

# geoWorld

The definitive magazine about GEOS

Issue #25



CLICK!



**GEOS  
MUSIC  
TALENT  
& YOU!**

**INSIDE:**

*Everything you  
need to know  
to make  
beautiful music  
with GEOS!*

**PLUS!**

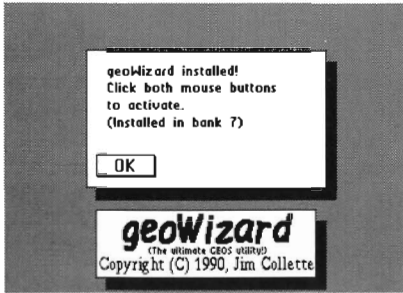
*Bits and  
bytes of  
valuable info  
on all sorts of  
fun GEOS items!*

**GEOS  
DISKS**

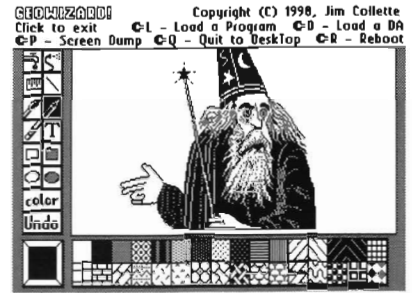
GEOS was introduced in 1986 and revolutionized the Commodore 64. It happened again in 1988 with GEOS 2.0. Now the 90's are here, and so is...



# GEOWIZARD!



The program that pushes GEOS one step closer to the Mac... **GEOWIZARD!** GEOWIZARD is a brand new utility for GEOS 64 2.0 and GEOS 128 2.0 owners with a RAM Expansion Unit (REU) - 17xx or GEORAM. Once GEOWIZARD is installed, it sits resident in the REU waiting for you to activate it. GEOWIZARD can be activated from almost anywhere. With a simple mouse click, GEOWIZARD temporarily takes over the computer and provides the following features:



- \* Screen Dump (double-height option in 80 columns for proper aspect ratio) - *do screen dumps like those you see in geoWorld, of dialog boxes and menus!* Dump to printer, Photo Scrap, or directly to geoPaint without using Paint Drivers - full color support!
- \* Return to deskTop (or in severe cases, RBOOT) - *get out of most System Error dialog boxes with no problem, with the RAM disk intact!*
- \* *Start another application or desk accessory!* This is GEOWIZARD's most powerful option - almost like MultiFinder on the Mac! **Run almost any application as if it were a desk accessory (DA)! This will revolutionize your GEOS computing!!!**

*When you're done with GEOWIZARD, the original program is restored as if nothing ever happened!*

The last option is what makes GEOWIZARD truly special. Working in geoWrite and want to paste in a Photo Scrap but you forgot to cut it out of geoPaint? *No problem!* Pop up GEOWIZARD and run geoPaint, cut the scrap, then return to geoWrite where you left off! Need to run the Text Manager but the program you're in doesn't offer desk accessory support? Call up GEOWIZARD and run the DA! You can even run a DA from within a DA!

**GEOWIZARD is something you have to see to believe.** No longer do you have to quit a program to start something else! Great for time-consuming programs like geoPublish which take a long time to shut down and restart. Not multi-tasking but the closest thing GEOS has seen to it!

**MiniDesk** is a separate DA included with GEOWIZARD and goes hand-in-hand with it. MiniDesk is short for Mini DeskTop, and that's essentially what it is. Copy, Rename, or Scratch files from a DA! Can be used by itself as a normal desk accessory, or from GEOWIZARD - never again will you quit a program just to copy a file! MiniDesk will do the job in just a few seconds. Naturally, MiniDesk supports multiple file selection and 3 drives. Helps strip away the barrier to drive C - now you can move files to and from it whenever you like.

## THE FINE PRINT: (IMPORTANT - PLEASE READ!)

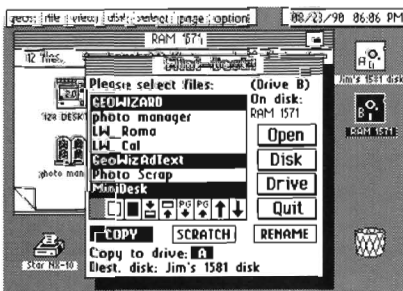
GEOWIZARD, MiniDesk, and geoWizDump fully support GEOS 128 in both 40 and 80 columns, and make use of three drives. GEOWIZARD is an Auto-Exec file and will install automatically on bootup if placed on your GEOS boot disk. GEOWIZARD is compatible with any input device.

**You MUST have an REU with at least one 64K bank free.** To determine if GEOWIZARD will work on your system, follow these steps:

- (1) Divide the size (in K) of your REU by 64, then subtract 1. (i.e. 128K = 1; 256K = 3; 512K = 7; 1024K = 15; 2048K = 31)
- (2) Subtract for each RAM or Shadowed disk you use: (*Shadowed Dir 1581 doesn't do much and can be removed for GEOWIZARD if you need the RAM*)  
 RAM 1541/Shadowed 1541 - 3      RAM 1571 - 6      RAM 1581 - 13      Shadowed Dir 1581 - 1 (available in GEOS 64 2.0 only)
- (3) If you are left with a number greater than 0, GEOWIZARD will run on your system. Otherwise you need to remove a RAM disk (i.e. Shadowed Dir 1581).

In case you are lost, here is an example. Let's say you have a 1764, unexpanded - that's 256K. Divide 256 by 64 and you get 4, now subtract one - 3. Now subtract 3 for the RAM 1541 you use. That leaves 0, which means GEOWIZARD can't be used with only a 256K REU and a RAM 1541.

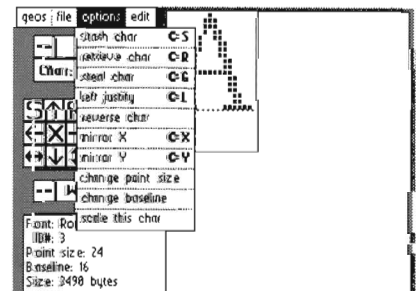
**Before ordering, please follow the above steps and make sure you have enough RAM to use GEOWIZARD.**



The GEOWIZARD disk is just \$16.50\* and includes GEOWIZARD, MiniDesk, and geoWizDump. This could be the bargain of a lifetime. To order, send a check or money order (in US funds, drawn on a US bank, payable to Jim Collette) to:

Comm-Plex Software / 6782 Junction Road / Pavilion, NY 14525

\* NY residents please add sales tax. GEOWIZARD, MiniDesk, and geoWizDump are Copyright (C) 1990, Jim Collette.



Also still available - GEOS Font Collection 2 (\$21.50), GEOS Font Collection 1 (\$16.50), & MegaFont Disk 1 (\$16.50)!!!  
**Remember that exciting feeling when you first used GEOS? When you first used a RAM disk? Prepare to experience that feeling all over again.... with GEOWIZARD!!! Don't be left behind - order today!!!**

# GGEOWORLD

The definitive magazine about GEOS

## Issue Number 25

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Peter / Paul Hughes  
Managing Editor

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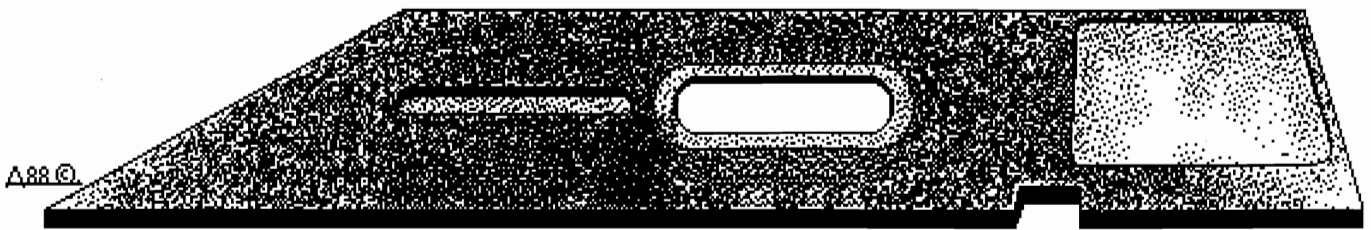
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### About the Cover...

The cover was created by Dale Beach. He drew the image on paper with a pen. Peter Hughes scanned the full page on an Amiga with a Canon scanner as an IFF file. The file was converted to MacPaint, transferred to a Commodore disk, converted to GeoPaint and pasted as a large photo scrap into geoPublish.



# Announcing GEOWORLD #25 Disk



GEOWORLD #25 Disk is filled with many music utilities and Christmas clip art for GEOS. Side one contains the following:

*Music Fonts* is a complete music writing and printing system for use with geoWrite. A five page geoWrite 2.1 file is a chart of all the notes available. These fonts will help you easily make great-looking sheet music.

*GeoSidPlayer* by Roger Lawhorn is an application for playing Sid Player songs in GEOS. *QLINK* has a large selection of Sid Player songs in the Music Room Software Library. Jingle Bells song is included as a sample.

*SID Printer* by Charles L. Boling will print sheet music from any Sid Player files. This application supports 6-voice stereo songs.

*Star & Stripes* is a G.O. Bach music file that is very good. You will need G.O. Bach or GeoMusicPlayer on RUN GEOS Companion disk to play this song.

*CZLIBRARIAN* by Douglas Adams is a Passport I/F type compatible CZ Librarian.

*CZEDITOR* by Douglas Adams is a Passport I/F compatible CZ patch editor.

*PS Patch 2.0* by Jim Collette will

patch GeoLaser and GeoPubLaser to save PostScript files to disk. These PS files can be transferred to another computer like an Amiga, Mac or IBM so they can be dumped to a laser printer.

*EPS INSERT TEXT* by Roger Eller is a Text Album containing a small text scrap of PostScript code that allows you to convert a GEOS PostScript file into an Encapsulated PostScript file. The EPS file can be imported into Aldus' Pagemaker on the Macintosh and placed, resized, condensed, stretched, and printed directly from within Pagemaker instead of being downloaded to the laser printer like a font. Several pages - either geoWrite text or GeoPublish Page Graphic text or object-oriented graphics - can be placed on a page.

There is more on side two of the GEOWORLD disk.

*NewTools* by David B. Ferguson is a desk accessory of a new set of 16 graphic manipulation tools to be used in geoPaint. Graphic areas can be skewed, slanted, arrowed and rotated 45 degrees.

*NewTools.80* is a new set of tools to be used in GeoPaint for the 128 in 80 columns only.

*NewTools demo* is a geoPaint file

showing the effects that can be created with NewTools.

*NT2 CHRISTMAS* by Susan Lamb is a geoPaint file showing some of the graphics effects you can get with "NewTools2". There is Christmas clip art for cards and flyers as well as some gift tags to print out and use. NewTools2 lets you get a lot of interesting effects and new angles on clip art and headlines.

*Handy Import* by Joe Buckley let you import Handy Scanner format files into geoPaint. Handy Scanner is from RIO Computers.

Terry Morgan created two geoPaint files of Christmas clip art - CHRISTMAS 1 and CHRISTMAS 2 - with the Handy Scanner. These files contain excellent images of including Santa Claus, Snowman, Bells and a New Year's and a Halloween graphic also.

*Sneaky Snake* by John S. Chrisman is a game where you maneuver the snake around the maze and eat the bugs. Don't hit anything! Cursor keys are used to control the snake.

*DemoUtilities* by Jean F. Major is an imitation GEOS deskTop illustrating the utilities on GEOS Utilities Disk 1.



## ORDER #25 DISK TODAY:

Disks #1 - 5 and #23 & #24 are still available.

Please indicate which numbers you want.

Send \$5.00 check or money order with your request to:

**GEOWORLD #25 DISK  
38 Santa Ynez Street  
Santa Barbara, CA 93103**

Canada & Mexico add .50 per disk. Foreign orders, add \$1.50 per disk

# GEOS News *By Peter T. Hughes*

## NewTools

The GEOS 64 desk accessory "NewTools" by David Ferguson is a set of 16 graphic manipulation tools to be used from within geoPaint. There are four basic manipulation types, each with four directions: skewing, slanting, arrowing, and rotating 45 degrees.

Create whatever graphic you want to work with, either some text or a picture. Select NewTools from the geos menu. Select a rectangular area with crosshair. Click icon of tool you want to use and effect will appear. There is an undo feature.

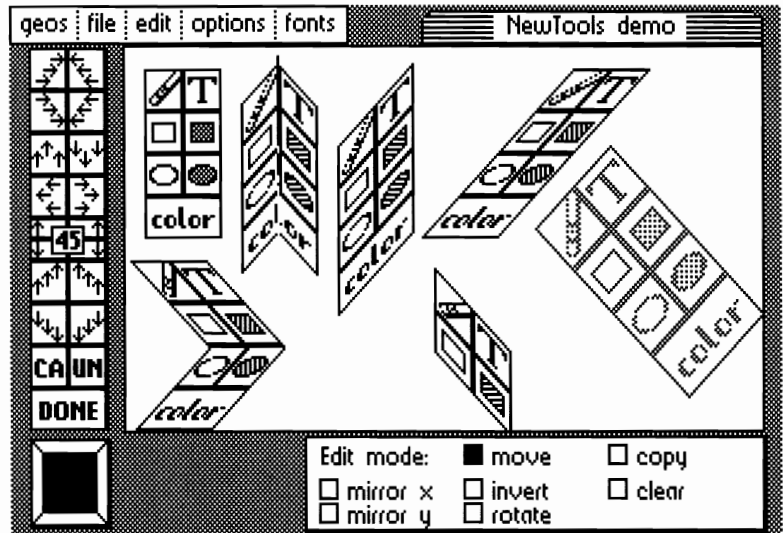
The most useful routines are the skew and slant routines. Using them thoughtfully you can make some curving shapes, and slant images in perspective. NewTools is on QLINK and GeoWorld #25 disk.

"NewTools2" is available on "DweezilDisk 1" from:

**Quincy Softworks,**  
9479 E. Whitmore Ave.,  
Hughson, CA 95326-9745

Price is \$17.95 including shipping and handling.(CA residents add 6.25% sales tax!)

