not securely connected to the printer and computer or defective.	Reconnect the interface cable or replace the interface cable.
	You are not using the printer driver for PagePro 20.	Change the default printer setting to the PagePro 20.
	The printer port setting is incorrect.	Change the setting.
	There is no paper in the specified paper source.	Load paper in the specified paper source.
	There is a paper misfeed.	Remove the misfed paper. See page 5-1, 5-3, 5-5 or 5-7.
	You are selecting Manual Feed.	Load the selected paper size in the multipurpose tray and press the On Line key to print.
	The printer may need service.	Contact your technical representative.

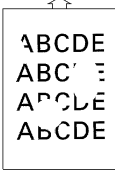
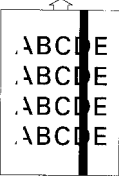
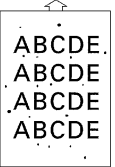
3. Print Quality Problems

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.

3. Printing Problems

Symptom	Cause	Action
Print out too dark 	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 	The imaging cartridge may be defective.	Replace the imaging cartridge if necessary.
Uneven print density 	The toner density setting made with the Device Option dialog box may be too dark.	Change the setting.
	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 	The paper may have absorbed some moisture due to high humidity.	Replace the paper you are using with dry paper.
White or black lines 	The imaging cartridge may be defective.	Replace the imaging cartridge if necessary.
Toner smudges 	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.

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
Displays the current printer status.
- (2) Warning messages
Displays a warning message.
- (3) Caution messages
The message LED blinks and display a caution message.
Requests you to perform a necessary task before resuming printing.
- (4) Operator call messages
The message LED blinks and display a operator call message.
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 display a service call message. If the message appears repeatedly, you need to call your Technical Representative.

(1) Status Messages

MESSAGE	DESCRIP-
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 canceled 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, refer to “Printer Driver User’s Manual”.

paper: the current paper size setting.

4. Understanding Printer Messages

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

MESSAGE	DESCRIPTION & AC-
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.

4. Understanding Printer Messages

(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.

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 may need to add more memory or reduce the print data.

(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.

4. Understanding Printer Messages

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, refer to the chapters “Printer Driver for Windows 95, and Windows 3.1”.

(5) Service Call Messages

MESSAGE	DESCRIPTION AND AC-
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.

4. Understanding Printer Messages

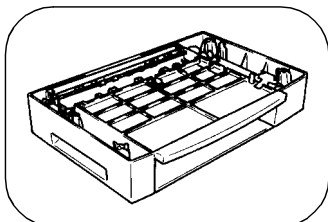
MESSAGE	DESCRIPTION AND AC-
FATAL ERROR 22 HSYNC	A laser diode error. Turn the printer off and call your Technical Representative.
FATAL ERROR 23 POLYGON	A polygon motor error. Turn the printer off and call your Technical Representative.
FATAL ERROR 24 MOTOR	A main motor error. Turn the printer off and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

Chapter 6

Installing Options

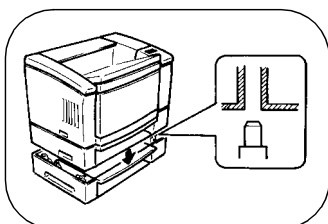
1. Installing the Third Tray Unit

- 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.

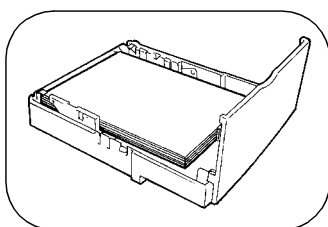
Pull out the paper tray beforehand.



2. Set the printer onto the third tray unit using the coupling pins as a guide.

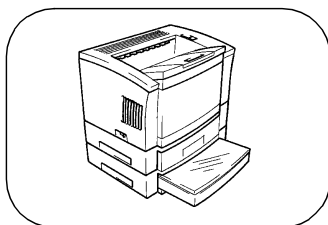
NOTE

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.

1. Installing the Third Tray Unit

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

↓ See “Connecting the power Cord” page 3-9.

↓ See “Turning the Printer ON and OFF” page 3-10.

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

↓ See “Test Print” page 3-19.

Installed Options

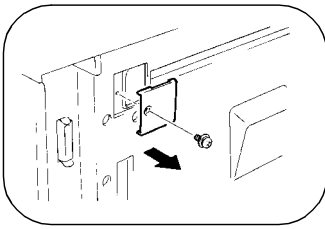
Third Tray Unit	= Installed
Duplex Unit	= Not Installed
Network Card	= Not Installed
PostScript ROM	= Not Installed
Hard Disk	= Not Installed
Add SIMM Memory (MB)	= 0

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

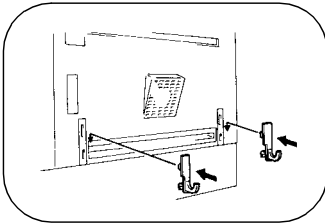
NOTE

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

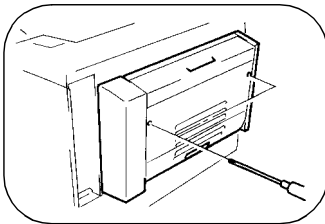
- Take the duplex unit out of the shipping box.
- Remove the plastic bag and all shipping materials.
- Turn the printer off and then disconnect the power cord and interface cable from the printer.



1. Remove the cover on the back-side 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.

2. Installing the Duplex Unit

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

↓ See “Connecting the power Cord” page 3-9.

↓ See “Turning the Printer ON and OFF” page 3-10.

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

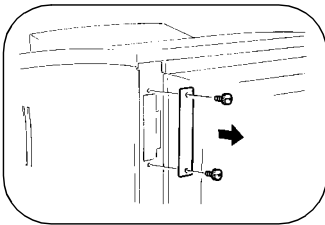
3. Installing the Network Card

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

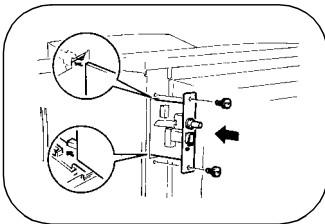
WARNING

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.

3. Installing the Network Card

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

↓ See “Connecting the power Cord” page 3-9.

↓ See “Turning the Printer ON and OFF” page 3-10.

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

↓ See “Test Print” page 3-19.

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

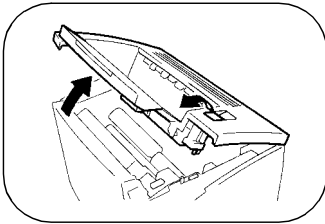
4. Installing the Adobe PostScript ROM-DIMM and Hard Disk

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

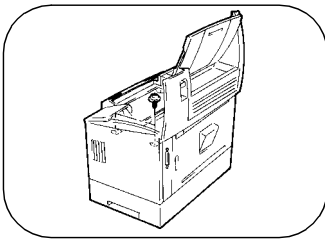
WARNING

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 interface cable from the printer.

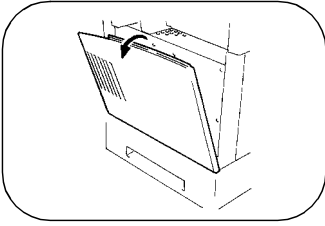


1. Pressing the upper cover lock release button, open the upper unit.

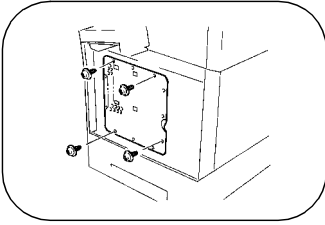


2. Loosen two screws to remove the right side cover.
(Use a plus screwdriver.)

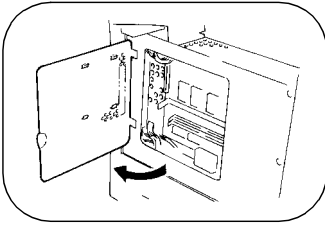
4. Installing the Adobe Postscript DIMM and Hard Disk



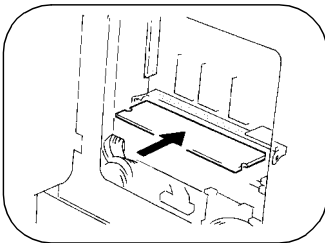
3. Remove the right side cover.



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

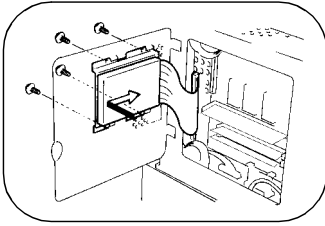


5. Open the metal cover.



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.

4. Installing the Adobe Postscript DIMM and Hard Disk



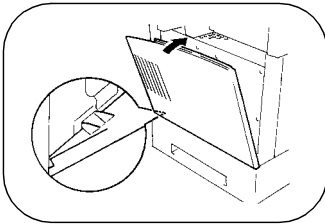
7. Install the Hard Disk and tighten the four screws.

(Use a plus screwdriver.)

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

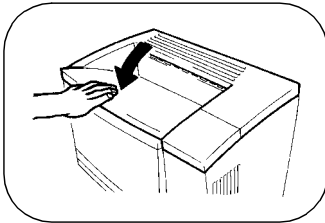
NOTE

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 3-9.

↓ See “Turning the Printer ON and OFF” page 3-10.

4. Installing the Adobe Postscript DIMM and Hard Disk

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

↓ See “Test Print” page 3-19.

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

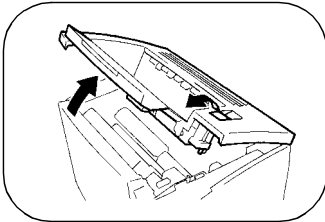
You can expand printer memory by adding single in-line memory (SIMM).

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.

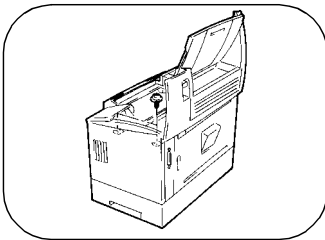
WARNING

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.

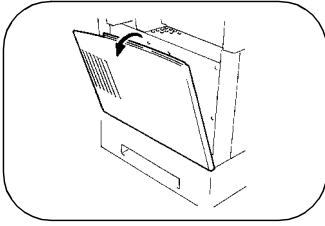


1. Pressing the upper cover lock release button, open the upper cover.

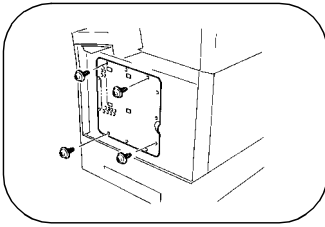


2. Loosen two screws to remove the right side cover.
(Use a plus screwdriver.)

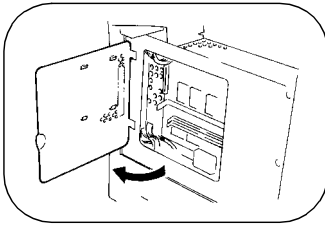
5. Installing the SIMM



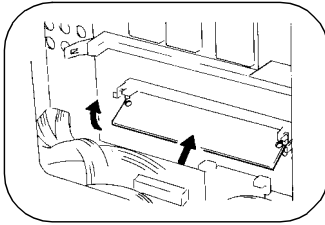
3. Remove the right side cover.



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



5. Open the metal cover.

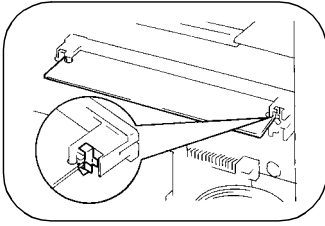


6. Insert the SIMM all the way into the upper memory connector at a 45 degree angle, and push the SIMM up until it snaps into place.

NOTES

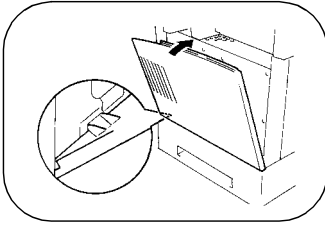
When you install two SIMMs, the first one must be inserted into the upper memory connector (slot 1).

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

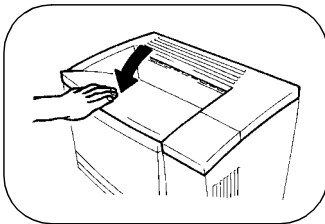


7. Make sure both metal clips on the connector are pushed through the holes on the SIMM.

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 3-9.

↓ See “Turning the Printer ON and OFF” page 3-10.

5. Installing the SIMM

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

↓ See “Test Print” page 3-19.

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 7

Specifications

Name	PagePro 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 A3, 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: A4 size only

1. Printer

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)
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	230-240V, 50Hz 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

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-type-B /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, A4 Tray, User's Manual, Printer Driver User's Manual, Software Diskettes (4 pcs.)

1. Printer

Options	250-Sheet Universal Third Tray Unit 500-Sheet Third Tray Unit (Letter) 500-Sheet Third Tray Unit (A4) Paper Tray <ul style="list-style-type: none">- 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
---------	--

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	Ordinary 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)

2. Third Tray Unit (Optional)

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)

2. Third Tray Unit (Optional)

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)

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 A3, 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)

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:

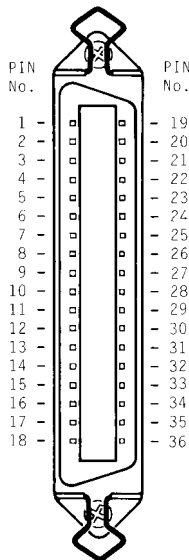
Printer: Centronics 36-pin connector

Computer: EIA 25-pin connector

Cable type:

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

IEEE 1284 type-B connector pin assignments



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)		

5. Interface Connector and Cable

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

Chapter 1

Printer Driver for Windows 95

Introduction

The Minolta PagePro 20 printer utility was developed especially to provide true Windows based printing for users of the Minolta PagePro 20 printer.

System Requirements

The following describes the minimum system requirements that are necessary to correctly run the Minolta PagePro 20 printer utility.

