Panasonic Printer Driver Help

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Main Printer Setup Dialog Box

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Downloading Soft Fonts

The Fonts button activates the Font Installer, which allows you to "download" software fonts to the printer. See "Typefaces and Fonts" for more information.

Help for the use of the Font Installer is available through the Help button on the Font Installer screen.

The Gray Map

This feature allows distinct colors (such as pure red and pure green) that would normally print in the same shade of gray or black to be printed in distinct shades. It also allows you to select and create the patterns that compose those shades.

For more information, see:

Font Test

The Font Test feature allows you to display a list of, and/or print samples of the fonts available in the current configuration of Windows and your printer.

For more information, see:

The Font Test Dialog Box
Reading the Listings and Printouts

Note: In order to produce an accurate test after changing the print driver configuration, press the **APPLY** button to set the new configuration before running the Font Test.

Windows Operation

For information on how to operate the following Windows Dialog Box controls, see:

Button
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Printer Error Messages

Error Messages on the KX-P4420

Error Message and Code Number Displayed on the Front Panel:

PAPER EMPTY	U10
NO ENV CAS	U13
LOAD ENV.#10	U13
LOAD ENV.#9	U13
NO LEGAL CAS	U14
LOAD LEGAL	U14
NO LTR CAS	U15
LOAD LETTER	U15
NO A4 CAS	U17
LOAD A4	U17
CHK MNL FEED	U19
LOW TONER	U20
CHANGE TONER	U21
TONER CHARGE	U22
NO TONER CUP	U23
NO DRUM	U24
CHANGE DEV	U26
CHANGE DRUM	U27
TNR CUP FULL	U28
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DOOR OPEN	U30
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FONT UNAVAIL	U32
NO FONT CARD	U33
RESEND JOB	U34
BUFFER FULL	U35
RAM OVERFLOW	U36
PAGE FORMAT	U37
RE-DO RS232C	U39
WARM UP	U51
WARM UP	U52

Error Messages on the KX-P4450

Error Message and Code Number Displayed on the Front Panel:

PAPER EMPTY	U10
UPPER PAPER OUT	U11
LOWER PAPER OUT	U12
NO ENVELOPE CAS	U13
NO LEGAL CAS	U14
NO LTR CAS	U15
NO B5 CAS	U16
NO A4 CAS	U17
ADD TONER	U20
ADD TONER	U21
TONER CHARGING	U22
CHECK TONER CUP	U23
DRUM MISSING	U24
NO DEV UNIT	U25
CHANGE DEV UNIT	U26
CHANGE DRUM	U27
TONER CUP FULL	U28
DOOR OPEN	U30
CHECK PRINT JOB	U31
FONT NOT AVAIL	U32
NO FONT CARD	U33
RESEND JOB	U34
LINE OVERFLOW	U35
MEMORY OVERFLOW	U36
PAGE FORMATTING	U37
RE-ENTER FORMAT	U38
RE-ENTER RS232C	U39

Error Messages on the KX-P4450i

Error Message and Code Number Displayed on the Front Panel:

PAPER EMPTY	U10
UPPER PAPER OUT	U11
LOWER PAPER OUT	U12
NO ENV CAS	U13
LOAD ENV	U13
NO LEGAL CAS	U14
LOAD LEGAL	U14
NO LTR CAS	U15
LOAD LETTER	U15
NO A4 CAS	U17
LOAD A4	U17
CHK MNL FEED	U19
ADD TONER	U20
CHK TNR CUP	U20
CHK TNR CUP	U20
TONER EMPTY	U21
TONER CHARGE	U22
NO TONER CUP	U23
NO DRUM	U24
NO DEV UNIT	U26
CHANGE DEV	U26
CHANGE DRUM	U27
TNR CUP FULL	U28
DOOR OPEN	U30
FONT UNAVAIL	U32
NO FONT CARD	U33
RESEND JOB	U34
BUFFER FULL	U35
RAM OVERFLOW	U36
PAGE FORMAT	U37
TEMP CONTROL	U50
WARM UP	U51
WARM UP	U52

Technical Support

If the help provided in this file and your printer manual is not sufficient, you may contact Panasonic Technical Support by telephone at (800) 222-0584.

Acknowledgments

This printer driver was developed by
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About This Printer Driver

This is version **1.00** of the printer driver.

It was written for the Microsoft **Windows** operating environment, versions **3.00** and **3.00a** .

This driver currently supports the features, fonts, and options of the United States versions of these Panasonic printers:

KX-P4420
KX-P4450
KX-P4450i

The Purpose of a Printer Driver

A Printer Driver, such as this driver for Panasonic KX-P44xx series laser printers, is a system program that serves as the intermediary between your application programs and the printer. This Device Driver facilitates communication between the Windows application programs and the device, in this case, a Panasonic KX-P44xx series laser printer.

In the Microsoft Windows environment, the printer driver serves three main functions:

To provide a Device-Independent Interface for Windows applications,
To provide Device Information to the Windows applications, and
To Enhance the Device's Functionality.

When you make settings in the printer driver, you are:

Controlling the way that output will be produced by the printer, and/or
Informing the applications of the printer's current configuration and capabilities.

Device Independent Interface

There is no universal "language", or command set, used to control all printers. Each type of printer requires different instructions to activate its options, such as selecting a font or a paper tray. Ordinarily, this means that each application program must contain a specific set of translation instructions for every printer that it will use.

However, the Microsoft Windows environment provides all Windows applications with a standard set of functions to control output. When your Windows application prints a document, it uses these standard functions to specify the content and format of the print job. This general specification of the output is largely independent of the particular device (in this case, a printer) that will produce the output.

The printer driver then translates these general instructions into the specific instructions that your printer understands.

Because Windows and its Printer Drivers are designed in this way, once you have a Windows Printer Driver for your printer, **all** of your Windows applications can take full advantage of your printer. This design also gives Windows and Windows applications the ability to support a wider variety of output devices.

Device Information

The many different printers on the market provide a wide variety of features and capabilities. Each printer may also have a number of options such as font cartridges or paper trays installed at any given time. For an application to take best advantage of each printer, it must know which particular capabilities and options are available at the time it specifies a print job.

However, the printer itself cannot communicate all of the information about its current capabilities and configuration to the computer software, in this case Windows and the Windows application programs. Instead, it is the responsibility of the printer driver to provide this information.

Once you set up the printer driver to reflect the current configuration of your printer, the application will be able to offer you formatting options that match your printer's current configuration and capabilities.

For example, when you install a new font card, you must make the appropriate selection in the printer driver so that the application can then offer you the new fonts for use. If you remove that font card and forget to reset the printer driver, the application will allow you to select fonts that your printer cannot now print, and your output will not appear as you expect.

Enhance Device Functionality

The printer driver can also provide capabilities that neither the printer nor the application provide.

For example, when the printer has a normal version of a particular font but no bold version of the font, it is possible for the driver to adjust the output to simulate a bold font. While this simulated font will not strictly conform to the style established by the designer of the typeface, it will provide output that is sufficient for most uses.

