

Font POWER

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for use with

ADAM™

THE COLECOVISION
FAMILY COMPUTER SYSTEM

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FontPOWER

CHAPTER ONE

OFFICIAL NOTICES

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PUBLIC DOMAIN FILES

The three high resolution shape tables included with this software are hereby donated to the public domain. Copyright protections do NOT apply to public domain files. These three files are named "sm.shp", "md.shp", and "lg.shp". The files named "32-40-1.0" and "32-40-3.3" are also public domain donations by DIGITAL EXPRESS.

THE FONT FILES

FontPOWER includes eight files containing bit - mapped font designs. These files ARE copyrighted. However, DIGITAL EXPRESS will permit you to include any of these font files in your commercial software provided that you include a statement with your software stating the DIGITAL EXPRESS copyright. These eight files are named "bold.fnt", "cory.fnt", "italic.fnt", "micro.fnt", "roman.fnt", "script.fnt", "symbol.fnt", and "thin.fnt".

DISCLAIMER

DIGITAL EXPRESS has exercised due care in the preparation of this software instruction manual and the programs which it describes. No warranty, either express or implied, is given as to the accuracy or suitability of the software or this manual for a particular purpose and DIGITAL EXPRESS shall not assume any liabilities for consequential or inconsequential damages arising as a result of using the software or interpreting the documentation.

STORAGE MEDIUM WARRANTY

DIGITAL EXPRESS warrants to the purchaser of this product that the storage medium is free from defective materials and workmanship. If the original storage medium (digital data pack or disk) fails to function properly, it will be repaired or replaced if returned to the following address:

DIGITAL EXPRESS
P.O. Box 37
Oak Hill, WV 25901

ALTERNATE COPYRIGHTS AND TRADEMARKS

The SmartBASIC interpreter is copyrighted by Lazer Microsystems, 1983. ColecoVision is a registered trademark and ADAM, SmartBASIC, and SmartWriter are trademarks of Coleco Industries.

SPECIAL THANKS

DIGITAL EXPRESS thanks Peter and Ben Hinkle, who introduced the concept of customized fonts to ADAM in their informative book, The Hacker's Guide To ADAM, Volume One. DIGITAL EXPRESS also thanks the Hinkles for introducing the concept of using a 40 column TEXT screen with SmartBASIC V1.0 in their sequel book, The Hacker's Guide to ADAM, Volume Two.

DIGITAL EXPRESS thanks Guy Cousineau for developing and donating the high resolution shape table which we have entitled "lg.shp".

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- FontPOWER -

CHAPTER TWO

GETTING STARTED

WHAT YOU WILL NEED

- § You will need an ADAM™ computer with a "revision 80" memory console. To verify your revision of the memory console, simply press the "R" letter key while holding down the CONTROL key in the "ELECTRONIC TYPEWRITER MODE".
- § You will need revision 79 SmartBASIC V1.0. To verify your version of the interpreter, enter PRINT PEEK (259) after loading SmartBASIC.
- § You will need a TV or monitor, preferably color.

LOADING FontPOWER

The FontPOWER electronic storage medium includes a number of files. The primary program has the same name as the package title, FontPOWER. Before you can use the program, you must transfer it from the data pack or disk into ADAM's memory. This is called loading or booting the program. Once the program is loaded, it will stay in memory until you choose to exit to SmartWriter, press Computer Reset, or power down the system. Refer to the following diagram for loading FontPOWER from a digital data pack; refer to your disk drive operator's manual for loading from a disk.



POWER SWITCH

INSERT DIGITAL DATA PACK

COMPUTER RESET BUTTON

**DO NOT REMOVE DATA PACK WHILE THE DRIVE IS OPERATING!
DO NOT TURN POWER ON OR OFF WHEN A DATA PACK IS IN THE DRIVE!**

HERE'S HOW TO LOAD FontPOWER INTO ADAM'S MEMORY

1. Turn ADAM on (by pressing the power switch located on the back of the ADAM printer).
2. Turn on your TV or monitor.
3. If you have disk drives, turn the power on to them.
4. Insert the FontPOWER medium into one of the drives.
5. Close the drive door. Now, press Computer Reset.
6. Within a few seconds a graphic title screen will appear and ADAM will play a very short sound effect. Then, the message "standby" will be displayed. A few seconds later, you'll see six SmartKEYs with descriptive labels, at the bottom of the screen.

THE FontPOWER FILES

The FontPOWER electronic storage medium contains a number of files. The following list describes each one.

THE PRIMARY PROGRAM

FontPOWER: This is a very user friendly utility for designing your own font sets for use with ADAM in SmartBASIC or machine language programs. The program is enhanced with sophisticated graphics and sound effects.

