



# Power Print<sup>TM</sup>

by ROB RENSTROM





# Power Print

Font Downloader

by Rob Renstrom

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***Downloaded from [www.Apple2Online.com](http://www.Apple2Online.com)***

# Welcome To Power Print

## Power to your Printer!

Power Print delivers a new dimension of power to your dot matrix printer. It enables you to switch between the serviceable but ordinary font that came with your printer

STANDARD: ABCDEabcde12345

and an unlimited variety of custom fonts that add clarity and impact to your printed output.

COUNT: ABCDabcd6789\*6?  
BYTE: ABCDE12345←↑→↓□●  
@WTLZME:XYZ 0XD ENGLISH

Before we go any further, let's define *font*. A font is simply a set of characters -- letters, numbers, special characters, and symbols -- that have the same style.

You may use one of the custom fonts that are supplied on the Power Print disk, or you may design your own fonts.

## Power Print Works With AppleWorks

Power Print is compatible with AppleWorks. In fact, it can be used with virtually any program that you run on your Apple //e, //c, //+ (or //-anything) computer.

Power Print works on a wide variety of dot matrix printers with "downloading" capability. *Downloading* means that information can be transferred "down" from the computer to an area in the printer's memory called the download buffer.

# Three Ways To Use Power Print

Power Print offers three powerful, easy-to-use options:

- Use the ready-made custom fonts provided on the Power Print disk. These ready-made fonts allow you to create a variety of effects to enhance your printed documents. You can even draw borders.
- Modify the ready-made fonts to suit your exact needs.
- Create your own fonts "from scratch." The possibilities are as limitless as your imagination and ingenuity. You can store your own fonts on disk for repeat use.

No matter which option you choose, Power Print is easy to use. Here are the basic steps:

One time only: Identify the kind of printer and interface you use. This Printer Setup has to be done only once; there's no need to re-do it unless you change to a different printer or interface.

- 1 Select a ready-made font, or modify a ready-made font, or create your own font.
- 2 Download the font (ready-made, modified, or scratch) to the printer.
- 3 Exit Power Print and load the program you want to use. When you print a document, the printer will use the font that was downloaded from Power Print. This font will be used until you turn off the printer or until you use Power Print to download a different font.

These steps are explained on the following pages.

## About This Manual

This manual leads you through some simple examples of how to set up and use Power Print. Just fire up your Apple, load the program, and follow along.

We know -- it takes time to read all the explanatory stuff between the fun parts where you get to push buttons and watch what happens. Trust us: time spent now reading the material and proceeding cautiously will save you time and aggravation in the future. The first time through may go slowly, but Power Print is easy to use and soon you will be an expert.

The first part of this manual teaches you about the basics of Power Print: how to set up your printer and how to select and use ready-made fonts. Then we tell you how to use Power Print with AppleWorks. Finally, we describe how to modify ready-made fonts and create fonts from scratch, and we tell you about some special tricks you can try.



## Help!

If at some point you feel the need to shout "help!" go right ahead and do so. A more productive option is simply to type a question mark (?). A help screen will appear that gives information about the part of Power Print you're currently using.

Also, the **Notes** option in the **Apple** Menu contains up-to-the-minute information about Power Print. Be sure to read the **Notes** before you start to use the program (the next section describes how to start the program and select a menu option).

## Don't Leave Home Without Backing Up

Before you get into Power Print, remember to make a working copy of the Power Print disk. Use the copy and store the original in a safe place. As with all Beagle software, there is no copy protection so backup is quick and easy. Please respect the copyright laws that pertain to computer software. You support us and we'll support you.

# The First Step: Printer Setup

Power Print works with a wide variety of dot matrix printers that have full font downloading capability (check your owner's manual). To do its job, Power Print needs to know which printer you are using, as well as which printer interface and interface slot number. We call this information the Printer Setup. The Printer Setup is stored on the Power Print disk, so each time you load Power Print it automatically knows which printer you're using.

*You do the Printer Setup only once; you do not have to repeat it unless you switch to a different printer. If you regularly use more than one kind of printer, we suggest you make a separate Power Print disk for each printer.*

Yes, that time has finally come: race to your Apple, insert the Power Print disk in drive 1, and turn on the computer. (Apple //c and //e users: If your computer is already on, press **control, open-apple, and reset** at the same time, then release **reset** first.)

Now press any key; the Power Print main program screen will appear (Figure 1).

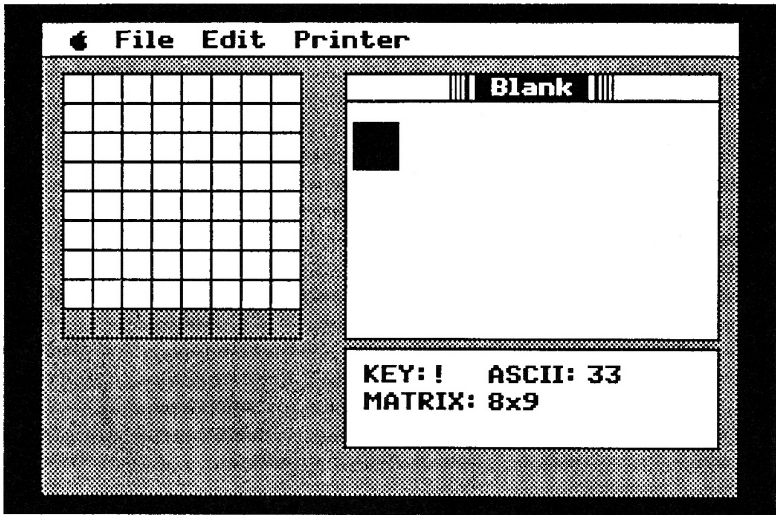


Figure 1: Main Program Screen

We want to view the **Apple Menu** (designated by the Apple symbol) at the upper left of the screen. Press the **esc** key and the Apple Menu options will appear as shown in Figure 2.

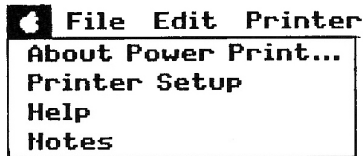


Figure 2: Apple Menu

To select one of the options in a menu, use the **up arrow** and **down arrow** keys (on the Apple //+, use **A** for up and **Z** for down) to move up and down within the menu. Each selection is highlighted as you come to it. The **left arrow** and **right arrow** keys move you between the various menus: **Apple**, **File**, **Edit**, and **Printer**.

*Sometimes an option within a menu will appear to be faded or dimmed. This means the option is disabled and you can't use it. For example, some printers (such as the Epson FX-80/FX-100) allow you to download two fonts, but many printers do not. If your printer does not allow two downloaded fonts, the Printer Menu will appear as shown in Figure 3. The "Download As Font 2" and "Print Sample of Font 2" options will be dimmed because they aren't allowed.*



Figure 3: Dimmed (Disabled) Menu Options

The very first time you run Power Print, we suggest you read the **Notes** in the **Apple Menu**. Use **up arrow** and **down arrow** (or **A** and **Z**) to highlight the **Notes** option, then press **return**. After you've read the **Notes**, press **esc** to go back to the **Apple Menu**.

Next, within the **Apple Menu** use **up arrow** and **down arrow** (or **A** and **Z**) to highlight the **Printer Setup** option, as shown in Figure 4.

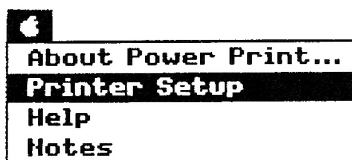


Figure 4: Select Printer Setup

Then press **return**. The **Printer Setup** screen will appear as shown in Figure 5a.

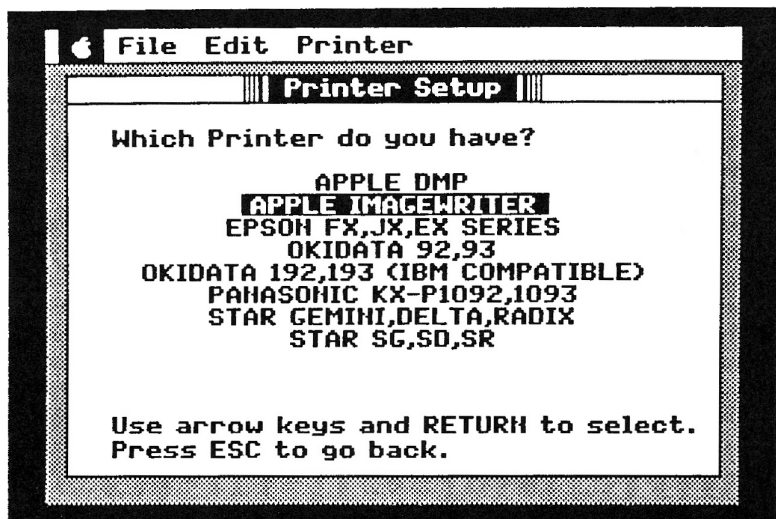


Figure 5a: Printer Setup - Printer List

Select your printer from the list (highlight the appropriate choice, then press **return**). Select **\*\*\*\* SEE MORE CHOICES \*\*\*\*** to view more of the list of printers.

If your printer is not listed and you're sure it has font downloading capability, try selecting the Epson.

*If you are using an Apple IIc, your Printer Setup is now complete. You don't have to make any more choices because Power Print automatically selects the proper interface and slot number. Skip to "Saving and Testing the Printer Setup."*

After you select a printer, a list of printer interfaces will be displayed (see Figure 5b). The *interface* is the connection (cable, or cable plus circuit board) that enables the computer to communicate with the printer. Select the interface you are using. If you're not sure which interface to select, check the owner's manuals for your computer and printer. If your interface isn't listed, try the Apple Parallel or the Grappler.

After you select your interface, a list of slot numbers will appear (see Figure 5c). Select the appropriate slot number. If you're not sure which to select, you probably should use slot 1, which is appropriate for most printers.