The Font Test feature of this driver is also an entirely driver-based enhancement to the printer system's functionality. See Font Test for more information on the simulated fonts and the Font Test feature.

The Gray Map features of this driver also create capabilities that are neither available in the printer nor in most applications. This feature allows distinct colors (such as pure red and pure green) that would normally print in the same shade of gray or black to be printed in distinguishable shades. See Gray Map for more information on this feature.

Typefaces and Fonts

A **typeface** is a design of the appearance of a set of printable characters. Although the specific shape of each character in a typeface is different, in a good typeface, the thickness and slope of the lines, the shapes of the curves and corners, and the spacing will all appear consistent.

The design of typefaces is a recognized art, and the designs of most typefaces are copyrighted and licensed. Part of the cost of your printer and most font packages goes to pay the licensing fees for the typefaces. To avoid this cost, some programs use their own similar typeface designs, but must use different names so as not to infringe upon the rights of the typeface's owner.

A **Font** is a complete set of characters of the same size and weight in a given typeface. The word is derived from *fondre,* to cast or found. This is from early methods of printing in which letters were cast in lead as complete sets of castings of each character, punctuation and number, all in the same typeface, size, and weight, e.g., **this font is Helvetica 10 point bold**.

Computer Typefaces and Fonts

With computers, fonts are no longer stored as sets of lead castings, but as data representing the shapes of the characters to be printed or displayed.

The computer data can represent the font as either:
the pattern of dots to be displayed or printed for each character, or
the outline of the shape of each character.

Computer fonts that store the exact pattern of dots to be displayed or printed are limited to fixed sizes (as are lead castings) but are much quicker to use than outline fonts. The Panasonic printers supported by this driver store exact patterns of dots to represent their fonts.

Fonts that represent the outline of the characters can be scaled to different sizes, but are much slower to use.

Each device on the computer that must display or print a font must have a data representation of that font. This means that for you to both view a font on your screen, and print the font on your printer, you must have both the appropriate **Screen Font** and **Printer Font**.

If exactly matching versions of both of these are not present, the computer and printer will do the best they can to display or print the most similar font, and match at least the spacing of the fonts. The printer often has higher resolution than the screen (300 dpi vs ~75 dpi). This is why the text on your screen may not exactly match the appearance of the printed text, but the positioning and line breaks will be correct.

Fonts in the Windows Environment

Windows Fonts

The Windows operating environment provides a basic set of fonts to all applications. These **Windows Fonts** are available for both display and printing in a set of standard sizes. The printed output of Windows Fonts will very closely match the screen display. However, because they must be sent to the printer as dot-by-dot graphic images, they are both slow to print and can appear quite coarse in printouts.

Printer and Cartridge Fonts

Your Panasonic printer has permanently stored data representations of the shapes of a number of fonts. These permanently stored fonts are called **Printer Fonts**.

The font cartridges contain data representations of other fonts. These **Cartridge Fonts** are added to the list of fonts permanently stored in the printer.

Both Printer and Cartridge Fonts print more quickly and are higher quality than the Windows Fonts. When you use these fonts, Windows does its best to match the display of its screen fonts to the size and width of the printer or cartridge fonts, but the display may not perfectly match the printout.

Soft or Downloadable Fonts

The Panasonic KX-P44xx series laser printers also have the capability of accepting data representations of other fonts. These are sold in packages by third parties and are often called **Soft Fonts** (short for "Software Fonts").

The data for these Soft Fonts are transferred (downloaded) to your printer's memory. Once this is done, these fonts are available for printing at nearly the same speed and quality as the Printer and Cartridge fonts, and they provide greater variety.

Many soft font packages also provide matching screen fonts so that you can see more exact representations of what will be printed.

"Permanent" soft fonts must be downloaded to the printer each time the printer is turned on, as they are cleared from the printer's memory when the printer is turned off or loses power.

"Temporary" soft fonts are cleared from the printer's memory at each printer reset command, and so do not continue to occupy the printer's memory. Since a printer reset command is issued at the beginning of each page, these fonts must be downloaded before each page is printed.

Printing Graphics

A Graphic is any printed or displayed item that is not text. More specifically, any item which does not have a data representation in one of the available Printer, Cartridge, or Soft Fonts is a graphic. This includes everything from simple lines (except underlines) to complex art and images. A simple line from the top to the bottom of the page constitutes a full page graphic.

In order to print graphics, the computer must send to the printer, and the printer must compose in its memory, a complete representation of every dot in the rectangle enclosing the graphic items. The number of dots required depends upon both the size and resolution of the image.

At the printer's highest resolution of 300 dots per inch (dpi), 90,000 dots must be calculated for each square inch of the image. Thus a full page graphic requires about 1megabyte of free printer memory to print.

Graphics print more slowly than text both because it takes more time to send all of the data to the printer and it takes the printer longer to compose the page.

Hints:

If your printer only has the basic 512KB of memory, it can only print about a half page of 300 dpi graphics. If you attempt to print more, the printer will print as much as it can, then print the rest on a new page. To print your graphic correctly, you must break your image into smaller pieces, set the printer driver to 150 dpi (see GraphicsResolution), or install more memory.

Soft Fonts occupy printer memory, so you may have to unload some Soft Fonts or install more memory to print large 300 dpi graphics.

Windows Fonts are printed as graphics, so all of the limitations of printing graphics apply to documents composed with Windows fonts. These problems can be avoided by using Printer, Cartridge, or Soft Fonts.

Printing from DOS Applications

Standard DOS application programs were written to run only under the DOS operating system. These applications were not written to take advantage of the Windows operating environment. This includes the font, graphic, and printer driver capabilities of Windows.

None of the features of this printer driver are accessible to, or have any effect upon, printing from any DOS application program. This is true even when the DOS application program is run in a window under Windows.

All printer setup and control must be done through the facilities of the DOS application program, even when it is run in a window under Windows.

Consult the documentation of your DOS application program to learn how to use its printing features.

Printing Envelopes

To print envelopes on the **KX-P4420** and **KX-P4450i**:

In the Printer Setup dialog box, Set the **Paper Source** to **Manual Feed** or **Envelope Tray**,Select the appropriate **Paper Size** for your envelopes,Select **Landscape** OrientationPress **OK**.

In your application program , set the top, bottom, and side margins so that the address prints in the correct location.

Load the envelope paper tray and place it in the lower bin, or place an envelope in the manual feed and print.

When printing envelopes on the KX-P4450, you must also set the printer to its envelope configuration. For more information, see Printing Envelopes on the KX-P4450.

Printing on Non-Standard Paper Sizes

This printer driver does not directly support printing on non-standard paper sizes.

However, on the KX-P4420 and KX-P4450i you can use the manual feed to print on non-standard paper sizes with the following steps:

In the **Printer Setup** dialog box, select **Manual Feed** as the **Paper Source, and select a Paper Size** that is larger than your paper in both dimensions. Press **OK**.

Your application program will receive information that the paper is the size that you set in the printer driver.

In your application program, set the top, bottom, and side margins wide enough to ensure that your printed output is properly positioned on the paper.