THE BIT-MAPPED FONT SETS

These eight files were created with the FontPOWER utility. Each one generates a distinctive set of fonts.

bold.fnt	roman.fnt
cory.fnt	script.fnt
italic.fnt	symbol.fnt
micro.fnt	thin.fnt

THE HI-RES SHAPE TABLES

These three public domain files allow you to insert text on HGR or HGR2 screens. With these you have the option to use SmartBASIC's (1.0 or 2.0) powerful shape table commands, ROT (rotate shape) and SCALE (change shape size).

sm.shp
md.shp
lg.shp

ASSORTED SmartBASIC V1.0 PROGRAMS

fntDEMO: This program shows you how to use the bit - mapped font sets created with FontPOWER on your own graphics screens (GR, HGR, or HGR2).

sm.shpDEMO: This program shows you how to use the shape table "sm.shp" with your HGR or HGR2 screens.

md.shpDEMO: This program shows you how to use the shape table "md.shp" with your HGR or HGR2 screens.

lg.shpDEMO: This program shows you how to use the shape table "lg.shp" with your HGR or HGR2 screens.

32-40-1.0: This program creates the ability to switch between a 32 and 40 column TEXT screen from SmartBASIC V1.0 in similar fashion to switching between the GR and HGR graphics modes.

32-40-3.3: This program creates the ability to switch between a 32 and 40 column TEXT screen from IntelBEST 3.3 (by DIGITAL EXPRESS) in similar fashion to switching between the GR and HGR graphics modes.

USEFUL DEFINITIONS

BIT IMAGE: Everything that you see on the your TV or monitor screen displayed by ADAM is generated by dint of bit image graphics. The screen is composed of 256 by 192 dots, or bits. When a dot is on (displayed), its bit value is one. When a dot is off (not displayed), its bit value is zero. Since ADAM's brain, a z80A microchip, is an 8-bit processor, every eight bits (starting at the left edge of the screen) are grouped into a specific quantity, called a byte. A collection of these bytes, whether one or 49152, is labeled a bit image.

FONT: Font refers to a particular set of characters designed in a specific typeface. With ADAM, each standard character is defined by 8 bytes or 64 bits. The terms font and character are generally considered synonymous.

KEYCLICK: Throughout the FontPOWER program various sound effects and tones are used. Most of these are heard as the result of pressing certain keys. Keyclick is the technique of using arbitrary sounds to signify acknowledgement of keypresses.

MENU: As is the case with a restaurant's menu of its specific cuisine, a software menu is a collection of available options. FontPOWER's primary menu consists of six options. Each option, in turn, presents its own menu of sub - options. Pressing the ESCAPE key at virtually point within FontPOWER will take you back to the primary menu of six options.

PIXEL: Pixel is an acronym for PICTURE ELEMENT. The term refers to a single dot on the monitor screen. This corresponds to a single bit of a bit - image.

SHAPE TABLE: A high resolution shape table is a collection of machine language notation which is used to plot dots on the screen (HGR or HGR2, with SmartBASIC). With a shape table each value indicates a particular movement on the screen; with a bit - image table each value indicates the status of bits ("on" or "off"). With SmartBASIC, shape tables are a very fast shortcut for HPLOTting.

SmartKEY: SmartKEY is the term that Coleco assigned to the six function keys on the top row of the keyboard designated by Roman numerals. You direct the FontPOWER program by pressing certain SmartKEYs.

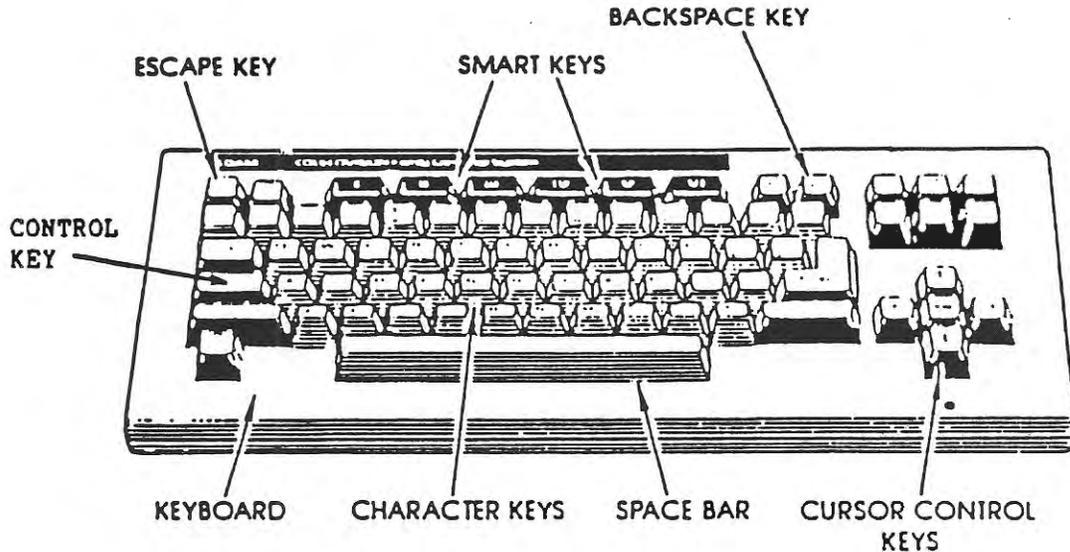
TOGGLE: Two of the FontPOWER controls are selected by pressing a specified SmartKEY to turn the particular feature "on" or "off". This process, analogous to flipping a light switch, is called toggling the control.