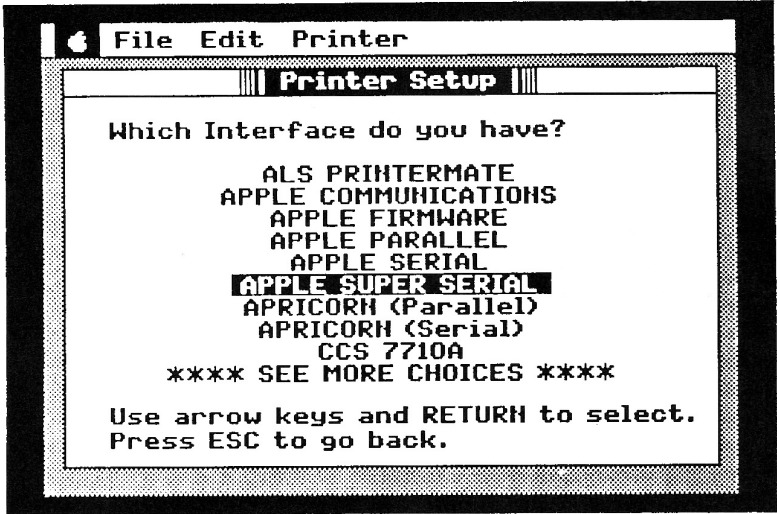


Figure 5b: Printer Setup - Interface List

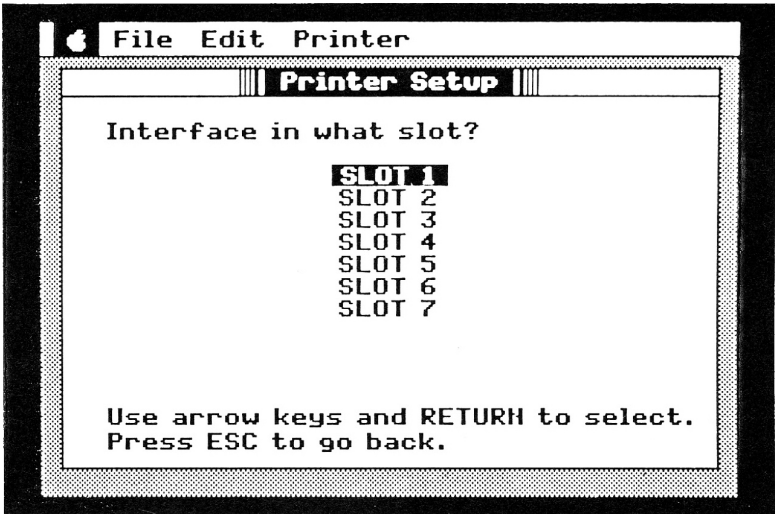


Figure 5c: Printer Setup - Slot List

The `esc` key returns you to the previous list (from the Slot list back to the Interface list, or from the Interface list back to the Printer list). From the Printer list, `esc` returns you to the main program.

## Saving and Testing the Printer Setup

After you have made your selections of printer, interface, and slot number, a screen appears that displays the choices you've made (Figure 6).

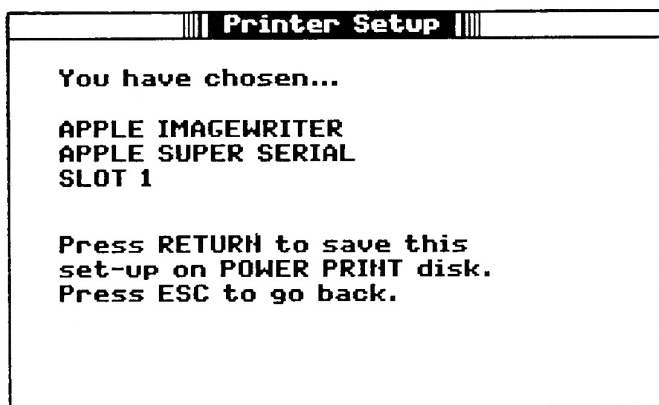


Figure 6: Save Printer Setup

If the selections are correct, press **return**. This causes the Printer Setup to be saved on the Power Print disk. Therefore, Printer Setup is a one-time procedure that you do *not* have to repeat each time you load Power Print. If you switch to a different printer or interface, then load Power Print, make the appropriate selections, and save the new Printer Setup on disk. If you regularly use more than one kind of printer, we suggest you make a separate Power Print disk for each printer.



Power Print allows you to run a test to make sure the printer setup is correct and functional. After you save the printer setup on disk, a screen appears (Figure 7) that reminds you to make sure the printer is on-line (selected) and ready to be used.

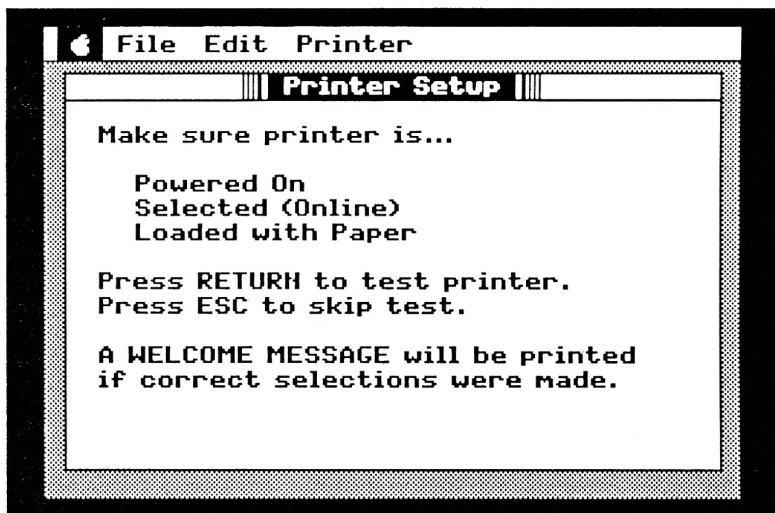


Figure 7: Test Printer Setup

Press **return** to run the test. You can skip the test by pressing **esc**, but we strongly suggest that you run it. If the printer and interface selections are correct, the test prints a welcome message (Figure 8).

===== WELCOME TO POWER PRINT =====

Figure 8: Successful Printer Test

For most printers, an "8-bit" test will follow the welcome message. This test determines whether the interface can handle the downloading requirements of the printer. (Some printers don't require this test; for these printers, only the welcome message in Figure 8 will be printed.)

The words "8-BIT TEST" will be printed followed by two horizontal lines (Figure 9). If both lines appear, everything is okay; if only one line appears, the interface can't download data to the printer (see "Printer Problems?" below).

8-BIT TEST: \_\_\_\_\_

Figure 9: Successful 8-Bit Test

## Printer Problems?

Here are some hints to help you figure out what's wrong if the printer test fails.

The test prints garbage characters: You may have selected the wrong printer or the wrong interface. Also, make sure you have made any necessary DIP switch settings on the printer. See the "Printer Information" booklet included with your Power Print package for the proper DIP switch settings, if any, for your printer.

The "8-bit" test prints only one line: The selected interface can't send 8-bit data. It may require a jumper block or DIP switch setting; refer to the instruction manual for the interface. Also, make sure the printer is set up to receive 8-bit data (see "Printer Information" booklet).

The program hangs (stops working) during the test: Make sure the printer is turned on and selected (on-line). Also make sure you've chosen the correct interface and slot number. If for some reason you don't return to the program, either re-boot or press **control** and **reset** to re-start Power Print.

# How To Use Power Print Ready-Made Fonts

We have provided a variety of ready-made fonts on your Power Print disk. These fonts are designed to take advantage of the capabilities of your dot-matrix printer. We have enclosed sample printouts of the fonts in the "Printer Information" booklet that is included with your Power Print package.

Your screen should now resemble the screen in Figure 1 (the main program screen). Press **esc** to activate the menus, then select the **File** Menu (use the **right** and **left arrow** keys to move between menus).

Within the **File** Menu, select the **Load Font...** option, as shown in Figure 10. Use the **up** and **down arrow** keys (or **A** and **Z** on the Apple //+) to highlight the selection, then press **return**.

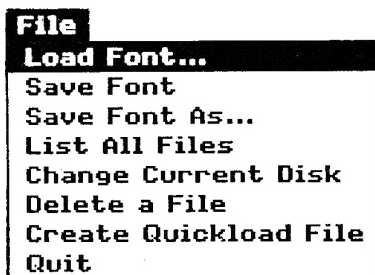


Figure 10: Select Load Font

The **Load** screen will then appear (Figure 11). This screen lists the available fonts on the disk.

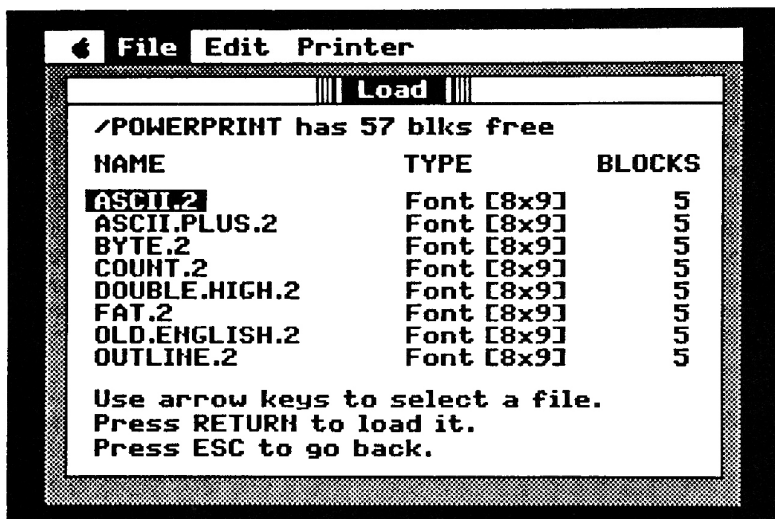


Figure 11: Load Font Screen

To select a font, use the **up** and **down arrow** keys (or **A** and **Z** on the Apple //+) to highlight the desired selection, then press **return**. Just to demonstrate, let's select the **FAT.2** font (it may be named **FAT.1** on your font list).

Characters similar to Figure 12 will appear. To view all the characters, use the **up** and **down arrow** keys (or **A** and **Z** on the Apple //+).

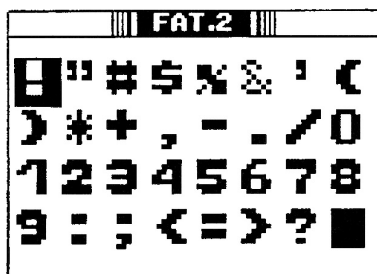


Figure 12: Characters in FAT Font

Now, press **esc** to return to the **File Menu**. Then use **right arrow** to move to the **Printer Menu** (Figure 13).