You are now ready to try printing your document.

Notes:

Your margins will have to account for the differences between the size of your paper and the selected paper size. You will also have to take into account the position of the print origin on the selected paper size.

Consult your printer manual for details on the position of the print origin when using various paper sizes and paper feed options.

You may not get good results with some papers and sizes, as they may not track properly through the printer.

The KX-P4450 printer does not support non-standard paper sizes.

Printer Selection

The **Printer** option on the **Printer Setup** dialog box lets you specify the model of Panasonic laser printer that you will be using.

Selecting the correct printer ensures that the driver will:

- Offer the correct choices in other Printer Setup options;
- Correctly inform Windows applications of the printer's capabilities,
- Send the correct control commands in print jobs sent to the printer.

This Windows Device Driver currently supports the features, fonts, and options of the United States versions of these Panasonic printers:

KX-P4420
KX-P4450
KX-P4450i

For details on how to make a selection, see Combo Box Operation.

Paper Source

The **Paper Source** option on the **Printer Setup** dialog box lets you select the paper tray or paper feed option to be used in subsequent print jobs.

Selecting the correct Paper Source ensures that the driver will:

- Offer the correct choices in the Paper Size and Dimensions options;
- Send the correct control commands in print jobs sent to the printer.

The selections available in the Paper Source option are determined by the printer selected in the Printer option.

In addition to the standard single-source options, this printer driver also provides the capability to print a single print job from multiple paper sources.

When a dual source option is selected, the first page of the print job will be printed on paper from the "first" source, and all remaining pages in that job will be printed on paper from the "rest" source. This facilitates printing documents such as letters where you want the first page to be printed on letterhead, and the rest to be printed on regular paper.

For details on how to make a selection, see Combo Box Operation.

Paper Size

The **Paper Size** option on the **Printer Setup** dialog box allows you to select the paper to be used on subsequent print jobs from among the standard sizes of paper supported by your printer.

Selecting the correct Paper Size ensures that the driver will:

- Correctly inform Windows applications of the current paper size;
- Send the correct control commands in print jobs sent to the printer.

The paper size that your Windows application uses to compose your document (usually set in Page Layout or a similar menu option) must match the setting on the printer driver. Failing to set the paper size settings to matching values before you print will usually generate an error message.

The paper sizes available are listed by their common names. The actual size of each selection is listed in the Dimensions option.

The selections available in the Paper Size option are determined by the Printer and Paper Source options.

For details on how to make a selection, see Combo Box Operation.

Dimensions

The **Dimensions** option on the **Printer Setup** dialog box is an informational display of the measurements of the currently selected paper size. You cannot use this option to specify a custom paper size.

The display shows **Width** x **Height** (relative to the orientation of text on the page) and the units of measurement.

The available units of measurement are:

in English Inches
mm Metric Millimeters
pt Printer's Points (1/72 in)

The displayed dimensions are determined by the Paper Size and Orientation options and the selected unit of measurement.

The correct measurements are automatically displayed as these other options are changed. For example, changing the unit of measurement will automatically convert the measurement to the new units. Changing the Orientation option reverses the width and height measurements.

For details on how to make a selection, see Combo Box Operation.

Memory

The **Memory** option on the **Printer Setup** dialog box allows you to specify the amount of memory currently installed in your printer.

Selecting the correct amount of memory ensures that the driver will have correct information about the printer's capabilities when setting up and managing downloaded fonts. Press the **Help** button on the Font Installer for more information on downloading fonts.

The selections available in the Memory option are determined by the Printer option.

If you do not know how much memory is installed on your printer, you can find out by obtaining a Status Printout by using the printer's front panel. See Front Panel Operation for more information.

For details on how to make a selection, see Combo Box Operation.

Pages

The **Pages** option on the **Printer Setup** dialog box allows you to select which pages of your document will actually be printed. This feature of the driver facilitates dual sided printing.

When "All" is selected, all pages of your document will print normally.

When "Odd" is selected, only the first, third, fifth, etc. pages of each print job will be printed.

When "Even" is selected, only the second, fourth, sixth, etc. pages of each print job will be printed.

The output from these partial printouts can then be reloaded into the paper trays, and the "missing" pages printed on the reverse side.

Notes:

When loading the paper into the tray for the second pass, place the top of the printed pages at the open edge of the tray, with the blank side of the paper facing up.

Remember to switch from the "Odd" to the "Even" setting between passes.

The printer draws paper from the top of the tray, so the top-to-bottom order of the paper must match the print order of the second print job. On the KX-P4420, you can open the door on the back of the printer to get face-up reverse-order output.

Using the lower input slot for the second printing pass will reduce the likelihood of a paper jam as the paper will follow a straighter path through the printer. On the KX-P4420, you can open the door on the back of the printer to further straighten the paper path.

For details on how to make a selection, see Combo Box Operation.

Copies

The **Copies** option on the **Printer Setup** dialog box allows you to specify the number of copies of each page that your printer will produce. The KX-P44xx series laser printers can produce a maximum of 99 copies with this method.

You may also be able to specify multiple copies in the **Print** dialog box of your Windows application.

Do not use both options simultaneously, as the number of copies produced will be the multiple of the two Copies option settings.

Note:

When you use the **Copies** option on the **Printer Setup** dialog box of this printer driver, your job will be printed faster, but the copies will not be collated.

When you use the **Copies** option of your application's **Print** dialog box, your job will tie up both the computer and the printer for a longer time, but the copies will be collated.

See Page Composition and Page Collation for more detailed information on these processes.

For details on how to make a selection, see Edit/Scroll Box Operation.

Page Composition

The printing process occurs in several steps.

The Windows application program (in cooperation with Windows and the printer driver) first takes your document and composes the set of general Windows instructions that specify the content and format of your printed output.

The printer driver receives these general instructions and translates them into the specific instructions for your particular printer.

The printer receives and uses these specific instructions to compose in its memory an image of the actual location of each dot on each page (90,000 per square inch at 300 dots per inch resolution).

Only when the page image is fully composed, can the printer perform the actual printing process of creating the image on the drum and transferring the toner to the paper.

The process of translating the print job into the printer's specific instructions and that of actually printing the page usually take very little time.

The process of composing the document in the computer and that of composing the page images in the printer usually take most of the time. This is especially true for graphics output.

Page Collation

Printing multiple copies of your document can produce collated or uncollated output, depending upon the method used to specify the number of copies to be printed. Each has its advantages and disadvantages.

When you use the **Copies** option in the **Printer Setup** dialog box, nothing changes for your Windows application -- it still composes just one copy of your document. However, the device driver instructs the printer to print the specified number of pages after each page image is composed.

Using this method, each page is composed only once, and printing extra copies is as fast as feeding paper through the printer. However, you will get a stack of page 1s, a stack of page 2s, etc.; you receive uncollated output.

When you use the **Copies** option in your **application's Print** dialog box, nothing changes for the printer -- it still composes and prints one copy of each page it receives. However, your application composes and sends a complete print job of your document for each copy specified.

