

COMMODORE 64C™

PERSONAL COMPUTER



QUANTUMLINK
The Commodore® Connection

User's Guide



GEOSTM

User's Guide

Version 1.2



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Welcome to GEOS

Your new Graphic Environment Operating System (GEOS) ushers in a "whole new world" for your Commodore 64® or Commodore 128™. GEOS brings to you the power and ease of use that icons, windows, and pop-down menus provide. A simple click of the joystick is all it takes to get the job done.

This manual is divided into eight chapters:

- 1: **Before You Begin**, instructs you on making a backup of your original GEOS disk.
- 2: **GEOS Training Camp**, introduces you to the basic techniques necessary to manage disks, files, and GEOS applications.
- 3: **GEOS deskTop**, your interface to the GEOS disk operating system.
- 4: **geoPaint**, a powerful color graphics editing program.
- 5: **geoWrite**, an easy to use, "what you see is what you get" word processor.
- 6: **Desk Accessories**, smaller applications which perform handy functions while on the deskTop or in applications.
- 7: **Troubleshooting**, standard error messages and solutions to common problems.
- 8: **QuantumLink**, users guide to the telecommunications network for Commodore owners.

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Table of Contents

Chapter 1: Before You Begin

Make a Backup Copy	1-2
--------------------------	-----

Chapter 2: GEOS Training Camp

System Requirements for Training Camp	2-2
On the Importance of Making Work Disks	2-3
Let's Get Our Terms Straight	2-4
Booting GEOS	2-12
Tailoring a Work Disk	2-13
Using Desk Accessories	2-17
Copying a File From One Disk To Another	2-19
Opening an Application	2-21
Choosing a Printer Driver & Printing	2-24
Choosing an Input Driver	2-27
Never and Always (Do's and Don'ts)	2-28
Restoring Your Original GEOS Disk	2-29

Chapter 3: The GEOS deskTop

The deskTop Screen	3-2
File Management	3-3
Disk Management and Organization	3-9
Selecting an Input Device	3-12
Selecting a Printer	3-13
Using Non-GEOS Disks	3-14
Using Two Disk Drives	3-15
GEOS and BASIC	3-17
Quick Reference: deskTop Menus	3-18

Chapter 4: geoPaint

The geoPaint Screen	4-2
Entering geoPaint	4-4
Selecting Colors	4-6
Drawing	4-8
Adding Text	4-12
Correcting and Detailing	4-15
Editing Selected Regions	4-17
Special Commands	4-20
Printing Your Document	4-24
Leaving geoPaint	4-25

Chapter 5: geoWrite

The geoWrite Screen	5-2
Entering geoWrite	5-3
Entering Text	5-5
Moving the Writing Window	5-7
Editing Your Document	5-8
Formatting	5-10
Using Different Fonts and Styles	5-11
Editing Tips	5-12
Using Graphics From geoPaint	5-13
Using Text From Other Documents	5-14
Printing Your Document	5-15
Leaving geoWrite	5-16

Chapter 6: Desk Accessories

Desk Accessories Overview	6-2
Alarm Clock	6-4
Calculator	6-5
Note Pad	6-7
Photo Manager	6-8
Preference Manager	6-12
Text Manager	6-15

Chapter 7: Troubleshooting

If Your GEOS Disk Will Not Boot	7-2
Standard Error Messages	7-3
Internal Error Messages	7-7

Chapter 8: QuantumLink

Introduction	8-1
Services	8-2
Connecting to Q-Link	8-4
Getting Around	8-7
Getting Help	8-9
Pricing & Billing Information	8-10
Local Access Numbers	8-12

Index	9-1
-------------	-----

Chapter 1: Before You Begin

Before you do anything else, you should follow the directions in this short chapter. This chapter will walk you through making a backup copy of your GEOS disk as well as creating a work disk. If you have received GEOS bundled with your Commodore computer, you will already have one work disk. You should still read this section and create a backup disk.

Before You Begin...

Before You Start Creating...

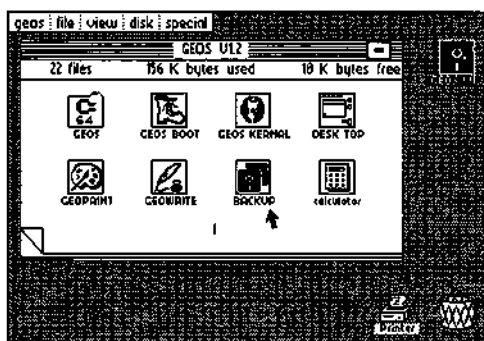
Before You Ruin Your GEOS Disk...

Make A Backup Copy !!

Make A Work Disk !!

Here's How...

1. Set up your computer and disk drive according to the instructions in the Commodore manual. You should have a blue screen with the word **READY** and a flashing white prompt.
2. Connect a mouse or joystick to port 1 (the port closer to the front of the machine).
3. Insert the GEOS disk into the disk drive, label side up. Close the door.
4. Type **LOAD "GEOS",8,1** (then press **RETURN**). A message will appear on the screen saying **BOOTING GEOS**. In a few moments the GEOS deskTop will appear.



5. As you press the mouse or joystick in different directions, an arrow (pointer) will move around the screen. Use the joystick to move the arrow over the picture of the two disks for the **BACKUP** file (see screen above).
6. Press the mouse button or joystick fire button once. The picture will change appearance.
7. Use the joystick to move the arrow over the word **file** in the command bar at the top of the screen. Press the mouse or fire button once. A menu will appear below the word **file** with several different commands. The arrow will automatically appear over the word **open**. Press the mouse or fire button.
8. The screen will turn blue and the following message will appear:
DISK BACKUP/RESTORE UTILITY
INSERT DESTINATION DISK TO BE FORMATTED
AND ENTER 'F' TO FORMAT, OR 'Q'
TO QUIT (F/Q)?

9. Remove the GEOS disk from the drive and insert a fresh blank disk into the drive, close the drive door.

10. Type F (then press RETURN). The following message will appear as the disk drive formats the destination disk:

FORMATTING DESTINATION DISK...

When the destination disk has been formatted, the following message will appear:

INSERT SOURCE DISK, AND ENTER 'C' TO
COPY (C)?

NOTE: If the disk drive light is flashing at this point, a disk error has occurred, turn your computer off and then back on and start over.

11. Remove the formatted disk from the drive, for the remainder of these instructions this disk will be referred to as the destination disk.

12. Re-insert the GEOS disk (this will be the source disk), close the door, and type C (then press RETURN). The screen will display:

READING SOURCE DISK...

The computer will read data off of the GEOS (source) disk for a few moments and the screen will display:

PLEASE INSERT DESTINATION DISK

13. Remove the GEOS (source) disk from the drive and insert the destination disk, close the door. The drive will automatically start writing data to the disk and the screen will display:

WRITING DESTINATION DISK...

When the data has been written, the following message will appear:

PLEASE INSERT SOURCE DISK

14. Remove the destination disk and insert the GEOS (source) disk. The drive will automatically start reading data from the GEOS disk as soon as the door is closed, when the data has been read in the message to insert the destination disk will appear again. Follow the directions that appear on the screen until the disk copy is complete. When the disk has been successfully copied the screen will display:

BACKUP COMPLETE!

INSERT GEOS BOOT DISK

AND PRESS RESTORE

15. Remove the destination disk and insert the GEOS disk, close the drive door. Press the RESTORE key on the keyboard. The screen will display: BOOTING GEOS... In a few moments the GEOS desktop will appear on the screen.

16. Take the destination disk and put it in a safe place. This is your backup copy of the entire GEOS program disk. If you should ever have any difficulty booting GEOS or if you accidentally delete a program, it can be restored from this disk. See Restoring GEOS in the manual.

17. If you received GEOS with your Commodore computer, you already have a work disk with enough space to get started. If you purchased GEOS separately, repeat steps 1 through 15 with another blank disk. This disk will be your work disk. You are now ready to proceed to Chapter 2: GEOS Training Camp.

Chapter 2: GEOS Training Camp.

This chapter will introduce you to GEOS. GEOS is both easy and fun to use. After reading this chapter you will have the basic techniques necessary to manage disks, files, and GEOS applications.



System Requirements For Training Camp

This chapter is written assuming the following system set up: 1 C-64 (or C64c, or C128 running in C64 mode), one 1541 disk drive (or compatible), a joystick as an input device, and a Commodore compatible printer.

If you have 2 disk drives, hook up only one for **training camp**, then turn to the **deskTop** chapter to learn all of the additional features available to you as the owner of 2 drives.

If you do not own a joystick (or joystick compatible input device) you will have to purchase one before using GEOS. Although GEOS is designed to allow alternate input devices to be added, the present release of the software only comes with a joystick input driver. This driver does support the Commodore 1350 mouse from Commodore. Berkeley Softworks will be writing input drivers for additional devices such as: drawing tablets, light pens, other mice, etc. These will be made available to registered GEOS owners for the cost of the disk media plus shipping and handling. We also plan on making these drivers available at no additional charge over Quantum Link.

If you have received GEOS packed in with your Commodore computer, you will not have to immediately create a work disk since Commodore has provided you with one. You should, however, read over the sections **On The Importance of Making Work Disks**, and **Tailoring a Work Disk**, as you will soon want to create additional work disks of your own.

When using GEOS with a Commodore 128 in C64 mode, you should enter C64 mode by holding down the Commodore key and pressing the ON/OFF button, rather than using the GO 64 command from C128 mode.

On The Importance of Making Work Disks

Your original GEOS disk is intended as a **program** disk not a **work** disk. Berkeley Softworks has packed a new operating system, two applications, six desk accessories, 5 fonts, and 7 printer drivers all onto one disk. As a result, there is no room left on the disk for you to create your own documents or even run a desk accessory. This is why you must create one or more work disks.

The easiest way to create a work disk is to use the BACKUP utility program to create a copy of the original GEOS disk, then delete some files on the copy to create workspace. If you received GEOS with your Commodore computer, you already have a work disk. This disk is a copy of the original GEOS disk with a number of files deleted and a sample picture added. If you purchased GEOS separately, the **Before You Begin** chapter instructed you to make a copy for use as a work disk. This chapter will instruct you on deleting files to create space on the work disk.

NOTE: The original GEOS disk must be used to first boot GEOS. Although you can make a complete copy of GEOS, only the original disk can be used to load the system into memory. Once booted, you should remove the original disk and use a work disk.

GEOS has been designed so you may easily tailor disks for specific purposes. For example, if you are going to write a large report, you may choose to create a work disk containing only geoWrite, the deskTop, and the fonts you plan on using in the report. This will leave plenty of space on the disk for your document.

NOTE: NEVER DELETE ANY FILES FROM THE ORIGINAL GEOS DISK! Should you accidently delete an important file, you can restore the original disk from a backup copy using the BACKUP/RESTORE utility. See **Restoring Your Original GEOS Disk** later in this chapter should this unhappy fate befall you.

If you have followed the instructions in the manual, you should already have two complete copies of the original disk: one that you have labeled BackUp and placed aside in a safe place, and one copy which will be the work disk for the remainder of this chapter. If you have not already done this...

IMPORTANT: If you have not already done so, read the "Before You Begin" chapter before proceeding any further!

Let's Get Our Terms Straight

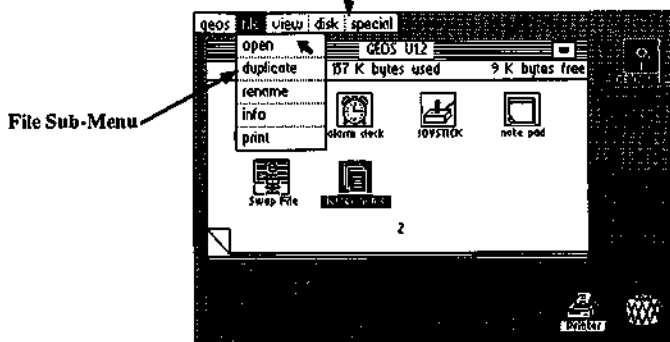
This section defines a number of words and phrases used throughout the manual to describe various features of the GEOS system. Many of the terms are followed by examples of how they would be used in context within the manual. You **should not** try to execute these examples at this point. The examples are only given to help define the terms.

Menus, Sub-menus, and Icons

A **menu** is just what you might guess: a list of items. A menu might be used to list commands, desk accessories, fonts, or any of a number of items. For example, on the **deskTop** screen, the command menu lists: **geos**, **file**, **view**, **disk**, and **special**. This is a menu of commands available from the **deskTop**.

Often, selecting an item in a menu causes another menu to appear. The new menu that pops up as a result of selecting a menu item is called a **sub-menu**. Sometimes selecting a sub-menu item causes yet another menu to appear, this menu is also referred to as a sub-menu. Although GEOS allows an indefinite sequence of sub-menu creations - - a menu may have a sub-menu, which may have another sub-menu, which may have yet another sub-menu, etcetera - - you will rarely encounter more than 2 levels of sub-menus appearing. For example, if you select **file** in the command menu, a sub-menu will appear listing commands that may be performed on a selected file.

Command Menu



An **icon** is simply a picture used to represent an object, a tool, or a command. For example, the pictures appearing on the Disk Notepad represent the files on the disk; the picture of a printer at the bottom of the screen represents the printer you have connected to your computer. These are all examples of icons.



Dialogue Boxes

Often, a program needs to get a piece of information from you before it can proceed. In GEOS this is usually done with a **dialogue box**. A dialogue box is a rectangular region that pops up on the screen. The box appears over whatever else might be on the screen as if it were a white index card just placed on top of everything on your desk. Typically there is some text in the box requesting the user to make a choice or enter some data.

For example, later in this chapter the procedure for renaming a disk is described. When you select the rename command a dialogue box appears with the message:

Please enter the new disk name:

GEOS V1.2 (the current disk name appears here)

In the bottom right corner of the box there is an icon with the word **Cancel** in it.

In order for the program to proceed, you must either delete the existing disk name (by hitting **DEL** on the keyboard) and enter a new disk name, or move the cursor over the **Cancel** icon and press the fire button.

When you have entered the required data or make the appropriate choice in a dialogue box, the information is provided to the program and the dialogue box disappears.

Applications

There are many types of computer programs on the GEOS disk. Major programs - ones offering a great deal of utility - are called **applications**. **geoWrite** and **geoPaint** are the two applications shipped with the GEOS disk. Berkeley Softworks will be developing additional applications to run under GEOS in the future.

Documents

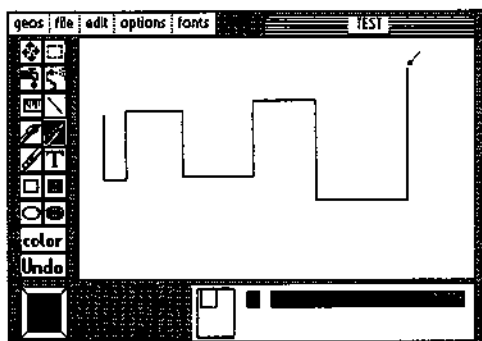
The **geoWrite** and **geoPaint** applications allow you to create high resolution 8 1/2 X 11 inch pages. The pages created by these applications are stored in data files on the disk. The data files are referred to as documents.

Windows

A framed rectangular region on the screen is usually referred to as a **window**. Windows typically are used to separate different functional areas on the screen.

A window may be a viewport onto an area larger than can be displayed on the screen.

For example, geoPaint provides a drawing window onto an 8 1/2 X 11 inch document. The drawing window can be scrolled or moved over the document to allow you to view the entire page.



Fonts, Type Styles, Point Sizes, and Proportional Spacing

Fonts are a new way of looking at text. Instead of having one fixed character set - like typewriters - GEOS offers you multiple character sets or fonts. You can type with the medieval characters of the **Dwinelle** font or the simple straight lines of the **University** font. The word font corresponds to the general shape of the characters used to represent the letters and numbers.

A font file on the GEOS disk may contain versions of the character set at different sizes. The size of a character set is measured in **points**. In standard typesetting terms, a point is 1/72 of an inch. The actual height of characters printed using GEOS will depend on the resolution of your printer.

For any given character set, that is font and point size, you can also change the **type style** used to print the character set. Available styles are plain, **bold**, *italic*, underline, and outline.

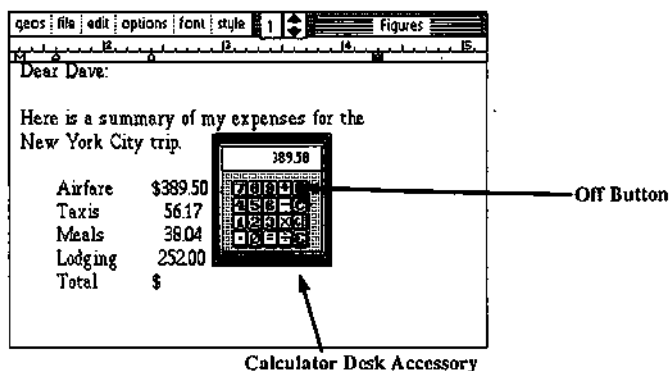
If you look closely at the spacing between the individual letters printed by most word processors or typewriters, you will notice the letters are printed with a fixed spacing. If you now look at a professionally printed page - - like this one - - you will notice the spacing depends on the shape of the letter. For example, not all three letter words require the same amount of space. This is called **proportionally spaced printing** because the space used to print a character is proportional to the width of the character. Geos uses **proportional spacing** for all text display to allow you to create professional looking documents.

The original GEOS disk has 5 different fonts files, each with a number of point sizes. Berkeley Softworks offers a font disk with 20 additional fonts. The font files on the disk with an application can be used within the application.

Desk Accessories

A **desk accessory** is a small utility program used from within a GEOS application. You can use a **desk accessory** program, then return to the application.

For example, while in the geoWrite application, you might be typing in a column of numbers. If you want to total the numbers, you can select the **calculator desk accessory** from the geos menu. The calculator will pop up over the document and you can use the calculator to sum the figures. When you are finished, simply click the off button of the calculator, and the calculator will disappear, returning to the geoWrite application.



The Pointer and Pointing

After booting GEOS, a colored arrow appears on the screen. This arrow is called the **pointer**. The pointer can be moved around the screen by pressing the joystick in different directions. Moving the **pointer** on top of an item is called **pointing** at that item.

The Text Cursor

When working with text, there is usually a flashing bar on the screen indicating where the next typed character will appear. This bar is called a **text cursor** or sometimes just a **cursor**.

Clicking, Selecting, and Activating

Most commands in GEOS are entered by **pointing** at something on the screen and pressing the fire button on the joystick. The action of pressing the fire button is called **clicking**. In the **Before You Begin** chapter, you were instructed to use the joystick to move the arrow over the **BACKUP** file icon and then press the fire button. Using our new vocabulary we would simply say: **point** at the icon and **click**. The combination of moving the pointer over an item and clicking is sometimes further abbreviated as **clicking on** an item. For example we might say: **click on** the **BACKUP** file icon.

Often, moving the **pointer** over an item and **clicking** causes that item to be selected for some purpose. This is often referred to in the manual as **selecting** an item. For example, before using the **info** command in the **file** sub-menu, it is necessary to select a file. This is done by moving the **pointer** over a file icon and **clicking**.

Sometimes **clicking on** an item causes an action to occur. For example, **clicking on** the disk icon on the upper right of the **deskTop** screen causes the disk in the drive to be opened and its files to be displayed on the **Disk Notepad**. This is often referred to as **activating** an item or **opening** an item.

Double-Clicking

There are many commands in GEOS that can be executed more quickly by using a short-cut we refer to as **double-clicking**. Double-clicking is accomplished by pointing at an item (usually an icon) and pressing the fire button on the joystick twice in rapid succession. Since single clicks and double-clicks often cause different actions to take place, the timing of double-clicking is important. With a little practice you will soon learn how to reliably double-click.

As an example, a little later in this chapter, we will enter the **geoPaint** application. One way of entering the application is to select the **geoPaint** file, then click on the file menu item, and then click on the open menu item that appears in the sub-menu. A faster way of entering the application is to point at the file icon and double click.

Dragging Ghost Icons

GEOS creates a desk top metaphor for your computer. For example, a **geoWrite** document appears as a picture of a stack of papers with the name of the document appearing under the picture. If you want to get rid of a document in the real world, you might throw it in the waste basket.

Similarly in GEOS you can get rid of a document file by picking it up and **dragging** it over to the waste basket icon and dropping it in. This is accomplished on the deskTop by clicking once on the document file icon, pausing, and then clicking again. A copy of the icon picture will appear over the file icon in a different color. As you move the pointer, you will notice the copy of the icon picture - - called a **ghost icon** - - is attached to the pointer. Wherever you move the pointer, the ghost icon will also move.

Reverse Video

Often items change appearance when they are selected. The most common method used by GEOS to indicate selection is displaying in **reverse video**. For example, when a file icon on the desk top is clicked on, the icon picture changes appearance in the following manner: all portions of the picture previously white become black and vice versa. The effect is very much like a photographic negative. This is referred to in the manual as **reverse videoing** the icon image. Sometimes we simply say the image reverses.

Highlighting Text

In **geoWrite**, text may be cut or copied from the document and pasted either elsewhere in the document or into a text album. In order to indicate to the program the portion of text to be cut, it is necessary to **highlight** the text. This is done by moving the pointer to the start of the text to be **highlighted** and pressing the fire button. While holding the fire button down, the pointer is moved over the text to be **highlighted**. The text will reverse as the pointer moves over it. When the end of the text region to be **highlighted** is reached, simply release the fire button. All of the text between the starting point and the ending point will appear in reverse video.

Before Turning the Page...

You will probably want to read this section several times. The rest of the manual will be much easier to follow if you clearly understand the terms and techniques described here.

Booting GEOS

When you first turn your computer on to load GEOS, insert your original GEOS disk in the drive, close the drive door, and type:

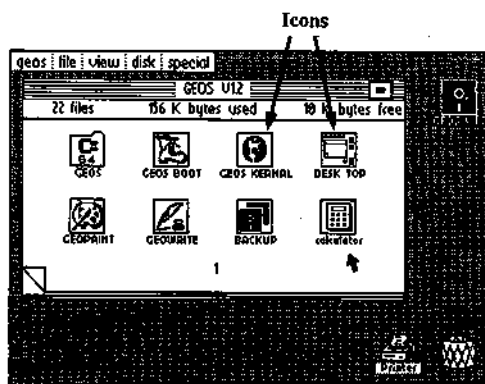
LOAD "GEOS",8,1

The screen will display the following message:

BOOTING GEOS...

The process of first loading GEOS is called **booting** GEOS.

In a few moments the **GEOS deskTop** will appear. The picture shown below indicates the names for various parts of the desk top screen. Take a few moments to study these names.



NOTE: each time you first turn your computer on, and wish to load GEOS, you will need to use the original GEOS disk. Your original GEOS disk is a **key** disk. Although you may copy every file on the disk to another disk, the original disk must be used to boot GEOS. If you attempt to use a copy of the GEOS disk to boot, the disk will start to load as described above, but will quit half way through and return to BASIC. When booting, the program checks for the **key** that is only on the original disk. If the **key** is not found, the program returns to BASIC.

After GEOS has been booted, you no longer need to use the original disk to work with GEOS applications or desk accessories. In fact, we recommend you **only** use the original GEOS disk to boot the program, after booting use a work disk.

Tailoring a Work Disk

Closing a Disk

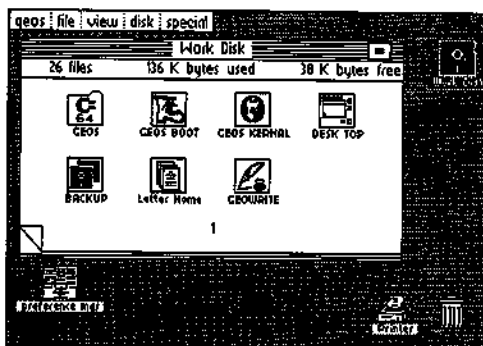
After booting GEOS from your original disk, click on the **disk** menu item in the command menu. Click on the word **close** in the sub-menu that pops up. The Disk Notepad will be cleared, and the disk icon on the right side of the screen will be replaced by a picture of a disk with a question mark. The procedure you have just performed is called **closing a disk**. You may now remove the original GEOS disk from the drive and insert the work disk you created in the **Before You Begin** chapter. Whenever you insert a disk into the drive, be sure to close the drive door.