NewTools2 now works 100% in all GEOS modes, has arcing and arching routines, as well as doubling and tripling routines; has a routine to darken 45 degree rotated objects;



now your arrow and slant up and down routines can have 2:1 or 1:1 ratios; lots more! Marker is a simple measuring tool that allows you to leave fine "pencil-point" marks. There are also several fill pattern utilities on this disk. This is a revolutionary new tool for creating amazing special effects never before available to GEOS users.

## MASTERPIECE DESIGNS

Masterpiece Designs is the perfect piece of commercial software for your creative and publishing needs. A professional collection of 141 hires 640x400 screens packed with borders, patterns, objects, symbols, and designs. A very interesting collection that will add spice and variety to any printed matter or creative work. The choices in this collection cover an impressive array. This collection can be used for DTP, games, letters, letterheads, background fills or patterns, borders, filling in of outline fonts and background relief, and anything else your imagination can think up. Masterpiece Designs contains many beautiful and elegant patterns to frame your works of art. What you need is in Masterpiece Designs!

For your ease of use, each screen is printed inside a big 8x11, 70+ page, handy reference manual.

When ordering please specify what DISK drive you have and what graphic FORMAT you need.

The collection comes on (4) C1581 or (10) C1541 floppies. Available in either Basic 8 or GEOS format, this impressive collection comes with coded, colored diskettes and manual.

The perfect companion for Basic Paint, IPaint, or GEOS owners. A utility disk is supplied for Spectrum 128 owners so they can clip from these oversized screens. Note: Basic Paint, IPaint, and Spectrum users will need a C128 with a 64K VDC or a C128D for the Basic 8 formats.

Send checks or money orders in U.S. funds. Note: Prices include shipping and handling.

\$37.50 for the U.S.A. (U.S. funds)

\$39.95 for Canada (U.S. funds)

\$52.00 for Canadian funds, please allow 14 days for Canadian funds to clear.

\$52.00 for orders outside the U.S. must be in U.S. funds!!!

Addresses: Parsec, Inc. POB 111 Salem, MA 01970 U.S.A.

GEnie=Parsec Compuserve=76456,3667 Qlink=Parsec

= < 8 bitters do it with bytes > =

Litewear at its best and Galactic Software-Light Years Ahead of the Rest!

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C1541,71,81,C64,C128, IPaint and their respective companies.

# GEOS GEMS -

By Peter T. Hughes

## GeoCZLIBRARIAN

Both geoCZLIBRARIAN v1.1 and geoCZEDITOR v1.1 by Douglas Adams are full-featured MIDI utilities for the Casio CZ-series of synthesizers which run under GEOS 64. These are the first programs of their type for GEOS. Both require a CZ synthesizer and a Passport-type Commodore-compatible MIDI interface to run.

geoCZLIBRARIAN allows manipulation of up to four sixteen-voice CZ sound banks. Voices can be sent to and from the librarian and the synth individually or in banks of sixteen, saved to and loaded from disk in banks as GEOS Application Data files, printed by bank, renamed, swapped between banks, and auditioned from the computer. Also, geoCZLIBRARIAN will convert non-GEOS CZ bank data files created by other librarians into GEOS Application Data files, which can be used by geoCZEDITOR.

geos   clone	geoCZLIBRARIAN
<b>Bank A</b>	CZ.PRESETS3
<b>Bank B</b>	Best Keyboards
<b>Bank C</b>	empty
<b>Bank D</b>	Cartridge #1

OPERATION MENU

I ↑	C ↑	# ↑
I ↓	C ↓	# ↓
L	S	[Printer Icon]
# ?	# #	[MIDI Icon]

in use: **Bank B**

1 Piano 1	9 Rhodes
2 Piano 2	10 Farfisa
3 Funky Clav	11 Low Farfisa
4 Ham B3	12 More B3
5 Clavinet 1	13 Honky Piano
6 Space Keys	14 Grand
7 Bells	15 String/Keys
8 Elec Piano 1	16 Horn/Keys

## GeoCZEDITOR

geoCZEDITOR permits editing of CZ voice data. Voices can be loaded from the CZ individually, or from a loaded Application Data File, created by geoCZEDITOR or geoCZLIBRARIAN. All voice parameters and envelopes can be edited.

Both these programs attempt to emulate features found in other similar non-GEOS MIDI utilities. Therefore they should be easy to use by CZ owners already familiar with MIDI. Documentation and instructions are available as well.

Since the MIDI interface uses the cartridge-port and in order to use these programs with a REU, a cartridge-port expander of some make is necessary. Without the expander, the MIDI interface must occupy the cartridge port, and REU access disabled. Both programs will work in a single drive set-up, but better with a REU. GeoRAM will not work.

geos   get   save	file: geoCZEDITOR	patch: Synth Brass							
<b>DETUNE</b>									
<b>LINE</b>	<b>MOD</b>	<b>+/-</b>	<b>oct</b>	<b>note</b>	<b>fine</b>	<b>VIBRATO</b>			
1+1	OFF	(+)	0	0	7	wave	delay	rate	depth
			<b>DC01</b>	<b>DCW1</b>	<b>DCA1</b>				
<b>OCT</b>	wf/1	wf/2	kf	kf		<b>DC02</b>	<b>DCW2</b>	<b>DCA2</b>	
0	1	0	2	2		wf/1	wf/2	kf	kf
						1	0	2	2
<b>DC01</b>	E				<b>DC02</b>	E			
rate	99	68	50	50	50	50	50	50	50
level	33	0	0	0	0	0	0	0	0
<b>DCW1</b>	S E				<b>DCW2</b>	S E			
rate	67	47	37	26	50	50	50	50	50
level	99	96	52	0	0	0	0	0	0
<b>DCA1</b>	S E				<b>DCA2</b>	S E			
rate	82	36	79	55	50	50	50	50	50
level	99	91	59	0	0	0	0	0	0

## Music Font Package

The Music Font package for Geos which started with the incredible music fonts uploaded to QLINK by HRPRJESSEF was modified by Cpt Spock. The Music Fonts are Music 1, Music 1/2, Music 1/4, Music 1/8, Music 1/16, and Music #&b. There is included a five page Geowrite 2.1

file "Music Font Index". There are two sample composition files: DO-RE-MI, designed to teach a child keyboards, and "Jeannie" (Theme from I Dream of Jeannie). These songs are included to demonstrate the quality that can be achieved with these fonts. This file is a MUST HAVE for any musician/Geos User.

C

C                  D                  E                  C                  E                  C                  E

Doe...                  a                  deer,                  a                  fe -                  male                  deer,

# THE GEOS COMPANION

## *A terrific bargain from RUN magazine*

A Review by Conrad Tillman

### **Beyond the Power Paks**

With the release of the GEOS COMPANION disk, Run magazine has left their popular "Power" series behind, both in name and in the relative quality of the inclusions. In addition to the usual utilities, games, fonts and clip art, the new disk features two full scale applications. These are fully realized programs that push the boundaries of what Berkeley's revamp of the Commodore operating system is all about. You might reasonably expect to pay the price of the entire disk for either one of these showcase items.

The centerpieces, both written by Francis Kostella, are a music synthesizer and a full screen animator. In addition to these, there is utility software to more fully utilize your 1581 and/or REU equipped system. An upgrade to the previously released Pattern Editor and a Write utility plus two games round out the programs, while Susan Lamb's fonts and clip art join a set of sample music files to round out the disk. All programs operate with GEOS 64 or 128, some with 80 columns in 128 mode (indicated by an asterisk following the program title).



**GeoAnimator** (\*) is somewhat complicated to describe. One look at the demo that accompanies the program though, and you will understand the need for complexity. This is **not** the simple Photo Album page flipper found on Q-Link. GeoAnimator uses Photo Albums. Wow, does it use Photo Albums. As I read the documentation, the 64 version can use up to 620 of them, scattered over three disk drives, for a total of over 18000 individual Photos (subject to the overall size limit of 1395K in 40 columns, 1860K for 80 columns). That can make for some pretty detailed animations, but the documentation is not entirely clear about whether the program can actually use this many photos. If so, this could be the first program to take advantage of the larger capacity of the CMD hard drive. Assuming anyone is ambitious enough to create an animation quite that large.

The program is particularly interesting for the use it makes of the modular aspects of the 'System. You create individual frames in Paint, modifying and positioning them as required before scrapping them into Albums. The maximum Scrap size is 5K. Then you create an animation Script in Write, using the language and syntax that GeoAnimator understands. Essentially, the Script tells the program which photo to display where on the screen. There are also commands to specify patterns, draw rectangles, boxes and lines, and to instruct the program to loop or to pause. Then

you use GeoAnimator itself to test your script.

During this phase, the program will identify any errors it encounters as it displays your animation. When your scripts run like you want them to, GeoAnimator will pack everything into a stand-alone executable program, linking several scripts together and providing the option to include a sound file (created with G.O.Bach) up to 5K in size. This program comprises the entire animation. It can be RUN without GeoAnimator, and we can probably expect to see some great user created animations on the telecommunications services. Maybe *geoWorld* will have a future column devoted to reviewing these *geoMovies*. Or maybe "The Director's Chair", a column of hints and how to's on getting the most from it. The program is that impressive.

Besides being a lot of fun, *geoAnimator* could have practical applications. Program demos and video titles are two that come to mind.

As with most GEOS software, *GeoAnimator* is much easier to use than it is to describe. I put together an admittedly sloppy animation with clip art in only a few minutes, and it worked the first time through. Getting the most from this program requires a lot of planning, and there are constraints which must be observed to avoid script errors. The results you obtain will be directly proportional to your efforts, and can make you want to check your computer's circuit board. It's hard to believe what you see on the monitor is coming from your Commodore.



**G.O. Bach** (\*) is a music synthesizer for GEOS. A few years ago, I used to fiddle around with the *Kawasaki Synthesizer* from Sight & Sound Software. When GEOS came out, I wished someone would adapt some of those capabilities into the WIMP environment, which is a natural for that kind of application. Now, someone has. G.O. Bach reminds me a lot of the old *Kawasaki*, with a lot of that program's defects removed and maybe a touch of Activision's *Music Studio* thrown in. The interface is much cleaner, and the editing and sequencing capabilities much improved.

This is strictly a control panel operation though. You enter notes for each of the SID chip's three voices on an editing grid, then play back the results. The good news is that you can edit the notes while they are playing. Set up a loop, play it, and fiddle with the notes until you like it. Kill the loop, then copy and paste either to the same voice or to another one. Fantastic.

Another screen allows you to create sound "patches", which are what you come up with when you

adjust envelope, attack/ release/ sustain/ decay, filtration, and modulation switches and sliders as shown in the illustration (40 col. version shown). A random generator will create patches with arbitrary settings with sometimes appealing and always surprising results. There is a provision for a single voice to play multiple patches in its sequence of notes, allowing more varied compositions. The third screen provides control over the exact shape of the modulation applied to the sound you've created.

For the most part, this program is everything I would have hoped for in a GEOS mode sound synthesizer. My only complaints are nit-picky things that I'm almost embarrassed to mention, but here goes. The utilization of the GEOS interface is excellent and color is used to good effect. However, there are a couple of glaring exceptions to the interface on the grid edit screen. It is necessary to remember arbitrary key combinations to access some essential functions. To make matters worse, the copy and paste keys are opposite other GEOS programs that use keys for these operations (geoDex, the Notepad). To Copy, you press **C**, and to Paste, you press **C= + C**. This seems an unnecessary violation of convention. I really like clean displays, but GEOS programs ought not force the user to remember any commands, and if they must, the commands should be consistent throughout the 'System. As I said, it's nit-picking to complain at all about such an overall incredible offering as this one. It is an absolute pleasure to work with, and is apt to replace such programs as the Music Studio entirely.



A companion to G.O. Bach is **GeoMusicPlayer**, a tape player metaphor with Play, Pause, Fast Forward, and Volume controls. This program plays the files created by G.O. Bach. It is written by Wayne Dempsey, as are the following programs:



**GeoWrite File Merger** combines Write documents into a single file. The appended documents may not contain graphics, and will conform to the format parameters of the first file, so the program is not a cure-all for every situation. Nonetheless, it can be handy for putting together large projects or printing several documents (or several copies of a document) unattended.



**Pattern Editor 2.0** is a revamp of the original Pattern Editor from the first Power Pak disk. It now operates with GEOS 128 as well as 64, and allows you to alter the system patterns offered by GEOS. The altered patterns can then be used in other applications, with unusual and interesting effects. The altered patterns, when LOADED, replace the standard ones in memory, so it may be a good idea to SAVE the standard file to enable its recovery without rebooting.



**3-D geoBreak** is a three dimensional version of the classic Breakout arcade game. It presents a "wire frame" display of 3-D bricks and sidewalls, and is not as easy as it looks. I personally am leery of subjecting my mouse to such potentially rough environments, but I've never heard of any problems. Still, I would swap to a joystick for this one.



**Decode!** (\*) is a game by Francis Kostella, this one a deductive reasoning puzzle. It is based on the relatively new appearance of multiple colors on GEOS screens outside Paint, and involves deducing the colors and their sequence in a hidden column of the playing grid. This program also includes a soundtrack.

Finishing out the programs is a set of utilities from Jim Collette, known to *geoWorld* readers as Comm-Plex software:



**1581 Boot Disk Maker** has a fairly self-explanatory name. Use it to make a 3.5" GEOS boot disk. This is a true, "boot from scratch" disk that doesn't rely on the presence of an REU. It will perform any AutoExecute files as it boots the 'System, and allows the creation of fully customized boots. The problem with this is that GEOS does not like custom boot disks, and often destroys them. Probably for this reason, the docs recommend write protecting the boot created. Unfortunately, this defeats what is for me the prime reason to have a custom boot. A write protected disk denies the use of the Calendar, Notepad, GeoDex, and most other applications that it is convenient to have available immediately. That's only one way of using a custom boot though. See below for more on the subject. This program requires an original BSW boot disk. It will not work with copies.