Operating System:

Microsoft[®] Windows[®] 95

Personal Computer:

IBM PC or compatible with a 486SX 33MHz CPU, or faster CPU
(Pentium processor recommended)

I/O Interface:

Standard PC parallel printer port and cable

Memory:

At least 12MB PC RAM (16MB recommended)

Free Disk Space:

Approximately 1MB for files

NOTE

Use of a poor quality parallel cable may adversely affect input.
--

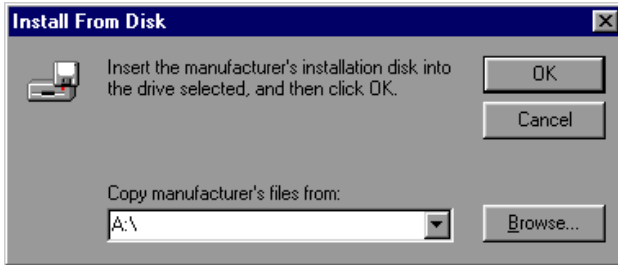
Installing the Printer Driver

Plug and Play

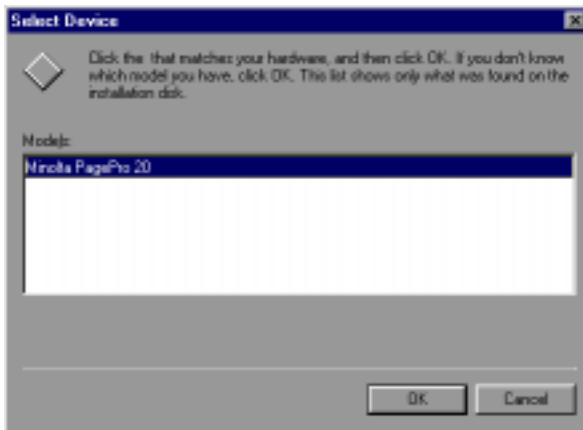
1. Connect the printer to the computer using the parallel interface cable.
2. Turn on your printer.
3. Turn on your computer and start up Windows 95.
If the New Hardware Found screen appears, go to step 4.
If not, go to “Manual Installation” step 2 on page 1-5.
4. Click “Driver from disk provided by hardware manufacture” and then click the **OK** button.



5. Insert the Windows 95 Printer Driver diskette into your computer's disk drive. After making sure the displayed drive letter is your computer's disk drive, click the **OK** button.



6. Click the **OK** button.



7. Click the **Finish** button.

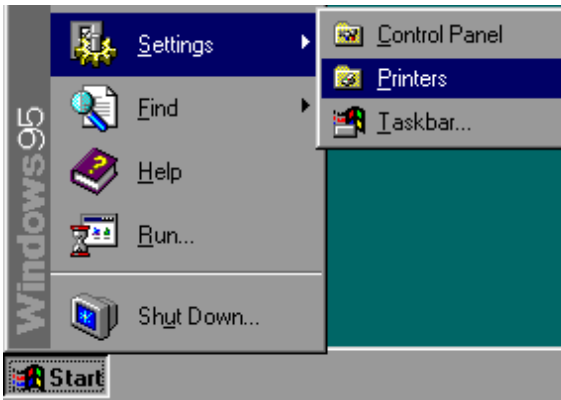


8. Installing the Printer Driver is completed. Your new printer icon appears in the Printers folder.



Manual Installation

1. Turn on your computer and start up Windows 95.
2. Click the **Start** Button, point to **Settings**, and then click **Printers**.



3. In the Printers folder, double-click the **Add Printer** icon.



4. Click the **Next** button.



5. Select "Local printer", then click the **Next** button.



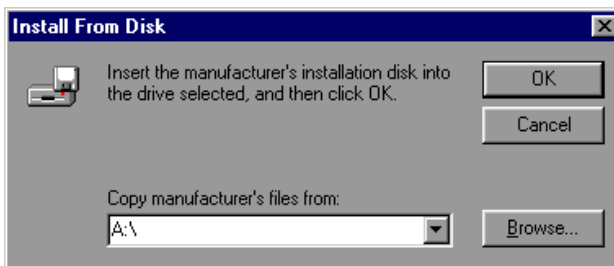
6. Click the **Have Disk...** button.



7. Insert the Windows 95 Printer Driver diskette into your computer's disk drive. At the command prompt, type the drive letter followed by a colon (:) and a back slash (\). For example:

A:

Click the **OK** button.

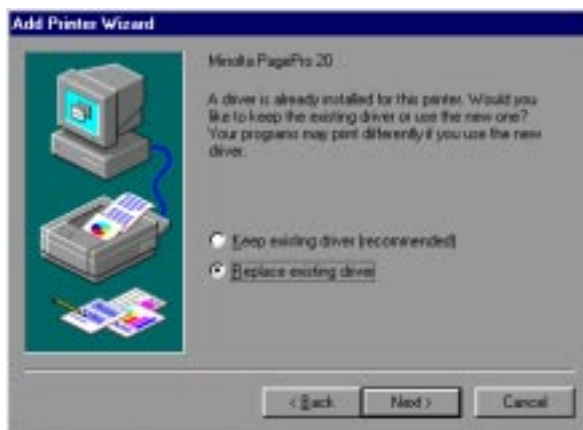


8. Click the **Next** button.

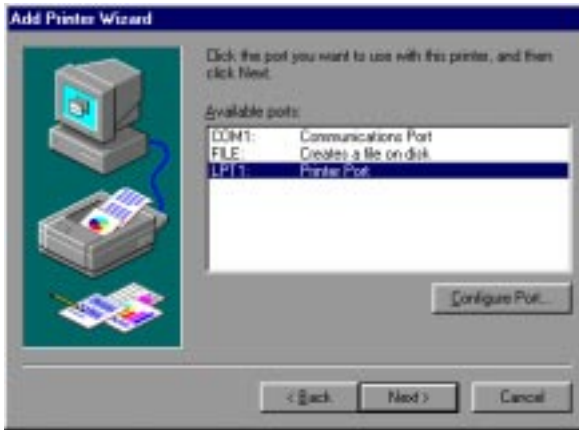


9. If you have already installed the printer driver, the following screen appears.

Select “Replace existing driver”, then click the **Next** button.



10. Click the port you want to use with this printer, then click the **Next** button.



11. Click the **Finish** button.



12. If you have already installed the printer driver, the following screen appears.

Select whether you use this printer as the default printer, then click the **Finish** button.



13. Installing the Printer Driver is completed. Your new printer icon appears in the Printers folder.



Setting the Printing Options

Printing options are your printer-specific settings, such as resolution, print quality and installed options.

To change printer settings

1. Click the **Start** Button, point to **Settings**, and then click **Printers**. The Printers folder appears.
2. Click your printer icon, click File, and then click Properties. The printer properties window appears.
3. Make any necessary changes, then click the **OK** button.

General Button Operations

The following describes the operation of the buttons that appear at the bottom of all setup dialog boxes.

Restore Default

Click this button to restore all settings in the displayed dialog box to their initial defaults.

OK

Click this button to close the printer properties window and save all the setting changes you made.

Cancel

Click this button to close the printer properties window without saving any of the changes you have made.

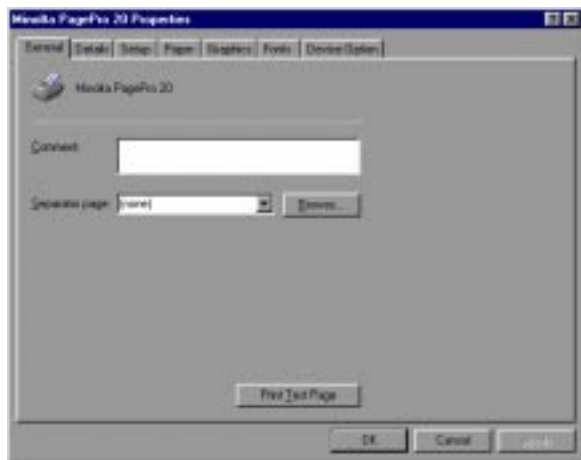
Apply

Click this button to send all the setting changes you made to the printer without closing the printer properties window.

Printer Properties Window

The following describes how to make settings using the dialog boxes that are available in this window.

General



Comment

Provides a place for you to add a comment about the printer, for example, when it is available or what it is used for.

If you share this printer, the comment is transferred when someone sets up your printer on their computer. However, if you change the comment, other people will not see the updated version.

Separator page

Inserts a page between each document printed. This is useful if many people are using your printer or if you are printing multiple documents at once. You can choose between a full page that includes graphics or a simple page with text only.

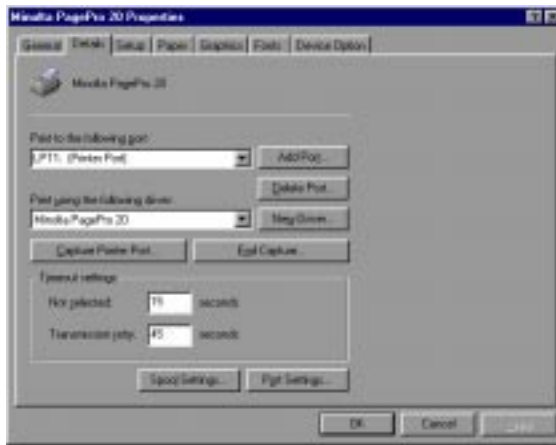
If you want to use a custom separator page, click Browse to locate and specify which separator file you want to print between documents. You can use any Windows metafile (.wmf) for a separator page.

You can set up separator pages only if the printer is attached directly to your computer.

Print Test Page

Click this button to send a test page to your printer. You might want to do this to make sure your printer is set up correctly.

Details



Port

Displays the port your printer is connected to or the path to the network printer you are using.

You can change where you print to by typing the network path here, by opening the list and clicking a port, or by clicking Add Port.

- LPT A parallel port.
- COM A serial port.
- FILE Prints to a file instead of a printer. If the application you are working with supports this feature, you can print to a file even if you don't select this option.

Add Port

Click this button to add a new port or specify a new network path.

Delete Port

Click this button to delete a port from the list of available ports.

Driver

Displays the type of printer you are using. This type must match your printer or be one that your printer can emulate.

New Driver

Click this button to update or change your printer driver.

Capture Printer Port

Click this button to capture a port (map it to a network drive).

End Capture

Click this button to remove the mapping of a port from a network drive (end the capture).

Timeout

Timeout options control the amount of time that elapses before a message appears to notify you of printer problems.

Not Selected	Specifies how much time (in seconds) Windows will wait for the printer to come on-line before reporting an error.
Transmission Retry	Specifies how much time (in seconds) Windows will wait for the printer to be ready to print before reporting an error. If you have problems printing large documents, you may want to increase the value of this setting.

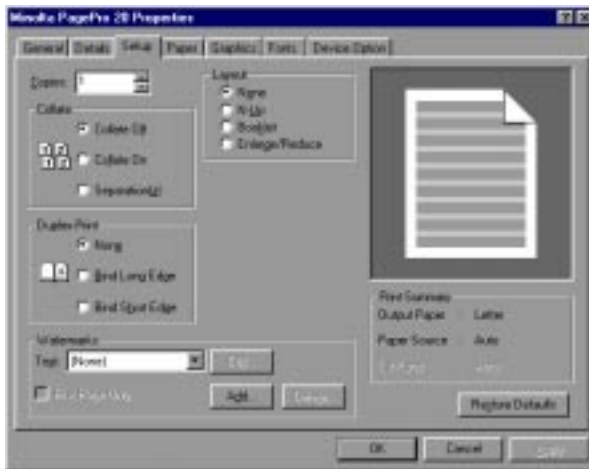
Spool Settings

Click this button to specify how your document is sent from your program to the printer.

Port Settings

Click this button to change settings for the printer port.

Setup



Copies

Specifies the number of copies you want to print. You can specify any value from 1 to 999.

Collate

Collate Off: When Collate is off, the printer prints each page of a job the number of times selected in the Copies item. For example, if you send a three-page job to print and set Copies to 2, the printer prints page 1, page 1, page 2, page 2, page 3, page 3.

Collate On: When Collate is on, the printer prints each print job the number of times selected in the Copies item. For example, if you send a three-page job to print and set Copies to 2, the printer prints page 1, page 2, page 3, page 1, page 2, page 3.

Separation: Allows you to insert a blank page between print jobs.

NOTE

If you specify **Separation**, you must also specify **JOB SEPARATION** in the tray1 paper size setting mode at the control panel.

NOTE

If you specify **Collate On** or **Separation** through the printer driver, be sure to set the collate setting of the application software to **off**.

Duplex Print

Specifies whether to print on both sides of the paper. If you attempt duplex printing, you can choose either Bind Long Edge or Bind Short Edge.

NOTES

- To activate this setting, you must change the setting for Duplex Unit in the Device Option dialog box from “Not Installed” to “Installed”.
- Do not use **special paper** (transparencies, labels, envelopes, letterhead and thick paper) for duplex printing.
- You cannot print on a **custom size smaller than A5 size** for duplex printing.

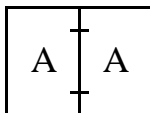
By creating a combination of Bind Long Edge, Bind Short Edge, Portrait, Landscape and N-Up, the printer prints upside down for odd-numbered pages and even numbered pages, or in the same direction for all pages.

	None or 4Up		2Up	
	Long Edge	Short Edge	Long Edge	Short Edge
Portrait	■	○	○	■
Landscape	○	■	■	○

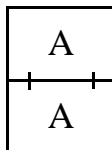
■: same direction ○: upside down

None: Performs one sided printing.

Bind Long Edge: Performs duplex printing for binding along the long edge.



Portrait

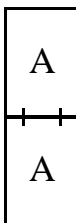


Landscape

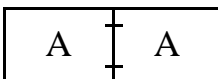
NOTE

When you print on a **custom size** with Bind Long Edge, the Layout function cannot be used.

Bind Short Edge: Performs duplex printing for binding along the short edge.



Portrait



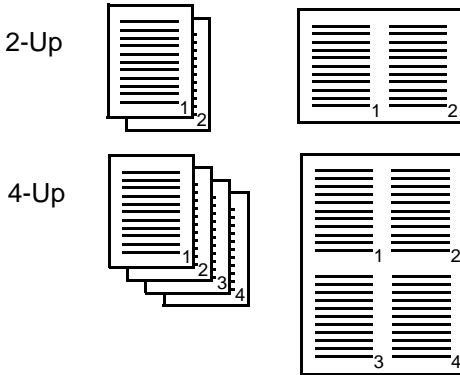
Landscape

Layout

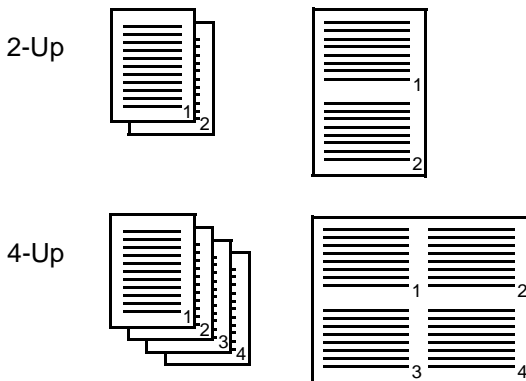
None: No layout specified.

N-Up: Prints either two or four pages on a single sheet of paper.

Ex. at Portrait orientation.



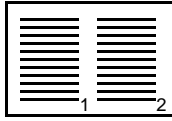
Example: Landscape orientation.



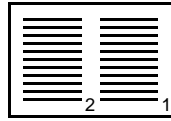
If you select N-Up, the following settings activate.