Figure 13: Downloading the Selected Font

Next, select **Download as Font 1**. Power Print will remind you to make sure your printer is on and on-line. Press **return** and the font you've selected will be downloaded to the printer.

*Some printers allow you to download and use two fonts. If your printer allows a second font, **Download as Font 2** will be enabled (not dimmed) in the **Printer Menu**. You may then follow the steps described above to select and download a second font. You must use special printer commands to tell the printer whether to use **Font 1** or **Font 2**; these commands are listed in the "Printer Information" booklet.*

After you've downloaded a font, you may select **Print Sample of Font 1** in the **Printer Menu**. (First make sure your printer is turned on and on-line.) A sample of the characters in the font you've selected will be printed. Here's how the sample printout of the **FAT** font looks on the Apple Imagewriter:

## POWER PRINT CUSTOM CHARACTERS - FAT.2

STANDARD: ! " # \$ % & ' ( ) \* + , - . / 0 1 2  
DOWNLOAD: ! " # \$ % & ' ( ) \* + , - . / 0 1 2

STANDARD: A B C D E F G H I J K L M N O P Q R  
DOWNLOAD: A B C D E F G H I J K L M N O P Q R

STANDARD: a b c d e f g h i j k l m n o p q r  
DOWNLOAD: a b c d e f g h i j k l m n o p q r

**!"#\$%&'()\*+,-./0123456789:;<=>?@**

**ABCDEFGHIJKLMN OPQRSTUVWXYZ[-]=\_`**

**abcdefghijklmnopqrstu vwxyz{|00**

*Keep in mind that, depending on which printer you're using, the way the font looks on the printout may be somewhat different from how it looks above.*

That's all there is to it! The font you've downloaded will be used on printed documents. Just **Quit** Power Print from the **File** Menu and load the program you want to use. Because the font is stored in the printer rather than in the computer, the font will be used on any printed report produced by any program you run.

If you want to switch to a different font, simply re-load Power Print and repeat the steps described earlier. Once a font is downloaded, it will be used until you turn off the printer or until you use Power Print to download a different font.

*Caution:* Remember that the font is stored in the printer, not in the computer, so don't turn off the printer until you're done using the font. If you turn off the printer, the font is lost and you have to repeat the downloading procedure. (Before you turn the printer back on, remember to place the paper at the top-of-form position.)

Now that you understand how to select and download a ready-made font, let's look at how to use Power Print with AppleWorks.





# Using Power Print With AppleWorks

Power Print is easy to use with other programs, like AppleWorks. Power Print adds beauty and style to your AppleWorks documents. You can print your word processing, database, and spread sheet documents in fancy fonts, and you can use Power Print to create special effects such as borders and even small graphics (as described in "Special Effects").

## The Custom Printer

In order to use Power Print with AppleWorks, you must be able to send control characters to the printer that tell the printer when to use the standard font and when to use the downloaded font. These control characters must somehow be included in the AppleWorks Printer Options. (To see the Printer Options, press OPEN APPLE-O in the word processor.)

Unfortunately, AppleWorks doesn't allow you to modify the Printer Options for its built-in printers. Each option is pre-defined and can't be changed. For example, the Boldface Begin option contains the control characters that cause the printer to start printing in boldface, and this function can't be changed.

The question is: how do you enter control characters for using downloaded fonts in the Printer Options if AppleWorks won't let you modify them for the built-in printers? The answer is: set up a custom printer. AppleWorks *does* allow you to modify a few of the Printer Options when you set up a custom printer. The options you can modify are:

- Boldface Begin (BB) and Boldface End (BE)
- Superscript Begin (+B) and Superscript End (+E)
- Subscript Begin (-B) and Subscript End (-E)
- Underline Begin (UB) and Underline End (UE)
- Lines Per Inch (LI 6 and LI 8)
- Characters Per Inch (CI 4 - CI 24)

When you set up a custom printer, you can enter whatever control characters you want in each of these options. For example, you can enter the control characters that turn on the downloaded font in the Boldface Begin option. When you use the word processor and issue the Boldface Begin command, the printer will turn on the downloaded font rather than boldface. It's all the same to AppleWorks; it doesn't care whether Boldface Begin means "turn on boldface" or "turn on the downloaded font."

Unfortunately, if you use Boldface Begin to turn on the downloaded font, you must use one of the other available Printer Options to turn on boldface. AppleWorks provides very little flexibility in setting up printer functions, and Power Print must work within these limitations. But don't worry: we've worked out an optimal scheme for each printer. All you have to do is enter the appropriate control characters in the appropriate Printer Options as described below.

The "Printer Information" booklet contains a table that summarizes the scheme for using the available AppleWorks Printer Options. The table shows which Printer Option to use to activate each printer function. (For example, use 8 Lines per Inch to activate the downloaded font.) The table also shows the keystrokes you type in the Word Processor to access each Printer Option.

# How To Set Up a Custom Printer

To set up a custom printer, start with these menu selections:

Main menu: select 5 ("Other Activities")  
Other Activities menu: select 7 ("Specify information about your printer(s)")

Now you are in the Printer Information menu (Figure 14).

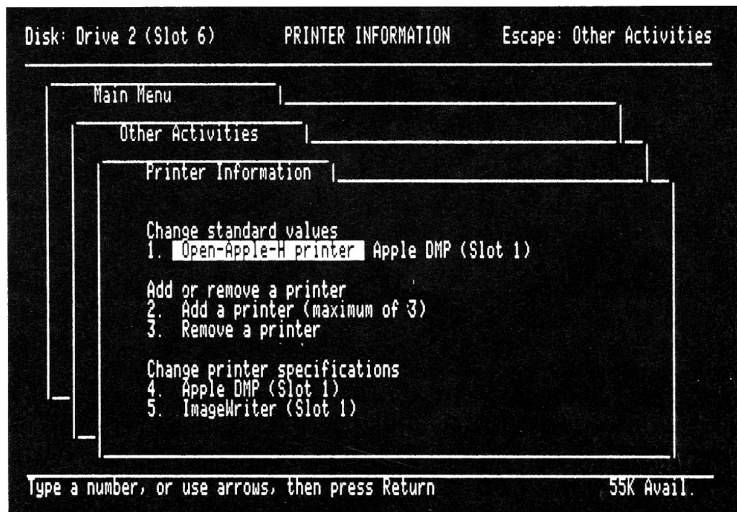


Figure 14: Printer Information Menu

There are two possible courses of action, depending on whether or not you already have set up a custom printer:

- If you do not already have a custom printer set up, make these selections:

Printer Information menu: select 2 ("Add a printer")

Add a printer: select 12 ("Custom printer")

- If you already have a custom printer set up, AppleWorks will not allow you to set up another one. Therefore, you must either (a) remove the existing custom printer and add a new one, or (b) change the existing custom printer.

- (a) To remove the existing custom printer and add a new one, make these selections:

Printer Information menu: select 3 ("Remove a printer")

Printer Information menu: select 2 ("Add a printer").

Add a printer: select 12 ("Custom printer")

- (b) To change the existing custom printer:

Printer Information menu: select your custom printer under "Change Printer Specifications."

*Here's another tip: AppleWorks allows only one custom printer on a disk, but you can have two or more custom printers if you store each on a separate disk. Make a copy of your AppleWorks start-up disk and then modify the existing custom printer on the copy.*

AppleWorks will ask you to enter a name for the custom printer and to indicate how the printer is accessed. (If you're changing an existing custom printer, these questions won't be asked.) Enter the required information.

At this point your screen will resemble Figure 15.

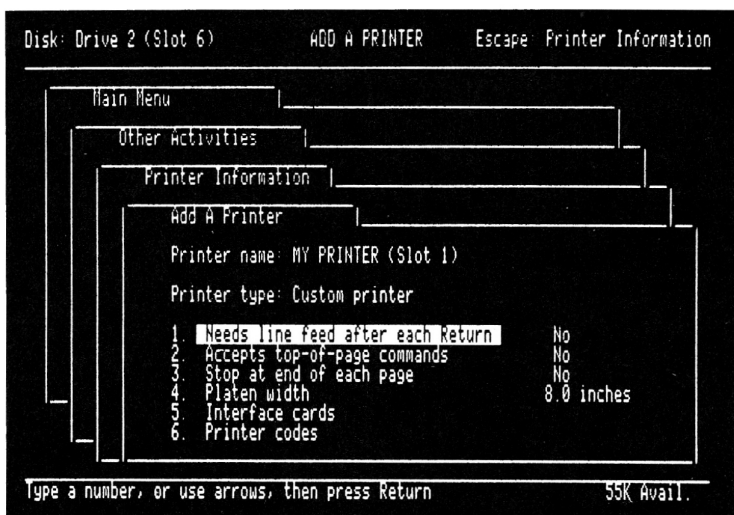


Figure 15: Add A Printer

Most printers use these settings:

Needs line feed after carriage return	No
Accepts top-of-page commands	Yes
Stop at end of each page	No
Platen width	8.0 inches
Interface cards	
Printer codes	

*(Note: The Apple IIc does not show the "Interface cards" setting.)*

Make the appropriate settings for your printer. Next, select "Printer codes." AppleWorks will display the printer code categories shown in Figure 16.

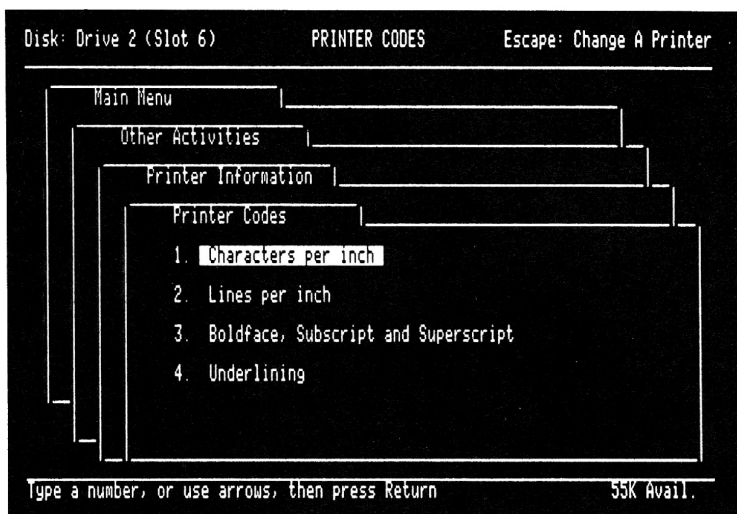


Figure 16: Printer Codes

*(Note: The "Serial card" category is displayed only on the Apple IIc.)*

The Printer Options shown in Figure 16 are the ones AppleWorks allows you to control when you set up a custom printer.