**Batch Copier** (\*) allows an alternate method of selecting multiple files for disk to disk copying, one slightly more convenient than the v2.0 deskTop. Its real strength is in SAVEing batch lists of frequently copied files. These lists can be edited at will. Invoking a batch list from the copier (or from the deskTop) will copy all the files named in it from one disk to another or into the REU. It works best in conjunction with the REU and high capacity drives. There is a special provision enabling it to work with the following program:



**AutoLoader** (\*) is an AutoExecute file that automatically will LOAD the file specified in its INFO block on booting the system. Together with the 1581 Boot Maker and Batch Copier, these programs comprise a system for automating the boot process so that you arrive in the deskTop only an icon click away from a fully LOADED RAMDisk.





**Clip Art** from Susan Lamb comprises two geoPaint documents, over three dozen images. These are centered around holiday themes and are a welcome addition to anyone's clip art library.



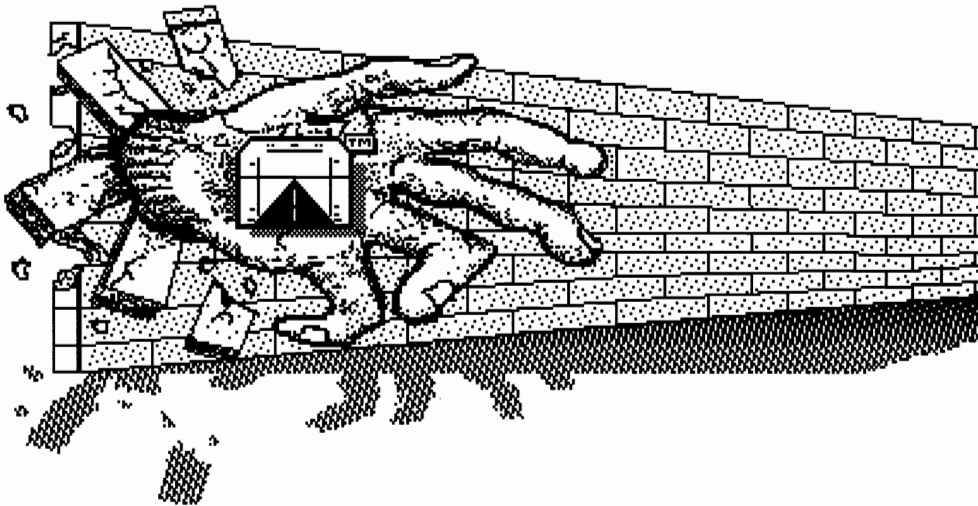
**Fonts** from Susan Lamb: seven more great fonts, including a couple of dropped shadow and some nine point designs. One of these fonts headlines this review.

As usual, the programs on this disk are not copy protected and require no installation. The accompanying manual is clearly written and complete, with the clip art and fonts displayed on the back pages. At \$24.97, it will be hard to beat the value this disk offers to GEOS users. It opens whole new avenues for continuing GEOS development, and is a fully realized preview of the shape of things to come for the computer that refused to die.

ReRun  
P.O. Box 802  
Peterborough, NH 03458-9971  
(GEOS Companion)

## Apple & Commodore GEOS Fonts

A series of good-looking GEOS fonts in a variety of sizes for word processing and desktop publishing for \$10. (\$15 if you would like both the Apple & Commodore disks.) Illinois residents please add 7% sales tax. Send to:  
Terry R. Mills  
P.O. Box 3062  
Barrington, IL 60011



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Commodore is a registered trademark.

## GEOS Programs Directory

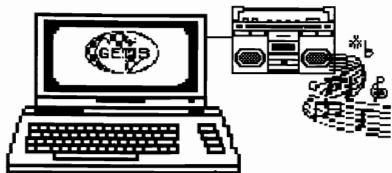


This is a comprehensive laser-printed listing of all information about most all Commodore GEOS programs available. There are over 200 programs listed including programs from Berkeley Softworks, third party software companies, and public domain authors. This guide will help you find the programs that will do almost anything you want to do in GEOS.



Send \$5.00 to Peter T. Hughes, 151 Randolph Street, Canton, MA 02021





# The Sound Connection

*GEOS deserves to be both seen and heard ...*

By Conrad Tillman

## Silence is Golden?

In the past, dedicated GEOS users did need to be overly concerned with the quality of the sound from their systems. Who really needed to hear the XT-like beeps and buzzes that GEOS software sometimes provided? I usually kept my monitor's sound turned off. Until recently, that is. Some of the programs on *Run Magazine's GEOS COMPANION* demonstrate that quality sound is not only possible within the 'System, but can greatly enhance its capabilities.

## You Heard Right

Thanks to Francis Kostella's contributions to the above mentioned disk, GEOS is now an aurally as well as visually appealing environment. If you're limited to the tinny little speaker within your monitor, you are missing out on the quality of sound that your Commodore's SID chip is able to produce. With only a couple of cables and adaptors, you can connect the audio output of your computer to any sound system from an inexpensive "boom box" to a full-fledged hi-fi. All that is required is that your sound equipment have provisions for external input.

## Getting Hooked

The external inputs on the sound equipment usually take the form of a pair of jacks located on the side or back panel with the label **EXT**, **Line IN**, or **AUX**. Some devices utilize RCA type jacks for these connections, while others use a single stereo jack of the type that is used with headphones. In the latter case, you'll want to be sure to get a monophonic plug to deliver sound to both channels. Otherwise, use the **Y** connector shown in the illustration to accomplish the same task. This assumes, of course, that you're using stereo equipment. For mono systems you will not need the **Y**.

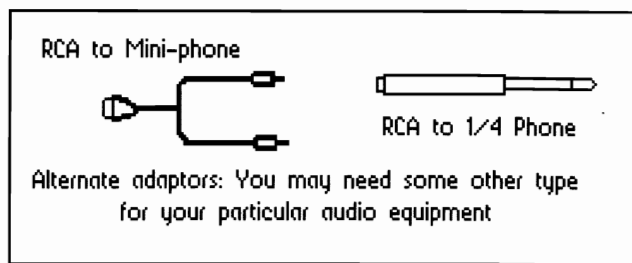
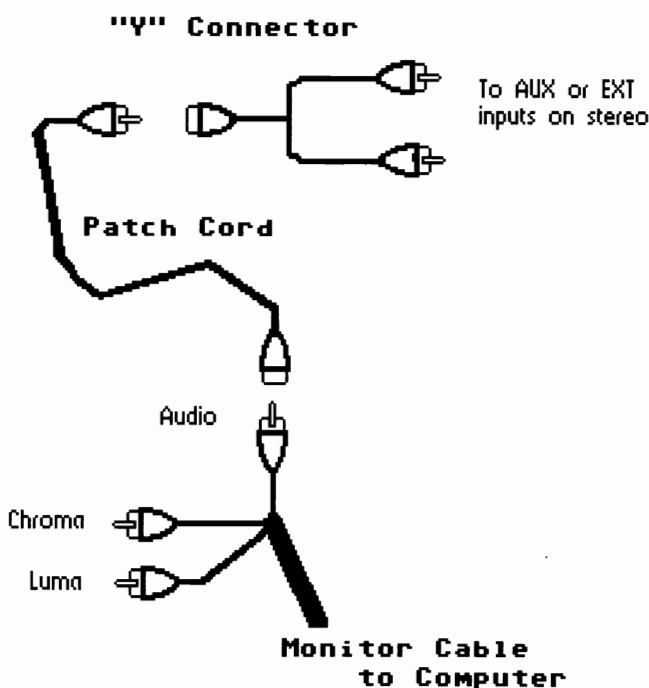
These specifically labeled inputs are the only safe connections to your equipment. With some units, it is possible to use the microphone inputs, but this is not always a certainty. A manually controlled "gain" or "level" adjustment is needed on the microphone circuit to ensure against possible damage to your sound equipment (start with the gain set to zero and adjust it slowly upwards). If you have any doubts about the **Mic** input, don't use it.

As long as you have a way to feed external sources into your sound equipment, the connection itself is extremely straightforward. It is only a matter of obtaining the proper patch cords and adaptors, which

are readily available at any Radio Shack store. The accompanying diagram shows it all. Just re-route the audio signal from your monitor cable to the appropriate inputs on your sound equipment. A composite cable is shown, but the same principle holds for RGB. Keep the patch cords as short as possible for best results, and don't use more adaptors than is absolutely necessary. Otherwise, you may wind up with inadequate volume.

Once you've heard the true sound of your computer, you'll wonder how you ever stood listening to it through your monitor's speaker.

## The Sound Connection





# Extra G.O. Bach Documentation

By Francis G. Kostella

Due to time and space limitations surrounding the production of RUN's GEOS Companion disk, a large portion of the supplemental documentation for G.O.Bach did not appear in the Companion manual. What follows is a description of some of the undocumented details you'll need to know to access the more complex functions of G.O.Bach.

## GRID EDIT SCREEN

The center of the grid edit screen is a large grid. Picture a large "piano roll" with a window that can move around it. The visible portion of the roll is the large grid on screen. The cells on the left side of the grid represent notes of the lowest pitch, cell on the right represent higher pitches. When a song is played, the row of cells at the top are played first, with each row below it played in sequence.

The SID chip has three voices, thus there are three "piano rolls", one for each voice. Change from voice to voice with the number icons or the number keys. To enter a note into the song, click the mouse button on the cell below the piano key for that pitch. Alternately, move the pointer around with the cursor keys and use the RETURN key to enter a note or the SPACE bar to clear a note (make the note a rest).

When you create a new song, G.O.Bach will start the song with one blank note on each of the three voice's grids. There will also be a row that contains no note but does have a "Kill Voice" command, if you try to enter a note on this final "command row", the row will be moved down and a new note row inserted before it. Another method of entering new note rows is to use the INSERT key, place the pointer on the row you want to insert a note BEFORE (the row where the new note should appear) and strike the INSERT key. To delete a note row, use the delete key with the pointer on the row to remove. To copy a screenful of notes, position the first row at the top of the grid and strike the "c" key. To copy this screen of notes to another area of the grid, position the row where the copied section will start at the TOP of the grid. Then hold down the "C=" logo key and strike the "c" key.

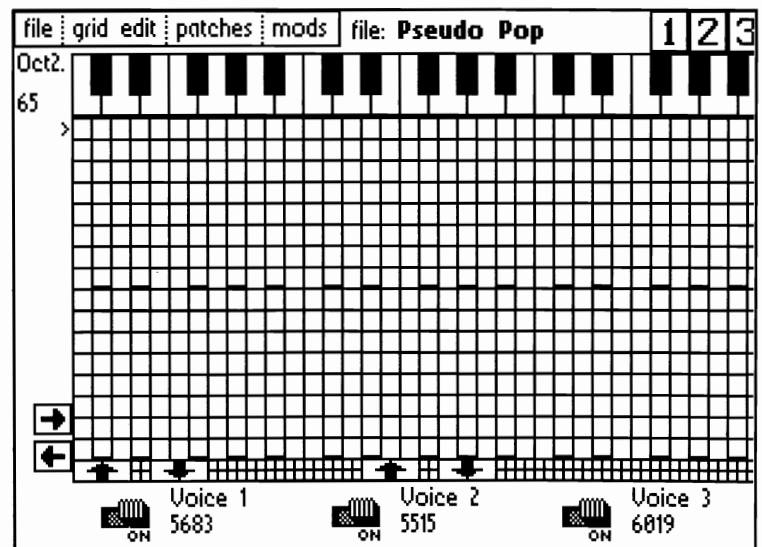
While entering notes into the grids, you'll want to listen to your composition, hit the "p" key to PLAY. While a song is playing you can alter notes, or move the grid around. To listen to the song from the current top (visible) notes of the three grids, hit the "\*" key. You

can turn on or off each of the three voices with the switches on the border of the grid. While a song is playing, hit the "@" key to stop, the "d" key to play at double the tempo, or the "f" key to fast forward through the song. When using "d" or "f", you can't enter notes or change other parameters, any key will cancel the tempo speedup.

Call up the Tempo Change Dialog Box with the "t" key. Any tempo changes made will change the tempo of the entire song. G.O. Bach considers each note row as one beat. Thus, one screen displays 16 beats.

There are four Voice Control commands you can enter in the Voice Control Dialog Box. Call the Dialog Box up by placing the pointer on the row where you want the command to be executed (Voice Control Commands are executed BEFORE the note on that row is played) and hit the UPARROW key. The commands are executed in the top to bottom order presented in the Dialog Box, but we'll detail them in reverse order:

**KILL VOICE** Kill the current voice, ie., stop this voice from playing any more notes. When you create a new song this command is already in place. Turning on this command will destroy all the notes following it, so don't use it casually. If you need to turn off a voice, but don't want to use the Voice ON/OFF switches, create a blank patch with the volume set to 15 and change the patch of the voice you want to turn off.



**CHANGE PATCH** Change the current voice to the patch name/number before playing the note on this row. Select the patch by clicking on the number box to the right of the switch. Start all of your songs with a CHANGE PATCH command, otherwise the program playing the song won't know which patch to start with.

**START REPEAT** Mark this position as the place to return to when a GOTO REPEAT command is found. Set the number of times to repeat a section (0-255) in the number box to the right. If the value is 0, the section is played once and never repeated. If the number is 7, the section is played once, then repeated seven times, FOR A TOTAL OF 8. When the value is greater than 0, the first note to be repeated will be the one on the current row. (Remember, voice commands are executed before the note on the current row.)

**GOTO REPEAT** Before playing the current row, check to see if the number of repeats is greater than 0, if it is, then start playing notes where the last START REPEAT command is.

There are a number of details about using REPEATS that need to be stressed: GOTO REPEATs and START REPEATs come in pairs, using them in any other ways will not repeat notes properly. Using a second START REPEAT before a GOTO REPEAT will cancel the first START REPEAT. Each START REPEAT has a counter, when the counter reaches 0, then that START REPEAT cannot be "jumped" to again (unless the song is restarted) so using two GOTO REPEATs after one START REPEAT will effectively cancel the second GOTO. You can use both a GOTO REPEAT and a START REPEAT in one note row if you have sequential repeating sections that you want to play without a pause in between them.