WINDOWS: Each screen within FontPOWER can be considered as composed of three sections or windows. The largest of these sections is the graphics window; it is the upper five-sixths of the screen. Just below this is the message window; it is a light red text line used to display instructions pertinent to the SmartKEY controls. At the bottom of the screen is the SmartKEY window. This window is used to display Roman numerals corresponding to the keyboard's function keys; beneath each numeral a message is displayed describing the particular key's control.

WRAPAROUND: A grid of small squares is used by FontPOWER to facilitate font design. The grid consists of eight rows of eight squares each. A single square represents one bit of a font's bit image. You can turn the bits on or off by moving the arrow keys on the keyboard. A larger, solid box is used as a cursor to indicate your current position within the grid. If you move past the left edge of the grid, the cursor will go to the right edge of the grid; if you move past the bottom edge of the grid, the cursor will go to the top edge of the grid, and so on. This technique is known as wraparound.

USING THE KEYBOARD

You control the FontPOWER program by pressing certain keys on the keyboard. The following illustration depicts the standard ADAM keyboard; you may want to refer to it in reading the key descriptions below.



BACKSPACE KEY: You may use this key or the left arrow cursor key to erase letters when entering a file's name for storing or renaming.

CHARACTER KEYS: You will use the character keys to enter file names for storing or renaming.

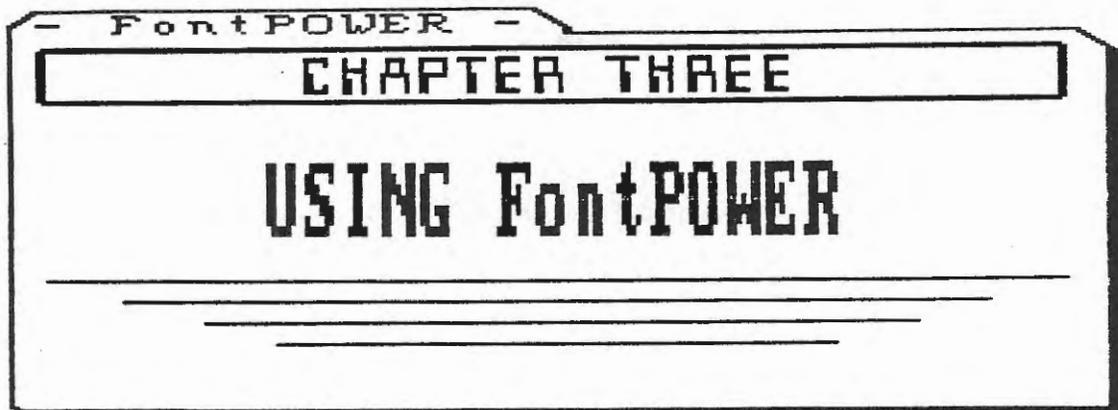
CONTROL KEY: While drawing fonts, the CONTROL KEY may be used to increase or decrease the current ASCII (character) value. To use the control key, you must first hold down the control key and then press the other indicated key -- in this case, in conjunction with the up or down arrow cursor keys.

CURSOR CONTROL KEYS: The cursor (or arrow) keys are used to move the cursor within the font design grid. They are also used to select font sets from the file page.

ESCAPE KEY: Throughout the FontPOWER program you can branch program execution back to the primary menu of six options by pressing ESCAPE.

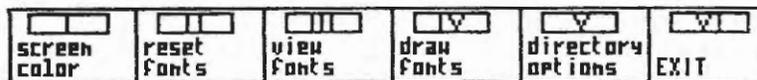
SmartKEYS: These six keys are on the top row of the keyboard and are indicated by Roman numerals. They are used to control the primary functions of the FontPOWER program.