NOTE: Never remove a disk from the drive without first closing the disk (unless specifically instructed by a screen message).

Opening a Disk

We now want to open the work disk. Click on the word **disk** in the command bar. When the sub-menu pops up, click on the word **open**. The disk drive will become active and in a few seconds the Disk Notepad will display the files on the work disk.

Since the work disk was created using the **BACKUP** program, it starts out looking exactly like the original GEOS disk - right down to the disk name at the top of the Disk Notepad.



Renaming a Disk

To avoid confusion between the original GEOS disk and a work disk, and to avoid confusion between two work disks, each work disk created should be given a unique name. To rename a disk, click on the word **disk** in the command menu. When the sub-menu pops up, click on the word **rename**. The sub-menu will disappear and a dialogue box will appear in the middle of the screen and display the message:

Please enter the new disk name:
GEOS V1.2

Notice the current name of the disk is the second line of text in the dialogue box. This line is followed by a text cursor. Put down the joystick and press the **INST/DEL** key on the keyboard. Hold the key down until the cursor erases all of the characters in the current disk name. Now type:

Work Disk (press RETURN)

The box will disappear, the **Disk Notepad** will be redrawn and the words **Work Disk** will appear at the top of the **Disk Notepad** as the new disk name.

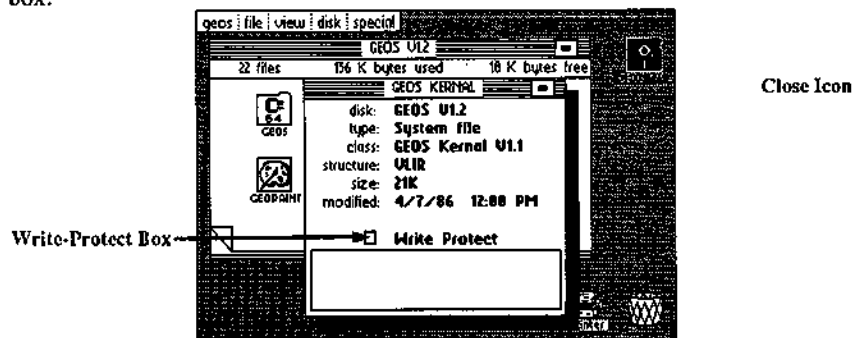
Changing Individual File Write-protect Status

In order to create some free space on the work disk, we will need to delete some files. Many files on the GEOS disk have the write protect status set to prevent accidental deletion. Since we want to delete some of these files from the work disk, we must first change the write-protect status.

The first file we will delete from the work disk is the **GEOS KERNAL**. Since the kernal file is only read while booting GEOS, and GEOS must always be booted from the original GEOS disk, there is no need to have a copy of the **GEOS KERNAL** file on a work disk.

NOTE: Never delete or move the **GEOS KERNAL** file from your original GEOS disk. You may, however, delete this file from a work disk.

Before trying to delete the GEOS KERNAL file from the work disk, we must change the file's write-protect status. Click on the GEOS KERNAL file icon, the file will change to reverse video. Now click on the file menu item in the command menu. Click on the info item in the sub-menu that pops up. As shown in the screen below, an info box will pop up over the desk top screen and display information about the GEOS KERNAL file. The info box is described in more detail in the deskTop chapter, for now we are only interested in the write protect box.



Towards the bottom of the info box, there is a small rectangle with the words **Write Protect** next to it. If the rectangle is solid black, then the file is write-protected and cannot be deleted from the desk top. If the rectangle is hollow, then the file is not write protected.

The **GEOS KERNAL** file comes from Berkeley Softworks write-protected. To remove the write-protection, simply click on the rectangle to the left of the words **Write Protect** in the info box. The solid black rectangle will be replaced by a hollow rectangle. If you click on the write protect box again, the rectangle will return to a solid black box, indicating the file is again write-protected. Each time you click on this box the rectangle will toggle between write-protect being set and cleared. Be sure the write-protect box is hollow before continuing.

Now click on the close icon in the upper right corner of the info box. The close icon is a square with a dot in the center. After clicking on the close icon, the info box will disappear and the file will no longer be write-protected.

Deleting files

We are now ready to delete the **GEOS KERNAL** file from the work disk. Click on the file's icon, pause, click again. A ghost icon for the file will appear and be attached to the pointer. Drag the icon down over the waste basket and click on the waste basket. The icon will flash for a few moments and then both the ghost icon and the file icon on the **Disk Notepad** will disappear. The information bar at the top of the **Disk Notepad** will display the additional disk space created by deleting the kernel file. Repeat this procedure for deleting the **GEOS BOOT** and **GEOS** files also appearing on page 1 of the work disk.

NOTE: Never delete or move any of the first three files - - **GEOS**, **GEOS BOOT**, or **GEOS KERNAL** - - from the original **GEOS** disk. If you accidentally do this you will have to restore the original **GEOS** disk from a backup copy (see **Restoring GEOS** later in this chapter). You should, however, delete these files from a work disk created by copying the original **GEOS** disk. If you received **GEOS** with your Commodore computer, the work disk you received has these three files deleted.

Turning Disk Notepad Pages

A 1541 disk can have as many as 144 different files on it. The original **GEOS** disk comes with 26 files. You have probably noticed the **Disk Notepad** page has room for eight files. In order to see more of the files on the disk, you must turn the pages. At the bottom left corner of the **Disk Notepad**, you will notice the page is turned up. Clicking on the dog-eared corner will cause the next page of the **Disk Notepad** to be displayed. In this manner you may page through the 1541 disk directory observing the files on any disk, 8 at a time.

If you click on the small corner of the next page that is exposed by the turned up dog-eared corner, the preceding page of the **Disk Notepad** will be displayed.

Congratulations...

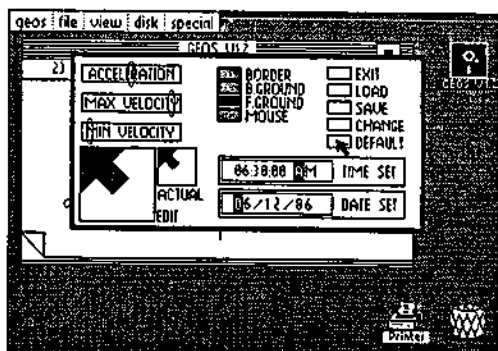
You have just tailored your first work disk. As you learn more about **GEOS** you will see how the techniques you have just learned can be used to tailor more specialized work disk. For example, you may create a paint work disk with only **geoPaint** and a few font files. As you become more familiar with the purposes of each file you will learn how to mix and match files to suit your every need. As **Berkeley Softworks** and other developers come out with more applications, fonts, and desk accessories for **GEOS**, you will be able to expand the capabilities of your system. **GEOS** really is a whole new world for your Commodore computer.

Using Desk Accessories

Loading Desk Accessories

Desk Accessories are small programs accessible while in an application. When selected, a desk accessory loads into memory and takes control of the system. You can use the features offered by a desk accessory and, when finished, turn the desk accessory off. The application will resume exactly where it had been before you loaded the desk accessory.

To load a desk accessory, click on the **geos** menu item in the command menu, then click on the desired desk accessory in the sub-menu that pops up. For example, we will load the **preference mgr** desk accessory (mgr stands for manager). After selecting the **preference mgr** desk accessory, the disk drive will become active and in a few moments a window will pop up on the screen with a number of control options (see screen below).



To set the time and date in the preference window, point at the words **TIME SET** in the lower right portion of the window. Hit the space bar on the keyboard to move the cursor over the first digit of the time. Type the correct time on the keyboard and press RETURN.

Now point at the words **DATE SET** appearing in the box just below. Again hit the space bar to move the cursor over the first digit of the date. Type in the current date and press RETURN.

Each time you boot GEOS you should set the time and date. GEOS marks all of your files with the time and date they were last modified. If you faithfully set the time and date each time you boot, you will have a chronological record of when each file was modified.

There are several other system parameters that can be set by the preference mgr. These are covered in detail in a later chapter dedicated to desk accessories. For now we will simply return to the deskTop by clicking on the box in the upper right hand corner next to the word EXIT.

When a Desk Accessory Will Not Load

Sometimes when you click on a desk accessory in the geos menu, the disk will start up for a moment but then stop, and the desk accessory will not have loaded. This will happen if there is not enough free disk space on the current disk. Desk accessories need disk space to save the state of the currently running program - - i.e. the deskTop or an application - - so the program can be restored after the desk accessory has been used.

Another reason a desk accessory might not load would be if the disk has been removed from the drive. Also if you close a disk and insert a new one, be sure to open the new disk before trying to load any desk accessories.

Adding and deleting desk accessories

The desk accessories that appear in the geos sub-menu are the desk accessory files which are on the current disk. For each of the desk accessories in the geos sub-menu, there is a file on the disk with the same name. The menu is actually constructed by searching the disk for all files of the type desk accessory.

If you delete a desk accessory file from the disk, that desk accessory will no longer appear in the geos menu. As an example, turn to the Disk Notepad page containing the preference mgr file icon. Click on the icon, pause, click again. Drag the ghost icon over to the waste basket and click again. In a few moments both icons will disappear and the Disk Notepad will be redrawn. Now click on the geos menu item. You will notice the preference mgr sub-menu item no longer exists.

To summarize, the desk accessories available to you are based on whatever desk accessory files are on the disk you are using. This is another part of the flexibility offered by GEOS. You can further tailor your work disks by picking and choosing the desk accessories you want on the disk. We have just "walked through" deleting a desk accessory, to add a desk accessory, you simply copy the desk accessory file you wish to add from the disk it is on to your work disk. Copying a file is covered in the next section. Berkeley Softworks will shortly be offering a Desk Accessory Pack containing a number of new desk accessories such as a calendar/reminder and electronic address book.

Copying a File From One Disk To Another

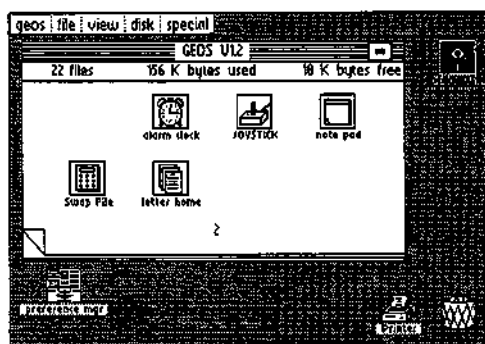
The work disk we are using was created using the **BACKUP** utility program to copy the entire original GEOS disk. Sometimes it is necessary, or more convenient, to copy just 1 file from one disk to another.

For example, in the preceding section, we deleted the preference mgr file from the work disk. If we want to get the preference manager back, we can simply copy it from the original GEOS disk. This section demonstrates how to copy a file from one disk to another using only one disk drive. If you own two drives, copying is much easier. Copying with two drives is covered in the desk top chapter.

Moving a File to the Border

The first step in copying a file on a one drive system is to get the source disk containing the file to be copied in the drive. Recalling the technique we learned in the **Tailoring a Work Disk** section, close the work disk and remove it from the drive. Insert the original GEOS disk and open it.

Turn to the **Disk Notepad** page containing the preference mgr file icon. click on the icon, pause, click again. Drag the ghost icon down to the border area below the **Disk Notepad** and click. The ghost icon will disappear and the preference mgr icon will move from the disk notepad page down to the border. Close the GEOS disk. Notice that the preference mgr file icon remained on the border after the disk was closed. Remove the GEOS disk and insert the work disk. Open the work disk.



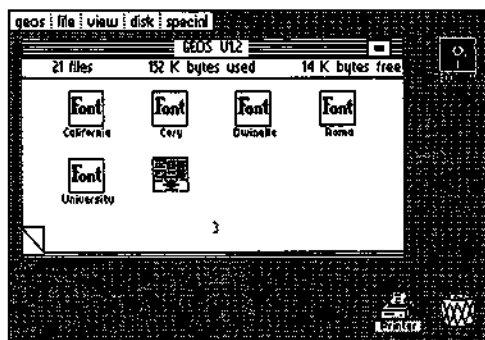
Note: Never try to copy a file from one disk to another if the disks have the same name. You should never have two disks with the same name. If you discover you do have two disks with the same name use the **rename** command in the disk sub-menu to rename one of the disks.

Moving a File from the Border onto the Disk Notepad

Click on the **preference mgr** file on the border, pause, click again. Drag the ghost icon up onto the **Disk Notepad** page and click. When you attempt to move a border file from another disk onto the **Disk Notepad** for the current disk, GEOS interprets this as a file copy request.

A dialogue box will appear requesting you to insert the original GEOS disk (the disk on which the file resides). Be sure to insert the GEOS disk and close the disk door before clicking on the **OK** icon in the dialogue box. When you have done this, the disk will become active as GEOS reads in as much of the file to be copied as can fit into an internal copy buffer. Another dialogue box will then appear requesting you to re-insert the work disk. If the file is larger than the copy buffer, it may require several disk swaps to completely copy the file on a one drive system.

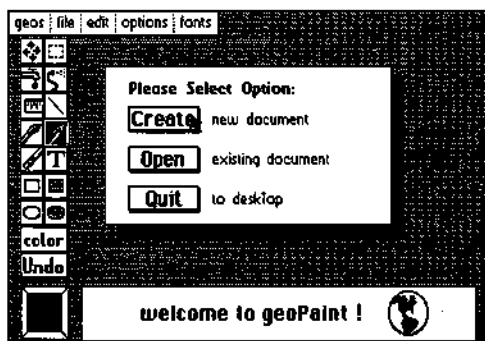
When the copy has been completed, the **preference mgr** file will disappear from the border, and the **Disk Notepad** will open to the page where the copy of the file exists.



Opening An Application

Entering geoPaint

To enter an application, simply click once on the applications icon and then select **open** in the file sub-menu. For example, turn to the page on the Disk Notepad where the GEOPAINT file icon appears. Click once on the icon. The icon image will change to reverse video. Click on **file** in the command menu and then click on **open** in the sub-menu that appears. The disk will become active and in a few moments the geoPaint application will appear (see screen below).



Click on the **Create** icon in the dialogue box. Another dialogue box will appear requesting you to type in a filename. Type **test** and press RETURN. A large window will appear with the name **test** in a tab above the top of the window. This is the window in which your geoPaint document is displayed.

If you move the pointer into this window, you will notice it changes shape. geoPaint automatically puts you in pencil mode when you create or open a document. Click once and the pencil will change color to indicate it is on the page. Now as you move the pointer/pencil around the screen, you are drawing a line. Click again and the pencil changes back to the original pointer color indicating it is lifted off the page.

Returning To The Desk Top

An entire chapter is dedicated to the many tools and features of geoPaint. Let's return to the desk top by clicking on **file** in the command menu and then clicking on **quit** in the sub-menu that appears. The disk drive will become active and in a few moments the desk top will reappear. If you turn through the Disk Notepad pages, you will find a new file icon on the disk with the name **test**.

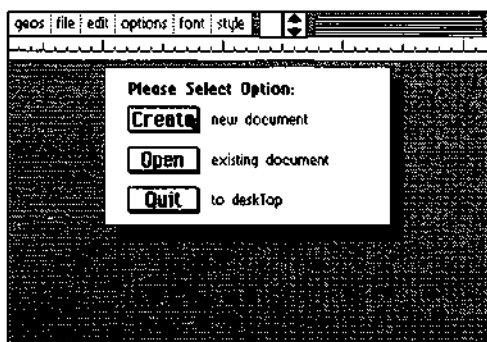
Entering geoWrite

Turn to the **Disk Notepad** page with the GEOWRITE file icon. We will use a *short cut* to enter geoWrite. Move the pointer over the icon and **double click**. As you will recall from the **Let's Get Our Terms Straight** section, **double clicking** requires pressing the fire button twice in rapid succession.

You will know if you have successfully **double clicked** if the file begins loading. If GEOWRITE does not come up on your screen, one of two things has happened:

1. If you double click too fast, sometimes only one of the clicks is recognized and the file simply appears in reverse video.
2. If you double click too slow, a ghost icon for the file will appear and be attached to the pointer.

In both cases, point at blank space next to the file icon on the Disk Notepad page and click. The file will return to its unselected appearance and you can try again. When you have successfully **double clicked** on the GEOWRITE file icon, the program will load and the screen shown below will appear.



Notice the dialogue box in the center of the screen is identical to the box that appeared when we first entered geoPaint. Part of the GEOS philosophy is to maintain as much consistency across applications as possible. Click on the **Create** icon. When the dialogue box requesting the filename appears, type: **letter home** (Return).

The dialogue box will disappear and a window will fill the screen below the ruler. This is a window onto a **geoWrite** document. In the window is a flashing text cursor. Before we begin typing, let's select a new font.

Selecting a Font

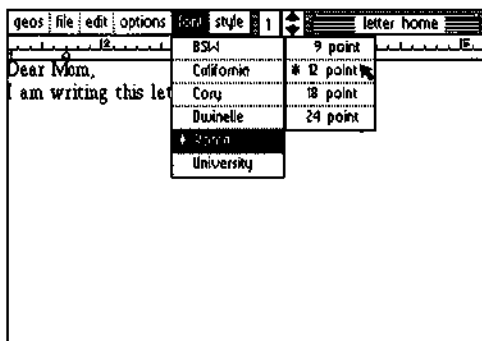
Click on the word **font** in the command menu. Click on **Roma** in the sub-menu that pops up. Another sub-menu will then pop up listing the **point** sizes available. Click on **12 point**. Now type:

Dear Mom,

I am writing this letter with geoWrite.

Fonts are similar to desk accessories in that the fonts available to an application are based on the font files on the disk. You can add and delete font files from the work disk, and whatever fonts appear on the disk, will be available in the application. Berkeley Softworks offers a font disk with over 20 additional fonts.

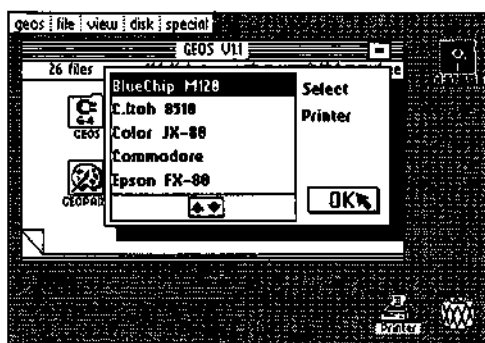
There is an entire chapter dedicated to geoWrite and the features it offers. For now we will simply return to the **deskTop**. As in the geoPaint example, simply click on the **file** menu item, and then click on **quit** in the sub-menu that appears.



Choosing A Printer Driver & Printing

If you click on the geos menu item on the desk top, one of the items in the sub-menu that appears will be select printer. Click on this item. A dialogue box will appear displaying a number of files in a window. The files listed in the window are programs for interfacing data from GEOS documents to your printer. These programs are called printer drivers.

Use the table at the end of this section to find the printer driver you should use with your printer. If the driver you should be using does not appear in the window click on the down arrow below the window, the files will scroll to display additional files if any are on the disk. Click on the appropriate printer file. That file's text will appear in reverse video to indicate it has been selected.



You will have to select the appropriate printer driver each time you boot GEOS unless you change the positions of the printer drivers on the original GEOS disk. The first printer driver encountered is automatically set as the default driver each time GEOS is booted. The procedure for changing the default printer driver is described in the **Selecting a Printer** section of the deskTop chapter.

There are 7 printer drivers supplied on the GEOS side of your disk: MPS-801, MPS-1000, Comm. Compat., BlueChip M120, Epson FX-80, Epson MX-80, and C.Itoh 8510. Four additional printer drivers are supplied on the QLink side of your disk: Star SG-10/15, Okimate ML-92/93, Okimate 10, and Epson JX-80. There are a wide variety of printer and printer interface card combinations for the C-64. So many, in fact, that we have not had time to test all the different possibilities. We have, however, been able to test quite a few of the popular printers and interface cards. The table at the end of this section is a synopsis of how we connected or configured different printers and interface cards to make them work with GEOS.

If you don't find your particular printer listed, don't despair - most printers are compatible with one of the printers listed and can use the same setup. If you find some combination not listed that works for you, please let us know so we can help others in the same situation. If you can't get anything to work, please call us for help. We may have tested your printer by then and be able to help get you up and running.

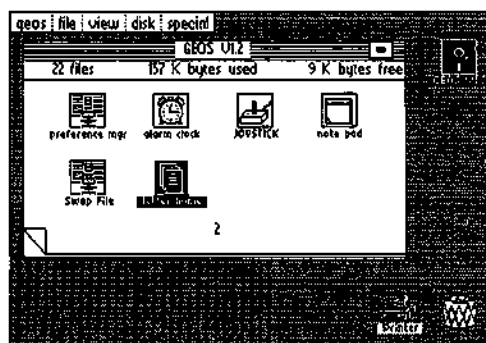
As new printers become available, Berkeley Softworks will write new printer drivers to support these devices. These drivers will be made available to registered GEOS users for the cost of the media plus shipping and handling. They will also be available for downloading on Quantum Link.

Printing a Document from the Desk Top

After selecting the printer driver for your printer, turn to the Disk Notepad page containing the **letter home** file you created in the previous section. Click on the icon, pause, and click again. Drag the ghost icon over to the printer and click. The disk will become active and in a few moments the file should begin printing. When the printing is complete, the desk top will be redrawn.

Note: files can also be printed from within applications.

If the printer is not connected, or incorrectly connected, a dialogue box will appear saying: **The printer is inaccessible.** If this happens, check your printer connections and try again.



Printing a file from the deskTop

Printers and Interface Cards

PRINTER

Blue Chip M120/10

C.Itoh 8510

Commodore 1525

Commodore MPS-801

Commodore MPS-803

Commodore MPS-1000

Epson MX-80/100

Epson FX-80/100,

RX-80/100

Epson JX-80

Ergo Hush80CD

Mannesmann Talley Spirit

Okidata Okimate 10

Okidata Microline 92

Okidata 120

Panasonic KX-1090

Panasonic KX-P1091

Seikosha SP-1000VC

Star Gemini 10X

Star SG-10/15

Star SG- 10C

Toshiba PA7253

SETUP

Set card to Epson or transparent,
use BlueChip driver.

Set interface card to Prowriter or
transparent, use the C.Itoh driver.

Use MPS-801 driver.

Use MPS-801 driver.

Use MPS-1000 driver.

Use MPS-1000 driver.

Set interface card to Epson or transparent,
use the Epson MX-80 driver.

Set interface card to Epson or
transparent, use Epson FX-80 driver.

Set interface card to Epson or transparent,
use Epson JX-80 driver*.

Use MPS-1000 driver.

Set interface card to Epson or transparent,
use BlueChip driver.

Use Okimate 10 driver*.

Set interface card to Oki or transparent,
use Oki ML92/93 driver*.

Use Comm Compat driver.

Set interface card to Epson, or transparent
use the Epson MX-80 driver.

Set interface card to Epson or transparent,
use Epson FX-80 driver.

Use Comm Compat driver.

Set interface card to Epson, or transparent
use the Epson MX-80 driver.

Set interface card to Epson or transparent,
use Star SG-10/15 driver*. Use printer's
Star mode.

Use Comm Compat driver.

Set interface card to Prowriter or
transparent, use C.Itoh 8510 driver.

* These printer drivers are located on the back side of the GEOS disk. To use one of these drivers, delete a driver off the front of the disk and copy the desired driver to the front.