Using this method, the computer must fully compose your document, and the printer must fully compose each page, for **each** copy that you requested. The pages of each copy are printed in order; you receive collated output.

For more information on the composition process, see Page Composition.

Cartridges

The **Cartridges** option on the **Printer Setup** dialog box allows you to specify the font cartridges that are currently installed in the printer.

Selecting the correct cartridge(s) ensures that the driver will:

- Correctly inform Windows applications of the currently available fonts
- Send the correct control commands in print jobs sent to the printer.

The cartridge options that are offered, and the maximum number of cartridges that you can select depend upon the printer specified in the Printer option.

For details on how to make a selection, see List Box Operation.

Graphics Resolution

The **Graphics Resolution** option on the **Printer Setup** dialog box allows you to select the resolution at which graphic images will be printed.

The Graphics Resolution selection affects the:

- Appearance of graphic images,
- Speed of printing,
- Size of graphic image that can be printed,
- Printer capability information sent to Windows applications,
- Control commands in print jobs sent to the printer.

See Printing Graphics for more information on this topic.

For details on how to make a selection, see Radio Button Operation.

Orientation

The **Orientation** option on the **Printer Setup** dialog box allows you to print your output parallel to either the short or the long side of the paper. These orientations are called Portrait and Landscape mode, respectively.

Selecting the correct orientation ensures that the driver will:

- Correctly inform Windows applications of the page proportions,
- Send the correct control commands in print jobs sent to the printer.

Notes:

Some printer and cartridge fonts are only available in one orientation. The list of available fonts that your application offers to you is obtained from Windows and the printer driver as they are currently set up. Thus, it is best to set the orientation before composing your document to be sure that the fonts that you initially select will be available when you print.

The paper size and orientation that your Windows application uses to compose your document (usually set in Page Layout or a similar menu option) must match these settings on the printer driver. Failing to match these orientation settings before you print will usually generate an error message when you print.

For details on how to make a selection, see Radio Button Operation.

OK

When you activate the **OK** button in the **Printer Setup** dialog box, all current settings throughout the printer driver are stored and become active, and you are returned to the application program from which you called the Printer Setup dialog box.

For details on how to activate a button, see Button Operation.

Apply

When you activate the **Apply** button in the **Printer Setup** dialog box, all current settings throughout the printer driver are stored and become active, and you remain in the Printer Setup dialog box to make further modifications.

The **Apply** button is particularly convenient when making changes and checking the results with the Font Test feature.

For details on how to activate a button, see Button Operation.

Cancel

When you activate the **Cancel** button in the **Printer Setup** dialog box, all changes you have made since opening the **Printer Setup** dialog box or activating the **Apply** button are discarded, and you are returned to the application from which you called the Printer Setup dialog box.

For details on how to activate a button, see Button Operation.

Help

When you activate the **Help** button in the **Printer Setup** dialog box, this help system is activated.

For details on how to activate a button, see Button Operation.

About

When you activate the **About** button in the **Printer Setup** dialog box, a message box is displayed containing information about the printer driver version, copyright, authorship, etc..

For details on how to activate a button, see Button Operation.

Front Panel Operation

All printer front panel settings are overridden by this printer driver when printing from any Windows application, so there is generally no need to be concerned with these settings.

The sole exception to this is when loading envelopes into the KX-P4450. See Printing Envelopes on the KX-P4450 for more information.

To get information on the printer's current configuration, status, and settings, you can obtain a Status Printout, which is done from the printer's front panel. For instructions, see:

Obtaining a Status Print on the KX-P4420
Obtaining a Status Print on the KX-P4450
Obtaining a Status Print on the KX-P4450i

Printing Envelopes on the KX-P4450

When printing envelopes with the KX-P4450 printer, you must set both the printer driver and the printer itself to their envelope configurations.

If this is not done, the addresses will not be printed on the envelope, but will be printed on the printer's internal rollers. This will waste toner, prematurely age your drum, and may require extra service calls for cleaning.

There are two ways to set the KX-P4450 to its envelope configuration.

From the front panel,

- Insert the loaded envelope tray into the lower slot,
- Press the **On Line** button so that On Line indicator light is off and the LCD display reads **Off Line**. (The printer is now listening to the front panel, not to the computer),
- Press the **Format** button,
- Use an **Arrow** button to make the display read "Landscape",
- Press the **Enter** button,
- Use an **Arrow** button to display the correct envelope size,
- Press the **Enter** button, and
- Press the **On Line** button so that the display reads On Line

Using the printer's tray sensor,

- Turn off the printer,
- Insert the envelope tray into the printer's lower slot,
- Wait 30 seconds, to avoid excess wear on the printer's components,
- Turn on the printer.

You must also make the appropriate envelope settings in the printer driver. For more information, see Printing Envelopes.

Obtaining a Status Print on the KX-P4420

On the printer front panel:

Press the **On Line** button so that On Line indicator light is off and the LCD display reads **OFF LINE**. (The printer is now listening to the front panel, not to the computer),

Press the **Menu** button.

Press the **Arrow** button until **TEST** appears on the LCD display.

Press the **Enter** button.

STATUS PRINT should appear in the LCD display, if it does not, press either **Arrow** button until it does.

Press the **Enter** button and wait for the printout.

Press the **On Line** button to reestablish communication with the computer.

Obtaining a Status Print on the KX-P4450

On the printer front panel:

Press the **On Line** button so that On Line indicator light is off and the LCD display reads **OFF LINE**. (The printer is now listening to the front panel, not to the computer),

Press the **Test** button.

STATUS PRINT should appear in the LCD display, if it does not, press either **Arrow** button until it does.

Press the **Enter** button and wait for the printout.

Press the **On Line** button to reestablish communication with the computer.

Obtaining a Status Print on the KX-P4450i

On the printer front panel:

Press the **On Line** button so that On Line indicator light is off and the LCD display reads **OFF LINE**. (The printer is now listening to the front panel, not to the computer),

Hold the **2nd Function** button and press the **Reset/Test** button.

STATUS PRINT should appear in the LCD display, if it does not, press either **Arrow** button until it does.

Press the **Enter** button and wait for the printout.

Press the **On Line** button to reestablish communication with the computer.

KX-P4420 Error PAPER EMPTY U10

In paper casette feed mode, the casette is empty or no casette is installed.

Load paper and insert a loaded casette.

KX-P4420 Error NO ENV CAS U13

Printer requires envelope cassette.

Load envelope cassette or force printing with ON LINE key.

KX-P4420 Error LOAD ENV.#10 U13

Printer requires envelope #10 in the manual feed mode.

Load envelope #10 for manual feed.

KX-P4420 Error LOAD ENV.#9 U13

Printer requires envelope #9 in the manual feed mode.

Load envelope #9 for manual feed.

KX-P4420 Error NO LEGAL CAS U14

The current print job requires legal size (8½" x 14") paper in a cassette.
Either insert a loaded legal casette or force printing by using the ON LINE key.