§§§§§§§§



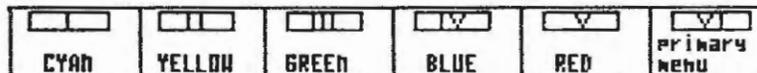
THE PRIMARY MENU

When FontPOWER has finished loading into ADAM's memory, the title screen will clear and you'll see the six options of the primary menu displayed in the SmartKEY window. Each option will take you on a different course of action within the program. At virtually any point, you can press the ESCAPE key to come back to these six options; and, each course of action will return you to this menu upon completion. The picture below depicts these six primary choices.



SCREEN COLOR

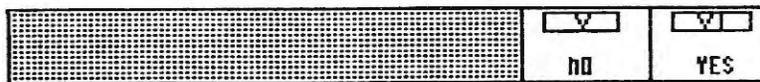
Pressing the Roman numeral SmartKEY "I" from the primary menu, will take you to the six screen color options. The picture below shows these six choices. To select the color of your choice, just tap the SmartKEY which corresponds to your choice. When you are done, you can press SmartKEY VI, "primary menu", to go back to that menu. Pressing the ESCAPE key will also take you back to the primary menu.



RESET FONTS

Pressing the Roman numeral SmartKEY "II" from the primary menu gives you the option to reset the fonts in the workspace to ADAM's default font set. When you first start using FontPOWER, the default set is already in the workspace. Use this option with care; you could accidentally undo hours of your own font designs.

As a precaution, you are asked if you really want to reset the current fonts. The picture below depicts the SmartKEYs that are presented. Press SmartKEY VI, "YES", if you're certain that you want to reset the fonts. If you would rather not undo any changes that you've already implemented, just press SmartKEY V, "NO".



VIEW FONTS

Pressing the Roman numeral SmartKEY "III" from the primary menu will allow you to view the entire font set in the workspace. When you are ready to continue with the program, just press SmartKEY VI, "previous menu".

The following picture is a replica of what you'll see on the view fonts screen (with the default fonts). You'll notice that the current font set is outlined by two sets of numbers. To locate a particular character by its ASCII value, simply cross-reference the vertical column on the left with the row along the top. For instance, if you want to ascertain the font for ASCII 65, find "60" in the lefthand column and "5" in the top row. Now, just follow the row and column until they intersect (at the letter "A").

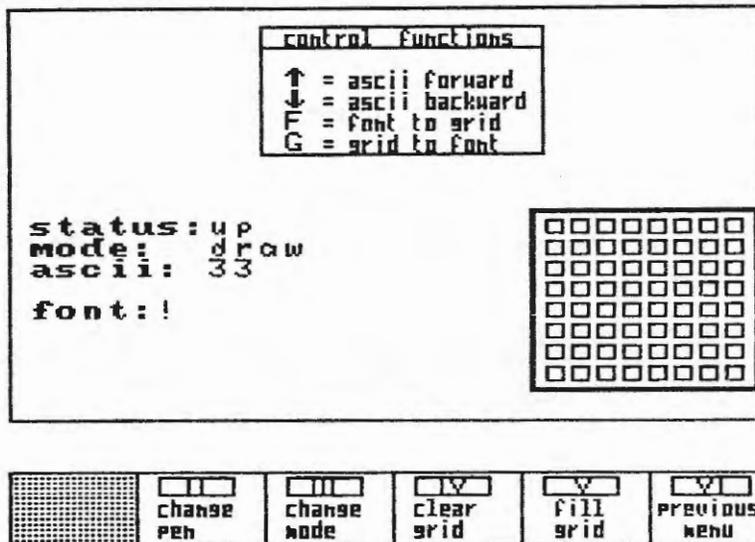
	0	1	2	3	4	5	6	7	8	9
30				!	"	#	\$	%	&	'
40	()	*	+	,	-	.	/	0	1
50	2	3	4	5	6	7	8	9	:	;
60	<	=	>	?	@	A	B	C	D	E
70	F	G	H	I	J	K	L	M	N	O
80	P	Q	R	S	T	U	V	W	X	Y
90	Z	[\]	^	_	`	a	b	c
100	d	e	f	g	h	i	j	k	l	m
110	n	o	p	q	r	s	t	u	v	w
120	x	y	z	{		}	~	-		

DEFAULT FONTS



DRAW FONTS

Pressing the Roman numeral SmartKEY "IV" from the primary menu will permit you to design your own fonts, either from scratch or as minor modifications of the font set currently in the workspace. The following illustration depicts what you'll see on the draw fonts screen.