N-Up Choice: You can select six kinds of layouts.

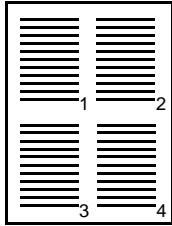
Ex. at Portrait orientation



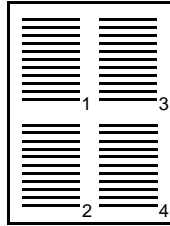
2-Up Ascending



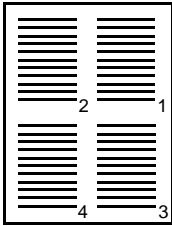
2-Up Descending



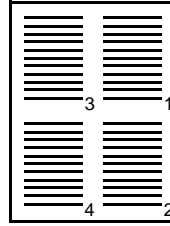
4-Up Hoz. Ascending



4-Up Ver. Ascending

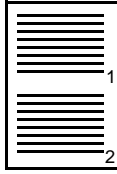


4-Up Hoz. Descending

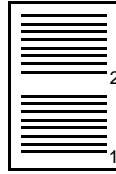


4-Up Ver. Descending

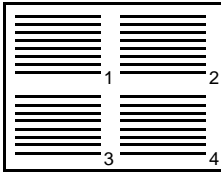
Example: Landscape orientation.



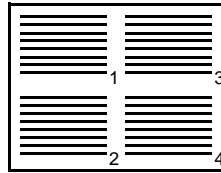
2-Up Ascending



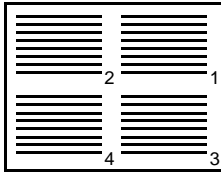
2-Up Descending



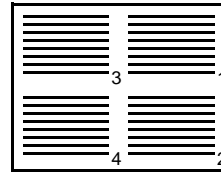
4-Up Hoz. Ascending



4-Up Ver. Ascending



4-Up Hoz. Descending



4-Up Ver. Descending

N-Up Paper: p x n -> paper size.

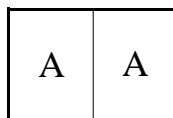
p: the paper size of the document.

n: N-Up

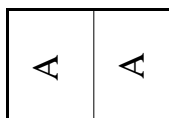
paper size: see "Paper Size" page 1-25.

Border Line: Specifies whether to print a border line.

Booklet: Tells the printer that the printed pages will be bound in the center. Enables booklet printing both for portrait and landscape orientation



Portrait



Landscape

NOTES

- To activate this setting, you must change the setting for Duplex Unit in the Device Option dialog box from “Not Installed” to “Installed”.
- When you perform booklet printing, set the Duplex Print setting in the Setup dialog box to “None”.

If you select Booklet, the following settings activate.

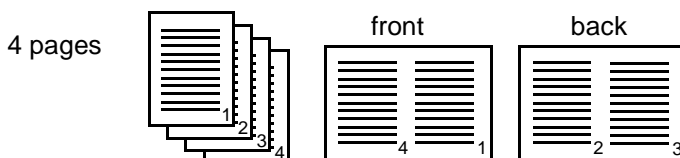
Booklet Choice: You can select either “Left Open” or “Right Open”.

Booklet Paper: p x 2 -> paper size.

p: the paper size of the document.

paper size: see “Paper Size” page 1-25.

Example: Portrait orientation.



Enlarge/Reduce: Performs enlargement or reduction printing according to the paper size you specify.

If you select Enlarge/Reduce, the following settings activate.

Enlarge/Reduce: p -> paper size.

p: the paper size of the document.

paper size: see “Paper Size” page 1-25.

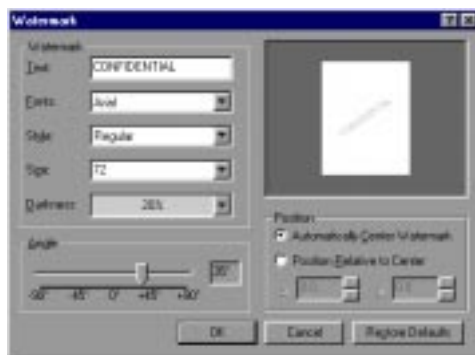
Watermark

Specifies which watermark to use. You will be able to add others, edit or delete the defined watermark.

Text: Lists the available watermarks from which you can select, edit or delete.

First Page Only: Prints the watermark on the first page only.

Click the Add or Edit button to display the watermark dialog box.



The following settings are available in the watermark dialog box.

Text: Displays the text of the selected watermark for editing or type in a watermark (up to 64 characters) you want to print.

Fonts: Specifies a font for the watermark you want to print on the page.

Style: Specifies a font style in the box. The font style varies with each font.

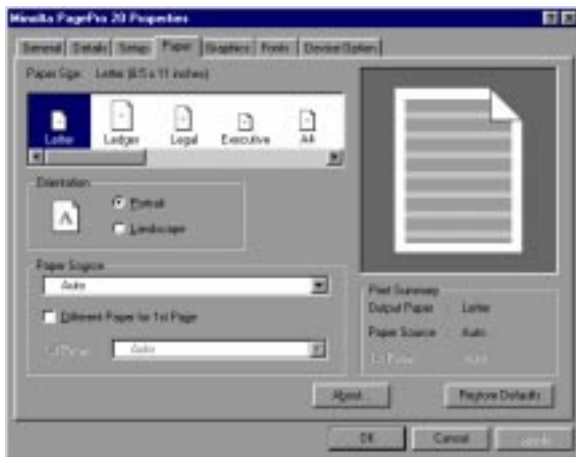
Size: Specifies a font size. You can set the font size between 4 to 127 points. If there is no point size in the box, you input the point size directly from the key pad.

Darkness: Specifies the darkness value of the watermark.

Angle: Specifies the angle at which the watermark will be displayed on the page.

Position: Tells the driver how to position the watermark. Automatically Center Watermark centers the watermark on the page. Position Relative to Center lets you specify x and y coordinates for the watermark relative to the center.

Paper



Paper Size

Specifies the paper size of document data. The following is a list of available paper sizes.

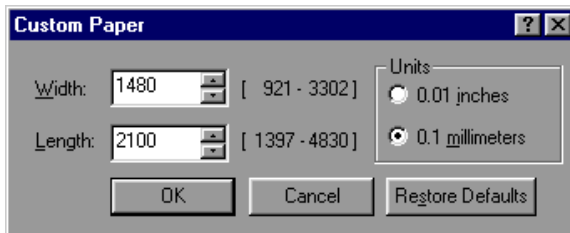
Paper	Size
Letter	8.5 x 11 inch
Ledger	11 x 17 inch
Legal	8.5 x 14 inch
Executive	7.25 x 10.5 inch
A4	210 x 297 mm
A3	297 x 420 mm
B4	257 x 364 mm
JIS B5	182 x 257 mm
COM-10 (envelope)	4.125 x 9.5 inch
DL (envelope)	110 x 220 mm
C5 (envelope)	162 x 229 mm
Monarch (envelope)	3.875 x 7.5 inch
ISO B5 (envelope)	176 x 250 mm
Custom	

Selecting Custom opens a dialog box that can be used to specify a paper size within the following ranges:

Unit	Width	Length
Inch	3.63 to 13.00"	5.50 to 19.02"
Metric	92.1 to 330.2mm	139.7 to 483.0mm

For example: specify A5 size (148 mm x 210 mm).

1. Open the Custom Paper dialog box.
2. Click "0.1 millimeters" in the Units box.
3. Type in "1480" in the Width box.
4. Type in "2100" in the Length box.
5. Click the OK button.



NOTES

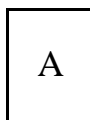
- Do not specify an **envelope size** (COM-10, DL, C5 and Monarch) and a **custom size smaller than A5 size** for **duplex printing**.
- When you print on a custom size with the **Bind Long Edge**, the Layout function cannot be used.

Orientation

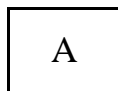
Selects the direction of the print on the page. You can select either Portrait or Landscape.

Portrait: Means the page is taller than it is wide when you view the printed text upright.

Landscape: Means the page is wider than it is tall when you view the printed text upright.



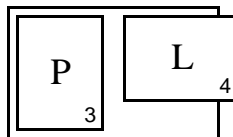
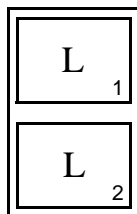
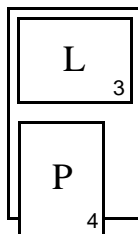
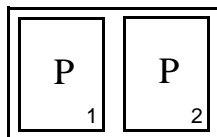
Portrait



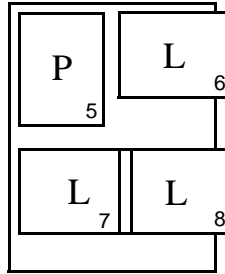
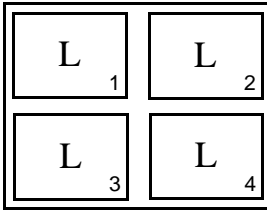
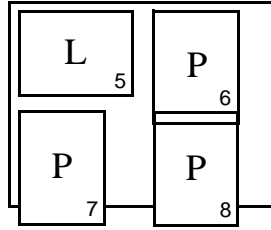
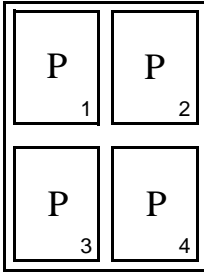
Landscape

When you print with 2-Up or 4-Up, the direction of the print is determined by the orientation setting for the first page for each printed sheet of paper.

For example: Print out 4 pages with 2-Up.

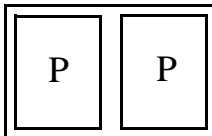


For example: Print out 8 pages with 4-Up.

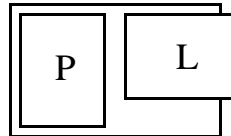


When you perform booklet printing, the direction of the print is determined by the orientation setting for the first page.

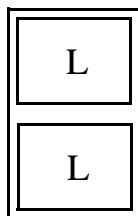
Example:



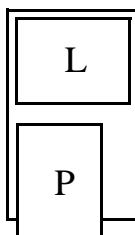
Portrait only.



Mixing Portrait and Landscape
(the first page is Portrait).



Landscape only.

Mixing Portrait and Landscape
(the first page is Landscape).

Paper Source

Specifies the paper source. If Auto is selected, 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.

Different Paper for 1st Page: Allows you to feed paper from another tray only for the first page.

NOTES

- If you set the Installable Options setting for tray 3 in the Device Option dialog box to “Installed” in spite of tray 3 not being installed, the prohibition mark for tray 3 will disappear. If you try to print the data with **tray 3**, the printer feeds paper from the tray that you specify as the paper source at the control panel.
- If you try to print the data with **tray 1** or **Manual Feed** in spite of tray 1 being set to **JOB SEPARATION** in the tray 1 paper size setting mode, the printer feeds paper from the tray that you specified as the paper source at the control panel.

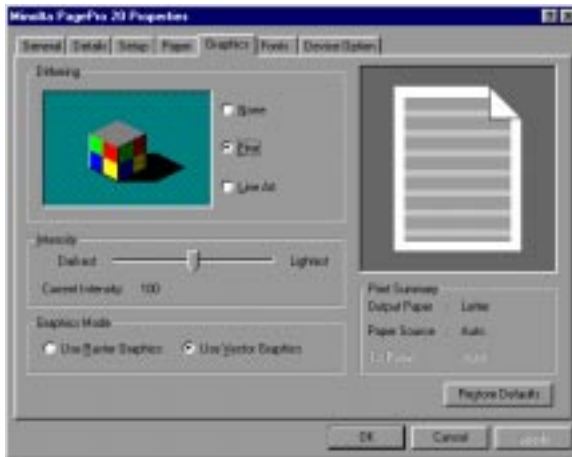
About

Click this button to display version and copyright information.

NOTE

The settings you make here may be overridden by the settings you make with your software application.

Graphics



Dithering

Specifies the type of dithering used in printing. Dithering produces gray shading in graphics

None: Click this button if you don't need any halftoning.

Fine: Click this button for printed images that you want to have a smooth, realistic and photographic appearance. The photographic images setting provides soft contrasts between various shades of gray. This setting also works well for images originally designed with color.

Line Art: Click this button for graphic images with intricate lines and fine detail, like clip art graphics. The Line Art images setting provides solid lines and sharp contrasts between shaded areas.

Intensity

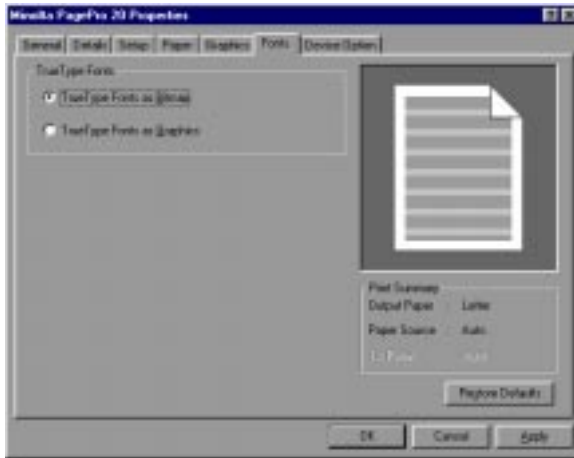
Move this slider left or right to adjust the darkness of the graphic image.

Graphics Mode

With **Use Vector Graphics** in the Graphics Mode, you may be able to shorten the printing time of a document containing

some graphics. However, if the printed result is different from what you see on the screen or the printing time is too long, select **Use Raster Graphics** instead.

Fonts



TrueType Fonts

Controls how TrueType fonts are printed.

Generally, downloading TrueType as Bitmaps speeds up printing. However, if your document contains graphics and you are not repeating the same text frequently on a page, use the Print TrueType As Graphics option. This option is also useful if you want to print graphics over text so that only the exposed part of a character is printed, or if you want characters clipped in cases where they are not visible on the screen.

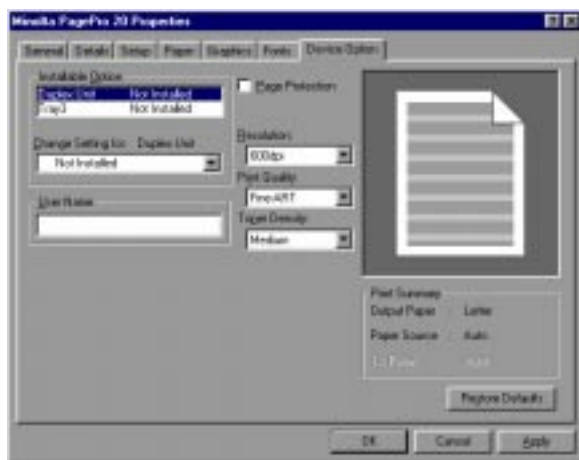
TrueType Fonts as Bitmap: Prints TrueType fonts as bitmap.