KX-P4420 Error LOAD LEGAL U14

The current print job requires legal size (8½" x 14") paper in the manual feed input.
Insert legal size paper.

KX-P4420 Error NO LTR CAS U15

Printer requires letter format.
Load letter cassette or force printing with ON LINE key.

KX-P4420 Error LOAD LETTER U15

Printer requires letter paper in the manual feed mode.
Load letter paper for manual feed.

KX-P4420 Error NO A4 Cas U17

Printer requires A4 format.
Load A4 cassette or force printing by the ON LINE key.

KX-P4420 Error LOAD A4 U17

Printer requires A4 paper in the manual feed mode.
Load A4 paper for manual feed.

KX-P4420 Error CHK MNL FEED U19

Printer can not be fed paper correctly in the manual feed mode.

Reset paper.

KX-P4420 Error LOW TONER U20

Toner supply has been reduced to less than the upper level in the toner cartridge. Printing is still possible, but you should be sure that you have a replacement cartridge on hand immediately.

KX-P4420 Error CHANGE TONER U21

Toner supply has been exhausted by excessive attempts to print with the LOW TONER U20 message.displayed. Printing is no longer possible.

Install replacement cartridge immediately.

KX-P4420 Error TONER CHARGE U22

A low toner condition is detected and toner is being supplied. (Printing is possible.)
Automatic recovery.

KX-P4420 Error NO TONER CUP U23

Toner disposal bottle is not installed.

Install or replace toner disposal bottle.

KX-P4420 Error NO DRUM U24

Drum unit is not installed.

Install drum unit.

KX-P4420 Error CHANGE DEV U26

Developer unit requires replacement.
Install new developer unit.

KX-P4420 Error CHANGE DRUM U27

Drum unit requires replacement.
Install new drum.

KX-P4420 Error TNR CUP FULL U28

Toner disposal bottle is full.

Install toner disposal bottle.

KX-P4420 Error NO TNR CART U29

Toner cartridge and developer unit is not installed.

Install toner cartridge and developer unit.

KX-P4420 Error DOOR OPEN U30

Top cover is open.

Close top cover.

KX-P4420 Error CHECK OUTPUT U31

Laser control circuitry or periphery received an error (LYSNC long, Video open, LSYNIC short).

Press ON LINE key.

KX-P4420 Error FONT UNAVAIL U32

Font card is not installed when requested.

Install font card.

KX-P4420 Error NO FONT CARD U33

Font card is removed in ON LINE mode.

Power off then on.

KX-P4420 Error RESEND JOB U34

Communication error is detected in the RS-232C interface during receive. Error 1 byte is changed to mark.

Press ON LINE key twice. (A little time may be required for recovery.)

KX-P4420 Error BUFFER FULL U35

Receive buffer overflow.

Power off then on.

KX-P4420 Error RAM OVERFLOW U36

Page overflow, image overflow, or download overflow has occurred.

Press the ON LINE key.

KX-P4420 Error PAGE FORMAT U37

Overrun has occurred.

Press ON LINE key.

KX-P4420 Error RE-DO RS232C U39

RS-232C protocol setting is not correctly input from interface menu mode.

Reset protocol.

KX-P4420 Error WARM UP U51

Printer waits for mixing of new developer unit.
Please wait about 1 minute.

KX-P4420 Error WARM UP U52

Printer waits for initialization of new drum unit.
Please wait about 1.5 minutes.

KX-P4450 Error PAPER EMPTY U10

In automatic paper feed mode, both upper and lower cassettes are empty or no cassettes are installed.

Load paper and install cassettes.

KX-P4450 Error UPPER PAPER OUT U11

In automatic paper feed mode or upper cassette paper feed mode, the upper cassette is empty or not installed.

Load paper and install the upper cassette.

KX-P4450 Error LOWER PAPER OUT U12

In automatic paper feed mode or lower cassette paper feed mode, the lower cassette is empty or not installed.

Load paper and install the lower cassette.

KX-P4450 Error NO ENVELOPE CAS U13

Printer requires envelope cassette.

Load envelope cassette or force printing by the ON LINE key.

KX-P4450 Error NO LEGAL CAS U14

Printer requires legal (8½" x 14") format.
Load legal casette or force printing by the ON LINE key.

KX-P4450 Error NO LETTER CAS U15

Printer requires letter (8½" x 11")format.
Load letter cassette or force printing with ON LINE key.

KX-P4450 Error NO B5 Cas U16

Printer requires B5 format.
Press ON LINE key.

KX-P4450 Error NO A4 Cas U17

Printer requires A4 format.
Press ON LINE key.

KX-P4450 Error ADD TONER U20

Toner supply is below the upper level in hopper unit. (Printing is still possible.)
Add toner.

KX-P4450 Error ADD TONER U21

Too many copies tried with "ADD TONER U20" displayed. (Printing is not possible.)
Add toner.

KX-P4450 Error TONER CHARGING U22

A low toner condition is detected and toner is being supplied. (Printing is halted.)
Automatic recovery.

KX-P4450 Error CHECK TONER CUP U23

Toner disposal bottle is not installed or must be replaced.

Install or replace toner disposal bottle.

KX-P4450 Error DRUM MISSING U24

Drum unit is not installed.

Install drum unit.

KX-P4450 Error NO DEV UNIT U25

Developer Unit is not installed.

Install developer unit.

KX-P4450 Error CHANGE DEV UNIT U26

Developer unit requires replacement.

Install new developer unit.

KX-P4450 Error CHANGE DRUM U27

Drum unit requires replacement.
Install new drum.

KX-P4450 Error TONER CUP FULL U28

Toner disposal bottle is full.

Install toner disposal bottle.

KX-P4450 Error DOOR OPEN U30

Front cover or face down cover is open.
Close covers.

KX-P4450 Error CHECK PRINT JOB U31

Laser control circuitry or periphery received an error (LYSNC long, Video open, LSYNIC short).

Press ON LINE key.

KX-P4450 Error FONT NOT AVAIL U32

Font card is not installed when requested.

Install font card.

KX-P4450 Error NO FONT CARD U33

Font card is removed in ON LINE mode.
Power off then on.

KX-P4450 Error RESEND JOB U34

Communication error is detected in the RS-232C interface during receive. Error 1 byte is changed to mark.

Press ON LINE key twice. (A little time may be required for recovery.)

KX-P4450 Error LINE OVERFLOW U35

Receive buffer overflow.
Power off then on.

KX-P4450 Error MEMORY OVERFLOW U36

Page overflow, image overflow, or download overflow has occurred.
Press the ON LINE key.

KX-P4450 Error PAGE FORMATTING U37

Overrun has occurred.
Press ON LINE key.

KX-P4450 Error RE-DO FORMATTING U38

Format commands are not correctly input from FORMAT key.

Reset Format.

KX-P4450 Error RE-DO RS232C U39

RS-232C protocol setting is not correctly input from interface menu mode.
Reset protocol.

KX-P4450i Error PAPER EMPTY U10

In automatic paper feed mode, both upper and lower cassettes are empty or no cassettes are installed.

Load paper or install cassettes.