Interface Notes:

1. The printer is always addressed as device #4 on the serial bus, so set the interface card or printer to device #4.
2. Tested cards are: Cardco Card?+G, G-Whiz, Super G; Micrographix MW350; Telesys TurboPrintGT; Xetec Graphic Printer Interface, Super Graphix, Super Graphix Jr.

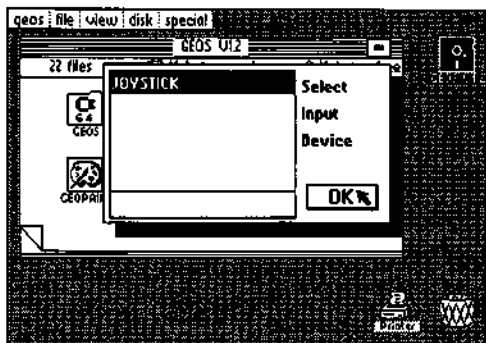
Choosing an Input Driver

Click on **geos** in the command menu on the deskTop. Click on the **select input** item in the sub-menu that pops up. A dialogue box will appear with a window displaying all of the input drivers on the current disk. In the present release of the software, only one file will appear: **joystick**. When additional drivers become available, you will be able to choose the input device you wish to use by clicking on the appropriate input driver in the dialogue box window. For now, simply click on the **OK** icon.

As in printer drivers, it is possible to change the default input driver set by GEOS when the system boots. This is described in more detail in the **Selecting an Input Device** section of the deskTop chapter.

Berkeley Softworks is developing input drivers for other devices and these will be made available to registered GEOS owners for the cost of the media plus shipping and handling. The drivers will also be available by downloading from Quantum Link. Light pen, drawing tablet, and mouse drivers are under development.

The joystick driver will work with some other input devices such as the Commodore 1350 mouse and certain track balls. These devices actually generate joystick directions based on the direction they are moved. Berkeley Softworks is working with Commodore and other mice manufacturers to come up with a mouse that works as a *true* mouse for the C-64.



Choosing an Input Driver

Never and Always (Do's and Don'ts)

Never remove a disk from the drive on the deskTop with out first closing the disk (unless specifically instructed to do so by a dialogue box).

Never give two disks the same name.

Never try to copy a file from one disk to another if the disks have the same name.

Never move or delete the first four files on the original GEOS disk. If you do, you will have to restore your disk from a backup before you can boot again.

Never use the old C-64 validate command. If you accidentally do use this command, immediately boot GEOS and use the validate command in the disk sub-menu on the desk top.

Never use the old C-64 scratch command on a GEOS disk.

Never remove the disk from the drive while using an application unless specifically instructed by a dialogue box.

Always create work disks, don't use the original GEOS disk except to boot.

Always close the drive door after inserting the disk.

Restoring Your Original GEOS Disk

If for some reason you manage to accidentally delete some of the files from your original GEOS disk, and the disk will no longer boot, you can restore the disk by using the following procedure:

1. Turn your system off and then back on again.
2. If you have 2 drives, connect only 1 of the drives to the system.
3. Place the backup disk you created in the **Before You Begin** chapter in the disk drive. Close the drive door.
4. Type on the keyboard:

LOAD "BACKUP",8 (RETURN)

5. When the prompt appears type:

RUN (RETURN)

The following message will appear on the screen:

**DISK BACKUP/RESTORE UTILITY
INSERT DESTINATION DISK TO BE FORMATED
AND ENTER 'F' TO FORMAT, OR ENTER 'Q'
TO QUIT (F/Q)?**

6. Remove the backup disk from the drive and insert your original GEOS disk.
Type:

F (RETURN)

The screen will display:

FORMATTING DESTINATION DISK...

After a few minutes the disk will be re-formatted and the screen will display:

**INSERT SOURCE DISK, AND ENTER 'C' TO
COPY (C)?**

7. Remove the newly formatted original GEOS disk and insert the backup disk.
Type:

C (RETURN)

The screen will display:

READING SOURCE DISK

After a few moments the screen will display:

PLEASE INSERT DESTINATION DISK

8. Remove the backup disk from the drive and insert the original GEOS disk. The drive will automatically start writing to the GEOS disk. After a few moments the screen will display:

PLEASE INSERT SOURCE DISK

9. Continue to follow the screen directions inserting the backup disk created in the **Before You Begin** chapter each time the screen asks you to insert the **SOURCE DISK**. Insert the original GEOS disk each time the screen asks for the **DESTINATION DISK**. (You might recognize this as being the exact opposite of the procedure used to create the backup disk in Chapter 1.)

10. When the restoration is complete the screen will display:

BACKUP COMPLETE! INSERT GEOS BOOT DISK AND PRESS RESTORE

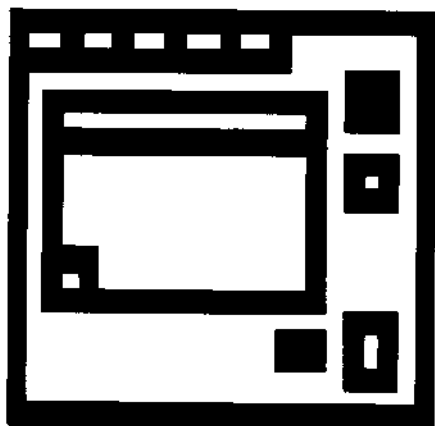
11. The original GEOS disk should be in the drive, simply press the **RESTORE** key on the keyboard and GEOS should begin booting. If for some reason GEOS does not boot, make sure you have the backup disk you created in Chapter 1 and try the procedure over again.

Congratulations

You have completed GEOS basic training. You have learned the techniques necessary to begin using GEOS. Take some time to review the concepts and terminology introduced in this chapter. Practice the skills you have learned. You will then be ready to proceed to the following chapters to learn the wealth of additional power GEOS brings to your computer.

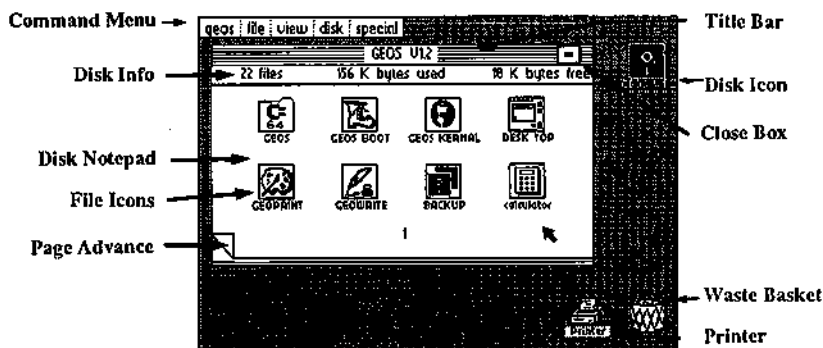
Chapter 3: The GEOS deskTop

This chapter describes the functions of the GEOS deskTop.



The deskTop Screen

The deskTop is the user interface to the disk operating system. This chapter describes how the deskTop is used to manipulate files and disks.



GEOS deskTop

Along the top of the GEOS deskTop lies the **Command menu**. Each item in the command menu will cause a sub-menu of commands to appear when selected.

In the upper-right corner of the deskTop there is a **Disk Icon**, indicating the disk currently in the disk drive. This icon is black, when the disk is open.

The **Disk Notepad** is to the left of the disk icon. It contains information about the currently opened disk. The disk's name appears in the Title Bar. Below the Title Bar the number of files on the disk and the amount of disk space used and available are listed. The pages of the Disk Notepad display the files residing on the currently opened disk.

There may be up to eight **File Icons** on each page of the Disk Notepad. The icon's picture indicates the file's type, such as application or document. The name of the file is written below the icon. To view all of the files on the disk, simply page through the Disk Notepad by clicking the "dog-eared" **Page Advance**. The **Close Button**, located in the upper-right corner of the Disk Notepad, closes the disk.

The **Printer** and **Waste basket** icons appear in the lower-right corner of the deskTop. The Printer icon allows you to easily print a data file: simply drag the file's ghost icon to the Printer icon and click. The waste basket works similarly; to delete a file, simply drag the file's ghost icon to the waste basket and click.

File Management

There are several categories of GEOS files. These categories depend upon the type of information the file contains and how that information is used.

GEOS File Categories

System Files

- ▣ Including GEOS operating system files and system data files such as the Photo and Text Scrap.

Program Files

- ▣ Applications programs, such as geoWrite and geoPaint.
- ▣ Desk Accessories: helpful and convenient utility programs.
- ▣ User programs, in either Assembly Language or Basic format.

Data Files

- ▣ Documents created by GEOS applications.
- ▣ Font files containing bit-mapped image data for text.
- ▣ Data files created by non-GEOS programs.

Interface Drivers

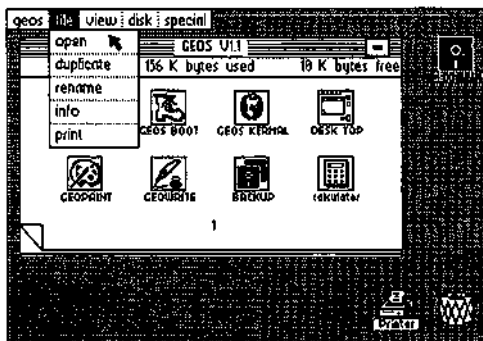
- ▣ Input drivers, to accomodate a variety of input devices.
- ▣ Printer drivers, each for a specific printer.

Non-GEOS Files

- ▣ Programs and data files which have not been converted to GEOS format. The deskTop displays a "C-64" icon for each of these files.

Opening Files On the deskTop

There are two methods of opening a file from the deskTop. One is to click on the file and then select **open** from the **file** menu. The other is to simply double click on the file icon. The file types that can be opened from the deskTop are: **BASIC**, **assembly**, **application**, **application data** (documents), and **desk accessories**. If you attempt to open another file type, a dialogue box will inform you the file can not be opened from the deskTop.



Opening a Document

Renaming a File

To change a file's name, select the file by clicking it once on the Disk Notepad. Then choose the **rename** option from the **file** command menu. A dialogue box will pop-up asking you for the new name.

Making a Copy of a File to the same disk

To create a duplicate copy of a file on the disk, select the file icon on the Disk Notepad by clicking it once. Choose **duplicate** from the **file** menu. Enter the name for the duplicate file in the dialogue box that appears. GEOS will create a copy of the file with the name entered.

Copying a File to Another Disk

The deskTop makes it easy for you to copy files from one disk to another. For example you may want to copy a photo scrap created on a work disk containing **geoPaint** to another work disk containing **geoWrite**. When copying between disk, the disk containing the original file is called the **source disk**. The disk receiving the copy is called the **destination disk**.

The procedure for copying a file from one disk to another is different if you own one or two disk drives. If you are using two drives, see Using Two Disk Drives for instructions. If you are using one disk drive, follow these instructions:

- 1) Insert the source disk and select **open** from the disk menu.
- 2) Move the file icon to the area below the Disk Notepad.
- 3) Close the source disk and remove it from the disk drive.
- 4) Insert the destination disk and select **open** from the disk menu.
- 5) Drag the file's ghost icon upwards from the deskTop onto the Disk Notepad and click.

Dialogue boxes will prompt you to swap disks as needed while copying the file from the source to the destination disk. When the copy is complete, the file icon will disappear from the border and reappear on the Disk Notepad page.

NOTE: Copying a file does not delete the file from the source disk, if you re-open the source disk the file will re-appear on the border.

Organizing the Disk Notepad

By carefully organizing your files on the Disk Notepad, you will make them more accessible.

▣ Moving a File To Another Disk Notepad Page

There are two methods to pull up another page of the Disk Notepad. The first is to click on the dog-eared Page Advance in the lower-left corner of the Disk Notepad. Or, to quickly move several pages, enter the page number (1 through 9) on the keyboard. You do not need to press RETURN.

▣ Rearranging Files On the Disk Notepad Page

The Disk Notepad can display up to eight file icons, each in one of eight positions. To change the positions of any two file icons move both to the border, then move the file you wish to appear first back onto the Disk Notepad page. File ordering on the Disk Notepad is from left to right, top to bottom.

■ Moving Files Between Disk Notepad Pages

To move a file icon to another page of the Disk Notepad, drag the file icon downwards off the Notepad and drop it onto the border of the deskTop. Pull up another page of the Notepad, and drag the file icon from the deskTop border to the Notepad. Position it on the Notepad and drop it. The file will appear in the first open file slot.



Dragging a file icon back onto the Disk Notepad

Deleting a File

To delete a file from the disk, drag the ghost of its icon to the Waste Basket icon and click once to drop it. The original file icon will disappear from the Disk Notepad and the file will be deleted. One note of caution about the Waste Basket: it is actually an *incinerator* - - any files dropped into it cannot be recovered.

If you try to delete a file and a dialogue box appears saying: "This file is write protected and cannot be deleted", you must use the *info* command in the file menu to change the file's write protect status. This is covered in the *File Info Command* section of this chapter.

Printing a Document

There are two ways to print a document from the deskTop. You can select the document icon and then choose *print* from the file menu. Or, you can drag the document's ghost icon to the Printer icon, and click to begin printing.

NOTE: Only application data files can be printed from the deskTop - - e.g., *geoWrite* and *geoPaint* documents.

The File Info Command

Select **info** from the **file** menu to view a list of information about the currently selected file. This information includes:

disk	name of disk where file is located
type	type of file (system, application, etc.)
class	permanent internal name of file
structure	file structure (sequential or VLIR)
size	size of file, in units of "K" (1024) bytes
modified	date and time file was last modified
author	name of programmer (certain files)
write protect	write-protect status for file

To change the file write protect status, click the button next to "write protect". A hollow button indicates the file is not write protected, whereas a solid button indicates the file is write protected.

If the file is on the currently opened disk, and there is a copy of the deskTop on the disk, the window below the file information contains user notes about the file. To add a note to this box, click once in the box to position the Text Cursor. Type in a sentence or two, using the DEL key to correct mistakes. Your notes will be saved with the file. To exit the file info box, click on the Close Button at the top of the information window.

Viewing Disk Files by Name, Date, Size, or Type

The **view** menu allows you to change the way the files are displayed on the Disk Notepad. Choices are:

icon	display in icon form.
name	display alphabetically by name.
date	display in order of last modification.
size	display by size, largest file first.
type	display by file type.

The name, date, size, and type view modes reformat the Disk Notepad to display the files sorted according to the information category selected. For example, view by name sorts the files alphabetically. In these 4 modes, the files are displayed in text only with one file per text line. To view the other files, click on the up/down scroll arrows appearing at the bottom of the screen.

NOTE: You can select or move file icons only when the Disk Notepad is in "view by icon" mode.

Disk Management and Organization

The GEOS disk menu contains several commands to help manage and organize your disks.

Opening a Disk

Choosing **open** in the disk menu opens the disk in the drive. The Disk Notepad will display the contents of the disk. After closing a disk and removing it from the disk drive, you can open another by inserting it and again selecting **open** in the disk menu. You can also open the disk by clicking once on the disk icon to the right of the Disk Notepad.

NOTE: while a disk is opened, do not remove it from the disk drive.

Closing a Disk

Before removing a disk from the disk drive, select **close** from the disk menu. You can also close a disk by clicking the Close Button in the top right corner of the Disk Notepad. The Disk Notepad will be cleared, and the disk's icon will be replaced by an image of a disk with a question mark inside.

Copying a Disk

The **copy** command in the disk menu copies the entire contents of one disk onto another. The disk copy command is intended for two drive systems. The disk copy command will work on a one drive system, prompting you to swap disks as needed, but may take up to 25 disk swaps to copy a full disk! A better solution for owners of one drive systems would be: use the BACKUP utility program - - which takes only 3 disk swaps - - and use the disk rename command to change the name of the copied disk .

Formatting a Disk

Before a blank disk can be used with GEOS to store files, it must be formatted. To format a disk, first **close** and remove the disk which is currently in the disk drive. Insert the disk you want to format, and activate **format** in the disk menu. A dialogue box will pop-up to verify that you want to format the disk.

NOTE: formatting a disk will destroy any files on the disk.

Renaming a Disk

To change a disk's name, select **rename** from the disk menu. A dialogue box will allow you to enter a new name. You must enter at least one character as the new disk name.

Validating a Disk

Should you ever encounter problems with a disk, use the **validate** command in the **disk** menu to check the integrity of the sectors on the disk. **Validate** will not change the contents of the disk. The disk will be re-opened after it is validated.

NOTE: Do not use the original C-64 DOS **validate** command on a GEOS disk. This will cause GEOS-specific information to be lost. Should this happen accidentally, immediately re-boot the GEOS disk and do a GEOS **validate** to restore the disk integrity.

Creating Work Disks

As you work with GEOS, you will find it convenient to create several "work disks". This will allow you to organize your work onto several disks and will ensure free disk space for larger documents. You can organize these disks by projects, such as Correspondence or School Work, or by document type, such as Pictures or Essays. Here is a list of the files you might want to include on a particular work disk:

deskTop	(optional, but recommended)
applications	(one or more)
documents	(one or more)
fonts	("BSW" automatically included; others optional)
photo/text scrap	(optional)
desk accessories	(optional)
input drivers	(one for each input device in use)
printer drivers	(one for each printer in use)

Although the deskTop is not required on a work disk, it will be especially useful on disks containing two or more applications. If you do not place a copy of the deskTop on your work disk, you will have to insert a disk with the deskTop on it each time you exit an application.

There are two approaches to creating work disk depending on how many of the original GEOS files you plan on copying to the work disk. One approach, outlined in the **Before You Begin** chapter, copies the entire GEOS disk and then deletes the files you don't want. Another approach: simply copy the individual files you wish to have on the work disk. The choice is yours. If you own one drive and want to copy most files, the former method is easier. However, if you have a two drive system, and want to create a work disk with only a few files - - e.g., geoWrite and a few fonts - - it might be easier to copy these files individually to the work disk because of the ease of file copying on a two drive system.

To begin work, boot GEOS using the original GEOS disk. Close this disk. Insert your work disk, and select **open** from the **disk** menu. Select an application or document on the Disk Notepad.

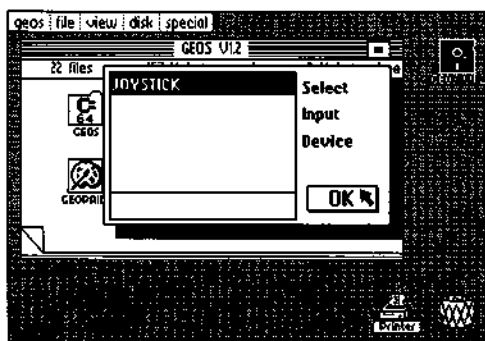
NOTE: Although you can copy the entire GEOS disk, you must always boot from the original disk.

Selecting an Input Device

When booting, the first input driver on the original GEOS disk is read by the operating system. You may then choose an alternate input driver using the **select input** command in the **geos** menu on the deskTop. The present release of the software only includes one input driver: joystick. Berkeley Softworks is developing additional drivers for other input devices such as drawing tablets, light pens and other mice. New Input drivers will be made available to registered GEOS owners for the cost of the disk media plus shipping and handling. They will also be available for downloading over Q-Link.

Selecting an Alternate Input Device

After booting GEOS, if you want to select an alternate input driver, click on **select input** in the **geos** menu. A dialogue box will display a list of the input drivers it finds on the disk. If the list contains more than five names, click the scroll arrows to scroll the others into view. Select one, and click the **OK** button.



Choosing an Input Device

Selecting a Printer

When booting, GEOS selects the first printer driver on the disk as the default printer driver. To change the default printer driver, move the driver you wish to use into the first printer driver position on the Disk Notepad of the original GEOS disk.

Selecting an Alternate Printer

If, after booting GEOS, you want to select an alternate printer driver, click on **select printer** in the geos menu. A dialog box will display a list of the printer drivers it finds on the disk. If the list contains more than five names, click the scroll arrows to scroll the others into view. Select one, and click the **OK** button.



Selecting a Printer

As in the case of input drivers, Berkeley Softworks will be developing printer drivers for all popular printers. If your printer is not listed in the table in the printer section of the **GEOS Training Camp** chapter, call our customer service number. New printer drivers will be made available for the cost of the disk media plus shipping and handling, they will also be available over Q-Link.

Using Non-GEOS Disks

Although programs not specifically designed for the GEOS operating system cannot take advantage of GEOS's windows, icons, and pull-down menus, you can use the deskTop to examine the contents of a non-GEOS disk and to run programs from non-GEOS disks.

Using the deskTop With Non-GEOS Disks

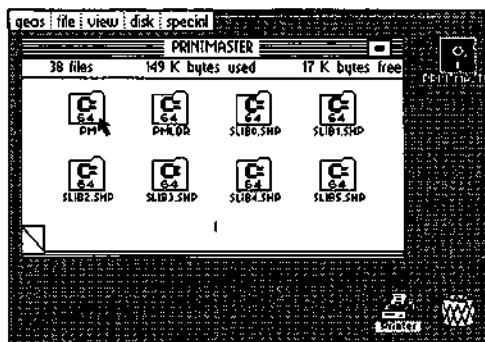
Insert the non-GEOS disk into the disk drive and select open from the disk menu. A dialogue box appears, asking if you would like to convert the disk's directory to GEOS format. If you select "Yes", GEOS will expand the directory on the disk by one block. This additional directory area will be used to keep track of files which are moved from the Disk Notepad to the deskTop border.

If you select "No", GEOS will not allow you to move files from this disk off the Disk Notepad onto the deskTop border. You can, however, proceed to use the deskTop to manipulate the files on the disk.

Once GEOS has opened the disk, an icon will appear on the Disk Notepad for each file on the disk. Since these files do not have icon images, a "C-64" icon will be displayed for each. You can rename, copy, and delete these files as if they were standard GEOS files.

Running a Program on a Non-GEOS Disk

Once you have opened a Non-GEOS disk and its contents are visible on the Disk Notepad, you can double-click on any of the program file icons to run a program. GEOS will determine the type of program, and will attempt to load and run it. If the disk you have inserted is normally run using the LOAD "*",8,1 command, double-click on the upper-left corner icon on page one of the Disk Notepad.



Running a Program on a Non-GEOS Disk

Using Two Disk Drives

Enabling Your Second Disk Drive

If you have changed the jumper in your second drive to permanently change it to device 9, GEOS will automatically enable the second drive when booting. If your drives have not been altered in this manner - - i.e., both drives power up as device 8 - - follow the "add drive" procedure each time you boot GEOS.

To add a second drive in software, connect both drives to the serial bus, but only turn on one drive. Boot GEOS and choose add drive from the disk menu. Follow the directions in the dialogue boxes to add the second drive. The drive that was originally powered up will remain device 8 and be referred to as DRIVE A, the drive added will be changed in software to device 9 and is referred to as DRIVE B.

In a two drive system, there are two disk icons to the right of the Disk Notepad (see below). The disk icon for the currently active drive is displayed in reverse video.

Selecting the Active Drive



GEOS deskTop with Pointer over Drive B Icon

The Disk Notepad displays the contents of one drive at a time. Furthermore, the disk menu commands act on the currently selected drive. To select the active drive, simply click on that drive's disk icon. Remember: Drive A (device 8) is the original drive and appears above Drive B (device 9) on the deskTop.

Copying Files Using Two Drives

To copy a file from one disk to the other in a two drive system, simply drag the file's ghost icon over to the disk icon of the other drive and click. GEOS will automatically copy the file.

NOTE: Never attempt a copy operation between two disks with the same name. You should never have two disks with the same name. If you do, use the rename command in the disk menu to rename one of the disks.

Copying Disks Using Two Drives

Disk copying is also much easier in a two drive system under GEOS. Simply select copy from the disk menu. Your disk will be copied quickly and without disk swapping.