## PATCH EDIT SCREEN

The patch edit screen of G.O.Bach is set up like a synthesizer control panel. While you are creating and developing a patch, you can test the way that the patch sounds by playing the keys on the bottom row of the keyboard as if it were a piano keyboard. On the bottom left side of the patch edit screen one octave of piano keys is drawn for your reference. The letters on the picture show which keys play which note. You can change the octave that the keys will play by striking the number keys 1-8.

While editing a patch, you can check the changes you've made to a patch that is entered into a song by using the "p" key to play the current song on the grid edit screen. Hit "p" again to stop. While the song is playing, you cannot change any patch parameters.

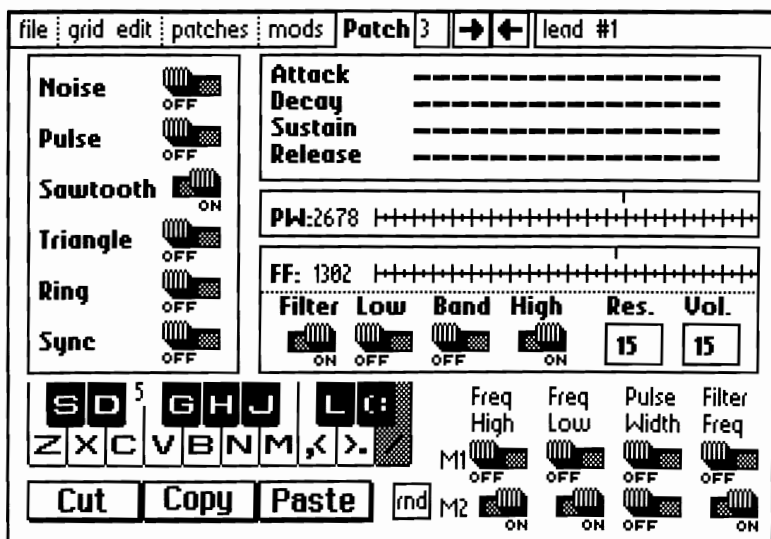
When changing Pulse Width or Filter Frequency, click on the box then change values with the following keys:

+	up 100
-	down 100
crsr up	up 12 or 6
crsr down	down 12 or 6
crsr right	up 1
crsr left	down 1

In all other cases, you can change the values of the different parameters by clicking on the switches with the pointer.

**WAVEFORM NOTES:** Each SID voice has four waveforms, using more than one per voice does not always produce an audible result, especially with the NOISE waveform. The SYNC switch synchronizes the pitch of the current voice with that of the previous voice, ie., voice 1 syncs with voice 3, 2 with 1, 3 with 2. RING operates with two voices, the same way that SYNC does (voice 1 with 3, etc.) except that RING will "Ring Modulate" the TRIANGLE waveform of the current voice, if it is switched on, with the TRIANGLE waveform output of the prior voice, regardless of if it is switched on.

**FILTER NOTES:** The quality of the SID's filter has changed over the years and varies from computer to computer, especially on older C64s. Be aware that there are three voices but only one filter, when using the filter on more than one voice that the LAST PATCH ACTIVATED will dominate the filter controls. The voices are activated during each note in reverse order: voice 3, then 2, then 1. For example, if voice 1 is using a LOWPASS setting and voice 2 is using a HIGHPASS type, whichever one had it's patch set last





will determine the filter type. If both voices are activated on the same note, say the very first note in the song, then the filter will end up being of the LOWPASS type. Your best bet is to either use the filter on one voice only, or use the same type of filter on all the voices using the filter at the same time (but if different patches use the filter differently, but will never be played at the same time, it doesn't matter.)

## MODULATOR EDIT SCREEN

There are two software oscillators/modulators. They correspond to a synthesizer's LFO (low frequency oscillator). Use the icons to select the modulator to edit or use the number 1 or 2 keys. Additionally, you can enter a title and song information by selecting the TITLE icon. Here, you can enter 4 strings of up to 80 characters each, just click on the row you'd like to edit.

A single modulator can be from 1 to 64 steps long. Each step can hold a value from 0 to 63. Additionally, you can SCALE the modulator with a value of 0 to 255. An explanation of how G.O.Bach processes modulators is in order: When a song is first begun, both of the modulators start at the first (leftmost) step, every 1/60 of a second the current modulator step is moved to the right. After the final (rightmost) step, the first step is used, creating a cyclic pattern, a waveform. If any of the modulator switches are ON in the patch edit screen, the modulator value (0-63) is added to the current value of one of the SID registers. When using the modulators with the Pulse Width and Filter Frequency registers, the value of the modulator is first multiplied by 64 and 32 respectively, to create a more pronounced effect. Additionally, the SCALING value determines how many 1/60s of a second to skip between updating the modulator step.

A fine description, I suppose, but you'd probably like a practical use for these modulators. Say that our objective is to create a patch that changes dynamically, and does so in the same way when each note is played. For example, we'll use a modulator with Pulse Width to create a sound that "sweeps" the Pulse Width from low to high during each note. First go to the patch edit screen and create a patch with the Pulse Width waveform. Make the Sustain and Release values high and set the Pulse Width to 100 or so and click on the Pulse Width switch for modulator 2.

Move to the grid edit screen and create a repeating series of notes as we did in the Tutorial. Now here's the important part: strike the "t" key to change the tempo. Set the "Thirtieths of a second" to 10. The importance of this is that the tempo is measured in 1/30ths and the modulators in 1/60, so if we want the modulator to complete one cycle for each note played, we'll have to

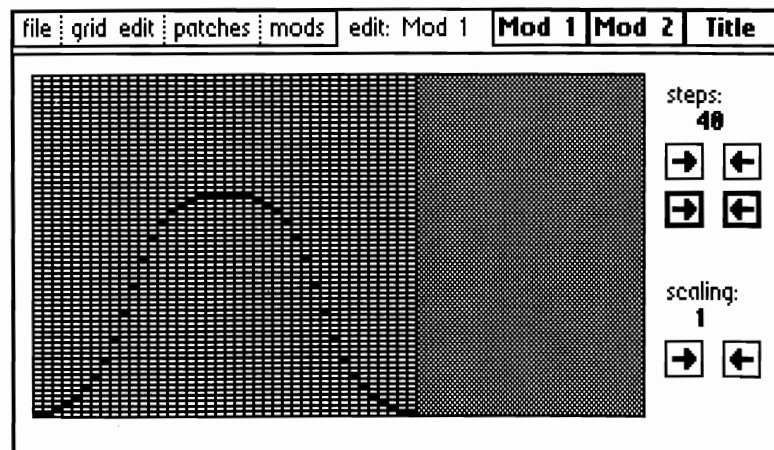
adjust the tempo and the modulator steps to the same value.  $10/30 = 20/60$ , meaning that we have to edit modulator two so that it has 20 steps and no scaling. Go to the Moulator edit screen, select "mod 2" and use the "steps" icons to change the number of mod 2's steps to 20 (remember that the "bold" icons move the value by 10)

Remember that we want to "sweep" the Pulse Width from low to high, so position the pointer on the leftmost (first) row all the way to the bottom of the grid (at 0). and hit the RETURN key to enter a zero value, now CURSOR-RIGHT once and CURSOR-UP three times and hit return. Repeat this until you've entered a new value for all 20 steps. This is a steep RAMP (or SAWTOOTH) waveform, similar to the one we made in the Tutorial. Hit the "p" key to play the notes you entered in the grid (any key to stop). The Pulse Width should be noticeably changing, "sweeping" from low to high. Try changing the SCALING to 1, 2, 4, and 8 to demonstrate how SCALING "stretches out" the modulator waveform. If you're having trouble hearing the effect go to the patch edit screen and switch modulator 2's "Freq. High" switch ON and hit "p" to play.

For detailed information about electronic music synthesis and how different sounds are created electronically, visit your local library. Most large libraries have sections on electronic music or are able to borrow the books from other libraries. While you're there you can also check out books on music theory and computer music. Good luck, HAVE FUN, and I hope you enjoy G.O.Bach. Comments or questions can be directed to:

Francis G. Kostella  
PO Box 7414, Pittsburgh, PA, 15213, USA

or by Email to: CompuServe: 72220,3117  
or visit CMBPRG's GEOS Programming Forum  
or: FIDONET: Francis Kostella NorthStar BBS  
node 1:129/53



# An Affordable Laser Printer

By: Jeanine Olsen Cutler

Ever since I was first introduced to geoWorld two years ago, I have wanted a Laser Printer. I could hardly believe that this beautifully printed magazine was done entirely with Geos. The difference -- Laser Printing.

There wasn't any way our little Mom and Pop campground could afford an Apple Laser Printer.

I read everything I can find on Laser printers and PostScript. I talk to so many people about them I can't even count them all. I receive suggestions like: Get a computer, not a toy. Buy a computer and a Desk Jet. I didn't want a new computer, as my two Commodore 128's are completely set up with 1571's, 512K Rams and 1581's. Not to mention **ALL** the software. But, most importantly, I like them...they are user friendly.

Peter Hughes sent me samples of the HP Desk Jet+ for the Commodore and the Amiga. He felt that this wasn't the quality of printing that I wanted. True, it did a nice job on his Amiga, but, not on the Commodore using Geos. I'm sure there is someone out there that could come up with the proper cartridge and printing codes, so it could be very compatible.

Finally about a month ago three different suppliers said I needed a Hewlet Packard Laser Jet IIP Printer with an additional 2Megs of memory and a Pacific Page PostScript Emulation cartridge. Also, since I had a Commodore I would need an interface, but they couldn't help me with that. The HP IIP worked using the LaserJet Ser code but the cartridge wouldn't work on GeoLaser or GeoPubLaser. Why? -- Wrong cartridge! I sent it back and got the Pacific MacPage cartridge. When it came I plugged it in, set up the printer, clicked on GeoPubLaser and printed out a document I had prepared while waiting for the cartridge.

When the document came out of the HP IIP, I could hardly believe my eyes. The printing was so beautiful, I thought that I had died and gone to heaven.

The set up instructions that came with the HP IIP are very good. **NO**, they are excellent! Next you install the additional memory board. The Pacific Page 1-2-4 Upgradeable board was easy to install, so save the \$30.00 installation fee and do it yourself. I purchased it with 2 Megs, which gives me a total of 2.5 Megs. If I need more memory, ( Pacific supplies you with the proper chip numbers) I will purchase more chips; push them into the

board, flip the switch which is already on the board and presto more memory.

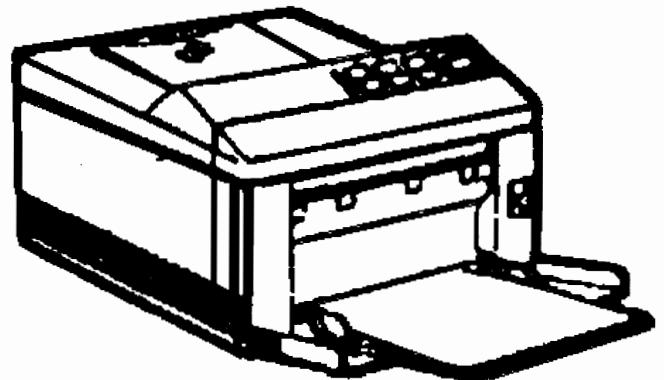
To install the Pacific MacPage cartridge is simple. Just plug it into the cartridge slot, turn on the HP IIP. When it has warmed up and gone through its self test, you push a couple of buttons on the front and it tells you the cartridge is installed.

With the MacPage cartridge you get a RS 232 interface which is designed for the Mac and you can't use it on the Commodore. I purchased an Omnitronix deluxe RS 232 which is just for the Commodore.

I noticed in the Omnitronix book that this interface will send at 9600 baud rate (which Geos uses) or 19200 baud rate. The HP IIP will receive information at either rate, by pushing a few buttons. However, it has to be set at 9600 baud because of the limitation set by GeoPubLaser in Geos. (Unless Jim Collette has come up with a Laser Patch that I'm not aware of.)

According to the Hewlet Packard IIP manual there are a lot of features on this little machine that I would like to use --- example: the landscape feature. (11 1/2 X 8 printing) But right now I do not know if these features will work with our Commodores and Geos. The way it is set up now, it can be used with GeoWrite-GeoLaser, GeoPublish-GeoPubLaser GeoPaint-LaserWriter 2.1. The printer output is a very high quality. Total cost is less than \$1700.00. Compare that with an Apple Laser Writer.

Some folks may be concerned about the expense on the toner cartridge for the HP IIP. They are about \$85.00 discounted price. One is included with your printer. **You**



can recharge these cartridges about 3 to 5 times. (I already recharge my Canon copier cartridges.) You get recharging instructions free with your first order of supplies from Chenesko Products in NY. CP's phone is 1-800-221-3516. Give them a call and ask for their free catalog. Besides, when you recharge your cartridges, you are helping the environment as these (throw away) toner cartridges are made out of non-decomposing parts.

With the Pacific MacPage cartridge, you also receive two 3 1/2" disks which contain the matching screen fonts for all 35 fonts and for Pacific Data's 25 Cartridges in One. (Suppose to be down loadable.) Unless you have a Mac, you can't read the disk. So you have disks and an interface, you can't use.

In January, 1990, I started checking out prices and requesting information from various suppliers. One supplier told me to pack up my computer and go to a store where the HP was sold and see if it would work. If it did then I could order it from them. That company was immediately scratched from my list. I wouldn't buy a paper clip from them. In fact, the only one that **wrote** to me and **sent** me information was Maurie West at Bulldog Computer. I would call her, ask her questions and if she didn't know the answer she would find out and call me back. Maurie is a very knowledgeable person and very nice to do business with; besides having the best price.