KX-P4450i Error UPPER PAPER OUT U11

In automatic paper feed mode or upper cassette paper feed mode, the upper cassette is empty or not installed.

Load paper and install the upper cassette.

KX-P4450i Error LOWER PAPER OUT U12

In automatic paper feed mode or lower cassette paper feed mode, the lower cassette is empty or not installed.

Load paper and install the lower cassette.

KX-P4450i Error NO ENV CAS U13

Printer requires envelope cassette, or loading envelope in manual feed mode.
Load envelope cassette, envelope, or force printing with ON LINE key.

KX-P4450i Error NO LEGAL CAS U14

Printer requires legal cassette, or loading legal paper in manual feed mode.
Load legal cassette, legal paper, or force printing by the ON LINE key.

KX-P4450i Error NO LTR CAS U15

Printer requires letter cassette, or loading letter paper in manual feed mode.
Load letter cassette, letter paper, or force printing with ON LINE key.

KX-P4450i Error NO A4 Cas U17

Printer requires loading A4 paper in manual feed mode.
Load A4 paper or force printing by the ON LINE key.

KX-P4450i Error CHK MNL FEED U19

Paper is loaded for manual feed while printer is warming up (WARM UP, TONER CHARGE). Paper is set for manual feed, but is not correctly fed into the printer.
Remove paper and re-load paper after confirming READY indicator is lit.

KX-P4450i Error ADD TONER U20

Toner is below the lower level in the hopper unit and check toner disposal bottle.
(Printing is possible.)
Add toner.

KX-P4450i Error TONER EMPTY U21

Over 100 copies tried with "ADD TONER U20" displayed or toner density could not be maintained by adding toner for 90 seconds. (Printing is not possible.)

Add toner.

KX-P4450i Error TONER CHARGE U22

A low toner condition is detected and toner is being supplied. (Printing is halted.)
Automatic recovery.

KX-P4450i Error NO TONER CUP U23

Toner disposal bottle is not installed.
Install or replace toner disposal bottle.

KX-P4450i Error NO DRUM U24

Drum unit is not installed.
Install drum unit.

KX-P4450i Error NO DEV UNIT U25

Developer unit is not installed.
Install the developer unit.

KX-P4450i Error CHANGE DEV U26

Developer unit has been used for 20,000 print cycles. (Printing is possible.)
Install new developer unit.

KX-P4450i Error CHANGE DRUM U27

Drum unit has been used for 13,000 print cycles. During printing 10,000 to 10,100 copies, this blinking message appears on the display to remind that you will soon need a new drum. Between 10,100 and 13,000 copies, it disappears, After 13,000 copies, it reappears continuously to tell you to change drums. (Printing is still possible.)

Install new drum unit.

KX-P4450i Error TNR CUP FULL U28

Toner disposal bottle is full.

Install toner disposal bottle.

KX-P4450i Error DOOR OPEN U30

Front cover or face down cover is opened.
Close covers firmly until they attach the catchers.

KX-P4450i Error FONT UNAVAIL U32

Font card is not installed when requested.

Install font card.

KX-P4450i Error NO FONT CARD U33

Font card is removed in ON LINE mode.
Power off then on.

KX-P4450i Error RESEND JOB U34

Communication error is detected in the RS-232C interface during receive. Error 1 byte is changed to mark.

Press ON LINE key twice. (A little time may be required for recovery.)

KX-P4450i Error BUFFER FULL U35

Receive buffer overflow.
Power off then on.

KX-P4450i Error RAM OVERFLOW U36

Page overflow, image overflow, or download overflow has occurred.
Press the ON LINE key.

KX-P4450i Error PAGE FORMAT U37

Overrun has occurred.
Press ON LINE key.

KX-P4450i Error TEMP CONTROL U50

When continuously printing envelopes, the printer stops for 30 seconds after every 30 impressions.

Automatic recovery.

KX-P4450i Error WARM UP U51

Printer waits for mixing of new developer unit.
Please wait about 1 minute.

KX-P4450i Error WARM UP U52

Printer waits for initialization of new drum unit.
Please wait about 1.5 minutes.

Definitions

Application Program
Collated
Control Command
DPI
Document
Font
Landscape Mode
Paper Source
Point
Portrait Mode
Print Job
Print Origin
Printer Setup Dialog Box
Resolution
Scroll
Scroll Bar
System Program
Toggle
Typeface
Uncollated

Sorry, the definition of this term is not yet available.

A program directly used to produce work on the computer, as opposed to a system or utility program. E.g., a word processor or a spreadsheet program.

A program that provides the system's basic operating capabilities, E.g., an operating system or device driver.

The printing mode in which output is printed parallel to the short side of your paper. When you read text printed in Portrait mode, the page is taller than it is wide. Letters are usually printed in Portrait mode.

The printing mode in which output is printed parallel to the long side of your paper. When you read the printed copy, the page will be wider than it is tall. Envelopes are usually printed in Landscape mode.

The Printer Setup Dialog Box is the main dialog box used to control this printer driver. It contains the most frequently used options, and is distinguished by the Panasonic logo.

A design of the appearance of a set of printed characters. Although the specific shape of each character in a typeface is different, in a good typeface, the thickness and slope of the lines, the shapes of the curves and corners, and the spacing will all appear consistent.

A complete set of characters of the same size and weight in a given typeface.

A Printer's Point is a unit of length equal to 1/72**.**27 inches. In most computer printers and software, a rounded point unit of 1/72 inch is used.

The degree of precision or detail at which a device can operate, often measured in dots per inch (dpi). E.g., a fax transmitted at 100 dots per inch will appear quite "blocky" compared to a 300 dot per inch laser printout.

The condition in which the pages of each copy of a document are in the proper order and direction for reading.

The condition in which the pages of each copy of a document are not in the proper order and direction for reading.

Dots Per Inch (dpi), a measure of the quality or resolution of an image or printout that a screen or printer can produce.

Document is used here to refer to any single work created on the computer. For example, a letter, report, spreadsheet, or graphical work.

The input from which paper is taken to be printed, e.g., a paper tray or manual feed slot.

A single printing task that can range from one page to many pages, all of which are printed at a single request.

The location on the printed page from which the location of all printed text and graphical elements is calculated.

To move the working document on the screen in a continuous fashion, so that one part disappears from one edge of the window as another part appears on the opposite edge.

The Windows control that lets you scroll your document in a window in a continuous fashion, so that one part disappears from one edge of the window as another part appears on the opposite edge.

To change the state of a two position option, e.g., from on to off, or off to on, as with a light switch.

A command embedded in the data sent to the printer that instructs the printer to activate a font or feature.

Overview of the Gray Map Features

The Gray Map features of this printer driver let you improve the way color graphics are printed from many Windows application programs.

As the Panasonic KX-P44xx series laser printers (and most others) cannot print in color, all colors used on the screen in Windows applications must be printed as patterns of black and white dots. Many application programs do not account for non-color printers, so very different colors (e.g., pure red and pure blue) will often be printed simply as black or white or the same shade of gray.