GEOS and BASIC (for BASIC programmers only)

Entering The BASIC Interpreter from the deskTop

The BASIC command in the special menu will take you out of the GEOS deskTop environment and place you in the Commodore BASIC interpreter. The machine is then running much as if it had just been powered up, with one exception: the default NMI vector has been replaced with a vector to some re-boot code for the deskTop in the \$C000 memory space. This allows the deskTop to be re-booted by inserting the original GEOS disk in the drive and pressing the RESTORE key on the keyboard (RESTORE generates an NMI).

Returning to the deskTop

If the programs you have run while in the BASIC interpreter do not disturb the memory space between \$C000 and \$C100 (hex address values), and the NMI vector is not changed, then the deskTop can be re-booted by placing the original GEOS disk in the drive and pressing RESTORE.

Running BASIC Programs from the deskTop

Any BASIC program can be loaded and run from the deskTop. Simply double click on the BASIC file's icon on the Disk Notepad page. If the program is smaller than 26K, the GEOS diskTurbo software will fast load the program into memory and automatically execute a RUN command. If the file is larger than 26K, it will be loaded by the normal Commodore DOS routines and a RUN will be executed.

The Future of GEOS and BASIC

Berkeley Softworks is working on a GEOS programmers reference manual which will be published as soon as possible. Most of the powerful routines in GEOS are accessible through a jump table. The reference manual will allow experienced BASIC and assembly language programmers to access all of the graphics and operating system features of GEOS to develop their own GEOS applications. Another project being researched is an enhanced BASIC interpreter to take advantage of GEOS capabilities.

Quick Reference: deskTop Menus

geos

geos info: displays copyright notice and version number of GEOS.

deskTop info: displays version number of deskTop.

select printer: lets you select a printer driver.

select input: lets you select an input driver.

desk accessories: select any of the desk accessory programs on the current disk. See Chapter 5 for more details.

file

open: loads and executes the currently selected file on the deskTop.

duplicate: creates a duplicate copy of the selected file.

rename: allows you to rename the selected file.

info: displays information about the selected file.

print: prints the selected file (application documents only).

view

icon: files on disks are displayed on Disk Notepad pages in icon form. You must be in this Icon-View Mode to manipulate the files. The other viewing modes listed below can only be used to display the contents of the disk.

size: displays disk's files sorted by size, largest file first.

type: displays disk's files grouped by type.

date: displays disk's files in order of last modification. The most recently updated file is listed first.

name: displays disk's files sorted alphabetically.

disk

open: opens disk in disk drive, displays file contents on Disk Notepad.

close: closes currently opened disk.

rename: renames currently opened disk.

copy: full disk copy. Copies source disk to destination disk, replacing contents of destination disk.

add drive: enables second disk drive.

validate: verifies integrity of currently opened disk.

format: initializes new disk.

special

BASIC: escapes from GEOS deskTop to Commodore BASIC. To reload deskTop, original GEOS disk must be in Drive A, then hit the RESTORE key.

RESET: initializes the deskTop and re-opens the disk. Use this command after disk errors or if you accidentally swap disks with following the proper open and close procedure.

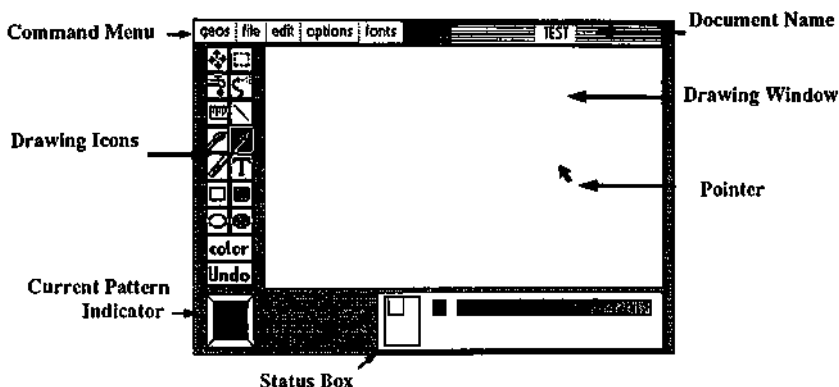
QLINK: boots the QuantumLink disk.

Chapter 4: geoPaint

This section covers geoPaint, a powerful color graphics editor.



The geoPaint Screen



geoPaint allows you to create high resolution, color graphic images on the screen and then print them. The maximum "printed" resolution of a document is 80 dots per inch, or 640 dots wide by 800 dots long (8 x 10 inches). Since this resolution is greater than what can be shown on your screen, geoPaint supports the use of a **Drawing Window**.

Like other "windows" in GEOS, the Drawing Window displays only a portion of a much larger document. In most cases (the "Normal Edit" mode), the Drawing Window allows you to work with an area 3.3 inches wide by 1.8 inches high (approximately 1/14 of the total document). In the "Pixel Edit" mode (described later in this chapter) the Drawing Window actually magnifies a smaller section of your document into much greater detail. In either case, the window can be moved around to work on or view other portions of your document.

Above the large drawing window is a **Command Menu**. Clicking one of the menu names pops down a menu with several commands to choose from. Simply click the command you desire.

Along the left side of the geoPaint screen is the **Graphic Tool Box**. The icons located in the Graphic Tool Box give you access to the many drawing tools described later in this chapter.

The **Status Box**, a rectangular box at the bottom of the screen, displays different information depending on the tool in use.

In most cases, the Status Window appears as shown. Inside it, from left to right, you can see the Page Map, Card Paint Color Indicator, and the Paint Color Bar. The Page Map displays the size and relative position of the Drawing Window on your document. The Card Paint Color Indicator displays the color that is beneath the Pointer as it moves across the document. The Paint Color Bar displays the sixteen available colors. The arrow immediately above the Paint Color Bar points to the Current Color. geoPaint uses this color whenever you use a drawing tool.

When using the Ruler, Line or Rectangle drawing tools, the Status Box displays measurement information. It can also alternately display a choice of available brush shapes and patterns.

Directly to the left of the Status Window is the Current Pattern Indicator. Several tools, such as the Paint Brush, Faucet, Air Brush, and Filled Rectangles & Circles use the pattern displayed in this box.

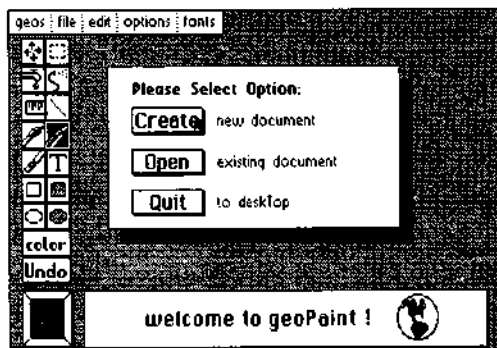
The Pointer is used to select menus, drawing tools or patterns. When in the Drawing Window, the Pointer changes shape and color to indicate the particular tool you are using.

Entering geoPaint

If you have not already done so, read Chapter 2, "GEOS Training Camp".

Entering geoPaint from the deskTop

When you are on the deskTop, there are two ways to enter geoPaint. You can select the geoPaint icon on the Disk Notepad, and then select open from the file menu. Or, you can double-click on the geoPaint icon. In both cases, geoPaint will load and display a dialogue box on a blank screen. It will contain three options: Create document, Open document, and Quit. Select one.



geoPaint Create/Open/Quit Dialogue Box

Create Document

Use this option to create a new geoPaint document. A second dialogue box will pop up, displaying the name of the currently opened disk. Enter a name for your new document and press RETURN.

If you have installed two disk drives, and would rather create the document on the disk in the other disk drive, click the Disk button once. This will activate the other disk. Enter a name for your new document and press RETURN.

Open Document

This option opens an existing document on the disk. A second dialogue box will appear, displaying the name of the currently opened disk and a list of the first five geoPaint documents on the disk. If there are more than five documents on the disk, click on the lower scroll arrow at the bottom of the box. Each time you activate this scroll arrow, another document name will scroll into view. Highlight the document you desire by clicking on its name once. Click the Open button to open that document.

If you have installed two disk drives, and would rather open a document on the disk in the other disk drive, click the **Disk** button once. This will activate the other disk. Highlight the document name and click the **Open** button to open that document.

NOTE: Only the first sixteen documents are displayed in the **Open** dialogue box window. To display more documents, you will need to move, delete, or rearrange the file icons on the deskTop (see "File Management" & Disk Management and Organization", chapter 3).

Quit

Select this option to exit geoPaint and return to the deskTop.

Opening an Existing Document From the deskTop

Once you have created a document, you can open it by selecting the document icon on the Disk Notepad and activating **open** from the **file menu**. Or you can double-click on the document icon. Either procedure will automatically load geoPaint and then open your document.

Selecting Colors

While drawing with geoPaint, consider that you are painting onto a canvas, and that both the paint and canvas colors can be chosen from a set of sixteen colors. With this in mind, there are two approaches to creating a color drawing. The first is to select a new Current Paint Color each time you use a drawing tool. The second is to change the paint and canvas colors of certain areas of the document, *after* the graphics have been painted. But before you decide on an approach, you must understand the way in which colors interact and are controlled by the C-64.

The Document as a Gridwork of Cards

The C-64 divides a color document into small squares called "cards". Each card is 8 pixels (dots) wide and 8 pixels high. You can specify a maximum of two colors for each card: one paint (foreground) color, and one canvas (background) color. In most cases, you are not even aware of this constraint. For example, when geoPaint creates a new document the canvas color of each card in the Drawing Window is set to light grey; the paint color is set to dark grey. When you draw a line on the screen, the appropriate pixels get set so that a dark grey line appears on a light grey background.

A problem arises, however, if a third color attempts to cross this boundary. The result is a "jagged" color change at the point of intersection. This problem can be avoided with careful placement of your images and the proper selection of paint and canvas colors.

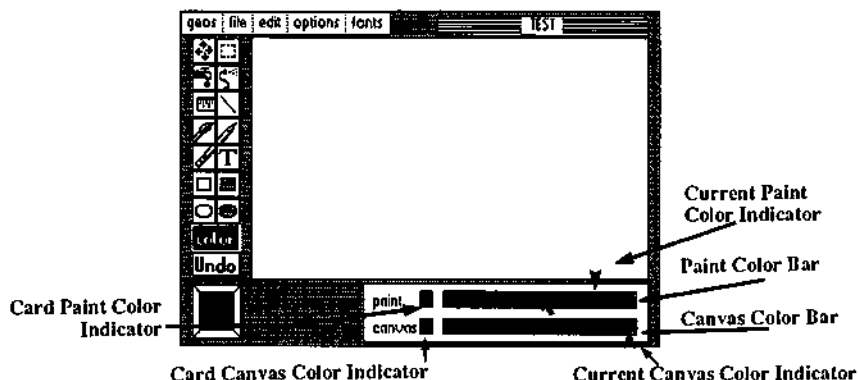
Painting in the Current Color

Whenever you paint using one of the drawing tools, geoPaint will use the Current Paint Color you have selected. The color of the canvas (background) will not be changed. To choose a new Current Paint Color, point to the desired color in the Paint Color Bar. The Current Paint Color Indicator will move to that color.

By clicking on the Card Color Indicator, to the left of the Color Bar, geoPaint will set the Current Color to whatever paint color is selected for a given region of the Drawing Window. In other words, as you move across the Drawing Window, the Current Color will change to match the color in that region.

Changing the Paint and Canvas Color of a Card

You can add color to a "black and white" document by selecting the **Color** icon from the Tool Box. Once selected, a second Color Bar will appear below the Paint Color Bar in the Status Box area:



geoPaint Paint and Canvas Color Bars

The top Color Bar is used to set the Current Paint Color, while the lower Color Bar is used to set the Current Canvas Color. Choose a paint color from the Paint Color Bar and a canvas color from the Canvas Color Bar.

Now move the Pointer upwards, into the Drawing Window, to the first card you want to change. Click once to activate the Color Wipe, and move over several cards within the Drawing Window to change the paint and/or canvas color of those cards. Click again to deactivate the Color Wipe.

If you wish to change the paint color of several cards, without changing the canvas color of those cards, point to the Card Canvas Color Indicator which is to the left of the Canvas Color Bar. The Color Wipe will then become "transparent" and not change any of the canvas colors.

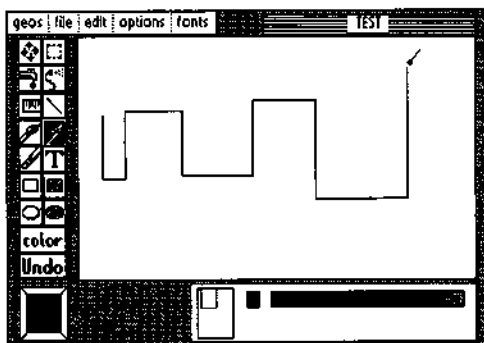
Color Disable

If you prefer to draw in "black and white", you can disable color usage by selecting **color off** in the **options** menu. Whatever Drawing Tool you use will then draw dark grey on a light grey background. Select **color on** again to enable color usage.

Drawing

Using the Pencil

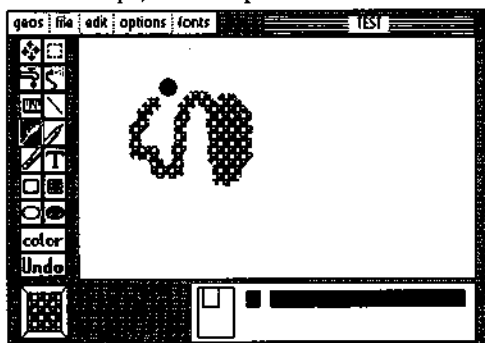
The **Pencil** draws individual points and free-hand lines. To use the Pencil, click on the Pencil icon in the Tool Box. The Pointer looks like a pencil as it moves onto the Drawing Window. Click once to activate the Pencil. It will be colored black to remind you it is active. Sketch a line in the Current Color by moving the Pencil around in the Drawing Window. Click again to turn the Pencil "off".



Drawing with the Pencil

Using the Paint Brush

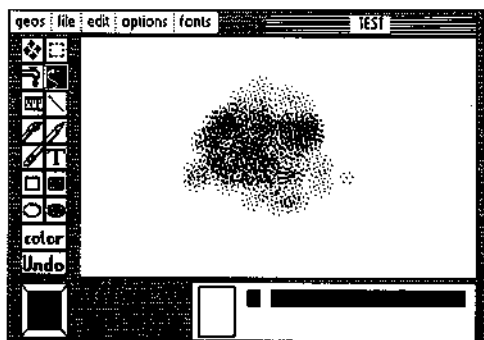
The **Paint Brush** paints with one of 14 different brushes, using the pattern displayed in the Current Pattern Indicator. Click on the Paint Brush icon in the Tool Box. As you move the Pointer onto the Drawing Window, it will take the shape of the currently selected brush, a solid circle for example. Click once to activate the brush and begin painting. To quit painting, click again. To select a different pattern or brush shape, see the Special Commands section in this chapter.



Drawing with the Paint Brush

Using the Airbrush

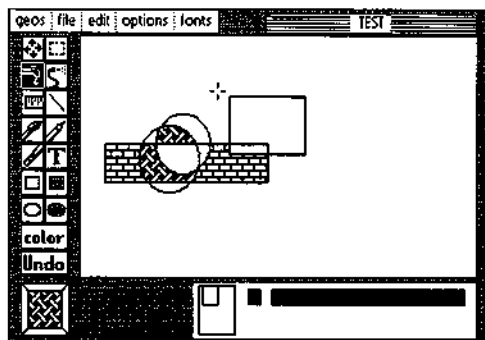
With the **Airbrush** you can paint large areas with the Current Pattern in a variety of intensities. Click on the Airbrush icon and point where you wish to begin. Click once to start spraying. By "spraying" the airbrush over your document, you apply one "coat" of the Current Pattern. The more coats of the pattern that you apply in this manner, the more distinct the pattern becomes (until it is as sharp as if you had used the Paint Brush). Click once to stop spraying.



Drawing with the Airbrush

Using the Faucet (Pattern Fill)

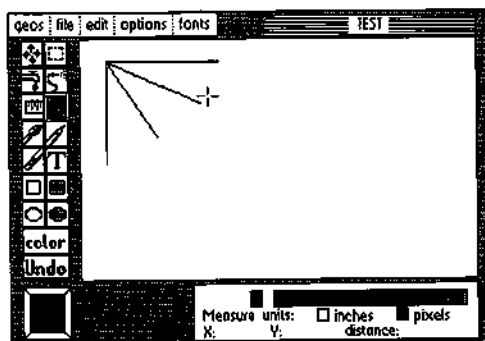
The **Faucet** is used to fill an enclosed area with the Current Pattern. If you use the **Faucet** in an unenclosed area, the pattern will "leak" out and may even fill the entire Drawing Window! To start, select the Faucet icon. Move the "cross-hair" Pointer to a position within the enclosed area and click once to fill the area. To select a different pattern, see the Special Commands section in this chapter.



Filling an area with the Faucet

Drawing Straight Lines

To add straight lines to your document, select the **Line** icon. Note the Pointer takes on the appearance of a cross-hair, allowing you to accurately point out the starting and ending point of the line. Click once to begin the line. Now stretch the line out on the screen in any direction. It will shrink and extend until you "tack" it with by clicking again. You may draw several lines in this fashion, clicking at the starting and ending points of each line.



Drawing Straight Lines

Drawing Squares and Rectangles

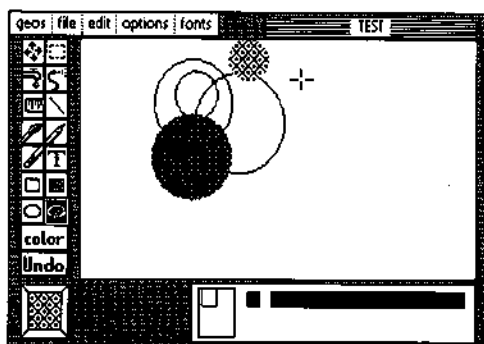
geoPaint lets you draw two different types of squares and rectangles: hollow and filled. To draw a hollow square or rectangle, select the **Hollow Square** icon in the Tool Box. Position the "cross-hair" Pointer on the screen and click. This will create one corner of the rectangle. To complete the rectangle, drag the pointer to a location diagonally opposite the starting point. Resize the rectangle, using the measuring units displayed in the Status Window, until you achieve the size and shape you desire (see also "Measuring Distances"). Click once and the rectangle will be permanently placed on the screen.

You may draw a filled square or rectangle in the same manner by selecting the **Filled Square** icon and pointing out the two corner points as indicated above. The completed square or rectangle will be filled with the Current Pattern. To select a different pattern, see the Special Commands section in this chapter.

Drawing Circles

geoPaint also allows you draw hollow or filled circles. To draw a hollow circle, select the **Hollow Circle** icon. Position the cross-hair Pointer at the center of the desired circle and click once. As you move the Pointer out, a circle is drawn between the starting point (center) and the Pointer. Resize the circle until you achieve the size you desire. Click once and the circle will be permanently placed on the screen.

You may draw a filled circle in the same manner by selecting the **Filled Circle** icon and pointing out the two points as indicated above. The completed circle will be filled with the **Current Pattern**. To select a different pattern, see the **Special Commands** section in this chapter



Drawing hollow and filled circles

NOTE: You probably will notice that circles appear slightly elongated on the screen (i.e. they are not perfect circles). This is because dots in GEOS are ideally square. The dots on the screen, however, are slightly rectangular. This results in circles being slightly distorted on the screen.

Adding Text

To add text to your document, click on the Text icon. Next, you must define a rectangular region in the Drawing Window in which to type your text. This area is called the Text Region.

Opening a Text Region

Position the "cross-hair" Pointer on the screen and click. This will create one corner of the Text Region. To complete the Text Region, drag the pointer to a location diagonally opposite the starting point. Resize the Text Region until you achieve the size and shape you desire. Click once and the Text Region will be opened and placed on the screen.

Entering Text

Notice that once the Text Region is formed, the cross-hair Pointer becomes shaped like an "I-beam" and that an additional flashing "line" cursor (Text Cursor) appears in the upper left corner of the Text Region. The Text Cursor marks the active insertion point for new text. The "I-beam" is used for repositioning the text cursor to a new location for inserting additional text.

As you enter text it will fill the Text Region. If you reach the right side of the Text Region while typing a word, geoPaint will "wrap" the entire word to the beginning of the next line, allowing you to continue typing. You may insert up to 254 characters (including spaces) into the Text Region. Any text which may exceed the length of the Text Region is stored in memory and can be displayed by resizing the Text Region (see "Changing the Position and Layout of Text" on page 4-13).

To make changes to any text you entered, point with the I-beam to a location in the Text Region. Click once to position the Text Cursor. You can either insert more text or use the DEL key to remove portions of text.

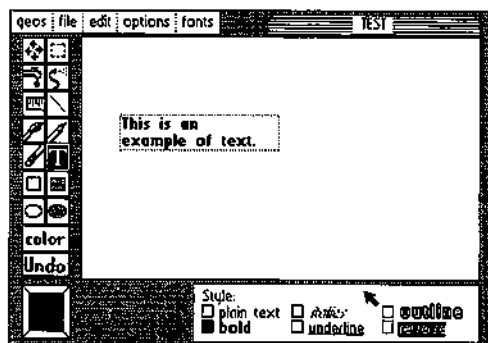
Selecting a Font and Style

To select a font (typeface), pop-down the fonts menu and select a font and point size. When in Text mode, the Status Box displays the available type styles. Select one or more style combinations by clicking the button next to the style names. To remove a style, click again on the button next to the style.

Any font or style(s) you select is in effect for all of the text in the Text Region. You may change to another font or style at any time.

Changing the Position and Layout of Text

geoPaint allows you to change the size and position of the Text Region. Simply move the I-beam to a point outside the Text Region and click to define one corner of the new Text Region. Open the new Text Region and click to select the opposite corner in the same manner as "Opening a Text Region". All of the text will reformat itself to correctly fill the new Text Region.



Entering text

Placing the Text Region into the Text Scrap

All the text in an "open" Text Region may be "cut" or "copied" into the Text Scrap for use elsewhere in geoPaint or other applications. A Text Scrap is an actual file (on the disk) used for temporarily storing a "single" portion of text you have selected. The Text Scrap file holds only one portion of text at a time. Each time you cut or copy text into the Text Scrap, you will replace the current contents of that file with the new text.

To cut or copy the Text Region into the Text Scrap, select **cut** or **copy** from the **edit** menu. Cut will remove the text from the screen and place it into the Text Scrap; copy will leave the original text on the screen and place a duplicate version of the text in the Text Scrap.

Pasting the Text Scrap into the Text Region

To paste the Text Scrap text into an opened Text Region, select **paste** from the **edit** menu. The contents of the Text Scrap will appear in the Text Region in *the currently selected font, point size and style*. Once placed in the Text Region, you may make any changes you wish.

Closing the Text Region

You can continue to reposition and edit the Text Region until you achieve the layout you desire. To permanently place text on the screen, and "close" the Text Region, click on the Text icon or any other drawing tool icon.

Correcting and Detailing

Using the Undo Command

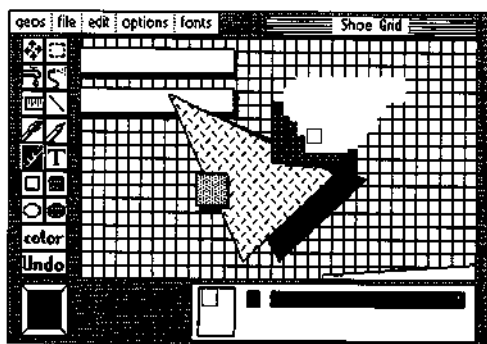
If you make a mistake while using geoPaint, don't panic! Just click the **Undo** command at the bottom of the Tool Box. geoPaint will reverse your last change, restoring the original graphics. **Note:** Undo cannot be used to "undo" itself.