TrueType Fonts as Graphics: Prints TrueType fonts as graphics.

NOTE

To activate this setting, you must also specify **Use Raster Graphics** for the Graphics Mode in the Graphics dialog box.

Device Option



Installable Options

Lists the options that are available to you.

Change Setting for

Enables or disables the options available to you.

User Name

Type the user name of the print job up to 8 characters. This is sent with a print job to the printer and displayed in a status message or operator call message.

Page Protection

Page Protection allows you to make sure the entire page is processed before it is printed. If Page Protection is set to ON, printing speed may be slowed. If this option is unavailable, it means that your printer does not have enough memory to use page protection.

Resolution

Select 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

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

Standard: Normal quality printing.

Fine-ART: 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.

Printing Documents

The way you print documents depends on the application you are using. Most Windows applications include a print command on the File menu that you can use to print the current document. When you print from a Windows application, the application uses the printer driver for your printer.

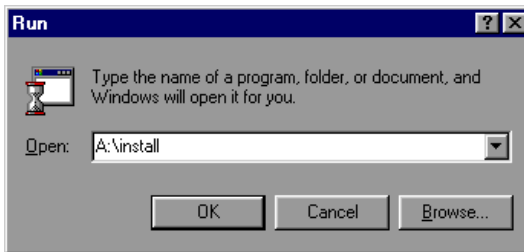
1. To print a document from a Windows application, open the application and the selected document.
2. Click Print from the File menu.
3. After verifying the contents of the printing settings, click the **OK** button. Printing starts.

Installing the Minolta Font Manager

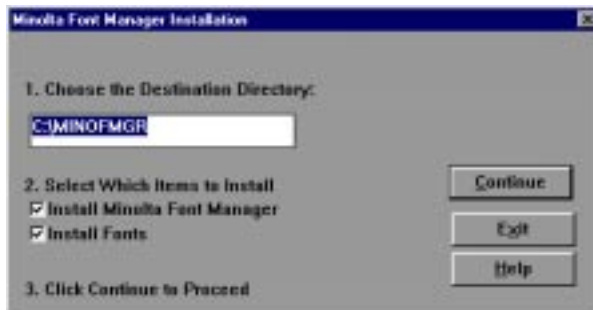
1. Turn on your computer and start up Windows 95.
2. Click the **Start** button, then click **Run...**
3. Insert the Minolta Font Manager diskette into your computer's disk drive. At the command prompt, type the drive letter followed by a colon (:), a backslash (\) and the phrase "install". For example:

A:\install

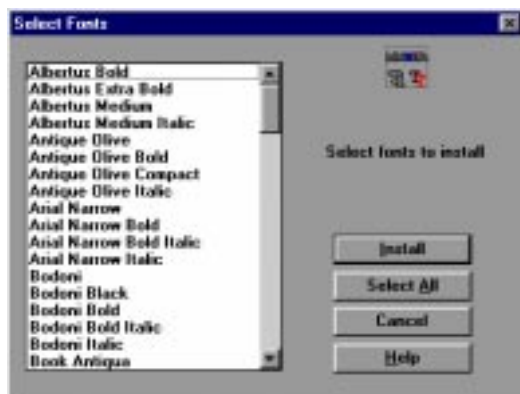
4. Click the **OK** button.



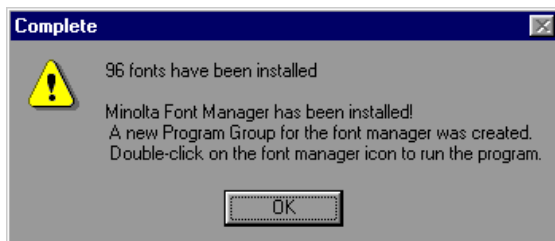
5. Follow the instructions on the screen.
6. The Minolta Font Manager Installation window appears. After verifying any changes you want in the set up, click the **Continue** button.



7. The Select Fonts window appears. Select the fonts you want to install, then click the **Install** button to start installation.



8. Click the OK button.



9. Installing the Minolta Font Manager is completed. The following folder appears.



Chapter 2

Minolta Status Monitor 20

Introduction

The Minolta Status Monitor provides you with instant information on the overall status of your printer. It also alerts you in case there is a problem with your printer.

- ÷ Printer status is visually displayed.
- ÷ Error and warning messages pop up automatically from the status icon when a problem occurs.
- ÷ An alarm is sounded when an error or warning occurs.
- ÷ A recommended course of action appears on the display when an error or warning occurs.
- ÷ The communication time out for networking can be specified.
- ÷ The monitoring interval can be specified.

System Requirements

The following describes the minimum system requirements that are necessary to correctly run the Minolta Status Monitor 20 utility.

Operating System:

Microsoft[®] Windows[®] 95 (English)

Personal Computer:

IBM PC or compatible with a 486DX2 33MHz CPU, or faster CPU (Pentium processor recommended)

Memory:

At least 12MB PC RAM

Free Disk Space:

Approximately 5MB for files

Printer:

Minolta PagePro 20 printer

I/O Interface:

A Local (bi-directional parallel) connection except ECP mode*, or Network connection

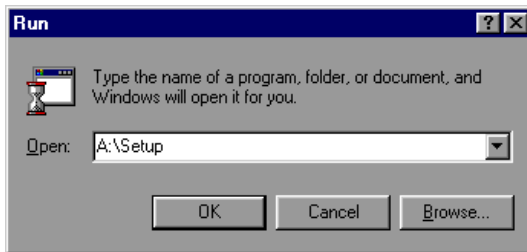
*Obtaining the print status from the printer is restricted by Operating System.

Installing the Minolta Status Monitor

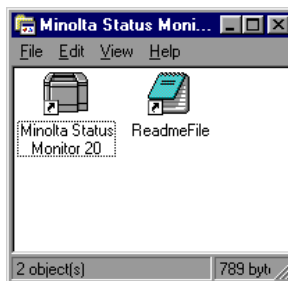
1. Turn on your computer and start up Windows 95.
2. Click the **Start** button, then click **Run...**
3. Insert the Minolta Status Monitor diskette into your computer's disk drive. At the command prompt, type the drive letter followed by a colon (:), a backslash (\) and the phrase "Setup". For example:

A:\Setup

4. Click the **OK** button.



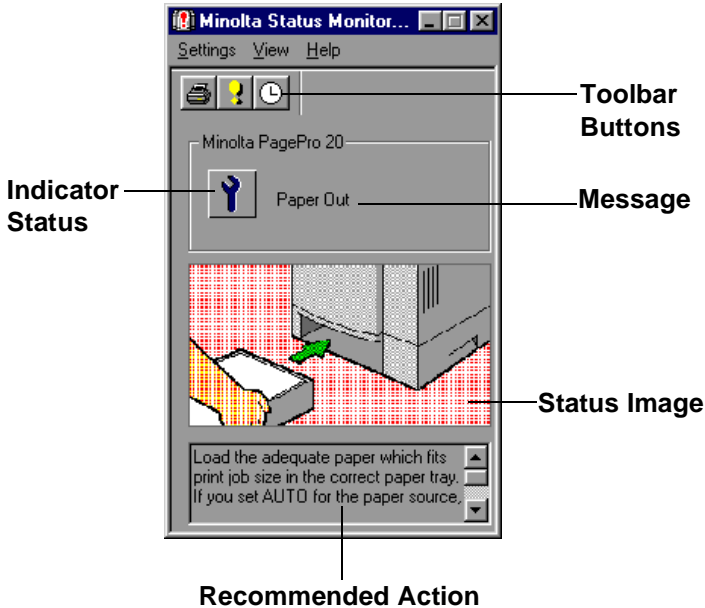
6. Follow the instructions on your screen.
7. The following folder appears.



8. To open the Minolta Status Monitor 20, click the **Start** button, point to **Programs**, point to **Minolta Status Monitor 20**, click **Minolta Status Monitor 20**.

Understanding the Status Monitor

The following explains each part of the status monitor in detail.



Toolbar Buttons: Click these buttons to open the Choose Printer, Alert or Monitoring Interval dialog box.

Indicator Status: Classifies the printer status into four categories.

Message: Displays the current printer status.

Status Image: Displays the current status image.

Recommended Action: Lets you know what to do.





NOTE

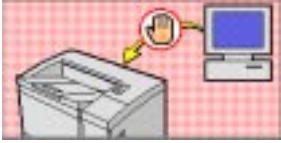




If you have already opened the status monitor window, you cannot open another status monitor window.



The following is a complete list of all messages that appear in the status monitor window through the Local or Network.

IMPORTANT

To use the status monitor through the Local, you must set the PC to the nibble mode. For more information, see your PC User's Manual.

Message & Meaning	Status Image & Classification	Local	Net-work
No Print Jobs The PC is not sending a print job to the printer.	 Normal	■	■
Printing The PC is sending a print job to the printer.	 Printing	■	■
Offline The printer is off-line.	 Error	■	■
Warming Up The printer is warming up.	 Warning	■	■

Message & Meaning	Status Image & Classification	Local	Net-work
Paused Printing The PC suspended sending a print job.	 Error	■	✕
Toner Low The imaging cartridge is low on toner.	 Warning	■	■
Toner Empty The imaging cartridge is out of toner.	 Error	✕	■
Cover Open The upper or duplex cover is open.	 Error	■	■
Paper Out There is no specified paper in the tray or no tray in the printer.	 Warning	■	■









Message & Meaning	Status Image & Classification	Local	Net-work
Paper Jam	 Error	■	■
The printer detected a paper misfeed inside the printer or paper size error.			
Memory Overflow	 Memory Overflow: Warning Error: Error	■	✕
The printer received more data from the computer than it can fit into its internal memory.			
Error		■	■
The printer is off or detected an error condition (ROM, RAM, HDD, Network card, Fuser, Laser diode or Motor error, etc.).			

NOTES

- When the printer is off, depending on the PC you are using, the other message may be displayed.
- If displaying the Offline message when the printer is off, it is classified as a “Warning”.

Indicator Status and Status Icon

The indicator statuses and status icons are as follows.

Indicator Status	Status Icon
Normal 	
Printing 	
Warning 	
Error 	

The status monitor window can be minimized by clicking the minimize button on the titlebar. When minimizing the status monitor window, the status icon is posted at the right end of the taskbar. Even if the window is minimized, you can find the printer status that is classified into four categories. Double-clicking the icon can return the icon to the window.

Status Monitor Menus

Settings

Choose Printer

Local Connection: Select Local Printer if the printer is connected directly to your computer.

Network Connection: Select either TCP/IP or IPX/SPX if the printer is connected through the network.

Local Printer

Select the printer you want to monitor from a list.



TCP/IP

Type the community name, IP address and network path.
(Usually, type in “public” as the community name.)



IPX/SPX

Type the community name. (Usually, the community name is set to “public”).



Alert

Specify how to let you know when a “Warning” or “Error” occurs.

Window Pop Up

Specify whether the status monitor window automatically pops up when the detected printer status is classified as a “Warning” or “Error”. The status monitor window will display at the front of the screen if it is hidden behind another window. The status monitor will return to the window and display at the front of the screen if it has been minimized.

Display Recommended Action

Specify whether to display the recommended action.

Use Sound

Specify whether to alert with sound when detecting a “Warning” or “Error”.



Monitoring Interval

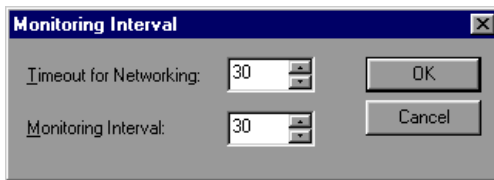
Specify the time interval to renew the printer status.

Time out for Networking

Determines the time to display “Error” when there is no response from the Network.

Monitoring Interval

Determines the communication interval for checking the printer’s status.



NOTES

- With a Local connection, the status monitor obtains the print status after printing starts.
- With a Network connection, it may take more than the specified time to obtain the print status.

View

Toolbar

Specify whether to display the toolbar in the window.

Recommended Action

Specify whether to display the recommended action in the window.

Refresh

Renews the status display.

Help

Help Topics

Gives you information about what you see on your screen.

About Minolta Status Monitor

Displays version and copyright information.

User Setting Items

The following table lists the user setting items.

	Item	Description
1	Communication interface Communication protocol	Local (Parallel), TCP/IP or IPX/SPX
2	Printer (Local)	Select from the Choose Printer box.
3	Printer address setting (TCP/IP)	Type the community name, IP address and network path.
4	Printer address setting (IPX/SPX)	Type the community name or select from the Printer List.
5	Warning (Window Popup)	Click the option button.
6	Warning (Display Recommended Action)	Click the option button.
7	Warning (Use Sound)	Click the option button.
8	Warning (Alert Sound)	Specify the file name
9	Error (Window Popup)	Click the option button.
10	Error (Display Recommended Action)	Click the option button.
11	Error (Use Sound)	Click the option button.
12	Error (Alert Sound)	Specify the file name.
13	Timeout for Networking	Specify the length of time.
14	Monitoring Interval	Specify the length of time.

Chapter 3

Printer Driver for Windows 3.1

Introduction

The Minolta PagePro 20 printer utility was developed especially to provide true Windows based printing for users of the Minolta PagePro 20 printer.

System Requirements

The following describes the minimum system requirements that are necessary to correctly run the Minolta PagePro 20 printer utility.

Operating System:

Microsoft[®] Windows[™] 3.1 (English) or later

Personal Computer:

IBM PC or compatible with a 386DX 16MHz CPU, or faster CPU (Pentium processor recommended)

I/O Interface:

Standard PC parallel printer port and cable

Memory:

At least 4MB PC RAM (8MB recommended)

Free Disk Space:

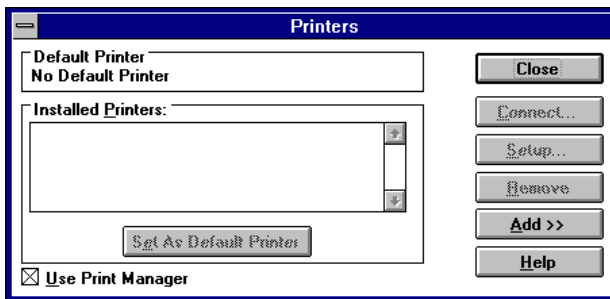
Approximately 1MB for files.