The Gray Map features of this printer driver solve this problem by providing 64 patterns of dots to print colors as distinct gray shades. Each of these patterns of dots are assigned to one of 64 colors evenly located across the color spectrum. For each color you print from a Windows application when using this printer driver, Windows will select the best matching color from these 64 colors, and print the dot pattern assigned to that color.

In this way, colors that would be printed as the same gray or black shade when using other printers or printer drivers are readily distinguishable when printed on Panasonic KX-P44xx series laser printers using this printer driver.

For even more control over your printing, you can modify the dot pattern associated with each color. See Editing the Gray Map for details.

You can print a sample of the currently selected gray map to see how the colors will actually be printed on your printer at the resolution that you will be using. See Printing a Sample for details.

You can also turn off the Gray Map feature. See No Mapping for details.

No Mapping

When **No Mapping** is selected in the main Gray Map dialog box, the Gray Map features of this printer driver are disabled.

The Windows application program may then produce its own gray dot pattern, or request and use a dot pattern created by Windows. These dot patterns are designed for use at the typical screen display resolutions, of about 75 dpi and usually produce poor output when printed at the printer's 300 dpi resolution.

See Radio Button Operation for details on making this selection.

Default Mapping

When **Default Mapping** is selected in the main Gray Map dialog box, a general purpose set of dot patterns will be used to print different colors.

This set of dot patterns has been designed so that the printed gray density correlates with the saturation of the colored area, but each color has a recognizably different pattern.

For example, in the Red/Green/Blue color scheme, pure red and pure blue each have a color density of 33% (only one of the three colors is "turned on"). Thus, the printed dot patterns for both colors have a Gray Density of 33%white (67%black), but use a different pattern, so that the printed areas are visibly distinct. Mixed colors use combinations of the dot patterns, maintaining the appropriate gray density for the density of the color, and distinct dot patterns to distinguish the printed objects.

If you want to modify the dot pattern associated with each color, see Editing the Gray Map for details.

See Radio Button Operation for details on making this selection.

External Gray Map File

When **External Gray Map File** is selected in the main Gray Map dialog box, a set of dot patterns contained in a Gray Map File stored on the disk will be used to print different colors.

When you edit the gray map, you have the opportunity to save your changes in a file for later use. It is these files that are used when **External Gray Map File** is selected. See Editing the Gray Map for more details.

See Radio Button Operation for details on making this selection.

Printing a Sample of the Gray Map

The final results of printing colors will vary between printer models, printing resolutions, and Gray Map options. The **Print** option is provided to help you select the best option for your situation.

To print a sample of the gray map, simply select the Gray Map option (No Mapping, Default Mapping, or an External Gray Map file), and press the **Print** button.

A message box will briefly appear stating which option is being printed. You may cancel the printing of the sample by pressing the cancel button while this message box is displayed.

For more information on making selections in the Gray Map dialog box, see Windows Operation.

Editing the Gray Map

The Edit Gray Map feature lets you create a set of 64 gray dot patterns to be used when colors are printed. This can be useful when you have a color scheme that you use frequently, and would like a set of gray patterns to highlight printouts of presentations using this color scheme. You can also create a Gray Map to print colors as different geometric patterns, characters, or logos.

When editing the gray map, you start with an existing set of dot patterns, and can modify the dot pattern for each color. You can save your work in a gray map file at any point along the way. A mouse is required to edit the gray map.

For more information see:

Selecting the Color to Edit
Editing the Dot Pattern
Saving and Using Your Gray Map
General Hints on Gray Map Editing

Selecting the Color to Edit

On the right side of the Edit Gray Map dialog box is a panel display of the 64 evenly spaced colors and their associated dot patterns. A white border highlights the color currently selected for editing.

The colors are numbered 0-63 (black to white). The number of the currently selected color is displayed in the edit box above the scroll bar.

You can select a color to edit by pointing with the mouse cursor to the desired color and clicking once, moving the scroll bar with the mouse or arrow keys, or entering the number of the color into the edit box above the scroll bar.

Editing the Dot Pattern

Each gray pattern is an 8x8 grid of dots that will be repeated like wallpaper over the printed area of the color to which it is assigned.

On the left side of the Edit Gray Map dialog box is an enlarged display of the 8x8 grid of dots of the color currently selected for editing. To edit the dot pattern, simply click your mouse in any square to change that dot to black or white. The Gray Value listed under the editing panel will change to reflect the current percentage and number of black dots in the pattern.

A large sample of the pattern currently selected for editing is displayed in the Sample Panel in the center of the dialog box. A smaller sample of the pattern assigned to each color is displayed adjacent to that color in the Color Selection Panel on the right side of the Edit Gray Map dialog box. Both of these samples are updated immediately as you make changes.

When you are satisfied with the dot pattern for the selected color, select another color to edit that pattern.

In order to use your edited Gray Map, it must be saved in a file on a disk that is accessible to Windows. See Saving and Using Your Gray Map for more information.

Saving and Using Your Gray Map

In order to use your edited Gray Map, it must be saved in a file on a disk that is accessible to Windows. To do this, press the **Save** button on the Edit Gray Map dialog box. This will bring up the Save dialog box. Select the drive and directory in the list box, and enter the desired filename in the edit box. The default extension of .GMP will be added to the filename, but you may specify another extension if you wish.

If you press **Cancel** in the Edit Gray Map dialog box, all of your saved edits will remain on the disk, but no settings will be altered in the Edit Gray Map dialog box. The Cancel option will become unavailable when you save any changes to the same filename as the currently active external gray map file.

If you press **OK** after saving any changes in the Edit Gray Map dialog box, the **External Gray Map File** option in the Gray Map dialog box will be selected with the last saved version of the edited gray map file specified.

To make a gray map file active, the **External Gray Map File** option in the Gray Map dialog box must be selected, with the desired external gray map file specified. Now, press the **OK** button in the Gray Map dialog box, and either **OK** or **APPLY** in the Main Printer Setup dialog box.

See Windows Operation for more information on using these controls in saving and selecting your gray map file.

General Hints on Gray Map Editing

Use the **Print** option to see how each color will actually appear as a gray shade/pattern when printed at the resolution that you will be using.

Set the Graphics Resolution in the Main Printer Setup dialog box to the resolution that you will actually use and press **Apply** before printing your samples.

A typical VGA monitor displays the dot patterns in the sample and color panels at about 75 dots per inch. These patterns will be printed at the currently selected graphics resolution of 75, 150, or 300 dpi. If you will be printing at the higher resolutions, avoid making white areas that are only a single dot wide, as they tend to be lost in the black area.

The Font Test Dialog Box

The Font Test Dialog Box lets you select which types of fonts will be included in font test listing and printouts. You may select any or all of the four available font types: printer, cartridge, windows, and soft fonts..

For more information on types of fonts and their uses, see
Typefaces and Fonts
Computer Typefaces and Fonts
Fonts in the Windows Environment

The **List Fonts** button opens a new window displaying the list of all currently available fonts of the selected types. The **Print Sample** button prints a sample of each of the currently available fonts of the selected types. See Reading the Font Test Listings and Printouts for more information.