Using Recover To Undo Changes

Any changes you make in the Drawing Window are stored temporarily in memory. They become permanent changes only when they are "saved" onto the disk. This occurs when you scroll the Drawing Window vertically, or **update** or **close** the document. To reverse all of your temporary changes use the **recover** command in the **file** menu. geoPaint will recover the last "saved" version of the document from the disk. Any temporary changes you made in the Drawing Window will no longer appear.

Using the Eraser

To erase portions of your document, click on the Eraser icon. Activate the eraser-shaped Pointer by clicking once. When activated, it will appear pink to indicate it is erasing. Click again to de-activate the Eraser. The Eraser will remove anything it slides over in the Drawing Window.



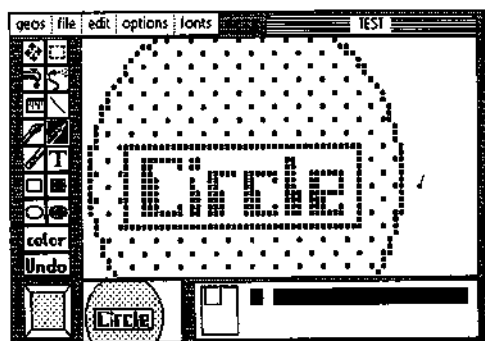
Erasing

To erase with greater detail, use the Pixel Edit mode explained later. To erase the entire Drawing Window, double-click on the Eraser icon in the Tool Box.

Detailing with Pixel Edit

To add fine detail to your document, switch the Drawing Window to **Pixel Edit** mode. In this mode, a small portion of your document is enlarged so that each dot (pixel) is magnified and easier to edit.

To enter Pixel Edit mode you may either select **pixel edit** in the options menu, or double-click on the Pencil icon. An editing box will appear in the upper left corner of the Drawing Window. Position the box on the region you want to "magnify". Click once. The Drawing Window will display the area you selected in an enlarged format. An actual-size representation of what is contained in the Drawing Window is displayed to the left of the Status Box. Use this smaller window to see how changes in the Pixel Edit mode will appear in the document.



Detailing with Pixel Edit mode

In Pixel Edit mode, the Pencil can be used to both draw and erase pixels. If you click the Pencil on a blank pixel (i.e. a pixel set to the canvas color) the Pencil will draw in the current paint color. If click the Pencil on a set pixel (i.e., a pixel set to the paint color) then the Pencil will become an eraser removing pixels set to the paint color.

Using the Drawing Tools in Pixel Edit Mode

While using the Pixel Edit mode, you may use several of the standard drawing tools from the Tool Box. You will probably find the Pencil, Line, and Eraser most useful in this mode.

Exiting Pixel Edit Mode

To return to normal edit mode, you may either select **normal edit** in the options menu or double-click on the Pencil icon.

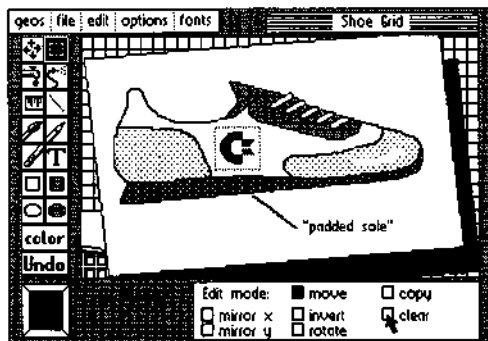
Editing Selected Regions

With geoPaint you can perform several editing operations on selected rectangular regions of your document. To select such an area, click on the **Edit Box** icon in the Tool Box.

Opening an Editing Region

Position the "cross-hair" Pointer on the screen and click. This will create one corner of the Edit Box. To open the Edit Box, drag the pointer to a location diagonally opposite the starting point. Resize the Edit Box until you have enclosed the region you wish to edit. Click once and the region will be selected.

If you wish to select the entire Drawing Window, double-click on the Edit Box icon. This will open an Edit box and select the complete image in the Drawing Window.



Selecting a rectangular area

Moving or Copying the Selected Region

In the example shown above, the **Move** mode is selected in the Status Box. To move the graphics within the selected area to a new location, position the cross-hair Pointer within the selected region and click once. This will attach the selected region to the cross-hair. Move to the new position, and click again to deposit the graphics. When you perform a move in this fashion, the area where the graphics came from is cleared.

You can also copy a selected area. To perform a copy, click the **Copy** button in the Status Box. Position the cross-hair within the selected region and click once. This will attach the selected region to the cross-hair. Move the rectangle to the new location and click again to deposit the graphics. In copy mode, a duplicate of

the selected region is created leaving the original graphics unchanged. To make additional copies, simply click again and reposition the "new" copy to another location.

Mirroring

To mirror or "flip" the selected region, click on the **mirror x** or **mirror y** buttons. Mirror x will flip the selected region horizontally (right to left or left to right). Mirror y will flip the selected region vertically (top to bottom or bottom to top).

Inverting

Clicking on the **invert** button causes the selected region to reverse in color (black to white; white to black)

Rotating

Clicking on the **rotate** button will rotate the selected region 90 degrees. Each additional click will rotate the region another 90 degrees.

Clearing

Clicking on the **clear** button will erase the image in the selected region.

Placing the Selected Editing Region into the Photo Scrap

Once you have selected a rectangular area, you can use it in other applications as a Photo Scrap. A Photo Scrap (like a Text Scrap) is an actual file (on the disk) used for temporarily storing a selected graphic image (region). NOTE: The Photo Scrap file holds only one selected region at a time. Each time you cut or copy a region into the Photo Scrap, you will replace the *current* contents of that file with the new region.

To cut or copy the selected region into the Photo Scrap, select **cut** or **copy** from the **edit** menu. Cut will remove the region from the screen and place it into the Photo Scrap; copy will leave the original region on the screen and place a duplicate version of that region in the Photo Scrap.

Pasting a Photo Scrap into a Selected Editing Region

To paste the Photo Scrap image into a geoPaint document, select the Edit Box icon and "open" a region in which to paste the Photo Scrap. Then select **paste** from the edit menu. It is important to open a region large enough to contain the

entire Photo Scrap, otherwise only a portion of the Photo Scrap will be pasted in. Once pasted into the Editing Region, you may make any changes you wish.

Pasting the Photo Scrap into a geoWrite Document

Use geoWrite to open your document. Position the Text Cursor where you would like the image to begin, and select **paste photo** from the **edit** menu (see also "Using Graphics from geoPaint", Chapter 5).

Using the Photo Manager

Note there can be only one Photo Scrap at a time. If you want to save several images from your document, you can use the Photo Manager desk accessory to collect them. (see "Photo Manager", Chapter 6)

Special Commands

Updating and Saving Changes to the Document

geoPaint saves your recent changes onto the disk whenever you move up or down the page or when you close the document. You may wish to update your file more frequently, however, if you have just made an especially precious change or are working with a very detailed portion of a document. By using the **update** command in the **file** menu, geoPaint will save the most recent changes onto the disk.

Recovering Your Document from the Disk

Should you decide that you want to reverse all of the changes you made since your document was last updated on the disk, you can use the **recover** command in the **file** menu. geoPaint will re-open your document and restore the screen to the last saved (or updated) version of your document.

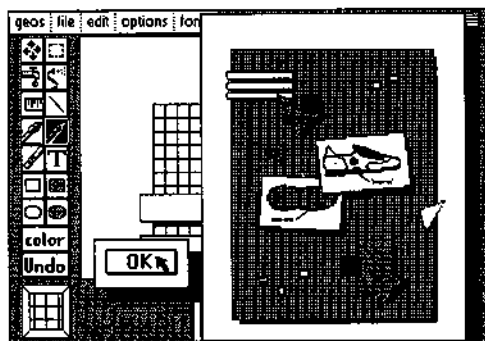
Renaming a Document

You can rename the document you are working with by selecting **rename** from the **file** menu. Enter the new filename into the dialogue box, and press RETURN. Note **rename** does not create a duplicate copy of your document under a new name. Rename merely changes the name of the current document. For making copies of documents, see "File Management", Chapter 3.

Preview Page

The standard geoPaint Drawing Window reveals only a portion of your entire document at a time. You can, however, display a "compressed" version of the entire page by selecting preview from the file menu. The preview is a 4 to 1 compression of the actual document. While it does lack some of the detail, it allows you to make decisions about the overall placement and proportions of your document.

Click the OK button in the dialogue box to resume working with your document.



geoPaint Preview mode

Moving the Drawing Window

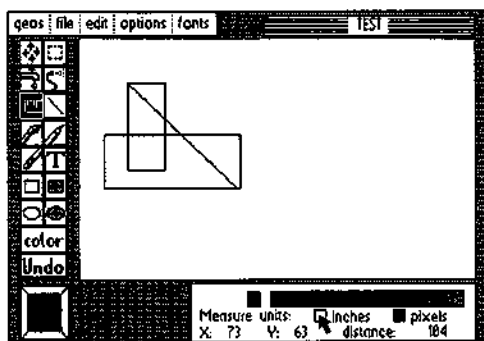
There are two ways to move the Drawing Window to a different section of your document: the Scrolling Arrows and the Page Map. The Scrolling Arrows are useful for finer positioning and more precise movement around the document. Selecting the Scrolling Arrows in the Tool Box will display a four-direction arrow in the middle of the Drawing Window. Move the joystick in the direction you wish the Drawing Window to move over your document. As you move over the document, the Page Map in the Status Box displays your relative position on an 8 1/2 x 11 inch page. The Scrolling Arrows are useful for more accurate movement and finer positioning on the document.

The Page Map is useful for getting from one end of the page to the other very quickly. Position the arrow Pointer at any location on the Page Map and click. The box representing the Drawing Window will become attached to the Pointer. Use the Pointer to move the box to the portion of the document on which you wish to work. Click again and the "actual" Drawing Window will appear over that location.

Measuring Distances

Often when working with a particularly precise drawing, you may need to measure distances or create scale figures on your document. There are several tools which perform measuring functions: the Line, Hollow and Filled Rectangles, and the Ruler. The Line and Hollow and Filled Rectangles are actual "drawing" tools: the scale images they create become permanent figures on the document.

The Ruler, however, is strictly a measuring device (similar to a tape measure) leaving no permanent image on the screen. Click on the Ruler and position the cross-hair Pointer at a starting point and click. As you pull the line out, the Status Box displays the distance in either inches or pixels. When you reach an ending point, click again and the ruler line will disappear (just like a tape measure snapping back), capturing the final distance. To change units from pixels to inches, click the inches button.

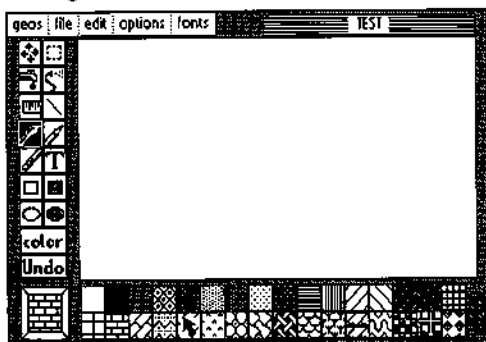


Measuring distances with the ruler

Note that with all the measuring tools, the pixel measurement is in actual dots on the screen. Inches are based on "printed" inches (not "screen" inches) of 80 dots to the inch. The accuracy of any printed document depends, therefore, on the resolution of your printer. For example, on an 80 dot per inch printer, a 1 inch line created in geoPaint prints out 1 inch long. On a 60 dot per inch printer, that same line would print out 1.3 inches long.

Changing the Current Pattern

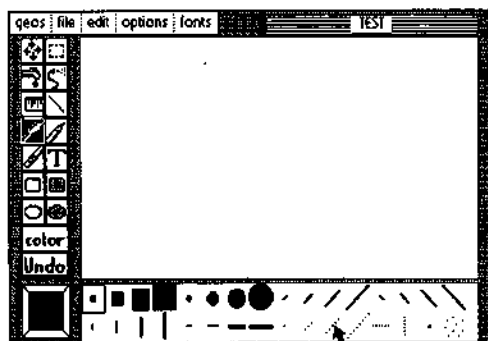
To select a new pattern, click on the Current Pattern Indicator to display the Pattern Options in the Status Box. Once inside the Pattern Options, you must choose a pattern before you can return to the Drawing Window. Point to any pattern you wish and click once. The new pattern appears in the Current Pattern Indicator and is available for use by different tools (i.e., Faucet, Paint Brush, Airbrush, Filled Rectangle and Circle).



Choosing a pattern from the Pattern Menu

Changing the Brush Shape

To change the shape of the Paint Brush, select **change brush** from the **options** menu or double-click on the Paint Brush icon. The Status Box will display a box containing the 32 different brush shapes. The currently selected brush will have a square surrounding it. Once inside the Brush Shape Box you must select a brush before you can return to the Drawing Window. Point to any brush shape you wish and click once to select it.



Choosing a Brush Shape

Printing Your Document

In order for your document to be printed, the correct Printer Driver must first be selected, and must be on the disk with geoPaint. If you have not already done so, return to the deskTop and choose the correct printer (see "GEOS Traing Camp", chapter 2).

With the correct Printer Driver selected, turn on the printer and align the top of form. Select print in the file menu to print your document.

NOTE: The printed resolution of a geoPaint document is based on 80 dots per inch on an 8 inch wide page (640 total dots). Printers that support less than this resolution (60 dots per inch; 480 dots total, for example) may produce only a portion of the geoPaint document.

Leaving geoPaint

Closing the Document

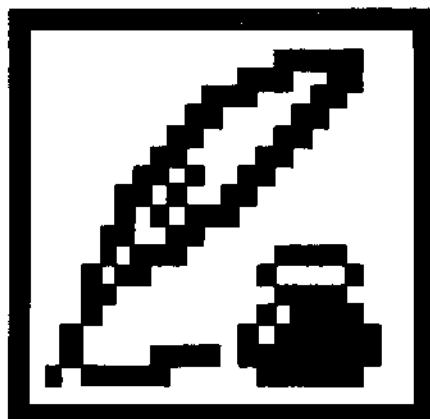
The close option is useful if you wish to stop working with one geoPaint document and begin work on another. Selecting close from the file menu will close and save your current document onto disk, but not exit geoPaint. Instead, a dialogue box will appear allowing you to Create a new document, Open an existing one, or Quit geoPaint and return to the deskTop.

Closing and Quitting

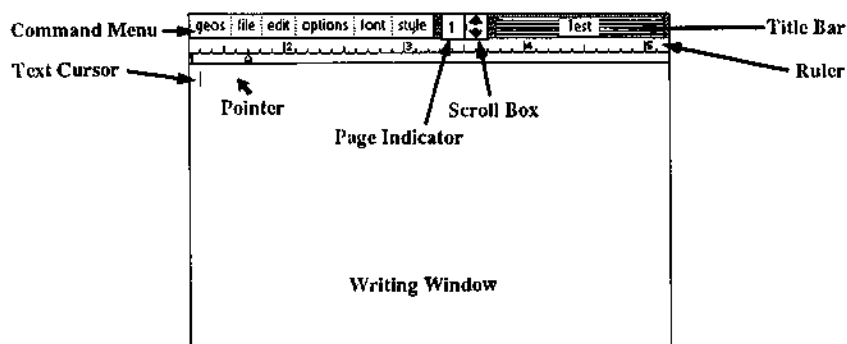
By selecting quit from the file menu, you will close the current document, save it to disk, leave geoPaint, and return to the deskTop.

Chapter 5: geoWrite

This section covers geoWrite, a powerful word-processor which allows you to create multi-page documents with multiple proportionally-spaced fonts in different styles and point sizes.



The geoWrite Screen



As shown above, the geoWrite **Writing Window** occupies most of the screen and serves as a window into each page of your document. The **Command Menu** lies along the top of the screen. This menu gives you access to some of geoWrite's more specialized commands. The commands are divided into six groups: **geos**, **file**, **edit**, **options**, **font**, and **style**. Click one of these menu names to pull down a menu of additional commands. Then simply click the desired command.

To the right of the Command menu you will find the **Page Indicator**. This box has two uses; it displays the page number of the page visible in the Writing Window, and it can be used to move the writing window to a different portion of the current page.

You may also scroll the Writing Window using the **Scroll Arrows**, located just to the right of the Page Indicator. These arrows scroll the page up or down one line depending on the arrow clicked.

The **Title Bar** in the upper-right corner displays the name of the document you are working with.

The **Ruler** is located directly below the Command Menu. It lets you change the format of your document.

Inside the Writing Window you will notice the **Pointer** and **Text Cursor**. The Text Cursor indicates your active position in the Writing Window - - i.e., where the next typed character will appear.

Entering geoWrite

If you have not already done so, read chapter 2, "GEOS Training Camp".

Entering geoWrite from the deskTop

When you are on the deskTop, there are two ways to enter geoWrite. You can select the geoWrite icon on the Disk Notepad, and then select **open** from the file menu. Or, you can double-click on the geoWrite icon. In both cases, geoWrite will load and display a dialogue box on a blank screen. It will contain three options: Create document, Open document, and Quit. Select one.



geoWrite Create/Open/Quit Dialogue Box

Create Document

Use this option to create a new geoWrite document. A second dialogue box will pop up, displaying the name of the currently opened disk. Enter a name for your new document and press RETURN.

If you have installed two disk drives, and would rather create the document on the disk in the other disk drive, click the **Disk** button once. This will activate the other disk. Enter a name for your new document and press RETURN.

Open Document

This option opens an existing document on the disk. A second dialogue box will appear, displaying the name of the currently opened disk and a list of the first five geoWrite documents on the disk. If there are more than five documents on the disk, click on the lower scroll arrow at the bottom of the box. Each time you activate this scroll arrow, another document name will scroll into view. Highlight the document you desire by clicking on its name once. Click the **Open** button to open that document.

If you have installed two disk drives, and would rather open a document on the disk in the other disk drive, click the **Disk** button once. This will activate the other disk. Highlight the document name and click the **Open** button to open that document.

NOTE: Only the first 16 documents are displayed in the **open** dialogue box window. It is unlikely you will have more than this on a single 1541 disk. If you do, you will have to rearrange the files on the deskTop to be able to access later files.

Quit

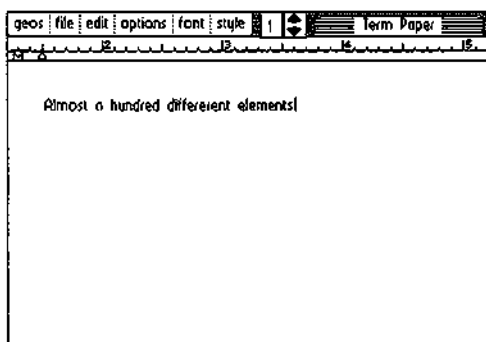
Select this option to exit geoWrite and return to the deskTop.

Opening an Existing Document From the deskTop

Once you have created a document, you can open it by selecting the document icon on the Disk Notepad and activating **open** from the **file menu**. Or you can double-click on the document icon. Either procedure will automatically load geoWrite and then open your document.

Entering Text

To enter text into your document, simply start typing. The text you type will appear in the Writing Window at the location of the text cursor. To change the position of the text cursor, move the pointer to another location and click. The cursor will be repositioned to that point. If you click the pointer past the last character currently in the document, the cursor will appear after that character.



Entering text into the Writing Window

Using Delete

Should you make a mistake as you are typing, you can delete one or more characters on the line by using the DEL key on the keyboard. This moves the Text Cursor backwards on the line, deleting characters as it goes.

Writing Window and Document Dimensions

The Ruler at the top of the Writing Window starts at 1.2 inches on the initial screen and spans to 5.4 inches. If you move the pointer to the right edge of the Writing Window, the screen will instantly shift to display the right two-thirds of the document. The left visible edge of the ruler, when on the right side of the document, is 3.2 inches and the right edge of the ruler is 7.4 inches. The total span of the writing area on a geoWrite document is from 1.2 inches on the left side to 7.4 inches on the right side or 6.2 inches total - - there are minimum margins of 1.2 inches on the left and 1.1 inches on the right.

NOTE: The document dimensions described here are based on a print resolution of 80 dots/inch. If your printer has a different resolution, the dimensions will be slightly different.

Word-Wraparound

If you reach the right margin of the page when typing a word, geoWrite will pick up the entire word and move it to the beginning of the next line and allow you to continue typing. In most word processing using geoWrite, you should let the word wrap create the new lines within paragraphs, rather than entering RETURN. If you follow this guideline, paragraphs will automatically reformat when you delete words or sentences.

Ending a Paragraph

To end the paragraph you are currently typing, simply press the RETURN key on the keyboard. This moves the Text Cursor to the start of the next line.

Using Tabs

geoWrite allows you to set several tab-stop positions across the width of your document. Once you have set these tab positions as described in Setting Tab Positions, you can use them to format your document. To skip to a tab position as you are entering text, simply press CTRL-I. The Text Cursor will advance to the tab position.

NOTE: The C-64 keyboard does not have a tab key. A tab is entered with a CTRL-I. This is done by holding the CTRL key down and striking the letter I.

Inserting a Page Break

As you are entering text, if you want your next paragraph to start on the top of the next page, select page break in the options menu to insert a Page Break.

Preview Page

Since the standard geoWrite Writing Window only allows you to view a portion of one page at a time, you may use Preview Page to get a full-screen preview of a page. Activate preview under the file menu. Preview is very useful since it allows you to make decisions about the overall placement and proportions of a page. Once you have examined the page preview, click the OK button in the dialog box in the lower-left corner of the screen.

Moving the Writing Window

Since the Writing Window displays a portion of one of the pages of your document, you will often want to move the window over a particular portion of the document.

Moving Within the Current Page

There are several ways to move the Writing Window within the current page. The first method is a side-effect of entering text. As you type in a paragraph, the Writing Window will alternately display the left and right sides of the page, scrolling down the page to supply new lines. You can also manually scroll the Writing Window up or down on the page by clicking one of the arrows in the Scroll Box. The up-arrow scrolls the Writing Window upwards one line on the page; the down-arrow scrolls downwards one line .

You can also use the Page Indicator to move the Writing Window. The Page Indicator box itself represents the size of a page and the small square inside the box represents the area of the page visible in the Writing Window. To change the location of the Writing Window, click once inside the Page Indicator. The small square representing the Writing window will become attached to the pointer. Move the square to the portion of the page you wish to view and click. That section will appear in the Writing Window.

Moving Forwards or Backwards One Page

To move the Writing Window forwards or backwards one page, select either **next page** or **previous page** from the options menu.

Moving to Any Page

To move the Writing Window to any arbitrary page in your document, select **goto page** from the options menu. Enter the page number in the dialog box that appears, and press RETURN.

Editing the Document

Inserting Text

Inserting text into your document is similar to entering text: simply point to where you want to add text and click once to position the Text Cursor at that spot. Now you may begin typing on the keyboard.

Inserting Text Into a Multi-Page Document

It is important to realize when you insert text into a multi-page document that the pages following the text you have inserted may also be affected. When you move off of this page, or close the document the program will update the following pages. You can minimize the amount of additional page reformatting by inserting page breaks at the appropriate places - - e.g., the end of sections or chapters.

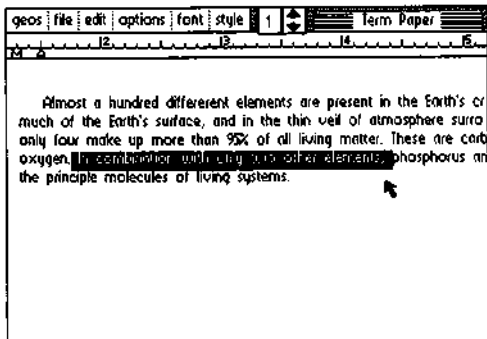
Deleting Text

To delete text, point and click to position the Text Cursor at a point immediately after the character or word you want to delete. Now simply press the DEL key several times to delete this text. To remove larger sections of text, use the "select" feature.

Selecting Text to Move, Copy, or Delete

To work with several characters, words, sentences, or paragraphs at a time, you must first **highlight** this text. Point to the first character of the text. While holding the joystick button down, move the cursor to the last character and release the button. The text will be highlighted as you go along.