NOTE

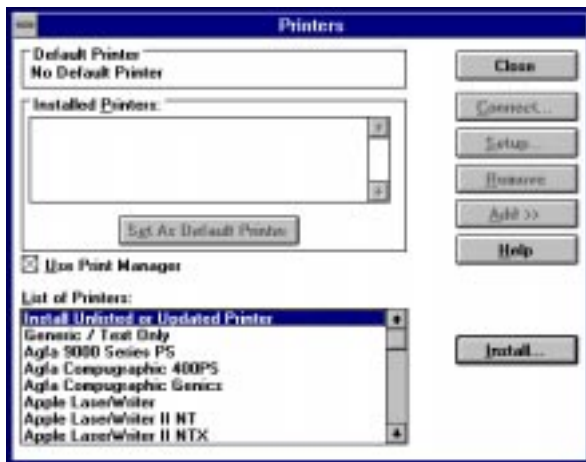
Use of a poor quality parallel cable may adversely affect input.
--

Installing the Printer Driver

1. Turn on your computer and start up Windows 3.1.
2. In the Main group, double-click **Control Panel**. The Control Panel window appears.
3. In the Control Panel window, double-click **Printers**. The Printers dialog box appears. Click the **Add>>** button.



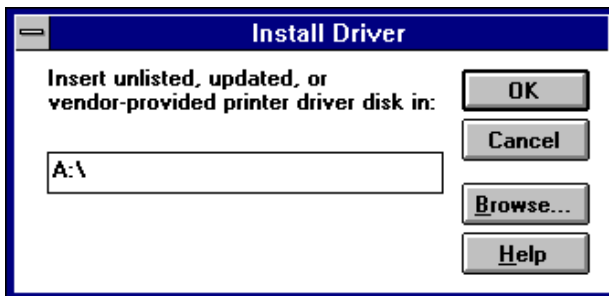
4. Select **Install Unlisted or Updated Printer** from the List of Printers, then click the **Install...** button.



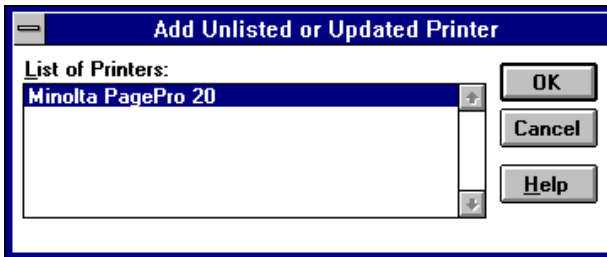
5. Insert the Windows 3.1 Printer Driver diskette into your computer's disk drive. At the command prompt, type the drive letter followed by a colon (:) and a backslash (\). For example:

A:

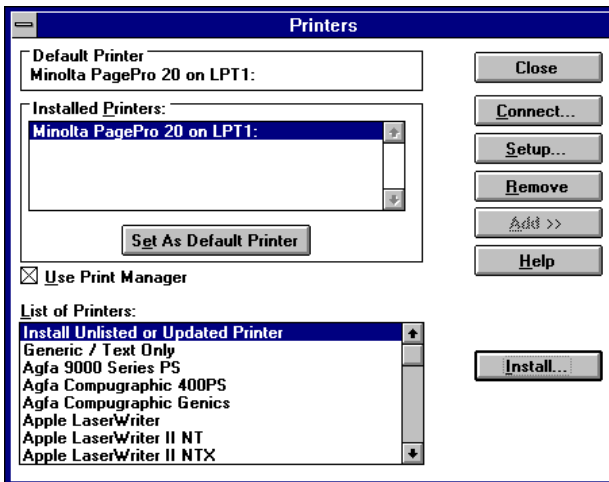
Click the **OK** button.



6. Click the **OK** button.



7. Installing the printer driver is completed. Your printer appears in the Installed Printers box.

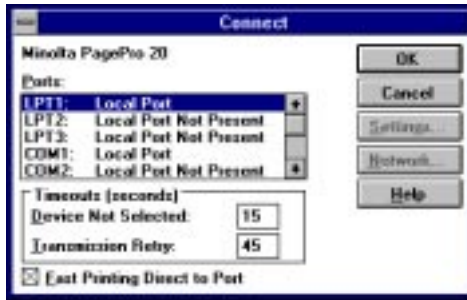


8. Click the Close button.

Selecting the Printer Port

Change the printer port according to your needs.

1. If you are not already using the Printers dialog box, click Printer Setup from the Options menu. The Printers dialog box appears.
2. In the Installed Printers box, select the printer whose port assignment you want to change.
3. Click the **Connect...** button. The Connect dialog box appears.

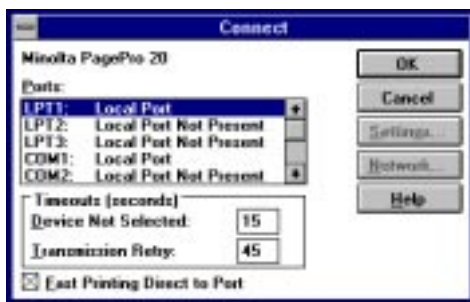


4. Select the port you want to assign the printer to.
 - LPT A parallel port.
 - COM A serial port.
 - EPT Used for the IBM Personal Pageprinter.
 - FILE Allows you to save print data to a file instead of printing directly to the printer.
5. Click the **OK** button. The Printers dialog box appears.
6. Click the Close button.

Selecting Timeout Options

Timeout options control the amount of time that elapses before a message appears to notify you of printer problems.

1. If you are not already using the Printers dialog box, click Printer Setup from the Options menu. The Printers dialog box appears.
2. Click the **Connect...** button. The Connect dialog box appears.



3. Change Timeout options as needed.

Device Not Selected Controls the amount of time that Print Manager continues to check the printer to determine whether it is on-line and ready to print. If the printer is not ready to print after the specified amount of time has elapsed, a message appears, notifying you that the printer is off-line.

Transmission Retry Controls the amount of time that elapses before a message appears to notify you that your printer cannot accept any more information. After the printer finishes processing the information it currently has, it clears its memory and is ready to accept more information.

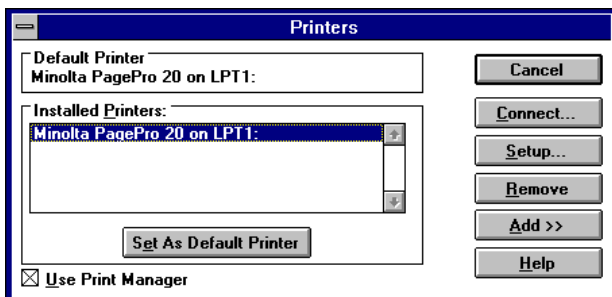
4. Click the **OK** button. The Printers dialog box appears.
5. Click the Close button.

Choosing a Default Printer

Many Windows applications use the default printer when you choose the Print command. Only one default printer can be selected at a time. If you have several printers installed, you can use the Printer Setup command whenever you want to change the default printer.

To select a default printer

1. If you are not already using the Printers dialog box, click Printer Setup from the Options menu. The Printers dialog box appears.
2. In the Installed Printers box, select the printer you want to use as the default printer.
3. Click the **Set As Default Printer** button. The printer name appears in the Default Printer area of the Printers dialog box.



4. Click the Close button.

Setting the Printing Options

Printing options are your printer-specific settings, such as resolution, print quality and installed options.

To change printer settings

1. In the Main group, double-click **Control Panel**. The Control Panel window appears.
2. In the Control Panel window, double-click **Printers**. The Printers dialog box appears.
3. Select your printer from the List of Installed Printers.
4. Click the **Setup...** button. The printer setup dialog box appears.
5. Make any necessary changes and then click the **OK** button. The Printers dialog box reappears.
6. Click the Close button.

General Button Operations

The following describes the operation of the three buttons that appear at the right side of all setup dialog boxes.

OK

Click this button to make your changes take effect and return to the previous screen.

Cancel

Click this button to ignore any changes you have made and return to the previous screen.

Help

Click this button to display on-line help about the displayed dialog.

Printer Setup Window

The following describes how to make settings using the dialogs that are available in this window.

Setup



Copies

Specifies the number of copies you want to print. You can specify any value from 1 to 999.

Collate

Collate Off: When Collate is off, the printer prints each page of a job the number of times selected in the Copies item. For example, if you send a three-page job to print and set Copies to 2, the printer prints page 1, page 1, page 2, page 2, page 3, page 3.

Collate On: When Collate is on, the printer prints each print job the number of times selected in the Copies item. For example, if you send a three-page job to print and set Copies to 2, the printer prints page 1, page 2, page 3, page 1, page 2, page 3.

Separation: Allows you to insert a blank page between print jobs.

NOTE

If you specify separation, you must also specify **JOB SEPARATION** in the tray 1 paper size setting mode at the control panel.

NOTE

If you specify **Collate On** or **Separation** through the printer driver, be sure to set the collate setting of the application software to **off**.

Duplex Print

Specifies whether to print on both sides of the paper. If you attempt duplex printing, you can choose either Bind Long Edge or Bind Short Edge.

NOTES

- To activate this setting, you must change the setting for Duplex Unit in the Device Option dialog box from “Not Installed” to “Installed”.
- Do not use **special paper** (transparencies, labels, envelopes, letterhead and thick paper) for duplex printing.
- You cannot print on a **custom size smaller than A5 size** for duplex printing.

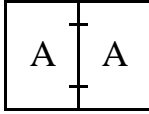
By creating a combination of Bind Long Edge, Bind Short Edge, Portrait, Landscape and N-Up, the printer prints upside down for odd-numbered pages and even numbered pages, or in the same direction for all pages.

	None or 4Up		2Up	
	Long Edge	Short Edge	Long Edge	Short Edge
Portrait	■	○	○	■
Landscape	○	■	■	○

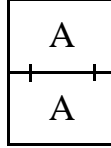
■: same direction ○: upside down

None: Performs one sided printing.

Bind Long Edge: Performs duplex printing for binding along the long edge.



Portrait

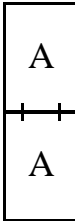


Landscape

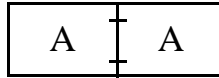
NOTE

When you print on the **custom size** with the Bind Long Edge, the Layout function cannot use.

Bind Short Edge: Performs duplex printing for binding along the short edge.



Portrait



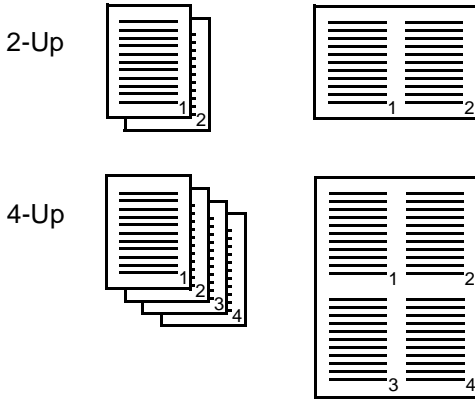
Landscape

Layout

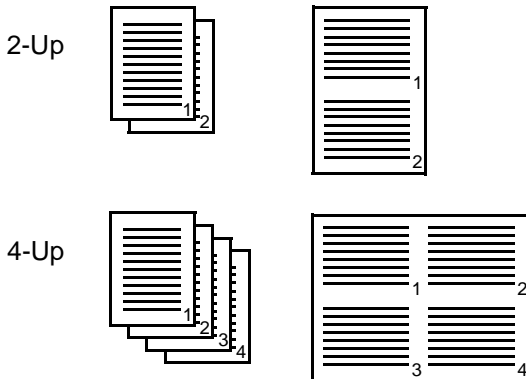
None: No layout specified.

N-Up: Prints either two or four pages on a single sheet of paper.

Example: Portrait orientation.



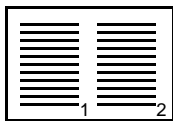
Example: Landscape orientation.



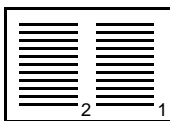
If you select N-Up, the following settings activate.

N-Up Choice: You can select twelve kinds of layouts.

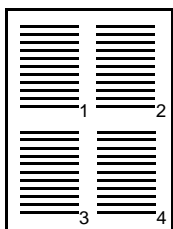
Example: Portrait orientation.



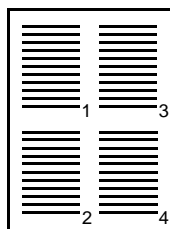
2-Up Ascending



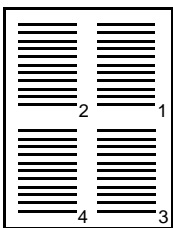
2-Up Descending



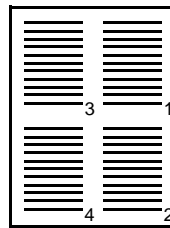
4-Up Hoz. Ascending



4-Up Ver. Ascending

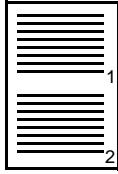


4-Up Hoz. Descending

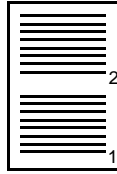


4-Up Ver. Descending

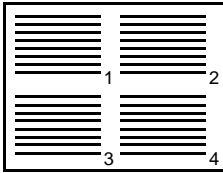
Example: Landscape orientation.



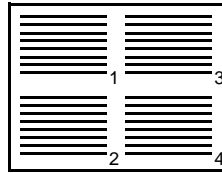
2-Up Ascending



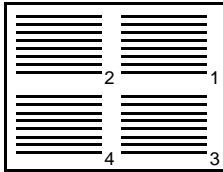
2-Up Descending



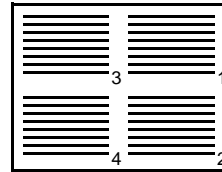
4-Up Hoz. Ascending



4-Up Ver. Ascending



4-Up Hoz. Descending

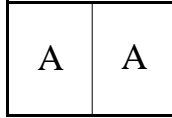


4-Up Ver. Descending

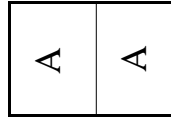
N-Up Paper: p x n -> paper size.
p: the paper size of the document.
n: N-Up
paper size: see “Paper Size” page 1-25.

Border Line: Specifies whether to print a border line.

Booklet: Tells the printer that the printed pages will be bound in the center. Enables booklet printing both for portrait and landscape orientation



Portrait



Landscape

NOTES

- To activate this setting, you must change the setting for Duplex Unit in the Device Option dialog box from “Not Installed” to “Installed”.
- When you perform booklet printing, set the Duplex Print setting in the Setup dialog box to “None”.

If you select Booklet, the following settings activate.

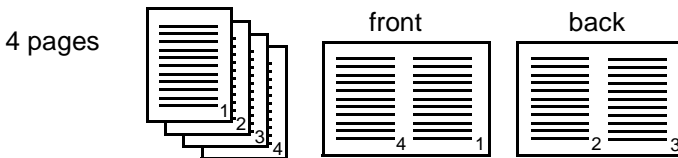
Booklet Choice: You can select either “Left Open” or “Right Open”.

