

**KEYBOARD INFORMATION
FOR
Victor 9000**

**BENCHMARK Commands
& Function Keys**

Terminal Keys

F10	<u>CONT</u>
ESC	CAN
Up Arrow	Up Arrow
Down Arrow	Down Arrow
Left Arrow	Left Arrow
Right Arrow	Right Arrow
Return	RETURN
Tab	TAB or WORD ->
Shift Tab	ALT/TAB or WORD <-
Home	HOME
DEL	DEL
INS	INS
END	ERASE EOL
Page Up	SHIFT/UP ARROW
Page Down	SHIFT/DOWN ARROW
F1	F1
F2	<u>F2</u>
F3	F3
F4	F4
F5	F5
F6	F6
F7	F7
F8	None
(Recrd/Playback) ALT/F9	SCRL
(Print Screen) CTRL/P	ALT/F6
(Sys Intrpt) CTRL/BREAK	ALT/F7
(Help) F9	OFF-RVS-ON

Terminal Mode: NO

Graphics Display: YES; **Insert/Delete Lines:** NO

Foreign Language: SPANISH, FRENCH **Typing:** YES

Foreign Language Display: YES

Note: The foreign characters are entered by first typing the grave' accent then the upper or lower case A E I O U N or ?.



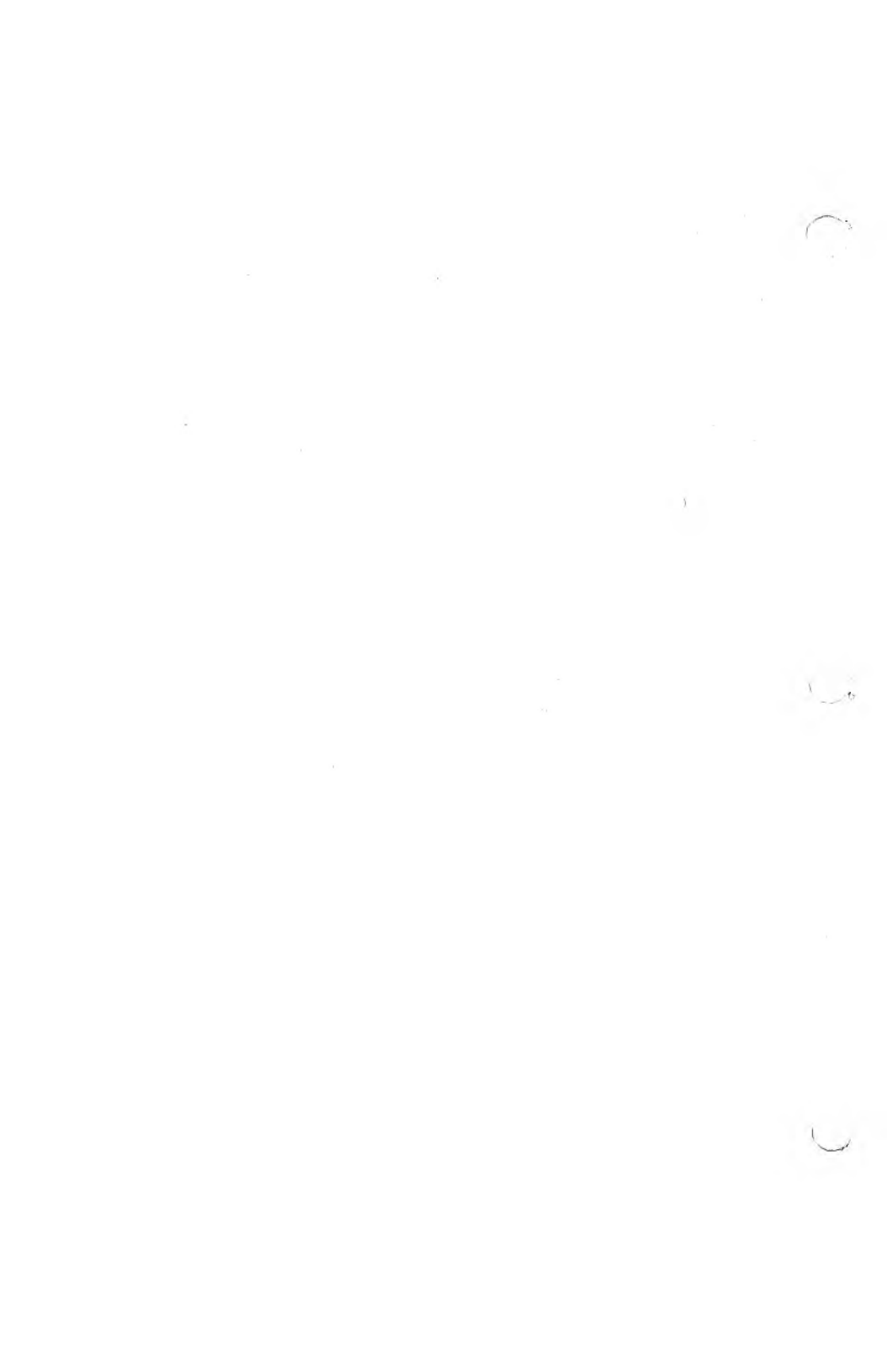
FOR USERS OF THE GRAPHICS PROGRAM

Those of you who are using The BENCHMARK Graphics program need to run the Victor MS-DOS RESERVE.COM program before loading The BENCHMARK programs. RESERVE sets aside approximately 80K of memory for use by the Graphics program. It will not be freed until you either reboot or turn off your system.

At the system prompt (A>) type "RESERVE" and press RETURN. This is to be done only when you first turn on your computer. If you need to reboot your system, you must run RESERVE again, but only if you have "rebooted". Exiting from The BENCHMARK programs does not make it necessary to run RESERVE again.

An alternate method would be to include RESERVE in your AUTOEXEC.BAT file. This would ensure that RESERVE is run only when you first turn on your system.

RESERVE.COM can be found on the MS-DOS disk that should have been provided when you purchased your Victor 9000. We have also included a copy for your convenience. It can be found on the Graphics diskette.



PRINTER DRIVER SHEET

Printer Options

Printer Model	Available Options (if applicable)	Printer No.
Canon LBP-8 Laser	00 - Default Font 01 - Default Font Bold 02 - Default Font Light 03 - Default Font Italic	54
Daisywriter 2000		43
DEC LA50		21
DEC LA100		22
DEC LQP02		20
Diablo C150 InkJet		32
Diablo 620/630		05
Diablo 1610/20		04
Epson JX-80	00 - Color Output (Graphics) 01 - Black Output (Graphics)	29
Epson LQ1500	00 - Letter Quality Mode 01 - Draft Mode 80 - 11 5/8" Form Letter Quality 81 - 11 5/8" Form Draft Mode	47
Epson MX-80/100 Fortiss DM20 General (CR/LF)		11,19,31 08 01
General Backspace	00 - IBM Selectric or Brother 01 - General Printers	02
HP LaserJet	00 - Font G (Internal) 01 - Font H (Internal) 02 - Font A 03 - Font B 04 - Font C 05 - Font D 06 - Font E 07 - Font F 10 - Will Not Change Font	46
HP 2225c ThinkJet		09
IBM Graphics 80 cps		49

PRINTER DRIVER SHEET

Printer Options

Printer Model	Available Options (if applicable)	Printer No.
IBM Quietwriter 5201	00 - Font Holder A 01 - Font Holder *	50
MPI 99	00 - Standard Font 01 - Serif Font	45
NEC P2/P3	00 - Pica HS 01 - Pica HD 02 - Pica NLQ 03 - Elite HD 04 - Elite NLQ 05 - Proportional HD 06 - Proportional NLQ 07 - Condensed 80 - 87 (Add 80 for 11 5/8")	44
NEC P2/P3 (NEC)	80 - 11 5/8" Form Letter Quality 81 - 11 5/8" Form Draft Mode	51
NEC P3C (IBM)	80 - 11 5/8" Form Letter Quality 81 - 11 5/8" Form Draft Mode	52
NEC P5 NEC P5XL	00 - Letter Quality Mode 01 - Draft Mode 80 - 11 5/8" Form Letter Quality 81 - 11 5/8" Form Draft Mode	47 55
NEC Spinwriter 2000	00 - 6030 and 6010 Modules 01 - 6050 Module 80 - 11 5/8" Form with 6030 or 6010 Module 81 - 11 5/8" Form with 6050 Module	48
NEC Spinwriter 3550	02 - Proportional Printing 80 - 11 5/8" Form 82 - 11 5/8" Form with Proportional Printing	12

PRINTER DRIVER SHEET

Printer Options

Printer Model	Available Options (if applicable)	Printer No.
NEC 3510/3530	02 - Proportional Printing 80 - 11 5/8" Form 82 - 11 5/8" Form with Proportional Printing	13
NEC 5500/7700 with Dual Bin Sheet Feeder *	02 - Proportional Spacing 05 - For Single Bin Sheet Feeder 80 - 11 5/8" Form 82 - 11 5/8" Form with Proportional Printing 85 - 11 5/8" Form with Single Bin	06
NEC 8023		07
Okidata 93		10
Okidata 182		03
Okidata Microline 2410	00 - Correspondence Quality	33
	01 - Draft Mode	
	02 - Data Processing Mode	
Okidata Plug & Play		49
Printronix MVP	00 - Word Processing Mode	23
	01 - Data Processing Mode	
	02 - Compressed Mode	
Qume Sprint		27
Tandy DMP-2100	00 - Letter Quality	30
	01 - Standard Quality	
Red Print Style Plus	00 - Standard Quality	
Red Print Style Plus	01 - Letter Quality	
Tandy DWP II		34
TI 855 (DP Mode)	01 - Selects Font Module	37
	02 - Selects Font Module	
TI 855 (WP Mode)	01 - Selects Font Module	38
	02 - Selects Font Module	

PRINTER DRIVER SHEET

Printer Options

Printer Model	Available Options (if applicable)	Printer No.
Toshiba P351		53
Toshiba P1350	00 - Letter Quality Font 2	18
Red Print Style Plus	01 - Letter Quality Font 1	
Red Print Style Plus	00 - Letter Quality Font 1	
Red or Normal Plus	01 - Letter Quality Font 2	
	02 - High Speed Font	
Toshiba P1351	00 - Letter Quality Font 2	41
Red Print Style Plus	01 - Letter Quality Font 1	
Red Print Style Plus	00 - Letter Quality Font 1	
Red or Normal Plus	01 - Letter Quality Font 2	
	02 - High Speed Font	

NOTES:

- * If your printer is not listed, it is not supported by this release of software. If you have questions about your printer, call 1-800-621-1908 and ask for your Sales Representative.
- * For dual bin feeder, use the Page Format panel to choose which bin to feed from.

The BENCHMARK(R)

Start Up Guide

for

Victor 9000

For use with the MS-DOS operating system

NOTE: Use of The BENCHMARK program disks constitutes a "copying" within the Copyright Laws of the United States of America and is limited to those persons who have signed and returned the end-user registration form enclosed with the reference manual or are otherwise specifically authorized by Metasoft Corporation. Any other use is strictly forbidden.

The BENCHMARK is a registered trademark of Metasoft Corporation.

The BENCHMARK START UP GUIDE FOR VICTOR MS-DOS

**PLEASE READ BEFORE ATTEMPTING TO RUN
BENCHMARK SOFTWARE.**

MODIFICATION OF KEYBOARD

Because the Victor 9000 keyboard and video display are programmable, Metasoft supplies DOMESTIC.CHR, DOMESTIC.KB, and the batch file RUN.BAT for use with The BENCHMARK software. The batch file will modify the keyboard display and bring up The Administrator. When you exit from The Administrator, the old keyboard is restored. Complete instructions for this process are given below.

CONFIGURING THE BENCHMARK DISKS

The BENCHMARK program disks you have received cannot be run. You must first configure the programs for your system. This means that you will be copying all files necessary to run The BENCHMARK programs onto a blank formatted disk. This disk will become your "working" program disk, while the original disks you received from BENCHMARK SOFTWARE will become your masters. It is wise to store the masters in a safe place for use in the future, as all disks will wear out eventually.

Configuration is a simple process of copying The BENCHMARK programs onto a disk that contains the DOS operating system. It is advisable that you also make back-up copies of The BENCHMARK program disks at this time.

The MS-DOS operating system that was supplied with your computer when you purchased it governs the loading and running of programs, handling of disks, and manipulation of files. It provides the additional software support necessary to run The BENCHMARK software.

The first step in configuring The BENCHMARK programs for your computer is to prepare a formatted disk that contains a copy of the DOS operating system. To prepare this disk, follow the instructions below:

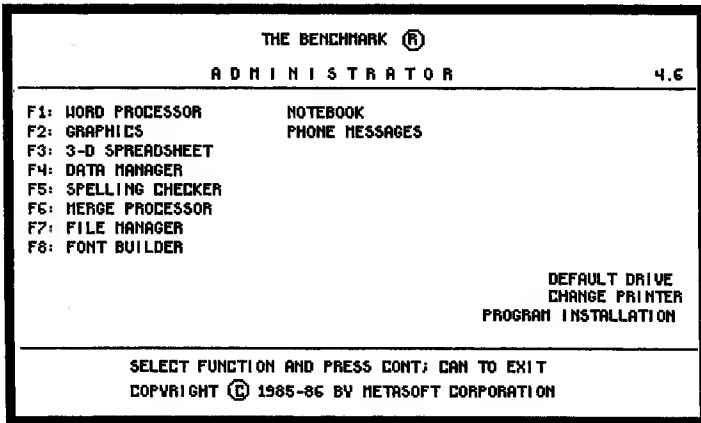
FOR USERS OF DUAL FLOPPY DRIVE SYSTEMS

1. Power on your computer.
2. In drive A, place the disk that contains your copy of MS-DOS. Your computer will boot (load the operating system so that commands may be entered) automatically.
3. When you see the A> prompt, place a blank disk in drive B.
4. At the A> prompt, type FORMAT B: and press RETURN. This command formats the blank disk. You will use this command to prepare other blank disks for use as data storage or to make back up copies of The BENCHMARK original disks.
5. When the formatting procedure is complete, type SYSCOPY B: and press RETURN to copy the operating system onto the newly formatted disk to make a "bootable" disk. You are now ready to copy The BENCHMARK files from the disk you have chosen as the one you will be using most often. It would be advisable to copy the disk containing The Administrator onto your "bootable" disk.

To Copy a BENCHMARK Disk Onto the New Disk

The disk you have just prepared with a copy of the DOS operating system is a bootable disk. You must copy The BENCHMARK files onto this disk. To do so, make sure that the newly formatted disk is in drive B and follow the steps below:

1. While the DOS disk is still in drive A, copy the MODCON.EXE file to your bootable disk. To do this, at the A> type COPY A:MODCON.EXE B:. When this is done, remove the DOS disk from drive A.
2. Place The BENCHMARK disk into drive A.
3. Type COPY A:*. * B: and press RETURN. All of the files on The BENCHMARK disk will now be copied onto the disk in drive B.
4. Remove The BENCHMARK disk from drive A and store it in a safe place. This will serve as your master disk in the event the disk you are creating fails.
5. Take the disk out of drive B that you just copied all The BENCHMARK files onto and place it in drive A.
6. At the A> prompt type RUN and press RETURN. This will access The BENCHMARK Administrator from which you will select the program you want to run. The following will appear on your screen:



The BENCHMARK Administrator comes configured with a General Printer. This may or may not be compatible with the printer you are going to be using. If you wish to select a driver for the printer you have, please refer to section AD-5 of The Administrator Reference Manual: Changing Drivers.

USING THE BENCHMARK ADMINISTRATOR

Once The Administrator has been configured for your system, you are ready to begin using The BENCHMARK programs. Your screen should now display The Administrator menu.

There are two fast and easy methods of accessing programs and functions from The Administrator menu. You can call up a program by moving the cursor to the line on which the program name appears and pressing CONT. Or, the first 7 programs in the first column have been assigned to function keys 1 through 7, press the function key that corresponds to the order in which the program name appears. For example, in the screen illustration above, F1 corresponds to the Word Processor, F2 to the Graphics, etc.

You now know how to call up The Administrator and to access other BENCHMARK programs. You may proceed from here to the individual reference manual for The BENCHMARK program you wish to work with.

To learn more about how to customize The Administrator, or delete programs from it, see the reference manual for The Administrator.

BACKING UP OTHER BENCHMARK DISKS

It is advisable to make back-up copies of all of your BENCHMARK program disks. To back up other program disks, follow the steps below.

1. Insert your Victor MS-DOS disk in drive A.
2. Insert a blank disk in drive B. The formatting process "erases" a disk to prepare it for receiving new data. Be sure the disk you are going to format is blank, or contains data that is no longer needed.
3. At the A> prompt, type FORMAT B: and press RETURN. This causes the disk in drive B to be formatted automatically.

4. Repeat the above steps as many times as necessary for the number of disks you need to back up.
5. Remove the system disk from drive A and replace it with a BENCHMARK disk. This is the disk you will be copying files from.
6. At the A> prompt, type COPY A:*. * B:
7. Press RETURN. The BENCHMARK files on the disk in drive A will be copied onto the disk in drive B.
8. Repeat steps 5 through 7 for each disk you wish to make a copy of (back up).

FOR USERS OF HARD DISK SYSTEMS

NOTE: The instructions that follow are written with the assumption that your hard disk has already been formatted and contains the DOS files you need. If this is not the case, refer to your hardware operating manual for instructions before performing the steps below.

To Copy The BENCHMARK Disks onto the Hard Disk

1. Power on the computer. Log in on the drive where you want to place The BENCHMARK program files. Do this by typing the letter of the drive and a colon and press RETURN. Example: A>C: and press RETURN. This will give you a C> prompt and you will be putting files on drive C.
2. Place the disk containing The BENCHMARK files in the floppy drive (drive B on most Victors).

3. At the system prompt, type COPY (drive letter where the BENCHMARK program disk has been inserted); .* (drive letter to copy files to); and press RETURN (example: COPY B:.* C:). The BENCHMARK files will now be copied onto the hard disk. For example, you wish to copy from floppy drive B: onto the hard disk drive C:.

Your screen will appear as follows: C>COPY
B:.* C: and press RETURN

4. Remove The BENCHMARK disk from the floppy drive and store it in a safe place. This disk will serve as your master back up in case of disk failure.
5. Repeat steps 1 through 3 until you have copied all of The BENCHMARK disks.
6. You must also copy MODCON.COM from drive A to the drive you are putting The BENCHMARK files on. If you are putting The BENCHMARK files on drive C, then type COPY
A:MODCON.COM C: and press RETURN.
7. At the system prompt, type RUN and press RETURN. This will access The BENCHMARK Administrator from which you can select the program you wish to run. Refer to page 4 of "Users of Dual Floppy Disk Drive Systems" for instructions on using The Administrator.

FOR USERS OF THE GRAPHICS PROGRAM

Those of you who are using The BENCHMARK Graphics program need to run the Victor MS-DOS RESERVE.COM program before loading The BENCHMARK programs. RESERVE sets aside approximately 80K of memory for use by the Graphics program. It will not be freed until you either reboot or turn off your system.

At the system prompt (A>) type "RESERVE" and press RETURN. This is to be done only when you first turn on your computer. If you need to reboot your system, you must run RESERVE again, but only if you have "rebooted". Exiting from The BENCHMARK programs does not make it necessary to run RESERVE again.

An alternate method would be to include RESERVE in your AUTOEXEC.BAT file. This would ensure that RESERVE is run only when you first turn on your system.

RESERVE.COM can be found on the MS-DOS disk that should have been provided when you purchased your Victor 9000. We have also included a copy for your convenience. It can be found on the Graphics diskette.

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INTRODUCTION

AD-1 What The Administrator Does

The Administrator is a directory program that simplifies access to application programs such as the Word Processor, Financial Planner, Data Manager, Graphics, Notes, Messages, and Spelling Checker. You can also install selected other MS-DOS programs on your Administrator.

In addition, The Administrator performs file management, program installation, and merge functions that integrate The BENCHMARK software.

If you choose, you can also install operating system utilities such as formatting and disk status on The Administrator so that you do not have to exit from The BENCHMARK to perform these common operations.

AD-2 The BENCHMARK Program Disks

The Administrator and The BENCHMARK application programs that you have purchased are delivered to you on disks that cannot be run until you have customized or configured them for your particular computer system. It is advisable to **MAKE A BACK-UP COPY OF THESE DISKS** to prevent loss of important information.

AD-2.1 Handling of Disks

EVERY DISK WILL SOMEDAY FAIL! The surface of the disk will wear out or be damaged. Be sure to keep back-up copies of all programs and data.

To care for your disks properly:

1. Never touch the recording surface of the disk.
2. Always return the disk to its protective jacket when it is not in use.
3. Never write on the disk. To label it, write on a self-adhering label and apply the label to the plastic covering of the disk.

The BENCHMARK

4. Do not expose the disk to extreme heat (over 90 degrees), direct sunlight, or magnetic fields. Some scissors, paperclips, and other metal objects can create magnetic fields that cause data on the disk to be erased or changed.

AD-2.2 Customizing or Configuring the Administrator

Before you can run the Administrator on your computer system, it must be configured for your computer equipment (hardware). Configuration consists of two processes: (1) copying the program files from The BENCHMARK disk to a disk that contains a copy of your operating system, and (2) selecting the proper drivers for your printer and computer system. MAKE SURE THAT YOUR CONFIG.SYS FILE CONTAINS: Buffers = 20 and Files = 20. Refer to your DOS manual for assistance.

Normally this will have already been done for you by the dealer from whom you purchased The BENCHMARK software. If it has not been done, refer to the Start Up Guide that accompanies the programs for detailed instructions on configuration.

Once the programs have been configured for your computer, this will not need to be done again unless you change the computer hardware you are using.

ADMINISTRATOR FUNCTIONS

AD-3 Using The BENCHMARK Administrator

Once The Administrator has been configured for your computer, boot or reset your computer so that the system prompt is displayed on your screen. Consult your computer system operating manual for instructions.

At the system prompt, type bmrk to access The Administrator. Your screen will display The Administrator menu:

THE BENCHMARK [®]		
ADMINISTRATOR		
F1: WORD PROCESSOR	NOTEBOOK	MAIL LIST
F2: GRAPHICS	MESSAGES	TELECOMMUNICATIONS
F3: 3-D SPREADSHEET		
F4: DATA MANAGER		
F5: SPELLING CHECKER		
F6: MERGE PROCESSOR		
F7: FILE MANAGER		
F8: FONT BUILDER		
		DEFAULT DRIVE CHANGE PRINTER PROGRAM INSTALLATION
SELECT FUNCTION AND PRESS F10 OR PRESS F9		
COPYRIGHT © 1986 BY METASOFT CORPORATION		

There are two fast and easy methods of accessing programs and functions from The Administrator menu. You can call up a program by moving the cursor to the line on which the program name appears and pressing F10. Or to access one of the programs in the first column, press the function key that corresponds to the order in which the program name appears. For example, in the screen illustration above, F1 corresponds to the Word Processor, F2 to the Graphics, F3 to the 3-D Spreadsheet, etc.

AD-3.1 Using Panels

Throughout The BENCHMARK programs, your screen will display panels that contain information about the functions and request information from you. Where information is requested from you, you will see fields indicated as > ___ < where you can enter the information. To fill in a field, simply move the cursor to the field using the arrow keys and type in the appropriate information.

Other keys that control cursor movement within a panel are:

The BENCHMARK

KEY

FUNCTION

TAB

Moves cursor to the first position in the next field

RETURN

Moves cursor to the first position of the first field directly beneath the cursor

SHIFT/TAB

Moves cursor to previous field

Information that appears in a field when the panel is first displayed is known as the default. Default information is information that is commonly used and is provided for your convenience if you do not need or wish to alter the field.

To edit a field, simply type over the information that has already been entered into it. You can also use the following keys to edit a field:

KEY

FUNCTION

INS

Allows you to insert one character at a time and moves existing text to the right automatically

DEL

Allows you to delete one character at a time and moves existing text to the left automatically

END

Automatically erases all characters from the cursor position to the end of the field

NOTE: These keys are marked differently on different keyboards. Consult your Keyboard Information sheet to determine which keys govern these functions on your computer.

AD-3.2 Assigning a Default Drive for Data Files

The Administrator features a program that allows the user to assign a default drive for data files. This allows you to omit the assigning of a data drive each time a program like the Word Processor is accessed.

To assign a default data drive, move cursor to Default Drive in the lower right corner of the Administrator. Press F10. You will be prompted:

Enter Default Drive: >__<

Type the letter of the drive you wish to assign as the default and press F10. This drive will now be set as the default and the Administrator screen will reappear.

AD-3.3 Selecting Video Options at the System Prompt

If your screen is not easy to read, you will need to set the "video option byte" to 01. This is usually the case if you are running a color/graphics board with a monochrome monitor on an IBM or IBM-compatible. With The BENCHMARK Administrator, there are two ways of selecting video options. You can select them from the Change Drivers function of The Administrator. (See AD-4 Changing Drivers for instructions.) You can also select video options when you enter the bmrk command by typing a space and the number 1 after the command. For example,

bmrk 1

Consult your Keyboard Information sheet for the video options available to you (IBM and compatibles only).

When you press RETURN, The Administrator and your video option selection will be accessed in one operation.

AD-4 Changing Drivers

When you first access the Administrator, the printer driver assignment is set to allow you to print documents with basic characters. To take full advantage of the special printing features of The BENCHMARK software, however, you will want to change the printer driver to the one customized for the specific printer you are using. To do this, select the Change Printer function of The Administrator by moving the cursor to that line and pressing F10.

You will be prompted:

**Please mount disk with BENCHMRK.SDR on drive B;
Press: C-Continue**

If you are using a dual floppy drive system, mount the Printer Driver disk that accompanies The BENCHMARK program disks on Drive B. If you are using a hard disk, make sure that the BENCHMRK.SDR file is on the drive indicated by the prompt. (The drive letter indicated by the prompt can be changed by changing the drive from which the program is run on the Program Installation panel. See AD-5 Installation for further instructions.) Press c to continue to the next step.

If you fail to mount the Printer Driver Disk or if the drive door is left open, you will be prompted:

**Drive NOT READY for File B:BENCHMRK.SDR;
Press: R-Retry or Q-Quit**

Mount the disk and close the door. Then press r to continue.