Maurie's phone number is 1-800-438-6039 Ext. 360.

Since I live out in the country, everywhere I call is long distance, I'm not on Q Link. I rely on getting answers to my questions by writing letters or calling people on the phone. I would like to thank my geoWorld friends who have taken the time to talk to me and answer my letters. They are: Peter Hughes, Roger Eller, Jim Collette and Randy Winchester. **Thank you...Thank you...Thank you...Thank you!**

If anyone reading this article has any questions that I may be able to help them with, please feel free to contact me. Jeanine Cutler, Lakeshore Campground, R#1 - Box 230, Fair Play, SC 29643. Phone (803) 972-3330. Sorry guys, no 800 number. As it is, my phone bill looks like the National Debt each month. --- Happy Geosing!

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\*Seller must provide a finished version of the product being sold for GEOWORLD to review.

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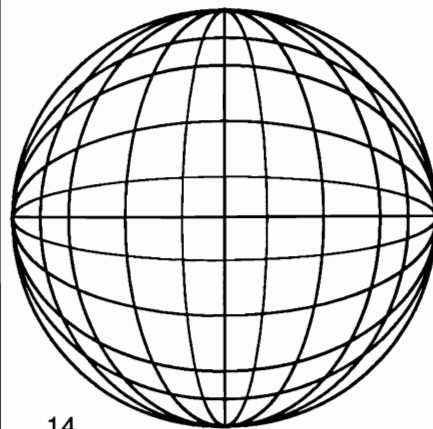
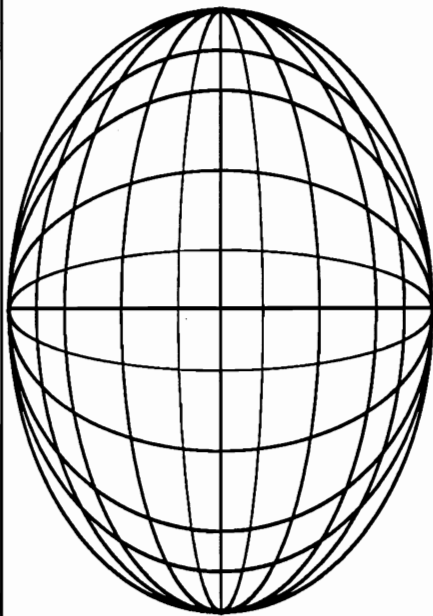
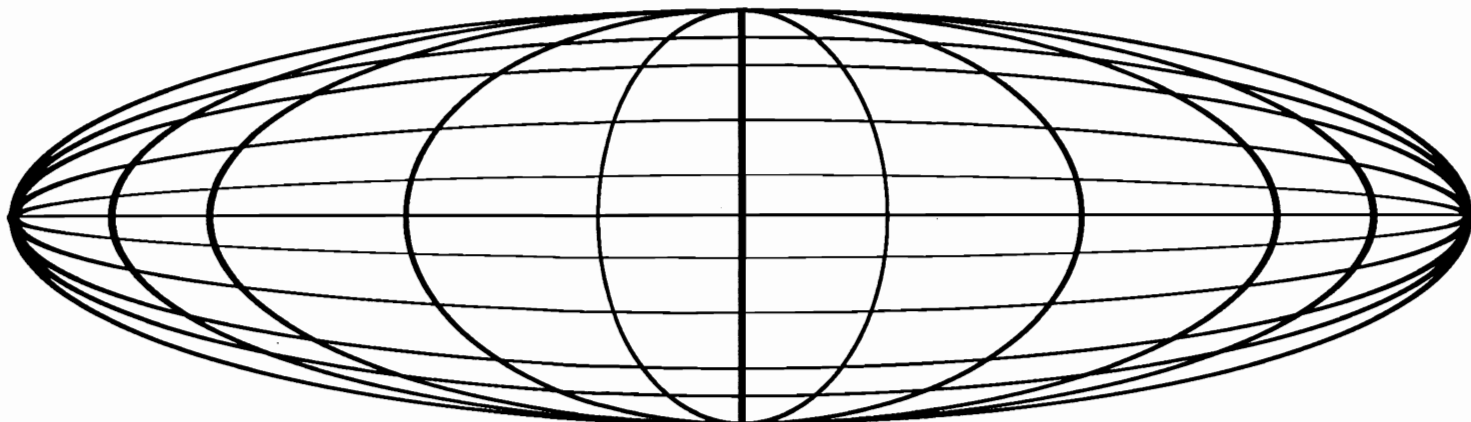
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## Encapsulated PostScript Files

Did you know that some of your geoPublish postscript files are compatible with the popular Macintosh program, Aldus' Pagemaker? Yes, by adding a few additional lines of postscript to the beginning of your file, the Mac will recognize the file as a graphic image rather than text. The advantage to this is the ability to create a full page object-oriented graphic/text image in geoPublish, and place it in a pagemaker document for re-sizing and repositioning anywhere on the page. Also, you can overcome some of the software limits of geoPublish and geoPublaser. One example of this is a user defined number of thumbnails on a page instead of the default of sixteen. Another example is sideways geoWrite text. We've all wanted the ability to print folded 8.5"x11" booklets (4.25"x5.5" folded). By placing two geoEPS files beside each other in an 11"x17" Pagemaker file with a WIDE orientation, the file can be printed at 65% to accomplish this task. In order to do this, however, you must also remove a few PostScript commands from the end of the file. The last command in the file should be "SaveObj.". Everything after that should be deleted because the files will still print on separate pages otherwise. I know this will not benefit everyone in GEOS land because not everyone has access to a Mac.

My experiments with this have not been successful with ALL files. Best results were achieved with files consisting of text using LW fonts, photoscrops, and simple object-oriented graphics.

Here is how to create a geoEPS file: After you have created a patched version of geoLaser or geoPubLaser with PS-patch, print your PostScript to disk as you normally would. Use Wrong-is-Write to convert the TRUE ASCII PostScript file to a v2.1 geoWrite file. Make sure you have Text Manager and my "EPS INSERT TEXT" file on the same disk that your geoWrite Postscript file is on. Open the geoWrite PostScript file and copy and paste the EPS INSERT TEXT into the beginning of the file. Click "Page", and "Next Page" until you get to the end of the file. Then delete all commands after "SaveObj.". The file MUST end with "SaveObj" if you plan to place more than one geoEPS file on a Pagemaker page, otherwise each file will print on a separate page. Now that you have made these changes to the file, you need to run Wrong-is-Write again and convert the file from a v2.1 geoWrite file to a TRUE ASCII file. With the file now back in its pure PostScript text format, rename the file in all caps, and give it an ".eps" extension. You now have an EPS file that can be placed into a Pagemaker document as a graphic. The image will not display on the screen; only a gray bounding box will appear.

I have tried placing geoEPS files in other popular Macintosh programs, but only Pagemaker would completely accept and print the foreign material. Aldus' Freehand would allow the file to be placed, re-sized, rotated, and altered in several other ways, but ALWAYS resulted in a PostScript error when I tried to print it. I can only speculate that this is because geoPublish and Pagemaker are so similar anyway.

I have uploaded a text manager file to Q-link which contains the necessary text to be inserted into the PostScript file which makes the Mac recognize it as an eps file. Search the libraries for "EPS INSERT TEXT". Enjoy!

Roger Eller





## GeoPublish Set-Up Suggestions *By Dick Estel*

Recently I have been helping people who are interested in using geoPublish but who find the complex manual hard to follow.

Let me be at least the 3rd or 4th to say that geoPublish is NOT an intuitive program. You MUST sit down at the computer, load the program, flip back and forth through the manual, and STRUGGLE to create your first document. Or you can get help from someone who has already done all this.

I have tried to compile a few tips on work disks and system set-up which I learned by experimentation.

### **SINGLE 1541 DRIVE SYSTEM**

If you have a single 1541 system, you MUST possess an extraordinary amount of patience. However, you CAN accomplish the job, especially with a little advance planning.

You will need to have the geoPublish program, your text files, and the desired font files on the work disk. Since the program itself takes up 99K out of the 165 available to you, good planning is a must. Limit yourself to 3 or 4 fonts. If you are creating a multiple-page document, and want to use different fonts on different pages, it will probably be easier to do one page at a time. (If you are familiar with using a font editor, you could make a copy of a font and eliminate all but one point size to reduce the amount of memory used by the font file).

BSW's instructions normally tell you to put the Desktop on each work disk, but I say leave it off. It uses another 35K. When you close a document, you will be prompted to insert a disk with the Desktop. This is a small price to pay in order to have that 35K available for your work.

If you are going to use Photo Scraps in your document, the scrap must be on the work disk when you first paste it in. After that the Photo Scrap can be deleted. If you have a number of scraps to use, create or copy them to a photo album on a separate disk, then copy each scrap to the work disk as needed, paste it into the document, and copy the next one. Again, this is a bit of trouble, but the alternative is having the Photo Manager and Photo Album on the work disk, probably an impossibility if you are using more than one or two fonts.

The text files also have to be on your work disk. The good news is that text files of the size normally used in a newsletter usually are one or two KB.

In order to print your document, your default printer driver must be on the disk. These are mostly one or two K, so it may not hurt anything to have it there from the start, but you don't need it till you actually print. Leave it off till needed if space is tight.

### **TWO 1541 DRIVE SYSTEM**

With two 1541 drives you are not out of the woods but the sky shows though a little. With this set-up, you should put your geoPublish program, font files and photo manager/photo albums on one disk. If you use a lot of fonts, you may not have room for an album on the disk--you may still need to create scraps on a separate disk and copy them as needed. When it's time to print, your printer driver will also have to be on that disk, but any photo albums and accessories can be removed.

Your text files should be on another disk. Also use this second disk to create your geoPublish document. You will be able to create a document several pages long.

When you print, remember--program, fonts and printer driver together; geoPublish document and text files together.

### **1571 AND 1581 DRIVES; 1750 REU**

When one of your two drives is a 1750 (512K) REU, a 1571 or a 1581, you have enough memory that you can almost waste it. You don't need my help. With a single 1571 drive, you still should be able to work comfortably with everything you need on one disk.

### **1764 REU**

If you are using the 1764 REU, it emulates a 1541 drive. You could simply follow the two-drive instructions above.

However, because of the faster access time, my recommendation is to work entirely in the REU. When you create your document, limit it to two-page files. Copy to the REU the program, the geoPublish document you are working on, the text files and fonts it uses, and a photo scrap if desired. In some cases you may need to copy just the text files and fonts for the PAGE you are working on. With this set-up, everything you normally need while working is in the REU, for very fast access. When you finish working on a page, you may have to delete the text files from the REU and copy in the ones for the next page. Even with this extra effort, this method is faster overall. Don't forget to save your files to a real disk before deleting them from the REU or turning off the power.

When you close your document, you will need to have a disk with the DeskTop in the actual drive.

I have commented before that GEOS is a program that stretches Commodore computers to their very limit. I suspect BSW is responsible for more sales of 1581 drives and Ram Expanders than all of Commodore's advertising. But with a little patience and planning, you can accomplish your goals with any setup.

(Dick Estel is editor of The Interface, newsletter of Fresno Commodore User Group/64UM, Fresno CA; and is DickE on Q-Link.)



# Inside the Offices of BSW

By John R. Tackett

While on vacation in San Francisco I had the opportunity to visit **Berkeley Softworks**. I would like to share my experience with you. Upon exiting the elevator I was expecting some big sign proclaiming that I indeed reached the promised land but instead found myself wondering if I had gotten off on the wrong floor. Luckily the receptionist informed me that I had indeed reached my destination.

I met with Keva Beckley and Angela McKenna, the Customer Service Representatives at BSW. They are the nice people you talk to when you call the Customer Service line. Keva told me that they receive an average of 40 -50 calls per Customer Service Rep each day. Most calls tend to deal with printer drivers and the installation of software. Now I know alot of you have voiced complaints about the Customer Service line at BSW but remember this, they not only answer calls from GEOS for the Commodore but calls from GEOS for the Apple II as well. (Just a little helpful hints from the Reps before placing your call... read the manual completely through. You might find the answer without placing a the long distance call. Or write all of your questions down at once and ask them in one call.)

**Berkeley Softworks** takes up the whole floor of the building they occupy. Software Development , Customer Service , Product Replacement, Marketing, Sales, Finance, Manual Writing, and the Executive Offices are all located on the same floor along with the offices of the boss, Brian Dougherty. If you need manuals or products replaced, this is where it is done. Contrary to popular belief they do not fill orders from this office. All orders are sent from the fulfillment center in Southern California

During my visit Keva answered alot of questions that I had. I was amazed to find out that BSW was started by a group of people who went to U.C. Berkeley. For those of you who are wondering, the logo of BSW is the campinile (bell tower) at the U.C. Berkeley campus.

Of course, being a Commodore user, I was concerned about the future of GEOS for the Commodore line, especially with the recent release of GEOBasic by RUN magazine. BSW felt it was necessary to release the product but did not have the resources or manpower to do so. Instead of holding back on the project , BSW sold the unfinished product to RUN magazine to obtain exclusive distribution rights to GEOBasic. (So if you have any problems with GEOBasic contact RUN, not BSW.) As for the GeoMouse and GEOProgrammer 2.0, they will not be released at anytime. As to the future of the Commodore market, third party support is at an all time high, but I think that we as Commodore users need to realize that BSW is not the only software company in the world. While other companies were dropping the Commodore line BSW has stayed in there. (Commodore

Computers themself come to mind.) As hard as it may be to swallow, the 64/128 market is dying. Just checkout the amount of software available at your local software store. But despite this fact, BSW continues to provide excellent customer service as well as continuing to market a valuable and worthy product.

Most of you are aware that BSW has entered the Apple II market and will soon be entering the IBM market. This is by no means a sign of them dropping the Commodore line. As a business major I realize that it makes good sense to expand into new markets. Especially if these markets are naturals for a product such as GEOS. It is the philosophy and intent of its founder, Brian Dougherty, to release quality products for the sake of need, not for the sake of money. Look for a name change from Berkeley Softworks to GEOWORKS. BSW will remain Berkeley Softworks in the Commodore and Apple worlds but the new name will launch GEOWORKS into the IBM PC and PC Compatible systems.