# How To Enter Control Characters

Now you're ready to enter the appropriate control characters in the appropriate Printer Options. To do this, you need to know:

which control characters to use;  
where to enter them;  
how to enter them.

To demonstrate, we will show you how to enter the control characters for the Apple Imagewriter printer. The procedure is the same for all printers.

**Which control characters to use:** Look in the "Printer Information" booklet that is included with your Power Print package. Find the page for the printer you're using. In our example we will use the information for the Imagewriter. At the top of the page you will see a table that tells you which control characters are used to perform each printer function. The table for the Imagewriter looks like this:

<u>Printer Command</u>	<u>Control Characters</u>
Downloaded Font 1	ESCAPE ' (not available)
Downloaded Font 2	(not available)
Standard font	ESCAPE \$
Normal leading	ESCAPE A
Tight leading	ESCAPE T16
Bi-directional printing	ESCAPE <
Uni-directional printing	ESCAPE >
Boldface Begin	ESCAPE !
Boldface End	ESCAPE "
Underline Begin	ESCAPE X
Underline End	ESCAPE Y

In this table, ESCAPE means press the Escape key. Notice the "Normal leading" and "Tight leading" printer commands. "Leading" refers to the amount of vertical space between horizontal lines of type. Normal leading is used by the printer to print text; tight leading (less vertical space) is used to create special effects such as borders and graphics (see the "Special Effects" section). "Bi-directional printing" (the print head prints while it moves in both directions) is used to print normal text. "Uni-directional printing" (the print head prints in only one direction) is used to create graphics (on some printers).

**Where to enter the control characters:** Now that you know what the control characters are, you need to know which control characters to enter in each of the available AppleWorks Printer Options.

Look again at the page of information for the Imagewriter in the "Printer Information" booklet. At the bottom of the page is a second table. This table identifies each printer function, which control characters activate each function, and in which Printer Option the control characters should be entered. The table for the Imagewriter looks like this:



## Apple Imagewriter, Imagewriter II, and DMP Printer

**matrix size and type:** 8x9 standard  
16x9 overlapping (Alternate Matrix)

**DIP switch settings:** none required

### printer functions:

<u>Printer Command</u>	<u>Control Characters</u>
Downloaded Font 1	ESCAPE ' (not available)
Downloaded Font 2	(not available)
Standard font	ESCAPE \$
Normal leading	ESCAPE A
Tight leading	ESCAPE T16
Bi-directional printing	ESCAPE <
Uni-directional printing	ESCAPE >
Boldface Begin	ESCAPE !
Boldface End	ESCAPE "
Underline Begin	ESCAPE X
Underline End	ESCAPE Y

### suggested AppleWorks command substitutions:

<u>To activate this function. . . .</u>	<u>enter these control characters. . . .</u>	<u>in this AppleWorks Printer Option. . . .</u>
Downloaded font <sup>3</sup> (between paragraphs)	ESCAPE ' (not available)	8 Lines per Inch (LI 8)
Standard font <sup>4</sup> (between paragraphs)	ESCAPE \$ ESCAPE A ESCAPE <	6 Lines per Inch (LI 6)
Downloaded font <sup>1,3</sup> (within line)	ESCAPE ' (not available)	Boldface Begin (BB)
Standard font <sup>4</sup> (within line)	ESCAPE \$	Boldface End (BE)
Boldface Begin <sup>2</sup>	ESCAPE !	Superscript Begin (+B)
Boldface End	ESCAPE "	Superscript End (+E)
Underline Begin <sup>1</sup>	ESCAPE X	Underline Begin (UB)
Underline End	ESCAPE Y	Underline End (UE)
Tight leading	ESCAPE T16 ESCAPE >	Subscript Begin (-B)

<sup>1</sup>cancelled by next forced carriage return

<sup>2</sup>cancelled at end of printed line

<sup>3</sup>Add ESCAPE P to this command for the alternate matrix.

<sup>4</sup>Add ESCAPE N to this command for the alternate matrix.

**How to enter the control characters:** At this point your screen should look like the screen in Figure 16, which is repeated here.

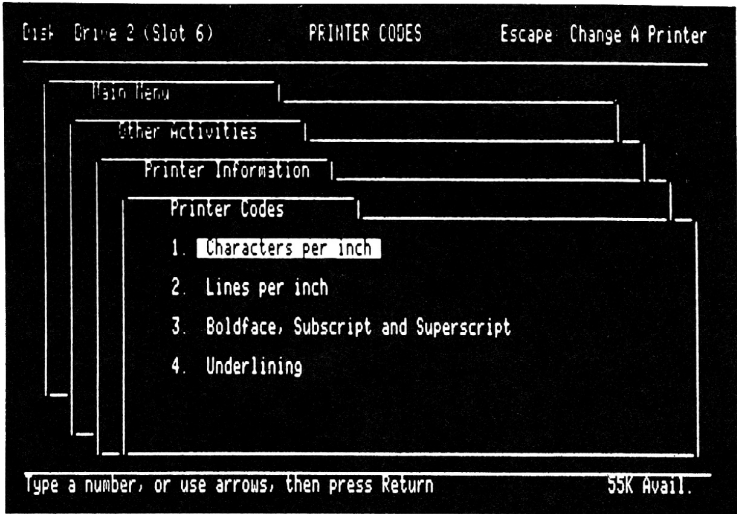


Figure 16: Printer Codes

Select 2 ("Lines per inch"). The screen shown in Figure 17 will appear.

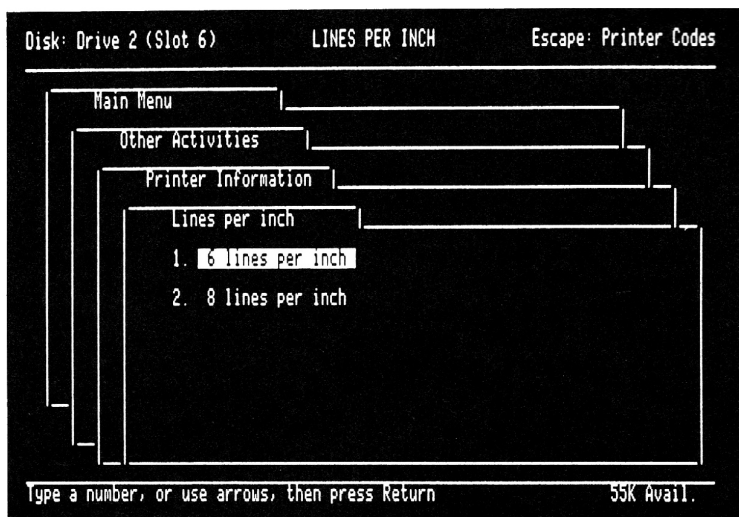


Figure 17: Lines Per Inch

Now select 1 ("6 lines per inch"). The screen shown in Figure 18 will appear.

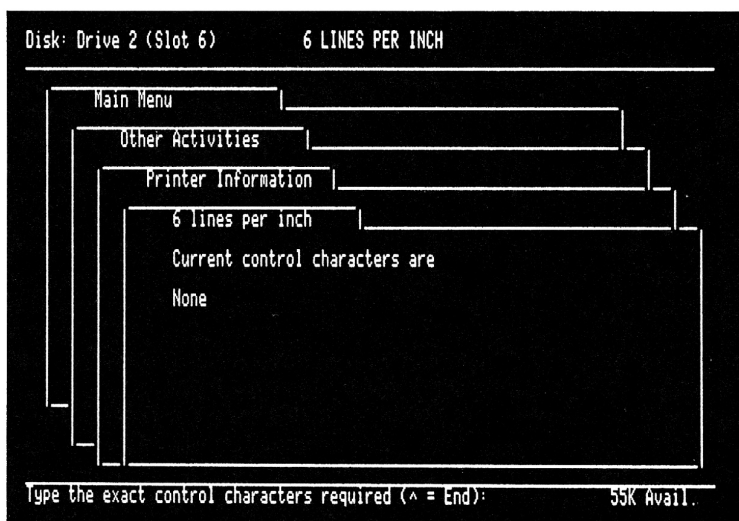


Figure 18: 6 Lines Per Inch  
(Before Entering Control Characters)

Now it's time to enter the appropriate control characters in the 6 lines per inch Printer Option. The table indicates that the 6 lines per inch option is used to activate the standard font between paragraphs (after a forced carriage return). The control characters for this option are:

ESCAPE \$ ESCAPE A ESCAPE <

To enter these control characters:

- Press the Escape key (do not type the word "Escape").
- Type a dollar sign (\$). Do not include any blank spaces in the control character sequence. We have included blanks in the table to make the control characters more readable, but don't press the spacebar when you enter the characters. Type the dollar sign immediately after you press the Escape key.

If at some point you make a mistake, type a caret (^). AppleWorks will return you to the screen in Figure 17, and you can start over.

- Press the Escape key again.
- Type a capital A.
- Press the Escape key again.
- Type a less-than sign (<).
- At this point your screen will look like Figure 19. The screen shows the control character sequence. (Once again, even though the screen seems to show blanks, there are no blank spaces between control characters; don't press the spacebar.)