Your screen will display:

```

      THE BENCHMARK ®
    DRIVER SELECTION
  -----
  THIS PROGRAM WILL BUILD A NEW ADMINISTRATOR AFTER INSTALLING
  ANY DESIRED PERIPHERAL DEVICE DRIVERS.  IF YOU DO NOT WANT TO
  DO THIS, PRESS ESC NOW.

      INSTALL NEW DRIVERS FROM DRIVE >B<
      OUTPUT NEW ADMINISTRATOR TO DRIVE >A<

  -----
  PRESS F10 TO CONTINUE OR PRESS ESC TO EXIT
  
```

The New Drivers will be installed from the drive containing the Printer Driver Disk. Be sure that the letter corresponding to that drive is entered in the "Install New Drivers from Drive >__<" field.

The new Administrator should be output to the drive from which you are now accessing the current Administrator. On a dual floppy system, this is normally Drive A. On a hard disk system, it is the drive where you enter the bmrk command (usually drive C). Make sure that the letter corresponding to that drive is entered in the "Output New Administrator to Drive >__<" field.

When both fields are correctly filled, press

F10.

Your screen will now display:

```

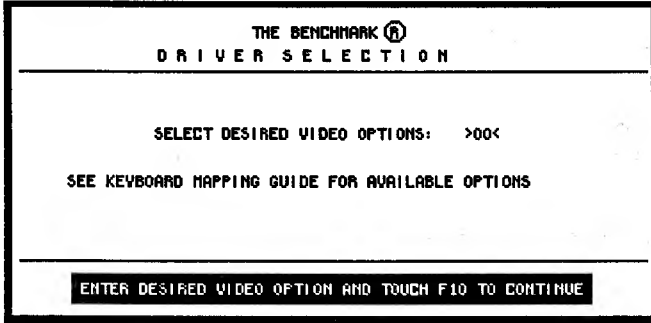
      THE BENCHMARK ®
    DRIVER SELECTION
  -----
  ENTER DESIRED CHARACTER SET: >00<

      00 = ENGLISH
      01 = SPANISH
      03 = FRENCH

  -----
  ENTER DESIRED LANGUAGE OPTION AND PRESS F10 TO CONTINUE
  
```

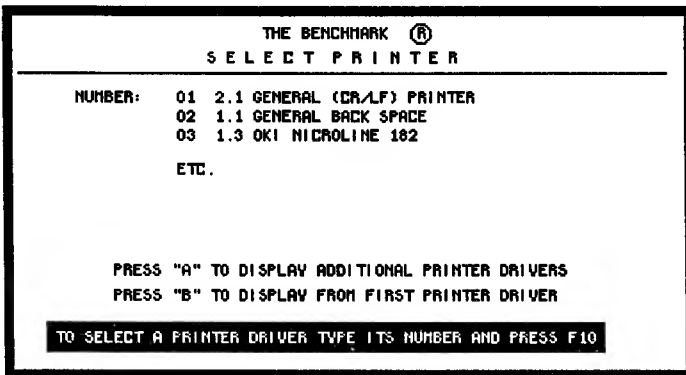
The BENCHMARK

Enter the number corresponding to the language in which you will be printing documents in the "Enter Language Number" field. Press F10.
Your screen will now display:



Refer to your Keyboard Information sheet for instructions on the video options available to you. Enter the number corresponding to the option you want to use in the "Enter Desired Video Options" field and press F10.

Your screen will now display the printer drivers available to you. The drivers are shown on several screens. To see the next screen of drivers, type A. To return to the first screen of drivers, type B.



Select the Printer Driver that corresponds to your printer by typing its number and pressing F10.

You will now be asked to select printer options. Printer options are unique to specific printers.

```
THE BENCHMARK®
SELECT PRINTER

SELECT DESIRED PRINTER OPTIONS: >00<
SEE PRINTER INFORMATION SHEET FOR AVAILABLE OPTIONS

ENTER DESIRED PRINTER OPTION AND PRESS F10 TO CONTINUE
```

Refer to your Printer Information Sheet for instructions on the options that are available with the printer you are using. Enter the number corresponding to the option you want to use in the "Enter Desired Printer Options" field and press F10. A message will appear on your screen to indicate that the driver you have selected is being built into your new Administrator.

When the process is complete, you will be prompted:

Type BMRK and press RETURN to continue

Typing BMRK and pressing RETURN will take you back to the Administrator.

AD-5 Installation of Programs (BENCHMARK or Other)

The Installation function of the Administrator allows for quick and simple installation of programs or operating system utilities. Once programs have

The BENCHMARK

been installed on The Administrator, they can be accessed quickly from a central location. To select the Installation function from The Administrator menu, move the cursor to that line and press F10. You will be prompted:

Position Cursor to Desired Location;
Press F10 to Install Program at Cursor Location;
Press ESC to Quit Installation; or Press F9

AD-5.1 To Install a Program

To install a new program or to modify the information about an existing program, move the cursor to the line on the Administrator where you want the program name to appear or where the name already appears. Press F10.

You will be prompted to provide the information necessary for installation:

THE BENCHMARK [®]	
C O N F I G U R A T I O N	
PROGRAM'S NAME FOR ADMINISTRATOR:	>F1:WORD PROCESSOR<
RUN PROGRAM FROM DRIVE:	>@<
PROGRAM'S FILENAME IS:	>BENCHMRK >WPS<
WILL PROGRAM DISK HAVE TO BE MOUNTED BEFORE RUNNING PROGRAM?	>N< (Y/N)
LOAD PROGRAM AS A PRIMARY? (Y/N)	>N<

ENTER A NAME, PROGRAM DRIVE, FILENAME AND EXTENT
PRESS F10 TO INSTALL, F1 TO DELETE, OR ESC TO STOP

First, enter the name of the program exactly as you want it to appear on the Administrator menu.

Next, enter the letter of the drive where you want the program to be run from. The symbol @ (at sign) represents the default drive, or the drive from which the Administrator is run.

Third, enter the program's filename, which consists of two parts: a name of up to 8 characters followed by an extension of 3 characters. For example,

>BENCHMRK< >WPS<

is the filename for The BENCHMARK Word Processor. You can look up a program's filename by displaying a directory with the appropriate operating system command.

Then determine whether or not the program disk should be mounted each time the program is run. This is useful when there is not enough disk space to contain all of the programs installed on the Administrator. The default response is n. To require that the program disk be mounted, type in y.

To change information that already appears in this panel, type over the existing text and use the END key to erase any remaining text from the cursor location to the end of the field.

When the panel is completed to your satisfaction, press F10. You will return to the Administrator menu where the title of the program will appear at the cursor location. You can move the cursor to another location and press F10 to continue installing programs, or you can press ESC to exit from the Installation function.

AD-5.2 Deleting a Program from The Administrator

To delete a program from the Administrator menu, move the cursor to the line where the program name appears and press F10. Then press F1 to delete the program from the Administrator. Finally, press ESC to exit from the Installation function.

AD-5.3 Deleting the Installation Function

If for some reason you want to ensure that your Administrator will remain exactly as it is, you can choose to delete the Installation function from the Administrator menu. Delete Installation just as you would any other program as instructed above. You will no longer be able to install or delete programs on the Administrator menu.

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AD-6 File Management

The File Management function of the Administrator expedites functions that involve data files and operating system files. To select this function from the Administrator, move the cursor to that line and press F10.

Your screen will display the File Management Menu:

THE BENCHMARK ®	
FILE MANAGEMENT	
FUNCTION:	COPY BENCHMARK FILE(S) DELETE BENCHMARK FILE(S) SUM TO SINGLE FILES OS FILE FUNCTIONS WRITE OS FILE(S) DIRECTORY MAINTENANCE IMPORT BENCHMARK FILE(S)
SELECT FUNCTION AND PRESS F10 OR PRESS ESC TO EXIT COPYRIGHT © 1980-86 BY METASOFT CORPORATION	

AD-6.1 To Copy BENCHMARK File(s)

The Copy BENCHMARK File(s) function allows you to copy files from the Word Processor, Mail List and Data Manager. To copy files from the Financial Planner, Notebook, Messages, or the Graphics package, select the OS Files Functions option from the File Manager Menu. To select the Copy function from the File Management menu, move the cursor to that line and press F10. Or you can simply enter the first letter of the function to access that function. To Copy BENCHMARK Files, press c. You will be prompted:

Select Files From Drive: >_<
F10 to Continue or ESC to Return

Type in the letter corresponding to the drive where the files you want to copy are currently stored. Press F10.

All of the files stored on the drive you have selected will now be displayed. To scroll through this display, press F2. You will be instructed to:

Enter "C" in Column 1 to Select Files to be Copied

Type a c in the field beside each file that you want to copy. When you have selected all files to be copied, press F10. You will be prompted to:

**Copy Files to Drive: >_<
F10 to Copy the files or ESC to Quit**

Type in the letter corresponding to the drive you wish to copy the files to and press F10.

Pressing F10 causes the files to be copied. If there are no BENCHMARK files on the drive you are copying to, you will be prompted:

"BENCHMRK.DIR not found, Create the File? Y-Yes or N-No"

Press "Y" to cause a new directory of BENCHMARK files to be created on the disk you are copying to. When copying is complete, you will return to the File Management menu. Pressing ESC allows you to escape the Copy function without copying files.

AD-6.2 Delete BENCHMARK File(s)

The Delete function of the Administrator causes BENCHMARK files to be erased from disk. To select this function from the Administrator menu, move the cursor to that line and press F10. Or you can simply type d to access this function.

You will be prompted to:

**Select Files From Drive: >_<
F10 to Continue or ESC to Return**

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Type in the letter corresponding to the drive where the files that you want to delete are stored currently. Press **F10**.

You will see a display of all the files stored on the drive you have indicated. You will be prompted to:

Enter "D" in Column 1 to Select Files to be Deleted

Type **d** (or **D**) before the file number of each file that you want to delete. Press **F10** to cause the files to be deleted or **ESC** to escape the Delete function without deleting any files. You will return to the File Management menu.

AD-6.3 To Convert Storage Units to Single Files

Version 3.0 of The BENCHMARK software required that the user create storage areas on his data disk in which the BENCHMARK data files were stored. These were called "storage units" or "SUN's".

The BENCHMARK software no longer requires that the user create a storage unit (SUN) in which to store files of data. Instead, each data file is written to the data disk as a separate file. The File Management function of The Administrator provides a conversion program for users who want to use files currently stored in SUNs with current BENCHMARK products. This conversion is a one-time process that must be done before the files in SUNs can be used with the Administrator.

To select this function from the File Management menu, move the cursor to that line and press **F10**. You can also access this function by simply typing **s**.

You will be prompted to enter the name assigned to the SUN:

SUN: > _____ <
Press **F10** to Convert this file now,
or Press **ESC** to Leave SUN Unchanged

WARNING: SUN's may contain more files than expected. Be sure to provide adequate disk space on the receiving disk.

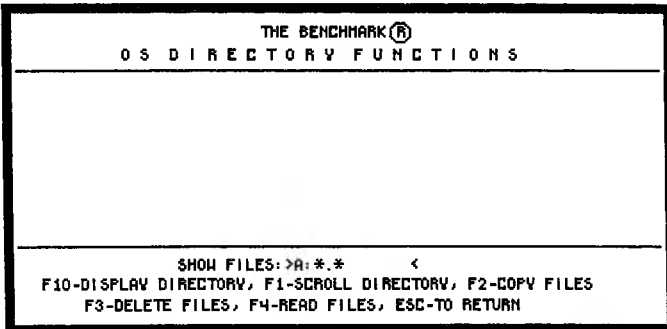
Type the name of the SUN in the SUN: > _____< field in the format: Drive: Filename.Extent (b:metasoft.op1). Then press **F10** to convert the file. Pressing **ESC** allows you to escape this function without converting the SUN to single files.

AD-6.4 Operating System File Functions

The Operating System (OS) File Functions option allows you to perform certain common operations without having to exit The BENCHMARK program. It is also used to copy and delete files created with the Financial Planner and the Graphics package and to convert ASCII files into BENCHMARK format. With this option, you can see a directory of files stored on any drive you designate, copy files, delete files, or read ASCII files into BENCHMARK document format.

To select this option from the File Management menu, move the cursor to that line and press **F10**. You can also access this function by simply typing **o**.

Your screen will display:



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AD-6.4.1 To Display a Directory

To see a directory of files, type the letter corresponding to the drive where files are stored followed by a colon (:) in the first space of the Show Files: >_____< field. Then press F10 to display the directory. Pressing F1 allows you to see the second and subsequent screens of the directory.

AD-6.4.2 To Copy Operating System Files

To copy a file, press F2. You will be asked to supply the drive and filename of the file(s) you want to copy from as well as the drive you want to copy the file(s) to:

Copy From: >_____< **Copy To:** >_____<
F10 - to Copy Files, ESC - to Return

The Copy From: >_____< and Copy To: >_____< fields are preformatted with sufficient spaces for you to enter:

Drive:Filename.Extension

For example,

A:BENCHMRK.WPS

This function works in conjunction with your operating system, and the information in these fields is entered as you would enter information to copy files from the operating system. For example, to copy the file in the example above from drive A to drive C, you would complete the fields as follows:

Copy From: >A:BENCHMRK.WPS<
Copy To: >C:_____<

If you wish to copy all the files stored on drive A to drive C, you would fill in the fields this way:

Copy From: >A:*.*<
Copy To: >C:_____<

It is not necessary to fill all the spaces in these fields in order to copy files. Make sure, however, that no characters or spaces appear at the end of the drive and filename you have entered. If characters or spaces do appear, delete them with END (the erase to end of field key). You may also fill the field with question marks (?).

To see a list of all files that share a common filename, you can enter the filename followed by question marks or asterisks. For example, to see all BENCHMRK files, you can enter:

BENCHMRK.???

or

BENCHMRK.*

Once the fields are completed and you are ready to copy the file(s) indicated, press F10. The file(s) will be copied automatically and you will see the message COPIED in the lower righthand corner of the screen. Press ESC to exit from the Copy function.

To confirm that the file(s) has been copied, press F10 to see a directory of files on the drive you have copied the file(s) to.

AD-6.4.3 To Delete Operating System Files

To delete a file, enter the drive letter, filename, and extent of the file you want to delete in the Show File(s):

> _____ < field. If you do not know this information, you

can search for the file by displaying a directory of files stored on any drive you designate. (See AD-6.4.1 To Display a Directory for instructions.)

Complete the field in the same manner as you complete fields in the Copy function. For example, to delete the Word Processor from drive C, you would complete the field as follows:

Show File(s): >C:BENCHMRK.WPS

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Once the field is completed, press **F3**. You will be prompted to:

**Press F10 to Delete File(s):
C:BENCHMRK.WPS; ESC to Stop**

STATUS:

To perform the deletion, press **F10**. The file(s) will be deleted automatically. When the file is deleted, the status line will show the name of the file that was deleted:

STATUS: C:BENCHMRK.WPS deleted

Press **ESC** to exit from the Delete function.

To confirm that the file(s) has been deleted, you can display a directory of the files on the drive where the file was stored. (See AD-6.4.1 To Display a Directory for instructions.)

WARNING: If you press F10 without indicating which specific files to delete from the drive indicated, The BENCHMARK will erase all files stored on that drive. For example, pressing F10 when the field displays

B:??????????????

will result in the deletion of all files currently stored on drive B.

Before pressing F10, be certain that you have completed the Show File(s): field to reflect only the specific files you want to delete.

AD-6.4.4 To Read ASCII Files

The Read Files function allows you to convert files written in ASCII format into BENCHMARK format so that they can be used in conjunction with the Word Processor. All control codes are stripped from the files in the process.

To read a file into BENCHMARK format, enter the drive, filename and extent of the file into the

Show File(s):>____ < field. Press **F4** to access the Read a File option. You will be prompted:

Read File: >_____< To Drive: >_<

Enter Drive, Filename and Extent for File to be Read and Output Drive
F10 to Read the File **ESC** to Return

Enter the drive, filename, and extent of the ASCII file to be converted into BENCHMARK format into the Read File: >_____< field. Then enter the drive where you want the file to be stored once it has been converted. When the fields are completed, press **F10** to perform the conversion. The file will be read into BENCHMARK format automatically.

AD-6.5 Write Operating System Files

The Write Operating System Files functions performs the reverse operation of the Read OS Files function (AD-6.4.4). The Write function converts files in BENCHMARK format to ASCII format so that they can be used in conjunction with other program that use ASCII files.

To access this function from the File Management menu, move the cursor to that line and press **F10**. You can also access this function by typing **w**. You will be prompted to:

Enter Drive to Select Files From: >_<
F10 to Continue or **ESC** to Return

Enter the letter that corresponds to the drive from which you want to select files to be written into ASCII format. Then press **F10**.

All of the files stored on the drive you have designated will be displayed on the screen. At the left margin is a >_< field in which you can enter **c** beside each file that you want to convert to ASCII format. After you have selected all the files you want to convert, press **F10**.

You will be prompted to designate the drive where you want the files to be stored after they have been converted:

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**Output Files to DOS Drive: >_<
F10 to Write the Files, ESC to Stop**

Enter the letter that corresponds to the drive where you want the files to be stored. Then press **F10** to perform the conversion. As the computer writes the files, you will see a message that indicates which file is being converted.

After all the files you have selected have been written into ASCII format, you will return automatically to the File Management menu.

AD-6.6 Directory Maintenance

The Directory Maintenance function is used to reconstruct your BENCHMARK directory whenever something has occurred to destroy the directory information. This may occur, for example, when you inadvertently copy files on top of the directory file.

You will also need to do a directory maintenance if you copy BENCHMARK files any way other than the Copy BENCHMARK File(s) feature of the File Manager.

The BENCHMARK directory is stored on disk as a separate file under the filename BENCHMRK.DIR. If this file is damaged, you may not be able to display files in the directory. Use Directory Maintenance to correct this condition.

For example, if you are attempting to display files and you see the error message:

SYSTEM ERROR 09

or

Not a Metasoft Volume; Press C-Continue

this message indicates that the directory information has been destroyed and must be corrected with Directory Maintenance.

To perform Directory Maintenance, move the cursor to Directory Maintenance on the File Management main menu. Press **F10**. You will be prompted:

**Fix Directory for Drive: >_<
Enter Drive Letter and Touch F10 to
Initiate Directory Fix
Touch ESC to STOP Now**

Enter the letter of the drive containing the directory file to be fixed. Press F10 and you will see the message:

Fixing Directory for Drive A

The drive letter you have indicated will appear in this message.

When Directory Maintenance is complete, you will return automatically to the File Management main menu.

AD-6.7 Import BENCHMARK Files

Import BENCHMARK Files is a program that allows you to add a BENCHMARK file to your directory without having to go through Directory Maintenance. If you use a telecommunication program other than The BENCHMARK Telecom, it will be necessary to run Import BENCHMARK Files so that the BENCHMARK directory file will recognize the files you have transmitted.

Another reason to use this feature is to import BENCHMARK files whose names have been changed for some reason or another. For example, BENCHMRK.A01 has been changed to TEST.A01. Running the Import BENCHMARK File program will add the file to your directory and change its name back to BENCHMRK.

To import a BENCHMARK file into your BENCHMARK directory, move the cursor to the Import BENCHMARK Files line and press F10. You will be prompted:

**Read Benchmark File:>A:filename.ext<
Enter Drive & Filename & Touch F10 to Import File
Touch ESC to STOP now**

Enter the drive and filename of the file you wish to import and press F10. You will be prompted:

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**Import Files to Drive:>A<
Enter Drive Letter & Touch F10 or
Touch ESC to STOP now**

Enter the letter of the drive where your BENCHMARK directory is located and press F10. You will see the message "Import in Progress". When the process is complete you will be asked:

Delete Input File; Y-Yes or N-No

If you want to keep the input file, press Y. If you don't want to keep the file, press N. It will be deleted and you will be left with the file that is now in your BENCHMARK directory.

AD-7 Merge Functions

Merge Functions allow you to merge information from one of several sources into a document that you have created previously with the Word Processor. This option integrates The BENCHMARK full-featured software.

To select this option from the Administrator menu, move the cursor to that line and press F10. Your screen will display the Merge Functions Menu:

THE BENCHMARK ®	
M E R G E P R O C E S S O R	
MERGE FROM:	MAIL LIST KEYBOARD DATA BASE ASCII FILE
SELECT FUNCTION AND PRESS F10 OR ESC TO QUIT	
COPYRIGHT ©1986 BY METASOFT CORPORATION	

Merging from the keyboard enables you to type information into the document file from the keyboard as it is requested. If you choose to merge from a data base, you can select information from a file that you have created previously with the Data Manager. The Mail List Merge allows you to merge names from your mail list with a pattern document. The ASCII file merge lets you merge information from an ASCII file into a pattern document to produce mass mail-outs.

Designate the source of the information you want to merge into a document file by moving the cursor to the appropriate line and pressing F10. Or you can type in the first letter of the Merge type you want, e.g., d for Data Manager. You will be asked to choose a pattern document.

AD-7.1 Selecting a Pattern Document

The pattern document is the Word Processor document that you want to merge information into. The pattern document must have been created with fields into which variable information can be merged from other sources. (See your Word Processor manual (Pattern Document) for instructions on creating this type of document.)

After you have chosen the source of the information you want to merge, you will be prompted to select a pattern document:

```
MERGE - PLEASE ENTER PATTERN DOCUMENT'S DRIVE AND FILE NO.
      PRESS F10 TO CONTINUE OR ESC TO RETURN
DRIVE: >B<
FILE NUMBER: >__<      PRESS: F1 TO DISPLAY FROM 1ST FILE
REVISION LETTER: >_<      F2 TO DISPLAY FROM >__<
```

To select a pattern document, enter the letter of the drive where it is stored and its file number and press F10. If you do not know this information,

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you can see a display of the directory of the drive designated in the Drive: >__< field by pressing either F1 or F2.

AD-7.2 To Select Keyboard Merge

To merge information from the keyboard into a Word Processor document, first select the pattern document as instructed above. You will now be asked to select the way the merged information is to be output:

DRIVE: A	THE BENCHMARK ®	999 K REMAINING
MERGE PROCESSOR		
OUTPUT TO:	THE PRINTER A DOCUMENT PRINTER AND DOCUMENT	

You can choose from three options. Information output to the printer will be printed immediately but not saved on disk. Information output to a document will be saved on disk for printing in the future. Information output to printer and document will be both printed immediately and saved on disk for future use.

If you select either A Document or Printer and Document, you will be prompted to title the document and designate which drive it is to be stored on:

MERGE - PLEASE ENTER OUTPUT DOCUMENT'S DRIVE AND TITLE	
PRESS F10 TO CONTINUE OR ESC TO RETURN	
TITLE: >_____<	AUTHOR'S INITIALS: >__<
	OPERATOR'S INITIALS: >__<
	SAVE IN DRIVE: >B<

Fill in this panel as instructed above and press **F10**. After you have selected the output, the screen will display each variable field in the document so that you can type in the information requested:

```

DRIVE: A                THE BENCHMARK (R)                999 K REMAINING
                        M E R G E   P R O C E S S O R

                        V A R I A B L E   I N F O R M A T I O N   R E Q U E S T E D

WHAT IS?
(VARIABLE FIELD)
> _____<

_____
ENTER VARIABLE DATA
PRESS F10 TO INSERT VARIABLE OR ESC TO SKIP
  
```

To enter information, simply fill in the field provided and press **F10** to insert the variable in the pattern document. To insert a variable that extends beyond one line, type `[]` at the end of the first line. This automatically extends the variable field by another line. If you do not wish to include a certain variable in the Merge, press **ESC** to display the next variable in the pattern document. Edit the field as you would any other field.

When all the variables in the pattern document have been displayed, you will see the message:

MERGE in Progress

NOTE: Sometimes the buffer on your printer will fill up before all of the variables have been filled in. In this case, part of the document will be printed and then you will be asked to fill in the remaining variables.

After the Merge has been completed and the resulting information sent to the printer, to a document, or to both, you will be prompted:

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Merge Finished
Press F10 to Process Pattern Document Again,
or ESC to Stop Processing Now

Pressing F10 causes the process to begin again until you have processed all the documents you require. Pressing ESC returns you to the Merge Processor Menu.

AD-7.3 To Select a Data Base Merge

After you have selected a pattern document as instructed above, you will be asked to select a data base file (created with The BENCHMARK Data Manager) to input information from:

Fill in this panel by the same method that you selected the pattern document. Should you attempt to select a file other than a data base file, you will be prompted:

Incompatible File Type; Press: C-Continue

Pressing c returns you to the Merge Processor Menu where you can begin again.

When you have selected a data base file, you will be asked to designate output.

DRIVE: A	THE BENCHMARK ®	999 K REMAINING
M E R G E P R O C E S S O R		
OUTPUT TO:	THE PRINTER A DOCUMENT PRINTER AND DOCUMENT	

You can choose from three options. Information output to the printer will be printed immediately but not saved on disk. Information output to a document will be saved on disk for printing in the future. Information output to printer and document will be both printed immediately and saved on disk for future use.

If you select either A Document or Printer and Document, you will be prompted to title the document and designate which drive it is to be stored on:

MERGE - PLEASE ENTER OUTPUT DOCUMENT'S DRIVE AND TITLE		
PRESS F10 TO CONTINUE OR ESC TO RETURN		
TITLE: >_____<	AUTHOR'S INITIALS: >__<	
	OPERATOR'S INITIALS: >__<	
	SAVE IN DRIVE: >B<	

Fill in this panel as instructed above and press **F10**. From here you will be prompted to select limits for records to be merged.

AD-7.3.1 Selecting Limits

The purpose of limiting the information to be merged from a data base is to allow you to tailor the Merge to your own particular needs. For example, if you wish to target customers living in the Phoenix, Arizona area to receive a special

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mailing, you can limit the Merge to zip codes 85001 through 85099.

You will see the field names from a data base displayed on your screen. Across the bottom of the screen, the function keys are listed. In the process of selecting limits, they function as follows:

<u>KEY</u>	<u>FUNCTION</u>
F1-First	Returns to the first screen of field names
F2-Scroll	Moves to the next screen of field names
F3-Merge	Executes the Merge
F4-Modify	Allows you to change limits you have already set
F5-Add Limit	Allows you to add a limit
F6-Delete	Deletes a limit you have set previously
F7-Next	Displays the next limit in fields where multiple limits have been set

To limit a field, move the cursor to the field name and press F5 to add a limit. The bottom of your screen will display:

FIELD NAME:	FROM: > _____ <
	THROUGH > _____ <
ENTER LIMIT VALUES INTO THE FIELDS.	
PRESS F10 WHEN COMPLETE OR PRESS ESC TO RETURN.	

The cursor will appear beside the FROM line until you have entered the information for the first record you want to merge into the document. In our example of a customer mailing, the FROM limit would be 85000. Next, enter the information for the last record you want to be merged. In our example, this would be 85099. Press F10. An asterisk (*) will appear beside the field you have limited. You can perform the Merge at this point by pressing F3, set additional limits by pressing F5, or delete (F6) or modify (F4) limits you have already set.