I think the thing that impressed me the most was the relaxed, easy going feeling I got while I was there. Despite contrary belief, BSW is not some high and mighty company but instead a good company with a great product to sell. Brians' office's is accessible to all and everyone enjoys a warm working relationship. I toured on a Friday so everyone was dressed casually. Outside of the casual appearance BSW is a tightly run company. When I left there I had a good feeling about the future of GEOS and of BSW. Unlike alot of companies, everyone works toward a common goal; to provide a quality product and to satisfy the customer.

I want to thank Keva and Angela, in Customer Service, for all the assistance they gave me and for taking the time out of their busy day to show me, and my wife, around. If you have any questions about GEOS call the Customer Service line, Monday - Friday, 9am to 3pm PST at (415)-644-0926, or contact one of the GEOREps on Q-Link. And I hope that you have enjoyed this little peek inside the offices at BSW.



Cartoon by Dale Beach

# GEOS

## FRIENDSHIPWARE FOR YOUR COMMODORE

BY JOHN TACKETT

Now I know what you are thinking... What in the world is Friendshipware??? Well, any program that introduces people to one another constitutes friendshipware and **GEOS** does just that.

When I first got **GEOS** a number of years ago there wasn't a lot of people using it. In fact some people were afraid to use it. They were overpowered by the icons and the new power it gave their 64's. As an early user and supporter of **GEOS** I became the unofficial GEOguru of my local user group and local BBS's. Seems there were a lot of questions that people had and because of this I created many a GEOfriendship, many of which continue years later.

As an example, through my local users group I met Jeff Gilmour (JeffreyG7) a fellow **GEOS** user. He had many questions and together we were able to expand his knowledge and use of **GEOS**. He then moved to Mass. to continue his education but through Q-Link we were able to keep in touch. We still exchange disks through the mail and communicate with each other.

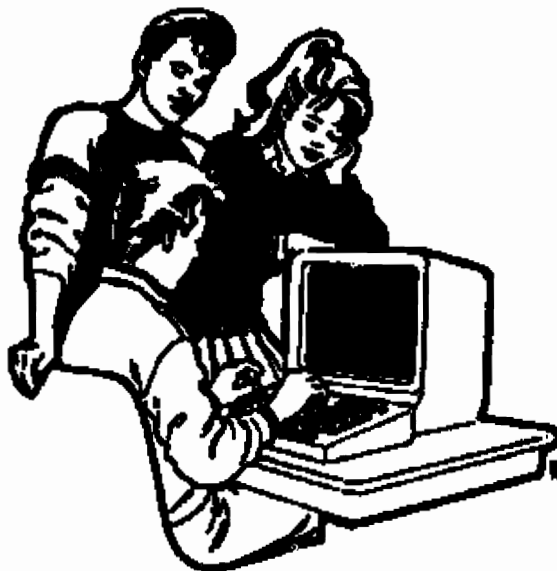
Another example... Last year I wrote an article for **GEOWORLD** about being a **GEOS** fanatic. Because of it I was introduced to two fellow Q-linkers from Canada, John Witherspoon (JohnW100) and Ernie Cox (ErnieC1). Because they too were GEOfanatics we had a lot in common and started to exchange disks. Even though I have never met these two men face-to-face I consider them to be my friends and look forward to the day we can meet one another.

And now that I have started dwelling into the world of desktop publishing with my newsletter, **VOYAGES**, I have been introduced to even more GEOfriends. Just recently I received a letter from a **GEOS**

user in Berlin, Germany. (How my newsletter ever got to Germany I wonder about, but thanks Peter for the piece of the wall.)

Now I have been a Commodore user for going on seven years now and I have never seen such a closeness and comradary that I have seen with **GEOS**. Sure Commodore users as a whole have always stuck together, but because of a piece of software? We may not always agree with **BSW**, or what we think of **GEOS** and its add-ons, but **GEOS** users support one another and are always happy to help one another. Don't believe me ... well check out the Customer Service Messages in the **GEOS** Arena on Q-Link. Notice how many questions and problems are answered by non-GEOREPS.

Well its time to go. Seems that I have to meet with another new **GEOS** user and introduce him to the friendly world of **GEOS**. Friendshipware, yeah I think it is. I would love to hear from more GEOfriends, just leave me a note on Q-Link, my name is JohnT27. Till then be happy and keep GEOSing.



# How to Expand Your REU to 1 or 2 Meg

*By Melvin Montgomery*

When Andrew Mileski uploaded his plans to upgrade a 1750 or 1764 REU to 1 or 2 meg on Q-LINK, it generated a lot of excitement among Commodore users. Then Jim Collette wrote configure 2.1 to allow GEOS to use an expanded REU as a 1581 RAM disk, it became a must have item to serious GEOS users.

Andrew was attempting to provide a way for people to make the complex modifications without having to etch a printed circuit board. Unfortunately most people either didn't want to use his method or didn't feel comfortable trying the modification themselves. I was swamped with requests to perform the modifications for people. I wanted something more substantial, especially if it were to survive the trip through the mail. So I designed a printed circuit board and made some improvements to the circuit.

The improvements consist of a bank of four dip switches which allow you to exclusively select any 512K section of RAM that you have installed in your REU. I originally put this modification in so that you could run a RAM test program written for a standard REU and be able to check all of your RAM in 512K sections at a time. But, I discovered another and more useful use for this feature. You can section off your REU with the switches and have RAMDOS in one section and a GEOS ram disk in another section (See figure 1). This way you can go to GEOS and not loose what is in your RAMDOS section by protecting it with the switches before booting GEOS and visa versa.

Switch Settings				Memory Available = <span style="display:inline-block; width:10px; height:10px; background-color:black;"></span>			
1	2	3	4	512K	1024K	1536K	2048K
off	off	on	off				
off	on	on	off				
on	off	on	off				
on	on	on	off				
on	off	off	off				
off	on	off	off				
off	off	off	off				

Figure 1.

I now have a kit available that consists of a pre-assembled logic board along with complete step by step instructions, solder, and optional RAM chips. To install the kit, you have to solder the ram chips in piggy-back fashion to the existing RAM chips, and attach 20 wires that come from the logic board to various places on the REU board. For those of you who would like to try doing the whole thing, I will give you

the details in the following paragraphs.

The chips required for the logic board are a 74F138, a 74F74, and a 74F139. In addition you need a four position dip switch, three 3.3K ohm resistors, about 30 feet of 30 gauge wire wrap wire, and two 28 pin IC sockets.

Circuit board shown actual size.

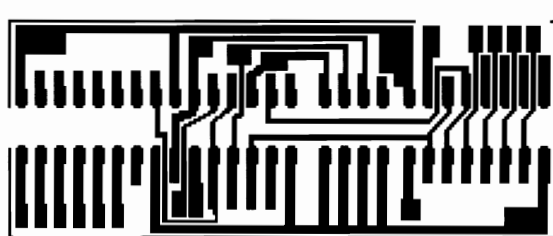


Figure 2.

Figure 2 shows the PC board layout. This board was designed for using an unconventional method of mounting standard components. I am using surface mount techniques with standard parts. The IC chip legs are all bent out to a 90 degree angle at the point where the leg narrows and is soldered directly to the pads on the board. This prevents having to drill all the holes necessary with the conventional method. The three resistors and the wires leading off the board are all attached in this same manner.

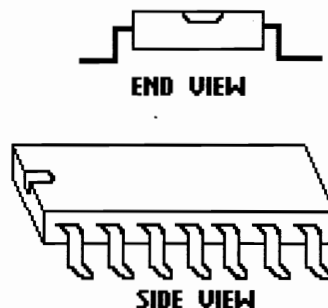


Figure 3.

Figure 3 illustrates how the leads for the chips and the dip switch should be bent prior to soldering to the board. Refer to figure 4 and carefully note the position



of the chips and the dip switch in relation to the PC board. One end of the each chip should have a small notch in it for orientation purposes. Notice the chip locations in figure 4 also have a notch. The dip switches should be positioned so that the "on" side is adjacent to the resistor mounting locations. Now solder the chips and the dip switch in their proper locations. You will find that if you solder one of the legs at the end of the chip first, then you can make align the chip up with all of it's solder pads by heating the one leg and repositioning the chip. Once it is properly aligned the first leg will hold the chip in position while you solder the rest of the legs.

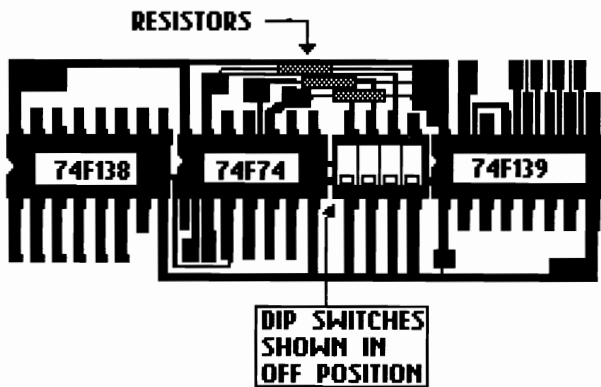


Figure 4.

Now you are ready to mount the resistors. If you look at figure 4, you will see the three resistors just above the 74F74 and the dip switches. On their right end, they all mount to one large pad. On their left end they each mount to a separate pad. Starting with the inner most resistor, lay it over the two pads that it will mount to so the body is centered between the two pads. Grasp one of the leads with a pair of needle nose pliers at the point where crosses over the edge of the pad and bend it 90 degrees. Grasp the bent end with very tip of the pliers right next to the bend and bend it back out straight again. Do the same to the other end. The result should be such that the ends can touch the pads on either end starting at the bend and the body will be spaced above the board between the pads. Now tin the two pads with a generous amount of solder. Hold the resistor in place with needle nose pliers and heat each end so that the solder on the pad melts and adheres to the resistor. After it is tacked in, you can go back and add more solder to each pad to insure a good mechanical bond to the resistor. Clip off the excess lead that extend beyond the pads. Repeat this procedure for the other two resistors. See figure 5 below.

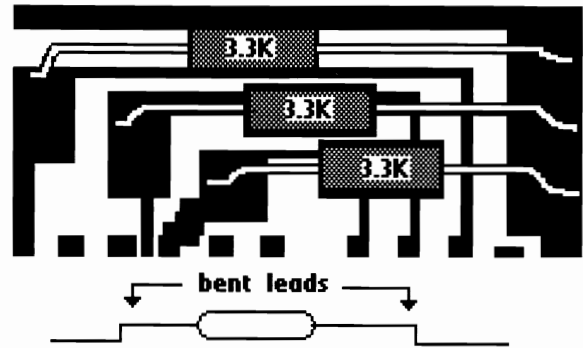


Figure 5. Enlarged view of resistor mounting and bent leads

You are now ready to attach the leads to the PC board. Cut 20 lengths of 30 gauge wire wrap wire 6 1/2 inches long and strip 1/4 inch of insulation from one end of each wire. Refer to figure 6 and generously tin all the pads that have labeled lines running from them. Lay the stripped end of a wire on each pad and heat it with the soldering iron until the solder melts and adheres to the wire.

Now that the leads are attached you are ready to mount the PC board to the REU board. Solder a 28 pin socket in the U18 location on the REU board. Turn the PC board over to the blank side and hot glue or epoxy a 28 pin socket to the PC board so that it is centered length wise and one end of the socket is adjacent to end of the PC board where the 74F139 is mounted. After the glue has set up, plug the socket with the board attached into the socket that was installed on the REU so the PC board overlaps the REC chip.

You are now ready to attach the leads to the REU. If the REC chip is square, refer to figure 6. If your REC chip is rectangular, refer to figure 7. Route each wire coming from the PC board to the corresponding point on the REU board with the exception of the cas bank wires. Cut the wire to the proper length, strip and solder it to the REU board.

If you are working with a 256K 1764, solder ram chips into chip locations U10 through U17 to make it 512K. Locate the "cas bank 0" and the "cas bank 1" lines coming from the PC board. route the cas bank 0 line to pin 15 of U9. Cut to size and strip about 3/16 inch of insulation from the wire and bend the stripped end to a 90 degree angle. Tin pin 15 of U9 and solder the cas bank 0 wire to pin 15 with its end pointing up. Make sure that the end doesn't extend above the top of the chip leg. If it does, clip the excess. Use the same procedure and solder the cas bank 1 line to pin 15 of U17.

Locate RP3 which is along the left side of the REU board just above and to the left of the REC chip (see figure 6 or 7). This component has 8 legs numbered 1 through 8, with pin 8 closest to the REC chip and pin 1 on the opposite end. Flip the REU over to the solder side and cut the traces leading away from pin 3 and pin 7 of

RP3. If you have the older style REU with the rectangular REC chip, The trace from RP3 pin 7 leaves from the component side of the REU board and loops over the top of U10 and terminates at a solder feed through just to the right of U10 pin 16. The best place to cut this trace is just to the left of U10.

This is a good time to test out your work up to this point. Your REU should work just like a standard 512K REU, but uses the circuitry on the logic PC board. I advocate testing the REU in steps as you go rather than waiting until you finish the whole thing. It is much easier to find and correct mistakes with this method. If this tests out ok, you are now ready to start adding the extra RAM.