Note: when you select more than one line, you have selected all of the text between the starting and the ending points you specified, even if portions of the text are on the one-third of the document not visible in the Writing Window.



Selecting Text

You may perform several different operations on a selected block of text:

▣ **Replacing Selected Text**

To replace the highlighted text with new text, enter the new text on the keyboard. The highlighted text will disappear and the new text will be inserted.

▣ **Deleting Selected Text**

To delete the selected text, simply press the DEL key once.

▣ **Changing the Font or Style of Selected Text**

You may change the Type Face or Style of the text you have selected. See "Using Different Fonts and Styles" later in this chapter for instructions.

▣ **Cutting Selected Text for Moving or Copying**

In order to move or copy text to another section of your document, you must "cut" or "copy" it from its current position and "paste" it into the new position. To cut the selected text out of the document, select **cut** from the **edit** menu. geoWrite will remove the selected text and place it in the Text Scrap. The **copy** command also places the selected text in the Text Scrap, but will not remove it from the document.

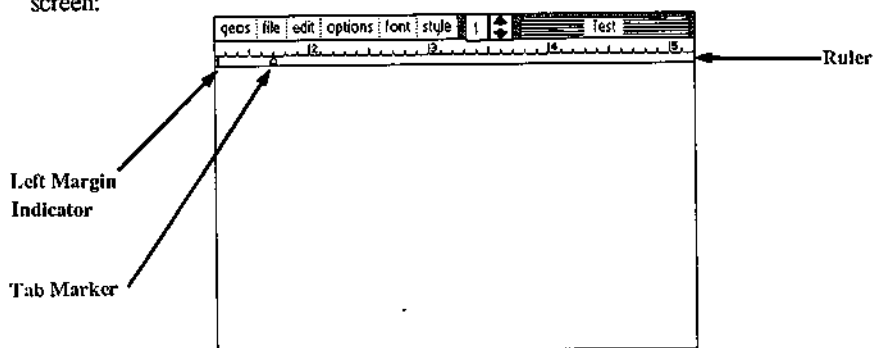
Pasting Text into the Document

Position the Text Cursor where you want to paste the text. Select **paste** text from the **edit** menu. geoWrite will insert the contents of the Text Scrap where the Text Cursor is positioned.

Formatting

The Ruler

You can change the margin and tab positions on the currently visible page using the geoWrite Ruler. As shown below, the Ruler appears along the top of the screen:



geoWrite screen showing Ruler

Setting Left and Right Margins

On the left and right sides of the Ruler, you will find two margin markers, which resemble the letter M. These two markers define the left and right margins for your text. To change the position of one of these markers, click on it once, drag it along the Ruler, and click again to drop it.

Setting Tab Stops

geoWrite allows you to set up to eight independent tab-stop positions on each page. For each tab-stop position, there is a corresponding tab marker on the Ruler. To set a tab, point to a spot on the ruler and click once. To change a tab's position, click on it once, drag it along the Ruler, and click again to drop it. To remove a tab, drag it up to the top half of the ruler and click.

Inserting Page Breaks

geoWrite allows you to insert a page break at any point in your document. The text immediately following a page break will appear on the top of the next page. To insert a page break, select **page break** from the **options** menu.

Deleting Page Breaks

To delete a page break, position the text cursor at the top left of the page following the page break. Press DEL. A dialogue box will ask if you want to delete the last character of the preceding page. Select **OK**. The page break will be deleted and the cursor will appear on the bottom of the previous page.

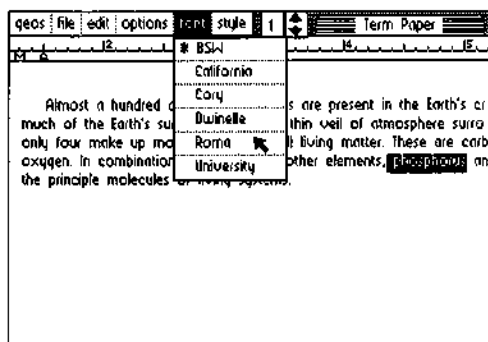
Using Different Fonts and Styles

Choosing a Font

You may choose a font and point size at any time in geoWrite. Simply select the desired font from the **font** menu and begin typing.

Changing the Font of Selected Text

Once you have selected a section of text as described in **Selecting Text**, you may choose a new type face for it from the **font** menu. Just pull down this menu and select one of the fonts and point sizes listed in the menu.



Changing Fonts

Changing the Style of Selected Text

You may also change the style of the text you have selected. First pull down the **style** menu to reveal the styles available, such as **boldface** and **underline**. You can select one or more of these styles at a time. Click one of the style names to enable. To disable a style change, simply click on the style option again.

Editing Tips

Pulling the Right Margin In

When you are first entering the text into your document, we recommend you set the right margin to 5 inches. This will keep the body of text on the left side of the screen and avoid the screen shifting from right to left. This makes it easier to read the paragraphs you are entering. After entering the text, you can move the margin back and to set the actual printing format.

Let the Word Wrap Work For You

Be sure to allow the word wrap to occur for new lines, and only enter carriage returns at paragraph boundaries. This will make re-formatting much easier since the software will fill out paragraphs to match the margin boundaries.

Use a Single Small Font to Enter Your Draft

If you are entering a large document, use a single font in a small point size to enter your first draft. This will allow you to view more of the document on one page and minimize disk access for additional font information. After you have your thoughts down, go back and change the text to the desired fonts and sizes.

Use Page Breaks In Large Documents

geoWrite documents can grow up to 64 pages - - assuming enough disk space is available. In large documents, you should insert page breaks wherever appropriate. This will minimize performance degradation. The basic logic is this: if you have a large document with no page breaks, as you insert a character on the first page, it might push the last character on the first page down to the second page and so on, causing a ripple down effect that may involve every page of the document. By inserting a page break, the software only has to ripple the changes down to the next page break.

Updating the Document As You Work

After entering a considerable amount of text on a page, you may wish to select **update file** from the file menu. This will write your current changes to the disk and safeguard against losing this data.

Recovering a Document from Disk

If you accidentally delete a large section of text from a page, or wish to **undo** all of your recent editing changes, selecting **recover** in the file menu will recover the last saved version of the current page.

Using Graphics From geoPaint

geoWrite allows you to mix geoPaint graphic images with your text. First see Chapter 3, geoPaint, to copy an image into the Photo Scrap. Place the Text Cursor where you would like the image to begin, and select **paste** in the **edit** menu. Another sub-menu will appear, select **photo**. This will place the picture on the page, centered left-to-right.

Showing and Hiding Pictures

Whenever geoWrite displays a page containing a picture, the bit-mapped image data for the picture must be loaded from the disk. Since this will slow geoWrite slightly, you may want to select **hide pictures** from the **options** menu. This will prevent the pictures from appearing in the Writing Window. Space for each picture will still be reserved in the document, and the pictures will be printed when **print** is selected. To show pictures in the Writing Window, select **show pictures** from the **options** menu.

Using the Photo Album

When you select **paste picture** from the **edit** menu, the current contents of the Photo Scrap file is used. If you have several pictures or charts you wish to create in geoPaint for pasting into geoWrite documents, you will probably want to use the **photo manager** desk accessory. Selecting the **photo manager** gives you access to any of the graphic images stored in the Photo Albums on the disk, allowing the cutting or copying of images from the Photo Albums into the geoWrite document. For more details see the **Photo Manager Desk Accessory** in chapter 5.

Using Text From Other Documents

In order for text from one geoWrite document to be inserted into another, the text must first be cut or copied into the Text Scrap (see **Selecting Text**.) Then open the second document, position the Text Cursor, and select **paste text** from the edit menu. geoWrite will insert the text into the page.

Using the Text Album

The Text Scrap file used to paste text into a document only holds one section of text at a time. If you have several text sections you wish to copy from one geoWrite application to another, you will probably want to use the **text manager** desk accessory. The text manager will let you collect several text "clippings" into a Text Album. A text album can be opened, using the text manager desk accessory, while in another geoWrite document, allowing the cutting or copying of text from the Text Albums into the geoWrite document. (See "Text Manager Desk Accessory", chapter 6).

Printing Your Document

In order for your document to be printed, the correct Printer Driver must first be selected, and must be on the disk with geoWrite. If you have not already done so, return to the deskTop and select the correct printer driver. (See the printer section of chapter 2, "GEOS Training Camp" and "Selecting a Printer" in chapter 3.

With the correct Printer Driver selected, turn on the printer and align the top of form. Select **print** in the **file** menu to print your document.

Leaving geoWrite

Closing the Document

Before leaving geoWrite, you must close the document you are working with. Select **close** from the **file** menu. The document will be closed, and a dialogue box will appear. Choose one of the three options presented.

Closing and Quitting

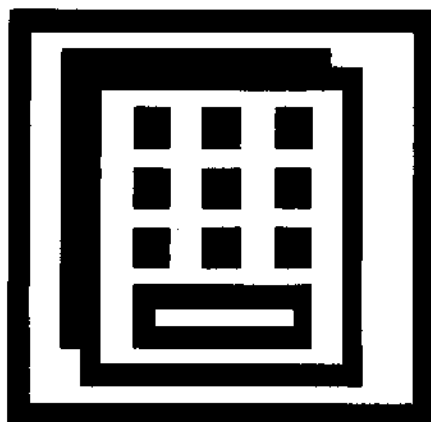
By selecting **quit** from the **file** menu, you will close the current document and leave geoWrite, returning to the deskTop.

Renaming a Document

While in geoWrite, you can rename the document you are working with by selecting **rename** from the **file** menu. Enter the new filename into the dialogue box, and press **RETURN**.

Chapter 6: Desk Accessories

This section covers the GEOS Desk Accessories - helpful and convenient tools available anywhere in GEOS.



Desk Accessories Overview

The GEOS disk contains a number of useful programs called **Desk Accessories**. These programs are different from regular GEOS applications programs because they can be used *while* running any GEOS application. Simply select a desk accessory from those listed in the geos menu. The desk accessories will "pop-up" in an application (or the deskTop) ready for use. For example, the Calculator desk accessory can be used while you are running the geoWrite application program, without having to exit geoWrite.

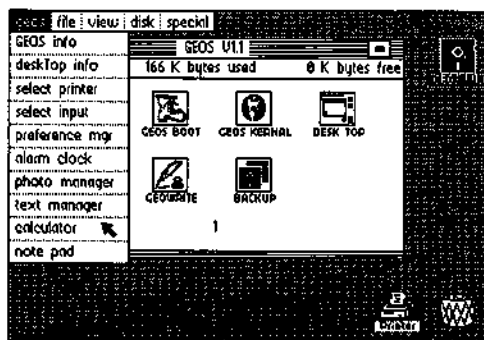
Any information that is beneath the desk accessory where it pops up is "swapped" out and temporarily stored on the disk as a **swap file**. When you are through with the desk accessory, the information from the swap file is replaced on the screen and you may continue working in the application.

Some desk accessories, because of their size or complexity, require up to 15K bytes free on the disk for a swap file. If you request a desk accessory and there is not enough space on the disk for the swap file, GEOS will automatically return you to the application. If you still wish to use the desk accessory, it will be necessary to move or delete files from the disk (see "File Management", chapter 3).

Available Desk Accessories

All available desk accessories are listed under the geos menu in any application in the order they appear on the deskTop. To reorder the menu, for easier access to commonly used accessories, simply reorder the files on the deskTop (the left, uppermost item on the deskTop Disk Notepad will appear highest in the menu).

Depending on your needs, you may want to add or delete desk accessories from a particular disk. Since all desk accessories are treated as independent files by GEOS, you may add or delete them to tailor a disk to your individual requirements (see "Adding and Deleting Desk Accessories", chapter 2).



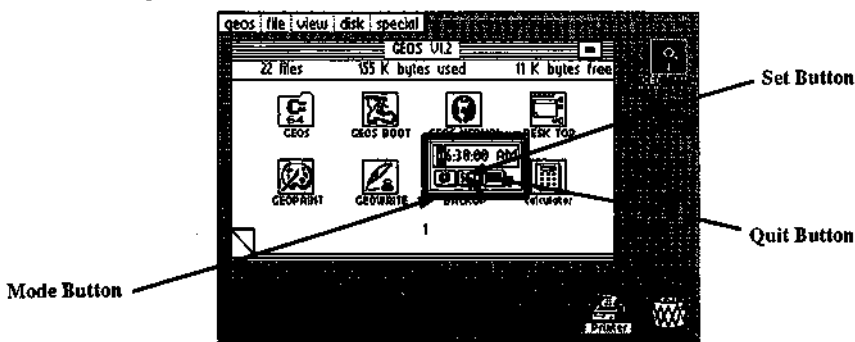
GEOS desktop showing Desk Accessories in GEOS menu

Activating and Quitting a Desk Accessory

Select the desk accessory you want to use from the geos menu. The desk accessory will "pop-up" over the current screen. When you have finished with the desk accessory, click its Close or Quit Button to restore your original screen and the status of the application program you were running.

The Alarm Clock

The Alarm Clock desk accessory may be called up to display the current time (if it has already been set), set the correct time, or set an alarm time. Once set, the clock and alarm are active anywhere in GEOS. Setting an Alarm will cause a tone to sound at the specified time.



The Alarm Clock Desk Accessory

As shown above, the Alarm Clock is in alarm time mode. In this mode, the time is frozen and you can set the alarm time. To switch to clock time mode click the Mode Button once. Notice that the button graphically changes from a bell (alarm) to a clock face (clock). Each click on the Mode Button will switch between alarm time and clock time.

The "highlighting" black cursor in the display window is used for changing the time in either mode. To reposition the cursor, point and click at a location (hours:minutes:seconds), or use the SPACE BAR to move through the digits. Use the number keys to enter a new time, and then type A or P to indicate AM or PM.

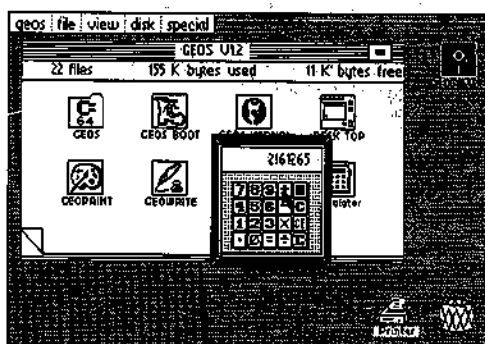
To set the alarm, switch to alarm mode and enter an alarm time. Click once on the Set Button, or press RETURN. A Bell Indicator will appear signifying that an alarm has been set. To disable the alarm, click again on the Set Button, and the Bell Indicator will disappear.

To set the clock time, switch to clock time mode. The clock will freeze as you enter a new time. Click once on the Set Button, or press RETURN. The time will begin to advance.

To exit the Alarm Clock, click on the Close Button. For each of the three buttons, there is a corresponding key or key sequence: M for Mode, RETURN for Set, and SHIFT Q for Close.

The Calculator

The Calculator desk accessory gives you the capability to do quick arithmetic while running any GEOS application. It operates in the same fashion as a typical four-function calculator.



Calculator Desk Accessory in use

To enter values and execute functions on the Calculator, you can either use the Pointer and click the calculator's buttons or use the keyboard. Below is a list of the keys you will need to use for the Calculator.

<u>Calculator Key</u>	<u>Keyboard Key</u>
Add	+
Subtract	-
Divide	/
Multiply	*
E (Exponential)	E
C (Clear)	C
CE (Clear entry)	DEL
Close	SHIFT-Q

The calculator supports the basic arithmetic functions such as addition, subtraction, multiplication and division. The calculator also supports handling numbers in scientific notation. To enter a number in scientific notation, type the

mantissa, then E, then the power of 10. For example, to calculate the equation $3.2 \times 10^{11} \times 2.1 \times 10^{-5}$, you would input this sequence on the calculator (using either the Pointer or the keyboard):

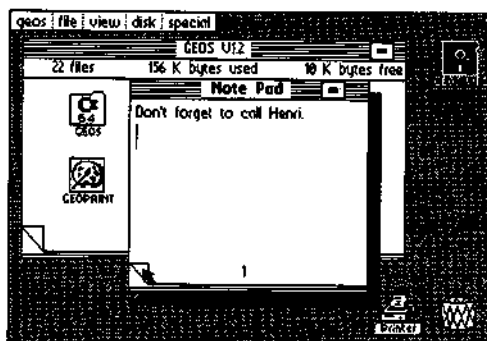
1. Type: 3.2E11
2. Click on the **Multiply Key (*)**
3. Type: 2.1E-5
4. Click on the **Equal Sign (=)**

The correct result, 6.72E6 (i.e. 6.72×10^6), is displayed in the calculation window. **Note:** the maximum exponent that may be displayed or used in a calculation is 10^{-37} or 10^{37} (E-37 or E37).

To exit the Calculator, click on the Close button (black key in the upper right corner of the Calculator's keypad) or press SHIFT-Q on the keyboard.

The Notepad

With the Notepad desk accessory you can jot down short notes while you are using any GEOS application. Your notes will automatically be saved as a Notes file on the disk. Any text that was saved in the Notes file will be displayed each time you use the Notepad. The Notepad is shown below:



Notepad Desk Accessory

To add notes to the Notepad, type them on the Commodore keyboard. You can start a new line using the RETURN key, or delete several characters using the DEL key. To flip to the next page, click the "dog-eared" page flap at the lower left corner of the page. The Notepad will store up to 127 pages of notes, with approximately 250 characters on each page. To exit the Notepad, click the Close button, in the upper right hand corner, once.

NOTE: If you wish to delete the *entire* contents of a Notepad, simply delete the Notes file from the deskTop. This will remove all the existing notes and give you a fresh Notepad with which to work. Also, avoid typing on the last line of the Notepad. Sometimes this line is not displayed.

The Photo Manager

The Photo Manager desk accessory manages graphic images stored in multiple Photo Albums on the disk. Each Photo Album may contain up to 127 pages of graphic images collected from your geoPaint documents. Typically Photo Albums are organized by the type of graphics they contain. For example, you may have one Photo Album that contains charts and graphs for a business proposal; another album may contain examples of leaf types for a science report.

The Photo Manager desk accessory enables you to select graphics from any of the Photo Albums and use them in other GEOS applications, like geoWrite.

Photo Scraps and Photo Albums

There is a distinct relationship between all of the "photo files". Whenever you cut or copy a picture (graphic image) from an application, the picture is placed into a Photo Scrap file on the disk. Photo Albums are a means of collecting and managing Photo Scraps. The Photo Manager desk accessory allows you to move Photo Scraps to and from a Photo Album.

Collecting an Image

Only the current Photo Scrap image can be added to a Photo Album. A Photo Scrap is an actual file (on the disk) used for temporarily storing one selected graphic image or region at a time. Each time you cut or copy a region into the Photo Scrap, you will replace the *current* contents of that file with the new region.

To create a Photo Scrap, you must be working with a geoPaint document. Click on the Edit Box icon and select a rectangular region (see "Editing Selected Regions: Placing the Selected Region into the Photo Scrap", Chapter 4). Select **cut** or **copy** from the edit menu. Cut will remove the selected region from the screen and place it into the Photo Scrap; copy will leave the original region on the screen and place a duplicate version of that region into the Photo Scrap. The rectangular area you have selected will be cut or copied into the GEOS Photo Scrap.

Creating A New Photo Album

To save multiple images for use later, you must create a Photo Album in which to place the current Photo Scrap. To do so, select **photo manager** from the **geos** menu (you can do this while in an application or on the deskTop). The Photo Manager will pop-up over the screen, and will display a dialogue box containing three option buttons: **Create new photo album**, **Open existing photo album**, and **Quit** (to exit back to the application). Click the **Create** button once. In the next

dialogue box which appears, enter the name for the new photo album and press RETURN. The name of the new Photo Album appears in the title bar at the top of the album.

Opening An Existing Photo Album

To view or use an existing Photo Album, select **photo manager** from the **geos** menu. A dialogue box will offer three option buttons, **Create**, **Open**, or **Quit**. Click the **Open** button. A second dialogue box will appear, listing the Photo Albums found on the disk. If there are more than five Photo Albums on the disk, click the scroll arrows at the bottom of the dialogue box. Each time you click a new name will scroll into view. Highlight the album you desire by clicking once on its name. Click the **Open** button to open that album.

Note: The album name dialogue box will only display the first sixteen album names on the disk. If you have more than sixteen albums, and wish to display another set of names, you will need to move, delete or rearrange the file icons on the deskTop (see "File Management" & "Disk Management and Organization", chapter 3).

Quit

Clicking on the **Quit** button will return you to the current application.

Pasting a Photo Scrap into a Photo Album

To paste a Photo Scrap into a Photo Album, select the **photo manager** desk accessory from the **geos** menu, and **Create** or **Open** a Photo Album. If the Photo Album contains more than one image, and you wish to place the image in a particular order, click the dog-eared page flap to advance the page. When you are viewing the page where you would like your image inserted, select **paste** from the **edit** menu. The Photo Manager will transfer the Photo Scrap image to the Photo Album. **Note:** Only a *copy* of the Photo Scrap has been pasted into the Photo Album. If you like, you may use it over again in another album.

If you wish to open another or a new album, select **close** from the **file** menu. This will exit the current Photo Album but still remain in the Photo Manager. A dialogue box will appear with the **Create**, **Open** or **Quit** options. Select one and continue.

To quit the current Photo Album and exit the Photo Manager, select **quit** from the **file** menu or click on the **Close** button. The Photo Manager will disappear and you can continue using your application.

The Photo Manager desk accessory is shown below, with a sample image pasted into the Photo Album.

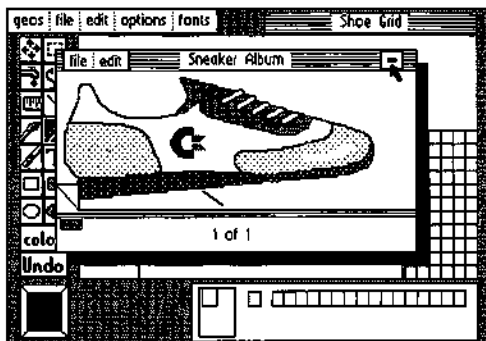


Photo Manager showing the Photo Album

Viewing Images in a Photo Album

While you are in any GEOS application, including the deskTop, you can run the Photo Manager desk accessory. Open the desired Photo Album, and click on the dog-eared corner to page through the images stored in the Photo Album. If an image is larger than the Photo Manager window, you can scroll the window to reveal a different area of the image using the Window Indicator.

The **Window Indicator**, located in the lower-left corner of the Photo Manager, consists of two rectangles. The black rectangle represent the size of the image. The other colored rectangle (the same color as the Pointer) represents the Photo Manager window. The relative position of these two rectangles shows what portion of the image is currently displayed in the Photo Manager window. To move the Photo Manager window, click where you would like its top-left corner to lie. The Photo Manager window will display the requested area of the image.

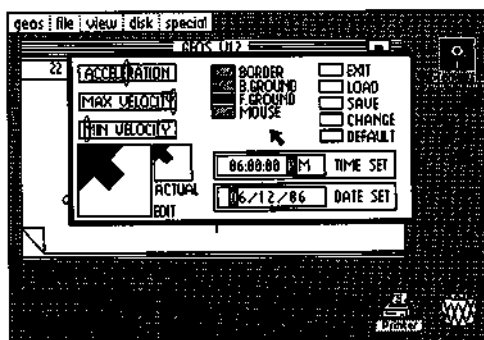
Pasting an Image into a Document

To paste an image into a document, first run the appropriate application and open the document. Then select the **photo manager** desk accessory from the **geos** menu. Open a Photo Album, and page through until your image is visible. Choose **cut** or **copy** from the **edit** menu. The Photo Manager will cut or copy the image into the Photo Scrap. Cut will remove the selected region from the album and place it into the Photo Scrap; copy will leave the original region in the album and place a duplicate version of that region into the Photo Scrap. Follow the specific directions in each application to paste the Photo Scrap into the document. For geoPaint, see "Editing Selected Regions", chapter 4. For geoWrite, see "Using Graphics from geoPaint", chapter 5.