You may set more than one limit in any given field by pressing F5. You will see the FROM and THROUGH lines again. The message MORE will appear to indicate that you have already set some limits in this field. Enter additional limits and press F10. For example, if we wish to add customers in the Columbus, Ohio area to our targeted mailing, we can do so by entering limits FROM 43200 THROUGH 43299 in addition to the limits 85000 through 85999.

Pressing F4 causes a limit you have set previously to be displayed so that you can edit it by merely typing over the existing limit and pressing F10.

Pressing F6 deletes the limit in the field that is highlighted by the cursor.

Pressing F3 causes the Merge to be performed. You will see a screen with the key fields of your data base. A prompt asks you to select the key. Press F10 to bypass this screen. You will then be asked if the key was selected. Press Y. You will see the message:

Merge in Progress

When the Merge is complete, you will return to the Merge Processor Menu.

AD-7.4 Mail List Merge

After you have selected a pattern document as instructed above, you will be asked to select a mail list file to input information from:

SELECT INPUT	
PRESS F10 TO CONTINUE OR ESC TO RETURN	
DRIVE: >B<	
FILE NUMBER: >_<	PRESS: F1 TO DISPLAY FROM 1ST FILE
REVISION LETTER: >_<	F2 TO DISPLAY FROM >01<

Fill in this panel by the same method that you selected the pattern document. Should you attempt to select a file other than a mail list file, you will be prompted:

Incompatible File Type; Press: C-Continue

Pressing **c** returns you to the Merge Processor Menu where you can begin again.

When you have selected a mail list file, you will be asked to designate output.

DRIVE: A	THE BENCHMARK [®]	999 K REMAINING
M E R G E P R O C E S S O R		
OUTPUT TO:	THE PRINTER A DOCUMENT PRINTER AND DOCUMENT	

You can choose from three options. Information output to the printer will be printed immediately but not saved on disk. Information output to a document will be saved on disk for printing in the future. Information output to printer and document will be both printed immediately and saved on disk for future use.

If you select either A Document or Printer and Document, you will be prompted to title the document and designate which drive it is to be stored on:

```

MERGE - PLEASE ENTER OUTPUT DOCUMENT'S DRIVE AND TITLE

PRESS F10 TO CONTINUE OR ESC TO RETURN

TITLE: >_____<
AUTHOR'S INITIALS: >__<
OPERATOR'S INITIALS: >__<
SAVE IN DRIVE: >B<

```

Fill in this panel as instructed above and press F10. The merge process will begin. When it is complete, you will be returned to the Merge Processor menu.

AD-7.5 ASCII File Merge

The ASCII file to be merged must contain the field name information in the first line of the ASCII file (EX: LAST NAME, FIRST NAME, AGE). Fields must be separated by commas.

NOTE: Do not use commas to separate items within fields, such as Street A, Apt. B.

If the ASCII file does not contain field names, use the DOS command EDLIN to create a file that contains the necessary field names in the above format.

EXAMPLE: At the system prompt (A>) type: "edlin a:field.nam" and press RETURN. An asterisk (*) will appear. Press I to insert text. The first line will appear (1*). Type the field names here (FIRST NAME, LAST NAME, AGE, etc), using only one line and separating the fields by commas. When that is done press RETURN. The second line will appear (2*). Press CTRL/Z at the same time. The asterisk will appear. Press E to end the edit.

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Copy that file plus the ASCII file to another file, which will then be used for the merge.

EXAMPLE:

```
A>COPY A:FIELD.NAM+A:ASCII.FIL B:MERGE.FIL
```

Set up the form letter as shown in the Word Processor manual (Pattern Document), being sure to include a hard page break at the end of the form letter. Make sure that the field names contained in the brackets of the form letter exactly match the field names of the ASCII file.

From the Merge Processor menu, select ASCII merge by moving the cursor to that line and pressing F10, or by pressing A. You will be asked to select a pattern document. After you have selected a pattern document as instructed above, you will be asked to select an ASCII file to input information from:

Enter DOS File Descriptor as
"Drive:\Path\Filename.Ext"

> _____ <

Enter the drive where the ASCII file that you want to merge is located, the path (subdirectory), if any, and the filename and extension of the ASCII file.

Example: >A:SAMPLE.ASC< or
>A:\BMRK\SAMPLE.ASC<

NOTE: You do not need to set the path if you are using a file in the same directory as your pattern document. Press F10.

Should you attempt to select a file other than an ASCII file, you will be returned to the Merge Processor menu to try again.

When you have selected an ASCII file, you will be asked to designate output.

DRIVE: A	THE BENCHMARK [®]	599 K REMAINING
M E R G E P R O C E S S O R		
OUTPUT TO:	THE PRINTER A DOCUMENT PRINTER AND DOCUMENT	

You can choose from three options. Information output to the printer will be printed immediately but not saved on disk. Information output to a document will be saved on disk for printing in the future. Information output to printer and document will be both printed immediately and saved on disk for future use.

If you select either A Document or Printer and Document, you will be prompted to title the document and designate which drive it is to be stored on:

MERGE - PLEASE ENTER OUTPUT DOCUMENT'S DRIVE AND TITLE	
PRESS F10 TO CONTINUE OR ESC TO RETURN	
TITLE: > _____<	AUTHOR'S INITIALS: >__<
	OPERATOR'S INITIALS: >__<
	SAVE IN DRIVE: >B<

Fill in this panel as instructed above and press F10. The merge process will begin. When it is complete, you will be returned to the Merge Processor menu.

AD-7.5.1 Merge to Columns

Set up the ASCII file as mentioned above in section AD-7.5. Set up the pattern document the same way you would for any merge, but use a Tab line with the indents set for columns:

The BENCHMARK

```
#-PAGE FORMAT
.....|.....|.....<
[NAME ]> [ADDRESS ]> [AGE ]<
```

REMEMBER: Field names must be identical to field names in the first line of the ASCII file, both in punctuation and in capitalization.

Once you have established your indents and any other fixed formats (ie. headers, footers, titles, etc.) assign all of the fixed formats to a library key then delete the page format, tab line and any other fixed formats. Your document will now look something like the example below. Finish the document.

```
[NAME]>[ADDRESS]>[AGE]<
```

From the Merge Processor, select ASCII Merge. You will be asked to select a pattern document. After you have selected a pattern document as instructed above, you will be asked to select an ASCII file to input information from:

Enter DOS File Descriptor as
"Drive:\Path\Filename.Ext"

```
> _____<
```

Enter the drive where the ASCII file that you want to merge is located, the path (subdirectory), if any, and the filename and extension of the ASCII file.

Example: >A:SAMPLE.ASC< or
>A:\BMRK\SAMPLE.ASC<

NOTE: You do not need to set the path if you are using a file in the same directory as your pattern document. Press **F10**.

Should you attempt to select a file other than an ASCII file, you will be returned to the Merge Processor menu to try again.

When you have selected an ASCII file, you will be asked to designate output.

DRIVE: A	THE BENCHMARK ®	999 K REMAINING
MERGE PROCESSOR		
OUTPUT TO:	THE PRINTER A DOCUMENT PRINTER AND DOCUMENT	

Select A Document by pressing A. You will be prompted to title the document and designate which drive it is to be stored on:

MERGE - PLEASE ENTER OUTPUT DOCUMENT'S DRIVE AND TITLE		
PRESS F10 TO CONTINUE OR ESC TO RETURN		
TITLE: >_____<	AUTHOR'S INITIALS: >__<	
	OPERATOR'S INITIALS: >__<	
	SAVE IN DRIVE: >B<	

Fill in this panel as instructed above and press **F10**. The merge process will begin. When it is complete, you will be returned to the Merge Processor menu.

Go to the Word Processor and select Revise a Document by pressing R and revise the document you just merged the ASCII file to. It will resemble the example below:

John Smith>Box 456>33
Jane Doe>111 1st Street>24

The BENCHMARK

At the top of the page, recall the library phrase containing your page format, tab line and any other fixed format information. All of the merged data will then be reformatted into columns:

*-PAGE FORMAT		
.....<		
JOHN SMITH	BOX 456	33
JANE DOE	123 FIRST ST.	24

AD-7.5.2 Convert DIF Files to ASCII Format

If the file you wish to merge is in DIF format you can convert it to ASCII format by reading it into the Financial Planner and then printing it to disk in ASCII format.

Call up the Financial Planner (F3). You must first format the spreadsheet for the order you wish the DIF file to be processed. If your file is in row order (NAME, AGE, PHONE), type /GTDD. This will process the information DOWN the page:

ROW 1
ROW 2
etc.

If your file is in column order:

NAME NAME
ADDRESS ADDRESS

type /GTDA. This will process the information ACROSS the page: COLUMN 1, COLUMN 2, etc.

When the processing order has been set you are ready to read in the DIF file. Type /SXI. You will then be asked for the DIF file input name. Type this (preceded by a drive letter if different from the drive the spreadsheet is running on) and press RETURN.

You will now be asked "Write DIF Data to Cell?". If you know how many rows and columns are in the DIF file, allow that many cells. EX: 150 names with 7 fields (name, address, age, etc.) in row format = 7 columns and 150 rows, therefore, file is written to cell G150.

Type in the cell name that the DIF file will be written to and press RETURN. The DIF file will now appear on the screen in the correct order.

NOTE: If you do not know how many cells the file will contain, just press RETURN without a cell name.

Make any necessary changes at this point. EX: Add field names to beginning of file.

To write an ASCII file with the Financial Planner you must first designate the character to be used to separate the columns. YOU MUST USE A COMMA. To do this, type /GTC, and press RETURN. A "C," will appear in the lower right portion of the screen to indicate that the column separator has been set to a comma.

Now you are ready to print (write) the file to the disk in ASCII format. Type /EP. You will be asked "Disk Print File Name?". Type the drive letter and filename of the ASCII file you are going to write. Make it something easy to remember. You may use an extension if you wish. Press RETURN.


You will now be asked "Cut to Cell?". This will be the same parameter that you set when you brought the DIF file into the spreadsheet (ex: G150). Enter this information and press RETURN (or just press RETURN without a cell name). The file will be written to disk in ASCII format with the name that you gave it.

Exit to the Administrator and follow the procedures given in section AD-7.5, as needed, to complete the merge.

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AD-7.6 Selecting Output

Regardless of the type of Merge you are performing, you will be required to designate how the merged information will be output:

DRIVE: A	THE BENCHMARK 	999 K REMAINING
M E R G E P R O C E S S O R		
OUTPUT TO:	THE PRINTER A DOCUMENT PRINTER AND DOCUMENT	

You can choose from three options. Information output to the printer will be printed immediately but not saved on disk. Information output to a document will be saved on disk for printing in the future. Information output to printer and document will be both printed immediately and saved on disk for future use.

If you select either A Document or Printer and Document, you will be prompted to title the document and designate which drive it is to be stored on:

MERGE - PLEASE ENTER OUTPUT DOCUMENT'S DRIVE AND TITLE	
PRESS F10 TO CONTINUE OR ESC TO RETURN	
TITLE: > _____<	AUTHOR'S INITIALS: >__<
	OPERATOR'S INITIALS: >__<
	SAVE IN DRIVE: >B<

Fill in this panel as instructed above and press **F10**. From here you will be prompted to select limits for records to be merged or the Merge will begin automatically, depending on the type of Merge you have selected.

When the Merge is complete, you will return automatically to the Merge Processor Menu.

AD-8 Operating System Utilities

The Administrator is completely configurable to your particular needs. For your convenience, you can install operating system utilities such as disk formatting, disk status, and IO status as options on your Administrator. This allows you to perform these common operations without having to exit The BENCHMARK program.

AD-8.1 To Install an Operating System Utility

To install an operating system utility on your Administrator, select the Installation function from the Administrator Menu by moving the cursor to that function and pressing F10. The Configuration screen will appear. It looks almost exactly like the Administrator screen, but it has the word "Configuration" in a highlighted block under The BENCHMARK name.

Position the cursor to the line on the Administrator menu where you want the program name to appear. Press F10.

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Your screen will display:

THE BENCHMARK (R)	
C O N F I G U R A T I O N	
PROGRAM'S NAME FOR ADMINISTRATOR:	> _____ <
RUN PROGRAM FROM DRIVE:	>_<
PROGRAM'S FILENAME IS:	>_____< >_<
WILL PROGRAM DISK HAVE TO BE MOUNTED BEFORE RUNNING PROGRAM?	>_< (Y/N)
LOAD PROGRAM AS A PRIMARY? (Y/N)	>N<

ENTER A NAME, PROGRAM DRIVE, FILENAME AND EXTENT
PRESS F10 TO INSTALL, F1 TO DELETE, OR ESC TO STOP

Enter the program name exactly as you wish it to appear on the Administrator menu. Then enter the letter that corresponds to the drive that you want the program to be run from. Next, enter the program's file name as it appears in the operating system directory. For example,

>FORMAT < >COM<

Finally, you will be asked to determine whether the program disk containing this program must be mounted each time the program is run. This is useful when there is insufficient disk space to contain the program on the same disk where other programs are stored. The default response is n. To require that the program disk be mounted, enter y in this field.

When this panel is complete, press F10. You will be asked to enter a parameter list to be passed to the program on execution. A parameter list is a set of information that you provide and that is passed to the program as it is run so that it can execute commands correctly.

Your screen will display:

```
ENTER PARAMETER LIST TO BE PASSED TO PROGRAM ON EXECUTION.
ENTER A "?" TO ENTER PARAMETERS AT EXECUTION TIME.

> _____ <
PAUSE AT PROGRAM TERMINATION (Y/N)? >N<

ENTER ANY DESIRED PARAMETERS OR A "?"
PRESS F10 TO CONTINUE, OR ESC TO STOP
```

Enter any parameters that may be necessary for the utility to function properly (such as B: if you want to format drive B). Entering a ? in this field will cause a prompt to ask for parameters each time the program is run. This is useful when parameters are variable.

Determine whether or not you want to include a pause after the program is run. Then press F10.

The operating system utility will be installed automatically, and you will be returned to the Administrator menu. Press ESC to exit from the Installation function and return to the Administrator.

AD-8.2 To Install .EXE and .BAT Files

NOTE: This feature is available only in conjunction with DOS version 2.0 or subsequent releases.

The previous section describes the procedure for installing command files (those with extents of .COM). To install any file with an extent of .EXE, follow the instructions outlined above. .EXE files are installed in exactly the same manner as .COM files.

Batch files (those with extents of .BAT) are installed by a different method. In effect, a batch file is executed by executing a new copy of the

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program COMMAND.COM and then sending this program the name of the batch file you want to execute.

If you are running The BENCHMARK from a subdirectory and you wish to install Format a Disk, for instance, you will have to create a batch file on your subdirectory that accesses the format command. If you are running on drive C from the BMRK subdirectory, your batch file should be written:

Format B:

To install a batch file, follow the steps above to enter the name of the file to be displayed on the Administrator menu.

Enter the filename of the file to be executed as:

>COMMAND <->COM<

NOTE: There must be a copy of COMMAND.COM in the subdirectory you are currently using to enable you to execute the batch file.

Press F10 and you will be prompted to input parameters to be passed to the program. Enter:

/C Filename.bat

This will inform the new copy of COMMAND.COM to execute the batch file.

If the batch file alters the logged in directory, it must return to the directory containing BMRK.COM before exiting.

If any keyboard (console) modifications are made during the execution of a batch file, they must be restored before returning from the execution of the batch file.

GLOSSARY OF COMMON TERMS

Alphanumeric	Data that consists of letters, numerals, and symbols.
Applications	Various specific uses of the computer, e.g., word processing, data base management, and graphics.
ASCII	American Standard Code for Information Interchange. A file written in ASCII code can be read by different brands and types of computers.
Backup	The process of copying data and instructions onto disk or tape in case the original disk or tape is damaged or lost. ALL valuable data and programs should be backed up.
Baud	A term used in measuring the speed at which information is telecommunicated (transmitted) from one computer device to another.
Boot	To load operating system software into the computer's memory.
CANCEL	A key (sometimes referred to as ESCAPE) that causes input to be disregarded.
Configuration	The interconnection of computer hardware and software to function as a system. Also referred to as installation.
Cursor	A character that appears on the screen to indicate where the next character typed will appear. Usually a flashing box or underline character.

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Data	Information that can be read, processed, and output in some form by the computer.
Data base	A vast amount of computer-stored information that can be accessed and updated at any time.
Data disk	A disk used for document or other data storage. Since the data disk does not contain the program instructions, it can only be used in conjunction with the program disk.
Data Interchange Format	A standard format for storing files so that they can be read by various computers.
Default	Information that has been preprogrammed for your convenience. The computer automatically refers to default information unless you change the information.
Delete	To erase data that has been entered into the computer.
Directory	A listing of the names and locations of files stored on disk.
Disk	A thin, oxide-coated platter used to record data or program instructions. Sometimes referred to as a diskette. See also floppy disk and hard disk.
Disk drive	The physical part of the computer that reads data from and writes data onto disks.
EXECUTE	A key that causes an instruction or routine to be performed.

Field	A space within a record where a specific type of information can be entered, e.g., name or account number.
Field name	The name assigned by the user to a field to indicate the type of information the field contains.
Fixed disk	A hard disk that is sealed inside the computer and cannot be removed by the user.
Flag	See tag.
Floppy Disk	A flexible, oxide-coated platter used to record data or program instructions. Standard floppy disk sizes are 8" and 5-1/4".
Form	A format for the placement of fields in a record.
Form feed	Scrolling of paper in the printer to the top of the next page.
Function key	A key that does not type text, but rather executes commands that have been assigned to it previously.
Grid	A pattern comprised of equidistant parallel horizontal and vertical lines.
Hard copy	A printed copy of a document or other file.
Hard disk	A rigid oxide-coated disk used to record data and program instructions. Hard disks provide faster access to data and greater storage capacity than floppy disks. See fixed disk.

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Hardware	The physical equipment that makes up the computer system: keyboard, terminal, disk drives, etc.
Justify	To align text so that both right and left margins are even and straight.
K (kilobyte)	A measurement of memory size, equivalent to 1,024 bytes of data.
Key	A field within a record used to organize records for storage and retrieval. A specific record can be located by entering its key into the computer.
Mbyte	A measurement of memory size, equivalent to one million bytes of data.
Memory	Storage of data and program instructions within the computer itself. Memory size is measured in kilobytes or megabytes.
Menu	An on-screen list of functions that a program performs and instructions for using these functions.
Operating system	Software that controls routine maintenance procedures performed by the computer, such as copying and formatting disks.
Parallel port	An input/output port on a board that transmits and receives data 8 bits at a time. This type of connection is generally used with printers.
Pixel	The smallest element of a graphic figure. On a CRT, a graphic figure is comprised of a pattern of tiny pixels (dots on the screen) that have been energized.

Primary disk drive	Usually the drive labelled A or 1. The drive on which programs are stored.
Primary key	Where the user can designate more than one key, the primary key is the most significant key, i.e., the key that determines the order in which records are stored.
Printer spooler	Software that allows a special program and memory area to hold output to be printed, enabling the user to simultaneously perform other tasks on the PC.
Program disk	A disk used primarily to store program instructions. Other data may be stored on the program disk, but disk space is limited by the storage of program instructions.
Prompt	An on-screen message that provides instructions or requests information.
RAM	Random-access memory is a memory device that stores information in which data can be accessed directly from any location without following a sequence of storage locations.
Read	The process of retrieving data from an output medium such as a hard or floppy disk.
Reboot	See reset.
Record	A set of fields that contain information on a given subject. See field.
Reset	To return a device to the condition it is in when it is first powered on.

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ROM	Read-only memory is a memory chip that stores permanent program instructions.
Serial port	An input/output port on a board that allows data to be transmitted and received one bit at a time.
Tag	A field containing information that distinguishes one record from others. Also called flag.
Undelete	To prevent the deletion of data that has been previously marked for erasure.
Variable	Information that is subject to change, such as names and addresses on form letters.
Word wrap	Ability of the computer to automatically begin a new line of text when it nears the end of the current line.
Write	The process of recording data onto an output medium such as a hard or floppy disk.
Zoom	To enlarge a graphic image on the screen.

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QUICKSTART

The Quickstart is a thumbnail tutorial designed to get you up and running with The BENCHMARK Graphics. This tutorial guides you through the process of creating an image, saving the image in memory, changing the image, writing the image onto disk, and recalling the image to the screen. Upon completion of this tutorial, you will be familiar with several fundamental commands of The BENCHMARK Graphics.

Your major objectives in this lesson are:

1. To create an image with several primitive commands,
2. To name the image and save it in memory,
3. to display a list of image components,
4. to write an image onto disk.

ACCESSING GRAPHICS

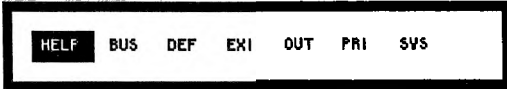
Step 1: Your screen will display The Administrator menu. Press F2 to load Graphics.

THE BENCHMARK [®]		
ADMINISTRATOR		
F1: WORD PROCESSOR	NOTEBOOK	MAIL LIST
F2: GRAPHICS	MESSAGES	TELECOM
F3: 3-D SPREADSHEET		
F4: DATA MANAGER		
F5: SPELLING CHECKER		
F6: MERGE PROCESSOR		
F7: FILE MANAGER		
F8: FONT BUILDER		
		DEFAULT DRIVE
		CHANGE PRINTERS
		PROGRAM INSTALLATION
SELECT FUNCTION AND PRESS F10 OR PRESS ESC TO EXIT		
COPYRIGHT [©] 1986 BY METASOFT CORPORATION		

The BENCHMARK

CREATING AN IMAGE

Step 1: Your screen will now display the main command line:



NOTE: Wherever you are directed to enter a three-letter command, you can do so in one step by typing the command and pressing RETURN.

To Draw a Circle

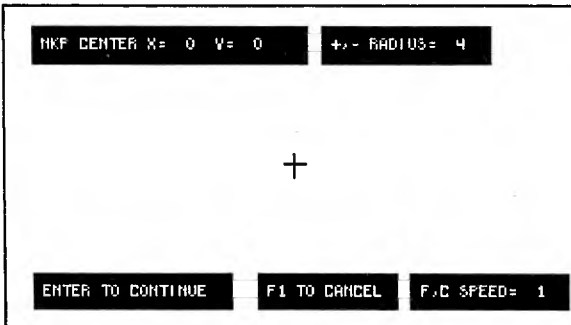
Step 2: With the right arrow key, move the cursor to pri on the command line and press RETURN to access the primitive command line:



The arrow at the end of the line indicates that more commands follow. Move the cursor to the end of the line with the right arrow key to see the second line.



Move the cursor to cir and press RETURN to draw a circle. Your screen will display:



The crosshair cursor in the center of the screen indicates the position of the circle. You can move the cursor with the numeric keypad. When the cursor is positioned where you want the circle to appear, press RETURN and a small circle will appear at the cursor position.

Note the menu of active keys displayed on the screen. Use the + (plus) key to enlarge the circle and the - (minus) key to reduce it. Press c and the circle will increase or decrease at a faster rate with each keystroke. Press f to decrease the rate at which the circle changes its size. Make sure that your capital letter lock is not on; only lowercase letters will be accepted. You can still move the circle to a different position with the numeric keypad.

When the circle is drawn to your satisfaction, press RETURN. You will return to the primitive command line.

To Draw a Rectangle

Step 3: Move the cursor to rec and press RETURN to draw a rectangle.

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Move the cursor with the numeric keypad to the position where you want the rectangle to appear and press RETURN.

Use the arrow keys to draw the rectangle in the shape you want. Use the numeric keypad to move the rectangle on the screen. When the rectangle appears as you want it, press RETURN.

To exit from the primitive command line to the main command line, use the left arrow key.

To See a Definition of the Image on Screen

Step 4: Type = (equal sign) at the command line, and you will see a definition--or list of components--of the image you are creating. The list will be:

> = cir rec ?

The terms cir and rec show that the current screen image includes a circle and a rectangle. The ? (question mark) at the end tells you to press any key to continue.

Any time you clear (clr) the screen, the defaults are reset to "set mode" and color one (1).

To Name Your Image (Save it in Memory)

Step 5: To assign a name to your image and thereby save it in memory, move the cursor to sys and press RETURN to access the system command line:



Move the cursor to nam and press RETURN. You will be prompted:

name: >

Type image and press RETURN.

You will return to the command line. In the lower righthand corner of the screen is a message that confirms the naming procedure: saved image.

To Clear the Screen

Step 6: Move the cursor to sys and press RETURN. Move the cursor to clr and press RETURN.

Your screen will clear automatically.

To See a List of Definitions in the Current Dictionary

Step 7: Move the cursor to def and press RETURN to see a list of image definitions in the current dictionary. This will confirm that your definition saved with the nam command is included in the dictionary in memory. You will see:

HELP image

Press the left arrow key to return to the main command line.

To Recall Your Image to the Screen

Step 8: As you save images in the dictionary, they become commands that you can enter to recall the images to the screen.

Type image. Press RETURN.

Your image is now displayed automatically.

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When the image is recalled in this way, it can be moved on the screen with the numeric keypad, zoomed up or down with the + and - keys, or rotated with the up and down arrow keys. Press RETURN when the circle is positioned and zoomed as you want it.

To Create a New Image

Step 9: You can use the image on your screen as part of a new image by adding other components to it.

To add an arc to your image, move the cursor to pri and press RETURN. Now move the cursor to arc and press RETURN.

Use the numeric keypad to move the cursor to the place where you want the arc to appear. Press RETURN.

A small arc will appear at the cursor position. Use the arrow keys to change the angle of the arc and the + and - keys to increase or decrease its size. When the arc is drawn, press RETURN.

To Name the New Image

Step 10: Move the cursor to sys and press RETURN. Move the cursor to nam and press RETURN. You will be prompted:

name: >

Type image2. Press RETURN.

You will see the message: saved image2

To See a Definition of Image2

Step 11: To see a list of the components of any image that you have named and saved in the dictionary, you can use the who command.

Move the cursor to sys and press RETURN. Move the cursor to who and press RETURN. You will be prompted:

name: >

Type image2. Press RETURN. You will see a list of the components in image2:

image arc ?

Note that the first image you created (image) has become part of the definition of your new image (image2). You also see the arc that you added in Step 9. Press any key to continue.

To Write Your Image onto Disk

Step 12: To save your images permanently, you must write them onto disk. Otherwise, they will be lost when you exit from Graphics.