The graphics window contains three items of interest: a description of the four additional user input controls (at the top), the current data on four drawing conditions (on the left), and the font design grid (on the right). Below all this information, you'll see the five SmartKEY controls.

If you want to INcrease the current ASCII value, just press the UP arrow key while holding down the CONTROL key. If you want to DECcrease the current ASCII value, just press the DOWN arrow key while holding down the CONTROL key. These changes will be reflected in the "ascii" and "font" values on the left side of the graphics window.

To transfer the current font (character design) to the font design grid, just press the "F" key while holding down the CONTROL key. You'll see the design within the grid (on the right side of the screen) change. To transfer the current design in the grid to the current ASCII value, just press the "G" key while holding down the CONTROL key. You'll see the "font" value (on the left side of the screen) change; this is how you enter your new font designs into the current font table (for later storage on disk or data pack).

SmartKEYs II and III act as toggle controls turning pen (cursor) features "on" or "off" by simply tapping the specified key. The onscreen SmartKEY labels describe each function.

SmartKEY II will change the current pen (cursor) status. If it was "up", it will change to "down". If it was "down", it will change to "up". When the pen is up, you can move the cursor around within the design grid without changing the current design. When the pen is down, moving the cursor within the design grid WILL CHANGE THE CURRENT DESIGN; this is how you design fonts.

SmartKEY III will change the current pen (cursor) mode. If it was in "draw mode", it will change to "erase mode". If it was in "erase mode", it will change to "draw mode". If the pen is "down" in the draw mode, moving the cursor will turn on bits -- designated by making the small boxes solid. If the pen is "down" in the erase mode, moving the cursor will turn off bits -- designated by making the small boxes hollow. Solid boxes indicate the displayable portion of the particular font's bit image. Hollow boxes indicate the portion of the particular font's bit image which is NOT displayable.

SmartKEY IV will clear the font design grid. This is a useful option for designing a font from scratch. SmartKEY V will fill the font design grid. You may want to use this option to sculpt a font design by erasing (making hollow) unwanted boxes, ie, turning off bits.

As with most of the SmartKEY functions within FontPOWER, SmartKEY VI will return you to the primary menu. Pressing ESCAPE will also accomplish this.

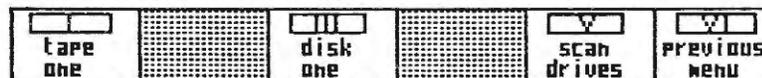
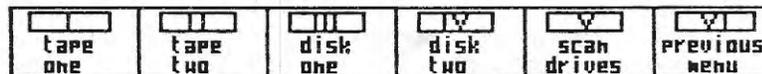
DIRECTORY OPTIONS

Pressing the Roman numeral SmartKEY "V" from the primary menu will present you with a variety of file access choices. Unlike the other options from the primary menu, this one has more than one menu of sub - options. The first of these sub - menus presents three options. These are depicted below.



SmartKEY VI will take you back to the primary menu. SmartKEY V will read the medium (data pack or disk) in the specified drive; be CERTAIN that you have a storage medium in the specified drive BEFORE pressing SmartKEY V. At first this specified drive will be the one that FontPOWER was loaded from. You can change the current drive with the SmartKEY IV option, "select new drive".

When you press SmartKEY IV, ADAM will scan each storage drive to ascertain whether or not it contains a medium. Thus, you should insert any alternate media in the drives BEFORE pressing SmartKEY IV, "select new drive". If you have a storage medium in all four drives, you'll see the information in the first illustration below in the SmartKEY window. Only drives which contained media when you chose "select new drive" will be displayed. For instance, if only the first tape and disk drives contained a storage medium, you'd see the information depicted in the second picture below.



To select a new drive, just tap the SmartKEY which corresponds to the drive that you want to access. When you do, FontPOWER will take you back to the first menu of three directory options. Also, you can press SmartKEY V to have ADAM scan the drives again. If none of the drives contained a medium when you chose "select new drive", an error message, "All drives empty!!!", will be displayed in the text window. Below this, only SmartKEYs V and VI will be shown; just insert a storage medium and select "scan drives".

CONTINUED DIRECTORY OPTIONS

When you press SmartKEY V, "read (device)", from the first set of three directory options, you'll see a blank file folder displayed in the graphics window as ADAM reads the specified device. When this task is finished, the file names contained in the medium's directory will be written onto the file folder. The picture below shows what you'll see revealed within the file folder for the FontPOWER medium.