You may also paste the "new" Photo Scrap into another Photo Album. See above, "Pasting a Photo Scrap into a Photo Album".

Preference Manager

The preference mgr desk accessory allows you to set several different parameters. As shown below, the Preference Accessory is divided into several functional areas.



Preferences Desk Accessory

By changing the settings displayed in these areas, you can customize the way GEOS works to your own particular preferences.

Setting the Mouse Movement Characteristics

The three bars in the upper-left corner of Preferences allow you to control the speed of the Pointer/Cursor. Minimum and maximum velocity set the minimum and maximum speed the pointer will achieve. Acceleration controls how quickly the pointer will achieve the maximum velocity. Simply point to the knob on one of the three control bars and click. Drag it to a new position to change its setting. Moving the knob to the left slows the mouse down; moving to the right speeds up the mouse.

Changing the Mouse Shape and Color

The box in the lower-left corner of Preferences lets you change the actual "bit-mapped" image and color of the GEOS mouse (Pointer). Pointing and clicking in the window turns the pixels "on" and "off". You can edit and change the shape of the Pointer to whatever you like.

By clicking the button next to the word "mouse", you can cycle through the available colors for the Pointer. You may select any color, except the current Background color.

Changing the Border, Background & Foreground Colors

To change any of the screen colors (Border, B.Ground, F.Ground), simply click on the appropriate button. Each button click will cycle through the colors available to that section of the screen. For example, the Border can be set to any of the 16 colors at any time. The background color, may be any of the 16 colors except the current foreground and mouse colors. This prevents the Pointer and text from "blending " into the background and becoming invisible.

Changing the Date or Time

To set the built-in date and time clock, move the Pointer into either the Time Set or Date Set box. Press the SPACE BAR to move the black "highlighting" Cursor from digit to digit. Type in any values on the keyboard. (Notice that the time "freezes" after the first press on the keyboard.) Press RETURN when finished to set the date or time.

Moving the Pointer outside the Time or Date boxes before pressing RETURN will cause the values to revert to their original setting.

NOTE: Setting the date and time is recommended each time you boot GEOS for accurate time/date stamping of your files.

Using, Saving, and Recalling Your Changes

When you use the Preference manager to change a GEOS setting, your alteration will not have an effect until you click the Change button. At that point, all color changes, mouse/Pointer speed, and mouse/Pointer graphics will change *within* the preference manager. If you exit the preference manager and return to an application, all of your changes will remain in effect while you *use* the application. However, the default parameters will be *reset* upon quitting the application and returning to the deskTop.

You may wish to make permanent changes in the preference manager for particular work disks. For example, on a geoPaint work disk, you may wish to have the Pointer speed set very slow for accurate drawing; on a geoWrite work disk you may wish to set your screen colors to an amber foreground on a black background for easier readability. To save any changes, first click on the change button then click on the Save button. The new settings appear as a Preferences file on the disk and are loaded each time you open that disk.

If, after making additional changes to the preferences, you wish to recall your last "saved" changes, click on the **Load** button. This will load the Preferences file into the preference manager. The controls will then display the new settings (i.e. color on the buttons will change, speed knobs will move to new positions, new mouse graphics will appear in the edit window). To activate the changes, click on the **Change** button.

Recalling the Default Settings

To recall the built-in default settings, click the **Default** button. This will load in the standard GEOS colors, shapes, and settings.

Leaving the Preference Accessory

To leave the Preference Accessory and return to the application you were running, select the **Exit** button.

The Text Manager

Very similar to the Photo Manager, the **Text Manager** desk accessory manages blocks of text stored in multiple **Text Albums** on the disk. Each **Text Album** may contain up to 127 pages of text collected from your **geoPaint** or **geoWrite** documents. Typically they are organized by the type of text they contain. For example, you may have one **Text Album** that contains headers and footers for a business proposal; another album may contain poetry samples for an English paper.

The **Text Manager** desk accessory enables you to select text from any of the **Text Albums** and use them in other **GEOS** applications.

Text Scraps and Text Albums

There is a distinct relationship between all of the "text files". Whenever you cut or copy text from an application, the text is placed into a **Text Scrap** file on the disk. **Text Albums** are a means of collecting and managing **Text Scraps**. The **Text Manager** desk accessory allows you to move **Text Scraps** to and from a **Text Album**.

Collecting Text

Only the current **Text Scrap** can be added to a **Text Album**. A **Text Scrap** is an actual file (on the disk) used for temporarily storing one selected text block at a time. Each time you cut or copy text into the **Text Scrap**, you will replace the *current* contents of that file with the new text.

To create a **Text Scrap**, you must be working with a **geoPaint** or **geoWrite** document. Select a block of text from an application (see "Adding Text: Placing the Text Region into the Text Scrap", Chapter 4 and "Editing the Document: Selecting Text to Move Copy or Delete", Chapter 5). Select **cut** or **copy** from the **edit** menu. **Cut** will remove the selected region from the screen and place it into the **Text Scrap**; **copy** will leave the original region on the screen and place a duplicate version of that region into the **Text Scrap**. The text block you have selected will be cut or copied into the **GEOS Text Scrap**.

Creating A New Text Album

To save multiple blocks of text for use later, you must create a **Text Album** in which to place the current **Text Scrap**. To do so, select **text manager** from the **geos** menu (you can do this while in an application or on the **deskTop**). The **Text Manager** will pop-up over the screen, and will display a dialogue box containing

three option buttons: Create new Text album, Open existing Text album, and Quit (to exit back to the application). Click the Create button once. In the next dialog box which appears, enter the name for the new Text album and press RETURN. The name of the new Text Album appears in the title bar at the top of the album.

Opening An Existing Text Album

To view or use an existing Text Album, select **text manager** from the **geos** menu. A dialog box will offer three option buttons, Create, Open, or Quit. Click the Open button. A second dialog box will appear, listing the Text Albums found on the disk. If there are more than five Text Albums on the disk, click the scroll arrows at the bottom of the dialogue box. Each time you click a new name will scroll into view. Highlight the album you desire by clicking once on its name. Click the Open button to open that album.

Note: The album name dialogue box will only display the first sixteen album names on the disk. If you have more than sixteen albums, and wish to display another set of names, you will need to move, delete or rearrange the file icons on the deskTop (see "File Management" & "Disk Management and Organization", Chapter 3).

Quit

Clicking on the Quit button will return you to the current application.

Pasting a Text Scrap into a Text Album

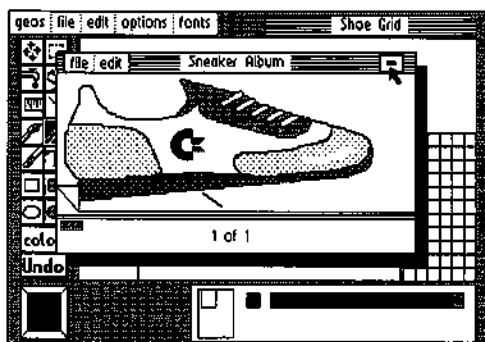
To paste a Text Scrap into a Text Album, select the **text manager** desk accessory from the **geos** menu, and Create or Open a Text Album. If the Text Album contains more than one page, and you wish to place the text in a particular order, click the dog-eared page flap to advance the page. When you are viewing the page where you would like your text inserted, select **paste** from the **edit** menu. The Text Manager will transfer the text from the Text Scrap into the Text Album.

Note: Only a *copy* of the Text Scrap has been pasted into the Text Album. If you like, you may use it over again in another album. The text will automatically "word wrap" as it reaches the right edge of the window. You will also notice that there is no font or style displayed for any of the text in the album window. There's no need to worry; the correct font and style information will be displayed when the Text Scrap is pasted into a new document.

If you wish to open another or a new album, select **close** from the **file** menu. This will exit the current Text Album but still remain in the Text Manager. A dialogue box will appear with the **Create**, **Open** or **Quit** options. Select one and continue.

To quit the current Text Album and exit the Text Manager, select **quit** from the **file** menu or click on the **Close** button. The Text Manager will disappear and you can continue using your application.

The Text Manager desk accessory is shown below, with sample text pasted into the Text Album.



Text Manager showing the Text Album

Viewing Text in a Text Album

While you are in any GEOS application, including the deskTop, you can run the Text Manager desk accessory. Open the desired Text Album, and click on the dog-eared corner to page through the text stored in the Text Album. If the text is larger than the Text Manager window, you can scroll the window to reveal a different area of the text using the scrolling arrows. Each time you click on a scroll arrow, a new line of text will come into view.

Pasting Text into a Document

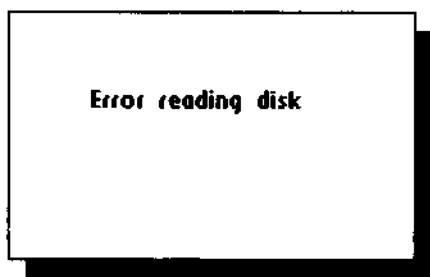
To paste text into a document, first run the appropriate application and open the document. Then select the Text manager desk accessory from the geos menu. Open a Text Album, and page through until the correct text is visible. Choose **cut** or **copy** from the **edit** menu. The Text Manager will cut or copy the text into the Text Scrap. Cut will remove the selected text from the album and place it into the

Text Scrap; copy will leave the original text in the album and place a duplicate version of that text into the Text Scrap. Follow the specific directions in each application to paste the Text Scrap into the document. For geoPaint, see "Editing Selected Regions: Pasting the Text Scrap into the Text Region", Chapter 4. For geoWrite, see "Using Text from Other Documents: Using the Text Album", Chapter 5.

You may also paste the "new" Text Scrap into another Text Album. See above, "Pasting a Text Scrap into a Text Album".

Chapter 7: Troubleshooting

This chapter provides help when you run into difficulty using GEOS.



If Your GEOS Disk Will Not Boot...

First of all, make sure your system is set up as described in "System Requirements for Training Camp" located on page 2-2. Then follow the directions on page 2-12 to boot GEOS. If, when you turn on your computer, you do not see the READY prompt and blinking cursor on the screen, consult your Commodore User's Manual. If after typing LOAD "GEOS",8,1 and pressing RETURN your GEOS disk does not boot, make sure you are using the original GEOS disk, and not a backup or work disk copy.

Standard Error Messages

The error messages listed in this section can result from a number of circumstances. The problem could be user-related, or a hardware fault, or a GEOS software error. To ensure the problem is not user-related, this section provides a number of trial solutions to the various error messages you might discover while using GEOS. If the problem persists after following the recommendations in this section, and using alternate hardware does not help, contact Berkeley Softworks for assistance. The following error messages are listed alphabetically.

A file with the name... already exists on the disk.

When copying a file to another disk, if a file of the same name already exists on that disk, you must specify a new name that the copy of the file will be called.

A maximum of 8 files from a disk may be placed on the border.

The deskTop only allows 8 files to be placed in the lower border area below the Disk Notepad. To create room for more, move some of them back onto the Disk Notepad or to another disk.

Bad or missing disk, no sync.

This error frequently occurs when the disk is not properly inserted into the drive. Check to make sure the disk is inserted label-up, and the disk drive door or latch is closed. Also check the disk drive cables.

Can't copy picture to scrap.

geoWrite does not allow you to transfer graphics from a geoWrite document to the Photo Scrap.

Can't find printer driver.

In order to print a document, you must have a copy of the printer driver for your printer on the disk with your document and application.

Cannot go to given page.

You have entered a page number that does not exist in the document.

Cannot recover from file.

You have made changes to your document (such as deleting a picture) that have automatically been saved to the file on the disk. You cannot use the recover command.

Device not found

GEOS is having trouble communicating with the disk drive. Check to make sure the drive is on and the cables are connected properly.

Directory is full

You cannot create a new file because the disk directory cannot hold any more filenames. Delete or move some files to another disk to continue.

Disk ID mismatch.

This error means that you have inserted a new disk without letting GEOS know about it. You can only insert or remove disks while at the deskTop and using the open and close commands.

Error reading disk.

GEOS cannot reliably read data from your disk. Repeat the operation you were trying. If this does not help, the disk is probably bad.

File exists, use another.

You are trying to create a document to be saved on the disk, but the name you have specified has already been given to another document on the disk. Choose a different name.

File was not found.

GEOS cannot find the file you have requested on the currently opened disk.

Files may not be moved to the border from a non-GEOS disk.

Only disks which have been formatted using GEOS and disks which have been converted to the GEOS directory format can contain files which have been moved from the Disk Notepad to the lower bordered area.

Insufficient disk space.

There is not sufficient free storage space on your disk to perform the requested operation. Delete or move some files to another disk before trying again.

Not enough disk space.

Same as above.

Page too large.

When using geoWrite, it is possible to create a page that requires more memory than is available.

Please move/delete files from disk to continue.

There is not sufficient free storage space on your disk to perform the requested operation. Delete or move some files to another disk before trying again.

Printer is inaccessible.

GEOS cannot communicate with your printer. Make sure you have selected the correct printer driver, and your interface card and printer are connected properly.

The application that created this file can not be found.

You have tried to open a file which was not created by a GEOS application, such as geoPaint or geoWrite.

This disk not active.

This message is displayed on the deskTop when certain operations are attempted on border files not from the current disk.

This file can not be opened from the deskTop.

Only files of the type BASIC, Assembly, Application, Application Data or Desk Accessory can be opened on the deskTop.

This file can not be printed from the deskTop.

Only Application data files may be printed from the deskTop.

This file is write protected and cannot be deleted.

Before you can delete a file, you must turn off its write-protect flag. To do so, select the file by clicking once on it. Then select info from the file menu. Click once in the box next to "Write Protect". Click the Close Button in the top right corner of the dialog box.

This is not a GEOS format disk. Would you like to have it converted?

You are attempting to open a disk which has not been converted to the GEOS directory format. Refer to "Using Non-GEOS Disks" in chapter 3 for details.

This operation may not be performed on system files.

The requested operation is inappropriate for GEOS system files.

This operation can only be performed on files from the current disk.

The operation you have requested can only be performed on a file which is on the currently opened disk.

Warning: Disk near full.

You are rapidly running out of storage space on the currently opened disk. Delete or move some files to other disks to free up some space before continuing.

Write protect tab on disk.

You cannot change a disk if the write-protect tab is affixed to it. If you are absolutely sure you want to change the disk, remove the tab from the disk and try again.

Write verify error.

GEOS has determined that data written to the currently opened disk was lost-- try using another disk.

Internal Error Messages

Under normal circumstances, you should never see an "internal" error message, a message which begins with an "I". An internal error can only come about in one of two cases: either there is a problem with your disk or hardware, or there is a software error in GEOS. If an internal error persists, even after you have tried alternate hardware, contact Berkeley Softworks for assistance.

Chapter 8: QuantumLink

This section covers QuantumLink, the telecommunications network for Commodore owners. The software needed to access QuantumLink is included on the back side of the GEOS disk. To access QuantumLink, you'll also need a modem (either 300 or 1200 baud).

QuantumLink, also known as Q-Link, is easy-to-use and affordable. A large selection of services are available to help you make better use of your computer, learn new things, make new friends, save time and money, and have a lot of fun.

Services available on the Q-Link network include:

- Free software (over 2000 programs are available)
- Special Interest Groups (SIG's), including a GEOS user group
- Online chat and messaging
- Multi-player online games and tournaments
- Previews of new software releases
- Conferences and discussions on a variety of topics
- The Commodore Hotline (you'll get fast answers from Commodore)
- Electronic Encyclopedia
- Discount Shopping and Travel Planning

Take A Guided Tour! (No Modem Required)

You can see for yourself how Q-Link can help you get the most out of your Commodore computer by taking a brief demonstration tour. The tour is stored on your disk, so no modem is required. To take the tour, load the Q-Link side of the disk -- if you're using the GEOS desktop, click the Q-Link (under the Special menu bar); otherwise, place the Q-Link side of the disk in your drive and type:

LOAD "QDEMO",8,1 (and then press RETURN)

QuantumLink Customer Service:

(800) 392-8200

(Canadians call 703-883-0788)

***Q-Link is available from 6 p.m. until 7 a.m. (local time)
weekdays and 24 hours weekends and major holidays.***

Q-Link Services

Q-Link offers its members dozens of services which are useful, educational and fun. The services are divided into eight Q-Link Departments:

People Connection

People Connection is the social center of the system. This is the place to go to meet other Q-Link members, get help, compete in game tournaments, attend club meetings, or get a front row seat at Auditorium lectures given by experts. People Connection is divided into rooms. A room can be created by any user, and can hold up to 23 people.

Getting Around -- When you first enter People Connection, you will find yourself in a Lobby. If you want to send a message, simply type it and press RETURN -- it will then be broadcast to everyone else in that room. To find out what other rooms are available, press F7 and select "List all occupied public rooms." To move to a different room (or start your own), press F7 and select "Change rooms or enter Box Office."

Online Games -- Q-Link offers a number of online games in PEOPLE CONNECTION. These games, such as Hangman and Sea Strike, can only be played online with another Q-Link member. To find out more about the games, see the instructions which are posted in JUST FOR FUN department. If you're in PEOPLE CONNECTION and would like to play a game, press F7 and select "Play or observe and online game." If needed, Q-Link can even help find you a partner.

News & Information

This department contains the latest headline news and polls where you can express your opinions.

Commodore Software Showcase

The Commodore Software Showcase is where you'll find thousands of useful Commodore programs which you can download to your disk and keep! A wide variety of programs are available, including games, education, utilities, and music.

In addition to housing the software libraries, the Commodore Software Showcase also contains other information about software that you will find of interest, including reviews.

Commodore Information Network

The Commodore Information Network (also known as CIN) is designed to aid you, the Commodore user, in getting the information you need and want. It's also the place to get answers to your questions, and exchange helpful suggestions about your Commodore. There's information about new Commodore products, a direct hotline to Commodore, user group information, and Special Interest Groups (SIG) on a variety of topics. If you leave a message on one of the "SIG Message Boards," you can expect to get a fast response from fellow Commodore users across the country!

Learning Center

Thinking of taking some college courses? Need some help with your homework? Want to look something up in a comprehensive electronic encyclopedia that's updated several times a year? The Learning Center can assist you.

Just For Fun

Just for the fun of it...sports contests, trivia quizzes, entertainment news, movie reviews, soap opera summaries, even an "electronic" cafe. Just For Fun is the department to go to for light-hearted entertainment.

The Mall

The Mall helps you save time and money. A wide variety of products are available for your convenience. If you want to save money *and* have fun, be sure to participate in our online auctions!

Customer Service Center

This is the place to go if you want to find out what's new on Q-Link, get a calendar of upcoming special events, check the status of your account, create additional user names, or submit your suggestions to Q-Link.

NOTE: Services are subject to change. Q-Link is constantly adding new services, and from time to time we may remove some. To get an up-to-date listing of the available services, go to CUSTOMER SERVICE CENTER and select "Services and Pricing."

Connecting to Q-Link

You will find Q-Link very easy to use. You don't have to memorize any complicated commands or keywords; instead, all you have to do is select options from Q-Link's colorful, easy-to-understand online menus. If you ever have a question or a problem, help is available online (we have a team of Q-Guides and Q-Helpers ready to help you) or by phone (our Customer Service department is open every day until 1:00 a.m. Eastern Time).

Getting Started

1. Purchase A Modem

To access Q-Link, you'll need either a 300 or 1200 baud modem. If you don't yet own a modem, see your computer dealer, or call Q-Link Customer Service at 800/392-8200 (Canadians call 703/883-0788).

2. Set Up Your Equipment

- Properly connect your computer, disk drive, monitor, and modem.
- Turn on the power to your computer, disk drive and monitor.
- Place the Q-Link command template over the function keys (F1, F3, etc.).

3. Load Your Q-Link Disk

You can load the Q-Link software either from the GEOS desktop, or separately.

Loading from GEOS Desktop:

- Click on the "Special" menu option at the top of the desktop
- When the menu appears, select "Q-Link"
- When instructed, turn over the disk and click on the **OK** icon.

Loading Separately:

- Insert the Q-Link side of your disk into your disk drive
- When you see **READY** on your screen, type:
LOAD "*",8,1 (and then press RETURN)

4. Take A Guided Tour

After the Q-Link disk has loaded, you will be asked what you would like to do. You should select **"See preview of Q-Link,"** which is an off-line demonstration of some of the services and features available on Q-Link. After the brief tour ends, you should then select **"Connect to Q-Link."**

5. Enter Your Access Information

You will be asked to enter the following information once, and then it will be stored on your disk:

- type of modem you are using
- type of phone system (touch tone or pulse)
- local access number

To determine your local access number, check the listings at the end of this chapter. When typing in the appropriate number, be sure to include the special symbol (either a "/" or a "+") that precedes the number.

NOTE: If you ever want to change your access information to reflect a different modem or phone number, you can do so by loading a program stored on the Q-Link side of your disk. Type **LOAD "CHANGE ACCESS",8,1** (and press Return).

6. Connect to Q-Link and Register

After you've entered your access information, select **"SIGN ON TO Q-LINK"** and press F1. If your equipment is properly connected and you have an auto-dial modem, you will be automatically connected to Q-Link. If you have a manual dial modem, follow the instructions on your screen.

Once you're connected, you will be asked to enter additional information, including:

- the number on the enclosed "Special Introductory Offer" coupon
- your billing information (you can have monthly Q-Link charges billed to a Visa or MasterCard, or your bank will automatically pay your bill from your checking account)
- your name and address, so we can send you our monthly newsletter

7. Welcome Aboard!

After you complete the one-time registration, you'll be ready to explore the system. We recommend that you make **PEOPLE CONNECTION** your first stop, as you'll find plenty of fellow users ready to chat, play a game, or answer your questions.

IF YOU HAVE ANY PROBLEMS, CALL CUSTOMER SERVICE:

800-392-8200
(Canadians call 703-883-0788)

Follow-Up Visits to Q-Link

The information you entered during your first visit to Q-Link is saved, so you do not need to enter it again. On subsequent visits, all you need to do is load the Q-Link software, either from the GEOS desktop or separately.

Loading from GEOS Desktop:

- Click on the "Special" menu option at the top of the desktop
- When a menu appears, select "Q-Link"
- When instructed, turn over the disk and click on the OK icon.

Loading Separately:

- Insert the Q-Link side of your disk into your disk drive
- When you see READY on your screen, type:
LOAD "*",8,1 (and then press RETURN)

You will then be connected to Q-Link.

NOTE: You cannot make a copy of your Q-Link disk once you have registered it. It will void your account information and you will be unable to use the account again.

How to Disconnect from Q-Link

When you are finished with your online session and would like to sign off, return to the Department menu and select "Sign Off." Or, turn off the modem to hang up.

Getting Around Q-Link

To get around Q-Link and get the most out of the services, you'll need to familiarize yourself with the four function keys on your Commodore computer, as well as a few other keys and symbols.