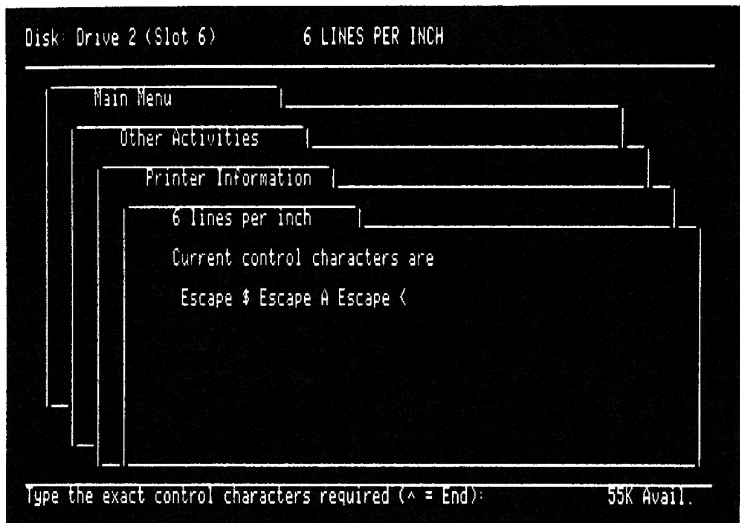


Figure 19: 6 Lines Per Inch  
(After Entering Control Characters)

- To end the control character sequence, type a caret (^). AppleWorks will return you to the screen shown in Figure 17.

Now select 2 ("8 lines per inch"). The screen shown in Figure 20 will appear.

**Note:** Some printers use control characters (as opposed to Escape sequences). To type a control character, such as Control-A, hold down the control key while pressing the A key.

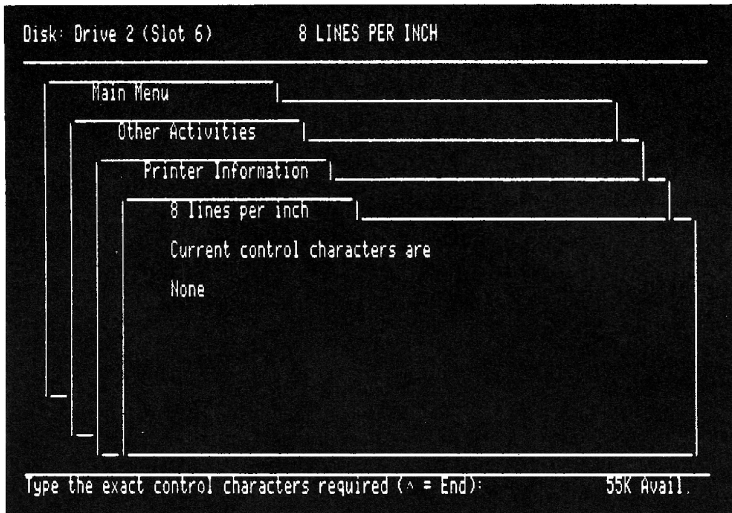


Figure 20: 8 Lines Per Inch  
(Before Entering Control Characters)

The table shown earlier indicates that the 8 lines per inch option is used to activate the downloaded font between paragraphs (after a forced carriage return). The control characters for this option are:

ESCAPE '

To enter these control characters:

- Press the Escape key.
- Type an apostrophe ('). The screen will now look like the screen shown in Figure 21.

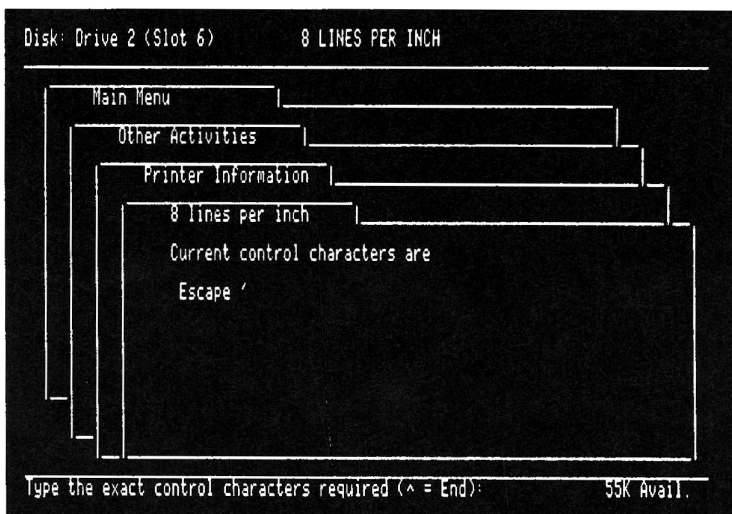


Figure 21: 8 Lines Per Inch  
(After Entering Control Characters)

- To end the control character sequence, type a caret (^). AppleWorks will return you to the screen shown in Figure 17.

You have now entered the control characters for both the 6 lines per inch and 8 lines per inch Printer Options. Press the Escape key; AppleWorks will return you to the screen shown in Figure 16. Now select 3 ("Boldface, Subscript and Superscript"). The screen shown in Figure 22 will appear.

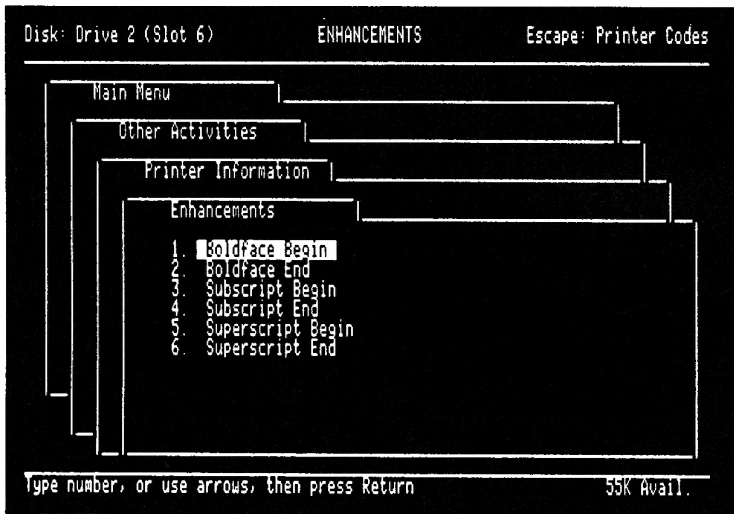


Figure 22: Enhancements

One-by-one, select each of these Printer Options and enter the control characters indicated by the table in the "Printer Information" booklet. Use the information that pertains to your printer (remember that our example is based on the Apple Imagewriter).

After you have entered the control characters for the Boldface, Subscript, and Superscript options, press the Escape key and AppleWorks will return you to the screen shown in Figure 16. Next, select the Underlining option and enter the appropriate control characters.

*You may have noticed that we do not use the "Characters per inch" option. This option is difficult to use because if you substitute a different control character sequence for a characters-per-inch setting, the margins of your document may suffer. Even though characters per inch settings may be used to store other commands, we feel it's just not worth the trouble.*

After you have finished entering all the control character sequences in their appropriate Printer Options, you can run a test to make sure they are correct.





This is the STANDARD printer font.

This is the DOWNLOADED font (either COUNT.1 or COUNT.2) with  
NORMAL SPACING, and...

TIGHT SPACING  
TIGHT SPACING  
TIGHT SPACING

STANDARD FONT TEST: This is the Standard Font and this  
is the Download font and this is Boldface.

DOWNLOAD FONT TEST: This is the Downloaded font and  
this is the Standard Font and this is Boldface.

Here is a bullet: ● And here are some boxes: □□□□□

Figure 23b: Printed Output From  
APPLEWORKS.TEST File

## Some Tips

Now that all the control characters have been entered and tested, you're ready to use Power Print to download a font to your printer and then use the downloaded font in an AppleWorks document.

It's easy: when you're in the Word Processor, press OPEN APPLE-O to access the Printer Options. Then select the appropriate Printer Option to activate the desired effect.

Here are some tips about how to use the various Printer Options.

*printer function: downloaded font (at paragraph break)*  
*AppleWorks Printer Option: 8 lines per inch (LI 8)*

This Printer Option activates the current downloaded font. It also activates normal leading (vertical space between printed lines) and bi-directional printing. This option stays in effect for the rest of the document unless it is cancelled by another Printer Option command.

AppleWorks allows this option (and the 6 lines per inch option) only between paragraphs (after forced carriage returns). If you want to activate the downloaded font in the middle of a line, use Boldface Begin.

*printer function: standard font (at paragraph break)*  
*AppleWorks Printer Option: 6 lines per inch (LI 6)*

This Printer Option activates the printer's standard font. It stays in effect until the end of the document unless it is cancelled by another Printer Option command.

AppleWorks allows this option (and the 8 lines per inch option) only between paragraphs (after forced carriage returns). If you want to activate the standard font in the middle of a line, use Boldface End.

6 lines per inch is the standard AppleWorks Word Processor setting. Therefore, if you want to start a document with the standard font, you do not have to issue the LI 6 command (just start typing).

Apple-H screen dumps are printed in the font (standard or downloaded) that was active at the end of the previous document.

*printer function: downloaded font (middle of line)*  
*AppleWorks Printer Option: Boldface Begin (BB)*

This option activates the current downloaded font until either a Boldface End (BE) command or a forced carriage return, whichever comes first.

You can issue the Boldface Begin command from the Word Processor without pressing OPEN APPLE-O to enter the Printer Options menu. Just type CONTROL-B to begin (turn on the downloaded font) and then type another CONTROL-B to end.

*printer function: standard font (middle of line)*  
*AppleWorks Printer Option: Boldface End (BE)*

This option activates the printer's standard font. Boldface End (BE) must be preceded somewhere in the same paragraph by a Boldface Begin (BB). If necessary, issue two consecutive commands: BB and BE.

*printer function: Boldface Begin*  
*AppleWorks Printer Option: Superscript Begin (+B)*

This option creates a boldface version of the font that's currently in use (either standard or downloaded).

AppleWorks automatically cancels this command at the end of each printed line.

*printer function: Boldface End*  
*AppleWorks Printer Option: Superscript End (+E)*

This option cancels Superscript Begin (i.e., it cancels boldface printing).

*printer function: Underline Begin and Underline End*  
*AppleWorks Printer Option: Underline Begin (UB) and Underline End (UE)*

No trick here: these options start and cancel underlining of the font that's currently in use (either standard or downloaded). You can issue these commands from the Word Processor without pressing OPEN APPLE-O to enter the Printer Options menu. Just type CONTROL-L to begin underlining, then type CONTROL-L again to end underlining.

Some printers allow you to download two fonts at once; they are identified as Font 1 and Font 2. In this case, Underline Begin may be defined as the printer command for downloaded Font 2 and Underline End may be defined as the command used for switching back to standard font.