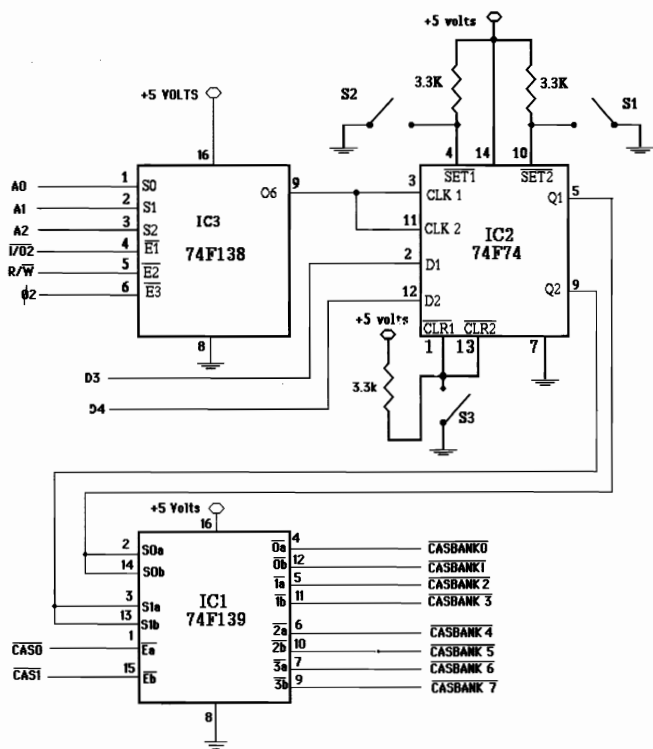
Bend leg 15 on each of 16 ram chips out to about a 30 to 45 degree angle. Looking at the top of the chip, you see a notch on one end. Pin 15 is the second leg from the end with the notch on the right side if you hold the chip with the notch end up. Cut 14 pieces of wire wrap wire 3 inches long and strip one inch of insulation from each end of each wire. Starting with U2, carefully place one of these ram chips on top of U2 so that corresponding legs overlap. Make sure the notched ends of both chips are on the same end. Now solder all the legs of the top chip to the legs of the bottom chip except pin 15 which was previously bent outward. Repeat this procedure for all of the remaining 15 chips. After all the chips are soldered on, connect pin 15 of U2 to pin 15 of U3 with one of the wires that was previously cut and stripped. Solder and cut of the excess leads. Now connect U3-15 to U4-15 with a wire and solder and clip the excess. Continue this process until you have U2 through U9

daisy chained together on pins 15. Do the same thing starting with U10 and continuing through U17. Route the line from the PC board labeled "cas bank 2" to pin 15 of the top chip at U9. Cut, strip, and solder this wire to pin 15. Route the line labeled "cas bank 3" to pin 15 of the top chip at U17. Cut strip and solder this wire to pin 15. Now it is time to test the REU again. You should now have access to 1024K of memory if you use GEOS with configure 2.1.

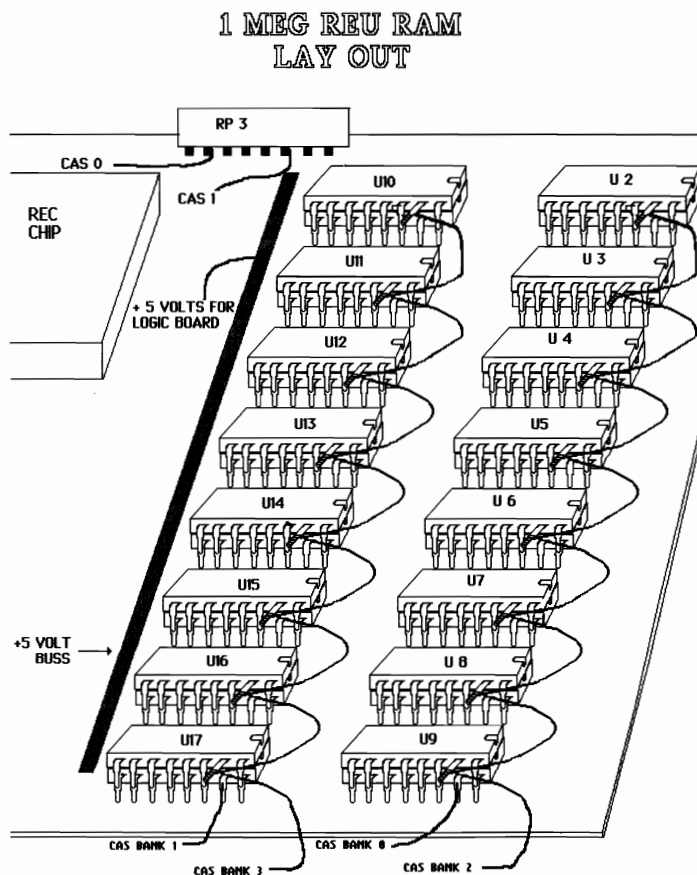
You may want to stop at this point as you have enough RAM to have a 1581 RAM disk under GEOS. If you want to add more RAM, just continue adding layers of memory chips just like you did previously and hook the even numbered cas bank lines to pins 15 of the chips over U9 and the odd numbered cas bank lines to the chips above U17. Be sure to check out the operation after adding each layer of RAM, because it is almost impossible to reach a chip leg that has a bad connection after you put on the next layer.

With careful attention to detail, you should have a working expanded REU at this point. If you don't want to etch your own board, I will sell you a board, the 3 chips, dip switch, and resistors for \$33 post paid. You can also purchase a kit with a completely assembled and tested logic board with 6 inch wires attached, solder, stripped wires for daisy chaining the RAM, a 28 pin socket, and complete detailed step by step instructions for \$54 post paid. I will also sell you the RAM chips if you need them. send a check or money order to:

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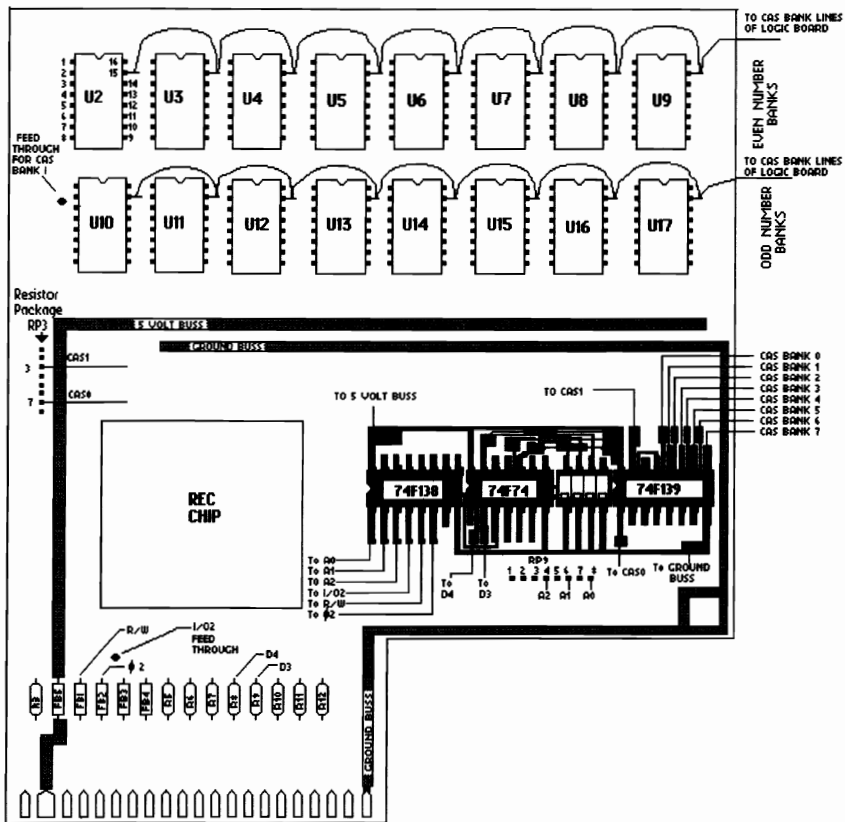


Figure 6

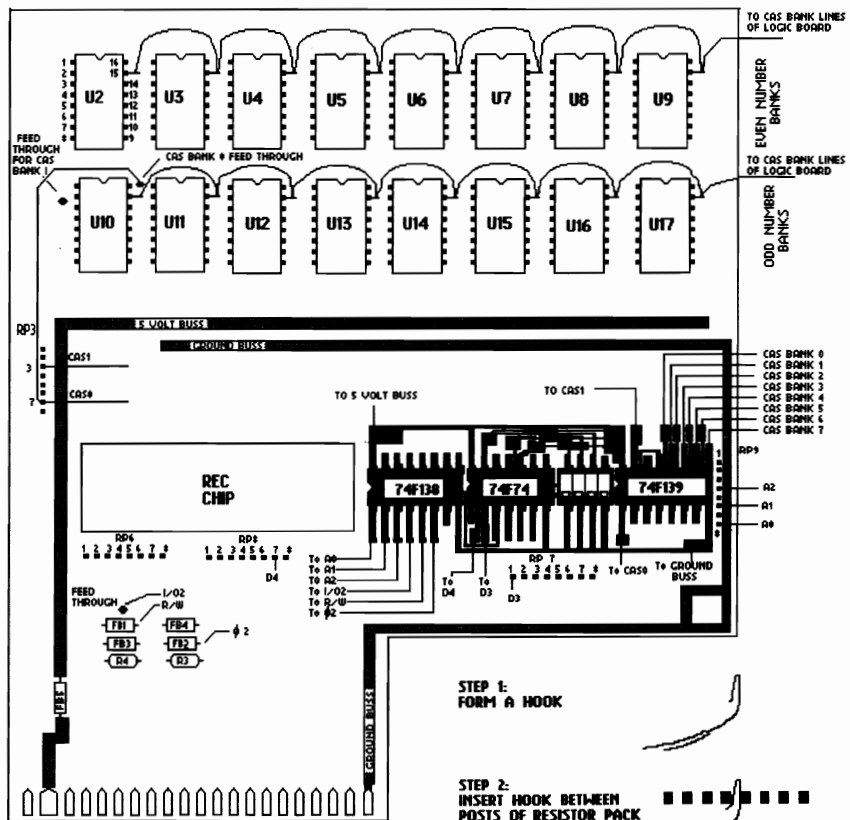


Figure 7

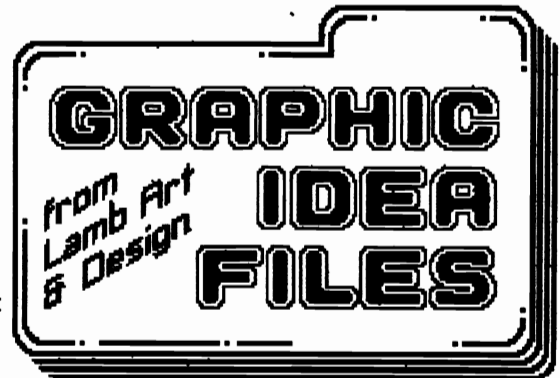
# WORLDWIDE

GeoStore is now open with a basic stock of items. We plan to eventually carry most products for the GEOS User. We'll be on the lookout for special purchases and hard-to-find commercial and third-party programs. We strongly believe in the GEOS community and feel it is ever-expanding while other Commodore interests diminish.

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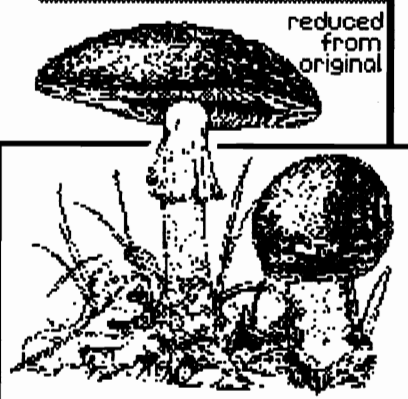
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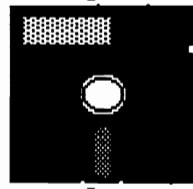
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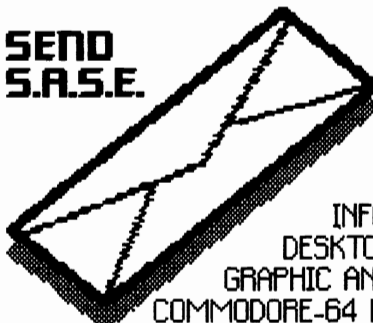
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# CMD

## Your Memory Location

# CMD

# HD Series™ Hard Drives

### THE NEW STANDARD IN 64/128 HARD DRIVES



The CMD HD series of hard drives for the Commodore 64 and 128 have been designed to provide the highest level of compatibility and performance. These drives incorporate the latest in SCSI technology with advanced circuit design to bring you the most features at an affordable price. CMD drives allow you to achieve the higher level of productivity you require to get the most from your existing software - today!

- Compatible with GEOS™, CP/M™, BBS programs and most commercial software.
- 3 1/2" SCSI technology for quiet reliable operation in a compact case about the size of a 1581.
- Built-in Commodore compatible DOS responds to all 1541, 1571 and 1581 commands.
- Up to 254 partitions in sizes ranging from 256 blocks to 65,280 blocks each.
- Built-in real time clock automatically time and date stamps all files.
- Compatible with Amiga, IBM and Macintosh systems for convenient upgrading.
- Connects easily to the serial bus, leaving ports open for use with cartridges, REU's and RAMLink.
- Supports all serial and JiffyDOS protocols, plus parallel interface for connection to RAMLink.
- Easy-to-use utilities allow backing up and copying files to and from 1541, 1571, or 1581 drives.
- Supports an unlimited number of true subdirectories which share all blocks within a partition.
- Built-in Q-Link software allows easy access to America's most popular 64/128 online service.
- External power supply avoids overheating and wear on computer power supply.
- Includes standard SCSI port and all utilities needed to expand the system (up to 4 Gigabytes).

HD-20 \$599.95 • HD-40 \$799.95 • HD-100 \$1149.95 • HD-200 \$1499.95

**SD Series SCSI Hard Drives** - Add-on drives for the CMD HD or any other SCSI interfaced computer such as the Amiga™, Macintosh™ or IBM™. SD series drives come mounted in our sturdy steel case and include an external power supply and connecting cable. SD drives also come equipped with a second SCSI port to allow chaining of additional SCSI devices.