<u>Press</u>	<u>Command</u>
Function Keys	
f1	SELECT the menu item with the check mark next to it
f3	SAVE to a disk the information currently being displayed
f5	CANCEL the current screen and return to previous screen
f7	GET a menu, or get help

Other Important Keys

RETURN	SEND a message (or make a game move)
Up/Down Cursor	<p>To move the cursor (✓) to a different menu item, or to review additional text, use this key (it's located in the bottom right of the keyboard, next to the Shift key)</p> <ul style="list-style-type: none">• when you press the Up/Down Cursor key <i>alone</i>, the cursor will go down to a lower menu item or additional text• when you press the Up/Down Cursor <i>and</i> the Shift key at the same time, the cursor will go up to a higher menu item or previous text

Special Q-Link Symbols

- | | |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ++++ | FLASHING ARROWS in the lower right corner of your screen indicates there is more text available, and you should press the Up/Down Cursor key to view it |
| MAIL | MAIL message in the lower right corner of your screen indicates you have E-Mail waiting in your electronic mailbox. To read it, press F7 to get a menu, cursor down to "Q-Link Post Office" and select it (by pressing F1), then cursor down to "Read Waiting E-Mail" and select it |
| + | PLUS (+) sign in the upper left corner of your screen indicates that you are using one of Q-Link's special "Plus" services. |
| √ | CHECKMARK (√) in the upper right corner of your screen indicates that information is being transmitted from Q-Link to your screen. When the checkmark disappears, the information you requested has been completely transmitted. |

Getting Help

If you have problems connecting to Q-Link, or have a question about billing or some other issue, you can call Q-Link's Customer Service Department at:

800/392-8200

Hours: 9am to 1am Eastern Time

(Canadians call 703-883-0788)

If you have a question or problem when you are connected to Q-Link, there are four ways to get help:

1. **Press F7** -- Dozens of help instructions are stored on your disk. Press F7 for an explanation of how the function you are currently using works.
2. **Ask a QGUIDE or QHELPER** -- You will find members of Q-Link's Customer Service staff available online in the PEOPLE CONNECTION department. QGUIDEs are usually available in the Lobbies, and QHELPERS are usually waiting to assist you in the room called Help.
3. **Ask a fellow user** -- Q-Link is a very friendly network, and you can almost always find someone in PEOPLE CONNECTION who can help you.
4. **Send E-Mail to Jenny C** -- If you have a question or comment that doesn't require an immediate answer, you should send E-Mail to Jenny C, a member of the Q-Link staff. She will respond via E-Mail within 48 hours.

Pricing and Billing Information

Q-Link is designed to be the most affordable telecommunications network for Commodore owners. As a Q-Link subscriber, you will have access to a wide range of services for a monthly fee of \$9.95.

There are two types of services on Q-Link:

1. **Basic Services** -- Many of the services available on Q-Link are "Basic" services, and you can use BASIC SERVICES AS MUCH AS YOU WANT each month, with no extra charges. Examples of Basic services include the encyclopedia, a news report, information about Commodore computers, and trivia quizzes.
2. **Plus Services** -- Some Q-Link services are special "Plus" services. In addition to unlimited use of Basic services, Q-Link subscribers get their **FIRST 60 MINUTES OF PLUS SERVICES FREE EVERY MONTH!** Additional Plus service is billed at the rate of 6¢ per minute. (There is no extra charge for 1200 baud access.) Examples of Plus services include People Connection, software downloading, and message boards.

NOTE: Pricing and services are subject to change. For up-to-date information, check the online CUSTOMER SERVICE CENTER department.

Telecommunications Charges

Telecommunications charges are *included* in the Q-Link fees as long as you are able to connect to Q-Link through one of the hundreds of local access numbers listed at the end of this chapter. Q-Link access numbers are available in over 600 cities. If you live in a local calling area, your calls to Q-Link will be handled by your phone company just like any other call. If you live *outside* of the the local calling area, you may wish to check with your phone company because you might be billed extra for a long distance call.

Billing Options

Your monthly Q-Link charges can be billed to either a Visa or MasterCard account, or can be paid by your bank from your checking account through a service called CheckFree. With your permission, CheckFree will tell your bank each month what your Q-Link charges are, and your bank will then pay the proper amount from your checking account and list the transaction on your monthly statement.

Monitoring Your Charges

A record of your usage and charges is available online. To review your charges, select CUSTOMER SERVICE CENTER from the department menu, and then select "Billing Information." If you have any questions about your account, call Customer Service at 800/392-8200. (Canadians call 703-883-0788)

Canadian Surcharges

Q-Link is available in Canada through Data Pack. Communications surcharges apply: call **703 883 0788** for detail.

Q-Link Local Access Numbers

You connect to QuantumLink through local access numbers available in more than 600 cities. When you are initially registering your disk, you will be asked to enter the access number in your area from the list below. Depending on the number you select, you will need to include either a plus (+) symbol or a slash (/) symbol. This symbol should be entered in front of the local number, just as it is listed in this directory (example: /999-9999).

After your modem connects you to the local access number, you will be instantly linked to QuantumLink through a nationwide data network such as Telenet or Tymnet. The data network costs are *included* in the QuantumLink rates.

As long as the number you select is in your local calling area, it will be handled by your phone company as a local call. If you have flat rate telephone service, there will be no extra charge; if you have measured unit service, you will be charged message units, just like you would for any local call.

If your city is not listed, please call QuantumLink Customer Service at 1-800-392-8200.
(in Canada call 1-703-448-8700)

ALABAMA		Antioch	/754-8222	Hollywood	+624-2251
Anniston	/236-2655	Arcadia	/308-1800		+937-3580
Bessemer	+328-2310	Bakersfield	/322-5078	Huntington Bch	+558-7078
Birmingham	+328-2310		+327-8146	Inglewood	+624-2251
	/942-4141	Belmont	/366-1092		+937-3580
Durban	/792-0914	Berkeley	/430-2900		/587-0030
Florence	/767-7131	Beverly Hills	/789-9002	Irvine	/756-8341
	+767-7960	Burbank	/846-9275	Lancaster	/948-4602
Huntsville	/882-3003	Burlingame	/952-4757	Long Beach	/435-0900
	+539-2281		+591-0726	Los Altos	/980-8100
Mobile	/343-8418	Canoga Park	+306-2984		+856-9995
	+432-1680		/789-9002	Los Angeles	+624-2251
Montgomery	/265-4570	Cathedral City	/324-0920		+937-3580
	+269-0900	Chico	/893-1876		/587-0030
Sheffield	+767-7960	Colton	+824-9000	Long Beach	+548-6141
Tuscaloosa	/749-5670		/370-1200	Manteca	/985-7843
Mesa	+254-0244	Compton	+516-1007	Mar Vista	/643-2907
	/254-5811	Concord	+827-3960	MarinaDelRey	+306-2984
Phoenix	+254-0244		/685-6003		/643-2907
	/254-5811	Corona	/371-2291	Mcced	/384-7227
Scottsdale	+254-0244	Covina	/594-4567	Modesto	/527-0150
Tempe	+254-0244	Cupertino	+294-9119		+376-2652
Tucson	+747-0107	Danville	+829-6705		/372-6433
	/790-0764	Davis	/758-3551	Monterey	+375-2675
		Diamond Bar	/594-4567		+856-9995
ARKANSAS		El Monte	+507-0909	Mt. View	/257-2656
Fayetteville	/442-3850		/308-1800	Napa	+558-7078
Fl. Smith	/782-2486	El Segundo	/643-2907	Newport Bch	/756-8341
Hot Springs	/321-9741	Escondido	/941-6700		+404-2237
Jonesboro	/935-7557		+741-7756	Norwalk	/435-0900
Little Rock	/666-6886	Eureka	/444-0491	Oakland	+836-4911
	+372-4616	Fairfield	/447-3436		/430-2900
Pine Bluff	/535-8055	Premont	/490-7366	Oceanside	+430-0613
Springdale	/442-3850	Fresno	/442-4328	Ontario	/594-4567
			+233-0961	Oxnard	+656-6760
CALIFORNIA		Fullerton	+558-7078		/985-7843
Alameda	/430-2900	Garden Grove	+898-9620	Pacheco	/685-6003
Alhambra	/308-1800	Glendale	+507-0909	Palm Springs	/324-0920
	+507-0909		/846-9235	Palo Alto	/366-1092
Anaheim	/756-8341	Hayward	+881-1382		+856-9995
	+558-7078		/430-2900		

Pasadena	/308-1800	Greenwich	+348-0787	Marietta	/446-0270
Pleasanton	+507-0909	Hartford	+247-9479	Martinez	/868-8500
Pleasant Hill	/462-8900	Meriden	/242-7140	Norcross	/446-0270
Pomona	/685-6003	Middletown	/634-9249	Rome	/291-1000
Rancho Bernar	/594-4567	Milford	+624-5954	Savannah	+236-2605
Redding	/241-4820	New Haven	+624-5954	Warner Robins	/232-6251
Redwood City	+591-0726		/773-0082		/746-2739
Riverside	/366-1092	New London	/443-6997	IDAHO	
	/370-1200	North Haven	/773-0082	Boise	+343-0611
Sacramento	+824-9000	Norwalk	/226-5250		/347-0404
	+448-6262	Norwich	/444-1709	Idaho Falls	/523-7800
Salinas	+448-4300	Stamford	/905-0000	Lewiston	+743-0099
	+443-4940		+348-0787	Pocatello	/233-2501
San Bernardino	/757-0147	Stratford	/579-1479	ILLINOIS	
	+824-9000	Waterbury	+753-4512	Arlington Hts	+938-0500
	/370-1200		/755-5994	Aurora	/844-1800
San Carlos	+591-0726	West Hartford	+247-9479		+859-8483
San Clemente	/492-0165	Westport	/228-5250	Belleville	/277-9806
San Diego	/296-3370	WASHINGTON, DC		Bloomington	+827-7000
	+233-0233	Washington	+429-7896		/829-2802
San Fernando	/789-9002	Fairfax	/691-8200	Champaign	+384-6428
San Francisco	+956-5777	DELAWARE			/259-1163
	/974-1300	Dover	/678-0449	Chicago	+938-0500
San Jose	+794-9119	Newark	/652-2060		/922-4601
	/980-8100	Wilmington	/652-2060	Cicero	+938-0500
San Lou. Obispo	/544-5753		+454-1710		/345-9100
San Mateo	+591-0726	FLORIDA		Danville	/431-3133
	/952-4757	Boca Raton	+368-8300	Decatur	/429-5995
San Pedro	+548-6141		/272-7900		+422-0835
	/435-0900	Bryn M Beach	/471-9310	Dekalb	+758-2623
San Rafael	+492-0752	Clearwater	/796-2166	Downers Grove	/790-4400
	/453-8420		+323-4026	East St. Louis	+421-4990
San Ramon	+829-6705	Daytona Bch	+255-2629	Forest Park	/345-9100
Santa Ana	/756-8341		/255-4783	Freeport	/233-5585
Santa Barbara	+682-5361	DelRay Beach	/772-7900	Glen Eilyn	/790-4400
	/963-8731	Fl. Lauderdale	+764-4035	Joliet	+726-0070
	/963-9241		/463-0882		/727-7691
Santa Clara	+294-9119	Fl. Myers	+337-0308	Kankakee	/932-0850
	/980-8100		/481-8866	Lake Forest	/362-0820
Santa Cruz	/475-0981	Fort Pierce	/466-3661	Lake Zurich	/358-8770
Santa Monica	+306-2984	Gainesville	/378-4576	Libertyville	/362-0820
	/643-2907		+327-3005	Maywood	/345-9100
Santa Rosa	+578-4447	Holly Hill	+255-2629	Oak Park	+938-0500
	/527-6180	Hollywood	/624-7900	Palatine	/358-8770
Sherman Oaks	/789-9002	Jacksonville	+353-1818	Peoria	+637-8570
Stockton	/467-0601		/721-8100		/637-5961
	+473-2056	Lakeland	+688-4366	Rock Island	/788-3713
Sunnyvale	+294-9119		/665-8582	Rockford	+965-0400
	/980-8100	Longwood	/841-0020		/396-6090
Thousand Oaks	/496-3473	Melbourne	/676-4336	Skokie	+938-0500
Torrance	+548-6141		+676-1393	Springfield	+753-1373
Vallejo	/644-1192	Merritt Isle	/459-0671	St. Charles	/844-1800
Van Nuys	/789-9002	Miami	/624-7900	Urbana	+384-6428
Ventura	+656-6760		+372-0230		/359-1163
	/985-7843	Ocala	/351-0305	Whitton	/790-4400
Vernon	/587-0030		+351-3790	INDIANA	
Visalia	/625-5523	Orlando	+422-4038	Bloomington	+332-1344
Vista	/941-6700		/841-0020		/332-3051
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	/758-3551		+941-5445	Gary	+882-8800
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	/830-9210	Tallahassee	+923-4563	Indianapolis	+634-5708
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	/830-9210	Tampa	+681-1902		/456-3871
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	+635-5361		+224-9920		/423-4544
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Denver	+337-6060		/471-9310	Mishawka	+233-7104
	/830-9210	GEORGIA	/605-8582		/234-5005
Fl. Collins	+493-9131	Albany	+883-8600	Muncie	+289-5058
	/221-0687		/883-2246		/284-4474
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Lakewood	+337-6060		/548-7006	South Bend	+233-7104
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	+542-4053		/446-0270	Terre Haute	+232-3329
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	+335-5055		/327-0597		+364-0911
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 Springfield +324-1520
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Toledo +255-7881
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OKLAHOMA

Ardmore +226-1260
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 Oklahoma City +232-4546
 +495-8201
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 Tulsa +824-1267
 +582-4433

OREGON

Corvallis +754-9273
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PENNSYLVANIA

Allentown +435-3330
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 Altoona +943-5848
 Bethlehem +610-6978
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 Greensburg +836-4470
 Harrisburg +236-6882
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 Latrobe +836-4470
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When entering your local access number, you must enter the exclamation symbol (!) *before* entering the number, as a "!" symbol informs the Q-Link access software to use the Datapac sign-on procedure.

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Edmonton	!420-0185	!423-4463	Brantford	!758-0000	!756-0020
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Lethbridge	!329-8755	!327-2004	Chatham	!354-7710	!354-7716
Medicine Hat	!526-6587	!529-5521	Clarkson	!823-6000	NA
Red Deer	!343-7200	!342-2208	Cornwall	!938-9700	!938-4777
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Woodstock	!328-9361	!328-9351	Montreal	!878-0450	!878-0840
Newfoundland			Quebec City	!647-4690	!647-2691
St. John's	!726-4920	!726-5501	St. Hyacinthe	!744-9270	!774-9991
Nova Scotia			St. Jean	!346-8779	!347-6211
Bridgewater	!543-6850	!543-1360	St. Jerome	!432-3453	!432-3165
Amherst	!667-5035	!667-5297	Sherbrooke	!566-2770	!566-2990
Hallifax	!477-2000	!477-8000	Sorel	!743-3381	!743-0101
Kentville	!678-1030	!678-2095	Trois Rivières	!373-2800	!373-2603
New Glasgow	!752-0944	!752-1731	Valleyfield	!377-1260	!377-1680
Sydney	!539-7010	!539-8040	Saskatchewan		
Truro	!662-3258	!662-3773	Moose Jaw	!893-7611	!374-5910
Ontario			Prince Albert	!922-4233	!922-4234
Barrie	!737-4100	!737-4120	Regina	!565-0111	!565-0181
			Saskatoon	!665-6660	!665-7758
			Swift Current	!778-3941	!778-3951

Index

A

accessories	2-8, 2-17
	6-2
activate	2-9
airbrush tool	4-9
alarm clock	6-4
applications	2-6

B

backing-up GEOS	1-2
black & white mode	4-7
booting...	
GEOS	2-12
a non-GEOS disk	3-14
problems	7-2
border of deskTop	2-19
brush shape	4-23
brush tool	4-8

C

C-64 mode	2-2
calculator	6-4
canvas color bar	4-2
cards	4-6
card canvas color indicator	4-2, 4-6
card paint color indicator	4-2, 4-6
circles, hollow and filled	4-10
clearing graphics	4-18
clicking	2-9
clock	2-17, 6-12
close...	
disk	3-9
document	4-25, 5-16
color enable/disable	4-7
color selection	4-2, 4-6
color wipe	4-7

command menu...

in deskTop	3-2
in geoPaint	4-2
in geoWrite	5-2
copy...	
disk	3-9
disk using two drives	3-16
file onto same disk	3-4
file onto another disk	2-19, 3-4
file using two drives	3-16
GEOS disk	1-1
selected graphics region	4-17
text block	5-8
correcting graphics	4-15
create document	4-4, 5-3
current page	5-2
current pattern indicator	4-2
current canvas color indicator	4-2
current paint color	4-6
current paint color indicator	4-2, 4-6
current pattern indicator	4-3, 4-7
cursor	2-9

D

data files	3-3
date setting	2-17
delete...	
files	2-16, 3-6
text	5-5, 5-8
graphics	4-15
desk accessories	2-8, 2-17
	6-2
deskTop	3-2
deskTop menus	3-18
detailing	4-16
dialogue box	2-6
dimensions of document	5-5
directory format	5-5

disk...	
close	3-9
copy	3-9
drives	2-2, 3-15
format	3-9
GEOS disk	2-3
icon	3-2
management	3-9
non-GEOS disk	3-14
notepad	2-5, 2-16
open	3-2
space	2-13, 3-9
rename	2-3
validate	3-9
working disks	3-10

distances on document	4-22
document...	
close	4-25, 5-16
copy	3-4
create	4-4, 5-3
edit	4-8, 5-8
large documents	5-12
move	3-5
open	3-4, 4-4
print	5-3
rename	3-6
double-clicking	5-16
dragging	2-10
drawing	2-10
drawing tablet	4-8
drawing window	3-12
	4-2

E

edit box	4-17
----------	------

editing...	
a document	4-8, 5-8
	5-12
a selected region	4-17
pixels in geoPaint	4-16
entering	1-8
geoPaint	4-4
geoWrite	5-3
text	4-12, 5-5
graphics	4-8
eraser tool	4-15
error messages	7-3
exiting an application	4-25, 5-16

F

faucet tool	4-9
file...	
close	4-25, 5-16
copy	3-4
create	4-4, 5-3
delete	3-6
icons	3-2
information	3-7
management	3-3
move to another page	3-5
move to another disk	3-4
non-GEOS files	3-3
open	3-4, 4-4
	5-3
recover	4-20, 5-16
rename	3-4
swap file	6-2
types	3-3
update	4-20, 5-16
write-protect	3-7

		H	
font...			
additional fonts	2-23	hide pictures	5-13
changing fonts	5-11	highlight	2-11
description	2-7		
files on GEOS disk	2-7	I	
selecting a font	2-23, 4-12	icon	2-4
	5-11, 5-12	information about file	3-7
format...		inverting graphics	4-18
disk for backup procedure	1-2	input devices	2-27, 3-12
disk	3-9	insert text	5-8
text	4-12, 5-10	interface cards	2-24, 2-26
margins	5-10	interface drivers	3-3
page breaks	5-6	items in menu	2-4
G		J	
get info	3-7	joystick	2-2, 3-12
geoPaint	4-2	input driver	2-27
GEOS...		to move Pointer	2-9
backing up GEOS	1-2, 2-3		
	3-9	K	
booting	2-12	key disk	3-12
key disk	2-12	kernal file	2-14, 2-16
learning	2-1		
problems	7-1	L	
system files	2-14	light pen	3-12
using with non-GEOS files	3-14	line tool	4-10
geoWrite	5-2		
ghost	2-10	M	
graphics...		magnify graphics	4-16
adding to document	4-8, 5-13	margins	5-10, 5-12
editing	4-15	measuring distances	4-22
moving/copying	4-17	menu	2-4
tool box	4-2	mirroring graphics	4-18
transferring to geoWrite	4-19	modem	8-1

mouse...	
input devices	2-27, 3-12
shape and speed	6-12
move...	
pointer on screen	1-3
file to another disk	3-5
window within	
document	4-21, 5-7
text	4-10, 5-8
selected graphics region	4-17

N

naming files	4-4, 5-3
notepad	6-7

O

open...	
a non-GEOS disk	3-14
application	2-21
disk	2-13, 3-9
disk in drive B	3-15
existing document	3-3, 4-4
	5-3

P

page...	
advance	3-2
break	5-6, 5-10
format	5-10
indicator	5-2
map	4-2, 4-21
number	5-2
paint brush	4-8
paint color bar	4-2, 4-6
paragraphs	5-6

paste...	
text into document	4-13, 5-14
photo into document	4-18, 5-13
pattern fill	4-9
pattern options	4-22
pencil	4-8
photo album	5-13, 6-8
photo manager	4-19, 6-8
photo scrap	4-18, 5-13
	6-8

pictures	
moving/copying	4- , 5-13
in geoWrite document	5-13
pixels	4-22
pixel edit	4-16
point sizes	2-7
pointer	2-9
preference manager	6-12
preview page	4-21, 5-6
print...	2-7
a document	2-25, 3-6
	4-24, 5-15
dimensions	4-24, 5-5
drivers	2-24, 2-26
icon on deskTop	3-2
selecting a printer	3-13
supported printers	2-26
problems	7-1
program files	3-3
proportional spacing	2-7

Q

quit application	4-25, 5-16
QuantumLink	8-1
connecting	8-4
downloading drivers	2-25, 2-27
	3-12, 3-13
pricing & billing	8-10
access numbers	8-12

R

recover from file regions	4-15, 5-16
of graphics	4-17
of text	5-8
rename...	
disk	2-14, 3-9
file	3-4
document	4-20, 5-16
replacing text	5-9
restoring GEOS disk	2-29
reverse video	2-10
rotating graphics	4-18
ruler	4-22, 5-2
	5-5

S

saving changes	4-20, 5-16
scratch command	2-28
screen color	6-13
scroll box	5-2
scrolling arrows	4-21, 5-2
selecting	2-9
text	5-8
graphics region	4-17
setting...	
preferences	6-12
time/date	6-12
show pictures	5-13
squares and rectangles	4-10
status box	4-2
straight lines	4-10
style selection	2-7, 4-12
	5-11
sub-menu	2-4
swap file	6-2
system files	3-3
system requirements	2-2

T

tabs	5-6
text...	
adding to document	4-12, 5-5
album	5-14, 6-15
cursor	2-9, 4-12
	5-2
delete	5-5, 5-8
insert	4-12, 5-8
layout on page	4-13, 5-10
manager	5-14, 6-15
region	4-12, 5-8
scrap	4-13, 5-9
	5-14, 6-15
selecting	5-8
time...	
alarm time	6-4
setting time and date	2-17
stamping files	2-17
title bar	4-2, 5-2
track ball	3-12
troubleshooting	7-2
type (see fonts)	
sizes	2-7
styles	2-7

U

undo	4-15
update file	4-15, 5-16

V

validate command	2-28, 3-10
view modes	3-7

W

waste basket	3-2
--------------	-----

window...	2-7
drawing window	4-2
indicator	6-10
writing window	5-2
word wraparound	4-12, 5-6
	5-12
work disk...	
contents	3-10
creating	1-2, 3-10
tailoring	2-13
write protect	2-14, 3-7
writing window	5-2, 5-5

Z

zoom-in	4-16
---------	------

Registration Card

Please complete this card to register for product support and new product information.

Name _____
Address _____
City _____ State _____ Zip _____
Phone () _____
Place of Purchase _____ Date _____

Purchaser's age?

☐ under 18 ☐ 18-24 ☐ 25-34 ☐ 35-49 ☐ over 50

Purchaser's sex?

☐ male ☐ female

Primary user's age? (if other than yourself)

☐ under 18 ☐ 18-24 ☐ 25-34 ☐ 35-49 ☐ over 50

Primary user's sex? (if other than yourself)

☐ male ☐ female

What system do you own?

☐ C 64 ☐ C 128

What is the primary use for your computer?

☐ Business ☐ Home applications ☐ Programming
☐ Education ☐ Entertainment ☐ Graphics

Rank, in order of preference, GEOS applications you would like to purchase. (#1 would be your most favorite.)

____ Word processing ____ Spreadsheet ____ Database

____ Telecommunications ____ Educational ____ Utilities

Other _____

Which magazines do you read?

☐ Commodore Microcomputers ☐ Compute!
☐ Commodore Power/Play ☐ Family Computing
☐ Computer's Gazette ☐ Run ☐ Ahoy ☐ BYTE

What type of peripherals do you own?

Disk Drive _____

Printer _____

Input device (joystick, lightpen, etc.) _____

STAMP

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