Booklet Paper: p x 2 -> paper size.

p: the paper size of the document.

paper size: see “Paper Size” page 1-25.

Example: Portrait orientation.



Enlarge/Reduce: Performs enlargement or reduction printing according to the paper size you specify.

If you select Enlarge/Reduce, the following settings activate.

Enlarge/Reduce: p -> paper size.

p: the paper size of the document.

paper size: see “Paper Size” page 1-25.

Watermark

Specifies which watermark to use. You will be able to add others, edit or delete the defined watermark.

Text: Lists the available watermarks from which you can select, edit or delete.

First Page Only: Prints the watermark on the first page only.

Click the Add or Edit button to display the Watermark dialog box.



The following settings are available in the Watermark dialog box.

Text: Displays the text of the selected watermark for editing or type in a watermark (up to 64 characters) you want to print.

Fonts: Specifies a font for the watermark you want to print on the page.

Style: Specifies a font style in the box. The font style varies with each font.

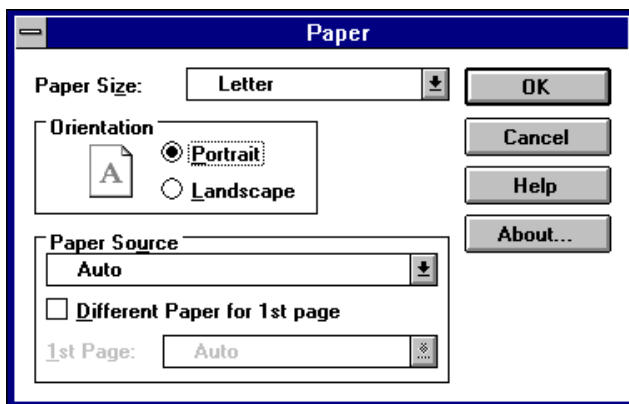
Size: Specifies a font size. You can set the font size between 4 to 127 points. If there is no point size in the box, you input the point size directly from the key pad.

Darkness: Specifies the darkness value of the watermark.

Angle: Specifies the angle at which the watermark will be displayed on the page.

Position: Tells the driver how to position the watermark. Automatically Center Watermark centers the watermark on the page. Position Relative to Center lets you specify x and y coordinates for the watermark relative to the center.

Paper



Paper Size

Specifies the paper size of document data. The following is a list of available paper sizes.

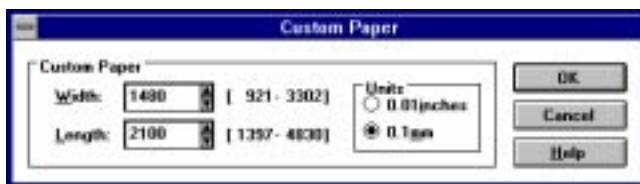
Paper	Size
Letter	8.5 x 11 inch
Ledger	11 x 17 inch
Legal	8.5 x 14 inch
Executive	7.25 x 10.5 inch
A4	210 x 297 mm
A3	297 x 420 mm
B4	257 x 364 mm
JIS B5	182 x 257 mm
COM-10 (envelope)	4.125 x 9.5 inch
DL (envelope)	110 x 220 mm
C5 (envelope)	162 x 229 mm
Monarch (envelope)	3.875 x 7.5 inch
ISO B5 (envelope)	176 x 250 mm
Custom	

Selecting Custom opens a dialog box that can be used to specify a paper size within the following ranges:

Unit	Width	Length
Inch	3.63 to 13.00"	5.50 to 19.02"
Metric	92.1 to 330.2mm	139.7 to 483.0mm

For example: specify A5 size (148 mm x 210 mm).

1. Open the Custom Paper dialog box.
2. Click "0.1 mm" in the Units box.
3. Type in "1480" in the Width box.
4. Type in "2100" in the Length box.
5. Click the OK button.



NOTES

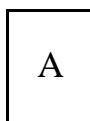
- Do not specify an **envelope size** (COM-10, DL, C5 and Monarch) and a **custom size smaller than A5 size for duplex printing**.
- When you print on a custom size with the **Bind Long Edge**, the Layout function cannot be used.

Orientation

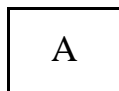
Selects the direction of the print on the page. You can select either Portrait or Landscape.

Portrait: Means the page is taller than it is wide when you view the printed text upright.

Landscape: Means the page is wider than it is tall when you view the printed text upright.



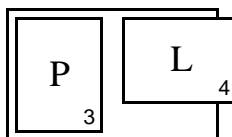
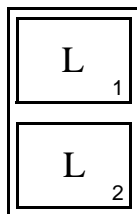
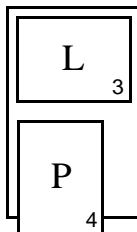
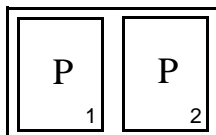
Portrait



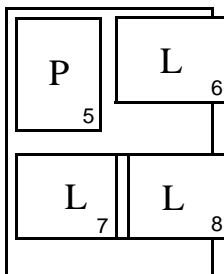
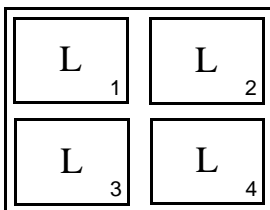
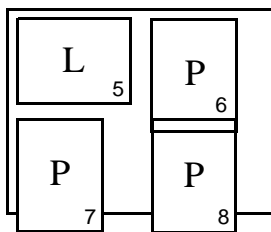
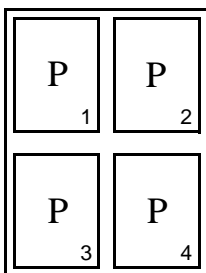
Landscape

When you print with 2-Up or 4-Up, the direction of the print is determined by the orientation setting for the first page for each printed sheet of paper.

For example: Print out 4 pages with 2-Up.

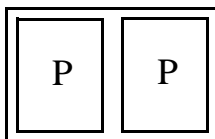


For example: Print out 8 pages with 4-Up.

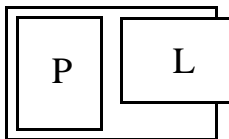


When you perform booklet printing, the direction of the print is determined by the orientation setting for the first page.

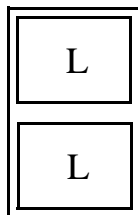
Example:



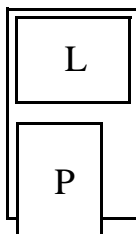
Portrait only.



Mixing Portrait and Landscape
(the first page is Portrait).



Landscape only.

Mixing Portrait and Landscape
(the first page is Landscape).

Paper Source

Specifies the paper source. If Auto is selected, 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.

Different Paper for 1st Page: Allows you to feed paper from another tray only for the first page.

NOTES

- If you set the Installable Options setting for tray 3 in the Device Option dialog box to “Installed” in spite of tray 3 not being installed, the prohibition mark for tray 3 will disappear. If you try to print the data with **tray 3**, the printer feeds paper from the tray that you specify as the paper source at the control panel.
- If you try to print the data with **tray 1** or **Manual Feed** in spite of tray 1 being set to **JOB SEPARATION** in the tray 1 paper size setting mode, the printer feeds paper from the tray that you specified as the paper source at the control panel.

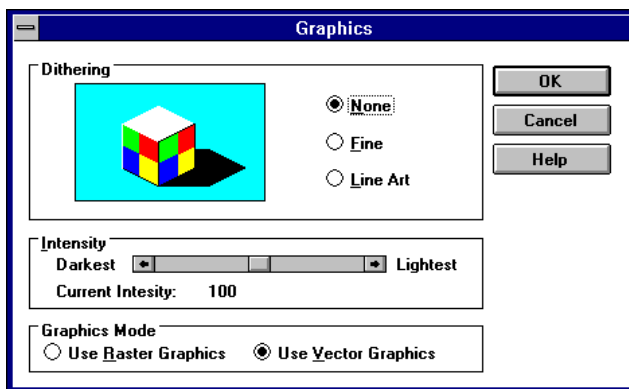
About

Click this button to display version and copyright information.

NOTE

The settings you make here may be overridden by the settings you make with your software application.

Graphics



Dithering

Specifies the type of dithering used in printing. Dithering produces gray shading in graphics

None: Click this button if you don't need any halftoning.

Fine: Click this button for printed images that you want to have a smooth, realistic and photographic appearance. The photographic images setting provides soft contrasts between various shades of gray. This setting also works well for images originally designed with color.

Line Art: Click this button for graphic images with intricate lines and fine detail, like clip art graphics. The Line Art images setting provides solid lines and sharp contrasts between shaded areas.

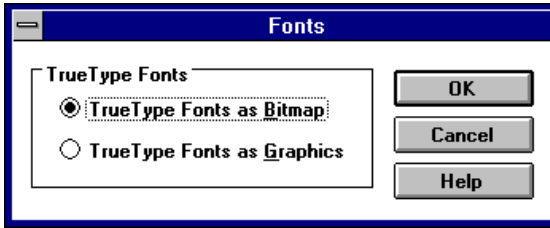
Intensity

Moves this slider left or right to adjust the darkness of the graphic image.

Graphics Mode

With **Use Vector Graphics** in the Graphics Mode, you may be able to shorten the printing time of a document containing some graphics. However, if the printed result is different from what you see on the screen or the printing time is too long, select **Use Raster Graphics** instead.

Fonts



TrueType Fonts

Controls how TrueType fonts are printed.

Generally, downloading TrueType as Bitmaps speeds up printing. However, if your document contains graphics and you are not repeating the same text frequently on a page, use the Print TrueType As Graphics option. This option is also useful if you want to print graphics over text so that only the exposed part of a character is printed, or if you want characters clipped in cases where they are not visible on the screen.

TrueType Fonts as Bitmap: Prints TrueType fonts as bitmap.

TrueType Fonts as Graphics: Prints TrueType fonts as graphics.

NOTE

To activate this setting, you must also specify **Use Raster Graphics** for the Graphics Mode in the Graphics dialog box.

Device Options



Installable Options

Lists the options that are available to you.

Change Setting for

Enables or disables the options available to you.

User Name

Type the user name of the print job up to 8 characters. This is sent with a print job to the printer and displayed in a status message or operator call message.

Page Protection

Page Protection allows you to make sure the entire page is processed before it is printed. If Page Protection is set to ON, printing speed may be slowed. If this option is unavailable, it means that your printer does not have enough memory to use page protection.

Resolution

Select 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

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

Standard: Normal quality printing.

Fine Art: 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.

Printing Documents

The way you print documents depends on the application you are using. Most Windows applications include a print command on the File menu that you can use to print the current document. When you print from a Windows application, the application uses the printer driver for your printer.

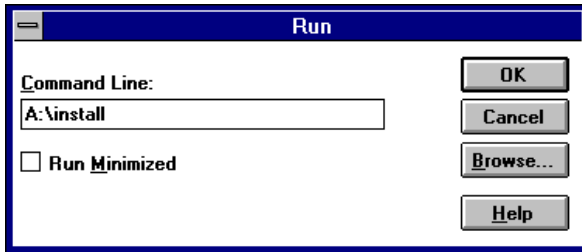
1. To print a document from a Windows application, open the application and the selected document.
2. Click Print from the File menu.
3. After verifying the contents of the printing settings, click the **OK** button. Printing starts.

Installing the Minolta Font Manager

1. Turn on your computer and start up Windows 3.1.
2. Click the **File** menu, then click **Run**.
3. Insert the Minolta Font Manager diskette into your computer's disk drive. At the command prompt, type the drive letter followed by a colon (:), a backslash (\) and the phrase "install". For example:

A:\install

Click the **OK** button.



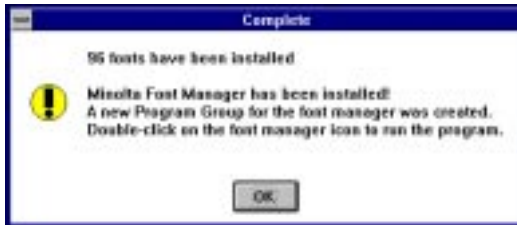
4. Follow the instructions on the screen.
5. The Minolta Font Manager Installation window appears. After verifying any changes you want in the set up, click the **Continue** button.



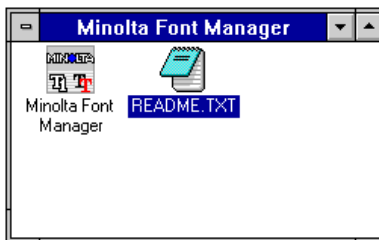
-
6. The Select Fonts window appears. Select the fonts you want to install, then click the **Install** button to start installation.



7. Click the **OK** button.



8. The following window appears. Installing the Minolta Font Manager is completed.



Appendix A

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	“	—	◀	ª	´
1	1	17	33	! 49	A 65	Q 81	a 97	q 113	129	145	¶ 161	”	±	▶	º	`
2	2	18	34	" 50	B 66	R 82	b 98	r 114	130	146	§ 162	µ	×	«	æ	^
3	3	19	35	# 51	C 67	S 83	c 99	s 115	131	147	† 163	%	÷	»	Æ	”
4	4	20	36	\$ 52	D 68	T 84	d 100	t 116	132	148	‡ 164	•	°	,	ð	~
5	5	21	37	% 53	E 69	U 85	e 101	u 117	133	149	© 165	●	'	”	Ð	˘
6	6	22	38	& 54	F 70	V 86	f 102	v 118	134	150	® 166	○	”	.	ij	˙
7	7	23	39	' 55	G 71	W 87	g 103	w 119	135	151	™ 167	○	¼	:	IJ	”
8	8	24	40	(56	H 72	X 88	h 104	x 120	136	152	% 168	■	½	¿	ı	°
9	9	25	41	) 57	I 73	Y 89	i 105	y 121	137	153	¢ 169	■	¾	Pt	Ł	˚
A	10	26	42	* 58	J 74	Z 90	j 106	z 122	138	154	– 170	□	¹	l	œ	˘
B	11	27	43	+ 59	K 75	[91	k 107	{ 123	139	155	— 171	□	²	£	Œ	˘
C	12	28	44	, 60	L 76	\ 92	l 108	| 124	140	156	… 172	'	³	¥	ø	˘
D	13	29	45	- 61	M 77	] 93	m 109	} 125	141	157	fi 173	¬	/	¤	Ø	˘
E	14	30	46	. 62	N 78	^ 94	n 110	~ 126	142	158	fl 174	|	|	f	ƒ	ı
F	15	31	47	/ 63	O 79	~ 95	o 111	⊞ 127	143	159	175	191	207	β	Ɔ	˘