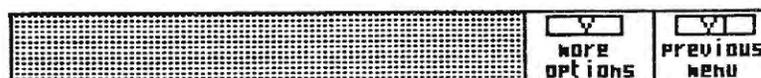
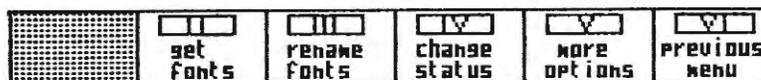
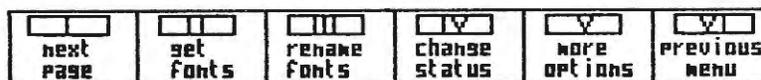
DIRECTORY OF FILES		
current device:	disk one	used: 91 KB
volume title:	FontPOWER	free: 68 KB
→*M script.fnt	*M thin.fnt	*M roman.fnt
*M italic.fnt	*M micro.fnt	*M symbol.fnt
*M bold.fnt	*M copy.fnt	*A fntDEND
*A 32-40-1.0	*A 32-40-3.3	*M sw.shp
*M wd.shp	*M lg.shp	*A sw.shpDEND
*A wd.shpDEND	*A lg.shpDEND	

In the top part of the folder, the current device is shown (disk one in the picture above). And, the volume's title is also shown. To the right of this data, you'll see how many blocks of the storage medium are USED (for file storage) and how many blocks are FREE (available for file storage). Below this, on the file folder, all the file names are shown (in three columns). Just to the left of each file name, you'll see the file's type displayed (as with SmartBASIC). This will most likely be an "A" or an "H". Just to the left of the file type, an asterisk may be displayed if the file is LOCKED.

You'll see a red arrow pointing to the right. You can position this arrow using any of the four cursor arrow keys to select a file by pointing to it. A full wraparound feature is employed for moving this pointer arrow -- this permits fast pointer movement. Also, pressing the HOME key will return the pointer to the upper left starting position. If the medium doesn't contain any standard files, a message stating so will be displayed vice any file names.

All files created with FontPOWER will have a name that ends with ".fnt". This allows the program to easily discern its files from others. If the arrow is pointing to a file name which doesn't end with ".fnt" when you select a file access SmartKEY, an error buzzer will sound.

Depending on certain conditions you'll see one of three possible sets of SmartKEY options beneath the file folder. If the medium that ADAM just read had a two or three block directory with file names in the extra directory blocks, you'll be presented with the set of options depicted in the first picture below. If you accessed a standard one block directory, you'll see the set of options depicted in the second picture below. If the medium was blank (did not contain any standard files), you'll be given the set of two options depicted in the third picture below.



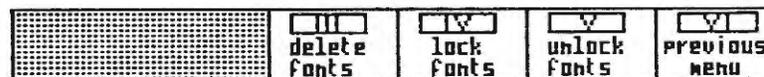
The "next page" option will read the next directory block (for two or three block directories). This option works in a round - robin fashion, ie, it cycles through the directory blocks.

The "get fonts" option will retrieve the font set to which the arrow is pointing. When the file is in the design workspace, FontPOWER will branch back to the "view fonts" screen (to show you the set). You will most likely want to "get" a font set that you want to modify or to continue developing.

The "rename fonts" option allows you to change the name of a set of fonts stored on the current medium. You do NOT need to enter the file type when renaming a file (all font sets created and stored with FontPOWER will have an "H" file type). As is the case with all of the file access options, be certain that the arrow is pointing to the font set that you want to access BEFORE you select a SmartKEY function.

With this option, SmartKEY III, the file name will be highlighted on the file folder when you press the Roman numeral function key. Just type in the new file name and press the RETURN key to have ADAM change the name. You can press BACKSPACE to erase typed letters in the file name. If you press ESCAPE while entering the new name, the program go back to the PREVIOUS menu rather than the primary menu, which is the normal response to an ESCAPE keypress.

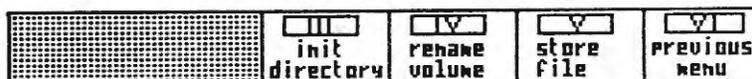
Pressing SmartKEY IV, "change status" presents another set of file access choices. These are revealed in the illustration below.



When you press a SmartKEY from this menu, the specified action will be performed on the file name which is highlighted on the file folder. DELETEing a file erases it from the directory; use this option with EXTREME CAUTION! LOCKing a file protects it from deletion. When a file is first stored, its status is "UNLOCKed". The 8 bit image font files that come with FontPOWER are LOCKed (protected from DELETE) and incapable of being UNLOCKed -- this a precautionary measure.

MORE DIRECTORY OPTIONS

The "more options" selection gives you three additional directory controls. The illustration below shows these.