Note:
If you have made changes to the Main Printer Setup Dialog Box, press the **Apply** or **OK** button to ensure that the listing or printout reflects the new settings.

See Check Box Operation for detailed instructions on making selections.

Reading the Font Test Listings and Printouts

The Font Test listings and printouts provide a line of information about each of the currently available fonts of the types selected in the Font Test dialog box. Each line contains the following information:

The **name of the typeface**, e.g., Courier, Century, etc..

The **size of the font**, in points (1/72 inch).

The **attributes of the font**, which will be one of the following:

- **Nothing**, indicating the normal font.
- **Bold**, indicating a version of the font with a heavier stroke thickness.
- **Italic**, indicating a version of the font with slanted or rounded strokes.
- **Bold Italic** indicating heavier and slanted strokes.
- **Simulated bold** indicating that the bold attribute is produced by the driver, not stored as a separate font in the printer. The simulated fonts are quite usable, but do not match the typographer's version of the fonts.

The type, or **origin of the font**, which will be one of the following:

- **Printer Font**, permanently stored in the printer.
- **Cartridge Font**, stored on an installable font cartridge.
- **Windows Font**, included in the Windows software.
- **Soft Font**, downloaded to the printer.

Button Operation

A button is a Windows control that initiates an action or series of actions. Buttons can be activated by either the keyboard or the mouse.

Mouse:
Point to the button with the mouse cursor and click once to initiate the action.

Keyboard:
The cursor highlight indicates your current editing position in the dialog box. Press the <TAB> key to move the cursor highlight to the desired option or button, or hold the <Shift> key while pressing <TAB> to move in the reverse direction.

In most cases, when the cursor is in an option that is not a button, the OK button will have the button highlight, so pressing the <Enter> key will activate the OK button.

Pressing the <ESC> key will usually activate the CANCEL button.

If a button has an underlined character in its name, you can hold the <ALT> key and press the key of the underlined letter to activate that button.

Combo Box Operation

The Windows control used for this option is called a Combo Box. It consists of two parts, an edit box that displays the selected item, and a drop-down list box that displays the available items. You can make selections in this option with either the keyboard or the mouse.

Mouse:
Point to the Down Arrow Button on the right of the edit box and click once to reveal the list of available items.

Point to the desired option and click once to select it. The list box will close and the item that you selected will be placed in the edit box.

Keyboard:
The cursor highlight indicates your current editing position in the dialog box. Press the <TAB> key to move the cursor highlight into the desired option box, or hold the <Shift> key while pressing <TAB> to move in the reverse direction.

Hold the <ALT> key while pressing the <DownArrow> key to reveal the list of available items.

Use the <UpArrow> and <DownArrow> keys to scroll through the available options. When the item you want is highlighted, use the <TAB> key to make your selection and move the cursor to the next option box.

Edit/Scroll Box Operation

The Windows control used for this option is called an Edit/Scroll Box. It consists of two parts, an edit box that allows you to edit the setting, and a scroll bar control that allows you to scroll through the range of settings. You can specify the setting in this option with either the keyboard or the mouse.

Mouse:
To operate this control, simply point to one of the arrows with the mouse cursor and click and hold . The setting will increase or decrease until it is at its high or low limit. The right arrow increases the setting, and the left arrow decreases the setting.

Keyboard:
The cursor highlight indicates your current editing position in the dialog box. Press the <TAB> key to move the cursor highlight into the desired option box, or hold the <Shift> key while pressing <TAB> to move in the reverse direction.

Edit the setting as you would any text.

List Box Operation

The Windows control used for this option is called a List Box. It consists of two parts, a list of the available items, and a scroll bar that lets you scroll through the list if there are too many items to display in the box. You can make selections in this option with either the keyboard or the mouse. You may also be able to make multiple selections.

In a List Box, selected items are displayed by being highlighted. On color screens, there will be a colored background on each selected item. On monochrome screens the shading of the background and text will be reversed.

Mouse:
To see items that are not currently displayed in the box, point with the mouse cursor to one of the arrows in the scroll bar (on the right side of the box), and click the mouse.

To select any item that is not yet selected, simply click once on that item. If the maximum number of items is already selected, the earliest selected item will be deselected in favor of the newly selected item.

To deselect a currently selected item, simply click once on that item.

Keyboard:
The cursor highlight indicates your current editing position in the dialog box. Press the <TAB> key to move the cursor highlight into the desired option box, or hold the <Shift> key while pressing <TAB> to move in the reverse direction.

To see items that are not currently displayed in the box, use the <UpArrow> and <DownArrow> keys. A dotted outline will be displayed around one item to indicate your current cursor position in the list.

To select any item that is not yet selected, move your cursor (the dotted outline) to the desired item, and press the <Space Bar>. If the maximum number of items is already selected, the earliest selected item will be deselected in favor of the newly selected item.

To deselect a currently selected item, move your cursor to the desired item, and press the <Space Bar>.

Radio Button Operation

The Windows control used for this option is called a Radio Button set. It consists of a number of exclusively selectable items. That is, selecting one item deselects any other item in the set, as with the buttons that select stations on a car radio. You can make selections in this option with either the keyboard or the mouse.

The currently selected item is indicated by a dot in the circle of the button for that item.

Mouse:
To make a radio button selection with a mouse, simply point to the desired item with the mouse cursor and click once.

Keyboard:
The cursor highlight indicates your current editing position in the dialog box. Press the <TAB> key to move the cursor highlight into the desired option box, or hold the <Shift> key while pressing <TAB> to move in the reverse direction.

A dotted outline will be displayed around the currently selected item to indicate your current cursor position in the set.

Use the <UpArrow> and <DownArrow> keys to move the cursor within the set.

Keyboard <ALT>:
Each item in the Radio Button Set also has a single character underlined. You can select an item by holding the <ALT> key and pressing the key of the character that is underlined in the desired option.

For example, in a Radio Button Set with items "**Small**", "**Medium**", and "**Large**" holding <ALT> and pressing <S> would select Small.

Check Box Operation

The Windows control used for this option is called a Check Box set. It consists of a number of selectable items. Any combination of displayed items may be selected, including all or none of the items. You can make selections in this option with either the keyboard or the mouse.

Currently selected items are indicated by an "x" in the box for that item.

Mouse:
To toggle a check box selection with a mouse, simply click once on the box or text of the desired item.

Keyboard:
The cursor highlight indicates your current editing position in the dialog box. Press the <TAB> key to move the cursor highlight into the desired option or check box, or hold the <Shift> key while pressing <TAB> to move in the reverse direction.

A dotted outline will be displayed around an item to indicate your current cursor position in the set. Press the <Space Bar> key to select or deselect the item.

Keyboard <ALT>:
Each Check Box item also has a single character underlined. You can select an item by holding the <ALT> key and pressing the key of the character that is underlined in the desired option.

For example, in a dialog box with a check box item "**WindowsFonts**", holding <ALT> and pressing the <W> key would select or deselect that item.