A. Character Sets

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

OU 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	! 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	34	" 50	B 66	R 82	b 98	r 114	130	146	162	178	194	210	226	242
3	3	19	35	# 51	C 67	S 83	c 99	s 115	131	147	163	179	195	211	227	243
4	4	20	36	\$ 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	244
5	5	21	37	% 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	245
6	6	22	38	& 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	246
7	7	23	39	' 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	40	(56	H 72	X 88	h 104	x 120	136	152	168	184	200	216	232	248
9	9	25	41	) 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	Å 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	ö 95	o 111	☒ 127	143	159	175	191	207	223	239	255

01 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

A. Character Sets

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

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

A. Character Sets

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	À 128	ê 144	† 160	∞ 176	¿ 192	- 208	‡ 224	240
1	1	17	33	! 49	A 65	Q 81	a 97	q 113	Á 129	ë 145	° 161	± 177	¡ 193	— 209	· 225	Ò 241
2	2	18	34	" 50	B 66	R 82	b 98	r 114	Ç 130	í 146	ç 162	≤ 178	¬ 194	“ 210	, 226	Û 242
3	3	19	35	# 51	C 67	S 83	c 99	s 115	É 131	ì 147	£ 163	≥ 179	√ 195	” 211	„ 227	Ü 243
4	4	20	36	\$ 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	% 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	& 54	F 70	V 86	f 102	v 118	Ü 134	ñ 150	¶ 166	ð 182	Δ 198	÷ 214	Ê 230	ˆ 246
7	7	23	39	' 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	(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	) 57	9 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	â 140	ú 156	¨ 172	° 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	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 ∅	∴	∏	∴	π				—	⊕	À	Γ	┘
1	1	17	√	1	A	P	α	ρ			↑	∇	○	→	└	┘
2	2	18	"	2	B	Σ	β	σ			→	∃	⊗	→	┌	┐
3	3	19	°	3	Γ	Τ	γ	τ			↓	Τ	⊖	↳	┌	┐
4	4	20	∞	4	Δ	Υ	δ	υ			←	⊥	⊗	∃	└	┘
5	5	21	÷	5	E	Φ	ε	φ			↑	U	∧	┌	┐	┘
6	6	22	∞	6	Z	X	ζ	χ			⇒	∩	∨	∫	∫	┘
7	7	23	'	7	H	Ψ	η	ψ			↓	∈	∇	∠	└	┘
8	8	24	(	8	Θ	Ω	θ	ω			≡	∃	¬	∅	∇	∇
9	9	25	)	9	I	∇	ι	∂			‡	∉	○	≠	||	⟩
A	10	26	×	e	K	∂	κ	φ			↔	C	·	∩	└	┘
B	11	27	+	ε	Λ	ς	λ	σ			‡	∩	•	∩	/	\
C	12	28	,	<	M	≤	μ	≈			↔	∇	•	∩	—	<
D	13	29	—	=	N	≠	ν	≡			↔	∩	○	∩	=	≠
E	14	30	.	>	Ξ	≥	ξ	≠			↔	≤	†	∩	*	±
F	15	31	/	≈	O	—	o	☐			—	∩	‡	∩	≡	≡
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

6J Microsoft Publishing

	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

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

A. Character Sets

11U PC-8 Danish/Norwegian

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0 0	▶ 16		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	β 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	Ö 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	Û 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	ˆ 172	≡ 188	⌒ 204	◼ 220	∞ 236	n 252
D	♪ 13	↔ 29	- 45	= 61	M 77	] 93	m 109	} 125	ì 141	Ø 157	ı 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	ı 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	Ð 209	β 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	Ö 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	ø 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	æ 166	Â 182	ā 198	Í 214	μ 230	÷ 246
7	● 7	⋈ 23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	ù 151	° 167	À 183	Ä 199	Î 215	þ 231	⌒ 247
8	◼ 8	↑ 24	(40	8 56	H 72	X 88	h 104	x 120	ê 136	ÿ 152	ı 168	© 184	⌒ 200	Ï 216	ƒ 232	° 248
9	○ 9	↓ 25	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	Û 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	Û 235	ı 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	ı 173	ç 189	≡ 205	⌒ 221	Ý 237	² 253
E	♪ 14	▲ 30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	× 158	« 174	¥ 190	≡ 206	Û 222	- 238	■ 254
F	☀ 15	▼ 31	/ 47	? 63	O 79	~ 95	o 111	△ 127	Å 143	f 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	Ł 192	đ 208	Ó 224	- 240
1	☺ 1	◀ 17	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	Ł 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	Í 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	Ě 211	Ň 227	ˇ 243
4	♦ 4	¶ 20	\$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	À 164	┘ 180	— 196	ď 212	ń 228	ˇ 244
5	♣ 5	§ 21	% 37	5 53	E 69	U 85	e 101	u 117	ű 133	Ł 149	ą 165	Á 181	┘ 197	Ń 213	ñ 229	§ 245
6	♠ 6	— 22	& 38	6 54	F 70	V 86	f 102	v 118	ć 134	ı 150	Ž 166	Â 182	Ā 198	Í 214	Š 230	÷ 246
7	● 7	♠ 23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	Š 151	ž 167	Ě 183	ǎ 199	Î 215	š 231	˘ 247
8	◼ 8	↑ 24	(40	8 56	H 72	X 88	h 104	x 120	ł 136	ś 152	E 168	Ş 184	⌌ 200	ě 216	Ř 232	° 248
9	○ 9	↓ 25	) 41	9 57	I 73	Y 89	i 105	y 121	ě 137	Ö 153	e 169	≡ 185	┘ 201	┘ 217	Ú 233	˘ 249
A	◼ 10	→ 26	* 42	: 58	J 74	Z 90	j 106	z 122	Ó 138	Ü 154	170	|| 186	≡ 202	┘ 218	ř 234	250
B	♂ 11	← 27	+ 43	: 59	K 75	[91	k 107	{ 123	õ 139	ř 155	ž 171	≡ 187	≡ 203	◼ 219	Ů 235	ů 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	Ž 141	Ł 157	ş 173	Ž 189	≡ 205	┘ 221	Ý 237	ř 253
E	♫ 14	▲ 30	• 46	> 62	N 78	^ 94	n 110	˘ 126	Ä 142	× 158	« 174	ž 190	≡ 206	Ů 222	ř 238	■ 254
F	☼ 15	▼ 31	/ 47	? 63	O 79	_ 95	o 111	△ 127	Ć 143	č 159	» 175	┘ 191	▣ 207	▀ 223	ˇ 239	255

9T PC-Turkish

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

A. Character Sets

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	π 96	112	128	144	160	° 176	∞ 192	∠ 208	◇ 224	240	
1	1	17	!	1 49	A 65	Θ 81	α 97	θ 113	129	145	T 161	± 177	∑ 193	∇ 209	< 225	> 241	
2	2	18	√	2 34	B 50	P 66	β 82	ρ 98	114	130	146	' 162	" 178	℞ 194	® 210	® 226	∫ 242
3	3	19	#	3 35	X 51	Σ 67	χ 83	σ 99	115	131	147	≤ 163	≥ 179	∅ 195	© 211	© 227	∫ 243
4	4	20	∃	4 36	Δ 52	T 68	δ 84	τ 100	116	132	148	/ 164	×	⊗ 196	™ 212	™ 228	| 244
5	5	21	%	5 37	E 53	Y 69	ε 85	υ 101	117	133	149	∞ 165	α 181	⊕ 197	∏ 213	∑ 229	∫ 245
6	6	22	&	6 38	Φ 54	Φ 70	ς 86	φ 102	ω 118	134	150	f 166	∂ 182	∅ 198	√ 214	∫ 230	246
7	7	23	∃	7 39	Γ 55	Ω 71	γ 87	ω 103	119	135	151	♣ 167	• 183	∩ 199	· 215	| 231	| 247
8	8	24	(	8 40	H 56	Ξ 72	η 88	ξ 104	120	136	152	♦ 168	÷ 184	∪ 200	¬ 216	| 232	| 248
9	9	25	)	9 41	I 57	Ψ 73	ι 89	ψ 105	121	137	153	♥ 169	≠ 185	∩ 201	∧ 217	| 233	| 249
A	10	26	*	: 42	∂ 58	Z 74	φ 90	ζ 106	122	138	154	♠ 170	≡ 186	⊃ 202	∨ 218	| 234	| 250
B	11	27	+	: 43	K 59	[75	κ 91	{ 107	123	139	155	↔ 171	≈ 187	∩ 203	↔ 219	| 235	| 251
C	12	28	,	< 44	Λ 60	∴ 76	λ 92	| 108	124	140	156	← 172	... 188	∩ 204	≡ 220	| 236	| 252
D	13	29	-	= 45	M 61	] 77	μ 93	} 109	125	141	157	↑ 173	| 189	⊆ 205	↑ 221	| 237	| 253
E	14	30	.	> 46	N 62	⊥ 78	ν 94	~ 110	126	142	158	→ 174	- 190	∈ 206	≡ 222	| 238	| 254
F	15	31	/	? 47	O 63	— 79	o 95	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	! 49	A 65	Q 81	a 97	q 113	129	145	i 161	- 177	` 193	209	Æ 225	æ 241
2	2	18	" 34	5 50	B 66	R 82	b 98	r 114	130	146	c 162	† 178	ˆ 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	ı 245
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	f 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	° 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	˙ 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	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

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

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	! 49	A 65	Q 81	a 97	q 113	129	145	161	" 177	193	209	225	241
2	2	18	34	" 50	B 66	R 82	b 98	r 114	130	146	162	" 178	194	210	226	242
3	3	19	35	# 51	C 67	S 83	c 99	s 115	131	147	163	° 179	195	211	227	† 243
4	4	20	36	\$ 52	D 68	T 84	d 100	t 116	132	148	164	180	196	212	228	‡ 244
5	5	21	37	% 53	E 69	U 85	e 101	u 117	133	149	165	181	197	213	229	— 245
6	6	22	38	& 54	F 70	V 86	f 102	v 118	134	150	166	182	198	214	230	— 246
7	7	23	39	' 55	G 71	W 87	g 103	w 119	135	151	167	183	199	215	231	247
8	8	24	40	(56	H 72	X 88	h 104	x 120	136	152	168	© 184	200	216	232	248
9	9	25	41	) 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	o 95	o 111	o 127	143	159	175	ç 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	° 192	À 208	à 224	ð 240
1	1	17	33	! 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	" 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	# 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	\$ 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	% 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	& 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	' 55	G 71	W 87	g 103	w 119	135	151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	8	24	40	(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	) 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

A. Character Sets

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	192	208	224	240
1	1	17	33	! 49	A 65	Q 81	a 97	q 113	129	145	161	177	193	209	225	241
2	2	18	34	" 50	B 66	R 82	b 98	r 114	,	'	c	²	Á	Ö	â	ò
3	3	19	35	# 51	C 67	S 83	c 99	s 115	f	“	£	³	Ã	Ó	ã	ó
4	4	20	36	\$ 52	D 68	T 84	d 100	t 116	”	”	¤	´	Ä	Ô	ä	ô
5	5	21	37	% 53	E 69	U 85	e 101	u 117	...	•	¥	µ	Å	Õ	å	õ
6	6	22	38	& 54	F 70	V 86	f 102	v 118	†	-	|	¶	Æ	Ö	æ	ö
7	7	23	39	' 55	G 71	W 87	g 103	w 119	‡	—	§	·	Ç	×	ç	÷
8	8	24	40	(56	H 72	X 88	h 104	x 120	^	~	”	¸	È	Ø	è	ø
9	9	25	41	) 57	I 73	Y 89	i 105	y 121	‰	™	©	¡	É	Ù	é	ù
A	10	26	42	* 58	J 74	Z 90	j 106	z 122	Š	š	ª	º	Ê	Ú	ê	ú
B	11	27	43	+ 59	K 75	[91	k 107	{ 123	<	>	«	»	Ë	Û	ë	û
C	12	28	44	< 60	L 76	\ 92	l 108	| 124	Œ	œ	¬	¼	Ï	Ü	ï	ü
D	13	29	45	= 61	M 77	] 93	m 109	} 125			-	½	Í	Ý	í	ý
E	14	30	46	> 62	N 78	^ 94	n 110	~ 126	142	158	®	¾	Î	Þ	î	þ
F	15	31	47	? 63	O 79	o 95	o 111	☒ 127	143	159	175	191	Ï	ß	ï	ÿ