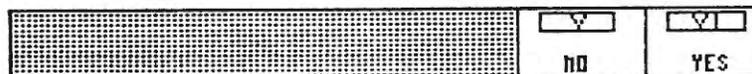
Use the "init directory" option with EXTREME CAUTION; this will clear all the files stored on a medium. The FontPOWER medium is protected from INITIALizing. When you select this option, you'll be prompted to enter the new volume name and the block size for the directory, ie, one (standard), two or three blocks.

The "rename volume" option permits you to change a volume's name without clearing the files from the directory. You'll be prompted to enter the new name. When you press the RETURN key, FontPOWER will rename the current volume.

The "store file" option will save the font set in the workspace to the current medium. You'll be prompted to type the file name. If the name you enter already exists, you'll be asked to enter another name. If you want to transfer bit image font sets from one medium to another, you can "GET" a file from the source medium and then "STORE" it on the other medium. When you design a font set, you MUST store it if you want to use it later. Otherwise, when you "exit" the FontPOWER program, your work will be lost.

EXIT

When you are finished using the FontPOWER program, you can press the Roman numeral SmartKEY "VI" from the main menu, "EXIT". When you do, you'll be asked "really exit to SmartWriter?" and given the following two options. Select "NO" is you want to continue using FontPOWER. Choose "YES" if you're certain that you're done. ALWAYS store your work BEFORE exiting the program.



CHAPTER FOUR

USING THE FONT SETS

LOADING A FONT SET

ADAM's default font designs are stored on a ROM chip. This makes it impossible permanently change any of the designs — ROM chips can not be written to. Thus, you'll need to load a font set into memory each time the system is turned on. You can use the font sets created with FontPOWER in your own machine language programs or with SmartBASIC. The "designer" fonts will, indeed, add an attractive new dimension to your programs.

USING A SET WITH SmartBASIC V1.0

1. Load SmartBASIC
2. Enter "BRUN xxxxxx.fnt"
(replace the x's with the file name)
3. In an instant, the characters on the screen will change to the new set

The fonts and the routine which transfers the bit image table to the video chip (VRAM) are stored in addresses 56320 through 57343. This is an unused buffer (storage area) in ADAM's operating system. Whenever you execute a TEXT, HGR, HGR2, or GR command, SmartBASIC resets the fonts on the video chip to the default (ROM chip) fonts. Thus, you'll need to CALL address 56320 to implement the new designs after one of these commands. For example,

```
100 TEXT: CALL 56320
```

Some programs that convert a normal BASIC program to binary format for super - fast storage and retrieval have a minor shortcoming that can cause a problem with CALLing address 56320. When you BRUN a program BSAVED with these converters, a few of the addresses above 56320 will be changed. Under most conditions this limitation won't present a problem. But if you BRUN one of these binary BASIC files are BRUNning a FontPOWER font set, you'll encounter a difficulty. NOTE: Intel - LOAD V1.0 (by DIGITAL EXPRESS) and BASICaide 2.0 (by Mr. T. SOFTWARE) do not cause this problem in storing binary BASIC programs; other converters may, though. However, this is the same area of memory that most binary converters are stored. Thus, if you load a binary converter after loading a font set, the font designs will be erased.

You can PEEK address 56320 to verify that none of the font designs or the machine language routine that transfers the designs to the video chip have been changed. If the value at the address is "245", it is okay to CALL address 56320.

If you CALL address 56320 and the value at the address is not "245", ADAM will most likely lock up -- you'll have to reload BASIC. If you're BRUNning binary BASIC programs that weren't BSAVED with either of the two programs named on the preceding page, you may want to consider this example.

```
100 PRINT CHR$(4); "BRUN script.fnt"
110 LOMEM: 28000: FOR x = 0 TO 30: POKE 27600 + x, PEEK(56320+x): NEXT
200 REM put the body of your program here
300 REM for example,
400 TEXT: GOSUB 64000
63999 END
64000 REM subroutine to use after TEXT, HGR, or GR
64010 FOR j = 0 TO 30:POKE 56320 + j, PEEK(27600+j):NEXT
64020 NEXT j: CALL 56320: RETURN
```

This demonstration program simply illustrates how to circumvent the limitation of BRUNning some binary converted files. Again, with files stored in binary format using Intel-LOAD V1.0 or BASICaide 2.0 this is unnecessary.

The machine language routine that transfers the font designs to the video chip is preset to change only the NORMAL fonts. You can POKE a "5" into address 56329 to change the INVERSE fonts when you CALL address 56320 ("1" is the preset value -- NORMAL fonts).