*printer function: tight leading*  
*AppleWorks Printer Option: Subscript Begin (-B)*

Use this option when you want to print special effects such as borders and graphics. It causes subsequent printed lines to be jammed together vertically.

Subscript End has been disabled; in order to restore normal leading, use the 6 lines per inch (LI 6) option. 6 lines per inch activates the standard font; if you want to use the downloaded font, follow 6 lines per inch with either an 8 lines per inch (LI 8) or Boldface Begin (BB) command.

# Dot-Matrix Printing

The ready-made fonts supplied with Power Print open up a new world of possibilities for your dot-matrix printer, but that's only half the story. Power Print allows you to modify fonts to suit your exact needs. In fact, you can create your own custom fonts to produce special effects, such as mixing graphics and text. But first. . . . (Isn't there always a "but first"?)

Before you dive in and start customizing fonts, you need to know how a dot-matrix printer works. If you're one of the country's foremost experts on dot-matrix printing, go ahead and skip this section; otherwise, let's explore the wonderful world of the dot matrix.

A dot-matrix printer doesn't work the same way as a typewriter or a daisy wheel printer. A typewriter has a separate type bar (or section of a type ball) for each character. A dot-matrix printer, on the other hand, uses a single print head to print all the letters, numbers, and symbols. It performs this miracle by creating each character as a pattern of dots within a matrix (hence, "dot matrix").

A dot is a dot, but what is a matrix? A matrix is simply a grid of columns and rows, like a sheet of graph paper. If dots are cleverly arranged within a matrix, they form a character. Figure 24 shows the dot patterns for several different characters.

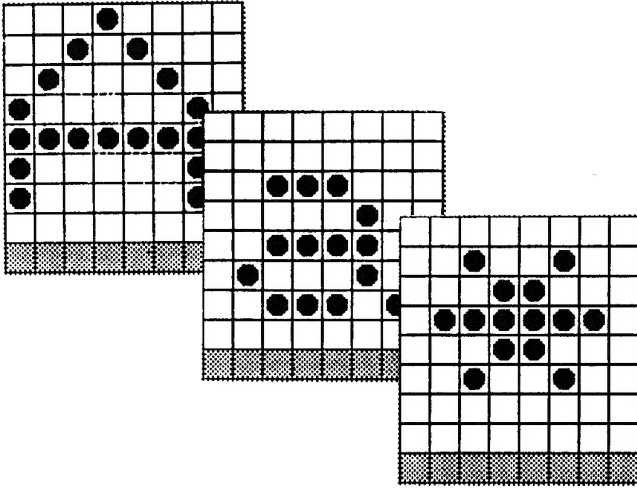


Figure 24: Dot-Matrix Characters ("A", "a", and "\*")

The matrix in Figure 24 is eight columns wide and nine rows high. The print head on a dot-matrix printer corresponds to a single column on the matrix. It contains nine dot-strikers called "wires" arranged in a vertical column.

To print a character, the print head moves sequentially to each column position in the matrix. At each position, the appropriate wires are fired to create the vertical dot pattern in that column. The wires press against the print ribbon to print the dots on the paper, as shown in Figure 25.

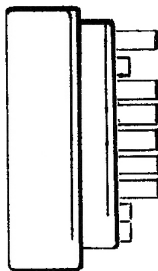


Figure 25: Side View of Print Head  
(Printing Small "i")

Look at the capital A in Figure 24 . To print this character, the print head prints seven consecutive dot patterns. In the first (leftmost) column, wires 4 through 7 fire; in the second column, wires 3 and 5 fire; in the third column, wires 2 and 5 fire, and so on.

Notice also in Figure 24 that the rightmost column of each character is left blank; this is the blank space between printed characters. If dots are drawn in the rightmost column, the printed characters will run together horizontally (an effect you sometimes might want to create intentionally; for instance, if you're creating a script font or drawing a border).

## Descenders

Notice in Figure 24 that the bottom row of each matrix is shaded. (On some printers, the bottom two rows of the matrix are shaded.) This is a Power Print convention that you will become familiar with when you start to modify fonts. (Soon, soon . . . be patient.) It means that the bottom row is not used to form characters; no character can be more than eight rows high. The bottom row is used by the printer to shift a character down one additional row to form a *descender*.

A descender is the part of a character that prints below the line of type, such as the tail on a lower case g, j, p, q, or y. Look again at Figure 24; capital letters are generally formed within the top seven rows of the matrix (rows 1-7), while lower case letters are generally formed within rows 2 - 8.

When you use Power Print to modify a font or create your own custom font, you can command Power Print to shift a character down and make use of the bottom row (the bottom two rows on some printers). (The command to do this is described in "How To Customize Fonts.") This allows you to create characters with descenders, as illustrated by Figures 26a and 26b. Figure 26a shows a lower case "g" that is not shifted down into the bottom row of the matrix. Figure 26b shows the same character shifted down to create the descender.



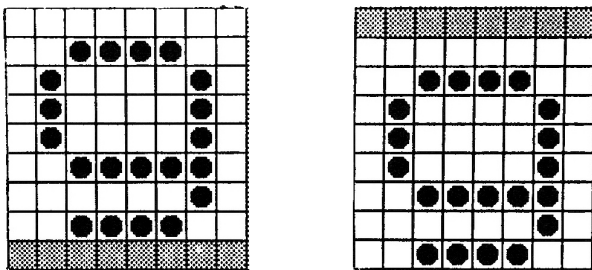


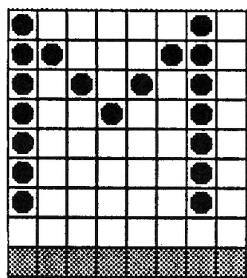
Figure 26a: "g" Unshifted  
 Figure 26b: "g" Shifted Into Bottom Row

## Matrix Size and Type

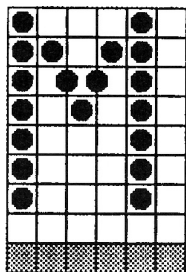
The size and type of dot matrix used to form characters depends on the printer. The matrix shown in Figure 24 is the standard matrix for the Apple Imagewriter. It has eight columns, and a dot may be drawn in the center of each column. This is called a *standard* matrix.

Now compare the standard Imagewriter matrix with the *intermediate* matrix shown in Figure 27. The intermediate matrix (in this case, for the Epson FX-80/FX-100) has only 6 columns, yet there are 11 horizontal dot positions! How is this accomplished? An intermediate matrix allows dots to be printed on the lines between columns (the "intermediate" positions) as well as within the columns. Six columns plus five lines between columns totals 11 dot positions.

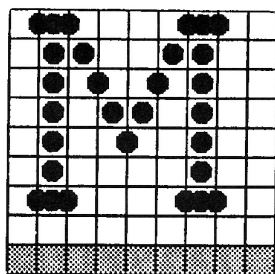
An intermediate matrix does not allow dots to overlap. Therefore, two immediately adjacent dots cannot be printed within the same row; the dots must be separated by at least a column width. The Apple Imagewriter has a trick up its sleeve: it *does* allow dots to overlap. In addition to the standard matrix, the Imagewriter offers an *overlapping* matrix, as shown in Figure 27. The overlapping matrix has 16 horizontal dot positions.



Standard



Intermediate



Overlapping

Figure 27: Matrix Types

Power Print automatically selects the matrix size and type that is appropriate for your printer. Matrix size and type for various printers is listed in the "Printer Information" booklet.

Now that you understand the art and science of dot-matrix printing, you can use Power Print to customize fonts and create special effects, as described in the following sections.

# How To Customize Fonts

## Getting Started

At last . . . the preliminaries are over and we're ready to customize fonts. To get started:

- 1** Load Power Print by booting the disk. If you're already in the program, use the **esc** key to return to the main program screen (shown in Figure 1).
- 2** Select the **File** Menu and the **Load Font...** option. A screen similar to the one shown in Figure 11 will appear.
- 3** Select a font from the list of fonts. In our example, we will use the ASCII.2 font (it may be named ASCII.1 on your list). The right half of the screen shows the characters in the font you've selected. Use the **arrow** keys (plus **A** and **Z** on the Apple //+) to scan through the character set.
- 4** Position the blinking cursor over any character in the font (for example, the capital E, as shown in Figure 28), then press **return**. A dot-matrix representation of the character will appear in the matrix area on the left of the screen, as shown in Figure 28.

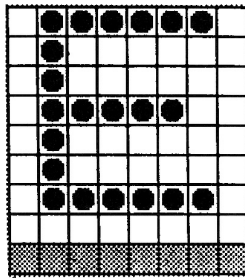


Figure 28: Dot-Matrix "E" - Standard 8x9 Matrix

Figure 28 shows a standard 8x9 (eight horizontal dot positions, nine vertical dot positions) matrix. As described in the previous section ("Dot-Matrix Printing"), Power Print automatically selects the matrix size and type suitable for the printer you select in Printer Setup. Therefore, the matrix that appears on your screen may differ from the one shown in Figure 28. (For example, it may be an 11x9 intermediate matrix.) The following procedures, however, are the same for all matrices.

*A reminder:* The shaded row at the bottom of the matrix is an extra row used by the printer to create descenders (see "Dot-Matrix Printing"). (For some printers, the matrix has two shaded rows.) No character can be more than eight dots high.

# How To Modify Characters

Since each character in a font is a dot-matrix pattern, it's easy to change the shape of a character or draw a character from scratch: just draw or erase dots. Follow steps 1-4 described earlier to load a font and select a character from the font, then poise your fingers over the keyboard and try out these procedures:

**arrow keys (plus A and Z on the Apple II+)**

Move the cursor to the matrix location where you want to draw or erase a dot. (Notice the position indicator "X= Y= " at the bottom right of the screen. X is the horizontal direction, Y the vertical.)

**spacebar**

Switches (toggles) the cursor between a "pen" (solid-dot cursor) and an "eraser" (hollow-dot cursor). The pen draws dots, and the eraser deletes them.

Press once for "pen." The cursor becomes a solid dot, and a dot is drawn at the current matrix location. If you then press any **arrow** key (or **A** or **Z** on the //+), a dot is drawn at the next location the cursor moves to.