Move the cursor to out to access the output commands and press RETURN. Move the cursor to wri and press RETURN. You will be prompted:

file name (1-8 characters) >

Type image2. Press RETURN.

You will see the message "system working" to indicate that your image is being written to disk. When this is complete, you will see "disk write complete".

Before proceeding to Step 13, clear the screen again by following the instructions in Step 6.

To Reset the Image Dictionary

Step 13: To clear--or reset--the current dictionary of the image definitions that it now contains, move the cursor to sys and press RETURN. Move the cursor to res and press RETURN. You will be prompted:

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Have you written your images to disk?
Verify reset. (y/n) >

Type y to confirm that you want to reset the dictionary. To see that the dictionary has been reset, use the def command by following the instructions in Step 7. You will see:

HELP

No image names will appear, indicating that the dictionary is now empty. Press the left arrow key to return to the main command line.

To Read an Image from Disk into Memory

Step 14: To recall your image from the disk back onto the screen, you must first read it into memory. Move the cursor to out and press RETURN. Now move the cursor to rea and press RETURN.

A box in the upper left corner of the screen will display all of the graphics image files available on the default drive.

```
DRIVE : A
=====
IMAGE1 .PIX
IMAGE2 .PIX

=====
02 FILES READ
ENTER DRIVE LETTER

ENTER TO SELECT  F1 TO CANCEL
```

Move the cursor to image2 with the down arrow and press RETURN.

You will see the message "disk read completed" to indicate that "image2" has now been read into memory and can be recalled to your screen.

To Show Image2 on Your Screen

Step 15: If you want to display an image without moving, zooming, or rotating it, use the sho command.

Type sho and press RETURN. You will be prompted:

name: >

Type image2. Press RETURN. You will now see "image2" on your screen.

To Exit from The BENCHMARK Graphics

Step 16: To return to the Administrator menu, move the cursor to exi and press RETURN. You will be prompted:

Have you written your images to disk?
Verify exit. (y/n) >

Type y and press RETURN. You will return to the Administrator where you can select another program or press ESC to exit to the operating system.

INTRODUCTION

G-1 What the Graphics Does

The Graphics package is a full-featured graphics package designed to meet all of your business, personal, and educational graphics needs. With the Graphics package, you will be able to generate all types of graphic illustrations: financial and business graphs and charts, floor plans or schematic diagrams, logos for businesses and organizations, cartoons, and an endless list of other displays. In fact, the number of uses for the Graphics package is limited only by your imagination!

The Graphics offers you an efficient and economical method of creating graphic displays. Easy cursor positioning and editing functions allow you to concentrate on creativity, design, and productivity.

The Graphics operates with five basic types of commands: PRIMITIVE commands, SYSTEM commands, BUSINESS GRAPHICS commands, OUTPUT commands, and USER-DEFINED commands. Using a combination of these commands, which will be discussed more thoroughly in another section of this manual, you create figures that make up the overall screen picture--or image.

A convenient way to visualize this is to think of the figures that you create with the PRIMITIVE commands as atoms, or individual pieces of the image. When you save each of these atoms in memory, they can be recalled as groups and manipulated to form molecules, or the complete image. In order to create images (molecules), then, you are combining figures (atoms) and saving them in memory.

Images are combinations of figures and other images. An image can be a single figure such as a circle. Or it can be several figures. Or it can be constructed entirely of other images that contain figures.

A particularly attractive feature of the Graphics is that it enables you to save images in a dictionary so that they can be called up at any time. Images that you use commonly can be read from the dictionary into your screen display with a user-defined command (or image name) whereupon the image can be positioned, rotated, and zoomed as desired. The name which you assign to an image becomes a user-defined command.

G-1.1 Primitive Commands

The Primitive commands are the building blocks of the Graphics package. These commands govern the current screen display--the image you are creating. In our analogy of atoms and molecules, the Primitive commands are used to create the atoms from which the molecule--or the complete image--is formed.

Primitive commands change the picture on the screen by adding or deleting figures from the image. The image can be saved in memory or written onto the disk.

The Primitive commands are:

<u>PRIMITIVE</u>	<u>FUNCTION</u>
arc (Arc)	Draws an arc
bla (Blank)	Blanks a rectangular area of the screen without affecting the rest of the image
cir (Circle)	Draws a circle
col (Color)	Allows change of drawing color on color-supported systems
com (Complement)	Complements (reverses) a rectangular area
crv (Curve)	Draws a continuous line curve
dra (Draw)	Allows freehand drawing (line segments)
eli (Ellipse)	Draws an ellipse
fnt (Font)	Allows selection of a different font
gri (Grid)	Draws a reference point grid

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lin (Line)	Draws lines of various widths and dash patterns
mat (Mat)	Recalls an image window (a rectangular portion of an image)
mes (Mesh)	Draws line mesh patterns
pal (Palette)	Fills enclosed areas
pse (Pause)	Pauses for keystroke during rolling demos (slide shows)
rec (Rectangle)	Draws a rectangle
txt (Get Text)	Allows an ASCII file to be merged into the image
typ (Type Text)	Allows entry of text into image
set/tog (Set/ Toggle)	Changes drawing mode

G-1.2 System Commands

The System commands are used to control the data base of images you store with the Graphics package and to perform utility functions. They control operations such as naming images, writing images onto disk, deleting images, and all other utility functions. Some System commands perform data base functions, while others are used to change or edit images.

The System commands are:

<u>SYSTEM COMMANDS</u>	<u>FUNCTION</u>
clr (Clear)	Clears display screen
cut (Measure)	Measures an image for inclusion in a document
del (Delete)	Marks an image for deletion from the current dictionary
dim (Dimension)	Inserts dimension lines
dup (Duplicate)	Duplicates an existing image
edi (Edit)	Allows editing of an image
men (Menu)	Turns menu on or off
nam (Name)	Allows you to name and store an image in the current dictionary

pur (Purge)	Clears all images marked for deletion from the current dictionary
ren (Rename)	Renames an image
res (Reset)	Clears--or resets--the current dictionary
sho (Show)	Displays an image from the dictionary
und (Undelete)	Removes deletion mark from an image that has been previously marked for deletion
who (Who)	Lists the Primitives and images that comprise an image definition in the current dictionary

G-1.3 Business Graphics Commands

The Business Graphics commands allow you to generate bar charts, line graphs, and pie charts based on data you enter into the data set or data that has been merged from The BENCHMARK Word Processor or 3-D Spreadsheet. With the Business Graphics commands, you can turn your vital business information into dramatic graphic displays quickly and easily.

The Business Graphics commands are:

<u>COMMAND</u>	<u>FUNCTION</u>
cbc (Clustered Bar Chart)	Draws a clustered bar in which bars are displayed vertically
dat (Change Data Set)	Allows you to enter data for charts and graphs
hbc (Horizontal Bar Chart)	Draws a bar chart in which bars are displayed horizontally
lgr (Line Graph)	Draws a line graph
pch (Pie Chart)	Draws a pie chart

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prm (Alter Parameters)	Allows you to change parameters that govern the drawing of graphs and charts, such as line, fill, marker, and curve types, titles, and scaling
rdf (Read DIF File)	Merges data from a Data Interchange Format file, allowing you to merge data from other programs that support DIF
rst (Reset)	Resets parameters to default settings
sbc (Stacked Bar Chart)	Draws a bar chart in which bars are stacked vertically
wdf (Write DIF File)	Creates a Data Interchange Format file from data entered into the data set
xyp (X-Y Plot)	Draws an x-y plot in which coordinate points are plotted in two dimensions

G-1.4 Output Commands

The Output commands control the sending and receiving of data created with the Graphics or brought into Graphics from other files. You can save portions of images, send data to output devices, or read or write files with the Output commands:

<u>COMMAND</u>	<u>FUNCTION</u>
pic (Pick a Matrix)	Allows you to designate any rectangular window of an image for later recall
plo (Plotter)	Outputs current image to a plotter
prn (Printer)	Outputs current image to a printer
rea (Read)	Allows you to read a user-defined image dictionary that has been stored on disk
wri (Write)	Allows you to write the current dictionary of named images onto disk

G-1.5 The Listing Commands

The listing commands are displayed on the bottom of the main graphics screen. The Listing commands are:

<u>COMMAND</u>	<u>FUNCTION</u>
pri (Primitive)	Shows a list of the PRIMITIVE commands
sys (System)	Shows a list of the SYSTEM commands
bus (Business Graphics)	Shows a list of BUSINESS GRAPHICS commands
out (Output/Input)	Shows a list of INPUT/-OUTPUT commands
def (Definition)	Displays the names of all the images that are named in the current dictionary for selection and display

G-1.6 The EXI Command

The exi command causes you to exit from the Graphics package in a single operation.

G-1.7 User-Defined Commands

The Graphics package allows you to define your own commands by naming and saving images that you can use repeatedly. Each time you name an image in the dictionary with the nam command, the name you assign to an image becomes, in effect, a command of your own definition. Enter the image name at the command line just as you would enter any other command, and the image will be called in from the dictionary in memory to be included in your current screen display. This allows you to include the same image numerous times in one screen display.

To call up an image you have named in the dictionary, type the name of the image in lowercase letters and press RETURN. For example,

image1 RETURN

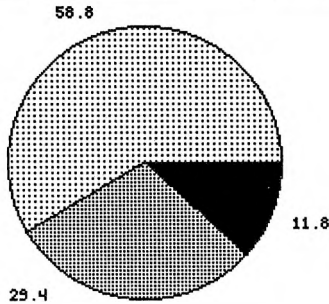
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The image you have selected is now displayed in the center of the screen:

NKF VERTEX X= 0 Y= 0

+/- FACTOR= 25%

ANGLE= 0



ENTER TO CONTINUE

F1 TO CANCEL

F10 SPEED = 1%

You can move, zoom, and rotate the image. The numeric keypad controls the directional movement of the image. See "G-1.10.1 Numeric Keypad" for an illustration of the direction in which numeric keys cause the image to move.

Use the c key to cause the image to move at a faster (coarser) rate or the f key to cause the image to move at a slower (finer) rate. Make sure that your capital letter lock is not on; only lowercase letters will be accepted.

To increase the size of the image, press the + (plus) key. To decrease its size, press the - (minus) key.

You can rotate the image with the up and down arrow keys. The up arrow rotates the image in a clockwise direction; the down arrow rotates the image in a counterclockwise direction. You can increase and decrease rotation speed with the c and f keys.

You can also use the sho command to call up an image, but an image recalled with sho cannot be moved, zoomed, or rotated. Use sho when you want to view an image since this is a faster method than recalling the image by its name only. (See G-3.10 for detailed instructions on using the sho command.)

For example, let's assume that you want to use the Graphics package to do interior design. You commonly use images of doorways, windows, chairs, tables, desks, sofas, etc. To create a dictionary of these images, you need to draw each piece of furniture only once and include it in the dictionary with the nam command. Each time you enter a nam command, your image is defined as a set number of figures created with Primitives and other images. As you add to the image, it continues to grow. For our example, let's name the first image room. As we save additional images, we will code the image name with a number, e.g., room1, room2, etc. The process occurs in this way:

(primitive + primitive + primitive) = room

Name

(room + primitive + primitive + primitive) = room1

Name

(room + room1 + primitive + primitive) = room2

Note that each image saved contains all of the incremental images preceding it. For example, room1 contains both room and the additional Primitives; room2 contains room, room1, and the additional Primitives. This is because each image is saved in memory only one time and must be recalled each time it is needed so that memory space is not taken up to store the same image several times.

Since images are constructed of other images, editing room or room1 will cause the final image, room2, to be altered.

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NOTE: Do not worry if your image seems incomplete when first displayed by entering its name. The image is being drawn in "limited execute" mode in which lines are toggled and blanks, complements, mats, txt and pals are not shown. The use of limited execute mode allows moves, zooms, and rotates to be done quickly and interactively as you touch the keys. When the image is positioned and you press RETURN the whole image will be displayed.

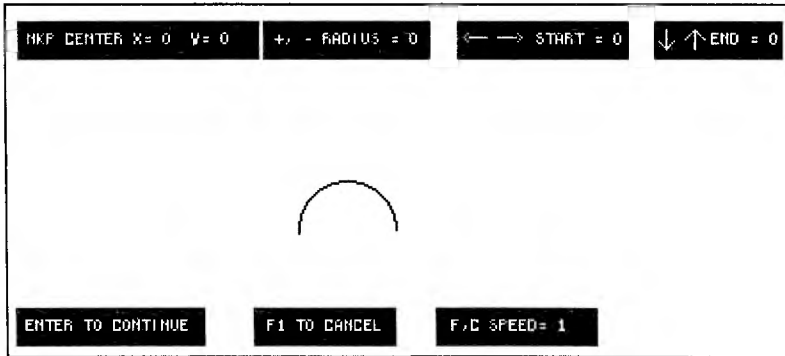
G-1.8 Naming and Writing

NOTE: NAMING AN IMAGE DOES NOT WRITE THE IMAGE ONTO DISK!

Naming an image and writing an image that has been defined in the dictionary (stored in memory) onto disk are separate and distinct steps. To save an image in memory and thereby store it in the current dictionary, use the System command nam. To write an image onto disk, first name the image (nam) and then use the Output command wri to write the entire dictionary containing the image onto disk.

G-1.9 Menu Panels

When you enter a Primitive command to draw a figure or line, you will see a menu panel displayed on your screen. For example, when you enter arc, your screen will display:



This panel provides instructions for quick reference while drawing your figure or line. The top line shows the parameters of the figure. For example, as you press the + key while drawing an arc, the radius increases. Note that when you press the c (Coarse) key to increase the size of your figure more rapidly, the radius increases by a larger number each time you press the + key.

The bottom line of the menu panel shows you which keys to use for continuing to the next step, cancelling the figure, and increasing or decreasing the speed of cursor or figure movement.

G-1.10 The Keyboard

Certain keys have been assigned specific functions in the Graphics package. The keys you will use most often are:

Numeric Keypad

c and f

RETURN, ENTER or F10

F1

?

To move cursor or figure on the screen

To control speed of cursor movement

To enter a command

To cancel an operation

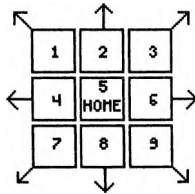
To display help panels

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G-1.10.1 Numeric Keypad

Use the keys on the numeric keyboard to move the cursor or a figure on the screen. 5 is the home key. When you press 5, the cursor or figure returns to the exact center of the screen. If your cursor moves off the screen, you can press 5 to locate it and return it to the center of the screen.

The numeric keys move the cursor or figure in the directions shown in the illustration below:

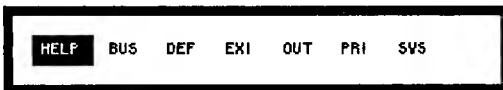


G-1.10.2 c and f

The c and f keys control the speed at which the cursor moves. The c key causes the cursor to move in larger, or coarser, increments when any key that controls cursor or figure movement is pressed. The f key causes the cursor to move in smaller, or finer, increments. Press c to increase cursor movement speed or f to decrease speed.

G-1.10.3 Entering Commands

The Graphics package allows you to enter commands in two ways. When you bring up the program, you will see this display at the bottom of your screen:



At this point, you can choose to display the main HELP panel, the Business Graphics commands, the definitions of images in the current dictionary, the Output commands, the Primitive commands, or the System commands. Select a display by moving the cursor with the left or right arrow keys to the command for that display and pressing RETURN, ENTER or F10.

You can select a command from the displays of Business Graphics commands, Output commands, Primitive commands, or System commands by moving the cursor to the type of command you want and pressing RETURN. The screen display will change to show you a list of commands from which you can choose.

The second method of entering commands is faster and more convenient. The experienced user of the Graphics may prefer to enter commands by typing the three-letter command at the command line. The > prompt appears as you begin typing the command. To correct a typing error when entering a command, use the BACKSPACE key. Commands must be entered in lowercase letters only. The three-letter command must be followed by RETURN, ENTER, F10, or a space.

Should your bottom command line become blank while you are entering commands, type F1 to return to the main menu.

G-1.10.4 RETURN, ENTER, and F10

Use the RETURN, F10, and ENTER keys interchangeably to execute the command you have entered and return you to the command line where you may enter another command.

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G-1.10.5 F1 (Cancel)

Press F1 to cancel a command that you have entered and return you to the command line where you may enter another command. When typing a three-letter command that requires you to enter an image name, you can cancel an operation by pressing F1 after entering the command followed by a space.

For example, to cancel delete an image, you would:

1. Type del and press RETURN.
2. When prompted to enter the image name, you could cancel the del command by pressing F1. Or you could carry out the deletion by entering the image name and pressing RETURN.

G-1.10.6 ? (HELP)

Press ? to call up panels displaying help messages.

G-2 The Primitive Commands

To see a list of all the Primitive commands, move the cursor to pri on the first command line and press RETURN. Your screen will display:

```
HELP  ARC  BLA  CIR  COL  COM  DRA  ELI  FNT  LIN  MAT  -->
```

The arrow at the end of the command line indicates that there are more commands to be displayed. To see the second line, move the cursor to the arrow. The second line will be displayed automatically:

```
MES  PAL  PSE  REC  SET  TOG  TXT  TVP
```

Select a command by positioning the cursor over the command and pressing RETURN.

When you type pri at the command line, the Primitive commands will be displayed in the following manner:

```
ARC  BLA  CIR  COL  COM  DRA  ELI  FNT  LIN  MAT  MES  PAL  PSE  ?
```

The ? at the end of the line indicates that you should enter any key to show the remainder of the list or return to the command line if the list is complete. F1 cancels the list and immediately returns to the command line. This is the same for any listing feature; e.g.: sys, bus, who, etc.

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LIMITATIONS OF PRIMITIVES				
PRIMITIVES THAT WILL NOT:				
	<u>MOVE</u>	<u>ZOOM</u>	<u>ROTATE</u>	<u>PLOT</u>
*MAT	X	X	X	X
*ERV			X	X
*BLA			ONLY REFERENCE CORNER POSITION IS ROTATED	
COM			"	
TVP			ONLY STARTING POINT	
TXT			X	X
TOG				X
PAL				X
ELI				X

* NOTE: THE DISPLAY RESULTING FROM ROTATION OF A USER-DEFINED IMAGE INCLUDING THIS PRIMITIVE MAY APPEAR DIFFERENTLY THAN EXPECTED.

G-2.1 arc (Arc)

The keys used in this Primitive are:

KEY

FUNCTION

Numeric Keypad

Moves the cursor or arc
Increases speed of cursor
movement

c

f

Decreases speed of cursor
movement

RETURN/ENTER

Causes the command just
entered to be executed

F1

Cancels the operation and
returns to the command line

+ and -

Changes the radius of the arc

Up Arrow

Opens the arc in a clockwise
direction

Down Arrow

Closes the arc in a counter-
clockwise direction

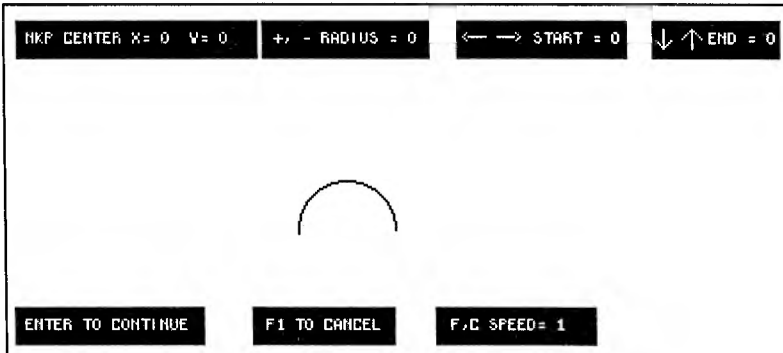
Left Arrow

Opens the arc in a counter-
clockwise direction

Right Arrow

Closes the arc in a clockwise
direction

To draw an arc, type arc and press RETURN. A cross-hair cursor will appear on the screen. With the numeric keypad, move the cursor to the point on the screen where you wish the arc to begin. Press RETURN. Your screen will appear:



A small arc will appear at the cursor position. Use the + and - keys to increase or decrease the radius of the arc. Use the up, down, right and left arrow keys to open or close the arc.

When the arc is drawn to your satisfaction, press RETURN. To begin again or to exit the arc feature without adding the arc to your screen, press F1 to cancel.

The BENCHMARK

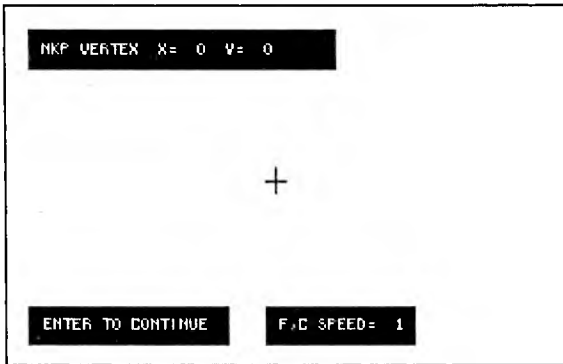
G-2.2 bla (Blank)

The bla command creates a blank rectangular area on the screen without affecting the rest of the image.

The keys used in this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves the cursor or figure
c	Increases speed of cursor or figure movement
f	Decreases speed of cursor or figure movement
RETURN	Executes the command just entered and proceeds to the next step
F1	Cancels the operation and returns to the command line
Up & Down Arrow	Increase or decrease the height of the area to be blanked
Left & Right Arrow	Increase or decrease the width of the area to be blanked

To blank an area, type bla and press RETURN.
The following screen will appear:



The cursor will appear to indicate the lower lefthand corner of the rectangular boundary of the area for blanking. Move the cursor to the point where you wish the lower lefthand corner of the rectangle to be and press RETURN to set this position.

Using the arrow keys, draw a rectangular border around the area you wish to blank. You can move the rectangle on the screen with the numeric keypad. When the area of the screen you wish to blank is enclosed in the rectangle, press RETURN.

When you press RETURN, the area of the screen inside the rectangle is blanked and the blanked region is added to the current screen definition. If you press F1 instead of RETURN, the rectangle is erased and the screen image is not altered in any way.

NOTE: When using color output to screen or printer, the current color in use will determine which of the color planes will be blanked. Unless the color is set to the highest number color available, such as white on a seven-color system, any part of the image on unaffected color planes will remain after the blank. This allows you to eliminate all display of one color quickly.

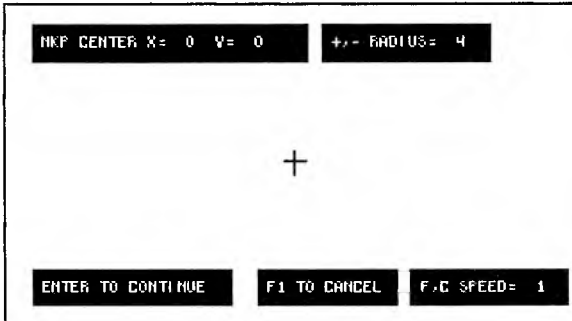
G-2.3 cir (Circle)

The keys used in this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves the cursor or circle
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Causes the command just entered to be executed
F1	Cancels the operation and returns to the command line
+ and -	Change the radius of the circle

The BENCHMARK

To draw a circle, type cir and press RETURN. The cursor will appear to indicate the center of the circle. With the numeric keypad, move the cursor to the point on the screen where you wish the center of the circle to be. Press RETURN.



A small circle will appear at the cursor position. Use the + and - keys to increase or decrease the radius of the circle. Use the numeric keypad to move the circle on the screen.

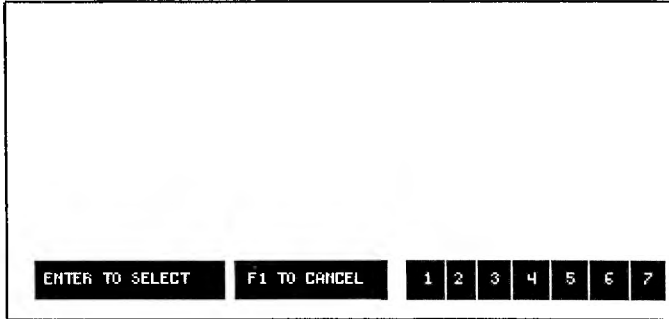
When the circle is drawn to your satisfaction, press RETURN.

Press F1 to cancel the circle.

G-2.4 col (Color)

The col command is used to change the current color. Subsequent drawing will be done in the color selected until the color is changed again. Colors are assigned to numbers in this command. Please note that color output is available to you if you are using a color printer or plotter even if your screen display is in monochrome.

To add color to your screen image, type col and press RETURN. Your screen will display:



Use the numeric keypad to move the cursor to the section of the color bar across the bottom of the screen that displays the number of the color you wish to use. Press RETURN.

The command line will appear in the color you have selected if you are using a color monitor.

You can combine colors to form a wide variety of shades by paletting an area two or more times. If you do this, it is wise to use one of the less dense fill patterns so that the colors will be distributed more evenly throughout the area.

G-2.5 com (Complement)

The com command allows you to reverse the video display of a rectangular area on your screen. Only the color planes used in the current drawing color will be complemented with color monitors and devices.

The keys used in this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves the cursor or complementary area
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Causes the command just entered to be executed
F1	Cancel the operation and returns to the command line

The BENCHMARK

Up & Down Arrow Change height of rectangle
Left & Right Arrow Change width of rectangle

To complement an area, type com and press RETURN. The cursor will appear on the screen to indicate the lower lefthand corner of the rectangular border you will draw around the area you wish to be displayed in opposite video. With the numeric keypad, move the cursor to the point where you wish the lower lefthand corner of the area to be. Press RETURN.

A small rectangle will appear at the cursor position. Use the arrow keys to draw the rectangle to the size you desire. When the area you wish to use as a complement has been defined, press RETURN. The area you have designated will be displayed in opposite video.

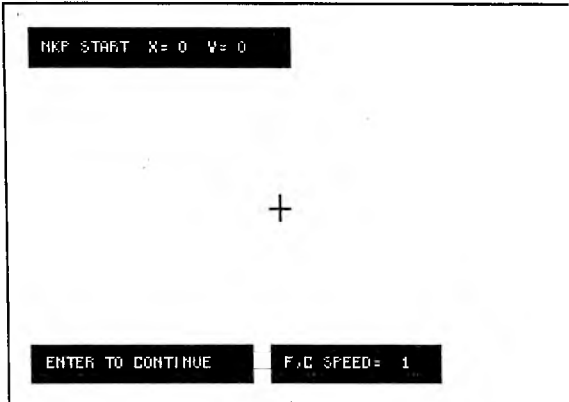
Press F1 to exit the com feature.