USING A SET WITH SmartBASIC 2.0

1. Load SmartBASIC 2.0
2. Enter "BLOAD xxxxxx.fnt"
(replace the x's with the file name)

Notice that with SmartBASIC 2.0, you MUST use BLOAD instead of BRUN. This is because the machine language routine that transfers the bit image designs to the video chip was written for SmartBASIC V1.0. After you've BLOADED the fonts, you'll need to transfer the designs to the video chip with a new z80 machine code routine. Here's an example:

```
100 LOMEM:28000
110 PRINT CHR$(4);"BLOAD script.fnt"
120 DATA 17, 0, 1, 33, 0, 221, 1, 0, 3, 205, 26, 253, 201
130 FOR x = 27600 TO 27612: READ mc: POKE x, mc: NEXT
140 TEXT: POKE 27602, 1: CALL 27600
150 PRINT " Script fonts!!!": END
```

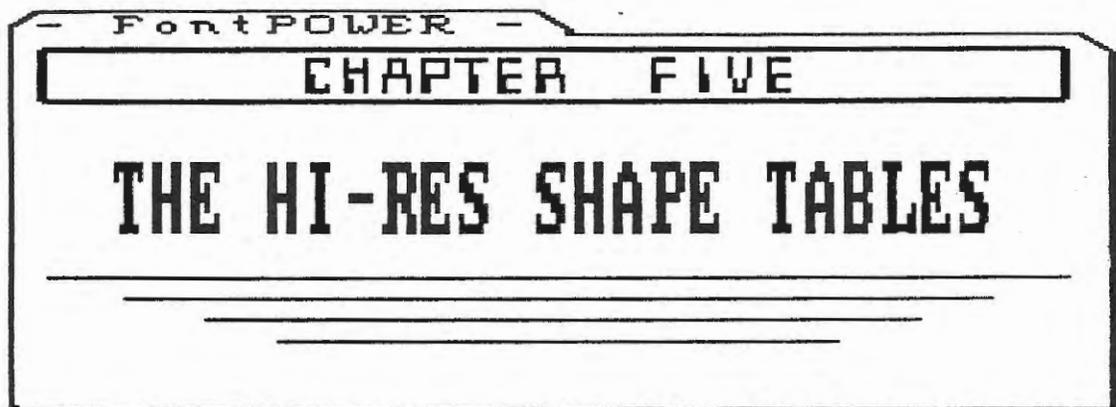
To change the INVERSE fonts with this routine, POKE a "5" into address 27602 before you CALL address 27600. To change the HGR, or GR fonts with this routine, POKE a "53" into address 27602 before you CALL address 27600.

You could also use this machine code routine with SmartBASIC V1.0 to transfer the designs to the video chip. Remember, though, that each of the video mode commands (TEXT, GR, or HGR) resets the fonts to their default designs. Thus, you'll need to CALL this routine after using either of the commands.

USING A SET IN A MACHINE CODE PROGRAM

You can use the bit image font sets created with FontPOWER in your own self - booting z80 programs. Of course, if your programming skills are this advanced, you probably don't need any instructions. But, the following tips may be of some help.

First, BLOAD a font file from BASIC. Then create an entry in the directory of your destination medium which allocates a 1K storage space. Now, write pages 221 through 224 to that storage block. Then, just have your z80 program open the file and read it into a pre - designated buffer. Then, after you've initialized the video registers, just write the bit image designs (3 pages) to your VRAM pattern generator table for text fonts.



THE SHAPE TABLES

The FontPOWER medium contains three shape tables which can be used to draw characters on an HGR or HGR2 screen. These are named: "sm.shp", "md.shp", and "lg.shp". RUN the DEMO programs for more details on using these shape tables.

The characters drawn by the "sm.shp" table are four pixels wide. Shape numbers "0" through "95" are used to draw fonts "32" through "127". This file is 927 bytes in length.

The characters drawn by the "md.shp" table are eight pixels wide (as ADAM's default fonts are). Shape numbers "0" through "118" are used to draw fonts "33" through "150" -- this includes some special symbols. This file is 1470 bytes in length.

The characters drawn by the "lg.shp" table are sixteen pixels wide. Shape numbers "0" through "94" are used to draw fonts "33" through "126". This file is 1789 bytes in length.

Faint, illegible text at the top of the page, possibly a header or title area.

Second block of faint, illegible text, appearing as several lines of a letter or document.

Third block of faint, illegible text, possibly a signature or a closing line.

Large block of extremely faint, illegible text occupying the bottom half of the page, likely the main body of the document.

Font POWER

- A Character Design Utility -

CREATED FOR THE COLECO ADAM™

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