Press again for "eraser." The cursor becomes a hollow dot, and the dot at the current matrix location is erased. If you then press any **arrow** key (or **A** or **Z** on the //+), the dot at the next location is erased.

**period (.)**

Pen "up"; no drawing or erasing. The cursor becomes a crosshair. After you press **period**, you can move the cursor without drawing or erasing dots.

To resume drawing or erasing, press the **spacebar**.

**1**

Insert blank column between dots

**2**

Delete column

**3**

Insert blank row

**4**

Delete row

**s**

"Shift" the character down to create a descender (for example, a lower case g, j, p, q, or y). Press **s** again to use the top row of the matrix to create non-descender characters such as b, d, f, h, i, k, l, and t.

**esc**

Erase all the changes made so far. The character returns to its original form.

Also use **esc** to access the menus at the top of the screen.

**return**

Use when finished with changes to this character. The cursor moves to the character font at the right side of the screen.

Also use **return** to select another character from the font.

**e**

Erase the entire character. The character is deleted from the font.

**Edit Menu**  
**Clear Character**  
**Set**

Erases *all* the characters in the current font. Power Print asks you if you really want to clear the character set. Use the **arrow** keys to select *Yes* or *No*, then press **return**.

**Edit Menu**  
**Alternate Matrix**

Some printers allow you to work with more than one matrix. (For example, the Apple Imagewriter offers both a standard 8x9 matrix and an overlapping 16x9 matrix.)

When you select **Alternate Matrix**, the matrix on your screen automatically changes to the alternate format.

If your printer does not offer an alternate, **Alternate Matrix** will be disabled (dimmed) in the **Edit Menu** and you will not be able to use this option. The "Printer Information" booklet included with your Power Print package indicates whether your printer offers an alternate matrix.

**Edit Menu**  
**Copy**

Same as typing **c**. Creates a copy of the current character. You can **Paste** the copy elsewhere in the same font or in a different font.

**Edit Menu  
Paste**

Same as typing **p**. Moves a character that has been Copied (and currently appears in the matrix) to the currently selected character location in the current font.

**Edit Menu  
Erase**

Same as typing **e** (see above). Erases the current character; the character is deleted from the font.

**File Menu  
Save Font  
Save Font As**

Saves the current version of the font on disk.

**Save Font** causes the new version of the font to *replace* the original version on the disk; the original version is lost.

**Save Font As...** stores the new version of the font as a new, separate font; the original version is unchanged. Power Print asks you to enter a name for the new font. The name must start with a letter (A-Z). After the first letter, it can include numbers (0-9) and periods (.). It can be no more than 15 characters long (including periods, if any).

*Disk space on the Power Print disk is very limited. If you select Save Font As, you should store the new font on a separate disk (or delete existing fonts that you don't use). Before you store the font on a separate disk, use the ProDOS System Utilities or the Beagle Bros File Mover program to format a blank disk.*



That's all there is to it. With a little practice, you'll become an expert Power Print calligrapher. Figure 29 illustrates a very simple character modification. Figure 29a shows a regular capital E; Figure 29b shows how additional dots can be added to create a bold version of the character.

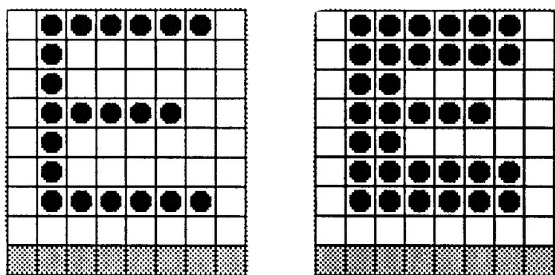


Figure 29a: Character Before Modification

Figure 29b: Modified Character

## Non-Editing Options

In addition to the character-editing functions described above, Power Print provides you with several other functions that make life easier. They are:

### **File Menu**

#### **List All Files**

Lists the name of the current disk, the number of blocks of free space left on the disk, and the name and size (in blocks) of every file on the disk.

### **File Menu**

#### **Change Current Disk**

Allows you to change to a different disk (for example, if you want to use a font stored on another disk). Power Print will ask you to specify the location of the new disk; enter either drive and slot number (usually drive 6, slot 1) or pathname.

### **File Menu**

#### **Delete a File**

Allows you to remove a file you no longer need from the current disk. *Caution:* The file is deleted permanently. Power Print will ask

you if you really want to delete the file. Use the **arrow** keys to select either *Yes* or *No*, then press **return**.

**File Menu  
Quit**

Allows you to exit from Power Print. Power Print will ask you if you really want to Quit. Use the **arrow** keys to select either *Yes* or *No*, then press **return**.

**File Menu  
Create Quickload**

Use this option to create a Quickload File. Quickload is a feature of Power Print that enables you to download fonts without running Power Print. For example, you could create a Quickload File that would both download a font and start your AppleWorks program; the font would then be used when you printed a document from AppleWorks.

See "Saving Time With Quickload Files" for a description of how to create and use Quickload Files.

Now you have been introduced to the basics of Power Print. With a little experimentation, you will discover increasingly sophisticated and powerful uses. The next section gives you a few hints about how to produce some very special effects with Power Print.



# Special Effects

To spark your imagination and give you a feel for the many ways Power Print can add style and creativity to your dot-matrix printing, this section gives some hints about how to create two special effects: borders and graphics.

## Borders

Power Print makes it easy to add decorative horizontal borders to your dot-matrix printouts. Some of the fonts on the Power Print disk include special characters that may be used for borders. These characters are substituted for seldom-used keyboard characters, such as { and ^ . Figure 30 shows a sample border character from the FAT font.

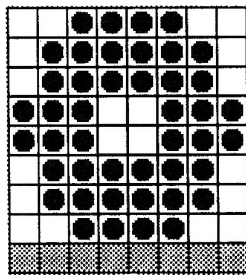


Figure 30: Border Character From FAT Font

This character appears in place of the } character (note the "KEY: }" identifier at the bottom of the screen). Notice that the rightmost column, which is normally reserved for the space between characters, contains a dot pattern; that's how you can identify a border character. When this character is printed repeatedly, there is no space between each pair of characters; the end result is a border.

To draw a border, simply:

- 1 Load Power Print.** Select a font and choose a border character (or create your own border character; be sure to use the rightmost column). Note which keyboard character corresponds to the border character (as indicated by "KEY:" at the bottom of the screen).
- 2 Download the font and Quit Power Print.**
- 3 Run your program (e.g., AppleWorks).** To create the border, repeatedly type the keyboard character that corresponds to the border character. Only the keyboard character will appear on the screen, but when the document is printed, the border character will be printed in place of the keyboard character.

For example, to create a border using the character shown in Figure 30, load Power Print, select the FAT font, and download the font (make sure your printer is on and on-line before you download). Then load the program you want to use (for example, AppleWorks). Repeatedly type the } character where you want the border to appear. Figure 31a shows an AppleWorks Word Processor screen; Figure 31b shows the resulting printed output.



Here are some borders

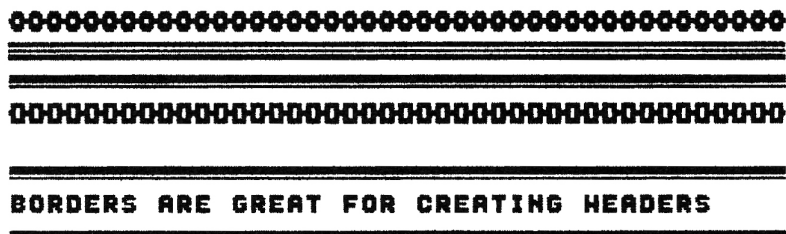


Figure 31a: Creating a Border - Word Processor Screen  
 Figure 31b: Printed Border

## Printing Graphics With Power Print

Power Print offers you an added dimension of power: you can create small drawings (for example, a company logo). To illustrate the technique, let's look at a sample graphic we've provided on your Power Print disk. Load Power Print and select either the PANDA.1 or PANDA.2 font. PANDA.1 (see Figure 32a) is designed in an 11x9 matrix format for printers such as the Epson. PANDA.2 (see Figure 32b) is designed in an 8x9 matrix format for printers such as the Apple Imagewriter.

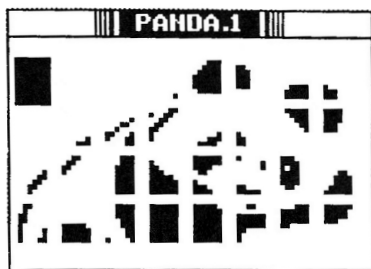


Figure 32a: Panda - 11x9 format (e.g., Epson)

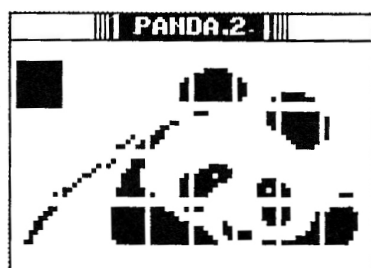


Figure 32b: Panda - 8x9 format (e.g., Imagewriter)

Notice that each "character" in this font is a piece of a drawing of a panda. (If you scan through the font, you'll notice that it also includes an all-caps alphabet.)

To create a drawing, start by laying it out on graph paper. We have provided you with some graph paper samples in the "Printer Information" booklet that you can copy and use to lay out your drawings.

The major divisions on the graph paper correspond to the characters in a font. Each division is subdivided into a matrix. The size of the matrix depends on the printer you're using; select the graph paper with the correct matrix size for your printer. For example, use the 8x8 grid paper for the Imagewriter. (Why 8x8 instead of 8x9, which is the printer matrix size for the Imagewriter? Recall that the bottom (9th) row of the matrix is used by the printer to create descenders (see "Dot-Matrix Printing" earlier). No character can be more than eight dots high.)



Draw dots within the matrix to form each "character" of the drawing. When you're laying out a drawing, we suggest you ignore intermediate and overlapping dot patterns. Just draw dots in the centers of columns; it's easier, and the end result is just as good.

To give you an idea of how to lay out a drawing, Figure 33 shows the Panda layout in two formats. Figure 33a shows the layout for the Epson (each matrix is 6x8); Figure 33b shows the layout for the Imagewriter (each matrix is 8x8).