G-2.6 crv (Curve)

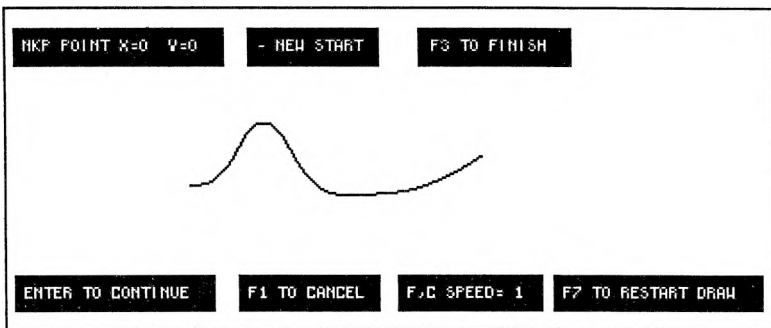
The crv command is used to draw a curve.
The keys used in this command are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves cursor and line endpoints
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Sets line endpoints
F1	Cancels the operation and returns to the command line
F3	Adds figure to current screen definition and returns to command line
+	Marks endpoint of line from cursor position
-	Begins new line
F7	Restarts drawing from the beginning

To draw a curve, type crv and press RETURN.
Your screen will display:



With the numeric keypad, position the cursor where you wish your curve to begin. Press RETURN.
Your screen will display:



Move the endpoint of the line with the numeric keypad and press RETURN to cause a curve to be drawn between the two endpoints.

When you finish one curve and are ready to draw another, press -. This will allow you a new start. Move the cursor to the point where you wish the next line to begin and press RETURN. You may now add another curve to your drawing by using the numeric keypad.

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F7 allows you to restart the drawing from the beginning.

When your drawing is finished to your satisfaction, press RETURN. You will exit the crv feature.

To begin again, press F7. Press F1 to cancel. Press F3 to finish the curve.

The curve algorithm Draws a smooth curve between two points based on the slope at the first point. The first segment of a curve will therefore always be a straight line. Choose the slope of this first line segment carefully and in the direction you wish the first curved segment to flow from that point. This first straight segment may be made very small, if you wish, so that only the curve is seen.

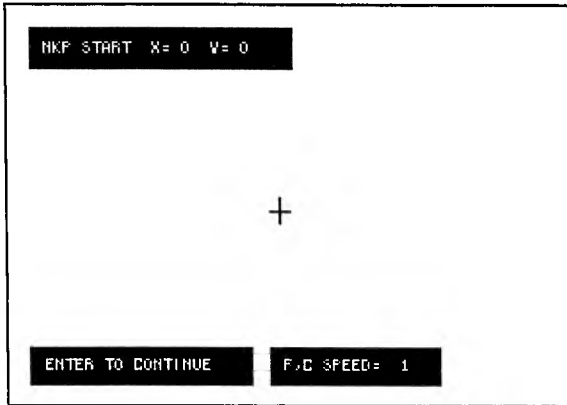
G-2.7 dra (Freehand Draw)

The dra command allows you to freehand draw figures comprised of continuous line segments.

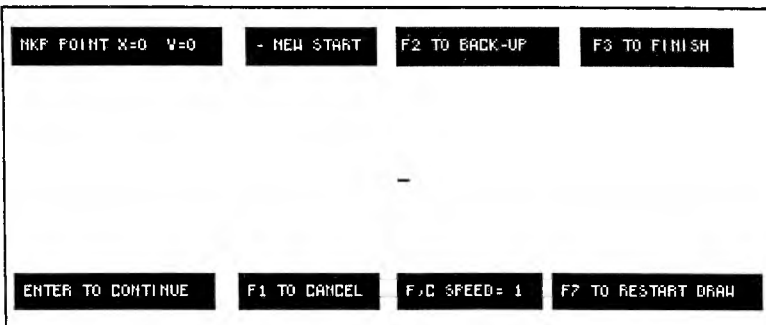
The keys used in this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves cursor and line endpoints
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Sets line endpoints
F1	Cancels the operation and returns to the command line
F2	Backspaces and erases line
F3	Adds figure to current screen definition and returns to command line
+	Marks endpoint of line from cursor position
-	Begins new line
F7	Restarts drawing from the beginning

To draw freehand, type dra and press RETURN. Your screen will display:



With the numeric keypad, position the cursor where you wish your freehand drawing to begin. Press RETURN. Your screen will display:



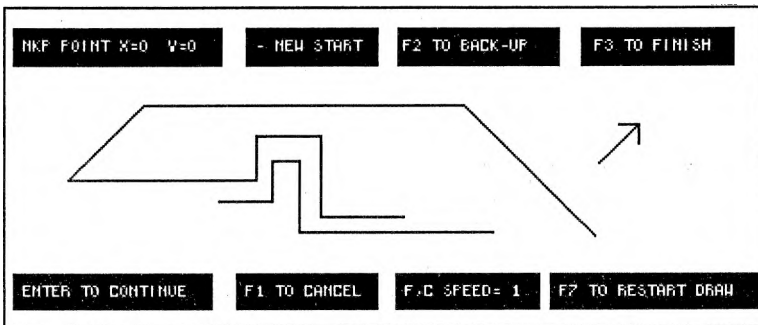
Move the endpoint of the line with the numeric keypad and press RETURN to set the line endpoint and begin a new line. Pressing RETURN allows you to change direction while drawing. If you want to move the cursor to another position, when you finish one line and are ready to draw another, press -. This will allow you a new start. Move the cursor to the point where you wish the next line to begin and press RETURN. You may now add another line to your drawing by using the numeric keypad.

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The F2 key acts as a destructive backspace key. That is, the cursor moves backward, eliminating each part of the line it backs over.

F7 allows you to restart the drawing from the beginning.

To begin again, press F7. To exit the dra feature, press F3 to Finish. If you do not wish to save the drawing, press F1 to cancel.



EXAMPLE OF FREEHAND DRAW

G-2.8 eli (Ellipse)

The keys used in this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves the cursor or ellipse
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Causes the command just entered to be executed
F1	Cancels the operation and returns to the command line
+ and -	Changes the radius of the ellipse
Up & Down Arrow	Controls angle of ellipse axes
Left & Right Arrows	Controls shape of ellipse (ratio of axes)

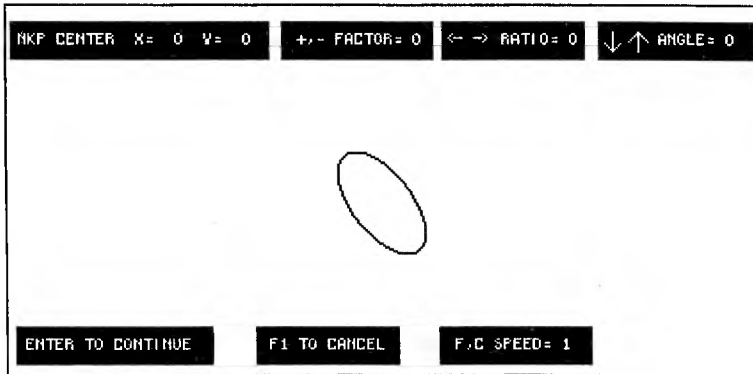
To draw an ellipse, type eli and press RETURN. A cross-hair cursor will appear on the screen. With the numeric keypad, move the cursor to the point on the screen where you wish the ellipse to begin. Press RETURN.

A small ellipse will appear at the cursor position. Use the + and - keys to increase or decrease the radius of the ellipse. Use the right and left arrow keys to control the width of the ellipse. Use the up and down arrow keys to control the angle of the ellipse.

When the ellipse is drawn to your satisfaction, press RETURN.

To exit the eli feature without adding the ellipse to your screen, press F1 to cancel.

The following screen shows an ellipse that has been created on an angle:



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G-2.9 fnt (Font)

The fnt feature allows the user to change the typeface (font) of any text that is entered in a graphic image using the typ or txt commands. The different fonts are designed with The BENCHMARK Font Builder.

The keys used in this primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Up & Down Arrows	Used to select font and/or drive
RETURN/ENTER	Executes font selection
F1	Cancels font selection and returns to main menu

To access the font feature, type fnt and press RETURN. A directory of the screen fonts available on the default drive will appear on the left side of the screen:



Use the up or down arrows to position the cursor to the desired font. Press RETURN. The main menu will reappear. You may now enter text or continue creating your image. Any text entered after fnt will appear on the screen in the selected font. You can use several different fonts in the same image.

To access a font on a drive other than the default drive, type the desired drive letter and a directory of the fonts on that drive will appear on the screen.

To cancel the selection of a font and return to the main graphics menu, press F1.

G-2.10 gri (Grid)

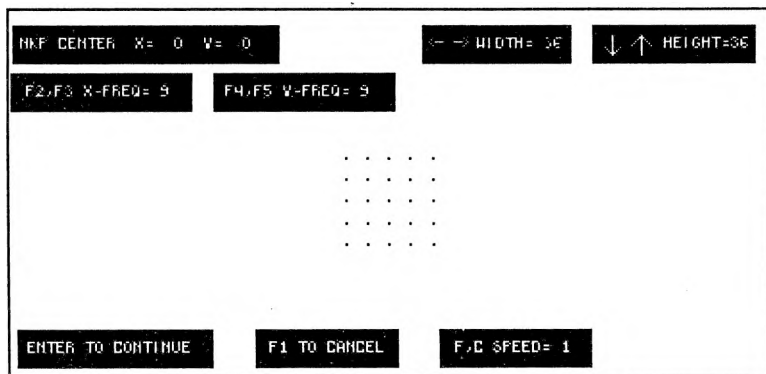
The gri command allows you to draw an array or grid of points.

The keys used for gri are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Causes the grid to be entered and proceeds to the next operation
F1	Cancels the operation and returns to the command line
Left & Right Arrow	Alters the width of the grid
Up & Down Arrow	Alters the height of the grid
F2, F3	Alters the x (vertical) frequency
F4, F5	Alters the y (horizontal) frequency
c	Increases speed of cursor movement
f	Decreases speed of cursor movement

To draw a grid, type gri and press RETURN. A crosshair cursor will appear on your screen. Use numeric keypad to position cursor to desired location. Press RETURN. The following screen will appear:

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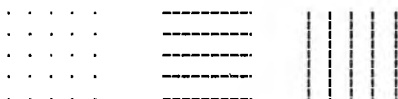


Use the arrow keys and F2, F3, F4, and F5 to adjust the frequency of lines in the grid. When the grid is drawn to your satisfaction, press RETURN. Press F1 to cancel the grid.

Suggestions for Use:

1. Use a point grid to enhance business graphics and charts by providing a background grid that aligns with the axes divisions.
2. Use a point grid as a drawing reference grid. We suggest that if you plan to use a particular reference grid more than once that you give the grid by itself a name such as "reference". See Sec. 6.1 on the use of the % key if you do not want the reference grid included as part of your image.

EXAMPLES OF DIFFERENT GRID SIZES:



G-2.11 lin (Line)

The lin Primitive is used to draw lines. You can choose from several thicknesses and patterns.

The keys used in this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves the cursor or line
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Causes the line just drawn to be entered into the current image
Up & Down Arrow	Move end of line up and down
Left & Right Arrow	Move end of line left or right
F1	Cancel the operation and returns to the command line
F2	Makes line thicker
F3	Makes line thinner
F4, F5	Change dash pattern of line

To draw a line, type lin and press RETURN. A cursor will appear to indicate the point where the line will begin. Use the numeric keypad to move the cursor to the point where you wish to begin the line and press RETURN.

A small line will appear at the cursor position. Use the arrow keys to draw the line and the function keys 2 through 5 to alter the width and dash pattern of the line.

When the line is drawn to your satisfaction, press RETURN.

To exit the lin feature without adding the line to your screen, press F1 to cancel.

NOTE: If you plan to zoom an image with lines in it, remember that although the end points of the line will zoom, the thickness and dash pattern of the line remain the same.

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G-2.12 mat (Matrix)

The mat Primitive allows you to recall images within a rectangular area previously written to disk with the pic command.

The keys used in this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves cursor or mat area on screen
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Causes the command just entered to be executed
F1	Cancels the operation and returns to the command line

To recall a mat, type mat and press RETURN. A directory of all the mat files on the default drive will appear. Use the up or down cursor arrows to move the cursor to the desired mat and press RETURN. If the mat is on a drive other than the default drive, type the desired drive letter and then follow the above procedure for selecting the desired mat.

The mat image is stored as a bit-mapped window on the disk and will not appear correctly if recalled on a computer monitor or printer with an aspect ratio different than the original monitor used to generate the image.

Because the mat primitive is recalling a point-by-point mapped window, the mat cannot be zoomed, rotated, or output to a plotter. Once positioned on the screen, the mat may be moved by the editor only (see Sec. 3.4 edi (Edit)).

To exit from the mat feature, press F1.

G-2.13 mes (Mesh)

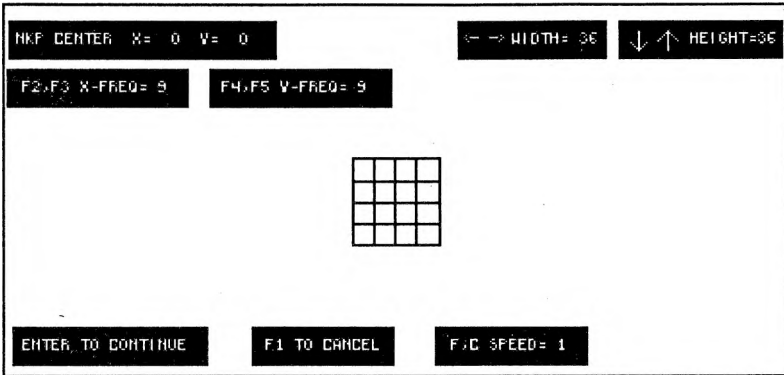
The mes Primitive is used to produce line mesh patterns of varying frequencies.

The keys used in this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves the cursor or mesh
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Causes the mesh just drawn to be entered into the current screen definition
F1	Cancel the operation and returns to the command line
Up & Down Arrow	Change height of mesh
Left & Right Arrow	Change width of mesh
F2, F3	Change frequency of vertical lines
F4, F5	Change frequency of horizontal lines

To draw a mesh, type mes and press RETURN. A cursor will appear on the screen to indicate the corner of your mesh. With the numeric keypad, move the cursor to the point where you wish to place the mesh. Press RETURN.

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A small mesh will appear at the cursor position. Use the arrow keys to draw the mesh. The F2 and F3 keys increase and decrease the number of vertical lines in the mesh. The F4 and F5 keys increase and decrease the number of horizontal lines in the mesh.

NOTE: The mes Primitive also allows you to draw a mesh with any number of horizontal or vertical parallel lines of any length and spacing. While you are drawing, if the right boundary of the mesh crosses over the left boundary (the left arrow key may cause this to happen), only horizontal lines remain on the screen. Similarly, if the top boundary crosses over the bottom boundary (down arrow), only vertical lines remain. F2, F3, F4, and F5 still affect the frequency of lines. To recover your original mesh, use the opposite arrow (right or up).

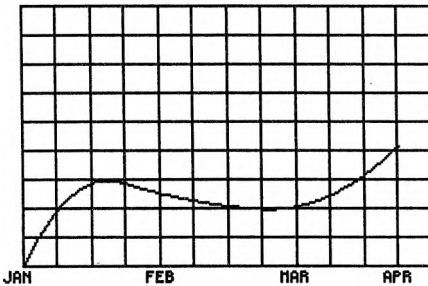
When the mesh is drawn to your satisfaction, press RETURN.

To exit the mes feature without adding the mesh to your screen, press F1 to cancel.

Advanced Use:

Like the point grid, the mesh can also be very useful as a drawing reference. You may want to define a screen-sized mesh with useful vertical and horizontal frequencies and name it for recall. When building a library of images it is often helpful to use a common reference mesh during the image construction. To keep the reference mesh from becoming part of your drawing use the % key after the mesh is displayed (See Sec. 6.1) and then construct your image.

EXAMPLE OF MESH USE:



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G-2.14 pal (Palette)

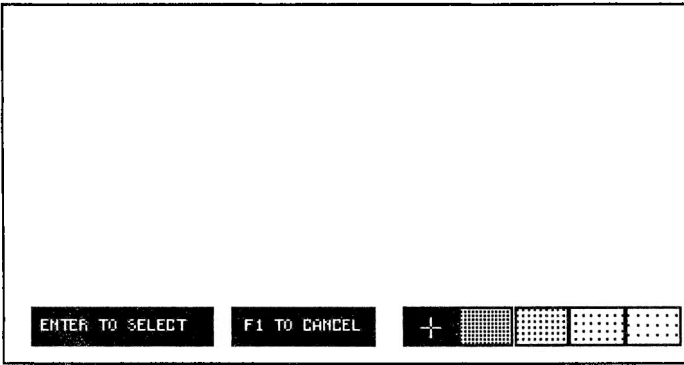
The pal Primitive allows you to select one of five fill patterns for filling in a figure or image.

The keys used with this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves the cursor
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Causes the command just entered to be executed
F1	Cancels the operation and returns to the command line

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To select a fill area, type pal and press RETURN. Your screen will display:



Move the cursor to the fill pattern of your choice and press RETURN. Now move the cursor to the area that you wish to fill in and press RETURN. The area will be filled automatically, and you will return to the command line.

NOTE: The pal feature will fill an area until it reaches a boundary from which it cannot escape. If the figure you are filling is not completely closed, the fill pattern will leak out and fill the entire area. You can recover from this by editing the image with the edi command.

To exit the pal feature without filling a figure or image, press F1 to cancel.

NOTE: Additional fill patterns can be created by carefully placing a second fill pattern between fill points of the first fill pattern selected. It is wise to use less dense fill patterns so that the patterns will be distributed more evenly.

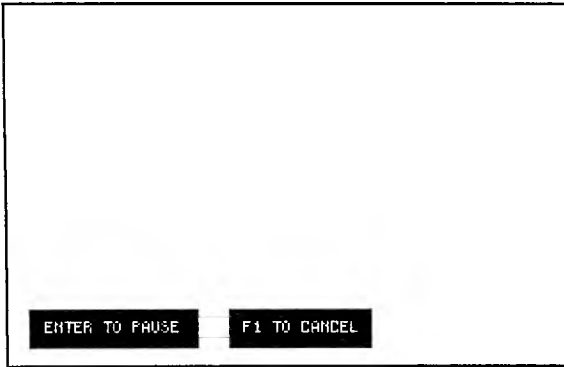
G-2.15 pse (Pause)

The pse feature enables you to create a pause for keystroke in a rolling demo. It can also be used to blank the bottom line of a screen so that the screen can be photographed with the graphics image only.

The keys used in this primitive are:

<u>KEY</u>	<u>FEATURE</u>
RETURN/ENTER	Creates a pause at that point in the screen definition
F1	Cancels the command and returns to the command line

To create a pause in a screen image, type pse and press RETURN. Your screen will display:



Press RETURN to create a pause. Any keystroke will cause the display to continue. To exit from the pse feature, press F1.

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G-2.16 rec (Rectangle)

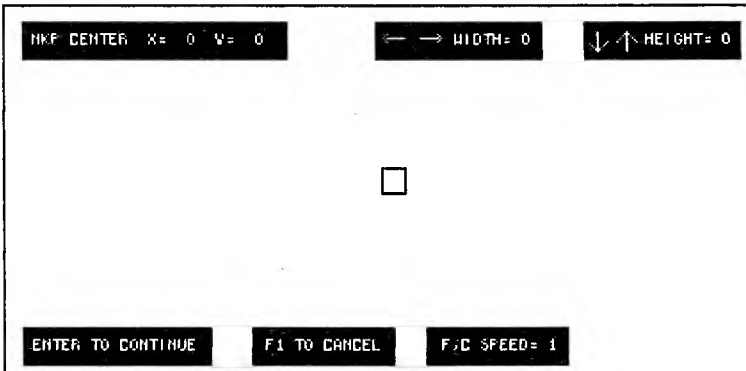
The rectangle is used to draw a square or rectangle.

The keys used in this Primitive are:

<u>KEY</u>	<u>FUNCTION</u>
Numeric Keypad	Moves the cursor or rectangle
c	Increases speed of cursor movement
f	Decreases speed of cursor movement
RETURN/ENTER	Causes the rectangle just drawn to be entered into the current screen definition
F1	Cancels the operation and returns to the command line
Up & Down Arrow	Change height of rectangle
Left & Right Arrow	Change width of rectangle

To draw a rectangle, type rec at the > prompt and press RETURN.

A cursor will appear on the screen to indicate the lower left corner of the rectangle. With the numeric keypad, move the cursor to the point on the screen where you wish the rectangle to be. Press RETURN. Your screen will display:



A small rectangle will appear at the cursor position. Use the arrow keys to draw the rectangle.

When the rectangle is drawn to your satisfaction, press RETURN.

To exit the rec feature without adding the rectangle to your screen, press F1 to cancel.

G-2.17 txt (Merge Text File)

The txt feature allows you to define an area in the image for an ASCII file to be inserted.

The keys used in this function are:

<u>KEY</u>	<u>FUNCTION</u>
Up & Down Arrow	Lengthen or shorten text area
Left & Right Arrow	Widen or reduce width of text area
F1	Sets text area and inserts text file
F1	If text file is being selected, cancels the operation and returns to main menu
F2	Toggles the right margins of text between flush and non-flush
RETURN/ENTER	Sets a text area

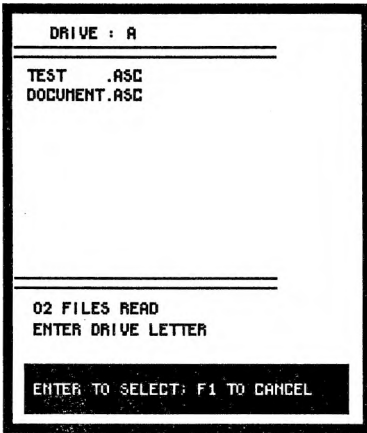
To call a text file into an image, type txt and press RETURN. A small rectangle appears on the screen. Use the numeric keypad to position the rectangle to the point in the image that the text is to begin. Use the arrow keys to lengthen and widen the rectangle to the desired size. When the rectangle is the desired size, press RETURN.

The F2 key Toggles the right margin from non-flush to flush. Set this for desired margin appearance.

If you want to define more areas for text, position the cursor to the new location and follow the above procedure for enlarging the rectangle.

Note: The boxes defined for text insertion may extend beyond the current screen image, if desired. If you do not need any more areas defined for text, press F1 to stop. A directory of ASCII files with the extent .ASC will appear on the left side of the screen:

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If the desired text file does not appear on the default drive, type the desired drive letter and a directory of ASCII files on that drive will appear. Use the up or down arrows to position the cursor to the desired file. Press RETURN. The text from the selected file will then be "poured" into the defined areas. Press F1 at the directory to cancel the entire txt operation.

G-2.18 tvp (Type Text String)

The tvp Primitive is used to add letters, numbers, or symbols from the keyboard. For example, you can use tvp to label sections of a pie chart.

The keys used in this Primitive are:

KEY

FUNCTION

Numeric Keypad

Moves cursor or text

c

Increases speed of cursor movement

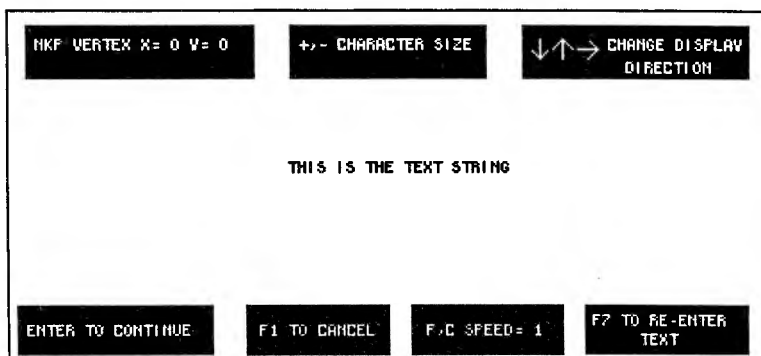
f

Decreases speed of cursor movement

RETURN/ENTER	Causes the text just entered to be entered into the current screen definition
F1	Cancels the operation and returns to the command line
+ and -	Increases and decreases the size of the text
Up Arrow	Displays characters in an upward direction
Down Arrow	Displays characters in a downward direction
Right Arrow	Displays characters in normal horizontal direction
F7	Allows re-entry of text

To enter text into an image, type typ and press RETURN. A cursor will appear to indicate the beginning of the line of text. With the numeric keypad, move the cursor to the point where you wish the text to begin and press RETURN.

Enter the text exactly as you wish it to appear. To correct an error, use the backspace and then retype. When the text is entered to your satisfaction, press RETURN. Your screen will display:



Use the arrow keys, the + and - keys, and the numeric keypad to adjust the direction, size, and location of the text. Then press RETURN.

The BENCHMARK

To begin again, press F7. To exit the typ feature without adding the text to your screen, press F1 to Cancel.

NOTE: Text characters are always entered in tog mode so that they will appear against any background.

G-2.19 set/tog (Set/Toggle)

The set and tog Primitives control the drawing mode. In the set mode, images are drawn by turning on points on the screen. In the tog drawing mode, images are created by reversing (toggling) points on the screen.

The illustration below exemplifies the difference between the set mode and the toggle mode:

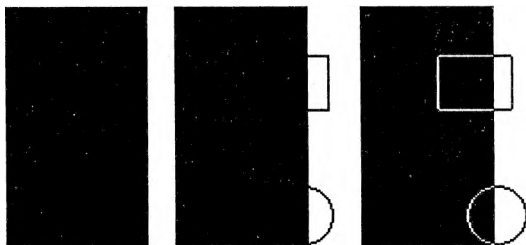


FIG. 1

FIG. 2

FIG. 3

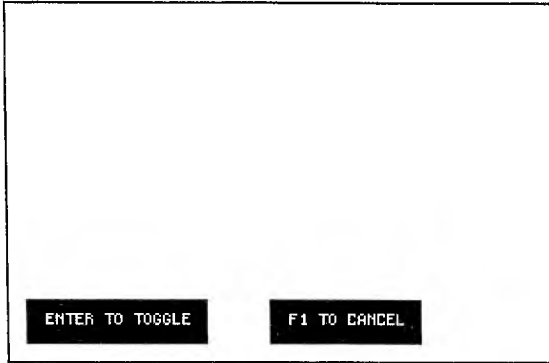
Fig. 1 - Complemented or filled rectangle

Fig. 2 - Circle & rectangle added in set mode

Fig. 3 - Circle & rectangle added in toggle mode

The default mode for the Graphics program is the set mode. You must alter the setting to tog BEFORE you begin drawing the figure that will be affected by set/toggle.