SD-20 - \$449.95 SD-40 - \$549.95 SD-100 \$899.95 SD-200 \$1299.95

**Lt. Konnector** - Increase the performance and compatibility of your LTK and CMD HD. The Lt. Konnector allows you to connect the two drives for greater capacity. \$19.95 (\$14.95 with purchase of any HD or SD drive)

**JiffyMON** - A high performance Machine Language Monitor designed to work in conjunction with JiffyDOS. JiffyMON is loaded with useful features and can be used without exiting from BASIC. It also has a built-in drive monitor for easy access to drive memory. JiffyMON comes complete with a well documented user's manual and offers features just not found in other machine language monitors. \$19.95 + \$1 S/H

**Serial Cables** - 30' high quality serial cables. \$3.95 + \$1 S/H

**1541-II/1581 Replacement Power Supplies**

These switching power supplies are the same heavy duty, cool running units found on the HD series hard drive and are much more reliable than the supplies issued by Commodore as standard equipment. They are also repairable and reasonably priced. \$49.95 + \$6.00 S/H

- Supports CMD HD Series Hard Drives and RAMLink.
- 1581 support. Simplified partition selection.
- Quick printer output toggle. No more complicated command sequences.
- Adjustable sector interleave. Increase performance on hard-to-speedup software.

## JiffyDOS™ Version 6.0

### The Ultimate Disk Drive Speed Enhancement System

JiffyDOS 64 System - \$59.95 JiffyDOS 128 System - \$69.95

Each system includes computer Kernel ROM(s) and one drive ROM.

Please specify computer and drive model numbers and serial numbers when ordering.

Additional Drive ROMS - \$29.95 each.

- Ultra-fast multi-line serial technology. Enables JiffyDOS to outperform Cartridges, Burst ROMs, Turbo ROMs, and Parallel Systems - without any of the disadvantages.
- Speeds up all disk operations. Load, Save, Format, Scratch, Validate, access PRG, SEQ, REL,USR & direct-access files up to 15 times faster!
- 100% Compatibility Guarantee - Guaranteed to work with all Software and Hardware
- Uses no ports or extra cabling. ROMs install internally for speed and compatibility.
- Easy installation. No experience or special tools required for most systems.
- Supports C64, 64C, SX64, C128, C128D, 1541, 1541C, 1541-II, 1571, 1581
- Can be completely switched out. Returns you to a 100% stock configuration
- Built-in DOS Wedge. Plus 17 additional commands and convenience features.
- Built-in two drive file copier. Supports all file types and drive types.
- REU support. Fully supports Commodore REUs (RAM Expansion Units) under RAMDOS.
- Enhanced text screen dump. Auto-recognition of uppercase/graphics & lowercase.
- Redefinable 64-mode function keys. Easily redefine the keys to suit your specific needs.

### • SUPER SAVINGS COUPON •

## Any JiffyDOS System ONLY \$15.00\*

\*with the purchase of any HD hard drive

To receive these low prices (US & Canada), send in this coupon with your order. For ordering, shipping and credit card details see the adjoining box. Offer expires 2.31.91. This coupon may not be used with any other offer.

### Ordering Information and Shipping Charges

HD and SD Hard Drives:

Continental US: \$25.00 per drive (UPS ground), \$35.00 (2nd-Day), \$45.00 (Next-Day). Canada: \$50.00 (Airmail). COD to U.S. only \$4.00 add'l charge. Foreign prices: 20Mb, \$699.95, 40Mb, \$899.95, 100Mb, \$1249.95, 200Mb, \$1599.95 Postage: \$35.00

JiffyDOS & Lt. Konnector:

Add \$4.50 per order (UPS ground), \$8.50 (2nd-Day Air), plus \$4.00 for APO, FPO, AK, HI, and Canada, or \$14.50 for overseas orders. No additional shipping if ordered with any hard drive. COD's to US only - add'l \$4.00

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MA residents add 5% sales tax.

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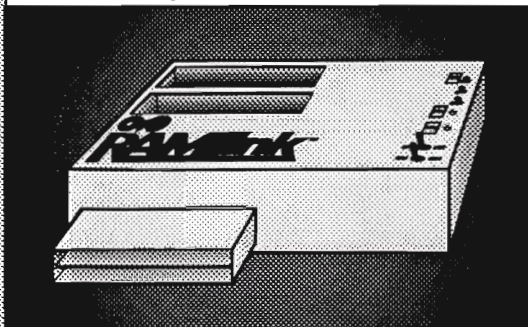
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Now accepting  
advance orders  
Call for details

# RAMLink™

Power-backed REU Interface and  
expandable RAM Disk



## What is RAMLink?

RAMLink is a multi-purpose hardware interface designed to overcome the limitations of existing RAM expansion units (REUs). RAMLink delivers the performance and compatibility lacking in past REU's by incorporating CMD's proprietary RL-DOS and advanced features into a compact unit which allows most software to utilize Commodore 1700 series REU's, GEORAM, PPI's RAMDrive, and CMD's RAMCard as if it were a disk drive. Optional RAMCard installs internally and can be used alone or in combination with the storage of an external REU for a maximum capacity of 16 Megabytes.

- Supports Commodore 1700, 1764, 1750, Berkeley Softworks GEORAM and PPI's RAMDrive.
- Optional RAMCard allows RAMLink to be used as a RAM Disk with or without a separate REU. User Expandable from 1 Mb to 16 Mb using standard SIMMs.
- Pass-thru connector allows use of cartridge port peripherals such as utility cartridges.
- Reset, Disable, Direct Access mode and SWAP functions are all standard features.
- RAM port provides power back-up to REU's.
- Parallel port provides ultra-fast data transfer when connected to CMD HD series hard drives.
- Includes separate power supply - optional battery available to protect against power failure.

RAMLink (w/out internal RAM)	\$149.95	RAMCard w/ (1 Mb)	\$149.95
RAMLink w/ RAMCard (1 Mb)	\$259.95	RAMCard w/(2 Mb)	\$239.95
RAMLink w/ RAMCard (2 Mb)	\$349.95	RAMCard w/ (3 Mb)	\$329.95
RAMLink w/ RAMCard (3 Mb)	\$439.95	RAMCard w/ (4 Mb)	\$419.95
RAMLink w/ RAMCard (4 Mb)	\$529.95	1 Mb SIMM (User Installed)	\$100.00
RAMLink Battery back-up unit	\$24.95	Parallel Cable for CMD HD	\$14.95

Shipping: US: \$10.00 (UPS), \$18.00 (2nd day), COD add \$4.00 Canada \$20.00

## BOTH RAMLINK AND RAMDRIVE INCLUDE RL-DOS

- Allows vast amounts of commercial software, including GEOS, to access all available RAM as a high-performance RAM Disk.
- RL DOS performs up to 20 times faster than Commodore RAMDOS, up to 400 times faster than a stock 1541 and provides full DOS command compatibility.
- Up to 32 1541/1571/1581 emulation or Native mode partitions, plus true subdirectories.
- Includes built-in JiffyDOS Kernel for high-speed access to JiffyDOS equipped disk drives.
- Software for copying files (FCOPY) and complete disks (MCOPI) included.
- Many other features, including CMD's exclusive device number SWAP functions.

## WHICH ONE IS RIGHT FOR YOU?

Both RAMLink and RAMDrive give Commodore users powerful features never before available in a RAM expander. RAMDrive is intended mainly for those who do not require the high RAM capacity of RAMLink ( up to 16 Mb ), RAMLink's Pass-Thru port or the parallel port for communicating with the CMD HD Series of hard drives. RAMdrive is an excellent choice for those who desire portability since the internal battery pack can keep the contents of RAMDrive intact for several days. RAMLink is the perfect choice for geoRAM owners who want the ability to use that device with programs other than GEOS. RAMLink has a built-in RAM port for easy use with a geoRAM or Commodore REU. No matter which CMD RAM device you select, you'll benefit from fantastic capabilities of having a high speed RAMDisk equipped with RL-DOS and the outstanding value of CMD support.

## What is RAMDrive?

RAMDrive is a fresh new approach to RAM expansion for the Commodore 64 and 128. RAMDrive is a self contained battery backed cartridge with capacities of 512K, 1 Mb and 2 Mb. RAMDrive incorporates RL-DOS, an ultra-fast, easy-to-use operating system similar to the HD-DOS found in CMD HD series hard drives. This proprietary DOS allows various types of partitioning along with compatibility and speed unsurpassed by previous RAM Expansion systems.

- Compatible with vast amounts of commercial software as an ultra-fast RAM disk.
- RL-DOS operates up to 20 times faster than Commodore's RAMDOS.
- Power back-up eliminates the loss of files upon powering down the computer while the battery protects data during transportation or power outages.
- Available in 512K, 1 Mb and 2 Mb models at incredibly low prices.
- DOS includes JiffyDOS Kernel routines for high speed disk access with JiffyDOS equipped disk drives.
- Software for copying and GEOS compatibility included.
- Reset switch allows computer reset without losing data in RAMDrive.
- Disable switch allows RAMDrive to be disabled at any time.

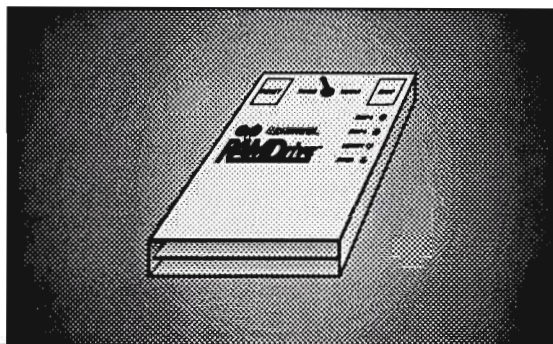
RAMDrive w/512K \$149.95    RAMDrive w/1 Mb \$199.95    RAMDrive w/2 Mb \$289.95

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# RAMDrive™

HIGH PERFORMANCE BATTERY  
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Designed and manufactured by  
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# CMD

# Announcing a Whole New Way of Working with GEOS

# CMD

## gateWay™

### Welcome to the gateWay

More than a replacement for the deskTop, the gateWay offers a unique, streamlined approach to file management under GEOS. With a resizable Note Pad, proportional slider and fuel gauge, the gateWay makes it easier to get where you're going.

We took a good hard look at the deskTop, then decided to create the gateWay. As a result, all the functionality of the deskTop can be found in the gateWay. But we weren't content to stop there. We added feature after feature - features that you, the serious GEOS user, have found lacking in the deskTop.

### Better Drive Support

Full three drive support with auto swapping for those applications which recognize only two drives. Imagine launching your favorite application from drive C! Copying to and from drive C without swapping drives! Drive C the way the deskTop should have handled it.

### Disk Drivers

Whether you use RAM expansion or not, the gateWay will make using different drives on your system easy by allowing you to integrate your device drivers directly into the gateWay itself. Not only will you save disk space, but you'll never have to worry whether there's a CONFIGURE on that work disk again. In fact, you'll never have to use CONFIGURE again! We've implemented the DISK DRIVER - now, rather than wasting disk space on drivers you don't need, simply copy the drivers you do require onto your boot disk and that's it. The gateWay will automatically determine which drives are on your system and mount them.

### Easy Disk Identification

The gateWay also allows you to individually define disk icons. Getting tired of that old 5.25 in. drive icon? With the gateWay you can define your own. Just select set disk icon from the Special menu and the drive's icon becomes that of the currently selected file! And the gateWay remembers - insert that disk later and the gateWay will display the icon you chose earlier.

### Full CMD Device Support

For CMD HD hard drives, RAMLink and RAMDrive owners the gateWay allows full access to these devices. Need access to 16 Mb of online storage, a subdirectory or a partition? Do it quickly and easily with the gateWay!

### High Capacity RAM Drivers

In addition to full support for RAMLink and RAMDrive, the gateWay provides disk drivers specifically for Commodore REU's and Berkeley Softworks' GEORAM. Forget about 1541 or 1571 sized RAM disks. The gateWay will determine how much RAM you have available and allow you to use as much as possible.

### An Integrated Control Panel

Choose your colors, gateWay pattern, input and printer drivers, set the time or activate the Switcher. All from within the Control Panel - always available because its part of the gateWay. The Control Panel includes a Chooser for selecting printer drivers, an option for activating and deactivating the Switcher, an area for setting the clock's date and time, and a General area for defining colors, background pattern, mouse and input controller parameters and your default Pad size.

### gateWay Documents

The gateWay supports a new file type - the gateWay document. These are programs which can be intergrated directly into the gateWay, instantly providing it with new capabilities! Imagine an integrated text scanner, or a photo viewer - with the gateWay, it's all possible.

### Task Switching

Do you use RAM expansion? Then you can access multiple tasks with GEOS. Our new Switcher (a gateWay document) allows two separate tasks to run concurrently. Imagine having GEOWRITE and GEOPAINT running at the same time. Imagine the ease with which you could paste graphics and text scraps between them. Plus the ability to quit from either application and launch another at any time. Only with the gateWay - a whole new integrated way of working with GEOS.

### Plus a Lot More...

Features like the fuel gauge to indicate used and available disk space. And a proportional slider gadget for moving quickly through the directory. Convenient Status boxes to indicate current copy or delete status and brand new disk and file Info boxes. Plus a file locating browse feature, pre-programmed redefinable function keys, RAM rebooting and a new Trash Can mechanism. Yes, at CMD there's a lot more going on than powerful new hardware development - we're creating the new ways to use it!

Notes: The gateWay requires a Commodore 64 or 128, minimum of one disk drive, a mouse or joystick and GEOS 2.0 for operation. Available first quarter of 1991. Orders are not yet being accepted. Initial versions of the gateWay will ship with RAMLink and RAMDrive. Projected retail prices for the gateWay are \$29.95 for gateWay 64, \$29.95 for gateWay 128 and \$39.95 for both versions. GEOS, GEOS 2.0, GEOS deskTop, GEOWRITE, GEOPAINT and GEOS CONFIGURE are registered trademarks of Berkeley Softworks, Inc. Commodore 64 and Commodore 128 are registered trademarks of Commodore International, Ltd. RAMLink, RAMDrive, CMD HD Series and gateWay are registered trademarks of Creative Micro Designs, Inc.