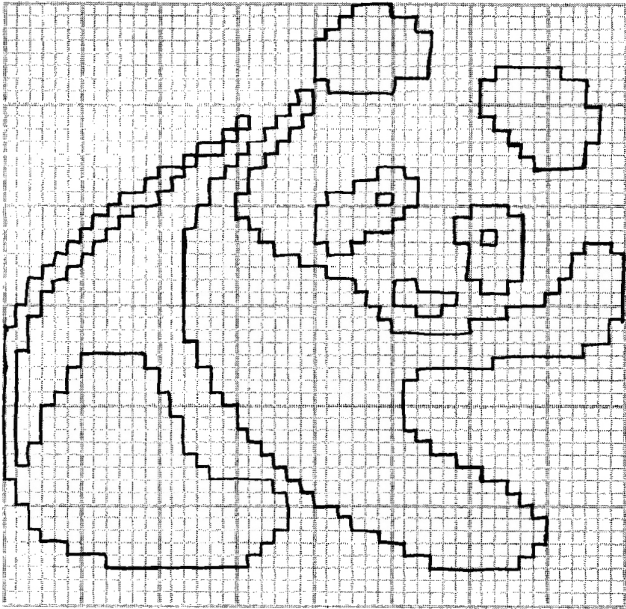


Figure 33a: Panda Layout - 6x8 Grid (Epson)

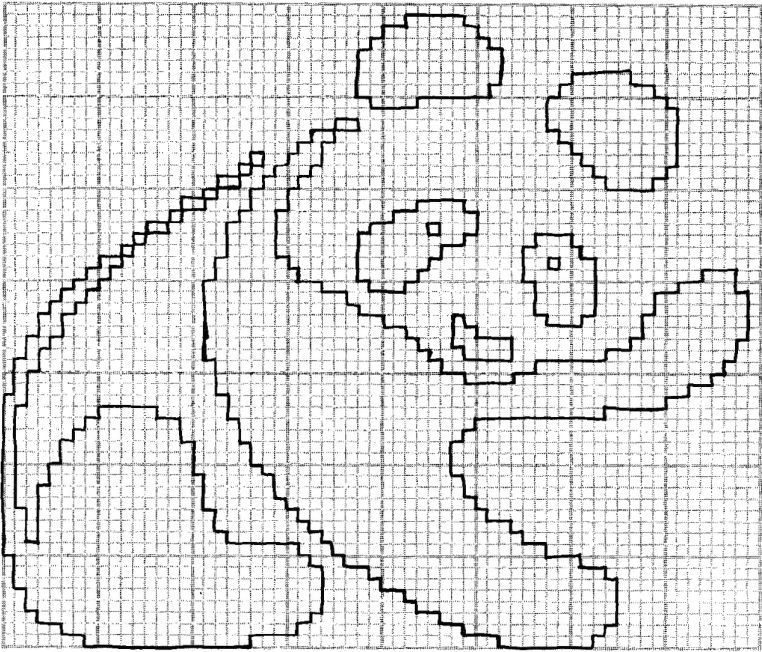


Figure 33b: Panda Layout - 8x8 Grid (Imagewriter)

The next step is to transform the drawing into a Power Print font. Load Power Print and either select a blank font or use **Clear Character Set** in the **Edit** Menu to delete all the characters from an existing font.

Now, one character at a time, draw the dot pattern to create the character. Figure 34 shows the dot pattern used to create the Imagewriter Panda's right eye. (Note that the right eye corresponds to the keyboard character "5".)

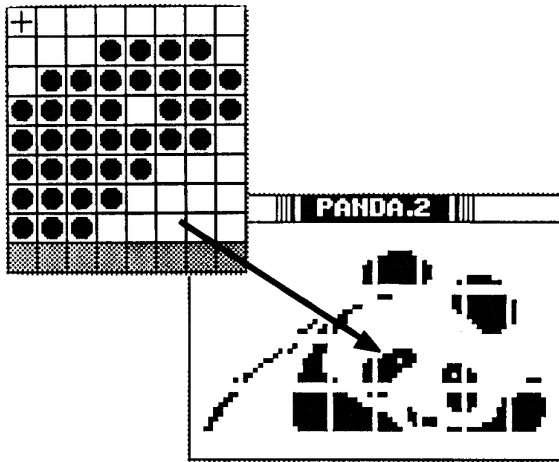


Figure 34: Panda's Right Eye (Imagewriter Version)

When you're finished, save the font on disk. (Use **Save Font As...** to save it as a separate font.) After you've created and saved the font, here's how to print the drawing it contains:

- 1 Load Power Print. Select and download the font that contains the drawing.
- 2 Quit Power Print and load your program (for example, AppleWorks).
- 3 Change the vertical line spacing on your printer to "tight spacing" (see the "Printer Information" booklet). In AppleWorks, use the "Subscript Begin" (-B) Printer Option. If you don't do this, the pieces of the drawing won't fit together vertically.

- 4 Type the characters that make up the drawing in their proper sequence. Figure 35a shows the character sequence for the Epson Panda; Figure 35b shows the character sequence for the Imagewriter Panda.

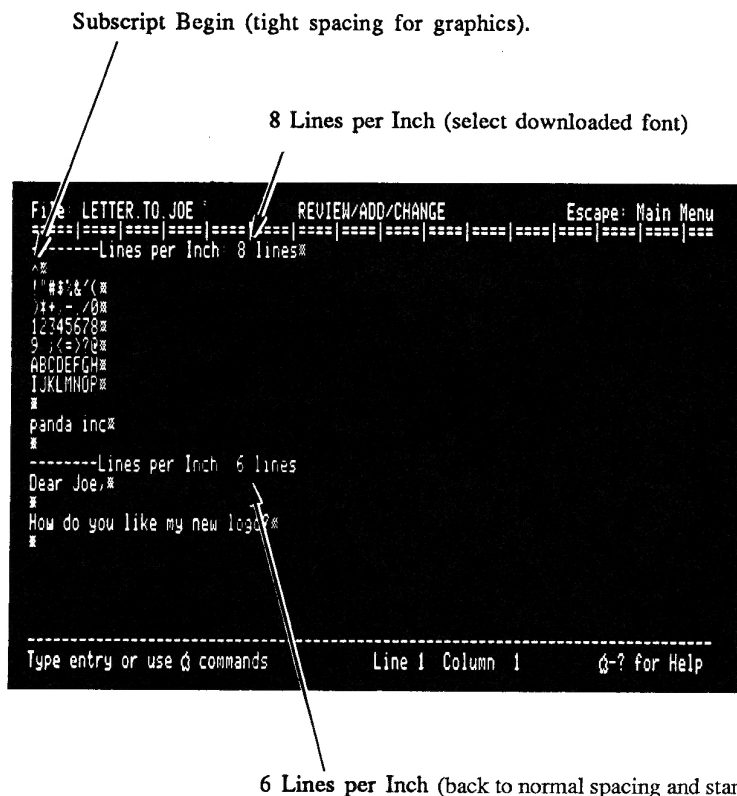


Figure 35a: Character Sequence For Panda (Epson Version)





**PANDA INC**

Dear Joe,

How do you like my new logo?

Figure 36b: Printed Panda (Imagewriter Version)

One more trick: As far as your printer is concerned, the characters in a drawing stored in a Power Print font are the same as text. Therefore, the special text commands that your printer offers (condensed and expanded printing, bolding, and so on) may be used to change the appearance of the drawing. Try it and see. Of course, these special printer commands work with regular text fonts as well.

This section is intended for users with some experience in Applesoft BASIC programming. Quickload files perform the same function as "Downloading a Font" from within the Power Print program.

## Saving Time With Quickload Files

Power Print gives you the option to create special files called *Quickload Files*. Quickload Files allow you to download fonts to your printer *without booting the Power Print disk*. In fact, you can download a font by giving a single command from ProDOS or from within a BASIC program. You can create an "auto-boot" program that will download a font and then start a program such as AppleWorks; the downloaded font will be used on printed documents generated by the program. Interested? Here's how to do it:

- 1 First, select the font you want to use. Load Power Print; in the File Menu, use the **Load Font** option to make a selection from the list of available fonts.
- 2 Next, identify the disk on which you want to store the Quickload File. You will probably want to store it on a disk other than the Power Print disk (for example, your AppleWorks disk). In

the **File Menu**, use the **Change Current Disk** option to specify where the Quickload File is to be stored.

- 3 Now create the Quickload File. In the **File Menu**, select the **Create Quickload File** option. Power Print will ask you to enter the name you want to assign to the Quickload File. The name must start with a letter (A-Z). After the first letter, the name may include letters, numbers (0-9), and periods (.); no other characters are allowed. The name may be no longer than 15 characters (including periods, if any). It's a good idea to assign a name that will remind you of which font is downloaded by the Quickload File (for example, **LOAD.OUTLINE** for a Quickload File that downloads the **OUTLINE** font).

If your printer allows you to download more than one font at the same time (for example, the Epson FX-80/FX-100), Power Print will ask you whether this font (selected in step 1) is to be downloaded as Font 1 or Font 2.

Power Print will create the Quickload File and store it on the disk specified in step 2.

The Quickload File created in steps 1-3 is now ready to be used. You can use the Quickload File to download a font from ProDOS or BASIC without booting the Power Print disk and without running Power Print. Here's how:



- 4 Make sure the disk that contains the Quickload File (see step 2) is inserted in the proper drive.
- 5 Make sure your printer is turned on and on-line.
- 6 From ProDOS, enter:

*-filename* <return>

where *filename* is the name of the Quickload File (see step 3).

From within a BASIC program, use this statement:

```
nnn PRINT CHR$(4) "-filename"
```

where nnn is the program line number and *filename* is the name of the Quickload File.

The font will be downloaded to the printer. It then will be used on printed documents until the printer is turned off or until a different font is downloaded.

The sample "auto-boot" BASIC program below could be used to download a font and start AppleWorks. The font would then be used on printed AppleWorks documents. This program uses a Quickload File named LOAD.OUTLINE. Assuming that the Quickload File is stored on the same disk as AppleWorks, here's the program:

```
10 PRINT CHR$(4) "-LOAD.OUTLINE"  
20 PRINT CHR$(4) "-APLWORKS.SYSTEM"
```

To save this program on disk, just type:

SAVE LOADER

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