To change the setting, type either set or tog, depending on the current setting, and press RETURN. Your screen will display:



Press RETURN, and the setting will be changed automatically.

If you wish to leave the setting as it is, press F1 to cancel.

G-3 The System Commands

There are two ways of entering a System command: 1) On the main command line, move the cursor to the sys command and press RETURN. Your screen will display:



To select any System command, move the cursor to the desired command and press RETURN. You can also enter a command by typing the three-letter command at the command line. To correct a typing error when entering a command, use the BACKSPACE key.

NOTE: Commands must be entered in lowercase letters only.

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Or, 2) To see a list of all the System commands, type sys at the command line. Your screen will display:

```
CLR CUT DEL DIM DUP EDI HEN NAM PUR REN RES SHO UND WHO ?
```

At the end of this line is the ?, which indicates that you can enter any key to return to the main command line.

G-3.1 clr (Clear)

The clr command clears the screen of its current display, including images that have been moved off the screen but still exist in the current screen definition.

NOTE: The clr command deletes images on the screen. If you wish to save an image on the screen, you must do so with the nam command BEFORE clearing the screen with the clr command.

To clear the current screen display, type clr and press RETURN. You may also move the cursor to the clr command displayed at the bottom of the screen and press RETURN. The screen will be cleared automatically.

G-3.2 cut (Measure an Image)

The cut feature allows you to measure the length of a graphic image. This length is used when the image is to be inserted into a Word Processor document. The keys used in cut are:

<u>KEY</u>	<u>FUNCTION</u>
Down Arrow	Moves the "ruler" down the screen
Up Arrow	Moves the "ruler" up the screen
RETURN/ENTER	Sets the "ruler" in place and exits <u>cut</u>
F1	Cancel the cut and returns to main menu

The image to be measured must be on the screen (see Sec. G-5.4 rea and G-3.10 sho). Type cut and press RETURN. A line (ruler) will appear on the screen. By using the up and down arrows you can measure from 1 to 25 lines of the image. The line count appears in the upper right corner of the screen. This number will closely approximate the size of the graphic at printout time in units of lines of text corresponding to your printer.

The "ruler" can be left on the screen as a guide while you are creating or editing the image. If you wish to leave the ruler on the screen, press RETURN. If you do not want the ruler left on the screen, press F1 to cancel.

G-3.3 del (Delete)

The del command marks an image in the ^{current} stored dictionary of image definitions for deletion. Once an image is marked for deletion, you can either perform the deletion with the pur (purge) command or abort the deletion with the und (undelete) command. page 61
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To mark an image for deletion, type del followed by the name of the image you wish to delete. Press RETURN. The image will be marked for deletion automatically, and an asterisk (*) will appear beside the image name when the dictionary is displayed.

To cancel the del command and retain the image definition in the dictionary, press F1.

G-3.4 dim (Dimension)

The dim feature allows you to insert dimension lines into your image.

To insert a dimension line, type dim and press RETURN. Use the numeric keypad to position the cursor to the point the line is to begin and press RETURN. The left and right arrows lengthen or shorten a horizontal line. The up and down arrows lengthen or shorten a vertical line. Use the arrows to make the line the desired length.

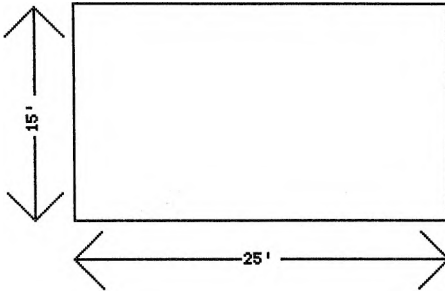
The function keys F2 through F5 allow you to define the thickness and format (dotted, solid, etc.) of the line just as they do in the lin function (see Sec G-2.11).

When the line is in the correct position and is the desired size, press RETURN. Arrows will appear at each end of the line and you will be prompted:

Enter length > _____ <

Enter the measurement for that dimension line. For example, the dimensions for the image are to be 12 feet by 15 feet. You have just drawn the dimension line for the 12 foot side. Into the length field, type 12' (or 12 feet, 12.0, etc.) and press RETURN. This measurement will be centered on the line.

EXAMPLE OF DIMENSIONING:



G-3.5 dup (Duplicate)

The dup command allows you to duplicate an image that has been stored in the dictionary of image definitions with the nam command.

To copy an image stored in the dictionary, type dup followed by the image name and a new name for the duplicate image. For example,

dup space <image name> space <new name>

Press RETURN. The image will be duplicated, and the two images can now be displayed, edited, and moved independently.

To cancel the dup command, press F1 in place of one of the image names.

The BENCHMARK

G-3.6 edi (Edit)

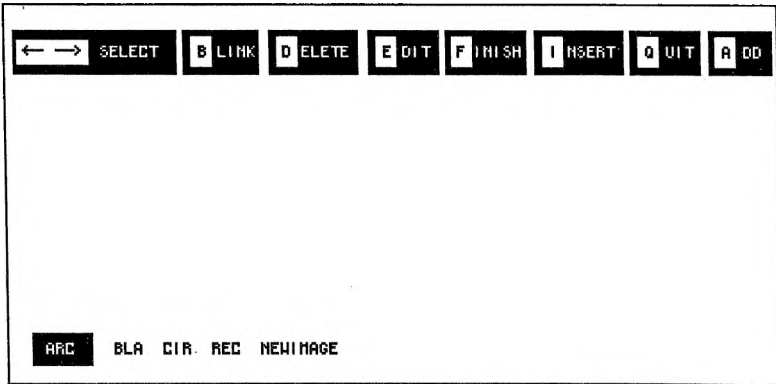
The edi command allows you to call up an image that has been saved in the dictionary and to display the components of the image so that you can edit them.

The keys used for edi are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Causes the command to be executed and proceeds to the next operation
F1	Cancels the operation and returns to the command line
Right & Left Arrow	Allows you to select a component to edit
b	Causes a component to blink so that it can be identified easily
d	Deletes the indicated component from the image
e	Allows a component to be edited
f	Finishes the edit and saves changes to the image
i	Allows a component (primitive or defined image) to be inserted into the image definition before the component indicated by the cursor
q	Aborts the edit without entering changes to the image definition
a	Allows the addition of new components at the end of the image

To edit an image that has been saved previously with the nam command, move the cursor to the edi command and press RETURN. You will be prompted to enter the name of the image you wish to edit. Or you may prefer to type edi (image name) at the > prompt.

After you have entered the edi command, your screen will display:



Across the top of the screen, the editing commands are listed for your convenience. Across the bottom of the screen, all of the components that make up your image are listed along with a message that indicates whether the image was drawn in set or toggle mode. A --> (right arrow) at the end of the list indicates that the list continues. With the right arrow key, move the cursor to the arrow to cause the rest of the components to be displayed.

NOTE: The components of your images must be edited in a left to right manner as they appear at the bottom of the screen. When you have reached the end of the list, you will see a message indicating that you have reached the end of the image and can only select add, finish, or quit. If you wish to return to edit or insert in the beginning of the image, finish the edit and then re-enter the edit mode.

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Note: When an image is displayed for edit, do not be concerned if the image seems different or incomplete. The reason for this is that until your edit has proceeded past certain components, they are being drawn in "limited execute" mode to allow them to be quickly edited or deleted. Primitives such as blank, compliment, text, pallet, and mat will not be displayed at all until the edit has proceeded past them. If you wish to see them, however, the blink command will display them.

All other Primitives will be drawn in toggle mode until they are finished by the editor, so you may see some cancellation where images overlap.

G-3.6.1 Blink

Use the right or left arrow keys to select a component to edit. If you are unsure about which component name corresponds to which component in the screen display, move the cursor to the component name and press b. This will cause the component corresponding to the component name to blink. If this is the component you wish to edit, continue with the edit. If this is not the correct component, move the cursor to the next occurrence of the component name and press b again until you find the correct component.

To insure quick display of the image being edited, certain Primitives will not be displayed on the screen unless the blink command is used. These Primitives are com, bla, mat, txt, and pal.

G-3.6.2 Edit

To edit a component, press e. Now you will be able to edit the component by using the same procedures you used to draw it originally. See G-1.7 or G-2 for instructions.

G-3.6.3 Delete

To delete a component, move the cursor to the corresponding primitive name and press d.

G-3.6.4 Insert/Add

To insert a component, press i. At the INSERT > prompt, type the primitive command or user-defined image name for the component you wish to insert. Then draw the component you wish to insert using the procedures outlined in G-2.

Components are added instead of inserted after you have reached the end of the image. To add a component at any point in the image, move the cursor to the component before which you want to add a component and press a. At the ADD > prompt, type the primitive command for the component you wish to add. Then draw the component using the procedures described in G-2.

The add and insert commands allow the insertion of only one component at a time, but both may be used many times in the same place.

Both insert and add edit modes allow the use of selected System commands that aid the user during the editing session. The Systems commands available you to with insert and add are: def (to list the images in the current dictionary), pri (to list the Primitive commands), sys (to list the Systems commands), and who (to list the components of a designated image).

Press F1 to cancel the insert or add procedures.

G-3.6.5 Quit

To abandon the edit without saving any of the changes you have made, type q.

G-3.6.6 Finish

To finish the edit and save the changes you have made, type f.

G-3.7 men (Menu)

The men command allows you to choose whether or not the screen will display a menu of the active keys and their functions in any given command. As you gain experience using the Graphics, you may prefer not to display the menu. The men command acts as a toggle; that is, this command changes the

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display of the menu from its current state (on or off) to the opposite state (off or on).

The menu is automatically displayed when you enter the program. To suppress the display, use the men command by moving the cursor to the men command and pressing RETURN. Or you may type men at the > prompt, which will appear as you begin to type.

G-3.8 nam (Name)

The nam command causes the current image definition to be stored in the dictionary.

NOTE: Naming an image in memory and writing an image onto disk are two separate steps. After an image has been named, you must use the wri command (G-3.21) to store the image on disk.

The keys used for nam are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Causes the command to be executed and proceeds to the next operation
F1	Cancels the naming procedure

To store an image in the dictionary, move the cursor to the nam command and press RETURN. You will be prompted to enter the name by which the image will be stored in the dictionary. After you have entered the name and pressed RETURN, the image will be saved automatically.

Should you enter an image name that is already in use in the current dictionary, you will be asked:

writeover? (y/n) >

Pressing y causes the new image to be written over the old image of the same name in the current dictionary. Pressing n returns you to the command screen where you can begin again.

There are two methods of recalling an image that you have named with this command: 1.) If you wish to move or edit the image, recall it by typing its name at the command line. This will call the image to the screen where you can edit and manipulate it. Or 2.) If you wish to view the image without editing or moving it, recall the image with the sho command (G-3.10). Typing sho followed by the image name is a fast method of recalling the image for the purpose of displaying it without altering it in any way. The sho command is extremely useful for rolling demos and presentations.

G-3.9 pur (Purge)

The pur command performs the actual deletion of images that have been marked for deletion with the del command.

The keys used for pur are:

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<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Causes images marked for deletion with <u>del</u> to be erased from the <u>current dictionary</u> of image definitions and allows you to enter a new command
F1	Cancel the purge and returns you to the command line

To see which definitions in the current dictionary have been marked for deletion, enter the def command (G-1.5). Images marked for deletion will be indicated by an asterisk (*).

To delete an image from the current dictionary, move the cursor to the pur command and press RETURN. Or you may type pur at the > prompt, which will appear as you begin to type.

The message "System Working" appears to indicate that the image is being deleted.

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G-3.10 ren (Rename)

The ren command allows you to change the name of an image in the current dictionary.

The keys used for ren are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Causes the image to be renamed in the dictionary and allows you to enter a new command
F1	Cancels the Rename procedure and returns you to the command line

To Rename an image, move the cursor to the ren command and press RETURN. You will be prompted to enter the old name, and then you will be asked for the new name. When you have entered both and pressed RETURN, the image will be renamed automatically.

You may also execute this command in one step by typing ren (old name) (new name) at the > prompt and pressing RETURN. For example, ren oldimage newimage

To cancel the ren command, press F1.

G-3.11 res (Reset)

The res command clears--or resets--the current dictionary. Use res instead of pur when you want to erase all image definitions in the current dictionary.

To clear the current dictionary, move the cursor to the res command and press RETURN. Or you may type res at the > prompt, which will appear as you begin to type. If you have any user-defined images in your dictionary, you will be prompted:

Have you written your images to disk?
Verify reset. (y/n)>

Pressing n cancels the reset and returns you to the command screen where you can write your images to disk with the wri command where you can access the wri command (G-3.21) to write your image definitions onto disk so that they will not be lost permanently. Pressing y causes the dictionary to be reset automatically.

G-3.12 sho (Show)

The sho command displays an image to the screen immediately, exactly as it appeared when it was named. This is a convenient way of displaying images that you do not want to move, zoom, or rotate. If you wish to move, zoom, or rotate an image, recall it to the screen by typing its name as assigned with the nam command.

The keys used for sho are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Recalls an image to the screen and allows you to enter a new command
F1	Cancels the show procedure and returns you to the command line

To recall an image without being able to edit it, move the cursor to the sho command and press RETURN. You will be asked to enter the name of the image to be shown. Enter the name and press RETURN. The image you have requested will be displayed.

You may execute this command in one step by typing sho (image name) and pressing RETURN. For example, sho newimage

To cancel the sho command, press F1.

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G-3.13 und (Undelete)

The und command allows you to remove a deletion mark (*) from a record that has been marked for deletion with the del command (G-3.2).

The keys used for und are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Causes a deletion mark to be erased from an image definition in the current dictionary and allows you to enter a new command
F1	Cancels the undelete procedure and returns you to the command line

To see a display of images that have been marked for deletion, use the def command (G-1.5) to display all of the image definitions in the current dictionary. Those images marked with asterisks (*) have been marked for deletion with the del command.

To undelete a marked image, move the cursor to und and press RETURN. You will be asked to enter the name of the image that has been marked for deletion. After you have entered the name of the image to be undeleted and pressed RETURN, the deletion mark will be removed automatically. No asterisk (*) will appear beside the image name when you use the def command to view the current dictionary.

You may execute this command in one step by typing und (image name) and pressing RETURN. For example,

```
und newimage
```

To cancel the und command, press F1.

G-3.14 who (List)

The who command lists the Primitives and images that comprise a particular image definition in the current dictionary.

The keys used for who are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Displays an image definition and allows you to enter a new command
F1	Cancels the who listing procedure and returns you to the command line

To list the image components of a definition, move the cursor to the who command and press RETURN. You will be asked to enter the name of the image definition you want to list. After you have entered the name and pressed RETURN, you will see a list of the definition's components at the bottom of the screen.

You may execute this command in one step by typing who (image name) and pressing RETURN. For example,

who newimage

To cancel the who command, press F1.

G-4 The Business Graphics Commands

Business Graphics commands may be entered by moving the cursor to the desired command and pressing RETURN. Or you may enter a command at the command line at the bottom of the screen. The > prompt will appear as you begin entering a three-letter command. To correct a typing error when entering a command, use the BACKSPACE key. Commands must be entered in lowercase letters only.

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To access the Business Graphics commands, move the cursor to bus on the command screen and press RETURN. Your screen will display:



To see a list of Business Graphics commands, type bus at the command line. Your screen will display:

The ? at the end of the line indicates that you can enter any key to return to the command line where you can enter a command.

G-4.1 Using Business Graphics

To create any of the chart displays available to you in the Graphics package, you must follow a series of steps. The process is as follows:

1. Input data into the computer, by either filling in the Spreadsheet or by reading data into the spreadsheet from a DIF (Data Interchange Format) file. See commands dat, rdf, and wdf for instructions.
2. Set up the parameters that govern the graphic display (such as range, line and marker type, titles, and scaling). See prm for instructions.

3. Choose a graphic display, such as clustered bar chart, stacked bar chart, horizontal bar chart, line graph, or pie chart. See commands cbc, hbc, lgr, pch, sbc, and xyp for instructions.

The Business Graphics commands allow you to perform each of these steps. There are two methods of inputting data. The dat command displays a blank Spreadsheet into which you can enter your data. The rdf command permits you to read data from a DIF file (data from another file or program) into the Spreadsheet. The wdf command allows you to write a DIF file that contains data from the current Spreadsheet. The rst command clears the Spreadsheet of data and resets the Business Graphics parameters to their default values.

Once you have input data, you must establish the parameters that will govern your display. Select the prm command to change the parameters on the Data Set Parameters screen. The rst command resets the Data Set Parameters screen to the default settings.

Finally, you must select the format in which you wish your data to appear. Your choices are:

cbc	clustered bar chart
hbc	horizontal bar chart
lgr	line graph
pch	pie chart
sbc	stacked bar chart
xyp	x-y plot

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G-4.2 dat (Change data set)

The first step in creating a Business Graphics display is to input data to be used in a graph or chart. To do this, select the dat command by moving the cursor to that command and pressing RETURN. Or you may type dat at the command line.

Your screen will display the data Spreadsheet:

F2/F3 INCREASE/DECREASE CURSOR SPEED			COL=1	ROW=1	
	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
ARROWS POSITION CURSOR, F1 TO CONTINUE, ELSE ENTER					

Although you can view only 6 columns (labelled alphabetically) and 21 rows (labelled numerically) at one time, there are actually 64 columns and 64 rows available to you for data entry. To scroll forward, backward, up or down in the Spreadsheet, use the arrow keys.

To enter data into the Spreadsheet, type alphanumeric or numeric data at the ENTER: prompt. Then use the arrow keys to move the cursor to the column and row where you wish the data to appear in the Spreadsheet. Finally, press RETURN to enter the data into the space you have indicated.

To continue entering data, move the cursor to the next space where you wish data to appear, type in the data, and press RETURN to enter it. Follow this procedure for entering all of your data.

Instead of keying in data, you may read in data that has been stored in a DIF file. A DIF (Data Interchange Format) file is a file that permits data to be stored and used later with the same program or another program. Many Spreadsheet programs support DIF output. See the rdf command (G-4.3) for instructions.

You can also create a DIF file from data you have entered into the Business Graphics Spreadsheet. Refer to the wdf command for instructions.

G-4.3 rdf (Read DIF File)

The rdf command allows you to read data stored in a DIF file into the Business Graphics Spreadsheet. DIF files may contain data output from another program, or they may contain data stored from previous Business Graphics displays.

Select the rdf by moving the cursor to that command and pressing RETURN. Or you may type rdf at the command line. You will be prompted:

filename? (1-8 characters) >

Enter the filename and extension of the DIF file to be read and press RETURN. The file you designate will be read automatically, and you will be able to enter another command.

G-4.4 wdf (Write DIF File)

With the wdf command, you can write a DIF file containing the current Spreadsheet data. You can retrieve this data with the rdf command.

Select the wdf by moving the cursor to that command and pressing RETURN. Or you may type wdf at the command line. You will be prompted:

filename? (1-8 characters) >

Enter the filename and extension of the DIF file to be written and press RETURN. The current Spreadsheet data will be written into a DIF file automatically, and you will be able to enter another command.

G-4.5 rst (Reset)

If you wish to clear your Data Set Spreadsheet and reset the Data Set Parameters to their default values, select the rst command by moving the cursor to that command and pressing RETURN. Or you may type rst at the command line. Your Spreadsheet will be cleared of all data automatically.

G-4.6 prm (Alter Parameters)

After you have input the data that will be used to create your graph or chart, you need to establish the parameters that govern the display. These include: range, line type, fill type, marker type, curve type, color, titles, and scaling.

Select the prm command by moving the cursor to that command and pressing RETURN. Or you may type prm at the command line.

Your screen will display the Data Set Parameters screen:

DATA SET PARAMETERS:

RANGE	LINE	FILL	MARKER	CURVE	COLOR	
A	UNDEFINED				LINE JOIN	1
B	UNDEFINED				LINE JOIN	2
C	UNDEFINED				LINE JOIN	3
D	UNDEFINED				LINE JOIN	4
E	UNDEFINED				LINE JOIN	5
F	UNDEFINED				LINE JOIN	6

TITLES:

A	
B	
C	
D	
E	
F	

SCALING:

	MINIMUM	MAXIMUM	DIVISIONS	FORMAT	PLACES	RANGES
X	AUTOMATIC	AUTOMATIC	AUTOMATIC	FIXED POINT	2	UNDEF.
Y	AUTOMATIC	AUTOMATIC	AUTOMATIC	FIXED POINT	2	
SPREADSHEET FORMAT				FIXED POINT	2	

ARROWS POSITION CURSOR, F1 TO CONTINUE, F2 TO SET DEFAULT PARAMETERS

To enter information or change parameter settings, use the arrow keys to move the cursor to the position where information is required. Then either type in information and press RETURN to enter it or press RETURN to change the settings automatically. For example, to change the line type, press RETURN until the line type you want is displayed. This line type will be entered automatically, and you can move the cursor to the next parameter you wish to change.

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G-4.6.1 Defining Range

Before you can create a graph or chart, you must define the range of data that will be included. You can define up to 6 ranges of data since each graph can contain as many as 6 curves and each bar chart as many as 6 sets of bars.

To define a range, move the cursor to one of rows A through F under the RANGE column and press RETURN. Your screen will display the Data Set screen with the data you have entered or read into it.

Now use the arrow keys to move the cursor to the row and column of the data you wish to designate as the FIRST value in your range and press RETURN. The column and row number of the data you have chosen will appear at the Enter to fix range prompt to indicate the beginning of your range.

Now move the cursor to the column and row of the data you wish to designate as the LAST value in your range. As the cursor moves, the data in the range will be highlighted. When the cursor is positioned over the data that is your LAST value, press RETURN. You will return automatically to the Data Set Parameters screen, and your range will be displayed under the RANGE heading.

You can also set a range by typing the column letter and row number of the first value followed by a decimal point (.) and the column letter and row number of the last value. For example, B1.B7 sets the range from Column B, Row 1 through Column B, Row 7.

NOTE: Do not define a range that includes any blank areas on the Data Set screen. If any defined range contains missing data, graphs and charts will not be drawn. Any alphanumeric (letters and numbers) data contained in a range that is expected to be numeric only will have the same effect, i.e., graphs and charts will not be drawn.

G-4.6.2 Defining Line Type

You may choose from many different line types to be used in drawing a line graph with the lgr command. The line types are displayed in the LINE column.

To choose a different line type than the one displayed, move the cursor to the LINE column and press RETURN until the line type you want to use is displayed. This line type is now entered as a parameter, and you may move the cursor to the next parameter you want to change.

G-4.6.3 Defining Fill Type

You may choose from many different fill types to be used in drawing a bar chart with the cbc, hbc, or sbc commands. The fill types are displayed in the FILL column.

To choose a different fill type than the one displayed, move the cursor to the FILL column and press RETURN until the fill type you want to use is displayed. This fill type is now entered as a parameter, and you may move the cursor to the next parameter you want to change.

G-4.6.4 Defining Marker Type

You may choose from 6 different marker types (or no marker) to be used in drawing a line graph with the lgr command or an x-y plot with the xvp command. The 6 marker types are displayed in the MARKER column.

To choose a different marker type than the one displayed, move the cursor to the MARKER column and press RETURN until the marker type you want to use is displayed. This marker type is now entered as a parameter, and you may move the cursor to the next parameter you want to change.

G-4.6.5 Defining Curve Type

You may choose from 3 curve types--line join, smooth join, or no join--to be used in drawing a line graph with the lgr command or an x-y plot with the xyp command. Line join connects points on the graph with a straight line. Smooth join automatically calculates and displays a smooth curve between points on the graph. The no join feature is useful for creating scatter plots.

To change the setting, move the cursor to the CURVE column and press RETURN until the curve type you want to use is displayed. This curve type is now set as the parameter, and you can move the cursor to the next parameter you want to change.

G-4.6.6 Defining Color

If you are using a system that has color capability, you may choose to display ranges in different colors. You can also use the color feature with a monochrome monitor if you will be outputting your data to a color-supported printer or plotter. In this case, images on the screen will be displayed in monochrome, but printed or plotted images will appear in the color you have selected in the COLOR column.

There are up to 7 color choices available to you. The number of colors your system or output device can generate will limit the number of choices you have. The available colors are assigned numbers from 1 to 7. If you select a color that your monitor cannot generate, images will be displayed in another color, but the color you have chosen will appear in the printed image if your printer or plotter includes your color choice.

The colors available are displayed in the COLOR column along with their assigned numbers. To assign a color to a range, move the cursor to the color bar beside the range you are assigning parameters to and press RETURN until the color or number of the color you want to use is displayed. This color is now set as a parameter, and you can move the cursor to the next parameter you want to change.

G-4.6.7 Assigning Titles to the Legend

If you want a legend to appear under your chart or graph, you can create one by assigning titles to rows A through F. To assign a title, move the cursor to the row you want to title under the TITLES heading. Enter the title exactly as you wish it to appear and press RETURN. The title is now entered, and you can move to the next parameter you want to change.

If you do not assign titles under the TITLES heading, no legend will appear with your graph or chart.

G-4.6.8 Assigning a Title to the Graph

If you want to assign a title to your graph or chart, you may do so by entering a title into the GRAPH row. Move the cursor to that row and enter the title exactly as you wish it to appear. Press RETURN. The title is now entered, and you can move to the next parameter you want to change.

If you do not assign a title under the TITLES heading, no title will appear above your graph or chart.

G-4.6.9 Assigning Titles to the X and Y Axes

You may assign titles to the X (horizontal) axis and the Y (vertical) axis of your chart or graph by entering these titles in the X-AXIS and Y-AXIS rows under the TITLES column. Press RETURN to enter the titles as parameters.

G-4.6.10 Defining the Scaling

Defining the scaling of a range allows you to control the spacing of line graphs and x-y plots. There are two methods of choosing scaling. You can either select AUTOMATIC scaling, which commands the Graphics to automatically calculate scaling. Or you can define scaling by entering the values you want under the MINIMUM, MAXIMUM, and DIVISIONS headings.

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To alter the settings in these columns, move the cursor to the point where you want to change the setting and press RETURN or enter a value by simply typing it in. The entry is now set as a parameter, and you can move the cursor to the next place where you wish to change a parameter.

The FORMAT column allows you to choose from three formats for data on your chart or graph: fixed point (for which you can choose the number of places to the right of the decimal point by entering the number of places in the PLACES column), scientific notation, or integer. To change a FORMAT setting, move the cursor to the place where you want to change the setting and press RETURN until the setting you desire is displayed. This is now set as a parameter, and you can move the cursor to the next place where you want to change a setting.