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	° 192	Ř 208	ř 224	đ 240
1	1	17	33	! 49	A 65	Q 81	a 97	q 113	129	145	161	177	± 193	Á 209	Ñ 225	á 241
2	2	18	34	" 50	B 66	R 82	b 98	r 114	130	146	162	178	ˆ 194	Â 210	Ň 226	â 242
3	3	19	35	# 51	C 67	S 83	c 99	s 115	131	147	163	179	“ 195	Ľ 211	İ 227	ó 243
4	4	20	36	\$ 52	D 68	T 84	d 100	t 116	132	148	164	180	” 196	Ǽ 212	Ō 228	ô 244
5	5	21	37	% 53	E 69	U 85	e 101	u 117	133	149	165	181	• 197	Λ 213	Ŏ 229	í 245
6	6	22	38	& 54	F 70	V 86	f 102	v 118	134	150	166	182	† 198	¶ 214	Č 230	ö 246
7	7	23	39	' 55	G 71	W 87	g 103	w 119	135	151	167	183	— 199	§ 215	Ç 231	÷ 247
8	8	24	40	(56	H 72	X 88	h 104	x 120	136	152	168	184	˙ 200	Č 216	Ř 232	ř 248
9	9	25	41	) 57	I 73	Y 89	i 105	y 121	137	153	169	185	‰ 201	™ 217	© 233	à 249
A	10	26	42	* 58	J 74	Z 90	j 106	z 122	138	154	170	186	® 202	§ 218	È 234	é 250
B	11	27	43	+ 59	K 75	[91	k 107	{ 123	< 139	> 155	« 171	» 187	€ 203	Ë 219	Ů 235	ú 251
C	12	28	44	, 60	L 76	\ 92	l 108	| 124	Š 140	š 156	¬ 172	Ł 188	Ě 204	Ů 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	® 190	Î 206	Ț 222	î 238	ț 254
F	15	31	47	/ 63	O 79	_ 95	o 111	☒ 127	Ž 143	ž 159	Ž 175	ž 191	Đ 207	ß 223	đ 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				° 176	À 192	Ĝ 208	à 224	ğ 240
1	1	17	33	! 49	A 65	Q 81	a 97	q 113		‘ 145	ı 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	2	18	34	" 50	B 66	R 82	b 98	r 114	,	’ 146	ç 162	² 178	Â 194	Ò 210	â 226	ò 242
3	3	19	35	# 51	C 67	S 83	c 99	s 115	f	“ 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	4	20	36	\$ 52	D 68	T 84	d 100	t 116	”	” 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	5	21	37	% 53	E 69	U 85	e 101	u 117	...	• 149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	6	22	38	& 54	F 70	V 86	f 102	v 118	†	-	| 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	7	23	39	' 55	G 71	W 87	g 103	w 119	‡	—	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	8	24	40	(56	H 72	X 88	h 104	x 120	^	-	¨ 168	ˆ 184	È 200	Ø 216	è 232	ø 248
9	9	25	41	) 57	I 73	Y 89	i 105	y 121	‰	™	© 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	š	ª	º	Ê 202	Ú 218	ê 234	ú 250
B	11	27	43	+ 59	K 75	[91	k 107	{ 123	<	>	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	12	28	44	, 60	L 76	\ 92	l 108	| 124	Œ	œ	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	13	29	45	- 61	M 77	] 93	m 109	} 125	<	>	-	½ 189	Í 205	Ý 221	í 237	ý 253
E	14	30	46	> 62	N 78	^ 94	n 110	~ 126			® 174	¾ 190	Î 206	Ş 222	î 238	ş 254
F	15	31	47	? 63	O 79	¯ 95	o 111	■ 127	ÿ	—	¸ 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	π 96	112	128	144	160	176	192	208	224	240	
1	1	17	33	!	A 49	Θ 65	α 81	θ 97	113	129	145	161	± 177	∫ 193	∇ 209	< 225	> 241
2	2	18	34	∇ 50	B 66	P 82	β 98	ρ 114	130	146	162	" 178	℔ 194	® 210	® 226	∫ 242	
3	3	19	35	# 51	X 67	Σ 83	χ 99	σ 115	131	147	≤ 163	≥ 179	∅ 195	© 211	© 227	∫ 243	
4	4	20	36	∃ 52	Δ 68	Γ 84	δ 100	τ 116	132	148	/ 164	×	⊗ 196	™ 212	™ 228	| 244	
5	5	21	37	% 53	E 69	Υ 85	ε 101	υ 117	133	149	∞ 165	∝ 181	⊕ 197	∏ 213	Σ 229	J 245	
6	6	22	38	& 54	Φ 70	ς 86	φ 102	π 118	134	150	f 166	∂ 182	∅ 198	√ 214	(230	) 246
7	7	23	39	∃ 55	Γ 71	Ω 87	γ 103	ω 119	135	151	♣ 167	• 183	∩ 199	· 215	| 231	| 247	
8	8	24	40	(56	H 72	Ξ 88	η 104	ξ 120	136	152	♦ 168	÷ 184	∪ 200	∩ 216	(232	) 248
9	9	25	41	) 57	I 73	Ψ 89	ι 105	ψ 121	137	153	♥ 169	≠ 185	⊃ 201	∧ 217	∫ 233	∫ 249
A	10	26	42	* 58	9 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	v 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	

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

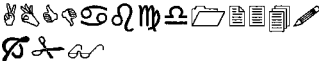
Agfa Intellifont (35 fonts)

NAME	PRINT SAMPLE
Albertus Medium	ABCDabcd1234!"#\$
Albertus Extend Bold	ABCDabcd1234!"#\$
Antique Olive	ABCDabcd1234!"#\$
Antique Olive Italic	<i>ABCDabcd1234!"#\$</i>
Antique Olive Bold	ABCDabcd1234!"#\$
CG Omega	ABCDabcd1234!"#\$
CG Omega Italic	<i>ABCDabcd1234!"#\$</i>
CG Omega Bold	ABCDabcd1234!"#\$
CG Omega Bold Italic	<i>ABCDabcd1234!"#\$</i>
CG Times	ABCDabcd1234!"#\$
CG Times Italic	<i>ABCDabcd1234!"#\$</i>
CG Times Bold	ABCDabcd1234!"#\$
CG Times Bold Italic	<i>ABCDabcd1234!"#\$</i>
Clarendon Condensed Bold	ABCDabcd1234!"#\$
Coronet	<i>ABCDabcd1234!"#\$</i>
Courier New	ABCDabcd1234!"#\$
Courier New Italic	<i>ABCDabcd1234!"#\$</i>
Courier New Bold	ABCDabcd1234!"#\$
Courier New Bold Italic	<i>ABCDabcd1234!"#\$</i>
Garamond Antique	ABCDabcd1234!"#\$
Garamond Kursiv	<i>ABCDabcd1234!"#\$</i>
Garamond Halbfett	ABCDabcd1234!"#\$
Garamond Kursiv Halbfett	<i>ABCDabcd1234!"#\$</i>
Letter Gothic	ABCDabcd1234!"#\$
Letter Gothic Italic	<i>ABCDabcd1234!"#\$</i>

B. Font Lists

NAME	PRINT SAMPLE
Letter Gothic Bold	ABCDabcd1234!"#\$
Marigold	<i>ABCDabcd1234!"#\$</i>
Univers Medium	ABCDabcd1234!"#\$
Univers Medium Italic	<i>ABCDabcd1234!"#\$</i>
Univers Bold	<i>ABCDabcd1234!"#\$</i>
Univers Bold Italic	<i>ABCDabcd1234!"#\$</i>
Univers Condensed Medium	ABCDabcd1234!"#\$
Univers Condensed Medium Italic	<i>ABCDabcd1234!"#\$</i>
Univers Condensed Medium Bold	<i>ABCDabcd1234!"#\$</i>
Univers Condensed Medium Bold Italic	<i>ABCDabcd1234!"#\$</i>

TrueType Fonts (10 fonts)

NAME	PRINT SAMPLE
Arial	ABCDabcd1234!"#\$
Arial Italic	<i>ABCDabcd1234!"#\$</i>
Arial Bold	ABCDabcd1234!"#\$
Arial Bold Italic	<i>ABCDabcd1234!"#\$</i>
Times New Roman	ABCDabcd1234!"#\$
Times New Roman Italic	<i>ABCDabcd1234!"#\$</i>
Times New Roman Bold	ABCDabcd1234!"#\$
Times New Roman Bold Italic	<i>ABCDabcd1234!"#\$</i>
Symbol	ABXΔαβγδ1234!©#☺
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	<i>ABCDabcd1234!"#\$</i>
Antique Olive Compact	ABCDabcd1234!"#
Arial Narrow	ABCDabcd1234!"#\$
Arial Narrow Italic	<i>ABCDabcd1234!"#\$</i>
Arial Narrow Bold	ABCDabcd1234!"#\$
Arial Narrow Bold Italic	<i>ABCDabcd1234!"#\$</i>
Bodoni	ABCDabcd1234!"#\$
Bodoni Italic	<i>ABCDabcd1234!"#\$</i>
Bodoni Bold	ABCDabcd1234!"#\$
Bodoni Bold Italic	<i>ABCDabcd1234!"#\$</i>
Bodoni Black	ABCDabcd1234!"#\$
Book Antiqua	ABCDabcd1234!"#\$
Book Antiqua Italic	<i>ABCDabcd1234!"#\$</i>
Book Antiqua Bold	ABCDabcd1234!"#\$
Book Antiqua Bold Italic	<i>ABCDabcd1234!"#\$</i>
Bookman Old Style	ABCDabcd1234!"#\$
Bookman Old Style Italic	<i>ABCDabcd1234!"#\$</i>
Bookman Old Style Bold	ABCDabcd1234!"#\$
Bookman Old Style Bold Italic	<i>ABCDabcd1234!"#\$</i>
Century Gothic	ABCDabcd1234!"#\$
Century Gothic Italic	<i>ABCDabcd1234!"#\$</i>

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

B. Font Lists

NAME	PRINT SAMPLE
Granite	ABCDabcd1234!"#\$
Granite Italic	<i>ABCDabcd1234!"#\$</i>
Granite Bold	ABCDabcd1234!"#\$
Granite Bold Italic	<i>ABCDabcd1234!"#\$</i>
Letter Gothic Bold Italic	<i>ABCDabcd1234!"#\$</i>
Microstyle	ABCDabcd1234!"#\$
Microstyle Bold	ABCDabcd1234!"#\$
Microstyle Extended	ABCDabcd1234!"#\$
Microstyle Extended Bold	ABCDabcd1234!"#\$
Monotype Corsiva	<i>ABCDabcd1234!"#\$</i>
Monotype Sorts	☆+✻✻✻✻✻✻☐☑☒☓⑩
Cooper Black	ABCDabcd1234!"#\$
Cooper Black Italic	<i>ABCDabcd1234!"#\$</i>
Seattle	ABCDabcd1234!"#\$
Univers Extended Medium	ABCDabcd1234!"#\$
Univers Extended Medium Italic	<i>ABCDabcd1234!"#\$</i>
Univers Extended Bold	ABCDabcd1234!"#\$
Univers Extended Bold Italic	<i>ABCDabcd1234!"#\$</i>
Univers Light Condensed	ABCDabcd1234!"#\$
Univers Light Condensed Italic	<i>ABCDabcd1234!"#\$</i>

Index

A

- A3 3-21
- A4 3-21
- Adobe PostScript ROM-DIMM
 - installing 6-7
- Automatic tray setting 3-35

B

- B4 3-21
- Basic Menu Setting Method 3-1
- Binary 3-14
- Bind Long Edge 3-7, 3-27
- Bind Short Edge 3-7, 3-27

C

- 3-21
- Caution Message 5-12, 5-16
 - MEMORY OVERFLOW 5-16
 - JOB TOO COMPLEX 5-16
- CE marking iv
- Centronics interface port 2-16
- CESKY 3-16
- Cleaning
 - external 4-5
 - internal 4-6
- Com-10 3-21
- Control Panel 1-6, 3-1
- Custom paper
 - printing 3-26
- Custom size 3-21

D

- DANSK
- Data LED 1-7
- DEUTSCH 3-17
- DL 3-21
- Duplex Printing 3-27
 - paper type 3-28
 - paper size 3-28
- Duplex Unit
 - installing 6-3
 - specification 7-8

E

- ENGLISH 3-17
- Enter/Reset key 1-9
- Envelope 3-21
 - printing 3-25
- ESPAÑOL 3-17
- ETHERNET 2 3-17
- Executive 3-21

F

- ures 1-1
- FineArt 3-9
- Font 3-40,
 - Agfa intellifont B-1
 - bitmap 3-40, B-3
 - scalable 3-40
 - screen B-4

TrueType B-3
FRANCAIS 3-16

G

Grounding 2-2

H

Humidity 2-4
Hard Disk
installing 6-7

I

802.2 3-17
IEEE 802.3 3-17
Imaging Cartridge 2-6
replacing 2-16
Interface Cable 2-16
connecting 2-16
specification 7-10
ISO B5 3-21
ITALIANO 3-17
Item key 1-8

J

5 3-21
Separation 3-3

K

Keys 1-6, 1-8

L

Labels 3-21
printing 3-26
Landscape orientation 3-8
Laser Safety i
LCD 1-7
Ledger 3-21
LED's 1-6, 1-7
Legal 3-21
Letter 3-21
Loading Paper
in tray 1 3-29
in tray 2 3-31
in tray 3 3-33
Location for the Printer 2-1

M

Maintenance Menu 3-16
Display language 3-16
Factory default 3-16
Service message 3-16
Media 3-21
paper type 3-21
paper size 3-21
capacity 3-22
Manual Feed 3-36
Menu key 1-8

Message LED 1-7
Misfeed, paper
 in tray 1 5-1
 in tray 2 5-3
 in tray 3 5-3
 inside the printer 5-5
 in the duplex unit 5-7
Monarch 3-21

N

NEDERLANDS 3-17
Network Card 6-5
 installing 6-5
Network Config Print 3-20
Network Menu 3-17
 IP address 3-17
 Subnet mask 3-17
 Gateway 3-17
 NetWare frame 3-17

O

One key 1-8
On Line LED 1-7
Operating Environment 2-4
Operational Precaution 2-4
Ozone release vii

P

PCL Menu 3-10
 Font number 3-10
 Pitch 3-10
 Point size 3-10
 Symbol set 3-10
Plain paper 3-21
Portrait orientation 3-8
Power 2-1
 On and OFF 2-10
Power Cord
 connecting 2-9
Print Menu 3-8
 Copies 3-8
Paper Size 3-8
 Orientation 3-8
 Paper Tray 3-8
 Duplex 3-8
 Form Length 3-8
 Resolution 3-8
 Print Quality 3-8
 Toner Density 3-9
 Page Protection 3-9
Print Quality Problem 5-8
 Irregularities 5-11
 Blank pages 5-9
 Black pages 5-9
 Blurred background 5-10
 Print out too dark 5-10
 Print out too light 5-9
 Toner smudges 5-11
 Uneven print quality 5-10
 White or black lines 5-11
Printable Area 3-23

Printer
 accessories 1-2, 7-3
 Menus 3-4, 3-6
 moving 2-17
 specification 7-1
 supplies 2-6
Printer Messages 5-12
Printing 3-38
Printing Orientation 3-24
Printing Problem 5-8
 No printing 5-8
Proceed key 1-8
PS Menu 3-11
 Jam Recover 3-11

Radio frequency interference iv
Recycled paper 3-21

Shift key 1-8
Setting Up Your Printer 2-7
Shift key 1-8
SNAP 3-17
Space Requirements 2-3
Special paper 3-21
Special Paper tray Setting 3-37
Status Message 5-12, 5-13
 READY 5-13
 OFFLINE 5-13
 PROCESSING 5-13

RESET 5-13
TRAY1 PAPER SIZE 3-2, 5-13
PRINT MENU 3-8, 5-13
CONFIG PRINT 3-19, 5-13
POWER SAVE 3-12, 5-13
WARMING UP 5-13
SELF TEST 5-13
MAINTENANCE REQ
 3-16, 4-1, 5-14
TRAY2 IS EMPTY 5-14
TRAY3 IS EMPTY 5-14
TONER IS LOW 4-2, 5-14
TONER EMPTY 4-2, 5-14
JOB SEPARATION 3-3, 5-14
Super A3 3-21
Supplies for Maintenance 4-1
System Menu 3-12
 Language 3-12
 Power Save 3-13
 Auto Continue 3-13
 Special Paper 3-13, 3-21
 Tray 1 Media 3-13
 Tray 2 Media 3-13
 Tray 3 Media 3-13

Test Print 3-15
Test Print 2-11, 3-19
 Config Print 2-12, 3-19
 PCL Font List 2-13, 3-19
 PCL Demo Print 2-15, 3-19
 PS Config Print 3-20
 PS Font List 3-20

- Network Config Print 3-20
- Thick paper 3-21, 3-26
 - printing 3-26
- Transparencies 3-21, 3-26
 - printing 3-26
- Tray 1 paper key 1-8
- Tray 1 Paper Size
 - Setting Method 3-2

U

- Universal 3-21

W

- Warning Message 5-15
 - IMAGE ADAPT 5-15
 - BI-CEN OVERFLOW 5-15