The RANGE column is used to designate data for the x axis of an x-y plot. It can also be used to insert text strings along the bottom of the x plot on a line graph. To do this, follow the procedures above for entering data or strings into the Spreadsheet and then designate the data or strings as a range in this column.

G-4.6.11 Selecting Spreadsheet Data

Regardless of the format in which you have entered numeric data into the Spreadsheet, you can convert the data into a different format on the Data Set Parameters panel. The Spreadsheet FORMAT row enables you to alter the format of data on the current Spreadsheet by selecting fixed point, scientific notation, or integer, as instructed above.

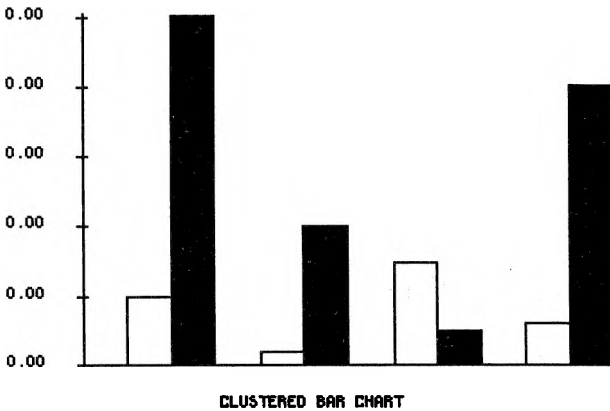
G-4.6.12 Setting Default Parameters

To assign the current default settings as parameters on the Data Set Parameter screen, press F2.

G-4.7 cbc (Clustered Bar Chart)

The cbc command displays your data in a clustered bar chart format in which bars are displayed vertically.

After you have input data and set parameters, select the cbc command. Your data will be displayed in the clustered bar chart format automatically.



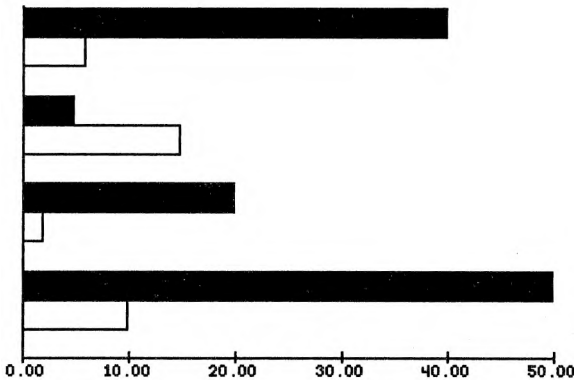
Note: For information on entering data see Sections G-4.2 through 4.5. For instructions on setting parameters, see Sections G-4.6 through 4.6.12.

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G-4.8 hbc (Horizontal Bar Chart)

The hbc command displays your data in a horizontal bar chart format in which bars are displayed vertically and contiguously.

After you have input data and set parameters, select the hbc command. Your data will be displayed in the horizontal bar chart format automatically.



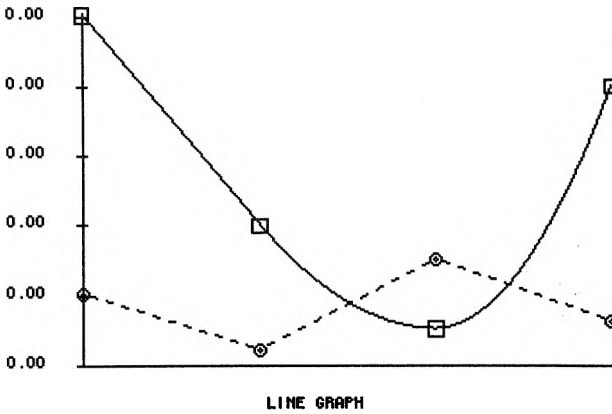
HORIZONTAL BAR CHART

Note: For information on entering data see Sections G-4.2 through 4.5. For instructions on setting parameters, see Sections G-4.6 through 4.6.12.

G-4.9 lgr (Line Graph)

The lgr command displays your data in a line graph format in which data are plotted as equally spaced points along the X axis.

After you have input data and set parameters, select the lgr command and your data will be displayed in the line graph format automatically.



Note: For information on entering data see Sections G-4.2 through 4.5. For instructions on setting parameters, see Sections G-4.6 through 4.6.12.

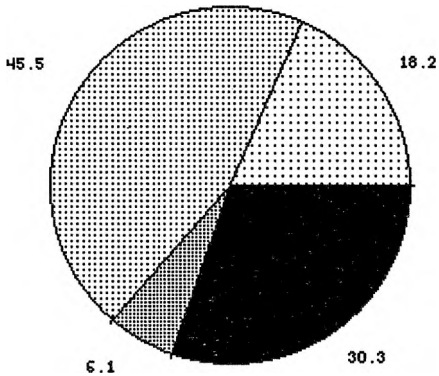
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G-4.10 pch (Pie Chart)

The pch command displays your data in a pie chart format in which data are shown as proportional sections of a circular chart.

After you have input data and set parameters, select the pch command. Your data will be displayed in the pie chart format automatically.

The pie chart uses the data in Range A only.



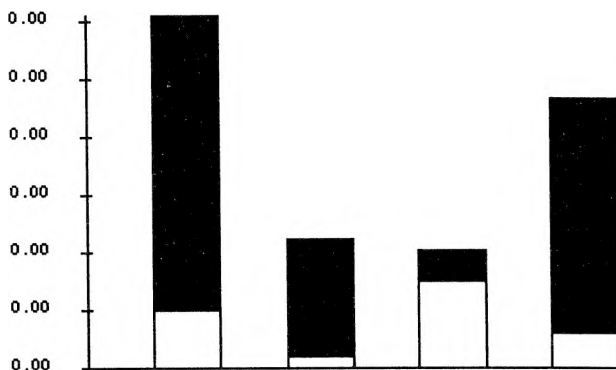
PIE CHART

Note: For information on entering data see Sections G-4.2 through 4.5. For instructions on setting parameters, see Sections G-4.6 through 4.6.12.

G-4.11 sbc (Stacked Bar Chart)

The sbc command displays your data in a stacked bar chart format in which bars are stacked vertically.

After you have input data and set parameters, select the sbc command. Your data will be displayed in the stacked bar chart format automatically.



STACKED BAR CHART

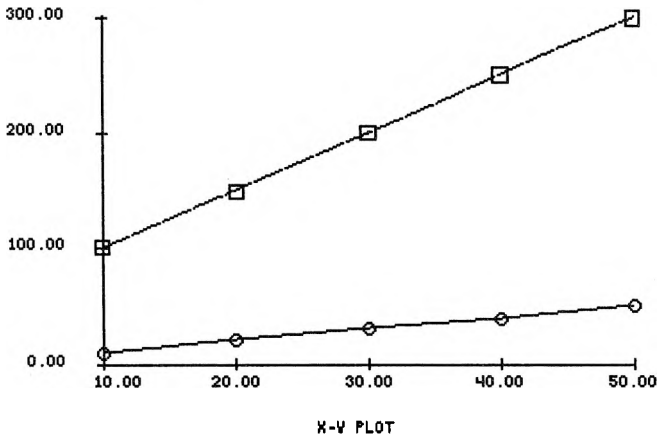
Note: For information on entering data see Sections G-4.2 through 4.5. For instructions on setting parameters, see Sections G-4.6 through 4.6.12.

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G-4.12 xyp (X,Y Plot)

The xyp command displays your data in a two-dimensional x-y plot.

After you have input data and set parameters, select the xyp command.



Note: For information on entering data see Sections G-4.2 through 4.5. For instructions on setting parameters, see Sections G-4.6 through 4.6.12.

G-5 The Output Commands

The Output commands control the sending and receiving of data and images you create with the Graphics. To access the Output commands from the main command line, position the cursor over out and press RETURN. Your screen will display the Output commands:

```
HELP PIC PLO PRN REA URI
```

Enter a command by positioning the cursor over the desired command and pressing RETURN. You can also enter a command by typing its three-letter name on the command line. To correct a typing error when entering a command, use the backspace key.

NOTE: Commands must be entered in lowercase letters only.

To see a display of the Output commands for reference purposes, type out at the command line. Your screen will display a listing of the Output commands:

```
PIC PLO PRN REA URI ?
```

The ? at the end of the line indicates that you can enter any key to continue to the command line where you can enter any command.

G-5.1 pic (Pick a Matrix)

The pic command allows you to designate a rectangular area of the screen image to be saved by writing the matrix area onto disk. The rectangular area you select with this command becomes a matrix that you can recall with the mat command. (See G-2.11 for instructions on recalling a matrix.)

The keys used for pic are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Causes the rectangular area designated to be stored as a matrix and returns to the command line
F1	Cancels the command and allows you to enter a new command

To select a matrix, move the cursor to the pic command and press RETURN. Or you can type pic at the command line and press RETURN. You will be prompted to enter a name for the matrix:

>mat name? (1-8 characters) >

Enter a drive letter (if not default) and a name for the matrix and press RETURN. Example: >b:mat1. A cursor will appear to indicate the bottom lefthand corner of the rectangular border you will be drawing to enclose the area to be saved in the mat. Use the numeric keypad to place the cursor where you wish the lower lefthand corner of the mat to be and press RETURN.

A small rectangle will appear at the cursor position. Use the arrow keys to extend the mat area until it surrounds that portion of the screen you wish to include in the mat. Press RETURN and the designated part of the screen will be written to disk, the rectangular border will disappear, and you will return to the command line.

To cancel the pic function without selecting a mat, press F1.

NOTE: On systems with limited disk space on the default drive, it is advisable to write matrices designated with pic onto a drive other than the default.

G-5.2 plo (Plotter)

The plo command allows you to print a copy of the current screen display on a plotting device.

Your plotter must be turned on and ready to print BEFORE this command is given.

NOTE: Only those plotters specified by Metasoft Corporation are supported by The BENCHMARK Graphics package.

To plot a copy of the current screen display, move the cursor to the plo command and press RETURN. Or you may type plo at the command line, which will appear as you begin to type.

G-5.3 prn (Printer)

The prn command allows you to print a copy of the current screen display. Your printer must be turned on and ready to print BEFORE this command is given.

NOTE: Only those printers specified by Metasoft Corporation are supported by The BENCHMARK Graphics package.

To print a copy of the current screen display, move the cursor to the prn command and press RETURN. Or you may type prn at the command line.

Since not all printers print the same number of dots that your screen displays, the printed image may vary in size from the screen image. You can compensate for this by enlarging or reducing the screen image accordingly.

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G-5.4 rea (Read a File)

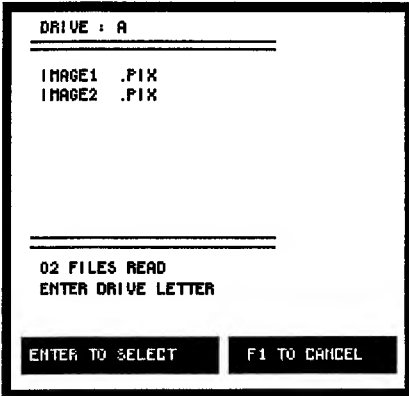
The rea command appends an image dictionary stored on disk to the current dictionary in memory. Only images that have been written to disk with the wri command can be read into the dictionary.

The keys used for rea are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Causes the command to be executed and allows you to enter a new command
F1	Cancels the operation and returns to the command line

To read an image from disk into the dictionary, move the cursor to the rea command and press RETURN. Or you may type rea at the > prompt, which will appear as you begin to type.

A directory of the pix files (images) on the default drive will appear on the left side of the screen:



If the image is on a different drive, type the desired drive letter. A directory of the pix files on that drive will appear on your screen. Use the up and down arrows to position the cursor on the desired image and press RETURN.

The image can be called up on the screen by typing sho and the image name (Sec. G-3.12) or by just typing the image name.

G-5.5 wri (Write a File)

The wri command allows you to write the current image dictionary onto disk. This is a separate procedure from the nam command, although an image must be named in the dictionary with the nam command BEFORE it can be written to disk with the wri command.

The keys used for wri are:

<u>KEY</u>	<u>FUNCTION</u>
RETURN/ENTER	Causes the command to be executed and returns to the command line
F1	Cancels the write procedure and allows you to enter a new command

To write an image onto disk, move the cursor to the wri command and press RETURN. You will be asked to enter the filename in 1 to 8 characters. After you have entered the name and pressed RETURN, the image will be written to disk automatically.

You may also execute this command by typing wri followed by the filename at the command line and pressing RETURN. For example,

wri b:newimage

To exit from the wri command without writing an image dictionary to disk, press F1 to cancel.

NOTE: On systems with limited disk space on the default drive, it is advisable to write image dictionaries onto a drive other than the default.

G-6 Additional Commands

In addition to the commands discussed in previous sections of this manual, you can also use the % (percent) key and the = (equals) keys to perform the procedures outlined below.

G-6.1 The % Key

The % key can be used to clear the current screen definition without affecting the image displayed on the screen. This is useful when you want to display an image for reference purposes but do not want the reference display to be saved in the definition of the image you are creating. Recall or draw the image you want to display without including in the image definition. Then press %. Nothing you have entered on the screen before pressing the % key will be saved as part of the image definition.

G-6.2 The = Key

The = key can be used to display a listing of all the components of the current image on the screen. The ? at the end of the line indicates that you can enter any key to proceed to the next line or return to the command line.

FONT BUILDER FUNCTIONS

FB-1 What the Font Builder Does

The BENCHMARK Font Builder provides the powerful capability of user definable fonts (typefaces) and symbols. Any imaginable symbol set from Greek characters to cryptic mathematical symbol sets may be tied to your keyboard.

The Font Builder allows the user to design his own printer and screen fonts. The ability to design printer fonts to match the font on the screen is very important. By using the Font Builder and designing a printer font which corresponds to the screen font, the user can preserve "what you see is what you get" when viewing a screen image (what you see) or the printed output (what you get).

The user can define the height and width of the characters in the font by entering cell parameters. A font cell is the space used by one character. Each font cell is made up of a number of rows and columns (width and height) of pixels (picture elements). Each pixel can be set to white or black to define a character corresponding to each font cell.

FB-2 Getting Started

From The Administrator, position cursor on Font Builder and press F10 (or just press F8). You will see the Font Builder main screen. The Font Builder is extremely simple to operate. There are only two different screens to the Font Builder: The main screen and the Help screen. To access the Help screen at any time in the program, press F6. To exit from the Help screen, press F1 to return to the Font Builder.

If the Font Builder is not already installed on The Administrator, follow the instructions in The Administrator manual, Section AD-5.1 To Install a Program. In the field that asks the program's filename, enter fonbuild.bmk.

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FB-3 The Font Builder Main Screen

The main screen of the Font Builder contains two sections: On the upper right is the Design Grid; the upper left contains the Font Display. The lower half of the screen contains information concerning the function keys and the font being designed. The lower left portion of the screen appears as below:

ASCII # of character to edit: xx
F1 - Exit
F2 - Read a Font File
F3 - Write a Font File
F4 - Create a New Font
F5 - Copy a Font Cell
F6 - For Help
(Prompts will be seen here)

Typing any letter key will cause the font display cursor to appear in the cell associated with that key.

The numbers in the field on the line: "ASCII # of character to edit:___" will change according to the position of the cursor in the Font Display. This allows the user to see that the character he is creating is in the correct position in the ASCII table.

The lower right side of the screen will resemble the screen shown below:

File Name: _____.
Char. Width: ___
Char. Height: ___

This information tells the user about the font currently being displayed: its name, height and width.

When you are creating, reading, or writing a font file you will receive several prompts. These prompts appear on the lower left of the screen below "F6 - For Help".

FB-3.1 Function Keys Used in the Font Builder

There are several function keys that are used by the Font Builder to speed up the creation of your new font.

<u>KEY</u>	<u>FUNCTION</u>
F1	Exit
F2	Read Font File
F3	Write Font File
F4	Create New Font
F5	Copy a Font Cell
F6	HELP

FB-4 Create a Screen Font

Press F4 to enter the create mode. You will be asked: "Clear the font, yes/no?". If you press N, the current font will not be cleared, allowing you to change the font cell size while retaining the same font definition. This provides a quick method of generating a printer font (See Section FB-7). Section FB-6 will discuss other uses for this feature in more depth.

Pressing Y will clear the font currently on the screen.

WARNING: Any data not written to disk at this point will be lost.

You will now be prompted to:

Enter Font File Name and/or Return:

Type the name of the font only (without the extension .SCR) that you will be creating and press RETURN. If you press RETURN without entering a filename, the new font will be created using the name of the font that was last employed.

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FB-4.1 Cells

A cell is that space taken by one character in the font. Every time you create a new font, you will be entering the dimensions, or parameters, of the size of a character (cell). When you have named the font, you are ready to enter the cell parameters. A cell consists of two parameters: Width and Height. Those parameters are discussed in the following sections.

FB-4.2 Cell Width

Now that your font has a name, you need to decide what size you wish the new font to be. A cell may be up to 16 spaces (pixels) wide. After naming the font you will be prompted to:

Enter Cell Width and/or RETURN:

Pressing RETURN without entering a cell width will cause the new font to be created with the cell width of the previous font.

You may enter a number from 4 through 16. If you wish a cell width different from the previous font, enter the desired number and press RETURN.

FB-4.3 Cell Height

The cell height parameter is selected in the same way as the cell width. A cell may be up to 20 spaces (pixels) high. After you enter the cell width, you will be prompted:

Enter Cell Height and/or RETURN:

Pressing RETURN without entering a cell height will cause the new font to be created with the cell height of the previous font.

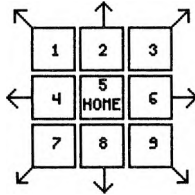
You may enter a number from 4 through 20. If you wish a cell height different from the previous font, enter the desired number and press RETURN.

FB-4.4 Design Grid

After naming the new font and setting up the parameters, the design grid will appear in the upper left-hand corner of your screen. This grid will reflect the cell width and height that you selected. The numeric key pad is used to move the cursor around in the grid.

FB-4.5 Moving the Cursor in the Design Grid

The Numeric Key Pad is used to move the cursor around the design grid as shown below:



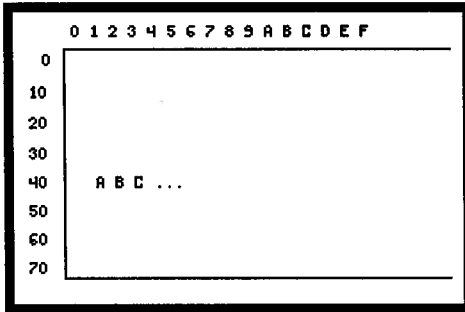
The 5 key is used to "home" the cursor to the center of the grid.

FB-4.6 The Font Display

The Font Display is the area on the right side of your screen that is used to store each character you are creating.

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The illustration below shows a Font Display:



The numbers and letters on the top and left of the display correspond to the ASCII table in "hex code".

FB-4.7 Moving the Cursor in the Font Display

The cursor arrows are used to move the cursor around the font display as follows:

KEY

FUNCTION

Up Arrow	Up one space
Down Arrow	Down one space
Right Arrow	Right one space
Left Arrow	Left one space

Another method of moving the cursor in the font display is to press the key corresponding to the character in the cell you wish to move the cursor to. The numbers and letters on the font display above correspond to the ASCII table (hex code). For example, if you wish to position the cursor to the correct position to create the letter A (position 41), press the A key. The cursor will jump to that position in the display. An ASCII table has been provided for your convenience in Appendix A of this manual.

FB-4.8 Designing a Character

The design grid is used for the creation of any characters. As the character is created, you will also see it appearing at the cursor location in the font display. This allows you to be aware of any design changes or enhancements that might be necessary and also allows you to preview the finished product.

With the Numeric Key Pad, position the cursor at the location you wish the character to begin. Note that the cursor appears as a solid dot. This means that the space the cursor is on is not "set" as part of the character. Once you have the cursor in position, press RETURN. Notice that the cursor has changed to a hollow dot. This tells you that the space is "set" as part of the character being designed. Continue moving the cursor and pressing RETURN until you are satisfied with the appearance of the character.

To begin another character, use the cursor arrows to position the cursor at the desired location in the font display and then follow the above procedure to design the next character.

FB-5 Saving What You Have Created

This feature is used to write a font file to disk after it has been created or edited. When you are satisfied with the font being created or edited, you can write it to a disk. It will be stored there until you call it up to change fonts in the Graphics program.

To write a font to disk, press F3. You will be prompted:

Screen font or printer font (s/p)?

Pressing F1 will cancel this operation. Press P to write a printer font or S to write a screen font. You will now be asked to enter the name of the font to be written. This is discussed in FB-5.1.

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FB-5.1 Changing the Name or Drive of the Font

Once you have told the program what type of font to write to disk, you will be asked to:

Enter Font File Name and/or RETURN:

If you wish to keep the same name and drive letter of the font you are writing to disk, press RETURN.

If you wish to change the name of the font, type in the new name (up to 8 characters) and press RETURN.

If you wish to store the font on a different drive (change the drive letter) type in the desired drive letter followed by a colon (C:) then the filename and press RETURN. The font will then be written to that drive.

FB-6 Increasing or Decreasing Cell Size

The size of an existing font may be increased or decreased by using F4 - Create a Font File. If you wish to change the size of an existing font, press F2 to read in the desired font. Now press F4. You will be asked:

Clear the font, yes/no?

If you press N, the current font will not be cleared, allowing you to change the font cell size while retaining the same font definition. This provides a quick method of generating a printer font (See Section FB-7).

Press N. You will be prompted:

Printer font or screen font (s/p)?

Select the desired type of font you are creating (screen or printer). You will now be prompted:

Enter cell width and/or RETURN:

If you wish to increase or decrease the cell width, type in the desired number and press RETURN. If you do not wish to alter the width, press RETURN without entering a number. You will now be asked to:

Enter cell height and/or RETURN:

If you wish to increase or decrease the cell height, type in the desired height and press RETURN. If you do not wish to alter the height, press RETURN without a new height.

The font on the screen will clear and be replaced by the new font that reflects the new dimensions and/or extent (.PTR).

FB-7 Create a Printer Font

Once you have created a screen font, you are ready to create a matching printer font. To determine what size cell to use you must consult the user's manuals to both your printer and screen. These manuals will give you the aspect ratio and resolution of your screen and printer.

FB-7.1 Why Two Different Fonts?

Each video and printer have an associated aspect ratio and resolution. The "aspect ratio" is a pair of numbers indicating, as a fraction, the ratio of pixel height to pixel width. For example, a display device with an aspect ratio 1/1 has square pixels. The "resolution" is the number of rows and columns of pixels making up an image on a display device.

In order to preserve "what you see is what you get" between your computer screen and output device, these differences in aspect ratio and resolution must be taken into account. This is accomplished by choosing the printer font cell width and height corresponding to the screen font cell width and height as described in Section FB-6.

You may use the same font for both printer and screen if desired, however, bear in mind that the appearance of text on the printer may be different than that on the screen.

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The screen font and printer font will have the same filename but a different extent. For example, you have created a screen font and named it PICA. This would appear on your menu of screen fonts as PICA.SCR. You must also generate a printer font called PICA.PTR. When it is time to print an image, the program will look for a printer font with the same filename as the screen font being used, but with the extent .PTR.

FB-7.2 Determining Printer Font Cell Size

To determine the width in pixels of a cell in the printer font do the following:

1. Calculate the number of characters that will fit across the screen by dividing the number of pixels in the screen's width by the number of pixels in a character's width.
2. Divide the number of pixels in the printer's width by the number of characters in the screen width as calculated in step 1.
3. If the number of pixels in the printer's width in step 2 is greater than 800, use 800.

To determine the height in pixels of each printer font do the following:

4. Multiply the above calculated printer width times the screen height.
5. Multiply the result of step 4 by the screen's aspect ratio.
6. Divide the result of step 5 by the printer's aspect ratio. The result is the correct size in pixels for the height of the printer font.

Follow the instructions in FB-4 to create the font.

FB-8 Read a Font File

You may wish to view an existing font. To do so, press **F2**. You will be asked: "Screen font or printer font (s/p)?" Enter **S**, or **P** (or **F1** to cancel the read operation). A menu of the fonts on the default drive will appear on the screen. The menu will appear as shown below:

DRIVE: A	
GREEK	.SCR
VI	.SCR
TIPC	.SCR
03 FILES READ	
ENTER DRIVE LETTER	

If the font file you wish to display is not found on the default drive, press up arrow to position the cursor on the "Enter drive letter" field, then enter the letter of the drive containing the font you wish to view.

To select a particular font move the cursor to the desired font with the cursor arrows. Press RETURN. The font currently on the screen will be replaced by the font you have just selected to be read.

At this point you will be able to move the cursor to any character in the font display and that character will appear in the grid to the left of the font display.

At this time you may edit or add to the displayed font file. To make the changes permanent, write the font to disk as described in section FB-5.

FB-9 Copy a Font Cell

The copy feature allows the user to copy a character (font cell) to another location on the font display. Use the cursor arrows to position the cursor on the cell you wish to copy to. Press F5. The following prompt will appear:

Cell to Copy From?

Press the key which corresponds to the character you wish to copy. That character will now be inserted at the cursor location.

The "Copy" feature may also be used to clear a font cell. To clear (erase) a font cell press F5 and then the SPACE BAR. The font cell will then be cleared.

TEXT & GRAPHICS FUNCTIONS

T&G-1 Combining Text and Graphics

If you purchased The BENCHMARK Series III or Series IV, you have the ability to combine text and graphics and print it out using The BENCHMARK Word Processor.

The following exercises will lead you through the different ways to combine text and graphics. This exercise will also show you different ways to edit and use these files.

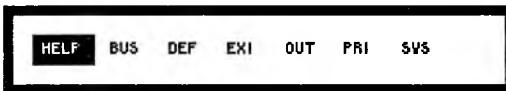
T&G-2 Getting Started

Your screen will display the Administrator menu.

Press F2 to load Graphics.

T&G-3 Accessing Graphics (Insert an Image into Text)

For this exercise, you will be creating a piechart for later insertion into a word processor document. Your screen should now display the main command line:



Type dat and press RETURN to enter data to be used in the piechart. A "Spreadsheet" will appear on your screen. Type 10, and press RETURN. "10.00" will appear at the cursor location (cell A1).

Press down arrow once. Type 25 and press RETURN. "25.00" will appear at the cursor location (cell A2).

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Press down arrow once. Type 50 and press RETURN. "50.00" will appear at the cursor location (cell A3).

Press F1 to continue. You will be returned to the main command line.

Type prm and press RETURN to set the parameters to be used in the piechart.

Press RETURN. The "Spreadsheet" screen will appear. Press RETURN. Press down arrow twice to define through 50.00 and press RETURN.

Press F1 to set the parameters and return to the main command line.

Type pch and press RETURN to create a piechart with the parameters you selected. A piechart reflecting those parameters will be drawn on the screen.

T&G-3.1 Name Your Image (Save it in Memory)

To assign a name to your image and thereby save it in memory, type nam and press RETURN. You will be prompted:

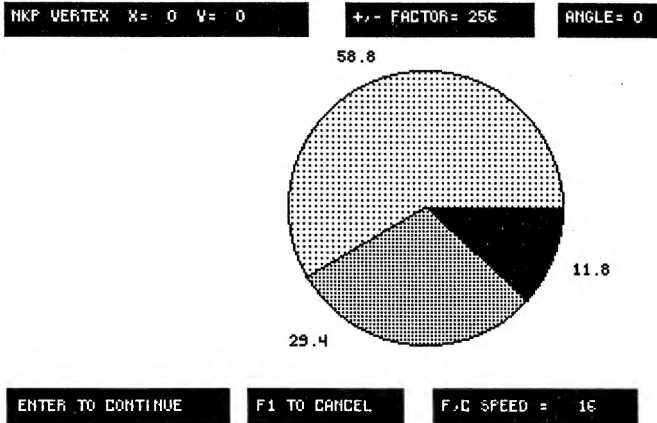
name: >

Type image and press RETURN. You will return to the command line. In the lower righthand corner of the screen is a message that confirms the naming procedure: saved image.

T&G-3.2 Moving the Image

For this lesson, you will move the piechart to the upper half of the screen. To do this, type clr and press RETURN to clear the screen.

Type image and press RETURN. The piechart will reappear on the screen as below:



Press the c key twice to increase the SPEED to 16.

Press the 8 key as many times as necessary to move the piechart to the upper half of the screen. The top number on the chart should almost touch the bottom of the menu.

To demonstrate the "zoom" feature of the Graphics, press the - (minus) key twice. Notice that the image gets smaller. Now press the + (plus) key twice. The image will return to its original size.

When the image is in position, press RETURN. This is now a new image and must be named. Type nam and press RETURN. You will be prompted:

name: >

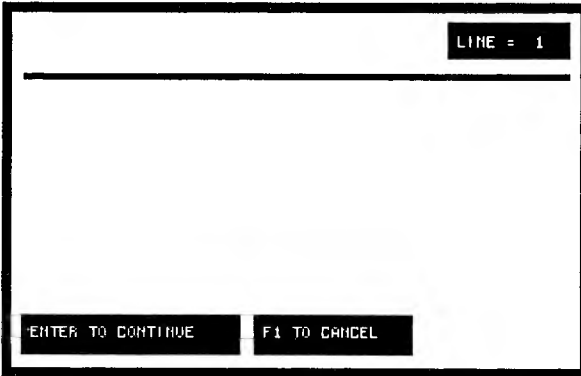
Type image1 and press RETURN. You will then be prompted: image1 saved.

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T&G-3.3 Measure (Cut) an Image

Because the piechart you have just created is going to be inserted into a document, it is necessary to know how many lines to use in the graphic command line.

While the image is still on the screen, type cut and press RETURN. A "ruler" (line) will appear on the screen, as shown below:



Use the down arrow to move the line to just below the piechart. The counter in the upper left corner will show which line the ruler is on. When the line is in position, press RETURN. The line will remain on the screen for future reference.

T&G-3.4 Write Your Image to a Disk

To save your images permanently, you must write them to a disk. Otherwise, they will be lost when you exit from Graphics. You will be storing the image on drive B, as with all of the other files you are creating in this lesson.

Type wri and press RETURN. You will be prompted:

file name (1-8 characters) >

Type b:imager1. Press RETURN. You will see the message "system working" to indicate that your image is being written to disk. When this is complete, you will see "disk write complete".

T&G-3.5 Exit from the Graphics Program

To return to The Administrator menu, move the cursor to exi and press RETURN. You will be prompted:

Have you written your images to disk?
Verify exit. (y/n) >

Type y and press RETURN. You will return to the Administrator where you can select the Word Processor to create a document.

T&G-4 Accessing the Word Processor

Your screen will display the Administrator menu. Press F1 to load Word Processor.

T&G-4.1 Creating a Document

Your screen will display the Word Processor main menu:

THE BENCHMARK® WORD PROCESSOR	
FUNCTION:	CREATE A DOCUMENT REVISE A DOCUMENT VIEW A DOCUMENT PRINT A DOCUMENT INDEX A DOCUMENT OPTIONS
SELECT FUNCTION AND PRESS F10 OR PRESS ESC TO EXIT	
COPYRIGHT© 1980-86 BY METASOFT CORPORATION	

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The cursor will appear over "Create a Document". Press F10 to select the Create function. Or you may simply type c to access this function.

You will be prompted to enter title and author information for the document you are creating:

```
CREATE - PLEASE ENTER NEW DOCUMENT'S DIRECTORY INFORMATION
PRESS F10 TO CONTINUE OR ESC TO RETURN
TITLE: > _____ <          AUTHOR'S INITIALS: >__<
OPERATOR'S INITIALS: >__<
SAVE IN DRIVE: >B<
```

Type SAMPLE LETTER in the title field (the space where you are asked to enter the title).

Press the TAB key once to move the cursor to the next line. Type your 3 initials in the space labeled Author's Initials, and the cursor will move to the next line automatically.

Type your 3 initials in the space labeled Operator's Initials.

Note B in the "Save in Drive:>B<" field. This will cause the document to be written to drive B. Press F10 to continue.

Your screen is now ready to begin displaying your document as you enter it. You are now ready to type in your sample letter. The Word Processor is in the insert mode. The document title and other information now at the top of the screen will not appear on your document when it is printed.

The page format, with margins and a tab setting of 5 spaces, has already been set for you. This is the current default setting, or the setting that will be used automatically until you change it.

Type the text of the sample letter (shown below) as you would if you were using a typewriter, except that you do not need to enter carriage returns at the end of lines of text unless you want to force a break in the line (for example, after a salutation or at the end of a paragraph).

Type the letter below. Comments in parentheses () indicate that you should press the TAB or RETURN key at that point. The < mark appears each time a carriage return is entered. It will not appear on your printed document.

TYPE THIS LETTER:

**(TAB key 10 times) January 1, 1985 (RETURN)
(RETURN)**

**Ms. C. Ross (RETURN)
1000 E. Thirteenth St. (RETURN)
Phoenix, Arizona 85000 (RETURN)
(RETURN)**

**Dear MS. Ross: (RETURN)
(RETURN)**

**(TAB)The following chart reflects the current
increases in the sales of our product over the last
three years. (RETURN)
(RETURN)**

**(TAB)Thank you for your interest in our company.
We will keep you advised of any further increases in
sales.(RETURN)
(RETURN)**

**Sincerely, (RETURN)
(RETURN)
(RETURN)
S. D. Reed (RETURN)
Finance Officer (RETURN)**

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T&G-4.2 Insert the Graphic into a Document

Using the up arrow, position the cursor to the left margin of the line immediately following "...last three years".

Press F3 to call up the Special Functions menu. Press ! for a non-printing comment. Type IG:17.b:image1.image1. Press RETURN.

You have just inserted the Graphic Command Line. This is a command that tells the program to (1) insert a graphic; (2) how many lines of the image to insert; and (3) the drive and picture name of the image.

The number of lines to take from the graphic image is the same number you arrived at when you measured the image with the "cut" command. If your image was more or less than 17 lines, type the correct line count in place of the 17 in the command line above. The drive letter and picture filename are the same as those you assigned with "nam" and "wri". If you did not assign a drive letter to the image, it was stored on the default drive.

The document is now ready to finish. When the document is printed the piechart will be inserted in the document at the designated place.

T&G-4.3 Finish the Document

Press F10. Press the ESC key to display a list of available commands, shown below. You have left the inserting mode. You are now in the command mode, and the Word Processor is waiting for you to enter a command:

```
ENTER A COMMAND: (A)PPEND, (B)-ATTACH BLOCKS, (C)OLUMNS,  
(D)ISPLAY, (E)RASE, (F)INISH, (G)RAPHICS, (H)EADERS,  
(I)NSERT BLOCK, (J)UMP, (K)ILL, (L)IBRARY, (M)ERGE,  
(O)VERTYPE, (P)RINTER, (Q)UICK, (V)ERIFY, (W)IDOW,  
(X)CHANGE, (+)CALCULATOR, (-)HYPHEN SCAN
```

```
1-MOVE 2-COPY 3-GET 4-FIND NEW 5-FIND 6-REPLACE 7-PHASE
```


Press F to finish the document. You will be prompted to confirm that you want to finish the document:

Finish Document; Press: Y-Yes or N-No

Type Y to indicate that you are finished creating the document.

The document you have created will now be saved on disk. The program will automatically return you to the Word Processor main menu.

T&G-4.4 Print the Document

The "Print a Document" function enables you to generate a paper copy of your document.

When you see the Word Processor main menu, press p. You will be asked for the drive where the document is that you wish to print. For this exercise use drive B. Press F10.

A list of documents on drive B will appear. The display will be similar to the one below:

DRIVE: B		THE BENCHMARK (®)			XXX K REMAINING		
WORD PROCESSOR							
FILE	TITLE	SIZE	AUTH	OPER	CREATED	REVISED	TIME
>_<01A	SAMPLE LETTER	1K	LKO	LKO	4-MAR-84		9:20
END OF DIRECTORY							

In the left column, type an "p" beside the document that you want to print. Press F10.

The BENCHMARK

Your screen will now display a panel that allows you to set parameters that will control the printing of your document:

DRIVE: B	THE BENCHMARK [®]	XXX K REMAINING
WORD PROCESSOR		
NUMBER OF COPIES >_<		
PRINT CONTINUOUS FORM (Y OR N)? >_<		
SELECT OPTIONS, PRESS F10 TO BEGIN PRINTING OR ESC TO QUIT		

To print one copy of your sample document, do not enter any changes in either of the fields displayed on this panel. Make sure that your printer is turned on and loaded with paper. Then press F10. Printing will occur automatically, and you will be returned to the Word Processor Main Menu when it is complete.

T&G-5 Insert Text into a Graphic Image

The program not only allows you to insert a graphic image into a document, it also lets you merge an ASCII file created from a document into a graphic image. There are three basic steps to this process: (1) preparing the document, (2) preparing the image, and (3) merging the text file into the image. The following section will take you step-by-step through the creation of the text file and the image and through the merge process.

T&G-5.1 Write an ASCII File

Your screen will display the Administrator menu:

THE BENCHMARK [®]		
ADMINISTRATOR		
F1: WORD PROCESSOR	NOTEBOOK	MAIL LIST
F2: GRAPHICS	MESSAGES	TELECOM
F3: 3-D SPREADSHEET		
F4: DATA MANAGER		
F5: SPELLING CHECKER		
F6: MERGE PROCESSOR		
F7: FILE MANAGER		
F8: FONT BUILDER		
		DEFAULT DRIVE
		CHANGE PRINTERS
		PROGRAM INSTALLATION
SELECT FUNCTION AND PRESS F10 OR PRESS ESC TO EXIT		
COPYRIGHT [©] 1986 BY METASOFT CORPORATION		

Press F1 to load Word Processor. Your screen will display the Word Processor main menu.

NOTE: To save time in this exercise, we are going to revise an existing document instead of creating a new one.

The cursor will appear over "Create a Document". Press r to select the Revise function. You will be prompted to select the file you wish to revise. Press F1 to see a list of the files on drive B.

When you see the file number of the file you just created in the last section (SAMPLE LETTER), type it in the "File Number" field and press F10.

The directory information for that file will now appear. You can change the title at this point to reflect that it has been changed, or you may just press F10 to accept the existing information.

The BENCHMARK

Your screen is now displaying your document. Move the cursor to the left margin of the line containing the "Graphic Command" line (Remember, it starts with "!IG:"). Press DEL to enter the delete mode. Press RETURN to define the entire line. Now press DEL to exit the delete mode and to delete the line.

The next step in preparing a text file is to write an ASCII file. This is done by defining a certain amount of text that will then be written out to an ASCII file.

Press HOME twice to position the cursor in the top home position of the screen.

Press ESC to access the command menu. Press F7 to Cut Text to an ASCII File. You will be prompted:

Enter Name of File to Write Text to:
>A:TEMPFILE.ASC<

Type B:EXAMPLE.ASC and press F10.

NOTE: All files that are cut from the Word Processor must have the extent .ASC.

You will now be prompted:

**Define Text and Press F10, or Press ESC
to Exit Function.**

Define the entire document by pressing / (slash key) twice. Press F10. The text will be written out as an ASCII file.

T&G-5.2 Exit the Document

Finish the document by pressing ESC to bring up the command menu and then pressing f to Finish the Document.

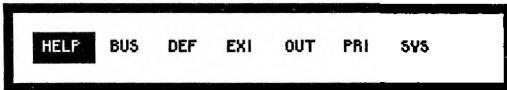
The Word Processor Main Menu will appear. Press ESC to exit from the Word Processor. The next step in merging a text file into a graphic is to prepare an image.

T&G-5.3 Inserting the Text (ASCII) File

Your screen will display The Administrator menu. Press F2 to load Graphics.

NOTE: For this exercise, you will be using the piechart that you created in Section T&G-2. Using the Text & Graphics capability of The BENCHMARK Software, you will be able to merge an ASCII file into any graphic image. You are also able to use more than one ASCII file in the same image.

Your screen will now display the main command line:



Type rea and press RETURN to call up a menu of the images on your disk. The screen will look like the one below:



The BENCHMARK

Type B to cause the program to show a menu of the picture files on drive B.

Use the down arrow to move the cursor to the line containing IMAGE1.PIX and press RETURN. The message "system working" will appear on the screen and you will be prompted "disk read complete".

Type image1 and press RETURN to call the piechart up to the screen. For this example, you will be moving the chart to the right side of the screen.

Press c twice to increase the cursor movement speed.

Press the 6 key as many times as necessary to move the image to the right side of the screen.

Press RETURN.

The third basic step to inserting a text file into an image is to prepare an area in the image for the text to be "poured" into.

Type txt and press RETURN. A small rectangle will appear at the cursor location. This rectangle (box) is used to define the area to contain the text of the ASCII file you created. Press 5 to "home" the box to the center of the screen.

Press the 4 key as many times as necessary to move the box to the left side of the screen.

Press the 8 key as many times as necessary to move the box to the top of the screen.

The cursor arrows are used to increase the width and length of the box to a size which will accommodate the text file. Press the right arrow twenty (20) times to widen the box. Press the down arrow 20 times to lengthen the box.

Press RETURN to set that location. The txt function also allows the user to format the text margins to flush or non-flush. The F2 key will toggle the margins between the two choices. Press F2 to select flush margins.

Press F1 to stop defining space for text. A directory of the text files on the default drive will appear on the screen. Type B. This will show you the text (ASCII) files on drive B. Use the down arrow to position the cursor on EXAMPLE.ASC and press RETURN.

The text in EXAMPLE.ASC will be "poured" into the area you just defined.

You must name this new image. Type nam and press RETURN. You will be prompted:

name:

Type image2 and press RETURN. You will return to the command line. In the lower righthand corner of the screen is a message that confirms the naming procedure: saved image.

T&G-5.4 Save the Image to Disk

To save your images permanently, you must write them to a disk. Otherwise, they will be lost when you exit from Graphics. You will be storing the image on drive B, as with all of the other files you are creating in this lesson.

Type wri and press RETURN. You will be prompted:

"file name (1-8 characters) >"

Type b:image2. Press RETURN. You will see the message "system working" to indicate that your image is being written to disk. When this is complete, you will see "disk write complete".

T&G-5.5 Print the Image

Once you have named the image and written it to disk, you may print it. Check to see that your printer is on and has paper and that you have the correct printer driver selected. (See AD-4 of the Administrator manual).

Type prn and press RETURN. If you have a dual floppy system, you will be prompted to "insert Utilities Disk in Drive A and press ENTER." If you have a hard disk, you will not have to change disks to print a graphic image.

The message "system working" will appear under the image. In a few moments, the printer will begin printing.

The BENCHMARK

When the image has been printed, you will be prompted to re-insert the Main Graphics disk in drive A and press Return. When this is done, type exi and press RETURN. You will return to The Administrator.

T&G-6 Uses for the Text and Graphics Combination

The BENCHMARK Word Processor/Graphics/Font Builder combination allows complete control of output format and positioning of graphs and images on paper through user-defined spacing, margins and the ability to extend graphic images over more than one screen in length.

The program also allows you to print multiple copies of a graphic image by inserting that image into a word processor document.

By combining The BENCHMARK Font Builder with the Graphics and Word Processor, you can create any number of different fonts and use them to create company logos and design letterheads. You can use multiple fonts within a graphic image, giving you an almost unlimited number of uses for The BENCHMARK Series III or IV: Design and print greeting cards; insert a graph or chart into a document; any number of combination of text and graphics.

T&G-6.1 Print Multiple Copies of an Image

The program will let you save time and energy by printing multiple copies of the same image by inserting the graphic into a BENCHMARK Word Processor document, saving it and then printing any number of copies (up to 99).

From The BENCHMARK Word Processor Main Menu, press c to Create a Document. Follow the instructions in Section T&G-4.2 of this manual for inserting a graphic. You may use up to 25 lines for an image. When you have completed the graphic command line, press f to Finish the Document. At the Main Menu press p to Print a Document, select the number and revision letter of the document and press F10. The next screen will allow you to designate how many copies of the document you wish to print. Type in the desired number and Y for continuous paper or N for single sheets. Press F10. The image will now be printed as many times as you indicated.

T&G-6.2 Adjusting the Margins on an Image

By using the Page Format feature of The BENCHMARK Word Processor you can move the image left and right on the page to easily line it up with the text contained in the document or center the image on the page.

If an image is created on the left side of the screen in the Graphics program, its margins will match those of the document it is inserted into. But you may want it to be printed more toward the center of the page. To change the margins of a graphic image you may insert a page format with the desired margins before the graphic command line for inserting a graphic and a page format that returns the margins to the original setting after the graphic command line. For example, the left margin on your document is 10 and you want the graphic to be printed at 20, the following will walk you through the necessary steps.

1. Position the cursor to the left margin of the line above the line containing the formula and press F1 to call up the Page Layout panel.
2. Use the TAB key to move the cursor to the Left Margin Field and enter 20. Press F10. Your screen will now look similar to the one shown below:

The BENCHMARK

```
* - PAGE FORMAT (LEFT MARGIN SET TO 10)
```

```
(BODY OF DOCUMENT)
```

```
* - PAGE FORMAT (TO CHANGE MARGIN TO 20)
```

```
!!G: 10,B: EXAMPLE,EXAMPLE<
```

3. The next step is to change the margins back to the original setting. Position the cursor to the left margin of the line immediately below the formula and press F1. Move the cursor to the Left Margin field and enter 10. Press F10. Your screen will now appear as follows:

```
* - PAGE FORMAT (LEFT MARGIN SET TO 10)
```

```
(BODY OF DOCUMENT)
```

```
* - PAGE FORMAT (TO CHANGE MARGIN TO 20)
```

```
!!G: 10,B: EXAMPLE,EXAMPLE<
```

```
* - PAGE FORMAT (CHANGE MARGIN BACK TO 10)
```

Follow the above example for any desired margin changes for inserting a graphic into a document.

T&G-6.3 Extending a Graphic Beyond One Screen

If you have an image that is more than 1 screen in length, the "page" feature of The BENCHMARK Graphics allows you to scroll screen by screen to name screen-size images for printing or inclusion in a word processor document. The following example will take you step by step through the process of creating a large image, naming it, and printing it from Graphics and the Word Processor.

1. From The Administrator menu, select F2 to access the Graphics. Type cir and press RETURN. Press 5 to center the cursor on the screen. Press c to increase the cursor movement speed to 16.

Press the 4 key as many times as necessary to move the cursor to the upper left corner of the screen. Press RETURN. A small circle will appear at the cursor location. Press the + (plus) key eight (8) times to enlarge the circle. Press RETURN.

Type rec and press RETURN. Press the 8 key enough times to position the cursor to the top of the circle. Press RETURN. A small rectangle will appear at the cursor location.

Press up arrow approximately twenty (20) times to lengthen the rectangle. The top of the rectangle will disappear from view. Press right arrow eight (8) times to widen the rectangle. Press RETURN.

Type rec and press RETURN. Press the 2 key enough times to position the cursor to the bottom of the circle. Press RETURN.

Press down arrow approximately twenty (20) times to lengthen the rectangle. The bottom of the rectangle will not be visible. Press left arrow nine (9) times to widen the rectangle. Press RETURN.

2. You must name the first screen of the image and then name each successive screen of the image. Type nam and press RETURN. You will be prompted: name:>. Type test and press RETURN. You will receive the message "test saved". You are now ready to name each individual screen.

Type clr and press RETURN to clear the screen. Type test and press RETURN. The image will reappear on the screen. Press c enough times to increase the cursor movement speed to the "page" setting. Press 2 one (1) time to move the image down one page and press RETURN.

Type nam and press RETURN. You will be prompted: name:<. Type a1 and press RETURN. You will receive the message "a1 saved".

The BENCHMARK

Type clr and press RETURN to clear the screen. Type test and press RETURN. The original image will reappear on the screen. Press RETURN. Type nam and press RETURN. You will be prompted: name: <. Type a2 and press RETURN. You will receive the message "a2 saved".

Type clr and press RETURN to clear the screen. Type test and press RETURN. The image will reappear on the screen. Press c enough times to increase the cursor movement speed to the "page" setting. Press g one (1) time to move the image up one page. Press RETURN.

Type nam and press RETURN. You will be prompted: name:<. Type a3 and press RETURN. You will receive the message "a3 saved".

3. You are now ready to save the image by writing it to a disk.

Type wri and press RETURN. You will be prompted: name:<. Type b:test and press RETURN. This will store the image on drive B. You will then receive the message "disk write complete".

4. This step is necessary if the graphic image is to be included in a word processor document. Since the first two parts of the image take a complete screen (25 lines) it is not necessary to measure them. The third image, however, only takes up the top portion of the screen. To measure the third image:

Type clr and press RETURN to clear the screen. Type sho a3 and press RETURN. The third image will appear on the screen.

Type cut and press RETURN. The measuring "ruler" will appear. Press down arrow until it measures the length of the image. Press RETURN. Remember the measurement of this image.

5. Type clr and press RETURN to clear the screen. Type sho a1 and press RETURN. Type prn and press RETURN. The first image will then be printed.

Type clr and press RETURN to clear the screen. Type sho a2 and press RETURN. Type prn and press RETURN. The second image will then be printed.

Type clr and press RETURN to clear the screen. Type sho a3 and press RETURN. Type prn and press RETURN. The final image will then be printed.

NOTE: Due to the "aspect ratios" of different printers, the above image may print out longer or shorter than it appears on the screen. The above exercise is intended solely as a tutorial on the features of the text and graphics combination.

Type exi and press RETURN. You will return to The Administrator menu.

If you want to print more than one copy of the large image, the following exercise will demonstrate the necessary steps.

6. Press F1 to access the Word Processor. Press c to Create a Document.

Type PAGE TEST in the Document Title field. Enter your initials in the Author and Operator fields and type B in the "Save in Drive >_<" field if it is not already there. Press F10. Your screen is now ready for you to begin entering the text of the document. In this case, you will only be entering "graphic command lines".

You will need to change the page format from the default settings to a setting that will begin printing on line 1 and end on line 58 to make sure that there is enough room on the page to print the entire image. Press backspace to delete the default page format. Press F1 to call up the Page Layout panel.

The BENCHMARK

Press TAB three (3) times to move the cursor to "First Print Line" field. Type 01 and press F10. Press TAB to move cursor to "Last Print Line" field, type 58 and press F10.

You are now ready to insert the graphic command lines containing the information necessary to insert the image into the document.

Press F3 to access the Special Functions menu. Press ! to insert a non-printing comment. Type ig:25,b:test,a1 and press RETURN.

Press F3 to access the Special Functions menu. Press ! to insert a non-printing comment. Type ig:25,b:test,a2 and press RETURN.

Press F3 to access the Special Functions menu. Press ! to insert a non-printing comment. Type ig:6,b:test,a3 and press RETURN.

7. You are now ready to finish the document and save it to disk. Press F10. Your screen should look like the one below:

```
#-Page Format
!ig:25,b:test,a1
!ig:25,b:test,a2
!ig:6,b:test,a3
#-End of Document
```

Press ESC to access the Command menu. Press f to Finish the document. Press Y. The program will write the document to the disk in drive B.

8. From the Word Processor Main Menu, type P to Print a document. Enter the drive where the document is located. Press F10. Now put a "p" in the left column, next to the document(s) you wish to print. Press F10. Press F10 again to print 1 copy. The entire graphic image will be printed.

APPENDIX A - ASCII TABLE

<u>ASCII value</u>	<u>Hex code</u>	<u>Char.</u>	<u>ASCII value</u>	<u>Hex code</u>	<u>Char.</u>
032	20	(space)	073	49	I
033	21	!	074	4A	J
034	22	"	075	4B	K
035	23	#	076	4C	L
036	24	\$	077	4D	M
037	25	%	078	4E	N
038	26	&	079	4F	O
039	27	'	080	50	P
040	28	(081	51	Q
041	29)	082	52	R
042	2A	*	083	53	S
043	2B	+	084	54	T
044	2C	,	085	55	U
045	2D	-	086	56	V
046	2E	.	087	57	W
047	2F	/	088	58	X
048	30	0	089	59	Y
049	31	1	090	5A	Z
050	32	2	091	5B	[
051	33	3	092	5C	\
052	34	4	093	5D]
053	35	5	094	5E	^
054	36	6	095	5F	~
055	37	7	096	60	—
056	38	8	097	61	a
057	39	9	098	62	b
058	3A	:	099	63	c
059	3B	;	100	64	d
060	3C	<	101	65	e
061	3D	=	102	66	f
062	3E	>	104	67	g
063	3F	?	103	68	h
064	40	@	105	69	i
065	41	A	106	6A	j
066	42	B	107	6B	k
067	43	C	108	6C	l
068	44	D	109	6D	m
069	45	E	110	6E	n
070	46	F	111	6F	o
071	47	G	112	70	p
072	48	H	113	71	w

APPENDIX A - ASCII TABLE (cont.)

<u>ASCII Value</u>	<u>Hex Code</u>	<u>Char.</u>
114	72	r
115	73	s
116	74	t
117	75	u
118	76	v
119	77	w
120	78	x
121	79	y
122	7A	z
123	7B	{
124	7C	
125	7D	}
126	7E	~

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